

SA's Leading Past Year

Exam Paper Portal



You have Downloaded, yet Another Great  
Resource to assist you with your Studies 😊

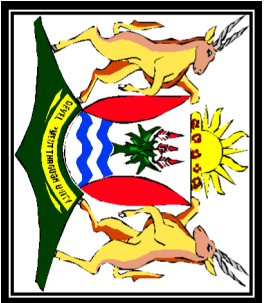
Thank You for Supporting SA Exam Papers

Your Leading Past Year Exam Paper Resource Portal

Visit us @ [www.saexampapers.co.za](http://www.saexampapers.co.za)



**SA EXAM  
PAPERS**



ISEBE LEMFUNDO LEMPUMA KOLONI  
EASTERN CAPE EDUCATION DEPARTMENT  
OOS-KAAP ONDERWYSDEPARTEMENT

NATIONAL  
SENIOR CERTIFICATE

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P1  
SEPTEMBER 2020  
PREPARATORY EXAMINATION

MARKS: 200

TIME: 3 hours

This question paper consists of 6 pages.

Copyright reserved







INSTRUCTIONS AND INFORMATION

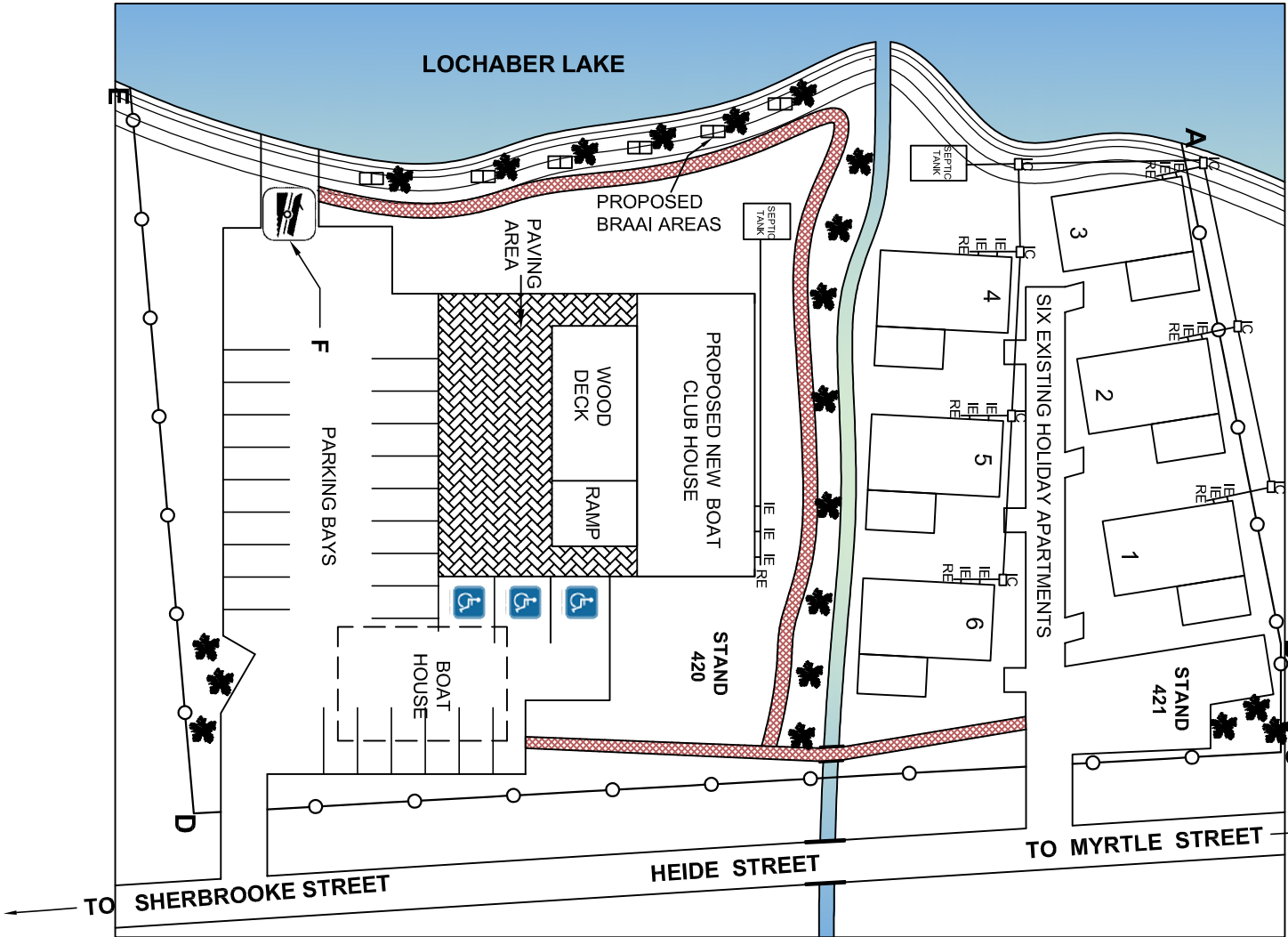
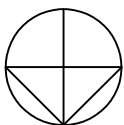
1. The question paper consists of FOUR questions.
2. Answer ALL the questions.
3. All drawings must be drawn to scale 1 : 1, unless otherwise stated.
4. The questions must be answered on the answer sheets provided.
5. All the answers sheets must be re-stapled in numerical sequence and handed in irrespective of whether the question was attempted or not.
6. Careful time management is essential in order to complete all the questions.
7. Print your name 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 estimated in good proportion.
10. ALL drawings are in first angle orthographic projection, unless stated otherwise.

