



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2021

**CIVIL TECHNOLOGY: WOODWORKING
MARKING GUIDELINE**

MARKS: 200

This marking guideline consists of 12 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.
- 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 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: SAFETY AND MATERIALS (GENERIC)

- 1.1 Answer the following question regarding scaffolding.
- 1.1.1 A – Guardrail (1)
B – Planks / Working platform (1)
C – Kickboard / Toe-board (1)
D – Brace (1) (4)
- 1.1.2 228 mm (1) x 38 mm (1) (2)
- 1.1.3 Provides stability to the scaffolding. (1)
- 1.1.4 Minimum = 900 mm (1) and maximum = 1 000 mm (1). (2)
- 1.2 1.2.1 Placing of building rubble:
• May not obstruct access or exits
• Safe place
• Regularly removed. (Any 1 x 1) (1)
- 1.2.2 When materials are transported to higher surfaces:
• Workers must maintain a safe distance /
• Overhead protection. (Any 1 x 1) (1)
- 1.3 Any THREE:
• Non-skid devices on the bottoms
• Hooks at the upper ends
• Lashed, secure or fastened
• Held by someone (Any 3 x 1) (3)
- 1.4 Rungs (1)
- 1.5 The coating of a metal by electrolysis (1) with a thin layer of another metal. (1) (2)
- 1.6 To improve the metal's corrosion resistance. (1)
- 1.7 Any TWO:
• Adds strength to the metal
• Galvanised metals are thicker
• Galvanised nails and screws prevents staining (Any 2 x 1) (2)

[20]

QUESTION 2: GRAPHICS, JOINING AND EQUIPMENT (GENERIC)

2.1 FIGURE 2.1 on ANSWER SHEET A shows a floorplan of a storeroom on scale 1 : 50. Draw the south elevation on scale 1 : 50 on ANSWER SHEET A from the given ground level, by using the following information:

- The floor level height is 200 mm above the ground level
- Wall height is 2 600 mm from the floor level to the ceiling
- Window 1 is 1 200 x 900 mm
- Door 1 is 1 100 x 2 100 mm
- Doorknob
- Roof construction pitch is 30°
- Show construction lines to determine the roof height
- Gable end at the west elevation
- Hippen end at the east elevation

Use the marks table on ANSWER SHEET A as reference. (29)

2.2 A – Nut with built-in washer like a flange (1)

B – Wing nut (1)

C – Domed top nut (1) (3)

2.3 Any TWO:

- Resist pull-out failure
- Excellent carrying capacity
- Tolerance to a variance in the hole size (Any 2 x 1) (2)

2.4 Must be set-up that the telescope (1) is placed on a comfortable sightline, (1) to prevent a person from bending or stretching over the telescope and tripod. (1) (3)

2.5 Any THREE:

- Wiring
- Wood
- Metal studs
- Copper pipes
- Plumbing work (Any 3 x 1) (3)

[40]

