basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

SENIOR CERTIFICATE/ NATIONAL SENIOR CERTIFICATE

GRADE 12

CIVIL TECHNOLOGY: WOODWORKING

NOVEMBER 2020

MARKING GUIDELINES

MARKS: 200

These marking guidelines consist of 21 pages.

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

1.1 1.1.1 E ✓ (1)

1.1.2 C ✓ (1)

1.1.3 D ✓ (1)

1.1.4 H ✓ (1)

1.1.5 B ✓ (1)

1.1.6 F ✓ (1)

1.1.7 A/I ✓ (1)

1.1.8 G/K ✓ (1)

1.2 Galvanising:

- Adds strength to the original, uncoated metal. ✓
- Make it last longer/Preservation/Durable.
- Decorative/Enhance appearance.
- Makes metal thicker than the uncoated metal.
- Nails and screws prevent staining.
- Prevent the material from rusting/corroding.

ANY ONE OF THE ABOVE (1)

1.3

- Material safety data sheet. ✓
- Sufficient information regarding the protection of health and safety.

ANY ONE OF THE ABOVE (1)

1.4

- Materials can be moved manually/by means of a wheelbarrow/trolley. ✓
- Materials can be moved by means of machinery/builders hoist/truck/ crane/tractor/conveyor/fork lift. ✓ (2)

1.5 Water-based paint:

- Dry quickly. ✓
- Allows marks/smudges to be easily cleaned with water. ✓
- Give an elastic flexible finish.
- Durable
- Gives a decorative finish.
- Enhances the appearance.
- Resistant to cracking.
- Cost effective/Cheaper.
- Easy to apply.

ANY TWO OF THE ABOVE (2)

1.6 1.6.1 Multi detector ✓ (1)

1.6.2 Care of the multi detector:
- Place the multi-detector in its holder directly after use. ✓
- Do not bump the instrument against objects or drop it. ✓
- Protect the multi-detector against moisture and direct sunlight.
- If the measuring tool is not used for a long period, remove the battery.
- Wipe away dirt or spots with a dry, soft cloth.
- Switch off the device before storing.

ANY TWO OF THE ABOVE (2)

1.7
- Drill a hole in the wall. ✓
- Insert the plastic plug into the hole. ✓
- Align the hole in the bracket with the hole in the wall, and fasten the screw. ✓ (3)

[20]

QUESTION 2: GRAPHICS AS MEANS OF COMMUNICATION (GENERIC)

NO.	QUESTION	ANSWER	MARKS
1	Identify the elevation in FIGURE A.	South Elevation ✓	1
2	Describe the type of house that is indicated in FIGURE A.	Double-storey house/Building/Multi-storey building ✓	1
3	Identify number 1.	Ridge Capping/Ridge tile/Ridge plate/Ridge ✓	1
4	Identify number 3.	Fascia board ✓	1
5	Identify number 4.	Overhang/Eave/Dimension line ✓	1
6	Identify the fastener indicated by number 5.	Holder bat/Clamp/Clip ✓	1
7	Identify number 6.	Window/Window frame/Casement/ Casement frame ✓	1
8	Identify number 7.	Shoe/Down pipe outlet/ Spout ✓	1
9	Identify number 8.	Natural ground level/NGL ✓	1
10	What does *DPM* stands for, as indicated in the notes?	Damp proof membrane ✓	1
11	Identify number 10.	Built-in cupboard/BIC ✓	1
12	Recommend a suitable material that can be used for the manufacturing of number 2 in FIGURE A.	Fibre cement/Galvanised sheeting/Sheet metal/Timber/Wood/Plastic/Fibre glass/Aluminium sheeting ✓	1
13	Name the TWO elevations on which number 2 is installed.	West elevation ✓ East elevation ✓	2
14	Describe the purpose of number 3.	The gutter is fixed against it. ✓ It finishes off the roof. Protect roofs/rafters from rainwater.	1
15	Deduce ONE feature that has been omitted from the elevation in FIGURE A.	Step missing at the door ✓ Sill missing at the window	1
16	Recommend any TWO sanitary fitments carrying waste water other than a bath that can be installed in the room indicated by number 11.	Wash basin/Wash hand basin/Hand basin/Basin/WB/WHB/HB ✓ Shower/SH ✓	2

17	What sanitary fixture carrying soil water can be installed in the room indicated by number 12?	Water closet/WC ✓ Bidet/BT	1
18	Describe the error that appears at number 6 in the elevation in FIGURE A.	The two side windows are opening to the wrong sides/No window sill/The window drawn in FIGURE A is not the same as that in the window schedule/Window opening.✓	1
19	State the reference code for this plan.	QP 4 - 2020 ✓	1
20	Which room will number 13 serve?	Bedroom 2 ✓	1
21	What does the line between numbers 13 and 14 represent?	Electrical wiring/cable/Wiring/Wiring from light switch to light/Shows which switch operates which electrical fitting/Electrical connection	1
22	Differentiate between number 15 in FIGURE B and number 17 in the notes.	15: Single tube fluorescent light. ✓ 17: Double/ tube fluorescent light. ✓ 15: Will use less electricity/Watt than 17/ 15: Will provide less light than 17/ 15: Running cost will be cheaper than 17. 15: Has one tube/ 1 x 40 Watt. 17: Has two tubes/ 2 x 40 Watt.	2
23	Explain the installation of brick force from the top of the window to the wall plate, as indicated by the architect.	Brick force must be installed between every course above the window up to wall plate. ✓	1
24	Recommend a possible finish for the outside walls of the house.	Face bricks ✓ Plaster and paint/Plaster/Paint/Plaster finish (Smooth finish/Splatter finish/Wavy finish/Bagging finish) Cladding/Tiling	1
25	Deduce from FIGURE 2 which elevation does NOT have windows.	East elevation ✓	1
26	Deduce the thickness of the external wall from FIGURE 2.	220 mm ✓	1
27	Name a material that can be used to close the open sides of number 16.	Wood/Timber/Stainless steel/Mild steel/Steel/Aluminium/Glass/Perspex ✓	1
28	Name the town in which the proposed dwelling will be build.	Cradock ✓	1

