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# basic education

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

## **NATIONAL SENIOR CERTIFICATE**

**GRADE 12**

**CIVIL TECHNOLOGY: WOODWORKING**

**NOVEMBER 2019**

**MARKING GUIDELINES**

**MARKS: 200**

**These marking guidelines consist of 19 pages.**

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

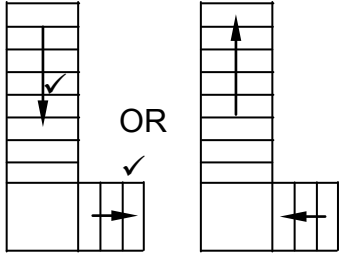
- 1.1      1.1.1      B ✓ (1)
- 1.1.2      I ✓ (1)
- 1.1.3      A ✓ (1)
- 1.1.4      G/H ✓ (1)
- 1.1.5      C ✓ (1)
- 1.1.6      F ✓ (1)
- 1.1.7      J ✓ (1)
- 1.1.8      E ✓ (1)
- 1.2      Electroplating:
- protects metals against corrosion. ✓
  - improves the engineering- and mechanical properties of metal. ✓
  - may be used to increase the thickness of undersized parts.
  - is decorative.
  - will extend the life span.
- ANY TWO OF THE ABOVE** (2)
- 1.3      Curing ✓ (1)
- 1.4      The moisture:
- delays/prevents the rapid drying of fresh concrete.
  - prevents concrete from cracking. ✓
  - ensures that fresh concrete hardens properly.
  - allows adhesive bonding.
  - increases strength of fresh concrete.
- ANY ONE OF THE ABOVE** (1)
- 1.5      • When material is transported in bulk, it must be secured firmly. ✓
- When material is transported to higher levels, make sure that workers maintain a safe distance from the material being moved overhead. ✓
- When heavy material is transported with a lift/hoist/machine, a qualified person must take charge of operations.
- Wear appropriate personal protective equipment (PPE).
- Material must be transported in a safe way.
- Transport should not be overloaded with material.
- ANY TWO OF THE ABOVE** (2)

- 1.6 Scaffold planks should:
- be made of a solid wood at least 228 mm wide and 38 mm thick. ✓
  - be able to support the load.
  - be free from defects.
  - not be painted as it will hide defects/be slippery.
  - be supported at distances not exceeding 1,25 m.
  - not project less than 70 mm and not more than 230 mm beyond the ends of the last prop.
  - be firmly secured to prevent its displacement.
  - be placed in such a way to prevent materials and tools from falling through.
- ANY ONE OF THE ABOVE** (1)
- 1.7 1.7.1 Dumpy level ✓ (1)
- 1.7.2 If the dumpy level is not set up level:
- it will give inaccurate readings. ✓
  - wrong levels will be transferred.
  - true levels will not be transferred.
- ANY ONE OF THE ABOVE** (1)
- 1.8 1.8.1 A – Plastic plug/Plug/Rawl plug/Fisher plug/Fibre plug ✓ (1)
- 1.8.2 A screw ✓ (1)
- 1.8.3 Plastic plugs are used to secure:
- cupboards against a wall. ✓
  - mirrors against a wall.
  - portraits and similar objects against a wall.
  - objects, limited to certain weight, against walls.
- 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 elevation in FIGURE A.	West Elevation ✓	1
2	Identify the type of roof that is used on the building in FIGURE A.	Hipped roof ✓	1
3	Identify number 1.	Ridge Capping/Ridge plate/Ridge tile/Hip cap ✓	1
4	Identify number 4.	Balcony/Floor slab of balcony/Cantilever/Concrete slab ✓	1
5	Identify number 5.	External door/Entrance door/Door/Outside door ✓	1
6	Identify number 7.	Gutter ✓	1
7	Identify number 8.	Rainwater down pipe/RWDP/Down pipe ✓	1
8	Identify number 12.	Wash trough/Wash tub ✓	1
9	Identify number 13.	Built-in cupboard/BIC ✓	1
10	Identify number 15.	Landing ✓	1
11	Identify the company that printed the building plan.	Dlamini printers ✓	1
12	Name a suitable material that can be used for the manufacturing of number 2.	Fibre cement/Galvanised sheeting/Timber/Plastic/PVC/Polyvinylchloride✓	1
13	Name the drawing symbol in the column for the notes in FIGURE 2 that must be installed in the kitchen.	Electricity meter/Electrical meter/Watt meter/Prepaid meter ✓	1
14	Name the drawing symbol in the column for the notes in FIGURE 2 that indicates the type of bricks for the building.	Face brick ✓	1
15	Name a material that should NOT be used to manufacture the frame of number 9 for coastal areas.	Steel/Mild steel/Iron/Ferrous metals ✓	1

16	Name a material that can be used to manufacture the sanitary fitting indicated by number 11.	Stainless steel/Plastic/Ceramic/Granite/Acrylic/Fibre Glass/Concrete✓	1
17	Who checked the building plan?	P Carter ✓	1
18	How many types of windows are used in FIGURE B?	2 ✓	1
19	What does the abbreviation <i>NGL</i> at number 6 stand for?	Natural ground level ✓	1
20	Give the reference code for this plan.	QP 2-2019 ✓	1
21	Which room will electrical symbol 16 serve?	Lounge ✓	1
22	Describe the purpose of number 3.	Prevent people from falling off/through. ✓✓	2
23	Explain what the curved lines between the electrical installations in FIGURE B indicate.	Electrical wiring/Wiring/Electrical cable/Wiring from light switch to light/Shows which switch operates which electrical fitting. ✓✓	2
24	Explain why the light switch is mounted on the outside of the bathroom.	To prevent steam/moisture entering the switch/To prevent electrical shock due to moisture/For safety purposes ✓	1
25	Identify in FIGURE 2 which elevation does NOT have windows.	North elevation ✓	1
26	Identify the thickness of the internal wall in FIGURE 2.	110 mm ✓	1
27	Differentiate between symbols 13 and 15 in terms of their purpose.	13 – Built-in cupboard: to store items. ✓ 15 – Landing: to rest/safety feature/change of direction of stairs ✓	2
28	Justify why FIGURE B is a ground floor plan.	Ground floorplan: <ul style="list-style-type: none"> <li>• does not indicate the roofline ✓</li> <li>• does not indicate the balcony</li> <li>• indicate an entrance door to the house</li> <li>• indicate a step at the entrance door</li> <li>• the position of the windows and door correlate with the positions of the window and door on the west elevation</li> </ul>	1

29	Predict what will happen if number 10 is NOT installed.	Water/Damp will penetrate into the wall. ✓	1
30	Redraw the staircase in FIGURE B in the adjacent column and indicate the direction of the flight with arrows.		2
31	Calculate the total length of the wall on the eastern side of the building. Show ALL calculations.	<p> <math>220 \checkmark + 2\ 600 \checkmark + 110 \checkmark + 3\ 400 \checkmark + 220 \checkmark</math>  <math>= 6\ 550 \text{ mm or } 6,55 \text{ m } \checkmark</math> </p> <p><b>IF INCORRECT METHOD IS USED TO CALCULATE THE ANSWER USE THE FOLLOWING SLIDING SCALE:</b></p> <ul style="list-style-type: none"> <li>• 4 MARKS WILL BE AWARDED IF ALL FIVE VALUES ARE CORRECT</li> <li>• 3 MARKS FOR FOUR VALUES CORRECT</li> <li>• 2 MARKS FOR THREE VALUES CORRECT</li> <li>• 1 MARK FOR 2 VALUES CORRECT</li> </ul>	6
		<b>TOTAL:</b>	<b>40</b>

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

3.1 3.1.1 16 mm ✓ (1)

3.1.2 Skirting ✓ (1)

3.1.3 7,5 m<sup>2</sup> ✓ (1)

3.1.4 Mullion ✓ (1)

3.2 3.2.1

- Transom ✓
- Bottom rail of fanlight/ Bottom rail ✓
- Top rail of casement/ Top rail ✓
- Frame stile/Stile/Casement stile/Fanlight stile

**ANY THREE OF THE ABOVE** (3)

3.2.2 Drip groove/Throat/Groove ✓ (1)

3.3  
3.3.1

A	B	C	D
			<b>Area of roof sheeting needed:</b>
			Width of the roof = 150 mm + 8 000 mm + 150 mm
			= 8 300 mm ✓
✓			Length of sheet = Length of rafter + overhang of roof sheeting
2/	8,3 ✓		= 2 900 mm + 50 mm = 2 950 mm ✓
	<u>2,95</u> ✓	48,97 m <sup>2</sup> ✓	NO UNIT IN FINAL ANSWER NO MARK

(6)

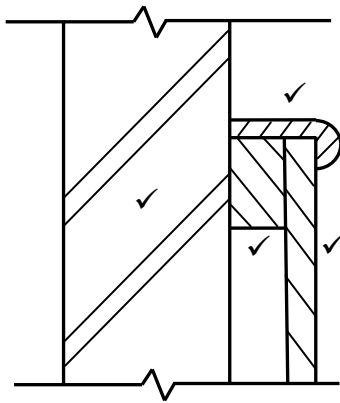
3.3.2

			<b>Number of ridge plates needed:</b>
			Length of one ridge plate = 1 800 mm
			Width of roof covering = 8 300 mm
			Number of ridge plates = $\frac{\text{Width of roof covering}}{\text{Length of one ridge plate}}$
			= $\frac{8,3}{1,8}$ ✓
			= 4,61
			= 5 ✓ ridge plates of 1,8 m long are needed

(3)



3.4

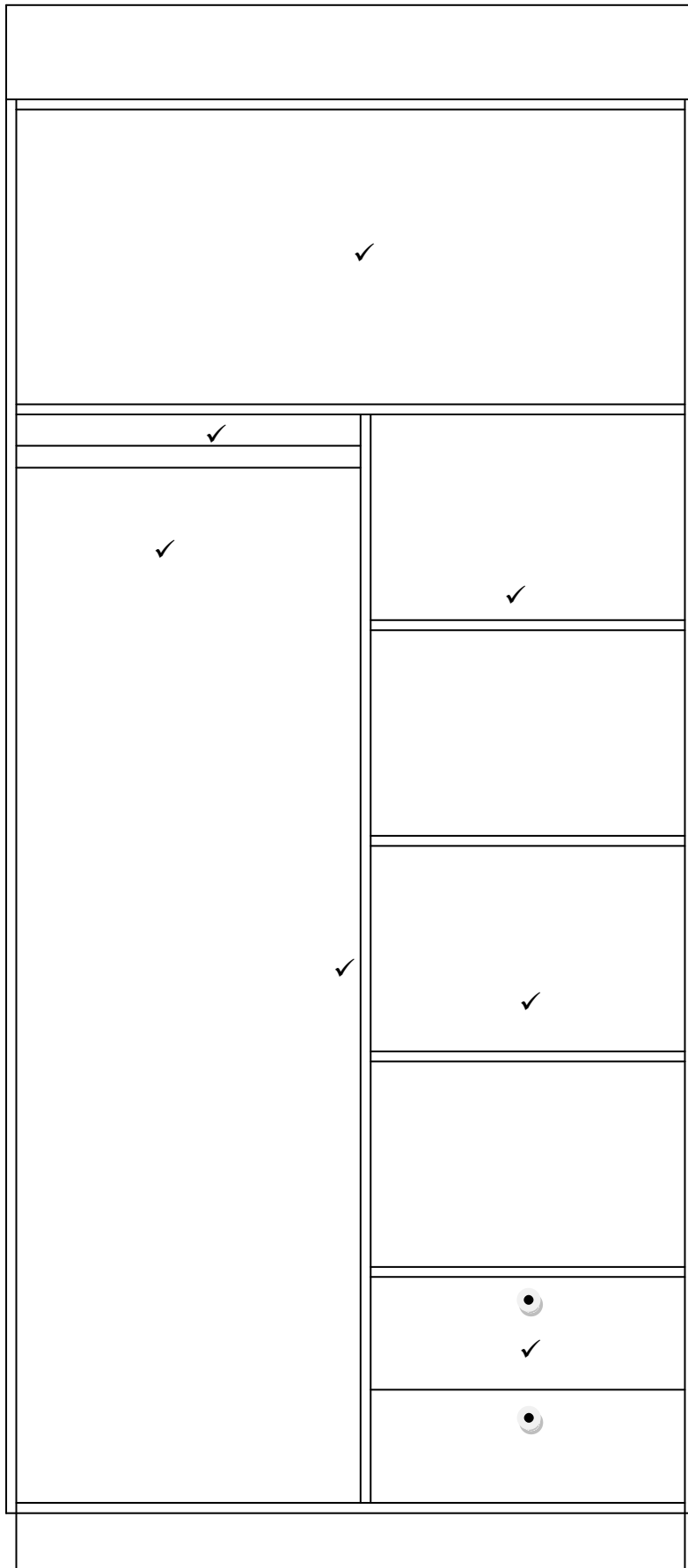


Correctness ✓

ASSESSMENT CRITERIA	MARK
Wall	1
Capping	1
Rough ground	1
Tongue and groove board	1
Correctness of drawing	1
<b>TOTAL:</b>	<b>5</b>

(5)

3.5



**DRAWERS CAN BE THE FULL WIDTH OR PLACED ON THE LEFT SIDE.**

**TWO SHELVES CAN ALSO BE ON THE LEFT SIDE**

ASSESSMENT CRITERIA	MARK
Top shelf (full width)	1
Intermediate side in middle	1
Hanging space on left side	1
Oval hanging rail	1
FOUR shelves	2
TWO drawer units below shelving	1
Correctness of drawing	1
<b>TOTAL:</b>	<b>8</b>

Correctness ✓

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

- 4.1      4.1.1      A Jigsaw ✓  
                         B Lathe ✓ (2)
- 4.1.2      • Clean the jigsaw blade after use. ✓  
                 • Store in such a way that the blade is protected. ✓  
                 • Use blade only for the intended purposes.  
                 • Do not force the jigsaw blade to cut through material.  
                 • Avoid the use of blunt saw blades.  
                 • Keep the power cord away from the blade.  
                 • Always plan your cuts carefully – make pre-cuts if necessary to prevent blade from breaking.  
                 • Use the correct blade for the specific work.  
                 • Check if the blade is tightly/correctly secured and is not bent.  
                 **ANY TWO OF THE ABOVE** (2)
- 4.1.3      • Always ensure that the work piece/stock is fastened tightly. ✓  
                 • Ensure that the work piece/stock moves freely. ✓  
                 • Ensure that the tool rest is locked as close as possible to the work piece/stock.  
                 **ANY TWO OF THE ABOVE** (2)
- 4.2      • Store the belt sander in a place where it cannot be damaged by dirt or dust. ✓  
                 • Store in a wooden box away from moisture.  
                 **ANY ONE OF THE ABOVE** (1)
- 4.3      • Strength ✓  
                 • Density ✓ (2)
- 4.4      • Sand the wood surface with different grades of sandpaper ✓  
                 • Sand until the surface is smooth and free from scratches. ✓  
                 • Remove all dust. ✓ (3)
- 4.5      • A conventional trapdoor can be removed/consists of a panel that can be pushed up ✓  
                 • Hinged trapdoor opens upwards/downwards by pivoting around the hinges. ✓ (2)
- 4.6      Timber framework ✓  
                 Panel ✓  
                 Cover strip  
                 **ANY TWO OF THE ABOVE** (2)
- 4.7      King post: 114 mm x 38 mm ✓  
                 Branderling: 38 mm x 38 mm/38 mm x 50 mm ✓ (2)

4.8 Hurricane clips:

- Securing purlins to rafters (roof truss) ✓
- Securing trusses to wall plates
- Ideally used at eaves overhangs
- Where truss cross each other or where truss members cross each other or meet at 90°
- To fix opposite faces of roof members.

