



education

Department of
Education
FREE STATE PROVINCE

ENGINEERING GRAPHICS AND DESIGN

GRADE 12

PAPER 1

SEPTEMBER 2017

TIME: 3 HOURS

TOTAL: 100

This question paper consists of 6 pages

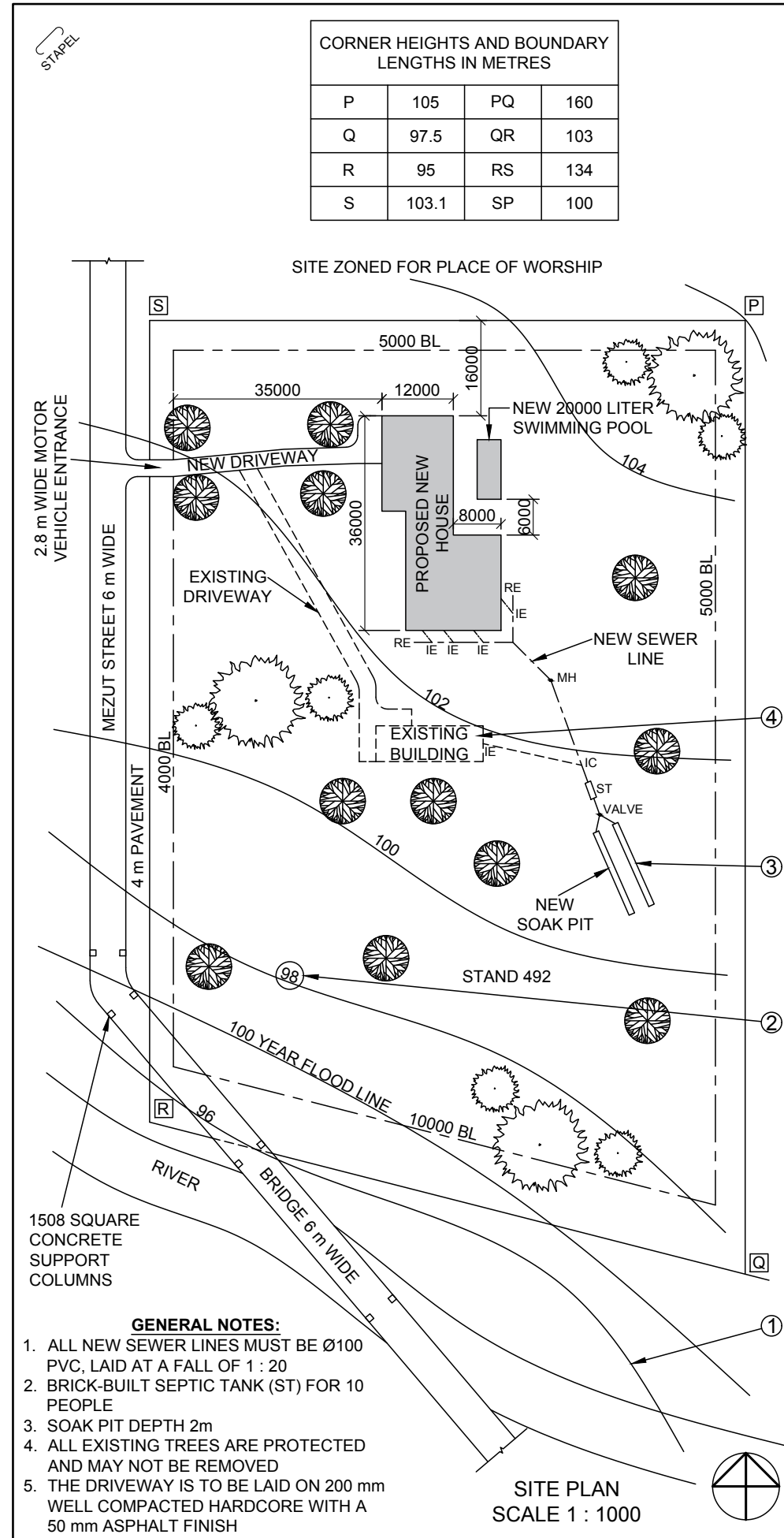
INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
2. ALL drawings are in first-angle orthographic projection, unless stated otherwise.
3. ALL drawings must be drawn to scale 1:1, unless stated otherwise.
4. ALL questions must be answered on the DIAGRAM SHEETS as instructed.
5. ALL the pages must be restapled in numeric sequence, 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 as well as the grade in the space provided on each page.
8. ALL answers must be drawn accurately and neatly.
9. ALL necessary construction and projection lines must be shown.
10. Plan each drawing carefully from the given position, which is indicated on the diagram sheets.
11. Any details or dimensions not given must be assumed in good proportion.