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	

SYMBOL LEGEND	
1	 BRAIN AREA
2	 PALISADE - FENCE
3	 PAVED FOOTPATH
4	 BRIDGE
5	 BOAT LAUNCH AREA
6	 INDIGENOUS TREE



<p>LAND SURVEYOR'S CERTIFICATE OF THE SIDE LENGTHS AND CORNER HEIGHTS ON STAND 420 AND 421 SURVEYED ON 2019-11-22</p>	
LENGTHS IN MILLIMETRES	CORNER HEIGHTS IN METRES
AB = 30350	A = 13
BC = 6440	B = 16
CD = 64740	C & D = 16.2
DA = 43330	E = 13.4

## 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

②

**ANSWER 15**

In the space below, neatly draw a neat freehand sketch of the graphical symbol of a ramp as it is given in the SABS 0143 document. The slope of the ramp is 1 : 16.

1	2020-01-12	Indicate parking for people with disabilities on stand 420
REVISION	DATE	DESCRIPTION

**JADE RENSHAW  
ARCHITECTS  
11 DA GAMA STREET  
JEFFREYS BAY  
083 226 7782  
a.architects@gmail.com**

**jira.architects@gmail.com**

PRINTED BY

## IMPACT

2020-01-31

DRAWING TITLE

# SITE PLAN

PROJECT  
PROPOSED NEW BOAT CLUBHOUSE  
MR. MOLEFE MARABE  
ON STAND 420, HEIDE STREET,  
JEFFREYS BAY

PROJECT NUMBER <b>20-2020</b>	DRAWING NUMBER <b>JRA02-2020</b>		
DATE <b>2019-11-31</b>	DRAWN <b>BLEYTEN</b>	CHECKED <b>KARLA</b>	SCALE <b>1 : 400</b>
REFERENCE CODE <b>SITE - 420-20</b>			

## QUESTION 1: ANALYTICAL (CIVIL)

**Given:**

The site plan for a holiday resort with a proposed new boat clubhouse, parking area, a title block and a table of questions. The drawing is not drawn to the scale.

**Instructions:**

Complete the table below by neatly answering the questions that refer to the drawing and title block.

**[27]**

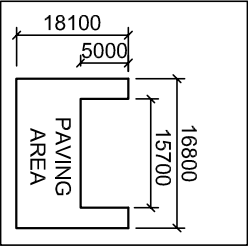
QUESTIONS		ANSWERS		
1	What is the project number of the development?	1		
2	Give the name of the person who should sign in the space marked with <b>X</b> on the site plan.	1		
3	Give the name of the person who should sign in the space marked with <b>Z</b> on the site plan.	1		
4	What is stand 421 mainly used for?	1		
5	How many braai areas are planned on stand 420?	1		
6	Which <b>feature</b> is indicated by the road sign at <b>F</b> ?	1		
7	What colour is used to indicate new woodwork on a site plan?	1		
8	What type of a natural feature occurs on the southern side of stand 420 and stand 421?	2		
9	Which street does Heide Street connect to, on the west side of the site plan?	2		
10	Why does Bleyten indicate the boat house with a dashed line on the site plan?	1		
11	What will the boat house space be used for?	1		
12	Has the proposed revision been made on the drawing? Motivate your answer.	2		
13	In the space below (ANSWER 13), determine the <b>total circumference</b> of the area to be paved, in metres.	4		
14	In the space provided below (ANSWER 14), determine the <b>total area</b> to be paved in square metres.	4		
15	In the space provided in the title panel (ANSWER 15), draw a neat <b>freehand sketch</b> of the graphic symbol, given in SABS 0143, to indicate the slope of the ramp. The slope of the ramp is <b>1 : 16</b> .	3		
<b>TOTAL</b>		<b>26</b>		

**ANSWER 13**

Show ALL calculations

**ANSWER 14**

Show ALL calculations.



NAME	
NAME	2

QUESTION 2: SOLID GEOMETRY

Given:

- The front view and auxiliary view of a regular triangular prism with a square hole.
- Cutting line **A : A** in the front view.
- The starting point **X** for the front view.

Instructions:

Draw to **scale 1 : 1** the following views of the solid:

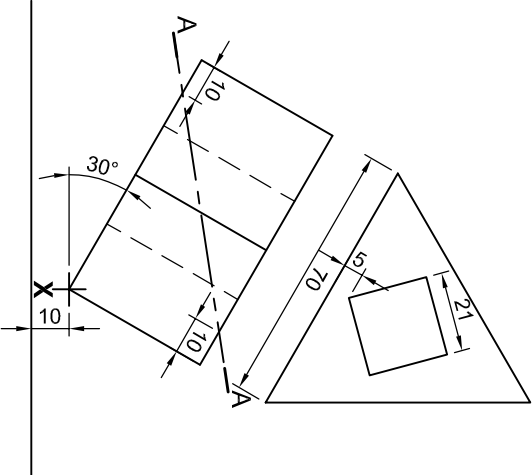
- 2.1 The given front view. (starting with point **X**)
- 2.2 The sectional top view
- 2.3 The right view.

Note:

- Show ALL hidden details.
  - Show ALL necessary constructions.
- [33]

+

X



ASSESSMENT CRITERIA				
1	FRONT VIEW	5		
2	SECTIONAL TOP VIEW	17		
3	RIGHT VIEW	10		
4	CONSTRUCTIONS	1		
PENALTIES (-)				
TOTAL	33			

NAME	
NAME	3

QUESTION 3: PERSPECTIVE

Given:

- Two views of an entertainment area with a splash pool and the information needed to draw a two-point perspective drawing.

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

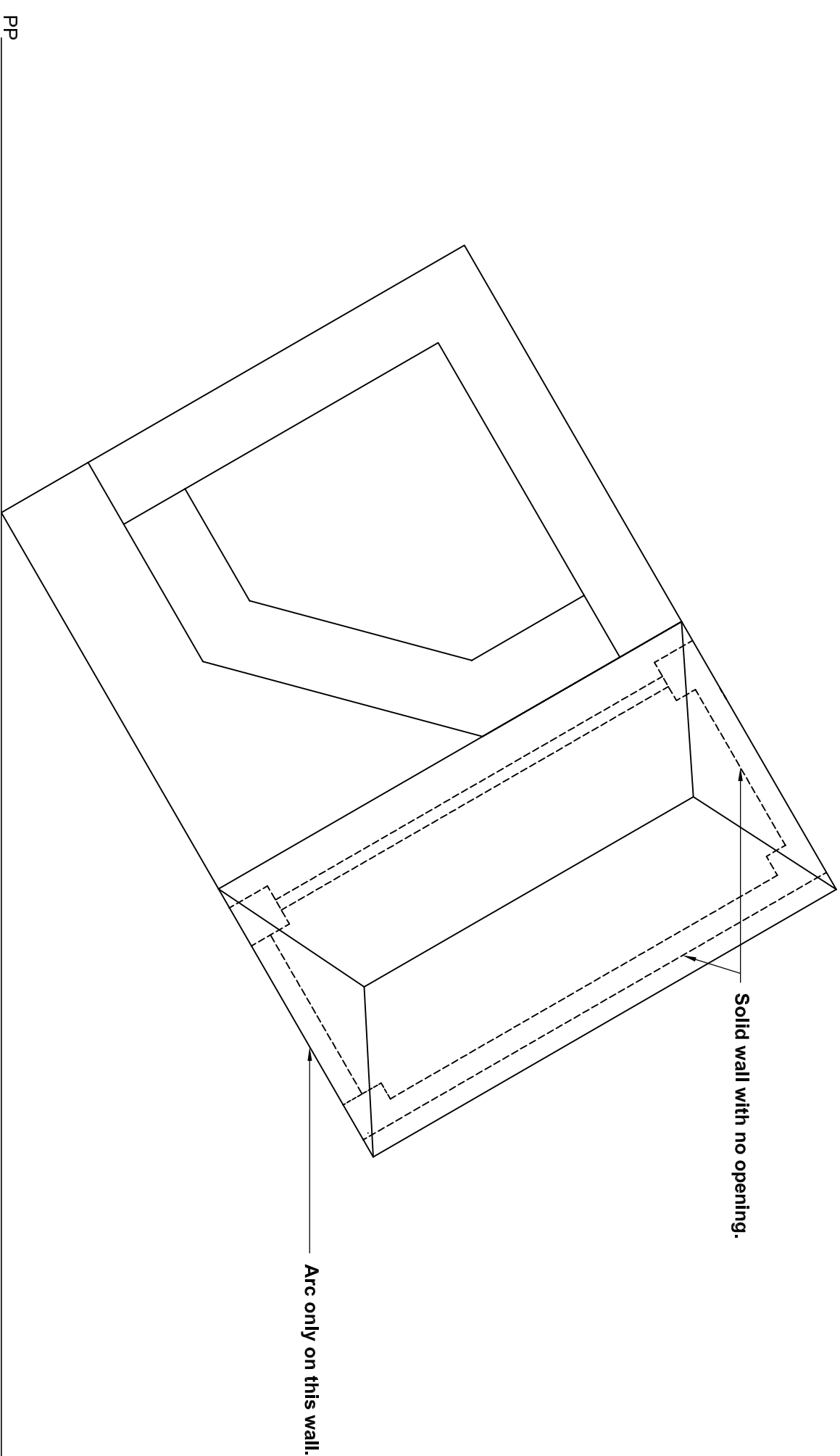
Instructions:

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.

[40]

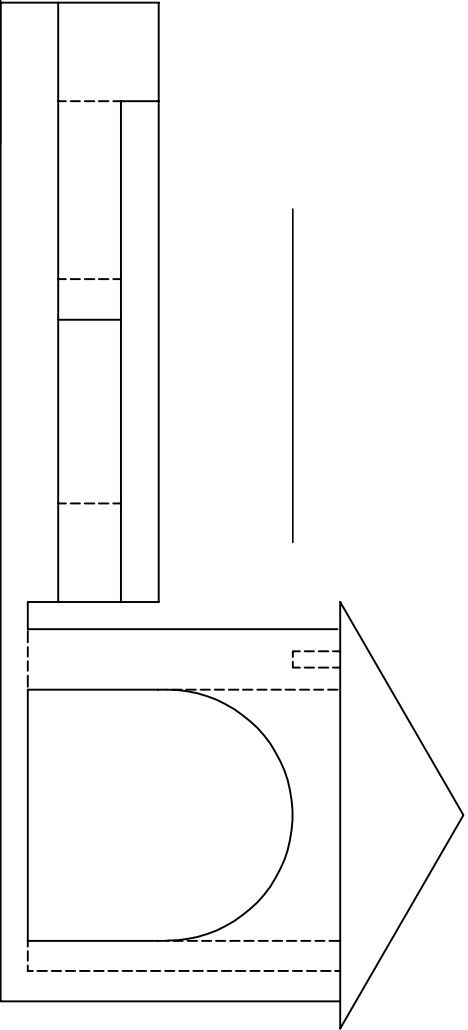
ASSESSMENT CRITERIA				
1	CONSTRUCTION AND VP's	5		
2	POOL AREA	16		
3	ROOF AREA	13 ½		
4	ARCH AND CONSTRUCTION	6 ½		
TOTAL		41		



PP

HL

GL



SP

NAME	
NAME	
4	

ROOF DETAIL:				DETAILED SECTION		
1	ROOF ANGLE	$1\frac{1}{2}$		6	BRANDERING + SPACING	2
2	ROOF SHEET	1		7	CEILING BOARD	$1\frac{1}{2}$
3	ROOF TRUSS	3		8	WALL PLATE	$1\frac{1}{2}$
4	PURLIN + SPACING	2		9	FACIA BOARD	$1\frac{1}{2}$
5	BARGE BOARD	1		10	GUTTER	1
TOTAL					12	

PENALTIES		
1	INCORRECT OVERALL SCALE USED	
2	INCORRECT POSITIONING OF VIEWS	
3	NON-ALIGNMENT OF VIEWS	
TOTAL PENALTIES (-)		

ASSESSMENT CRITERIA				
FLOOR PLAN				
1	DOORS AND WINDOWS	13		
2	ELECTRICAL	12		
3	FIXTURES	7		
4	HATCHING	3		
5	LABELS	5		
SUBTOTAL		40		

SOUTH VIEW				
1	ROOF, GUTTER, RWDP, FACIA, BARGE BOARD, ROOF CAP	$6\frac{1}{2}$		
2	WALLS AND PORCH	$6\frac{1}{2}$		
3	DOORS AND WINDOWS	$6\frac{1}{2}$		
4	LABELS	$1\frac{1}{2}$		
SUBTOTAL		21		

DETAILED SECTION				
1	ROOF DETAIL	12		
2	FOUNDATIONS, WALLS, FLOOR	13		
3	WINDOW AND PORCH OPENING, LINTELS	5		
4	HATCHING	7		
5	LABELS	2		
SUBTOTAL		39		
TOTAL		100		
PENALTIES (-)				
TOTAL				

NAME

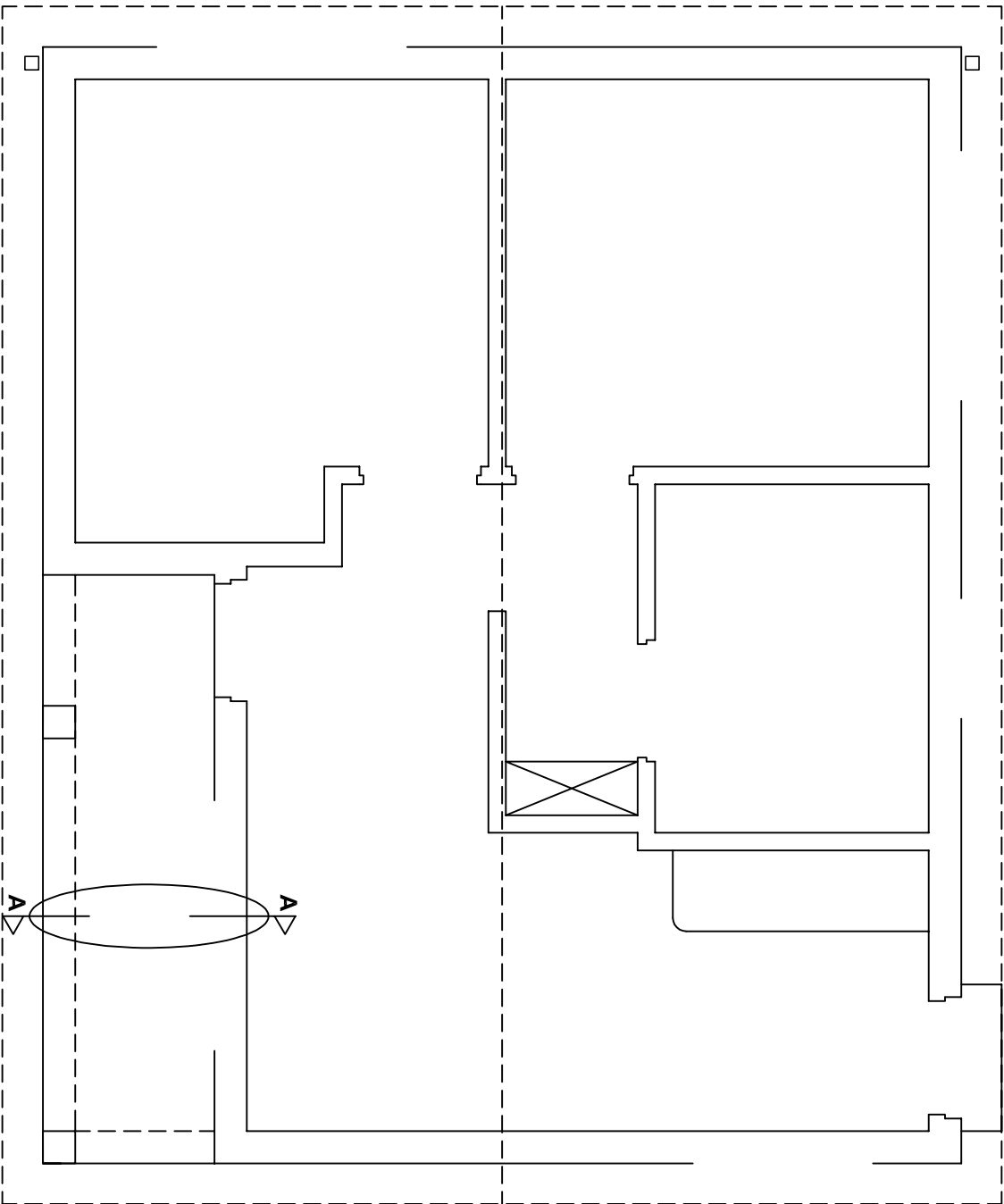
NAME

DETAILED SECTION A-A  
SCALE 1 : 20

NAME

NAME

6



FLOORPLAN  
SCALE 1 : 50



QUESTION 4: CIVIL DRAWING

Given:

- The incomplete south view of a **RDP house**, showing the walls, the windows, the door opening, the roof and notes.
- The incomplete floor plan showing the roof line, walls, position of the doors, windows, fixtures and electrical layout.
- A schematic diagram of a roof truss and roof notes.
- The incomplete foundation and wall detail.
- Room designations and floor finishes.
- A door and window schedule.
- A table of sanitary fixtures.
- A table of roof components.
- A table of electrical symbols.
- A table of rainwater items.
- The floor plan of the **house**, drawn to scale 1 : 50 and the incomplete foundation and breakline of the detailed section, drawn to scale 1 : 20 on page 6.

Instructions:

Answer this question on page 6.

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

4.1.1 THE COMPLETE FLOOR PLAN

Add the following features to the drawing:

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

4.1.2 THE COMPLETE SOUTH VIEW

Show the following features on the drawing:

- The outside walls, porch and window detail.
  - The roof detail, including the roof cap, barge boards, fascia boards, gutter and rainwater downpipe.
  - The finished floor level.
- 4.2 In the space provided on page 6, using the incomplete foundation and break line, 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 complete detail of the foundation, external walls with window and the opening on the porch as well as the lintels above the respective openings.
  - The roof detail, including the barge board, fascia board and gutter.
  - ALL hatching detail. **ONLY** the substructure hatching may be drawn in neat freehand.

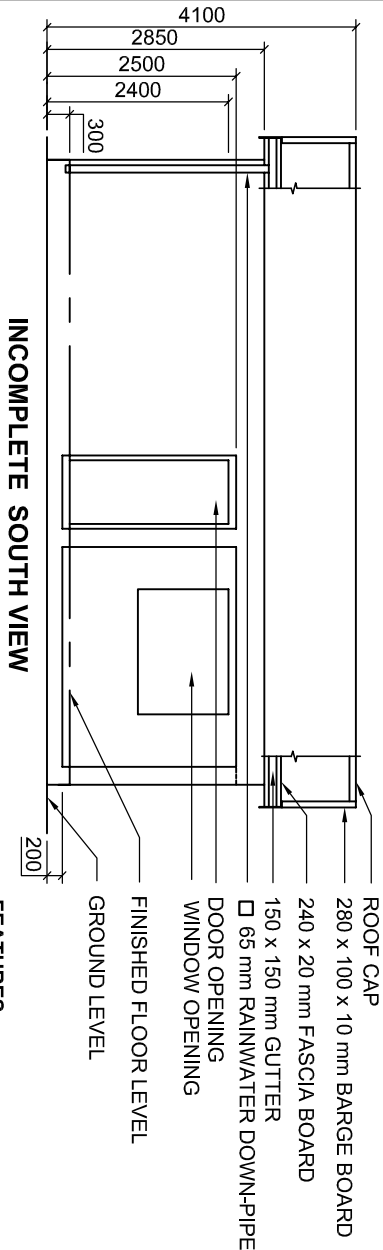
Label the following:

- The south view.
- The room designations and floor finishes.
- Ground level, finished floor level and damp proof course (Use the correct abbreviations and show it on ALL the relevant views)

NOTE:

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

[100]



INCOMPLETE SOUTH VIEW

- ROOF CAP
- 280 x 100 x 10 mm BARGE BOARD
- 240 x 20 mm FASCIA BOARD
- 150 x 150 mm GUTTER
- 65 mm RAINWATER DOWN-PIPE
- DOOR OPENING
- WINDOW OPENING
- FINISHED FLOOR LEVEL
- GROUND LEVEL

- FEATURES
- D DOOR
  - NC2 WINDOW
  - NC3 WINDOW
  - NC5 WINDOW

- FIXTURES
- WC TOILET
  - WB WASH BASIN
  - B BATH
  - S SINK

ELECTRICAL FITTINGS

1. LIGHT SWITCH: SINGLE-POLE
2. LIGHT SWITCH: DOUBLE-POLE
3. FLUORESCENT LIGHT 3 x 40 W
4. CEILING LIGHT
5. WALL MOUNTED LIGHT
6. SWITCHED SOCKET OUTLET

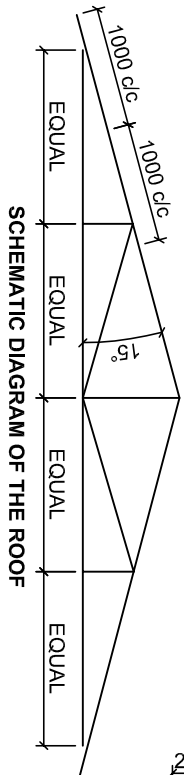
NOTE:  
THE ARROWS ON THE FLOOR PLAN SHOW THE LIGHT CONNECTION TO THE SWITCH.

INCOMPLETE FLOOR PLAN



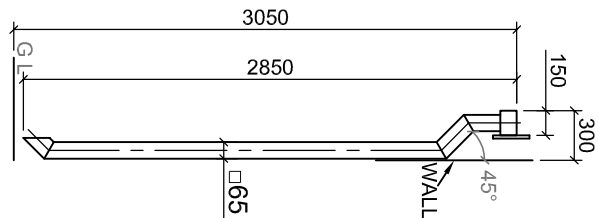
ROOF NOTES:

- 15° ROOF PITCH.
- 114 x 38 mm ROOF TRUSSES ON 114 x 38 mm WALL PLATE.
- ROOF COVER: 20 mm IBR SHEETING ON 75 x 50 mm PURLINS @ 1000 mm c/c.
- 280 x 100 x 10 mm BARGE BOARD ON GABLE ENDS IS IN LINE WITH THE GUTTERS.
- OVERHANG IS 300 mm (**GUTTERS EXCLUDED**)
- 240 x 20 mm FASCIA BOARD ON THE SOUTH AND NORTH VIEW.
- 150 x 150 mm GUTTERS ON THE SOUTH AND NORTH VIEW WITH A □65 mm RAINWATER DOWN-PIPES.
- ROOF CAPS MUST BE MOUNTED ON THE ROOF PITCH, 9 mm CEILING BOARD ON 38 x 38 mm BRANDERING @ 480 mm c/c.

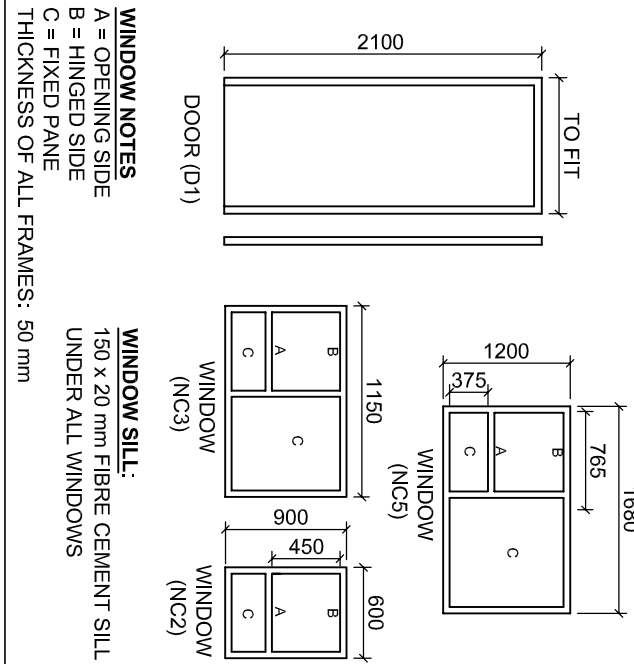


SCHEMATIC DIAGRAM OF THE ROOF

RAINWATER ITEMS



DOOR AND WINDOW SCHEDULE

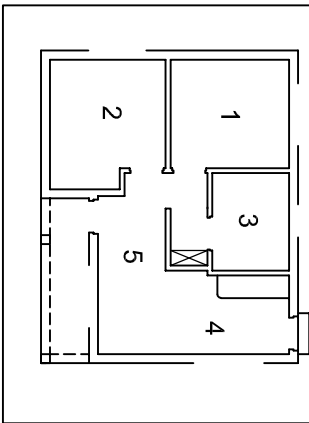


WINDOW NOTES

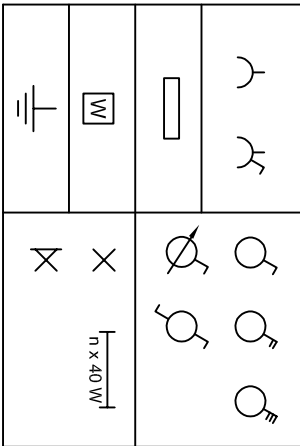
- A = OPENING SIDE
- B = HINGED SIDE
- C = FIXED PANE
- THICKNESS OF ALL FRAMES: 50 mm

ROOM DESIGNATIONS AND FLOOR FINISHES

1. BEDROOM 1: CARPET
2. BEDROOM 2: WOOD
3. BATHROOM: TILE
4. KITCHEN: TILE
5. LIVING AREA: TILE



ELECTRICAL SYMBOLS



SANITARY FIXTURES

