



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

CIVIL TECHNOLOGY: WOODWORKING

NOVEMBER 2018

MARKING GUIDELINES

MARKS: 200

These marking guidelines consist of 18 pages.

QUESTION 1: OHSA, MATERIALS, TOOLS, EQUIPMENT AND JOINING (GENERIC)**1.1**

- | | | |
|-------|-----|-----|
| 1.1.1 | F ✓ | (1) |
| 1.1.2 | A ✓ | (1) |
| 1.1.3 | G ✓ | (1) |
| 1.1.4 | E ✓ | (1) |
| 1.1.5 | B ✓ | (1) |

1.2

- Do not throw any tools or materials from a scaffold. ✓
- Never jump on to and off a scaffold. ✓
- Never overload a scaffold.
- Remove or cover sharp edges or corners.
- Always attach free-standing scaffoldings to a building.
- Use a ladder to get on and off a scaffold.
- Keep free of waste or any other obstruction.
- Never jump on a scaffold while working on it.
- Responsible/qualified person must ensure that scaffolding is safe, rigid, stable and firm or has no defects.
- Scaffold must be supplied with guard rails/toe boards.
- Scaffolds must be levelled on uneven ground.
- Do not work on a scaffold in bad weather.
- Wear a safety harness when working on scaffolding.
- Do not throw tools on/off a scaffold.

ANY TWO OF THE ABOVE (2)

1.3

- It prevents workers from falling off the scaffold. ✓
- It is used as a handrail. ✓
- It is used to strap on safety harnesses.
- To protect the worker working on the scaffold.

ANY TWO OF THE ABOVE (2)

1.4

- The primary purpose of painting is to protect metals, wood and other material against corrosion and decay. ✓
- Provides a decorative/aesthetic appearance/finishing. ✓
- Protects surfaces from moisture penetration.
- Protects surfaces from rust/uv rays.

ANY TWO OF THE ABOVE (2)

- 1.5 The curing of concrete:
- Increases the strength of concrete. ✓
 - Decreases the permeability of hardened concrete.
 - Improves durability of concrete by reducing cracks.
 - Makes concrete more watertight.
 - Minimises shrinkage cracks in concrete.
 - Provides volume stability.
 - Cured concrete can carry more weight without breaking/crumbling than uncured concrete.
 - Prevents rapid drying of concrete.
 - Curing ensures that the hydration process continues.

ANY ONE OF THE ABOVE (1)

1.6

- 1.6.1 Multi detector ✓ (1)

- 1.6.2 Tool A is used:
- to detect materials found in/behind walls, ceilings and underneath floors, including ferrous and non-ferrous metals, electrical wiring, wood and metal studs. ✓
 - to locate steel bars and copper pipes. ✓
 - in carpentry, plumbing, and construction.
 - to measure the distance to/from covered objects.

ANY TWO OF THE ABOVE (2)

- 1.6.3 The batteries must be removed from the tool:
- to prevent the battery from running flat/battery can die. ✓
 - to prevent acid leaks from batteries damaging the tool.

ANY ONE OF THE ABOVE (1)

1.7

- 1.7.1 A – Bolt and nut/Bolt ✓
B – Rawl bolt ✓ (2)

- 1.7.2 **Bolt and nut**
- Bolts and nuts are used to secure pipe supports to metal parts. ✓
 - To join components together.
- Rawl bolt**
- A Rawl bolt is used to fix a truss hanger to a wall. ✓
 - To fix brackets/structures/panels to a wall/concrete.
 - For construction, renovation and industrial work

ANY TWO OF THE ABOVE (2)
[20]

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

NO.	QUESTIONS	ANSWERS	MARKS
1	Identify FIGURE A.	South Elevation/Elevation ✓	1
2	Identify FIGURE B.	Ground floor plan/Floorplan ✓	1
3	Identify number 4.	First floor level/Second floor level/Suspended floor/Floor level/Dash line/ FFL/Expansion joint ✓	1
4	Identify number 5.	Window Sill ✓	1
5	Identify number 9.	Hand wash basin/Wash basin/Washing basin/HWB/Basin ✓	1
6	Identify number 10.	Water closet/WC/Toilet pan ✓	1
7	Identify number 11.	Bath/B ✓	1
8	On what date was the plan printed?	2018/10/02 ✓	1
9	Who drew the building plan?	JP Maloi ✓	1
10	Name the feature in the column for the notes in FIGURE 2 that must be installed in front of the sliding door.	Ramp ✓	1
11	Name the feature in the column for the notes in FIGURE 2 that must give access to the first floor.	Staircase/Stairs/Stairway✓	1
12	Identify the type of roof that is used for the building in FIGURE A.	Gable roof ✓	1
13	Explain the purpose of number 1.	To cover the opening/close the gap between the two slopes of the roof. ✓ Prevent water and other elements from entering the roof. ANY ONE OF THE ABOVE	1

