

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

NATIONAL  
SENIOR CERTIFICATE

GRADE 11

ENGINEERING GRAPHICS AND DESIGN P1

NOVEMBER 2012

MARKS: 100

TIME: 2 hours

This question paper consists of 6 pages.

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\* G R D D M 1 \*

## 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 stated otherwise.
4. The questions must be answered on the answer sheets provided.
5. All the answer sheets must be re-stapled in numerical sequence and handed in irrespective of whether the question was answered 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 assumed in good proportion.

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

### COMPLETE THE FOLLOWING:

NAME

NAME

EXAMINATION CENTRE

EXAMINATION CENTRE






Please turn over





QUESTION 1.1: ANALYTICAL (ELECTRICAL)

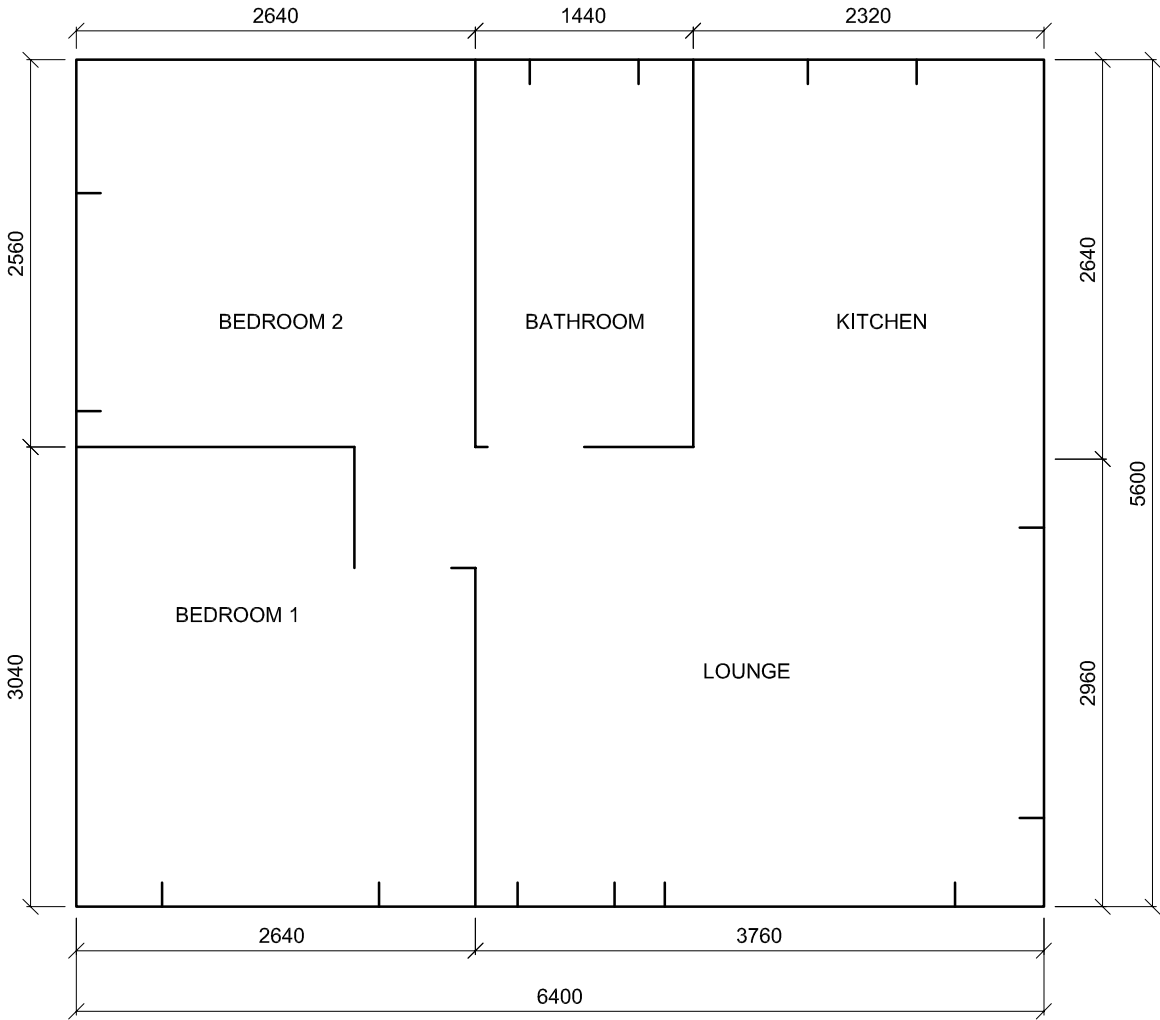
**Given:**  
A table with names and illustrations of electrical components.  
**Instructions:**  
Complete the table by neatly drawing the symbols of these components in the space provided. **[5]**

Name	Component	Symbol
1) BULB		(1)
2) FUSE		(1)
3) SWITCH		(1)
4) MOTOR		(1)
5) CELL		(1)

QUESTION 1.2: ANALYTICAL (AREA AND PERIMETER)

**Given:**  
• A schematic floor plan of a house showing the dimensions of the rooms.  
• A table for your answers.  
**Instructions:**  
• Calculate the combined floor area of the kitchen and lounge in m².  
• Calculate the perimeter of the house.

NB: Show all calculations **[5]**



ANSWERS	
AREA	
	(3)
PERIMETER	
	(2)


QUESTION 1.3: ANALYTICAL (CIVIL SECTIONS)


**Given:**  
• A column with various types of sectioning used in civil drawings.  
• A table with names of section types and spaces for inserting your answers.