TOTAL SECTION A: 60

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

- 3.1 3.1.1 520 mm – 570 mm (1)
- 3.1.2 Rebate (1)
- 3.1.3 Cornice (1)
- 3.2 3.2.1 A – Top rail
B – Drip groove/throat
C – Transom
D – Drip groove/throat
E – Bottom rail of fanlight
F – Putty
G – Ovolo moulding
H – Windowpane/glass (8 x 1) (8)
- 3.2.2 Prevents rainwater being blown into the casement and penetrating the room. (1)
- 3.3 A – Top shelf/storage space
B – Hanging space
C – Shelving
D – Drawer unit (4 x 1) (4)
- 3.4 • Melamine is waterproof
• Easy to clean
• Durable
• Smooth finish
• Improves appearance (Any 2 x 1) (2)
- 3.5 Built-in-cupboards fastened against a wall. (1)
Free standing it is moveable and can stand anywhere. (2)
- 3.6 3.6.1 A – 110 mm thick wall
B – Horizontal rough grounds
C – Tongue-and-groove board
D – Moulded skirting
E – Quadrant
F – Floor covering (6 x 1) (6)
- 3.6.2 • No wall plastering needed
• Serves to enhance the aesthetic appeal of a room (2)
- 3.6.3 Using nails or wall anchors or screws (1)
- [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
- Gypsum ceiling board
 - Coverstrip
 - Trapdoor panel
 - Tie beam (Any 2 x 1) (2)
- 4.3
1. Sand the surface with different grade of sandpaper
 2. Sand until surface is free of scratches and smooth.
 3. Remove all the dust. (3)
- 4.4 Truss hanger is a U-shaped fastener; the roof timber member rest in the 'U'. (1)
- Gang nails is a steel plate punched to form a nail pattern and is prefabricated to be used in roof trusses. (1)
- 4.5
- Strength
 - Density (2)
- 4.6 4.6.1 Hipped roofs are pitched roofs that slope downward on all sides. (1)
- 4.6.2 Hipped roof with valley; A valley is formed when two inclined roof surfaces meet at an internal angle. (1)
- 4.7 Always wear safety goggles.
- Wear a dusk mask when using the belt sander.
 - Inspect the power cord regularly for damage.
 - A void carrying the machine by the cord. (2)
- 4.8 4.8.1 Mechanical and visual grading are two methods. The head of each timber board is marked in cinnamon red letters and numbers. (2)
- 4.8.2 The strength (2)
- 4.8.3 South African Bureau of Standards (1)

- 4.9 4.9.1 A – Rafter joist
B – Hip/corner rafter
C – Wall plate
D – Ceiling joist
E – Jack rafter (5)
- 4.9.2 A roof with two slanting ends, sometimes across a short, flat gable. (2)
- 4.10
- Resist weather conditions such as wind and rain.
 - Look durable and enhances the appearance of the building.
 - Is fire resistant.
 - Provides insulation against heat and cold. (Any 2 x 1) (2)
- 4.11 Batten 38 mm x 38 mm, placed and attached at right angles to the rafters onto which concrete tiles or slates are fixed. (1)
- Purlin 50 mm x 76 mm, placed and attached perpendicular to the roof sheeting materials. (1)
- 4.12
- Provides a highly effective barrier against the ingress of wind-driven rain and dust.
 - Allows the rain that is blown in under the tiles to flow to the gutters.
 - Lowers the suction pressure under the tiles and reduces the risk of wind lifting the tiles.
 - Acts as a thermal barrier by improving insulation. (6)
- [40]**

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

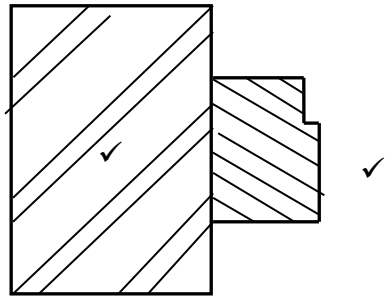
- 5.1
- Block board
 - Laminated board
 - Shutter board and
 - Plywood
- (Any 1 x 1) (1)
- 5.2
- 5.2.1
- For the placing of the reinforcing bars.
 - To facilitate the casting of the concrete.
 - To ensure that it is thoroughly rammed into the column and the fourth side can consist of shorter lengths.
- (3)
- 5.2.2
- A – Sides
 - B – Wedges
 - C – Yokes
 - D – Cleats
 - E – Bolts
- (5)
- 5.2.3
- To secure the formwork. (1)
- 5.3
- 5.3.1
- Nails used to secure the joint between the prop and needle. (1)
- 5.3.2
- Made of timber to spread the weight transferred by the props over a wider area. (1)
- 5.4
- To provide temporary support to two parallel walls that are located between 9 metres and 15 metres apart, where one or both walls show signs of failure. (2)
- 5.5
- Temporary timber framework is used to support a stone, brick or concrete arch during construction. (3)
- 5.6
- A – Ribs
 - B – Ties
 - C – Bearer
 - D – Laggings
 - E – Folding wedges
 - F – Horizontal brace
- (6)
- 5.7
- 5.7.1
- Rib and block / Block and beam construction. (2)
- 5.7.2
- A – In-situ concrete layer
 - B – Pre-cast hollow-core concrete blocks
 - C – Steel mat
- (3)
- 5.7.3
- It is very strong and can carry heavy loads or weight. (2)

