



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

NOVEMBER 2019

**CIVIL TECHNOLOGY: WOODWORKING
MARKING GUIDELINE**

MARKS: 200

This marking guideline consists of 11 pages, including 2 answer sheets.

QUESTION 1: SAFETY AND MATERIALS (GENERIC)

- 1.1 Personal protective equipment (1)
- 1.2 Any TWO requirements of boots on a building site: (2 x 1) (2)
- Sturdy
 - Non-slip
 - Metal reinforcements in the toes
- 1.3 Safety precautions for small plant equipment:
- 1.3.1 To ensure that the equipment is in a good, working condition. (1)
- 1.3.2 Less chance of inhaling the hazardous fumes of the engines. (1)
- 1.3.3 Avoiding any possible injuries. (1)
- 1.3.4 Insufficient training could lead to injuries and damaged equipment. (1)
- 1.4 Safe stacking of material:
- 1.4.1 Ladders or any similar answer (1)
- 1.4.2 Any TWO factors that should not be affected:
- Ventilation
 - Lighting
 - Fire-fighting equipment (2 x 1) (2)
- 1.4.3 3 x 500 mm (1) = 1 500 mm of 1,5 m (2) (2)
- 1.4.4 Can easily hook onto or bump against protruding parts and that could cause the stack to fall over. (1)
- 1.5 Cement (1) and fine sand (2) (2)
- 1.6 Any ONE example of a fine aggregate:
- Sand
 - Silt
 - Clay (1)

- 1.7 Any ONE purpose of lime:
- Increase the plasticity of the mixture
 - Makes the mixture more workable
 - Deduction of cracks
- (1)
- 1.8 Any TWO board products for panelling work:
- Plywood
 - Block board
 - Hardboard / Masonite(2 x 1)
- (2)
- 1.9 Any TWO uses of stainless steel:
- Sinks
 - Wash tubs
 - Water taps
 - Water traps
 - Extractor fans
 - Any similar answers
- (2 x 1) (2)
- 1.10 Iron (1)
- 1.11 Two or more metals, or metals and non-metals are combined (1), to form a new, permanent metal (2), with enhanced qualities. (3) (3)
- 1.12 Any TWO uses of safety glass:
- Sliding doors
 - Exterior doors with glass panels
 - Shower cubicle and doors
 - Bath glass screens
 - Balustrades of staircases
- (2 x 1) (2)
- 1.13 Any ONE use of a mastic sealant:
- Adheres to almost any material (wood, glass, aluminium, concrete etc.)
 - For filling cracks and sealing areas exposed to water
 - Used in construction projects (roofing and brickwork)
- (1)
- 1.14 Can be reshaped (1) when reheated (2). (2)

[30]

QUESTION 2: EQUIPMENT, TOOLS AND GRAPHICS (GENERIC)

2.1 Name the tools in FIGURES 2.1.1 to 2.1.4 and name ONE use of each.

- 2.1.1 Claw hammer
Any ONE use:
- General carpentry / Driving in nails
 - Remove nails (2)
- 2.1.2 Plastering trowel
- Smooth finishing for walls / Plaster work (2)
- 2.1.3 Club hammer
Any ONE use:
- Driving brick bolster / cold chisel
 - Where heavy hammering is needed
 - Driving pegs into the ground (2)
- 2.1.4 Angle grinder
Any ONE use:
- Cutting stone / concrete / tiles / metals
 - Can be used as a grinder (2)

2.2 2.2.1 Bench grinder (1)

2.2.2 Portable circular saw / Radial arm saw (1)

2.3 Identify the tool in FIGURE 2.3 and name TWO uses of it.

Plate compacter

Any TWO uses:

- Compacting disturbed / loose soil up to 150 mm
- Tampering fillings for hard-core layer
- Compacting soil for paving bricks (3 x 1) (3)

- 2.4
- Wipe clean after use
 - Do not allow mortar / concrete / screed to dry on it
 - Store in a dry place (Any 2 x 1) (2)

2.5 Similar answer:
The jaws of the universal pliers cannot open big enough (1)

2.6 2.6.1 Section view (1)

- 2.6.2
- 2.6.A – Purlin
 - 2.6.B – Beam filling
 - 2.6.C – Rafter
 - 2.6.D – Window sill
 - 2.6.E – Foundation
 - 2.6.F – Wall plate
 - 2.6.G – Wall tie
 - 2.6.H – Lintel
 - 2.6.I – Damp proof coarse
 - 2.6.J – Hard-core (10)

2.6.3 114 x 38 (2)

2.6.4 Bind 2 wall leaves (1)

- 2.7
- Pitch of roof
 - Type of roof covering
 - Barge board
 - Facia board
 - Gutters
 - Downpipes
- (Any 4 x 1) (4)

2.8 2.8.1 Plaster  (2)

2.8.2 Undressed wood  (2)

2.8.3 Invert level  (2)


[40]

QUESTION 3: QUANTITIES, JOINING AND GRAPHIC (GENERIC)