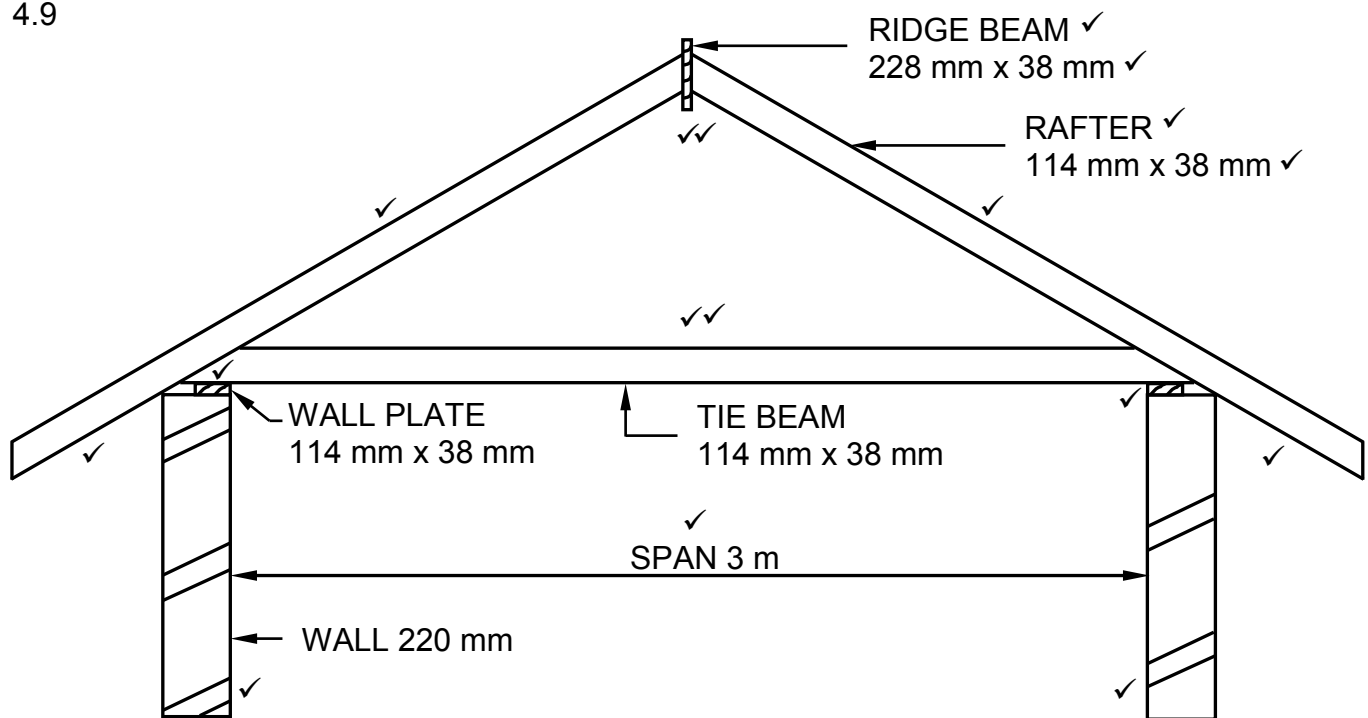
**ANY ONE OF THE ABOVE**

Storm clips:

- Securing roof tiles to the battens. ✓

(2)

4.9



ASSESSMENT CRITERIA	MARK
Walls drawn correctly	2
Wall plates drawn correctly	2
Tie beam drawn correctly	2
Rafters drawn correctly	2
Ridge beam drawn correctly	2
Overhang drawn correctly	2
Labels (any TWO)	2
Span	1
Dimensions of members (any TWO)	2
Application of scale: ONE or TWO incorrect = 3 THREE or FOUR incorrect = 2 More than FIVE incorrect = 1 NO measurement correct = 0	3
<b>TOTAL:</b>	<b>20</b>

Scale ✓✓✓

**DRAWING NOT TO SCALE**  
**A MASK MUST BE USED TO MARK THIS QUESTION**

(20)

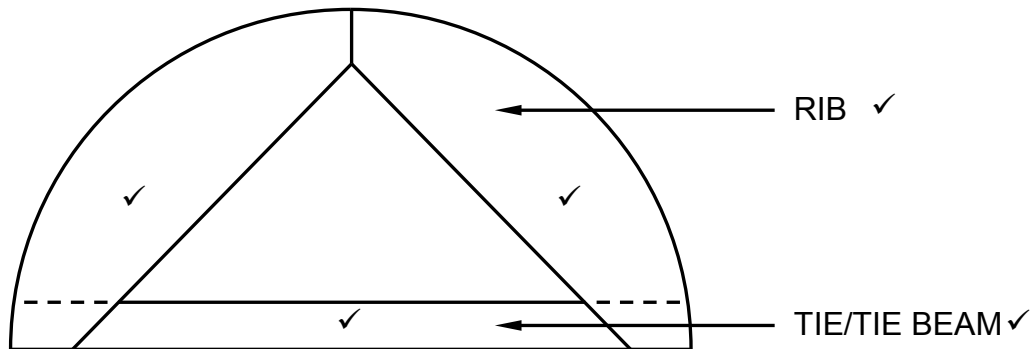
**TOTAL [40]**

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

5.1 5.1.1 Open laggings ✓ (1)