**Instructions:**  
Complete the table by placing only the correct letter of the section next to the description of the section type. **[5]**


SECTION TYPE		ANSWERS	
1	CONCRETE		1
2	FACE BRICK		1
3	COMPACTED HARDCORE		1
4	SCREED		1
5	UNDISTURBED EARTH		1

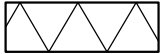
SECTIONAL VIEWS


A 

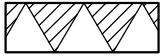
B 

C 

D 

E 

F 

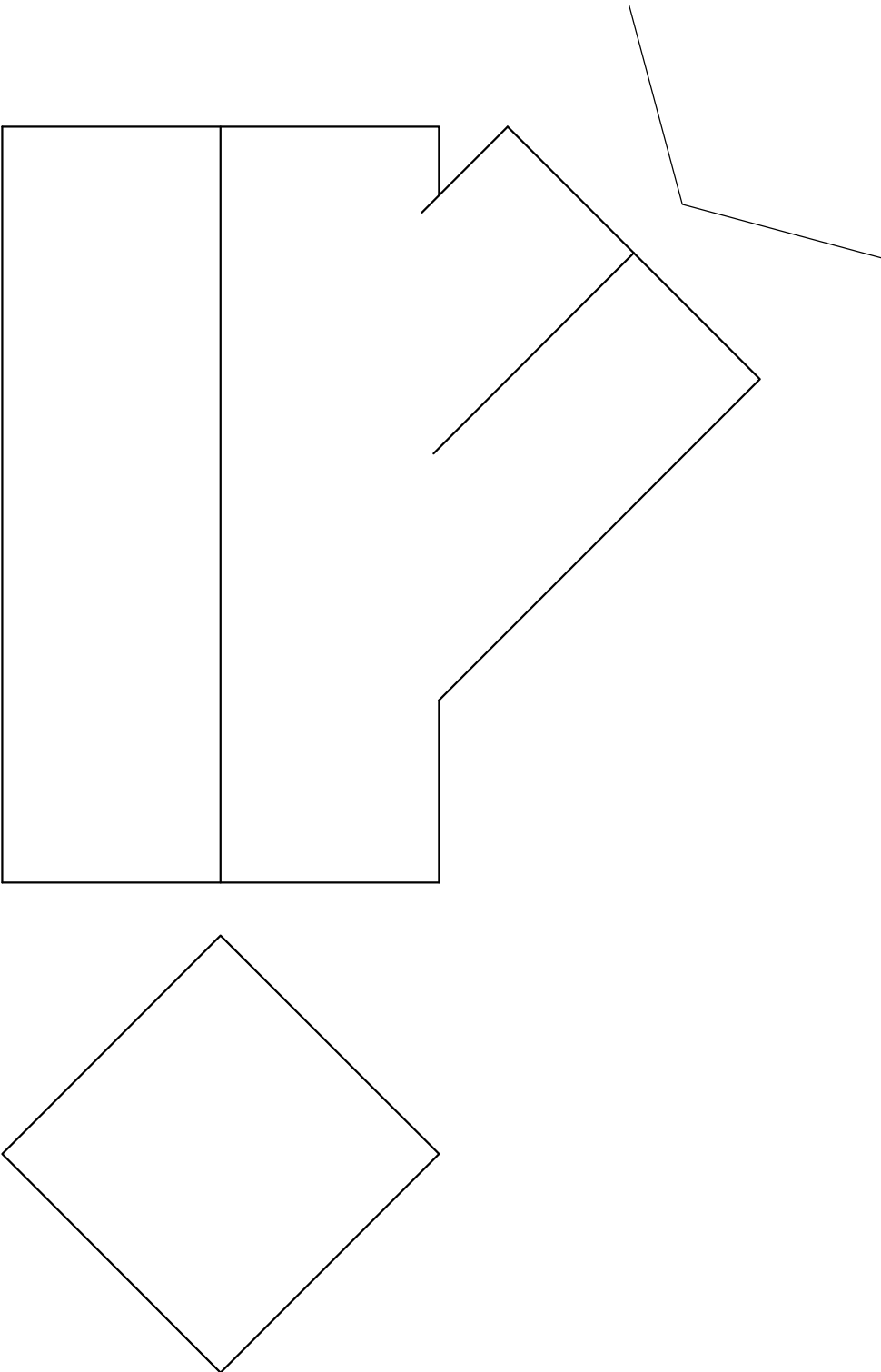
G 

1.1	5	
1.2	5	
1.3	5	
TOTAL	15	

NAME

NAME





QUESTION 2: INTERPENETRATION AND DEVELOPMENT

- Given:**
- The incomplete top view and front view of a regular hollow hexagonal prism intersecting a regular hollow square prism.
  - An incomplete auxiliary view of the hexagonal prism.


- Instructions:**
- Complete the auxiliary view of the hexagonal prism.
  - Complete the top view.
  - Complete the front view, clearly showing the curve of interpenetration formed between the two prisms.
  - Develop only the sides of the square prism showing the true shape of the hole formed.

**Note:**  
The axes of both prisms lie in the same vertical plane.  
Show all constructions and projections. [19]

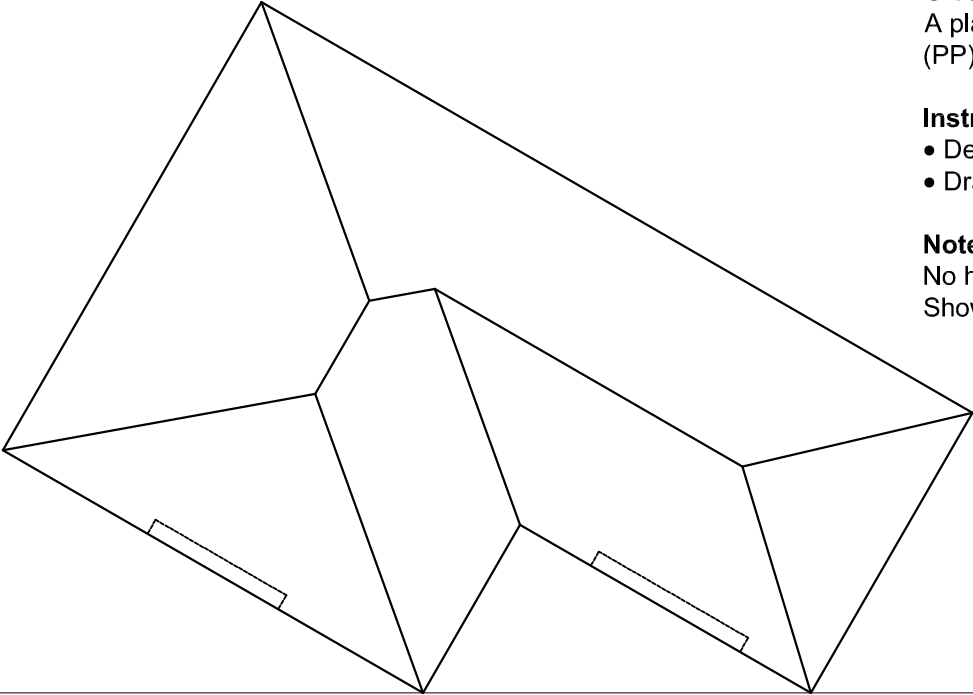
ASSESSMENT CRITERIA		
Auxiliary view	2	
Completed top view	5	
Interpenetration curve	4	
Development	5	
Constructions	3	
TOTAL	19	

