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# **basic education**

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

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

**CIVIL TECHNOLOGY: WOODWORKING**

**2022**

**MARKING GUIDELINES**

**MARKS: 200**

**These marking guidelines consists of 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 guideline.
- 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.
  - However, if for example a candidate is required to 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 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.
- 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 e.g., if a King Post roof truss was asked in the question, and candidate drew SA-Howe Truss

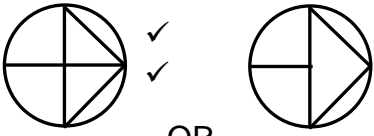
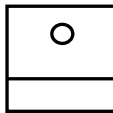


**QUESTION 1: OHSA, MATERIALS, TOOLS, EQUIPMENT AND JOINING (GENERIC)**

- |     |   |   |     |
|-----|---|---|-----|
| 1.1 | 1.1.1   | Thermo plastic/Thermo plastic powder coating ✓  | (1) |
|     | 1.1.2   | Electroplating ✓  | (1) |
|     | 1.1.3   | Curing ✓  | (1) |
|     | 1.1.4   | Paint/Varnish ✓   | (1) |
|     | 1.1.5   | Galvanising ✓   | (1) |
| 1.2 | 1.2.1   | Non-skid material should be fitted to: <ul style="list-style-type: none"> <li>• Prevent ladders from moving when workers are using them ✓</li> <li>• Ensure stability of the ladder when in use</li> </ul> <b>ANY ONE OF THE ABOVE</b>                          | (1) |
|     | 1.2.2   | Wooden ladders are better: <ul style="list-style-type: none"> <li>• To prevent electrical shock ✓</li> <li>• Because it is a poor conductor of electricity</li> </ul> <b>ANY ONE OF THE ABOVE</b>   | (1) |
|     | 1.2.3   | Aluminium ladder is: <ul style="list-style-type: none"> <li>• Lighter ✓</li> <li>• More durable</li> <li>• Easier to handle</li> <li>• Easy to clean</li> <li>• Stronger</li> <li>• Suitable to extend to higher heights</li> </ul> <b>ANY ONE OF THE ABOVE</b> | (1) |
|     | 1.2.4   | Wooden ladders can be treated with: <ul style="list-style-type: none"> <li>• Linseed Oil/Oil ✓</li> <li>• Clear varnish/Varnish ✓</li> <li>• Wood preservative/Preservative</li> </ul> <b>ANY TWO OF THE ABOVE</b>  | (2) |
| 1.3 | The scaffold platform: <ul style="list-style-type: none"> <li>• Must have guard rails ✓</li> <li>• Must have toe boards ✓</li> <li>• Should have sufficient room between the structure and the platform for the worker to sit and work</li> <li>• Must be free of any obstruction/waste/projecting nails/equipment that can cause injury</li> <li>• Must be non-slip</li> <li>• Should not be filled with unnecessary equipment/overloaded</li> </ul> <b>ANY TWO OF THE ABOVE</b> |   | (2) |

- 1.4 A safety net can be erected:
- Above an entrance ✓
  - At passageways ✓
  - At areas where persons work while work is being performed above them
  - To prevent falling objects from injuring workers
- ANY TWO OF THE ABOVE** (2)
- 1.5 1.5.1 Rawlbolt/Expansion bolt/Anchor bolt ✓ (1)
- 1.5.2
- Drill hole ✓
  - Remove debris/Clean the hole ✓
  - Remove the bolt and washer/insert the shield ✓
- (3)
- 1.6 Dumpy level determines:
- Levels and heights ✓
  - Differences between levels and vertical heights
  - Levels and slopes
  - Distances
- ANY ONE OF THE ABOVE** (1)
- Protect the dumpy level by:
- Placing the telescope in its case directly after use ✓
  - Not bumping the instrument against objects
  - Not dropping the instrument
  - Performing the collimation test regularly to ensure accuracy
  - Keeping it dry
- ANY ONE OF THE ABOVE** (1)
- [20]**

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

NO.	QUESTIONS	ANSWERS	MARKS
1	Identify the scale that was used for the site plan and the floor plan respectively.	1:500 ✓ 1:100 ✓	2
2	Who is responsible for checking the building plan?	C. Lee ✓	1
3	What type of fencing does the architect recommend for the new dwelling?	Precast concrete fencing ✓	1
4	Name the town where the new dwelling will be erected.	Jeffreys Bay ✓	1
5	What was done as revision 1?	Window in room A ✓	1
6	Identify number 1.	Municipal sewer line/Sewer line ✓	1
7	Identify number 3 by giving the abbreviation.	MH ✓	1
8	Identify number 4.	New dwelling ✓	1
9	Identify number 5.	Earth ✓	1
10	Identify number 9.	Distribution board/DB ✓	1
11	Identify number 11.	One-way switch-double pole ✓	1
12	Identify number 12.	Sink unit-single/Single bowl sink/Sink ✓	1
13	Identify the number that indicates the boundary line.	8 ✓	1
14	Describe the purpose of number 2.	For pedestrians/Area dedicated for walking ✓	1
15	Deduce the plot number of the existing dwelling from FIGURE A.	Plot 73 ✓	1
16	What is omitted in Maple Street with reference to number 6?	Municipal connection/Municipal manhole ✓	1