NSC – Marking Guidelines

14	Explain the purpose of number 2.	<ul style="list-style-type: none"> To prevent water from falling onto the ground ✓ To collect rainwater To channel the rainwater into the downpipe To protect the wall from water To hide the rafters/finish off the roof ANY ONE OF THE ABOVE	1
15	Explain the abbreviation FFL at number 6.	Finished floor level ✓	1
16	Explain the purpose of number 7.	To channel the water from the gutter to the ground. ✓	1
17	Explain the meaning of the arrow on the feature that must be installed in front of the sliding door.	It indicates the direction of the slope of the ramp/it indicates the slope. ✓	1
18	Explain what is meant by 1:10 indicated on the symbol in the notes.	It indicates the slope or the gradient of the ramp/for every 10 metres horizontally rises 1 metre vertically. ✓	1
19	Which room will feature 15 serve?	The bathroom. ✓	1
20	Explain the short dash lines on the windows.	<ul style="list-style-type: none"> Indicates what direction the window is opening/window opening. ✓ Indicates the location of the hinges. Indicates the location of the casement stay. ANY ONE OF THE ABOVE	1
21	Deduce the height of window 2 from the window schedule.	1,2 m or 1 200 mm ✓ (Ignore units)	1
22	Deduce the width of window 3 from the window schedule.	2 m or 2 000 mm ✓ (Ignore units)	1
23	On what elevation of the building is the bathroom window situated?	Western elevation/Western side ✓	1
24	Differentiate between component	3 – window/window frame/reveal	2

	number 3 and component number 8 .	frame stile/casement stile ✓ 8 – sliding door /door frame/ door/reveal /sliding door stile ✓	
25	Differentiate between the light in the lounge and the light in the bathroom.	The light in the lounge is a fluorescent light/1 x 40W-/2x40-/3x40 fluorescent light ✓ and the light in the bathroom is a normal ceiling light ✓	2
26	Recommend a suitable floor covering for the bathroom.	Tile/ Vinyl flooring(Novilon)/ Coloured screed/Polished or stained concrete flooring/Water proof laminated floor/carpet. ✓ ANY ACCEPTABLE ANSWER	1
27	Recommend an appropriate scale to which FIGURE A should be drawn, according to SANS.	1:50/100/200 ✓	1
28	Recommend an alternative sanitary fitment to replace number 11 that will serve a similar purpose.	Shower ✓	1
29	Calculate the internal area of the office in m ² Show ALL calculations.	4 m ✓ x 3 m ✓ = 12 m ² ✓ OR 12 4 000✓ X 3 000✓ = 12 000 000mm ²	3
30	Calculate the perimeter of the building. Show ALL calculations.	Positive marking (220 + 3 000 + 110 + 2 800 + 220) ✓ x 2 ✓ = 6 350 x 2 =12 700 mm ✓ (220 + 4 000 + 110 + 2 000 + 220) ✓ x 2 ✓ = 6 550 x 2 = 13 100 mm ✓ 12 700 + 13 100 mm = 25 800 mm ✓ OR = 25,8 m	7
		TOTAL	40

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

3.1

- | | | |
|-------|----------------------------|-----|
| 3.1.1 | Tongue and groove boards ✓ | (1) |
| 3.1.2 | 520 mm - 570 mm ✓ | (1) |
| 3.1.3 | Cornice ✓ | (1) |
| 3.1.4 | Drip groove ✓ | (1) |
| 3.1.5 | Fanlight ✓ | (1) |

3.2

- | | | |
|-------|--|------------|
| 3.2.1 | <ul style="list-style-type: none"> • A – Wood/Timber ✓ • B – Glass/Perspex ✓ | (1)
(1) |
| 3.2.2 | This part is holding the glass/pane in its place. ✓ | (1) |

