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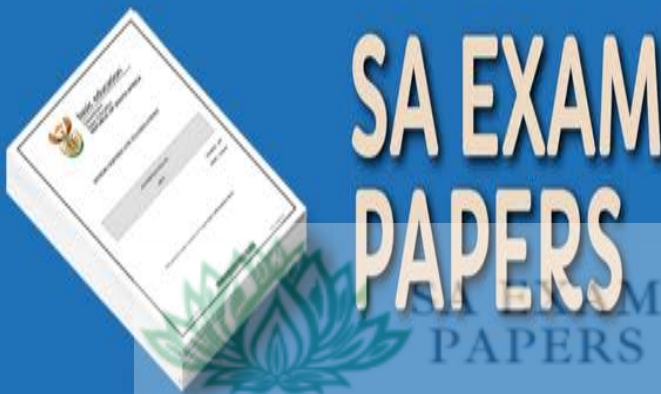


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# **basic education**

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## **SENIOR CERTIFICATE EXAMINATIONS/ NATIONAL SENIOR CERTIFICATE EXAMINATIONS**

**CIVIL TECHNOLOGY: WOODWORKING**

**2023**

**MARKING GUIDELINES**

**MARKS: 200**

**This marking guideline consists of 20 pages.**

**INSTRUCTIONS FOR THE MARKERS****1. Markers should:**

- Familiarise themselves with the question and answer before evaluating responses from 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 questions; these are (1) to explain and (2) to describe.
  1. If a candidate is required to explain a process in a specific number of steps, only the first required number of responses should be considered.
  2. However, if for example a 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.
- 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 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 ONLY be awarded if the answer has the correct unit as indicated in the question.
- Marks will only be allocated for the correct values if the candidates add are 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 must 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 provide 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 that was drawn. Do not consider labels for members that were provided with labels 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 two-dimensional drawing is required and a line diagram/pictorial/isometric drawing is drawn, members will be marked according to the assessment criteria and no marks will be awarded for the correctness of the drawing.
- If candidates draw/give more information than what is required, mark strictly according to the assessment criteria.
- The marks for the correctness of the drawing will only be awarded if the entire drawing with all members/parts is correctly drawn.

### **4. Incorrect numbering of questions:**

- If a candidate numbered an answer 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 incorrect 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** Safety features omitted from the scaffold are:

- Baseplate ✓
- Soleplate ✓
- Kickboard/Toe-board ✓
- Guardrails

**ANY THREE OF THE ABOVE****(3)****1.1.2** Platform used as displayed:

- Vertical standards will sink into the ground ✓
- Can cause the scaffold/platform to tilt over ✓
- Can cause injuries to workers
- Tools may fall from the scaffold on the workers below
- Workers can fall from the scaffold

**ANY TWO OF THE ABOVE****(2)****1.2** **1.2.1** Rust ✓**(1)****1.2.2** Zinc ✓**(1)****1.2.3** Keeping it moist ✓**(1)****1.2.4** Metal ✓**(1)****1.2.5** Plastic ✓**(1)****1.3** Height of guardrails (900 – 1 000 mm):

- To keep workers safe on the platform ✓
- To prevent workers from falling over the guard rails

**ANY ONE OF THE ABOVE****(1)****1.4** Precautions when storing a ladder:

- Store a ladder in a dry place after use ✓
- Never store material and equipment on a ladder
- Hang the ladder vertically/horizontally on wall brackets
- The ladder should be stored within easy reach

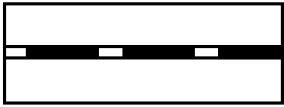
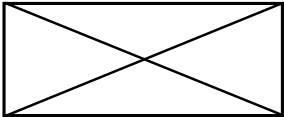
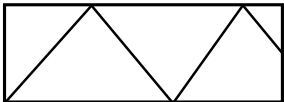
**ANY ONE OF THE ABOVE****(1)**