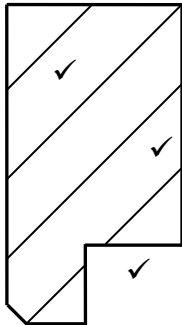
17	What leisure feature is located on the site plan?	Swimming pool ✓	1
18	Draw the north symbol to show that the driveway side is facing east.	 Direction ✓	3
19	What is the purpose of the north symbol on a house plan?	To indicate the direction/ elevation ✓	1
20	Which feature indicates that this is a double storey building?	Staircase/Stairs ✓	1
21	Deduce THREE faults from bedroom 2.	Dimension incorrectly indicated as 110 mm of outside wall ✓ No electrical connection from light switch to the light fitting ✓ No wiring ✓ Window symbol incorrect	3
22	Draw the symbol for a wash tub.	 ✓ ✓	2
23	Draw the symbol for a bath.	 ✓ ✓	2
24	Draw the symbol for a water meter.	 ✓ ✓	2
25	Describe TWO reasons why the local municipality would not approve FIGURE A.	<ul style="list-style-type: none"> <li>Omitted dimensions/ Measurements ✓</li> <li>No levels/heights/invert levels/corner heights indicated ✓</li> <li>Impossible to position new dwelling</li> <li>No north symbol</li> <li>Incomplete sewage layout</li> <li>No contour lines indicated</li> </ul>	2
26	Calculate the length of the house. Give your answer in m. Show all calculations.	$  \begin{array}{r}  \overbrace{4\,000 + 5\,000}^{\checkmark} + \overbrace{4\,000 + 4\,000}^{\checkmark} \\  \underbrace{+ 220 + 220}_{\checkmark} + \underbrace{+ 110 + 110}_{\checkmark} + 110 \\  = 17\,770 \checkmark \\  = 17,77 \checkmark \text{ m}  \end{array}  $	6
		<b>TOTAL:</b>	<b>40</b>



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

- 3.1      3.1.1      Sill ✓ (1)
- 3.1.2      Mullion ✓ (1)
- 3.1.3      Frame stile ✓ (1)
- 3.1.4      Transom ✓ (1)
- 3.1.5      Glazing bars ✓ (1)

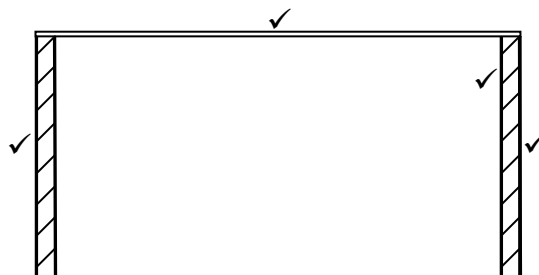
3.2



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Top rail	1
Rebate	1
Hatching	1
<b>TOTAL:</b>	<b>3</b>

(3)

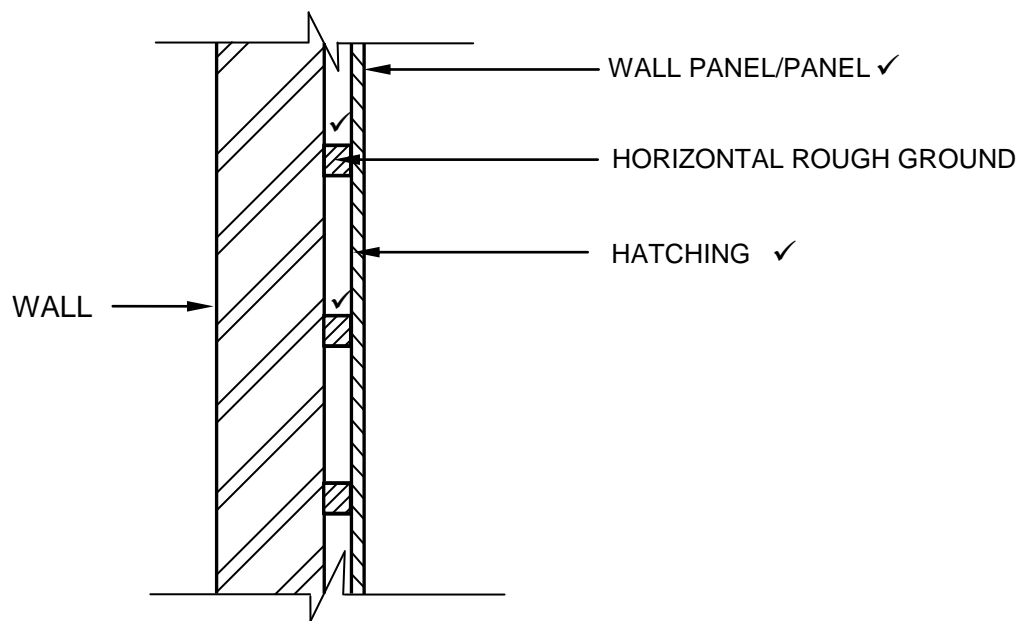
- 3.3      3.3.1      **A** - Front rail/Front top rail/Top rail ✓  
                         **B** - Intermediate side ✓  
                         **C** - Kick plate/Base plate/Base/Plinth ✓ (3)
- 3.3.2      To hang clothes on. ✓ (1)
- 3.3.3



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Back	1
Sides	2
Hatching	1
<b>TOTAL:</b>	<b>4</b>

(4)

3.4



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Wall panel/Panel	1
Horizontal rough grounds	2
Hatching	1
<b>TOTAL:</b>	<b>4</b>

(4)

3.5

3.5.1

A	B	C	D
			<b>Total length of rafters</b>
8/ ✓	<u>5,6</u> ✓	44,8 m ✓	
			<b>Total length of purlins</b>
4/ ✓	<u>9,6</u> ✓	38,4 m ✓	
			<b>Total area of underlay</b>
1/ ✓	9,0 ✓		
	<u>5,0</u> ✓	45,0 m <sup>2</sup> ✓	

(3)

3.5.2

(3)

3.5.3

(4)

**[30]**

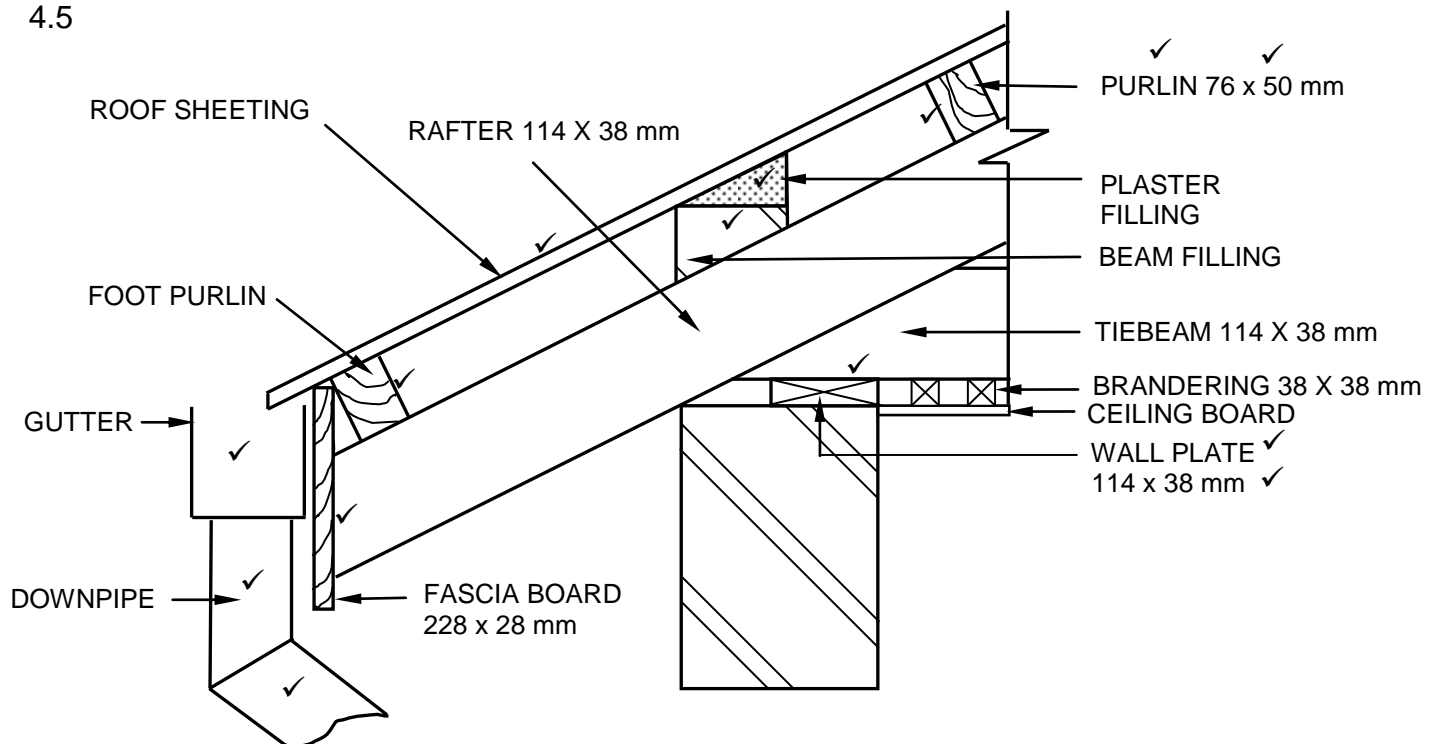
**QUESTION 4: ROOFS, CEILINGS, TOOLS, EQUIPMENT AND MATERIALS  
(SPECIFIC)**

- |     |  |     |     |
|-----|--|-----|-----|
| 4.1 | 4.1.1  | J ✓ | (1) |
|     | 4.1.2  | A ✓ | (1) |
|     | 4.1.3  | H ✓ | (1) |
|     | 4.1.4  | K ✓ | (1) |
|     | 4.1.5  | G ✓ | (1) |
|     | 4.1.6  | B ✓ | (1) |
|     | 4.1.7  | C ✓ | (1) |
|     | 4.1.8  | E ✓ | (1) |
| 4.2 | <ul style="list-style-type: none"> <li>• Mechanical grading ✓ – Machine is used to test the strength and stiffness of timber. ✓</li> <li>• Visual grading ✓ – Visual inspection to identify defects in timber. ✓</li> </ul>                  |     | (4) |
| 4.3 | Preservatives: <ul style="list-style-type: none"> <li>• Varnish ✓</li> <li>• Sanding sealer/Wood primer</li> <li>• Lacquer</li> <li>• Linseed oil</li> <li>• Wax</li> <li>• Paint</li> <li>• Creosote</li> </ul> <b>ANY ONE OF THE ABOVE</b> |     | (1) |

- 4.4    **A** - Valley ✓  
       **B** –Hipped end/Hipped roof ✓  
       **C** – Hip/Hip end/Corner rafter ✓  
       **D** - Gable end/Wall ✓  
       **E** - Ridge ✓

(5)

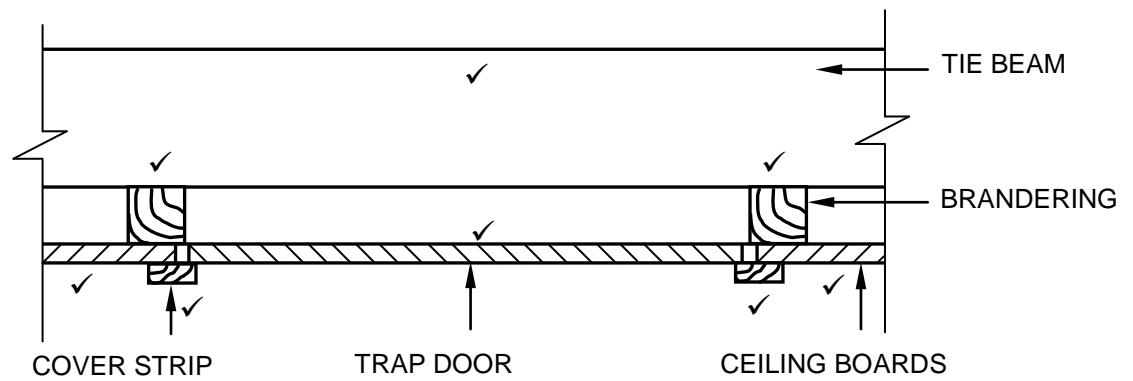
4.5



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Fascia board	1
Foot purlin	1
Any other purlin	1
Roof sheeting	1
Beam filling	2
Plaster filling	1
Gutter	1
Downpipe	2
Any TWO labels with dimensions	4
<b>TOTAL:</b>	<b>14</b>

(14)

4.6



NOTE: METAL T-STRIP WILL ALSO BE ACCEPTABLE

ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Tie beam	1
Branding	2
Ceiling boards	2
Trap door	1
Cover strips/Metal T-Strips	2
<b>TOTAL:</b>	<b>8</b>

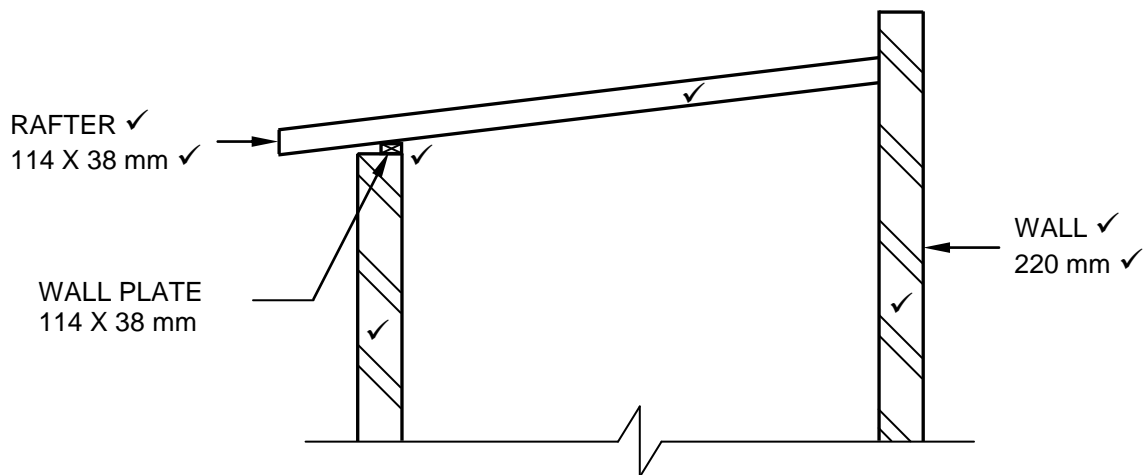
(8)

**[40]**

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

- |     |       |   |     |
|-----|-------|---|-----|
| 5.1 | 5.1.1 | Double flying shore ✓   | (1) |
|     | 5.1.2 | A – Wall plate ✓  | (1) |
|     |       | B – Needle ✓  | (1) |
|     |       | C – Cleat ✓   | (1) |
| 5.2 | 5.2.1 | A - Closed laggings ✓   | (1) |
|     |       | B - Open laggings ✓   | (1) |
|     | 5.2.2 | <ul style="list-style-type: none"> <li>• The ribs are two parts which will not carry the weight of the centre. ✓</li> <li>• The width of the laggings in A is too wide. ✓</li> <li>• The spacing of the laggings at B is inconsistent.</li> <li>• The thickness of the laggings in B is not the same.</li> </ul> <b>ANY TWO OF THE ABOVE</b>  | (2) |
|     | 5.2.3 | <ul style="list-style-type: none"> <li>• The rib should be a solid piece of wood. ✓</li> <li>• The laggings should not be too wide/The width of laggings should not exceed 50 mm. ✓</li> <li>• Make sure the openings of the laggings are spaced more or less the same distance from each other.</li> <li>• Ensure that the thickness of the laggings is the same.</li> </ul> <b>ANY TWO OF THE ABOVE</b> | (2) |
|     | 5.2.4 | <ul style="list-style-type: none"> <li>• Shutter board/Shutter ply ✓</li> <li>• Plywood</li> <li>• Hard board</li> <li>• Blockboard</li> </ul> <b>ANY ONE OF THE ABOVE</b>  | (1) |