29	Calculate the area of the bathroom. Show ALL calculations. Give your answer in m².	ℓ x b = 2 ✓m x 2 m ✓**OR** = 4 m² ✓ ℓ x b 2 000 mm x 2 000 mm = 4 m²	3
30	Calculate the total length of the wall on the eastern side of the building. Show ALL calculations. The length must be indicated in metres.	220 ✓+ 3 000 ✓ + 110✓ + 1 400 + 110 + 2 000 ✓+220✓ = 7 060 mm = 7,06 m ✓ OR 220 + 3 000 + 110 + 3 510 + 220 = 7 060 mm = 7,06 m	6
		TOTAL:	**40**

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

3.1 Give ONE term for the following descriptions:

3.1.1 Quadrant ✓ (1)

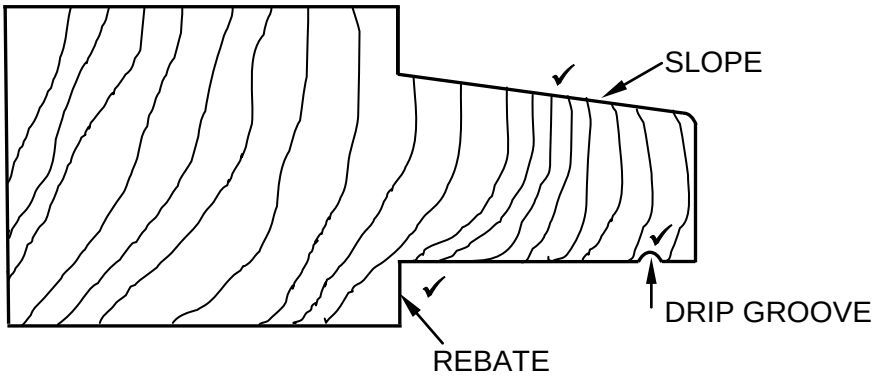
3.1.2 Mullion ✓ (1)

3.1.3 Putty ✓ (1)

3.1.4 Tongue-and –groove ✓ (1)

3.1.5 Top rail ✓ (1)

3.2

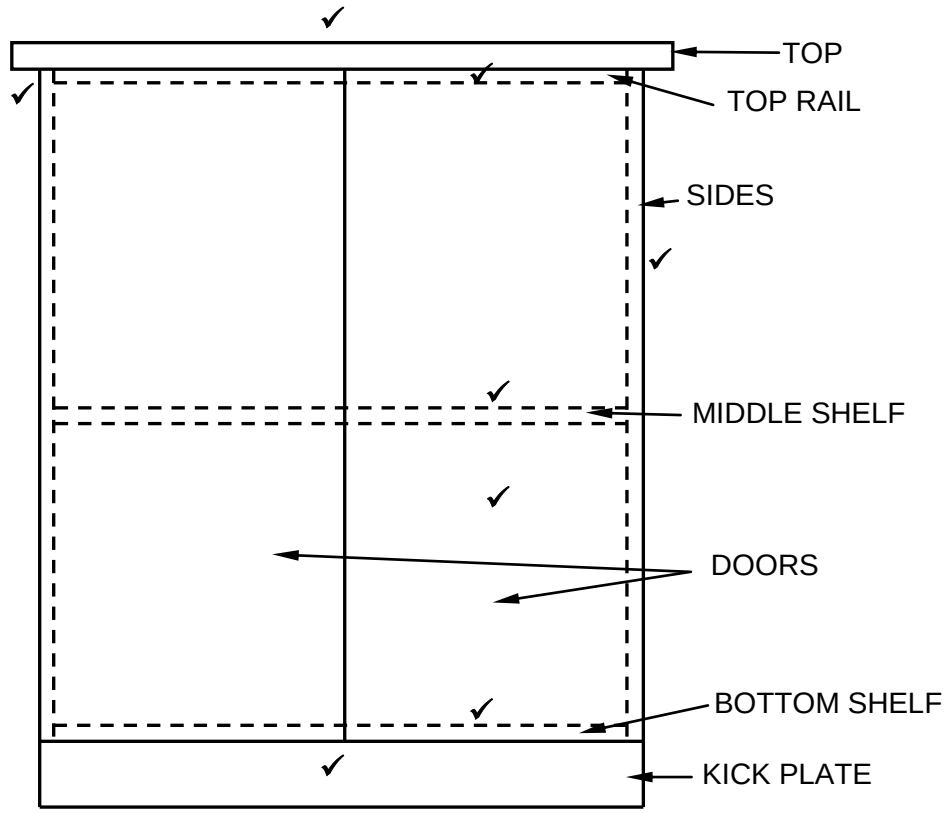


Correctness of drawing ✓

ASSESSMENT CRITERIA	MARK
Rebate	1
Drip groove	1
Slope	1
Correctness of drawing	1
TOTAL:	**4**

(4)

