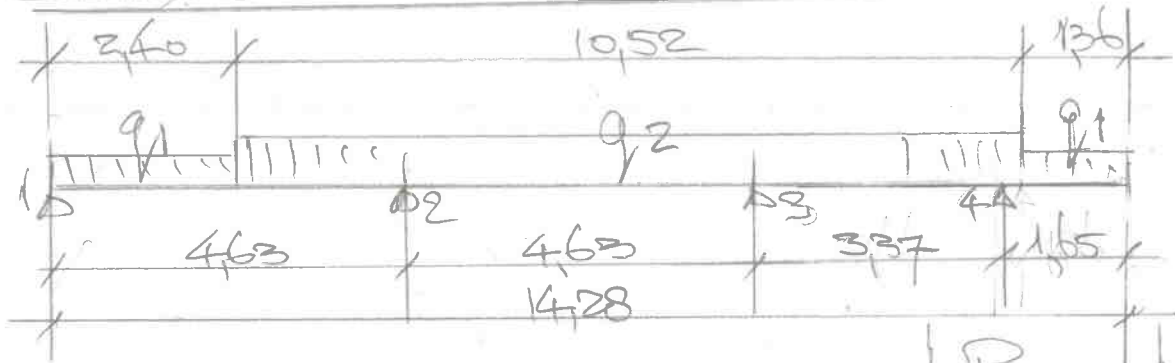


Stabbe balk verd. vloer as 4.



VERVANGEN

Balk	Verd. vloer	Verend.
e.g. balk	0,62 kN/m	
verd. vloer 1,1, 3,655, 7,20 (1,75)	28,95	6,12 kN/m
q1:	25,80	6,12 "
e.g. balk	0,62 kN/m	
verd. vloer 1,1, 3,655, 7,20 (1,75)	28,95	7,04 kN/m
q2:	29,57	7,04 "
R1:	47,12 kN	11,18 kN
R2:	155,95 "	37,10 "
R3:	111,89 "	26,66 "
R4:	93,13 "	22,13 "

zie ber. bl. 63 t/m 66

M_{max} = 109 kNm

HEB200. n.c. = 980

f₁₋₂ = 7,9 mm = 0,0017 m

op kolom:

N_{cisid} = 1,22 · 155,95 + 1,5 · 37,10 = 245,9 kN

beg. gr. vl. 2,75 · 250 · 14,78 = 101,6 "

f₂₅₀. Paalbel. = 347,5 "e.g. kolom: $\frac{200 \times 200 \times 6^3}{2} = 0,37 \text{ kN/m}$ beton 0,19² · 25,0

e.g. = 1,27 "

e.g. kolom 3,20 · 1,27 = 4,06 kN

Ing. Pieter Speldenbrink

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onderweg 0653550100

Project...: Rest. cafe Leeuwtje Noorden

Onderdeel: Stalen ligger verd.vloer as 4

Dimensies: kN;m;rad (tenzij anders aangegeven)

Datum...: 17/05/2016

Bestand...: c:\documents and settings\jon\mijn documenten\mijn projecten\2154\stalen balk i

Toegepaste norm...: TCB 1990

Rekenmodel.....: 1e-orde-elastisch.

Theorie voor de bepaling van de krachtsverdeling:

Geometrisch lineair.

Fysisch lineair.

Gunstige werking van de permanente belasting wordt automatisch verwerkt

GEOMETRIE**MATERIALEN**

Mt	Omschrijving	E-modulus[N/mm2]	S.M.	Pois.	Uitz. coëff
1	S235	210000	78.5	0.30	1.2000e-005

PROFIELEN [mm]

Prof.	Omschrijving	Materiaal	Oppervlak	Traagheid	Vormf.
1	HEB200	1:S235	7.8100e+003	5.6960e+007	0.00

PROFIELEN vervolg [mm]

Prof.	Staaftype	Breedte	Hoogte	e	Type	b1	h1	b2	h2
1	0:Normaal	200	200	100.0					

KNOPEN

Knoop	X	Z
1	0.000	0.000
2	4.630	0.000
3	9.260	0.000
4	12.630	0.000
5	14.280	0.000

STAVEN

St.	ki	kj	Profiel	Aansl.i	Aansl.j	Lengte Opm.
1	1	2	1:HEB200	NDM	NDM	4.630
2	2	3	1:HEB200	NDM	NDM	4.630
3	3	4	1:HEB200	NDM	NDM	3.370
4	4	5	1:HEB200	NDM	NDM	1.650

Project...: Rest. cafe Leeuwtje Noorden

Onderdeel: Stalen ligger verd.vloer as 4

VASTE STEUNPUNTEN

Nr.	Knoop	Kode	1ZR	1=vas. 0=rij
1	1	110		
2	2	110		
3	3	110		
4	4	110		

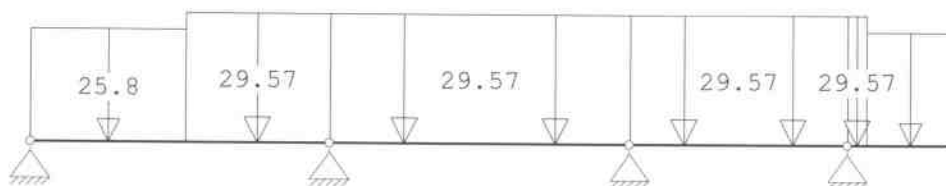
VERVANGEN

BELASTINGGEVALLEN

B.G.	Omschrijving	Type	e.g.X	e.g.Z
1	Permanente belasting	1	0.00	0.00
2	Veranderl. belasting	1	0.00	0.00

BELASTINGEN

B.G:1 Permanente belasting



STAAFBELASTINGEN

B.G:1 Permanente belasting

Last	Staaft	Type	q1/p/m	q2	A	B	psi	psi-t	Opm
1	1	1:QZLokaal	-25.800	-25.800	0.000	2.230			
2	1	1:QZLokaal	-29.570	-29.570	2.400	0.000			
3	2	1:QZLokaal	-29.570	-29.570	0.000	0.000			
4	3	1:QZLokaal	-29.570	-29.570	0.000	0.000			
5	4	1:QZLokaal	-29.570	-29.570	0.000	1.360			
6	4	1:QZLokaal	-25.800	-25.800	0.290	0.000			

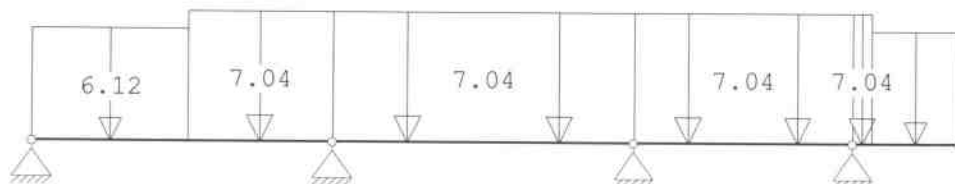
REACTIES

B.G:1 Permanente belasting

Kn.	X	Z	M
1	0.00	47.12	
2	0.00	155.95	
3	0.00	111.89	
4	0.00	93.13	
	0.00	408.08	: Som van de reacties
	0.00	-408.08	: Som van de belastingen

BELASTINGEN

B.G:2 Veranderl. belasting



Project...: Rest. cafe Leeuwtje Noorden
 Onderdeel: Stalen ligger verd.vloer as 4

STAAFBELASTINGEN

B.G:2 Veranderl. belasting

Last	Staf	Type	q ₁ /p/1	q ₂	A	B	psi	psi-t	Opm
1	1	1:QZLokaal	-6.120	-6.120	0.000	2.230			
2	1	1:QZLokaal	-7.040	-7.040	2.400	0.000			
3	2	1:QZLokaal	-7.040	-7.040	0.000	0.000			
4	3	1:QZLokaal	-7.040	-7.040	0.000	0.000			
5	4	1:QZLokaal	-7.040	-7.040	0.000	1.360			
6	4	1:QZLokaal	-6.120	-6.120	0.290	0.000			

REACTIES

B.G:2 Veranderl. belasting

Kn.	X	Z	M
1	0.00	11.18	
2	0.00	37.10	
3	0.00	26.66	
4	0.00	22.13	
	0.00	97.07	: Som van de reacties
	0.00	-97.07	: Som van de belastingen

GUNSTIGE WERKING PERMANENTE BELASTINGEN

BC Staven met gunstige werking

- 1 3,4
 2 3,4

BELASTINGCOMBINATIE: 1

1: Uiterste grenstoestand; Fundamentele combinatie

Belastinggeval	Gen. type	factor
1:Permanente belasting	Permanent	1.22
2:Veranderl. belasting	Permanent	1.50

BELASTINGCOMBINATIE: 2

1: Uiterste grenstoestand; Fundamentele combinatie

Belastinggeval	Gen. type	factor
1:Permanente belasting	Permanent	1.35

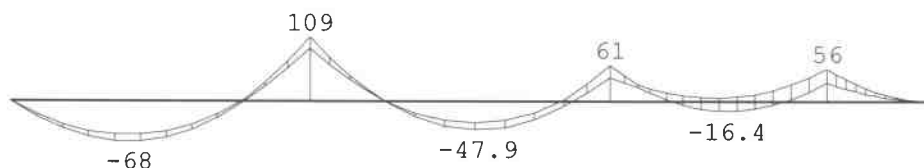
Project...: Rest. cafe Leeuwtje Noorden

Onderdeel: Stalen ligging op beton

OMHULLENDE VAN DE FUNDAMENTELE COMBINATIES

MOMENTEN

Fundamentele combinatie



REACTIES

Fundamentele combinatie

Kn.	X-min	X-max	Z-min	Z-max	M-min	M-max
1	0.00	0.00	63.14	74.45		
2	0.00	0.00	209.37	248.78		
3	0.00	0.00	123.77	183.43		
4	0.00	0.00	100.29	146.81		

STAALPROFIELEN - ALGEMENE GEGEVENS

Stabiliteit: Classificatie gehele constructie:

Geschoord

MATERIAAL

Mat nr.	Profielnaam	Vloei sp. [N/mm ²]	Productie methode	Min. drsn. klasse
1	HEB200	235	Gewalst	1

TOETSING SPANNINGEN

Staafr. nr.	Mat	BC	Sit	Kl	Plaats	Norm	Artikel	Formule	Hoogste toetsing U.C. [N/mm ²]	Opm.
1	1	1	3	1	Staafr.	6771	12.2	(12.2-3)	0.804	189
2	1	1	3	1	Staafr.	6771	12.2	(12.2-3)	0.815	192
3	1	1	2	1	Staafr.	6771	12.2	(12.2-3)	0.445	105
4	1	1	1	1	Staafr.	6771	12.2	(12.2-3)	0.369	87

TOETSING DOORBUIGING

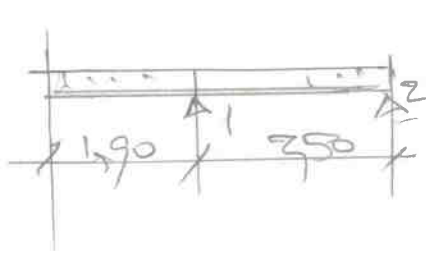
Staafr.	Soort	Mtg	Lengte [m]	Overst I J	Zeeg [mm]	u _{tot} [mm]	BC	Sit	u [mm]	Toelaatbaar [mm]	*1
1	Vloer	db	4.63	N N	0.0	-7.9	3	1 Eind	-7.9	±18.5	0.004
		db					3	1 Bijk	-1.5	±13.9	0.003
2	Vloer	db	4.63	N N	0.0	-3.9	3	1 Eind	-3.9	±18.5	0.004
		db					3	1 Bijk	-0.8	±13.9	0.003
3	Vloer	db	3.37	N N	0.0	0.3	3	1 Eind	0.3	±13.5	0.004
		db					3	1 Bijk	0.1	±10.1	0.003
4	Vloer	ss	1.65	N J	0.0	-4.7	3	1 Eind	-4.7	±13.2	2*0.004
		ss					3	1 Bijk	-0.9	±9.9	2*0.003

Dakoverstek Voorgevel

Ligger 1.

2154-67

Perm. Verand.



e.g. ligger 200/200
dak 255.0,49 (0,56)

0,25 kN/m

1,25 u

1,43 kN/m

q: 1,50 u

1,43 u

$$\frac{1}{2,50} (\frac{1}{2} \cdot 1,50 \cdot 4,40^2) (1,43)$$

R1: 5,81 kN

5,53 kN

R2: 9,79 u

9,76 u

$$q_d = 1,22 \cdot 1,50 + 1,5 \cdot 1,43 = 3,975 \text{ kN/m}$$

$$M_d = \frac{1}{2} \cdot 3,975 \cdot 1,90^2 = 7,17 \text{ kNm}$$

$$200/200 \text{ mm (C18)} \quad E = 19000 \text{ N/mm}^2$$

$$W_x = \frac{1}{6} \cdot 20 \cdot 20^2 = 1333 \text{ cm}^3$$

$$\sigma_b = 7,17 \cdot 10^6 / 1333 \cdot 10^3 = 5,4 \text{ N/mm}^2 \quad \mu.c. = 0,49$$

Ligger 2

schematische als 1.

e.g. ligger
dak 1,40.0,49 (0,56)

0,25 kN/m

0,69 u

0,785 kN/m

200/200 mm

q: 0,94 u

0,785 u

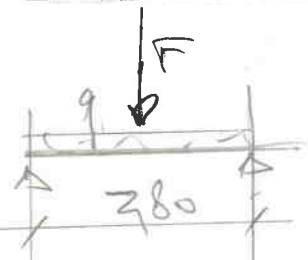
R1: 3,64 kN

3,04 kN

R2: 0,50 u

0,42 u

Ligger 3



ligger 2

F: 3,64 kN

3,04 kN

e.g. ligger

q: 0,25 kN/m

$$1,40 \cdot 0,25 + \frac{1}{2} \cdot 3,64$$

R: 2,17 kN

1,52 kN

$$M_{perm} = 2,79 \text{ kNm}$$

$$M_{verand} = 2,13 \text{ u}$$

$$M_d = 1,22 \cdot 2,79 + 1,5 \cdot 2,13 = 4,60 \text{ kNm}$$

$$\text{op kolom} \cdot 5,81 + 2,17$$

N: 7,98 kN

7,05 kN

Ligger 4. 200/200 mm.

$$\text{perm.} = 0,25 + 1,95 \cdot 0,49 = 1,205 \text{ kN/m}^2$$

$$\text{verand.} = 1,95 \cdot 0,56 = 1,09 \text{ "}$$

$$\frac{1}{250} (1/2 \cdot 1,205 \cdot 4,40^2)$$

$$R_1: 4,67 \text{ kN} \quad 4,22 \text{ kN}$$

$$R_2: 0,63 \text{ "} \quad 0,58 \text{ "}$$

Balkon voorrijde



$$\text{balklaag, perm.} = 0,60 \cdot 0,40 = 0,24 \text{ kN/m}^2$$

$$\text{verand.} = 0,60 \cdot 2,50 = 1,50 \text{ "}$$

$$q_d = 1,22 \cdot 0,24 + 1,5 \cdot 1,50 = 2,54 \text{ kN/m}^2$$

$$M_d = 1/8 \cdot 2,54 \cdot 3,60^2 = +4,115 \text{ kNm}$$

$$71 \times 196 \text{ mm}^2 = 454 \text{ cm}^2$$

$$I_x = 4455 \text{ cm}^4$$

$$\sigma_b = 4,115 \cdot 10^6 / 454 \cdot 10^3 = 9,06 \text{ N/mm}^2 \quad \text{N.C.} = 0,82$$

$$f = \frac{5}{384} \cdot \frac{1,74 \cdot 3600}{9000 \cdot 4455 \cdot 10^4} = 9,5 \text{ mm} = 0,0026 \text{ l}$$

Ligger 5

$$\text{perm.} = 0,25 + 1,50 \cdot 0,40 = 0,85 \text{ kN/m}^2 \quad 3,75 \text{ kN/m}^2$$

$$1,50 \cdot 0,85 (3,75) \quad R_1: 1,11 \text{ kN} \quad 4,87 \text{ kN}$$

$$q_d = 1,22 \cdot 0,85 + 1,5 \cdot 3,75 = 6,66 \text{ kN/m}^2$$

$$M_d = 1/8 \cdot 6,66 \cdot 2,50^2 = +5,20 \text{ kNm}$$

200/200 mm

2154-69

Ligger 6.

$$\text{perm.} = 0,25 + 3,20 \cdot 0,40 = 1,53 \text{ kN/m'}$$

$$\text{Verand.} = 3,20 \cdot 2,50 = 8,00 \text{ "}$$

$$1,30 \cdot (1,53 + 8,00)$$

$$R: 1,99 \text{ kN} \quad 10,40 \text{ kN}$$

$$q_d = 13,86 \text{ kN/m'}$$

$$M_d = 1/8 \cdot 13,86 \cdot 2,50^2 = +10,83 \text{ kNm}$$

$$\frac{200/200 \text{ mm}}{C24}, I_x = 1333 \text{ cm}^3$$

$$\sigma_b = 10,83 \cdot 10^6 / 1333 \cdot 10^3 = 8,12 \text{ N/mm}^2 \quad \mu.c. = 0,74$$

$$\text{Ligger 7. perm.} = 0,25 + 1,90 \cdot 0,40 = 0,61 \text{ kN/m'}$$

$$\text{verand.} = 1,90 \cdot 2,50$$

$$= 4,75 \text{ "}$$

$$1,30 \cdot 0,61 (4,75)$$

$$R: 0,80 \text{ kN} \quad 6,18 \text{ kN}$$

Ligger 8 $l = 3,60 \text{ m}$

e.g. ligger

Smeedijzer hekwerk

$$0,25 \text{ kN/m'}$$

$$0,60 \text{ "}$$

$$q: 0,85 \text{ "}$$

$$R: 1,53 \text{ kN}$$

Ligger 9.

$$1,40 \cdot 0,85$$

$$R: 1,20 \text{ kN}$$

Kolom 10. e.g. kolom $\phi 200 \text{ mm}$

$$8,00 \cdot 0,25$$

uit dak

$$\text{balken } 1,11 + 1,20$$

$$200 \text{ kN}$$

$$7,98 \text{ "}$$

$$7,31 \text{ "}$$

$$7,05 \text{ kN}$$

$$4,87 \text{ "}$$

$$N_{10}: 12,29 \text{ "}$$

$$11,92 \text{ "}$$

2154-70.

