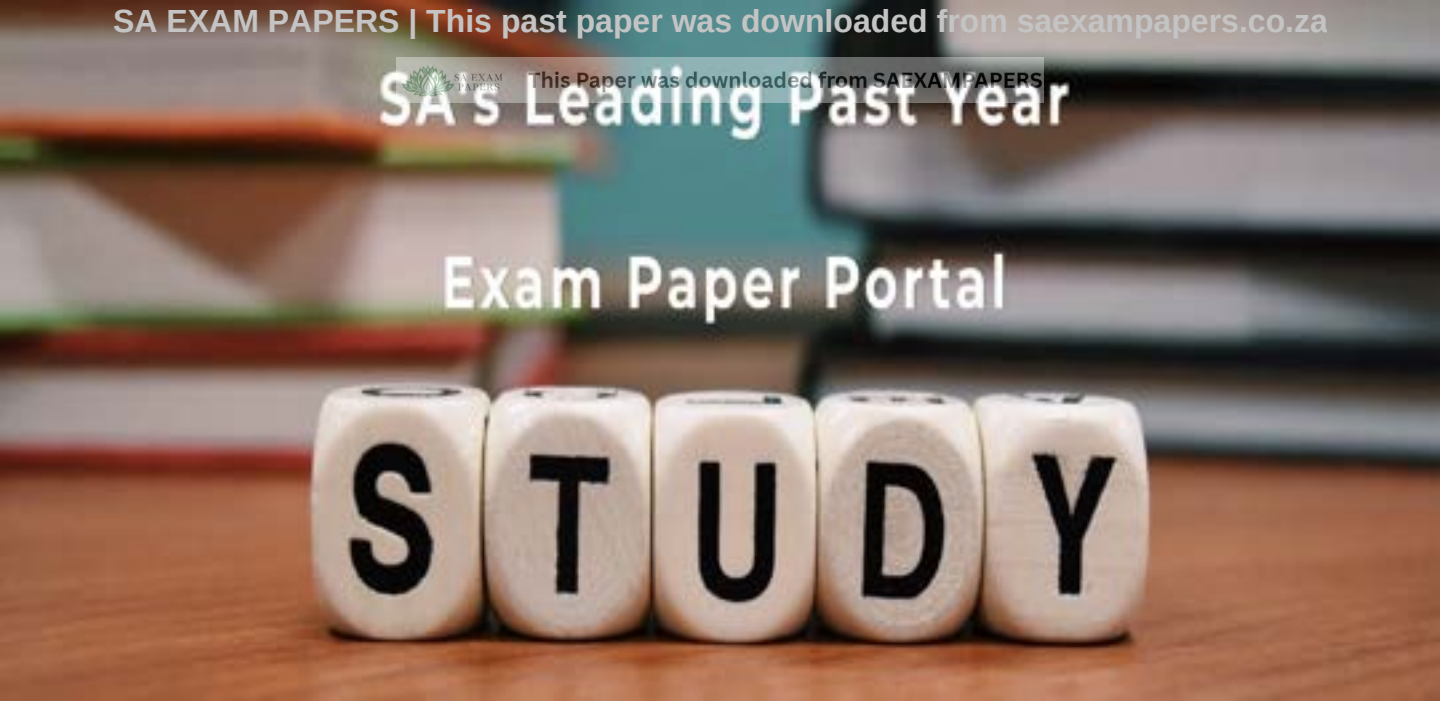


GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

# JUNE EXAMINATION 2025

# GRADE 12

# MARKING GUIDELINES

## CIVIL TECHNOLOGY: WOODWORKING

**19 pages**

## INSTRUCTIONS FOR THE 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 guidelines.
- There are TWO approaches to answering questions; these are (1) to describe and (2) to explain.
- If a candidate is required to explain, e.g. a process in 4 steps, only the first 4 responses should be considered.
- If however a candidate is required to e.g. explain or describe how to transfer heights from one point to another using a transparent pipe level we need to consider that candidates may write a long description, not necessarily well organised, as an intellectual response may do. 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. The marker should apply his/her professional judgement with these types of questions.
- Mark what the candidate wrote and do not award marks for answers that the marker thinks the candidate meant with what was written.
- 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.
- Accept incorrect spelling in one-word answers unless the spelling changes the meaning of the answer.