3.3



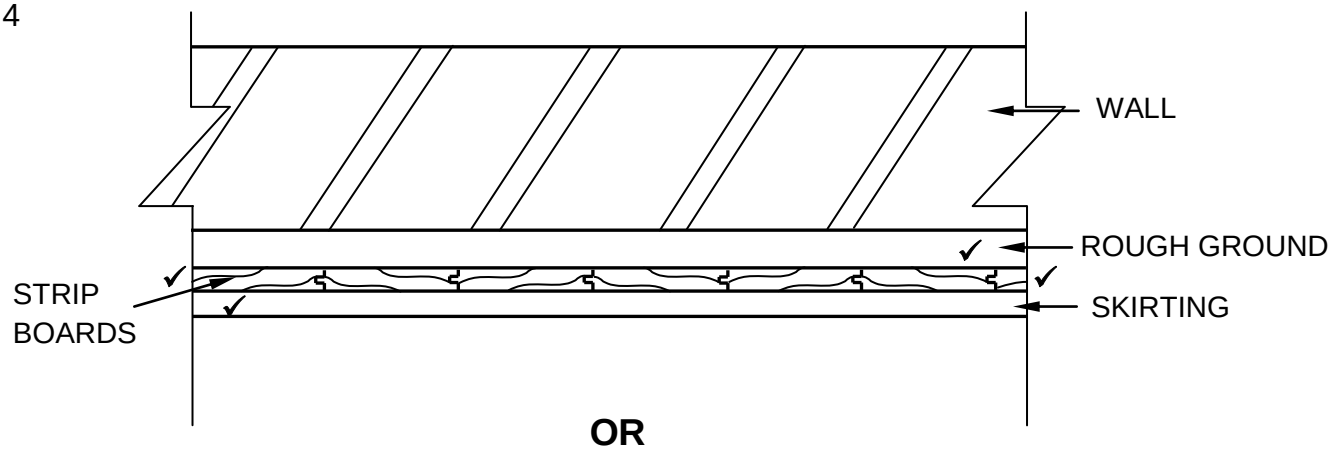
Correctness of drawing ✓

ASSESSMENT CRITERIA	MARK
Kick plate	1
Sides	1
Top rail	1
Bottom shelf	1
Top 32 mm thick	1
Top overhang 30 mm on either side	1
Middle shelf	1
Doors	1
Correctness of drawing/Scale drawing	1
TOTAL:	**9**

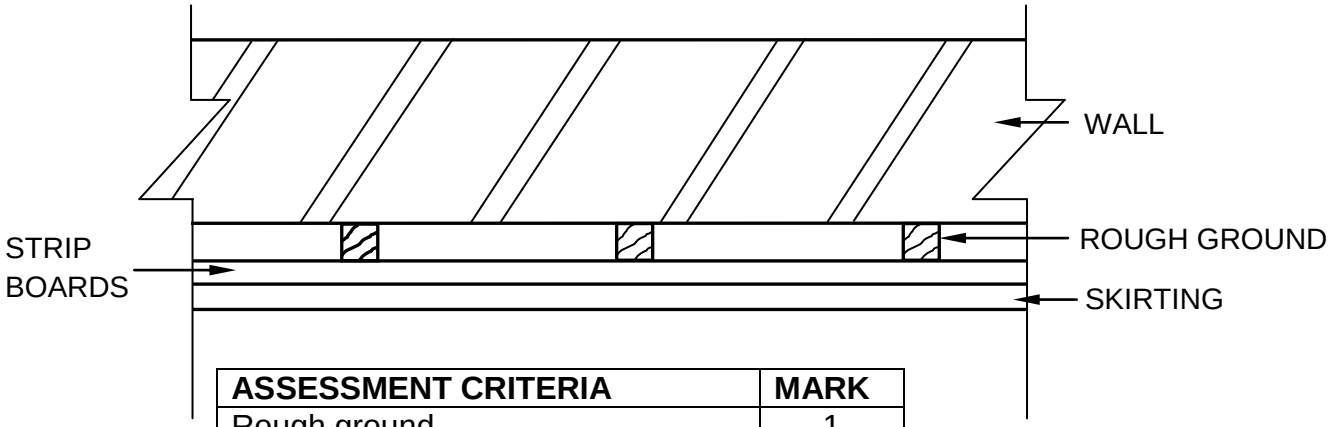
(9)

THE SIDES CAN ALSO BE INDICATED IN DARK LINES IF THE DOORS ARE FITTED BETWEEN THE SIDES

3.4



OR



ASSESSMENT CRITERIA	MARK
Rough ground	1
Strip boards	2
Skirting	1
TOTAL:	**4**

(4)

	A	B	C	D	
3.5.1				**LENGTH OF FASCIA BOARD NEEDED**	
				LENGTH OF THE ROOF	
				230 + 12 000 + 230	
				= 12 460 mm ✓	
				WIDTH OF THE ROOF	
				230 + 6 000 + 230	
				= 6 460 mm ✓	
				TOTAL LENGTH OF FASCIA BOARD NEEDED	
				2(12 460 + 6 460) ✓	
				= 37 840 mm ✓	
				OR	
				= 37,84 m	(4)
3.5.2				**LENGTH OF SKIRTING NEEDED**	
				INSIDE LENGTH OF WALL	
				12 000 – 220 – 220	
				= 11 560 mm ✓	
				INSIDE WIDTH OF WALL	
				6 000 – 220 – 220	
				= 5 560 mm ✓	
				TOTAL LENGTH OF SKIRTING NEEDED	
				2(11 560 + 5560) - 10 000 (door opening) ✓	
				= 24 240 mm ✓	
				OR	
				= 24,24 m	(4)

[30]

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

4.1 4.1.1 Belt sander/Portable belt sander ✓ (1)

4.1.2 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 injury.

ANY TWO OF THE ABOVE (2)

4.1.3 Prevent machine from being damaged by:
- corrosion/rust/dust/dirt ✓
- moisture.

ANY ONE OF THE ABOVE (1)

4.2 4.2.1 Adjusting the height of the table of the thickness planer while in operation:
- Can cause injury to the operator. ✓
- Can cause the wood to get stuck in the thickness planer. ✓
- Can put unnecessary strain on the thickness planer.
- Thickness planer will stops working.
- Thickness planer can be damaged.

ANY TWO OF THE ABOVE (2)

4.2.2
- Ensure that timber is free from metal objects before planing commenced. ✓
- Make sure the blades are sharp. ✓
- Ensure that the blade is properly fastened.

ANY TWO OF THE ABOVE (2)

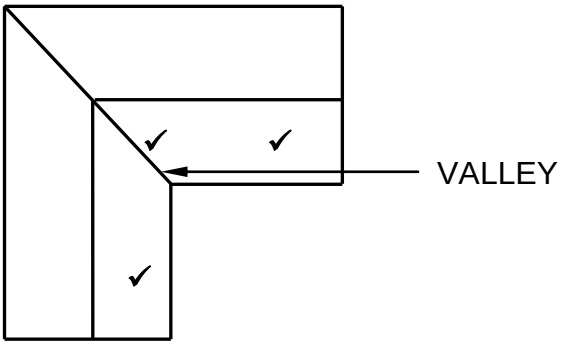
4.3 Different types of roof underlay:

4.3.1 Polypropylene/Plastic membrane ✓ (1)

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

4.3.3 A synthetic/plastic membrane or metal waterproofing membrane ✓ (1)

4.4



ASSESSMENT CRITERIA	MARK
Inclined roof on top	1
Valley	1
Inclined roof on left	1
TOTAL:	**3**

(3)

4.5 Eaves are closed because:
- it provides a more attractive finish. ✓
- it prevents birds from nesting in the roof.
- beam filling is not compulsory.

ANY ONE OF THE ABOVE (1)

4.6 Fibre cement board is water resistant. ✓ (1)

4.7 4.7.1 Concrete roof tiles are:
- quite prone to chemical weathering. ✓
- fragile and must be handled with care. ✓
- heavier than most other roofing materials.
- not always uniform in colour.
- not able to resists extreme weather conditions.
- more expensive.
- more labour intensive.
- porous at times.

ANY TWO OF THE ABOVE (2)

4.7.2 Thatch roofs:
- are extremely vulnerable to fire and must be treated with fire proof chemicals before use. ✓
- are more expensive to install than other roof covering.✓
- demands more maintenance.
- are susceptible to decay because thatch is an organic material.
- need re-thatching of the ridge capping every four to six years.

ANY TWO OF THE ABOVE (2)

4.7.3 Corrugated roof sheeting:
- Sharp edges can be dangerous. ✓
- If sheets are too thin, they may bend when stepped upon. ✓
- The sheets can rust along the edges if they have been cut using an angle grinder.

ANY TWO OF THE ABOVE (2)

4.8 The trapdoor framework must be secured to the:
- Tie beam ✓
- Brandering ✓ (2)

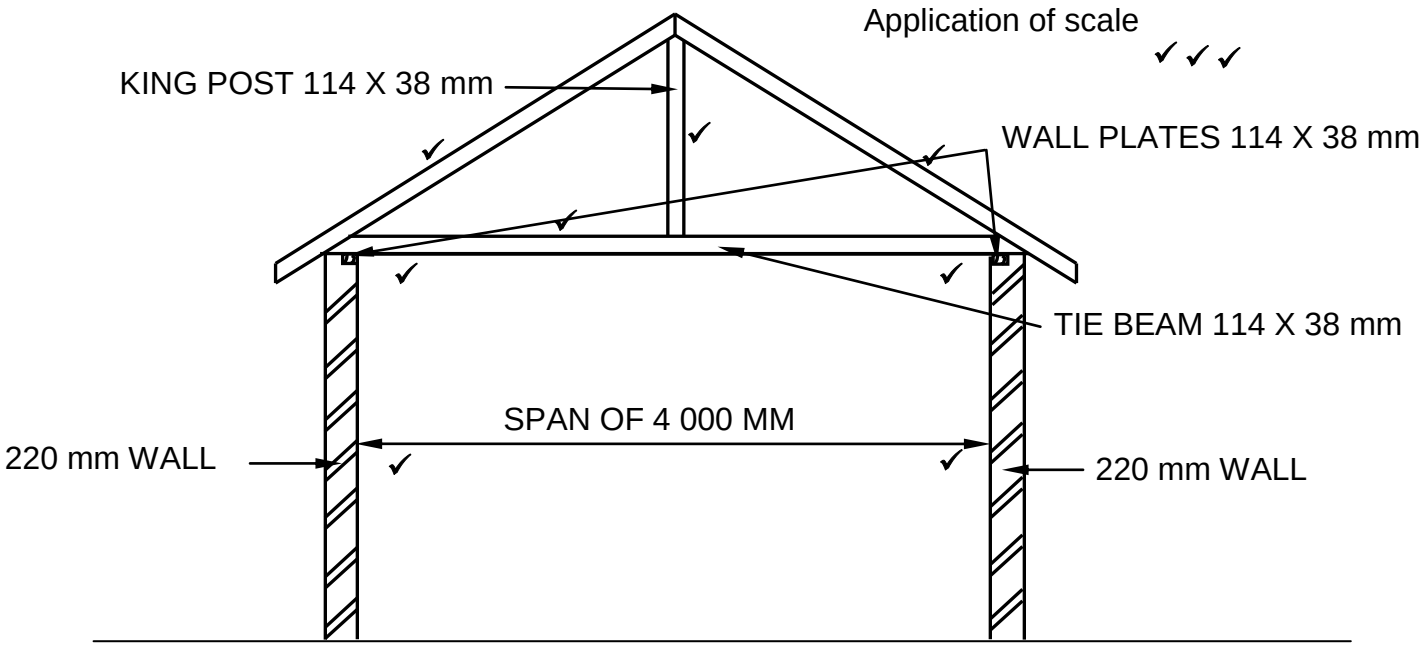
4.9 Mechanical graded timber:
- Indicates the quality/strength of timber. ✓
- Undergone mechanical tests using machines. ✓
- Machine stress- grading is highly effective and more accurate than visual grading.
- It provides a reliable and consistent method of grading timber.
- Mechanically graded timber is most commonly used in engineered connector plate roof trusses.
- Mechanically graded timber is easily available because the process is faster.