3.3

- | | | |
|-------|--|-----|
| 3.3.1 | <ul style="list-style-type: none"> • A Storage space/top unit ✓ • B Hanging space ✓ • C Shelves/storage space/shelf ✓ • D Drawers ✓ | (4) |
| 3.3.2 | Melamine: <ul style="list-style-type: none"> • is waterproof. ✓ • is easier to clean. • is more durable. • enhance inside appearance. • has a smooth finish. OR
Chipboard: <ul style="list-style-type: none"> • Is not water proof • Is not easy to clean • Is less durable • Does not enhance the inner appearance • Is not as smooth | (1) |

ANY ONE OF THE ABOVE

- | | | |
|-------|---|-----|
| 3.3.3 | <ul style="list-style-type: none"> • E – Front rail/Top rail ✓ • F – Oval hanging rail/Hanging rail/Pipe rail ✓ • G – Side ✓ • H – Kick plate/base/Bottom rail/Plinth ✓ | (4) |
|-------|---|-----|

3.4

- | | | |
|-------|---|-----|
| 3.4.1 | <ul style="list-style-type: none"> • A – Cornice ✓ • B – Horizontal rough grounds ✓ • C – Quarter round/Quadrant ✓ | (3) |
|-------|---|-----|

3.4.2

- To enhance appearance. ✓
- To give an aesthetic appearance. ✓
- There is no need to plaster the wall where panelling is to be done.
- It serves as insulation against sound and heat.
- For durability

ANY TWO OF THE ABOVE

(2)

3.5

3.5.1

A	B	C	D
			Internal measurements of long walls:
			= 9 000 – 2/220 = <u>8 560 mm</u> ✓
			OR
			= 9 000 - 440 = 8 560 mm
			Length of wall plates needed:
<u>2/✓</u>	<u>8,56 ✓</u>	<u>17,12 ✓</u>	17,12 m wall plate needed
			Number of purlins needed
			Number of purlins = $\frac{\text{Length of rafter}}{\text{Distance between centres}} + 1$
			= $\frac{3,6}{0,9} \checkmark + 1$ OR $\frac{3\,600}{900} + 1$
			= <u>(4 + 1) ✓2 ✓</u> OR <u>(5x2)</u>
			= <u>10 purlins ✓</u>

3.5.2

(4)

(4)
[30]

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

4.1

- | | | |
|-------|-----|-----|
| 4.1.1 | C ✓ | (1) |
| 4.1.2 | A ✓ | (1) |
| 4.1.3 | D ✓ | (1) |
| 4.1.4 | E ✓ | (1) |
| 4.1.5 | F ✓ | (1) |

4.2

- | | | |
|-------|---|-----|
| 4.2.1 | <ul style="list-style-type: none">• A Hipped end ✓• B Purlin ✓• C Ridge/Ridge plate ✓• D Valley rafter/Valley ✓• E Overhang/Eaves overhang ✓• F Gable end/Gable wall/Wall/Side of building ✓ | (6) |
| 4.2.2 | 76 mm x 50 mm ✓
76 mm x 76 mm | |

ANY ONE OF THE ABOVE (1)

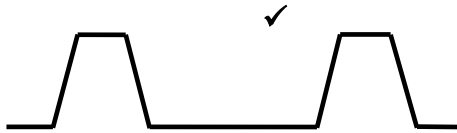
- | | | |
|-----|--|-----|
| 4.3 | <ul style="list-style-type: none">• It allows rain water to be directed into the gutter. ✓• So that water does not damage the end of the rafters. | (1) |
|-----|--|-----|

ANY TWO OF THE ABOVE

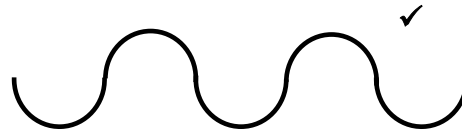
- | | | |
|-----|--|--|
| 4.4 | <ul style="list-style-type: none">• A good roof covering must be able to resist weather conditions such as rain and wind/resistance against corrosion. ✓• Should look durable and enhances the appearance of the building. ✓• Should be fire resistant.• Should provide insulation against heat and cold. | |
|-----|--|--|

ANY TWO OF THE ABOVE (2)

4.5



IBR sheeting ✓



Corrugated iron sheeting ✓

(4)

4.6

- The installation of steel roofing is faster. ✓
- The installation of steel roofing is more economical. ✓
- The installation of steel roofing is simpler.
- Steel roof covering is cheaper than tiles.
- Steel roof covering is environment friendly.

