

FORM TP 2014118



TEST CODE **01247031**

MAY/JUNE 2014

**CARIBBEAN EXAMINATIONS COUNCIL
CARIBBEAN SECONDARY EDUCATION CERTIFICATE®
EXAMINATION**

TECHNICAL DRAWING

OPTION – BUILDING DRAWING

Paper 031 – General Proficiency

PRACTICAL

3 hours 10 minutes

08 MAY 2014 (a.m.)

GENERAL INFORMATION

1. Each candidate should have the following for this examination:

Traditional Drawing Method

Two sheets of drawing paper (both sides may be used)
Drawing instruments
Drawing board and tee-square
Metric scale rule

Computer-Aided Drafting Method

A minimum of three sheets of size 11” x 17” paper
Personal computer with monitor, keyboard, mouse and printer
Computer-Aided Drafting software

N.B. ALL solutions to questions attempted for this CAD Option MUST be PRINTED for submission.

2. All dimensions are given in millimetres unless otherwise stated.
3. When first-angle or third-angle is not specified, the choice of projection is left to the candidate’s discretion, in which case the type of projection used MUST be clearly stated.
4. Each candidate should use his/her own judgement to supply any dimensions or other details not directly shown on the drawings.
5. The number of each question answered MUST be written next to the solution.
6. Each candidate MUST enter his/her school code and registration number in the appropriate space at the bottom right-hand corner of the drawing paper.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

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BUILDING DRAWING

This paper has TWO sections: Section I – Working Drawing and Section II – Sketch and Design OR 3D Solid Model Design Drawing.

Answer ONE question from Section I – Working Drawing and ONE question from Section II – Sketch and Design OR 3D Solid Model Design Drawing.

Candidates MAY use EITHER the Traditional Drawing Method OR the Computer-Aided Drafting Method.

SECTION I – WORKING DRAWING

Answer ONE question.

Do NOT spend more than 2½ hours on this question.

1. The outline of a floor plan for an office is shown in **Figure 1 on one of the enclosed sheets**.
- (a) Draw, to a scale of 1:50, using appropriate conventions, a working drawing floor plan of the office. The drawing should include:
- (i) Internal and external walls
 - (ii) ALL windows and doors
 - (iii) Reception counter
 - (iv) Kitchen appliances, cupboards and cabinets in staff room
 - (v) Bathroom fixtures (toilet and basin)
 - (vi) Names of rooms
 - (vii) Ten important dimensions (interior and exterior) to include overall dimensions, room dimensions, openings and wall change in direction **(50 marks)**
- (b) **Figure 2, on one of the enclosed sheets**, shows the outline of the proposed site for the office building in **Figure 1**. Draw to a scale of 1:100, the site plan showing the outline of the building in the position indicated in the figure.

The corner labelled 'X' MUST be located 7500 mm from the road and 4000 mm from the West boundary. The building MUST be parallel to Shore Road.

The completed site plan MUST include the following:

- (i) Proposed building profile
- (ii) Setbacks – distances from boundary lines
- (iii) Driveway, walkway and parking spaces
- (iv) Septic tank, soakaway and sewer lines
- (v) Dimensions of property lines
- (vi) North arrow **(30 marks)**

The drawings MUST be labelled and dimensioned properly.

Print a suitable title and scale used at the base of EACH drawing.

Dimensions not given are left to the discretion of the candidate.

GO ON TO THE NEXT PAGE

Specifications

- Walls: External – concrete blocks, 150 mm thick plastered on both sides
Internal – concrete blocks, 100 mm thick plastered on both sides
- Doors: External and internal – solid panel doors, 900 mm wide × 2000 mm high
Bathroom – Flush doors, 750 mm wide × 2000 mm high
- Windows: Glass louvres, 1800 mm wide × 1200 mm high

NOTE: Standard drawing practices and conventions for producing working drawing floor plans and site plans are to be followed.

(Total = 80 marks)

2. The diagram in **Figure 3, on one of the enclosed sheets**, shows the outline of a floor plan for a two bedroom house. The roof design is indicated on the drawing.