ANY TWO OF THE ABOVE (2)

4.10 Timber must be preserved:
- to enhance the appearance of timber. ✓
- to prevent fungi growth. ✓
- to prevent fungal discolouration of timber.
- to prevent insect attacks.
- to protect it from the elements of the nature.
- to prevent shrinkage and warping.
- so that projects have a tough, durable, water-resistant and clear finish.
- to bring out the grain of the timber.
- to make it resistant to water, heat, stains and scratches.
- extend the lifespan of the timber.
- because it takes time to decay.

ANY TWO OF THE ABOVE (2)

4.11



Correctness of drawing ✓

ASSESSMENT CRITERIA	MARK
220 mm walls with inside span of 4 000 mm	2
Wall plates 114 x 38 mm	2
Tie beam 114 x 38 mm	1
Rafters 114 x 38 mm	2
King post 114 x 38 mm	1
Correctness of drawing	1
Application of scale ONE or TWO incorrect = 3 THREE or FOUR incorrect = 2 More than FIVE incorrect = 1 NO measurements correct = 0	3
TOTAL:	**12**

(12)

[40]

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

5.1 A – Rib ✓
B – Tie/Opening between ribs✓
C – Lagging ✓
D – Bearer ✓
E – Horizontal brace/Strut ✓ (5)

5.2 An adjustable steel prop is preferred because…
- it is stronger than a wooden prop. ✓
- it can be adjusted much easier than a wooden prop.
- it can provide a much more accurate height adjustment during installation.

ANY ONE OF THE ABOVE (1)

5.3 5.3.1 Double flying shore/Flying shore/Raking shore ✓ (1)

5.3.2 A – Folding wedges:
Allow the raising or lowering of the dead shore to the required height. ✓ (1)

5.3.3 Steel dogs:
- are used to secure the joint between soleplate/needle and dead shore. ✓
- help to keep the construction more rigid/stable/firm.

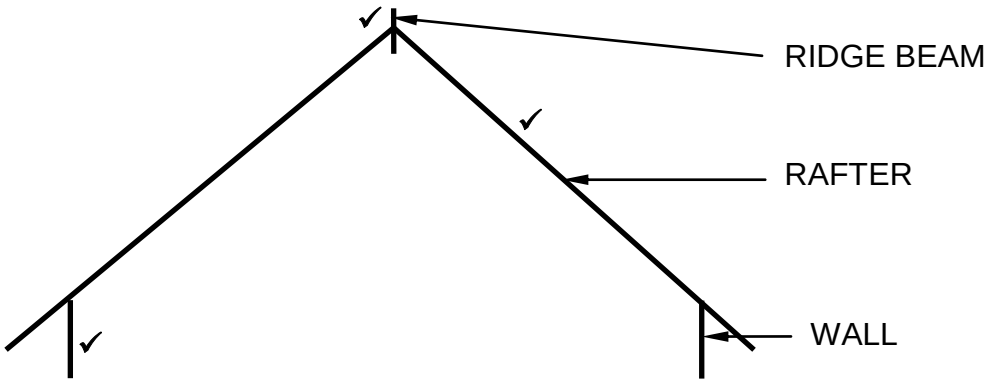
ANY ONE OF THE ABOVE (1)

5.4

No	Mistakes in the construction of the dead shore	Possible solutions to rectify the mistakes
1	The needle is not secured by means of a steel dog ✓	Secure with steel dog. ✓
2	The dead shores have no soleplates. ✓	Sole plates should be installed at the bottom of the dead shores.✓
3	No folding wedges.	Folding wedges should be placed under the dead shores.
4	The needle do not rest properly on the dead shore on the right side.	Move dead shore to the left and secure needle properly on dead shore.
5	Needle is not level.	Set needle level.
6	No brace between the needle and the dead shore.	Secure a brace between the needle and dead shore.

ANY TWO MISTAKES WITH THE CORRESPONDING SOLUTIONS OF THE ABOVE OR ANY OTHER (4)

5.5 Differentiate between a couple roof truss and a collar-tie roof truss.

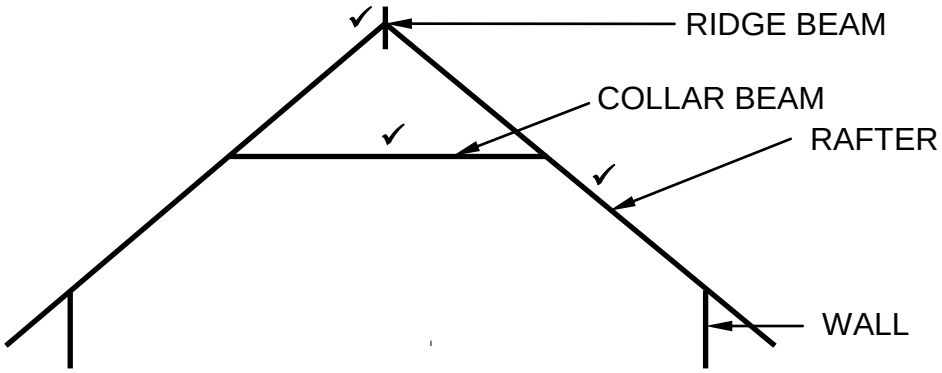


COUPLE ROOF TRUSS

Correctness of drawing ✓

ASSESSMENT CRITERIA – COUPLE ROOF	MARK
Walls	1
Rafters	1
Ridge beam	1
Correctness of drawing	1
TOTAL:	**4**

(4)



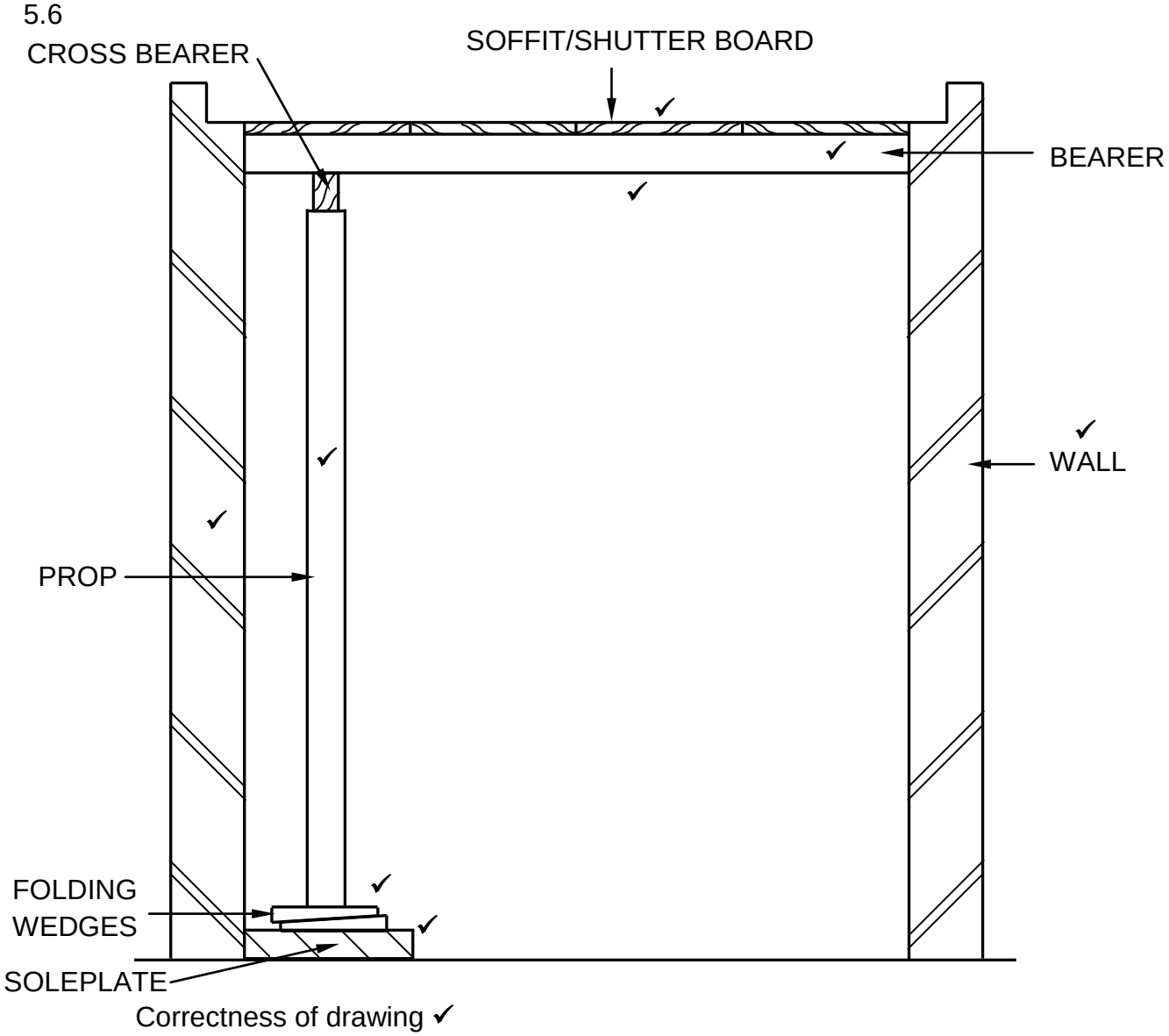
COLLAR-TIE ROOF TRUSS

Correctness of drawing ✓

ASSESSMENT CRITERIA – COLLAR-TIE ROOF	MARK
Rafters	1
Collar beam	1
Ridge beam	1
Correctness of drawing	1
TOTAL:	**4**

(4)

5.6



ASSESSMENT CRITERIA	MARK
Soffit/Shutter board	1
Bearer	1
Cross bearer	1
Prop	1
Folding wedges	1
Soleplate	1
Any TWO labels	2
Correctness of drawing	1
TOTAL:	**9**

(9)
[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)

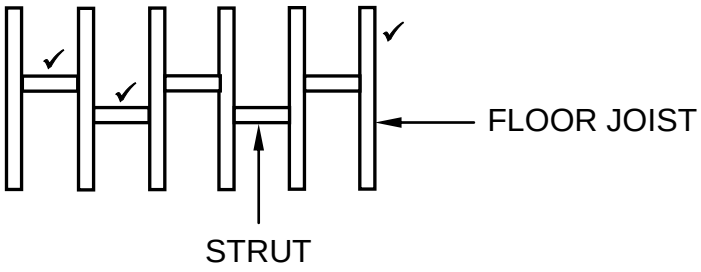
6.1.4 C ✓ (1)

6.1.5 D ✓ (1)

6.2 A - Wall plate ✓
B - Floor joist ✓
C - Brick pier ✓
D – Bearer ✓ (4)

6.3 The concrete base must be wider than the brick pier in order to distribute the load imposed on it to the ground. ✓ (1)

6.4

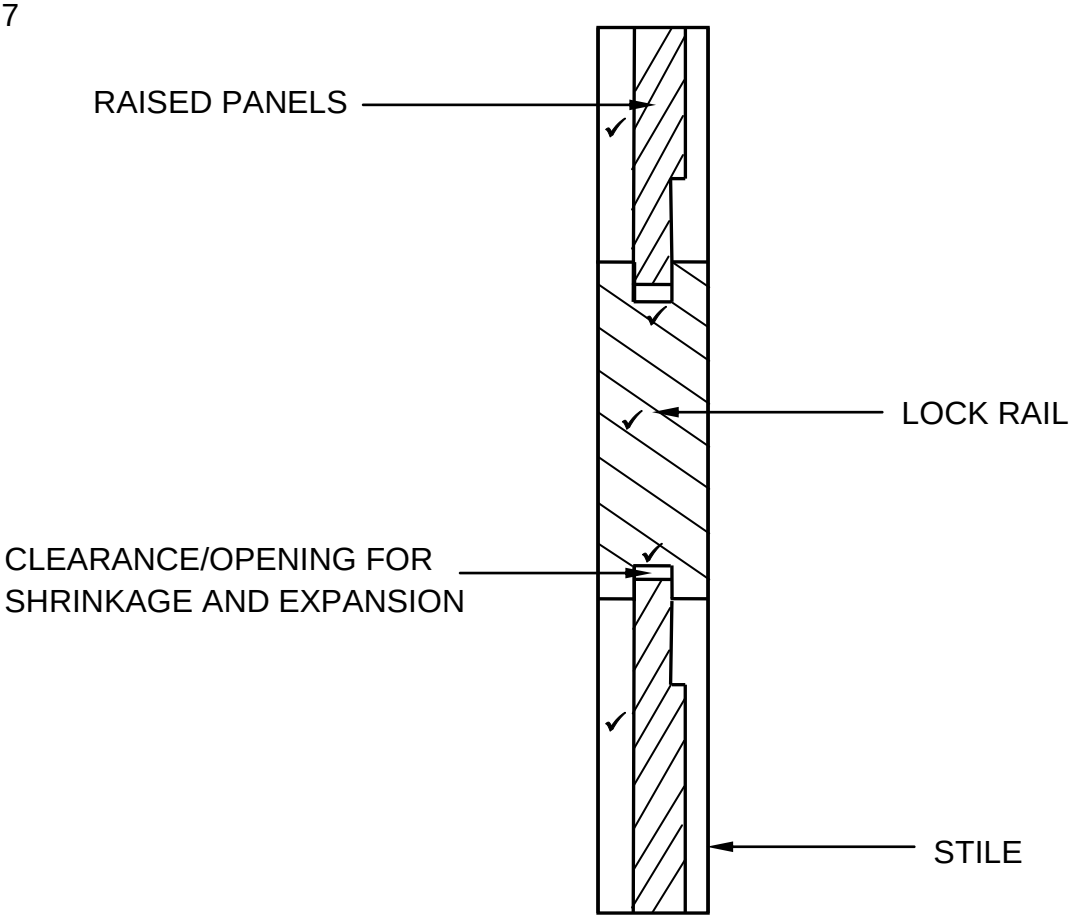


(3)

6.5 Ant guards are made from galvanized steel so that it will not rust or corrode.✓ (1)

6.6
- Cut cupboard – bolts move in a horizontal direction. ✓
- Drawer/till locks – bolts move in a vertical position. ✓ (2)

6.7



Correctness of drawing ✓

ASSESSMENT CRITERIA	MARK
Raised panels	2
Lock rail	1
Clearance/opening for shrinkage and expansion	2
Correctness of drawing	1
TOTAL:	**6**

(6)

6.8 A - Haunch✓
B - Rail/Top rail✓
C - Open tenon/Tenon✓
D - Stile✓ (4)

6.9 6.9.1

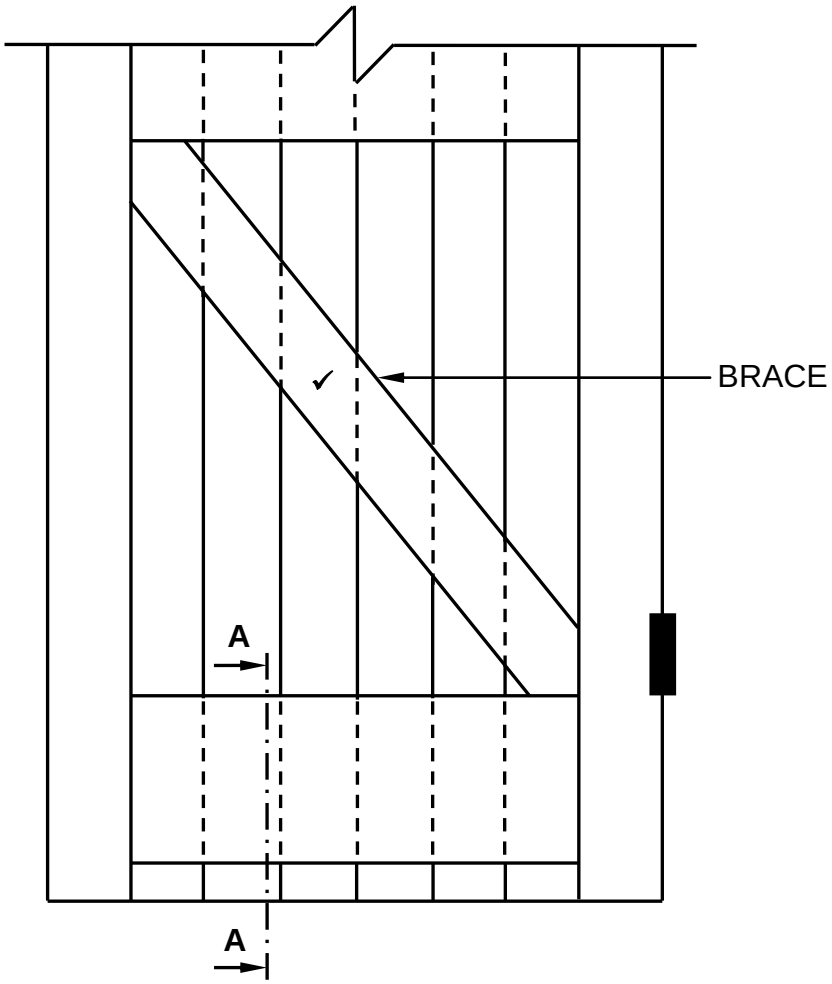
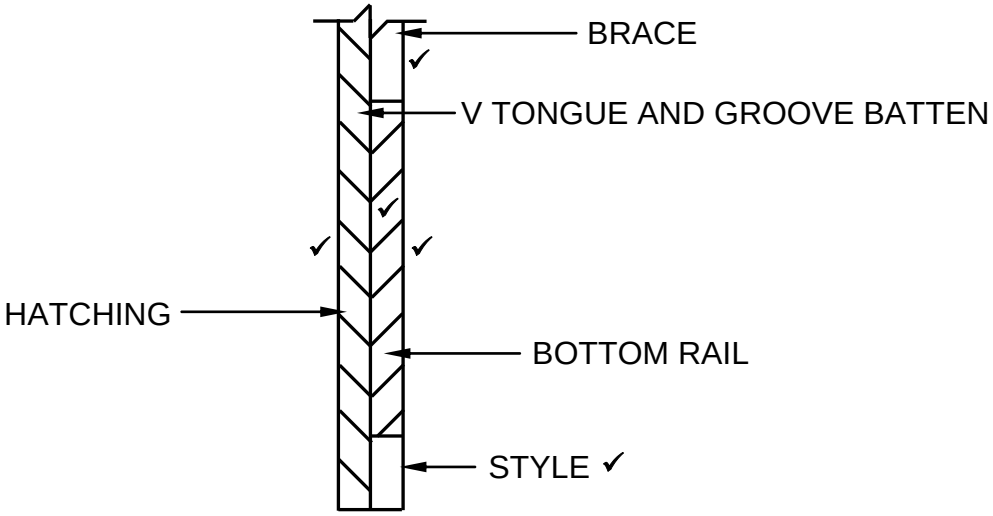


FIGURE 6.9

ASSESSMENT CRITERIA	MARK
Brace	1
TOTAL:	**1**

(1)

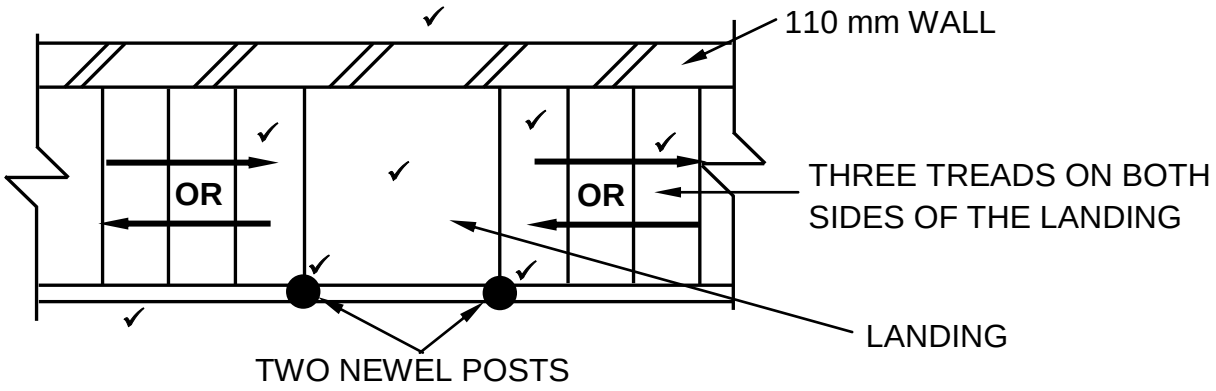
6.9.2



ASSESSMENT CRITERIA	MARK
V tongue and groove batten	1
Brace	1
Bottom rail	1
Hatching	1
Arrow indicating the style	1
TOTAL:	**5**

(5)

6.10



ASSESSMENT CRITERIA	MARK
110 mm wall	1
Three treads on both sides of the landing	2
Landing	1
Handrail	1
TWO newel posts	2
Arrow – indicating the rise of the staircase	1
TOTAL:	**8**

(8)
[40]

TOTAL: 200