ANY TWO OF THE ABOVE

(2)

4.7

- If roof underlay is not installed there will be more dust inside the roof space. ✓
- If roof underlay is not installed, the roof may not be fully waterproof. ✓
- The risk of wind lifting tiles becomes greater.
- Insulating would not be good.

ANY TWO OF THE ABOVE

(2)

4.8

- A - Tie beam ✓
- B - Brander ✓
- C - Trapdoor ✓
- D - Cover strip ✓

(4)

4.9.1

- A – Router ✓
- B – Combination belt and disc sander. ✓

(2)

4.9.2

Store in a safe, dry place. ✓
Store it in a wooden or plastic box away from moisture. ✓

(2)

4.9.3

- Maintain like all machinery – lubricate and adjust according to the manufacturer's instructions. ✓
- Clean the belt/disc sander after use. ✓
- Repair or replace damaged electrical cords.
- Handle the sander so as not to damage or impair its accuracy.
- Use machinery only for the intended purpose.
- Do not force material onto the belt/disc of the sander.
- Avoid the use of worn out (clogged) belts and discs.
- Service the machine regularly.

ANY TWO OF THE ABOVE

(2)

- 4.9.4
- Table saw/Circular saw/Mitre saw ✓
 - Band saw ✓
 - Radial arm saw ✓
 - Jigsaw
 - Scroll saw

ANY THREE OF THE ABOVE

(3)

- 4.10.1 M – Mechanical grading ✓

V – Visual grading ✓

(2)

- 4.10.2 6 - The number indicates the strength. ✓

(1)

- 4.10.3 The SABS symbol. ✓



(1)

[40]

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

- 5.1 A - Concrete beam/Concrete ✓
 B - Brace/Strut ✓
 C - Prop/Adjustable prop ✓
 D - Sole plate ✓ (4)

- 5.2 • Block board ✓
 • Laminated board ✓
 • Shutter board ✓
 • Plywood ✓
 • Timber
 • Hard board/Masonite

ANY FOUR OF THE ABOVE (4)

- 5.3 • Wedges are inserted under the bearers and props to support the formwork. ✓
 • Wedges keep the different formwork components sturdy and fixed. ✓
 • Wedges help with the lowering and raising of the formwork. ✓
 • Wedges are used for the levelling of the formwork.
 • Wedges ease the striking of formwork.

ANY THREE OF THE ABOVE (3)

- 5.4 • It supports more weight. ✓
 • Support the weight of the fresh concrete.

ANY ONE OF THE ABOVE (1)

- 5.5 5.5.1 • A – Laggings ✓
 • B – Ribs ✓
 • C – Bearer ✓ (3)

5.5.2 Brick arches because they have a solid surface. ✓ (1)

5.5.3 Openly spaced laggings/Open laggings/Open ✓
 Laggings are not close to each other. (1)
 There are spacing's between the openings of the laggings.

ANY ONE OF THE ABOVE

- 5.6 5.6.1 • Dead shores are used to support structures. ✓
 • Dead shores carry dead weight above the dead shores, e.g. walls, floors.
 • Support existent walls if openings are made.
 • Transfer the weight of the structure to firm ground during structural renovations.
 • Support a wall if alterations are made.

ANY ONE OF THE ABOVE (1)

- 5.6.2 Double flying shores provide temporary support to TWO parallel walls where one or two walls show signs of failure. ✓
 Double flying shores give temporary support to TWO parallel defective walls.
 Double flying shores can only be used with TWO parallel defective walls between 9 and 15 meters.