- 1.5 The operator must check if:
- The builders hoist is not overloaded ✓
  - The gates are shut when the device is being used
  - Overhead protection is provided
  - Material is stacked firmly and correctly
  - Emergency brakes are installed/operational
  - Safety measures are displayed inside the cage
- ANY ONE OF THE ABOVE** (1)
- 1.6 Any person/Fire fighters will be able to identify exactly what specific type of fire extinguisher to use in case of a fire. ✓ (1)
- 1.7 1.7.1 A – Hexagonal nut ✓  
 B – Square nut/Four-sided nut ✓  
 C – Wing nut /Butterfly nut ✓  
 D – Domed top/Domed nut/Dome nut/Acorn nut/Cap nut ✓ (4)
- 1.8 1.8.1 Tool that can be used:
- Laser level ✓
  - Spirit level with straight edge
  - Transparent pipe level
  - Dumpy level
- ANY ONE OF THE ABOVE** (1)
- 1.8.2 Tool that can be used:
- Dumpy level ✓
  - Laser level
- ANY ONE OF THE ABOVE** (1)
- [20]**

**QUESTION 2: GRAPHICS AS MEANS OF COMMUNICATION (GENERIC)**  
**ANSWER SHEET 2.**

NO.	QUESTIONS	ANSWERS	MARK
1	Name the FIGURE that represents the first floor. Give ONE reason for your answer.	First floor: A/FIGURE A ✓ <ul style="list-style-type: none"> <li>Garage in FIGURE B ✓</li> <li>No arrows indicated in the staircase in FIGURE A</li> <li>No ramp in FIGURE A</li> <li>Balcony in FIGURE A</li> <li>Staircase</li> </ul> <b>ANY ONE OF THE ABOVE ANSWER AND REASON</b>	2
2	Deduce from the building plan the number of windows in the building.	10 ✓	1
3	Identify number 1.	Balcony ✓	1
4	Identify number 2.	Shower ✓	1
5	Identify number 6.	One way switch – double pole ✓	1
6	Identify number 8.	Ramp ✓	1
7	Identify number 9.	Wall mounted light ✓	1
8	Identify number 10.	Wash tub ✓	1
9	Identify the number that indicates the garage door.	7 ✓	1
10	Deduce from the building plan the omitted dimension of number 11.	110 mm/110 ✓	1
11	Deduce from the building plan the material that must be used for number 5.	Concrete ✓	1



12	Give the abbreviations for the following: <ul style="list-style-type: none"> <li>Number 3</li> <li>Number 4</li> </ul>	Number 3: WC ✓ Number 4: WB/WHB ✓	2
13	Describe the purpose of a two-way switch.	Two-way switch: <ul style="list-style-type: none"> <li>Used to switch the same light on or off ✓</li> <li>From TWO different positions ✓</li> </ul>	2
14	Recommend an appropriate floor covering for the kitchen.	Tiles/Novilon/Concrete/Vinyl/ Painted floors/Laminated timber flooring/Timber floors ✓ <b>ANY ONE OF THE ABOVE</b>	1
15	Who was responsible for the checking of the drawing?	P Kriel ✓	1
16	Deduce ONE fault in the bathroom in FIGURE A.	No switch/electrical connection/wiring/light/door/door opening/bath/bidet ✓ <b>ANY ONE OF THE ABOVE</b>	1
17	Name an alternative light source that can be used during load shedding for a dwelling.	Rechargeable bulb/Candle/Paraffin lamp/Gas lamp/Battery powered lights/Torch/Solar/Cell phone ✓ <b>ANY ONE OF THE ABOVE</b>	1
18	State what was done during revision 1 and revision 2 of the house plan.	Revision 1: Drawing of Staircase ✓ Revision 2: Drawing of light fittings ✓	2
19	Name the finish for the ramp as prescribed by the architect.	Paving ✓	1
20	Draw the symbol for a damp-proof membrane.	 ✓✓	2
21	Draw the symbol for finished wood.	 ✓✓	2
22	Draw the symbol for hardcore filling.	 ✓✓	2



