

# HILLCREST HIGH SCHOOL

## MID-YEAR EXAMINATION

### ENGINEERING, GRAPHICS & DESIGN

GRADE 12  
2014  
PAPER 1

**MARKS: 100 TIME: 3 HOURS**

#### INSTRUCTIONS TO CANDIDATES

1. This question paper consists of 5 pages including the cover page and 3 questions.
2. All questions must be answered.
3. Unless specified otherwise, all questions are in First Angle Orthographic Projection.
4. Unless specified otherwise, all questions are to be completed to a scale of 1:1.
5. All answer sheets must be re-stapled in numerical order, even questions that are not attempted/blank.
6. All construction work must be shown, even if a stencil was used.
7. Print your NAME neatly on each page.
8. Use only the drawing sheets provided.
9. Your drawings should reflect neatness and accuracy.
10. All dimensions or detail not given may be assumed in good proportion.

QUESTION	SECTION	MARK	MAXIMUM
1	CIVIL ANALYTICAL		22
2	TRANSITION PIECE		48
3	CIVIL ASSEMBLY		130
TOTAL			200
SYMBOL			100

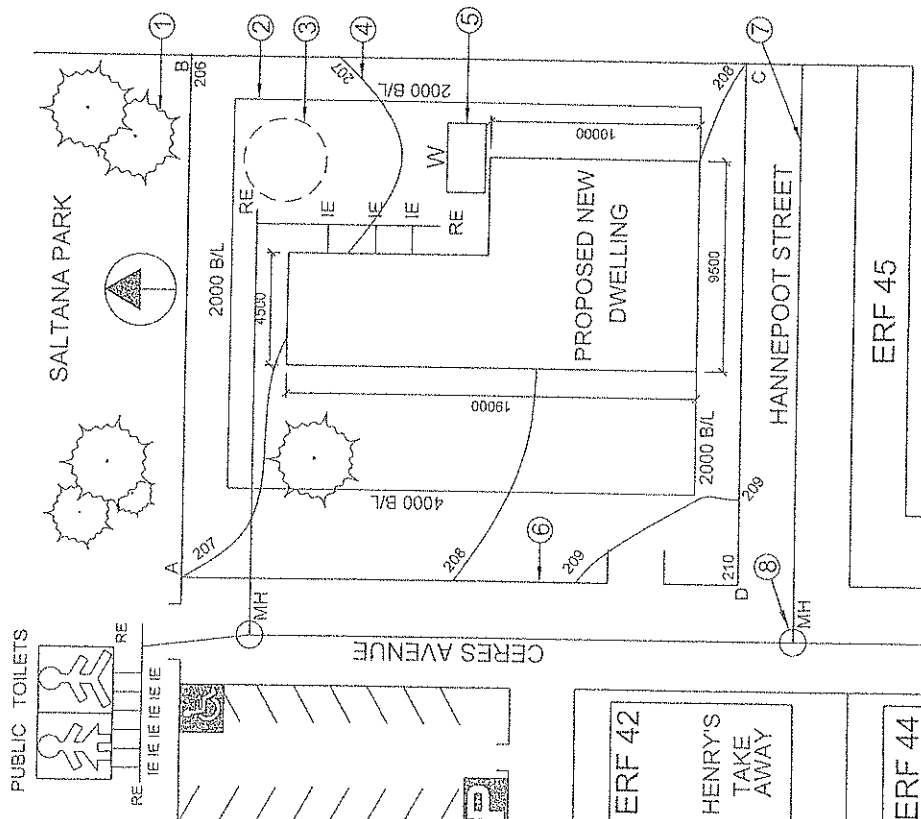
NAME: \_\_\_\_\_

**BSG ARCHITECTS**  
 ARCHITECTURAL  
 REG. NO. ST 1610  
 PAARL Est. 1992  
 "designing the world"

ALAN GARDEN  
 ROGER JONES  
 MR K.P. MULLEN  
 CERES AVENUE  
 ERF 41  
 WORCESTER

PROPOSED NEW DWELLING  
 DRAWN BY:  
 CHECKED BY:  
 APPROVED BY:  
 DATE:  
 SIGNED:

TEL: 021-3751244 12 GRAPE RD P.O. BOX 128 PAARL 7646  
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ADDITIONAL INFORMATION:  
 AB = DC = 23m  
 BC = AD = 26m

SITE PLAN - 1:500

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 QUESTION 1  
 CIVIL ANALYTICAL

The adjacent details refer to the drawing of B.S.G. Architects, Paarl South Africa.