**2. For calculations:**

- A mark is only awarded if the correct unit is written next to the answer.
- If TWO marks are awarded ONE mark is awarded for the answer and ONE mark for the correct unit.
- Where the candidate made a principle error, e.g. added instead of multiplying, no marks will be awarded for the steps. If the answer is correct according to what the candidate did, the mark for the answer can be awarded for the application of skills.
- Where an incorrect answer could be carried over to the next step, the first answer will be deemed incorrect. However, should the incorrect answer be carried over correctly, the marker has to recalculate the values, using the incorrect answer from the first calculation. If correctly used, the candidate should receive the full marks for subsequent calculations.
- Markers should consider when and where a candidate has rounded off in a calculation, as well as the subsequent effect it has on the final answer obtained. The calculation should therefore be awarded marks on merit.
- Alternative methods of calculations must be considered, provided that the correct answer is obtained.

**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 guidelines 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.
- Scale drawings should always be marked using an appropriate mask.

**When a candidate drew the wrong drawing, e.g.:**

- A horizontal section instead of a vertical section, no marks will be allocated to the drawing as the candidate did not respond to the expected outcome.
- An orthographic view instead of sectional view, no marks will be allocated to the drawing as the candidate did not respond to the expected outcome.
- An orthographic view instead of an isometric view, no marks will be allocated to the drawing as the candidate did not respond to the expected outcome.
- If the incorrect drawing was drawn, the candidate can be awarded for only what was asked but mark/s for the correctness of the drawing will not be awarded.

## QUESTION 1: QUESTION 1: OHS, SAFETY, MATERIALS, TOOLS, EQUIPMENT AND JOINING (GENERIC)

| | | | |
|---|---|---|---|
| 1.1 | 1.1.1 | G ✓ | (1) |
| | 1.1.2 | F ✓ | (1) |
| | 1.1.3 | B ✓ | (1) |
| | 1.1.4 | H ✓ | (1) |
| | 1.1.5 | K ✓ | (1) |
| | 1.1.6 | N ✓ | (1) |
| | 1.1.7 | M ✓ | (1) |
| | 1.1.8 | E ✓ | (1) |
| | 1.1.9 | C ✓ | (1) |
| | 1.1.10 | J ✓ | (1) |
| 1.2 | 1.2.1 | B ✓ | (1) |
| | 1.1.2 | B ✓ | (1) |
| | 1.1.3 | C ✓ | (1) |
| | 1.1.4 | C ✓ | (1) |
| | 1.1.5 | D ✓ | (1) |

1.3 1.3.1 The telescope of a dumpy level ✓ (1)

1.3.2
- Determining differences between levels and vertical heights, especially over longer distances ✓
- Determining levels and slopes
- Setting out buildings
- Transferring levels and heights

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

1.4
- Every plank of a scaffold platform is firmly secured to prevent its displacement ✓
- Every platform is constructed in order to prevent materials and tools from falling through
- **ANY ONE OF THE ABOVE** (1)

1.5 1.5.1 It prevents workers from falling off the scaffold. ✓
- To prevent materials from falling off the scaffold.
- It can be used as a hand rail.
- It is used to strap safety harnesses onto it.

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

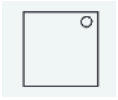
1.5.2 To prevent materials from falling off the scaffold. ✓
- To prevent tools from falling off the scaffold.

