



# basic education

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

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

**CIVIL TECHNOLOGY: WOODWORKING**

**MAY/JUNE 2024**

**MARKING GUIDELINES**

**MARKS: 200**

**These marking guidelines consist of 21 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 questions; these are (1) to describe and (2) to explain.
  1. If a candidate is required to explain e.g., a process in 4 steps, only the first 4 responses should be considered.
  2. However, if for example candidate is required to explain or describe a process, we need to consider that 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 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 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 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 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. 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.

**4. Incorrect numbering of questions:**

- If a candidate numbered an incorrectly, but the answer is in the correct position according to the sequence of the questions in the question paper, circle then 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:**

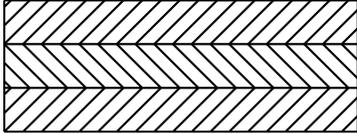
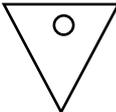
- If a question is answered twice, mark the first response.
- If a question should be answered on an answer sheet and the candidate answered it on both the answer sheet and in the answer book, mark the response on the answer sheet and cancel the response in the answer book.
- If the question was answered 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	D ✓	(1)
	1.1.2	D ✓	(1)
	1.1.3	B ✓	(1)
	1.1.4	C ✓	(1)
	1.1.5	B ✓	(1)
	1.1.6	B ✓	(1)
	1.1.7	A ✓	(1)
	1.1.8	D ✓	(1)
	1.1.9	C ✓	(1)
	1.1.10	A ✓	(1)
	1.1.11	B ✓	(1)
	1.1.12	A ✓	(1)
1.2.	1.2.1	Rawl plugs/Plastic plugs with screws/Coach screws/Lag bolts ✓	(1)
	1.2.2	Rawl plugs/Plastic plugs with screws/Coach screws/Lag bolts: <ul style="list-style-type: none"> <li>• Are strong fasteners ✓</li> <li>• Resist pull out failure ✓</li> <li>• Have excellent carrying capacity</li> <li>• Easy to install</li> <li>• Are cost effective</li> </ul> <b>ANY TWO OF THE ABOVE</b>	(2)
	1.2.3	<ul style="list-style-type: none"> <li>• Drill holes/Drill holes and remove the debris ✓</li> <li>• Position the cabinet and insert the rawl plugs/plastic plugs into the holes through the cabinet ✓ OR Insert plastic plugs into the holes, position the cabinet and insert the joining fixtures into the holes through the cabinet</li> <li>• Tighten the screws/Insert the screws into the holes and tighten the screws ✓</li> </ul>	(3)
1.3.	1.3.1	Multi detector ✓	(1)
	1.3.2	Laser level/Spirit level ✓	(1)
			<b>[20]</b>

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

NO.	QUESTIONS	ANSWERS	MARKS
1.	Name the type of building that is illustrated by FIGURE A.	Multi-storey building/ Three-storey building ✓	1
2.	Deduce from the building plan the elevation on which the sink is located.	North elevation/North ✓	1
3.	Identify number 1.	Ridge capping/Ridge/Roof/ Roof covering/Hipped end ✓	1
4.	Why are balusters installed at number 2?	To prevent people from falling off ✓	1
5.	What type of material was specified for number 3?	Laminated safety glass/Safety glass ✓	1
6.	Recommend ONE suitable material for number 4.	Timber/Fibre cement ✓	1
7.	Who is the owner of the proposed dwelling?	Mr P Xhosa ✓	1
8.	Identify the number that indicates the downpipe.	5 ✓	1
9.	Name ONE other sanitary fixture, besides a washbasin, that can be installed in the bathroom.	Shower/Bath/Bidet/Urinal ✓	1
10.	Identify number 7.	Distribution board/DB ✓	1
11.	Describe the purpose of number 8.	To access the garage with a vehicle ✓	1
12.	How many fluorescent tubes are indicated in the building?	1 ✓	1
13.	Name the street in which the new building will be erected.	Protea Street ✓	1

14.	What type of finish was specified for the walls?	Stone cladding ✓	1
15.	Deduce from the building plan why it was revised.	Drawing of balustrades/Balustrades were not drawn ✓	1
16.	What must be installed to gain access to the first and second floor?	Stairs ✓	1
17.	Deduce from the building plan who must sign off the building plan.	Architect ✓ and Client ✓	2
18.	What are the prescribed dimensions for the balusters?	40 mm x 40 mm x 1 200 mm ✓	1
19.	How many hinged window openings are indicated on window 2 in the window schedule?	1 ✓	1
20.	Provide a reason for installing solar panels on the roof.	<ul style="list-style-type: none"> <li>• To have electricity during load shedding ✓</li> <li>• To save on electricity cost</li> <li>• To be independent from electricity providers</li> <li>• To ensure exposure to sun light</li> </ul>	1
21.	The interior door frames are covered with plywood. Draw the symbol for plywood.		2
22.	Draw the symbol for a wall mounted urinal.		2
23.	Describe the top end shape of the baluster.	Square ✓	1