ANY ONE OF THE ABOVE

(1)

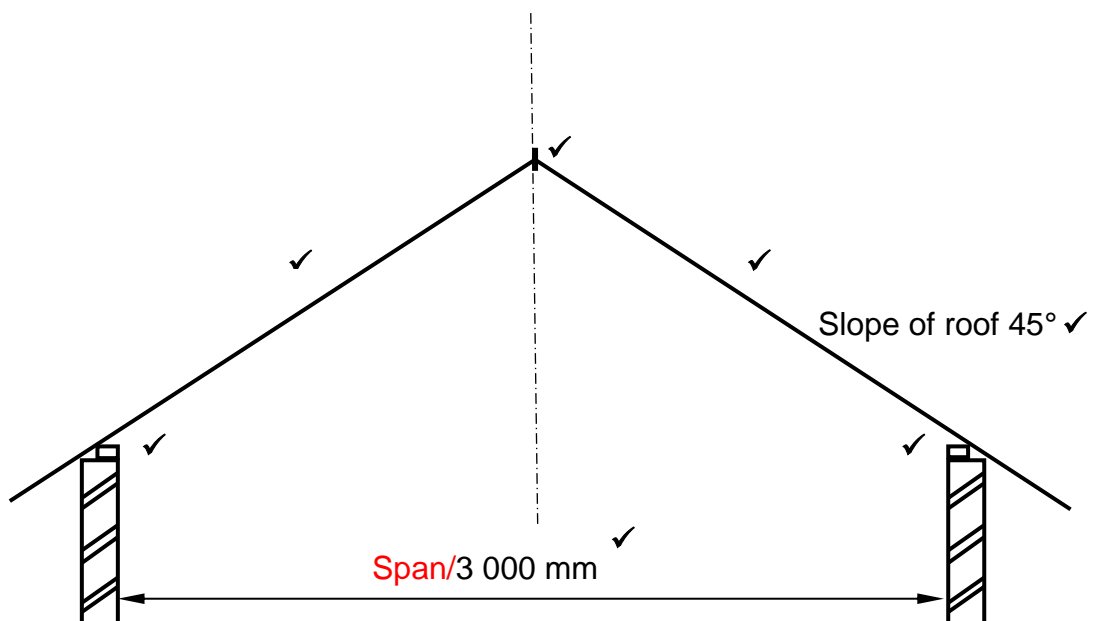
- 5.7 5.7.1 The steel dog is used to secure the joint between prop and needle. ✓ (1)

- 5.7.2 Props are used to strengthen or brace the floors and ceiling. ✓ (1)

- 5.7.3 Sole plates spread the weight transferred by the props over a wider area. ✓
 Prevent vertical props/pipes from sinking into the ground.
 The soleplate create a level area where the props rest on. (1)

- 5.8 45° ✓ (1)

5.9



ASSESSMENT CRITERIA	MARK	CANDIDATE'S MARK
Span	1	
Wall plates	2	
Rafters	2	
Ridge beam	1	
Slope of the roof 45°	1	
TOTAL:	7	

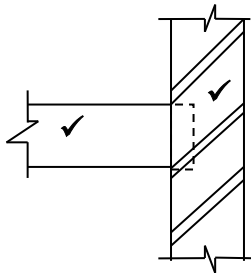
(7)

[30]

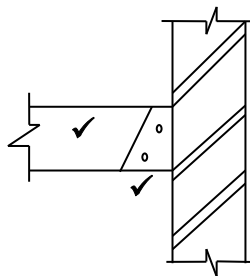
QUESTION 6: SUSPENDED FLOORS, STAIRCASES, IRONMONGERY, DOORS AND JOINING (SPECIFIC)

- 6.1 6.1.1 D ✓ (1)
- 6.1.2 C ✓ (1)
- 6.1.3 B ✓ (1)
- 6.1.4 A ✓ (1)
- 6.1.5 A ✓ (1)

