



INSTRUCTIONS AND INFORMATION

1. This paper consists of FOUR questions.
2. Answer all the questions.
3. ALL questions are in first-angle orthographic projection, unless otherwise stated.
4. ALL drawings must be prepared using pencil and instruments, unless otherwise stated.
5. ALL answers must be drawn accurately and neatly.
6. ALL questions, as prescribed, must be answered on the question paper.
7. ALL pages must be placed in numerical order and stapled in ONLY the TOP LEFT CORNER once complete, regardless whether the question was answered or not.
8. Time management is essential in order to complete all the questions.
9. Print your examination number in the block provided on each page.
10. Dimension details not given must be estimated to good proportions.

EXAMINATION NATIONAL SENIOR CERTIFICATE	
DATE	2024
SUBJECT	ENGINEERING GRAPHICS AND DESIGN
PAPER	1
MARKS	100
TIME	3 Hours
NUMBER OF PAGES	6

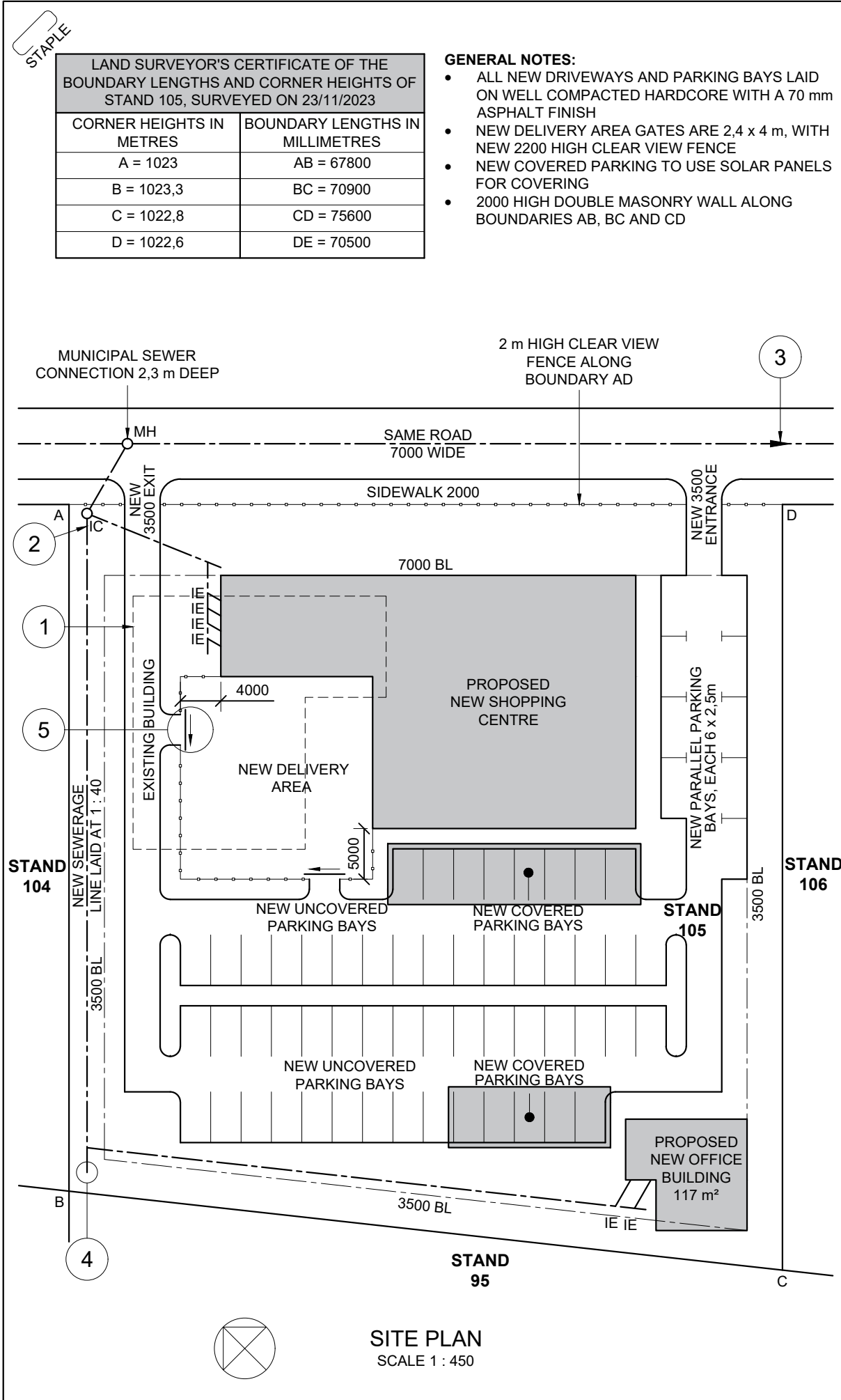


SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE
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FOR OFFICIAL USE ONLY															
QUESTION	MARK OBTAINED			½	SIGN	MODERATED			½	SIGN	RE-MARKING			½	SIGN
1															
2															
3															
4															
TOTAL:	2	0	0			2	0	0			2	0	0		

FINAL CALCULATED MARK	CHECKED
<u>100</u>	

CENTRE NUMBER
CENTRE NUMBER
IDENTIFICATION NUMBER
IDENTIFICATION NUMBER
EXAMINATION NUMBER
EXAMINATION NUMBER



LAND SURVEYOR'S CERTIFICATE OF THE BOUNDARY LENGTHS AND CORNER HEIGHTS OF STAND 105, SURVEYED ON 23/11/2023

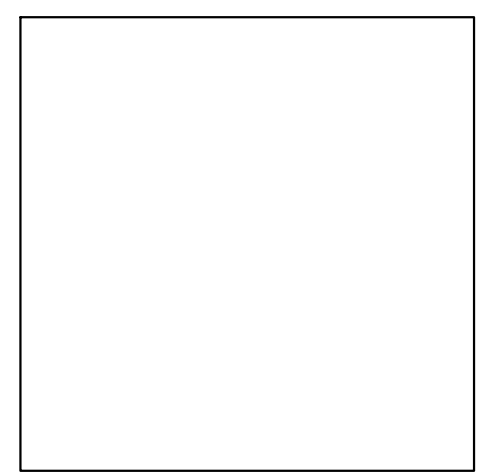
CORNER HEIGHTS IN METRES	BOUNDARY LENGTHS IN MILLIMETRES
A = 1023	AB = 67800
B = 1023,3	BC = 70900
C = 1022,8	CD = 75600
D = 1022,6	DE = 70500

- GENERAL NOTES:**
- ALL NEW DRIVEWAYS AND PARKING BAYS LAID ON WELL COMPACTED HARDCORE WITH A 70 mm ASPHALT FINISH
 - NEW DELIVERY AREA GATES ARE 2,4 x 4 m, WITH NEW 2200 HIGH CLEAR VIEW FENCE
 - NEW COVERED PARKING TO USE SOLAR PANELS FOR COVERING
 - 2000 HIGH DOUBLE MASONRY WALL ALONG BOUNDARIES AB, BC AND CD

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

ARCHITECT SIGNATURE: _____
CLIENT'S SIGNATURE: _____

ANSWER 20
In the space below, draw, in neat freehand, the top view of the SANS 10143 graphical symbol for a DOUBLE SINK UNIT.



REVISION	DATE	DESCRIPTION
2	19/01/2024	ADD FENCE ALONG DELIVERY AREA
1	16/01/2024	FIX NEW ENTRANCE SIZE

PRINTED BY: PRINTERS ASSOC. DATE OF PRINT: 12/02/2024

CASIO CONSTRUCTION
1313 FAST LANE AVENUE
SANDTON
TEL: 010 654 321

DRAWING TITLE: **SITE PLAN**

PROJECT: PROPOSED NEW SHOPPING CENTRE AND OFFICE SPACE FOR SA SHOPPING INC., ON STAND 105, SAME ROAD, KIMBERLEY.

PROJECT NUMBER: EGD1A-2024	DRAWING NUMBER: 1 of 8	
REFERENCE CODE: P1AQ1-2024	DRAWN: NORRIS	CHECKED: WANDI
SCALE: 1 : 450	DATE: 10/01/2024	DATE: 17/01/2024

QUESTION 1: CIVIL ANALYTICAL

Given:

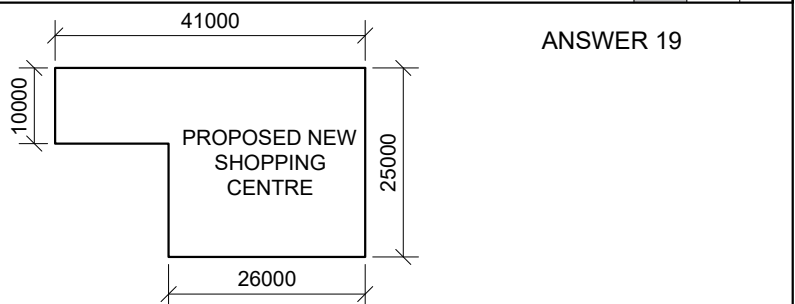
A site plan of a proposed new shopping centre and new office building, a title panel and a table with questions. The drawing is not presented to the indicated scale.

Instructions:

Complete the table below by neatly answering the questions, which refer to the accompanying drawing, title panel and civil content. [30]

QUESTIONS		ANSWERS	
1	On which date was the drawing prepared?	1	
2	In which city is the site located?	1	
3	Which company is responsible for the development of the drawings?	1	
4	How many revisions were made?	1	
5	On which date was the site plan surveyed?	1	
6	What type of finish must be used on all new driveways and parking bays?	1	
7	How many new covered parking bays are required?	1	
8	What is the width of the new exit, in metres?	1	
9	What is the fall for the new sewerage line?	1	
10	What does the line at 1 indicate?	1	
11	What does the abbreviation IC at 2 stand for?	1	
12	What does the arrow at 3 indicate?	1	
13	What is the abbreviation for the drainage feature that should be at 4?	1	
14	What does the arrow at 5 indicate?	1	
15	Referring to the building regulations, why would this site plan not be approved?	2	
16	Determine the combined total area of the 9 parallel parking bays, in square metres.	2	
17	Which elevation of the proposed shopping centre faces STAND 104?	2	
18	In the space below (ANSWER 18), determine the total perimeter of the new delivery area, in metres.	3	
19	In the space below (ANSWER 19), determine the combined total area of the proposed new shopping centre and the proposed new office building, in square metres.	3	
20	In the space in the title panel (ANSWER 20), draw, in neat freehand, the top view of the SANS 10143 graphical symbol for a DOUBLE SINK UNIT.	4	
TOTAL:		30	

ANSWER 18



EXAMINATION NUMBER	
EXAMINATION NUMBER	2

STAPLE

QUESTION 2 SOLID GEOMETRY

Given:

- The front view and top view of a right regular octagonal pyramid and a cube (shape with six square faces) with a right square prismatic hole through the centre
- An auxiliary view of the base of the octagonal pyramid
- Cutting plane A-A

Specifications:

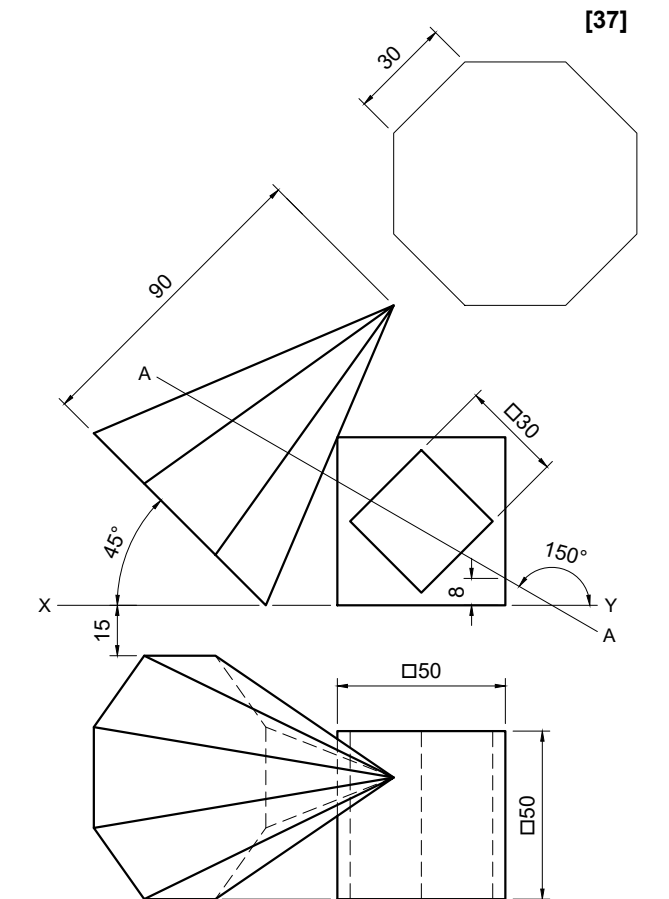
- The octagonal pyramid rests against the cube
- Both solids are cut by cutting plane A-A

Instructions:

Draw, to a scale of 1 : 1, the following views of the TWO solids.

- 2.1. The given front view
- 2.2. A sectional top view
- 2.3. The right view

- Planning is essential.
- Show ALL hidden detail.
- Show ALL construction.



[37]

ASSESSMENT CRITERIA			
1	FRONT VIEW	7	
2	SECTIONAL TOP VIEW	17 ½	
3	RIGHT VIEW	12 ½	
PENALTIES(-):			
TOTAL:		37	
EXAMINATION NUMBER			
EXAMINATION NUMBER			3

STAPLE

QUESTION 3 PERSPECTIVE

Given:

Three views of the inside of a kitchen and a part of a living area with a fireplace, and all the information needed to draw a two point perspective drawing

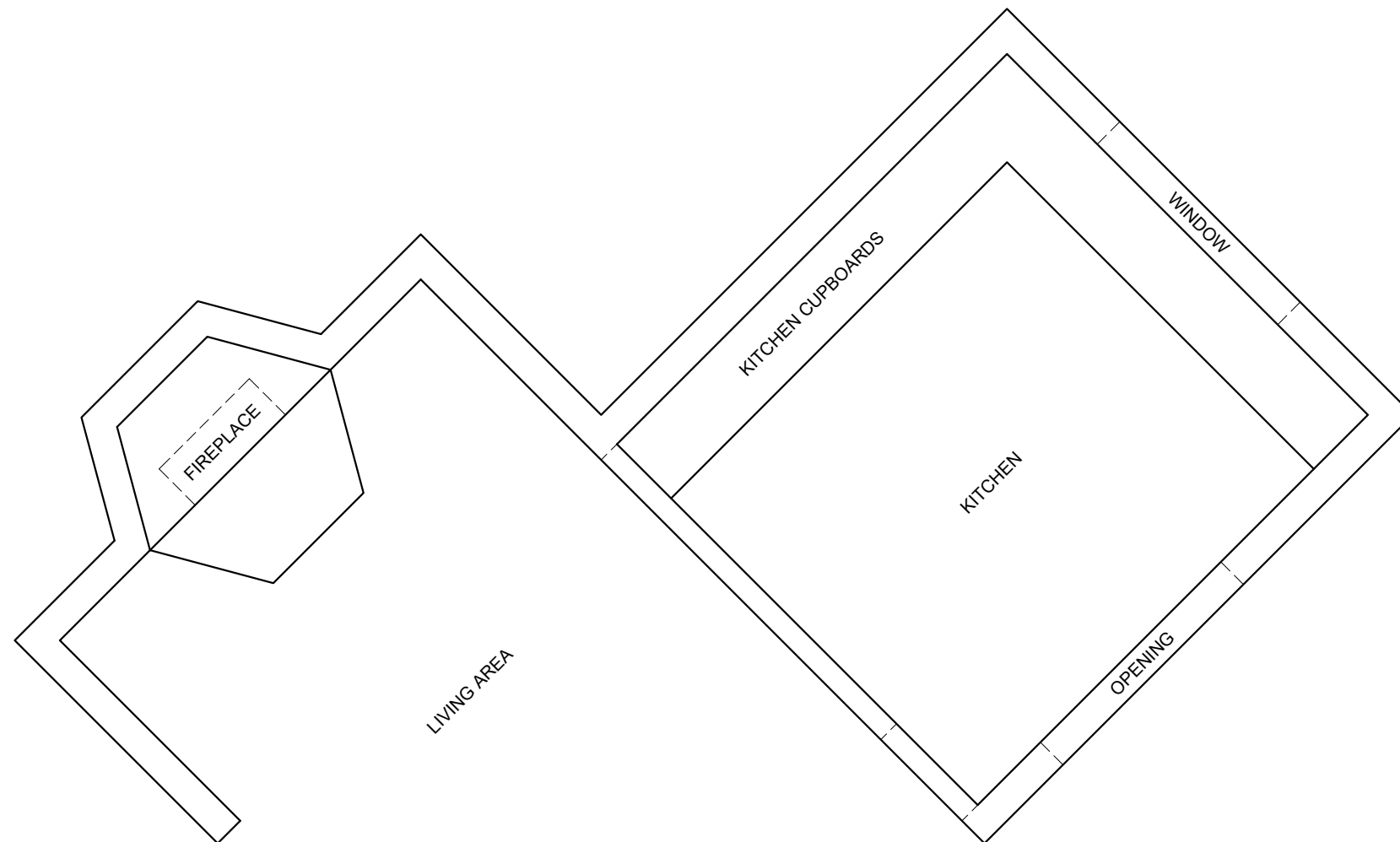
- PP - Picture Plane
- HL - Horizon Line
- GL - Ground Line
- SP - Station Point

Instructions:

Complete the perspective drawing.

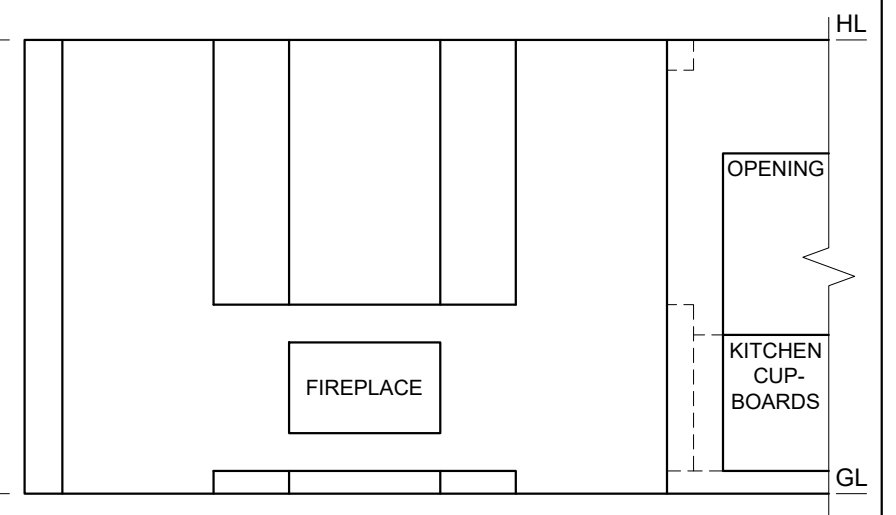
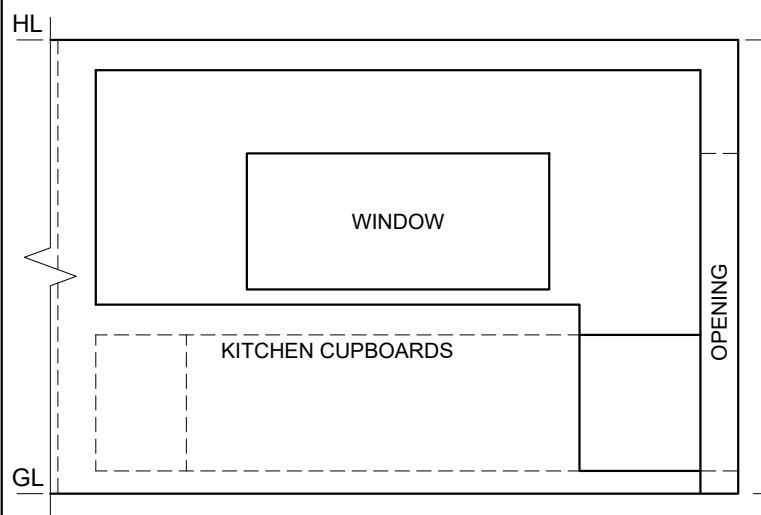
- Align the drawing sheet with the horizon line (HL).
- Determine and label the vanishing points.
- Show ALL construction.
- Show depth at the window.
- No hidden detail is required.

[41]



ASSESSMENT CRITERIA			
1	CONSTRUCTION & VPs	6	
2	FLOOR + WALLS + STEP	13 ½	
3	FIREPLACE	12	
4	WINDOW + OPENING + CUPBOARDS	9 ½	
PENALTIES(-):			
TOTAL:		41	

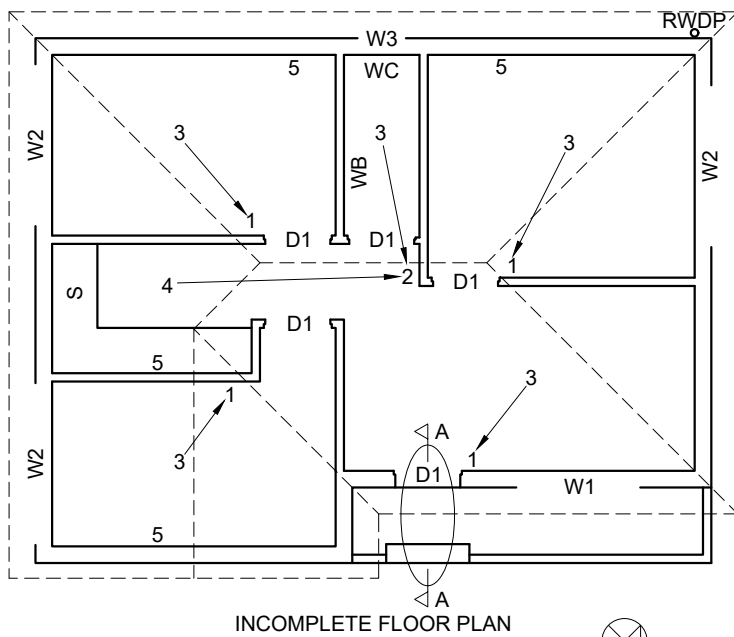
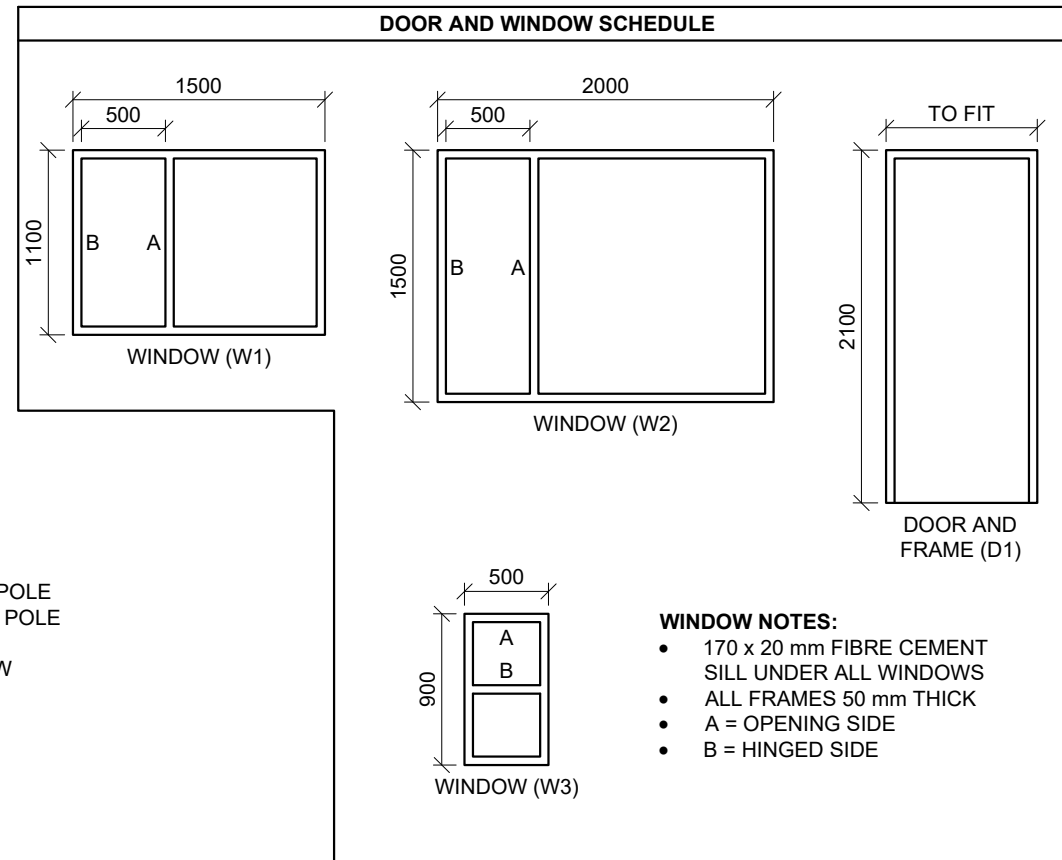
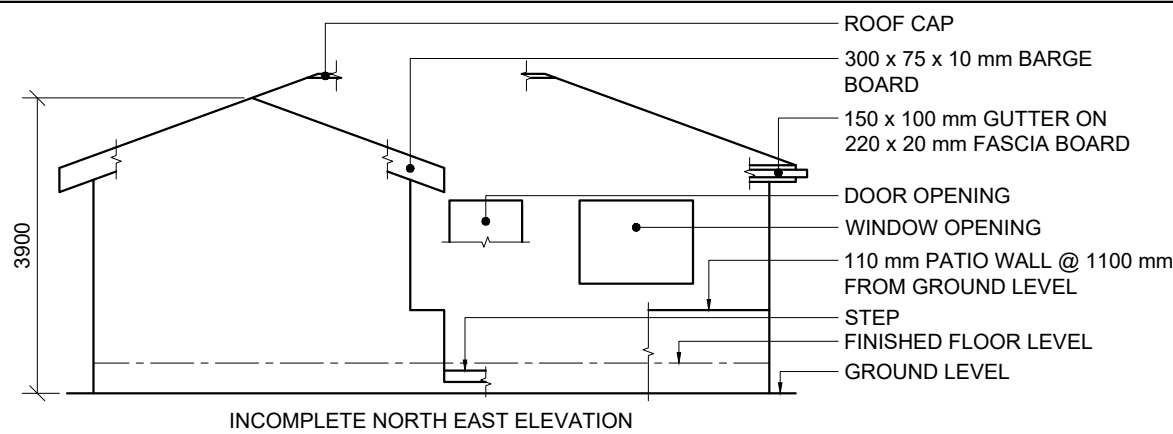
PP



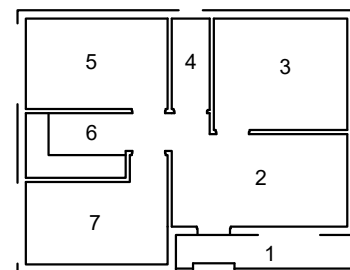
SP

EXAMINATION NUMBER	
EXAMINATION NUMBER	4

QUESTION 4 CIVIL DRAWING

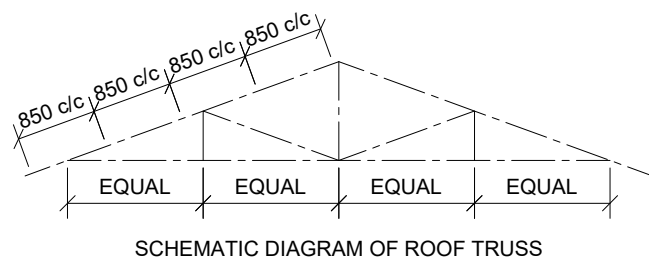


- ROOM DESIGNATIONS**
- PATIO
 - RECEPTION
 - CONFERENCE ROOM
 - TOILET
 - OFFICE 1
 - KITCHEN
 - OFFICE 2

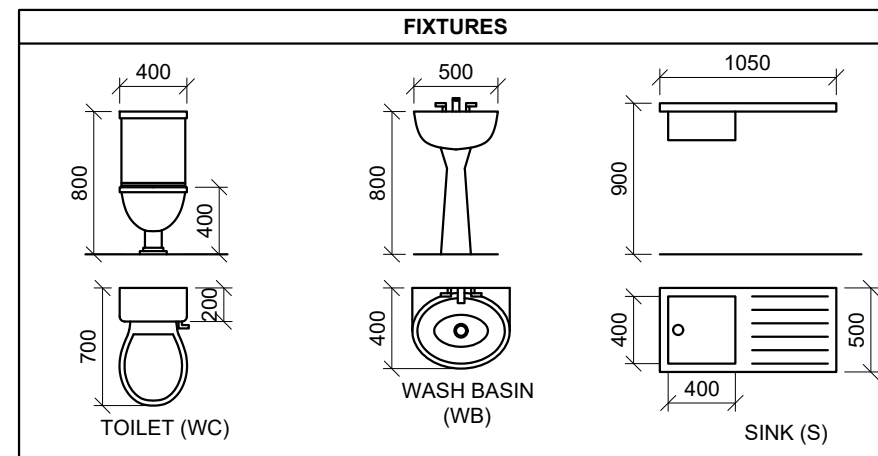
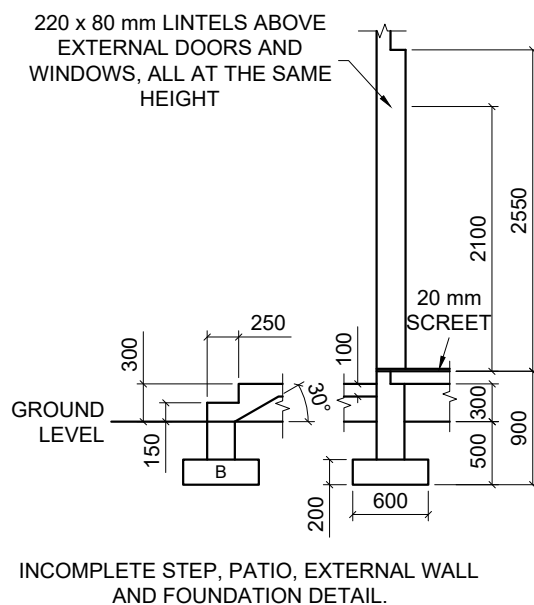


- ELECTRICAL SYMBOLS**
-

ROOF COMPONENTS	
	114 x 40 mm WALLPLATE
	220 x 20 mm FASCIA BOARD
	300 x 75 x 10 mm BARGE BOARD
	150 x 100 mm GUTTER
	ROOF CAP



- ROOF NOTES:**
20° ROOF PITCH
- 114 x 40 mm ROOF TRUSSES ON 114 x 40 mm WALL PLATES
- 350 mm ROOF OVERHANG TO END OF ROOF TRUSS
- 30 mm CORRUGATED ROOF SHEETING ON 75 x 50 mm PURLINS @ 850 c/c
- 150 x 100 mm GUTTERS ON 220 x 20 mm FASCIA BOARDS ON FIVE SIDES
- 300 x 75 x 10 mm BARGE BOARDS ON GABLE END FLUSH WITH GUTTERS
- 9 mm GYPSUM BOARDS ON 40 x 40 mm BRANDING STRIPS @ 400 c/c



Given:

- The incomplete north-east elevation of a **new office building**, showing the walls, step, the door and window openings, the roof and labels
- The incomplete floor plan showing the walls, step, patio, positions of the doors, windows, fixtures, and the electrical layout
- A schematic diagram of a roof truss and roof notes
- Room designations
- The incomplete step, patio, external wall and foundation detail
- A door and window schedule
- A table of electrical symbols
- A table of roof components
- A table of fixtures
- The incomplete floor plan and position of the ground level of the **new office building**, drawn to a scale of 1:50, and the incomplete foundation and a break line for the detailed section, drawn to scale 1:20, on page 6

Instructions:

Answer the following questions on page 6.

- 4.1. Using the given incomplete floor plan, draw, to a scale of 1:50, the following views of the **new office building**:

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 detail as indicated by the numbers
- All hatching detail

4.1.2. THE COMPLETE NORTH-EAST ELEVATION

Show the following features on the drawing:

- The outside walls, step, door and window detail
- The roof detail, including the roof cap, fascia board, gutter and barge boards
- The finished floor level

- 4.2. Using the incomplete foundation and the break line on page 6, draw, to a scale of 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 step, patio, external wall and foundation detail
- The door detail
- The roof detail, including the fascia board and gutter
- The outside wall, patio wall and roof detail, including the fascia board, gutter and barge board to the left (south-east) of cutting plane A-A
- All hatching detail. ONLY the substructure hatching may be drawn in freehand.

Label the following:

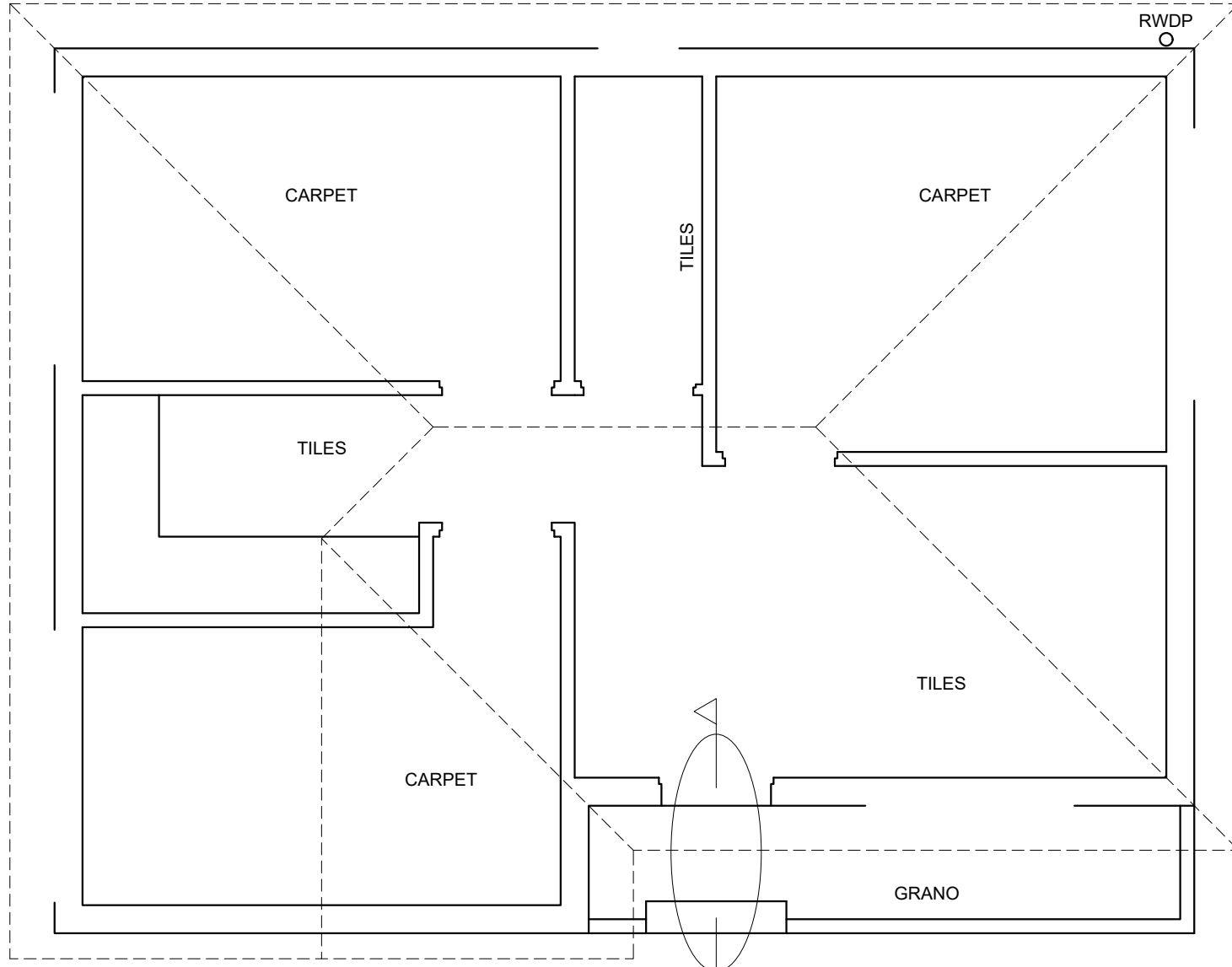
- The north-east elevation
- The room designations
- Ground level, finished floor level and damp-proofed course (use the correct abbreviations and show it on all relevant views)

NOTE:

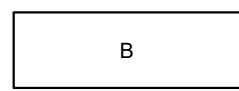
ALL drawings must comply with the **guidelines** and **graphical symbols** as contained in the **SANS 10143**.

STAPLE

GL-



FLOOR PLAN
SCALE 1 : 50



SECTION A-A
SCALE 1 : 20

MARK ALLOCATION FOR ROOF SECTION	
A	
B	
C	
D	
TOTAL:	

PENALTIES	
INCORRECT SCALE	
NON-ALIGNMENT OF VIEWS	
VIEWS ROTATED	
SECTION VIEWED INCORRECTLY	
INCORRECT LETTERING	
TOTAL:	

ASSESSMENT CRITERIA				
FLOOR PLAN				
1	WINDOWS + DOORS	15		
2	FIXTURES	5 ½		
3	ELECTRICAL	11		
4	HATCHING	3		
5	LABELS	3 ½		
SUBTOTAL:		38		
NORTH-EAST ELEVATION				
1	WALLS + FFL	5 ½		
2	ROOF	7		
3	DOOR + WINDOW	6		
4	LABELS	1		
SUBTOTAL:		19 ½		
DETAILED SECTION				
1	ROOF DETAIL	15		
2	WALL + SLAB	11 ½		
3	DOOR + LINTEL	1 ½		
4	HATCHING	5 ½		
5	LABELS	1		
SUBTOTAL:		34 ½		
TOTAL:		92		
PENALTIES(-):				
GRAND TOTAL:				
EXAMINATION NUMBER				
				6