23	Prove by means of a control test that the total horizontal dimensions on the top and bottom of the plan in FIGURE A are the same.	<table><tr><th colspan="2">Total horizontal dimensions</th></tr><tr><th>Control test top</th><th>Control test bottom</th></tr><tr><td>220 ✓</td><td>220 ✓</td></tr><tr><td>4 110 ✓</td><td>4 820 ✓</td></tr><tr><td>3 510 ✓</td><td>3 020 ✓</td></tr><tr><td>220 ✓</td><td></td></tr><tr><td>= 8 060</td><td>= 8 060 ✓</td></tr></table> <p style="text-align: center;"><b>OR</b></p> <p>Top: 220 + 4 110 + 3 510 + 220 mm = 8 060 mm</p> <p>Bottom: 220 + 4 820 + 3 020 = 8 060 mm</p> <p><b>Note: If the alternative method is used, one mark should be allocated if both totals are the same.</b></p>	Total horizontal dimensions		Control test top	Control test bottom	220 ✓	220 ✓	4 110 ✓	4 820 ✓	3 510 ✓	3 020 ✓	220 ✓		= 8 060	= 8 060 ✓	8
Total horizontal dimensions																	
Control test top	Control test bottom																
220 ✓	220 ✓																
4 110 ✓	4 820 ✓																
3 510 ✓	3 020 ✓																
220 ✓																	
= 8 060	= 8 060 ✓																
24	Calculate the area of the floor plan in FIGURE B. Show ALL the calculations. Give your answer in m². Round your answer to TWO decimals.	<p>= 8,06 ✓ m x 6,05 ✓ m = 48,76 ✓ m²</p> <p><b>OR</b></p> <p>= 8 060 mm x 6 050 mm = 48,76 m²</p>	3														
		<b>TOTAL:</b>	<b>40</b>														

**QUESTION 3: CUPBOARDS, CASEMENTS, WALL-PANELLING AND QUANTITIES (SPECIFIC)**

3.1 3.1.1 Double casement with fanlight ✓ (1)

3.1.2 A - Frame head ✓

B - Bottom rail of fanlight ✓

C - Frame stile/Jambs ✓ (3)

3.2 3.2.1 A - Wall panelling board/Tongue and groove boards/Panels ✓

B - Horizontal rough ground ✓

C - Skirting ✓

D - Quadrant mould/Quarter round (4)

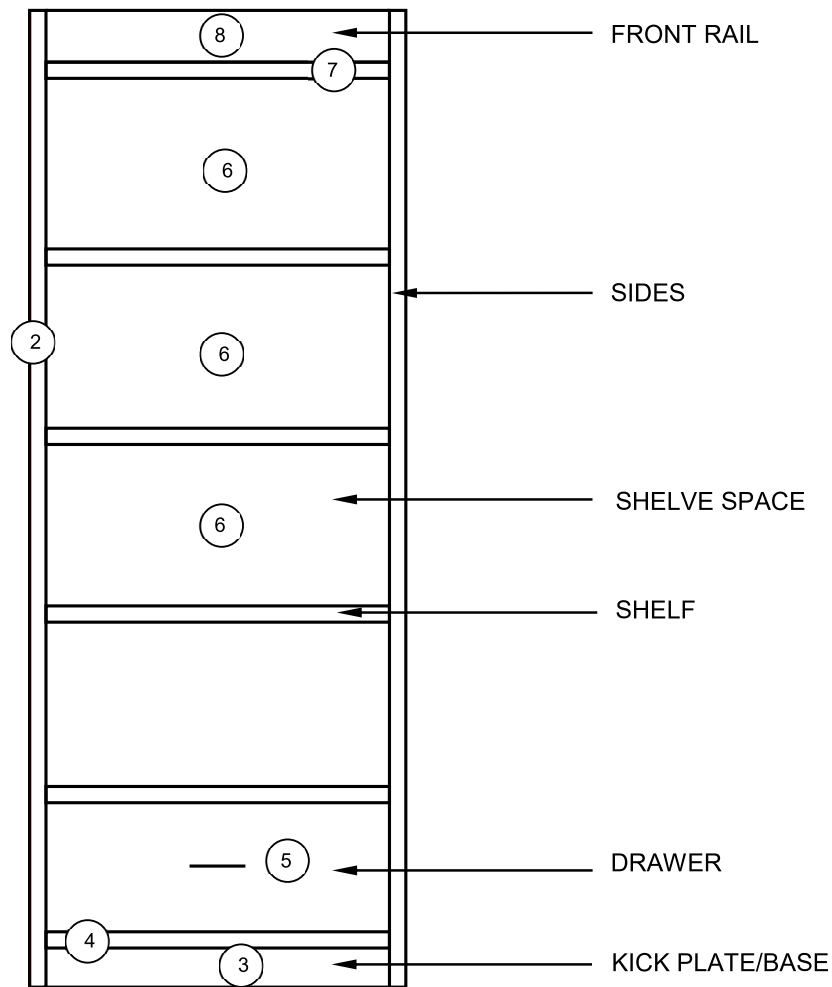
3.2.2 Tongue and groove boards/Panels are nailed to the rough grounds ✓ (1)

