EC - LEARNER SUPPORT MATERIAL: CIVIL TECHNOLOGY WOODWORKING: GRADE 11

CONTENT TO BE COVERED:

TOPICS:

1. **SUSPENDED TIMBER FLOOR (Specific)**

Detailed drawing of the vertical cross-section through a suspended timber floor showing all supports, floor boards, skirting and quadrant including brick pier showing the bearer, floor joist, ant guard and DPC

Draw a plan of the layout of a room with a suspended timber floor showing all supports and part of the tongue and groove floorboards

2. **STAIRCASE (Specific)**

Line diagram with details of a straight flight of stairs with a
landing and a staircase well with a half landing. Hand rail and balustrade to be included

EXAMPLE 1: QUESTION 1: SUSPENDED FLOORS, STAIRCASES, CUPBOARDS AND IRONMONGERY

1.1 Give ONE reason for using treated timber for suspended floor construction. (1)

1.2 Draw, to **scale 1: 10,** a labelled vertical section through a suspended timber floor showing the following details (do **NOT** draw the foundation):

- 330 mm foundation wall
- 220 mm external wall
- Ant guard and DPC located 150 mm below the wall plate
- 114 mm x 38 mm wall plate
- 220 mm x 50 mm floor joists
- 150 mm x 30 mm tongue and groove floor board
- 70 mm x 22 mm skirting against the 12 mm thick plastered internal wall
- Print the title of the drawing.
- Label any ONE part of the drawing (9)

ASSESSMENT CRITERIA	MARKS	LEARNER'S MARK
Foundation wall	1	
DPC	1	
Ant guard	1	
Wall plate	1	
Floor joist	1	

Floor boards	1	
Skirting	1	
External wall	1	
One label	1	
TOTAL	**9**	

1.3 Use drawing instruments and draw, in good proportion, a sketch to illustrate the term *secret nailing*, as used in floor construction. Show any TWO floor boards (3)

1.4 Name ONE hand tool that you will use to install a ceiling. (1)

1.5 Name ONE piece of safety attire you will wear while you are cutting material for a cupboard. (1)

1.6 Draw, in good proportion, a sketch of a part of the vertical section through a ceiling construction. Show the following on your sketch:

- Tie beam
- Brandering
- Gypsum board ceiling
- Label the brandering.

(5)

ASSESSMENT CRITERIA	**MARKS**	**LM**
Tongue and groove board	1	
Secret nailing	1	
Joist	1	
TOTAL	**3**	

1.7 Calculate the total length of cornice required for a room that is 5 metres long and 3 metres wide on the inside. (3)

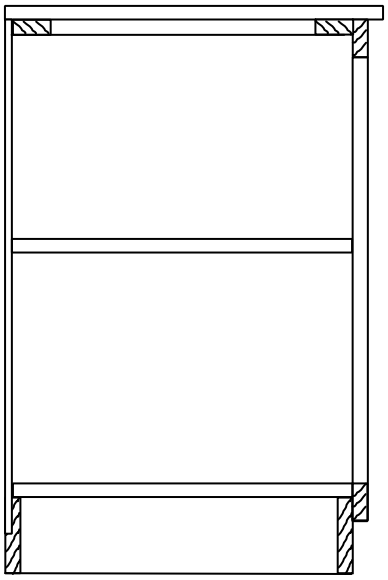
1.8.1 Distinguish between the terms *rise* and *riser*, as used in staircase construction. (2)

1.9 Name ONE string that is used in staircase construction. (1)

1.10 A cabinet, 800 mm high, 1 000 mm wide and 500 mm deep, is to be fitted between two walls and under a counter.

1.10.1 Indicate the following labels on the drawing:

- Base
- Door frame
- Top
- Middle shelf
- Bottom shelf
- Plywood back (6)



1.10.2 Recommend an alternate material for the back of the cabinet. (1)

1.10.3 Recommend THREE materials that may be used to make the cabinet. (3)

1.11 Recommend a hinge that will you use to hang the doors for the cabinet **in QUESTION 1.10.** (1)

1.12 Name ONE other ironmongery item needed for the cabinet. (1)

1.13 Recommend an ironmongery item that you will use for the following instances:

1.13.1 An entrance door that must open 180° to its frame (1)

1.13.2 Added security to doors besides a lock (1)

[40]