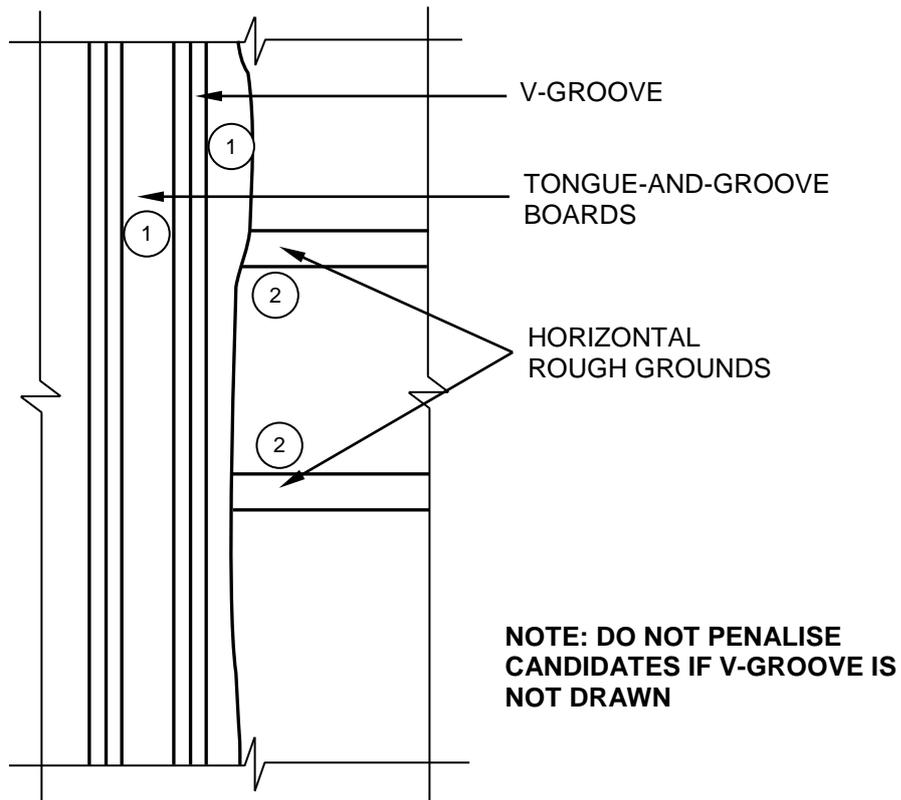
<p>24.</p>	<p>Calculate the total height of the building from the finished floor level up to the top of the roof. Give your answer in m.</p>	$2,6 \checkmark + 0,17 \checkmark + 2,6 \checkmark + 0,17 \checkmark + 2,6 \checkmark + 1,8 \text{ m} \checkmark$ $= 9,94 \checkmark \text{ m}$ <p style="text-align: center;"><b>OR</b></p> $2\ 600 + 170 + 2\ 600 + 170 + 2\ 600 + 1\ 800 \text{ mm}$ $= 9\ 940 \text{ mm}$ $= 9,94 \text{ m}$	<p>7</p>
<p>25.</p>	<p>Calculate the area of the external wall of the second floor from the top of the floor up to roof height in the west elevation in FIGURE A. Show ALL calculations Give your answer in m<sup>2</sup>.</p>	$= (2,6 \checkmark \times 12 \checkmark) - (2,1 \checkmark \times 1,8 \checkmark)$ $= 31,2 \checkmark - 3,78 \text{ m}^2 \checkmark$ $= 27,42 \checkmark \text{ m}^2$ <p style="text-align: center;"><b>OR</b></p> $= (2\ 600 \times 12\ 000) - (2\ 100 \times 1\ 800)$ $= 31\ 200\ 000 - 3\ 780\ 000 \text{ mm}^2$ $= 27\ 420\ 000 \text{ m}^2$ $= 27,42 \text{ m}^2$	<p>7</p>
<b>TOTAL:</b>			<p><b>40</b></p>

**QUESTION 3: CUPBOARDS, CASEMENTS, WALL-PANELING AND QUANTITIES (SPECIFICS)**

- 3.1 3.1.1 A - Window pane/Glass ✓  
C - Top rail of casement/Top rail ✓ (2)
- 3.1.2 To keep the window pane in place. ✓ (1)

