

KENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

DECEMBER ASSIGNMENTS 2026

GRADE 10 – BUILDING CONSTRUCTION

Time: 2 Hours

LEARNER'S DETAILS

Name: _____ School: _____

Assessment Number: _____ Date: _____

School Code: _____ Signature: _____

INSTRUCTIONS TO CANDIDATES

1. Write your name in the spaces provided above.
2. Write the name of your school and your stream in the spaces provided.
3. Write your admission number and the date of the assessment in the spaces provided.
4. This paper consists of two sections: A and B.
5. Answer all questions in section A and section B.
6. Answer the questions in English.
7. All answers MUST be written in the spaces provided in the paper.
8. Do NOT remove any page from this question paper.

FOR OFFICIAL USE ONLY (EXAMINER'S USE)

SECTION	SECTION A	SECTION B	% SCORE	EE1	EE2	ME1	ME2	AE1	AE2	BE1	BE2
SCORE RANGE	30 MARKS	50 MARKS		90-100	75-89	58-74	41-57	31-40	21-30	11-20	1-10
POINTS				8 POINTS	7 POINTS	6 POINTS	5 POINTS	4 POINTS	3 POINTS	2 POINTS	1 POINT
LEARNER'S TOTAL SCORE											

SECTION A (30 MARKS)

Answer ALL questions in this section.

1. Study the samples represented below and answer the questions.



A



B



C

a) Identify the building materials represented by **A, B and C**. (3 marks)

A.

B.

C.

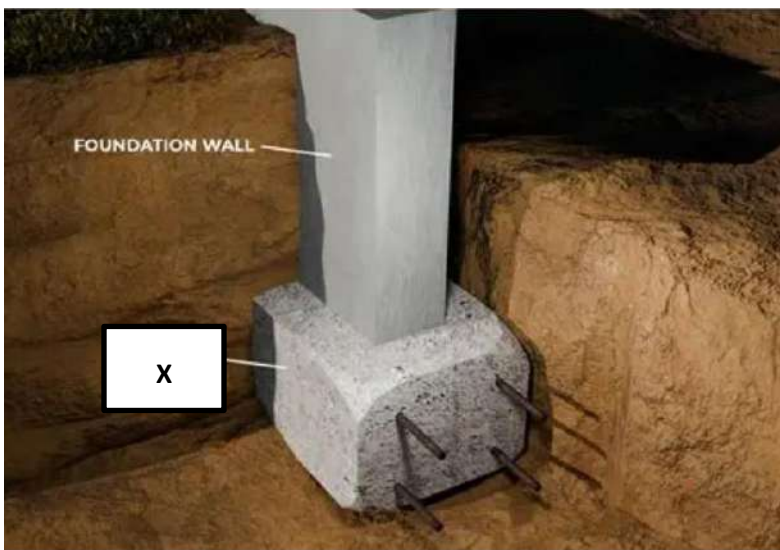
b) State **one use of material A** in building construction. (1 mark)

.....

c) State **one property of a good building stone**. (1 mark)

.....

2. Study the simplified cross-section below.



a) Identify the component labelled **X**. (1 mark)

.....

b) State **two functions of X**. (2 marks)

i.

ii.

c) State **two factors that influence foundation depth**. (2 marks)

i.

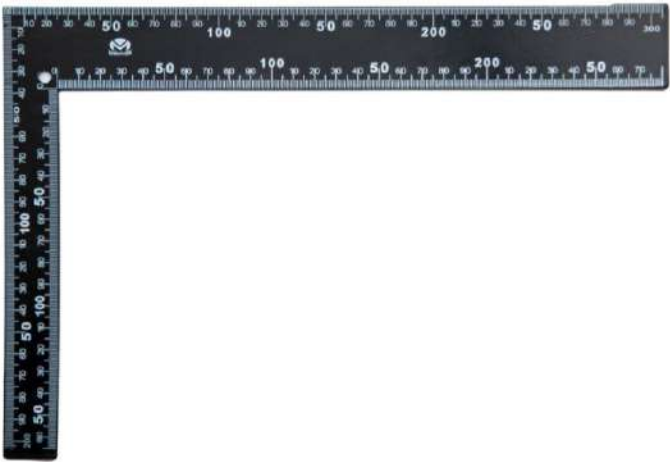
ii.