6.2

**Joist built into wall**

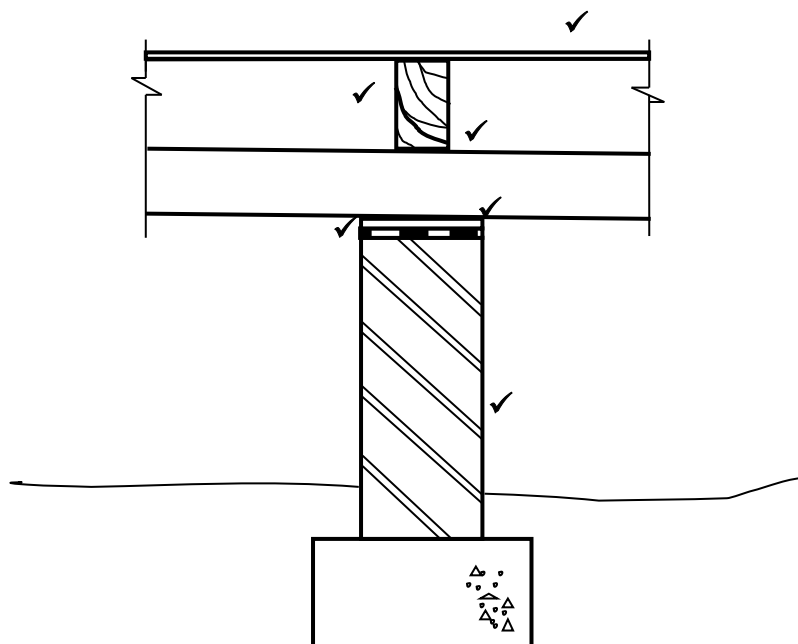
ASSESSMENT CRITERIA	MARK	CANDIDATE'S MARK
Joist	1	
Built into wall	1	
TOTAL	2	

**Joist secured to wall with truss/joist hanger**

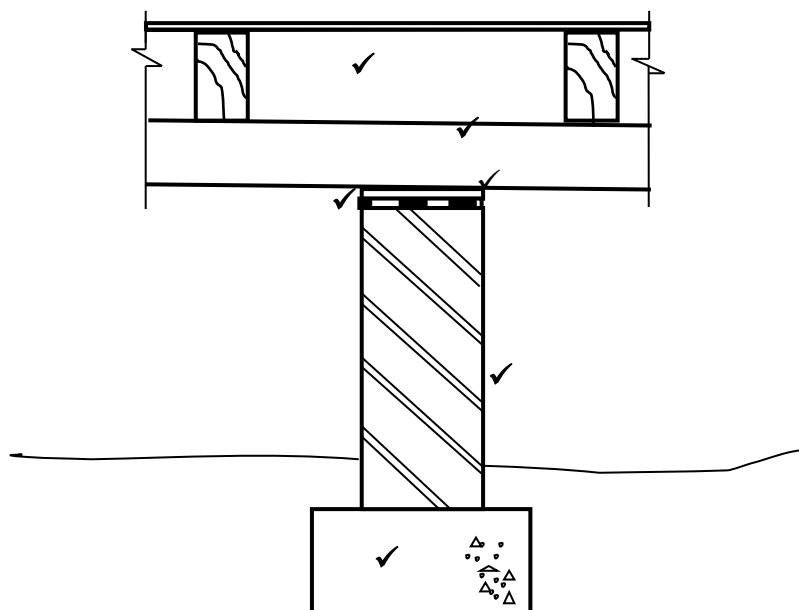
ASSESSMENT CRITERIA	MARK	CANDIDATE'S MARK
Joist	1	
Truss/Joist hanger	1	
TOTAL:	2	

(4)

6.3 Alternative drawing will also be acceptable



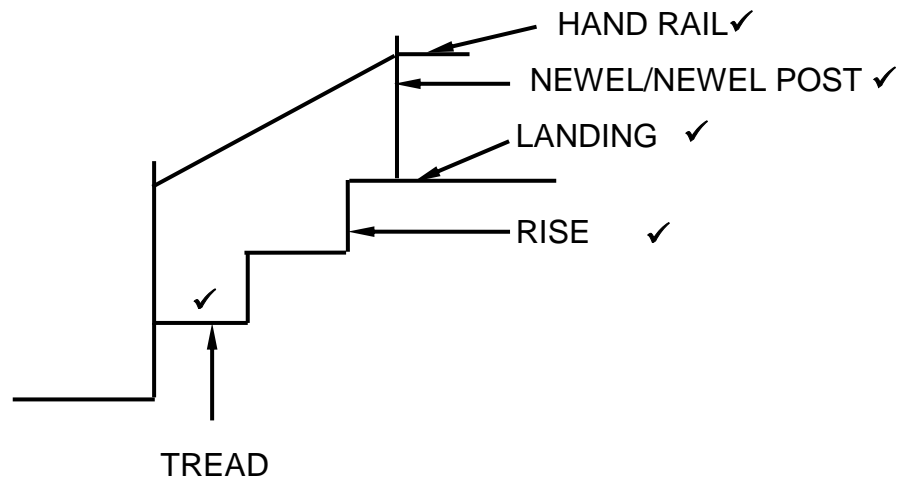
OR



ASSESSMENT CRITERIA	MARK	CANDIDATE'S MARK
ONE one-brick pier	1	
DPC/Proportion	1	
Ant guard	1	
Bearer	1	
Joist	1	
Floor boards	1	
TOTAL	6	