NAME
NAME

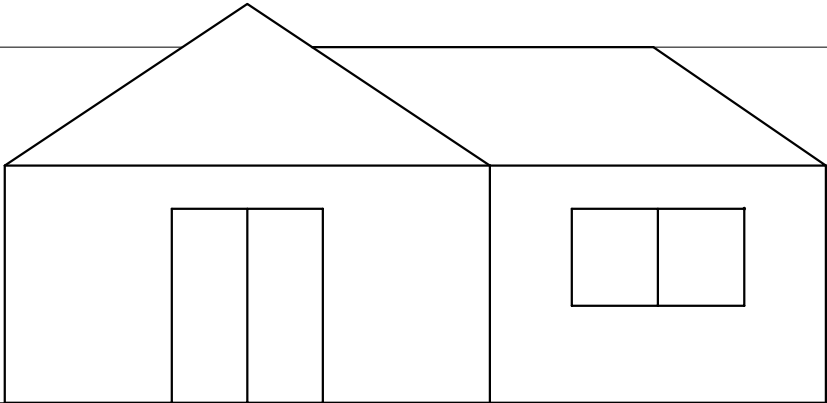




ASSESSMENT CRITERIA		
Vanishing points	2	
Constructions	3	
Roof	8	
Walls	5	
Door and window	8	
TOTAL	26	



PP



HL

GL

SP

NAME
NAME

4

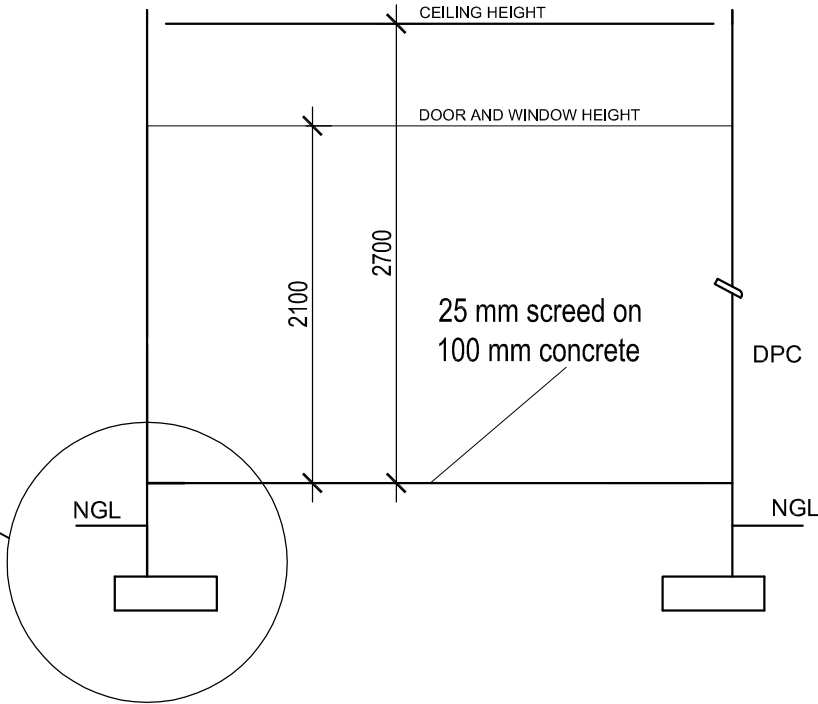
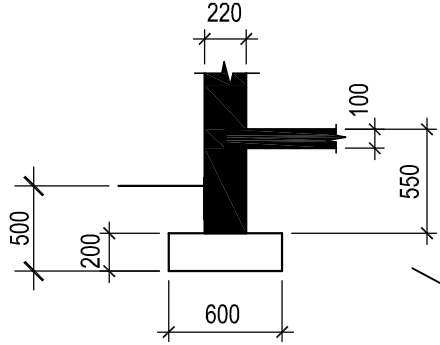
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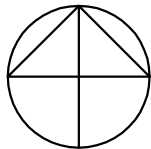
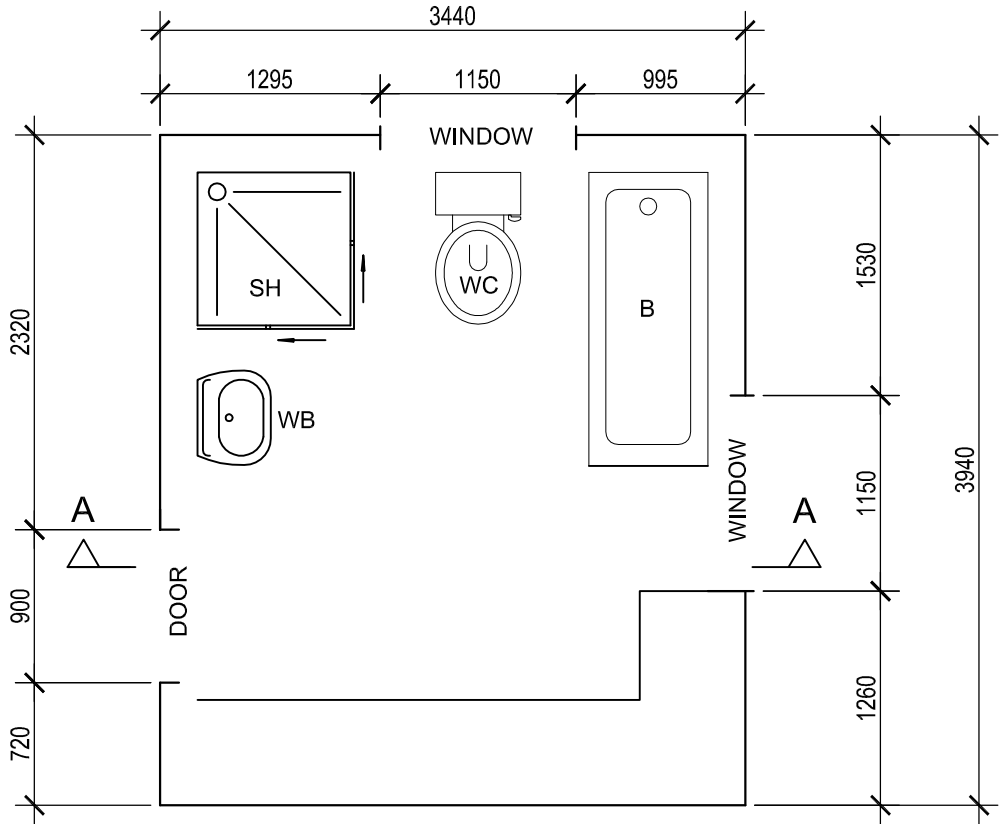




INCOMPLETE FOUNDATION  
DETAIL FOR EXTERIOR WALLS



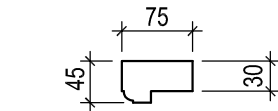
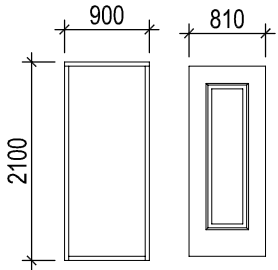
SCHEMATIC SECTIONAL ELEVATION A-A



DOOR AND WINDOW SCHEDULE

DOOR FRAME  
1 x STANDARD HARDWOOD  
FRAME

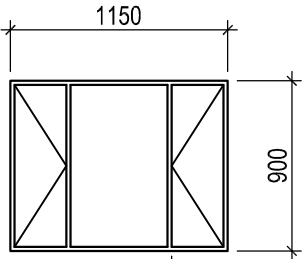
DOOR  
1 x STANDARD HOLLOW CORE  
DOOR



FRAME PROFILE

IRONMONGERY  
1 PAIR of 75 mm BRASS  
HINGES and SCREWS  
1 TWO-LEVER LOCKSET

WINDOW  
2 STANDARD HARDWOOD



GLAZING  
3 mm CLEAR GLASS

FINISHING SCHEDULE

FLOOR  
BATHROOM - TILES  
WALLS  
PLASTER AND PAINT

QUESTION 4: CIVIL DRAWING

Given:

- A schematic floor plan and a schematic sectional elevation of the outside lines of the perimeter of a **proposed new bathroom** attached to a house, and the position of all the fixtures in the bathroom as true representational drawings
- A door and window schedule
- A finishing schedule
- Incomplete sketches of the foundation detail.
- An answer sheet on page 6 showing an incomplete plan.

Instructions:

Use answer sheet 4 and the information on page 5 to draw to a scale of **1:40**, the following views:

- The completed floor plan
- The sectional elevation on cutting plane A-A, to the given specifications below:

SPECIFICATIONS:

- THE FLOOR PLAN
- Add the following features to the floor plan:**
- The missing walls and hatching detail
  - The missing door and windows with detail
  - The cutting plane. Label the cutting plane A-A
  - Label the bathroom and its floor finish

A SECTIONAL ELEVATION

- Add the following features to the sectional elevation:**
- The complete foundation, walls, screed and floor slab detail
  - The lintels above the door and windows
  - The door and complete window detail
  - ALL necessary hatching
  - All sanitary fixtures as **conventions**
  - Label the sectional elevation: SECTIONAL ELEVATION A-A

NOTE:

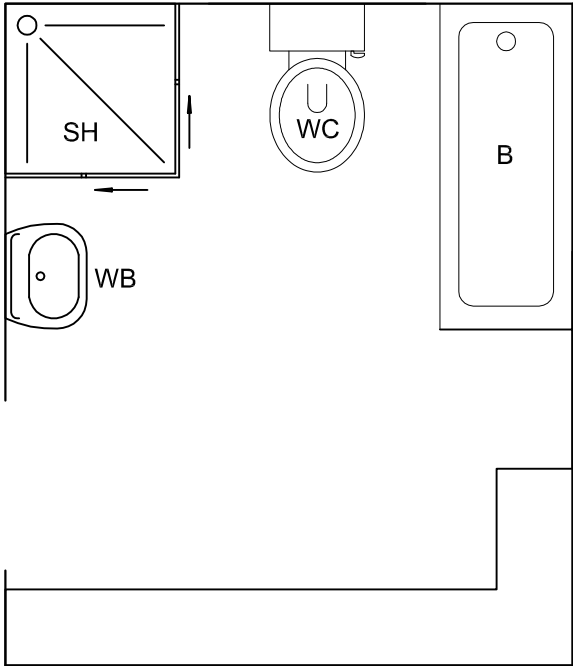
- ALL substructure hatching may be done in freehand.
- ALL drawing must comply with the guidelines contained in the *SABS 0143*. **[40]**

TERMINOLOGY

*Schematic diagram:* a diagram that shows the main features or relationships but not the details.