Kolom 11e.g. kolom $\phi 200$ mm
uit dakbalkon balk 8/9. $320 \cdot 0,85$
ligger 6

Perm. Verand.

200 kN

7,98 " 7,05 kN

3,72 "

1,99 " 10,40 "

N11 14,69 kN 17,45 kN

Kolom 12 e.g. kolomDakligger 4.
balkon ligger 8
" " 7

200 kN

4,67 " 4,22 kN

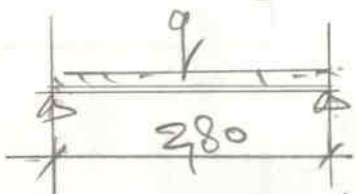
1,53 "

0,80 " 6,18 "

N12 9,00 " 10,40 "

Balkon zijgevelbalklaag 71×196 mm h.o.h. 0,60 m.

dt = 300 mm.

perm. = $0,60 \cdot 0,40 = 0,24$ kN/m'verand. = $0,60 \cdot 250 = 1,50$ " $q_d = 2,54$ kN/m' $M_d = 2,86$ kNm $\sigma_b = 2,86 \cdot 10^6 / 454 \cdot 10^3 = 6,3$ N/mm² u.c. = 0,57.Randligger 200/200 mme.g. ligger
balkon $150 \cdot 0,40$ (250)
Smeedijzer hek

0,25 kN/m'

0,60 " 3,75 kN/m'

0,60 "

1,45 " 3,75 "

2,03 kN 5,75 kN

 $q_d = 2,395$ kN/m' $M_d = +7,25$ kNm $\sigma_b = 5,44$ N/mm² u.c. = 0,50.

Plafond onder verd. vloer.

$$\begin{aligned} \text{perm.} &= 0,30 \text{ kN/m}^2, \text{ leidingen } 0,10 \text{ kN/m}^2 \\ \text{liggers } 100/150 \text{ mm h.o.h. } 0,90 \text{ m}, H &= 4,10 \text{ m} \\ \text{perm.} &= 0,90 \cdot 0,40 = 0,36 \text{ kN/m} \\ q_d &= 1,35 \cdot 0,36 = 0,486 \text{ kN/m} \\ M_d &= 1/8 \cdot 0,486 \cdot 4,10^2 = 1,02 \text{ kNm} \\ 100/150 \cdot 10x &= 375 \text{ cm}^3 \quad \text{v.c.} = 0,25 \end{aligned}$$

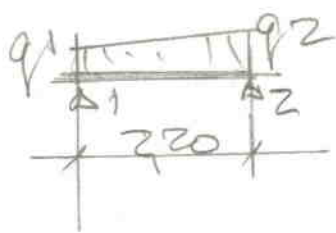
liggers in as 3 en 4.

$$\begin{aligned} H &= 3,20 \text{ m} \\ \text{perm.} &= 3,60 \cdot 0,40 = 1,44 \text{ kN/m} \\ &\quad \text{e.g. ligges} \quad \quad \quad = 0,40 \text{ m} \\ &\quad \quad \quad \text{e.g.} = 1,84 \text{ m} \\ q_d &= 1,35 \cdot 1,84 = 2,48 \text{ kN/m} \\ M_d &= 1/8 \cdot 2,48 \cdot 3,20^2 = 3,18 \text{ kNm} \\ 250/250 \text{ mm}, 10x &= 2604 \text{ cm}^3 \\ \sigma_b &= 1,22 \text{ N/mm}^2 \quad \text{v.c.} = 0,11 \end{aligned}$$

$$\text{op kolom } 3,20 \cdot 1,84 = 5,89 \text{ kN}$$

2154 - 72

latei onder dak ars 6.
dagur, 220 m



dak 250 · 0,49 (0,56)
Gewel 1,20 · 340

1,22 kN/m
4,08 u

q1: 5,30 u 1,40 u
φ = 0

dak 350 · 0,49 (0,56)
Gewel 2,20 · 340

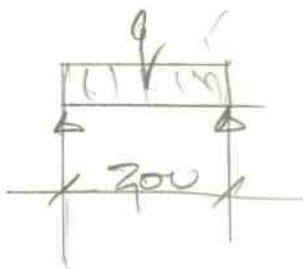
1,72 kN/m
7,48 u

q2: 9,20 u 1,96 u
φ = 0

$$1,10 \cdot 5,30 + \frac{1}{3} \cdot \frac{1}{2} \cdot 3,90 \cdot 220$$

$$1,10 \cdot 5,30 + \frac{2}{3} \cdot \frac{1}{2} \cdot 3,90 \cdot 220$$

R1: 7,26 kN 1,75 kN
R2: 8,69 u 1,95 u

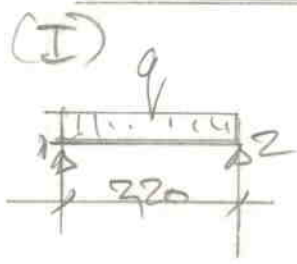


dak 400 · 0,49 (0,56)
Gewel 300 · 3,40
(R)

1,96 kN/m
10,20 u

q: 12,16 u 2,24 u

latei onder verd. vloer ars 6.



Gewel 2,10 · 4,00
korijn 1,60 · 0,60
verd. vl. 305 · 2,25 (1,75)
balkon 150 · 0,40 (0,5 · 250)
plafond 305 · 0,40

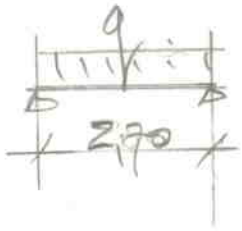
8,40 kN/m
0,96 u
14,76 u
0,60 u
0,82 u

3,59 kN/m
1,88 u

$$1,10 \cdot 25,54 (5,47)$$

q: 25,54 u 5,47 u
R: 28,10 kN 6,02 kN

(II) Verd. über as 6.

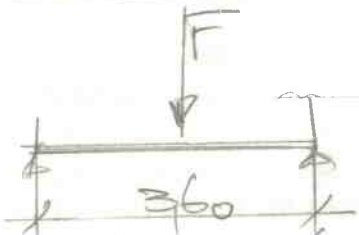


Gewel 1,00 · 4,00
korājn 260 · 960
verd. vl. + balkon + plafond

Perm.	Verand.
4,00 kN/m	
1,56 "	
16,78 "	5,47 kN/m
$q: 21,74 "$	$5,47 "$
$R: 29,55 \text{ kN}$	$7,38 \text{ kN}$

1,35 · 21,74 (5,47) R:

latei in dak as B.



dakligger 305 · 120 (108) F:

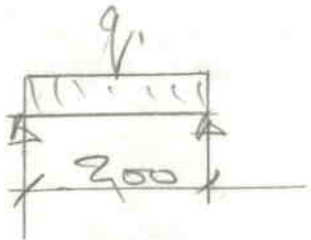
366 kN	3,29 kN
R: 4,83 kN	1,65 kN

$$M_p = 336 \text{ kNm}$$

$$M_{ver} = 2,96 "$$

$$M_d = 1,22 \cdot 3,30 + 1,5 \cdot 2,96 + 8,47 \text{ kNm}$$

$$150/250 \text{ mm} \cdot \mu.c. = 0,50$$



Gewel 250 · 4,00

Dakligger 3 · 2,50/200

Dakoverstdek 0,86/200

10,00 kN/m

1,15 "

0,43 "

$q: 11,58 "$

$R: 11,58 "$

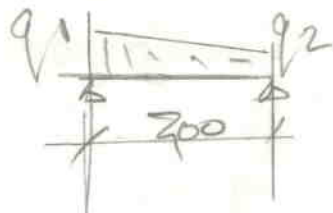
8,47 kN/m

3,58 "

6,84 kN

5,21 "

1,68 kN/m
1,12 "	
1,49 kN	
1,30 "	



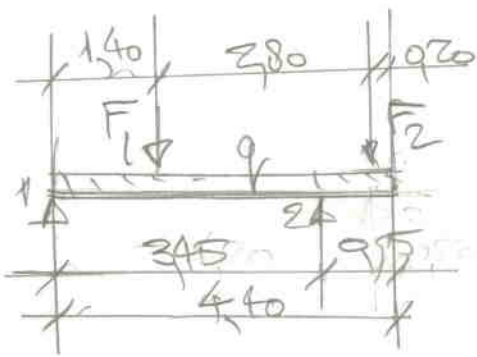
$$1,35 \cdot 4,00 + 300 \cdot 0,49 (0,56)$$

$$0,65 \cdot 4,00 + 200 \cdot 0,49 q_2$$

$$R_1:$$

$$R_2:$$

Fund. balk in as 8.

e.g. balk 400/450
bouv. bel.

Perm. Verand.

4,50 kn/m

1,50 "

2,00 kn/m

q: 6,00 " 2,00 "

e.g. kolom

balkon 280. 1,45 (375)

200 kn

4,06 "

10,50 kn

F1: 6,06 " 10,50 "

e.g. kolom

balkon 150. 1,45 (375)

200 kn

2,18 "

5,62 kn

F2: 4,18 kn 5,62 "

36,64 - 24,38 (24,38 - 16,71)

R1: 12,26 kn 8,21 kn

 $\frac{1}{3,45} (\frac{1}{2} \cdot 6,00 \cdot 4,40^2 + 6,06 \cdot 1,40 + 4,18 \cdot 4,20)$

R2: 24,38 " 16,71 "

Poalbel. 2 = 1,35 · 24,38 + 1,5 · 16,71 = 58,0 kn

Overstek: M perm. = -5,84 knm

M verand. = -5,11 knm

Md = - (1,35 · 5,84 + 1,5 · 5,11) = -15,55 knm

N d = 1,35 · 12,26 + 1,5 · 8,21 = 27,77 kn

veld 1-2 R1 perm. = 12,26 kn

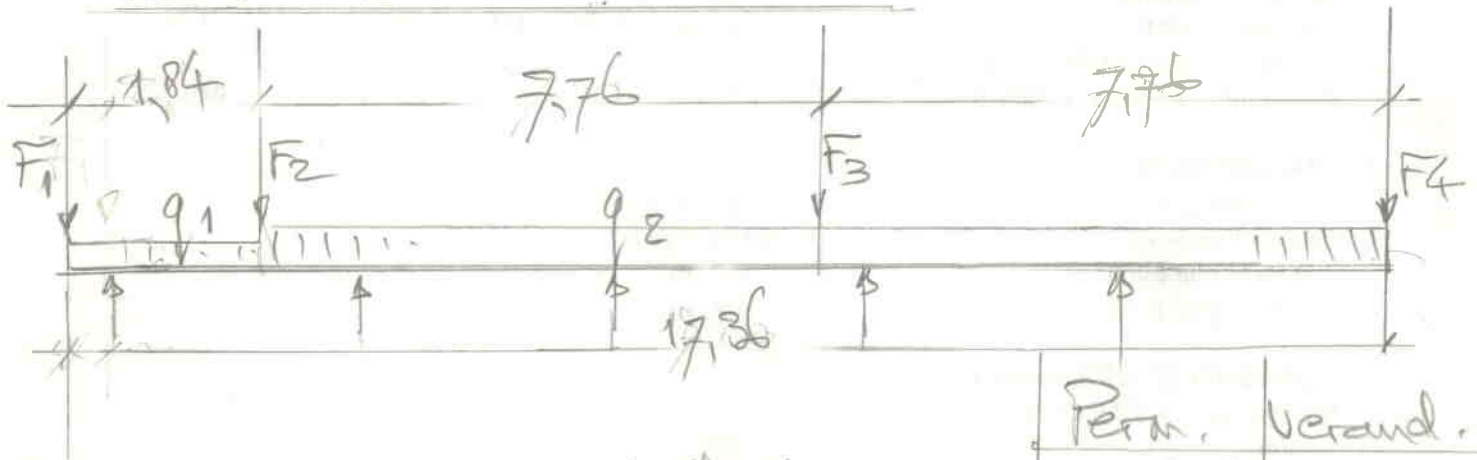
R1 verand. = 9,69 "

M perm. = +11,28 knm

M verand. = +11,61 "

Md = 1,35 · 11,28 + 1,5 · 11,61 = +32,64 knm

Feund. balk in as 1.



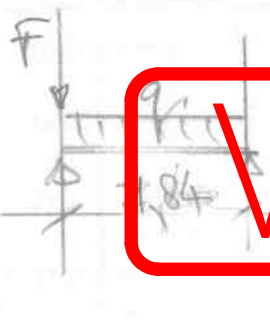
	Perm.	Verand.
e.g. balk 45x450	5,60 kN/m	
Gewel 5,50 . 4,00	21,60 "	
Dak 300 . 0,49	1,47 "	- $\varphi=0$.
Verd. vloer 1,62 . 7,20 (1,75)	11,66 "	2,84 kN/m
plafond 1,62 . 0,40	0,65 "	
beg. gr. vloer 1,62 . 7,20 (4,00)	11,67 "	6,48 "
q1:	52,65 "	9,32 "

e.g. balk + gewel	27,20 kN/m	
Dak 235 . 0,49	1,15 "	- $\varphi=0$.
Verd. vloer 201 . 7,20 (1,75)	14,47 "	3,52 kN/m
plafond 201 . 0,40	0,80 "	
beg. gr. vloer 201 . 7,20 (4,00)	14,47 "	8,04 "
q2:	58,09 "	11,56 "

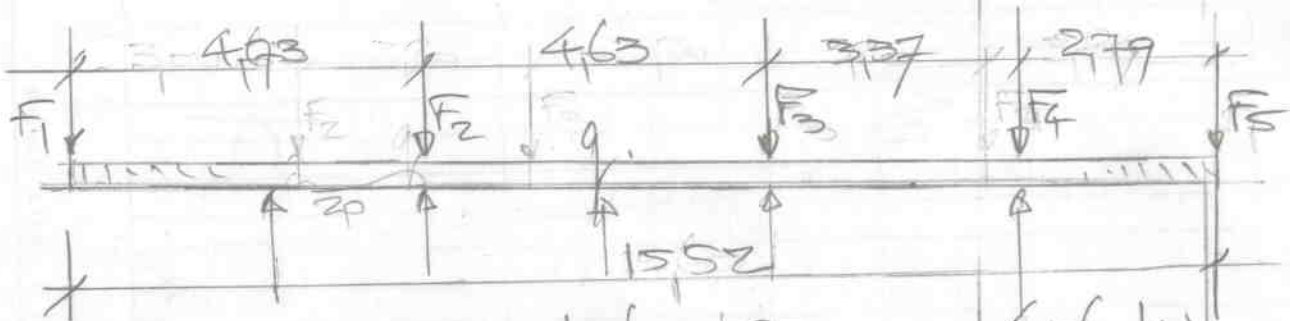
Dakoverstek 300 . 250 . 0,49	F1:	3,68 kN	- $\varphi=0$.
latei as B.	F2:	2,42 "	- $\varphi=0$.
Spaant as C.	F3:	29,20 "	20,20 kN
Dakoverstek 300 . 0,75 . 0,49	F4:	1,10 kN	- $\varphi=0$.
balkon 0,75 (0,20 + 0,72) (4,50)		0,70 "	3,32 kN
	F4:	1,80 "	3,37 "

Fund. balk in as 2.