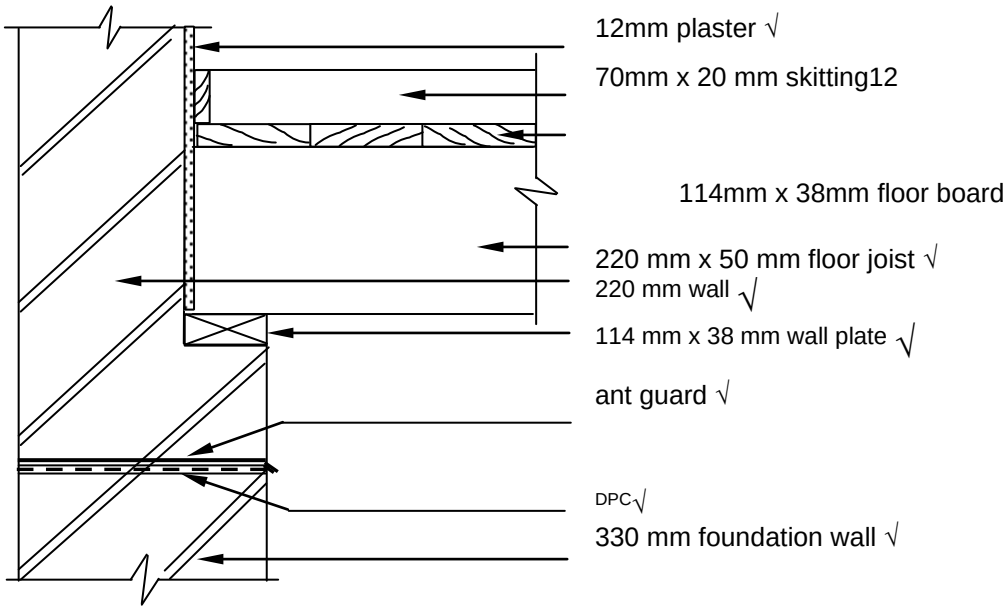
ANSWER: EXAMPLE 1: QUESTION 1: SUSPENDED FLOORS, STAIRCASES, CUPBOARDS AND IRONMONGERY

1.1 • The timber will be protected against attacks by insects. √

• The timber will last a long time.

ANY ONE OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER (1)

1.2

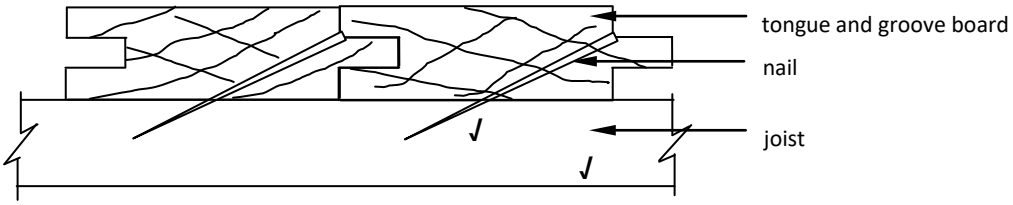


VERTICAL SECTION THROUGH A TIMBER SUSPENDED FLOOR ✓

ASSESSMENT CRITERIA	MARKS	LEARNER'S MARK
Foundation wall	1	
DPC	1	
Ant guard	1	
Wall plate	1	
Floor joist	1	
Floor boards	1	
Skirting	1	
External wall	1	
One label	1	
TOTAL	**9**	

(9)

1.3



ASSESSMENT CRITERIA	MARKS	LM
Tongue and groove board	1	
Secret nailing	1	
Joist	1	
TOTAL	**3**	

(3)

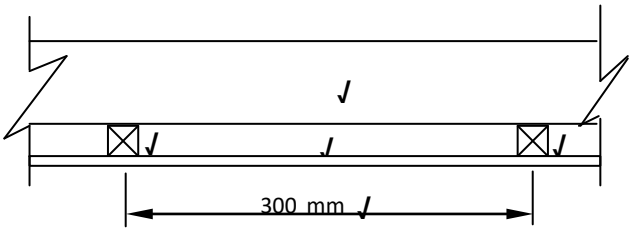
1.4 • Claw hammer √
- Cross-cut saw
- Level
- Square
- Builder's line
- Utility knife
- Measuring tape

ANY ONE OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER (1)

1.5 • Overall √
- Safety goggles
- Hard hat
- Safety gloves
- Safety shoes

ANY ONE OF THE ABOVE OR ANY OTHER ACCEPTABLE ANSWER (1)

1.6



ASSESSMENT CRITERIA	MARKS	LM
Tie beam	1	
Brandering	2	
Ceiling board	1	
Label: Brandering	1	
TOTAL	**5**	