FOR OFFICIAL USE ONLY								
QUESTION	MARKS OBTAINED			½	MODERATED			½
1								
2								
3								
4								
TOTAL								
	2	0	0		2	0	0	

FINAL CONVERTED MARK	CHECKED BY
100	

NAME & SURNAME		GRADE		1
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NOTE:
Contractors must verify all dimensions and levels on site before commencing work. Architects to be notified immediately of any discrepancies.

ARCHITECT'S SIGNATURE

CLIENT'S SIGNATURE

3		
2		
1	12-06-2017	Include a soak pit
REVISION	DATE	DESCRIPTION

YURI ARCHITECTS
25 AGUSTA ROAD
DURBAN
4097
TEL: 081 991 9692

PRINTED BY: THULA PRINTERS
DATE OF PRINT: 10-09-2017

DRAWING TITLE:
SITE PLAN

PROJECT:
PROPOSED NEW DWELLING AND POOL FOR MR AND MRS OLIVIER OF STAND 492, 18 MEZUT STREET, HANENHEIM, PINETOWN

PROJECT NUMBER: JB-12/2017
DRAWING NUMBER: AC 12/36/300

DATE: 2017-06-20
DRAWN: JOHANN
CHECKED: MORNE
SCALE: 1 : 1000

REFERENCE CODE:
P1Q1-SEPT2017

QUESTION 1: ANALYTICAL (CIVIL)

Given:

The site plan for a proposed new house and swimming pool, a title panel and a table of questions. The drawing has not been prepared to the indicated scale.

Instructions:

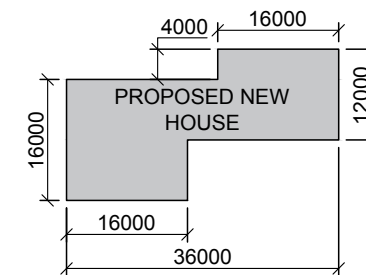
Complete the table below by neatly answering the questions, which refer to the accompanying drawing title panel.

[21]

QUESTIONS		ANSWERS	
1	What type of drawing is presented?	1	
2	What architectural firm prepared the drawing?	1	
3	What is the project number?	1	
4	What is the width of the bridge in meters?	1	
5	What finishing must be applied to the driveway?	1	
6	How many new inspection eyes are indicated?	1	
7	What is the shortest distance from Mezut Street to the proposed new house?	1	
8	What is the land used for north of the property?	1	
9	What does the line at 1 indicate?	1	
10	What does the circled number on the line at 2 indicate?	1	
11	What is the depth of the feature at 3 in millimeters?	1	
12	What does the broken line at 4 indicate?	1	
13	What does the abbreviation ST stand for?	1	
14	Which elevation of the new house is viewed from the new driveway?	1	
15	In the space below (ANSWER 15), determine the perimeter of the proposed new house in meters.	3	
16	In the space below (ANSWER 16), determine the total area of the stand in square meters.	3	
TOTAL		20	

ANSWER 15
Show ALL calculations.

ANSWER 16
Show ALL calculations.





QUESTION 2: TRANSITION PIECE

Given:

- The incomplete front view and top view of a transition piece.
- The starting point A1
- E1 is the seam.

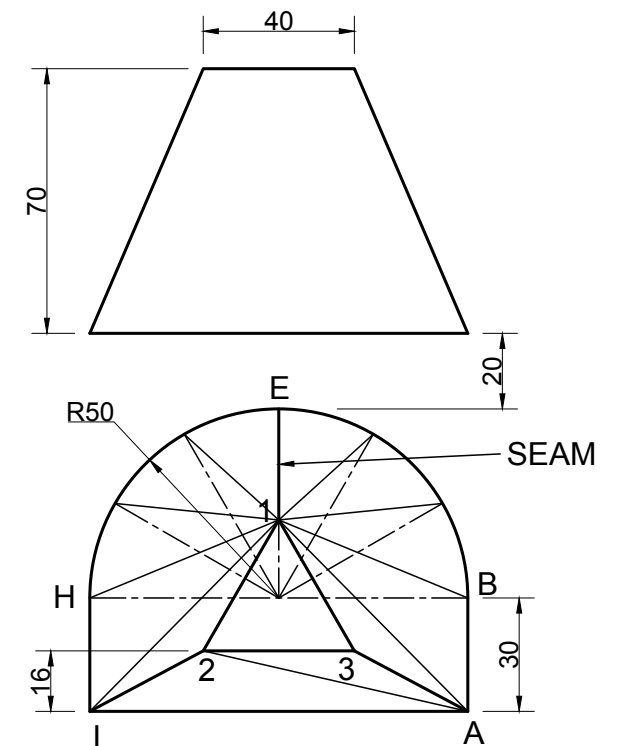
Instructions:

Draw, to scale 1:1, the following views of the transition piece.