3.2.3 Wood/Timber ✓ (1)

3.3

A	B	C	D	
			Correct use of the dimension paper ✓	(1)
3.3.1			<b>Area of roof tiles needed:</b>	
	2/ ✓	8,74 ✓	Distance between barge/verge boards = 8 740 mm	
	<u>3,65</u> ✓	63,8 m <sup>2</sup> ✓	Length of rafter + overhang for gutter = 3 600 mm + 50 mm = 3 650 mm	(4)
			63,8 m <sup>2</sup> roof tiles needed	
3.3.2			<b>Number of roof trusses:</b>	
			<u>Internal dimension</u> Centre-to-centre spacing +1	
			8 000 ✓ 500 ✓ + 1 ✓	
			= 16 + 1 ✓	
			= 17 trusses ✓	(5)

3.4



CORRECTNESS OF CUPBOARD (1)

NO.	ASSESSMENT CRITERIA	MARK
1	Correctness of cupboard	1
2	Sides	1
3	Kick plate/Base	1
4	Bottom	1
5	Drawer with handle	1
6	Four shelf spaces	3
7	Top	1
8	Front rail	1
<b>TOTAL:</b>		<b>10</b>

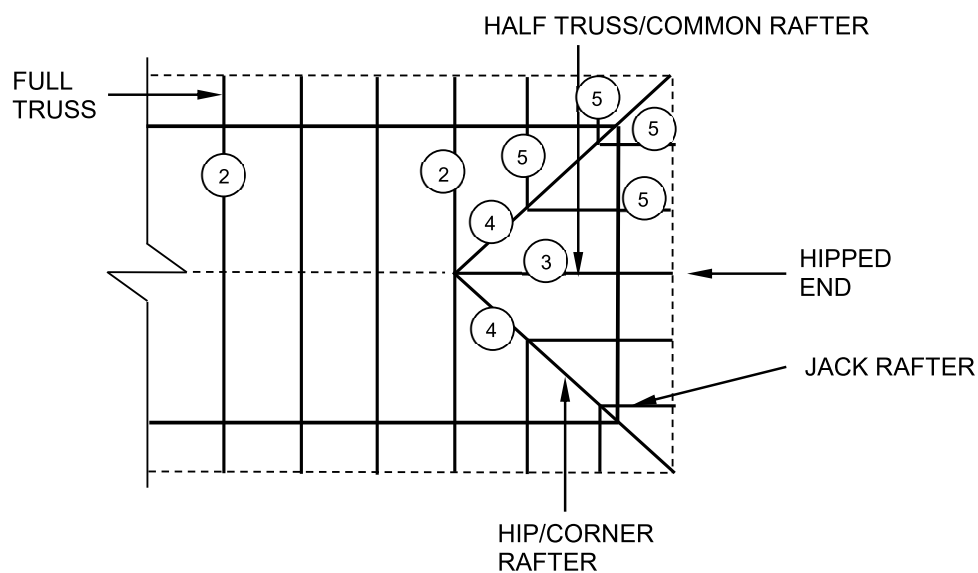
(10)  
[30]

**QUESTION 4: ROOFS, CEILINGS, TOOLS, EQUIPMENT AND MATERIALS  
(SPECIFIC)**

- 4.1      4.1.1      B ✓ (1)
- 4.1.2      L ✓ (1)
- 4.1.3      G ✓ (1)
- 4.1.4      E ✓ (1)
- 4.1.5      F ✓ (1)
- 4.1.6      J ✓ (1)
- 4.1.7      A ✓ (1)
- 4.1.8      D ✓ (1)
- 4.2      4.2.1      A – Electric planer ✓  
                         B – Combination belt and disc sander ✓ (2)
- 4.2.2      Ventilation holes should be open and clean. ✓ (1)
- 4.2.3      The sanding disc ✓ and the sanding belt ✓ (2)
- 4.3      The speed of the drill in the drill press will be determined by:
- The diameter of the drill ✓
  - The type/hardness of the material ✓
  - The position of the V-belt on the pulleys
- ANY TWO OF THE ABOVE** (2)
- 4.4      Attachments that can help when drilling with the drill press:
- 4.4.1      Drill press vice ✓ (1)
- 4.4.2      V-block ✓ (1)
- 4.5      Preservatives that can be used to preserve timber:
- Varnish ✓
  - Wax ✓
  - Oil
  - Lacquer
  - Paint
  - Sanding sealer/Wood primer
- ANY TWO OF THE ABOVE** (2)