3. Study the tools shown below.

A



B



a) Identify **any two setting-out tools** represented above. (2 marks)

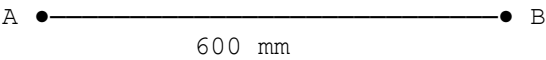
A.

B.

b) State **one use of a builder's square**. (1 mark)

.....

4. Study the line below.



The line represents a wall on a building drawing. The actual wall is **6 metres** long.

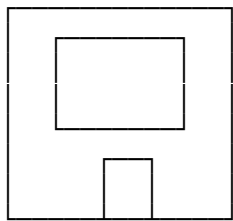
a) Calculate the scale of the drawing. (2 marks)

b) State **one importance of scale in building drawing**. (1 mark)

.....
.....

5. Study the simplified building representation.

FRONT ELEVATION



a) Identify the type of building drawing shown. (1 mark)

.....

b) State **two pieces of information** that may be obtained from this type of drawing. (2 marks)

i.

ii.

6. Susan was asked to list the materials used in making concrete.

a) Identify the four basic materials. (4 marks)

A.

B.

C.

D.

b) State **one purpose of water in concrete**. (1 mark)

.....
.....

7. Study the excavation shown below.



a) Identify the construction activity represented by the diagram. (1 mark)

.....

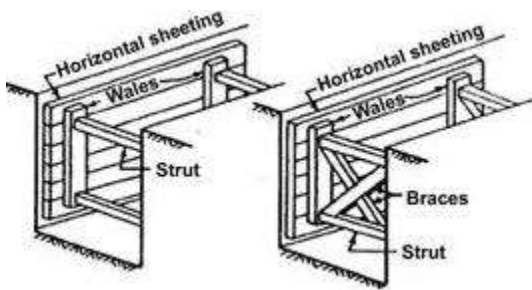
b) Name **one danger** associated with **unsupported deep excavations**.(1 mark)

.....

c) State **one method** of **preventing collapse of the excavation sides**.(1 mark)

.....

8. Study the diagram below.



a) Identify the construction support represented by the shaded members. .

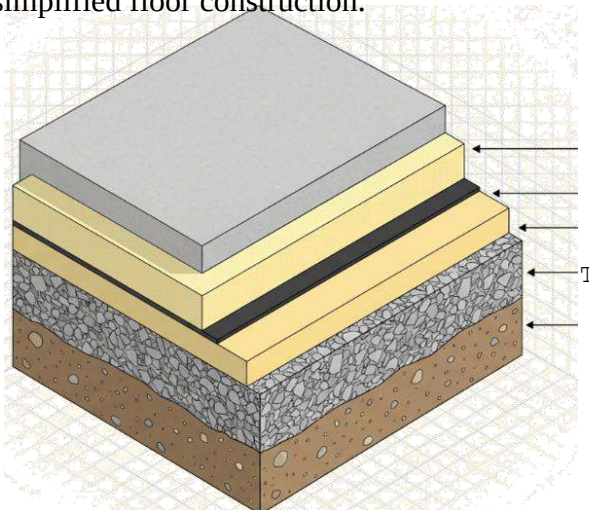
.....

b) State **two reasons** for **providing this support**. (2 marks)

i.

ii.

9. Study the simplified floor construction.



a) Identify the layer represented by the T. (1 mark)

.....

b) State **one purpose of hardcore** in floor construction. (1 mark)

.....

c) State **one reason for compacting the ground before laying a floor**. (1 mark)

.....

10. Study the pipe fittings below.

A



B



C



a) Identify fittings **A, B and C**. (3 marks)

A.

B.

C.

b) State **one function of a tee fitting**. (1 mark)

.....

c) Name **one material used for manufacturing water pipes**. (1 mark)

.....

SECTION B: 50 MARKS

Answer ALL questions.

11. A contractor has been given a piece of land on which a residential building is to be constructed. The site contains bushes, tree stumps, loose soil and some stones.

a)Identify **four activities** that should be undertaken during site preparation.(4 marks)

i.

ii.

iii.

iv.

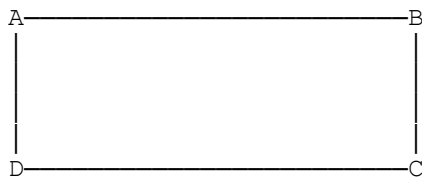
b) Explain three factors that should be investigated before construction begins.(3 marks)

- i.
- ii.
- iii.

c) State three reasons why setting out must be accurate. (3 marks)

- i.
- ii.
- iii.

12. Study the setting-out illustration below.



$$\begin{aligned} AB &= DC \\ AD &= BC \end{aligned}$$

a)

Identify the shape of the building being set out. (1 mark)

.....

b) Explain four steps involved in setting out the building shown above. (4 marks)

- i.
- ii.
- iii.
- iv.

c) State three methods/tools that can be used to ensure that corners A, B, C and D are accurately positioned. (3 marks)

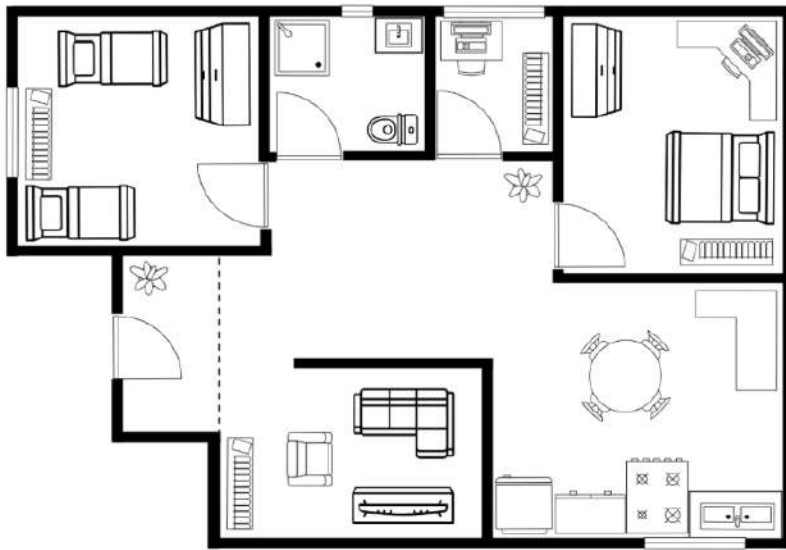
- i.
- ii.
- iii.

d) State two checks that should be made before excavation begins. (2 marks)

- i.

ii.

13. Study the simplified plan below.



a) Identify the type of drawing shown. (1 mark)

.....

b) Name **four features visible on the drawing**. (4 marks)

i.

ii.

iii.

iv.

c) The actual length of the building is **8 metres**. On a drawing it measures **16 cm**.

Calculate the scale. (3 marks)

d) State **two reasons why dimensions are included on building drawings**. (2 marks)

i.

ii.

14.

a) Identify **four components** shown in the cross-section. (4 marks)

i.

- ii.
- iii.
- iv.

b) Explain three functions of the foundation. (3 marks)

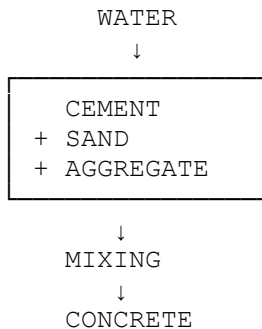
- i.
- ii.
- iii.

c) State three requirements of a good ground floor. (3 marks)

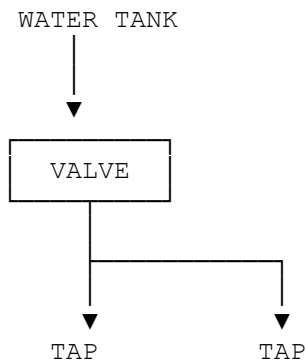
- i.
- ii.
- iii.

15. Study the two illustrations below.

A. CONCRETE MIXING



B. PLUMBING SYSTEM



a)

From illustration **A**, state **four operations involved in producing good concrete. (4 marks)**

- i.

- ii.
- iii.
- iv.

b)

State **three functions of a valve** in a water-supply system. (3 marks)

- i.
- ii.
- iii.

c)

State **three safety precautions when carrying out plumbing work**.
(3 marks)

- i.
- ii.
- iii.

GRADE 10 – BUILDING CONSTRUCTION

MARKING SCHEME

1.

a) Identify the materials:

A. **Stone** – 1 mark

B. **Brick** – 1 mark

C. **Aggregate/ballast** – 1 mark

b) One use of stone:

- Construction of walls.
- Construction of foundations.
- Construction of retaining walls.
- Road works.