- 2.1 The given top view.
- 2.2 The completed front view. (hidden detail must be shown)
- 2.3 Determine the true length(s).
- 2.4 The development of the transition piece.

[44]

A
TRANSITION PIECE



I _____ A

ASSESSMENT CRITERIA			
1	TOP VIEW	9	
2	FRONT VIEW	5	
3	TRUE LENGTHS (22/2)	11	
4	TRANSITION PIECE $4 = (8/2) \sqrt{4} = 15$	19	
TOTAAL		44	

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QUESTION 3: PERSPECTIVE

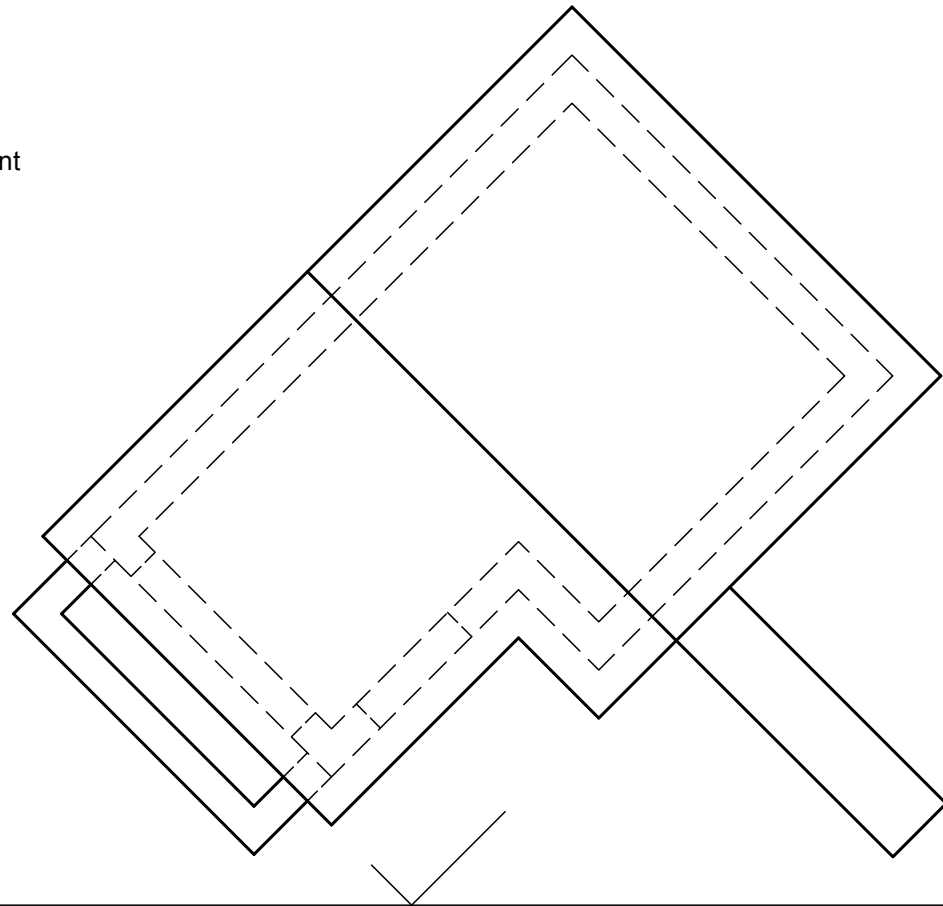
Given:
Three views of a house and information needed to draw a two-point perspective drawing

- PP - Picture plane
- HL - Horizon line
- GL - Ground Line
- SP - Station point

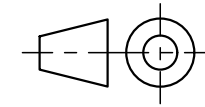
Instructions:
Complete the perspective drawing.

- Align the drawing sheet with the ground line (GL).
- Determine and label the vanishing points.
- Show ALL necessary constructions.
- NO hidden detail is required.

[44]