- 4.6 Advantages of preserved timber:
- Enhance the appearance of timber ✓
  - Prevent fungal discolouration ✓
  - Prevent insect attacks
  - Prevent shrinkage
  - Prevent warping
  - Prevent rot
- ANY TWO OF THE ABOVE** (2)
- 4.7 Factors to take into consideration when choosing a preservative:
- Where the timber is going to be used ✓
  - How the timber is going to be used ✓
  - The species/type of wood
  - The location
  - The climate
- ANY TWO OF THE ABOVE** (2)
- 4.8 Reasons why timber should be graded:
- Timber should be graded to ensure it is suitable/strong enough for a specific use ✓
  - Because individual pieces of sawn timber vary in strength and stiffness
  - To ensure uniformity in the quality of timber, produced by different mills
- ANY ONE OF THE ABOVE** (1)
- 4.9 A conventional trap door consists of:
- Brandering/Battens ✓
  - Cover strips/T-cover strips/Metal T-strips ✓
  - Ceiling boards/Rhino board/Fibre cement board/Gypsum board/Block board/Metal ✓
  - Trap door/Trap door panel/Panel
  - Timber framework
- ANY THREE OF THE ABOVE** (3)
- 4.10 Roof coverings that can be used to cover roofs:
- IBR (inverted box rib) ✓
  - Corrugated iron sheeting ✓
  - Thatching reeds/grass
  - Corrugated/IBR transparent sheets (Polycarb)
  - Corrugated fiber-cement sheets
- ANY TWO OF THE ABOVE** (2)

4.11



CORRECTNESS OF ROOF LAYOUT (1) (1)

NO.	ASSESSMENT CRITERIA	MARK
1	Correctness of roof layout	2
2	Full trusses/Rafters	2
3	Half truss/Common rafter	1
4	Hip/Corner rafters	2
5	Jack rafters/Jack trusses	4
<b>TOTAL:</b>		<b>11</b>

(11)

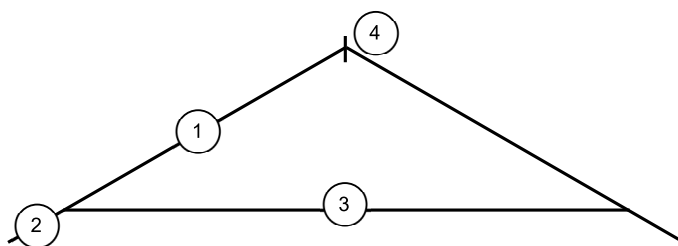
**[40]**

**QUESTION 5: CENTERING, FORMWORK, SHORING AND GRAPHICS AS MEANS OF COMMUNICATION (SPECIFIC)**

- 5.1      5.1.1      B ✓ (1)
- 5.1.2      C ✓ (1)
- 5.1.3      D ✓ (1)
- 5.1.4      B ✓ (1)
- 5.1.5      A ✓ (1)
- 5.2      Steel shuttering for formwork:
- The size ✓
  - The patterns ✓
  - Suitable for repetitive use
  - Stronger than timber
  - More suitable for circular and curved structures
  - Can carry the load of fresh concrete better
  - Type of finish needed
  - Panels can be manufactured in large numbers
  - Panels can be manufacture in any desired modular shape
  - Lends a smooth finish to the surface of the column
  - Saves cost because no surface finishing is needed
  - Erected and dismantled with greater ease than timber formwork
  - No absorption of moisture
  - No shrinking and/or warping
- ANY TWO OF THE ABOVE** (2)
- 5.3      5.3.1      Folding wedges ✓ and a sole plate ✓ (2)
- 5.3.2      Steel dogs are used to secure the joint between props and needles. ✓ (1)

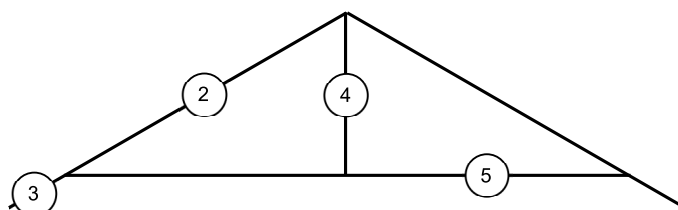


5.4



CLOSED-COUPLE ROOF TRUSS

NO.	ASSESSMENT CRITERIA	MARK
1	Rafter	1
2	Overhang of rafter	1
3	Tie Beam	1
4	Ridge beam	1
TOTAL:		4



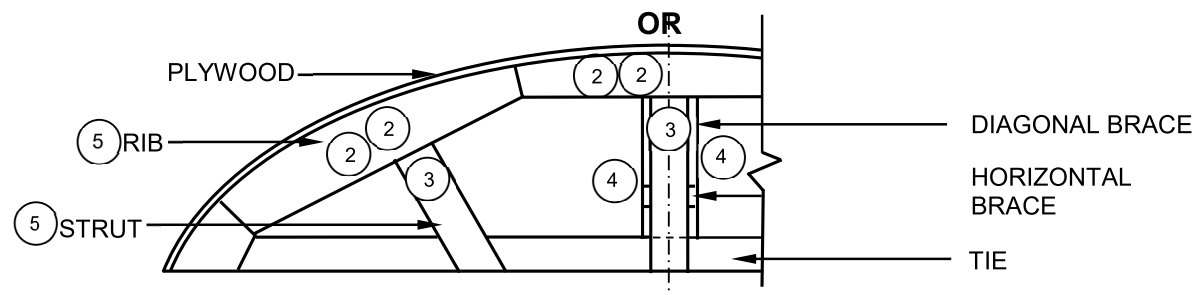
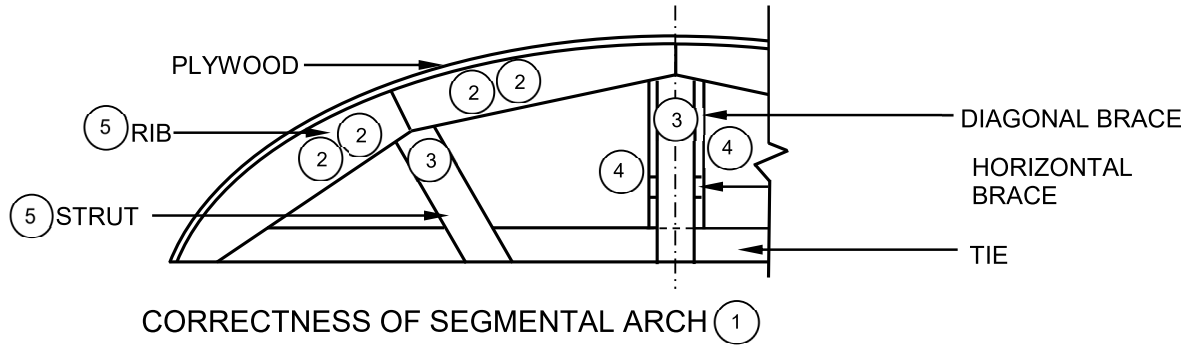
KING POST ROOF TRUSS

CORRECTNESS OF ROOF TRUSSES (1)

NO.	ASSESSMENT CRITERIA	MARK
1	Correctness of roof trusses	1
2	Rafter	1
3	Overhang of rafters	1
4	King post	1
5	Tie Beam	1
TOTAL:		5

(9)

5.5



NO.	ASSESSMENT CRITERIA	MARK
1	Correctness of segmental arch	1
2	Ribs	4
3	Struts	2
4	Horizontal and diagonal brace	2
5	Any TWO labels	2
<b>TOTAL:</b>		<b>11</b>

(11)

**[30]**

**QUESTION 6: SUSPENDED FLOORS, STEIRCASES, IRONMONGERY, DOORS AND JOINING (SPECIFIC)**

6.1 6.1.1 Mortise lock ✓ (1)

6.1.2 Mortise locks are used for:

- Doors ✓
- Entrance doors
- Front doors
- Back doors
- Internal doors
- Large doors
- Thicker doors
- Panel doors