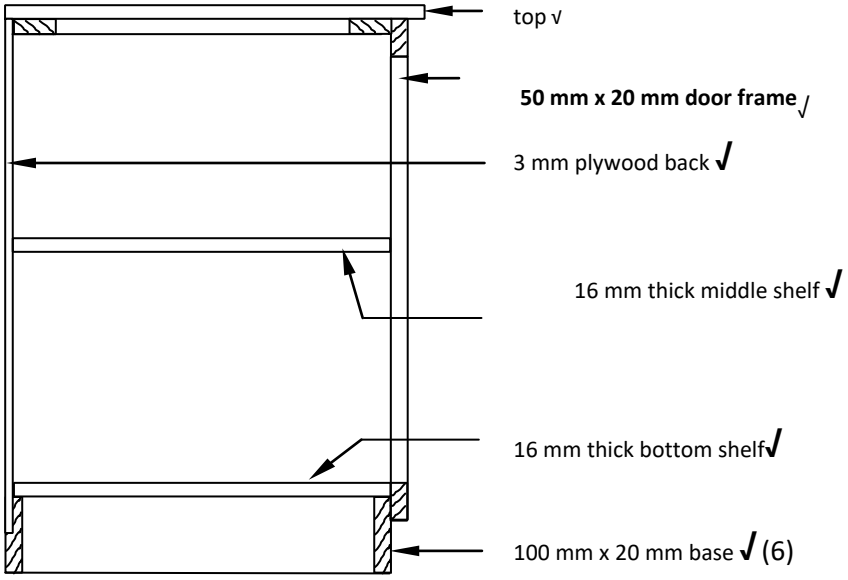
(5)

1.7 Cornice for long walls = 2 x 5 m = 10 m √
Cornice for short walls = 2 x 3 m = 6 m √
Total length of cornice = 10 + 6 = 16 m √ (3)

1.8 *Rise* is the vertical distance between two consecutive treads and a *riser* is a vertical board between two consecutive treads**.** √ (2)

1.9 • Outer string √
• Inner string
ANY ONE OF THE ABOVE **(1)**

1.10 1.10.1



1.10.2 Hardboard (Masonite) √ (1)

1.10.3 • Melamine √
- Solid timber
- Supa wood (MDF)
- Chip board • Laminated board (3)

1.11 • Piano hinge √
- Butt hinge
- Flush hinge
- Tee hinge

ANY ONE OF THE ABOVE **(1)**

1.12 Handle √ (1)

1.13 1.13.1 Parliament hinge √ (1)

1.13.2 Barrel bolt √ (1)

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EXAMPLE 2: QUESTION 2: SUSPENDED FLOORS AND STAIRCASES (SPECIFIC)

2.1 Name **THREE** factors that determine the size of the floor joist for a suspended timber floor. (3)

2.2 Explain the difference between *floorboards* and *floor joists*. (4)

2.3 **FIGURE 2.3** below shows a particular method of joining suspended floors. Study the drawing and answer the questions that follow.