5.1.2 Closed laggings ✓ (1)

5.2



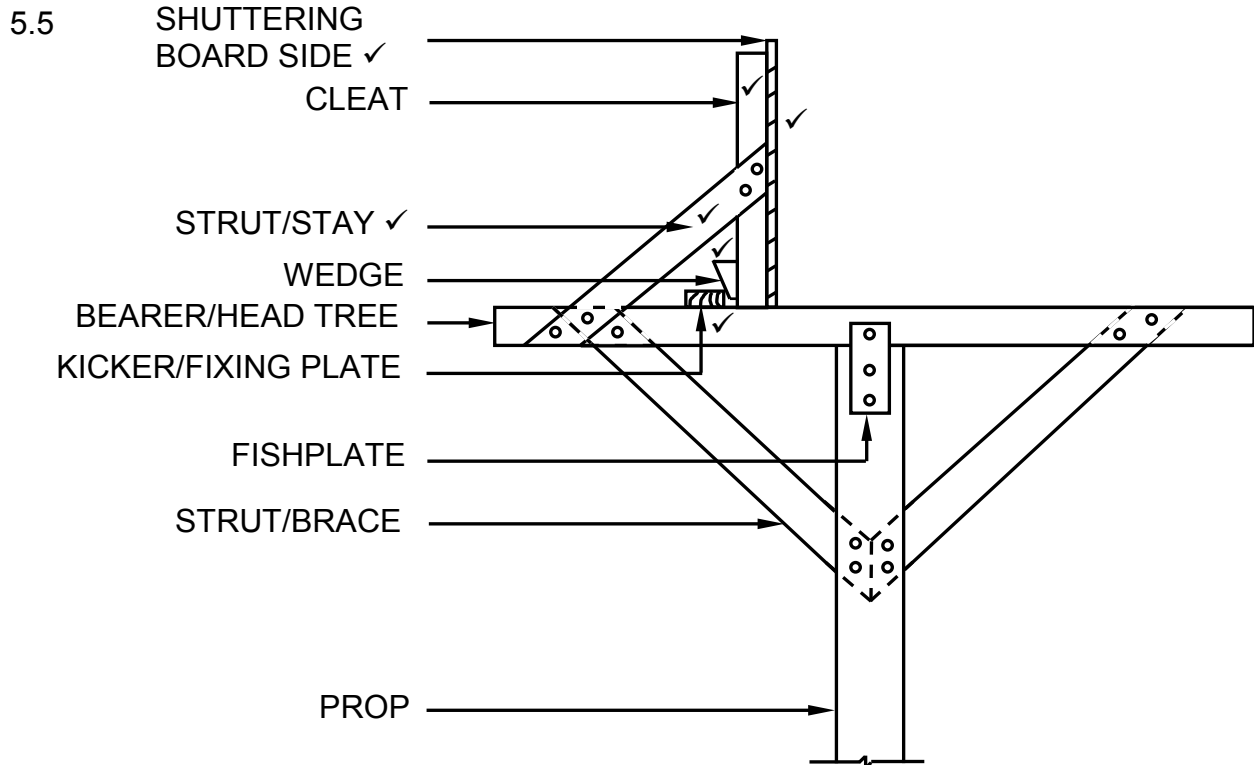
ASSESSMENT CRITERIA	MARK
Tie beam	1
Ribs	2
Two labels	2
Correctness of drawing	1
<b>TOTAL:</b>	<b>6</b>

Correctness ✓

(6)

5.3 Steel/Metal/Hard board/Plywood/Fibre glass/Plastic ✓ (1)

5.4 Releasing oil/Shuttering oil/Plastic ✓ (1)



ASSESSMENT CRITERIA	MARK
Shuttering board side	1
Cleat	1
Kicker/Fixing plate	1
Wedge	1
Stay/Strut	1
Any TWO labels	2
Correctness of drawing	1
<b>TOTAL:</b>	<b>8</b>