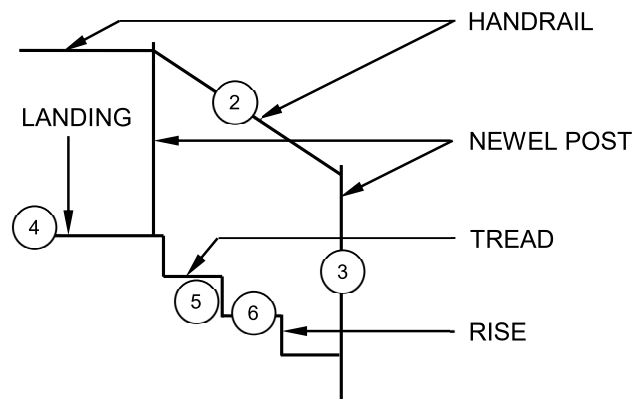
**ANY ONE OF THE ABOVE** (1)

6.1.3 Rim lock ✓ (1)

6.2 6.2.1 Hinges ✓ (1)

6.2.2 Screws ✓ (1)

6.3

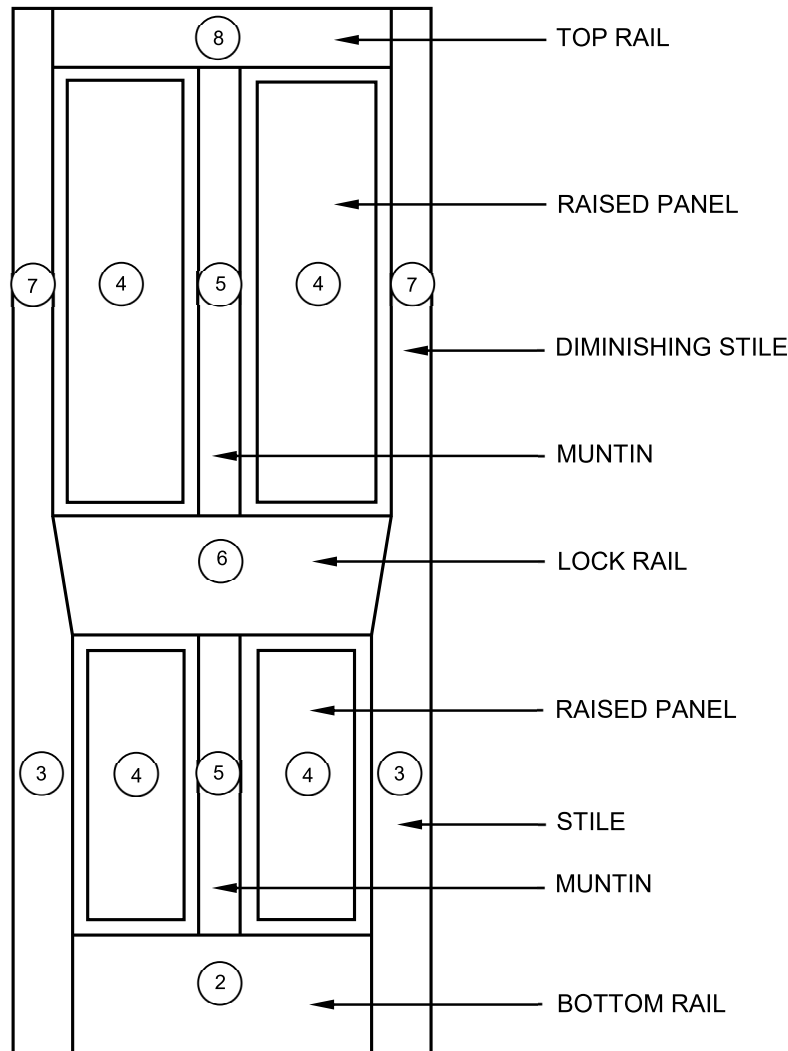


CORRECTNESS OF STAIRCASE (1)

NO.	ASSESSMENT CRITERIA	MARK
1	Correctness of staircase	1
2	Handrail	1
3	Newel post	1
4	Landing	1
5	Rise (FOUR)	1
6	Tread (THREE)	1
<b>TOTAL:</b>		<b>6</b>

(6)

6.4



CORRECTNESS OF DOOR (1) (1)  
 APPLICATION OF SCALE (9) (9) (9)

**NOT TO SCALE: USE A MASK TO MARK THIS QUESTION**

NO	ASSESSMENT CRITERIA	MARK
1	Correctness of door	2
2	Bottom rail	1
3	Stiles	2
4	Raised panels	4
5	Muntins	2
6	Lock rail	1
7	Diminishing stiles	2
8	Top rail	1
9	Application of scale: ONE or TWO incorrect = 3 THREE or FOUR incorrect = 2 More than FIVE incorrect = 1 NO measurements correct = 0	3
<b>TOTAL:</b>		<b>18</b>