[30]

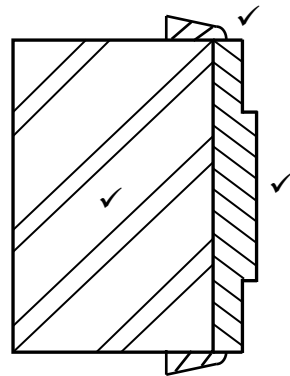
QUESTION 6: SUSPENDED FLOOR, STAIRCASES, IRON MONGERY DOORS AND JOINING (SPECIFIC)

- 6.1 A vertical member supporting one end of a handrail at the top or bottom of a flight of stairs, the strings and the handrails are fixed to it. (2)
- 6.2 Flight of stairs with a landing: Runs in one direction and are uninterrupted flights of stairs that directly connects two floors. Regulations stipulate that if there are more than 16 walkways in a straight step arm, landings must be installed. The signs allow the user to rest during the ascent and are required where there is a steep rise between floor levels. (3)
- Stairwell with a half-landing: a Also known as U-shaped stairs. Landings serve as a resting place. Has two parallel flights of stairs that are connected by a landing that makes a 180° turn when one ascends or descends. Takes up less floor space than straight stairs. (3)
- 6.3 Overhang or edge of the tread and frequently projects over the riser below it. (2)
- 6.4 Night latch (1)
- 6.5 6.5.1 Mortised into the door stile (1)
- 6.5.2 Screwed onto the doorjamb (1)
- 6.5.3 Onto the doorjamb (1)
- 6.5.4 Onto the doorjamb (1)
- 6.6 Clearance to allow shrinkage and expansion of wood. (1)
- 6.7 6.7.1 A – Brace
B – V-tongue-and-groove battens
C – Stile (3)
- 6.7.2 To prevent the sagging of the door. (1)
- 6.7.3 Gives a neat appearance to the outside of the frame members. (1)

6.8

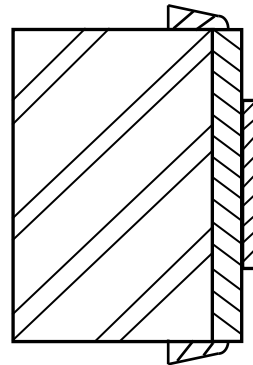


Doorframe ✓



Jamb lining ✓

OR



ASSESSMENT CRITERIA	MARK
Walls	2
Frame profile of door	1
Jamb lining profile	1
Title	1
Architraves	1
TOTAL:	6

6.9 6.9.1 Double stub tenon and mortise joint (1)

- 6.9.2 A – Bottom rail
 B – Haunch
 C – Double stub tenon
 D – Stile
 E – Groove
 F – Roove (6)