3.1 Make neat sketches to illustrate the following symbols on a floor plan:

3.1.1 Grease trap  (2)

3.1.2 DPC (Damp-proof course)  (2)

3.1.3 Staircase  (2)

3.2 Use ANSWER SHEET 1 (12)

- 3.3
- Basic sealant against air and leakage
 - Enhance materials
 - Used in aviation
 - Construction repairs
- (Any 3 x 1) (3)

- 3.4
- Apply enough adhesive to both sides of the areas to be bonded
 - Allow to dry
 - After drying, hold the two pieces of material together or clamp, roll or press them together
- (3)

- 3.5
- Joins PVC pipes
 - Clear / transparent
 - Dries quickly
- (Any 1 x 1) (1)
- 3.6
- To allow light into building
 - To prevent rain, wind, dust and insects from entering
 - Enhance the aesthetic qualities of a structure
- (3)
- 3.7
- Polythene: strong and light / becomes brittle when exposed to sunlight / can be used in underground waterproofing / can be reshaped / remoulded after heating.
 - Polyvinyl chloride: can be reshaped / solid material / two types available flexible and rigid / good insulating properties / not dissolved by alcohol.
- (2)
[30]

**QUESTION 4: JOINING, WINDOWS, DOORS AND WALL
PANELLING (SPECIFIC)**

- 4.1 **ANSWER SHEET 2** (20)
- 4.2 4.2.1 Prevents rainwater from being blown into the casement and penetrating the room. (1)
- 4.2.2 To hold or secure the glass / to prevent the glass from falling out of the frame. (1)
- 4.3 4.3.1 A – Cornice
B – Horizontal grounds
C – Quadrant mould (3)
- 4.3.2
 - It gives a pleasing, decorative and durable appearance.
 - It conceals cracks in the walls.
 - Panelling does not require the entire wall to be plastered.
 - It can be fixed directly to the walls.
 - It provides insulation
 - Keeps the room cool in the summer and warm in the winter.
 - Expansion and shrinkage are minimal. (Any THREE) (3)
- 4.4
 - Shutterboards
 - Plywood
 - Blockboard (Any TWO) (2)**[30]**

**QUESTION 5: CENTRING, FORMWORK, SHORING SUSPENDED FLOORS AND
IRONMONGERY (SPECIFIC)**

- 5.1 5.1.1 A – Rib
B – Close lagging
C – Plywood or hardboard (3)
- 5.1.2 Nailed under the ends of the ribs to keep the ribs together. (1)
- 5.2 5.2.1 By lining the laggings with plywood or hardboard. (2)
- 5.2.2 A – Half round collar or yokes
B – Laggings
C – Indent for vertical clamps or cleats (3)
- 5.2.3
 - Formwork refers to a temporary framework made out of timber or steel, which is ideal for the in-situ casting of concrete.
 - It provides support until the concrete has set.
 - Striking can be defined as the dismantling of formwork once the concrete has cured and sufficiently hardened. (4)

- 5.3 5.3.1 Single flying shore (1)
- 5.3.2
- Raker / raking strut is inclined timber pieces.
 - The raker transfers the horizontal and vertical load exerted on the wall to the sole plate. (2)
- 5.3.3
- A – Wall
 - B – Wall plate
 - C – Needle
 - D – Cleat
 - F – Folding wedges (5)
- 5.3.4
- To support leaning or unstable walls and columns by transferring additional weight
 - From the raking strut / raker to the ground or other supporting members, away from the wall
 - Flying shores are used to provide temporary horizontal support to two parallel walls
 - Where one of the walls tends to lean or show signs of failure (4)
- 5.4 5.4.1 Parliament hinge (1)
- 5.4.2
- A – Leaf
 - B – Staggered countersunk hole for screw (2)
- 5.4.3 The hinges protrude toward the outside face of the walls, allowing doors to open up to 180° past the reveal or other obstructions against a wall. (2)
- [30]**

QUESTION 6: SUSPENDED FLOORS, CEILINGS AND STAIRCASES (SPECIFIC)

- 6.1
- Span of the floor
 - The centre-to-centre spacing between the floor joist
 - The grade of timber of the floor joist (3)
- 6.2
- Floorboard: A soft timber board used as a covering and should not be more than 25 mm wide and not more than 140 mm wide.
 - Floor joist: The horizontal beams that are the primary structural members in the construction of a suspended timber floor. (4)
- 6.3 6.3.1 Secret nailing at a 45° angle. (1)
- 6.3.2
- Floorboards should be secret – nailed to each floor joist with oval wire nails.
 - Secret nails are driven into the edge of the floorboards at an angle of approximately 45° to the floorboard.
 - The heads of these nails are punched flush with the edge of the floorboard. (4)