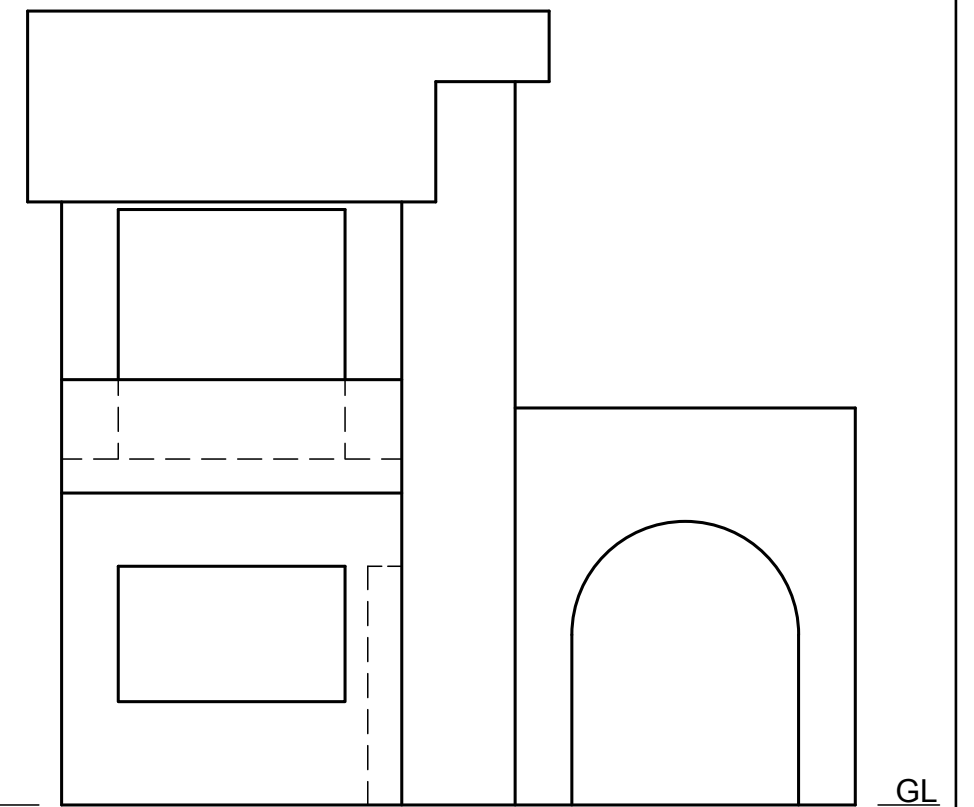
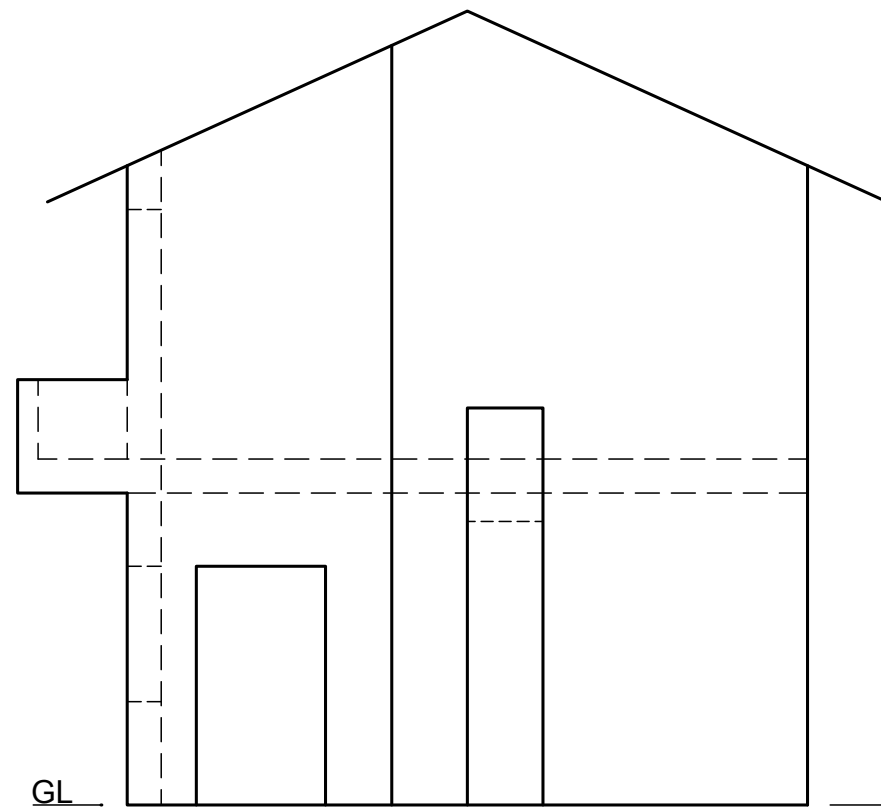


ASSESSMENT CRITERIA			
1	CONSTRUCTION + VP'S (12/2)	6	
2	WALLS (42/2)	21	
3	ROOF (8/2)	4	
4	CIRCULAR ARC 4=(6/2) ✓4=2	5	
5	DOOR + WINDOWS (16/2)	8	
TOTAAL		44	