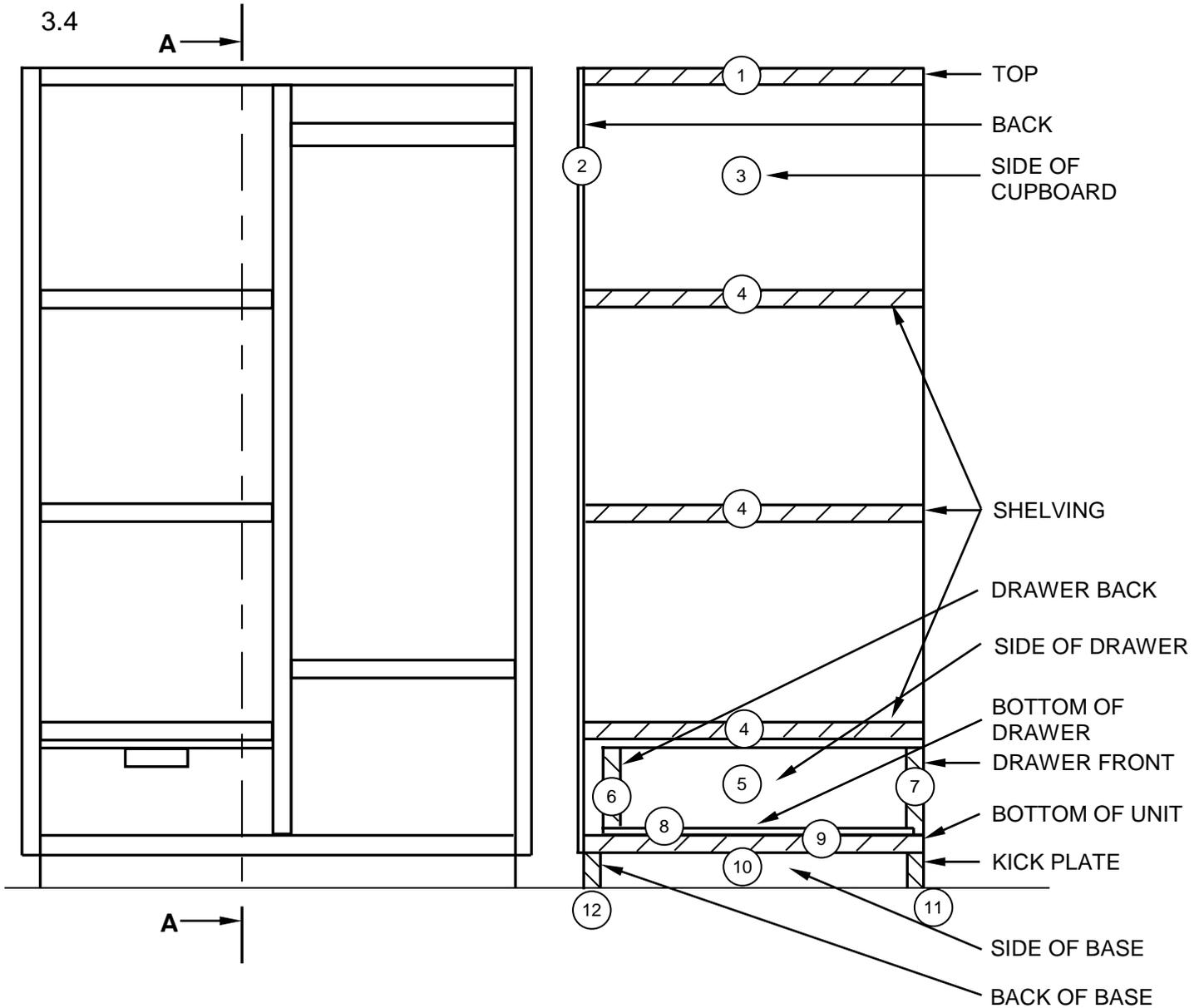
	A	B	C	D	
3.2.1				<b>Number of queen posts:</b>	
	7/ ✓	2 ✓	14 ✓	= 7 x 2	
				= 14 queen posts	(3)
3.2.2				<b>Number of tie beams:</b>	
	7/	1 ✓	7 ✓	= 7 x 1	
				= 7 tie beams	(2)
3.2.3				<b>Total length of timber required for the tie beams:</b>	
				Length of a tie beam is 5 320 mm	
	7/ ✓	5,32 ✓	37,24 m ✓	37,24 m timber needed	(3)
				Correct use of dimension paper ✓	(1)

3.3



NO.	ASSESSMENT CRITERIA	MARK
1	Tongue and groove boards	2
2	Horizontal rough grounds	2
	<b>TOTAL:</b>	<b>4</b>

(4)



NO.	ASSESSMENT CRITERIA	MARK
1	Top	1
2	Back (Thinner than melamine boards)	1
3	Side of cupboard (1 x mark if front is closed)	1
4	Shelving	3
5	Side of drawer	1
6	Drawer back	1
7	Drawer front	1
8	Drawer bottom (Thinner than melamine boards)	1
9	Bottom of unit	1
10	Side of base	1
11	Kick plate	1
12	Back of base	1
<b>TOTAL:</b>		<b>14</b>

(14)  
[30]

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

- |     |   |                   |     |
|-----|---|-------------------|-----|
| 4.1 | 4.1.1   | G ✓               | (1) |
|     | 4.1.2   | C ✓               | (1) |
|     | 4.1.3   | H ✓               | (1) |
|     | 4.1.4   | F ✓               | (1) |
|     | 4.1.5   | A ✓               | (1) |
| 4.2 | 4.2.1   | Number/Code ✓     | (1) |
|     | 4.2.2   | turpentine ✓      | (1) |
|     | 4.2.3   | Linseed oil ✓     | (1) |
|     | 4.2.4   | beetles/insects ✓ | (1) |
|     | 4.2.5   | groove ✓          | (1) |
| 4.3 | Constructing a conventional trap door:  |                   |     |
|     | • Cut two pieces of branderings to size and secure it over/under/to two tie beams ✓   |                   |     |
|     | • Cut two pieces of branderings and secure them between the two branderings that was installed over/under/to the tie beams to form a square ✓ |                   |     |
|     | • Cut the hole in the ceiling boards and secure ceiling boards in position ✓  |                   |     |
|     | • Install the cover strips to finish off the frame ✓  |                   |     |
|     | • Cut the ceiling board for the trapdoor to size and fit into opening to rest on cover strip ✓  |                   | (5) |

4.4

<b>ADVANTAGES</b>	<b>DISADVANTAGES</b>
<ul style="list-style-type: none"><li>• Cool in summer and warm in winter ✓</li><li>• Ideally suited for roofs that have irregular profiles and complications or appear more 'organic' ✓</li><li>• Requires less timber for the roof structure</li><li>• Does not need ceilings</li></ul>	<ul style="list-style-type: none"><li>• Extremely vulnerable to fire and must be treated with fireproof chemicals before use ✓</li><li>• More expensive to install than ordinary roofing because thatching is a labour intensive activity ✓</li><li>• Demands more maintenance</li><li>• Susceptible to decay because thatch is an organic material</li><li>• Ridge capping needs to be rethatched every four to six years</li><li>• Can cause allergies</li></ul>

**ANY TWO OF EACH OF THE ABOVE**

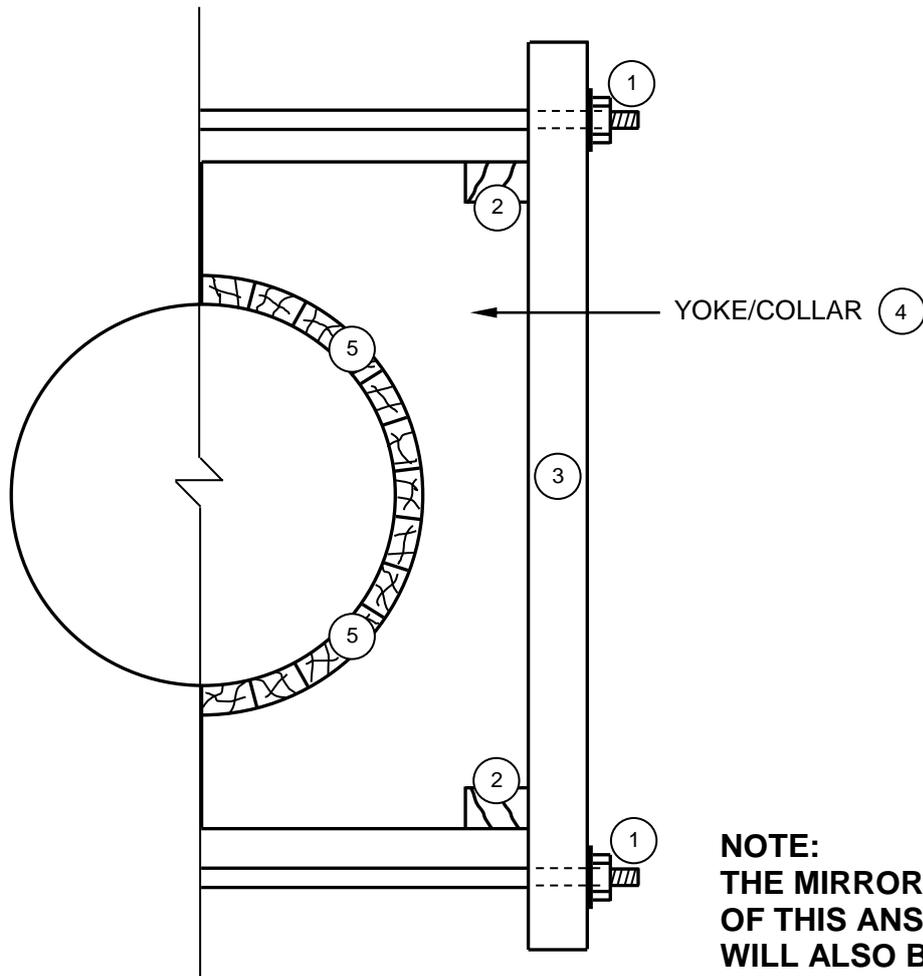
(4)

- 4.5 Installing of thatch roof:
- Nail the rafter poles to the roof trusses ✓
  - Place a layer of special aluminium foil or other fireproof material on top of the rafter poles ✓
  - Use bundles of clean, dry, high-quality thatch and fix them to the rafter poles using baling or tie wire ✓
  - Finish/Install the ridge capping ✓ (4)
- 4.6 4.6.1 **A** - Hurricane clip ✓  
**B** - Storm clip ✓ (2)
- 4.6.2 **A** - Hurricane clip:
- To fix purlins to roof trusses ✓
  - To fix trusses to wall plates ✓
  - To fix opposite faces of members
  - Where members of a truss cross each other
  - Ideally used at eave overhangs
- ANY TWO OF THE ABOVE** (2)
- B** - Storm clip:
- To secure roof tiles to brandering ✓
  - To fasten ridge tiles to each other ✓
  - To fasten ceiling tiles
  - To prevent clay and concrete tiles from being lifted by strong winds
- ANY TWO OF THE ABOVE** (2)
- 4.7 To prevent leaking at nail or screw:
- Neoprene washer ✓
  - Rubber washer
  - Roofing caps
  - Cap roof seal
  - Sealing tape
- ANY ONE OF THE ABOVE** (1)
- 4.8
- 45° ✓
  - 90° ✓ (2)
- 4.9 Members for closed eave:
- Vertical hangers/Soffit hangers ✓
  - Horizontal soffit hangers/Soffit hangers ✓
  - Soffit boards/Fibre-cement boards ✓
  - Quarter-rounds ✓ (4)

- 4.10 4.10.1 Determine cutting speed of jigsaw:
- The type of wood/timber/material to be cut ✓
  - The thickness of the wood/timber/material
  - The type of blade to be used
  - The cutting speed can be controlled by listening to the sound of the motor
- ANY ONE OF THE ABOVE** (1)
- 4.10.2 Why pre-cuts are needed:
- To prevent the blade from bending ✓
  - To prevent the blade from getting stuck
  - To prevent the blade from breaking
  - To prevent the material from getting damaged
  - To ensure the accuracy of the cut
- ANY ONE OF THE ABOVE** (1)
- 4.10.3
- Drill a hole through the wood on the inside of the circle ✓
  - Insert the blade of the jigsaw through the hole in the wood and start cutting along the marked line ✓
- (2)  
**[40]**

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

- 5.1 Timber/Wood ✓ (1)
- 5.2 Props/Struts/Dead shores ✓ (1)
- 5.3 Dead shores:  
Steel dogs secures the joint between the prop and needle. ✓
- Double flying shore:  
Steel dogs secures the braces and vertical struts to the horizontal shores. ✓ (2)
- 5.4 Folding wedges ✓ (1)
- 5.5

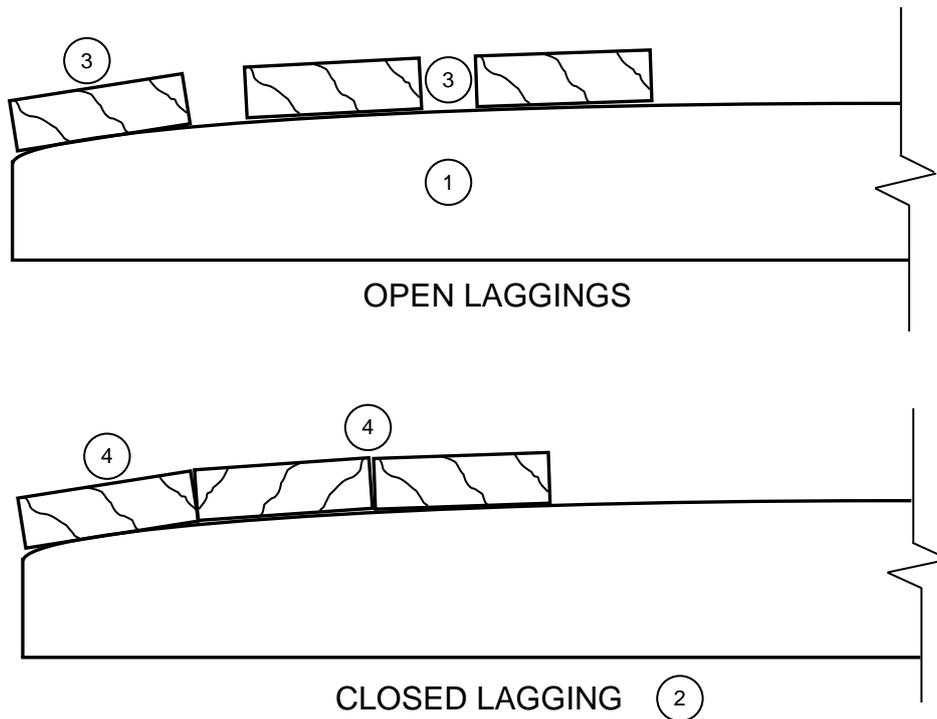


**NOTE:  
THE MIRROR IMAGE  
OF THIS ANSWER  
WILL ALSO BE  
CORRECT**

NO.	ASSESSMENT CRITERIA	MARK
1	Threaded rods (2 x threaded rods =1 mark) and nuts (2 x nuts = 1 mark)	2
2	Vertical clamps (1 x top + 1 x bottom)	2
3	Horizontal clamp	1
4	Yoke/Collar	1
5	Laggings (1 x closed laggings + 1 x complete laggings)	2
<b>TOTAL:</b>		<b>8</b>

(8)

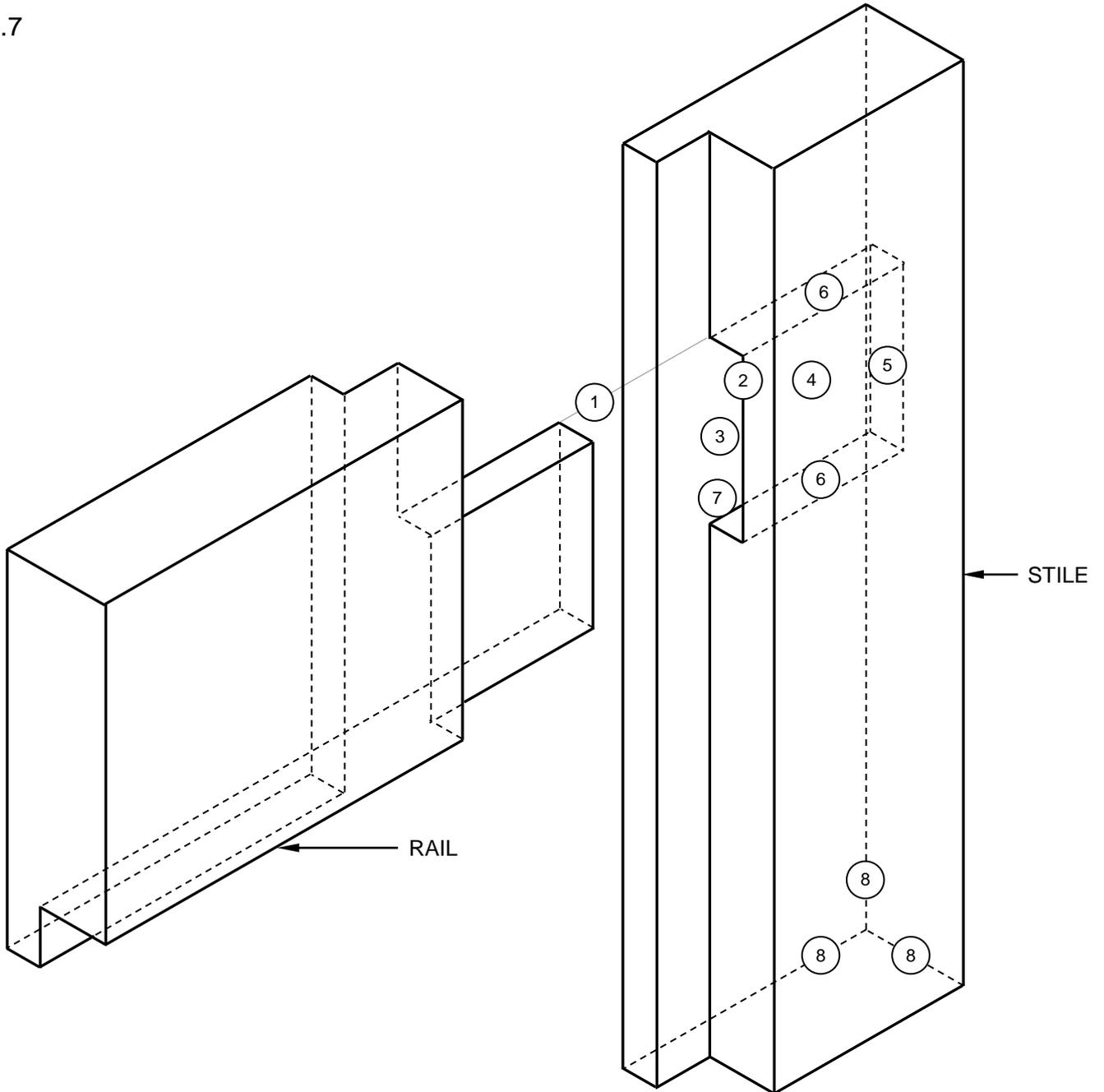
5.6



NO.	ASSESSMENT CRITERIA	MARK
1	Both ribs re-drawn (both must be drawn for 1 mark)	1
2	Printed titles (only award 1 mark if laggings are drawn in and labelled)	1
3	Open laggings: (1 mark for 2 openings) (1 mark for 3 laggings)	2
4	Closed laggings: (1 mark for 2 closings) (1 mark for 3 laggings)	2
	<b>TOTAL:</b>	<b>6</b>

(6)

5.7



NO.	ASSESSMENT CRITERIA	MARK
1	Projection lines (any one)	1
2	Height of mortise	1
3	Opening of mortise	1
4	Depth of mortise	1
5	Back of mortise	1
6	Width of mortise (1 x top + 1 x bottom)	2
7	Inside of mortise	1
8	Hidden detail of stile	3
<b>TOTAL:</b>		<b>11</b>

(11)  
[30]

**QUESTION 6: SUSPENDED FLOORS, STAIRCASES, IRON MONGERY, DOORS AND JOINING (SPECIFIC)**

6.1 Cut cupboard locks are suitable for locking:

- Cupboard doors ✓
- Wardrobe doors ✓
- Office desk doors
- Cabinet doors

**ANY TWO OF THE ABOVE**

(2)

6.2 One need to mention:

- Whether it is for a right-hand or left-hand door ✓
- The size of the lock

**ANY ONE OF THE ABOVE**

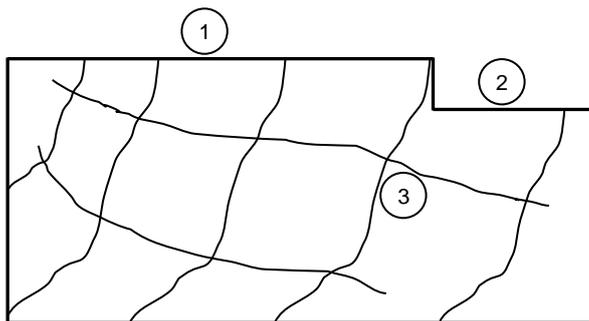
(1)

6.3 Preparing the mortise for a joint:

- A - Measure the width of the lock rail ✓
- B - Set/Mark the lengths of the mortises ✓
- C - Set/Mark the thickness/width of the mortises (by dividing wood in three equal parts) ✓
- D - Mark the waste material ✓

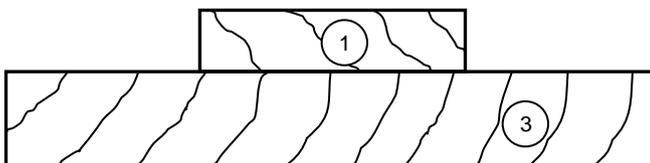
(4)

6.4



DOOR FRAME

NO.	ASSESSMENT CRITERIA	MARK
1	Door frame	1
2	Rebate	1
3	Hatching	1
<b>TOTAL:</b>		<b>3</b>

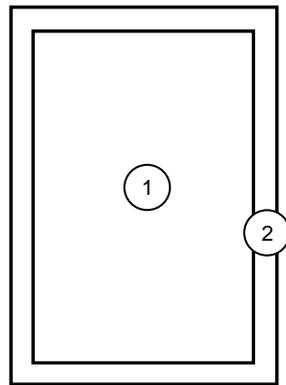


JAMB

NO.	ASSESSMENT CRITERIA	MARK
1	Planted stop	1
2	Jamb (Vertical lining)	1
3	Hatching	1
<b>TOTAL:</b>		<b>3</b>

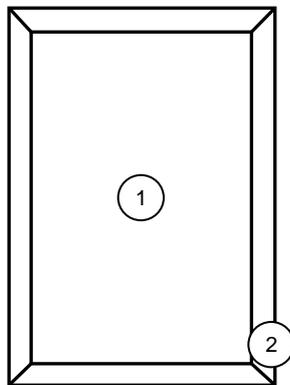
(6)

6.5



RAISED PANEL

NO.	ASSESSMENT CRITERIA	MARK
1	Panel	1
2	Rebate	1
	<b>TOTAL:</b>	<b>2</b>

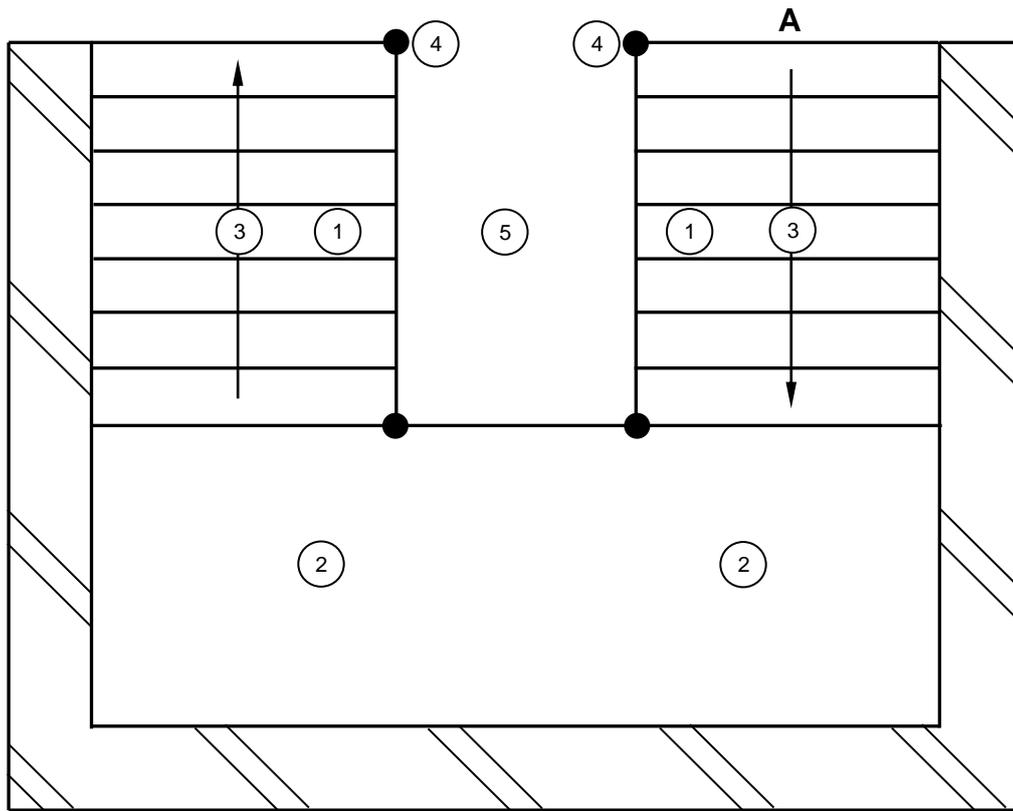


RAISED AND FIELDED PANEL

NO.	ASSESSMENT CRITERIA	MARK
1	Panel	1
2	Rebate (angled)	1
	<b>TOTAL:</b>	<b>2</b>

(4)

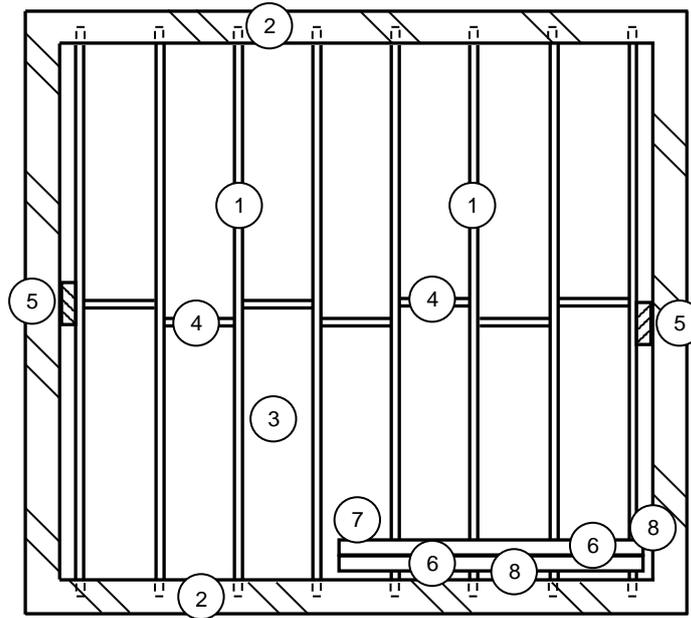
6.6



NO.	ASSESSMENT CRITERIA	MARK
1	Flight of stairs (before landing + after landing)	2
2	Half-landing	2
3	Indications of the rise of stairs (arrow before landing + arrow after landing)	2
4	Newel posts (any two in correct position)	2
5	Open well	1
	<b>TOTAL:</b>	<b>9</b>

(9)

6.7



**NOTE: A 90° ROTATION OF THIS ANSWER WILL ALSO BE CORRECT**

NO.	ASSESSMENT CRITERIA	MARK
1	Floor joists (2 marks if all 8 are drawn) (1 mark for less than 8 drawn)	2
2	Floor joist built into wall (1 mark for top wall + 1 mark for bottom wall)	2
3	Joists equally spaced	1
4	Staggered struts (2 marks if all 7 are drawn) (1 mark for less than 7 drawn)	2
5	Folding wedges (1 x left + 1 x right)	2
6	Tongue-and-groove floorboards	2
7	Floor placed in the correct direction	1
8	Clearance between floorboards and wall (1 x left + 1 x right)	2
	<b>TOTAL:</b>	<b>14</b>

(14)  
[40]

**TOTAL: 200**