6.9.3 Thickness is $\frac{1}{3}$ of thickness of wood. (1)

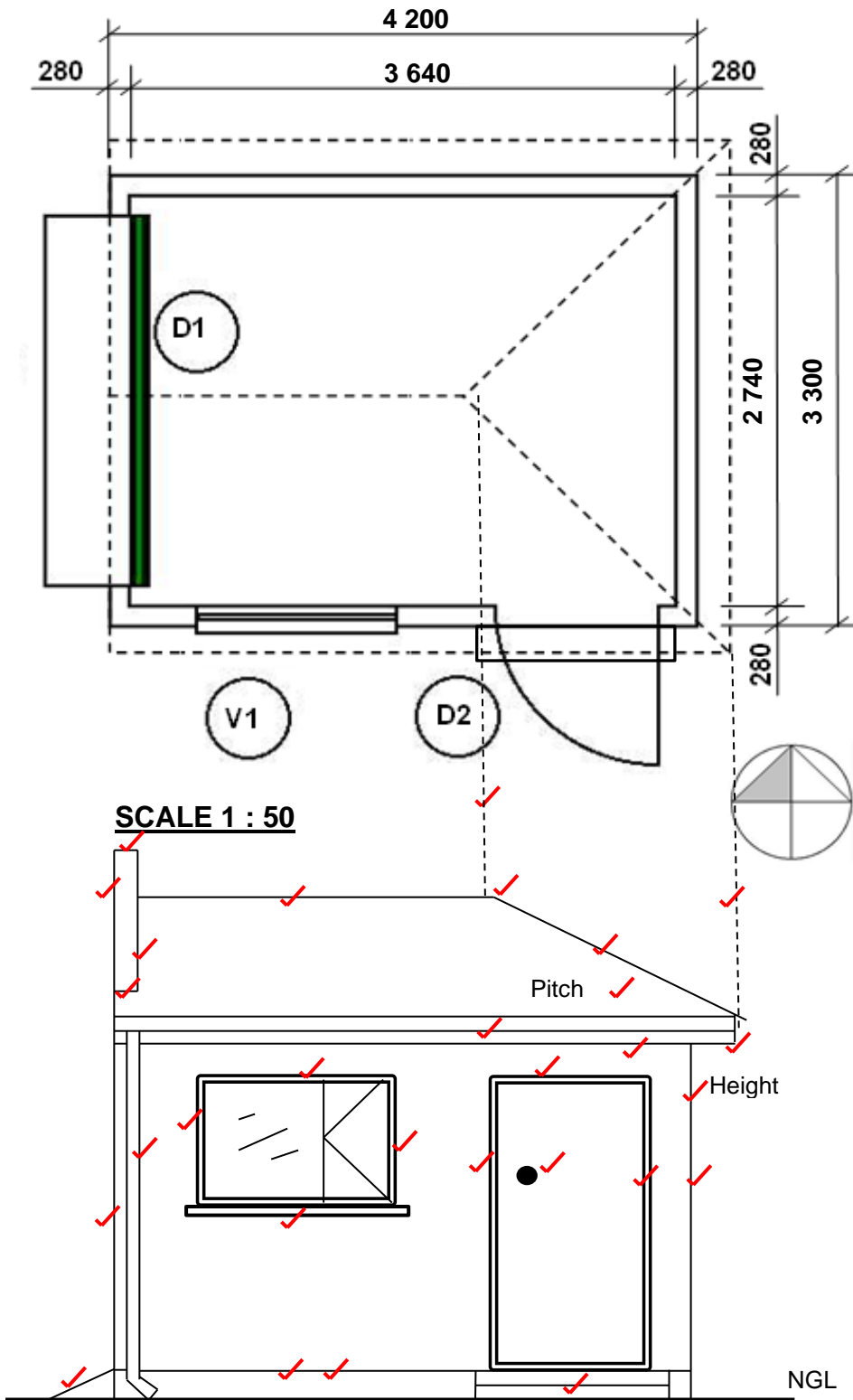
6.9.4 To join the bottom rail and stile of a panel door. (1)

6.10 Fixed or hinged (2)
[40]

TOTAL: 200

ANSWER SHEET A	CIVIL TECHNOLOGY GENERIC	NAME: _____

2.1 FIGURE 2.1 shows the floorplan of a storeroom on scale 1 : 50.
 Draw the south elevation on scale 1 : 50 on ANSWER SHEET A from
 the given ground level. (29)



Floor level	2	
Wall	3	
Window	3	
Windowsill	1	
Door	4	
Stairs	1	
Ramp	1	
Fascial board	2	
Gutter	1	
Down pipe	1	
Gable end	4	
Hipped end	3	
Roof height	3	
TOTAL:	29	