- (a) Draw, to a scale of 1:50, the roof framing plan for the building using single lines to represent each framing member. Show the following exposed framing members clearly:
- (i) Ridge
 - (ii) Hip rafters
 - (iii) Jack rafters
 - (iv) Valley rafters
 - (v) Common rafters
 - (vi) Fascia board

Label ALL members and indicate the building outline in the drawing.

(50 marks)

- (b) Draw, to a scale of 1:50, and in keeping with standard drawing practices, TWO elevations of the building looking from the direction of both VIEW 1 and VIEW 2.

Print a suitable title and the scale used at the base of EACH drawing.

Dimensions not given are left to the discretion of the candidate.

(30 marks)

Specifications

- Walls: External – concrete blocks, 150 mm thick plastered on both sides
Internal – concrete blocks, 150 mm thick plastered on both sides
- Doors: External – solid panel doors, 900 mm wide × 2000 mm high
Internal – flush 750 mm wide × 2000 mm high doors
- Windows: W1 – wooden louvres, 2750 mm wide × 1200 mm high
W2 – wooden louvres, 1800 mm wide × 1200 mm high
W3 – wooden louvres, 500 mm wide × 500 mm high
- Roof: Roof Covering – Aluminium sheeting
Fascia board – 50 mm × 250 mm
Rafters – 50 mm × 150 mm @ 600 mm centres with roof overhang of 750 mm

**NOTE: Height of finished floor to top of 500 mm high R.C. ring beam – 2500 mm.
Top of ridge board above wall plate – 1400 mm.**

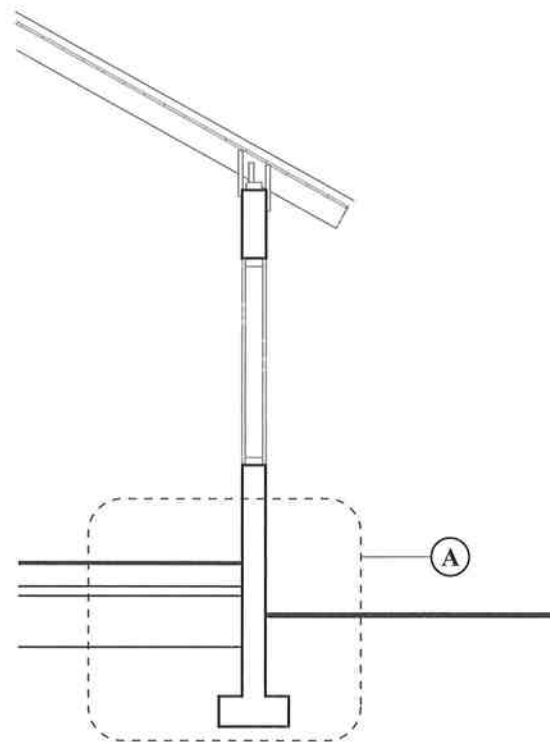
Standard drawing practices and conventions for producing working drawings are to be followed.

(Total = 80 marks)

SECTION II – SKETCH AND DESIGN OR 3D SOLID MODEL DESIGN DRAWING

Answer ONE question.

3. Make neat, well-proportioned three-dimensional sketches to show the difference between a reinforced concrete straight flight stairs and a timber straight flight stairs. Label the differences clearly. **(20 marks)**
4. Figure 4 shows the outline of a wall section for a house. Make a neat, well-proportioned sketch of the sectional detail highlighted at (A). Add any missing elements and include hatching to differentiate between the materials represented. Label the drawing to identify:
- (i) Reinforced concrete strip footing
 - (ii) 100 mm thick reinforced concrete slab
 - (iii) 200 mm hardcore
 - (iv) 300 mm square ceramic tiles
 - (v) Foundation wall



WALL SECTION
Not to scale

Figure 4

(20 marks)

END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.