Perm. Verand.

		e.g. balk 450/600	560 kg/m
Gevel 7,80 x 4,00 31,20 Dak 2,00 x 0,40 0,80 Wand dak 1,62 x 7,20 (4,00) 11,52 plafond 1,62 x 0,40 0,65 beg. gr. vloer 1,62 x 7,20 (4,00) 11,67		as I.	
		q:	68,06 u
		F:	18,25 kN
			13,56 kN

Fund. balk in as 3.

e.g. kolom $\phi 200$
latei verand.

$$4,06 + 157,69$$

$$4,06 + 114,76$$

$$4,06 + 94,07$$

	4,06 kN	
	53,04 u	12,62 kN.
F1:	57,10 u	12,62 u
F2:	151,75 u	37,53 u
F3:	118,80 u	27,31 u
F4:	98,43 u	22,39 u
F5:	30,42 u	7,24 u

e.g. balk 400/450
m. u. e.g. balk 400/450
beg. gr. vloer 1,13 x 5,8 x 7,20 (4,00)

	28,35 u	15,75 kN/m
q:	32,85 u	15,75 u

2154-77

Fund. balk in as 4

Perm. Verand.

e.g. kolom
st. balk verd.

4,712 " 11,18

F1: 51,18 " 11,18 kN

F2: 160,00 " 37,10 "

F3: 115,95 " 26,66 "

F4: 97,20 " 22,13 "

F5: 4,86 " 1,18 "

4,06 + 155,95

4,06 + 111,89

4,06 + 93,14

sav. vl. 135,050,720

e.g. balk 400/450

beg. gr. vl. 11.275,720 (4,00)

4,50 kN/m

21,78 " 12,10 kN/m

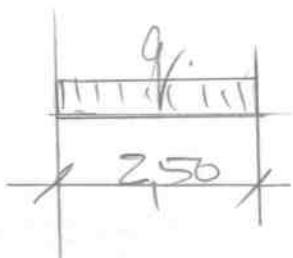
q1: 26,28 " 12,10 "

4,50 + 11.360,720 (4,00)

q2: 33,01 " 15,84 "

4,50 + 11.313,720 (4,00)

q3: 29,30 " 13,77 "

Gevel in as 5 (B-E) op kelderdek

Gevel 550,400

Dak 235,049

Verd. vl. 1,58,720 (175)

Plafond 1,58,040

2200 kN/m

1,15 "

- 400.

11,38 "

2,77 kN/m

0,63 "

q: 35,16 " 2,77 "

2154-78

Fund. balk in as 5; (H-D).

Gravel 5,50.4,00

e.g. balk

Verd. vl. + plafond

Dak

beg. gr. vl. 1,58.7,20 (4,00)

q₁

Perm. Verend.

2200 kN/m

4,50 "

1201 "

1,15 "

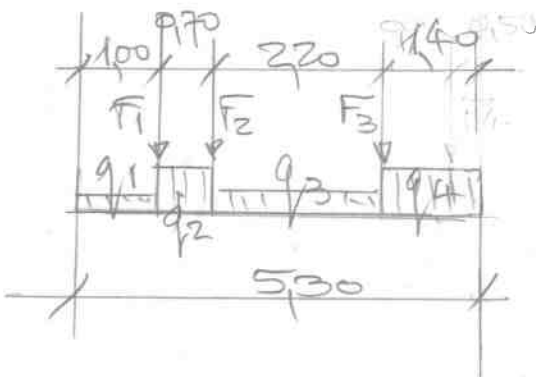
11,38 "

51,04 "

2,77 kN/m

6,33 "

9,10 "

Fund. balk in as 6

latei dak as 6 (I)

" verd. " (II)

F₁

12,16 kN

29,35 "

41,51 "

-Q=0.

7,38 kN

7,38 "

latei dak as 6

" verd. "

F₂

8,69 kN

28,10 "

36,79 "

-Q=0.

6,02 kN

6,02 "

726 + 28,10

F₃

35,36 "

6,02 "

e.g. balk 400/450

m. w. 0,30.4,00

korijn 300. 0,60

beg. gr. vl. 2,80.7,20 (4,00)

q₁

4,50 kN/m

1,20 "

1,80 "

20,16 "

27,66 "

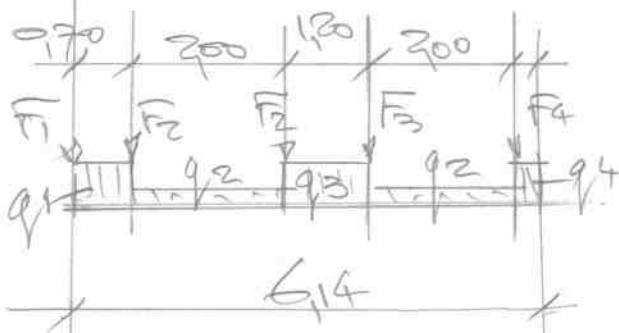
11,20 kN/m

11,20 "

		Perm.	Verand.
q2:	e.g. balk	450 kwh/m	
	gevel 8,35.4,00	33,40 "	
	Dak 3,50.0,49	1,72 "	- 0,00.
	Verd.vl. 205,720 (1,75)	14,76 "	3,59 kwh/m
	plafond 205.0,40	9,82 "	
	beg.gr.vl. 280.720 (4,00)	20,16 "	11,20 "
	q2:	75,36 "	14,79 "
q3:	e.g. balk	450 kwh/m	
	gevel 1,50.4,00	6,00 "	
	kozijn 1,60.0,60	0,96 "	
	beg.gr.vl. 205.720 (4,00)	14,76 "	8,20 kwh/m
	q3:	26,22 "	8,20 "
q4	e.g. balk	450 kwh/m	
	gevel 6,50.4,00	26,00 "	
	Dak 200.0,49	0,98 "	
	Verd.vloer+plaf.	15,78 "	3,59 kwh/m
	beg.gr.vl.	14,76 "	8,20 "
	q4:	62,00 "	11,79 "

Fund. balk in as B.

Perm. Verand.

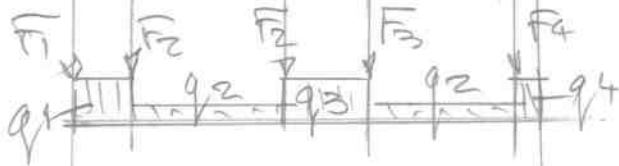


latei dak

F1:

1,83 kN

-φ=0.



" as B.

F2:

11,58 "

-

F3:

6,84 "

-

F4:

5,21 "

e.g. balk

Gereel 8,05 · 4,00

4,50 kN/m

32,20 "

4,50 + 0,30 · 4,00 + 2,60 · 0,60

q1:

36,70 "

4,50 + 8,20 · 4,00

q2:

7,26 "

4,50 + 6,50 · 4,00

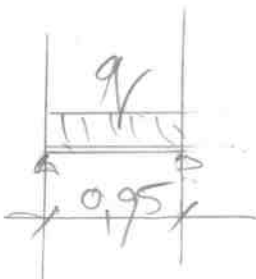
q3:

37,30 "

q4:

30,50 "

Fund. balk in as H.



e.g. balk 400/450

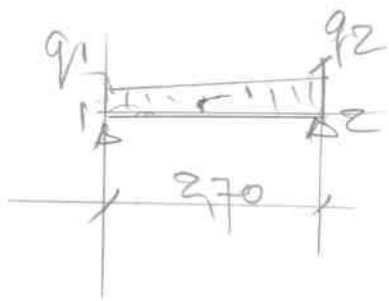
Gereel 5,95 · 4,00

4,50 kN/m

23,80 "

q:

28,30 "

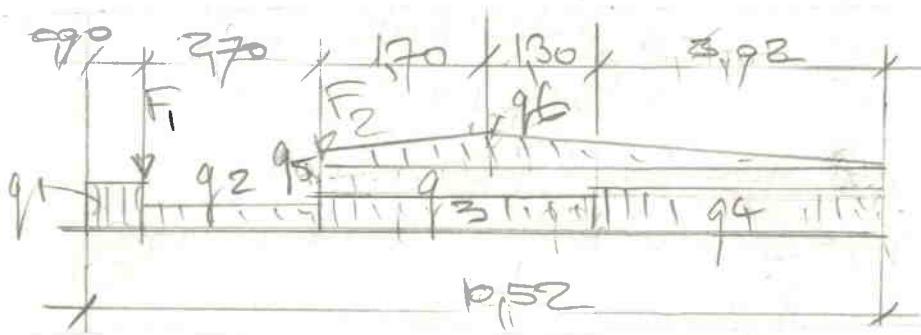
Latei in dak as D.

Gebel 115.400
Dak 1325.049

Perm.	Verand.
460 kN/m'	
965 "	974 kN/m'
q1: 525 "	974 "
1,75.400 + 965	q2: 845 "
q2: 845 "	974 "
R1: 853 kN	1,00 kN
R2: 997 "	1,00 "

$$135 \cdot 525 + \frac{1}{3} \cdot \frac{1}{2} \cdot 320 \cdot 270$$

$$+ \frac{2}{3} \cdot \frac{1}{2} \cdot 320 \cdot 270$$

Fund. balk as D.

Latei in dak

" " "

F1: 853 kN
F2: 997 "

q1: e.g. balk 400/450

Gebel (gem.) 630.400

Dak 1,95.049

balkon 075.040 (250)

450 kN/m'
2520 "
996 "
030 " 1,88 kN/m'

q1: 3996 " 1,88 "

q2: e.g. balk

Gebel 340.400

balkon

450 kN/m'
1360 "
030 " 1,88 kN/m'

q2: 1840 " 1,88 "

		Perm.	Verand.
q3:	e.g. balk	4,50 kN/m	
	Gevel 5,90.4,00	23,60 "	
	balkon	0,30 "	1,88 kN/m
		q3:	28,40 "
	balk+gevel	q4:	28,10 "
	Gevel+dak 200.4,00+0,96	q5:	8,96 "
	" + " 280.4,00+0,96	q6:	12,16 "

Fund. balk d.p.v. ronding.

e.g. balk 400/450	4,50 kN/m	
m.w. 0,30.4,00	1,20 "	
Gevel h.s.b. (gem) 6,30.1,50	9,45 "	
Beg. gr. v. (gem) $4,54 \text{ m}^2$ 7,20/5,34	6,12 "	3,40 kN/m
q:	21,27 "	3,40 "

op kolom:

verd. over $4,54 \text{ m}^2$ 7,20 (175) F: 3270 kN 7,95 kN

Reacties met dakspanten:

E-S = H-S.	spant 1;	1380 kN	9,80 kN
	" 3.	1072 "	7,32 "
	kilkeper	4,14 "	2,34 "
	F:	28,66 "	19,46 "

Zie ber. bl. 83 t/m 120

Onderdeel: Fundering

Dir _____

Datum...: 07/10/2015

Bestand.: c:\documents and settings\ten\mijn documenten\mijn projecten\154\foedering.grw

Torsiefac. 20 %

Verifying...

Doorbuigingen (beton) zijn dmv gecorrigeerde stijfheden berekend.

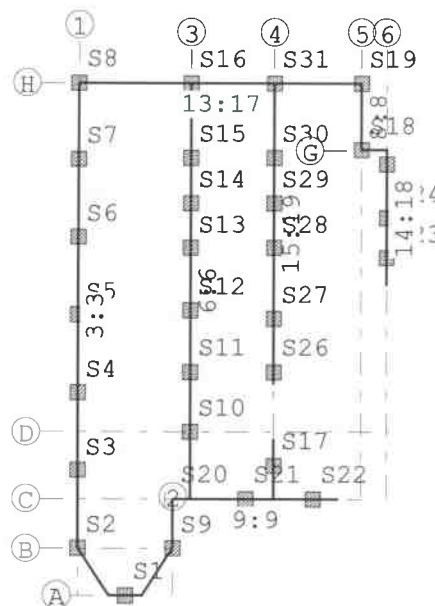
Fysisch lineair : Er is gerekend met de e-modulus uit de materiaaltabel.

Fysisch niet lineair: Er is gerekend met een gecorrigeerde e-modulus.

Deze e-mod. is berekend mbv de krachten uit de fysisch lineair berekening.

Belastingen	NEN-EN 1990:2002	A1:2006	NB:2007 (nl)
	NEN 6702:2007	C1:2007	
	NEN-EN 1991-1-1:2002		NB:2007 (nl)
Beton	NEN-EN 1992-1-1:2005		NB:2007 (nl)
	NEN 6720:1995	A4:2007	

GEOMETRIE



MATERIALEN

Mt Omschrijving E-mechanica[N/mm2] Kruipcoef. S.M. Pois.

1 C20/25	7480	3.01	24.0	0.20
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Project...: - Cafe- Restaurant 't Leeuwkje Noorden

Onderzoek: Fundering

PROFIELEN [mm]

Profiel	Omschrijving	Material	Oppervl.	Torsie-tr.	Traagleid
1	B*H 350*450	1:C20/25	1.575e+005	3.439e+009	2.658e+009

PROFIELEN vervolg [mm]

Nr.	Vormf.	Breedte	Hoogte	Zs	Rek.As	Type	b1	h1	b2	h2
1	0.00	350	450	225	0.00	0:RH				

STRAMIENLIJNEN

Nr.	Naam	X-begin	Y-begin	X-eind	Y-Eind
1	1	0.000	19.360	0.000	0.000
2	2	3.520	1.760	3.520	0.000
3	3	4.160	19.120	4.160	3.600
4	4	7.260	19.120	7.260	3.600
5	5	10.520	19.120	10.520	3.600
6	6	11.470	19.120	11.470	3.600
7	A	1.150	0.000	2.370	0.000
8	B	0.000	1.760	3.520	1.760
9	C	0.000	3.600	10.520	3.600
10	D	0.000	6.100	11.550	6.100
11	G	10.520	16.620	11.470	16.620
12	H	0.000	19.120	10.520	19.120

KNOPEN

Knoop	X	Z	Knoop	X	Z
1	1.150	-0.000	6	9.660	3.600
2	2.370	-0.000	7	7.260	5.820
3	-0.000	1.760	8	7.260	7.920
4	3.520	1.760			
5	11.470	11.600			

BALKEN

Nr.	Naam	Begin	Eind	Profiel
1	1	1	2	1:B*H 350*450
2	2	1	3	1:B*H 350*450
3	3	3	1;H	1:B*H 350*450
4	4	4	2;C	1:B*H 350*450
5	5	2	4	1:B*H 350*450
6	6	3;C	3;H	1:B*H 350*450
7	7	4;C	7	1:B*H 350*450
8	8	5;G	5;H	1:B*H 350*450
9	9	2;C	6	1:B*H 350*450
10	10	4	2;C	1:B*H 350*450
11	12	5;G	6;G	1:B*H 350*450
12	13	5	6;G	1:B*H 350*450
13	17	1;H	5;H	1:B*H 350*450
14	18	5	6;G	1:B*H 350*450
15	19	8	4;H	1:B*H 350*450