Any one – 1 mark

c) One property of good building stone:

- Strong.
- Durable.
- Hard.
- Resistant to weathering.
- Free from cracks.
- Has good appearance.

Any one – 1 mark

2.

a) The component identified as FOOTING is the foundation footing/base.
1 mark

b) Two functions of a foundation/footing:

- Transfers building loads safely to the ground.
- Distributes the load over a larger area of soil.
- Provides a stable base for the building.
- Prevents excessive settlement.

Any 2 × 1 = 2 marks

c) Two factors influencing foundation depth:

- Type and bearing capacity of soil.
- Load/weight of the building.
- Depth of firm bearing stratum.
- Groundwater conditions.
- Nature of the site.

Any 2 × 1 = 2 marks

3.

a) Identification:

The intended setting-out tools are:

- A. **Ranging rod** – 1 mark
B. **Builder's square** – 1 mark

Accept another correctly identified setting-out tool where the learner's identification matches the intended illustration.

b) Use of a builder's square:

- To set out/check a right angle of **90°**.
- To ensure corners of a building are square.

1 mark

Total: 3 marks

4.

Actual length = **6 m = 600 cm**

Drawing length = **600 mm = 60 cm**

Therefore:

$$\text{Scale} = \frac{60}{600} = \frac{1}{10}$$

Scale = 1:10

2 marks

Note: The original question illustration states 600 mm while the text states 6 metres. Therefore, the correct interpretation is that the drawing line is **600 mm**, giving a scale of **1:10**.

b) Importance of scale:

- Allows large objects/buildings to be represented on a manageable drawing sheet.
- Maintains proportional accuracy.
- Enables actual dimensions to be determined from the drawing.

Any 1 – 1 mark

5.

a) The drawing is a front elevation.

1 mark

b) Information obtained from an elevation:

- External appearance of the building.
- Position and size of doors.
- Position and size of windows.
- Height of the building.
- Roof shape.
- Vertical dimensions.
- External finishes.

Any 2 × 1 = 2 marks

6.

a) Identification of the four basic materials:

- A. **Cement** – 1 mark
- B. **Sand/fine aggregate** – 1 mark
- C. **Coarse aggregate/ballast** – 1 mark
- D. **Water** – 1 mark

b) Purpose of water:

- It reacts with cement during hydration.
- It makes the mixture workable.
- It assists in bonding the ingredients.

Any one – 1 mark

7.

**a) Excavation of a foundation trench.
1 mark**

b) One danger:

- Collapse of trench sides.
- Burial of workers.
- Injury or death.
- Falling materials into the excavation.

Any one – 1 mark

c) One method of preventing collapse:

- Timbering/shoring.
- Proper battering/sloping of sides.
- Providing suitable excavation support.

Any one – 1 mark

8.

a) The support is **timbering/shoring of an excavation.
1 mark**

b) Two reasons for timbering:

- Prevents collapse of excavation sides.
- Protects workers from being buried or injured.
- Maintains the shape and dimensions of the trench.
- Improves safety during excavation.

Any 2 × 1 = 2 marks

Total: 3 marks

9.

a) The shaded layer is **hardcore.**

1 mark

b) One purpose of **hardcore:**

- Provides a firm and stable base for the floor slab.
- Helps raise the floor level.
- Improves drainage and reduces settlement when properly selected and compacted.

Any one – 1 mark

c) Reason for compacting ground:

- To reduce settlement.
- To provide a firm and stable base.
- To increase the bearing capacity of the ground.

Any one – 1 mark

10.

a) Identification:

A. **Elbow**– 1 mark

B. **Union** – 1 mark

C. **Cross** – 1 mark

b) Function of a tee:

- Provides a branch connection from the main pipe.
- Divides/directs water into another pipe.

1 mark

c) One material used for water pipes:

- PVC/uPVC.
- Copper.
- PEX.
- Galvanised steel.

Any one – 1 mark

11.

a) Four site-preparation activities

1. **Clearing vegetation** – removing bushes, grass and unwanted trees.
2. **Removing tree stumps and roots** – clearing obstacles that may interfere with construction.
3. **Removing stones and debris** – preparing a clean construction area.
4. **Demolition/removal of unwanted structures** where applicable.
5. **Levelling/grading** the site.

6. **Disposal of waste** to an appropriate location.

Any $4 \times 1 = 4$ marks

b) Three factors to investigate before construction

1. **Soil condition** – determine the type and bearing capacity of soil.
2. **Site levels/topography** – establish slopes and levels of the land.
3. **Drainage/groundwater** – determine water conditions and drainage requirements.
4. **Access** – determine how workers, materials and equipment will reach the site.
5. **Availability of services** – establish water, electricity and other services.
6. **Boundaries** – establish the correct site boundaries.

Any $3 \times 1 = 3$ marks

c) Three reasons for accurate setting out

- Ensures the building is positioned correctly on the site.
- Ensures correct building dimensions.
- Ensures walls are correctly aligned.
- Ensures corners are accurately positioned.
- Prevents costly construction errors.
- Ensures the building follows the approved drawings.

Any $3 \times 1 = 3$ marks

Question 11 = 10 marks

12.

a)

The shape is a **rectangle/rectangular building**.

1 mark

b) Four steps in setting out

A suitable procedure is:

1. **Study the building plan** and establish the required dimensions.
2. **Establish a baseline** from which the building will be measured.
3. **Fix pegs** at the required positions.
4. **Stretch string lines** between the pegs to indicate wall positions.
5. Establish right angles using a **builder's square or 3:4:5 method**.
6. Measure the required length and width.
7. Check the diagonals to ensure the corners are correctly positioned.
8. Fix profile boards outside the excavation area.

Any $4 \times 1 = 4$ marks

c) Three methods/tools for accurate positioning

- Builder's square.
- Tape measure.

- 3:4:5 method.
- Theodolite.
- Ranging rods.
- Spirit level.
- Optical/laser level.
- Checking diagonals.

Any $3 \times 1 = 3$ marks

d) Two checks before excavation

- Check the building dimensions against the working drawing.
- Check that corners are square/right-angled.
- Check the diagonals.
- Check alignment and levels.
- Confirm the building is correctly positioned within the site boundaries.

Any $2 \times 1 = 2$ marks

Question 12 = 10 marks

13.

a)

The drawing is a **building plan/floor plan**.

1 mark

b) Four features visible

Any four:

- Bedrooms.
- Living room.
- Kitchen.
- Internal walls.
- External walls.
- Room divisions.
- Dimensions.
- Door/window positions.

Any $4 \times 1 = 4$ marks

c) Scale calculation

Actual length = **8 metres**

Convert to centimetres:

$$8\text{m}=800\text{cm}$$

Drawing length = **16 cm**

$$\text{Scale}=\frac{16}{800}=\frac{1}{50}$$

Scale = 1:50

Working – 2 marks

Answer – 1 mark

d) Two reasons for including dimensions

- To indicate the actual size of building components.
- To guide the construction team during construction.
- To enable accurate setting out.
- To reduce construction errors.
- To indicate distances between different building elements.

Any $2 \times 1 = 2$ marks

Question 13 = 10 marks

14.

a) Four components shown

Any four:

- Wall** – 1 mark
- Foundation wall** – 1 mark
- Footing** – 1 mark
- Hardcore** – 1 mark
- Compacted ground** – 1 mark

Any 4 = 4 marks

b) Three functions of a foundation

- Transfers the load of the building safely to the ground.
- Distributes the building load over a suitable area.
- Provides stability to the building.
- Reduces excessive settlement.
- Prevents movement caused by unstable ground.

Any $3 \times 1 = 3$ marks

c) Three requirements of a good ground floor

- It should be **strong** enough to carry imposed loads.
- It should be **level and even**.
- It should be **durable**.
- It should resist **ground moisture**.
- It should be properly **compacted and supported**.
- It should have an appropriate finish.
- It should provide suitable thermal insulation where required.

Any $3 \times 1 = 3$ marks

Question 14 = 10 marks

15.

a) Four operations involved in producing good concrete

1. **Batching/measuring** the ingredients in the required proportions.
2. **Mixing** cement, sand and aggregate thoroughly.
3. **Adding water** in the correct quantity.
4. **Placing** the concrete in the required position.
5. **Compacting** the concrete to remove trapped air.
6. **Finishing** the surface.
7. **Curing** the concrete adequately.