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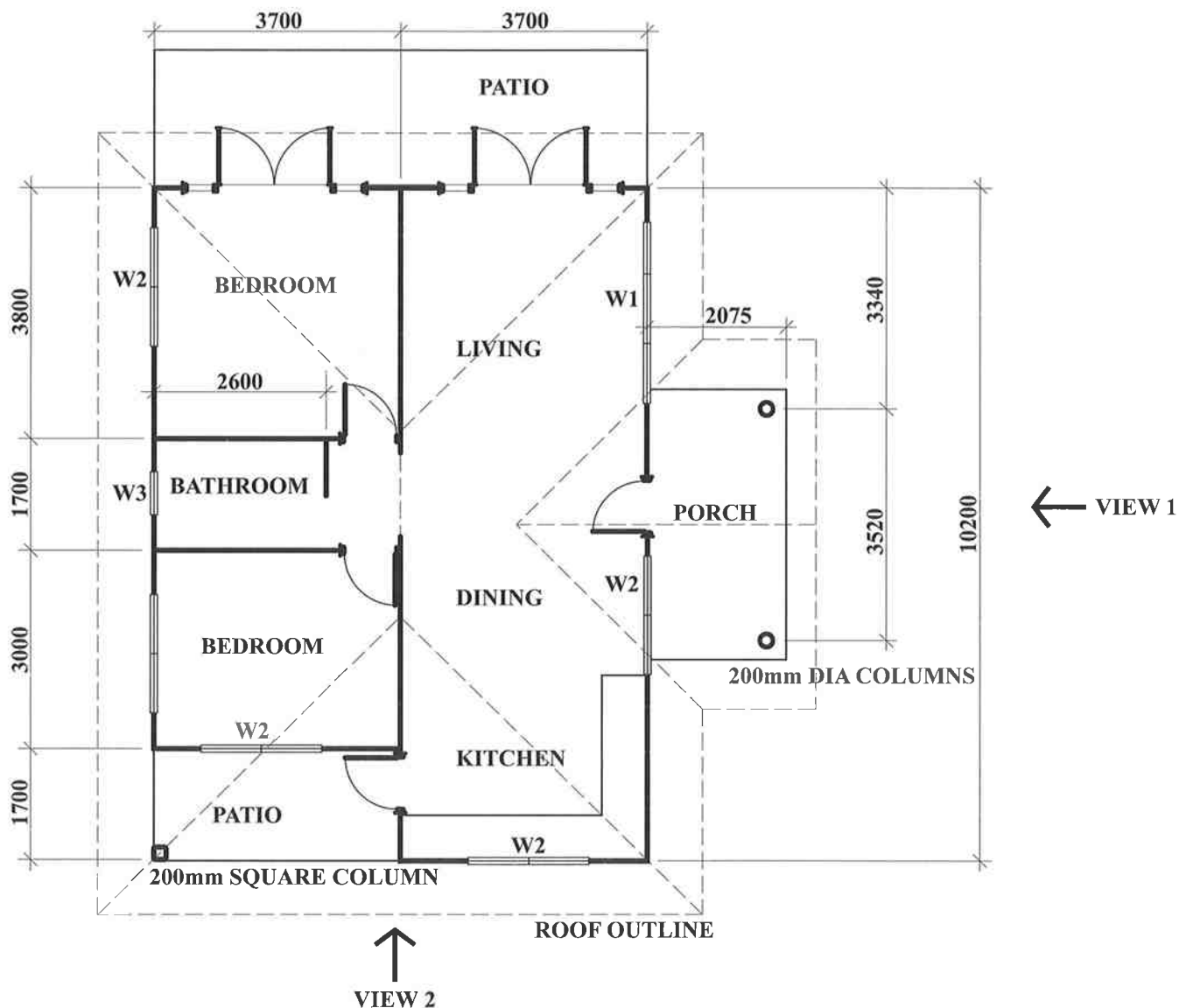
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FLOOR PLAN OUTLINE

SCALE: N.T.S.

