

**Hillcrest High School**  
**GRADE 11 – ENGINEERING GRAPHICS AND DESIGN EXAM**  
**PAPER 1**



November 2016

**TIME: 3 hours**

**Examiner: Miss Cousins**

**TOTAL: 200 marks**

**Moderator: Mrs Moodley**

**NB: READ THE INTRUCTIONS**

1. This paper consists of 6 pages, and 4 questions.
2. Answer ALL questions.
3. Take note of the mark allocation in each question.
4. The questions must be answered on the answer sheets provided.
5. All the answer sheets must be re-stapled in NUMERICAL sequence and handed in irrespective of whether the question was attempted or not.
6. Time management is essential in order to complete all the questions.
7. Print your Name and Surname in the block provided on EVERY answer sheet.
8. All answers must be drawn accurately and neatly.
9. Any details or dimensions not given must be assumed in good proportion.

Question	Learner Mark	Mark Allocation
1 Civil Analytical		30
2 Transition Piece		39
3 Perspective		36
4 Civil Drawing		95
<b>TOTAL</b>		<b>200</b>

Name:



**QUESTION 2 – TRANSITION PIECE**

**Given:**

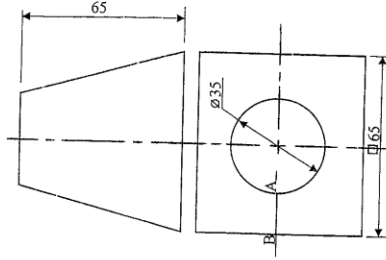
The front view and top view of a square-to-circle transition piece.

**Instructions:**

Draw to scale 1:1, and in first angle orthographic projection, the following views of the transition piece:

- 2.1. The top view
- 2.2. The front view
- 2.3. Develop the surface of the transition piece. Make the edge marked AB the seam.

Show ALL necessary construction and fold lines. [39]



ASSESSMENT CRITERIA	
TOP VIEW	2
FRONT VIEW	3
TRUE LENGTH LINES	6
CENTRE LINES	3
DEVELOPMENT CONSTRUCTION	18
AND LABELING	7
<b>TOTAL</b>	<b>39</b>

Name:

**QUESTION 3 – PERSPECTIVE**

**Given:**

A plan and elevations of a building for a carwash, as well as the Picture Plane (PP), Horizon Line (HL), Ground Line (GL) and the Station Point (SP).

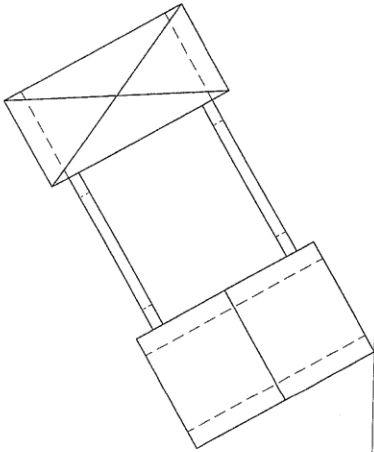
**Instructions:**

- 3.1. Determine the vanishing points and label them.
- 3.2. Draw the two point perspective view of the carwash building.

No hidden detail must be shown.  
Show ALL construction lines.

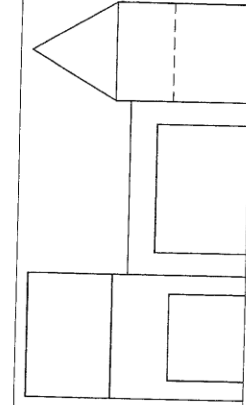
[36]

PP



HL

GL



SP

ASSESSMENT CRITERIA	
1 Vanishing points	4
2 Constructions	4
3 Roofs	10
4 Walls	18
<b>TOTAL</b>	<b>36</b>

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Name:

### QUESTION 4 – CIVIL DRAWING

**Given:**

- A schematic floor plan and a schematic sectional elevation of the outside lines of the perimeter of a **proposed new bathroom** attached to a house, and the position of all the fixtures in the bathroom.
- A door and window schedule
- A finishing schedule
- Incomplete sketches of the foundation detail
- An answer sheet showing an incomplete plan.

**Instructions:**

- Use answer sheet on page 6 to draw to a scale of 1:40, the following views:
- 4.1. The complete floor plan
  - 4.2. The sectional elevation on cutting plane A-A, to the given specifications below:

**FLOOR PLAN**

**Add the following features to the floor plan:**

- The missing walls and hatching detail
- The missing door and windows with detail
- The **conventions** of all fixtures as indicated on the schematic floor plan
- The cutting plane. Label the cutting plane A-A
- Label the bathroom and its floor finish
- Label the Floor Plan and indicate the scale.