Any $4 \times 1 = 4$ marks

b) Three functions of a valve

- Controls the flow of water.
- Stops the flow of water when necessary.
- Allows sections of the plumbing system to be isolated for maintenance or repair.
- Regulates water flow in suitable applications.

Any $3 \times 1 = 3$ marks

c) Three plumbing safety precautions

- Wear appropriate PPE such as gloves and safety footwear.
- Use the correct tools for each task.
- Turn off the water supply before repairing or modifying pipes.
- Keep the working area clean and free from hazards.
- Handle sharp tools carefully.
- Ensure electrical equipment is kept away from water.
- Inspect tools before use.

Any $3 \times 1 = 3$ marks

KENYA CERTIFICATE OF BASIC EDUCATION

SENIOR SCHOOL ASSESSMENT

TERM 3: PROJECT BASED ASSESSMENT 2026

GRADE 10 – BUILDING CONSTRUCTION

Time: 2 Hours

LEARNER'S DETAILS

Name: _____ **School:** _____

Assessment Number: _____ **Date:** _____

School Code: _____ **Signature:** _____

PROJECT-BASED ASSESSMENT TEST

PROJECT BRIEF

You have been asked to design and construct a **simple masonry structure** suitable for a small domestic building.

The project should demonstrate your ability to:

- Interpret a building requirement.
- Prepare a simple **floor plan**.
- Produce a basic building drawing.
- Select appropriate materials and tools.
- Set out the structure.
- Construct a masonry wall section.
- Observe safety requirements.
- Evaluate the completed project.

The teacher will provide or approve the available materials before construction begins.

SECTION A: PROJECT DESIGN AND FLOOR PLAN – 6 MARKS

1. Prepare a simple floor plan of a small building containing:

- One main room
- One additional room
- A door
- At least two windows
- Internal dimensions
- External dimensions

(4 marks)

Space for floor plan:

2. Label the following on your floor plan:

- a) Door – ½ **mark**
- b) Windows – ½ **mark**
- c) Rooms – ½ **mark**
- d) Dimensions – ½ **mark**

Total: 2 marks

Drawing requirements

The learner should demonstrate:

- Use of appropriate drawing instruments.
- Reasonable proportion and neatness.
- Correct use of conventional building symbols.
- Clear labelling and dimensions.

SECTION B: PROJECT PLANNING – 3 MARKS

3. List **THREE** materials required for the construction project.(1½ marks)

i.

ii.

iii.

4. List **THREE** tools/equipment required for the project.(1½ marks)

i.

ii.

iii.

SECTION C: PRACTICAL CONSTRUCTION – 8 MARKS

Using your approved plan, construct a **small section of the proposed masonry wall**.

The wall section should demonstrate appropriate:

Assessment Indicator	Marks
Setting out according to the plan	1
Correct selection and preparation of materials	1
Preparation and appropriate use of mortar	1
Correct laying of bricks/blocks	2
Maintaining line, level and verticality	1
Correct bonding	1
Neatness and quality of workmanship	1
TOTAL	8

SECTION D: SAFETY AND WORKSITE MANAGEMENT – 2 MARKS

5. Demonstrate the following during the project:

a) Safe and correct use of tools and equipment – **1 mark**

b) Proper organisation and cleanliness of the work area – **1 mark**

SECTION E: PROJECT EVALUATION – 1 MARK

6. State **ONE** challenge experienced during the project and explain how you addressed it.(1 mark)

Challenge:

.....
.....

How it was addressed:

.....
.....

PROJECT ASSESSMENT RUBRIC

Competency Area	Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Floor plan/drawing	Accurate, neat, correctly dimensioned and well labelled	Generally accurate with minor errors	Several errors in symbols/dimensions	Incomplete or poorly presented
Planning	Materials and tools selected appropriately	Most requirements identified	Some requirements identified	Poor planning
Construction	Excellent workmanship, alignment and bonding	Good workmanship with minor errors	Some construction errors	Major errors/incomplete work
Safety	Consistently demonstrates safe practices	Generally safe	Requires occasional reminders	Frequently ignores safety requirements
Evaluation	Clearly identifies problem and solution	Identifies problem and solution	Limited explanation	Unable to evaluate project

TEACHER'S PROJECT RECORD

Learner's Name: _____

Grade: 10 _____

Admission No.: _____

Date: _____

No.	Assessment Area	Max. Marks	Score
1	Floor plan and building drawing	6	
2	Project planning	3	
3	Practical construction	8	
4	Safety and worksite management	2	
5	Project evaluation	1	
	TOTAL	20	

Teacher's Observation:

.....