Figure 3

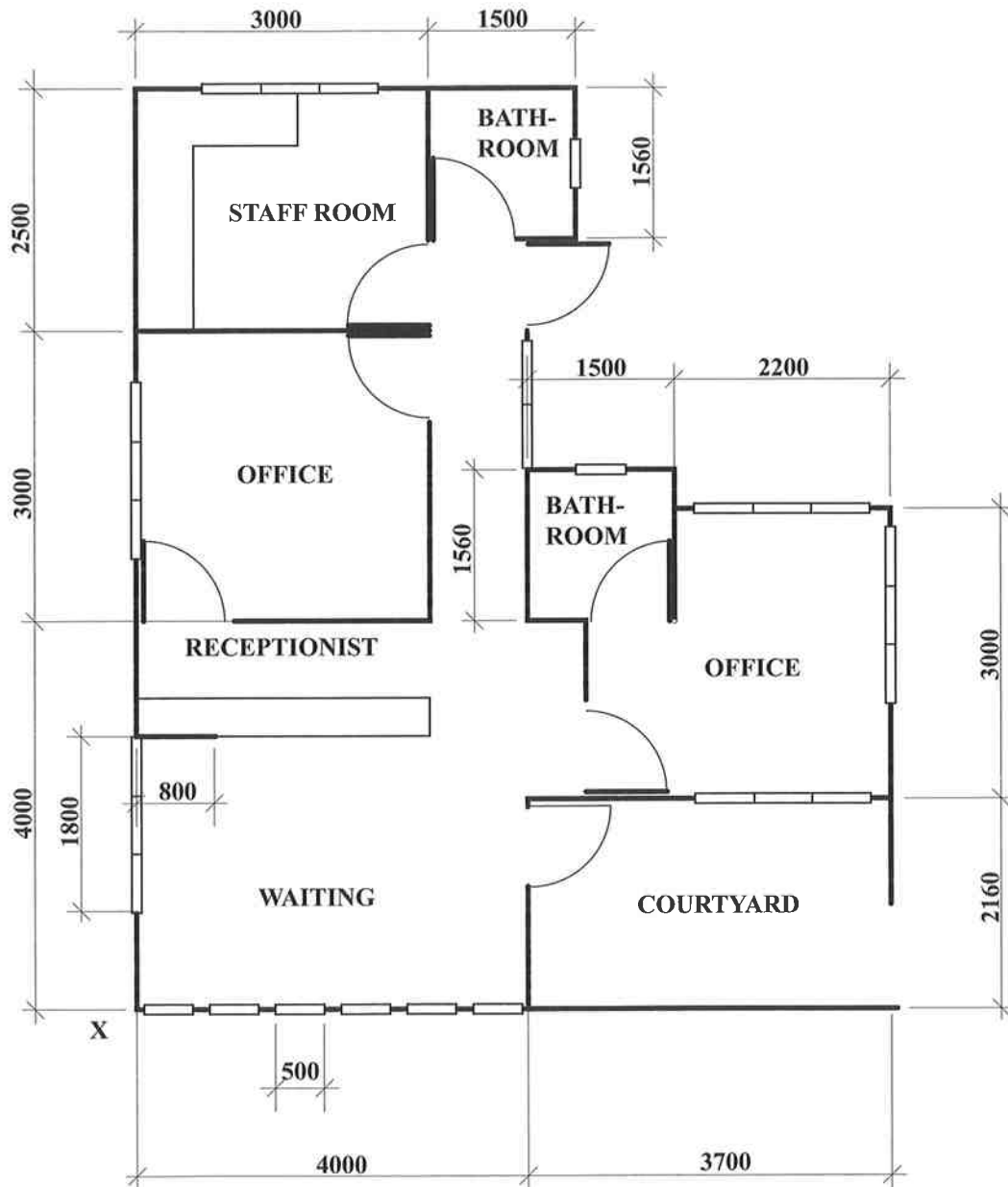
Use this drawing to answer Questions 2 (a) and 2 (b).

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FLOOR PLAN OUTLINE

SCALE: N.T.S.

Figure 1

Use this drawing to answer Question 1 (a).