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

**[20]**

## QUESTION 2 GRAPHICS AS MEANS OF COMMUNICATION (GENERIC)

| NO. | QUESTIONS | ANSWERS | MARKS |
|---|---|---|---|
| 1. | Name the drawing depicted in FIGURE **B.** | Ground floor plan ✓ | 1 |
| 2. | Deduce the scale of the drawing. | 1 : 100 ✓ | 1 |
| 3. | Identify number **4**. | Finished floor level/ FFL ✓ | 1 |
| 4. | Identify number **12**. | Earth ✓ | 1 |
| 5. | Identify number **11**. | Bath/B ✓ | 1 |
| 6. | Identify number **8**. | Sliding Door ✓ | 1 |
| 7. | Identify number **7**. | Rainwater down pipe/ RWDP ✓ | 1 |
| 8. | Identify number **14**. | Distribution board/ DB ✓ | 1 |
| 9. | Identify number **5**. | Window sill/Sill ✓ | 1 |
| 10. | Identify the number that indicates the WATT METER in FIGURE **B**. | Number 13/13 ✓ | 1 |
| 11. | Recommend TWO suitable scales for floor plans other than the one listed in the notes | 1:50 ✓<br>1:200 ✓ | 2 |
| 12. | Give the abbreviations for the following:<br><br>12.1 Water closet<br><br>12.2 Shower | <br><br>12.1 WC ✓<br><br>12.2 S ✓ | 2 |
| 13. | Name the feature that must be placed in front of the sliding door as specified in the notes. | Ramp ✓ | 1 |
| 14. | Who checked the drawing? | P. BRITZ ✓ | 1 |
| 15. | Describe what is indicated by number **3**. | Window frame/Casement/ Double casement ✓ | 1 |

| | | | |
|---|---|---|---|
| 16. | Differentiate between the light installed in the lounge and in the office. | Light in the lounge is a fluorescent light ✓<br>Light in the office is a ceiling light ✓ | 1 |
| 17. | What is the drawing number of the building plan. | 557P9 ✓ | 2 |
| 18. | Who must be notified when a contractor sets out levels on a site and there are variances? | Architect/ JP MALOI ✓ | 1 |
| 19. | Identify ONE important feature that is omitted on the plan. | Electrical wiring ✓ | 1 |
| 20. | What should be installed for balancing and support as you go up the staircase? | Handrail ✓ | 1 |
| 21. | Deduce the height of window **2** from the window schedule. | 1 200 mm/ 1,2 m ✓ | 1 |
| 22. | Draw the symbol for a shower. |  ✓ | 1 |
| 23. | Draw the electrical symbol for a wall-mounted light. |  ✓✓ | 2 |
| 24. | Deduce the width of window **3** from the window schedule. | 2 000 mm/2 m ✓ | 1 |
| 25. | Recommend a suitable floor covering for the bathroom | Tiles/Vinyl/Concrete/ Wooden/Porcelain/ Ceramic/Cork flooring ✓ | 1 |
| 26. | Explain what is meant by 1 : 10 indicated on the symbol in the notes | For every 10 metres going across, the ramp goes up by one metre/Slope of the ramp ✓ | 1 |

<table>
<tr><td>27.</td><td>Identify the type of roof that is used for the building in FIGURE A.</td><td>Gable roof ✓</td><td>1</td></tr>
<tr><td>28.</td><td>Prove, by means of a control test, that the total vertical dimensions on the left and right of the plan in FIGURE B are equal.</td><td>Total vertical measurements:<br><table><tr><td>Control test left</td><td>Control test right</td></tr><tr><td>220</td><td>220 ✓</td></tr><tr><td>2 000</td><td>2 000 ✓</td></tr><tr><td>110</td><td>110 ✓</td></tr><tr><td>4 000</td><td>4 000 ✓</td></tr><tr><td>220</td><td>220 ✓</td></tr><tr><td>6 550</td><td>= 6 550 ✓</td></tr></table>OR<br>Left side:<br>220 ✓ + 2 000 ✓ + 110 ✓ + 4 000 ✓ + 220 ✓<br>= 6 550 mm ✓<br>Right side:<br>220 + 2 000 + 110 + 4 000 + 220 = 6 550 mm ✓<br>Notes: In case an alternative method was used one mark must be given if both totals are the same.</td><td>6</td></tr>
<tr><td>29</td><td>Calculate the area of the bathroom. Show ALL calculations. Give your answer in m². Round-off your answer to TWO decimal places</td><td>= 3 000 mm x 2 000 mm<br>= 3 m ✓ x 2 m ✓<br>= 6 $m^2$ ✓</td><td>3</td></tr>
<tr><td></td><td></td><td>TOTAL:</td><td>40</td></tr>
</table>