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

BALKEN vervolg

Nr.	Naam	Aansl. begin	Aansl. eind	Excentr.	Pasm. begin	Pasm. eind	Opm
1	1	WDM	WDM	0.000	0.000	0.000	
2	2	WDM	WDM	0.000	0.000	0.000	
3	3	WDM	WDM	0.000	0.000	0.000	
4	4	WDM	WDM	0.000	0.000	0.000	
5	5	WDM	WDM	0.000	0.000	0.000	
6	6	WDM	WDM	0.000	0.000	0.000	
7	7	WDM	WDM	0.000	0.000	0.000	
8	8	WDM	WDM	0.000	0.000	0.000	
9	9	WDM	WDM	0.000	0.000	0.000	
10	10	WDM	WDM	0.000	0.000	0.000	
11	12	WDM	WDM	0.000	0.000	0.000	
12	13	WDM	WDM	0.000	0.000	0.000	
13	17	WDM	WDM	0.000	0.000	0.000	
14	18	WDM	WDM	0.000	0.000	0.000	
15	19	WDM	WDM	0.000	0.000	0.000	

Opmerkingen:

De torsie traagheid van alle balken is tot 20% gereduceerd

STEUNPUNTTYPE

Nr. : 1 ☒ Rotatie X:Vrij
 Min.afst.: 0.500 Verplaatsing Z:Veerwaarde: 50000
 Rotatie Y:Vrij

STEUNPUNTEN

Nr.	Steunpunttype	Balk	Positie	Excentr.	Opm:
1	1:	1:1	0.610	0.000	
2	1:	3:3	0.000	0.000	
3	1:	3:3	2.900	0.000	
4	1:	3:3	5.800	0.000	
5	1:	3:3	8.700	0.000	
6	1:	3:3	11.600	0.000	
7	1:	3:3	14.500	0.000	
8	1:	3:3	17.36	0.000	
9	1:	4:4	0	0.000	
10	1:	6:6	2.500	0.000	
11	1:	6:6	4.73	0.000	
12	1:	6:6	7.045	0.000	
13	1:	6:6	9.36	0.000	
14	1:	6:6	11.045	0.000	
15	1:	6:6	12.73	0.000	
16	1:	6:6	15.52	0.000	
17	1:	7:7	1.250	0.000	
18	1:	8:8	0.000	0.000	
19	1:	8:8	2.500	0.000	
20	1:	9:9	0.000	0.000	
21	1:	9:9	2.700	0.000	

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

STEUNPUNTEN

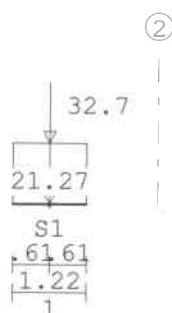
Nr.	Steunpunttype	Balk	Positie	Excentr. om:
22	1:	9.8	5.200	0.000
23	1:	12:13	1.000	0.000
24	1:	12:13	2.500	0.000
25	1:	12:13	4.500	0.000
26	1:	15:19	0.41	0.000
27	1:	15:19	2.410	0.000
28	1:	15:19	5.04	0.000
29	1:	15:19	6.725	0.000
30	1:	15:19	8.41	0.000
31	1:	15:19	11.2	0.000

BELASTINGGEVALLEN

B.G. Omschrijving	Belast/onbelast	Ψ_0	Ψ_1	Ψ_2	e.g.
1 Permanent	0:Alles tegelijk	0.70	0.70	0.60	0.00
2 Veranderlijk	0:Alles tegelijk	0.70	0.70	0.60	0.00

VELDBELASTINGEN

Balk 1:1 B.G:1 Permanent

**VELDBELASTINGEN**

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
1:1	1 1:q-last	-21.270	-21.270	0.000	1.220	0.000
1:1	2 8:Puntlast	-32.700		0.610		0.000

VELDBELASTINGEN

Balk 2:2 B.G:1 Permanent



Project...: - Cafe- Restaurant 't Leeuwkje Noorden
Onderdeel: Fundering

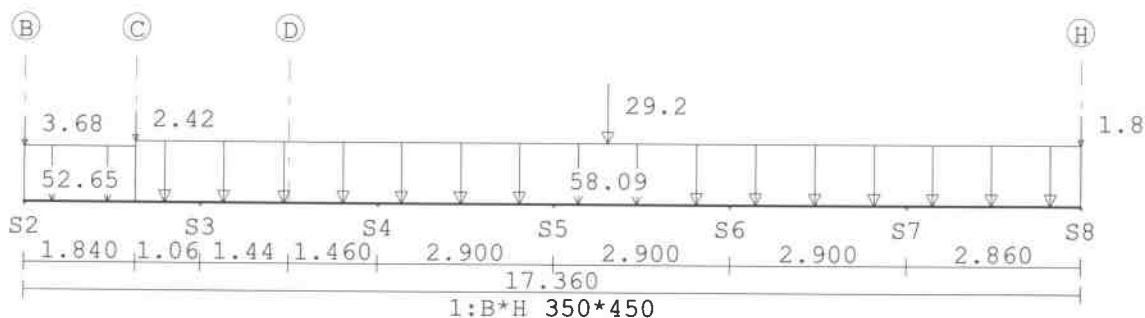
VELDBELASTINGEN

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
2:2	1 1:q-last	-21.270	-21.270	0.000	2.102	0.00

VELDBELASTINGEN

Balk 3:2 B.G:1 Permanent



VELDBELASTINGEN

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
3:3	1 1:q-last	-52.650	-52.650	0.000	1.840	0.000
3:3	2 1:q-last	-58.090	-58.090	1.840	15.520	0.000
3:3	3 8:Puntlast	-3.680		0.000		0.000
3:3	4 8:Puntlast	-2.420		1.840		0.000
3:3	5 8:Puntlast	-29.200		9.600		0.000
3:3	6 8:Puntlast	-1.800		17.360		0.000

VELDBELASTINGEN

Balk 4:4 B.G:1 Permanent



VELDBELASTINGEN

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
4:4	1 1:q-last	-62.010	-62.010	0.000	1.840	0.000
4:4	2 8:Puntlast	-18.250		0.000		0.000

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Ond. ideeel: Fundering

VELDBELASTINGEN

Balk 5:5 B.G:1 Permanent

VERVANGEN



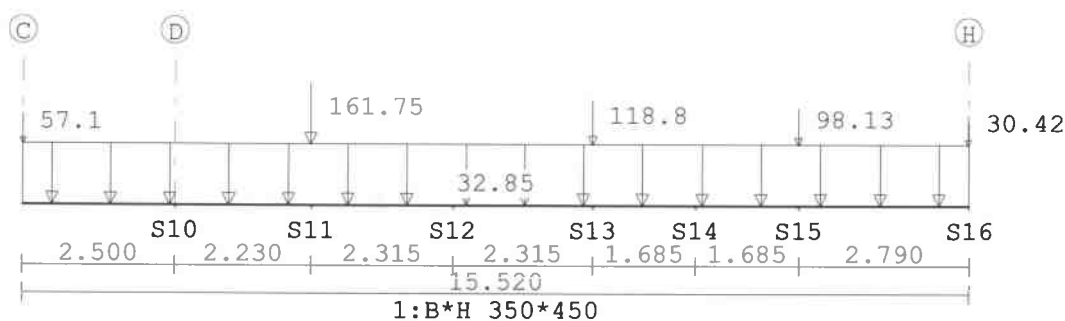
VELDBELASTINGEN

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
5:5	1 1:q-last	-21.270	-21.270	0.000	2.102	0.000

VELDBELASTINGEN

Balk 6:6 B.G:1 Permanent



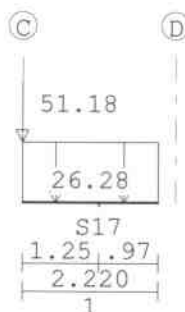
VELDBELASTINGEN

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
6:6	1 1:q-last	-32.850	-32.850	0.000	15.520	0.000
6:6	2 8:Puntlast	-57.100		0.000		0.000
6:6	3 8:Puntlast	-161.750		4.730		0.000
6:6	4 8:Puntlast	-118.800		9.360		0.000
6:6	5 8:Puntlast	-98.130		12.730		0.000
6:6	6 8:Puntlast	-30.420		15.520		0.000

VELDBELASTINGEN

Balk 7:7 B.G:1 Permanent



Project...: - Cafe- Restaurant 't Leeuwte Noorden

Onderdeel: Fundering

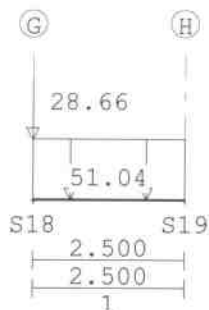
VELDBELASTINGEN

B.G:1 Permanent

Balk	Last	Type	q1/p/m	q2	Afstand	Lengte	Exc.
7:7	1	1:q-last	-26.280	-26.280	0.000	2.220	0.000
7:7	2	8:Puntlast	-51.180		0.000		0.000

VELDBELASTINGEN

Balk 8:8 B.G:1 Permanent

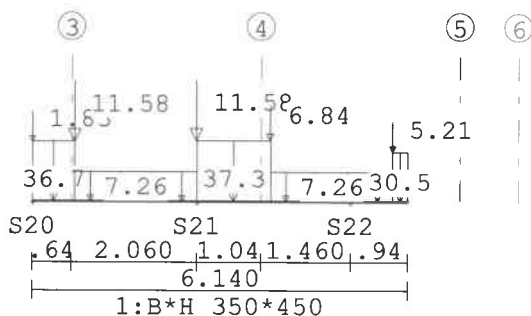
**VELDBELASTINGEN**

B.G:1 Permanent

Balk	Last	Type	q1/p/m	q2	Afstand	Lengte	Exc.
8:8	1	1:q-last	-51.040	-51.040	0.000	2.500	0.000
8:8	2	8:Puntlast	-28.660		0.000		0.000

VELDBELASTINGEN

Balk 9:9 B.G:1 Permanent

**VELDBELASTINGEN**

B.G:1 Permanent

Balk	Last	Type	q1/p/m	q2	Afstand	Lengte	Exc.
9:9	1	1:q-last	-36.700	-36.700	0.000	0.700	0.000
9:9	2	1:q-last	-7.260	-7.260	0.700	2.000	0.000
9:9	3	1:q-last	-37.300	-37.300	2.700	1.200	0.000
9:9	4	1:q-last	-7.260	-7.260	3.900	2.000	0.000
9:9	5	1:q-last	-30.500	-30.500	5.900	0.240	0.000
9:9	6	8:Puntlast	-1.830		0.000		0.000
9:9	7	8:Puntlast	-11.580		0.700		0.000
9:9	8	8:Puntlast	-11.580		2.700		0.000
9:9	9	8:Puntlast	-6.840		3.900		0.000
9:9	10	8:Puntlast	-5.210		5.900		0.000

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

VELDBELASTINGEN

Balk 10:10 B.G:1 Permanent

VERVANGEN**VELDBELASTINGEN**

Balk 11:12 B.G:1 Permanent

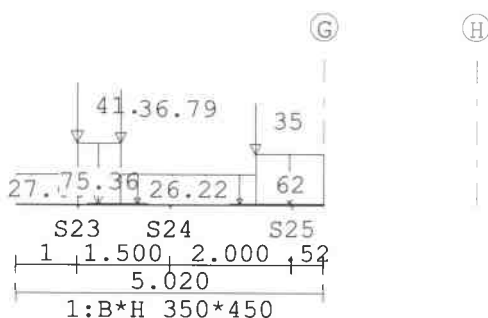
**VELDBELASTINGEN**

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
11:12	1 1:q-last	-28.300	-28.300	0.000	0.950	0.000

VELDBELASTINGEN

Balk 12:13 B.G:1 Permanent

**VELDBELASTINGEN**

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
12:13	1 1:q-last	-27.660	-27.660	0.000	1.000	0.000
12:13	2 1:q-last	-75.360	-75.360	1.000	0.700	0.000
12:13	3 1:q-last	-26.220	-26.220	1.700	2.200	0.000
12:13	4 1:q-last	-62.000	-62.000	3.900	1.120	0.000
12:13	5 8:Puntlast	-41.510		1.000		0.000
12:13	6 8:Puntlast	-36.790		1.700		0.000

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

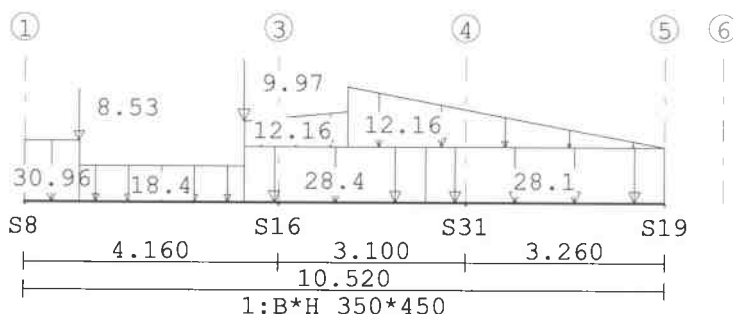
VELDBELASTINGEN

B.G:1 Permanent

Balk	Last	Type	q1/p/m	q2	Afstand	Lengte	Exc.
12:13	7	8:Puntlast	-85.000		8.900		0.000

VELDBELASTINGEN

Balk 13:17 B.G:1 Permanent



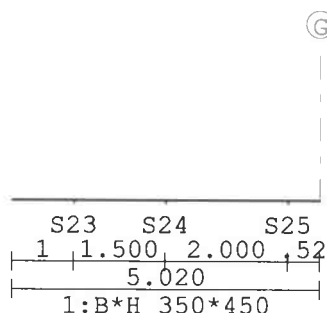
VELDBELASTINGEN

B.G:1 Permanent

Balk	Last	Type	q1/p/m	q2	Afstand	Lengte	Exc.
13:17	1	1:q-last	-30.960	-30.960	0.000	0.900	0.000
13:17	2	1:q-last	-18.400	-18.400	0.900	2.700	0.000
13:17	3	1:q-last	-28.400	-28.400	3.600	3.000	0.000
13:17	4	1:q-last	-28.100	-28.100	6.600	3.920	0.000
13:17	5	1:q-last	-8.960	-12.160	3.600	1.700	0.000
13:17	6	1:q-last	-12.160	0.000	5.300	5.220	0.000
13:17	7	8:Puntlast	-8.530		0.900		0.000
13:17	8	8:Puntlast	-9.970		3.600		0.000

VELDBELASTINGEN

Balk 14:18 B.G:1 Permanent



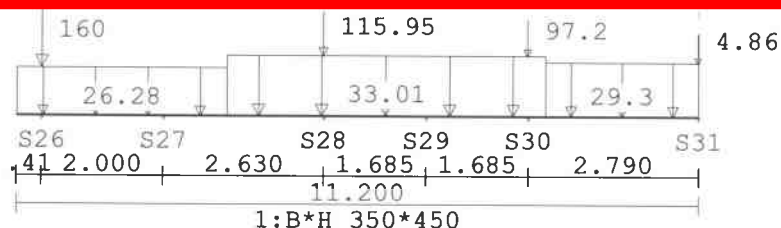
Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

VELDBELASTINGEN

Balk 15:19 B.G:1 Permanent

VERVANGEN



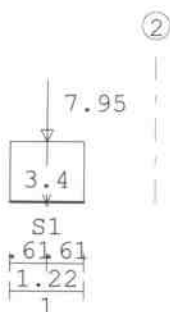
VELDBELASTINGEN

B.G:1 Permanent

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
15:19	1 1:q-last	-26.280	-26.280	0.000	3.440	0.000
15:19	2 1:q-last	-33.010	-33.010	3.440	5.260	0.000
15:19	3 1:q-last	-29.300	-29.300	8.700	2.500	0.000
15:19	4 8:Puntlast	-160.000		0.410		0.000
15:19	5 8:Puntlast	-115.950		5.040		0.000
15:19	6 8:Puntlast	-97.200		8.410		0.000
15:19	7 8:Puntlast	-4.860		11.200		0.000

VELDBELASTINGEN

Balk 1:1 B.G:2 Veranderlijk



VELDBELASTINGEN

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
1:1	1 1:q-last	-3.400	-3.400	0.000	1.220	0.000
1:1	2 8:Puntlast	-7.950		0.610		0.000

Project...: - Cafe- Restaurant 't Leeuwkje Noorden

Onderdeel: Fundering

VELDBELASTINGEN

Balk 2:2 B.G:2 Veranderlijk

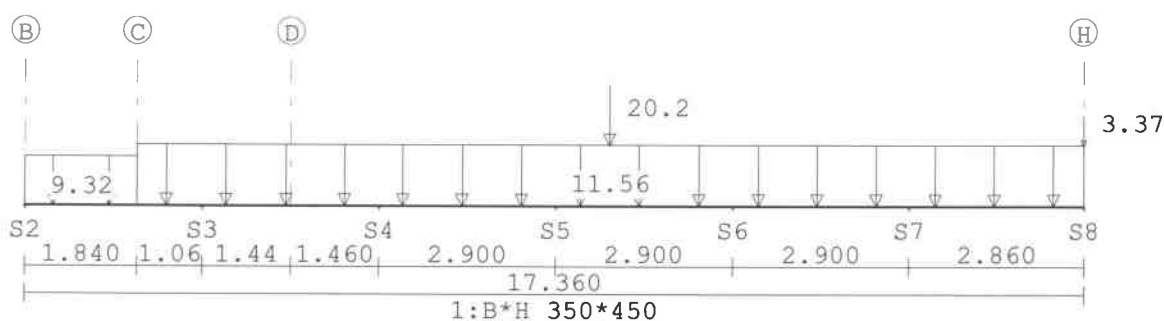
**VELDBELASTINGEN**

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
2:2	1 1:q-last	-3.400	-3.400	0.000	2.102	0.000

VELDBELASTINGEN

Balk 3:3 B.G:2 Veranderlijk

**VELDBELASTINGEN**

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
3:3	1 1:q-last	-9.320	-9.320	0.000	1.840	0.000
3:3	2 1:q-last	-11.560	-11.560	1.840	15.520	0.000
3:3	3 8:Puntlast	-20.200		9.600		0.000
3:3	4 8:Puntlast	-3.370		17.360		0.000

VELDBELASTINGEN

Balk 4:4 B.G:2 Veranderlijk



Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

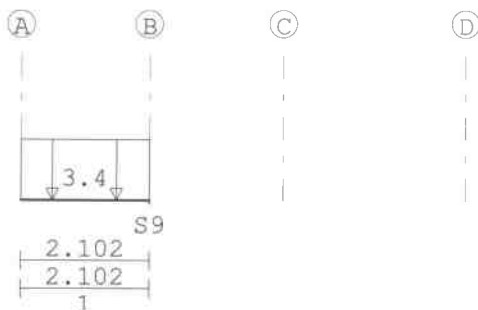
VELDBELASTINGEN

B.G:2 Veranderlijk

Balk	Last	Type	q1/p/m	q2	Afstand	Lengte	Exc.
4:4	1	1:q-last	-9.320	-9.320	0.000	1.840	0.000
4:4	2	8:Puntlast	-13.500		0.000		0.000

VELDBELASTINGEN

Balk 5: B.G:2 Veranderlijk

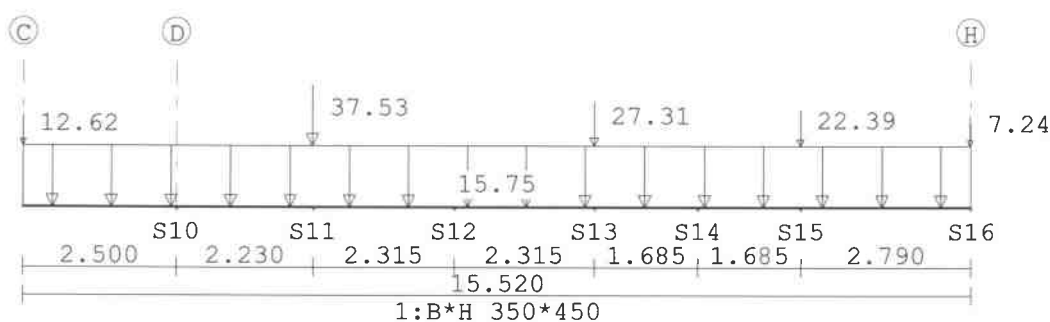
**VELDBELASTINGEN**

B.G:2 Veranderlijk

Balk	Last	Type	q1/p/m	q2	Afstand	Lengte	Exc.
5:5	1	1:q-last	-3.400	-3.400	0.000	2.102	0.000

VELDBELASTINGEN

Balk 6:6 B.G:2 Veranderlijk

**VELDBELASTINGEN**

B.G:2 Veranderlijk

Balk	Last	Type	q1/p/m	q2	Afstand	Lengte	Exc.
6:6	1	1:q-last	-15.750	-15.750	0.000	15.520	0.000
6:6	2	8:Puntlast	-12.620		0.000		0.000
6:6	3	8:Puntlast	-37.530		4.730		0.000
6:6	4	8:Puntlast	-27.310		9.360		0.000
6:6	5	8:Puntlast	-22.390		12.730		0.000
6:6	6	8:Puntlast	-7.240		15.520		0.000

Project...: Cafe-Restaurant 't Leetwtje Noorden
Onderdeel: Fundering

VELDBELASTINGEN

Balk 7:7 B.G:2 Veranderlijk



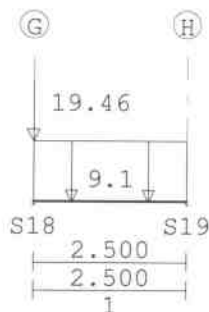
VELDBELASTINGEN

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
7:7	1 1:q-last	-12.100	-12.100	0.000	2.220	0.000
7:7	2 8:Puntlast	-11.180		0.000		0.000

VELDBELASTINGEN

Balk 8:8 B.G:2 Veranderlijk



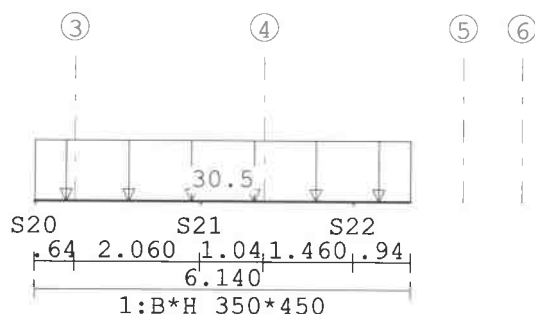
VELDBELASTINGEN

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
8:8	1 1:q-last	-9.100	-9.100	0.000	2.500	0.000
8:8	2 8:Puntlast	-19.460		0.000		0.000

VELDBELASTINGEN

Balk 9:9 B.G:2 Veranderlijk



Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

VELDBELASTINGEN

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
9:9	1 1:q-last	-30.500	-30.500	0.000	6.140	0.000

VELDBELASTINGEN

Balk 11:12 B.G:2 Veranderlijk

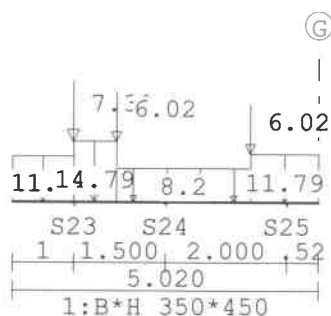

VELDBELASTINGEN

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
11:12	1 8:Puntlast	-3.590		0.950		0.000

VELDBELASTINGEN

Balk 12:13 B.G:2 Veranderlijk


VELDBELASTINGEN

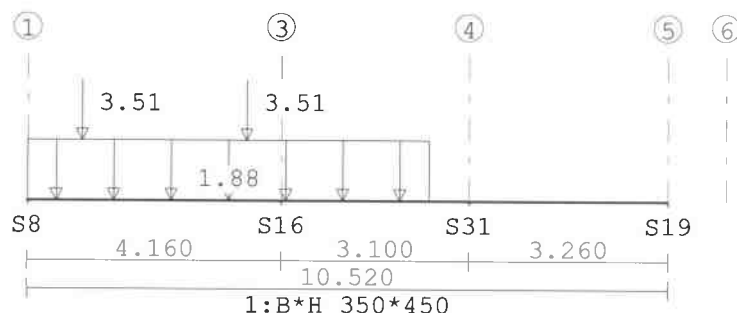
B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
12:13	1 1:q-last	-11.200	-11.200	0.000	1.000	0.000
12:13	2 1:q-last	-14.790	-14.790	1.000	0.700	0.000
12:13	3 1:q-last	-8.200	-8.200	1.700	2.200	0.000
12:13	4 1:q-last	-11.790	-11.790	3.900	1.120	0.000
12:13	5 8:Puntlast	-7.380		1.000		0.000
12:13	6 8:Puntlast	-6.020		1.700		0.000
12:13	7 8:Puntlast	-6.020		3.900		0.000

Project: - Cafe-Restaurant 't Leeuwje Moorde
Onderdeel: Fungering

VELDBELASTINGEN

Balk 13:17 B.G:2 Veranderlijk



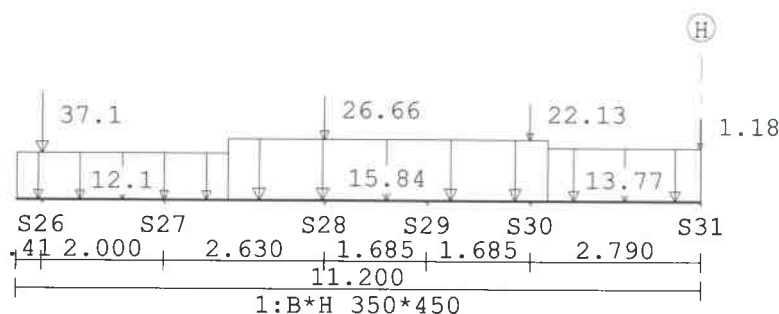
VELDBELASTINGEN

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
13:17	1 1:q-last	-1.880	-1.880	0.000	6.600	0.000
13:17	2 8:Puntlast	-3.510		0.900		0.000
13:17	3 8:Puntlast	-3.510		3.600		0.000

VELDBELASTINGEN

Balk 15:19 B.G:2 Veranderlijk



VELDBELASTINGEN

B.G:2 Veranderlijk

Balk	Last Type	q1/p/m	q2	Afstand	Lengte	Exc.
15:19	1 1:q-last	-12.100	-12.100	0.000	3.440	0.000
15:19	2 1:q-last	-15.840	-15.840	3.440	5.260	0.000
15:19	3 1:q-last	-13.770	-13.770	8.700	2.500	0.000
15:19	4 8:Puntlast	-37.100		0.410		0.000
15:19	5 8:Puntlast	-26.660		5.040		0.000
15:19	6 8:Puntlast	-22.130		8.410		0.000
15:19	7 8:Puntlast	-1.180		11.200		0.000

BELASTINGCOMBINATIES

BC Type	BG Factor	BG Factor	BG Factor	BG Factor	BG Factor
1 Fund.	1	1.35	2	1.50	
2 Fund.	1	1.20	2	1.50	
3 Kar.	1	1.00	2	1.00	
4 Freq.	1	1.00	2	1.00	
5 Quas.	1	1.00	2	1.00	

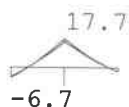
Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

OMHULLENDE VAN DE FUNDAMENTELE COMBINATIES

MOMENTEN Fysisch lineair

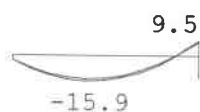
Balk 1:1 Fundamentele combinatie



△
S1

MOMENTEN Fysisch lineair

Balk 2:2 Fundamentele combinatie

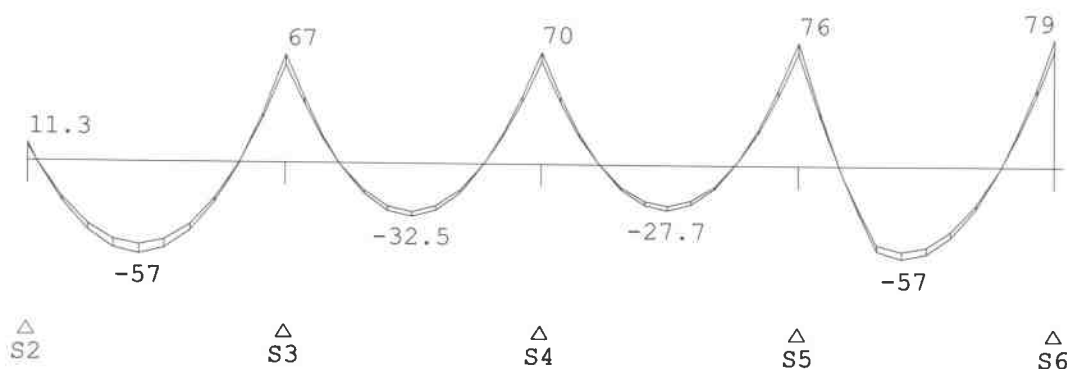


△
S2

MOMENTEN Fysisch lineair

Balk 3:3 Fundamentele combinatie

Velden: 1 t/m 4



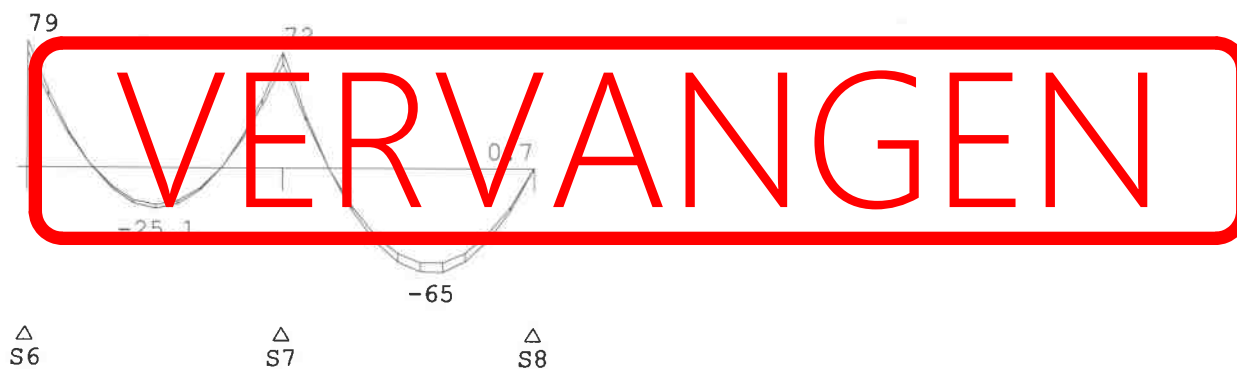
Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

MOMENTEN Fysisch lineair

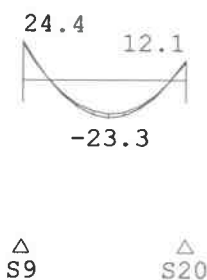
Balk 3:3 Fundamentele combinatie

Velden: 5 t/m 6



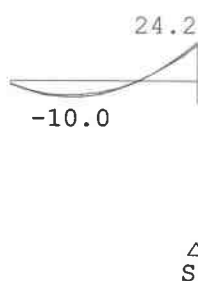
MOMENTEN Fysisch lineair

Balk 4:4 Fundamentele combinatie



MOMENTEN Fysisch lineair

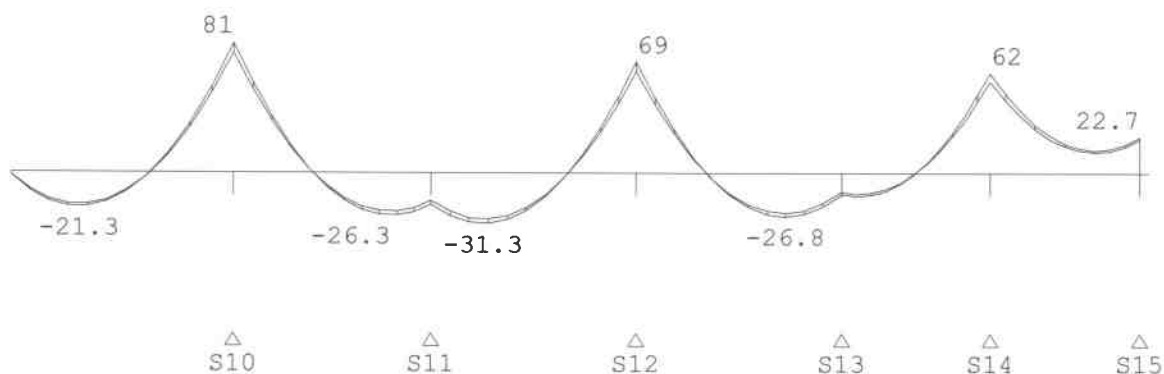
Balk 5:5 Fundamentele combinatie



MOMENTEN Fysisch lineair

Balk 6:6 Fundamentele combinatie

Velden: 1 t/m 6



Project...: - Cafe- Restaurant 't Leeuwtje Noorden

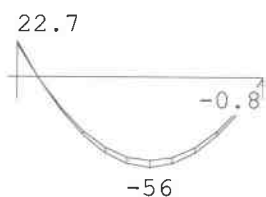
Onderdeel: Fundering

MOMENTEN Fysisch lineair

Balk 6:6 Fundamentele combinatie

Velden: 7 t/m 7

VERVANGEN



Δ
S15

MOMENTEN Fysisch lineair

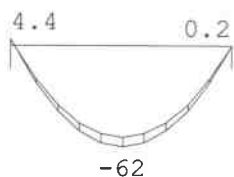
Balk 7:7 Fundamentele combinatie



Δ
S17

MOMENTEN Fysisch lineair

Balk 8:8 Fundamentele combinatie

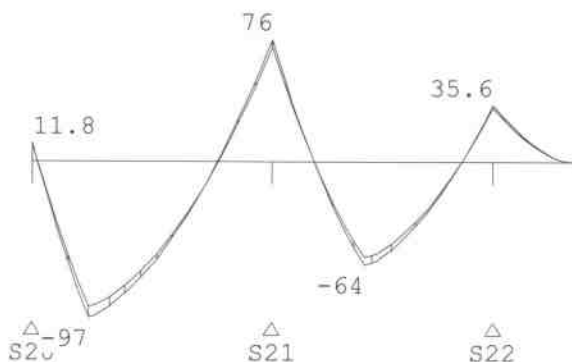


Δ
S18

Δ
S19

MOMENTEN Fysisch lineair

Balk 9:9 Fundamentele combinatie



Δ
S20

Δ
S21

Δ
S22

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

MOMENTEN Fysisch lineair

Balk 10:10 Fundamentele combinatie

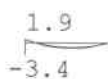


Δ
S9

Δ
S20

MOMENTEN Fysisch lineair

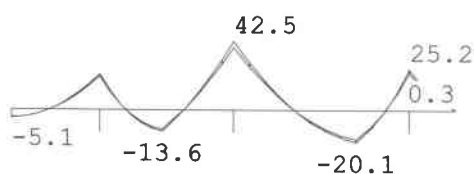
Balk 11:12 Fundamentele combinatie



Δ
S18

MOMENTEN Fysisch lineair

Balk 12:13 Fundamentele combinatie



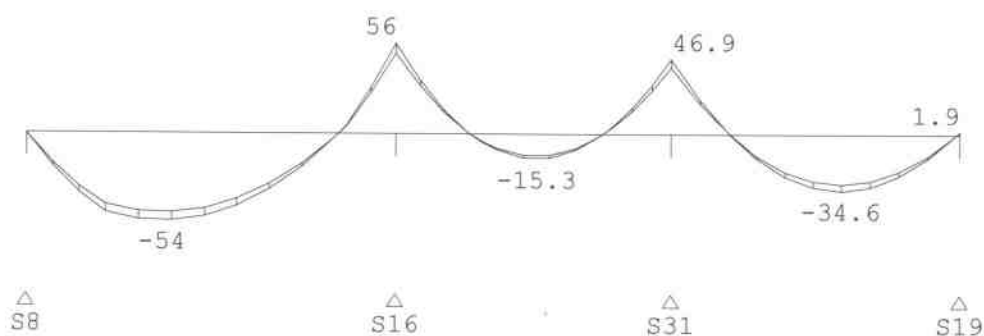
Δ
S23

Δ
S24

Δ
S25

MOMENTEN Fysisch lineair

Balk 13:17 Fundamentele combinatie



Δ
S8

Δ
S16

Δ
S31

Δ
S19

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

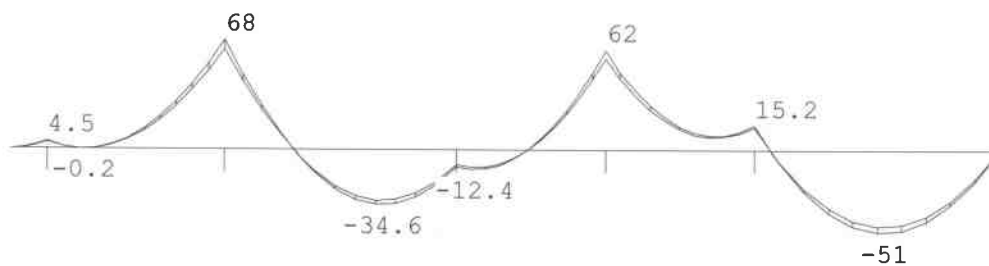
Onderdeel: Fundering

MOMENTEN Fysisch lineair

Balk 14:18 Fundamentele combinatie

 Δ
S23 Δ
S24 Δ
S25**MOMENTEN** Fysisch lineair

Balk 15:19 Fundamentele combinatie

 Δ
S26 Δ
S27 Δ
S28 Δ
S29 Δ
S30**REACTIES** Fysisch lineair

Fundamentele combinatie

Balk	Stp	MX		Z		MY	
		min.	max.	min.	max.	min.	max.
1	1	-0.00	0.00	135.92	149.96	-0.00	-0.00
2	2	-0.00	0.00	139.48	153.86	0.00	0.00
3	2	-0.00	0.00	139.48	153.86	0.00	0.00
3	3	-0.00	0.00	265.02	291.78	-0.00	0.00
3	4	-0.00	0.00	251.10	276.27	0.00	0.00
3	5	-0.00	0.00	298.86	327.21	-0.00	0.00
3	6	0.00	0.00	275.96	302.77	0.00	0.00
3	7	-0.00	0.00	271.00	298.24	0.00	0.00
3	8	-0.00	-0.00	176.10	193.76	-0.00	-0.00
4	9	-0.00	-0.00	179.82	196.34	-0.00	-0.00
4	20	-0.00	-0.00	257.90	279.14	0.00	0.00
5	9	-0.00	-0.00	179.82	196.34	-0.00	-0.00
6	10	-0.00	0.00	220.57	238.39	0.00	0.00
6	11	-0.00	-0.00	317.74	346.08	0.00	0.00
6	12	0.00	0.00	213.23	231.15	-0.00	0.00
6	13	-0.00	-0.00	236.29	256.88	0.00	0.00
6	14	0.00	0.00	168.64	182.94	-0.00	0.00
6	15	0.00	0.00	278.67	303.03	-0.00	0.00
6	16	-0.00	-0.00	303.20	333.69	-0.00	0.00

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

REACTIES Fysisch lineair Fundamentele combinatie

Balk	Stijl	MX	MY	Z	MY
		min.	max.	min.	max.
7	17	-0.00	-0.00	99.55	107.40
8	18	-0.00	0.00	176.60	192.88
8	19	-0.00	0.00	139.67	155.09
9	20	-0.00	-0.00	257.90	279.14
9	21	-0.00	0.00	320.70	341.39
9	22	-0.00	-0.00	168.59	176.71
10	9	-0.00	-0.00	179.82	196.34
10	20	-0.00	-0.00	257.90	279.14
11	18	-0.00	0.00	176.60	192.88
12	23	-0.00	0.00	197.05	215.88
12	24	-0.00	0.00	152.38	167.25
12	25	-0.00	-0.00	163.69	179.89
13	8	-0.00	-0.00	176.10	193.76
13	16	-0.00	-0.00	303.20	333.69
13	31	-0.00	0.00	228.64	253.33
13	19	-0.00	0.00	139.67	155.09
15	26	-0.00	-0.00	288.78	315.71
15	27	-0.00	0.00	177.79	192.68
15	28	0.00	0.00	246.76	268.16
15	29	-0.00	0.00	171.14	185.63
15	30	-0.00	0.00	262.98	286.14
15	31	-0.00	0.00	228.64	253.33

PROFIELGEGEVENS Balk**[N] [mm]**

t.b.v. profiel:1 B*H 350*450

Algemeen

Materiaal : C20/25

Oppervlak : 1.575000e+005

Staaftype : 0:normaal

Traagheid : 2.6578e+009

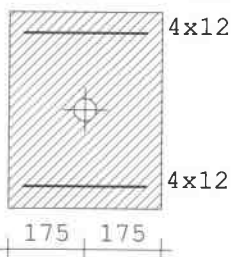
Vormfactor : 0.00

Doorsnede

breedte : 350 hoogte : 450

zwaartepunt tov onderkant : 225

Referentie : Boven



Fictieve dikte

: 196.9

Betonkwaliteit element	: C20/25	Kruipcoëf.	: 3.010
Soort spanningsrekdiagram	: Parabolisch - rechthoekig diagram		
Staalkwaliteit hoofdwapening	: 500	ϵ_{uk}	: 5.00
Soort spanningsrekdiagram	: Bi-lineair diagram met klimmende tak		
Staalkwaliteit beugels	: 500		
Bundels toepassen	: Nee	Breedte stort sleuf:	50

Project...: - Cafe- Restaurant 't Leeuwkje Noorden

Onderdeel: Fundering

Betondekking

Milieu	:	YC2	Onder
Afwerking	:	Controleerbaar	Oncontroleerbaar
Gekozen (minimum) dekking	:	35 (30)	35 (30)
Verlaging van 5mm toepassen	:	Nee	Nee
Zijdekking	:	35	
Grootste korrel	:	31.5	

Wapening

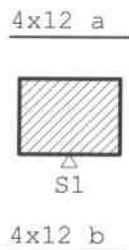
		Boven	Onder
Basiswapening buitenste laag	:	4x12	4x12
Basiswapening 2e laag	:		
H.o.h.afstand 2e laag	:	0	0
Automatisch verhogen basiswap.	:	Nee	Nee
Bijlegdiameters	:	12;16	12;16
Diameter nuttige hoogte	:	12.0	12.0
Min.tussenruimte	:	50	50
Min.tussenruimte naast stortsl.	:	40	

Beugels

Voorkeur h.o.h. afstand	:	300;150;100	
Beugeldiameter	:	8	
Betonkwaliteit	:	C20/25	
Breedte t.b.v. dwarskracht	:	350	Hoogte t.b.v. dwarskr: 450
Aantal beugelsneden per beugel	:	2	

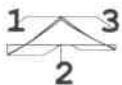
Hoofdwapening Fysisch lineair

Balk 1:1



Med dekkingslijn Fysisch lineair

Balk 1:1



△
S1

Project...: - Cafe- Restaurant 't Leeuwtje Noorden
Onderdeel: Fundering

Hoofdwapening

Balk 1:1

Geb.	Pos. [mm]	M_{Ed} [kNm]	z B/O [mm]	Ab [mm ²]	Aa [mm ²]	Basiswapening +Bijlegwapening	Opm.
1	S1-610	-6.67	378 Ond	140*	453	4x12	1,2
2	S1+0	17.69	378 Bov	140*	453	4x12	1,2

Opmerkingen

[1] * = Minimum wapening toegepast

[2] 5.3.1 (4) Gedrongen ligger is ivm aanwezigheid detailleringseisen beschouwd als standaard balk

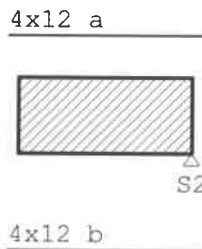
Wring- en dwarskrachtwapening

Balk 1:1

Geb.	Vanaf [mm]	Tot n [mm]	Bgl [mm]	Hoh [mm]	Lengte [mm]	<Wringing> A_{langs} [mm ²]	<Dwarskr.> A_{bgl} [mm ² /m]	A_{opg} [mm ²]	V_{Ed} [kN]	T_{Ed} [kNm]	Opm.
1	S1-610	S1+0	2	8.0	300	610	0	0	0	50	1
2	S1+0	S1+610	2	8.0	300	610	0	0	0	44	1

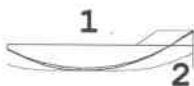
Hoofdwapening Fysisch lineair

Balk 2:2



MEd dekkingslijn Fysisch lineair

Balk 2:2



△
S2

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

Hoofdwapening

Balk 2:2

Geb.	Pos.	I_{Ed}	z	B/O	A_b	A_a	Basiswapening	Opm.
	[mm]	[km^4]	[mm]		[mm^2]	[mm]	Bijlgwapening	
1	S2-1226	-15.92	378	Ond	140*	453	4x12	1
2	S2-0	9.50	378	Bov	140*	453	4x12	1

Opmerkingen

[1] * = Minimum wapening toegepast

Wring- en dwarskrachtwapening

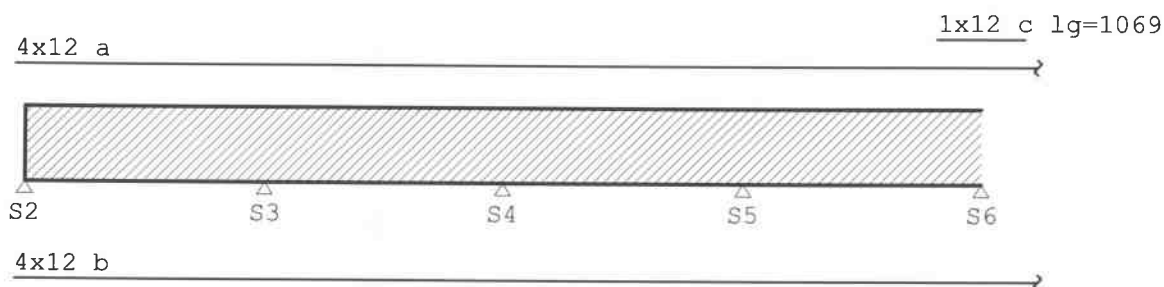
Balk 2:2

Geb.	Vanaf	Tot n	Bgl	Hoh	Lengte	<Wringing>	<Dwarskr.>				
	[mm]	[mm]	[mm]	[mm]	[mm]	A_{lang}	A_{bgl}	A_{bgl}	A_{opg}	V_{Ed}	T_{Ed}
						[mm^2]	[mm^2/m]	[mm^2]	[mm^2]	[kN]	[kNm]
1	S2-2102	S2-0	2	8.0	300	2102	237	31	101	0	41
											6

Hoofdwapening Fysisch lineair

Balk 3:3

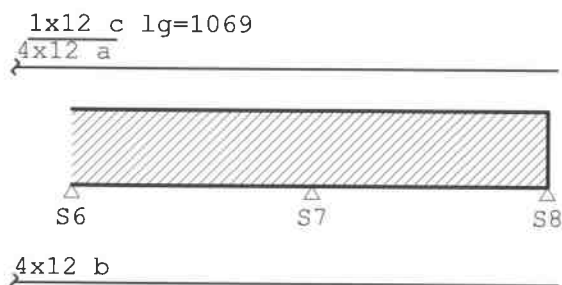
Velden: 1 t/m 4



Hoofdwapening Fysisch lineair

Balk 3:3

Velden: 5 t/m 6



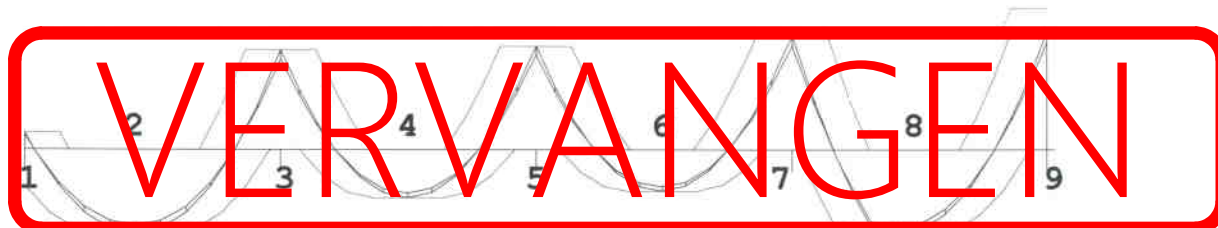
Project..: - Cafe- Restaurant 't Leeuwte Noorden

Onderdeel: Fundering

MEd dekkingslijn Fysisch lineair

Balk 3:3

Velden: 1 t/m 4



△
S2

△
S3

△
S4

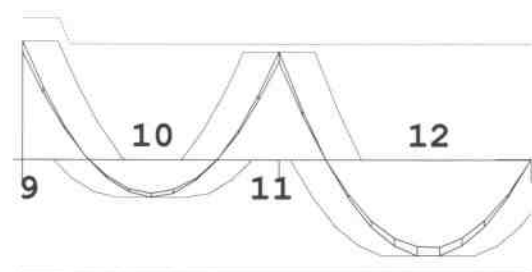
△
S5

△
S6

MEd dekkingslijn Fysisch lineair

Balk 3:3

Velden: 5 t/m 6



△
S6

△
S7

△
S8

Hoofdwapening

Balk 3:3

Geb.	Pos. [mm]	M _{Ed} [kNm]	z B/O [mm]	Ab [mm ²]	Aa [mm ²]	Basiswapening +Bijlegwapening	Opm.
7	S5+0	76.42	378 Bov	449	453	4x12	
12	S8-1170	-64.84	378 Ond	375	453	4x12	
9	S6+0	79.16	373 Bov	467	453	4x12	
			Bov		114	+1x12	
11	S7+0	71.97	378 Bov	420	453	4x12	

Wring- en dwarskrachtwapening

Balk 3:3

Geb.	Vanaf	Tot n	Bgl	Hoh	Lengte	<Wringing >	<Dwarskr.>					
	[mm]	[mm]	[mm]	[mm]	[mm]	A _{langs} [mm ²]	A _{bgl} [mm ² /m]	A _{bgl}	A _{opg} [mm ²]	V _{Ed} [kN]	T _{Ed} [kNm]	Opm.
1	S2+0	S2+850	2	8.0	300	850	5	1	261	0	107	0 6
2	S2+850	S3-1150	2	8.0	300	900	0	0	0	0	41	0
3	S3-1150	S3-250	2	8.0	300	900	5	1	315	0	130	0 6
4	S3-250	S3+0	2	8.0	150	250	5	1	374	0	154	0 6
5	S3+0	S3+250	2	8.0	150	250	5	1	335	0	138	0 6
6	S3+250	S3+1150	2	8.0	300	900	5	1	277	0	114	0 6
7	S3+1150	S4-1150	2	8.0	300	600	0	0	0	0	29	0

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

Vring- en dwarskrachtwapening

Balk 3:3

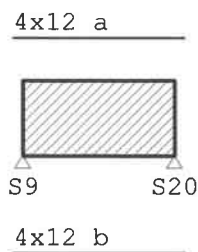
Geb.	Vanaf	Tot	Bgl	Hbh	Lengte	Wringing	Dwarskr					
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm ²]	[mm ² /m]	[mm ²]	[kN]	[kNm]	Opm.	
8	S4-1150	S4-250	2	8.0	300	900	5	1	281	0	116	0 6
9	S4-250	S4+0	2	8.0	150	250	5	1	339	0	139	0 6
10	S4+0	S4+1150	2	8.0	300	1150	5	1	331	0	136	0 6
11	S4+1150	S5-1150	2	8.0	300	600	0	0	0	0	31	0
12	S5-1150	S5-250	2	8.0	300	900	5	1	285	0	117	0 6
13	S5-250	S5+0	2	8.0	150	250	5	1	343	0	141	0 6
14	S5+0	S5+550	2	8.0	150	550	5	1	452	0	186	0 6
15	S5+550	S5+1150	2	8.0	300	600	5	1	324	0	133	0 6
16	S5+1150	S6-1150	2	8.0	300	600	0	0	0	0	51	0
17	S6-1150	S6-550	2	8.0	300	600	5	1	264	0	108	0 6
18	S6-550	S6+0	2	8.0	150	550	5	1	397	0	161	0 6
19	S6+0	S6+250	2	8.0	150	250	5	1	347	0	141	0 6
20	S6+250	S6+1150	2	8.0	300	900	5	1	289	0	117	0 6
21	S6+1150	S7-1150	2	8.0	300	600	0	0	0	0	31	0
22	S7-1150	S7+0	2	8.0	300	1150	5	1	331	0	136	0 6
23	S7+0	S7+530	2	8.0	150	530	5	1	393	0	162	0 6
24	S7+530	S7+1430	2	8.0	300	900	5	1	270	0	111	0 6
25	S7+1430	S8-830	2	8.0	300	600	0	0	0	0	32	0
26	S8-830	S8+0	2	8.0	300	830	5	1	272	0	112	0 6

Opmerkingen

[6] 9.2.2 (4) 50% van de dwarskrachtwapening moet uit beugels bestaan.

Hoofdwapening Fysisch lineair

Balk 4:4



Med dekkingslijn Fysisch lineair

Balk 4:4



△ S9 △ S20

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

Hoofdwapening

Balk 4:4

Geb.	Pos.	M _{Ed}	z	B/O	Ab	Aa	Basiswapening	Opm.
	[mm]	[kNm]	[mm]		[mm ²]	[mm]	+Bijlegwapening	
1	S9+0	24.39	378	hov	157*	453	4x12	1
2	S20-85	23.35	378	Ord	157*	453	4x12	1

Opmerkingen

[1] * Minimum wapening toegepast

Wring- en dwarskrachtwapening

Balk 4:4

Geb.	Vanaf	Tot n	Bgl	Hoh	Lengte	<Wringing>	<Dwarskr.>				
	[mm]	[mm]	[mm]	[mm]	[mm]	A _{langs}	A _{bgl}	A _{bgl}	A _{opg}	V _{Ed}	T _{Ed}
						[mm ²]	[mm ² /m]	[mm ²]	[mm ²]	[kN]	[kNm]
1	S9+0	S9+770	2	8.0	300	770	231	31	234	0	96
2	S9+770	S20-770	2	8.0	300	300	0	0	0	0	21
3	S20-770	S20+0	2	8.0	300	770	231	31	202	0	83

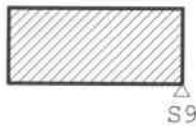
Opmerkingen

[6] 9.2.2 (4) 50% van de dwarskrachtwapening moet uit beugels bestaan.

Hoofdwapening Fysisch lineair

Balk 5:5

4x12 a



4x12 b

MEd dekkingslijn Fysisch lineair

Balk 5:5



△
S9

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

Hoofdwapening

Balk 5:5

Geb.	Pos.	V_{Ed}	z	s/ϕ	Ab	Aa	Basiswapening	Opm.
	[mm]	[Nm]	[mm]		[mm]	[mm ²]	+Bijlegwapening	
1	S9-1	-9.97	378	Ond	140*	453	4x12	1
2	S9-0	24.22	378	Bov	166*	453	4x12	1

Opmerkingen

[1] * = Minimum wapening toegepast

Wring- en dwarskrachtwapening

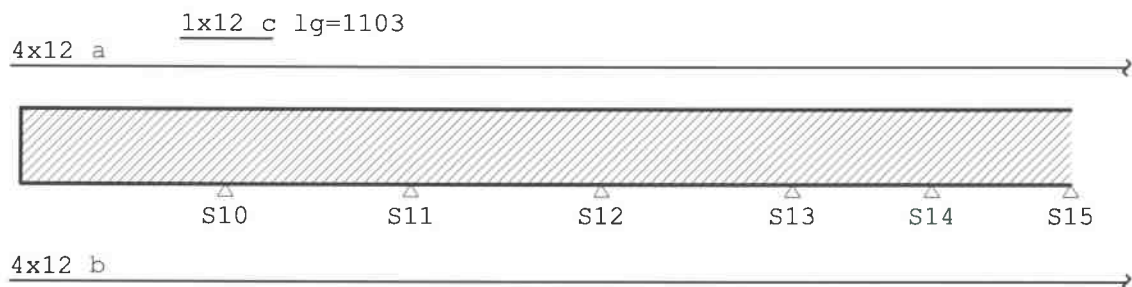
Balk 5:5

Geb.	Vanaf	Tot n	Bgl	Hoh	Lengte	<Wringing>	<Dwarskr.>					
	[mm]	[mm]	[mm]	[mm]	[mm]	A_{langs}	A_{bgl}	A_{bgl}	A_{opg}	V_{Ed}	T_{Ed}	Opm.
						[mm ²]	[mm ² /m]	[mm ²]	[mm ²]	[kN]	[kNm]	
1	S9-2102	S9-0	2	8.0	300	2102	0	0	0	0	48	2

Hoofdwapening Fysisch lineair

Balk 6:6

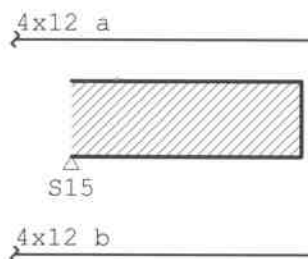
Velden: 1 t/m 6



Hoofdwapening Fysisch lineair

Balk 6:6

Velden: 7 t/m 7



Project...: - Cafe- Restaurant 't Leeuwte Noorden

Onderdeel: Fundering

MEd dekkingslijn Fysisch lineair

Balk 6:6

Veld: 2 t/m 9



Δ
S10

Δ
S11

Δ
S12

Δ
S13

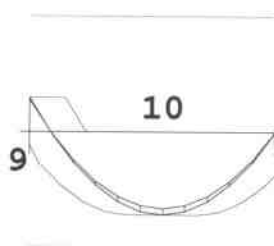
Δ
S14

Δ
S15

MEd dekkingslijn Fysisch lineair

Balk 6:6

Velden: 7 t/m 7



Δ
S15

Hoofdwapening

Balk 6:6

Geb.	Pos. [mm]	M_{Ed} [kNm]	z B/O [mm]	Ab [mm ²]	Aa [mm ²]	Basiswapening +Bijlegwapening	Opm.
10	S16-1271	-55.71	378 Ond	317	453	4x12	
2	S10+0	80.72	373 Bov	477	453	4x12	
			Bov		114	+1x12	
5	S12+0	69.27	378 Bov	403	453	4x12	

Wring- en dwarskrachtwapening

Balk 6:6

Geb.	Vanaf [mm]	Tot n [mm]	Bgl [mm]	Hoh [mm]	Lengte [mm]	<Wringing> A _{langs} [mm ²]	<Dwarskr.> A _{bgl} [mm ² /m]	A _{bgl} [mm ²]	A _{opg} [mm ²]	V _{Ed} [kN]	T _{Ed} [kNm]	Opm.
1	S10-2500	S10-1100	2	8.0	300	1400	0	0	0	0	52	1
2	S10-1100	S10+0	2	8.0	300	1100	20	3	290	0	118	1 6
3	S10+0	S10+1115	2	8.0	300	1115	20	3	297	0	120	1 6
4	S10+1115	S11+0	2	8.0	300	1115	0	0	0	0	45	1
5	S11+0	S11+1157	2	8.0	300	1158	0	0	0	0	40	1
6	S11+1157	S12+0	2	8.0	300	1158	20	3	284	0	117	1 6
7	S12+0	S12+1158	2	8.0	300	1158	20	3	277	0	114	1 6
8	S12+1158	S13+0	2	8.0	300	1158	0	0	0	0	43	1

Project...: - Cafe- Restaurant 't Leeuwte Noorden

Onderdeel: Fundering

Wring- en dwarskrachtwapening

Balk 6:6

Geb.	Vanaf	Tot	Bg	Wdh	Lengte	<Wringing>	<Dwarskr.>					
	[mm]	[mm]	[mm]	[mm]	[mm]	A _{angs}	A _{bjl}	A _{bol}	A _{opg}	V _{Ed}	T _{Ed}	Opm.
						[mm ²]	[mm ² /m]	[mm ²]	[mm ²]	[kN]	[kNm]	
9	S13+0	S13+843	2	8.0	300	843	0	0	0	0	45	1
10	S13+843	S14+0	2	8.0	300	843	20	3	248	0	102	1 6
11	S14+0	S14+542	2	8.0	300	543	20	3	196	0	81	1 6
12	S14+542	S15+0	2	8.0	300	1143	0	0	0	0	44	1
13	S15+0	S15+795	2	8.0	300	795	20	3	251	0	103	1 6
14	S15+795	S16-795	2	8.0	300	1200	0	0	0	0	49	1
15	S16-795	S16+0	2	8.0	300	795	20	3	210	0	86	1 6

Opmerkingen

[6] 9.2.2 (4) 50% van de dwarskrachtwapening moet uit beugels bestaan.

Hoofdwapening Fysisch lineair

Balk 7:7

4x12 a



S17

4x12 b

MED dekkingslijn Fysisch lineair

Balk 7:7



△
S17

Hoofdwapening

Balk 7:7

Geb.	Pos.	M _{Ed}	z	B/O	Ab	Aa	Basiswapening	Opm.
	[mm]	[kNm]	[mm]		[mm ²]	[mm ²]	+Bijlegwapening	
1	S17-1033	-3.38	378	Ond	140*	453	4x12	1,2
2	S17+0	25.23	378	Bov	173*	453	4x12	1,2

Opmerkingen

[1] * = Minimum wapening toegepast

[2] 5.3.1 (3) Gedrongen ligger is ivm afwezigheid detailleringsregels beschouwd als standaard balk.

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

Wring- en dwarskrachtwapening

Balk 7:7

Geb. Vanaf Tot n Bgl Hoh Lengte <Wringing> <Dwarskr.>

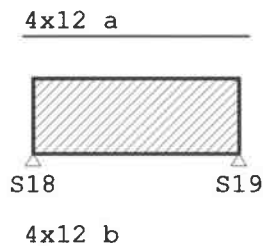
[mm]	[mm]	[mm]	[mm]	[mm]	[mm ²]	[mm ² /m]	[mm ²]	[kN]	[kNm]	Opm.
S17-1250	S17+0	2	8.0	300	1750	0	0	134	0	6
S17+0	S17+970	2	8.0	300	970	0	0	52	0	

Opmerkingen

[1] 9.2.2 (4) 50% van de dwarskrachtwapening moet uit beugels bestaan.

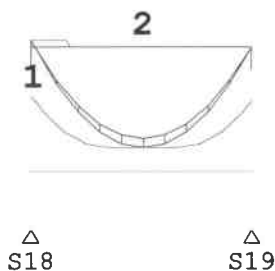
Hoofdwapening Fysisch lineair

Balk 8:8



MEd dekkingslijn Fysisch lineair

Balk 8:8



Hoofdwapening

Balk 8:8

Geb.	Pos. [mm]	M _{Ed} [kNm]	z B/O [mm]	Ab [mm ²]	Aa [mm ²]	Basiswapening +Bijlegwapening	Opm.
1	S18+0	4.43	378 Bov	140*	453	4x12	1
2	S19-1229	-62.21	378 Ond	358	453	4x12	

Opmerkingen

[1] * = Minimum wapening toegepast

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

Wring- en dwarskrachtwapening

Balk 8:8

Geb. Vanaf Tot n Bgl Hoh Lengte <Wringing > <Dwarskr.>

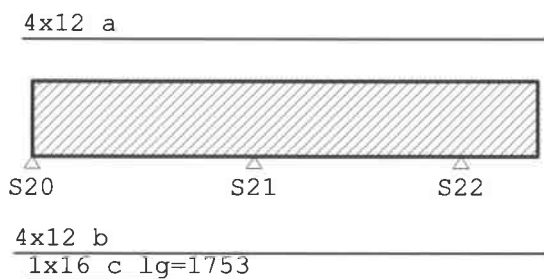
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm ²]	[mm ² /m]	[mm ²]	[kN]	[kNm]		
1	S18+0	S18+800	2	8.0	300	800	73	10	255	0	105	2.6
2	S18+800	S19+800	2	8.0	300	800	0	0	0	39	2.6	
3	S19+800	S19+0	2	8.0	300	800	73	10	246	0	101	2.6

Opmerkingen

[6] 9.2.2 (4) 50% van de dwarskrachtwapening moet uit beugels bestaan.