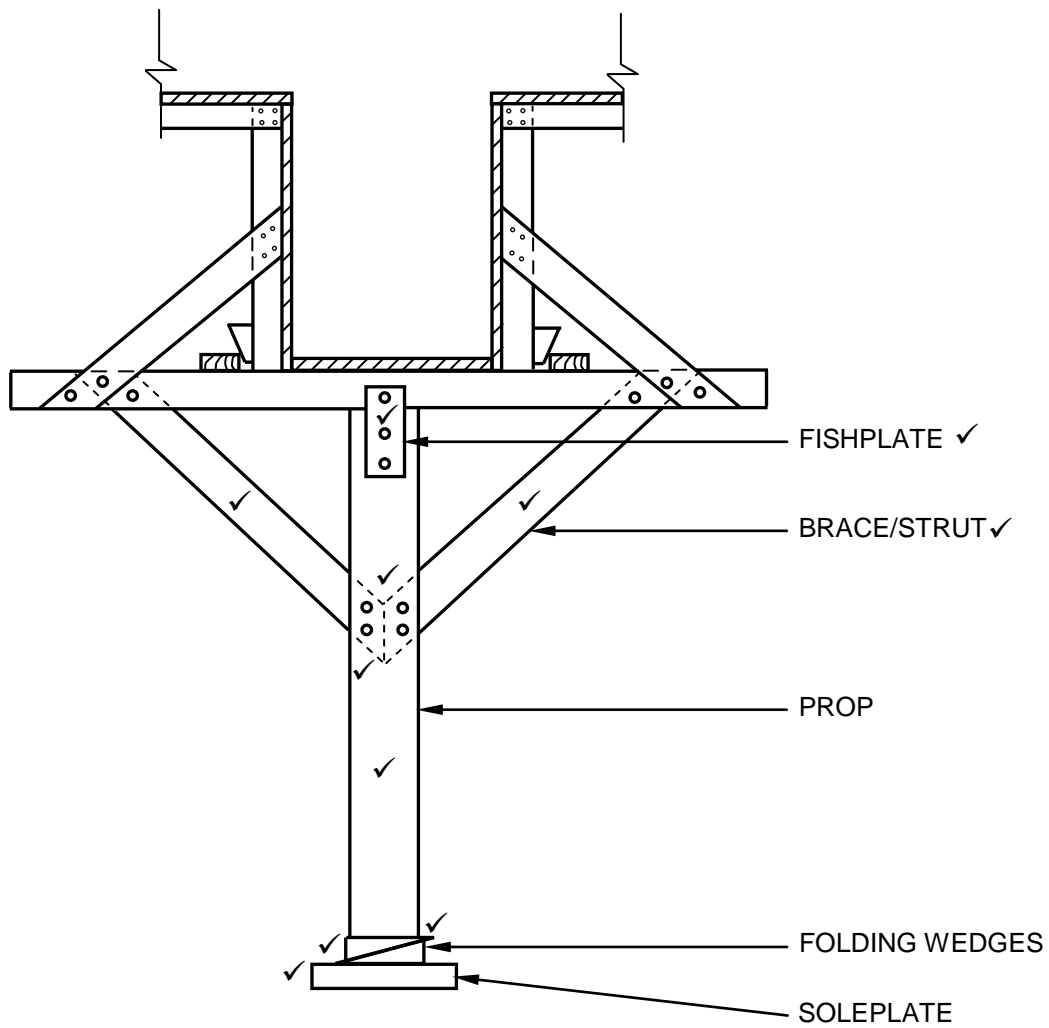
5.3



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Walls	2
Wall plate	1
Rafter	1
Any TWO labels with dimensions	4
<b>TOTAL:</b>	<b>8</b>

(8)

5.4



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Fishplate	1
Braces/struts	2
Connection of braces to prop	2
Prop	1
Folding wedges	2
Soleplate	1
Any TWO labels	2
<b>TOTAL:</b>	<b>11</b>

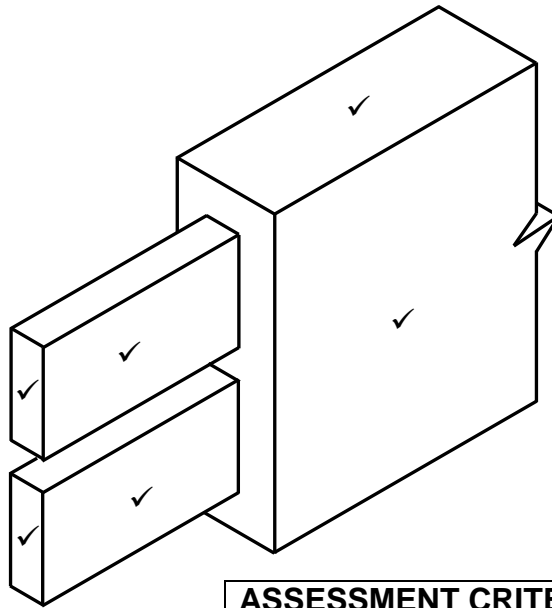
(11)  
[30]



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

- |     |       |  |     |
|-----|-------|--|-----|
| 6.1 | 6.1.1 | B ✓  | (1) |
|     | 6.1.2 | A ✓  | (1) |
|     | 6.1.3 | D ✓  | (1) |
|     | 6.1.4 | C ✓  | (1) |
|     | 6.1.5 | D ✓  | (1) |
| 6.2 | 6.2.1 | Rim lock ✓   | (1) |
|     | 6.2.2 | Cut cupboard lock ✓  | (1) |
|     | 6.2.3 | Night latch ✓  | (1) |
|     | 6.2.4 | Mortise lock ✓   | (1) |
| 6.3 | 6.3.1 | <b>A</b> – Floor joist bolted to the wall with truss hanger. ✓   | (1) |
|     |       | <b>B</b> – Floor joist built into the wall. ✓  | (1) |
|     | 6.3.2 | Reasons for preferring method <b>A</b> : <ul style="list-style-type: none"> <li>• Truss hangers are ideal to fit floor joist to an existing wall ✓</li> <li>• Truss hangers reduce the length of the floor joist ✓</li> <li>• No need to treat the ends with preservatives to prevent decay</li> </ul> <b>ANY TWO OF THE ABOVE</b>                             | (2) |
| 6.4 | 6.4.1 | <b>A</b> – Half landing ✓<br><b>B</b> – Quarter landing ✓  | (2) |
|     | 6.4.2 | Reasons for installing a landing: <ul style="list-style-type: none"> <li>• Enables the user to rest during the ascent of stairs ✓</li> <li>• Where the staircase changes direction ✓</li> <li>• Are required if the rise between levels are steep</li> <li>• If there are more than sixteen treads in a straight flight</li> </ul> <b>ANY TWO OF THE ABOVE</b> | (2) |

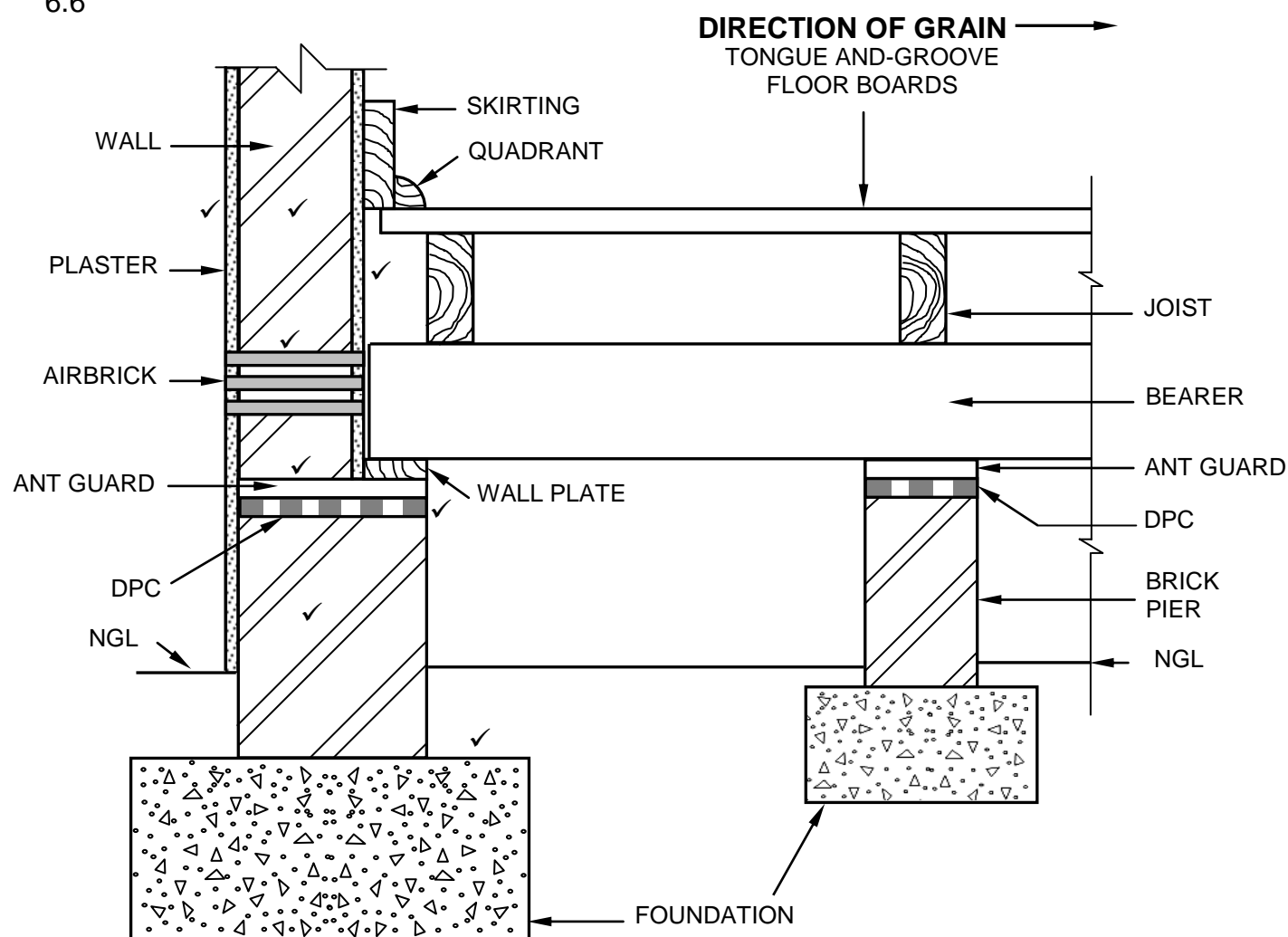
6.5



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Double/Twin tenon	4
Rail	2
<b>TOTAL:</b>	<b>6</b>

(6)

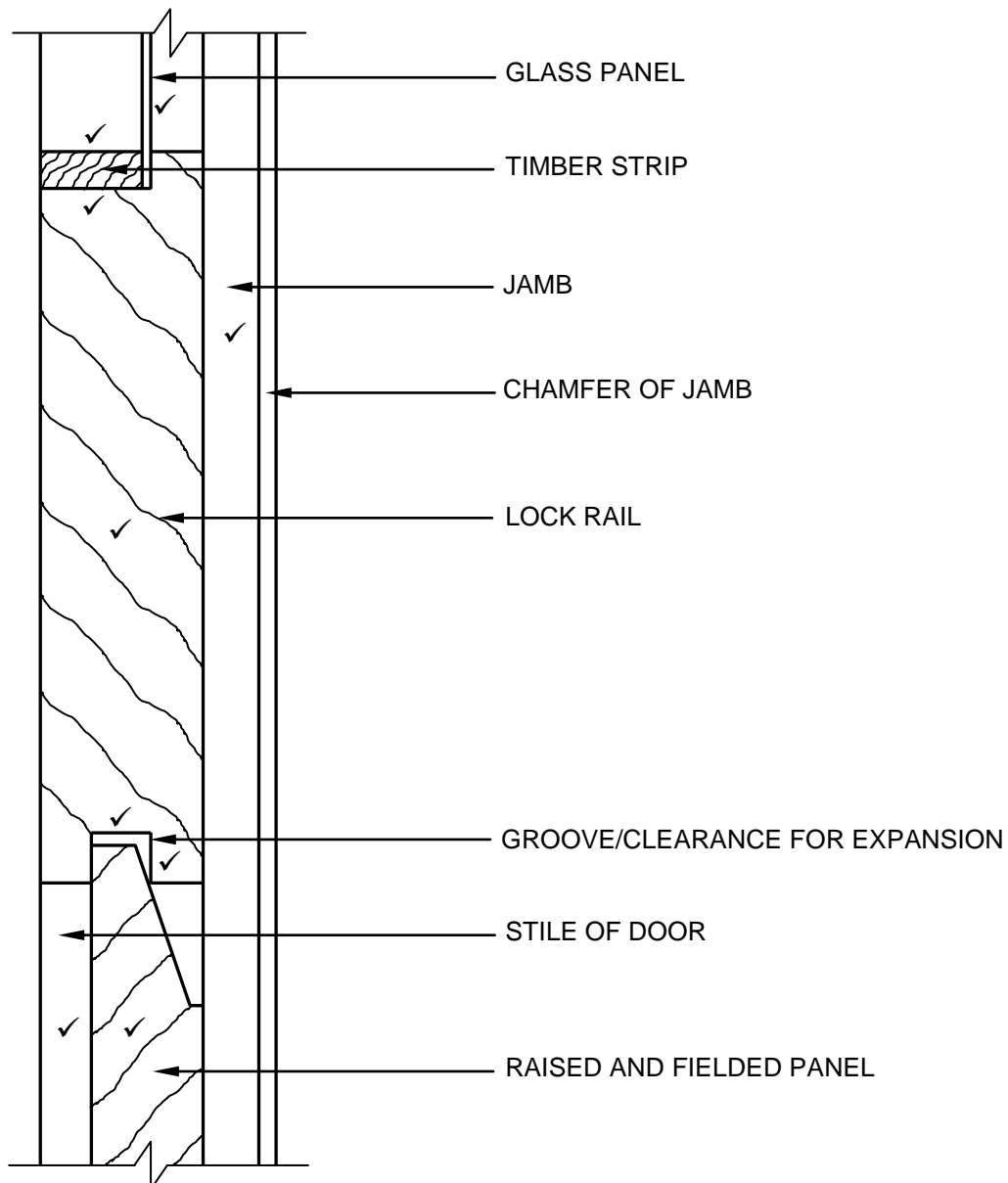
6.6



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Wall (superstructure)	1
Plaster	2
Airbrick	1
Ant guard	1
DPC	1
Wall (substructure)	1
Foundation	1
<b>TOTAL:</b>	<b>8</b>

(8)

6.7



ASSESSMENT CRITERIA	MARK
Correctness of drawing:	
Lock rail with rebate and groove	3
Glass panel	1
Timber strip	1
Raised and fieldled panel	1
Groove/Clearance for expansion	1
Jamb	1
Stile of door	1
<b>TOTAL:</b>	<b>9</b>

(9)  
[40]**TOTAL: 200**