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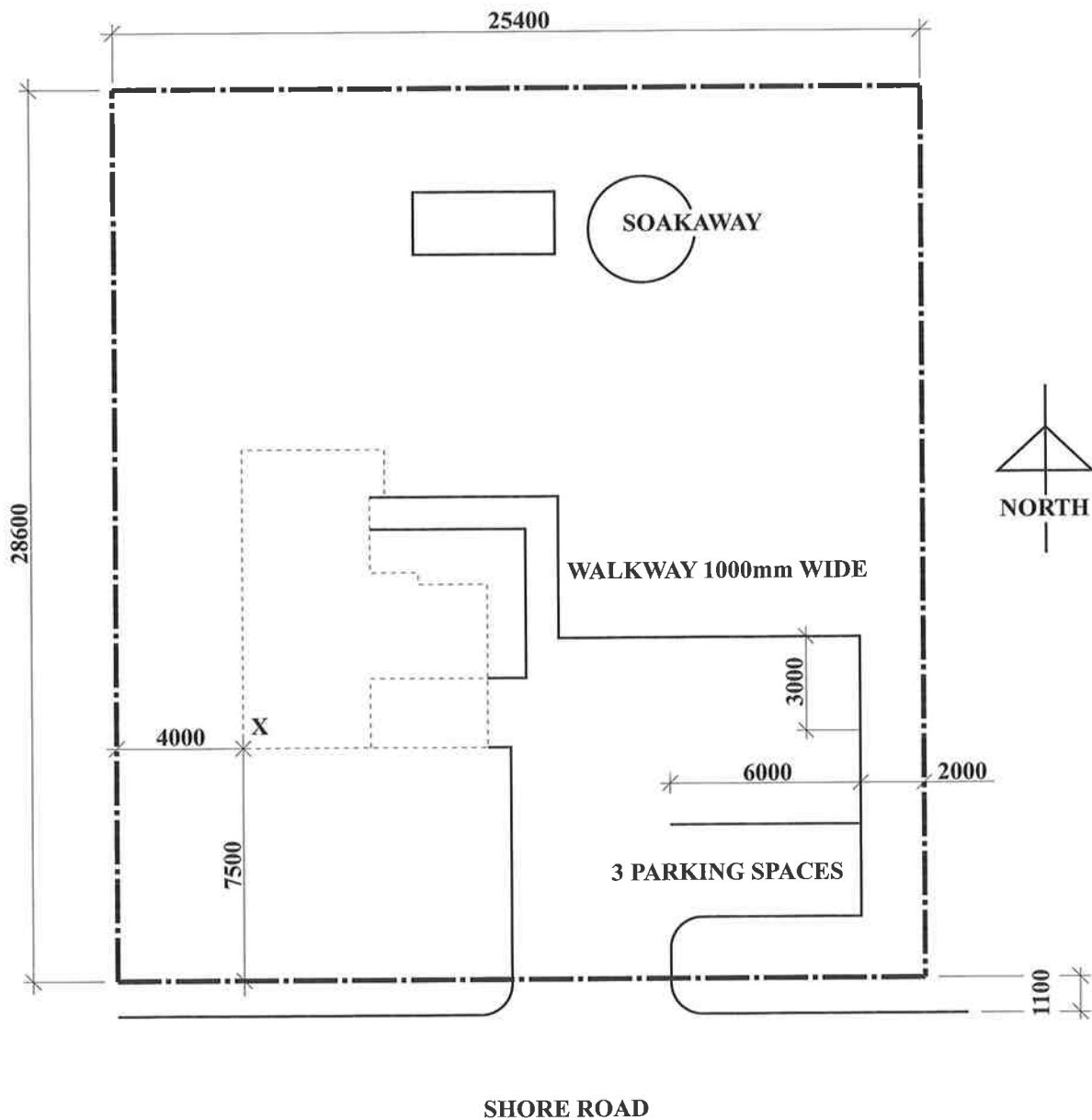
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SITE PLAN OUTLINE

SCALE: N.T.S.

Figure 2

Use this drawing to answer Question 1 (b).