**SPECIFICATIONS:**

- as per given drawing.

**REQUIREMENTS:**

1.1. Refer to the drawing and the given information answer the questions in the table.

**ASSESSMENT CRITERIA**

You will be assessed on your ability to do the following:  
 • recall, process, comprehend and calculate the given information and drawing

1.1 What type of civil drawing is shown?	
1.2 What elevation faces the car park?	
1.3 Who checked the drawing?	
1.4 In which town is the architect's office located?	
1.5 What is the erf number of the proposed new dwelling?	
1.6 What is the feature at 1 called?	
1.7 What is the feature at 2 called?	
1.8 What is the feature at 3 called?	
1.9 What is the feature at 4 called?	
1.10 What is the feature at 5 called?	
1.11 What is the feature at 6 called?	
1.12 What is the feature at 7 called?	
1.13 What is the feature at 8 called?	
1.14 How far is the proposed new dwelling from Hannepoort Street?	
1.15 From which road would you enter the driveway?	
1.16 Give 4 reasons how the human needs of people living in this area have been fulfilled. (4)	
1.17 In the space below, determine the area of the proposed new dwelling in m <sup>2</sup> . (3)	

Answer:

22 MARKS

NAME:

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QUESTION 2  
TRANSITION PIECE

The adjacent details refer to a Square to Round Transition Piece.

**SPECIFICATIONS:**

- the front view and top view of the transition piece is shown in the diagram below,

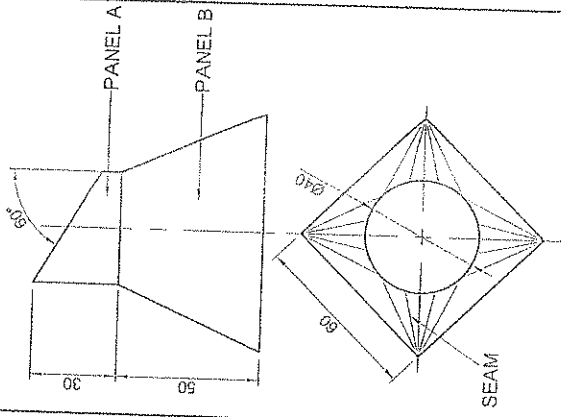
**REQUIREMENTS:**

- 2.1 The front view.
- 2.2 The top view.
- 2.3 Develop the surface of PANEL A (Cylinder).
- 2.4 Develop the surface of PANEL B (Transition).
- 2.5 Show all necessary construction and fold lines.
- 2.6 Start with the Seam for the development of the Transition Piece.

**ASSESSMENT CRITERIA**

You will be assessed on your ability to do the following:

- draw the given views 2
- draw the centre lines 3
- develop the cylinder 19
- develop the transition piece 19
- calculate the circumference of the circle 1
- show true length constructions 4



48 MARKS

NAME: \_\_\_\_\_

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QUESTION 3  
CIVIL ASSEMBLY

The adjacent details refer to a LOW-COST HOUSE.

The following is given:

- An incomplete schematic floor plan of a LOW-COST HOUSE, with window and door positions, perimeter dimensions and cutting plane A-A.
- An incomplete schematic elevation, with door and window positions, ceiling height, ground and floor levels.
- Door frame detail
- Incomplete foundation detail
- Roof detail, including purlin, batten and truss
- Plumbing fixtures legend
- Window, window frame and window sill detail

REQUIREMENTS:

- 3.1. Draw the complete floor plan
- 3.2. Draw the SOUTH elevation
- 3.3. Draw the sectional EAST elevation
- 3.4. Answer this question on page 5.
- 3.5. Use a scale of 1:50.
- 3.6. All drawings must comply with SABS 10143.