.....

Teacher's Name: _____

Signature: _____

Date: _____

GRADE 10 BUILDING TECHNOLOGY

PROJECT-BASED ASSESSMENT – MARKING SCHEME

Project: Design and Construction of a Simple Masonry Structure

Total Marks: 20

SECTION A: DRAWING AND FLOOR PLAN – 6 MARKS

1. Floor Plan – 4 Marks

Award marks as follows:

Requirement	Marks
Correct overall layout/proportion of the building	1
Correct representation of walls and room arrangement	1
Appropriate door and window positions/symbols	1
Neatness and use of appropriate drawing conventions	1
Total	4

2. Labelling and Dimensioning – 2 Marks

Requirement	Marks
Rooms clearly labelled	½
Door correctly indicated/labelled	½
Windows correctly indicated/labelled	½
Internal/external dimensions shown appropriately	½
Total	2

Section A Total = 6 Marks

SECTION B: PROJECT PLANNING – 3 MARKS

3. Materials – 1½ Marks

Award ½ **mark for each correct material**, up to 3 materials.

Accept:

- Bricks/blocks
- Cement
- Sand
- Water
- Damp-proof materials
- Timber where applicable
- Other appropriate building materials

Maximum = 1½ marks

4. Tools/Equipment – 1½ Marks

Award ½ **mark for each correct tool/equipment**, up to 3.

Accept:

- Brick trowel
- Spirit level
- Tape measure
- Plumb bob
- Builder's line
- Mason's square
- Shovel
- Bucket
- Straight edge
- Other appropriate tools

Maximum = 1½ marks

Section B Total = 3 Marks

SECTION C: PRACTICAL CONSTRUCTION – 8 MARKS

Assessment Indicator	Marking Points	Marks
Setting out	Correctly transfers dimensions/layout from the plan to the work area	1
Material selection/preparation	Selects and handles suitable materials correctly	1
Mortar preparation/use	Prepares/uses mortar appropriately and consistently	1
Laying bricks/blocks	Correct positioning and laying of units	2
Line, level & verticality	Maintains straightness, level and plumb	1
Bonding	Applies an appropriate masonry bond correctly	1
Workmanship/neatness	Joints, corners and finished work are neat	1
TOTAL		8

Detailed Awarding Guidance

Setting out – 1 mark

- Correct measurements and positions – ½
- Correct use of line/square or other setting-out method – ½

Material selection/preparation – 1 mark

- Correct materials selected – ½
- Materials properly prepared/handled – ½

Mortar – 1 mark

- Appropriate mixing/preparation – ½
- Appropriate application – ½

Laying bricks/blocks – 2 marks

- Correct positioning – 1
- Proper and consistent laying – 1

Line, level and verticality – 1 mark

- Maintains horizontal alignment – ½
- Maintains verticality/plumb – ½

Bonding – 1 mark

- Correct bond selected – ½
- Bond correctly maintained – ½

Workmanship – 1 mark

- Neat joints/finish – ½
- Overall quality of construction – ½

SECTION D: SAFETY AND WORKSITE MANAGEMENT – 2 MARKS

5. Safety Practices

Requirement	Marks
Uses tools and equipment safely and correctly	1
Maintains a clean, organised and safe working area	1
Total	2

Award only when the learner actually demonstrates the practice during the project.

SECTION E: PROJECT EVALUATION – 1 MARK

6. Challenge and Solution

Award:

- Correctly identifies a realistic challenge – ½ **mark**
- Gives an appropriate way of addressing the challenge – ½ **mark**

Total = 1 mark

Examples of acceptable challenges:

- Shortage of materials
- Difficulty maintaining alignment
- Incorrect mortar consistency
- Limited working space
- Difficulty maintaining dimensions

PERFORMANCE LEVEL

Score	Performance
17–20	Exceeds Expectations
13–16	Meets Expectations
9–12	Approaching Expectations
0–8	Below Expectations

Teacher's Overall Comment:

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