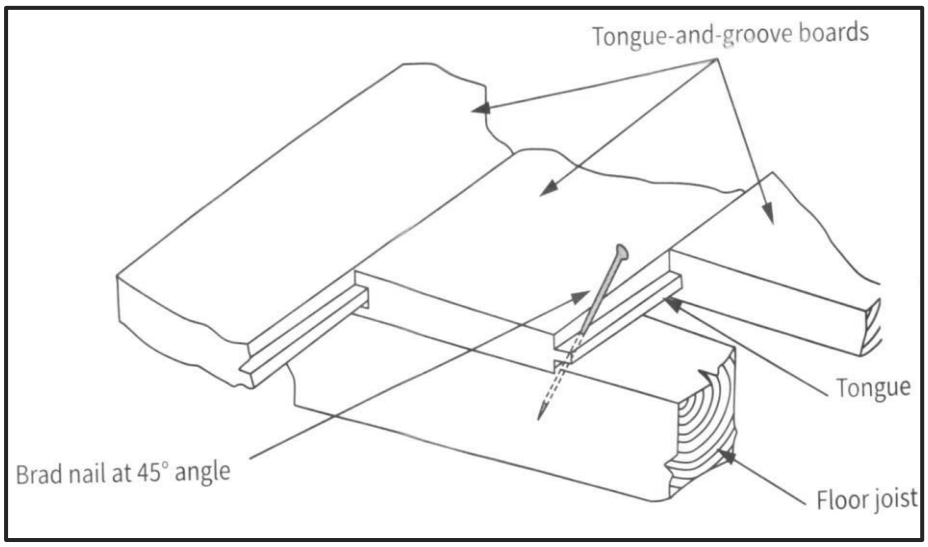


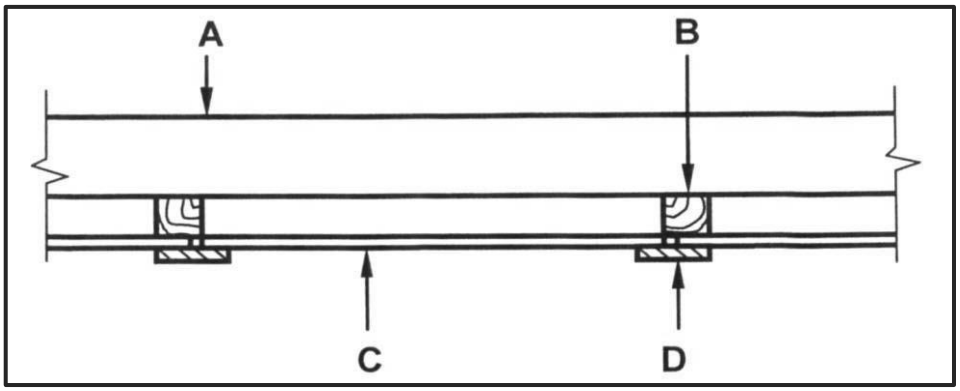
FIGURE 2.3

2.3.1 Identify the method in **FIGURE 2.3.** (1)

2.3.2 Explain this specific method of joining suspended floors. (4)

2.4 2.4.1 **FIGURE 2.4.1** below shows a sectional view of a conventional trap door. Study the sketch and give ONE word for each of the letters (**A**–**D**) by choosing a word from the list below. Write only the word next to the letter **(A–D)** e.g. E – Rafter.

tie beam; strut; trapdoor; cover strip; rafter; brandering; ceiling board



(4)

FIGURE 2.4.1

2.4.2 What is the function of **B**? (1)

2.4.3 Where will you use the gypsum crown mouldings (cornices)? (2)

2.4.4 Explain the difference between *insulation ceiling* board and *fibre-cement ceiling board.* (4)

2.5 There are certain requirements when fixing ceiling boards to the brandering. Explain these requirements in detail. (4)

2.6 Choose a description from **COLUMN B** that matches an item in **COLUMN A** Write only the letter **(A–F)** next to the question number **(2.6.1–2.6.5)**

	COLUMN A		**COLUMN B**
2.6.1	Going	A	The inclined parts used in timber staircases to support the steps
2.6.2	Baluster	B	Used to measure the height between two floors and to mark the position of the risers
2.6.3	String / stringer	C	The vertical post that holds up the handrail
2.6.4	Margin	D	A template, made out of plywood or other board products, used to set out a staircase
2.6.5	Pitch board	E	The distance between the top of the string and the pitch line
		F	The distance measured from the face of a rise to the face of the next riser

(5)

2.7 Give the definition of the following:

2.7.1 Riser (1)

2.7.2 Rise (1)

2.7.3 Landing (1)

2.8 Explain the function of an apron as part of a stairwell. (3)

2.9 Why should the distance between balusters not exceed 100 mm? (2)

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ANSWER: EXAMPLE 2: QUESTION 2: SUSPENDED FLOORS AND STAIRCASES (SPECIFIC)

2.1 Span of the floor

- The centre-to-centre spacing between the floor joist
- The grade of timber of the floor joist (3)

2.2 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)

2.3 2.3.1 Secret nailing at a 45° angle. (1)

2.3.2 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)

2.4 2.4.1

A – Tie beam
B – Brandering
C – Ceiling board
D – Cover strip (4)

2.4.2 To support the ceiling (1)

2.4.3 Underneath the ceiling board against the internal wall (2)

2.4.4 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)

2.5 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)

2.6 2.6.1 F – The horizontal distance measured from the face of a rise to the face of the next riser.

2.6.2 C – The vertical post that holds up the handrail.

2.6.3 A – The inclined parts used in timber staircases to support the steps.

2.6.4 E – The distance between the top of the string and the pitch line.

2.6.5 D – A template, made out of plywood or other board products, used to set out a staircase. (5)

2.7 2.7.1 The vertical member between two consecutive treads (1)

2.7.2 Vertical distance from the top of the tread to the top of the next tread (1)

2.7.3 A flat platform at the top of a flight of stairs (1)

2.8 Timber boards used to cover the floor joist and trimmers exposed by the stairwell openings. (3)

2.9 For safety reasons. (2)

[40]