FLOOR PLAN INSTRUCTIONS:

- Draw the window, cutting plane and door details.
- Label the floor plan and print the scale.
- Insert the following electrical detail:
  - ▶ A. TWO, 40 watt fluorescent tube light in the room
  - ▶ a single wall mounted light outside the southern door
  - ▶ one switch for both lights
  - ▶ one switched socket outlet on eastern wall.

SECTIONAL EAST ELEVATION INSTRUCTIONS:

- Complete the foundation details
- Draw floor slab details, including 10mm screed and 150 mm compacted hardcore filling
- Label the ground level and damp proof course
- Draw the sectional window in the space shown:
  - ▶ use a 242 x 75 concrete lintel for the window
  - ▶ use 222 x 110 quarry tile window sill
  - ▶ show the window frame detail and label the damp proof course
- Draw the sectional door showing the door frame detail
- Complete the roof with a 30° pitch:
  - ▶ use corrugated asbestos sheeting for the roof
  - ▶ use 9 mm gypsum ceiling boards
- Draw the following plumbing detail according to the legend given:
  - ▶ A. single steel sink in the position shown, so that the top of the sink is 900mm from the floor
  - Complete all hatching detail

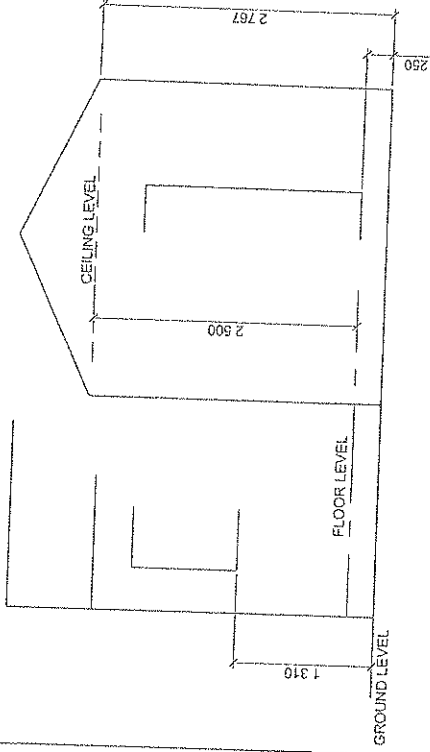
SOUTH ELEVATION INSTRUCTIONS:

- Draw the complete outside south elevation showing window and door details, and label the South Elevation.
- Show some detail for the asbestos roof sheeting.
- Label the ground level and floor level.