(6)

6.4

**2 OR 3 DIMENSIONAL DRAWINGS WILL BE ACCEPTED**

6.5

- Serves as a place of rest. ✓
- For safety in case of a falling accident.
- Facilitates a change in direction when moving up or down stairs.

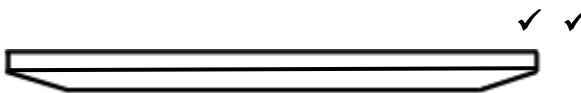
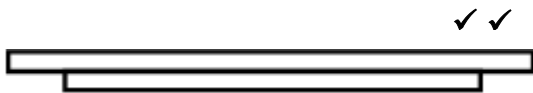
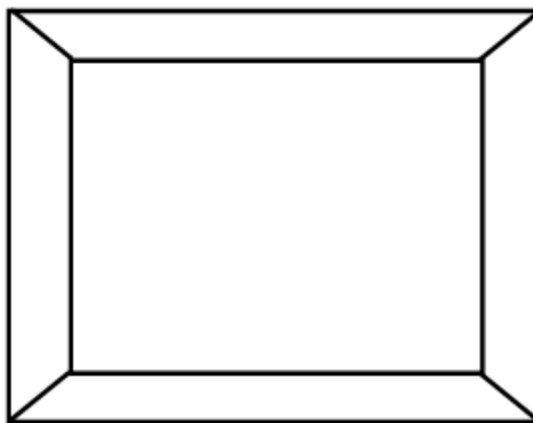
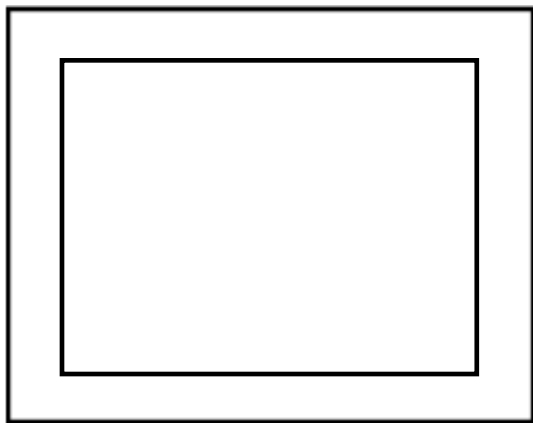
ANY ONE OF THE ABOVE

(1)

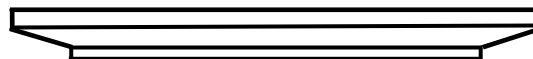
6.6

- | | | |
|-------|--------------------------------|-----|
| 6.6.1 | Door stile/Lock rail ✓ | (1) |
| 6.6.2 | Frame stile/Door frame/Stile ✓ | (1) |
| 6.6.3 | Frame stile/Door frame/Stile ✓ | (1) |
| 6.6.4 | Door stile ✓ | (1) |

6.7



OR



ASSESSMENT CRITERIA	MARK	CANDIDATE'S MARK
Raised panel top view	2	
Raised and fielded panel top view	2	
TOTAL	4	

6.8 The opening allows shrinkage ✓ and expansion of the panel/wood.

6.9 A – Brace/Strut ✓
 B – Tongue and groove battens/V- Tongue and groove battens ✓
 C – Stile ✓

6.10

- | | | |
|--------|---|-----|
| 6.10.1 | Hinge (Any hinge accepted) ✓ | (1) |
| 6.10.2 | Clout nail/Chipboard screws/Drywall screw ✓ | (1) |
| 6.10.3 | Nail/Skew nail/Perm fix nail ✓ | (1) |
| 6.10.4 | Gang nail/Bolt and nut/Nails ✓ | (1) |

6.11

- Hinges ✓
- Casement fasteners ✓
- Casement stays

ANY TWO OF THE ABOVE	(2)
	[40]

TOTAL:	200
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