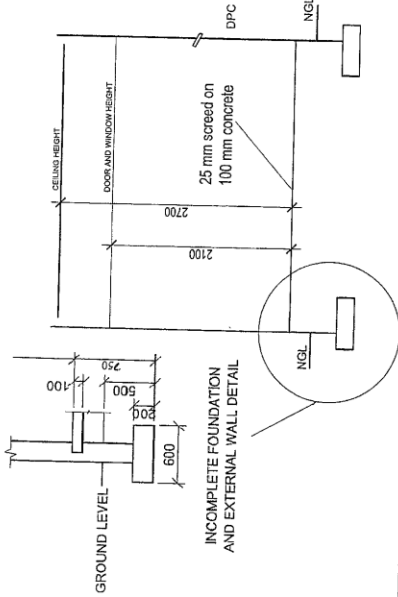
**SECTION ELEVATION**

**Add the following features to the sectional elevation:**

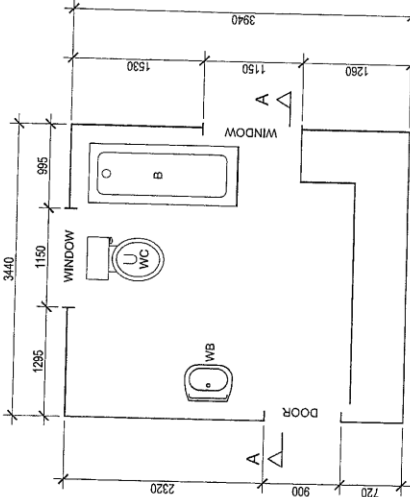
- The complete foundation, walls, screed and floor slab detail
  - The lintels above the door and windows
  - The door and complete window detail
  - ALL necessary hatching
  - All sanitary fixtures as **conventions**
  - Label the sectional elevation:
- SECTIONAL ELEVATION A-A

**NOTE:**

- ALL substructure hatching **MUST** be drawn with instruments.
- ALL drawing must comply with the guidelines contained in the SABS 0143. [95]

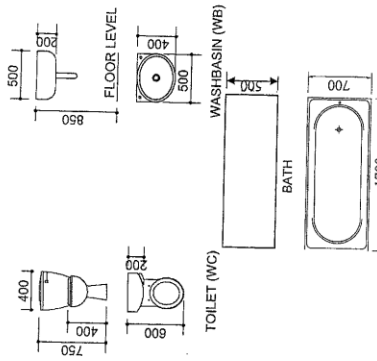


SCHEMATIC SECTIONAL ELEVATION A-A



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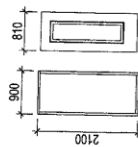
**DIMENSIONS OF FIXTURES**



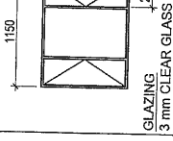
**DOOR AND WINDOW SCHEDULE**

**DOOR FRAME**  
1 x STANDARD HARDWOOD FRAME

**DOOR**  
1 x STANDARD HOLLOW CORE DOOR



**WINDOW**  
2 STANDARD HARDWOOD



**GLAZING**  
3 mm CLEAR GLASS

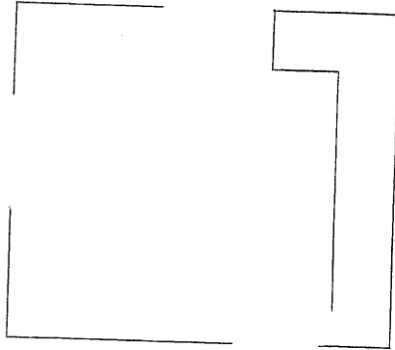
**FINISHING SCHEDULE**

**FLOOR**  
BATHROOM - TILES  
**WALLS**  
PLASTER AND PAINT

**FRAME PROFILE**  
**IRONMONGERY**  
1 PAIR of 75 mm BRASS HINGES and SCREWS  
1 TWO-LEVER LOCKSET

Name: \_\_\_\_\_

ASSESSMENT CRITERIA	
<b>FLOOR PLAN</b>	
WALLS AND HATCHING DETAIL	16
DOOR AND WINDOW DETAIL	12
LABELS AND CUTTING PLANE	11
BATHROOM FIXTURES	6
<b>SUBTOTAL</b>	<b>45</b>
<b>SECTIONAL ELEVATION</b>	
WALLS, FOUNDATION & HATCHING	27
WINDOWS, DOOR & LINTELS	12
BATHROOM FIXTURES	6
LABELS	5
<b>SUBTOTAL</b>	<b>50</b>
<b>TOTAL</b>	<b>95</b>



Name: