

MARKING GUIDELINES

NATIONAL SENIOR CERTIFICATE EXAMINATION

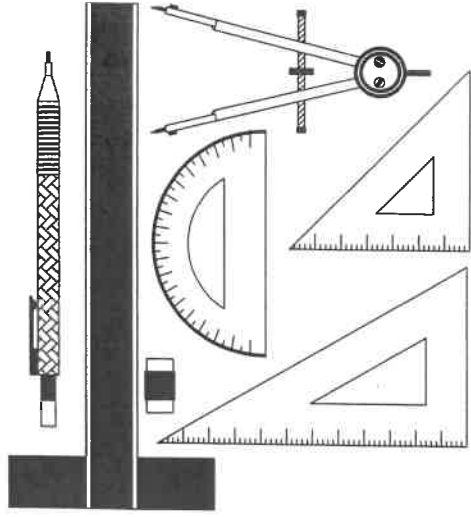
2020

ENGINEERING GRAPHICS AND DESIGN

PAPER 1

MARKS: 200

TIME: 3 HOURS



FOR OFFICIAL USE ONLY

QUESTION	SECTION	MARK	MODERATED	MAXIMUM	CODE
1	CIVIL ANALYTICAL			20	
2	INTERPENETRATION & DEVELOPMENT			40	
3	TWO-POINT PERSPECTIVE			40	
4	CIVIL DRAWING			100	
	TOTAL			200	

CHECKED BY

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of **6 pages** including the cover page and **4 questions**.
2. **All** questions must be answered.
3. Unless specified otherwise, all questions are in **First-angle Orthographic Projection**.
4. Unless specified otherwise, all questions are to be completed to a **scale of 1:1**.
5. **All** answer sheets must be restapled in numerical order, even questions that have not been answered.
6. **All construction work** must be shown.
7. Print your **examination number** neatly on each page.
8. Use only the **answer sheets** provided.
9. Your drawings should reflect **neatness** and **accuracy**.
10. All dimensions or detail not given must be **assumed** in **good proportion**.
11. Your drawings should comply with SANS 10143.

EXAMINATION NUMBER

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QUESTION 1

STUDY THE ADJACENT DRAWING AND ANSWER THE QUESTIONS THAT FOLLOW:

1.1 What elevation is VIEW B?	SOUTH ELEVATION	1
1.2 What type of cover is used for the roof?	METAL SHEETING	1
1.3 How many built-in cupboards are there in this dwelling?	4	1
1.4 How many panes of glass are used in a single ND74 window?	6	1
1.5 What is the diameter of the ventilation pipe?	75 mm	1
1.6 What is the feature at 1 called?	GULLY	1
1.7 What is the feature at 2 called? (No abbreviations)	RAIN WATER DOWN PIPE	1
1.8 What is the feature at 3 called?	SHOWER	1
1.9 What is the feature at 4 called?	SEWER LINE	1
1.10 What is indicated at feature 5?	SEPTIC TANK	1
1.11 What does the abbreviation 'RE' stand for?	RODDING EYE	1
1.12 What is the feature at 6 called? (No abbreviations)	SMOKE DETECTOR	1
1.13 How many windows would you see in the WEST elevation?	2	1
1.14 When walking UP the ramp, in which direction would you be moving?	EAST	1
1.15 What is the room designation of ROOM 8?	BATHROOM / ENSUITE	1
1.16 Using the dimension at 8, determine the scale of this drawing.	1 : 250	1
1.17 What should the dimension at X be? (In millimetres)	2000	1
1.18 In which room would you be standing, if you were looking out of the window indicated at 7?	MAIN / MASTER BEDROOM	1

19 If the dimensions of VERANDAH 1 are 4000×12000 , determine the area of VERANDAH 1.
Give your answer in metres squared (m^2).

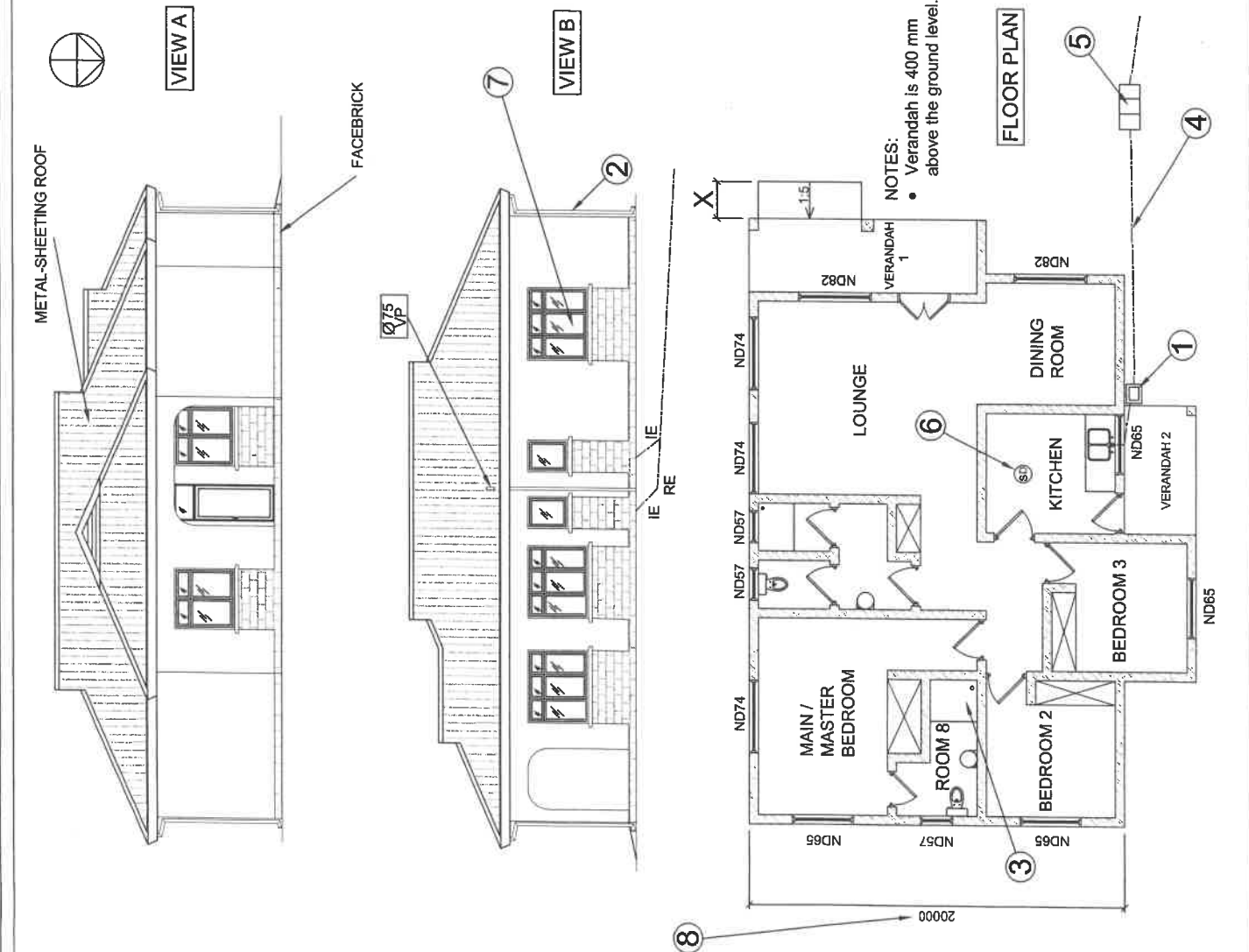
$$\begin{aligned}\text{Area} &= \text{length} \times \text{breadth} \\ &= 4 \text{ m} \times 12 \text{ m} \\ &= 48 \text{ m}^2\end{aligned}$$

Answer: 48 m^2

20 MARKS

EXAMINATION NUMBER

ANSWER SHEET 1



QUESTION 2
INTERPENETRATION
& DEVELOPMENT

The drawings below show the COMPLETE Top and Left View as well as the INCOMPLETE Front View of a **CYLINDRICAL PIPE** which has been joined together with an **EQUILATERAL TRIANGULAR DUCT** and drawn in First-angle Orthographic Projection. An Auxiliary View of the triangular duct is also shown in the Top and Front Views.

Draw the following:

- 2.1 the complete Front View showing the curve of interpenetration. **Show all hidden detail.**
- 2.2 the development of the triangular duct only, clearly showing the curve of interpenetration.

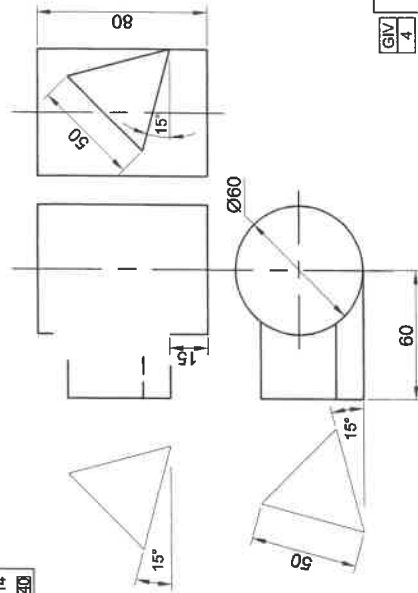
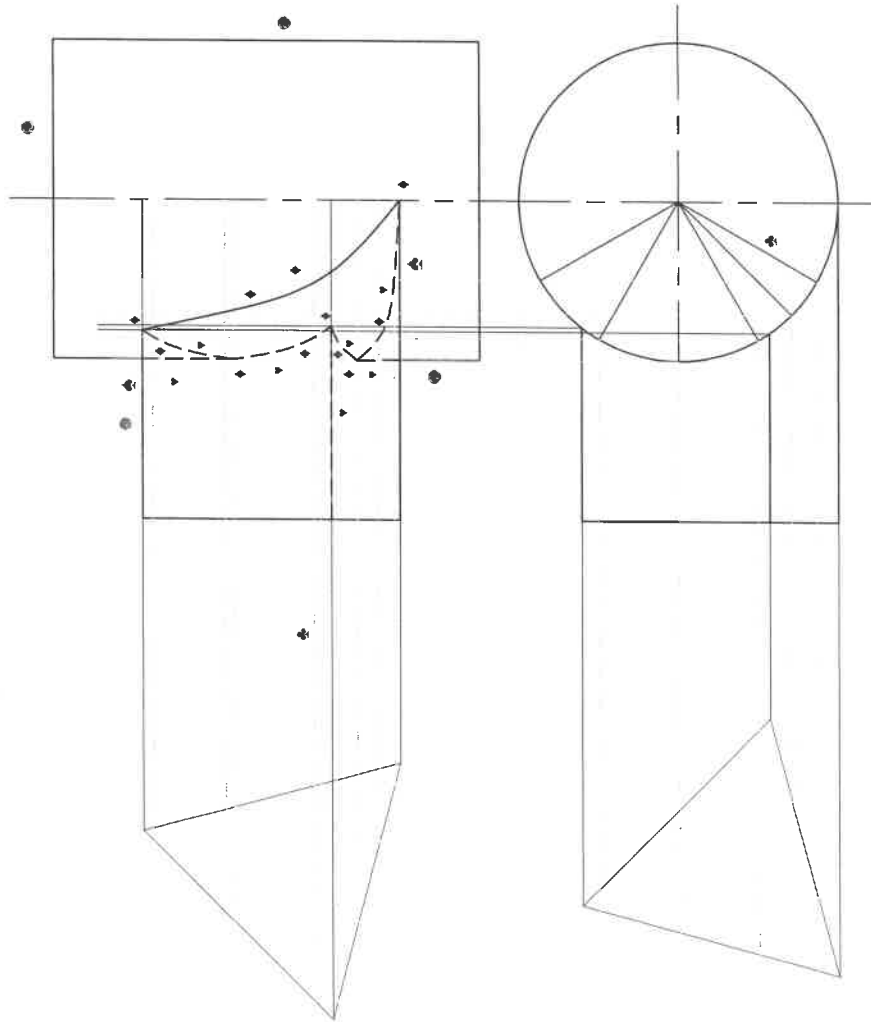
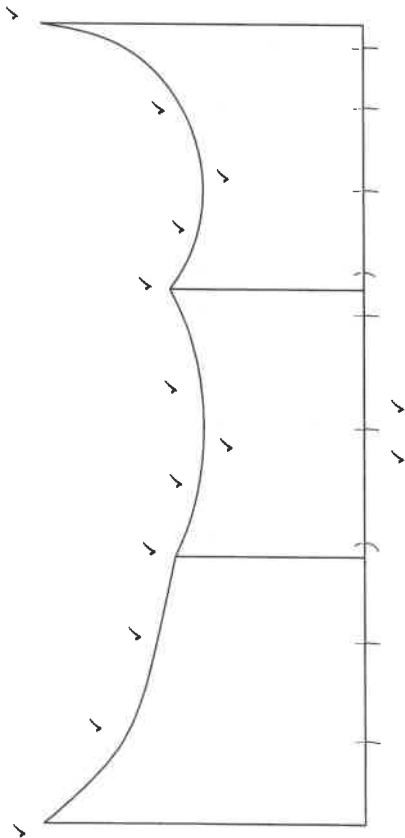
Show all construction.
Do not draw the Left view.

The complete Top View, incomplete Front View and two Auxiliary Views have already been drawn in position.

ASSESSMENT CRITERIA

- You will be assessed on your ability to do the following:
- draw and complete the Front View 24
 - show necessary construction 2
 - draw the development of the triangular duct 14

Given	•	= 4
Front View:		20
Hidden Detail	▼	= 7
Interpen	◆	= 11
Tri outer lines	▲	= 2
Construct	✱	= 2
Development	✓	= 14
		60



GIV	4
FV	20
CON	2
DEV	14

40 MARKS

EXAMINATION NUMBER

ANSWER SHEET 2

QUESTION 4

CIVIL
DRAWING

Assessment Criteria

Sectional Elevation

1 Ceiling Battens	2
2 Wall Plates	2
3 Ceiling Board	1
4 Truss Plates	4
5 Roof Truss	5
6 Purlins	4
7 Roof	1
8 Sectioned Walls	4
9 Sectioned Door	4
10 Floor & Foundation	6
11 DPC	2
12 Hatching	9
13 External Window	5
14 External Walls	3
15 Fascia Boards	4
16 Roof Detail	7
17 Finished Floor Level	2
18 Labels	2

Subtotal

67

Floor Plan

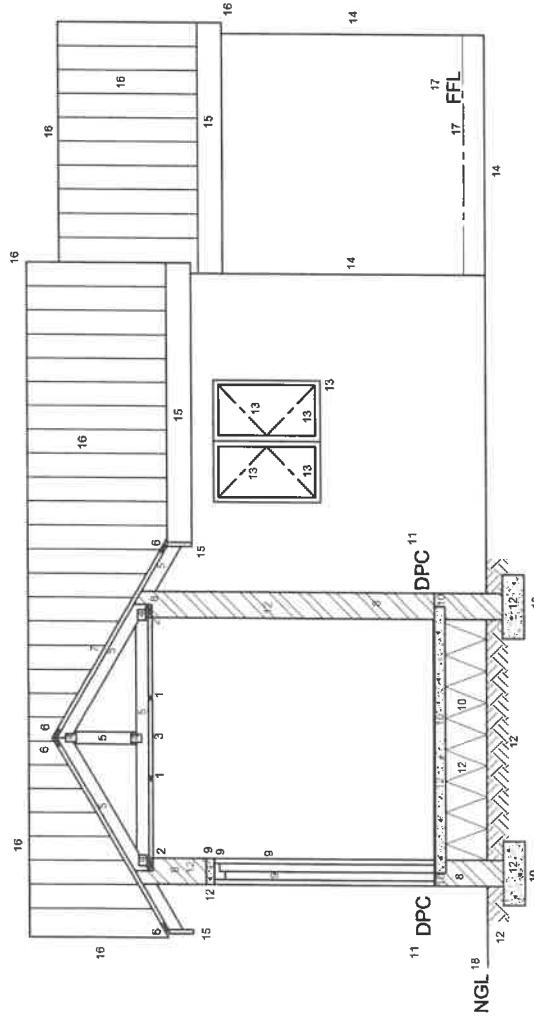
19 Walls	7
20 Hatching	5
21 Windows	4
22 Door	4
23 Step	3
24 Electrical	4
25 Labels	4
26 Cutting Plane	2

Subtotal

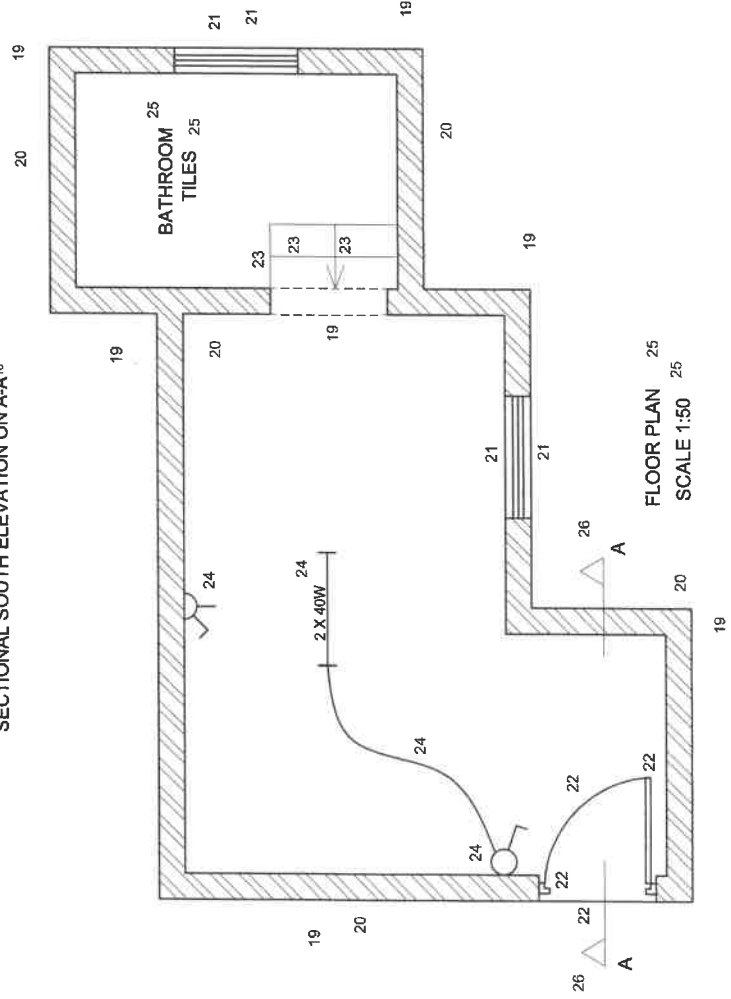
33

TOTAL

100



SECTIONAL SOUTH ELEVATION ON A-A



FLOOR PLAN
SCALE 1:50

100 MARKS

EXAMINATION NUMBER

ANSWER SHEET 4