Correctness ✓

**IF CANDIDATE DREW THE FULL DRAWING, MARK ONLY THE LEFT HAND SIDE.**

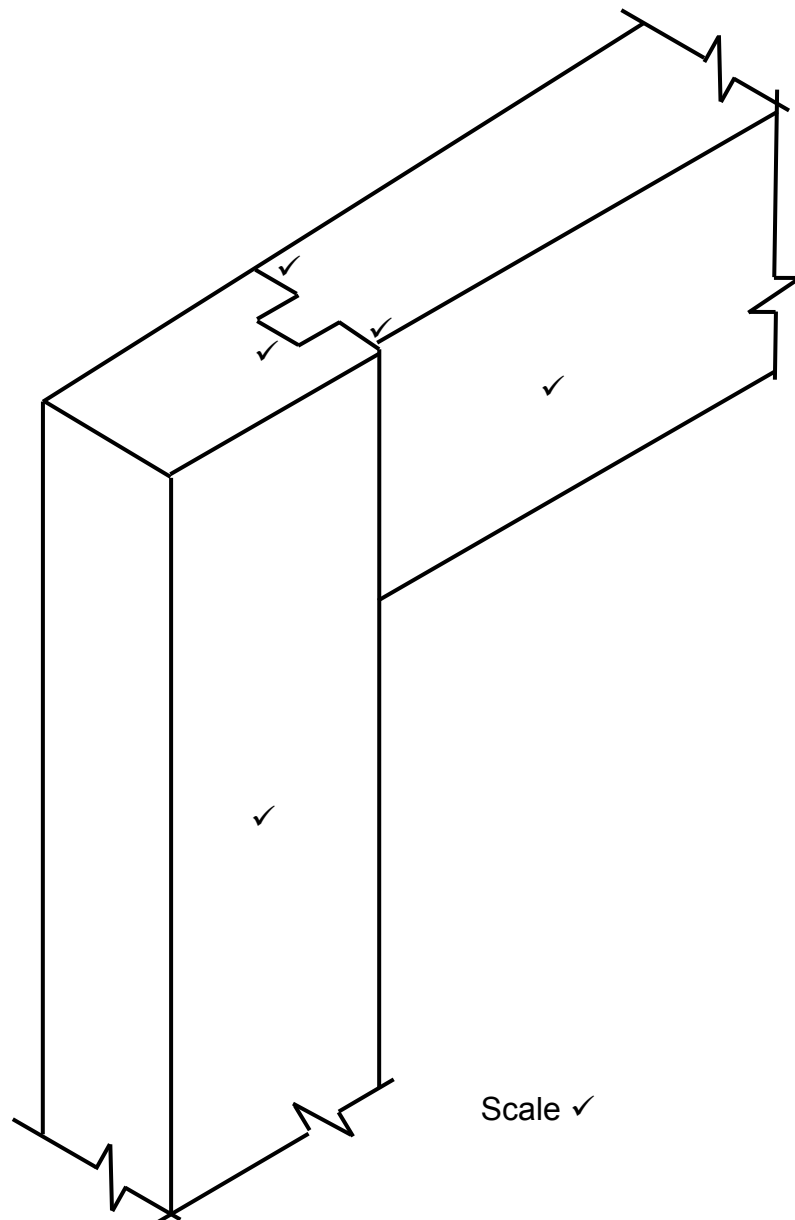
**IF CANDIDATE DREW RIGHT SIDE ONLY, A MAXIMUM OF SEVEN MARKS WILL BE AWARDED.**

(8)

- 5.6
- A - Needle/Cleat ✓
  - B - Straining sill ✓
  - C - Inclined strut/Raking strut/Strut ✓
  - D - Horizontal shore/Shore ✓
  - E - Folding wedge ✓
  - F - Wall ✓

(6)

5.7



ASSESSMENT CRITERIA	MARK
Stile	1
Top rail	1
Haunch	3
Application of scale	1
<b>TOTAL:</b>	<b>6</b>

**IF THE EXPLODED VIEW IS DRAWN A MAXIMUM OF 5 MARKS WILL BE AWARDED.**

(6)

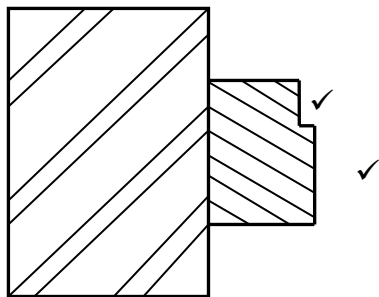
**TOTAL 30**



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

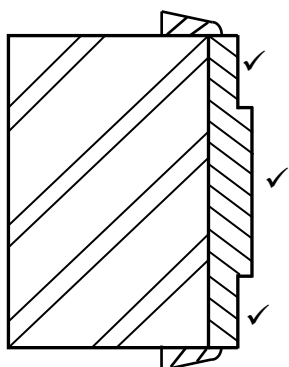
- 6.1      6.1.1      D ✓ (1)
- 6.1.2      D ✓ (1)
- 6.1.3      A ✓ (1)
- 6.1.4      A ✓ (1)
- 6.1.5      B ✓ (1)
- 6.2.1      Double bare face mortise and tenon joint ✓ (1)
- 6.2.2      Framed ledge braced batten door. ✓ (1)

6.3



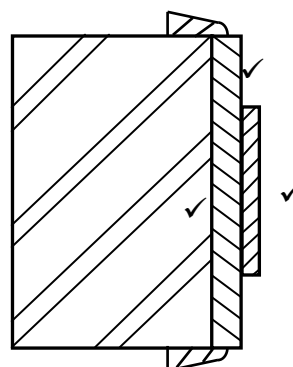
Doorframe ✓

(3)



Jamb lining

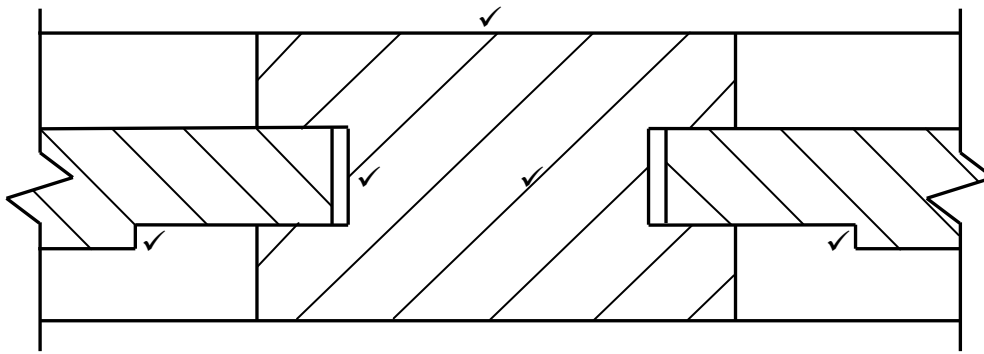
OR



ASSESSMENT CRITERIA	MARK
Frame profile of door	2
Jamb lining profile	3
Any title	1
<b>TOTAL:</b>	<b>6</b>

(3)

6.4



ASSESSMENT CRITERIA	MARK
Muntin	1
Raised panels	2
Space for expansion and shrinkage	1
Hatching	1
Correctness of drawing	1
<b>TOTAL:</b>	<b>6</b>

Correctness ✓

(6)

6.5

- On a cupboard door ✓
- On a drawer ✓

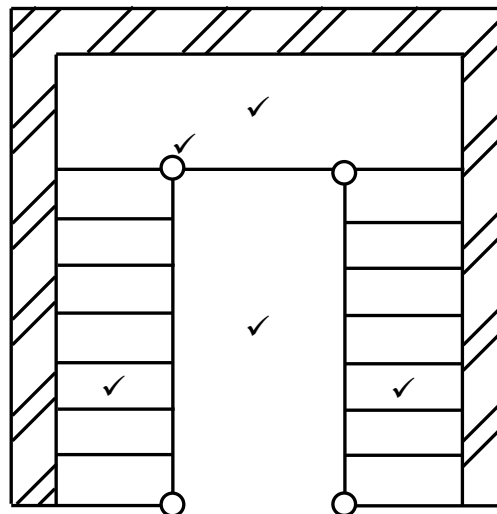
(2)

6.6

Night latch ✓ (**NO BRAND NAMES ACCEPTED**)

(1)

6.7

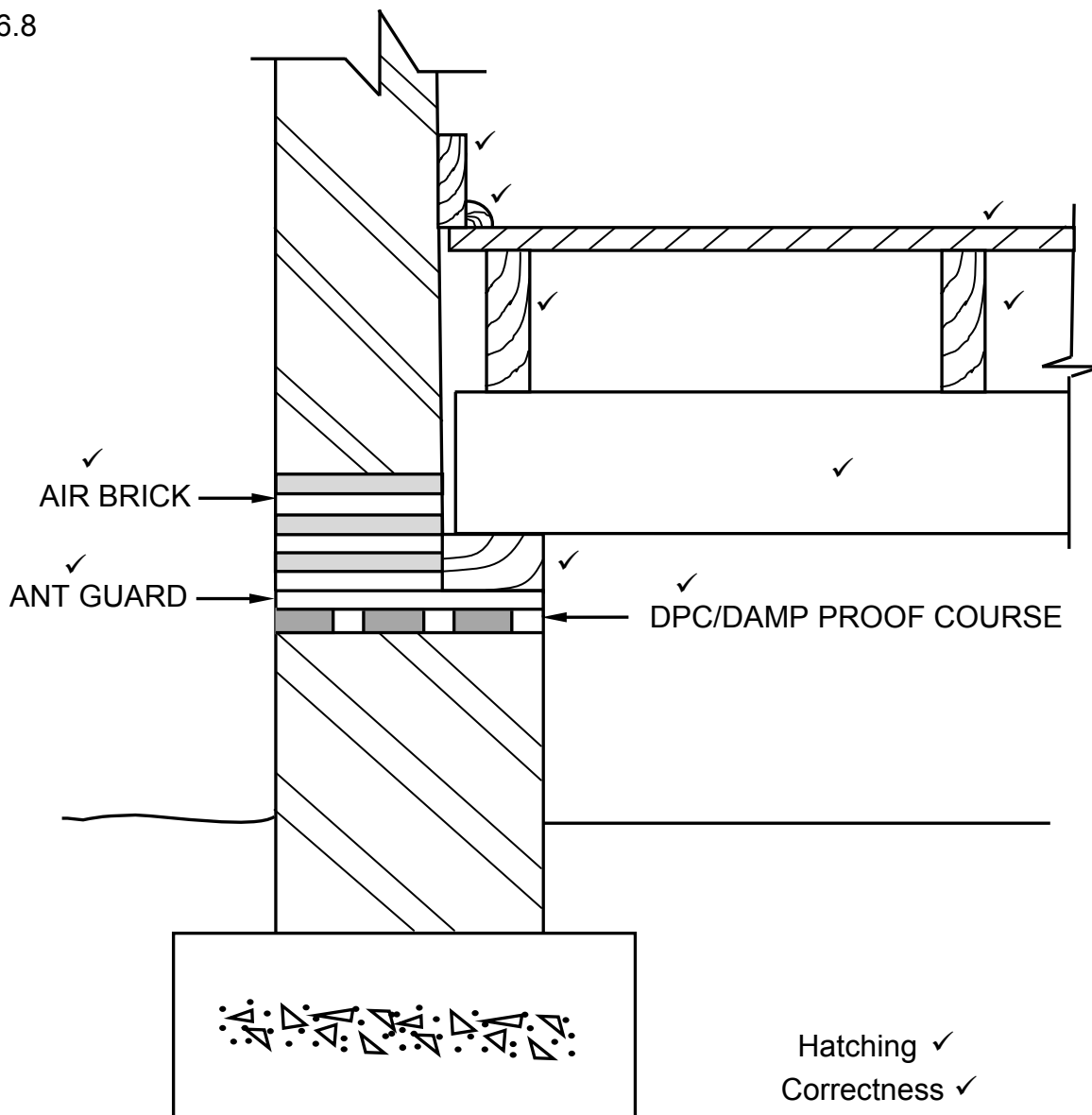


Correctness ✓

ASSESSMENT CRITERIA	MARK
Treads on each flight of stairs	2
Half-landing	1
Newel post	1
Open well	1
Correctness of drawing	1
<b>TOTAL:</b>	<b>6</b>