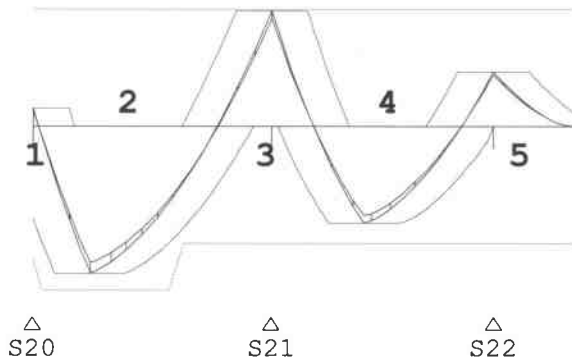
Hoofdwapening Fysisch lineair

Balk 9:9



Med dekkingslijn Fysisch lineair

Balk 9:9



Hoofdwapening

Balk 9:9

Geb.	Pos. [mm]	M _{Ed} [kNm]	z B/O [mm]	Ab [mm ²]	Aa [mm ²]	Basiswapening +Bijlegwapening	Opm.
3	S21+0	76.10	378 Bov	447	453	4x12	
2	S20+640	-96.83	370 Ond	584	453	4x12	
			Ond		202	+1x16	
4	S21+1040	-63.65	378 Ond	367	453	4x12	

Project...: - Cafe- Restaurant 't Leeuwte Noorden

Onderdeel: Fundering

Wring- en dwarskrachtwapening

Balk 9:9

Geb. Vanaf Tot n Bgl Hoh Lengte <Wringing> <Dwarskr.>

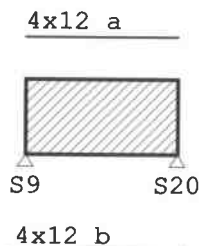
	[m]	[mm]	[mm]	[mm]	[mm]	A_{lans} [mm ²]	A_{bgl} [mm ² /m]	A_{bgl} [mm ²]	A_{opg} [mm ²]	V_{Ed} [kN]	T_{Ed} [kNm]	Opm.
1	S20+0	S20+900	2	8.0	150	800	135	18	497	0	200	3 6
2	S20+900	S21-300	2	8.0	300	1500	83	11	303	0	115	2 6
3	S21-300	S21+0	2	8.0	150	300	83	11	344	0	111	2 6
4	S21+0	S21+800	2	8.0	150	800	83	11	448	0	184	2 6
5	S21+800	S22+0	2	8.0	300	1700	83	11	267	0	110	2 6
6	S22+0	S22+940	2	8.0	300	940	0	0	162	0	67	0 6

Opmerkingen

[6] 9.2.2 (4) 50% van de dwarskrachtwapening moet uit beugels bestaan.

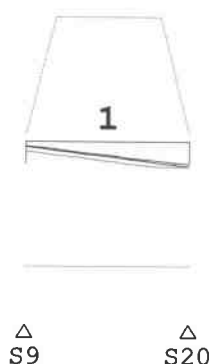
Hoofdwapening Fysisch lineair

Balk 10:10



MEd dekkingslijn Fysisch lineair

Balk 10:10



Hoofdwapening

Balk 10:10

Geb.	Pos. [mm]	M_{Ed} [kNm]	z B/O [mm]	A_b [mm ²]	A_a [mm ²]	Basiswapening +Bijlegwapening	Opm.
1	S20+0	-15.50	378 Ond	140*	453	4x12	1

Opmerkingen

[1] * = Minimum wapening toegepast

Project...: - Cafe- Restaurant 't Leeuwteje Noorden

Onderdeel: Fundering

Wring- en dwarskrachtwapening

Balk 10:10

Geb.	Varaf	Tot n	Bgl	is	Lengte	<Wringing>	<Dwarskr.>						
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm ²]	[mm ² /m]	[mm ²]	[mm ²]	V _{Ed}	T _{Ed}	Opm.	
1	S9+0	S20+0	2	8.0	300	1840	0	0	0	0	7	6	

Hoofdwapening Fysisch lineair

Balk 11:12

4x12 a



S18

4x12 b

MEd dekkingslijn Fysisch lineair

Balk 11:12



△
S18

Hoofdwapening

Balk 11:12

Geb.	Pos.	M _{Ed}	z	B/O	Ab	Aa	Basiswapening	Opm.
	[mm]	[kNm]	[mm]		[mm ²]	[mm ²]	+Bijlegwapening	
1	S18+0	1.87	378	Bov	140*	453	4x12	1,2
2	S18+526	-3.43	378	Ond	140*	453	4x12	1,2

Opmerkingen

[1] * = Minimum wapening toegepast

[2] 5.3.1 (3) Gedrongen ligger is ivm afwezigheid detailleringsregels beschouwd als standaard balk.

Project...: - Cafe- Restaurant 't Leeuwte Noorden

Onderdeel: Fundering

Wring- en dwarskrachtwapening

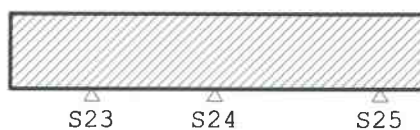
Balk 11:12

Geb.	Vanaf	Tot n	Bgl	Hoh	Lengte	<Wringing>	<Dwarskr.>					
	[mm]	[mm]	[mm]	[mm]	[mm]	A_{lang} [mm ²]	A_{bgl} [mm ² /m]	A_{bgl} [mm ²]	A_{opg} [mm ²]	V_{Ed} [kN]	T_{Ed} [kNm]	Opm.
1	S18+0	S18+950	2	8.0	300	950	0	0	0	0	20	4

Hoofdwapening Fysisch lineair

Balk 12:13

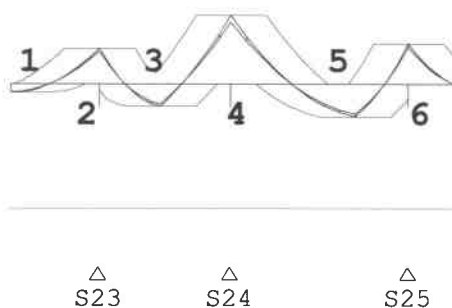
4x12 a



4x12 b

Med dekkingslijn Fysisch lineair

Balk 12:13



Hoofdwapening

Balk 12:13

Geb.	Pos.	M_{Ed}	z	B/O	A_b	A_a	Basiswapening	Opm.
	[mm]	[kNm]	[mm]		[mm ²]	[mm ²]	+Bijlegwapening	
5	S25-600	-20.08	378	Ond	140*	453	4x12	1
4	S24+0	42.51	378	Bov	235	453	4x12	

Opmerkingen

[1] * = Minimum wapening toegepast

Wring- en dwarskrachtwapening

Balk 12:13

Geb.	Vanaf	Tot n	Bgl	Hoh	Lengte	<Wringing>	<Dwarskr.>					
	[mm]	[mm]	[mm]	[mm]	[mm]	A_{lang} [mm ²]	A_{bgl} [mm ² /m]	A_{bgl} [mm ²]	A_{opg} [mm ²]	V_{Ed} [kN]	T_{Ed} [kNm]	Opm.
1	S23-1000	S23+0	2	8.0	300	1000	0	0	132	0	54	0 6
2	S23+0	S24+0	2	8.0	300	1500	0	0	229	0	94	0 6
3	S24+0	S25+0	2	8.0	300	2000	0	0	257	0	105	0 6
4	S25+0	S25+520	2	8.0	300	520	0	0	179	0	74	0 6

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

Dwarskrachtwapening

Balk 12:13

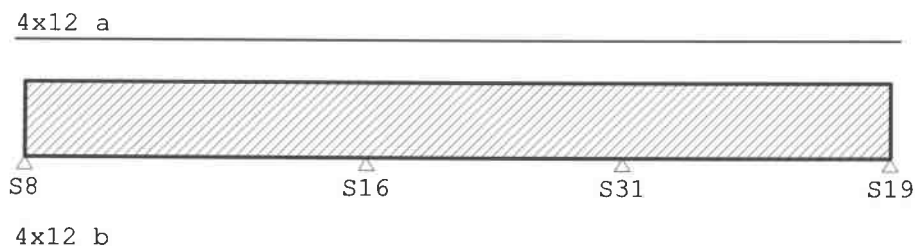
Opmerkingen

[6] 9.2. (4) 50% van de dwarskrachtwapening moet uit beugels bestaan.

VERVANGEN

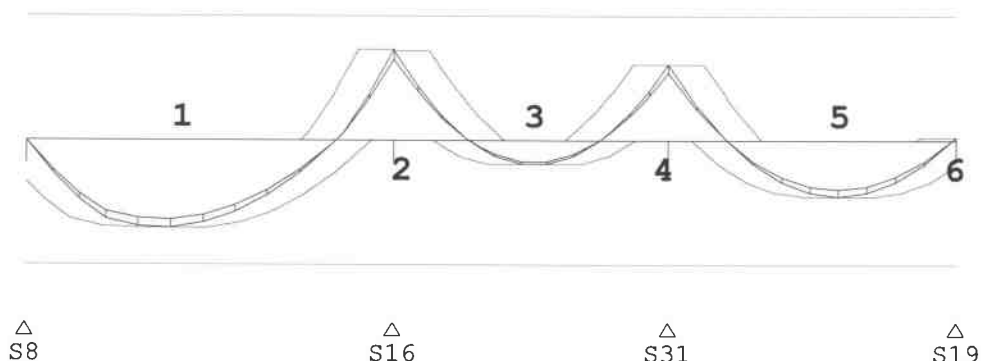
Hoofdwapening Fysisch lineair

Balk 13:17



ME dekkingslijn Fysisch lineair

Balk 13:17



Hoofdwapening

Balk 13:17

Geb.	Pos. [mm]	M_{Ed} [kNm]	z B/O [mm]	A_b [mm ²]	A_a [mm ²]	Basiswapening +Bijlegwapening	Opm.
1	S8+1527	-54.35	378 Ond	308	453	4x12	
2	S16+0	56.13	378 Bov	320	453	4x12	

Wring- en dwarskrachtwapening

Balk 13:17

Geb.	Vanaf [mm]	Tot n [mm]	Bgl [mm]	Hoh [mm]	Lengte [mm]	<Wringing> A_{lang} [mm ²]	<Dwarskr.> A_{bgl} [mm ² /m]	A_{bgl} [mm ²]	A_{opg} [mm ²]	V_{Ed} [kN]	T_{Ed} [kNm]	Opm.
1	S8+0	S8+580	2	8.0	300	580	26	3	180	0	74	1 6
2	S8+580	S16-880	2	8.0	300	2700	0	0	0	0	48	1
3	S16-880	S16+0	2	8.0	300	880	26	3	258	0	106	1 6
4	S16+0	S16+800	2	8.0	300	800	7	1	216	0	89	1 6
5	S16+800	S31-800	2	8.0	300	1500	0	0	0	0	44	0
6	S31-800	S31+0	2	8.0	300	800	7	1	193	0	79	0 6
7	S31+0	S31+880	2	8.0	300	880	7	1	211	0	87	0 6
8	S31+880	S19+0	2	8.0	300	2380	7	1	130	0	53	0

Project...: - Cafe- Restaurant 't Leeuwkje Noorden
Ond. type: Fundering

Dwarskrachtwapening

Balk 13: 7

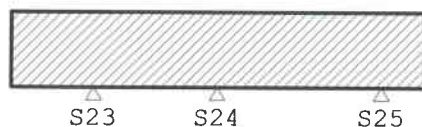
Opmerkingen

[6] 9.2.2. (4) 50% van de dwarskrachtwapening moet uit hangende bestaan

Hoofdwapening Fysisch lineair

Balk 14:18

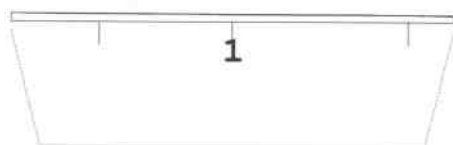
4x12 a



4x12 b

MED dekkingslijn Fysisch lineair

Balk 14:18



△ S23 △ S24 △ S25

Hoofdwapening

Balk 14:18

Geb.	Pos. [mm]	M _{Ed} [kNm]	z B/O [mm]	Ab [mm ²]	Aa [mm ²]	Basiswapening +Bijlegwapening	Opm.
1	S23-1000	5.07	378 Bov	140*	453	4x12	1

Opmerkingen

[1] * = Minimum wapening toegepast

Wring- en dwarskrachtwapening

Balk 14:18

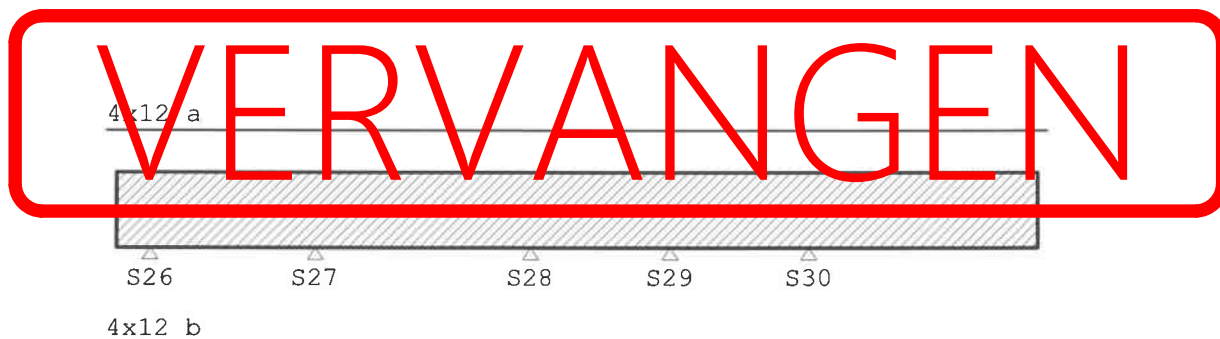
Geb.	Vanaf [mm]	Tot n [mm]	Bgl [mm]	Hoh [mm]	Lengte [mm]	<Wringing> A _{langs} [mm ²]	<Dwarskr.> A _{bgl} [mm ² /m]	A _{opg} [mm ²]	V _{Ed} [kN]	T _{Ed} [kNm]	Opm.
1	S23-1000	S25+520	2	8.0	300	5020	0	0	0	0	0

Project...: - Cafe- Restaurant 't Leeuwtje Noorden

Onderdeel: Fundering

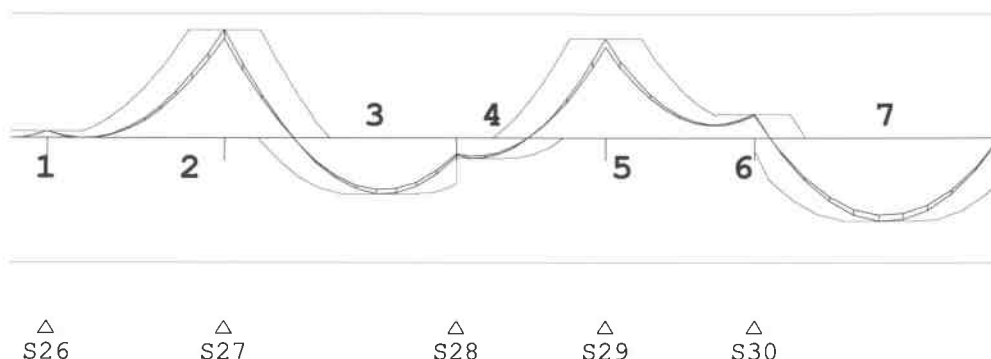
Hoofdwapening Fysisch lineair

Balk 15:19



MEd dekkingslijn Fysisch lineair

Balk 15:19



Hoofdwapening

Balk 15:19

Geb.	Pos. [mm]	M_{Ed} [kNm]	z B/O [mm]	Ab [mm ²]	Aa [mm ²]	Basiswapening +Bijlegwapening	Opm.
2	S27+0	67.62	378 Bov	392	453	4x12	
7	S31-1306	-51.39	378 Ond	290	453	4x12	

Wring- en dwarskrachtwapening

Balk 15:19

Geb.	Vanaf [mm]	Tot n [mm]	Bgl [mm]	Hoh [mm]	Lengte [mm]	<Wringing> A _{langs} [mm ²]	<Dwarskr.> A _{bgl} [mm ² /m]	A _{bgl} [mm ²]	A _{opg} [mm ²]	V _{Ed} [kN]	T _{Ed} [kNm]	Opm.
1	S26-410	S26+0	2	8.0	300	410	0	0	0	0	22	0
2	S26+0	S27+0	2	8.0	300	2000	0	0	207	0	85	0 6
3	S27+0	S28+0	2	8.0	300	2630	0	0	261	0	107	0 6
4	S28+0	S29+0	2	8.0	300	1685	0	0	244	0	100	0 6
5	S29+0	S30+0	2	8.0	300	1685	0	0	206	0	85	0 6
6	S30+0	S31-0	2	8.0	300	2790	0	0	223	0	91	0 6

Opmerkingen

[6] 9.2.2 (4) 50% van de dwarskrachtwapening moet uit beugels bestaan.