



Province of the
EASTERN CAPE
DEPARTMENT OF EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P1

SEPTEMBER 2024

PREPARATORY EXAMINATION

MARKS: 200

TIME: 3 hours

This question paper consists of 6 pages.

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INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions.
2. Answer ALL the questions.
3. All drawings must be drawn to scale 1 : 1, unless otherwise stated.
4. ALL drawings are in first angle orthographic projection, unless stated otherwise.
5. ALL drawings must be prepared using pencil and instruments, unless otherwise stated.
6. All answers must be drawn accurately and neatly.
7. The questions must be answered on the question paper, as instructed.
8. All the answer sheets must be re-stapled in numerical sequence and handed in irrespective of whether the question was attempted or not.
9. Time management is essential in order to complete all the questions.
10. Print your name in the block provided on every ANSWER SHEET.
11. Any details or dimensions not given, must be assumed in good proportion.

FOR OFFICIAL USE ONLY									
								MODERATED MARK	
1									
2									
3									
4									
TOTAL									
2 0 0								2 0 0	

FINAL CONVERTED MARK	CHECKED BY
100	

COMPLETE THE FOLLOWING:	
NAME	
NAME	
EXAMINATION CENTRE	
EXAMINATION CENTRE	

Please turn over

SYMBOL LEGEND		
1		BRICK PAVING
2		HOUSING CONTAINER FOR 4 PEOPLE
3		2 100 mm HIGH SECURITY FENCING
4		1 250 KVA DIESEL GENERATOR
5		INDIGENOUS TREE
6		STREETLIGHT
7		ZEBRA-CROSSING

LAND SURVEYOR'S CERTIFICATE OF THE BORDER LINE LENGTHS AND CORNER HEIGHTS OF STAND 6358 SURVEYED ON 2024-02-27	
LENGTHS IN MILLIMETRES	CORNER HEIGHTS IN METRES
AB = 87 000	A = 83
BC = 41 250	B = 81,5
CD = 8 250	C = 81
DE = 63 750	D = 81
EF = 93 000	E = 82
FA = 93 750	F = 80

NOTE:
Contractors must verify all dimensions and levels on the site before commencing work. Architects to be notified immediately of any discrepancies.

ARCHITECT'S SIGNATURE

CLIENT'S SIGNATURE

ANSWER 17

In the space below, draw in neat freehand, the front view and top view of the SANS 10143 graphical symbol for a SLAB URINAL.

3		
2	2024-04-16	Show the position of the shaded parking
1	2024-03-28	Indicate the KVA of the generator
REVISION	DATE	DESCRIPTION

KOTZE AND FOX ARCHITECTS
133 PIET RETIEF ROAD
DURBANVILLE, CAPE TOWN
083 789 555
kotze.fox@gmail.com

PRINTED BY:	DATE OF PRINT:
FLOW SIGNS	2024-03-20

DRAWING TITLE:
SITE PLAN

PROJECT:
NEW DINING HALL PROPOSAL ON STAND 6358 FOR MR P. KOK
Cnr. PORTER ROAD, GOUDA

PROJECT NUMBER: 01-2024		DRAWING NUMBER: KJ-20/03-24	
DATE: 2024-03-03	DRAWN: JACQUES	CHECKED: WILLEM	SCALE: 1 : 750
REFERENCE CODE: SITE- 6358-24		DRAWING NO.: 1 of 5	

QUESTION 1: ANALYTICAL (CIVIL)

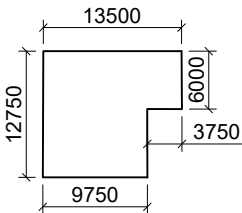
Given:

The site plan of an existing fruit packhouse with alterations of a new dining hall on stand 6358, a title block and a table of questions. The drawing has not been prepared to the indicated scale.

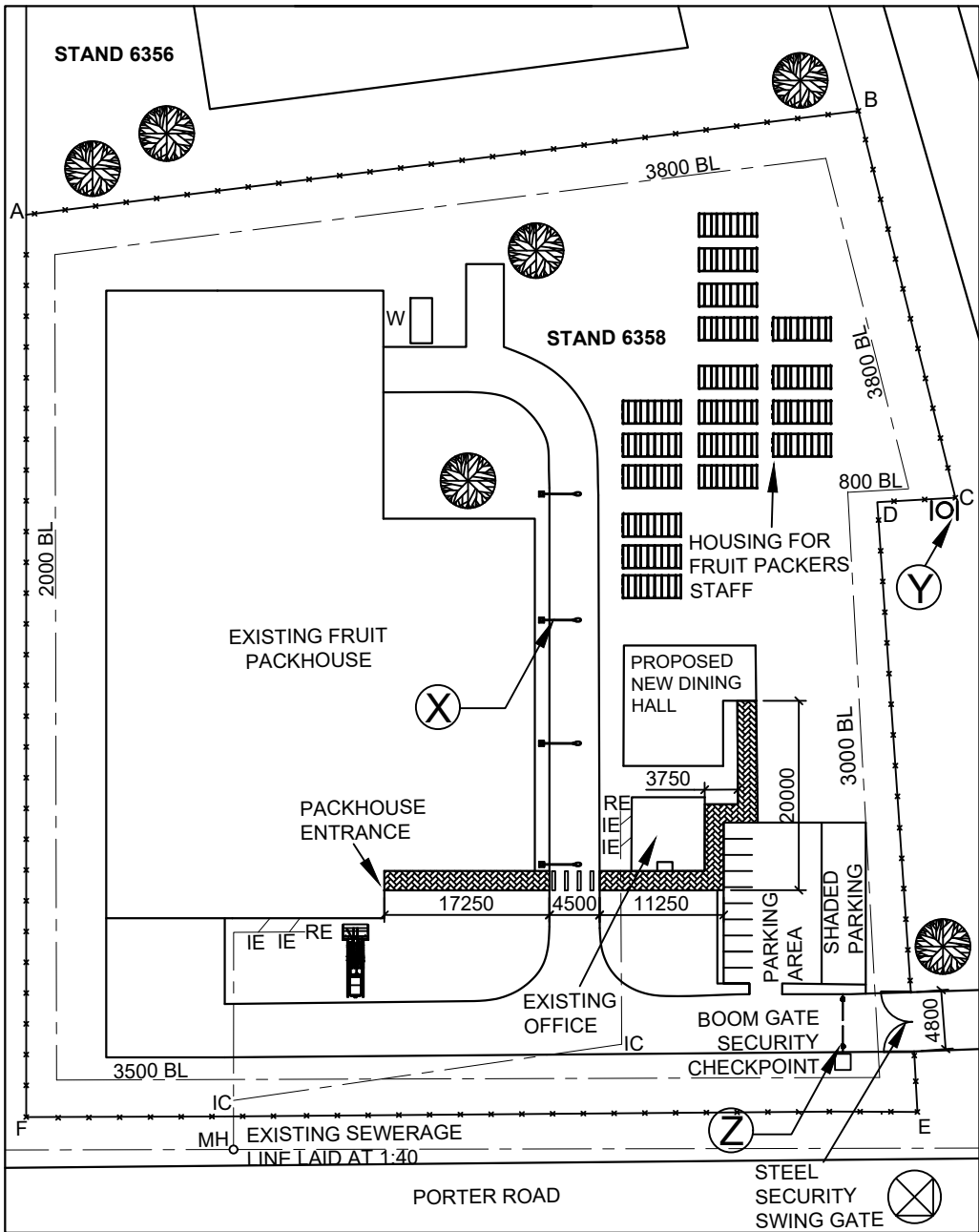
Instructions:

Complete the table below by neatly answering the questions which refer to the accompanying drawing and title block. [28]

QUESTIONS		ANSWERS	
1	In which town is the fruit packhouse situated?	1	
2	On what date was the borderline lengths and corner heights of stand 6358 surveyed?	1	
3	What is the reference code of this drawing?	1	
4	What is the indicated KVA of the diesel generator?	1	
5	How many open parkings are indicated on stand 6358?	1	
6	In what colour should a new steel security gate be presented on the siteplan?	1	
7	Name the feature at X.	1	
8	Name the feature at Y.	1	
9	What is the purpose of the boom gate, indicated at Z, on the site plan?	1	
10	What does the abbreviation IC stands for?	1	
11	What is the height of the security fencing on stand 6358, in meter?	1	
12	How many packing staff can be accommodated in the housing containers?	2	
13	In relation to the north point, which elevation of the existing office faces Porter road?	2	
14	Determine the total length that is paved, from the dining hall to the entrance of the packhouse, in meters.	3	
15	Determine, in the space provided below (ANSWER 15) the total length of the security fence around stand 6358 in meters. Show ALL calculations and formulas.	3	
16	Determine, in the space provided below (ANSWER 16), the total area of the new dining hall on stand 6358, in square meters. Show ALL calculations and formulas.	3	
17	In the space at the title panel (ANSWER 17), draw in neat freehand, the top view and front view of the SANS 10143 graphical symbol for a slab urinal.	4	
ANSWER 15 Show ALL calculations.		ANSWER 16 Show ALL calculations.	TOTAL 28



NAME	
NAME	
	2



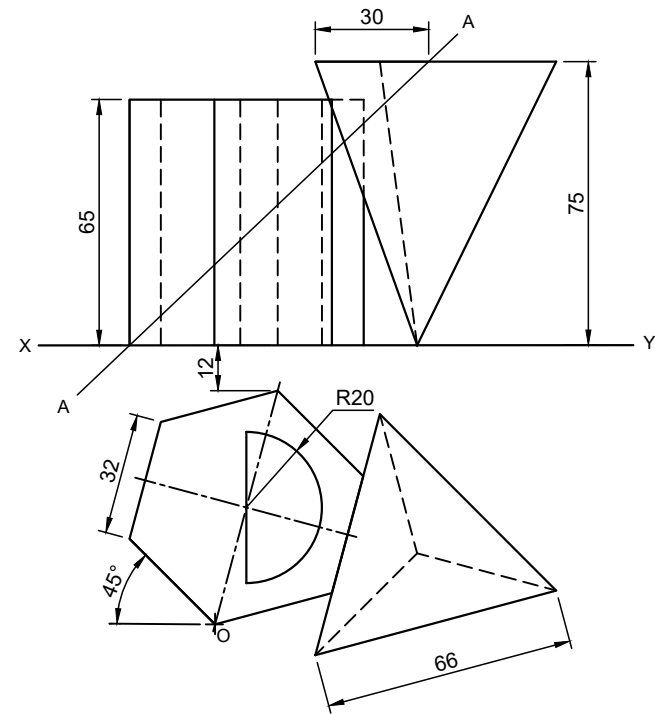
QUESTION 2: SOLID GEOMETRY

- Given:
- The complete front view and top view of a hexagonal prism with a half circular hole and a triangular pyramid. One of the pyramid sides, rests against the prism.
 - A cutting line A-A.
 - Starting Point **O**.

Instructions:
Draw to scale 1 : 1, the following views of the solids:

- 2.1 The given front view.
 - 2.2 The sectional top view.
 - 2.3 The sectional left view.
- ALL hidden detail is required.
 - Show ALL necessary constructions.

[38]



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ASSESSMENT CRITERIA			
1	FRONT VIEW	7½	
2	SECTIONAL TOP VIEW	11	
3	SECTIONAL LEFT VIEW	14½	
4	HATCHING	5	
PENALTIES (-)			
TOTAL		38	

NAME	
NAME	3

QUESTION 3: PERSPECTIVE

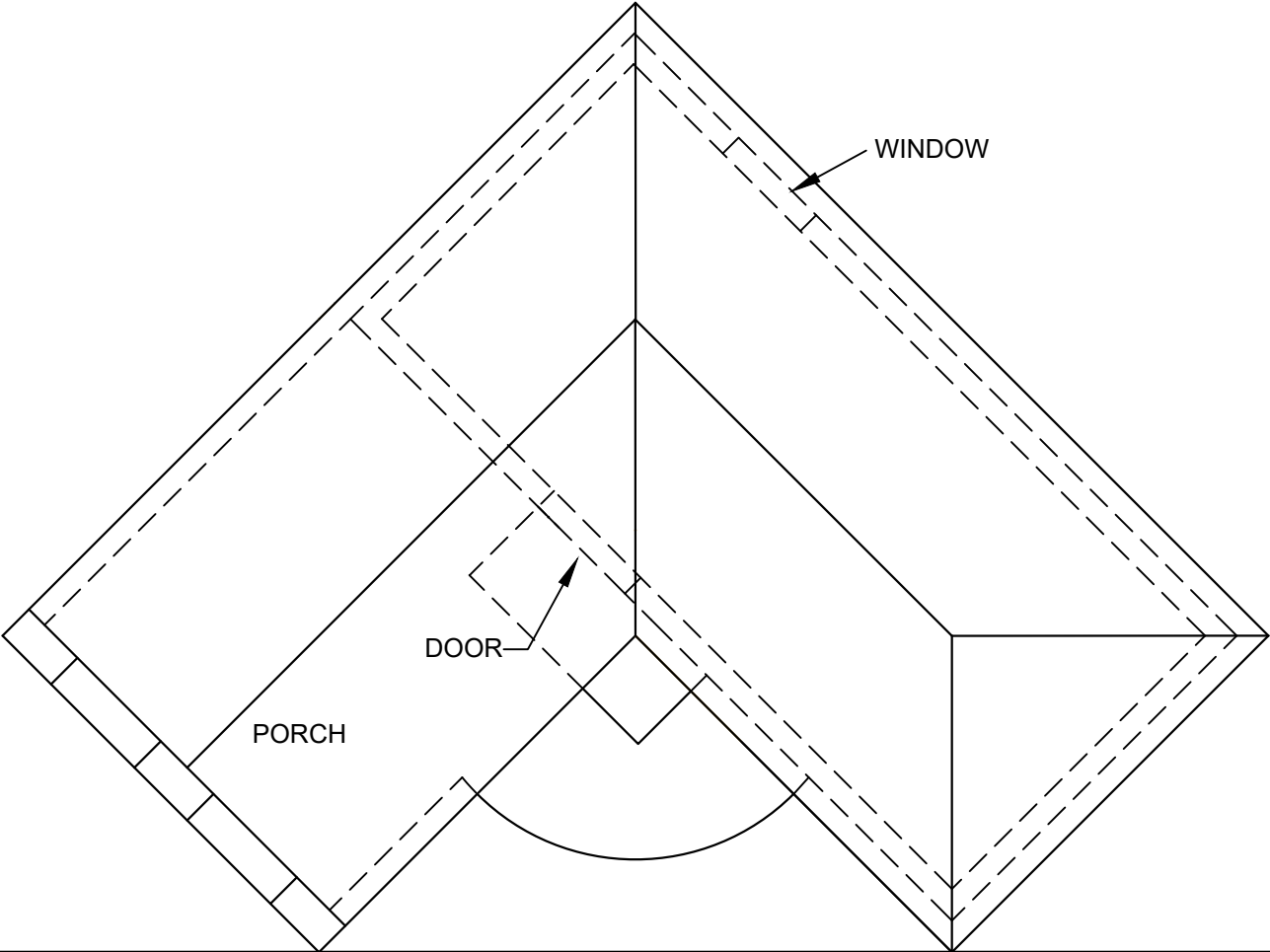
- Given:
- Three views of a house with a porch and the information needed to draw a two-point perspective drawing.

PP – Picture plane
HL – Horizon line
GL – Ground line
SP – Station point

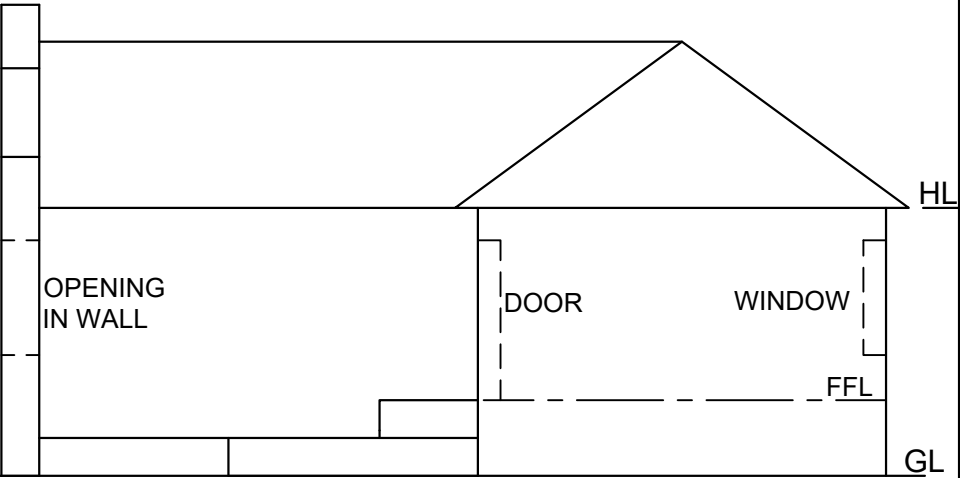
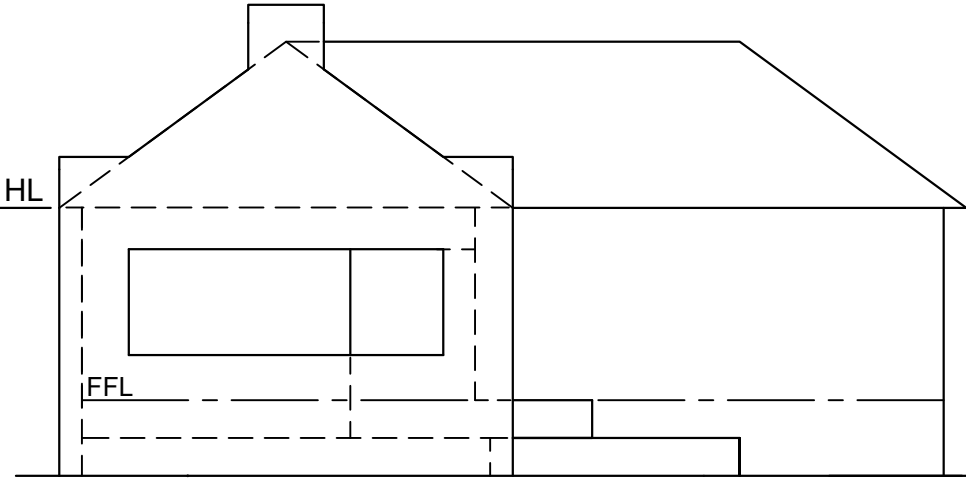
Instructions:
Complete the perspective drawing.

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

[38]



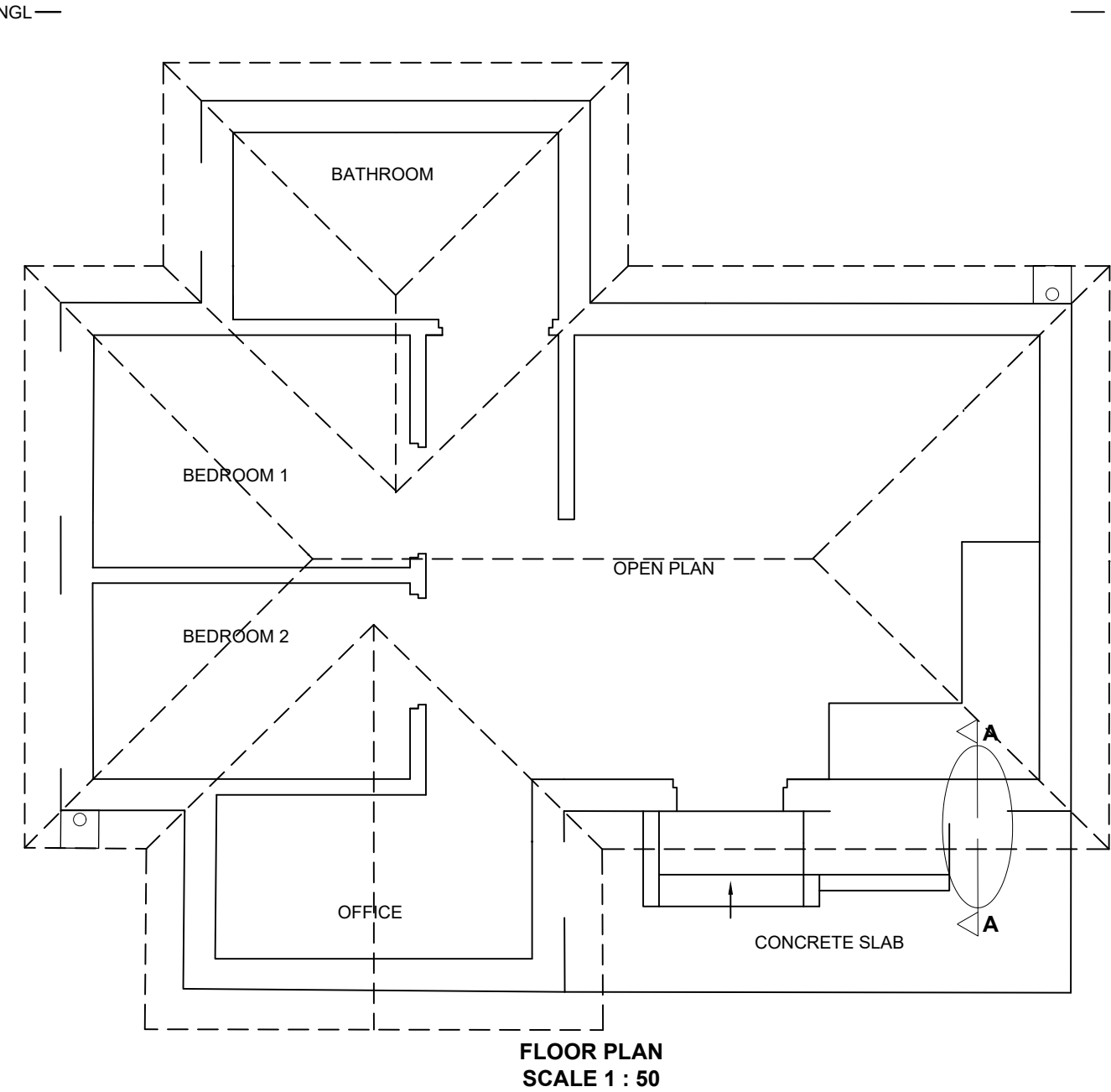
ASSESSMENT CRITERIA				
1	CONSTRUCTION + VP's	6		
2	WALLS + PORCH + STEP	18½		
3	ROOF	4		
4	WINDOWS + DOOR	5½		
5	ARCH + CONSTRUCTION	4		
PENALTIES (-)				
TOTAL		38		



SP +

NAME	
NAME	4





DETAILED SECTION A-A
SCALE 1 : 20

ROOF DETAIL: MARK ALLOCATION			
A	ROOF ANGLE	$\frac{1}{2}$	
B	ROOF SHEET (SHOW THICKNESS)	2	
C	ROOF TRUSS OVERHANG	$2\frac{1}{2}$	
D	PURLIN + SPACING	$1\frac{1}{2}$	
E	BRANDERING + SPACING	$1\frac{1}{2}$	
F	CEILING BOARD	$\frac{1}{2}$	
G	WALL PLATE	1	
H	FACIA BOARD	$1\frac{1}{2}$	
I	GUTTER	$1\frac{1}{2}$	
TOTAL		$12\frac{1}{2}$	

PENALTIES		
1	INCORRECT SCALE	
2	NON-ALIGNMENT OF VIEWS	
3	INCORRECT LETTERING	
TOTAL PENALTIES (-)		

ASSESSMENT CRITERIA				
FLOOR PLAN				
1	DOORS + WINDOWS	14		
2	ELECTRICAL	9		
3	FIXTURES	7		
4	HATCHING	3		
5	LABELS	2		
SUBTOTAL		35		
EAST ELEVATION				
1	ROOF + FACIA + GUTTER + COVERS + BARGE BOARD	$12\frac{1}{2}$		
2	WALLS + PORCH + STEPS + RAMP + FFL	8		
3	DOOR + WINDOW	$5\frac{1}{2}$		
4	LABELS	1		
SUBTOTAL		27		
DETAILED SECTION				
1	ROOF DETAIL	$12\frac{1}{2}$		
2	FOUNDATIONS + WALLS + FLOOR + SLAB	6		
3	WINDOW + STEPS + RAMP	$8\frac{1}{2}$		
4	HATCHING	$5\frac{1}{2}$		
5	LABELS	$1\frac{1}{2}$		
SUBTOTAL		34		
TOTAL		96		
PENALTIES (-)				
GRAND TOTAL				

NAME	
NAME	
	6