ANSWER SHEET 4



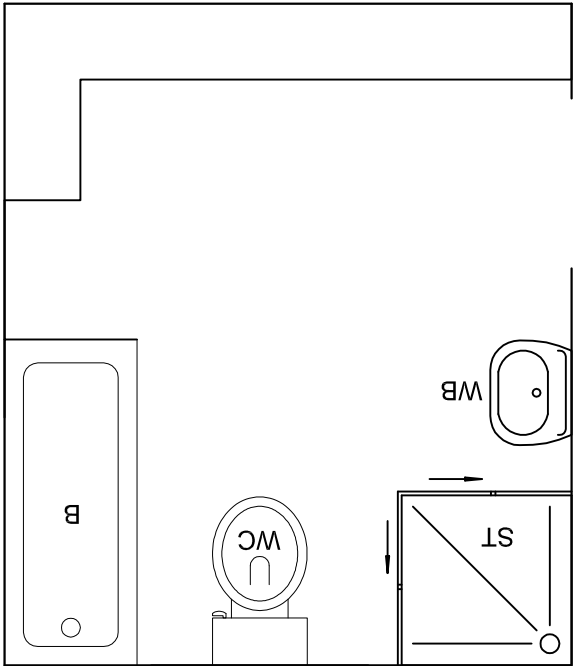
NAME
NAME







ANTWOORDBLAD 4



NAAM
NAAM





**Geggee:**

- 'n Skematiese vloerplan en 'n skematiese snitaansig van die buitelyste van die omtrek van 'n **voorgestelde nuwe badkamer** vas aan 'n huis, asook die posisie van al die toebehoere in die badkamer getoon as ware voorstellingsstekene
- 'n Deur- en vensterskedule
- 'n Afwerkingskedule
- Onvoltoide sketse van die fondaste besonderhede.
- 'n Antwoordblad op bladsy 6 wat 'n onvoltoide plan toon.

**Instruksie:**

- Gebruik antwoordblad 4 en die inligting op bladsy 5 om volgens 'n skaal van **1:40** die volgende aansigte te teken:
- Die voltoide vloerplan
- Die snitaansig op snyvlak A-A, volgens die gegewe spesifikasies hieronder:

**SPESIFIKASIES:**

DIE VLOERPLAN

**Voeg die volgende kenmerke by die vloerplan:**

- Die vermiste mure met arseringsbesonderhede
- Die vermiste deur- en venster besonderhede
- Die snyvlak. Benoem die snyvlak A-A
- Benoem die vloerplan en sluit die vloerwerking in.

'n SNITAANSIG

**Voeg die volgende kenmerke by die snitaansig:**

- Die volledige fondaste-, muur-, vlaklaag en vloerbladbesonderhede
- Die lateie bokant die deur en vensters
- Die deur- en volledige vensterbesonderhede
- ALLE nodige arsering
- Alle sanitêre toebehoere as **konvensies**
- Benoem die snitaansig:

SNITAANSIG A-A

**LET WEL:**

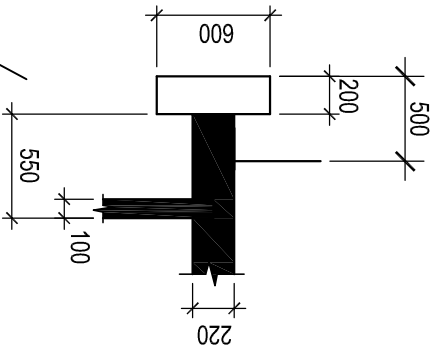
- ALLE substruktuurarsering mag in vryhand gedoen word.
- ALLE tekenwerk moet voldoen aan die riglyne vervat in **SABS 0143**.

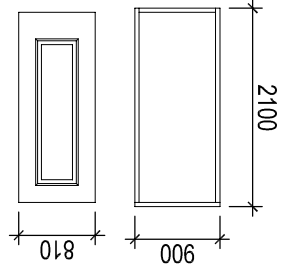
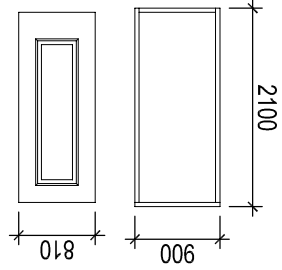
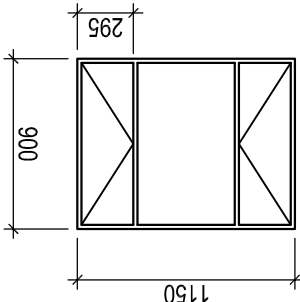
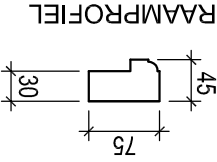
**TERMINOLOGIE**

*Skematiese diagram:* 'n diagram wat die hoofkenmerke of verhoudings sonder spesifieke besonderhede toon.

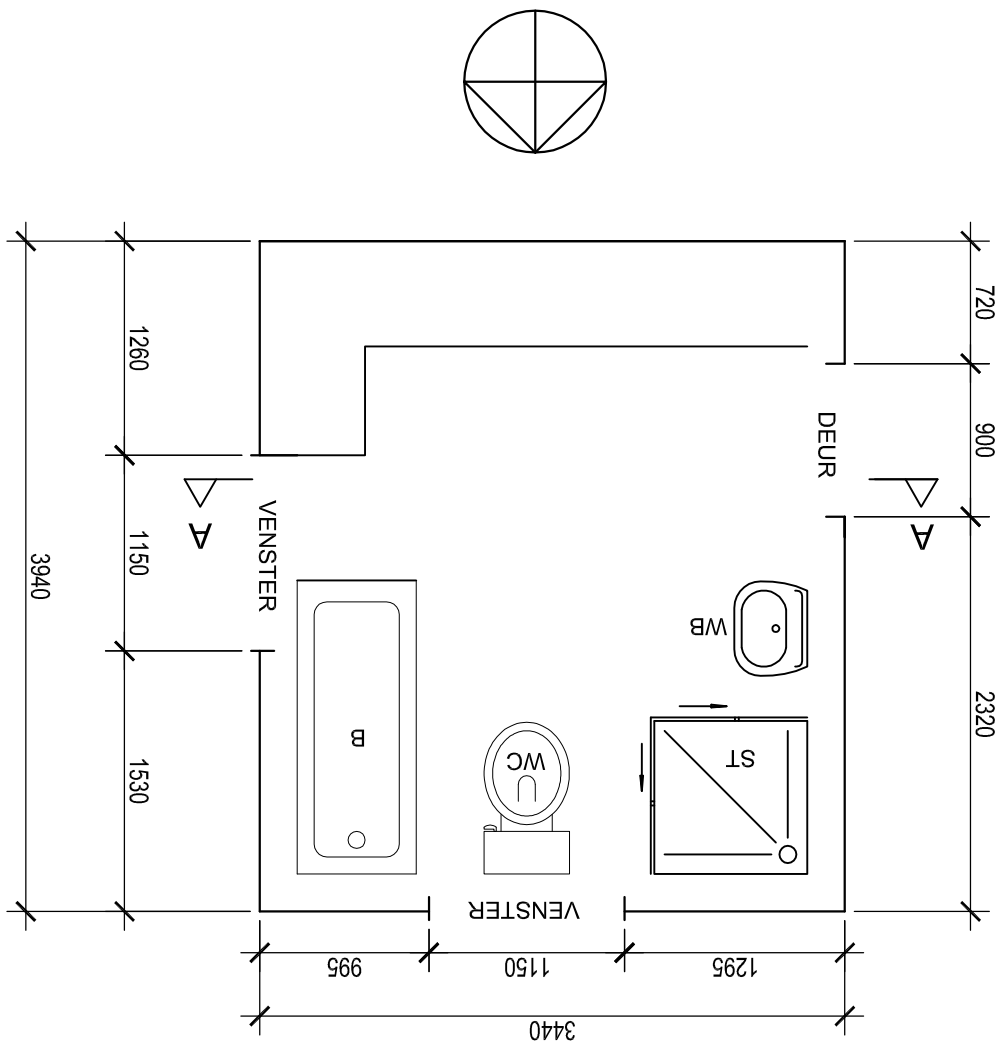
VRAAG 4: SIVIELE TEKENING

ONVOLLEDIGE FONDASIE-BESONDERHEDE VIR BUITEMURE



DEUR- EN VENSTERSKEDULE	
DEURRAAM 1 x STANDAARD HARDEHOUT	DEUR 1 x STANDAARD BINNE HOL
	
DEURRAAM 1 x STANDAARD HARDEHOUT	DEUR 1 x STANDAARD BINNE HOL
	
GLAS 3 mm HELDER GLAS	AFWERKINGSKEDULE
	
VLOER BADKAMER - TEËLS MURE PLEISTER EN VERF	AFWERKINGSKEDULE
	
YSTERWARE 1 PAAR 75 mm KOPER SKARNIERE en SKROEWE 1 TWEEKLAWERSLOT	

SKEMATIESE SNITAANSIG A-A

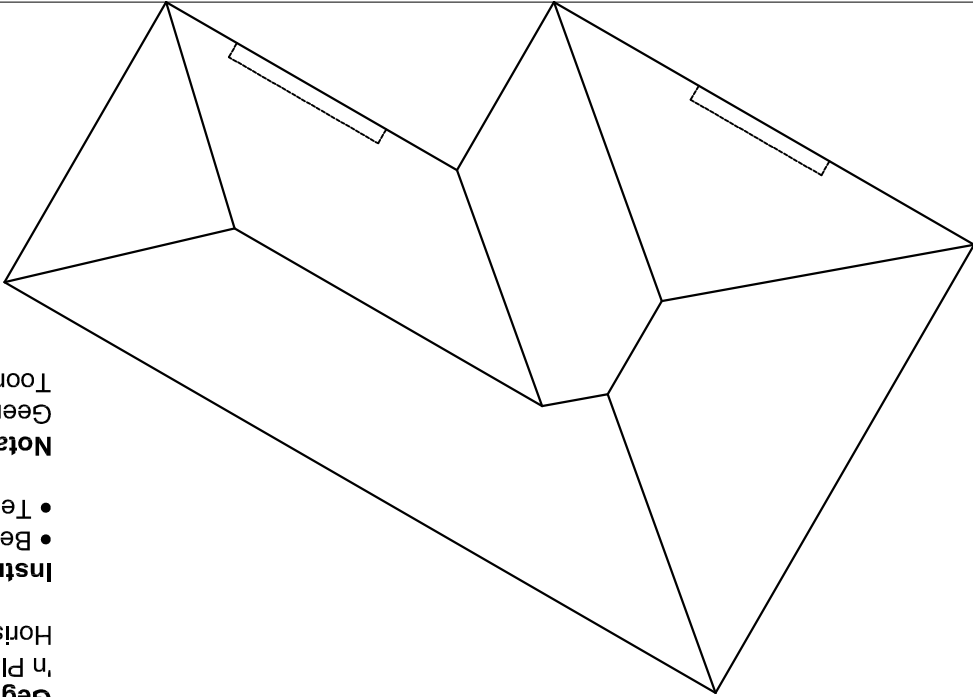








ASSESSERINGSKRITERIA			
Verdwynpunte	2	3	
Konstruksies	3	8	
Dak	8	5	
Mure	5	8	
Deur en venster	8	TOTAL	
	26		



**VRAAG 3: PERSPEKTIEF**

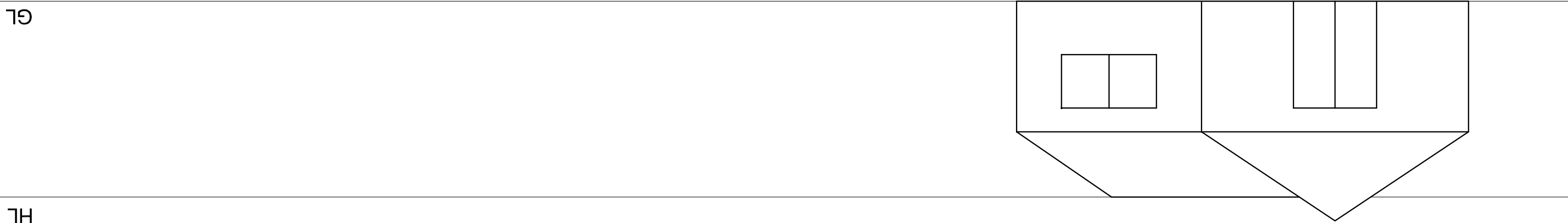
**Gegee:**  
'n Plan en aansig van 'n huis, sowel as die Prentlak (PV),  
Horisonlyn (HL), Grondlyn (GL) en Staanpunt (SP)

**Instruksie:**

- Bepaal die verdwynpunte en benoem dit.
- Teken die tweepuntperspektief-aansig van die huis.

**Notas:**  
Geen verborge besonderhede moet getoon word nie.  
Toon alle konstruksielyne.

**[26]**



SP

NAAM
NAAM



**VRAAG 2: DEURDRINGING EN ONTWIKKELING**

**Gedee:**

- Die onvoltooid boansig en vooransig van 'n hol reëlmatige seskantige prisma wat 'n hol reëlmatige vierkantige prisma indring.
- 'n Onvoltooid hulpaansig van die seskantige prisma.

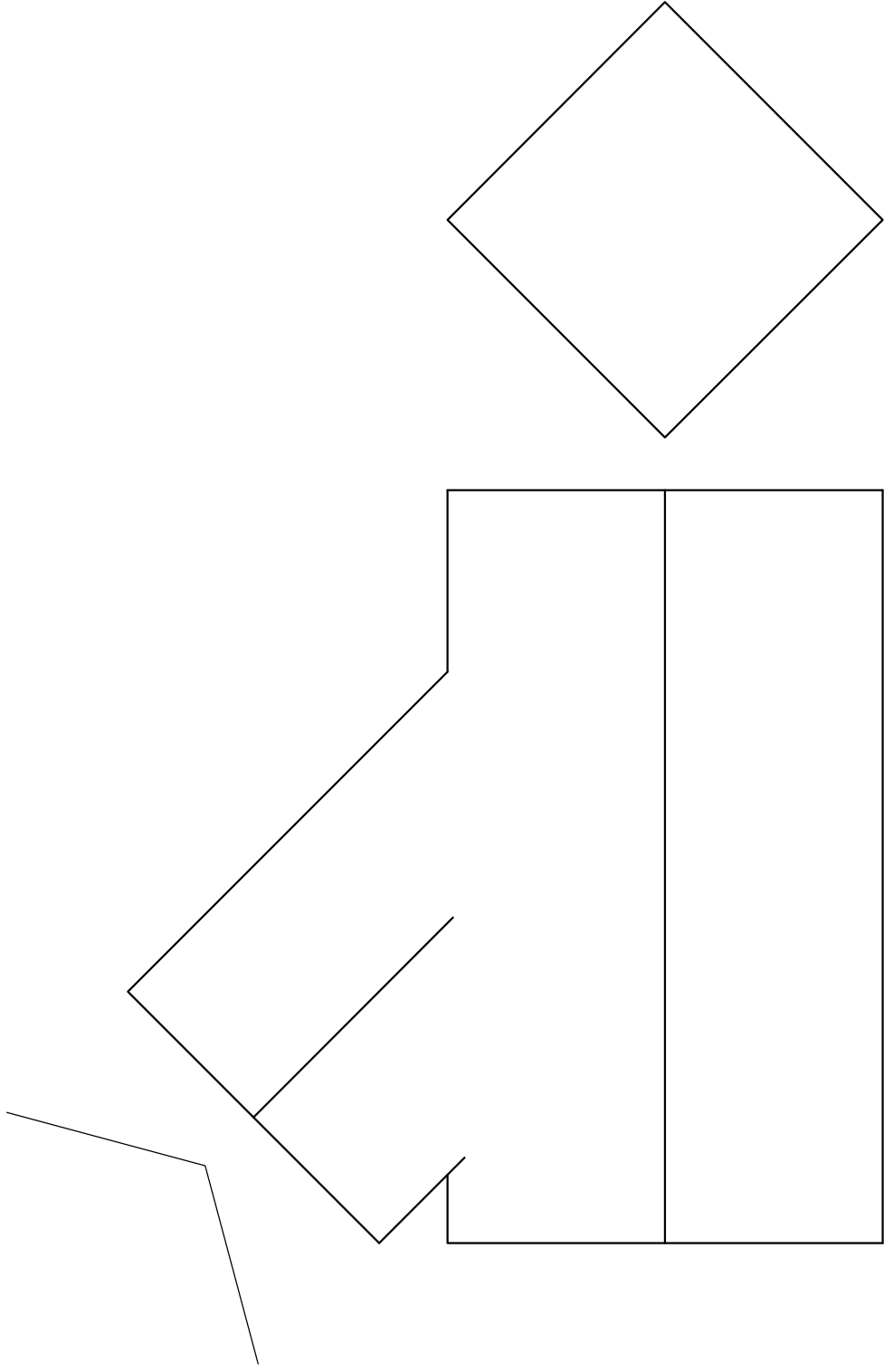
**Instruksies:**

- Voltooi die hulptaansig van die seskantige prisma.
- Voltooi die boaansig.
- Voltooi die vooraansig, waar die deurdringingskromme tussen die twee prisma's duidelik getoon word.
- Ontwikkel sleigs die sye van die vierkantige prisma wat die ware vorm van die gat gevorm is, toon.

**Nota:**

Die asse van die twee prisma's lê in dieselfde vertikale vlak. Toon alle konstruksies en projeksies.

[64]



ASSESSERINGSKRITERIA		
Hulpaanstig	2	
Voltooid boansig	5	
Deurdringingskromme	4	
Ontwikkeling	5	
Konstruksies	3	
TOTAAL	19	

NAM

NAAM

3


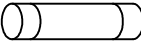







VRAAG 1.1: ANALITIES (ELEKTRIES)

**Gegee:**  
'n Tabel met name en illustrasies van elektriese komponente.  
**Insrukies:**  
Voltooi die tabel deur netjies die simbole van hierdie komponente in die voorsiede spasies te teken.

[5]

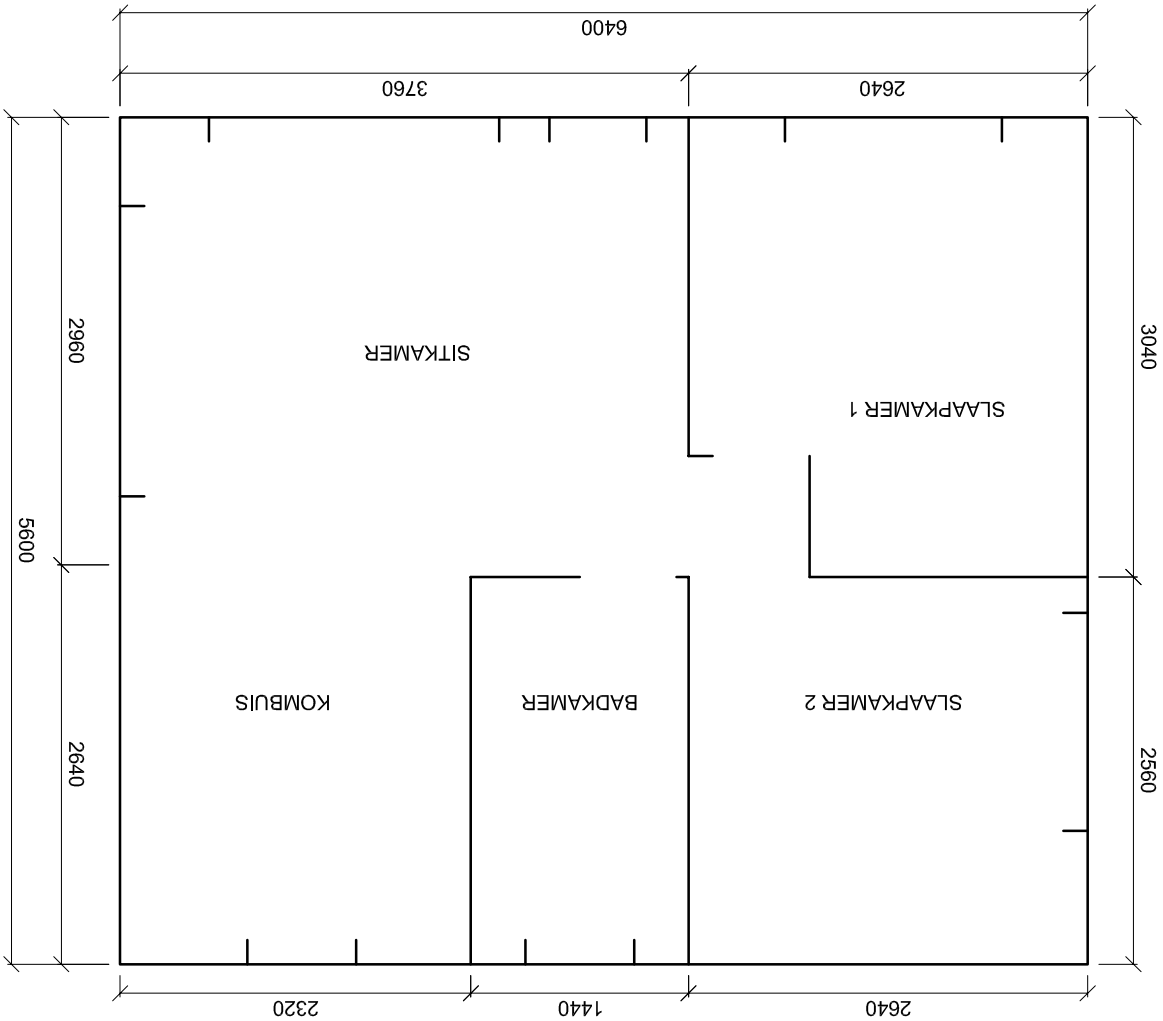
Naam	Komponent	Simbool
1) GLOEILAMP		(1)
2) SEKERING		(1)
3) SKAKELAAR		(1)
4) MOTOR		(1)
5) SEL		(1)

VRAAG 1.2: ANALITIES (AREA EN OMTREK)

**Gegee:**  
• 'n Skematiese vloerplan van 'n huis wat die mate van die vertrekke aandui.  
• 'n Tabel vir jou antwoorde.  
**Insrukies:**  
• Bepaal die gekombineerde vloerarea van die kombuis en voorkamer in m².  
• Bepaal die omtrek van die huis.

LW: Toon alle berekeninge

[5]







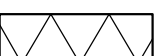
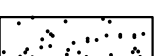


OMTREK	AREA	ANTWOORDE
(2)	(3)	

VRAAG 1.3: ANALITIES (SIVIEL SNITTE)

**Gegee:**  
• 'n Kolom met verskillende deursnee-aansigte wat in Siviële tekene voorkom.  
• 'n Tabel met name van snittipes en spasies vir u antwoorde.  
**Insrukies:**  
Voltooi die tabel deur slegs die korrekte letter van die snit langs die beskrywing van die snittipe te plaas.

[5]

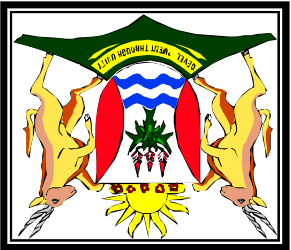
SNIT TIPE		ANTWOORDE	
1	BETON	1	
2	SIERSTEEN	1	
3	HARDEPYN	1	
4	VLAKLAAG	1	
5	ONVESTOORDE GROND	1	

DEURSNEE AANSIGTE	A	B	C	D	E	F	G
							

NAAM			
1.1	5		
1.2	5		
1.3	5		
TOTAAL	15		
NAAM			
NAAM			

2





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

NASIONALE  
SENIOR SERTIFIKAAT

GRAAD 11

INGENIEURSGRAFIKA EN -ONTWERP V1  
NOVEMBER 2012



Die vraestel bestaan uit 6 bladsye.

PUNTE: 100

TYD: 2 uur

Kopiereg voorbehou

INSTRUKSIES EN INLICHTING

1. Die vraestel bestaan uit VIER vrae.
2. Beantwoord ALLE vrae.
3. Alle tekene moet volgens skaal 1:1 geteken word, tensy anders vermeld.
4. Alle vrae moet op die gegewe antwoordvulle beantwoord word.
5. Alle antwoordvulle moet weer in nommervolgorde vasgeklam en ingelewer word, ongeag of die vraag beantwoord is of nie.
6. Sorgvuldige tydsbeplanning is nodig om alle vrae te beantwoord.
7. Drukskryf jou naam in die blokkie voorsien op elke antwoordvel.
8. Alle antwoorde moet akkuraat en netjies geteken word.
9. Besonderhede of afmetings wat uitgelaat is, moet in goeie verhouding beraam word.

SLEGS VIR AMPTELIKE GEBRUIK									
GEMODEREERDE PUNT					1	2	3	4	TOTAAL
					1	0	0		

VOLTOOI DIE VOLGENDE:
NAAM
NAAM
EKSAMENSENTRUM
EKSAMENSENTRUM