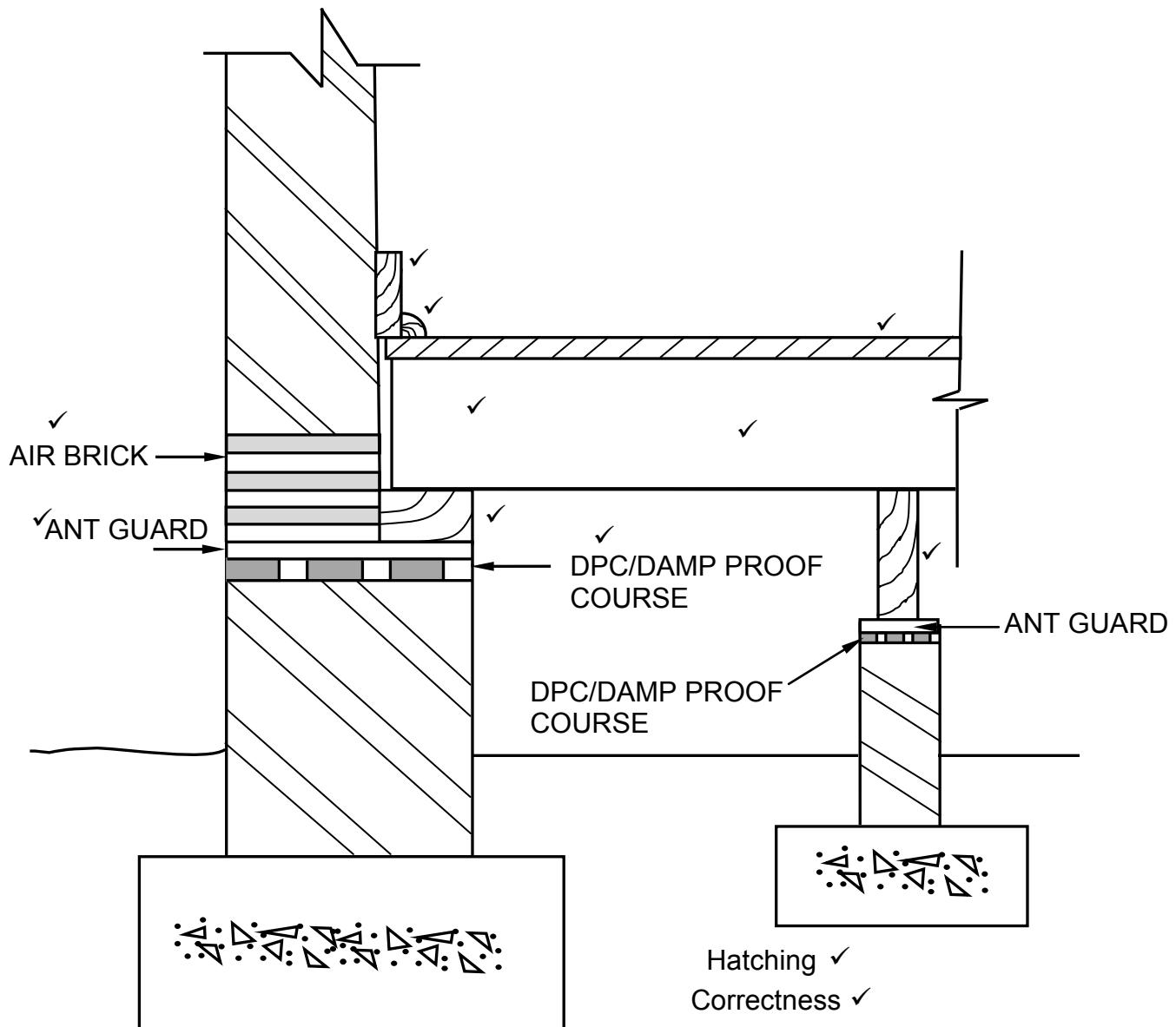
(6)

6.8



ASSESSMENT CRITERIA	MARK
Bearer	1
Joists	2
Wall plate	1
Tongue and groove floorboard	1
Skirting	1
Quadrant	1
Hatching	1
Labels for: Ant guard	1
Air brick	1
DPC	1
Correctness of drawing	1
<b>TOTAL:</b>	<b>12</b>

(12)



ASSESSMENT CRITERIA	MARK
Bearer	1
Joists	2
Wall plate	1
Tongue and groove floorboard	1
Skirting	1
Quadrant	1
Hatching	1
Labels for: Ant guard	1
Air brick	1
DPC	1
Correctness of drawing	1
<b>TOTAL:</b>	<b>12</b>

(12)  
[40]**TOTAL: 200**