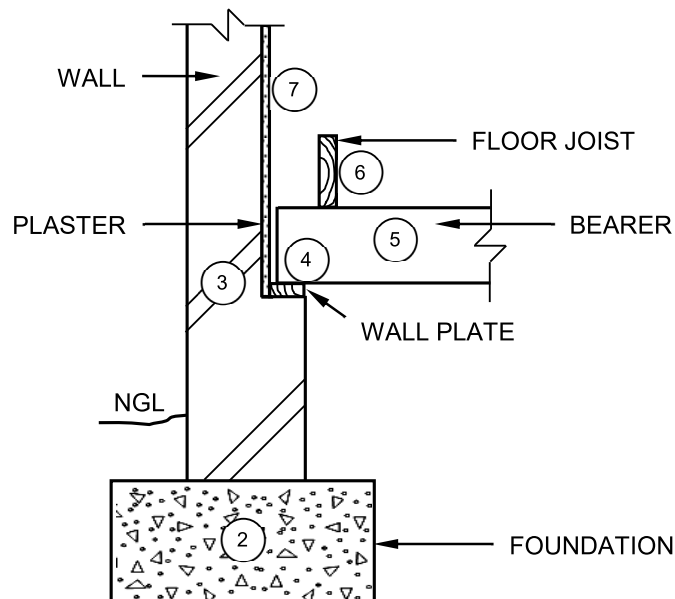
(18)

- 6.5 6.5.1
- Hatching of the wall is incorrect/indicates timber ✓
  - There is no wall plate ✓
  - Plaster is not against the wall ✓
  - Floor joist is the wrong way around ✓
  - Foundation is incorrectly placed
  - Wall built in wrong position
  - No clearance/opening between bearer/floor joist and plaster

**ANY FOUR OF THE ABOVE**

(4)

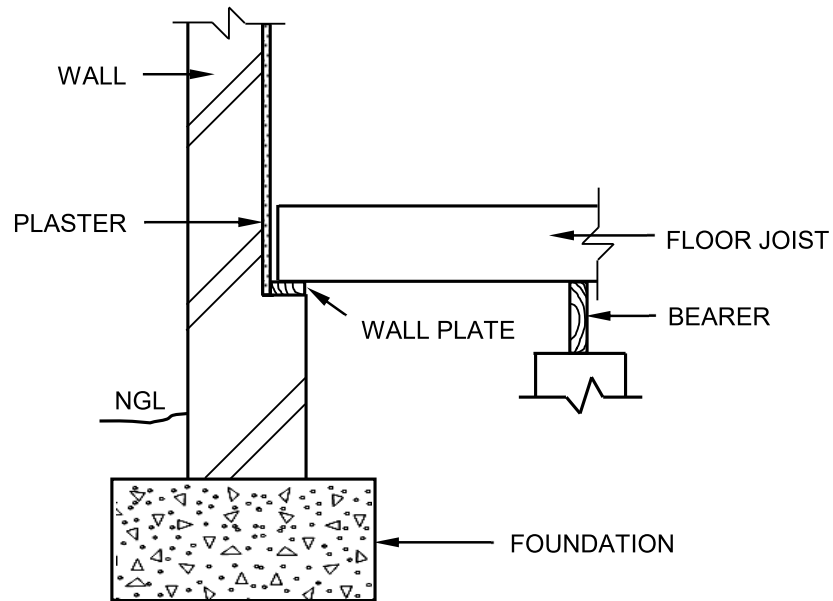
6.5.2



CORRECTNESS OF FLOOR CONSTRUCTION (1)

NO.	ASSESSMENT CRITERIA	MARK
1	Correctness of floor construction	1
2	Foundation	1
3	Hatching of wall	1
4	Wall plate	1
5	Bearer	1
6	Floor joist	1
7	Plaster	1
	<b>TOTAL:</b>	<b>7</b>

**OR**



NO.	ASSESSMENT CRITERIA	MARK
1	Correctness of floor construction	1
2	Foundation	1
3	Hatching of wall	1
4	Wall plate	1
5	Bearer	1
6	Floor joist	1
7	Plaster	1
<b>TOTAL:</b>		<b>7</b>

(7)  
[40]**TOTAL: 200**