GAUTENG DEPARTMENT OF EDUCATION
GAUTENGSE DEPARTEMENT VAN ONDERWYS

SENIOR CERTIFICATE EXAMINATION
SENIORSERTIFIKAAT-EKSAMEN

POSSIBLE ANSWERS FOR / TECHNIKA (CIVIL) HG
MOONTLIKE ANTWOORDE VIR : *TECHNIKA (SIVIEL) HG*

QUESTION 1 / *VRAAG 1*

ANSWER SHEET HG 712-1/1(1) / *ANTWOORDBLAD*

QUESTION 2 / *VRAAG 2*

2.1

2.1.1 Moisture content in wood
Hoeveelheid vog in hout

2.1.2 Defects in the wood
Defekte in hout

2.1.3 Grading
Graad van hout

2.1.4 In which lengths available
Lengtes waarin hout beskikbaar is

2.1.5 Twisting
Buigbaarheid

One mark each
Een punt elk

2.2

2.2.1 Approximately 2 metres from the municipal connection manhole
Ongeveer 2 meter vanaf die munisipale mangat en aansluiting

2.2.2 Every 25 metres on a long sewer line
Elke 25 meter op 'n lang riool

2.2.3 At direction changes
By rigtingveranderings

2.2.4 At level changes where ramps are required
By vlakveranderings waar van daalpype gebruik gemaak word

2.2.5 When the slope changes
Wanneer die helling verander

2.2.6 Where the sewer goes beneath a building
Waar riole onder geboue deurgaan

Any four, one mark each
Enige vier, een punt elk

2.3

2.3.1 The area must be fenced in.
Die gebied moet omhein wees.

2.3.2 The area must be kept clean.
Die gebied moet skoon wees.

2.3.3 The building area must be lit up at night.
Die bougebied moet snags verlig wees.

2.3.4 Walkways must be erected under cranes and building work on sidewalks.
Loopgange moet aangebring word onder hyskrane en bouwerk op sypaadjies.

2.3.5 A hard hat and protective clothing must be worn.
'n Hardehoed en beskermingsklere moet gedra word.

2.3.6 Sufficient and unambiguous notices must be put up on the building site.
Voldoende kennisgewings moet duidelik op die perseel aangebring word.

2.3.7 No unskilled labourers or unauthorised persons are allowed on the site.
Ongemagtigde persone en onopgeleide werkers mag nie die perseel betree nie.

2.3.8 Where dangerous excavations are in progress, they must be effectively enclosed.
Waar gevaarlike uitgrawings op die terrein plaasvind, moet dit omhein wees.

2.3.9 Scaffolding in use must stand firm and be kept clean.
Steiers wat gebruik word, moet stewig staan en skoon gehou word.

2.3.10 Material, which is not immediately used, must be neatly stored.
Materiaal wat nie dadelik gebruik word nie moet netjies geberg word.

2.3.11 Vehicles moving around on the site must be kept to a minimum.
Voertuie wat op die terrein beweeg, moet tot 'n minimum beperk word.

Any ten, two marks each
Enige tien, twee punte elk

2.4

2.4.1 Situation of the stand
Ligging van die erf

2.4.2 Slope of the stand
Helling van die erf

2.4.3 Are municipal services available?
Is munisipale dienste beskikbaar?

2.4.4 Air pollution in the area
Lugbesoedeling in die omgewing

2.4.5 View
Uitsig

2.4.6 Main roads and access roads
Hoofpaaie en toegangsweë

2.4.7 Noise
Geraas

2.4.8 Schools in the area
Skole in die omgewing

Any four, one mark each
Enige vier, een punt elk

2.5

2.5.1 To measure horizontal heights
Om horisontale afstande te meet

2.5.2 To measure vertical heights
Om vertikale hoogtes te meet

2.5.3 To measure horizontal angles
Om horisontale hoeke te meet

Two marks each
Twee punte elk

2.6

2.6.1 All walls, windows and doors within a radius of six metres from any sanitary fitment must be shown.
Alle mure, vensters en deure binne 'n radius van ses meter vanaf enige sanitêre muurmeublemente moet getoon word.

2.6.2 All sanitary fitments
Alle sanitêre muurmeublemente

2.6.3 The fall and invert depths of the drain
Die val en bodemdieptes van die riool

2.6.4 All sanitary pipes and their sizes
Alle sanitêre pype en hulle groottes

2.6.5 All access openings such as manholes, cleaning eyes (rodding eyes) and inspection eyes
Alle toegangsopeninge soos mangate, steeloë en inspeksieoë

2.6.6 A site plan indicating the dwelling, outbuildings and the proposed drain layout.
'n Terreinplan waarop die huis, buitegeboue en die voorgenome rioolaanleg aangedui is.

2.6.7 Sectional views of every section of the drain, which must also show the connections to the various fitments
Snitaansigte van elke deel van die rioleringstelsel, wat ook die aansluitings met die muurmeublemente moet toon.

Any five, one mark each
Enige vyf, een punt elk

2.7

2.7.1 Concrete is very strong and can resist a very high compressive stress.
Beton is geweldig sterk en kan onder samedrukking 'n baie hoë drukkrag weerstaan.

2.7.2 Its tensile strength is rather poor, and should be reinforced with steel to resist the tensile stress.
Onder sametrekking breek dit egter maklik en moet met staal bewapen word om die trekspanning te weerstaan.

2.7.3 Waterproof
Waterdig

2.7.4 Durability
Duursaam

2.7.5 Resistance to weathering
Nie-verwerend

2.7.6 Resistance to shocks
Skokbestand

Any five, one mark each
Enige vyf, een punt elk

2.8

2.8.1 Cleat
Klos

2.8.2 Needle
Naald

2.8.3 Wall plate
Muurplaat

2.8.4 Raking shore
Leunskoor

2.8.5 Wall hook
Muurhaak

Any four, one mark each
Enige vier, een punt elk

2.9

2.9.1 Glass panes
Ruite

2.9.2 Mirrors
Spieëls

2.9.3 Decorative wall panels
Dekoratiewe muurpanele

2.9.4 Light panels
Ligpanele

2.9.5 Glass bricks
Glasstene

2.9.6 Lights and lampshades
Ligte en ligskerms

Any four, one mark each
Enige vier, een punt elk

2.10

2.10.1 It must be capable of achieving the tensile strength without undue strain.
Dit moet in staat wees om die trekspanning te weerstaan sonder enige noemenswaardige vervorming.

2.10.2 It must be of a material that can be easily bent to any required shape.
Dit moet van 'n materiaal wees wat in die nodige vorm gebuig kan word.

2.10.3 Its surface must be capable of developing an adequate bond between the concrete and the reinforcement to ensure that the required design tensile strength is obtained.
Die oppervlak van die bewapening moet in staat wees om 'n verband met die beton te verseker sodat die ontwerp-trekspanning verkry kan word.

2.10.4 A similar coefficient of thermal expansion is required to prevent unwanted stresses being developed within the member due to temperature changes.
Dit moet 'n gelyksoortige warmte-uitsettingskoeffisiënt hê om te verhoed dat onnodige spanning deur temperatuurverandering veroorsaak word.

2.10.5 Availability at a reasonable cost which must be acceptable to the overall design concept.
Dit moet vryelik in die handel teen billike pryse, beskikbaar wees asook aanpasbaar by die ontwerp.

Any three, one mark each
Enige drie, een punt elk

QUESTION 3 / *VRAAG 3*

3.1 **CALCULATE BENDING MOMENTS**
BEREKEN BUIGMOMENTE

BMA = 0

BMB = 0

BMC = - (2 kN x 3 m) – (9 kN x 1.5 m)
= - 6 kN/m – 13.5 kN/m
= **- 19.5 kN/m**

BMD = - (2 kN x 5 m) – (6 kN x 2 m) – (15 kN x 2.5)
= - 10 kN/m – 12 kN/m – 37 kN/m
= **- 59.5 kN/m**

BME = - (2 kN x 8 m) – (6 kN x 5 m) – (4 kN x 3 m) – (15 kN x 5.5 m)
- 16 kN/m – 30 kN/m – 12 kN/m – 82.5 kN/m
= **- 140 kN/m**

BMF = - (2 kN x 11 m) – (6 kN x 8 m) – (4 kn x 6 m) – (3 kN x 3 m) –
(15 kN x 8.5 m)
= - 22 kN/m – 48 kN/m – 24 kN/m – 9 kN/m – 127.5 kN/m
= **- 230 . kN/m**

CALCULATE SHEAR FORCES
BEREKEN SKUIFKRAGTE

SKA / SFA = 0 kN

SKB- / SFB- = 0 kN

SKB+ / SFB+ = - 2 kN

SKC- / SFC- = - 2 kN – 9 kN
= - 11 kN

SKC+ / SFC+ = - 2 kN – 9 kN – 6 kN
= - 17 kN

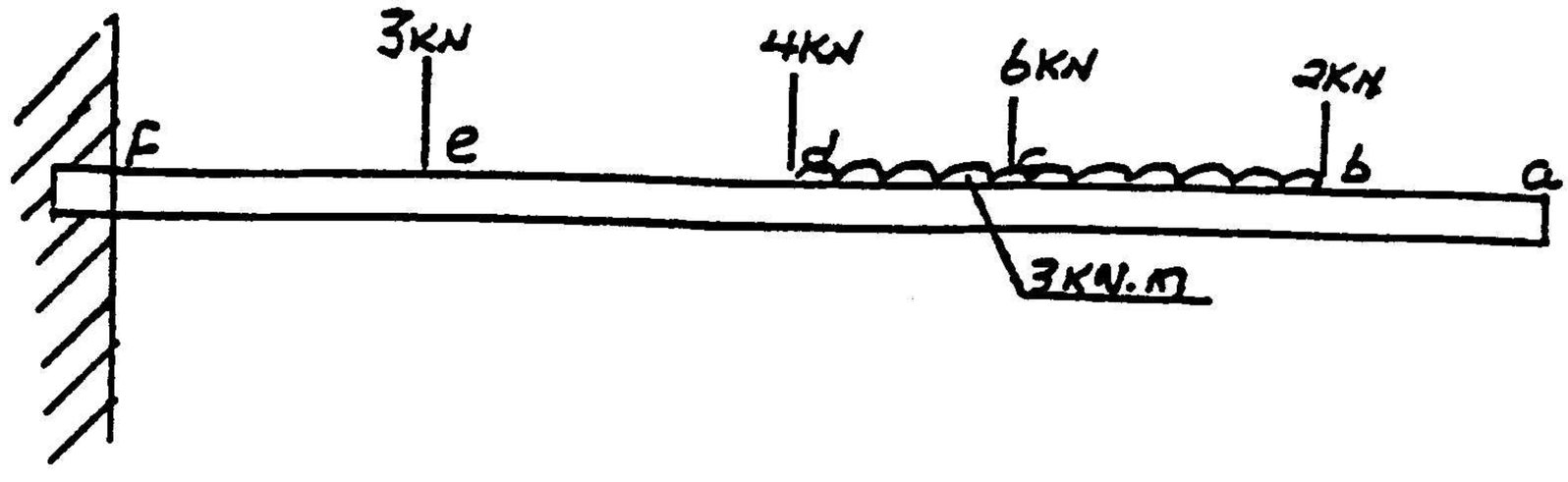
SKD- / SFD- = - 2 kN – 9 kn – 6 kN – 6 kN
= - 23 kN

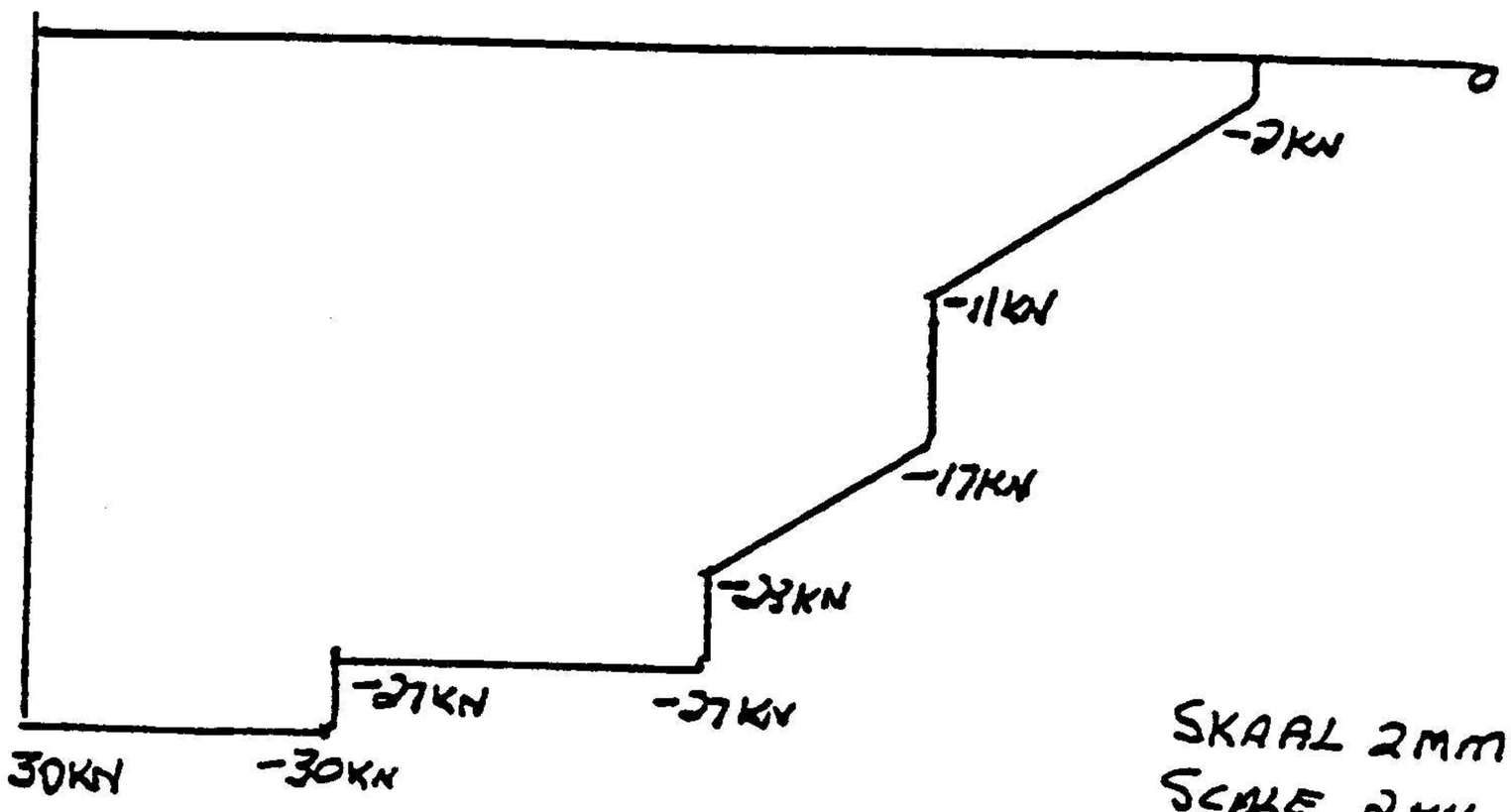
SKD+ / SFD+ = - 2 kN – 9 kN – 6 kN – 6 kN – 4 kN
= - 27 kN

SKE- / SFE- = 2 kN – 9 Kn – 6 kN – 6 kN – 4 kN
= - 27 kN

SKE+ / SFE+ = - 2 kN – 9 kN – 6 kN – 6 kN – 4 Kn – 3 kN
= - 30 kN

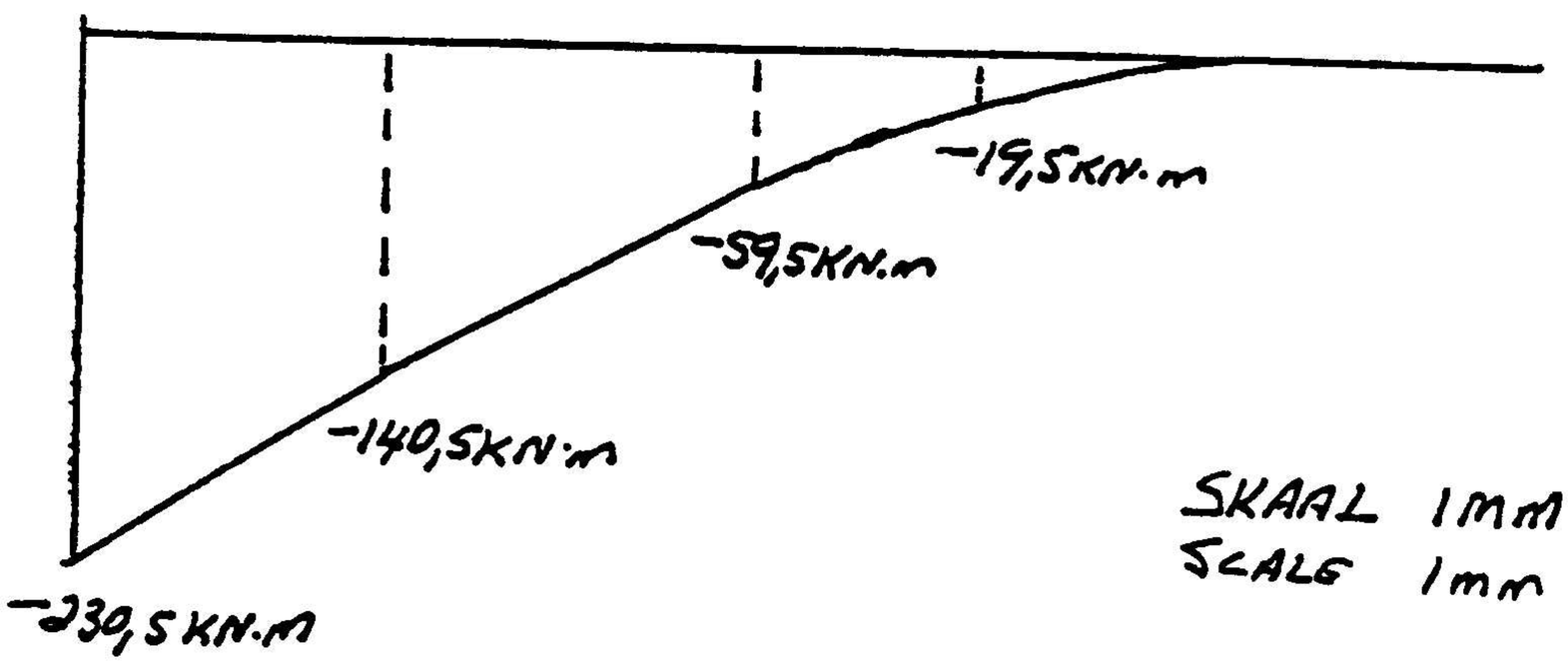
SKF / SFF = - 2 kN – 9 kN – 6 kN – 6 kn – 4 kn – 3 kN
= - 30 kN





SKAAL 2MM = 1KN
SCALE 2MM = 1KN

SKUIFKRAG
SHEAR FORCES

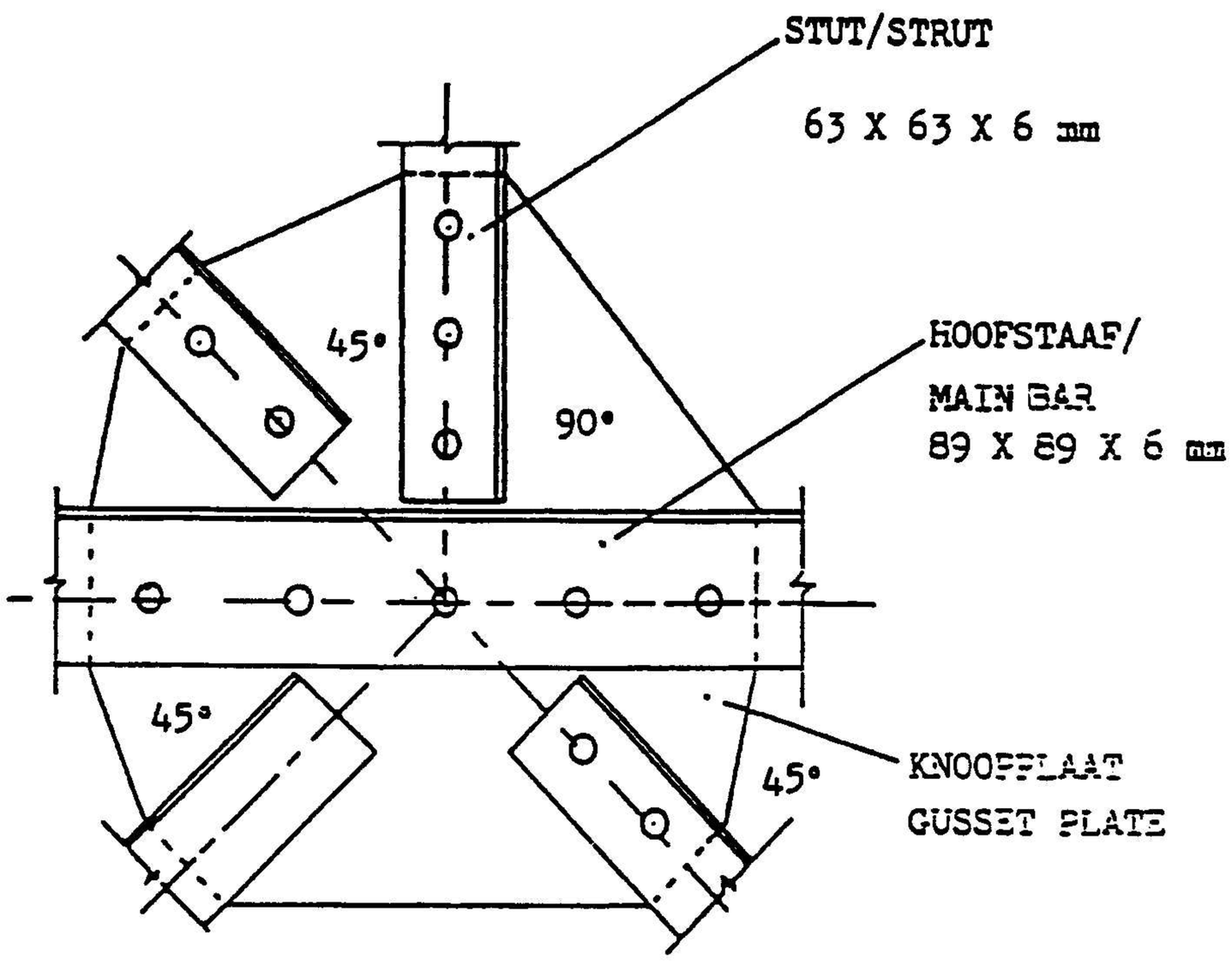


SKAAL 1MM = 5KN.M.
SCALE 1MM = 5KN.M

BUIGMOMENT
BENDING MOMENTS

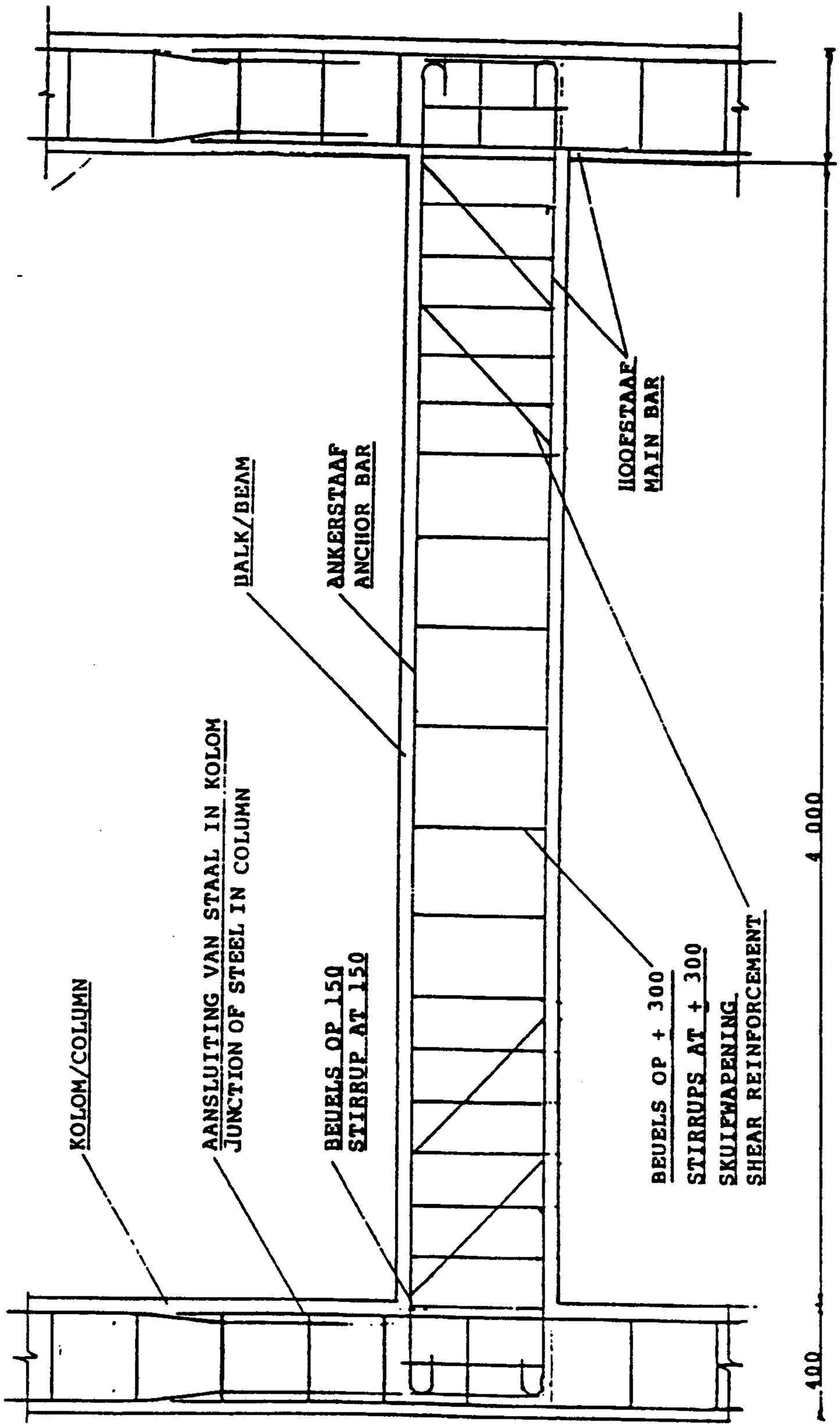
3.2 **GUSSET PLATE** / ***KNOOPPLAAT***

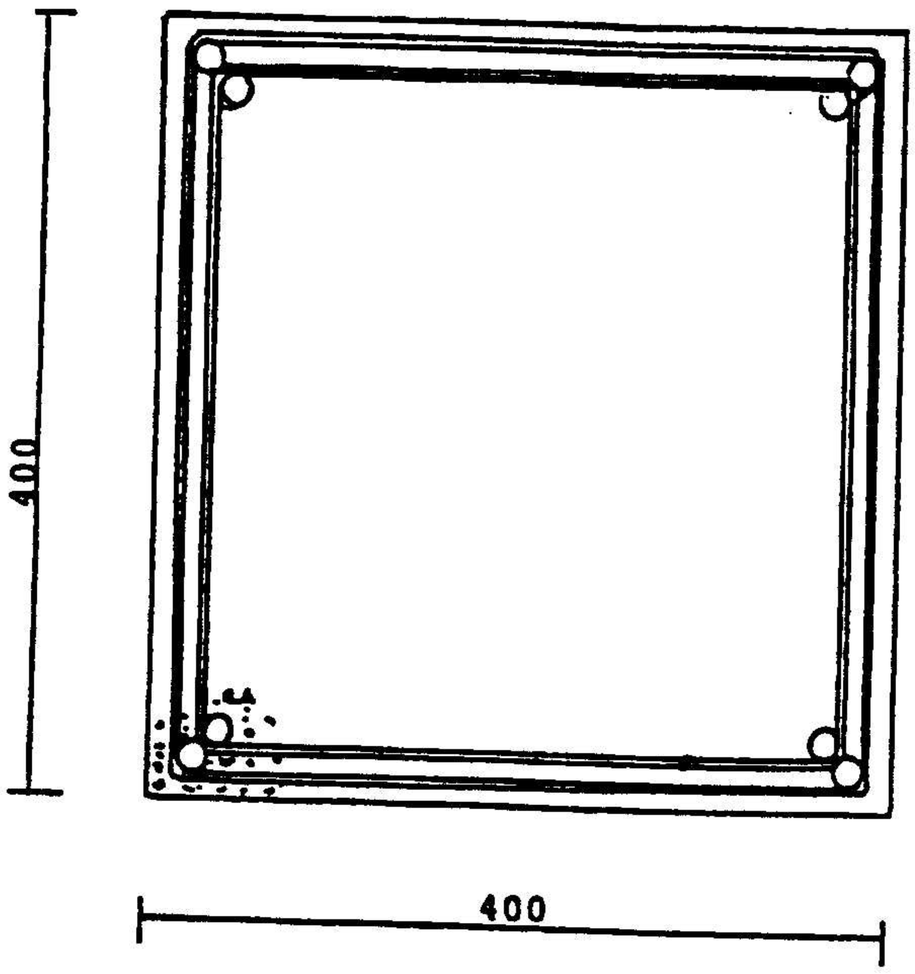
Seam Lap	3	*Naatrand*
Pitch of main beam	2	*Boutsteek hoofstaaf*
Pitch of struts	2	*Boutsteek stutte*
Standard back mark of main beam	2	*Kontramerk hoofstang*
Standard back mark of struts	2	*Kontramerk stutte*
Gusset plate	3	*Knoopplaat*
Dimensions	2	*Afmetings*
Scale	2	*Skaal*
Neatness and linework	2	*Netheid en lynwerk*
	20	



QUESTION 4 / *VRAAG 4*

4.1	**Vertical section through columns and beam**		***Vertikale snitte deur kolomme en balk***
	Vertical section	4	*Vertikale snit*
	Main bars correctly placed	3	*Hoofstawe korrek geplaas*
	Anchor bars correctly placed	3	*Ankerstawe korrek geplaas*
	Shear force bars correctly placed	3	*Skuifstawe korrek geplaas*
	18 Stirrups for shear force correctly placed on 150 mm heart to heart	9	*18 Beuels vir skuifwapening korrek 150 mm hart op hart*
	5 Stirrups on 300 mm heart to heart	2	*5 Beuels 300 mm hart op hart*
	Main reinforcement for columns	4	*Hoofwapening vir kolomme*
	Joining of the main reinforcement correctly shown	6	*Hegting van hoofwapening korrek getoon*
	18 Stirrups in position for columns (9 per column)	8	*18 Beuels in posisie vir kolomme (9 per kolom)*
	Labelling	2	*Byskrifte*
	Dimensioning	2	*Afmetings*
	Neatness	2	*Netheid*
	Linework	2	*Lynwerk*
		50	
4.2	**Horizontal section through column**		**Horisontale snit deur kolom**
	Horizontal section	2	Horisontale snit
	Main reinforcing shown	2	Hoofwapening getoon
	Main reinforcing at joint shown	2	Hoofwapening by hegting getoon
	Two sets of stirrups shown	2	Twee stelle beuels in posisie
	Scale	1	Skaal
	Neatness and linework	1	Netheid en lynwerk
		10	


KOLOM/COLUMN
AANSLUITING VAN STAAL IN KOLOM
JUNCTION OF STEEL IN COLUMN
BEUELS OP 150
STIRRUP AT 150
BEUELS OP + 300
STIRRUPS AT + 300
SKUIFWAPENING
SHEAR REINFORCEMENT
BALK/BEAM
ANKERSTAAF
ANCHOR BAR
HOOFSTAAF
MAIN BAR
SKAAL/SCALE 1:20
4 000
100



SKAAL/SCALE 1:5

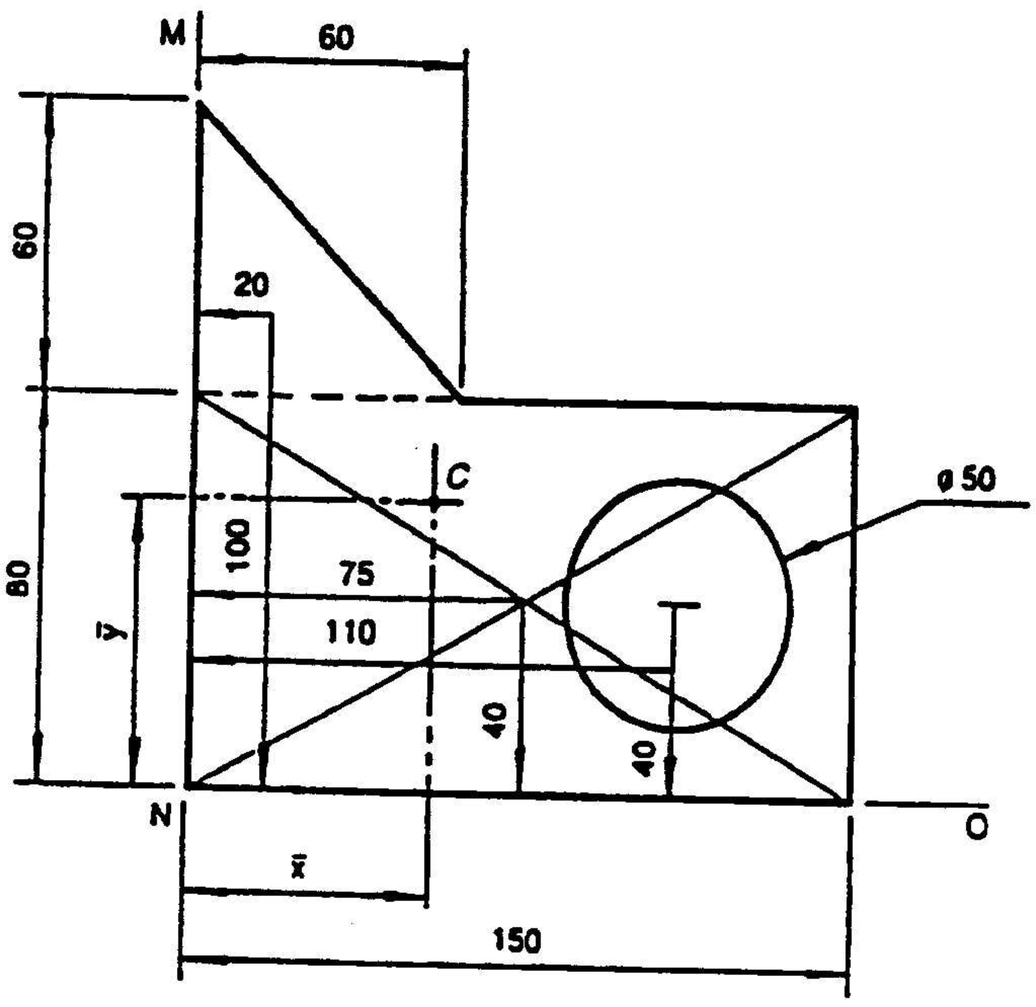
QUESTION 5 / *VRAAG 5*

SOUTH ELEVATION		SUID AANSIG
Ridge beam height	2	Nokhoogtes
Roof height	2	Dakhoogte
Substructure	2	Onderbou
Superstructure	2	Bobou
Window placing	3	Venster plasing
Window openers	2	Venster oopmakers
Windowsills	2	Vensterbanke
Downpipes	2	Afleipype
Gutter	2	Geut
Fascia board	2	Fassieplank
Roof construction	5	Dakkonstruksie
Overhang	2	Oorhang
Linework	2	Lynwerk
Neatness	2	Netheid
Scale	2	Skaal
	34	

EAST ELEVATIONN		**OOS AANSIG**
Roof design	4	Dakontwerp
Ridging	2	Nokplaat
Fascia board	2	Fassie plank
Gutter	2	Geut
Downpipe	2	Afleipyp
Substructure	2	Onderbou
Superstructure	2	Bobou
Neatness	4	Netheid
Linework	2	Lynwerk
Scale	2	Skaal
	24	

QUESTION 6 / *VRAAG 6*

6.1



Area van soliede reghoek = 150 mm x 80 mm
= 12 000 mm

Area van driehoek = ½ x 60 mm x 60 mm
= 1 800 mm

Area van sirkel = $\frac{3.142 \times 50}{4}$
= 1 963,495

Take moments about NO
Neem momente om NO

$(12\,000 \text{ mm} + 1\,800 \text{ mm} - 1\,963{,}495) \times \bar{x}$ = $(12\,000 \times 40) + (1\,800 \times 100) - (1\,963{,}495 \times 40)$

$11\,836{,}505 \times \bar{x}$ = $480\,000 + 180\,000 - 78\,539{,}8$

$$\bar{x} = \frac{581460{,}2}{11836{,}505}$$

$\bar{x}$ = 49,124 mm

(13)

Take moments about NO
Neem momente om NO

$(12\,000 + 1\,800 - 1\,963{,}495) \times \bar{y}$ = $(12\,000 \times 45) + (1\,800 \times 20) - (1\,963{,}495 \times 1100)$

$11\,836{,}505 \times \bar{y}$ = $900\,000 + 36\,000 - 215$

$$\bar{y} = \frac{720\ 015{,}55}{11\,836{,}505}$$

$\bar{y}$ = 60,83 mm

(7)

Marks as shown
Punte soos aangedui

6.2

6.2.1 Smooth off the top of the cone and step off the foot piece.
Skraap die bokant van die keël gelyk af en verwyder jou voete van die staalplaat.

6.2.2 Slowly and carefully lift the cone.
Lig die keël stadig en versigtig op.

6.2.3 Carefully turn over the slump test cone and place it next to the cast concrete.
Draai die saktoetsapparaat versigtig om en plaas langs die gegote beton.

6.2.4 Place the temping rod on the slump cone and allow one end above the concrete.
Plaas die stampblok bo-op die saktoetskeël sodat een ent bokant die beton is.

6.2.5 Measure the distance between the bottom of the temping rod and the centre of the top of the concrete to the nearest 5 mm.
Meet die afstand tussen die onderkant van die stampblok en die middelpunt van die bo-kant van die beton tot die naaste 5 mm.

6.2.6 Repeat this test if you do not obtain a normal drop.
Herhaal hierdie toets as jy nie normale sakking verkry nie. (10)

6.3 Mass
The mass of an object is the amount of matter it consists of.

Massa
Die massa van 'n voorwerp is die hoeveelheid materie waaruit dit bestaan.

Weight
This is the force by which the object is attracted to the centre of the earth.

Gewig
Dit is die krag waarmee die voorwerp na die aarde se middelpunt aangetrek word. (2)

6.4 Load is the external force applied to matter.
Belasting is die eksterne krag wat op materie uitgeoefen word. (2)

6.5 Strain is the internal force present in material when it resists an external force of pressure.
Spanning is die eksterne krag wat in materiaal teenwoordig is wanneer dit weerstand bied teen 'n eksterne drukkrag. (2)

6.6 Deformation is the amount by which a rod will shorten or become longer when an external force is applied to it.
Vervorming is die hoeveelheid waarmee 'n staaf korter of langer word sodra 'n eksterne krag daarop uitgevoer word. (2)

6.7 This is the number of times the maximum stress is reduced in order to obtain a safe stress.
Dit is die aantal kere waarmee die maksimum spanning verminder word, sodat 'n veilige spanning verkry kan word. (2)

6.8 $$\text{Safe stress} = \frac{\text{Maximum stress}}{\text{Safety factor}}$$

$$\text{Maximum stress} = \text{Safe stress} \times \text{safety factor}$$

$$\text{Veilige spanning} = \frac{\text{Maksimum spanning}}{\text{Veiligheidsfaktor}}$$

$$\text{Maksimum spanning} = \text{Veilige spanning} \times \text{Veiligheidsfaktor}$$

Marks as shown
Punte soos aangedui

6.9

GIVEN:	***GEGEE:***
Original length: 500 mm	*Aanvanklike lengte: 500 mm*
Load: 33 kN	*Belasting: 33 kN*
Change in length: 0,2 mm	*Verlenging: 0,2 mm*
Staaf diameter: 20 mm	*Rod diameter: 20 mm*

DETERMINE:

Young's modulus

$$E = \frac{\text{Stress}}{\text{Change in length}}$$

Determine strain

$$\text{Strain} = \frac{\text{Load}}{\text{Sectional area}}$$

GEVRA:

Young se modulus

$$E = \frac{\textit{Spanning}}{\textit{Vormverandering}}$$

Bereken spanning

$$\textit{Spanning} = \frac{\textit{Belasting}}{\textit{Deursnee oppv.}}$$

$$= \frac{33\ \text{kN}}{\frac{\pi\ d^2}{4}}$$

$$= \frac{33\ \text{kN} \times 10^3\ \text{N.m}}{\frac{3{,}14}{4} \times \frac{20 \times 20}{10^6}}$$

$$= \frac{33\,000 \times 4 \times 10^6}{3{,}14 \times 20 \times 20}$$

$$= 105 \times 10^6\ \text{Pa}$$

Determine change in form

$$\text{Change in form} = \frac{\text{Deformation}}{\text{Original length}}$$

Bereken vormverandering

$$\textit{Vormverandering} = \frac{\text{Vervorming}}{\text{Aanvanklike lengte}}$$

$$= \frac{0{,}2}{500}$$

$$= 0{,}0004$$

Determine Young's modulus

$$\text{Young's modulus} = \frac{\text{Strain}}{\text{Deformation}}$$

Bereken Young se modulus

$$\textit{Young se modulus} = \frac{\text{Spanning}}{\text{Vormverandering}}$$

$$= \frac{105 \times 10^6}{0{,}0004}$$

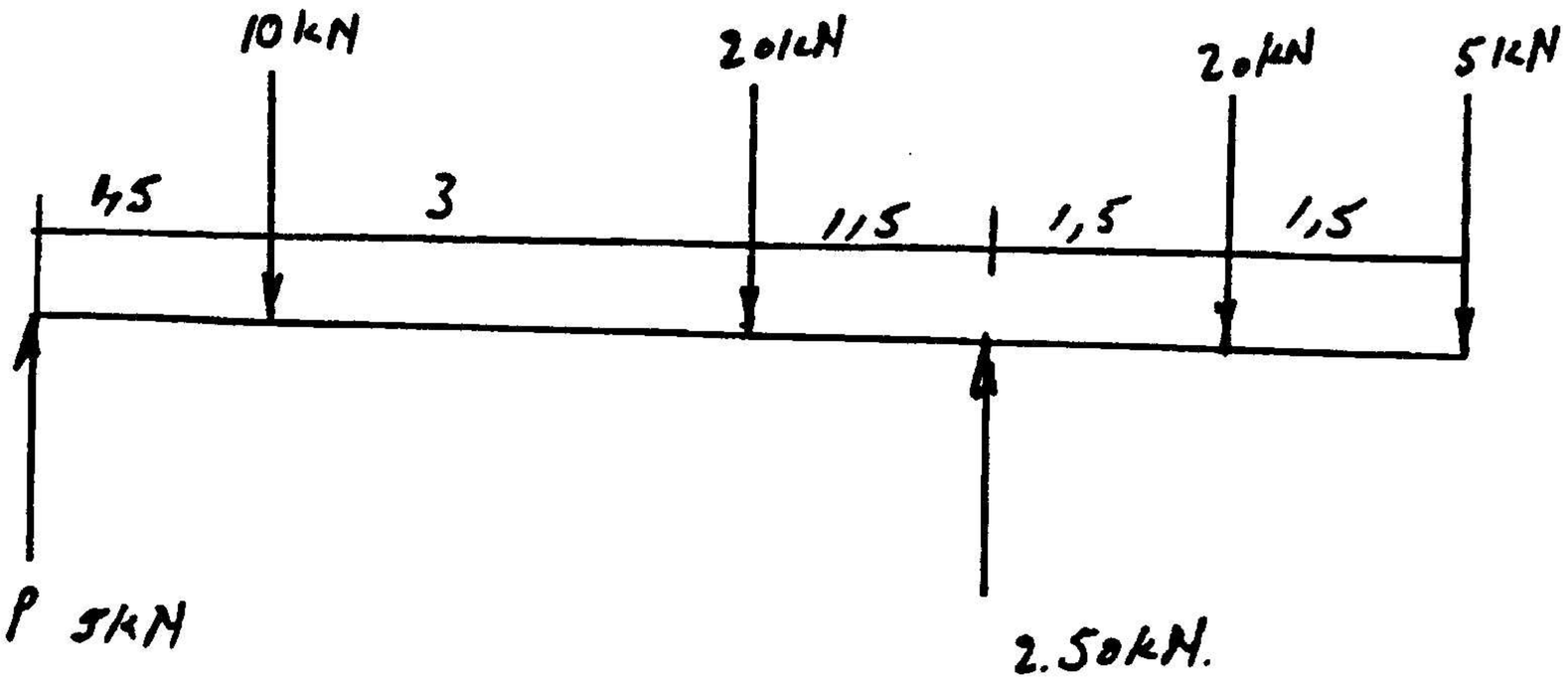
$$= 262 \times 10^9\ \text{Pa}$$

or / *of*

262 Gpa

Marks as shown
Punte soos aangedui

QUESTION 7 / *VRAAG 7*



Reactions at supports — Reaksies by die steunpunte
Calculate P — Bereken P
Take moments about Q — Neem momente om Q

R.O.M. = L.O.M.

$(P \times 6) + (1.5 \times 20) + (3 \times 5) = (1.5 \times 20) + 4.5 \times 10)$

$6P = 30 + 45 - 30 - 14$

$6P = 75 - 45$

$P = \frac{30}{6}$

$P =$ **5 kN**

Calculate Q — Bereken Q
Take moments about P — Neem momente om P

R.O.M. = L.O.M.

$6 \times Q = (1.5 \times 10) + (4.5 \times 20) + (7.5 \times 20) + (9 \times 5)$

$6Q = 15 + 90 + 150 + 45$

$Q = \frac{300}{6}$

$Q =$ **50 kN**

TEST / *TOETS*

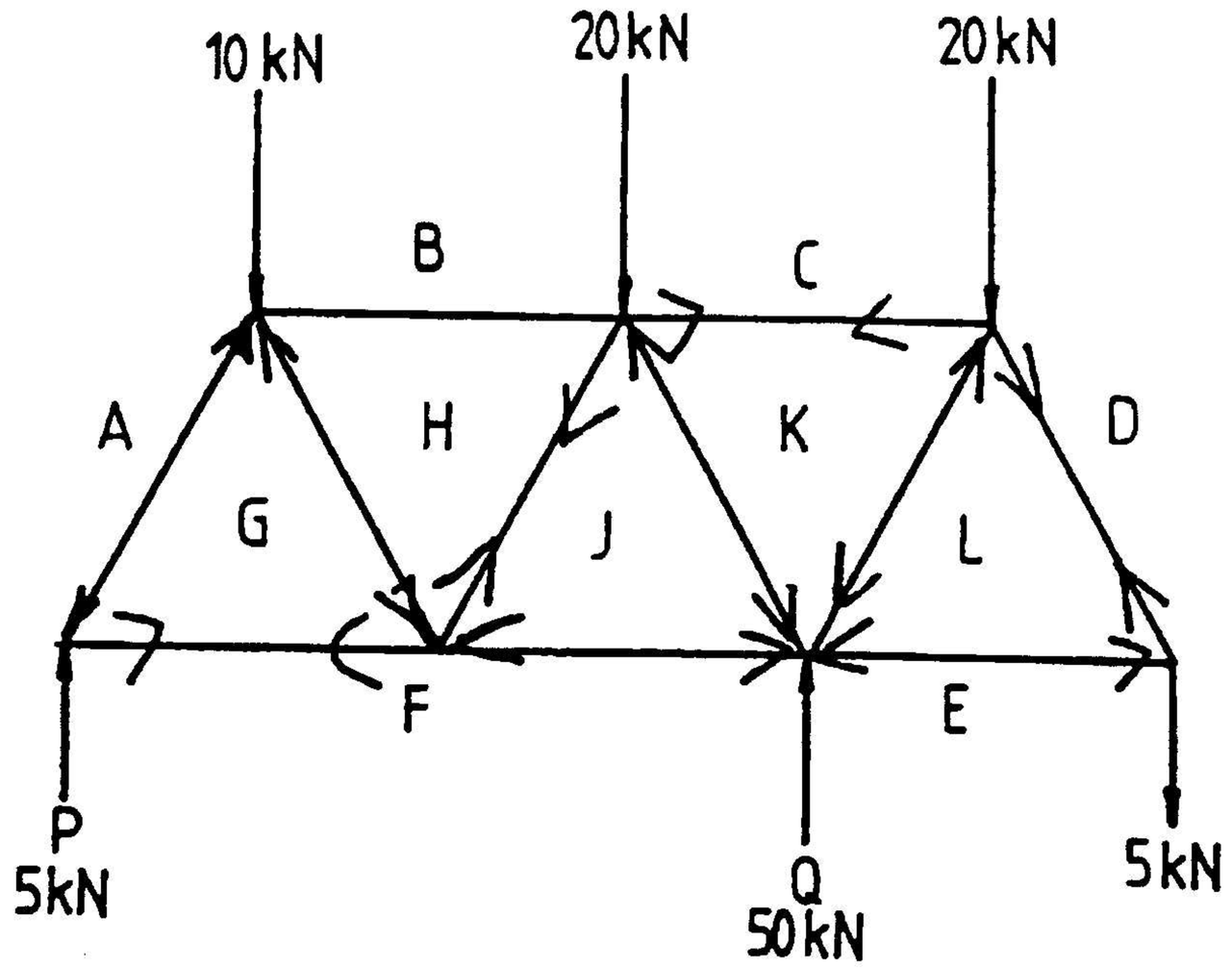
Opwaartse kragte = Afwaartse kragte

50 kN + 5 kN = 10 kN + 20 kN + 20 kN = 5 kN

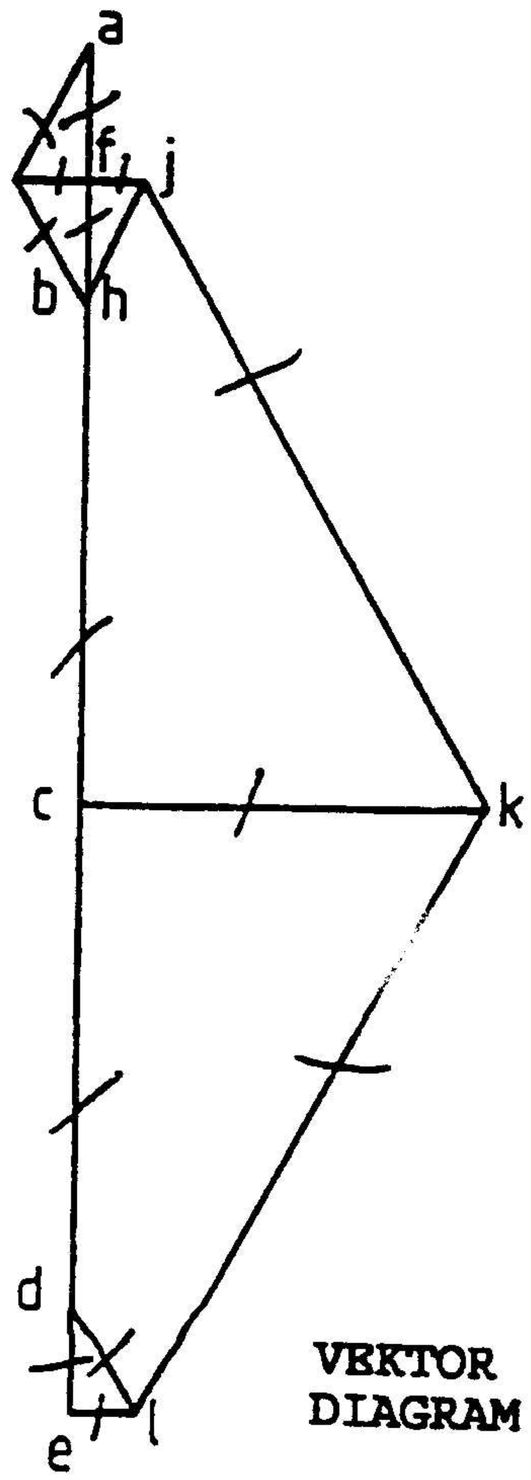
55 kN = 55 kN

Marks as shown
Punte soos aangedui

MEMBER ONDERDEEL	NATURE AARD	MAGNITUDE GROOTTE
AG	Strut / *Stut*	5.8 kN
BH	---	---
CK	Tie / *Stang*	17.3 kN
DL	Tie / *Stang*	5.8 kN
EL	Strut / *Stut*	2.9 kN
FG	Tie / *Stang*	2.9 kN
FJ	Strut / *Stut*	2.9 kN
GH	Strut / *Stut*	5.8 kN
HJ	Tie / *Stang*	5.8 kN
JK	Strut / *Stut*	29 kN
KL	Strut / *Stut*	29 kN



RUIMTE DIAGRAM SKAAL 1:100



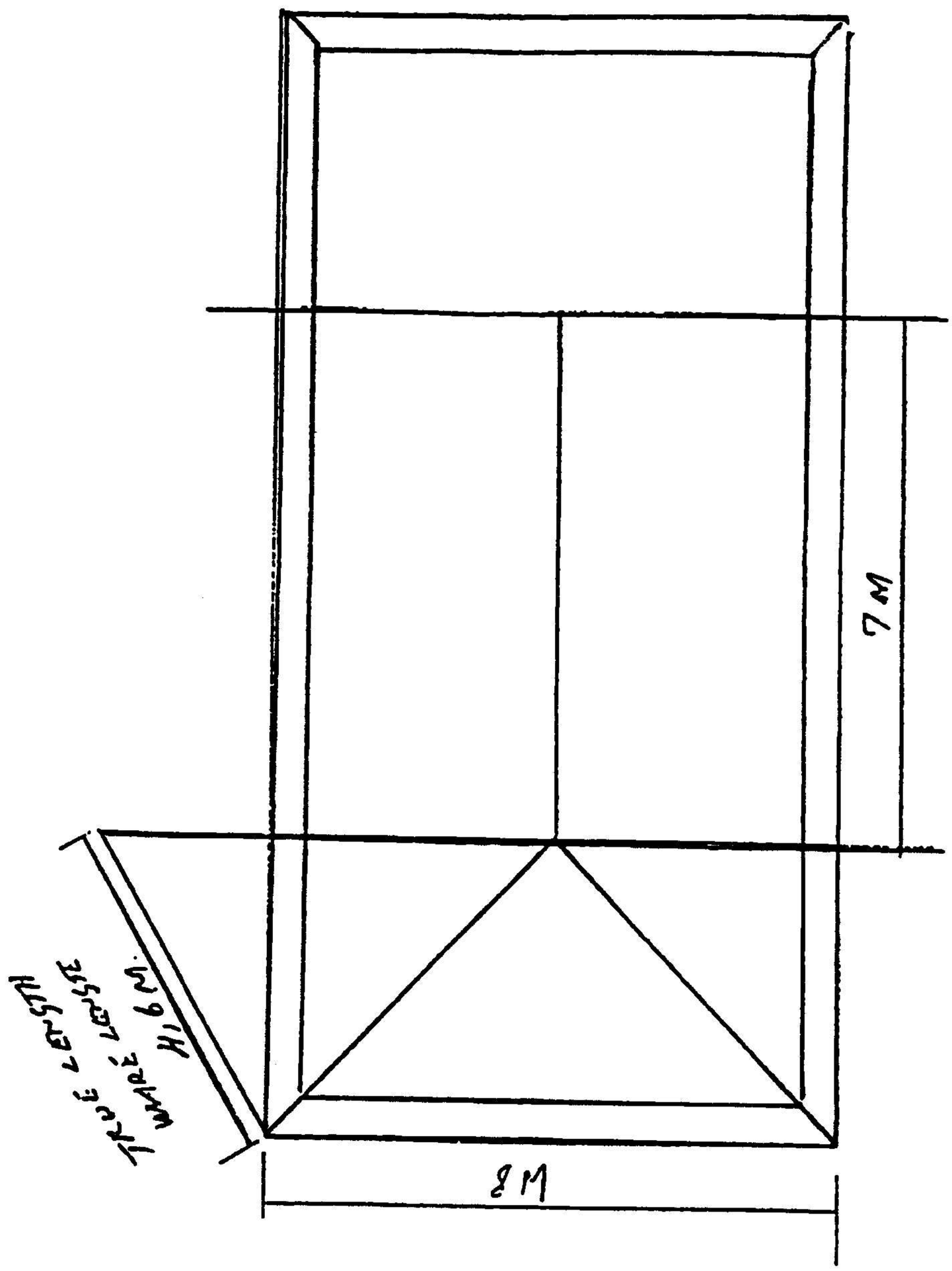
VEKTOR
DIAGRAM

QUESTION 1 / *VRAAG 1*

A	B	C	D
			Substructure centre line / *Onderbou hartlyn*
			[2x14 000] = [28 000] mm
			[2x7 000] = [14 000] mm
			42 000 mm
			Minus [4x330] = [1 320] mm
			[40 680] mm
			The centre line is [40.68] metres / *Die hartlyn is*
			Height of the substructure is [300] mm
			Hoogte van die onderbou is [300] mm
			50 bricks per square metre for a half brick wall
			50 stene per vierkante meter vir 'n halfsteenmuur
			There are [3] half brick walls.
			Daar is [3] halfsteenmure.
1/	[40.68] [0,3] [12.204]	[12.20]	
[3]/	[12.20] 50 [610]	[1 830]	[1 830] bricks are required. *Daar is [1 830] stene nodig.*
			Superstructure centre line / *Bobou hartlyn*
			2 x 14 000 = 28 000 mm
			2 x 7 000 = 14 000 mm
			42 000 mm
			Minus [4x220] = [880] mm [41 120] mm
			The centre line is [41.12] metres / *Die hartlyn is*
			Height of the superstructure is 2 800 mm
			Hoogte van die bobou is 2 800 mm
			[50] Bricks per square metre for a half brick wall
			[50] *Stene per vierkante meter vir 'n halfsteen-muur*
			There are [2] half brick walls.
			Daar is [2] halfsteenmure.
1/	[41.12] 2,8 [115.136]	[115.14]	
[2]/	[115.14] [50] 5757	[11514]	[115 14] bricks are required. *Daar is [115 14] stene nodig.*

			Total for structure without deductions
			Totaal van struktuur sonder aftrekkings
			Substructure / *Onderbou* [1 830]
			Superstructure / *Bobou* [11 514]
			13 344 bricks/*stene*
			Deductions/*Aftrekkings*
			Doors / *Deure*
			2 x 2 x 1
			50 bricks per square metre for a half brick wall
			50 stene per vierkante meter vir 'n halfsteenmuur
			There are 2 half brick walls.
			Daar is 2 halfsteenmure.
[2]/	2 1 [2]	[4]	
2/	[4] 50 [200]	[400]	There are [400] bricks. *Daar is [400] stene.*
			Windows / *Vensters*
			[6] x 2 x 1.0
			50 bricks per square metre for a half brick wall
			50 stene per vierkante meter vir 'n halfsteenmuur
			There are [2] half brick walls.
			Daar is [2] halfsteenmure.
[6]/	2 1.0 2	[12]	
[2]/	[12] 50 [600]	[1 200]	There are [1 200] bricks. *Daar is [1 200] stene.*
			Total deductions/*Totale aftrekkings*
			Doors/*Deure* [400] Windows/Vensters [1 200] 1 600 Bricks / *Stene*
			Total bricks for the structure
			Totale stene vir die struktuur
			Structure/*Struktuur* 13 344 Deductions/Aftrekkings 1 600 11 744
			Plus 5 % Wastage/*Vermorsing*
			[11 744] x 0,05 [587.2] 11 744 + [587] [12 331]
			[12 331] bricks will be required for the structure. ***Daar sal [12 331] stene nodig wees vir die struktuur.***

			Foundation centre line/Fondasie hartlyn
			14 000 - [2/110] = [13 780] mm ***7 000 - [2/110] = [6 780] mm*** ***Floor thickness/Vloerdikte 75 mm***
	[13.78] [6.78] 0.075 [7.007]	[7.007]	***[7.0] cubic metres of concrete are required for the floor.*** ***Daar is [7.0] kubieke meter beton nodig vir die vloer.***
			CORRUGATED IRON SHEETS NEEDED
			SINKPLAAT BENODIG
			True length of rafter from sketch [4.6 m]
			Ware lengte van dakspar volgens skets [4.6 m]
			Area of triangles/Oppervlak van driehoeke
			½ x b x h
			½ x [8] x [4.6]
4	[4] 4,6 [18.4]	[73.6]	
			Area of rectangles/Oppervlak van reghoeke
2	[7] 4,6 [32.2]	[64.4]	
			[138] square metres of corrugated iron sheeting will be needed.
			Daar sal [138] vierkante meter sinkplaat nodig wees.


7 M
TRUE LENGTH
WHERE LOWER
11.6 M.
8 M