- 6.4 6.4.1 A – Tie beam
B – Brandering
C – Ceiling board
D – Coverstrip (4)
- 6.4.2 To support the ceiling (1)
- 6.4.3 Underneath the ceiling board against the internal wall (2)
- 6.4.4
- Insulation ceiling board to keep heat in rooms / to provide thermal insulation.
 - Fibre-cement ceiling board to waterproof ceilings for rooms / used outdoors under verandas and eaves. (4)
- 6.5
- Ceiling boards must always be fixed with the length of the board at right angles to the branders.
 - Plasterboard is fixed with the printed side up for direct decoration or for plastering.
 - Always nail or screw from the centre of the board outwards. (4)
- 6.6 6.6.1 F – The horizontal distance measured from the face of a rise to the face of the next riser.
- 6.6.2 C – The vertical post that holds up the handrail.
- 6.6.3 A – The inclined parts used in timber staircases to support the steps.
- 6.6.4 E – The distance between the top of the string and the pitch line.
- 6.6.5 D – A template, made out of plywood or other board products, used to set out a staircase. (5)
- 6.7 6.7.1 The vertical member between two consecutive treads (1)
- 6.7.2 Vertical distance from the top of the tread to the top of the next tread (1)
- 6.7.3 A flat platform at the top of a flight of stairs (1)
- 6.8 Timber boards used to cover the floor joist and trimmers exposed by the stairwell openings. (3)
- 6.9 For safety reasons. (2)
- [40]**

TOTAL: 200

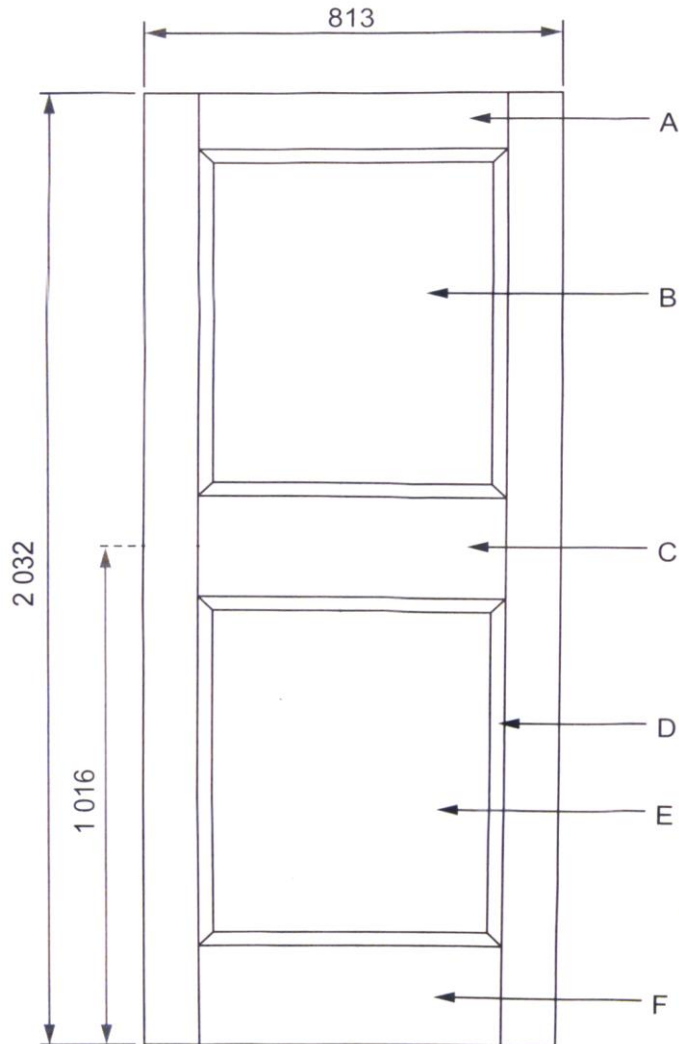
ANSWER SHEET 1	CIVIL TECHNOLOGY WOODWORKING	NAME : _____

- 3.2 Calculate the volume of concrete needed to cast the floor slab between the external walls. (12)

A	B	C	D
			Internal measurements of long walls
			= 9 000 mm – 220 mm✓ – 220 mm✓
			= 8 560 mm ✓ (3)
			Internal measurements of short walls
			= 5 000 – 220 mm✓ – 220 mm✓
			= 4 560 mm ✓ (3)
			Volume of concrete needed
1/ ✓	8,56 ✓		Length of floor slab = 8 560 mm
	4,56 ✓		Width of floor slab = 4 560 mm
	0,085 ✓	3,318 m ³ ✓✓	Thickness of floor slab = 85 mm (6)
			(12)

ANSWER SHEET 2	CIVIL TECHNOLOGY WOODWORKING	NAME: _____
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4.1 Incomplete front elevation of a two panel door with middle / lock rail.



NOT TO SCALE

ASSESMENT CRITERIA	MARKS	CANDIDATE'S MARKS
Top rail (A)	2	
Top flat panel (B)	2	
Middle/Lock rail (C)	3	
Quadrant/Quarter-round (D)	2	
Bottom flat panel (E)	2	
Bottom rail (F)	1	
Measurements	3	
Scale	2	
Parts x 3	3	
TOTAL:	20	