HL / PV

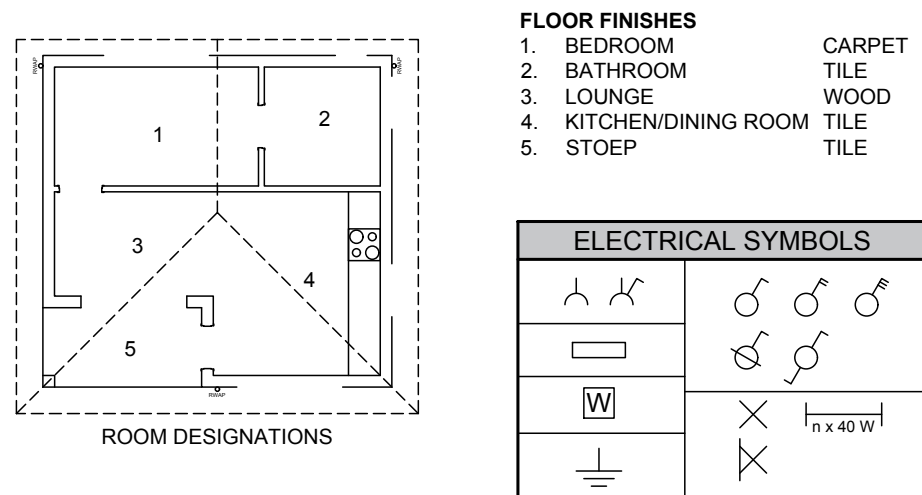
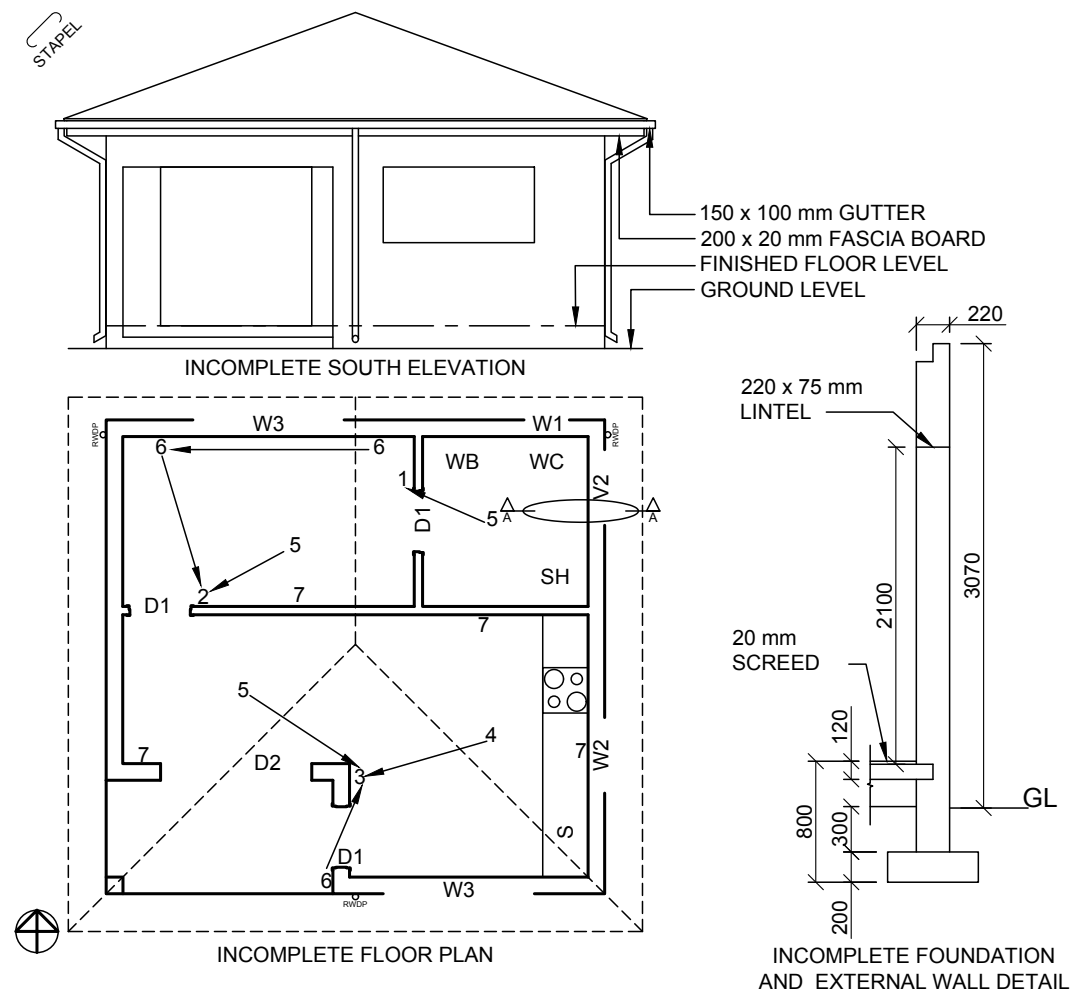
HL / PV



+ SP

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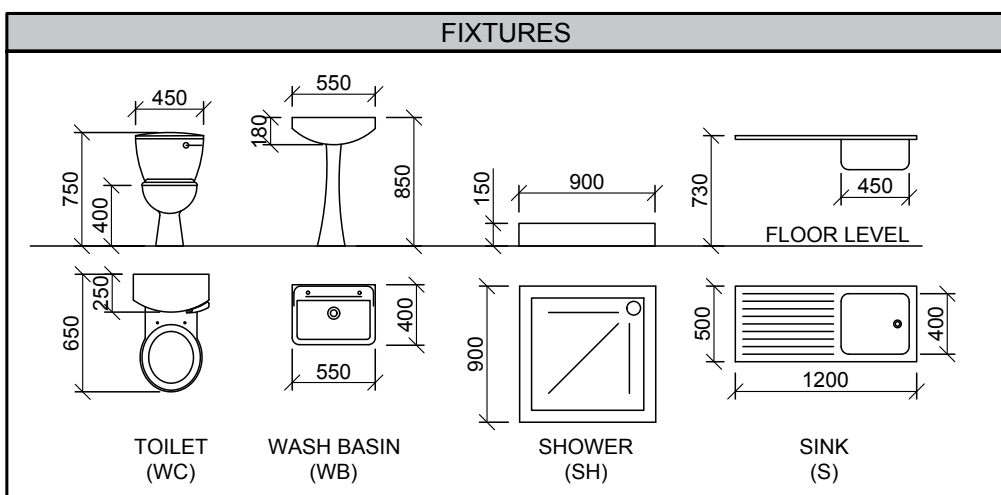
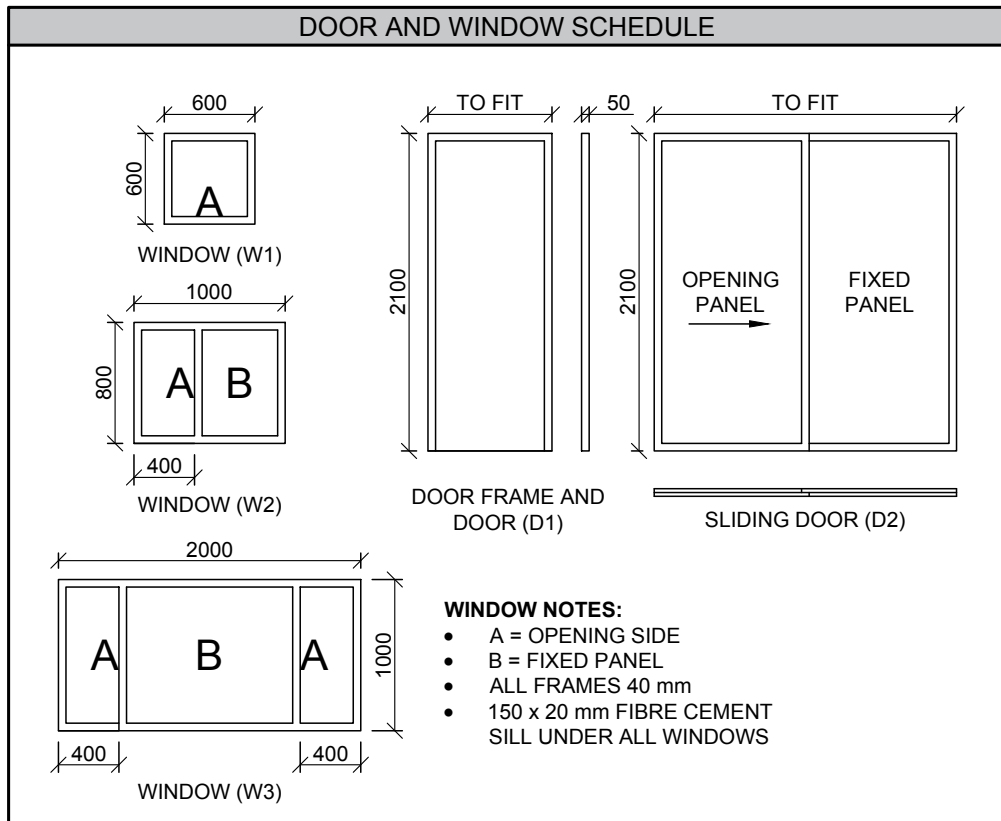
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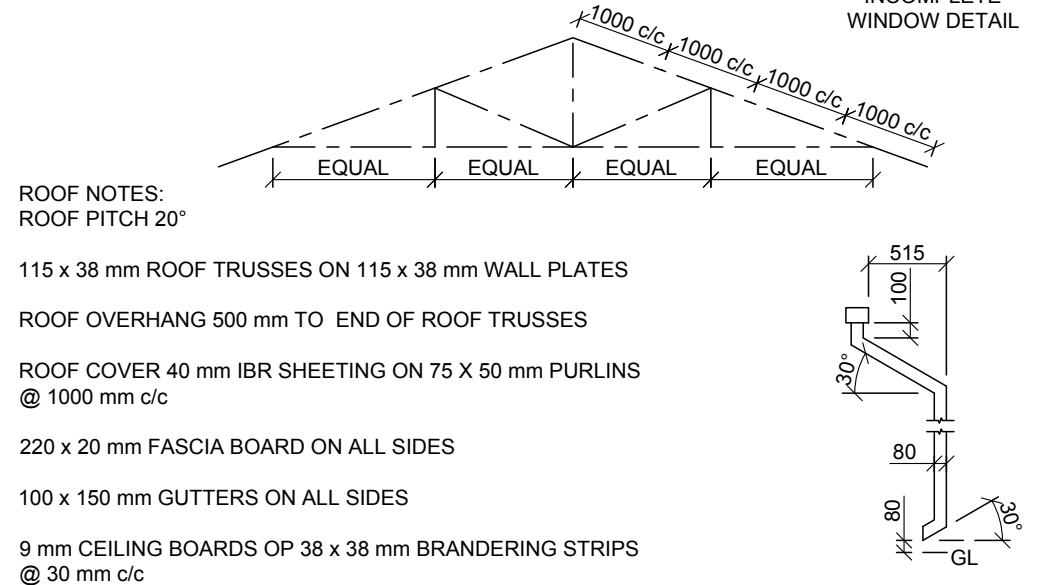
FLOOR FINISHES

1. BEDROOM	CARPET
2. BATHROOM	TILE
3. LOUNGE	WOOD
4. KITCHEN/DINING ROOM	TILE
5. STOEP	TILE

ELECTRICAL SYMBOLS



- FEATURES**
- D1 DOOR
 - D2 SLIDING DOOR
 - V1 WINDOW
 - V2 WINDOW
 - V3 WINDOW
- FIXTURES**
- WC TOILET
 - WB WASH BASIN
 - SH SHOWER
 - S SINK
- ELECTRICAL FITTINGS**
- ONE-WAY SWITCH - SINGLE POLE
 - ONE-WAY SWITCH - DOUBLE POLE
 - ONE-WAY SWITCH - THREE POLE
 - FLUORESCENT LIGHT 2 x 40 W
 - CEILING LIGHT
 - WALL-MOUNTED LIGHT
 - SWITCH SOCKET OUTLET
- NOTE:**
THE ARROW SHOWS THE LIGHT CONNECTION TO THE SWITCH.



QUESTION 4: CIVIL DRAWING

Given:

- the incomplete south elevation of a **new house**, showing the walls, the door, windows, the roof and notes.
- The incomplete floor plan showing the walls, position of the doors, windows, fixtures and electrical layout.
- A schematic diagram of a roof truss and roof notes.
- The incomplete foundation and external wall details.
- Room designation and floor finishes.
- The rainwater down-pipe.
- A table of electrical symbols.
- A door and window schedule.
- A table of fixtures.
- The incomplete floor plan of the **new house**, drawn to scale 1 : 50, and the incomplete foundation and the break line of the detailed section, drawn to scale 1 : 20, on page 6.

Instructions:

Answer this question on page 6.

4.1 Using the given incomplete floor plan, draw, in first-angle orthographic projection and to scale 1 : 50, the following views of the **new house**:

4.1.1 THE COMPLETE FLOOR PLAN

Add the following features to the drawing:

- ALL doors and windows
- ALL fixtures as indicated by the abbreviations
- ALL electrical fittings as indicated by the numbers
- ALL hatching detail

4.1.2 THE COMPLETE SOUTH ELEVATION

Show the following features on the drawing:

- The outside walls, door and window details
- The roof detail, including the fascia boards, gutters and rainwater down-pipes
- The finished floor level

4.2 Using the incomplete foundation and break line on page 6, draw, to scale 1 : 20, a **DETAILED SECTION** on cutting plane A-A of the area in the ellipse shown on the incomplete floor plan.

Show the following features on the drawing:

- The foundation and wall detail
- The roof detail, including the fascia board and gutter
- ALL external features of the **new house** to the top (north) of the ellipse
- ALL hatching detail. ONLY the substructure hatching may be draw in neat freehand.

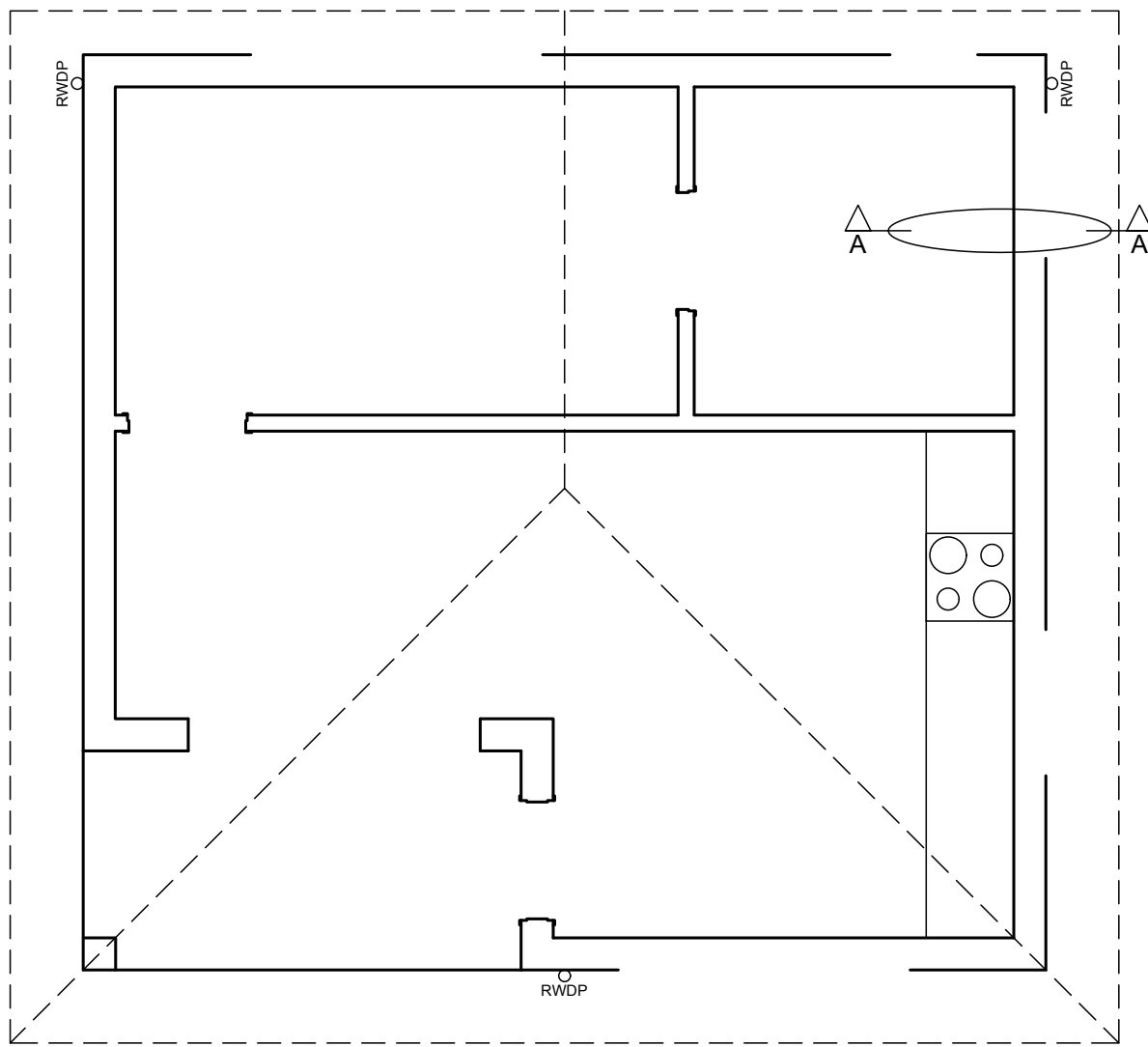
Label the following:

- The south elevation
- The room designation and floor finishes

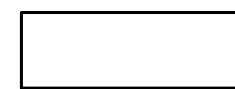
NOTE:

ALL drawings must comply with the **guidelines** and **graphical symbols** contained in the SANS 10143.

STAPEL



FLOOR PLAN
SCALE 1 : 50



SECTION A-A
SCALE 1 : 20

1. MARK ALLOCATION FOR ROOF SECTION	
A (1)	
B (1)	
C (2)	
D (2)	
E (1)	
F (1)	
G (1)	
H (1)	
I (1)	
TOTAL	

ASSESSMENT CRITERIA				
FLOOR PLAN				
1	DOORS + WINDOWS	10		
2	ELECTRICAL	10½		
3	FIXTURES	5½		
4	HATCHING	7		
5	LABELS	5		
SUB TOTAL		38		
SOUTH ELEVATION				
1	ROOF	2		
2	WALL + RWDP + FFL	10½		
3	DOOR + WINDOW	7½		
4	LABELS	1		
SUB TOTAL		21		
DETAILED SECTION				
1	ROOF	10		
2	FOUNDATION + WALL + SLAB	10		
3	FIXTURE + WINDOW	6		
4	GUTTER + RWDP	3		
5	HATCHING	4		
SUB TOTAL		33		
TOTAL		92		
PENALTIES (-)				
GRAND TOTAL				

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GRADE	
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