## QUESTION 3: QUANTITIES AND JOINING

**3.1**

3.1.1 Drill a hole of the required diameter and depth; avoid mortar joints when used in brickwork ✓ (1)

3.1.2 Remove debris and thoroughly clean the hole with a brush or by blowing into it ✓ (1)

3.1.3 Remove the bolt and washer, insert the shield and place the fixture over the hole ✓ (1)

3.1.4 Insert the bolt with washer through the fixture and tighten to the recommended torque ✓ (1)

3.1.5 When an eye or hook is used, the nut must be tightened, not the eye or hook ✓ (1)

3.2 3.2.1 Plastic plugs ✓ (1)

3.2.2 1. Drill a hole using a masonry drill bit ✓

2. Insert the plastic plug into the hole ✓

3. Press the fixture against the wall, in line with the hole, and fasten it with a screw ✓ (3)

3.3 3.3.1 A – Concealed haunched mortise-and-tenon joint ✓
B – Double barefaced mortise-and-tenon joint ✓ (2)

3.3.2 A – Where a strong joint is required at a corner where two pieces of timber are fixed at a 90˚ angle ✓

B - Where the rail is thinner than the stile and it is best to keep the mortise near the middle of the stile. It can be used for manufacturing doors ✓

**IF A CANDIDATE USES AN EXAMPLE , THE ANSWER MUST BE CONCIDERED** (2)

3.4 3.4.1 E – Cornice ✓

G – One brick wall/wall ✓

H – Tie beam ✓ (3)

3.4.2 D – Metal cover strips are used to cover the gap between two ceiling boards ✓

F – Cross branders are installed 38 mm from the wall to secure the 75 mm cornices ✓ (2)

3.5

| A | B | C | D | |
|---|---|---|---|---|
| 3.5.1 | | | **Internal measurements:** | |
| | | | = 8 000 – 2/220 = 7 560 mm ✓ | |
| | | | =5 000 – 2/220 = 4 560 mm ✓ | |
| | | | | |
| 3.5.2 | | | **Length of wall plates needed:** | (2) |
| 2/ ✓ | 7,56 ✓ | 15,12 m ✓ | Internal length between gable ends = 7 560 mm | |
| | | | 15,12 m wall plate needed | |
| | | | | (3) |
| 3.5.3 | | | **Number of purlins needed:** | |
| | | | Number of purlins = length of rafter / distance between centres | |
| | | | = 3,6 ✓ **or** 3 600✓<br>0,9 ✓ 900✓ | |
| | | | = 4 purlins ✓ | (3) |
| | | | | |
| 3.5.4 | | | **Area of roof underlay needed:** | |
| 2/ ✓ | 7,56 ✓ | | Distance between gable ends = 7 560 mm | |
| | 3,6 ✓ | 54,43m$^2$ ✓ | Length of rafter = 3 600 mm | |
| | | | 54,432 m$^2$ roof underlay needed | (4) |
| | | | | |

**[30]**

## QUESTION 4: CASEMENTS, DOORS AND WALL-PANELLING

4.1 4.1.1 Skirting ✓ (1)

4.1.2 Mullion ✓ (1)

4.1.3 Putty ✓ (1)

4.1.4 Tongue and groove boards ✓ (1)

4.1.5 Top rail ✓ (1)

4.2 1. A frame ✓

2. Casement ✓

3. Fanlight ✓ (3)

4.3 4.3.1 A fanlight ✓ (1)

4.3.2 To enhance the appearance of casements ✓
Fanlights can open separately to allow ventilation
It can increase visibility/lighting
(1)

4.3.3 Horizontal member that separates the casement and fanlight (glazed or solid crossbar above the casement) ✓ (1)

4.3.4 Glass beam ✓
Putty ✓ (2)

4.4 4.4.1 A – Top rail of casement ✓

B – Drip groove/throat ✓

C – Transom ✓

D – Drip groove/throat ✓

E – Bottom rail of fanlight ✓ (5)

4.4.2 Prevents rainwater from being blown into the casement and penetrating the room ✓
Austhetic appearance (1)

4.5 4.5.1 A – Bottom rail ✓

B – Raised and fielded panel ✓

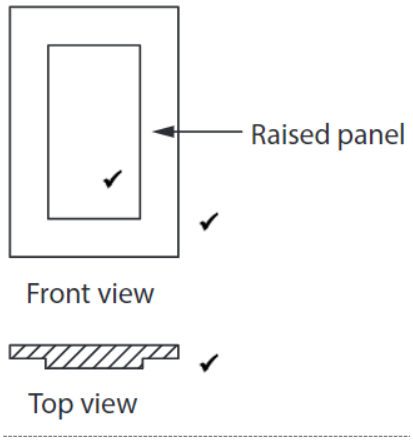
C – Clearance ✓ (3)

4.5.2 To allow shrinkage and expansion of wood ✓ (1)

4.5.3 44 mm/44 ✓ (1)

4.5.4 Double stub ✓ mortise and tenon joint ✓ (2)

4.5.5




(3)

4.6 4.6.1 A – Ceiling ✓

B – Cornice ✓

C – Capping ✓

D – Horizontal rough grounds ✓ (4)

4.6.2 C – The capping fits onto the top of the tongue-and-groove board wall panelling to lend an aesthetic appearance. ✓

- Used to cover the gaps after the wall panelling has been fixed into position ✓

**ANY ONE OF THE ABOVE**

D – Horizontal rough grounds are fixed to the walls where after the tongue-and- groove boards are fixed to it. ✓

- Allow for the first board to be nailed to the grounds ✓
- To keep the boards in position.
- The grounds make it easy to fit
- Durable

**ANY ONE OF THE ABOVE** (2)

4.6.3 The length of the tongue and groove is shorter than the depth of the groove to leave a gap for expansion when the two parts are fitted. ✓✓ (2)

4.7 4.7.1 $^1/_3$ of the thickness of the lock rail, but nearest in the available size of the chisel ✓ (1)

4.8 Muntins are vertical members that are inserted between the stiles to house extra panels, and stub tenons are used to insert them into the rails. ✓✓ (2)
**[40]**

**QUESTION 5: ROOFS, CEILINGS, TOOLS AND EQUIPMENT AND MATERIALS (SPECIFIC)**

5.1 5.1.1 Belt sander ✓ (1)

5.1.2 If no personal safety equipment is worn ...

- Dust and debris can cause eye and body injuries. ✓
- Dust may damage your lungs. ✓
- Dust and debris may damage clothes.
- Loose clothing can be caught in moving parts of the machine and cause injuries.

**ANY TWO OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER** (2)

5.1.3 Prevent

- Corrosion/rust ✓
- Machine from being damaged by moisture

**ANY ONE OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER** (1)

5.2 5.2.1 Thickness planer ✓ (1)

5.2.2 Adjusting the height of the table of the thickness planer while in operation…

- May cause injury to operator ✓
- May cause the wood to get stuck in the machine. ✓
- May put unnecessary strain on the machine
- May stop the planer from working
- May damage the planer

**ANY TWO OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER** (2)

5.2.3 Care of the blades

- Ensure the timber is free from knots and nails before planing commences. ✓
- Make sure the blades are sharp. ✓
- Ensure the blade is properly fastened.

**ANY TWO OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER** (2)

5.2.4 Checking the timber.

- Knots can break off and injure a worker✓
- Nails will damage the blade. ✓

**ANY TWO OF THE ABOVE** (2)

5.3 Types of trapdoors

- Conventional ✓ and
- hinged trapdoor✓ (2)

5.4 Differentiate between purlins and battens:

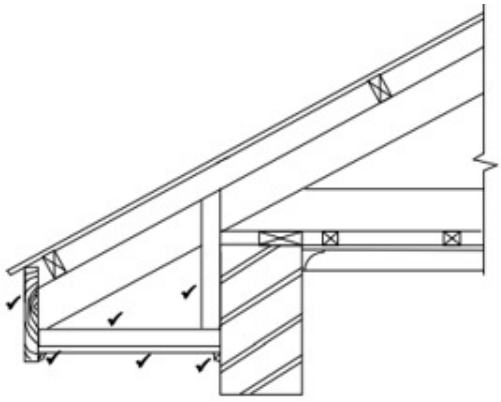
- Roof sheeting is secured to purlins. ✓
- Roof tiles/Slate tiles are secured to battens. ✓ (2)

5.5 5.5.1 Polypropylene ✓ (1)

5.5.2 Aluminium foil or any other fireproof material ✓ (1)

5.5.3 A synthetic or metal waterproofing membrane ✓ (1)

5.6



✓ Application of scale

| ASSESSMENT CRITERIA | MARKS |
|---|---|
| Facia board 230 mm x 38 mm | 1 |
| Hanger 38 mm x 38 mm | 1 |
| Bearer 38 mm x 38 mm | 1 |
| 6 mm fibre cement board on closed eave | 1 |
| Quarter round mouldings below fibre-cement board | 2 |
| Application to scale | 1 |
| **TOTAL** | **7** |

(7)

5.7 Eaves are the portions of a roof that project beyond the outside walls of a building. The eaves can be closed or open ✓ (1)

5.8 Types of roof trusses

- SA howe truss✓
- King-post roof truss✓
- Lean to roof truss
- Couple roof truss
- Closed couple roof truss
- Collar tie roof truss

**ANY TWO OF THE ABOVE** (2)

5.9 Closed eaves

- These provide a more attractive finish to the overhang of the roof because the rafters are not exposed. ✓
- They prevent birds from nesting in the roof space.
- Beam filling is not compulsory.
- A 6 mm soffit board is generally used.
- Wire netting fixed with 50 mm × 16 mm soffit battens is suitable for areas where the wood has to be kept dry.

**ANY ONE OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER**

Open eaves

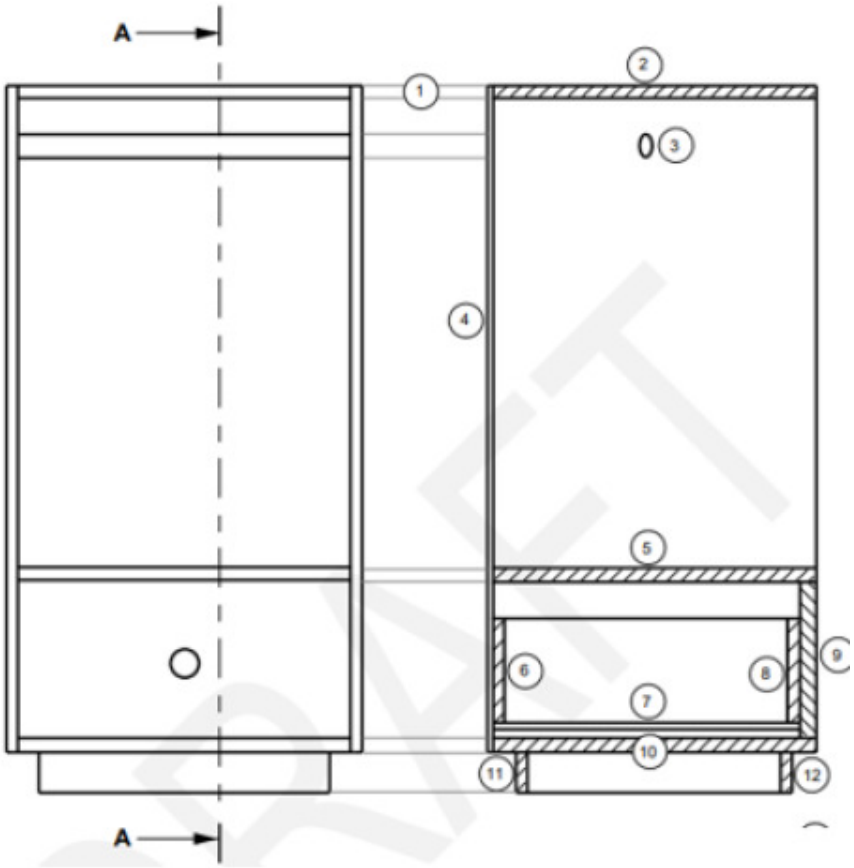
- Roof timber is visible and the roof overhang appears unfinished. ✓
- Birds nest under the open eaves.
- Beam filling is compulsory to prevent birds from entering the roof area.

**ANY ONE OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER** (2)

**[30]**

## QUESTION 6: GRAPHICS AS MEANS OF COMMUNICATION (SPECIFIC)

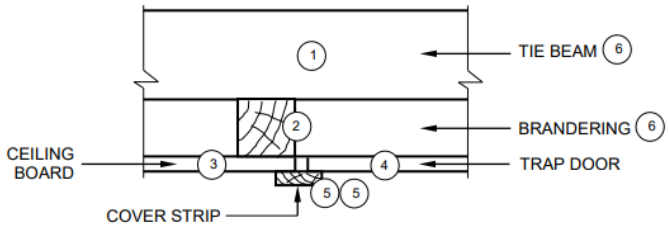
6.1




| NO | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Projection | 1 |
| 2 | Top of unit | 1 |
| 3 | Oval hanging rail | 1 |
| 4 | Back | 1 |
| 5 | Bottom/shelf | 1 |
| 6 | Drawer back | 1 |
| 7 | Drawer bottom | 1 |
| 8 | Drawer front | 1 |
| 9 | Front | 1 |
| 10 | Bottom unit | 1 |
| 11 | Back of base | 1 |
| 12 | Kick plate | 1 |
| | **TOTAL:** | **12** |

(12)

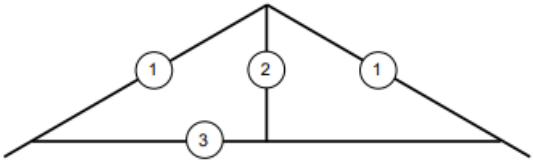
6.2




| NO. | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Tie beam | 1 |
| 2 | Brandering (Square) | 1 |
| 3 | Ceiling board | 1 |
| 4 | Trap door | 1 |
| 5 | Cover strip | 2 |
| 6 | Any TWO labels | 2 |
| | **TOTAL:** | **8** |

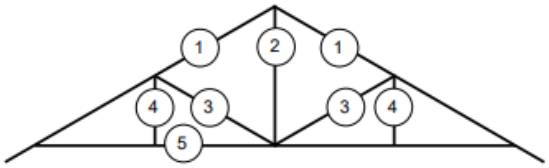
(8)

6.3




KING POST ROOF TRUSS

| NO. | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Rafters (Must include overhang) | 2 |
| 2 | King post | 1 |
| 3 | Tie beam | 1 |
| | **TOTAL:** | **4** |

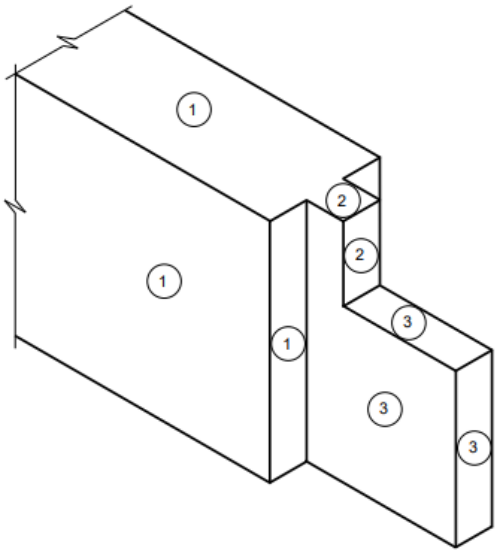



SA HOWE ROOF TRUSS

| NO. | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Rafters (Must include overhang) | 2 |
| 2 | King post | 1 |
| 3 | Struts | 2 |
| 4 | Queen posts | 2 |
| 5 | Tie beam | 1 |
| | **TOTAL:** | **8** |

(12)

6.4




| NO. | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Top rail surfaces | 3 |
| 2 | Haunch | 2 |
| 3 | Tenon surfaces | 3 |
| | **TOTAL:** | **8** |

(8)
**[40]**

**TOTAL: 200**