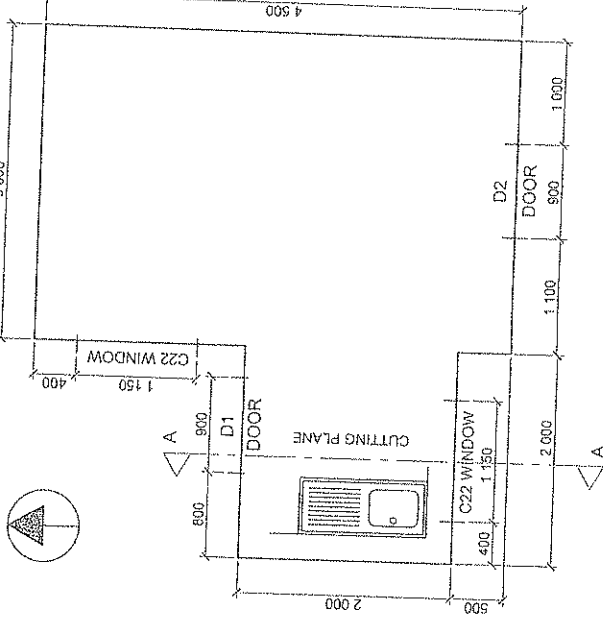
130 MARKS

NAME: \_\_\_\_\_

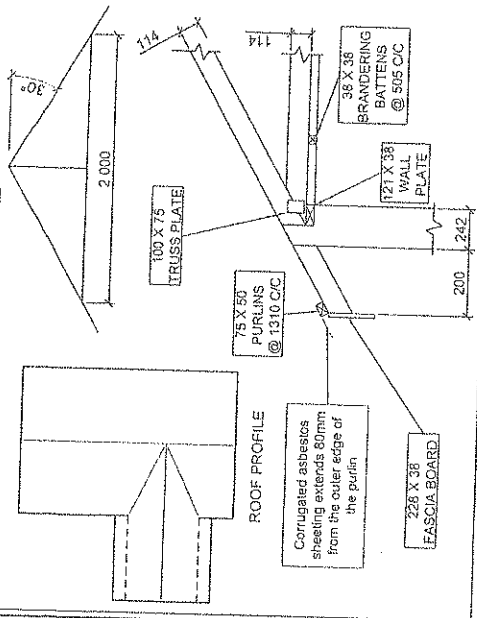
SCHEMATIC SOUTH ELEVATION



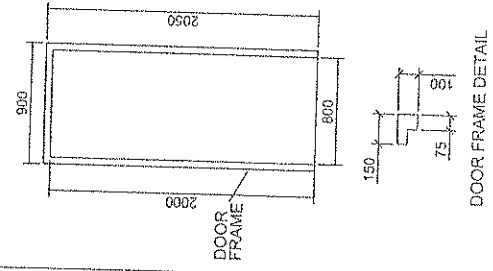
SCHEMATIC FLOOR PLAN



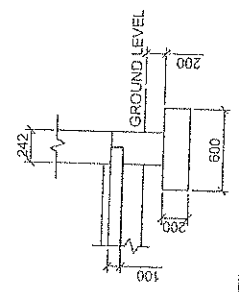
ROOF DETAIL



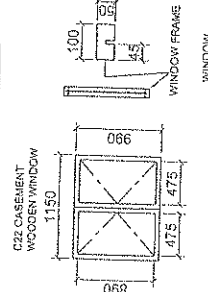
DOOR DETAIL



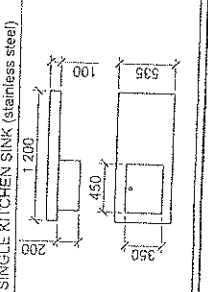
FOUNDATION DETAIL



WINDOW DETAIL



PLUMBING FIXTURES LEGEND



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QUESTION 3

CIVIL ASSEMBLY

Assessment Criteria

Sectional Elevation

1	Ceiling Batters	2
2	Wall Plates	2
3	Ceiling Board	1
4	Truss Plates	4
5	Roof Truss	8
6	Purlins	4
7	Roof	2
8	Walls	9
9	Window	7
10	Door	5
11	Floor & Foundation	10
12	Sink	3
13	DPC / Labels	4
14	Hatching	13
15	Facsia Board	2
<b>Sub Total</b>		<b>76</b>

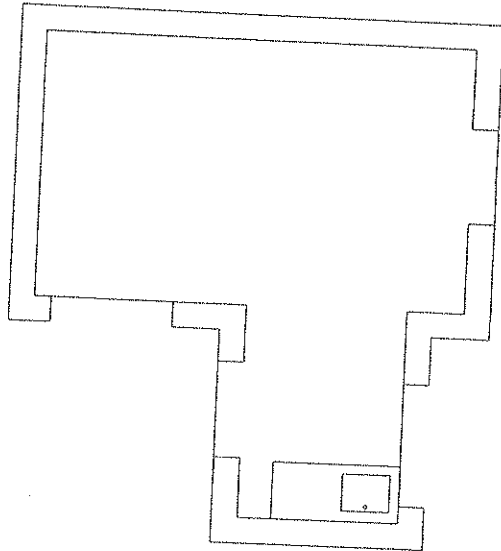
Elevation

16	Walls	7
17	Roof	5
18	Window	8
19	Facsia Board	2
20	Window Sill	2
21	Door	4
22	Label	4
<b>Sub Total</b>		<b>32</b>

Floor Plan

23	Windows	4
24	Doors	8
25	Electrical	6
26	Cutting Plane	2
27	Labels	2
<b>Sub Total</b>		<b>22</b>

TOTAL 130



130 MARKS

NAME: