

berekend advies

Zeilbergsestraat 43
5751 LH Deurne

telefoon 0493-315438

info@bolwerkweekers.nl
www.bolwerkweekers.nl



versie 02

14-06-2024

statische berekening

23445

47 woningen Abdijlaan te Helmond

INHOUD

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1 ALGEMENE GEGEVENS

1.1 PROJECTGEGEVENS

| | | |
|---------------|---|---|
| Onderdeel | : | statische berekening |
| Constructeur | : | L. v. Dinther |
| Kenmerk | : | 23445-statische berekening-02 |
| Opdrachtgever | : | Nieuw Binderen B.V. |
| Ontwerp | : | VFO architects, Grote Berg 18D, 5611 KK Eindhoven |

Adviezen worden uitgevoerd onder de vigerende voorwaarden zoals omschreven in de DNR2011 die een aansprakelijkheidsbeperking bevat. Een exemplaar van de DNR wordt op verzoek digitaal toegezonden of is te downloaden vanaf <http://www.bolwerkweekers.nl/download/DNR2011.pdf>

1.2 GEBOUWGEGEVENS

| | | |
|---------------------------------------|---|--|
| Type gebouw | : | eengezinswoning met maximaal 3 bouwlagen |
| Windgebied | : | III |
| Omgeving | : | onbebouwd |
| Gevolgklasse | : | CC1 |
| Referentieperiode | : | 50 jaar |
| Brandwerendheid hoofddraagconstructie | : | n.v.t. |

1.3 WIJZIGINGEN

| Kenmerk | datum | wijzigingen |
|-------------------------------|------------|---------------------|
| 23445-statische berekening-01 | 06-02-2024 | - |
| 23445-statische berekening-02 | 14-06-2024 | ontwerp wijzigingen |

1.4 MATERIAALGEGEVENS

| | | |
|---------------------|--|--|
| Betonconstructies: | Betonkwaliteit : Samenstelling volgens zeefanalyse van de betoncentrale. Cement : Betonstaalkwaliteit : | C20/25 CEM I 32,5 R B500 |
| Staalconstructies: | Staalkwaliteit : Elektrisch te lassen : Bouten min. Ankers min. | S 235 min. a = 5mm M16, kwaliteit 8.8. M16, kwaliteit 4.6. |
| Houtconstructies: | Europees naaldhout, Sterkteklasse Klimaatklasse | C18 1 |
| Metselwerk: | Baksteen Porisostuc Kalkzandsteen CS12 Kalkzandsteen klinker CS20 MBI betonsteen Mortelkwaliteit Dilatatie metselwerk volgens opgave fabrikant. | $f'_b = 12.5 \text{ N/mm}^2$ $f'_b = 15.0 \text{ N/mm}^2$ $f'_b = 12.0 \text{ N/mm}^2$ $f'_b = 20.0 \text{ N/mm}^2$ $f'_b = 20.0 \text{ N/mm}^2$ $f'_m = 10.0 \text{ N/mm}^2$ |
| Grondwerken: | Grondwerk ten minste uitvoeren conform NEN-EN 1997-1 en -2 | |
| Normen: | Voor berekening geldende normen zijn de NEN-EN 1990, algemeen NEN-EN 1991-1-1 t/m -7, belastingen NEN-EN 1992-1-1 en -2, beton NEN-EN 1993-1-1, -2 en -8, staal NEN-EN 1994-1-1 en -2, staal-beton NEN-EN 1995-1-1 en -2, hout NEN-EN 1996-1-1 en -2, metselwerk NEN-EN 1997-1-1 en -2, geotechnisch | |
| Detailberekeningen: | Prefab betonconstructies, stalen gevels en dakplaten, werkplaatstekeningen en detailberekeningen volgens tekening en berekening van betreffende fabrikant. | |

1.5 PROJECTOMSCHRIJVING

Aan de Abdijlaan te Helmond is men voornemen woningen te realiseren. Er zijn 41 rijwoningen en 6 patio woningen. De rijwoningen bestaan uit 3 bouwlagen en zijn ca 4.8m breed en 10.0m diep en zijn niet voorzien van een kelder.

De constructie bestaat uit breedplaatvloeren op kalkzandsteenwanden. De stabiliteit wordt voorzien door schijfwerking van vloeren en wanden

De patio woningen bestaan uit 2 bouwlagen en zijn ca 10.0m breed en 10.0m diep en zijn niet voorzien van een kelder.

2 BELASTINGEN

2.1 KAP RIJWONINGEN

| | | | |
|-----------|------------------------|--------------|-----------------------------|
| pannendak | $0.77 / \cos 45^\circ$ | | $g_k = 1.09 \text{ kN/m}^2$ |
| sneeuw | 45° | $\Psi_0 = 0$ | $s_k = 0.28 \text{ kN/m}^2$ |

2.2 KAP PATIOWONINGEN

| | | | |
|-----------|------------------------|--------------|-----------------------------|
| pannendak | $0.77 / \cos 10^\circ$ | | $g_k = 0.78 \text{ kN/m}^2$ |
| sneeuw | 10° | $\Psi_0 = 0$ | $s_k = 0.56 \text{ kN/m}^2$ |

2.3 PLAT DAK BETON KAVEL 1-2, 17-18, 19-24, 31-37 EN PATIOWONINGEN

| | | | |
|--|--------------|--|------------------------------|
| breedplaatvloer $h = 230\text{mm}$ | | | $= 5.75 \text{ kN/m}^2$ |
| afwerking + sedum $< 400\text{kg/m}^2$ | | | $= 5.50 \text{ kN/m}^2$ |
| | | | $g_k = 11.25 \text{ kN/m}^2$ |
| opgelegde belasting | $\Psi_0 = 0$ | | $q_k = 1.00 \text{ kN/m}^2$ |
| sneeuw belasting | $\Psi_0 = 0$ | | $s_k = 0.56 \text{ kN/m}^2$ |

2.4 PLAT DAK BETON PATIOWONINGEN

| | | | |
|--|--------------|--|------------------------------|
| breedplaatvloer $h = 280\text{mm}$ | | | $= 7.00 \text{ kN/m}^2$ |
| afwerking + sedum $< 400\text{kg/m}^2$ | | | $= 5.50 \text{ kN/m}^2$ |
| | | | $g_k = 12.50 \text{ kN/m}^2$ |
| opgelegde belasting | $\Psi_0 = 0$ | | $q_k = 1.00 \text{ kN/m}^2$ |
| sneeuw belasting | $\Psi_0 = 0$ | | $s_k = 0.56 \text{ kN/m}^2$ |

2.5 ZOLDERVLOER BETON

| | | | |
|------------------------------------|----------------|--|-----------------------------|
| breedplaatvloer $h = 230\text{mm}$ | | | $= 5.75 \text{ kN/m}^2$ |
| afwerking 60mm | | | $= 1.20 \text{ kN/m}^2$ |
| | | | $g_k = 6.95 \text{ kN/m}^2$ |
| opgelegde belasting | $\Psi_0 = 0.4$ | | $= 1.75 \text{ kN/m}^2$ |
| | lichte wanden | | $= 1.00 \text{ kN/m}^2$ |
| | | | $q_k = 2.75 \text{ kN/m}^2$ |

2.6 VERDIEPINGSVLOER BETON

breedplaatvloer $h = 230\text{mm}$
afwerking 60mm

$$\begin{aligned} &= 5.75 \text{ kN/m}^2 \\ &= 1.20 \text{ kN/m}^2 \\ g_k &= 6.95 \text{ kN/m}^2 \end{aligned}$$

opgelegde belasting

$\Psi_0 = 0.4$
lichte wanden

$$\begin{aligned} &= 1.75 \text{ kN/m}^2 \\ &= 1.00 \text{ kN/m}^2 \\ q_k &= 2.75 \text{ kN/m}^2 \end{aligned}$$

2.7 VERDIEPINGSVLOER BETON PATIOWONINGEN

breedplaatvloer $h = 280\text{mm}$
afwerking

$$\begin{aligned} &= 7.00 \text{ kN/m}^2 \\ &= 1.50 \text{ kN/m}^2 \\ g_k &= 8.50 \text{ kN/m}^2 \end{aligned}$$

opgelegde belasting
sneeuw belasting

$\Psi_0 = 0$
 $\Psi_0 = 0$

$$\begin{aligned} q_k &= 1.00 \text{ kN/m}^2 \\ s_k &= 0.56 \text{ kN/m}^2 \end{aligned}$$

2.8 VRIJDRAGENDE BEGANE GRONDVLOER

geïsoleerde systeemvloer
afwerking 70mm

$$\begin{aligned} &= 3.10 \text{ kN/m}^2 \\ &= 1.40 \text{ kN/m}^2 \\ g_k &= 4.50 \text{ kN/m}^2 \end{aligned}$$

opgelegde belasting

$\Psi_0 = 0.4$
lichte wanden

$$\begin{aligned} &= 1.75 \text{ kN/m}^2 \\ &= 1.00 \text{ kN/m}^2 \\ q_k &= 2.75 \text{ kN/m}^2 \end{aligned}$$

3 STABILITEIT

3.1 PATIOWONINGEN

Stabiliteit wordt verzorgd door schijfwerking van het dak en de verdiepingvloeren, welke de windbelasting via de voldoende aanwezige gevels en wandschijven naar de fundering afdragen.

3.2 RIJWONING KAVEL 1 - 18

Stabiliteit wordt verkregen middels schijfwerking van het dak en de verdiepingvloeren welke de windbelasting via de penanten in voorgevel afdragen naar de fundering. Penanten dienen verankerd te worden aan de bouwmuren en de verdiepingvloeren dienen middels staven gekoppeld te worden.

Benodigde penantlengte volgens NPR 9096-1-1 art. 5.4(11), tabel 8.

Windgebied 3, onbebouwd, steenconstructietype 1 :

$$m > 2.6 + 0.12 \cdot 18 = 4.76 \text{ m}$$

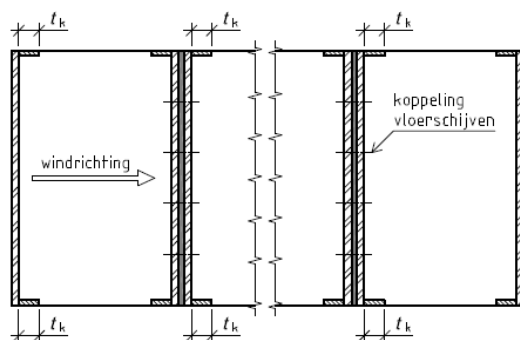
$$\text{aanwezig} \quad m = 14.4 \text{ m} \quad \text{OK}$$

$$\text{Koppelstaven toepassen: } A_{\text{ben}} = 17000 \times 9.4 / 435 = 368 \text{ mm}^2 \rightarrow 4\phi 12 \text{ toepassen (452mm}^2\text{)}$$

NPR 9096-1-1:2012

Tabel 8 — Benodigde gesommeerde breedte, t_k , van actieve penanten

| Windgebied | Bebouwd/ Onbebouwd | Gesommeerde breedte m | |
|--|-----------------------|--------------------------|------------------------|
| | | Steenconstructietype 1 | Steenconstructietype 2 |
| 1 | Onbebouwd | $3,7 + 0,12 n$ | $5,0 + 0,12 n$ |
| | Bebouwd | $2,8 + 0,12 n$ | $3,8 + 0,12 n$ |
| 2 | Onbebouwd | $3,1 + 0,12 n$ | $4,2 + 0,12 n$ |
| | Bebouwd | $2,3 + 0,12 n$ | $3,3 + 0,12 n$ |
| 3 | Onbebouwd | $2,6 + 0,12 n$ | $3,5 + 0,12 n$ |
| | Bebouwd | $2,0 + 0,12 n$ | $2,8 + 0,12 n$ |
| waarin: n is het aantal actieve penanten. | | | |



3.3 RIJWONING KAVEL 19 – 24, 25 - 30 EN 31-37

Stabiliteit wordt verkregen middels schijfwerking van het dak en de verdiepingsvloeren welke de windbelasting via de penanten in voorgevel afdragen naar de fundering. Penanten dienen verankerd te worden aan de bouwmuren en de verdiepingsvloeren dienen middels staven gekoppeld te worden.

Benodigde penantlengte volgens NPR 9096-1-1 art. 5.4(11), tabel 8.

Windgebied 3, onbebouwd, steenconstructietype 1 :

$$m > 2.6 + 0.12 \cdot 6 = 3.32 \text{ m}$$

$$\text{aanwezig} \quad m = 5.40 \text{ m} \quad \text{OK}$$

$$\text{Koppelstaven toepassen: } A_{\text{ben}} = 17000 \times 7.9 / 435 = 309 \text{ mm}^2 \rightarrow 4\phi 12 \text{ toepassen (452mm}^2\text{)}$$

3.4 RIJWONING KAVEL 38-41

Stabiliteit wordt verkregen middels schijfwerking van het dak en de verdiepingsvloeren welke de windbelasting via de penanten in voorgevel afdragen naar de fundering. Penanten dienen verankerd te worden aan de bouwmuren en de verdiepingsvloeren dienen middels staven gekoppeld te worden.

Benodigde penantlengte volgens NPR 9096-1-1 art. 5.4(11), tabel 8.

Windgebied 3, onbebouwd, steenconstructietype 1 :

$$m > 2.6 + 0.12 \cdot 4 = 3.08 \text{ m}$$

$$\text{aanwezig} \quad m = 3.60 \text{ m} \quad \text{OK}$$

$$\text{Koppelstaven toepassen: } A_{\text{ben}} = 17000 \times 7.9 / 435 = 309 \text{ mm}^2 \rightarrow 4\phi 12 \text{ toepassen (452mm}^2\text{)}$$

4 KAP

4.1 DAKPLATEN

Systeemkap volgens opgave leverancier.

4.2 AFSCHUIVING

Afschuiving van het dakvlak opnemen door de systeemkap van de leverancier.

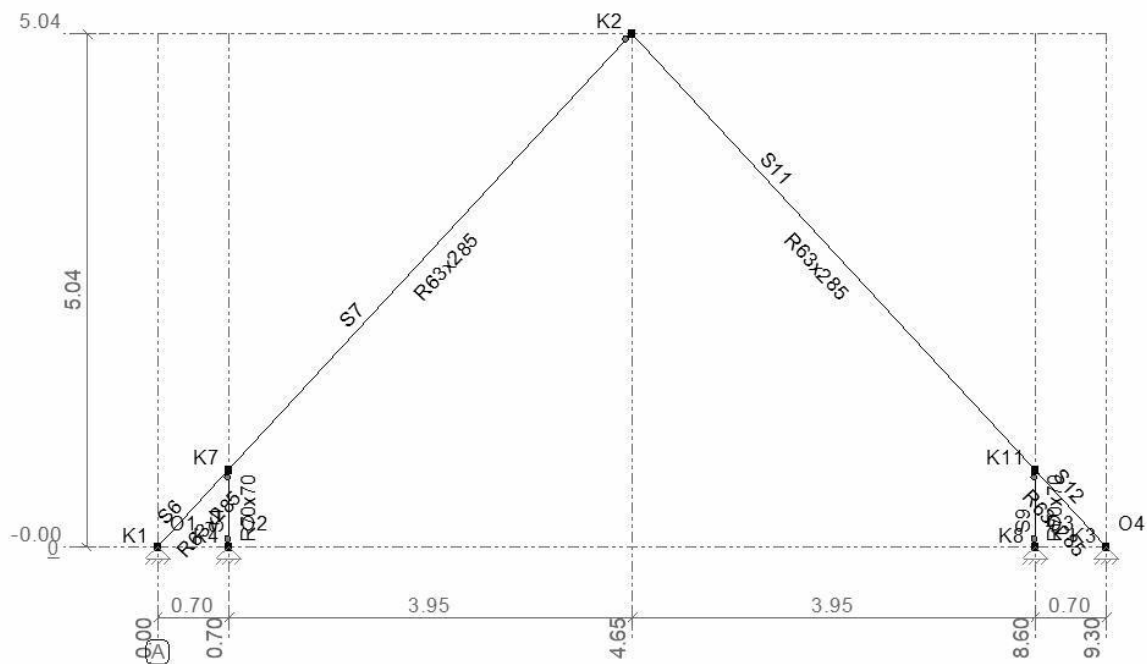
4.3 KAP

Ribben minimaal 38x285-C24 h.o.h. 600mm

belastingen worden door programma gegenereerd.

4.3.1 RIJWONING KAVEL 3-16

AFB. GEOMETRIE



STAVEN

| Staal | Knoop B | Knoop E | X-B | Z-B | X-E | Z-E | Lengte Profiel | Positie |
|-------|---------|---------|------|-------|------|-------|----------------|----------------|
| S4 | K4 | K7 | 0,70 | 0,00 | 0,70 | -0,76 | 0,76 P2 | 0,00 - L(0,76) |
| S6 | K1 | K7 | 0,00 | 0,00 | 0,70 | -0,76 | 1,03 P1 | 0,00 - L(1,03) |
| S7 | K7 | K2 | 0,70 | -0,76 | 4,65 | -5,04 | 5,83 P1 | 0,00 - L(5,83) |
| S9 | K8 | K11 | 8,60 | 0,00 | 8,60 | -0,76 | 0,76 P2 | 0,00 - L(0,76) |
| S11 | K2 | K11 | 4,65 | -5,04 | 8,60 | -0,76 | 5,83 P1 | 0,00 - L(5,83) |

S12 K11 K3 8,60 -0,76 9,30 0,00 1,03 P1 0,00 - L(1,03)

PROFIELEN

| Profiel | Profielnaam | Oppervlakte | ly Materiaal | Hoek |
|---------|-------------|-------------|----------------|------|
| P1 | R63x285 | 1.7955e-02 | 1.2153e-04 C24 | 0,0 |
| P2 | R70x70 | 4.9000e-03 | 2.0008e-06 C18 | 0,0 |

PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,285 | 0,285 | 0,0000 | 0,0000 | 0,0000 | 0,063 | 0,000 | 0,000 Nee | 0,000 |
| P2 | Nee | 0,070 | 0,070 | 0,0000 | 0,0000 | 0,0000 | 0,070 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaal | Dichtheid | E-Modulus | Uitzettingcoeff |
|-----------|-----------|------------|-----------------|
| C24 | 4.20 | 1.1000e+07 | 50.0000e-07 |
| C18 | 3.80 | 9.0000e+06 | 50.0000e-07 |

OPLEGGINGEN

| Oplegging | Object | Positie | X | Z | Yr | HoekYr |
|-----------|--------|---------|------|------|------|--------|
| O1 | K1 | 0,00 | Vast | Vast | Vrij | 0 |
| O2 | K4 | 0,00 | Vast | Vast | Vrij | 0 |
| O3 | K8 | 0,00 | Vast | Vast | Vrij | 0 |
| O4 | K3 | 0,00 | Vast | Vast | Vrij | 0 |

GEWICHTSBEREKENING

| Index | Staven | Berekening | Waarde Eenhede |
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Gemeenschappelijk

Belastingen en vervormingen

NEN-EN1991

| Index | Staven | Berekening | Waarde Eenhede |
|-------|--------|------------|----------------|
|-------|--------|------------|----------------|

Gemeenschappelijk

| | | | |
|---------|--------------------------------|------|----------|
| Lsys1 | Systeemmaat | 1.00 | 1,00 [m] |
| Height1 | Totale hoogte van constructie | 5.04 | 5,04 [m] |
| Width1 | Totale diepte van constructie | 9.30 | 9,30 [m] |
| Width2 | Totale breedte van constructie | 1.00 | 1,00 [m] |

LR1 (Permanente Belasting)

Permanente Belasting

NEN-EN1991-1-1:2011/NB:2011

| | | | |
|-----|-----------------------------|-----------|--------------|
| Pp1 | Hellend dak (S6,S7,S11,S12) | 0.77 | 0,77 [kN/m²] |
| q1 | Pannen, dakbed. + gording | Pp1*Lsys1 | 0,77 [kN/m] |

LR2 (Windbelasting Algemeen)

Windbelasting Algemeen

NEN-EN1991-1-4:2011/NB:2011

| | | | |
|---------|-------------------------------|-----------------------|----------|
| Width3 | Gemiddelde breedte (b) | 1.00 | 1,00 [m] |
| Height2 | Totale hoogte van constructie | 5.04 | 5,04 [m] |
| Height3 | Boven de grond | 5.80 | 5,80 [m] |
| Z1 | Referentiehoogte | Height3+(0.5*Height2) | 8,32 [m] |
| Region1 | Regio | 3 | 3,00 |
| Cat1 | Terrein | Onbebouwd | 2,00 |
| Co1 | Orthografie factor (C0) | 1.00 | 1,00 |
| CsCd1 | Constructie factor (CsCd) | 1.00 | 1,00 |
| C1 | Correlatie factor | 0.85 | 0,85 |

LR3 (Windbelasting van Links + Overdruk)

Windbelasting van Links + Overdruk

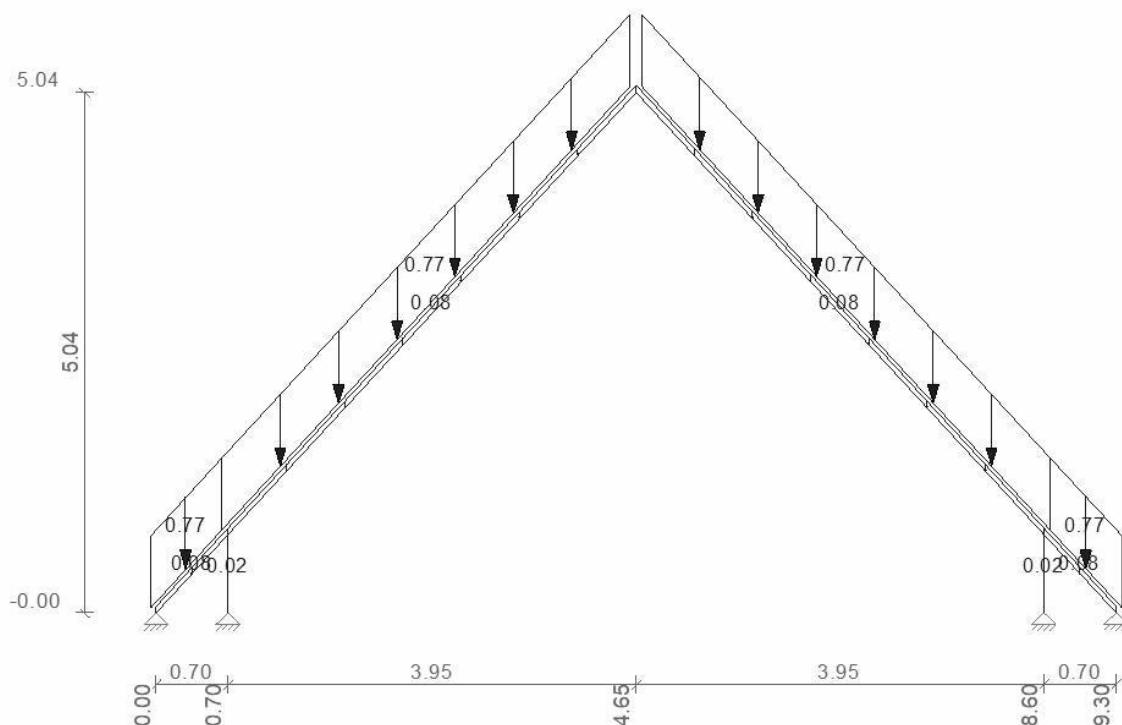
NEN-EN1991-1-4:2011/NB:2011

| | | | |
|------|---|--|--------------|
| A1 | Belast oppervlak (A) | 10.84 | 10,84 [m²] |
| Cpe1 | Uitwendige druk; Druk coefficient (Cpe) | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.17) | 0,80 |
| Cpi1 | Interne druk; Druk coefficient (Cpi) | EN1991-1-4#7.2.9(Cpe=Cpe1,Oppeningen=0.00,Over=True) | 0,20 |
| Z2 | z=b; (h>2b) | 1.00 | 1,00 [m] |
| Qp1 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z2,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,49 [kN/m²] |
| Z3 | b<z<h-b; (h>2b) voor knopen: K1,K3,K4,K8 | 5.80 | 5,80 [m] |
| Qp2 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z3,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,57 [kN/m²] |
| Z4 | b<z<h-b; (h>2b) voor knopen: K1,K3,K4,K7,K8,K11 | 6.56 | 6,56 [m] |

| Qp3 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z4,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,60 [kN/m²] |
|--|--|--|-----------------|
| Z5 | z=h-b; (h>2b) | 9.84 | 9,84 [m] |
| Qp4 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z5,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,70 [kN/m²] |
| Z6 | z=h; (h>2b) voor knopen: K2 | 10.84 | 10,84 [m] |
| Qp5 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z6,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,72 [kN/m²] |
| Cpe2 | Zadeldak; Druk coefficient (Cpe): S6 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=G,Hoek=47.30) | 0,70 |
| q2 | Zadeldak; Verdeelde element belasting (q): S6 | (Qp2*Cpe2*CsCd1) * Lsys1 | 0,40 [kN/m] |
| q3 | Interne druk; Verdeelde element belasting (q) | (Cpi1*Qp2) * Lsys1 | 0,11 [kN/m] |
| Cpe3 | Zadeldak; Druk coefficient (Cpe): S6,S7 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=H,Hoek=47.30) | 0,62 |
| q4 | Zadeldak; Verdeelde element belasting (q): S6 | (Qp2*Cpe3*CsCd1) * Lsys1 | 0,35 [kN/m] |
| q5 | Zadeldak; Verdeelde element belasting (q): S6,S7 | (Qp3*Cpe3*CsCd1) * Lsys1 | 0,37 [kN/m] |
| q6 | Zadeldak; Verdeelde element belasting (q): S7 | (Qp5*Cpe3*CsCd1) * Lsys1 | 0,44 [kN/m] |
| q7 | Interne druk; Verdeelde element belasting (q) | (Cpi1*Qp5) * Lsys1 | 0,14 [kN/m] |
| q8 | Zadeldak; Verdeelde element belasting (q): S7 | (Qp4*Cpe3*CsCd1) * Lsys1 | 0,43 [kN/m] |
| q9 | Interne druk; Verdeelde element belasting (q) | (Cpi1*Qp3) * Lsys1 | 0,12 [kN/m] |
| Cpe4 | Zadeldak; Druk coefficient (Cpe): S11 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=J,Hoek=47.30) | -0,30 |
| q10 | Zadeldak; Verdeelde element belasting (q): S11 | (Qp5*Cpe4*CsCd1) * Lsys1 | -0,22 [kN/m] |
| Cpe5 | Zadeldak; Druk coefficient (Cpe): S11,S12 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=I,Hoek=47.30) | -0,20 |
| q11 | Zadeldak; Verdeelde element belasting (q): S11 | (Qp5*Cpe5*CsCd1) * Lsys1 | -0,14 [kN/m] |
| Index | Staven | Berekening | Waarde Eenheden |
| LR3 (Windbelasting van Links + Overdruk) | | | |
| q12 | Zadeldak; Verdeelde element belasting (q): S11,S12 | (Qp3*Cpe5*CsCd1) * Lsys1 | -0,12 [kN/m] |
| q13 | Zadeldak; Verdeelde element belasting (q): S11 | (Qp4*Cpe5*CsCd1) * Lsys1 | -0,14 [kN/m] |
| q14 | Zadeldak; Verdeelde element belasting (q): S12 | (Qp2*Cpe5*CsCd1) * Lsys1 | -0,11 [kN/m] |
| LR4 (Windbelasting van Links + Onderdruk) | | | |
| Windbelasting van Links + Onderdruk | | | |
| A2 | Belast oppervlak (A) | NEN-EN1991-1-4:2011/NB:2011 | 10,84 [m²] |
| Cpe6 | Uitwendige druk; Druk coefficient (Cpe) | 10.84 | -0,51 |
| Cpi2 | Interne druk; Druk coefficient (Cpi) | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.17) | -0,30 |
| Z7 | z=b; (h>2b) | EN1991-1-4#7.2.9(Cpe=Cpe6,Openingen=0.00,Over=False) | 1,00 [m] |
| Qp6 | Pieksnelheids druk (Qp voor referentieperiode 50) | 1.00 | 0,49 [kN/m²] |
| Z8 | b<z<h-b; (h>2b) voor knopen: K1,K3,K4,K8 | NEN-EN1991-1-4#4(Z=Z7,Terrein =Cat1,Regio=Region1,C0=Co1) | 5,80 [m] |
| Qp7 | Pieksnelheids druk (Qp voor referentieperiode 50) | 5.80 | 0,57 [kN/m²] |
| Z9 | b<z<h-b; (h>2b) voor knopen: K1,K3,K4,K7,K8,K11 | NEN-EN1991-1-4#4(Z=Z8,Terrein =Cat1,Regio=Region1,C0=Co1) | 6,56 [m] |
| Qp8 | Pieksnelheids druk (Qp voor referentieperiode 50) | 6.56 | 0,60 [kN/m²] |
| Z10 | z=h-b; (h>2b) | NEN-EN1991-1-4#4(Z=Z9,Terrein =Cat1,Regio=Region1,C0=Co1) | 9,84 [m] |
| Qp9 | Pieksnelheids druk (Qp voor referentieperiode 50) | 9.84 | 0,70 [kN/m²] |
| Z11 | z=h; (h>2b) voor knopen: K2 | NEN-EN1991-1-4#4(Z=Z10,Terrein =Cat1,Regio=Region1,C0=Co1) | 10,84 [m] |
| Qp10 | Pieksnelheids druk (Qp voor referentieperiode 50) | 10.84 | 0,72 [kN/m²] |
| Cpe7 | Zadeldak; Druk coefficient (Cpe): S6 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=G,Hoek=47.30) | 0,70 |
| q15 | Zadeldak; Verdeelde element belasting (q): S6 | (Qp7*Cpe7*CsCd1) * Lsys1 | 0,40 [kN/m] |
| q16 | Interne druk; Verdeelde element belasting (q) | (Cpi2*Qp7) * Lsys1 | -0,17 [kN/m] |
| Cpe8 | Zadeldak; Druk coefficient (Cpe): S6,S7 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=H,Hoek=47.30) | 0,62 |
| q17 | Zadeldak; Verdeelde element belasting (q): S6 | (Qp7*Cpe8*CsCd1) * Lsys1 | 0,35 [kN/m] |

| | | | |
|------------------------------|---|--|--------------|
| q18 | Zadeldak; Verdeelde element belasting (q): S6,S7 | $(Qp8 * Cpe8 * CsCd1) * Lsys1$ | 0,37 [kN/m] |
| q19 | Zadeldak; Verdeelde element belasting (q): S7 | $(Qp10 * Cpe8 * CsCd1) * Lsys1$ | 0,44 [kN/m] |
| q20 | Interne druk; Verdeelde element belasting (q) | $(Cpi2 * Qp10) * Lsys1$ | -0,22 [kN/m] |
| q21 | Zadeldak; Verdeelde element belasting (q): S7 | $(Qp9 * Cpe8 * CsCd1) * Lsys1$ | 0,43 [kN/m] |
| q22 | Interne druk; Verdeelde element belasting (q) | $(Cpi2 * Qp8) * Lsys1$ | -0,18 [kN/m] |
| Cpe9 | Zadeldak; Druk coefficient (Cpe): S11 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=J,Hoek=47.30) | -0,30 |
| q23 | Zadeldak; Verdeelde element belasting (q): S11 | $(Qp10 * Cpe9 * CsCd1) * Lsys1$ | -0,22 [kN/m] |
| Cpe10 | Zadeldak; Druk coefficient (Cpe): S11,S12 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=I,Hoek=47.30) | -0,20 |
| q24 | Zadeldak; Verdeelde element belasting (q): S11 | $(Qp10 * Cpe10 * CsCd1) * Lsys1$ | -0,14 [kN/m] |
| q25 | Zadeldak; Verdeelde element belasting (q): S11,S12 | $(Qp8 * Cpe10 * CsCd1) * Lsys1$ | -0,12 [kN/m] |
| q26 | Zadeldak; Verdeelde element belasting (q): S11 | $(Qp9 * Cpe10 * CsCd1) * Lsys1$ | -0,14 [kN/m] |
| q27 | Zadeldak; Verdeelde element belasting (q): S12 | $(Qp7 * Cpe10 * CsCd1) * Lsys1$ | -0,11 [kN/m] |
| LR5 (Sneeuwbelasting) | | | |
| | Sneeuwbelasting | NEN-EN1991-1-3:2011/NB:2011 | |
| Sk1 | Karakteristiek waarde van de sneeuwlast op de grond (Sk) | NEN-EN1991-1-3#4.1(Zone=1) | 0,70 [kN/m²] |
| Ce1 | De milieucoefficient (Ce) | NEN-EN1991-1-3#5.2.7() | 1,00 |
| Ct1 | De thermische coefficient (Ct) | NEN-EN1991-1-3#5.2.8() | 1,00 |
| Mu1 | Zadeldak, Mu1 Hoek: 47.30; S6,S7,S11,S12 Mu1; Sneeuwbelasting coefficient (Mu) | EN1991-1-3#5.3(Dak=Hellend,Hoek=47.30,Mu=Mu1,Sk=Sk1) | 0,34 |
| q28 | Verdeelde element belasting (q) | $(Sk1 * Ce1 * Ct1 * Mu1) * Lsys1$ | 0,24 [kN/m] |
| q29 | Verdeelde element belasting (q) | $q28 * 0.50$ | 0,12 [kN/m] |

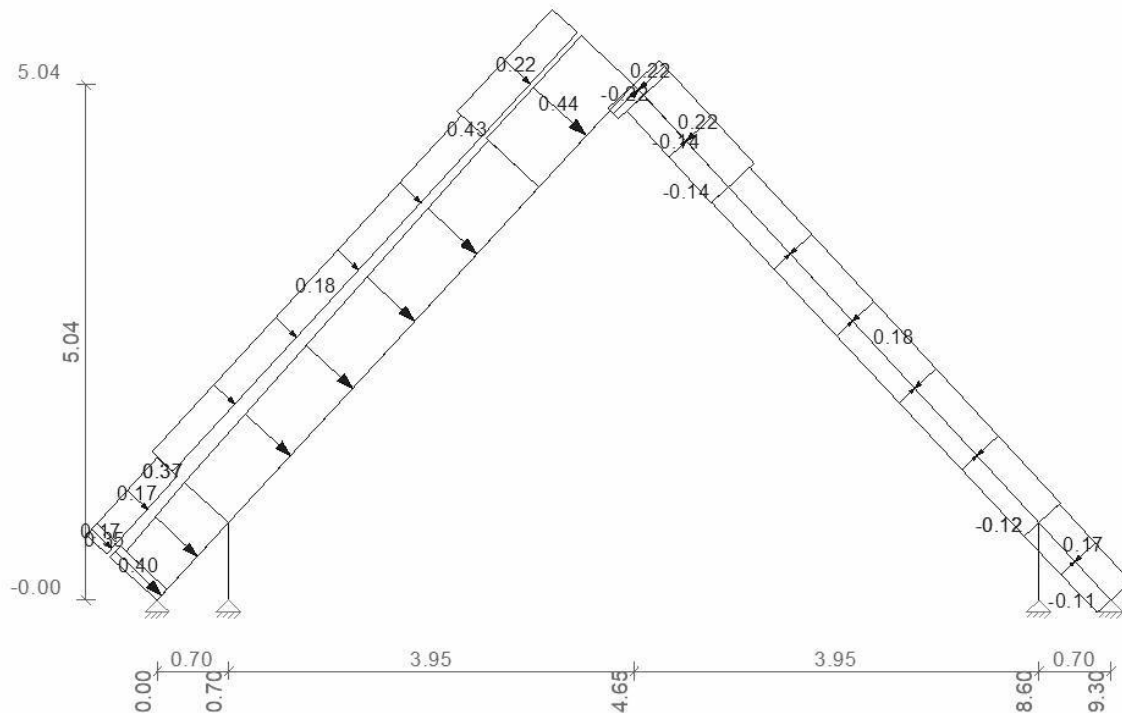
B.G.1: PERMANENTE BELASTING



B.G.1: PERMANENTE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------------------------------------|--------------|--------------|--------------|-------------|-------------------------|
| B.G.1: Permanente Belasting | | | | | |
| qG | 0,02 (1.00x) | 0,02 (1.00x) | 0,00 | 0,76(L) | Z" S4,S9 |
| qG | 0,08 (1.00x) | 0,08 (1.00x) | 0,00 | 1,03(L) | Z" S6,S12 |
| qG | 0,08 (1.00x) | 0,08 (1.00x) | 0,00 | 5,83(L) | Z" S7,S11 |
| q | 0,77 (q1) | 0,77 (q1) | 0,00 | 1,03(L) | Z" S6-S7,S11-S12 |

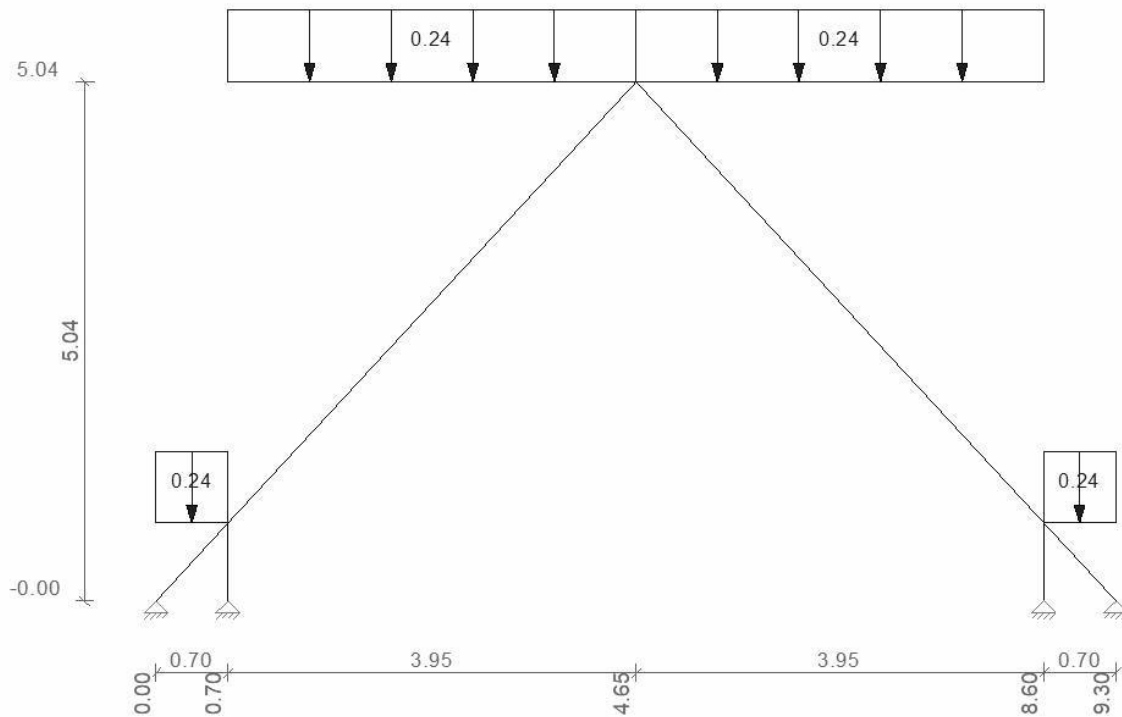
B.G.3: WINDBELASTING VAN LINKS + ONDERDRUK



B.G.3: WINDBELASTING VAN LINKS + ONDERDRUK

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|-------------|------------------------------|--------------|-------------|-------------------------|
| B.G.3: Windbelasting van Links + Onderdruk | | | | | |
| q | 0,40 (q15) | 0,40 (q15) | 0,00 | 0,15 | Z' S6 |
| q | 0,17 (-q16) | 0,17 (-q16) | 0,00 | 0,15 | Z' S6 |
| q | 0,35 (q17) | 0,37 (q18) | 0,15 | 1,03(L) | Z' S6 |
| q | 0,17 (-q16) | 0,17 (-q16) | 0,15 | 1,03(L) | Z' S6 |
| q | 0,44 (q19) | 0,44 (q19) | 4,47 | 5,83(L) | Z' S7 |
| q | 0,22 (-q20) | 0,22 (-q20) | 4,47 | 5,83(L) | Z' S7 |
| q | 0,37 (q18) | 0,43 (q21) | 0,00 | 4,47 | Z' S7 |
| q | 0,18 (-q22) | 0,18 (-q22) | 0,00 | 4,47 | Z' S7 |
| q | -0,22 (q23) | -0,22 (q23) | 0,00 | 0,15 | Z' S11 |
| q | 0,22 (-q20) | 0,22 (-q20) | 0,00 | 0,15 | Z' S11 |
| q | -0,14 (q24) | -0,14 (q24) | 0,15 | 1,36 | Z' S11 |
| q | 0,22 (-q20) | 0,22 (-q20) | 0,15 | 1,36 | Z' S11 |
| q | -0,14 (q26) | -0,12 (q25) | 1,36 | 5,83(L) | Z' S11 |
| q | 0,18 (-q22) | 0,18 (-q22) | 1,36 | 5,83(L) | Z' S11 |
| q | -0,12 (q25) | -0,11 (q27) | 0,00 | 1,03(L) | Z' S12 |
| q | 0,17 (-q16) | 0,17 (-q16) | 0,00 | 1,03(L) | Z' S12 |
| Som lasten | | X: 2,70 kN Z: 3,00 kN | kN | | |

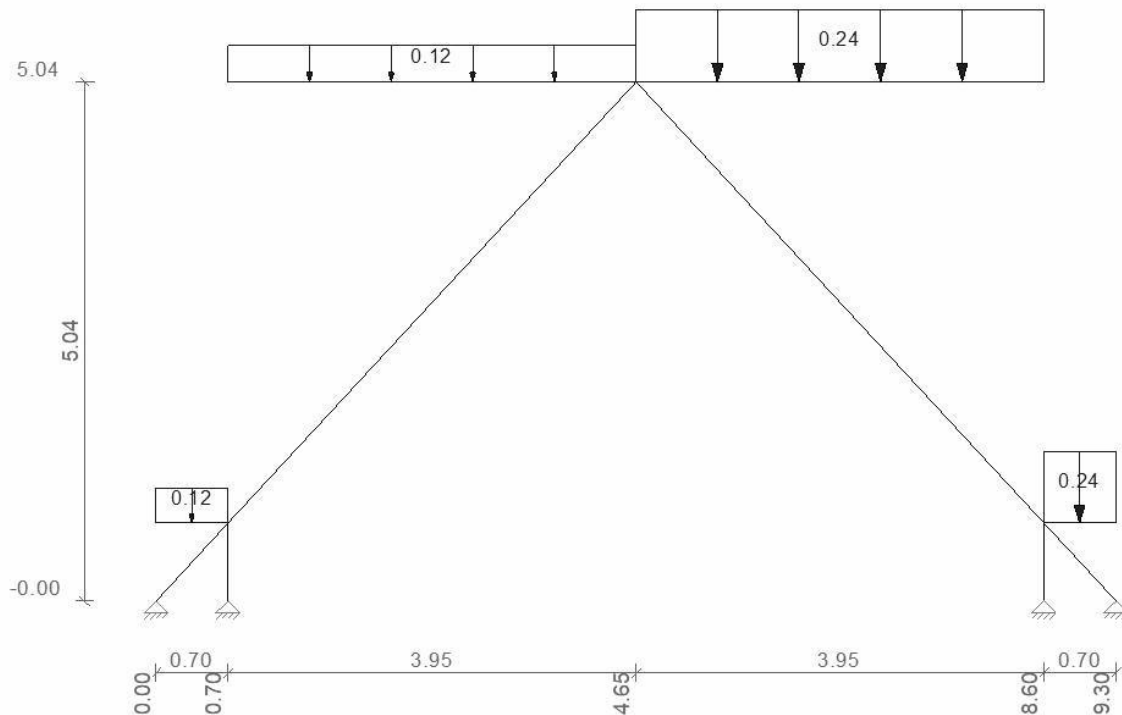
B.G.4: SNEEUWBELASTING 1



B.G.4: SNEEUWBELASTING 1

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--------------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.4: Sneeuwbelasting 1 | | | | | |
| q | 0,24 (q28) | 0,24 (q28) | 0,00 | 0,70(L) | Z S6-S7,S11-S12 |
| Som lasten | X:0,00 | kN Z: 2,20 | kN | | |

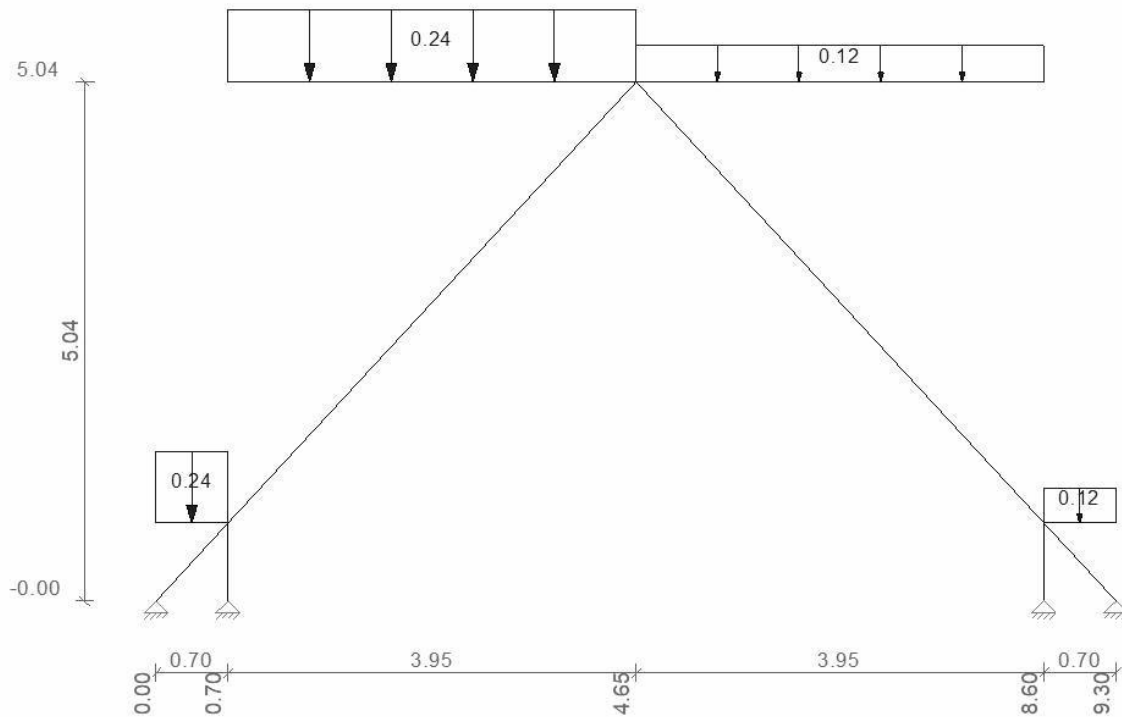
B.G.5: SNEEUWBELASTING 2



B.G.5: SNEEUWBELASTING 2

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---------------------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.5: Sneeuwbelasting 2 | | | | | |
| q | 0,12 (q29) | 0,12 (q29) | 0,00 | 0,70(L) | Z S6-S7 |
| q | 0,24 (q28) | 0,24 (q28) | 0,00 | 3,95(L) | Z S11-S12 |
| Som lasten | X: 0,00 | kN Z: 1,65 | kN | | |

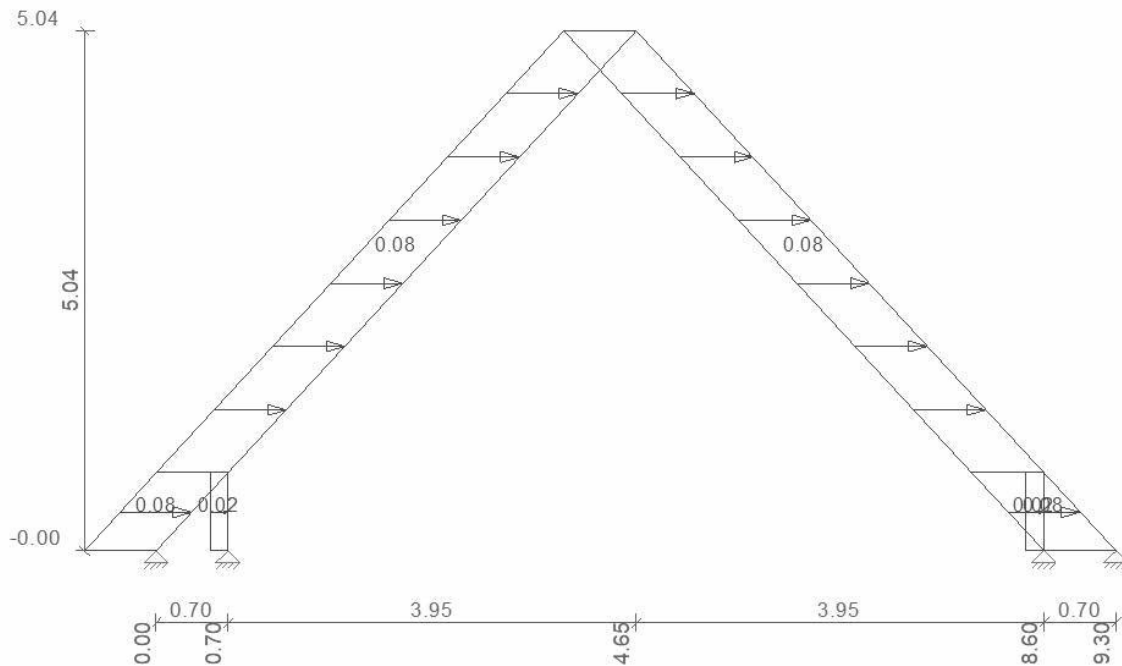
B.G.6: SNEEUWBELASTING 3



B.G.6: SNEEUWBELASTING 3

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--------------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.6: Sneeuwbelasting 3 | | | | | |
| q | 0,24 (q28) | 0,24 (q28) | 0,00 | 0,70(L) | Z S6-S7 |
| q | 0,12 (q29) | 0,12 (q29) | 0,00 | 3,95(L) | Z S11-S12 |
| Som lasten | X:0,00 | kN Z: 1,65 | kN | | |

B.G.7: KNIKLENGTE (ASYMMETRISCH)



B.G.7: KNIKLENGTE (ASYMMETRISCH)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.7: Kniklengte (Asymmetrisch) | | | | | |
| qG | 0,02 (1.00x) | 0,02 (1.00x) | 0,00 | 0,76(L) | X" S4,S9 |
| qG | 0,08 (1.00x) | 0,08 (1.00x) | 0,00 | 1,03(L) | X" S6,S12 |
| qG | 0,08 (1.00x) | 0,08 (1.00x) | 0,00 | 5,83(L) | X" S7,S11 |
| Som lasten | X: 1,06 | kN Z: 0,00 | kN | | |

| B.C. | Oplegging | Knoop | X | Z | My |
|-------|---------------------|-------|--------------|--------------|------|
| B.G.5 | O2 | K4 | 0.00 | -0.59 | 0.00 |
| | O3 | K8 | 0.00 | -1.18 | 0.00 |
| | O4 | K3 | -0.26 | 0.17 | 0.00 |
| | Som Reacties | | 0.00 | -1,65 | |
| | Som Lasten | | 0.00 | 1.65 | |
| B.G.6 | O1 | K1 | 0.26 | 0.17 | 0.00 |
| | O2 | K4 | 0.00 | -1.18 | 0.00 |
| | O3 | K8 | 0.00 | -0.59 | 0.00 |
| | O4 | K3 | -0.26 | -0.05 | 0.00 |
| | Som Reacties | | 0.00 | -1,65 | |
| | Som Lasten | | 0.00 | 1.65 | |
| B.G.7 | O1 | K1 | -0.52 | 0.80 | 0.00 |
| | O2 | K4 | -0.01 | -0.61 | 0.00 |
| | O3 | K8 | -0.01 | 0.61 | 0.00 |
| | O4 | K3 | -0.52 | -0.80 | 0.00 |
| | Som Reacties | | -1.06 | 0,00 | |
| | Som Lasten | | 1.06 | 0.00 | |
| B.G.8 | O1 | K1 | -3.34 | 5.89 | 0.00 |
| | O2 | K4 | 0.07 | -5.89 | 0.00 |
| | O3 | K8 | 0.07 | -6.04 | 0.00 |
| | O4 | K3 | 3.48 | 6.04 | 0.00 |
| | Som Reacties | | 0.28 | 0,00 | |
| | Som Lasten | | -0.28 | 0.00 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (LIJST)

Fu.C.1 = 0.90*B.G.1 + 1.35*B.G.2

Fu.C.2 = 1.08*B.G.1 + 1.35*B.G.3

Fu.C.3 = 1.08*B.G.1 + 1.35*B.G.4

Fu.C.4 = 1.08*B.G.1 + 1.35*B.G.5

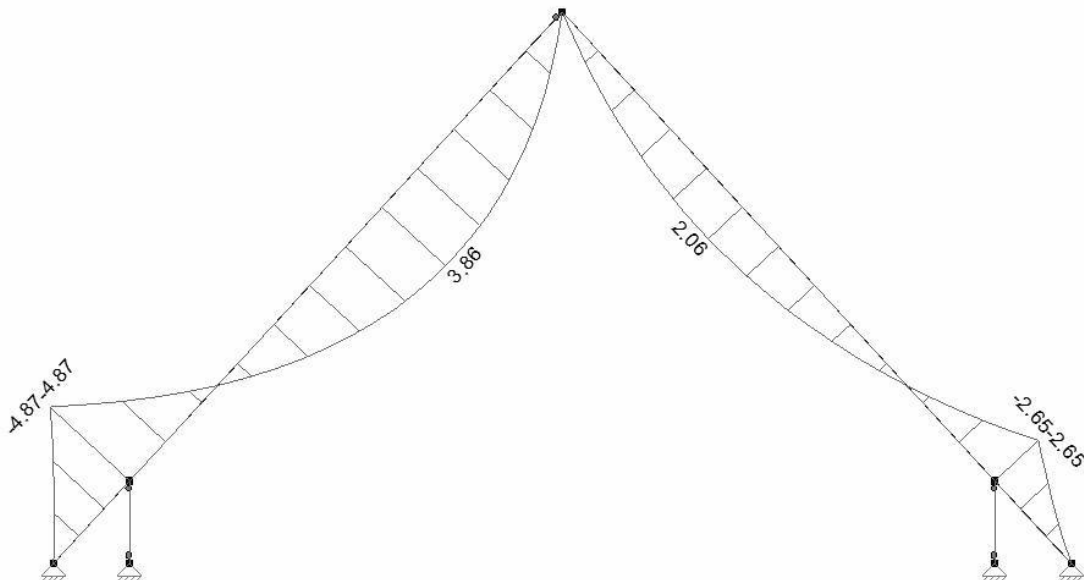
Fu.C.5 = 1.08*B.G.1 + 1.35*B.G.6

Fu.C.6 = 1.22*B.G.1

Fu.C.7 = 0.90*B.G.1

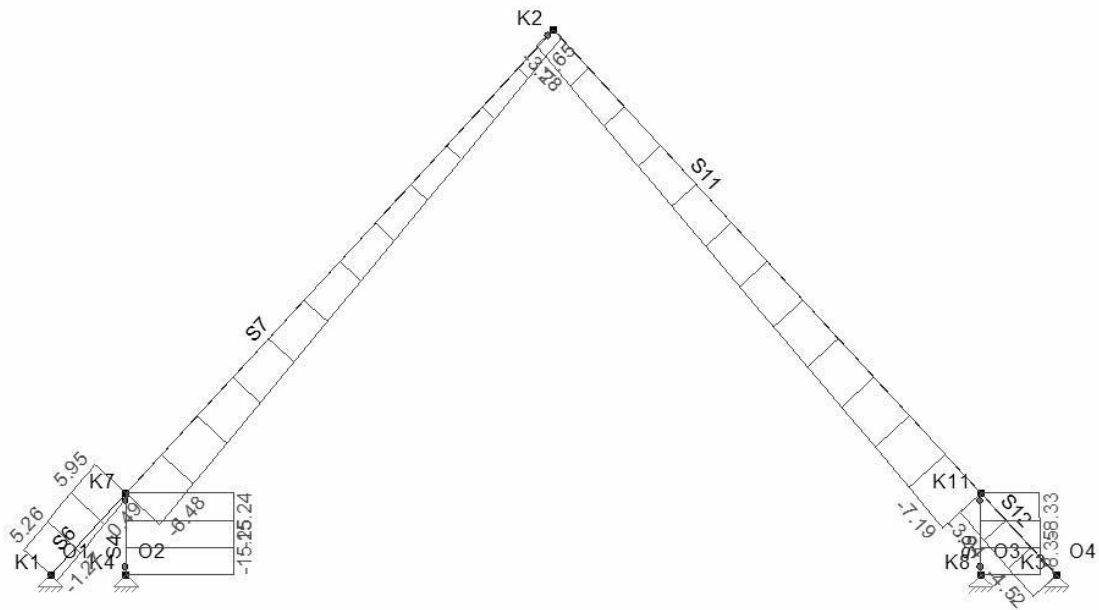
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



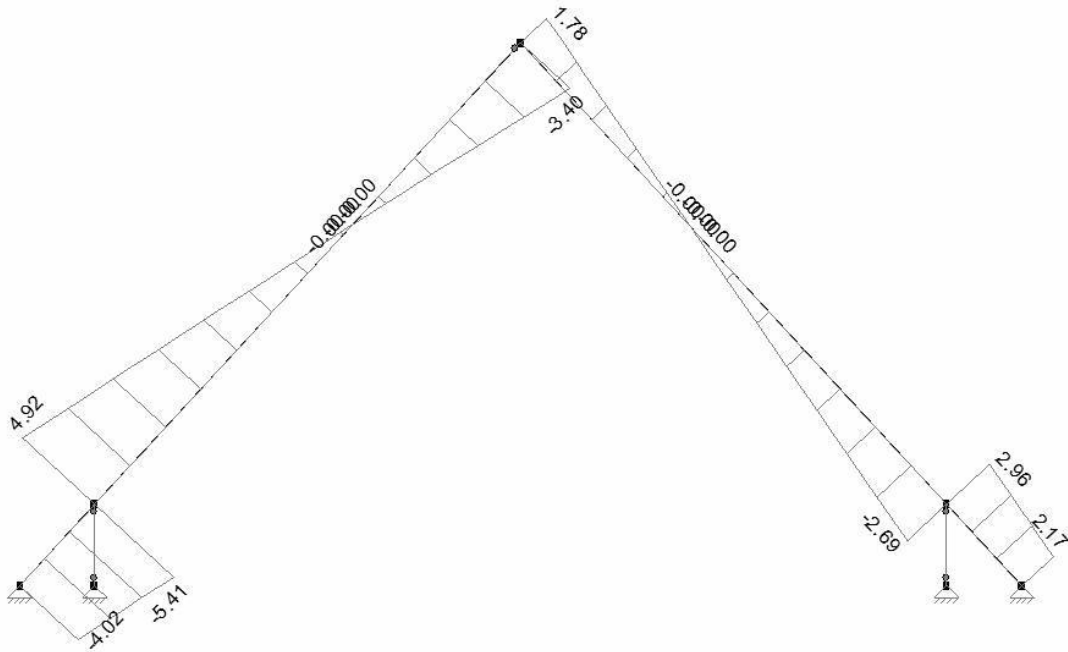
AFB. FU.C. NORMAALKRACHT (NX) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME STAAFKRACHTEN

| Staaft | B.C. | Mb | Mmax | xMmax | Me | x-M0 | x-M0 T/D | Nmax | Vb | Vmax | Ve |
|--------|--------|------|------|-------|--------------|------|----------|---------------|--------------|--------------|--------------|
| S4 | Fu.C.2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -15.25 | 0.00 | 0.00 | 0.00 |
| S6 | Fu.C.2 | 0.00 | 0.00 | 0.00 | -4.87 | 0.00 | 0.00 T | 5.95 | -4.02 | -5.41 | -5.41 |
| | Fu.C.4 | 0.00 | 0.00 | 0.00 | -2.40 | 0.00 | 0.00 D | -1.27 | -1.96 | -2.68 | -2.68 |

| Staaft | B.C. | Mb | Mmax | xMmax | Me | x-M0 | x-M0 T/D | Nmax | Vb | Vmax | Ve |
|--------|------|----|------|-------|----|------|----------|------|----|------|----|
|--------|------|----|------|-------|----|------|----------|------|----|------|----|

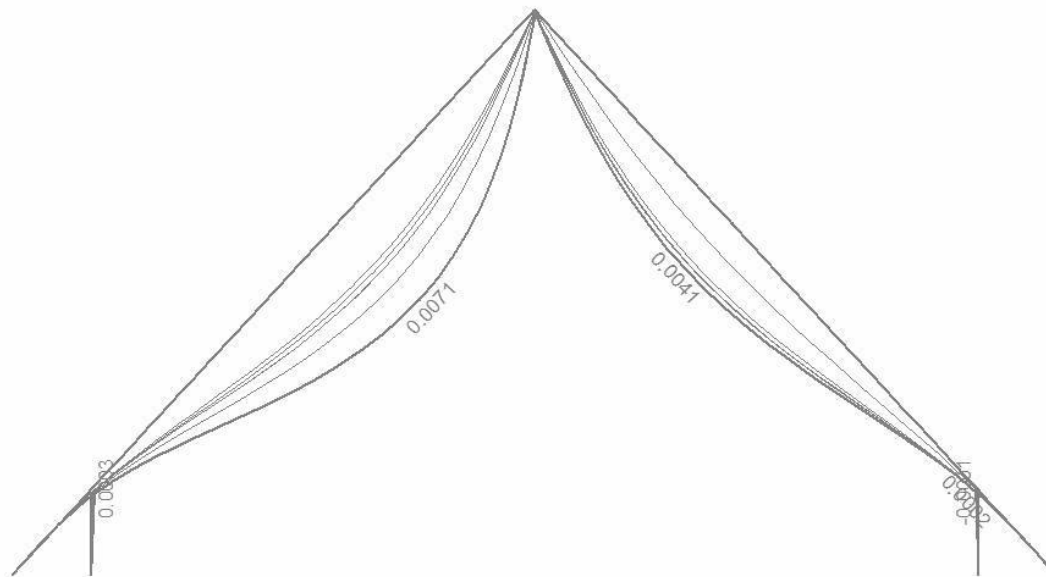
| | | | | | | | | | | | |
|-----|--------|--------------|-------------|------|--------------|------|--------|--------------|-------------|--------------|--------------|
| S7 | Fu.C.2 | -4.87 | 3.86 | 3.53 | 0.00 | 1.19 | 0.00 D | -5.25 | 4.92 | 4.92 | -3.40 |
| | Fu.C.3 | -2.65 | 2.06 | 3.51 | 0.00 | 1.19 | 0.00 D | -6.48 | 2.69 | 2.69 | -1.78 |
| S9 | Fu.C.3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -8.35 | 0.00 | 0.00 | 0.00 |
| S11 | Fu.C.2 | 0.00 | 1.85 | 2.31 | -2.38 | 4.64 | 0.00 D | -7.19 | 1.61 | -2.42 | -2.42 |
| | Fu.C.3 | 0.00 | 2.06 | 2.32 | -2.65 | 4.64 | 0.00 D | -6.48 | 1.78 | -2.69 | -2.69 |
| | Fu.C.4 | 0.00 | 2.06 | 2.32 | -2.65 | 4.64 | 0.00 D | -6.31 | 1.78 | -2.69 | -2.69 |
| S12 | Fu.C.1 | -0.61 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -4.52 | 0.69 | 0.69 | 0.48 |
| | Fu.C.3 | -2.65 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -1.21 | 2.96 | 2.96 | 2.17 |

FU.C. EXTREME OPLEGREACTIES

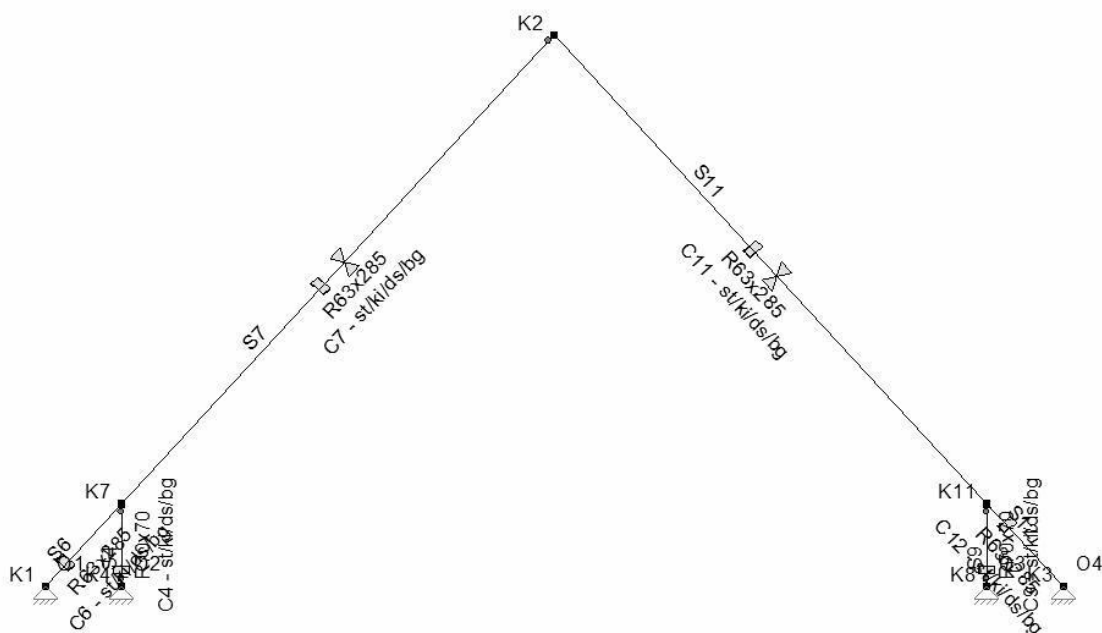
| Opleggin | Knoop | B.C. | Xmax | Z | My B.C. | X | Zmax | My B.C. | X | Z | Mymax |
|--------------------------------|-------|--------|--------------|-------|---------|--------|---------------|--------------|------|---|-------|
| g | | | | | | | | | | | |
| O1 | K1 | Fu.C.3 | 2.42 | 0.58 | 0.00 | Fu.C.2 | -0.61 | 6.59 | 0.00 | | |
| O1 | K1 | Fu.C.2 | -0.61 | 6.59 | 0.00 | | | | | | |
| O2 | K4 | | | | Fu.C.2 | 0.00 | -15.25 | 0.00 | | | |
| O3 | K8 | | | | Fu.C.3 | 0.00 | -8.35 | 0.00 | | | |
| O4 | K3 | | | | Fu.C.4 | -2.30 | 0.71 | 0.00 | | | |
| O4 | K3 | Fu.C.1 | -3.42 | -2.99 | 0.00 | Fu.C.1 | -3.42 | -2.99 | 0.00 | | |
| Globale extreme waarden | | | | | | | | | | | |
| O1 | K1 | Fu.C.3 | 2.42 | 0.58 | 0.00 | | | | | | |
| O4 | K3 | Fu.C.1 | -3.42 | -2.99 | 0.00 | | | | | | |
| O1 | K1 | | | | Fu.C.2 | -0.61 | 6.59 | 0.00 | | | |
| O2 | K4 | | | | Fu.C.2 | 0.00 | -15.25 | 0.00 | | | |

AFB. KA.C. VERPLAATSINGEN OMHULLENDE

Karakteristiek Belastingscombinaties



AFB. HOUTDEFINITIE

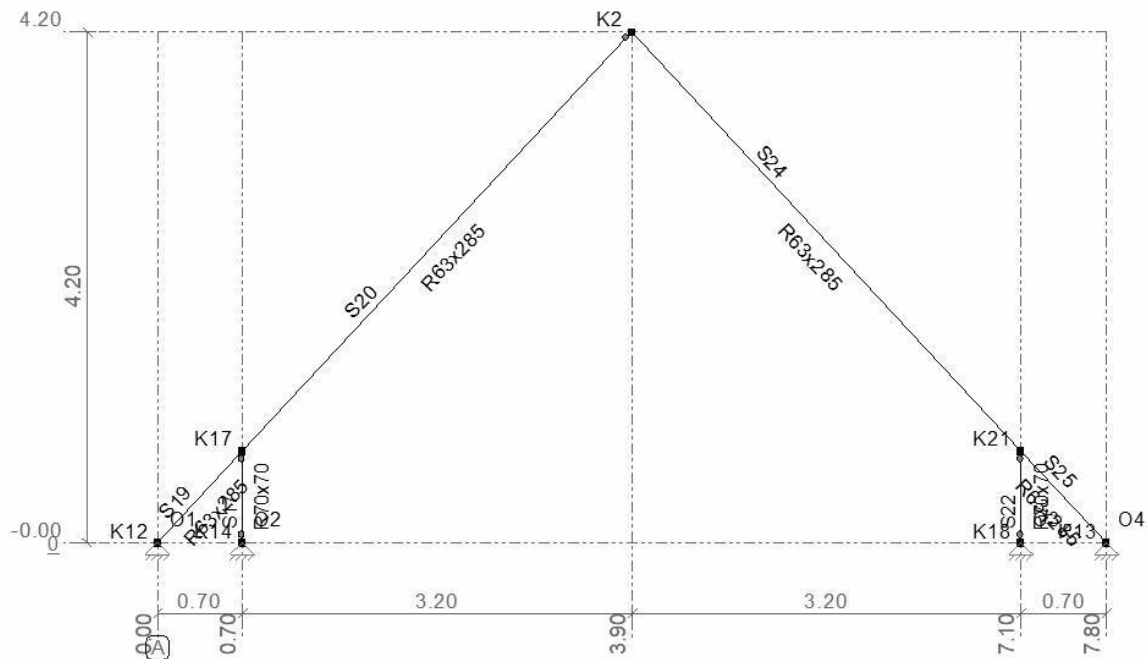


UNITY CHECK

| Label | Toetsing | Combinatie | Artikel | UC max |
|-------|-------------|------------|-------------------------------------|--------|
| C4 | Doorsnede | Fu.C.2 | NEN-EN1995-1-1#6.1.4 (6.2) | 0,25 |
| | Stabiliteit | Fu.C.2 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,28 |
| | Doorbuiging | Ka.C.3 | NEN-EN1995#7.2 NEN6702(10.2) | 0,13 |
| C6 | Doorsnede | Fu.C.2 | NEN-EN1995-1-1#6.2.3 (6.17) | 0,38 |
| | Kip | Fu.C.2 | NEN-EN1995-1-1#6.3.3 (6.33) | 0,34 |
| | Stabiliteit | Fu.C.6 | NEN-EN1995-1-1#6.3.2 (6.23) | 0,22 |
| | Doorbuiging | Ka.C.3 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,09 |
| C7 | Doorsnede | Fu.C.2 | NEN-EN1995-1-1#6.2.4 (6.19) | 0,34 |
| | Kip | Fu.C.2 | NEN-EN1995-1-1#6.3.3 (6.35) | 0,33 |
| | Stabiliteit | Fu.C.2 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,41 |
| | Doorbuiging | Ka.C.3 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,56 |
| C9 | Doorsnede | Fu.C.6 | NEN-EN1995-1-1#6.1.4 (6.2) | 0,16 |
| | Stabiliteit | Fu.C.6 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,18 |
| | Doorbuiging | Ka.C.5 | NEN-EN1995#7.2 NEN6702(10.2) | 0,08 |
| C11 | Doorsnede | Fu.C.6 | NEN-EN1995-1-1#6.2.4 (6.19) | 0,22 |
| | Kip | Fu.C.6 | NEN-EN1995-1-1#6.3.3 (6.35) | 0,29 |
| | Stabiliteit | Fu.C.6 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,40 |
| | Doorbuiging | Ka.C.5 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,38 |
| C12 | Doorsnede | Fu.C.6 | NEN-EN1995-1-1#6.2.4 (6.19) | 0,22 |
| | Kip | Fu.C.6 | NEN-EN1995-1-1#6.3.3 (6.35) | 0,06 |
| | Stabiliteit | Fu.C.6 | NEN-EN1995-1-1#6.3.2 (6.23) | 0,22 |
| | Doorbuiging | Ka.C.4 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,06 |

4.3.2 RIJWONING KAVEL 19-24, 25-30 , 31-37 EN 38-41 LAAG

AFB. GEOMETRIE



STAVEN

| Staf | Knoop B | Knoop E | X-B | Z-B | X-E | Z-E | Lengte Profiel | Positie |
|------|---------|---------|------|-------|------|-------|----------------|----------------|
| S17 | K14 | K17 | 0,70 | 0,00 | 0,70 | -0,75 | 0,75 P3 | 0,00 - L(0,75) |
| S19 | K12 | K17 | 0,00 | 0,00 | 0,70 | -0,75 | 1,03 P1 | 0,00 - L(1,03) |
| S20 | K17 | K2 | 0,70 | -0,75 | 3,90 | -4,20 | 4,70 P1 | 0,00 - L(4,70) |
| S22 | K18 | K21 | 7,10 | 0,00 | 7,10 | -0,75 | 0,75 P3 | 0,00 - L(0,75) |
| S24 | K2 | K21 | 3,90 | -4,20 | 7,10 | -0,75 | 4,70 P1 | 0,00 - L(4,70) |
| S25 | K21 | K13 | 7,10 | -0,75 | 7,80 | 0,00 | 1,03 P1 | 0,00 - L(1,03) |

PROFIELEN

| Profiel | Profielnaam | Oppervlakte | ly Materiaal | Hoek |
|---------|-------------|-------------|----------------|------|
| P1 | R63x285 | 1.7955e-02 | 1.2153e-04 C24 | 0,0 |
| P3 | R70x70 | 4.9000e-03 | 2.0008e-06 C18 | 0,0 |

PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,285 | 0,285 | 0,0000 | 0,0000 | 0,0000 | 0,063 | 0,000 | 0,000 Nee | 0,000 |
| P3 | Nee | 0,070 | 0,070 | 0,0000 | 0,0000 | 0,0000 | 0,070 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaal | Dichtheid | E-Modulus | Uitzettingcoeff |
|-----------|-----------|------------|-----------------|
| C24 | 4.20 | 1.1000e+07 | 50.0000e-07 |
| C18 | 3.80 | 9.0000e+06 | 50.0000e-07 |

OPLEGGINGEN

| Oplegging | Object | Positie | X | Z | Yr | HoekYr |
|-----------|--------|---------|------|------|------|--------|
| O1 | K12 | 0,00 | Vast | Vast | Vrij | 0 |
| O2 | K14 | 0,00 | Vast | Vast | Vrij | 0 |
| O3 | K18 | 0,00 | Vast | Vast | Vrij | 0 |
| O4 | K13 | 0,00 | Vast | Vast | Vrij | 0 |

GEWICHTSBEREKENING

| Index | Staven | Berekening | Waarde Eenhede |
|-------|--------|------------|----------------|
|-------|--------|------------|----------------|

Gemeenschappelijk

| Index | Staven | Berekening | Waarde Eenhede |
|-------|-----------------------------|------------|----------------|
| | Belastingen en vervormingen | NEN-EN1991 | |

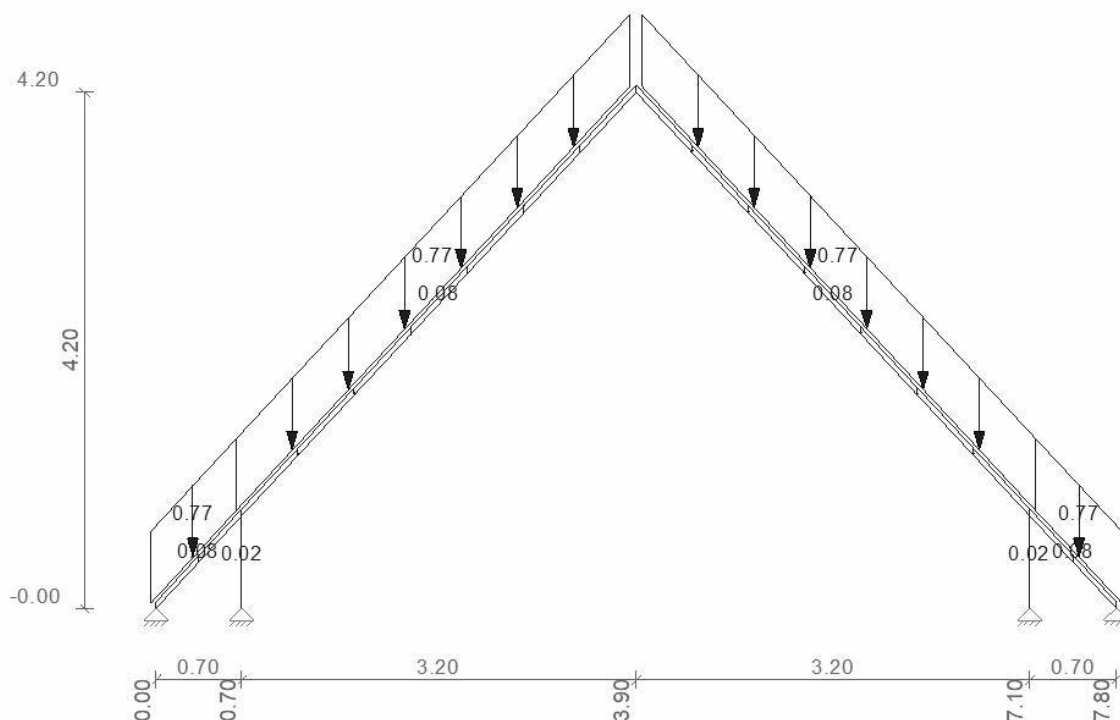
Gemeenschappelijk

| | | | |
|---|--|--|--------------|
| Lsys1 | Systeemmaat | 1.00 | 1,00 [m] |
| Height1 | Totale hoogte van constructie | 4.20 | 4,20 [m] |
| Width1 | Totale diepte van constructie | 7.80 | 7,80 [m] |
| Width2 | Totale breedte van constructie | 1.00 | 1,00 [m] |
| LR1 (Permanente Belasting) | | | |
| | Permanente Belasting | NEN-EN1991-1-1:2011/NB:2011 | |
| | Hellend dak (S19,S24,S20,S25) | | |
| Pp1 | Pannen, dakbed. + gording | 0.77 | 0,77 [kN/m²] |
| q1 | Permanente Belasting | Pp1*Lsys1 | 0,77 [kN/m] |
| LR2 (Windbelasting Algemeen) | | | |
| | Windbelasting Algemeen | NEN-EN1991-1-4:2011/NB:2011 | |
| Width3 | Gemiddelde breedte (b) | 1.00 | 1,00 [m] |
| Height2 | Totale hoogte van constructie | 4.20 | 4,20 [m] |
| Height3 | Boven de grond | 5.80 | 5,80 [m] |
| Z1 | Referentiehoogte | Height3+(0.5*Height2) | 7,90 [m] |
| Region1 | Regio | 3 | 3,00 |
| Cat1 | Terrein | Onbebouwd | 2,00 |
| Co1 | Orthografie factor (C0) | 1.00 | 1,00 |
| CsCd1 | Constructie factor (CsCd) | 1.00 | 1,00 |
| C1 | Correlatie factor | 0.85 | 0,85 |
| LR3 (Windbelasting van Links + Overdruk) | | | |
| | Windbelasting van Links + Overdruk | NEN-EN1991-1-4:2011/NB:2011 | |
| A1 | Belast oppervlak (A) | 10.00 | 10,00 [m²] |
| Cpe1 | Uitwendige druk; Druk coefficient (Cpe) | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.28) | 0,80 |
| Cpi1 | Interne druk; Druk coefficient (Cpi) | EN1991-1-4#7.2.9(Cpe=Cpe1,Openingen=0.00,Over=True) | 0,20 |
| Z2 | z=b; (h>2b) | 1.00 | 1,00 [m] |
| Qp1 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z2,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,49 [kN/m²] |
| Z3 | b<z<h-b; (h>2b) voor knopen: K12,K13,K14,K18 | 5.80 | 5,80 [m] |
| Qp2 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z3,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,57 [kN/m²] |
| Z4 | b<z<h-b; (h>2b) voor knopen: K12,K13,K14,K17,K18,K21 | 6.55 | 6,55 [m] |
| Qp3 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z4,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,60 [kN/m²] |
| Z5 | z=h-b; (h>2b) | 9.00 | 9,00 [m] |
| Qp4 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z5,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,68 [kN/m²] |
| Z6 | z=h; (h>2b) voor knopen: K2 | 10.00 | 10,00 [m] |
| Qp5 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z6,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,70 [kN/m²] |
| Cpe2 | Vertikale wand; Druk coefficient (Cpe): S17 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.28) | -0,51 |
| q2 | Vertikale wand; Verdeelde element belasting (q): S17 | (Qp2*Cpe2*CsCd1) * Lsys1 | -0,30 [kN/m] |
| Cpe3 | Vertikale wand; Druk coefficient (Cpe): S17 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.28) | 0,80 |
| C2 | Vertikale wand; Druk coefficient (Cpe) incl. correlatiefactor: S17 | (Cpe3-Cpe2) * C1 | 1,12 |
| q3 | Vertikale wand; Verdeelde element belasting (q) | (Qp2*(Cpe3-C2)*CsCd1) * Lsys1 | -0,18 [kN/m] |
| q4 | Vertikale wand; Verdeelde element belasting (q) | (Qp2*(Cpe2+C2)*CsCd1) * Lsys1 | 0,35 [kN/m] |
| q5 | Vertikale wand; Verdeelde element belasting (q): S17 | (Qp3*Cpe2*CsCd1) * Lsys1 | -0,31 [kN/m] |
| q6 | Vertikale wand; Verdeelde element belasting (q) | (Qp3*(Cpe3-C2)*CsCd1) * Lsys1 | -0,19 [kN/m] |
| q7 | Vertikale wand; Verdeelde element belasting (q) | (Qp3*(Cpe2+C2)*CsCd1) * Lsys1 | 0,36 [kN/m] |
| q8 | Interne druk; Verdeelde element belasting (q) | (Cpi1*Qp2) * Lsys1 | 0,11 [kN/m] |
| Cpe4 | Zadeldak; Druk coefficient (Cpe): S19 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=G,Hoek=47.12) | 0,70 |
| q9 | Zadeldak; Verdeelde element belasting (q): S19 | (Qp2*Cpe4*CsCd1) * Lsys1 | 0,40 [kN/m] |
| Cpe5 | Zadeldak; Druk coefficient (Cpe): S19,S20 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=H,Hoek=47.12) | 0,61 |

| Index | Staven | Berekening | Waarde Eenhede |
|--|---|--|----------------|
| LR3 (Windbelasting van Links + Overdruk) | | | |
| q10 | Zadeldak; Verdeelde element belasting (q): S19 | $(Qp2 * Cpe5 * CsCd1) * Lsys1$ | 0,35 [kN/m] |
| q11 | Zadeldak; Verdeelde element belasting (q): S19,S20 | $(Qp3 * Cpe5 * CsCd1) * Lsys1$ | 0,37 [kN/m] |
| q12 | Zadeldak; Verdeelde element belasting (q): S20 | $(Qp5 * Cpe5 * CsCd1) * Lsys1$ | 0,43 [kN/m] |
| q13 | Interne druk; Verdeelde element belasting (q) | $(Cpi1 * Qp5) * Lsys1$ | 0,14 [kN/m] |
| q14 | Zadeldak; Verdeelde element belasting (q): S20 | $(Qp4 * Cpe5 * CsCd1) * Lsys1$ | 0,42 [kN/m] |
| q15 | Interne druk; Verdeelde element belasting (q) | $(Cpi1 * Qp3) * Lsys1$ | 0,12 [kN/m] |
| Cpe6 | Zadeldak; Druk coefficient (Cpe): S24 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=J,Hoek=47.12) | -0,30 |
| q16 | Zadeldak; Verdeelde element belasting (q): S24 | $(Qp5 * Cpe6 * CsCd1) * Lsys1$ | -0,21 [kN/m] |
| Cpe7 | Zadeldak; Druk coefficient (Cpe): S24,S25 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=I,Hoek=47.12) | -0,20 |
| q17 | Zadeldak; Verdeelde element belasting (q): S24 | $(Qp5 * Cpe7 * CsCd1) * Lsys1$ | -0,14 [kN/m] |
| q18 | Zadeldak; Verdeelde element belasting (q): S24,S25 | $(Qp3 * Cpe7 * CsCd1) * Lsys1$ | -0,12 [kN/m] |
| q19 | Zadeldak; Verdeelde element belasting (q): S24 | $(Qp4 * Cpe7 * CsCd1) * Lsys1$ | -0,14 [kN/m] |
| q20 | Zadeldak; Verdeelde element belasting (q): S25 | $(Qp2 * Cpe7 * CsCd1) * Lsys1$ | -0,11 [kN/m] |
| LR4 (Windbelasting van Links + Onderdruk) | | | |
| | Windbelasting van Links + Onderdruk | NEN-EN1991-1-4:2011/NB:2011 | |
| A2 | Belast oppervlak (A) | 10.00 | 10,00 [m²] |
| Cpe8 | Uitwendige druk; Druk coefficient (Cpe) | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.28) | -0,51 |
| Cpi2 | Interne druk; Druk coefficient (Cpi) | EN1991-1-4#7.2.9(Cpe=Cpe8,Op eningen=0.00,Over=False) | -0,30 |
| Z7 | $z=b$; ($h>2b$) | 1.00 | 1,00 [m] |
| Qp6 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z7,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,49 [kN/m²] |
| Z8 | $b<z<h-b$; ($h>2b$) voor knopen: K12,K13,K14,K18 | 5.80 | 5,80 [m] |
| Qp7 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z8,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,57 [kN/m²] |
| Z9 | $b<z<h-b$; ($h>2b$) voor knopen: K12,K13,K14,K17,K18,K21 | 6.55 | 6,55 [m] |
| Qp8 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z9,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,60 [kN/m²] |
| Z10 | $z=h-b$; ($h>2b$) | 9.00 | 9,00 [m] |
| Qp9 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z10,Terrein n=Cat1,Regio=Region1,C0=Co1) | 0,68 [kN/m²] |
| Z11 | $z=h$; ($h>2b$) voor knopen: K2 | 10.00 | 10,00 [m] |
| Qp10 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z11,Terrein n=Cat1,Regio=Region1,C0=Co1) | 0,70 [kN/m²] |
| Cpe9 | Vertikale wand; Druk coefficient (Cpe): S17 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.28) | -0,51 |
| q21 | Vertikale wand; Verdeelde element belasting (q): S17 | $(Qp7 * Cpe9 * CsCd1) * Lsys1$ | -0,30 [kN/m] |
| Cpe10 | Vertikale wand; Druk coefficient (Cpe): S17 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.28) | 0,80 |
| C3 | Vertikale wand; Druk coefficient (Cpe) incl. correlatiefactor: S17 | $(Cpe10 - Cpe9) * C1$ | 1,12 |
| q22 | Vertikale wand; Verdeelde element belasting (q) | $(Qp7 * (Cpe10 - C3) * CsCd1) * Lsys1$ | -0,18 [kN/m] |
| q23 | Vertikale wand; Verdeelde element belasting (q) | $(Qp7 * (Cpe9 + C3) * CsCd1) * Lsys1$ | 0,35 [kN/m] |
| q24 | Vertikale wand; Verdeelde element belasting (q): S17 | $(Qp8 * Cpe9 * CsCd1) * Lsys1$ | -0,31 [kN/m] |
| q25 | Vertikale wand; Verdeelde element belasting (q) | $(Qp8 * (Cpe10 - C3) * CsCd1) * Lsys1$ | -0,19 [kN/m] |
| q26 | Vertikale wand; Verdeelde element belasting (q) | $(Qp8 * (Cpe9 + C3) * CsCd1) * Lsys1$ | 0,36 [kN/m] |
| q27 | Interne druk; Verdeelde element belasting (q) | $(Cpi2 * Qp7) * Lsys1$ | -0,17 [kN/m] |
| Cpe11 | Zadeldak; Druk coefficient (Cpe): S19 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=G,Hoek=47.12) | 0,70 |
| q28 | Zadeldak; Verdeelde element belasting (q): S19 | $(Qp7 * Cpe11 * CsCd1) * Lsys1$ | 0,40 [kN/m] |
| Cpe12 | Zadeldak; Druk coefficient (Cpe): S19,S20 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=H,Hoek=47.12) | 0,61 |
| q29 | Zadeldak; Verdeelde element belasting (q): S19 | $(Qp7 * Cpe12 * CsCd1) * Lsys1$ | 0,35 [kN/m] |
| q30 | Zadeldak; Verdeelde element belasting (q): S19,S20 | $(Qp8 * Cpe12 * CsCd1) * Lsys1$ | 0,37 [kN/m] |
| q31 | Zadeldak; Verdeelde element belasting (q): S20 | $(Qp10 * Cpe12 * CsCd1) * Lsys1$ | 0,43 [kN/m] |
| q32 | Interne druk; Verdeelde element belasting (q) | $(Cpi2 * Qp10) * Lsys1$ | -0,21 [kN/m] |
| q33 | Zadeldak; Verdeelde element belasting (q): S20 | $(Qp9 * Cpe12 * CsCd1) * Lsys1$ | 0,42 [kN/m] |
| q34 | Interne druk; Verdeelde element belasting (q) | $(Cpi2 * Qp8) * Lsys1$ | -0,18 [kN/m] |

| Index | Staven | Berekening | Waarde Eenhede |
|--|---|--|----------------|
| LR4 (Windbelasting van Links + Onderdruk) | | | |
| Cpe13 | Zadeldak; Druk coefficient (Cpe): S24 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=J,Hoek=47.12) (Qp10*Cpe13*CsCd1) * Lsys1 | -0,30 |
| q35 | Zadeldak; Verdeelde element belasting (q): S24 | | -0,21 [kN/m] |
| Cpe14 | Zadeldak; Druk coefficient (Cpe): S24,S25 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=I,Hoek=47.12) (Qp10*Cpe14*CsCd1) * Lsys1 | -0,20 |
| q36 | Zadeldak; Verdeelde element belasting (q): S24 | | -0,14 [kN/m] |
| q37 | Zadeldak; Verdeelde element belasting (q): S24,S25 | (Qp8*Cpe14*CsCd1) * Lsys1 | -0,12 [kN/m] |
| q38 | Zadeldak; Verdeelde element belasting (q): S24 | (Qp9*Cpe14*CsCd1) * Lsys1 | -0,14 [kN/m] |
| q39 | Zadeldak; Verdeelde element belasting (q): S25 | (Qp7*Cpe14*CsCd1) * Lsys1 | -0,11 [kN/m] |
| LR5 (Sneeuwbelasting) | | | |
| Sneeuwbelasting | | | |
| Sk1 | Karakteristiek waarde van de sneeuwlast op de grond (Sk) | NEN-EN1991-1-3:2011/NB:2011 NEN-EN1991-1-3#4.1(Zone=1) | 0,70 [kN/m²] |
| Ce1 | De milieucoefficient (Ce) | NEN-EN1991-1-3#5.2.7() | 1,00 |
| Ct1 | De thermische coefficient (Ct) | NEN-EN1991-1-3#5.2.8() | 1,00 |
| Mu1 | Zadeldak, Mu1 Hoek: 47.12; S19,S20,S24,S25 Mu1; Sneeuwbelasting coefficient (Mu) | EN1991-1-3#5.3(Dak=Hellend,Hoek=47.12,Mu=Mu1,Sk=Sk1) (Sk1*Ce1*Ct1*Mu1) * Lsys1 | 0,34 |
| q40 | Verdeelde element belasting (q) | | 0,24 [kN/m] |
| q41 | Verdeelde element belasting (q) | q40*0.50 | 0,12 [kN/m] |

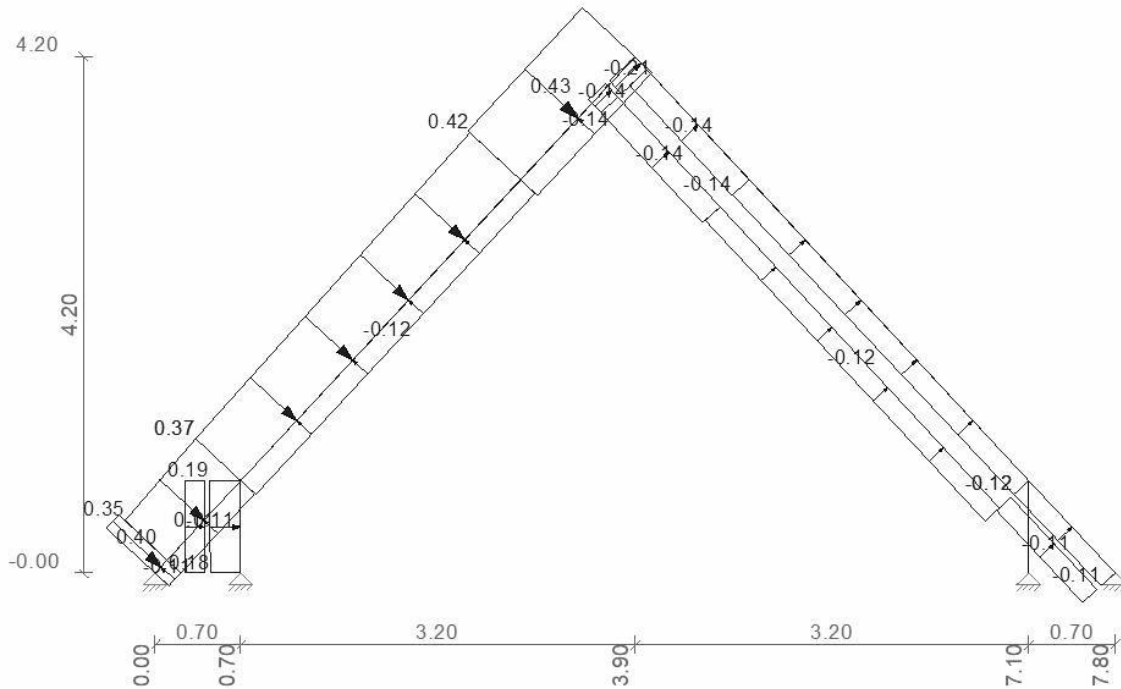
B.G.1: PERMANENTE BELASTING



B.G.1: PERMANENTE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------------------------------------|---------------|-------------------|--------------|-------------|-------------------------|
| B.G.1: Permanente Belasting | | | | | |
| qG | 0,02 (1.00x) | 0,02 (1.00x) | 0,00 | 0,75(L) | Z" S17,S22 |
| qG | 0,08 (1.00x) | 0,08 (1.00x) | 0,00 | 1,03(L) | Z" S19,S25 |
| qG | 0,08 (1.00x) | 0,08 (1.00x) | 0,00 | 4,70(L) | Z" S20,S24 |
| q | 0,77 (q1) | 0,77 (q1) | 0,00 | 1,03(L) | Z" S19-S20,S24-S25 |
| Som lasten | X:0,00 | kN Z: 9,72 | kN | | |

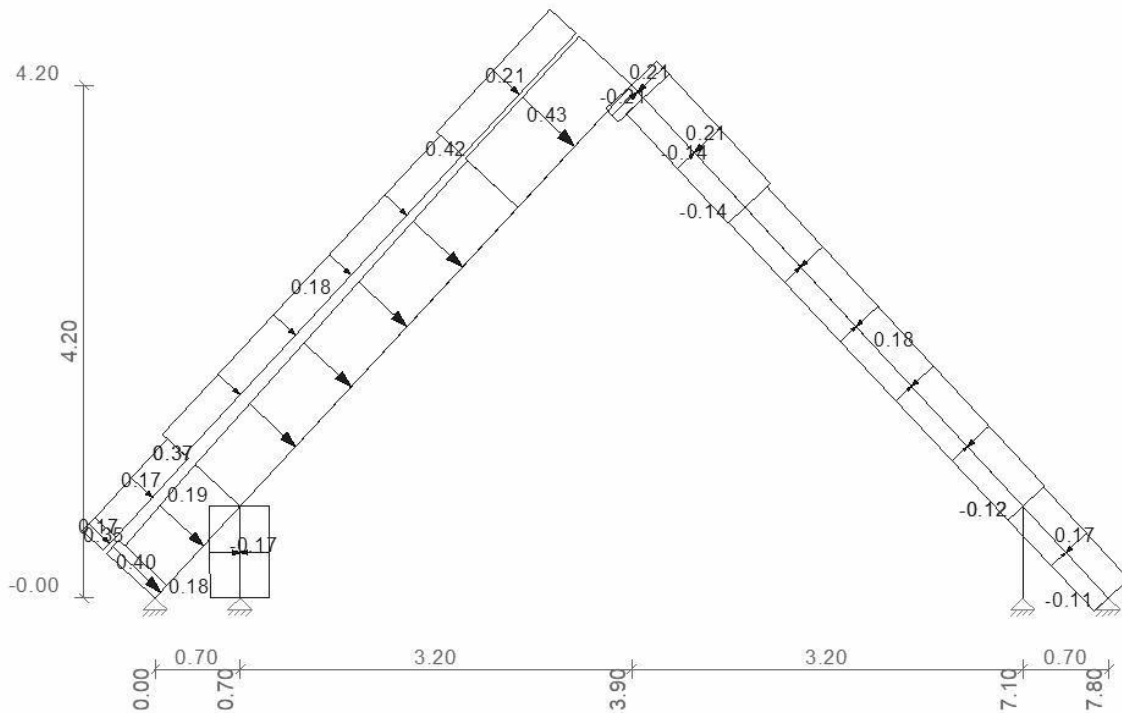
B.G.2: WINDBELASTING VAN LINKS + OVERDRUK



B.G.2: WINDBELASTING VAN LINKS + OVERDRUK

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Windbelasting van Links + Overdruk | | | | | |
| q | 0,18 (-q3) | 0,19 (-q6) | 0,00 | 0,75(L) | Z' S17 |
| q | 0,11 (q8) | 0,11 (q8) | 0,00 | 0,75(L) | Z' S17 |
| q | 0,40 (q9) | 0,40 (q9) | 0,00 | 0,15 | Z' S19 |
| q | -0,11 (-q8) | -0,11 (-q8) | 0,00 | 0,15 | Z' S19 |
| q | 0,35 (q10) | 0,37 (q11) | 0,15 | 1,03(L) | Z' S19 |
| q | -0,11 (-q8) | -0,11 (-q8) | 0,15 | 1,03(L) | Z' S19 |
| q | 0,43 (q12) | 0,43 (q12) | 3,34 | 4,70(L) | Z' S20 |
| q | -0,14 (-q13) | -0,14 (-q13) | 3,34 | 4,70(L) | Z' S20 |
| q | 0,37 (q11) | 0,42 (q14) | 0,00 | 3,34 | Z' S20 |
| q | -0,12 (-q15) | -0,12 (-q15) | 0,00 | 3,34 | Z' S20 |
| q | -0,21 (q16) | -0,21 (q16) | 0,00 | 0,15 | Z' S24 |
| q | -0,14 (-q13) | -0,14 (-q13) | 0,00 | 0,15 | Z' S24 |
| q | -0,14 (q17) | -0,14 (q17) | 0,15 | 1,37 | Z' S24 |
| q | -0,14 (-q13) | -0,14 (-q13) | 0,15 | 1,37 | Z' S24 |
| q | -0,14 (q19) | -0,12 (q18) | 1,37 | 4,70(L) | Z' S24 |
| q | -0,12 (-q15) | -0,12 (-q15) | 1,37 | 4,70(L) | Z' S24 |
| q | -0,12 (q18) | -0,11 (q20) | 0,00 | 1,03(L) | Z' S25 |
| q | -0,11 (-q8) | -0,11 (-q8) | 0,00 | 1,03(L) | Z' S25 |
| Som lasten | X: 2,44 | kN Z: 0,07 | kN | | |

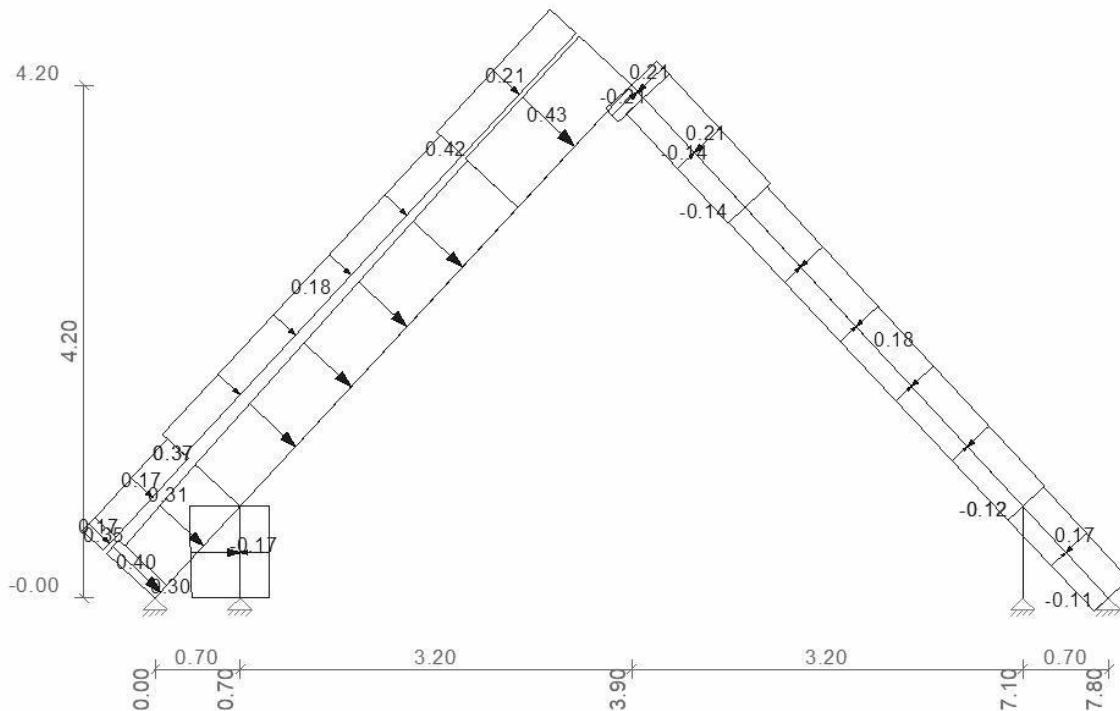
B.G.4: WINDBELASTING VAN LINKS + ONDERDRUK



B.G.4: WINDBELASTING VAN LINKS + ONDERDRUK

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.4: Windbelasting van Links + Onderdruk | | | | | |
| q | 0,18 (-q22) | 0,19 (-q25) | 0,00 | 0,75(L) | Z' S17 |
| q | -0,17 (q27) | -0,17 (q27) | 0,00 | 0,75(L) | Z' S17 |
| q | 0,40 (q28) | 0,40 (q28) | 0,00 | 0,15 | Z' S19 |
| q | 0,17 (-q27) | 0,17 (-q27) | 0,00 | 0,15 | Z' S19 |
| q | 0,35 (q29) | 0,37 (q30) | 0,15 | 1,03(L) | Z' S19 |
| q | 0,17 (-q27) | 0,17 (-q27) | 0,15 | 1,03(L) | Z' S19 |
| q | 0,43 (q31) | 0,43 (q31) | 3,34 | 4,70(L) | Z' S20 |
| q | 0,21 (-q32) | 0,21 (-q32) | 3,34 | 4,70(L) | Z' S20 |
| q | 0,37 (q30) | 0,42 (q33) | 0,00 | 3,34 | Z' S20 |
| q | 0,18 (-q34) | 0,18 (-q34) | 0,00 | 3,34 | Z' S20 |
| q | -0,21 (q35) | -0,21 (q35) | 0,00 | 0,15 | Z' S24 |
| q | 0,21 (-q32) | 0,21 (-q32) | 0,00 | 0,15 | Z' S24 |
| q | -0,14 (q36) | -0,14 (q36) | 0,15 | 1,37 | Z' S24 |
| q | 0,21 (-q32) | 0,21 (-q32) | 0,15 | 1,37 | Z' S24 |
| q | -0,14 (q38) | -0,12 (q37) | 1,37 | 4,70(L) | Z' S24 |
| q | 0,18 (-q34) | 0,18 (-q34) | 1,37 | 4,70(L) | Z' S24 |
| q | -0,12 (q37) | -0,11 (q39) | 0,00 | 1,03(L) | Z' S25 |
| q | 0,17 (-q27) | 0,17 (-q27) | 0,00 | 1,03(L) | Z' S25 |
| Som lasten | X: 2,23 | kN Z: 2,49 | kN | | |

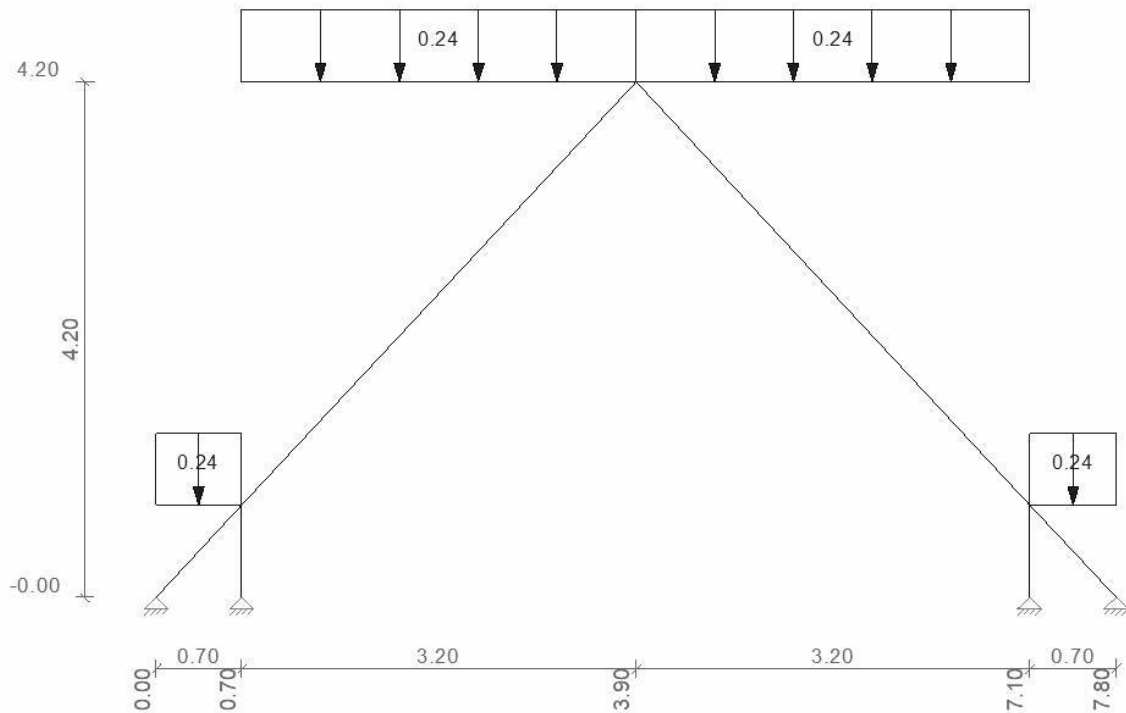
B.G.5: WINDBELASTING VAN LINKS + ONDERDRUK (2E CORR. FACTOR)



B.G.5: WINDBELASTING VAN LINKS + ONDERDRUK (2E CORR. FACTOR)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.5: Windbelasting van Links + Onderdruk (2e corr. factor) | | | | | |
| q | 0,30 (-q21) | 0,31 (-q24) | 0,00 | 0,75(L) | Z' S17 |
| q | -0,17 (q27) | -0,17 (q27) | 0,00 | 0,75(L) | Z' S17 |
| q | 0,40 (q28) | 0,40 (q28) | 0,00 | 0,15 | Z' S19 |
| q | 0,17 (-q27) | 0,17 (-q27) | 0,00 | 0,15 | Z' S19 |
| q | 0,35 (q29) | 0,37 (q30) | 0,15 | 1,03(L) | Z' S19 |
| q | 0,17 (-q27) | 0,17 (-q27) | 0,15 | 1,03(L) | Z' S19 |
| q | 0,43 (q31) | 0,43 (q31) | 3,34 | 4,70(L) | Z' S20 |
| q | 0,21 (-q32) | 0,21 (-q32) | 3,34 | 4,70(L) | Z' S20 |
| q | 0,37 (q30) | 0,42 (q33) | 0,00 | 3,34 | Z' S20 |
| q | 0,18 (-q34) | 0,18 (-q34) | 0,00 | 3,34 | Z' S20 |
| q | -0,21 (q35) | -0,21 (q35) | 0,00 | 0,15 | Z' S24 |
| q | 0,21 (-q32) | 0,21 (-q32) | 0,00 | 0,15 | Z' S24 |
| q | -0,14 (q36) | -0,14 (q36) | 0,15 | 1,37 | Z' S24 |
| q | 0,21 (-q32) | 0,21 (-q32) | 0,15 | 1,37 | Z' S24 |
| q | -0,14 (q38) | -0,12 (q37) | 1,37 | 4,70(L) | Z' S24 |
| q | 0,18 (-q34) | 0,18 (-q34) | 1,37 | 4,70(L) | Z' S24 |
| q | -0,12 (q37) | -0,11 (q39) | 0,00 | 1,03(L) | Z' S25 |
| q | 0,17 (-q27) | 0,17 (-q27) | 0,00 | 1,03(L) | Z' S25 |
| Som lasten | X: 2,32 | kN Z: 2,49 | kN | | |

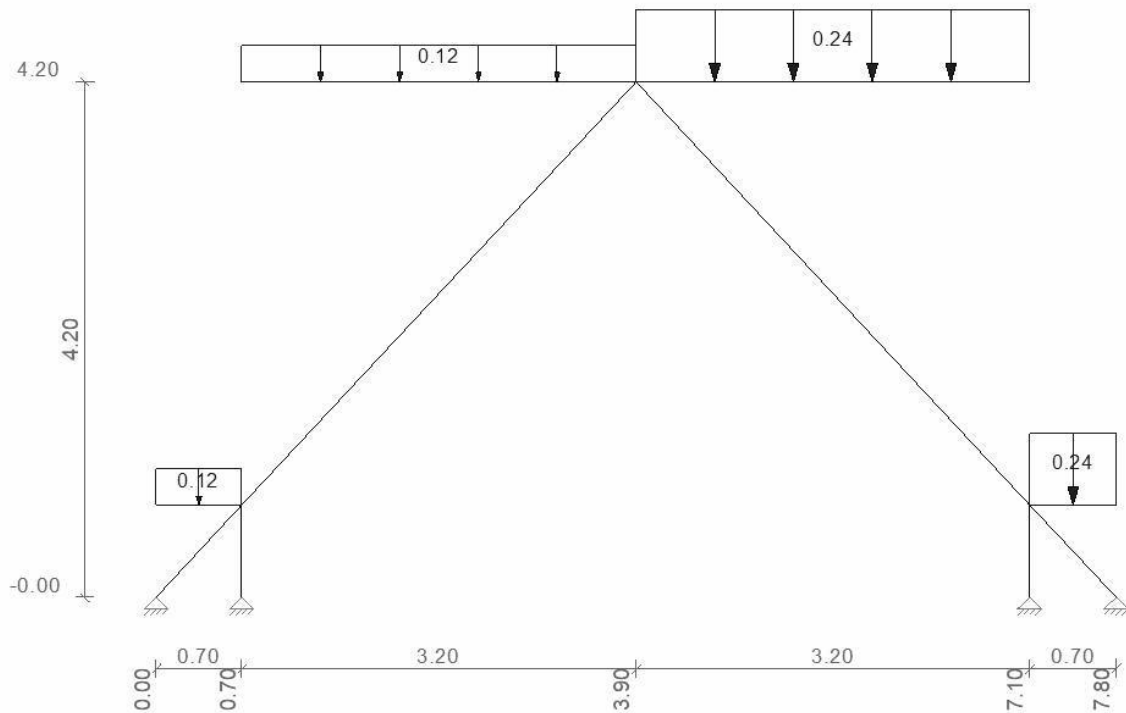
B.G.6: SNEEUWBELASTING 1



B.G.6: SNEEUWBELASTING 1

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--------------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.6: Sneeuwbelasting 1 | | | | | |
| q | 0,24 (q40) | 0,24 (q40) | 0,00 | 0,70(L) | Z S19-S20,S24-S25 |
| Som lasten | X: 0,00 | kN Z: 1,88 | kN | | |

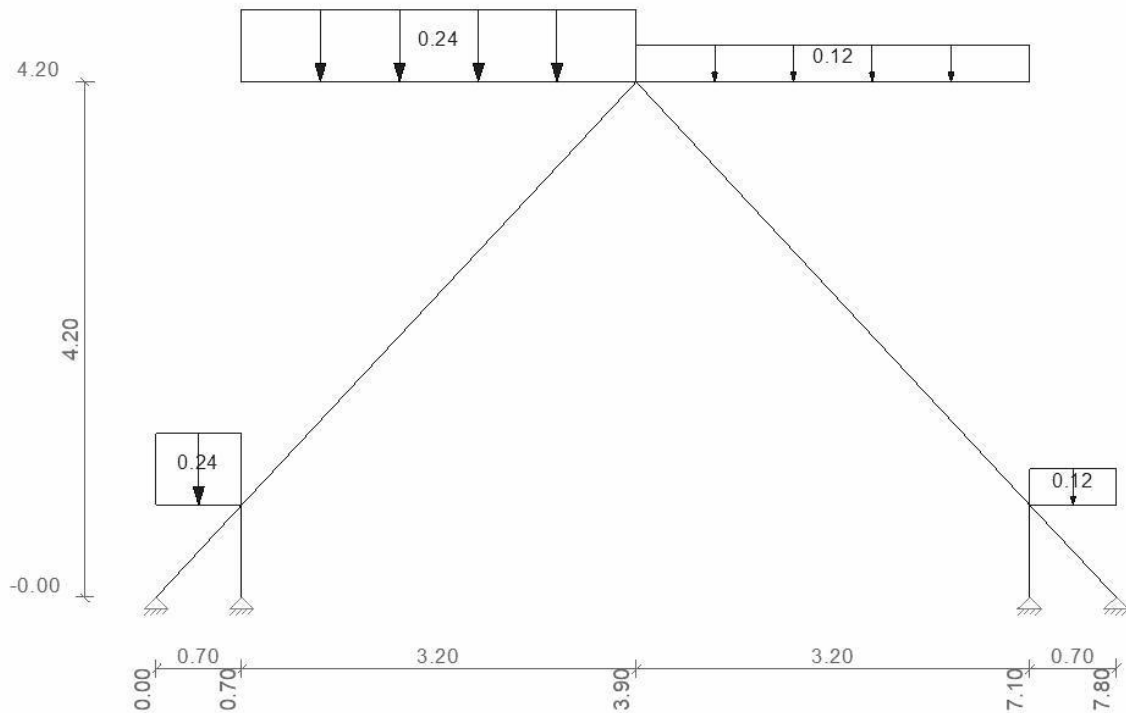
B.G.7: SNEEUWBELASTING 2



B.G.7: SNEEUWBELASTING 2

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---------------------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.7: Sneeuwbelasting 2 | | | | | |
| q | 0,12 (q41) | 0,12 (q41) | 0,00 | 0,70(L) | Z S19-S20 |
| q | 0,24 (q40) | 0,24 (q40) | 0,00 | 3,20(L) | Z S24-S25 |
| Som lasten | X: 0,00 | kN Z: 1,41 | kN | | |

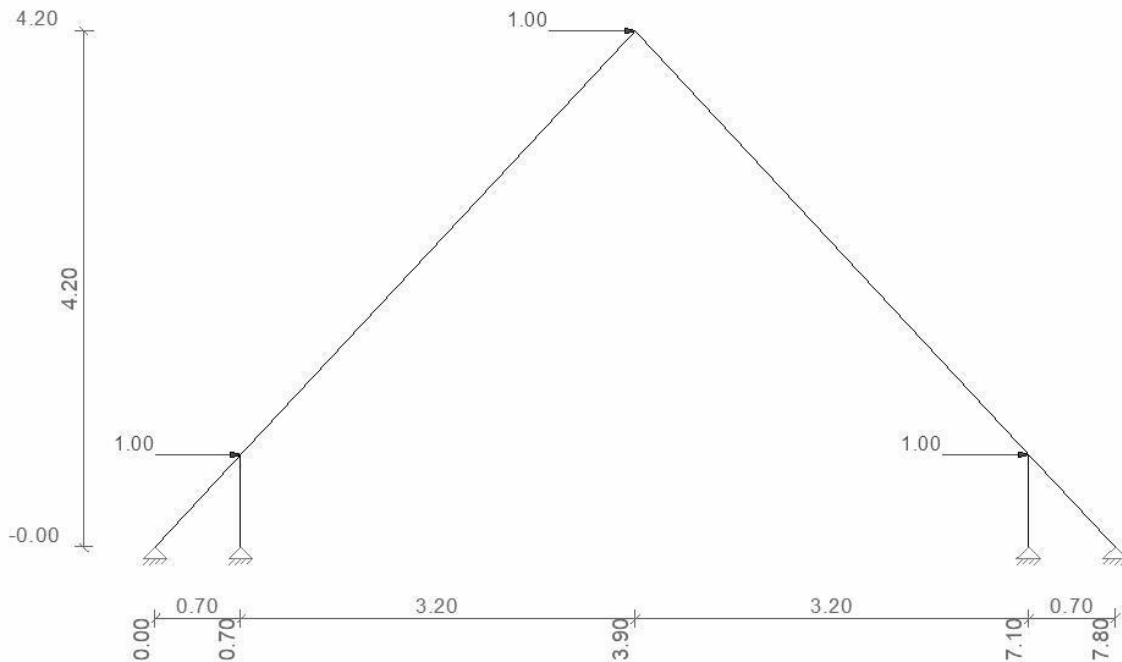
B.G.8: SNEEUWBELASTING 3



B.G.8: SNEEUWBELASTING 3

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---------------------------------|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.8: Sneeuwbelasting 3 | | | | | |
| q | 0,24 (q40) | 0,24 (q40) | 0,00 | 0,70(L) | Z S19-S20 |
| q | 0,12 (q41) | 0,12 (q41) | 0,00 | 3,20(L) | Z S24-S25 |
| Som lasten | X: 0,00 | kN Z: 1,41 | kN | | |

B.G.9: KNIKLENGTE



B.G.9: KNIKLENGTE

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.9: Kniklengte | | | | | |
| N | 1,00 | | | | X K2,K17,K21 |
| Som lasten | X: 3,00 | kN Z: 0,00 | kN | | |

B.G. OPLEGREACTIES

| B.C. | Oplegging | Knoop | X | Z | My |
|-------|--------------|-------|-------|-------|------|
| B.G.1 | O1 | K12 | 1.49 | -0.27 | 0.00 |
| | O2 | K14 | 0.00 | -4.59 | 0.00 |
| | O3 | K18 | 0.00 | -4.59 | 0.00 |
| | O4 | K13 | -1.49 | -0.27 | 0.00 |
| | Som Reacties | | 0.00 | -9,72 | |
| | Som Lasten | | 0.00 | 9,72 | |
| B.G.2 | O1 | K12 | -1.24 | 1.98 | 0.00 |
| | O2 | K14 | -0.11 | -2.26 | 0.00 |
| | O3 | K18 | 0.00 | 1.97 | 0.00 |
| | O4 | K13 | -1.09 | -1.76 | 0.00 |
| | Som Reacties | | -2,44 | -0,07 | |
| | Som Lasten | | 2,44 | 0,07 | |
| B.G.3 | O1 | K12 | -1.29 | 2.02 | 0.00 |
| | O2 | K14 | -0.16 | -2.30 | 0.00 |
| | O3 | K18 | 0.00 | 1.97 | 0.00 |
| | O4 | K13 | -1.09 | -1.76 | 0.00 |
| | Som Reacties | | -2,53 | -0,07 | |
| | Som Lasten | | 2,53 | 0,07 | |
| B.G.4 | O1 | K12 | -1.58 | 3.06 | 0.00 |
| | O2 | K14 | 0.00 | -4.55 | 0.00 |
| | O3 | K18 | 0.00 | -0.44 | 0.00 |
| | O4 | K13 | -0.64 | -0.56 | 0.00 |
| | Som Reacties | | -2,23 | -2,49 | |
| | Som Lasten | | 2,23 | 2,49 | |
| B.G.5 | O1 | K12 | -1.63 | 3.11 | 0.00 |
| | O2 | K14 | -0.05 | -4.60 | 0.00 |
| | O3 | K18 | 0.00 | -0.44 | 0.00 |
| | O4 | K13 | -0.64 | -0.56 | 0.00 |

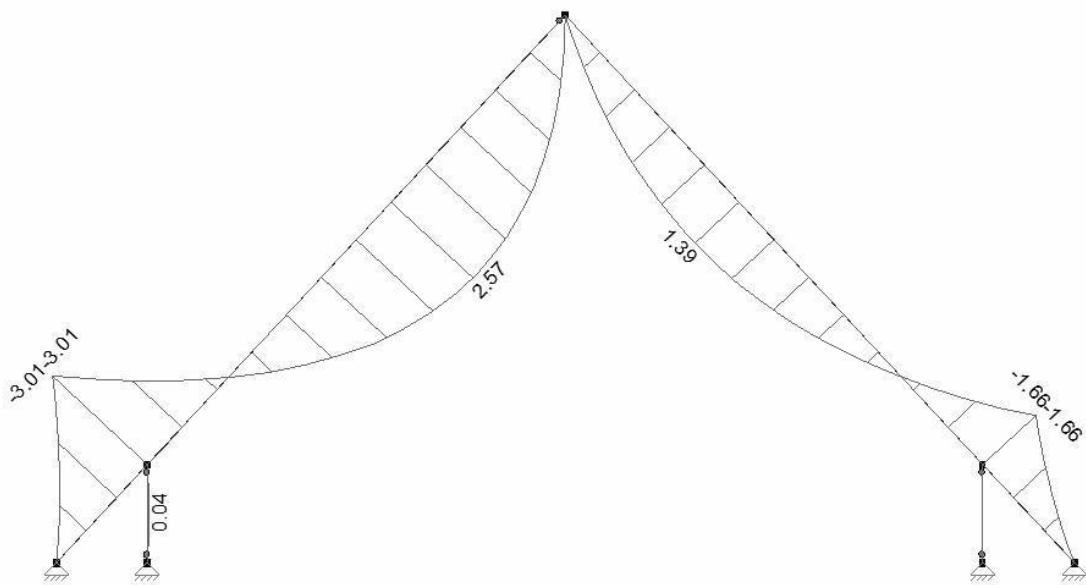
| B.C. | Oplegging | Knoop | X | Z | My |
|-------|---------------------|-------|--------------|--------------|------|
| | Som Reacties | | -2.32 | -2,49 | |
| | Som Lasten | | 2.32 | 2.49 | |
| B.G.6 | O1 | K12 | 0.29 | -0.05 | 0.00 |
| | O2 | K14 | 0.00 | -0.89 | 0.00 |
| | O3 | K18 | 0.00 | -0.89 | 0.00 |
| | O4 | K13 | -0.29 | -0.05 | 0.00 |
| | Som Reacties | | 0.00 | -1,88 | |
| | Som Lasten | | 0.00 | 1.88 | |
| B.G.7 | O1 | K12 | 0.22 | -0.10 | 0.00 |
| | O2 | K14 | 0.00 | -0.44 | 0.00 |
| | O3 | K18 | 0.00 | -0.88 | 0.00 |
| | O4 | K13 | -0.22 | 0.02 | 0.00 |
| | Som Reacties | | 0.00 | -1,41 | |
| | Som Lasten | | 0.00 | 1.41 | |
| B.G.8 | O1 | K12 | 0.22 | 0.02 | 0.00 |
| | O2 | K14 | 0.00 | -0.88 | 0.00 |
| | O3 | K18 | 0.00 | -0.44 | 0.00 |
| | O4 | K13 | -0.22 | -0.10 | 0.00 |
| | Som Reacties | | 0.00 | -1,41 | |
| | Som Lasten | | 0.00 | 1.41 | |
| B.G.9 | O1 | K12 | -1.50 | 1.58 | 0.00 |
| | O2 | K14 | 0.00 | -1.03 | 0.00 |
| | O3 | K18 | 0.00 | 1.03 | 0.00 |
| | O4 | K13 | -1.50 | -1.58 | 0.00 |
| | Som Reacties | | -3.00 | 0,00 | |
| | Som Lasten | | 3.00 | 0.00 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (LIJST)

$Fu.C.1 = 0.90 \cdot B.G.1 + 1.35 \cdot B.G.2$
 $Fu.C.2 = 0.90 \cdot B.G.1 + 1.35 \cdot B.G.3$
 $Fu.C.3 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.4$
 $Fu.C.4 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.5$
 $Fu.C.5 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.6$
 $Fu.C.6 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.7$
 $Fu.C.7 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.8$
 $Fu.C.8 = 1.22 \cdot B.G.1$
 $Fu.C.9 = 0.90 \cdot B.G.1$

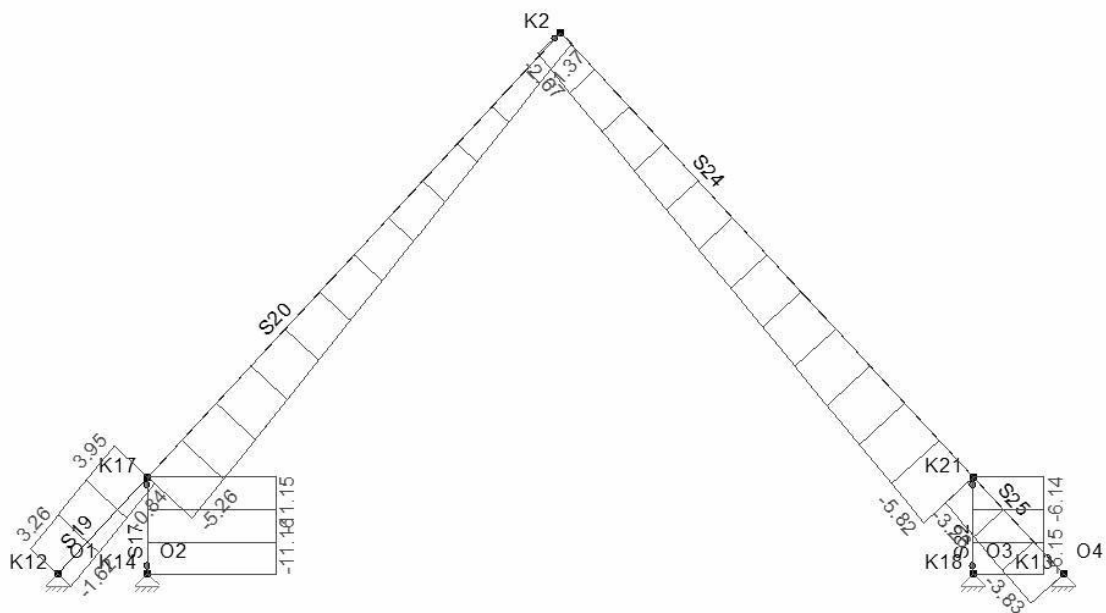
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



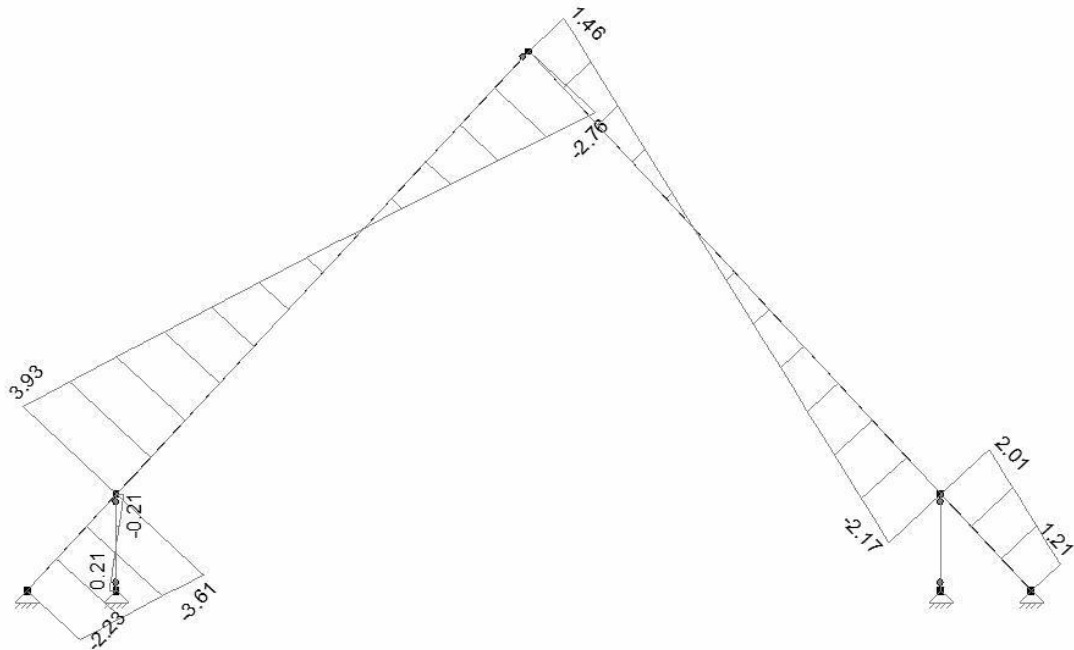
AFB. FU.C. NORMAALKRACHT (NX) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME STAAFKRACHTEN

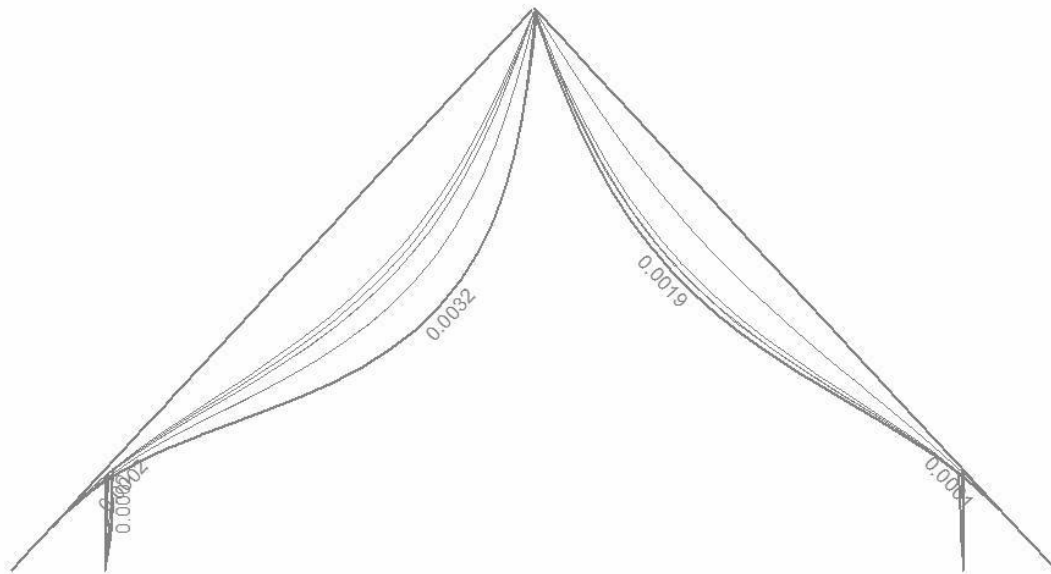
| Staaf | B.C. | Mb | Mmax | xMmax | Me | x-M0 | x-M0 T/D | Nmax | Vb | Vmax | Ve |
|-------|--------|--------------|-------------|-------|--------------|------|----------|---------------|--------------|--------------|--------------|
| S17 | Fu.C.2 | 0.00 | 0.04 | 0.38 | 0.00 | 0.00 | 0.00 D | -7.24 | 0.21 | -0.21 | -0.21 |
| | Fu.C.4 | 0.00 | 0.01 | 0.38 | 0.00 | 0.00 | 0.00 D | -11.16 | 0.06 | -0.07 | -0.07 |
| S19 | Fu.C.3 | 0.00 | 0.00 | 0.00 | -3.01 | 0.00 | 0.00 T | 3.87 | -2.23 | -3.61 | -3.61 |
| Staaf | B.C. | Mb | Mmax | xMmax | Me | x-M0 | x-M0 T/D | Nmax | Vb | Vmax | Ve |
| S19 | Fu.C.4 | 0.00 | 0.00 | 0.00 | -3.00 | 0.00 | 0.00 T | 3.95 | -2.22 | -3.61 | -3.61 |
| | Fu.C.5 | 0.00 | 0.00 | 0.00 | -1.66 | 0.00 | 0.00 D | -1.62 | -1.21 | -2.01 | -2.01 |
| S20 | Fu.C.3 | -3.01 | 2.57 | 2.82 | 0.00 | 0.91 | 0.00 D | -4.27 | 3.93 | 3.93 | -2.76 |
| | Fu.C.4 | -3.00 | 2.57 | 2.82 | 0.00 | 0.91 | 0.00 D | -4.27 | 3.92 | 3.92 | -2.76 |
| | Fu.C.5 | -1.66 | 1.38 | 2.81 | 0.00 | 0.91 | 0.00 D | -5.26 | 2.17 | 2.17 | -1.46 |
| S22 | Fu.C.5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -6.15 | 0.00 | 0.00 | 0.00 |
| S24 | Fu.C.4 | 0.00 | 1.25 | 1.89 | -1.49 | 3.79 | 0.00 D | -5.82 | 1.32 | -1.95 | -1.95 |
| | Fu.C.5 | 0.00 | 1.38 | 1.89 | -1.66 | 3.79 | 0.00 D | -5.26 | 1.46 | -2.17 | -2.17 |
| | Fu.C.6 | 0.00 | 1.39 | 1.89 | -1.66 | 3.79 | 0.00 D | -5.12 | 1.46 | -2.17 | -2.17 |
| S25 | Fu.C.2 | -0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -3.83 | 0.48 | 0.48 | 0.27 |
| | Fu.C.5 | -1.66 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -1.62 | 2.01 | 2.01 | 1.21 |

FU.C. EXTREME OPLEGREACTIES

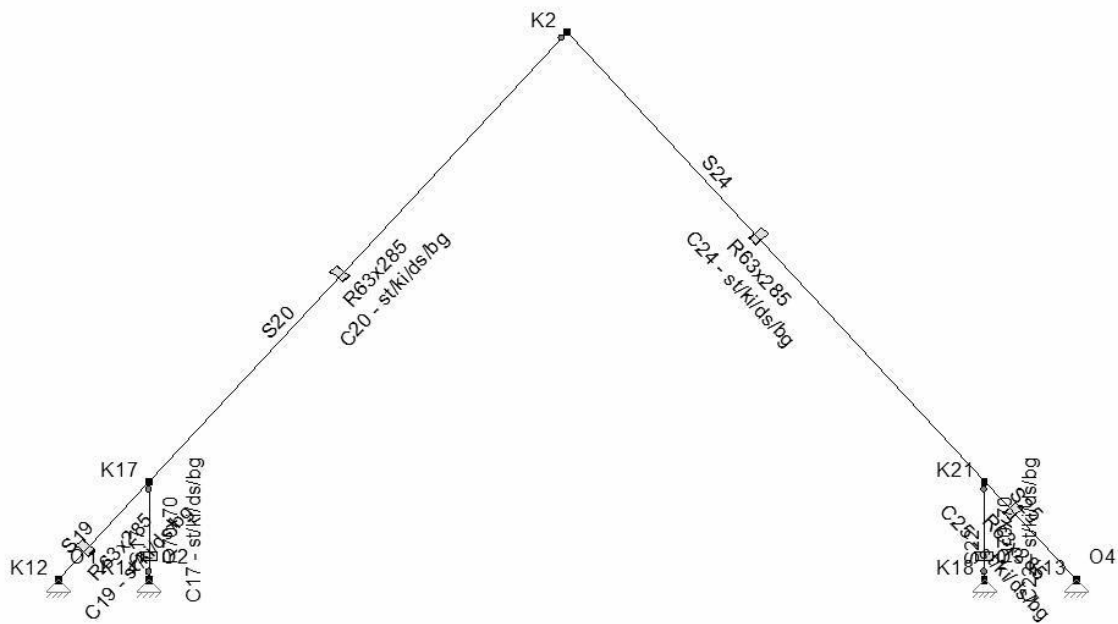
| Opleggin | Knoop | B.C. | Xmax | Z | My B.C. | X | Zmax | My B.C. | X | Z | Mymax |
|-------------------------|-------|--------|--------------|-------|-------------|-------|---------------|---------|---|---|-------|
| O1 | K12 | Fu.C.5 | 1.99 | -0.36 | 0.00 Fu.C.4 | -0.59 | 3.90 | 0.00 | | | |
| O1 | K12 | Fu.C.4 | -0.59 | 3.90 | 0.00 Fu.C.6 | 1.90 | -0.43 | 0.00 | | | |
| O2 | K14 | Fu.C.2 | -0.21 | -7.24 | 0.00 Fu.C.4 | -0.06 | -11.16 | 0.00 | | | |
| O3 | K18 | | | | Fu.C.5 | 0.00 | -6.15 | 0.00 | | | |
| O4 | K13 | Fu.C.2 | -2.81 | -2.62 | 0.00 Fu.C.2 | -2.81 | -2.62 | 0.00 | | | |
| Globale extreme waarden | | | | | | | | | | | |
| O1 | K12 | Fu.C.5 | 1.99 | -0.36 | 0.00 | | | | | | |
| O4 | K13 | Fu.C.2 | -2.81 | -2.62 | 0.00 | | | | | | |
| O1 | K12 | | | | Fu.C.4 | -0.59 | 3.90 | 0.00 | | | |
| O2 | K14 | | | | Fu.C.4 | -0.06 | -11.16 | 0.00 | | | |

AFB. KA.C. VERPLAATSINGEN OMHULLENDE

Karakteristiek Belastingscombinaties



AFB. HOUTDEFINITIE



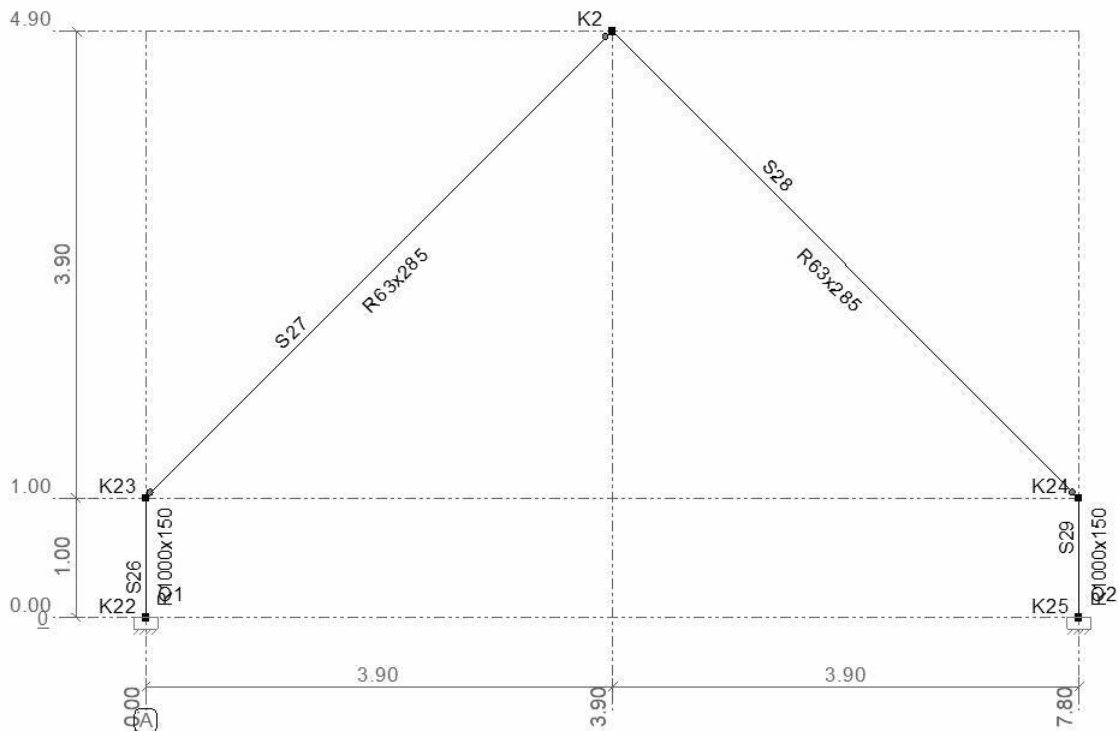
UNITY CHECK

| Label | Toetsing | Combinatie | Artikel | UC max |
|-------|-------------|------------|------------------------------|--------|
| C17 | Doorsnede | Fu.C.4 | NEN-EN1995-1-1#6.1.4 (6.2) | 0,18 |
| | Kip | Fu.C.4 | NEN-EN1995-1-1#6.3.3 (6.35) | 0,20 |
| | Stabiliteit | Fu.C.4 | NEN-EN1995-1-1#6.3.2 (6.23) | 0,22 |
| | Doorbuiging | Ka.C.5 | NEN-EN1995#7.2 NEN6702(10.2) | 0,09 |
| C19 | Doorsnede | Fu.C.4 | NEN-EN1995-1-1#6.2.3 (6.17) | 0,23 |
| | Kip | Fu.C.3 | NEN-EN1995-1-1#6.3.3 (6.33) | 0,21 |
| | Stabiliteit | Fu.C.8 | NEN-EN1995-1-1#6.3.2 (6.23) | 0,14 |

| | | | | |
|-----|-------------|--------|-------------------------------------|------|
| C20 | Doorbuiging | Ka.C.4 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,05 |
| | Doorsnede | Fu.C.3 | NEN-EN1995-1-1#6.2.4 (6.19) | 0,21 |
| | Kip | Fu.C.8 | NEN-EN1995-1-1#6.3.3 (6.35) | 0,52 |
| | Stabiliteit | Fu.C.8 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,57 |
| C22 | Doorbuiging | Ka.C.5 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,31 |
| | Doorsnede | Fu.C.8 | NEN-EN1995-1-1#6.1.4 (6.2) | 0,12 |
| | Stabiliteit | Fu.C.8 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,13 |
| C24 | Doorbuiging | Ka.C.7 | NEN-EN1995#7.2 NEN6702(10.2) | 0,06 |
| | Doorsnede | Fu.C.8 | NEN-EN1995-1-1#6.2.4 (6.19) | 0,14 |
| | Kip | Fu.C.8 | NEN-EN1995-1-1#6.3.3 (6.35) | 0,52 |
| | Stabiliteit | Fu.C.8 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,57 |
| C25 | Doorbuiging | Ka.C.7 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,21 |
| | Doorsnede | Fu.C.8 | NEN-EN1995-1-1#6.2.4 (6.19) | 0,14 |
| | Kip | Fu.C.8 | NEN-EN1995-1-1#6.3.3 (6.35) | 0,03 |
| | Stabiliteit | Fu.C.8 | NEN-EN1995-1-1#6.3.2 (6.23) | 0,14 |
| | Doorbuiging | Ka.C.6 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,04 |

4.3.3 RIJWONING KAVEL 19-24, 25-30 , 31-37 EN 38-41 HOOG

AFB. GEOMETRIE



STAVEN

| Staal | Knoop B | Knoop E | X-B | Z-B | X-E | Z-E | Lengte Profiel | Positie |
|-------|---------|---------|------|-------|------|-------|----------------|----------------|
| S26 | K22 | K23 | 0,00 | 0,00 | 0,00 | -1,00 | 1,00 P2 | 0,00 - L(1,00) |
| S27 | K23 | K2 | 0,00 | -1,00 | 3,90 | -4,90 | 5,52 P1 | 0,00 - L(5,52) |
| S28 | K2 | K24 | 3,90 | -4,90 | 7,80 | -1,00 | 5,52 P1 | 0,00 - L(5,52) |
| S29 | K24 | K25 | 7,80 | -1,00 | 7,80 | 0,00 | 1,00 P2 | 0,00 - L(1,00) |

PROFIELEN

| Profiel | Profielnaam | Oppervlakte | Iy Materiaal | Hoek |
|---------|-------------|-------------|-------------------|------|
| P1 | R63x285 | 1.7955e-02 | 1.2153e-04 C24 | 0,0 |
| P2 | R1000x150 | 1.5000e-01 | 2.8125e-04 C20/25 | 0,0 |

PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,285 | 0,285 | 0,0000 | 0,0000 | 0,0000 | 0,063 | 0,000 | 0,000 Nee | 0,000 |
| P2 | Nee | 0,150 | 0,150 | 0,0000 | 0,0000 | 0,0000 | 1,000 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaal | Dichtheid | E-Modulus | Uitzettingcoeff |
|-----------|-----------|------------|-----------------|
| C24 | 4.20 | 1.1000e+07 | 50.0000e-07 |
| C20/25 | 25.00 | 3.0000e+07 | 10.0000e-06 |

OPLEGGINGEN

| Oplegging | Object | Positie | X | Z | Yr | HoekYr |
|-----------|--------|---------|------|------|------|--------|
| O1 | K22 | 0,00 | Vast | Vast | Vast | 0 |
| O2 | K25 | 0,00 | Vast | Vast | Vast | 0 |

GEWICHTSBEREKENING

| Index | Staven | Berekening | Waarde Eenheden |
|-------|--------|------------|-----------------|
|-------|--------|------------|-----------------|

Gemeenschappelijk

| | | | |
|-------|--|--------------------|----------|
| Lsys1 | Belastingen en vervormingen Systeemmaat | NEN-EN1991 1.00 | 1,00 [m] |
|-------|--|--------------------|----------|

| Index | Staven | Berekening | Waarde Eenheden |
|-------|--------|------------|-----------------|
|-------|--------|------------|-----------------|

Gemeenschappelijk

| | | | |
|---------|--------------------------------|------|----------|
| Height1 | Totale hoogte van constructie | 4.90 | 4,90 [m] |
| Width1 | Totale diepte van constructie | 7.80 | 7,80 [m] |
| Width2 | Totale breedte van constructie | 1.00 | 1,00 [m] |

LR1 (Permanente Belasting)

| | | | |
|--|----------------------|-----------------------------|--|
| | Permanente Belasting | NEN-EN1991-1-1:2011/NB:2011 | |
|--|----------------------|-----------------------------|--|

| | | | |
|-----|---------------------------|-----------|--------------|
| Pp1 | Hellend dak (S27,S28) | | |
| q1 | Pannen, dakbed. + gording | 0.77 | 0,77 [kN/m²] |
| | Permanente Belasting | Pp1*Lsys1 | 0,77 [kN/m] |

LR2 (Windbelasting Algemeen)

| | | | |
|---------|-------------------------------|-----------------------------|----------|
| | Windbelasting Algemeen | NEN-EN1991-1-4:2011/NB:2011 | |
| Width3 | Gemiddelde breedte (b) | 1.00 | 1,00 [m] |
| Height2 | Totale hoogte van constructie | 4.90 | 4,90 [m] |
| Height3 | Boven de grond | 5.80 | 5,80 [m] |
| Z1 | Referentiehoogte | Height3+(0.5*Height2) | 8,25 [m] |
| Region1 | Regio | 3 | 3,00 |
| Cat1 | Terrein | Onbebouwd | 2,00 |
| Co1 | Orthografie factor (C0) | 1.00 | 1,00 |
| CsCd1 | Constructie factor (CsCd) | 1.00 | 1,00 |
| C1 | Correlatie factor | 0.85 | 0,85 |

LR3 (Windbelasting van Links + Overdruk)

| | | | |
|------|---|--|--------------|
| | Windbelasting van Links + Overdruk | NEN-EN1991-1-4:2011/NB:2011 | |
| A1 | Belast oppervlak (A) | 10.70 | 10,70 [m²] |
| Cpe1 | Uitwendige druk; Druk coëfficiënt (Cpe) | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.37) | 0,80 |
| Cpi1 | Interne druk; Druk coëfficiënt (Cpi) | EN1991-1-4#7.2.9(Cpe=Cpe1,Op eningen=0.00,Over=True) | 0,20 |
| Z2 | z=b; (h>2b) | 1.00 | 1,00 [m] |
| Qp1 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z2,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,49 [kN/m²] |
| Z3 | b<z<h-b; (h>2b) voor knopen: K22,K25 | 5.80 | 5,80 [m] |
| Qp2 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z3,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,57 [kN/m²] |
| Z4 | b<z<h-b; (h>2b) voor knopen: K22,K23,K24,K25 | 6.80 | 6,80 [m] |
| Qp3 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z4,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,61 [kN/m²] |
| Z5 | z=h-b; (h>2b) | 9.70 | 9,70 [m] |
| Qp4 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z5,Terrein =Cat1,Regio=Region1,C0=Co1) | 0,69 [kN/m²] |
| Z6 | z=h; (h>2b) voor knopen: K2 | 10.70 | 10,70 [m] |
| Qp5 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z6,Terrein) | 0,72 [kN/m²] |

| | | | |
|--|--|---|------------------------|
| | | =Cat1,Regio=Region1,C0=Co1) | |
| Cpe2 | Vertikale wand; Druk coefficient (Cpe): S26,S29 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.37) | 0,80 |
| q2 | Vertikale wand; Verdeelde element belasting (q): S26,S29 | (Qp2*Cpe2*CsCd1) * Lsys1 | 0,46 [kN/m] |
| Cpe3 | Vertikale wand; Druk coefficient (Cpe): S26,S29 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.37) | -0,52 |
| C2 | Vertikale wand; Druk coefficient (Cpe) incl. correlatiefactor: S26,S29 | (Cpe2-Cpe3) * C1 | 1,12 |
| q3 | Vertikale wand; Verdeelde element belasting (q): S29 | (Qp2*(Cpe3+C2)*CsCd1) * Lsys1 | 0,35 [kN/m] |
| q4 | Vertikale wand; Verdeelde element belasting (q): S26,S29 | (Qp3*Cpe2*CsCd1) * Lsys1 | 0,49 [kN/m] |
| q5 | Vertikale wand; Verdeelde element belasting (q): S29 | (Qp3*(Cpe3+C2)*CsCd1) * Lsys1 | 0,37 [kN/m] |
| q6 | Interne druk; Verdeelde element belasting (q) | (Cpi1*Qp2) * Lsys1 | 0,11 [kN/m] |
| Cpe4 | Zadeldak; Druk coefficient (Cpe): S27 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=H,Hoek=45.00) | 0,00 |
| q7 | Zadeldak; Verdeelde element belasting (q): S27 | (Qp5*Cpe4*CsCd1) * Lsys1 | 0,00 [kN/m] |
| q8 | Interne druk; Verdeelde element belasting (q) | (Cpi1*Qp5) * Lsys1 | 0,14 [kN/m] |
| Cpe5 | Zadeldak; Druk coefficient (Cpe): S27 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=G,Hoek=45.00) | 0,00 |
| q9 | Zadeldak; Verdeelde element belasting (q): S27 | (Qp3*Cpe5*CsCd1) * Lsys1 | 0,00 [kN/m] |
| Index | Staven | Berekening | Waarde Eenheden |
| LR3 (Windbelasting van Links + Overdruk) | | | |
| q10 | Interne druk; Verdeelde element belasting (q) | (Cpi1*Qp3) * Lsys1 | 0,12 [kN/m] |
| q11 | Zadeldak; Verdeelde element belasting (q): S27 | (Qp3*Cpe4*CsCd1) * Lsys1 | 0,00 [kN/m] |
| q12 | Zadeldak; Verdeelde element belasting (q): S27 | (Qp4*Cpe4*CsCd1) * Lsys1 | 0,00 [kN/m] |
| Cpe6 | Zadeldak; Druk coefficient (Cpe): S28 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=J,Hoek=45.00) | -0,30 |
| q13 | Zadeldak; Verdeelde element belasting (q): S28 | (Qp5*Cpe6*CsCd1) * Lsys1 | -0,22 [kN/m] |
| Cpe7 | Zadeldak; Druk coefficient (Cpe): S28 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=I,Hoek=45.00) | -0,20 |
| q14 | Zadeldak; Verdeelde element belasting (q): S28 | (Qp5*Cpe7*CsCd1) * Lsys1 | -0,14 [kN/m] |
| q15 | Zadeldak; Verdeelde element belasting (q): S28 | (Qp3*Cpe7*CsCd1) * Lsys1 | -0,12 [kN/m] |
| q16 | Zadeldak; Verdeelde element belasting (q): S28 | (Qp4*Cpe7*CsCd1) * Lsys1 | -0,14 [kN/m] |
| q17 | Vertikale wand; Verdeelde element belasting (q): S29 | (Qp2*Cpe3*CsCd1) * Lsys1 | -0,30 [kN/m] |
| q18 | Vertikale wand; Verdeelde element belasting (q) | (Qp2*(Cpe2-C2)*CsCd1) * Lsys1 | -0,18 [kN/m] |
| q19 | Vertikale wand; Verdeelde element belasting (q): S29 | (Qp3*Cpe3*CsCd1) * Lsys1 | -0,32 [kN/m] |
| q20 | Vertikale wand; Verdeelde element belasting (q) | (Qp3*(Cpe2-C2)*CsCd1) * Lsys1 | -0,20 [kN/m] |
| LR4 (Windbelasting van Links + Overdruk (2e Cpe)) | | | |
| A2 | Windbelasting van Links + Overdruk (2e Cpe) | NEN-EN1991-1-4:2011/NB:2011 10.70 | 10,70 [m²] |
| Cpe8 | Belast oppervlak (A) | | |
| | Uitwendige druk; Druk coefficient (Cpe) | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.37) | 0,80 |
| Cpi2 | Interne druk; Druk coefficient (Cpi) | EN1991-1-4#7.2.9(Cpe=Cpe8,Openingen=0.00,Over=True) | 0,20 |
| Z7 | z=b; (h>2b) | 1.00 | 1,00 [m] |
| Qp6 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z7,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,49 [kN/m²] |
| Z8 | b<z<h-b; (h>2b) voor knopen: K22,K25 | 5.80 | 5,80 [m] |
| Qp7 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z8,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,57 [kN/m²] |
| Z9 | b<z<h-b; (h>2b) voor knopen: K22,K23,K24,K25 | 6.80 | 6,80 [m] |
| Qp8 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z9,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,61 [kN/m²] |
| Z10 | z=h-b; (h>2b) | 9.70 | 9,70 [m] |
| Qp9 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z10,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,69 [kN/m²] |
| Z11 | z=h; (h>2b) voor knopen: K2 | 10.70 | 10,70 [m] |
| Qp10 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z11,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,72 [kN/m²] |
| Cpe9 | Vertikale wand; Druk coefficient (Cpe): S26,S29 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.37,Eerst=False) | 0,80 |

| q21 | Vertikale wand; Verdeelde element belasting (q): S26,S29 | $(Qp7 * Cpe9 * CsCd1) * Lsys1$ | 0,46 [kN/m] |
|--|--|--|----------------|
| Cpe10 | Vertikale wand; Druk coefficient (Cpe): S26,S29 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.37,Eerst=False) | -0,52 |
| C3 | Vertikale wand; Druk coefficient (Cpe) incl. correlatiefactor: S26,S29 | $(Cpe9 - Cpe10) * C1$ | 1,12 |
| q22 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp7 * (Cpe10 + C3) * CsCd1) * Lsys1$ | 0,35 [kN/m] |
| q23 | Vertikale wand; Verdeelde element belasting (q): S26,S29 | $(Qp8 * Cpe9 * CsCd1) * Lsys1$ | 0,49 [kN/m] |
| q24 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp8 * (Cpe10 + C3) * CsCd1) * Lsys1$ | 0,37 [kN/m] |
| q25 | Interne druk; Verdeelde element belasting (q) | $(Cpi2 * Qp7) * Lsys1$ | 0,11 [kN/m] |
| Cpe11 | Zadeldak; Druk coefficient (Cpe): S27 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=H,Hoek=45.00,Eerst=False) | 0,60 |
| q26 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp10 * Cpe11 * CsCd1) * Lsys1$ | 0,43 [kN/m] |
| q27 | Interne druk; Verdeelde element belasting (q) | $(Cpi2 * Qp10) * Lsys1$ | 0,14 [kN/m] |
| Cpe12 | Zadeldak; Druk coefficient (Cpe): S27 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=G,Hoek=45.00,Eerst=False) | 0,70 |
| q28 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp8 * Cpe12 * CsCd1) * Lsys1$ | 0,43 [kN/m] |
| q29 | Interne druk; Verdeelde element belasting (q) | $(Cpi2 * Qp8) * Lsys1$ | 0,12 [kN/m] |
| q30 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp8 * Cpe11 * CsCd1) * Lsys1$ | 0,37 [kN/m] |
| Index | Staven | Berekening | Waarde Eenhede |
| LR4 (Windbelasting van Links + Overdruk (2e Cpe)) | | | |
| q31 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp9 * Cpe11 * CsCd1) * Lsys1$ | 0,42 [kN/m] |
| Cpe13 | Zadeldak; Druk coefficient (Cpe): S28 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=J,Hoek=45.00,Eerst=False) | 0,00 |
| q32 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp10 * Cpe13 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| Cpe14 | Zadeldak; Druk coefficient (Cpe): S28 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=I,Hoek=45.00,Eerst=False) | 0,00 |
| q33 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp10 * Cpe14 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q34 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp8 * Cpe14 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q35 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp9 * Cpe14 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q36 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp7 * Cpe10 * CsCd1) * Lsys1$ | -0,30 [kN/m] |
| q37 | Vertikale wand; Verdeelde element belasting (q) | $(Qp7 * (Cpe9 - C3) * CsCd1) * Lsys1$ | -0,18 [kN/m] |
| q38 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp8 * Cpe10 * CsCd1) * Lsys1$ | -0,32 [kN/m] |
| q39 | Vertikale wand; Verdeelde element belasting (q) | $(Qp8 * (Cpe9 - C3) * CsCd1) * Lsys1$ | -0,20 [kN/m] |
| LR5 (Windbelasting van Links + Onderdruk) | | | |
| Windbelasting van Links + Onderdruk | | NEN-EN1991-1-4:2011/NB:2011 | |
| A3 | Belast oppervlak (A) | 10.70 | 10,70 [m²] |
| Cpe15 | Uitwendige druk; Druk coefficient (Cpe) | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.37) | -0,52 |
| Cpi3 | Interne druk; Druk coefficient (Cpi) | EN1991-1-4#7.2.9(Cpe=Cpe15,Openingen=0.00,Over=False) | -0,30 |
| Z12 | $z=b; (h>2b)$ | 1.00 | 1,00 [m] |
| Qp11 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z12,Terrain=Cat1,Regio=Region1,C0=Co1) | 0,49 [kN/m²] |
| Z13 | $b<z<h-b; (h>2b)$ voor knopen: K22,K25 | 5.80 | 5,80 [m] |
| Qp12 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z13,Terrain=Cat1,Regio=Region1,C0=Co1) | 0,57 [kN/m²] |
| Z14 | $b<z<h-b; (h>2b)$ voor knopen: K22,K23,K24,K25 | 6.80 | 6,80 [m] |
| Qp13 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z14,Terrain=Cat1,Regio=Region1,C0=Co1) | 0,61 [kN/m²] |
| Z15 | $z=h-b; (h>2b)$ | 9.70 | 9,70 [m] |
| Qp14 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z15,Terrain=Cat1,Regio=Region1,C0=Co1) | 0,69 [kN/m²] |
| Z16 | $z=h; (h>2b)$ voor knopen: K2 | 10.70 | 10,70 [m] |
| Qp15 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z16,Terrain=Cat1,Regio=Region1,C0=Co1) | 0,72 [kN/m²] |
| Cpe16 | Vertikale wand; Druk coefficient (Cpe): S26,S29 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.37) | 0,80 |

| | | | |
|-------|--|---|--------------|
| q40 | Vertikale wand; Verdeelde element belasting (q): S26,S29 | $(Qp12 * Cpe16 * CsCd1) * Lsys1$ | 0,46 [kN/m] |
| Cpe17 | Vertikale wand; Druk coefficient (Cpe): S26,S29 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.37) | -0,52 |
| C4 | Vertikale wand; Druk coefficient (Cpe) incl. correlatiefactor: S26,S29 | $(Cpe16 - Cpe17) * C1$ | 1,12 |
| q41 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp12 * (Cpe17 + C4) * CsCd1) * Lsys1$ | 0,35 [kN/m] |
| q42 | Vertikale wand; Verdeelde element belasting (q): S26,S29 | $(Qp13 * Cpe16 * CsCd1) * Lsys1$ | 0,49 [kN/m] |
| q43 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp13 * (Cpe17 + C4) * CsCd1) * Lsys1$ | 0,37 [kN/m] |
| q44 | Interne druk; Verdeelde element belasting (q) | $(Cpi3 * Qp12) * Lsys1$ | -0,17 [kN/m] |
| Cpe18 | Zadeldak; Druk coefficient (Cpe): S27 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=H,Hoek=45.00) | 0,00 |
| q45 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp15 * Cpe18 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q46 | Interne druk; Verdeelde element belasting (q) | $(Cpi3 * Qp15) * Lsys1$ | -0,22 [kN/m] |
| Cpe19 | Zadeldak; Druk coefficient (Cpe): S27 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=G,Hoek=45.00) | 0,00 |
| q47 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp13 * Cpe19 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q48 | Interne druk; Verdeelde element belasting (q) | $(Cpi3 * Qp13) * Lsys1$ | -0,18 [kN/m] |
| q49 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp13 * Cpe18 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q50 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp14 * Cpe18 * CsCd1) * Lsys1$ | 0,00 [kN/m] |

| Index | Staven | Berekening | Waarde Eenheden |
|-------|--------|------------|-----------------|
|-------|--------|------------|-----------------|

LR5 (Windbelasting van Links + Onderdruk)

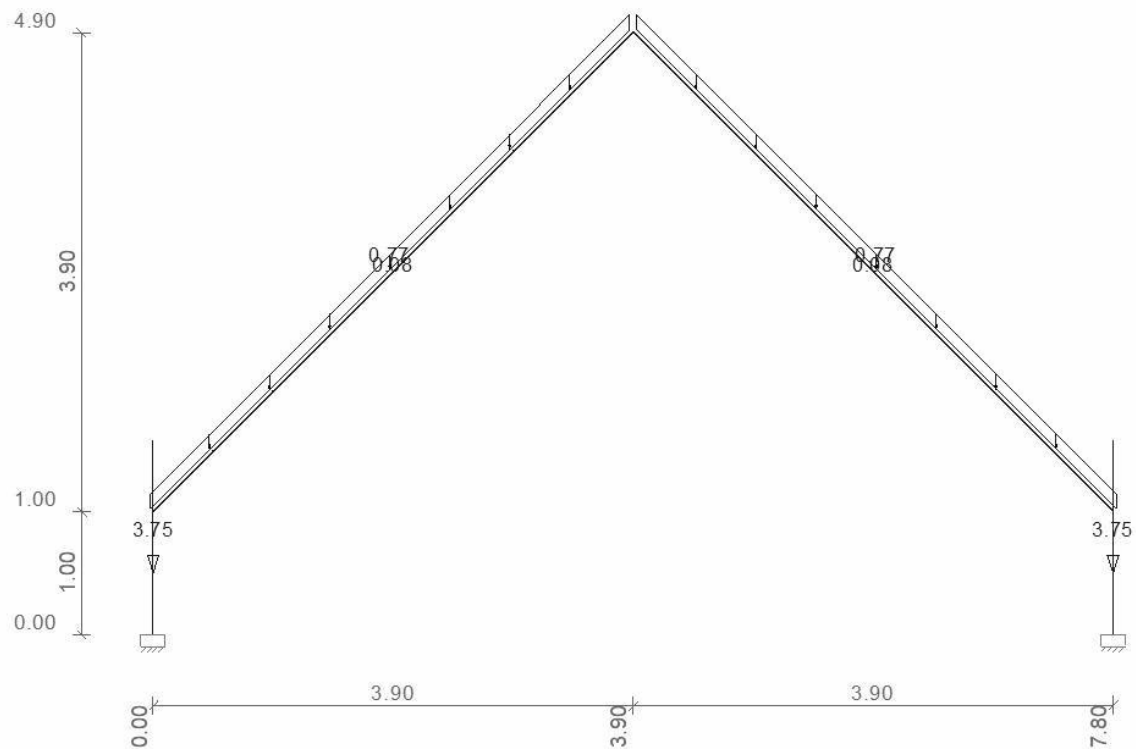
| | | | |
|-------|--|---|--------------|
| Cpe20 | Zadeldak; Druk coefficient (Cpe): S28 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=J,Hoek=45.00) | -0,30 |
| q51 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp15 * Cpe20 * CsCd1) * Lsys1$ | -0,22 [kN/m] |
| Cpe21 | Zadeldak; Druk coefficient (Cpe): S28 | NEN-EN1991-1-4#7.2(Dak=Zadel dak,Zone=I,Hoek=45.00) | -0,20 |
| q52 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp15 * Cpe21 * CsCd1) * Lsys1$ | -0,14 [kN/m] |
| q53 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp13 * Cpe21 * CsCd1) * Lsys1$ | -0,12 [kN/m] |
| q54 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp14 * Cpe21 * CsCd1) * Lsys1$ | -0,14 [kN/m] |
| q55 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp12 * Cpe17 * CsCd1) * Lsys1$ | -0,30 [kN/m] |
| q56 | Vertikale wand; Verdeelde element belasting (q) | $(Qp12 * (Cpe16 - C4) * CsCd1) * Lsys1$ | -0,18 [kN/m] |
| q57 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp13 * Cpe17 * CsCd1) * Lsys1$ | -0,32 [kN/m] |
| q58 | Vertikale wand; Verdeelde element belasting (q) | $(Qp13 * (Cpe16 - C4) * CsCd1) * Lsys1$ | -0,20 [kN/m] |

LR6 (Windbelasting van Links + Onderdruk (2e Cpe))

| | | | |
|--|---|---|--------------|
| Windbelasting van Links + Onderdruk (2e Cpe) | | NEN-EN1991-1-4:2011/NB:2011 | |
| A4 | Belast oppervlak (A) | 10.70 | 10,70 [m²] |
| Cpe22 | Uitwendige druk; Druk coefficient (Cpe) | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.37) | -0,52 |
| Cpi4 | Interne druk; Druk coefficient (Cpi) | EN1991-1-4#7.2.9(Cpe=Cpe22,Openingen=0.00,Over=False) | -0,30 |
| Z17 | $z=b; (h>2b)$ | 1.00 | 1,00 [m] |
| Qp16 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z17,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,49 [kN/m²] |
| Z18 | $b<z<h-b; (h>2b)$ voor knopen: K22,K25 | 5.80 | 5,80 [m] |
| Qp17 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z18,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,57 [kN/m²] |
| Z19 | $b<z<h-b; (h>2b)$ voor knopen: K22,K23,K24,K25 | 6.80 | 6,80 [m] |
| Qp18 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z19,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,61 [kN/m²] |
| Z20 | $z=h-b; (h>2b)$ | 9.70 | 9,70 [m] |
| Qp19 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z20,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,69 [kN/m²] |
| Z21 | $z=h; (h>2b)$ voor knopen: K2 | 10.70 | 10,70 [m] |
| Qp20 | Pieksnelheids druk (Qp voor referentieperiode 50) | NEN-EN1991-1-4#4(Z=Z21,Terrein=Cat1,Regio=Region1,C0=Co1) | 0,72 [kN/m²] |
| Cpe23 | Vertikale wand; Druk coefficient (Cpe): S26,S29 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=D,hd=1.37,Eerst=False) | 0,80 |

| | | | |
|---|---|--|------------------------|
| q59 | Vertikale wand; Verdeelde element belasting (q): S26,S29 | $(Qp17 * Cpe23 * CsCd1) * Lsys1$ | 0,46 [kN/m] |
| Cpe24 | Vertikale wand; Druk coefficient (Cpe): S26,S29 | NEN-EN1991-1-4#7.2(Dak=Wand, Zone=E,hd=1.37,Eerst=False) | -0,52 |
| C5 | Vertikale wand; Druk coefficient (Cpe) incl. correlatiefactor: S26,S29 | $(Cpe23 - Cpe24) * C1$ | 1,12 |
| q60 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp17 * (Cpe24 + C5) * CsCd1) * Lsys1$ | 0,35 [kN/m] |
| q61 | Vertikale wand; Verdeelde element belasting (q): S26,S29 | $(Qp18 * Cpe23 * CsCd1) * Lsys1$ | 0,49 [kN/m] |
| q62 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp18 * (Cpe24 + C5) * CsCd1) * Lsys1$ | 0,37 [kN/m] |
| q63 | Interne druk; Verdeelde element belasting (q) | $(Cpi4 * Qp17) * Lsys1$ | -0,17 [kN/m] |
| Cpe25 | Zadeldak; Druk coefficient (Cpe): S27 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=H,Hoek=45.00,Eerst=False) | 0,60 |
| q64 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp20 * Cpe25 * CsCd1) * Lsys1$ | 0,43 [kN/m] |
| q65 | Interne druk; Verdeelde element belasting (q) | $(Cpi4 * Qp20) * Lsys1$ | -0,22 [kN/m] |
| Cpe26 | Zadeldak; Druk coefficient (Cpe): S27 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=G,Hoek=45.00,Eerst=False) | 0,70 |
| q66 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp18 * Cpe26 * CsCd1) * Lsys1$ | 0,43 [kN/m] |
| q67 | Interne druk; Verdeelde element belasting (q) | $(Cpi4 * Qp18) * Lsys1$ | -0,18 [kN/m] |
| q68 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp18 * Cpe25 * CsCd1) * Lsys1$ | 0,37 [kN/m] |
| Index | Staven | Berekening | Waarde Eenheden |
| LR6 (Windbelasting van Links + Onderdruk (2e Cpe)) | | | |
| q69 | Zadeldak; Verdeelde element belasting (q): S27 | $(Qp19 * Cpe25 * CsCd1) * Lsys1$ | 0,42 [kN/m] |
| Cpe27 | Zadeldak; Druk coefficient (Cpe): S28 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=J,Hoek=45.00,Eerst=False) | 0,00 |
| q70 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp20 * Cpe27 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| Cpe28 | Zadeldak; Druk coefficient (Cpe): S28 | NEN-EN1991-1-4#7.2(Dak=Zadeldak,Zone=I,Hoek=45.00,Eerst=False) | 0,00 |
| q71 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp20 * Cpe28 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q72 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp18 * Cpe28 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q73 | Zadeldak; Verdeelde element belasting (q): S28 | $(Qp19 * Cpe28 * CsCd1) * Lsys1$ | 0,00 [kN/m] |
| q74 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp17 * Cpe24 * CsCd1) * Lsys1$ | -0,30 [kN/m] |
| q75 | Vertikale wand; Verdeelde element belasting (q) | $(Qp17 * (Cpe23 - C5) * CsCd1) * Lsys1$ | -0,18 [kN/m] |
| q76 | Vertikale wand; Verdeelde element belasting (q): S29 | $(Qp18 * Cpe24 * CsCd1) * Lsys1$ | -0,32 [kN/m] |
| q77 | Vertikale wand; Verdeelde element belasting (q) | $(Qp18 * (Cpe23 - C5) * CsCd1) * Lsys1$ | -0,20 [kN/m] |
| LR7 (Sneeuwbelasting) | | | |
| Sk1 | Sneeuwbelasting Karakteristiek waarde van de sneeuwlast op de grond (Sk) | NEN-EN1991-1-3:2011/NB:2011 NEN-EN1991-1-3#4.1(Zone=1) | 0,70 [kN/m²] |
| Ce1 | De milieucoefficient (Ce) | NEN-EN1991-1-3#5.2.7() | 1,00 |
| Ct1 | De thermische coefficient (Ct) | NEN-EN1991-1-3#5.2.8() | 1,00 |
| Mu1 | Zadeldak, Mu1 Hoek: 45.00; S27,S28 Mu1; Sneeuwbelasting coefficient (Mu) | EN1991-1-3#5.3(Dak=Hellend,Hoek=45.00,Mu=Mu1,Sk=Sk1) | 0,40 |
| q78 | Verdeelde element belasting (q) | $(Sk1 * Ce1 * Ct1 * Mu1) * Lsys1$ | 0,28 [kN/m] |
| q79 | Verdeelde element belasting (q) | $q78 * 0.50$ | 0,14 [kN/m] |

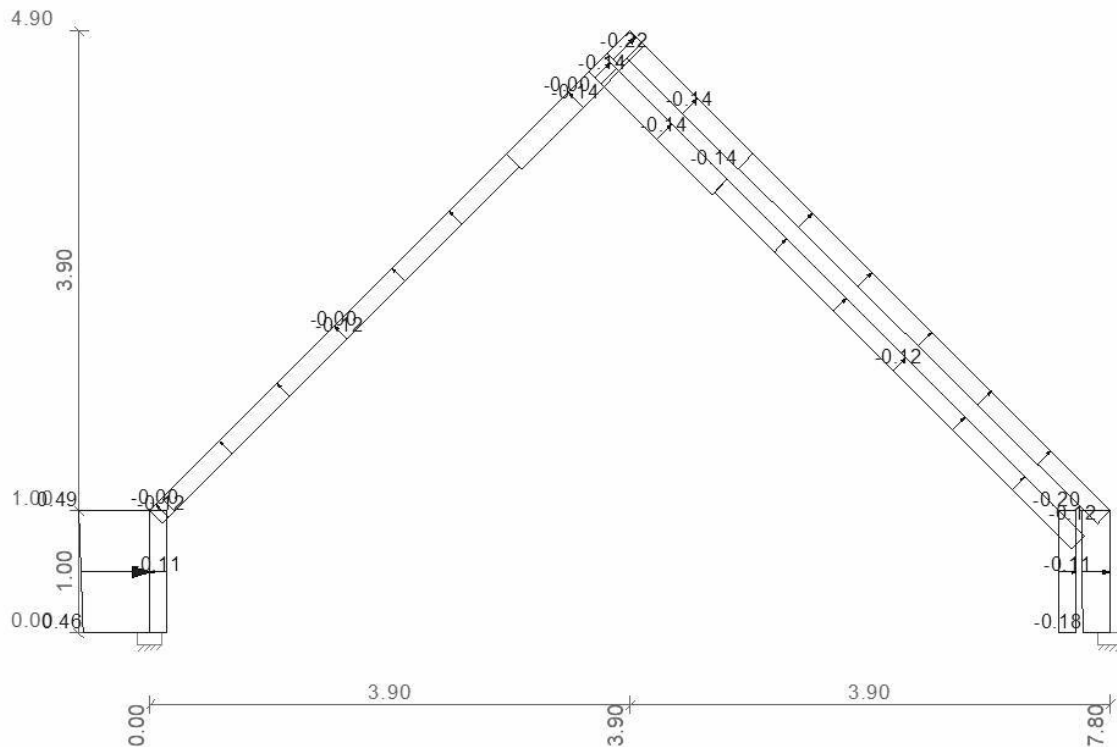
B.G.1: PERMANENTE BELASTING



B.G.1: PERMANENTE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------------------------------------|------------------|--------------|--------------------|-------------|-------------------------|
| B.G.1: Permanente Belasting | | | | | |
| qG | 3,75 (1.00x) | 3,75 (1.00x) | 0,00 | 1,00(L) | Z" S26,S29 |
| qG | 0,08 (1.00x) | 0,08 (1.00x) | 0,00 | 5,52(L) | Z" S27-S28 |
| q | 0,77 (q1) | 0,77 (q1) | 0,00 | 5,52(L) | Z" S27-S28 |
| Som lasten | X:0,00 kN | | Z: 16,83 kN | | |

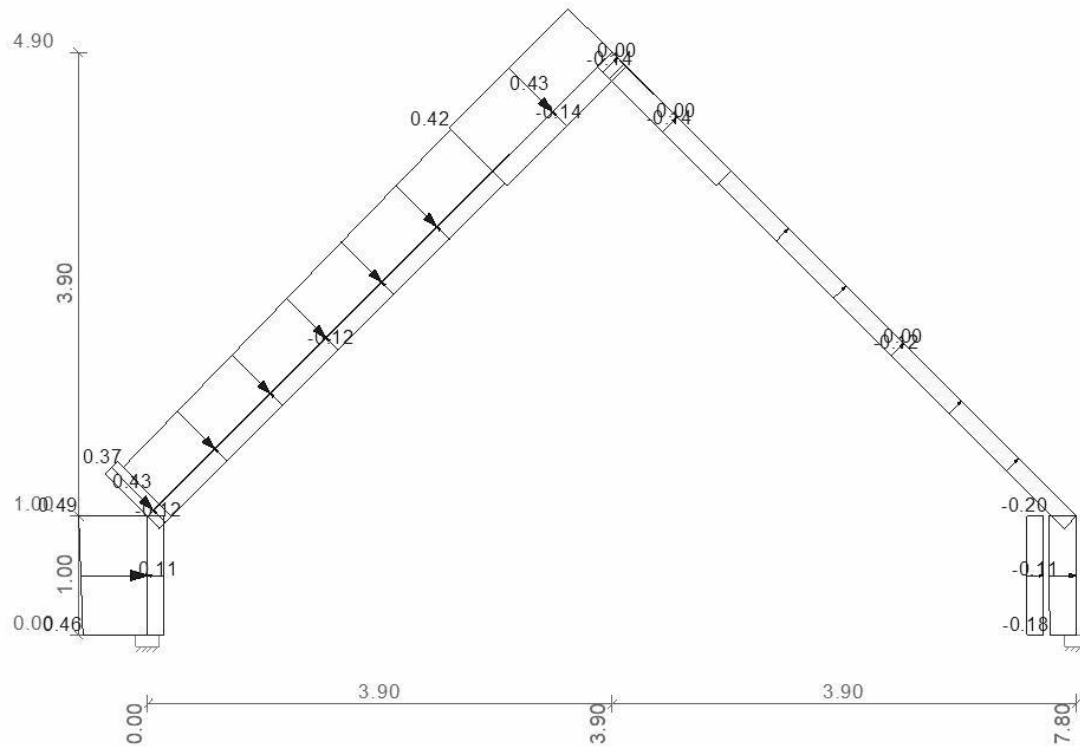
B.G.2: WINDBELASTING VAN LINKS + OVERDRUK



B.G.2: WINDBELASTING VAN LINKS + OVERDRUK

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|--------------------|--------------|-------------|-------------------------|
| B.G.2: Windbelasting van Links + Overdruk | | | | | |
| q | 0,46 (q2) | 0,49 (q4) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,11 (-q6) | -0,11 (-q6) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,00 (q7) | 0,00 (q7) | 4,10 | 5,52(L) | Z' S27 |
| q | -0,14 (-q8) | -0,14 (-q8) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,00 (q9) | 0,00 (q9) | 0,00 | 0,14 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,00 | 0,14 | Z' S27 |
| q | 0,00 (q11) | 0,00 (q12) | 0,14 | 4,10 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,14 | 4,10 | Z' S27 |
| q | -0,22 (q13) | -0,22 (q13) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (q14) | -0,14 (q14) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (q16) | -0,12 (q15) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,12 (-q10) | -0,12 (-q10) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,20 (q20) | -0,18 (q18) | 0,00 | 1,00(L) | Z' S29 |
| Som lasten | X: 1,19 | kN Z: -1,52 | kN | | |

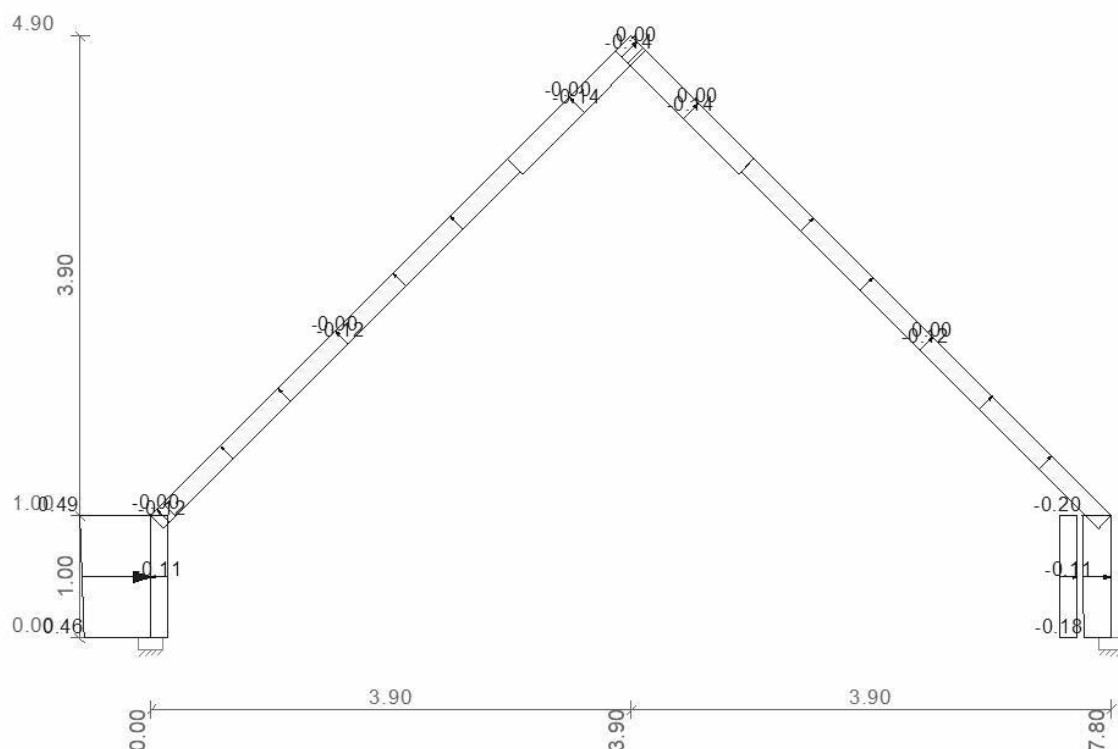
B.G.3: WINDBELASTING VAN LINKS + OVERDRUK (2E CPE)



B.G.3: WINDBELASTING VAN LINKS + OVERDRUK (2E CPE)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|---------------|-------------------|--------------|-------------|-------------------------|
| B.G.3: Windbelasting van Links + Overdruk (2e Cpe) | | | | | |
| q | 0,46 (q21) | 0,49 (q23) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,11 (-q25) | -0,11 (-q25) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,43 (q26) | 0,43 (q26) | 4,10 | 5,52(L) | Z' S27 |
| q | -0,14 (-q27) | -0,14 (-q27) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,43 (q28) | 0,43 (q28) | 0,00 | 0,14 | Z' S27 |
| q | -0,12 (-q29) | -0,12 (-q29) | 0,00 | 0,14 | Z' S27 |
| q | 0,37 (q30) | 0,42 (q31) | 0,14 | 4,10 | Z' S27 |
| q | -0,12 (-q29) | -0,12 (-q29) | 0,14 | 4,10 | Z' S27 |
| q | 0,00 (q32) | 0,00 (q32) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (-q27) | -0,14 (-q27) | 0,00 | 0,14 | Z' S28 |
| q | 0,00 (q33) | 0,00 (q33) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (-q27) | -0,14 (-q27) | 0,14 | 1,41 | Z' S28 |
| q | 0,00 (q35) | 0,00 (q34) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,12 (-q29) | -0,12 (-q29) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,20 (q39) | -0,18 (q37) | 0,00 | 1,00(L) | Z' S29 |
| Som lasten | X:2,23 | kN Z: 0,57 | kN | | |

B.G.4: WINDBELASTING VAN LINKS + OVERDRUK (ZADELDAK FGH 1E CPE + IJ 2E CPE)



B.G.4: WINDBELASTING VAN LINKS + OVERDRUK (ZADELDAK FGH 1E CPE + IJ 2E CPE)

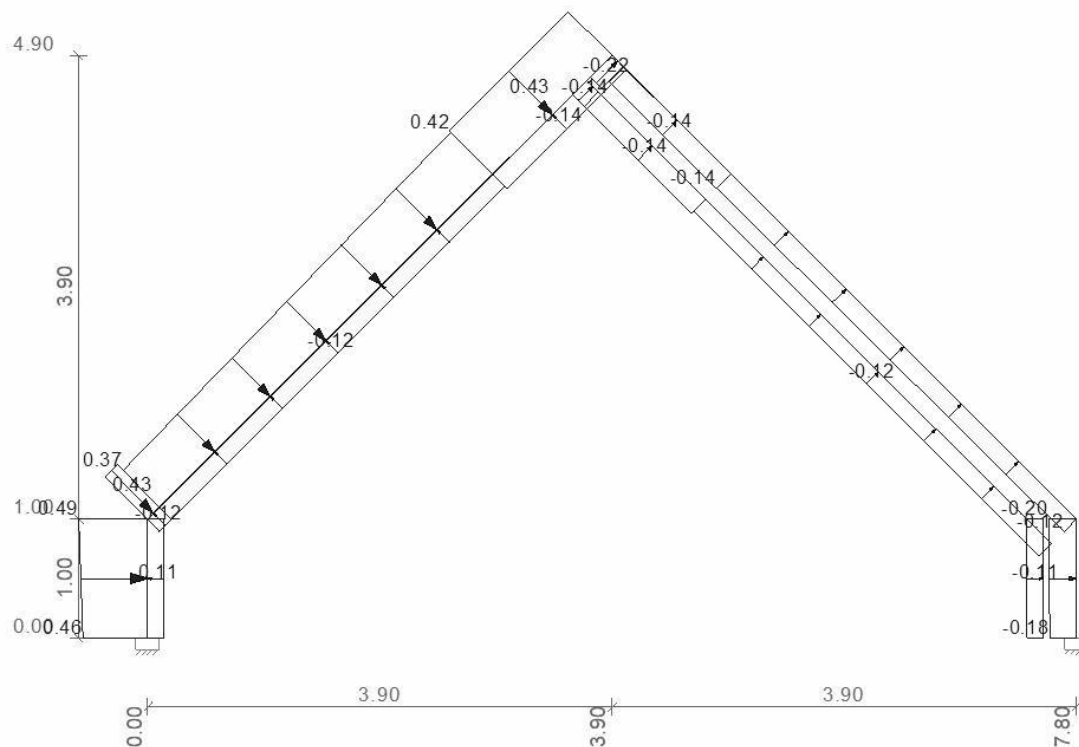
Type **Beginwaarde** **Eindwaarde** **Beginafstand** **Eindafstand** **Richting Staaf of knoop**

B.G.4: Windbelasting van Links + Overdruk (Zadeldak FGH 1e Cpe + IJ 2e Cpe)

| | | | | | |
|---|--------------|--------------|------|---------|------------|
| q | 0,46 (q2) | 0,49 (q4) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,11 (-q6) | -0,11 (-q6) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,00 (q7) | 0,00 (q7) | 4,10 | 5,52(L) | Z' S27 |
| q | -0,14 (-q8) | -0,14 (-q8) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,00 (q9) | 0,00 (q9) | 0,00 | 0,14 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,00 | 0,14 | Z' S27 |
| q | 0,00 (q11) | 0,00 (q12) | 0,14 | 4,10 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,14 | 4,10 | Z' S27 |
| q | 0,00 (q32) | 0,00 (q32) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,00 | 0,14 | Z' S28 |
| q | 0,00 (q33) | 0,00 (q33) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,14 | 1,41 | Z' S28 |
| q | 0,00 (q35) | 0,00 (q34) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,12 (-q10) | -0,12 (-q10) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,20 (q20) | -0,18 (q18) | 0,00 | 1,00(L) | Z' S29 |

Som lasten **X: 0,66** **kN Z: -1,00** **kN**

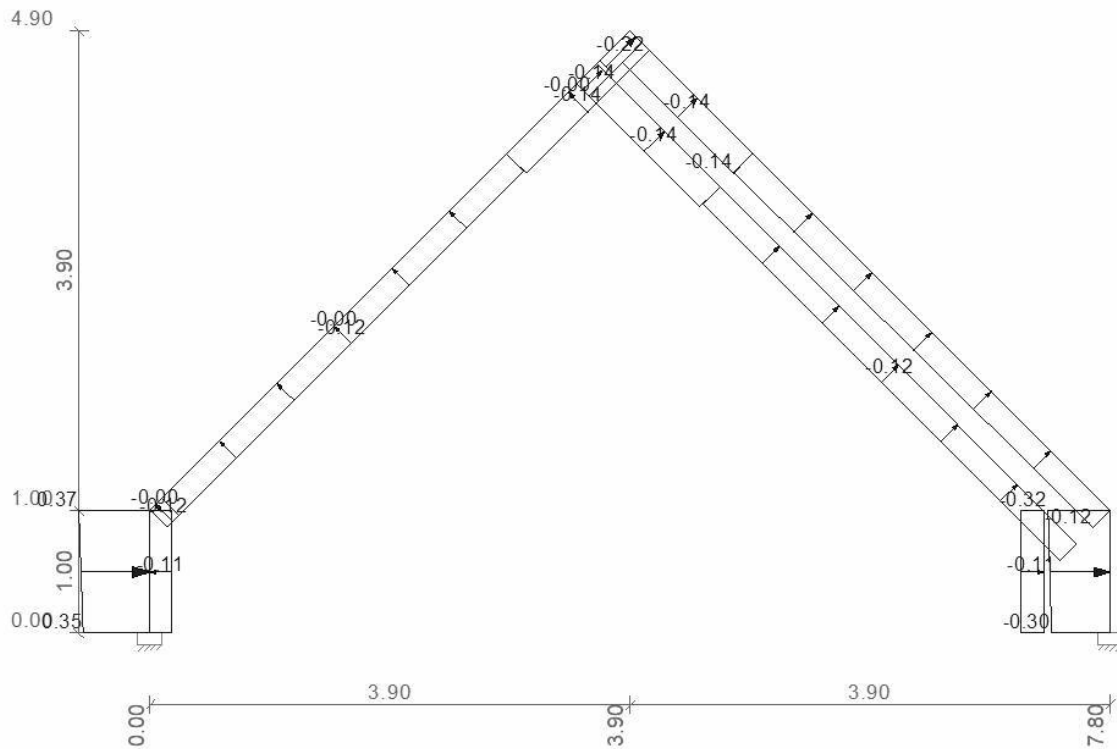
B.G.5: WINDBELASTING VAN LINKS + OVERDRUK (ZADELDAK FGH 2E CPE + IJ 1E CPE)



B.G.5: WINDBELASTING VAN LINKS + OVERDRUK (ZADELDAK FGH 2E CPE + IJ 1E CPE)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.5: Windbelasting van Links + Overdruk (Zadeldak FGH 2e Cpe + IJ 1e Cpe) | | | | | |
| q | 0,46 (q2) | 0,49 (q4) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,11 (-q6) | -0,11 (-q6) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,43 (q26) | 0,43 (q26) | 4,10 | 5,52(L) | Z' S27 |
| q | -0,14 (-q8) | -0,14 (-q8) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,43 (q28) | 0,43 (q28) | 0,00 | 0,14 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,00 | 0,14 | Z' S27 |
| q | 0,37 (q30) | 0,42 (q31) | 0,14 | 4,10 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,14 | 4,10 | Z' S27 |
| q | -0,22 (q13) | -0,22 (q13) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (q14) | -0,14 (q14) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (q16) | -0,12 (q15) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,12 (-q10) | -0,12 (-q10) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,20 (q20) | -0,18 (q18) | 0,00 | 1,00(L) | Z' S29 |
| Som lasten | X: 2,76 | kN Z: 0,05 | kN | | |

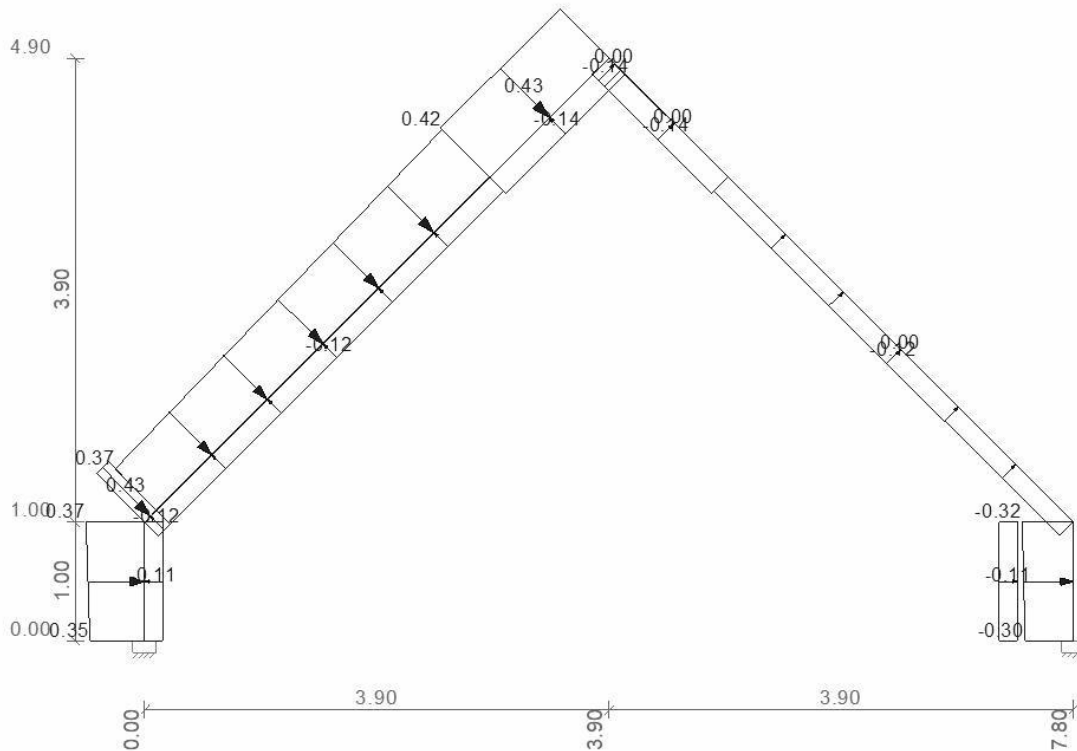
B.G.6: WINDBELASTING VAN LINKS + OVERDRUK (2E CORR. FACTOR)



B.G.6: WINDBELASTING VAN LINKS + OVERDRUK (2E CORR. FACTOR)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|--------------------|--------------|-------------|-------------------------|
| B.G.6: Windbelasting van Links + Overdruk (2e corr. factor) | | | | | |
| q | 0,35 (q3) | 0,37 (q5) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,32 (q19) | -0,30 (q17) | 0,00 | 1,00(L) | Z' S29 |
| q | -0,11 (-q6) | -0,11 (-q6) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,00 (q7) | 0,00 (q7) | 4,10 | 5,52(L) | Z' S27 |
| q | -0,14 (-q8) | -0,14 (-q8) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,00 (q9) | 0,00 (q9) | 0,00 | 0,14 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,00 | 0,14 | Z' S27 |
| q | 0,00 (q11) | 0,00 (q12) | 0,14 | 4,10 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,14 | 4,10 | Z' S27 |
| q | -0,22 (q13) | -0,22 (q13) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (q14) | -0,14 (q14) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (q16) | -0,12 (q15) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,12 (-q10) | -0,12 (-q10) | 1,41 | 5,52(L) | Z' S28 |
| Som lasten | X: 1,19 | kN Z: -1,52 | kN | | |

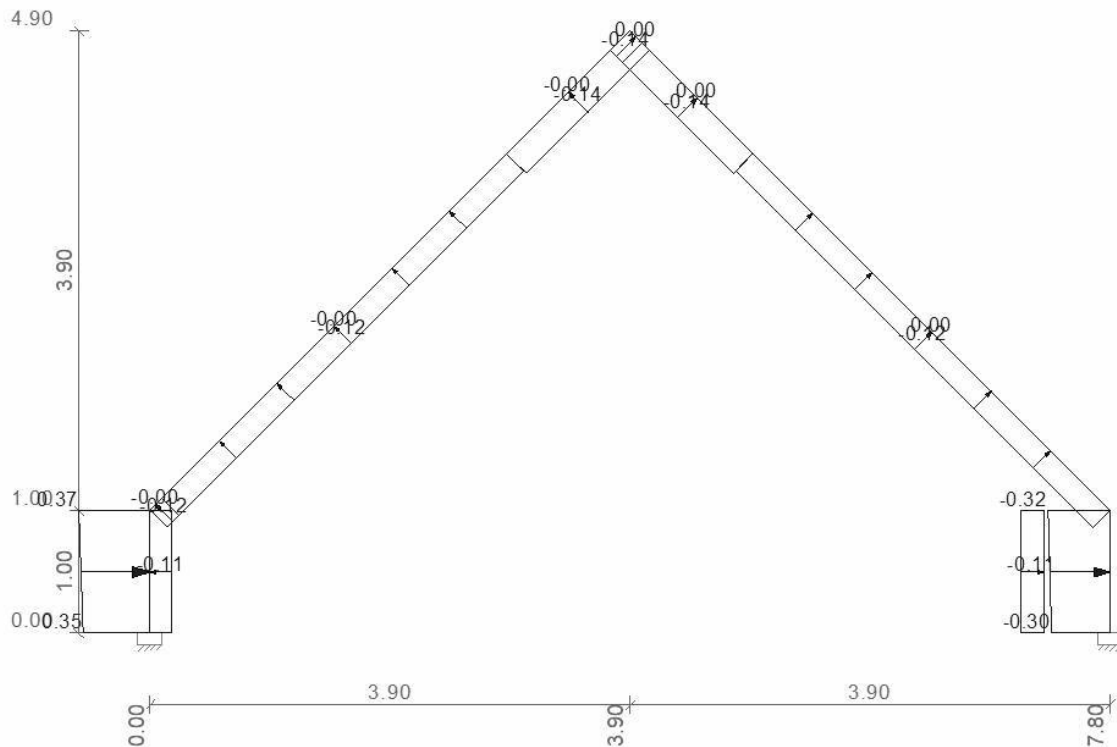
B.G.7: WINDBELASTING VAN LINKS + OVERDRUK (2E CPE) (2E CORR. FACTOR)



B.G.7: WINDBELASTING VAN LINKS + OVERDRUK (2E CPE) (2E CORR. FACTOR)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.7: Windbelasting van Links + Overdruk (2e Cpe) (2e corr. factor) | | | | | |
| q | 0,35 (q22) | 0,37 (q24) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,32 (q38) | -0,30 (q36) | 0,00 | 1,00(L) | Z' S29 |
| q | -0,11 (-q25) | -0,11 (-q25) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,43 (q26) | 0,43 (q26) | 4,10 | 5,52(L) | Z' S27 |
| q | -0,14 (-q27) | -0,14 (-q27) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,43 (q28) | 0,43 (q28) | 0,00 | 0,14 | Z' S27 |
| q | -0,12 (-q29) | -0,12 (-q29) | 0,00 | 0,14 | Z' S27 |
| q | 0,37 (q30) | 0,42 (q31) | 0,14 | 4,10 | Z' S27 |
| q | -0,12 (-q29) | -0,12 (-q29) | 0,14 | 4,10 | Z' S27 |
| q | 0,00 (q32) | 0,00 (q32) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (-q27) | -0,14 (-q27) | 0,00 | 0,14 | Z' S28 |
| q | 0,00 (q33) | 0,00 (q33) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (-q27) | -0,14 (-q27) | 0,14 | 1,41 | Z' S28 |
| q | 0,00 (q35) | 0,00 (q34) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,12 (-q29) | -0,12 (-q29) | 1,41 | 5,52(L) | Z' S28 |
| Som lasten | | | | | |
| | X: 2,23 | kN Z: 0,57 | kN | | |

B.G.8: WINDBELASTING VAN LINKS + OVERDRUK (ZADELDAK FGH 1E CPE + IJ 2E CPE) (2E CORR. FACTOR)



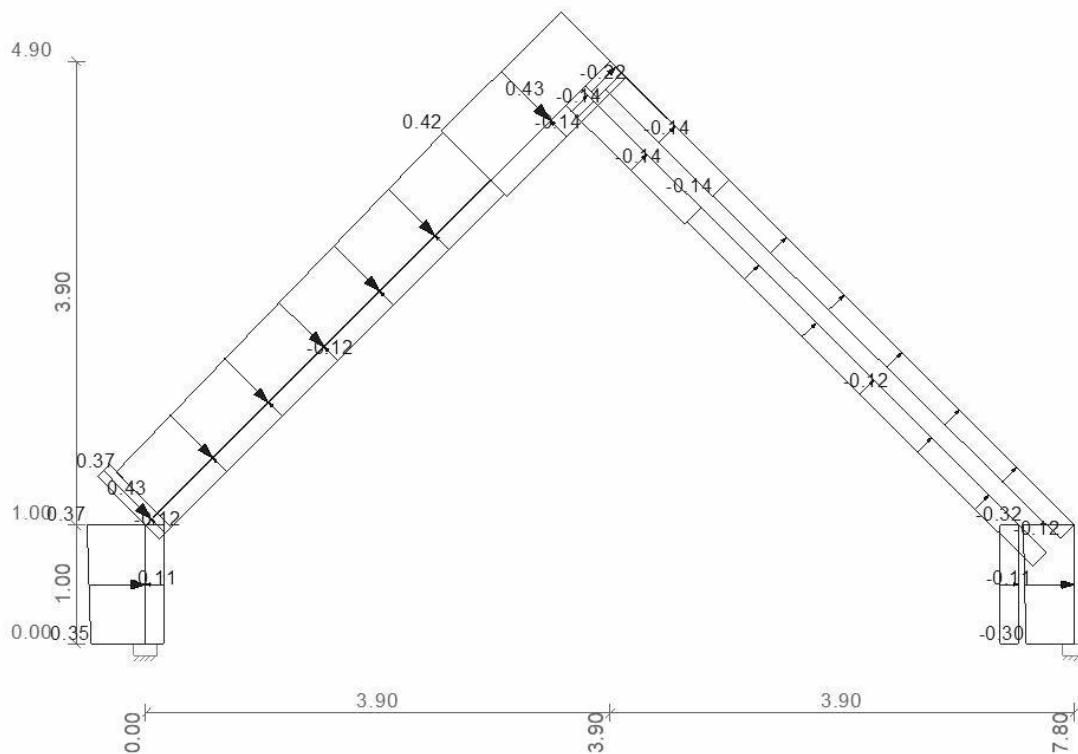
B.G.8: WINDBELASTING VAN LINKS + OVERDRUK (ZADELDAK FGH 1E CPE + IJ 2E CPE) (2E CORR. FACTOR)

B.G.8: Windbelasting van Links + Overdruk (Zadeldak FGH 1e Cpe + IJ 2e Cpe) (2e corr. factor)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------|--------------|--------------|--------------|-------------|-------------------------|
| q | 0,35 (q3) | 0,37 (q5) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,32 (q19) | -0,30 (q17) | 0,00 | 1,00(L) | Z' S29 |
| q | -0,11 (-q6) | -0,11 (-q6) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,00 (q7) | 0,00 (q7) | 4,10 | 5,52(L) | Z' S27 |
| q | -0,14 (-q8) | -0,14 (-q8) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,00 (q9) | 0,00 (q9) | 0,00 | 0,14 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,00 | 0,14 | Z' S27 |
| q | 0,00 (q11) | 0,00 (q12) | 0,14 | 4,10 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,14 | 4,10 | Z' S27 |
| q | 0,00 (q32) | 0,00 (q32) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,00 | 0,14 | Z' S28 |
| q | 0,00 (q33) | 0,00 (q33) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,14 | 1,41 | Z' S28 |
| q | 0,00 (q35) | 0,00 (q34) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,12 (-q10) | -0,12 (-q10) | 1,41 | 5,52(L) | Z' S28 |

Som lasten X:0,66 kN Z: -1,00 kN

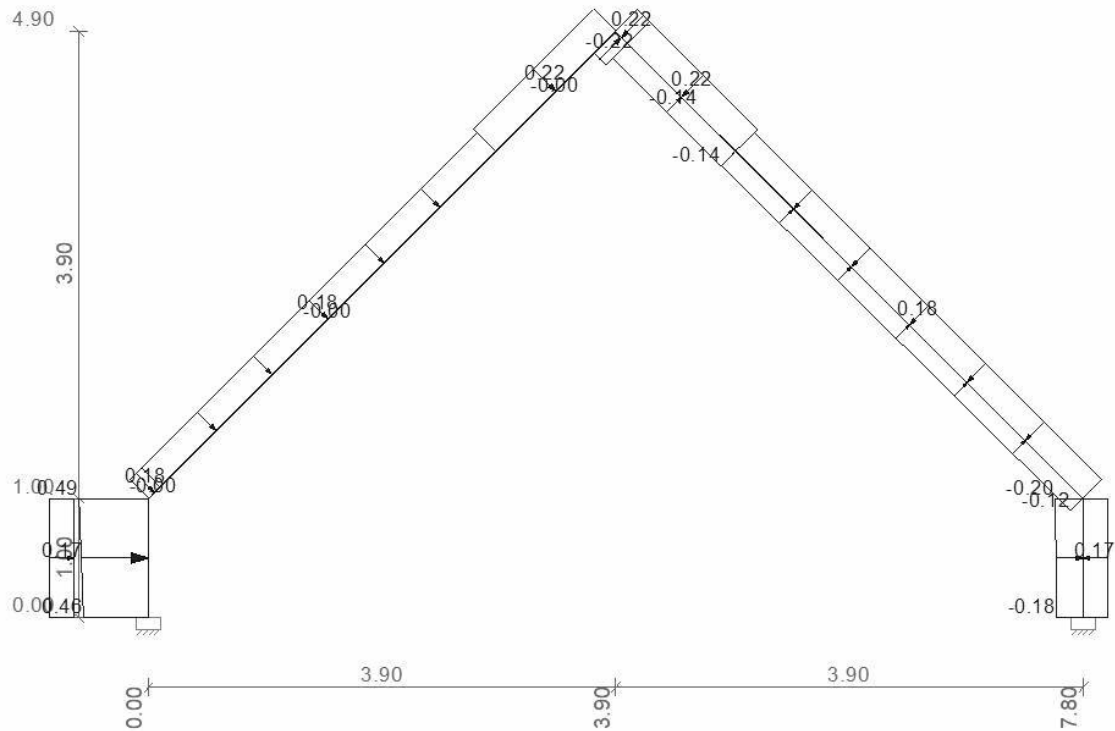
B.G.9: WINDBELASTING VAN LINKS + OVERDRUK (ZADELDAK FGH 2E CPE + IJ 1E CPE) (2E CORR. FACTOR)



B.G.9: WINDBELASTING VAN LINKS + OVERDRUK (ZADELDAK FGH 2E CPE + IJ 1E CPE) (2E CORR. FACTOR)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.9: Windbelasting van Links + Overdruk (Zadeldak FGH 2e Cpe + IJ 1e Cpe) (2e corr. factor) | | | | | |
| q | 0,35 (q3) | 0,37 (q5) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,32 (q19) | -0,30 (q17) | 0,00 | 1,00(L) | Z' S29 |
| q | -0,11 (-q6) | -0,11 (-q6) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,43 (q26) | 0,43 (q26) | 4,10 | 5,52(L) | Z' S27 |
| q | -0,14 (-q8) | -0,14 (-q8) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,43 (q28) | 0,43 (q28) | 0,00 | 0,14 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,00 | 0,14 | Z' S27 |
| q | 0,37 (q30) | 0,42 (q31) | 0,14 | 4,10 | Z' S27 |
| q | -0,12 (-q10) | -0,12 (-q10) | 0,14 | 4,10 | Z' S27 |
| q | -0,22 (q13) | -0,22 (q13) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (q14) | -0,14 (q14) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (-q8) | -0,14 (-q8) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (q16) | -0,12 (q15) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,12 (-q10) | -0,12 (-q10) | 1,41 | 5,52(L) | Z' S28 |
| Som lasten | X: 2,76 | kN Z: 0,05 | kN | | |

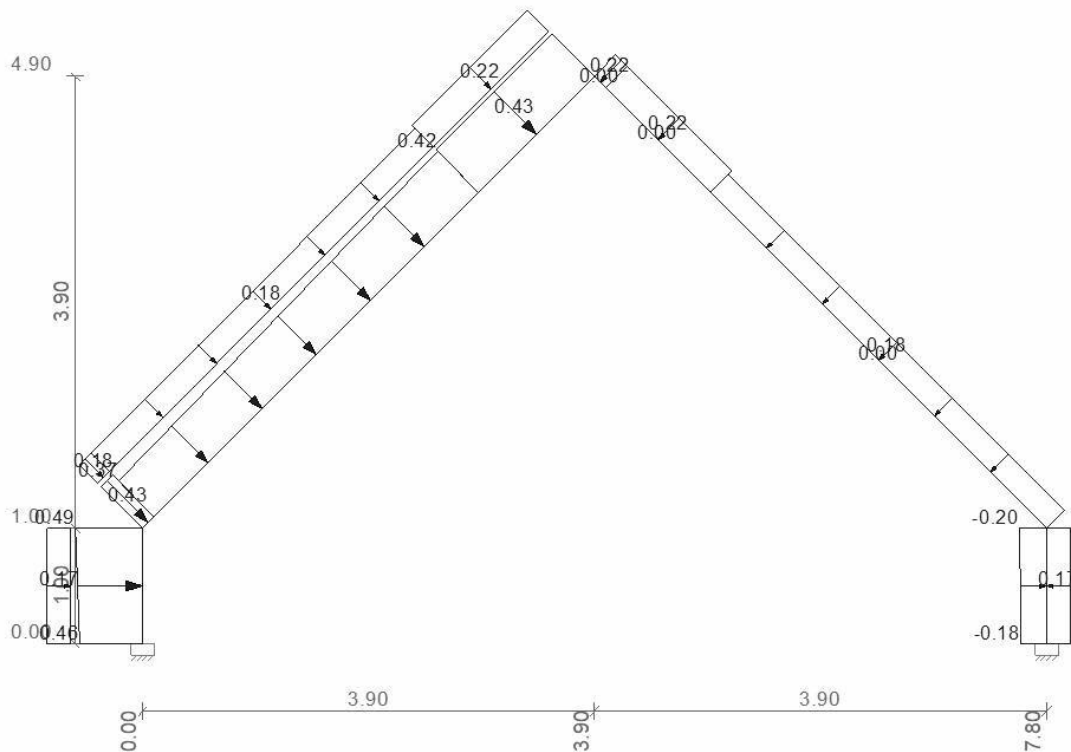
B.G.10: WINDBELASTING VAN LINKS + ONDERDRUK



B.G.10: WINDBELASTING VAN LINKS + ONDERDRUK

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.10: Windbelasting van Links + Onderdruk | | | | | |
| q | 0,46 (q40) | 0,49 (q42) | 0,00 | 1,00(L) | Z' S26 |
| q | 0,17 (-q44) | 0,17 (-q44) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,00 (q45) | 0,00 (q45) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,22 (-q46) | 0,22 (-q46) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,00 (q47) | 0,00 (q47) | 0,00 | 0,14 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,00 | 0,14 | Z' S27 |
| q | 0,00 (q49) | 0,00 (q50) | 0,14 | 4,10 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,14 | 4,10 | Z' S27 |
| q | -0,22 (q51) | -0,22 (q51) | 0,00 | 0,14 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (q52) | -0,14 (q52) | 0,14 | 1,41 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (q54) | -0,12 (q53) | 1,41 | 5,52(L) | Z' S28 |
| q | 0,18 (-q48) | 0,18 (-q48) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,20 (q58) | -0,18 (q56) | 0,00 | 1,00(L) | Z' S29 |
| Som lasten | X: 1,19 | kN Z: 0,96 | kN | | |

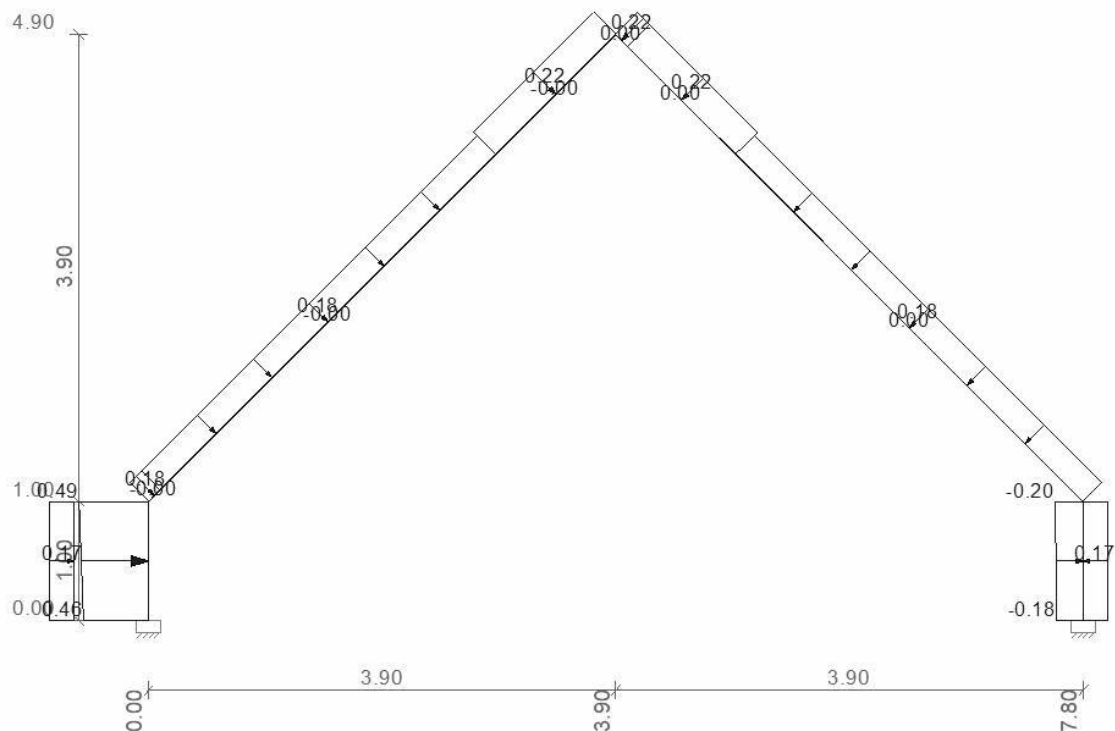
B.G.11: WINDBELASTING VAN LINKS + ONDERDRUK (2E CPE)



B.G.11: WINDBELASTING VAN LINKS + ONDERDRUK (2E CPE)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|---------------|-------------------|--------------|-------------|-------------------------|
| B.G.11: Windbelasting van Links + Onderdruk (2e Cpe) | | | | | |
| q | 0,46 (q59) | 0,49 (q61) | 0,00 | 1,00(L) | Z' S26 |
| q | 0,17 (-q63) | 0,17 (-q63) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,43 (q64) | 0,43 (q64) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,22 (-q65) | 0,22 (-q65) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,43 (q66) | 0,43 (q66) | 0,00 | 0,14 | Z' S27 |
| q | 0,18 (-q67) | 0,18 (-q67) | 0,00 | 0,14 | Z' S27 |
| q | 0,37 (q68) | 0,42 (q69) | 0,14 | 4,10 | Z' S27 |
| q | 0,18 (-q67) | 0,18 (-q67) | 0,14 | 4,10 | Z' S27 |
| q | 0,00 (q70) | 0,00 (q70) | 0,00 | 0,14 | Z' S28 |
| q | 0,22 (-q65) | 0,22 (-q65) | 0,00 | 0,14 | Z' S28 |
| q | 0,00 (q71) | 0,00 (q71) | 0,14 | 1,41 | Z' S28 |
| q | 0,22 (-q65) | 0,22 (-q65) | 0,14 | 1,41 | Z' S28 |
| q | 0,00 (q73) | 0,00 (q72) | 1,41 | 5,52(L) | Z' S28 |
| q | 0,18 (-q67) | 0,18 (-q67) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,20 (q77) | -0,18 (q75) | 0,00 | 1,00(L) | Z' S29 |
| Som lasten | X:2,23 | kN Z: 3,06 | kN | | |

B.G.12: WINDBELASTING VAN LINKS + ONDERDRUK (ZADELDAK FGH 1E CPE + IJ 2E CPE)



B.G.12: WINDBELASTING VAN LINKS + ONDERDRUK (ZADELDAK FGH 1E CPE + IJ 2E CPE)

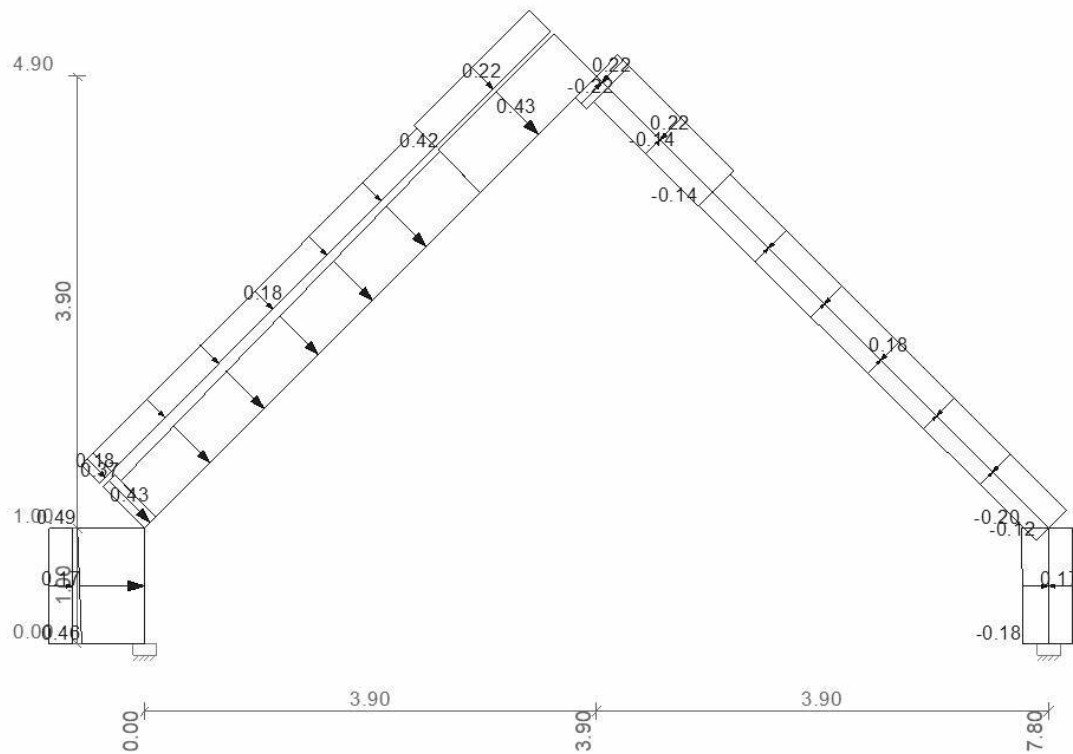
Type Beginwaarde Eindwaarde Beginafstand Eindafstand Richting Staaf of knoop

B.G.12: Windbelasting van Links + Onderdruk (Zadeldak FGH 1e Cpe + IJ 2e Cpe)

| | | | | | |
|---|-------------|-------------|------|---------|------------|
| q | 0,46 (q40) | 0,49 (q42) | 0,00 | 1,00(L) | Z' S26 |
| q | 0,17 (-q44) | 0,17 (-q44) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,00 (q45) | 0,00 (q45) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,22 (-q46) | 0,22 (-q46) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,00 (q47) | 0,00 (q47) | 0,00 | 0,14 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,00 | 0,14 | Z' S27 |
| q | 0,00 (q49) | 0,00 (q50) | 0,14 | 4,10 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,14 | 4,10 | Z' S27 |
| q | 0,00 (q70) | 0,00 (q70) | 0,00 | 0,14 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,00 | 0,14 | Z' S28 |
| q | 0,00 (q71) | 0,00 (q71) | 0,14 | 1,41 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,14 | 1,41 | Z' S28 |
| q | 0,00 (q73) | 0,00 (q72) | 1,41 | 5,52(L) | Z' S28 |
| q | 0,18 (-q48) | 0,18 (-q48) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,20 (q58) | -0,18 (q56) | 0,00 | 1,00(L) | Z' S29 |

Som lasten **X: 0,66** **kN Z: 1,49** **kN**

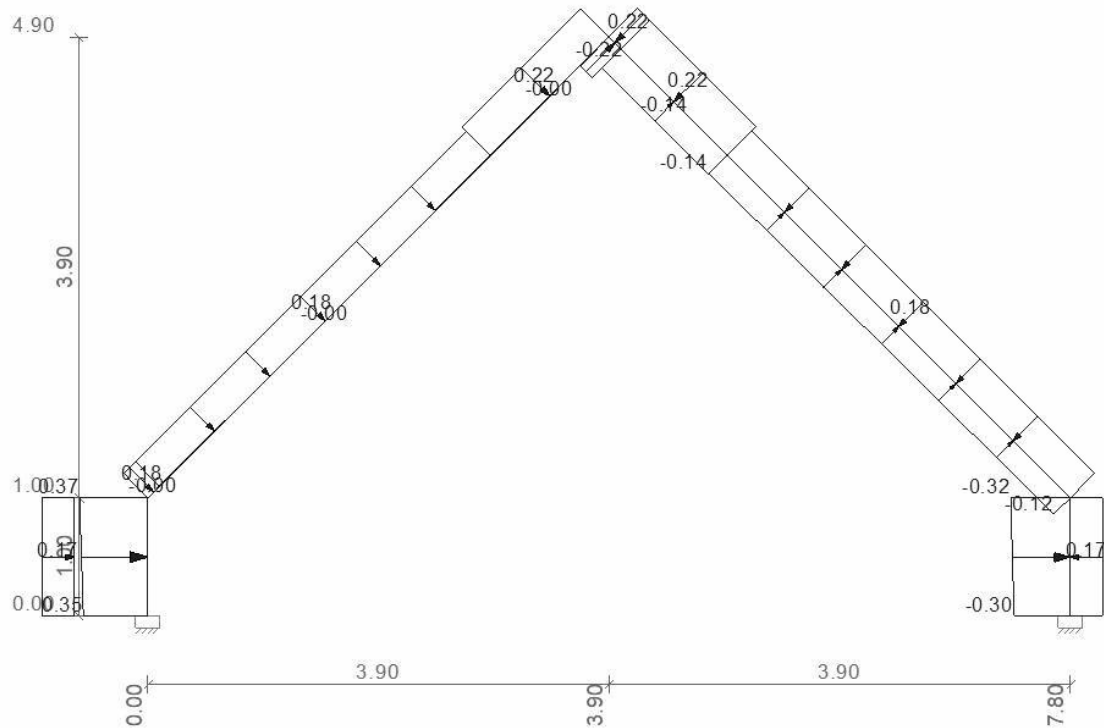
B.G.13: WINDBELASTING VAN LINKS + ONDERDRUK (ZADELDAK FGH 2E CPE + IJ 1E CPE)



B.G.13: WINDBELASTING VAN LINKS + ONDERDRUK (ZADELDAK FGH 2E CPE + IJ 1E CPE)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.13: Windbelasting van Links + Onderdruk (Zadeldak FGH 2e Cpe + IJ 1e Cpe) | | | | | |
| q | 0,46 (q40) | 0,49 (q42) | 0,00 | 1,00(L) | Z' S26 |
| q | 0,17 (-q44) | 0,17 (-q44) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,43 (q64) | 0,43 (q64) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,22 (-q46) | 0,22 (-q46) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,43 (q66) | 0,43 (q66) | 0,00 | 0,14 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,00 | 0,14 | Z' S27 |
| q | 0,37 (q68) | 0,42 (q69) | 0,14 | 4,10 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,14 | 4,10 | Z' S27 |
| q | -0,22 (q51) | -0,22 (q51) | 0,00 | 0,14 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (q52) | -0,14 (q52) | 0,14 | 1,41 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (q54) | -0,12 (q53) | 1,41 | 5,52(L) | Z' S28 |
| q | 0,18 (-q48) | 0,18 (-q48) | 1,41 | 5,52(L) | Z' S28 |
| q | -0,20 (q58) | -0,18 (q56) | 0,00 | 1,00(L) | Z' S29 |
| Som lasten | X: 2,76 | kN Z: 2,53 | kN | | |

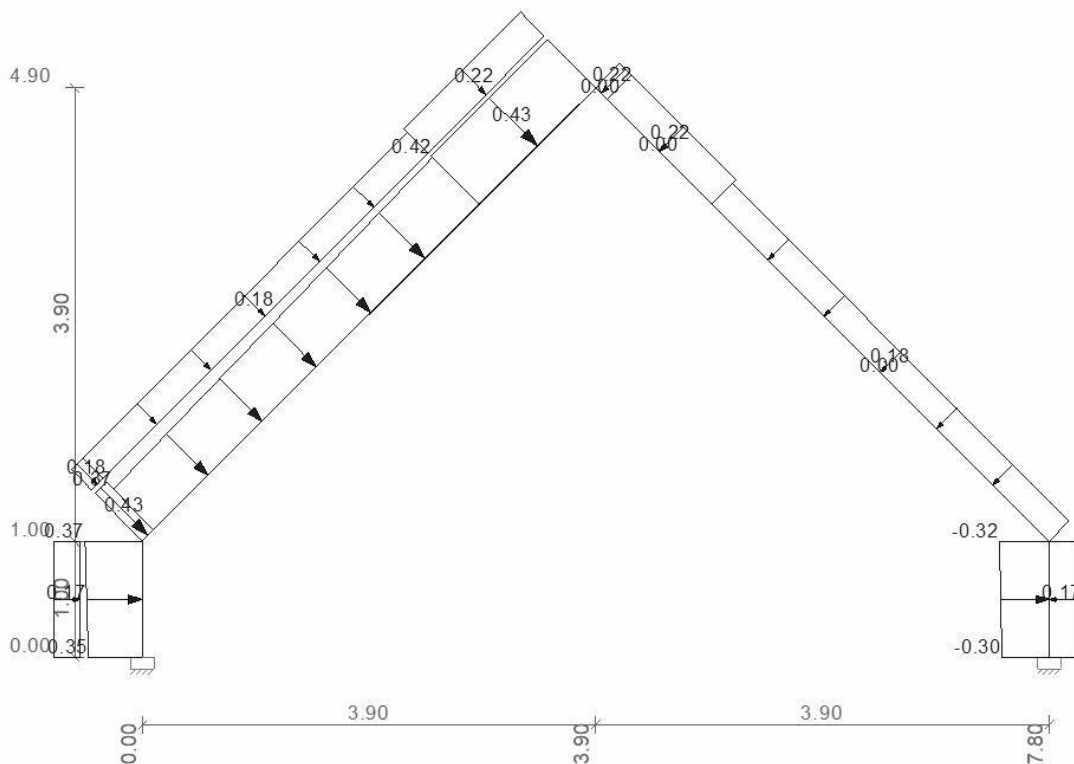
B.G.14: WINDBELASTING VAN LINKS + ONDERDRUK (2E CORR. FACTOR)



B.G.14: WINDBELASTING VAN LINKS + ONDERDRUK (2E CORR. FACTOR)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.14: Windbelasting van Links + Onderdruk (2e corr. factor) | | | | | |
| q | 0,35 (q41) | 0,37 (q43) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,32 (q57) | -0,30 (q55) | 0,00 | 1,00(L) | Z' S29 |
| q | 0,17 (-q44) | 0,17 (-q44) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,00 (q45) | 0,00 (q45) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,22 (-q46) | 0,22 (-q46) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,00 (q47) | 0,00 (q47) | 0,00 | 0,14 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,00 | 0,14 | Z' S27 |
| q | 0,00 (q49) | 0,00 (q50) | 0,14 | 4,10 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,14 | 4,10 | Z' S27 |
| q | -0,22 (q51) | -0,22 (q51) | 0,00 | 0,14 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (q52) | -0,14 (q52) | 0,14 | 1,41 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (q54) | -0,12 (q53) | 1,41 | 5,52(L) | Z' S28 |
| q | 0,18 (-q48) | 0,18 (-q48) | 1,41 | 5,52(L) | Z' S28 |
| Som lasten | X: 1,19 | kN Z: 0,96 | kN | | |

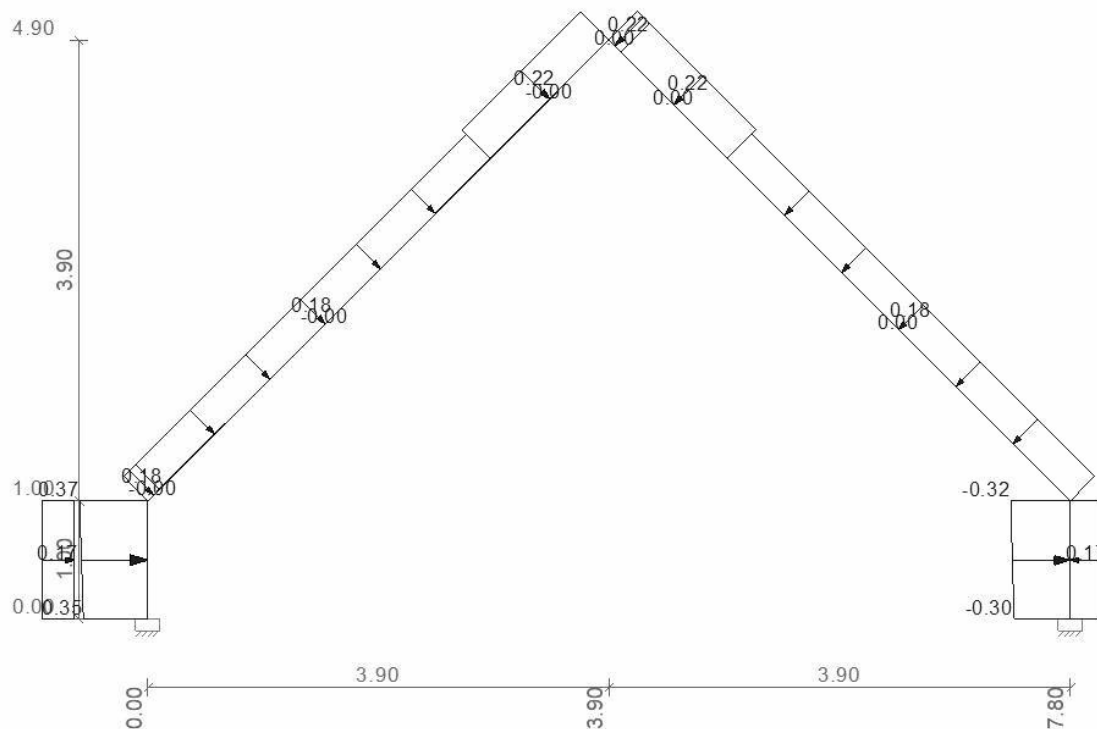
B.G.15: WINDBELASTING VAN LINKS + ONDERDRUK (2E CPE) (2E CORR. FACTOR)



B.G.15: WINDBELASTING VAN LINKS + ONDERDRUK (2E CPE) (2E CORR. FACTOR)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.15: Windbelasting van Links + Onderdruk (2e Cpe) (2e corr. factor) | | | | | |
| q | 0,35 (q60) | 0,37 (q62) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,32 (q76) | -0,30 (q74) | 0,00 | 1,00(L) | Z' S29 |
| q | 0,17 (-q63) | 0,17 (-q63) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,43 (q64) | 0,43 (q64) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,22 (-q65) | 0,22 (-q65) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,43 (q66) | 0,43 (q66) | 0,00 | 0,14 | Z' S27 |
| q | 0,18 (-q67) | 0,18 (-q67) | 0,00 | 0,14 | Z' S27 |
| q | 0,37 (q68) | 0,42 (q69) | 0,14 | 4,10 | Z' S27 |
| q | 0,18 (-q67) | 0,18 (-q67) | 0,14 | 4,10 | Z' S27 |
| q | 0,00 (q70) | 0,00 (q70) | 0,00 | 0,14 | Z' S28 |
| q | 0,22 (-q65) | 0,22 (-q65) | 0,00 | 0,14 | Z' S28 |
| q | 0,00 (q71) | 0,00 (q71) | 0,14 | 1,41 | Z' S28 |
| q | 0,22 (-q65) | 0,22 (-q65) | 0,14 | 1,41 | Z' S28 |
| q | 0,00 (q73) | 0,00 (q72) | 1,41 | 5,52(L) | Z' S28 |
| q | 0,18 (-q67) | 0,18 (-q67) | 1,41 | 5,52(L) | Z' S28 |
| Som lasten | X: 2,23 | kN Z: 3,06 | kN | | |

B.G.16: WINDBELASTING VAN LINKS + ONDERDRUK (ZADELDAK FGH 1E CPE + IJ 2E CPE) (2E CORR. FACTOR)



B.G.16: WINDBELASTING VAN LINKS + ONDERDRUK (ZADELDAK FGH 1E CPE + IJ 2E CPE) (2E CORR. FACTOR)

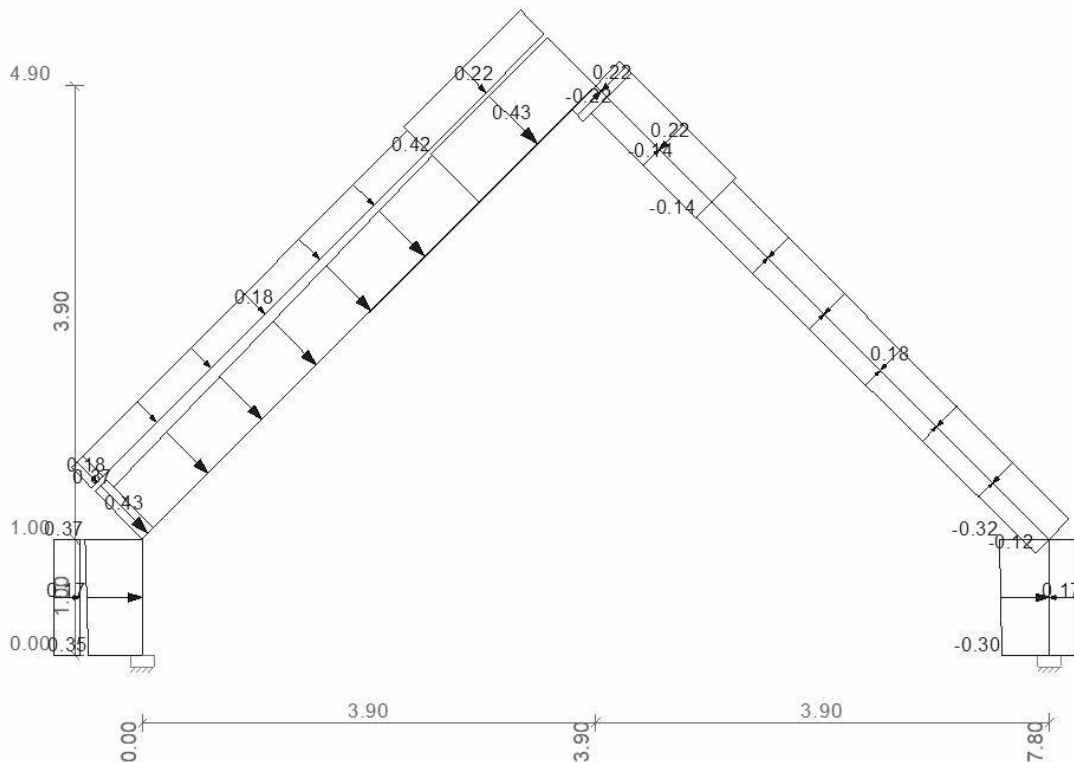
Type Beginwaarde Eindwaarde Beginafstand Eindafstand Richting Staaf of knoop

B.G.16: Windbelasting van Links + Onderdruk (Zadeldak FGH 1e Cpe + IJ 2e Cpe) (2e corr. factor)

| | | | | | |
|---|-------------|-------------|------|---------|------------|
| q | 0,35 (q41) | 0,37 (q43) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,32 (q57) | -0,30 (q55) | 0,00 | 1,00(L) | Z' S29 |
| q | 0,17 (-q44) | 0,17 (-q44) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,00 (q45) | 0,00 (q45) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,22 (-q46) | 0,22 (-q46) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,00 (q47) | 0,00 (q47) | 0,00 | 0,14 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,00 | 0,14 | Z' S27 |
| q | 0,00 (q49) | 0,00 (q50) | 0,14 | 4,10 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,14 | 4,10 | Z' S27 |
| q | 0,00 (q70) | 0,00 (q70) | 0,00 | 0,14 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,00 | 0,14 | Z' S28 |
| q | 0,00 (q71) | 0,00 (q71) | 0,14 | 1,41 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,14 | 1,41 | Z' S28 |
| q | 0,00 (q73) | 0,00 (q72) | 1,41 | 5,52(L) | Z' S28 |
| q | 0,18 (-q48) | 0,18 (-q48) | 1,41 | 5,52(L) | Z' S28 |

Som lasten **X: 0,66** **kN Z: 1,49** **kN**

B.G.17: WINDBELASTING VAN LINKS + ONDERDRUK (ZADELDAK FGH 2E CPE + IJ 1E CPE) (2E CORR. FACTOR)



B.G.17: WINDBELASTING VAN LINKS + ONDERDRUK (ZADELDAK FGH 2E CPE + IJ 1E CPE) (2E CORR. FACTOR)

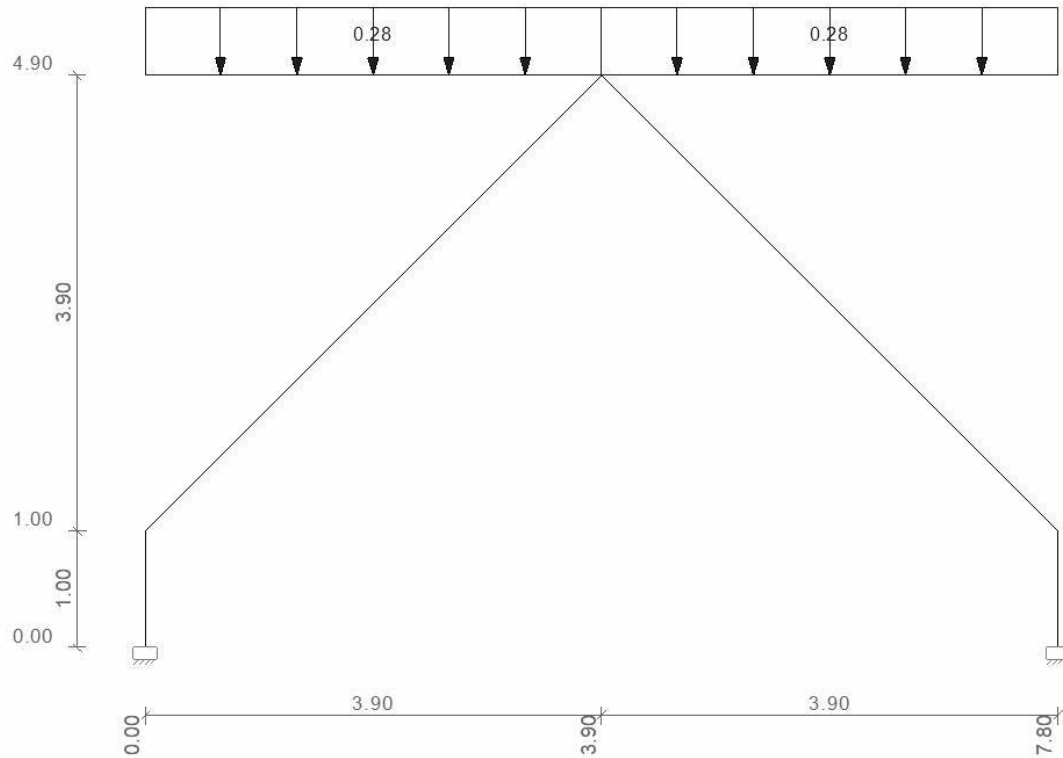
Type Beginwaarde Eindwaarde Beginafstand Eindafstand Richting Staaf of knoop

B.G.17: Windbelasting van Links + Onderdruk (Zadeldak FGH 2e Cpe + IJ 1e Cpe) (2e corr. factor)

| | | | | | |
|---|-------------|-------------|------|---------|------------|
| q | 0,35 (q41) | 0,37 (q43) | 0,00 | 1,00(L) | Z' S26 |
| q | -0,32 (q57) | -0,30 (q55) | 0,00 | 1,00(L) | Z' S29 |
| q | 0,17 (-q44) | 0,17 (-q44) | 0,00 | 1,00(L) | Z' S26,S29 |
| q | 0,43 (q64) | 0,43 (q64) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,22 (-q46) | 0,22 (-q46) | 4,10 | 5,52(L) | Z' S27 |
| q | 0,43 (q66) | 0,43 (q66) | 0,00 | 0,14 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,00 | 0,14 | Z' S27 |
| q | 0,37 (q68) | 0,42 (q69) | 0,14 | 4,10 | Z' S27 |
| q | 0,18 (-q48) | 0,18 (-q48) | 0,14 | 4,10 | Z' S27 |
| q | -0,22 (q51) | -0,22 (q51) | 0,00 | 0,14 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,00 | 0,14 | Z' S28 |
| q | -0,14 (q52) | -0,14 (q52) | 0,14 | 1,41 | Z' S28 |
| q | 0,22 (-q46) | 0,22 (-q46) | 0,14 | 1,41 | Z' S28 |
| q | -0,14 (q54) | -0,12 (q53) | 1,41 | 5,52(L) | Z' S28 |
| q | 0,18 (-q48) | 0,18 (-q48) | 1,41 | 5,52(L) | Z' S28 |

Som lasten **X: 2,76** **kN Z: 2,53** **kN**

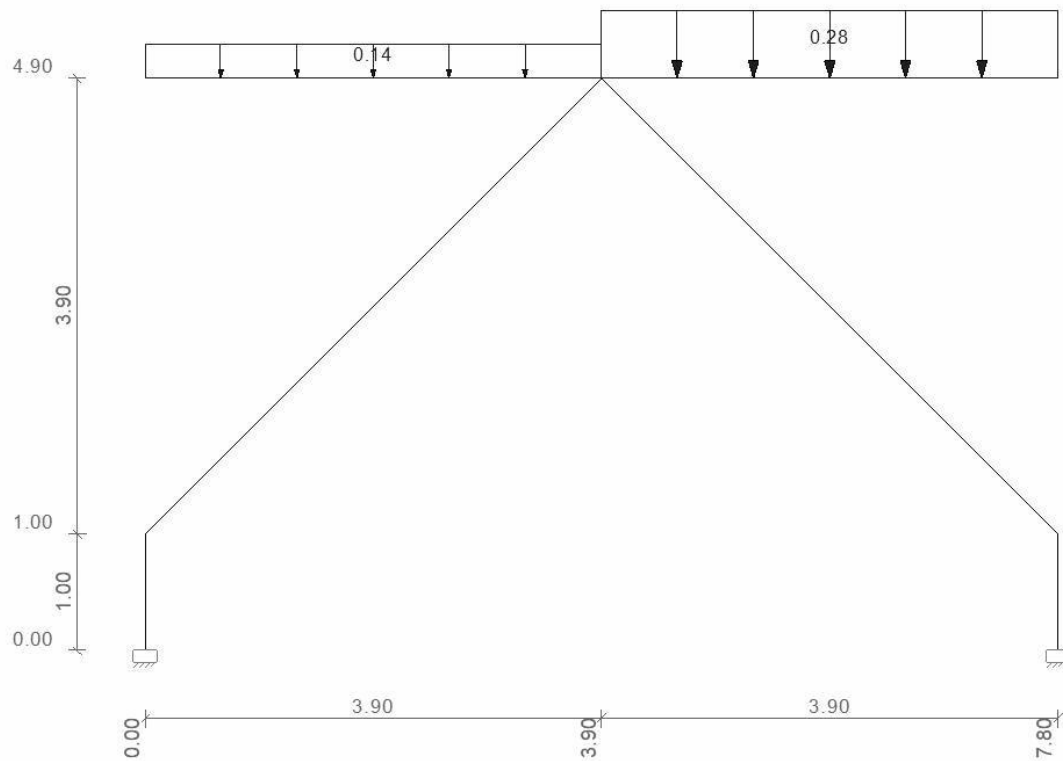
B.G.18: SNEEUWBELASTING 1



B.G.18: SNEEUWBELASTING 1

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---------------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.18: Sneeuwbelasting 1 | | | | | |
| q | 0,28 (q78) | 0,28 (q78) | 0,00 | 3,90(L) | Z S27-S28 |
| Som lasten | X: 0,00 | kN Z: 2,18 | kN | | |

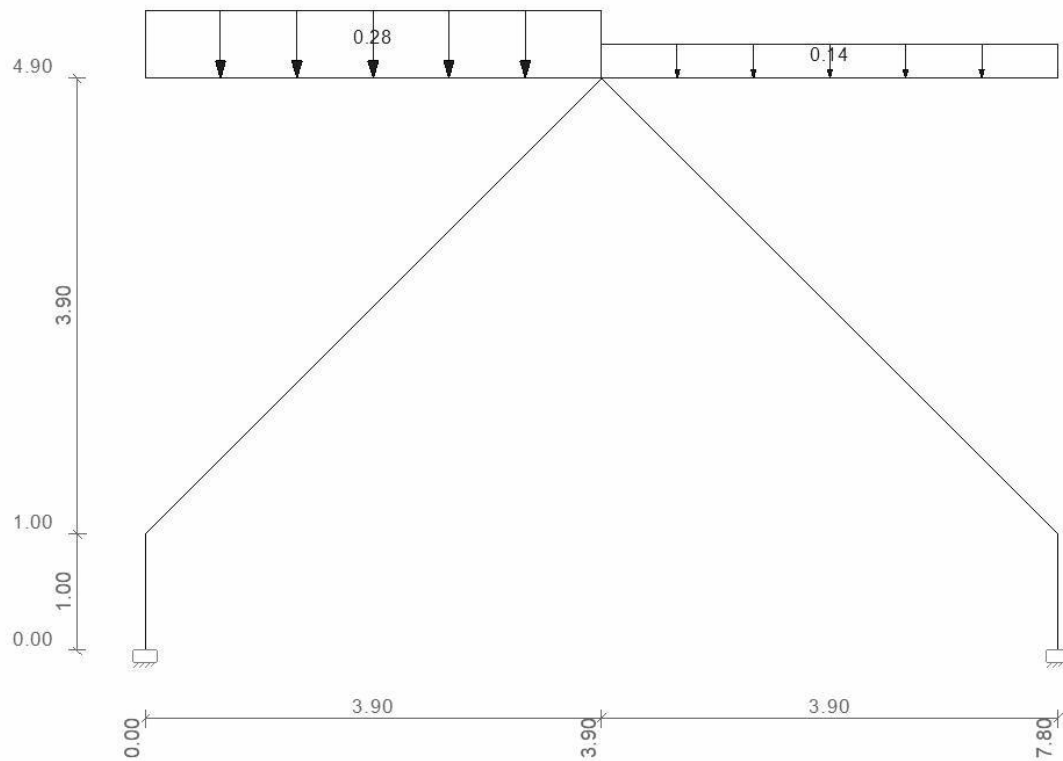
B.G.19: SNEEUWBELASTING 2



B.G.19: SNEEUWBELASTING 2

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---------------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.19: Sneeuwbelasting 2 | | | | | |
| q | 0,14 (q79) | 0,14 (q79) | 0,00 | 3,90(L) | Z S27 |
| q | 0,28 (q78) | 0,28 (q78) | 0,00 | 3,90(L) | Z S28 |
| Som lasten | X:0,00 | kN Z: 1,64 | kN | | |

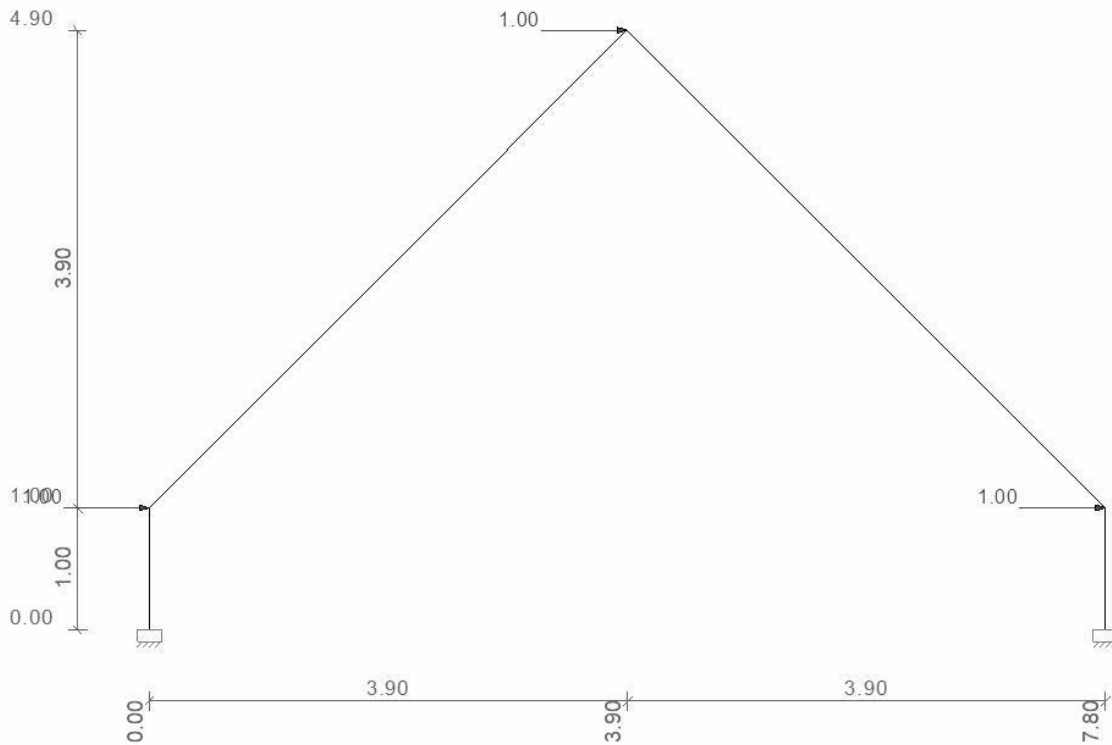
B.G.20: SNEEUWBELASTING 3



B.G.20: SNEEUWBELASTING 3

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---------------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.20: Sneeuwbelasting 3 | | | | | |
| q | 0,28 (q78) | 0,28 (q78) | 0,00 | 3,90(L) | Z S27 |
| q | 0,14 (q79) | 0,14 (q79) | 0,00 | 3,90(L) | Z S28 |
| Som lasten | X:0,00 | kN Z: 1,64 | kN | | |

B.G.21: KNIKLENGTE



B.G.21: KNIKLENGTE

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.21: Kniklengte | | | | | |
| N | 1,00 | | | | X K2,K23-K24 |
| Som lasten | X: 3,00 | kN Z: 0,00 | kN | | |

B.G. OPLEGREACTIES

| B.C. | Oplegging | Knoop | X | Z | My |
|-------|---------------------|-------|--------------|---------------|-------|
| B.G.1 | O1 | K22 | 2.33 | -8.41 | -2.33 |
| | O2 | K25 | -2.33 | -8.41 | 2.33 |
| | Som Reacties | | 0.00 | -16.83 | |
| | Som Lasten | | 0.00 | 16.83 | |
| B.G.2 | O1 | K22 | -0.65 | 0.77 | 0.47 |
| | O2 | K25 | -0.54 | 0.75 | 0.39 |
| | Som Reacties | | -1.19 | 1.52 | |
| | Som Lasten | | 1.19 | -1.52 | |
| B.G.3 | O1 | K22 | -1.14 | -0.27 | 0.96 |
| | O2 | K25 | -1.10 | -0.31 | 0.94 |
| | Som Reacties | | -2.23 | -0.57 | |
| | Som Lasten | | 2.23 | 0.57 | |
| B.G.4 | O1 | K22 | -0.38 | 0.50 | 0.20 |
| | O2 | K25 | -0.29 | 0.50 | 0.14 |
| | Som Reacties | | -0.66 | 1.00 | |
| | Som Lasten | | 0.66 | -1.00 | |
| B.G.5 | O1 | K22 | -1.41 | 0.01 | 1.24 |
| | O2 | K25 | -1.35 | -0.06 | 1.20 |
| | Som Reacties | | -2.76 | -0.05 | |
| | Som Lasten | | 2.76 | 0.05 | |
| B.G.6 | O1 | K22 | -0.53 | 0.77 | 0.41 |
| | O2 | K25 | -0.66 | 0.75 | 0.45 |
| | Som Reacties | | -1.19 | 1.52 | |
| | Som Lasten | | 1.19 | -1.52 | |
| B.G.7 | O1 | K22 | -1.02 | -0.27 | 0.90 |

| B.C. | Oplegging | Knoop | X | Z | My |
|--------|---------------------|-------|--------------|--------------|-------|
| B.G.7 | O2 | K25 | -1.21 | -0.31 | 1.00 |
| | Som Reacties | | -2.23 | -0.57 | |
| | Som Lasten | | 2.23 | 0.57 | |
| B.G.8 | O1 | K22 | -0.26 | 0.50 | 0.14 |
| | O2 | K25 | -0.41 | 0.50 | 0.20 |
| | Som Reacties | | -0.66 | 1.00 | |
| | Som Lasten | | 0.66 | -1.00 | |
| B.G.9 | O1 | K22 | -1.30 | 0.01 | 1.18 |
| | O2 | K25 | -1.47 | -0.06 | 1.26 |
| | Som Reacties | | -2.76 | -0.05 | |
| | Som Lasten | | 2.76 | 0.05 | |
| B.G.10 | O1 | K22 | -0.90 | -0.47 | 0.58 |
| | O2 | K25 | -0.30 | -0.49 | 0.29 |
| | Som Reacties | | -1.19 | -0.96 | |
| | Som Lasten | | 1.19 | 0.96 | |
| B.G.11 | O1 | K22 | -1.39 | -1.51 | 1.06 |
| | O2 | K25 | -0.85 | -1.55 | 0.84 |
| | Som Reacties | | -2.23 | -3.06 | |
| | Som Lasten | | 2.23 | 3.06 | |
| B.G.12 | O1 | K22 | -0.62 | -0.75 | 0.30 |
| | O2 | K25 | -0.04 | -0.75 | 0.03 |
| | Som Reacties | | -0.66 | -1.49 | |
| | Som Lasten | | 0.66 | 1.49 | |
| B.G.13 | O1 | K22 | -1.66 | -1.23 | 1.34 |
| | O2 | K25 | -1.10 | -1.30 | 1.09 |
| | Som Reacties | | -2.76 | -2.53 | |
| | Som Lasten | | 2.76 | 2.53 | |
| B.G.14 | O1 | K22 | -0.78 | -0.47 | 0.52 |
| | O2 | K25 | -0.41 | -0.49 | 0.35 |
| | Som Reacties | | -1.19 | -0.96 | |
| | Som Lasten | | 1.19 | 0.96 | |
| B.G.15 | O1 | K22 | -1.27 | -1.51 | 1.01 |
| | O2 | K25 | -0.97 | -1.55 | 0.90 |
| | Som Reacties | | -2.23 | -3.06 | |
| | Som Lasten | | 2.23 | 3.06 | |
| B.G.16 | O1 | K22 | -0.50 | -0.75 | 0.24 |
| | O2 | K25 | -0.16 | -0.75 | 0.09 |
| | Som Reacties | | -0.66 | -1.49 | |
| | Som Lasten | | 0.66 | 1.49 | |
| B.G.17 | O1 | K22 | -1.54 | -1.23 | 1.28 |
| | O2 | K25 | -1.22 | -1.30 | 1.15 |
| | Som Reacties | | -2.76 | -2.53 | |
| | Som Lasten | | 2.76 | 2.53 | |
| B.G.18 | O1 | K22 | 0.55 | -1.09 | -0.55 |
| | O2 | K25 | -0.55 | -1.09 | 0.55 |
| | Som Reacties | | 0.00 | -2.18 | |
| | Som Lasten | | 0.00 | 2.18 | |
| B.G.19 | O1 | K22 | 0.41 | -0.68 | -0.41 |
| | O2 | K25 | -0.41 | -0.96 | 0.41 |
| | Som Reacties | | 0.00 | -1.64 | |
| | Som Lasten | | 0.00 | 1.64 | |
| B.G.20 | O1 | K22 | 0.41 | -0.96 | -0.41 |
| | O2 | K25 | -0.41 | -0.68 | 0.41 |
| | Som Reacties | | 0.00 | -1.64 | |
| | Som Lasten | | 0.00 | 1.64 | |
| B.G.21 | O1 | K22 | -1.50 | 0.50 | 1.50 |
| | O2 | K25 | -1.50 | -0.50 | 1.50 |
| | Som Reacties | | -3.00 | 0.00 | |
| | Som Lasten | | 3.00 | 0.00 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (LIJST)

Fu.C.1 = 0.90*B.G.1 + 1.35*B.G.2

Fu.C.2 = 0.90*B.G.1 + 1.35*B.G.3

Fu.C.3 = 0.90*B.G.1 + 1.35*B.G.4

Fu.C.4 = 0.90*B.G.1 + 1.35*B.G.5

$$Fu.C.5 = 0.90 \cdot B.G.1 + 1.35 \cdot B.G.6$$

$$Fu.C.6 = 0.90 \cdot B.G.1 + 1.35 \cdot B.G.7$$

$$Fu.C.7 = 0.90 \cdot B.G.1 + 1.35 \cdot B.G.8$$

$$Fu.C.8 = 0.90 \cdot B.G.1 + 1.35 \cdot B.G.9$$

$$Fu.C.9 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.10$$

$$Fu.C.10 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.11$$

$$Fu.C.11 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.12$$

$$Fu.C.12 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.13$$

$$Fu.C.13 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.14$$

$$Fu.C.14 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.15$$

$$Fu.C.15 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.16$$

$$Fu.C.16 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.17$$

$$Fu.C.17 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.18$$

$$Fu.C.18 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.19$$

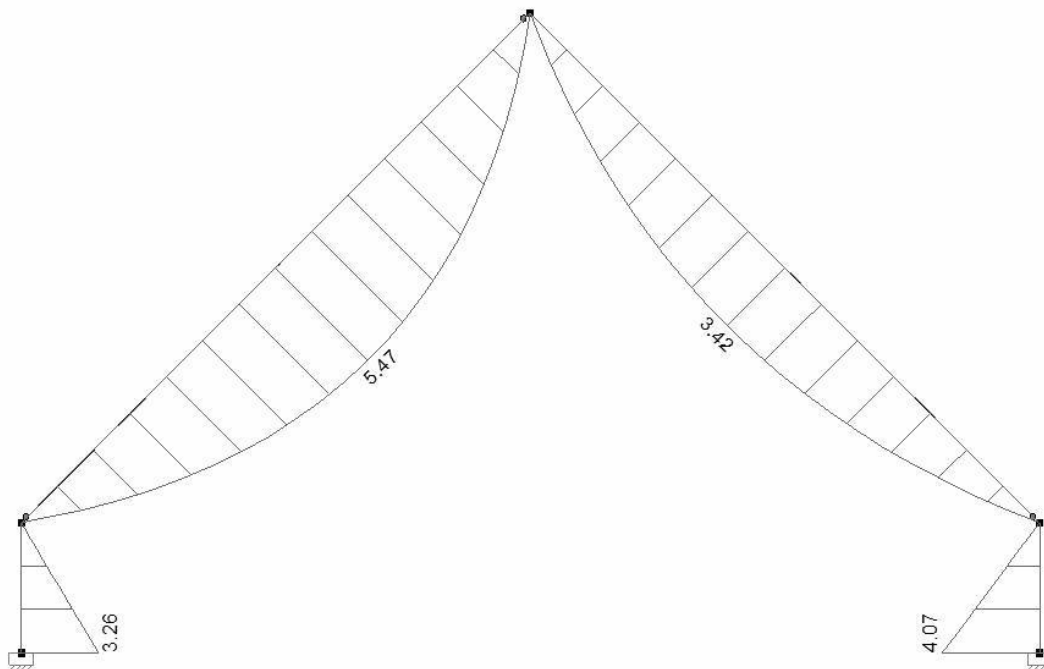
$$Fu.C.19 = 1.08 \cdot B.G.1 + 1.35 \cdot B.G.20$$

$$Fu.C.20 = 1.22 \cdot B.G.1$$

$$Fu.C.21 = 0.90 \cdot B.G.1$$

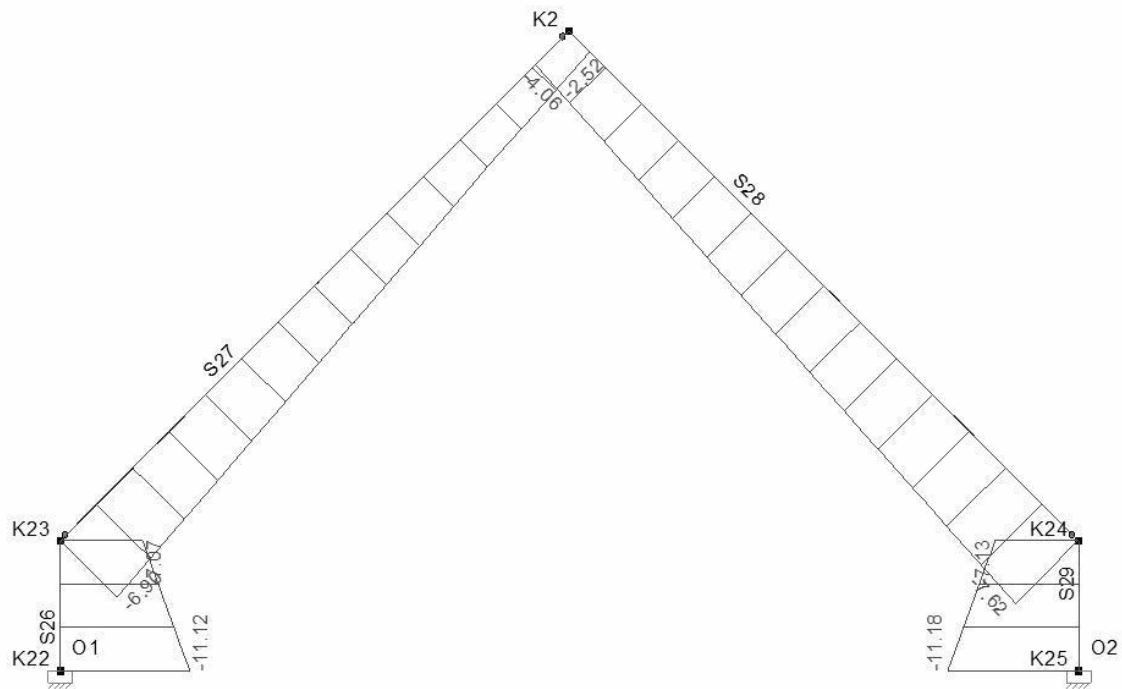
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



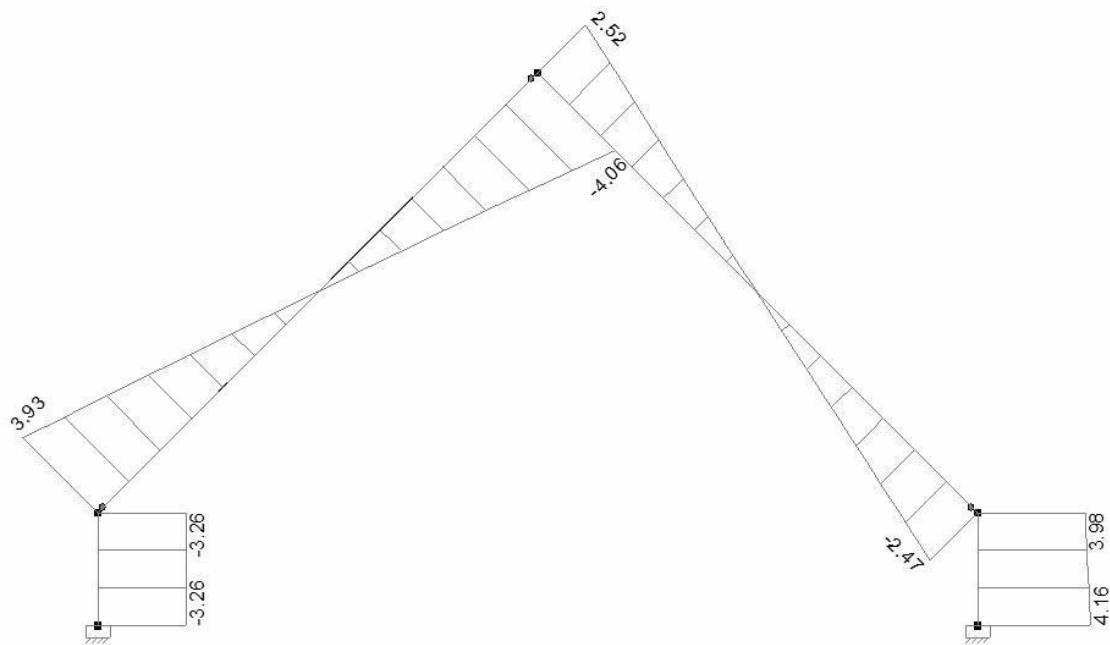
AFB. FU.C. NORMAALKRACHT (NX) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME STAAFKRACHTEN

| Staad | B.C. | Mb | Mmax | xMmax | Me | x-M0 | x-M0 T/D | Nmax | Vb | Vmax | Ve |
|-------|---------|------|------|-------|------|------|----------|--------|-------|-------|-------|
| S26 | Fu.C.10 | 1.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -11.12 | -0.65 | -1.52 | -1.52 |
| Staad | B.C. | Mb | Mmax | xMmax | Me | x-M0 | x-M0 T/D | Nmax | Vb | Vmax | Ve |

| | | | | | | | | | | | |
|-----|---------|-------------|-------------|------|-------------|------|--------|---------------|--------------|--------------|--------------|
| S26 | Fu.C.17 | 3.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 D | -10.56 | -3.26 | -3.26 | -3.26 |
| S27 | Fu.C.10 | 0.00 | 5.47 | 2.78 | 0.00 | 0.00 | 0.00 D | -6.08 | 3.93 | -4.06 | -4.06 |
| | Fu.C.17 | 0.00 | 3.17 | 2.76 | 0.00 | 0.00 | 0.00 D | -6.90 | 2.30 | 2.30 | -2.30 |
| S28 | Fu.C.2 | 0.00 | 1.40 | 2.77 | 0.00 | 0.00 | 0.00 D | -5.50 | 0.99 | -1.02 | -1.02 |
| | Fu.C.10 | 0.00 | 3.42 | 2.75 | 0.00 | 5.49 | 0.00 D | -7.62 | 2.52 | 2.52 | -2.47 |
| S29 | Fu.C.10 | 0.00 | 0.00 | 0.00 | 3.65 | 0.00 | 0.00 D | -11.18 | 3.64 | 3.66 | 3.66 |
| | Fu.C.12 | 0.00 | 0.00 | 0.00 | 3.99 | 0.00 | 0.00 D | -10.84 | 3.98 | 4.00 | 4.00 |
| | Fu.C.16 | 0.00 | 0.00 | 0.00 | 4.07 | 0.00 | 0.00 D | -10.84 | 3.98 | 4.16 | 4.16 |

FU.C. EXTREME OPLEGREACTIES

Opleggin Knoop B.C. Xmax Z My B.C. X Zmax My B.C. X Z Mymax

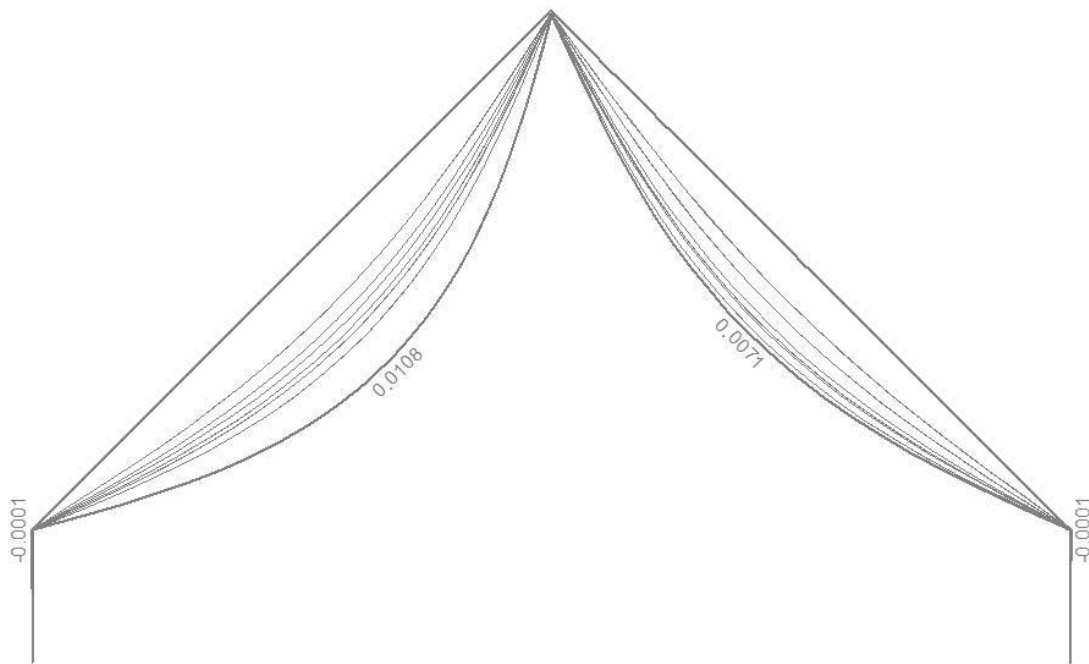
| | | | | | | | | | | | | | |
|----|-----|---------|--------------|--------|---------|---------|---------------|---------------|---------|-------|--------|--------------|--|
| O1 | K22 | Fu.C.17 | 3.26 | -10.56 | -3.26 | | | | | | | | |
| O1 | K22 | | | | Fu.C.10 | 0.65 | -11.12 | -1.08 | Fu.C.17 | 3,26 | -10,56 | -3,26 | |
| O2 | K25 | | | | | | | | Fu.C.16 | -4,16 | -10,84 | 4,07 | |
| O2 | K25 | Fu.C.16 | -4.16 | -10.84 | 4.07 | Fu.C.10 | -3.66 | -11.18 | 3.65 | | | | |

Globale extreme waarden

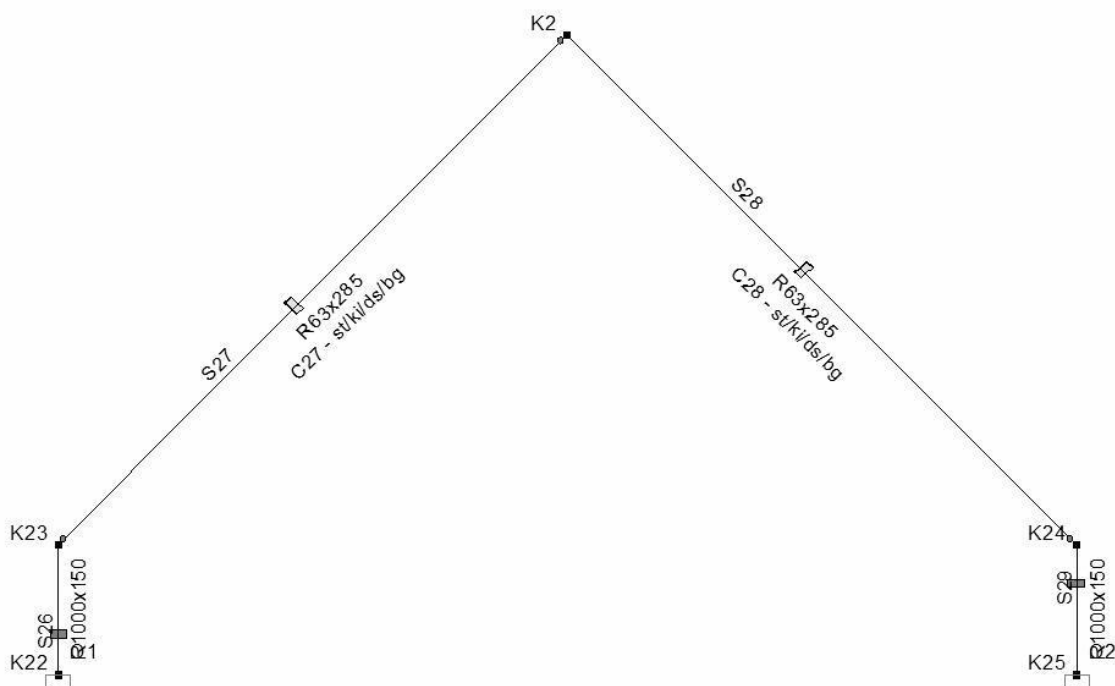
| | | | | | | | | | | | | | |
|----|-----|---------|--------------|--------|---------|-------|---------------|------|---------|-------|--------|--------------|--|
| O1 | K22 | Fu.C.17 | 3.26 | -10.56 | -3.26 | | | | | | | | |
| O2 | K25 | Fu.C.16 | -4.16 | -10.84 | 4.07 | | | | | | | | |
| O2 | K25 | | | | Fu.C.10 | -3.66 | -11.18 | 3.65 | | | | | |
| O2 | K25 | | | | | | | | Fu.C.16 | -4,16 | -10,84 | 4,07 | |
| O1 | K22 | | | | | | | | Fu.C.17 | 3,26 | -10,56 | -3,26 | |

AFB. KA.C. VERPLAATSINGEN OMHULLENDE

Karakteristiek Belastingscombinaties



AFB. HOUTDEFINITIE



UNITY CHECK

| Label | Toetsing | Combinatie | Artikel | UC max |
|-------|-------------|------------|-------------------------------------|--------|
| C27 | Doorsnede | Fu.C.10 | NEN-EN1995-1-1#6.2.4 (6.19) | 0,39 |
| | Kip | Fu.C.10 | NEN-EN1995-1-1#6.3.3 (6.35) | 1,00 |
| | Stabiliteit | Fu.C.20 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,99 |
| | Doorbuiging | Ka.C.13 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,89 |
| C28 | Doorsnede | Fu.C.20 | NEN-EN1995-1-1#6.2.4 (6.19) | 0,25 |
| | Kip | Fu.C.20 | NEN-EN1995-1-1#6.3.3 (6.35) | 0,97 |
| | Stabiliteit | Fu.C.20 | NEN-EN1995-1-1#6.3.2 (6.24) | 0,99 |
| | Doorbuiging | Ka.C.15 | NEN-EN1995#7.2 NEN-EN1990#A1.4.3(4) | 0,66 |

4.3.4 PATIOWONING

gording enkele buiging NEN-EN 1995

Algemene uitgangspunten

| | | | | | |
|---------------------|-----------|------------------------|------------------------|------------------------|------|
| Referentieperiode = | 50 jaar | $C_{prob.sn}$ = | 1,00 | | |
| gevolgklasse = | CC1 | $\gamma_{G\ 6,10,a}$ = | 1,22 | $\gamma_{G\ 6,10,b}$ = | 1,08 |
| Windgebied = | III | | | γ_Q = | 1,35 |
| Terreincategorie = | onbebouwd | | | | |
| Gebouwhoogte z = | 7,20 m | $q_p(z)$ = | 0,62 kN/m ² | | |
| dakhelling = | 10 ° | | | | |

Houtgegevens

| | | | | | |
|-----------------|-------------|-----------------|-------------------------|--------------|--------------------------|
| houtkwaliteit = | C24 gezaagd | $f_{m,0;rep}$ = | 24,0 N/mm ² | γ_M = | 1,30 |
| klimaatklasse = | 1 (droog) | E_{mean} = | 11000 N/mm ² | k_{def} = | 0,60 |
| b = | 63 mm | k_h = | 1,00 | I_y = | 1,22E+08 mm ⁴ |
| h = | 285 mm | | | W_y = | 8,53E+05 mm ³ |

h.o.h. = 600 mm
lengte = 6100 mm

| Belastingen | | | | | |
|--------------------------|-----------|-------------------|--------------------|-----------------|-------------------|
| $G_k =$ | 0,77 | kN/m ² | | | |
| $S_k =$ | 0,56 | kN/m ² | $\mu_1 =$ | 0,80 | |
| $W_k =$ | 0,25 | kN/m ² | $C_{pe,10} =$ | 0,10 | $C_{pi,10} =$ 0,3 |
| loodrecht dakvlak | | | | | |
| $g_k =$ | 0,45 | kN/m ¹ | | | |
| $s_k =$ | 0,33 | kN/m ¹ | | | |
| $w_k =$ | 0,15 | kN/m ¹ | | | |
| Sterkte | | | | | |
| | p_d | M_d | $\sigma_{m,0;y;d}$ | $f_{m,0;y;d}$ | U.C. |
| 6.10.a : | 0,55 | 2,57 | 3,01 | 11,08 | 0,27 |
| sneeuw 6.10.b : | 0,93 | 4,33 | 5,08 | 16,62 | 0,31 |
| wind 6.10.b : | 0,69 | 3,23 | 3,78 | 16,62 | 0,23 |
| Doorbuiging | | | | | |
| | U_{onm} | U_{bij} | U_{eind} | $0,004 \cdot L$ | U.C. |
| sneeuw : | 6,1 | 8,1 | 14,2 | 24,4 | 0,58 |
| wind : | 6,1 | 5,7 | 11,8 | 24,4 | 0,49 |

4.4 MUURPLAAT

Doorgaande muurplaat 70x195mm, verankerd met ankers M12-4.6 h.o.h. 1000mm.

4.5 KOPPELING MET TOPGEVELS

4.5.1 RIJWONING KAVEL 3-16

Koppeling topgevel aan scharnierkap

geometrie gevel

lengte 5,00 m

dakhelling 45 °

oppervlakte 12,50 m²

belasting

$q_{p(z)}$ 0,77 kN/m

$C_{pe}(\text{druk})$ 0,80 (-)

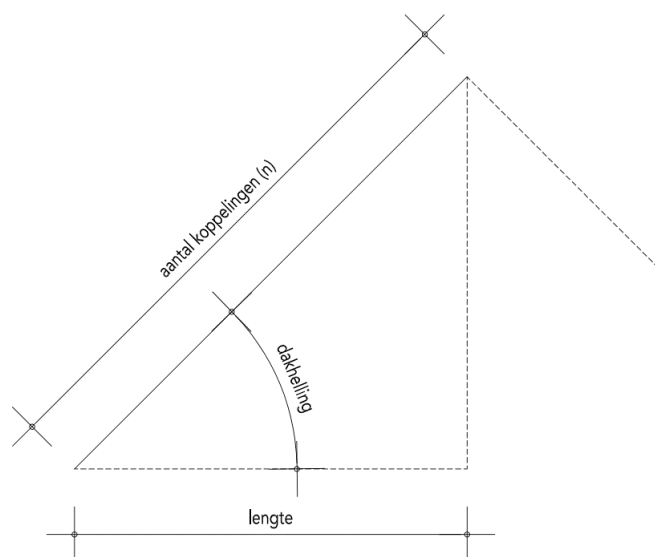
$C_{pi}(\text{onderdruk})$ 0,30 (-)

$C_{pe}(\text{overdruk})$ 0,20 (-)

$F_{ed, \text{binnenwand}}$ 1,95 kN

$F_{ed, \text{gevel}}$ 7,15 kN

koppeling binnenwand



F_{Rd} 0,70 kN

n 3 (-)

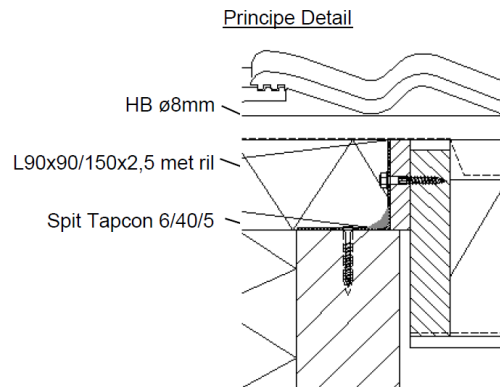
u.c. **0,93 (-)**

koppeling gevel

F_{Rd} 0,70 kN

n 11 (-)

u.c. **0,93 (-)**



4.5.2 RIJWONING KAVEL 19-24, 25-30 , 31-37 EN 38-41

Koppeling topgevel aan scharnierkap

geometrie gevel

lengte 3,95 m

dakhelling 45 °

oppervlakte 7,80 m²

belasting

$q_{p(z)}$ 0,77 kN/m

$C_{pe(druk)}$ 0,80 (-)

$C_{pi(onderdruk)}$ 0,30 (-)

$C_{pe(overdruk)}$ 0,20 (-)

$F_{ed, binnenwand}$ 1,22 kN

$F_{ed, gevel}$ 4,46 kN

koppeling binnenwand

F_{Rd} 0,70 kN

n 2 (-)

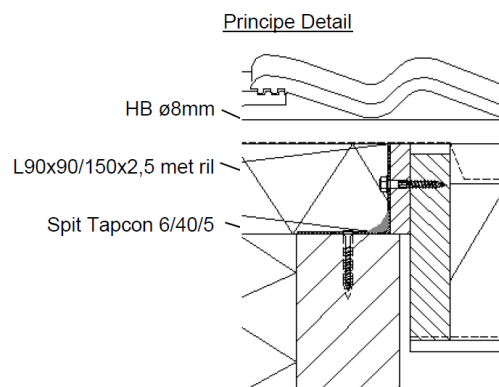
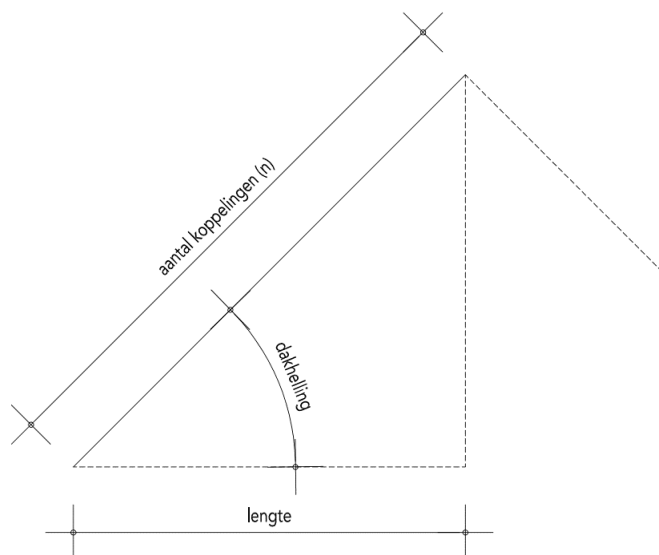
u.c. **0,87 (-)**

koppeling gevel

F_{Rd} 0,70 kN

n 7 (-)

u.c. **0,91 (-)**



5 PLAT DAK VLOER

5.1 ALGEMEEN

Plat dak vloer uitvoeren als breedplaatvloer.
Vloer volgens berekening en tekening leverancier / fabrikant.
Berekeningen vloer ter controle aan ons bureau.
Boven muuropeningen versterkte strook in vloer opnemen.

5.2 NOODAFVOEREN

5.2.1 RIJWONING KAVEL 1-2, 25-26 EN 31-37

berekening noodafvoeren volgens NEN-EN 1991-1-3 NB

Algemene uitgangspunten

ref. periode = 50 jaar
 $i_r = 0,0500 \cdot 10^{-3} \text{ m/s}$

Af te voeren dakvlak

| | | | |
|---------------|--------------------------|-----------|-------|
| lengte = | 5,0 m | lengte = | 0,0 m |
| breedte = | 10,0 m | breedte = | 0,0 m |
| oppervlakte = | 50,0 m ² | | |
| $Q_h =$ | 0,0025 m ³ /s | | |

Noodafvoeren

| | | | |
|---------------------------------|---------|--------------------|--------------------------|
| h boven dakbedekking $h_{nd} =$ | 40 mm | $d_{hw,max} =$ | 100 mm |
| aantal afvoeren $n =$ | 1 stuks | per afvoer $Q_h =$ | 0,0025 m ³ /s |
| breedte afvoer $b =$ | 280 mm | $d_{nd} =$ | 30 mm |
| benodigde hoogte afvoer $h =$ | 60 mm | $d_{hw} =$ | 70 mm |

Akkoord

5.2.2 PATIOWONINGEN PLAT DAK

berekening noodafvoeren volgens NEN-EN 1991-1-3 NB

Algemene uitgangspunten

ref. periode = 50 jaar
 $i_r = 0,0500 \cdot 10^{-3} \text{ m/s}$

Af te voeren dakvlak

| | | | |
|---------------|--------------------------|-----------|-------|
| lengte = | 5,9 m | lengte = | 0,0 m |
| breedte = | 21,4 m | breedte = | 0,0 m |
| oppervlakte = | 127,1 m ² | | |
| $Q_h =$ | 0,0064 m ³ /s | | |

Noodafvoeren

| | | | |
|---------------------------------|---------|--------------------|--------------------------|
| h boven dakbedekking $h_{nd} =$ | 40 mm | $d_{hw,max} =$ | 100 mm |
| aantal afvoeren $n =$ | 2 stuks | per afvoer $Q_h =$ | 0,0032 m ³ /s |
| breedte afvoer $b =$ | 350 mm | $d_{nd} =$ | 30 mm |
| benodigde hoogte afvoer $h =$ | 60 mm | $d_{hw} =$ | 70 mm |

Akkoord

5.2.3 PATIOWONINGEN + VERDIEPING

berekening noodafvoeren volgens NEN-EN 1991-1-3 NB

Algemene uitgangspunten

| | | | |
|---------------------------------|------------------------------------|--------------------|--------------------------|
| ref. periode = | 50 jaar | | |
| $i_r =$ | $0,0500 \cdot 10^{-3} \text{ m/s}$ | | |
| Af te voeren dakvlak | | | |
| lengte = | 4,1 m | lengte = | 0,0 m |
| breedte = | 21,4 m | breedte = | 0,0 m |
| oppervlakte = | 88,2 m ² | | |
| $Q_h =$ | 0,0044 m ³ /s | | |
| Noodafvoeren | | | |
| h boven dakbedekking $h_{nd} =$ | 40 mm | $d_{hw,max} =$ | 100 mm |
| aantal afvoeren $n =$ | 2 stuks | per afvoer $Q_h =$ | 0,0022 m ³ /s |
| breedte afvoer $b =$ | 250 mm | $d_{nd} =$ | 30 mm |
| benodigde hoogte afvoer $h =$ | 60 mm | $d_{hw} =$ | 70 mm |
| | | Akkoord | |

5.3 VLOERSTROOK

5.3.1 RIJWONING KAVEL 1-2, 17-18

AFB. GEOMETRIE



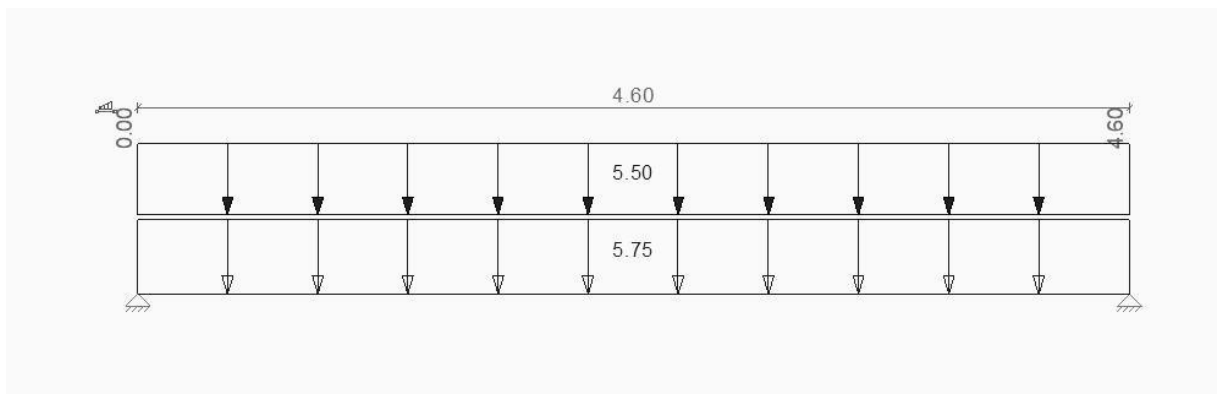
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Materiaal | E-Modulus | Uitzettingcoëff | Gewicht |
|----------------|-------------|------|------------------|-----------|------------|-----------------|---------|
| 0,00 - L(4,60) | R1000x230 | 0 | 1.0139e-03 | C20/25 | 3.0000e+07 | 10.0000e-06 | 5.75 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | L(4,60) | Vast | Vrij |

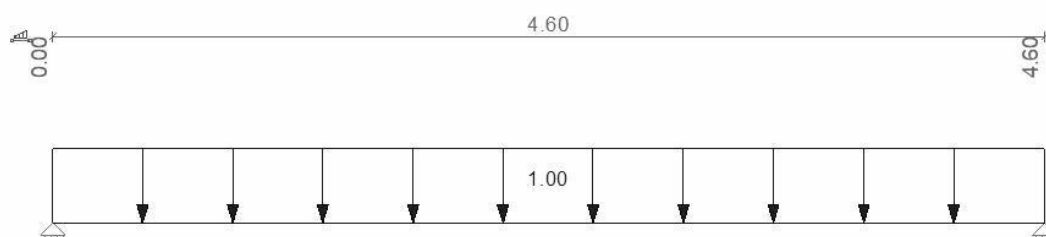
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------------------|-------------|-------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 4,60(L) | Z S1 |
| q | 5,50 | 5,50 | 0,00 | 4,60(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 51,75 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|-------------|------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 1,00 | 1,00 | 0,00 | 4,60(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G. OPLEGREACTIES

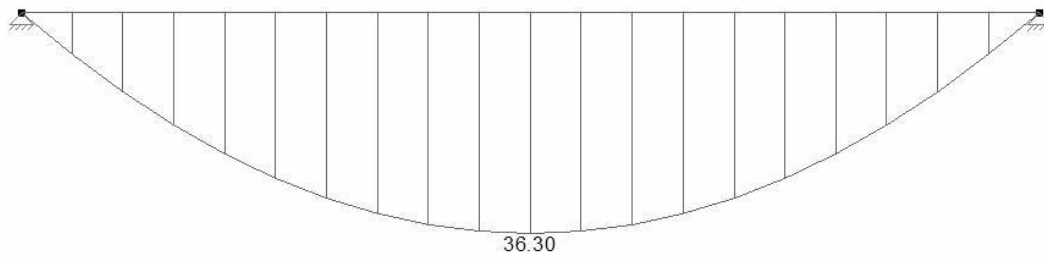
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|---------|--------------|---------|------|------|--------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -25.88 | 0.00 |
| B.G.1 | O2 | 4.60 | Vast | Vrij | -25.88 | 0.00 |
| | Som Reacties | | | | -51.75 | |
| | Som Lasten | | | | 51.75 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | -2.30 | 0.00 |
| B.G.2.1 | O2 | 4.60 | Vast | Vrij | -2.30 | 0.00 |
| | Som Reacties | | | | -4.60 | |
| | Som Lasten | | | | 4.60 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 |
|---------|---------------------------------------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | - |

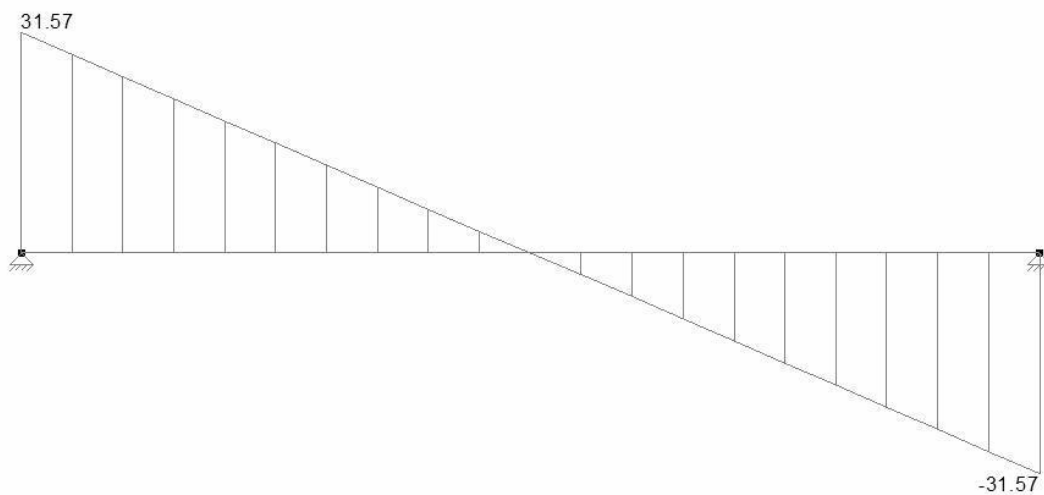
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My B.C. | Z | Mymax |
|-------------------------|-------|--------|--------|---------|---|-------|
| O1 | S1 | Fu.C.2 | -31.57 | 0.00 | | |
| O2 | S1 | Fu.C.2 | -31.57 | 0.00 | | |
| Globale extreme waarden | | | | | | |
| O2 | S1 | Fu.C.2 | -31.57 | 0,00 | | |

5.3.2 RIJWONING KAVEL 25-26 EN 31-37

AFB. GEOMETRIE



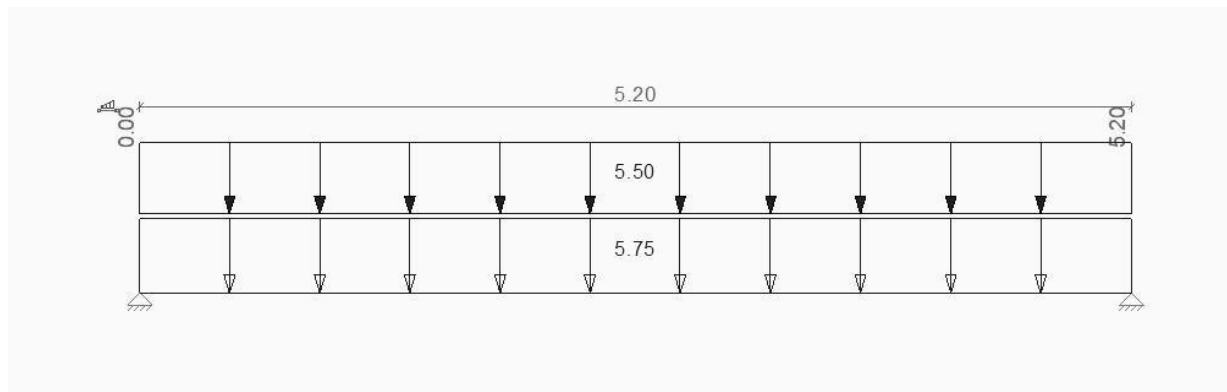
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Material | E-Modulus | Uitzettingcoëff | Gewicht |
|----------------|-------------|------|------------------|----------|------------|-----------------|---------|
| 0,00 - L(5,20) | R1000x230 | 0 | 1.0139e-03 | C20/25 | 3.0000e+07 | 10.0000e-06 | 5.75 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | L(5,20) | Vast | Vrij |

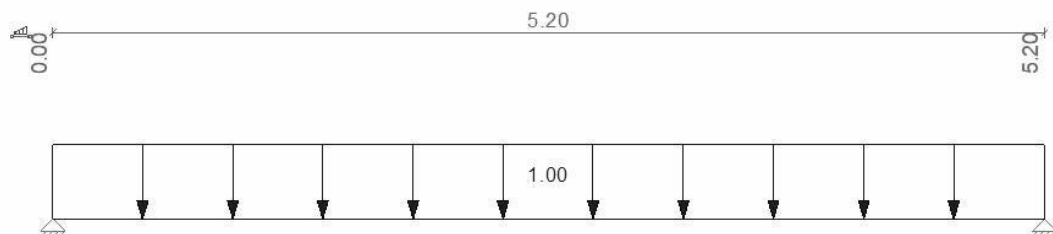
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------------------|-------------|-------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 5,20(L) | Z S1 |
| q | 5,50 | 5,50 | 0,00 | 5,20(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 58,50 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------|-------------|------------|--------------|-------------|-------------------------|
|------|-------------|------------|--------------|-------------|-------------------------|

B.G.2: Verdeelde veranderlijke belasting (Generatief)

q 1,00 1,00 0,00 5,20(L) Z S1
 Som lasten X: 0,00 kN Z: 0,00 kN

B.G. OPLEGREACTIES

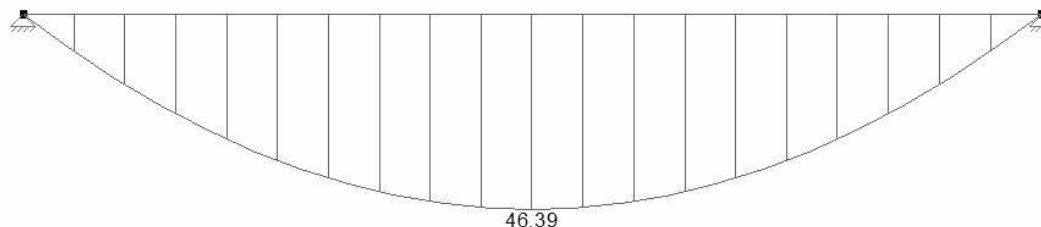
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|--------------|-----------|---------|------|------|---------------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -29.25 | 0.00 |
| B.G.1 | O2 | 5.20 | Vast | Vrij | -29.25 | 0.00 |
| Som Reacties | | | | | -58.50 | |
| Som Lasten | | | | | 58.50 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | -2.60 | 0.00 |
| B.G.2.1 | O2 | 5.20 | Vast | Vrij | -2.60 | 0.00 |
| Som Reacties | | | | | -5.20 | |
| Som Lasten | | | | | 5.20 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 |
|---------|---------------------------------------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | - |

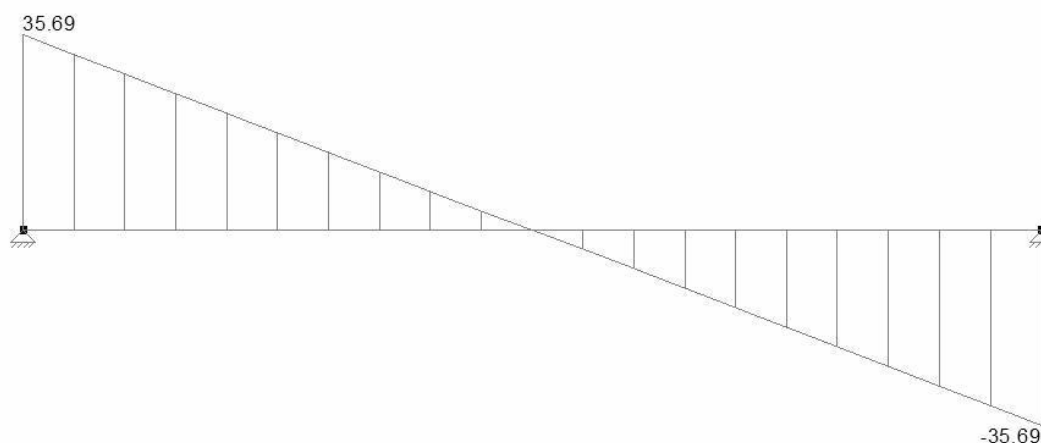
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My B.C. | Z | Mymax |
|-------------------------|-------|--------|---------------|---------|---|-------|
| O1 | S1 | Fu.C.2 | -35.69 | 0.00 | | |
| O2 | S1 | Fu.C.2 | -35.69 | 0.00 | | |
| Globale extreme waarden | | | | | | |
| O2 | S1 | Fu.C.2 | -35.69 | 0,00 | | |

5.3.3 PATIOWONING PLAT DAK

AFB. GEOMETRIE



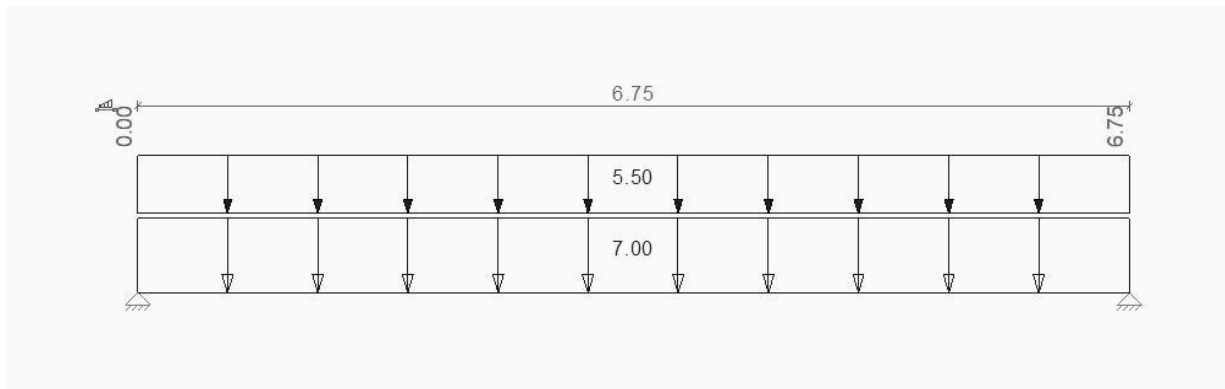
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Materiaal | E-Modulus | Uitzettingcoëff | Gewicht |
|----------------|-------------|------|------------------|-----------|------------|-----------------|---------|
| 0,00 - L(6,75) | R1000x280 | 0 | 1.8293e-03 | C30/37 | 3.3000e+07 | 10.0000e-06 | 7.00 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | L(6,75) | Vast | Vrij |

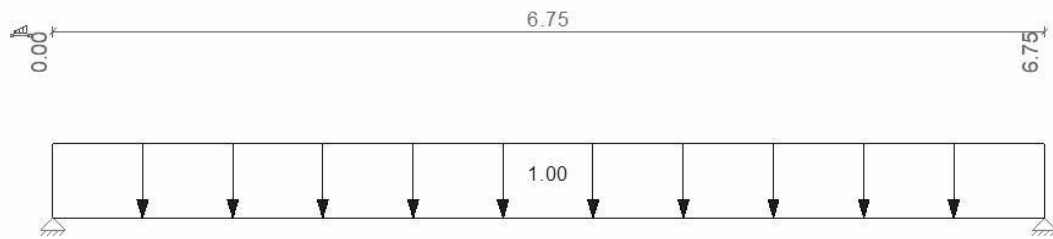
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting | Staf of knoop |
|------------------|-------------|------------|--------------|-------------|----------|---------------|
| B.G.1: Permanent | | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 6,75(L) | Z | S1 |
| q | 5,50 | 5,50 | 0,00 | 6,75(L) | Z | S1 |
| Som lasten | X:0,00 | kN | Z: 84,38 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|-------------|------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 1,00 | 1,00 | 0,00 | 6,75(L) | Z S1 |
| Som lasten | X: 0,00 | | kN Z: 0,00 | kN | |

B.G. OPLEGREACTIES

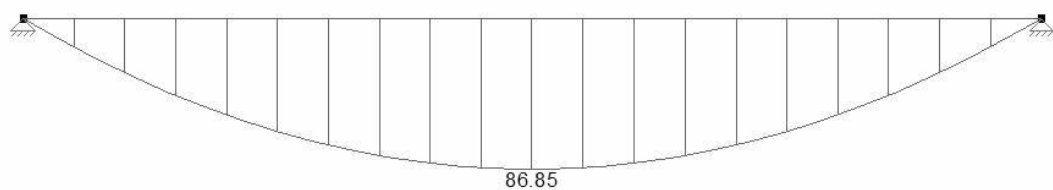
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|---------|--------------|---------|------|------|---------------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -42.19 | 0.00 |
| B.G.1 | O2 | 6.75 | Vast | Vrij | -42.19 | 0.00 |
| | Som Reacties | | | | -84.38 | |
| | Som Lasten | | | | 84.38 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | -3.38 | 0.00 |
| B.G.2.1 | O2 | 6.75 | Vast | Vrij | -3.38 | 0.00 |
| | Som Reacties | | | | -6.75 | |
| | Som Lasten | | | | 6.75 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 |
|---------|---------------------------------------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | - |

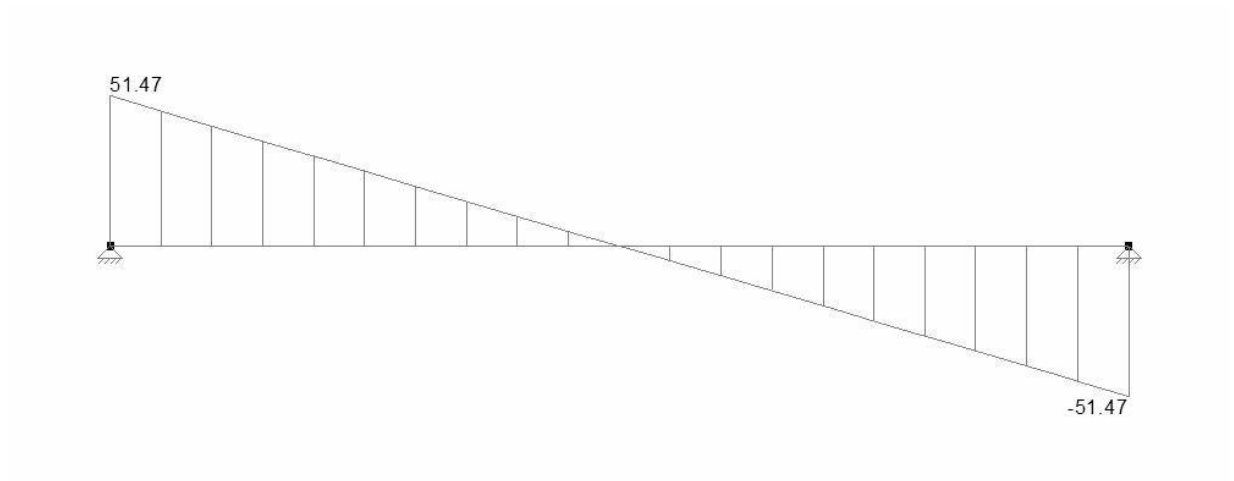
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My B.C. | Z | Mymax |
|--------------------------------|-------|--------|--------|---------|---|-------|
| O1 | S1 | Fu.C.2 | -51.47 | 0.00 | | |
| O2 | S1 | Fu.C.2 | -51.47 | 0.00 | | |
| Globale extreme waarden | | | | | | |
| O2 | S1 | Fu.C.2 | -51.47 | 0,00 | | |

6 ZOLDERVLOER

6.1 ALGEMEEN

Zoldervloer uitvoeren als breedplaatvloer.
Vloer volgens berekening en tekening leverancier / fabrikant.
Berekeningen vloer ter controle aan ons bureau.
Boven muuropeningen versterkte strook in vloer opnemen.

6.2 LATEIEN

Lateien aan de binnenzijde opvangen in de vloer, middels versterkte strook, volgens opgave leverancier vloer. Eventueel metselwerk opvangen middels stalon- of betonlatei.

Lateien aan de buitenzijde opvangen middels :

bij muuropeningen < 1500mm een \angle 100x100x10 toepassen,
of rollaag + 3 lagen murfor.

bij muuropeningen < 2500mm een \angle 150x100x10 toepassen.

bij muuropeningen < 3000mm een \angle 200x100x10 toepassen.
tenzij anders aangegeven.

6.3 VLOERSTROOK

6.3.1 RIJWONING KAVEL 1-18

AFB. GEOMETRIE



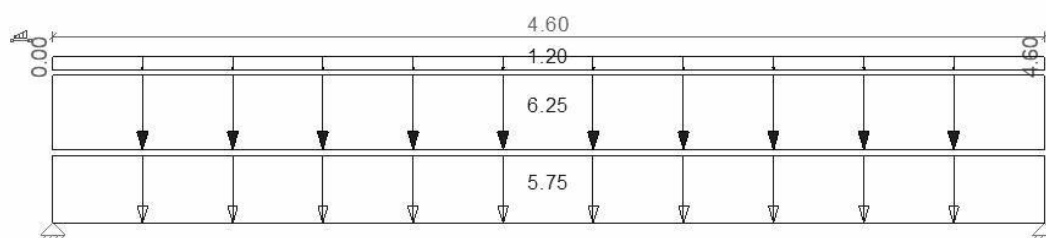
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Materiaal | E-Modulus | Uitzettingcoëff | Gewicht |
|---------|---------------------|------|------------------|-----------|------------|-----------------|---------|
| 0,00 | - L(4,60) R1000x230 | 0 | 1.0139e-03 | C20/25 | 3.0000e+07 | 10.0000e-06 | 5.75 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | L(4,60) | Vast | Vrij |

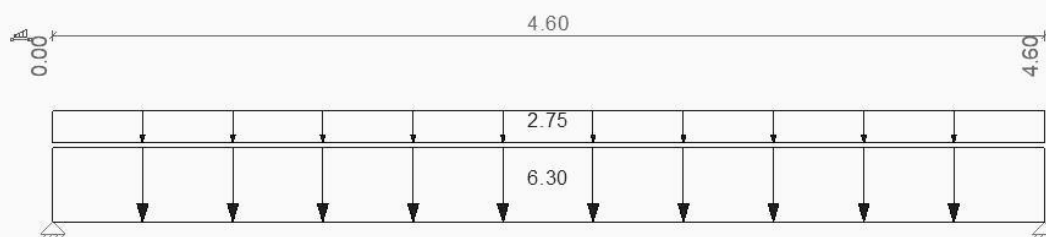
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------------|----------------|--------------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 4,60(L) | Z S1 |
| q | 1,20 | 1,20 | 0,00 | 4,60(L) | Z S1 |
| q | 6,25 | 6,25 | 0,00 | 4,60(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 60,72 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 2,75 | 2,75 | 0,00 | 4,60(L) | Z S1 |
| q | 6,30 | 6,30 | 0,00 | 4,60(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G. OPLEGREACTIES

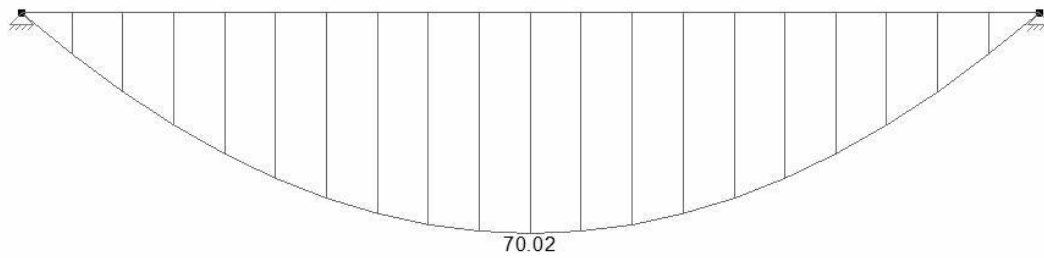
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|---------|---------------------|---------|------|------|---------------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -30.36 | 0.00 |
| B.G.1 | O2 | 4.60 | Vast | Vrij | -30.36 | 0.00 |
| | Som Reacties | | | | -60.72 | |
| | Som Lasten | | | | 60.72 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | -20.82 | 0.00 |
| B.G.2.1 | O2 | 4.60 | Vast | Vrij | -20.82 | 0.00 |
| | Som Reacties | | | | -41.63 | |
| | Som Lasten | | | | 41.63 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 |
|---------|---------------------------------------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 |

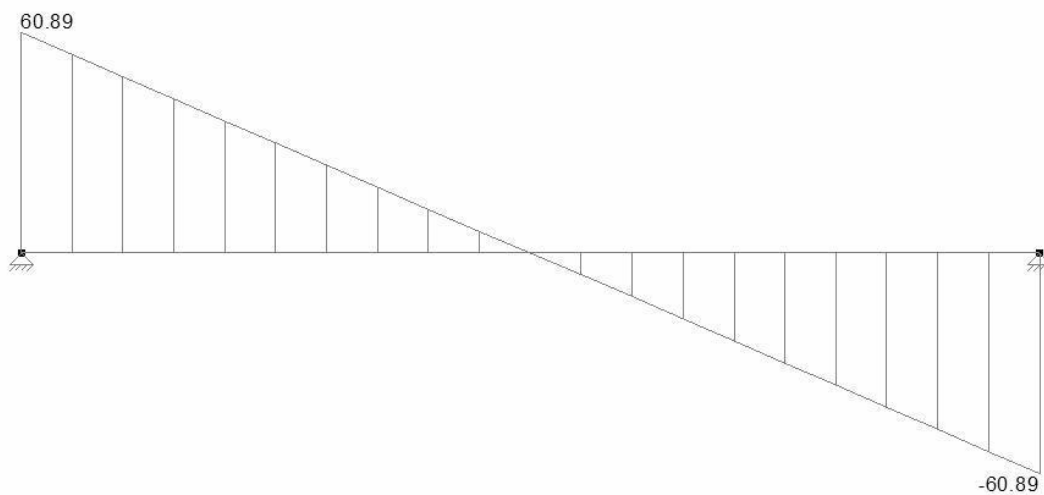
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My B.C. | Z | Mymax |
|--------------------------------|-------|--------|--------|---------|---|-------|
| O1 | S1 | Fu.C.1 | -60.89 | 0.00 | | |
| O2 | S1 | Fu.C.1 | -60.89 | 0.00 | | |
| Globale extreme waarden | | | | | | |
| O2 | S1 | Fu.C.1 | -60.89 | 0,00 | | |

6.3.2 RIJWONING KAVEL 19-24, 25-30 , 31-37 EN 38-41

AFB. GEOMETRIE



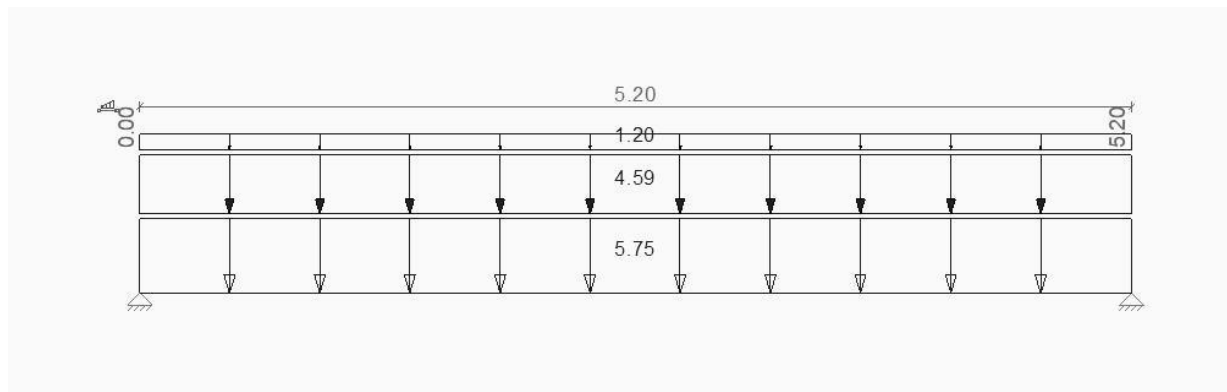
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Material | E-Modulus | Uitzettingcoëff | Gewicht |
|----------------|-------------|------|------------------|----------|------------|-----------------|---------|
| 0,00 - L(5,20) | R1000x230 | 0 | 1.0139e-03 | C20/25 | 3.0000e+07 | 10.0000e-06 | 5.75 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | L(5,20) | Vast | Vrij |

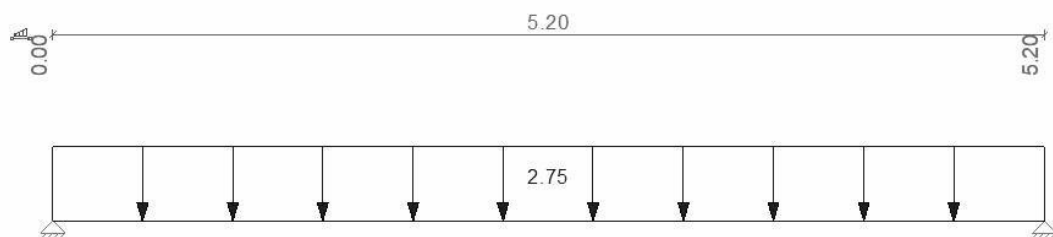
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------------------|-------------|-------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 5,20(L) | Z S1 |
| q | 1,20 | 1,20 | 0,00 | 5,20(L) | Z S1 |
| q | 4,59 | 4,59 | 0,00 | 5,20(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 60,01 | kN | | |

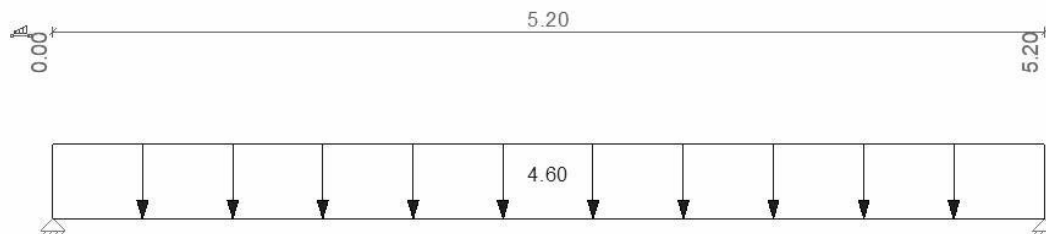
B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|-------------|------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 2,75 | 2,75 | 0,00 | 5,20(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G.3: WINDBELASTING



B.G.3: WINDBELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|----------------------|-------------|-------------|--------------|-------------|-------------------------|
| B.G.3: Windbelasting | | | | | |
| q | 4,60 | 4,60 | 0,00 | 5,20(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 23,92 | kN | | |

B.G. OPLEGREACTIES

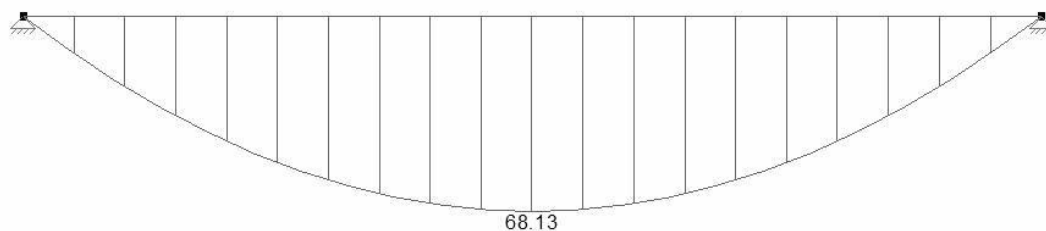
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|---------|--------------|---------|------|------|--------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -30.00 | 0.00 |
| B.G.1 | O2 | 5.20 | Vast | Vrij | -30.00 | 0.00 |
| | Som Reacties | | | | -60.01 | |
| | Som Lasten | | | | 60.01 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | -7.15 | 0.00 |
| B.G.2.1 | O2 | 5.20 | Vast | Vrij | -7.15 | 0.00 |
| | Som Reacties | | | | -14.30 | |
| | Som Lasten | | | | 14.30 | |
| B.G.3 | O1 | 0.00 | Vast | Vrij | -11.96 | 0.00 |
| B.G.3 | O2 | 5.20 | Vast | Vrij | -11.96 | 0.00 |
| | Som Reacties | | | | -23.92 | |
| | Som Lasten | | | | 23.92 | |

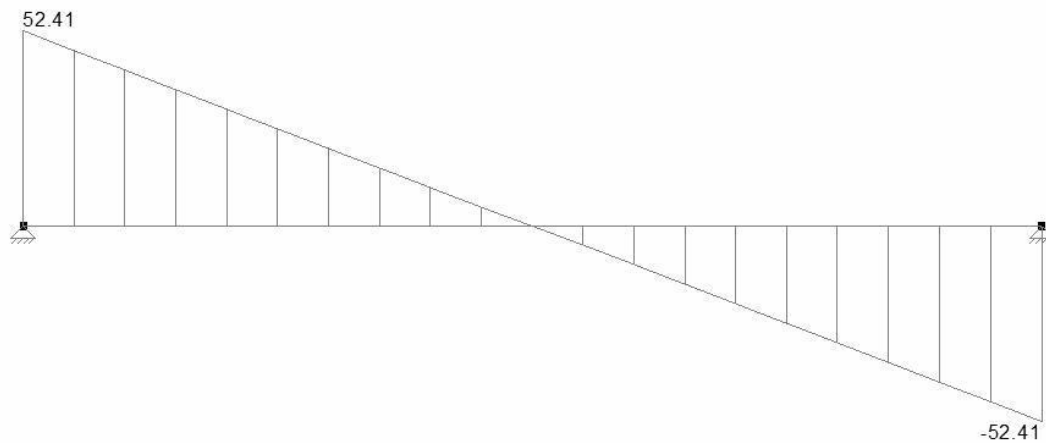
FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 | Fu.C.3 |
|---------|---------------------------------------|--------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - |
| B.G.3 | Windbelasting | - | 1.35 | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 | 0.54 |

AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties





FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My | B.C. | Z | Mymax |
|--------------------------------|-------|--------|--------|------|------|---|-------|
| O1 | S1 | Fu.C.2 | -52.41 | 0.00 | | | |
| O2 | S1 | Fu.C.2 | -52.41 | 0.00 | | | |
| Globale extreme waarden | | | | | | | |
| O2 | S1 | Fu.C.2 | -52.41 | 0,00 | | | |

7 VERDIEPINGSVLOER

7.1 ALGEMEEN

Verdiepingsvloer uitvoeren als breedplaatvloer.
Vloer volgens berekening en tekening leverancier / fabrikant.
Berekeningen vloer ter controle aan ons bureau.
Boven muuropeningen versterkte strook in vloer opnemen.

7.2 VLOERSTROOK

7.2.1 RIJWONING KAVEL 1-18

$$F_{gk} = 0.5 * 6.95 \text{ kN/m}^2 * 3.65 \text{ m} * 0.5 * 3.2 \text{ m} = 20.3 \text{ kN}$$

$$F_{qk} = 0.5 * 2.75 \text{ kN/m}^2 * 3.65 \text{ m} * 0.5 * 3.2 \text{ m} = 8.03 \text{ kN}$$

AFB. GEOMETRIE



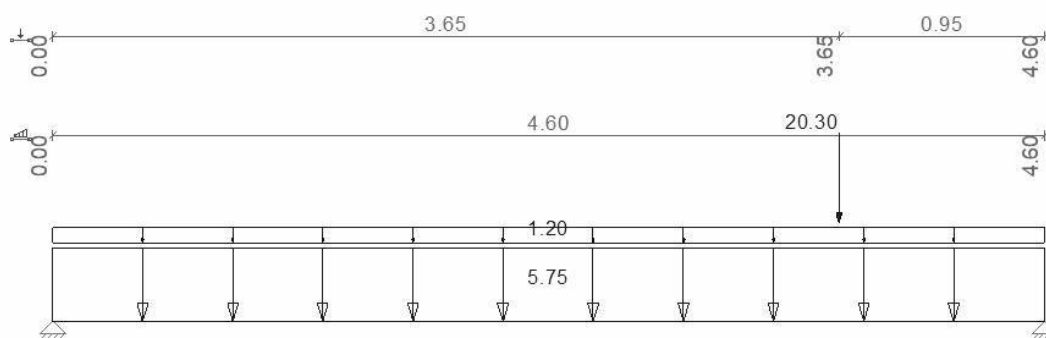
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Materiaal | E-Modulus | Uitzettingcoëff | Gewicht |
|----------------|-------------|------|------------------|-----------|------------|-----------------|---------|
| 0,00 - L(4,60) | R1000x230 | 0 | 1.0139e-03 | C20/25 | 3.0000e+07 | 10.0000e-06 | 5.75 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | L(4,60) | Vast | Vrij |

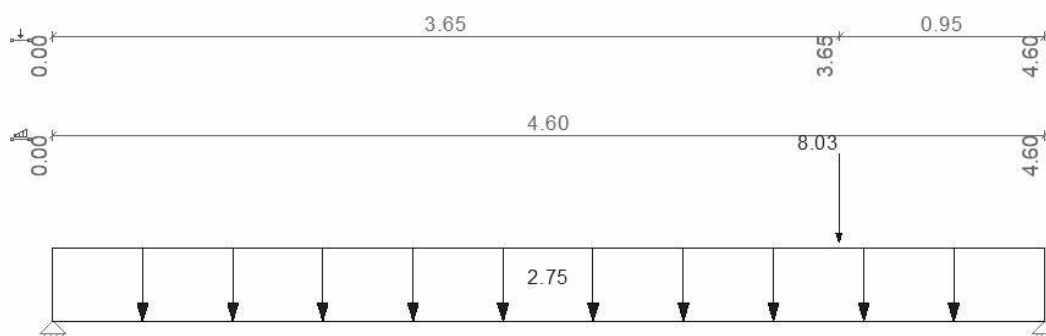
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------------|----------------|--------------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 4,60(L) | Z S1 |
| q | 1,20 | 1,20 | 0,00 | 4,60(L) | Z S1 |
| F | 20,30 | | 3,65 | | Z S1 |
| Som lasten | X: 0,00 | kN Z: 52,27 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 2,75 | 2,75 | 0,00 | 4,60(L) | Z S1 |
| F | 8,03 | | 3,65 | | Z S1 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G. OPLEGREACTIES

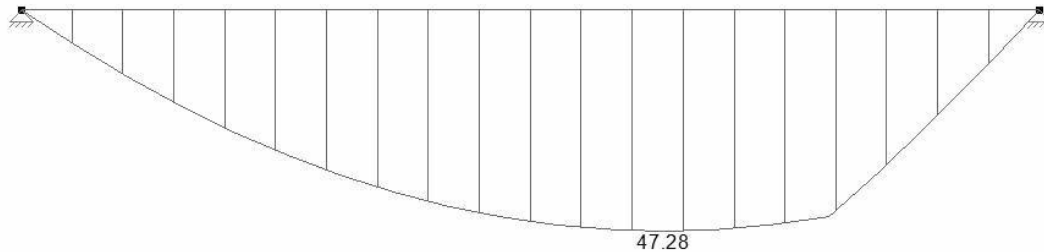
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|---------|---------------------|---------|------|------|---------------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -20.18 | 0.00 |
| B.G.1 | O2 | 4.60 | Vast | Vrij | -32.09 | 0.00 |
| | Som Reacties | | | | -52.27 | |
| | Som Lasten | | | | 52.27 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | -7.98 | 0.00 |
| B.G.2.1 | O2 | 4.60 | Vast | Vrij | -12.70 | 0.00 |
| | Som Reacties | | | | -20.68 | |
| | Som Lasten | | | | 20.68 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 |
|---------|---------------------------------------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 |

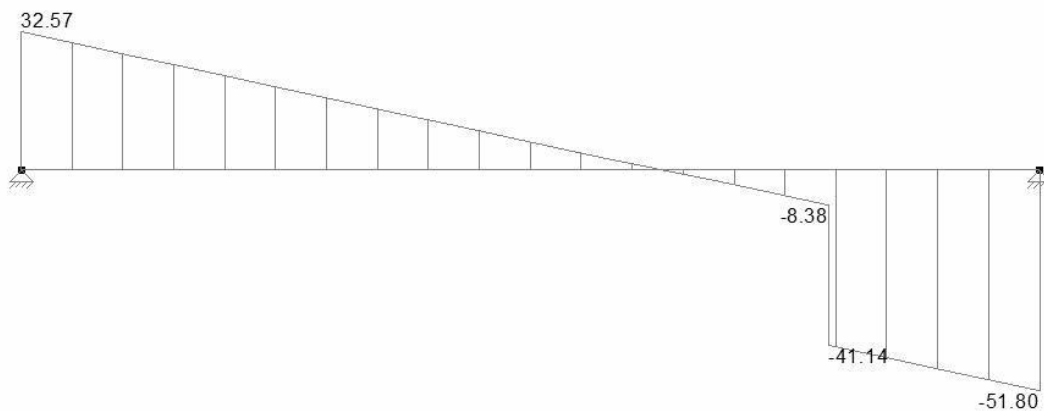
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My B.C. | Z | Mymax |
|--------------------------------|-------|--------|--------|---------|---|-------|
| O1 | S1 | Fu.C.1 | -32.57 | 0.00 | | |
| O2 | S1 | Fu.C.1 | -51.80 | 0.00 | | |
| Globale extreme waarden | | | | | | |
| O2 | S1 | Fu.C.1 | -51.80 | 0,00 | | |

7.2.2 RIJWONING KAVEL 19-24, 25-30 , 31-37 EN 38-41

$$F_{gk} = 0.5 * 6.95 \text{ kN/m}^2 * 4.10 \text{ m} * 0.5 * 3.0 \text{ m} = 21.4 \text{ kN}$$

$$F_{qk} = 0.5 * 2.75 \text{ kN/m}^2 * 4.10 \text{ m} * 0.5 * 3.0 \text{ m} = 8.46 \text{ kN}$$

AFB. GEOMETRIE



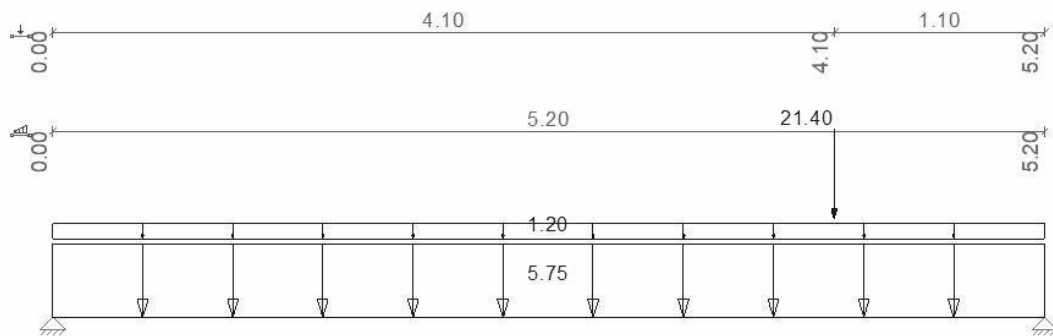
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Material | E-Modulus | Uitzettingcoëff | Gewicht |
|----------------|-------------|------|------------------|----------|------------|-----------------|---------|
| 0,00 - L(5,20) | R1000x230 | 0 | 1.0139e-03 | C20/25 | 3.0000e+07 | 10.0000e-06 | 5.75 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | L(5,20) | Vast | Vrij |

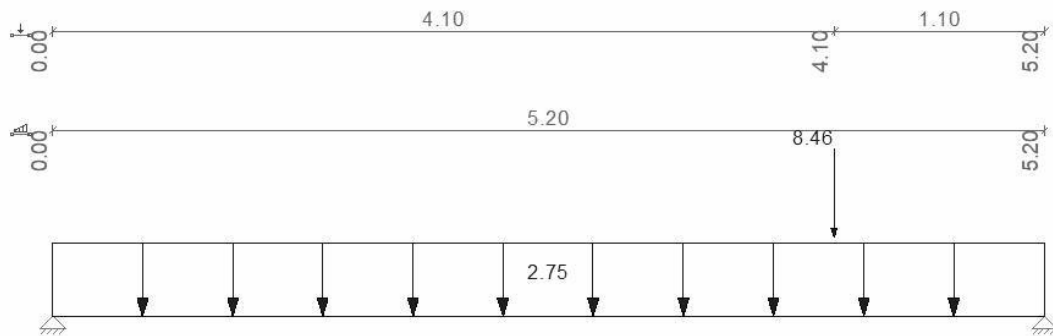
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------------------|-------------|------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 5,20(L) | Z S1 |
| q | 1,20 | 1,20 | 0,00 | 5,20(L) | Z S1 |
| F | 21,40 | | 4,10 | | Z S1 |
| Som lasten | X: 0,00 | kN | Z: 57,54 | kN | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 2,75 | 2,75 | 0,00 | 5,20(L) | Z S1 |
| F | 8,46 | | 4,10 | | Z S1 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G. OPLEGREACTIES

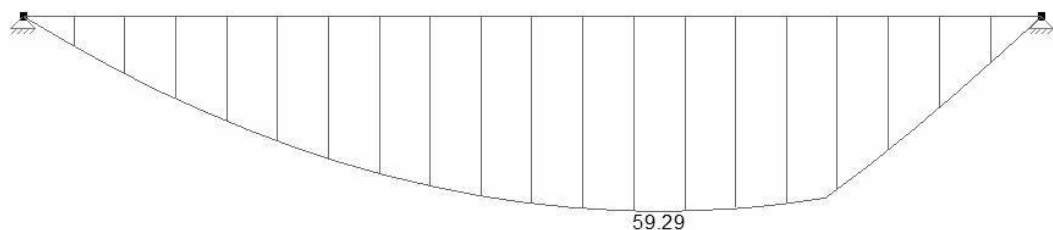
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|---------|---------------------|---------|------|------|---------------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -22.60 | 0.00 |
| B.G.1 | O2 | 5.20 | Vast | Vrij | -34.94 | 0.00 |
| | Som Reacties | | | | -57.54 | |
| | Som Lasten | | | | 57.54 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | -8.94 | 0.00 |
| B.G.2.1 | O2 | 5.20 | Vast | Vrij | -13.82 | 0.00 |
| | Som Reacties | | | | -22.76 | |
| | Som Lasten | | | | 22.76 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 |
|---------|---------------------------------------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 |

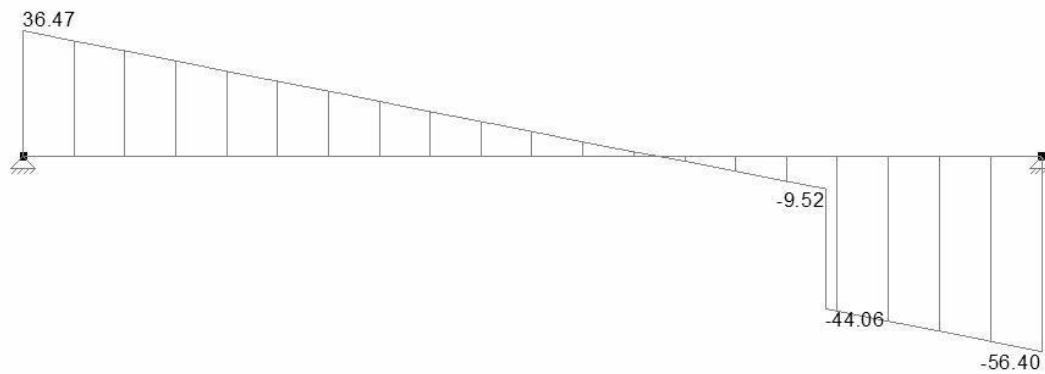
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties

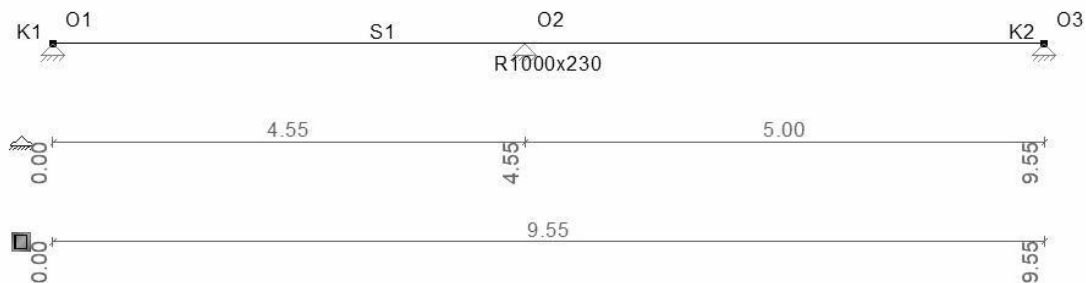


FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My B.C. | Z | Mymax |
|--------------------------------|-------|--------|--------|---------|---|-------|
| O1 | S1 | Fu.C.1 | -36.47 | 0.00 | | |
| O2 | S1 | Fu.C.1 | -56.40 | 0.00 | | |
| Globale extreme waarden | | | | | | |
| O2 | S1 | Fu.C.1 | -56.40 | 0,00 | | |

7.2.3 PATIOWONINGEN

AFB. GEOMETRIE



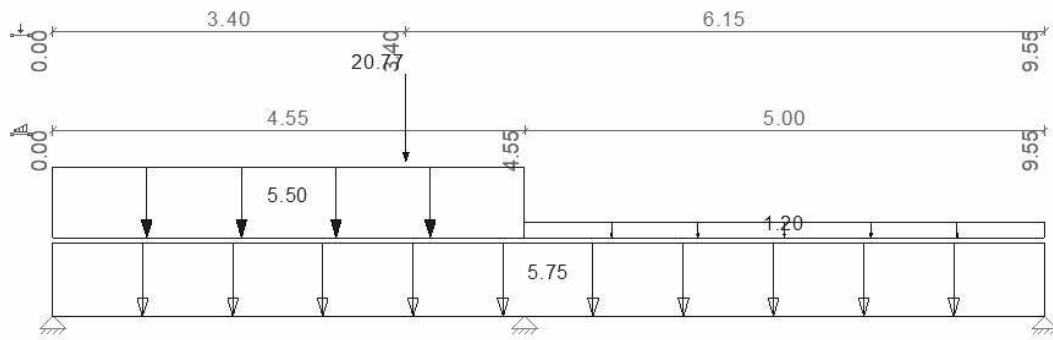
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Materiaal | E-Modulus | Uitzettingcoëff | Gewicht |
|----------------|-------------|------|------------------|-----------|------------|-----------------|---------|
| 0,00 - L(9,55) | R1000x230 | 0 | 1.0139e-03 | C20/25 | 3.0000e+07 | 10.0000e-06 | 5.75 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | 4,55 | Vast | Vrij |
| O3 | L(9,55) | Vast | Vrij |

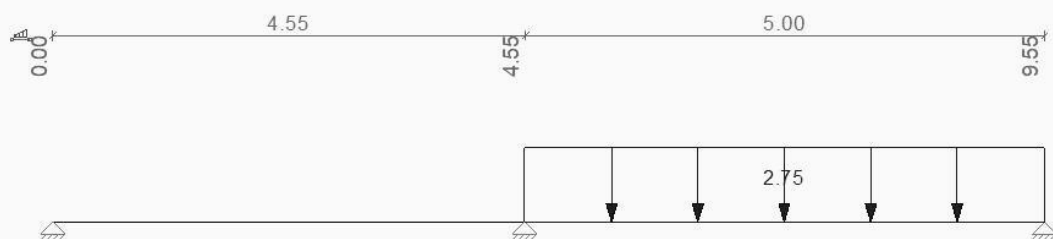
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------------|----------------|---------------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 9,55(L) | Z S1 |
| q | 5,50 | 5,50 | 0,00 | 4,55 | Z S1 |
| q | 1,20 | 1,20 | 4,55 | 9,55(L) | Z S1 |
| F | 20,77 | | 3,40 | | Z S1 |
| Som lasten | X: 0,00 | kN Z: 106,71 | kN | | |

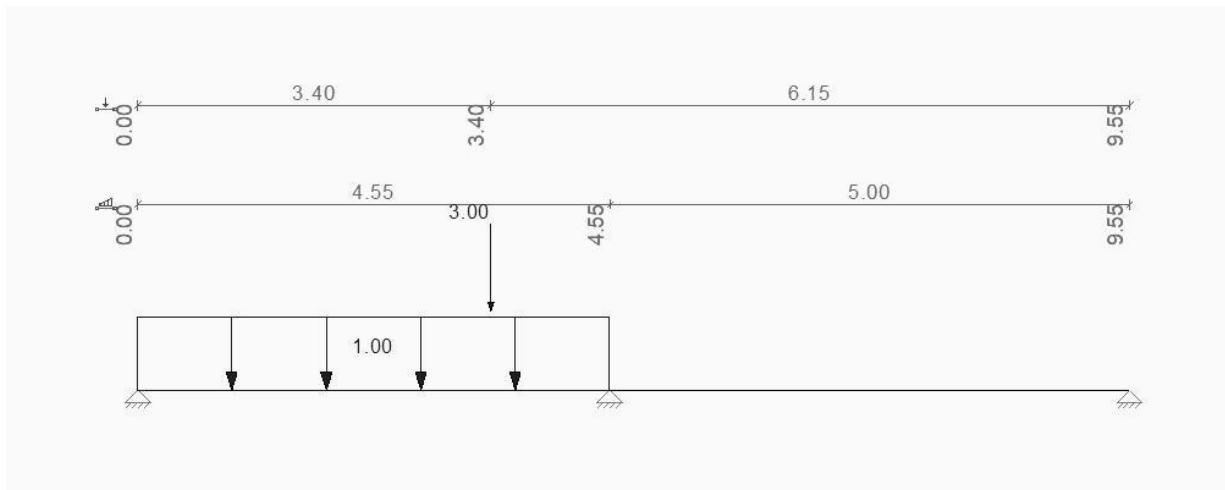
B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 2,75 | 2,75 | 4,55 | 9,55(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G.3: VERDEELDE VERANDERLIJKE BELASTING



B.G.3: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|-------------|------------|--------------|-------------|-------------------------|
| B.G.3: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 1,00 | 1,00 | 0,00 | 4,55 | Z S1 |
| F | 3,00 | | 3,40 | | Z S1 |
| Som lasten | X: 0,00 | | kN Z: 0,00 | | kN |

B.G. OPLEGREACTIES

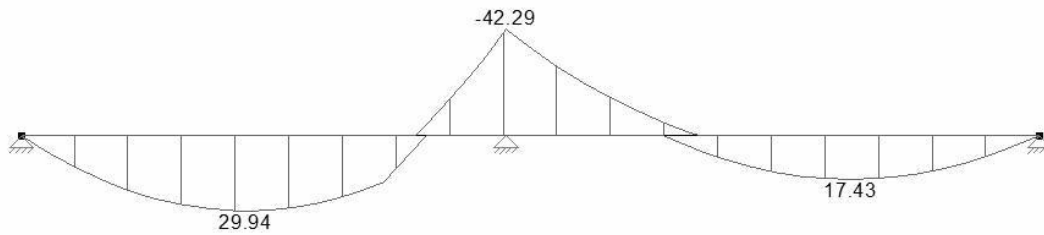
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|---------|--------------|---------|------|------|---------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -23.66 | 0.00 |
| B.G.1 | O2 | 4.55 | Vast | Vrij | -72.20 | 0.00 |
| B.G.1 | O3 | 9.55 | Vast | Vrij | -10.84 | 0.00 |
| | Som Reacties | | | | -106.71 | |
| | Som Lasten | | | | 106.71 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | 0.99 | 0.00 |
| B.G.2.1 | O2 | 4.55 | Vast | Vrij | -8.76 | 0.00 |
| B.G.2.1 | O3 | 9.55 | Vast | Vrij | -5.98 | 0.00 |
| | Som Reacties | | | | -13.75 | |
| | Som Lasten | | | | 13.75 | |
| B.G.3.1 | O1 | 0.00 | Vast | Vrij | -2.53 | 0.00 |
| B.G.3.1 | O2 | 4.55 | Vast | Vrij | -5.48 | 0.00 |
| B.G.3.1 | O3 | 9.55 | Vast | Vrij | 0.46 | 0.00 |
| | Som Reacties | | | | -7.55 | |
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
| | Som Lasten | | | | 7.55 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 | Fu.C.3 |
|---------|---------------------------------------|--------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - |
| B.G.3 | Verdeelde veranderlijke belasting | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (2) | 0.54 | 1.35 | 0.54 |
| B.G.3.1 | Verdeelde veranderlijke belasting (1) | 1.35 | - | - |

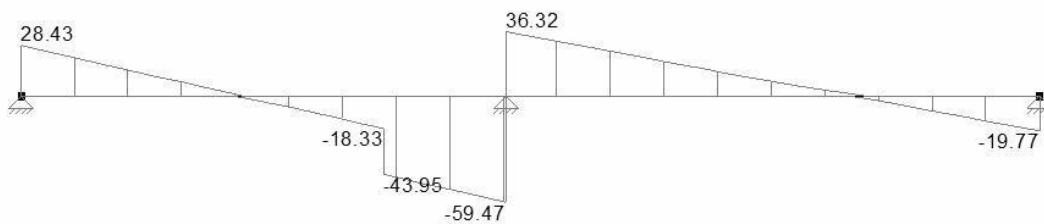
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties

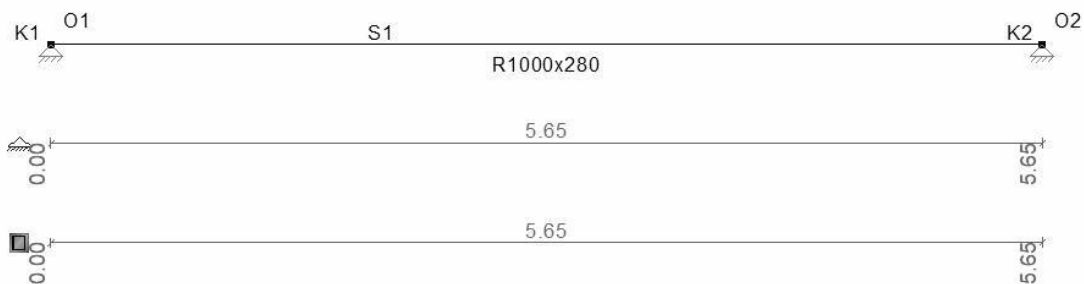


FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My B.C. | Z | Mymax |
|-------------------------|-------|--------|--------|---------|---|-------|
| O1 | S1 | Fu.C.1 | -28.43 | 0.00 | | |
| O2 | S1 | Fu.C.3 | -92.82 | 0.00 | | |
| O3 | S1 | Fu.C.2 | -19.77 | 0.00 | | |
| Globale extreme waarden | | | | | | |
| O2 | S1 | Fu.C.3 | -92.82 | 0,00 | | |

7.2.4 PATIOWONING GROOT

AFB. GEOMETRIE



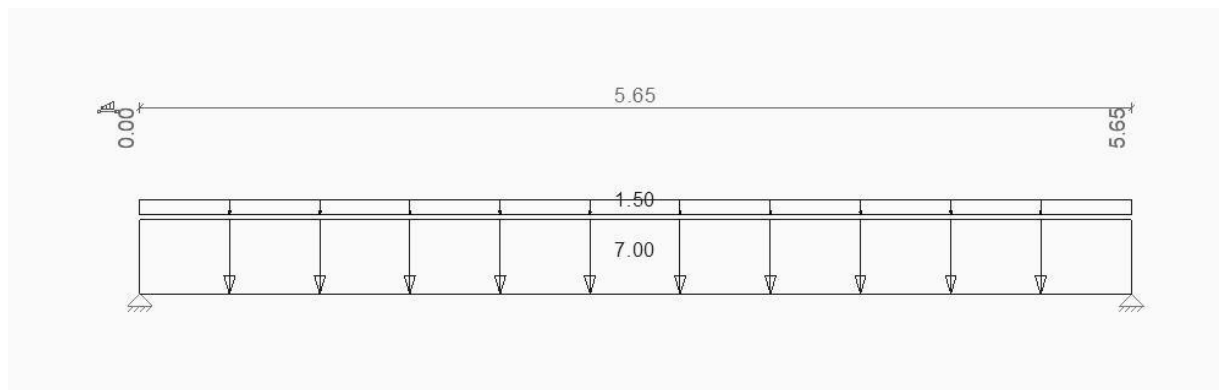
BALKGEOMETRIE

| Positie | Profielnaam | Hoek | Traagheidsmoment | Materiaal | E-Modulus | Uitzettingcoëff | Gewicht |
|----------------|-------------|------|------------------|-----------|------------|-----------------|---------|
| 0,00 - L(5,65) | R1000x280 | 0 | 1.8293e-03 | C30/37 | 3.3000e+07 | 10.0000e-06 | 7.00 |

OPLEGGINGEN

| Oplegging | Positie | Z | Yr |
|-----------|---------|------|------|
| O1 | 0,00 | Vast | Vrij |
| O2 | L(5,65) | Vast | Vrij |

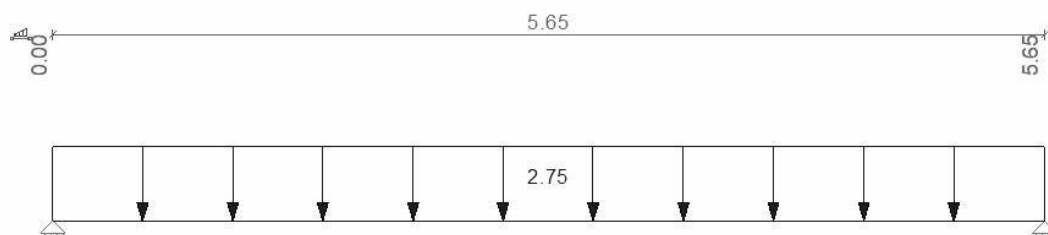
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------------|----------------|--------------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 5,65(L) | Z S1 |
| q | 1,50 | 1,50 | 0,00 | 5,65(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 48,03 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 2,75 | 2,75 | 0,00 | 5,65(L) | Z S1 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G. OPLEGREACTIES

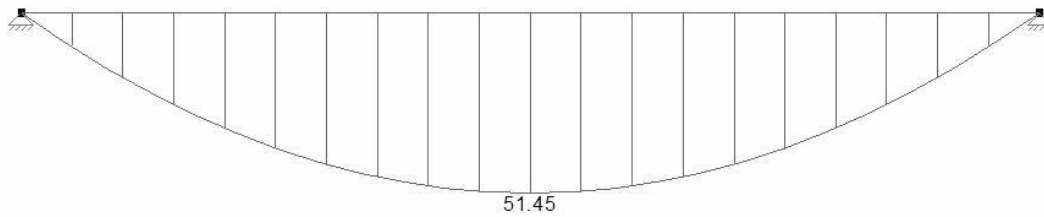
| B.C. | Oplegging | Positie | Z | Yr | Z | My |
|---------|---------------------|---------|------|------|---------------|------|
| B.G.1 | O1 | 0.00 | Vast | Vrij | -24.01 | 0.00 |
| B.G.1 | O2 | 5.65 | Vast | Vrij | -24.01 | 0.00 |
| | Som Reacties | | | | -48.03 | |
| | Som Lasten | | | | 48.03 | |
| B.G.2.1 | O1 | 0.00 | Vast | Vrij | -7.77 | 0.00 |
| B.G.2.1 | O2 | 5.65 | Vast | Vrij | -7.77 | 0.00 |
| | Som Reacties | | | | -15.54 | |
| | Som Lasten | | | | 15.54 | |

FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 |
|---------|---------------------------------------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 |

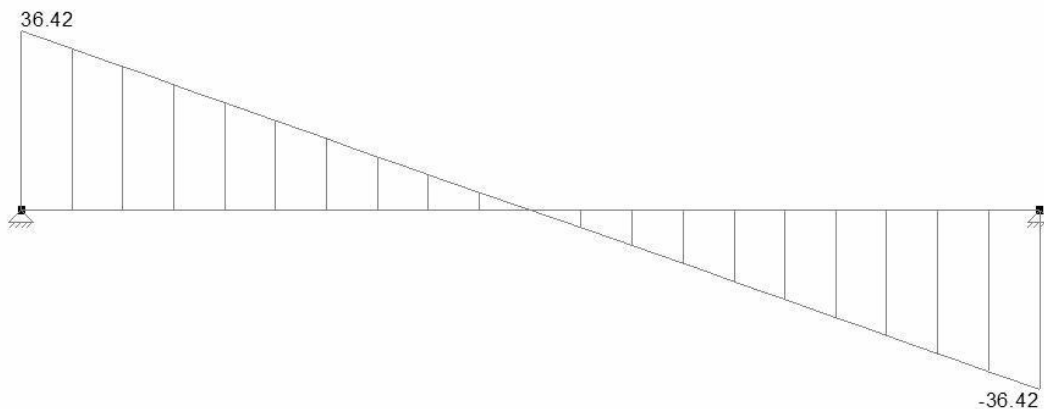
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Oplegging | Knoop | B.C. | Zmax | My B.C. | Z | Mymax |
|--------------------------------|-------|--------|--------|---------|---|-------|
| O1 | S1 | Fu.C.1 | -36.42 | 0.00 | | |
| O2 | S1 | Fu.C.1 | -36.42 | 0.00 | | |
| Globale extreme waarden | | | | | | |
| O2 | S1 | Fu.C.1 | -36.42 | 0,00 | | |

7.3 STALEN LIGGER RIJWONING KAVEL 19-24 EN 38-41 LINKERZIJGEVEL

belasting linkerzijgevel kavel 19-24

| | kap | zolder | verdieping | mw | | | totaal Q |
|-----------------------------|-------------|--------------|--------------|--------------|--|--|--------------|
| Pg [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,40 | | | |
| Pq [kN/m ²] | 0,28 | 2,75 | 2,75 | | | | |
| ψ_0 | 0,00 | 0,40 | 0,40 | 0,00 | | | |
| lengte [m] | 1,00 | 4,10 | 4,10 | 6,80 | | | |
| factor | 1,00 | 0,50 | 0,50 | 1,00 | | | |
| Totaal G_k | 1,09 | 14,25 | 14,25 | 29,92 | | | 59,51 |
| Totaal Q_k | 0,28 | 5,64 | 5,64 | | | | 11,56 |
| Pd (CC1) = | | | | | | | 79,86 |

stalen ligger volgens NEN-EN 1993

uitgangspunten

| | | | |
|-------------------|---------------|------------------------|----------------------|
| referentie per. = | 50 jaar | $\Psi_t =$ | 1,00 |
| gevolgklasse = | CC1 | scheurgevoelige wanden | |
| belasting = | Cat. A: wonen | $\Psi_0 =$ | 0,40 $\Psi_1 =$ 0,50 |

| | | | |
|----------------------|-------------------------|-----------------------------|----------------------------------|
| belastingen | | | |
| $g_{eg} =$ | 0,33 kN/m ¹ | $p_d =$ | 78,95 kN/m ¹ (6.10.a) |
| $g_k =$ | 59,51 kN/m ¹ | $p_d =$ | 80,24 kN/m ¹ (6.10.b) |
| $q_k =$ | 11,56 kN/m ¹ | $p_d =$ | 80,24 kN/m ¹ |
| $l_{max.} =$ | 2550 mm | | |
| staalgegevens | | | |
| profiel keuze = | UNP240 | $W_y =$ | 300,0 cm ³ |
| kwaliteit = | S235 | $I_y =$ | 3600,0 cm ⁴ |
| sterkte | | | |
| $M_d =$ | 65,22 kNm | $1/8 \times p_d \times l^2$ | |
| $V_d =$ | 102,30 kN | $1/2 \times p_d \times l$ | |
| $\sigma_{f,y;d} =$ | 217,4 N/mm ² | | U.C. = 0,93 |
| doorbuiging | | | |
| zeeg = | 0,0mm | | |
| $\delta_{eind} =$ | 5,2mm | 0,004L = 10,2mm | U.C. = 0,51 |
| $\delta_{bij} =$ | 0,8mm | 0,002L = 5,1mm | U.C. = 0,16 |

7.3.1 CONTROLE METSELWERK OPLEGGING

linkerzijgevel kavel 19-24

| | kap | zolder | verdieping | mw | | | totaal Q |
|--------------------------------|-------------|--------------|--------------|--------------|--|--|--------------|
| P_g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,40 | | | |
| P_q [kN/m ²] | 0,28 | 2,75 | 2,75 | | | | |
| ψ_0 | 0,00 | 0,40 | 0,40 | 0,00 | | | |
| lengte [m] | 1,00 | 5,20 | 5,20 | 6,00 | | | |
| factor | 1,00 | 0,50 | 0,50 | 0,80 | | | |
| Totaal G_k | 1,09 | 18,07 | 18,07 | 21,12 | | | 58,35 |
| Totaal Q_k | 0,28 | 7,15 | 7,15 | | | | 14,58 |
| Pd (CC1) = | | | | | | | 82,70 |

$$N'_d = 102.3 + 82.7 = 185.0 \text{ kN}$$

metselwerkcontrole NEN-EN 1996

uitgangspunten

metselwerk = kalkzandsteen CS12

$$f_b = 12,0 \text{ N/mm}^2 \quad K = 0,80 \quad \alpha = 0,85$$

$$f_m = \text{lijm} \text{ N/mm}^2 \quad f_k = 6,61 \text{ N/mm}^2 \quad \beta = 0,00$$

$$\text{gevolgklasse} = \text{CC1} \quad f_d = 4,41 \text{ N/mm}^2 \quad \gamma_M = 1,50$$

geconcentreerde last (art 6.1.3 NEN-EN1996)

$$\text{wandlengte } l = 1000 \text{ mm} \quad \text{oplegl. } a_L = 250 \text{ mm}$$

$$\text{wanddikte } t = 120 \text{ mm} \quad \text{oplegbr. } a_t = 85 \text{ mm} \quad e < 30 \text{ mm}$$

$$\text{wandhoogte } h_c = 2700 \text{ mm} \quad \text{randafst. } a_1 = 0 \text{ mm}$$

$$\text{eff. lengte } l_{eff} = 1000 \text{ mm}$$

$$A_{eff} = 120000 \text{ mm}^2 \quad A_b = 21250 \text{ mm}^2$$

$$\beta = 1,25 \quad A_b / A_{eff} = 0,177 \text{ mm}^2$$

$$N_{Edc} = 103,0 \text{ kN} \quad N_{Rdc} = 117,1 \text{ kN} \quad U.C. = 0,88$$

toets verticale belasting (art 6.1.2 NEN-EN1996)

| | | | |
|-------------------------------|-----------------|-----------------------|-----------------------------|
| beschouwde lengte $l =$ | 1000 mm | vloertype = | betonvloer |
| gesteunde lengte $l_v =$ | 1000 mm | gesteund = | 2-zijdig |
| wanddikte $t =$ | 120 mm | factor = | 1,00 (6.3) |
| wandhoogte $h =$ | 2700 mm | | |
| effectieve hoogte $h_{eff} =$ | 2025 mm | $\rho =$ | 0,75 (5.5.1.2) |
| slankheid $\lambda =$ | 16,88 (5.5.1.4) | slankheid $\lambda <$ | 27,00 (5.5.1.4) U.C. = 0,63 |

halverwege wand

| | | | |
|--------------|-------------|-------------|----------------------|
| $e_{init} =$ | 4,5 mm | $e_{hm} =$ | 0,0 mm |
| $e_{mk} =$ | 6,0 mm | $e_m =$ | 4,5 mm |
| $A_1 =$ | 0,900 (G.2) | $\lambda =$ | 0,638 (G.4) |
| $u =$ | 0,856 (G.3) | $\Phi_m =$ | 0,624 (G.1) |
| $N_{Edc} =$ | 185,0 kN | $N_{Rdc} =$ | 330,2 kN U.C. = 0,56 |

bij constant minimaal eerste orde moment

| | | | |
|---------------------------|-----------------|-----------------------|-----------------------------|
| eff. hoogte $h_{eff,2} =$ | 2700 mm | $\rho =$ | 1,00 (5.5.1.2) |
| slankheid $\lambda =$ | 22,50 (5.5.1.4) | slankheid $\lambda <$ | 27,00 (5.5.1.4) U.C. = 0,83 |
| $e_{mk,2} =$ | 10,0 mm | $e_{m,2} =$ | 10,0 mm |
| $A_1 =$ | 0,833 (G.2) | $\lambda =$ | 0,850 (G.4) |
| $u =$ | 1,245 (G.3) | $\Phi_{m,2} =$ | 0,384 (G.1) |
| $N_{Edc} =$ | 185,0 kN | $N_{Rdc} =$ | 203,2 kN U.C. = 0,91 |

7.4 STALEN LIGGER PATIOWONING GROOT VOORZIJDE

7.4.1 LIGGER

patiowoningen groot voorzijde

| | kap | verdieping | mw | | | | totaal Q |
|--------------------------------|-------------|--------------|--------------|--|--|--|--------------|
| P_g [kN/m ²] | 0,78 | 8,50 | 5,00 | | | | |
| P_q [kN/m ²] | 0,56 | 2,75 | | | | | |
| ψ_0 | 0,00 | 0,40 | 0,00 | | | | |
| lengte [m] | 1,00 | 5,65 | 4,20 | | | | |
| factor | 0,50 | 0,50 | 1,00 | | | | |
| Totaal G_k | 0,39 | 24,01 | 21,00 | | | | 45,40 |
| Totaal Q_k | 0,28 | 7,77 | | | | | 8,05 |
| Pd (CC1) = | | | | | | | 59,90 |

stalen ligger volgens NEN-EN 1993
uitgangspunten

| | | | |
|-------------------|---------------|------------------------|----------------------|
| referentie per. = | 50 jaar | $\Psi_t =$ | 1,00 |
| gevolgklasse = | CC1 | scheurgevoelige wanden | |
| belasting = | Cat. A: wonen | $\Psi_0 =$ | 0,40 $\Psi_1 =$ 0,50 |

belastingen

| | | | |
|------------|-------------------------|---------|----------------------------------|
| $g_{eg} =$ | 0,29 kN/m ¹ | $p_d =$ | 59,87 kN/m ¹ (6.10.a) |
| $g_k =$ | 45,40 kN/m ¹ | $p_d =$ | 60,22 kN/m ¹ (6.10.b) |

$$q_k = 8,05 \text{ kN/m}^1 \quad p_d = 60,22 \text{ kN/m}^1$$

$$l_{\max.} = 2300 \text{ mm}$$

staalgegevens

$$\text{profiel keuze} = \text{UNP220} \quad W_y = 245,0 \text{ cm}^3$$

$$\text{kwaliteit} = \text{S235} \quad I_y = 2690,0 \text{ cm}^4$$

sterkte

$$M_d = 39,82 \text{ kNm} \quad 1/8 \times p_d \times l^2$$

$$V_d = 69,25 \text{ kN} \quad 1/2 \times p_d \times l$$

$$\sigma_{f_y;d} = 162,5 \text{ N/mm}^2 \quad U.C. = 0,69$$

doorbuiging

$$\text{zeeg} = 0,0 \text{ mm}$$

$$\delta_{\text{eind}} = 3,5 \text{ mm} \quad 0,004L = 9,2 \text{ mm} \quad U.C. = 0,38$$

$$\delta_{\text{bij}} = 0,5 \text{ mm} \quad 0,002L = 4,6 \text{ mm} \quad U.C. = 0,11$$

7.4.2 CONTROLE METSELWERK

metselwerkcontrole NEN-EN 1996

uitgangspunten

$$\text{metselwerk} = \text{kalkzandsteen CS12}$$

$$f_b = 12,0 \text{ N/mm}^2 \quad K = 0,60 \quad \alpha = 0,65$$

$$f_m = 10,0 \text{ N/mm}^2 \quad f_k = 5,37 \text{ N/mm}^2 \quad \beta = 0,25$$

$$\text{gevolgklasse} = \text{CC1} \quad f_d = 3,58 \text{ N/mm}^2 \quad \gamma_M = 1,50$$

geconcentreerde last (art 6.1.3 NEN-EN1996)

$$\text{wandlengte } l = 1000 \text{ mm} \quad \text{oplegl. } a_L = 150 \text{ mm}$$

$$\text{wanddikte } t = 150 \text{ mm} \quad \text{oplegbr. } a_t = 150 \text{ mm} \quad e < 38 \text{ mm}$$

$$\text{wandhoogte } h_c = 2700 \text{ mm} \quad \text{randafst. } a_1 = 0 \text{ mm}$$

$$\text{eff. lengte } l_{\text{eff}} = 929 \text{ mm}$$

$$A_{\text{eff}} = 139343 \text{ mm}^2 \quad A_b = 22500 \text{ mm}^2$$

$$\beta = 1,25 \quad A_b / A_{\text{eff}} = 0,161 \text{ mm}^2$$

$$N_{\text{Edc}} = 70,0 \text{ kN} \quad N_{\text{Rdc}} = 100,7 \text{ kN} \quad U.C. = 0,70$$

toets verticale belasting (art 6.1.2 NEN-EN1996)

$$\text{beschouwde lengte } l = 929 \text{ mm} \quad \text{vloertype} = \text{betonvloer}$$

$$\text{gesteunde lengte } l_v = 929 \text{ mm} \quad \text{gesteund} = \text{2-zijdig}$$

$$\text{wanddikte } t = 150 \text{ mm} \quad \text{factor} = 1,00 \text{ (6.3)}$$

$$\text{wandhoogte } h = 2700 \text{ mm}$$

$$\text{effectieve hoogte } h_{\text{eff}} = 2025 \text{ mm} \quad \rho = 0,75 \text{ (5.5.1.2)}$$

$$\text{slankheid } \lambda = 13,50 \text{ (5.5.1.4)} \quad \text{slankheid } \lambda < 27,00 \text{ (5.5.1.4)} \quad U.C. = 0,50$$

halverwege wand

$$e_{\text{init}} = 4,5 \text{ mm} \quad e_{\text{hm}} = 0,0 \text{ mm}$$

$$e_{\text{mk}} = 7,5 \text{ mm} \quad e_m = 4,5 \text{ mm}$$

$$A_1 = 0,900 \text{ (G.2)} \quad \lambda = 0,510 \text{ (G.4)}$$

$$u = 0,666 \text{ (G.3)} \quad \Phi_m = 0,721 \text{ (G.1)}$$

$$N_{\text{Edc}} = 107,0 \text{ kN} \quad N_{\text{Rdc}} = 359,6 \text{ kN} \quad U.C. = 0,30$$

bij constant minimaal eerste orde moment

$$\text{eff. hoogte } h_{\text{eff},2} = 2700 \text{ mm} \quad \rho = 1,00 \text{ (5.5.1.2)}$$

$$\text{slankheid } \lambda = 18,00 \text{ (5.5.1.4)} \quad \text{slankheid } \lambda < 27,00 \text{ (5.5.1.4)} \quad U.C. = 0,67$$

| | | | | |
|--------------|-------------|----------------|-------------|-------------|
| $e_{mk,2} =$ | 10,0 mm | $e_{m,2} =$ | 10,0 mm | |
| $A_1 =$ | 0,867 (G.2) | $\lambda =$ | 0,680 (G.4) | |
| $u =$ | 0,947 (G.3) | $\Phi_{m,2} =$ | 0,554 (G.1) | |
| $N_{Edc} =$ | 107,0 kN | $N_{Rdc} =$ | 276,2 kN | U.C. = 0,39 |

7.5 CONTROLE METSELWERK

7.5.1 PATIOWONING SLAAPKAMER – BADKAMER

metselwerkcontrole NEN-EN 1996

uitgangspunten

| | | | |
|----------------|------------------------|---------|--|
| metselwerk = | kalkzandsteen CS12 | | |
| $f_b =$ | 12,0 N/mm ² | $K =$ | 0,60 $\alpha = 0,65$ |
| $f_m =$ | 10,0 N/mm ² | $f_k =$ | 5,37 N/mm ² $\beta = 0,25$ |
| gevolgklasse = | CC1 | $f_d =$ | 3,58 N/mm ² $\gamma_M = 1,50$ |

toets verticale belasting (art 6.1.2 NEN-EN1996)

| | | | |
|-------------------------------|-----------------|-----------------------|-----------------------------|
| beschouwde lengte $l =$ | 1000 mm | vloertype = | betonvloer |
| gesteunde lengte $l_v =$ | 1000 mm | gesteund = | 2-zijdig |
| wanddikte $t =$ | 120 mm | factor = | 1,00 (6.3) |
| wandhoogte $h =$ | 2700 mm | | |
| effectieve hoogte $h_{eff} =$ | 2025 mm | $\rho =$ | 0,75 (5.5.1.2) |
| slankheid $\lambda =$ | 16,88 (5.5.1.4) | slankheid $\lambda <$ | 27,00 (5.5.1.4) U.C. = 0,63 |

boven- onderzijde wand

| | | | |
|--------------|--------|-------------|--------------------|
| $e_{init} =$ | 4,5 mm | $e_{he} =$ | 0,0 mm |
| $e_i =$ | 6,0 mm | $\Phi_i =$ | 0,90 |
| | | $N_{Rdc} =$ | 386,6 kN UC = 0,24 |

halverwege wand

| | | | |
|--------------|-------------|-------------|----------------------|
| $e_{init} =$ | 4,5 mm | $e_{hm} =$ | 0,0 mm |
| $e_{mk} =$ | 6,0 mm | $e_m =$ | 4,5 mm |
| $A_1 =$ | 0,900 (G.2) | $\lambda =$ | 0,638 (G.4) |
| $u =$ | 0,856 (G.3) | $\Phi_m =$ | 0,624 (G.1) |
| $N_{Edc} =$ | 93,0 kN | $N_{Rdc} =$ | 268,0 kN U.C. = 0,35 |

bij constant minimaal eerste orde moment

| | | | |
|---------------------------|-----------------|-----------------------|-----------------------------|
| eff. hoogte $h_{eff,2} =$ | 2700 mm | $\rho =$ | 1,00 (5.5.1.2) |
| slankheid $\lambda =$ | 22,50 (5.5.1.4) | slankheid $\lambda <$ | 27,00 (5.5.1.4) U.C. = 0,83 |
| $e_{mk,2} =$ | 10,0 mm | $e_{m,2} =$ | 10,0 mm |
| $A_1 =$ | 0,833 (G.2) | $\lambda =$ | 0,850 (G.4) |
| $u =$ | 1,245 (G.3) | $\Phi_{m,2} =$ | 0,384 (G.1) |
| $N_{Edc} =$ | 93,0 kN | $N_{Rdc} =$ | 164,9 kN U.C. = 0,56 |

7.5.2 PATIOWONING WAND TPV WOONKAMER – KEUKEN

patiowoningen woonkamer

| | plat dak | mw | | | | | totaal Q |
|-----------------------------|--------------|-------------|--|--|--|--|--------------|
| Pg [kN/m ²] | 11,25 | 2,00 | | | | | |
| Pq [kN/m ²] | 1,00 | | | | | | |
| ψ_0 | 0,00 | 0,00 | | | | | |
| lengte [m] | 7,45 | 0,50 | | | | | |
| factor | 0,50 | 1,00 | | | | | |
| Totaal G_k | 41,91 | 1,00 | | | | | 42,91 |
| Totaal Q_k | 3,73 | | | | | | 3,73 |
| Pd (CC1) = | | | | | | | 52,14 |

mettselwerkcontrole NEN-EN 1996

uitgangspunten

| | | | |
|----------------|------------------------|---------|--|
| mettselwerk = | kalkzandsteen CS12 | | |
| $f_b =$ | 12,0 N/mm ² | $K =$ | 0,60 $\alpha =$ 0,65 |
| $f_m =$ | 10,0 N/mm ² | $f_k =$ | 5,37 N/mm ² $\beta =$ 0,25 |
| gevolgklasse = | CC1 | $f_d =$ | 3,58 N/mm ² $\gamma_M =$ 1,50 |

toets verticale belasting (art 6.1.2 NEN-EN1996)

| | | | |
|--------------------------------------|-----------------|-----------------------|-----------------------------|
| beschouwde lengte l = | 370 mm | vloertype = | betonvloer |
| gesteunde lengte l _v = | 370 mm | gesteund = | 2-zijdig |
| wanddikte t = | 150 mm | factor = | 0,87 (6.3) |
| wandhoogte h = | 2700 mm | | |
| effectieve hoogte h _{eff} = | 2025 mm | $\rho =$ | 0,75 (5.5.1.2) |
| slankheid $\lambda =$ | 13,50 (5.5.1.4) | slankheid $\lambda <$ | 27,00 (5.5.1.4) U.C. = 0,50 |

boven- onderzijde wand

| | | | |
|--------------|--------|-------------|--------------------|
| $e_{init} =$ | 4,5 mm | $e_{he} =$ | 0,0 mm |
| $e_i =$ | 7,5 mm | $\Phi_i =$ | 0,90 |
| | | $N_{Rdc} =$ | 154,9 kN UC = 0,34 |

halverwege wand

| | | | |
|--------------|-------------|-------------|----------------------|
| $e_{init} =$ | 4,5 mm | $e_{hm} =$ | 0,0 mm |
| $e_{mk} =$ | 7,5 mm | $e_m =$ | 4,5 mm |
| $A_1 =$ | 0,900 (G.2) | $\lambda =$ | 0,510 (G.4) |
| $u =$ | 0,666 (G.3) | $\Phi_m =$ | 0,721 (G.1) |
| $N_{Edc} =$ | 53,0 kN | $N_{Rdc} =$ | 124,1 kN U.C. = 0,43 |

bij constant minimaal eerste orde moment

| | | | |
|----------------------------------|-----------------|-----------------------|-----------------------------|
| eff. hoogte h _{eff,2} = | 2700 mm | $\rho =$ | 1,00 (5.5.1.2) |
| slankheid $\lambda =$ | 18,00 (5.5.1.4) | slankheid $\lambda <$ | 27,00 (5.5.1.4) U.C. = 0,67 |
| $e_{mk,2} =$ | 10,0 mm | $e_{m,2} =$ | 10,0 mm |
| $A_1 =$ | 0,867 (G.2) | $\lambda =$ | 0,680 (G.4) |
| $u =$ | 0,947 (G.3) | $\Phi_{m,2} =$ | 0,554 (G.1) |
| $N_{Edc} =$ | 53,0 kN | $N_{Rdc} =$ | 110,0 kN U.C. = 0,48 |

8 BEGANE GRONDVLOER

8.1 ALGEMEEN

Begane grondvloer uitvoeren als geïsoleerde systeemvloer.
Vloer volgens berekening en tekening leverancier / fabrikant.
Berekeningen vloer ter controle aan ons bureau.

9 FUNDERING

9.1 ALGEMEEN

Fundering uitvoeren als fundering op palen met balkenrooster.

Avegaar palen.

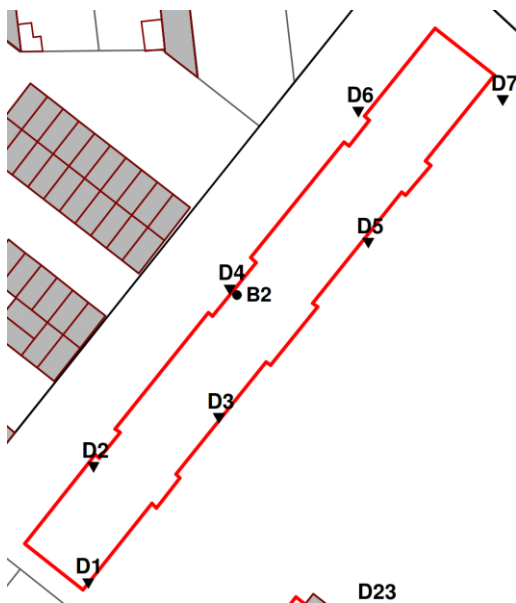
Balkenrooster 400x500mm en 500x500mm.

Berekening gebaseerd op grondmechanisch onderzoek en funderingsadvies uitgevoerd door Silt ,
opdrachtnummer 2400040-XF.

9.2 RIJWONING KAVEL 1-18

9.2.1 MAXIMALE PAALBELASTING

| | | |
|--------------------|-------|--------|
| Peilaanname: | 17.25 | m +NAP |
| Paalpuntniveau: | 0.50 | m +NAP |
| Paaldiameter: | 350 | mm |
| Draagvermogen: | 598 | kN |
| Maximale paallast: | 467 | kN |



9.2.2 BELASTING BALKEN

voor-achtergevel plat dak hoog

| | plat dak | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|-------------|--------------|--|--------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 6,95 | 4,50 | 4,40 | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 1,00 | 9,40 | | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 0,75 | | |
| Totaal G_k | 5,63 | 3,48 | 3,48 | 2,25 | 31,02 | | 45,85 |
| Totaal Q_k | 0,50 | 1,38 | 1,38 | 1,38 | | | 4,63 |

Pd (CC1) = 57,93

voor-achtergevel plat dak laag

| | plat dak | verdieping | bg | mw | | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|--------------|--|--|--------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 4,50 | 4,40 | | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,00 | | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 9,40 | | | |
| factor | 0,50 | 0,50 | 0,50 | 0,75 | | | |
| Totaal G_k | 5,63 | 3,48 | 2,25 | 31,02 | | | 42,37 |
| Totaal Q_k | 0,50 | 1,38 | 1,38 | | | | 3,25 |

Pd (CC1) = 52,97

voorgevel-achtergevel hellend dak

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|-------------|--------------|--|--------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,00 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 1,00 | 6,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 0,75 | | |
| Totaal G_k | 1,09 | 3,48 | 3,48 | 2,25 | 18,00 | | 28,29 |
| Totaal Q_k | 0,28 | 1,38 | 1,38 | 1,38 | | | 4,41 |

Pd (CC1) = 36,60

linker-rechterzijgevel

| | plat dak | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 6,95 | 4,50 | 4,40 | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 4,60 | 4,60 | 4,60 | 4,60 | 9,40 | | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 25,88 | 15,99 | 15,99 | 10,35 | 41,36 | | 109,56 |
| Totaal Q_k | 2,30 | 6,33 | 6,33 | 6,33 | | | 21,28 |

Pd (CC1) = 147,04

woningscheidende wand plat dak

| | plat dak | zolder | plat dak | verdieping | bg | mw | totaal Q |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 11,25 | 6,95 | 4,50 | 4,80 | |
| P _q [kN/m ²] | 1,00 | 2,75 | 1,00 | 2,75 | 2,75 | | |
| ψ ₀ | 0,00 | 0,40 | 0,00 | 0,40 | 0,40 | 0,00 | |
| lengte [m] | 4,60 | 4,60 | 4,60 | 9,20 | 9,20 | 9,40 | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | |
| Totaal G_k | 25,88 | 15,99 | 25,88 | 31,97 | 20,70 | 45,12 | 165,53 |
| Totaal Q_k | 2,30 | 6,33 | 2,30 | 12,65 | 12,65 | | 36,23 |

Pd (CC1) = 227,67

woningscheidende wand plat dak - hellend dak

| | kap | zolder | plat dak | verdieping | bg | mw | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--------------|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 11,25 | 6,95 | 4,50 | 4,80 | |
| P _q [kN/m ²] | 0,28 | 2,75 | 1,00 | 2,75 | 2,75 | | |
| ψ ₀ | 0,00 | 0,40 | 0,00 | 0,40 | 0,40 | 0,00 | |
| lengte [m] | 4,60 | 4,60 | 4,60 | 9,20 | 9,20 | 9,40 | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | |
| Totaal G_k | 2,51 | 15,99 | 25,88 | 31,97 | 20,70 | 45,12 | 142,16 |
| Totaal Q_k | 0,64 | 6,33 | 2,30 | 12,65 | 12,65 | | 34,57 |

Pd (CC1) = 200,20

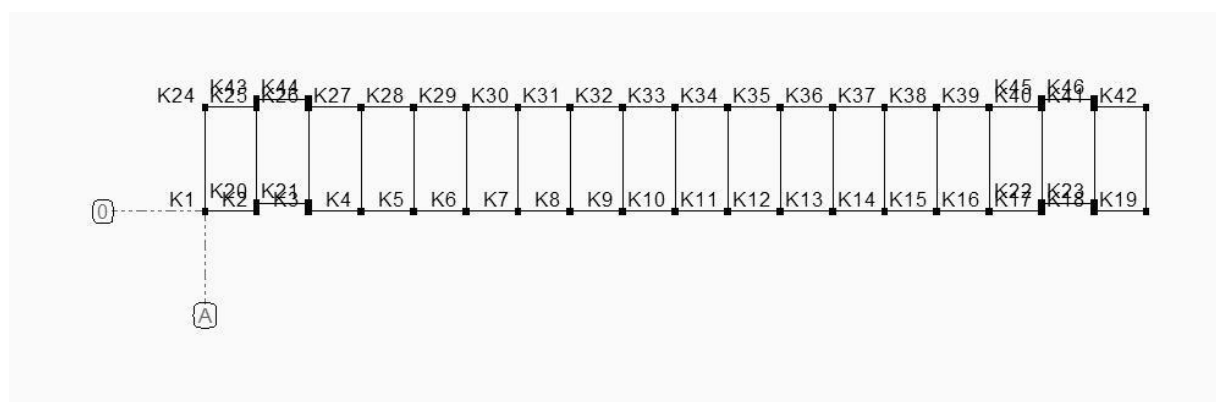
woningscheidende wand hellend dak

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,80 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 4,60 | 9,20 | 9,20 | 9,20 | 9,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 5,01 | 31,97 | 31,97 | 20,70 | 43,20 | | 132,85 |
| Totaal Q_k | 1,29 | 12,65 | 12,65 | 12,65 | | | 39,24 |

Pd (CC1) = 196,45

9.2.3 BALKENROOSTER

AFB. KNOPEN



AFB. STAVEN

PROFIELEN

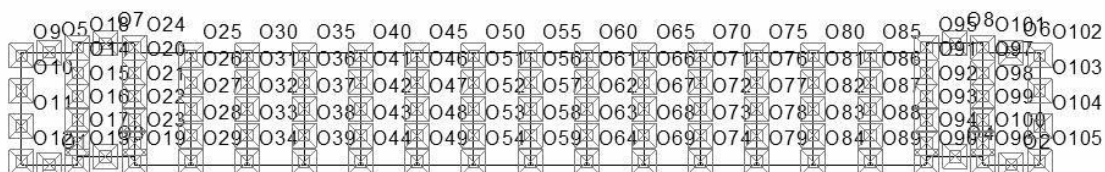
| Profiel | Profielnaam | It | ly Materiaal | Hoek |
|---------|-------------|------------|-------------------|------|
| P1 | R400x500 | 5.4742e-03 | 4.1667e-03 C20/25 | 0,0 |
| P2 | R500x500 | 8.8021e-03 | 5.2083e-03 C20/25 | 0,0 |

PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,400 | 0,000 | 0,000 Nee | 0,000 |
| P2 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,500 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaalnaam | Poison | Dichtheid | E-Modulus | Uitzettingcoëff |
|---------------|--------|-----------|------------|-----------------|
| C20/25 | 0.20 | 25.00 | 1.0000e+07 | 10.0000e-06 |

AFB. OPLEGGING EN AANSLUITINGEN

OPLEGGINGEN

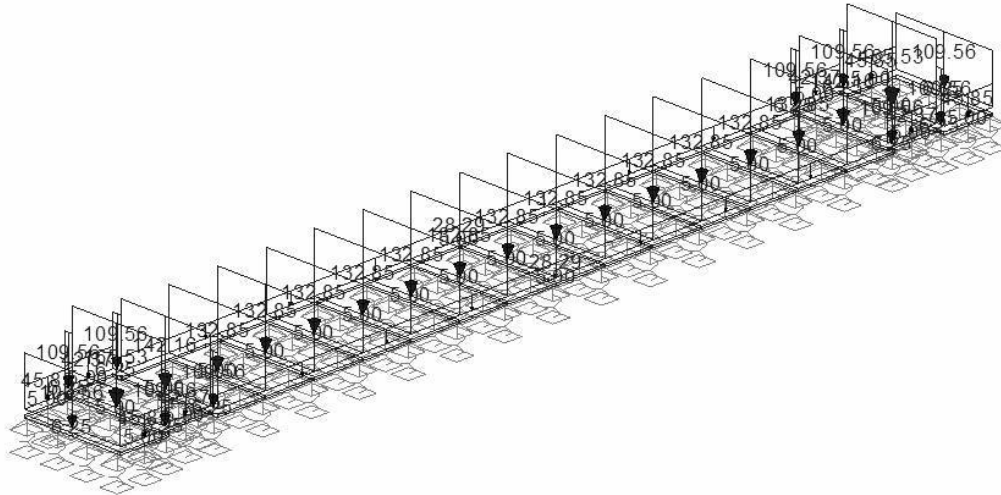
| Oplegging | Staaft | Positie | Z | Xr | Yr |
|-----------|--------|---------|----------|------|------|
| O1 | S1 | 2,40 | 18000.00 | Vrij | Vrij |
| O2 | S3 | 2,40 | 18000.00 | Vrij | Vrij |
| O3 | S4 | 2,40 | 18000.00 | Vrij | Vrij |
| O4 | S5 | 2,40 | 18000.00 | Vrij | Vrij |
| O5 | S6 | 2,40 | 18000.00 | Vrij | Vrij |
| O6 | S8 | 2,40 | 18000.00 | Vrij | Vrij |
| O7 | S9 | 2,40 | 18000.00 | Vrij | Vrij |
| O8 | S10 | 2,40 | 18000.00 | Vrij | Vrij |
| O9 | S11 | 0,30 | 18000.00 | Vrij | Vrij |
| O10 | S11 | 3,29 | 18000.00 | Vrij | Vrij |
| O11 | S11 | 6,27 | 18000.00 | Vrij | Vrij |
| O12 | S11 | 9,26 | 18000.00 | Vrij | Vrij |
| O13 | S12 | 0,46 | 18000.00 | Vrij | Vrij |
| O14 | S13 | 1,70 | 18000.00 | Vrij | Vrij |
| O15 | S13 | 3,70 | 18000.00 | Vrij | Vrij |
| O16 | S13 | 5,70 | 18000.00 | Vrij | Vrij |
| O17 | S13 | 7,70 | 18000.00 | Vrij | Vrij |
| O18 | S14 | 0,30 | 18000.00 | Vrij | Vrij |

| Oplegging | Staaft | Positie | Z | Xr | Yr |
|-----------|--------|---------|----------|------|------|
| O19 | S15 | 0,46 | 18000.00 | Vrij | Vrij |
| O20 | S16 | 1,70 | 18000.00 | Vrij | Vrij |
| O21 | S16 | 3,70 | 18000.00 | Vrij | Vrij |
| O22 | S16 | 5,70 | 18000.00 | Vrij | Vrij |
| O23 | S16 | 7,70 | 18000.00 | Vrij | Vrij |
| O24 | S17 | 0,30 | 18000.00 | Vrij | Vrij |
| O25 | S18 | 0,30 | 18000.00 | Vrij | Vrij |
| O26 | S18 | 2,54 | 18000.00 | Vrij | Vrij |
| O27 | S18 | 4,78 | 18000.00 | Vrij | Vrij |
| O28 | S18 | 7,02 | 18000.00 | Vrij | Vrij |
| O29 | S18 | 9,26 | 18000.00 | Vrij | Vrij |
| O30 | S19 | 0,30 | 18000.00 | Vrij | Vrij |
| O31 | S19 | 2,54 | 18000.00 | Vrij | Vrij |
| O32 | S19 | 4,78 | 18000.00 | Vrij | Vrij |
| O33 | S19 | 7,02 | 18000.00 | Vrij | Vrij |
| O34 | S19 | 9,26 | 18000.00 | Vrij | Vrij |
| O35 | S20 | 0,30 | 18000.00 | Vrij | Vrij |

| | | | | | |
|------------------|--------------|----------------|----------|-----------|-----------|
| O36 | S20 | 2,54 | 18000.00 | Vrij | Vrij |
| O37 | S20 | 4,78 | 18000.00 | Vrij | Vrij |
| O38 | S20 | 7,02 | 18000.00 | Vrij | Vrij |
| O39 | S20 | 9,26 | 18000.00 | Vrij | Vrij |
| O40 | S21 | 0,30 | 18000.00 | Vrij | Vrij |
| O41 | S21 | 2,54 | 18000.00 | Vrij | Vrij |
| O42 | S21 | 4,78 | 18000.00 | Vrij | Vrij |
| O43 | S21 | 7,02 | 18000.00 | Vrij | Vrij |
| O44 | S21 | 9,26 | 18000.00 | Vrij | Vrij |
| O45 | S22 | 0,30 | 18000.00 | Vrij | Vrij |
| O46 | S22 | 2,54 | 18000.00 | Vrij | Vrij |
| O47 | S22 | 4,78 | 18000.00 | Vrij | Vrij |
| O48 | S22 | 7,02 | 18000.00 | Vrij | Vrij |
| O49 | S22 | 9,26 | 18000.00 | Vrij | Vrij |
| O50 | S23 | 0,30 | 18000.00 | Vrij | Vrij |
| O51 | S23 | 2,54 | 18000.00 | Vrij | Vrij |
| O52 | S23 | 4,78 | 18000.00 | Vrij | Vrij |
| O53 | S23 | 7,02 | 18000.00 | Vrij | Vrij |
| O54 | S23 | 9,26 | 18000.00 | Vrij | Vrij |
| O55 | S24 | 0,30 | 18000.00 | Vrij | Vrij |
| O56 | S24 | 2,54 | 18000.00 | Vrij | Vrij |
| O57 | S24 | 4,78 | 18000.00 | Vrij | Vrij |
| O58 | S24 | 7,02 | 18000.00 | Vrij | Vrij |
| O59 | S24 | 9,26 | 18000.00 | Vrij | Vrij |
| O60 | S25 | 0,30 | 18000.00 | Vrij | Vrij |
| O61 | S25 | 2,54 | 18000.00 | Vrij | Vrij |
| O62 | S25 | 4,78 | 18000.00 | Vrij | Vrij |
| O63 | S25 | 7,02 | 18000.00 | Vrij | Vrij |
| O64 | S25 | 9,26 | 18000.00 | Vrij | Vrij |
| O65 | S26 | 0,30 | 18000.00 | Vrij | Vrij |
| O66 | S26 | 2,54 | 18000.00 | Vrij | Vrij |
| O67 | S26 | 4,78 | 18000.00 | Vrij | Vrij |
| O68 | S26 | 7,02 | 18000.00 | Vrij | Vrij |
| O69 | S26 | 9,26 | 18000.00 | Vrij | Vrij |
| O70 | S27 | 0,30 | 18000.00 | Vrij | Vrij |
| O71 | S27 | 2,54 | 18000.00 | Vrij | Vrij |
| O72 | S27 | 4,78 | 18000.00 | Vrij | Vrij |
| O73 | S27 | 7,02 | 18000.00 | Vrij | Vrij |
| O74 | S27 | 9,26 | 18000.00 | Vrij | Vrij |
| O75 | S28 | 0,30 | 18000.00 | Vrij | Vrij |
| O76 | S28 | 2,54 | 18000.00 | Vrij | Vrij |
| O77 | S28 | 4,78 | 18000.00 | Vrij | Vrij |
| O78 | S28 | 7,02 | 18000.00 | Vrij | Vrij |
| O79 | S28 | 9,26 | 18000.00 | Vrij | Vrij |
| O80 | S29 | 0,30 | 18000.00 | Vrij | Vrij |
| O81 | S29 | 2,54 | 18000.00 | Vrij | Vrij |
| O82 | S29 | 4,78 | 18000.00 | Vrij | Vrij |
| O83 | S29 | 7,02 | 18000.00 | Vrij | Vrij |
| O84 | S29 | 9,26 | 18000.00 | Vrij | Vrij |
| O85 | S30 | 0,30 | 18000.00 | Vrij | Vrij |
| O86 | S30 | 2,54 | 18000.00 | Vrij | Vrij |
| O87 | S30 | 4,78 | 18000.00 | Vrij | Vrij |
| O88 | S30 | 7,02 | 18000.00 | Vrij | Vrij |
| Oplegging | Staaf | Positie | Z | Xr | Yr |
| O89 | S30 | 9,26 | 18000.00 | Vrij | Vrij |
| O90 | S31 | 0,46 | 18000.00 | Vrij | Vrij |
| O91 | S32 | 1,70 | 18000.00 | Vrij | Vrij |
| O92 | S32 | 3,70 | 18000.00 | Vrij | Vrij |
| O93 | S32 | 5,70 | 18000.00 | Vrij | Vrij |
| O94 | S32 | 7,70 | 18000.00 | Vrij | Vrij |
| O95 | S33 | 0,30 | 18000.00 | Vrij | Vrij |
| O96 | S34 | 0,46 | 18000.00 | Vrij | Vrij |
| O97 | S35 | 1,70 | 18000.00 | Vrij | Vrij |
| O98 | S35 | 3,70 | 18000.00 | Vrij | Vrij |
| O99 | S35 | 5,70 | 18000.00 | Vrij | Vrij |
| O100 | S35 | 7,70 | 18000.00 | Vrij | Vrij |
| O101 | S36 | 0,30 | 18000.00 | Vrij | Vrij |
| O102 | S37 | 0,30 | 18000.00 | Vrij | Vrij |
| O103 | S37 | 3,29 | 18000.00 | Vrij | Vrij |

| | | | | | |
|------|-----|------|----------|------|------|
| O104 | S37 | 6,27 | 18000.00 | Vrij | Vrij |
| O105 | S37 | 9,26 | 18000.00 | Vrij | Vrij |

B.G.1: PERMANENT



B.G.1: PERMANENT

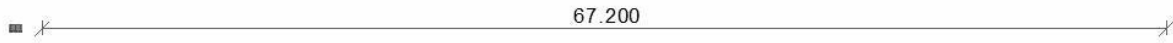
| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------------|---------------|---------------------------|--------------|-------------|---|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z S1-S37 |
| q | 45,85 | 45,85 | 0,00 | 4,80(L) | Z S1,S3,S6,S8 |
| q | 42,37 | 42,37 | 0,00 | 4,80(L) | Z S4-S5,S9-S10 |
| q | 28,29 | 28,29 | 0,00 | 67,20(L) | Z S2,S7 |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z S11-S12,S14-S15, S17,S31,S33-S34,S36-S37 |
| q | 165,53 | 165,53 | 0,00 | 8,80(L) | Z S13,S35 |
| q | 142,16 | 142,16 | 0,00 | 8,80(L) | Z S16,S32 |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z S18-S30 |
| Som lasten | X:0,00 | kN Z: 32.001,75 kN | | | |

B.G.1: PERMANENT (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S2 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 67,20(L) | Z |

B.G.1: PERMANENT (S2)

Staaf S2

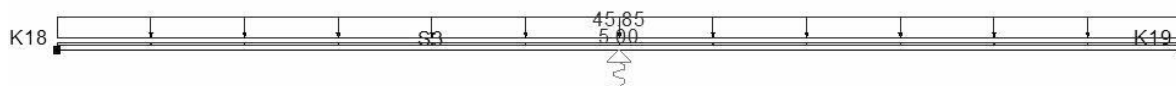
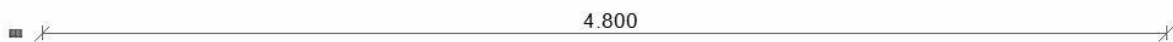


B.G.1: PERMANENT (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 45,85 | 45,85 | 0,00 | 4,80(L) | Z |

B.G.1: PERMANENT (S3)

Staaf S3

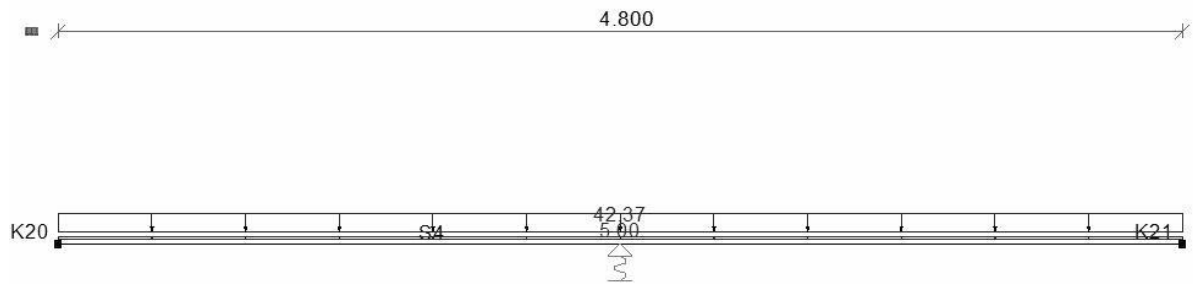


B.G.1: PERMANENT (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 42,37 | 42,37 | 0,00 | 4,80(L) | Z |

B.G.1: PERMANENT (S4)

Staaf S4

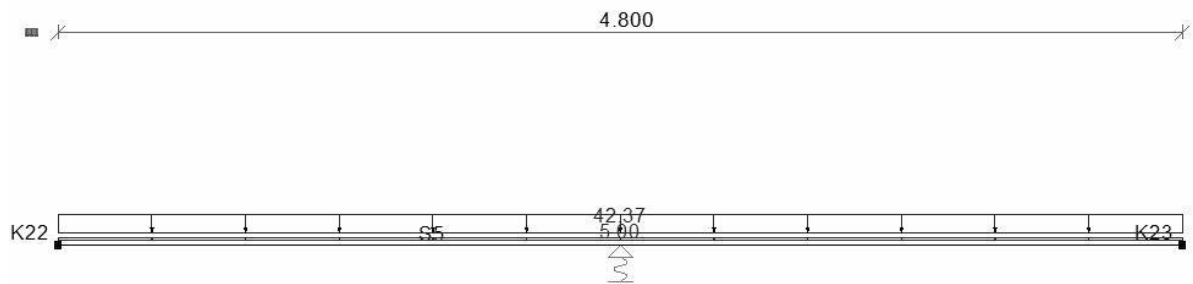


B.G.1: PERMANENT (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 42,37 | 42,37 | 0,00 | 4,80(L) | Z |

B.G.1: PERMANENT (S5)

Staaf S5

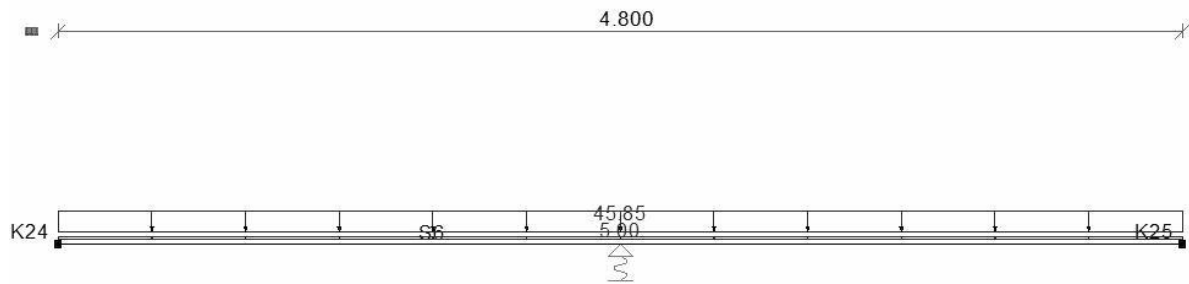


B.G.1: PERMANENT (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 45,85 | 45,85 | 0,00 | 4,80(L) | Z |

B.G.1: PERMANENT (S6)

Staaf S6

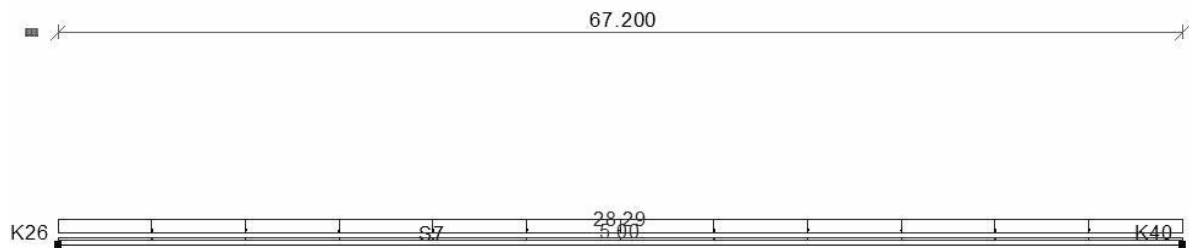


B.G.1: PERMANENT (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 67,20(L) | Z |

B.G.1: PERMANENT (S7)

Staaf S7

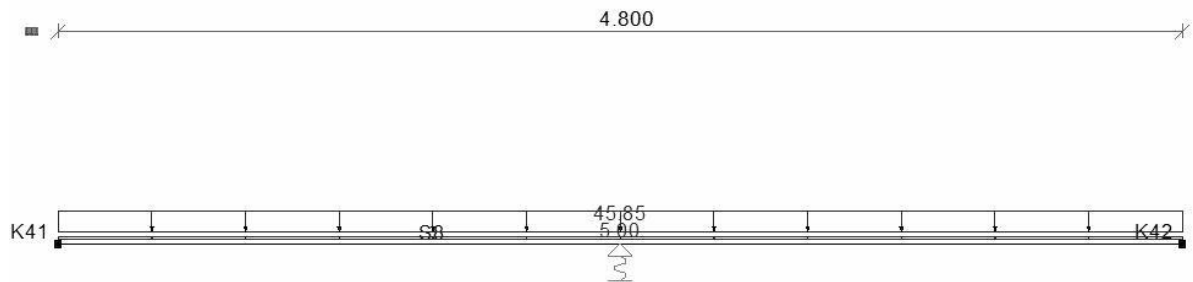


B.G.1: PERMANENT (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 45,85 | 45,85 | 0,00 | 4,80(L) | Z |

B.G.1: PERMANENT (S8)

Staaf S8

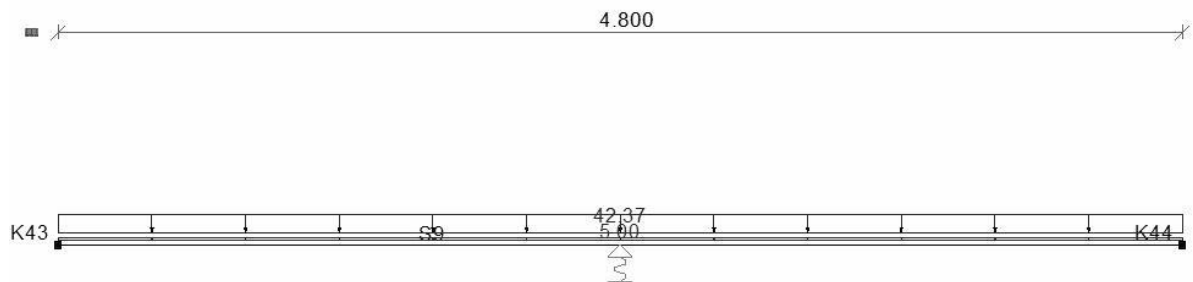


B.G.1: PERMANENT (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 42,37 | 42,37 | 0,00 | 4,80(L) | Z |

B.G.1: PERMANENT (S9)

Staaf S9

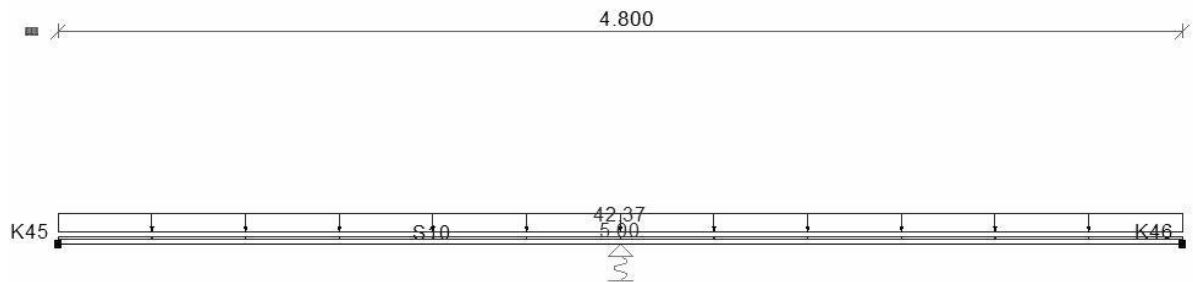


B.G.1: PERMANENT (S10)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S10 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 42,37 | 42,37 | 0,00 | 4,80(L) | Z |

B.G.1: PERMANENT (S10)

Staaf S10

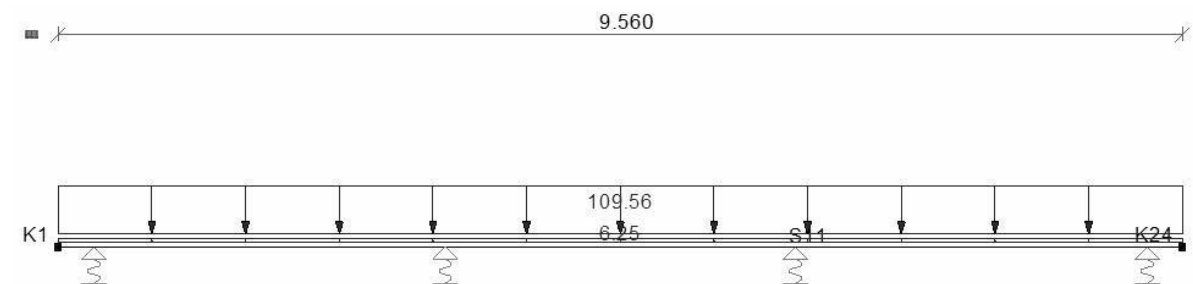


B.G.1: PERMANENT (S11)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S11 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S11)

Staaf S11

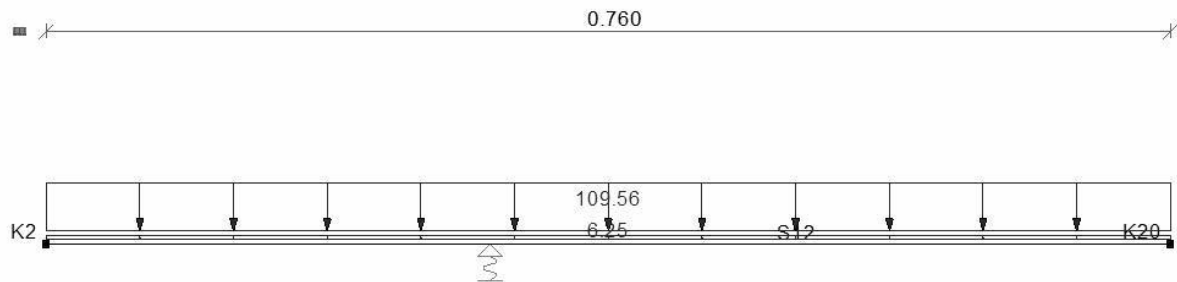


B.G.1: PERMANENT (S12)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S12 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S12)

Staaf S12

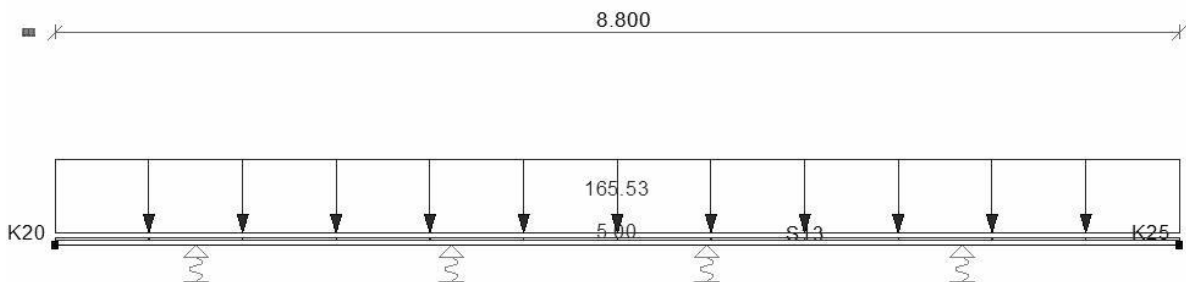


B.G.1: PERMANENT (S13)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S13 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 165,53 | 165,53 | 0,00 | 8,80(L) | Z |

B.G.1: PERMANENT (S13)

Staaf S13

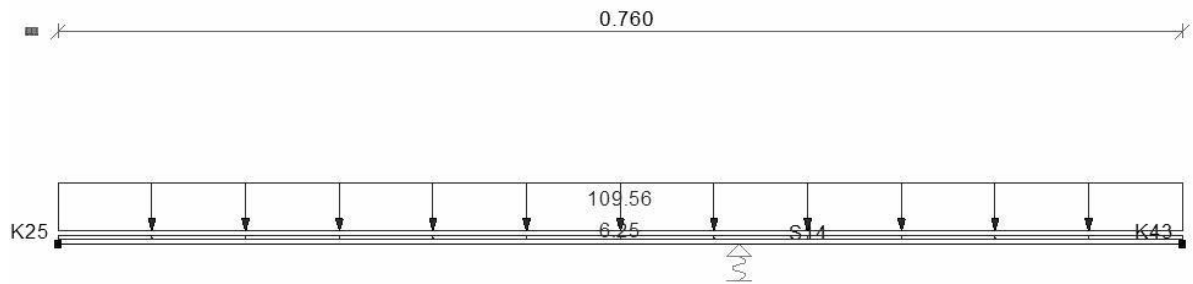


B.G.1: PERMANENT (S14)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S14 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S14)

Staaf S14



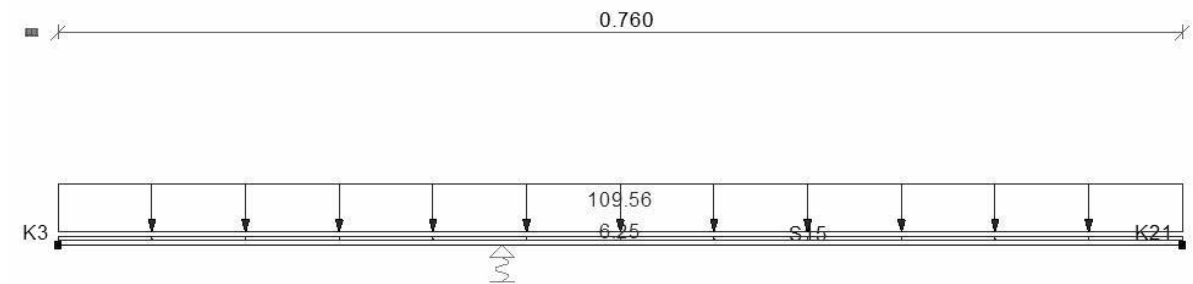
B.G.1: PERMANENT (S15)

Staaf S15

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S15)

Staaf S15



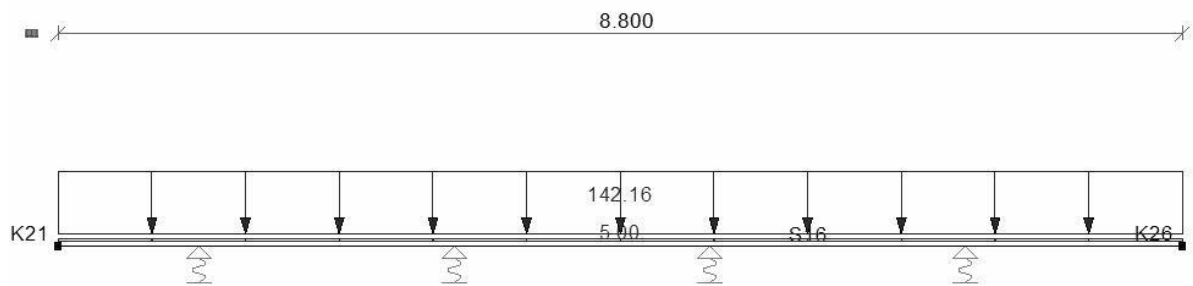
B.G.1: PERMANENT (S16)

Staaf S16

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 142,16 | 142,16 | 0,00 | 8,80(L) | Z |

B.G.1: PERMANENT (S16)

Staaf S16

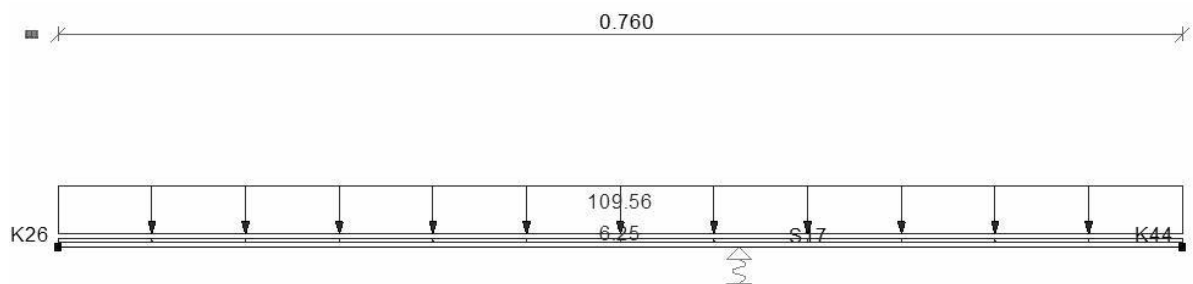


B.G.1: PERMANENT (S17)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S17)

Staaf S17

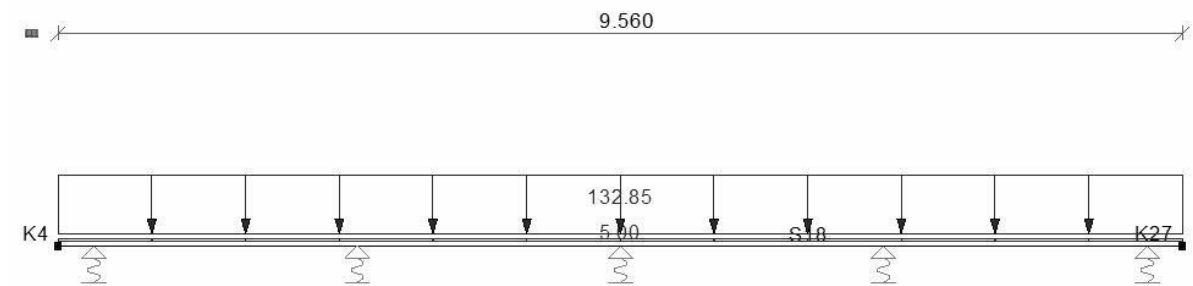


B.G.1: PERMANENT (S18)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S18)

Staaf S18



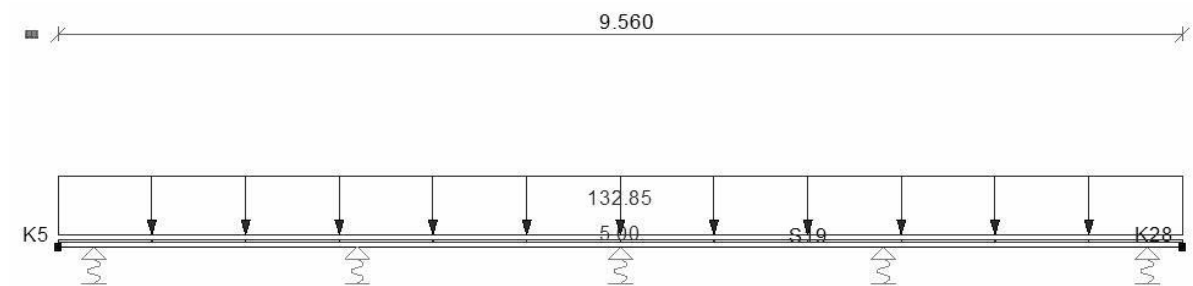
B.G.1: PERMANENT (S19)

Staaf S19

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S19)

Staaf S19



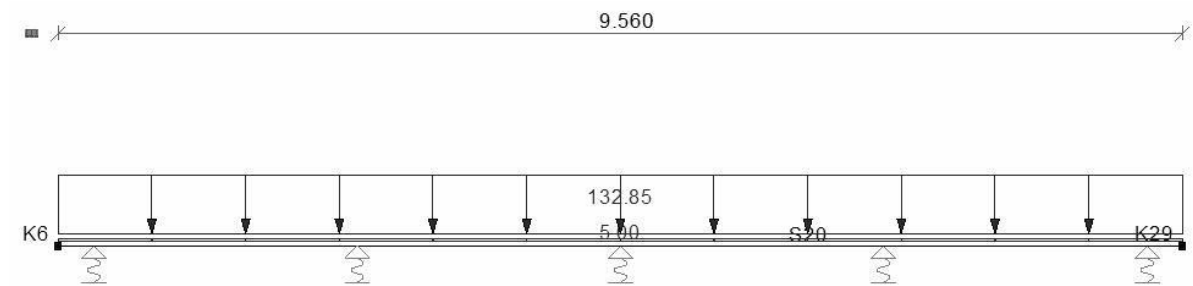
B.G.1: PERMANENT (S20)

Staaf S20

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S20)

Staaf S20

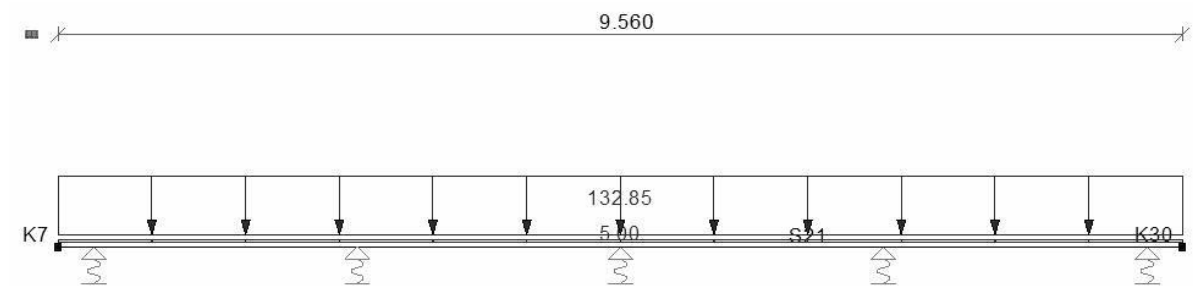


B.G.1: PERMANENT (S21)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S21 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S21)

Staaf S21

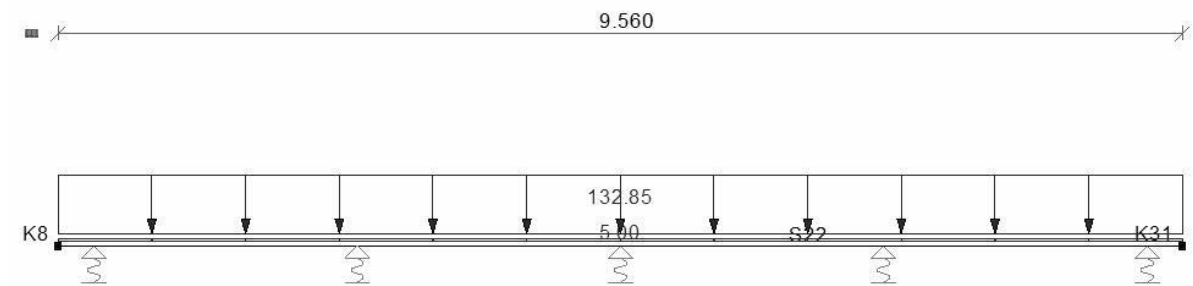


B.G.1: PERMANENT (S22)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S22 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S22)

Staaf S22

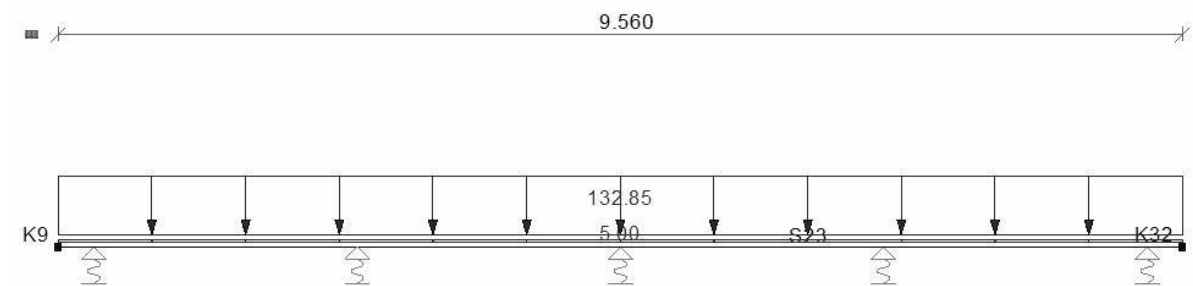


B.G.1: PERMANENT (S23)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S23 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S23)

Staaf S23

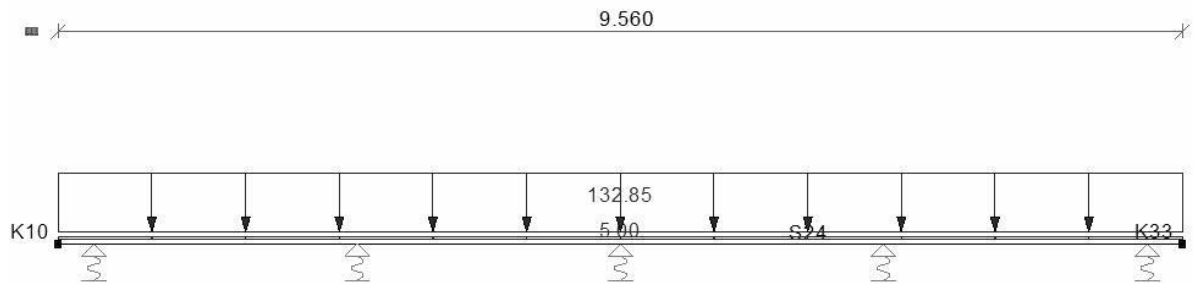


B.G.1: PERMANENT (S24)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S24 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S24)

Staaf S24



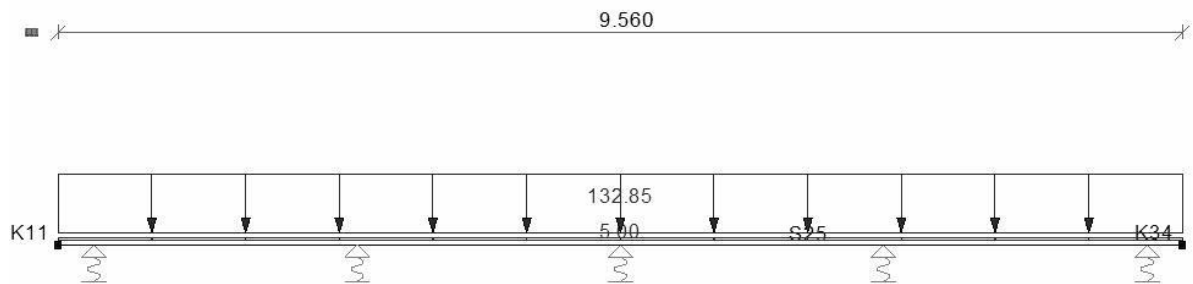
B.G.1: PERMANENT (S25)

Staaf S25

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S25)

Staaf S25



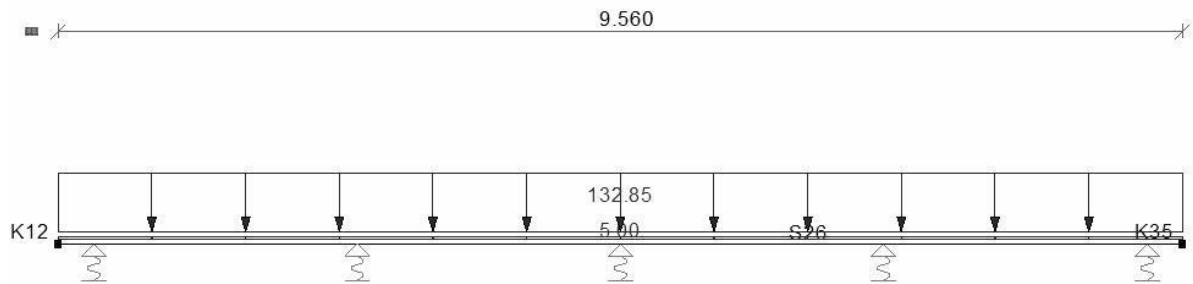
B.G.1: PERMANENT (S26)

Staaf S26

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S26)

Staaf S26

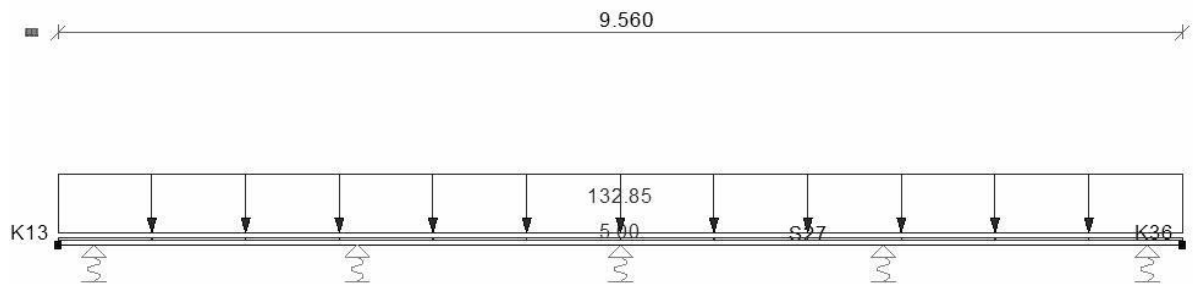


B.G.1: PERMANENT (S27)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S27 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S27)

Staaf S27

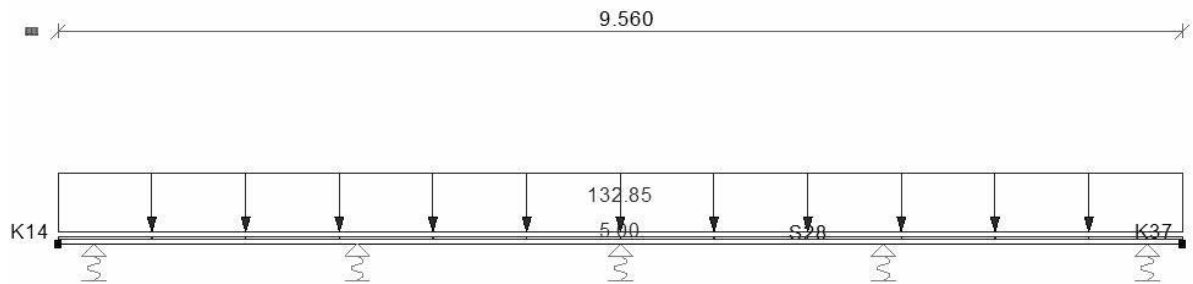


B.G.1: PERMANENT (S28)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S28 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S28)

Staaf S28



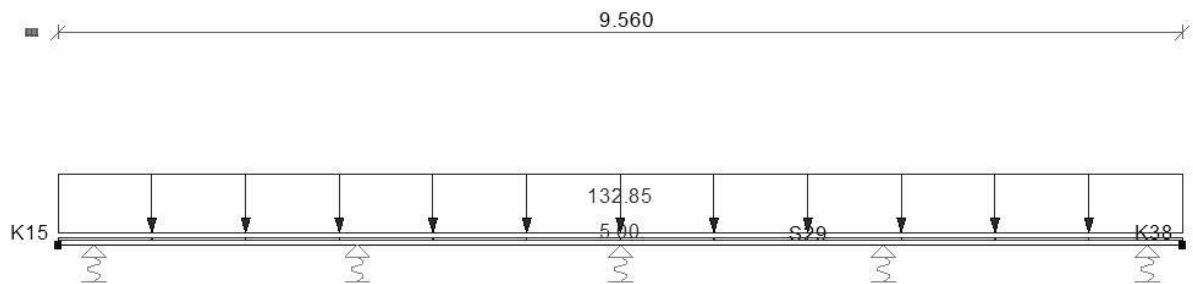
B.G.1: PERMANENT (S29)

Staaf S29

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S29)

Staaf S29



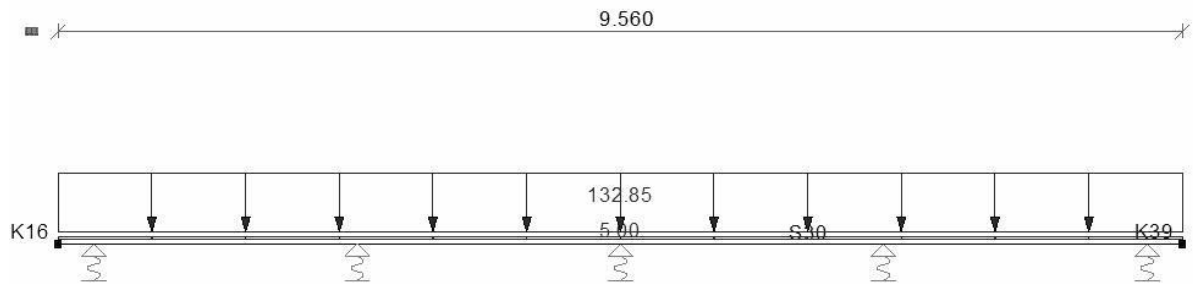
B.G.1: PERMANENT (S30)

Staaf S30

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 132,85 | 132,85 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S30)

Staaf S30

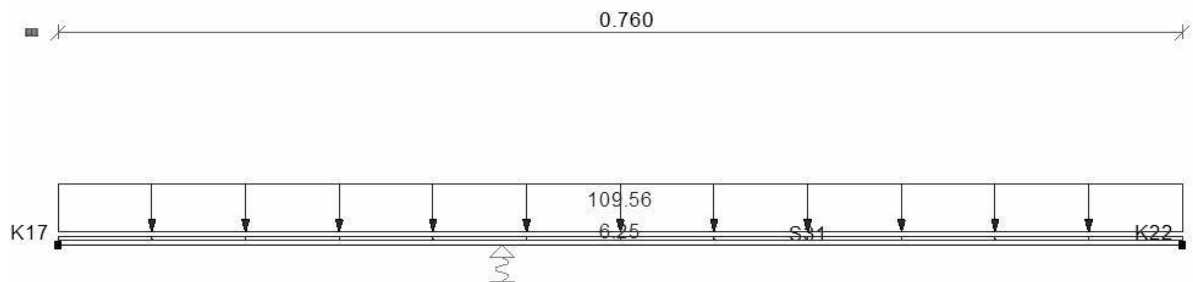


B.G.1: PERMANENT (S31)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S31 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S31)

Staaf S31

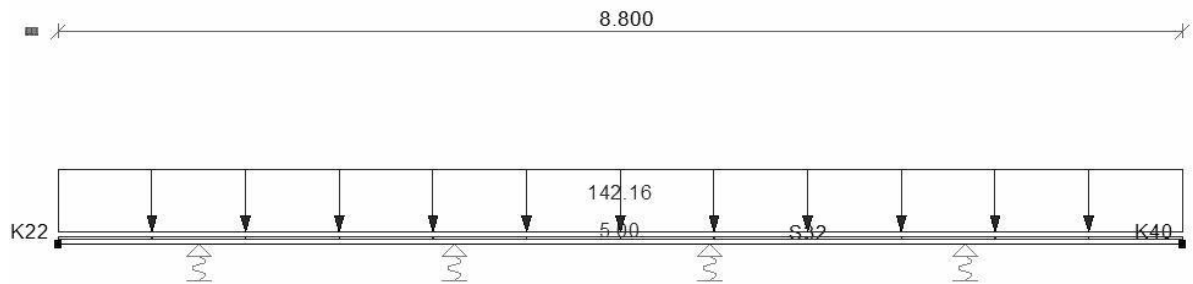


B.G.1: PERMANENT (S32)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S32 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 142,16 | 142,16 | 0,00 | 8,80(L) | Z |

B.G.1: PERMANENT (S32)

Staaf S32

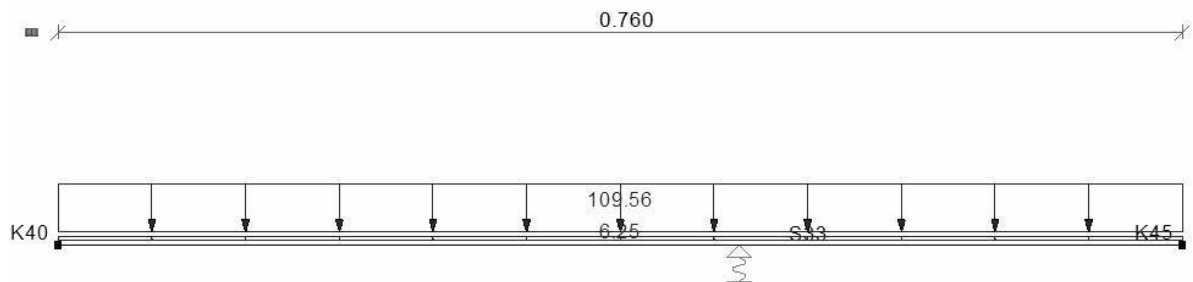


B.G.1: PERMANENT (S33)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S33 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S33)

Staaf S33

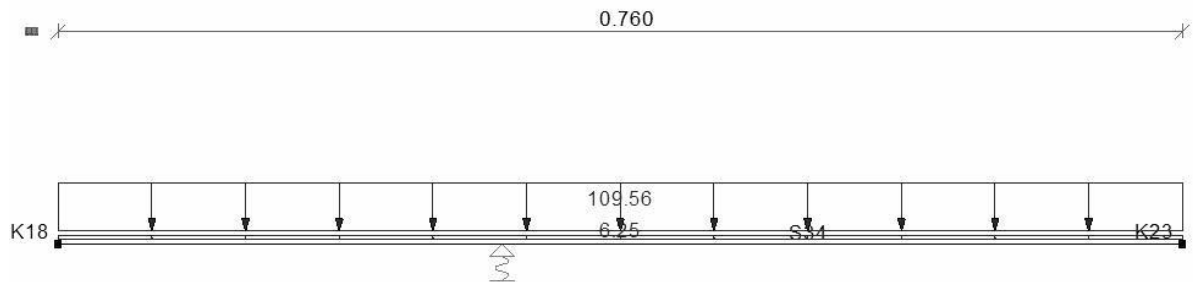


B.G.1: PERMANENT (S34)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S34 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S34)

Staaf S34



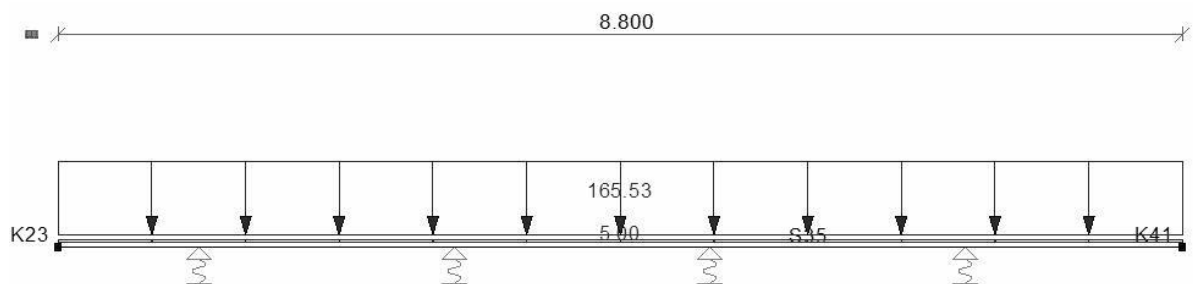
B.G.1: PERMANENT (S35)

Staaf S35

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 165,53 | 165,53 | 0,00 | 8,80(L) | Z |

B.G.1: PERMANENT (S35)

Staaf S35



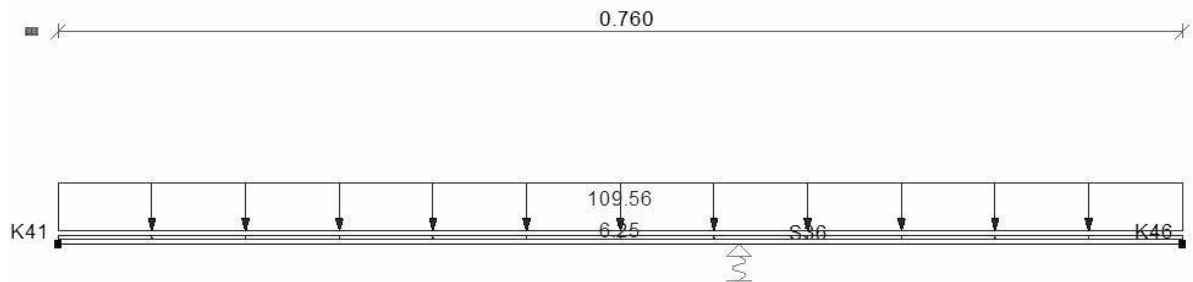
B.G.1: PERMANENT (S36)

Staaf S36

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S36)

Staaf S36

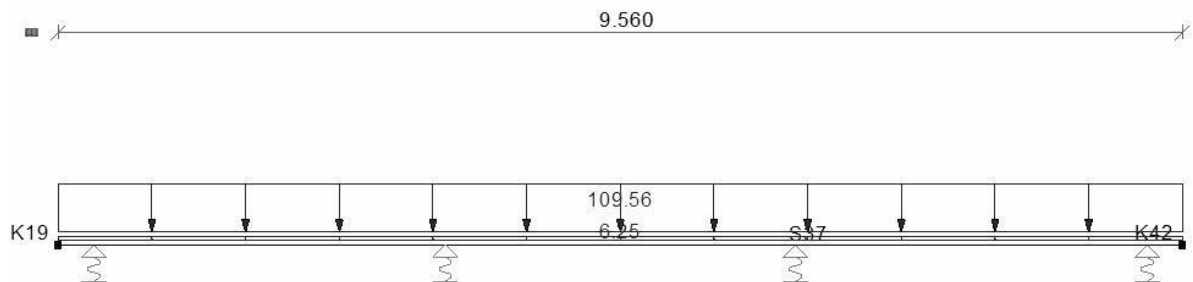


B.G.1: PERMANENT (S37)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S37 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 4,80(L) | Z |
| q | 109,56 | 109,56 | 0,00 | 9,56(L) | Z |

B.G.1: PERMANENT (S37)

Staaf S37

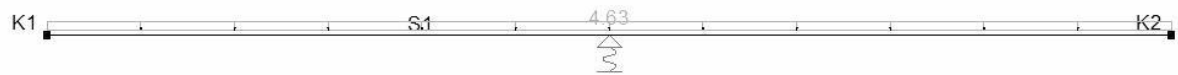
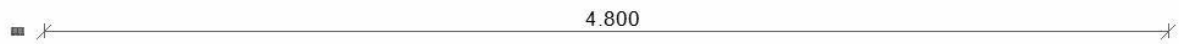


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,63 | 4,63 | 0,00 | 4,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1

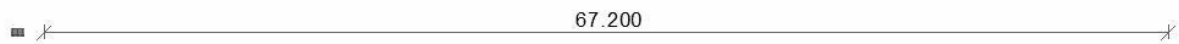


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S2 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 67,20(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

Staaf S2

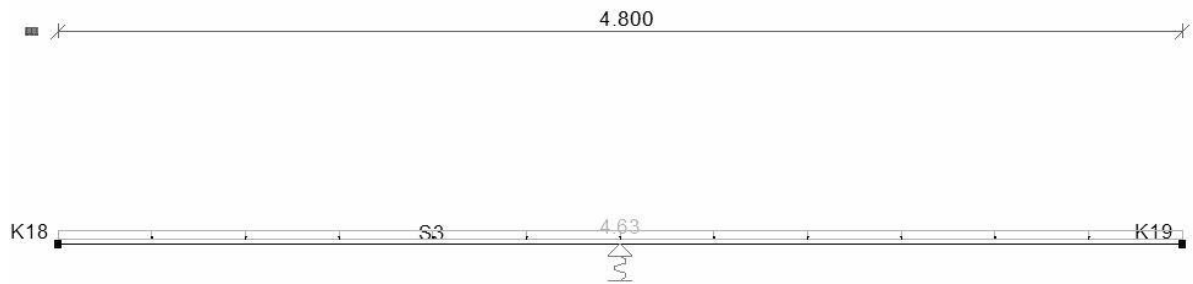


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,63 | 4,63 | 0,00 | 4,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

Staaf S3

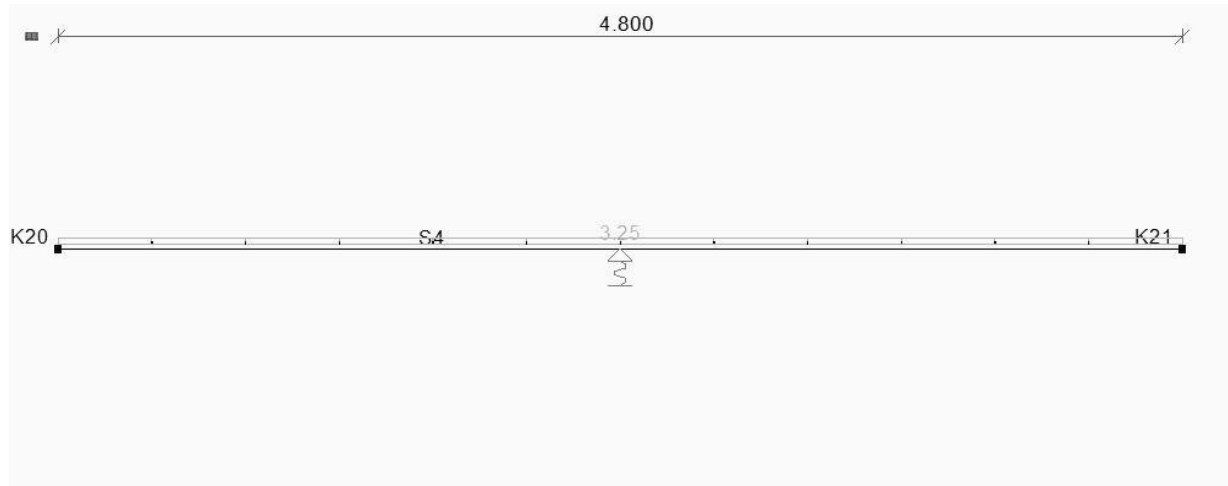


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 3,25 | 3,25 | 0,00 | 4,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

Staaf S4

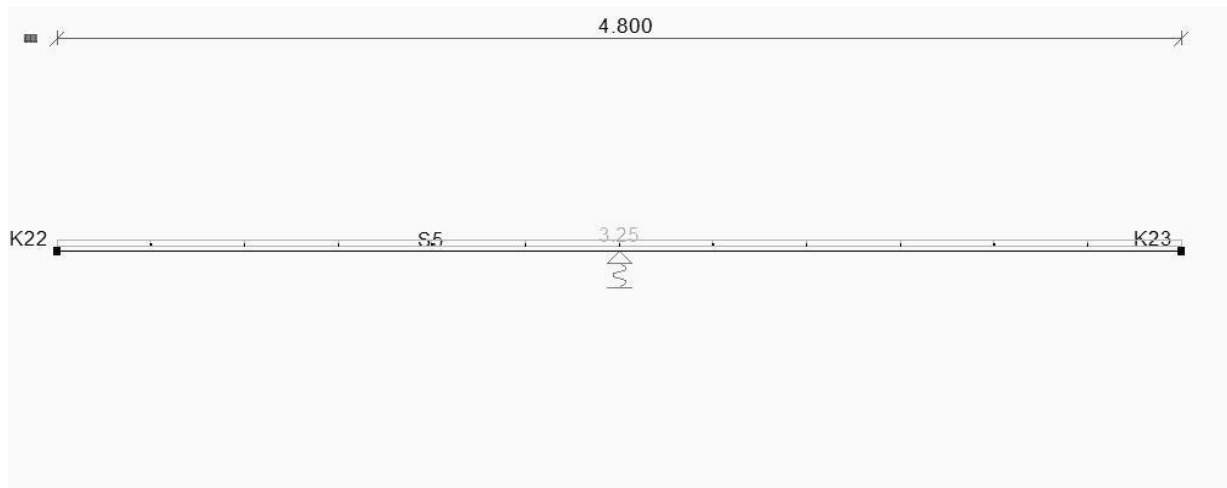


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 3,25 | 3,25 | 0,00 | 4,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

Staaf S5

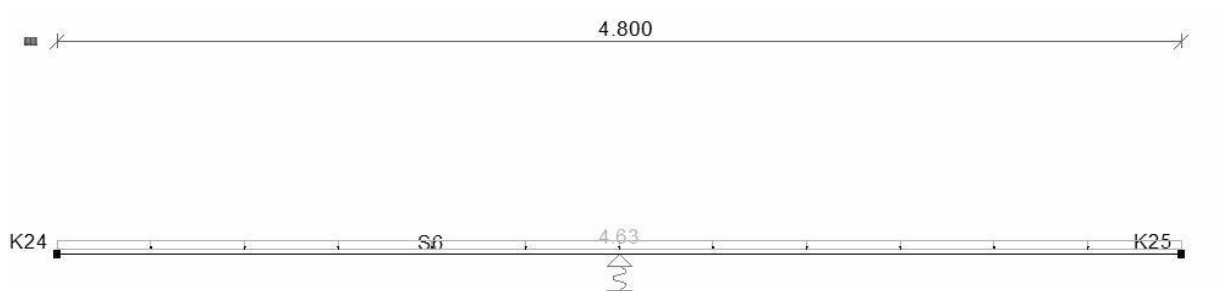


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,63 | 4,63 | 0,00 | 4,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6

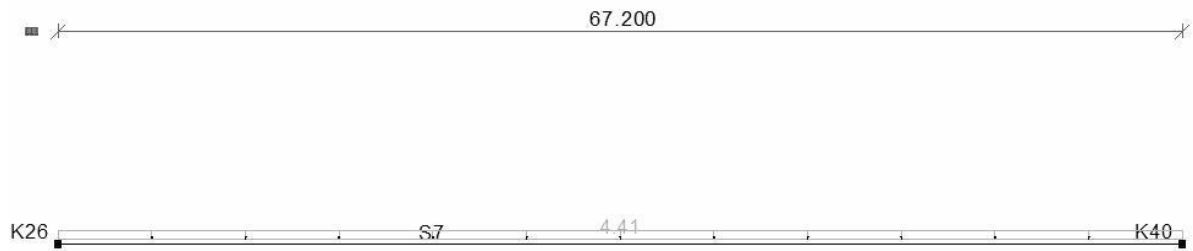


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 67,20(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7

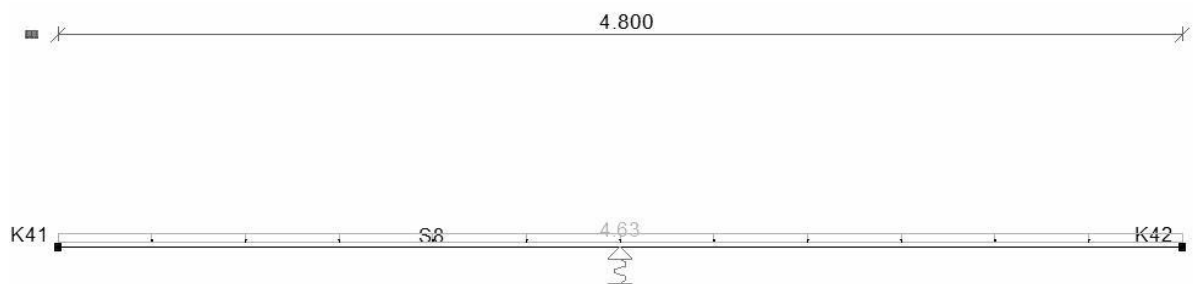


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,63 | 4,63 | 0,00 | 4,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

Staaf S8

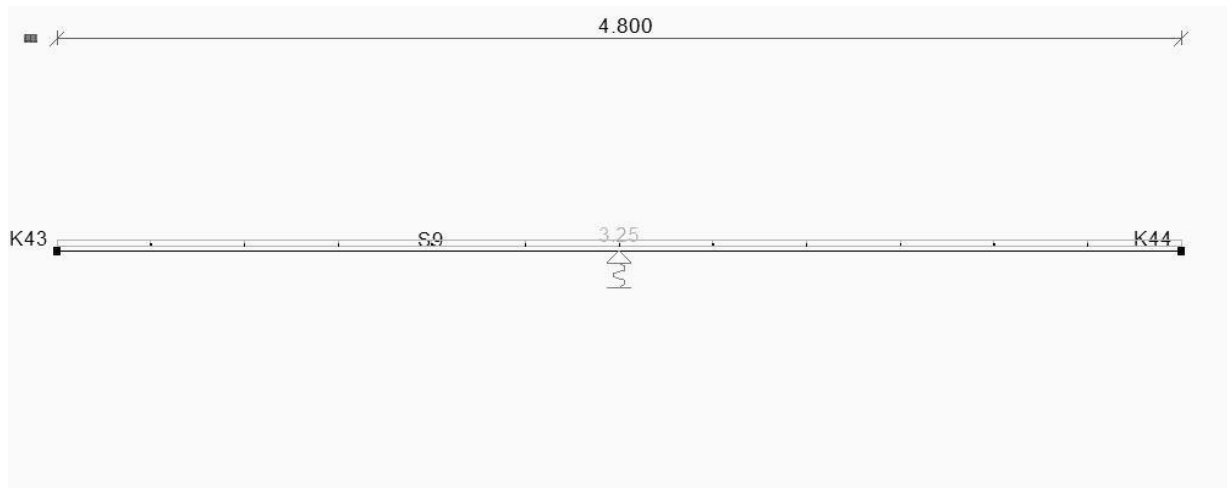


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 3,25 | 3,25 | 0,00 | 4,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

Staaf S9



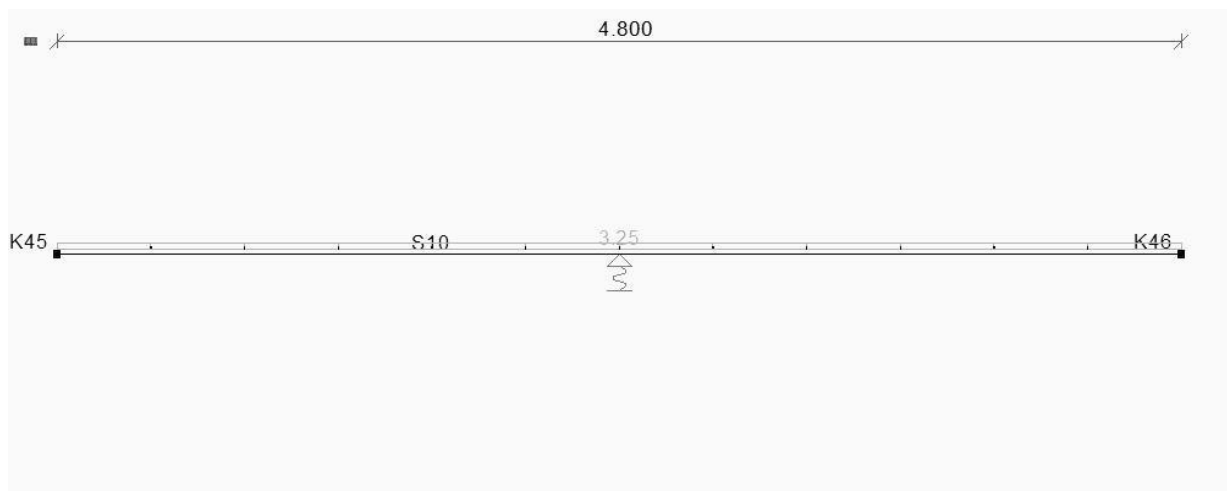
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

Staaf S10

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 3,25 | 3,25 | 0,00 | 4,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

Staaf S10



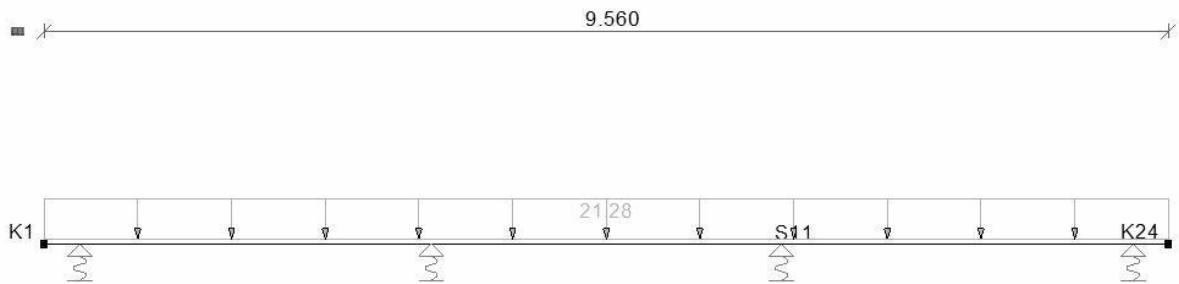
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S11)

Staaf S11

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S11)

Staaf S11

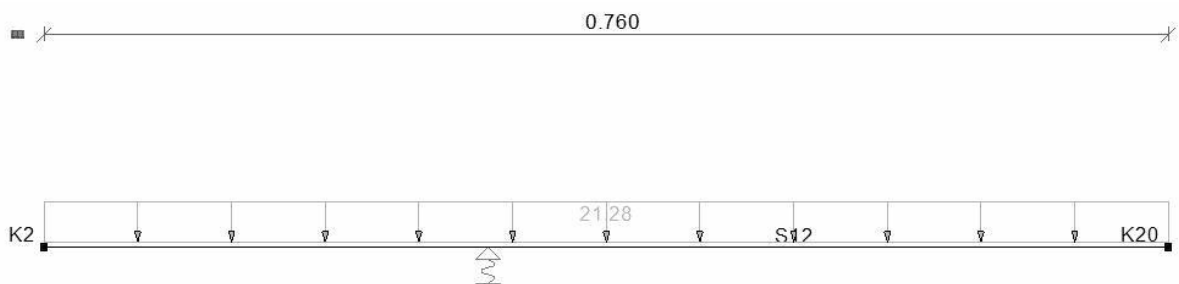


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S12 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

Staaf S12

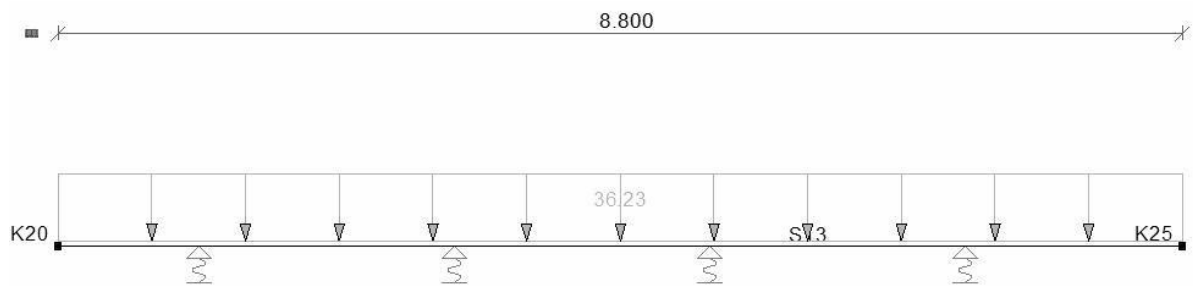


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S13 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 36,23 | 36,23 | 0,00 | 8,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

Staaf S13



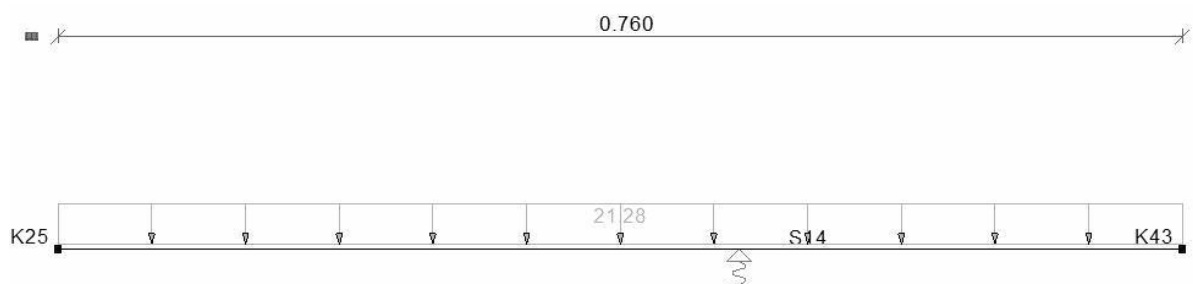
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staaf S14

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staaf S14



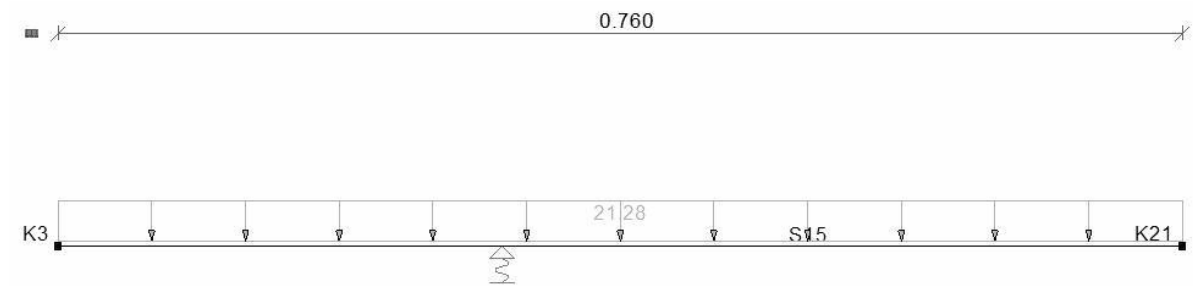
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S15)

Staaf S15

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S15)

Staaf S15



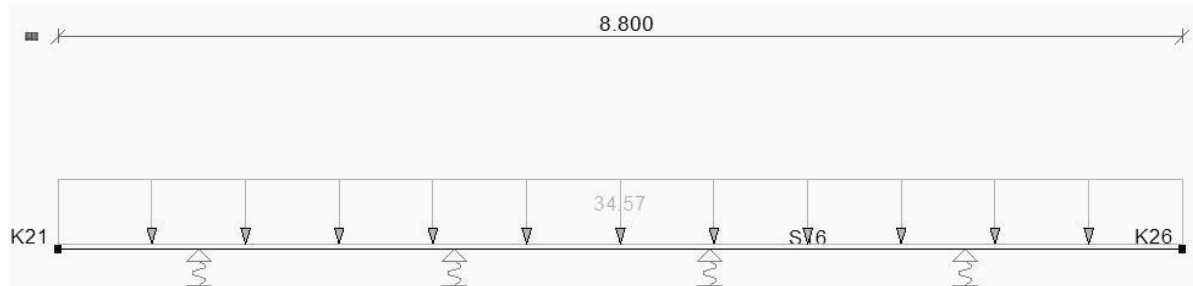
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

Staaf S16

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 34,57 | 34,57 | 0,00 | 8,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

Staaf S16



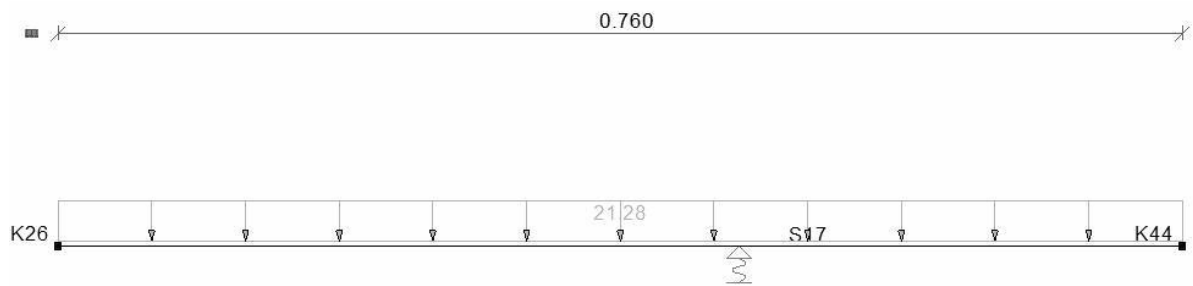
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

Staaf S17

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

Staaf S17



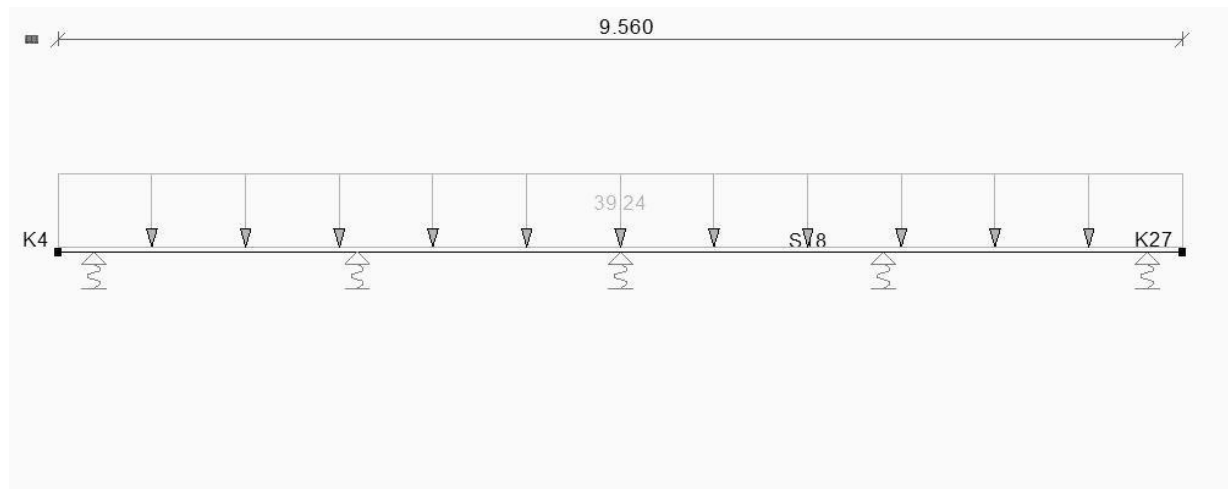
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

Staaf S18

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

Staaf S18



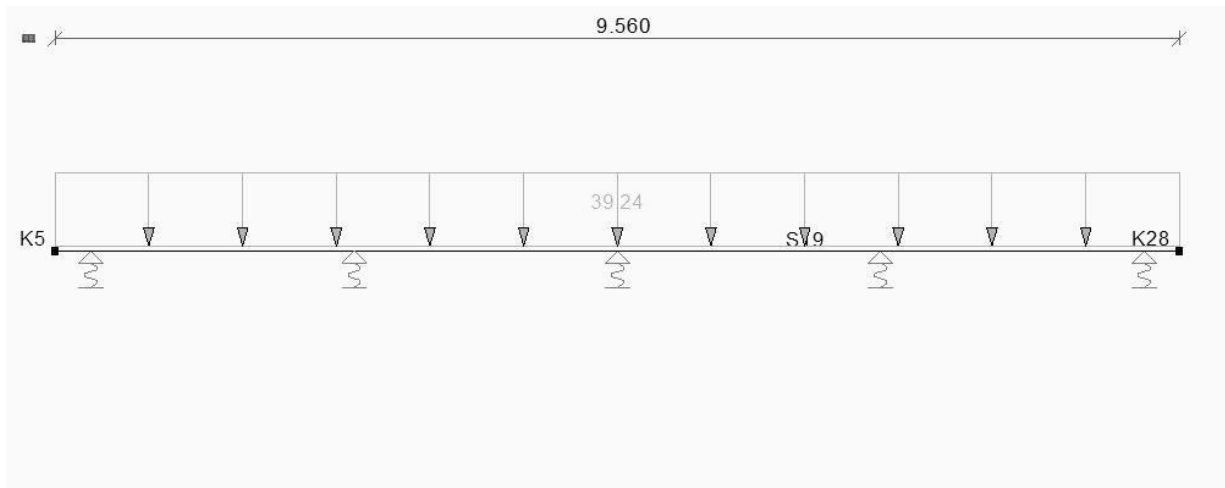
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

Staaf S19

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

Staaf S19



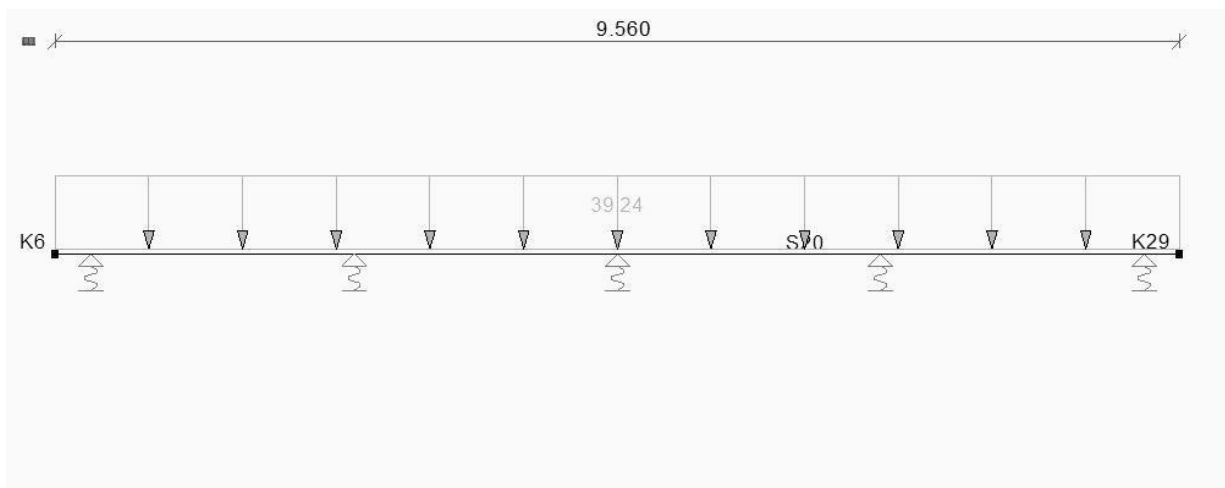
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S20)

Staaf S20

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S20)

Staaf S20



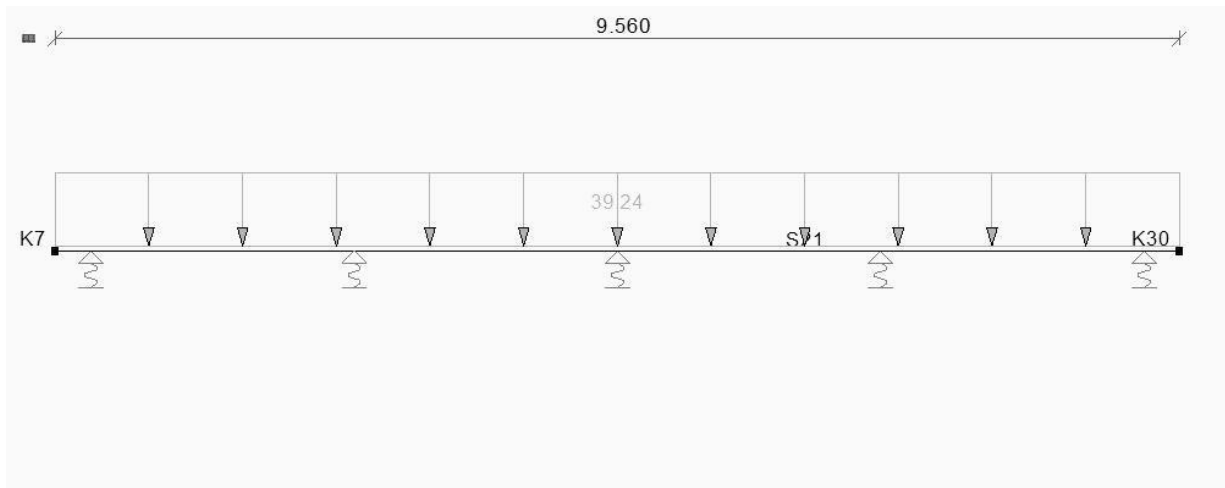
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S21)

Staaf S21

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S21)

Staaf S21



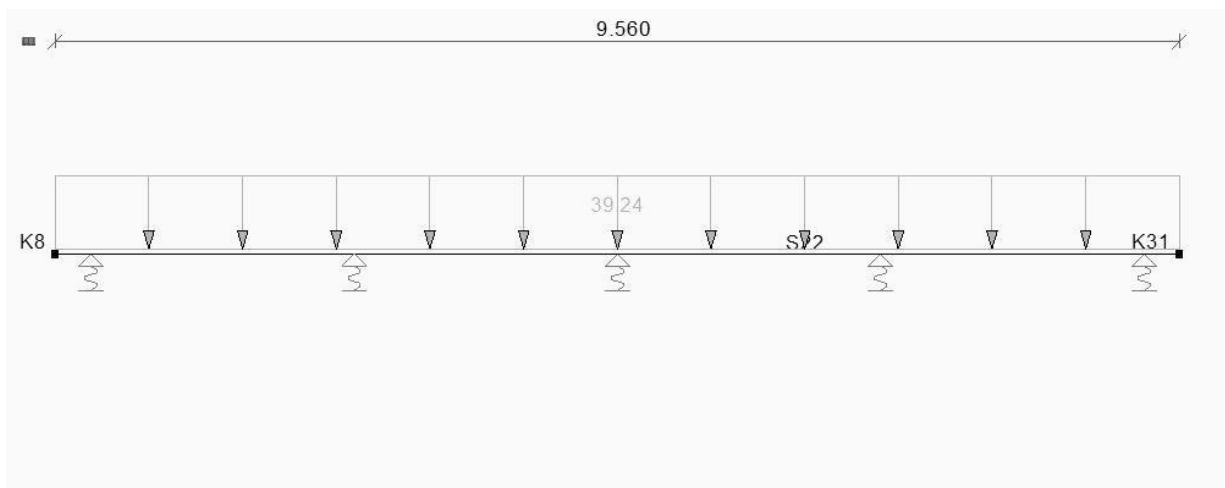
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S22)

Staaf S22

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S22)

Staaf S22



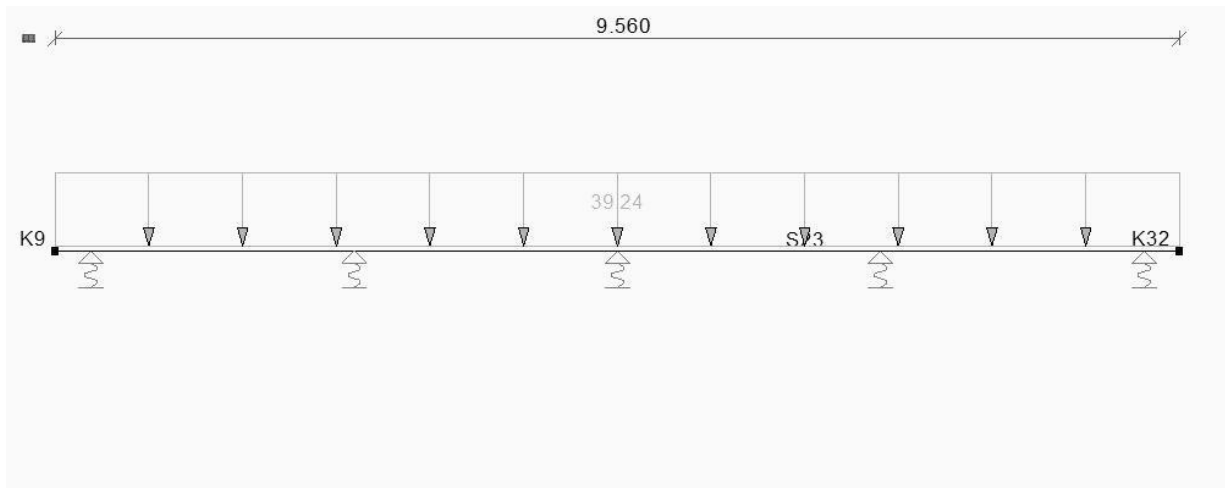
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S23)

Staaf S23

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S23)

Staaf S23



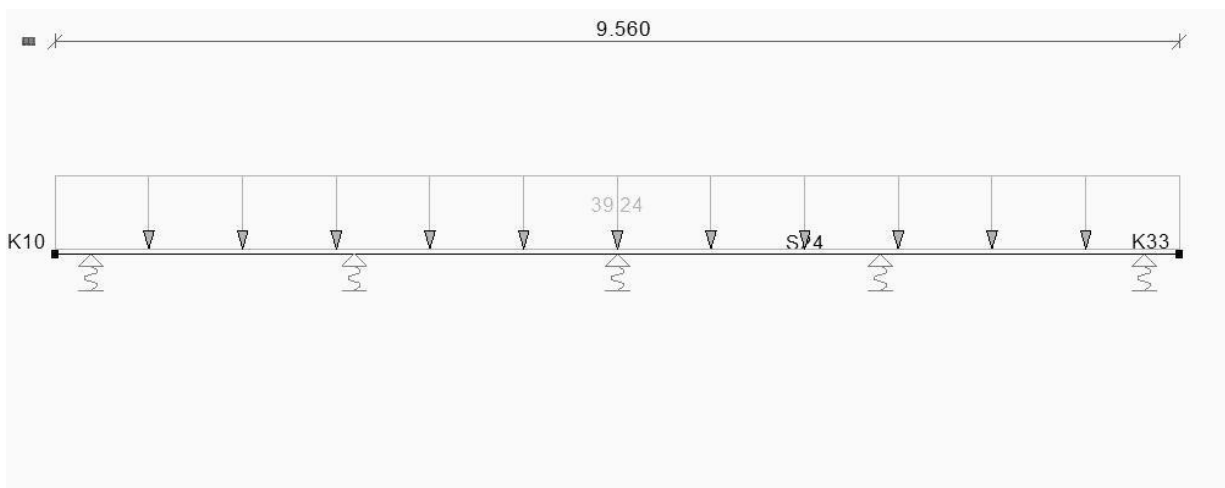
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S24)

Staaf S24

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S24)

Staaf S24



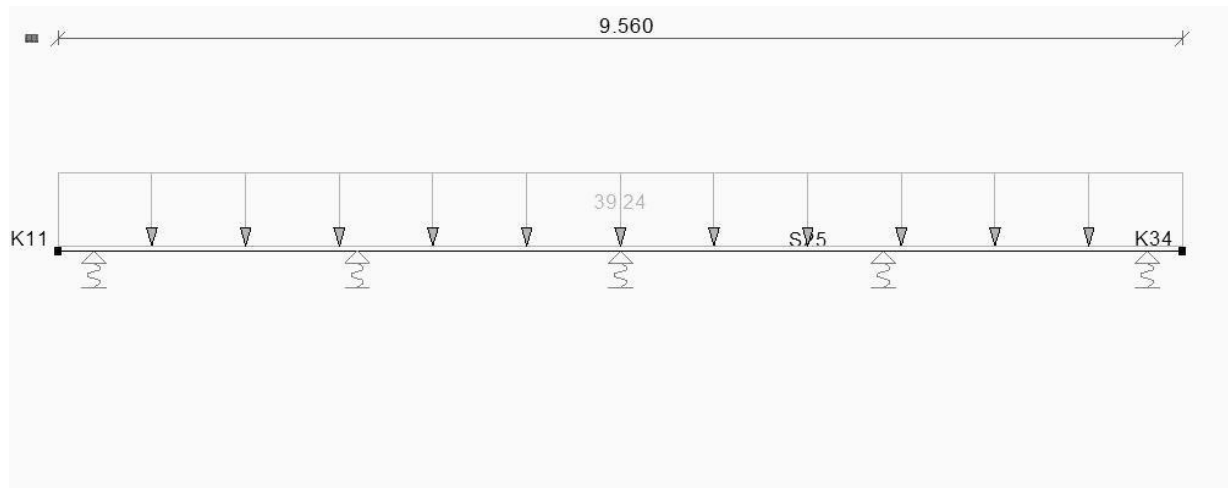
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S25)

Staaf S25

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S25)

Staaf S25



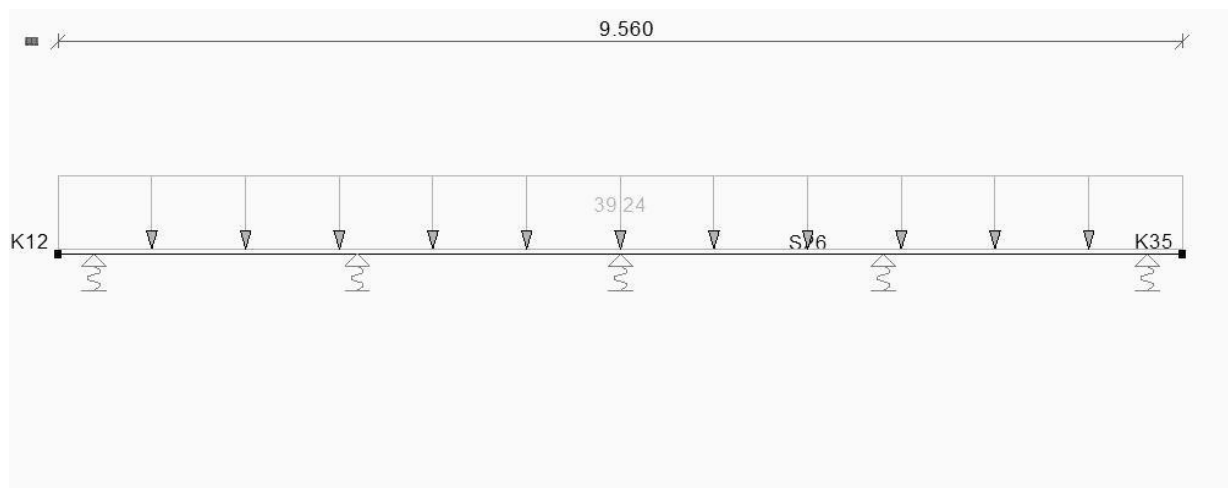
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S26)

Staaf S26

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S26)

Staaf S26



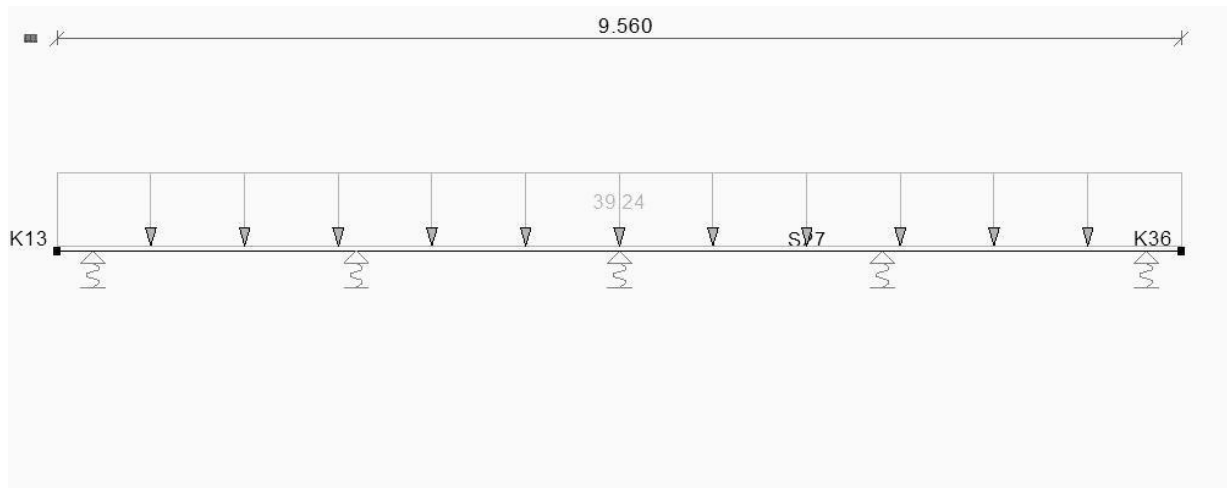
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S27)

Staaf S27

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S27)

Staaf S27



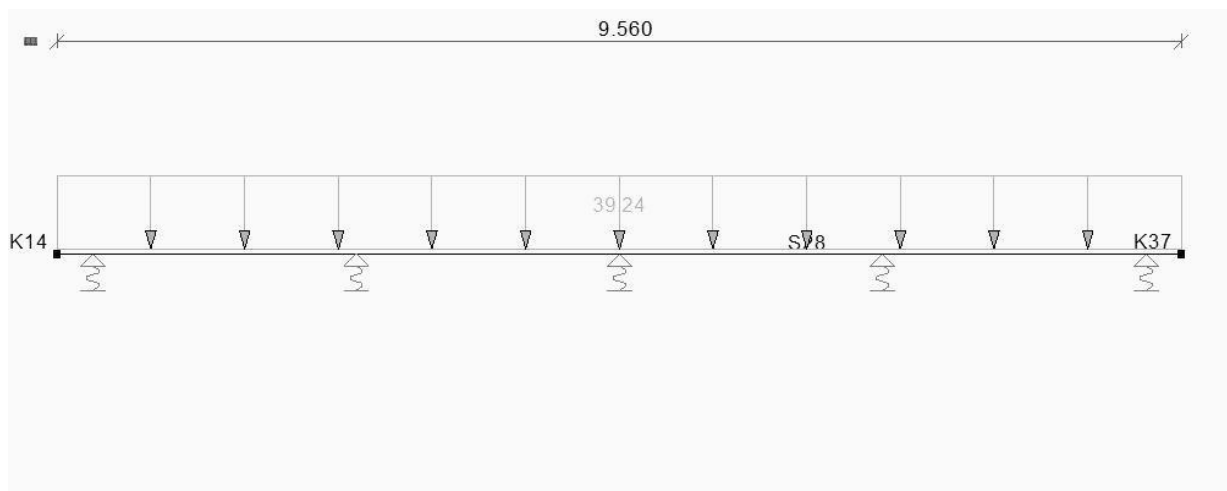
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S28)

Staaf S28

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S28)

Staaf S28



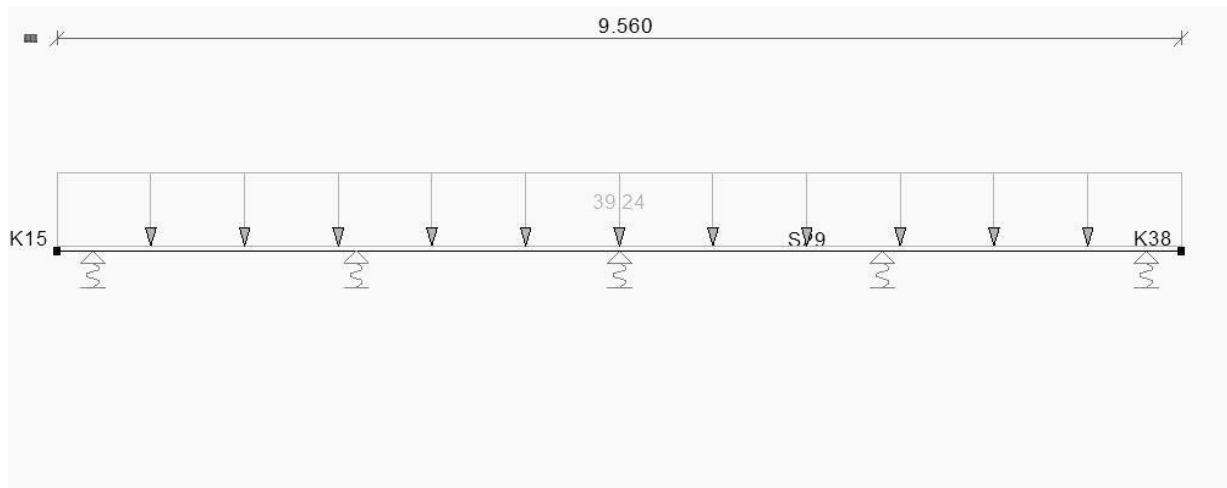
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S29)

Staaf S29

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S29)

Staaf S29



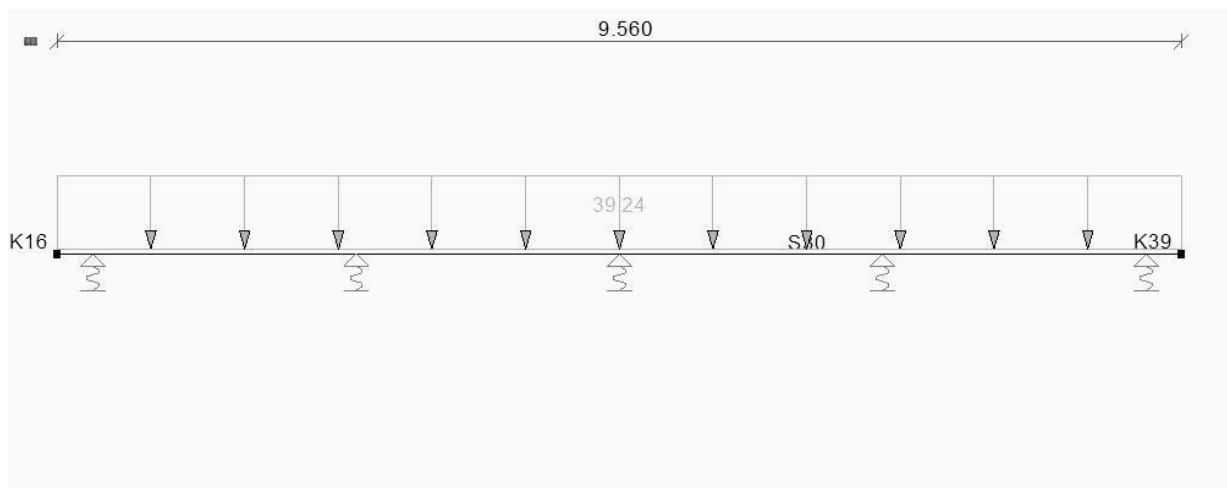
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S30)

Staaf S30

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,24 | 39,24 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S30)

Staaf S30



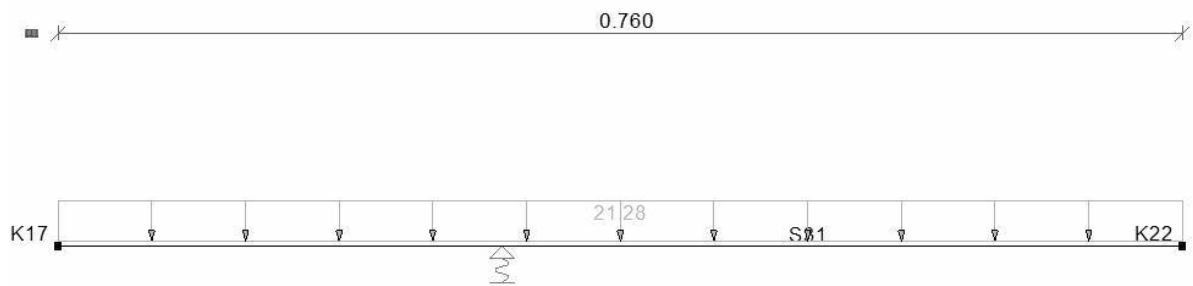
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S31)

Staaf S31

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S31)

Staaf S31



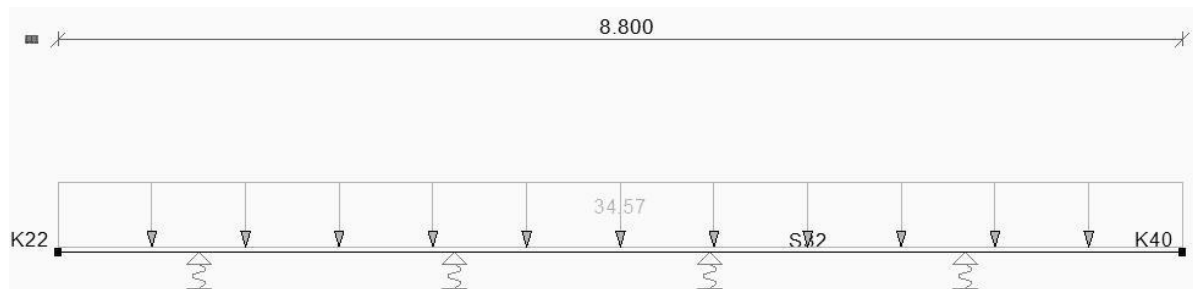
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S32)

Staaf S32

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 34,57 | 34,57 | 0,00 | 8,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S32)

Staaf S32



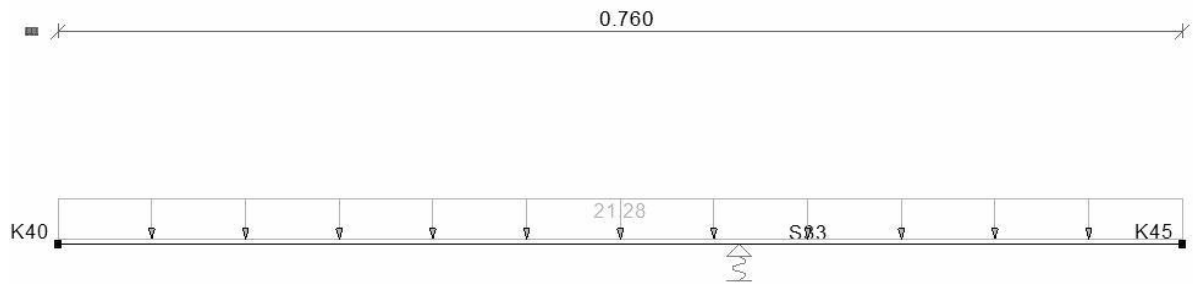
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S33)

Staaf S33

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S33)

Staaf S33



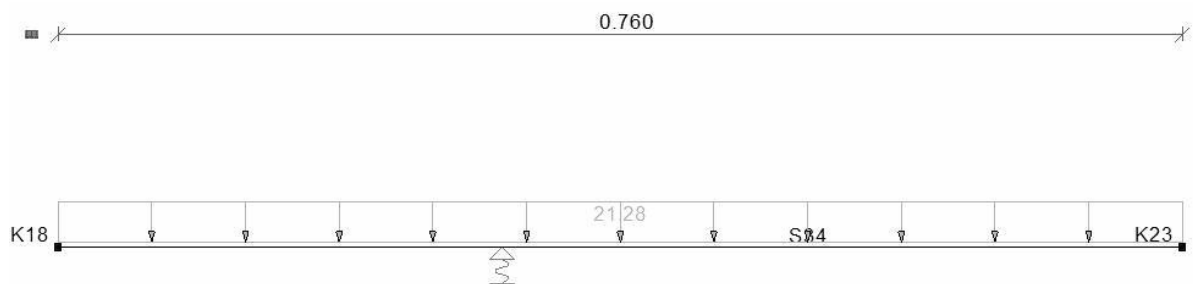
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S34)

Staaf S34

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S34)

Staaf S34



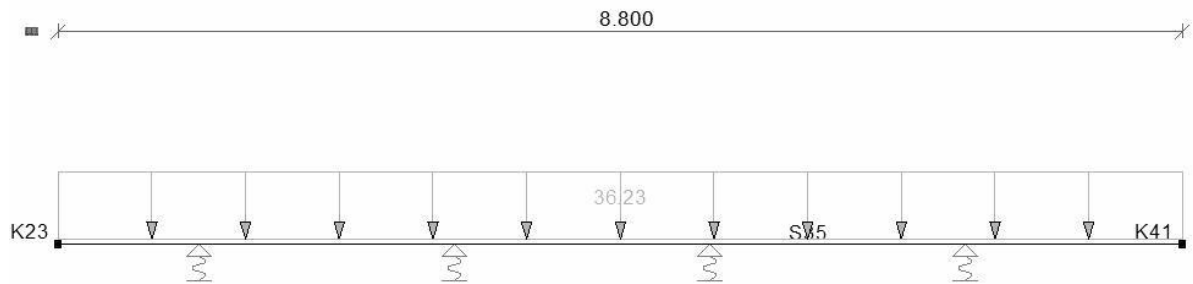
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S35)

Staaf S35

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 36,23 | 36,23 | 0,00 | 8,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S35)

Staaf S35



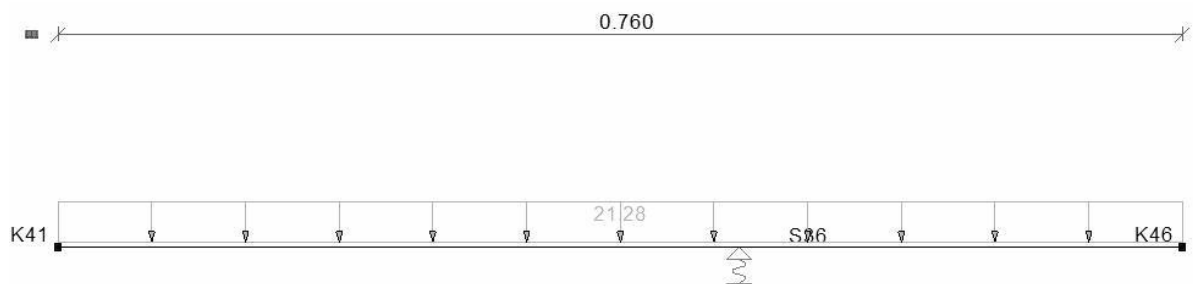
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S36)

Staaf S36

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S36)

Staaf S36



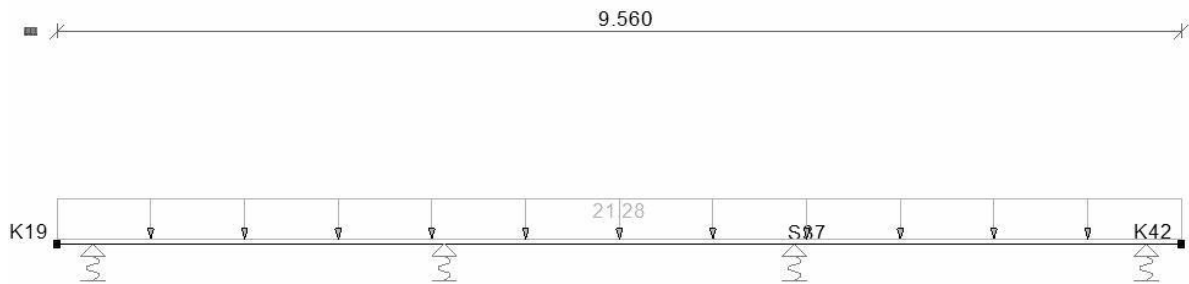
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S37)

Staaf S37

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,28 | 21,28 | 0,00 | 9,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S37)

Staal S37

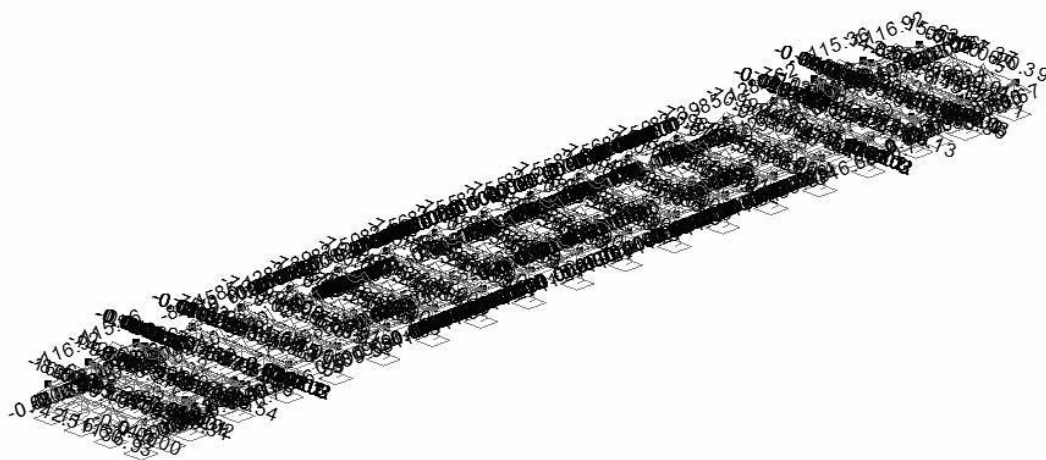


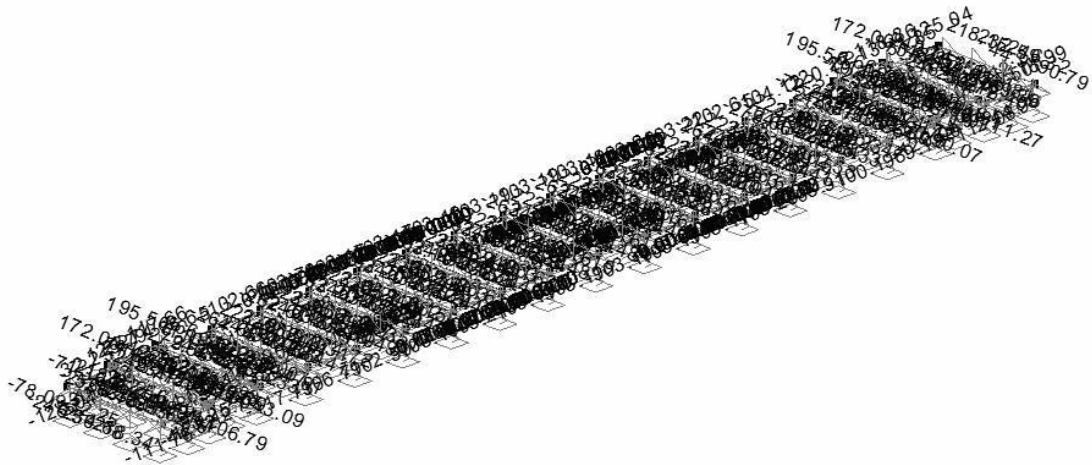
FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 | Fu.C.3 | Fu.C.4 | Fu.C.5 | Fu.C.6 | Fu.C.7 | Fu.C.8 |
|---------|---------------------------------------|--------|---------|---------|---------|---------|---------|---------|---------|
| B.G.1 | Permanent | 1.08 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 | 0.54 | - | 0.54 | - | 0.54 | - |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | 1.35 | 0.54 | - | 0.54 | 0.54 | 0.54 | - | 0.54 |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | 0.54 | - |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | 0.54 |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G.2.6 | Verdeelde veranderlijke belasting (6) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | - |
| B.G. | Omschrijving | Fu.C.9 | Fu.C.10 | Fu.C.11 | Fu.C.12 | Fu.C.13 | Fu.C.14 | Fu.C.15 | Fu.C.16 |
| B.G.1 | Permanent | 1.22 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 0.54 | 1.35 | - | 1.35 | - | 1.35 | - | 1.35 |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | - | - | 1.35 | 1.35 | 1.35 | - | 1.35 | - |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 0.54 | 1.35 | - | - | 1.35 | 1.35 | - | 1.35 |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | - | - | 1.35 | 1.35 | - | 1.35 | 1.35 | - |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 0.54 | 1.35 | - | - | 1.35 | - | 1.35 | 1.35 |
| B.G.2.6 | Verdeelde veranderlijke belasting (6) | 0.54 | - | 1.35 | 1.35 | - | 1.35 | - | 1.35 |

AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties





FU.C. EXTREME OPLEGREACTIES

| Opleggin | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx Mymax |
|----------|-------|---------|---------|------|---------|---|-------|---------|---|----------|
| g | | | | | | | | | | |
| O1 | S1 | Fu.C.2 | -223,84 | 0,00 | 0.00 | | | | | |
| O2 | S3 | Fu.C.2 | -223,84 | 0,00 | 0.00 | | | | | |
| O3 | S4 | Fu.C.2 | -241,13 | 0,00 | 0.00 | | | | | |
| O4 | S5 | Fu.C.2 | -241,13 | 0,00 | 0.00 | | | | | |
| O5 | S6 | Fu.C.5 | -250,84 | 0,00 | 0.00 | | | | | |
| O6 | S8 | Fu.C.5 | -250,84 | 0,00 | 0.00 | | | | | |
| O7 | S9 | Fu.C.5 | -236,51 | 0,00 | 0.00 | | | | | |
| O8 | S10 | Fu.C.5 | -236,51 | 0,00 | 0.00 | | | | | |
| O9 | S11 | Fu.C.2 | -288,70 | 0,00 | 0.00 | | | | | |
| O10 | S11 | Fu.C.1 | -473,55 | 0,00 | 0.00 | | | | | |
| O11 | S11 | Fu.C.1 | -475,69 | 0,00 | 0.00 | | | | | |
| O12 | S11 | Fu.C.2 | -302,03 | 0,00 | 0.00 | | | | | |
| O13 | S12 | Fu.C.2 | -260,03 | 0,00 | 0.00 | | | | | |
| O14 | S13 | Fu.C.1 | -464,01 | 0,00 | 0.00 | | | | | |
| O15 | S13 | Fu.C.1 | -496,57 | 0,00 | 0.00 | | | | | |
| O16 | S13 | Fu.C.1 | -476,27 | 0,00 | 0.00 | | | | | |
| O17 | S13 | Fu.C.1 | -386,38 | 0,00 | 0.00 | | | | | |
| O18 | S14 | Fu.C.5 | -309,01 | 0,00 | 0.00 | | | | | |
| O19 | S15 | Fu.C.2 | -287,67 | 0,00 | 0.00 | | | | | |
| O20 | S16 | Fu.C.1 | -430,93 | 0,00 | 0.00 | | | | | |
| O21 | S16 | Fu.C.1 | -435,42 | 0,00 | 0.00 | | | | | |
| O22 | S16 | Fu.C.1 | -413,87 | 0,00 | 0.00 | | | | | |
| O23 | S16 | Fu.C.1 | -357,08 | 0,00 | 0.00 | | | | | |
| O24 | S17 | Fu.C.12 | -331,50 | 0,00 | 0.00 | | | | | |
| O25 | S18 | Fu.C.1 | -492,35 | 0,00 | 0.00 | | | | | |
| O26 | S18 | Fu.C.1 | -463,20 | 0,00 | 0.00 | | | | | |
| O27 | S18 | Fu.C.1 | -451,30 | 0,00 | 0.00 | | | | | |
| O28 | S18 | Fu.C.1 | -462,21 | 0,00 | 0.00 | | | | | |
| O29 | S18 | Fu.C.1 | -487,14 | 0,00 | 0.00 | | | | | |
| O30 | S19 | Fu.C.1 | -479,61 | 0,00 | 0.00 | | | | | |
| O31 | S19 | Fu.C.1 | -461,58 | 0,00 | 0.00 | | | | | |
| O32 | S19 | Fu.C.1 | -452,59 | 0,00 | 0.00 | | | | | |
| O33 | S19 | Fu.C.1 | -462,11 | 0,00 | 0.00 | | | | | |
| O34 | S19 | Fu.C.1 | -482,44 | 0,00 | 0.00 | | | | | |
| O35 | S20 | Fu.C.1 | -477,34 | 0,00 | 0.00 | | | | | |
| O36 | S20 | Fu.C.1 | -461,51 | 0,00 | 0.00 | | | | | |
| O37 | S20 | Fu.C.1 | -453,16 | 0,00 | 0.00 | | | | | |

| | | | | | | | | | | |
|------------------|--------------|-------------|-------------|-----------|----------------|----------|--------------|----------------|----------|-----------------|
| O38 | S20 | Fu.C.1 | -461,49 | 0,00 | 0.00 | | | | | |
| Oplegging | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx Mymax |
| O39 | S20 | Fu.C.1 | -477,25 | 0,00 | 0.00 | | | | | |
| O40 | S21 | Fu.C.1 | -477,91 | 0,00 | 0.00 | | | | | |
| O41 | S21 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O42 | S21 | Fu.C.1 | -453,08 | 0,00 | 0.00 | | | | | |
| O43 | S21 | Fu.C.1 | -461,55 | 0,00 | 0.00 | | | | | |
| O44 | S21 | Fu.C.1 | -477,83 | 0,00 | 0.00 | | | | | |
| O45 | S22 | Fu.C.1 | -477,93 | 0,00 | 0.00 | | | | | |
| O46 | S22 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O47 | S22 | Fu.C.1 | -453,07 | 0,00 | 0.00 | | | | | |
| O48 | S22 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O49 | S22 | Fu.C.1 | -477,94 | 0,00 | 0.00 | | | | | |
| O50 | S23 | Fu.C.1 | -477,91 | 0,00 | 0.00 | | | | | |
| O51 | S23 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O52 | S23 | Fu.C.1 | -453,07 | 0,00 | 0.00 | | | | | |
| O53 | S23 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O54 | S23 | Fu.C.1 | -477,91 | 0,00 | 0.00 | | | | | |
| O55 | S24 | Fu.C.1 | -477,91 | 0,00 | 0.00 | | | | | |
| O56 | S24 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O57 | S24 | Fu.C.1 | -453,07 | 0,00 | 0.00 | | | | | |
| O58 | S24 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O59 | S24 | Fu.C.1 | -477,91 | 0,00 | 0.00 | | | | | |
| O60 | S25 | Fu.C.1 | -477,91 | 0,00 | 0.00 | | | | | |
| O61 | S25 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O62 | S25 | Fu.C.1 | -453,07 | 0,00 | 0.00 | | | | | |
| O63 | S25 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O64 | S25 | Fu.C.1 | -477,91 | 0,00 | 0.00 | | | | | |
| O65 | S26 | Fu.C.1 | -477,93 | 0,00 | 0.00 | | | | | |
| O66 | S26 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O67 | S26 | Fu.C.1 | -453,07 | 0,00 | 0.00 | | | | | |
| O68 | S26 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O69 | S26 | Fu.C.1 | -477,94 | 0,00 | 0.00 | | | | | |
| O70 | S27 | Fu.C.1 | -477,91 | 0,00 | 0.00 | | | | | |
| O71 | S27 | Fu.C.1 | -461,56 | 0,00 | 0.00 | | | | | |
| O72 | S27 | Fu.C.1 | -453,08 | 0,00 | 0.00 | | | | | |
| O73 | S27 | Fu.C.1 | -461,55 | 0,00 | 0.00 | | | | | |
| O74 | S27 | Fu.C.1 | -477,83 | 0,00 | 0.00 | | | | | |
| O75 | S28 | Fu.C.1 | -477,34 | 0,00 | 0.00 | | | | | |
| O76 | S28 | Fu.C.1 | -461,51 | 0,00 | 0.00 | | | | | |
| O77 | S28 | Fu.C.1 | -453,16 | 0,00 | 0.00 | | | | | |
| O78 | S28 | Fu.C.1 | -461,49 | 0,00 | 0.00 | | | | | |
| O79 | S28 | Fu.C.1 | -477,25 | 0,00 | 0.00 | | | | | |
| O80 | S29 | Fu.C.1 | -479,61 | 0,00 | 0.00 | | | | | |
| O81 | S29 | Fu.C.1 | -461,58 | 0,00 | 0.00 | | | | | |
| O82 | S29 | Fu.C.1 | -452,59 | 0,00 | 0.00 | | | | | |
| O83 | S29 | Fu.C.1 | -462,11 | 0,00 | 0.00 | | | | | |
| O84 | S29 | Fu.C.1 | -482,44 | 0,00 | 0.00 | | | | | |
| O85 | S30 | Fu.C.1 | -492,35 | 0,00 | 0.00 | | | | | |
| O86 | S30 | Fu.C.1 | -463,20 | 0,00 | 0.00 | | | | | |
| O87 | S30 | Fu.C.1 | -451,30 | 0,00 | 0.00 | | | | | |
| O88 | S30 | Fu.C.1 | -462,21 | 0,00 | 0.00 | | | | | |
| O89 | S30 | Fu.C.1 | -487,14 | 0,00 | 0.00 | | | | | |
| O90 | S31 | Fu.C.2 | -287,67 | 0,00 | 0.00 | | | | | |
| O91 | S32 | Fu.C.1 | -430,93 | 0,00 | 0.00 | | | | | |
| O92 | S32 | Fu.C.1 | -435,42 | 0,00 | 0.00 | | | | | |
| O93 | S32 | Fu.C.1 | -413,87 | 0,00 | 0.00 | | | | | |
| O94 | S32 | Fu.C.1 | -357,08 | 0,00 | 0.00 | | | | | |
| O95 | S33 | Fu.C.12 | -331,50 | 0,00 | 0.00 | | | | | |
| O96 | S34 | Fu.C.2 | -260,03 | 0,00 | 0.00 | | | | | |
| O97 | S35 | Fu.C.1 | -464,01 | 0,00 | 0.00 | | | | | |
| O98 | S35 | Fu.C.1 | -496,57 | 0,00 | 0.00 | | | | | |
| O99 | S35 | Fu.C.1 | -476,27 | 0,00 | 0.00 | | | | | |
| O100 | S35 | Fu.C.1 | -386,38 | 0,00 | 0.00 | | | | | |
| O101 | S36 | Fu.C.5 | -309,01 | 0,00 | 0.00 | | | | | |
| O102 | S37 | Fu.C.2 | -288,70 | 0,00 | 0.00 | | | | | |

| | | | | | |
|------|-----|--------|---------|------|------|
| O103 | S37 | Fu.C.1 | -473,55 | 0,00 | 0.00 |
| O104 | S37 | Fu.C.1 | -475,69 | 0,00 | 0.00 |

| Opleggin | Knoop | B.C. | Zmax | Mx | My | B.C. | Z | Mxmax | My | B.C. | Z | Mx | Mymax |
|--------------------------------|-------|--------|----------------|------|------|------|---|-------|----|------|---|----|-------|
| O105 | S37 | Fu.C.2 | -302,03 | 0,00 | 0.00 | | | | | | | | |
| Globale extreme waarden | | | | | | | | | | | | | |
| O98 | S35 | Fu.C.1 | -496.57 | 0.00 | 0.00 | | | | | | | | |

AFB. FU.C. OPLEGREACTIES OMHULLENDE

Fundamenteel Belastingscombinaties

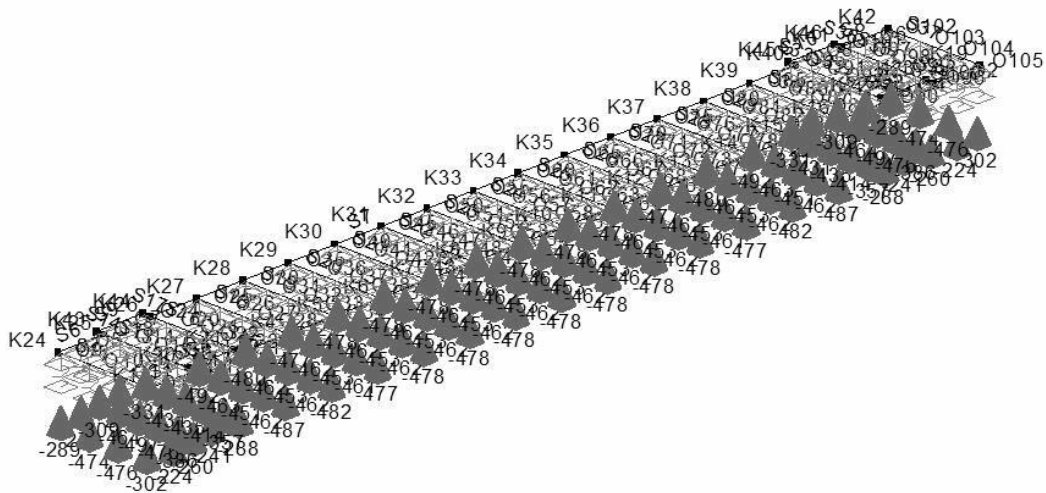
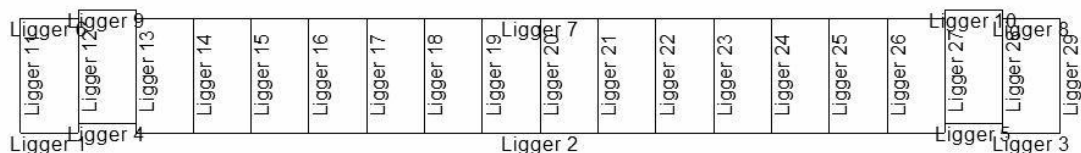


FIG. BETONDEFINITIE



BETON EIGENSCHAPPEN (NEN-EN1992-1-1:2015\NB:2016)

| Naam | Waarde | Eenheden |
|--------------------|--------|----------|
| Hoek drukdiagonaal | 21.80 | ° |

LIGGER 1

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 1 |
| Staven | S1 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 4.80 m |
| Extra begin | 0.250 m |

Kruipgegevens

| | |
|-------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |

Ligger 1

| | | | |
|------------|---------|-----------------|---------|
| Extra eind | 0.250 m | Nominale korrel | 31.5 mm |
| Fabric. | l.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 1

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEN
Ligger 1

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S11 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| 2.400 | O1 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.800 | | | | S12 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|-----------|
| 2.400 | 83.23 | 4R12 | 1R12 | 443 | 565 | | -68.26 | N/B | 12.0 <= 10.7 | 76 <= 172 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 0.692 | 15.46 | 4R12 | | 80 | 452 | | 12.75 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.106 | 16.34 | 4R12 | | 84 | 452 | | 13.51 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 1

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 2.400 | 0.04 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 1

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|-------|-----------|----------|----------|--------|--------|---------|--------|-------|-------|
| 0.000 | 44.64 | R8-300 | 103 | 0 | 335 | 61.732 | 144.734 | 44.639 | N/B | N/B |
| 1.774 | 71.36 | R8-300 | 167 | 0 | 335 | 66.487 | 143.132 | 71.357 | N/B | N/B |
| 3.026 | 71.74 | R8-300 | 168 | 0 | 335 | 66.487 | 143.132 | 71.739 | N/B | N/B |
| 4.800 | 44.82 | R8-300 | 104 | 0 | 335 | 61.732 | 144.734 | 44.819 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 1

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 |
| 1R12b(bijleg)(bijleg) | 1.730 | 0.000 | 2,5D | 0.670 | 2.400 | 2.400 | 0.670 | 3.070 | 0.000 | 2,5D | 1.339 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------------------|
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.159 | 0.000 | 4.550 | 0.160 | 5.015 | 0.000 | 2,5D | 5.230 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 1 |
|-----------|--------|----------|--------|-------|--------|-------|--------|----------|
| S11 | Rechts | 4xR8-300 | -0.300 | 0.900 | 1.200 | 44.75 | 144.73 | |
| O1 | Links | 3xR8-300 | 0.900 | 1.800 | 0.900 | 71.47 | 143.13 | |
| O1 | Rechts | 4xR8-300 | 1.800 | 3.000 | 1.200 | 71.85 | 144.73 | |
| O1 | Rechts | 3xR8-300 | 3.000 | 3.900 | 0.900 | 71.85 | 143.13 | |
| S12 | Links | 4xR8-300 | 3.900 | 5.100 | 1.200 | 71.85 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | Ligger 1 |
|------------------|-----------|-------------|-------------|-------------|-----------|----------|
| V2 (2.400-4.800) | Vloer | -0,1 <= 9,6 | -0,1 <= 9,6 | 0,01 | 0,01 | |
| | Handmatig | | | | | |
| V1 (0.000-2.400) | Vloer | -0,1 <= 9,6 | -0,1 <= 9,6 | 0,01 | 0,01 | |
| | Handmatig | | | | | |
| m | - | mm | mm | - | - | |

LIGGER 2
ALGEMEEN + KUIJP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 2 |
| Staven | S2 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 67.20 m |
| Extra begin | 0.250 m |
| Extra eind | 0.250 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 2
DEKKING

| | Boven | Onder | Zij- + Voorkant | Ligger 2 |
|--------------------|-------|-------|-----------------|----------|
| Gereduceerd | Nee | Nee | Nee | |
| Mil. | XC2 | XC2 | XC2 | |
| Met. | Norm. | Norm. | Norm. | |
| Nab. | Nee | Nee | Nee | |
| Benodigde dekking | 30 mm | 30 mm | 30 mm | |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm | |
| - | - | - | - | |

OPLEGGEGETEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment | Ligger 2 |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|----------|----------|----------|
| 0.000 | | | | S15 | 0,500 | Nee | | | Niet | Niet | |
| | | | | | | | | | afgetopt | afgetopt | |
| 4.800 | | | | S18 | 0,400 | N/B | | | Niet | Niet | |
| | | | | | | | | | afgetopt | afgetopt | |
| 9.600 | | | | S19 | 0,400 | N/B | | | Niet | Niet | |
| | | | | | | | | | afgetopt | afgetopt | |
| 14.400 | | | | S20 | 0,400 | N/B | | | Niet | Niet | |
| | | | | | | | | | afgetopt | afgetopt | |
| 19.200 | | | | S21 | 0,400 | N/B | | | Niet | Niet | |

| | | | | | | | |
|--------|-----|-----|-------|-----|-----|------------------|------------------|
| 24.000 | | S22 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet |
| 28.800 | | S23 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet |
| | | | | | | afgetopt | afgetopt |
| 33.600 | | S24 | 0,400 | N/B | | Niet | Niet |
| 38.400 | | S25 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet |
| 43.200 | | S26 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet |
| 48.000 | | S27 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet |
| 52.800 | | S28 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet |
| 57.600 | | S29 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet |
| 62.400 | | S30 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet |
| 67.200 | | S31 | 0,500 | Nee | | afgetopt Niet | afgetopt Niet |
| | m - | - | m - | m - | kNm | kNm - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 2 |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|-------------|------------|----------|
| 0.000 | 1.80 | 4R12 | | 10 | 452 | | -1.48 | N/B | 12.0 <= | 101 <= 300 | |
| 4.800 | 71.49 | 4R12 | | 379 | 452 | | -59.07 | N/B | 28.0 | | |
| 9.600 | 86.13 | 4R12 | 1R12 | 460 | 565 | | -71.13 | N/B | 12.0 <= 9.6 | 101 <= 147 | |
| | | | | | | | | | 10.0 | 76 <= 157 | |
| 14.400 | 82.65 | 4R12 | 1R12 | 441 | 565 | | -68.24 | N/B | 12.0 <= | 76 <= 172 | |
| | | | | | | | | | 10.7 | | |
| 19.200 | 82.45 | 4R12 | 1R12 | 440 | 565 | | -68.06 | N/B | 12.0 <= | 76 <= 173 | |
| | | | | | | | | | 10.8 | | |
| 24.000 | 82.56 | 4R12 | 1R12 | 440 | 565 | | -68.16 | N/B | 12.0 <= | 76 <= 172 | |
| | | | | | | | | | 10.8 | | |
| 28.800 | 82.55 | 4R12 | 1R12 | 440 | 565 | | -68.15 | N/B | 12.0 <= | 76 <= 172 | |
| | | | | | | | | | 10.8 | | |
| 33.600 | 82.55 | 4R12 | 1R12 | 440 | 565 | | -68.15 | N/B | 12.0 <= | 76 <= 172 | |
| | | | | | | | | | 10.8 | | |
| 38.400 | 82.55 | 4R12 | 1R12 | 440 | 565 | | -68.15 | N/B | 12.0 <= | 76 <= 172 | |
| | | | | | | | | | 10.8 | | |
| 43.200 | 82.56 | 4R12 | 1R12 | 440 | 565 | | -68.16 | N/B | 12.0 <= | 76 <= 172 | |
| | | | | | | | | | 10.8 | | |
| 48.000 | 82.45 | 4R12 | 1R12 | 440 | 565 | | -68.06 | N/B | 12.0 <= | 76 <= 173 | |
| | | | | | | | | | 10.8 | | |
| 52.800 | 82.65 | 4R12 | 1R12 | 441 | 565 | | -68.24 | N/B | 12.0 <= | 76 <= 172 | |
| | | | | | | | | | 10.7 | | |
| 57.600 | 86.12 | 4R12 | 1R12 | 460 | 565 | | -71.11 | N/B | 12.0 <= | 76 <= 157 | |
| | | | | | | | | | 10.0 | | |
| 62.400 | 71.49 | 4R12 | | 379 | 452 | | -59.07 | N/B | 12.0 <= 9.6 | 101 <= 147 | |
| 67.200 | 1.79 | 4R12 | | 10 | 452 | | -1.48 | N/B | 12.0 <= | 101 <= 300 | |
| | m | kNm | - | - | mm2 | mm2 - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 2 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|-------------|------------|----------|
| 2.075 | 90.78 | 4R12 | 1R12 | 486 | 565 | | 75.03 | N/B | 12.0 <= 9.1 | 76 <= 137 | |
| 7.099 | 46.85 | 4R12 | | 246 | 452 | | 38.41 | N/B | 12.0 <= | 101 <= 277 | |
| | | | | | | | | | 22.7 | | |
| 12.016 | 39.58 | 4R12 | | 207 | 452 | | 32.68 | N/B | 12.0 <= | 101 <= 295 | |
| | | | | | | | | | 26.9 | | |

| | | | | | | | | | |
|--------|-------|------|------|-----|-----|-------|-----|--------------|------------|
| 16.801 | 41.31 | 4R12 | | 216 | 452 | 34.10 | N/B | 12.0 <= 25.9 | 101 <= 291 |
| 21.599 | 41.33 | 4R12 | | 216 | 452 | 34.12 | N/B | 12.0 <= 25.9 | 101 <= 291 |
| 26.400 | 41.27 | 4R12 | | 216 | 452 | 34.07 | N/B | 12.0 <= 25.9 | 101 <= 291 |
| 31.200 | 41.27 | 4R12 | | 216 | 452 | 34.07 | N/B | 12.0 <= 25.9 | 101 <= 291 |
| 36.000 | 41.27 | 4R12 | | 216 | 452 | 34.07 | N/B | 12.0 <= 25.9 | 101 <= 291 |
| 40.800 | 41.27 | 4R12 | | 216 | 452 | 34.07 | N/B | 12.0 <= 25.9 | 101 <= 291 |
| 45.601 | 41.33 | 4R12 | | 216 | 452 | 34.12 | N/B | 12.0 <= 25.9 | 101 <= 291 |
| 50.399 | 41.31 | 4R12 | | 216 | 452 | 34.10 | N/B | 12.0 <= 25.9 | 101 <= 291 |
| 55.183 | 39.58 | 4R12 | | 207 | 452 | 32.68 | N/B | 12.0 <= 26.9 | 101 <= 295 |
| 60.099 | 46.66 | 4R12 | | 245 | 452 | 38.34 | N/B | 12.0 <= 22.7 | 101 <= 277 |
| 65.126 | 90.71 | 4R12 | 1R12 | 486 | 565 | 74.97 | N/B | 12.0 <= 9.1 | 76 <= 137 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 2

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.16 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 2

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|------|------|
| 0.000 | 89.22 | R8-300 | 207 | 1 | 335 | 61.674 | 144.734 | 89.218 | N/B | N/B |
| 4.800 | 117.73 | R8-300 | 273 | 1 | 335 | 61.674 | 144.734 | 117.727 | N/B | N/B |
| 4.800 | 100.19 | R8-300 | 232 | 0 | 335 | 61.728 | 144.734 | 100.185 | N/B | N/B |
| 9.600 | 106.79 | R8-300 | 250 | 0 | 335 | 61.728 | 143.132 | 106.788 | N/B | N/B |
| 9.600 | 103.91 | R8-300 | 243 | 0 | 335 | 61.729 | 143.132 | 103.913 | N/B | N/B |
| 14.400 | 102.50 | R8-300 | 240 | 0 | 335 | 61.729 | 143.132 | 102.498 | N/B | N/B |
| 14.400 | 103.23 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.234 | N/B | N/B |
| 19.200 | 103.16 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.158 | N/B | N/B |
| 19.200 | 103.17 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.165 | N/B | N/B |
| 24.000 | 103.21 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.214 | N/B | N/B |
| 24.000 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.190 | N/B | N/B |
| 28.800 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.188 | N/B | N/B |
| 28.800 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.189 | N/B | N/B |
| 33.600 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.188 | N/B | N/B |
| 33.600 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.188 | N/B | N/B |
| 38.400 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.189 | N/B | N/B |
| 38.400 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.188 | N/B | N/B |
| 43.200 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.190 | N/B | N/B |
| 43.200 | 103.21 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.214 | N/B | N/B |
| 48.000 | 103.17 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.165 | N/B | N/B |
| 48.000 | 103.16 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.158 | N/B | N/B |
| 52.800 | 103.23 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.233 | N/B | N/B |
| 52.800 | 102.50 | R8-300 | 240 | 0 | 335 | 61.729 | 143.132 | 102.498 | N/B | N/B |
| 57.600 | 103.91 | R8-300 | 243 | 0 | 335 | 61.729 | 143.132 | 103.911 | N/B | N/B |
| 57.600 | 106.75 | R8-300 | 250 | 0 | 335 | 61.728 | 143.132 | 106.751 | N/B | N/B |
| 62.400 | 100.19 | R8-300 | 232 | 0 | 335 | 61.728 | 144.734 | 100.185 | N/B | N/B |

| | | | | | | | | | | |
|--------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 62.400 | 117.73 | R8-300 | 273 | 1 | 335 | 61.674 | 144.734 | 117.727 | N/B | N/B |
| 67.200 | 89.18 | R8-300 | 206 | 1 | 335 | 61.674 | 144.734 | 89.184 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 2 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12c(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 66.950 | 0.120 | 67.415 | 0.000 | 2,5D | 67.630 |
| 1R12d(bijleg)(bijleg) | 8.371 | 0.000 | 2,5D | 0.683 | 9.054 | 10.146 | 0.683 | 10.829 | 0.000 | 2,5D | 2.458 |
| 1R12e(bijleg)(bijleg) | 13.735 | 0.000 | 2,5D | 0.665 | 14.400 | 14.400 | 0.665 | 15.065 | 0.000 | 2,5D | 1.330 |
| 1R12f(bijleg)(bijleg) | 18.537 | 0.000 | 2,5D | 0.663 | 19.200 | 19.200 | 0.663 | 19.863 | 0.000 | 2,5D | 1.327 |
| 1R12g(bijleg)(bijleg) | 23.336 | 0.000 | 2,5D | 0.664 | 24.000 | 24.000 | 0.664 | 24.664 | 0.000 | 2,5D | 1.328 |
| 1R12h(bijleg)(bijleg) | 28.136 | 0.000 | 2,5D | 0.664 | 28.800 | 28.800 | 0.664 | 29.464 | 0.000 | 2,5D | 1.328 |
| 1R12i(bijleg)(bijleg) | 32.936 | 0.000 | 2,5D | 0.664 | 33.600 | 33.600 | 0.664 | 34.264 | 0.000 | 2,5D | 1.328 |
| 1R12j(bijleg)(bijleg) | 37.736 | 0.000 | 2,5D | 0.664 | 38.400 | 38.400 | 0.664 | 39.064 | 0.000 | 2,5D | 1.328 |
| 1R12k(bijleg)(bijleg) | 42.536 | 0.000 | 2,5D | 0.664 | 43.200 | 43.200 | 0.664 | 43.864 | 0.000 | 2,5D | 1.328 |
| 1R12l(bijleg)(bijleg) | 47.337 | 0.000 | 2,5D | 0.663 | 48.000 | 48.000 | 0.663 | 48.663 | 0.000 | 2,5D | 1.327 |
| 1R12m(bijleg)(bijleg) | 52.135 | 0.000 | 2,5D | 0.665 | 52.800 | 52.800 | 0.665 | 53.465 | 0.000 | 2,5D | 1.330 |
| 1R12n(bijleg)(bijleg) | 56.371 | 0.000 | 2,5D | 0.683 | 57.054 | 58.145 | 0.683 | 58.829 | 0.000 | 2,5D | 2.458 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 2 Lengte |
|------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12e3(basis)(basis) | -0.215 | 0.110 | 4,0D | 0.319 | 0.000 | 66.950 | 0.319 | 67.415 | 0.000 | 2,5D | 67.740 |
| 1R12f3(bijleg)(bijleg) | 0.544 | 0.000 | 2,5D | 0.478 | 1.022 | 3.127 | 0.478 | 3.606 | 0.000 | 2,5D | 3.062 |
| 1R12g3(bijleg)(bijleg) | 63.598 | 0.000 | 2,5D | 0.478 | 64.076 | 66.176 | 0.478 | 66.654 | 0.000 | 2,5D | 3.057 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 2 |
|-----------|--------|------------|--------|--------|--------|--------|--------|----------|
| S15 | Rechts | 25xR8-300 | -0.300 | 7.200 | 7.500 | 118.21 | 144.73 | |
| S19 | Links | 176xR8-300 | 7.200 | 60.000 | 52.800 | 107.27 | 143.13 | |
| S29 | Links | 25xR8-300 | 60.000 | 67.500 | 7.500 | 118.21 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 2 |
|---------------------|-----------|-------------|-------------------|-----------|----------|
| V14 (62.400-67.200) | Vloer | 3,6 <= 19,2 | 11,5 <= 19,2 | 0,19 | 0,60 |
| | Handmatig | | | | |
| V13 (57.600-62.400) | Vloer | 2,5 <= 19,2 | 10,5 <= 19,2 | 0,13 | 0,55 |
| | Handmatig | | | | |
| V12 (52.800-57.600) | Vloer | 2,2 <= 19,2 | 9,8 <= 19,2 | 0,11 | 0,51 |
| | Handmatig | | | | |
| V11 (48.000-52.800) | Vloer | 2,2 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |
| | Handmatig | | | | |
| V10 (43.200-48.000) | Vloer | 2,3 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |
| | Handmatig | | | | |
| V9 (38.400-43.200) | Vloer | 2,3 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |
| | Handmatig | | | | |
| V8 (33.600-38.400) | Vloer | 2,3 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |
| | Handmatig | | | | |
| V7 (28.800-33.600) | Vloer | 2,3 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |
| | Handmatig | | | | |
| V6 (24.000-28.800) | Vloer | 2,3 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |
| | Handmatig | | | | |
| V5 (19.200-24.000) | Vloer | 2,3 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |
| | Handmatig | | | | |
| V4 (14.400-19.200) | Vloer | 2,3 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |
| | Handmatig | | | | |
| V3 (9.600-14.400) | Vloer | 2,2 <= 19,2 | 9,8 <= 19,2 | 0,12 | 0,51 |

| | | | | | |
|------------------|--------------------|-------------|--------------|------|------|
| V2 (4.800-9.600) | Handmatig Vloer | 2,5 <= 19,2 | 10,5 <= 19,2 | 0,13 | 0,55 |
| V1 (0.000-4.800) | Handmatig Vloer | 3,6 <= 19,2 | 11,5 <= 19,2 | 0,19 | 0,60 |
| m | - | mm | mm | - | - |

LIGGER 3

ALGEMEEN + KRUIP

Ligger 3

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 3 |
| Staven | S3 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 4.80 m |
| Extra begin | 0.250 m |
| Extra eind | 0.250 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

DEKKING

Ligger 3

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENEN

Ligger 3

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|---------------|--------------|-------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S34 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| 2.400 | O2 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.800 | | | | S37 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

Ligger 3

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|--------------|-----------|
| 2.400 | 84.30 | 4R12 | 1R12 | 449 | 565 | | -68.66 | N/B | 12.0 <= 10.6 | 76 <= 170 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

Ligger 3

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 0.689 | 16.13 | 4R12 | | 83 | 452 | | 13.32 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.103 | 15.67 | 4R12 | | 81 | 452 | | 12.95 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

Ligger 3

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 2.400 | 0.04 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 3 VEdi |
|---------|-------|----------|----------|----------|--------|--------|---------|--------|-------|------------------|
| 0.000 | 44.50 | R8-300 | 103 | 0 | 335 | 61.732 | 144.734 | 44.498 | N/B | N/B |
| 1.774 | 71.68 | R8-300 | 168 | 0 | 335 | 66.487 | 143.132 | 71.678 | N/B | N/B |
| 3.026 | 71.59 | R8-300 | 168 | 0 | 335 | 66.487 | 143.132 | 71.591 | N/B | N/B |
| 4.800 | 44.96 | R8-300 | 104 | 0 | 335 | 61.732 | 144.734 | 44.959 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 3 Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------------------|
| 4R12o(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 |
| 1R12p(bijleg)(bijleg) | 1.722 | 0.000 | 2,5D | 0.678 | 2.400 | 2.400 | 0.678 | 3.078 | 0.000 | 2,5D | 1.356 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 3 Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------------------|
| 4R12o(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.159 | 0.000 | 4.550 | 0.161 | 5.015 | 0.000 | 2,5D | 5.230 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 3 |
|-----------|--------|----------|--------|-------|--------|-------|--------|----------|
| S34 | Rechts | 4xR8-300 | -0.300 | 0.900 | 1.200 | 44.61 | 144.73 | |
| O2 | Links | 3xR8-300 | 0.900 | 1.800 | 0.900 | 71.78 | 143.13 | |
| O2 | Rechts | 4xR8-300 | 1.800 | 3.000 | 1.200 | 71.78 | 144.73 | |
| O2 | Rechts | 3xR8-300 | 3.000 | 3.900 | 0.900 | 71.70 | 143.13 | |
| S37 | Links | 4xR8-300 | 3.900 | 5.100 | 1.200 | 71.78 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | Ligger 3 |
|------------------|-----------|-------------|-------------|-------------|-----------|----------|
| V2 (2.400-4.800) | Vloer | -0,1 <= 9,6 | -0,1 <= 9,6 | 0,01 | 0,01 | |
| | Handmatig | | | | | |
| V1 (0.000-2.400) | Vloer | -0,1 <= 9,6 | -0,1 <= 9,6 | 0,01 | 0,01 | |
| | Handmatig | | | | | |
| m | - | mm | mm | - | - | |

LIGGER 4
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 4 |
| Staven | S4 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 4.80 m |
| Extra begin | 0.250 m |
| Extra eind | 0.250 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

DEKKING
Boven
Onder
Zij- + Voorkant
Ligger 4

| | | | |
|--------------------|-------|-------|-------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

| OPLEGGEGEVENS | | | | | | | | | Ligger 4 |
|---------------|---------|------------|---------|-------|---------|-----|----------|-------------------|---------------|
| Positie | Oplegg. | Type | Afmetin | Staaf | Afmetin | Mti | Mti bov. | Mti ond. Dwarskr. | Moment |
| 0.000 | | | g | S12 | g | Nee | | Niet afgetopt | Niet afgetopt |
| 2.400 | O3 | Ronde paal | 0,350 | | | N/B | | Afgetopt | Niet afgetopt |
| 4.800 | | | | S15 | 0,500 | Nee | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - |

| BOVENWAPENING | | | | | | | | | | Ligger 4 |
|---------------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
| 2.400 | 122.59 | 4R12 | 2R12 | 668 | 679 | | -96.37 | N/B | 12.0 <= 7.9 | 60 <= 105 |
| 4.800 | 1.86 | 4R12 | | 10 | 452 | | -1.53 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| ONDERWAPENING | | | | | | | | | | Ligger 4 |
|---------------|------|-------|--------|--------|--------|---------------|------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 0.406 | 5.68 | 4R12 | | 30 | 452 | | 4.62 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.368 | 3.87 | 4R12 | | 21 | 452 | | 3.17 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | Ligger 4 |
|---------------|------|----------|--------|--------|--|----------|
| Positie | Mx | Wapening | As,ben | As,toe | | |
| 2.400 | 0.11 | 1R8 | 1 | 50 | | |
| m | kNm | - | mm2 | mm2 | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 4 |
|----------------|-------|--------------|----------|----------|--------|--------|---------|--------|-------|----------|
| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 24.19 | R8-300 | 56 | 0 | 335 | 61.732 | 144.734 | 24.195 | N/B | N/B |
| 1.774 | 83.85 | R8-300 | 199 | 1 | 335 | 70.637 | 141.530 | 83.847 | N/B | N/B |
| 3.026 | 82.73 | R8-300 | 196 | 1 | 335 | 70.637 | 141.530 | 82.728 | N/B | N/B |
| 4.800 | 25.73 | R8-300 | 60 | 0 | 335 | 61.732 | 144.734 | 25.729 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 4 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 |
| 2R12q(bijleg)(bijleg) | 0.952 | 0.000 | 2,5D | 0.569 | 1.522 | 3.283 | 0.569 | 3.852 | 0.000 | 2,5D | 2.900 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 4 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 4

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|----------|--------|-------|--------|-------|--------|
| S12 | Rechts | 4xR8-300 | -0.300 | 0.900 | 1.200 | 44.33 | 144.73 |
| O3 | Links | 3xR8-300 | 0.900 | 1.800 | 0.900 | 84.15 | 141.53 |
| O3 | Rechts | 4xR8-300 | 1.800 | 3.000 | 1.200 | 84.15 | 144.73 |
| O3 | Rechts | 3xR8-300 | 3.000 | 3.900 | 0.900 | 83.03 | 141.53 |
| S15 | Links | 4xR8-300 | 3.900 | 5.100 | 1.200 | 84.15 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 4

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V2 (2.400-4.800) | Vloer | -0,3 <= 9,6 | -0,5 <= 9,6 | 0,03 |
| | Handmatig | | | |
| V1 (0.000-2.400) | Vloer | -0,3 <= 9,6 | -0,4 <= 9,6 | 0,03 |
| | Handmatig | | | |
| m | - | mm | mm | - |

LIGGER 5
ALGEMEEN + KRUIP
Ligger 5
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 5 | Cement | S |
| Staven | S5 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.80 m | | |
| Extra begin | 0.250 m | | |
| Extra eind | 0.250 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 5

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENEN
Ligger 5

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S31 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| 2.400 | O4 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.800 | | | | S34 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 5

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 0.000 | 1.85 | 4R12 | | 10 | 452 | | -1.53 | N/B | 12.0 <= 28.0 | 101 <= 300 |

| | | | | | | | | | | | |
|-------|--------|------|------|-----|-----|--------|-----|------|--------|----|--------|
| 2.400 | 122.59 | 4R12 | 2R12 | 668 | 679 | -95.87 | N/B | 12.0 | <= 8.0 | 60 | <= 107 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | | mm | |

ONDERWAPENING
Ligger 5

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|---------------|------|---------|-------|--------|
| 0.420 | 3.50 | 4R12 | | 19 | 452 | | 2.82 | N/B | 12.0 | <= 101 |
| 4.381 | 5.98 | 4R12 | | 31 | 452 | | 4.91 | N/B | 12.0 | <= 101 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 5

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 2.400 | 0.10 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 5

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEDi |
|---------|-------|----------|----------|----------|--------|--------|---------|--------|-------|-------|
| 0.000 | 25.05 | R8-300 | 58 | 0 | 335 | 61.732 | 144.734 | 25.048 | N/B | N/B |
| 1.774 | 82.73 | R8-300 | 196 | 1 | 335 | 70.637 | 141.530 | 82.728 | N/B | N/B |
| 3.026 | 83.85 | R8-300 | 199 | 1 | 335 | 70.637 | 141.530 | 83.847 | N/B | N/B |
| 4.800 | 24.94 | R8-300 | 58 | 0 | 335 | 61.732 | 144.734 | 24.935 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 5

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12r(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 |
| 2R12s(bijleg)(bijleg) | 0.948 | 0.000 | 2,5D | 0.569 | 1.517 | 3.278 | 0.569 | 3.848 | 0.000 | 2,5D | 2.900 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 5

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12r(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 5

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|----------|--------|-------|--------|-------|--------|
| S31 | Rechts | 4xR8-300 | -0.300 | 0.900 | 1.200 | 39.40 | 144.73 |
| O4 | Links | 3xR8-300 | 0.900 | 1.800 | 0.900 | 83.03 | 141.53 |
| O4 | Rechts | 4xR8-300 | 1.800 | 3.000 | 1.200 | 84.14 | 144.73 |
| O4 | Rechts | 3xR8-300 | 3.000 | 3.900 | 0.900 | 84.14 | 141.53 |
| S34 | Links | 4xR8-300 | 3.900 | 5.100 | 1.200 | 84.14 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 5

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------|-------------|-----------|
| V2 (2.400-4.800) | Vloer | -0,3 <= 9,6 | -0,4 <= 9,6 | 0,03 | 0,05 |
| V1 (0.000-2.400) | Handmatig | | | | |
| | Vloer | -0,3 <= 9,6 | -0,5 <= 9,6 | 0,03 | 0,05 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 6
ALGEMEEN + KRUIP
Ligger 6
Algemene gegevens
Kruipgegevens

| | | | |
|------------|----------|-----------|------|
| Constr.Dl. | Ligger 6 | Cement | S |
| Staven | S6 | Rel.V.(%) | 60 % |

| | | | |
|-------------|-------------|-----------------|------------|
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betoonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.80 m | | |
| Extra begin | 0.250 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | l.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 6

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS
Ligger 6

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S11 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| 2.400 | O5 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.800 | | | | S13 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 6

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|-------------|-----------|
| 2.400 | 116.92 | 4R12 | 2R12 | 634 | 679 | - | -94.69 | N/B | 12.0 <= 8.2 | 60 <= 112 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 6

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|---------------|------|---------|--------------|------------|
| 0.500 | 8.03 | 4R12 | | 41 | 452 | | 6.62 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.316 | 9.16 | 4R12 | | 47 | 452 | | 7.53 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 6

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 2.400 | 0.03 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 6

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|-------|--------------|----------|----------|--------|--------|---------|--------|-------|-------|
| 0.000 | 32.25 | R8-300 | 76 | 0 | 335 | 61.732 | 141.530 | 32.254 | N/B | N/B |
| 1.774 | 84.64 | R8-300 | 200 | 0 | 335 | 70.658 | 141.530 | 84.642 | N/B | N/B |
| 3.026 | 85.39 | R8-300 | 202 | 0 | 335 | 70.658 | 141.530 | 85.393 | N/B | N/B |
| 4.800 | 31.26 | R8-300 | 72 | 0 | 335 | 61.732 | 144.734 | 31.262 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 6

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------|-----|------|--------|---------|------|------|---------|-----|------|--------|--------|
|----------|-----|------|--------|---------|------|------|---------|-----|------|--------|--------|

| | | | | | | | | | | | |
|-----------------------|--------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 4R12t(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.600 | 0.120 | 4.965 | 0.000 | 2,5D | 5.180 |
| 2R12u(bijleg)(bijleg) | 1.018 | 0.000 | 2,5D | 0.569 | 1.588 | 3.210 | 0.569 | 3.780 | 0.000 | 2,5D | 2.761 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 6 Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------------------|
| 4R12t(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.600 | 0.120 | 4.965 | 0.000 | 2,5D | 5.180 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 6 |
|-----------|--------|----------|--------|-------|--------|-------|--------|----------|
| S11 | Rechts | 9xR8-300 | -0.325 | 2.375 | 2.700 | 84.72 | 141.53 | |
| O5 | Links | 2xR8-300 | 2.375 | 2.975 | 0.600 | 85.47 | 144.73 | |
| O5 | Rechts | 3xR8-300 | 2.975 | 3.875 | 0.900 | 85.47 | 141.53 | |
| S13 | Links | 4xR8-300 | 3.875 | 5.075 | 1.200 | 34.87 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 6 |
|------------------|-----------|-------------|-------------------|-----------|----------|
| V2 (2.400-4.800) | Vloer | -0,2 <= 9,6 | -0,4 <= 9,6 | 0,02 | 0,04 |
| | Handmatig | | | | |
| V1 (0.000-2.400) | Vloer | -0,2 <= 9,6 | -0,4 <= 9,6 | 0,02 | 0,04 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 7
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 7 |
| Staven | S7 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 67.20 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

DEKKING

| | Boven | Onder | Zij- + Voorkant | Ligger 7 |
|--------------------|-------|-------|-----------------|----------|
| Gereduceerd | Nee | Nee | Nee | |
| Mil. | XC2 | XC2 | XC2 | |
| Met. | Norm. | Norm. | Norm. | |
| Nab. | Nee | Nee | Nee | |
| Benodigde dekking | 30 mm | 30 mm | 30 mm | |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm | |
| - | - | - | - | |

OPLEGGEGEREVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 7 Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|----------|--------------------|
| 0.000 | | | | S16 | 0,400 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 4.800 | | | | S18 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 9.600 | | | | S19 | 0,400 | N/B | | | Niet | Niet |

| | | | | | | | | | |
|--------|---|-----|-------|-----|---|------------------|------------------|-----|---|
| 14.400 | | S20 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 19.200 | | S21 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 24.000 | | S22 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 28.800 | | S23 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 33.600 | | S24 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 38.400 | | S25 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 43.200 | | S26 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 48.000 | | S27 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 52.800 | | S28 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 57.600 | | S29 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 62.400 | | S30 | 0,400 | N/B | | afgetopt Niet | afgetopt Niet | | |
| 67.200 | | S32 | 0,400 | Nee | | afgetopt Niet | afgetopt Niet | | |
| m | - | - | m | - | m | - | kNm | kNm | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 7 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|-------------------|
| 0.000 | 1.30 | 4R12 | | 9 | 452 | | -1.07 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.800 | 82.45 | 4R12 | 1R12 | 441 | 565 | | -68.15 | N/B | 12.0 <= 10.8 | 76 <= 172 |
| 9.600 | 85.12 | 4R12 | 1R12 | 455 | 565 | | -70.28 | N/B | 12.0 <= 10.2 | 76 <= 161 |
| 14.400 | 82.39 | 4R12 | 1R12 | 440 | 565 | | -68.02 | N/B | 12.0 <= 10.8 | 76 <= 173 |
| 19.200 | 82.50 | 4R12 | 1R12 | 441 | 565 | | -68.11 | N/B | 12.0 <= 10.8 | 76 <= 173 |
| 24.000 | 82.56 | 4R12 | 1R12 | 441 | 565 | | -68.16 | N/B | 12.0 <= 10.8 | 76 <= 172 |
| 28.800 | 82.55 | 4R12 | 1R12 | 441 | 565 | | -68.15 | N/B | 12.0 <= 10.8 | 76 <= 172 |
| 33.600 | 82.55 | 4R12 | 1R12 | 441 | 565 | | -68.15 | N/B | 12.0 <= 10.8 | 76 <= 172 |
| 38.400 | 82.55 | 4R12 | 1R12 | 441 | 565 | | -68.15 | N/B | 12.0 <= 10.8 | 76 <= 172 |
| 43.200 | 82.56 | 4R12 | 1R12 | 441 | 565 | | -68.16 | N/B | 12.0 <= 10.8 | 76 <= 172 |
| 48.000 | 82.50 | 4R12 | 1R12 | 441 | 565 | | -68.11 | N/B | 12.0 <= 10.8 | 76 <= 173 |
| 52.800 | 82.39 | 4R12 | 1R12 | 440 | 565 | | -68.02 | N/B | 12.0 <= 10.8 | 76 <= 173 |
| 57.600 | 85.12 | 4R12 | 1R12 | 455 | 565 | | -70.28 | N/B | 12.0 <= 10.2 | 76 <= 161 |
| 62.400 | 82.62 | 4R12 | 1R12 | 441 | 565 | | -68.32 | N/B | 12.0 <= 10.7 | 76 <= 171 |
| 67.200 | 1.31 | 4R12 | | 9 | 452 | | -1.09 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 7 S,max |
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------------------|
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------------------|

| | | | | | | | | | |
|--------|-------|------|------|-----|-----|-------|-----|---------|------------|
| 2.015 | 86.04 | 4R12 | 1R12 | 461 | 565 | 71.08 | N/B | 12.0 <= | 76 <= 157 |
| | | | | | | | | 10.1 | |
| 7.178 | 40.95 | 4R12 | | 215 | 452 | 33.85 | N/B | 12.0 <= | 101 <= 292 |
| | | | | | | | | 26.1 | |
| 12.013 | 40.17 | 4R12 | | 211 | 452 | 33.17 | N/B | 12.0 <= | 101 <= 294 |
| | | | | | | | | 26.6 | |
| 16.799 | 41.40 | 4R12 | | 218 | 452 | 34.18 | N/B | 12.0 <= | 101 <= 291 |
| | | | | | | | | 25.8 | |
| 21.600 | 41.30 | 4R12 | | 217 | 452 | 34.10 | N/B | 12.0 <= | 101 <= 291 |
| | | | | | | | | 25.9 | |
| 26.400 | 41.27 | 4R12 | | 217 | 452 | 34.07 | N/B | 12.0 <= | 101 <= 291 |
| | | | | | | | | 25.9 | |
| 31.200 | 41.28 | 4R12 | | 217 | 452 | 34.08 | N/B | 12.0 <= | 101 <= 291 |
| | | | | | | | | 25.9 | |
| 36.000 | 41.28 | 4R12 | | 217 | 452 | 34.08 | N/B | 12.0 <= | 101 <= 291 |
| | | | | | | | | 25.9 | |
| 40.800 | 41.27 | 4R12 | | 217 | 452 | 34.07 | N/B | 12.0 <= | 101 <= 291 |
| | | | | | | | | 25.9 | |
| 45.600 | 41.30 | 4R12 | | 217 | 452 | 34.10 | N/B | 12.0 <= | 101 <= 291 |
| | | | | | | | | 25.9 | |
| 50.400 | 41.40 | 4R12 | | 218 | 452 | 34.18 | N/B | 12.0 <= | 101 <= 291 |
| | | | | | | | | 25.8 | |
| 55.187 | 40.18 | 4R12 | | 211 | 452 | 33.17 | N/B | 12.0 <= | 101 <= 294 |
| | | | | | | | | 26.6 | |
| 60.022 | 40.95 | 4R12 | | 215 | 452 | 33.85 | N/B | 12.0 <= | 101 <= 292 |
| | | | | | | | | 26.1 | |

| | | | | | | | | | |
|----------|------------|----------|----------|------------|--------------|------------|------------|-----------|-----------|
| 65.185 | 86.04 | 4R12 | 1R12 | 461 | 565 | 71.07 | N/B | 12.0 <= | 76 <= 157 |
| | | | | | | | | 10.1 | |
| m | kNm | - | - | mm2 | mm2 - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|----------|------------|----------|------------|------------|
| 0.000 | 0.26 | 1R8 | 3 | 50 |
| m | kNm | - | mm2 | mm2 |

Ligger 7

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 7 VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|------|------------------|
| 0.000 | 86.65 | R8-300 | 201 | 2 | 335 | 61.639 | 144.734 | 86.648 | N/B | N/B |
| 4.800 | 120.11 | R8-300 | 281 | 2 | 335 | 61.639 | 143.132 | 120.111 | N/B | N/B |
| 4.800 | 102.66 | R8-300 | 240 | 0 | 335 | 61.724 | 143.132 | 102.662 | N/B | N/B |
| 9.600 | 104.12 | R8-300 | 244 | 0 | 335 | 61.724 | 143.132 | 104.119 | N/B | N/B |
| 9.600 | 103.76 | R8-300 | 243 | 0 | 335 | 61.731 | 143.132 | 103.756 | N/B | N/B |
| 14.400 | 102.64 | R8-300 | 240 | 0 | 335 | 61.731 | 143.132 | 102.644 | N/B | N/B |
| 14.400 | 103.17 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.169 | N/B | N/B |
| 19.200 | 103.22 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.218 | N/B | N/B |
| 19.200 | 103.17 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.175 | N/B | N/B |
| 24.000 | 103.20 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.204 | N/B | N/B |
| 24.000 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.190 | N/B | N/B |
| 28.800 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.187 | N/B | N/B |
| 28.800 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.189 | N/B | N/B |
| 33.600 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.188 | N/B | N/B |
| 33.600 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.188 | N/B | N/B |
| 38.400 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.189 | N/B | N/B |
| 38.400 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.187 | N/B | N/B |
| 43.200 | 103.19 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.191 | N/B | N/B |
| 43.200 | 103.20 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.204 | N/B | N/B |
| 48.000 | 103.17 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.175 | N/B | N/B |
| 48.000 | 103.22 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.219 | N/B | N/B |

| | | | | | | | | | | |
|--------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 52.800 | 103.17 | R8-300 | 242 | 0 | 335 | 61.732 | 143.132 | 103.169 | N/B | N/B |
| 52.800 | 102.65 | R8-300 | 240 | 0 | 335 | 61.730 | 143.132 | 102.646 | N/B | N/B |
| 57.600 | 103.76 | R8-300 | 243 | 0 | 335 | 61.730 | 143.132 | 103.756 | N/B | N/B |
| 57.600 | 104.12 | R8-300 | 244 | 0 | 335 | 61.724 | 143.132 | 104.119 | N/B | N/B |
| 62.400 | 102.70 | R8-300 | 240 | 0 | 335 | 61.724 | 143.132 | 102.701 | N/B | N/B |
| 62.400 | 120.15 | R8-300 | 281 | 2 | 335 | 61.639 | 143.132 | 120.151 | N/B | N/B |
| 67.200 | 86.65 | R8-300 | 201 | 2 | 335 | 61.639 | 144.734 | 86.648 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 7 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12v(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 67.000 | 0.120 | 67.365 | 0.000 | 2,5D | 67.530 |
| 1R12w(bijleg) | 4.137 | 0.000 | 2,5D | 0.663 | 4.800 | 4.800 | 0.663 | 5.463 | 0.000 | 2,5D | 1.326 |
| (bijleg) | | | | | | | | | | | |
| 1R12x(bijleg)(bijleg) | 8.381 | 0.000 | 2,5D | 0.683 | 9.064 | 10.136 | 0.683 | 10.819 | 0.000 | 2,5D | 2.438 |
| 1R12y(bijleg)(bijleg) | 13.737 | 0.000 | 2,5D | 0.663 | 14.400 | 14.400 | 0.663 | 15.063 | 0.000 | 2,5D | 1.326 |
| 1R12a1(bijleg) | 18.536 | 0.000 | 2,5D | 0.664 | 19.200 | 19.200 | 0.664 | 19.864 | 0.000 | 2,5D | 1.327 |
| (bijleg) | | | | | | | | | | | |
| 1R12b1(bijleg) | 23.336 | 0.000 | 2,5D | 0.664 | 24.000 | 24.000 | 0.664 | 24.664 | 0.000 | 2,5D | 1.328 |
| (bijleg) | | | | | | | | | | | |
| 1R12c1(bijleg) | 28.136 | 0.000 | 2,5D | 0.664 | 28.800 | 28.800 | 0.664 | 29.464 | 0.000 | 2,5D | 1.328 |
| (bijleg) | | | | | | | | | | | |
| 1R12d1(bijleg) | 32.936 | 0.000 | 2,5D | 0.664 | 33.600 | 33.600 | 0.664 | 34.264 | 0.000 | 2,5D | 1.328 |
| (bijleg) | | | | | | | | | | | |
| 1R12e1(bijleg) | 37.736 | 0.000 | 2,5D | 0.664 | 38.400 | 38.400 | 0.664 | 39.064 | 0.000 | 2,5D | 1.328 |
| (bijleg) | | | | | | | | | | | |
| 1R12f1(bijleg) | 42.536 | 0.000 | 2,5D | 0.664 | 43.200 | 43.200 | 0.664 | 43.864 | 0.000 | 2,5D | 1.328 |
| (bijleg) | | | | | | | | | | | |
| 1R12g1(bijleg) | 47.336 | 0.000 | 2,5D | 0.664 | 48.000 | 48.000 | 0.664 | 48.664 | 0.000 | 2,5D | 1.327 |
| (bijleg) | | | | | | | | | | | |
| 1R12h1(bijleg) | 52.137 | 0.000 | 2,5D | 0.663 | 52.800 | 52.800 | 0.663 | 53.463 | 0.000 | 2,5D | 1.326 |
| (bijleg) | | | | | | | | | | | |
| 1R12i1(bijleg) | 56.381 | 0.000 | 2,5D | 0.683 | 57.064 | 58.136 | 0.683 | 58.819 | 0.000 | 2,5D | 2.438 |
| (bijleg) | | | | | | | | | | | |
| 1R12j1(bijleg) | 61.735 | 0.000 | 2,5D | 0.665 | 62.400 | 62.400 | 0.665 | 63.065 | 0.000 | 2,5D | 1.329 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 7 Lengte |
|----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12h3(basis)(basis) | -0.165 | 0.150 | 4,0D | 0.309 | 0.000 | 67.000 | 0.309 | 67.365 | 0.000 | 2,5D | 67.680 |
| 1R12i3(bijleg) | 0.799 | 0.000 | 2,5D | 0.478 | 1.278 | 2.754 | 0.478 | 3.232 | 0.000 | 2,5D | 2.433 |
| (bijleg) | | | | | | | | | | | |
| 1R12j3(bijleg) | 63.968 | 0.000 | 2,5D | 0.478 | 64.447 | 65.921 | 0.478 | 66.400 | 0.000 | 2,5D | 2.431 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 7 |
|-----------|--------|------------|--------|--------|--------|--------|--------|----------|
| S16 | Rechts | 9xR8-300 | -0.300 | 2.400 | 2.700 | 87.42 | 144.73 | |
| S18 | Links | 208xR8-300 | 2.400 | 64.800 | 62.400 | 120.92 | 143.13 | |
| S32 | Links | 9xR8-300 | 64.800 | 67.500 | 2.700 | 120.92 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 7 |
|---------------------|-----------|-------------|-------------------|-----------|----------|
| V14 (62.400-67.200) | Vloer | 2,9 <= 19,2 | 8,8 <= 19,2 | 0,15 | 0,46 |
| | Handmatig | | | | |
| V13 (57.600-62.400) | Vloer | 1,6 <= 19,2 | 6,4 <= 19,2 | 0,08 | 0,33 |
| | Handmatig | | | | |
| V12 (52.800-57.600) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |

| | | | | | |
|---------------------|-----------|-------------|-------------|------|------|
| V11 (48.000-52.800) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V10 (43.200-48.000) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V9 (38.400-43.200) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V8 (33.600-38.400) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V7 (28.800-33.600) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V6 (24.000-28.800) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V5 (19.200-24.000) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V4 (14.400-19.200) | Vloer | 1,6 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V3 (9.600-14.400) | Vloer | 1,5 <= 19,2 | 6,0 <= 19,2 | 0,08 | 0,31 |
| | Handmatig | | | | |
| V2 (4.800-9.600) | Vloer | 1,6 <= 19,2 | 6,4 <= 19,2 | 0,08 | 0,33 |
| | Handmatig | | | | |
| V1 (0.000-4.800) | Vloer | 2,9 <= 19,2 | 8,8 <= 19,2 | 0,15 | 0,46 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 8
ALGEMEEN + KRUIP
Algemene gegevens
Kruipgegevens
Ligger 8

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 8 | Cement | S |
| Staven | S8 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.80 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.250 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 8

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 8

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|-------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S35 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 2.400 | O6 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.800 | | | | S37 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm- | - | - |

| BOVENWAPENING | | | | | | | | | | Ligger 8 |
|---------------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 2.400 | 116.92 | 4R12 | 2R12 | 634 | 679 | ng | -94.69 | N/B | 12.0 <= 8.2 | 60 <= 112 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| ONDERWAPENING | | | | | | | | | | Ligger 8 |
|---------------|------|-------|--------|--------|--------|---------------|------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 0.493 | 9.59 | 4R12 | | 49 | 452 | | 7.93 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.310 | 7.72 | 4R12 | | 40 | 452 | | 6.32 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | Ligger 8 |
|---------------|------|----------|--------|--------|--|----------|
| Positie | Mx | Wapening | As,ben | As,toe | | |
| 2.400 | 0.02 | 1R8 | 0 | 50 | | |
| m | kNm | - | mm2 | mm2 | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 8 |
|----------------|-------|---------|----------|----------|--------|--------|---------|--------|-------|----------|
| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 31.85 | R8-300 | 74 | 0 | 335 | 61.732 | 144.734 | 31.847 | N/B | N/B |
| 1.774 | 85.39 | R8-300 | 202 | 0 | 335 | 70.659 | 141.530 | 85.393 | N/B | N/B |
| 3.026 | 84.64 | R8-300 | 200 | 0 | 335 | 70.659 | 141.530 | 84.642 | N/B | N/B |
| 4.800 | 31.61 | R8-300 | 75 | 0 | 335 | 61.732 | 141.530 | 31.606 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | | Ligger 8 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | |
| 4R12k1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.180 | |
| 2R12l1(bijleg) | 1.020 | 0.000 | 2,5D | 0.569 | 1.590 | 3.212 | 0.569 | 3.782 | 0.000 | 2,5D | 2.761 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | | Ligger 8 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | |
| 4R12k1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.180 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

| AFBOUWEN BEUGELWAPENING | | | | | | | | | Ligger 8 |
|-------------------------|--------|----------|--------|-------|--------|-------|--------|--|----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | |
| S35 | Rechts | 4xR8-300 | -0.275 | 0.925 | 1.200 | 34.33 | 144.73 | | |
| O6 | Links | 3xR8-300 | 0.925 | 1.825 | 0.900 | 85.46 | 141.53 | | |
| O6 | Rechts | 2xR8-300 | 1.825 | 2.425 | 0.600 | 85.46 | 144.73 | | |
| S37 | Links | 9xR8-300 | 2.425 | 5.125 | 2.700 | 85.46 | 141.53 | | |
| - | - | - | m | m | m | kN | kN | | |

| TOETSING DOORBUIGING | | | | | | Ligger 8 |
|----------------------|-----------|-------------|-------------|-------------|-----------|----------|
| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | |
| V2 (2.400-4.800) | Vloer | -0,2 <= 9,6 | -0,4 <= 9,6 | 0,02 | 0,04 | |
| V1 (0.000-2.400) | Handmatig | -0,2 <= 9,6 | -0,4 <= 9,6 | 0,02 | 0,04 | |
| m | - | mm | mm | - | - | |

LIGGER 9

| ALGEMEEN + KRUIP | | | Ligger 9 |
|-------------------|----------|--------|---------------|
| Algemene gegevens | | | Kruipgegevens |
| Constr.DI. | Ligger 9 | Cement | S |

| | | | |
|-------------|-------------|-----------------|------------|
| Staven | S9 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.80 m | | |
| Extra begin | 0.250 m | | |
| Extra eind | 0.250 m | Nominale korrel | 31.5 mm |
| Fabric. | l.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 9

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEREVEN
Ligger 9

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S14 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| 2.400 | O7 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.800 | | | | S17 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 9

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 2.400 | 115.36 | 4R12 | 2R12 | 625 | 679 | ng | -92.93 | N/B | 12.0 <= 8.4 | 60 <= 120 |
| 4.800 | 1.23 | 4R12 | | 7 | 452 | | -1.02 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 9

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|---------------|------|---------|--------------|------------|
| 0.445 | 7.22 | 4R12 | | 37 | 452 | | 5.89 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.289 | 6.05 | 4R12 | | 31 | 452 | | 4.75 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 9

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 2.400 | 0.07 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 9

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|-------|-----------|----------|----------|--------|--------|---------|--------|------|------|
| 0.000 | 25.74 | R8-300 | 60 | 0 | 335 | 61.732 | 144.734 | 25.744 | N/B | N/B |
| 1.774 | 81.58 | R8-300 | 193 | 0 | 335 | 70.647 | 141.530 | 81.580 | N/B | N/B |
| 3.026 | 80.38 | R8-300 | 190 | 0 | 335 | 70.647 | 141.530 | 80.381 | N/B | N/B |
| 4.800 | 28.98 | R8-300 | 67 | 0 | 335 | 61.732 | 144.734 | 28.983 | N/B | N/B |

| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 9 |
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 |
| 2R12m1(bijleg) | 1.018 | 0.000 | 2,5D | 0.569 | 1.587 | 3.217 | 0.569 | 3.786 | 0.000 | 2,5D | 2.768 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 9 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| | | | | | | | | | | |
|--------------------------------|--------------|-----------------|------------|------------|---------------|-----------|-----------|-----------------|--|--|
| AFBOUWEN BEUGELWAPENING | | | | | | | | | | |
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 9 | | |
| S14 | Rechts | 4xR8-300 | -0.300 | 0.900 | 1.200 | 32.97 | 144.73 | | | |
| O7 | Links | 3xR8-300 | 0.900 | 1.800 | 0.900 | 81.78 | 141.53 | | | |
| O7 | Rechts | 4xR8-300 | 1.800 | 3.000 | 1.200 | 81.78 | 144.73 | | | |
| O7 | Rechts | 3xR8-300 | 3.000 | 3.900 | 0.900 | 80.58 | 141.53 | | | |
| S17 | Links | 4xR8-300 | 3.900 | 5.100 | 1.200 | 81.78 | 144.73 | | | |
| - | - | - | m | m | m | kN | kN | | | |

| | | | | | | | | | | |
|-----------------------------|-----------------|----------------|--------------|--------------------|------------------|-----------------|--|--|--|--|
| TOETSING DOORBUIGING | | | | | | | | | | |
| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | Ligger 9 | | | | |
| V2 (2.400-4.800) | Vloer | -0,3 <= 9,6 | -0,4 <= 9,6 | 0,03 | 0,04 | | | | | |
| | Handmatig | | | | | | | | | |
| V1 (0.000-2.400) | Vloer | -0,2 <= 9,6 | -0,4 <= 9,6 | 0,03 | 0,04 | | | | | |
| | Handmatig | | | | | | | | | |
| m | - | mm | mm | - | - | | | | | |

LIGGER 10

| ALGEMEEN + KRUIP | | | | Ligger 10 |
|-------------------|-------------|-----------------|------------|-----------|
| Algemene gegevens | | Kruipgegevens | | |
| Constr.Dl. | Ligger 10 | Cement | S | |
| Staven | S10 | Rel.V.(%) | 60 % | |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen | |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen | |
| Staal | B500B | Kruip type | Berekend | |
| Type | Ligger | Kruipcoeff. | 2.64 | |
| Lengte | 4.80 m | | | |
| Extra begin | 0.250 m | | | |
| Extra eind | 0.250 m | Nominale korrel | 31.5 mm | |
| Fabric. | I.h.w. | Stortsl. | 0 mm | |
| - | - | - | - | |

| | | | | | | | | | | |
|--------------------|--------------|--------------|------------------------|------------------|--|--|--|--|--|--|
| DEKKING | | | | | | | | | | |
| | Boven | Onder | Zij- + Voorkant | Ligger 10 | | | | | | |
| Gereduceerd | Nee | Nee | Nee | | | | | | | |
| Mil. | XC2 | XC2 | XC2 | | | | | | | |
| Met. | Norm. | Norm. | Norm. | | | | | | | |
| Nab. | Nee | Nee | Nee | | | | | | | |
| Benodigde dekking | 30 mm | 30 mm | 30 mm | | | | | | | |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm | | | | | | | |
| - | - | - | - | | | | | | | |

| | | | | | | | | | | |
|----------------------|----------------|-------------|----------------|---------------|----------------|------------|-----------------|-----------------|-----------------|-----------------------------|
| OPLEGGEGEVENS | | | | | | | | | | |
| Positie | Oplegg. | Type | Afmetin | Staaft | Afmetin | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 10 Moment |

| | | | | | | | | | |
|-------|----|-------|-------|-------|-------|-----|-----|----------|----------|
| 0.000 | | | g | S33 | 0,500 | Nee | | Niet | Niet |
| 2.400 | O8 | Ronde | 0,350 | | | N/B | | afgetopt | afgetopt |
| | | paal | | | | | | Afgetopt | Niet |
| 4.800 | | | S36 | 0,500 | Nee | | | Niet | afgetopt |
| | | | | | | | | afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 10 |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|---------|--------|-----------|
| 0.000 | 1.25 | 4R12 | | 7 | 452 | | -1.03 | N/B | 12.0 <= | 101 <= | 300 |
| 2.400 | 115.36 | 4R12 | 2R12 | 625 | 679 | | -92.93 | N/B | 28.0 | 60 <= | 120 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 10 |
|---------|------|-------|--------|--------|--------|---------------|------|---------|---------|--------|-----------|
| 0.469 | 5.12 | 4R12 | | 27 | 452 | | 4.18 | N/B | 12.0 <= | 101 <= | 300 |
| 4.297 | 8.37 | 4R12 | | 43 | 452 | | 6.60 | N/B | 28.0 | 101 <= | 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 10 |
|---------|------|----------|--------|--------|-----------|
| 2.400 | 0.07 | 1R8 | 1 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 10 |
|---------|-------|----------|----------|----------|--------|--------|---------|--------|-------|-------|-----------|
| 0.000 | 27.13 | R8-300 | 63 | 0 | 335 | 61.732 | 144.734 | 27.125 | N/B | N/B | |
| 1.774 | 80.38 | R8-300 | 190 | 0 | 335 | 70.647 | 141.530 | 80.381 | N/B | N/B | |
| 3.026 | 81.58 | R8-300 | 193 | 0 | 335 | 70.647 | 141.530 | 81.580 | N/B | N/B | |
| 4.800 | 28.09 | R8-300 | 65 | 0 | 335 | 61.732 | 144.734 | 28.091 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 10 |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12r(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 | |
| 2R12n1(bijleg) | 1.014 | 0.000 | 2,5D | 0.569 | 1.583 | 3.213 | 0.569 | 3.783 | 0.000 | 2,5D | 2.769 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 10 |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12r(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 4.550 | 0.120 | 5.015 | 0.000 | 2,5D | 5.230 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 10 |
|-----------|--------|----------|--------|-------|--------|-------|--------|-----------|
| S33 | Rechts | 4xR8-300 | -0.300 | 0.900 | 1.200 | 42.58 | 144.73 | |
| O8 | Links | 3xR8-300 | 0.900 | 1.800 | 0.900 | 80.58 | 141.53 | |
| O8 | Rechts | 4xR8-300 | 1.800 | 3.000 | 1.200 | 81.78 | 144.73 | |
| O8 | Rechts | 3xR8-300 | 3.000 | 3.900 | 0.900 | 81.78 | 141.53 | |
| S36 | Links | 4xR8-300 | 3.900 | 5.100 | 1.200 | 81.78 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

Ligger 10

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V2 (2.400-4.800) | Vloer | -0,3 <= 9,6 | -0,4 <= 9,6 | 0,03 |
| | Handmatig | | | 0,04 |
| V1 (0.000-2.400) | Vloer | -0,3 <= 9,6 | -0,4 <= 9,6 | 0,03 |
| | Handmatig | | | 0,04 |
| m | - | mm | mm | - |

LIGGER 11
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 11 |
| Staven | S11 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.60 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 11
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 11
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 11 Moment |
|---------|---------|-------|-----------|-------|-----------|-----|----------|----------|---------------|------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 0.300 | O12 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 3.290 | O11 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 6.270 | O10 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 9.260 | O9 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 9.560 | | paal | | S6 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 11 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|-----------------|
| 0.300 | 20.29 | 4R12 | | 105 | 452 | | -16.75 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 3.290 | 66.23 | 4R12 | | 347 | 452 | | -54.76 | N/B | 12.0 <= 11.1 | 134 <= 178 |
| 6.270 | 63.84 | 4R12 | | 334 | 452 | | -52.51 | N/B | 12.0 <= 11.9 | 134 <= 192 |
| 9.260 | 16.57 | 4R12 | | 85 | 452 | | -13.68 | N/B | 12.0 <= | 134 <= 300 |

| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | 28.0 mm | mm |
|----------------------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| ONDERWAPENING | | | | | | | | | | Ligger 11 |
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 1.720 | 136.93 | 4R12 | 3R12 | 740 | 792 | | 108.63 | N/B | 12.0 <= 8.4 | 67 <= 121 |
| 4.787 | 116.60 | 4R12 | 2R12 | 624 | 679 | | 90.71 | N/B | 12.0 <= 9.0 | 80 <= 135 |
| 7.841 | 142.51 | 4R12 | 3R12 | 772 | 792 | | 112.31 | N/B | 12.0 <= 8.0 | 67 <= 107 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | | | | | Ligger 11 |
|----------------------|------|----------|--------|--------|--|--|--|--|--|-----------|
| Positie | Mx | Wapening | As,ben | As,toe | | | | | | |
| 3.290 | 0.05 | 1R8 | 0 | 50 | | | | | | |
| m | kNm | - | mm2 | mm2 | | | | | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 11 |
|-----------------------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-----------|
| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 44.64 | R8-250 | 102 | 0 | 402 | 75.895 | 175.219 | 44.639 | N/B | N/B |
| 0.926 | 122.06 | R8-250 | 288 | 0 | 402 | 75.895 | 170.604 | 122.062 | N/B | N/B |
| 2.664 | 149.98 | R8-250 | 354 | 0 | 402 | 75.895 | 170.604 | 149.981 | N/B | N/B |
| 3.916 | 138.40 | R8-250 | 323 | 0 | 402 | 75.895 | 172.142 | 138.404 | N/B | N/B |
| 5.644 | 136.28 | R8-250 | 318 | 0 | 402 | 75.895 | 172.142 | 136.276 | N/B | N/B |
| 6.896 | 150.22 | R8-250 | 354 | 0 | 402 | 75.895 | 170.604 | 150.219 | N/B | N/B |
| 8.634 | 121.93 | R8-250 | 287 | 0 | 402 | 75.895 | 170.604 | 121.930 | N/B | N/B |
| 9.560 | 32.25 | R8-250 | 74 | 0 | 402 | 75.895 | 175.219 | 32.254 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 11 |
|-------------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|-----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12o1(basis)(basis) | -0.165 | 0.045 | 4,0D | 0.204 | 0.000 | 9.360 | 0.167 | 9.725 | 0.000 | 2,5D | 9.935 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 11 |
|-------------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|-----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12k3(basis)(basis) | -0.165 | 0.050 | 4,0D | 0.684 | 0.475 | 9.360 | 0.120 | 9.725 | 0.000 | 2,5D | 9.940 |
| 2R12l3(bijleg) | 0.019 | 0.000 | 2,5D | 0.456 | 0.475 | 9.085 | 0.483 | 9.665 | 0.000 | 2,5D | 9.646 |
| (bijleg) | | | | | | | | | | | |
| 1R12m3(bijleg) | 0.324 | 0.000 | 2,5D | 0.508 | 0.832 | 2.602 | 0.508 | 3.110 | 0.000 | 2,5D | 2.785 |
| (bijleg) | | | | | | | | | | | |
| 1R12n3(bijleg) | 6.353 | 0.000 | 2,5D | 0.508 | 6.861 | 8.827 | 0.508 | 9.335 | 0.000 | 2,5D | 2.983 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | Ligger 11 |
|-------------------------|--------|-----------|--------|-------|--------|--------|--------|-----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | |
| S1 | Rechts | 4xR8-250 | -0.220 | 0.780 | 1.000 | 122.17 | 175.22 | |
| O12 | Rechts | 10xR8-250 | 0.780 | 3.280 | 2.500 | 150.09 | 170.60 | |
| O10 | Links | 12xR8-250 | 3.280 | 6.280 | 3.000 | 150.32 | 172.14 | |
| O9 | Links | 10xR8-250 | 6.280 | 8.780 | 2.500 | 150.32 | 170.60 | |
| S6 | Links | 4xR8-250 | 8.780 | 9.780 | 1.000 | 122.04 | 175.22 | |
| - | - | - | m | m | m | kN | kN | |

| TOETSING DOORBUIGING | | | | | Ligger 11 |
|----------------------|-----------|-------------|-------------|-------------|-----------|
| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
| V5 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V4 (6.270-9.260) | Vloer | 1,6 <= 12,0 | 3,4 <= 12,0 | 0,13 | 0,28 |

| | | | | | |
|------------------|--------------------|-------------|-------------|------|------|
| V3 (3.290-6.270) | Handmatig Vloer | 1,3 <= 11,9 | 2,3 <= 11,9 | 0,11 | 0,19 |
| V2 (0.300-3.290) | Handmatig Vloer | 1,5 <= 12,0 | 3,2 <= 12,0 | 0,12 | 0,27 |
| V1 (0.000-0.300) | Handmatig Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| m | - | mm | mm | - | - |

LIGGER 12
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 12 |
| Staven | S12-S14 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 10.32 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.60 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |

Ligger 12
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------------|-----------------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| Constr.Dl. | Ligger 12 | Cement | S |
| Staven | S12-S14 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 10.32 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 12
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 12 Moment |
|---------|---------|---------------|--------------|-------|--------------|-----|----------|----------|----------------------|---------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O13 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 0.760 | | | | S4 | 0,400 | N/B | | | Niet | afgetopt Niet |

| | | | | | | | | |
|--------|-----|-------|-------|----|-------|-----|----------|----------|
| 1.860 | O17 | Ronde | 0,350 | | N/B | | afgetopt | afgetopt |
| | | paal | | | | | Afgetopt | Niet |
| 3.860 | O16 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt |
| | | paal | | | | | | Niet |
| 5.860 | O15 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt |
| | | paal | | | | | | Niet |
| 7.860 | O14 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt |
| | | paal | | | | | | Niet |
| 9.560 | | | | S6 | 0,400 | N/B | Niet | afgetopt |
| | | | | | | | afgetopt | Niet |
| 10.020 | O18 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt |
| | | paal | | | | | | Niet |
| 10.320 | | | | S9 | 0,400 | Nee | Niet | afgetopt |
| | | | | | | | afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 12 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|--------------------|
| 0.300 | 20.29 | 4R12 | | 105 | 452 | | -16.76 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 1.860 | 17.55 | 4R12 | | 91 | 452 | | -11.01 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 3.860 | 45.95 | 4R12 | | 241 | 452 | | -36.66 | N/B | 12.0 <= 24.0 | 101 <= 283 |
| 5.860 | 63.06 | 4R12 | | 346 | 452 | | -50.01 | N/B | 12.0 <= 12.8 | 101 <= 205 |
| 7.860 | 23.18 | 4R12 | | 134 | 452 | | -16.85 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 10.020 | 14.60 | 4R12 | | 89 | 452 | | -12.00 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 12 S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|--------------------|
| 0.760 | 56.52 | 4R12 | | 296 | 452 | | | N/B | 12.0 <= 10.6 | 134 <= 170 |
| 0.760 | 0.04 | 4R12 | | 1 | 452 | | | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 1.167 | 63.17 | 4R12 | | 333 | 452 | | 47.71 | N/B | 12.0 <= 13.7 | 101 <= 220 |
| 2.819 | 105.17 | 4R12 | 2R12 | 567 | 679 | | 77.93 | N/B | 12.0 <= 11.5 | 60 <= 185 |
| 4.883 | 77.00 | 4R12 | | 409 | 452 | | 55.87 | N/B | 12.0 <= 10.5 | 101 <= 168 |
| 6.902 | 92.27 | 4R12 | 1R12 | 507 | 565 | | 67.77 | N/B | 12.0 <= 10.9 | 76 <= 174 |
| 8.925 | 130.10 | 4R12 | 3R12 | 725 | 792 | | 101.43 | N/B | 12.0 <= 9.3 | 50 <= 141 |
| 9.560 | 71.39 | 4R12 | 1R12 | 392 | 565 | | | N/B | 12.0 <= 9.7 | 76 <= 149 |
| 9.560 | 83.06 | 4R12 | 1R12 | 452 | 565 | | 66.13 | N/B | 12.0 <= 11.6 | 100 <= 187 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 12 |
|---------|------|----------|--------|--------|-----------|
| 0.760 | 0.11 | 1R8 | 1 | 50 | |
| 1.860 | 0.11 | 1R8 | 1 | 50 | |
| 9.560 | 1.84 | 1R8 | 14 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING
Ligger 12

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 44.82 | R8-250 | 103 | 0 | 402 | 75.895 | 175.219 | 44.819 | N/B | N/B |
| 0.760 | 106.79 | R8-250 | 245 | 5 | 402 | 75.895 | 175.219 | 106.788 | N/B | N/B |
| 0.760 | 94.91 | R8-300 | 220 | 1 | 335 | 61.693 | 144.734 | 94.910 | N/B | N/B |
| 0.926 | 56.22 | R8-300 | 130 | 0 | 335 | 61.732 | 144.734 | 56.219 | N/B | N/B |
| 1.234 | 32.02 | R8-300 | 74 | 0 | 335 | 61.732 | 144.734 | 32.024 | N/B | N/B |
| 2.486 | 77.71 | R8-300 | 184 | 1 | 335 | 61.693 | 141.530 | 77.707 | N/B | N/B |
| 3.234 | 112.21 | R8-300 | 266 | 1 | 335 | 61.693 | 141.530 | 112.209 | N/B | N/B |
| 4.486 | 92.42 | R8-300 | 214 | 1 | 335 | 61.693 | 144.734 | 92.420 | N/B | N/B |
| 5.234 | 107.34 | R8-300 | 249 | 1 | 335 | 61.693 | 144.734 | 107.341 | N/B | N/B |
| 6.486 | 117.72 | R8-300 | 276 | 1 | 335 | 61.693 | 143.132 | 117.721 | N/B | N/B |
| 7.234 | 77.30 | R8-300 | 181 | 1 | 335 | 61.693 | 143.132 | 77.297 | N/B | N/B |
| 8.486 | 109.83 | R8-300 | 263 | 1 | 335 | 61.693 | 139.927 | 109.827 | N/B | N/B |
| 9.394 | 109.42 | R8-300 | 256 | 1 | 335 | 61.693 | 143.132 | 109.424 | N/B | N/B |
| 9.560 | 148.12 | R8-150 | 347 | 1 | 670 | 61.693 | 286.263 | 148.116 | N/B | N/B |
| 9.560 | 172.00 | R8-125 | 398 | 9 | 804 | 75.895 | 347.361 | 171.995 | N/B | N/B |
| 10.320 | 25.74 | R8-250 | 59 | 0 | 402 | 75.895 | 175.219 | 25.744 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12p1(basis)(basis) | -0.165 | 0.045 | 4,0D | 0.204 | 0.000 | 0.760 | 0.635 | 1.395 | 0.000 | 2,5D | 1.605 |
| 4R12q1(basis)(basis) | 0.125 | 0.000 | 2,5D | 0.635 | 0.760 | 9.560 | 1.283 | 10.843 | 0.000 | 2,5D | 10.718 |
| 4R12r1(basis)(basis) | 8.277 | 0.000 | 2,5D | 1.283 | 9.560 | 10.120 | 0.147 | 10.485 | 0.000 | 2,5D | 2.208 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 12
AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12o3(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.420 | 0.475 | 0.725 | 0.143 | 0.868 | 0.000 | 2,5D | 1.033 |
| 4R12p3(basis)(basis) | 0.655 | 0.000 | 2,5D | 0.120 | 0.795 | 9.525 | 0.120 | 9.665 | 0.000 | 2,5D | 9.010 |
| 4R12q3(basis)(basis) | 9.455 | 0.000 | 2,5D | 0.120 | 9.595 | 10.120 | 0.120 | 10.485 | 0.000 | 2,5D | 1.030 |
| 2R12r3(bijleg) | 1.578 | 0.000 | 2,5D | 0.457 | 2.035 | 3.685 | 0.427 | 4.112 | 0.000 | 2,5D | 2.534 |
| (bijleg) | | | | | | | | | | | |
| 1R12s3(bijleg) | 5.646 | 0.000 | 2,5D | 0.478 | 6.125 | 9.560 | 0.719 | 10.279 | 0.000 | 2,5D | 4.632 |
| (bijleg) | | | | | | | | | | | |
| 2R12t3(bijleg) | 7.506 | 0.000 | 2,5D | 0.529 | 8.035 | 9.560 | 0.599 | 10.159 | 0.000 | 2,5D | 2.652 |
| (bijleg) | | | | | | | | | | | |
| 1R12u3(bijleg) | 7.707 | 0.000 | 2,5D | 0.501 | 8.208 | 9.560 | 0.513 | 10.073 | 0.000 | 2,5D | 2.367 |
| (bijleg) | | | | | | | | | | | |
| 1R12v3(bijleg) | 8.841 | 0.000 | 2,5D | 0.719 | 9.560 | 9.845 | 0.624 | 10.469 | 0.000 | 2,5D | 1.628 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 12
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|----------|--------|--------|--------|--------|--------|
| S1 | Rechts | 4xR8-250 | -0.215 | 0.785 | 1.000 | 60.31 | 175.22 |
| S4 | Rechts | 4xR8-300 | 0.785 | 2.035 | 1.250 | 81.80 | 144.73 |
| O16 | Links | 5xR8-300 | 2.035 | 3.785 | 1.750 | 116.31 | 141.53 |
| O15 | Links | 6xR8-300 | 3.785 | 5.785 | 2.000 | 116.31 | 144.73 |
| O14 | Links | 8xR8-300 | 5.785 | 8.285 | 2.500 | 121.82 | 143.13 |
| O14 | Rechts | 2xR8-300 | 8.285 | 9.035 | 0.750 | 113.92 | 139.93 |
| S6 | Links | 1xR8-300 | 9.035 | 9.535 | 0.500 | 113.52 | 143.13 |
| S6 | Rechts | 4xR8-250 | 9.535 | 10.535 | 1.000 | 113.52 | 173.68 |
| - | - | - | m | m | m | kN | kN |

Ligger 12
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------|----------|---------|-------------------|-----------|
|------|----------|---------|-------------------|-----------|

Ligger 12

| | | | | | |
|-------------------|-----------|------------|------------|------|------|
| V9 (9.860-10.320) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V8 (9.560-9.860) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V7 (8.460-9.560) | Vloer | 0,2 <= 4,4 | 0,5 <= 4,4 | 0,05 | 0,12 |
| | Handmatig | | | | |
| V6 (6.460-8.460) | Vloer | 0,5 <= 8,0 | 0,6 <= 8,0 | 0,06 | 0,08 |
| | Handmatig | | | | |
| V5 (4.460-6.460) | Vloer | 0,3 <= 8,0 | 0,3 <= 8,0 | 0,04 | 0,03 |
| | Handmatig | | | | |
| V4 (2.460-4.460) | Vloer | 0,4 <= 8,0 | 0,6 <= 8,0 | 0,05 | 0,07 |
| | Handmatig | | | | |
| V3 (0.760-2.460) | Vloer | 0,2 <= 6,8 | 0,2 <= 6,8 | 0,03 | 0,04 |
| | Handmatig | | | | |
| V2 (0.460-0.760) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V1 (0.000-0.460) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,00 | 0,00 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 13

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 13 |
| Staven | S15-S17 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 10.32 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.60 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |

Ligger 13

DEKKING

| | Boven |
|-------------------|-------|
| Gereduceerd | Nee |
| Mil. | XC2 |
| Met. | Norm. |
| Nab. | Nee |
| Benodigde dekking | 30 mm |

Onder

| |
|-------|
| Nee |
| XC2 |
| Norm. |
| Nee |
| 30 mm |

Zij- + Voorkant

| |
|-------|
| Nee |
| XC2 |
| Norm. |
| Nee |
| 30 mm |

Ligger 13

| | |
|--------------------|-------------|
| Toegepaste dekking | 35 mm |
| Constr.Dl. | Ligger 13 |
| Staven | S15-S17 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 10.32 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

| | |
|-----------------|------------|
| 35 mm | 35 mm |
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |

| | |
|-------------------|-------|
| Gereduceerd | Nee |
| Mil. | XC2 |
| Met. | Norm. |
| Nab. | Nee |
| Benodigde dekking | 30 mm |

| |
|-------|
| Nee |
| XC2 |
| Norm. |
| Nee |
| 30 mm |

| |
|-------|
| Nee |
| XC2 |
| Norm. |
| Nee |
| 30 mm |

Toegepaste dekking 35 mm 35 mm 35 mm
- - -

OPLEGGEGEVEENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 13 Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|----------------------|---------------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O19 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 0.760 | | | | S4 | 0,400 | N/B | | | Niet | afgetopt Niet |
| 1.860 | O23 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 3.860 | O22 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 5.860 | O21 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 7.860 | O20 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 9.560 | | | | S7 | 0,400 | N/B | | | Niet | afgetopt Niet |
| 10.020 | O24 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 10.320 | | | | S9 | 0,400 | Nee | | | Niet | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 13 S,max |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|--------------|--------------------|
| 0.300 | 33.75 | 4R12 | | 188 | 452 | | -27.77 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 0.760 | 0.16 | 4R12 | | 15 | 452 | | | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 1.860 | 37.41 | 4R12 | | 208 | 452 | | -30.18 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 3.860 | 53.55 | 4R12 | | 294 | 452 | | -42.78 | N/B | 12.0 <= 18.3 | 101 <= 251 |
| 5.860 | 67.14 | 4R12 | | 368 | 452 | | -52.95 | N/B | 12.0 <= 11.6 | 101 <= 186 |
| 7.860 | 33.49 | 4R12 | | 188 | 452 | | -26.30 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 10.020 | 14.98 | 4R12 | | 91 | 452 | | -12.34 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 13 S,max |
|---------|--------|-------|--------|--------|--------|---------------|-------|---------|--------------|--------------------|
| 0.760 | 35.20 | 4R12 | | 196 | 452 | | | N/B | 12.0 <= 23.9 | 134 <= 282 |
| 1.124 | 40.29 | 4R12 | | 223 | 452 | | 26.82 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 2.861 | 72.65 | 4R12 | | 398 | 452 | | 51.06 | N/B | 12.0 <= 12.3 | 101 <= 198 |
| 4.889 | 58.58 | 4R12 | | 322 | 452 | | 39.81 | N/B | 12.0 <= 21.4 | 101 <= 270 |
| 6.888 | 70.42 | 4R12 | | 386 | 452 | | 48.97 | N/B | 12.0 <= 13.2 | 101 <= 212 |
| 9.021 | 123.27 | 4R12 | 3R12 | 685 | 792 | | 95.07 | N/B | 12.0 <= 10.4 | 50 <= 165 |
| 9.560 | 80.45 | 4R12 | 1R12 | 441 | 565 | | | N/B | 12.0 <= 7.8 | 76 <= 101 |

| | | | | | | | | | | | |
|-------|-------|------|------|-----|-----|-------|-----|------|--------|-----|--------|
| 9.560 | 93.66 | 4R12 | 1R12 | 510 | 565 | 73.65 | N/B | 12.0 | <= 9.6 | 100 | <= 148 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | | mm | |

FLANKWAPENING
Ligger 13

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 1.80 | 1R8 | 14 | 50 |
| 0.300 | 1.80 | 1R8 | 14 | 50 |
| 0.760 | 1.80 | 1R8 | 17 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 13

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 89.22 | R8-250 | 205 | 9 | 402 | 75.895 | 175.219 | 89.218 | N/B | N/B |
| 0.760 | 93.09 | R8-250 | 214 | 9 | 402 | 75.895 | 175.219 | 93.087 | N/B | N/B |
| 0.760 | 74.92 | R8-300 | 172 | 0 | 335 | 61.708 | 146.015 | 74.921 | N/B | N/B |
| 0.926 | 40.79 | R8-300 | 94 | 0 | 335 | 61.732 | 146.015 | 40.791 | N/B | N/B |
| 1.234 | 37.40 | R8-300 | 87 | 0 | 335 | 61.732 | 144.734 | 37.402 | N/B | N/B |
| 2.486 | 77.03 | R8-300 | 178 | 0 | 335 | 61.708 | 144.734 | 77.032 | N/B | N/B |
| 3.234 | 93.79 | R8-300 | 217 | 0 | 335 | 61.708 | 144.734 | 93.791 | N/B | N/B |
| 4.486 | 82.93 | R8-300 | 192 | 0 | 335 | 61.708 | 144.734 | 82.931 | N/B | N/B |
| 5.234 | 94.24 | R8-300 | 218 | 0 | 335 | 61.708 | 144.734 | 94.238 | N/B | N/B |
| 6.486 | 102.82 | R8-300 | 238 | 0 | 335 | 61.708 | 144.734 | 102.819 | N/B | N/B |
| 7.234 | 71.08 | R8-300 | 165 | 0 | 335 | 61.708 | 144.734 | 71.079 | N/B | N/B |
| 8.486 | 117.06 | R8-300 | 280 | 0 | 335 | 61.708 | 139.927 | 117.058 | N/B | N/B |
| 9.394 | 76.70 | R8-300 | 180 | 0 | 335 | 61.708 | 143.132 | 76.700 | N/B | N/B |
| 9.560 | 110.83 | R8-300 | 259 | 0 | 335 | 61.708 | 143.132 | 110.830 | N/B | N/B |
| 9.560 | 195.56 | R8-125 | 453 | 6 | 804 | 75.895 | 347.361 | 195.557 | N/B | N/B |
| 10.320 | 28.98 | R8-250 | 67 | 0 | 402 | 75.895 | 173.681 | 28.983 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 13

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12s1(basis)(basis) | -0.165 | 0.180 | 4,0D | 0.339 | 0.000 | 0.000 | 0.120 | 0.120 | 0.000 | 2,5D | 0.465 |
| 4R12t1(basis)(basis) | -0.120 | 0.000 | 2,5D | 0.120 | 0.000 | 9.560 | 1.239 | 10.799 | 0.000 | 2,5D | 10.919 |
| 4R12u1(basis)(basis) | 8.321 | 0.000 | 2,5D | 1.239 | 9.560 | 10.120 | 0.151 | 10.485 | 0.000 | 2,5D | 2.164 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 13

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12w3(basis) | -0.165 | 0.000 | 2,5D | 0.273 | 0.475 | 0.560 | 0.283 | 0.843 | 0.000 | 2,5D | 1.008 |
| (basis) | | | | | | | | | | | |
| 4R12x3(basis)(basis) | 0.357 | 0.000 | 2,5D | 0.238 | 0.595 | 9.525 | 0.120 | 9.665 | 0.000 | 2,5D | 9.308 |
| 4R12q3(basis)(basis) | 9.455 | 0.000 | 2,5D | 0.120 | 9.595 | 10.120 | 0.120 | 10.485 | 0.000 | 2,5D | 1.030 |
| 2R12y3(bijleg) | 7.559 | 0.000 | 2,5D | 0.476 | 8.035 | 9.560 | 0.578 | 10.138 | 0.000 | 2,5D | 2.580 |
| (bijleg) | | | | | | | | | | | |
| 1R12a4(bijleg) | 8.525 | 0.000 | 2,5D | 0.496 | 9.021 | 9.021 | 0.496 | 9.517 | 0.000 | 2,5D | 0.992 |
| (bijleg) | | | | | | | | | | | |
| 1R12b4(bijleg) | 7.463 | 0.000 | 2,5D | 0.572 | 8.035 | 9.560 | 0.694 | 10.254 | 0.000 | 2,5D | 2.791 |
| (bijleg) | | | | | | | | | | | |
| 1R12c4(bijleg) | 8.866 | 0.000 | 2,5D | 0.694 | 9.560 | 9.845 | 0.645 | 10.485 | 0.005 | 4,0D | 1.624 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 13

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|----------|--------|-------|--------|-------|--------|
| S2 | Rechts | 4xR8-250 | -0.215 | 0.785 | 1.000 | 93.28 | 175.22 |
| S4 | Rechts | 0xR8-300 | 0.785 | 1.035 | 0.250 | 44.85 | 146.02 |

| | | | | | | | |
|-----|--------|-----------|-------|--------|-------|--------|--------|
| S4 | Links | 0xR8-300 | 1.035 | 1.285 | 0.250 | 44.85 | 144.73 |
| S4 | Rechts | 2xR8-300 | 1.285 | 2.035 | 0.750 | 81.09 | 146.02 |
| O23 | Links | 20xR8-300 | 2.035 | 8.035 | 6.000 | 121.12 | 144.73 |
| O20 | Links | 0xR8-300 | 8.035 | 8.285 | 0.250 | 121.12 | 143.13 |
| O20 | Rechts | 2xR8-300 | 8.285 | 9.035 | 0.750 | 121.12 | 139.93 |
| S7 | Links | 1xR8-300 | 9.035 | 9.535 | 0.500 | 80.76 | 143.13 |
| S7 | Rechts | 4xR8-250 | 9.535 | 10.535 | 1.000 | 80.76 | 173.68 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 13 |
|-------------------|-----------|-------------|-------------------|-----------|-----------|
| V9 (9.860-10.320) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V8 (9.560-9.860) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V7 (8.460-9.560) | Vloer | 0,2 <= 4,4 | 0,5 <= 4,4 | 0,05 | 0,11 |
| | Handmatig | | | | |
| V6 (6.460-8.460) | Vloer | 0,3 <= 8,0 | 0,3 <= 8,0 | 0,04 | 0,04 |
| | Handmatig | | | | |
| V5 (4.460-6.460) | Vloer | -0,1 <= 8,0 | -0,1 <= 8,0 | 0,02 | 0,01 |
| | Handmatig | | | | |
| V4 (2.460-4.460) | Vloer | 0,3 <= 8,0 | 0,2 <= 8,0 | 0,03 | 0,03 |
| | Handmatig | | | | |
| V3 (0.760-2.460) | Vloer | 0,0 <= 6,8 | 0,1 <= 6,8 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V2 (0.460-0.760) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V1 (0.000-0.460) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,00 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 14
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 14 |
| Staven | S18 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 14
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 14
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 14 |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|----------|-----------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet |

| | | | | | | | | |
|-------|-----|---------------|-------|----|-------|-----|----------|------------------|
| 0.300 | O29 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 2.540 | O28 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 4.780 | O27 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 7.020 | O26 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.260 | O25 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.560 | | paal | | S7 | 0,400 | Nee | Afgetopt | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm - - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 14 |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|-------------|------------|-----------|
| 0.300 | 73.73 | 4R12 | | 390 | 452 | | -60.92 | N/B | 12.0 <= 9.0 | 101 <= 135 | |
| 2.540 | 101.69 | 4R12 | 1R12 | 547 | 565 | | -81.41 | N/B | 12.0 <= 7.9 | 76 <= 104 | |
| 4.780 | 95.24 | 4R12 | 1R12 | 510 | 565 | | -76.51 | N/B | 12.0 <= 8.7 | 76 <= 129 | |
| 7.020 | 103.74 | 4R12 | 1R12 | 558 | 565 | | -82.92 | N/B | 12.0 <= 7.6 | 76 <= 96 | |
| 9.260 | 75.11 | 4R12 | | 398 | 452 | | -62.07 | N/B | 12.0 <= 8.7 | 101 <= 128 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 14 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|-----------|
| 1.406 | 62.80 | 4R12 | | 331 | 452 | | 35.97 | N/B | 12.0 <= 24.5 | 101 <= 285 | |
| 3.723 | 47.70 | 4R12 | | 249 | 452 | | 26.67 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.833 | 46.79 | 4R12 | | 244 | 452 | | 25.97 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 8.154 | 61.66 | 4R12 | | 324 | 452 | | 34.88 | N/B | 12.0 <= 25.3 | 101 <= 288 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 14 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.02 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 14 |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.200 | 255.79 | R8-150 | 592 | 0 | 670 | 61.726 | 289.468 | 255.785 | N/B | N/B | |
| 0.926 | 96.97 | R8-300 | 225 | 0 | 335 | 61.726 | 144.734 | 96.970 | N/B | N/B | |
| 1.914 | 113.95 | R8-300 | 264 | 0 | 335 | 61.726 | 144.734 | 113.955 | N/B | N/B | |
| 3.166 | 112.47 | R8-300 | 260 | 0 | 335 | 61.726 | 144.734 | 112.465 | N/B | N/B | |
| 4.154 | 112.37 | R8-300 | 260 | 0 | 335 | 61.726 | 144.734 | 112.367 | N/B | N/B | |
| 5.406 | 111.79 | R8-300 | 259 | 0 | 335 | 61.726 | 144.734 | 111.788 | N/B | N/B | |
| 6.394 | 113.33 | R8-300 | 262 | 0 | 335 | 61.726 | 144.734 | 113.328 | N/B | N/B | |
| 7.646 | 114.07 | R8-300 | 264 | 0 | 335 | 61.726 | 144.734 | 114.071 | N/B | N/B | |
| 8.634 | 96.86 | R8-300 | 224 | 0 | 335 | 61.726 | 144.734 | 96.863 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 14 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12v1(basis)(basis) | -0.165 | 0.582 | 4,0D | 0.741 | 0.000 | 9.360 | 0.755 | 9.719 | 0.396 | 4,0D | 10.863 | |
| 1R12w1(bijleg) | 1.237 | 0.000 | 2,5D | 0.683 | 1.920 | 7.649 | 0.683 | 8.333 | 0.000 | 2,5D | 7.096 | |

(bijleg)

- m m - m m m m m m - m

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.329 | 0.475 | 9.360 | 0.346 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 14

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 217.96 | 289.47 |
| O29 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 222.82 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 14

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,1 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | -0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | -0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 14

LIGGER 15
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.DI. | Ligger 15 |
| Staven | S19 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 15

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 15

OPLEGGEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|-------|-----------|-----|----------|----------|----------|--------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet |

Ligger 15

| | | | | | | | | |
|-------|-----|---------------|-------|-------|-----|---|----------|------------------|
| 0.300 | O34 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 2.540 | O33 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 4.780 | O32 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 7.020 | O31 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.260 | O30 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.560 | | paal | S7 | 0,400 | Nee | | Afgetopt | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm - - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 15 |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|-------------|------------|-----------|
| 0.300 | 71.73 | 4R12 | | 379 | 452 | | -59.29 | N/B | 12.0 <= 9.5 | 101 <= 146 | |
| 2.540 | 100.58 | 4R12 | 1R12 | 540 | 565 | | -79.87 | N/B | 12.0 <= 8.1 | 76 <= 112 | |
| 4.780 | 94.08 | 4R12 | 1R12 | 504 | 565 | | -75.21 | N/B | 12.0 <= 9.1 | 76 <= 136 | |
| 7.020 | 99.46 | 4R12 | 1R12 | 534 | 565 | | -79.04 | N/B | 12.0 <= 8.3 | 76 <= 116 | |
| 9.260 | 70.90 | 4R12 | | 375 | 452 | | -58.59 | N/B | 12.0 <= 9.7 | 101 <= 150 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 15 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|-----------|
| 1.407 | 63.96 | 4R12 | | 337 | 452 | | 37.56 | N/B | 12.0 <= 23.3 | 101 <= 280 | |
| 3.722 | 49.84 | 4R12 | | 261 | 452 | | 28.42 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.840 | 50.33 | 4R12 | | 263 | 452 | | 28.81 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 8.153 | 64.60 | 4R12 | | 340 | 452 | | 38.17 | N/B | 12.0 <= 22.8 | 101 <= 278 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 15 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 15 |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.200 | 248.57 | R8-150 | 576 | 0 | 670 | 61.731 | 289.468 | 248.574 | N/B | N/B | |
| 0.926 | 97.05 | R8-300 | 225 | 0 | 335 | 61.731 | 144.734 | 97.051 | N/B | N/B | |
| 1.914 | 113.87 | R8-300 | 264 | 0 | 335 | 61.731 | 144.734 | 113.871 | N/B | N/B | |
| 3.166 | 112.28 | R8-300 | 260 | 0 | 335 | 61.731 | 144.734 | 112.283 | N/B | N/B | |
| 4.154 | 112.40 | R8-300 | 260 | 0 | 335 | 61.731 | 144.734 | 112.402 | N/B | N/B | |
| 5.406 | 112.72 | R8-300 | 261 | 0 | 335 | 61.731 | 144.734 | 112.721 | N/B | N/B | |
| 6.394 | 111.82 | R8-300 | 259 | 0 | 335 | 61.731 | 144.734 | 111.816 | N/B | N/B | |
| 7.646 | 113.82 | R8-300 | 264 | 0 | 335 | 61.731 | 144.734 | 113.817 | N/B | N/B | |
| 8.634 | 97.10 | R8-300 | 225 | 0 | 335 | 61.731 | 144.734 | 97.101 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 15 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12x1(basis)(basis) | -0.165 | 0.562 | 4,0D | 0.721 | 0.000 | 9.360 | 0.713 | 9.719 | 0.354 | 4,0D | 10.800 | |
| 1R12y1(bijleg) | 1.245 | 0.000 | 2,5D | 0.683 | 1.929 | 7.626 | 0.683 | 8.309 | 0.000 | 2,5D | 7.064 | |

(bijleg)

- m m - m m m m m m - m

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.334 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 15

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 210.71 | 289.47 |
| O34 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 207.88 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 15

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 15

LIGGER 16
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.DI. | Ligger 16 |
| Staven | S20 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 16

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 16

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|-------|-----------|-----|----------|----------|----------|---------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet afgetopt |

Ligger 16

| | | | | | | | | |
|-------|-----|-------|-------|-------|-----|---|----------|----------|
| 0.300 | O39 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 2.540 | O38 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 4.780 | O37 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 7.020 | O36 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 9.260 | O35 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 9.560 | | | S7 | 0,400 | Nee | | Afgetopt | Niet |
| | | | | | | | | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|-------------|--------|---------|-------------|------------|
| | | | | | | ng | | | | Ligger 16 |
| 0.300 | 70.24 | 4R12 | | 371 | 452 | | -58.04 | N/B | 12.0 <= 9.9 | 101 <= 154 |
| 2.540 | 98.65 | 4R12 | 1R12 | 529 | 565 | | -78.45 | N/B | 12.0 <= 8.4 | 76 <= 119 |
| 4.780 | 93.48 | 4R12 | 1R12 | 500 | 565 | | -74.75 | N/B | 12.0 <= 9.2 | 76 <= 138 |
| 7.020 | 98.68 | 4R12 | 1R12 | 530 | 565 | | -78.47 | N/B | 12.0 <= 8.4 | 76 <= 119 |
| 9.260 | 70.27 | 4R12 | | 371 | 452 | | -58.06 | N/B | 12.0 <= 9.9 | 101 <= 154 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| | | | | | | | | | | Ligger 16 |
| 1.407 | 65.42 | 4R12 | | 345 | 452 | | 38.76 | N/B | 12.0 <= 22.4 | 101 <= 276 |
| 3.720 | 50.79 | 4R12 | | 266 | 452 | | 29.23 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.840 | 50.77 | 4R12 | | 266 | 452 | | 29.22 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 8.153 | 65.40 | 4R12 | | 345 | 452 | | 38.74 | N/B | 12.0 <= 22.4 | 101 <= 276 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 16 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-----------|
| | | g | | | | | | | | Ligger 16 |
| 0.200 | 243.59 | R8-150 | 564 | 0 | 670 | 61.732 | 289.468 | 243.591 | N/B | N/B |
| 0.926 | 97.13 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.134 | N/B | N/B |
| 1.914 | 113.79 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.788 | N/B | N/B |
| 3.166 | 111.83 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.830 | N/B | N/B |
| 4.154 | 112.84 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.838 | N/B | N/B |
| 5.406 | 112.83 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.827 | N/B | N/B |
| 6.394 | 111.84 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.845 | N/B | N/B |
| 7.646 | 113.79 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.790 | N/B | N/B |
| 8.634 | 97.13 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.131 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|-----------|
| | | | | | | | | | | | Ligger 16 |
| 4R12a2(basis)(basis) | -0.165 | 0.547 | 4,0D | 0.706 | 0.000 | 9.360 | 0.707 | 9.719 | 0.348 | 4,0D | 10.779 |
| 1R12b2(bijleg) | 1.254 | 0.000 | 2,5D | 0.683 | 1.937 | 7.623 | 0.683 | 8.306 | 0.000 | 2,5D | 7.052 |
| (bijleg) | | | | | | | | | | | |

- m m - m m m m m m - m

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.343 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 16
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 205.72 | 289.47 |
| O39 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 205.80 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 16
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 16
LIGGER 17
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 17 |
| Staven | S21 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 17
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 17
OPLEGGEDEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf g | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|---------|-----------|-----|----------|----------|----------|---------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet afgetopt |

Ligger 17

| | | | | | | |
|-------|-----|-------|-------|-------|----------|----------|
| 0.300 | O44 | Ronde | 0,350 | N/B | Afgetopt | Niet |
| 2.540 | O43 | paal | 0,350 | N/B | Afgetopt | afgetopt |
| 4.780 | O42 | Ronde | 0,350 | N/B | Afgetopt | Niet |
| 7.020 | O41 | paal | 0,350 | N/B | Afgetopt | afgetopt |
| 9.260 | O40 | Ronde | 0,350 | N/B | Afgetopt | Niet |
| 9.560 | | paal | S7 | 0,400 | Nee | Afgetopt |
| | | | | | | Niet |
| | | | | | | afgetopt |
| m | - | - | m | - | kNm | kNm - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|-------------|--------|---------|-------------|------------|
| | | | | | | ng | | | | Ligger 17 |
| 0.300 | 70.42 | 4R12 | | 372 | 452 | | -58.19 | N/B | 12.0 <= 9.8 | 101 <= 153 |
| 2.540 | 98.84 | 4R12 | 1R12 | 530 | 565 | | -78.61 | N/B | 12.0 <= 8.3 | 76 <= 118 |
| 4.780 | 93.57 | 4R12 | 1R12 | 501 | 565 | | -74.82 | N/B | 12.0 <= 9.1 | 76 <= 138 |
| 7.020 | 98.87 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 |
| 9.260 | 70.44 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| | | | | | | | | | | Ligger 17 |
| 1.407 | 65.26 | 4R12 | | 344 | 452 | | 38.61 | N/B | 12.0 <= 22.5 | 101 <= 276 |
| 3.720 | 50.64 | 4R12 | | 265 | 452 | | 29.11 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.840 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 8.153 | 65.25 | 4R12 | | 344 | 452 | | 38.60 | N/B | 12.0 <= 22.5 | 101 <= 277 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 17 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-----------|
| | | g | | | | | | | | Ligger 17 |
| 0.200 | 244.20 | R8-150 | 565 | 0 | 670 | 61.732 | 289.468 | 244.196 | N/B | N/B |
| 0.926 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.123 | N/B | N/B |
| 1.914 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.798 | N/B | N/B |
| 3.166 | 111.87 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.874 | N/B | N/B |
| 4.154 | 112.80 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.799 | N/B | N/B |
| 5.406 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.791 | N/B | N/B |
| 6.394 | 111.89 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.887 | N/B | N/B |
| 7.646 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.800 | N/B | N/B |
| 8.634 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12c2(basis)(basis) | -0.165 | 0.549 | 4,0D | 0.708 | 0.000 | 9.360 | 0.708 | 9.719 | 0.349 | 4,0D | 10.782 |
| 1R12d2(bijleg) | 1.253 | 0.000 | 2,5D | 0.683 | 1.936 | 7.624 | 0.683 | 8.307 | 0.000 | 2,5D | 7.054 |
| (bijleg) | | | | | | | | | | | |

- m m - m m m m m m - m

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.342 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 17
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 206.32 | 289.47 |
| O44 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 206.39 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 17
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 17
LIGGER 18
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 18 |
| Staven | S22 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 18
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 18
OPLEGGEDEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|-------|-----------|-----|----------|----------|----------|---------------|
| 0.000 | | | | S2 | 0,400 | Nee | | Afgetopt | | Niet afgetopt |
| 0.300 | O49 | Ronde | 0,350 | | | N/B | | Afgetopt | | Niet |

Ligger 18

| | | | | | | | | | | | |
|-------|-----|-------|-------|----|-------|-----|-----|-----|----------|---|----------|
| 2.540 | O48 | paal | | | | | | | | | afgetopt |
| | | Ronde | 0,350 | | | N/B | | | Afgetopt | | Niet |
| 4.780 | O47 | paal | | | | | | | | | afgetopt |
| | | Ronde | 0,350 | | | N/B | | | Afgetopt | | Niet |
| 7.020 | O46 | paal | | | | | | | | | afgetopt |
| | | Ronde | 0,350 | | | N/B | | | Afgetopt | | Niet |
| 9.260 | O45 | paal | | | | | | | | | afgetopt |
| | | Ronde | 0,350 | | | N/B | | | Afgetopt | | Niet |
| 9.560 | | paal | | S7 | 0,400 | Nee | | | Afgetopt | | afgetopt |
| | | | | | | | | | | | Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | - | afgetopt |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 18 S,max |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|-------------|--------------------|
| 0.300 | 70.44 | 4R12 | | 372 | 452 | | -58.21 | N/B | 12.0 <= 9.8 | 101 <= 153 |
| 2.540 | 98.88 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 |
| 4.780 | 93.58 | 4R12 | 1R12 | 501 | 565 | | -74.83 | N/B | 12.0 <= 9.1 | 76 <= 138 |
| 7.020 | 98.88 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 |
| 9.260 | 70.44 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 18 S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|--------------------|
| 1.407 | 65.23 | 4R12 | | 344 | 452 | | 38.59 | N/B | 12.0 <= 22.5 | 101 <= 277 |
| 3.720 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.840 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 8.153 | 65.24 | 4R12 | | 344 | 452 | | 38.59 | N/B | 12.0 <= 22.5 | 101 <= 277 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 18 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 18 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------------------|
| 0.200 | 244.28 | R8-150 | 566 | 0 | 670 | 61.732 | 289.468 | 244.277 | N/B | N/B |
| 0.926 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.121 | N/B | N/B |
| 1.914 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.800 | N/B | N/B |
| 3.166 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.884 | N/B | N/B |
| 4.154 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.790 | N/B | N/B |
| 5.406 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.791 | N/B | N/B |
| 6.394 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.882 | N/B | N/B |
| 7.646 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.800 | N/B | N/B |
| 8.634 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12e2(basis)(basis) | -0.165 | 0.549 | 4,0D | 0.708 | 0.000 | 9.360 | 0.708 | 9.719 | 0.349 | 4,0D | 10.783 |
| 1R12f2(bijleg) | 1.253 | 0.000 | 2,5D | 0.683 | 1.936 | 7.624 | 0.683 | 8.307 | 0.000 | 2,5D | 7.054 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 18 Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|---------------------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.342 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 18 |
|-----------|--------|-----------|-------|-------|--------|--------|--------|-----------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 206.40 | 289.47 | |
| O49 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 206.39 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 18 |
|------------------|-----------|------------|-------------------|-----------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 | 0,02 |
| | Handmatig | | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 | 0,02 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 19
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 19 |
| Staven | S23 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 19
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 19
OPLEGGEGETEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 19 Moment |
|---------|---------|-------|--------------|--------|--------------|-----|----------|----------|----------|---------------------|
| 0.000 | | | | S2 | 0,400 | Nee | | Afgetopt | | Niet afgetopt |
| 0.300 | O54 | Ronde | 0,350 | | | N/B | | Afgetopt | | Niet |

| | | | | | | | |
|-------|-----|---------------|-------|----|-----------|----------|------------------------|
| 2.540 | O53 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet |
| 4.780 | O52 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet |
| | | paal | | | | | afgetopt |
| 7.020 | O51 | Ronde | 0,350 | | N/B | Afgetopt | Niet |
| 9.260 | O50 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet |
| 9.560 | | paal | | S7 | 0,400 Nee | Afgetopt | afgetopt Niet |
| m | - | - | m | - | m | kNm | kNm - afgetopt - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 19 |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|-------------|------------|-----------|
| 0.300 | 70.43 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 | |
| 2.540 | 98.88 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 | |
| 4.780 | 93.57 | 4R12 | 1R12 | 501 | 565 | | -74.83 | N/B | 12.0 <= 9.1 | 76 <= 138 | |
| 7.020 | 98.87 | 4R12 | 1R12 | 531 | 565 | | -78.63 | N/B | 12.0 <= 8.3 | 76 <= 118 | |
| 9.260 | 70.43 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 19 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|-----------|
| 1.407 | 65.24 | 4R12 | | 344 | 452 | | 38.60 | N/B | 12.0 <= 22.5 | 101 <= 277 | |
| 3.720 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.840 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 8.153 | 65.24 | 4R12 | | 344 | 452 | | 38.60 | N/B | 12.0 <= 22.5 | 101 <= 277 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 19 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 19 |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.200 | 244.25 | R8-150 | 566 | 0 | 670 | 61.732 | 289.468 | 244.250 | N/B | N/B | |
| 0.926 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B | |
| 1.914 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.799 | N/B | N/B | |
| 3.166 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.882 | N/B | N/B | |
| 4.154 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.792 | N/B | N/B | |
| 5.406 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.792 | N/B | N/B | |
| 6.394 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.881 | N/B | N/B | |
| 7.646 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.799 | N/B | N/B | |
| 8.634 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 19 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12g2(basis)(basis) | -0.165 | 0.549 | 4,0D | 0.708 | 0.000 | 9.360 | 0.708 | 9.719 | 0.349 | 4,0D | 10.783 | |
| 1R12h2(bijleg) | 1.253 | 0.000 | 2,5D | 0.683 | 1.936 | 7.624 | 0.683 | 8.307 | 0.000 | 2,5D | 7.054 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.342 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 19
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 206.38 | 289.47 |
| O54 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 206.38 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 19
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 19
LIGGER 20
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 20 |
| Staven | S24 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 20
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 20
OPLEGGEDEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|--------|-----------|-----|----------|----------|----------|---------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet afgetopt |
| 0.300 | O59 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |

Ligger 20

| | | | | | | | | | |
|-------|-----|---------------|-------|----|-------|----------|------------------|-----|---|
| 2.540 | O58 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet | | |
| 4.780 | O57 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet | | |
| 7.020 | O56 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet | | |
| 9.260 | O55 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet | | |
| 9.560 | | paal | | S7 | 0,400 | Nee | Afgetopt Niet | | |
| m | - | - | m | - | m | - | kNm | kNm | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 20 |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|-------------|------------|-----------|
| 0.300 | 70.43 | 4R12 | | 372 | 452 | ng | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 | |
| 2.540 | 98.87 | 4R12 | 1R12 | 531 | 565 | | -78.63 | N/B | 12.0 <= 8.3 | 76 <= 118 | |
| 4.780 | 93.57 | 4R12 | 1R12 | 501 | 565 | | -74.83 | N/B | 12.0 <= 9.1 | 76 <= 138 | |
| 7.020 | 98.87 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 | |
| 9.260 | 70.43 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 20 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|-----------|
| 1.407 | 65.24 | 4R12 | | 344 | 452 | | 38.60 | N/B | 12.0 <= 22.5 | 101 <= 277 | |
| 3.720 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.840 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 8.153 | 65.24 | 4R12 | | 344 | 452 | | 38.60 | N/B | 12.0 <= 22.5 | 101 <= 277 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 20 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 20 |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.200 | 244.25 | R8-150 | 566 | 0 | 670 | 61.732 | 289.468 | 244.249 | N/B | N/B | |
| 0.926 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B | |
| 1.914 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.799 | N/B | N/B | |
| 3.166 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.881 | N/B | N/B | |
| 4.154 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.792 | N/B | N/B | |
| 5.406 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.792 | N/B | N/B | |
| 6.394 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.882 | N/B | N/B | |
| 7.646 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.799 | N/B | N/B | |
| 8.634 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 20 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12i2(basis)(basis) | -0.165 | 0.549 | 4,0D | 0.708 | 0.000 | 9.360 | 0.708 | 9.719 | 0.349 | 4,0D | 10.783 | |
| 1R12j2(bijleg) | 1.253 | 0.000 | 2,5D | 0.683 | 1.936 | 7.624 | 0.683 | 8.307 | 0.000 | 2,5D | 7.054 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.342 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 20
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 206.38 | 289.47 |
| O59 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 206.38 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 20
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 20
LIGGER 21
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 21 |
| Staven | S25 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 21
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 21
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|-------|-----------|-----|----------|----------|----------|--------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet |
| 0.300 | O64 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |

Ligger 21

| | | | | | | | | |
|-------|-----|---------------|-------|----|-------|-----|----------|------------------------|
| 2.540 | O63 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 4.780 | O62 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 7.020 | O61 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.260 | O60 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.560 | | paal | | S7 | 0,400 | Nee | Afgetopt | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm - afgetopt - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 21 |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|-------------|------------|-----------|
| 0.300 | 70.43 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 | |
| 2.540 | 98.88 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 | |
| 4.780 | 93.57 | 4R12 | 1R12 | 501 | 565 | | -74.83 | N/B | 12.0 <= 9.1 | 76 <= 138 | |
| 7.020 | 98.87 | 4R12 | 1R12 | 531 | 565 | | -78.63 | N/B | 12.0 <= 8.3 | 76 <= 118 | |
| 9.260 | 70.43 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 21 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|-----------|
| 1.407 | 65.24 | 4R12 | | 344 | 452 | | 38.60 | N/B | 12.0 <= 22.5 | 101 <= 277 | |
| 3.720 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.840 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 8.153 | 65.24 | 4R12 | | 344 | 452 | | 38.60 | N/B | 12.0 <= 22.5 | 101 <= 277 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 21 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 21 |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.200 | 244.25 | R8-150 | 566 | 0 | 670 | 61.732 | 289.468 | 244.250 | N/B | N/B | |
| 0.926 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B | |
| 1.914 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.799 | N/B | N/B | |
| 3.166 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.882 | N/B | N/B | |
| 4.154 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.792 | N/B | N/B | |
| 5.406 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.792 | N/B | N/B | |
| 6.394 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.881 | N/B | N/B | |
| 7.646 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.799 | N/B | N/B | |
| 8.634 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 21 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12k2(basis)(basis) | -0.165 | 0.549 | 4,0D | 0.708 | 0.000 | 9.360 | 0.708 | 9.719 | 0.349 | 4,0D | 10.783 | |
| 1R12l2(bijleg) | 1.253 | 0.000 | 2,5D | 0.683 | 1.936 | 7.624 | 0.683 | 8.307 | 0.000 | 2,5D | 7.054 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.342 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 21
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 206.38 | 289.47 |
| O64 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 206.38 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 21
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 21
LIGGER 22
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.DI. | Ligger 22 |
| Staven | S26 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 22
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 22
OPLEGGEDEGEENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|-------|-----------|-----|----------|----------|----------|--------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet |
| 0.300 | O69 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |

Ligger 22

| | | | | | | | | |
|-------|-----|---------------|-------|----|-------|-----|----------|------------------------|
| 2.540 | O68 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 4.780 | O67 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 7.020 | O66 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.260 | O65 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.560 | | paal | | S7 | 0,400 | Nee | Afgetopt | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm - afgetopt - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 22 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|-------------|--------------------|
| 0.300 | 70.44 | 4R12 | | 372 | 452 | | -58.21 | N/B | 12.0 <= 9.8 | 101 <= 153 |
| 2.540 | 98.88 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 |
| 4.780 | 93.58 | 4R12 | 1R12 | 501 | 565 | | -74.83 | N/B | 12.0 <= 9.1 | 76 <= 138 |
| 7.020 | 98.88 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 |
| 9.260 | 70.44 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 22 S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|--------------------|
| 1.407 | 65.23 | 4R12 | | 344 | 452 | | 38.59 | N/B | 12.0 <= 22.5 | 101 <= 277 |
| 3.720 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.840 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 8.153 | 65.24 | 4R12 | | 344 | 452 | | 38.59 | N/B | 12.0 <= 22.5 | 101 <= 277 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 22 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 22 VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------------------|
| 0.200 | 244.28 | R8-150 | 566 | 0 | 670 | 61.732 | 289.468 | 244.276 | N/B | N/B |
| 0.926 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.121 | N/B | N/B |
| 1.914 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.800 | N/B | N/B |
| 3.166 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.884 | N/B | N/B |
| 4.154 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.790 | N/B | N/B |
| 5.406 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.791 | N/B | N/B |
| 6.394 | 111.88 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.882 | N/B | N/B |
| 7.646 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.800 | N/B | N/B |
| 8.634 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 22 Lengte |
|----------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|---------------------|
| 4R12m2(basis) | -0.165 | 0.549 | 4,0D | 0.708 | 0.000 | 9.360 | 0.708 | 9.719 | 0.349 | 4,0D | 10.783 |
| (basis) | | | | | | | | | | | |
| 1R12n2(bijleg) | 1.253 | 0.000 | 2,5D | 0.683 | 1.936 | 7.624 | 0.683 | 8.307 | 0.000 | 2,5D | 7.054 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.342 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 22
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 206.40 | 289.47 |
| O69 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 206.39 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 22
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|--------------------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer Handmatig | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| V5 (7.020-9.260) | Vloer Handmatig | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| V4 (4.780-7.020) | Vloer Handmatig | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| V3 (2.540-4.780) | Vloer Handmatig | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| V2 (0.300-2.540) | Vloer Handmatig | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| V1 (0.000-0.300) | Vloer Handmatig | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| m | - | mm | mm | - |

Ligger 22
LIGGER 23
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 23 |
| Staven | S27 |
| Profiel | R400x500 mm |
| Betonekwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 23
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 23
OPLEGGEDEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|--------|-----------|-----|----------|----------|----------|--------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet |
| 0.300 | O74 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |

Ligger 23

| | | | | | | | | |
|-------|-----|---------------|-------|----|-------|-----|----------|------------------------|
| 2.540 | O73 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 4.780 | O72 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 7.020 | O71 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.260 | O70 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 9.560 | | paal | | S7 | 0,400 | Nee | Afgetopt | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm - afgetopt - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 23 |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|-------------|------------|-----------|
| 0.300 | 70.42 | 4R12 | | 372 | 452 | | -58.19 | N/B | 12.0 <= 9.8 | 101 <= 153 | |
| 2.540 | 98.84 | 4R12 | 1R12 | 530 | 565 | | -78.61 | N/B | 12.0 <= 8.3 | 76 <= 118 | |
| 4.780 | 93.57 | 4R12 | 1R12 | 501 | 565 | | -74.82 | N/B | 12.0 <= 9.1 | 76 <= 138 | |
| 7.020 | 98.87 | 4R12 | 1R12 | 531 | 565 | | -78.64 | N/B | 12.0 <= 8.3 | 76 <= 118 | |
| 9.260 | 70.44 | 4R12 | | 372 | 452 | | -58.20 | N/B | 12.0 <= 9.8 | 101 <= 153 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 23 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|-----------|
| 1.407 | 65.27 | 4R12 | | 344 | 452 | | 38.61 | N/B | 12.0 <= 22.5 | 101 <= 276 | |
| 3.720 | 50.64 | 4R12 | | 265 | 452 | | 29.11 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.840 | 50.63 | 4R12 | | 265 | 452 | | 29.10 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 8.153 | 65.25 | 4R12 | | 344 | 452 | | 38.60 | N/B | 12.0 <= 22.5 | 101 <= 277 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 23 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 23 |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.200 | 244.20 | R8-150 | 565 | 0 | 670 | 61.732 | 289.468 | 244.196 | N/B | N/B | |
| 0.926 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.123 | N/B | N/B | |
| 1.914 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.798 | N/B | N/B | |
| 3.166 | 111.87 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.874 | N/B | N/B | |
| 4.154 | 112.80 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.800 | N/B | N/B | |
| 5.406 | 112.79 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.791 | N/B | N/B | |
| 6.394 | 111.89 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.887 | N/B | N/B | |
| 7.646 | 113.80 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.800 | N/B | N/B | |
| 8.634 | 97.12 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.122 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 23 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12o2(basis)(basis) | -0.165 | 0.549 | 4,0D | 0.708 | 0.000 | 9.360 | 0.708 | 9.719 | 0.349 | 4,0D | 10.782 | |
| 1R12p2(bijleg) | 1.253 | 0.000 | 2,5D | 0.683 | 1.936 | 7.624 | 0.683 | 8.307 | 0.000 | 2,5D | 7.054 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.342 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 23
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 206.32 | 289.47 |
| O74 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 206.39 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 23
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 23
LIGGER 24
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 24 |
| Staven | S28 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 24
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 24
OPLEGGEGETEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|--------|-----------|-----|----------|----------|----------|---------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet afgetopt |
| 0.300 | O79 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |

Ligger 24

| | | | | | | | |
|-------|-----|---------------|-------|-------|-----|----------|------------------------|
| 2.540 | O78 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet |
| 4.780 | O77 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet |
| 7.020 | O76 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet |
| 9.260 | O75 | paal Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet |
| 9.560 | | paal | S7 | 0,400 | Nee | Afgetopt | afgetopt Niet |
| m | - | - | m | - | m | kNm | kNm - afgetopt - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|-------------|------------|
| 0.300 | 70.24 | 4R12 | | 371 | 452 | | -58.04 | N/B | 12.0 <= 9.9 | 101 <= 154 |
| 2.540 | 98.65 | 4R12 | 1R12 | 529 | 565 | | -78.45 | N/B | 12.0 <= 8.4 | 76 <= 119 |
| 4.780 | 93.48 | 4R12 | 1R12 | 500 | 565 | | -74.75 | N/B | 12.0 <= 9.2 | 76 <= 138 |
| 7.020 | 98.68 | 4R12 | 1R12 | 530 | 565 | | -78.47 | N/B | 12.0 <= 8.4 | 76 <= 119 |
| 9.260 | 70.27 | 4R12 | | 371 | 452 | | -58.06 | N/B | 12.0 <= 9.9 | 101 <= 154 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 24
ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 1.407 | 65.42 | 4R12 | | 345 | 452 | | 38.76 | N/B | 12.0 <= 22.4 | 101 <= 276 |
| 3.720 | 50.79 | 4R12 | | 266 | 452 | | 29.23 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.840 | 50.77 | 4R12 | | 266 | 452 | | 29.22 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 8.153 | 65.40 | 4R12 | | 345 | 452 | | 38.74 | N/B | 12.0 <= 22.4 | 101 <= 276 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 24
FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.00 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

Ligger 24
BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.200 | 243.59 | R8-150 | 564 | 0 | 670 | 61.732 | 289.468 | 243.591 | N/B | N/B |
| 0.926 | 97.13 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.134 | N/B | N/B |
| 1.914 | 113.79 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.788 | N/B | N/B |
| 3.166 | 111.83 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.830 | N/B | N/B |
| 4.154 | 112.84 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.838 | N/B | N/B |
| 5.406 | 112.83 | R8-300 | 261 | 0 | 335 | 61.732 | 144.734 | 112.827 | N/B | N/B |
| 6.394 | 111.84 | R8-300 | 259 | 0 | 335 | 61.732 | 144.734 | 111.845 | N/B | N/B |
| 7.646 | 113.79 | R8-300 | 263 | 0 | 335 | 61.732 | 144.734 | 113.790 | N/B | N/B |
| 8.634 | 97.13 | R8-300 | 225 | 0 | 335 | 61.732 | 144.734 | 97.131 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

Ligger 24
AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12q2(basis)(basis) | -0.165 | 0.547 | 4,0D | 0.706 | 0.000 | 9.360 | 0.707 | 9.719 | 0.348 | 4,0D | 10.779 |
| 1R12r2(bijleg) | 1.254 | 0.000 | 2,5D | 0.683 | 1.937 | 7.623 | 0.683 | 8.306 | 0.000 | 2,5D | 7.052 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 24

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.343 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 24
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 205.72 | 289.47 |
| O79 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 205.80 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 24
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 24
LIGGER 25
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 25 |
| Staven | S29 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 9.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 25
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 25
OPLEGGEGETEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|----------|-------|----------|----------|----------|---------------|
| 0.000 | | | | S2 | 0,400 | Nee | | Afgetopt | Niet afgetopt |
| 0.300 | O84 | Ronde paal | 0,350 | | N/B | | | Afgetopt | Niet afgetopt |

Ligger 25

| | | | | | | | |
|-------|-----|-------|-------|----|-------|----------|----------|
| 2.540 | O83 | Ronde | 0,350 | | N/B | Afgetopt | Niet |
| 4.780 | O82 | paal | | | | | afgetopt |
| | | Ronde | 0,350 | | N/B | Afgetopt | Niet |
| 7.020 | O81 | paal | | | | | afgetopt |
| | | Ronde | 0,350 | | N/B | Afgetopt | Niet |
| 9.260 | O80 | paal | | | | | afgetopt |
| | | Ronde | 0,350 | | N/B | Afgetopt | Niet |
| 9.560 | | paal | | S7 | 0,400 | Nee | afgetopt |
| | | | | | | | Niet |
| | | | | | | | afgetopt |
| m | - | - | m | - | m | - | kNm |
| | | | | | | | kNm - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 25 |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|------------|-----------|
| 0.300 | 71.72 | 4R12 | | 379 | 452 | ng | -59.28 | N/B | 12.0 <= 9.5 | 101 <= 146 | |
| 2.540 | 100.55 | 4R12 | 1R12 | 540 | 565 | | -79.86 | N/B | 12.0 <= 8.1 | 76 <= 112 | |
| 4.780 | 94.10 | 4R12 | 1R12 | 504 | 565 | | -75.22 | N/B | 12.0 <= 9.1 | 76 <= 136 | |
| 7.020 | 99.46 | 4R12 | 1R12 | 534 | 565 | | -79.04 | N/B | 12.0 <= 8.3 | 76 <= 116 | |
| 9.260 | 70.90 | 4R12 | | 375 | 452 | | -58.59 | N/B | 12.0 <= 9.7 | 101 <= 150 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 25 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|-----------|
| 1.407 | 63.93 | 4R12 | | 337 | 452 | | 37.55 | N/B | 12.0 <= 23.3 | 101 <= 280 | |
| 3.722 | 49.86 | 4R12 | | 261 | 452 | | 28.43 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.840 | 50.36 | 4R12 | | 263 | 452 | | 28.82 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 8.153 | 64.57 | 4R12 | | 340 | 452 | | 38.16 | N/B | 12.0 <= 22.8 | 101 <= 278 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 25 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.00 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 25 |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.200 | 248.54 | R8-150 | 575 | 0 | 670 | 61.731 | 289.468 | 248.536 | N/B | N/B | |
| 0.926 | 97.05 | R8-300 | 225 | 0 | 335 | 61.731 | 144.734 | 97.049 | N/B | N/B | |
| 1.914 | 113.87 | R8-300 | 264 | 0 | 335 | 61.731 | 144.734 | 113.872 | N/B | N/B | |
| 3.166 | 112.28 | R8-300 | 260 | 0 | 335 | 61.731 | 144.734 | 112.276 | N/B | N/B | |
| 4.154 | 112.39 | R8-300 | 260 | 0 | 335 | 61.731 | 144.734 | 112.395 | N/B | N/B | |
| 5.406 | 112.71 | R8-300 | 261 | 0 | 335 | 61.731 | 144.734 | 112.713 | N/B | N/B | |
| 6.394 | 111.81 | R8-300 | 259 | 0 | 335 | 61.731 | 144.734 | 111.808 | N/B | N/B | |
| 7.646 | 113.82 | R8-300 | 264 | 0 | 335 | 61.731 | 144.734 | 113.819 | N/B | N/B | |
| 8.634 | 97.10 | R8-300 | 225 | 0 | 335 | 61.731 | 144.734 | 97.099 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 25 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12s2(basis)(basis) | -0.165 | 0.562 | 4,0D | 0.721 | 0.000 | 9.360 | 0.713 | 9.719 | 0.354 | 4,0D | 10.800 | |
| 1R12t2(bijleg) | 1.245 | 0.000 | 2,5D | 0.683 | 1.929 | 7.626 | 0.683 | 8.309 | 0.000 | 2,5D | 7.064 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

Ligger 25

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.334 | 0.475 | 9.360 | 0.347 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 25

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 210.67 | 289.47 |
| O84 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 207.88 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 25

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | 0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

LIGGER 26
ALGEMEEN + KRUIP
Ligger 26
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 26 | Cement | S |
| Staven | S30 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 9.56 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 26

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEREVENS
Ligger 26

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|-------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Afgetopt | Niet |
| 0.300 | O89 | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| | | paal | | | | | | | | Niet |
| 2.540 | O88 | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| | | paal | | | | | | | | Niet |
| | | | | | | | | | | afgetopt |

| | | | | | | | | |
|-------|-----|-------|-------|-------|-----|---|----------|----------|
| 4.780 | O87 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 7.020 | O86 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 9.260 | O85 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 9.560 | | | S7 | 0,400 | Nee | | Afgetopt | Niet |
| | | | | | | | | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 26 |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|-------------|------------|-----------|
| 0.300 | 73.73 | 4R12 | | 390 | 452 | | -60.92 | N/B | 12.0 <= 9.0 | 101 <= 135 | |
| 2.540 | 101.75 | 4R12 | 1R12 | 547 | 565 | | -81.43 | N/B | 12.0 <= 7.9 | 76 <= 104 | |
| 4.780 | 95.21 | 4R12 | 1R12 | 510 | 565 | | -76.50 | N/B | 12.0 <= 8.7 | 76 <= 129 | |
| 7.020 | 103.74 | 4R12 | 1R12 | 558 | 565 | | -82.92 | N/B | 12.0 <= 7.6 | 76 <= 96 | |
| 9.260 | 75.13 | 4R12 | | 398 | 452 | | -62.09 | N/B | 12.0 <= 8.7 | 101 <= 128 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 26 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|-----------|
| 1.406 | 62.86 | 4R12 | | 331 | 452 | | 36.00 | N/B | 12.0 <= 24.5 | 101 <= 285 | |
| 3.723 | 47.65 | 4R12 | | 249 | 452 | | 26.65 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.832 | 46.74 | 4R12 | | 244 | 452 | | 25.95 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 8.154 | 61.72 | 4R12 | | 325 | 452 | | 34.91 | N/B | 12.0 <= 25.3 | 101 <= 288 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 26 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.02 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 26 |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.200 | 255.79 | R8-150 | 592 | 0 | 670 | 61.726 | 289.468 | 255.785 | N/B | N/B | |
| 0.926 | 96.97 | R8-300 | 225 | 0 | 335 | 61.726 | 144.734 | 96.972 | N/B | N/B | |
| 1.914 | 113.95 | R8-300 | 264 | 0 | 335 | 61.726 | 144.734 | 113.952 | N/B | N/B | |
| 3.166 | 112.48 | R8-300 | 260 | 0 | 335 | 61.726 | 144.734 | 112.478 | N/B | N/B | |
| 4.154 | 112.38 | R8-300 | 260 | 0 | 335 | 61.726 | 144.734 | 112.380 | N/B | N/B | |
| 5.406 | 111.80 | R8-300 | 259 | 0 | 335 | 61.726 | 144.734 | 111.805 | N/B | N/B | |
| 6.394 | 113.34 | R8-300 | 262 | 0 | 335 | 61.726 | 144.734 | 113.344 | N/B | N/B | |
| 7.646 | 114.07 | R8-300 | 264 | 0 | 335 | 61.726 | 144.734 | 114.070 | N/B | N/B | |
| 8.634 | 96.86 | R8-300 | 224 | 0 | 335 | 61.726 | 144.734 | 96.865 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 26 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12u2(basis)(basis) | -0.165 | 0.582 | 4,0D | 0.741 | 0.000 | 9.360 | 0.756 | 9.719 | 0.397 | 4,0D | 10.863 | |
| 1R12v2(bijleg) | 1.237 | 0.000 | 2,5D | 0.683 | 1.920 | 7.650 | 0.683 | 8.333 | 0.000 | 2,5D | 7.096 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 26 |
|----------|-----|------|--------|---------|------|------|---------|-----|------|--------|--------|-----------|
|----------|-----|------|--------|---------|------|------|---------|-----|------|--------|--------|-----------|

| | | | | | | | | | | | |
|----------------------|--------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 4R12d4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.330 | 0.475 | 9.360 | 0.346 | 9.725 | 0.000 | 2,5D | 9.890 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 26

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|-------|-------|--------|--------|--------|
| S2 | Rechts | 2xR8-150 | 0.055 | 0.355 | 0.300 | 217.96 | 289.47 |
| O89 | Rechts | 30xR8-300 | 0.355 | 9.580 | 9.225 | 222.90 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 26

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V5 (7.020-9.260) | Vloer | 0,2 <= 9,0 | 0,1 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V4 (4.780-7.020) | Vloer | 0,1 <= 9,0 | -0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V3 (2.540-4.780) | Vloer | 0,1 <= 9,0 | -0,1 <= 9,0 | 0,01 |
| | Handmatig | | | |
| V2 (0.300-2.540) | Vloer | 0,2 <= 9,0 | 0,2 <= 9,0 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

LIGGER 27
ALGEMEEN + KUIJP
Ligger 27
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 27 | Cement | S |
| Staven | S31-S33 | Rel.V.(%) | 60 % |
| Profiel | R500x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.60 |
| Lengte | 10.32 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |

DEKKING
Ligger 27

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------------|-----------------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| Constr.Dl. | Ligger 27 | Cement | S |
| Staven | S31-S33 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 10.32 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |
| Gereduceerd | Nee | Nee | Nee |

| | | | |
|--------------------|-------|-------|-------|
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 27 Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|----------------------|------------------------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O90 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 0.760 | | | | S5 | 0,400 | N/B | | | Niet | afgetopt Niet |
| 1.860 | O94 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 3.860 | O93 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 5.860 | O92 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 7.860 | O91 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 9.560 | | | | S7 | 0,400 | N/B | | | Niet | afgetopt Niet |
| 10.020 | O95 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 10.320 | | | | S10 | 0,400 | Nee | | | Niet afgetopt | afgetopt Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 27 S,max |
|---------|-------|-------|--------|--------|--------|-------------------|--------|---------|--------------|--------------------|
| 0.300 | 33.75 | 4R12 | | 188 | 452 | | -27.77 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 0.760 | 0.16 | 4R12 | | 15 | 452 | | | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 1.860 | 37.85 | 4R12 | | 210 | 452 | | -30.34 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 3.860 | 53.55 | 4R12 | | 294 | 452 | | -42.78 | N/B | 12.0 <= 18.3 | 101 <= 251 |
| 5.860 | 67.14 | 4R12 | | 368 | 452 | | -52.95 | N/B | 12.0 <= 11.6 | 101 <= 186 |
| 7.860 | 35.13 | 4R12 | | 196 | 452 | | -26.91 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 10.020 | 14.74 | 4R12 | | 89 | 452 | | -12.11 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 27 S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|--------------------|
| 0.760 | 34.03 | 4R12 | | 190 | 452 | | | N/B | 12.0 <= 24.8 | 134 <= 286 |
| 1.133 | 39.50 | 4R12 | | 219 | 452 | | 26.42 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 2.860 | 72.11 | 4R12 | | 395 | 452 | | 50.86 | N/B | 12.0 <= 12.4 | 101 <= 200 |
| 4.890 | 59.25 | 4R12 | | 325 | 452 | | 40.06 | N/B | 12.0 <= 21.1 | 101 <= 269 |
| 6.891 | 71.61 | 4R12 | | 392 | 452 | | 49.43 | N/B | 12.0 <= | 101 <= 209 |

| | | | | | | | | | | | | |
|-------|--------|------|------|-----|-----|-------|-----|---------|---------|--------|-------|-----|
| 9.021 | 123.27 | 4R12 | 3R12 | 685 | 792 | 95.08 | N/B | 13.0 | 12.0 <= | 50 <= | 165 | |
| 9.560 | 80.31 | 4R12 | 1R12 | 440 | 565 | | N/B | 10.4 | 12.0 <= | 7.8 | 76 <= | 102 |
| 9.560 | 93.66 | 4R12 | 1R12 | 510 | 565 | 73.65 | N/B | 12.0 <= | 9.6 | 100 <= | 148 | |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm | | | |

FLANKWAPENING
Ligger 27

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 1.79 | 1R8 | 14 | 50 |
| 0.300 | 1.79 | 1R8 | 14 | 50 |
| 0.760 | 1.79 | 1R8 | 17 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 27

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 89.18 | R8-250 | 205 | 9 | 402 | 75.895 | 175.219 | 89.184 | N/B | N/B |
| 0.760 | 90.07 | R8-250 | 207 | 9 | 402 | 75.895 | 175.219 | 90.073 | N/B | N/B |
| 0.760 | 76.60 | R8-300 | 176 | 0 | 335 | 61.708 | 146.015 | 76.599 | N/B | N/B |
| 0.926 | 42.47 | R8-300 | 97 | 0 | 335 | 61.732 | 146.015 | 42.469 | N/B | N/B |
| 1.234 | 37.85 | R8-300 | 88 | 0 | 335 | 61.732 | 144.734 | 37.852 | N/B | N/B |
| 2.486 | 76.94 | R8-300 | 178 | 0 | 335 | 61.708 | 144.734 | 76.938 | N/B | N/B |
| 3.234 | 93.70 | R8-300 | 217 | 0 | 335 | 61.708 | 144.734 | 93.697 | N/B | N/B |
| 4.486 | 82.97 | R8-300 | 192 | 0 | 335 | 61.708 | 144.734 | 82.972 | N/B | N/B |
| 5.234 | 94.28 | R8-300 | 218 | 0 | 335 | 61.708 | 144.734 | 94.280 | N/B | N/B |
| 6.486 | 102.82 | R8-300 | 238 | 0 | 335 | 61.708 | 144.734 | 102.819 | N/B | N/B |
| 7.234 | 70.61 | R8-300 | 163 | 0 | 335 | 61.708 | 144.734 | 70.613 | N/B | N/B |
| 8.486 | 117.16 | R8-300 | 281 | 0 | 335 | 61.708 | 139.927 | 117.159 | N/B | N/B |
| 9.394 | 76.70 | R8-300 | 180 | 0 | 335 | 61.708 | 143.132 | 76.700 | N/B | N/B |
| 9.560 | 110.83 | R8-300 | 259 | 0 | 335 | 61.708 | 143.132 | 110.830 | N/B | N/B |
| 9.560 | 195.56 | R8-125 | 453 | 6 | 804 | 75.895 | 347.361 | 195.557 | N/B | N/B |
| 10.320 | 27.13 | R8-250 | 63 | 0 | 402 | 75.895 | 173.681 | 27.125 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 27

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12w2(basis) | -0.165 | 0.180 | 4,0D | 0.339 | 0.000 | 0.000 | 0.120 | 0.120 | 0.000 | 2,5D | 0.465 |
| (basis) | | | | | | | | | | | |
| 4R12x2(basis)(basis) | -0.120 | 0.000 | 2,5D | 0.120 | 0.000 | 9.560 | 1.239 | 10.799 | 0.000 | 2,5D | 10.919 |
| 4R12y2(basis)(basis) | 8.321 | 0.000 | 2,5D | 1.239 | 9.560 | 10.120 | 0.148 | 10.485 | 0.000 | 2,5D | 2.164 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 27

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12e4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.266 | 0.475 | 0.560 | 0.277 | 0.837 | 0.000 | 2,5D | 1.002 |
| 4R12f4(basis)(basis) | 0.357 | 0.000 | 2,5D | 0.238 | 0.595 | 9.525 | 0.120 | 9.665 | 0.000 | 2,5D | 9.308 |
| 4R12q3(basis)(basis) | 9.455 | 0.000 | 2,5D | 0.120 | 9.595 | 10.120 | 0.120 | 10.485 | 0.000 | 2,5D | 1.030 |
| 2R12g4(bijleg) | 7.559 | 0.000 | 2,5D | 0.476 | 8.035 | 9.560 | 0.578 | 10.138 | 0.000 | 2,5D | 2.580 |
| (bijleg) | | | | | | | | | | | |
| 1R12h4(bijleg) | 8.525 | 0.000 | 2,5D | 0.496 | 9.021 | 9.021 | 0.496 | 9.517 | 0.000 | 2,5D | 0.992 |
| (bijleg) | | | | | | | | | | | |
| 1R12i4(bijleg) | 7.463 | 0.000 | 2,5D | 0.572 | 8.035 | 9.560 | 0.694 | 10.254 | 0.000 | 2,5D | 2.791 |
| (bijleg) | | | | | | | | | | | |
| 1R12j4(bijleg) | 8.866 | 0.000 | 2,5D | 0.694 | 9.560 | 9.845 | 0.645 | 10.485 | 0.005 | 4,0D | 1.624 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 27

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|--------|--------|--------|--------|
| S2 | Rechts | 4xR8-250 | -0.215 | 0.785 | 1.000 | 93.21 | 175.22 |
| S5 | Rechts | 0xR8-300 | 0.785 | 1.035 | 0.250 | 46.50 | 146.02 |
| S5 | Links | 0xR8-300 | 1.035 | 1.285 | 0.250 | 46.50 | 144.73 |
| S5 | Rechts | 2xR8-300 | 1.285 | 2.035 | 0.750 | 80.97 | 146.02 |
| O94 | Links | 20xR8-300 | 2.035 | 8.035 | 6.000 | 121.19 | 144.73 |
| O91 | Links | 0xR8-300 | 8.035 | 8.285 | 0.250 | 121.19 | 143.13 |
| O91 | Rechts | 2xR8-300 | 8.285 | 9.035 | 0.750 | 121.19 | 139.93 |
| S7 | Links | 1xR8-300 | 9.035 | 9.535 | 0.500 | 80.73 | 143.13 |
| S7 | Rechts | 4xR8-250 | 9.535 | 10.535 | 1.000 | 80.73 | 173.68 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 27 |
|-------------------|-----------|-------------|-------------------|-----------|-----------|
| V9 (9.860-10.320) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V8 (9.560-9.860) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V7 (8.460-9.560) | Vloer | 0,2 <= 4,4 | 0,5 <= 4,4 | 0,05 | 0,11 |
| | Handmatig | | | | |
| V6 (6.460-8.460) | Vloer | 0,3 <= 8,0 | 0,3 <= 8,0 | 0,04 | 0,04 |
| | Handmatig | | | | |
| V5 (4.460-6.460) | Vloer | -0,1 <= 8,0 | -0,1 <= 8,0 | 0,02 | 0,01 |
| | Handmatig | | | | |
| V4 (2.460-4.460) | Vloer | 0,3 <= 8,0 | 0,2 <= 8,0 | 0,03 | 0,03 |
| | Handmatig | | | | |
| V3 (0.760-2.460) | Vloer | 0,0 <= 6,8 | 0,1 <= 6,8 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V2 (0.460-0.760) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V1 (0.000-0.460) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,00 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 28
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 28 |
| Staven | S34-S36 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 10.32 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.60 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |

Ligger 28
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------------|-----------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| Constr.Dl. | Ligger 28 | Cement | S |
| Staven | S34-S36 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |

Ligger 28

| | | | |
|--------------------|---------|-----------------|----------|
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 10.32 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 28 Moment |
|---------|---------|---------------|--------------|-------|--------------|-----|----------|----------|----------------------|---------------------|
| 0.000 | | | | S3 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O96 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 0.760 | | | | S5 | 0,400 | N/B | | | Niet | afgetopt Niet |
| 1.860 | O100 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 3.860 | O99 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 5.860 | O98 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 7.860 | O97 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 9.560 | | | | S8 | 0,400 | N/B | | | Niet | afgetopt Niet |
| 10.020 | O101 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 10.320 | | | | S10 | 0,400 | Nee | | | Niet | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | afgetopt |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe ng | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 28 S,max |
|---------|-------|-------|--------|--------|--------------|-------------------|--------|---------|--------------|--------------------|
| 0.300 | 19.92 | 4R12 | | 103 | 452 | | -16.41 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 0.760 | 0.01 | 4R12 | | 1 | 452 | | | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 1.860 | 14.65 | 4R12 | | 76 | 452 | | -9.94 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 3.860 | 45.95 | 4R12 | | 241 | 452 | | -36.66 | N/B | 12.0 <= 24.0 | 101 <= 283 |
| 5.860 | 63.06 | 4R12 | | 346 | 452 | | -50.01 | N/B | 12.0 <= 12.8 | 101 <= 205 |
| 7.860 | 22.31 | 4R12 | | 129 | 452 | | -16.53 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 10.020 | 14.85 | 4R12 | | 90 | 452 | | -12.23 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 28 S,max |
|---------|-------|-------|--------|--------|--------|---------------|------|---------|-------------|--------------------|
| 0.760 | 60.60 | 4R12 | | 317 | 452 | | | N/B | 12.0 <= 9.4 | 134 <= 144 |

| | | | | | | | | | |
|-------|--------|------|------|-----|-----|--------|-----|--------------|------------|
| 0.760 | 0.04 | 4R12 | | 1 | 452 | | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 1.161 | 67.03 | 4R12 | | 354 | 452 | 49.21 | N/B | 12.0 <= 13.1 | 101 <= 210 |
| 2.824 | 103.33 | 4R12 | 1R12 | 557 | 565 | 77.19 | N/B | 12.0 <= 8.6 | 76 <= 125 |
| 4.881 | 77.45 | 4R12 | | 412 | 452 | 56.05 | N/B | 12.0 <= 10.5 | 101 <= 166 |
| 6.900 | 91.93 | 4R12 | 1R12 | 506 | 565 | 67.62 | N/B | 12.0 <= 10.9 | 76 <= 175 |
| 8.925 | 130.10 | 4R12 | 3R12 | 725 | 792 | 101.52 | N/B | 12.0 <= 9.3 | 50 <= 141 |
| 9.560 | 71.60 | 4R12 | 1R12 | 393 | 565 | | N/B | 12.0 <= 9.6 | 76 <= 148 |
| 9.560 | 83.06 | 4R12 | 1R12 | 452 | 565 | 66.13 | N/B | 12.0 <= 11.6 | 100 <= 187 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm |

FLANKWAPENING

Ligger 28

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.760 | 0.11 | 1R8 | 1 | 50 |
| 1.860 | 0.11 | 1R8 | 1 | 50 |
| 9.560 | 1.84 | 1R8 | 14 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING

Ligger 28

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 44.50 | R8-250 | 102 | 0 | 402 | 75.895 | 175.219 | 44.498 | N/B | N/B |
| 0.760 | 111.27 | R8-250 | 255 | 5 | 402 | 75.895 | 175.219 | 111.266 | N/B | N/B |
| 0.760 | 93.53 | R8-300 | 215 | 1 | 335 | 61.693 | 146.015 | 93.532 | N/B | N/B |
| 0.926 | 54.84 | R8-300 | 127 | 0 | 335 | 61.732 | 144.734 | 54.841 | N/B | N/B |
| 1.234 | 32.90 | R8-300 | 76 | 0 | 335 | 61.732 | 144.734 | 32.903 | N/B | N/B |
| 2.486 | 78.80 | R8-300 | 184 | 1 | 335 | 61.693 | 143.132 | 78.802 | N/B | N/B |
| 3.234 | 113.30 | R8-300 | 265 | 1 | 335 | 61.693 | 143.132 | 113.305 | N/B | N/B |
| 4.486 | 92.17 | R8-300 | 213 | 1 | 335 | 61.693 | 144.734 | 92.175 | N/B | N/B |
| 5.234 | 107.10 | R8-300 | 248 | 1 | 335 | 61.693 | 144.734 | 107.095 | N/B | N/B |
| 6.486 | 117.72 | R8-300 | 276 | 1 | 335 | 61.693 | 143.132 | 117.721 | N/B | N/B |
| 7.234 | 77.84 | R8-300 | 182 | 1 | 335 | 61.693 | 143.132 | 77.837 | N/B | N/B |
| 8.486 | 112.01 | R8-300 | 268 | 1 | 335 | 61.693 | 139.927 | 112.010 | N/B | N/B |
| 9.394 | 109.42 | R8-300 | 256 | 1 | 335 | 61.693 | 143.132 | 109.424 | N/B | N/B |
| 9.560 | 148.12 | R8-150 | 347 | 1 | 670 | 61.693 | 286.263 | 148.116 | N/B | N/B |
| 9.560 | 172.00 | R8-125 | 398 | 9 | 804 | 75.895 | 347.361 | 171.995 | N/B | N/B |
| 10.320 | 28.09 | R8-250 | 64 | 0 | 402 | 75.895 | 175.219 | 28.091 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

Ligger 28

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12a3(basis)(basis) | -0.165 | 0.041 | 4,0D | 0.200 | 0.000 | 0.000 | 0.120 | 0.120 | 0.000 | 2,5D | 0.326 |
| 4R12b3(basis)(basis) | -0.120 | 0.000 | 2,5D | 0.120 | 0.000 | 9.560 | 1.283 | 10.843 | 0.000 | 2,5D | 10.963 |
| 4R12c3(basis)(basis) | 8.277 | 0.000 | 2,5D | 1.283 | 9.560 | 10.120 | 0.149 | 10.485 | 0.000 | 2,5D | 2.208 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

Ligger 28

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12k4(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.449 | 0.475 | 0.725 | 0.140 | 0.865 | 0.000 | 2,5D | 1.030 |
| 4R12p3(basis)(basis) | 0.655 | 0.000 | 2,5D | 0.120 | 0.795 | 9.525 | 0.120 | 9.665 | 0.000 | 2,5D | 9.010 |
| 4R12q3(basis)(basis) | 9.455 | 0.000 | 2,5D | 0.120 | 9.595 | 10.120 | 0.120 | 10.485 | 0.000 | 2,5D | 1.030 |
| 1R12l4(bijleg) | 1.484 | 0.000 | 2,5D | 0.551 | 2.035 | 3.685 | 0.506 | 4.191 | 0.000 | 2,5D | 2.708 |
| (bijleg) | | | | | | | | | | | |
| 1R12m4(bijleg) | 5.649 | 0.000 | 2,5D | 0.478 | 6.127 | 7.685 | 0.469 | 8.154 | 0.000 | 2,5D | 2.505 |

| | | | | | | | | | | | | |
|----------------|-------|-------|------|-------|-------|-------|-------|--------|-------|------|-------|--|
| (bijleg) | | | | | | | | | | | | |
| 2R12n4(bijleg) | 7.506 | 0.000 | 2,5D | 0.529 | 8.035 | 9.560 | 0.599 | 10.159 | 0.000 | 2,5D | 2.652 | |
| (bijleg) | | | | | | | | | | | | |
| 1R12o4(bijleg) | 7.707 | 0.000 | 2,5D | 0.501 | 8.209 | 9.560 | 0.513 | 10.073 | 0.000 | 2,5D | 2.366 | |
| (bijleg) | | | | | | | | | | | | |
| 1R12p4(bijleg) | 7.401 | 0.000 | 2,5D | 0.634 | 8.035 | 9.560 | 0.718 | 10.278 | 0.000 | 2,5D | 2.878 | |
| (bijleg) | | | | | | | | | | | | |
| 1R12q4(bijleg) | 8.842 | 0.000 | 2,5D | 0.718 | 9.560 | 9.845 | 0.624 | 10.469 | 0.000 | 2,5D | 1.628 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN BEUGELWAPENING
Ligger 28

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|----------|--------|--------|--------|--------|--------|
| S3 | Rechts | 4xR8-250 | -0.215 | 0.785 | 1.000 | 58.94 | 175.22 |
| S5 | Rechts | 4xR8-300 | 0.785 | 2.035 | 1.250 | 82.90 | 144.73 |
| O99 | Links | 5xR8-300 | 2.035 | 3.785 | 1.750 | 117.40 | 143.13 |
| O98 | Links | 6xR8-300 | 3.785 | 5.785 | 2.000 | 117.40 | 144.73 |
| O97 | Links | 8xR8-300 | 5.785 | 8.285 | 2.500 | 121.82 | 143.13 |
| O97 | Rechts | 2xR8-300 | 8.285 | 9.035 | 0.750 | 116.11 | 139.93 |
| S8 | Links | 1xR8-300 | 9.035 | 9.535 | 0.500 | 113.52 | 143.13 |
| S8 | Rechts | 4xR8-250 | 9.535 | 10.535 | 1.000 | 113.52 | 173.68 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 28

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|-------------------|-----------|------------|-------------------|-----------|
| V9 (9.860-10.320) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,00 |
| | Handmatig | | | |
| V8 (9.560-9.860) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V7 (8.460-9.560) | Vloer | 0,2 <= 4,4 | 0,5 <= 4,4 | 0,05 |
| | Handmatig | | | |
| V6 (6.460-8.460) | Vloer | 0,4 <= 8,0 | 0,6 <= 8,0 | 0,06 |
| | Handmatig | | | |
| V5 (4.460-6.460) | Vloer | 0,3 <= 8,0 | 0,3 <= 8,0 | 0,04 |
| | Handmatig | | | |
| V4 (2.460-4.460) | Vloer | 0,4 <= 8,0 | 0,7 <= 8,0 | 0,05 |
| | Handmatig | | | |
| V3 (0.760-2.460) | Vloer | 0,2 <= 6,8 | 0,2 <= 6,8 | 0,04 |
| | Handmatig | | | |
| V2 (0.460-0.760) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| V1 (0.000-0.460) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,00 |
| | Handmatig | | | |
| m | - | mm | mm | - |

LIGGER 29
ALGEMEEN + KRUIP
Ligger 29
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 29 | Cement | S |
| Staven | S37 | Rel.V.(%) | 60 % |
| Profiel | R500x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.60 |
| Lengte | 9.56 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 29

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

| OPLEGGEGEVENS | | | | | | | | Ligger 29 | |
|---------------|---------|------------|-----------|--------|-----------|-----|----------|---------------|-----------------|
| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. Moment |
| 0.000 | | | | S3 | 0,400 | Nee | | Niet afgetopt | Niet afgetopt |
| 0.300 | O105 | Ronde paal | 0,350 | | | N/B | | Afgetopt | Niet afgetopt |
| 3.290 | O104 | Ronde paal | 0,350 | | | N/B | | Afgetopt | Niet afgetopt |
| 6.270 | O103 | Ronde paal | 0,350 | | | N/B | | Afgetopt | Niet afgetopt |
| 9.260 | O102 | Ronde paal | 0,350 | | | N/B | | Afgetopt | Niet afgetopt |
| 9.560 | | | | S8 | 0,400 | Nee | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - |

| BOVENWAPENING | | | | | | | | | | Ligger 29 |
|---------------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 0.300 | 20.39 | 4R12 | | 105 | 452 | | -16.84 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 3.290 | 67.37 | 4R12 | | 353 | 452 | | -55.30 | N/B | 12.0 <= 10.9 | 134 <= 174 |
| 6.270 | 63.84 | 4R12 | | 334 | 452 | | -52.51 | N/B | 12.0 <= 11.9 | 134 <= 192 |
| 9.260 | 15.89 | 4R12 | | 82 | 452 | | -13.02 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| ONDERWAPENING | | | | | | | | | | Ligger 29 |
|---------------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 1.720 | 139.11 | 4R12 | 3R12 | 752 | 792 | | 109.43 | N/B | 12.0 <= 8.3 | 67 <= 118 |
| 4.787 | 118.82 | 4R12 | 2R12 | 637 | 679 | | 91.54 | N/B | 12.0 <= 8.8 | 80 <= 131 |
| 7.842 | 140.43 | 4R12 | 3R12 | 760 | 792 | | 111.54 | N/B | 12.0 <= 8.1 | 67 <= 110 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | Ligger 29 | | | | |
|---------------|------|----------|--------|--------|--|-----------|--|--|--|--|
| Positie | Mx | Wapening | As,ben | As,toe | | | | | | |
| 3.290 | 0.05 | 1R8 | 0 | 50 | | | | | | |
| m | kNm | - | mm2 | mm2 | | | | | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 29 |
|----------------|--------|-----------|----------|----------|--------|--------|---------|---------|------|-----------|
| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 44.96 | R8-250 | 103 | 0 | 402 | 75.895 | 175.219 | 44.959 | N/B | N/B |
| 0.926 | 122.12 | R8-250 | 288 | 0 | 402 | 75.895 | 170.604 | 122.117 | N/B | N/B |
| 2.664 | 150.04 | R8-250 | 354 | 0 | 402 | 75.895 | 170.604 | 150.036 | N/B | N/B |
| 3.916 | 138.44 | R8-250 | 323 | 0 | 402 | 75.895 | 172.142 | 138.435 | N/B | N/B |
| 5.644 | 136.31 | R8-250 | 318 | 0 | 402 | 75.895 | 172.142 | 136.307 | N/B | N/B |
| 6.896 | 150.22 | R8-250 | 354 | 0 | 402 | 75.895 | 170.604 | 150.219 | N/B | N/B |

| | | | | | | | | | | |
|-------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 8.634 | 121.87 | R8-250 | 287 | 0 | 402 | 75.895 | 170.604 | 121.873 | N/B | N/B |
| 9.560 | 31.61 | R8-250 | 73 | 0 | 402 | 75.895 | 175.219 | 31.606 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 29 Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|---------------------|
| 4R12d3(basis)(basis) | -0.165 | 0.046 | 4,0D | 0.205 | 0.000 | 9.360 | 0.160 | 9.725 | 0.000 | 2,5D | 9.936 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 29 Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|---------------------|
| 4R12r4(basis)(basis) | -0.165 | 0.061 | 4,0D | 0.695 | 0.475 | 9.360 | 0.120 | 9.725 | 0.000 | 2,5D | 9.951 |
| 2R12s4(bijleg) | 0.012 | 0.000 | 2,5D | 0.463 | 0.475 | 3.115 | 0.378 | 3.493 | 0.000 | 2,5D | 3.481 |
| (bijleg) | | | | | | | | | | | |
| 1R12t4(bijleg) | 0.292 | 0.000 | 2,5D | 0.508 | 0.800 | 2.642 | 0.508 | 3.150 | 0.000 | 2,5D | 2.858 |
| (bijleg) | | | | | | | | | | | |
| 2R12u4(bijleg) | 3.194 | 0.000 | 2,5D | 0.402 | 3.596 | 5.977 | 0.402 | 6.379 | 0.000 | 2,5D | 3.185 |
| (bijleg) | | | | | | | | | | | |
| 2R12v4(bijleg) | 6.062 | 0.000 | 2,5D | 0.383 | 6.445 | 9.085 | 0.474 | 9.559 | 0.000 | 2,5D | 3.497 |
| (bijleg) | | | | | | | | | | | |
| 1R12w4(bijleg) | 6.391 | 0.000 | 2,5D | 0.508 | 6.899 | 8.790 | 0.508 | 9.298 | 0.000 | 2,5D | 2.907 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

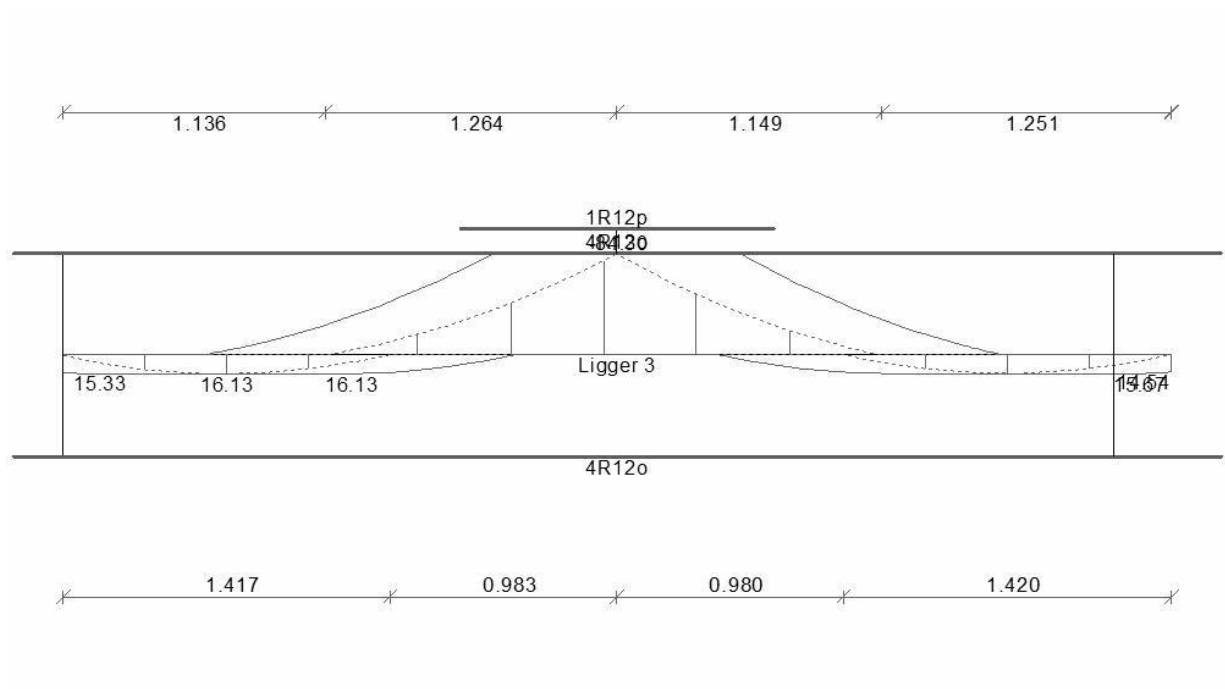
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 29 |
|-----------|--------|-----------|--------|-------|--------|--------|--------|-----------|
| S3 | Rechts | 4xR8-250 | -0.220 | 0.780 | 1.000 | 122.22 | 175.22 | |
| O105 | Rechts | 10xR8-250 | 0.780 | 3.280 | 2.500 | 150.14 | 170.60 | |
| O103 | Links | 12xR8-250 | 3.280 | 6.280 | 3.000 | 150.32 | 172.14 | |
| O102 | Links | 10xR8-250 | 6.280 | 8.780 | 2.500 | 150.32 | 170.60 | |
| S8 | Links | 4xR8-250 | 8.780 | 9.780 | 1.000 | 121.98 | 175.22 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

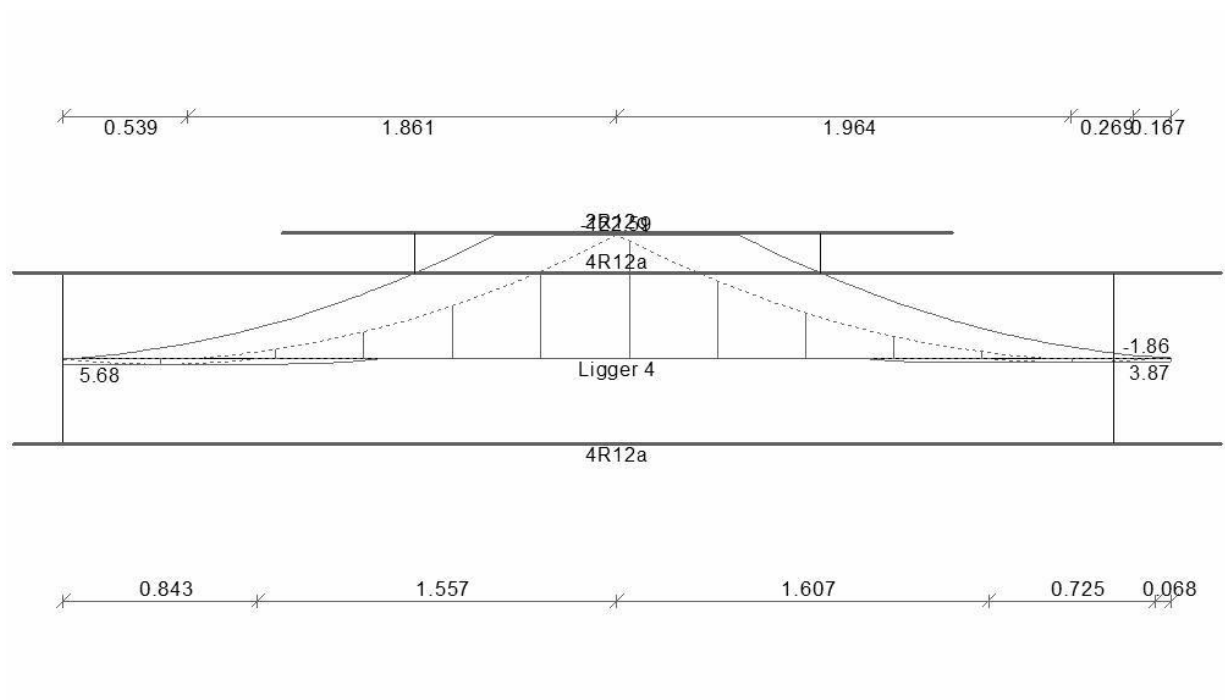
| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 29 |
|------------------|-----------|-------------|-------------------|-----------|-----------|
| V5 (9.260-9.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V4 (6.270-9.260) | Vloer | 1,5 <= 12,0 | 3,4 <= 12,0 | 0,13 | 0,28 |
| | Handmatig | | | | |
| V3 (3.290-6.270) | Vloer | 1,4 <= 11,9 | 2,3 <= 11,9 | 0,11 | 0,19 |
| | Handmatig | | | | |
| V2 (0.300-3.290) | Vloer | 1,5 <= 12,0 | 3,2 <= 12,0 | 0,13 | 0,27 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

AFB. LANGSWAPENING. (AFBOUW) LIGGER 1

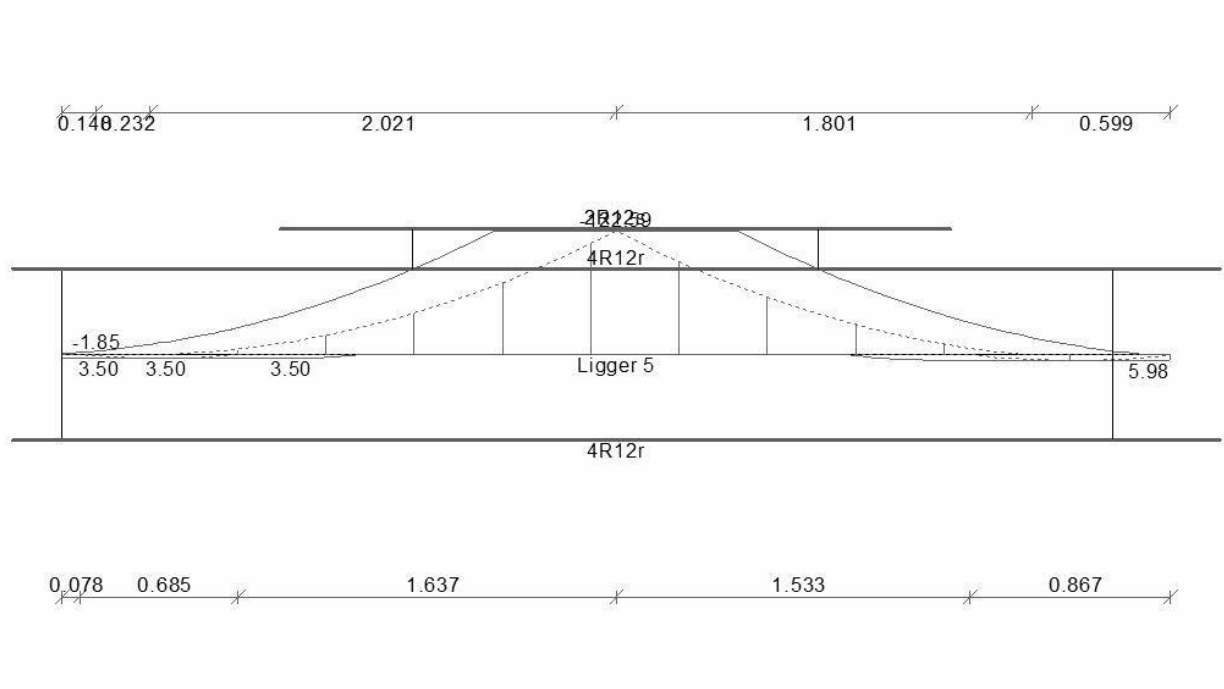
AFB. LANGSWAPENING. (AFBOUW) LIGGER 3



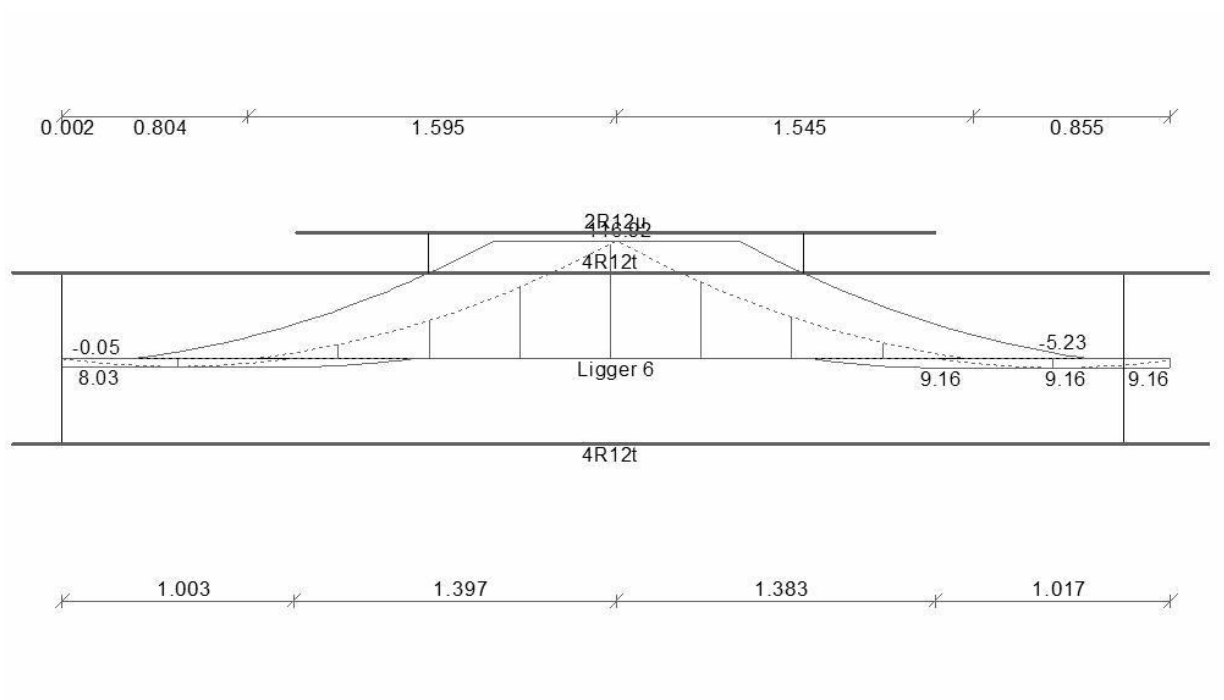
AFB. LANGSWAPENING. (AFBOUW) LIGGER 4



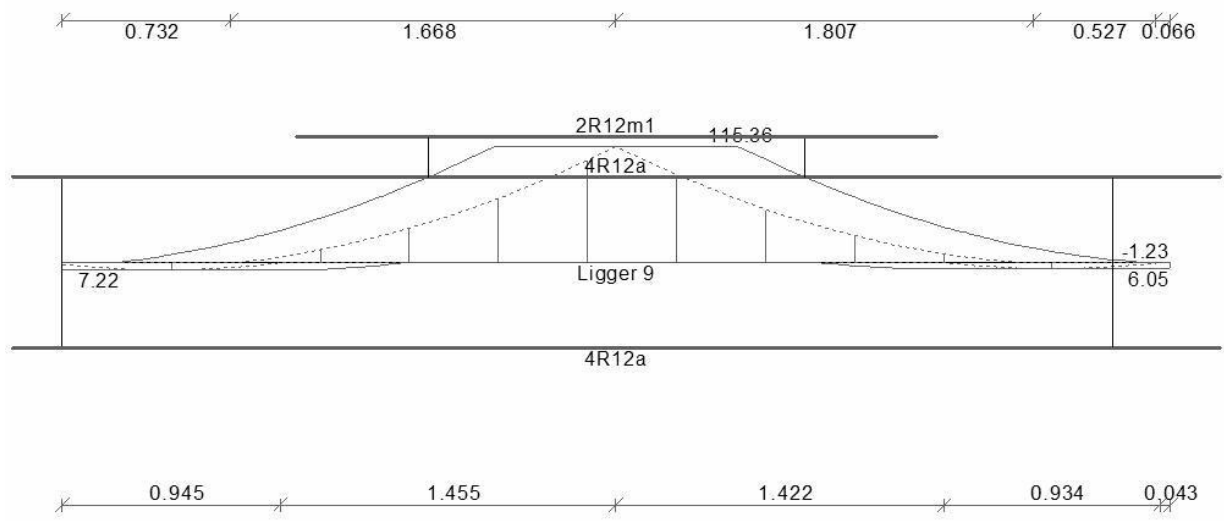
AFB. LANGSWAPENING. (AFBOUW) LIGGER 5



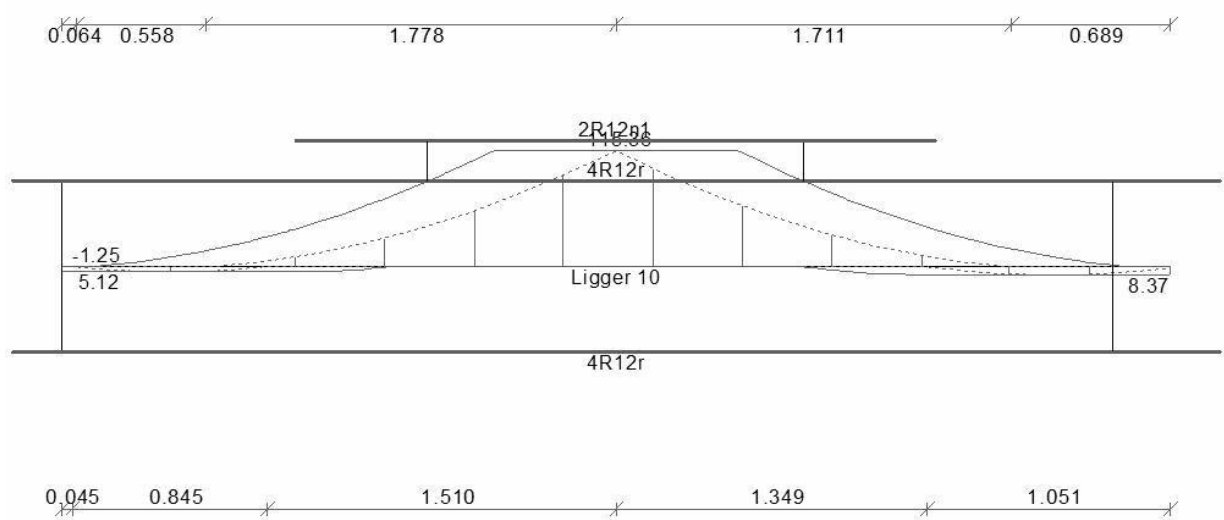
AFB. LANGSWAPENING. (AFBOUW) LIGGER 6



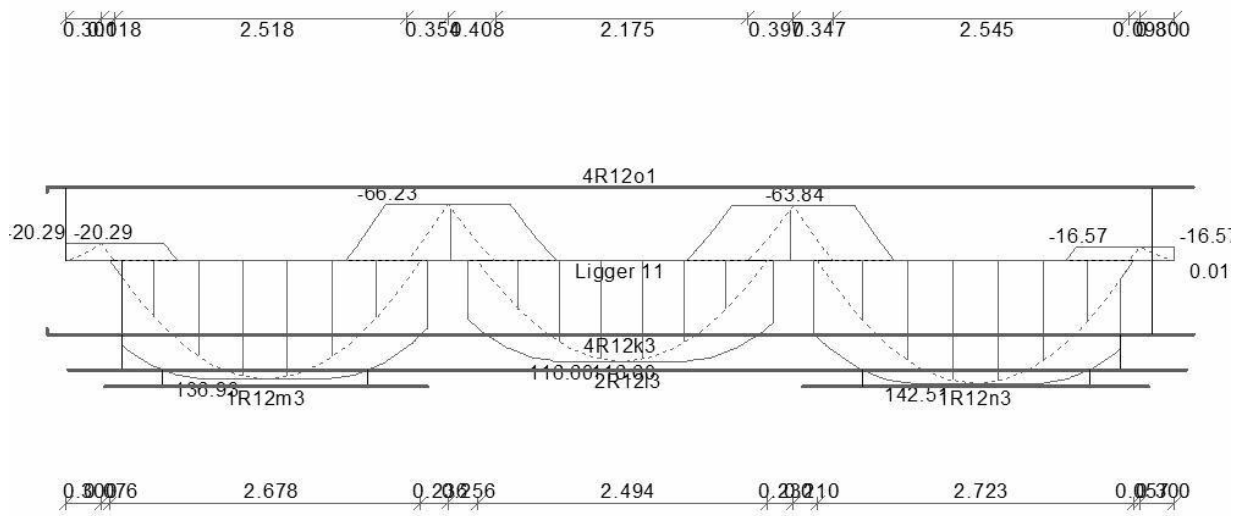
AFB. LANGSWAPENING. (AFBOUW) LIGGER 9



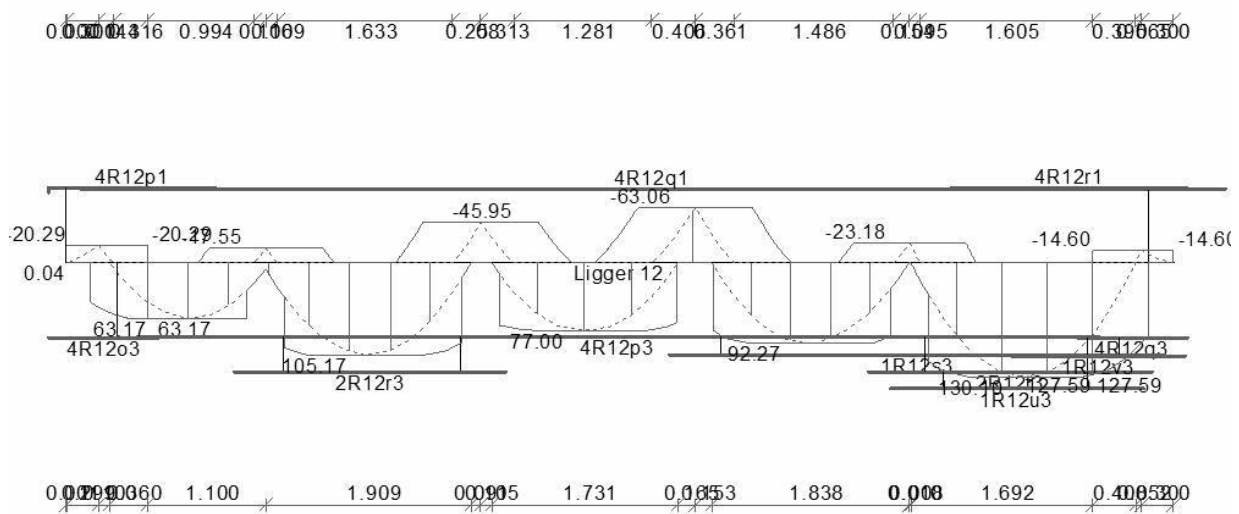
AFB. LANGSWAPENING. (AFBOUW) LIGGER 10



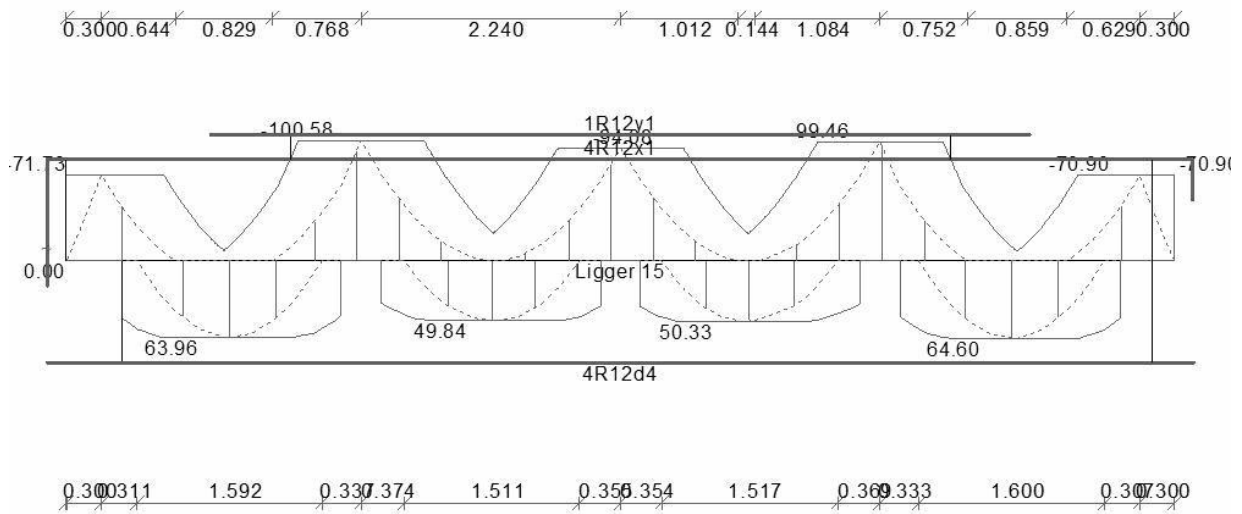
AFB. LANGSWAPENING. (AFBOUW) LIGGER 11



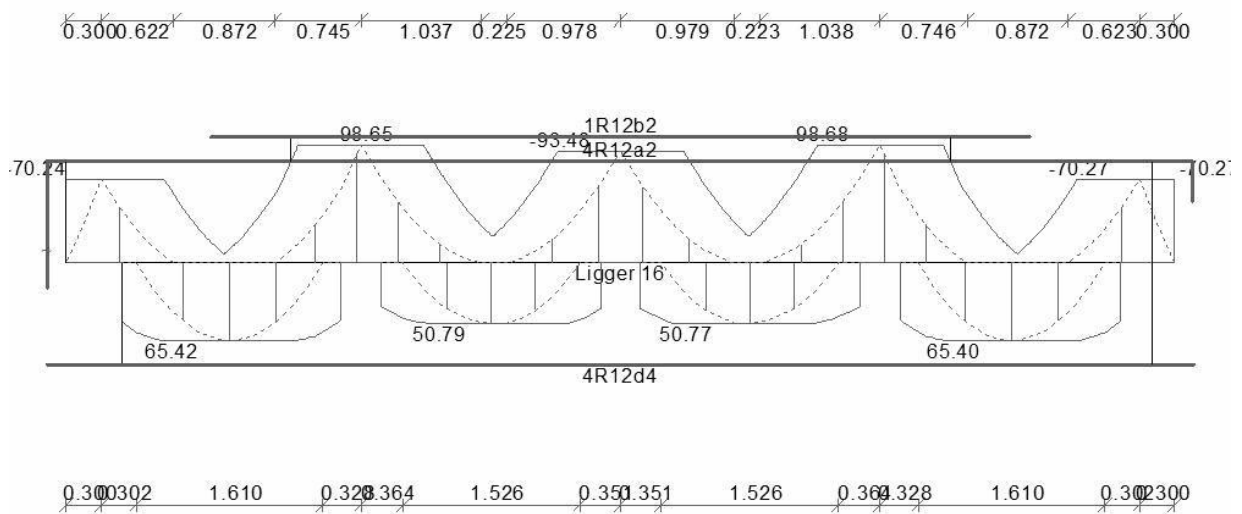
AFB. LANGSWAPENING. (AFBOUW) LIGGER 12



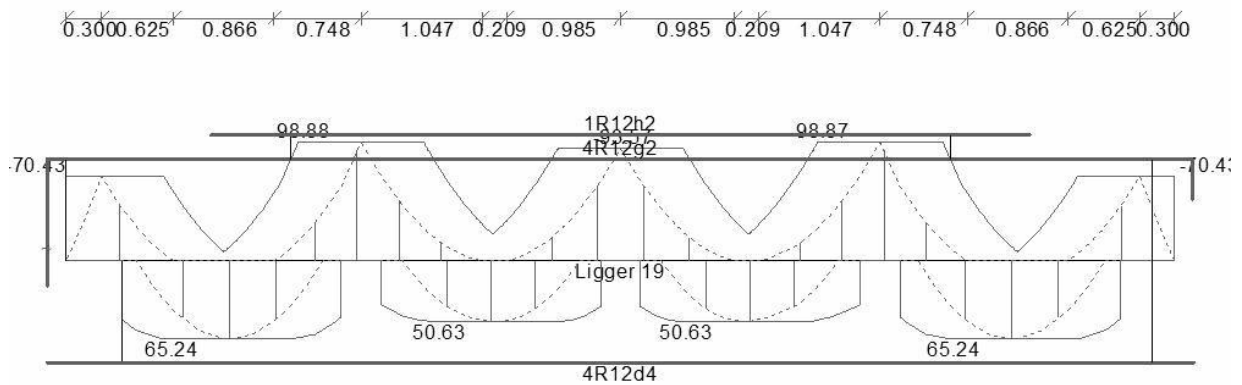
AFB. LANGSWAPENING. (AFBOUW) LIGGER 15



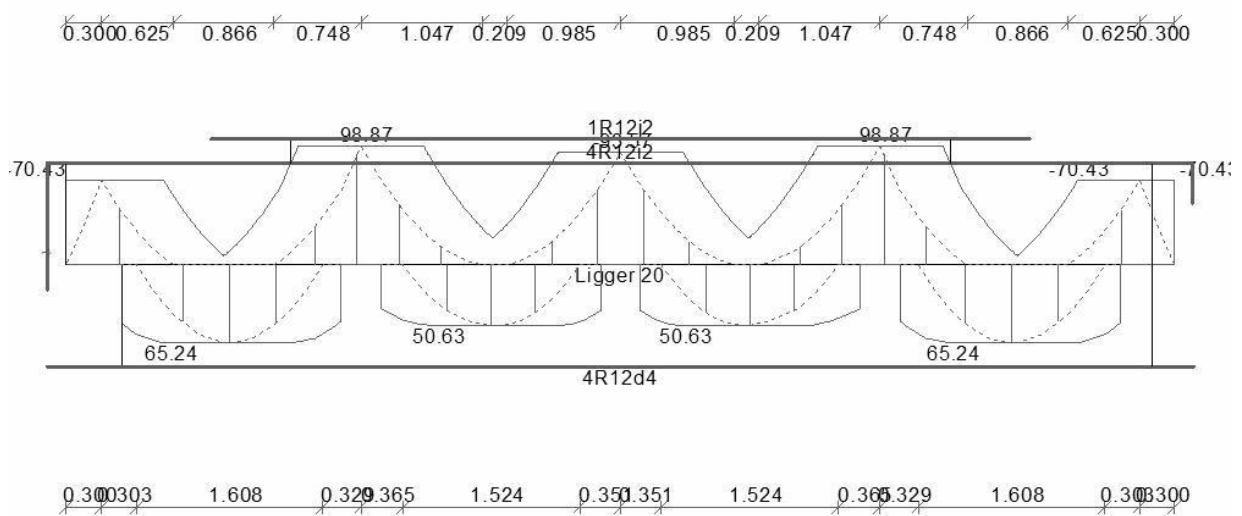
AFB. LANGSWAPENING. (AFBOUW) LIGGER 16



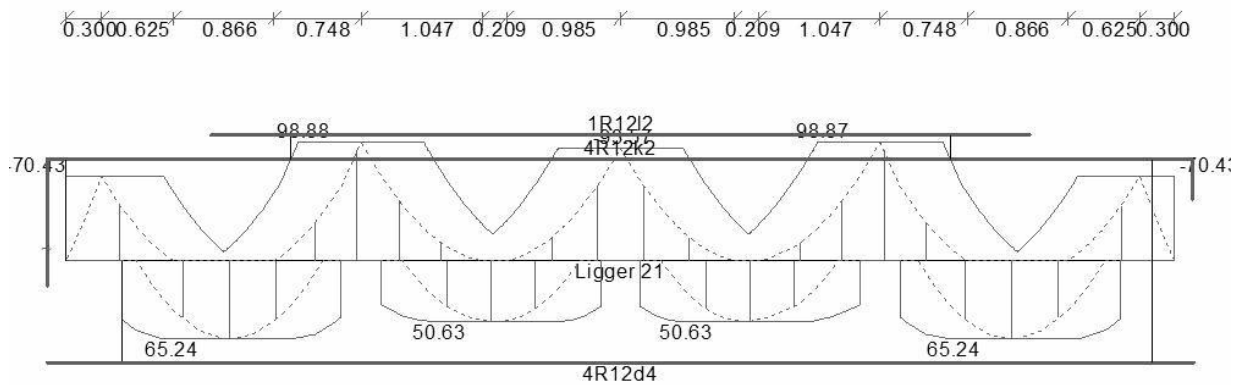
AFB. LANGSWAPENING. (AFBOUW) LIGGER 19



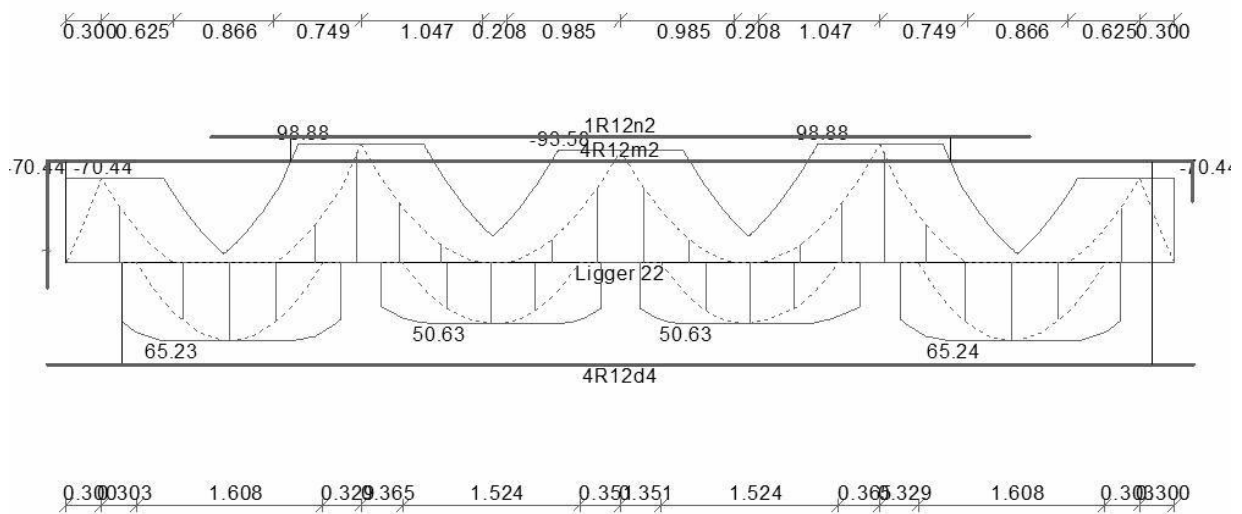
AFB. LANGSWAPENING. (AFBOUW) LIGGER 20



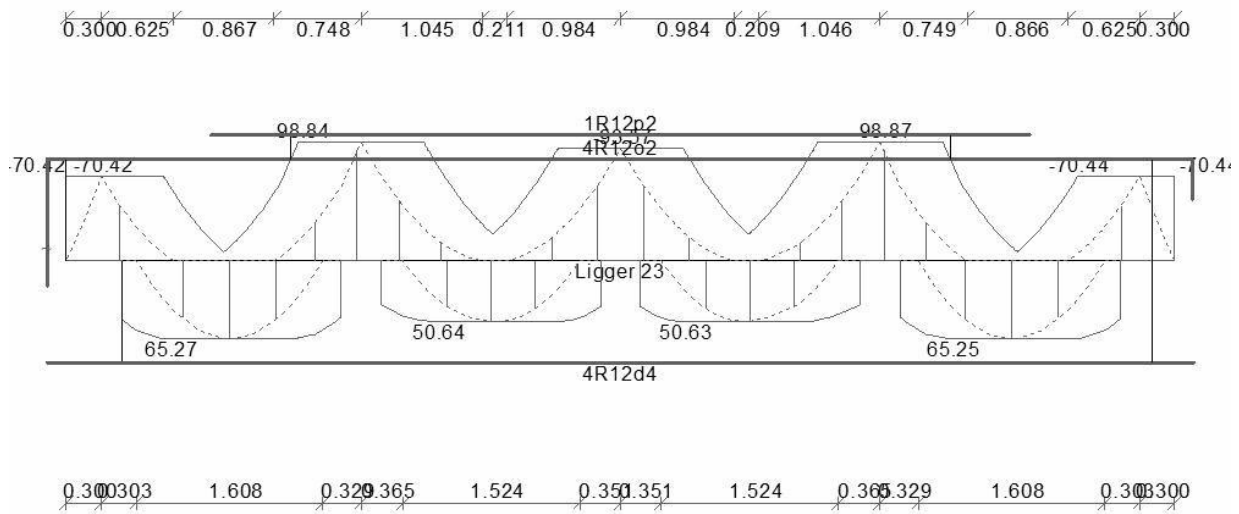
AFB. LANGSWAPENING. (AFBOUW) LIGGER 21



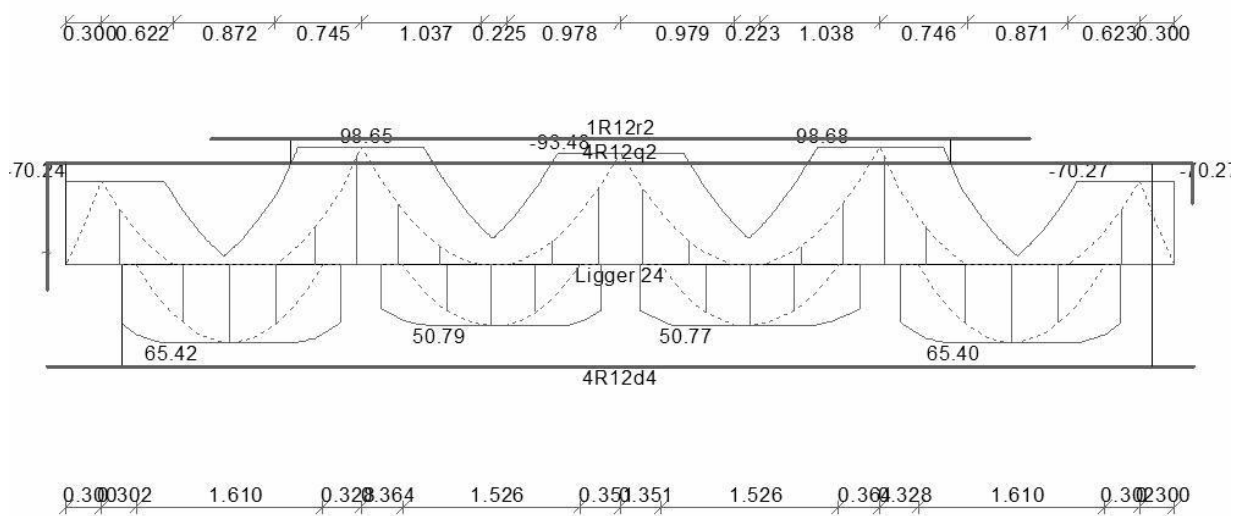
AFB. LANGSWAPENING. (AFBOUW) LIGGER 22



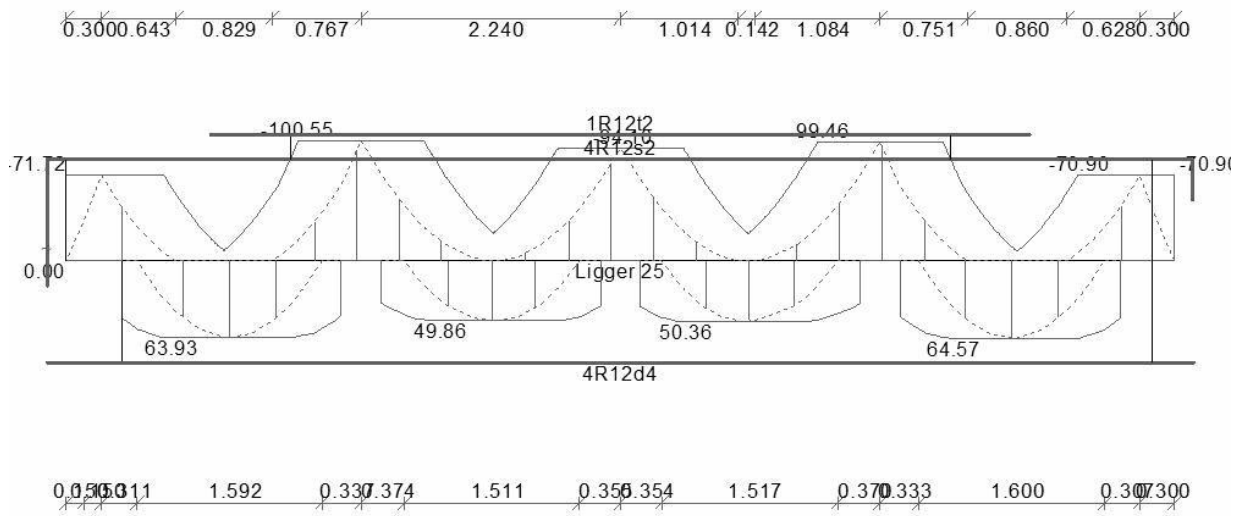
AFB. LANGSWAPENING. (AFBOUW) LIGGER 23



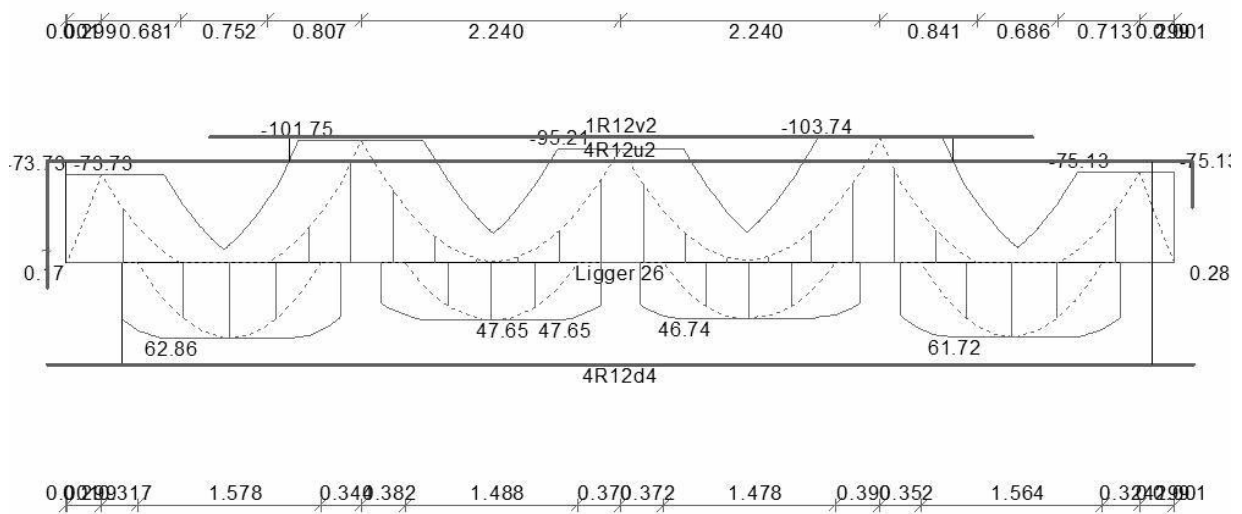
AFB. LANGSWAPENING. (AFBOUW) LIGGER 24



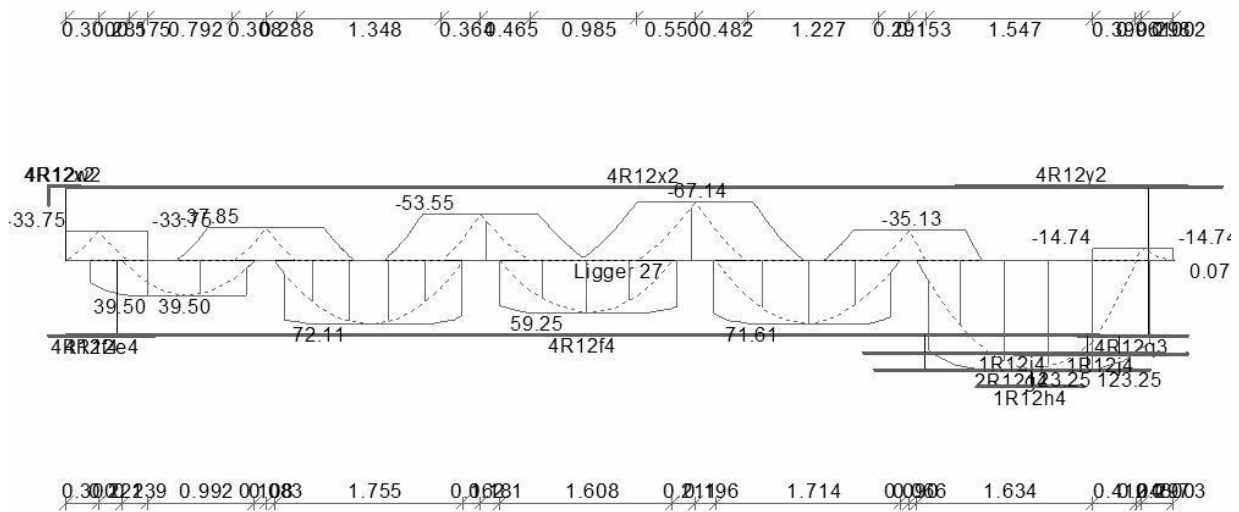
AFB. LANGSWAPENING. (AFBOUW) LIGGER 25



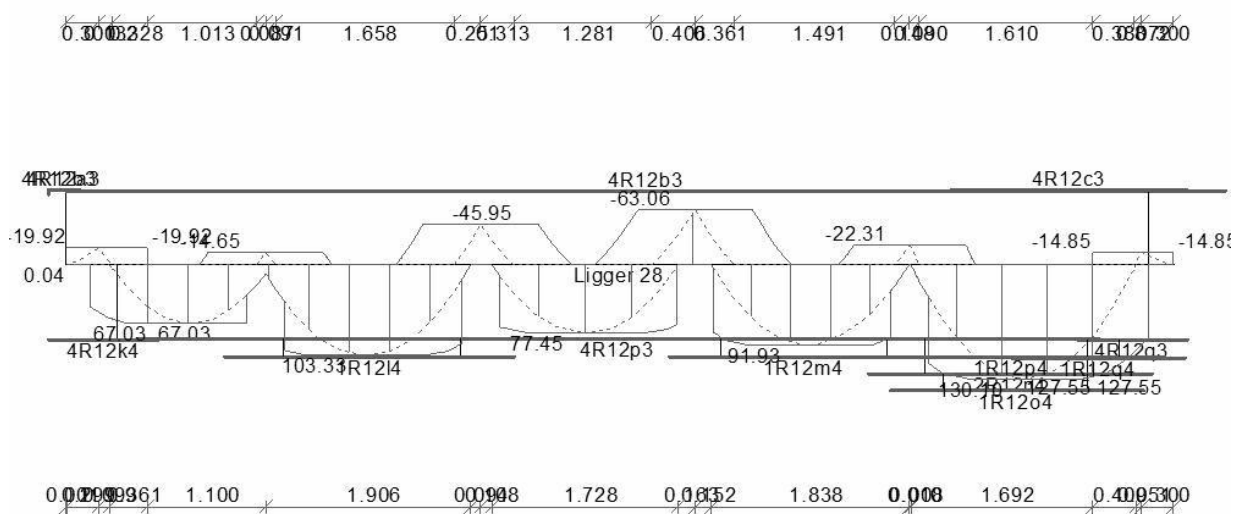
AFB. LANGSWAPENING. (AFBOUW) LIGGER 26



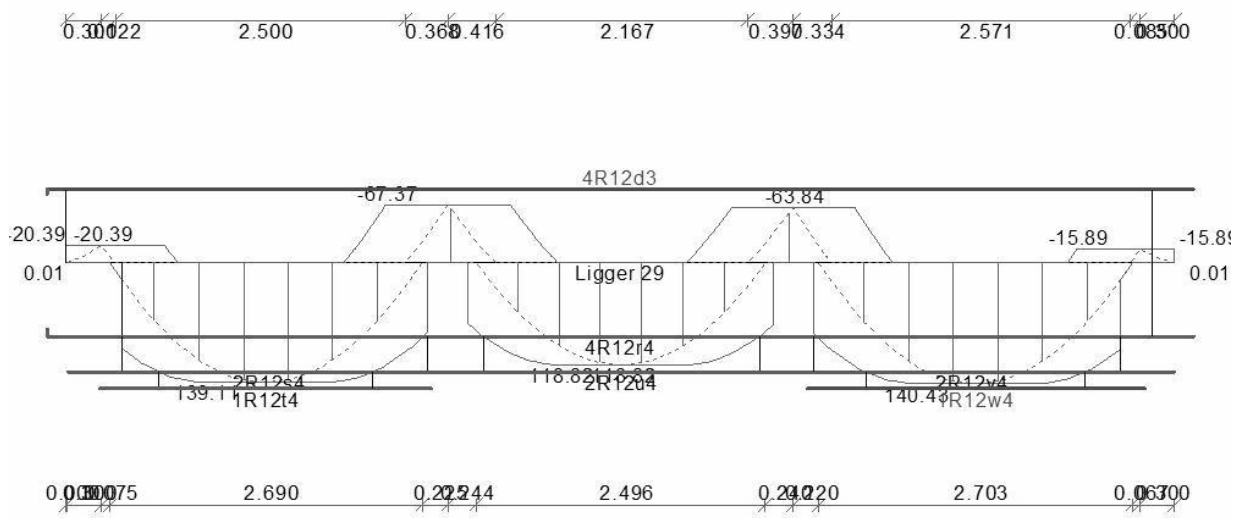
AFB. LANGSWAPENING. (AFBOUW) LIGGER 27



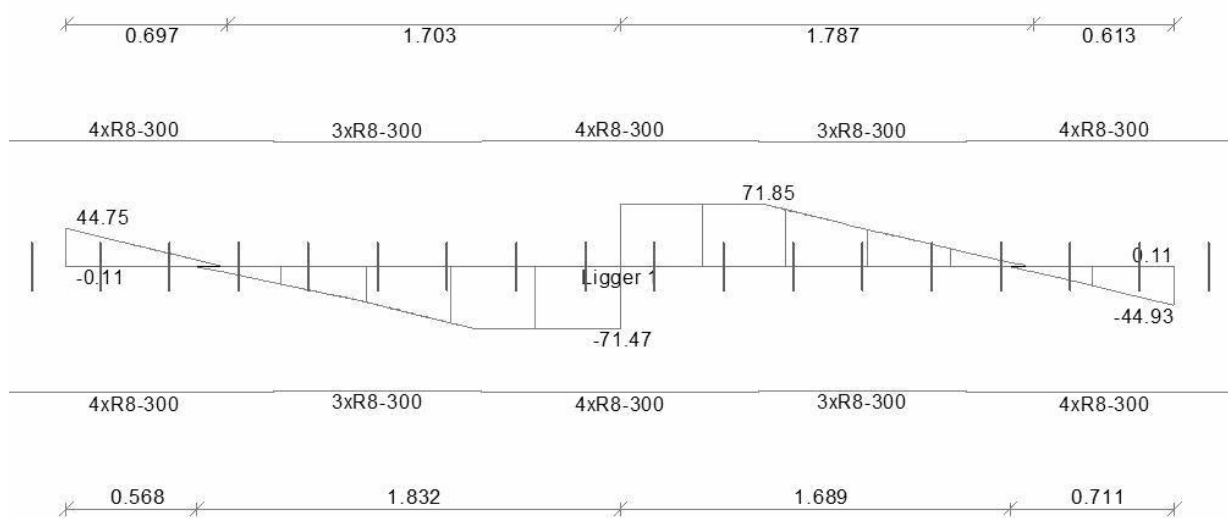
AFB. LANGSWAPENING. (AFBOUW) LIGGER 28



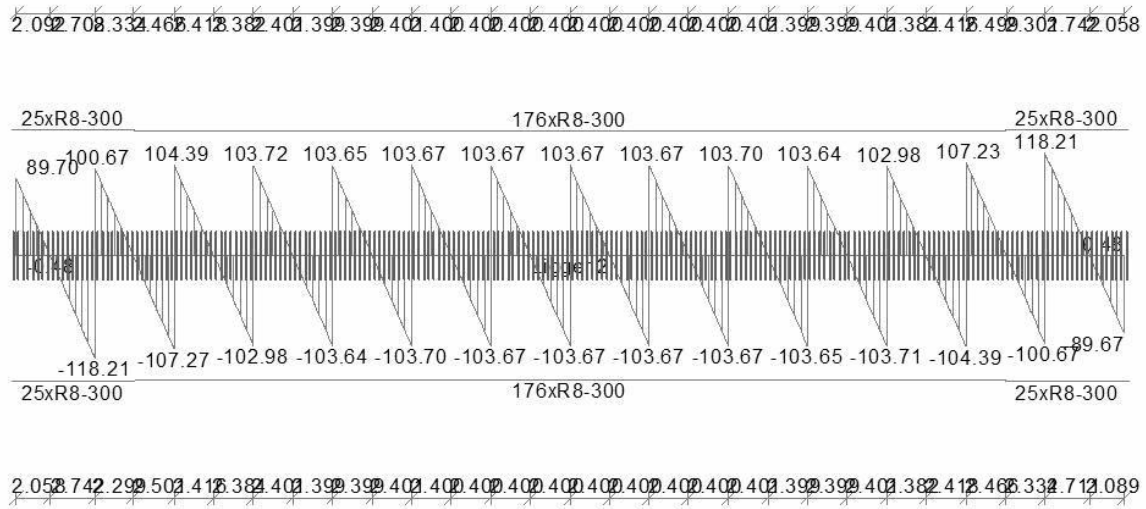
AFB. LANGSWAPENING. (AFBOUW) LIGGER 29



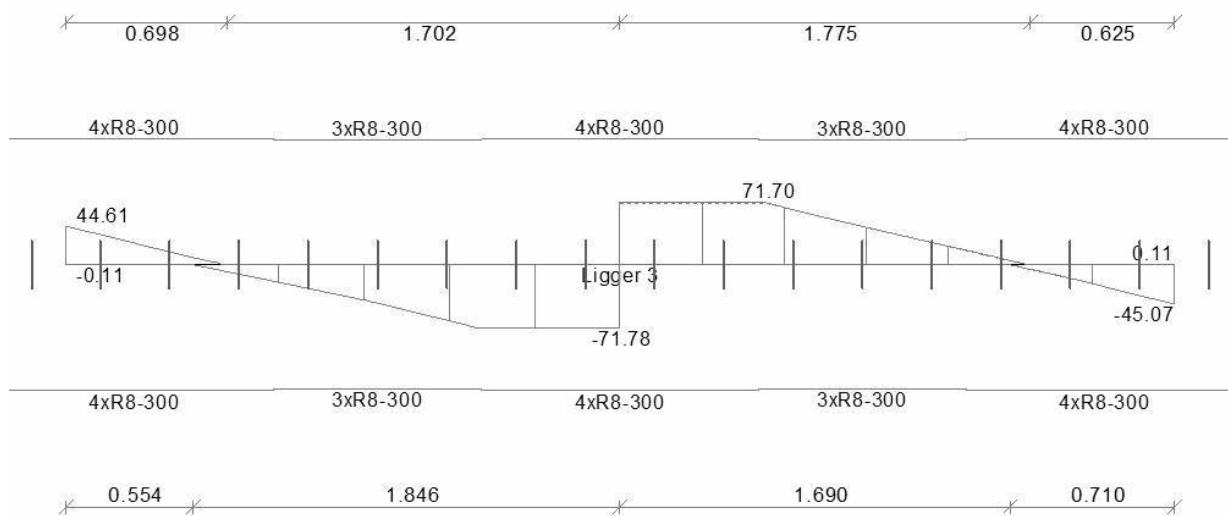
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 1



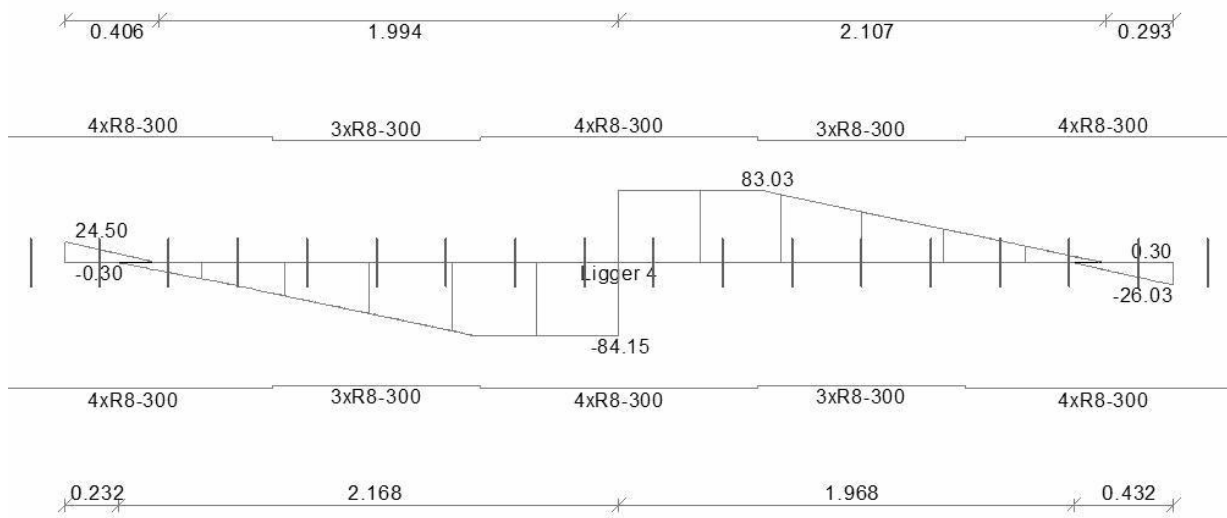
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 2



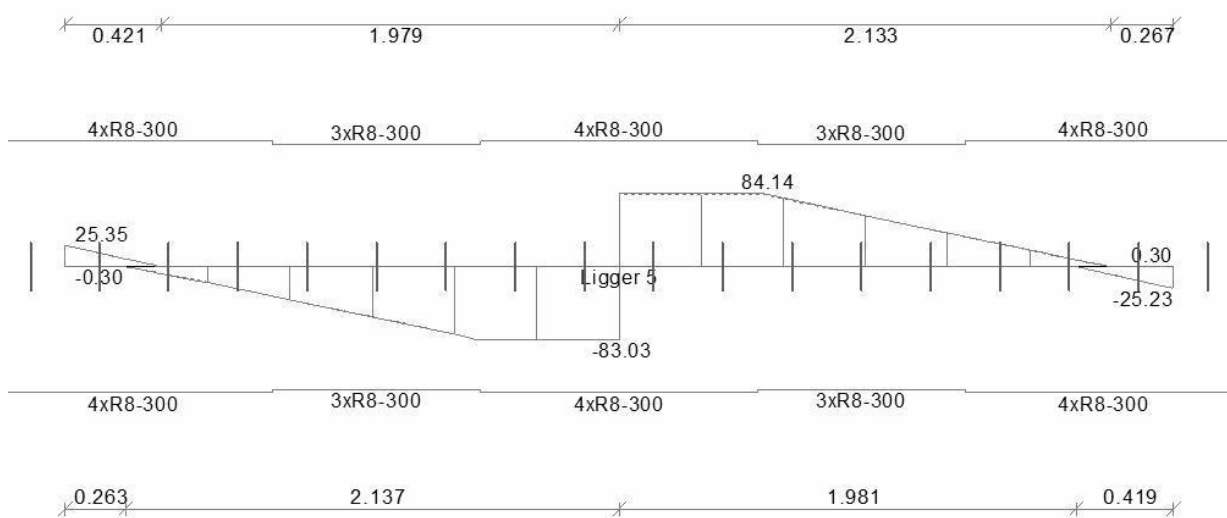
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 3



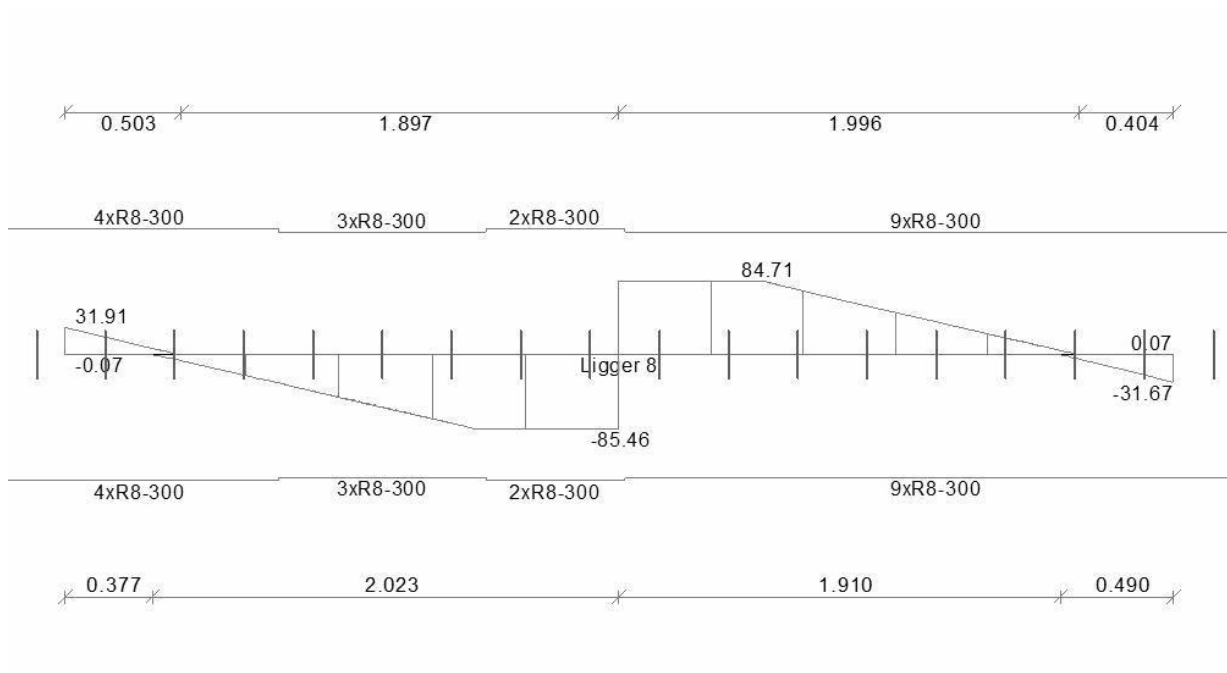
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 4



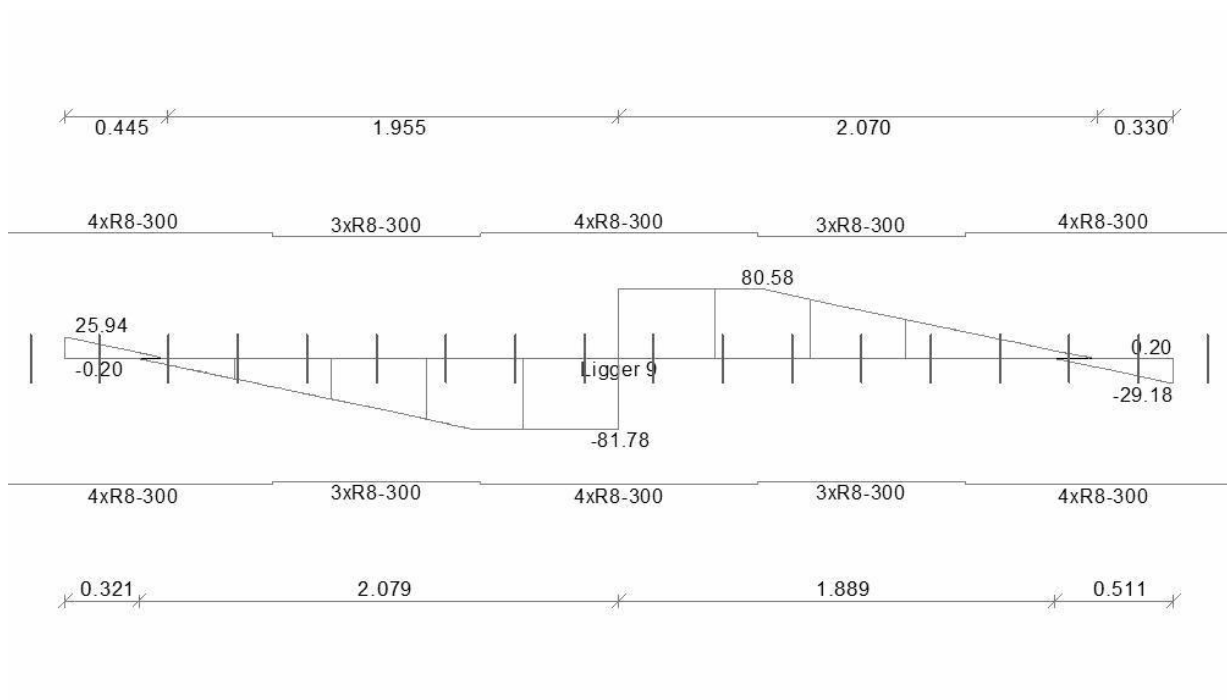
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 5



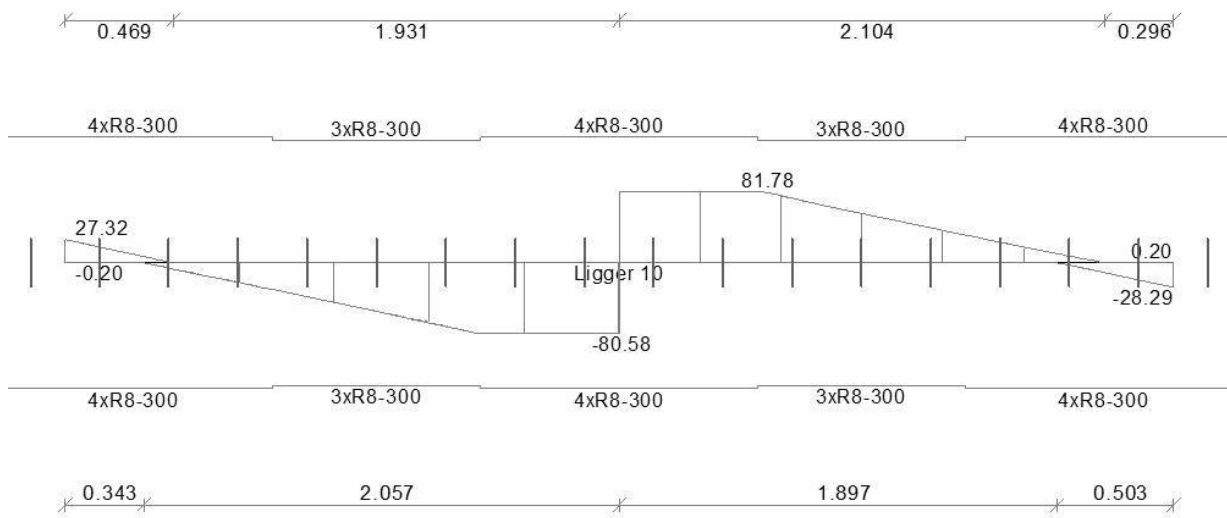
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 8



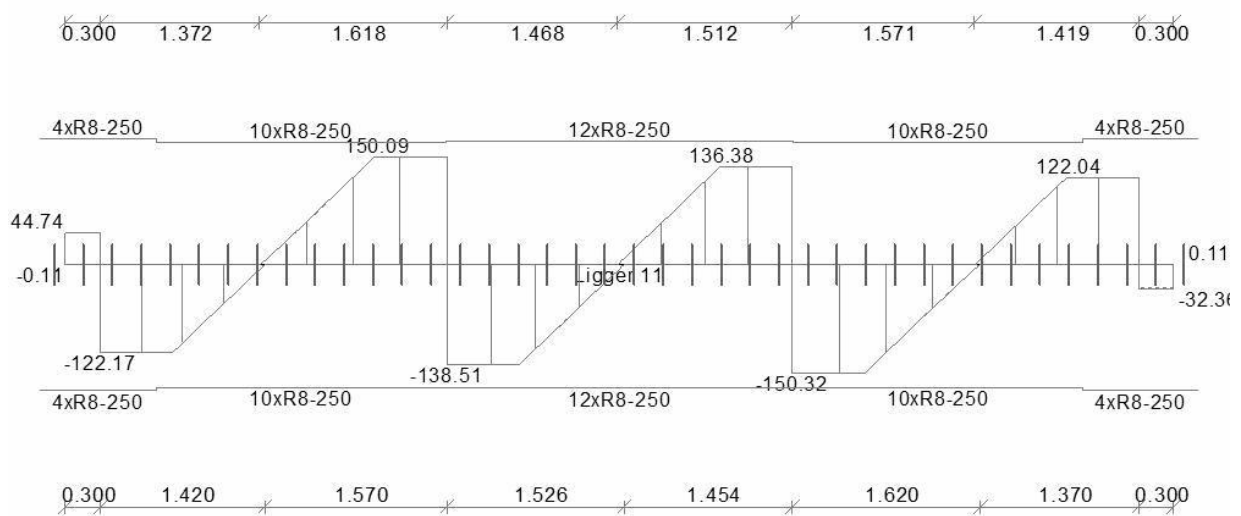
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 9



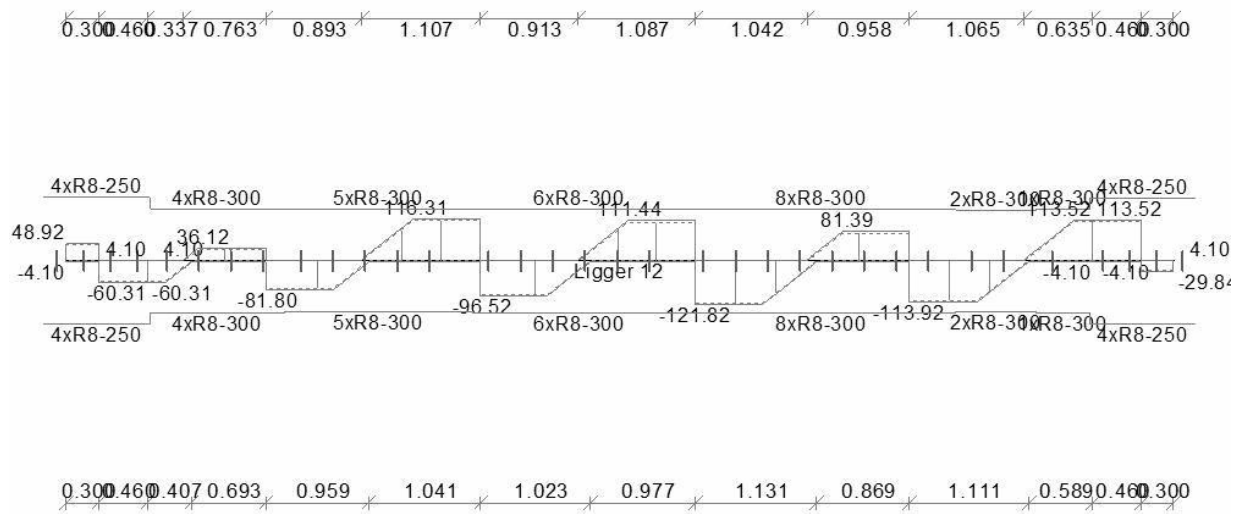
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 10



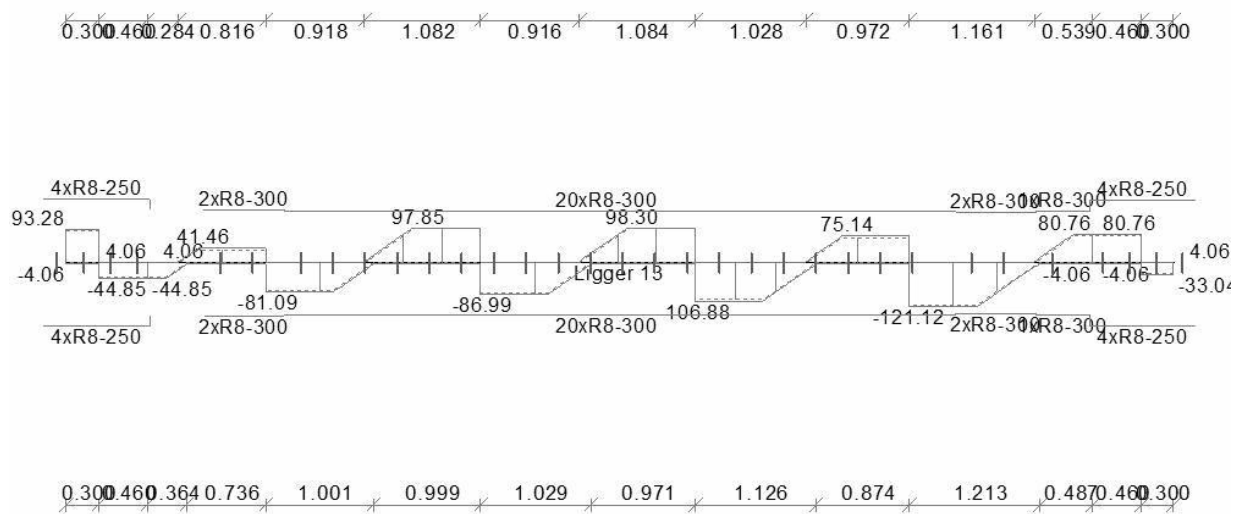
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 11



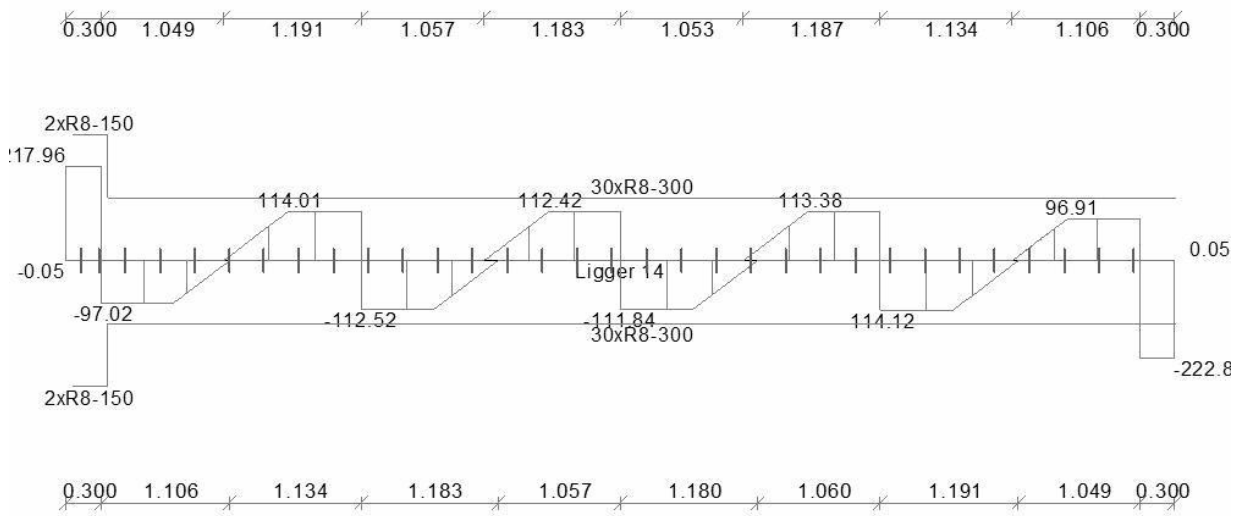
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 12



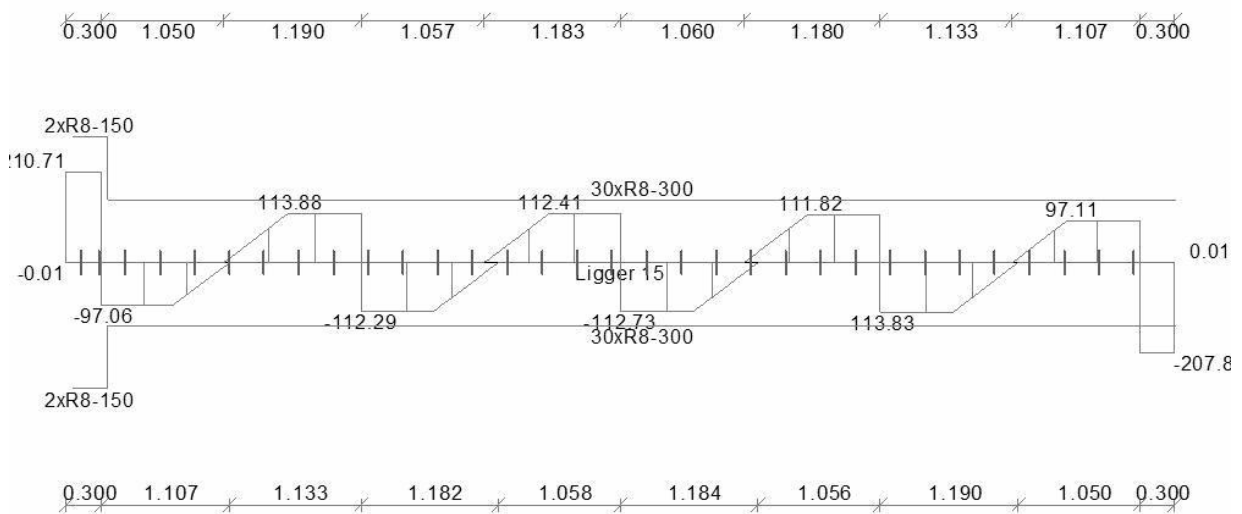
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 13



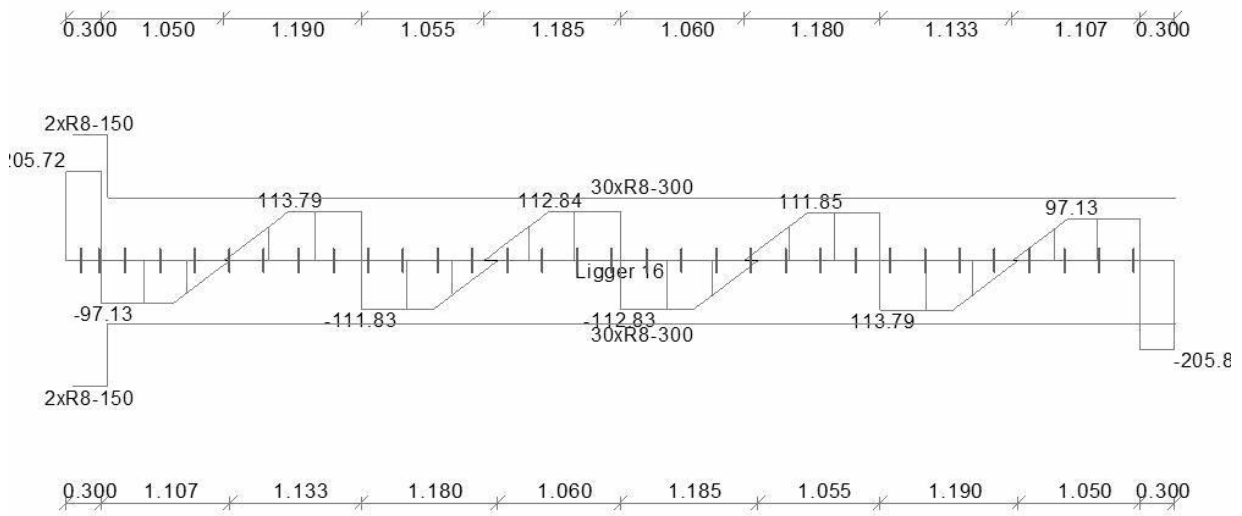
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 14



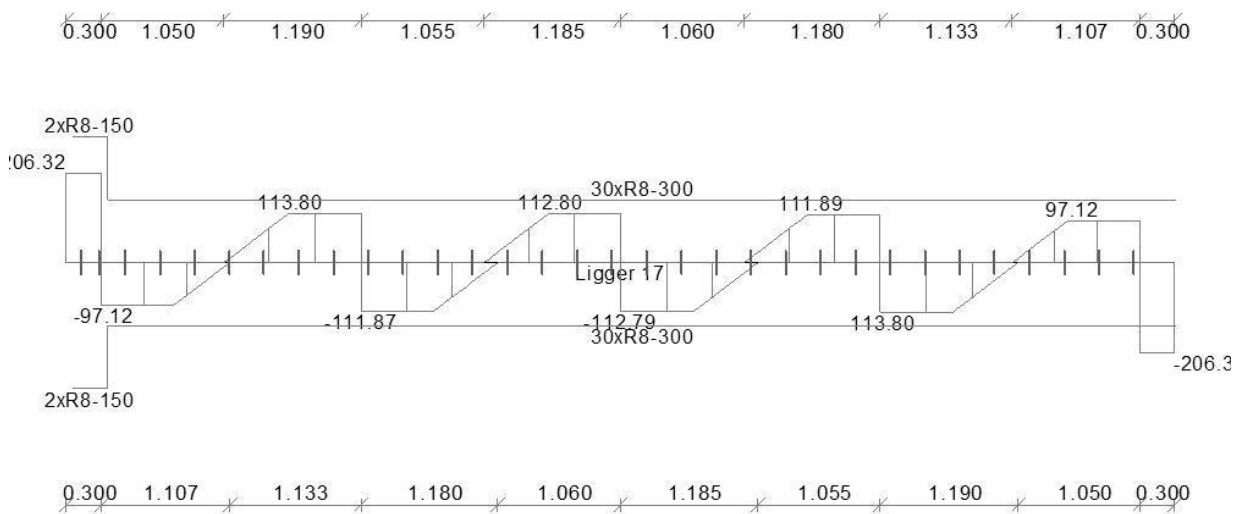
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 15



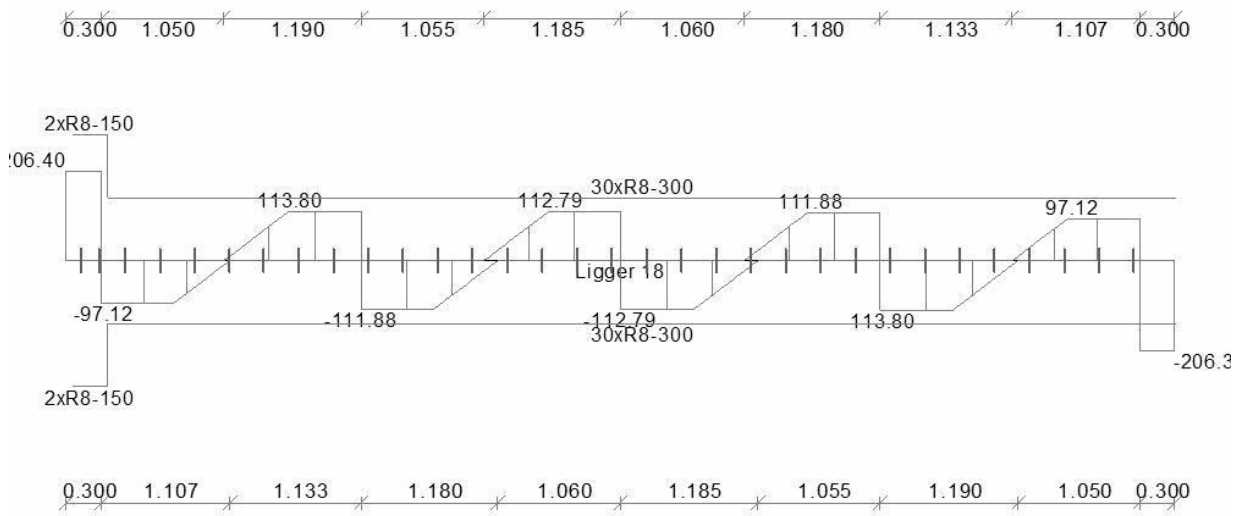
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 16



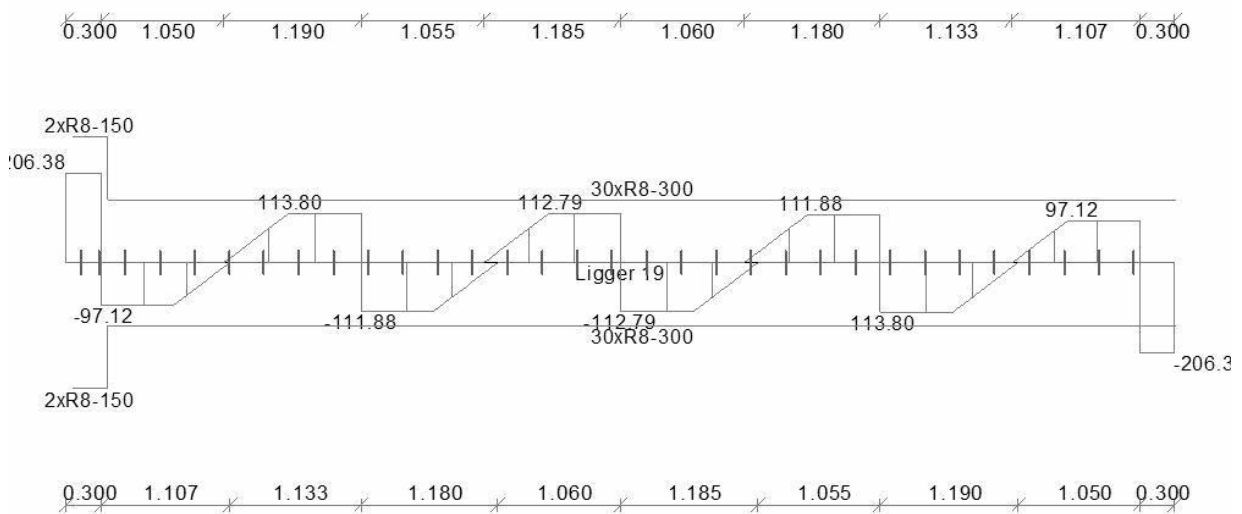
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 17



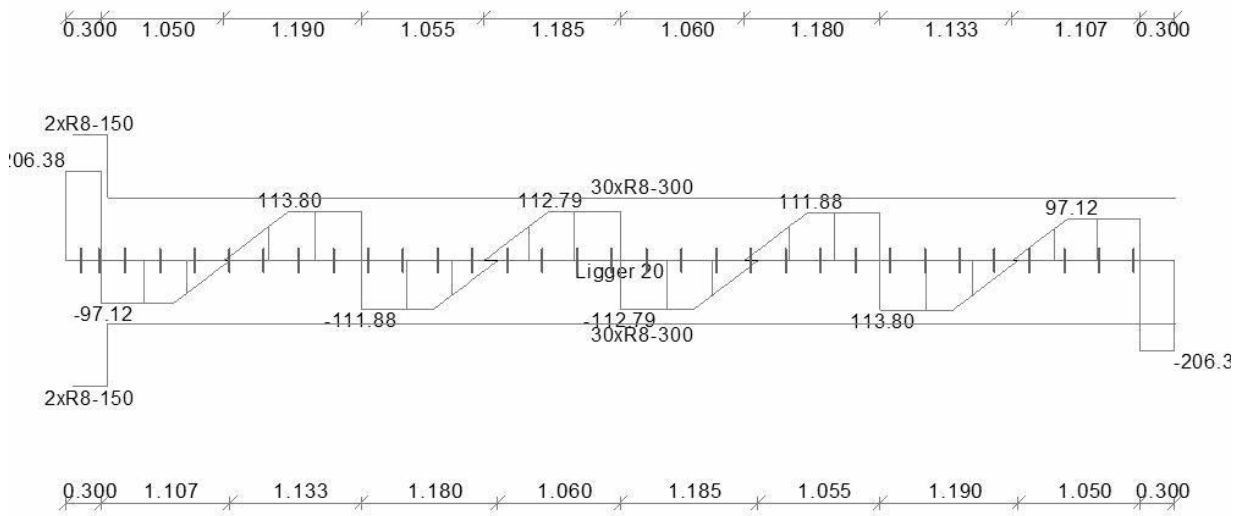
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 18



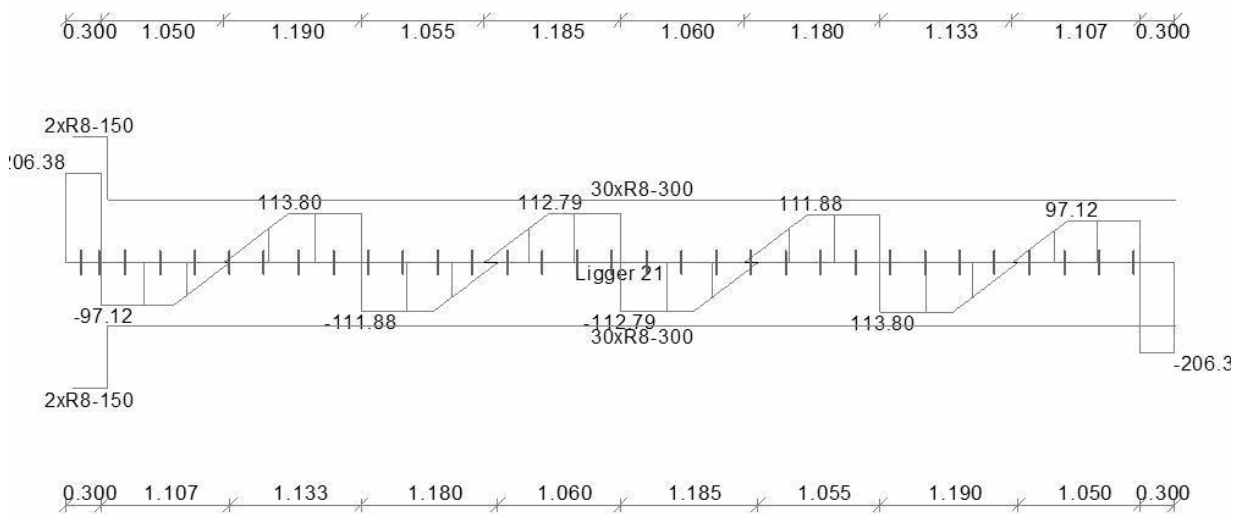
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 19



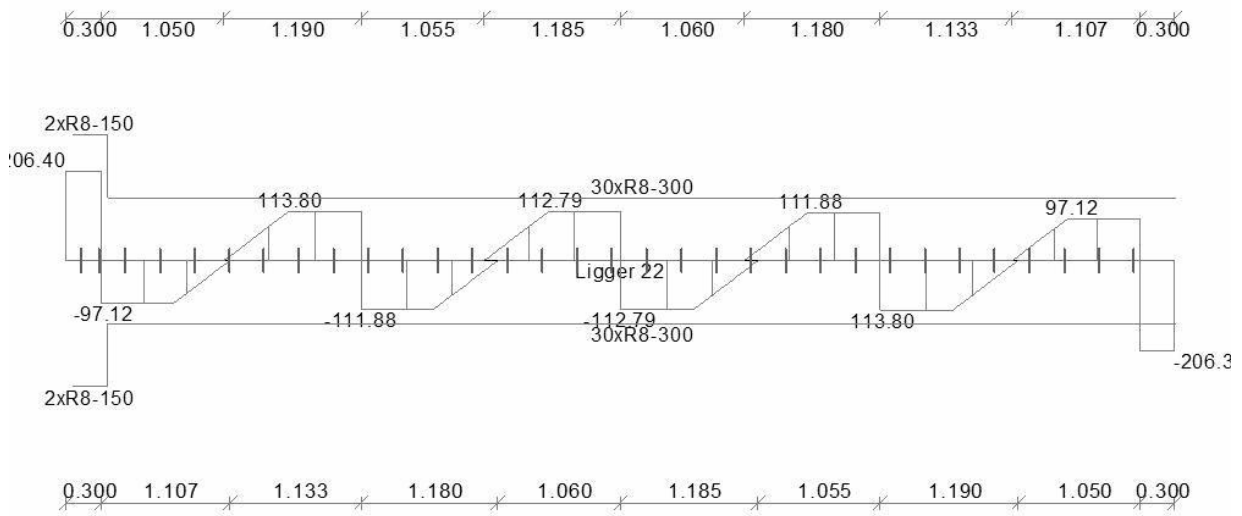
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 20



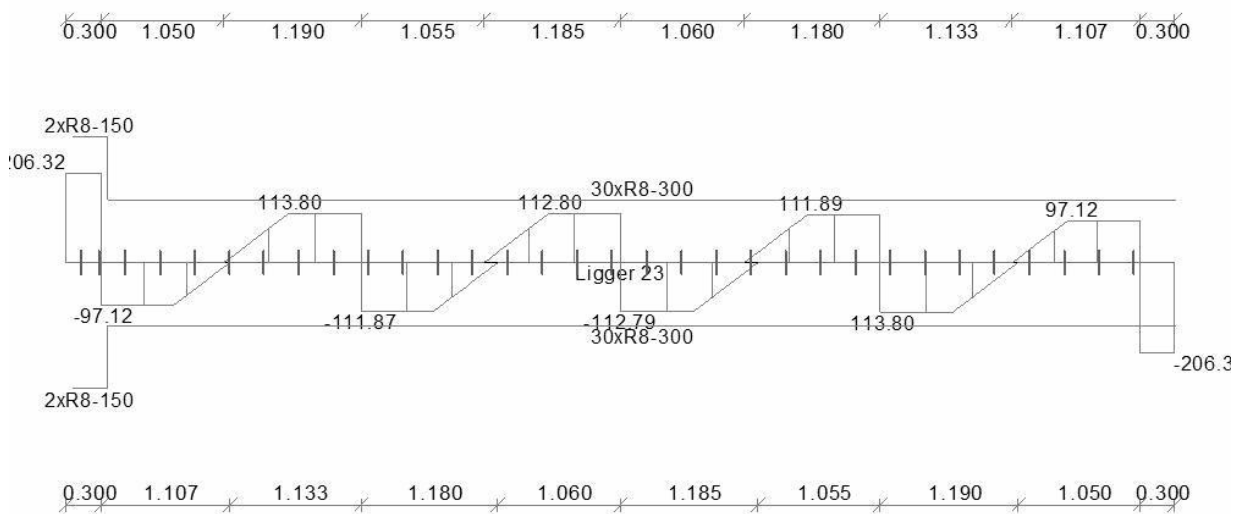
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 21



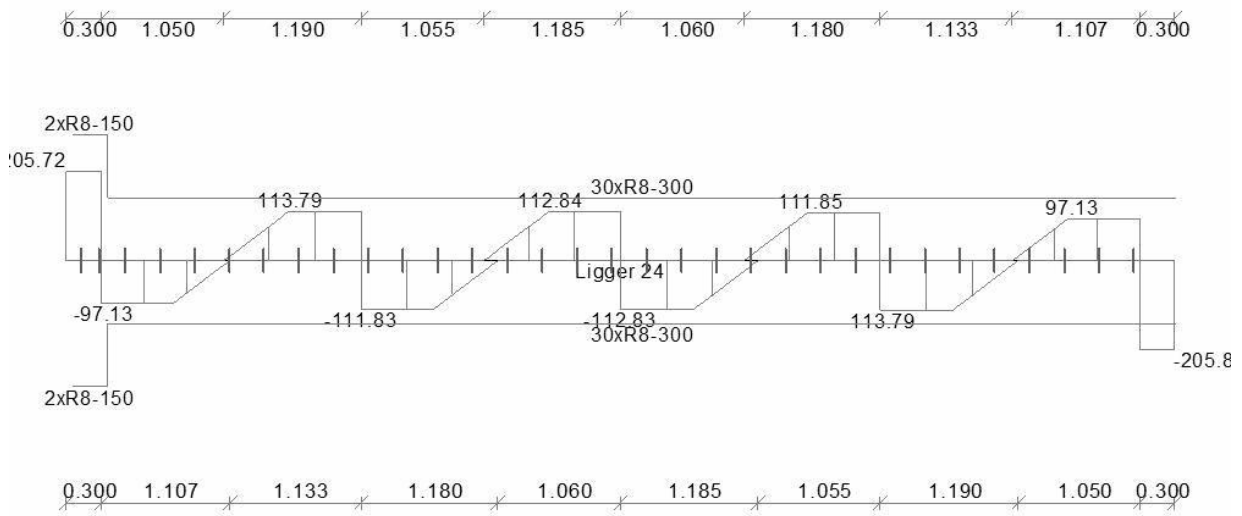
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 22



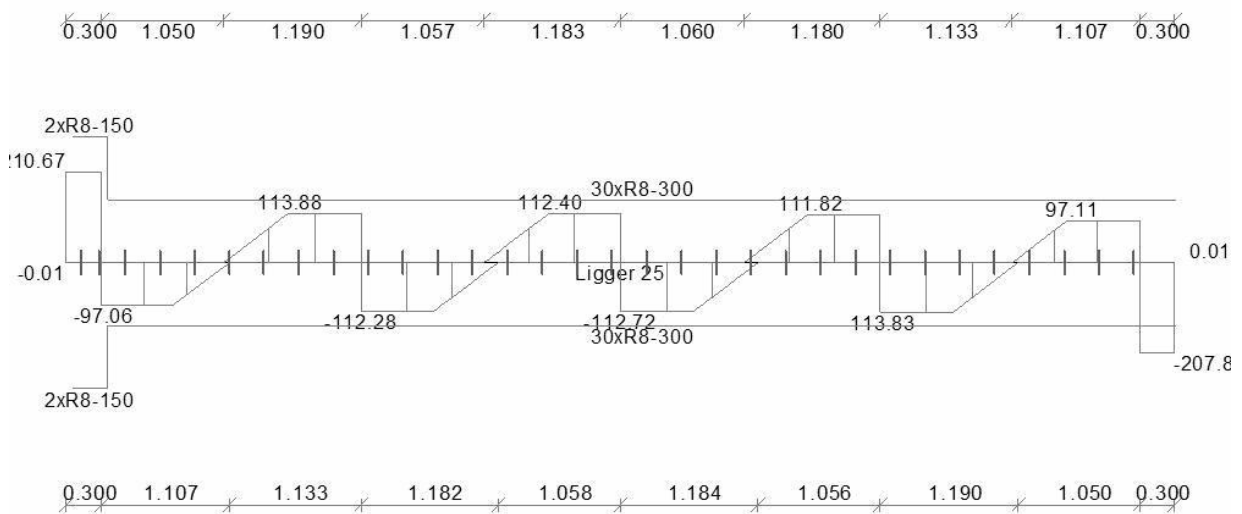
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 23



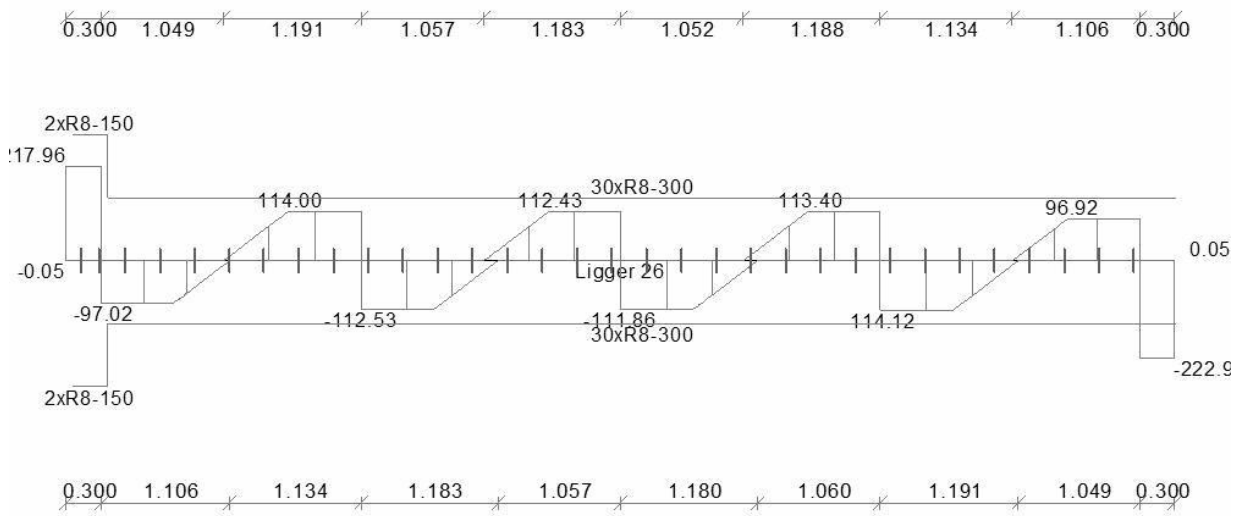
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 24



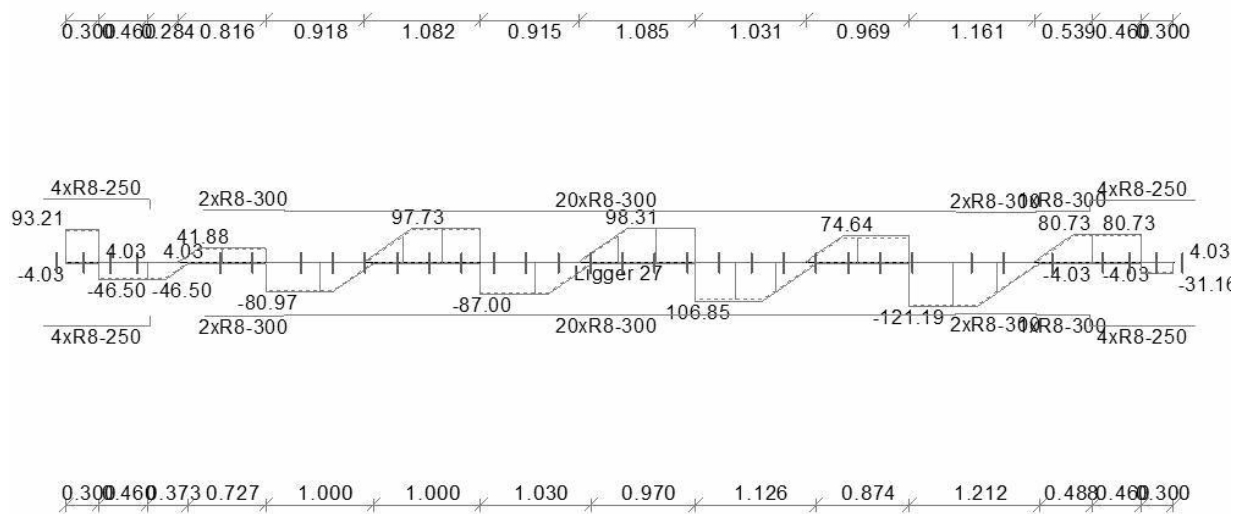
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 25



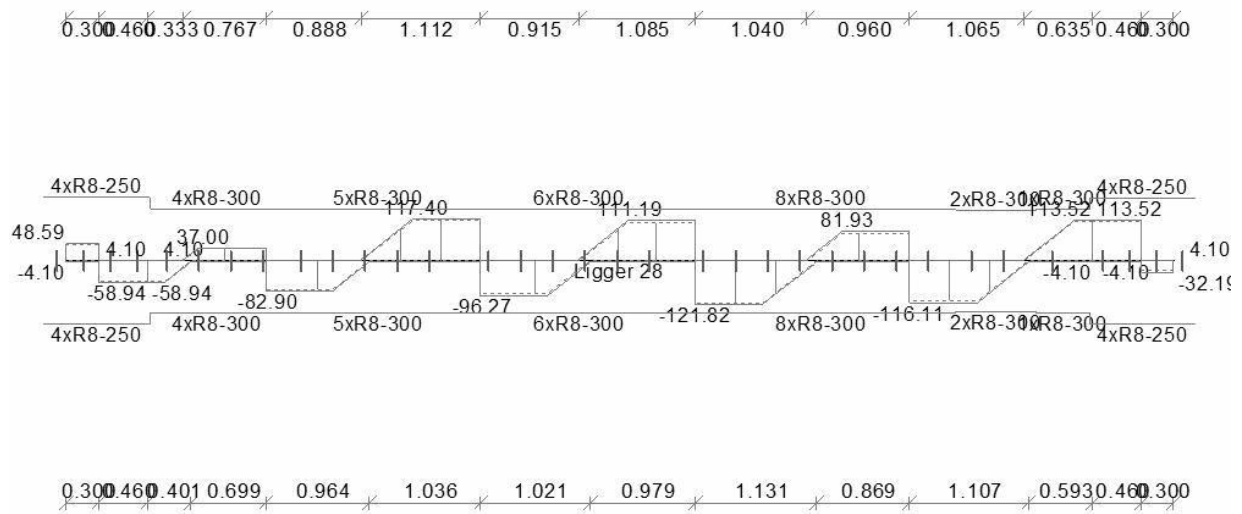
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 26



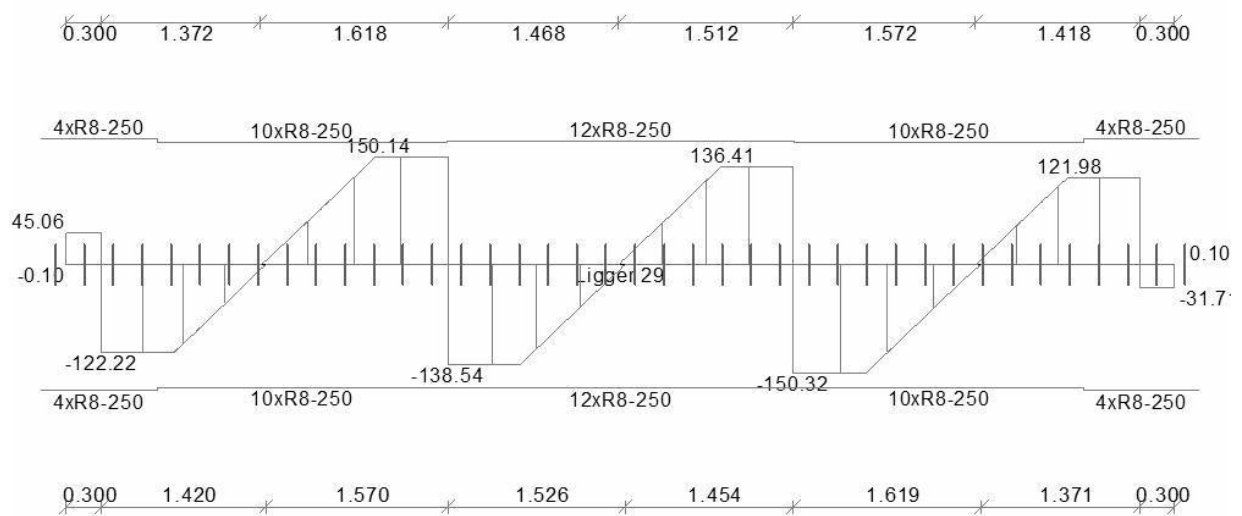
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 27



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 28



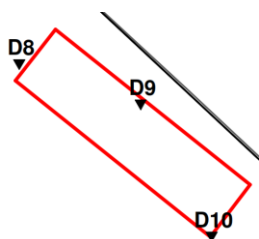
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 29



9.3 RIJWONING KAVEL 19-24

9.3.1 MAXIMALE PAALBELASTING

Peilaanname: 17.25 m +NAP
 Paalpuntniveau: 0.00 m +NAP
 Paaldiameter: 350 mm
 Draagvermogen: 663 kN
 Maximale paallast: 579 kN



9.3.2 BELASTING BALKEN

voorgevel-achtergevel

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|-------------|--------------|--|--------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,00 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 1,00 | 6,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 0,75 | | |
| Totaal G_k | 1,09 | 3,48 | 3,48 | 2,25 | 18,00 | | 28,29 |
| Totaal Q_k | 0,28 | 1,38 | 1,38 | 1,38 | | | 4,41 |

Pd (CC1) = 36,60

linker-rechterzijgevel

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|--------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,40 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 5,20 | 5,20 | 5,20 | 9,00 | | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 2,83 | 18,07 | 18,07 | 11,70 | 39,60 | | 90,27 |
| Totaal Q_k | 0,73 | 7,15 | 7,15 | 7,15 | | | 22,18 |

Pd (CC1) = 127,44

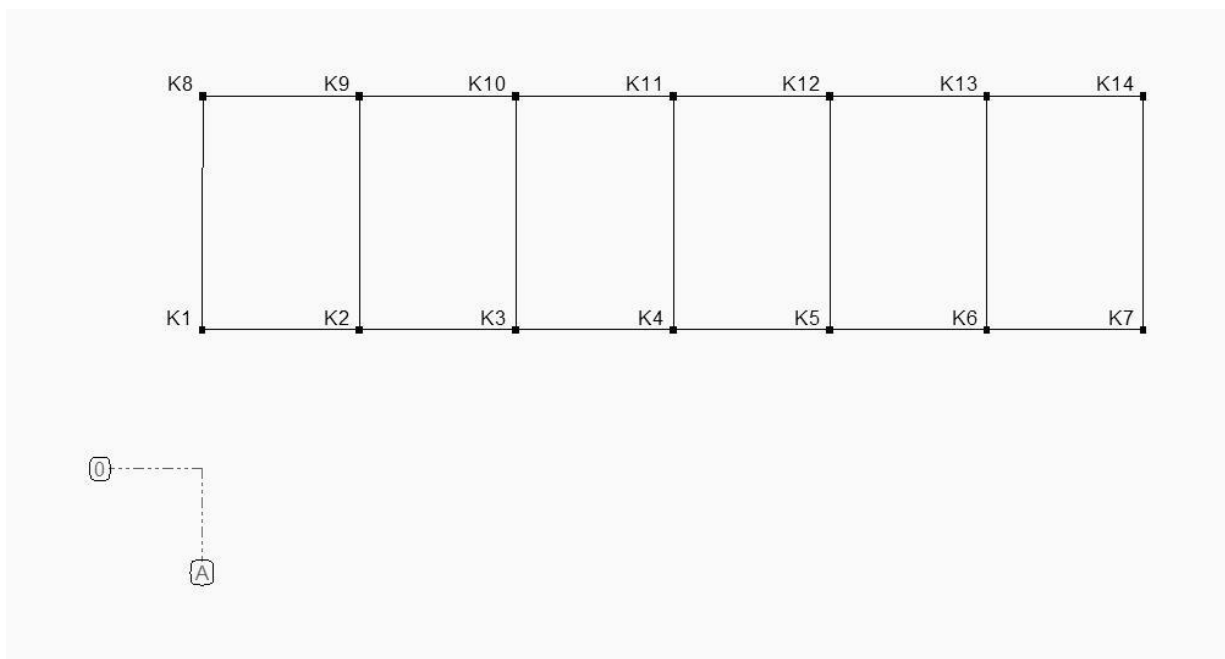
woningscheidende wand

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,80 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 10,40 | 10,40 | 10,40 | 9,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 5,67 | 36,14 | 36,14 | 23,40 | 43,20 | | 144,55 |
| Totaal Q_k | 1,46 | 14,30 | 14,30 | 14,30 | | | 44,36 |

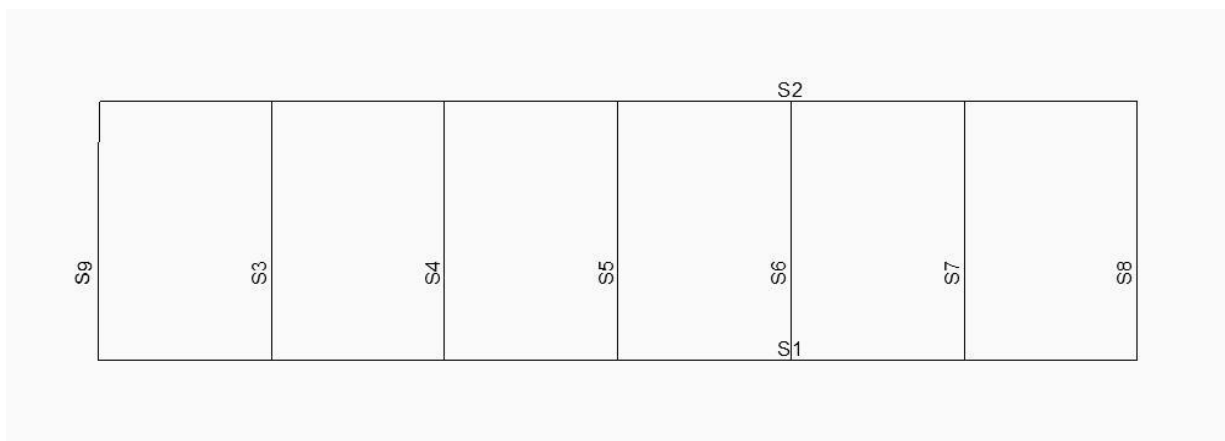
P_d (CC1) = **215,99**

9.3.3 BALKENROOSTER

AFB. KNOPEN



AFB. STAVEN

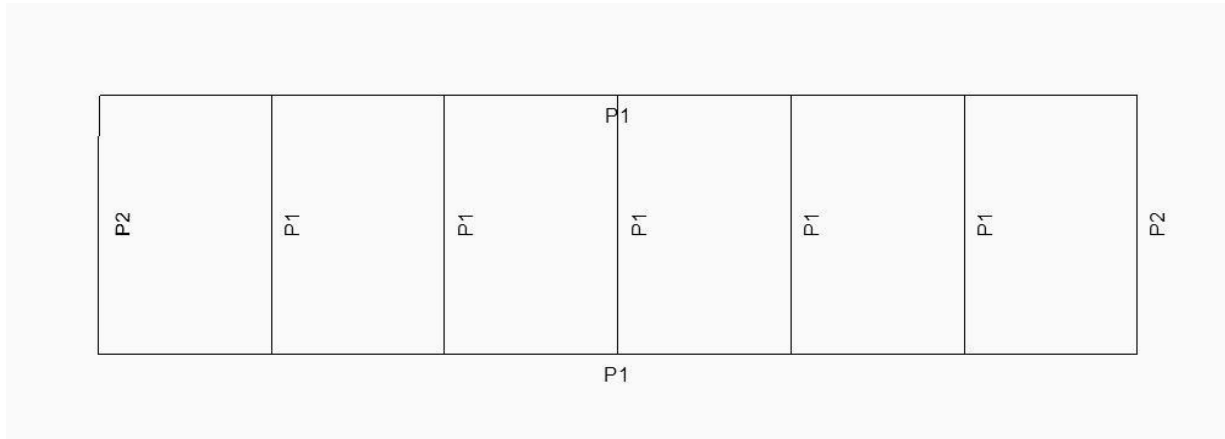


STAVEN

| Staaf | Knoop B | Knoop E | X-B | Y-B | X-E | Y-E | Lengte Profiel | Positie |
|-------|---------|---------|-------|--------|------|--------|----------------|-----------------|
| S1 | K7 | K1 | 32,45 | -4,80 | 0,00 | -4,80 | 32,45 P1 | 0,00 - L(32,45) |
| S2 | K14 | K8 | 32,45 | -12,86 | 0,05 | -12,86 | 32,40 P1 | 0,00 - L(32,40) |

| | | | | | | | | |
|----|----|-----|-------|-------|-------|--------|---------|----------------|
| S3 | K2 | K9 | 5,45 | -4,80 | 5,45 | -12,86 | 8,06 P1 | 0,00 - L(8,06) |
| S4 | K3 | K10 | 10,85 | -4,80 | 10,85 | -12,86 | 8,06 P1 | 0,00 - L(8,06) |
| S5 | K4 | K11 | 16,25 | -4,80 | 16,25 | -12,86 | 8,06 P1 | 0,00 - L(8,06) |
| S6 | K5 | K12 | 21,65 | -4,80 | 21,65 | -12,86 | 8,06 P1 | 0,00 - L(8,06) |
| S7 | K6 | K13 | 27,05 | -4,80 | 27,05 | -12,86 | 8,06 P1 | 0,00 - L(8,06) |
| S8 | K7 | K14 | 32,45 | -4,80 | 32,45 | -12,86 | 8,06 P2 | 0,00 - L(8,06) |
| S9 | K1 | K8 | 0,00 | -4,80 | 0,05 | -12,86 | 8,06 P2 | 0,00 - L(8,06) |

AFB. PROFIELEN



PROFIELEN

| Profiel | Profielnaam | It | Iy Materiaal | Hoek |
|---------|-------------|------------|-------------------|------|
| P1 | R400x500 | 5.4742e-03 | 4.1667e-03 C20/25 | 0,0 |
| P2 | R500x500 | 8.8021e-03 | 5.2083e-03 C20/25 | 0,0 |

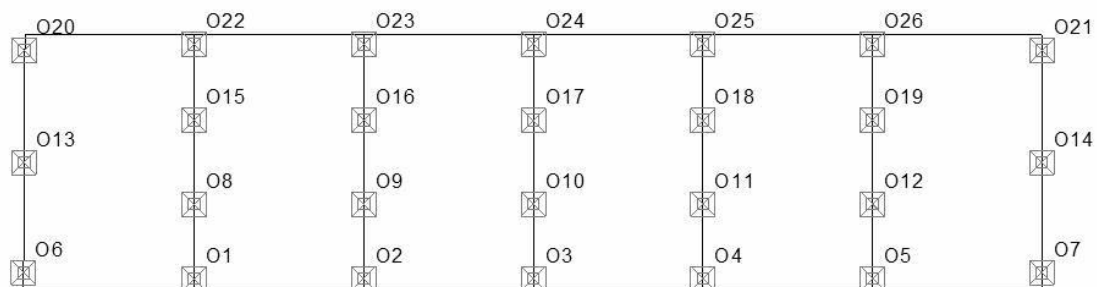
PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,400 | 0,000 | 0,000 Nee | 0,000 |
| P2 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,500 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaalnaam | Poison | Dichtheid | E-Modulus | Uitzettingcoëff |
|---------------|--------|-----------|------------|-----------------|
| C20/25 | 0.20 | 25.00 | 1.0000e+07 | 10.0000e-06 |

AFB. OPLEGGING EN AANSLUITINGEN



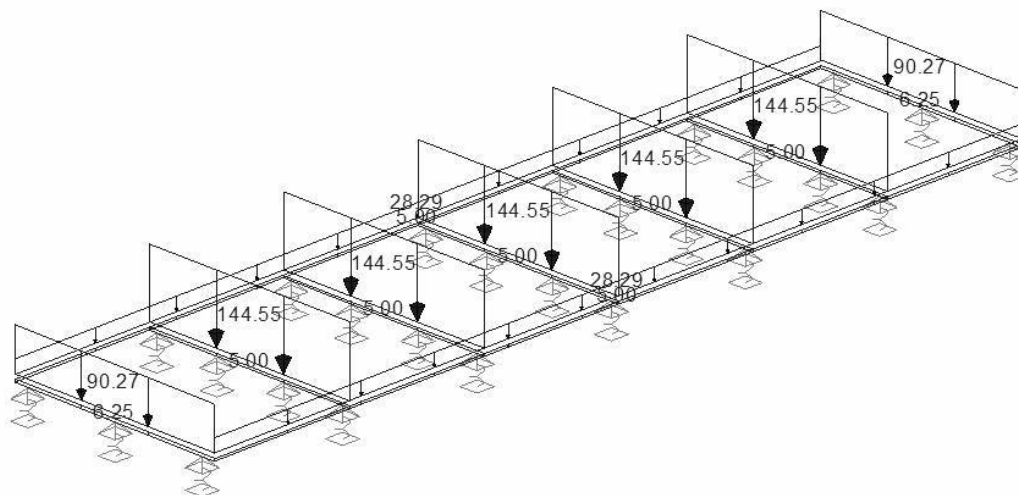
OPLEGGINGEN

| Oplegging | Staaf | Positie | Z | Xr | Yr |
|-----------|-------|---------|----------|------|------|
| O1 | S3 | 0,30 | 18000.00 | Vrij | Vrij |
| O2 | S4 | 0,30 | 18000.00 | Vrij | Vrij |
| O3 | S5 | 0,30 | 18000.00 | Vrij | Vrij |
| O4 | S6 | 0,30 | 18000.00 | Vrij | Vrij |
| O5 | S7 | 0,30 | 18000.00 | Vrij | Vrij |
| O6 | S9 | 0,50 | 18000.00 | Vrij | Vrij |

| | | | | | |
|-----|----|------|----------|------|------|
| O7 | S8 | 0,50 | 18000.00 | Vrij | Vrij |
| O8 | S3 | 2,67 | 18000.00 | Vrij | Vrij |
| O9 | S4 | 2,67 | 18000.00 | Vrij | Vrij |
| O10 | S5 | 2,67 | 18000.00 | Vrij | Vrij |
| O11 | S6 | 2,67 | 18000.00 | Vrij | Vrij |
| O12 | S7 | 2,67 | 18000.00 | Vrij | Vrij |
| O13 | S9 | 4,00 | 18000.00 | Vrij | Vrij |
| O14 | S8 | 4,00 | 18000.00 | Vrij | Vrij |

| Oplegging | Staafl | Positie | Z | Xr | Yr |
|-----------|--------|---------|----------|------|------|
| O15 | S3 | 5,34 | 18000.00 | Vrij | Vrij |
| O16 | S4 | 5,34 | 18000.00 | Vrij | Vrij |
| O17 | S5 | 5,34 | 18000.00 | Vrij | Vrij |
| O18 | S6 | 5,34 | 18000.00 | Vrij | Vrij |
| O19 | S7 | 5,34 | 18000.00 | Vrij | Vrij |
| O20 | S9 | 7,56 | 18000.00 | Vrij | Vrij |
| O21 | S8 | 7,56 | 18000.00 | Vrij | Vrij |
| O22 | S3 | 7,76 | 18000.00 | Vrij | Vrij |
| O23 | S4 | 7,76 | 18000.00 | Vrij | Vrij |
| O24 | S5 | 7,76 | 18000.00 | Vrij | Vrij |
| O25 | S6 | 7,76 | 18000.00 | Vrij | Vrij |
| O26 | S7 | 7,76 | 18000.00 | Vrij | Vrij |

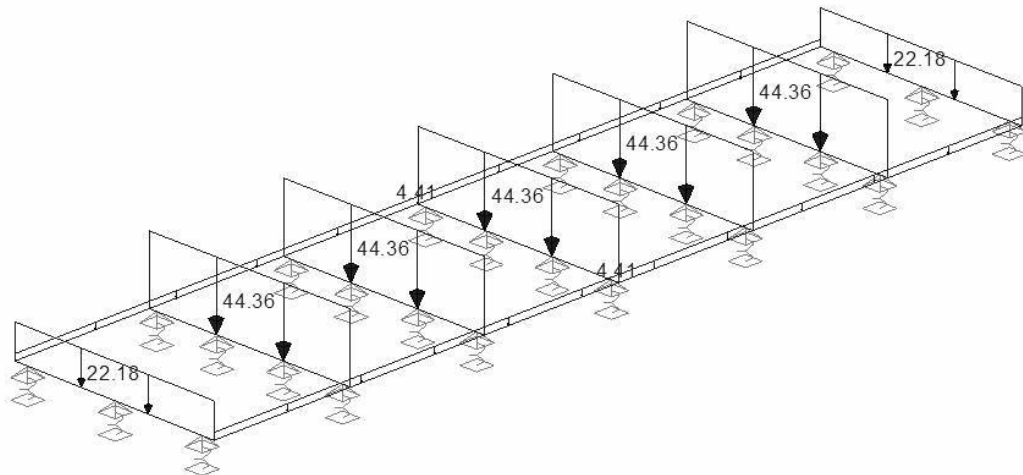
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staafl of knoop |
|------------------|-------------|------------|----------------|-------------|--------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z S1-S9 |
| q | 28,29 | 28,29 | 0,00 | 32,45(L) | Z S1-S2 |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z S8-S9 |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z S3-S7 |
| Som lasten | X: 0,00 | | kN Z: 9.741,64 | | kN |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

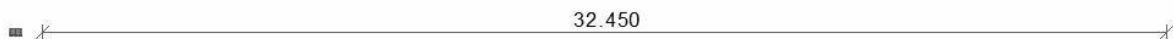
| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|---|-------------|------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 4,41 | 4,41 | 0,00 | 32,40(L) | Z S1-S2 |
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z S8-S9 |
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z S3-S7 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G.1: PERMANENT (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 32,45(L) | Z |

B.G.1: PERMANENT (S1)

Staaf S1

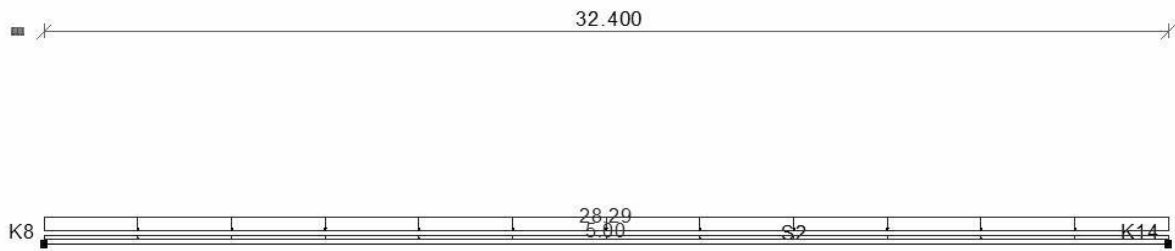


B.G.1: PERMANENT (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S2 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 32,45(L) | Z |

B.G.1: PERMANENT (S2)

Staaf S2

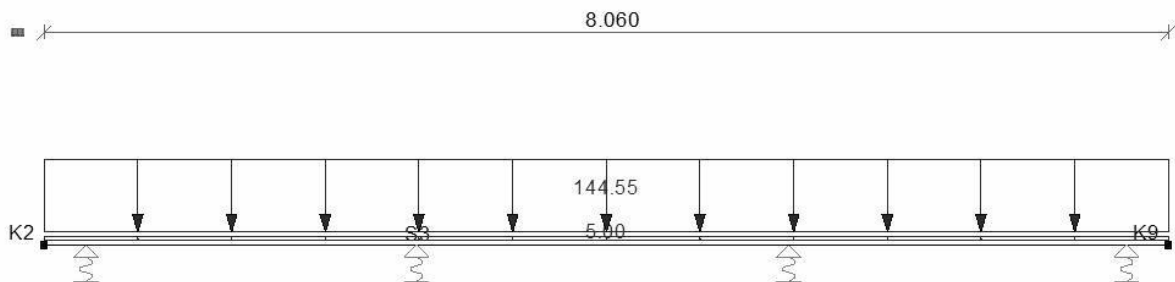


B.G.1: PERMANENT (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S3)

Staaf S3

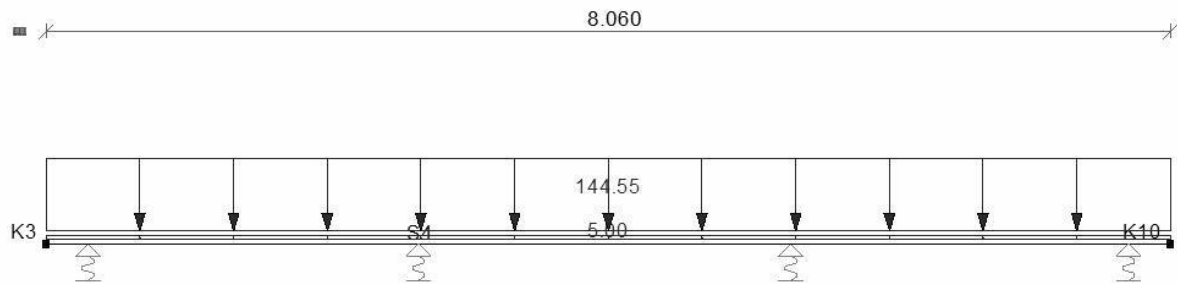


B.G.1: PERMANENT (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S4)

Staaf S4

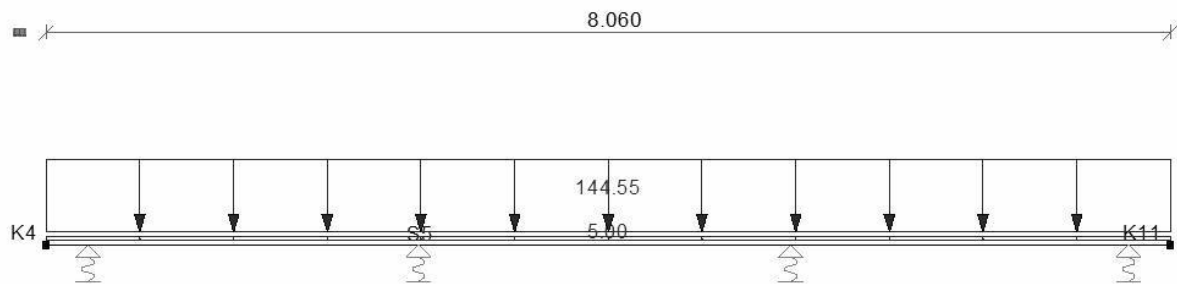


B.G.1: PERMANENT (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S5)

Staaf S5

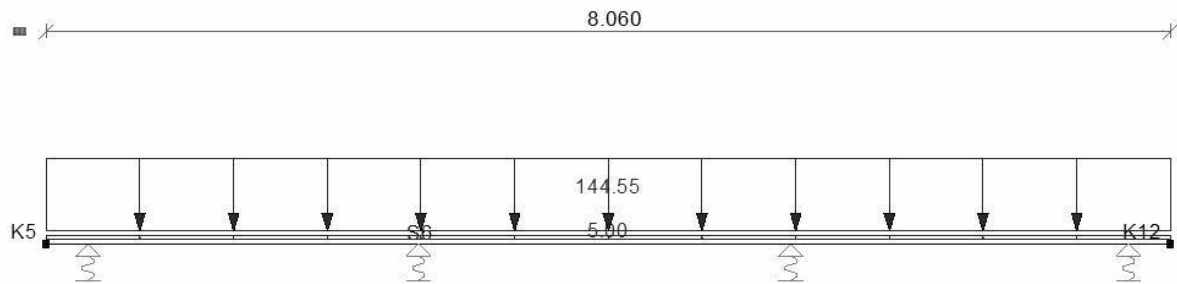


B.G.1: PERMANENT (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S6)

Staaf S6

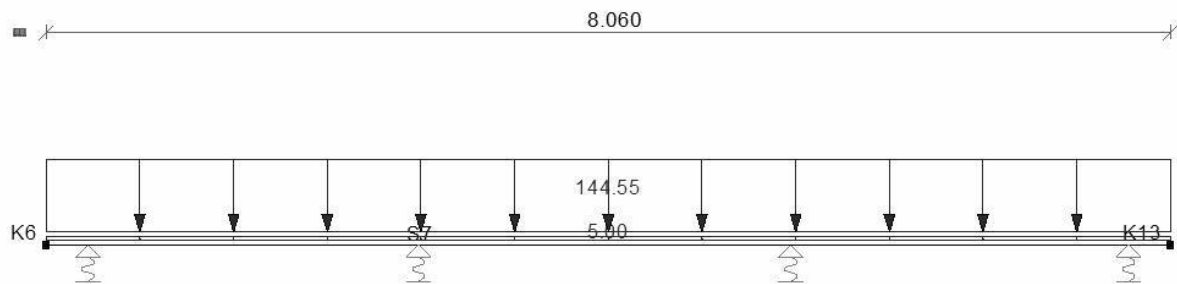


B.G.1: PERMANENT (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S7)

Staaf S7

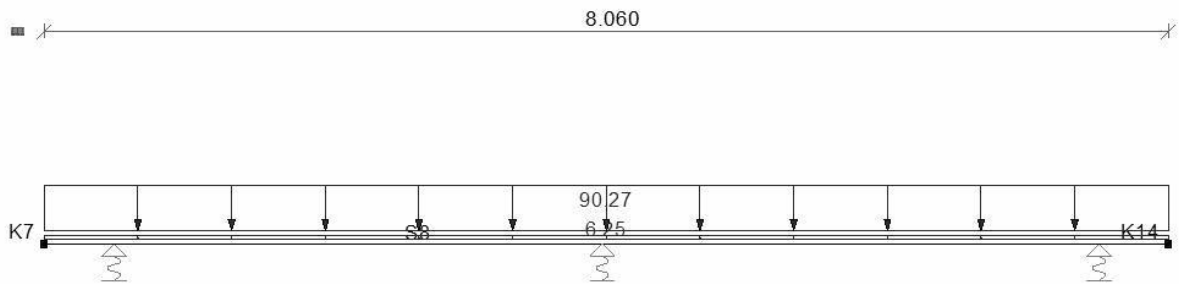


B.G.1: PERMANENT (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S8)

Staaf S8

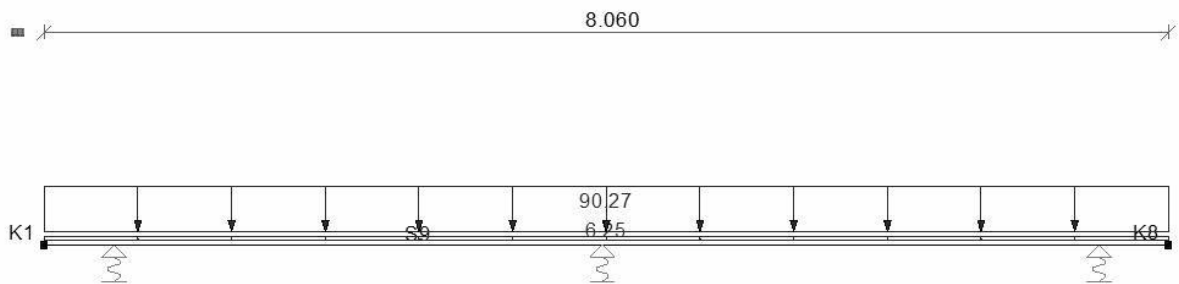


B.G.1: PERMANENT (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 32,40(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S9)

Staaf S9

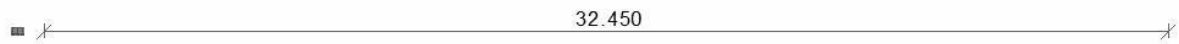


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 32,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1

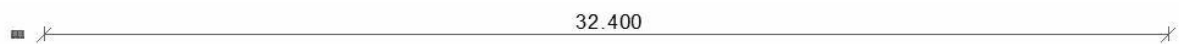


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S2 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 32,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

Staaf S2

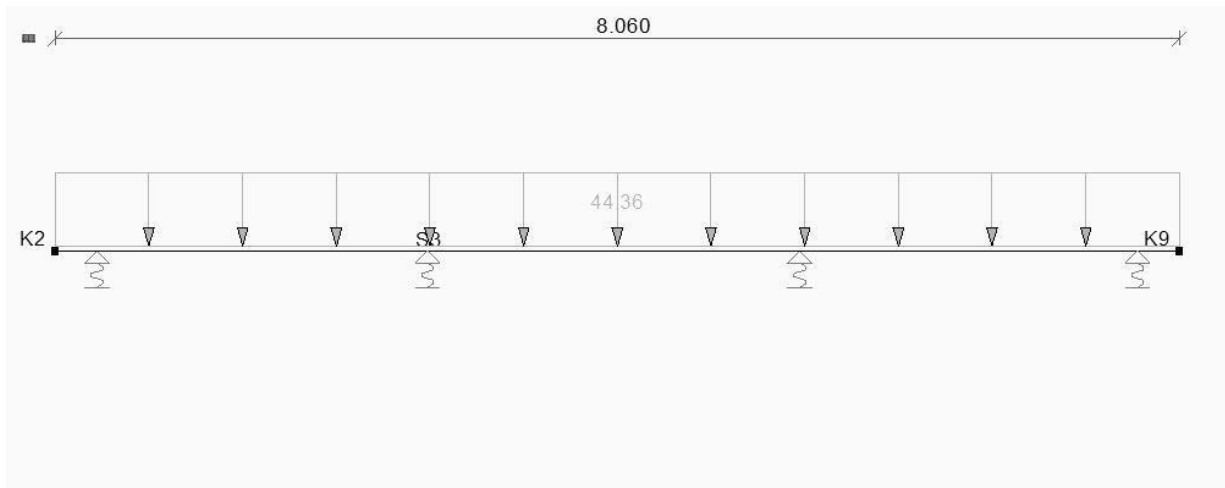


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

Staaf S3



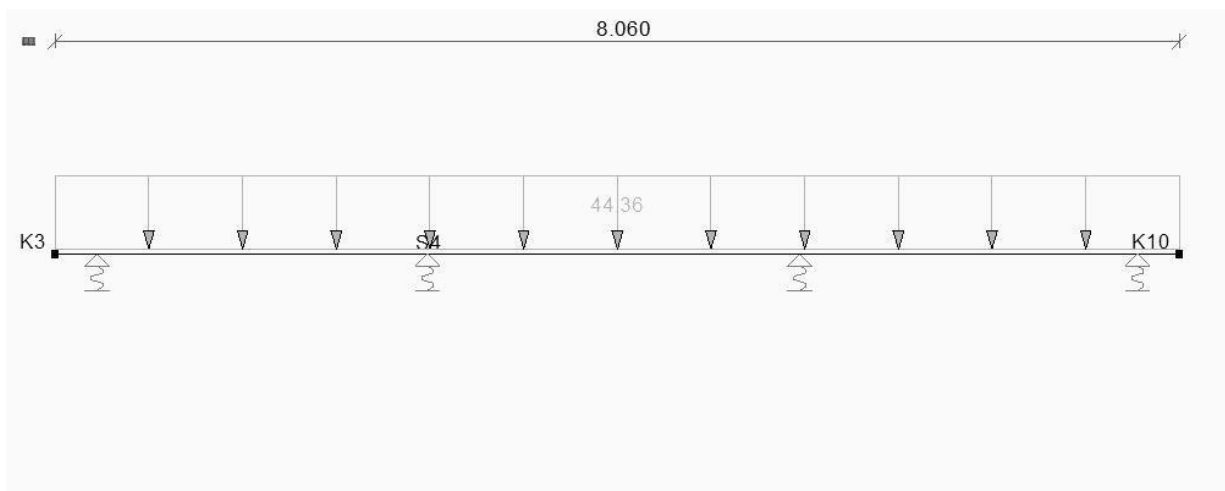
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

Staaf S4

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

Staaf S4



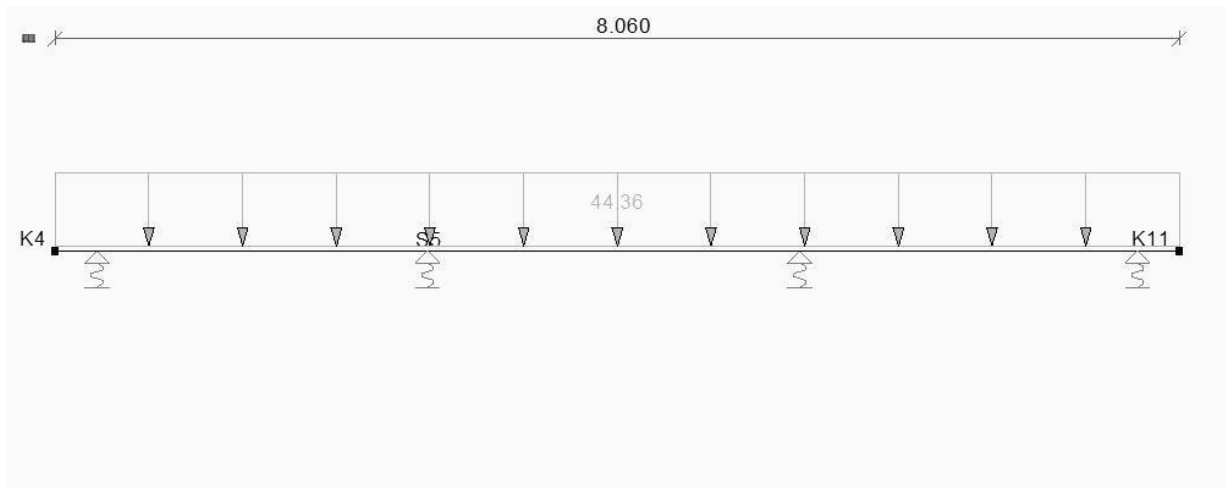
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

Staaf S5

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

Staaf S5



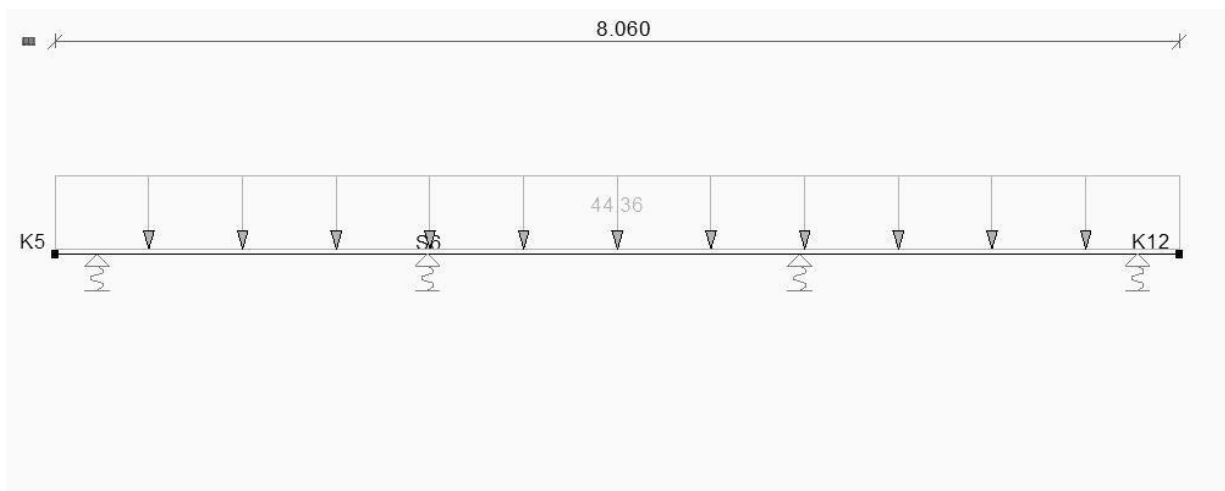
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6



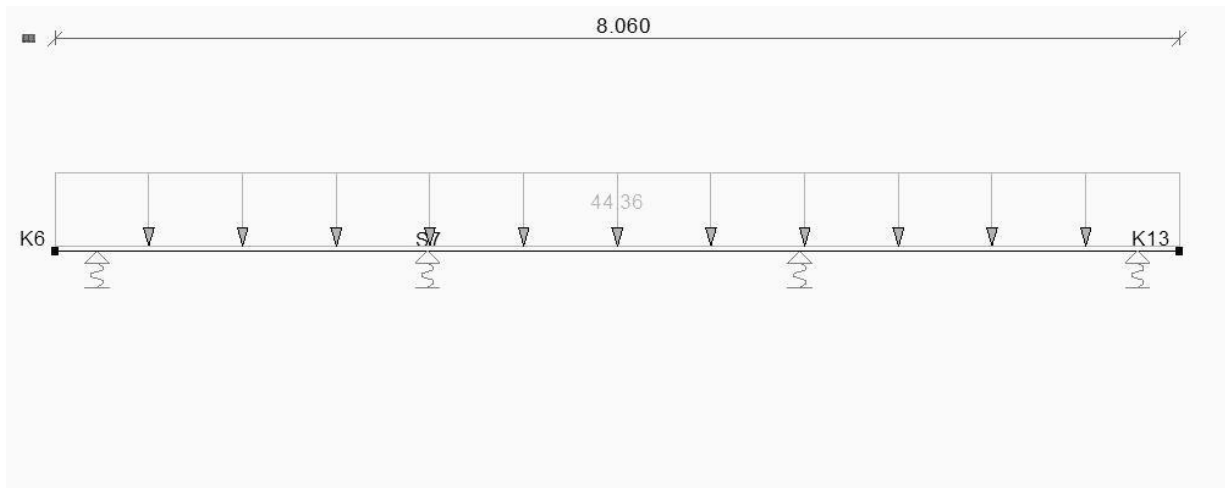
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7



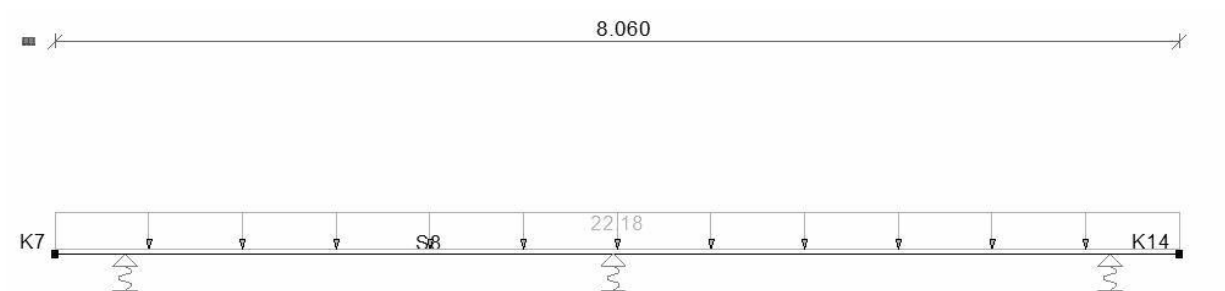
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

Staaf S8

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

Staaf S8



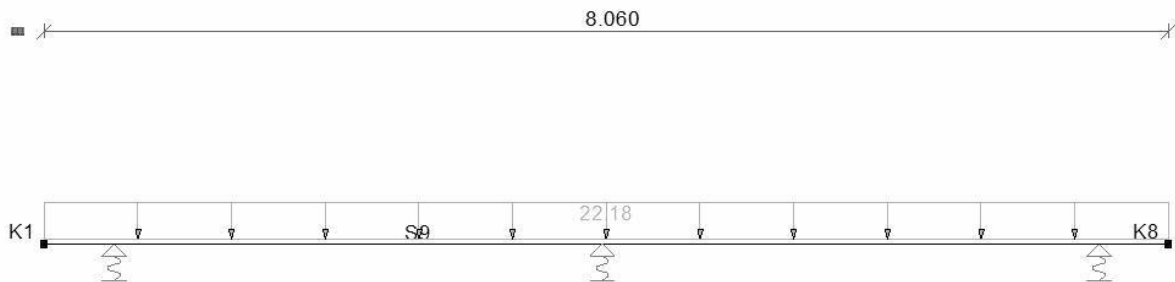
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

Staaf S9

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

Staaf S9

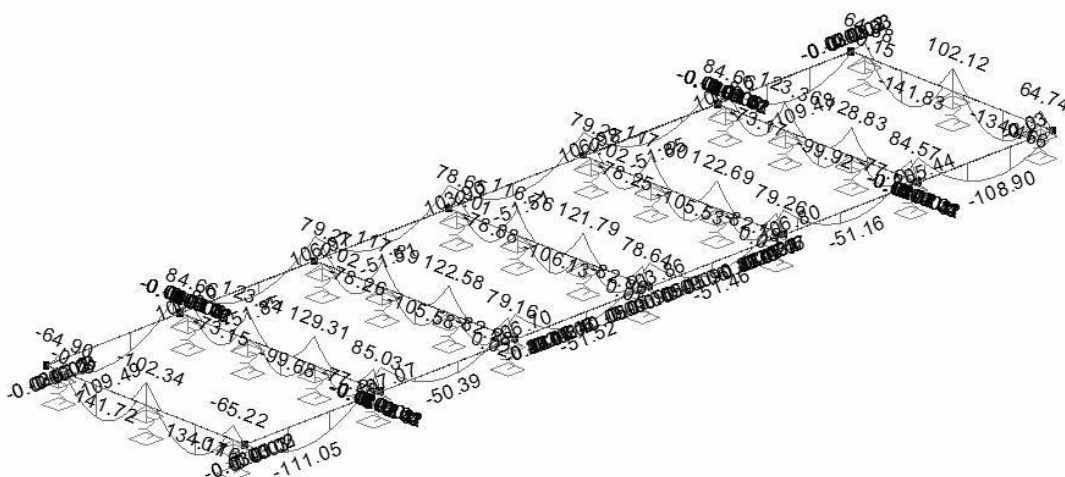


FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 | Fu.C.3 | Fu.C.4 | Fu.C.5 | Fu.C.6 | Fu.C.7 | Fu.C.8 |
|---------|---------------------------------------|--------|---------|---------|---------|---------|---------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 | 0.54 | - | 0.54 | - | 0.54 | - |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | 1.35 | 0.54 | - | 0.54 | 0.54 | 0.54 | - | 0.54 |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | 0.54 | - |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | 0.54 |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G. | Omschrijving | Fu.C.9 | Fu.C.10 | Fu.C.11 | Fu.C.12 | Fu.C.13 | Fu.C.14 | | |
| B.G.1 | Permanent | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | | |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | | |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | - | 1.35 | - | 1.35 | - | | |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | - | 1.35 | 1.35 | 1.35 | - | 1.35 | | |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | - | - | 1.35 | 1.35 | - | | |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | - | 1.35 | 1.35 | - | 1.35 | 1.35 | | |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | - | - | 1.35 | - | 1.35 | | |

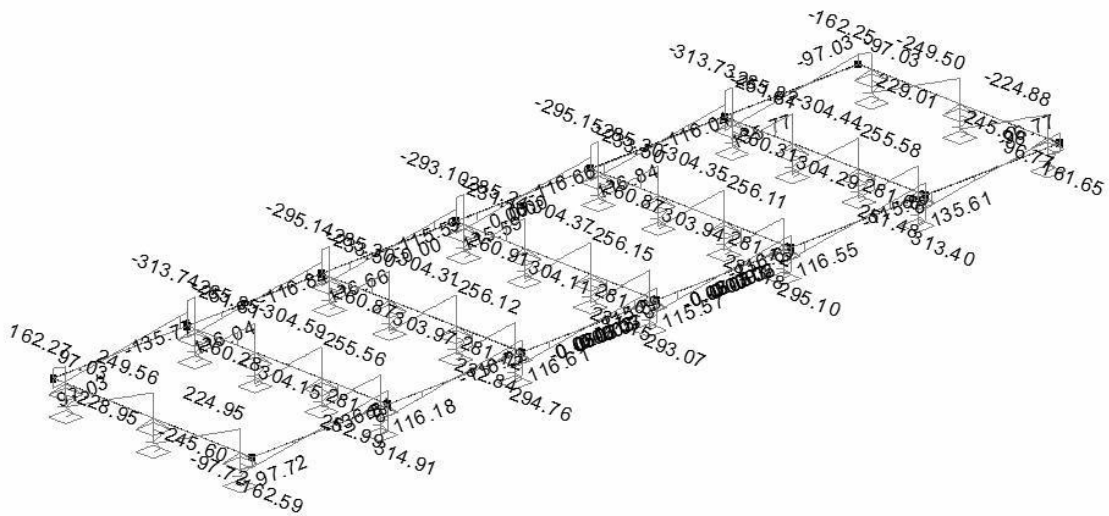
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Opleggin | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx | Mymax |
|--------------------------------|-------|---------|----------------|------|---------|---|-------|---------|---|----|-------|
| g | | | | | | | | | | | |
| O1 | S3 | Fu.C.1 | -559,03 | 0,00 | 0,00 | | | | | | |
| O2 | S4 | Fu.C.1 | -541,17 | 0,00 | 0,00 | | | | | | |
| O3 | S5 | Fu.C.1 | -539,21 | 0,00 | 0,00 | | | | | | |
| O4 | S6 | Fu.C.1 | -541,51 | 0,00 | 0,00 | | | | | | |
| O5 | S7 | Fu.C.1 | -557,55 | 0,00 | 0,00 | | | | | | |
| O6 | S9 | Fu.C.11 | -387,45 | 0,00 | 0,00 | | | | | | |
| O7 | S8 | Fu.C.11 | -386,46 | 0,00 | 0,00 | | | | | | |
| O8 | S3 | Fu.C.1 | -573,74 | 0,00 | 0,00 | | | | | | |
| O9 | S4 | Fu.C.1 | -572,92 | 0,00 | 0,00 | | | | | | |
| O10 | S5 | Fu.C.1 | -572,89 | 0,00 | 0,00 | | | | | | |
| O11 | S6 | Fu.C.1 | -572,95 | 0,00 | 0,00 | | | | | | |
| O12 | S7 | Fu.C.1 | -573,57 | 0,00 | 0,00 | | | | | | |
| O13 | S9 | Fu.C.1 | -495,15 | 0,00 | 0,00 | | | | | | |
| O14 | S8 | Fu.C.1 | -495,17 | 0,00 | 0,00 | | | | | | |
| O15 | S3 | Fu.C.1 | -577,95 | 0,00 | 0,00 | | | | | | |
| O16 | S4 | Fu.C.1 | -577,62 | 0,00 | 0,00 | | | | | | |
| O17 | S5 | Fu.C.1 | -577,53 | 0,00 | 0,00 | | | | | | |
| O18 | S6 | Fu.C.1 | -577,60 | 0,00 | 0,00 | | | | | | |
| O19 | S7 | Fu.C.1 | -578,07 | 0,00 | 0,00 | | | | | | |
| O20 | S9 | Fu.C.13 | -390,28 | 0,00 | 0,00 | | | | | | |
| O21 | S8 | Fu.C.13 | -390,32 | 0,00 | 0,00 | | | | | | |
| O22 | S3 | Fu.C.1 | -563,53 | 0,00 | 0,00 | | | | | | |
| O23 | S4 | Fu.C.1 | -547,62 | 0,00 | 0,00 | | | | | | |
| O24 | S5 | Fu.C.1 | -545,24 | 0,00 | 0,00 | | | | | | |
| O25 | S6 | Fu.C.1 | -547,61 | 0,00 | 0,00 | | | | | | |
| O26 | S7 | Fu.C.1 | -563,56 | 0,00 | 0,00 | | | | | | |
| Globale extreme waarden | | | | | | | | | | | |
| O19 | S7 | Fu.C.1 | -578,07 | 0,00 | 0,00 | | | | | | |

AFB. FU.C. OPLEGREACTIES OMHULLENDE

Fundamenteel Belastingscombinaties

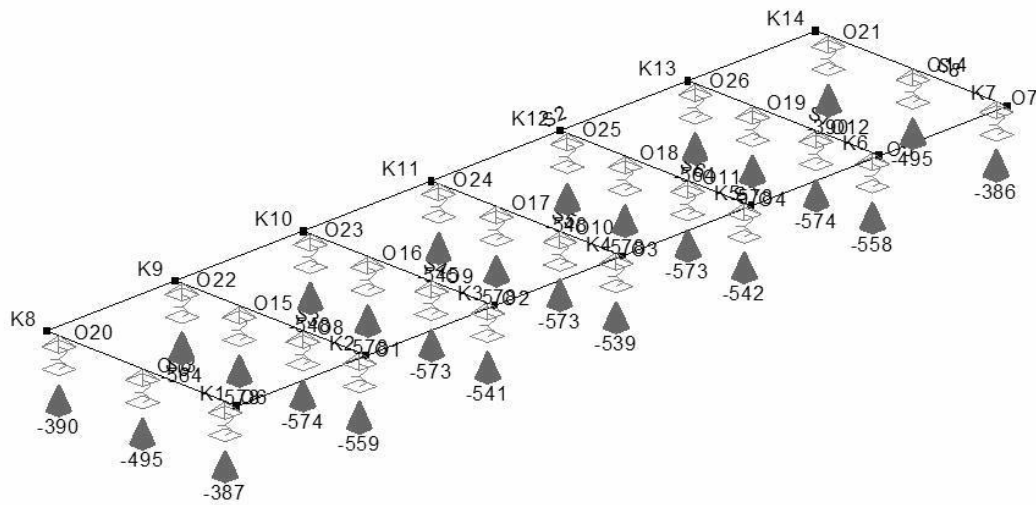
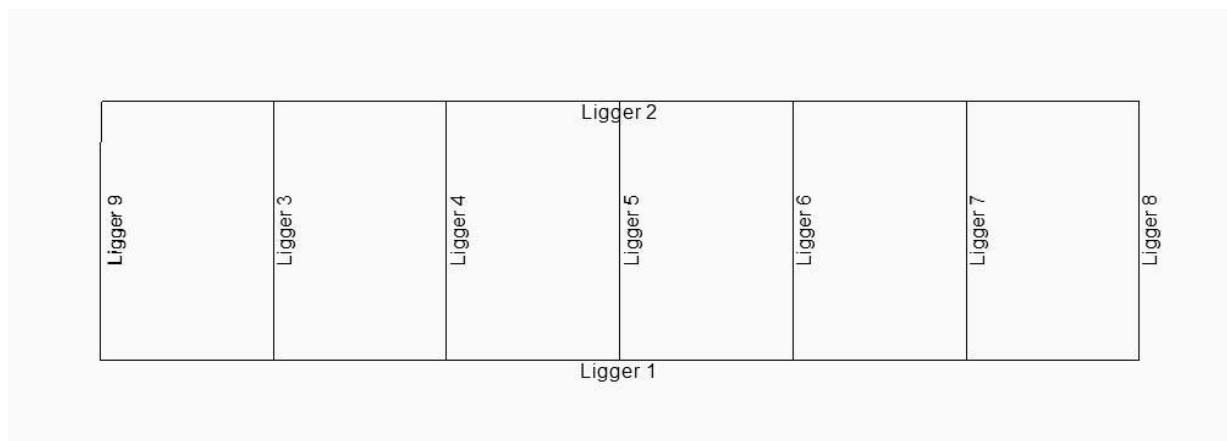


FIG. BETONDEFINITIE



BETON EIGENSCHAPPEN (NEN-EN1992-1-1:2015\NB:2016)

| Naam | Waarde | Eenheden |
|--------------------|--------|----------|
| Hoek drukdiagonaal | 21.80 | ° |

LIGGER 1

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 1 |
| Staven | S1 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 32.45 m |
| Extra begin | 0.250 m |
| Extra eind | 0.250 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 1

DEKKING
Ligger 1

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS
Ligger 1

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|----------|----------|
| 0.000 | | | | S9 | 0,500 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 5.450 | | | | S3 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 10.850 | | | | S4 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 16.250 | | | | S5 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 21.650 | | | | S6 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 27.050 | | | | S7 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 32.450 | | | | S8 | 0,500 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|-------------|-----------|
| 5.450 | 107.07 | 4R12 | 2R12 | 578 | 679 | | 88.42 | N/B | 12.0 <= 9.2 | 60 <= 139 |
| 10.850 | 106.70 | 4R12 | 2R12 | 576 | 679 | | 88.08 | N/B | 12.0 <= 9.3 | 60 <= 141 |
| 16.250 | 103.86 | 4R12 | 2R12 | 560 | 679 | | 85.74 | N/B | 12.0 <= 9.8 | 60 <= 151 |
| 21.650 | 106.80 | 4R12 | 2R12 | 577 | 679 | | 88.17 | N/B | 12.0 <= 9.3 | 60 <= 140 |
| 27.050 | 105.44 | 4R12 | 2R12 | 569 | 679 | | 87.08 | N/B | 12.0 <= 9.5 | 60 <= 145 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 2.273 | 111.05 | 4R12 | 2R12 | 601 | 679 | | -91.66 | N/B | 12.0 <= 8.6 | 60 <= 125 |
| 8.147 | 50.39 | 4R12 | | 265 | 452 | | -41.58 | N/B | 12.0 <= 19.5 | 101 <= 259 |
| 13.562 | 51.52 | 4R12 | | 271 | 452 | | -42.53 | N/B | 12.0 <= 18.6 | 101 <= 253 |
| 18.938 | 51.46 | 4R12 | | 270 | 452 | | -42.49 | N/B | 12.0 <= 18.6 | 101 <= 253 |
| 24.361 | 51.16 | 4R12 | | 269 | 452 | | -42.22 | N/B | 12.0 <= 18.9 | 101 <= 255 |
| 30.199 | 108.90 | 4R12 | 2R12 | 589 | 679 | | -89.89 | N/B | 12.0 <= 8.9 | 60 <= 133 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 1

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 27.050 | 0.16 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 1

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|-------|--------------|----------|----------|--------|--------|---------|--------|------|------|
| 0.000 | 97.72 | R8-300 | 231 | 1 | 335 | 61.677 | 141.530 | 97.720 | N/B | N/B |

| | | | | | | | | | | |
|----------|-----------|----------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|
| 5.450 | 136.81 | R8-300 | 324 | 1 | 335 | 61.677 | 141.530 | 136.808 | N/B | N/B |
| 5.450 | 116.18 | R8-300 | 275 | 0 | 335 | 61.723 | 141.530 | 116.181 | N/B | N/B |
| 10.850 | 116.22 | R8-300 | 275 | 0 | 335 | 61.723 | 141.530 | 116.223 | N/B | N/B |
| 10.850 | 116.61 | R8-300 | 276 | 0 | 335 | 61.731 | 141.530 | 116.612 | N/B | N/B |
| 16.250 | 115.59 | R8-300 | 274 | 0 | 335 | 61.731 | 141.530 | 115.585 | N/B | N/B |
| 16.250 | 115.57 | R8-300 | 274 | 0 | 335 | 61.731 | 141.530 | 115.566 | N/B | N/B |
| 21.650 | 116.63 | R8-300 | 276 | 0 | 335 | 61.731 | 141.530 | 116.632 | N/B | N/B |
| 21.650 | 116.55 | R8-300 | 276 | 0 | 335 | 61.724 | 141.530 | 116.546 | N/B | N/B |
| 27.050 | 115.86 | R8-300 | 274 | 0 | 335 | 61.724 | 141.530 | 115.861 | N/B | N/B |
| 27.050 | 135.61 | R8-300 | 321 | 1 | 335 | 61.677 | 141.530 | 135.614 | N/B | N/B |
| 32.450 | 96.77 | R8-300 | 229 | 1 | 335 | 61.677 | 141.530 | 96.768 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 32.200 | 0.120 | 32.665 | 0.000 | 2,5D | 32.880 |
| 2R12b(bijleg)(bijleg) | 4.185 | 0.000 | 2,5D | 0.569 | 4.755 | 6.177 | 0.569 | 6.746 | 0.000 | 2,5D | 2.561 |
| 2R12c(bijleg)(bijleg) | 9.557 | 0.000 | 2,5D | 0.569 | 10.126 | 11.573 | 0.569 | 12.142 | 0.000 | 2,5D | 2.585 |
| 2R12d(bijleg)(bijleg) | 14.982 | 0.000 | 2,5D | 0.569 | 15.551 | 16.949 | 0.569 | 17.518 | 0.000 | 2,5D | 2.537 |
| 2R12e(bijleg)(bijleg) | 20.357 | 0.000 | 2,5D | 0.569 | 20.926 | 22.374 | 0.569 | 22.943 | 0.000 | 2,5D | 2.587 |
| 2R12f(bijleg)(bijleg) | 25.768 | 0.000 | 2,5D | 0.569 | 26.338 | 27.735 | 0.569 | 28.304 | 0.000 | 2,5D | 2.536 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| 4R12h1(basis)(basis) | -0.215 | 0.140 | 4,0D | 0.349 | 0.000 | 32.200 | 0.346 | 32.665 | 0.000 | 2,5D | 33.020 |
| 2R12i1(bijleg) (bijleg) | 0.248 | 0.000 | 2,5D | 0.399 | 0.646 | 3.896 | 0.399 | 4.295 | 0.000 | 2,5D | 4.047 |
| 2R12j1(bijleg) (bijleg) | 28.222 | 0.000 | 2,5D | 0.399 | 28.621 | 31.778 | 0.399 | 32.177 | 0.000 | 2,5D | 3.955 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 1 |
|-----------|----------|------------|----------|----------|----------|-----------|-----------|----------|
| S9 | Rechts | 110xR8-300 | -0.275 | 32.725 | 33.000 | 137.26 | 141.53 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 1 |
|--------------------|-----------|-------------|-------------------|-----------|----------|
| V6 (27.000-32.450) | Vloer | 4,4 <= 21,8 | 14,6 <= 21,8 | 0,20 | 0,67 |
| | Handmatig | | | | |
| V5 (21.600-27.000) | Vloer | 2,3 <= 21,6 | 10,1 <= 21,6 | 0,11 | 0,47 |
| | Handmatig | | | | |
| V4 (16.200-21.600) | Vloer | 2,3 <= 21,6 | 9,6 <= 21,6 | 0,10 | 0,44 |
| | Handmatig | | | | |
| V3 (10.800-16.200) | Vloer | 2,3 <= 21,6 | 9,6 <= 21,6 | 0,11 | 0,44 |
| | Handmatig | | | | |
| V2 (5.400-10.800) | Vloer | 2,2 <= 21,6 | 10,0 <= 21,6 | 0,10 | 0,46 |
| | Handmatig | | | | |
| V1 (0.000-5.400) | Vloer | 4,5 <= 21,6 | 15,1 <= 21,6 | 0,21 | 0,70 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 2
ALGEMEEN + KRUIP
Algemene gegevens

Constr.Dl.
Staven

Ligger 2
S2

Kruipgegevens

Cement
Rel.V.(%)

S
60 %

Ligger 2

| | | | |
|-------------|-------------|-----------------|------------|
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 32.40 m | | |
| Extra begin | 0.250 m | | |
| Extra eind | 0.250 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 2

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS
Ligger 2

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|----------|----------|
| 0.000 | | | | S9 | 0,500 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 5.400 | | | | S3 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 10.800 | | | | S4 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 16.200 | | | | S5 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 21.600 | | | | S6 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 27.000 | | | | S7 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 32.400 | | | | S8 | 0,500 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 2

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|-------------|-----------|
| 5.400 | 106.30 | 4R12 | 2R12 | 574 | 679 | | 87.89 | N/B | 12.0 <= 9.3 | 60 <= 142 |
| 10.800 | 106.97 | 4R12 | 2R12 | 578 | 679 | | 88.34 | N/B | 12.0 <= 9.2 | 60 <= 140 |
| 16.200 | 103.90 | 4R12 | 2R12 | 560 | 679 | | 85.78 | N/B | 12.0 <= 9.8 | 60 <= 151 |
| 21.600 | 106.98 | 4R12 | 2R12 | 578 | 679 | | 88.34 | N/B | 12.0 <= 9.2 | 60 <= 140 |
| 27.000 | 106.30 | 4R12 | 2R12 | 574 | 679 | | 87.89 | N/B | 12.0 <= 9.3 | 60 <= 142 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 2

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 2.257 | 109.49 | 4R12 | 2R12 | 592 | 679 | | -90.47 | N/B | 12.0 <= 8.8 | 60 <= 130 |
| 8.067 | 51.85 | 4R12 | | 273 | 452 | | -42.81 | N/B | 12.0 <= 18.3 | 101 <= 251 |
| 13.512 | 51.51 | 4R12 | | 271 | 452 | | -42.54 | N/B | 12.0 <= 18.5 | 101 <= 253 |
| 18.888 | 51.51 | 4R12 | | 271 | 452 | | -42.54 | N/B | 12.0 <= 18.6 | 101 <= 253 |
| 24.333 | 51.85 | 4R12 | | 273 | 452 | | -42.81 | N/B | 12.0 <= 18.3 | 101 <= 251 |
| 30.143 | 109.48 | 4R12 | 2R12 | 592 | 679 | | -90.47 | N/B | 12.0 <= 8.8 | 60 <= 130 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 2

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.15 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 2

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 97.03 | R8-300 | 230 | 1 | 335 | 61.678 | 141.530 | 97.032 | N/B | N/B |
| 5.400 | 135.77 | R8-300 | 321 | 1 | 335 | 61.678 | 141.530 | 135.774 | N/B | N/B |
| 5.400 | 116.04 | R8-300 | 275 | 0 | 335 | 61.723 | 141.530 | 116.041 | N/B | N/B |
| 10.800 | 116.84 | R8-300 | 277 | 0 | 335 | 61.723 | 141.530 | 116.840 | N/B | N/B |
| 10.800 | 116.66 | R8-300 | 276 | 0 | 335 | 61.730 | 141.530 | 116.656 | N/B | N/B |
| 16.200 | 115.59 | R8-300 | 274 | 0 | 335 | 61.730 | 141.530 | 115.589 | N/B | N/B |
| 16.200 | 115.59 | R8-300 | 274 | 0 | 335 | 61.730 | 141.530 | 115.589 | N/B | N/B |
| 21.600 | 116.66 | R8-300 | 276 | 0 | 335 | 61.730 | 141.530 | 116.656 | N/B | N/B |
| 21.600 | 116.84 | R8-300 | 277 | 0 | 335 | 61.723 | 141.530 | 116.841 | N/B | N/B |
| 27.000 | 116.04 | R8-300 | 275 | 0 | 335 | 61.723 | 141.530 | 116.040 | N/B | N/B |
| 27.000 | 135.77 | R8-300 | 321 | 1 | 335 | 61.679 | 141.530 | 135.773 | N/B | N/B |
| 32.400 | 97.03 | R8-300 | 230 | 1 | 335 | 61.679 | 141.530 | 97.032 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 2

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------|
| 4R12g(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 32.150 | 0.120 | 32.615 | 0.000 | 2,5D | 32.830 |
| 2R12h(bijleg)(bijleg) | 4.140 | 0.000 | 2,5D | 0.569 | 4.709 | 6.119 | 0.569 | 6.689 | 0.000 | 2,5D | 2.549 |
| 2R12i(bijleg)(bijleg) | 9.506 | 0.000 | 2,5D | 0.569 | 10.075 | 11.525 | 0.569 | 12.095 | 0.000 | 2,5D | 2.589 |
| 2R12j(bijleg)(bijleg) | 14.931 | 0.000 | 2,5D | 0.569 | 15.501 | 16.899 | 0.569 | 17.469 | 0.000 | 2,5D | 2.538 |
| 2R12k(bijleg)(bijleg) | 20.305 | 0.000 | 2,5D | 0.569 | 20.875 | 22.325 | 0.569 | 22.894 | 0.000 | 2,5D | 2.589 |
| 2R12l(bijleg)(bijleg) | 25.711 | 0.000 | 2,5D | 0.569 | 26.281 | 27.691 | 0.569 | 28.260 | 0.000 | 2,5D | 2.549 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 2

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------|
| 4R12k1(basis)(basis) | -0.215 | 0.138 | 4,0D | 0.347 | 0.000 | 32.150 | 0.347 | 32.615 | 0.000 | 2,5D | 32.968 |
| 2R12l1(bijleg)(bijleg) | 0.266 | 0.000 | 2,5D | 0.399 | 0.665 | 3.848 | 0.399 | 4.247 | 0.000 | 2,5D | 3.981 |
| 2R12m1(bijleg)(bijleg) | 28.153 | 0.000 | 2,5D | 0.399 | 28.552 | 31.735 | 0.399 | 32.134 | 0.000 | 2,5D | 3.981 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 2

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|------------|--------|--------|--------|--------|--------|
| S9 | Rechts | 110xR8-300 | -0.300 | 32.700 | 33.000 | 136.21 | 141.53 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 2

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|--------------------|-----------|-------------|--------------|-------------|-----------|
| V6 (27.000-32.400) | Vloer | 4,8 <= 21,6 | 14,6 <= 21,6 | 0,22 | 0,68 |
| | Handmatig | | | | |
| V5 (21.600-27.000) | Vloer | 3,0 <= 21,6 | 10,2 <= 21,6 | 0,14 | 0,47 |
| | Handmatig | | | | |
| V4 (16.200-21.600) | Vloer | 2,9 <= 21,6 | 9,7 <= 21,6 | 0,14 | 0,45 |
| | Handmatig | | | | |
| V3 (10.800-16.200) | Vloer | 2,9 <= 21,6 | 9,7 <= 21,6 | 0,14 | 0,45 |
| | Handmatig | | | | |
| V2 (5.400-10.800) | Vloer | 3,0 <= 21,6 | 10,2 <= 21,6 | 0,14 | 0,47 |
| | Handmatig | | | | |

| | | | | | |
|------------------|-----------|-------------|--------------|------|------|
| V1 (0.000-5.400) | Vloer | 4,8 <= 21,6 | 14,6 <= 21,6 | 0,22 | 0,68 |
| m | Handmatig | mm | mm | - | - |

LIGGER 3
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 3 |
| Staven | S3 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 3
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 3
OPLEGGEDEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|--------------|-------|--------------|-----|----------|----------|----------|----------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O1 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 2.670 | O8 | paal | | | | | | | Afgetopt | Niet |
| 5.340 | O15 | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| 7.760 | O22 | paal | | | | | | | Afgetopt | Niet |
| 8.060 | | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| | | paal | | S2 | 0,400 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|-----------|
| 0.300 | 85.03 | 4R12 | 1R12 | 453 | 565 | | 70.26 | N/B | 12.0 <= 10.3 | 76 <= 161 |
| 2.670 | 129.31 | 4R12 | 3R12 | 706 | 792 | | 103.23 | N/B | 12.0 <= 9.0 | 50 <= 135 |
| 5.340 | 123.44 | 4R12 | 2R12 | 672 | 679 | | 100.51 | N/B | 12.0 <= 7.4 | 60 <= 87 |
| 7.760 | 84.66 | 4R12 | 1R12 | 451 | 565 | | 69.96 | N/B | 12.0 <= 10.3 | 76 <= 163 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|---------|------------|
| 1.454 | 77.28 | 4R12 | | 410 | 452 | | -44.08 | N/B | 12.0 <= | 101 <= 243 |

Ligger 3

| | | | | | | | | | |
|-------|-------|------|------|-----|-----|--------|-----|-----------------|------------|
| 3.966 | 99.68 | 4R12 | 1R12 | 535 | 565 | -61.39 | N/B | 16.9 12.0 <= | 76 <= 207 |
| 6.625 | 73.15 | 4R12 | | 387 | 452 | -46.13 | N/B | 12.9 12.0 <= | 101 <= 230 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | 14.8 mm | mm |

FLANKWAPENING
Ligger 3

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.01 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 3

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 252.99 | R8-150 | 586 | 0 | 670 | 61.729 | 289.468 | 252.989 | N/B | N/B |
| 0.926 | 116.97 | R8-300 | 271 | 0 | 335 | 61.729 | 144.734 | 116.966 | N/B | N/B |
| 2.044 | 143.08 | R8-300 | 331 | 0 | 335 | 61.729 | 144.734 | 143.081 | N/B | N/B |
| 3.296 | 166.00 | R8-150 | 389 | 0 | 670 | 61.729 | 286.263 | 165.997 | N/B | N/B |
| 4.714 | 165.56 | R8-150 | 388 | 0 | 670 | 61.729 | 286.263 | 165.558 | N/B | N/B |
| 5.966 | 147.25 | R8-150 | 341 | 0 | 670 | 61.729 | 289.468 | 147.251 | N/B | N/B |
| 7.134 | 121.68 | R8-300 | 282 | 0 | 335 | 61.729 | 144.734 | 121.685 | N/B | N/B |
| 8.060 | 251.81 | R8-150 | 583 | 0 | 670 | 61.729 | 289.468 | 251.815 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 3

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12m(basis)(basis) | -0.165 | 0.696 | 4,0D | 0.855 | 0.000 | 7.860 | 0.851 | 8.219 | 0.492 | 4,0D | 9.572 |
| 1R12n(bijleg)(bijleg) | -0.165 | 0.525 | 4,0D | 0.684 | 0.000 | 0.840 | 0.684 | 1.524 | 0.000 | 2,5D | 2.214 |
| 3R12o(bijleg)(bijleg) | 1.448 | 0.000 | 2,5D | 0.488 | 1.936 | 3.429 | 0.488 | 3.917 | 0.000 | 2,5D | 2.469 |
| 2R12p(bijleg)(bijleg) | 4.035 | 0.000 | 2,5D | 0.569 | 4.605 | 6.033 | 0.569 | 6.603 | 0.000 | 2,5D | 2.568 |
| 1R12q(bijleg)(bijleg) | 5.350 | 0.000 | 2,5D | 0.683 | 6.033 | 7.760 | 0.681 | 8.219 | 0.222 | 4,0D | 3.091 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 3

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12n1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.393 | 0.475 | 7.860 | 0.899 | 8.219 | 0.540 | 4,0D | 8.924 |
| 1R12o1(bijleg)(bijleg) | 2.602 | 0.000 | 2,5D | 0.478 | 3.080 | 4.853 | 0.478 | 5.331 | 0.000 | 2,5D | 2.729 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 3

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 253.02 | 289.47 |
| O1 | Rechts | 6xR8-300 | 0.505 | 2.305 | 1.800 | 143.11 | 144.73 |
| O8 | Links | 10xR8-150 | 2.305 | 3.805 | 1.500 | 166.02 | 286.26 |
| O8 | Rechts | 2xR8-300 | 3.805 | 4.405 | 0.600 | 114.89 | 143.13 |
| O15 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 165.58 | 286.26 |
| O15 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 147.28 | 289.47 |
| O15 | Rechts | 5xR8-300 | 6.205 | 7.705 | 1.500 | 121.71 | 144.73 |
| S2 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 251.84 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 3

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|--------------------|-------------|-------------|-------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| V4 (5.340-7.760) | Handmatig Vloer | 0,4 <= 9,7 | 0,3 <= 9,7 | 0,04 | 0,04 |
| V3 (2.670-5.340) | Handmatig Vloer | 1,0 <= 10,7 | 0,6 <= 10,7 | 0,09 | 0,05 |

| | | | | | |
|------------------|--------------------|------------|------------|------|------|
| V2 (0.300-2.670) | Handmatig Vloer | 0,3 <= 9,5 | 0,2 <= 9,5 | 0,03 | 0,02 |
| V1 (0.000-0.300) | Handmatig Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| m | - | mm | mm | - | - |

LIGGER 4

ALGEMEEN + KRUIP Algemene gegevens

| | |
|-------------|-------------|
| Constr.DI. | Ligger 4 |
| Staven | S4 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 4

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 4

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|--------------|-------|--------------|-----|----------|----------|----------|----------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O2 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 2.670 | O9 | paal | | | | | | | Afgetopt | Niet |
| 5.340 | O16 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 7.760 | O23 | paal | | | | | | | Afgetopt | afgetopt |
| 8.060 | | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | S2 | 0,400 | Nee | | | Niet | afgetopt |
| | | | | | | | | | afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

Ligger 4

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|-------------|------------|
| 0.300 | 79.16 | 4R12 | | 420 | 452 | | 65.41 | N/B | 12.0 <= 8.0 | 101 <= 107 |
| 2.670 | 122.58 | 4R12 | 2R12 | 667 | 679 | | 97.29 | N/B | 12.0 <= 7.8 | 60 <= 101 |
| 5.340 | 117.89 | 4R12 | 2R12 | 640 | 679 | | 95.30 | N/B | 12.0 <= 8.1 | 60 <= 109 |
| 7.760 | 79.27 | 4R12 | | 421 | 452 | | 65.37 | N/B | 12.0 <= 8.0 | 101 <= 107 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 4

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|

Ligger 4

| | | | | | | | | | |
|-------|--------|------|------|-----|-----|--------|-----|---------|------------|
| 1.457 | 82.28 | 4R12 | | 438 | 452 | -49.12 | N/B | 12.0 <= | 101 <= 211 |
| 3.967 | 105.58 | 4R12 | 2R12 | 569 | 679 | -66.87 | N/B | 13.1 | 60 <= 233 |
| 6.582 | 78.26 | 4R12 | | 415 | 452 | -50.41 | N/B | 15.4 | 101 <= 202 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 4

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.00 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 4

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 232.84 | R8-150 | 539 | 0 | 670 | 61.731 | 289.468 | 232.835 | N/B | N/B |
| 0.926 | 117.52 | R8-300 | 272 | 0 | 335 | 61.731 | 144.734 | 117.522 | N/B | N/B |
| 2.044 | 142.52 | R8-300 | 330 | 0 | 335 | 61.731 | 144.734 | 142.519 | N/B | N/B |
| 3.296 | 165.72 | R8-150 | 392 | 0 | 670 | 61.731 | 283.059 | 165.716 | N/B | N/B |
| 4.714 | 165.38 | R8-150 | 392 | 0 | 670 | 61.731 | 283.059 | 165.376 | N/B | N/B |
| 5.966 | 146.70 | R8-150 | 340 | 0 | 670 | 61.731 | 289.468 | 146.700 | N/B | N/B |
| 7.134 | 122.28 | R8-300 | 283 | 0 | 335 | 61.731 | 144.734 | 122.278 | N/B | N/B |
| 8.060 | 233.50 | R8-150 | 541 | 0 | 670 | 61.731 | 289.468 | 233.496 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 4

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12r(basis)(basis) | -0.165 | 0.637 | 4,0D | 0.796 | 0.000 | 7.860 | 0.797 | 8.219 | 0.438 | 4,0D | 9.459 |
| 2R12s(bijleg)(bijleg) | 1.410 | 0.000 | 2,5D | 0.569 | 1.980 | 6.007 | 0.569 | 6.577 | 0.000 | 2,5D | 5.166 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 4

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12p1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.417 | 0.475 | 7.860 | 0.834 | 8.219 | 0.475 | 4,0D | 8.859 |
| 2R12q1(bijleg) | 2.624 | 0.000 | 2,5D | 0.399 | 3.023 | 4.925 | 0.399 | 5.323 | 0.000 | 2,5D | 2.699 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 4

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 232.84 | 289.47 |
| O2 | Rechts | 6xR8-300 | 0.505 | 2.305 | 1.800 | 142.52 | 144.73 |
| O9 | Links | 8xR8-150 | 2.305 | 3.505 | 1.200 | 165.72 | 283.06 |
| O9 | Rechts | 3xR8-300 | 3.505 | 4.405 | 0.900 | 130.76 | 141.53 |
| O16 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 165.38 | 283.06 |
| O16 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 146.70 | 289.47 |
| O16 | Rechts | 5xR8-300 | 6.205 | 7.705 | 1.500 | 122.28 | 144.73 |
| S2 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 233.50 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 4

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------|-------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V4 (5.340-7.760) | Vloer | 0,6 <= 9,7 | 0,4 <= 9,7 | 0,06 | 0,04 |
| | Handmatig | | | | |
| V3 (2.670-5.340) | Vloer | 1,0 <= 10,7 | 0,7 <= 10,7 | 0,09 | 0,07 |
| | Handmatig | | | | |
| V2 (0.300-2.670) | Vloer | 0,5 <= 9,5 | 0,3 <= 9,5 | 0,05 | 0,03 |

| | | | | | |
|------------------|---------------------------------|------------|------------|------|------|
| V1 (0.000-0.300) | Handmatig Vloer Handmatig | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| m | - | mm | mm | - | - |

LIGGER 5
ALGEMEEN + KRUIP
Algemene gegevens
Kruipgegevens
Ligger 5

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 5 | Cement | S |
| Staven | S5 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 8.06 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 5

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENEN
Ligger 5

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|--------------|-------|--------------|-----|----------|----------|----------|----------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 0.300 | O3 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 2.670 | O10 | paal | | | | | | | | afgetopt |
| | | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 5.340 | O17 | paal | | | | | | | | afgetopt |
| | | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 7.760 | O24 | paal | | | | | | | | afgetopt |
| | | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 8.060 | | paal | | S2 | 0,400 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 5

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|-------------|------------|
| 0.300 | 78.64 | 4R12 | | 417 | 452 | | 64.98 | N/B | 12.0 <= 8.1 | 101 <= 109 |
| 2.670 | 121.79 | 4R12 | 2R12 | 662 | 679 | | 96.72 | N/B | 12.0 <= 7.9 | 60 <= 103 |
| 5.340 | 116.76 | 4R12 | 2R12 | 633 | 679 | | 94.57 | N/B | 12.0 <= 8.2 | 60 <= 113 |
| 7.760 | 78.65 | 4R12 | | 417 | 452 | | 64.99 | N/B | 12.0 <= 8.1 | 101 <= 109 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 5

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|---------|------------|
| 1.457 | 82.96 | 4R12 | | 441 | 452 | | -49.62 | N/B | 12.0 <= | 101 <= 208 |

| | | | | | | | | | |
|-------|--------|------|------|-----|-----|--------|-----|--------------|------------|
| 3.966 | 106.13 | 4R12 | 2R12 | 572 | 679 | -67.35 | N/B | 12.9 | 60 <= 231 |
| 6.582 | 78.88 | 4R12 | | 419 | 452 | -50.93 | N/B | 12.0 <= 15.0 | 101 <= 199 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | 12.4 | mm |

FLANKWAPENING
Ligger 5

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.00 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 5

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 231.15 | R8-150 | 535 | 0 | 670 | 61.732 | 289.468 | 231.151 | N/B | N/B |
| 0.926 | 117.56 | R8-300 | 272 | 0 | 335 | 61.732 | 144.734 | 117.557 | N/B | N/B |
| 2.044 | 142.44 | R8-300 | 330 | 0 | 335 | 61.732 | 144.734 | 142.437 | N/B | N/B |
| 3.296 | 165.77 | R8-150 | 393 | 0 | 670 | 61.732 | 283.059 | 165.774 | N/B | N/B |
| 4.714 | 165.51 | R8-150 | 392 | 0 | 670 | 61.732 | 283.059 | 165.511 | N/B | N/B |
| 5.966 | 146.64 | R8-150 | 340 | 0 | 670 | 61.732 | 289.468 | 146.639 | N/B | N/B |
| 7.134 | 122.31 | R8-300 | 283 | 0 | 335 | 61.732 | 144.734 | 122.313 | N/B | N/B |
| 8.060 | 231.18 | R8-150 | 535 | 0 | 670 | 61.732 | 289.468 | 231.178 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 5

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12t(basis)(basis) | -0.165 | 0.632 | 4,0D | 0.791 | 0.000 | 7.860 | 0.791 | 8.219 | 0.432 | 4,0D | 9.448 |
| 2R12u(bijleg)(bijleg) | 1.413 | 0.000 | 2,5D | 0.569 | 1.983 | 6.003 | 0.569 | 6.573 | 0.000 | 2,5D | 5.160 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 5

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12r1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.421 | 0.475 | 7.860 | 0.826 | 8.219 | 0.467 | 4,0D | 8.851 |
| 2R12s1(bijleg) | 2.610 | 0.000 | 2,5D | 0.399 | 3.009 | 4.930 | 0.399 | 5.329 | 0.000 | 2,5D | 2.719 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 5

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 231.15 | 289.47 |
| O3 | Rechts | 6xR8-300 | 0.505 | 2.305 | 1.800 | 142.44 | 144.73 |
| O10 | Links | 8xR8-150 | 2.305 | 3.505 | 1.200 | 165.77 | 283.06 |
| O10 | Rechts | 3xR8-300 | 3.505 | 4.405 | 0.900 | 133.47 | 141.53 |
| O17 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 165.51 | 283.06 |
| O17 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 146.64 | 289.47 |
| O17 | Rechts | 5xR8-300 | 6.205 | 7.705 | 1.500 | 122.31 | 144.73 |
| S2 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 231.18 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 5

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------------|-------------|-------------|-------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| V4 (5.340-7.760) | Handmatig Vloer | 0,6 <= 9,7 | 0,4 <= 9,7 | 0,06 | 0,05 |
| V3 (2.670-5.340) | Handmatig Vloer | 1,0 <= 10,7 | 0,8 <= 10,7 | 0,09 | 0,07 |
| V2 (0.300-2.670) | Handmatig Vloer | 0,5 <= 9,5 | 0,3 <= 9,5 | 0,05 | 0,04 |

| | | | | | |
|------------------|---------------------------------|------------|------------|------|------|
| V1 (0.000-0.300) | Handmatig Vloer Handmatig | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| m | - | mm | mm | - | - |

LIGGER 6
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 6 |
| Staven | S6 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 6
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 6
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 0.300 | O4 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 2.670 | O11 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 5.340 | O18 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 7.760 | O25 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 8.060 | | | | S2 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

Ligger 6
BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|-------------|------------|
| 0.300 | 79.26 | 4R12 | | 421 | 452 | | 65.49 | N/B | 12.0 <= 8.0 | 101 <= 106 |
| 2.670 | 122.69 | 4R12 | 2R12 | 667 | 679 | | 97.38 | N/B | 12.0 <= 7.8 | 60 <= 100 |
| 5.340 | 117.90 | 4R12 | 2R12 | 640 | 679 | | 95.32 | N/B | 12.0 <= 8.1 | 60 <= 109 |
| 7.760 | 79.27 | 4R12 | | 421 | 452 | | 65.37 | N/B | 12.0 <= 8.0 | 101 <= 107 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 6
ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 1.457 | 82.19 | 4R12 | | 437 | 452 | | -49.04 | N/B | 12.0 <= 13.1 | 101 <= 211 |

Ligger 6

| | | | | | | | | | |
|-------|--------|------|------|-----|-----|--------|-----|---------|------------|
| 3.967 | 105.53 | 4R12 | 2R12 | 568 | 679 | -66.82 | N/B | 12.0 <= | 60 <= 234 |
| 6.582 | 78.25 | 4R12 | | 415 | 452 | -50.40 | N/B | 15.4 | 101 <= 203 |
| | m | kNm | - | - | mm2 | mm2 | - | 12.0 <= | 101 <= 203 |
| | | | | | | | | 12.6 | |
| | | | | | | | | mm | mm |

FLANKWAPENING
Ligger 6

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.00 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 6

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 233.18 | R8-150 | 540 | 0 | 670 | 61.731 | 289.468 | 233.178 | N/B | N/B |
| 0.926 | 117.52 | R8-300 | 272 | 0 | 335 | 61.731 | 144.734 | 117.519 | N/B | N/B |
| 2.044 | 142.52 | R8-300 | 330 | 0 | 335 | 61.731 | 144.734 | 142.523 | N/B | N/B |
| 3.296 | 165.75 | R8-150 | 392 | 0 | 670 | 61.731 | 283.059 | 165.750 | N/B | N/B |
| 4.714 | 165.35 | R8-150 | 391 | 0 | 670 | 61.731 | 283.059 | 165.346 | N/B | N/B |
| 5.966 | 146.71 | R8-150 | 340 | 0 | 670 | 61.731 | 289.468 | 146.707 | N/B | N/B |
| 7.134 | 122.27 | R8-300 | 283 | 0 | 335 | 61.731 | 144.734 | 122.271 | N/B | N/B |
| 8.060 | 233.50 | R8-150 | 541 | 0 | 670 | 61.731 | 289.468 | 233.498 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 6

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12v(basis)(basis) | -0.165 | 0.638 | 4,0D | 0.797 | 0.000 | 7.860 | 0.797 | 8.219 | 0.438 | 4,0D | 9.460 |
| 2R12w(bijleg) | 1.410 | 0.000 | 2,5D | 0.569 | 1.979 | 6.007 | 0.569 | 6.577 | 0.000 | 2,5D | 5.167 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 6

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12t1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.416 | 0.475 | 7.860 | 0.834 | 8.219 | 0.475 | 4,0D | 8.859 |
| 2R12u1(bijleg) | 2.625 | 0.000 | 2,5D | 0.399 | 3.023 | 4.924 | 0.399 | 5.323 | 0.000 | 2,5D | 2.698 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 6

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 233.18 | 289.47 |
| O4 | Rechts | 6xR8-300 | 0.505 | 2.305 | 1.800 | 142.53 | 144.73 |
| O11 | Links | 8xR8-150 | 2.305 | 3.505 | 1.200 | 165.75 | 283.06 |
| O11 | Rechts | 3xR8-300 | 3.505 | 4.405 | 0.900 | 130.62 | 141.53 |
| O18 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 165.35 | 283.06 |
| O18 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 146.71 | 289.47 |
| O18 | Rechts | 5xR8-300 | 6.205 | 7.705 | 1.500 | 122.28 | 144.73 |
| S2 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 233.50 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 6

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V4 (5.340-7.760) | Vloer | 0,6 <= 9,7 | 0,4 <= 9,7 | 0,06 |
| | Handmatig | | | |
| V3 (2.670-5.340) | Vloer | 1,0 <= 10,7 | 0,7 <= 10,7 | 0,09 |
| | Handmatig | | | |
| V2 (0.300-2.670) | Vloer | 0,5 <= 9,5 | 0,3 <= 9,5 | 0,05 |
| | Handmatig | | | |

| | | | | | |
|------------------|-----------|------------|------------|------|------|
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| m | Handmatig | mm | mm | - | - |

LIGGER 7
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|------------|-------------|
| Constr.Dl. | Ligger 7 |
| Staven | S7 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |

Kruipgegevens

| | |
|-------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |

Ligger 7

| | | | |
|-------------|---------|-----------------|---------|
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 7
OPLEGGEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|--------------|--------|--------------|-----|----------|----------|----------|----------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O5 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 2.670 | O12 | paal | | | | | | | Afgetopt | Niet |
| 5.340 | O19 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 7.760 | O26 | paal | | | | | | | Afgetopt | Niet |
| 8.060 | | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | S2 | 0,400 | Nee | | | Niet | afgetopt |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|-----------|
| 0.300 | 84.57 | 4R12 | 1R12 | 450 | 565 | | 69.88 | N/B | 12.0 <= 10.3 | 76 <= 163 |
| 2.670 | 128.83 | 4R12 | 3R12 | 703 | 792 | | 102.82 | N/B | 12.0 <= 9.1 | 50 <= 136 |
| 5.340 | 123.36 | 4R12 | 2R12 | 671 | 679 | | 100.45 | N/B | 12.0 <= 7.4 | 60 <= 87 |
| 7.760 | 84.66 | 4R12 | 1R12 | 451 | 565 | | 69.97 | N/B | 12.0 <= 10.3 | 76 <= 163 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|---------|------------|
| 1.454 | 77.69 | 4R12 | | 412 | 452 | | -44.44 | N/B | 12.0 <= | 101 <= 241 |

| | | | | | | | | | |
|-------|-------|------|------|-----|-----|--------|-----|--------------|------------|
| 3.966 | 99.92 | 4R12 | 1R12 | 537 | 565 | -61.62 | N/B | 16.6 | 76 <= 206 |
| 6.625 | 73.17 | 4R12 | | 387 | 452 | -46.16 | N/B | 12.0 <= 12.8 | 101 <= 230 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 7

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.01 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 7

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 251.48 | R8-150 | 582 | 0 | 670 | 61.729 | 289.468 | 251.476 | N/B | N/B |
| 0.926 | 116.98 | R8-300 | 271 | 0 | 335 | 61.729 | 144.734 | 116.980 | N/B | N/B |
| 2.044 | 143.07 | R8-300 | 331 | 0 | 335 | 61.729 | 144.734 | 143.066 | N/B | N/B |
| 3.296 | 165.85 | R8-150 | 388 | 0 | 670 | 61.729 | 286.263 | 165.846 | N/B | N/B |
| 4.714 | 165.69 | R8-150 | 388 | 0 | 670 | 61.729 | 286.263 | 165.691 | N/B | N/B |
| 5.966 | 147.22 | R8-150 | 341 | 0 | 670 | 61.729 | 289.468 | 147.220 | N/B | N/B |
| 7.134 | 121.72 | R8-300 | 282 | 0 | 335 | 61.729 | 144.734 | 121.716 | N/B | N/B |
| 8.060 | 251.81 | R8-150 | 583 | 0 | 670 | 61.729 | 289.468 | 251.813 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 7

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12x(basis)(basis) | -0.165 | 0.691 | 4,0D | 0.850 | 0.000 | 7.860 | 0.851 | 8.219 | 0.492 | 4,0D | 9.568 |
| 1R12y(bijleg)(bijleg) | -0.165 | 0.221 | 4,0D | 0.680 | 0.300 | 1.939 | 0.683 | 2.622 | 0.000 | 2,5D | 3.009 |
| 3R12a1(bijleg)(bijleg) | 1.451 | 0.000 | 2,5D | 0.488 | 1.939 | 3.426 | 0.488 | 3.914 | 0.000 | 2,5D | 2.463 |
| 2R12b1(bijleg)(bijleg) | 4.036 | 0.000 | 2,5D | 0.569 | 4.605 | 6.033 | 0.569 | 6.602 | 0.000 | 2,5D | 2.567 |
| 1R12c1(bijleg)(bijleg) | 5.349 | 0.000 | 2,5D | 0.683 | 6.033 | 7.760 | 0.681 | 8.219 | 0.222 | 4,0D | 3.092 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 7

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12v1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.396 | 0.475 | 7.860 | 0.899 | 8.219 | 0.540 | 4,0D | 8.924 |
| 1R12w1(bijleg)(bijleg) | 2.598 | 0.000 | 2,5D | 0.478 | 3.077 | 4.855 | 0.478 | 5.333 | 0.000 | 2,5D | 2.735 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 7

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 251.50 | 289.47 |
| O5 | Rechts | 6xR8-300 | 0.505 | 2.305 | 1.800 | 143.09 | 144.73 |
| O12 | Links | 1xR8-300 | 2.305 | 2.605 | 0.300 | 143.09 | 143.13 |
| O12 | Links | 8xR8-150 | 2.605 | 3.805 | 1.200 | 165.87 | 286.26 |
| O12 | Rechts | 2xR8-300 | 3.805 | 4.405 | 0.600 | 115.62 | 143.13 |
| O19 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 165.71 | 286.26 |
| O19 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 147.24 | 289.47 |
| O19 | Rechts | 5xR8-300 | 6.205 | 7.705 | 1.500 | 121.74 | 144.73 |
| S2 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 251.83 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 7

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|----------|------------|------------|-------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |

| | | | | | |
|------------------|--------------------|-------------|-------------|------|------|
| V4 (5.340-7.760) | Handmatig Vloer | 0,4 <= 9,7 | 0,3 <= 9,7 | 0,04 | 0,04 |
| V3 (2.670-5.340) | Handmatig Vloer | 1,0 <= 10,7 | 0,6 <= 10,7 | 0,09 | 0,05 |
| V2 (0.300-2.670) | Handmatig Vloer | 0,3 <= 9,5 | 0,2 <= 9,5 | 0,03 | 0,03 |
| V1 (0.000-0.300) | Handmatig Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| m | - | mm | mm | - | - |

LIGGER 8
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|------------|-------------|
| Constr.Dl. | Ligger 8 |
| Staven | S8 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |

Kruipgegevens

| | |
|-----------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |

Ligger 8

| | | | |
|-------------|---------|-----------------|----------|
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.60 |
| Lengte | 8.06 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 8
OPLEGGEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 0.500 | O7 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.000 | O14 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 7.560 | O21 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 8.060 | | | | S2 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|--------------|------------|
| 0.500 | 64.74 | 4R12 | | 339 | 452 | | 53.52 | N/B | 12.0 <= 11.5 | 134 <= 186 |
| 4.000 | 102.12 | 4R12 | 1R12 | 543 | 565 | | 82.64 | N/B | 12.0 <= 7.8 | 100 <= 102 |
| 7.560 | 64.88 | 4R12 | | 340 | 452 | | 53.64 | N/B | 12.0 <= 11.5 | 134 <= 185 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 8

ONDERWAPENING
Ligger 8

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|-----------|
| 2.175 | 134.46 | 4R12 | 3R12 | 725 | 792 | | -100.77 | N/B | 12.0 <= 9.7 | 67 <= 150 |
| 5.855 | 141.83 | 4R12 | 3R12 | 768 | 792 | | -106.57 | N/B | 12.0 <= 8.7 | 67 <= 128 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 8

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.03 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 8

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 96.77 | R8-250 | 222 | 0 | 402 | 75.895 | 175.219 | 96.768 | N/B | N/B |
| 1.126 | 140.88 | R8-250 | 332 | 0 | 402 | 75.895 | 170.604 | 140.882 | N/B | N/B |
| 3.374 | 161.67 | R8-250 | 381 | 0 | 402 | 75.895 | 170.604 | 161.665 | N/B | N/B |
| 4.626 | 165.50 | R8-250 | 390 | 0 | 402 | 75.895 | 170.604 | 165.502 | N/B | N/B |
| 6.934 | 145.01 | R8-250 | 342 | 0 | 402 | 75.895 | 170.604 | 145.010 | N/B | N/B |
| 8.060 | 97.03 | R8-250 | 223 | 0 | 402 | 75.895 | 175.219 | 97.032 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 8

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d1(basis)(basis) | -0.165 | 0.492 | 4,0D | 0.651 | 0.000 | 7.860 | 0.652 | 8.219 | 0.293 | 4,0D | 9.169 |
| 1R12e1(bijleg) | 2.697 | 0.000 | 2,5D | 0.689 | 3.386 | 4.612 | 0.689 | 5.302 | 0.000 | 2,5D | 2.605 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 8

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12x1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.499 | 0.675 | 7.860 | 0.347 | 8.225 | 0.000 | 2,5D | 8.390 |
| 2R12y1(bijleg) | 0.398 | 0.000 | 2,5D | 0.402 | 0.800 | 7.295 | 0.402 | 7.698 | 0.000 | 2,5D | 7.299 |
| (bijleg) | | | | | | | | | | | |
| 1R12a2(bijleg) | 0.805 | 0.000 | 2,5D | 0.508 | 1.313 | 3.035 | 0.508 | 3.543 | 0.000 | 2,5D | 2.738 |
| (bijleg) | | | | | | | | | | | |
| 1R12b2(bijleg) | 4.341 | 0.000 | 2,5D | 0.508 | 4.849 | 6.860 | 0.508 | 7.368 | 0.000 | 2,5D | 3.027 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 8

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S1 | Rechts | 5xR8-250 | -0.220 | 1.030 | 1.250 | 140.95 | 175.22 |
| O7 | Rechts | 24xR8-250 | 1.030 | 7.030 | 6.000 | 165.56 | 170.60 |
| S2 | Links | 5xR8-250 | 7.030 | 8.280 | 1.250 | 145.07 | 175.22 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 8

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------|-------------|-----------|
| V4 (7.560-8.060) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V3 (4.000-7.560) | Vloer | 2,2 <= 14,2 | 3,8 <= 14,2 | 0,15 | 0,27 |
| | Handmatig | | | | |
| V2 (0.500-4.000) | Vloer | 2,0 <= 14,0 | 3,3 <= 14,0 | 0,14 | 0,23 |
| | Handmatig | | | | |
| V1 (0.000-0.500) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 9
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 9 |
| Staven | S9 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.60 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 9
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 9
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|-------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 0.500 | O6 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.000 | O13 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 7.560 | O20 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 8.060 | | | | S2 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 0.500 | 65.22 | 4R12 | | 342 | 452 | | -53.91 | N/B | 12.0 <= 11.4 | 134 <= 183 |
| 4.000 | 102.34 | 4R12 | 1R12 | 544 | 565 | | -82.83 | N/B | 12.0 <= 7.8 | 100 <= 101 |
| 7.560 | 64.90 | 4R12 | | 340 | 452 | | -53.66 | N/B | 12.0 <= 11.5 | 134 <= 185 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| 2.176 | 134.17 | 4R12 | 3R12 | 724 | 792 | | 100.49 | N/B | 12.0 <= 9.8 | 67 <= 151 |
| 5.855 | 141.72 | 4R12 | 3R12 | 767 | 792 | | 106.47 | N/B | 12.0 <= 8.7 | 67 <= 129 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.03 | 1R8 | 0 | 50 |

Ligger 9

| m | kNm | - | mm2 | mm2 | | | | | | | |
|-----------------------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-------|----------|
| BEUGELWAPENING | | | | | | | | | | | Ligger 9 |
| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | |
| 0.000 | 97.72 | R8-250 | 224 | 0 | 402 | 75.895 | 175.219 | 97.720 | N/B | N/B | |
| 1.126 | 140.95 | R8-250 | 332 | 0 | 402 | 75.895 | 170.604 | 140.950 | N/B | N/B | |
| 3.374 | 161.60 | R8-250 | 381 | 0 | 402 | 75.895 | 170.604 | 161.598 | N/B | N/B | |
| 4.626 | 165.56 | R8-250 | 390 | 0 | 402 | 75.895 | 170.604 | 165.557 | N/B | N/B | |
| 6.934 | 144.95 | R8-250 | 342 | 0 | 402 | 75.895 | 170.604 | 144.954 | N/B | N/B | |
| 8.060 | 97.03 | R8-250 | 223 | 0 | 402 | 75.895 | 175.219 | 97.032 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

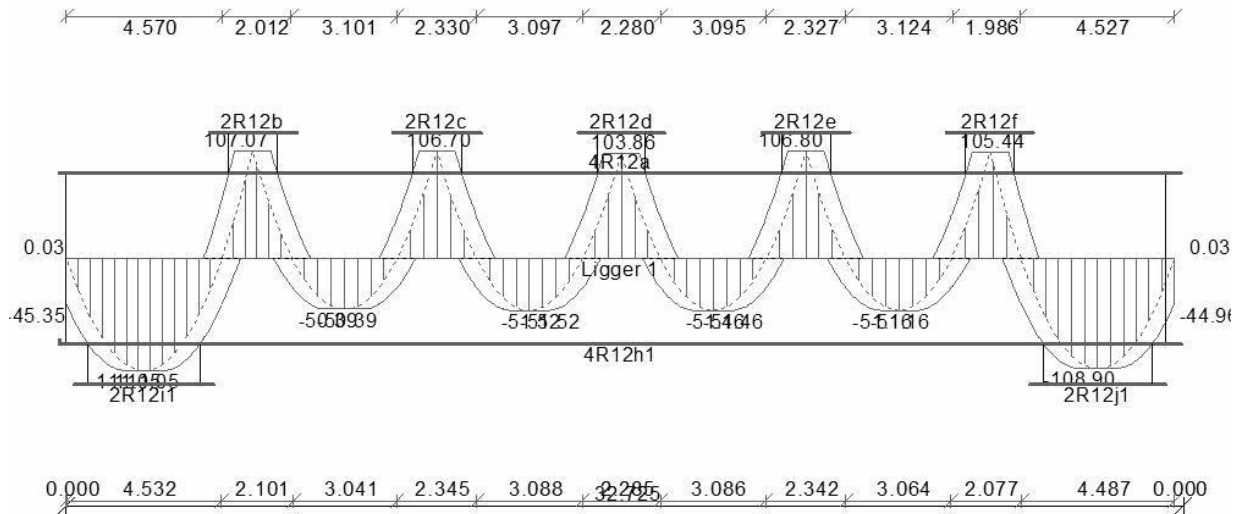
| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 9 |
|-------------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12f1(basis)(basis) | -0.165 | 0.497 | 4,0D | 0.656 | 0.000 | 7.860 | 0.653 | 8.219 | 0.294 | 4,0D | 9.175 |
| 1R12g1(bijleg) | 2.696 | 0.000 | 2,5D | 0.689 | 3.385 | 4.613 | 0.689 | 5.303 | 0.000 | 2,5D | 2.607 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 9 |
|-------------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12c2(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.497 | 0.675 | 7.860 | 0.347 | 8.225 | 0.000 | 2,5D | 8.390 |
| 2R12d2(bijleg) | 0.401 | 0.000 | 2,5D | 0.402 | 0.803 | 7.295 | 0.402 | 7.697 | 0.000 | 2,5D | 7.296 |
| (bijleg) | | | | | | | | | | | |
| 1R12e2(bijleg) | 0.811 | 0.000 | 2,5D | 0.508 | 1.319 | 3.029 | 0.508 | 3.537 | 0.000 | 2,5D | 2.726 |
| (bijleg) | | | | | | | | | | | |
| 1R12f2(bijleg) | 4.343 | 0.000 | 2,5D | 0.508 | 4.851 | 6.859 | 0.508 | 7.367 | 0.000 | 2,5D | 3.023 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

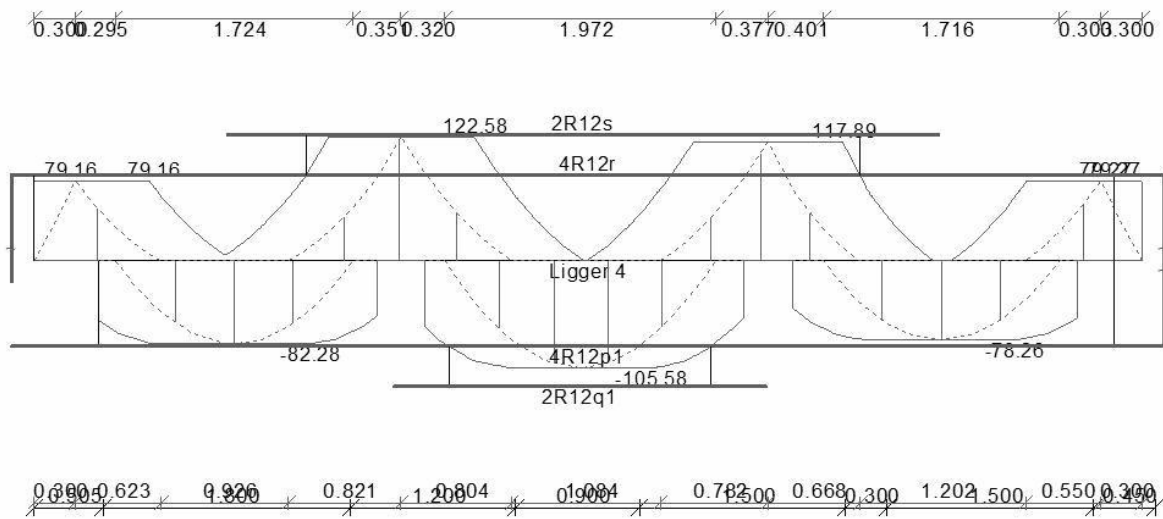
| AFBOUWEN BEUGELWAPENING | | | | | | | | | Ligger 9 |
|--------------------------------|--------|-----------|--------|-------|--------|--------|--------|--|----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | |
| S1 | Rechts | 5xR8-250 | -0.220 | 1.030 | 1.250 | 141.02 | 175.22 | | |
| O6 | Rechts | 24xR8-250 | 1.030 | 7.030 | 6.000 | 165.62 | 170.60 | | |
| S2 | Links | 5xR8-250 | 7.030 | 8.280 | 1.250 | 145.02 | 175.22 | | |
| - | - | - | m | m | m | kN | kN | | |

| TOETSING DOORBUIGING | | | | | | Ligger 9 |
|-----------------------------|-----------|-------------|-------------|-------------|-----------|----------|
| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | |
| V4 (7.560-8.060) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 | |
| | Handmatig | | | | | |
| V3 (4.000-7.560) | Vloer | 2,2 <= 14,2 | 3,7 <= 14,2 | 0,15 | 0,26 | |
| | Handmatig | | | | | |
| V2 (0.500-4.000) | Vloer | 2,0 <= 14,0 | 3,2 <= 14,0 | 0,14 | 0,23 | |
| | Handmatig | | | | | |
| V1 (0.000-0.500) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 | |
| | Handmatig | | | | | |
| m | - | mm | mm | - | - | |

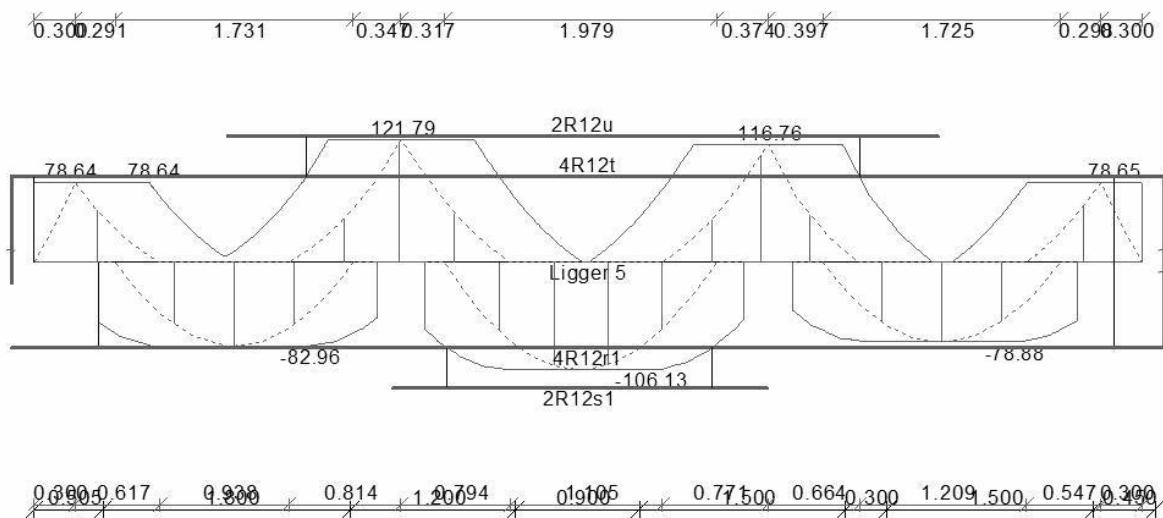
AFB. LANGSWAPENING. (AFBOUW) LIGGER 1



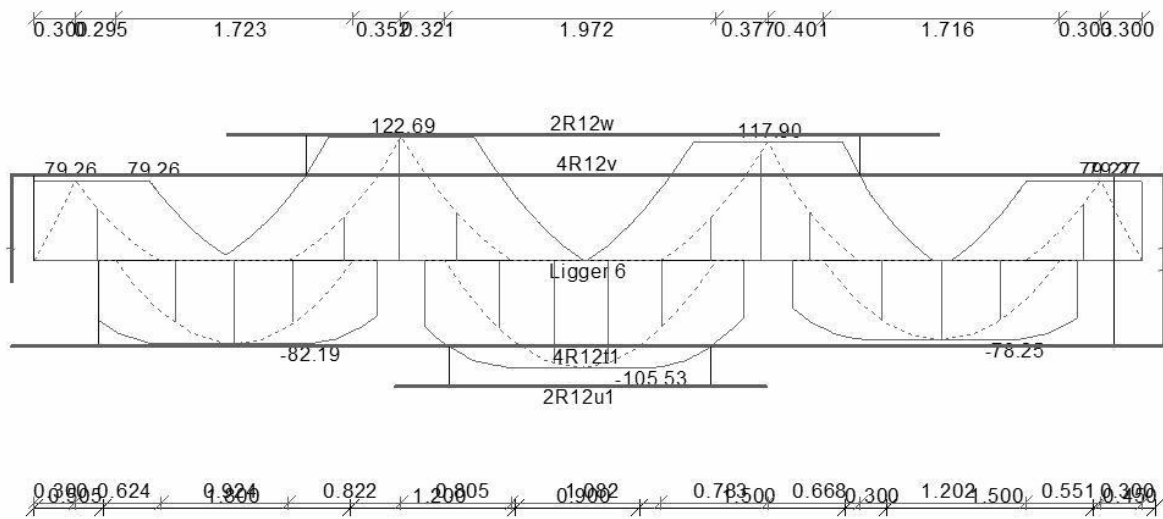
AFB. LANGSWAPENING. (AFBOUW) LIGGER 4



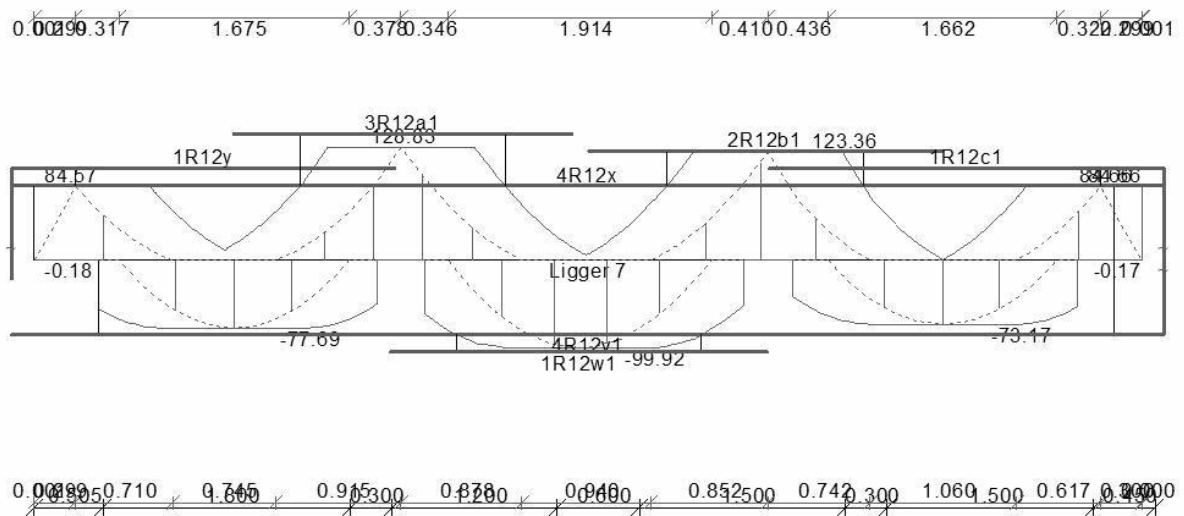
AFB. LANGSWAPENING. (AFBOUW) LIGGER 5



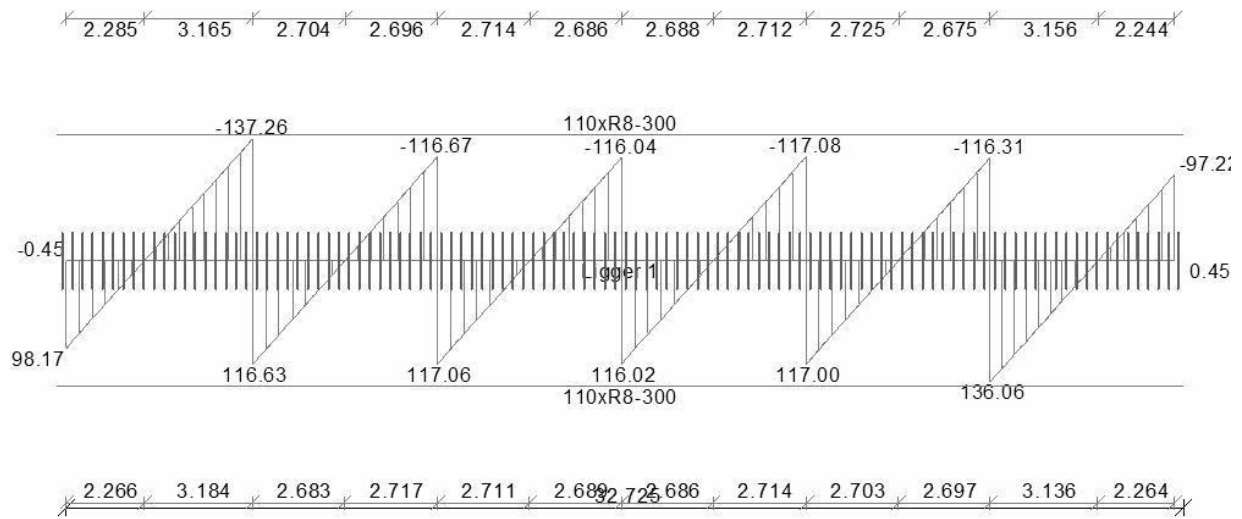
AFB. LANGSWAPENING. (AFBOUW) LIGGER 6



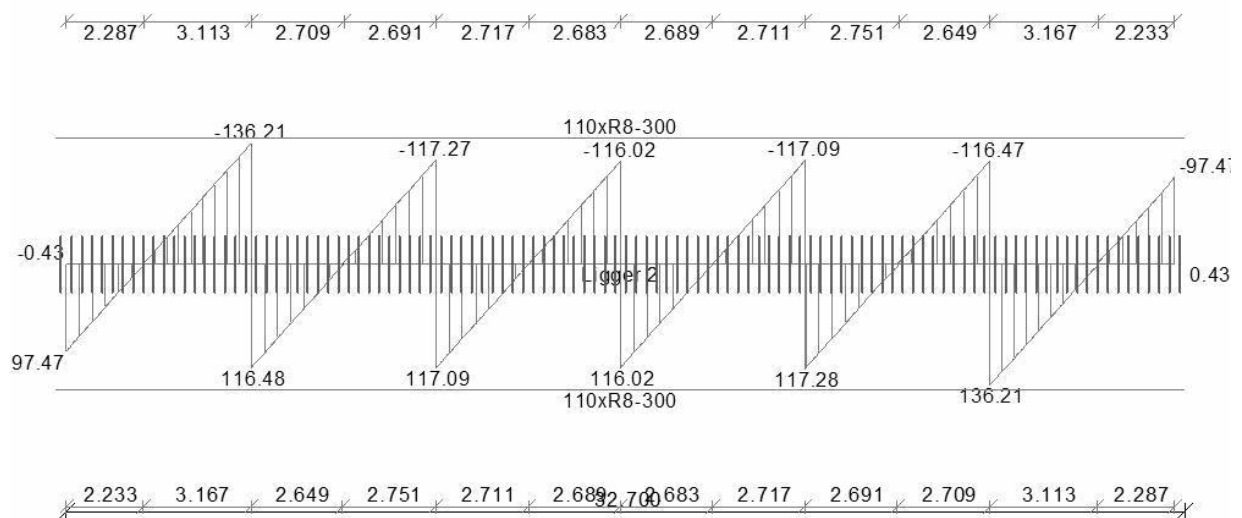
AFB. LANGSWAPENING. (AFBOUW) LIGGER 7



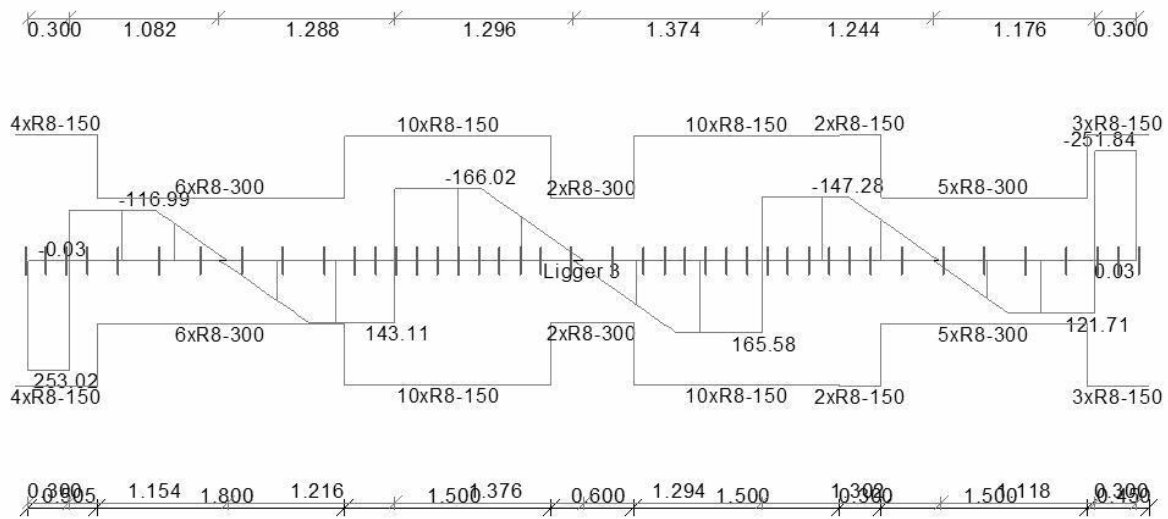
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 1



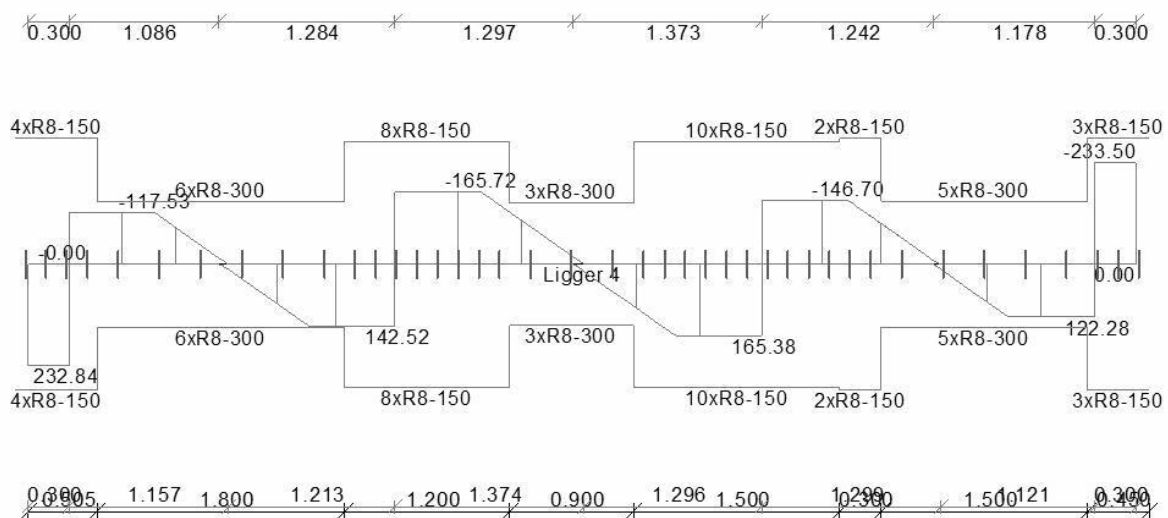
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 2



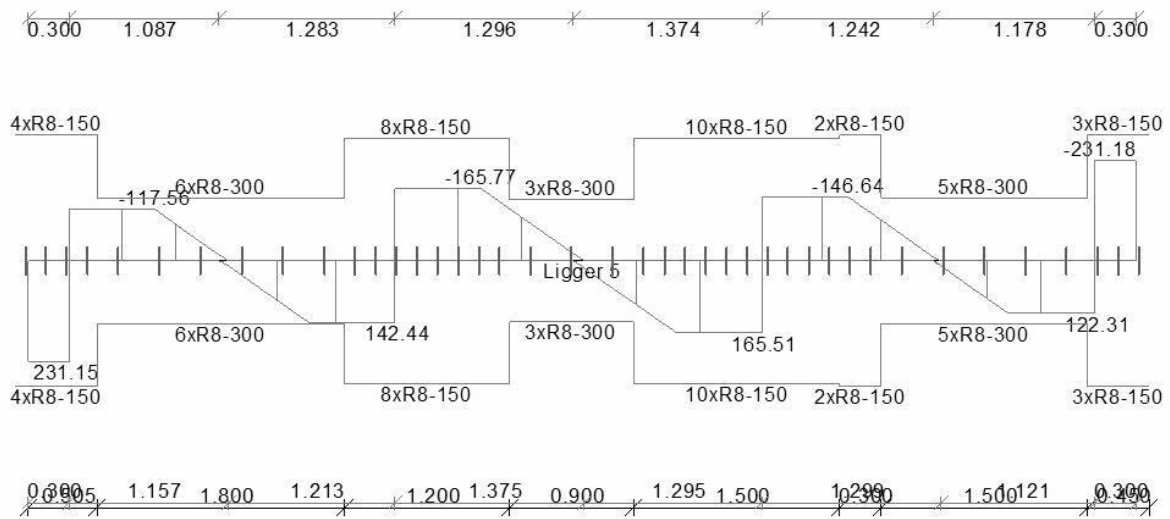
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 3



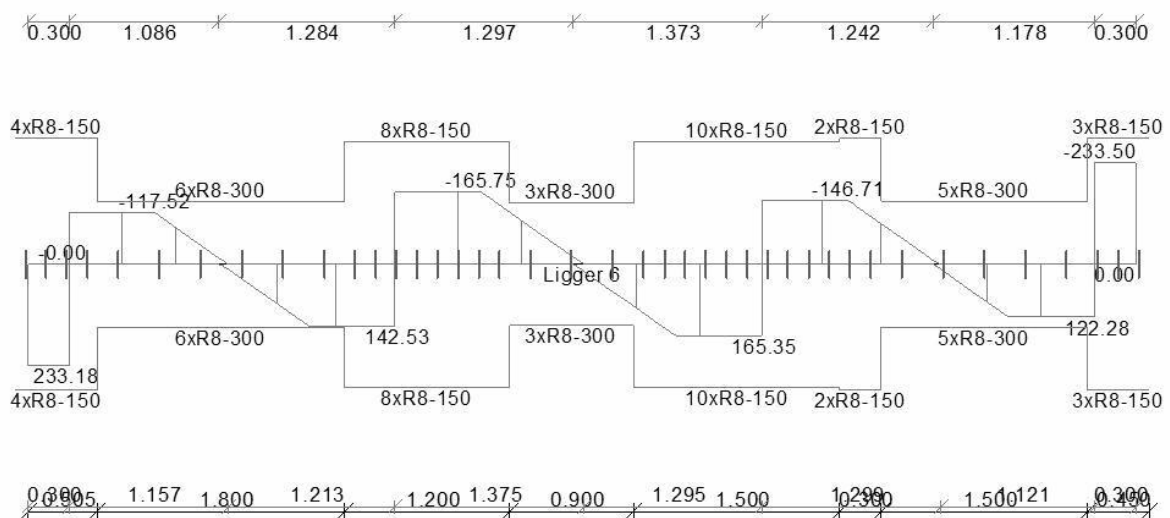
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 4



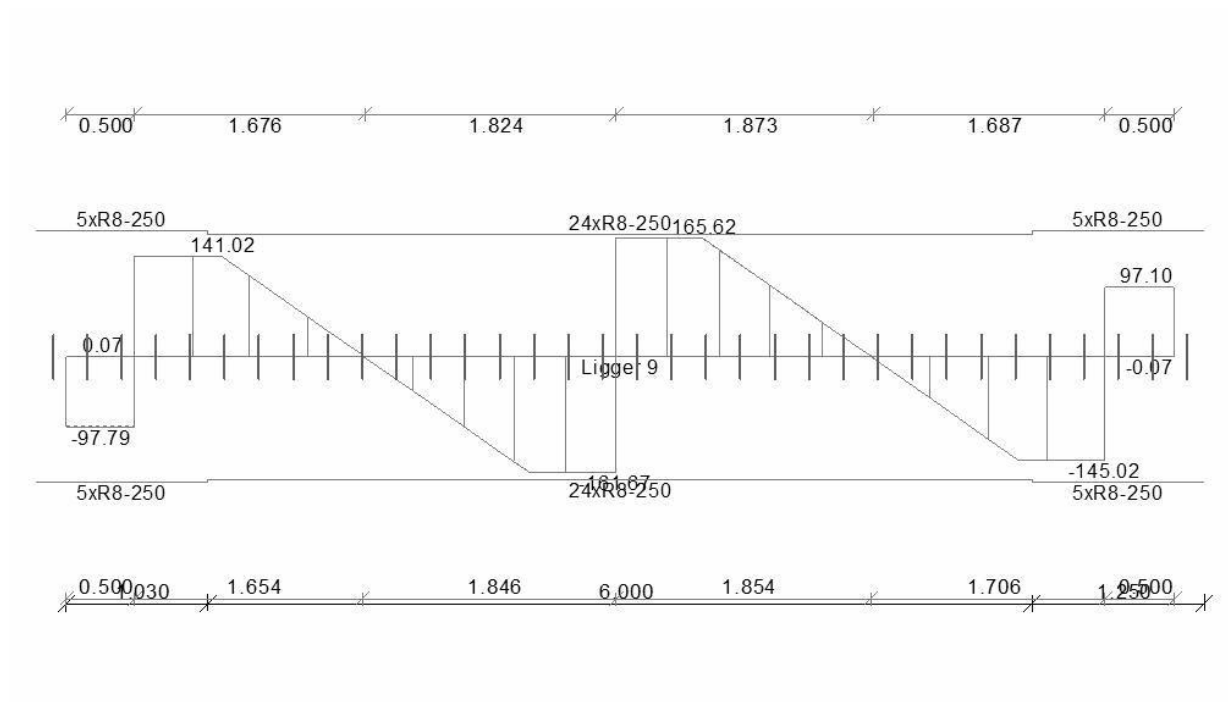
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 5



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 6



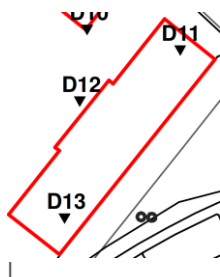
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 9



9.4 RIJWONING KAVEL 25-30

9.4.1 MAXIMALE PAALBELASTING

Peilaanname: 17.25 m +NAP
 Paalpuntniveau: 3.50 m +NAP
 Paaldiameter: 350 mm
 Draagvermogen: 679 kN
 Maximale paallast: 613 kN



9.4.2 BELASTING BALKEN

voorgevel-achtergevel hellend dak

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|-------------|--------------|--|--------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,00 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 1,00 | 6,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 0,75 | | |
| Totaal G_k | 1,09 | 3,48 | 3,48 | 2,25 | 18,00 | | 28,29 |
| Totaal Q_k | 0,28 | 1,38 | 1,38 | 1,38 | | | 4,41 |

Pd (CC1) = 36,60

voorgevel-achtergevel plat dak hoog

| | plat dak | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|-------------|--------------|--|--------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 6,95 | 4,50 | 4,00 | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 1,00 | 9,40 | | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 5,63 | 3,48 | 3,48 | 2,25 | 37,60 | | 52,43 |
| Totaal Q_k | 0,50 | 1,38 | 1,38 | 1,38 | | | 4,63 |

Pd (CC1) = 65,92

voorgevel-achtergevel plat dak laag

| | plat dak | verdieping | bg | mw | | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|--------------|--|--|--------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 4,50 | 4,00 | | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,00 | | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 6,00 | | | |
| factor | 0,50 | 0,50 | 0,50 | 1,00 | | | |
| Totaal G_k | 5,63 | 3,48 | 2,25 | 24,00 | | | 35,35 |
| Totaal Q_k | 0,50 | 1,38 | 1,38 | | | | 3,25 |

Pd (CC1) = 44,44

linkerzijgevel

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|--------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,40 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 5,20 | 5,20 | 5,20 | 9,00 | | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 2,83 | 18,07 | 18,07 | 11,70 | 39,60 | | 90,27 |
| Totaal Q_k | 0,73 | 7,15 | 7,15 | 7,15 | | | 22,18 |

Pd (CC1) = 127,44

rechterzijgevel

| | plat dak | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 6,95 | 4,50 | 4,40 | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 5,20 | 5,20 | 5,20 | 9,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 58,50 | 18,07 | 18,07 | 11,70 | 39,60 | | 145,94 |
| Totaal Q_k | 5,20 | 7,15 | 7,15 | 7,15 | | | 26,65 |

Pd (CC1) = 193,59

woningscheidende wand hellend dak

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,80 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 10,40 | 10,40 | 10,40 | 9,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 5,67 | 36,14 | 36,14 | 23,40 | 43,20 | | 144,55 |
| Totaal Q_k | 1,46 | 14,30 | 14,30 | 14,30 | | | 44,36 |

Pd (CC1) = 215,99

woningscheidende wand plat dak laag

| | kap | zolder | verdieping | bg | mw | plat dak | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--------------|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,80 | 11,25 | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | 1,00 | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | 0,00 | |
| lengte [m] | 5,20 | 5,20 | 10,40 | 10,40 | 9,00 | 5,20 | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | 0,50 | |
| Totaal G_k | 2,83 | 18,07 | 36,14 | 23,40 | 43,20 | 29,25 | 152,89 |
| Totaal Q_k | 0,73 | 7,15 | 14,30 | 14,30 | | 2,60 | 39,08 |

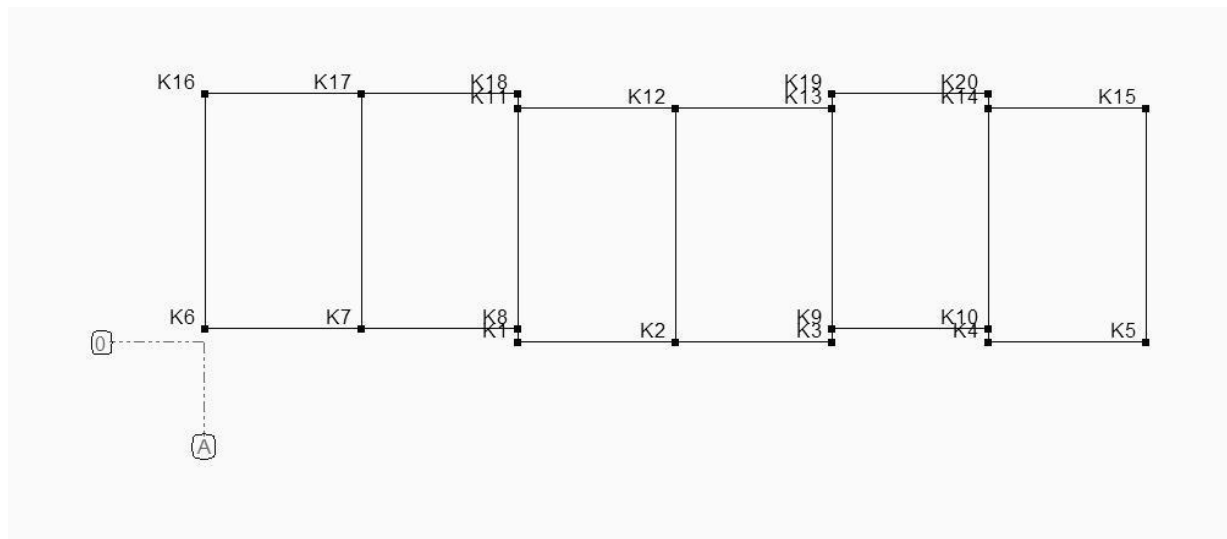
Pd (CC1) = 217,88

woningscheidende wand plat dak

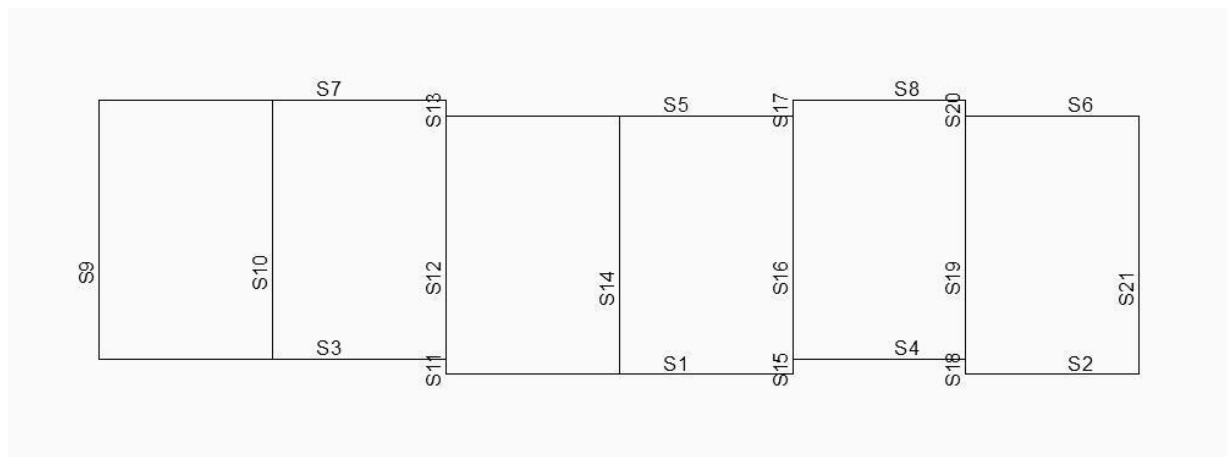
| | plat dak hoog | zolder | verdieping | bg | mw | plat dak laag | totaal Q |
|-------------------------------------|------------------|--------------|--------------|--------------|--------------|------------------|---------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 6,95 | 4,50 | 4,80 | 11,25 | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | 2,75 | | 1,00 | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | 0,00 | |
| lengte [m] | 5,20 | 5,20 | 10,40 | 10,40 | 9,00 | 5,20 | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | 0,50 | |
| Totaal G_k | 29,25 | 18,07 | 36,14 | 23,40 | 43,20 | 29,25 | 179,31 |
| Totaal Q_k | 2,60 | 7,15 | 14,30 | 14,30 | | 2,60 | 40,95 |
| Pd (CC1) = | | | | | | | 248,94 |

9.4.3 BALKENROOSTER

AFB. KNOPEN



AFB. STAVEN

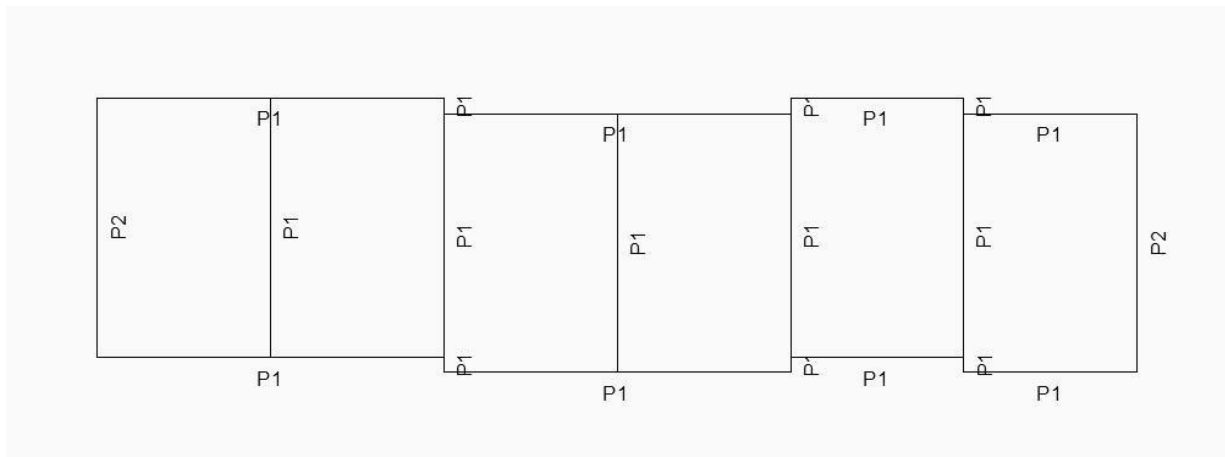


STAVEN

| Staaf | Knoop B | Knoop E | X-B | Y-B | X-E | Y-E | Lengte Profiel | Positie |
|-------|---------|---------|-------|-------|-------|-------|----------------|-----------------|
| S1 | K3 | K1 | 21,65 | 0,00 | 10,85 | 0,00 | 10,80 P1 | 0,00 - L(10,80) |
| S2 | K5 | K4 | 32,45 | 0,00 | 27,05 | 0,00 | 5,40 P1 | 0,00 - L(5,40) |
| S3 | K8 | K6 | 10,85 | -0,50 | 0,05 | -0,50 | 10,80 P1 | 0,00 - L(10,80) |
| S4 | K10 | K9 | 27,05 | -0,50 | 21,65 | -0,50 | 5,40 P1 | 0,00 - L(5,40) |
| S5 | K13 | K11 | 21,65 | -8,06 | 10,85 | -8,06 | 10,80 P1 | 0,00 - L(10,80) |
| S6 | K15 | K14 | 32,45 | -8,06 | 27,05 | -8,06 | 5,40 P1 | 0,00 - L(5,40) |

| | | | | | | | | |
|-----|-----|-----|-------|-------|-------|-------|----------|-----------------|
| S7 | K18 | K16 | 10,85 | -8,56 | 0,05 | -8,56 | 10,80 P1 | 0,00 - L(10,80) |
| S8 | K20 | K19 | 27,05 | -8,56 | 21,65 | -8,56 | 5,40 P1 | 0,00 - L(5,40) |
| S9 | K6 | K16 | 0,05 | -0,50 | 0,05 | -8,56 | 8,06 P2 | 0,00 - L(8,06) |
| S10 | K7 | K17 | 5,45 | -0,50 | 5,45 | -8,56 | 8,06 P1 | 0,00 - L(8,06) |
| S11 | K1 | K8 | 10,85 | 0,00 | 10,85 | -0,50 | 0,50 P1 | 0,00 - L(0,50) |
| S12 | K8 | K11 | 10,85 | -0,50 | 10,85 | -8,06 | 7,56 P1 | 0,00 - L(7,56) |
| S13 | K11 | K18 | 10,85 | -8,06 | 10,85 | -8,56 | 0,50 P1 | 0,00 - L(0,50) |
| S14 | K2 | K12 | 16,25 | 0,00 | 16,25 | -8,06 | 8,06 P1 | 0,00 - L(8,06) |
| S15 | K3 | K9 | 21,65 | 0,00 | 21,65 | -0,50 | 0,50 P1 | 0,00 - L(0,50) |
| S16 | K9 | K13 | 21,65 | -0,50 | 21,65 | -8,06 | 7,56 P1 | 0,00 - L(7,56) |
| S17 | K13 | K19 | 21,65 | -8,06 | 21,65 | -8,56 | 0,50 P1 | 0,00 - L(0,50) |
| S18 | K4 | K10 | 27,05 | 0,00 | 27,05 | -0,50 | 0,50 P1 | 0,00 - L(0,50) |
| S19 | K10 | K14 | 27,05 | -0,50 | 27,05 | -8,06 | 7,56 P1 | 0,00 - L(7,56) |
| S20 | K14 | K20 | 27,05 | -8,06 | 27,05 | -8,56 | 0,50 P1 | 0,00 - L(0,50) |
| S21 | K5 | K15 | 32,45 | 0,00 | 32,45 | -8,06 | 8,06 P2 | 0,00 - L(8,06) |

AFB. PROFIELEN



PROFIELEN

| Profiel | Profielnaam | It | ly Materiaal | Hoek |
|---------|-------------|------------|-------------------|------|
| P1 | R400x500 | 5.4742e-03 | 4.1667e-03 C20/25 | 0,0 |
| P2 | R500x500 | 8.8021e-03 | 5.2083e-03 C20/25 | 0,0 |

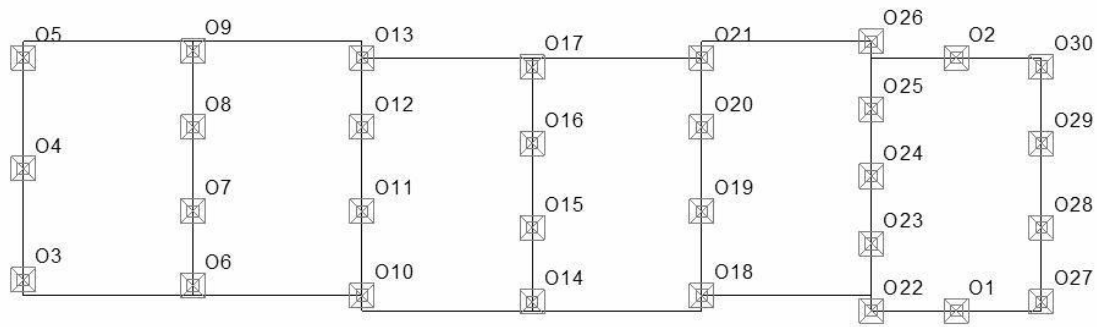
PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,400 | 0,000 | 0,000 Nee | 0,000 |
| P2 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,500 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaalnaam | Poison | Dichtheid | E-Modulus | Uitzettingcoeff |
|---------------|--------|-----------|------------|-----------------|
| C20/25 | 0.20 | 25.00 | 1.0000e+07 | 10.0000e-06 |

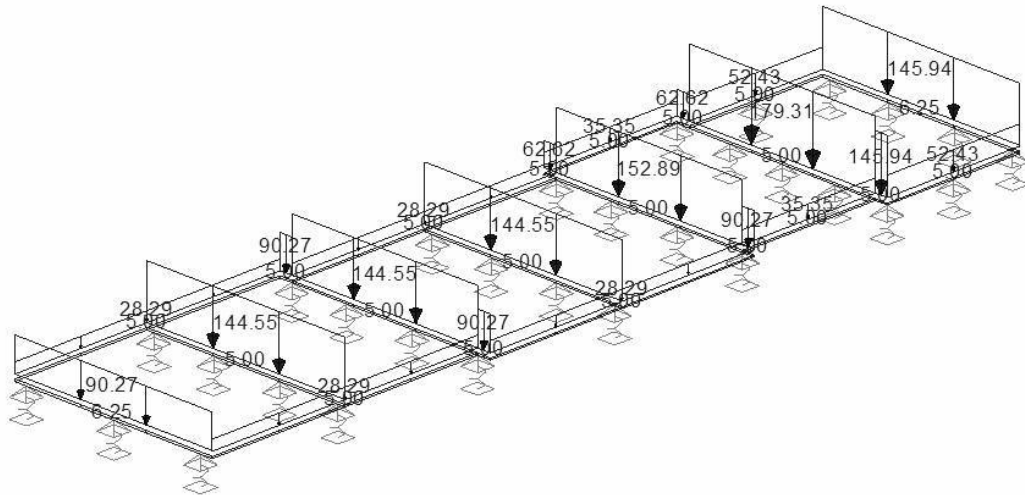
AFB. OPLEGGING EN AANSLUITINGEN



OPLEGGINGEN

| Oplegging | Staaf | Positie | Z | Xr | Yr |
|-----------|-------|---------|----------|------|------|
| O1 | S2 | 2,70 | 18000.00 | Vrij | Vrij |
| O2 | S6 | 2,70 | 18000.00 | Vrij | Vrij |
| O3 | S9 | 0,50 | 18000.00 | Vrij | Vrij |
| O4 | S9 | H(4,03) | 18000.00 | Vrij | Vrij |
| O5 | S9 | 7,56 | 18000.00 | Vrij | Vrij |
| O6 | S10 | 0,30 | 18000.00 | Vrij | Vrij |
| O7 | S10 | 2,67 | 18000.00 | Vrij | Vrij |
| O8 | S10 | 5,34 | 18000.00 | Vrij | Vrij |
| O9 | S10 | 7,76 | 18000.00 | Vrij | Vrij |
| O10 | S11 | 0,50 | 18000.00 | Vrij | Vrij |
| O11 | S12 | 2,67 | 18000.00 | Vrij | Vrij |
| O12 | S12 | 5,34 | 18000.00 | Vrij | Vrij |
| | | | | | |
| Oplegging | Staaf | Positie | Z | Xr | Yr |
| O13 | S12 | 7,56 | 18000.00 | Vrij | Vrij |
| O14 | S14 | 0,30 | 18000.00 | Vrij | Vrij |
| O15 | S14 | 2,67 | 18000.00 | Vrij | Vrij |
| O16 | S14 | 5,34 | 18000.00 | Vrij | Vrij |
| O17 | S14 | 7,76 | 18000.00 | Vrij | Vrij |
| O18 | S15 | 0,50 | 18000.00 | Vrij | Vrij |
| O19 | S16 | 2,67 | 18000.00 | Vrij | Vrij |
| O20 | S16 | 5,34 | 18000.00 | Vrij | Vrij |
| O21 | S16 | 7,56 | 18000.00 | Vrij | Vrij |
| O22 | S18 | 0,00 | 18000.00 | Vrij | Vrij |
| O23 | S19 | 1,64 | 18000.00 | Vrij | Vrij |
| O24 | S19 | 3,78 | 18000.00 | Vrij | Vrij |
| O25 | S19 | 5,92 | 18000.00 | Vrij | Vrij |
| O26 | S20 | L(0,50) | 18000.00 | Vrij | Vrij |
| O27 | S21 | 0,30 | 18000.00 | Vrij | Vrij |
| O28 | S21 | 2,67 | 18000.00 | Vrij | Vrij |
| O29 | S21 | 5,34 | 18000.00 | Vrij | Vrij |
| O30 | S21 | 7,76 | 18000.00 | Vrij | Vrij |

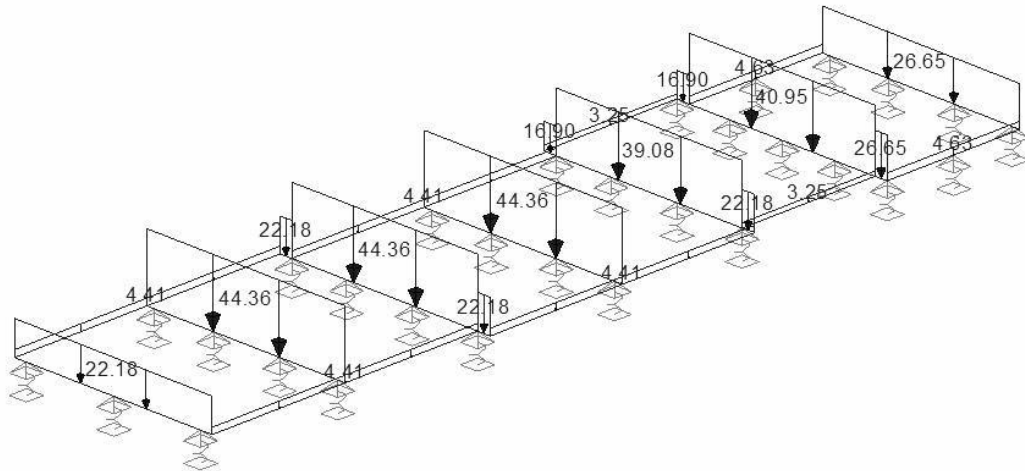
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------------|-------------|------------|--------------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z S1-S21 |
| q | 28,29 | 28,29 | 0,00 | 10,80(L) | Z S1,S3,S5,S7 |
| q | 52,43 | 52,43 | 0,00 | 5,40(L) | Z S2,S6 |
| q | 35,35 | 35,35 | 0,00 | 5,40(L) | Z S4,S8 |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z S9,S11,S13,S15 |
| q | 145,94 | 145,94 | 0,00 | 8,06(L) | Z S18,S21 |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z S10,S12,S14 |
| q | 152,89 | 152,89 | 0,00 | 7,56(L) | Z S16 |
| q | 179,31 | 179,31 | 0,00 | 7,56(L) | Z S19 |
| q | 62,62 | 62,62 | 0,00 | 0,50(L) | Z S17,S20 |
| Som lasten | X: 0,00 | | kN Z: 10.913,13 kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

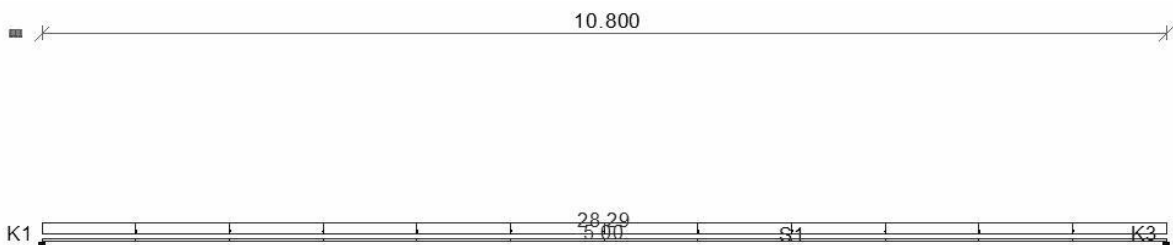
| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 4,41 | 4,41 | 0,00 | 10,80(L) | Z S1,S3,S5,S7 |
| q | 4,63 | 4,63 | 0,00 | 5,40(L) | Z S2,S6 |
| q | 3,25 | 3,25 | 0,00 | 5,40(L) | Z S4,S8 |
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z S9,S11,S13,S15 |
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z S18,S21 |
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z S10,S12,S14 |
| q | 39,08 | 39,08 | 0,00 | 7,56(L) | Z S16 |
| q | 40,95 | 40,95 | 0,00 | 7,56(L) | Z S19 |
| q | 16,90 | 16,90 | 0,00 | 0,50(L) | Z S17,S20 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G.1: PERMANENT (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 10,80(L) | Z |

B.G.1: PERMANENT (S1)

Staaf S1

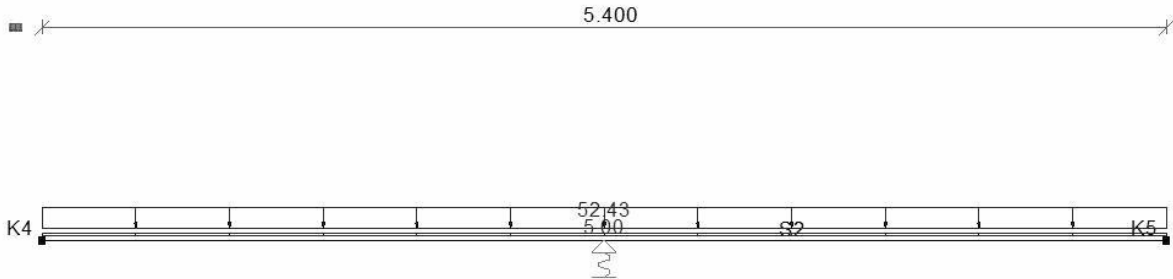


B.G.1: PERMANENT (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S2 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 52,43 | 52,43 | 0,00 | 5,40(L) | Z |

B.G.1: PERMANENT (S2)

Staaf S2

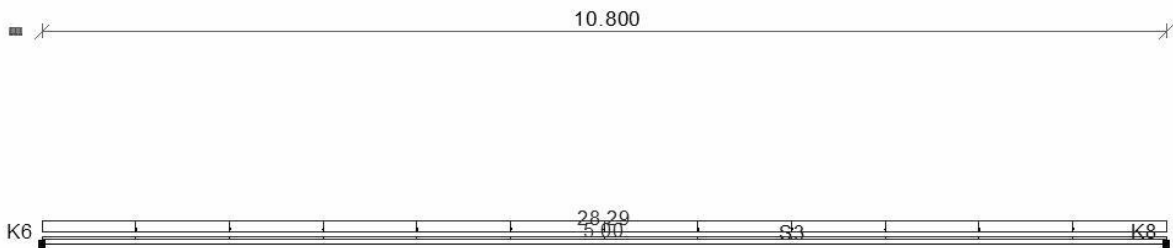


B.G.1: PERMANENT (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 10,80(L) | Z |

B.G.1: PERMANENT (S3)

Staaf S3

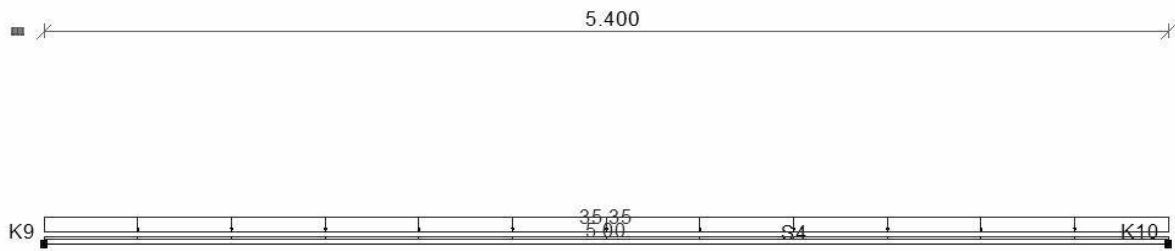


B.G.1: PERMANENT (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 35,35 | 35,35 | 0,00 | 5,40(L) | Z |

B.G.1: PERMANENT (S4)

Staaf S4

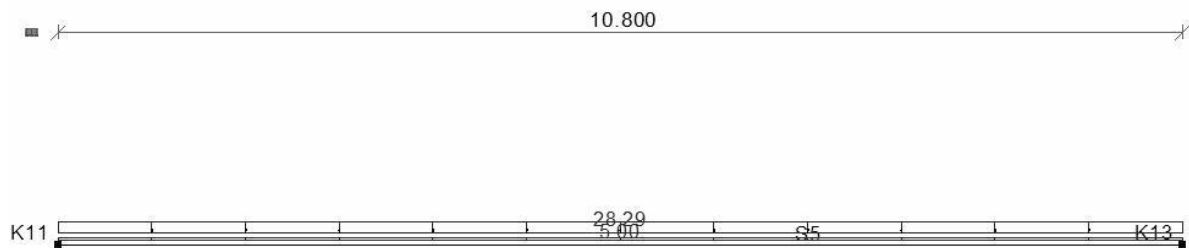


B.G.1: PERMANENT (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 10,80(L) | Z |

B.G.1: PERMANENT (S5)

Staaf S5

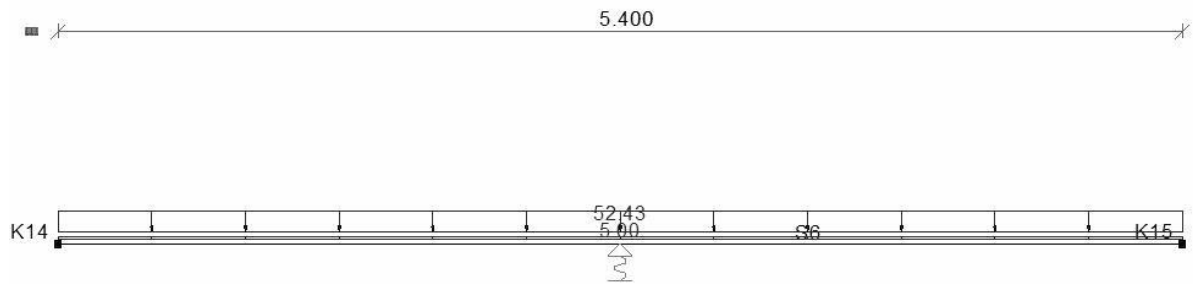


B.G.1: PERMANENT (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 52,43 | 52,43 | 0,00 | 5,40(L) | Z |

B.G.1: PERMANENT (S6)

Staaf S6

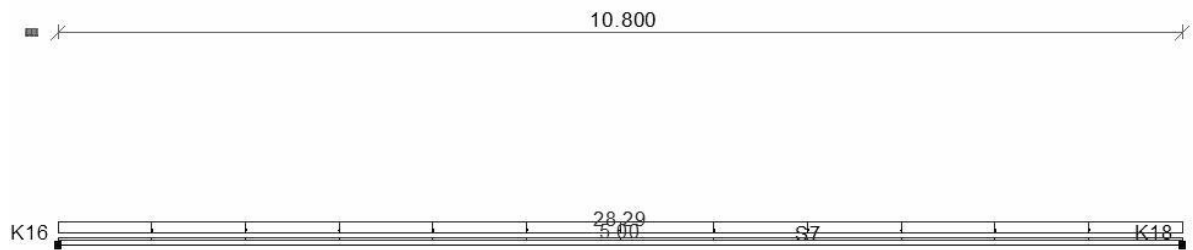


B.G.1: PERMANENT (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 10,80(L) | Z |

B.G.1: PERMANENT (S7)

Staaf S7

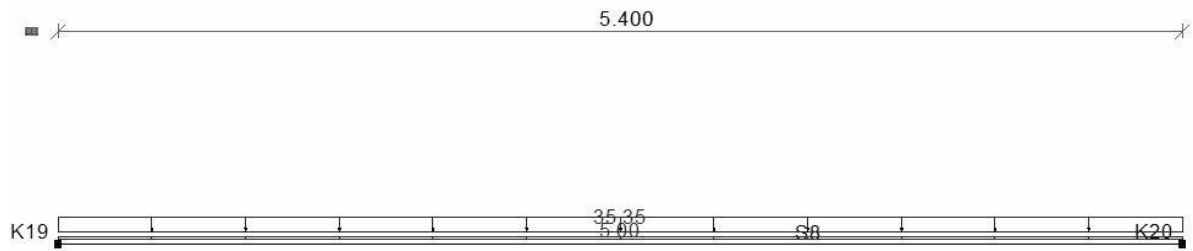


B.G.1: PERMANENT (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 35,35 | 35,35 | 0,00 | 5,40(L) | Z |

B.G.1: PERMANENT (S8)

Staaf S8

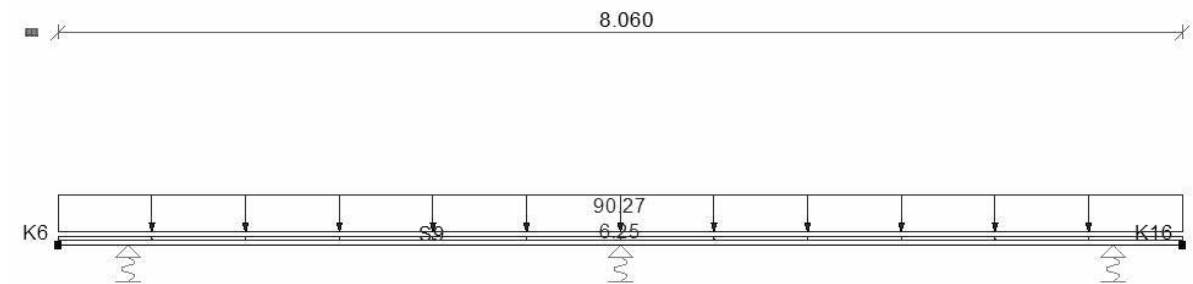


B.G.1: PERMANENT (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S9)

Staaf S9

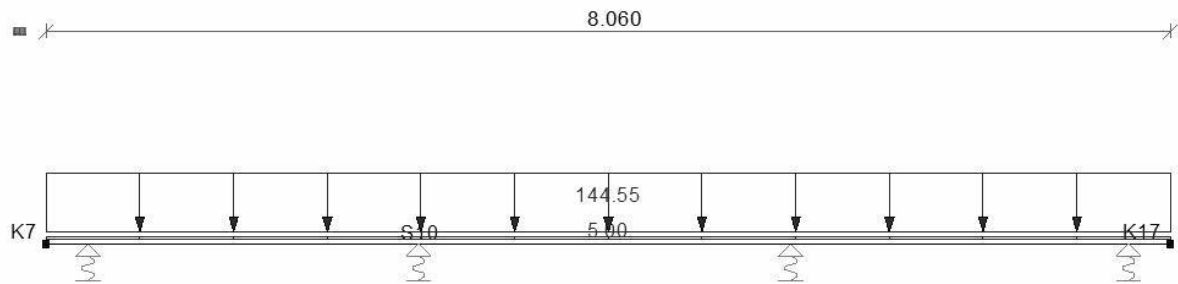


B.G.1: PERMANENT (S10)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S10 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S10)

Staaf S10

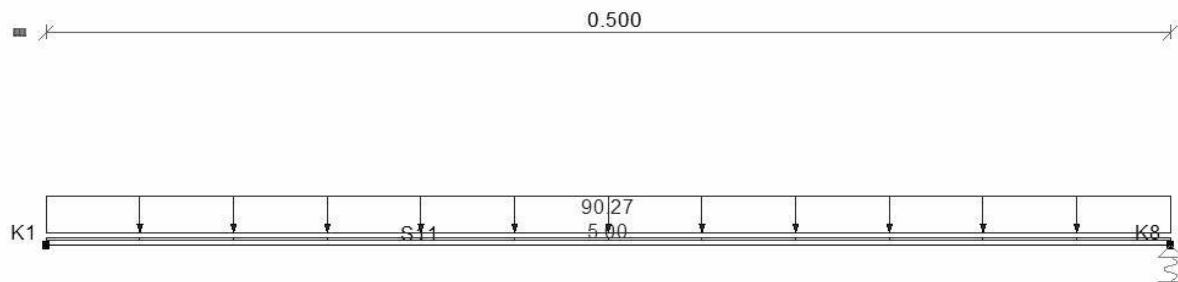


B.G.1: PERMANENT (S11)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S11 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S11)

Staaf S11

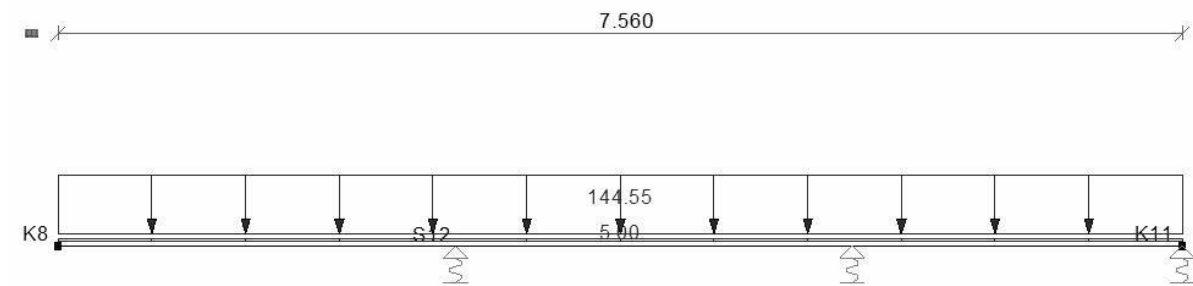


B.G.1: PERMANENT (S12)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S12 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S12)

Staaf S12

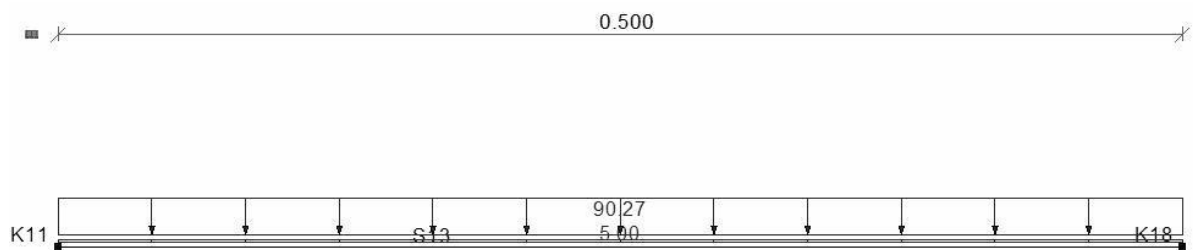


B.G.1: PERMANENT (S13)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S13 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S13)

Staaf S13

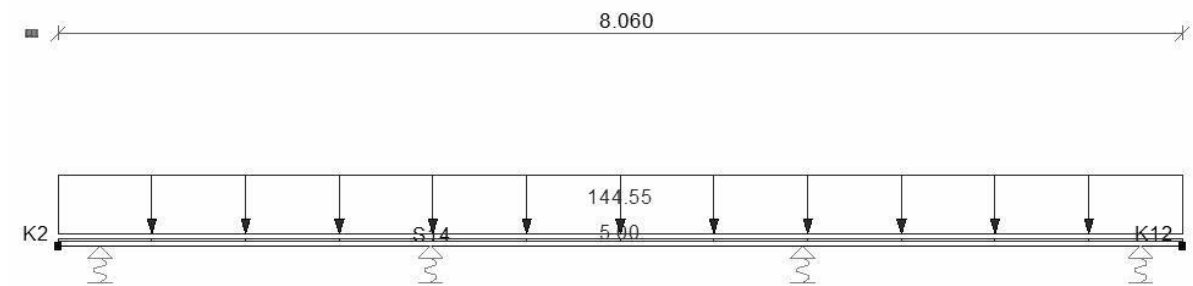


B.G.1: PERMANENT (S14)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S14 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S14)

Staaf S14

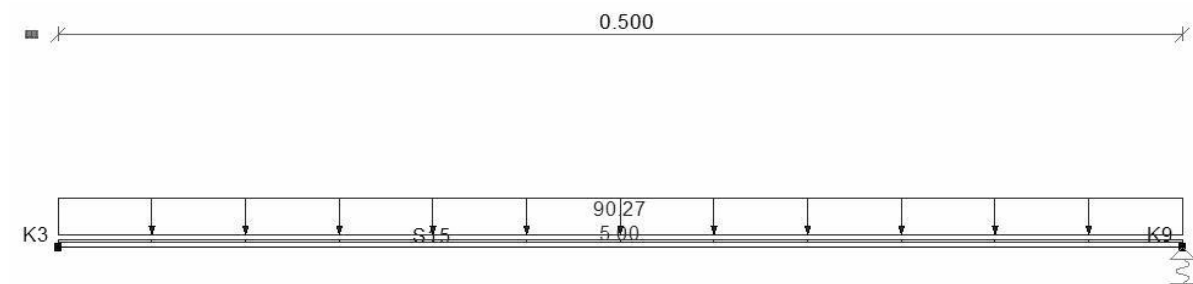


B.G.1: PERMANENT (S15)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S15 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S15)

Staaf S15

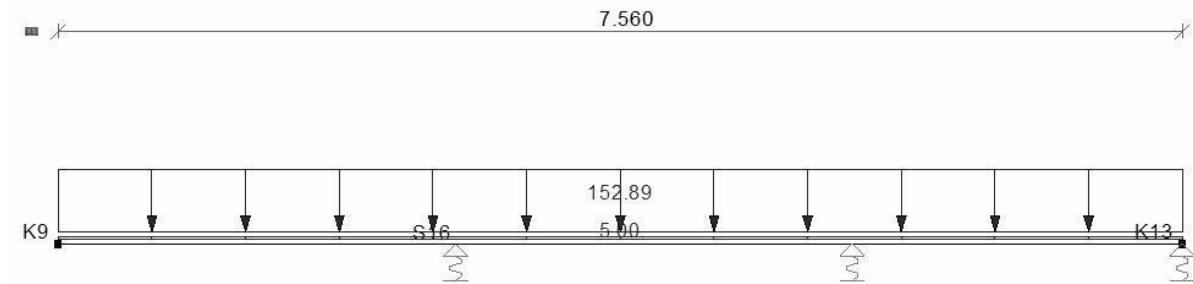


B.G.1: PERMANENT (S16)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S16 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 152,89 | 152,89 | 0,00 | 7,56(L) | Z |

B.G.1: PERMANENT (S16)

Staaf S16

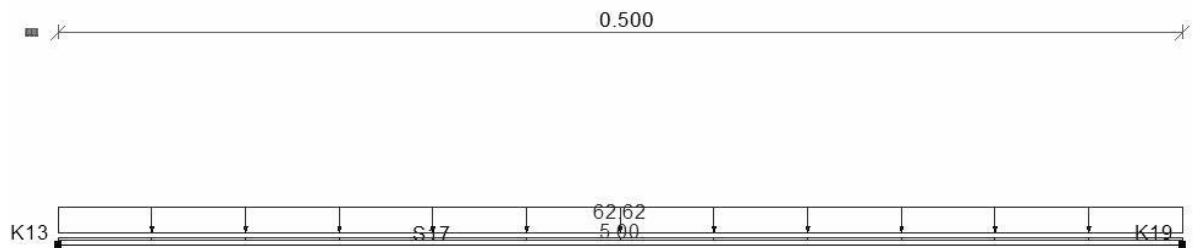


B.G.1: PERMANENT (S17)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S17 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 62,62 | 62,62 | 0,00 | 0,50(L) | Z |

B.G.1: PERMANENT (S17)

Staaf S17

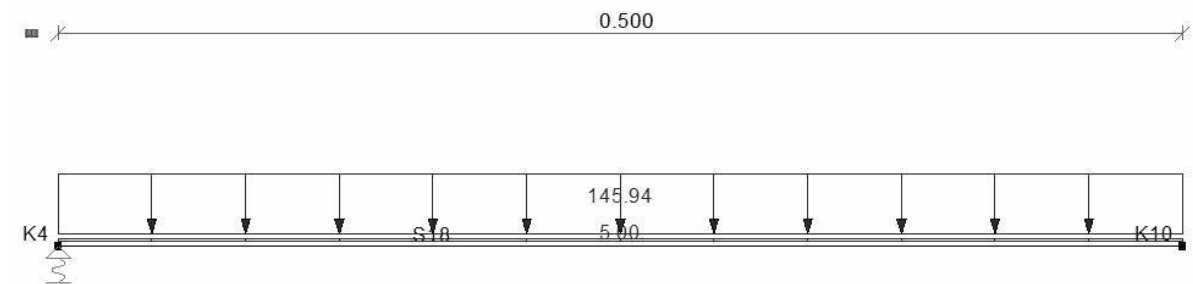


B.G.1: PERMANENT (S18)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S18 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 145,94 | 145,94 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S18)

Staaf S18

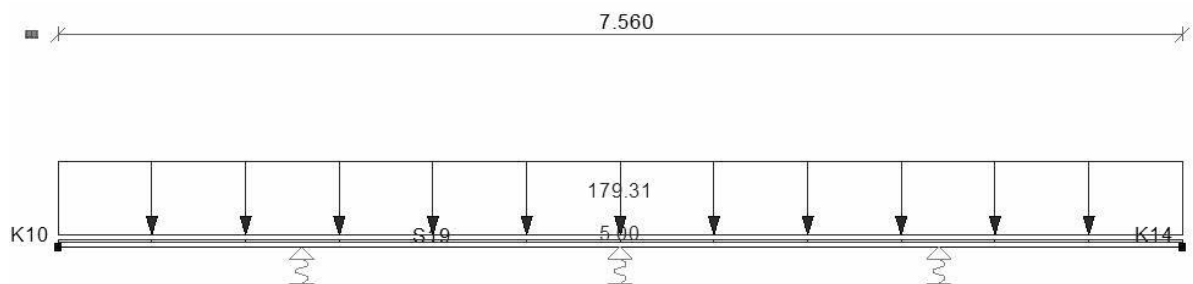


B.G.1: PERMANENT (S19)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S19 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 179,31 | 179,31 | 0,00 | 7,56(L) | Z |

B.G.1: PERMANENT (S19)

Staaf S19

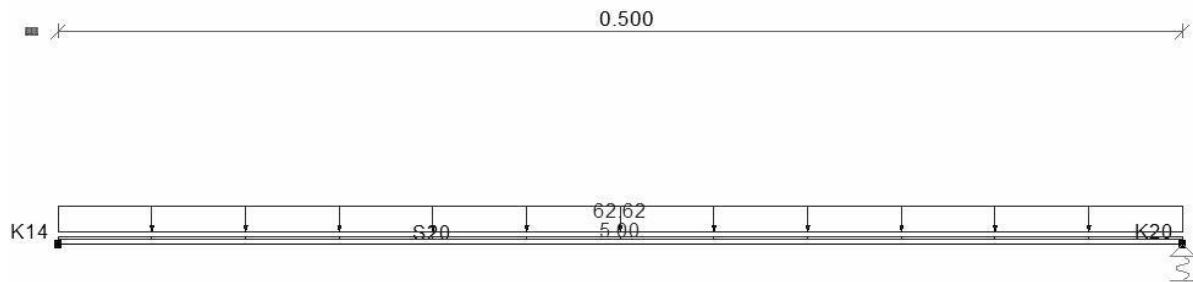


B.G.1: PERMANENT (S20)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S20 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 62,62 | 62,62 | 0,00 | 0,50(L) | Z |

B.G.1: PERMANENT (S20)

Staaf S20



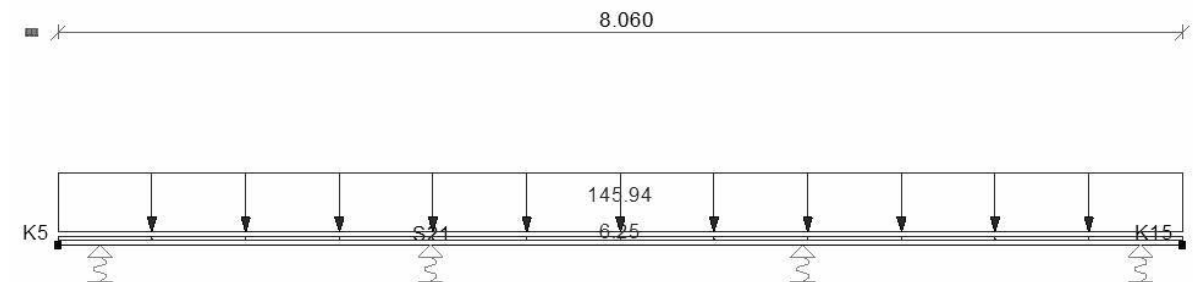
B.G.1: PERMANENT (S21)

Staaf S21

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 10,80(L) | Z |
| q | 145,94 | 145,94 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S21)

Staaf S21



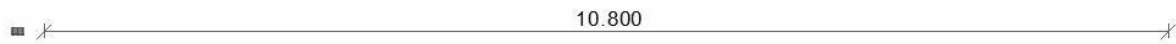
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 4,41 | 4,41 | 0,00 | 10,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1

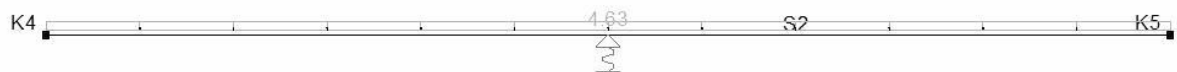
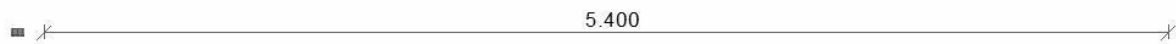


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S2 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,63 | 4,63 | 0,00 | 5,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

Staaf S2

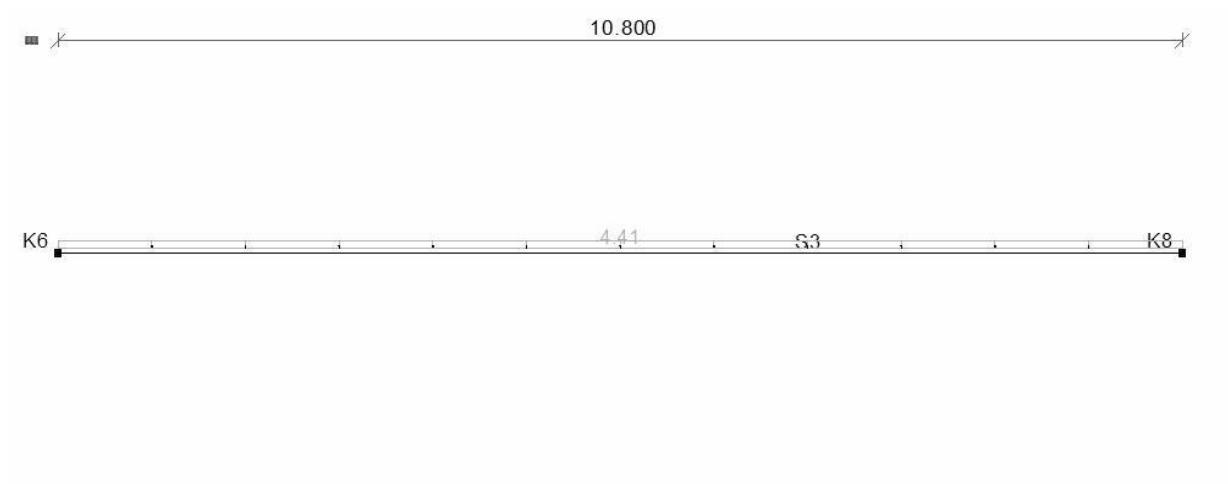


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 10,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

Staaf S3

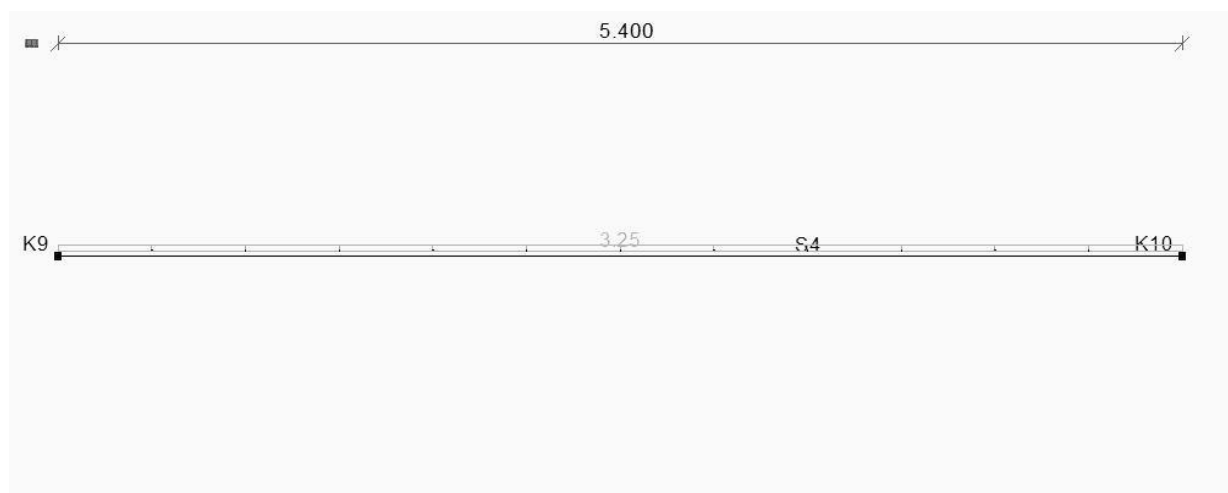


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 3,25 | 3,25 | 0,00 | 5,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

Staaf S4

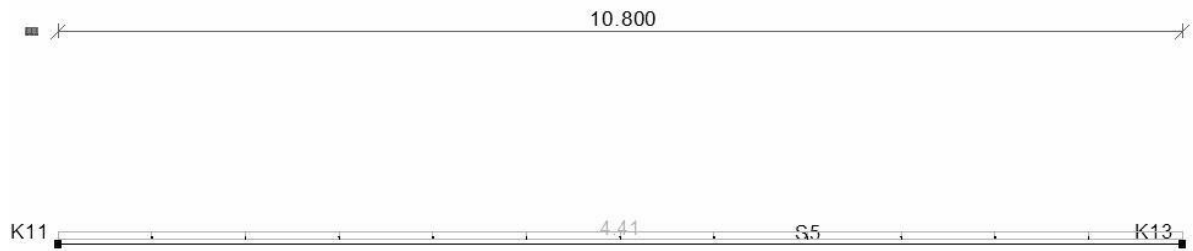


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 10,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

Staaf S5

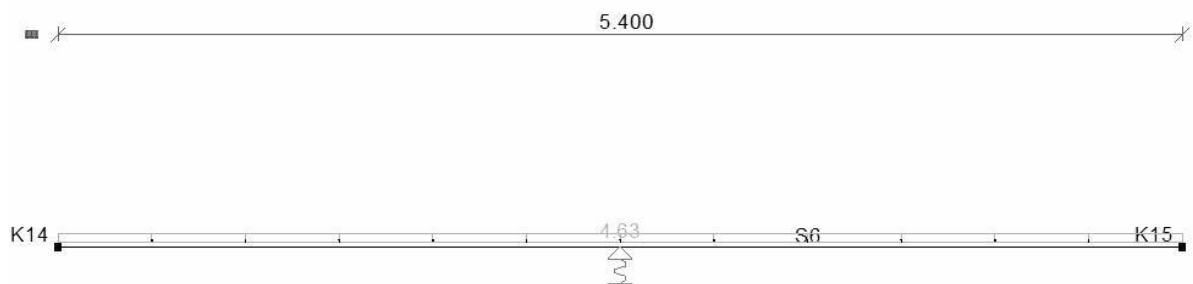


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,63 | 4,63 | 0,00 | 5,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6

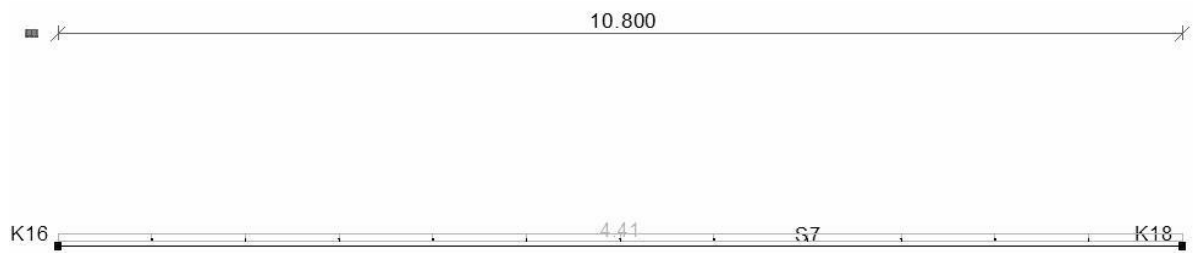


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 10,80(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7

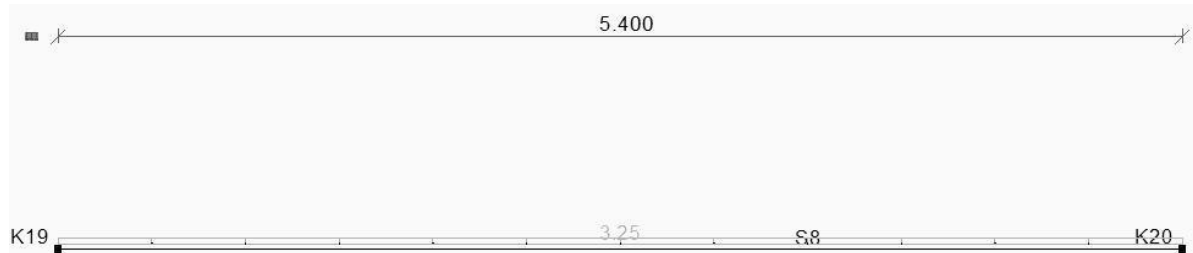


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 3,25 | 3,25 | 0,00 | 5,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

Staaf S8

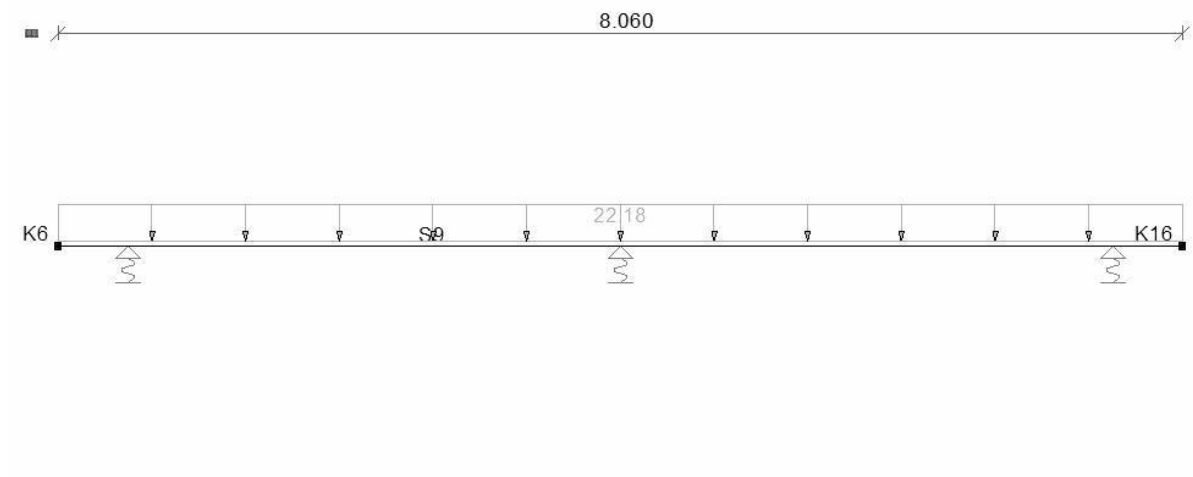


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

Staaf S9

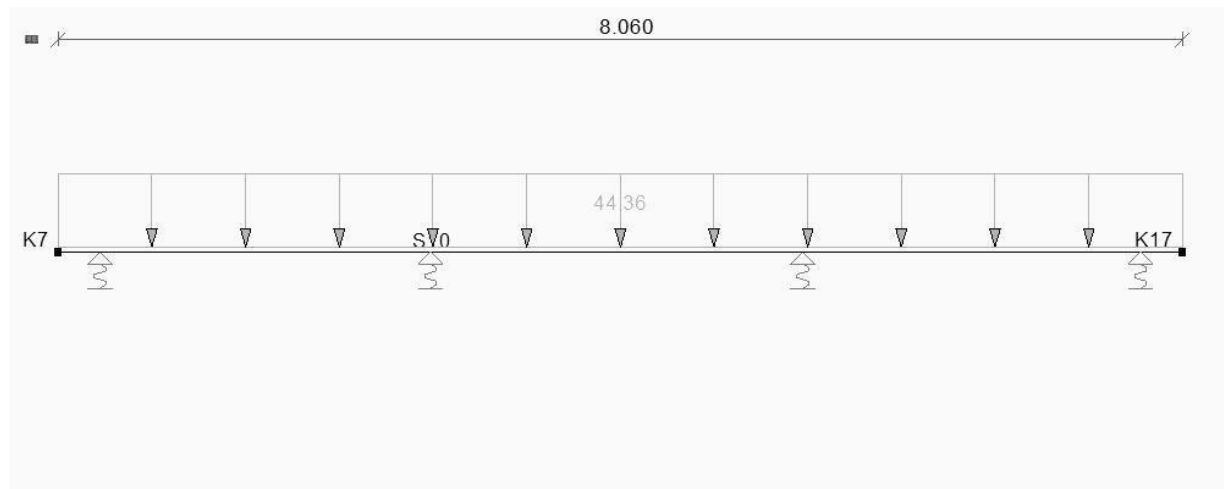


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S10 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

Staaf S10

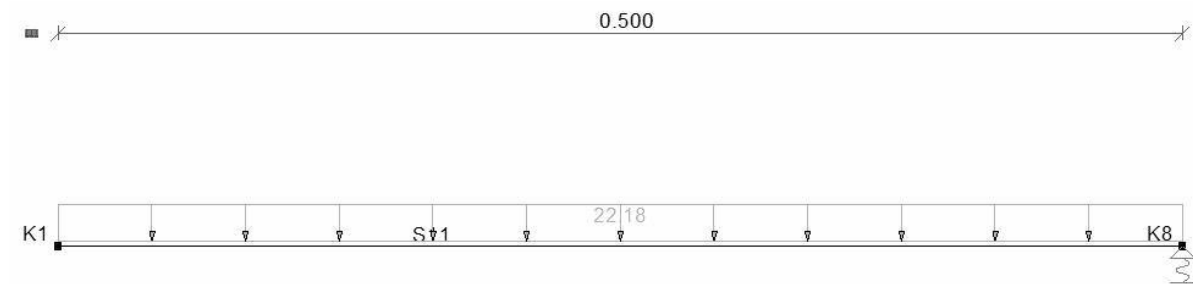


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S11)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S11 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S11)

Staaf S11



B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

| Type | Beginwaarde | Eindwaarde |
|------|-------------|------------|
| q | 44,36 | 44,36 |

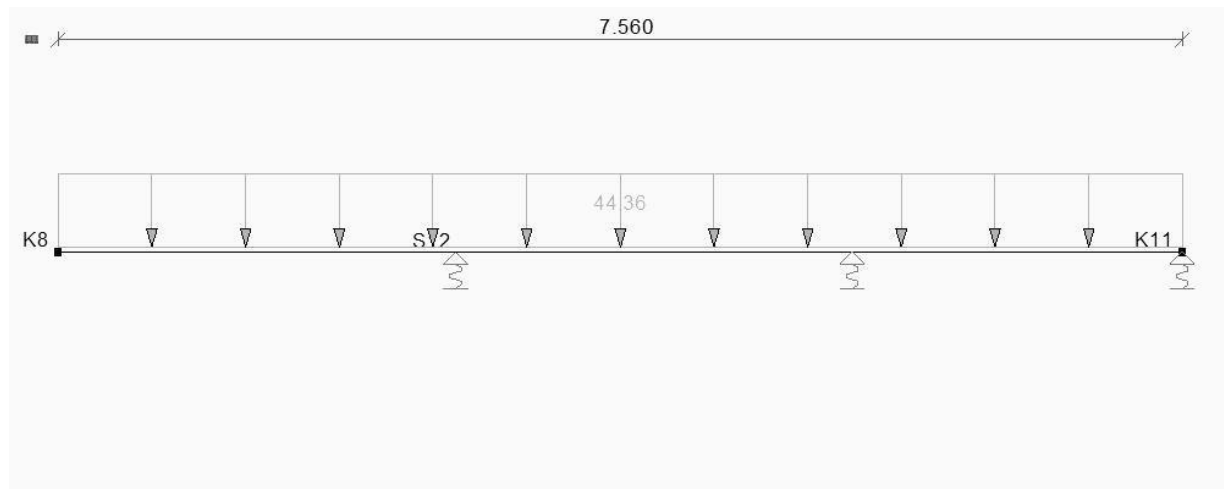
Beginafstand
0,00

Eindafstand
8,06(L)

Staaf S12
Richting
Z

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

Staaf S12



B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

| Type | Beginwaarde | Eindwaarde |
|------|-------------|------------|
| q | 22,18 | 22,18 |

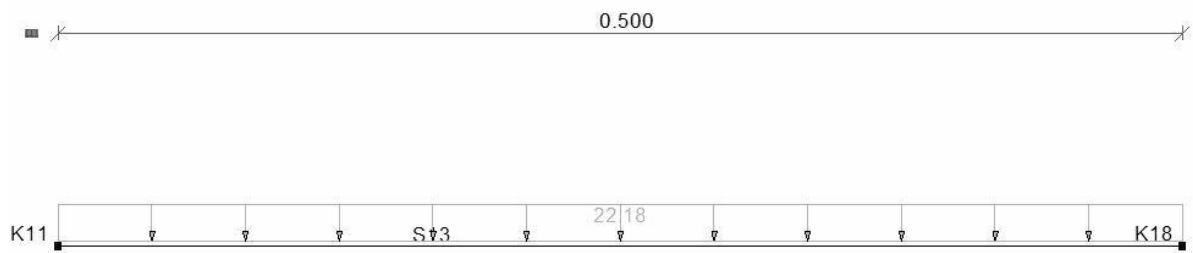
Beginafstand
0,00

Eindafstand
8,06(L)

Staaf S13
Richting
Z

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

Staaf S13

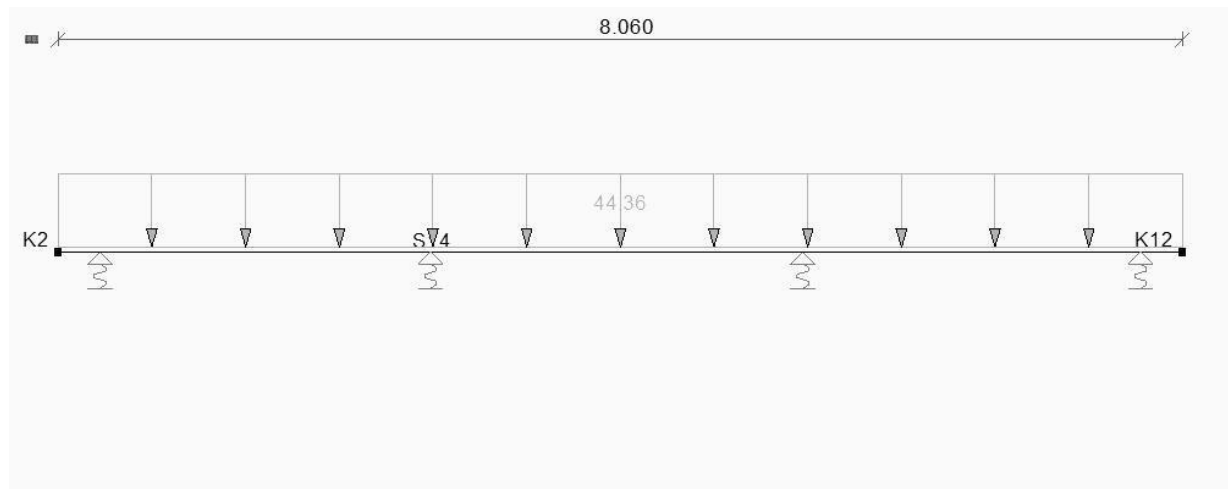


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S14 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staaf S14

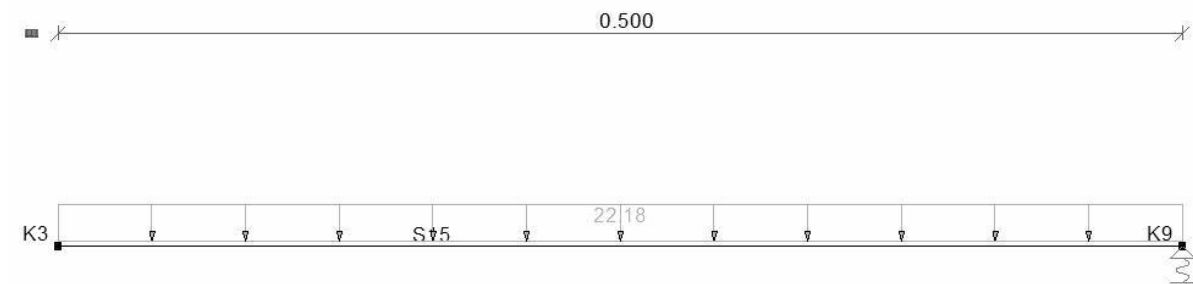


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S15)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S15 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S15)

Staaf S15



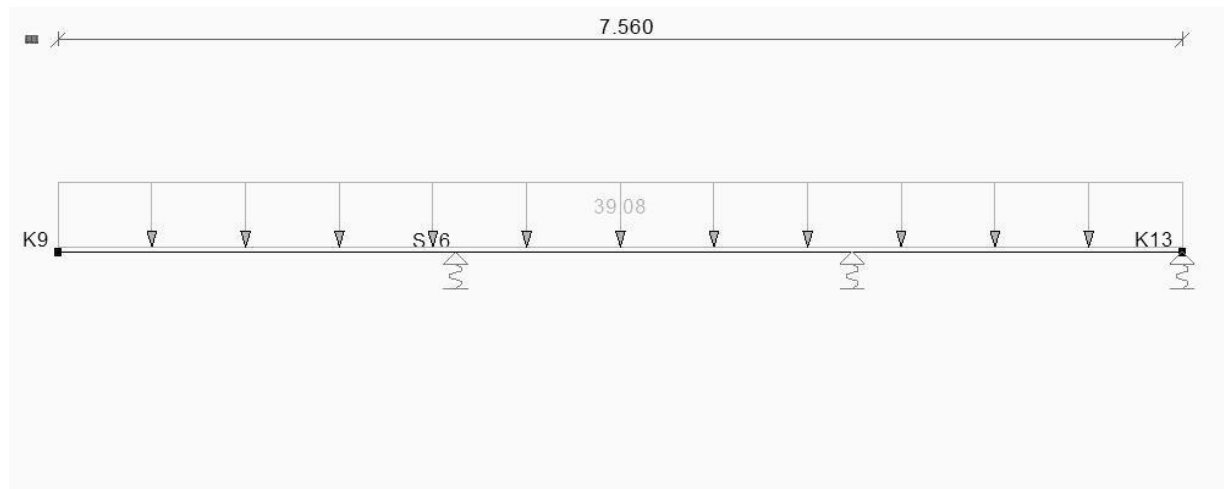
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

Staaf S16

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,08 | 39,08 | 0,00 | 7,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

Staaf S16



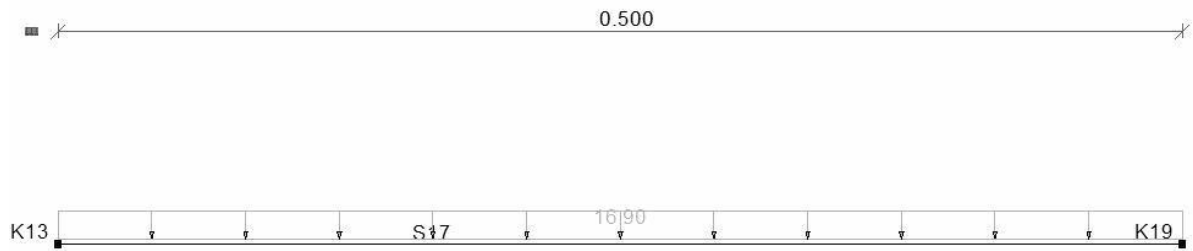
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

Staaf S17

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 16,90 | 16,90 | 0,00 | 0,50(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

Staaf S17

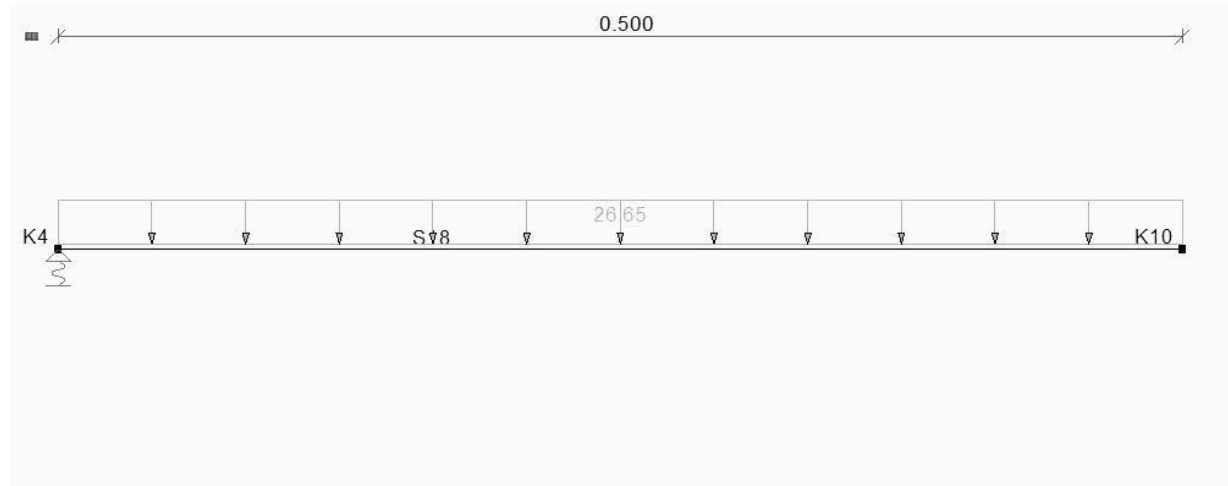


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S18 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

Staaf S18

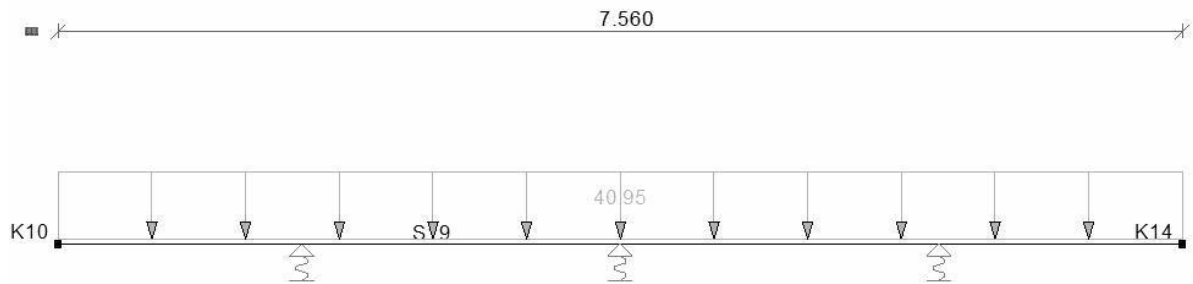


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S19 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 40,95 | 40,95 | 0,00 | 7,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

Staaf S19

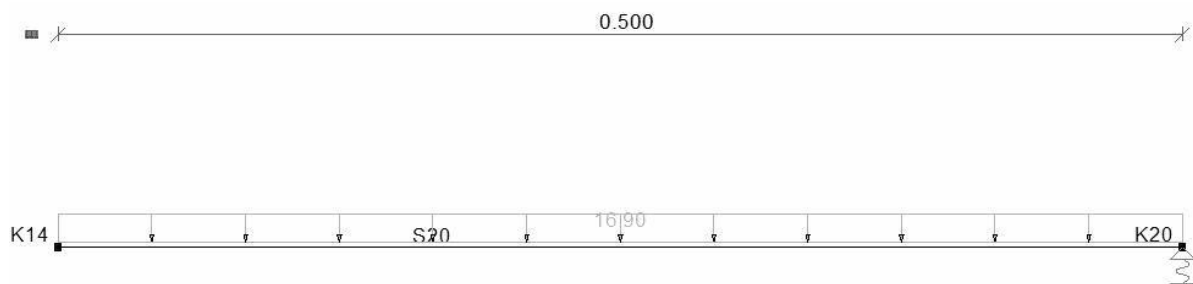


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S20)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S20 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 16,90 | 16,90 | 0,00 | 0,50(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S20)

Staaf S20

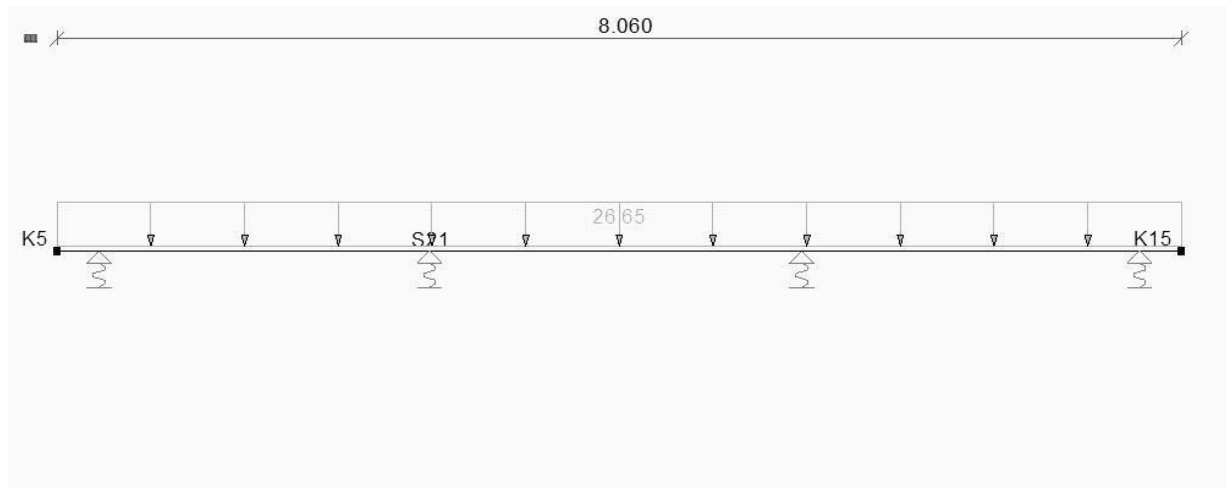


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S21)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S21 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S21)

Staat S21

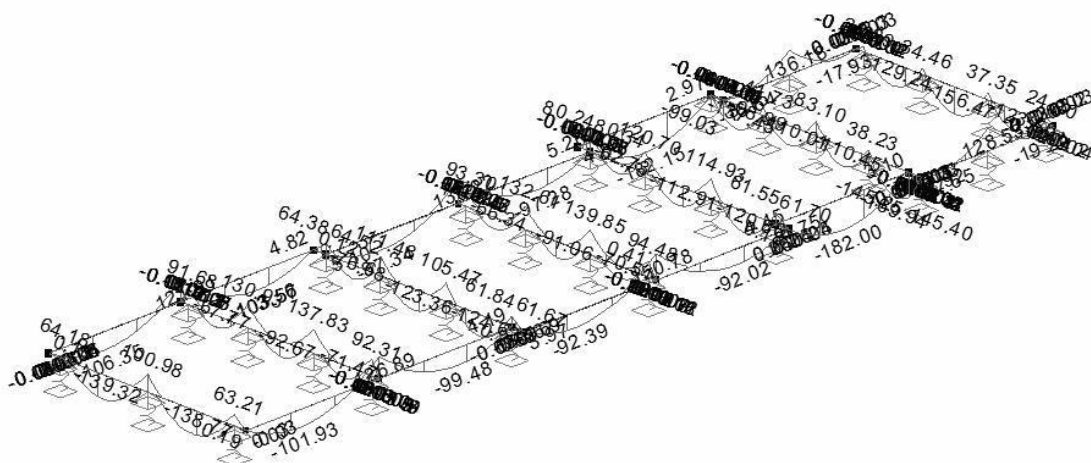


FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 | Fu.C.3 | Fu.C.4 | Fu.C.5 | Fu.C.6 | Fu.C.7 | Fu.C.8 |
|---------|---------------------------------------|--------|---------|---------|---------|---------|---------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 | 0.54 | - | 0.54 | - | 0.54 | - |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | 1.35 | 0.54 | - | 0.54 | 0.54 | 0.54 | - | 0.54 |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | 0.54 | - |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | 0.54 |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G. | Omschrijving | Fu.C.9 | Fu.C.10 | Fu.C.11 | Fu.C.12 | Fu.C.13 | Fu.C.14 | | |
| B.G.1 | Permanent | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | | |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | | |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | - | 1.35 | - | 1.35 | - | | |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | - | 1.35 | 1.35 | 1.35 | - | 1.35 | | |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | - | - | 1.35 | 1.35 | - | | |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | - | 1.35 | 1.35 | - | 1.35 | 1.35 | | |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | - | - | 1.35 | - | 1.35 | | |

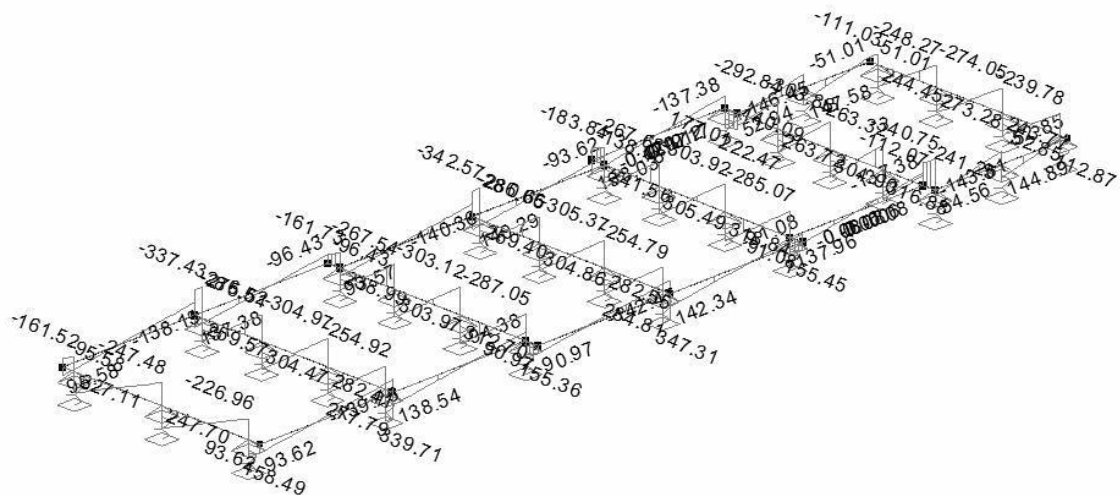
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Opleggin g | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx | Mymax |
|--------------------------------|-------|---------|----------------|------|---------|---|-------|---------|---|----|-------|
| O1 | S2 | Fu.C.5 | -288,70 | 0,00 | 0.00 | | | | | | |
| O2 | S6 | Fu.C.2 | -294,00 | 0,00 | 0.00 | | | | | | |
| O3 | S9 | Fu.C.11 | -385,17 | 0,00 | 0.00 | | | | | | |
| O4 | S9 | Fu.C.1 | -495,18 | 0,00 | 0.00 | | | | | | |
| O5 | S9 | Fu.C.13 | -386,34 | 0,00 | 0.00 | | | | | | |
| O6 | S10 | Fu.C.1 | -581,70 | 0,00 | 0.00 | | | | | | |
| O7 | S10 | Fu.C.1 | -574,69 | 0,00 | 0.00 | | | | | | |
| O8 | S10 | Fu.C.1 | -578,42 | 0,00 | 0.00 | | | | | | |
| O9 | S10 | Fu.C.1 | -584,66 | 0,00 | 0.00 | | | | | | |
| O10 | S11 | Fu.C.11 | -534,41 | 0,00 | 0.00 | | | | | | |
| O11 | S12 | Fu.C.1 | -603,98 | 0,00 | 0.00 | | | | | | |
| O12 | S12 | Fu.C.1 | -559,25 | 0,00 | 0.00 | | | | | | |
| O13 | S12 | Fu.C.1 | -479,64 | 0,00 | 0.00 | | | | | | |
| O14 | S14 | Fu.C.1 | -587,08 | 0,00 | 0.00 | | | | | | |
| O15 | S14 | Fu.C.1 | -574,86 | 0,00 | 0.00 | | | | | | |
| O16 | S14 | Fu.C.1 | -578,54 | 0,00 | 0.00 | | | | | | |
| O17 | S14 | Fu.C.1 | -589,96 | 0,00 | 0.00 | | | | | | |
| O18 | S15 | Fu.C.11 | -570,29 | 0,00 | 0.00 | | | | | | |
| O19 | S16 | Fu.C.1 | -612,81 | 0,00 | 0.00 | | | | | | |
| O20 | S16 | Fu.C.1 | -562,53 | 0,00 | 0.00 | | | | | | |
| O21 | S16 | Fu.C.1 | -500,73 | 0,00 | 0.00 | | | | | | |
| O22 | S18 | Fu.C.5 | -388,90 | 0,00 | 0.00 | | | | | | |
| O23 | S19 | Fu.C.1 | -560,77 | 0,00 | 0.00 | | | | | | |
| O24 | S19 | Fu.C.1 | -587,86 | 0,00 | 0.00 | | | | | | |
| O25 | S19 | Fu.C.1 | -536,10 | 0,00 | 0.00 | | | | | | |
| O26 | S20 | Fu.C.2 | -356,50 | 0,00 | 0.00 | | | | | | |
| O27 | S21 | Fu.C.2 | -345,33 | 0,00 | 0.00 | | | | | | |
| O28 | S21 | Fu.C.1 | -507,89 | 0,00 | 0.00 | | | | | | |
| O29 | S21 | Fu.C.1 | -512,14 | 0,00 | 0.00 | | | | | | |
| O30 | S21 | Fu.C.2 | -347,48 | 0,00 | 0.00 | | | | | | |
| Globale extreme waarden | | | | | | | | | | | |
| O19 | S16 | Fu.C.1 | -612,81 | 0.00 | 0.00 | | | | | | |

AFB. FU.C. OPLEGREACTIES OMHULLENDE

Fundamenteel Belastingscombinaties

A diagram of a 1D lattice with 15 sites, represented by a horizontal chain of 15 squares. The sites are labeled 1 through 15 from left to right. Each site contains a vertical line segment, which is labeled with a 'Ligger' number. The labels are as follows:

- Site 1: Ligger 1 (bottom)
- Site 2: Ligger 2 (bottom)
- Site 3: Ligger 3 (bottom)
- Site 4: Ligger 4 (bottom)
- Site 5: Ligger 5 (top)
- Site 6: Ligger 6 (top)
- Site 7: Ligger 7 (top)
- Site 8: Ligger 8 (top)
- Site 9: Ligger 9 (left)
- Site 10: Ligger 10 (left)
- Site 11: Ligger 11 (left)
- Site 12: Ligger 12 (left)
- Site 13: Ligger 13 (left)
- Site 14: Ligger 14 (left)
- Site 15: Ligger 15 (left)

| Naam | Waarde | Eenheden |
|--------------------|--------|----------|
| Hoek drukdiagonaal | 21.80 | ° |

Ligger 1

Kruipgegevens

pagina 319

DEKKING
Ligger 1

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS
Ligger 1

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S11 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S14 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 10.800 | | | | S15 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|------------|
| 0.000 | 3.97 | 4R12 | | 22 | 452 | | 3.25 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 150.78 | 4R12 | 4R12 | 836 | 905 | | 121.10 | N/B | 12.0 <= 8.4 | 43 <= 120 |
| 10.800 | 4.45 | 4R12 | | 24 | 452 | | 3.67 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| 2.116 | 92.39 | 4R12 | 1R12 | 496 | 565 | | -76.27 | N/B | 12.0 <= 8.8 | 76 <= 130 |
| 8.682 | 92.02 | 4R12 | 1R12 | 494 | 565 | | -75.97 | N/B | 12.0 <= 8.9 | 76 <= 132 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 1

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.20 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 1

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 90.97 | R8-300 | 211 | 1 | 335 | 61.660 | 144.734 | 90.966 | N/B | N/B |
| 5.400 | 142.47 | R8-150 | 345 | 1 | 670 | 61.660 | 276.650 | 142.470 | N/B | N/B |
| 5.400 | 142.34 | R8-150 | 345 | 1 | 670 | 61.669 | 276.650 | 142.341 | N/B | N/B |
| 10.800 | 91.08 | R8-300 | 211 | 1 | 335 | 61.669 | 144.734 | 91.076 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 1

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12a(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 10.600 | 0.120 | 10.965 | 0.000 | 2,5D | 11.130 |
| 4R12b(bijleg)(bijleg) | 3.948 | 0.000 | 2,5D | 0.427 | 4.375 | 6.425 | 0.427 | 6.852 | 0.000 | 2,5D | 2.904 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 1

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12h1(basis)(basis) | -0.165 | 0.166 | 4,0D | 0.325 | 0.000 | 10.600 | 0.325 | 10.965 | 0.000 | 2,5D | 11.296 |

| | | | | | | | | | | | |
|----------------|-------|-------|------|-------|-------|-------|-------|--------|-------|------|-------|
| 1R12i1(bijleg) | 0.513 | 0.000 | 2,5D | 0.478 | 0.991 | 3.238 | 0.478 | 3.717 | 0.000 | 2,5D | 3.204 |
| (bijleg) | | | | | | | | | | | |
| 1R12j1(bijleg) | 7.094 | 0.000 | 2,5D | 0.478 | 7.572 | 9.794 | 0.478 | 10.272 | 0.000 | 2,5D | 3.179 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 1

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|--------|--------|--------|--------|
| S14 | Links | 18xR8-300 | -0.300 | 5.100 | 5.400 | 134.05 | 138.33 |
| S14 | Links | 4xR8-150 | 5.100 | 5.700 | 0.600 | 143.07 | 276.65 |
| S14 | Rechts | 17xR8-300 | 5.700 | 10.800 | 5.100 | 133.92 | 138.33 |
| S15 | Rechts | 1xR8-150 | 10.800 | 11.025 | 0.225 | 143.07 | 276.65 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 1

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|-------------------|-----------|-------------|-------------------|-----------|
| V2 (5.400-10.800) | Vloer | 3,5 <= 21,6 | 9,2 <= 21,6 | 0,16 |
| | Handmatig | | | 0,43 |
| V1 (0.000-5.400) | Vloer | 3,5 <= 21,6 | 9,3 <= 21,6 | 0,16 |
| | Handmatig | | | 0,43 |
| m | - | mm | mm | - |

LIGGER 2
ALGEMEEN + KRUIP
Ligger 2
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 2 | Cement | S |
| Staven | S2 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 5.40 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.250 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 2

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 2

| Positie | Oplegg. | Type | Afmetin g | Staa f | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S18 | 0,400 | Nee | | Niet | | Niet |
| 2.700 | O1 | Ronde paal | 0,350 | | | N/B | | afgetopt | | afgetopt |
| 5.400 | | | | S21 | 0,500 | Nee | | afgetopt | | Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | afgetopt |

BOVENWAPENING
Ligger 2

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | |
|-------------------------|-----------------|----------|--------------|--------------|-------------|---------------|---------|---------|--------------|------------|--------|
| 0.000 | 2.92 | 4R12 | | 16 | 452 | | 2.40 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 2.700 | 128.53 | 4R12 | 3R16 | 704 | 1056 | | 104.93 | N/B | 13.7 <= 13.3 | 50 <= 218 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |
| ONDERWAPENING | | | | | | | | | | Ligger 2 | |
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | |
| 0.752 | 17.65 | 4R12 | | 92 | 452 | | -14.56 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 4.672 | 19.24 | 4R12 | | 100 | 452 | | -15.80 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |
| FLANKWAPENING | | | | | | | | | | Ligger 2 | |
| Positie | Mx | Wapening | | As,ben | As,toe | | | | | | |
| 2.700 | 0.10 | 1R8 | | 1 | 50 | | | | | | |
| m | kNm | - | | mm2 | mm2 | | | | | | |
| BEUGELWAPENING | | | | | | | | | | Ligger 2 | |
| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | |
| 0.000 | 54.56 | R8-300 | 126 | 0 | 335 | 61.732 | 144.734 | 54.558 | N/B | N/B | |
| 2.075 | 98.47 | R8-300 | 243 | 1 | 335 | 81.761 | 135.806 | 98.469 | N/B | N/B | |
| 3.325 | 99.55 | R8-300 | 246 | 1 | 335 | 81.761 | 135.806 | 99.546 | N/B | N/B | |
| 5.400 | 52.85 | R8-300 | 122 | 0 | 335 | 61.732 | 144.734 | 52.851 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |
| AFBOUWEN BOVENWAPENING | | | | | | | | | | Ligger 2 | |
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12c(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 5.150 | 0.120 | 5.615 | 0.000 | 2,5D | 5.780 |
| 3R16d(bijleg)(bijleg) | 1.355 | 0.000 | 2,5D | 0.488 | 1.843 | 3.554 | 0.488 | 4.042 | 0.000 | 2,5D | 2.688 |
| - | m | m | - | m | m | m | m | m | m | - | m |
| AFBOUWEN ONDERWAPENING | | | | | | | | | | Ligger 2 | |
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12k1(basis)(basis) | -0.165 | 0.036 | 4,0D | 0.195 | 0.000 | 5.150 | 0.189 | 5.615 | 0.000 | 2,5D | 5.816 |
| - | m | m | - | m | m | m | m | m | m | - | m |
| AFBOUWEN BEUGELWAPENING | | | | | | | | | | Ligger 2 | |
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | | | |
| S18 | Rechts | 4xR8-300 | -0.275 | 0.925 | 1.200 | 54.84 | 144.73 | | | | |
| O1 | Links | 4xR8-300 | 0.925 | 2.125 | 1.200 | 98.75 | 135.81 | | | | |
| O1 | Rechts | 4xR8-300 | 2.125 | 3.325 | 1.200 | 99.83 | 144.73 | | | | |
| O1 | Rechts | 3xR8-300 | 3.325 | 4.225 | 0.900 | 99.83 | 135.81 | | | | |
| S21 | Links | 5xR8-300 | 4.225 | 5.725 | 1.500 | 99.83 | 144.73 | | | | |
| - | - | - | m | m | m | kN | kN | | | | |
| TOETSING DOORBUIGING | | | | | | | | | | Ligger 2 | |
| Veld | Toetsing | | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | | | | | |
| V2 (2.700-5.400) | Vloer | | -0,2 <= 10,8 | -0,3 <= 10,8 | 0,02 | 0,03 | | | | | |
| V1 (0.000-2.700) | Handmatig Vloer | | -0,2 <= 10,8 | -0,3 <= 10,8 | 0,02 | 0,03 | | | | | |
| m | - | | mm | mm | - | - | | | | | |

LIGGER 3

ALGEMEEN + KRUIP
Ligger 3
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 3 |
| Staven | S3 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 10.80 m |
| Extra begin | 0.250 m |
| Extra eind | 0.200 m |
| Fabric. | l.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

DEKKING
Ligger 3

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 3

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S9 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S10 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 10.800 | | | | S11 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 3

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 5.400 | 126.89 | 4R12 | 3R12 | 694 | 792 | ng | 103.57 | N/B | 12.0 <= 8.9 | 50 <= 133 |
| 10.800 | 4.19 | 4R12 | | 23 | 452 | | 3.46 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 3

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| 2.177 | 101.93 | 4R12 | 1R12 | 550 | 565 | | -84.13 | N/B | 12.0 <= 7.5 | 76 <= 90 |
| 8.605 | 99.48 | 4R12 | 1R12 | 536 | 565 | | -82.10 | N/B | 12.0 <= 7.8 | 76 <= 100 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 3

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 5.400 | 0.21 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 3

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|-----------|----------|----------|--------|--------|---------|---------|------|------|
| 0.000 | 93.62 | R8-300 | 219 | 1 | 335 | 61.664 | 143.132 | 93.620 | N/B | N/B |
| 5.400 | 139.25 | R8-300 | 333 | 1 | 335 | 61.664 | 139.927 | 139.245 | N/B | N/B |
| 5.400 | 138.54 | R8-300 | 332 | 1 | 335 | 61.658 | 139.927 | 138.541 | N/B | N/B |

| | | | | | | | | | | |
|--------|-------|--------|-----|-----|-----|--------|---------|--------|-------|-------|
| 10.800 | 94.38 | R8-300 | 219 | 1 | 335 | 61.658 | 144.734 | 94.381 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 3 Lengte |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------------------|
| 4R12e(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 10.600 | 0.120 | 10.965 | 0.000 | 2,5D | 11.180 |
| 3R12f(bijleg)(bijleg) | 4.065 | 0.000 | 2,5D | 0.488 | 4.553 | 6.249 | 0.488 | 6.737 | 0.000 | 2,5D | 2.672 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 3 Lengte |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------------------|
| 4R12l1(basis)(basis) | -0.215 | 0.125 | 4,0D | 0.334 | 0.000 | 10.600 | 0.337 | 10.965 | 0.000 | 2,5D | 11.305 |
| 1R12m1(bijleg) | 0.284 | 0.000 | 2,5D | 0.478 | 0.763 | 3.594 | 0.478 | 4.072 | 0.000 | 2,5D | 3.788 |
| (bijleg) | | | | | | | | | | | |
| 1R12n1(bijleg) | 6.772 | 0.000 | 2,5D | 0.478 | 7.250 | 9.960 | 0.478 | 10.438 | 0.000 | 2,5D | 3.666 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 3 |
|-----------|--------|-----------|--------|--------|--------|--------|--------|----------|
| S9 | Rechts | 10xR8-300 | -0.325 | 2.675 | 3.000 | 94.23 | 143.13 | |
| S10 | Links | 18xR8-300 | 2.675 | 8.075 | 5.400 | 139.86 | 139.93 | |
| S11 | Links | 10xR8-300 | 8.075 | 11.075 | 3.000 | 94.99 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 3 |
|-------------------|-----------|-------------|-------------------|-----------|----------|
| V2 (5.400-10.800) | Vloer | 3,9 <= 21,6 | 12,9 <= 21,6 | 0,18 | 0,60 |
| | Handmatig | | | | |
| V1 (0.000-5.400) | Vloer | 4,1 <= 21,6 | 13,5 <= 21,6 | 0,19 | 0,62 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 4
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 4 |
| Staven | S4 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 5.40 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

DEKKING

| | Boven | Onder | Zij- + Voorkant | Ligger 4 |
|--------------------|-------|-------|-----------------|----------|
| Gereduceerd | Nee | Nee | Nee | |
| Mil. | XC2 | XC2 | XC2 | |
| Met. | Norm. | Norm. | Norm. | |
| Nab. | Nee | Nee | Nee | |
| Benodigde dekking | 30 mm | 30 mm | 30 mm | |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm | |
| - | - | - | - | |

OPLEGGEGEVENS
Ligger 4

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|------------------------------|------------------------------|
| 0.000 | | | | S15 | 0,400 | Nee | | | Niet | Niet |
| 5.400 | | | | S18 | 0,400 | Nee | | | afgetopt Niet afgetopt | afgetopt Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|-------------------|------|---------|--------------|------------|
| 0.000 | 4.75 | 4R12 | | 26 | 452 | | 3.92 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 3.10 | 4R12 | | 17 | 452 | | 2.55 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 4
ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|----------|
| 2.705 | 182.00 | 4R12 | 3R16 | 1032 | 1056 | | -149.86 | N/B | 13.7 <= 7.2 | 50 <= 87 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 4
FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.16 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

Ligger 4
BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 4 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|------------------|
| 0.000 | 137.96 | R8-300 | 319 | 1 | 335 | 61.675 | 144.734 | 137.960 | N/B | N/B |
| 5.400 | 137.38 | R8-300 | 318 | 1 | 335 | 61.675 | 144.734 | 137.381 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12g(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 5.200 | 0.120 | 5.565 | 0.000 | 2,5D | 5.730 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 4
AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12o1(basis)(basis) | -0.165 | 0.334 | 4,0D | 0.493 | 0.000 | 5.200 | 0.491 | 5.559 | 0.132 | 4,0D | 6.189 |
| 3R16p1(bijleg) | -0.165 | 0.000 | 2,5D | 0.342 | 0.211 | 5.200 | 0.280 | 5.565 | 0.000 | 2,5D | 5.730 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 4
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S15 | Rechts | 20xR8-300 | -0.300 | 5.700 | 6.000 | 138.43 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 4
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|--------------------|-------------|-------------------|-----------|
| V1 (0.000-5.400) | Vloer Handmatig | 5,6 <= 21,6 | 18,2 <= 21,6 | 0,26 |
| m | - | mm | mm | - |

Ligger 4
LIGGER 5
ALGEMEEN + KRUIP
Ligger 5

Algemene gegevens

| | |
|------------|-------------|
| Constr.Dl. | Ligger 5 |
| Staven | S5 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |

Kruipgegevens

| | |
|-------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |

| | | | |
|-------------|---------|-----------------|---------|
| Lengte | 10.80 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 5

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEN
Ligger 5

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S12 | 0,400 | Nee | | | Niet | Niet |
| 5.400 | | | | S14 | 0,400 | N/B | | | afgetopt | afgetopt |
| 10.800 | | | | S16 | 0,400 | Nee | | | afgetopt | afgetopt |
| | | | | | | | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 5

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 0.000 | 5.10 | 4R12 | | 27 | 452 | ng | 4.02 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 138.22 | 4R12 | 3R12 | 760 | 792 | | 112.20 | N/B | 12.0 <= 7.8 | 50 <= 101 |
| 10.800 | 5.20 | 4R12 | | 28 | 452 | | 4.24 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 5

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| 2.211 | 97.34 | 4R12 | 1R12 | 523 | 565 | | -80.15 | N/B | 12.0 <= 8.1 | 76 <= 110 |
| 8.588 | 97.28 | 4R12 | 1R12 | 523 | 565 | | -80.02 | N/B | 12.0 <= 8.1 | 76 <= 111 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 5

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.14 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 5

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|-----------|----------|----------|--------|--------|---------|---------|------|------|
| 0.000 | 93.57 | R8-150 | 217 | 1 | 670 | 61.684 | 289.468 | 93.572 | N/B | N/B |
| 5.400 | 140.36 | R8-150 | 336 | 1 | 670 | 61.684 | 279.855 | 140.361 | N/B | N/B |

| | | | | | | | | | | |
|--------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 5.400 | 140.29 | R8-300 | 336 | 1 | 335 | 61.693 | 139.927 | 140.290 | N/B | N/B |
| 10.800 | 93.62 | R8-300 | 217 | 1 | 335 | 61.693 | 144.734 | 93.624 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 5 Lengte |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------------------|
| 4R12a(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 10.600 | 0.120 | 10.965 | 0.000 | 2,5D | 11.130 |
| 3R12h(bijleg)(bijleg) | 3.976 | 0.000 | 2,5D | 0.488 | 4.464 | 6.336 | 0.488 | 6.824 | 0.000 | 2,5D | 2.848 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 5 Lengte |
|----------------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------------------|
| 4R12q1(basis)(basis) | -0.165 | 0.175 | 4,0D | 0.334 | 0.000 | 10.600 | 0.334 | 10.965 | 0.000 | 2,5D | 11.305 |
| 1R12r1(bijleg) (bijleg) | 0.413 | 0.000 | 2,5D | 0.478 | 0.891 | 3.516 | 0.478 | 3.994 | 0.000 | 2,5D | 3.582 |
| 1R12s1(bijleg) (bijleg) | 6.807 | 0.000 | 2,5D | 0.478 | 7.285 | 9.902 | 0.478 | 10.380 | 0.000 | 2,5D | 3.573 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 5 |
|-----------|--------|-----------|--------|--------|--------|--------|--------|----------|
| S12 | Rechts | 20xR8-150 | -0.225 | 2.775 | 3.000 | 93.97 | 289.47 | |
| S14 | Links | 18xR8-150 | 2.775 | 5.475 | 2.700 | 140.76 | 279.85 | |
| S14 | Rechts | 9xR8-300 | 5.475 | 8.175 | 2.700 | 140.69 | 139.93 | |
| S16 | Links | 9xR8-300 | 8.175 | 11.025 | 2.850 | 140.76 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 5 |
|-------------------|--------------------|-------------|-------------------|-----------|----------|
| V2 (5.400-10.800) | Vloer | 4,5 <= 21,6 | 10,8 <= 21,6 | 0,21 | 0,50 |
| V1 (0.000-5.400) | Handmatig Vloer | 4,5 <= 21,6 | 10,9 <= 21,6 | 0,21 | 0,50 |
| m | - | mm | mm | - | - |

LIGGER 6
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 6 |
| Staven | S6 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 5.40 m |
| Extra begin | 0.200 m |
| Extra eind | 0.250 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 6
DEKKING

| | Boven | Onder | Zij- + Voorkant | Ligger 6 |
|--------------------|-------|-------|-----------------|----------|
| Gereduceerd | Nee | Nee | Nee | |
| Mil. | XC2 | XC2 | XC2 | |
| Met. | Norm. | Norm. | Norm. | |
| Nab. | Nee | Nee | Nee | |
| Benodigde dekking | 30 mm | 30 mm | 30 mm | |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm | |

OPLEGGEGEVEENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 6 Moment |
|---------|---------|--------|--------------|-------|--------------|-----|----------|----------|------------------|--------------------|
| 0.000 | | | | S19 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 2.700 | O2 | n.v.t. | 0,000 | | | N/B | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S21 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 6 S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|-------------------|
| 0.000 | 3.15 | 4R12 | | 16 | 452 | | 2.60 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 2.700 | 136.18 | 4R12 | 3R12 | 747 | 792 | | 110.97 | N/B | 12.0 <= 7.9 | 50 <= 105 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 6 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|-------------------|
| 0.754 | 16.64 | 4R12 | | 86 | 452 | | -13.33 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.697 | 17.93 | 4R12 | | 93 | 452 | | -14.78 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 6 |
|---------|------|----------|--------|--------|----------|
| 2.700 | 0.04 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 6 VEDi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|------------------|
| 0.000 | 52.94 | R8-300 | 123 | 0 | 335 | 61.732 | 144.734 | 52.944 | N/B | N/B |
| 2.700 | 146.45 | R8-150 | 351 | 0 | 670 | 61.719 | 279.855 | 146.448 | N/B | N/B |
| 2.700 | 147.58 | R8-150 | 353 | 0 | 670 | 61.719 | 279.855 | 147.585 | N/B | N/B |
| 5.400 | 51.01 | R8-300 | 122 | 0 | 335 | 61.732 | 139.927 | 51.006 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 6 Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------------------|
| 4R12c(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 5.150 | 0.120 | 5.615 | 0.000 | 2,5D | 5.780 |
| 3R12i(bijleg)(bijleg) | 1.259 | 0.000 | 2,5D | 0.488 | 1.747 | 3.620 | 0.488 | 4.109 | 0.000 | 2,5D | 2.849 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 6 Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------------------|
| 4R12t1(basis)(basis) | -0.165 | 0.030 | 4,0D | 0.189 | 0.000 | 5.150 | 0.182 | 5.615 | 0.000 | 2,5D | 5.810 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 6 |
|-----------|--------|----------|--------|-------|--------|--------|--------|----------|
| O2 | Links | 9xR8-300 | -0.275 | 2.425 | 2.700 | 128.44 | 139.93 | |
| O2 | Rechts | 4xR8-150 | 2.425 | 3.025 | 0.600 | 147.69 | 279.85 | |
| O2 | Rechts | 8xR8-300 | 3.025 | 5.425 | 2.400 | 132.18 | 139.93 | |
| S21 | Rechts | 1xR8-150 | 5.425 | 5.650 | 0.225 | 147.69 | 279.85 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 6 |
|------------------|-----------|--------------|-------------------|-----------|----------|
| V2 (2.700-5.400) | Vloer | -0,2 <= 10,8 | -0,4 <= 10,8 | 0,02 | 0,04 |
| | Handmatig | | | | |
| V1 (0.000-2.700) | Vloer | -0,3 <= 10,8 | -0,4 <= 10,8 | 0,03 | 0,04 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 7
ALGEMEEN + KRUIP
Ligger 7
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 7 |
| Staven | S7 |
| Profiel | R400x500 mm |
| Betonskwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 10.80 m |
| Extra begin | 0.250 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

DEKKING
Ligger 7

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGETEVENS
Ligger 7

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S9 | 0,500 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 5.400 | | | | S10 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 10.800 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 7

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 5.400 | 121.91 | 4R12 | 3R12 | 664 | 792 | ng | 98.68 | N/B | 12.0 <= 9.8 | 50 <= 152 |
| 10.800 | 4.82 | 4R12 | | 26 | 452 | | 3.79 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 7

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| 2.253 | 106.35 | 4R12 | 2R12 | 575 | 679 | | -87.81 | N/B | 12.0 <= 9.3 | 60 <= 142 |
| 8.557 | 103.56 | 4R12 | 1R12 | 559 | 565 | | -85.67 | N/B | 12.0 <= 7.2 | 76 <= 82 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 7

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.18 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 7

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 95.58 | R8-300 | 229 | 1 | 335 | 61.668 | 139.927 | 95.581 | N/B | N/B |
| 5.400 | 138.13 | R8-300 | 331 | 1 | 335 | 61.668 | 139.927 | 138.135 | N/B | N/B |
| 5.400 | 137.38 | R8-300 | 329 | 1 | 335 | 61.691 | 139.927 | 137.377 | N/B | N/B |
| 10.800 | 96.43 | R8-300 | 223 | 1 | 335 | 61.691 | 144.734 | 96.425 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 7

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12e(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 10.600 | 0.120 | 10.965 | 0.000 | 2,5D | 11.180 |
| 3R12j(bijleg)(bijleg) | 4.103 | 0.000 | 2,5D | 0.488 | 4.591 | 6.210 | 0.488 | 6.698 | 0.000 | 2,5D | 2.595 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 7

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12u1(basis)(basis) | -0.215 | 0.132 | 4,0D | 0.341 | 0.000 | 10.600 | 0.344 | 10.965 | 0.000 | 2,5D | 11.312 |
| 2R12v1(bijleg)(bijleg) | 0.311 | 0.000 | 2,5D | 0.399 | 0.709 | 3.781 | 0.399 | 4.179 | 0.000 | 2,5D | 3.869 |
| 1R12w1(bijleg)(bijleg) | 6.566 | 0.000 | 2,5D | 0.478 | 7.044 | 10.021 | 0.478 | 10.499 | 0.000 | 2,5D | 3.933 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 7

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|--------|--------|--------|--------|
| S9 | Rechts | 28xR8-300 | -0.325 | 8.075 | 8.400 | 138.65 | 139.93 |
| S13 | Links | 10xR8-300 | 8.075 | 11.075 | 3.000 | 96.94 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 7

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|-------------------|-----------|-------------|--------------|-------------|-----------|
| V2 (5.400-10.800) | Vloer | 5,0 <= 21,6 | 14,4 <= 21,6 | 0,23 | 0,67 |
| | Handmatig | | | | |
| V1 (0.000-5.400) | Vloer | 4,7 <= 21,6 | 13,2 <= 21,6 | 0,22 | 0,61 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 8
ALGEMEEN + KUIJP
Ligger 8
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 8 | Cement | S |
| Staven | S8 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 5.40 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 8

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEN
Ligger 8

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S17 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S20 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 8

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|---------------|------|---------|--------------|------------|
| 0.000 | 4.89 | 4R12 | | 27 | 452 | ng | 3.98 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 2.97 | 4R12 | | 17 | 452 | | 2.45 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 8

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|----------|
| 2.707 | 182.15 | 4R12 | 3R16 | 1033 | 1056 | | -149.97 | N/B | 13.7 <= 7.2 | 50 <= 87 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 8

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.27 | 1R8 | 3 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 8

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|-----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 138.03 | R8-300 | 320 | 2 | 335 | 61.636 | 144.734 | 138.026 | N/B | N/B |
| 5.400 | 137.38 | R8-300 | 318 | 2 | 335 | 61.636 | 144.734 | 137.383 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 8

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12g(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 5.200 | 0.120 | 5.565 | 0.000 | 2,5D | 5.730 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 8

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12x1(basis)(basis) | -0.165 | 0.334 | 4,0D | 0.493 | 0.000 | 5.200 | 0.491 | 5.559 | 0.132 | 4,0D | 6.190 |
| 3R16p1(bijleg) | -0.165 | 0.000 | 2,5D | 0.342 | 0.210 | 5.202 | 0.280 | 5.565 | 0.000 | 2,5D | 5.730 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 8

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S17 | Rechts | 20xR8-300 | -0.300 | 5.700 | 6.000 | 138.83 | 144.73 |

- - - m m m kN kN

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 8 |
|------------------|-----------|-------------|-------------------|-----------|----------|
| V1 (0.000-5.400) | Vloer | 5,6 <= 21,6 | 18,2 <= 21,6 | 0,26 | 0,84 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 9
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|------------|-------------|
| Constr.Dl. | Ligger 9 |
| Staven | S9 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |

Kruipgegevens

| | |
|-----------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |

| | | | |
|-------------|---------|-----------------|----------|
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.60 |
| Lengte | 8.06 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEREVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment | Ligger 9 |
|---------|---------|------------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|----------|
| 0.000 | | | | S3 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt | |
| 0.500 | O3 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt | |
| 4.030 | O4 | n.v.t. | 0,000 | | | N/B | | | Afgetopt | Niet afgetopt | |
| 7.560 | O5 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt | |
| 8.060 | | | | S7 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt | |
| m | - | - | m | - | m | - | kNm | kNm | - | - | |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 9 |
|---------|--------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|----------|
| 0.500 | 63.21 | 4R12 | | 331 | 452 | | 52.25 | N/B | 12.0 <= 12.0 | 134 <= 194 | |
| 4.030 | 100.98 | 4R12 | 1R12 | 537 | 565 | | 81.81 | N/B | 12.0 <= 8.0 | 100 <= 106 | |
| 7.560 | 64.18 | 4R12 | | 336 | 452 | | 53.09 | N/B | 12.0 <= 11.7 | 134 <= 188 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 9 |
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|----------|
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|----------|

| | | | | | | | | | |
|-------|--------|------|------|-----|-----|---------|-----|-------------|-----------|
| 2.191 | 138.77 | 4R12 | 3R12 | 750 | 792 | -104.50 | N/B | 12.0 <= 9.1 | 67 <= 136 |
| 5.871 | 139.32 | 4R12 | 3R12 | 753 | 792 | -104.60 | N/B | 12.0 <= 9.1 | 67 <= 136 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 9

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.03 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 9

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 93.62 | R8-250 | 215 | 0 | 402 | 75.895 | 175.219 | 93.620 | N/B | N/B |
| 1.126 | 142.96 | R8-250 | 337 | 0 | 402 | 75.895 | 170.604 | 142.959 | N/B | N/B |
| 3.579 | 187.18 | R8-125 | 433 | 0 | 804 | 77.153 | 347.361 | 187.185 | N/B | N/B |
| 4.481 | 186.96 | R8-125 | 433 | 0 | 804 | 77.153 | 347.361 | 186.965 | N/B | N/B |
| 6.934 | 143.11 | R8-250 | 337 | 0 | 402 | 75.895 | 170.604 | 143.108 | N/B | N/B |
| 8.060 | 95.58 | R8-250 | 219 | 0 | 402 | 75.895 | 175.219 | 95.581 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 9

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12k(basis)(basis) | -0.165 | 0.477 | 4,0D | 0.636 | 0.000 | 7.860 | 0.645 | 8.219 | 0.286 | 4,0D | 9.147 |
| 1R12l(bijleg)(bijleg) | 2.725 | 0.000 | 2,5D | 0.689 | 3.414 | 4.647 | 0.689 | 5.337 | 0.000 | 2,5D | 2.612 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 9

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12y1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.512 | 0.675 | 7.860 | 0.341 | 8.225 | 0.000 | 2,5D | 8.390 |
| 3R12a2(bijleg)(bijleg) | 0.429 | 0.000 | 2,5D | 0.345 | 0.774 | 3.602 | 0.345 | 3.947 | 0.000 | 2,5D | 3.518 |
| 3R12b2(bijleg)(bijleg) | 4.110 | 0.000 | 2,5D | 0.345 | 4.455 | 7.291 | 0.345 | 7.636 | 0.000 | 2,5D | 3.526 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 9

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| O4 | Links | 14xR8-250 | -0.220 | 3.280 | 3.500 | 167.64 | 173.68 |
| O4 | Links | 4xR8-125 | 3.280 | 3.780 | 0.500 | 187.26 | 347.36 |
| O4 | Rechts | 2xR8-250 | 3.780 | 4.280 | 0.500 | 187.26 | 170.60 |
| O4 | Rechts | 4xR8-125 | 4.280 | 4.780 | 0.500 | 187.04 | 347.36 |
| O4 | Rechts | 14xR8-250 | 4.780 | 8.280 | 3.500 | 166.22 | 173.68 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 9

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------|-------------|-----------|
| V4 (7.560-8.060) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V3 (4.030-7.560) | Vloer | 2,1 <= 14,1 | 3,5 <= 14,1 | 0,15 | 0,25 |
| | Handmatig | | | | |
| V2 (0.500-4.030) | Vloer | 2,1 <= 14,1 | 3,6 <= 14,1 | 0,15 | 0,25 |
| | Handmatig | | | | |
| V1 (0.000-0.500) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 10
ALGEMEEN + KRUIP
Ligger 10

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 10 |
| Staven | S10 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

DEKKING

| | Boven | Onder | Zij- + Voorkant | Ligger 10 |
|--------------------|-------|-------|-----------------|-----------|
| Gereduceerd | Nee | Nee | Nee | |
| Mil. | XC2 | XC2 | XC2 | |
| Met. | Norm. | Norm. | Norm. | |
| Nab. | Nee | Nee | Nee | |
| Benodigde dekking | 30 mm | 30 mm | 30 mm | |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm | |
| - | - | - | - | |

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 10 Moment |
|---------|---------|-------|-----------|--------|-----------|-----|----------|----------|---------------|------------------|
| 0.000 | | | | S3 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 0.300 | O6 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 2.670 | O7 | paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 5.340 | O8 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 7.760 | O9 | paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 8.060 | | paal | | S7 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 10 S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------------|
| 0.300 | 92.31 | 4R12 | 1R12 | 494 | 565 | | 76.31 | N/B | 12.0 <= 8.8 | 76 <= 130 |
| 2.670 | 137.83 | 4R12 | 3R12 | 757 | 792 | | 110.45 | N/B | 12.0 <= 8.0 | 50 <= 107 |
| 5.340 | 130.93 | 4R12 | 3R12 | 716 | 792 | | 107.19 | N/B | 12.0 <= 8.4 | 50 <= 120 |
| 7.760 | 91.68 | 4R12 | 1R12 | 490 | 565 | | 75.79 | N/B | 12.0 <= 8.9 | 76 <= 133 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 10 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|-----------------|
| 1.451 | 71.47 | 4R12 | | 378 | 452 | | -38.40 | N/B | 12.0 <= 22.7 | 101 <= 277 |
| 3.965 | 92.67 | 4R12 | 1R12 | 496 | 565 | | -54.84 | N/B | 12.0 <= 16.6 | 76 <= 241 |
| 6.627 | 67.77 | 4R12 | | 358 | 452 | | -40.65 | N/B | 12.0 <= 20.5 | 101 <= 265 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 10 |
|---------|----|----------|--------|--------|-----------|
|---------|----|----------|--------|--------|-----------|

0.000 0.01 1R8 0 50
m kNm - mm2 mm2

BEUGELWAPENING

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 10 VEdi |
|---------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-------------------|
| 0.000 | 277.79 | R8-150 | 643 | 0 | 670 | 61.727 | 289.468 | 277.786 | N/B | N/B |
| 0.926 | 116.32 | R8-300 | 269 | 0 | 335 | 61.727 | 144.734 | 116.325 | N/B | N/B |
| 2.044 | 143.81 | R8-150 | 344 | 0 | 670 | 74.388 | 279.855 | 143.811 | N/B | N/B |
| 3.296 | 166.37 | R8-150 | 390 | 0 | 670 | 61.727 | 286.263 | 166.370 | N/B | N/B |
| 4.714 | 165.87 | R8-150 | 388 | 0 | 670 | 61.727 | 286.263 | 165.875 | N/B | N/B |
| 5.966 | 147.93 | R8-150 | 342 | 0 | 670 | 61.727 | 289.468 | 147.926 | N/B | N/B |
| 7.134 | 120.97 | R8-300 | 280 | 0 | 335 | 61.727 | 144.734 | 120.973 | N/B | N/B |
| 8.060 | 275.51 | R8-150 | 638 | 0 | 670 | 61.727 | 289.468 | 275.512 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12m(basis)(basis) | -0.165 | 0.769 | 4,0D | 0.928 | 0.000 | 7.860 | 0.922 | 8.219 | 0.563 | 4,0D | 9.716 |
| 1R12n(bijleg)(bijleg) | -0.165 | 0.584 | 4,0D | 0.743 | 0.000 | 0.885 | 0.683 | 1.568 | 0.000 | 2,5D | 2.317 |
| 3R12o(bijleg)(bijleg) | 1.391 | 0.000 | 2,5D | 0.488 | 1.879 | 3.477 | 0.488 | 3.965 | 0.000 | 2,5D | 2.574 |
| 3R12p(bijleg)(bijleg) | 4.074 | 0.000 | 2,5D | 0.488 | 4.562 | 6.071 | 0.488 | 6.559 | 0.000 | 2,5D | 2.485 |
| 1R12q(bijleg)(bijleg) | 6.498 | 0.000 | 2,5D | 0.683 | 7.182 | 8.060 | 0.738 | 8.219 | 0.579 | 4,0D | 2.299 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12c2(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.352 | 0.475 | 7.860 | 0.984 | 8.219 | 0.625 | 4,0D | 9.009 |
| 1R12d2(bijleg)(bijleg) | 2.695 | 0.000 | 2,5D | 0.478 | 3.173 | 4.758 | 0.478 | 5.236 | 0.000 | 2,5D | 2.541 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S3 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 277.83 | 289.47 |
| O6 | Rechts | 1xR8-300 | 0.505 | 0.805 | 0.300 | 116.37 | 144.73 |
| O7 | Links | 4xR8-300 | 0.805 | 2.005 | 1.200 | 136.87 | 139.93 |
| O7 | Links | 2xR8-150 | 2.005 | 2.305 | 0.300 | 143.85 | 279.85 |
| O7 | Links | 8xR8-150 | 2.305 | 3.505 | 1.200 | 166.41 | 286.26 |
| O7 | Rechts | 3xR8-300 | 3.505 | 4.405 | 0.900 | 132.69 | 143.13 |
| O8 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 165.92 | 286.26 |
| O8 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 147.97 | 289.47 |
| O8 | Rechts | 5xR8-300 | 6.205 | 7.705 | 1.500 | 121.01 | 144.73 |
| S7 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 275.55 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| V4 (5.340-7.760) | Vloer | 0,2 <= 9,7 | 0,2 <= 9,7 | 0,02 |
| | Handmatig | | | |
| V3 (2.670-5.340) | Vloer | 0,7 <= 10,7 | 0,4 <= 10,7 | 0,07 |
| | Handmatig | | | |
| V2 (0.300-2.670) | Vloer | 0,2 <= 9,5 | 0,1 <= 9,5 | 0,02 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

LIGGER 11
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 11 |
| Staven | S11-S13 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |

Ligger 11
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 11
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|----------------------|------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.500 | O10 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 0.500 | | | | S3 | 0,400 | N/B | | | Afgetopt | afgetopt Niet |
| 3.170 | O11 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 5.840 | O12 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 8.060 | O13 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 8.060 | | | | S5 | 0,400 | N/B | | | Afgetopt | afgetopt Niet |
| 8.560 | | | | S7 | 0,400 | Nee | | | Niet | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | afgetopt |

Ligger 11
BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|--------------|------------|
| 0.500 | 61.84 | 4R12 | | 327 | 452 | | 51.13 | N/B | 12.0 <= 12.3 | 101 <= 198 |
| 3.170 | 105.47 | 4R12 | 2R12 | 570 | 679 | | 83.73 | N/B | 12.0 <= 10.2 | 60 <= 160 |
| 5.840 | 111.48 | 4R12 | 2R12 | 640 | 679 | | 87.72 | N/B | 12.0 <= 9.4 | 60 <= 142 |
| 8.060 | 64.52 | 4R12 | | 377 | 452 | | 53.33 | N/B | 12.0 <= 11.4 | 101 <= 184 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 11
ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|

Ligger 11

| | | | | | | | | | |
|-------|--------|------|------|-----|-----|--------|-----|---------|------------|
| 1.797 | 124.62 | 4R12 | 3R12 | 681 | 792 | -89.47 | N/B | 12.0 <= | 50 <= 187 |
| 4.503 | 123.36 | 4R12 | 3R12 | 709 | 792 | -80.10 | N/B | 11.6 | 50 <= 222 |
| 6.981 | 76.68 | 4R12 | | 444 | 452 | -45.58 | N/B | 13.8 | 101 <= 233 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 11

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 3.97 | 1R8 | 38 | 50 |
| 0.500 | 0.28 | 1R8 | 3 | 50 |
| 8.060 | 4.82 | 1R8 | 46 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 11

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 90.97 | R8-300 | 211 | 27 | 335 | 60.716 | 144.734 | 90.966 | N/B | N/B |
| 1.126 | 148.45 | R8-150 | 356 | 2 | 670 | 61.634 | 279.855 | 148.451 | N/B | N/B |
| 2.544 | 174.10 | R8-150 | 417 | 2 | 670 | 61.634 | 279.855 | 174.105 | N/B | N/B |
| 3.796 | 164.52 | R8-150 | 394 | 2 | 670 | 61.634 | 279.855 | 164.520 | N/B | N/B |
| 5.214 | 165.37 | R8-150 | 396 | 2 | 670 | 61.634 | 279.855 | 165.370 | N/B | N/B |
| 6.466 | 128.94 | R8-300 | 299 | 2 | 335 | 61.634 | 144.734 | 128.943 | N/B | N/B |
| 7.434 | 100.39 | R8-300 | 232 | 2 | 335 | 61.634 | 144.734 | 100.392 | N/B | N/B |
| 8.560 | 96.43 | R8-300 | 223 | 33 | 335 | 60.716 | 144.734 | 96.425 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 11

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12r(basis)(basis) | -0.165 | 0.461 | 4,0D | 0.620 | 0.000 | 8.360 | 0.647 | 8.719 | 0.288 | 4,0D | 9.634 |
| 2R12s(bijleg)(bijleg) | 2.009 | 0.000 | 2,5D | 0.569 | 2.579 | 3.793 | 0.569 | 4.363 | 0.000 | 2,5D | 2.354 |
| 2R12t(bijleg)(bijleg) | 4.603 | 0.000 | 2,5D | 0.569 | 5.172 | 6.502 | 0.569 | 7.072 | 0.000 | 2,5D | 2.469 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 11

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12e1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.587 | 0.675 | 8.360 | 0.344 | 8.725 | 0.000 | 2,5D | 8.890 |
| 3R12e2(bijleg)(bijleg) | 0.339 | 0.000 | 2,5D | 0.336 | 0.675 | 2.995 | 0.296 | 3.291 | 0.000 | 2,5D | 2.952 |
| 3R12f2(bijleg)(bijleg) | 3.032 | 0.000 | 2,5D | 0.313 | 3.345 | 5.665 | 0.319 | 5.984 | 0.000 | 2,5D | 2.952 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 11

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| O10 | Links | 2xR8-300 | -0.220 | 0.380 | 0.600 | 105.06 | 139.93 |
| O10 | Links | 6xR8-150 | 0.380 | 1.280 | 0.900 | 162.54 | 279.85 |
| O10 | Rechts | 3xR8-300 | 1.280 | 2.180 | 0.900 | 129.72 | 139.93 |
| O11 | Links | 14xR8-150 | 2.180 | 4.280 | 2.100 | 188.19 | 279.85 |
| O11 | Rechts | 2xR8-300 | 4.280 | 4.880 | 0.600 | 120.77 | 139.93 |
| O12 | Links | 10xR8-150 | 4.880 | 6.380 | 1.500 | 179.46 | 279.85 |
| O12 | Rechts | 8xR8-300 | 6.380 | 8.780 | 2.400 | 143.03 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 11

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------------|------------|------------|-------------|-----------|
| V5 (8.060-8.560) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 |
| V4 (5.840-8.060) | Handmatig Vloer | 0,3 <= 8,9 | 0,5 <= 8,9 | 0,04 | 0,06 |

| | | | | | |
|------------------|--------------------|-------------|-------------|------|------|
| V3 (3.170-5.840) | Handmatig Vloer | 1,3 <= 10,7 | 1,6 <= 10,7 | 0,12 | 0,15 |
| V2 (0.500-3.170) | Handmatig Vloer | 1,3 <= 10,7 | 2,1 <= 10,7 | 0,12 | 0,19 |
| V1 (0.000-0.500) | Handmatig Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 |
| m | - | mm | mm | - | - |

LIGGER 12

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 12 |
| Staven | S14 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |

Ligger 12

| | |
|-----------------|---------|
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 12

OPLEGGEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 12 Moment |
|---------|---------|-------|--------------|--------|--------------|-----|----------|----------|----------|---------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O14 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 2.670 | O15 | paal | | | | | | | Afgetopt | Niet |
| 5.340 | O16 | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| 7.760 | O17 | paal | | | | | | | Afgetopt | Niet |
| 8.060 | | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| | | paal | | S5 | 0,400 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 12 |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|-------------|-----------|-----------|
| 0.300 | 94.48 | 4R12 | 1R12 | 506 | 565 | | 78.12 | N/B | 12.0 <= 8.4 | 76 <= 121 | |
| 2.670 | 139.85 | 4R12 | 3R12 | 769 | 792 | | 112.24 | N/B | 12.0 <= 7.8 | 50 <= 101 | |
| 5.340 | 132.61 | 4R12 | 3R12 | 726 | 792 | | 108.70 | N/B | 12.0 <= 8.2 | 50 <= 114 | |
| 7.760 | 93.30 | 4R12 | 1R12 | 499 | 565 | | 77.14 | N/B | 12.0 <= 8.6 | 76 <= 126 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

| ONDERWAPENING | | | | | | | | | | Ligger 12 |
|---------------|-------|-------|--------|--------|--------|---------------|--------|---------|-----------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 1.451 | 70.51 | 4R12 | | 373 | 452 | | -37.12 | N/B | 12.0 <= | 101 <= 281 |
| 3.963 | 91.06 | 4R12 | 1R12 | 487 | 565 | | -53.27 | N/B | 23.6 12.0 <= | 76 <= 249 |
| 6.627 | 66.34 | 4R12 | | 350 | 452 | | -39.32 | N/B | 18.0 12.0 <= | 101 <= 273 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | 21.9 mm | mm |

| FLANKWAPENING | | | | | | Ligger 12 |
|---------------|------|----------|--------|--------|--|-----------|
| Positie | Mx | Wapening | As,ben | As,toe | | |
| 0.000 | 0.00 | 1R8 | 0 | 50 | | |
| m | kNm | - | mm2 | mm2 | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 12 |
|----------------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-----------|
| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 284.81 | R8-150 | 659 | 0 | 670 | 61.731 | 289.468 | 284.812 | N/B | N/B |
| 0.926 | 116.20 | R8-150 | 269 | 0 | 670 | 61.731 | 289.468 | 116.196 | N/B | N/B |
| 2.044 | 143.95 | R8-150 | 345 | 0 | 670 | 74.390 | 279.855 | 143.951 | N/B | N/B |
| 3.296 | 166.77 | R8-150 | 390 | 0 | 670 | 61.731 | 286.263 | 166.774 | N/B | N/B |
| 4.714 | 166.26 | R8-150 | 398 | 0 | 670 | 74.390 | 279.855 | 166.261 | N/B | N/B |
| 5.966 | 148.06 | R8-150 | 355 | 0 | 670 | 74.390 | 279.855 | 148.064 | N/B | N/B |
| 7.134 | 120.80 | R8-300 | 280 | 0 | 335 | 61.731 | 144.734 | 120.801 | N/B | N/B |
| 8.060 | 280.65 | R8-150 | 650 | 0 | 670 | 61.731 | 289.468 | 280.651 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 12 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|-----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12u(basis)(basis) | -0.165 | 0.791 | 4,0D | 0.950 | 0.000 | 7.860 | 0.938 | 8.219 | 0.579 | 4,0D | 9.754 |
| 1R12v(bijleg)(bijleg) | -0.165 | 0.601 | 4,0D | 0.760 | 0.000 | 0.899 | 0.683 | 1.582 | 0.000 | 2,5D | 2.348 |
| 3R12w(bijleg)(bijleg) | 1.373 | 0.000 | 2,5D | 0.488 | 1.861 | 3.489 | 0.488 | 3.977 | 0.000 | 2,5D | 2.604 |
| 3R12x(bijleg)(bijleg) | 4.081 | 0.000 | 2,5D | 0.488 | 4.569 | 6.062 | 0.488 | 6.550 | 0.000 | 2,5D | 2.468 |
| 1R12y(bijleg)(bijleg) | 6.489 | 0.000 | 2,5D | 0.683 | 7.172 | 8.060 | 0.751 | 8.219 | 0.591 | 4,0D | 2.322 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 12 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|-----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12g2(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.346 | 0.475 | 7.860 | 1.002 | 8.219 | 0.643 | 4,0D | 9.027 |
| 1R12h2(bijleg)(bijleg) | 2.720 | 0.000 | 2,5D | 0.478 | 3.199 | 4.730 | 0.478 | 5.208 | 0.000 | 2,5D | 2.488 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | Ligger 12 |
|-------------------------|--------|----------|--------|-------|--------|--------|--------|-----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | |
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 284.82 | 289.47 | |
| O14 | Rechts | 3xR8-300 | 0.505 | 1.405 | 0.900 | 116.20 | 144.73 | |
| O15 | Links | 2xR8-300 | 1.405 | 2.005 | 0.600 | 137.19 | 139.93 | |
| O15 | Links | 2xR8-150 | 2.005 | 2.305 | 0.300 | 143.96 | 279.85 | |
| O15 | Rechts | 1xR8-300 | 2.305 | 2.605 | 0.300 | 143.96 | 144.73 | |
| O15 | Rechts | 2xR8-150 | 2.605 | 2.905 | 0.300 | 166.78 | 289.47 | |
| O15 | Links | 2xR8-150 | 2.905 | 3.205 | 0.300 | 166.78 | 279.85 | |
| O15 | Rechts | 2xR8-150 | 3.205 | 3.505 | 0.300 | 166.78 | 286.26 | |
| O15 | Rechts | 2xR8-300 | 3.505 | 4.105 | 0.600 | 130.12 | 143.13 | |
| O16 | Links | 1xR8-300 | 4.105 | 4.405 | 0.300 | 127.01 | 139.93 | |
| O16 | Links | 4xR8-150 | 4.405 | 5.005 | 0.600 | 166.27 | 279.85 | |
| O16 | Rechts | 6xR8-150 | 5.005 | 5.905 | 0.900 | 166.27 | 286.26 | |

| | | | | | | | |
|-----|--------|----------|-------|-------|-------|--------|--------|
| O16 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 148.07 | 279.85 |
| O16 | Rechts | 4xR8-300 | 6.205 | 7.405 | 1.200 | 120.81 | 139.93 |
| O17 | Links | 1xR8-300 | 7.405 | 7.705 | 0.300 | 120.81 | 144.73 |
| S5 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 280.66 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 12 |
|------------------|-----------|-------------|-------------------|-----------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V4 (5.340-7.760) | Vloer | 0,2 <= 9,7 | 0,2 <= 9,7 | 0,02 | 0,02 |
| | Handmatig | | | | |
| V3 (2.670-5.340) | Vloer | 0,7 <= 10,7 | 0,3 <= 10,7 | 0,06 | 0,03 |
| | Handmatig | | | | |
| V2 (0.300-2.670) | Vloer | 0,2 <= 9,5 | -0,1 <= 9,5 | 0,02 | 0,01 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 13
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 13 |
| Staven | S15-S17 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.56 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 13
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 13
OPLEGGEGEREVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 13 Moment |
|---------|---------|------------|-----------|-------|-----------|-----|----------|----------|----------|------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.500 | O18 | Ronde paal | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 0.500 | | | | S4 | 0,400 | N/B | | | Afgetopt | Niet |
| 3.170 | O19 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet |
| 5.840 | O20 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet |
| 8.060 | O21 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | | | | | | | | | afgetopt |

| | | | | | | | | |
|-------|---|---|----|-------|-----|---|----------|----------|
| 8.060 | | | S5 | 0,400 | N/B | | Afgetopt | Niet |
| 8.560 | | | S8 | 0,400 | Nee | | Niet | afgetopt |
| | | | | | | | afgetopt | Niet |
| | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 13 |
|---------|--------|-------|--------|--------|--------|---------------|-------|---------|---------|--------|-----------|
| 0.500 | 61.70 | 4R12 | | 327 | 452 | | 51.01 | N/B | 12.0 <= | 101 <= | 199 |
| 3.170 | 114.93 | 4R12 | 2R12 | 625 | 679 | | 93.40 | N/B | 12.0 <= | 8.3 | 60 <= 118 |
| 5.840 | 120.70 | 4R12 | 3R12 | 694 | 792 | | 97.98 | N/B | 12.0 <= | 9.9 | 50 <= 154 |
| 8.060 | 80.34 | 4R12 | 1R12 | 464 | 565 | | 66.23 | N/B | 12.0 <= | 76 <= | 182 |
| | | | | | | | | | 11.3 | | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 13 |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|---------|--------|-----------|
| 1.777 | 120.86 | 4R12 | 2R12 | 659 | 679 | | -89.65 | N/B | 12.0 <= | 9.0 | 60 <= 134 |
| 4.502 | 112.91 | 4R12 | 2R12 | 648 | 679 | | -74.18 | N/B | 12.0 <= | 60 <= | 201 |
| 6.978 | 62.73 | 4R12 | | 368 | 452 | | -35.82 | N/B | 12.0 <= | 101 <= | 285 |
| | | | | | | | | | 24.6 | | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | | | | | | | Ligger 13 |
|---------|------|----------|--------|--------|--|--|--|--|--|--|-----------|
| 0.000 | 4.45 | 1R8 | 43 | 50 | | | | | | | |
| 0.500 | 0.32 | 1R8 | 3 | 50 | | | | | | | |
| 8.060 | 4.89 | 1R8 | 47 | 50 | | | | | | | |
| m | kNm | - | mm2 | mm2 | | | | | | | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 13 |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.000 | 91.08 | R8-300 | 211 | 30 | 335 | 60.716 | 144.734 | 91.076 | N/B | N/B | |
| 1.126 | 145.30 | R8-150 | 344 | 2 | 670 | 61.620 | 283.059 | 145.300 | N/B | N/B | |
| 2.544 | 179.07 | R8-150 | 424 | 2 | 670 | 61.620 | 283.059 | 179.065 | N/B | N/B | |
| 3.796 | 164.15 | R8-150 | 389 | 2 | 670 | 61.620 | 283.059 | 164.149 | N/B | N/B | |
| 5.214 | 165.72 | R8-150 | 392 | 2 | 670 | 61.620 | 283.059 | 165.718 | N/B | N/B | |
| 6.466 | 127.91 | R8-300 | 296 | 2 | 335 | 61.620 | 144.734 | 127.909 | N/B | N/B | |
| 7.434 | 101.79 | R8-300 | 236 | 2 | 335 | 61.620 | 144.734 | 101.787 | N/B | N/B | |
| 8.560 | 138.03 | R8-150 | 320 | 33 | 670 | 60.716 | 289.468 | 138.026 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 13 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12a1(basis)(basis) | -0.165 | 0.461 | 4,0D | 0.620 | 0.000 | 8.360 | 0.807 | 8.719 | 0.448 | 4,0D | 9.793 | |
| 2R12b1(bijleg) | 1.972 | 0.000 | 2,5D | 0.569 | 2.542 | 3.840 | 0.569 | 4.409 | 0.000 | 2,5D | 2.437 | |
| (bijleg) | | | | | | | | | | | | |
| 3R12c1(bijleg) | 4.646 | 0.000 | 2,5D | 0.488 | 5.134 | 6.545 | 0.488 | 7.033 | 0.000 | 2,5D | 2.388 | |
| (bijleg) | | | | | | | | | | | | |
| 1R12d1(bijleg) | 5.862 | 0.000 | 2,5D | 0.683 | 6.545 | 8.060 | 0.646 | 8.725 | 0.000 | 2,5D | 2.863 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 13 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12i2(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.584 | 0.675 | 8.360 | 0.493 | 8.719 | 0.134 | 4,0D | 9.018 | |

| | | | | | | | | | | | |
|----------------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 2R12j2(bijleg) | 0.286 | 0.000 | 2,5D | 0.389 | 0.675 | 2.860 | 0.399 | 3.259 | 0.000 | 2,5D | 2.973 |
| (bijleg) | | | | | | | | | | | |
| 2R12k2(bijleg) | 3.023 | 0.000 | 2,5D | 0.322 | 3.345 | 5.523 | 0.399 | 5.921 | 0.000 | 2,5D | 2.898 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 13

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| O18 | Links | 2xR8-300 | -0.220 | 0.380 | 0.600 | 105.37 | 141.53 |
| O18 | Links | 6xR8-150 | 0.380 | 1.280 | 0.900 | 159.59 | 283.06 |
| O18 | Rechts | 3xR8-300 | 1.280 | 2.180 | 0.900 | 130.08 | 141.53 |
| O19 | Links | 14xR8-150 | 2.180 | 4.280 | 2.100 | 193.36 | 283.06 |
| O19 | Rechts | 2xR8-300 | 4.280 | 4.880 | 0.600 | 115.98 | 141.53 |
| O20 | Links | 10xR8-150 | 4.880 | 6.380 | 1.500 | 180.01 | 283.06 |
| O20 | Rechts | 5xR8-300 | 6.380 | 7.880 | 1.500 | 142.20 | 144.73 |
| S8 | Links | 5xR8-150 | 7.880 | 8.705 | 0.825 | 152.32 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 13

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V5 (8.060-8.560) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 |
| | Handmatig | | | |
| V4 (5.840-8.060) | Vloer | 0,2 <= 8,9 | 0,4 <= 8,9 | 0,02 |
| | Handmatig | | | |
| V3 (3.170-5.840) | Vloer | 1,2 <= 10,7 | 1,4 <= 10,7 | 0,11 |
| | Handmatig | | | |
| V2 (0.500-3.170) | Vloer | 1,3 <= 10,7 | 2,3 <= 10,7 | 0,12 |
| | Handmatig | | | |
| V1 (0.000-0.500) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

LIGGER 14
ALGEMEEN + KRUIP
Ligger 14
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 14 | Cement | S |
| Staven | S18-S20 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 8.56 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 14

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEN
Ligger 14

| Positie | Oplegg. | Type | Afmetin | Staaft | Afmetin | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|---------|--------|---------|-----|----------|----------|----------|--------|
| | | | g | | g | | | | | |

| | | | | | | | | |
|-------|-----|-------|-------|-------|-----|------|---------------|----------|
| 0.000 | O22 | Ronde | 0,350 | | Ja | 0,00 | 0,00 Afgetopt | Niet |
| | | paal | | | | | | afgetopt |
| 0.000 | | | S2 | 0,400 | Nee | | Afgetopt | Niet |
| 0.500 | | | S4 | 0,400 | N/B | | Afgetopt | afgetopt |
| 2.140 | O23 | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| 4.280 | O24 | paal | | | | | | afgetopt |
| | | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| 6.420 | O25 | paal | | | | | | afgetopt |
| | | Ronde | 0,350 | | N/B | | Afgetopt | Niet |
| 8.060 | | paal | S6 | 0,400 | N/B | | Afgetopt | afgetopt |
| 8.560 | O26 | Ronde | 0,350 | | Ja | 0,00 | 0,00 Afgetopt | Niet |
| 8.560 | | paal | S8 | 0,400 | Nee | | Afgetopt | afgetopt |
| | | | | | | | | Niet |
| m | - | - | m | - | m | - | kNm | kNm - |
| | | | | | | | | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 2.140 | 38.23 | 4R12 | | 221 | 452 | | 28.85 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.280 | 83.10 | 4R12 | 1R12 | 465 | 565 | | 66.07 | N/B | 12.0 <= 11.4 | 76 <= 183 |
| 6.420 | 41.73 | 4R12 | | 240 | 452 | | 30.89 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|--------------|-----------|
| 0.500 | 145.40 | 4R12 | 4R12 | 824 | 905 | | -118.83 | N/B | 12.0 <= 8.7 | 43 <= 127 |
| 0.941 | 169.94 | 4R12 | 3R16 | 977 | 1056 | | -135.05 | N/B | 13.7 <= 8.6 | 50 <= 130 |
| 3.175 | 110.45 | 4R12 | 2R12 | 619 | 679 | | -79.01 | N/B | 12.0 <= 11.2 | 60 <= 180 |
| 5.383 | 110.01 | 4R12 | 2R12 | 617 | 679 | | -78.47 | N/B | 12.0 <= 11.4 | 60 <= 183 |
| 7.509 | 137.45 | 4R12 | 3R12 | 777 | 792 | | -107.65 | N/B | 12.0 <= 8.3 | 50 <= 118 |
| 8.060 | 99.03 | 4R12 | 2R12 | 554 | 679 | | -81.01 | N/B | 12.0 <= 10.7 | 60 <= 172 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 2.92 | 1R8 | 28 | 50 |
| 8.060 | 2.97 | 1R8 | 29 | 50 |
| 8.560 | 2.97 | 1R8 | 29 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|------|------|
| 0.300 | 281.05 | R8-100 | 681 | 20 | 1005 | 77.127 | 414.976 | 281.052 | N/B | N/B |
| 0.626 | 80.02 | R8-150 | 194 | 1 | 670 | 61.667 | 276.650 | 80.019 | N/B | N/B |
| 0.700 | 61.20 | R8-150 | 148 | 0 | 670 | 77.777 | 276.650 | 61.198 | N/B | N/B |
| 1.514 | 157.67 | R8-150 | 389 | 1 | 670 | 61.594 | 271.612 | 157.665 | N/B | N/B |
| 2.766 | 104.11 | R8-150 | 246 | 1 | 670 | 61.667 | 283.059 | 104.106 | N/B | N/B |
| 3.654 | 145.69 | R8-150 | 345 | 1 | 670 | 61.667 | 283.059 | 145.686 | N/B | N/B |
| 4.906 | 144.66 | R8-150 | 343 | 1 | 670 | 61.667 | 283.059 | 144.663 | N/B | N/B |

| | | | | | | | | | | |
|-------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 5.794 | 104.50 | R8-150 | 247 | 1 | 670 | 61.667 | 283.059 | 104.504 | N/B | N/B |
| 7.046 | 133.63 | R8-300 | 320 | 1 | 335 | 61.667 | 139.927 | 133.628 | N/B | N/B |
| 7.860 | 89.22 | R8-300 | 211 | 1 | 335 | 70.616 | 141.530 | 89.224 | N/B | N/B |
| 7.934 | 108.04 | R8-300 | 256 | 1 | 335 | 61.667 | 141.530 | 108.045 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12e1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.500 | 8.385 | 0.120 | 8.725 | 0.000 | 2,5D | 8.890 |
| 1R12f1(bijleg) | 3.611 | 0.000 | 2,5D | 0.669 | 4.280 | 4.280 | 0.669 | 4.949 | 0.000 | 2,5D | 1.337 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 14
AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12l2(basis)(basis) | -0.165 | 0.670 | 4,0D | 1.004 | 0.175 | 8.385 | 0.386 | 8.719 | 0.052 | 4,0D | 9.606 |
| 4R12m2(bijleg) | -0.165 | 0.168 | 4,0D | 0.502 | 0.175 | 1.965 | 0.478 | 2.443 | 0.000 | 2,5D | 2.776 |
| (bijleg) | | | | | | | | | | | |
| 3R16n2(bijleg) | -0.187 | 0.000 | 2,5D | 0.687 | 0.500 | 1.965 | 0.548 | 2.513 | 0.000 | 2,5D | 2.700 |
| (bijleg) | | | | | | | | | | | |
| 2R12o2(bijleg) | 1.863 | 0.000 | 2,5D | 0.452 | 2.315 | 4.105 | 0.417 | 4.522 | 0.000 | 2,5D | 2.659 |
| (bijleg) | | | | | | | | | | | |
| 2R12p2(bijleg) | 4.039 | 0.000 | 2,5D | 0.416 | 4.455 | 6.245 | 0.449 | 6.694 | 0.000 | 2,5D | 2.655 |
| (bijleg) | | | | | | | | | | | |
| 3R12q2(bijleg) | 6.125 | 0.000 | 2,5D | 0.470 | 6.595 | 8.060 | 0.553 | 8.665 | 0.000 | 2,5D | 2.540 |
| (bijleg) | | | | | | | | | | | |
| 2R12r2(bijleg) | 6.046 | 0.000 | 2,5D | 0.549 | 6.595 | 8.385 | 0.257 | 8.725 | 0.000 | 2,5D | 2.679 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 14
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| O22 | Links | 4xR8-300 | -0.070 | 1.130 | 1.200 | 88.18 | 138.33 |
| O23 | Links | 4xR8-150 | 1.130 | 1.730 | 0.600 | 165.82 | 271.61 |
| O23 | Rechts | 2xR8-150 | 1.730 | 2.030 | 0.300 | 165.82 | 276.65 |
| O23 | Links | 2xR8-150 | 2.030 | 2.330 | 0.300 | 165.82 | 283.06 |
| O24 | Links | 3xR8-300 | 2.330 | 3.230 | 0.900 | 112.26 | 141.53 |
| O24 | Links | 14xR8-150 | 3.230 | 5.330 | 2.100 | 153.85 | 283.06 |
| O25 | Links | 3xR8-300 | 5.330 | 6.230 | 0.900 | 112.66 | 141.53 |
| O25 | Rechts | 4xR8-150 | 6.230 | 6.830 | 0.600 | 141.79 | 283.06 |
| O25 | Rechts | 2xR8-300 | 6.830 | 7.430 | 0.600 | 141.79 | 139.93 |
| S6 | Links | 2xR8-300 | 7.430 | 8.030 | 0.600 | 97.38 | 141.53 |
| S6 | Rechts | 2xR8-300 | 8.030 | 8.630 | 0.600 | 97.38 | 139.93 |
| - | - | - | m | m | m | kN | kN |

Ligger 14
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V6 (8.060-8.560) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 |
| | Handmatig | | | 0,02 |
| V5 (6.420-8.060) | Vloer | 0,5 <= 6,6 | 1,0 <= 6,6 | 0,07 |
| | Handmatig | | | 0,15 |
| V4 (4.280-6.420) | Vloer | 0,8 <= 8,6 | 1,1 <= 8,6 | 0,09 |
| | Handmatig | | | 0,12 |
| V3 (2.140-4.280) | Vloer | 0,8 <= 8,6 | 1,1 <= 8,6 | 0,09 |
| | Handmatig | | | 0,13 |
| V2 (0.500-2.140) | Vloer | 0,5 <= 6,6 | 1,0 <= 6,6 | 0,07 |
| | Handmatig | | | 0,16 |
| V1 (0.000-0.500) | Vloer | 0,0 <= 2,0 | 0,1 <= 2,0 | 0,01 |
| | Handmatig | | | 0,03 |
| m | - | mm | mm | - |

Ligger 14

LIGGER 15
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 15 |
| Staven | S21 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.60 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 15
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereducerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 15
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 15 Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|----------|---------------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O27 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 2.670 | O28 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet |
| 5.340 | O29 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet |
| 7.760 | O30 | n.v.t. | 0,000 | | | N/B | | | Niet | Niet |
| 8.060 | | | | S6 | 0,400 | Nee | | | afgetopt | afgetopt |
| | | | | | | | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 15 S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|--------------------|
| 0.300 | 24.80 | 4R12 | | 128 | 452 | | 20.44 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 2.670 | 37.35 | 4R12 | | 194 | 452 | | 29.08 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 5.340 | 34.46 | 4R12 | | 178 | 452 | | 27.66 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 7.760 | 24.29 | 4R12 | | 125 | 452 | | 20.04 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 15 S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|--------------|--------------------|
| 1.497 | 123.50 | 4R12 | 3R12 | 663 | 792 | | -96.12 | N/B | 12.0 <= 10.5 | 67 <= 167 |
| 3.976 | 156.47 | 4R12 | 4R12 | 853 | 905 | | -123.90 | N/B | 12.0 <= 8.3 | 57 <= 118 |

| | | | | | | | | | | | | | |
|-------|--------|------|------|-----|-----|---------|-----|------|----|-----|----|----|-----|
| 6.540 | 129.24 | 4R12 | 3R12 | 696 | 792 | -101.34 | N/B | 12.0 | <= | 9.6 | 67 | <= | 148 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | | mm | | | |

FLANKWAPENING

Ligger 15

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 2.670 | 0.03 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING

Ligger 15

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 52.85 | R8-250 | 125 | 0 | 402 | 75.895 | 170.604 | 52.851 | N/B | N/B |
| 0.926 | 114.37 | R8-250 | 270 | 0 | 402 | 75.895 | 170.604 | 114.370 | N/B | N/B |
| 2.044 | 118.35 | R8-250 | 279 | 0 | 402 | 75.895 | 170.604 | 118.352 | N/B | N/B |
| 3.296 | 148.63 | R8-250 | 354 | 0 | 402 | 75.895 | 169.066 | 148.633 | N/B | N/B |
| 4.714 | 147.87 | R8-250 | 352 | 0 | 402 | 75.895 | 169.066 | 147.870 | N/B | N/B |
| 5.966 | 122.86 | R8-250 | 290 | 0 | 402 | 75.895 | 170.604 | 122.857 | N/B | N/B |
| 7.760 | 244.45 | R8-125 | 561 | 0 | 804 | 75.895 | 350.437 | 244.451 | N/B | N/B |
| 7.760 | 111.03 | R8-250 | 255 | 0 | 402 | 75.895 | 175.219 | 111.025 | N/B | N/B |
| 8.060 | 51.01 | R8-250 | 120 | 0 | 402 | 75.895 | 170.604 | 51.006 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

Ligger 15

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12g1(basis)(basis) | -0.165 | 0.090 | 4,0D | 0.249 | 0.000 | 7.860 | 0.244 | 8.225 | 0.000 | 2,5D | 8.480 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

Ligger 15

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12s2(basis)(basis) | -0.165 | 0.060 | 4,0D | 0.694 | 0.475 | 7.860 | 0.873 | 8.219 | 0.514 | 4,0D | 8.959 |
| 3R12t2(bijleg) | 0.078 | 0.000 | 2,5D | 0.397 | 0.475 | 2.495 | 0.406 | 2.901 | 0.000 | 2,5D | 2.823 |
| (bijleg) | | | | | | | | | | | |
| 4R12u2(bijleg) | 2.427 | 0.000 | 2,5D | 0.418 | 2.845 | 5.165 | 0.413 | 5.578 | 0.000 | 2,5D | 3.151 |
| (bijleg) | | | | | | | | | | | |
| 3R12v2(bijleg) | 5.098 | 0.000 | 2,5D | 0.417 | 5.515 | 7.727 | 0.345 | 8.165 | 0.000 | 2,5D | 3.067 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

Ligger 15

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S2 | Rechts | 12xR8-250 | -0.220 | 2.780 | 3.000 | 148.70 | 170.60 |
| O29 | Links | 8xR8-250 | 2.780 | 4.780 | 2.000 | 148.70 | 169.07 |
| O30 | Links | 9xR8-250 | 4.780 | 7.030 | 2.250 | 147.93 | 175.22 |
| O30 | Links | 6xR8-125 | 7.030 | 7.780 | 0.750 | 244.51 | 350.44 |
| O30 | Rechts | 1xR8-250 | 7.780 | 8.030 | 0.250 | 111.09 | 175.22 |
| S6 | Links | 1xR8-250 | 8.030 | 8.280 | 0.250 | 81.17 | 170.60 |
| - | - | - | m | m | m | kN | kN |

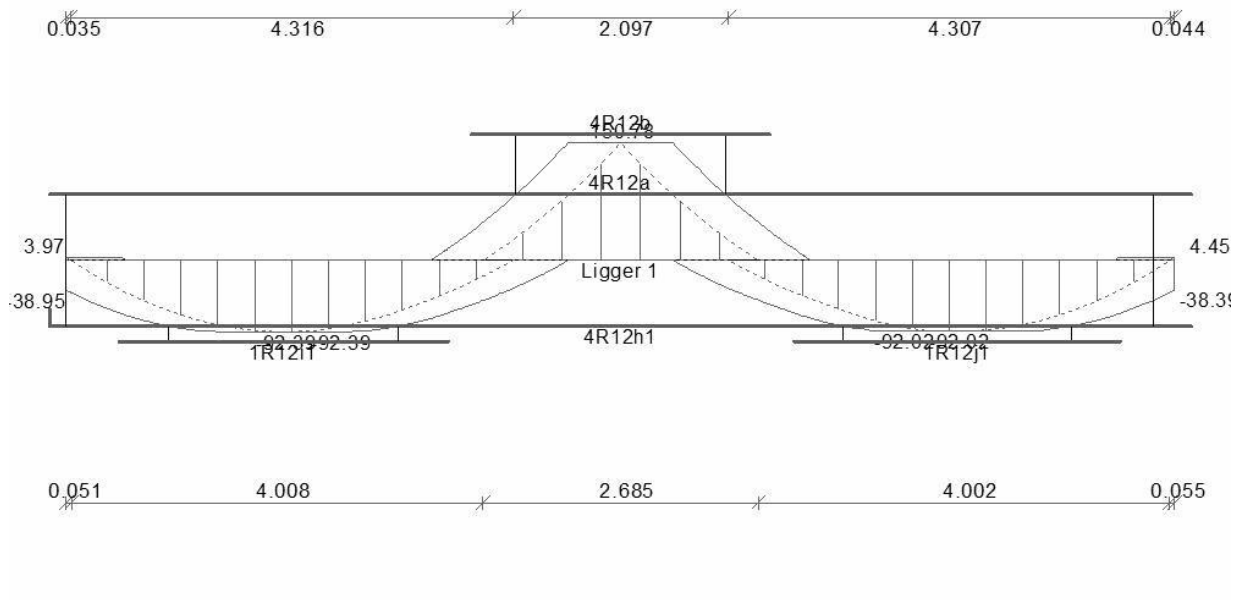
TOETSING DOORBUIGING

Ligger 15

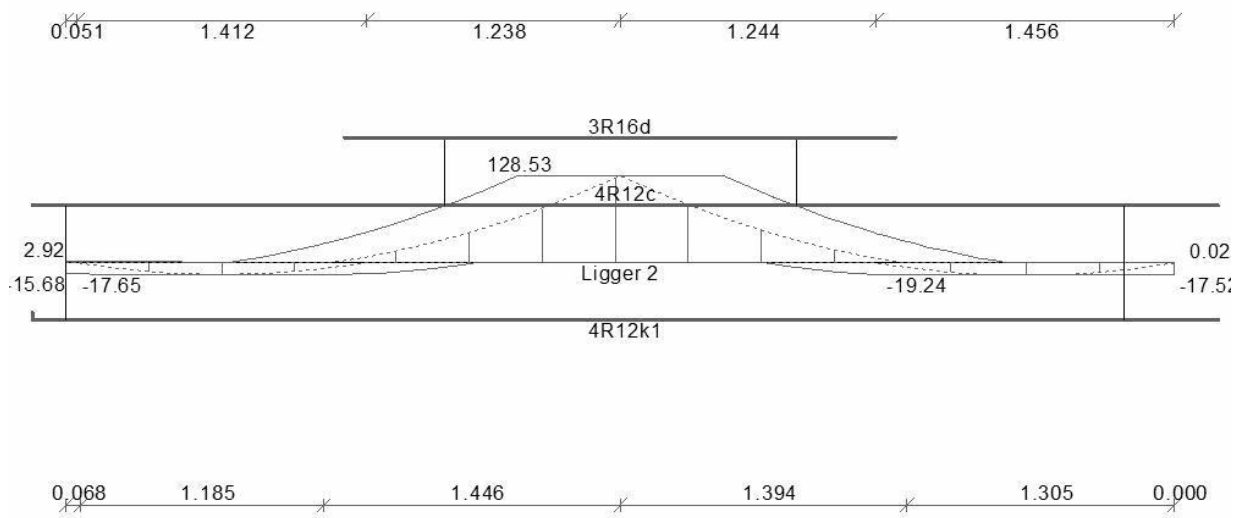
| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| V4 (5.340-7.760) | Vloer | 1,0 <= 9,7 | 1,9 <= 9,7 | 0,10 |
| | Handmatig | | | |
| V3 (2.670-5.340) | Vloer | 1,3 <= 10,7 | 3,0 <= 10,7 | 0,12 |
| | Handmatig | | | |
| V2 (0.300-2.670) | Vloer | 0,9 <= 9,5 | 1,6 <= 9,5 | 0,09 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |

m - mm mm - -

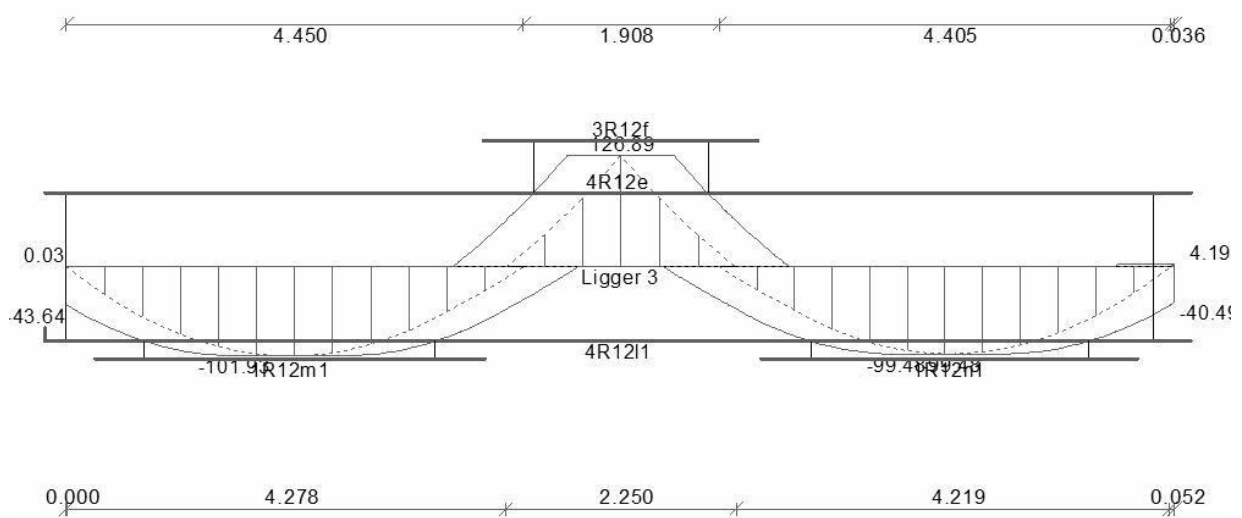
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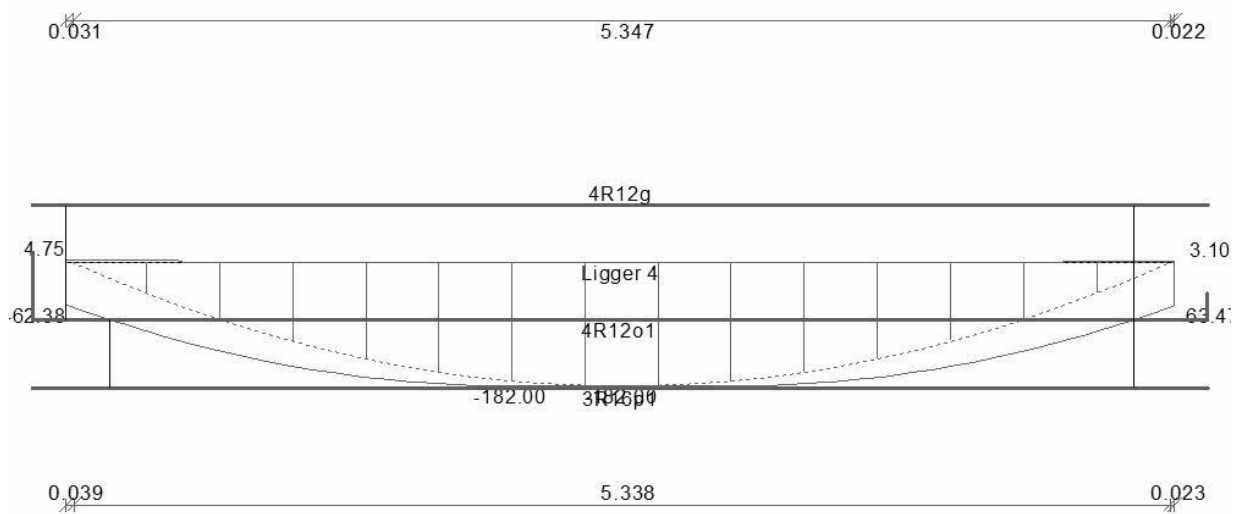
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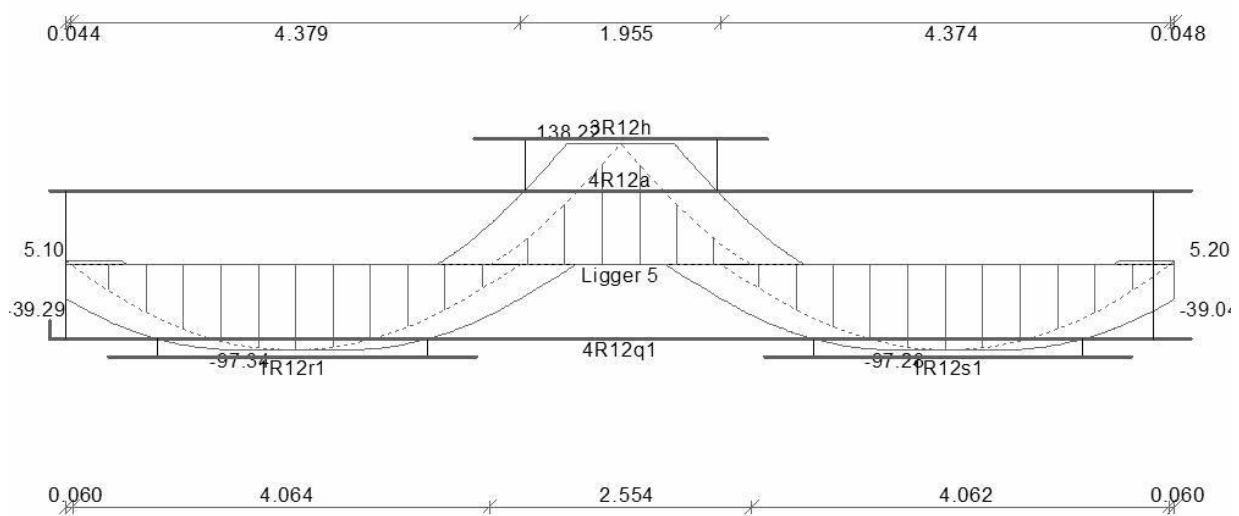
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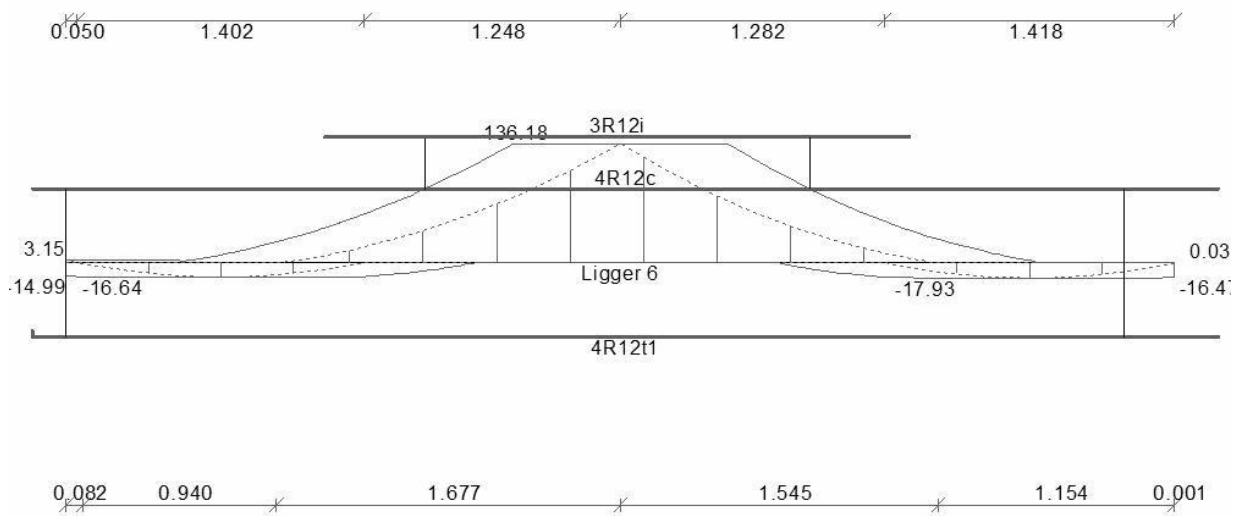
AFB. LANGSWAPENING. (AFBOUW) LIGGER 4



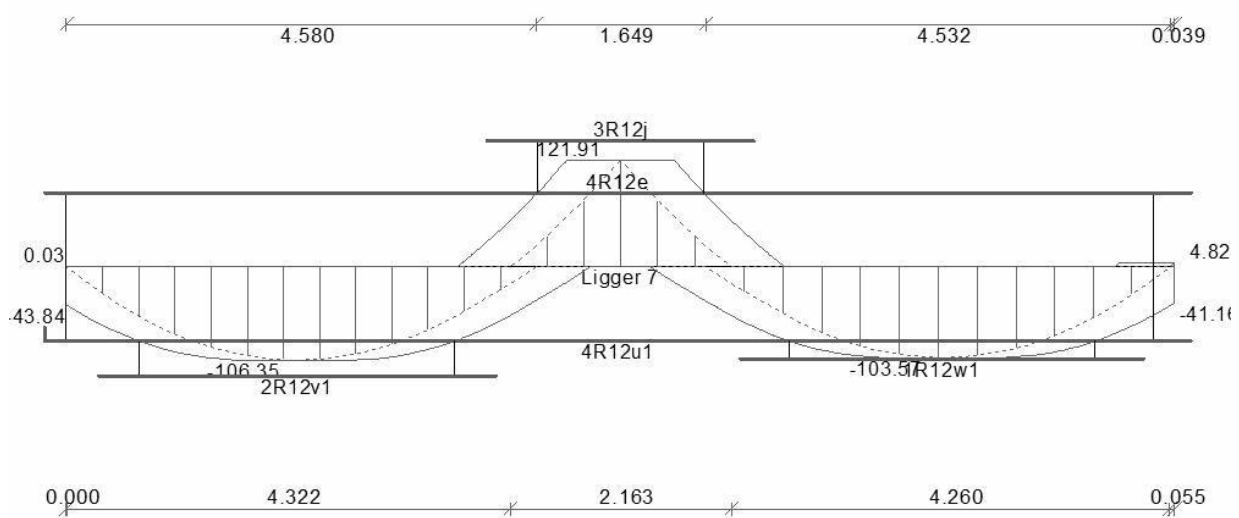
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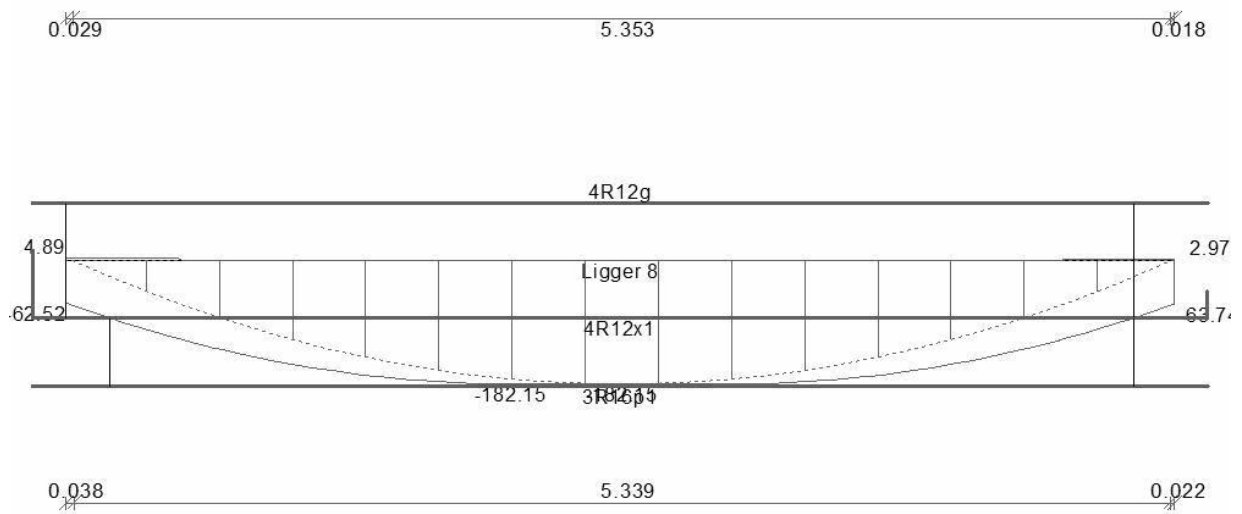
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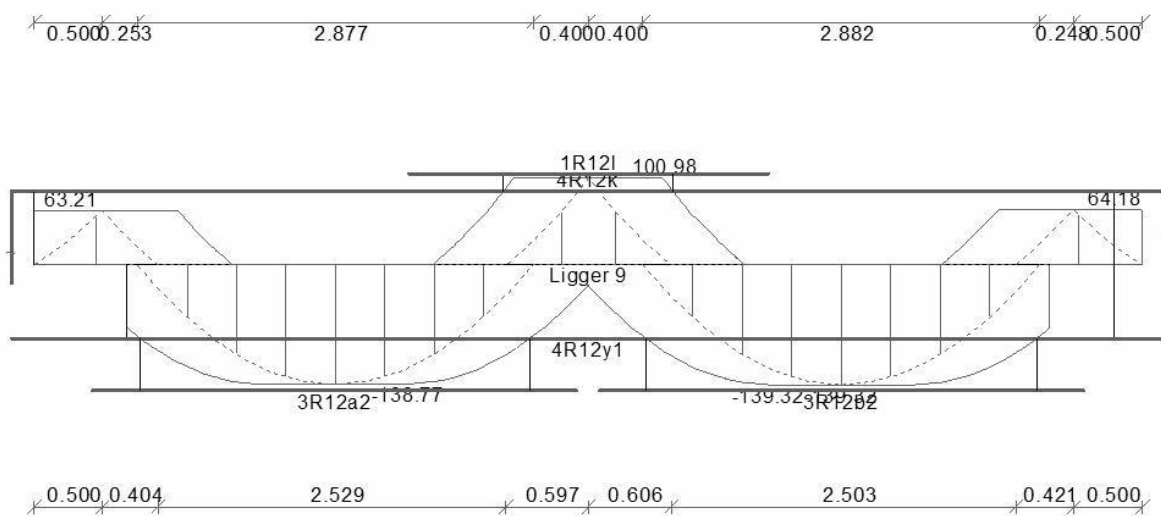
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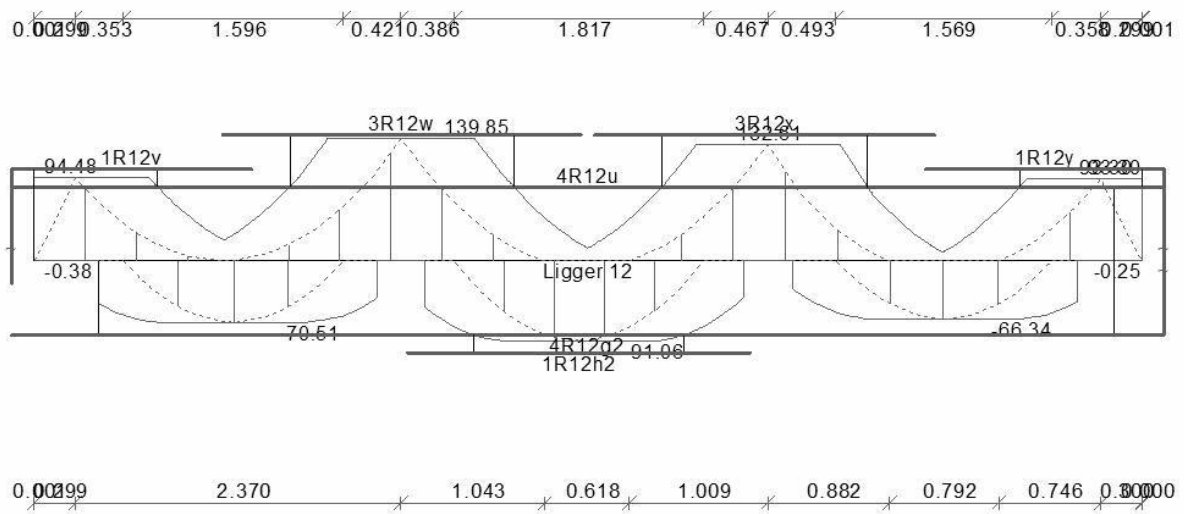
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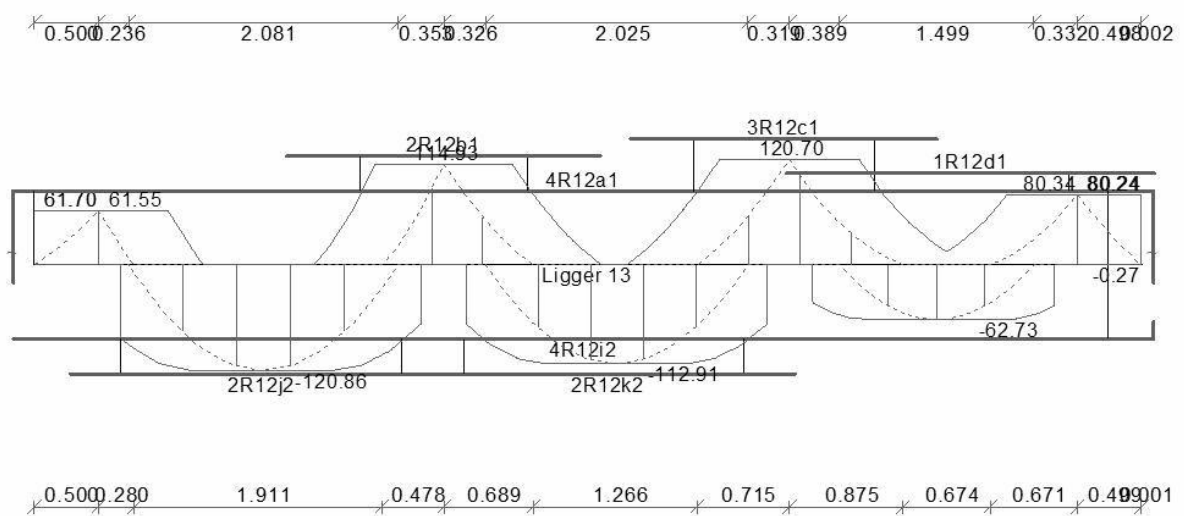
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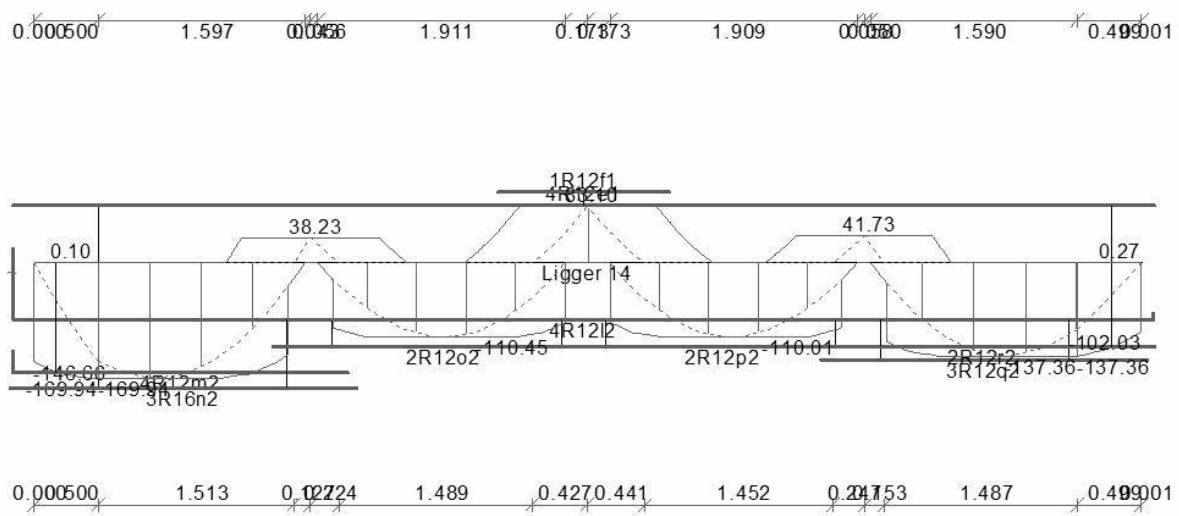
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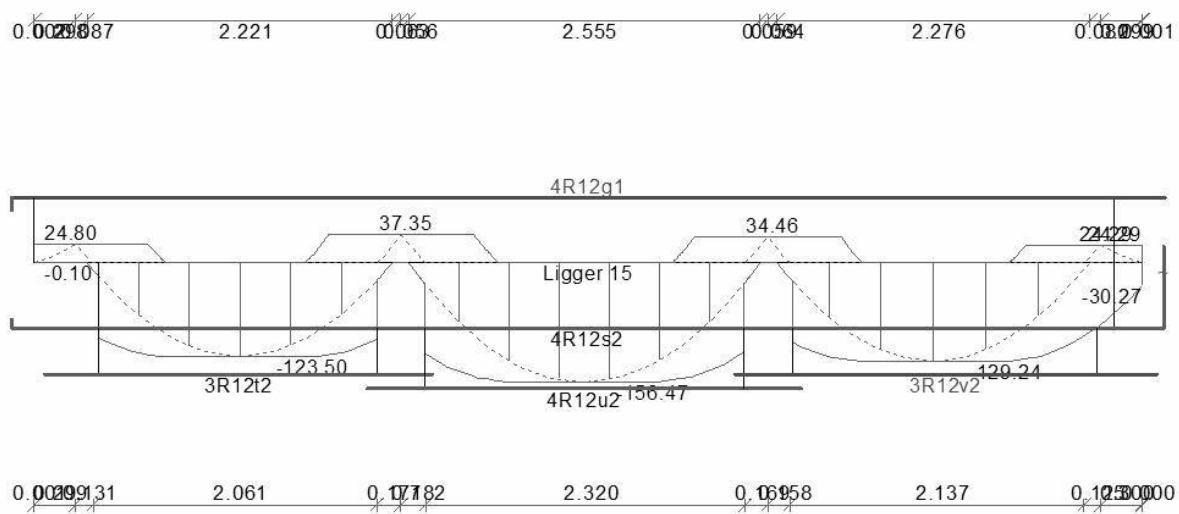
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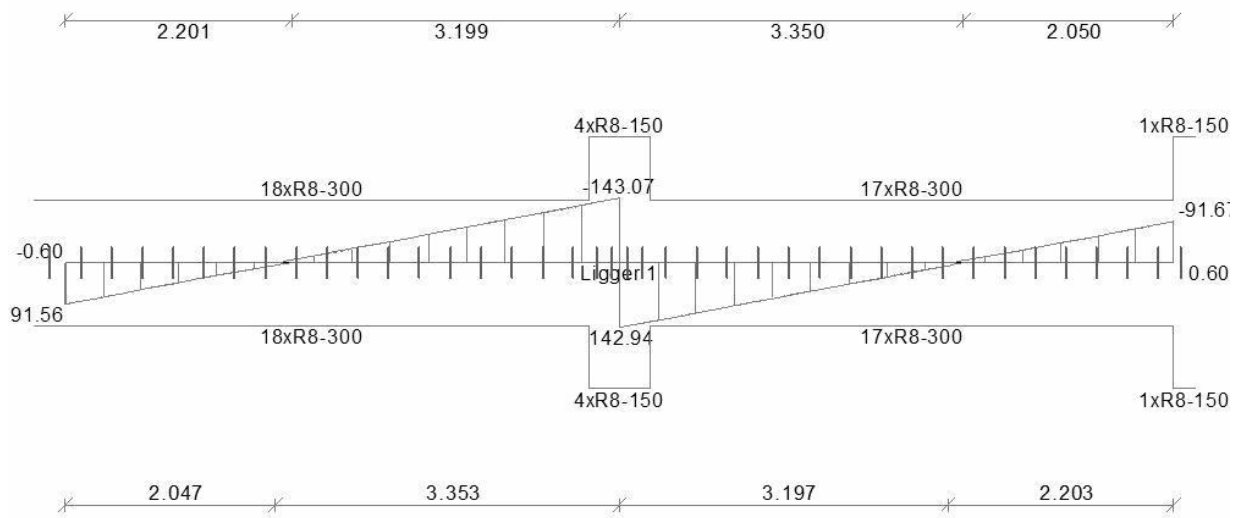
AFB. LANGSWAPENING. (AFBOUW) LIGGER 14



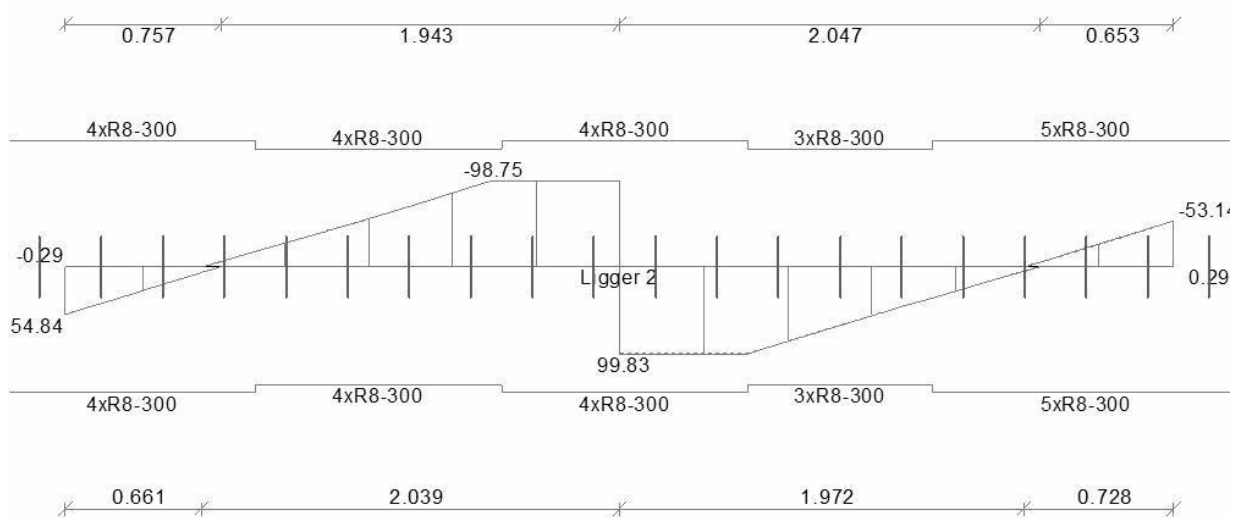
AFB. LANGSWAPENING. (AFBOUW) LIGGER 15



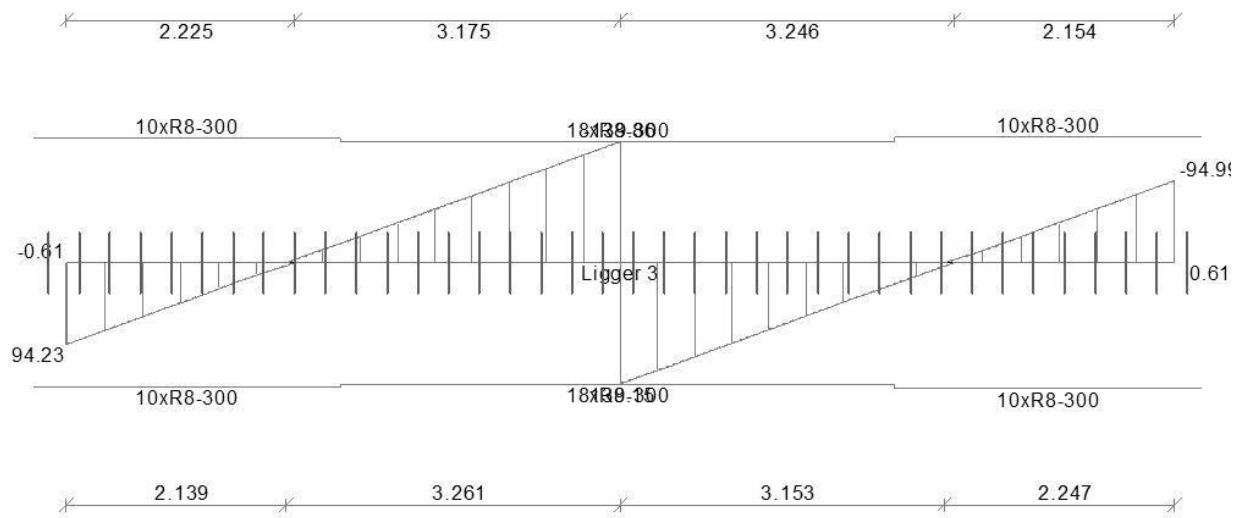
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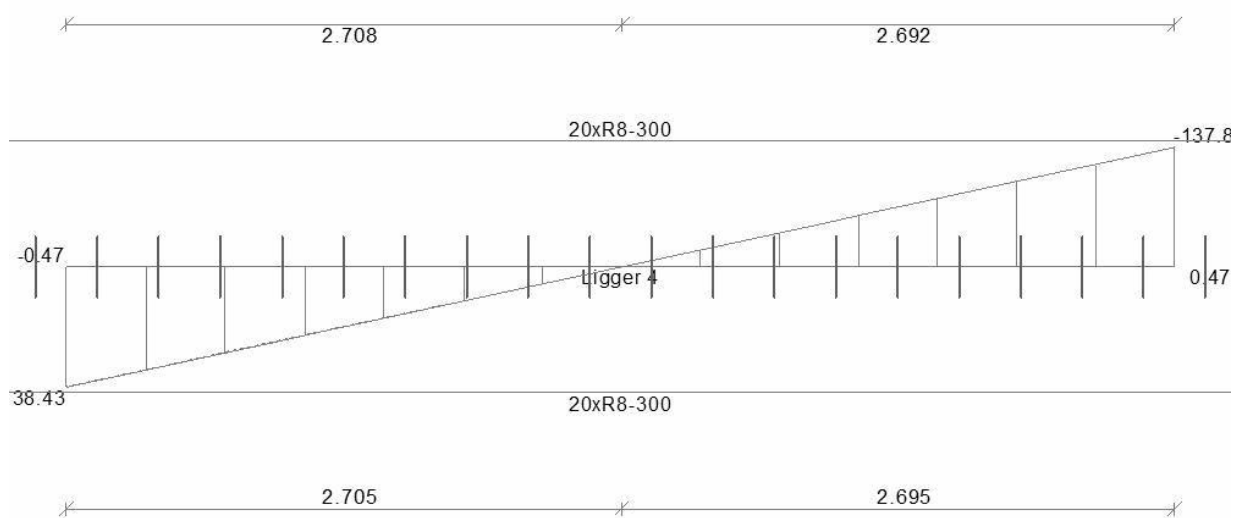
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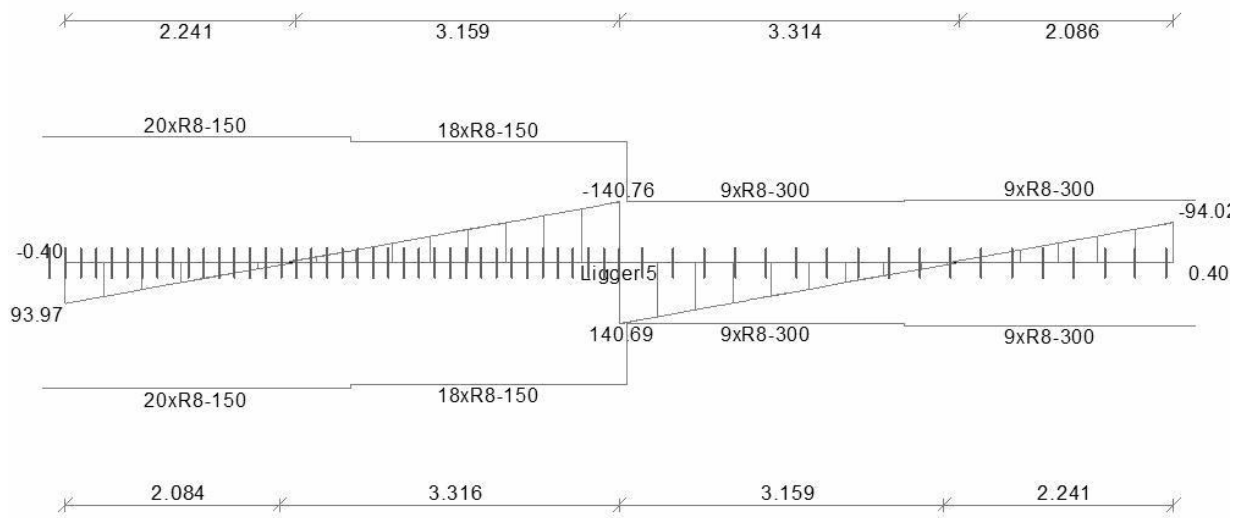
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 3



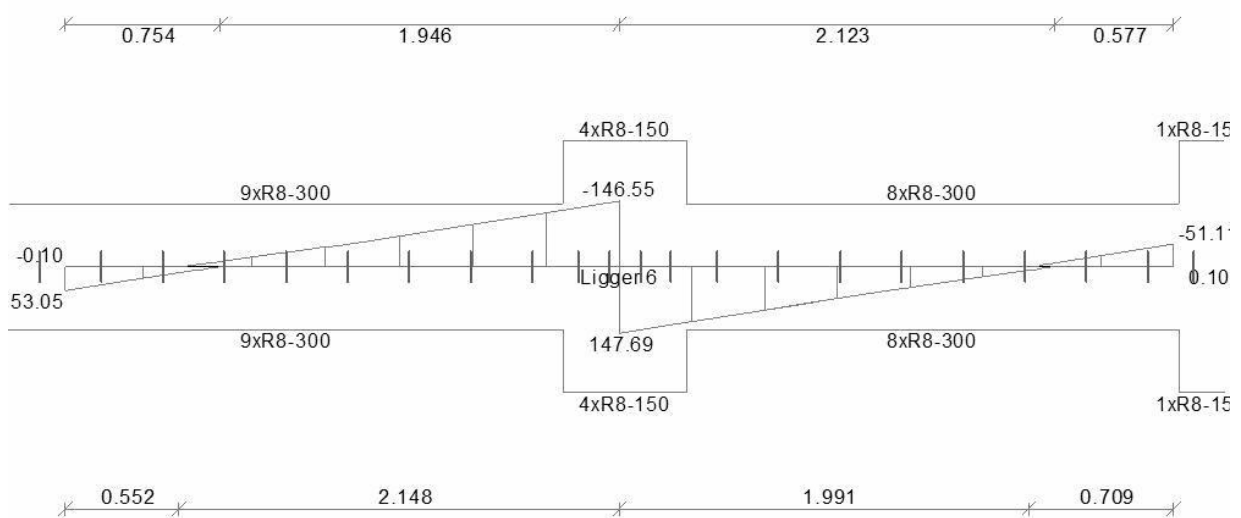
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 4



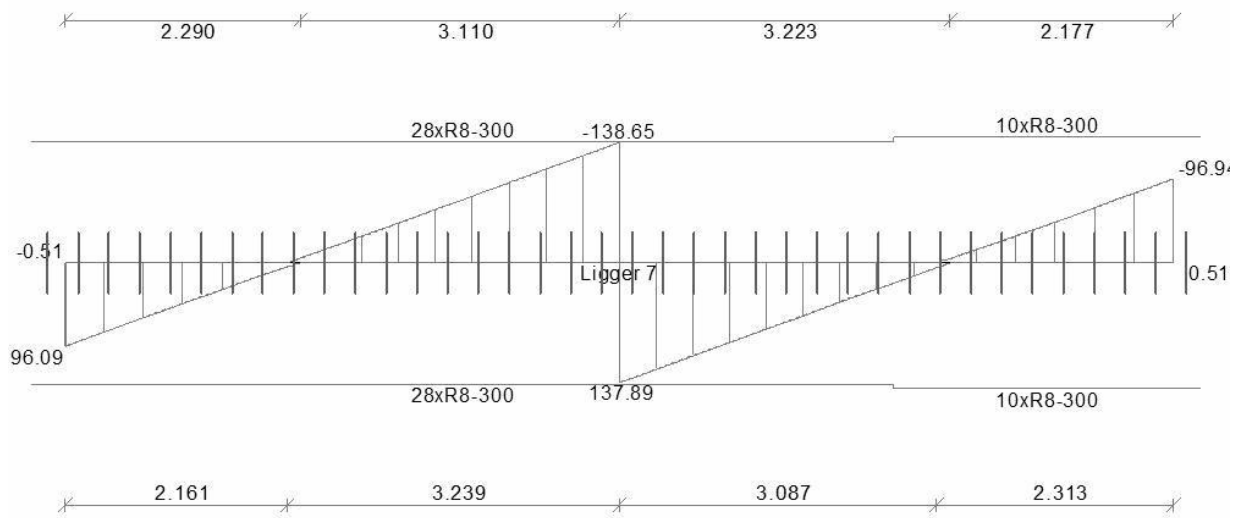
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 5



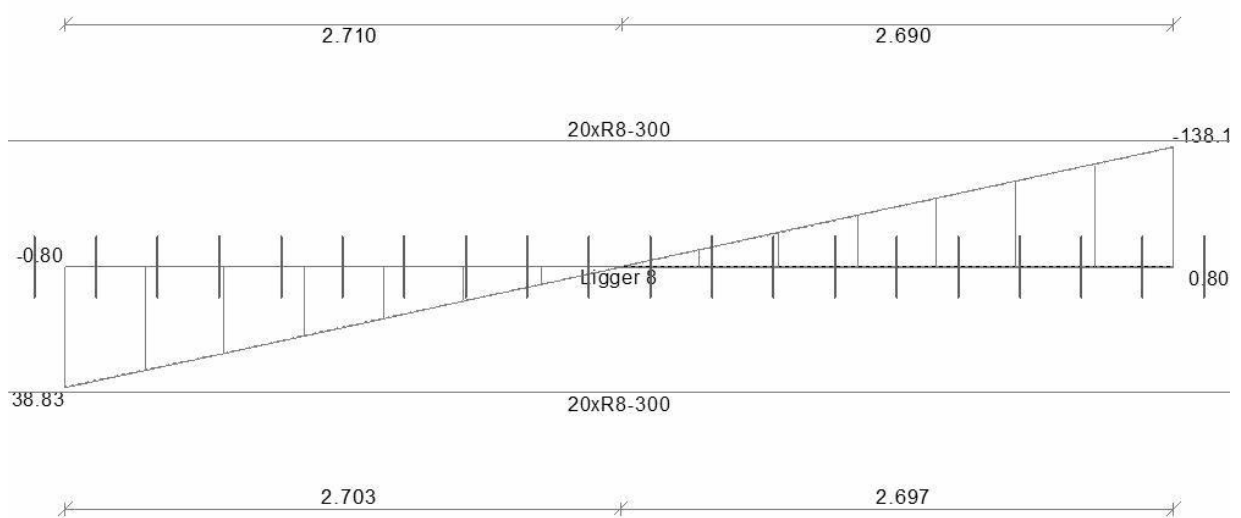
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 6



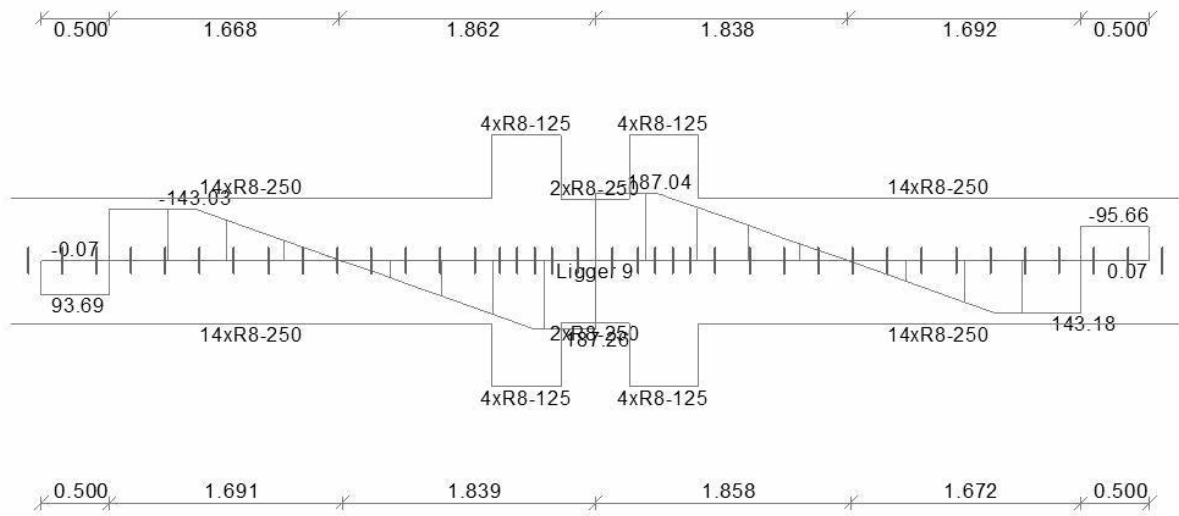
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 7



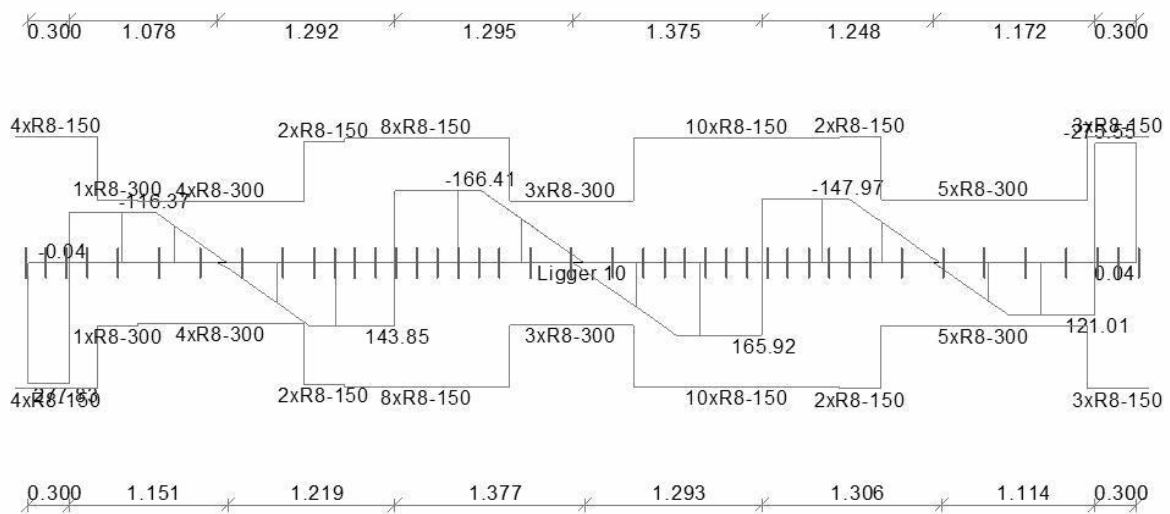
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 8



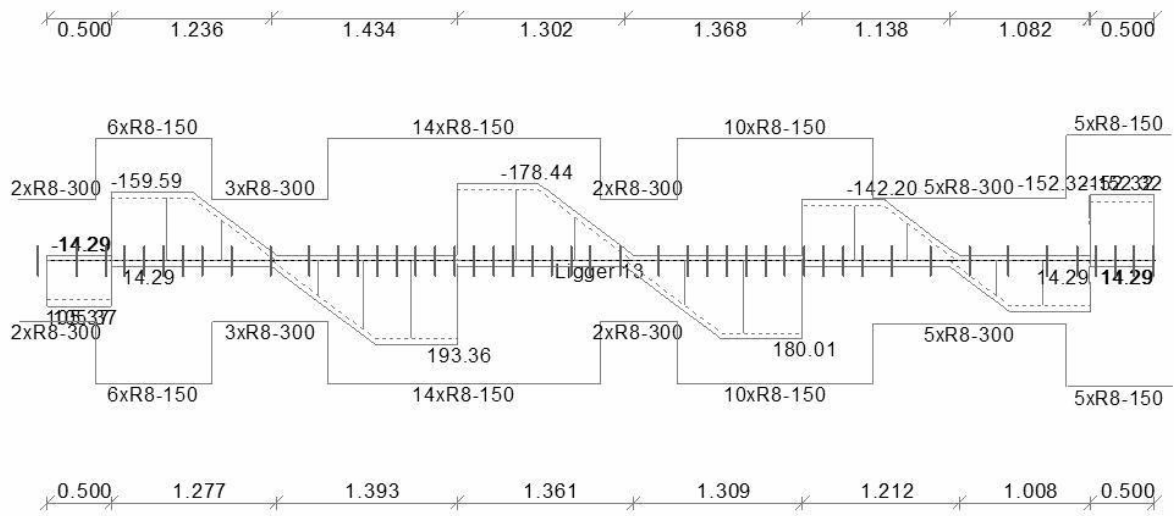
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 9



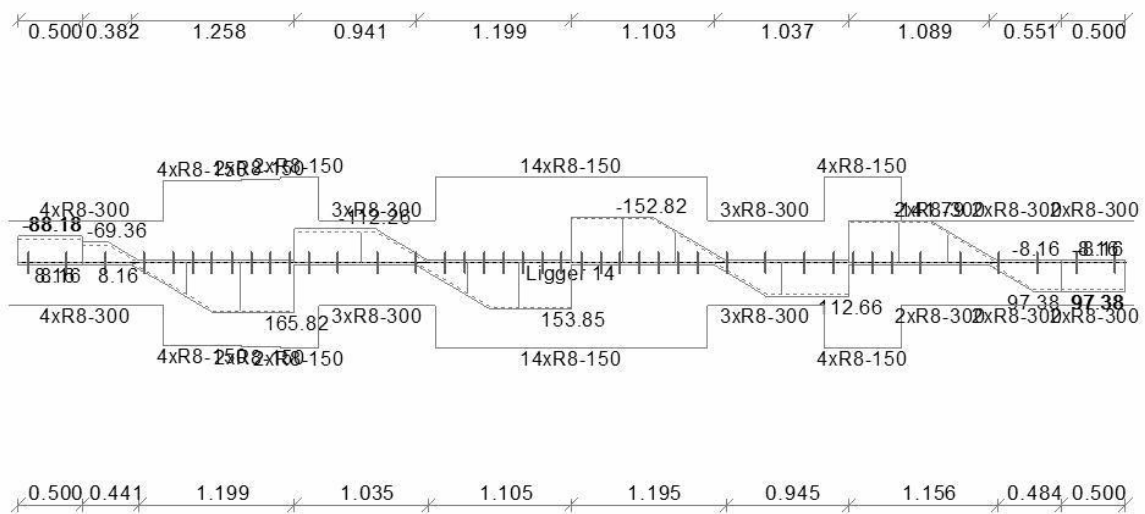
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 10



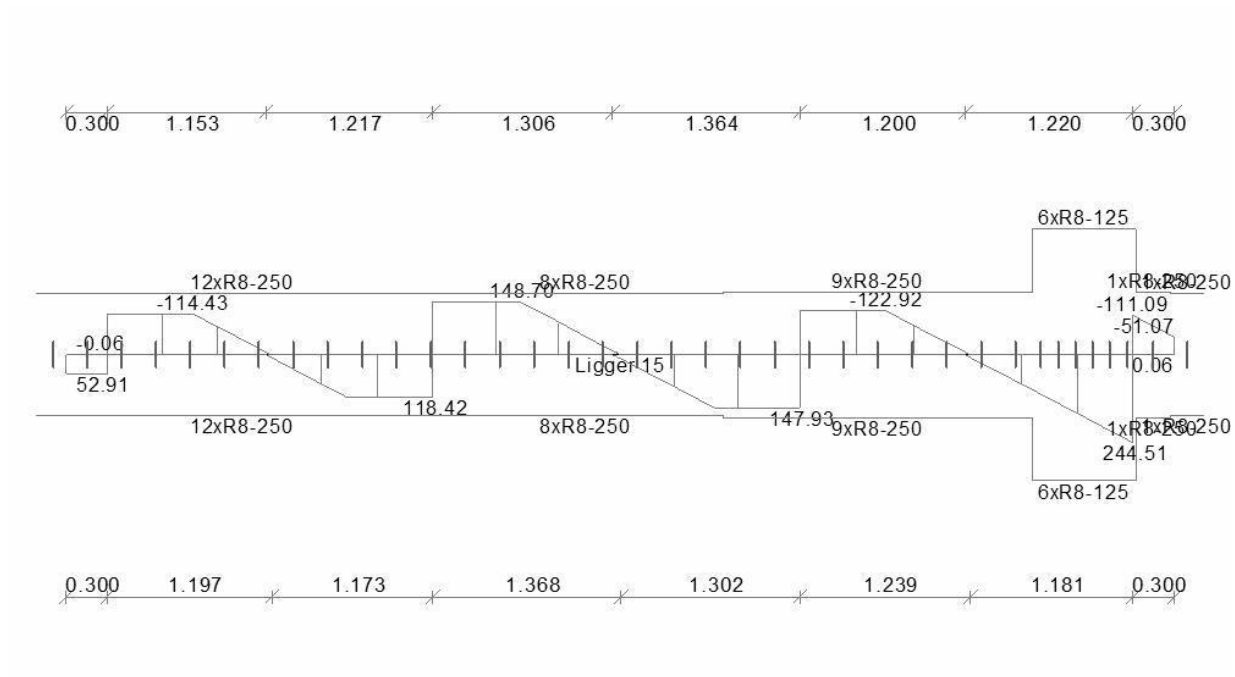
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 13



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 14



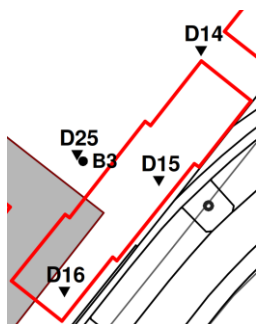
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 15



9.5 RIJWONING KAVEL 31-37

9.5.1 MAXIMALE PAALBELASTING

| | | |
|--------------------|-------|--------|
| Peilaanname: | 17.25 | m +NAP |
| Paalpuntniveau: | 1.00 | m +NAP |
| Paaldiameter: | 350 | mm |
| Draagvermogen: | 725 | kN |
| Maximale paallast: | 604 | kN |



9.5.2 BELASTING BALKEN

voorgevel-achtergevel hellend dak

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|-------------|--------------|--|--------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,00 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 1,00 | 6,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 0,75 | | |
| Totaal G_k | 1,09 | 3,48 | 3,48 | 2,25 | 18,00 | | 28,29 |
| Totaal Q_k | 0,28 | 1,38 | 1,38 | 1,38 | | | 4,41 |
| Pd (CC1) = | | | | | | | 36,60 |

voorgevel-achtergevel plat dak hoog

| | plat dak | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|-------------|--------------|--|--------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 6,95 | 4,50 | 4,00 | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 1,00 | 9,40 | | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 0,75 | | |
| Totaal G_k | 5,63 | 3,48 | 3,48 | 2,25 | 28,20 | | 43,03 |
| Totaal Q_k | 0,50 | 1,38 | 1,38 | 1,38 | | | 4,63 |
| Pd (CC1) = | | | | | | | 54,50 |

voorgevel-achtergevel plat dak laag

| | plat dak | verdieping | bg | mw | | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|--------------|--|--|--------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 4,50 | 4,00 | | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,00 | | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 6,00 | | | |
| factor | 0,50 | 0,50 | 0,50 | 0,75 | | | |
| Totaal G_k | 5,63 | 3,48 | 2,25 | 18,00 | | | 29,35 |
| Totaal Q_k | 0,50 | 1,38 | 1,38 | | | | 3,25 |

Pd (CC1) = 37,15

linkerzijgevel

| | plat dak | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 6,95 | 4,50 | 4,40 | | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 5,20 | 5,20 | 5,20 | 9,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 58,50 | 18,07 | 18,07 | 11,70 | 39,60 | | 145,94 |
| Totaal Q_k | 5,20 | 7,15 | 7,15 | 7,15 | | | 26,65 |

Pd (CC1) = 193,59

rechterzijgevel

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|--------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,40 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 5,20 | 5,20 | 5,20 | 9,00 | | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 2,83 | 18,07 | 18,07 | 11,70 | 39,60 | | 90,27 |
| Totaal Q_k | 0,73 | 7,15 | 7,15 | 7,15 | | | 22,18 |

Pd (CC1) = 127,44

woningscheidende wand hellend dak

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,80 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 10,40 | 10,40 | 10,40 | 9,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 5,67 | 36,14 | 36,14 | 23,40 | 43,20 | | 144,55 |
| Totaal Q_k | 1,46 | 14,30 | 14,30 | 14,30 | | | 44,36 |

Pd (CC1) = 215,99

woningscheidende wand plat dak laag

| | kap | zolder | verdieping | bg | mw | plat dak | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--------------|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,80 | 11,25 | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | 1,00 | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | 0,00 | |
| lengte [m] | 5,20 | 5,20 | 10,40 | 10,40 | 9,00 | 5,20 | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | 0,50 | |
| Totaal G_k | 2,83 | 18,07 | 36,14 | 23,40 | 43,20 | 29,25 | 152,89 |
| Totaal Q_k | 0,73 | 7,15 | 14,30 | 14,30 | | 2,60 | 39,08 |

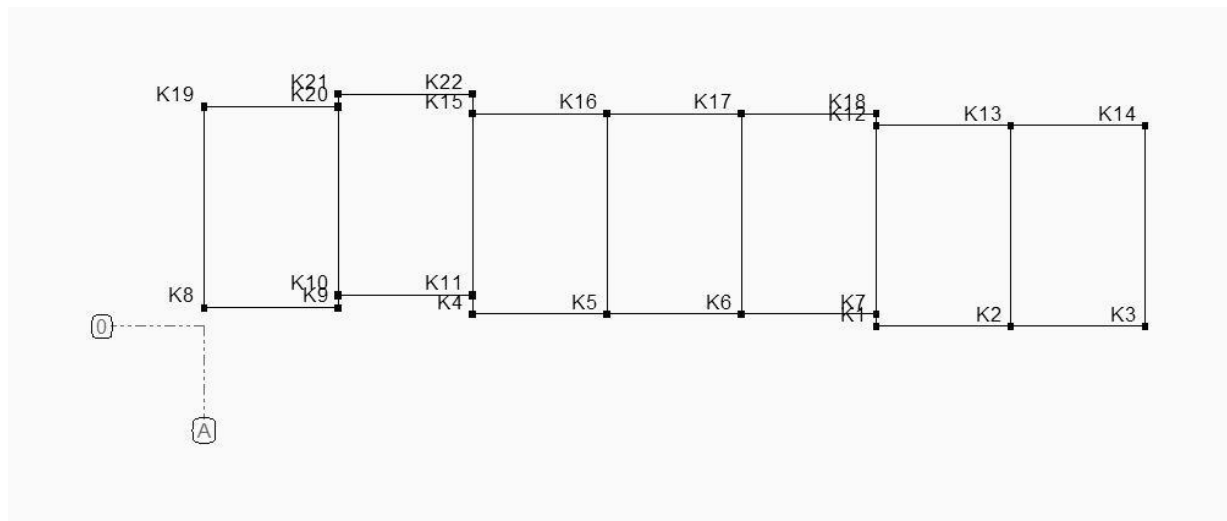
Pd (CC1) = 217,88

woningscheidende wand plat dak

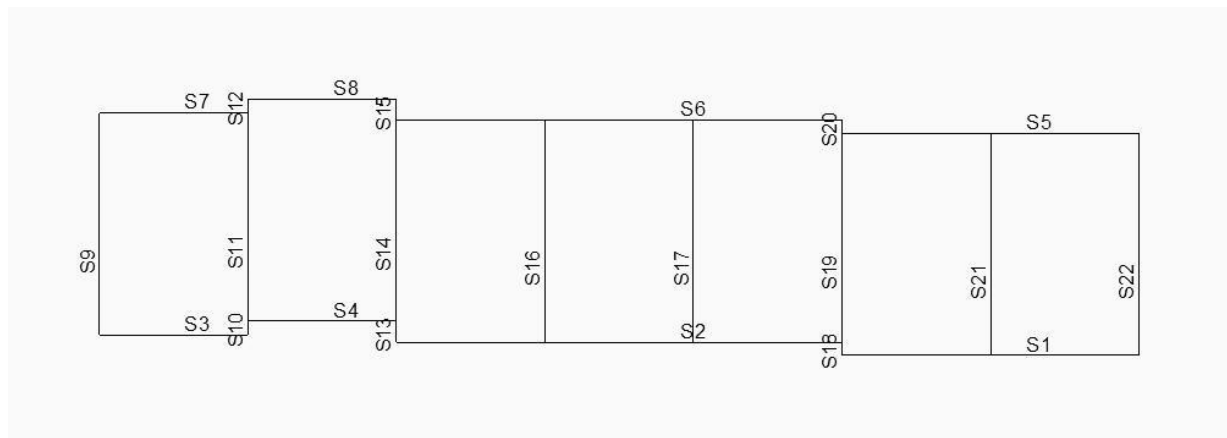
| | plat dak hoog | zolder | verdieping | bg | mw | plat dak laag | totaal Q |
|-------------------------------------|------------------|--------------|--------------|--------------|--------------|------------------|---------------|
| P _g [kN/m ²] | 11,25 | 6,95 | 6,95 | 4,50 | 4,80 | 11,25 | |
| P _q [kN/m ²] | 1,00 | 2,75 | 2,75 | 2,75 | | 1,00 | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | 0,00 | |
| lengte [m] | 5,20 | 5,20 | 10,40 | 10,40 | 9,00 | 5,20 | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | 0,50 | |
| Totaal G_k | 29,25 | 18,07 | 36,14 | 23,40 | 43,20 | 29,25 | 179,31 |
| Totaal Q_k | 2,60 | 7,15 | 14,30 | 14,30 | | 2,60 | 40,95 |
| Pd (CC1) = | | | | | | | 248,94 |

9.5.3 BALKENROOSTER

AFB. KNOPEN



AFB. STAVEN

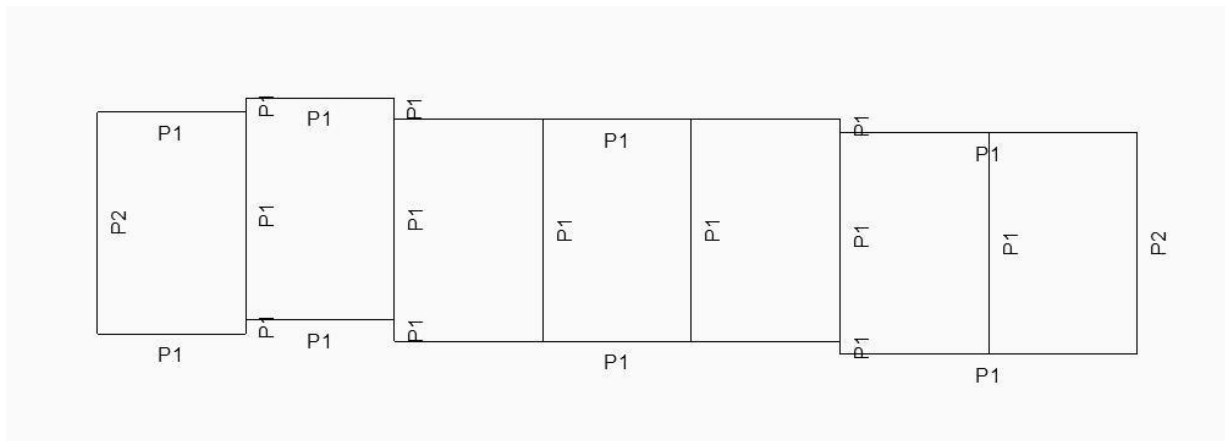


STAVEN

| Staaf | Knoop B | Knoop E | X-B | Y-B | X-E | Y-E | Lengte Profiel | Positie |
|-------|---------|---------|-------|-------|-------|-------|----------------|-----------------|
| S1 | K3 | K1 | 37,80 | 0,00 | 27,00 | 0,00 | 10,80 P1 | 0,00 - L(10,80) |
| S2 | K7 | K4 | 27,00 | -0,50 | 10,80 | -0,50 | 16,20 P1 | 0,00 - L(16,20) |
| S3 | K9 | K8 | 5,40 | -0,76 | 0,00 | -0,76 | 5,40 P1 | 0,00 - L(5,40) |
| S4 | K11 | K10 | 10,80 | -1,26 | 5,40 | -1,26 | 5,40 P1 | 0,00 - L(5,40) |
| S5 | K14 | K12 | 37,80 | -8,06 | 27,00 | -8,06 | 10,80 P1 | 0,00 - L(10,80) |
| S6 | K18 | K15 | 27,00 | -8,56 | 10,80 | -8,56 | 16,20 P1 | 0,00 - L(16,20) |
| S7 | K20 | K19 | 5,40 | -8,82 | 0,00 | -8,82 | 5,40 P1 | 0,00 - L(5,40) |

| | | | | | | | | |
|-----|-----|-----|-------|-------|-------|-------|---------|----------------|
| S8 | K22 | K21 | 10,80 | -9,32 | 5,40 | -9,32 | 5,40 P1 | 0,00 - L(5,40) |
| S9 | K8 | K19 | 0,00 | -0,76 | 0,00 | -8,82 | 8,06 P2 | 0,00 - L(8,06) |
| S10 | K9 | K10 | 5,40 | -0,76 | 5,40 | -1,26 | 0,50 P1 | 0,00 - L(0,50) |
| S11 | K10 | K20 | 5,40 | -1,26 | 5,40 | -8,82 | 7,56 P1 | 0,00 - L(7,56) |
| S12 | K20 | K21 | 5,40 | -8,82 | 5,40 | -9,32 | 0,50 P1 | 0,00 - L(0,50) |
| S13 | K4 | K11 | 10,80 | -0,50 | 10,80 | -1,26 | 0,76 P1 | 0,00 - L(0,76) |
| S14 | K11 | K15 | 10,80 | -1,26 | 10,80 | -8,56 | 7,30 P1 | 0,00 - L(7,30) |
| S15 | K15 | K22 | 10,80 | -8,56 | 10,80 | -9,32 | 0,76 P1 | 0,00 - L(0,76) |
| S16 | K5 | K16 | 16,20 | -0,50 | 16,20 | -8,56 | 8,06 P1 | 0,00 - L(8,06) |
| S17 | K6 | K17 | 21,60 | -0,50 | 21,60 | -8,56 | 8,06 P1 | 0,00 - L(8,06) |
| S18 | K1 | K7 | 27,00 | 0,00 | 27,00 | -0,50 | 0,50 P1 | 0,00 - L(0,50) |
| S19 | K7 | K12 | 27,00 | -0,50 | 27,00 | -8,06 | 7,56 P1 | 0,00 - L(7,56) |
| S20 | K12 | K18 | 27,00 | -8,06 | 27,00 | -8,56 | 0,50 P1 | 0,00 - L(0,50) |
| S21 | K2 | K13 | 32,40 | 0,00 | 32,40 | -8,06 | 8,06 P1 | 0,00 - L(8,06) |
| S22 | K3 | K14 | 37,80 | 0,00 | 37,80 | -8,06 | 8,06 P2 | 0,00 - L(8,06) |

AFB. PROFIELEN



PROFIELEN

| Profiel | Profielnaam | lt | ly Materiaal | Hoek |
|---------|-------------|------------|-------------------|------|
| P1 | R400x500 | 5.4742e-03 | 4.1667e-03 C20/25 | 0,0 |
| P2 | R500x500 | 8.8021e-03 | 5.2083e-03 C20/25 | 0,0 |

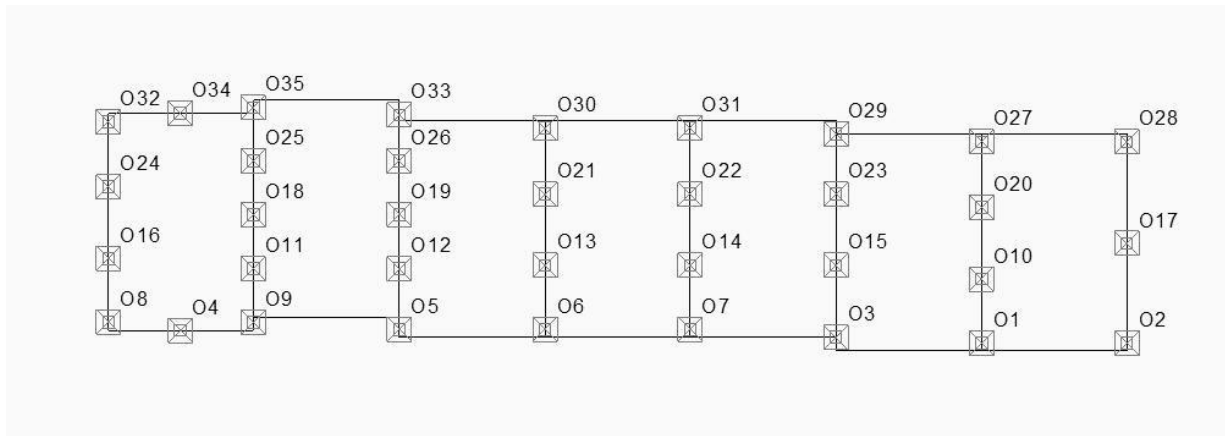
PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,400 | 0,000 | 0,000 Nee | 0,000 |
| P2 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,500 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaalnaam | Poison | Dichtheid | E-Modulus | Uitzettingcoeff |
|---------------|--------|-----------|------------|-----------------|
| C20/25 | 0.20 | 25.00 | 1.0000e+07 | 10.0000e-06 |

AFB. OPLEGGING EN AANSLUITINGEN

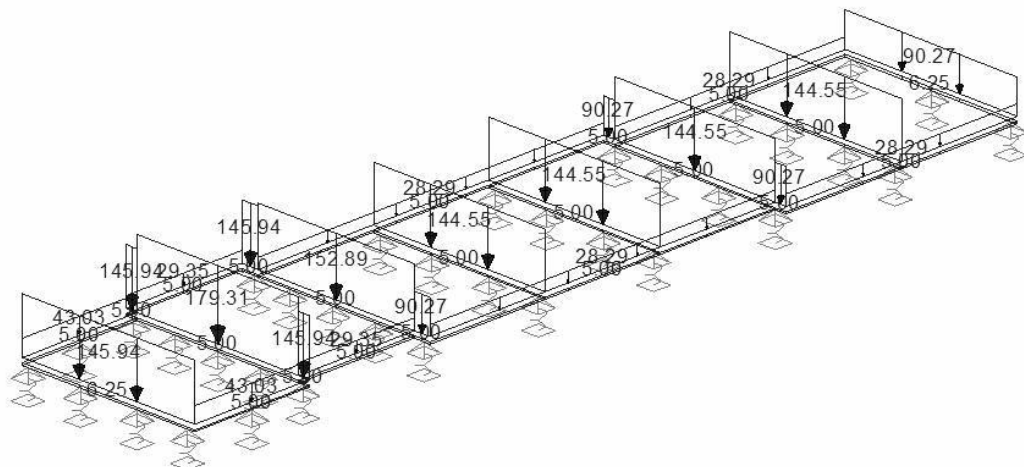


OPLEGGINGEN

| Oplegging | Staaf | Positie | Z | Xr | Yr |
|-----------|-------|---------|----------|------|------|
| O1 | S21 | 0,30 | 18000.00 | Vrij | Vrij |
| O2 | S22 | 0,30 | 18000.00 | Vrij | Vrij |
| O3 | S18 | 0,50 | 18000.00 | Vrij | Vrij |
| O4 | S3 | 2,70 | 18000.00 | Vrij | Vrij |
| O5 | S13 | 0,30 | 18000.00 | Vrij | Vrij |
| O6 | S16 | 0,30 | 18000.00 | Vrij | Vrij |
| O7 | S17 | 0,30 | 18000.00 | Vrij | Vrij |
| O8 | S9 | 0,30 | 18000.00 | Vrij | Vrij |
| O9 | S10 | 0,30 | 18000.00 | Vrij | Vrij |
| O10 | S21 | 2,67 | 18000.00 | Vrij | Vrij |
| O11 | S11 | 1,80 | 18000.00 | Vrij | Vrij |
| O12 | S14 | 1,80 | 18000.00 | Vrij | Vrij |
| O13 | S16 | 2,67 | 18000.00 | Vrij | Vrij |
| O14 | S17 | 2,67 | 18000.00 | Vrij | Vrij |

| Oplegging | Staaft | Positie | Z | Xr | Yr |
|-----------|--------|---------|----------|------|------|
| O15 | S19 | 2,67 | 18000.00 | Vrij | Vrij |
| O16 | S9 | 2,67 | 18000.00 | Vrij | Vrij |
| O17 | S22 | 4,00 | 18000.00 | Vrij | Vrij |
| O18 | S11 | 3,80 | 18000.00 | Vrij | Vrij |
| O19 | S14 | 3,80 | 18000.00 | Vrij | Vrij |
| O20 | S21 | 5,34 | 18000.00 | Vrij | Vrij |
| O21 | S16 | 5,34 | 18000.00 | Vrij | Vrij |
| O22 | S17 | 5,34 | 18000.00 | Vrij | Vrij |
| O23 | S19 | 5,34 | 18000.00 | Vrij | Vrij |
| O24 | S9 | 5,34 | 18000.00 | Vrij | Vrij |
| O25 | S11 | 5,80 | 18000.00 | Vrij | Vrij |
| O26 | S14 | 5,80 | 18000.00 | Vrij | Vrij |
| O27 | S21 | 7,76 | 18000.00 | Vrij | Vrij |
| O28 | S22 | 7,76 | 18000.00 | Vrij | Vrij |
| O29 | S19 | L(7,56) | 18000.00 | Vrij | Vrij |
| O30 | S16 | 7,76 | 18000.00 | Vrij | Vrij |
| O31 | S17 | 7,76 | 18000.00 | Vrij | Vrij |
| O32 | S9 | 7,76 | 18000.00 | Vrij | Vrij |
| O33 | S15 | 0,20 | 18000.00 | Vrij | Vrij |
| O34 | S7 | 2,70 | 18000.00 | Vrij | Vrij |
| O35 | S12 | 0,20 | 18000.00 | Vrij | Vrij |

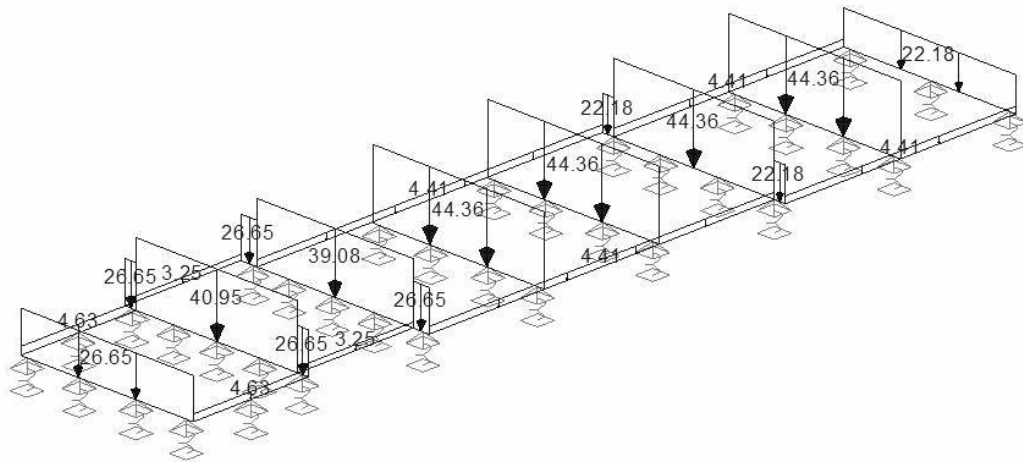
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaft of knoop |
|-------------------------|-------------|--------------------|--------------|-------------|--------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z S1-S22 |
| q | 28,29 | 28,29 | 0,00 | 16,20(L) | Z S1-S2,S5-S6 |
| q | 43,03 | 43,03 | 0,00 | 5,40(L) | Z S3,S7 |
| q | 29,35 | 29,35 | 0,00 | 5,40(L) | Z S4,S8 |
| q | 145,94 | 145,94 | 0,00 | 8,06(L) | Z S9-S10,S12,S15 |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z S13,S18,S20,S22 |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z S16-S17,S19,S21 |
| q | 152,89 | 152,89 | 0,00 | 7,30(L) | Z S14 |
| q | 179,31 | 179,31 | 0,00 | 7,56(L) | Z S11 |
| Som lasten | X:0,00 | kN Z: 12.417,99 kN | | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 4,41 | 4,41 | 0,00 | 16,20(L) | Z S1-S2,S5-S6 |
| q | 4,63 | 4,63 | 0,00 | 5,40(L) | Z S3,S7 |
| q | 3,25 | 3,25 | 0,00 | 5,40(L) | Z S4,S8 |
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z S9-S10,S12-S13,S15 |
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z S18,S20,S22 |
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z S16-S17,S19,S21 |
| q | 39,08 | 39,08 | 0,00 | 7,30(L) | Z S14 |
| q | 40,95 | 40,95 | 0,00 | 7,56(L) | Z S11 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G.1: PERMANENT (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 16,20(L) | Z |

B.G.1: PERMANENT (S1)

Staaf S1



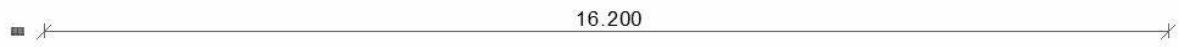
B.G.1: PERMANENT (S2)

Staaf S2

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 16,20(L) | Z |

B.G.1: PERMANENT (S2)

Staaf S2



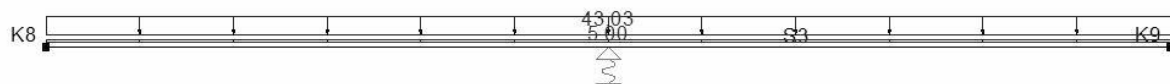
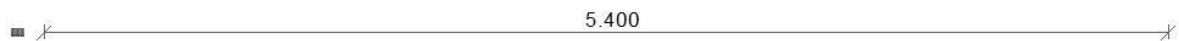
B.G.1: PERMANENT (S3)

Staaf S3

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 43,03 | 43,03 | 0,00 | 5,40(L) | Z |

B.G.1: PERMANENT (S3)

Staaf S3



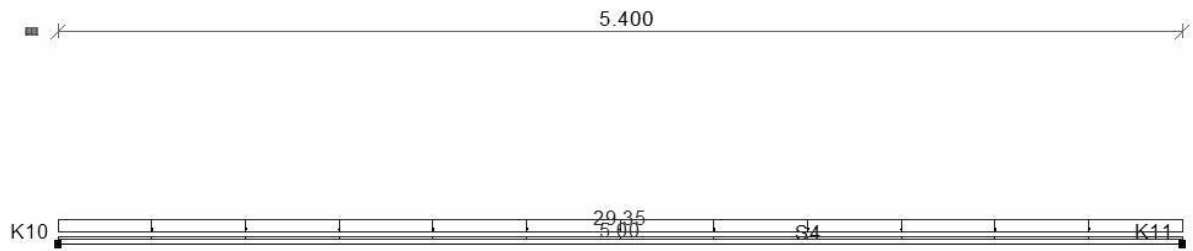
B.G.1: PERMANENT (S4)

Staaf S4

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 29,35 | 29,35 | 0,00 | 5,40(L) | Z |

B.G.1: PERMANENT (S4)

Staaf S4

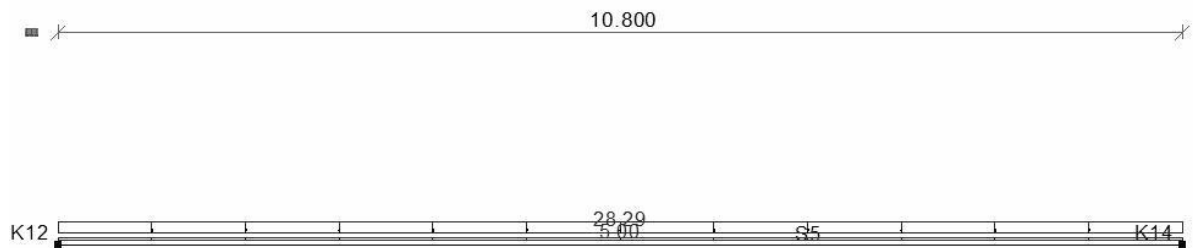


B.G.1: PERMANENT (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 16,20(L) | Z |

B.G.1: PERMANENT (S5)

Staaf S5

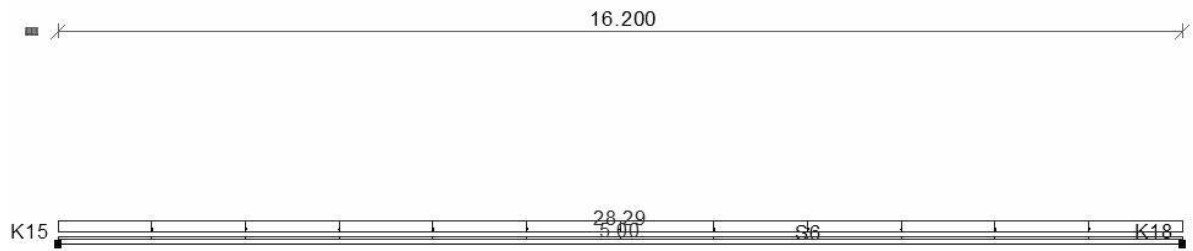


B.G.1: PERMANENT (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 28,29 | 28,29 | 0,00 | 16,20(L) | Z |

B.G.1: PERMANENT (S6)

Staaf S6

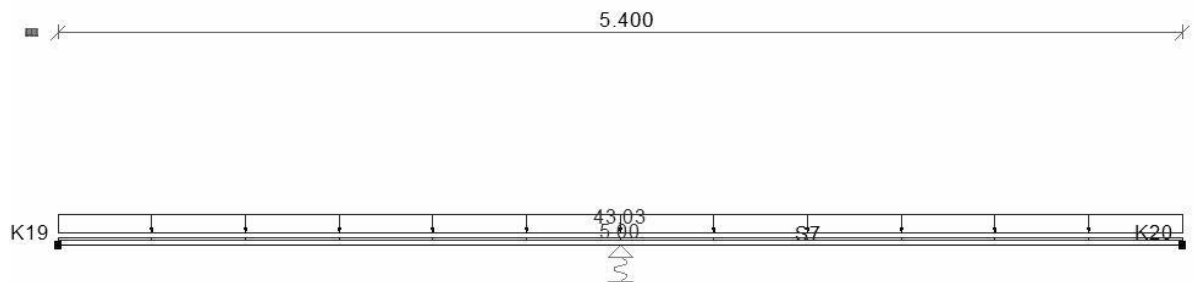


B.G.1: PERMANENT (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 43,03 | 43,03 | 0,00 | 5,40(L) | Z |

B.G.1: PERMANENT (S7)

Staaf S7

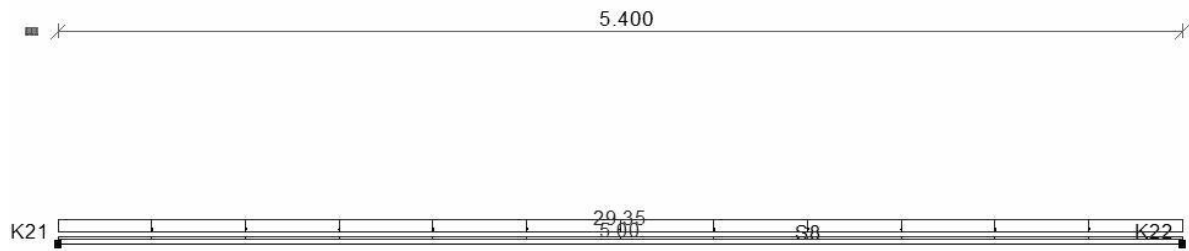


B.G.1: PERMANENT (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 29,35 | 29,35 | 0,00 | 5,40(L) | Z |

B.G.1: PERMANENT (S8)

Staaf S8

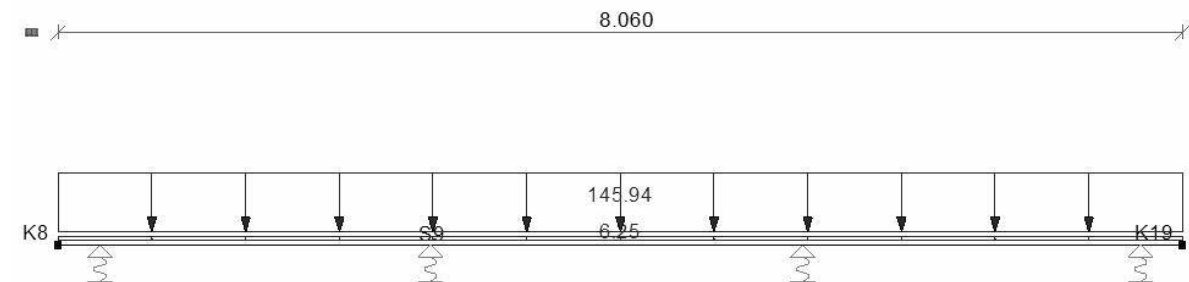


B.G.1: PERMANENT (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 145,94 | 145,94 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S9)

Staaf S9

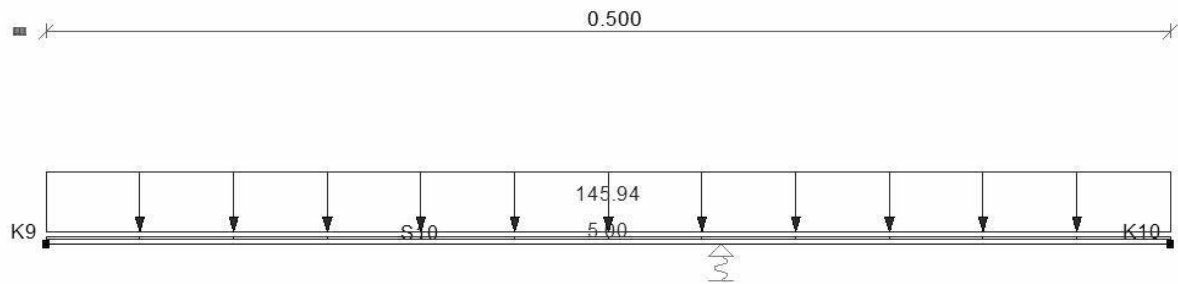


B.G.1: PERMANENT (S10)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S10 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 145,94 | 145,94 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S10)

Staaf S10

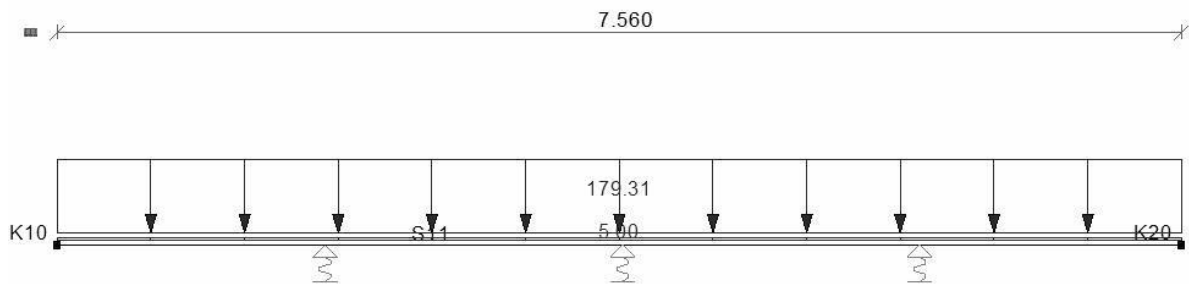


B.G.1: PERMANENT (S11)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S11 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 179,31 | 179,31 | 0,00 | 7,56(L) | Z |

B.G.1: PERMANENT (S11)

Staaf S11

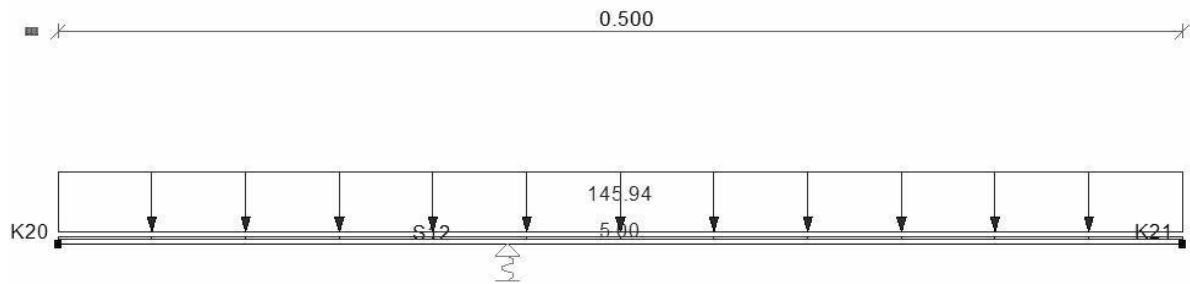


B.G.1: PERMANENT (S12)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S12 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 145,94 | 145,94 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S12)

Staaf S12

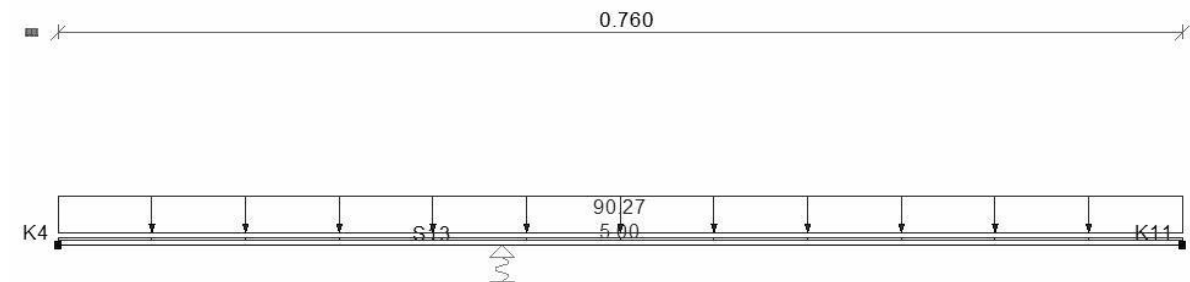


B.G.1: PERMANENT (S13)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S13 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S13)

Staaf S13

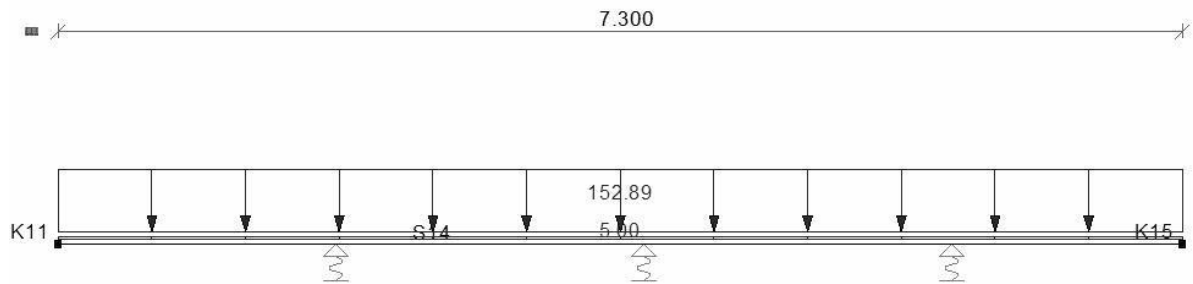


B.G.1: PERMANENT (S14)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S14 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 152,89 | 152,89 | 0,00 | 7,30(L) | Z |

B.G.1: PERMANENT (S14)

Staaf S14

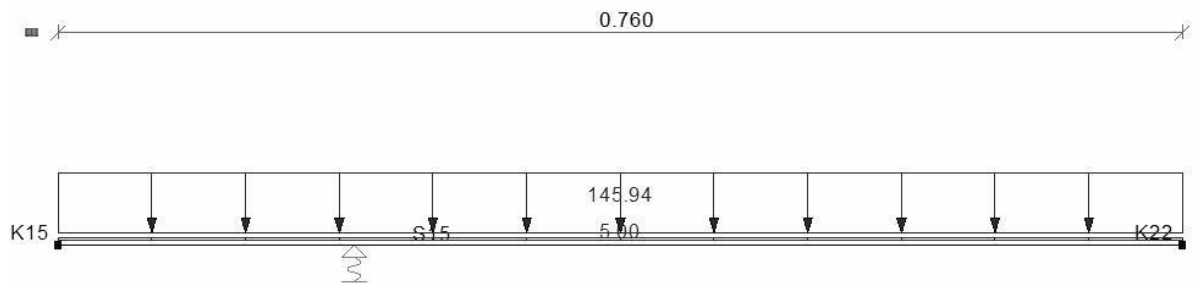


B.G.1: PERMANENT (S15)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S15 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 145,94 | 145,94 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S15)

Staaf S15

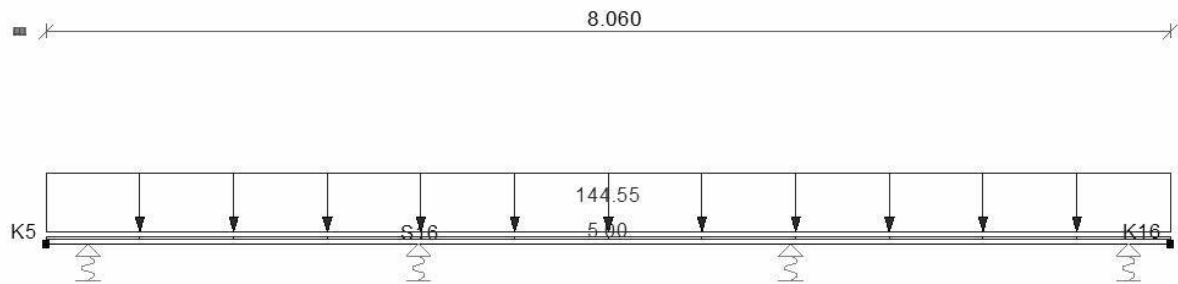


B.G.1: PERMANENT (S16)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S16 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S16)

Staaf S16

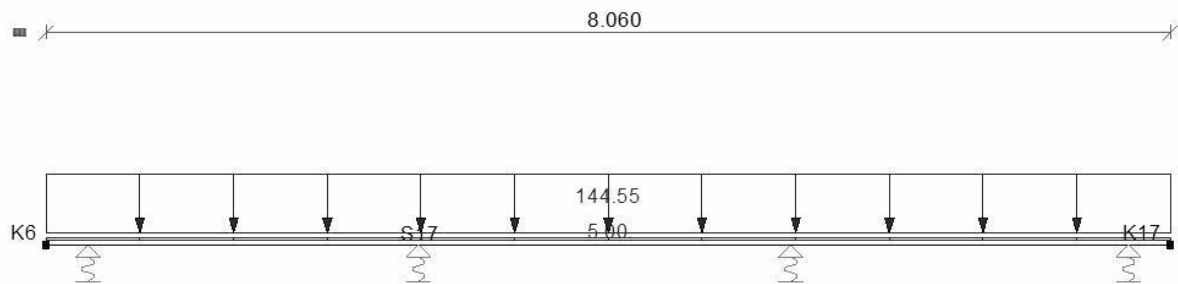


B.G.1: PERMANENT (S17)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S17 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S17)

Staaf S17

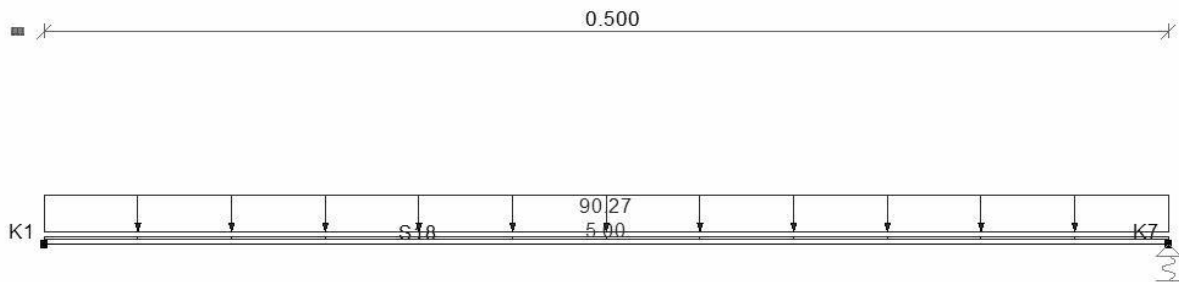


B.G.1: PERMANENT (S18)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S18 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S18)

Staaf S18

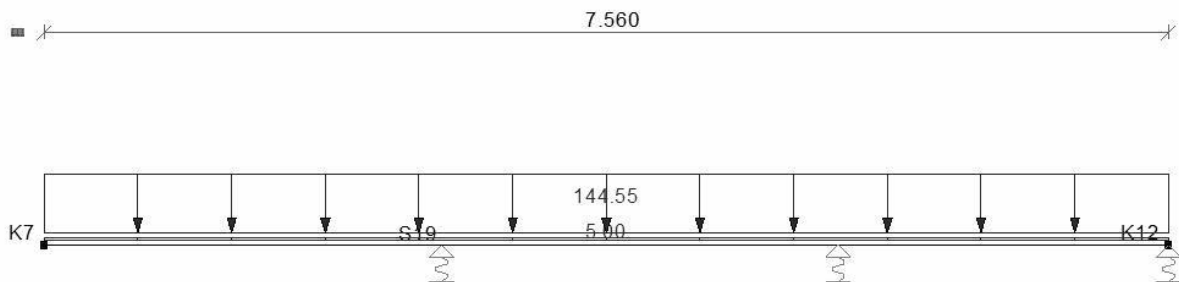


B.G.1: PERMANENT (S19)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S19 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S19)

Staaf S19

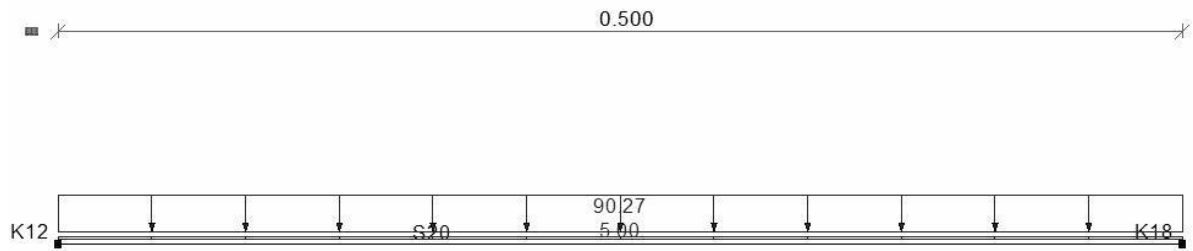


B.G.1: PERMANENT (S20)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S20 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S20)

Staaf S20

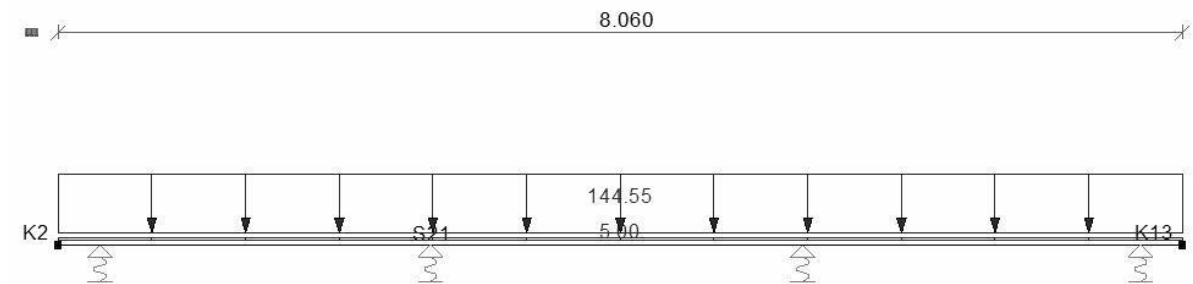


B.G.1: PERMANENT (S21)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S21 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 144,55 | 144,55 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S21)

Staaf S21

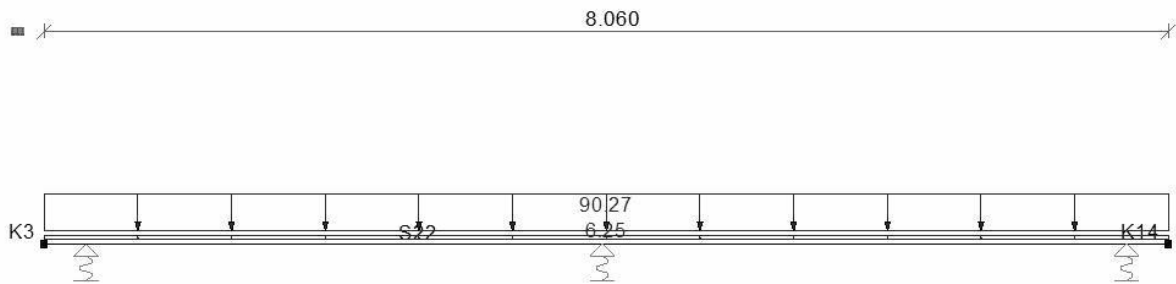


B.G.1: PERMANENT (S22)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S22 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 5,40(L) | Z |
| q | 90,27 | 90,27 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S22)

Staaf S22

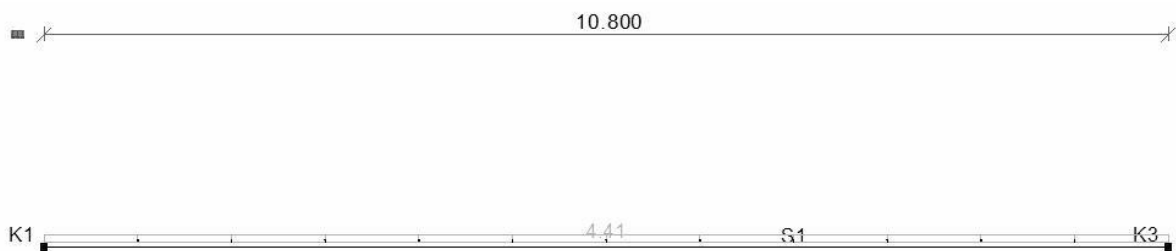


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 16,20(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1

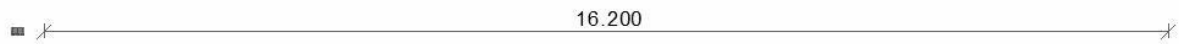


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S2 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 16,20(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

Staaf S2

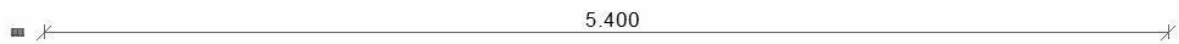


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,63 | 4,63 | 0,00 | 5,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

Staaf S3

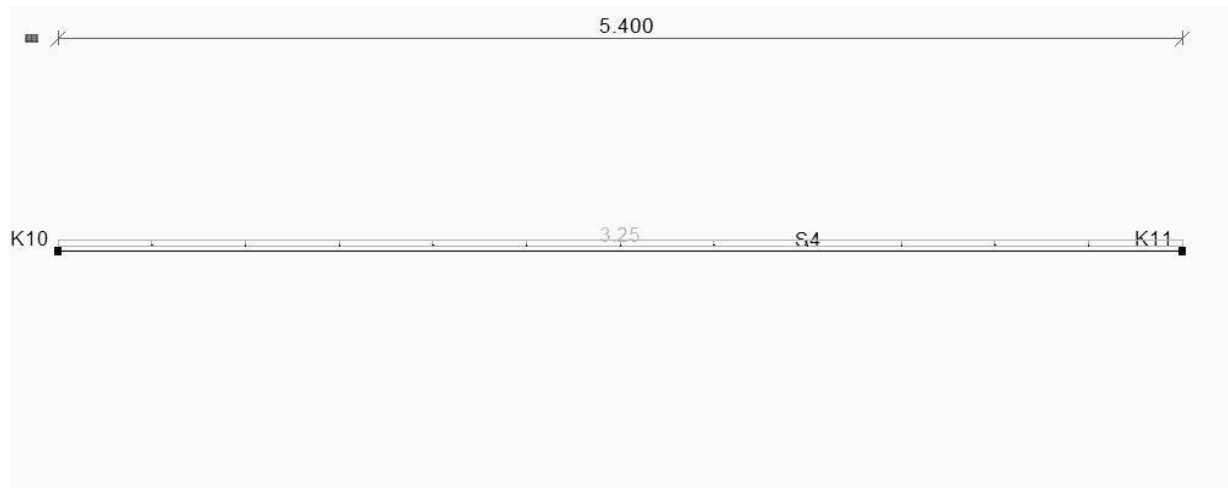


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 3,25 | 3,25 | 0,00 | 5,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

Staaf S4

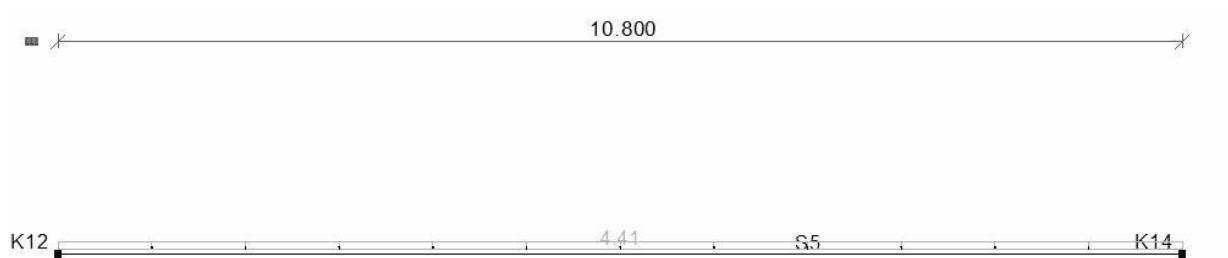


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 16,20(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

Staaf S5

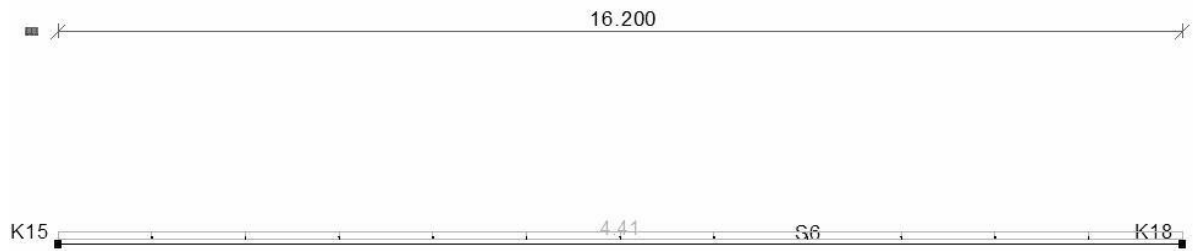


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 16,20(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6

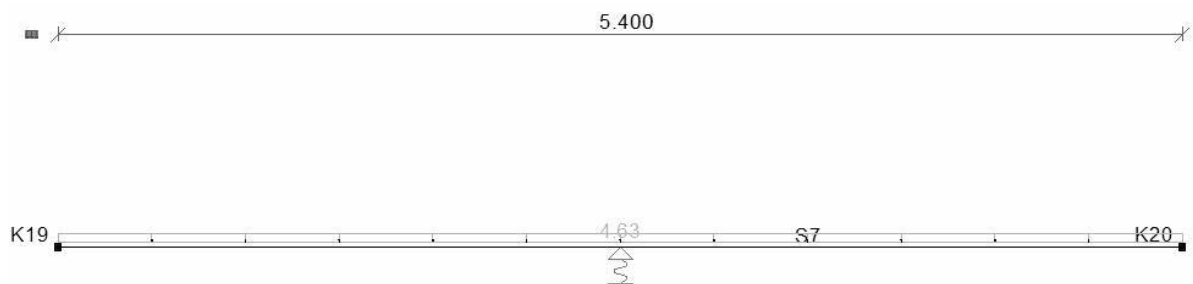


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,63 | 4,63 | 0,00 | 5,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7

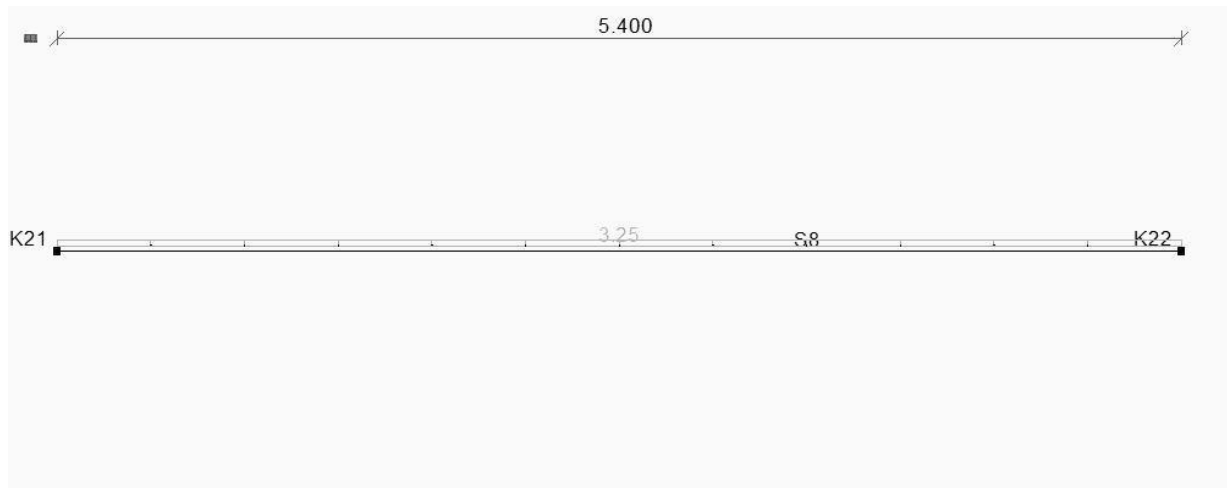


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 3,25 | 3,25 | 0,00 | 5,40(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

Staaf S8



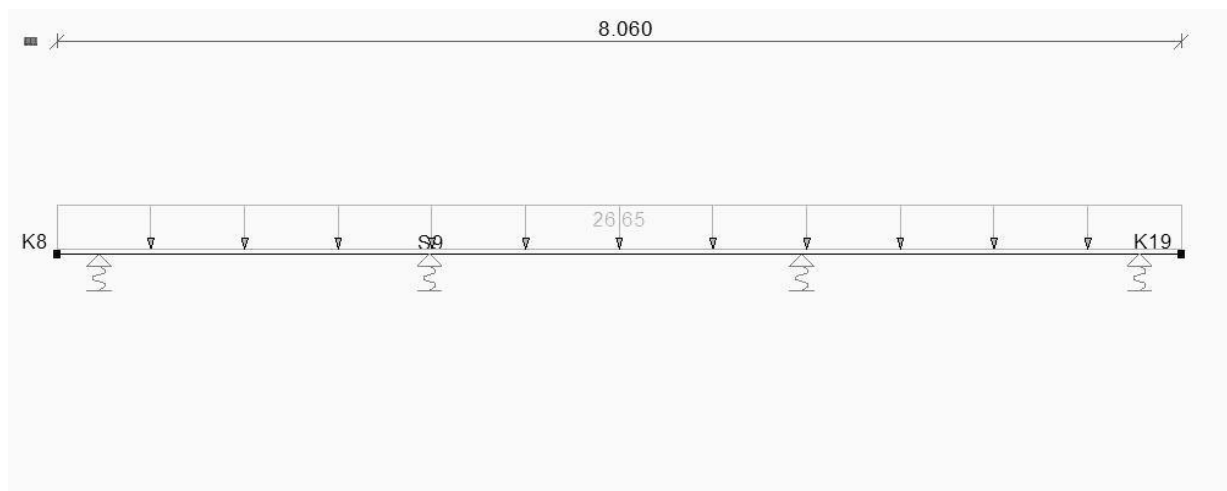
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

Staaf S9

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

Staaf S9



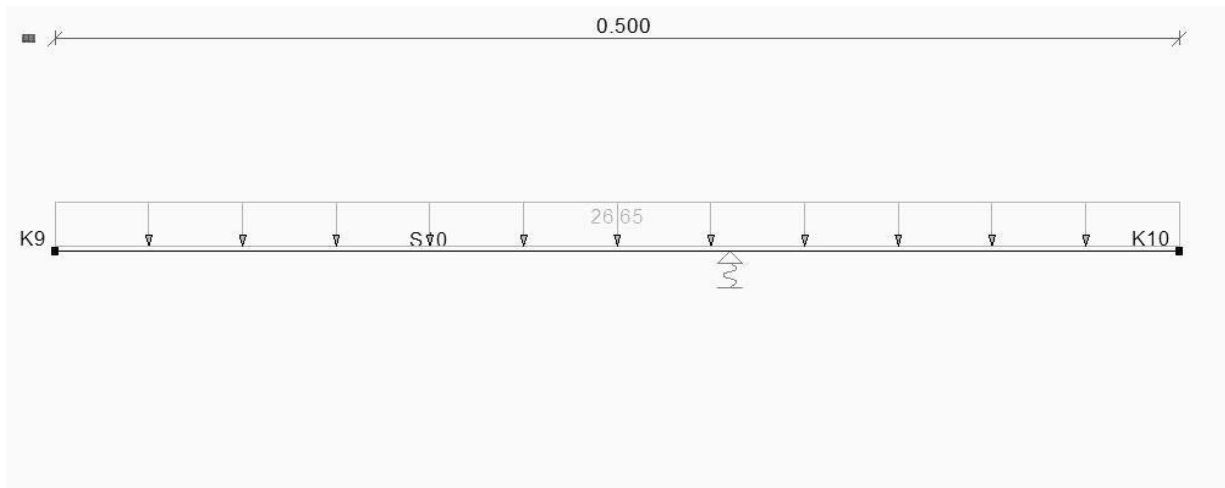
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

Staaf S10

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

Staaf S10



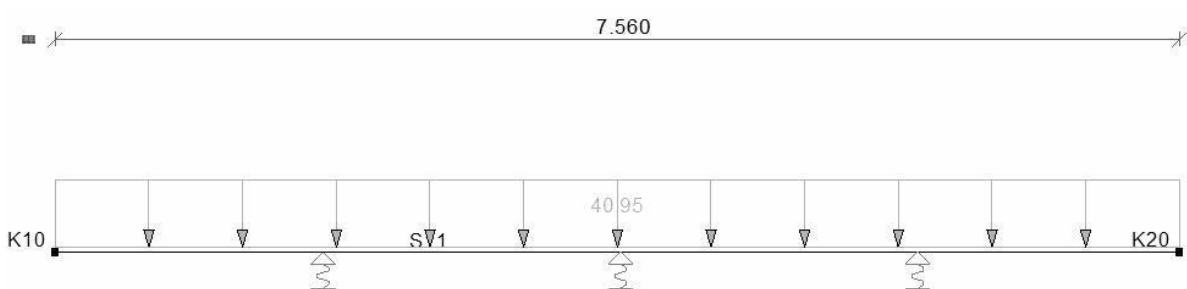
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S11)

Staaf S11

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 40,95 | 40,95 | 0,00 | 7,56(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S11)

Staaf S11



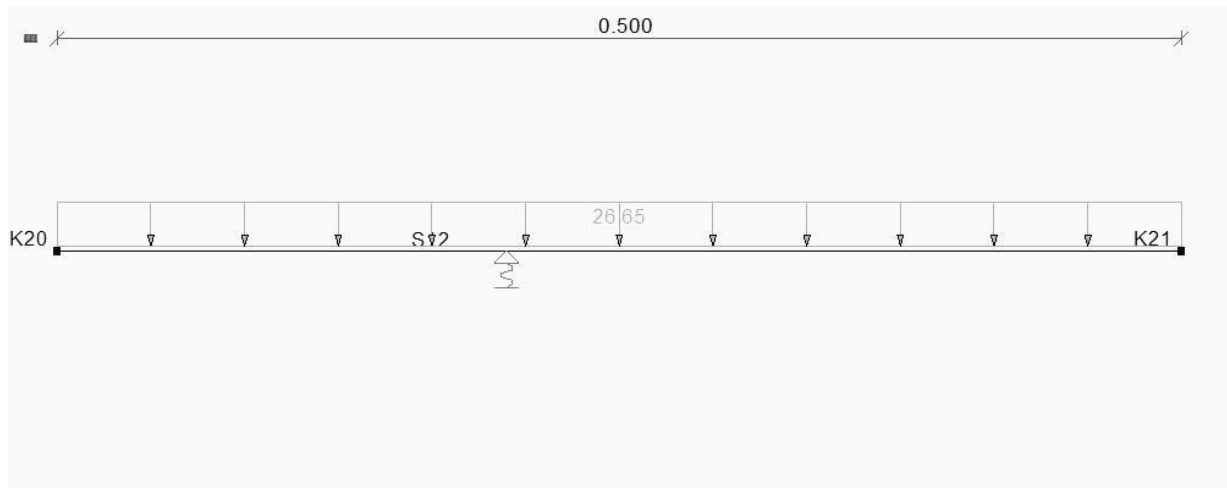
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

Staaf S12

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

Staaf S12



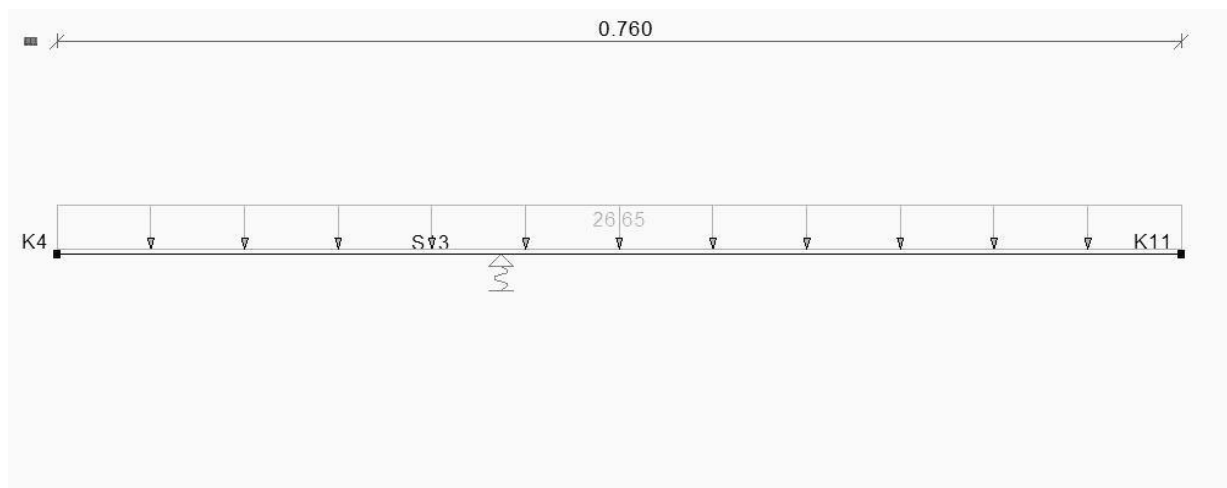
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

Staaf S13

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

Staaf S13



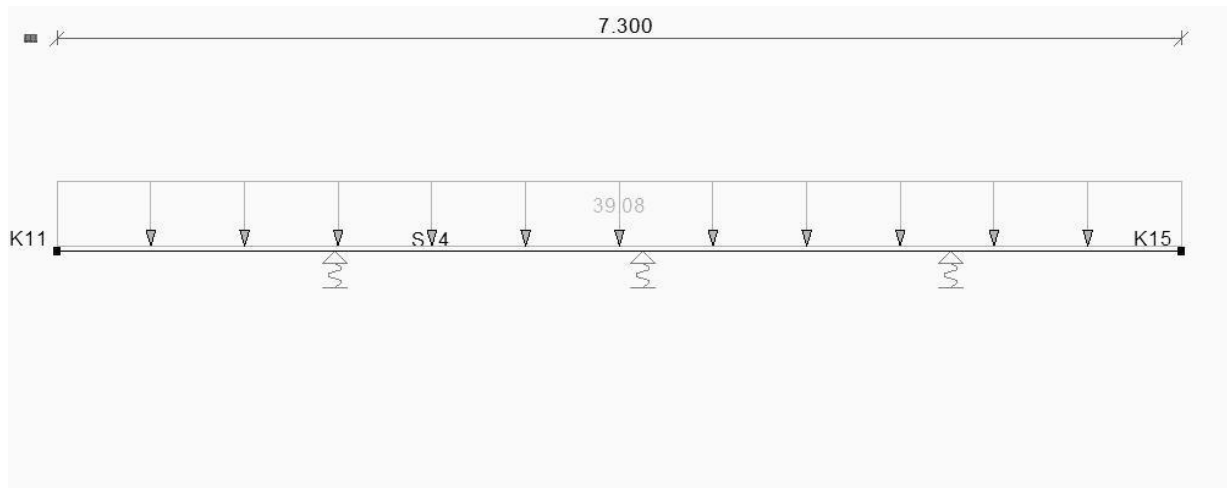
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staaf S14

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,08 | 39,08 | 0,00 | 7,30(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staaf S14



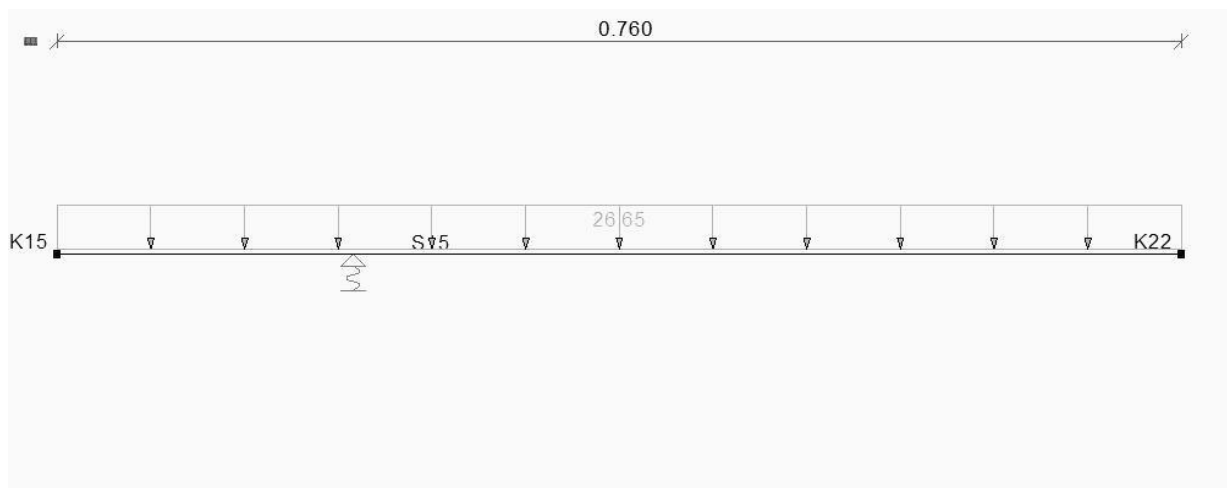
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S15)

Staaf S15

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 26,65 | 26,65 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S15)

Staaf S15



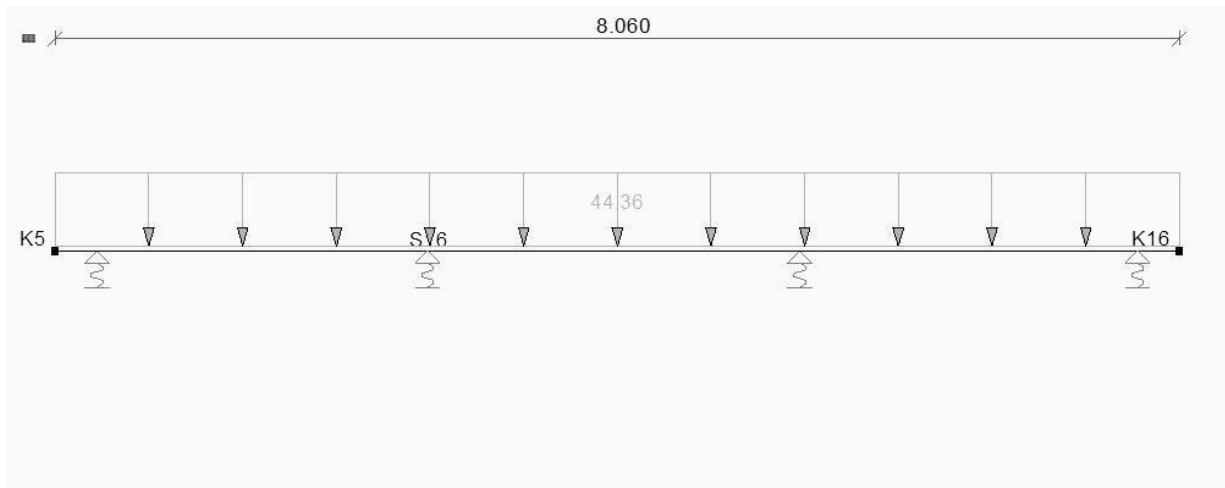
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

Staaf S16

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

Staaf S16



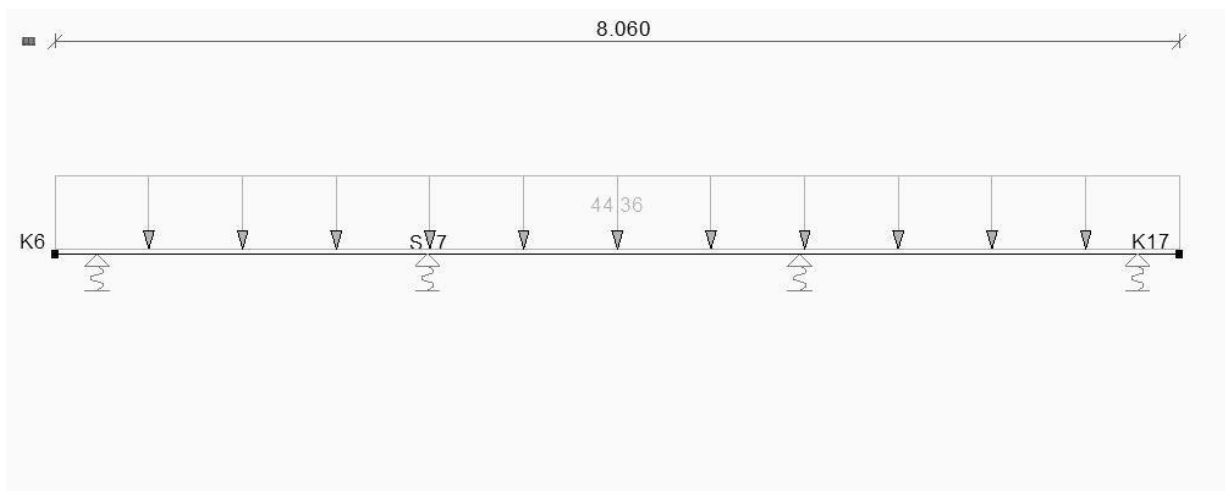
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

Staaf S17

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

Staaf S17



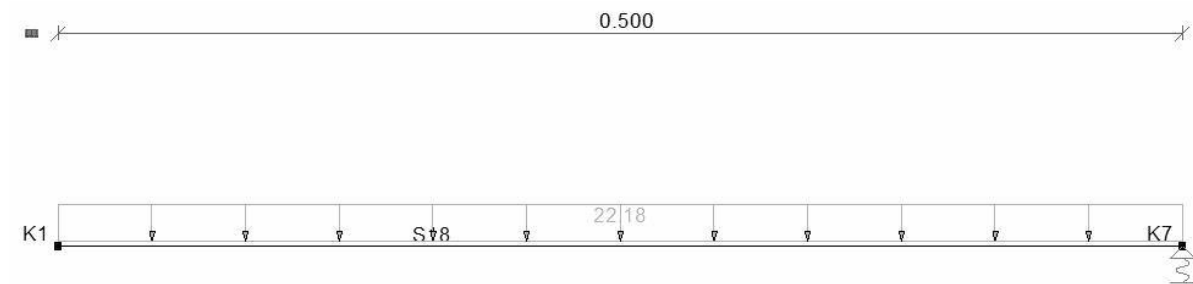
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

Staaf S18

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

Staaf S18

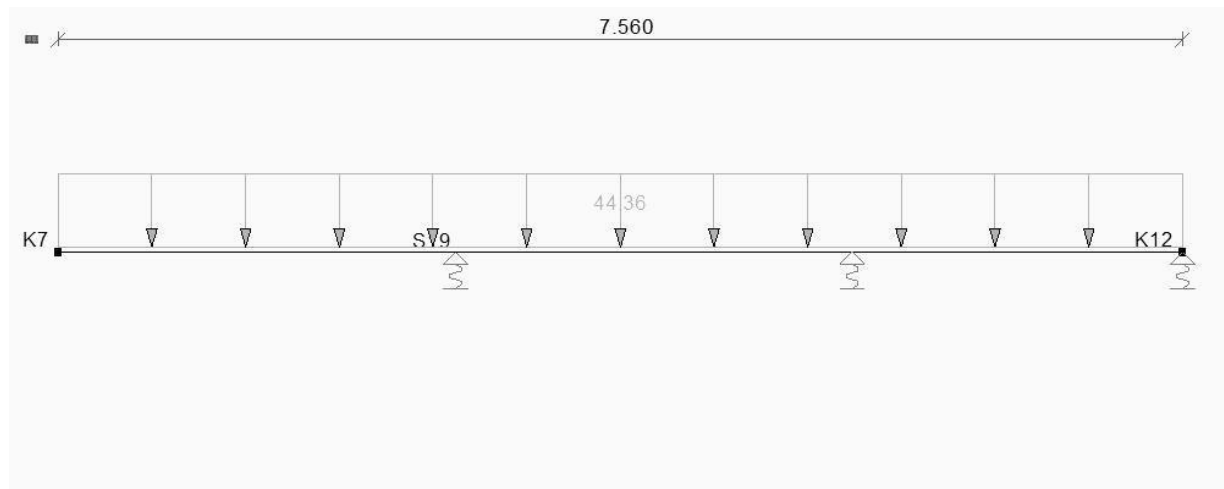


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S19 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

Staaf S19

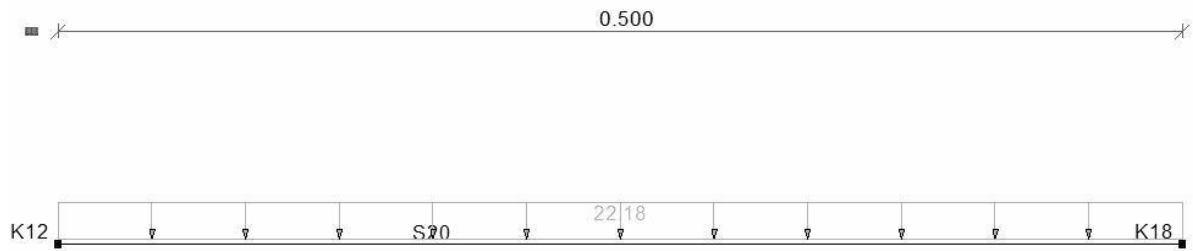


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S20)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S20 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S20)

Staaf S20

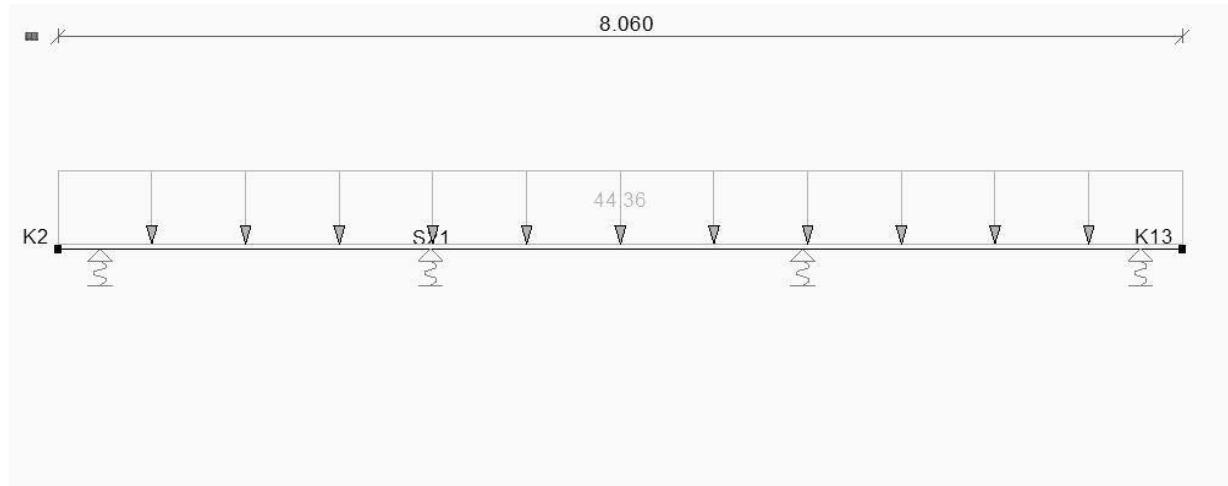


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S21)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S21 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 44,36 | 44,36 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S21)

Staaf S21

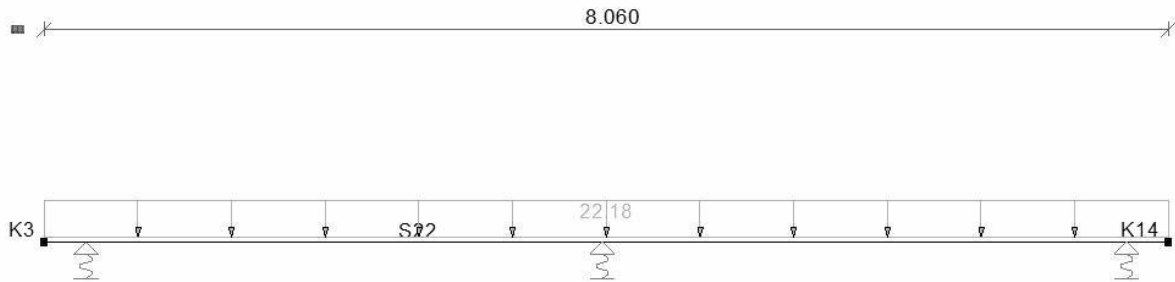


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S22)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S22 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 22,18 | 22,18 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S22)

Staal S22

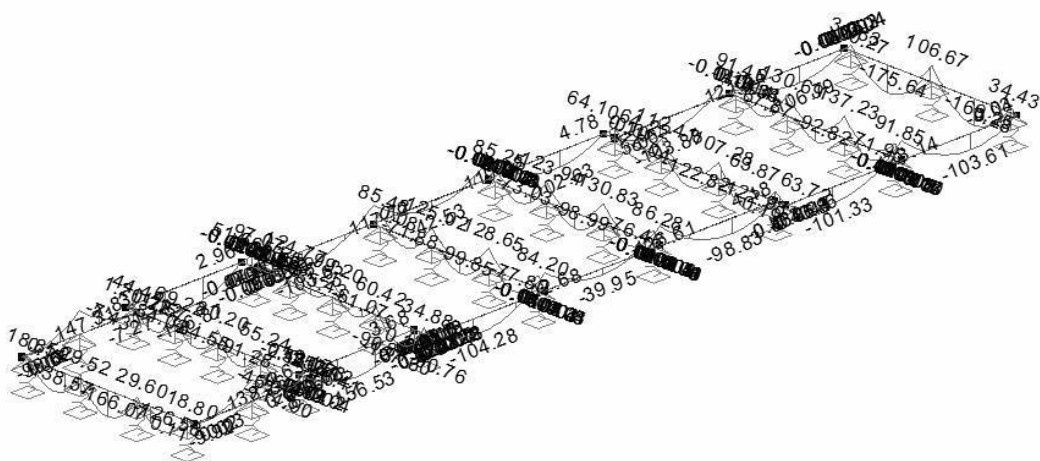


FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 | Fu.C.3 | Fu.C.4 | Fu.C.5 | Fu.C.6 | Fu.C.7 | Fu.C.8 |
|---------|---------------------------------------|--------|---------|---------|---------|---------|---------|--------|--------|
| B.G.1 | Permanent | 1.08 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 | 0.54 | - | 0.54 | - | 0.54 | - |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | 1.35 | 0.54 | - | 0.54 | 0.54 | 0.54 | - | 0.54 |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | 0.54 | - |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | 0.54 |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G. | Omschrijving | Fu.C.9 | Fu.C.10 | Fu.C.11 | Fu.C.12 | Fu.C.13 | Fu.C.14 | | |
| B.G.1 | Permanent | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | | |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | | |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | - | 1.35 | - | 1.35 | - | | |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | - | 1.35 | 1.35 | 1.35 | - | 1.35 | | |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | - | - | 1.35 | 1.35 | - | | |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | - | 1.35 | 1.35 | - | 1.35 | 1.35 | | |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | - | - | 1.35 | - | 1.35 | | |

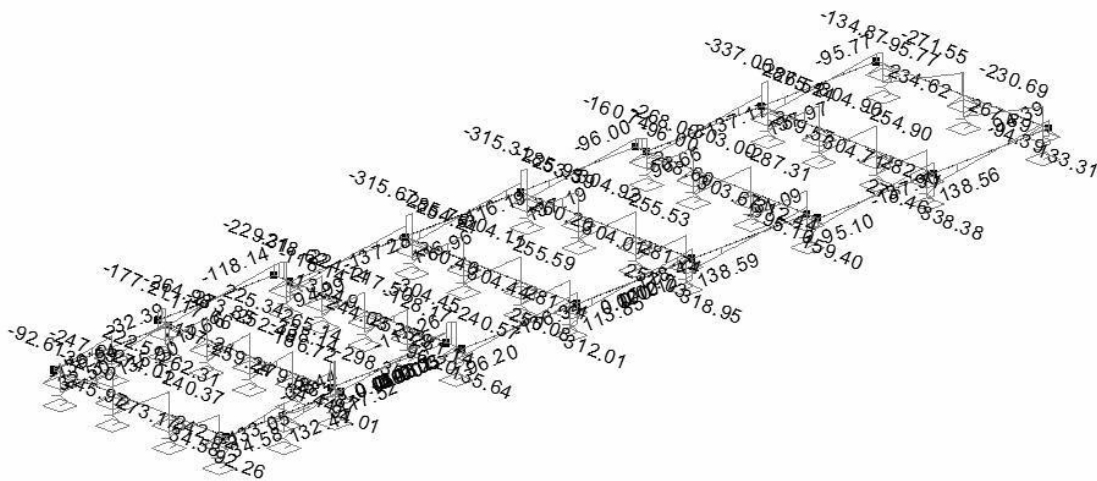
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Opleggin | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx Mymax |
|--------------------------------|-------|---------|----------------|------|---------|---|-------|---------|---|----------|
| g | | | | | | | | | | |
| O1 | S21 | Fu.C.1 | -579,93 | 0,00 | 0.00 | | | | | |
| O2 | S22 | Fu.C.11 | -362,61 | 0,00 | 0.00 | | | | | |
| O3 | S18 | Fu.C.11 | -538,23 | 0,00 | 0.00 | | | | | |
| O4 | S3 | Fu.C.5 | -265,52 | 0,00 | 0.00 | | | | | |
| O5 | S13 | Fu.C.11 | -440,06 | 0,00 | 0.00 | | | | | |
| O6 | S16 | Fu.C.1 | -556,26 | 0,00 | 0.00 | | | | | |
| O7 | S17 | Fu.C.1 | -563,70 | 0,00 | 0.00 | | | | | |
| O8 | S9 | Fu.C.2 | -327,52 | 0,00 | 0.00 | | | | | |
| O9 | S10 | Fu.C.11 | -425,61 | 0,00 | 0.00 | | | | | |
| O10 | S21 | Fu.C.1 | -574,51 | 0,00 | 0.00 | | | | | |
| O11 | S11 | Fu.C.1 | -516,55 | 0,00 | 0.00 | | | | | |
| O12 | S14 | Fu.C.1 | -483,35 | 0,00 | 0.00 | | | | | |
| O13 | S16 | Fu.C.1 | -573,15 | 0,00 | 0.00 | | | | | |
| O14 | S17 | Fu.C.1 | -574,12 | 0,00 | 0.00 | | | | | |
| O15 | S19 | Fu.C.1 | -603,94 | 0,00 | 0.00 | | | | | |
| O16 | S9 | Fu.C.1 | -506,82 | 0,00 | 0.00 | | | | | |
| O17 | S22 | Fu.C.1 | -539,44 | 0,00 | 0.00 | | | | | |
| O18 | S11 | Fu.C.1 | -530,36 | 0,00 | 0.00 | | | | | |
| O19 | S14 | Fu.C.1 | -454,22 | 0,00 | 0.00 | | | | | |
| O20 | S21 | Fu.C.1 | -578,61 | 0,00 | 0.00 | | | | | |
| O21 | S16 | Fu.C.1 | -578,43 | 0,00 | 0.00 | | | | | |
| O22 | S17 | Fu.C.1 | -577,73 | 0,00 | 0.00 | | | | | |
| O23 | S19 | Fu.C.1 | -559,52 | 0,00 | 0.00 | | | | | |
| O24 | S9 | Fu.C.1 | -511,02 | 0,00 | 0.00 | | | | | |
| O25 | S11 | Fu.C.1 | -503,28 | 0,00 | 0.00 | | | | | |
| O26 | S14 | Fu.C.1 | -443,35 | 0,00 | 0.00 | | | | | |
| O27 | S21 | Fu.C.1 | -584,67 | 0,00 | 0.00 | | | | | |
| O28 | S22 | Fu.C.13 | -367,26 | 0,00 | 0.00 | | | | | |
| O29 | S19 | Fu.C.1 | -481,83 | 0,00 | 0.00 | | | | | |
| O30 | S16 | Fu.C.1 | -566,54 | 0,00 | 0.00 | | | | | |
| O31 | S17 | Fu.C.1 | -565,23 | 0,00 | 0.00 | | | | | |
| O32 | S9 | Fu.C.2 | -328,72 | 0,00 | 0.00 | | | | | |
| O33 | S15 | Fu.C.2 | -481,94 | 0,00 | 0.00 | | | | | |
| O34 | S7 | Fu.C.2 | -272,43 | 0,00 | 0.00 | | | | | |
| O35 | S12 | Fu.C.2 | -429,45 | 0,00 | 0.00 | | | | | |
| Globale extreme waarden | | | | | | | | | | |
| O15 | S19 | Fu.C.1 | -603,94 | 0.00 | 0.00 | | | | | |

AFB. FU.C. OPLEGREACTIES OMHULLENDE

Fundamenteel Belastingscombinaties

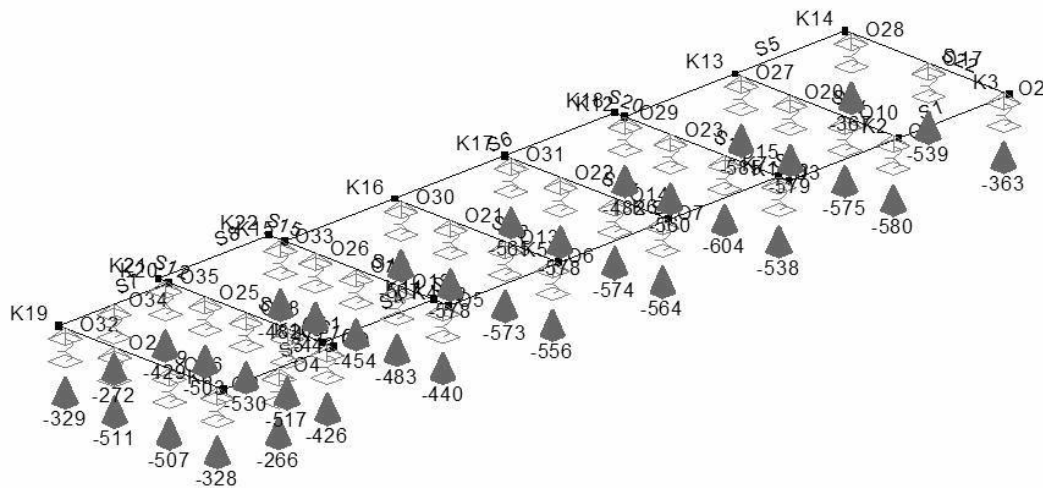
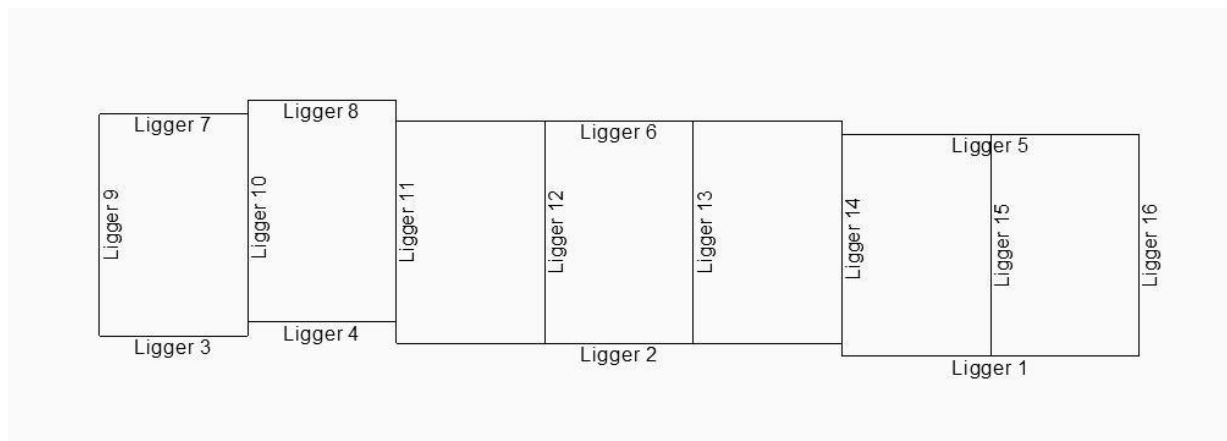


FIG. BETONDEFINITIE



BETON EIGENSCHAPPEN (NEN-EN1992-1-1:2015\NB:2016)

| Naam | Waarde | Eenheden |
|--------------------|--------|----------|
| Hoek drukdiagonaal | 21.80 | ° |

LIGGER 1

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 1 |
| Staven | S1 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 10.80 m |
| Extra begin | 0.200 m |
| Extra eind | 0.250 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 1

DEKKING
Ligger 1

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS
Ligger 1

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S18 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S21 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 10.800 | | | | S22 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|------------|
| 0.000 | 3.94 | 4R12 | | 22 | 452 | | 3.25 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 123.14 | 4R12 | 2R12 | 672 | 679 | - | 100.51 | N/B | 12.0 <= 7.4 | 60 <= 87 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|----------|
| 2.212 | 101.33 | 4R12 | 1R12 | 547 | 565 | | -83.65 | N/B | 12.0 <= 7.5 | 76 <= 92 |
| 8.605 | 103.61 | 4R12 | 1R12 | 560 | 565 | | -85.54 | N/B | 12.0 <= 7.2 | 76 <= 82 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 1

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 5.400 | 0.28 | 1R8 | 3 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 1

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 95.10 | R8-300 | 220 | 1 | 335 | 61.666 | 144.734 | 95.103 | N/B | N/B |
| 5.400 | 137.90 | R8-300 | 327 | 1 | 335 | 61.666 | 141.530 | 137.899 | N/B | N/B |
| 5.400 | 138.56 | R8-300 | 328 | 2 | 335 | 61.633 | 141.530 | 138.561 | N/B | N/B |
| 10.800 | 94.39 | R8-300 | 223 | 2 | 335 | 61.633 | 141.530 | 94.389 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 1

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12a(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 10.550 | 0.120 | 11.015 | 0.000 | 2,5D | 11.180 |
| 2R12b(bijleg)(bijleg) | 4.005 | 0.000 | 2,5D | 0.569 | 4.575 | 6.224 | 0.569 | 6.793 | 0.000 | 2,5D | 2.788 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 1

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12n1(basis)(basis) | -0.165 | 0.181 | 4,0D | 0.340 | 0.000 | 10.550 | 0.337 | 11.015 | 0.000 | 2,5D | 11.361 |
| 1R12o1(bijleg)(bijleg) | 0.329 | 0.000 | 2,5D | 0.478 | 0.807 | 3.617 | 0.478 | 4.096 | 0.000 | 2,5D | 3.767 |

| | | | | | | | | | | | |
|----------------|-------|-------|------|-------|-------|--------|-------|--------|-------|------|-------|
| 1R12p1(bijleg) | 6.671 | 0.000 | 2,5D | 0.478 | 7.149 | 10.058 | 0.478 | 10.536 | 0.000 | 2,5D | 3.865 |
| (bijleg) | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 1

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|--------|--------|--------|--------|
| S18 | Rechts | 10xR8-300 | -0.275 | 2.725 | 3.000 | 95.91 | 144.73 |
| S21 | Links | 28xR8-300 | 2.725 | 11.125 | 8.400 | 139.37 | 141.53 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 1

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|-------------------|-----------|-------------|-------------------|-----------|
| V2 (5.400-10.800) | Vloer | 4,3 <= 21,6 | 14,3 <= 21,6 | 0,20 |
| | Handmatig | | | 0,66 |
| V1 (0.000-5.400) | Vloer | 4,2 <= 21,6 | 13,8 <= 21,6 | 0,19 |
| | Handmatig | | | 0,64 |
| m | - | mm | mm | - |

LIGGER 2
ALGEMEEN + KRUIP
Ligger 2
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.DI. | Ligger 2 | Cement | S |
| Staven | S2 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 16.20 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 2

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 2

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|-------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| 5.400 | | | | S16 | 0,400 | N/B | | | afgetopt | afgetopt |
| 10.800 | | | | S17 | 0,400 | N/B | | | Niet | Niet |
| 16.200 | | | | S18 | 0,400 | Nee | | | afgetopt | afgetopt |
| | | | | | | | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 2

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi | Mrep | As,min: | D,max | S,max |
|---------|----|-------|--------|--------|--------|-------------|------|---------|-------|-------|
|---------|----|-------|--------|--------|--------|-------------|------|---------|-------|-------|

| | | | | | | | | | |
|--------|--------|------|------|-----|-----|--------|-----|--------------|------------|
| 0.000 | 3.35 | 4R12 | | 19 | 452 | 2.76 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 112.68 | 4R12 | 2R12 | 611 | 679 | 93.14 | N/B | 12.0 <= 8.4 | 60 <= 119 |
| 10.800 | 126.61 | 4R12 | 3R12 | 692 | 792 | 103.78 | N/B | 12.0 <= 8.9 | 50 <= 133 |
| 16.200 | 4.18 | 4R12 | | 23 | 452 | 3.46 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 2

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 2.238 | 104.28 | 4R12 | 1R12 | 563 | 565 | | -86.10 | N/B | 12.0 <= 7.1 | 76 <= 79 |
| 8.048 | 39.95 | 4R12 | | 209 | 452 | | -32.98 | N/B | 12.0 <= 26.7 | 101 <= 295 |
| 14.012 | 98.83 | 4R12 | 1R12 | 532 | 565 | | -81.57 | N/B | 12.0 <= 7.9 | 76 <= 103 |
| m | kNm | - | - | mm2 | mm2 | | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 2

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 10.800 | 0.18 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 2

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|-----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 96.20 | R8-300 | 223 | 1 | 335 | 61.676 | 144.734 | 96.202 | N/B | N/B |
| 5.400 | 136.34 | R8-300 | 323 | 1 | 335 | 61.676 | 141.530 | 136.343 | N/B | N/B |
| 5.400 | 113.85 | R8-300 | 270 | 0 | 335 | 61.728 | 141.530 | 113.847 | N/B | N/B |
| 10.800 | 118.43 | R8-300 | 284 | 0 | 335 | 61.728 | 139.927 | 118.433 | N/B | N/B |
| 10.800 | 138.59 | R8-300 | 332 | 1 | 335 | 61.668 | 139.927 | 138.592 | N/B | N/B |
| 16.200 | 94.09 | R8-300 | 218 | 1 | 335 | 61.668 | 144.734 | 94.090 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 2

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12c(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 16.000 | 0.120 | 16.365 | 0.000 | 2,5D | 16.530 |
| 2R12d(bijleg)(bijleg) | 4.092 | 0.000 | 2,5D | 0.569 | 4.661 | 6.185 | 0.569 | 6.755 | 0.000 | 2,5D | 2.663 |
| 3R12e(bijleg)(bijleg) | 9.402 | 0.000 | 2,5D | 0.488 | 9.890 | 11.646 | 0.488 | 12.134 | 0.000 | 2,5D | 2.732 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 2

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------|
| 4R12q1(basis)(basis) | -0.165 | 0.185 | 4,0D | 0.344 | 0.000 | 16.000 | 0.336 | 16.365 | 0.000 | 2,5D | 16.715 |
| 1R12r1(bijleg)(bijleg) | 0.276 | 0.000 | 2,5D | 0.478 | 0.754 | 3.722 | 0.478 | 4.200 | 0.000 | 2,5D | 3.925 |
| 1R12s1(bijleg)(bijleg) | 12.197 | 0.000 | 2,5D | 0.478 | 12.675 | 15.348 | 0.478 | 15.827 | 0.000 | 2,5D | 3.630 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 2

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|--------|--------|--------|--------|
| S13 | Rechts | 10xR8-300 | -0.300 | 2.700 | 3.000 | 96.73 | 144.73 |
| S16 | Links | 18xR8-300 | 2.700 | 8.100 | 5.400 | 136.87 | 141.53 |
| S18 | Links | 18xR8-300 | 8.100 | 13.500 | 5.400 | 139.12 | 139.93 |
| S18 | Links | 10xR8-300 | 13.500 | 16.500 | 3.000 | 139.12 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 2

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|--------------------|----------|-------------|--------------|-------------|-----------|
| V3 (10.800-16.200) | Vloer | 3,7 <= 21,6 | 11,1 <= 21,6 | 0,17 | 0,52 |

| | | | | | |
|-------------------|--------------------|-------------|--------------|------|------|
| V2 (5.400-10.800) | Handmatig Vloer | 2,1 <= 21,6 | 4,6 <= 21,6 | 0,10 | 0,21 |
| V1 (0.000-5.400) | Handmatig Vloer | 4,3 <= 21,6 | 13,1 <= 21,6 | 0,20 | 0,61 |
| m | - | mm | mm | - | - |

LIGGER 3

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 3 |
| Staven | S3 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 5.40 m |
| Extra begin | 0.250 m |
| Extra eind | 0.200 m |
| Fabric. | l.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 3

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 3

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S9 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| 2.700 | O4 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 5.400 | | | | S10 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|------------|
| 2.700 | 138.26 | 4R12 | 3R12 | 760 | 792 | | 113.05 | N/B | 12.0 <= 7.7 | 50 <= 97 |
| 5.400 | 1.63 | 4R12 | | 9 | 452 | | 1.34 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 0.583 | 9.92 | 4R12 | | 52 | 452 | | -8.02 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.836 | 8.18 | 4R12 | | 43 | 452 | | -6.74 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|----|----------|--------|--------|
|---------|----|----------|--------|--------|

Ligger 3

2.700 0.11 1R8
m kNm -
1 50
mm² mm²

BEUGELWAPENING
Ligger 3

| Positie | Vd | Wapen in g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|-------|---------------|-----------------|-----------------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0.000 | 34.58 | R8-300 | 80 | 0 | 335 | 61.732 | 144.734 | 34.576 | N/B | N/B |
| 2.074 | 94.80 | R8-300 | 227 | 1 | 335 | 74.366 | 139.927 | 94.800 | N/B | N/B |
| 3.326 | 94.22 | R8-300 | 226 | 1 | 335 | 74.366 | 139.927 | 94.223 | N/B | N/B |
| 5.400 | 34.44 | R8-300 | 80 | 0 | 335 | 61.732 | 144.734 | 34.445 | N/B | N/B |
| m | kN | - | mm ² | mm ² | mm ² | N/mm ² | N/mm ² | N/mm ² | N/mm ² | N/mm ² |

AFBOUWEN BOVENWAPENING
Ligger 3

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12f(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 5.200 | 0.120 | 5.565 | 0.000 | 2,5D | 5.780 |
| 3R12g(bijleg)(bijleg) | 1.231 | 0.000 | 2,5D | 0.488 | 1.719 | 3.683 | 0.488 | 4.171 | 0.000 | 2,5D | 2.940 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 3

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12f(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.123 | 0.000 | 5.200 | 0.123 | 5.565 | 0.000 | 2,5D | 5.780 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 3

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|----------|--------|-------|--------|-------|--------|
| S9 | Rechts | 5xR8-300 | -0.325 | 1.175 | 1.500 | 53.64 | 144.73 |
| O4 | Links | 3xR8-300 | 1.175 | 2.075 | 0.900 | 95.10 | 139.93 |
| O4 | Rechts | 4xR8-300 | 2.075 | 3.275 | 1.200 | 95.10 | 144.73 |
| O4 | Rechts | 4xR8-300 | 3.275 | 4.475 | 1.200 | 94.52 | 139.93 |
| S10 | Links | 4xR8-300 | 4.475 | 5.675 | 1.200 | 34.74 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 3

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|--------------|--------------|-------------|-----------|
| V2 (2.700-5.400) | Vloer | -0,3 <= 10,8 | -0,6 <= 10,8 | 0,03 | 0,05 |
| | Handmatig | | | | |
| V1 (0.000-2.700) | Vloer | -0,3 <= 10,8 | -0,6 <= 10,8 | 0,03 | 0,05 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 4
ALGEMEEN + KRUIP
Ligger 4
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 4 | Cement | S |
| Staven | S4 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 5.40 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 4
Boven
Onder
Zij- + Voorkant

| | | | |
|--------------------|-------|-------|-------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEDEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 4 Moment |
|---------|---------|------|--------------|-------|--------------|-----|----------|----------|------------------|--------------------|
| 0.000 | | | | S10 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S13 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 4 |
|---------|------|-------|--------|--------|--------|-------------------|------|---------|--------------|------------|----------|
| 0.000 | 1.72 | 4R12 | | 9 | 452 | | 1.41 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 5.400 | 3.68 | 4R12 | | 19 | 452 | | 3.03 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 4 |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|----------|----------|
| 2.691 | 156.53 | 4R12 | 4R12 | 869 | 905 | | -128.97 | N/B | 12.0 <= 7.6 | 43 <= 93 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 4 |
|---------|------|----------|--------|--------|----------|
| 0.000 | 0.06 | 1R8 | 1 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 4 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|------------------|
| 0.000 | 117.52 | R8-300 | 272 | 0 | 335 | 61.712 | 144.734 | 117.515 | N/B | N/B |
| 5.400 | 118.26 | R8-300 | 274 | 0 | 335 | 61.712 | 144.734 | 118.265 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 4 |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| 4R12h(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 5.200 | 0.120 | 5.565 | 0.000 | 2,5D | 5.730 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 4 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| 4R12t1(basis)(basis) | -0.165 | 0.261 | 4,0D | 0.420 | 0.000 | 5.200 | 0.422 | 5.559 | 0.063 | 4,0D | 6.048 | |
| 4R12u1(bijleg) | 0.046 | 0.000 | 2,5D | 0.299 | 0.345 | 5.038 | 0.299 | 5.337 | 0.000 | 2,5D | 5.291 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 4 |
|-----------|--------|-----------|--------|-------|--------|--------|--------|----------|
| S10 | Rechts | 20xR8-300 | -0.300 | 5.700 | 6.000 | 118.43 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING
Ligger 4

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|--------------|-------------|-----------|
| V1 (0.000-5.400) | Vloer | 5,3 <= 21,6 | 16,6 <= 21,6 | 0,25 | 0,77 |
| m | Handmatig | - | mm | - | - |

LIGGER 5

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 5 |
| Staven | S5 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 10.80 m |
| Extra begin | 0.200 m |
| Extra eind | 0.250 m |
| Fabric. | l.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 5

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 5

OPLEGGEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|-------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S19 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S21 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 10.800 | | | | S22 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

Ligger 5

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 0.000 | 5.06 | 4R12 | | 28 | 452 | | 4.00 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 121.24 | 4R12 | 2R12 | 661 | 679 | | 97.96 | N/B | 12.0 <= 7.7 | 60 <= 98 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 5

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| 2.280 | 103.88 | 4R12 | 1R12 | 561 | 565 | | -85.82 | N/B | 12.0 <= 7.2 | 76 <= 81 |
| 8.542 | 106.79 | 4R12 | 2R12 | 578 | 679 | | -88.16 | N/B | 12.0 <= 9.3 | 60 <= 140 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 5

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 5.400 | 0.27 | 1R8 | 3 | 50 |
| m | kNm | - | mm2 | mm2 |

Ligger 5

Ligger 5
VEdi

Ligger 5
Lengte

Ligger 5
Lengte

Ligger 5

Ligger 5

LIGGER 6

Ligger 6

Ligger 6

| | | | |
|--------------------|-------|-------|-------|
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 6

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|-------|--------------|-----|----------|----------|----------|----------|
| 0.000 | | | | S14 | 0,400 | Nee | | | Niet | Niet |
| 5.400 | | | | S16 | 0,400 | N/B | | | afgetopt | afgetopt |
| 10.800 | | | | S17 | 0,400 | N/B | | | Niet | Niet |
| 16.200 | | | | S20 | 0,400 | Nee | | | afgetopt | afgetopt |
| | | | | | | | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 6

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|--------------|------------|
| 0.000 | 3.29 | 4R12 | | 18 | 452 | | 2.72 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 117.72 | 4R12 | 3R12 | 639 | 792 | | 97.14 | N/B | 12.0 <= 10.1 | 50 <= 158 |
| 10.800 | 119.08 | 4R12 | 2R12 | 647 | 679 | | 97.73 | N/B | 12.0 <= 7.7 | 60 <= 99 |
| 16.200 | 4.78 | 4R12 | | 25 | 452 | | 3.78 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 6

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 2.209 | 101.63 | 4R12 | 1R12 | 547 | 565 | | -83.94 | N/B | 12.0 <= 7.5 | 76 <= 91 |
| 8.133 | 42.53 | 4R12 | | 222 | 452 | | -34.26 | N/B | 12.0 <= 25.8 | 101 <= 290 |
| 13.967 | 102.63 | 4R12 | 1R12 | 553 | 565 | | -84.81 | N/B | 12.0 <= 7.3 | 76 <= 86 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 6

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 10.800 | 0.10 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 6

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 94.99 | R8-300 | 220 | 1 | 335 | 61.702 | 144.734 | 94.986 | N/B | N/B |
| 5.400 | 137.28 | R8-300 | 329 | 1 | 335 | 61.702 | 139.927 | 137.282 | N/B | N/B |
| 5.400 | 116.96 | R8-300 | 280 | 0 | 335 | 61.730 | 139.927 | 116.957 | N/B | N/B |
| 10.800 | 116.19 | R8-300 | 275 | 0 | 335 | 61.730 | 141.530 | 116.194 | N/B | N/B |
| 10.800 | 137.19 | R8-300 | 325 | 1 | 335 | 61.698 | 141.530 | 137.193 | N/B | N/B |
| 16.200 | 96.00 | R8-300 | 222 | 1 | 335 | 61.698 | 144.734 | 96.001 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 6

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|
| 4R12c(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 16.000 | 0.120 | 16.365 | 0.000 | 2,5D | 16.530 |
| 3R12j(bijleg)(bijleg) | 4.140 | 0.000 | 2,5D | 0.488 | 4.628 | 6.221 | 0.488 | 6.709 | 0.000 | 2,5D | 2.569 |
| 2R12k(bijleg)(bijleg) | 9.383 | 0.000 | 2,5D | 0.569 | 9.952 | 11.594 | 0.569 | 12.163 | 0.000 | 2,5D | 2.781 |

| | | | | | | | | | | | |
|------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|----------|
| - | m | m | - | m | m | m | m | m | m | - | m |
| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 6 |
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12y1(basis)(basis) | -0.165 | 0.180 | 4,0D | 0.339 | 0.000 | 16.000 | 0.343 | 16.365 | 0.000 | 2,5D | 16.710 |
| 1R12a2(bijleg) | 0.318 | 0.000 | 2,5D | 0.478 | 0.796 | 3.623 | 0.478 | 4.101 | 0.000 | 2,5D | 3.783 |
| (bijleg) | | | | | | | | | | | |
| 1R12b2(bijleg) | 12.047 | 0.000 | 2,5D | 0.478 | 12.526 | 15.407 | 0.478 | 15.885 | 0.000 | 2,5D | 3.838 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

| | | | | | | | | | | |
|--------------------------------|--------------|-----------------|------------|------------|---------------|-----------|-----------|-----------------|--|--|
| AFBOUWEN BEUGELWAPENING | | | | | | | | Ligger 6 | | |
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | | |
| S14 | Rechts | 10xR8-300 | -0.300 | 2.700 | 3.000 | 95.26 | 144.73 | | | |
| S16 | Links | 18xR8-300 | 2.700 | 8.100 | 5.400 | 137.56 | 139.93 | | | |
| S20 | Links | 18xR8-300 | 8.100 | 13.500 | 5.400 | 137.47 | 141.53 | | | |
| S20 | Links | 10xR8-300 | 13.500 | 16.500 | 3.000 | 137.56 | 144.73 | | | |
| - | - | - | m | m | m | kN | kN | | | |

| | | | | | | | |
|-----------------------------|-----------------|----------------|--------------|--------------------|------------------|-----------------|--|
| TOETSING DOORBUIGING | | | | | | Ligger 6 | |
| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | | |
| V3 (10.800-16.200) | Vloer | 4,6 <= 21,6 | 12,4 <= 21,6 | 0,21 | 0,57 | | |
| | Handmatig | | | | | | |
| V2 (5.400-10.800) | Vloer | 2,1 <= 21,6 | 4,9 <= 21,6 | 0,10 | 0,23 | | |
| | Handmatig | | | | | | |
| V1 (0.000-5.400) | Vloer | 4,3 <= 21,6 | 12,1 <= 21,6 | 0,20 | 0,56 | | |
| | Handmatig | | | | | | |
| m | - | mm | mm | - | - | | |

LIGGER 7

| | | | | | |
|--------------------------|-------------|-----------------|----------------------|--|--|
| ALGEMEEN + KRUIP | | | Ligger 7 | | |
| Algemene gegevens | | | Kruipgegevens | | |
| Constr.Dl. | Ligger 7 | Cement | S | | |
| Staven | S7 | Rel.V.(%) | 60 % | | |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen | | |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen | | |
| Staal | B500B | Kruip type | Berekend | | |
| Type | Ligger | Kruipcoeff. | 2.64 | | |
| Lengte | 5.40 m | | | | |
| Extra begin | 0.250 m | | | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm | | |
| Fabric. | I.h.w. | Stortsl. | 0 mm | | |
| - | - | - | - | | |

| | | | | | |
|--------------------|--------------|--------------|------------------------|-----------------|--|
| DEKKING | | | | Ligger 7 | |
| | Boven | Onder | Zij- + Voorkant | | |
| Gereduceerd | Nee | Nee | Nee | | |
| Mil. | XC2 | XC2 | XC2 | | |
| Met. | Norm. | Norm. | Norm. | | |
| Nab. | Nee | Nee | Nee | | |
| Benodigde dekking | 30 mm | 30 mm | 30 mm | | |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm | | |
| - | - | - | - | | |

| | | | | | | | | | | |
|------------------------|----------------|-------------|------------------|---------------|------------------|------------|-----------------|-----------------|-----------------|---------------|
| OPLEGGEGEREVENS | | | | | | | | | Ligger 7 | |
| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
| 0.000 | | | S9 | | 0,500 | Nee | | Niet afgetopt | Niet | Niet |
| 2.700 | O34 | Ronde | 0,350 | | | N/B | | Afgetopt | Niet | Niet |

| | | | | | | | | | | |
|-------------------------|-----------|-----------|--------------|----------|-------------------|---------------|-----------|----------|--------------|--------------|
| 5.400 | paal | | S11 | | 0,400 Nee | | | | Niet | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | afgetopt | Niet |
| | | | | | | | | | | afgetopt |
| | | | | | | | | | | - |
| BOVENWAPENING | | | | | | | | | | |
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi | Mrep | As,min: | D,max | Ligger 7 |
| 2.700 | 147.31 | 4R12 | 4R12 | 814 | 905 | ng | 119.95 | N/B | 12.0 <= 8.5 | 43 <= 124 |
| 5.400 | 1.83 | 4R12 | | 10 | 452 | | 1.51 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |
| ONDERWAPENING | | | | | | | | | | |
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 7 |
| 0.559 | 9.06 | 4R12 | | 47 | 452 | | -6.77 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.843 | 7.27 | 4R12 | | 38 | 452 | | -5.46 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |
| FLANKWAPENING | | | | | | | | | | |
| Positie | Mx | Wapening | | As,ben | As,toe | Ligger 7 | | | | |
| 2.700 | 0.14 | 1R8 | | 1 | 50 | | | | | |
| m | kNm | - | | mm2 | mm2 | | | | | |
| BEUGELWAPENING | | | | | | | | | | |
| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 7 |
| 0.000 | 32.50 | g R8-300 | 79 | 0 | 335 | 61.732 | 138.325 | 32.504 | N/B | VEdi N/B |
| 2.074 | 98.29 | R8-300 | 238 | 1 | 335 | 77.747 | 138.325 | 98.289 | N/B | N/B |
| 3.326 | 97.65 | R8-300 | 237 | 1 | 335 | 77.747 | 138.325 | 97.652 | N/B | N/B |
| 5.400 | 32.39 | R8-300 | 75 | 0 | 335 | 61.732 | 144.734 | 32.390 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |
| AFBOUWEN BOVENWAPENING | | | | | | | | | | |
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Ligger 7 |
| 4R12f(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 5.200 | 0.120 | 5.565 | 0.000 | Langte 5.780 |
| 4R12l(bijleg)(bijleg) | 1.206 | 0.000 | 2,5D | 0.427 | 1.633 | 3.756 | 0.427 | 4.183 | 0.000 | 2,5D 2.977 |
| - | m | m | - | m | m | m | m | m | m | - m |
| AFBOUWEN ONDERWAPENING | | | | | | | | | | |
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Ligger 7 |
| 4R12f(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 5.200 | 0.120 | 5.565 | 0.000 | Langte 5.780 |
| - | m | m | - | m | m | m | m | m | m | - m |
| AFBOUWEN BEUGELWAPENING | | | | | | | | | | |
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 7 | | |
| S9 | Rechts | 10xR8-300 | -0.325 | 2.675 | 3.000 | 98.67 | 138.33 | | | |
| O34 | Links | 2xR8-300 | 2.675 | 3.275 | 0.600 | 98.67 | 144.73 | | | |
| O34 | Rechts | 4xR8-300 | 3.275 | 4.475 | 1.200 | 98.04 | 138.33 | | | |
| S11 | Links | 4xR8-300 | 4.475 | 5.675 | 1.200 | 32.77 | 144.73 | | | |
| - | - | - | m | m | m | kN | kN | | | |
| TOETSING DOORBUIGING | | | | | | | | | | |
| Veld | Toetsing | | w;2+w;3 | | w;max UC(w;2+w;3) | | UC(w;max) | | Ligger 7 | |
| V2 (2.700-5.400) | Vloer | | -0,4 <= 10,8 | | -0,7 <= 10,8 | | 0,04 | | 0,06 | |
| V1 (0.000-2.700) | Handmatig | | -0,4 <= 10,8 | | -0,7 <= 10,8 | | 0,04 | | 0,06 | |
| m | - | | mm | | mm | | - | | - | |

LIGGER 8
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|------------|-------------|
| Constr.Dl. | Ligger 8 |
| Staven | S8 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |

Kruipgegevens

| | |
|------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |

Ligger 8

| | | | |
|-------------|---------|-----------------|---------|
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 5.40 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 8
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S12 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S15 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

Ligger 8
BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|-------------------|------|---------|--------------|------------|
| 0.000 | 1.74 | 4R12 | | 11 | 452 | | 1.43 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 5.400 | 2.96 | 4R12 | | 17 | 452 | | 2.45 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 8
ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|----------|
| 2.695 | 156.87 | 4R12 | 4R12 | 873 | 905 | | -129.25 | N/B | 12.0 <= 7.5 | 43 <= 92 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 8
FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.22 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

Ligger 8
BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|------|------|
| 0.000 | 117.66 | R8-300 | 272 | 1 | 335 | 61.656 | 144.734 | 117.664 | N/B | N/B |
| 5.400 | 118.14 | R8-300 | 274 | 1 | 335 | 61.656 | 144.734 | 118.139 | N/B | N/B |

Ligger 8

| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|-----------------|
| AFBOUWEN BOVENWAPENING | | | | | | | | | | | |
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 8 Lengte |
| 4R12h(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 5.200 | 0.120 | 5.565 | 0.000 | 2,5D | 5.730 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 8 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12c2(basis)(basis) | -0.165 | 0.261 | 4,0D | 0.420 | 0.000 | 5.200 | 0.422 | 5.559 | 0.063 | 4,0D | 6.048 |
| 4R12d2(bijleg) | 0.044 | 0.000 | 2,5D | 0.299 | 0.343 | 5.045 | 0.299 | 5.344 | 0.000 | 2,5D | 5.300 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

| | | | | | | | | | | |
|--------------------------------|--------------|-----------------|------------|------------|---------------|-----------|-----------|-----------------|--|--|
| AFBOUWEN BEUGELWAPENING | | | | | | | | | | |
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 8 | | |
| S12 | Rechts | 20xR8-300 | -0.300 | 5.700 | 6.000 | 118.77 | 144.73 | | | |
| - | - | - | m | m | m | kN | kN | | | |

| | | | | | | | | | | |
|-----------------------------|-----------------|--|----------------|--|--------------------------|--|------------------|--|------|--|
| TOETSING DOORBUIGING | | | | | | | | | | |
| Veld | Toetsing | | w;2+w;3 | | w;max UC(w;2+w;3) | | UC(w;max) | | | |
| V1 (0.000-5.400) | Vloer | | 5,3 <= 21,6 | | 16,6 <= 21,6 | | 0,25 | | 0,77 | |
| | Handmatig | | | | | | | | | |
| m | - | | mm | | mm | | - | | - | |

LIGGER 9

| | | | | | | | | | | |
|--------------------------|-------------|--|----------------------|--|------------|--|--|--|--|--|
| ALGEMEEN + KRUIP | | | | | | | | | | |
| Algemene gegevens | | | | | | | | | | |
| Constr.Dl. | Ligger 9 | | Kruipgegevens | | | | | | | |
| Staven | S9 | | Cement | | S | | | | | |
| Profiel | R500x500 mm | | Rel.V.(%) | | 60 % | | | | | |
| Betonkwal. | C20/25 | | Ouderdom | | 28 Dagen | | | | | |
| Staal | B500B | | Tijd T | | Inf. Dagen | | | | | |
| Type | Ligger | | Kruip type | | Berekend | | | | | |
| Lengte | 8.06 m | | Kruipcoeff. | | 2.60 | | | | | |
| Extra begin | 0.200 m | | | | | | | | | |
| Extra eind | 0.200 m | | Nominale korrel | | 31.5 mm | | | | | |
| Fabric. | l.h.w. | | Stortsl. | | 0 mm | | | | | |
| - | - | | - | | - | | | | | |

| | | | | | | | | | | |
|--------------------|--------------|--|--------------|--|------------------------|--|--|--|--|--|
| DEKKING | | | | | | | | | | |
| | Boven | | Onder | | Zij- + Voorkant | | | | | |
| Gereduceerd | Nee | | Nee | | Nee | | | | | |
| Mil. | XC2 | | XC2 | | XC2 | | | | | |
| Met. | Norm. | | Norm. | | Norm. | | | | | |
| Nab. | Nee | | Nee | | Nee | | | | | |
| Benodigde dekking | 30 mm | | 30 mm | | 30 mm | | | | | |
| Toegepaste dekking | 35 mm | | 35 mm | | 35 mm | | | | | |
| - | - | | - | | - | | | | | |

| | | | | | | | | | | |
|------------------------|----------------|-------------|----------------|---------------|----------------|------------|-----------------|-----------------|-----------------|------------------------|
| OPLEGGEGETEVENS | | | | | | | | | | |
| Positie | Oplegg. | Type | Afmetin | Staaft | Afmetin | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 9 Moment |
| 0.000 | | | g | S3 | g | Nee | | | | Niet afgetopt |
| 0.300 | O8 | Ronde | 0,350 | | | N/B | | | | Niet afgetopt |
| 2.670 | O16 | Ronde | 0,350 | | | N/B | | | | Niet afgetopt |

| | | | | | | | | |
|-------|-----|---------------|-------|-------|-----|---|----------|-----------------------|
| 5.340 | O24 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 7.760 | O32 | paal Ronde | 0,350 | | N/B | | Afgetopt | afgetopt Niet |
| 8.060 | | paal | S7 | 0,400 | Nee | | Niet | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm- afgetopt - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 9 |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|----------|
| 0.300 | 18.80 | 4R12 | | 97 | 452 | | 15.47 | N/B | 12.0 <= 28.0 | 134 <= 300 | |
| 2.670 | 29.60 | 4R12 | | 153 | 452 | | 22.06 | N/B | 12.0 <= 28.0 | 134 <= 300 | |
| 5.340 | 29.52 | 4R12 | | 153 | 452 | | 21.59 | N/B | 12.0 <= 28.0 | 134 <= 300 | |
| 7.760 | 18.85 | 4R12 | | 97 | 452 | | 15.46 | N/B | 12.0 <= 28.0 | 134 <= 300 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 9 |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|-----------|----------|
| 1.500 | 126.58 | 4R12 | 3R12 | 680 | 792 | | -100.72 | N/B | 12.0 <= 9.7 | 67 <= 150 | |
| 4.038 | 166.07 | 4R12 | 3R16 | 912 | 1056 | | -131.64 | N/B | 13.7 <= 9.4 | 67 <= 149 | |
| 6.532 | 138.57 | 4R12 | 3R12 | 749 | 792 | | -108.31 | N/B | 12.0 <= 8.5 | 67 <= 122 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 9 |
|---------|------|----------|--------|--------|----------|
| 2.670 | 0.03 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 9 |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|----------|
| 0.000 | 34.58 | R8-250 | 79 | 0 | 402 | 75.895 | 175.219 | 34.576 | N/B | N/B | |
| 0.926 | 114.95 | R8-250 | 271 | 0 | 402 | 75.895 | 170.604 | 114.955 | N/B | N/B | |
| 2.044 | 117.21 | R8-250 | 276 | 0 | 402 | 75.895 | 170.604 | 117.207 | N/B | N/B | |
| 3.296 | 148.59 | R8-250 | 359 | 0 | 402 | 75.760 | 166.556 | 148.593 | N/B | N/B | |
| 4.714 | 147.76 | R8-250 | 357 | 0 | 402 | 75.760 | 166.556 | 147.755 | N/B | N/B | |
| 5.966 | 122.27 | R8-250 | 288 | 0 | 402 | 75.895 | 170.604 | 122.274 | N/B | N/B | |
| 7.134 | 120.56 | R8-250 | 284 | 0 | 402 | 75.895 | 170.604 | 120.559 | N/B | N/B | |
| 8.060 | 32.50 | R8-250 | 75 | 0 | 402 | 75.895 | 175.219 | 32.504 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 9 |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| 4R12m(basis)(basis) | -0.165 | 0.030 | 4,0D | 0.189 | 0.000 | 7.860 | 0.190 | 8.225 | 0.000 | 2,5D | 8.420 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 9 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| 4R12e2(basis)(basis) | -0.165 | 0.081 | 4,0D | 0.715 | 0.475 | 7.860 | 0.120 | 8.225 | 0.000 | 2,5D | 8.471 | |
| 3R12f2(bijleg) | 0.066 | 0.000 | 2,5D | 0.409 | 0.475 | 2.495 | 0.419 | 2.914 | 0.000 | 2,5D | 2.848 | |
| (bijleg) | | | | | | | | | | | | |
| 3R16g2(bijleg) | 2.347 | 0.000 | 2,5D | 0.498 | 2.845 | 5.165 | 0.515 | 5.680 | 0.000 | 2,5D | 3.333 | |
| (bijleg) | | | | | | | | | | | | |

| | | | | | | | | | | | |
|----------------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 3R12h2(bijleg) | 5.057 | 0.000 | 2,5D | 0.458 | 5.515 | 7.585 | 0.444 | 8.029 | 0.000 | 2,5D | 2.972 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 9

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S3 | Rechts | 4xR8-250 | -0.220 | 0.780 | 1.000 | 115.02 | 175.22 |
| O8 | Rechts | 8xR8-250 | 0.780 | 2.780 | 2.000 | 148.66 | 170.60 |
| O24 | Links | 10xR8-250 | 2.780 | 5.280 | 2.500 | 148.66 | 166.56 |
| O32 | Links | 8xR8-250 | 5.280 | 7.280 | 2.000 | 147.82 | 170.60 |
| S7 | Links | 4xR8-250 | 7.280 | 8.280 | 1.000 | 120.62 | 175.22 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 9

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| V4 (5.340-7.760) | Vloer | 1,1 <= 9,7 | 2,2 <= 9,7 | 0,11 |
| | Handmatig | | | |
| V3 (2.670-5.340) | Vloer | 1,3 <= 10,7 | 3,0 <= 10,7 | 0,12 |
| | Handmatig | | | |
| V2 (0.300-2.670) | Vloer | 0,9 <= 9,5 | 1,9 <= 9,5 | 0,09 |
| | Handmatig | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | |
| m | - | mm | mm | - |

LIGGER 10
ALGEMEEN + KRUIP
Ligger 10
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 10 | Cement | S |
| Staven | S10-S12 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 8.56 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 10

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 10

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S3 | 0,400 | Nee | | Niet | | Niet |
| 0.300 | O9 | Ronde paal | 0,350 | | | N/B | | afgetopt | | afgetopt |
| | | | | | | | | Afgetopt | | Niet |
| 0.500 | | | | S4 | 0,400 | N/B | | Niet | | afgetopt |
| | | | | | | | | | | Niet |

| | | | | | | | |
|-------|-----|--------|-------|-------|-----|----------|----------|
| 2.300 | O11 | Ronde | 0,350 | | N/B | afgetopt | afgetopt |
| | | paal | | | | Afgetopt | Niet |
| 4.300 | O18 | Ronde | 0,350 | | N/B | Afgetopt | afgetopt |
| | | paal | | | | | Niet |
| 6.300 | O25 | Ronde | 0,350 | | N/B | Afgetopt | afgetopt |
| | | paal | | | | | Niet |
| 8.060 | | | S7 | 0,400 | N/B | Niet | afgetopt |
| | | | | | | | Niet |
| 8.260 | O35 | n.v.t. | 0,000 | | N/B | afgetopt | afgetopt |
| | | | | | | Niet | Niet |
| 8.560 | | | S8 | 0,400 | Nee | afgetopt | afgetopt |
| | | | | | | Niet | Niet |
| | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | kNm | kNm - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 10 S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|--------------|--------------------|
| 0.300 | 19.17 | 4R12 | | 111 | 452 | | 15.83 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 2.300 | 55.24 | 4R12 | | 302 | 452 | | 41.80 | N/B | 12.0 <= 19.3 | 101 <= 258 |
| 4.300 | 80.20 | 4R12 | | 439 | 452 | | 62.71 | N/B | 12.0 <= 8.5 | 101 <= 124 |
| 6.300 | 69.22 | 4R12 | | 379 | 452 | | 53.20 | N/B | 12.0 <= 11.5 | 101 <= 185 |
| 8.060 | 1.12 | 4R12 | | 19 | 452 | | 0.14 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 8.260 | 44.44 | 4R12 | | 245 | 452 | | 36.65 | N/B | 12.0 <= 24.0 | 101 <= 283 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 10 S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|--------------------|
| 0.500 | 46.41 | 4R12 | | 255 | 452 | | -36.56 | N/B | 12.0 <= 24.0 | 101 <= 283 |
| 1.234 | 114.90 | 4R12 | 2R12 | 635 | 679 | | -88.15 | N/B | 12.0 <= 9.3 | 60 <= 141 |
| 3.293 | 91.28 | 4R12 | 1R12 | 500 | 565 | | -61.49 | N/B | 12.0 <= 12.9 | 76 <= 207 |
| 5.281 | 84.55 | 4R12 | 1R12 | 464 | 565 | | -55.83 | N/B | 12.0 <= 15.8 | 76 <= 236 |
| 7.285 | 84.02 | 4R12 | 1R12 | 461 | 565 | | -60.88 | N/B | 12.0 <= 13.1 | 76 <= 210 |
| 8.060 | 7.43 | 4R12 | | 51 | 452 | | -2.96 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 10 |
|---------|------|----------|--------|--------|-----------|
| 0.300 | 1.63 | 1R8 | 16 | 50 | |
| 8.060 | 1.74 | 1R8 | 17 | 50 | |
| 8.260 | 1.74 | 1R8 | 17 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 10 VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|------|-------------------|
| 0.000 | 34.44 | R8-300 | 80 | 0 | 335 | 61.732 | 144.734 | 34.445 | N/B | N/B |
| 0.500 | 298.35 | R8-100 | 691 | 11 | 1005 | 61.155 | 434.201 | 298.346 | N/B | N/B |
| 0.500 | 186.72 | R8-150 | 432 | 1 | 670 | 61.700 | 289.468 | 186.723 | N/B | N/B |
| 0.926 | 78.38 | R8-300 | 186 | 1 | 335 | 61.700 | 141.530 | 78.376 | N/B | N/B |
| 1.674 | 123.65 | R8-300 | 293 | 1 | 335 | 61.700 | 141.530 | 123.650 | N/B | N/B |

| | | | | | | | | | | |
|-------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 2.926 | 93.26 | R8-300 | 218 | 1 | 335 | 61.700 | 143.132 | 93.261 | N/B | N/B |
| 3.674 | 120.44 | R8-300 | 282 | 1 | 335 | 61.700 | 143.132 | 120.437 | N/B | N/B |
| 4.926 | 114.63 | R8-300 | 268 | 1 | 335 | 61.700 | 143.132 | 114.630 | N/B | N/B |
| 5.674 | 100.03 | R8-300 | 234 | 1 | 335 | 61.700 | 143.132 | 100.028 | N/B | N/B |
| 6.926 | 105.77 | R8-300 | 248 | 1 | 335 | 61.700 | 143.132 | 105.766 | N/B | N/B |
| 8.060 | 197.21 | R8-150 | 457 | 1 | 670 | 61.700 | 289.468 | 197.210 | N/B | N/B |
| 8.060 | 222.51 | R8-150 | 515 | 12 | 670 | 61.116 | 289.468 | 222.512 | N/B | N/B |
| 8.260 | 262.31 | R8-150 | 607 | 12 | 670 | 61.116 | 289.468 | 262.311 | N/B | N/B |
| 8.260 | 177.21 | R8-150 | 410 | 12 | 670 | 61.116 | 289.468 | 177.214 | N/B | N/B |
| 8.560 | 117.66 | R8-300 | 272 | 12 | 335 | 61.116 | 144.734 | 117.664 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12n(basis)(basis) | -0.165 | 0.034 | 4,0D | 0.193 | 0.000 | 8.360 | 0.447 | 8.719 | 0.088 | 4,0D | 9.006 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 10
AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12i2(basis)(basis) | -0.165 | 0.120 | 4,0D | 0.754 | 0.475 | 8.360 | 0.937 | 8.719 | 0.578 | 4,0D | 9.582 |
| 2R12j2(bijleg) | -0.105 | 0.000 | 2,5D | 0.507 | 0.500 | 2.125 | 0.455 | 2.580 | 0.000 | 2,5D | 2.685 |
| (bijleg) | | | | | | | | | | | |
| 1R12k2(bijleg) | 2.074 | 0.000 | 2,5D | 0.478 | 2.553 | 4.038 | 0.478 | 4.517 | 0.000 | 2,5D | 2.442 |
| (bijleg) | | | | | | | | | | | |
| 1R12l2(bijleg) | 4.805 | 0.000 | 2,5D | 0.476 | 5.281 | 5.281 | 0.476 | 5.757 | 0.000 | 2,5D | 0.952 |
| (bijleg) | | | | | | | | | | | |
| 1R12m2(bijleg) | 6.811 | 0.000 | 2,5D | 0.473 | 7.285 | 7.285 | 0.473 | 7.758 | 0.000 | 2,5D | 0.946 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 10
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S4 | Links | 3xR8-300 | -0.220 | 0.680 | 0.900 | 83.46 | 144.73 |
| S4 | Rechts | 5xR8-300 | 0.680 | 2.180 | 1.500 | 128.74 | 141.53 |
| O11 | Links | 12xR8-300 | 2.180 | 5.780 | 3.600 | 128.74 | 143.13 |
| S7 | Links | 6xR8-300 | 5.780 | 7.580 | 1.800 | 140.13 | 144.73 |
| S7 | Links | 7xR8-150 | 7.580 | 8.705 | 1.125 | 267.40 | 289.47 |
| - | - | - | m | m | m | kN | kN |

Ligger 10
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|------------|-------------------|-----------|
| V8 (8.260-8.560) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | 0,01 |
| V7 (8.060-8.260) | Vloer | 0,0 <= 0,8 | 0,0 <= 0,8 | 0,00 |
| | Handmatig | | | 0,01 |
| V6 (6.300-8.060) | Vloer | 0,4 <= 7,0 | 0,5 <= 7,0 | 0,06 |
| | Handmatig | | | 0,07 |
| V5 (4.300-6.300) | Vloer | 0,5 <= 8,0 | 0,4 <= 8,0 | 0,06 |
| | Handmatig | | | 0,05 |
| V4 (2.300-4.300) | Vloer | 0,6 <= 8,0 | 0,5 <= 8,0 | 0,08 |
| | Handmatig | | | 0,06 |
| V3 (0.500-2.300) | Vloer | 0,6 <= 7,2 | 1,2 <= 7,2 | 0,08 |
| | Handmatig | | | 0,16 |
| V2 (0.300-0.500) | Vloer | 0,0 <= 0,8 | 0,0 <= 0,8 | 0,00 |
| | Handmatig | | | 0,00 |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 |
| | Handmatig | | | 0,00 |
| m | - | mm | mm | - |

Ligger 10
LIGGER 11

ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 11 |
| Staven | S13-S15 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.82 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 11
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 11
OPLEGGEGEREVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 11 Moment |
|---------|---------|---------------|--------------|-------|--------------|-----|----------|----------|----------------------|---------------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O5 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 0.760 | | | | S4 | 0,400 | N/B | | | Niet | afgetopt Niet |
| 2.560 | O12 | Ronde paal | 0,350 | | | N/B | | | afgetopt Afgetopt | afgetopt Niet |
| 4.560 | O19 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 6.560 | O26 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 8.060 | | | | S6 | 0,400 | N/B | | | Afgetopt | afgetopt Niet |
| 8.260 | O33 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | afgetopt Niet |
| 8.820 | | | | S8 | 0,400 | Nee | | | Niet | afgetopt Niet |
| m | - | - | m | - | m | - | kNm | kNm | afgetopt | afgetopt |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 11 S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|--------------|--------------------|
| 0.300 | 34.88 | 4R12 | | 207 | 452 | | 28.83 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 2.560 | 60.42 | 4R12 | | 343 | 452 | | 46.75 | N/B | 12.0 <= 14.1 | 101 <= 226 |
| 4.560 | 99.20 | 4R12 | 1R12 | 558 | 565 | | 77.79 | N/B | 12.0 <= 8.5 | 76 <= 122 |
| 6.560 | 124.77 | 4R12 | 3R12 | 705 | 792 | | 99.76 | N/B | 12.0 <= 9.6 | 50 <= 148 |
| 8.060 | 51.59 | 4R12 | | 296 | 452 | | 42.51 | N/B | 12.0 <= 18.6 | 101 <= 253 |
| 8.260 | 97.07 | 4R12 | 1R12 | 546 | 565 | | 80.08 | N/B | 12.0 <= 8.1 | 76 <= 111 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 11 |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-----------------|------------|-----------|
| 0.760 | 90.76 | 4R12 | 1R12 | 511 | 565 | | -72.39 | N/B | 12.0 <= 9.7 | 76 <= 150 | |
| 1.334 | 127.60 | 4R12 | 3R12 | 722 | 792 | | -98.87 | N/B | 12.0 <= 9.8 | 50 <= 151 | |
| 3.534 | 61.07 | 4R12 | | 347 | 452 | | -36.89 | N/B | 12.0 <= | 101 <= 282 | |
| 5.467 | 35.43 | 4R12 | | 210 | 452 | | -13.08 | N/B | 23.8 12.0 <= | 101 <= 300 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | 28.0 mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 11 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 3.35 | 1R8 | 32 | 50 | |
| 0.300 | 3.35 | 1R8 | 32 | 50 | |
| 0.760 | 3.35 | 1R8 | 32 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 11 |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.000 | 96.20 | R8-300 | 223 | 23 | 335 | 60.716 | 144.734 | 96.202 | N/B | N/B | |
| 0.760 | 240.57 | R8-150 | 563 | 23 | 670 | 60.716 | 286.263 | 240.572 | N/B | N/B | |
| 0.760 | 128.17 | R8-300 | 300 | 2 | 335 | 61.615 | 143.132 | 128.173 | N/B | N/B | |
| 0.926 | 91.11 | R8-300 | 213 | 2 | 335 | 61.615 | 143.132 | 91.109 | N/B | N/B | |
| 1.934 | 141.36 | R8-150 | 339 | 2 | 670 | 61.615 | 279.855 | 141.364 | N/B | N/B | |
| 3.186 | 77.73 | R8-300 | 180 | 2 | 335 | 61.615 | 144.734 | 77.731 | N/B | N/B | |
| 3.934 | 113.01 | R8-300 | 262 | 2 | 335 | 61.615 | 144.734 | 113.015 | N/B | N/B | |
| 5.186 | 84.37 | R8-300 | 198 | 2 | 335 | 66.398 | 143.132 | 84.370 | N/B | N/B | |
| 5.934 | 104.25 | R8-300 | 250 | 2 | 335 | 74.311 | 139.927 | 104.254 | N/B | N/B | |
| 7.186 | 78.85 | R8-300 | 189 | 2 | 335 | 74.311 | 139.927 | 78.849 | N/B | N/B | |
| 7.634 | 37.37 | R8-300 | 87 | 0 | 335 | 61.732 | 144.734 | 37.368 | N/B | N/B | |
| 7.860 | 87.83 | R8-300 | 203 | 2 | 335 | 61.615 | 144.734 | 87.829 | N/B | N/B | |
| 8.260 | 229.31 | R8-150 | 537 | 20 | 670 | 60.716 | 286.263 | 229.311 | N/B | N/B | |
| 8.820 | 118.14 | R8-300 | 274 | 20 | 335 | 60.716 | 144.734 | 118.139 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 11 |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12o(basis)(basis) | -0.165 | 0.192 | 4,0D | 0.351 | 0.000 | 8.620 | 0.976 | 8.979 | 0.617 | 4,0D | 9.953 | |
| 1R12p(bijleg)(bijleg) | 3.277 | 0.000 | 2,5D | 0.683 | 3.960 | 5.194 | 0.683 | 5.877 | 0.000 | 2,5D | 2.600 | |
| 3R12q(bijleg)(bijleg) | 5.300 | 0.000 | 2,5D | 0.488 | 5.788 | 7.287 | 0.488 | 7.775 | 0.000 | 2,5D | 2.475 | |
| 1R12r(bijleg)(bijleg) | 7.279 | 0.000 | 2,5D | 0.781 | 8.060 | 8.820 | 0.734 | 8.979 | 0.575 | 4,0D | 2.275 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 11 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12n2(basis)(basis) | -0.165 | 0.175 | 4,0D | 0.809 | 0.475 | 8.620 | 0.422 | 8.979 | 0.063 | 4,0D | 9.382 | |
| 1R12o2(bijleg)(bijleg) | -0.173 | 0.000 | 2,5D | 0.648 | 0.475 | 2.385 | 0.547 | 2.932 | 0.000 | 2,5D | 3.105 | |
| 3R12p2(bijleg)(bijleg) | 0.248 | 0.000 | 2,5D | 0.513 | 0.760 | 2.385 | 0.391 | 2.776 | 0.000 | 2,5D | 2.528 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 11 |
|-----------|-------|----------|--------|-------|--------|--------|--------|-----------|
| S4 | Links | 4xR8-300 | -0.240 | 0.960 | 1.200 | 105.99 | 143.13 | |
| S4 | Links | 2xR8-300 | 0.960 | 1.560 | 0.600 | 99.44 | 139.93 | |

| | | | | | | | |
|-----|--------|----------|-------|-------|-------|--------|--------|
| O12 | Links | 4xR8-150 | 1.560 | 2.160 | 0.600 | 151.16 | 279.85 |
| O12 | Rechts | 1xR8-300 | 2.160 | 2.460 | 0.300 | 151.16 | 143.13 |
| O19 | Links | 7xR8-300 | 2.460 | 4.560 | 2.100 | 151.16 | 144.73 |
| O19 | Links | 2xR8-300 | 4.560 | 5.160 | 0.600 | 94.16 | 139.93 |
| O19 | Rechts | 1xR8-300 | 5.160 | 5.460 | 0.300 | 94.16 | 143.13 |
| O26 | Links | 2xR8-300 | 5.460 | 6.060 | 0.600 | 114.04 | 139.93 |
| O26 | Rechts | 1xR8-300 | 6.060 | 6.360 | 0.300 | 114.04 | 143.13 |
| O26 | Links | 2xR8-300 | 6.360 | 6.960 | 0.600 | 114.04 | 144.73 |
| O26 | Rechts | 2xR8-300 | 6.960 | 7.560 | 0.600 | 88.64 | 139.93 |
| S6 | Links | 2xR8-300 | 7.560 | 8.160 | 0.600 | 47.16 | 144.73 |
| S6 | Rechts | 3xR8-300 | 8.160 | 9.060 | 0.900 | 127.93 | 143.13 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 11 |
|------------------|-----------|-------------|-------------------|-----------|-----------|
| V8 (8.260-8.820) | Vloer | 0,0 <= 2,2 | -0,1 <= 2,2 | 0,01 | 0,03 |
| | Handmatig | | | | |
| V7 (8.060-8.260) | Vloer | 0,0 <= 0,8 | 0,0 <= 0,8 | 0,01 | 0,03 |
| | Handmatig | | | | |
| V6 (6.560-8.060) | Vloer | -0,1 <= 6,0 | -0,1 <= 6,0 | 0,02 | 0,01 |
| | Handmatig | | | | |
| V5 (4.560-6.560) | Vloer | -0,1 <= 8,0 | 0,3 <= 8,0 | 0,01 | 0,04 |
| | Handmatig | | | | |
| V4 (2.560-4.560) | Vloer | 0,2 <= 8,0 | 0,1 <= 8,0 | 0,03 | 0,02 |
| | Handmatig | | | | |
| V3 (0.760-2.560) | Vloer | 0,5 <= 7,2 | 1,0 <= 7,2 | 0,07 | 0,14 |
| | Handmatig | | | | |
| V2 (0.300-0.760) | Vloer | 0,0 <= 1,8 | 0,0 <= 1,8 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 12
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 12 |
| Staven | S16 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 12
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 12
OPLEGGEVEENS

| Positie | Oplegg. | Type | Afmetin | Staaft | Afmetin | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 12 |
|---------|---------|------|---------|--------|---------|-----|----------|----------|----------|-----------|
| | | | | | | | | | | Moment |

| | | | | | | | | |
|-------|-----|-------|--------------------|-----------------------|-----|-----|----------|----------|
| 0.000 | | | ^g S2 | ^g 0,400 | Nee | | Niet | Niet |
| 0.300 | O6 | Ronde | 0,350 | | N/B | | afgetopt | afgetopt |
| | | paal | | | | | Afgetopt | Niet |
| 2.670 | O13 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt |
| | | paal | | | | | | Niet |
| 5.340 | O21 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt |
| | | paal | | | | | | Niet |
| 7.760 | O30 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt |
| | | paal | | | | | | Niet |
| 8.060 | | | S6 | 0,400 | Nee | | Niet | Niet |
| | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | kNm | kNm | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 12 S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|--------------------|
| 0.300 | 84.20 | 4R12 | 1R12 | 448 | 565 | | 69.57 | N/B | 12.0 <= 10.4 | 76 <= 165 |
| 2.670 | 128.65 | 4R12 | 3R12 | 702 | 792 | | 102.63 | N/B | 12.0 <= 9.1 | 50 <= 137 |
| 5.340 | 125.02 | 4R12 | 3R12 | 681 | 792 | | 101.45 | N/B | 12.0 <= 9.3 | 50 <= 141 |
| 7.760 | 85.48 | 4R12 | 1R12 | 456 | 565 | | 70.46 | N/B | 12.0 <= 10.2 | 76 <= 160 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 12 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|--------------------|
| 1.454 | 77.80 | 4R12 | | 413 | 452 | | -44.61 | N/B | 12.0 <= 16.4 | 101 <= 240 |
| 3.965 | 99.85 | 4R12 | 1R12 | 536 | 565 | | -61.47 | N/B | 12.0 <= 12.9 | 76 <= 207 |
| 6.584 | 71.88 | 4R12 | | 380 | 452 | | -44.87 | N/B | 12.0 <= 16.1 | 101 <= 238 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 12 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.02 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 12 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------------------|
| 0.000 | 250.08 | R8-150 | 579 | 0 | 670 | 61.726 | 289.468 | 250.084 | N/B | N/B |
| 0.926 | 116.99 | R8-300 | 271 | 0 | 335 | 61.726 | 144.734 | 116.994 | N/B | N/B |
| 2.044 | 143.15 | R8-300 | 331 | 0 | 335 | 61.726 | 144.734 | 143.146 | N/B | N/B |
| 3.296 | 165.51 | R8-150 | 388 | 0 | 670 | 61.726 | 286.263 | 165.512 | N/B | N/B |
| 4.714 | 165.84 | R8-150 | 388 | 0 | 670 | 61.726 | 286.263 | 165.845 | N/B | N/B |
| 5.966 | 147.16 | R8-150 | 341 | 0 | 670 | 61.726 | 289.468 | 147.160 | N/B | N/B |
| 7.134 | 121.81 | R8-300 | 282 | 0 | 335 | 61.726 | 144.734 | 121.805 | N/B | N/B |
| 8.060 | 254.24 | R8-150 | 595 | 0 | 670 | 61.726 | 286.263 | 254.239 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 12 |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|-----------|
| 4R12s(basis)(basis) | -0.165 | 0.688 | 4,0D | 0.847 | 0.000 | 7.860 | 0.860 | 8.219 | 0.501 | 4,0D | 9.572 | |
| 1R12t(bijleg)(bijleg) | -0.165 | 0.218 | 4,0D | 0.677 | 0.300 | 1.942 | 0.683 | 2.625 | 0.000 | 2,5D | 3.009 | |
| 3R12u(bijleg)(bijleg) | 1.454 | 0.000 | 2,5D | 0.488 | 1.942 | 3.426 | 0.488 | 3.914 | 0.000 | 2,5D | 2.460 | |
| 3R12v(bijleg)(bijleg) | 4.109 | 0.000 | 2,5D | 0.488 | 4.597 | 6.037 | 0.488 | 6.525 | 0.000 | 2,5D | 2.416 | |

| | | | | | | | | | | | |
|---------------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 1R12w(bijleg) | 6.540 | 0.000 | 2,5D | 0.683 | 7.223 | 8.060 | 0.688 | 8.219 | 0.529 | 4,0D | 2.208 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12q2(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.395 | 0.475 | 7.860 | 0.908 | 8.219 | 0.549 | 4,0D | 8.933 |
| 1R12r2(bijleg) | 2.597 | 0.000 | 2,5D | 0.478 | 3.076 | 4.853 | 0.478 | 5.331 | 0.000 | 2,5D | 2.734 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 12
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S2 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 250.14 | 289.47 |
| O6 | Rechts | 6xR8-300 | 0.505 | 2.305 | 1.800 | 143.20 | 144.73 |
| O13 | Links | 10xR8-150 | 2.305 | 3.805 | 1.500 | 165.56 | 286.26 |
| O13 | Rechts | 2xR8-300 | 3.805 | 4.405 | 0.600 | 112.66 | 143.13 |
| O21 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 165.90 | 286.26 |
| O21 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 147.21 | 289.47 |
| O21 | Rechts | 4xR8-300 | 6.205 | 7.405 | 1.200 | 121.86 | 144.73 |
| O30 | Links | 1xR8-300 | 7.405 | 7.705 | 0.300 | 121.86 | 143.13 |
| S6 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 254.29 | 286.26 |
| - | - | - | m | m | m | kN | kN |

Ligger 12
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|--------------------|-------------|-------------------|-----------|
| V5 (7.760-8.060) | Vloer Handmatig | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| V4 (5.340-7.760) | Vloer Handmatig | 0,4 <= 9,7 | 0,3 <= 9,7 | 0,04 |
| V3 (2.670-5.340) | Vloer Handmatig | 1,0 <= 10,7 | 0,6 <= 10,7 | 0,09 |
| V2 (0.300-2.670) | Vloer Handmatig | 0,3 <= 9,5 | 0,2 <= 9,5 | 0,03 |
| V1 (0.000-0.300) | Vloer Handmatig | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 |
| m | - | mm | mm | - |

Ligger 12
LIGGER 13
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 13 |
| Staven | S17 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 13
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|-------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |

Ligger 13

| | | | |
|--------------------|-------|-------|-------|
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 13 Moment |
|---------|---------|-------|--------------|--------|--------------|-----|----------|----------|----------|---------------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O7 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 2.670 | O14 | paal | | | | | | | Afgetopt | Niet |
| 5.340 | O22 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 7.760 | O31 | paal | | | | | | | Afgetopt | Niet |
| 8.060 | | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | S6 | 0,400 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 13 S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|--------------------|
| 0.300 | 86.28 | 4R12 | 1R12 | 460 | 565 | | 71.32 | N/B | 12.0 <= 10.0 | 76 <= 156 |
| 2.670 | 130.83 | 4R12 | 3R12 | 715 | 792 | | 104.30 | N/B | 12.0 <= 8.8 | 50 <= 131 |
| 5.340 | 123.94 | 4R12 | 3R12 | 675 | 792 | | 100.92 | N/B | 12.0 <= 9.4 | 50 <= 143 |
| 7.760 | 85.25 | 4R12 | 1R12 | 454 | 565 | | 70.47 | N/B | 12.0 <= 10.2 | 76 <= 160 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 13 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|--------------------|
| 1.454 | 76.46 | 4R12 | | 405 | 452 | | -43.30 | N/B | 12.0 <= 17.8 | 101 <= 248 |
| 3.967 | 98.99 | 4R12 | 1R12 | 531 | 565 | | -60.77 | N/B | 12.0 <= 13.1 | 76 <= 210 |
| 6.625 | 73.03 | 4R12 | | 387 | 452 | | -45.88 | N/B | 12.0 <= 15.1 | 101 <= 231 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 13 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 0.02 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 13 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------------------|
| 0.000 | 257.03 | R8-150 | 595 | 0 | 670 | 61.726 | 289.468 | 257.025 | N/B | N/B |
| 0.926 | 116.93 | R8-300 | 271 | 0 | 335 | 61.726 | 144.734 | 116.934 | N/B | N/B |
| 2.044 | 143.15 | R8-300 | 331 | 0 | 335 | 61.726 | 144.734 | 143.149 | N/B | N/B |
| 3.296 | 166.32 | R8-150 | 389 | 0 | 670 | 61.726 | 286.263 | 166.321 | N/B | N/B |
| 4.714 | 165.42 | R8-150 | 387 | 0 | 670 | 61.726 | 286.263 | 165.416 | N/B | N/B |
| 5.966 | 147.33 | R8-150 | 341 | 0 | 670 | 61.726 | 289.468 | 147.331 | N/B | N/B |
| 7.134 | 121.61 | R8-300 | 282 | 0 | 335 | 61.726 | 144.734 | 121.605 | N/B | N/B |
| 8.060 | 253.39 | R8-150 | 587 | 0 | 670 | 61.726 | 289.468 | 253.387 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 13

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12x(basis)(basis) | -0.165 | 0.709 | 4,0D | 0.868 | 0.000 | 7.860 | 0.857 | 8.219 | 0.498 | 4,0D | 9.591 |
| 1R12y(bijleg)(bijleg) | -0.165 | 0.535 | 4,0D | 0.694 | 0.000 | 0.848 | 0.683 | 1.531 | 0.000 | 2,5D | 2.231 |
| 3R12a1(bijleg) (bijleg) | 1.437 | 0.000 | 2,5D | 0.488 | 1.926 | 3.437 | 0.488 | 3.925 | 0.000 | 2,5D | 2.487 |
| 3R12b1(bijleg) (bijleg) | 4.113 | 0.000 | 2,5D | 0.488 | 4.601 | 6.036 | 0.488 | 6.524 | 0.000 | 2,5D | 2.411 |
| 1R12c1(bijleg) (bijleg) | 6.535 | 0.000 | 2,5D | 0.683 | 7.218 | 8.060 | 0.686 | 8.219 | 0.526 | 4,0D | 2.210 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 13

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12s2(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.387 | 0.475 | 7.860 | 0.905 | 8.219 | 0.546 | 4,0D | 8.930 |
| 1R12t2(bijleg) (bijleg) | 2.610 | 0.000 | 2,5D | 0.478 | 3.088 | 4.845 | 0.478 | 5.324 | 0.000 | 2,5D | 2.714 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 13

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S2 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 257.07 | 289.47 |
| O7 | Rechts | 6xR8-300 | 0.505 | 2.305 | 1.800 | 143.20 | 144.73 |
| O14 | Links | 10xR8-150 | 2.305 | 3.805 | 1.500 | 166.37 | 286.26 |
| O14 | Rechts | 2xR8-300 | 3.805 | 4.405 | 0.600 | 112.29 | 143.13 |
| O22 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 165.46 | 286.26 |
| O22 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 147.38 | 289.47 |
| O22 | Rechts | 5xR8-300 | 6.205 | 7.705 | 1.500 | 121.65 | 144.73 |
| S6 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 253.43 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 13

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------|-------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V4 (5.340-7.760) | Vloer | 0,4 <= 9,7 | 0,3 <= 9,7 | 0,04 | 0,03 |
| | Handmatig | | | | |
| V3 (2.670-5.340) | Vloer | 1,0 <= 10,7 | 0,5 <= 10,7 | 0,09 | 0,05 |
| | Handmatig | | | | |
| V2 (0.300-2.670) | Vloer | 0,3 <= 9,5 | 0,2 <= 9,5 | 0,03 | 0,02 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 14
ALGEMEEN + KRUIP
Ligger 14
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 14 | Cement | S |
| Staven | S18-S20 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 8.56 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 14

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 14 Moment |
|---------|---------|---------------|--------------|-------|--------------|-----|----------|----------|------------------|---------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 0.500 | O3 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 0.500 | | | | S2 | 0,400 | N/B | | | Afgetopt | Niet afgetopt |
| 3.170 | O15 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 5.840 | O23 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 8.060 | O29 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 8.060 | | | | S5 | 0,400 | N/B | | | Afgetopt | Niet afgetopt |
| 8.560 | | | | S6 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 14 S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|--------------|--------------------|
| 0.500 | 63.87 | 4R12 | | 338 | 452 | | 52.80 | N/B | 12.0 <= 11.6 | 101 <= 187 |
| 3.170 | 107.28 | 4R12 | 2R12 | 581 | 679 | | 85.08 | N/B | 12.0 <= 9.9 | 60 <= 154 |
| 5.840 | 112.41 | 4R12 | 2R12 | 645 | 679 | | 88.52 | N/B | 12.0 <= 9.2 | 60 <= 139 |
| 8.060 | 64.22 | 4R12 | | 375 | 452 | | 53.11 | N/B | 12.0 <= 11.5 | 101 <= 185 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 14 S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|--------------------|
| 1.798 | 122.98 | 4R12 | 2R12 | 671 | 679 | | -88.05 | N/B | 12.0 <= 9.3 | 60 <= 141 |
| 4.504 | 122.82 | 4R12 | 3R12 | 705 | 792 | | -79.33 | N/B | 12.0 <= 14.0 | 50 <= 225 |
| 6.982 | 76.04 | 4R12 | | 440 | 452 | | -45.14 | N/B | 12.0 <= 15.8 | 101 <= 236 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 14 |
|---------|------|----------|--------|--------|-----------|
| 0.000 | 3.94 | 1R8 | 38 | 50 | |
| 0.500 | 0.28 | 1R8 | 3 | 50 | |
| 8.060 | 4.78 | 1R8 | 46 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 14 VEdi |
|---------|-------|--------------|----------|----------|--------|--------|---------|--------|------|-------------------|
| 0.000 | 95.10 | R8-300 | 220 | 27 | 335 | 60.716 | 144.734 | 95.103 | N/B | N/B |

| | | | | | | | | | | |
|-------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 1.126 | 148.71 | R8-150 | 352 | 2 | 670 | 61.635 | 283.059 | 148.710 | N/B | N/B |
| 2.544 | 173.84 | R8-150 | 412 | 2 | 670 | 61.635 | 283.059 | 173.839 | N/B | N/B |
| 3.796 | 164.41 | R8-150 | 394 | 2 | 670 | 61.635 | 279.855 | 164.405 | N/B | N/B |
| 5.214 | 165.08 | R8-150 | 395 | 2 | 670 | 61.635 | 279.855 | 165.076 | N/B | N/B |
| 6.466 | 129.40 | R8-300 | 300 | 2 | 335 | 61.635 | 144.734 | 129.402 | N/B | N/B |
| 7.434 | 100.00 | R8-300 | 232 | 2 | 335 | 61.635 | 144.734 | 100.004 | N/B | N/B |
| 8.560 | 96.00 | R8-300 | 222 | 32 | 335 | 60.716 | 144.734 | 96.001 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12d1(basis)(basis) | -0.165 | 0.482 | 4,0D | 0.641 | 0.000 | 8.360 | 0.645 | 8.719 | 0.286 | 4,0D | 9.651 |
| 2R12e1(bijleg) | 2.003 | 0.000 | 2,5D | 0.569 | 2.572 | 3.802 | 0.569 | 4.372 | 0.000 | 2,5D | 2.369 |
| (bijleg) | | | | | | | | | | | |
| 2R12f1(bijleg) | 4.598 | 0.000 | 2,5D | 0.569 | 5.167 | 6.505 | 0.569 | 7.074 | 0.000 | 2,5D | 2.477 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 14
AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12u2(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.580 | 0.675 | 8.360 | 0.343 | 8.725 | 0.000 | 2,5D | 8.890 |
| 2R12v2(bijleg) | 0.288 | 0.000 | 2,5D | 0.387 | 0.675 | 2.995 | 0.343 | 3.338 | 0.000 | 2,5D | 3.050 |
| (bijleg) | | | | | | | | | | | |
| 3R12w2(bijleg) | 3.034 | 0.000 | 2,5D | 0.311 | 3.345 | 5.665 | 0.316 | 5.981 | 0.000 | 2,5D | 2.948 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 14
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| O3 | Links | 2xR8-300 | -0.220 | 0.380 | 0.600 | 109.09 | 141.53 |
| O3 | Links | 6xR8-150 | 0.380 | 1.280 | 0.900 | 162.69 | 283.06 |
| O3 | Rechts | 3xR8-300 | 1.280 | 2.180 | 0.900 | 128.99 | 141.53 |
| O15 | Links | 6xR8-150 | 2.180 | 3.080 | 0.900 | 187.82 | 283.06 |
| O15 | Links | 8xR8-150 | 3.080 | 4.280 | 1.200 | 187.82 | 279.85 |
| O15 | Rechts | 2xR8-300 | 4.280 | 4.880 | 0.600 | 118.72 | 139.93 |
| O23 | Links | 10xR8-150 | 4.880 | 6.380 | 1.500 | 179.06 | 279.85 |
| O23 | Rechts | 8xR8-300 | 6.380 | 8.780 | 2.400 | 143.39 | 144.73 |
| - | - | - | m | m | m | kN | kN |

Ligger 14
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V5 (8.060-8.560) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 |
| | Handmatig | | | |
| V4 (5.840-8.060) | Vloer | 0,3 <= 8,9 | 0,5 <= 8,9 | 0,04 |
| | Handmatig | | | |
| V3 (3.170-5.840) | Vloer | 1,3 <= 10,7 | 1,5 <= 10,7 | 0,12 |
| | Handmatig | | | |
| V2 (0.500-3.170) | Vloer | 1,4 <= 10,7 | 2,2 <= 10,7 | 0,13 |
| | Handmatig | | | |
| V1 (0.000-0.500) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 |
| | Handmatig | | | |
| m | - | mm | mm | - |

Ligger 14
LIGGER 15
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|------------|-------------|
| Constr.DI. | Ligger 15 |
| Staven | S21 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |

Kruipgegevens

| | |
|-----------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |

Ligger 15

| | | | |
|-------------|---------|-----------------|----------|
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 8.06 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 15

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEN
Ligger 15

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 0.300 | O1 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 2.670 | O10 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 5.340 | O20 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 7.760 | O27 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 8.060 | | | | S5 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 15

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| 0.300 | 91.85 | 4R12 | 1R12 | 491 | 565 | ng | 75.93 | N/B | 12.0 <= 8.9 | 76 <= 132 |
| 2.670 | 137.23 | 4R12 | 3R12 | 753 | 792 | | 110.02 | N/B | 12.0 <= 8.1 | 50 <= 109 |
| 5.340 | 130.69 | 4R12 | 3R12 | 714 | 792 | | 107.00 | N/B | 12.0 <= 8.4 | 50 <= 120 |
| 7.760 | 91.46 | 4R12 | 1R12 | 489 | 565 | | 75.61 | N/B | 12.0 <= 9.0 | 76 <= 134 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 15

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 1.451 | 71.95 | 4R12 | | 381 | 452 | | -38.78 | N/B | 12.0 <= 22.4 | 101 <= 276 |
| 3.964 | 92.82 | 4R12 | 1R12 | 497 | 565 | | -55.04 | N/B | 12.0 <= 16.5 | 76 <= 240 |
| 6.627 | 67.87 | 4R12 | | 358 | 452 | | -40.79 | N/B | 12.0 <= 20.4 | 101 <= 264 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 15

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.01 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 15

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|----------|-----------|----------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|
| 0.000 | 276.46 | R8-150 | 640 | 0 | 670 | 61.727 | 289.468 | 276.460 | N/B | N/B |
| 0.926 | 116.30 | R8-300 | 269 | 0 | 335 | 61.727 | 144.734 | 116.301 | N/B | N/B |
| 2.044 | 143.81 | R8-150 | 344 | 0 | 670 | 74.388 | 279.855 | 143.809 | N/B | N/B |
| 3.296 | 166.31 | R8-150 | 389 | 0 | 670 | 61.727 | 286.263 | 166.305 | N/B | N/B |
| 4.714 | 166.11 | R8-150 | 389 | 0 | 670 | 61.727 | 286.263 | 166.109 | N/B | N/B |
| 5.966 | 147.92 | R8-150 | 342 | 0 | 670 | 61.727 | 289.468 | 147.922 | N/B | N/B |
| 7.134 | 120.97 | R8-300 | 280 | 0 | 335 | 61.727 | 144.734 | 120.969 | N/B | N/B |
| 8.060 | 275.14 | R8-150 | 637 | 0 | 670 | 61.727 | 289.468 | 275.140 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 4R12g1(basis)(basis) | -0.165 | 0.765 | 4,0D | 0.924 | 0.000 | 7.860 | 0.920 | 8.219 | 0.561 | 4,0D | 9.709 |
| 1R12h1(bijleg) | -0.165 | 0.580 | 4,0D | 0.739 | 0.000 | 0.882 | 0.683 | 1.565 | 0.000 | 2,5D | 2.310 |
| (bijleg) | | | | | | | | | | | |
| 3R12i1(bijleg) | 1.394 | 0.000 | 2,5D | 0.488 | 1.882 | 3.474 | 0.488 | 3.962 | 0.000 | 2,5D | 2.568 |
| (bijleg) | | | | | | | | | | | |
| 3R12j1(bijleg) | 4.075 | 0.000 | 2,5D | 0.488 | 4.564 | 6.070 | 0.488 | 6.558 | 0.000 | 2,5D | 2.482 |
| (bijleg) | | | | | | | | | | | |
| 1R12k1(bijleg) | 6.499 | 0.000 | 2,5D | 0.683 | 7.183 | 8.060 | 0.736 | 8.219 | 0.577 | 4,0D | 2.296 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 15
AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 4R12x2(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.355 | 0.475 | 7.860 | 0.983 | 8.219 | 0.624 | 4,0D | 9.008 |
| 1R12y2(bijleg) | 2.692 | 0.000 | 2,5D | 0.478 | 3.171 | 4.760 | 0.478 | 5.238 | 0.000 | 2,5D | 2.546 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 15
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|----------|-----------|----------|----------|----------|-----------|-----------|
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 276.50 | 289.47 |
| O1 | Rechts | 1xR8-300 | 0.505 | 0.805 | 0.300 | 116.34 | 144.73 |
| O10 | Links | 4xR8-300 | 0.805 | 2.005 | 1.200 | 137.83 | 139.93 |
| O10 | Links | 2xR8-150 | 2.005 | 2.305 | 0.300 | 143.85 | 279.85 |
| O10 | Links | 8xR8-150 | 2.305 | 3.505 | 1.200 | 166.34 | 286.26 |
| O10 | Rechts | 3xR8-300 | 3.505 | 4.405 | 0.900 | 133.56 | 143.13 |
| O20 | Links | 10xR8-150 | 4.405 | 5.905 | 1.500 | 166.15 | 286.26 |
| O20 | Rechts | 2xR8-150 | 5.905 | 6.205 | 0.300 | 147.96 | 289.47 |
| O20 | Rechts | 5xR8-300 | 6.205 | 7.705 | 1.500 | 121.01 | 144.73 |
| S5 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 275.18 | 289.47 |
| - | - | - | m | m | m | kN | kN |

Ligger 15
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------|-------------|-----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V4 (5.340-7.760) | Vloer | 0,2 <= 9,7 | 0,2 <= 9,7 | 0,03 | 0,02 |
| | Handmatig | | | | |
| V3 (2.670-5.340) | Vloer | 0,7 <= 10,7 | 0,4 <= 10,7 | 0,07 | 0,04 |
| | Handmatig | | | | |
| V2 (0.300-2.670) | Vloer | 0,2 <= 9,5 | 0,1 <= 9,5 | 0,02 | 0,01 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

Ligger 15

LIGGER 16
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 16 |
| Staven | S22 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.60 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 16
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 16
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|---------------|--------------|-------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 0.300 | O2 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.000 | O17 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 7.760 | O28 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 8.060 | | | | S5 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 0.300 | 34.43 | 4R12 | | 178 | 452 | | 28.45 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| 4.000 | 106.67 | 4R12 | 2R12 | 568 | 679 | | 85.11 | N/B | 12.0 <= 10.1 | 80 <= 159 |
| 7.760 | 34.83 | 4R12 | | 180 | 452 | | 28.80 | N/B | 12.0 <= 28.0 | 134 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 16
ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|-----------|
| 2.019 | 169.25 | 4R12 | 3R16 | 931 | 1056 | | -130.52 | N/B | 13.7 <= 9.6 | 67 <= 152 |
| 6.017 | 175.64 | 4R12 | 3R16 | 969 | 1056 | | -136.16 | N/B | 13.7 <= 8.8 | 67 <= 136 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 16
FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|----|----------|--------|--------|
|---------|----|----------|--------|--------|

Ligger 16

0.000 0.04 1R8 0 50
m kNm - mm2 mm2

BEUGELWAPENING

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 16 VEdi |
|---------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-------------------|
| 0.000 | 94.39 | R8-250 | 217 | 0 | 402 | 75.895 | 175.219 | 94.389 | N/B | N/B |
| 0.926 | 146.69 | R8-250 | 354 | 0 | 402 | 75.760 | 166.556 | 146.689 | N/B | N/B |
| 3.374 | 183.89 | R8-125 | 444 | 0 | 804 | 75.760 | 333.112 | 183.891 | N/B | N/B |
| 4.626 | 187.55 | R8-125 | 453 | 0 | 804 | 75.760 | 333.112 | 187.552 | N/B | N/B |
| 7.134 | 150.62 | R8-250 | 364 | 0 | 402 | 75.760 | 166.556 | 150.622 | N/B | N/B |
| 8.060 | 95.77 | R8-250 | 220 | 0 | 402 | 75.895 | 175.219 | 95.772 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 16 Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|---------------------|
| 4R12l1(basis)(basis) | -0.165 | 0.187 | 4,0D | 0.346 | 0.000 | 7.860 | 0.350 | 8.225 | 0.000 | 2,5D | 8.577 |
| 2R12m1(bijleg) | 2.817 | 0.000 | 2,5D | 0.575 | 3.392 | 4.608 | 0.575 | 5.183 | 0.000 | 2,5D | 2.366 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 16 Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|---------------------|
| 4R12a3(basis)(basis) | -0.165 | 0.060 | 4,0D | 0.694 | 0.475 | 7.860 | 0.342 | 8.225 | 0.000 | 2,5D | 8.450 |
| 3R16b3(bijleg) | 0.077 | 0.000 | 2,5D | 0.398 | 0.475 | 7.585 | 0.408 | 7.993 | 0.000 | 2,5D | 7.916 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

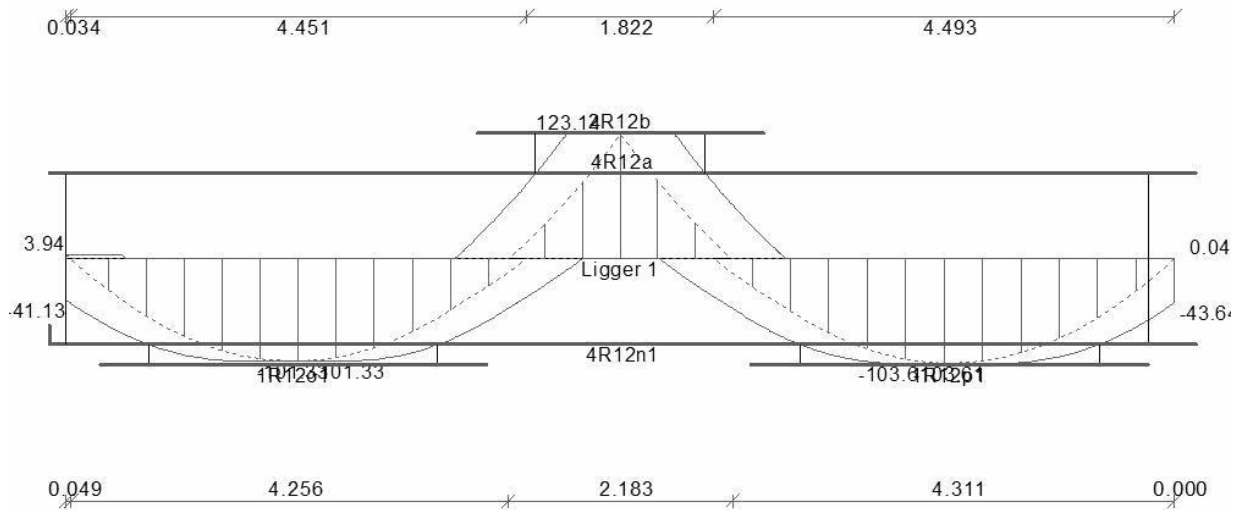
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 16 |
|-----------|--------|-----------|--------|-------|--------|--------|--------|-----------|
| O17 | Links | 13xR8-250 | -0.220 | 3.030 | 3.250 | 161.91 | 166.56 | |
| O17 | Links | 4xR8-125 | 3.030 | 3.530 | 0.500 | 183.97 | 333.11 | |
| O17 | Rechts | 4xR8-250 | 3.530 | 4.530 | 1.000 | 187.63 | 166.56 | |
| O17 | Rechts | 4xR8-125 | 4.530 | 5.030 | 0.500 | 187.63 | 333.11 | |
| O17 | Rechts | 13xR8-250 | 5.030 | 8.280 | 3.250 | 165.64 | 166.56 | |
| - | - | - | m | m | m | kN | kN | |

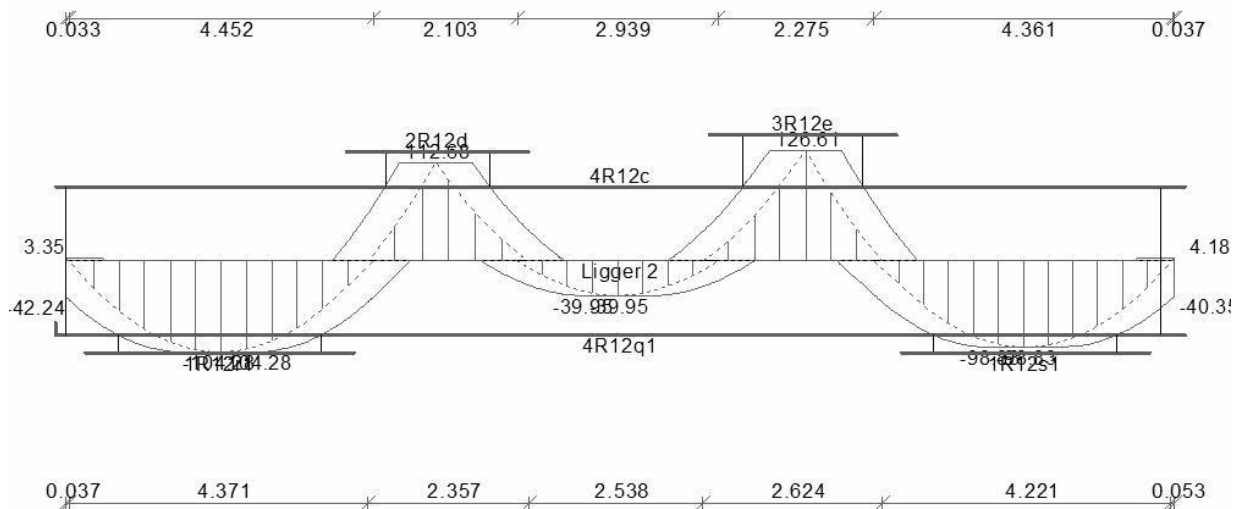
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 16 |
|------------------|-----------|-------------|-------------------|-----------|-----------|
| V4 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V3 (4.000-7.760) | Vloer | 2,6 <= 15,0 | 5,7 <= 15,0 | 0,17 | 0,38 |
| | Handmatig | | | | |
| V2 (0.300-4.000) | Vloer | 2,4 <= 14,8 | 5,1 <= 14,8 | 0,16 | 0,34 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

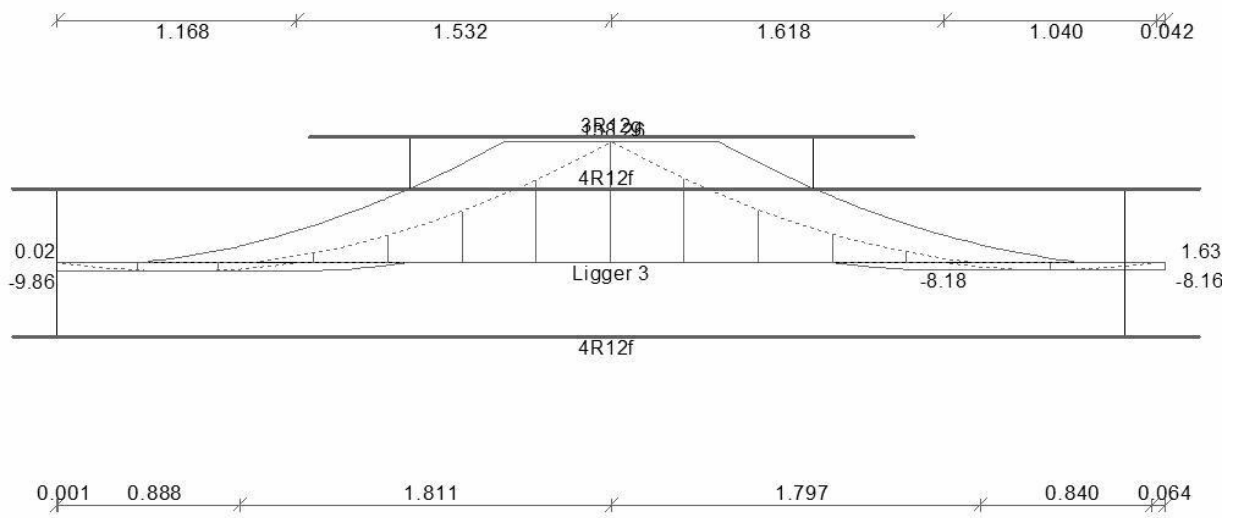
AFB. LANGSWAPENING. (AFBOUW) LIGGER 1



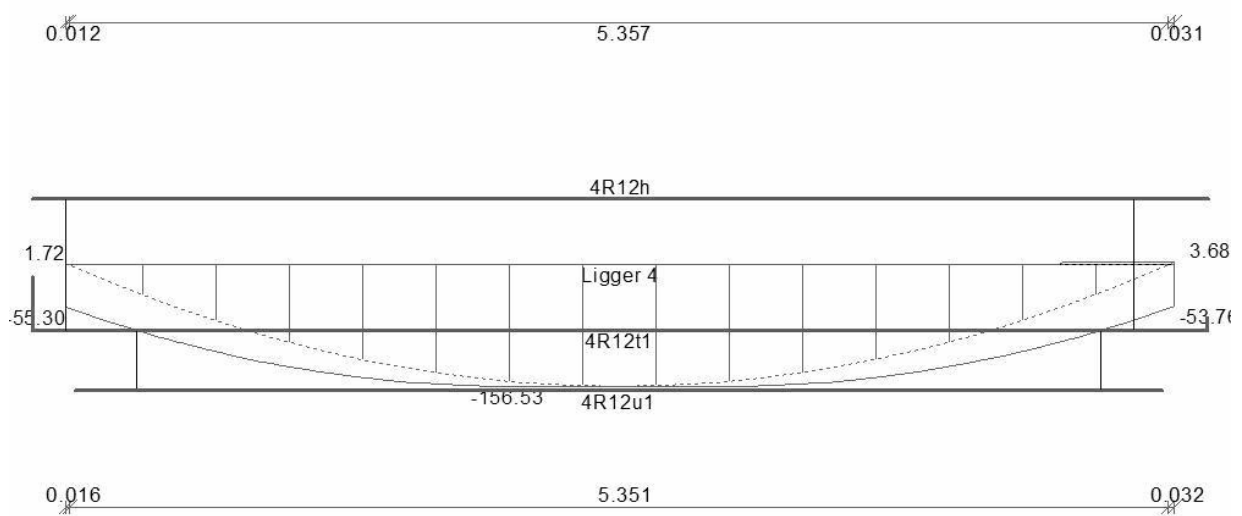
AFB. LANGSWAPENING. (AFBOUW) LIGGER 2



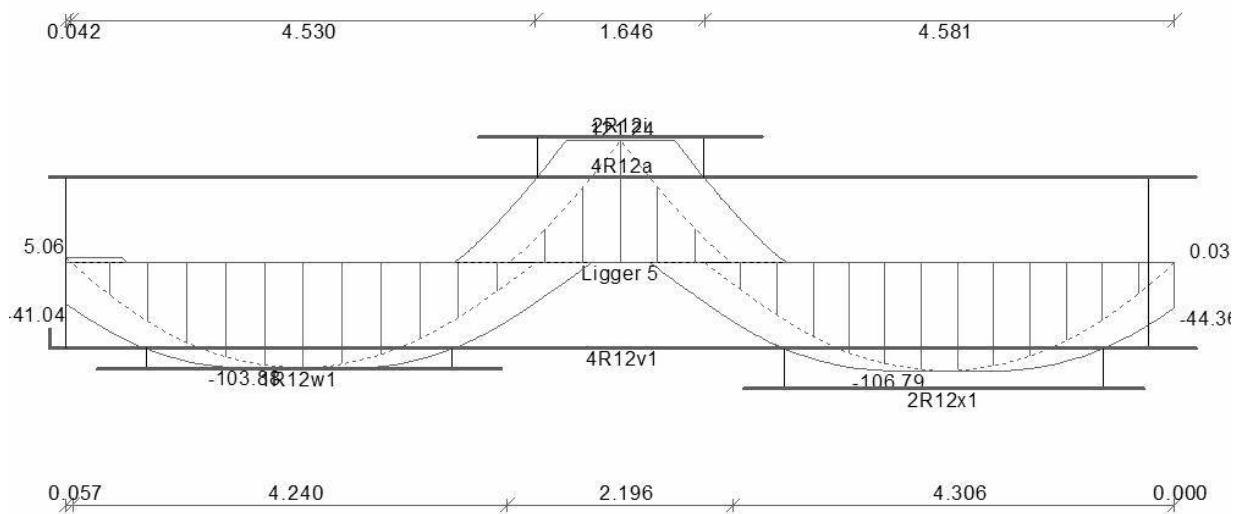
AFB. LANGSWAPENING. (AFBOUW) LIGGER 3



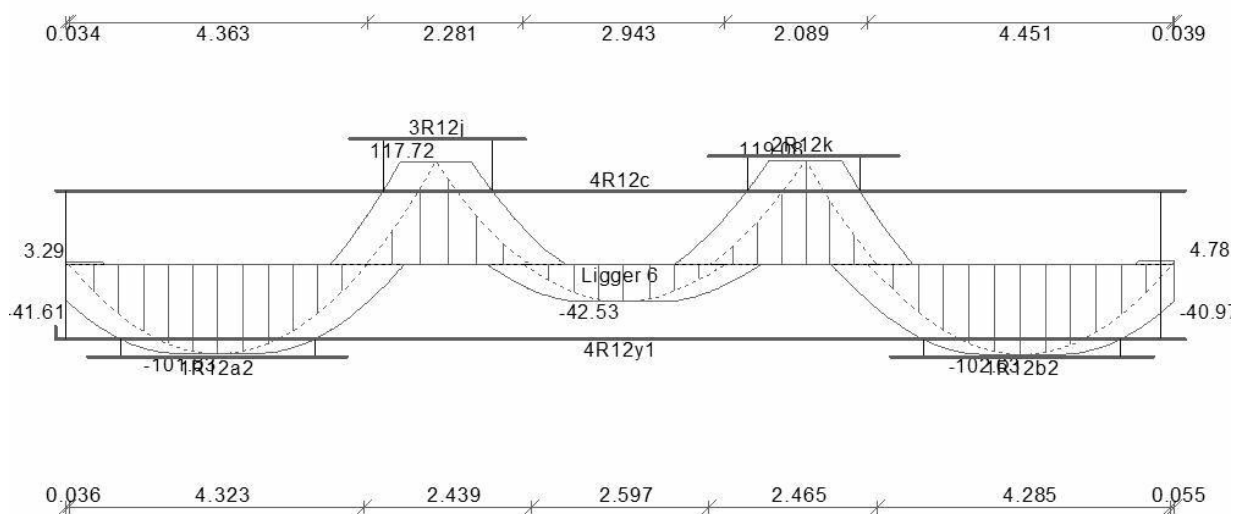
AFB. LANGSWAPENING. (AFBOUW) LIGGER 4



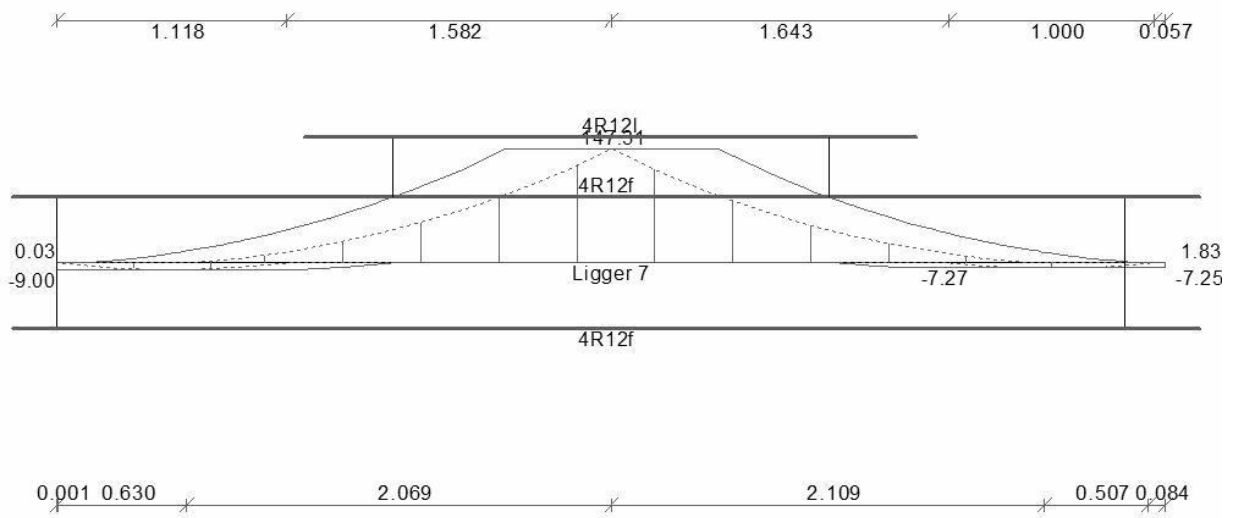
AFB. LANGSWAPENING. (AFBOUW) LIGGER 5



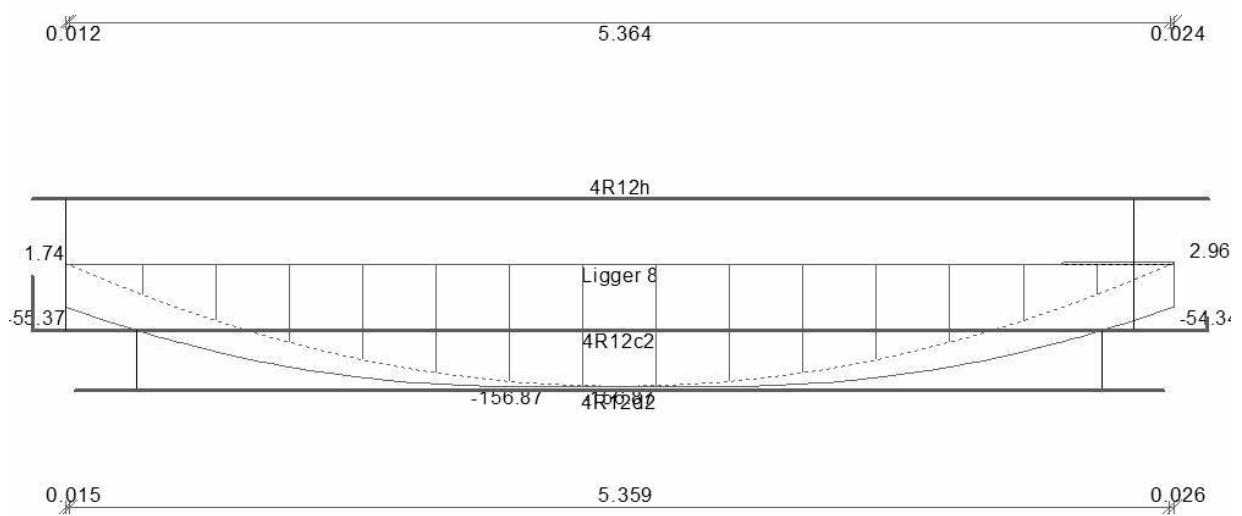
AFB. LANGSWAPENING. (AFBOUW) LIGGER 6



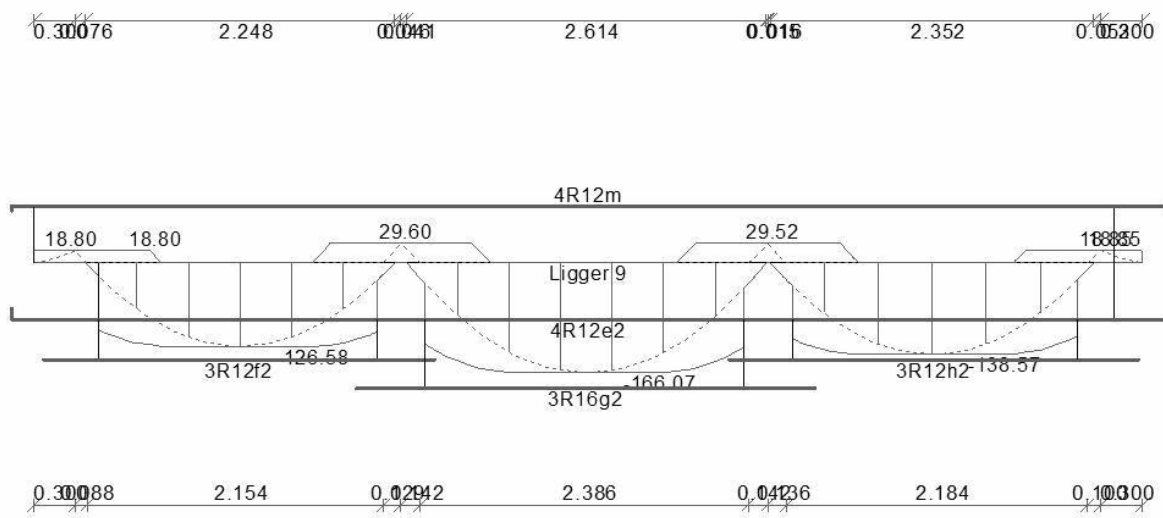
AFB. LANGSWAPENING. (AFBOUW) LIGGER 7



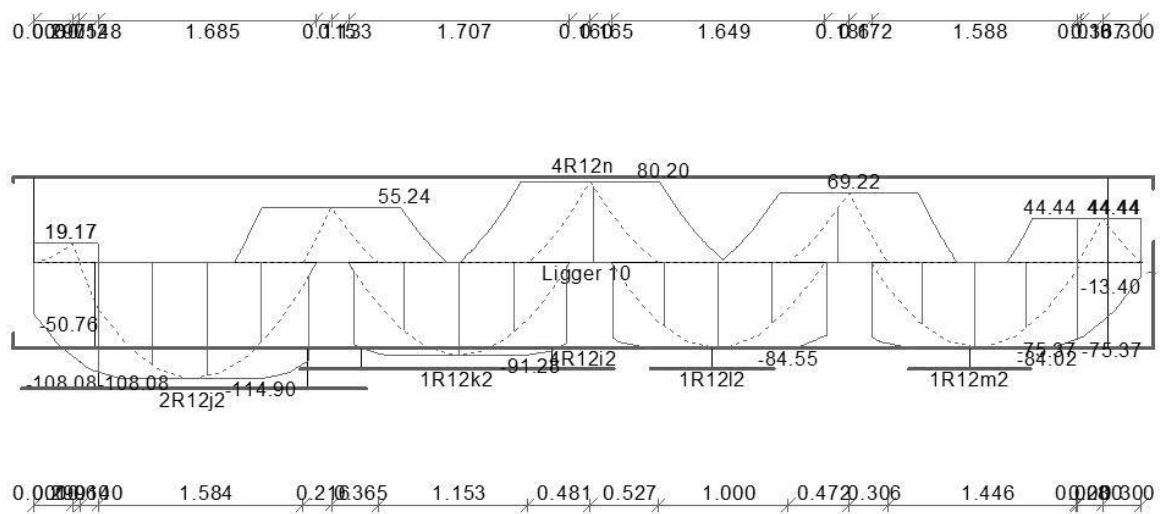
AFB. LANGSWAPENING. (AFBOUW) LIGGER 8



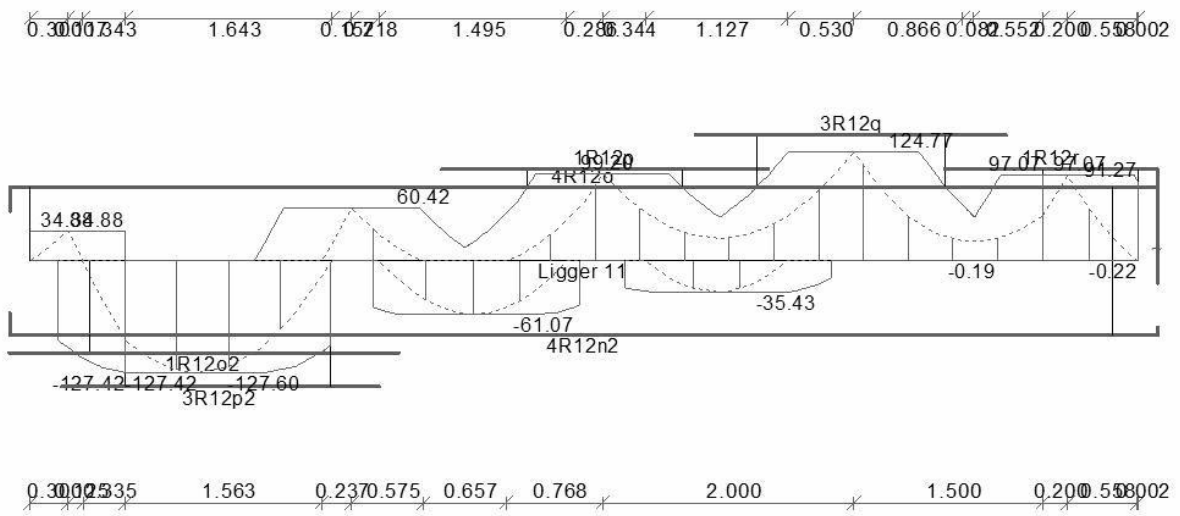
AFB. LANGSWAPENING. (AFBOUW) LIGGER 9



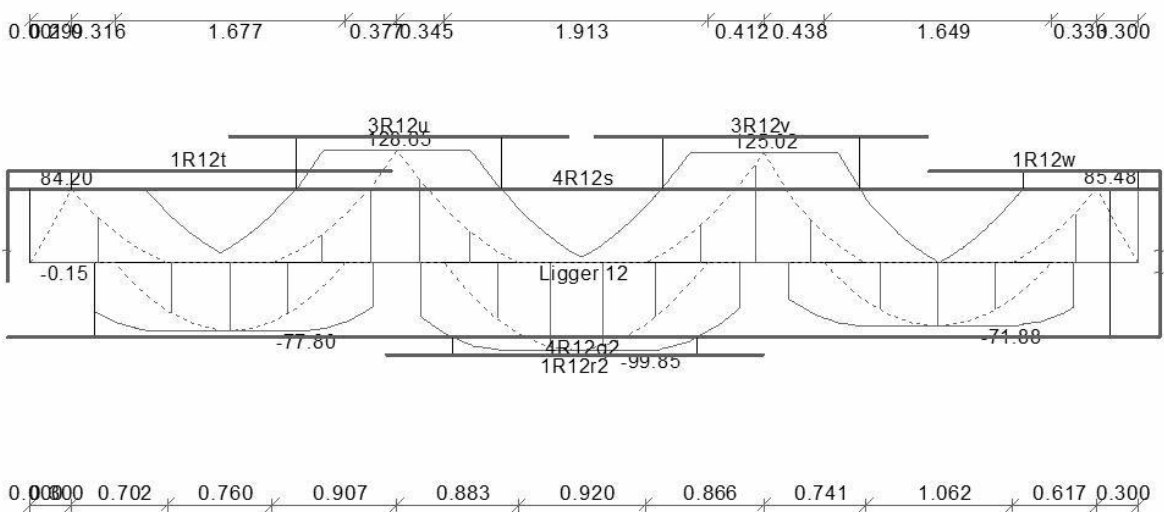
AFB. LANGSWAPENING. (AFBOUW) LIGGER 10



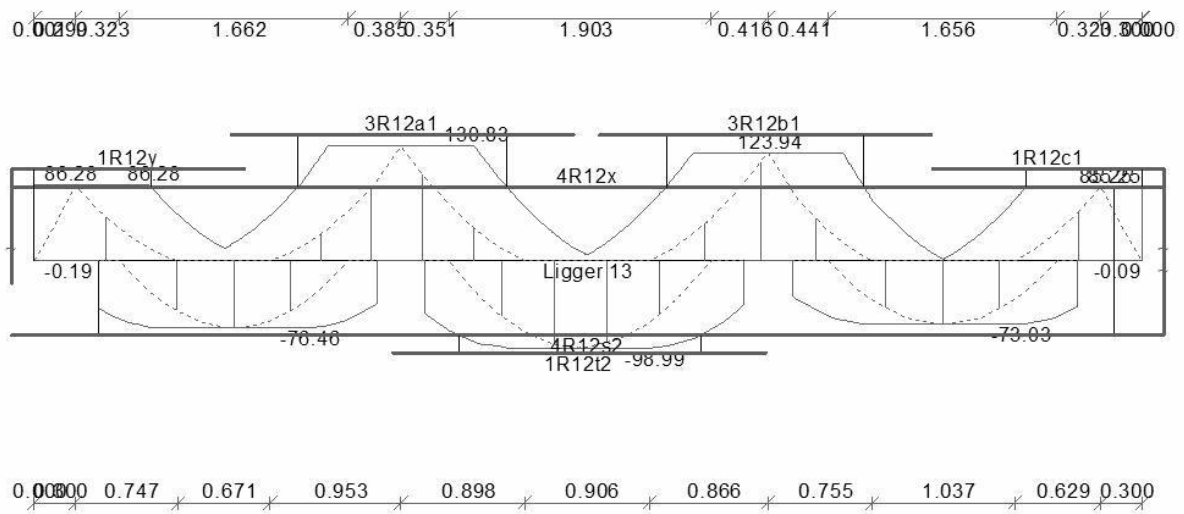
AFB. LANGSWAPENING. (AFBOUW) LIGGER 11



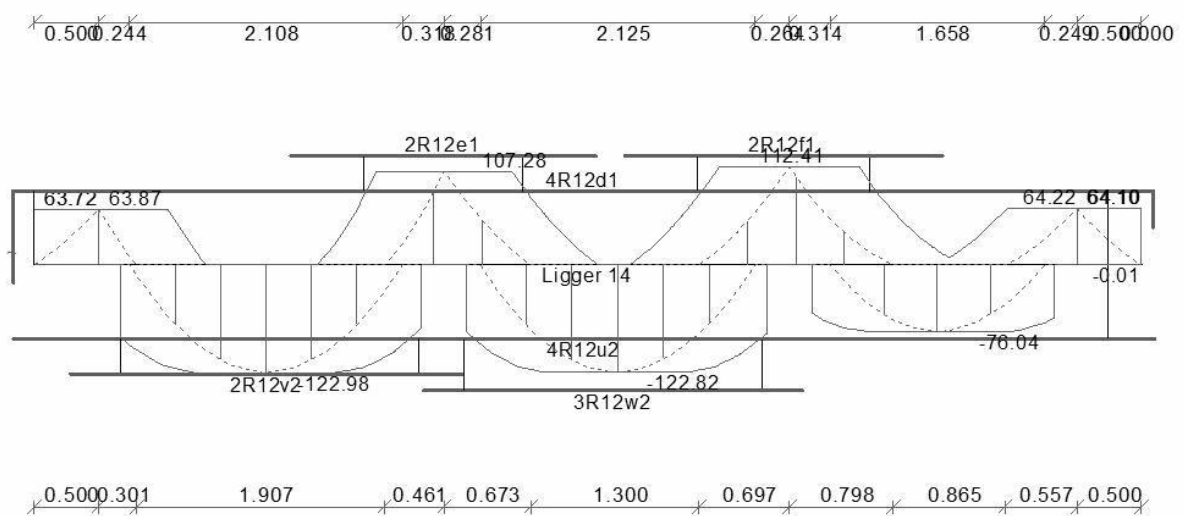
AFB. LANGSWAPENING. (AFBOUW) LIGGER 12



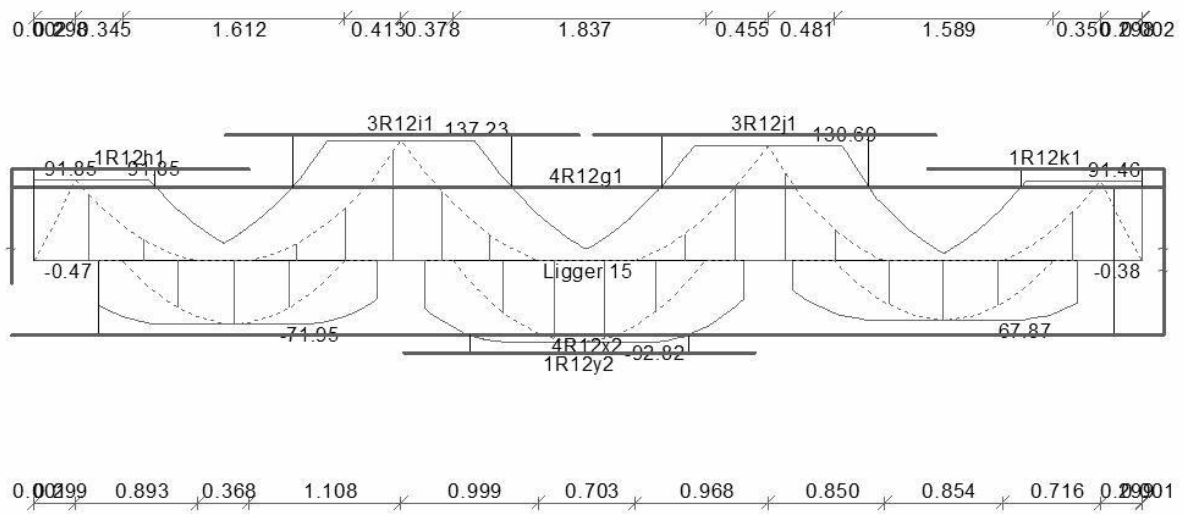
AFB. LANGSWAPENING. (AFBOUW) LIGGER 13



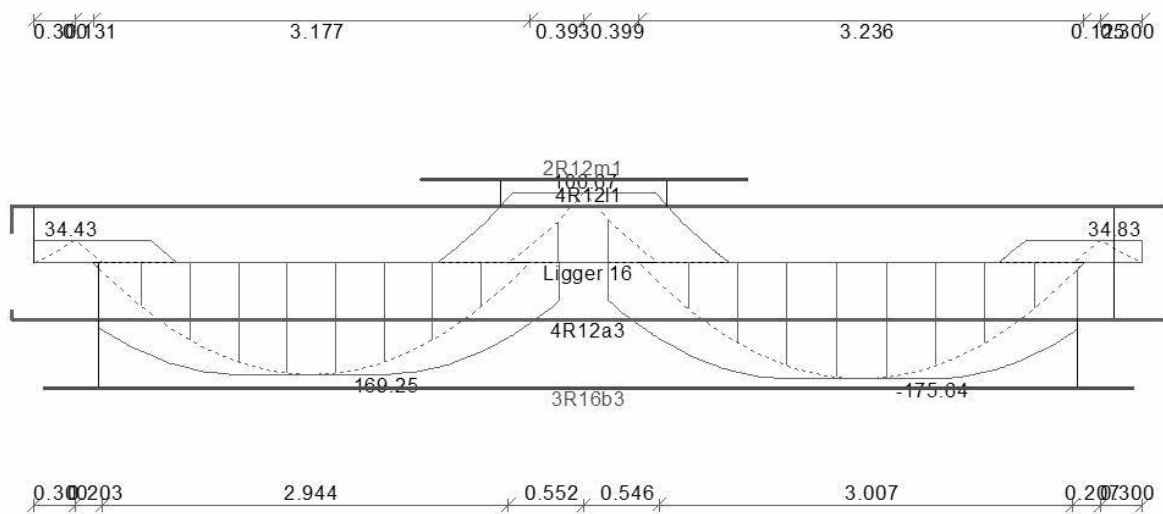
AFB. LANGSWAPENING. (AFBOUW) LIGGER 14



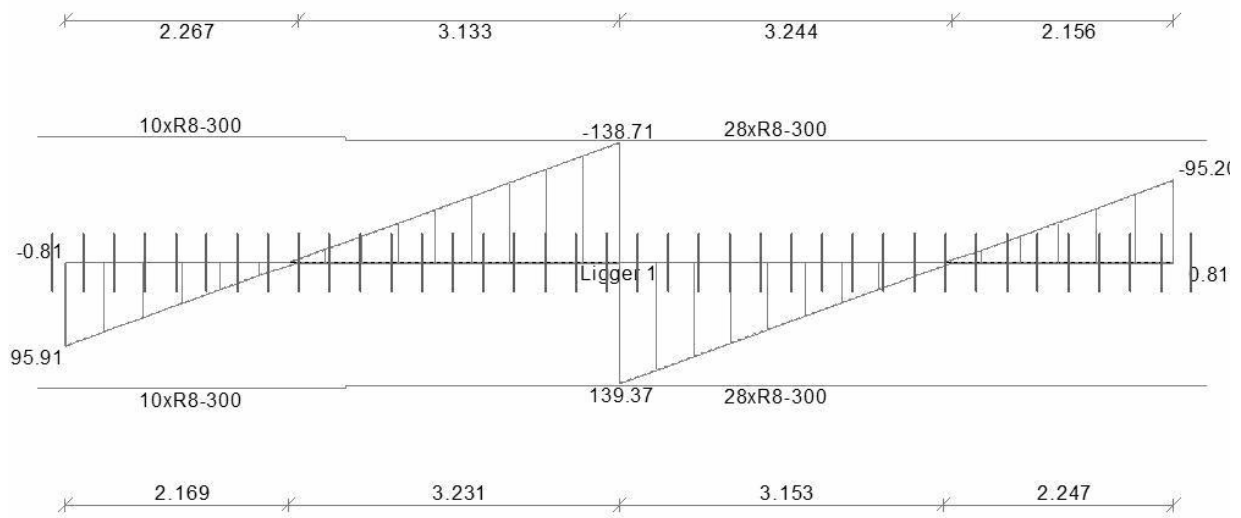
AFB. LANGSWAPENING. (AFBOUW) LIGGER 15



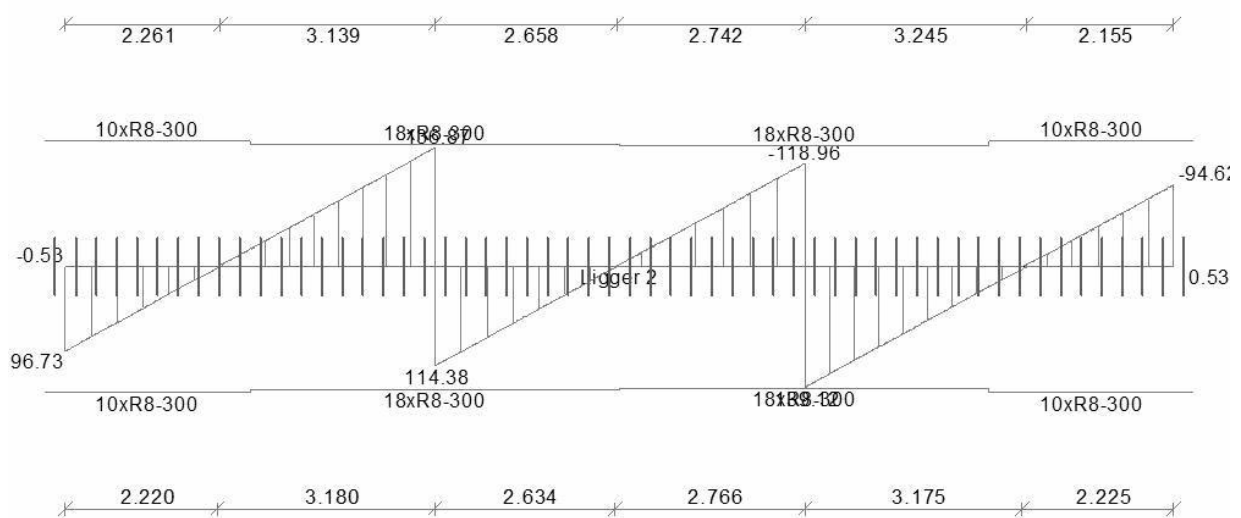
AFB. LANGSWAPENING. (AFBOUW) LIGGER 16



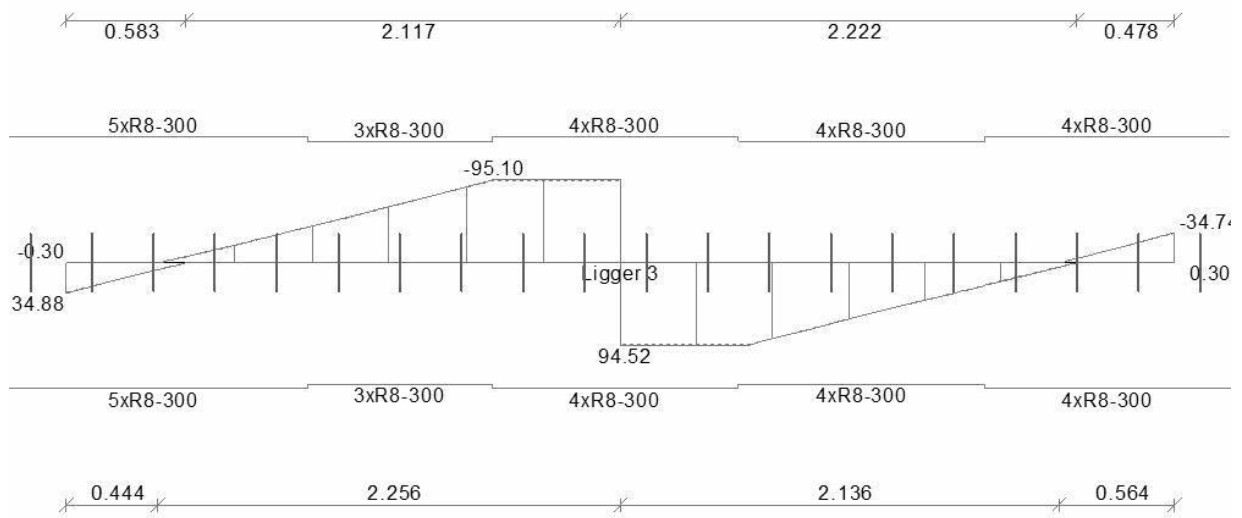
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 1



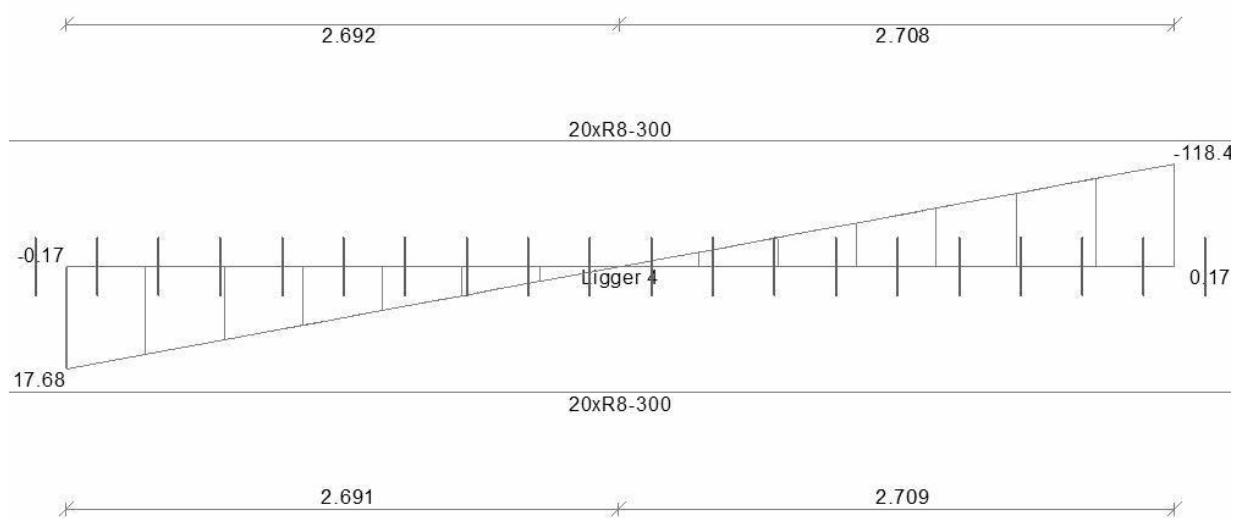
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 2



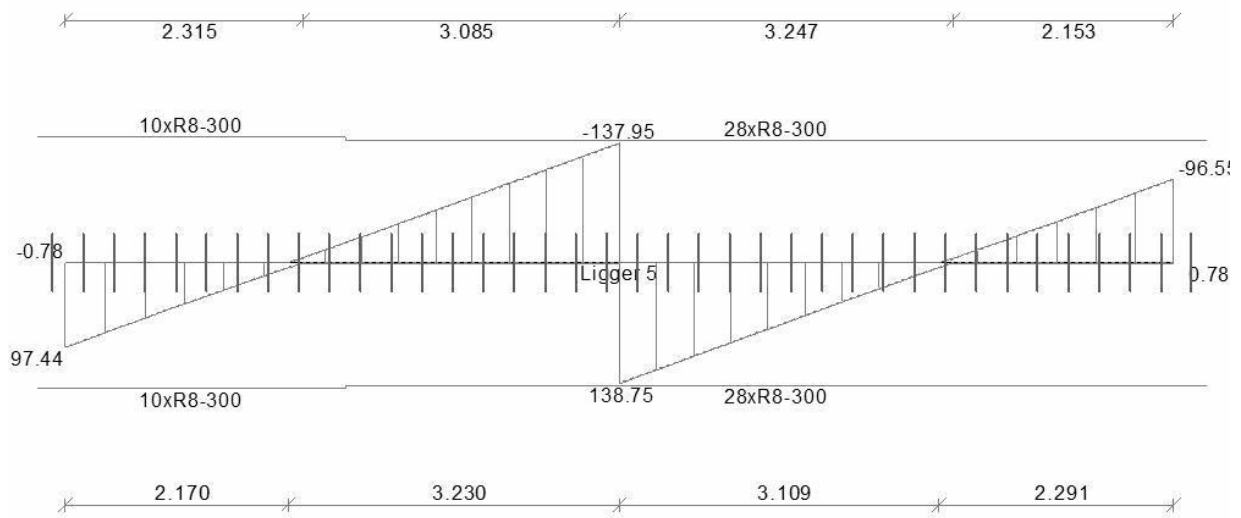
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 3



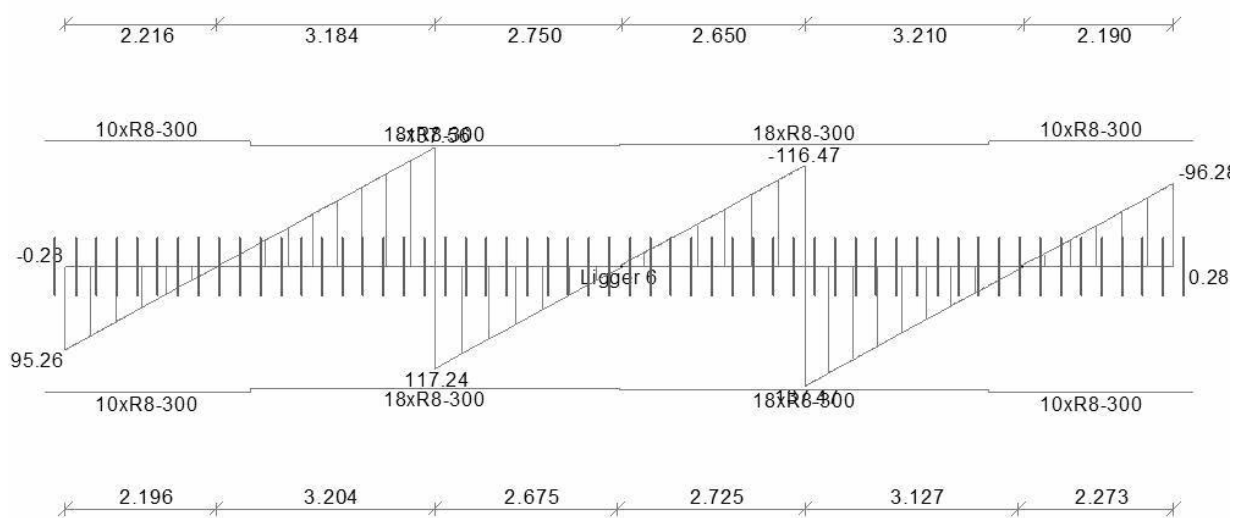
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 4



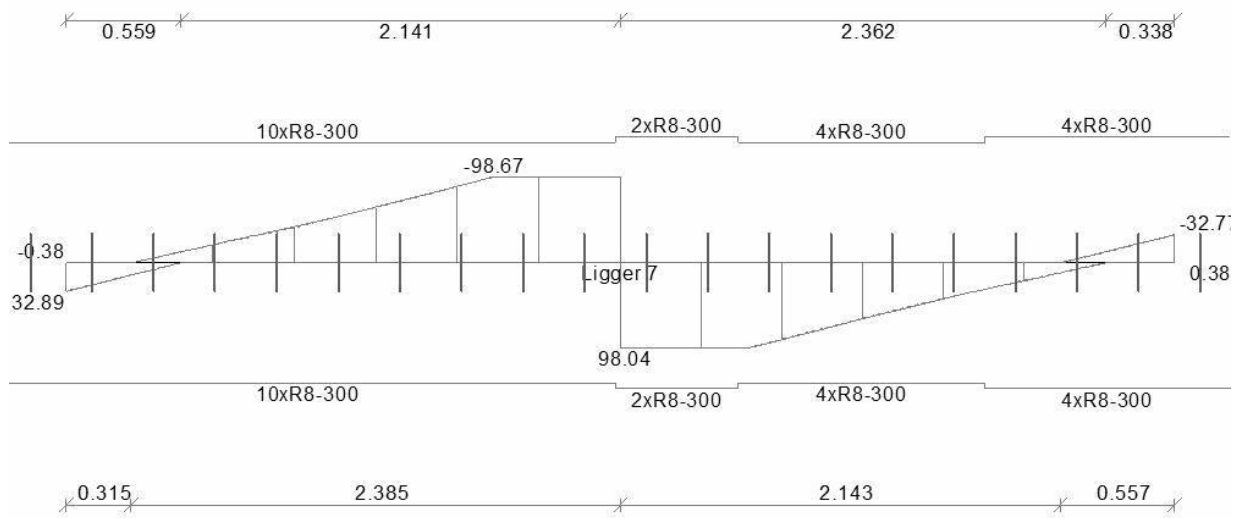
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 5



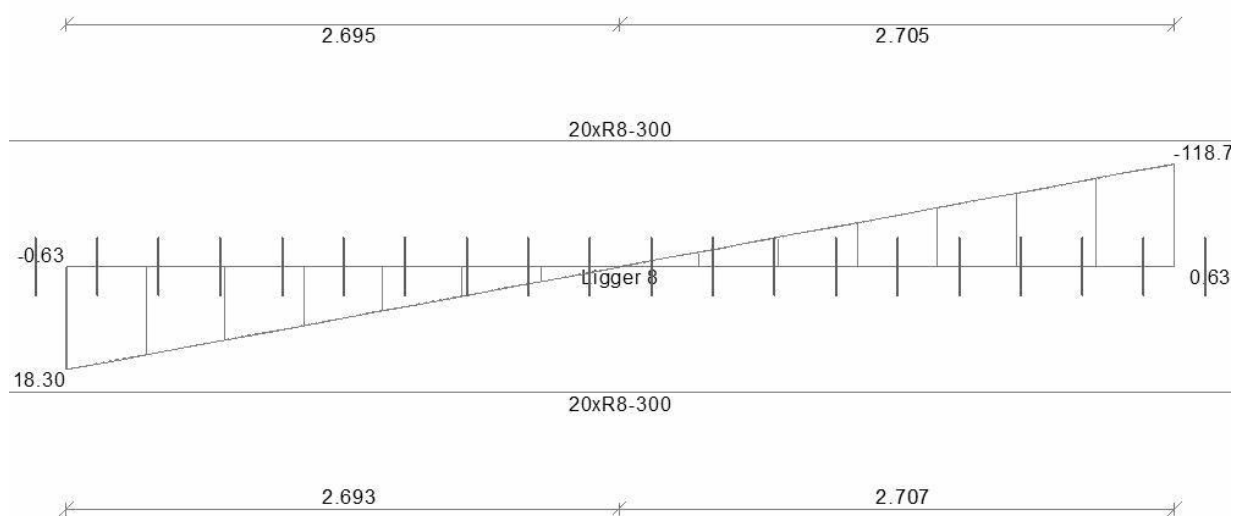
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 6



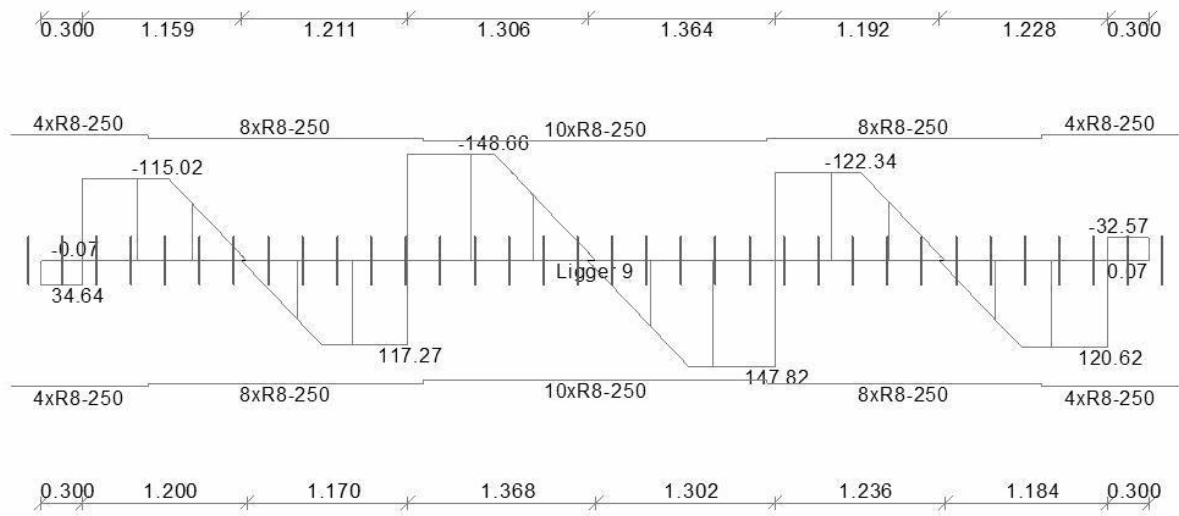
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 7



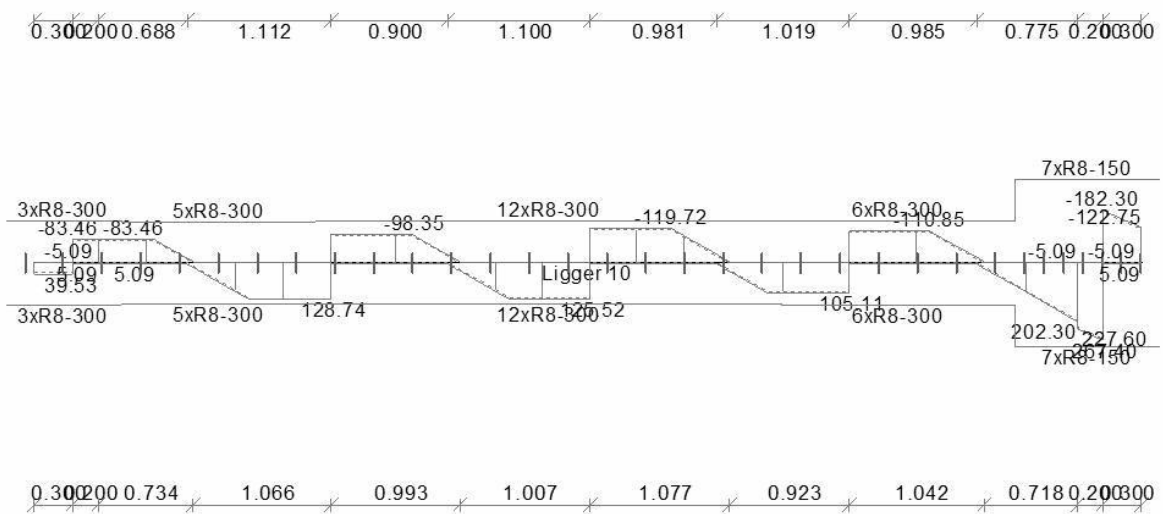
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 8



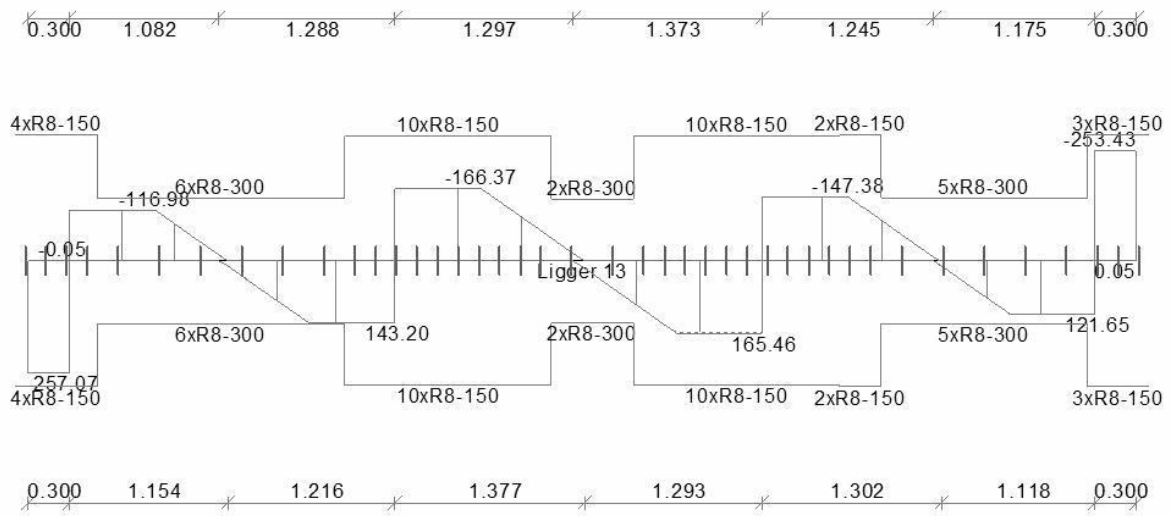
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 9



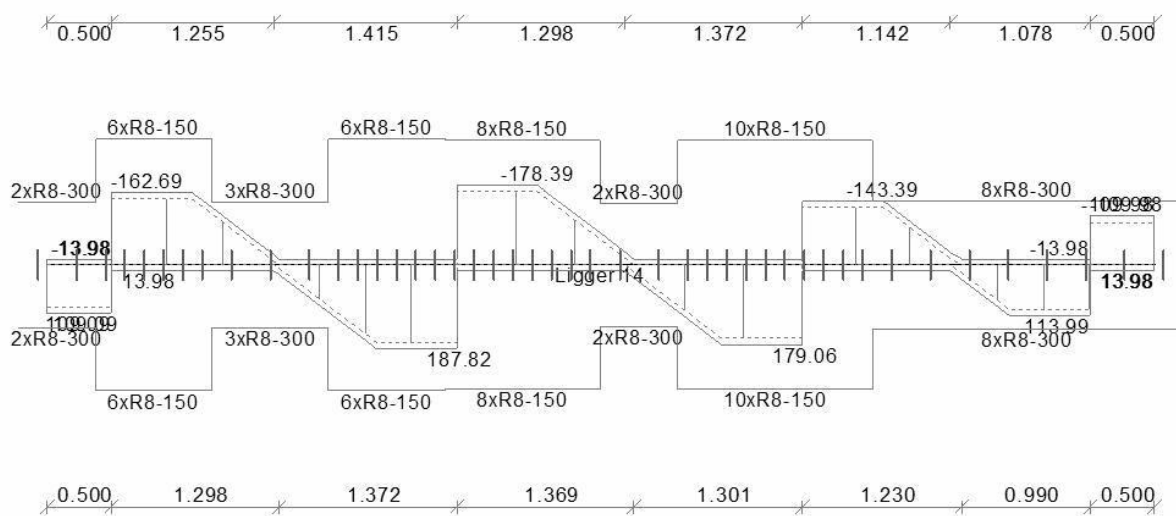
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 10



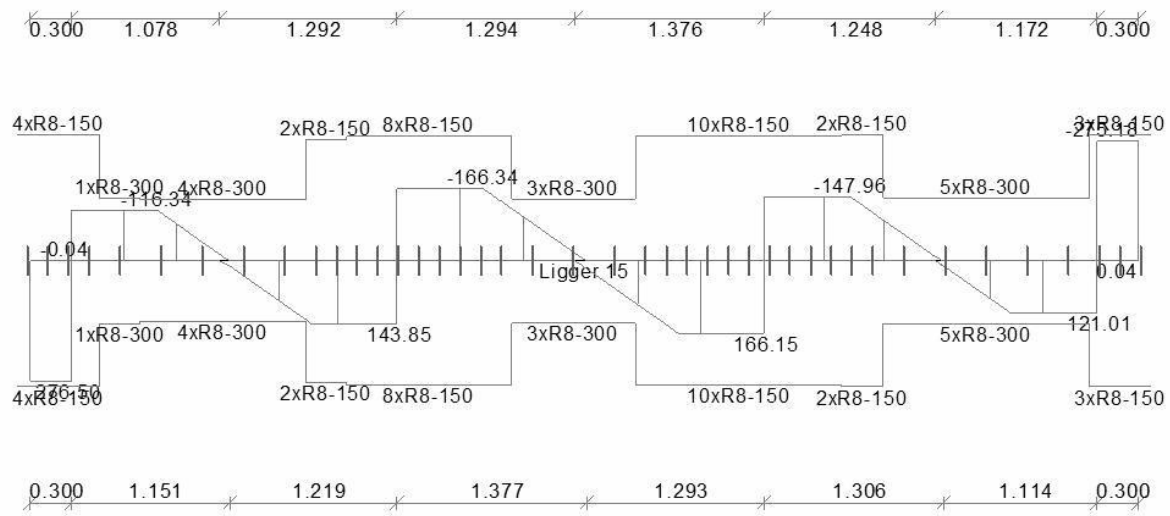
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 13



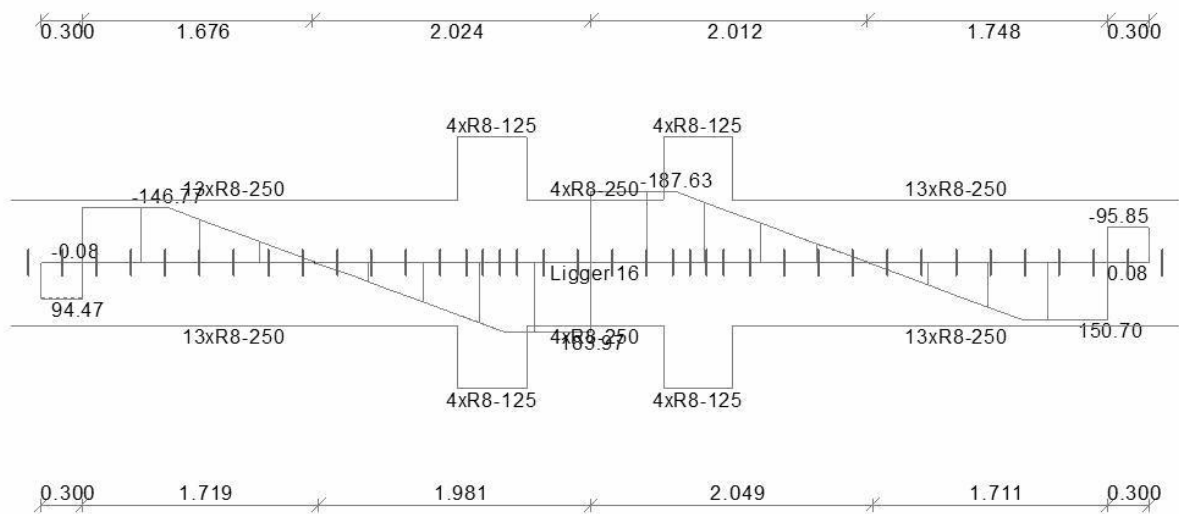
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 14



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 15



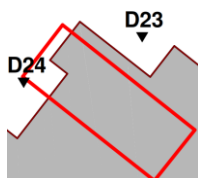
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 16



9.6 RIJWONING KAVEL 38-41

9.6.1 MAXIMALE PAALBELASTING

| | | |
|--------------------|-------|--------|
| Peilaanname: | 17.25 | m +NAP |
| Paalpuntniveau: | 5.00 | m +NAP |
| Paaldiameter: | 350 | mm |
| Draagvermogen: | 648 | kN |
| Maximale paallast: | 536 | kN |



9.6.2 BELASTING BALKEN

voorgevel-achtergevel

| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|-------------|--------------|--|--------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,00 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 1,00 | 1,00 | 1,00 | 1,00 | 6,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 0,75 | | |
| Totaal G_k | 1,09 | 3,48 | 3,48 | 2,25 | 18,00 | | 28,29 |
| Totaal Q_k | 0,28 | 1,38 | 1,38 | 1,38 | | | 4,41 |
| Pd (CC1) = | | | | | | | 36,60 |

linker-rechterzijgevel

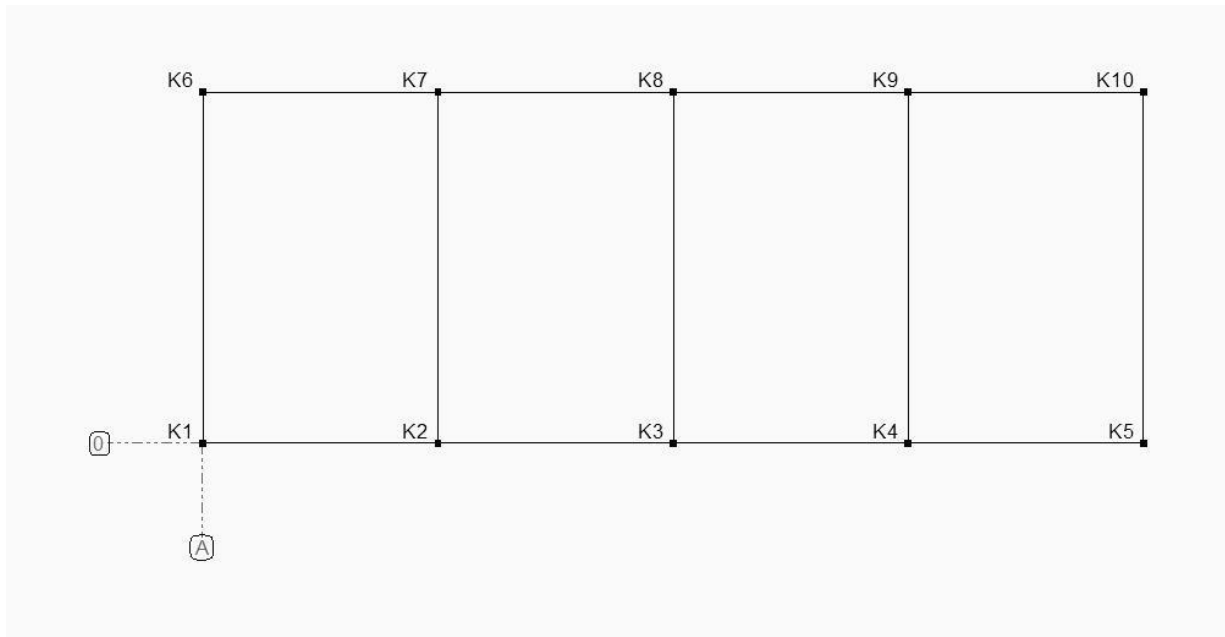
| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,40 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 4,60 | 4,60 | 4,60 | 9,00 | | |
| factor | 0,50 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 2,83 | 15,99 | 15,99 | 10,35 | 39,60 | | 84,75 |
| Totaal Q_k | 0,73 | 6,33 | 6,33 | 6,33 | | | 19,70 |
| Pd (CC1) = | | | | | | | 118,13 |

woningscheidende wand

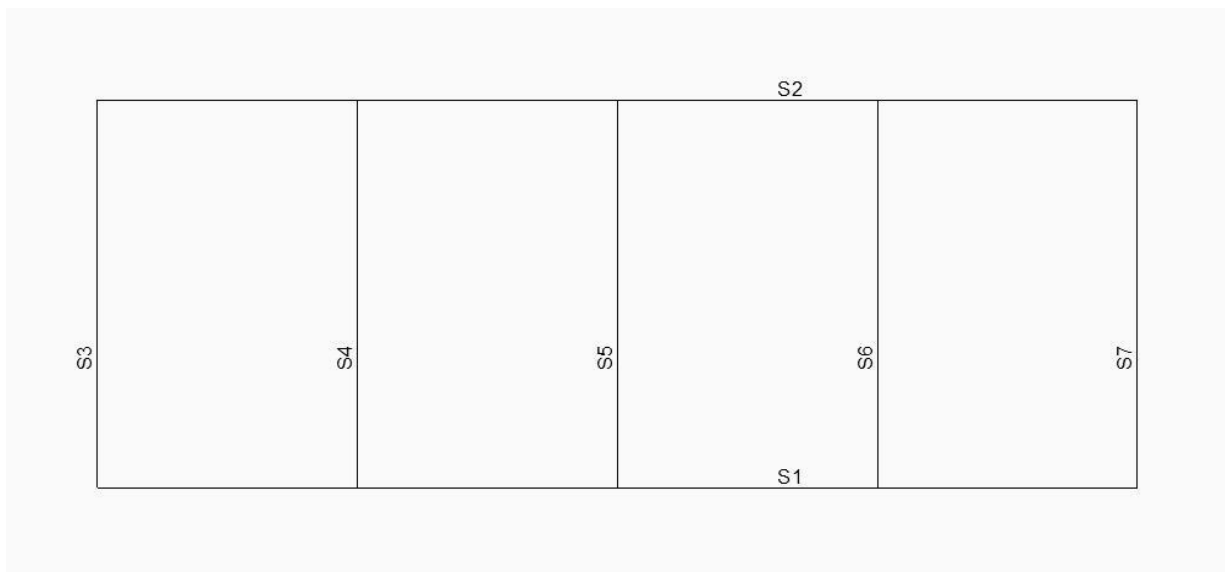
| | kap | zolder | verdieping | bg | mw | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--------------|--|---------------|
| P _g [kN/m ²] | 1,09 | 6,95 | 6,95 | 4,50 | 4,80 | | |
| P _q [kN/m ²] | 0,28 | 2,75 | 2,75 | 2,75 | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,40 | 0,00 | | |
| lengte [m] | 5,20 | 9,20 | 9,20 | 9,20 | 9,00 | | |
| factor | 1,00 | 0,50 | 0,50 | 0,50 | 1,00 | | |
| Totaal G_k | 5,67 | 31,97 | 31,97 | 20,70 | 43,20 | | 133,51 |
| Totaal Q_k | 1,46 | 12,65 | 12,65 | 12,65 | | | 39,41 |
| Pd (CC1) = | | | | | | | 197,39 |

9.6.3 BALKENROOSTER

AFB. KNOPEN



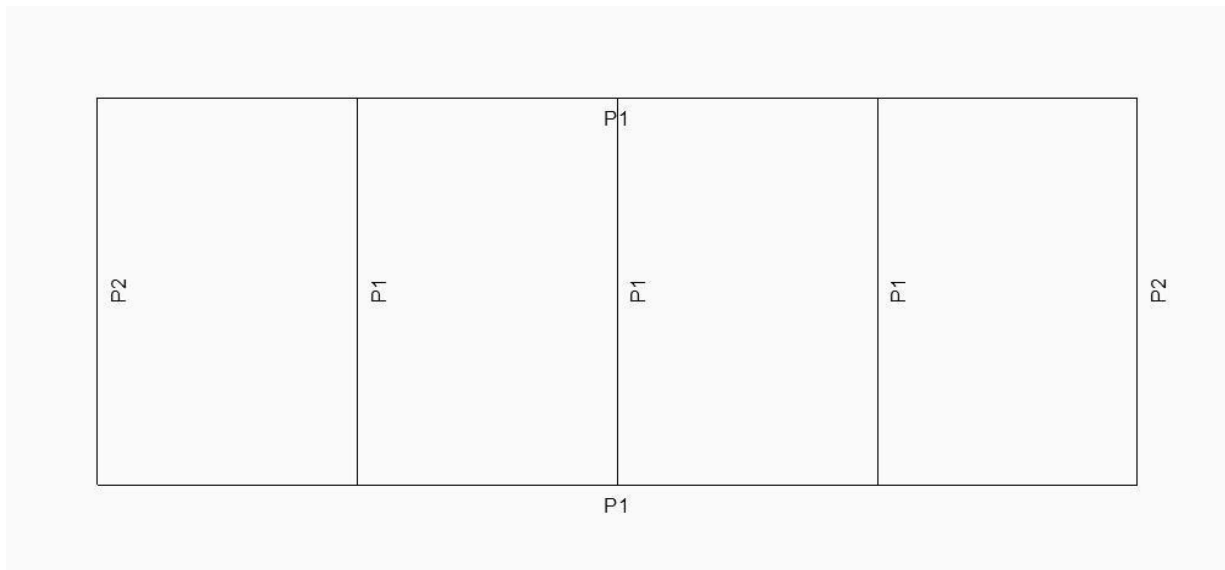
AFB. STAVEN



STAVEN

| Staaf | Knoop B | Knoop E | X-B | Y-B | X-E | Y-E | Lengte Profiel | Positie |
|-------|---------|---------|-------|-------|-------|-------|----------------|-----------------|
| S1 | K5 | K1 | 21,65 | 0,00 | 0,05 | 0,00 | 21,60 P1 | 0,00 - L(21,60) |
| S2 | K10 | K6 | 21,65 | -8,06 | 0,05 | -8,06 | 21,60 P1 | 0,00 - L(21,60) |
| S3 | K1 | K6 | 0,05 | 0,00 | 0,05 | -8,06 | 8,06 P2 | 0,00 - L(8,06) |
| S4 | K2 | K7 | 5,45 | 0,00 | 5,45 | -8,06 | 8,06 P1 | 0,00 - L(8,06) |
| S5 | K3 | K8 | 10,85 | 0,00 | 10,85 | -8,06 | 8,06 P1 | 0,00 - L(8,06) |
| S6 | K4 | K9 | 16,25 | 0,00 | 16,25 | -8,06 | 8,06 P1 | 0,00 - L(8,06) |
| S7 | K5 | K10 | 21,65 | 0,00 | 21,65 | -8,06 | 8,06 P2 | 0,00 - L(8,06) |

AFB. PROFIELEN



PROFIELEN

| Profiel | Profielnaam | It | Iy Materiaal | Hoek |
|---------|-------------|------------|-------------------|------|
| P1 | R400x500 | 5.4742e-03 | 4.1667e-03 C20/25 | 0,0 |
| P2 | R500x500 | 8.8021e-03 | 5.2083e-03 C20/25 | 0,0 |

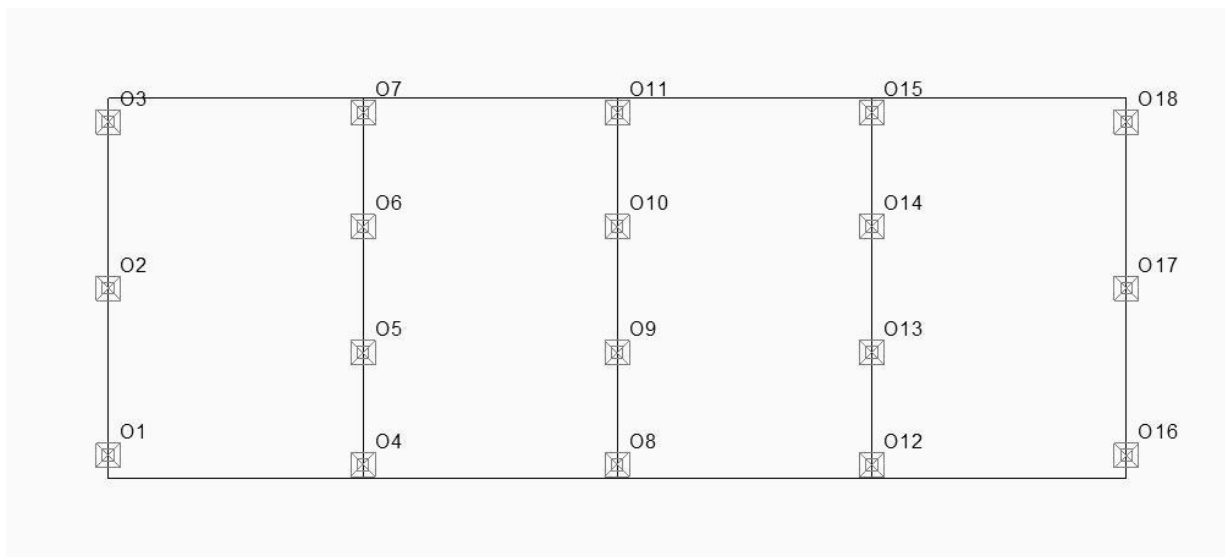
PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,400 | 0,000 | 0,000 Nee | 0,000 |
| P2 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,500 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaalnaam | Poison | Dichtheid | E-Modulus | Uitzettingcoeff |
|---------------|--------|-----------|------------|-----------------|
| C20/25 | 0.20 | 25.00 | 1.0000e+07 | 10.0000e-06 |

AFB. OPLEGGING EN AANSLUITINGEN

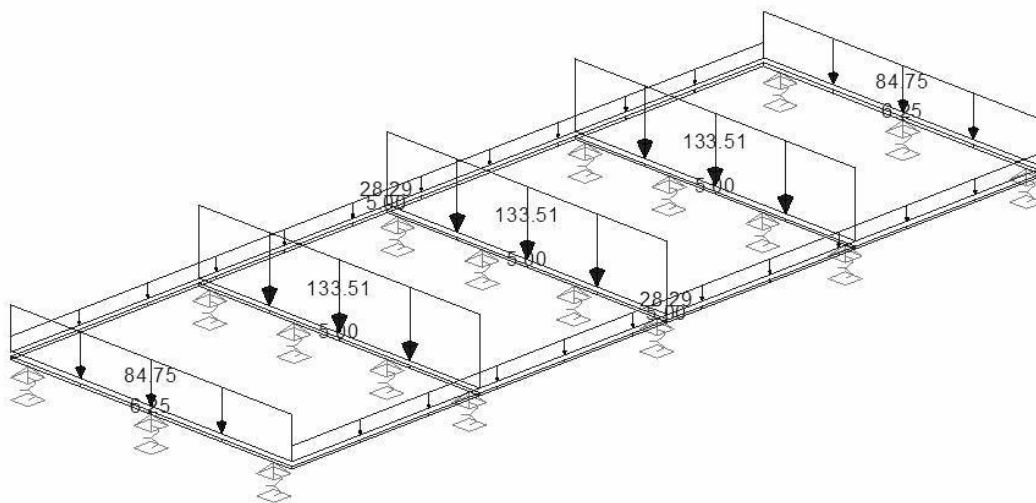


OPLEGGINGEN

| Oplegging | Staaf | Positie | Z | Xr | Yr |
|-----------|-------|---------|----------|------|------|
| O1 | S3 | 0,50 | 18000.00 | Vrij | Vrij |
| O2 | S3 | 4,03 | 18000.00 | Vrij | Vrij |
| O3 | S3 | 7,56 | 18000.00 | Vrij | Vrij |
| O4 | S4 | 0,30 | 18000.00 | Vrij | Vrij |

| Oplegging | Staaf | Positie | Z | Xr | Yr |
|-----------|-------|---------|----------|------|------|
| O5 | S4 | 2,67 | 18000.00 | Vrij | Vrij |
| O6 | S4 | 5,34 | 18000.00 | Vrij | Vrij |
| O7 | S4 | 7,76 | 18000.00 | Vrij | Vrij |
| O8 | S5 | 0,30 | 18000.00 | Vrij | Vrij |
| O9 | S5 | 2,67 | 18000.00 | Vrij | Vrij |
| O10 | S5 | 5,34 | 18000.00 | Vrij | Vrij |
| O11 | S5 | 7,76 | 18000.00 | Vrij | Vrij |
| O12 | S6 | 0,30 | 18000.00 | Vrij | Vrij |
| O13 | S6 | 2,67 | 18000.00 | Vrij | Vrij |
| O14 | S6 | 5,34 | 18000.00 | Vrij | Vrij |
| O15 | S6 | 7,76 | 18000.00 | Vrij | Vrij |
| O16 | S7 | 0,50 | 18000.00 | Vrij | Vrij |
| O17 | S7 | 4,03 | 18000.00 | Vrij | Vrij |
| O18 | S7 | 7,56 | 18000.00 | Vrij | Vrij |

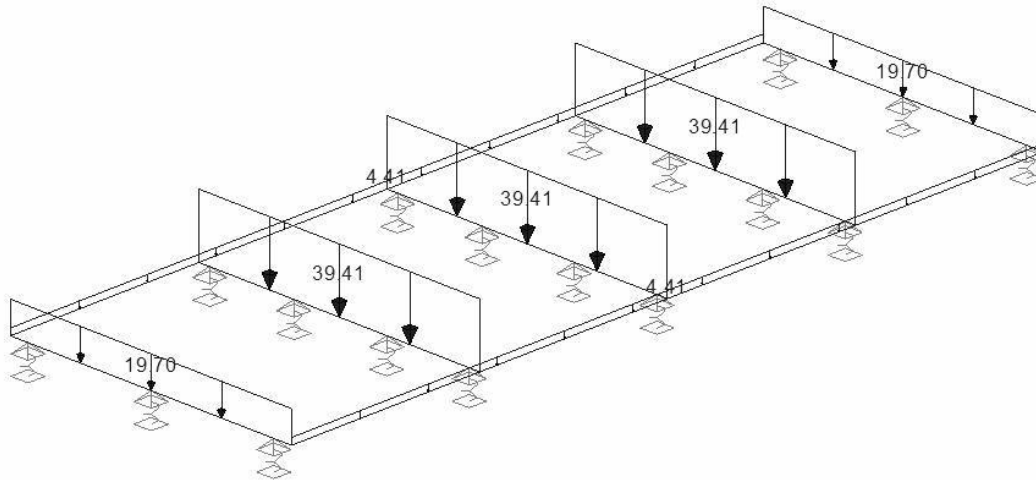
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|------------------|-------------|----------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 21,60(L) | Z S1-S7 |
| q | 28,29 | 28,29 | 0,00 | 21,60(L) | Z S1-S2 |
| q | 84,75 | 84,75 | 0,00 | 8,06(L) | Z S3,S7 |
| q | 133,51 | 133,51 | 0,00 | 8,06(L) | Z S4-S6 |
| Som lasten | X: 0,00 | kN Z: 6.254,22 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

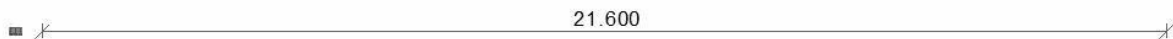
| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting | Staaaf of knoop |
|--|-------------|----------------|--------------|----------------|-----------|-----------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | | |
| q | 4,41 | 4,41 | 0,00 | 21,60(L) | Z | S1-S2 |
| q | 19,70 | 19,70 | 0,00 | 8,06(L) | Z | S3,S7 |
| q | 39,41 | 39,41 | 0,00 | 8,06(L) | Z | S4-S6 |
| Som lasten | | X: 0,00 | kN | Z: 0,00 | kN | |

B.G.1: PERMANENT (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaaf S1 | Richting |
|------|-------------|------------|--------------|-------------|-----------|----------|
| qG | 1,00 | 1,00 | 0,00 | 21,60(L) | | Z |
| q | 28,29 | 28,29 | 0,00 | 21,60(L) | | Z |

B.G.1: PERMANENT (S1)

Staaaf S1

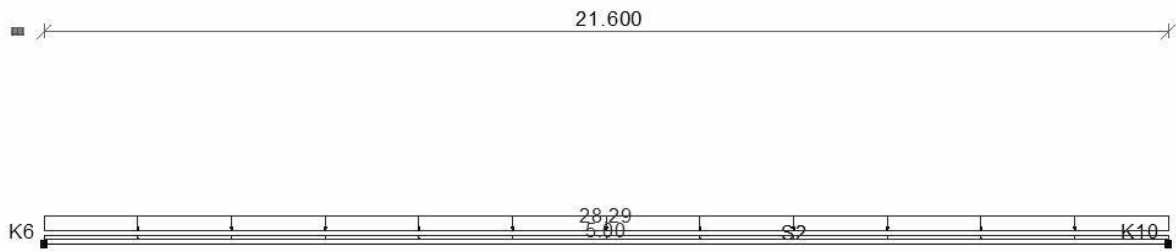


B.G.1: PERMANENT (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaaf S2 | Richting |
|------|-------------|------------|--------------|-------------|-----------|----------|
| qG | 1,00 | 1,00 | 0,00 | 21,60(L) | | Z |
| q | 28,29 | 28,29 | 0,00 | 21,60(L) | | Z |

B.G.1: PERMANENT (S2)

Staaf S2

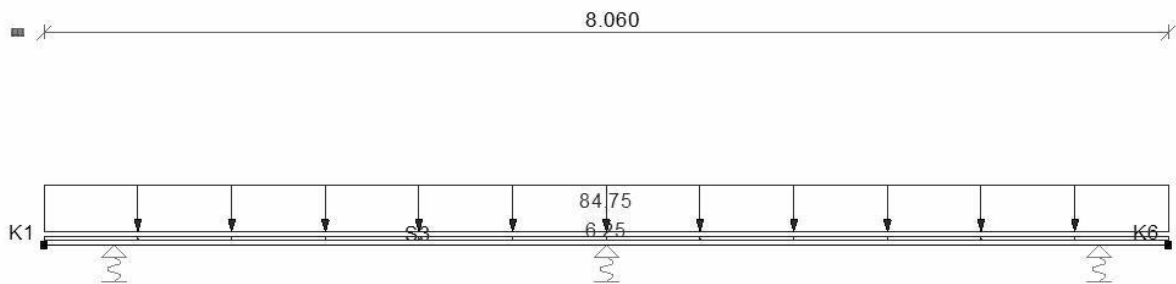


B.G.1: PERMANENT (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 21,60(L) | Z |
| q | 84,75 | 84,75 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S3)

Staaf S3

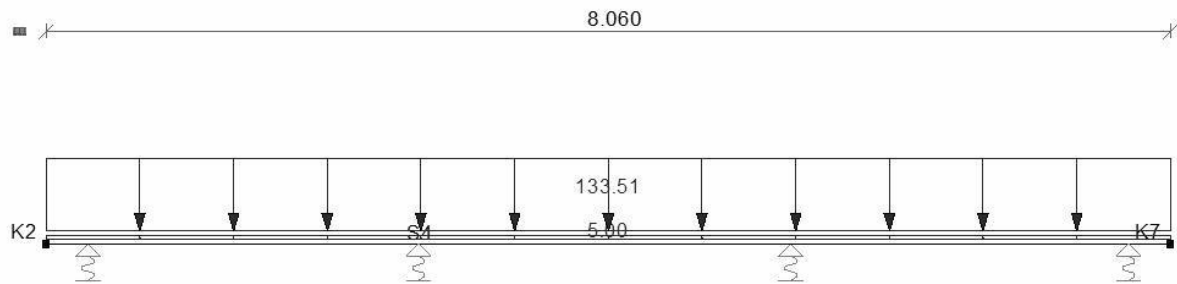


B.G.1: PERMANENT (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 21,60(L) | Z |
| q | 133,51 | 133,51 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S4)

Staaf S4

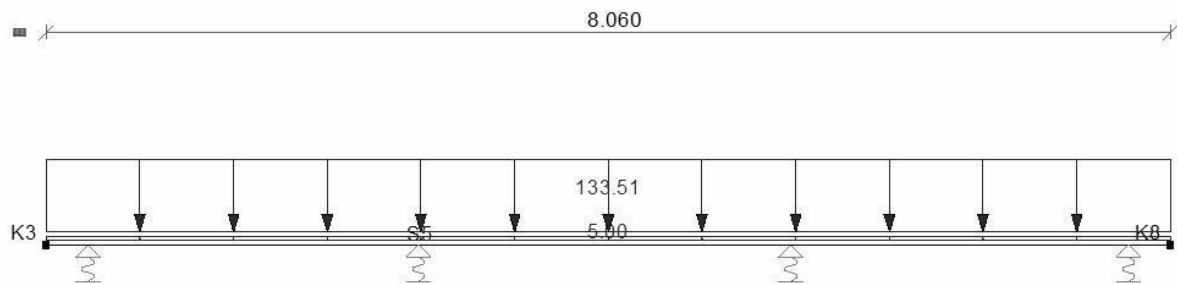


B.G.1: PERMANENT (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 21,60(L) | Z |
| q | 133,51 | 133,51 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S5)

Staaf S5

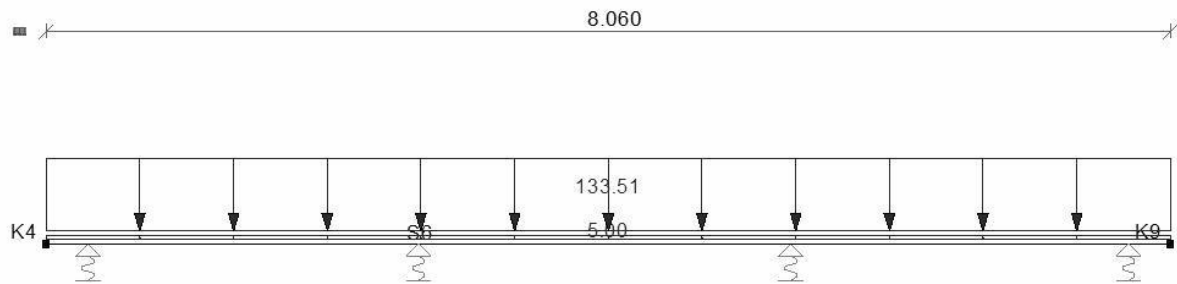


B.G.1: PERMANENT (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 21,60(L) | Z |
| q | 133,51 | 133,51 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S6)

Staaf S6

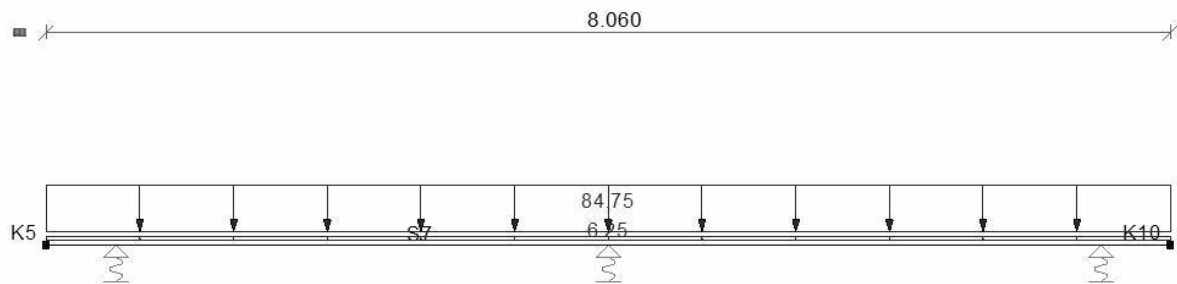


B.G.1: PERMANENT (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 21,60(L) | Z |
| q | 84,75 | 84,75 | 0,00 | 8,06(L) | Z |

B.G.1: PERMANENT (S7)

Staaf S7

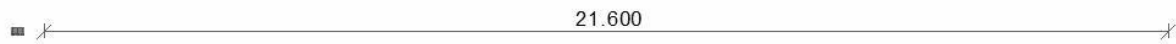


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 21,60(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1

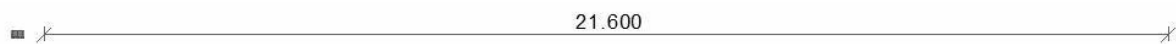


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S2 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,41 | 4,41 | 0,00 | 21,60(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S2)

Staaf S2

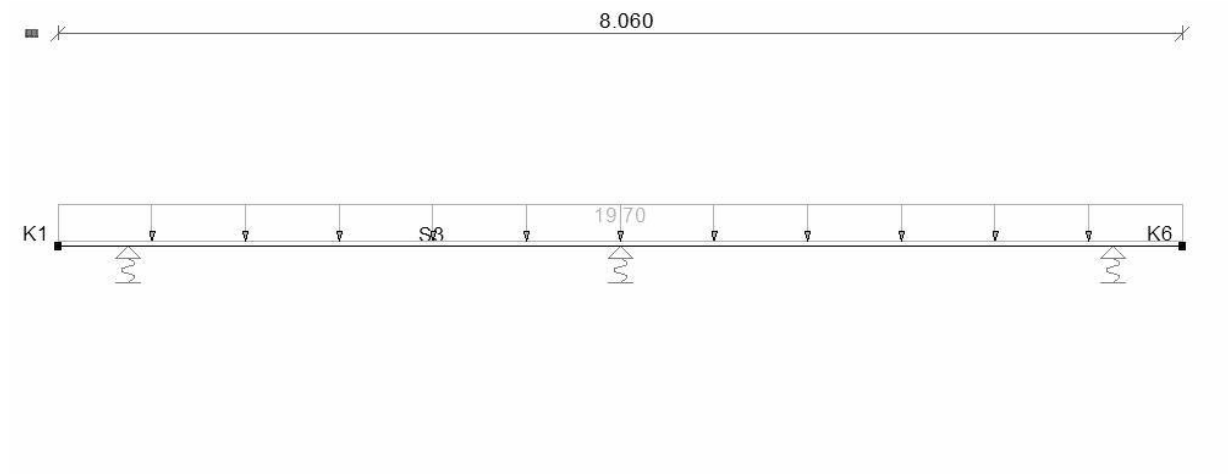


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 19,70 | 19,70 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

Staaf S3

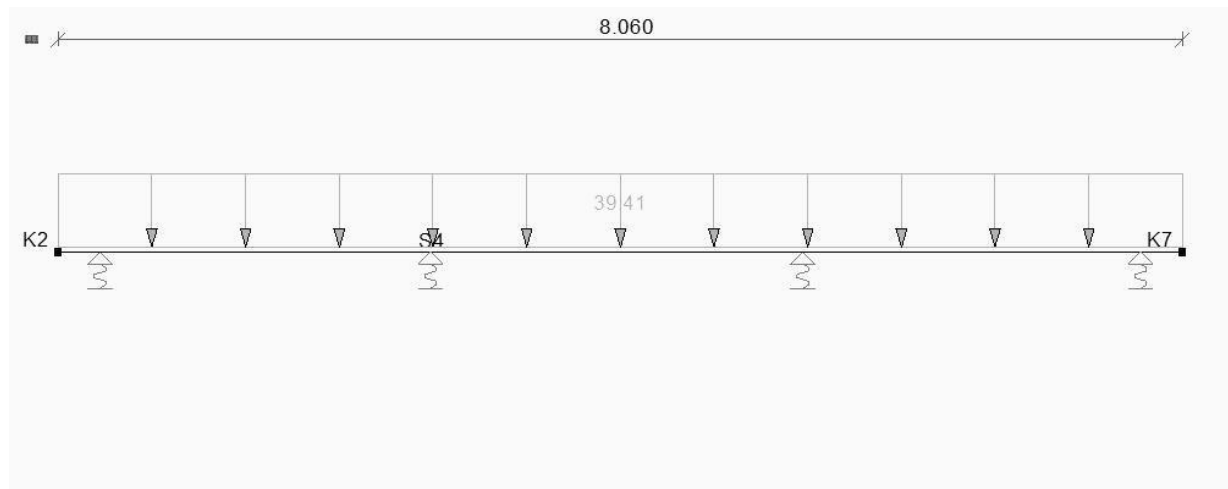


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 39,41 | 39,41 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

Staaf S4

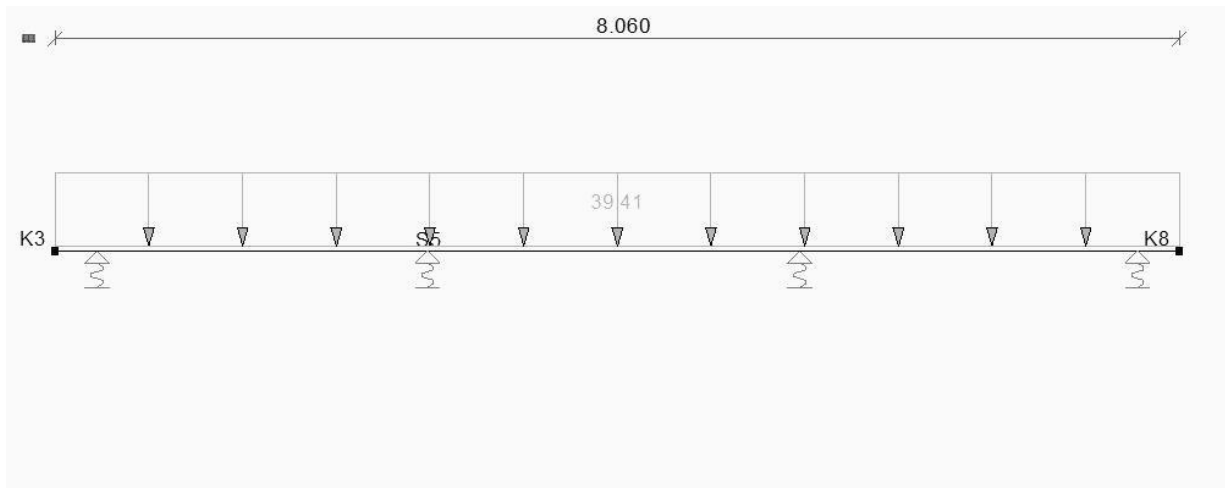


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 39,41 | 39,41 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

Staaf S5



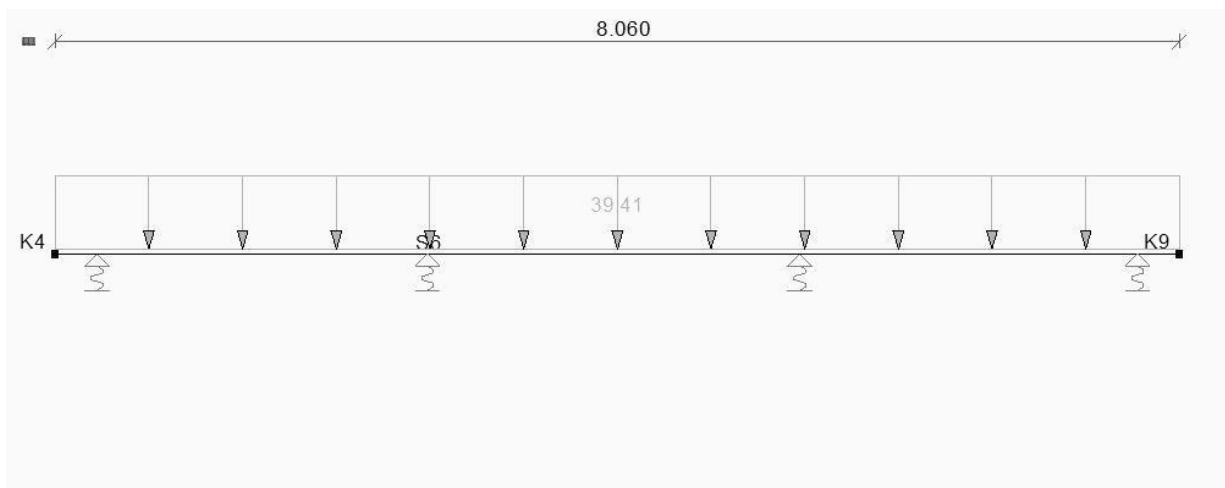
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 39,41 | 39,41 | 0,00 | 8,06(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6



B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 19,70 | 19,70 | 0,00 | 8,06(L) | Z |

| Opleggin | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx | Mymax |
|--------------------------------|-------|---------|----------------|------|---------|---|-------|---------|---|----|-------|
| g | | | | | | | | | | | |
| O1 | S3 | Fu.C.11 | -368,03 | 0,00 | 0.00 | | | | | | |
| O2 | S3 | Fu.C.1 | -460,67 | 0,00 | 0.00 | | | | | | |
| O3 | S3 | Fu.C.13 | -367,89 | 0,00 | 0.00 | | | | | | |
| O4 | S4 | Fu.C.1 | -530,42 | 0,00 | 0.00 | | | | | | |
| O5 | S4 | Fu.C.1 | -526,05 | 0,00 | 0.00 | | | | | | |
| O6 | S4 | Fu.C.1 | -530,01 | 0,00 | 0.00 | | | | | | |
| O7 | S4 | Fu.C.1 | -535,83 | 0,00 | 0.00 | | | | | | |
| O8 | S5 | Fu.C.1 | -515,25 | 0,00 | 0.00 | | | | | | |
| O9 | S5 | Fu.C.1 | -525,43 | 0,00 | 0.00 | | | | | | |
| O10 | S5 | Fu.C.1 | -529,59 | 0,00 | 0.00 | | | | | | |
| O11 | S5 | Fu.C.1 | -521,11 | 0,00 | 0.00 | | | | | | |
| O12 | S6 | Fu.C.1 | -530,42 | 0,00 | 0.00 | | | | | | |
| O13 | S6 | Fu.C.1 | -526,05 | 0,00 | 0.00 | | | | | | |
| O14 | S6 | Fu.C.1 | -530,01 | 0,00 | 0.00 | | | | | | |
| O15 | S6 | Fu.C.1 | -535,83 | 0,00 | 0.00 | | | | | | |
| O16 | S7 | Fu.C.11 | -368,03 | 0,00 | 0.00 | | | | | | |
| O17 | S7 | Fu.C.1 | -460,67 | 0,00 | 0.00 | | | | | | |
| O18 | S7 | Fu.C.13 | -367,89 | 0,00 | 0.00 | | | | | | |
| Globale extreme waarden | | | | | | | | | | | |
| O15 | S6 | Fu.C.1 | -535.83 | 0.00 | 0.00 | | | | | | |

Fundamenteel Belastingscombinaties

The diagram shows a 2D grid with 7 layers. The layers are labeled Ligger 1 through Ligger 7. Ligger 1 is at the bottom, Ligger 2 is at the top, and Ligger 3 through Ligger 7 are in the middle, arranged in a grid pattern.

| | | | |
|------------|---------|-----------------|---------|
| Extra eind | 0.250 m | Nominale korrel | 31.5 mm |
| Fabric. | l.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 1

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENEN
Ligger 1

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S3 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| 5.400 | | | | S4 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 10.800 | | | | S5 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 16.200 | | | | S6 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 21.600 | | | | S7 | 0,500 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|-------------|-----------|
| 5.400 | 105.83 | 4R12 | 2R12 | 571 | 679 | | 87.39 | N/B | 12.0 <= 9.4 | 60 <= 144 |
| 10.800 | 108.93 | 4R12 | 2R12 | 589 | 679 | | 89.92 | N/B | 12.0 <= 8.9 | 60 <= 133 |
| 16.200 | 105.83 | 4R12 | 2R12 | 571 | 679 | | 87.39 | N/B | 12.0 <= 9.4 | 60 <= 144 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 1

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 2.248 | 108.68 | 4R12 | 2R12 | 588 | 679 | | -89.71 | N/B | 12.0 <= 9.0 | 60 <= 134 |
| 8.082 | 49.84 | 4R12 | | 262 | 452 | | -41.13 | N/B | 12.0 <= 20.0 | 101 <= 262 |
| 13.518 | 49.84 | 4R12 | | 262 | 452 | | -41.13 | N/B | 12.0 <= 20.0 | 101 <= 262 |
| 19.352 | 108.68 | 4R12 | 2R12 | 588 | 679 | | -89.71 | N/B | 12.0 <= 9.0 | 60 <= 134 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 1

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.16 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 1

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|------|------|
| 0.000 | 96.67 | R8-300 | 229 | 1 | 335 | 61.674 | 141.530 | 96.671 | N/B | N/B |
| 5.400 | 135.69 | R8-300 | 321 | 1 | 335 | 61.674 | 141.530 | 135.686 | N/B | N/B |
| 5.400 | 115.56 | R8-300 | 274 | 0 | 335 | 61.724 | 141.530 | 115.561 | N/B | N/B |
| 10.800 | 116.84 | R8-300 | 277 | 0 | 335 | 61.724 | 141.530 | 116.843 | N/B | N/B |
| 10.800 | 116.84 | R8-300 | 277 | 0 | 335 | 61.724 | 141.530 | 116.843 | N/B | N/B |
| 16.200 | 115.56 | R8-300 | 274 | 0 | 335 | 61.724 | 141.530 | 115.561 | N/B | N/B |

| | | | | | | | | | | |
|--------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 16.200 | 135.69 | R8-300 | 321 | 1 | 335 | 61.674 | 141.530 | 135.686 | N/B | N/B |
| 21.600 | 96.67 | R8-300 | 229 | 1 | 335 | 61.674 | 141.530 | 96.671 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 21.350 | 0.120 | 21.815 | 0.000 | 2,5D | 22.030 |
| 2R12b(bijleg)(bijleg) | 4.143 | 0.000 | 2,5D | 0.569 | 4.713 | 6.117 | 0.569 | 6.686 | 0.000 | 2,5D | 2.543 |
| 2R12c(bijleg)(bijleg) | 9.488 | 0.000 | 2,5D | 0.569 | 10.057 | 11.543 | 0.569 | 12.112 | 0.000 | 2,5D | 2.624 |
| 2R12d(bijleg)(bijleg) | 14.914 | 0.000 | 2,5D | 0.569 | 15.483 | 16.887 | 0.569 | 17.457 | 0.000 | 2,5D | 2.543 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12r(basis)(basis) | -0.215 | 0.136 | 4,0D | 0.345 | 0.000 | 21.350 | 0.345 | 21.815 | 0.000 | 2,5D | 22.166 |
| 2R12s(bijleg)(bijleg) | 0.275 | 0.000 | 2,5D | 0.399 | 0.674 | 3.823 | 0.399 | 4.221 | 0.000 | 2,5D | 3.946 |
| 2R12t(bijleg)(bijleg) | 17.379 | 0.000 | 2,5D | 0.399 | 17.777 | 20.926 | 0.399 | 21.325 | 0.000 | 2,5D | 3.946 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 1 |
|-----------|--------|-----------|--------|--------|--------|--------|--------|----------|
| S3 | Rechts | 74xR8-300 | -0.300 | 21.900 | 22.200 | 136.16 | 141.53 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | Ligger 1 |
|--------------------|-----------|-------------|--------------|-------------|-----------|----------|
| V4 (16.200-21.600) | Vloer | 4,3 <= 21,6 | 14,3 <= 21,6 | 0,20 | 0,66 | |
| | Handmatig | | | | | |
| V3 (10.800-16.200) | Vloer | 2,2 <= 21,6 | 9,6 <= 21,6 | 0,10 | 0,45 | |
| | Handmatig | | | | | |
| V2 (5.400-10.800) | Vloer | 2,2 <= 21,6 | 9,6 <= 21,6 | 0,10 | 0,45 | |
| | Handmatig | | | | | |
| V1 (0.000-5.400) | Vloer | 4,3 <= 21,6 | 14,3 <= 21,6 | 0,20 | 0,66 | |
| | Handmatig | | | | | |
| m | - | mm | mm | - | - | |

LIGGER 2
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 2 |
| Staven | S2 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.60 m |
| Extra begin | 0.250 m |
| Extra eind | 0.250 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 2
DEKKING

| | Boven | Onder | Zij- + Voorkant | Ligger 2 |
|-------------|-------|-------|-----------------|----------|
| Gereduceerd | Nee | Nee | Nee | |
| Mil. | XC2 | XC2 | XC2 | |
| Met. | Norm. | Norm. | Norm. | |
| Nab. | Nee | Nee | Nee | |

| | | | |
|--------------------|-------|-------|-------|
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS

| Positie | Oplegg. | Type | Afmetin | Staaft | Afmetin | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment | Ligger 2 |
|---------|---------|------|---------|--------|---------|-----|----------|----------|----------|----------|----------|
| | | | g | | g | | | | | | |
| 0.000 | | | | S3 | 0,500 | Nee | | | Niet | Niet | |
| 5.400 | | | | S4 | 0,400 | N/B | | | afgetopt | afgetopt | |
| 10.800 | | | | S5 | 0,400 | N/B | | | Niet | Niet | |
| 16.200 | | | | S6 | 0,400 | N/B | | | afgetopt | afgetopt | |
| 21.600 | | | | S7 | 0,500 | Nee | | | Niet | Niet | |
| m | - | - | m | - | m | - | kNm | kNm | - | - | |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi | Mrep | As,min: | D,max | S,max | Ligger 2 |
|---------|--------|-------|--------|--------|--------|-------------|-------|---------|-------------|-----------|----------|
| | | | | | | ng | | | | | |
| 5.400 | 106.28 | 4R12 | 2R12 | 574 | 679 | | 87.86 | N/B | 12.0 <= 9.3 | 60 <= 142 | |
| 10.800 | 109.34 | 4R12 | 2R12 | 591 | 679 | | 90.31 | N/B | 12.0 <= 8.8 | 60 <= 131 | |
| 16.200 | 106.28 | 4R12 | 2R12 | 574 | 679 | | 87.86 | N/B | 12.0 <= 9.3 | 60 <= 142 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 2 |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|----------|
| 2.255 | 109.33 | 4R12 | 2R12 | 591 | 679 | | -90.33 | N/B | 12.0 <= 8.8 | 60 <= 131 | |
| 8.074 | 50.42 | 4R12 | | 265 | 452 | | -41.70 | N/B | 12.0 <= 19.4 | 101 <= 258 | |
| 13.526 | 50.42 | 4R12 | | 265 | 452 | | -41.70 | N/B | 12.0 <= 19.4 | 101 <= 258 | |
| 19.345 | 109.33 | 4R12 | 2R12 | 591 | 679 | | -90.33 | N/B | 12.0 <= 8.8 | 60 <= 131 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 2 |
|---------|------|----------|--------|--------|----------|
| 16.200 | 0.15 | 1R8 | 1 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 2 |
|---------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-------|----------|
| | | g | | | | | | | | | |
| 0.000 | 96.96 | R8-300 | 230 | 1 | 335 | 61.678 | 141.530 | 96.963 | N/B | N/B | |
| 5.400 | 135.77 | R8-300 | 321 | 1 | 335 | 61.678 | 141.530 | 135.769 | N/B | N/B | |
| 5.400 | 115.66 | R8-300 | 274 | 0 | 335 | 61.723 | 141.530 | 115.664 | N/B | N/B | |
| 10.800 | 117.21 | R8-300 | 278 | 0 | 335 | 61.723 | 141.530 | 117.209 | N/B | N/B | |
| 10.800 | 117.21 | R8-300 | 278 | 0 | 335 | 61.723 | 141.530 | 117.209 | N/B | N/B | |
| 16.200 | 115.66 | R8-300 | 274 | 0 | 335 | 61.723 | 141.530 | 115.664 | N/B | N/B | |
| 16.200 | 135.77 | R8-300 | 321 | 1 | 335 | 61.678 | 141.530 | 135.769 | N/B | N/B | |
| 21.600 | 96.96 | R8-300 | 230 | 1 | 335 | 61.678 | 141.530 | 96.963 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 2 |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------|----------|
| 4R12a(basis)(basis) | -0.215 | 0.000 | 2,5D | 0.120 | 0.000 | 21.350 | 0.120 | 21.815 | 0.000 | 2,5D | 22.030 | |
| 2R12e(bijleg)(bijleg) | 4.140 | 0.000 | 2,5D | 0.569 | 4.710 | 6.120 | 0.569 | 6.690 | 0.000 | 2,5D | 2.549 | |
| 2R12f(bijleg)(bijleg) | 9.485 | 0.000 | 2,5D | 0.569 | 10.054 | 11.546 | 0.569 | 12.115 | 0.000 | 2,5D | 2.630 | |

| | | | | | | | | | | | |
|-----------------------|--------|-------|------|-------|--------|--------|-------|--------|-------|------|-------|
| 2R12g(bijleg)(bijleg) | 14.910 | 0.000 | 2,5D | 0.569 | 15.480 | 16.890 | 0.569 | 17.460 | 0.000 | 2,5D | 2.549 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 2

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------|
| 4R12u(basis)(basis) | -0.215 | 0.137 | 4,0D | 0.346 | 0.000 | 21.350 | 0.346 | 21.815 | 0.000 | 2,5D | 22.167 |
| 2R12v(bijleg)(bijleg) | 0.268 | 0.000 | 2,5D | 0.399 | 0.667 | 3.843 | 0.399 | 4.241 | 0.000 | 2,5D | 3.973 |
| 2R12w(bijleg)(bijleg) | 17.359 | 0.000 | 2,5D | 0.399 | 17.757 | 20.933 | 0.399 | 21.332 | 0.000 | 2,5D | 3.973 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 2

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|--------|--------|--------|--------|
| S3 | Rechts | 74xR8-300 | -0.300 | 21.900 | 22.200 | 136.21 | 141.53 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 2

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|--------------------|-----------|-------------|--------------|-------------|-----------|
| V4 (16.200-21.600) | Vloer | 4,7 <= 21,6 | 14,5 <= 21,6 | 0,22 | 0,67 |
| | Handmatig | | | | |
| V3 (10.800-16.200) | Vloer | 2,8 <= 21,6 | 9,9 <= 21,6 | 0,13 | 0,46 |
| | Handmatig | | | | |
| V2 (5.400-10.800) | Vloer | 2,8 <= 21,6 | 9,9 <= 21,6 | 0,13 | 0,46 |
| | Handmatig | | | | |
| V1 (0.000-5.400) | Vloer | 4,7 <= 21,6 | 14,5 <= 21,6 | 0,22 | 0,67 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 3
ALGEMEEN + KRUIP
Ligger 3
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 3 | Cement | S |
| Staven | S3 | Rel.V.(%) | 60 % |
| Profiel | R500x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.60 |
| Lengte | 8.06 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 3

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 3

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|-------|-----------|-----|----------|---------------|----------|---------------|
| 0.000 | | | | S1 | 0,400 | Nee | | Niet afgetopt | | Niet afgetopt |
| 0.500 | O1 | Ronde | 0,350 | | | N/B | | Afgetopt | | Niet |

| | | | | | | |
|-------|----|-----------------------|-------|-----|----------|------------------------------|
| 4.030 | O2 | paal Ronde | 0,350 | N/B | Afgetopt | afgetopt Niet |
| 7.560 | O3 | paal Ronde paal | 0,350 | N/B | Afgetopt | afgetopt Niet afgetopt |

| | | | | | | | |
|-------|---|---|----|-------|-----|------------------|------------------|
| 8.060 | | | S2 | 0,400 | Nee | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | kNm | kNm | - |

| BOVENWAPENING | | | | | | | | | | Ligger 3 |
|---------------|-------|-------|--------|--------|--------|-------------------|-------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
| 0.500 | 63.69 | 4R12 | | 333 | 452 | | 52.64 | N/B | 12.0 <= 11.9 | 134 <= 191 |
| 4.030 | 98.04 | 4R12 | 1R12 | 520 | 565 | | 79.86 | N/B | 12.0 <= 8.3 | 100 <= 116 |
| 7.560 | 63.84 | 4R12 | | 334 | 452 | | 52.77 | N/B | 12.0 <= 11.8 | 134 <= 190 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| ONDERWAPENING | | | | | | | | | | Ligger 3 |
|---------------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|-----------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 2.191 | 125.52 | 4R12 | 2R12 | 674 | 679 | | -94.75 | N/B | 12.0 <= 8.3 | 80 <= 117 |
| 5.870 | 125.75 | 4R12 | 2R12 | 676 | 679 | | -94.84 | N/B | 12.0 <= 8.3 | 80 <= 117 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | Ligger 3 | | | | |
|---------------|------|----------|--------|--------|--|----------|--|--|--|--|
| Positie | Mx | Wapening | As,ben | As,toe | | | | | | |
| 0.000 | 0.02 | 1R8 | 0 | 50 | | | | | | |
| m | kNm | - | mm2 | mm2 | | | | | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 3 |
|----------------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|----------|
| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 96.67 | R8-250 | 222 | 0 | 402 | 75.895 | 175.219 | 96.671 | N/B | N/B |
| 1.126 | 133.04 | R8-250 | 311 | 0 | 402 | 75.895 | 172.142 | 133.044 | N/B | N/B |
| 3.404 | 152.17 | R8-250 | 355 | 0 | 402 | 75.895 | 172.142 | 152.170 | N/B | N/B |
| 4.656 | 152.16 | R8-250 | 355 | 0 | 402 | 75.895 | 172.142 | 152.157 | N/B | N/B |
| 6.934 | 133.08 | R8-250 | 311 | 0 | 402 | 75.895 | 172.142 | 133.081 | N/B | N/B |
| 8.060 | 96.96 | R8-250 | 223 | 0 | 402 | 75.895 | 175.219 | 96.963 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 3 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12h(basis)(basis) | -0.165 | 0.482 | 4,0D | 0.641 | 0.000 | 7.860 | 0.642 | 8.219 | 0.283 | 4,0D | 9.148 |
| 1R12i(bijleg)(bijleg) | 2.739 | 0.000 | 2,5D | 0.689 | 3.429 | 4.632 | 0.689 | 5.321 | 0.000 | 2,5D | 2.582 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 3 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12x(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.458 | 0.675 | 7.860 | 0.346 | 8.225 | 0.000 | 2,5D | 8.390 |
| 2R12y(bijleg)(bijleg) | 0.460 | 0.000 | 2,5D | 0.402 | 0.862 | 7.201 | 0.402 | 7.603 | 0.000 | 2,5D | 7.143 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | Ligger 3 | | |
|-------------------------|--------|-----------|--------|-------|--------|--------|--------|----------|--|--|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | | |
| S1 | Rechts | 5xR8-250 | -0.220 | 1.030 | 1.250 | 133.10 | 175.22 | | | |
| O1 | Rechts | 24xR8-250 | 1.030 | 7.030 | 6.000 | 152.23 | 172.14 | | | |
| S2 | Links | 5xR8-250 | 7.030 | 8.280 | 1.250 | 133.14 | 175.22 | | | |
| - | - | - | m | m | m | kN | kN | | | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | Ligger 3 UC(w;max) |
|------------------|-----------|-------------|-------------------|--------------------|
| V4 (7.560-8.060) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 |
| | Handmatig | | | |
| V3 (4.030-7.560) | Vloer | 2,1 <= 14,1 | 3,3 <= 14,1 | 0,15 |
| | Handmatig | | | 0,23 |
| V2 (0.500-4.030) | Vloer | 2,0 <= 14,1 | 3,3 <= 14,1 | 0,14 |
| | Handmatig | | | 0,23 |
| V1 (0.000-0.500) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 |
| | Handmatig | | | 0,01 |
| m | - | mm | mm | - |

LIGGER 4
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 4 |
| Staven | S4 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 4
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 4
OPLEGGEGETEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 4 Moment |
|---------|---------|-------|-----------|-------|-----------|-----|----------|----------|----------|-----------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O4 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| | | paal | | | | | | | Afgetopt | Niet |
| 2.670 | O5 | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| | | paal | | | | | | | Afgetopt | Niet |
| 5.340 | O6 | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| | | paal | | | | | | | Afgetopt | Niet |
| 7.760 | O7 | Ronde | 0,350 | | | N/B | | | Afgetopt | afgetopt |
| | | paal | | | | | | | Afgetopt | Niet |
| 8.060 | | | | S2 | 0,400 | Nee | | | Niet | afgetopt |
| | | | | | | | | | afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | afgetopt |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 4 S,max |
|---------|-------|-------|--------|--------|--------|---------------|-------|---------|---------|----------------|
| 0.300 | 83.77 | 4R12 | 1R12 | 446 | 565 | | 69.21 | N/B | 12.0 <= | 76 <= 167 |

| | | | | | | | | | |
|-------|--------|------|------|-----|-----|--------|-----|-------------|-----------|
| 2.670 | 125.32 | 4R12 | 3R12 | 683 | 792 | 100.63 | N/B | 10.5 | |
| 5.340 | 120.29 | 4R12 | 2R12 | 654 | 679 | 98.38 | N/B | 12.0 <= 9.5 | 50 <= 144 |
| 7.760 | 83.81 | 4R12 | 1R12 | 446 | 565 | 69.26 | N/B | 12.0 <= 7.6 | 60 <= 96 |
| | | | | | | | | 12.0 <= 76 | <= 167 |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | 10.5 mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 4 |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|----------|
| 1.451 | 64.99 | 4R12 | | 342 | 452 | | -35.82 | N/B | 12.0 <= 24.6 | 101 <= 285 | |
| 3.967 | 84.81 | 4R12 | | 452 | 452 | | -51.11 | N/B | 12.0 <= 12.3 | 101 <= 198 | |
| 6.627 | 61.30 | 4R12 | | 322 | 452 | | -37.55 | N/B | 12.0 <= 23.3 | 101 <= 280 | |
| m | kNm | - | - | mm2 | mm2 | | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 4 |
|---------|------|----------|--------|--------|----------|
| 0.000 | 0.01 | 1R8 | 0 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 4 |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|----------|
| 0.000 | 251.25 | R8-150 | 582 | 0 | 670 | 61.729 | 289.468 | 251.247 | N/B | N/B | |
| 0.926 | 106.40 | R8-300 | 246 | 0 | 335 | 61.729 | 144.734 | 106.398 | N/B | N/B | |
| 2.044 | 131.57 | R8-300 | 305 | 0 | 335 | 61.729 | 144.734 | 131.566 | N/B | N/B | |
| 3.296 | 151.73 | R8-150 | 351 | 0 | 670 | 61.729 | 289.468 | 151.725 | N/B | N/B | |
| 4.714 | 151.49 | R8-150 | 351 | 0 | 670 | 61.729 | 289.468 | 151.486 | N/B | N/B | |
| 5.966 | 135.34 | R8-300 | 313 | 0 | 335 | 61.729 | 144.734 | 135.337 | N/B | N/B | |
| 7.134 | 110.71 | R8-300 | 256 | 0 | 335 | 61.729 | 144.734 | 110.711 | N/B | N/B | |
| 8.060 | 251.43 | R8-150 | 582 | 0 | 670 | 61.729 | 289.468 | 251.434 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 4 |
|-----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| 4R12j(basis)(basis) | -0.165 | 0.683 | 4,0D | 0.842 | 0.000 | 7.860 | 0.843 | 8.219 | 0.484 | 4,0D | 9.551 | |
| 1R12k(bijleg)(bijleg) | -0.165 | 0.215 | 4,0D | 0.674 | 0.300 | 1.932 | 0.683 | 2.615 | 0.000 | 2,5D | 2.995 | |
| 3R12l(bijleg)(bijleg) | 1.443 | 0.000 | 2,5D | 0.488 | 1.932 | 3.430 | 0.488 | 3.918 | 0.000 | 2,5D | 2.475 | |
| 2R12m(bijleg) | 4.035 | 0.000 | 2,5D | 0.569 | 4.605 | 6.037 | 0.569 | 6.607 | 0.000 | 2,5D | 2.571 | |
| (bijleg) | | | | | | | | | | | | |
| 1R12n(bijleg)(bijleg) | 5.354 | 0.000 | 2,5D | 0.683 | 6.037 | 7.760 | 0.674 | 8.219 | 0.215 | 4,0D | 3.081 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 4 |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| 4R12a1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.321 | 0.475 | 7.860 | 0.898 | 8.219 | 0.539 | 4,0D | 8.923 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 4 |
|-----------|--------|----------|--------|-------|--------|--------|--------|----------|
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 251.27 | 289.47 | |
| O4 | Rechts | 7xR8-300 | 0.505 | 2.605 | 2.100 | 131.59 | 144.73 | |
| O5 | Links | 6xR8-150 | 2.605 | 3.505 | 0.900 | 151.74 | 289.47 | |
| O5 | Rechts | 3xR8-300 | 3.505 | 4.405 | 0.900 | 123.14 | 144.73 | |
| O6 | Links | 8xR8-150 | 4.405 | 5.605 | 1.200 | 151.51 | 289.47 | |
| O6 | Rechts | 7xR8-300 | 5.605 | 7.705 | 2.100 | 135.36 | 144.73 | |
| S2 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 251.45 | 289.47 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 4 |
|------------------|-----------|-------------|-------------------|-----------|----------|
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V4 (5.340-7.760) | Vloer | 0,2 <= 9,7 | 0,2 <= 9,7 | 0,02 | 0,02 |
| | Handmatig | | | | |
| V3 (2.670-5.340) | Vloer | 0,7 <= 10,7 | 0,4 <= 10,7 | 0,07 | 0,04 |
| | Handmatig | | | | |
| V2 (0.300-2.670) | Vloer | 0,2 <= 9,5 | 0,1 <= 9,5 | 0,02 | 0,01 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 5
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 5 |
| Staven | S5 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 5
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 5
OPLEGGEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment | Ligger 5 |
|---------|---------|-------|-----------|-------|-----------|-----|----------|----------|----------|----------|----------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet | |
| 0.300 | O8 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt | |
| | | paal | | | | | | | Afgetopt | Niet | |
| 2.670 | O9 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet | |
| | | paal | | | | | | | Afgetopt | afgetopt | |
| 5.340 | O10 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet | |
| | | paal | | | | | | | Afgetopt | afgetopt | |
| 7.760 | O11 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet | |
| | | paal | | | | | | | Afgetopt | afgetopt | |
| 8.060 | | | | S2 | 0,400 | Nee | | | Niet | Niet | |
| | | | | | | | | | afgetopt | afgetopt | |
| m | - | - | m | - | m | - | kNm | kNm | - | - | |

BOVENWAPENING
Ligger 5

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------|-------|---------|-------------|------------|
| 0.300 | 78.71 | 4R12 | | 418 | 452 | ng | 65.03 | N/B | 12.0 <= 8.1 | 101 <= 109 |
| 2.670 | 119.56 | 4R12 | 2R12 | 649 | 679 | | 95.43 | N/B | 12.0 <= 8.0 | 60 <= 109 |
| 5.340 | 115.42 | 4R12 | 2R12 | 625 | 679 | | 93.61 | N/B | 12.0 <= 8.3 | 60 <= 117 |
| 7.760 | 78.78 | 4R12 | | 418 | 452 | | 64.85 | N/B | 12.0 <= 8.1 | 101 <= 110 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| ONDERWAPENING | | | | | | | | | | Ligger 5 |
|---------------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 1.453 | 69.18 | 4R12 | | 365 | 452 | | -40.01 | N/B | 12.0 <= 21.2 | 101 <= 269 |
| 3.969 | 90.18 | 4R12 | 1R12 | 482 | 565 | | -56.10 | N/B | 12.0 <= 15.6 | 76 <= 235 |
| 6.585 | 64.82 | 4R12 | | 342 | 452 | | -41.14 | N/B | 12.0 <= 20.0 | 101 <= 262 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | | | | | Ligger 5 |
|---------------|------|----------|--|--------|--------|--|--|--|--|----------|
| Positie | Mx | Wapening | | As,ben | As,toe | | | | | |
| 0.000 | 0.00 | 1R8 | | 0 | 50 | | | | | |
| m | kNm | - | | mm2 | mm2 | | | | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 5 |
|----------------|--------|---------|----------|----------|--------|--------|---------|---------|-------|----------|
| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 233.69 | R8-150 | 541 | 0 | 670 | 61.732 | 289.468 | 233.686 | N/B | N/B |
| 0.926 | 106.93 | R8-300 | 248 | 0 | 335 | 61.732 | 144.734 | 106.929 | N/B | N/B |
| 2.044 | 131.06 | R8-300 | 303 | 0 | 335 | 61.732 | 144.734 | 131.057 | N/B | N/B |
| 3.296 | 151.59 | R8-150 | 355 | 0 | 670 | 61.732 | 286.263 | 151.587 | N/B | N/B |
| 4.714 | 151.07 | R8-150 | 354 | 0 | 670 | 61.732 | 286.263 | 151.074 | N/B | N/B |
| 5.966 | 134.85 | R8-300 | 312 | 0 | 335 | 61.732 | 144.734 | 134.847 | N/B | N/B |
| 7.134 | 111.26 | R8-300 | 258 | 0 | 335 | 61.732 | 144.734 | 111.262 | N/B | N/B |
| 8.060 | 234.42 | R8-150 | 543 | 0 | 670 | 61.732 | 289.468 | 234.417 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 5 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12o(basis)(basis) | -0.165 | 0.633 | 4,0D | 0.792 | 0.000 | 7.860 | 0.792 | 8.219 | 0.433 | 4,0D | 9.450 |
| 2R12p(bijleg)(bijleg) | 1.402 | 0.000 | 2,5D | 0.569 | 1.971 | 3.389 | 0.569 | 3.959 | 0.000 | 2,5D | 2.557 |
| 2R12q(bijleg)(bijleg) | 4.064 | 0.000 | 2,5D | 0.569 | 4.633 | 6.010 | 0.569 | 6.579 | 0.000 | 2,5D | 2.516 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 5 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12b1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.349 | 0.475 | 7.860 | 0.837 | 8.219 | 0.478 | 4,0D | 8.862 |
| 1R12c1(bijleg)(bijleg) | 2.736 | 0.000 | 2,5D | 0.478 | 3.214 | 4.704 | 0.478 | 5.182 | 0.000 | 2,5D | 2.446 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | | | Ligger 5 |
|-------------------------|--------|----------|--------|-------|--------|--------|--------|--|--|----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | | |
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 233.69 | 289.47 | | | |
| O8 | Rechts | 6xR8-300 | 0.505 | 2.305 | 1.800 | 131.06 | 144.73 | | | |
| O9 | Links | 1xR8-300 | 2.305 | 2.605 | 0.300 | 131.06 | 143.13 | | | |
| O9 | Links | 6xR8-150 | 2.605 | 3.505 | 0.900 | 151.59 | 286.26 | | | |
| O9 | Rechts | 3xR8-300 | 3.505 | 4.405 | 0.900 | 133.04 | 143.13 | | | |
| O10 | Links | 8xR8-150 | 4.405 | 5.605 | 1.200 | 151.07 | 286.26 | | | |
| O10 | Rechts | 1xR8-300 | 5.605 | 5.905 | 0.300 | 134.85 | 143.13 | | | |

| | | | | | | | |
|-----|--------|----------|-------|-------|-------|--------|--------|
| O10 | Rechts | 6xR8-300 | 5.905 | 7.705 | 1.800 | 134.85 | 144.73 |
| S2 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 234.42 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| | | Ligger 5 | | | |
|------------------|-----------|-------------|-------------------|-----------|------|
| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | |
| V5 (7.760-8.060) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V4 (5.340-7.760) | Vloer | 0,3 <= 9,7 | 0,3 <= 9,7 | 0,03 | 0,03 |
| | Handmatig | | | | |
| V3 (2.670-5.340) | Vloer | 0,8 <= 10,7 | 0,5 <= 10,7 | 0,08 | 0,05 |
| | Handmatig | | | | |
| V2 (0.300-2.670) | Vloer | 0,2 <= 9,5 | 0,2 <= 9,5 | 0,03 | 0,02 |
| | Handmatig | | | | |
| V1 (0.000-0.300) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 6
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 6 |
| Staven | S6 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 6
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 6
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O12 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| | | paal | | | | | | | Afgetopt | Niet |
| 2.670 | O13 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | | | | | | Afgetopt | afgetopt |
| 5.340 | O14 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | | | | | | Afgetopt | afgetopt |
| 7.760 | O15 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | | | | | | Afgetopt | afgetopt |
| 8.060 | | | | S2 | 0,400 | Nee | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

Ligger 6

| BOVENWAPENING | | | | | | | | | | Ligger 6 |
|---------------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|-----------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 0.300 | 83.77 | 4R12 | 1R12 | 446 | 565 | | 69.21 | N/B | 12.0 <= 10.5 | 76 <= 167 |
| 2.670 | 125.32 | 4R12 | 3R12 | 683 | 792 | | 100.63 | N/B | 12.0 <= 9.5 | 50 <= 144 |
| 5.340 | 120.29 | 4R12 | 2R12 | 654 | 679 | | 98.38 | N/B | 12.0 <= 7.6 | 60 <= 96 |
| 7.760 | 83.81 | 4R12 | 1R12 | 446 | 565 | | 69.26 | N/B | 12.0 <= 10.5 | 76 <= 167 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| ONDERWAPENING | | | | | | | | | | Ligger 6 |
|---------------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 1.451 | 64.99 | 4R12 | | 342 | 452 | | -35.82 | N/B | 12.0 <= 24.6 | 101 <= 285 |
| 3.967 | 84.81 | 4R12 | | 452 | 452 | | -51.11 | N/B | 12.0 <= 12.3 | 101 <= 198 |
| 6.627 | 61.30 | 4R12 | | 322 | 452 | | -37.55 | N/B | 12.0 <= 23.3 | 101 <= 280 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | Ligger 6 |
|---------------|------|----------|--------|--------|--|----------|
| Positie | Mx | Wapening | As,ben | As,toe | | |
| 0.000 | 0.01 | 1R8 | 0 | 50 | | |
| m | kNm | - | mm2 | mm2 | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 6 |
|----------------|--------|----------|----------|----------|--------|--------|---------|---------|-------|----------|
| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 251.25 | R8-150 | 582 | 0 | 670 | 61.729 | 289.468 | 251.247 | N/B | N/B |
| 0.926 | 106.40 | R8-300 | 246 | 0 | 335 | 61.729 | 144.734 | 106.398 | N/B | N/B |
| 2.044 | 131.57 | R8-300 | 305 | 0 | 335 | 61.729 | 144.734 | 131.566 | N/B | N/B |
| 3.296 | 151.73 | R8-150 | 351 | 0 | 670 | 61.729 | 289.468 | 151.725 | N/B | N/B |
| 4.714 | 151.49 | R8-150 | 351 | 0 | 670 | 61.729 | 289.468 | 151.486 | N/B | N/B |
| 5.966 | 135.34 | R8-300 | 313 | 0 | 335 | 61.729 | 144.734 | 135.337 | N/B | N/B |
| 7.134 | 110.71 | R8-300 | 256 | 0 | 335 | 61.729 | 144.734 | 110.711 | N/B | N/B |
| 8.060 | 251.43 | R8-150 | 582 | 0 | 670 | 61.729 | 289.468 | 251.434 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 6 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12j(basis)(basis) | -0.165 | 0.683 | 4,0D | 0.842 | 0.000 | 7.860 | 0.843 | 8.219 | 0.484 | 4,0D | 9.551 |
| 1R12k(bijleg)(bijleg) | -0.165 | 0.215 | 4,0D | 0.674 | 0.300 | 1.932 | 0.683 | 2.615 | 0.000 | 2,5D | 2.995 |
| 3R12l(bijleg)(bijleg) | 1.443 | 0.000 | 2,5D | 0.488 | 1.932 | 3.430 | 0.488 | 3.918 | 0.000 | 2,5D | 2.475 |
| 2R12m(bijleg)(bijleg) | 4.035 | 0.000 | 2,5D | 0.569 | 4.605 | 6.037 | 0.569 | 6.607 | 0.000 | 2,5D | 2.571 |
| 1R12n(bijleg)(bijleg) | 5.354 | 0.000 | 2,5D | 0.683 | 6.037 | 7.760 | 0.674 | 8.219 | 0.215 | 4,0D | 3.081 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 6 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12a1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.321 | 0.475 | 7.860 | 0.898 | 8.219 | 0.539 | 4,0D | 8.923 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | Ligger 6 |
|-------------------------|--------|----------|--------|-------|--------|--------|--------|----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | |
| S1 | Rechts | 4xR8-150 | -0.095 | 0.505 | 0.600 | 251.27 | 289.47 | |
| O12 | Rechts | 7xR8-300 | 0.505 | 2.605 | 2.100 | 131.59 | 144.73 | |

| | | | | | | | |
|-----|--------|----------|-------|-------|-------|--------|--------|
| O13 | Links | 6xR8-150 | 2.605 | 3.505 | 0.900 | 151.74 | 289.47 |
| O13 | Rechts | 3xR8-300 | 3.505 | 4.405 | 0.900 | 123.14 | 144.73 |
| O14 | Links | 8xR8-150 | 4.405 | 5.605 | 1.200 | 151.51 | 289.47 |
| O14 | Rechts | 7xR8-300 | 5.605 | 7.705 | 2.100 | 135.36 | 144.73 |
| S2 | Links | 3xR8-150 | 7.705 | 8.155 | 0.450 | 251.45 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 6 |
|------------------|---|-----------|-------------|-------------------|-----------|----------|
| V5 (7.760-8.060) | | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | | Handmatig | | | | |
| V4 (5.340-7.760) | | Vloer | 0,2 <= 9,7 | 0,2 <= 9,7 | 0,02 | 0,02 |
| | | Handmatig | | | | |
| V3 (2.670-5.340) | | Vloer | 0,7 <= 10,7 | 0,4 <= 10,7 | 0,07 | 0,04 |
| | | Handmatig | | | | |
| V2 (0.300-2.670) | | Vloer | 0,2 <= 9,5 | 0,1 <= 9,5 | 0,02 | 0,01 |
| | | Handmatig | | | | |
| V1 (0.000-0.300) | | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,01 |
| | | Handmatig | | | | |
| | m | - | mm | mm | - | - |

LIGGER 7
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 7 |
| Staven | S7 |
| Profiel | R500x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 8.06 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.60 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 7
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 7
OPLEGGEGETEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment | Ligger 7 |
|---------|---------|-------|-----------|--------|-----------|-----|----------|----------|----------|----------|----------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet | Niet | |
| 0.500 | O16 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt | |
| | | paal | | | | | | | Afgetopt | Niet | |
| 4.030 | O17 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet | |
| | | paal | | | | | | | Afgetopt | afgetopt | |
| 7.560 | O18 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet | |
| | | paal | | | | | | | Afgetopt | afgetopt | |
| 8.060 | | | | S2 | 0,400 | Nee | | | Niet | Niet | |

| m | - | - | m | - | m | - | kNm | afgetopt kNm | afgetopt - |
|----------------------|-------|-------|--------|--------|--------|---------------|-------|-----------------|-------------------------|
| BOVENWAPENING | | | | | | | | | |
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | Ligger 7 D,max S,max |
| 0.500 | 63.69 | 4R12 | | 333 | 452 | | 52.64 | N/B | 12.0 <= 11.9 134 <= 191 |
| 4.030 | 98.04 | 4R12 | 1R12 | 520 | 565 | | 79.86 | N/B | 12.0 <= 8.3 100 <= 116 |
| 7.560 | 63.84 | 4R12 | | 334 | 452 | | 52.77 | N/B | 12.0 <= 11.8 134 <= 190 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm |

| ONDERWAPENING | | | | | | | | | |
|----------------------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | Ligger 7 D,max S,max |
| 2.191 | 125.52 | 4R12 | 2R12 | 674 | 679 | | -94.75 | N/B | 12.0 <= 8.3 80 <= 117 |
| 5.870 | 125.75 | 4R12 | 2R12 | 676 | 679 | | -94.84 | N/B | 12.0 <= 8.3 80 <= 117 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm |

| FLANKWAPENING | | | | | | | | | |
|----------------------|------|----------|--------|--------|----------|--|--|--|--|
| Positie | Mx | Wapening | As,ben | As,toe | Ligger 7 | | | | |
| 0.000 | 0.02 | 1R8 | 0 | 50 | | | | | |
| m | kNm | - | mm2 | mm2 | | | | | |

| BEUGELWAPENING | | | | | | | | | |
|-----------------------|--------|----------|----------|----------|--------|--------|---------|---------|-----------------------|
| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | Ligger 7 VRdi VEdi |
| 0.000 | 96.67 | R8-250 | 222 | 0 | 402 | 75.895 | 175.219 | 96.671 | N/B N/B |
| 1.126 | 133.04 | R8-250 | 311 | 0 | 402 | 75.895 | 172.142 | 133.044 | N/B N/B |
| 3.404 | 152.17 | R8-250 | 355 | 0 | 402 | 75.895 | 172.142 | 152.170 | N/B N/B |
| 4.656 | 152.16 | R8-250 | 355 | 0 | 402 | 75.895 | 172.142 | 152.157 | N/B N/B |
| 6.934 | 133.08 | R8-250 | 311 | 0 | 402 | 75.895 | 172.142 | 133.081 | N/B N/B |
| 8.060 | 96.96 | R8-250 | 223 | 0 | 402 | 75.895 | 175.219 | 96.963 | N/B N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | Ligger 7 | |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|----------|--------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12h(basis)(basis) | -0.165 | 0.482 | 4,0D | 0.641 | 0.000 | 7.860 | 0.642 | 8.219 | 0.283 | 4,0D | 9.148 |
| 1R12i(bijleg)(bijleg) | 2.739 | 0.000 | 2,5D | 0.689 | 3.429 | 4.632 | 0.689 | 5.321 | 0.000 | 2,5D | 2.582 |
| - | m | m | - | m | m | m | m | m | m | - | m |

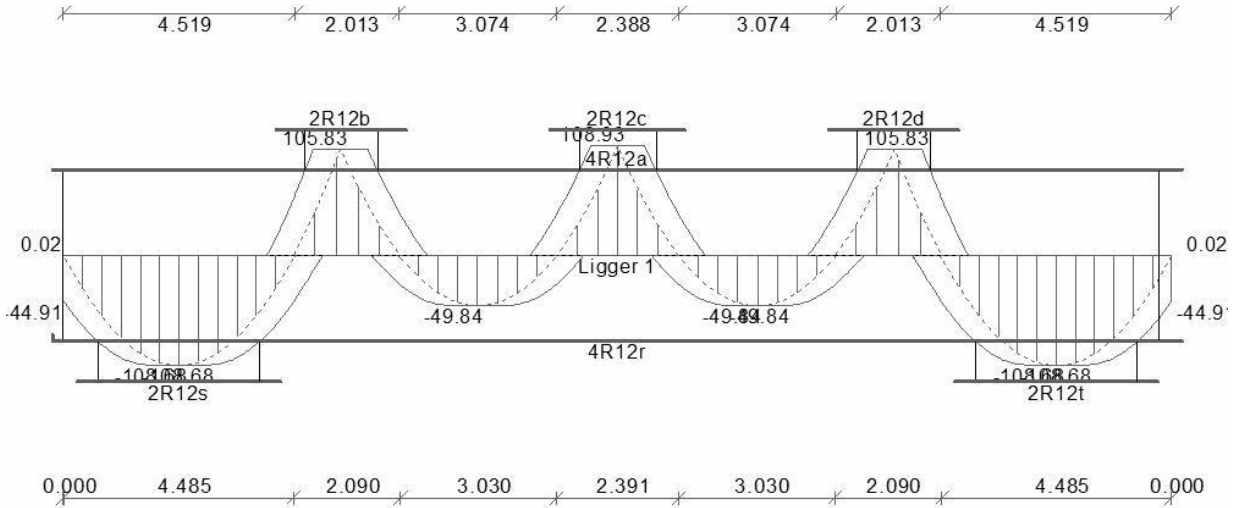
| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 7 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12x(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.458 | 0.675 | 7.860 | 0.346 | 8.225 | 0.000 | 2,5D | 8.390 |
| 2R12y(bijleg)(bijleg) | 0.460 | 0.000 | 2,5D | 0.402 | 0.862 | 7.201 | 0.402 | 7.603 | 0.000 | 2,5D | 7.143 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | | |
|--------------------------------|--------|-----------|--------|-------|--------|--------|--------|----------|--|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 7 | |
| S1 | Rechts | 5xR8-250 | -0.220 | 1.030 | 1.250 | 133.10 | 175.22 | | |
| O16 | Rechts | 24xR8-250 | 1.030 | 7.030 | 6.000 | 152.23 | 172.14 | | |
| S2 | Links | 5xR8-250 | 7.030 | 8.280 | 1.250 | 133.14 | 175.22 | | |
| - | - | - | m | m | m | kN | kN | | |

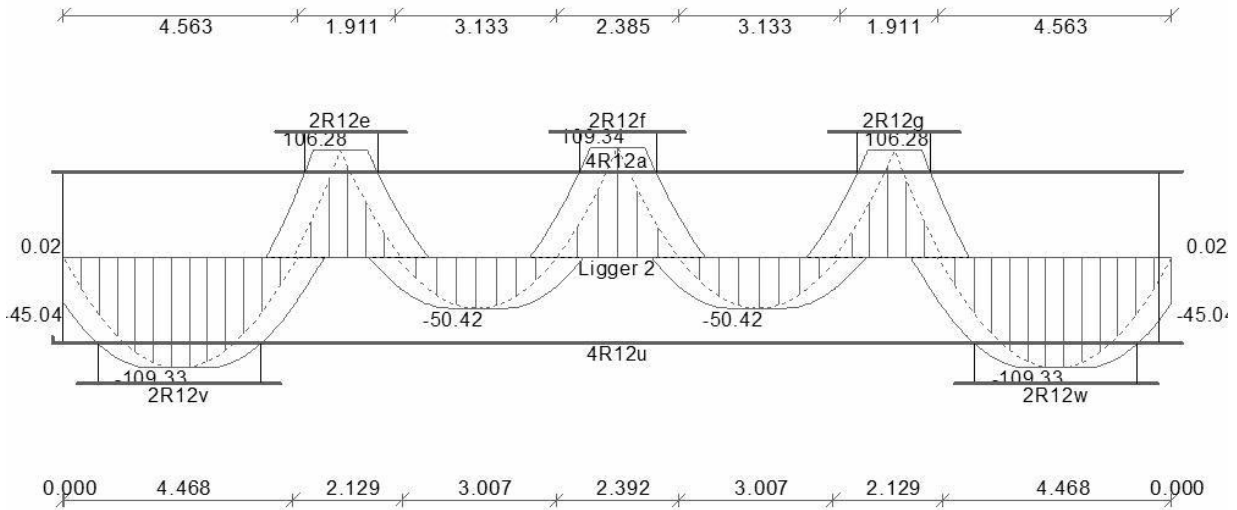
| TOETSING DOORBUIGING | | | | | | | | | |
|-----------------------------|--------------------|-------------|-------------|-------------|-----------|----------|--|--|--|
| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | Ligger 7 | | | |
| V4 (7.560-8.060) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 | | | | |
| V3 (4.030-7.560) | Handmatig Vloer | 2,1 <= 14,1 | 3,3 <= 14,1 | 0,15 | 0,23 | | | | |
| | Handmatig | | | | | | | | |

| | | | | | |
|------------------|-----------|-------------|-------------|----------|----------|
| V2 (0.500-4.030) | Vloer | 2,0 <= 14,1 | 3,3 <= 14,1 | 0,14 | 0,23 |
| | Handmatig | | | | |
| V1 (0.000-0.500) | Vloer | 0,0 <= 2,0 | 0,0 <= 2,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

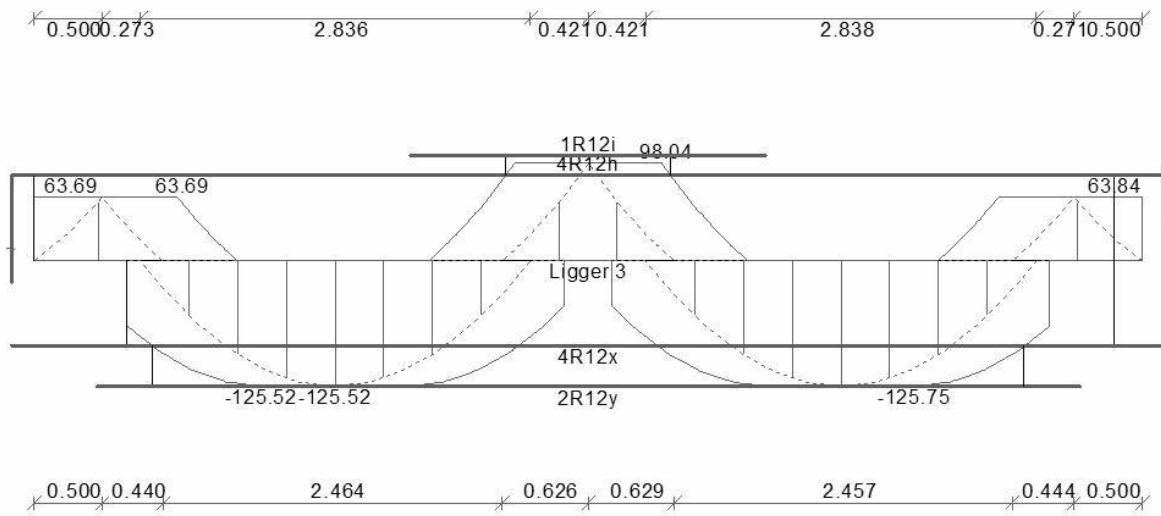
AFB. LANGSWAPENING. (AFBOUW) LIGGER 1



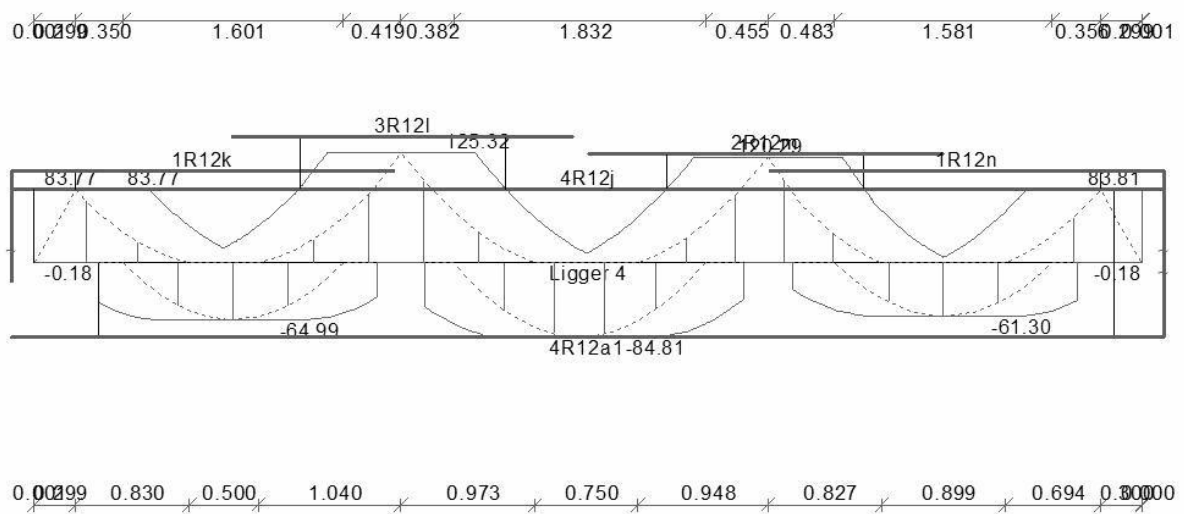
AFB. LANGSWAPENING. (AFBOUW) LIGGER 2



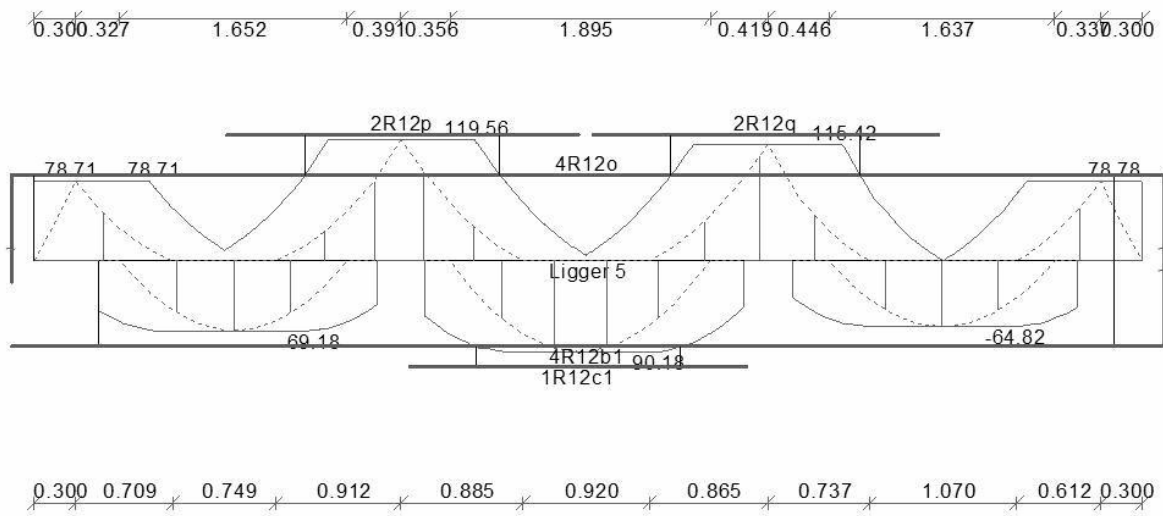
AFB. LANGSWAPENING. (AFBOUW) LIGGER 3



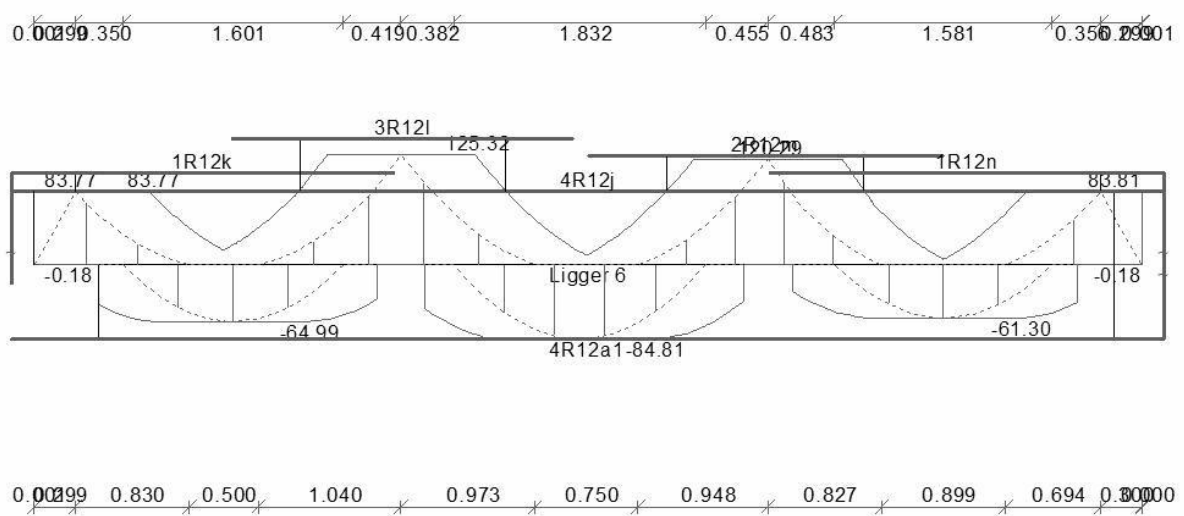
AFB. LANGSWAPENING. (AFBOUW) LIGGER 4



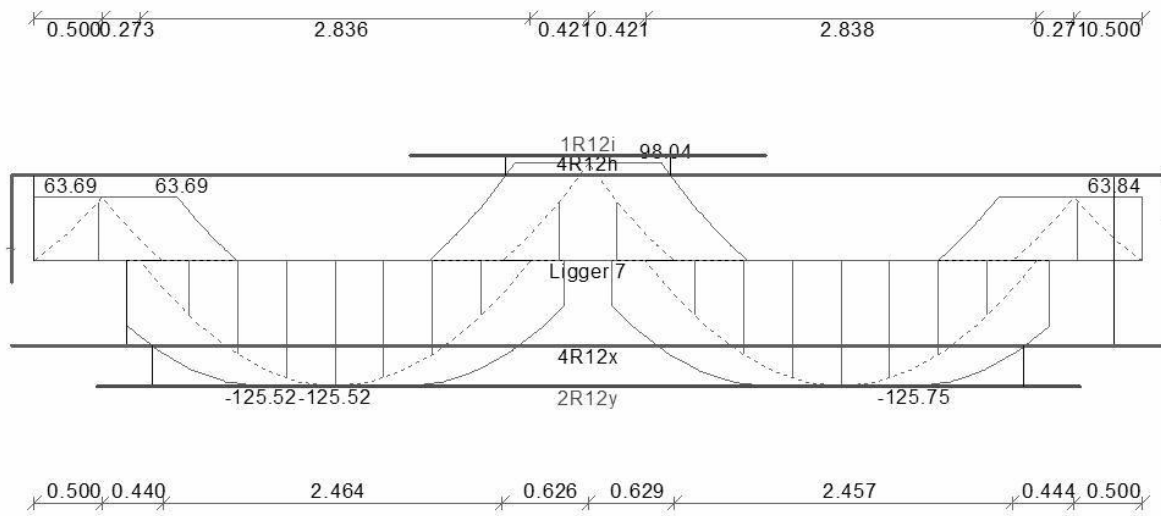
AFB. LANGSWAPENING. (AFBOUW) LIGGER 5



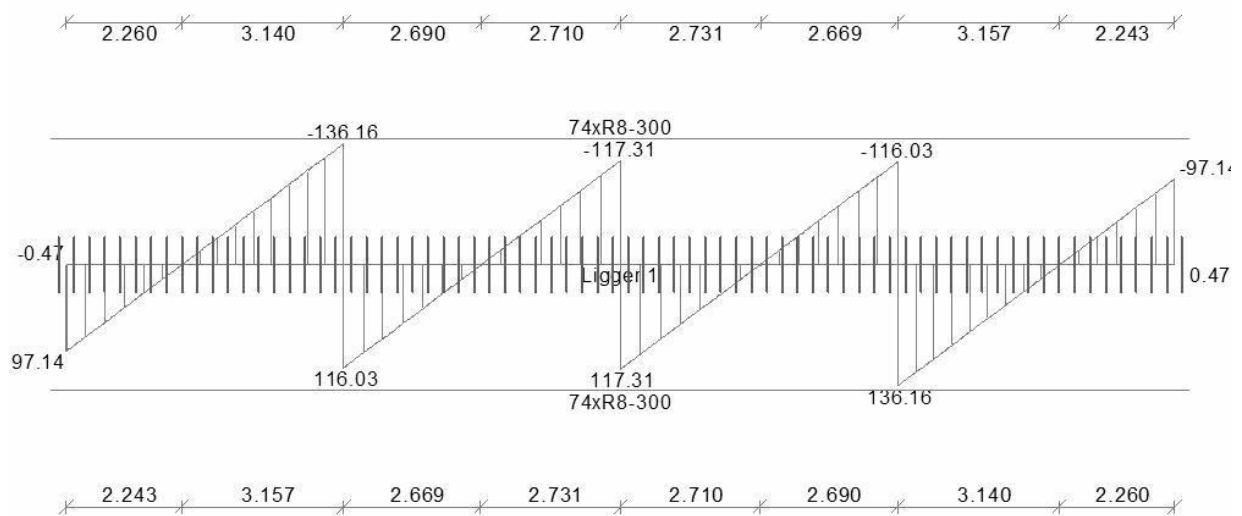
AFB. LANGSWAPENING. (AFBOUW) LIGGER 6



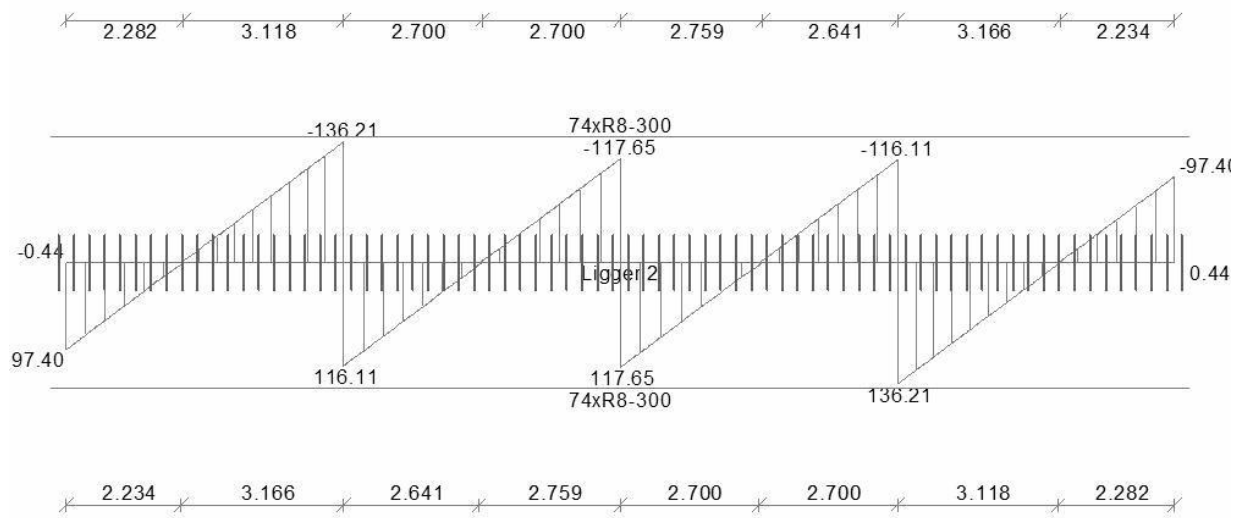
AFB. LANGSWAPENING. (AFBOUW) LIGGER 7



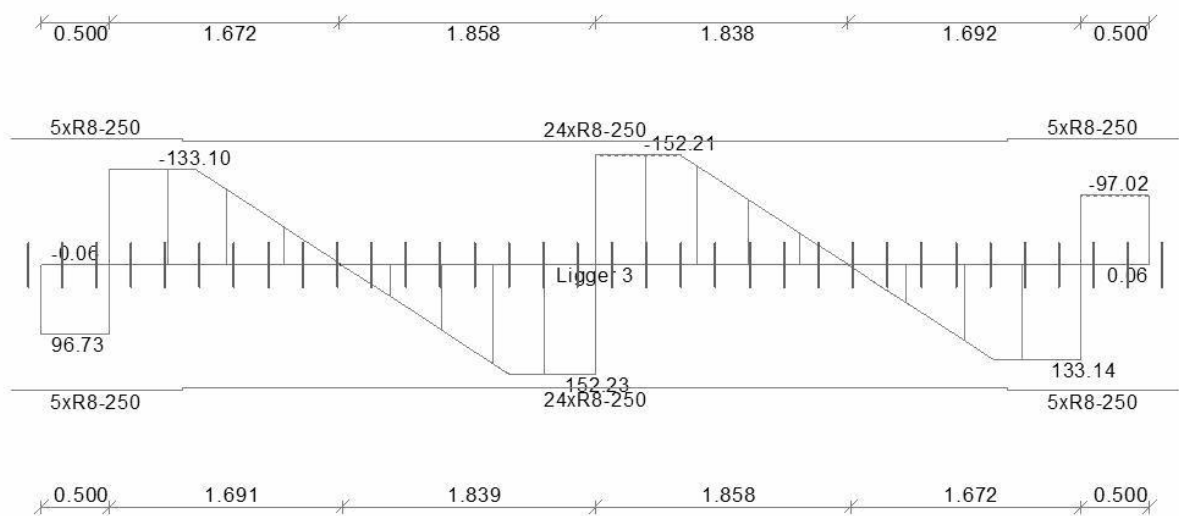
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 1



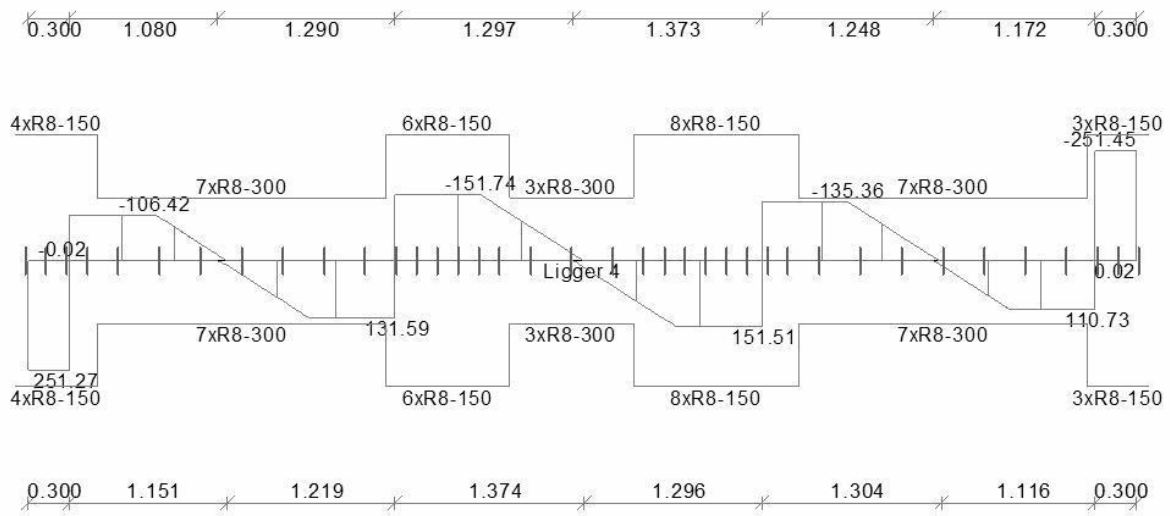
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 2



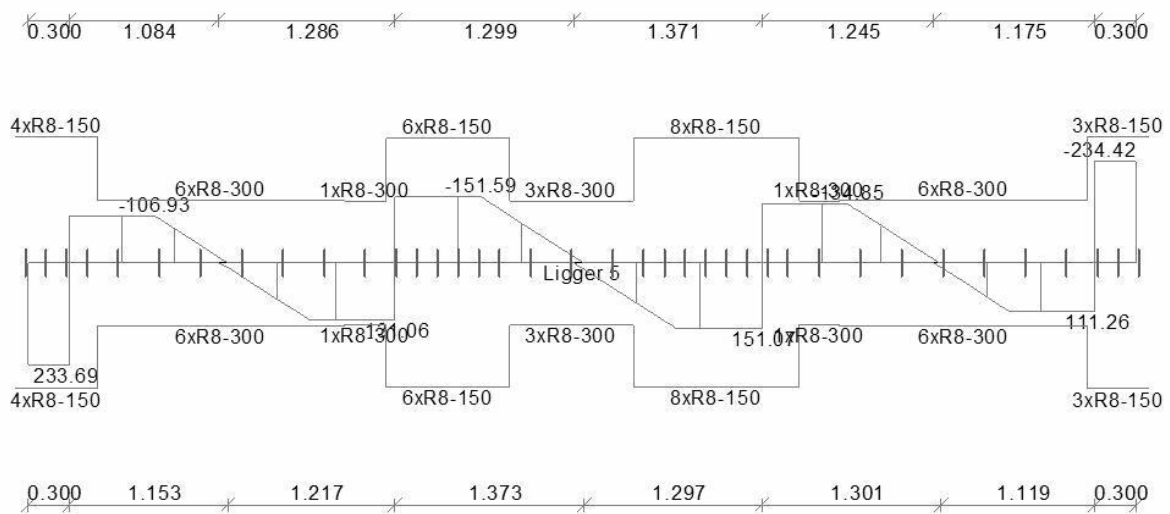
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 3



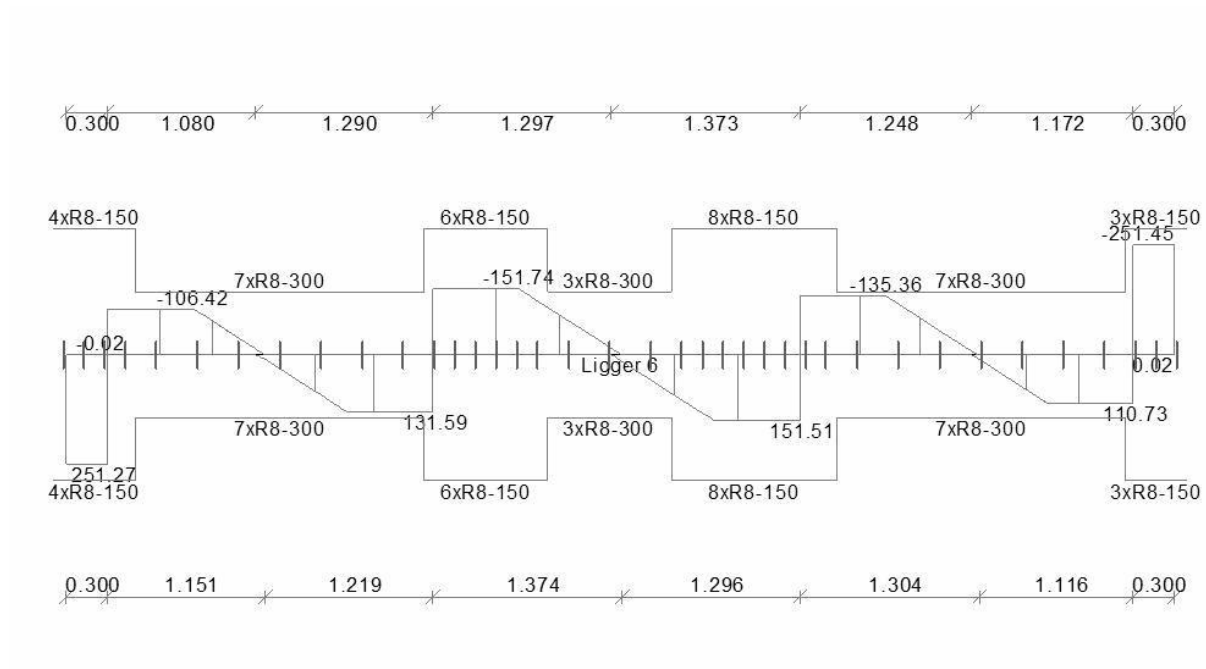
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 4



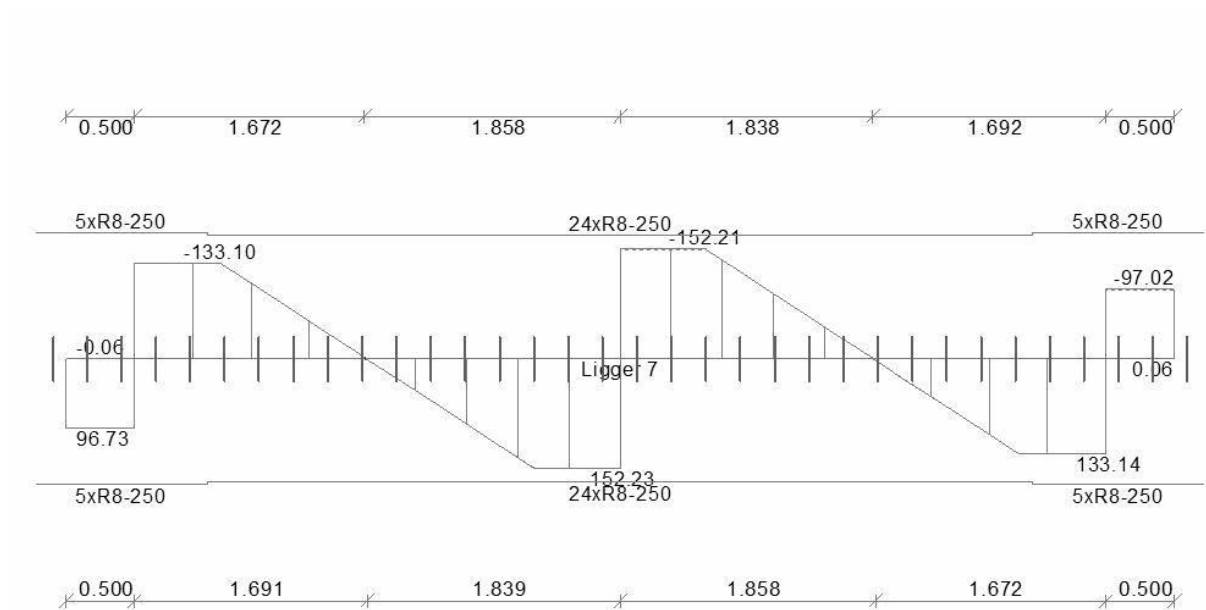
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 5



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 6



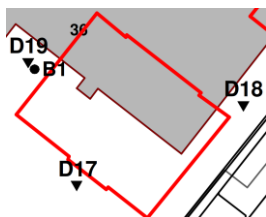
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 7



9.7 PATIOWONING KAVEL 42-44

9.7.1 MAXIMALE PAALBELASTING

Peilaanname: 17.40 m +NAP
 Paalpuntniveau: 0.00 m +NAP
 Paaldiameter: 350 mm
 Draagvermogen: 725 kN
 Maximale paallast: 585 kN



9.7.2 BELASTING BALKEN

zijgevels hoog dak

| | kap | verdieping | bg | mw | | | totaal Q |
|-------------------------------------|-------------|-------------|-------------|--------------|--|--|--------------|
| P _g [kN/m ²] | 0,78 | 6,95 | 4,50 | 5,00 | | | |
| P _q [kN/m ²] | 0,56 | 2,75 | 2,75 | | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,00 | | | |
| lengte [m] | 4,80 | 1,00 | 1,00 | 6,50 | | | |
| factor | 0,50 | 0,50 | 0,50 | 1,00 | | | |
| Totaal G_k | 1,87 | 3,48 | 2,25 | 32,50 | | | 40,10 |
| Totaal Q_k | 1,34 | 1,38 | 1,38 | | | | 4,09 |
| Pd (CC1) = | | | | | | | 50,20 |

voorgevel hoog dak

| | kap | verdieping | bg | mw | | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--|--|--------------|
| P _g [kN/m ²] | 0,78 | 6,95 | 4,50 | 5,00 | | | |
| P _q [kN/m ²] | 0,56 | 2,75 | 2,75 | | | | |
| ψ ₀ | 0,00 | 0,40 | 0,40 | 0,00 | | | |
| lengte [m] | 1,00 | 5,00 | 5,00 | 6,50 | | | |
| factor | 1,00 | 0,50 | 0,50 | 1,00 | | | |
| Totaal G_k | 0,78 | 17,38 | 11,25 | 32,50 | | | 61,91 |
| Totaal Q_k | 0,56 | 6,88 | 6,88 | | | | 14,31 |
| Pd (CC1) = | | | | | | | 86,18 |

zijgevels laag dak

| | plat dak | bg | mw | | | | totaal Q |
|-------------------------------------|-------------|-------------|--------------|--|--|--|--------------|
| P _g [kN/m ²] | 12,50 | 4,50 | 4,40 | | | | |
| P _q [kN/m ²] | 1,00 | 2,75 | | | | | |
| ψ ₀ | 0,00 | 0,40 | 0,00 | | | | |
| lengte [m] | 1,00 | 1,00 | 3,40 | | | | |
| factor | 0,50 | 0,50 | 1,00 | | | | |
| Totaal G_k | 6,25 | 2,25 | 14,96 | | | | 23,46 |
| Totaal Q_k | 0,50 | 1,38 | | | | | 1,88 |

Pd (CC1) = 29,25

woningscheidende wand

| | plat dak | plat dak | bg | mw | | | totaal Q |
|-------------------------------------|--------------|--------------|--------------|--------------|--|--|---------------|
| P _g [kN/m ²] | 12,50 | 11,25 | 4,50 | 4,80 | | | |
| P _q [kN/m ²] | 1,00 | 1,00 | 2,75 | | | | |
| ψ ₀ | 0,00 | 0,00 | 0,40 | 0,00 | | | |
| lengte [m] | 6,75 | 4,75 | 11,50 | 3,40 | | | |
| factor | 0,50 | 0,50 | 0,50 | 1,00 | | | |
| Totaal G_k | 42,19 | 26,72 | 25,88 | 16,32 | | | 111,10 |
| Totaal Q_k | 3,38 | 2,38 | 15,81 | | | | 21,56 |

Pd (CC1) = 149,10

woningscheidende niet vloerdragend

| | plat dak | bg | mw | | | | totaal Q |
|-------------------------------------|--------------|-------------|--------------|--|--|--|--------------|
| P _g [kN/m ²] | 11,25 | 4,50 | 4,80 | | | | |
| P _q [kN/m ²] | 1,00 | 2,75 | | | | | |
| ψ ₀ | 0,00 | 0,40 | 0,00 | | | | |
| lengte [m] | 1,00 | 1,00 | 3,40 | | | | |
| factor | 1,00 | 1,00 | 1,00 | | | | |
| Totaal G_k | 11,25 | 4,50 | 16,32 | | | | 32,07 |
| Totaal Q_k | 1,00 | 2,75 | | | | | 3,75 |

Pd (CC1) = 40,45

slaapkamer - badkamer

| | kap | plat dak | bg | mw | | | totaal Q |
|-------------------------------------|-------------|--------------|--------------|--------------|--|--|---------------|
| P _g [kN/m ²] | 0,78 | 11,25 | 4,50 | 5,00 | | | |
| P _q [kN/m ²] | 0,56 | 1,00 | 2,75 | | | | |
| ψ ₀ | 0,00 | 0,00 | 0,40 | 0,00 | | | |
| lengte [m] | 1,00 | 9,50 | 9,50 | 6,50 | | | |
| factor | 1,00 | 0,63 | 0,50 | 1,00 | | | |
| Totaal G_k | 0,78 | 66,80 | 21,38 | 32,50 | | | 121,45 |
| Totaal Q_k | 0,56 | 5,94 | 13,06 | | | | 19,56 |

Pd (CC1) = 157,57

zijgevels hoog dak groot

| | kap | verdieping | mw | bg | | | totaal Q |
|-------------------------------------|-------------|-------------|--------------|--------------|--|--|--------------|
| P _g [kN/m ²] | 0,78 | 8,50 | 5,00 | 4,50 | | | |
| P _q [kN/m ²] | 0,56 | 2,75 | | 2,75 | | | |
| ψ ₀ | 0,00 | 0,00 | 0,00 | 0,40 | | | |
| lengte [m] | 4,80 | 1,00 | 6,00 | 4,80 | | | |
| factor | 0,50 | 0,50 | 1,00 | 0,50 | | | |
| Totaal G_k | 1,87 | 4,25 | 30,00 | 10,80 | | | 46,92 |
| Totaal Q_k | 1,34 | 1,38 | | 6,60 | | | 9,32 |

Pd (CC1) = 63,26

wand langs trap groot

| | verdieping | mw | bg | | | | totaal Q |
|-----------------------------|--------------|-------------|-------------|--|--|--|--------------|
| Pg [kN/m ²] | 8,50 | 2,00 | 4,50 | | | | |
| Pq [kN/m ²] | 2,75 | | 2,75 | | | | |
| ψ_0 | 0,00 | 0,00 | 0,40 | | | | |
| lengte [m] | 5,65 | 3,00 | 1,00 | | | | |
| factor | 0,50 | 1,00 | 0,50 | | | | |
| Totaal G_k | 24,01 | 6,00 | 2,25 | | | | 32,26 |
| Totaal Q_k | 7,77 | | 1,38 | | | | 9,14 |

Pd (CC1) = 47,19

voorgevel hoog dak

| | kap | verdieping | bg | mw | | | totaal Q |
|-----------------------------|-------------|--------------|--------------|--------------|--|--|--------------|
| Pg [kN/m ²] | 0,78 | 6,95 | 4,50 | 5,00 | | | |
| Pq [kN/m ²] | 0,56 | 2,75 | 2,75 | | | | |
| ψ_0 | 0,00 | 0,40 | 0,40 | 0,00 | | | |
| lengte [m] | 1,00 | 5,00 | 5,00 | 6,50 | | | |
| factor | 1,00 | 0,50 | 0,50 | 1,00 | | | |
| Totaal G_k | 0,78 | 17,38 | 11,25 | 32,50 | | | 61,91 |
| Totaal Q_k | 0,56 | 6,88 | 6,88 | | | | 14,31 |

Pd (CC1) = 86,18

voorgevel groot

| | plat dak | bg | mw | | | | totaal Q |
|-----------------------------|--------------|-------------|--------------|--|--|--|--------------|
| Pg [kN/m ²] | 12,50 | 4,50 | 4,40 | | | | |
| Pq [kN/m ²] | 1,00 | 2,75 | | | | | |
| ψ_0 | 0,00 | 0,40 | 0,00 | | | | |
| lengte [m] | 6,75 | 4,20 | 3,40 | | | | |
| factor | 0,50 | 0,50 | 1,00 | | | | |
| Totaal G_k | 42,19 | 9,45 | 14,96 | | | | 66,60 |
| Totaal Q_k | 3,38 | 5,78 | | | | | 9,15 |

Pd (CC1) = 84,28

voorgevel groot keuken

| | plat dak | bg | mw | | | | totaal Q |
|-----------------------------|--------------|-------------|--------------|--|--|--|--------------|
| Pg [kN/m ²] | 12,50 | 4,50 | 4,40 | | | | |
| Pq [kN/m ²] | 1,00 | 2,75 | | | | | |
| ψ_0 | 0,00 | 0,40 | 0,00 | | | | |
| lengte [m] | 2,50 | 2,50 | 3,40 | | | | |
| factor | 0,50 | 0,50 | 1,00 | | | | |
| Totaal G_k | 15,63 | 5,63 | 14,96 | | | | 36,21 |
| Totaal Q_k | 1,25 | 3,44 | | | | | 4,69 |

Pd (CC1) = 45,85

schutting

| | | | | | | | |
|-------------------------------------|--------------|--|--|--|--|--|--------------|
| | mw | | | | | | totaal Q |
| P _g [kN/m ²] | 4,00 | | | | | | |
| P _q [kN/m ²] | | | | | | | |
| ψ ₀ | 0,00 | | | | | | |
| lengte [m] | 3,00 | | | | | | |
| factor | 1,00 | | | | | | |
| Totaal G_k | 12,00 | | | | | | 12,00 |
| Totaal Q_k | | | | | | | |

Pd (CC1) = **14,58**

woonkamer - tuin

| | | | | | | | |
|-------------------------------------|--------------|--------------|--------------|--|--|--|--------------|
| | plat dak | mw | bg | | | | totaal Q |
| P _g [kN/m ²] | 11,25 | 4,40 | 4,50 | | | | |
| P _q [kN/m ²] | 1,00 | | 2,75 | | | | |
| ψ ₀ | 0,00 | 0,00 | 0,40 | | | | |
| lengte [m] | 4,70 | 3,40 | 4,70 | | | | |
| factor | 0,50 | 1,00 | 0,50 | | | | |
| Totaal G_k | 26,44 | 14,96 | 10,58 | | | | 51,97 |
| Totaal Q_k | 2,35 | | 6,46 | | | | 8,81 |

Pd (CC1) = **68,03**

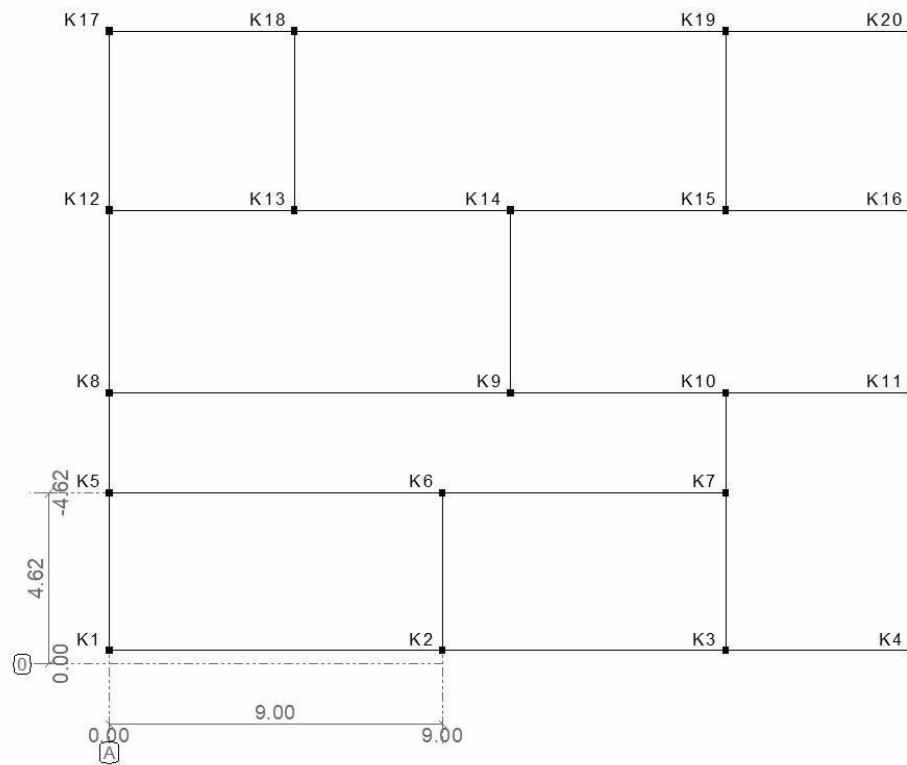
woonkamer - eetkamer groot

| | | | | | | | |
|-------------------------------------|--------------|--|--|--|--|--|--------------|
| | bg | | | | | | totaal Q |
| P _g [kN/m ²] | 4,50 | | | | | | |
| P _q [kN/m ²] | 2,75 | | | | | | |
| ψ ₀ | 0,40 | | | | | | |
| lengte [m] | 6,75 | | | | | | |
| factor | 0,50 | | | | | | |
| Totaal G_k | 15,19 | | | | | | 15,19 |
| Totaal Q_k | 9,28 | | | | | | 9,28 |

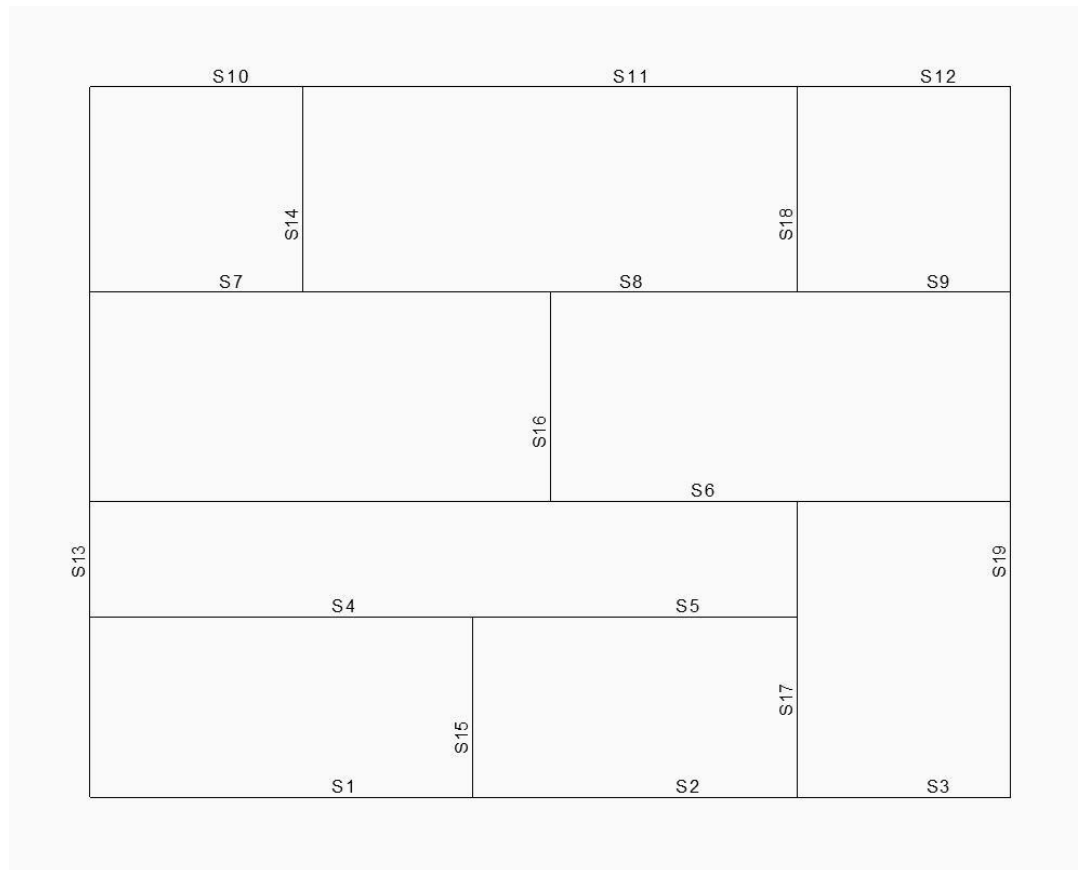
Pd (CC1) = **28,93**

9.7.3 BALKENROOSTER

AFB. KNOPEN



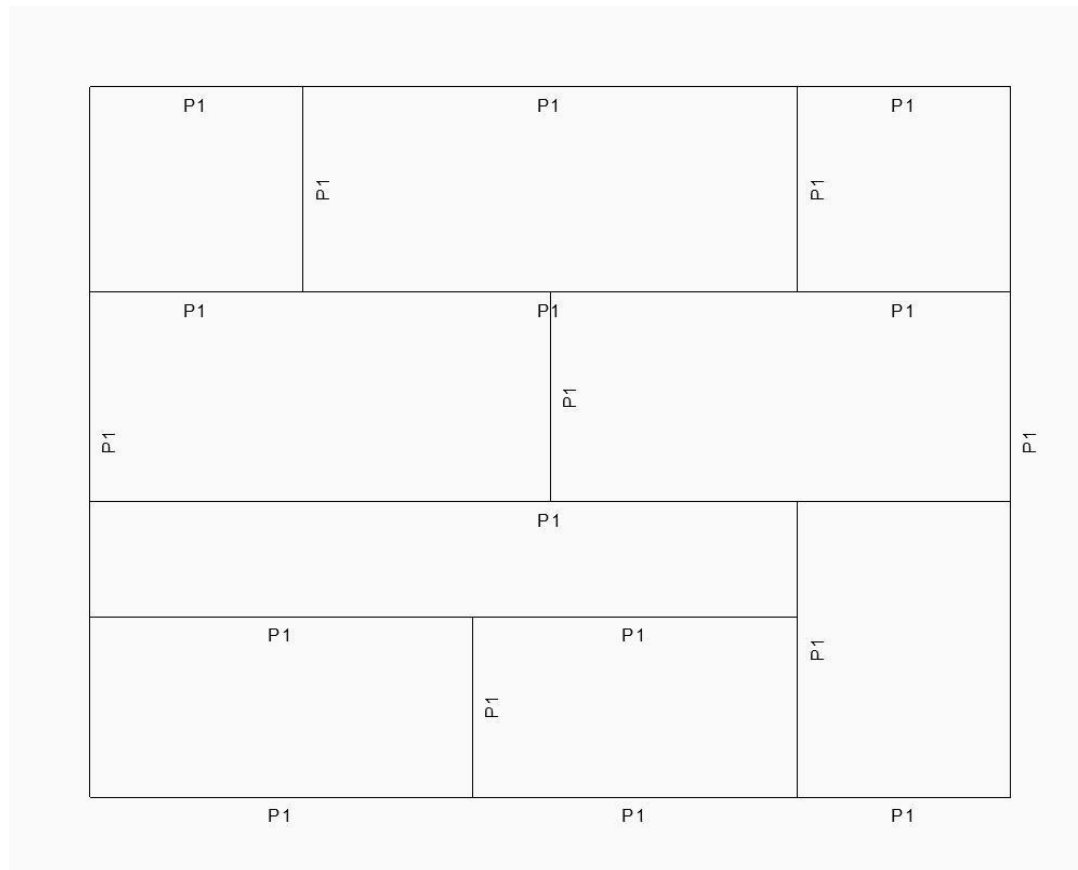
AFB. STAVEN



STAVEN

| Staad | Knoop B | Knoop E | X-B | Y-B | X-E | Y-E | Lengte Profiel | Positie |
|-------|---------|---------|-------|--------|-------|--------|----------------|-----------------|
| S1 | K2 | K1 | 9,00 | -0,37 | 0,00 | -0,37 | 9,00 P1 | 0,00 - L(9,00) |
| S2 | K3 | K2 | 16,62 | -0,37 | 9,00 | -0,37 | 7,62 P1 | 0,00 - L(7,62) |
| S3 | K4 | K3 | 21,64 | -0,37 | 16,62 | -0,37 | 5,02 P1 | 0,00 - L(5,02) |
| S4 | K6 | K5 | 9,00 | -4,62 | 0,00 | -4,62 | 9,00 P1 | 0,00 - L(9,00) |
| S5 | K7 | K6 | 16,62 | -4,62 | 9,00 | -4,62 | 7,62 P1 | 0,00 - L(7,62) |
| S6 | K11 | K8 | 21,64 | -7,32 | 0,00 | -7,32 | 21,64 P1 | 0,00 - L(21,64) |
| S7 | K13 | K12 | 5,02 | -12,24 | 0,00 | -12,24 | 5,02 P1 | 0,00 - L(5,02) |
| S8 | K15 | K13 | 16,62 | -12,24 | 5,02 | -12,24 | 11,60 P1 | 0,00 - L(11,60) |
| S9 | K16 | K15 | 21,64 | -12,24 | 16,62 | -12,24 | 5,02 P1 | 0,00 - L(5,02) |
| S10 | K18 | K17 | 5,02 | -17,07 | 0,00 | -17,07 | 5,02 P1 | 0,00 - L(5,02) |
| S11 | K19 | K18 | 16,62 | -17,07 | 5,02 | -17,07 | 11,60 P1 | 0,00 - L(11,60) |
| S12 | K20 | K19 | 21,64 | -17,07 | 16,62 | -17,07 | 5,02 P1 | 0,00 - L(5,02) |
| S13 | K1 | K17 | 0,00 | -0,37 | 0,00 | -17,07 | 16,70 P1 | 0,00 - L(16,70) |
| S14 | K13 | K18 | 5,02 | -12,24 | 5,02 | -17,07 | 4,83 P1 | 0,00 - L(4,83) |
| S15 | K2 | K6 | 9,00 | -0,37 | 9,00 | -4,62 | 4,25 P1 | 0,00 - L(4,25) |
| S16 | K9 | K14 | 10,82 | -7,32 | 10,82 | -12,24 | 4,92 P1 | 0,00 - L(4,92) |
| S17 | K3 | K10 | 16,62 | -0,37 | 16,62 | -7,32 | 6,95 P1 | 0,00 - L(6,95) |
| S18 | K15 | K19 | 16,62 | -12,24 | 16,62 | -17,07 | 4,83 P1 | 0,00 - L(4,83) |
| S19 | K4 | K20 | 21,64 | -0,37 | 21,64 | -17,07 | 16,70 P1 | 0,00 - L(16,70) |

AFB. PROFIELEN



PROFIELEN

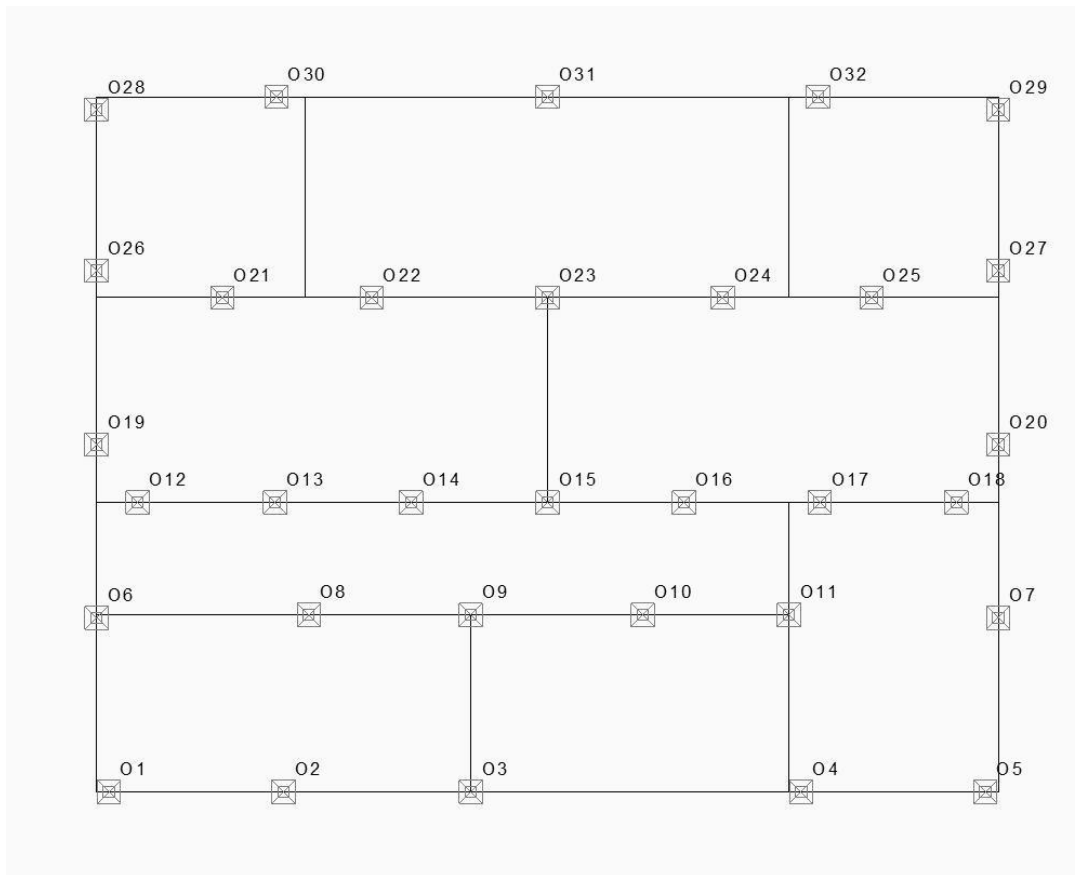
| Profiel | Profielnaam | lt | ly | Materiaal | Hoek |
|---------|-------------|------------|------------|-----------|------|
| P1 | R400x500 | 5.4742e-03 | 4.1667e-03 | C20/25 | 0,0 |

PROFIELVORMEN

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,400 | 0,000 | 0,000 Nee | 0,000 |

MATERIALEN

| Materiaalnaam | Poison | Dichtheid | E-Modulus | Uitzettingcoeff |
|---------------|--------|-----------|------------|-----------------|
| C20/25 | 0.20 | 25.00 | 1.0000e+07 | 10.0000e-06 |

AFB. OPLEGGING EN AANSLUITINGEN

OPLEGGINGEN

| Oplegging | Staaft | Positie | Z | Xr | Yr |
|-----------|--------|---------|----------|------|------|
| O1 | S1 | 8,70 | 18000.00 | Vrij | Vrij |
| O2 | S1 | 4,50 | 18000.00 | Vrij | Vrij |
| O3 | S1 | 0,00 | 18000.00 | Vrij | Vrij |
| O4 | S3 | 4,72 | 18000.00 | Vrij | Vrij |
| O5 | S3 | 0,30 | 18000.00 | Vrij | Vrij |
| O6 | S13 | 4,18 | 18000.00 | Vrij | Vrij |
| O7 | S19 | 4,18 | 18000.00 | Vrij | Vrij |
| O8 | S4 | 3,90 | 18000.00 | Vrij | Vrij |
| O9 | S4 | 0,00 | 18000.00 | Vrij | Vrij |
| O10 | S5 | 3,50 | 18000.00 | Vrij | Vrij |
| O11 | S5 | 0,00 | 18000.00 | Vrij | Vrij |
| O12 | S6 | 20,64 | 18000.00 | Vrij | Vrij |
| O13 | S6 | 17,35 | 18000.00 | Vrij | Vrij |
| O14 | S6 | 14,08 | 18000.00 | Vrij | Vrij |
| O15 | S6 | 10,81 | 18000.00 | Vrij | Vrij |
| O16 | S6 | 7,54 | 18000.00 | Vrij | Vrij |
| O17 | S6 | 4,27 | 18000.00 | Vrij | Vrij |
| O18 | S6 | 1,00 | 18000.00 | Vrij | Vrij |
| O19 | S13 | 8,35 | 18000.00 | Vrij | Vrij |
| O20 | S19 | 8,35 | 18000.00 | Vrij | Vrij |
| O21 | S7 | 2,00 | 18000.00 | Vrij | Vrij |
| O22 | S8 | 10,00 | 18000.00 | Vrij | Vrij |
| O23 | S8 | 5,80 | 18000.00 | Vrij | Vrij |
| O24 | S8 | 1,59 | 18000.00 | Vrij | Vrij |
| O25 | S9 | 3,02 | 18000.00 | Vrij | Vrij |
| O26 | S13 | 12,53 | 18000.00 | Vrij | Vrij |
| O27 | S19 | 12,53 | 18000.00 | Vrij | Vrij |
| O28 | S13 | 16,40 | 18000.00 | Vrij | Vrij |
| O29 | S19 | 16,40 | 18000.00 | Vrij | Vrij |
| O30 | S10 | 0,70 | 18000.00 | Vrij | Vrij |
| O31 | S11 | 5,80 | 18000.00 | Vrij | Vrij |

O32

S12

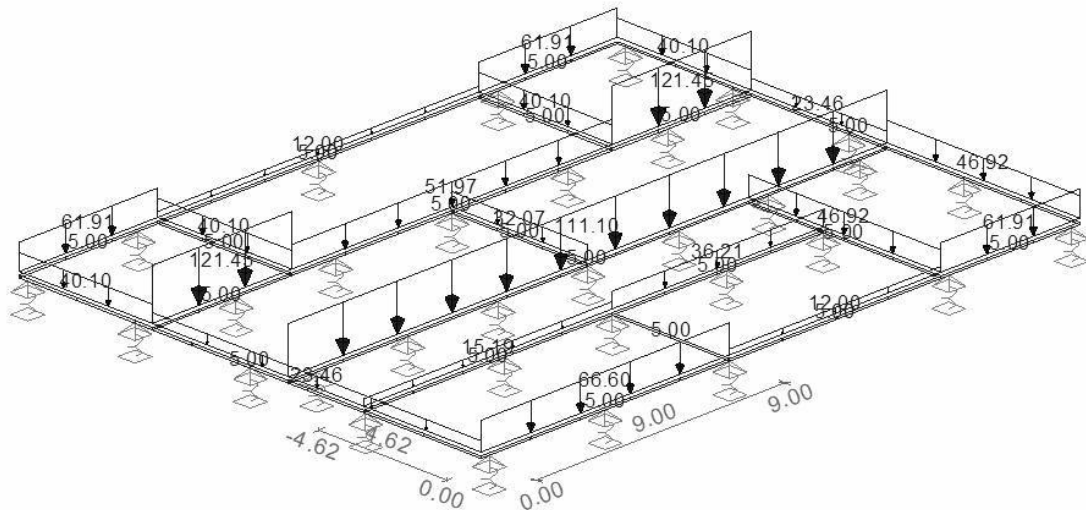
4,32

18000.00

Vrij

Vrij

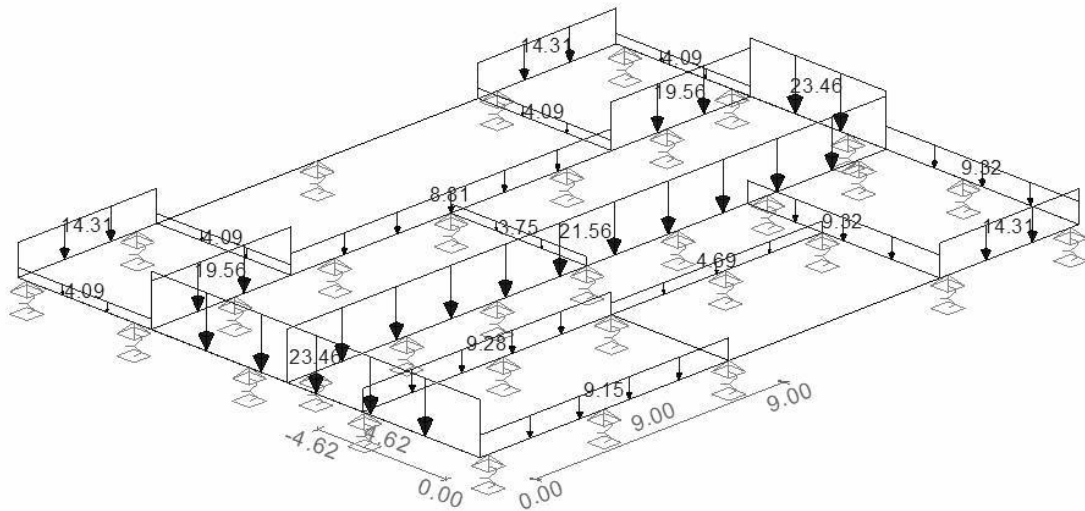
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------------|----------------|-----------------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z S1-S19 |
| q | 40,10 | 40,10 | 11,87 | 16,70(L) | Z S13,S19 |
| q | 40,10 | 40,10 | 0,00 | 4,83(L) | Z S14,S18 |
| q | 61,91 | 61,91 | 0,00 | 5,02(L) | Z S3,S10,S12 |
| q | 23,46 | 23,46 | 0,00 | 11,87 | Z S13 |
| q | 23,46 | 23,46 | 6,95 | 11,87 | Z S19 |
| q | 111,10 | 111,10 | 0,00 | 21,64(L) | Z S6 |
| q | 32,07 | 32,07 | 0,00 | 4,92(L) | Z S16 |
| q | 121,45 | 121,45 | 0,00 | 5,02(L) | Z S7,S9 |
| q | 46,92 | 46,92 | 0,00 | 6,95 | Z S19 |
| q | 46,92 | 46,92 | 0,00 | 6,95(L) | Z S17 |
| q | 66,60 | 66,60 | 0,00 | 9,00(L) | Z S1 |
| q | 36,21 | 36,21 | 0,00 | 7,62(L) | Z S5 |
| q | 12,00 | 12,00 | 0,00 | 11,60(L) | Z S2,S11 |
| q | 51,97 | 51,97 | 0,00 | 11,60(L) | Z S8 |
| q | 15,19 | 15,19 | 0,00 | 9,00(L) | Z S4 |
| Som lasten | X: 0,00 | kN Z: 9.191,85 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

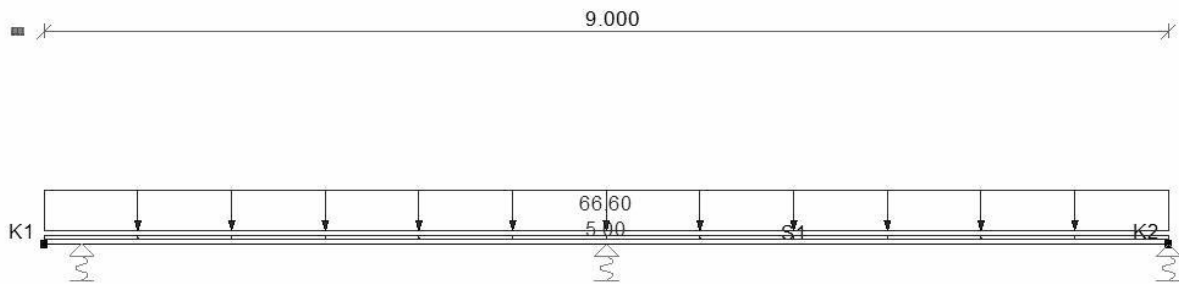
| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 4,09 | 4,09 | 11,87 | 16,70(L) | Z S13,S19 |
| q | 14,31 | 14,31 | 0,00 | 5,02(L) | Z S3,S10,S12 |
| q | 23,46 | 23,46 | 0,00 | 11,87 | Z S13 |
| q | 23,46 | 23,46 | 6,95 | 11,87 | Z S19 |
| q | 21,56 | 21,56 | 0,00 | 21,64(L) | Z S6 |
| q | 3,75 | 3,75 | 0,00 | 4,92(L) | Z S16 |
| q | 19,56 | 19,56 | 0,00 | 5,02(L) | Z S7,S9 |
| q | 4,09 | 4,09 | 0,00 | 4,83(L) | Z S14,S18 |
| q | 9,32 | 9,32 | 0,00 | 6,95 | Z S19 |
| q | 9,32 | 9,32 | 0,00 | 6,95(L) | Z S17 |
| q | 9,15 | 9,15 | 0,00 | 9,00(L) | Z S1 |
| q | 4,69 | 4,69 | 0,00 | 7,62(L) | Z S5 |
| q | 8,81 | 8,81 | 0,00 | 11,60(L) | Z S8 |
| q | 9,28 | 9,28 | 0,00 | 9,00(L) | Z S4 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G.1: PERMANENT (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 66,60 | 66,60 | 0,00 | 9,00(L) | Z |

B.G.1: PERMANENT (S1)

Staaf S1



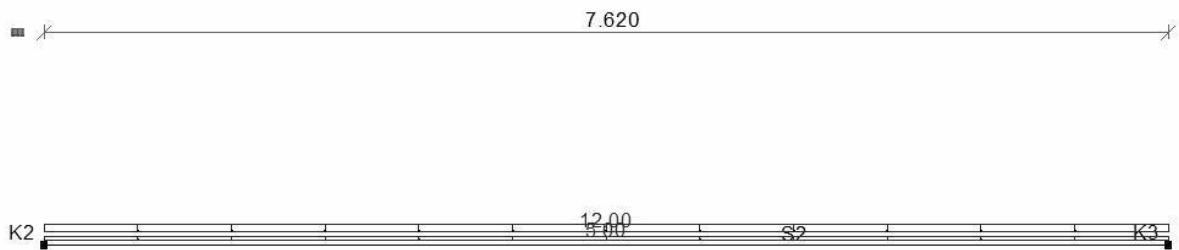
B.G.1: PERMANENT (S2)

Staaf S2

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 12,00 | 12,00 | 0,00 | 11,60(L) | Z |

B.G.1: PERMANENT (S2)

Staaf S2



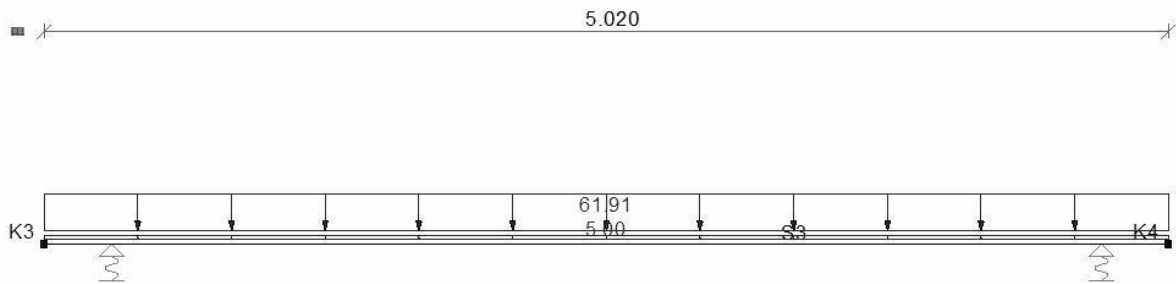
B.G.1: PERMANENT (S3)

Staaf S3

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 61,91 | 61,91 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S3)

Staaf S3

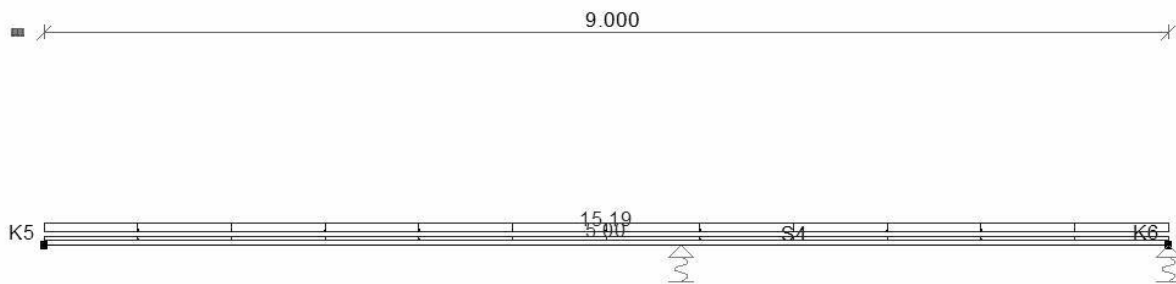


B.G.1: PERMANENT (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 15,19 | 15,19 | 0,00 | 9,00(L) | Z |

B.G.1: PERMANENT (S4)

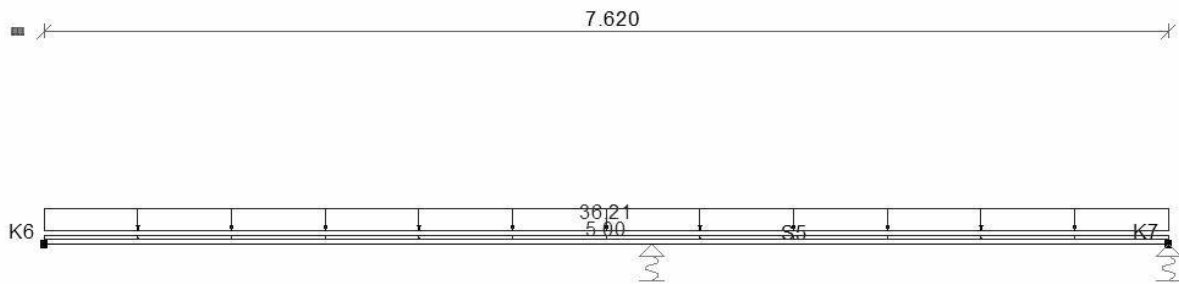
Staaf S4



B.G.1: PERMANENT (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 36,21 | 36,21 | 0,00 | 7,62(L) | Z |

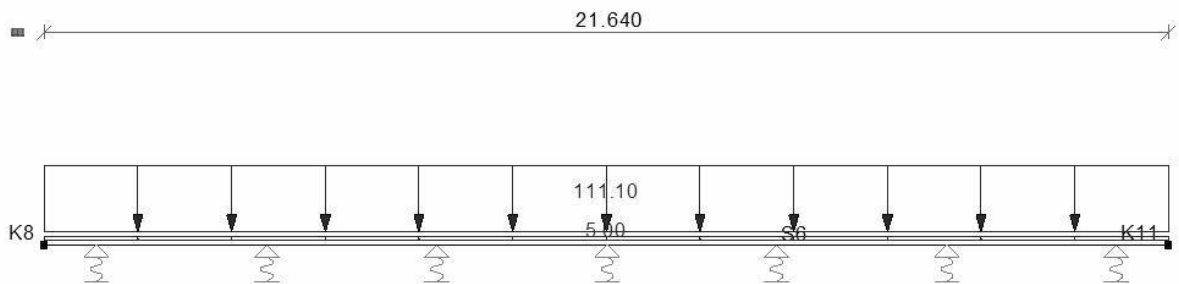
Staaf S5



Staaf S6

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 111,10 | 111,10 | 0,00 | 21,64(L) | Z |

Staaf S6

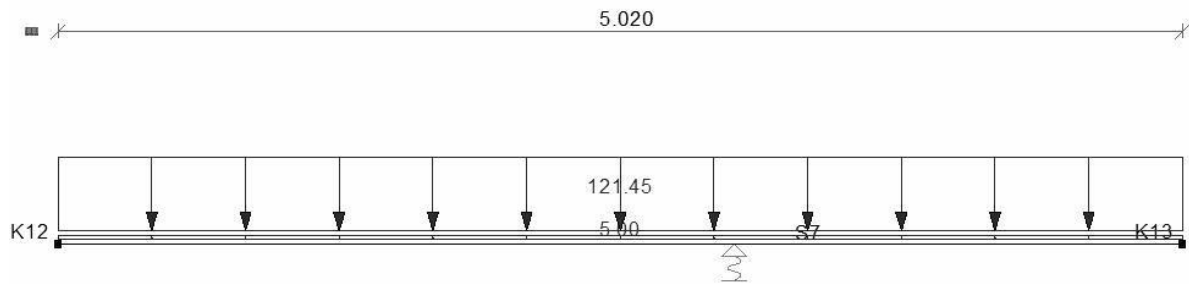


Staaf S7

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 121,45 | 121,45 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S7)

Staaf S7

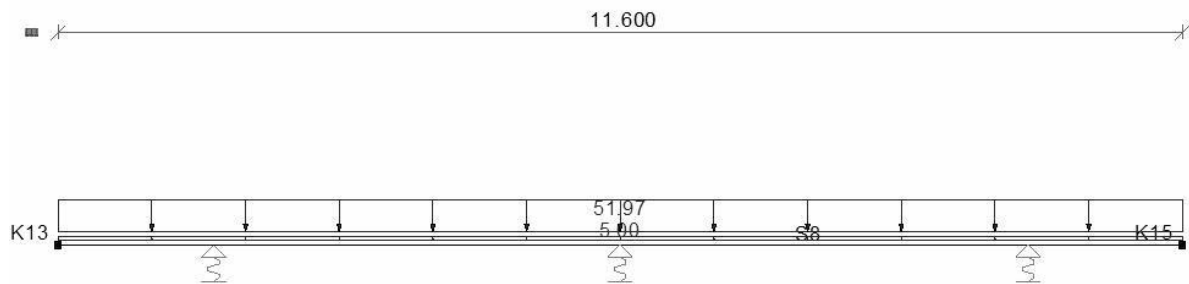


B.G.1: PERMANENT (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 51,97 | 51,97 | 0,00 | 11,60(L) | Z |

B.G.1: PERMANENT (S8)

Staaf S8

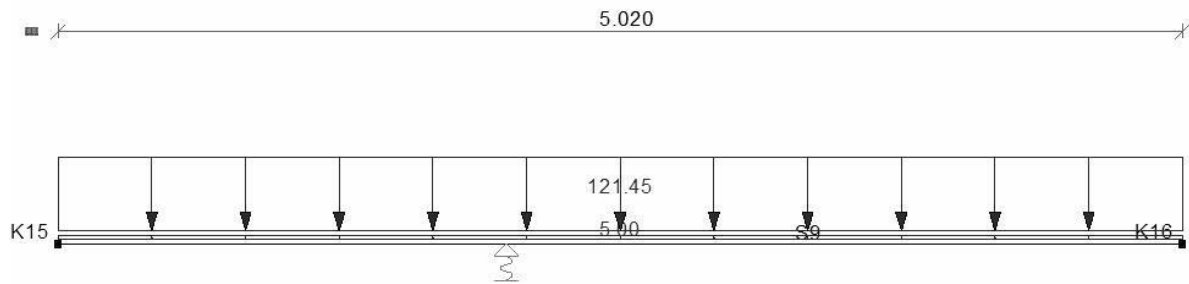


B.G.1: PERMANENT (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 121,45 | 121,45 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S9)

Staaf S9

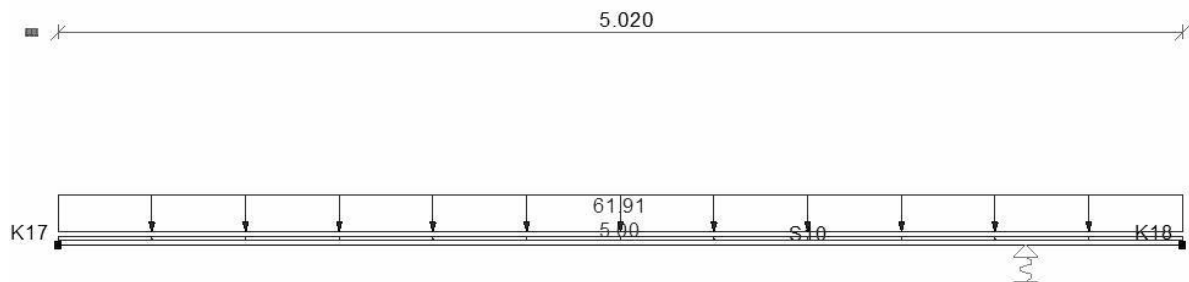


B.G.1: PERMANENT (S10)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S10 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 61,91 | 61,91 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S10)

Staaf S10

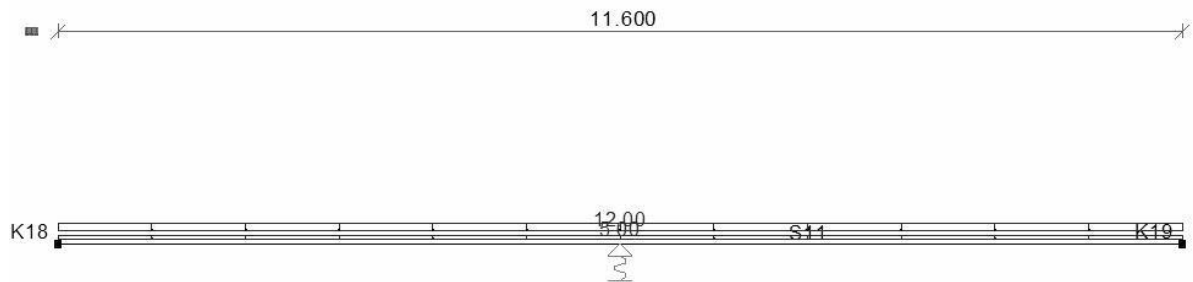


B.G.1: PERMANENT (S11)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S11 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 12,00 | 12,00 | 0,00 | 11,60(L) | Z |

B.G.1: PERMANENT (S11)

Staaf S11

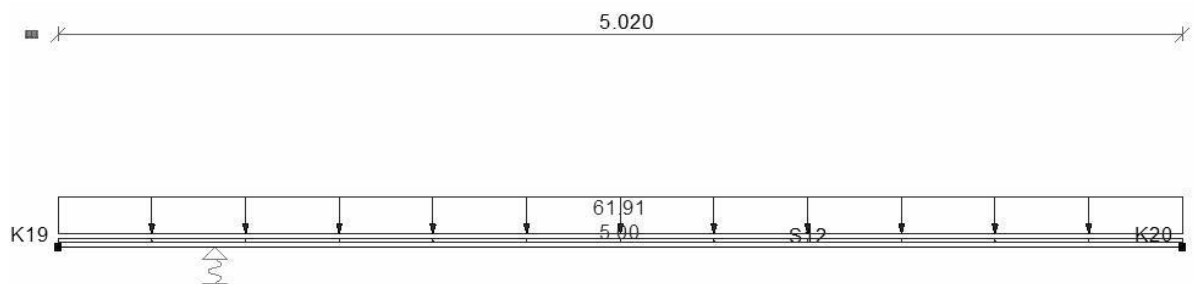


B.G.1: PERMANENT (S12)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S12 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 61,91 | 61,91 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S12)

Staaf S12

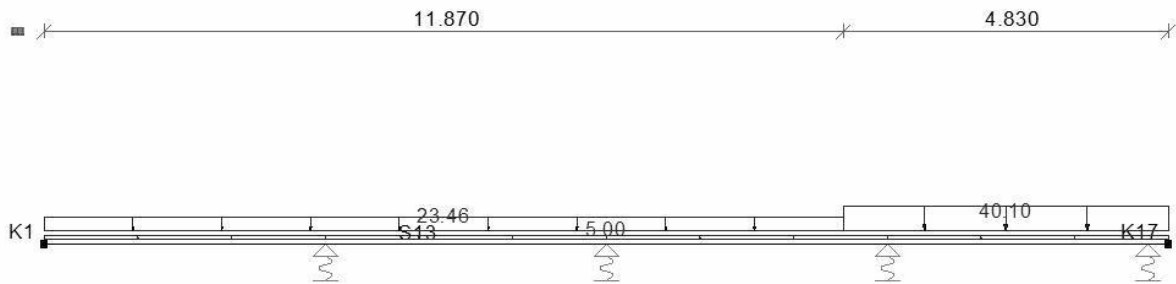


B.G.1: PERMANENT (S13)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S13 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 40,10 | 40,10 | 11,87 | 16,70(L) | Z |
| q | 23,46 | 23,46 | 0,00 | 11,87 | Z |

B.G.1: PERMANENT (S13)

Staaf S13



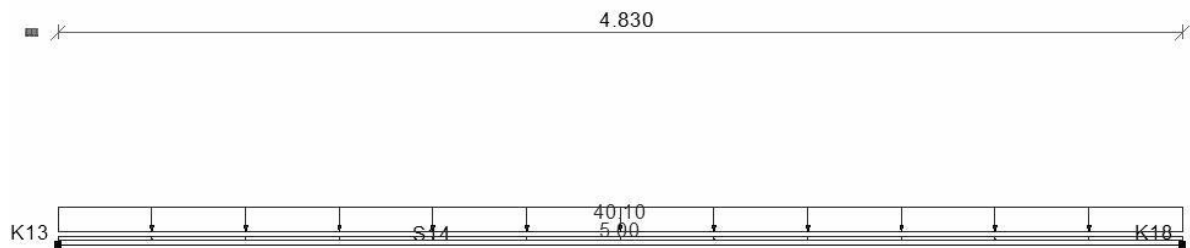
B.G.1: PERMANENT (S14)

Staaf S14

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 40,10 | 40,10 | 0,00 | 4,83(L) | Z |

B.G.1: PERMANENT (S14)

Staaf S14



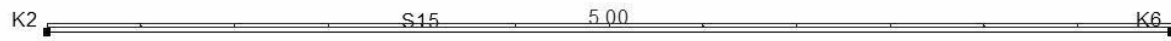
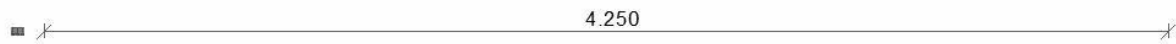
B.G.1: PERMANENT (S15)

Staaf S15

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |

B.G.1: PERMANENT (S15)

Staaf S15

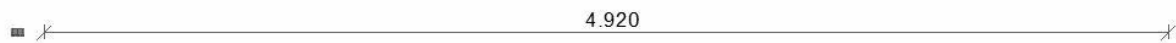


B.G.1: PERMANENT (S16)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S16 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 32,07 | 32,07 | 0,00 | 4,92(L) | Z |

B.G.1: PERMANENT (S16)

Staaf S16

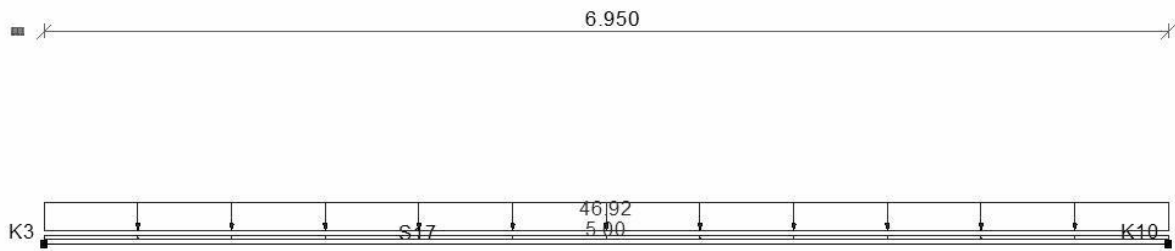


B.G.1: PERMANENT (S17)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S17 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 46,92 | 46,92 | 0,00 | 6,95(L) | Z |

B.G.1: PERMANENT (S17)

Staaf S17

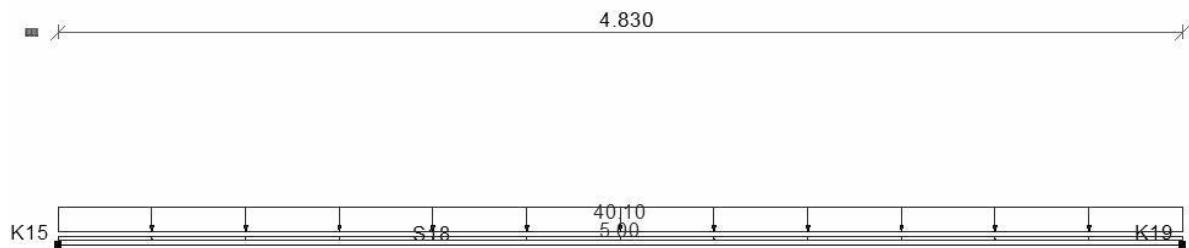


B.G.1: PERMANENT (S18)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S18 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 40,10 | 40,10 | 0,00 | 4,83(L) | Z |

B.G.1: PERMANENT (S18)

Staaf S18

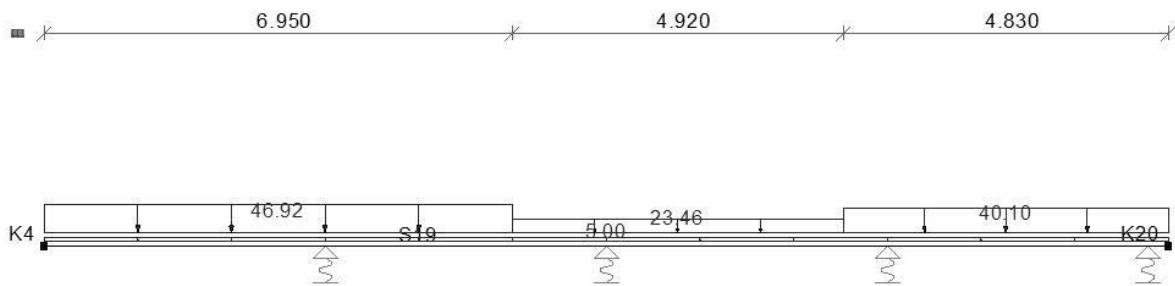


B.G.1: PERMANENT (S19)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S19 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 40,10 | 40,10 | 11,87 | 16,70(L) | Z |
| q | 23,46 | 23,46 | 6,95 | 11,87 | Z |
| q | 46,92 | 46,92 | 0,00 | 6,95 | Z |

B.G.1: PERMANENT (S19)

Staaf S19

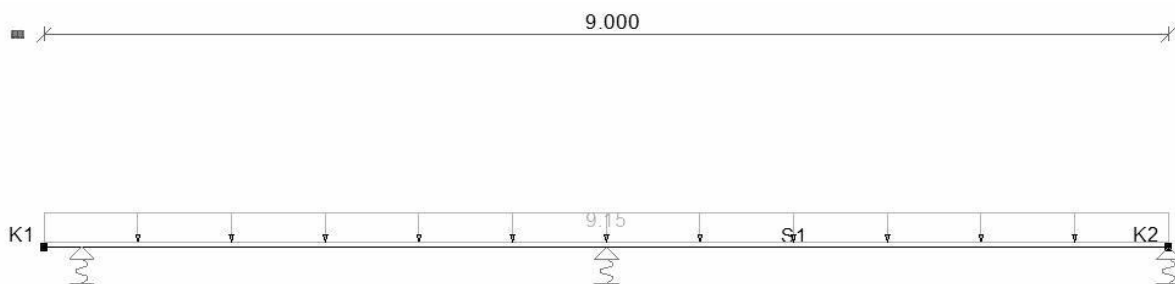


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 9,15 | 9,15 | 0,00 | 9,00(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1

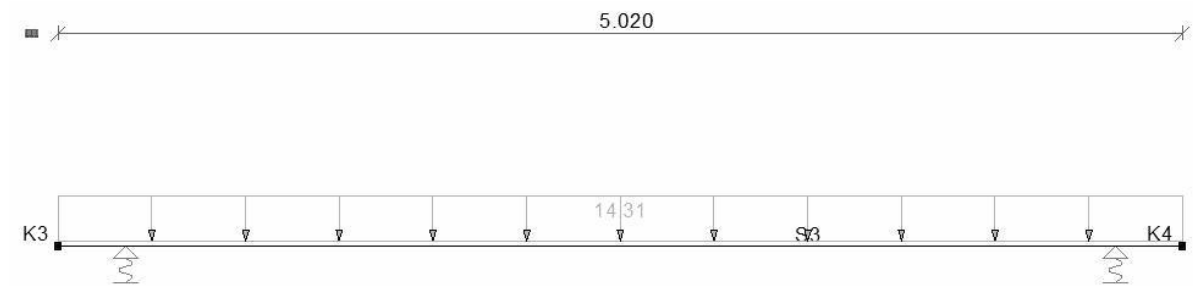


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S3 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 14,31 | 14,31 | 0,00 | 5,02(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

Staaf S3

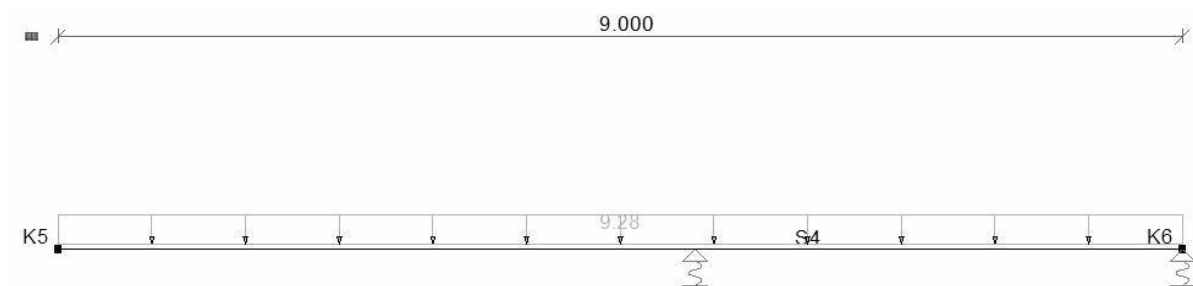


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 9,28 | 9,28 | 0,00 | 9,00(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

Staaf S4

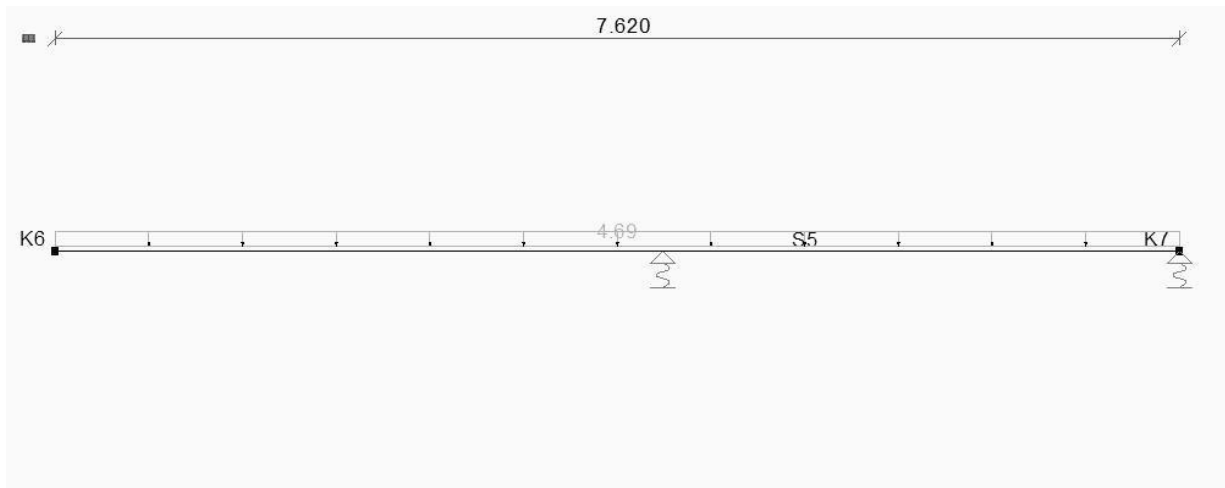


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,69 | 4,69 | 0,00 | 7,62(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

Staaf S5



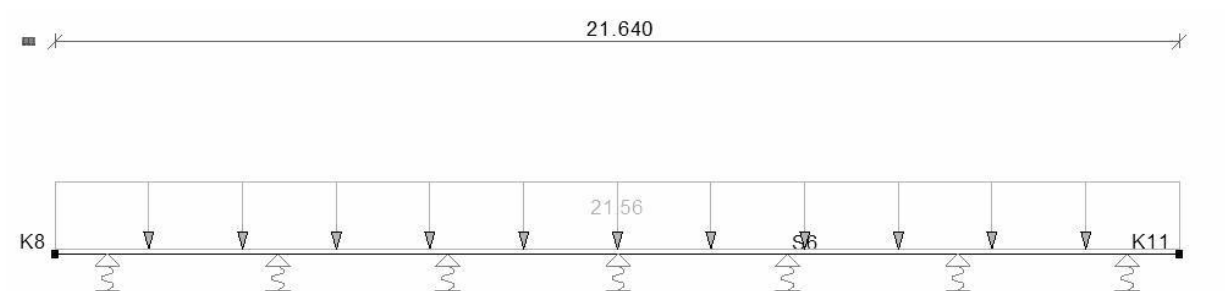
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 21,56 | 21,56 | 0,00 | 21,64(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6



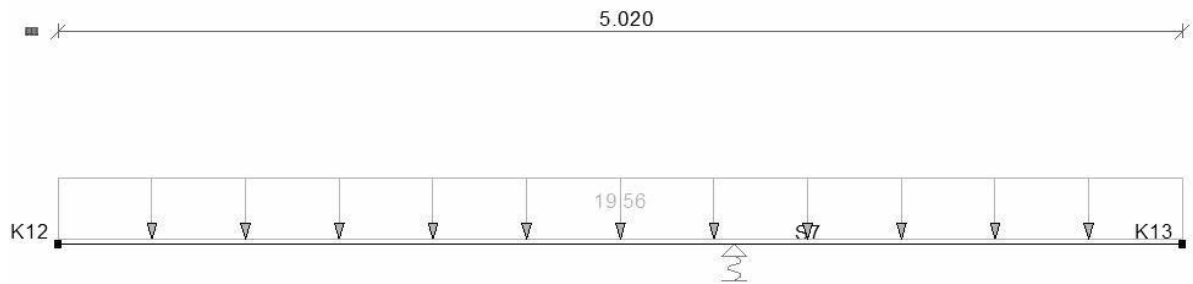
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 19,56 | 19,56 | 0,00 | 5,02(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7

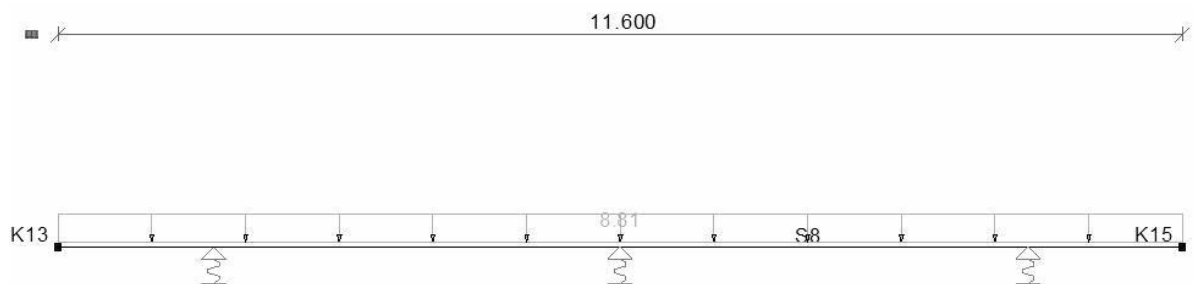


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 8,81 | 8,81 | 0,00 | 11,60(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

Staaf S8

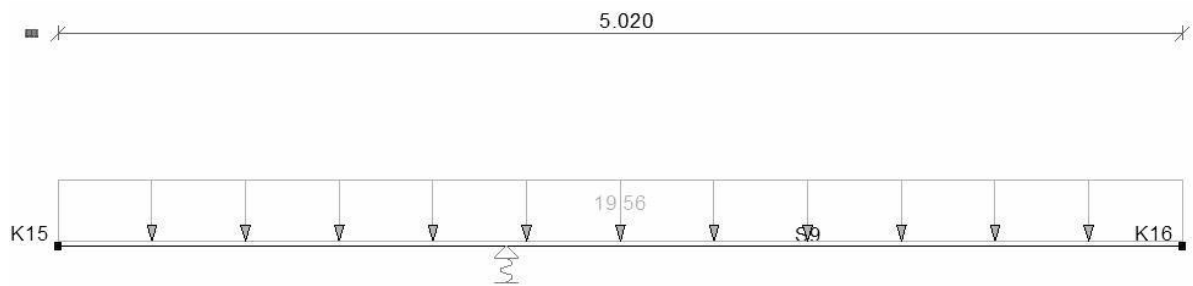


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 19,56 | 19,56 | 0,00 | 5,02(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

Staaf S9



B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

| Type | Beginwaarde | Eindwaarde |
|------|-------------|------------|
| q | 14,31 | 14,31 |

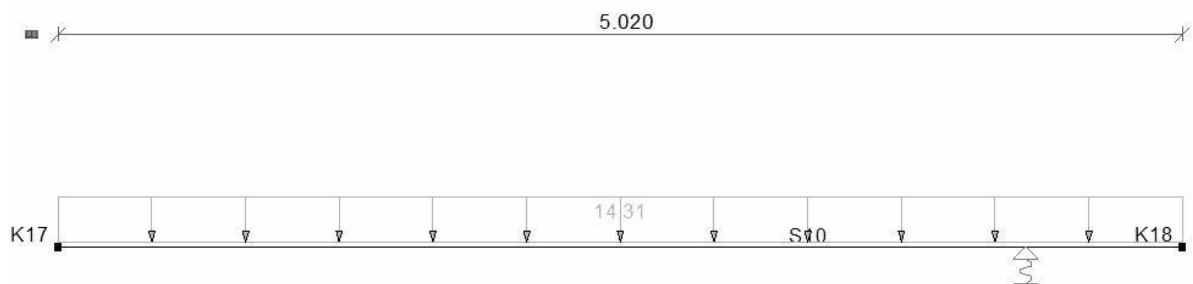
| Beginafstand | Eindafstand |
|--------------|-------------|
| 0,00 | 5,02(L) |

| Beginafstand | Eindafstand |
|--------------|-------------|
| 0,00 | 5,02(L) |

Staaf S10
Richting
Z

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

Staaf S10



B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

| Type | Beginwaarde | Eindwaarde |
|------|-------------|------------|
| q | 14,31 | 14,31 |

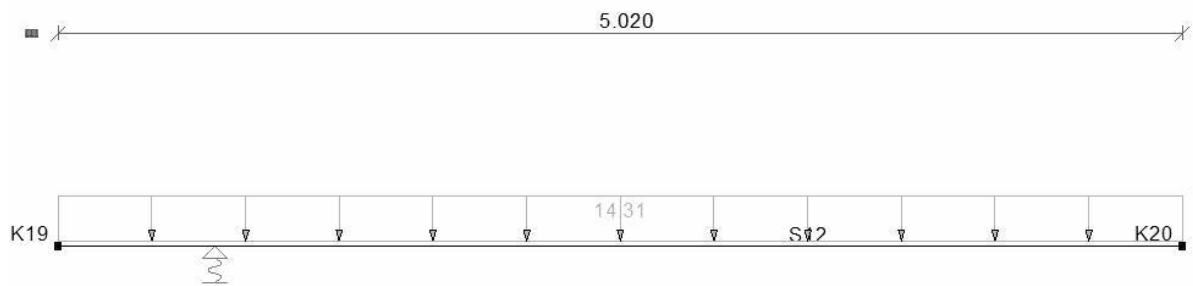
| Beginafstand | Eindafstand |
|--------------|-------------|
| 0,00 | 5,02(L) |

| Beginafstand | Eindafstand |
|--------------|-------------|
| 0,00 | 5,02(L) |

Staaf S12
Richting
Z

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

Staat S12



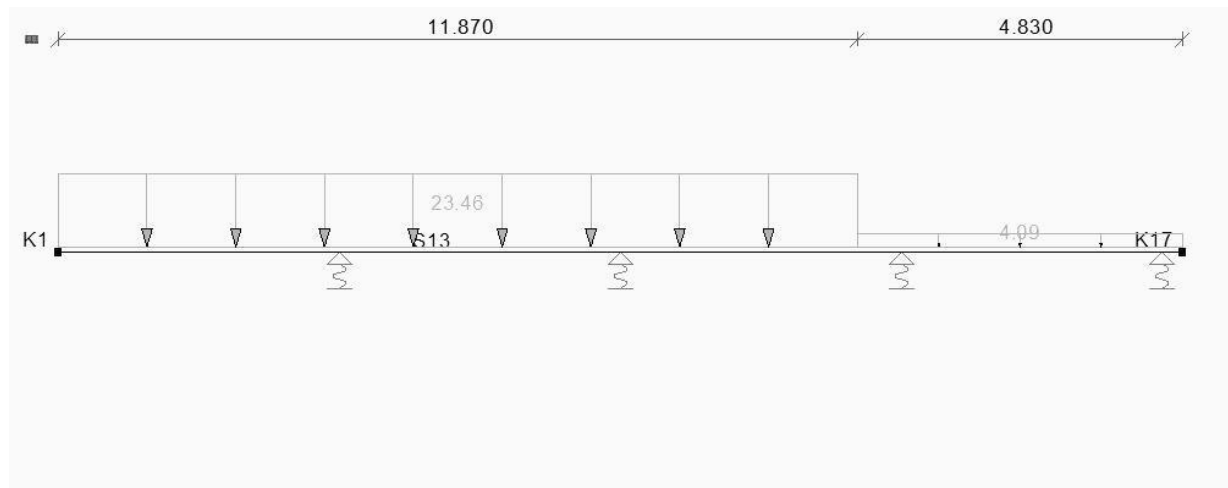
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

Staat S13

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 4,09 | 4,09 | 11,87 | 16,70(L) | Z |
| q | 23,46 | 23,46 | 0,00 | 11,87 | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

Staat S13



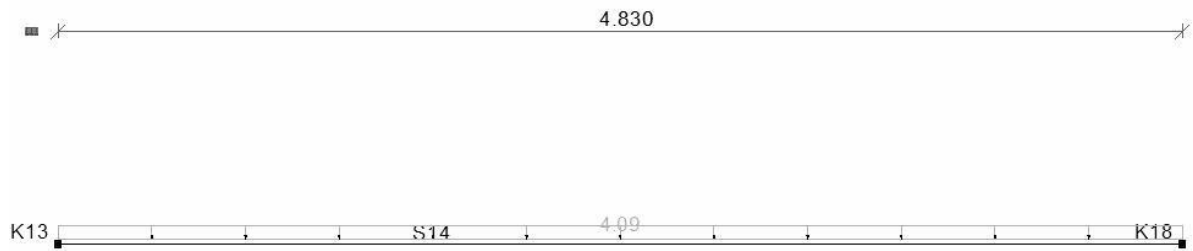
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staat S14

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 4,09 | 4,09 | 0,00 | 4,83(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staaf S14

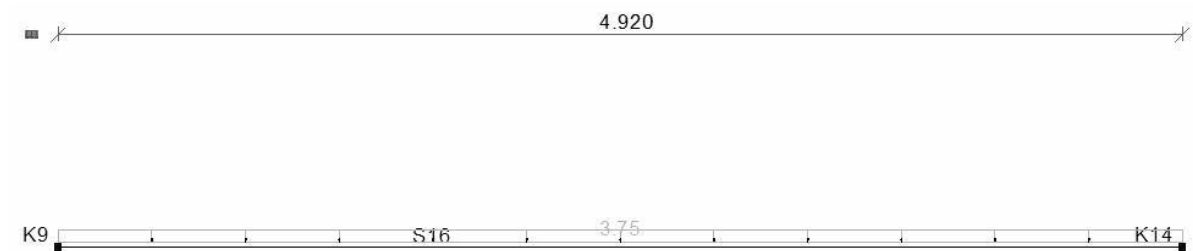


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S16 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 3,75 | 3,75 | 0,00 | 4,92(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

Staaf S16

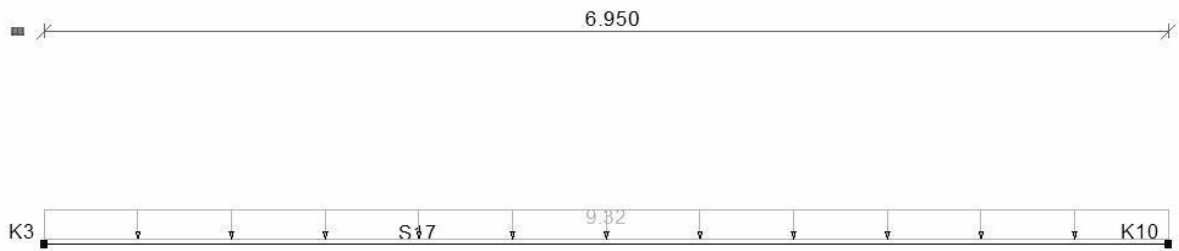


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S17 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 9,32 | 9,32 | 0,00 | 6,95(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

Staat S17

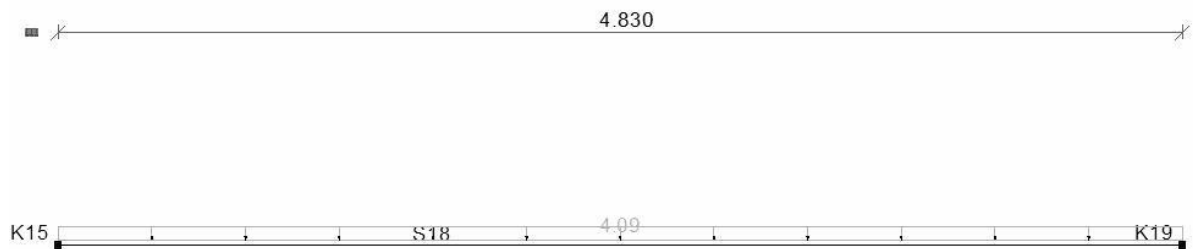


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staat S18 |
|------|-------------|------------|--------------|-------------|------------|
| q | 4,09 | 4,09 | 0,00 | 4,83(L) | Richting Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

Staat S18

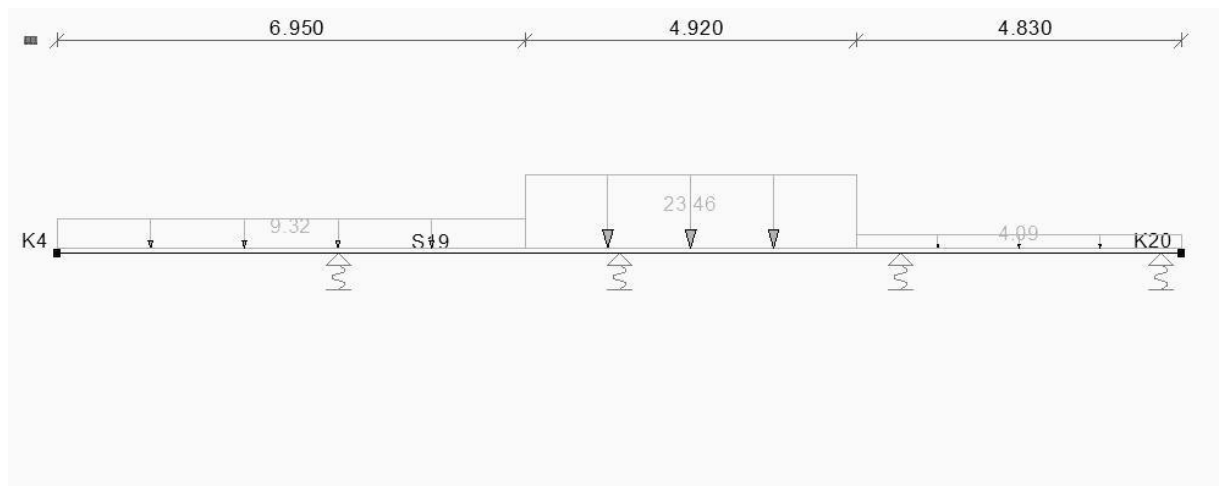


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staat S19 |
|------|-------------|------------|--------------|-------------|------------|
| q | 4,09 | 4,09 | 11,87 | 16,70(L) | Richting Z |
| q | 23,46 | 23,46 | 6,95 | 11,87 | Z |
| q | 9,32 | 9,32 | 0,00 | 6,95 | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

Staaf S19

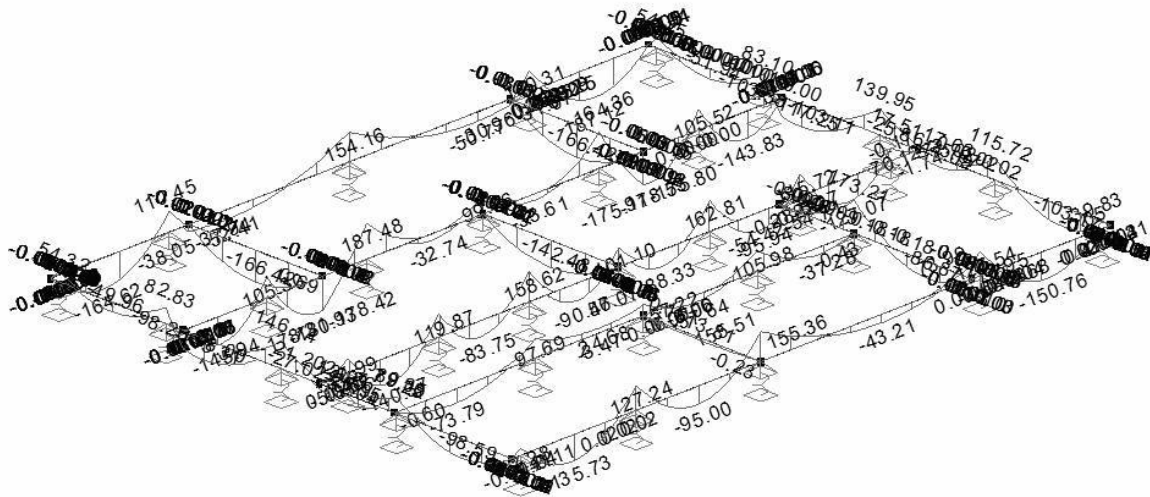


FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 | Fu.C.3 | Fu.C.4 | Fu.C.5 | Fu.C.6 | Fu.C.7 | Fu.C.8 |
|---------|---------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| B.G.1 | Permanent | 1.08 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 | 0.54 | - | 0.54 | - | 0.54 | - |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | 1.35 | 0.54 | - | 0.54 | 0.54 | 0.54 | - | 0.54 |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | 0.54 | - |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | 0.54 |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G.2.6 | Verdeelde veranderlijke belasting (6) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | - |
| B.G.2.7 | Verdeelde veranderlijke belasting (7) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G.2.8 | Verdeelde veranderlijke belasting (8) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | - |
| B.G. | Omschrijving | Fu.C.9 | Fu.C.10 | Fu.C.11 | Fu.C.12 | Fu.C.13 | Fu.C.14 | Fu.C.15 | Fu.C.16 |
| B.G.1 | Permanent | 1.22 | 1.22 | 1.22 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 0.54 | - | 0.54 | 1.35 | - | 1.35 | - | 1.35 |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | - | 0.54 | - | - | 1.35 | 1.35 | 1.35 | - |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 0.54 | - | 0.54 | 1.35 | - | - | 1.35 | 1.35 |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | - | 0.54 | - | - | 1.35 | 1.35 | - | 1.35 |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 0.54 | - | 0.54 | 1.35 | - | - | 1.35 | - |
| B.G.2.6 | Verdeelde veranderlijke belasting (6) | 0.54 | 0.54 | - | - | 1.35 | 1.35 | - | 1.35 |
| B.G.2.7 | Verdeelde veranderlijke belasting (7) | - | 0.54 | 0.54 | 1.35 | - | - | 1.35 | - |
| B.G.2.8 | Verdeelde veranderlijke belasting (8) | 0.54 | - | 0.54 | - | 1.35 | 1.35 | - | 1.35 |
| B.G. | Omschrijving | Fu.C.17 | Fu.C.18 | Fu.C.19 | Fu.C.20 | | | | |
| B.G.1 | Permanent | 1.08 | 1.08 | 1.08 | 1.08 | | | | |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | | | | |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | - | 1.35 | - | 1.35 | | | | |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | 1.35 | - | 1.35 | - | | | | |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | - | 1.35 | - | 1.35 | | | | |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | 1.35 | - | 1.35 | - | | | | |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | 1.35 | - | 1.35 | | | | |
| B.G.2.6 | Verdeelde veranderlijke belasting (6) | - | 1.35 | 1.35 | - | | | | |
| B.G.2.7 | Verdeelde veranderlijke belasting (7) | 1.35 | - | 1.35 | 1.35 | | | | |
| B.G.2.8 | Verdeelde veranderlijke belasting (8) | - | 1.35 | - | 1.35 | | | | |

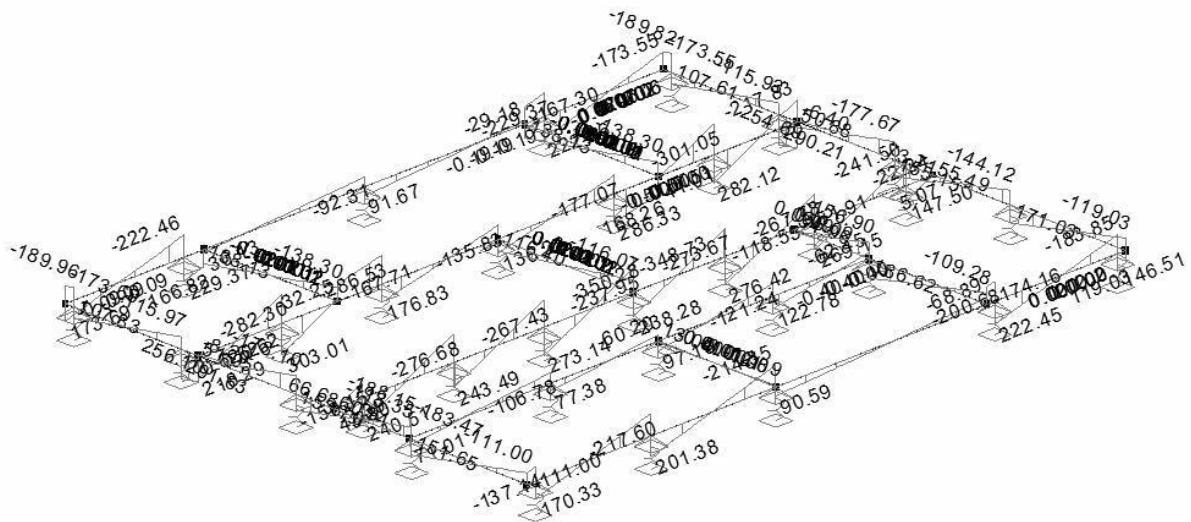
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Opleggin | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx | Mymax |
|----------|-------|---------|---------|------|---------|---|-------|---------|---|----|-------|
| g | | | | | | | | | | | |
| O1 | S1 | Fu.C.1 | -302,69 | 0,00 | 0,00 | | | | | | |
| O2 | S1 | Fu.C.2 | -418,71 | 0,00 | 0,00 | | | | | | |
| O3 | S1 | Fu.C.11 | -317,83 | 0,00 | 0,00 | | | | | | |
| O4 | S3 | Fu.C.2 | -417,03 | 0,00 | 0,00 | | | | | | |
| O5 | S3 | Fu.C.14 | -328,14 | 0,00 | 0,00 | | | | | | |
| O6 | S13 | Fu.C.1 | -336,87 | 0,00 | 0,00 | | | | | | |
| O7 | S19 | Fu.C.14 | -313,87 | 0,00 | 0,00 | | | | | | |
| O8 | S4 | Fu.C.1 | -184,15 | 0,00 | 0,00 | | | | | | |
| O9 | S4 | Fu.C.14 | -161,50 | 0,00 | 0,00 | | | | | | |
| O10 | S5 | Fu.C.2 | -244,03 | 0,00 | 0,00 | | | | | | |
| O11 | S5 | Fu.C.2 | -404,05 | 0,00 | 0,00 | | | | | | |
| O12 | S6 | Fu.C.1 | -390,04 | 0,00 | 0,00 | | | | | | |
| O13 | S6 | Fu.C.1 | -509,35 | 0,00 | 0,00 | | | | | | |
| O14 | S6 | Fu.C.1 | -534,55 | 0,00 | 0,00 | | | | | | |
| O15 | S6 | Fu.C.1 | -579,42 | 0,00 | 0,00 | | | | | | |

| Opleggin g | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx | Mymax |
|--------------------------------|-------|---------|----------------|------|---------|---|-------|---------|---|----|-------|
| O16 | S6 | Fu.C.1 | -544,83 | 0,00 | 0.00 | | | | | | |
| O17 | S6 | Fu.C.1 | -526,80 | 0,00 | 0.00 | | | | | | |
| O18 | S6 | Fu.C.1 | -386,15 | 0,00 | 0.00 | | | | | | |
| O19 | S13 | Fu.C.1 | -326,10 | 0,00 | 0.00 | | | | | | |
| O20 | S19 | Fu.C.1 | -323,07 | 0,00 | 0.00 | | | | | | |
| O21 | S7 | Fu.C.2 | -584,19 | 0,00 | 0.00 | | | | | | |
| O22 | S8 | Fu.C.2 | -461,70 | 0,00 | 0.00 | | | | | | |
| O23 | S8 | Fu.C.2 | -387,08 | 0,00 | 0.00 | | | | | | |
| O24 | S8 | Fu.C.5 | -463,41 | 0,00 | 0.00 | | | | | | |
| O25 | S9 | Fu.C.2 | -583,16 | 0,00 | 0.00 | | | | | | |
| O26 | S13 | Fu.C.1 | -400,77 | 0,00 | 0.00 | | | | | | |
| O27 | S19 | Fu.C.1 | -402,33 | 0,00 | 0.00 | | | | | | |
| O28 | S13 | Fu.C.8 | -292,32 | 0,00 | 0.00 | | | | | | |
| O29 | S19 | Fu.C.5 | -291,64 | 0,00 | 0.00 | | | | | | |
| O30 | S10 | Fu.C.5 | -447,87 | 0,00 | 0.00 | | | | | | |
| O31 | S11 | Fu.C.11 | -183,50 | 0,00 | 0.00 | | | | | | |
| O32 | S12 | Fu.C.5 | -447,87 | 0,00 | 0.00 | | | | | | |
| Globale extreme waarden | | | | | | | | | | | |
| O21 | S7 | Fu.C.2 | -584.19 | 0.00 | 0.00 | | | | | | |

AFB. FU.C. OPLEGREACTIES OMHULLENDE

Fundamenteel Belastingscombinaties

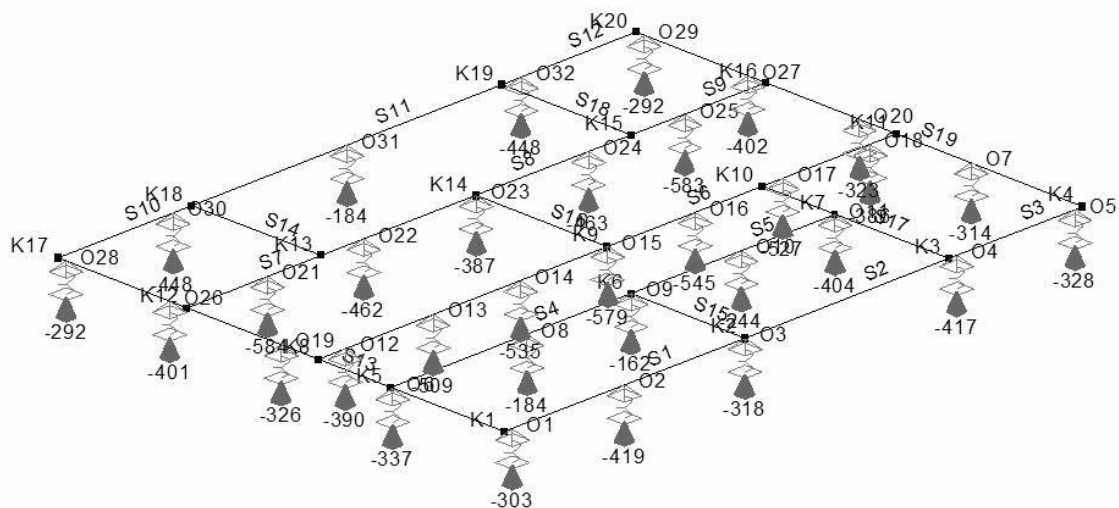
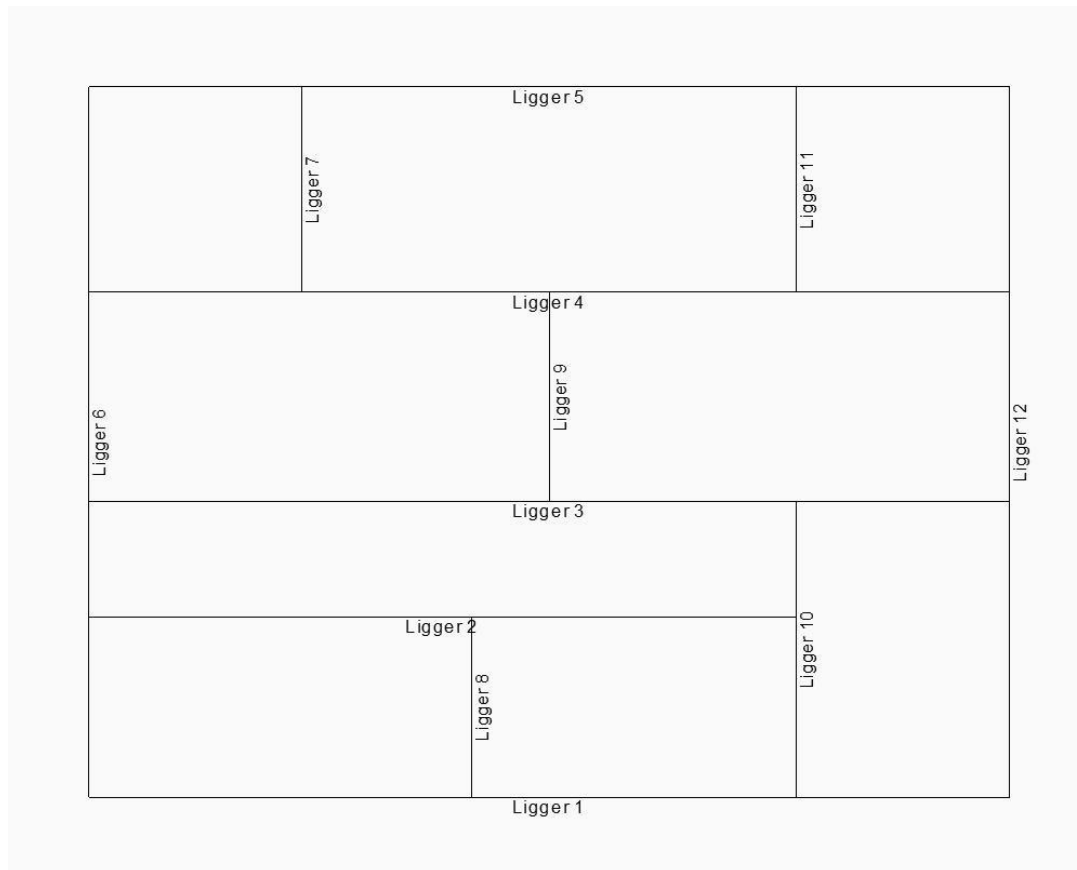


FIG. BETONDEFINITIE



BETON EIGENSCHAPPEN (NEN-EN1992-1-1:2015\NB:2016)

| Naam | Waarde | Eenheden |
|--------------------|--------|----------|
| Hoek drukdiagonaal | 21.80 | ° |

LIGGER 1

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 1 |
| Staven | S1-S3 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.64 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 1

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |

Ligger 1

OPLEGGEGEVEENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 1 Moment |
|---------|---------|-------|--------------|-------|--------------|-----|----------|----------|----------|--------------------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O1 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 4.500 | O2 | Ronde | 0,350 | | | N/B | | | afgetopt | Niet |
| 9.000 | O3 | Ronde | 0,350 | | | N/B | | | afgetopt | Niet |
| 9.000 | | paal | | S15 | 0,400 | N/B | | | afgetopt | Niet |
| 16.620 | | | | S17 | 0,400 | N/B | | | Niet | afgetopt |
| 16.920 | O4 | Ronde | 0,350 | | | N/B | | | afgetopt | Niet |
| 21.340 | O5 | Ronde | 0,350 | | | N/B | | | afgetopt | Niet |
| 21.640 | | paal | | S19 | 0,400 | Nee | | | Niet | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 1 S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|-------------------|
| 0.300 | 37.28 | 4R12 | | 195 | 452 | | 24.25 | N/B | 12.0 <= 26.0 | 101 <= 300 |
| 4.500 | 127.24 | 4R12 | 3R12 | 695 | 792 | | 105.15 | N/B | 12.0 <= 8.1 | 50 <= 111 |
| 9.000 | 155.51 | 4R12 | 4R12 | 864 | 905 | | 127.88 | N/B | 12.0 <= 7.2 | 43 <= 81 |
| 16.620 | 73.99 | 4R12 | | 393 | 452 | | 61.18 | N/B | 12.0 <= 8.4 | 101 <= 118 |
| 16.920 | 127.54 | 4R12 | 3R12 | 697 | 792 | | 105.11 | N/B | 12.0 <= 8.2 | 50 <= 112 |
| 21.340 | 39.83 | 4R12 | | 208 | 452 | | 32.67 | N/B | 12.0 <= 25.0 | 101 <= 293 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 1 S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|--------------|-------------------|
| 2.154 | 135.73 | 5R12 | 2R12 | 745 | 792 | | -112.10 | N/B | 12.0 <= 7.8 | 50 <= 101 |
| 6.693 | 95.00 | 5R12 | | 510 | 565 | | -77.83 | N/B | 12.0 <= 8.5 | 76 <= 122 |
| 13.368 | 43.21 | 5R12 | | 226 | 565 | | -35.38 | N/B | 12.0 <= 28.0 | 76 <= 300 |
| 19.348 | 150.76 | 5R12 | 3R12 | 835 | 905 | | -115.95 | N/B | 12.0 <= 9.1 | 43 <= 137 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 1 |
|---------|------|----------|--------|--------|----------|
| 0.000 | 0.12 | 1R8 | 1 | 50 | |
| 0.300 | 0.12 | 1R8 | 1 | 50 | |
| 4.500 | 0.12 | 1R8 | 1 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 1 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|------|------------------|
| 0.000 | 111.00 | R8-300 | 257 | 1 | 335 | 61.688 | 144.734 | 110.999 | N/B | N/B |
| 0.926 | 112.55 | R8-300 | 270 | 1 | 335 | 66.461 | 139.927 | 112.552 | N/B | N/B |
| 3.874 | 159.82 | R8-150 | 383 | 1 | 670 | 74.361 | 279.855 | 159.823 | N/B | N/B |
| 5.126 | 143.61 | R8-150 | 344 | 1 | 670 | 74.361 | 279.855 | 143.605 | N/B | N/B |

| | | | | | | | | | | |
|--------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 8.374 | 156.57 | R8-150 | 379 | 1 | 670 | 77.750 | 276.650 | 156.574 | N/B | N/B |
| 9.626 | 77.61 | R8-300 | 188 | 1 | 335 | 77.750 | 138.325 | 77.610 | N/B | N/B |
| 16.294 | 62.13 | R8-300 | 144 | 1 | 335 | 61.689 | 144.734 | 62.125 | N/B | N/B |
| 16.620 | 68.89 | R8-300 | 159 | 1 | 335 | 61.689 | 144.734 | 68.887 | N/B | N/B |
| 16.620 | 174.16 | R8-150 | 403 | 0 | 670 | 61.710 | 289.468 | 174.160 | N/B | N/B |
| 17.546 | 165.12 | R8-150 | 395 | 0 | 670 | 74.376 | 279.855 | 165.124 | N/B | N/B |
| 20.714 | 126.52 | R8-300 | 307 | 0 | 335 | 66.479 | 138.325 | 126.525 | N/B | N/B |
| 21.640 | 119.03 | R8-300 | 276 | 0 | 335 | 61.710 | 144.734 | 119.031 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12a(basis)(basis) | -0.165 | 0.216 | 4,0D | 0.375 | 0.000 | 21.440 | 0.401 | 21.799 | 0.042 | 4,0D | 22.221 |
| 3R12b(bijleg)(bijleg) | 3.279 | 0.000 | 2,5D | 0.488 | 3.767 | 5.247 | 0.488 | 5.735 | 0.000 | 2,5D | 2.456 |
| 4R12c(bijleg)(bijleg) | 7.697 | 0.000 | 2,5D | 0.427 | 8.124 | 10.387 | 0.427 | 10.814 | 0.000 | 2,5D | 3.117 |
| 3R12d(bijleg)(bijleg) | 15.887 | 0.000 | 2,5D | 0.733 | 16.620 | 17.664 | 0.488 | 18.152 | 0.000 | 2,5D | 2.265 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 5R12u(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.425 | 0.475 | 21.440 | 0.340 | 21.805 | 0.000 | 2,5D | 21.970 |
| 2R12k1(bijleg)(bijleg) | 0.389 | 0.000 | 2,5D | 0.422 | 0.811 | 3.498 | 0.422 | 3.920 | 0.000 | 2,5D | 3.531 |
| 3R12l1(bijleg)(bijleg) | 17.465 | 0.000 | 2,5D | 0.370 | 17.835 | 20.861 | 0.370 | 21.231 | 0.000 | 2,5D | 3.765 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 1 |
|-----------|--------|-----------|--------|--------|--------|--------|--------|----------|
| O2 | Links | 12xR8-300 | -0.280 | 3.320 | 3.600 | 124.09 | 139.93 | |
| O2 | Links | 4xR8-150 | 3.320 | 3.920 | 0.600 | 160.19 | 279.85 | |
| O2 | Links | 8xR8-150 | 3.920 | 5.120 | 1.200 | 160.19 | 276.65 | |
| O2 | Rechts | 2xR8-150 | 5.120 | 5.420 | 0.300 | 143.97 | 279.85 | |
| O2 | Rechts | 4xR8-300 | 5.420 | 6.620 | 1.200 | 126.87 | 139.93 | |
| O3 | Links | 5xR8-300 | 6.620 | 8.120 | 1.500 | 134.18 | 138.33 | |
| O3 | Links | 2xR8-150 | 8.120 | 8.420 | 0.300 | 156.94 | 276.65 | |
| O3 | Rechts | 4xR8-150 | 8.420 | 9.020 | 0.600 | 156.94 | 279.85 | |
| O3 | Rechts | 2xR8-300 | 9.020 | 9.620 | 0.600 | 77.98 | 139.93 | |
| O3 | Rechts | 11xR8-300 | 9.620 | 12.920 | 3.300 | 77.98 | 138.33 | |
| O4 | Links | 13xR8-300 | 12.920 | 16.820 | 3.900 | 62.49 | 144.73 | |
| O4 | Rechts | 4xR8-150 | 16.820 | 17.420 | 0.600 | 165.49 | 289.47 | |
| O4 | Rechts | 4xR8-150 | 17.420 | 18.020 | 0.600 | 165.49 | 279.85 | |
| O4 | Rechts | 13xR8-300 | 18.020 | 21.920 | 3.900 | 133.75 | 139.93 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 1 |
|--------------------|-----------|-------------|-------------------|-----------|----------|
| V7 (21.340-21.640) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V6 (16.920-21.340) | Vloer | 3,6 <= 17,7 | 7,6 <= 17,7 | 0,20 | 0,43 |
| | Handmatig | | | | |
| V5 (16.620-16.920) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,03 |
| | Handmatig | | | | |
| V4 (9.000-16.620) | Vloer | 1,5 <= 30,5 | 1,8 <= 30,5 | 0,05 | 0,06 |
| | Handmatig | | | | |
| V3 (8.700-9.000) | Vloer | 0,0 <= 1,2 | 0,1 <= 1,2 | 0,02 | 0,06 |
| | Handmatig | | | | |
| V2 (4.500-8.700) | Vloer | 2,1 <= 16,8 | 4,8 <= 16,8 | 0,13 | 0,29 |
| | Handmatig | | | | |
| V1 (0.000-4.500) | Vloer | 3,2 <= 18,0 | 8,1 <= 18,0 | 0,18 | 0,45 |

m Handmatig - mm mm - -

LIGGER 2
ALGEMEEN + KRUIP
Ligger 2
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 2 | Cement | S |
| Staven | S4-S5 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 16.62 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 2

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 2

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| 5.100 | O8 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 9.000 | O9 | paal | | | | | | | Afgetopt | Niet |
| 9.000 | | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 9.000 | | paal | | S15 | 0,400 | N/B | | | Afgetopt | Niet |
| 13.120 | O10 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 16.620 | O11 | paal | | | | | | | afgetopt | afgetopt |
| 16.620 | | Ronde | 0,350 | | | Ja | 5,59 | 0,00 | Afgetopt | Niet |
| 16.620 | | paal | | S17 | 0,400 | Nee | | | Afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | afgetopt |

BOVENWAPENING
Ligger 2

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|----------------|-------|---------|--------------|------------|
| 5.100 | 97.69 | 4R12 | 1R12 | 524 | 565 | | 70.81 | N/B | 12.0 <= 9.3 | 76 <= 143 |
| 9.000 | 57.22 | 4R12 | | 300 | 452 | | 45.40 | N/B | 12.0 <= 14.4 | 101 <= 219 |
| 13.120 | 105.98 | 4R12 | 2R12 | 572 | 679 | | 87.05 | N/B | 12.0 <= 8.8 | 60 <= 129 |
| 16.620 | 5.59 | 4R12 | | 29 | 452 | | 4.60 | N/B | 12.0 <= 26.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 2

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|

| | | | | | | | | |
|----------|------------|----------|----------|------------|------------|----------|--------------|------------|
| 2.067 | 73.79 | 5R12 | 391 | 565 | -51.32 | N/B | 12.0 <= 19.6 | 76 <= 259 |
| 7.247 | 3.47 | 5R12 | 18 | 565 | | N/B | 12.0 <= 28.0 | 76 <= 300 |
| 10.871 | 37.64 | 5R12 | 196 | 565 | -30.59 | N/B | 12.0 <= 28.0 | 76 <= 300 |
| 15.437 | 37.28 | 5R12 | 194 | 565 | -30.71 | N/B | 12.0 <= 28.0 | 76 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 |

FLANKWAPENING
Ligger 2

| Positie | Mx | Wapening | As,ben | As,toe |
|----------|------------|----------|------------|------------|
| 9.000 | 0.09 | 1R8 | 0 | 50 |
| 13.120 | 0.09 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 2

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|----------|-----------|----------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|
| 0.000 | 71.01 | R8-300 | 166 | 0 | 335 | 66.477 | 143.132 | 71.009 | N/B | N/B |
| 4.474 | 85.28 | R8-300 | 200 | 0 | 335 | 66.477 | 143.132 | 85.285 | N/B | N/B |
| 5.726 | 55.88 | R8-300 | 131 | 0 | 335 | 66.499 | 143.132 | 55.882 | N/B | N/B |
| 8.374 | 38.71 | R8-300 | 90 | 0 | 335 | 61.732 | 144.734 | 38.708 | N/B | N/B |
| 9.626 | 64.12 | R8-300 | 148 | 1 | 335 | 61.701 | 144.734 | 64.118 | N/B | N/B |
| 12.494 | 88.19 | R8-300 | 209 | 1 | 335 | 70.642 | 141.530 | 88.185 | N/B | N/B |
| 13.746 | 89.73 | R8-300 | 212 | 1 | 335 | 70.642 | 141.530 | 89.726 | N/B | N/B |
| 15.994 | 29.40 | R8-300 | 69 | 0 | 335 | 66.499 | 143.132 | 29.396 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 2

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 4R12e(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 16.445 | 0.120 | 16.785 | 0.000 | 2,5D | 16.950 |
| 1R12f(bijleg)(bijleg) | 3.759 | 0.000 | 2,5D | 0.683 | 4.442 | 5.808 | 0.683 | 6.491 | 0.000 | 2,5D | 2.733 |
| 2R12g(bijleg)(bijleg) | 11.837 | 0.000 | 2,5D | 0.569 | 12.406 | 13.830 | 0.569 | 14.400 | 0.000 | 2,5D | 2.563 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 2

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 5R12m1(basis)(basis) | -0.165 | 0.044 | 4,0D | 0.203 | 0.000 | 16.445 | 0.120 | 16.785 | 0.000 | 2,5D | 16.994 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 2

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|----------|-----------|----------|----------|----------|-----------|-----------|
| S13 | Rechts | 16xR8-300 | -0.178 | 4.623 | 4.800 | 85.54 | 143.13 |
| O8 | Links | 3xR8-300 | 4.623 | 5.523 | 0.900 | 85.54 | 144.73 |
| O8 | Rechts | 5xR8-300 | 5.523 | 7.023 | 1.500 | 56.14 | 143.13 |
| O9 | Links | 5xR8-300 | 7.023 | 8.523 | 1.500 | 38.96 | 144.73 |
| O9 | Rechts | 2xR8-300 | 8.523 | 9.123 | 0.600 | 64.37 | 143.13 |
| O9 | Links | 1xR8-300 | 9.123 | 9.423 | 0.300 | 64.37 | 141.53 |
| O9 | Rechts | 5xR8-300 | 9.423 | 10.923 | 1.500 | 64.37 | 144.73 |
| O10 | Links | 6xR8-300 | 10.923 | 12.723 | 1.800 | 88.44 | 141.53 |
| O10 | Links | 3xR8-300 | 12.723 | 13.623 | 0.900 | 89.98 | 143.13 |
| O10 | Rechts | 4xR8-300 | 13.623 | 14.823 | 1.200 | 89.98 | 141.53 |
| O11 | Links | 4xR8-300 | 14.823 | 16.023 | 1.200 | 36.55 | 143.13 |
| O11 | Rechts | 2xR8-300 | 16.023 | 16.623 | 0.600 | 29.65 | 141.53 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 2

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|--------------------|-----------|--------------|-------------------|-----------|
| V4 (12.500-16.620) | Vloer | -0,5 <= 16,5 | -0,9 <= 16,5 | 0,03 |
| | Handmatig | | | |
| V3 (9.000-12.500) | Vloer | 0,5 <= 14,0 | 0,6 <= 14,0 | 0,04 |
| | Handmatig | | | |
| V2 (3.900-9.000) | Vloer | -1,8 <= 20,4 | -1,8 <= 20,4 | 0,09 |
| | Handmatig | | | |
| V1 (0.000-3.900) | Vloer | 2,1 <= 15,6 | 2,5 <= 15,6 | 0,14 |
| | Handmatig | | | |
| m | - | mm | mm | - |

LIGGER 3

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 3 |
| Staven | S6 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.64 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 3

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 3

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|--------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| 1.000 | O12 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 4.290 | O13 | paal | | | | | | | Afgetopt | Niet |
| 7.560 | O14 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 10.820 | | paal | | S16 | 0,400 | N/B | | | Niet | Niet |
| 10.830 | O15 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 14.100 | O16 | paal | | | | | | | Afgetopt | Niet |
| 16.620 | | n.v.t. | 0,000 | | | N/B | | | Niet | Niet |
| 17.370 | O17 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 20.640 | O18 | paal | | S17 | 0,400 | N/B | | | Niet | Niet |
| | | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| | | | | | | | | | Afgetopt | Niet |

| | | | | | | | | | | |
|-----------------------|--------|----------|----------|----------|--------|---------------|---------|---------|--------------|-----------------|
| 21.640 | | paal | | S19 | 0,400 | Nee | | Niet | afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm | afgetopt | afgetopt |
| | | | | | | | | | | |
| BOVENWAPENING | | | | | | | | | | Ligger 3 |
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 1.000 | 72.99 | 4R12 | | 388 | 452 | | 42.18 | N/B | 12.0 <= 17.5 | 101 <= 239 |
| 4.290 | 119.87 | 4R12 | 2R12 | 653 | 679 | | 91.83 | N/B | 12.0 <= 8.0 | 60 <= 109 |
| 7.560 | 158.62 | 4R12 | 4R12 | 883 | 905 | | 129.19 | N/B | 12.0 <= 7.1 | 43 <= 77 |
| 10.830 | 101.10 | 4R12 | 1R12 | 545 | 565 | | 80.49 | N/B | 12.0 <= 7.5 | 76 <= 93 |
| 14.100 | 162.81 | 4R12 | 3R16 | 912 | 1056 | | 131.79 | N/B | 13.7 <= 8.4 | 50 <= 124 |
| 17.370 | 115.72 | 4R12 | 2R12 | 628 | 679 | | 91.05 | N/B | 12.0 <= 8.2 | 60 <= 112 |
| 20.640 | 70.12 | 4R12 | | 372 | 452 | | 49.42 | N/B | 12.0 <= 12.0 | 101 <= 193 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |
| ONDERWAPENING | | | | | | | | | | Ligger 3 |
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 0.284 | 5.81 | 5R12 | | 31 | 565 | | -4.58 | N/B | 12.0 <= 28.0 | 76 <= 300 |
| 2.507 | 140.37 | 5R12 | 2R12 | 773 | 792 | | -113.82 | N/B | 12.0 <= 7.6 | 50 <= 95 |
| 5.834 | 83.75 | 5R12 | | 447 | 565 | | -62.93 | N/B | 12.0 <= 12.4 | 76 <= 199 |
| 9.311 | 90.46 | 5R12 | | 485 | 565 | | -68.97 | N/B | 12.0 <= 10.6 | 76 <= 168 |
| 12.357 | 88.33 | 5R12 | | 473 | 565 | | -66.97 | N/B | 12.0 <= 11.1 | 76 <= 178 |
| 15.886 | 95.94 | 5R12 | | 516 | 565 | | -71.66 | N/B | 12.0 <= 9.9 | 76 <= 154 |
| 19.109 | 127.07 | 5R12 | 2R12 | 695 | 792 | | -103.13 | N/B | 12.0 <= 9.0 | 50 <= 135 |
| 21.495 | 1.74 | 5R12 | | 10 | 565 | | -1.43 | N/B | 12.0 <= 28.0 | 76 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |
| FLANKWAPENING | | | | | | | | | | Ligger 3 |
| Positie | Mx | Wapening | | As,ben | As,toe | | | | | |
| 16.620 | 0.19 | 1R8 | | 2 | 50 | | | | | |
| m | kNm | - | | mm2 | mm2 | | | | | |
| BEUGELWAPENING | | | | | | | | | | Ligger 3 |
| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 43.80 | R8-300 | 101 | 0 | 335 | 61.732 | 144.734 | 43.801 | N/B | N/B |
| 0.374 | 53.44 | R8-300 | 124 | 0 | 335 | 61.732 | 144.734 | 53.437 | N/B | N/B |
| 1.626 | 143.80 | R8-150 | 344 | 1 | 670 | 66.469 | 279.855 | 143.797 | N/B | N/B |
| 3.664 | 179.97 | R8-150 | 431 | 1 | 670 | 66.469 | 279.855 | 179.969 | N/B | N/B |
| 4.916 | 146.77 | R8-150 | 344 | 1 | 670 | 66.469 | 286.263 | 146.773 | N/B | N/B |
| 6.934 | 170.72 | R8-150 | 414 | 1 | 670 | 77.756 | 276.650 | 170.716 | N/B | N/B |
| 8.186 | 176.43 | R8-150 | 427 | 1 | 670 | 77.756 | 276.650 | 176.427 | N/B | N/B |
| 10.204 | 142.78 | R8-300 | 334 | 1 | 335 | 66.469 | 143.132 | 142.781 | N/B | N/B |
| 10.820 | 237.95 | R8-150 | 557 | 1 | 670 | 61.698 | 286.263 | 237.949 | N/B | N/B |
| 10.820 | 348.73 | R8-100 | 816 | 0 | 1005 | 61.715 | 429.395 | 348.731 | N/B | N/B |
| 11.456 | 141.57 | R8-300 | 331 | 0 | 335 | 66.484 | 143.132 | 141.565 | N/B | N/B |
| 14.100 | 273.67 | R8-100 | 675 | 0 | 1005 | 61.642 | 407.418 | 273.669 | N/B | N/B |
| 14.100 | 276.42 | R8-100 | 682 | 0 | 1005 | 61.642 | 407.418 | 276.417 | N/B | N/B |
| 16.620 | 118.55 | R8-300 | 278 | 0 | 335 | 66.484 | 143.132 | 118.550 | N/B | N/B |
| 16.620 | 151.91 | R8-150 | 356 | 1 | 670 | 66.440 | 286.263 | 151.907 | N/B | N/B |
| 16.744 | 171.06 | R8-150 | 400 | 1 | 670 | 66.440 | 286.263 | 171.064 | N/B | N/B |

| | | | | | | | | | | |
|----------|-----------|----------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|
| 17.996 | 172.44 | R8-150 | 413 | 1 | 670 | 66.440 | 279.855 | 172.442 | N/B | N/B |
| 20.014 | 144.78 | R8-150 | 347 | 1 | 670 | 66.440 | 279.855 | 144.785 | N/B | N/B |
| 21.266 | 53.09 | R8-300 | 123 | 0 | 335 | 61.732 | 144.734 | 53.088 | N/B | N/B |
| 21.640 | 22.24 | R8-300 | 52 | 0 | 335 | 66.499 | 143.132 | 22.240 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 3 Lengte |
|---------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| 4R12h(basis)(basis) | -0.165 | 0.032 | 4,0D | 0.191 | 0.000 | 21.440 | 0.385 | 21.799 | 0.026 | 4,0D | 22.022 |
| 2R12i(bijleg)(bijleg) | 3.048 | 0.000 | 2,5D | 0.569 | 3.617 | 4.977 | 0.569 | 5.547 | 0.000 | 2,5D | 2.499 |
| 4R12j(bijleg)(bijleg) | 6.270 | 0.000 | 2,5D | 0.427 | 6.697 | 8.414 | 0.427 | 8.841 | 0.000 | 2,5D | 2.571 |
| 1R12k(bijleg)(bijleg) | 9.536 | 0.000 | 2,5D | 0.683 | 10.219 | 11.449 | 0.683 | 12.132 | 0.000 | 2,5D | 2.597 |
| 3R16l(bijleg)(bijleg) | 12.758 | 0.000 | 2,5D | 0.488 | 13.246 | 14.960 | 0.488 | 15.448 | 0.000 | 2,5D | 2.690 |
| 2R12m(bijleg) (bijleg) | 16.143 | 0.000 | 2,5D | 0.569 | 16.712 | 18.023 | 0.569 | 18.592 | 0.000 | 2,5D | 2.450 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 3 Lengte |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| 5R12u(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.125 | 0.000 | 21.440 | 0.152 | 21.805 | 0.000 | 2,5D | 21.970 |
| 2R12n1(bijleg) (bijleg) | 0.887 | 0.000 | 2,5D | 0.422 | 1.309 | 3.697 | 0.422 | 4.120 | 0.000 | 2,5D | 3.233 |
| 2R12o1(bijleg) (bijleg) | 17.639 | 0.000 | 2,5D | 0.422 | 18.061 | 20.157 | 0.422 | 20.580 | 0.000 | 2,5D | 2.941 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 3 |
|-----------|--------|----------|----------|----------|----------|-----------|-----------|----------|
| S13 | Rechts | 3xR8-300 | -0.280 | 0.620 | 0.900 | 53.99 | 144.73 | |
| O12 | Links | 1xR8-300 | 0.620 | 0.920 | 0.300 | 53.99 | 139.93 | |
| O12 | Links | 8xR8-150 | 0.920 | 2.120 | 1.200 | 144.35 | 279.85 | |
| O12 | Rechts | 3xR8-300 | 2.120 | 3.020 | 0.900 | 115.36 | 139.93 | |
| O13 | Links | 8xR8-150 | 3.020 | 4.220 | 1.200 | 180.52 | 279.85 | |
| O13 | Links | 4xR8-150 | 4.220 | 4.820 | 0.600 | 180.52 | 276.65 | |
| O13 | Rechts | 2xR8-150 | 4.820 | 5.120 | 0.300 | 147.33 | 286.26 | |
| O13 | Rechts | 3xR8-300 | 5.120 | 6.020 | 0.900 | 125.33 | 143.13 | |
| O14 | Links | 2xR8-300 | 6.020 | 6.620 | 0.600 | 125.45 | 138.33 | |
| O14 | Links | 4xR8-150 | 6.620 | 7.220 | 0.600 | 171.27 | 276.65 | |
| O14 | Rechts | 6xR8-150 | 7.220 | 8.120 | 0.900 | 176.98 | 286.26 | |
| O14 | Rechts | 4xR8-150 | 8.120 | 8.720 | 0.600 | 176.98 | 276.65 | |
| O14 | Rechts | 4xR8-300 | 8.720 | 9.920 | 1.200 | 107.61 | 138.33 | |
| S16 | Rechts | 2xR8-150 | 9.920 | 10.220 | 0.300 | 143.34 | 276.65 | |
| O15 | Links | 6xR8-150 | 10.220 | 11.120 | 0.900 | 143.34 | 286.26 | |
| O15 | Rechts | 1xR8-300 | 11.120 | 11.420 | 0.300 | 142.12 | 143.13 | |
| O15 | Links | 2xR8-150 | 11.420 | 11.720 | 0.300 | 142.12 | 271.61 | |
| O16 | Links | 4xR8-300 | 11.720 | 12.920 | 1.200 | 104.31 | 135.81 | |
| O16 | Links | 6xR8-150 | 12.920 | 13.820 | 0.900 | 239.63 | 271.61 | |
| O16 | Rechts | 6xR8-100 | 13.820 | 14.420 | 0.600 | 276.97 | 407.42 | |
| O16 | Rechts | 6xR8-150 | 14.420 | 15.320 | 0.900 | 243.19 | 271.61 | |
| O16 | Rechts | 4xR8-300 | 15.320 | 16.520 | 1.200 | 119.11 | 135.81 | |
| S17 | Rechts | 8xR8-150 | 16.520 | 17.720 | 1.200 | 173.00 | 286.26 | |
| O17 | Rechts | 6xR8-150 | 17.720 | 18.620 | 0.900 | 173.00 | 279.85 | |
| O17 | Rechts | 3xR8-300 | 18.620 | 19.520 | 0.900 | 108.77 | 139.93 | |
| O18 | Links | 8xR8-150 | 19.520 | 20.720 | 1.200 | 145.34 | 279.85 | |
| O18 | Rechts | 1xR8-300 | 20.720 | 21.020 | 0.300 | 53.64 | 139.93 | |
| S19 | Rechts | 1xR8-300 | 21.020 | 21.320 | 0.300 | 53.64 | 144.73 | |
| S19 | Links | 2xR8-300 | 21.320 | 21.920 | 0.600 | 53.64 | 143.13 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING
Ligger 3

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|--------------------|-----------|-------------|-------------|-------------|-----------|
| V9 (20.640-21.640) | Vloer | 0,0 <= 4,0 | 0,0 <= 4,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V8 (17.350-20.640) | Vloer | 1,6 <= 13,2 | 3,8 <= 13,2 | 0,12 | 0,29 |
| | Handmatig | | | | |
| V7 (14.080-17.350) | Vloer | 1,3 <= 13,1 | 1,8 <= 13,1 | 0,10 | 0,13 |
| | Handmatig | | | | |
| V6 (10.810-14.080) | Vloer | 1,2 <= 13,1 | 1,5 <= 13,1 | 0,09 | 0,12 |
| | Handmatig | | | | |
| V5 (7.540-10.820) | Vloer | 1,2 <= 13,1 | 1,7 <= 13,1 | 0,09 | 0,13 |
| | Handmatig | | | | |
| V4 (5.020-7.540) | Vloer | 0,7 <= 10,1 | 1,1 <= 10,1 | 0,07 | 0,10 |
| | Handmatig | | | | |
| V3 (4.270-5.020) | Vloer | -0,2 <= 3,0 | 0,5 <= 3,0 | 0,06 | 0,17 |
| | Handmatig | | | | |
| V2 (1.000-4.270) | Vloer | 1,8 <= 13,1 | 4,4 <= 13,1 | 0,14 | 0,34 |
| | Handmatig | | | | |
| V1 (0.000-1.000) | Vloer | 0,0 <= 4,0 | 0,0 <= 4,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 4

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 4 |
| Staven | S7-S9 |
| Profiel | R400x500 mm |
| Betonskwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.64 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoëff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 4

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 4

OPLEGGEGEVENEN

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|-------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| 3.020 | O21 | Ronde paal | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 5.020 | | | | S14 | 0,400 | N/B | | | afgetopt | Niet |
| 6.620 | O22 | Ronde paal | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 10.820 | O23 | Ronde paal | 0,350 | | | N/B | | | afgetopt | Niet |
| 10.820 | | | | S16 | 0,400 | N/B | | | afgetopt | Niet |

Ligger 4

| | | | | | | | |
|--------|-----|-------|-------|-------|-----|----------------------|---------------------------|
| 15.030 | O24 | Ronde | 0,350 | | N/B | Afgetopt | afgetopt Niet |
| 16.620 | | paal | S18 | 0,400 | N/B | Niet | afgetopt Niet |
| 18.620 | O25 | Ronde | 0,350 | | N/B | afgetopt Afgetopt | afgetopt Niet |
| 21.640 | | paal | S19 | 0,400 | Nee | Niet | afgetopt Niet |
| m | - | - | m | - | m | kNm | afgetopt afgetopt - |

BOVENWAPENING
Ligger 4

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|-------------|-----------|
| 3.020 | 105.30 | 4R12 | 2R12 | 571 | 679 | | 83.70 | N/B | 12.0 <= 9.3 | 60 <= 144 |
| 6.620 | 187.48 | 4R12 | 4R16 | 1069 | 1257 | | 152.55 | N/B | 14.0 <= 8.5 | 43 <= 126 |
| 10.820 | 99.86 | 4R28 | | 551 | 2463 | | 81.09 | N/B | 28.0 <= | 95 <= 300 |
| | | | | | | | | | 22.4 | |
| 15.030 | 187.12 | 4R12 | 4R16 | 1067 | 1257 | | 153.07 | N/B | 14.0 <= 8.4 | 43 <= 125 |
| 18.620 | 105.52 | 4R12 | 2R12 | 572 | 679 | | 82.34 | N/B | 12.0 <= 9.6 | 60 <= 150 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 4

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|-----------|
| 1.339 | 145.94 | 5R12 | 3R12 | 809 | 905 | | -119.39 | N/B | 12.0 <= 8.6 | 43 <= 125 |
| 4.842 | 180.93 | 5R12 | 3R16 | 1027 | 1169 | | -149.63 | N/B | 13.5 <= 8.4 | 43 <= 125 |
| 5.020 | 178.42 | 5R12 | 3R16 | 1011 | 1169 | | -147.52 | N/B | 13.5 <= 8.7 | 43 <= 131 |
| 8.999 | 32.74 | 5R12 | | 173 | 565 | | -22.54 | N/B | 12.0 <= | 76 <= 300 |
| | | | | | | | | | 28.0 | |
| 12.672 | 33.61 | 5R12 | | 178 | 565 | | -23.18 | N/B | 12.0 <= | 76 <= 300 |
| | | | | | | | | | 28.0 | |
| 16.620 | 175.91 | 5R12 | 4R12 | 992 | 1018 | | -145.28 | N/B | 12.0 <= 7.4 | 38 <= 88 |
| 16.802 | 178.53 | 5R12 | 3R16 | 1011 | 1169 | | -147.47 | N/B | 13.5 <= 8.7 | 43 <= 131 |
| 20.318 | 143.83 | 5R12 | 3R12 | 796 | 905 | | -118.97 | N/B | 12.0 <= 8.6 | 43 <= 127 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 4

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 10.820 | 0.45 | 1R8 | 4 | 50 |
| 15.030 | 0.45 | 1R8 | 4 | 50 |
| 16.620 | 0.45 | 1R8 | 4 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 4

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEDi |
|---------|--------|--------------|----------|----------|--------|---------|---------|---------|------|------|
| 0.000 | 218.29 | R8-150 | 517 | 2 | 670 | 61.641 | 283.059 | 218.294 | N/B | N/B |
| 2.394 | 179.13 | R8-150 | 434 | 2 | 670 | 66.420 | 276.650 | 179.129 | N/B | N/B |
| 3.646 | 199.82 | R8-150 | 499 | 2 | 670 | 66.349 | 268.482 | 199.824 | N/B | N/B |
| 5.020 | 32.25 | R8-300 | 81 | 0 | 335 | 66.428 | 134.241 | 32.255 | N/B | N/B |
| 5.020 | 167.71 | R8-150 | 419 | 3 | 670 | 66.291 | 268.482 | 167.710 | N/B | N/B |
| 5.995 | 240.14 | R8-150 | 605 | 3 | 670 | 86.583 | 265.824 | 240.135 | N/B | N/B |
| 7.245 | 130.44 | R8-300 | 329 | 3 | 335 | 86.583 | 132.912 | 130.438 | N/B | N/B |
| 10.202 | 90.28 | R8-300 | 266 | 0 | 335 | 107.697 | 113.570 | 90.278 | N/B | N/B |
| 11.438 | 90.62 | R8-300 | 267 | 0 | 335 | 107.697 | 113.570 | 90.618 | N/B | N/B |
| 14.405 | 130.68 | R8-300 | 329 | 3 | 335 | 86.582 | 132.912 | 130.682 | N/B | N/B |
| 15.655 | 239.94 | R8-150 | 605 | 3 | 670 | 86.582 | 265.824 | 239.941 | N/B | N/B |
| 16.620 | 168.26 | R8-150 | 412 | 3 | 670 | 66.361 | 273.446 | 168.259 | N/B | N/B |
| 16.620 | 41.01 | R8-300 | 101 | 0 | 335 | 66.499 | 136.723 | 41.010 | N/B | N/B |

| | | | | | | | | | | |
|----------|-----------|----------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|
| 17.994 | 197.86 | R8-150 | 494 | 2 | 670 | 66.346 | 268.482 | 197.861 | N/B | N/B |
| 19.246 | 179.08 | R8-150 | 434 | 2 | 670 | 66.417 | 276.650 | 179.082 | N/B | N/B |
| 21.640 | 217.83 | R8-150 | 516 | 2 | 670 | 61.637 | 283.059 | 217.828 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 4 Lengte |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| 4R12n(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 6.620 | 0.120 | 6.740 | 0.000 | 2,5D | 6.905 |
| 4R28o(basis)(basis) | 6.340 | 0.000 | 2,5D | 0.280 | 6.620 | 11.161 | 0.438 | 11.599 | 0.000 | 2,5D | 5.259 |
| 4R12p(basis)(basis) | 11.041 | 0.000 | 2,5D | 0.120 | 11.161 | 21.440 | 0.120 | 21.805 | 0.000 | 2,5D | 10.764 |
| 2R12q(bijleg)(bijleg) | 1.861 | 0.000 | 2,5D | 0.569 | 2.431 | 3.598 | 0.569 | 4.167 | 0.000 | 2,5D | 2.306 |
| 4R16r(bijleg)(bijleg) | 5.317 | 0.000 | 2,5D | 0.410 | 5.727 | 7.856 | 0.410 | 8.266 | 0.000 | 2,5D | 2.950 |
| 4R16s(bijleg)(bijleg) | 13.445 | 0.000 | 2,5D | 0.410 | 13.855 | 15.908 | 0.410 | 16.318 | 0.000 | 2,5D | 2.873 |
| 2R12t(bijleg)(bijleg) | 17.458 | 0.000 | 2,5D | 0.569 | 18.027 | 19.214 | 0.569 | 19.783 | 0.000 | 2,5D | 2.325 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 4 Lengte |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------------|
| 5R12p1(basis)(basis) | -0.165 | 0.465 | 4,0D | 0.624 | 0.000 | 21.440 | 0.622 | 21.799 | 0.263 | 4,0D | 22.692 |
| 3R12q1(bijleg) (bijleg) | -0.165 | 0.116 | 4,0D | 0.390 | 0.115 | 2.563 | 0.370 | 2.933 | 0.000 | 2,5D | 3.214 |
| 3R16r1(bijleg) (bijleg) | 2.981 | 0.000 | 2,5D | 0.381 | 3.362 | 5.020 | 0.660 | 5.680 | 0.000 | 2,5D | 2.700 |
| 3R16s1(bijleg) (bijleg) | 2.981 | 0.000 | 2,5D | 0.381 | 3.362 | 5.928 | 0.381 | 6.310 | 0.000 | 2,5D | 3.329 |
| 4R12t1(bijleg) (bijleg) | 15.394 | 0.000 | 2,5D | 0.329 | 15.723 | 18.257 | 0.329 | 18.585 | 0.000 | 2,5D | 3.191 |
| 3R16u1(bijleg) (bijleg) | 15.968 | 0.000 | 2,5D | 0.652 | 16.620 | 18.260 | 0.381 | 18.641 | 0.000 | 2,5D | 2.672 |
| 3R12v1(bijleg) (bijleg) | 18.743 | 0.000 | 2,5D | 0.370 | 19.112 | 21.521 | 0.389 | 21.799 | 0.111 | 4,0D | 3.167 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 4 |
|-----------|--------|----------|--------|--------|--------|--------|--------|----------|
| S13 | Rechts | 6xR8-150 | -0.205 | 0.695 | 0.900 | 219.54 | 283.06 | |
| S13 | Rechts | 2xR8-300 | 0.695 | 1.295 | 0.600 | 117.15 | 141.53 | |
| O21 | Links | 2xR8-300 | 1.295 | 1.895 | 0.600 | 122.80 | 138.33 | |
| O21 | Links | 4xR8-150 | 1.895 | 2.495 | 0.600 | 180.39 | 276.65 | |
| O21 | Rechts | 6xR8-150 | 2.495 | 3.395 | 0.900 | 201.08 | 283.06 | |
| O21 | Rechts | 6xR8-150 | 3.395 | 4.295 | 0.900 | 201.08 | 268.48 | |
| S14 | Rechts | 2xR8-300 | 4.295 | 4.895 | 0.600 | 117.67 | 134.24 | |
| S14 | Rechts | 4xR8-150 | 4.895 | 5.495 | 0.600 | 212.87 | 268.48 | |
| O22 | Links | 4xR8-150 | 5.495 | 6.095 | 0.600 | 241.39 | 265.82 | |
| O22 | Rechts | 4xR8-150 | 6.095 | 6.695 | 0.600 | 241.39 | 268.48 | |
| O22 | Rechts | 1xR8-300 | 6.695 | 6.995 | 0.300 | 131.69 | 134.24 | |
| O22 | Rechts | 6xR8-300 | 6.995 | 8.795 | 1.800 | 131.69 | 132.91 | |
| O23 | Links | 5xR8-300 | 8.795 | 10.295 | 1.500 | 91.53 | 113.57 | |
| O23 | Rechts | 3xR8-300 | 10.295 | 11.195 | 0.900 | 91.87 | 132.91 | |
| O23 | Rechts | 6xR8-300 | 11.195 | 12.995 | 1.800 | 91.87 | 113.57 | |
| O24 | Links | 5xR8-300 | 12.995 | 14.495 | 1.500 | 131.94 | 132.91 | |
| O24 | Links | 1xR8-300 | 14.495 | 14.795 | 0.300 | 131.94 | 136.72 | |
| O24 | Links | 4xR8-150 | 14.795 | 15.395 | 0.600 | 241.20 | 273.45 | |
| O24 | Rechts | 4xR8-150 | 15.395 | 15.995 | 0.600 | 241.20 | 265.82 | |
| S18 | Links | 6xR8-150 | 15.995 | 16.895 | 0.900 | 231.33 | 273.45 | |
| S18 | Links | 2xR8-300 | 16.895 | 17.495 | 0.600 | 121.76 | 134.24 | |
| O25 | Links | 4xR8-150 | 17.495 | 18.095 | 0.600 | 199.12 | 268.48 | |
| O25 | Links | 6xR8-150 | 18.095 | 18.995 | 0.900 | 199.12 | 283.06 | |
| O25 | Rechts | 4xR8-150 | 18.995 | 19.595 | 0.600 | 180.34 | 276.65 | |
| O25 | Rechts | 3xR8-300 | 19.595 | 20.495 | 0.900 | 125.22 | 138.33 | |
| S19 | Links | 1xR8-300 | 20.495 | 20.795 | 0.300 | 114.32 | 141.53 | |

| | | | | | | | |
|-----|-------|----------|--------|--------|-------|--------|--------|
| S19 | Links | 7xR8-150 | 20.795 | 21.845 | 1.050 | 241.39 | 283.06 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 4 |
|--------------------|-----------|--------------|-------------------|-----------|----------|
| V8 (19.640-21.640) | Vloer | 0,8 <= 8,0 | 3,1 <= 8,0 | 0,11 | 0,38 |
| | Handmatig | | | | |
| V7 (16.620-19.640) | Vloer | 0,7 <= 12,1 | 2,0 <= 12,1 | 0,06 | 0,16 |
| | Handmatig | | | | |
| V6 (15.020-16.620) | Vloer | 0,1 <= 6,4 | 0,2 <= 6,4 | 0,01 | 0,03 |
| | Handmatig | | | | |
| V5 (10.820-15.020) | Vloer | -0,5 <= 16,8 | -1,0 <= 16,8 | 0,03 | 0,06 |
| | Handmatig | | | | |
| V4 (6.610-10.820) | Vloer | -0,4 <= 16,8 | -0,6 <= 16,8 | 0,02 | 0,03 |
| | Handmatig | | | | |
| V3 (5.020-6.610) | Vloer | 0,1 <= 6,4 | 0,2 <= 6,4 | 0,02 | 0,03 |
| | Handmatig | | | | |
| V2 (2.000-5.020) | Vloer | 0,7 <= 12,1 | 2,0 <= 12,1 | 0,06 | 0,16 |
| | Handmatig | | | | |
| V1 (0.000-2.000) | Vloer | 0,9 <= 8,0 | 3,1 <= 8,0 | 0,11 | 0,38 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 5
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 5 |
| Staven | S10-S12 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.64 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 5
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 5
OPLEGGEDEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment | Ligger 5 |
|---------|---------|------------|-----------|-------|-----------|-----|----------|----------|----------|----------|----------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet | |
| | | | | | | | | | afgetopt | afgetopt | |
| 4.320 | O30 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet | |
| | | | | | | | | | | afgetopt | |
| 5.020 | | | | S14 | 0,400 | N/B | | | Niet | Niet | |
| | | | | | | | | | afgetopt | afgetopt | |
| 10.820 | O31 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet | |
| | | | | | | | | | | afgetopt | |

| | | | | | | | | |
|--------|-----|-------|-------|-------|-----|---|----------|----------|
| 16.620 | | | S18 | 0,400 | N/B | | Niet | Niet |
| 17.320 | O32 | Ronde | 0,350 | | N/B | | afgetopt | afgetopt |
| | | paal | | | | | Afgetopt | Niet |
| 21.640 | | | S19 | 0,400 | Nee | | Niet | afgetopt |
| | | | | | | | afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 5 |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|-------------|-----------|----------|
| 4.320 | 110.45 | 4R12 | 2R12 | 599 | 679 | | 91.11 | N/B | 12.0 <= 8.2 | 60 <= 112 | |
| 10.820 | 154.16 | 4R12 | 4R12 | 857 | 905 | | 126.76 | N/B | 12.0 <= 7.3 | 43 <= 85 | |
| 17.320 | 110.31 | 4R12 | 2R12 | 598 | 679 | | 90.97 | N/B | 12.0 <= 8.2 | 60 <= 112 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 5 |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|--------------|-----------|----------|
| 1.897 | 164.62 | 5R12 | 3R16 | 923 | 1169 | | -130.40 | N/B | 13.5 <= 10.8 | 43 <= 177 | |
| 5.020 | 38.05 | 5R12 | | 200 | 565 | | -28.13 | N/B | 12.0 <= 28.0 | 76 <= 300 | |
| 6.369 | 52.41 | 5R12 | | 276 | 565 | | -43.28 | N/B | 12.0 <= 25.2 | 76 <= 288 | |
| 15.230 | 50.77 | 5R12 | | 268 | 565 | | -41.77 | N/B | 12.0 <= 26.1 | 76 <= 292 | |
| 16.620 | 31.07 | 5R12 | | 163 | 565 | | -25.53 | N/B | 12.0 <= 28.0 | 76 <= 300 | |
| 19.745 | 164.36 | 5R12 | 3R16 | 922 | 1169 | | -130.26 | N/B | 13.5 <= 10.8 | 43 <= 177 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 5 |
|---------|------|----------|--------|--------|----------|
| 16.620 | 0.28 | 1R8 | 3 | 50 | |
| 17.320 | 0.28 | 1R8 | 3 | 50 | |
| 19.746 | 0.28 | 1R8 | 3 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 5 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|------------------|
| 0.000 | 173.69 | R8-150 | 411 | 2 | 670 | 61.635 | 283.059 | 173.693 | N/B | N/B |
| 3.694 | 165.13 | R8-150 | 387 | 2 | 670 | 66.415 | 286.263 | 165.131 | N/B | N/B |
| 4.946 | 173.43 | R8-150 | 406 | 2 | 670 | 66.415 | 286.263 | 173.430 | N/B | N/B |
| 5.020 | 166.82 | R8-150 | 391 | 2 | 670 | 66.415 | 286.263 | 166.817 | N/B | N/B |
| 5.020 | 30.13 | R8-300 | 71 | 0 | 335 | 66.499 | 143.132 | 30.132 | N/B | N/B |
| 10.194 | 79.33 | R8-300 | 192 | 0 | 335 | 77.775 | 138.325 | 79.330 | N/B | N/B |
| 11.446 | 78.69 | R8-300 | 191 | 0 | 335 | 77.775 | 138.325 | 78.687 | N/B | N/B |
| 16.620 | 29.18 | R8-300 | 68 | 0 | 335 | 66.499 | 143.132 | 29.181 | N/B | N/B |
| 16.620 | 167.30 | R8-150 | 392 | 2 | 670 | 66.413 | 286.263 | 167.303 | N/B | N/B |
| 16.694 | 173.64 | R8-150 | 407 | 2 | 670 | 66.413 | 286.263 | 173.639 | N/B | N/B |
| 17.946 | 165.03 | R8-150 | 386 | 2 | 670 | 66.413 | 286.263 | 165.029 | N/B | N/B |
| 21.640 | 173.55 | R8-150 | 411 | 2 | 670 | 61.633 | 283.059 | 173.547 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 5 |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|----------|
| 4R12u(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 21.440 | 0.120 | 21.805 | 0.000 | 2,5D | 21.970 | |
| 2R12v(bijleg)(bijleg) | 3.096 | 0.000 | 2,5D | 0.569 | 3.665 | 4.979 | 0.569 | 5.548 | 0.000 | 2,5D | 2.453 | |

| | | | | | | | | | | | |
|-----------------------|--------|-------|------|-------|--------|--------|-------|--------|-------|------|-------|
| 4R12w(bijleg) | 9.041 | 0.000 | 2,5D | 0.427 | 9.468 | 12.172 | 0.427 | 12.599 | 0.000 | 2,5D | 3.558 |
| (bijleg) | | | | | | | | | | | |
| 2R12x(bijleg)(bijleg) | 16.119 | 0.000 | 2,5D | 0.501 | 16.620 | 17.974 | 0.569 | 18.544 | 0.000 | 2,5D | 2.425 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 5 Lengte |
|----------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 5R12w1(basis) | -0.165 | 0.337 | 4,0D | 0.496 | 0.000 | 21.440 | 0.496 | 21.799 | 0.137 | 4,0D | 22.438 |
| (basis) | | | | | | | | | | | |
| 3R16x1(bijleg) | -0.165 | 0.000 | 2,5D | 0.381 | 0.221 | 3.576 | 0.381 | 3.957 | 0.000 | 2,5D | 4.122 |
| (bijleg) | | | | | | | | | | | |
| 3R16y1(bijleg) | 17.686 | 0.000 | 2,5D | 0.381 | 18.068 | 21.418 | 0.381 | 21.805 | 0.000 | 2,5D | 4.119 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 5 |
|-----------|--------|-----------|--------|--------|--------|--------|--------|----------|
| S13 | Rechts | 6xR8-150 | -0.205 | 0.695 | 0.900 | 174.51 | 283.06 | |
| S13 | Rechts | 4xR8-300 | 0.695 | 1.895 | 1.200 | 131.83 | 141.53 | |
| O30 | Links | 4xR8-300 | 1.895 | 3.095 | 1.200 | 126.93 | 143.13 | |
| O30 | Links | 14xR8-150 | 3.095 | 5.195 | 2.100 | 174.25 | 286.26 | |
| S14 | Rechts | 8xR8-300 | 5.195 | 7.595 | 2.400 | 30.95 | 143.13 | |
| O31 | Links | 9xR8-300 | 7.595 | 10.295 | 2.700 | 80.15 | 138.33 | |
| O31 | Rechts | 3xR8-300 | 10.295 | 11.195 | 0.900 | 80.15 | 143.13 | |
| O31 | Rechts | 9xR8-300 | 11.195 | 13.895 | 2.700 | 79.50 | 138.33 | |
| S18 | Links | 9xR8-300 | 13.895 | 16.595 | 2.700 | 30.00 | 143.13 | |
| S18 | Rechts | 12xR8-150 | 16.595 | 18.395 | 1.800 | 174.45 | 286.26 | |
| O32 | Rechts | 5xR8-300 | 18.395 | 19.895 | 1.500 | 126.73 | 143.13 | |
| S19 | Links | 4xR8-300 | 19.895 | 21.095 | 1.200 | 131.69 | 141.53 | |
| S19 | Links | 5xR8-150 | 21.095 | 21.845 | 0.750 | 174.51 | 283.06 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 5 |
|--------------------|-----------|-------------|-------------------|-----------|----------|
| V6 (20.940-21.640) | Vloer | 0,3 <= 2,8 | 1,8 <= 2,8 | 0,09 | 0,66 |
| | Handmatig | | | | |
| V5 (16.620-20.940) | Vloer | 2,7 <= 17,3 | 7,6 <= 17,3 | 0,16 | 0,44 |
| | Handmatig | | | | |
| V4 (10.820-16.620) | Vloer | 0,9 <= 23,2 | -1,5 <= 23,2 | 0,04 | 0,07 |
| | Handmatig | | | | |
| V3 (5.020-10.820) | Vloer | 0,9 <= 23,2 | -1,5 <= 23,2 | 0,04 | 0,07 |
| | Handmatig | | | | |
| V2 (0.700-5.020) | Vloer | 2,7 <= 17,3 | 7,6 <= 17,3 | 0,16 | 0,44 |
| | Handmatig | | | | |
| V1 (0.000-0.700) | Vloer | 0,3 <= 2,8 | 2,8 <= 2,8 | 0,12 | 0,99 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 6
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.DI. | Ligger 6 |
| Staven | S13 |
| Profiel | R400x500 mm |
| Betonskwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 16.70 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |

Ligger 6

Fabric. I.h.w. Stortsl. 0 mm
- - - -

DEKKING
Ligger 6

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS
Ligger 6

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|---------------|--------------|--------|--------------|-----|----------|----------|------------------------------|--------------------------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt Afgetopt | Niet afgetopt Niet afgetopt |
| 4.175 | O6 | Ronde paal | 0,350 | | | N/B | | | | |
| 4.250 | | | | S4 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 6.950 | | | | S6 | 0,400 | N/B | | | Niet afgetopt Afgetopt | Niet afgetopt Niet |
| 8.350 | O19 | Ronde paal | 0,350 | | | N/B | | | | |
| 11.870 | | | | S7 | 0,400 | N/B | | | Niet afgetopt Afgetopt | Niet afgetopt Niet |
| 12.525 | O26 | Ronde paal | 0,350 | | | N/B | | | | |
| 16.400 | O28 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt Niet |
| 16.700 | | | | S10 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 6

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 4.175 | 89.35 | 4R12 | 1R12 | 480 | 565 | | 64.43 | N/B | 12.0 <= 10.9 | 76 <= 176 |
| 8.350 | 146.14 | 4R12 | 4R12 | 809 | 905 | | 106.48 | N/B | 12.0 <= 9.7 | 43 <= 153 |
| 12.525 | 82.83 | 4R12 | | 444 | 452 | | 59.46 | N/B | 12.0 <= 8.8 | 101 <= 129 |
| 16.400 | 54.32 | 4R12 | | 288 | 452 | | 43.64 | N/B | 12.0 <= 16.1 | 101 <= 230 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 6

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|-----------|
| 1.779 | 98.59 | 5R12 | | 532 | 565 | | -59.00 | N/B | 12.0 <= 13.7 | 76 <= 220 |
| 6.053 | 52.04 | 5R12 | | 275 | 565 | | -25.92 | N/B | 12.0 <= 28.0 | 76 <= 300 |
| 11.170 | 113.31 | 5R12 | 1R12 | 616 | 679 | | -81.74 | N/B | 12.0 <= 10.6 | 60 <= 168 |
| 14.551 | 49.96 | 5R12 | | 264 | 565 | | -41.00 | N/B | 12.0 <= 26.6 | 76 <= 294 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 6

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 4.250 | 0.40 | 1R8 | 4 | 50 |

| m | kNm | - | mm2 | mm2 | | | | | | | |
|-----------------------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-------|-----------------|
| BEUGELWAPENING | | | | | | | | | | | Ligger 6 |
| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | |
| 0.000 | 111.00 | R8-300 | 260 | 2 | 335 | 61.649 | 143.132 | 110.999 | N/B | N/B | |
| 3.549 | 112.58 | R8-300 | 264 | 2 | 335 | 66.427 | 143.132 | 112.582 | N/B | N/B | |
| 4.250 | 183.47 | R8-150 | 430 | 2 | 670 | 61.649 | 286.263 | 183.466 | N/B | N/B | |
| 4.250 | 113.35 | R8-300 | 265 | 3 | 335 | 61.590 | 143.132 | 113.354 | N/B | N/B | |
| 4.801 | 78.97 | R8-300 | 185 | 3 | 335 | 66.377 | 143.132 | 78.967 | N/B | N/B | |
| 6.950 | 60.94 | R8-300 | 143 | 0 | 335 | 66.499 | 143.132 | 60.942 | N/B | N/B | |
| 6.950 | 66.68 | R8-300 | 156 | 1 | 335 | 66.437 | 143.132 | 66.676 | N/B | N/B | |
| 7.724 | 114.64 | R8-300 | 278 | 1 | 335 | 77.732 | 138.325 | 114.636 | N/B | N/B | |
| 8.976 | 139.03 | R8-150 | 337 | 1 | 670 | 77.732 | 276.650 | 139.033 | N/B | N/B | |
| 11.870 | 51.05 | R8-300 | 121 | 0 | 335 | 66.499 | 141.530 | 51.054 | N/B | N/B | |
| 11.870 | 256.10 | R8-150 | 606 | 1 | 670 | 66.470 | 283.059 | 256.105 | N/B | N/B | |
| 11.899 | 257.68 | R8-150 | 610 | 1 | 670 | 66.470 | 283.059 | 257.677 | N/B | N/B | |
| 13.151 | 80.14 | R8-300 | 186 | 1 | 335 | 61.699 | 144.734 | 80.144 | N/B | N/B | |
| 15.774 | 72.00 | R8-300 | 167 | 1 | 335 | 61.699 | 144.734 | 71.999 | N/B | N/B | |
| 16.700 | 173.69 | R8-150 | 407 | 1 | 670 | 66.470 | 286.263 | 173.693 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 6 |
|-------------------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|-----------------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12y(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 16.500 | 0.546 | 16.859 | 0.187 | 4,0D | 17.211 |
| 1R12a1(bijleg) | 2.927 | 0.000 | 2,5D | 0.683 | 3.611 | 4.742 | 0.683 | 5.425 | 0.000 | 2,5D | 2.498 |
| (bijleg) | | | | | | | | | | | |
| 4R12b1(bijleg) | 6.942 | 0.000 | 2,5D | 0.427 | 7.369 | 9.331 | 0.427 | 9.758 | 0.000 | 2,5D | 2.816 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 6 |
|-------------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|-----------------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 5R12a2(basis)(basis) | -0.165 | 0.158 | 4,0D | 0.317 | 0.000 | 16.500 | 0.496 | 16.859 | 0.137 | 4,0D | 17.319 |
| 1R12b2(bijleg) | 9.638 | 0.000 | 2,5D | 0.493 | 10.131 | 12.210 | 0.493 | 12.703 | 0.000 | 2,5D | 3.065 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | | | | Ligger 6 |
|--------------------------------|--------|-----------|--------|--------|--------|--------|--------|--|--|--|-----------------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | | | |
| S1 | Rechts | 25xR8-300 | -0.200 | 7.300 | 7.500 | 113.75 | 143.13 | | | | |
| O19 | Links | 2xR8-300 | 7.300 | 7.900 | 0.600 | 115.80 | 138.33 | | | | |
| O19 | Rechts | 3xR8-300 | 7.900 | 8.800 | 0.900 | 140.20 | 143.13 | | | | |
| O19 | Rechts | 4xR8-150 | 8.800 | 9.400 | 0.600 | 140.20 | 276.65 | | | | |
| O19 | Rechts | 8xR8-300 | 9.400 | 11.800 | 2.400 | 113.92 | 138.33 | | | | |
| S7 | Rechts | 6xR8-150 | 11.800 | 12.700 | 0.900 | 258.84 | 283.06 | | | | |
| O26 | Rechts | 1xR8-300 | 12.700 | 13.000 | 0.300 | 81.31 | 141.53 | | | | |
| O26 | Rechts | 10xR8-300 | 13.000 | 16.000 | 3.000 | 81.31 | 144.73 | | | | |
| O28 | Links | 1xR8-300 | 16.000 | 16.300 | 0.300 | 73.16 | 143.13 | | | | |
| S10 | Links | 3xR8-150 | 16.300 | 16.825 | 0.525 | 174.86 | 286.26 | | | | |
| - | - | - | m | m | m | kN | kN | | | | |

| TOETSING DOORBUIGING | | | | | | Ligger 6 |
|-----------------------------|-----------|-------------|-------------|-------------|-----------|-----------------|
| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | |
| V8 (16.400-16.700) | Vloer | 0,1 <= 1,2 | 0,3 <= 1,2 | 0,10 | 0,23 | |
| | Handmatig | | | | | |
| V7 (12.525-16.400) | Vloer | 0,9 <= 15,5 | 1,4 <= 15,5 | 0,06 | 0,09 | |
| | Handmatig | | | | | |
| V6 (11.870-12.525) | Vloer | 0,2 <= 2,6 | -0,1 <= 2,6 | 0,09 | 0,03 | |

| | | | | | |
|-------------------|--------------------|-------------|-------------|------|------|
| V5 (8.350-11.870) | Handmatig Vloer | 1,7 <= 14,1 | 2,0 <= 14,1 | 0,12 | 0,14 |
| V4 (6.950-8.350) | Handmatig Vloer | -0,3 <= 5,6 | 0,4 <= 5,6 | 0,05 | 0,07 |
| V3 (4.250-6.950) | Handmatig Vloer | 0,6 <= 10,8 | 1,4 <= 10,8 | 0,05 | 0,13 |
| V2 (4.175-4.250) | Handmatig Vloer | 0,0 <= 0,3 | 0,2 <= 0,3 | 0,12 | 0,53 |
| V1 (0.000-4.175) | Handmatig Vloer | 2,6 <= 16,7 | 2,0 <= 16,7 | 0,16 | 0,12 |
| m | - | mm | mm | - | - |

LIGGER 7

ALGEMEEN + KRUIP Algemene gegevens

Kruipgegevens

Ligger 7

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 7 | Cement | S |
| Staven | S14 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonskwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.83 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING

Ligger 7

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENEN

Ligger 7

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|-------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S7 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.830 | | | | S10 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

Ligger 7

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|-------------------|------|---------|-------|-------|
| 0.000 | 0.00 | 4R12 | | 1 | 452 | N/B | | N/B | N/B | N/B |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

Ligger 7

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|-----------|
| 2.416 | 166.42 | 5R12 | 3R16 | 933 | 1169 | | -137.10 | N/B | 13.5 <= 9.9 | 43 <= 159 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

Ligger 7

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|----|----------|--------|--------|
|---------|----|----------|--------|--------|

| | | | | |
|-------|------|-----|-----------------|-----------------|
| 0.000 | 0.12 | 1R8 | 1 | 50 |
| m | kNm | - | mm ² | mm ² |

BEUGELWAPENING

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 7 VEdi |
|---------|--------|---------|-----------------|-----------------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0.000 | 138.30 | R8-300 | 320 | 1 | 335 | 61.691 | 144.734 | 138.298 | N/B | N/B |
| 4.830 | 138.13 | R8-300 | 320 | 1 | 335 | 61.691 | 144.734 | 138.132 | N/B | N/B |
| m | kN | - | mm ² | mm ² | mm ² | N/mm ² | N/mm ² | N/mm ² | N/mm ² | N/mm ² |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12c1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.630 | 0.120 | 4.995 | 0.000 | 2,5D | 5.160 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 5R12c2(basis)(basis) | -0.165 | 0.236 | 4,0D | 0.395 | 0.000 | 4.630 | 0.395 | 4.989 | 0.036 | 4,0D | 5.426 |
| 3R16d2(bijleg) | 0.026 | 0.000 | 2,5D | 0.381 | 0.407 | 4.426 | 0.381 | 4.807 | 0.000 | 2,5D | 4.781 |
| (bijleg) | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S7 | Rechts | 18xR8-300 | -0.285 | 5.115 | 5.400 | 138.64 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V1 (0.000-4.830) | Vloer | 4,0 <= 19,3 | 12,0 <= 19,3 | 0,21 |
| m | Handmatig | mm | mm | - |

LIGGER 8
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.DI. | Ligger 8 |
| Staven | S15 |
| Profiel | R400x500 mm |
| Betonekwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 4.25 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 8
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 8

| OPLEGGEGEVENS | | | | | | | | | | Ligger 8 |
|---------------|---------|------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.250 | | | | S4 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

| BOVENWAPENING | | | | | | | | | | Ligger 8 |
|---------------|------|-------|--------|--------|--------|---------------|------|---------|-------|----------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 0.000 | 0.00 | 4R12 | | 0 | 452 | N/B | | N/B | N/B | N/B |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| ONDERWAPENING | | | | | | | | | | Ligger 8 |
|---------------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|-----------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 2.112 | 13.81 | 5R12 | | 71 | 565 | | -11.32 | N/B | 12.0 <= 28.0 | 76 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | | | | | Ligger 8 |
|---------------|------|----------|--|--------|--------|--|--|--|--|----------|
| Positie | Mx | Wapening | | As,ben | As,toe | | | | | |
| 0.000 | 0.15 | 1R8 | | 0 | 50 | | | | | |
| m | kNm | - | | mm2 | mm2 | | | | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 8 |
|----------------|-------|-----------|----------|----------|--------|--------|---------|--------|-------|----------|
| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 12.89 | R8-300 | 30 | 0 | 335 | 66.499 | 143.132 | 12.890 | N/B | N/B |
| 4.250 | 13.04 | R8-300 | 30 | 0 | 335 | 61.732 | 144.734 | 13.041 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | | Ligger 8 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | |
| 4R12d1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.050 | 0.120 | 4.415 | 0.000 | 2,5D | 4.580 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | | Ligger 8 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | |
| 5R12d1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.050 | 0.120 | 4.415 | 0.000 | 2,5D | 4.580 | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

| AFBOUWEN BEUGELWAPENING | | | | | | | | | | Ligger 8 |
|-------------------------|--------|----------|--------|-------|--------|-------|--------|--|--|----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | | |
| S1 | Rechts | 8xR8-300 | -0.275 | 2.125 | 2.400 | 12.89 | 143.13 | | | |
| S4 | Links | 8xR8-300 | 2.125 | 4.525 | 2.400 | 13.04 | 144.73 | | | |
| - | - | - | m | m | m | kN | kN | | | |

| TOETSING DOORBUIGING | | | | | | | | | | Ligger 8 |
|----------------------|-----------|--|-------------|-------------|-------------|-----------|--|--|--|----------|
| Veld | Voetsing | | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | | | | |
| V1 (0.000-4.250) | Vloer | | 0,4 <= 17,0 | 0,6 <= 17,0 | 0,02 | 0,03 | | | | |
| m | Handmatig | | mm | mm | - | - | | | | |

LIGGER 9

| ALGEMEEN + KRUIP | Kruipgegevens | Ligger 9 |
|-------------------|---------------|----------|
| Algemene gegevens | | |

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 9 | Cement | S |
| Staven | S16 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonekwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.92 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 9

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEDEGEVENS
Ligger 9

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S6 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.920 | | | | S8 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 9

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|----------------|------|---------|-------|-------|
| 0.000 | 0.00 | 4R12 | | 1 | 452 | N/B | | N/B | N/B | N/B |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 9

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|----------|
| 2.456 | 142.48 | 5R12 | 2R12 | 785 | 792 | | -117.44 | N/B | 12.0 <= 7.2 | 50 <= 81 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 9

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.07 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 9

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|-----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 116.07 | R8-300 | 269 | 0 | 335 | 61.708 | 144.734 | 116.075 | N/B | N/B |
| 4.920 | 116.40 | R8-300 | 270 | 0 | 335 | 61.708 | 144.734 | 116.404 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 9

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12e1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.720 | 0.120 | 5.085 | 0.000 | 2,5D | 5.250 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 9

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 5R12e2(basis)(basis) | -0.165 | 0.173 | 4,0D | 0.332 | 0.000 | 4.720 | 0.333 | 5.085 | 0.000 | 2,5D | 5.423 |
| 2R12f2(bijleg) | 0.237 | 0.000 | 2,5D | 0.422 | 0.660 | 4.253 | 0.422 | 4.676 | 0.000 | 2,5D | 4.438 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 9

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S6 | Rechts | 18xR8-300 | -0.240 | 5.160 | 5.400 | 116.60 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 9

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V1 (0.000-4.920) | Vloer | 4,4 <= 19,7 | 13,5 <= 19,7 | 0,22 |
| | Handmatig | | | 0,69 |
| m | - | mm | mm | - |

LIGGER 10
ALGEMEEN + KRUIP
Ligger 10
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 10 | Cement | S |
| Staven | S17 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 6.95 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 10

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEN
Ligger 10

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S2 | 0,400 | Nee | | Niet | | Niet |
| | | | | | | | | afgetopt | | afgetopt |
| 4.250 | | | | S5 | 0,400 | N/B | | Niet | | Niet |
| | | | | | | | | afgetopt | | afgetopt |
| 6.950 | | | | S6 | 0,400 | Nee | | Niet | | Niet |
| | | | | | | | | afgetopt | | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 10

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|----------------|--------|---------|-------------|----------|
| 4.250 | 173.21 | 4R12 | 3R16 | 977 | 1056 | | 141.39 | N/B | 13.7 <= 7.5 | 50 <= 96 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 10

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|-----------|
| 1.592 | 86.87 | 5R12 | | 466 | 565 | | -68.51 | N/B | 12.0 <= 10.7 | 76 <= 170 |
| 6.441 | 8.99 | 5R12 | | 49 | 565 | | -5.71 | N/B | 12.0 <= 28.0 | 76 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 10

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 4.250 | 0.34 | 1R8 | 3 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 10

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 109.28 | R8-300 | 270 | 1 | 335 | 61.626 | 135.806 | 109.285 | N/B | N/B |
| 4.250 | 186.62 | R8-150 | 460 | 1 | 670 | 61.626 | 271.612 | 186.616 | N/B | N/B |
| 4.250 | 156.90 | R8-150 | 387 | 2 | 670 | 61.540 | 271.612 | 156.899 | N/B | N/B |
| 6.950 | 34.96 | R8-300 | 82 | 0 | 335 | 66.499 | 143.132 | 34.961 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 10

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12f1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 6.750 | 0.120 | 7.115 | 0.000 | 2,5D | 7.280 |
| 3R16g1(bijleg) | 2.655 | 0.000 | 2,5D | 0.488 | 3.143 | 5.477 | 0.488 | 5.965 | 0.000 | 2,5D | 3.310 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 10

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 5R12g2(basis)(basis) | -0.165 | 0.153 | 4,0D | 0.312 | 0.000 | 6.750 | 0.120 | 7.115 | 0.000 | 2,5D | 7.433 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 10

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S5 | Links | 12xR8-300 | -0.275 | 3.325 | 3.600 | 128.92 | 135.81 |
| S5 | Links | 10xR8-150 | 3.325 | 4.825 | 1.500 | 187.55 | 271.61 |
| S5 | Rechts | 8xR8-300 | 4.825 | 7.225 | 2.400 | 124.89 | 135.81 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 10

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|--------------|--------------|-------------|-----------|
| V2 (4.250-6.950) | Vloer | -1,1 <= 10,8 | -1,7 <= 10,8 | 0,10 | 0,16 |
| | Handmatig | | | | |
| V1 (0.000-4.250) | Vloer | 2,1 <= 17,0 | 2,7 <= 17,0 | 0,12 | 0,16 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 11
ALGEMEEN + KUIP
Ligger 11
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-------------|------------|
| Constr.DI. | Ligger 11 | Cement | S |
| Staven | S18 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonskwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.83 m | | |

| | | | |
|-------------|---------|-----------------|---------|
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | l.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 11

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEN
Ligger 11

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S8 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.830 | | | | S11 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 11

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|----------------|------|---------|-------|-------|
| 0.000 | 0.00 | 4R12 | | 1 | 452 | N/B | | N/B | N/B | N/B |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 11

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|-----------|
| 2.416 | 166.42 | 5R12 | 3R16 | 933 | 1169 | | -137.09 | N/B | 13.5 <= 9.9 | 43 <= 159 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 11

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.12 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 11

| Positie | Vd | Wapen in g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|------------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 138.30 | R8-300 | 320 | 1 | 335 | 61.691 | 144.734 | 138.302 | N/B | N/B |
| 4.830 | 138.13 | R8-300 | 320 | 1 | 335 | 61.691 | 144.734 | 138.133 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 11

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12c1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.630 | 0.120 | 4.995 | 0.000 | 2,5D | 5.160 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 11

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 5R12h2(basis)(basis) | -0.165 | 0.236 | 4,0D | 0.395 | 0.000 | 4.630 | 0.395 | 4.989 | 0.036 | 4,0D | 5.426 |
| 3R16i2(bijleg) | 0.026 | 0.000 | 2,5D | 0.381 | 0.407 | 4.426 | 0.381 | 4.807 | 0.000 | 2,5D | 4.781 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 11

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S8 | Rechts | 18xR8-300 | -0.285 | 5.115 | 5.400 | 138.64 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|--------------|-------------|-----------|
| V1 (0.000-4.830) | Vloer | 4,0 <= 19,3 | 12,0 <= 19,3 | 0,21 | 0,62 |
| m | Handmatig | mm | mm | - | - |

Ligger 11
LIGGER 12
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 12 |
| Staven | S19 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 16.70 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 12
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 33 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 12
OPLEGGEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S3 | 0,400 | Nee | | | Niet | Niet |
| 4.175 | O7 | Ronde paal | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 6.950 | | | | S6 | 0,400 | N/B | | | afgetopt | Niet |
| 8.350 | O20 | Ronde paal | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 11.870 | | | | S9 | 0,400 | N/B | | | afgetopt | Niet |
| 12.525 | O27 | Ronde paal | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 16.400 | O29 | Ronde paal | 0,350 | | | N/B | | | afgetopt | Niet |
| 16.700 | | | | S12 | 0,400 | Nee | | | Niet | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

Ligger 12
BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|
|---------|----|-------|--------|--------|--------|---------------|------|---------|-------|-------|

Ligger 12

| | | | | | | | | | |
|--------|--------|------|------|-----|-----|--------|-----|-------------|------------|
| 4.175 | 115.72 | 4R12 | 2R12 | 628 | 679 | 88.18 | N/B | 12.0 <= 8.6 | 60 <= 124 |
| 8.350 | 139.95 | 4R12 | 4R12 | 770 | 905 | 113.95 | N/B | 12.0 <= 8.7 | 43 <= 128 |
| 12.525 | 83.10 | 4R12 | | 443 | 452 | 58.05 | N/B | 12.0 <= 9.1 | 101 <= 138 |
| 16.400 | 54.25 | 4R12 | | 285 | 452 | 43.61 | N/B | 12.0 <= | 101 <= 230 |
| | | | | | | | | 16.1 | |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 12 |
|---------|--------|-------|--------|--------|--------|---------------|------|---------|-------------|-----------|-----------|
| 1.734 | 103.17 | 5R12 | | 556 | 565 | -84.45 | N/B | | 12.0 <= 7.4 | 76 <= 88 | |
| 6.217 | 44.09 | 5R12 | | 231 | 565 | -29.36 | N/B | | 12.0 <= | 76 <= 300 | |
| | | | | | | | | | 28.0 | | |
| 11.197 | 117.25 | 5R12 | 1R12 | 637 | 679 | -81.25 | N/B | | 12.0 <= | 60 <= 171 | |
| | | | | | | | | | 10.7 | | |
| 14.533 | 51.94 | 5R12 | | 273 | 565 | -42.85 | N/B | | 12.0 <= | 76 <= 289 | |
| | | | | | | | | | 25.5 | | |
| m | kNm | - | - | mm2 | mm2 | kNm | mm2 | | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 12 |
|---------|------|----------|--------|--------|-----------|
| 6.950 | 0.13 | 1R8 | 1 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi | Ligger 12 |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|-----------|
| 0.000 | 119.03 | R8-300 | 282 | 0 | 335 | 61.714 | 141.530 | 119.031 | N/B | N/B | |
| 3.549 | 128.05 | R8-300 | 303 | 0 | 335 | 70.651 | 141.530 | 128.047 | N/B | N/B | |
| 4.801 | 101.14 | R8-300 | 239 | 0 | 335 | 70.651 | 141.530 | 101.140 | N/B | N/B | |
| 6.950 | 55.49 | R8-300 | 130 | 0 | 335 | 66.499 | 143.132 | 55.493 | N/B | N/B | |
| 6.950 | 73.71 | R8-300 | 173 | 1 | 335 | 66.458 | 143.132 | 73.708 | N/B | N/B | |
| 7.724 | 116.08 | R8-300 | 281 | 1 | 335 | 77.748 | 138.325 | 116.082 | N/B | N/B | |
| 8.976 | 138.60 | R8-150 | 336 | 1 | 670 | 77.748 | 276.650 | 138.603 | N/B | N/B | |
| 11.870 | 50.88 | R8-300 | 120 | 0 | 335 | 66.499 | 141.530 | 50.882 | N/B | N/B | |
| 11.870 | 254.69 | R8-150 | 603 | 1 | 670 | 66.472 | 283.059 | 254.691 | N/B | N/B | |
| 11.899 | 256.26 | R8-150 | 607 | 1 | 670 | 66.472 | 283.059 | 256.264 | N/B | N/B | |
| 13.151 | 80.10 | R8-300 | 185 | 1 | 335 | 61.701 | 144.734 | 80.100 | N/B | N/B | |
| 15.774 | 71.78 | R8-300 | 168 | 1 | 335 | 66.472 | 143.132 | 71.783 | N/B | N/B | |
| 16.700 | 173.55 | R8-150 | 406 | 1 | 670 | 66.472 | 286.263 | 173.547 | N/B | N/B | |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 12 |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|-----------|
| 4R12h1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 16.500 | 0.545 | 16.859 | 0.186 | 4,0D | 17.210 | |
| 2R12i1(bijleg) | 2.889 | 0.000 | 2,5D | 0.569 | 3.458 | 4.940 | 0.569 | 5.509 | 0.000 | 2,5D | 2.621 | |
| (bijleg) | | | | | | | | | | | | |
| 4R12j1(bijleg) | 6.878 | 0.000 | 2,5D | 0.427 | 7.305 | 9.297 | 0.427 | 9.724 | 0.000 | 2,5D | 2.846 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 12 |
|----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------|-----------|
| 5R12j2(basis)(basis) | -0.165 | 0.181 | 4,0D | 0.340 | 0.000 | 16.500 | 0.496 | 16.859 | 0.137 | 4,0D | 17.342 | |
| 1R12k2(bijleg) | 9.556 | 0.000 | 2,5D | 0.493 | 10.049 | 12.350 | 0.493 | 12.843 | 0.000 | 2,5D | 3.287 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN BEUGELWAPENING

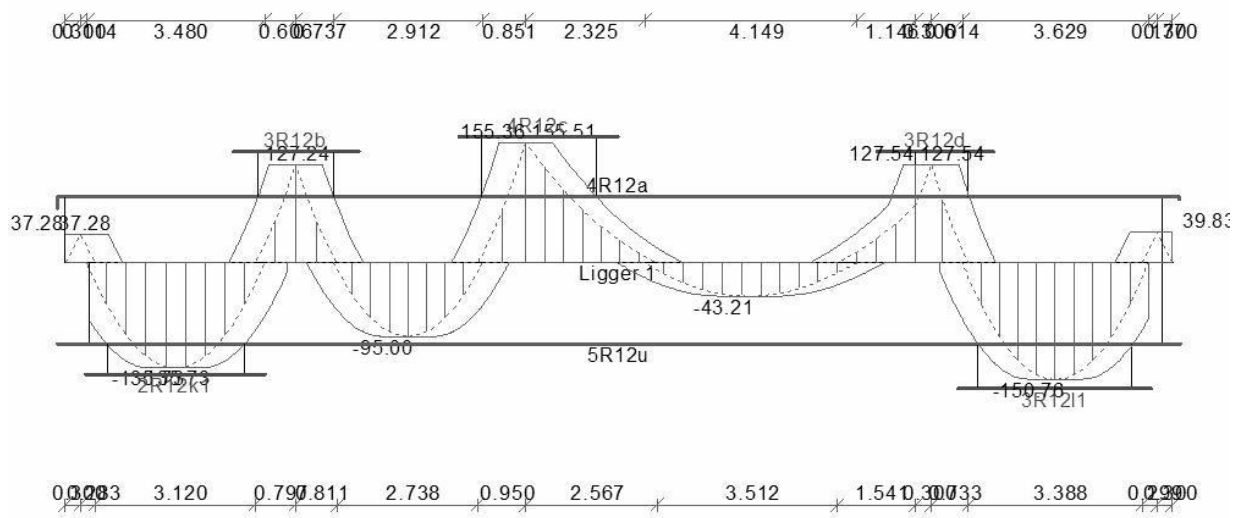
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 12 |
|-----------|--------|-----------|--------|-------|--------|--------|--------|-----------|
| S3 | Rechts | 13xR8-300 | -0.200 | 3.700 | 3.900 | 128.43 | 141.53 | |

| | | | | | | | |
|-----|--------|----------|--------|--------|-------|--------|--------|
| O7 | Links | 3xR8-300 | 3.700 | 4.600 | 0.900 | 128.43 | 143.13 |
| O7 | Rechts | 4xR8-300 | 4.600 | 5.800 | 1.200 | 101.53 | 141.53 |
| S6 | Links | 5xR8-300 | 5.800 | 7.300 | 1.500 | 91.42 | 143.13 |
| O20 | Links | 2xR8-300 | 7.300 | 7.900 | 0.600 | 116.47 | 138.33 |
| O20 | Rechts | 3xR8-300 | 7.900 | 8.800 | 0.900 | 138.99 | 143.13 |
| O20 | Rechts | 2xR8-150 | 8.800 | 9.100 | 0.300 | 138.99 | 276.65 |
| O20 | Rechts | 9xR8-300 | 9.100 | 11.800 | 2.700 | 136.23 | 138.33 |
| S9 | Rechts | 6xR8-150 | 11.800 | 12.700 | 0.900 | 256.65 | 283.06 |
| O27 | Rechts | 1xR8-300 | 12.700 | 13.000 | 0.300 | 80.49 | 141.53 |
| O27 | Rechts | 5xR8-300 | 13.000 | 14.500 | 1.500 | 80.49 | 144.73 |
| O29 | Links | 6xR8-300 | 14.500 | 16.300 | 1.800 | 72.17 | 143.13 |
| S12 | Links | 3xR8-150 | 16.300 | 16.825 | 0.525 | 173.93 | 286.26 |
| - | - | - | m | m | m | kN | kN |

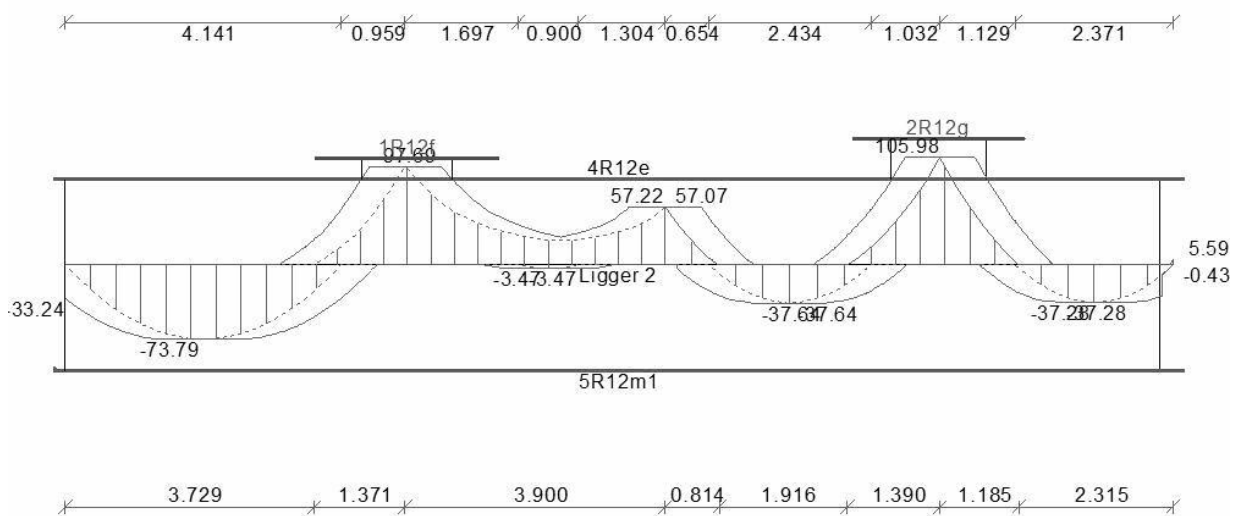
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | Ligger 12 UC(w;max) | |
|--------------------|-----------|-------------|-------------------|------------------------|------|
| V7 (16.400-16.700) | Vloer | 0,0 <= 1,2 | 0,4 <= 1,2 | 0,03 | 0,37 |
| | Handmatig | | | | |
| V6 (12.525-16.400) | Vloer | 0,8 <= 15,5 | 1,5 <= 15,5 | 0,05 | 0,10 |
| | Handmatig | | | | |
| V5 (11.870-12.525) | Vloer | -0,1 <= 2,6 | -0,1 <= 2,6 | 0,05 | 0,03 |
| | Handmatig | | | | |
| V4 (8.350-11.870) | Vloer | 1,4 <= 14,1 | 1,7 <= 14,1 | 0,10 | 0,12 |
| | Handmatig | | | | |
| V3 (6.950-8.350) | Vloer | -0,2 <= 5,6 | 0,3 <= 5,6 | 0,03 | 0,05 |
| | Handmatig | | | | |
| V2 (4.175-6.950) | Vloer | 0,7 <= 11,1 | 1,2 <= 11,1 | 0,06 | 0,11 |
| | Handmatig | | | | |
| V1 (0.000-4.175) | Vloer | 2,6 <= 16,7 | 6,1 <= 16,7 | 0,15 | 0,37 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

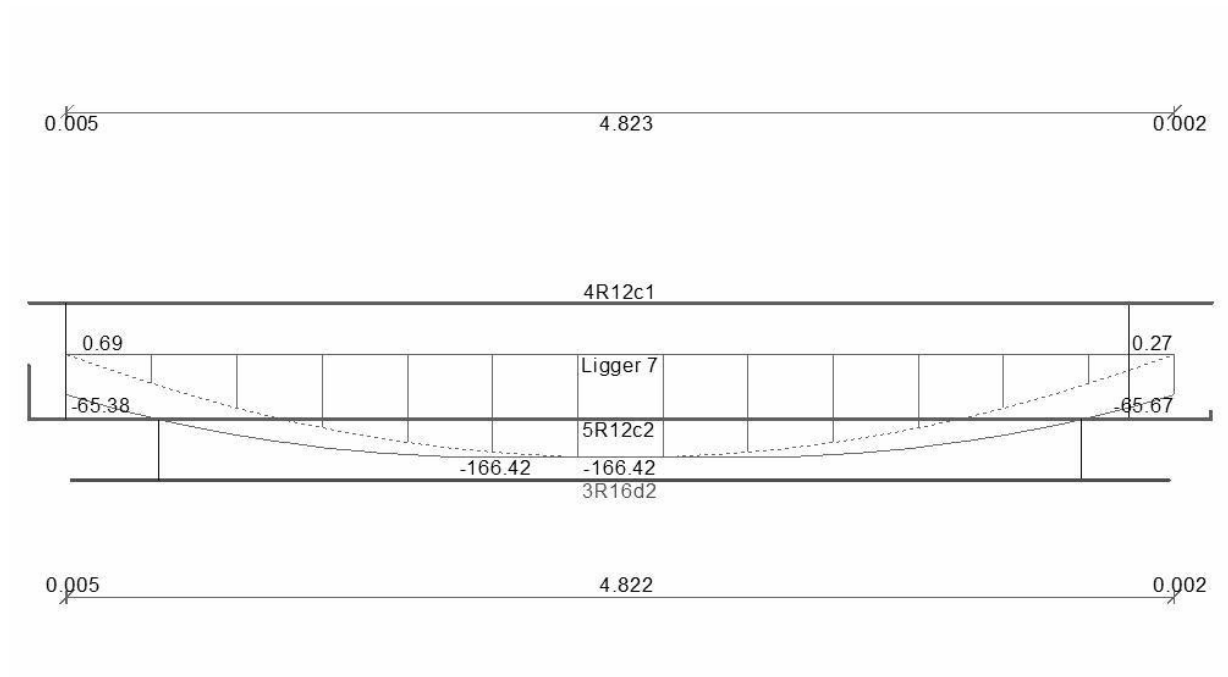
AFB. LANGSWAPENING. (AFBOUW) LIGGER 1



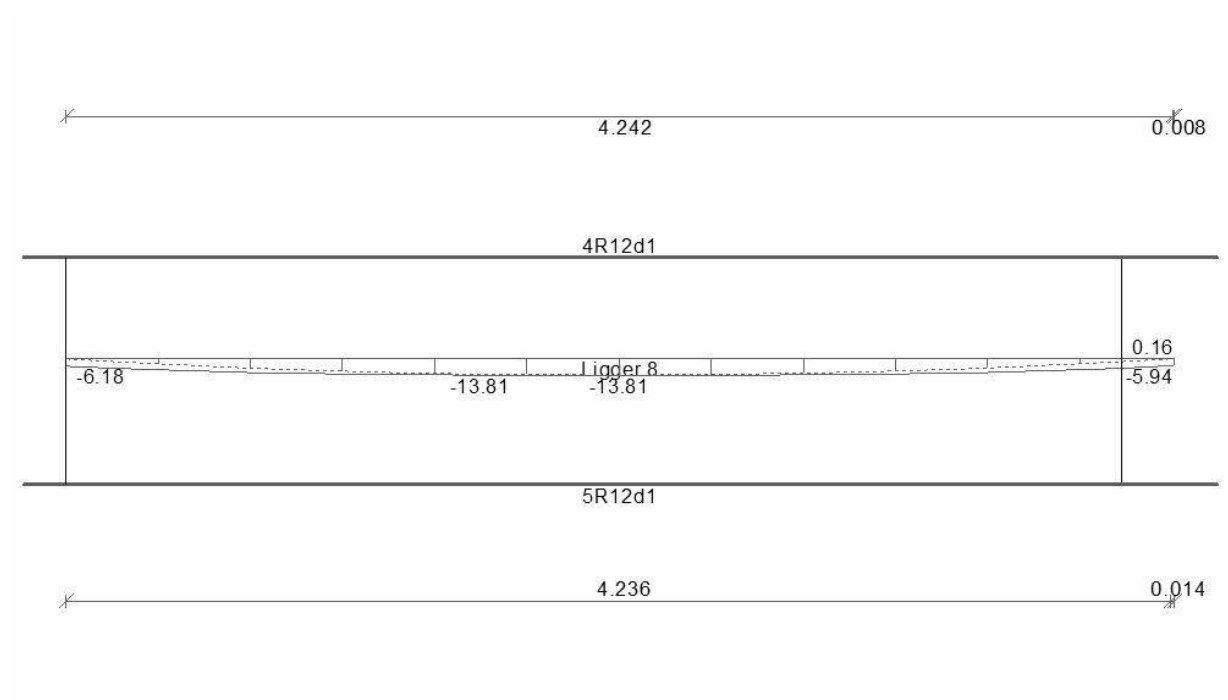
AFB. LANGSWAPENING. (AFBOUW) LIGGER 2



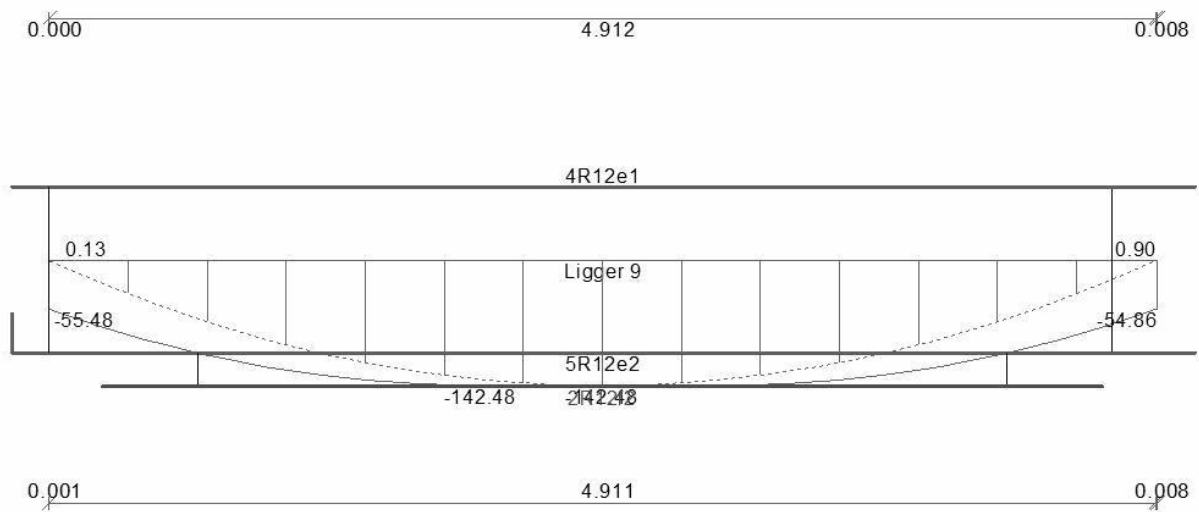
AFB. LANGSWAPENING. (AFBOUW) LIGGER 7



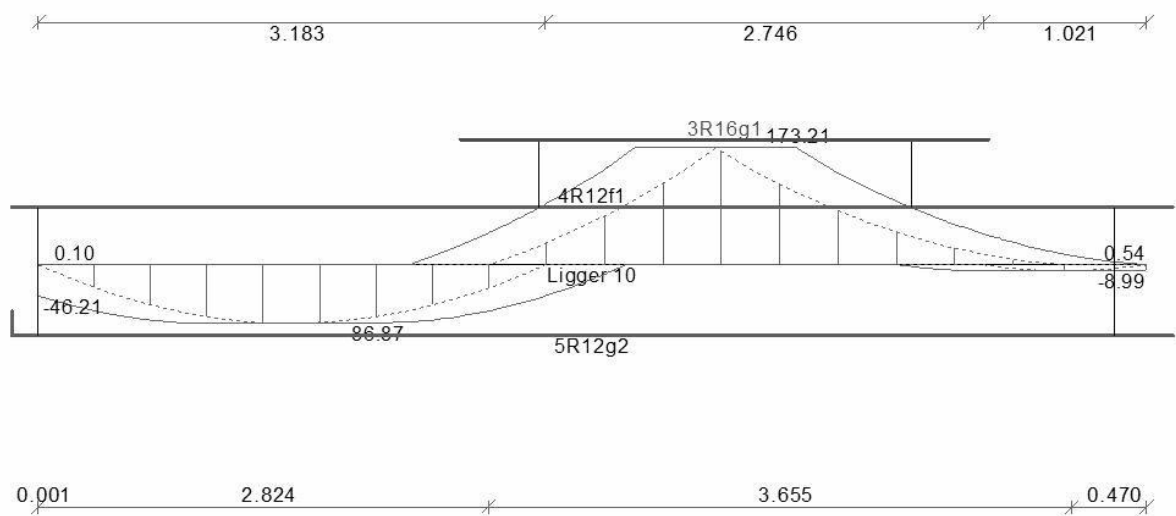
AFB. LANGSWAPENING. (AFBOUW) LIGGER 8



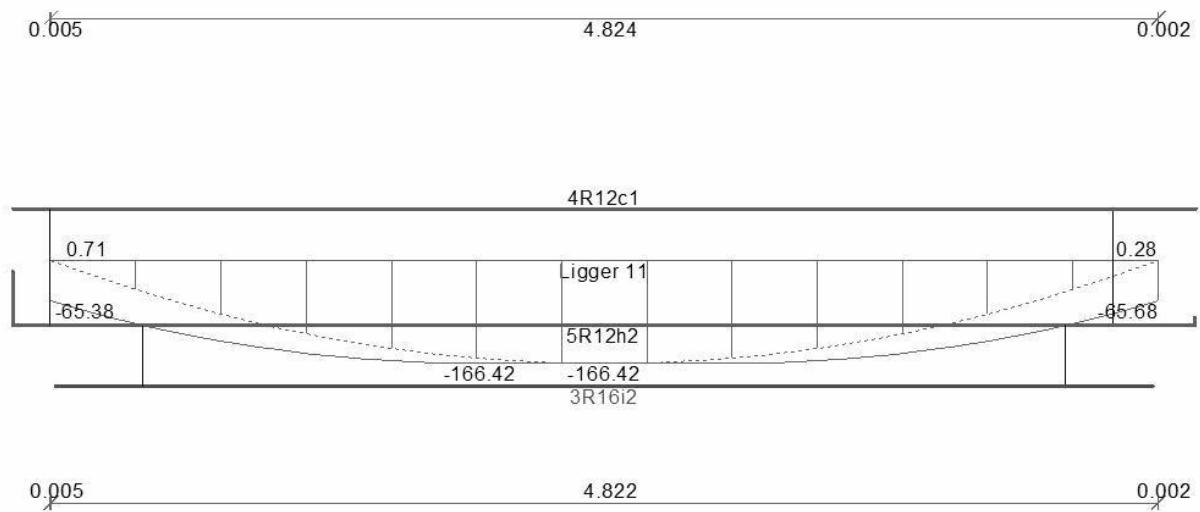
AFB. LANGSWAPENING. (AFBOUW) LIGGER 9



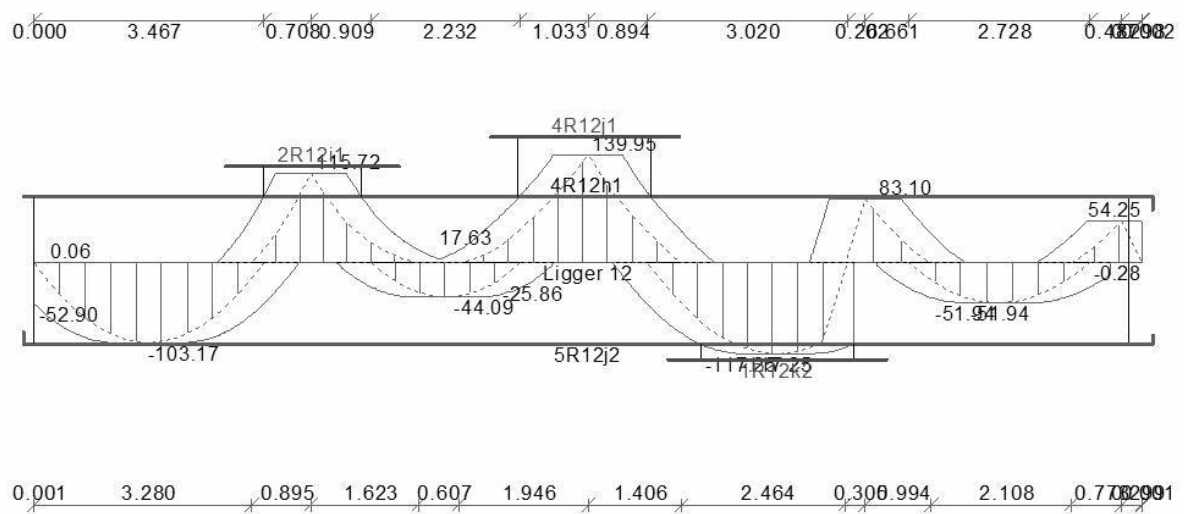
AFB. LANGSWAPENING. (AFBOUW) LIGGER 10



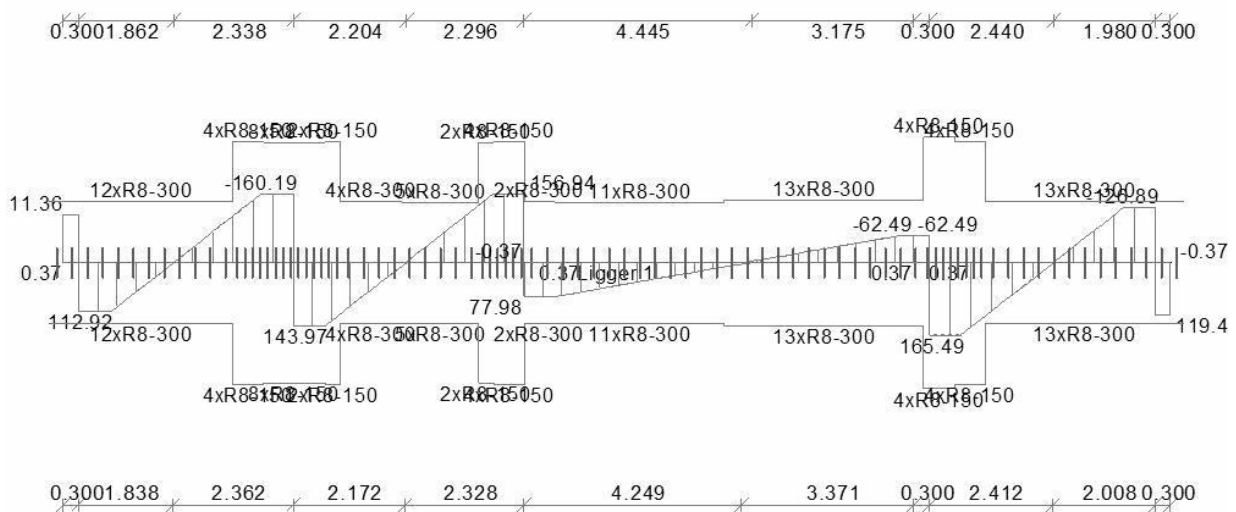
AFB. LANGSWAPENING. (AFBOUW) LIGGER 11



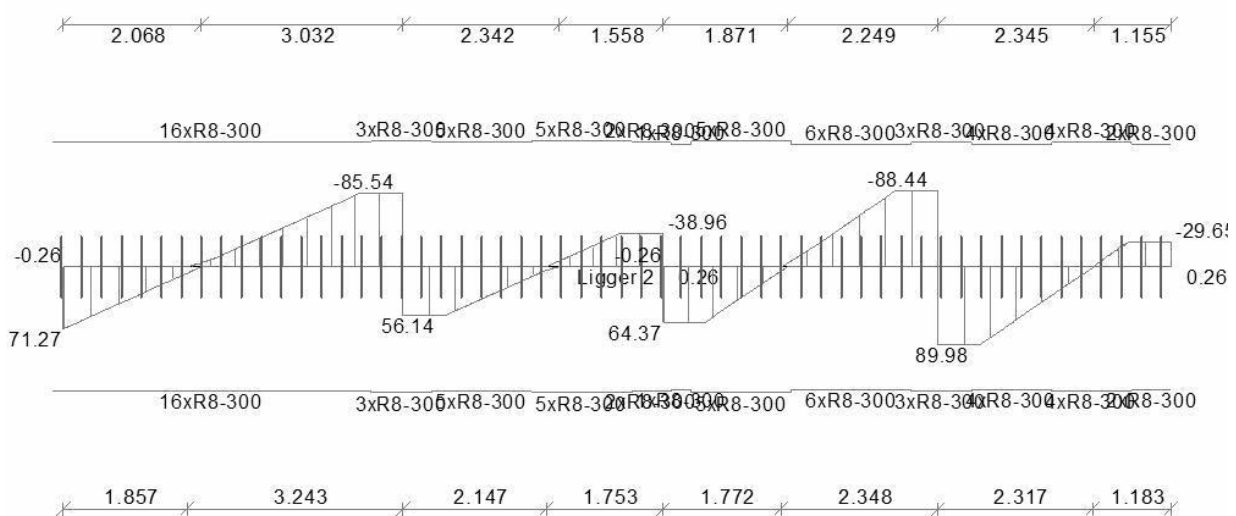
AFB. LANGSWAPENING. (AFBOUW) LIGGER 12



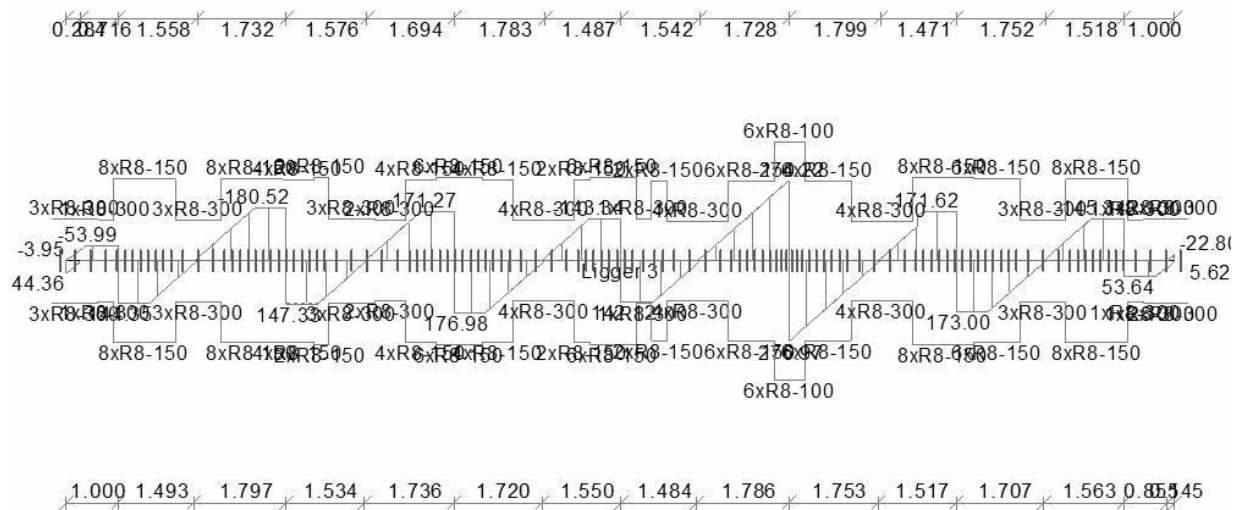
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 1



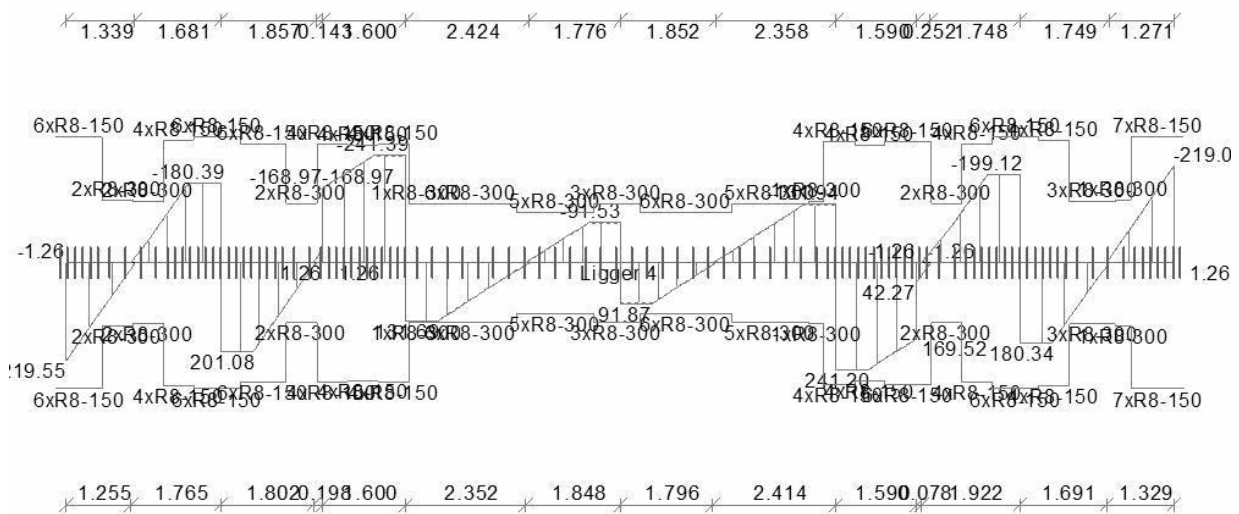
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 2



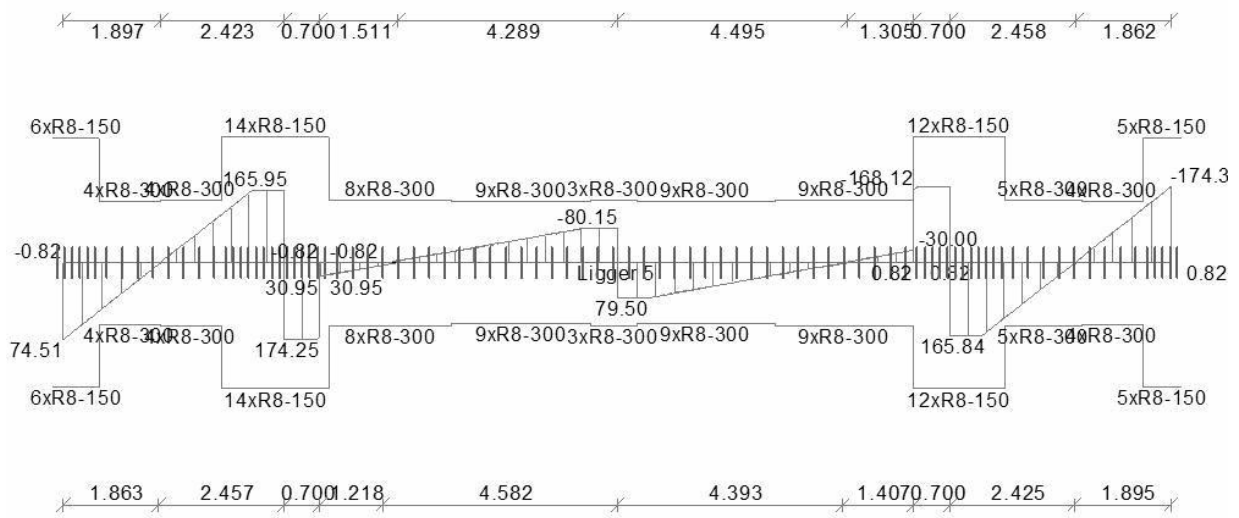
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 3



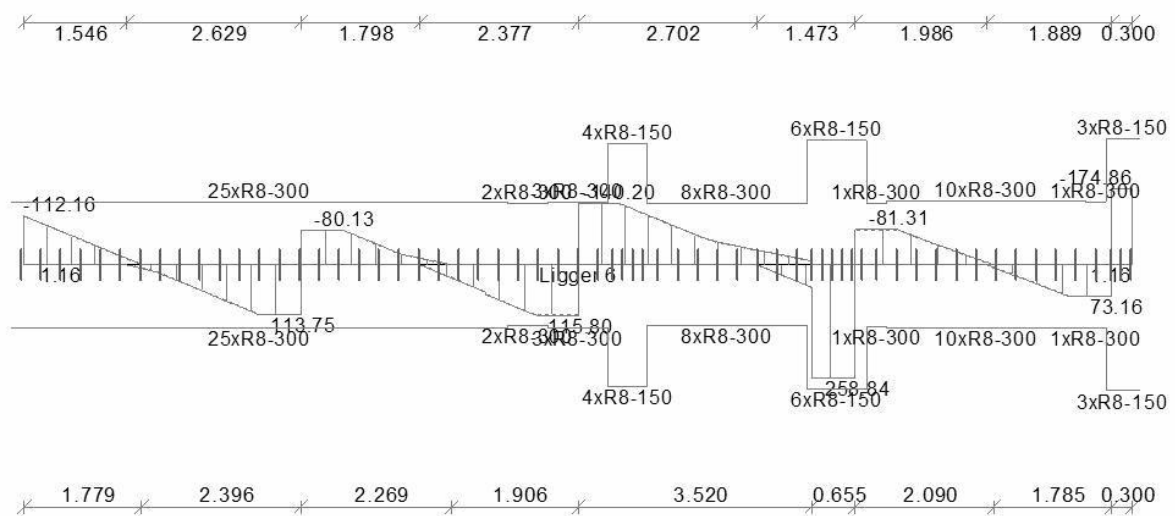
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 4



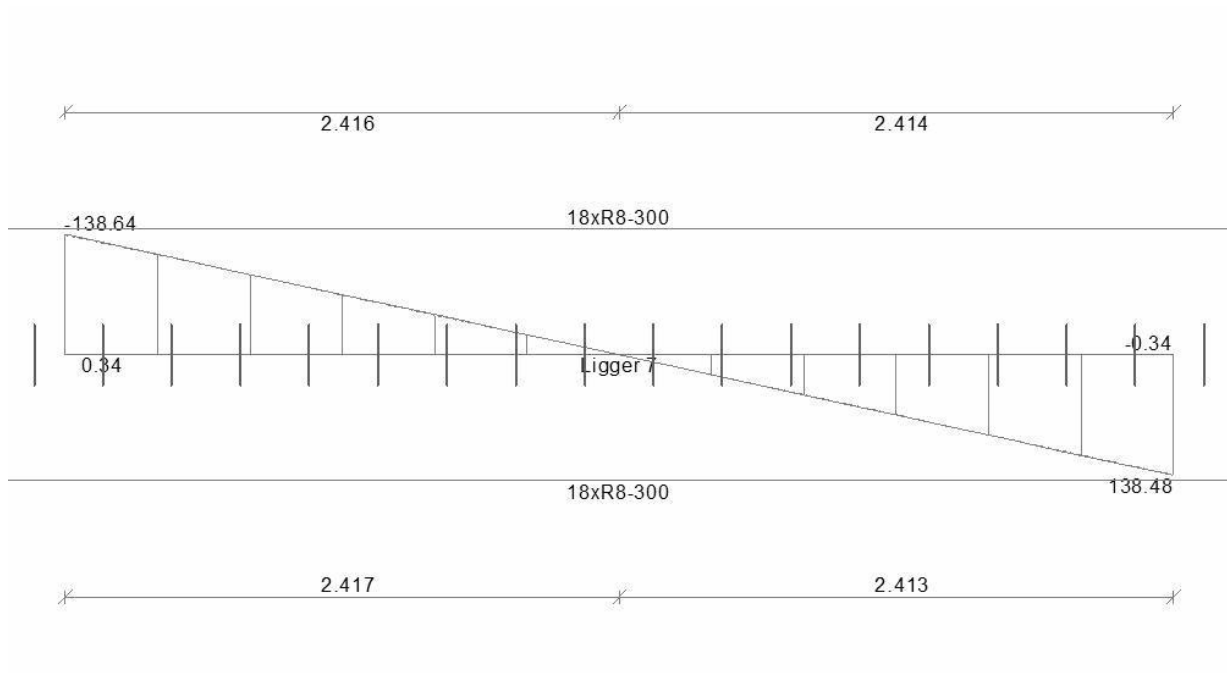
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 5



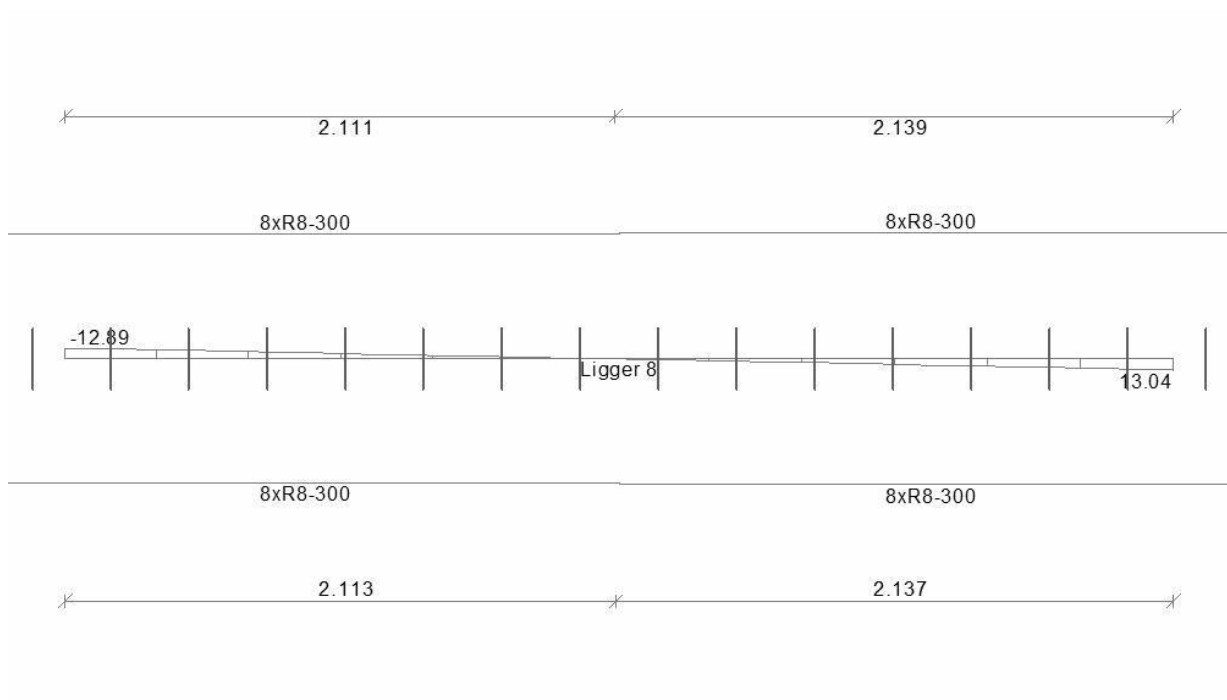
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 6



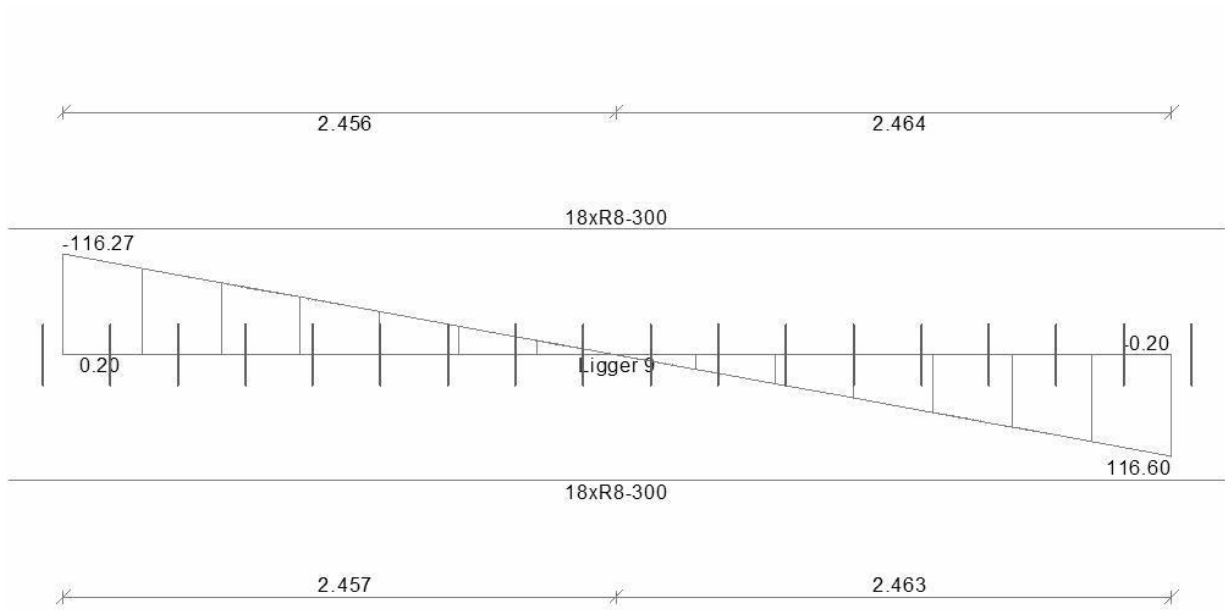
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 7



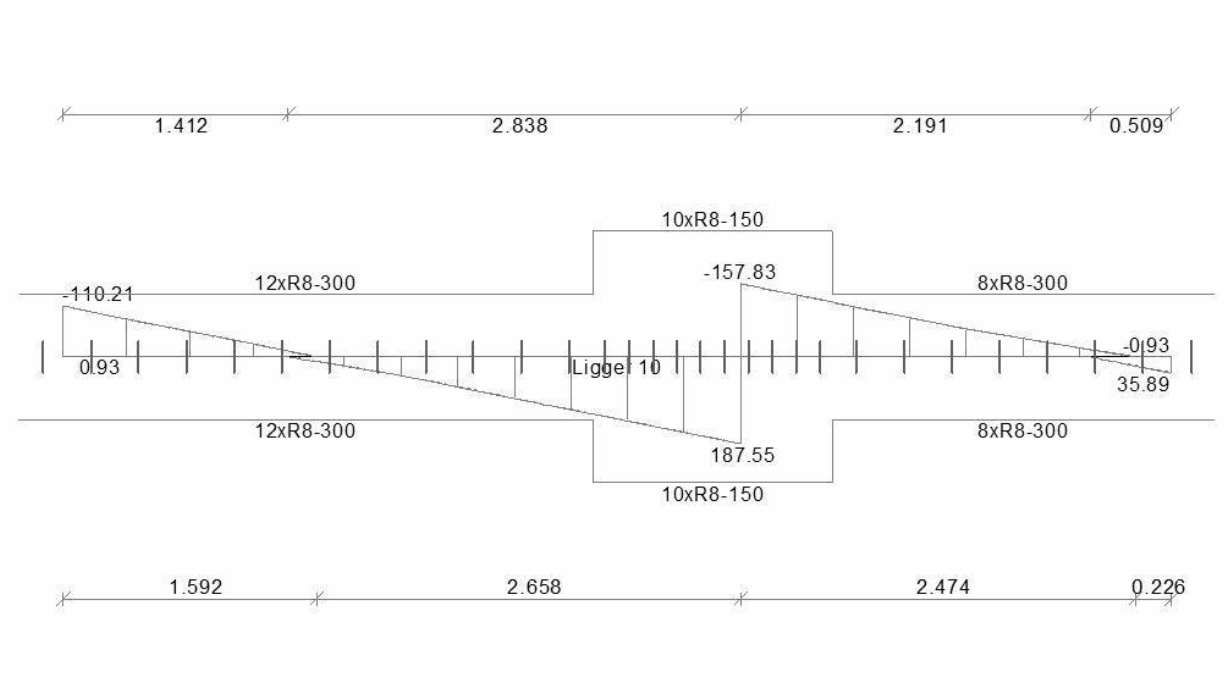
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 8



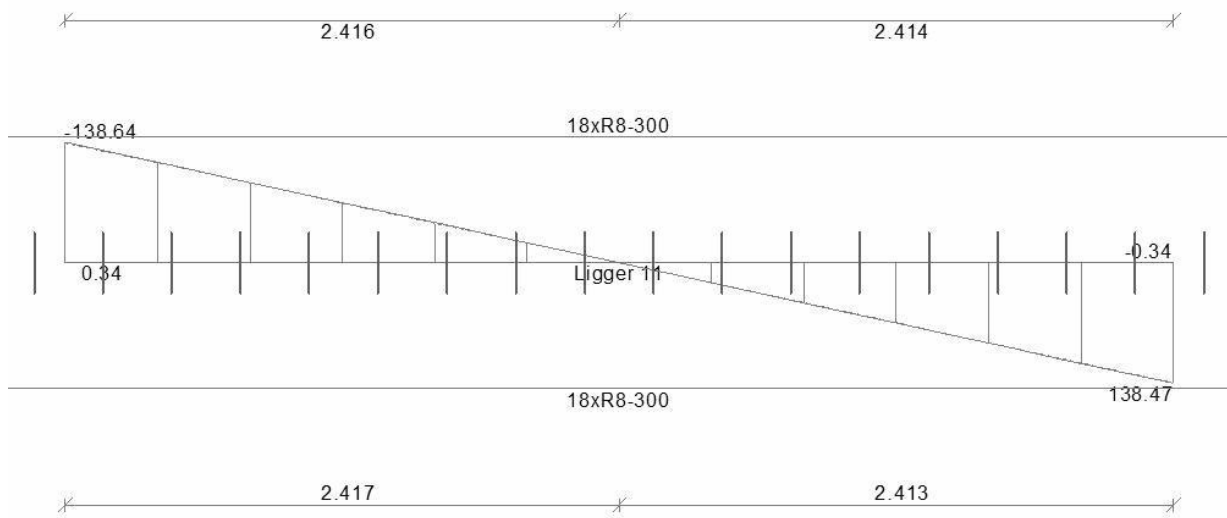
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 9



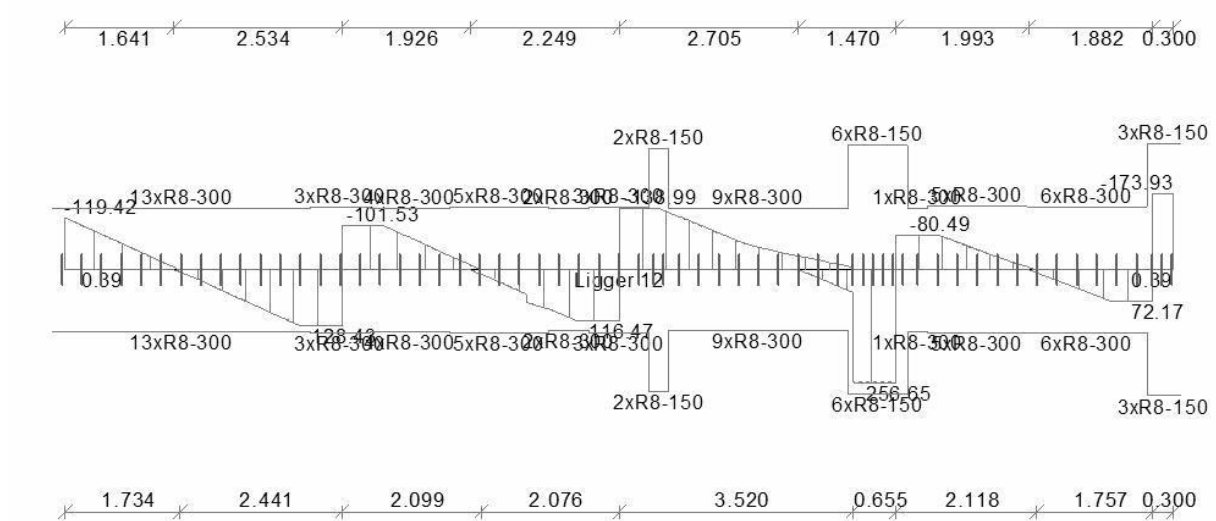
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 10



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 11



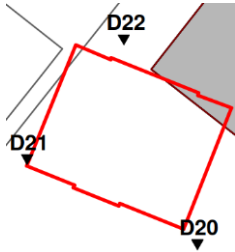
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 12



9.8 PATIOWONING KAVEL 45-47

9.8.1 MAXIMALE PAALBELASTING

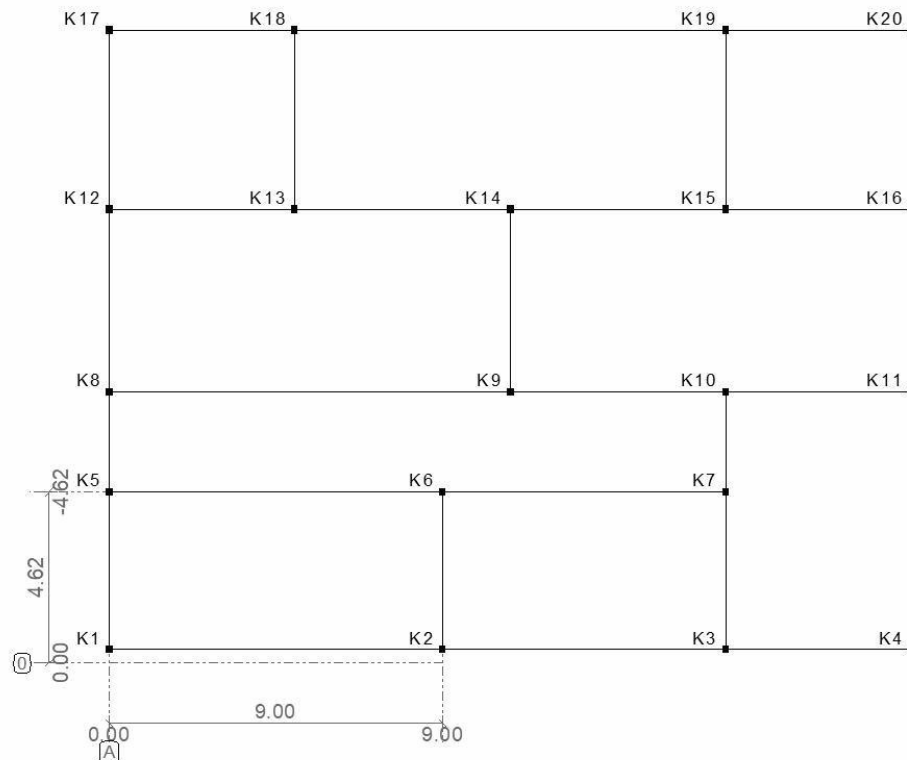
| | | |
|--------------------|-------|--------|
| Peilaanname: | 17.45 | m +NAP |
| Paalpuntniveau: | 1.00 | m +NAP |
| Paaldiameter: | 350 | mm |
| Draagvermogen: | 487 | kN |
| Maximale paallast: | 478 | kN |



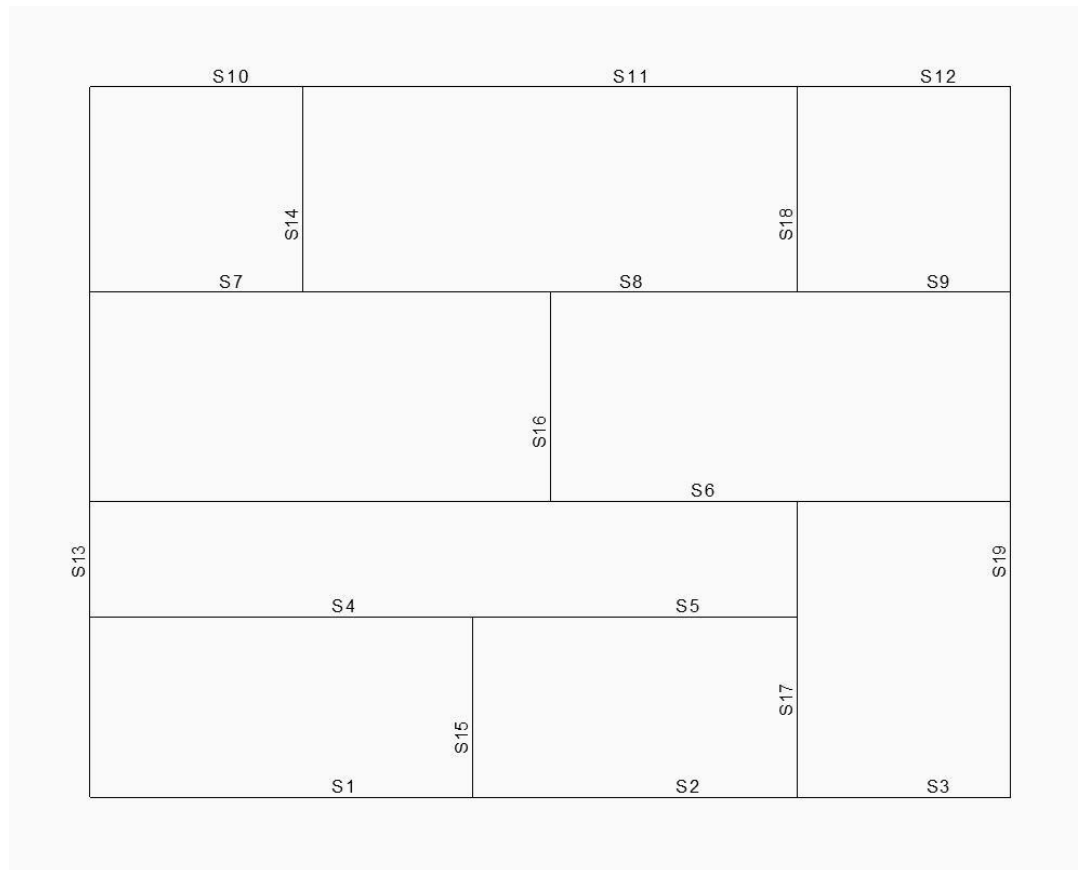
Belastingen volgens patiowoningen van kavel 42-44
Balkenrooster gespiegeld ingevoerd

9.8.2 BALKENROOSTER

AFB. KNOPEN



AFB. STAVEN



STAVEN

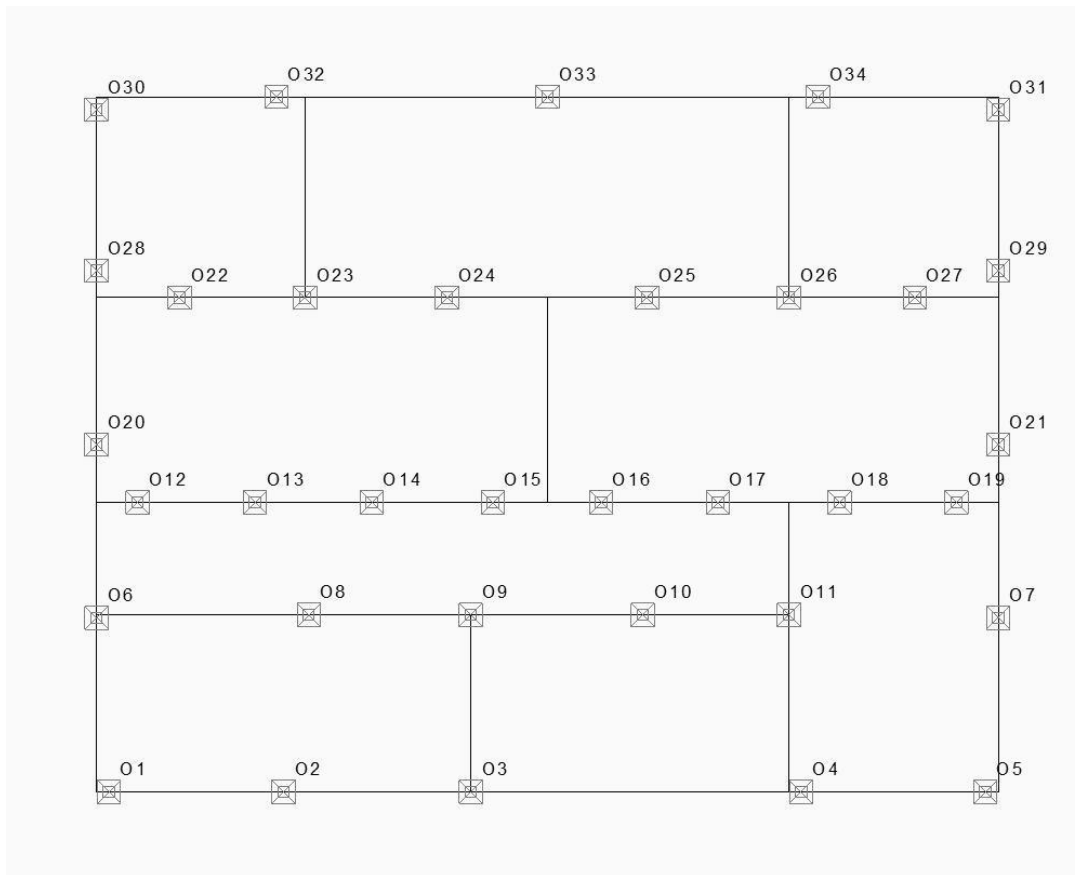
| Staad | Knoop B | Knoop E | X-B | Y-B | X-E | Y-E | Lengte Profiel | Positie |
|-------|---------|---------|-------|--------|-------|--------|----------------|-----------------|
| S1 | K2 | K1 | 9,00 | -0,37 | 0,00 | -0,37 | 9,00 P1 | 0,00 - L(9,00) |
| S2 | K3 | K2 | 16,62 | -0,37 | 9,00 | -0,37 | 7,62 P1 | 0,00 - L(7,62) |
| S3 | K4 | K3 | 21,64 | -0,37 | 16,62 | -0,37 | 5,02 P1 | 0,00 - L(5,02) |
| S4 | K6 | K5 | 9,00 | -4,62 | 0,00 | -4,62 | 9,00 P1 | 0,00 - L(9,00) |
| S5 | K7 | K6 | 16,62 | -4,62 | 9,00 | -4,62 | 7,62 P1 | 0,00 - L(7,62) |
| S6 | K11 | K8 | 21,64 | -7,32 | 0,00 | -7,32 | 21,64 P1 | 0,00 - L(21,64) |
| S7 | K13 | K12 | 5,02 | -12,24 | 0,00 | -12,24 | 5,02 P1 | 0,00 - L(5,02) |
| S8 | K15 | K13 | 16,62 | -12,24 | 5,02 | -12,24 | 11,60 P1 | 0,00 - L(11,60) |
| S9 | K16 | K15 | 21,64 | -12,24 | 16,62 | -12,24 | 5,02 P1 | 0,00 - L(5,02) |
| S10 | K18 | K17 | 5,02 | -17,07 | 0,00 | -17,07 | 5,02 P1 | 0,00 - L(5,02) |
| S11 | K19 | K18 | 16,62 | -17,07 | 5,02 | -17,07 | 11,60 P1 | 0,00 - L(11,60) |
| S12 | K20 | K19 | 21,64 | -17,07 | 16,62 | -17,07 | 5,02 P1 | 0,00 - L(5,02) |
| S13 | K1 | K17 | 0,00 | -0,37 | 0,00 | -17,07 | 16,70 P1 | 0,00 - L(16,70) |
| S14 | K13 | K18 | 5,02 | -12,24 | 5,02 | -17,07 | 4,83 P1 | 0,00 - L(4,83) |
| S15 | K2 | K6 | 9,00 | -0,37 | 9,00 | -4,62 | 4,25 P1 | 0,00 - L(4,25) |
| S16 | K9 | K14 | 10,82 | -7,32 | 10,82 | -12,24 | 4,92 P1 | 0,00 - L(4,92) |
| S17 | K3 | K10 | 16,62 | -0,37 | 16,62 | -7,32 | 6,95 P1 | 0,00 - L(6,95) |
| S18 | K15 | K19 | 16,62 | -12,24 | 16,62 | -17,07 | 4,83 P1 | 0,00 - L(4,83) |
| S19 | K4 | K20 | 21,64 | -0,37 | 21,64 | -17,07 | 16,70 P1 | 0,00 - L(16,70) |

| | | |
|----|----|----|
| P1 | P1 | P1 |
| P1 | P1 | P1 |
| P1 | P1 | P1 |

| Profiel | Profielnaam | lt | ly | Materiaal | Hoek |
|---------|-------------|------------|------------|-----------|------|
| P1 | R400x500 | 5.4742e-03 | 4.1667e-03 | C20/25 | 0,0 |

| Profiel | Verl. h. | hB | hE | tf | tw | tf2 | B | bL | bR Raatl. | Hoogte |
|---------|----------|-------|-------|--------|--------|--------|-------|-------|-----------|--------|
| P1 | Nee | 0,500 | 0,500 | 0,0000 | 0,0000 | 0,0000 | 0,400 | 0,000 | 0,000 Nee | 0,000 |

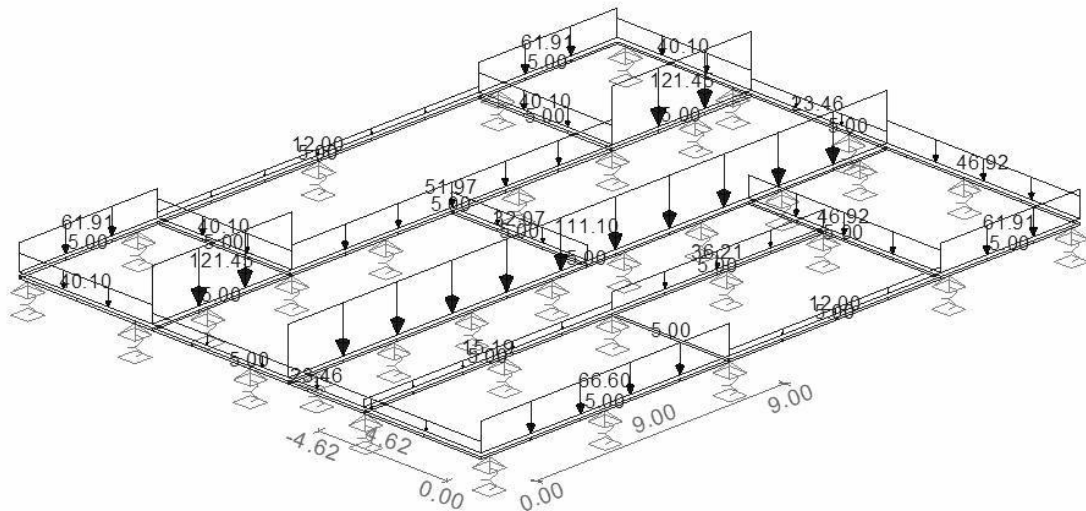
| Materiaalnaam | Poison | Dichtheid | E-Modulus | Uitzettingcoeff |
|---------------|--------|-----------|------------|-----------------|
| C20/25 | 0.20 | 25.00 | 1.0000e+07 | 10.0000e-06 |

AFB. OPLEGGING EN AANSLUITINGEN

OPLEGGINGEN

| Oplegging | Staaft | Positie | Z | Xr | Yr |
|-----------|--------|----------|----------|------|------|
| O1 | S1 | 8,70 | 18000.00 | Vrij | Vrij |
| O2 | S1 | 4,50 | 18000.00 | Vrij | Vrij |
| O3 | S1 | 0,00 | 18000.00 | Vrij | Vrij |
| O4 | S3 | 4,72 | 18000.00 | Vrij | Vrij |
| O5 | S3 | 0,30 | 18000.00 | Vrij | Vrij |
| O6 | S13 | 4,18 | 18000.00 | Vrij | Vrij |
| O7 | S19 | 4,18 | 18000.00 | Vrij | Vrij |
| O8 | S4 | 3,90 | 18000.00 | Vrij | Vrij |
| O9 | S4 | 0,00 | 18000.00 | Vrij | Vrij |
| O10 | S5 | 3,50 | 18000.00 | Vrij | Vrij |
| O11 | S5 | 0,00 | 18000.00 | Vrij | Vrij |
| O12 | S6 | 20,64 | 18000.00 | Vrij | Vrij |
| O13 | S6 | 17,83 | 18000.00 | Vrij | Vrij |
| O14 | S6 | 15,03 | 18000.00 | Vrij | Vrij |
| O15 | S6 | 12,12 | 18000.00 | Vrij | Vrij |
| O16 | S6 | 9,52 | 18000.00 | Vrij | Vrij |
| O17 | S6 | 6,71 | 18000.00 | Vrij | Vrij |
| O18 | S6 | 3,81 | 18000.00 | Vrij | Vrij |
| O19 | S6 | 1,00 | 18000.00 | Vrij | Vrij |
| O20 | S13 | 8,35 | 18000.00 | Vrij | Vrij |
| O21 | S19 | 8,35 | 18000.00 | Vrij | Vrij |
| O22 | S7 | 3,02 | 18000.00 | Vrij | Vrij |
| O23 | S8 | L(11,60) | 18000.00 | Vrij | Vrij |
| O24 | S8 | 8,20 | 18000.00 | Vrij | Vrij |
| O25 | S8 | 3,40 | 18000.00 | Vrij | Vrij |
| O26 | S8 | 0,00 | 18000.00 | Vrij | Vrij |
| O27 | S9 | 2,00 | 18000.00 | Vrij | Vrij |
| O28 | S13 | 12,53 | 18000.00 | Vrij | Vrij |
| O29 | S19 | 12,53 | 18000.00 | Vrij | Vrij |
| O30 | S13 | 16,40 | 18000.00 | Vrij | Vrij |
| O31 | S19 | 16,40 | 18000.00 | Vrij | Vrij |

| | | | | | |
|------------------|--------------|----------------|----------|-----------|-----------|
| O32 | S10 | 0,70 | 18000.00 | Vrij | Vrij |
| Oplegging | Staaf | Positie | Z | Xr | Yr |
| O33 | S11 | 5,80 | 18000.00 | Vrij | Vrij |
| O34 | S12 | 4,32 | 18000.00 | Vrij | Vrij |

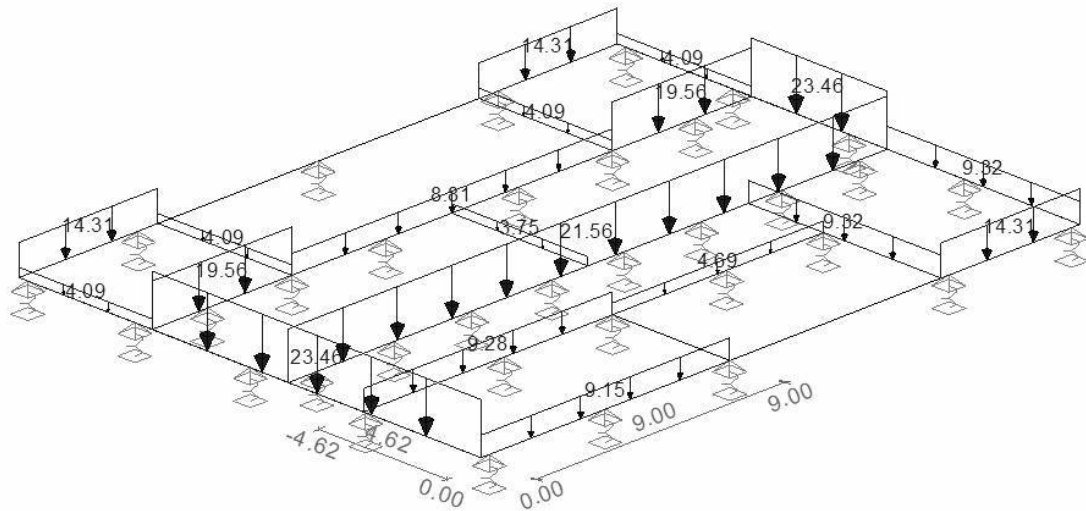
B.G.1: PERMANENT



B.G.1: PERMANENT

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|-------------------------|---------------|-----------------------|--------------|-------------|-------------------------|
| B.G.1: Permanent | | | | | |
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z S1-S19 |
| q | 40,10 | 40,10 | 11,87 | 16,70(L) | Z S13,S19 |
| q | 40,10 | 40,10 | 0,00 | 4,83(L) | Z S14,S18 |
| q | 61,91 | 61,91 | 0,00 | 5,02(L) | Z S3,S10,S12 |
| q | 23,46 | 23,46 | 0,00 | 11,87 | Z S13 |
| q | 23,46 | 23,46 | 6,95 | 11,87 | Z S19 |
| q | 111,10 | 111,10 | 0,00 | 21,64(L) | Z S6 |
| q | 32,07 | 32,07 | 0,00 | 4,92(L) | Z S16 |
| q | 121,45 | 121,45 | 0,00 | 5,02(L) | Z S7,S9 |
| q | 46,92 | 46,92 | 0,00 | 6,95 | Z S19 |
| q | 46,92 | 46,92 | 0,00 | 6,95(L) | Z S17 |
| q | 66,60 | 66,60 | 0,00 | 9,00(L) | Z S1 |
| q | 36,21 | 36,21 | 0,00 | 7,62(L) | Z S5 |
| q | 12,00 | 12,00 | 0,00 | 11,60(L) | Z S2,S11 |
| q | 51,97 | 51,97 | 0,00 | 11,60(L) | Z S8 |
| q | 15,19 | 15,19 | 0,00 | 9,00(L) | Z S4 |
| Som lasten | X:0,00 | kN Z: 9.191,85 | kN | | |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING



B.G.2: VERDEELDE VERANDERLIJKE BELASTING

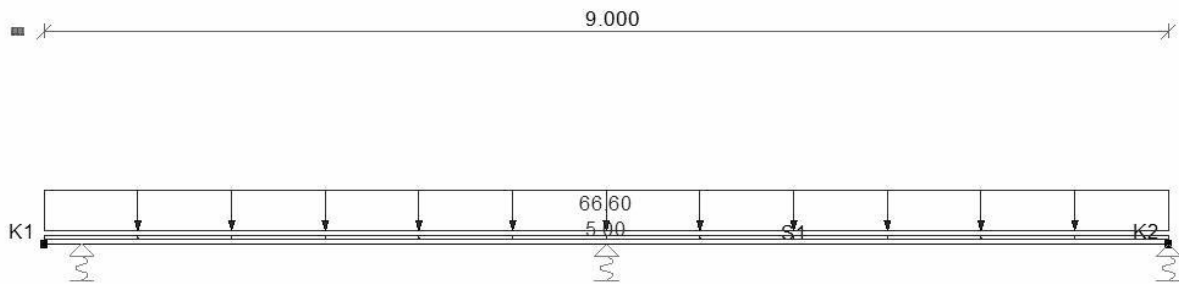
| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting Staaf of knoop |
|--|----------------|-------------------|--------------|-------------|-------------------------|
| B.G.2: Verdeelde veranderlijke belasting (Generatief) | | | | | |
| q | 4,09 | 4,09 | 11,87 | 16,70(L) | Z S13,S19 |
| q | 14,31 | 14,31 | 0,00 | 5,02(L) | Z S3,S10,S12 |
| q | 23,46 | 23,46 | 0,00 | 11,87 | Z S13 |
| q | 23,46 | 23,46 | 6,95 | 11,87 | Z S19 |
| q | 21,56 | 21,56 | 0,00 | 21,64(L) | Z S6 |
| q | 3,75 | 3,75 | 0,00 | 4,92(L) | Z S16 |
| q | 19,56 | 19,56 | 0,00 | 5,02(L) | Z S7,S9 |
| q | 4,09 | 4,09 | 0,00 | 4,83(L) | Z S14,S18 |
| q | 9,32 | 9,32 | 0,00 | 6,95 | Z S19 |
| q | 9,32 | 9,32 | 0,00 | 6,95(L) | Z S17 |
| q | 9,15 | 9,15 | 0,00 | 9,00(L) | Z S1 |
| q | 4,69 | 4,69 | 0,00 | 7,62(L) | Z S5 |
| q | 8,81 | 8,81 | 0,00 | 11,60(L) | Z S8 |
| q | 9,28 | 9,28 | 0,00 | 9,00(L) | Z S4 |
| Som lasten | X: 0,00 | kN Z: 0,00 | kN | | |

B.G.1: PERMANENT (S1)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S1 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 66,60 | 66,60 | 0,00 | 9,00(L) | Z |

B.G.1: PERMANENT (S1)

Staaf S1



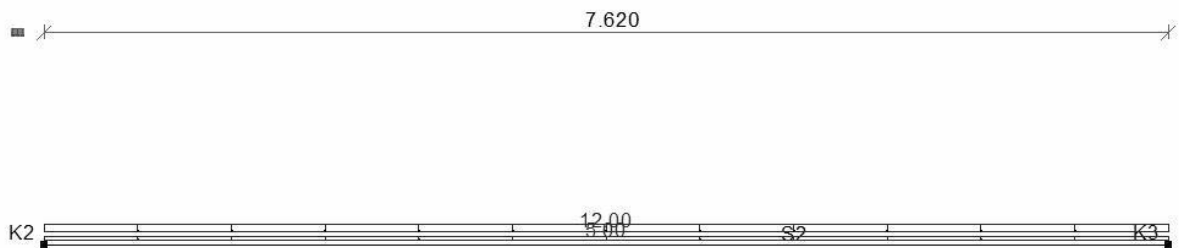
B.G.1: PERMANENT (S2)

Staaf S2

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 12,00 | 12,00 | 0,00 | 11,60(L) | Z |

B.G.1: PERMANENT (S2)

Staaf S2



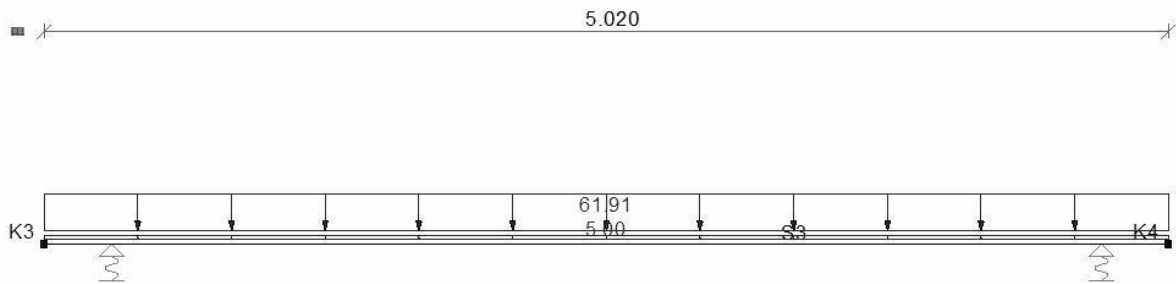
B.G.1: PERMANENT (S3)

Staaf S3

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 61,91 | 61,91 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S3)

Staaf S3

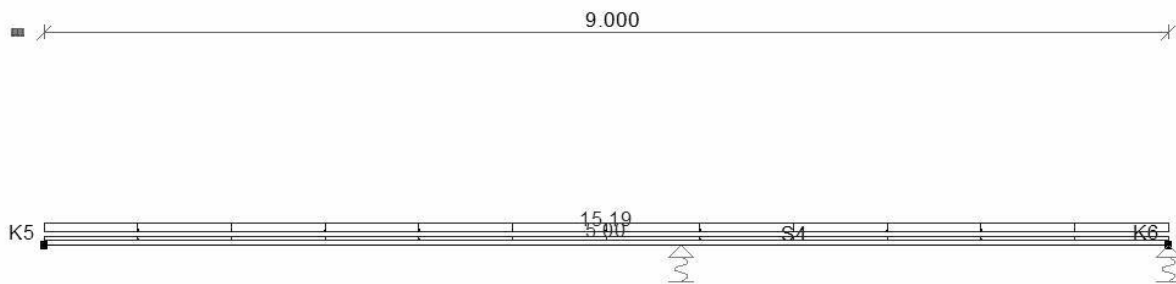


B.G.1: PERMANENT (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 15,19 | 15,19 | 0,00 | 9,00(L) | Z |

B.G.1: PERMANENT (S4)

Staaf S4

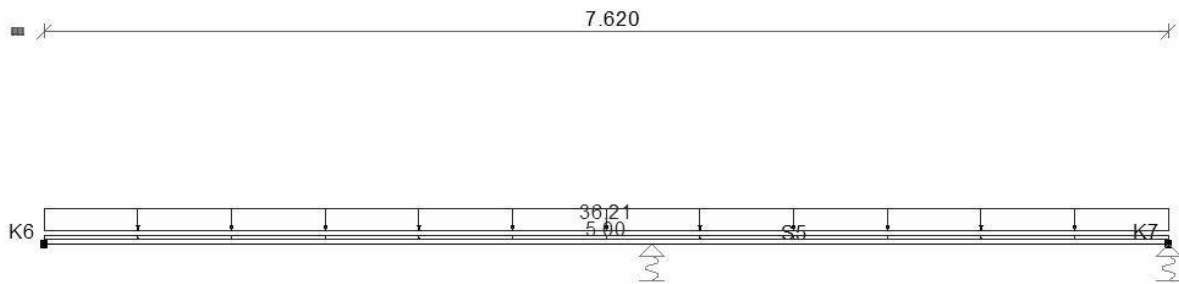


B.G.1: PERMANENT (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 36,21 | 36,21 | 0,00 | 7,62(L) | Z |

B.G.1: PERMANENT (S5)

Staaf S5

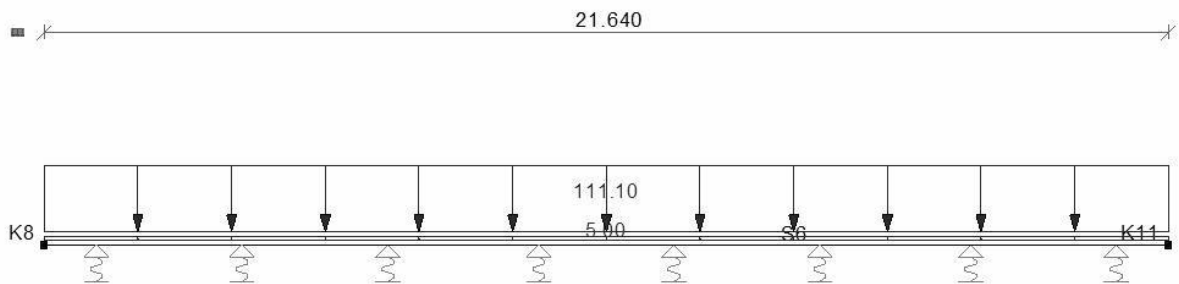


B.G.1: PERMANENT (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 111,10 | 111,10 | 0,00 | 21,64(L) | Z |

B.G.1: PERMANENT (S6)

Staaf S6

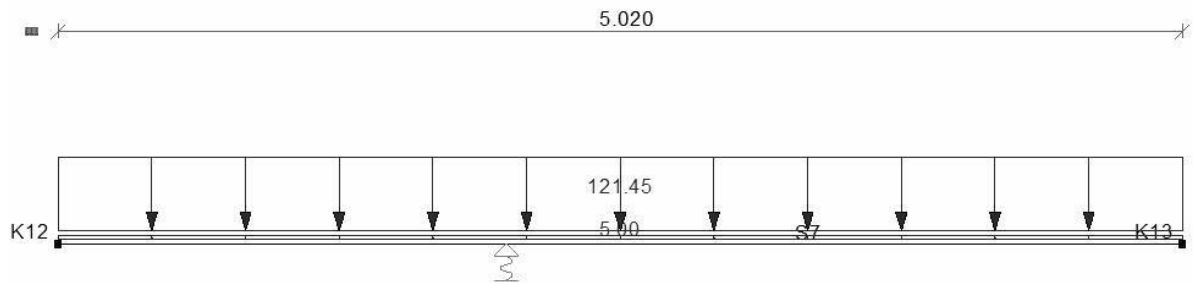


B.G.1: PERMANENT (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 121,45 | 121,45 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S7)

Staaf S7

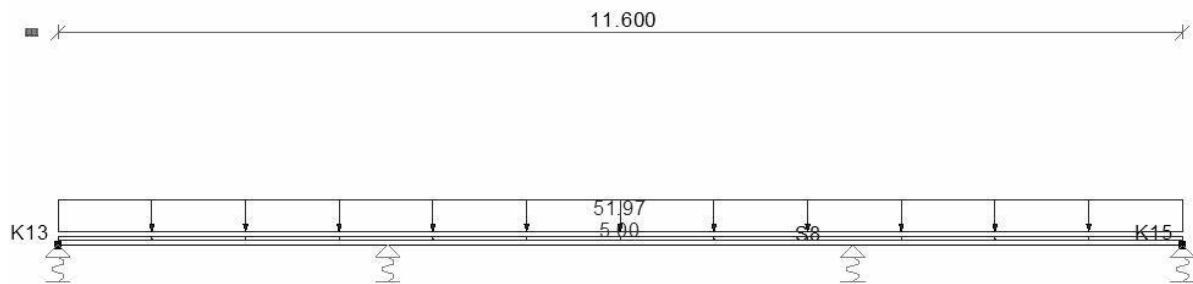


B.G.1: PERMANENT (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 51,97 | 51,97 | 0,00 | 11,60(L) | Z |

B.G.1: PERMANENT (S8)

Staaf S8

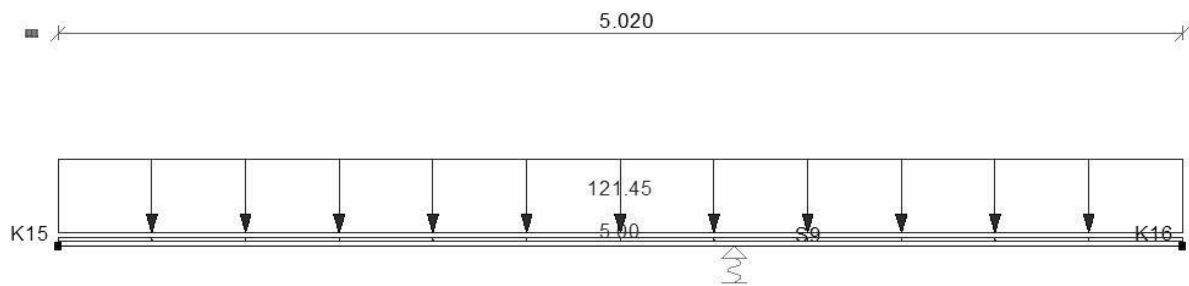


B.G.1: PERMANENT (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 121,45 | 121,45 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S9)

Staaf S9

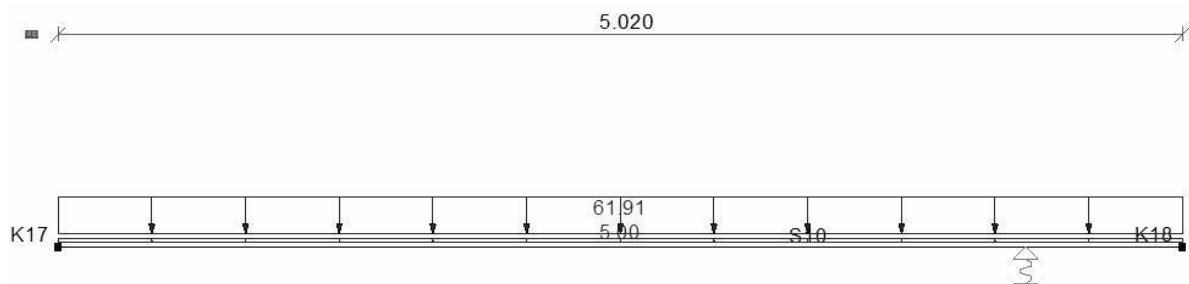


B.G.1: PERMANENT (S10)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S10 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 61,91 | 61,91 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S10)

Staaf S10

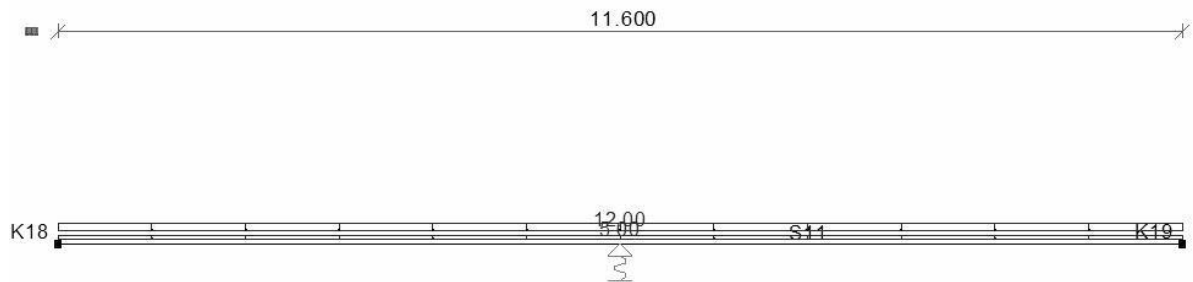


B.G.1: PERMANENT (S11)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S11 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 12,00 | 12,00 | 0,00 | 11,60(L) | Z |

B.G.1: PERMANENT (S11)

Staaf S11

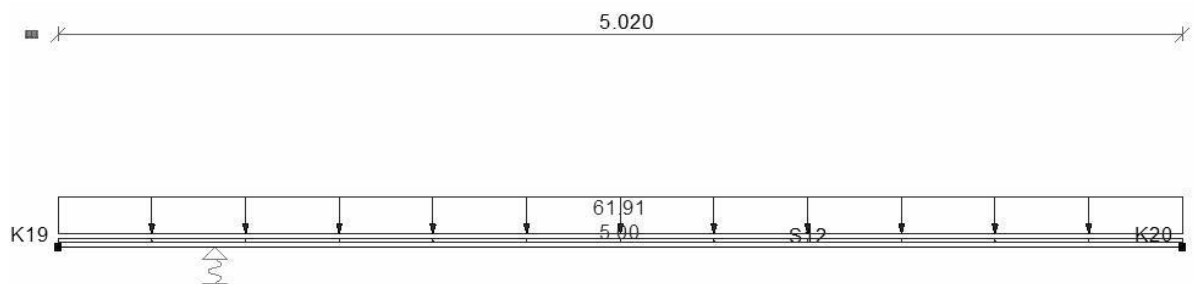


B.G.1: PERMANENT (S12)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S12 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 61,91 | 61,91 | 0,00 | 5,02(L) | Z |

B.G.1: PERMANENT (S12)

Staaf S12

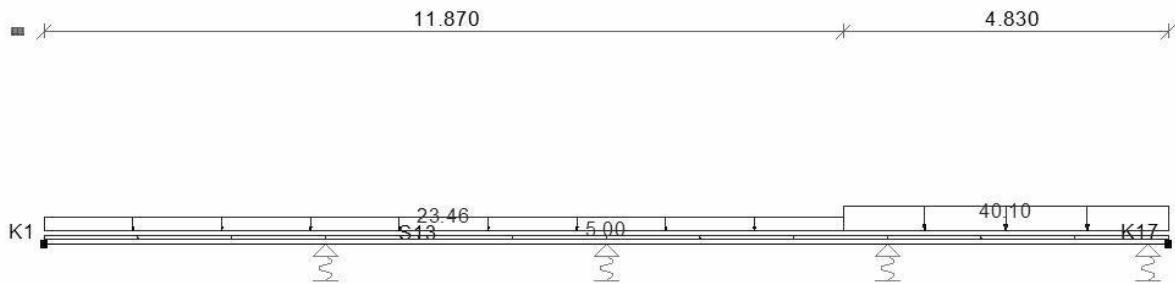


B.G.1: PERMANENT (S13)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S13 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 40,10 | 40,10 | 11,87 | 16,70(L) | Z |
| q | 23,46 | 23,46 | 0,00 | 11,87 | Z |

B.G.1: PERMANENT (S13)

Staaf S13



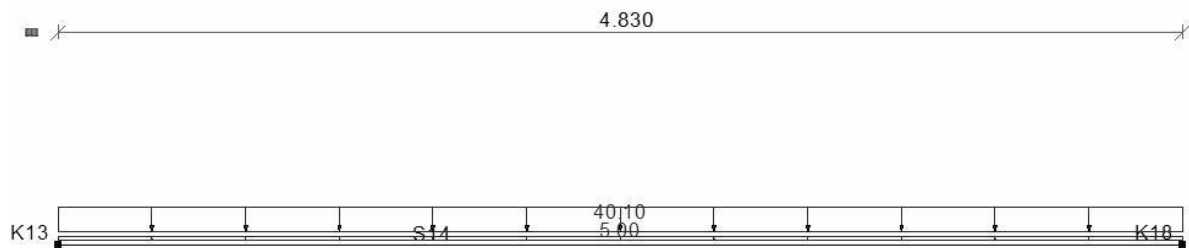
B.G.1: PERMANENT (S14)

Staaf S14

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 40,10 | 40,10 | 0,00 | 4,83(L) | Z |

B.G.1: PERMANENT (S14)

Staaf S14



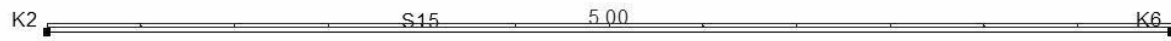
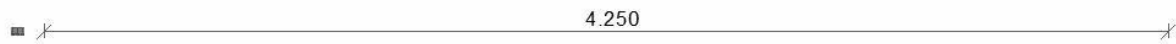
B.G.1: PERMANENT (S15)

Staaf S15

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |

B.G.1: PERMANENT (S15)

Staaf S15

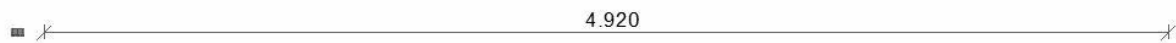


B.G.1: PERMANENT (S16)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S16 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 32,07 | 32,07 | 0,00 | 4,92(L) | Z |

B.G.1: PERMANENT (S16)

Staaf S16

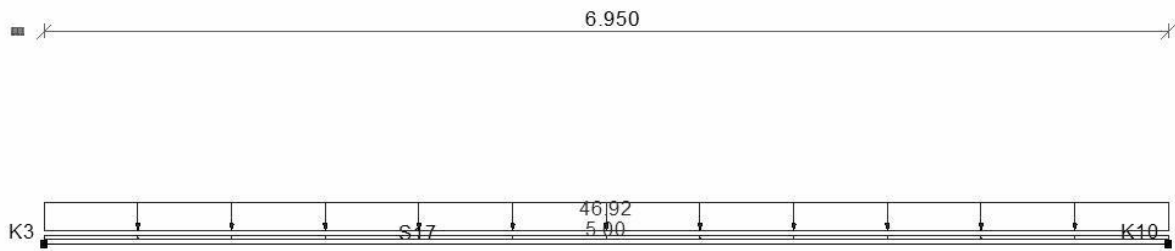


B.G.1: PERMANENT (S17)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S17 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 46,92 | 46,92 | 0,00 | 6,95(L) | Z |

B.G.1: PERMANENT (S17)

Staaf S17

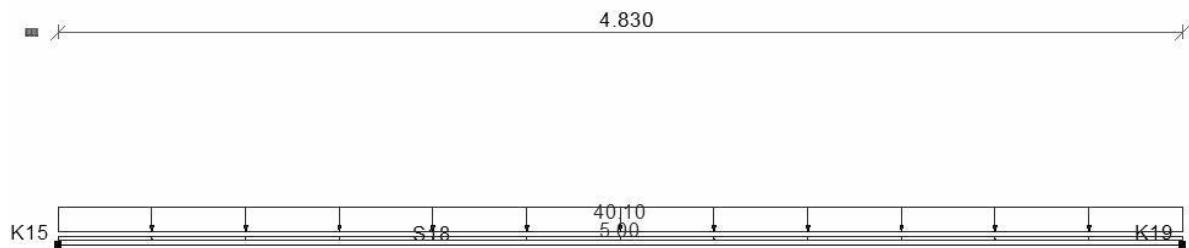


B.G.1: PERMANENT (S18)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S18 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 40,10 | 40,10 | 0,00 | 4,83(L) | Z |

B.G.1: PERMANENT (S18)

Staaf S18

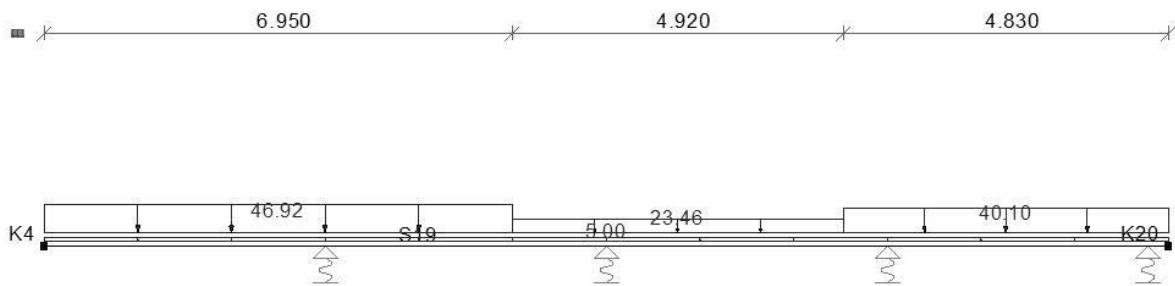


B.G.1: PERMANENT (S19)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S19 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| qG | 1,00 | 1,00 | 0,00 | 7,62(L) | Z |
| q | 40,10 | 40,10 | 11,87 | 16,70(L) | Z |
| q | 23,46 | 23,46 | 6,95 | 11,87 | Z |
| q | 46,92 | 46,92 | 0,00 | 6,95 | Z |

B.G.1: PERMANENT (S19)

Staaf S19



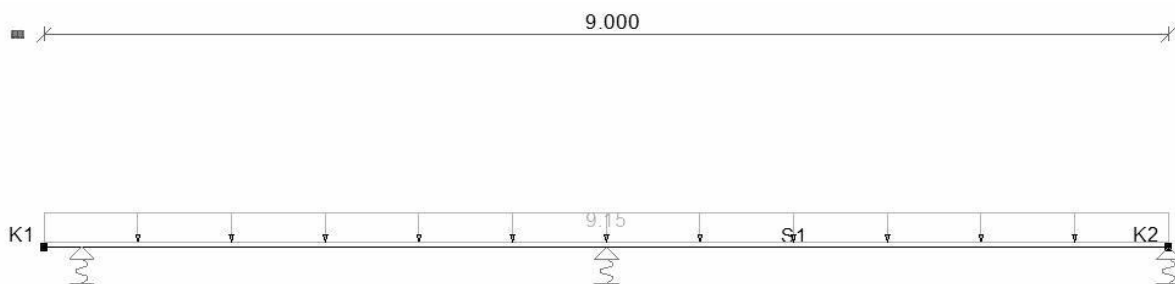
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 9,15 | 9,15 | 0,00 | 9,00(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S1)

Staaf S1



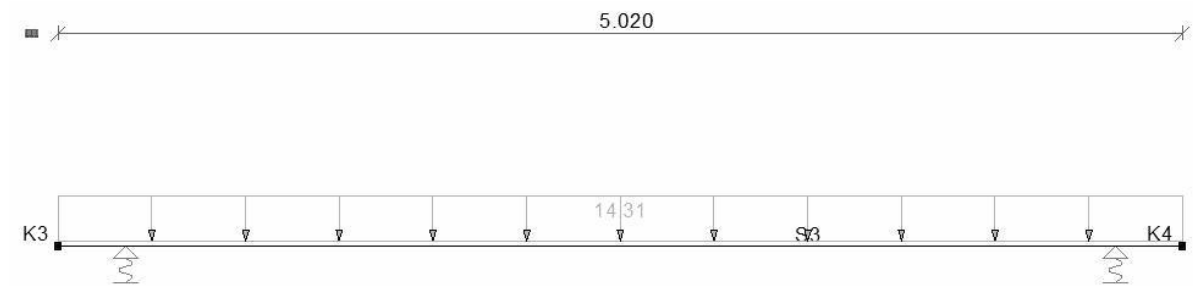
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

Staaf S3

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 14,31 | 14,31 | 0,00 | 5,02(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S3)

Staaf S3

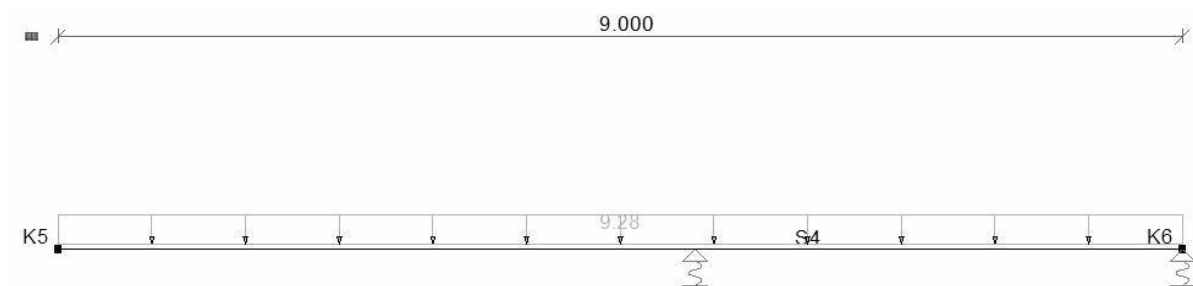


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S4 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 9,28 | 9,28 | 0,00 | 9,00(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S4)

Staaf S4

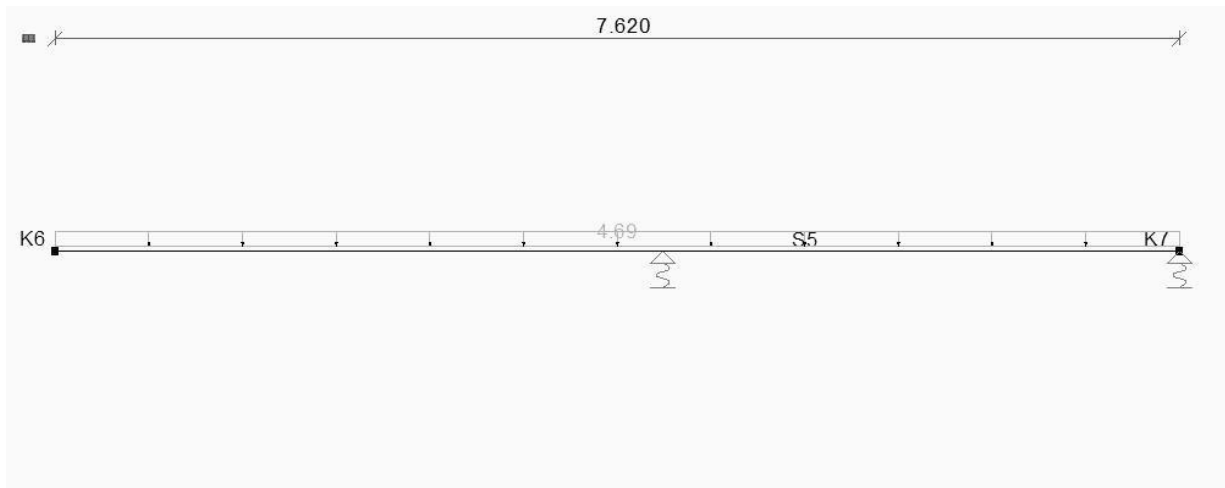


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S5 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 4,69 | 4,69 | 0,00 | 7,62(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S5)

Staaf S5

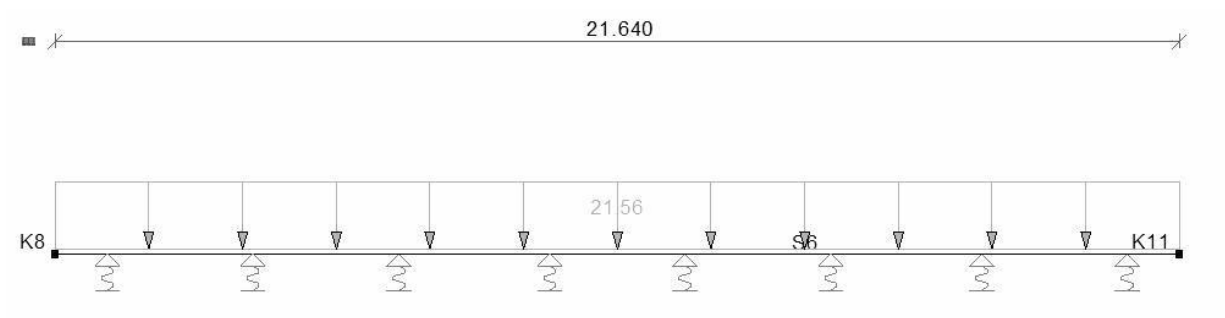


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S6 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 21,56 | 21,56 | 0,00 | 21,64(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S6)

Staaf S6

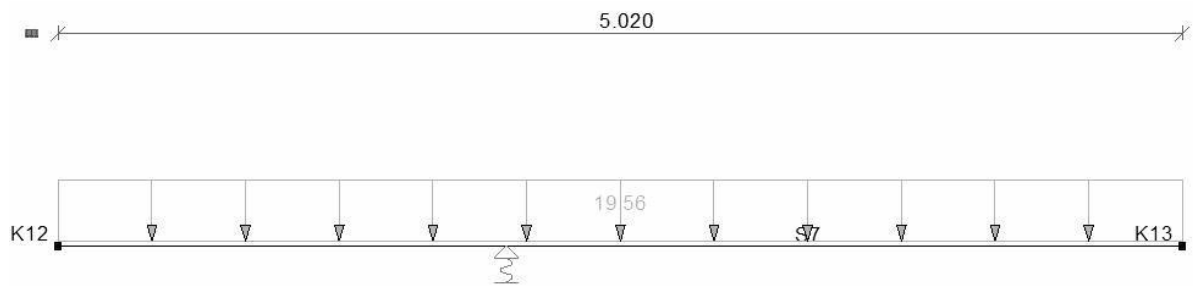


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S7 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 19,56 | 19,56 | 0,00 | 5,02(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S7)

Staaf S7

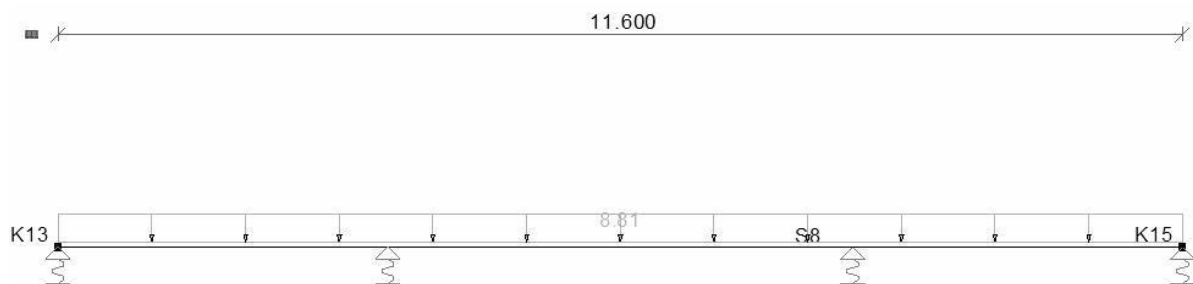


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S8 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 8,81 | 8,81 | 0,00 | 11,60(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S8)

Staaf S8

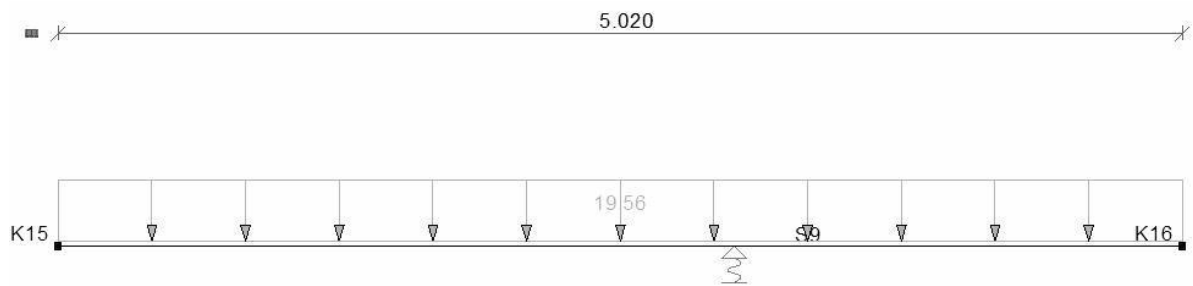


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S9 Richting |
|------|-------------|------------|--------------|-------------|----------------------|
| q | 19,56 | 19,56 | 0,00 | 5,02(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S9)

Staaf S9



B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

| Type | Beginwaarde | Eindwaarde |
|------|-------------|------------|
| q | 14,31 | 14,31 |

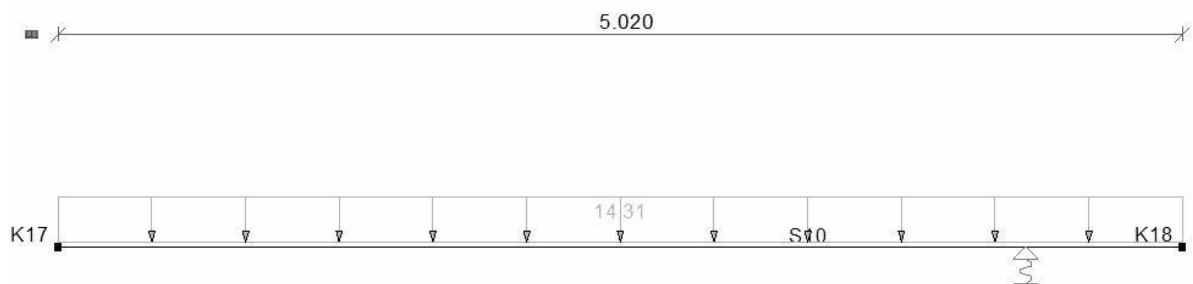
| Beginafstand | Eindafstand |
|--------------|-------------|
| 0,00 | 5,02(L) |

| Beginafstand | Eindafstand |
|--------------|-------------|
| 0,00 | 5,02(L) |

Staaf S10
Richting
Z

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S10)

Staaf S10



B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

| Type | Beginwaarde | Eindwaarde |
|------|-------------|------------|
| q | 14,31 | 14,31 |

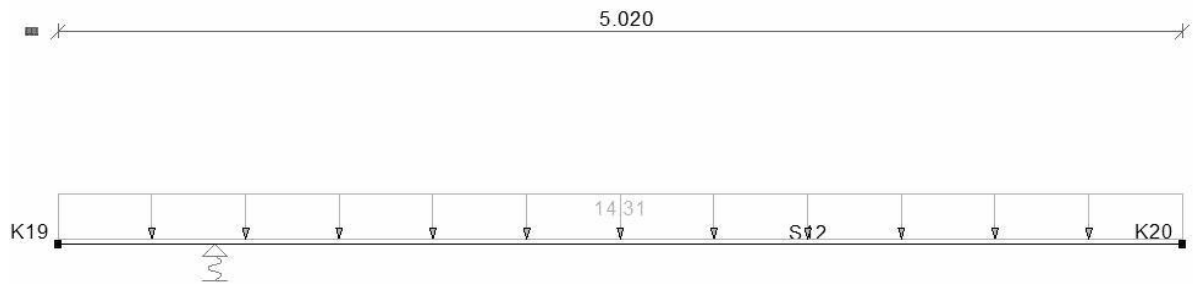
| Beginafstand | Eindafstand |
|--------------|-------------|
| 0,00 | 5,02(L) |

| Beginafstand | Eindafstand |
|--------------|-------------|
| 0,00 | 5,02(L) |

Staaf S12
Richting
Z

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S12)

Staat S12



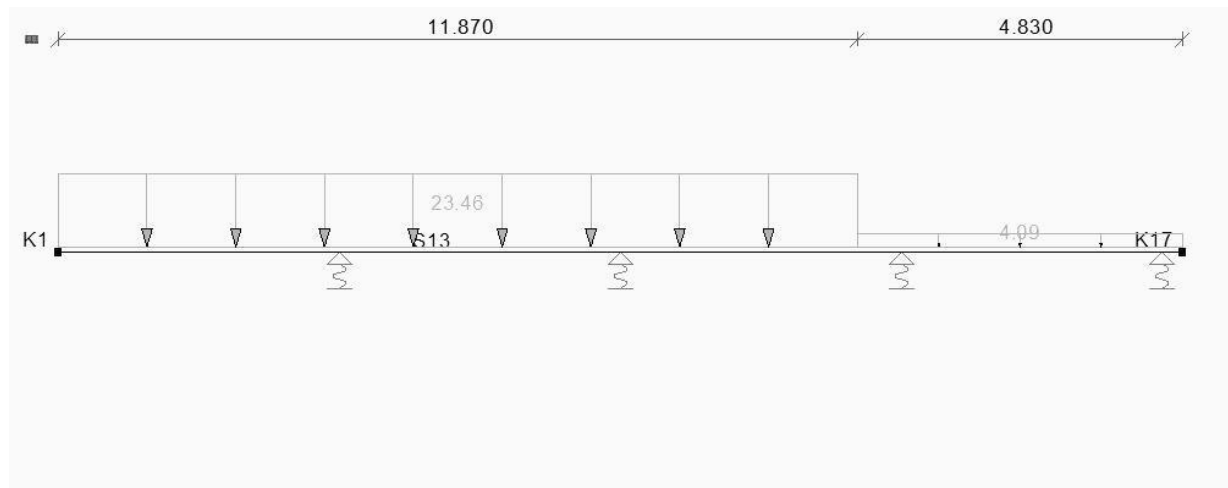
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

Staat S13

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 4,09 | 4,09 | 11,87 | 16,70(L) | Z |
| q | 23,46 | 23,46 | 0,00 | 11,87 | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S13)

Staat S13



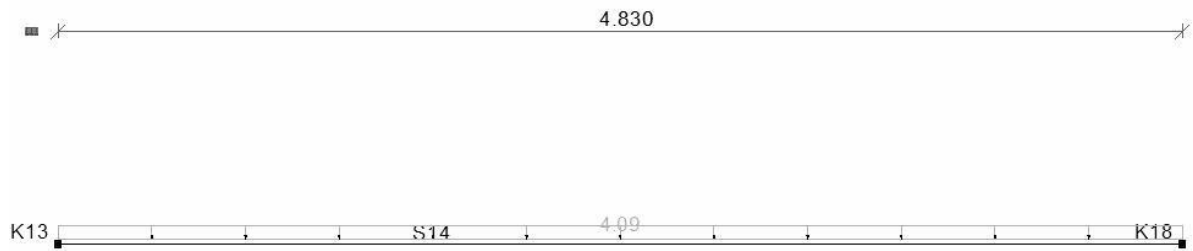
B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staat S14

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Richting |
|------|-------------|------------|--------------|-------------|----------|
| q | 4,09 | 4,09 | 0,00 | 4,83(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S14)

Staaf S14

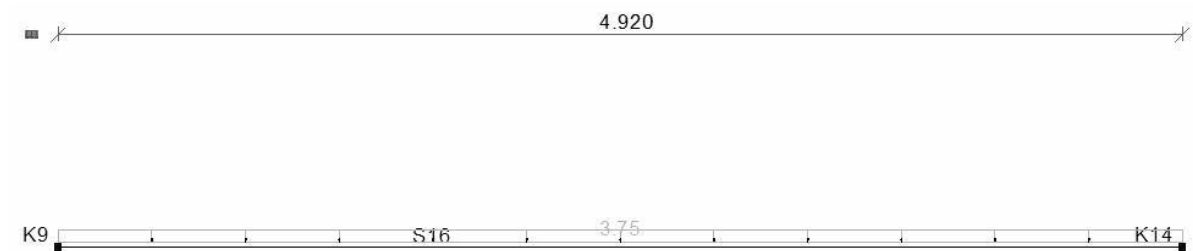


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S16 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 3,75 | 3,75 | 0,00 | 4,92(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S16)

Staaf S16

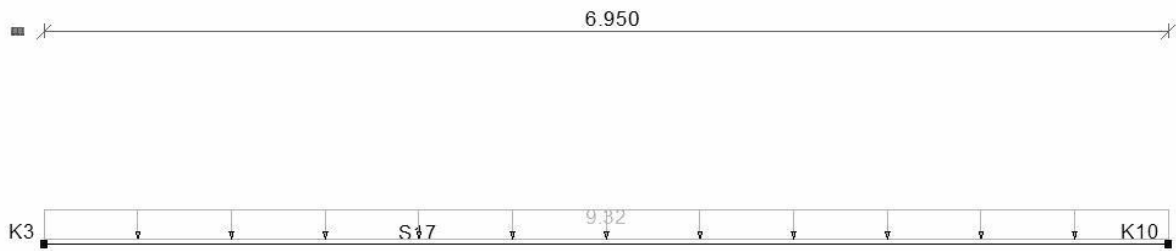


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staaf S17 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 9,32 | 9,32 | 0,00 | 6,95(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S17)

Staat S17

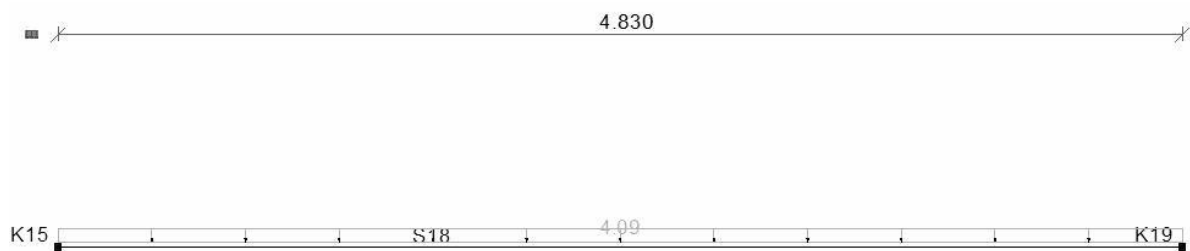


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staat S18 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 4,09 | 4,09 | 0,00 | 4,83(L) | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S18)

Staat S18

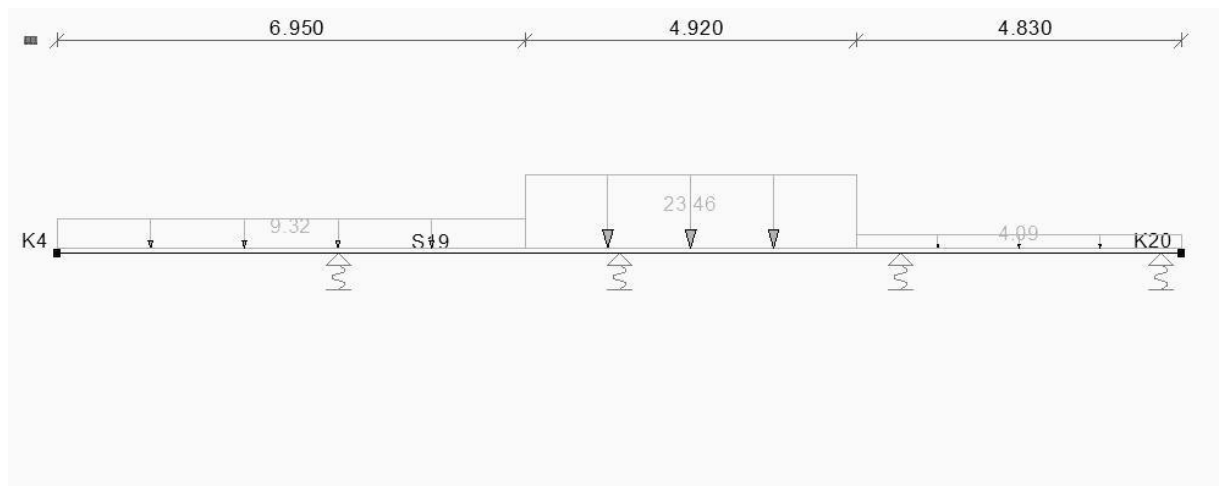


B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

| Type | Beginwaarde | Eindwaarde | Beginafstand | Eindafstand | Staat S19 Richting |
|------|-------------|------------|--------------|-------------|-----------------------|
| q | 4,09 | 4,09 | 11,87 | 16,70(L) | Z |
| q | 23,46 | 23,46 | 6,95 | 11,87 | Z |
| q | 9,32 | 9,32 | 0,00 | 6,95 | Z |

B.G.2: VERDEELDE VERANDERLIJKE BELASTING (S19)

Staaf S19

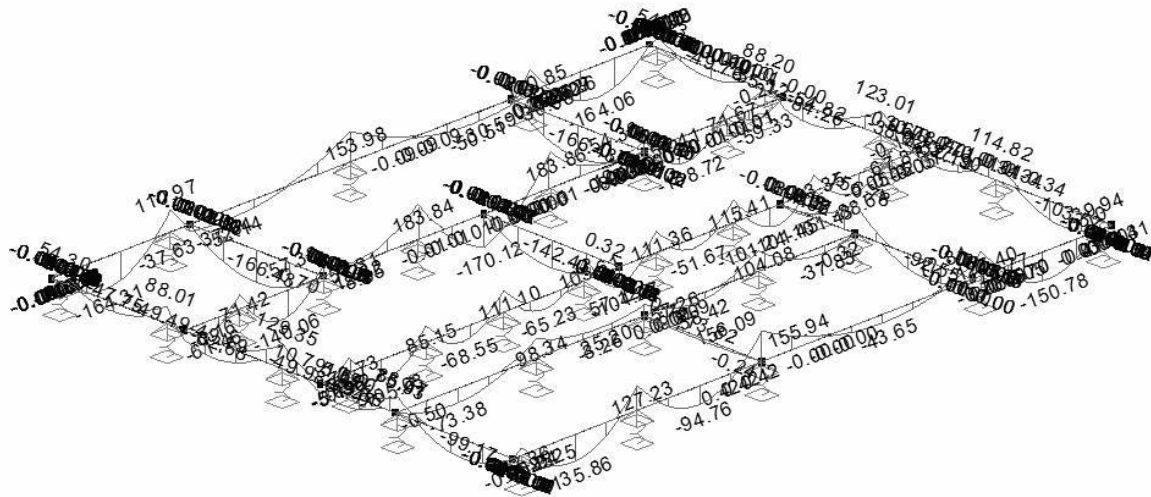


FUNDAMENTEEL BELASTINGSCOMBINATIES (TABEL)

| B.G. | Omschrijving | Fu.C.1 | Fu.C.2 | Fu.C.3 | Fu.C.4 | Fu.C.5 | Fu.C.6 | Fu.C.7 | Fu.C.8 |
|---------|---------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| B.G.1 | Permanent | 1.08 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | 0.54 | 0.54 | - | 0.54 | - | 0.54 | - |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | 1.35 | 0.54 | - | 0.54 | 0.54 | 0.54 | - | 0.54 |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | 0.54 | - |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | 0.54 |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G.2.6 | Verdeelde veranderlijke belasting (6) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | - |
| B.G.2.7 | Verdeelde veranderlijke belasting (7) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G.2.8 | Verdeelde veranderlijke belasting (8) | 1.35 | 0.54 | - | 0.54 | 0.54 | - | 0.54 | - |
| B.G.2.9 | Verdeelde veranderlijke belasting (9) | 1.35 | 0.54 | 0.54 | - | - | 0.54 | - | 0.54 |
| B.G. | Omschrijving | Fu.C.9 | Fu.C.10 | Fu.C.11 | Fu.C.12 | Fu.C.13 | Fu.C.14 | Fu.C.15 | Fu.C.16 |
| B.G.1 | Permanent | 1.22 | 1.22 | 1.22 | 1.22 | 1.08 | 1.08 | 1.08 | 1.08 |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | - | - |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 0.54 | - | 0.54 | - | 1.35 | - | 1.35 | - |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | - | 0.54 | - | 0.54 | - | 1.35 | 1.35 | 1.35 |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 0.54 | - | 0.54 | - | 1.35 | - | - | 1.35 |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | - | 0.54 | - | 0.54 | - | 1.35 | 1.35 | - |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | 0.54 | - | 0.54 | - | 1.35 | - | - | 1.35 |
| B.G.2.6 | Verdeelde veranderlijke belasting (6) | 0.54 | 0.54 | - | 0.54 | - | 1.35 | 1.35 | - |
| B.G.2.7 | Verdeelde veranderlijke belasting (7) | - | 0.54 | 0.54 | - | 1.35 | - | - | 1.35 |
| B.G.2.8 | Verdeelde veranderlijke belasting (8) | 0.54 | - | 0.54 | 0.54 | - | 1.35 | 1.35 | - |
| B.G.2.9 | Verdeelde veranderlijke belasting (9) | - | 0.54 | - | 0.54 | 1.35 | - | - | 1.35 |
| B.G. | Omschrijving | Fu.C.17 | Fu.C.18 | Fu.C.19 | Fu.C.20 | Fu.C.21 | Fu.C.22 | | |
| B.G.1 | Permanent | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | | |
| B.G.2 | Verdeelde veranderlijke belasting | - | - | - | - | - | - | | |
| B.G.2.1 | Verdeelde veranderlijke belasting (1) | 1.35 | - | 1.35 | - | 1.35 | - | | |
| B.G.2.2 | Verdeelde veranderlijke belasting (2) | - | 1.35 | - | 1.35 | - | 1.35 | | |
| B.G.2.3 | Verdeelde veranderlijke belasting (3) | 1.35 | - | 1.35 | - | 1.35 | - | | |
| B.G.2.4 | Verdeelde veranderlijke belasting (4) | 1.35 | 1.35 | - | 1.35 | - | 1.35 | | |
| B.G.2.5 | Verdeelde veranderlijke belasting (5) | - | 1.35 | 1.35 | - | 1.35 | - | | |
| B.G.2.6 | Verdeelde veranderlijke belasting (6) | 1.35 | - | 1.35 | 1.35 | - | 1.35 | | |
| B.G.2.7 | Verdeelde veranderlijke belasting (7) | - | 1.35 | - | 1.35 | 1.35 | - | | |
| B.G.2.8 | Verdeelde veranderlijke belasting (8) | 1.35 | - | 1.35 | - | 1.35 | 1.35 | | |
| B.G.2.9 | Verdeelde veranderlijke belasting (9) | - | 1.35 | - | 1.35 | - | 1.35 | | |

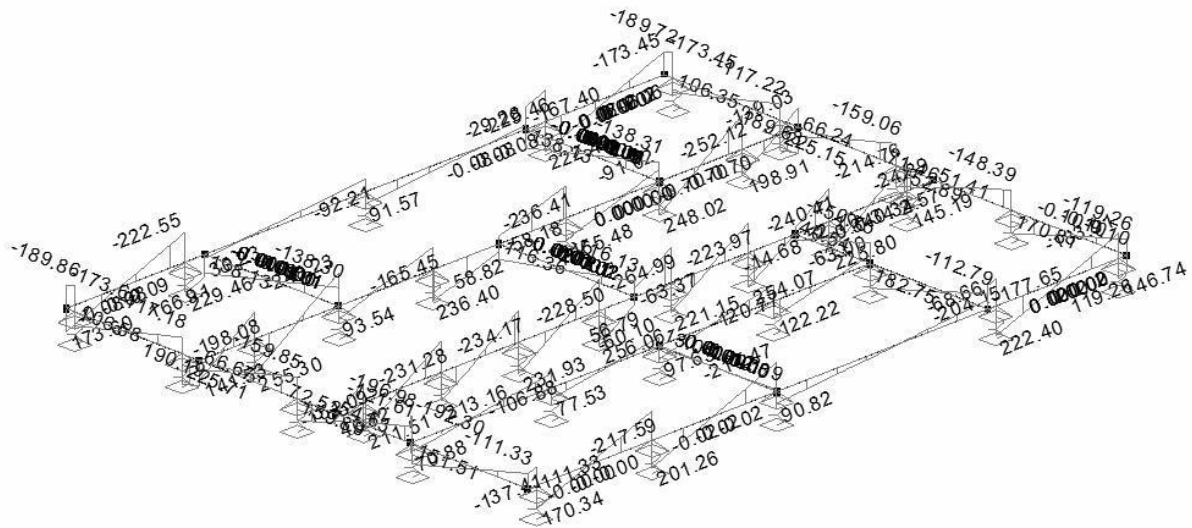
AFB. FU.C. MOMENTEN (MY) OMHULLENDE

Fundamenteel Belastingscombinaties



AFB. FU.C. DWARSKRACHT (VZ) OMHULLENDE

Fundamenteel Belastingscombinaties



FU.C. EXTREME OPLEGREACTIES

| Opleggin | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx Mymax |
|----------|-------|---------|---------|------|---------|---|-------|---------|---|----------|
| g | | | | | | | | | | |
| O1 | S1 | Fu.C.1 | -302,85 | 0,00 | 0.00 | | | | | |
| O2 | S1 | Fu.C.2 | -418,56 | 0,00 | 0.00 | | | | | |
| O3 | S1 | Fu.C.9 | -318,18 | 0,00 | 0.00 | | | | | |
| O4 | S3 | Fu.C.2 | -420,57 | 0,00 | 0.00 | | | | | |
| O5 | S3 | Fu.C.15 | -328,40 | 0,00 | 0.00 | | | | | |
| O6 | S13 | Fu.C.1 | -341,62 | 0,00 | 0.00 | | | | | |
| O7 | S19 | Fu.C.15 | -317,93 | 0,00 | 0.00 | | | | | |
| O8 | S4 | Fu.C.1 | -184,42 | 0,00 | 0.00 | | | | | |
| O9 | S4 | Fu.C.15 | -161,84 | 0,00 | 0.00 | | | | | |
| O10 | S5 | Fu.C.2 | -242,99 | 0,00 | 0.00 | | | | | |
| O11 | S5 | Fu.C.2 | -394,69 | 0,00 | 0.00 | | | | | |
| O12 | S6 | Fu.C.1 | -358,29 | 0,00 | 0.00 | | | | | |
| O13 | S6 | Fu.C.1 | -430,15 | 0,00 | 0.00 | | | | | |
| O14 | S6 | Fu.C.1 | -452,03 | 0,00 | 0.00 | | | | | |
| O15 | S6 | Fu.C.1 | -477,12 | 0,00 | 0.00 | | | | | |

| Opleggin | Knoop | B.C. | Zmax | Mx | My B.C. | Z | Mxmax | My B.C. | Z | Mx Mymax |
|--------------------------------|-------|--------|----------------|------|---------|---|-------|---------|---|----------|
| g | | | | | | | | | | |
| O16 | S6 | Fu.C.1 | -474,02 | 0,00 | 0.00 | | | | | |
| O17 | S6 | Fu.C.1 | -467,94 | 0,00 | 0.00 | | | | | |
| O18 | S6 | Fu.C.1 | -455,80 | 0,00 | 0.00 | | | | | |
| O19 | S6 | Fu.C.1 | -356,32 | 0,00 | 0.00 | | | | | |
| O20 | S13 | Fu.C.1 | -306,22 | 0,00 | 0.00 | | | | | |
| O21 | S19 | Fu.C.1 | -302,45 | 0,00 | 0.00 | | | | | |
| O22 | S7 | Fu.C.1 | -448,37 | 0,00 | 0.00 | | | | | |
| O23 | S8 | Fu.C.2 | -471,18 | 0,00 | 0.00 | | | | | |
| O24 | S8 | Fu.C.2 | -401,55 | 0,00 | 0.00 | | | | | |
| O25 | S8 | Fu.C.5 | -401,88 | 0,00 | 0.00 | | | | | |
| O26 | S8 | Fu.C.5 | -473,31 | 0,00 | 0.00 | | | | | |
| O27 | S9 | Fu.C.1 | -448,81 | 0,00 | 0.00 | | | | | |
| O28 | S13 | Fu.C.1 | -337,62 | 0,00 | 0.00 | | | | | |
| O29 | S19 | Fu.C.1 | -338,99 | 0,00 | 0.00 | | | | | |
| O30 | S13 | Fu.C.8 | -290,91 | 0,00 | 0.00 | | | | | |
| O31 | S19 | Fu.C.5 | -290,28 | 0,00 | 0.00 | | | | | |
| O32 | S10 | Fu.C.5 | -448,06 | 0,00 | 0.00 | | | | | |
| O33 | S11 | Fu.C.3 | -183,30 | 0,00 | 0.00 | | | | | |
| O34 | S12 | Fu.C.5 | -448,06 | 0,00 | 0.00 | | | | | |
| Globale extreme waarden | | | | | | | | | | |
| O15 | S6 | Fu.C.1 | -477.12 | 0.00 | 0.00 | | | | | |

AFB. FU.C. OPLEGREACTIES OMHULLENDE

Fundamenteel Belastingscombinaties

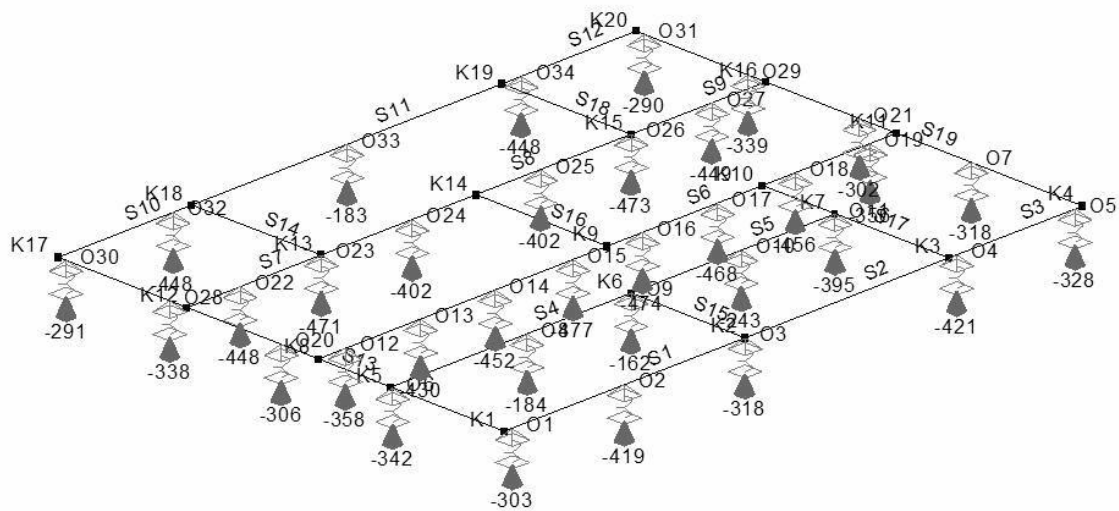
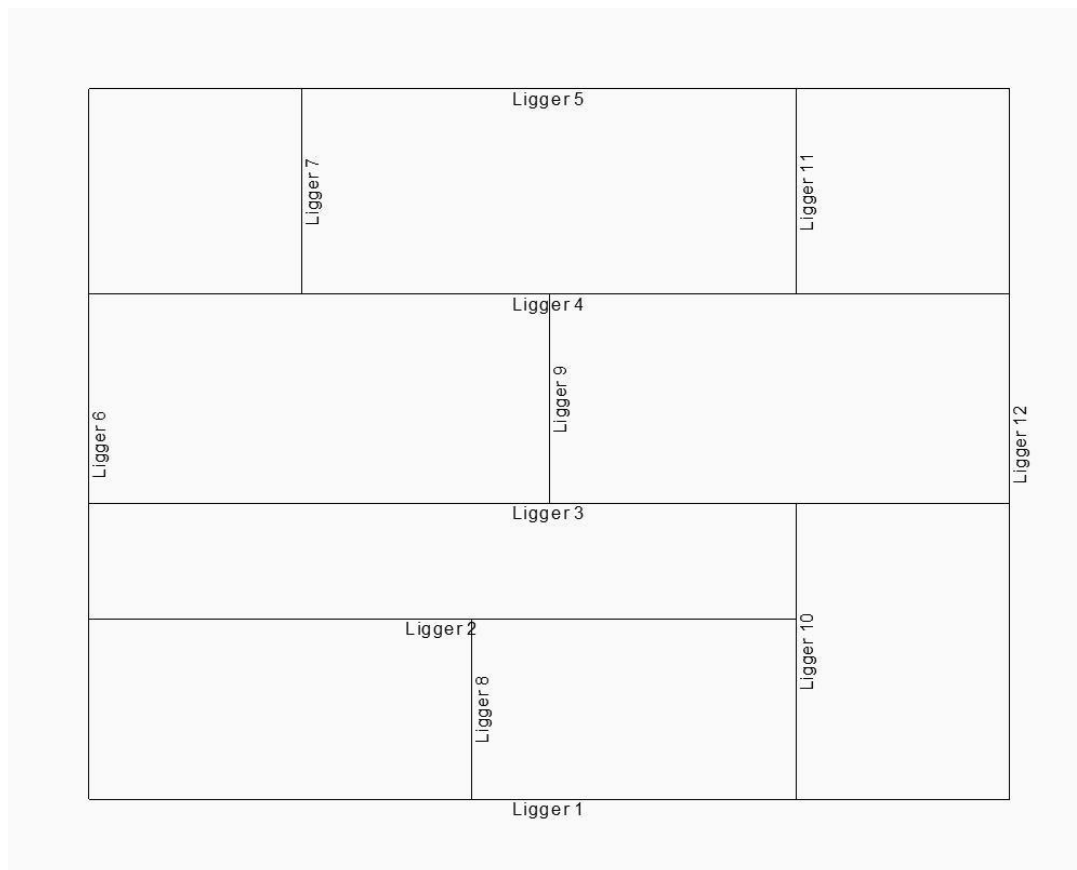


FIG. BETONDEFINITIE



BETON EIGENSCHAPPEN (NEN-EN1992-1-1:2015\NB:2016)

| Naam | Waarde | Eenheden |
|--------------------|--------|----------|
| Hoek drukdiagonaal | 21.80 | ° |

LIGGER 1

ALGEMEEN + KRUIP

Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 1 |
| Staven | S1-S3 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.64 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 1

DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |

Ligger 1

OPLEGGEGEVEENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 1 Moment |
|---------|---------|-------|--------------|-------|--------------|-----|----------|----------|----------|--------------------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| 0.300 | O1 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 4.500 | O2 | Ronde | 0,350 | | | N/B | | | afgetopt | Niet |
| 9.000 | O3 | Ronde | 0,350 | | | N/B | | | afgetopt | Niet |
| 9.000 | | paal | | S15 | 0,400 | N/B | | | afgetopt | Niet |
| 16.620 | | | | S17 | 0,400 | N/B | | | Niet | afgetopt |
| 16.920 | O4 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 21.340 | O5 | Ronde | 0,350 | | | N/B | | | afgetopt | Niet |
| 21.640 | | paal | | S19 | 0,400 | Nee | | | Niet | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | Ligger 1 S,max |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|--------------|-------------------|
| 0.300 | 37.36 | 4R12 | | 195 | 452 | | 24.30 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 4.500 | 127.23 | 4R12 | 3R12 | 695 | 792 | | 105.15 | N/B | 12.0 <= 8.7 | 50 <= 127 |
| 9.000 | 156.09 | 4R12 | 4R12 | 867 | 905 | | 128.34 | N/B | 12.0 <= 7.6 | 43 <= 95 |
| 16.620 | 72.81 | 4R12 | | 386 | 452 | | 60.21 | N/B | 12.0 <= 9.2 | 101 <= 140 |
| 16.920 | 127.40 | 4R12 | 3R12 | 696 | 792 | | 104.99 | N/B | 12.0 <= 8.7 | 50 <= 128 |
| 21.340 | 39.94 | 4R12 | | 209 | 452 | | 32.76 | N/B | 12.0 <= 26.9 | 101 <= 295 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 1 S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|--------------|-------------------|
| 2.154 | 135.86 | 4R12 | 3R12 | 746 | 792 | | -112.15 | N/B | 12.0 <= 7.8 | 50 <= 101 |
| 6.692 | 94.76 | 4R12 | 1R12 | 508 | 565 | | -77.62 | N/B | 12.0 <= 8.5 | 76 <= 123 |
| 13.379 | 43.65 | 4R12 | | 228 | 452 | | -35.75 | N/B | 12.0 <= 24.7 | 101 <= 286 |
| 19.348 | 150.78 | 4R12 | 4R12 | 835 | 905 | | -115.96 | N/B | 12.0 <= 9.1 | 43 <= 137 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 1 |
|---------|------|----------|--------|--------|----------|
| 0.000 | 0.13 | 1R8 | 1 | 50 | |
| 0.300 | 0.13 | 1R8 | 1 | 50 | |
| 2.138 | 0.13 | 1R8 | 1 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 1 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|------|------------------|
| 0.000 | 111.33 | R8-300 | 258 | 1 | 335 | 61.688 | 144.734 | 111.329 | N/B | N/B |
| 0.926 | 112.57 | R8-300 | 270 | 1 | 335 | 61.688 | 139.927 | 112.569 | N/B | N/B |
| 3.874 | 159.81 | R8-150 | 383 | 1 | 670 | 74.361 | 279.855 | 159.812 | N/B | N/B |
| 5.126 | 143.48 | R8-150 | 344 | 1 | 670 | 74.361 | 279.855 | 143.481 | N/B | N/B |

| | | | | | | | | | | |
|--------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 8.374 | 156.69 | R8-150 | 380 | 1 | 670 | 77.749 | 276.650 | 156.691 | N/B | N/B |
| 9.626 | 77.84 | R8-300 | 189 | 1 | 335 | 77.749 | 138.325 | 77.838 | N/B | N/B |
| 16.294 | 61.90 | R8-300 | 143 | 1 | 335 | 61.688 | 144.734 | 61.897 | N/B | N/B |
| 16.620 | 68.66 | R8-300 | 159 | 1 | 335 | 61.688 | 144.734 | 68.659 | N/B | N/B |
| 16.620 | 177.65 | R8-150 | 411 | 0 | 670 | 61.710 | 289.468 | 177.648 | N/B | N/B |
| 17.546 | 165.07 | R8-150 | 395 | 0 | 670 | 74.376 | 279.855 | 165.070 | N/B | N/B |
| 20.714 | 126.58 | R8-300 | 307 | 0 | 335 | 61.710 | 138.325 | 126.583 | N/B | N/B |
| 21.640 | 119.26 | R8-300 | 276 | 0 | 335 | 61.710 | 144.734 | 119.265 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12a(basis)(basis) | -0.165 | 0.217 | 4,0D | 0.376 | 0.000 | 21.440 | 0.402 | 21.799 | 0.043 | 4,0D | 22.223 |
| 3R12b(bijleg)(bijleg) | 3.279 | 0.000 | 2,5D | 0.488 | 3.767 | 5.247 | 0.488 | 5.735 | 0.000 | 2,5D | 2.456 |
| 4R12c(bijleg)(bijleg) | 7.694 | 0.000 | 2,5D | 0.427 | 8.121 | 10.392 | 0.427 | 10.819 | 0.000 | 2,5D | 3.125 |
| 3R12d(bijleg)(bijleg) | 15.888 | 0.000 | 2,5D | 0.732 | 16.620 | 17.664 | 0.488 | 18.152 | 0.000 | 2,5D | 2.264 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 1 Lengte |
|----------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12h1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.532 | 0.475 | 21.440 | 0.426 | 21.799 | 0.067 | 4,0D | 22.031 |
| 3R12i1(bijleg) (bijleg) | 0.229 | 0.000 | 2,5D | 0.342 | 0.571 | 3.738 | 0.342 | 4.079 | 0.000 | 2,5D | 3.850 |
| 1R12j1(bijleg) (bijleg) | 5.226 | 0.000 | 2,5D | 0.478 | 5.704 | 7.680 | 0.478 | 8.158 | 0.000 | 2,5D | 2.932 |
| 4R12k1(bijleg) (bijleg) | 17.335 | 0.000 | 2,5D | 0.299 | 17.634 | 21.061 | 0.299 | 21.360 | 0.000 | 2,5D | 4.025 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 1 |
|-----------|--------|-----------|--------|--------|--------|--------|--------|----------|
| O2 | Links | 12xR8-300 | -0.280 | 3.320 | 3.600 | 124.07 | 139.93 | |
| O2 | Links | 4xR8-150 | 3.320 | 3.920 | 0.600 | 160.18 | 279.85 | |
| O2 | Links | 8xR8-150 | 3.920 | 5.120 | 1.200 | 160.18 | 276.65 | |
| O2 | Rechts | 2xR8-150 | 5.120 | 5.420 | 0.300 | 143.85 | 279.85 | |
| O2 | Rechts | 4xR8-300 | 5.420 | 6.620 | 1.200 | 126.67 | 139.93 | |
| O3 | Links | 5xR8-300 | 6.620 | 8.120 | 1.500 | 133.96 | 138.33 | |
| O3 | Links | 2xR8-150 | 8.120 | 8.420 | 0.300 | 157.06 | 276.65 | |
| O3 | Rechts | 4xR8-150 | 8.420 | 9.020 | 0.600 | 157.06 | 279.85 | |
| O3 | Rechts | 2xR8-300 | 9.020 | 9.620 | 0.600 | 78.21 | 139.93 | |
| O3 | Rechts | 11xR8-300 | 9.620 | 12.920 | 3.300 | 78.21 | 138.33 | |
| O4 | Links | 13xR8-300 | 12.920 | 16.820 | 3.900 | 62.27 | 144.73 | |
| O4 | Rechts | 4xR8-150 | 16.820 | 17.420 | 0.600 | 165.44 | 289.47 | |
| O4 | Rechts | 4xR8-150 | 17.420 | 18.020 | 0.600 | 165.44 | 279.85 | |
| O4 | Rechts | 13xR8-300 | 18.020 | 21.920 | 3.900 | 133.76 | 139.93 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 1 |
|--------------------|-----------|-------------|-------------------|-----------|----------|
| V7 (21.340-21.640) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,00 | 0,00 |
| | Handmatig | | | | |
| V6 (16.920-21.340) | Vloer | 3,6 <= 17,7 | 7,5 <= 17,7 | 0,20 | 0,43 |
| | Handmatig | | | | |
| V5 (16.620-16.920) | Vloer | 0,0 <= 1,2 | 0,0 <= 1,2 | 0,01 | 0,03 |
| | Handmatig | | | | |
| V4 (9.000-16.620) | Vloer | 1,7 <= 30,5 | 1,9 <= 30,5 | 0,05 | 0,06 |
| | Handmatig | | | | |
| V3 (8.700-9.000) | Vloer | 0,0 <= 1,2 | 0,1 <= 1,2 | 0,02 | 0,06 |
| | Handmatig | | | | |
| V2 (4.500-8.700) | Vloer | 2,1 <= 16,8 | 4,8 <= 16,8 | 0,13 | 0,28 |

| | | | | | |
|------------------|---------------------------------|-------------|-------------|------|------|
| V1 (0.000-4.500) | Handmatig Vloer Handmatig | 3,2 <= 18,0 | 8,1 <= 18,0 | 0,18 | 0,45 |
| m | - | mm | mm | - | - |

LIGGER 2
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 2 |
| Staven | S4-S5 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 16.62 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 2
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 2
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|--------------|-------|--------------|-----|----------|----------|----------|----------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| 5.100 | O8 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 9.000 | O9 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 9.000 | | paal | | S15 | 0,400 | N/B | | | Afgetopt | Niet |
| 13.120 | O10 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| 16.620 | O11 | Ronde | 0,350 | | | Ja | 5,67 | 0,00 | Afgetopt | Niet |
| 16.620 | | paal | | S17 | 0,400 | Nee | | | Afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

Ligger 2
BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------------|-------|---------|--------------|------------|
| 5.100 | 98.34 | 4R12 | 2R12 | 528 | 679 | | 71.26 | N/B | 12.0 <= 13.3 | 60 <= 214 |
| 9.000 | 57.26 | 4R12 | | 301 | 452 | | 45.43 | N/B | 12.0 <= 15.5 | 101 <= 234 |
| 13.120 | 104.08 | 4R12 | 2R12 | 561 | 679 | | 85.53 | N/B | 12.0 <= 9.8 | 60 <= 152 |
| 16.620 | 5.67 | 4R12 | | 30 | 452 | | 4.67 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

Ligger 2

| ONDERWAPENING | | | | | | | | | | Ligger 2 |
|---------------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 2.064 | 73.38 | 4R12 | | 389 | 452 | | -51.03 | N/B | 12.0 <= 12.4 | 101 <= 199 |
| 7.249 | 3.26 | 4R12 | | 17 | 452 | | | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 10.879 | 38.42 | 4R12 | | 200 | 452 | | -31.26 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 15.427 | 37.83 | 4R12 | | 197 | 452 | | -31.17 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | Ligger 2 |
|---------------|------|----------|--------|--------|--|----------|
| Positie | Mx | Wapening | As,ben | As,toe | | |
| 0.000 | 0.07 | 1R8 | 1 | 50 | | |
| 9.000 | 0.07 | 1R8 | 1 | 50 | | |
| m | kNm | - | mm2 | mm2 | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 2 |
|----------------|-------|----------|----------|----------|--------|--------|---------|--------|-------|----------|
| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 70.88 | R8-300 | 164 | 0 | 335 | 61.706 | 144.734 | 70.880 | N/B | N/B |
| 4.474 | 85.39 | R8-300 | 202 | 0 | 335 | 70.646 | 141.530 | 85.390 | N/B | N/B |
| 5.726 | 56.04 | R8-300 | 133 | 0 | 335 | 70.665 | 141.530 | 56.041 | N/B | N/B |
| 8.374 | 38.61 | R8-300 | 89 | 0 | 335 | 61.732 | 144.734 | 38.609 | N/B | N/B |
| 9.626 | 64.57 | R8-300 | 149 | 0 | 335 | 61.708 | 144.734 | 64.568 | N/B | N/B |
| 12.494 | 87.72 | R8-300 | 208 | 0 | 335 | 70.647 | 141.530 | 87.715 | N/B | N/B |
| 13.746 | 89.16 | R8-300 | 211 | 0 | 335 | 70.647 | 141.530 | 89.158 | N/B | N/B |
| 15.994 | 29.95 | R8-300 | 69 | 0 | 335 | 61.732 | 144.734 | 29.946 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 2 |
|------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12e(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 16.445 | 0.120 | 16.785 | 0.000 | 2,5D | 16.950 |
| 2R12f(bijleg)(bijleg) | 3.872 | 0.000 | 2,5D | 0.569 | 4.442 | 5.811 | 0.569 | 6.380 | 0.000 | 2,5D | 2.508 |
| 2R12g(bijleg)(bijleg) | 11.853 | 0.000 | 2,5D | 0.569 | 12.423 | 13.814 | 0.569 | 14.384 | 0.000 | 2,5D | 2.531 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 2 |
|------------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12l1(basis)(basis) | -0.165 | 0.094 | 4,0D | 0.253 | 0.000 | 16.445 | 0.120 | 16.785 | 0.000 | 2,5D | 17.044 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | Ligger 2 |
|-------------------------|--------|----------|--------|--------|--------|-------|--------|----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | |
| S13 | Rechts | 8xR8-300 | -0.178 | 2.223 | 2.400 | 71.09 | 144.73 | |
| O8 | Links | 8xR8-300 | 2.223 | 4.623 | 2.400 | 85.60 | 141.53 | |
| O8 | Links | 3xR8-300 | 4.623 | 5.523 | 0.900 | 85.60 | 144.73 | |
| O8 | Rechts | 5xR8-300 | 5.523 | 7.023 | 1.500 | 56.25 | 141.53 | |
| O9 | Links | 5xR8-300 | 7.023 | 8.523 | 1.500 | 38.82 | 144.73 | |
| O9 | Rechts | 3xR8-300 | 8.523 | 9.423 | 0.900 | 64.78 | 141.53 | |
| O9 | Rechts | 5xR8-300 | 9.423 | 10.923 | 1.500 | 64.78 | 144.73 | |
| O10 | Links | 6xR8-300 | 10.923 | 12.723 | 1.800 | 87.93 | 141.53 | |
| O10 | Links | 3xR8-300 | 12.723 | 13.623 | 0.900 | 89.37 | 144.73 | |
| O10 | Rechts | 4xR8-300 | 13.623 | 14.823 | 1.200 | 89.37 | 141.53 | |
| O11 | Links | 4xR8-300 | 14.823 | 16.023 | 1.200 | 36.83 | 144.73 | |
| O11 | Rechts | 2xR8-300 | 16.023 | 16.623 | 0.600 | 30.16 | 141.53 | |

| | | | | | | | | |
|-----------------------------|-----------------|----------------|--------------|--------------------|------------------|----|----|-----------------|
| - | - | - | m | m | m | kN | kN | |
| TOETSING DOORBUIGING | | | | | | | | Ligger 2 |
| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) | | | |
| V4 (12.500-16.620) | Vloer | -0,5 <= 16,5 | -0,8 <= 16,5 | 0,03 | 0,05 | | | |
| | Handmatig | | | | | | | |
| V3 (9.000-12.500) | Vloer | 0,5 <= 14,0 | 0,7 <= 14,0 | 0,04 | 0,05 | | | |
| | Handmatig | | | | | | | |
| V2 (3.900-9.000) | Vloer | -1,7 <= 20,4 | -1,8 <= 20,4 | 0,08 | 0,09 | | | |
| | Handmatig | | | | | | | |
| V1 (0.000-3.900) | Vloer | 2,4 <= 15,6 | 2,5 <= 15,6 | 0,15 | 0,16 | | | |
| | Handmatig | | | | | | | |
| m | - | mm | mm | - | - | | | |

LIGGER 3
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 3 |
| Staven | S6 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.64 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 3
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|--------------|--------------|------------------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 3
OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|----------------|----------------|-------------|------------------|---------------|------------------|------------|-----------------|-----------------|-----------------|---------------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet |
| 1.000 | O12 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| | | paal | | | | | | | Afgetopt | Niet |
| 3.810 | O13 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | | | | | | Afgetopt | afgetopt |
| 6.615 | O14 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | | | | | | Afgetopt | afgetopt |
| 9.520 | O15 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | | | | | | Afgetopt | afgetopt |
| 10.820 | | | | S16 | 0,400 | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 12.125 | O16 | n.v.t. | 0,000 | | | N/B | | | Niet | Niet |
| | | | | | | | | | afgetopt | afgetopt |
| 14.930 | O17 | Ronde | 0,350 | | | N/B | | | Afgetopt | Niet |
| | | paal | | | | | | | Afgetopt | afgetopt |
| 16.620 | | | | S17 | 0,400 | N/B | | | Niet | Niet |

Ligger 3

| | | | | | | | | |
|--------|-----|-------|-------|-------|-----|---|----------|----------|
| 17.835 | O18 | Ronde | 0,350 | | N/B | | afgetopt | afgetopt |
| | | paal | | | | | Afgetopt | Niet |
| 20.640 | O19 | Ronde | 0,350 | | N/B | | Afgetopt | afgetopt |
| | | paal | | | | | | Niet |
| 21.640 | | | S19 | 0,400 | Nee | | Niet | afgetopt |
| | | | | | | | afgetopt | Niet |
| m | - | - | m | - | m | - | kNm | kNm- |

BOVENWAPENING
Ligger 3

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|-------|---------|--------------|------------|
| 1.000 | 73.73 | 4R12 | | 392 | 452 | | 41.78 | N/B | 12.0 <= 19.3 | 101 <= 258 |
| 3.810 | 85.15 | 4R12 | 1R12 | 455 | 565 | | 63.12 | N/B | 12.0 <= 12.3 | 76 <= 198 |
| 6.615 | 111.10 | 4R12 | 2R12 | 602 | 679 | | 91.53 | N/B | 12.0 <= 8.6 | 60 <= 126 |
| 9.520 | 105.61 | 4R12 | 2R12 | 570 | 679 | | 86.69 | N/B | 12.0 <= 9.6 | 60 <= 147 |
| 12.125 | 111.36 | 4R12 | 2R12 | 603 | 679 | | 91.69 | N/B | 12.0 <= 8.6 | 60 <= 125 |
| 14.930 | 115.41 | 4R12 | 2R12 | 626 | 679 | | 93.94 | N/B | 12.0 <= 8.3 | 60 <= 115 |
| 17.835 | 83.35 | 4R12 | | 445 | 452 | | 64.56 | N/B | 12.0 <= 8.1 | 101 <= 112 |
| 20.640 | 67.81 | 4R12 | | 359 | 452 | | 47.46 | N/B | 12.0 <= 13.8 | 101 <= 221 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 3

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 0.266 | 5.19 | 4R12 | | 28 | 452 | | -4.18 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 2.345 | 105.03 | 4R12 | 2R12 | 567 | 679 | | -84.30 | N/B | 12.0 <= 10.1 | 60 <= 157 |
| 5.135 | 68.55 | 4R12 | | 363 | 452 | | -52.39 | N/B | 12.0 <= 11.8 | 101 <= 190 |
| 8.041 | 65.23 | 4R12 | | 345 | 452 | | -47.73 | N/B | 12.0 <= 13.7 | 101 <= 220 |
| 10.820 | 104.27 | 4R12 | 1R12 | 563 | 565 | | -83.85 | N/B | 12.0 <= 7.5 | 76 <= 91 |
| 13.480 | 51.67 | 4R12 | | 272 | 452 | | -35.69 | N/B | 12.0 <= 24.7 | 101 <= 286 |
| 16.620 | 101.43 | 4R12 | 1R12 | 546 | 565 | | -77.70 | N/B | 12.0 <= 8.5 | 76 <= 123 |
| 19.291 | 88.64 | 4R12 | 1R12 | 474 | 565 | | -72.20 | N/B | 12.0 <= 9.8 | 76 <= 151 |
| 21.481 | 2.07 | 4R12 | | 12 | 452 | | -1.70 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 3

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 10.820 | 0.16 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 3

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|------|------|
| 0.000 | 40.72 | R8-300 | 94 | 0 | 335 | 61.732 | 144.734 | 40.717 | N/B | N/B |
| 0.374 | 54.38 | R8-300 | 126 | 0 | 335 | 61.732 | 144.734 | 54.378 | N/B | N/B |
| 1.626 | 114.79 | R8-300 | 272 | 1 | 335 | 61.678 | 141.530 | 114.795 | N/B | N/B |
| 3.184 | 134.57 | R8-300 | 319 | 1 | 335 | 61.678 | 141.530 | 134.565 | N/B | N/B |
| 4.436 | 116.45 | R8-300 | 270 | 1 | 335 | 61.678 | 144.734 | 116.450 | N/B | N/B |
| 5.989 | 137.46 | R8-300 | 325 | 1 | 335 | 70.625 | 141.530 | 137.458 | N/B | N/B |
| 7.241 | 135.22 | R8-300 | 320 | 1 | 335 | 70.625 | 141.530 | 135.219 | N/B | N/B |
| 8.894 | 131.79 | R8-300 | 305 | 1 | 335 | 61.678 | 144.734 | 131.785 | N/B | N/B |
| 10.146 | 160.11 | R8-150 | 375 | 1 | 670 | 61.678 | 286.263 | 160.107 | N/B | N/B |

| | | | | | | | | | | |
|--------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 10.820 | 56.79 | R8-300 | 133 | 0 | 335 | 61.732 | 143.132 | 56.793 | N/B | N/B |
| 10.820 | 63.37 | R8-300 | 148 | 1 | 335 | 61.674 | 143.132 | 63.373 | N/B | N/B |
| 12.125 | 264.99 | R8-150 | 627 | 1 | 670 | 61.674 | 283.059 | 264.988 | N/B | N/B |
| 12.125 | 221.15 | R8-150 | 524 | 1 | 670 | 61.674 | 283.059 | 221.151 | N/B | N/B |
| 14.304 | 127.26 | R8-300 | 301 | 1 | 335 | 70.622 | 141.530 | 127.258 | N/B | N/B |
| 15.556 | 157.36 | R8-150 | 368 | 1 | 670 | 61.674 | 286.263 | 157.359 | N/B | N/B |
| 16.620 | 14.68 | R8-300 | 34 | 0 | 335 | 61.732 | 143.132 | 14.677 | N/B | N/B |
| 16.620 | 52.70 | R8-300 | 123 | 0 | 335 | 61.732 | 143.132 | 52.700 | N/B | N/B |
| 17.209 | 143.70 | R8-150 | 336 | 1 | 670 | 61.676 | 286.263 | 143.697 | N/B | N/B |
| 18.461 | 129.09 | R8-300 | 302 | 1 | 335 | 61.676 | 143.132 | 129.086 | N/B | N/B |
| | | | | | | | | | | |
| 20.014 | 118.05 | R8-300 | 276 | 1 | 335 | 61.676 | 143.132 | 118.049 | N/B | N/B |
| 21.266 | 50.38 | R8-300 | 117 | 0 | 335 | 61.732 | 144.734 | 50.382 | N/B | N/B |
| 21.640 | 24.39 | R8-300 | 56 | 0 | 335 | 61.732 | 144.734 | 24.392 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 3 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12h(basis)(basis) | -0.165 | 0.038 | 4,0D | 0.197 | 0.000 | 21.440 | 0.367 | 21.799 | 0.008 | 4,0D | 22.010 |
| 1R12i(bijleg)(bijleg) | 2.586 | 0.000 | 2,5D | 0.683 | 3.269 | 4.351 | 0.683 | 5.034 | 0.000 | 2,5D | 2.449 |
| 2R12j(bijleg)(bijleg) | 5.377 | 0.000 | 2,5D | 0.569 | 5.946 | 7.286 | 0.569 | 7.855 | 0.000 | 2,5D | 2.478 |
| 2R12k(bijleg)(bijleg) | 8.303 | 0.000 | 2,5D | 0.569 | 8.872 | 10.153 | 0.569 | 10.722 | 0.000 | 2,5D | 2.420 |
| 2R12l(bijleg)(bijleg) | 10.903 | 0.000 | 2,5D | 0.569 | 11.472 | 12.806 | 0.569 | 13.375 | 0.000 | 2,5D | 2.472 |
| 2R12m(bijleg)(bijleg) | 13.665 | 0.000 | 2,5D | 0.569 | 14.234 | 15.610 | 0.569 | 16.179 | 0.000 | 2,5D | 2.514 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 3 Lengte |
|------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12n(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.145 | 0.000 | 21.440 | 0.180 | 21.805 | 0.000 | 2,5D | 21.970 |
| 2R12m1(bijleg)(bijleg) | 0.918 | 0.000 | 2,5D | 0.399 | 1.316 | 3.378 | 0.399 | 3.777 | 0.000 | 2,5D | 2.859 |
| 1R12n1(bijleg)(bijleg) | 9.534 | 0.000 | 2,5D | 0.478 | 10.013 | 11.603 | 0.478 | 12.082 | 0.000 | 2,5D | 2.547 |
| 1R12o1(bijleg)(bijleg) | 15.088 | 0.000 | 2,5D | 0.478 | 15.566 | 17.397 | 0.478 | 17.875 | 0.000 | 2,5D | 2.788 |
| 1R12p1(bijleg)(bijleg) | 18.085 | 0.000 | 2,5D | 0.478 | 18.564 | 20.025 | 0.478 | 20.503 | 0.000 | 2,5D | 2.418 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 3 |
|-----------|--------|-----------|--------|--------|--------|--------|--------|----------|
| S13 | Rechts | 6xR8-300 | -0.280 | 1.520 | 1.800 | 115.27 | 144.73 | |
| O12 | Rechts | 9xR8-300 | 1.520 | 4.220 | 2.700 | 135.04 | 141.53 | |
| O13 | Rechts | 3xR8-300 | 4.220 | 5.120 | 0.900 | 116.92 | 144.73 | |
| O14 | Links | 3xR8-300 | 5.120 | 6.020 | 0.900 | 137.93 | 141.53 | |
| O14 | Rechts | 4xR8-300 | 6.020 | 7.220 | 1.200 | 137.93 | 144.73 | |
| O14 | Rechts | 3xR8-300 | 7.220 | 8.120 | 0.900 | 135.69 | 141.53 | |
| O15 | Links | 3xR8-300 | 8.120 | 9.020 | 0.900 | 132.26 | 144.73 | |
| O15 | Links | 3xR8-300 | 9.020 | 9.920 | 0.900 | 160.58 | 143.13 | |
| O15 | Rechts | 4xR8-150 | 9.920 | 10.520 | 0.600 | 160.58 | 286.26 | |
| S16 | Rechts | 1xR8-300 | 10.520 | 10.820 | 0.300 | 129.84 | 143.13 | |
| S16 | Links | 1xR8-300 | 10.820 | 11.120 | 0.300 | 136.61 | 141.53 | |
| O16 | Links | 12xR8-150 | 11.120 | 12.920 | 1.800 | 265.46 | 283.06 | |
| O16 | Rechts | 6xR8-300 | 12.920 | 14.720 | 1.800 | 127.73 | 141.53 | |
| O17 | Rechts | 4xR8-150 | 14.720 | 15.320 | 0.600 | 157.83 | 283.06 | |
| O17 | Rechts | 4xR8-150 | 15.320 | 15.920 | 0.600 | 157.83 | 286.26 | |
| S17 | Rechts | 3xR8-300 | 15.920 | 16.820 | 0.900 | 112.54 | 143.13 | |
| O18 | Links | 4xR8-150 | 16.820 | 17.420 | 0.600 | 144.17 | 286.26 | |

| | | | | | | | |
|-----|--------|----------|--------|--------|-------|--------|--------|
| O18 | Rechts | 9xR8-300 | 17.420 | 20.120 | 2.700 | 144.17 | 143.13 |
| S19 | Links | 6xR8-300 | 20.120 | 21.920 | 1.800 | 118.52 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 3 |
|---------------------|-----------|-------------|-------------------|-----------|----------|
| V11 (20.640-21.640) | Vloer | 0,0 <= 4,0 | 0,0 <= 4,0 | 0,01 | 0,01 |
| | Handmatig | | | | |
| V10 (17.830-20.640) | Vloer | 0,9 <= 11,2 | 1,8 <= 11,2 | 0,08 | 0,16 |
| | Handmatig | | | | |
| V9 (15.025-17.830) | Vloer | 1,1 <= 11,2 | 1,9 <= 11,2 | 0,10 | 0,17 |
| | Handmatig | | | | |
| V8 (12.120-15.025) | Vloer | 0,2 <= 11,6 | 0,2 <= 11,6 | 0,02 | 0,02 |
| | Handmatig | | | | |
| V7 (10.820-12.120) | Vloer | 0,2 <= 5,2 | 0,8 <= 5,2 | 0,04 | 0,16 |
| | Handmatig | | | | |
| V6 (9.515-10.820) | Vloer | 0,2 <= 5,2 | 0,8 <= 5,2 | 0,04 | 0,16 |
| | Handmatig | | | | |
| V5 (6.710-9.515) | Vloer | 0,6 <= 11,2 | 0,6 <= 11,2 | 0,06 | 0,05 |
| | Handmatig | | | | |
| V4 (5.020-6.710) | Vloer | 0,2 <= 6,8 | 0,3 <= 6,8 | 0,02 | 0,05 |
| | Handmatig | | | | |
| V3 (3.805-5.020) | Vloer | 0,2 <= 4,9 | 0,6 <= 4,9 | 0,03 | 0,12 |
| | Handmatig | | | | |
| V2 (1.000-3.805) | Vloer | 1,1 <= 11,2 | 2,0 <= 11,2 | 0,09 | 0,18 |
| | Handmatig | | | | |
| V1 (0.000-1.000) | Vloer | 0,0 <= 4,0 | 0,0 <= 4,0 | 0,00 | 0,00 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 4
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 4 |
| Staven | S7-S9 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.64 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 4
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 4
OPLEGGEGEVEN

| Positie | Oplegg. | Type | Afmetin g | Staa f | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |

Ligger 4

| | | | | | | | |
|--------|-----|-------|-------|-----|-------|----------|----------|
| 2.000 | O22 | Ronde | 0,350 | | N/B | Afgetopt | Niet |
| 5.020 | O23 | Ronde | 0,350 | | N/B | Afgetopt | afgetopt |
| 5.020 | | paal | | S14 | 0,400 | N/B | Niet |
| 8.420 | O24 | Ronde | 0,350 | | N/B | Afgetopt | afgetopt |
| 10.820 | | paal | | S16 | 0,400 | N/B | Niet |
| 13.220 | O25 | Ronde | 0,350 | | N/B | Afgetopt | afgetopt |
| 16.620 | O26 | Ronde | 0,350 | | N/B | Afgetopt | Niet |
| 16.620 | | paal | | S18 | 0,400 | N/B | afgetopt |
| 19.640 | O27 | Ronde | 0,350 | | N/B | Afgetopt | Niet |
| 21.640 | | paal | | S19 | 0,400 | Nee | afgetopt |
| m | - | - | m | - | m | - | kNm |
| | | | | | | | kNm - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 2.000 | 71.42 | 4R12 | | 381 | 452 | | 52.47 | N/B | 12.0 <= 11.8 | 101 <= 189 |
| 5.020 | 57.32 | 4R12 | | 304 | 452 | | 43.98 | N/B | 12.0 <= 17.0 | 101 <= 244 |
| 8.420 | 183.84 | 4R12 | 3R16 | 1045 | 1056 | | 151.35 | N/B | 13.7 <= 7.1 | 50 <= 83 |
| 13.220 | 183.86 | 4R12 | 3R16 | 1045 | 1056 | | 151.32 | N/B | 13.7 <= 7.1 | 50 <= 83 |
| 16.620 | 54.41 | 4R12 | | 288 | 452 | | 41.65 | N/B | 12.0 <= 19.5 | 101 <= 259 |
| 19.640 | 71.67 | 4R12 | | 382 | 452 | | 52.06 | N/B | 12.0 <= 11.9 | 101 <= 192 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|--------------|------------|
| 0.868 | 61.46 | 4R12 | | 326 | 452 | | -48.43 | N/B | 12.0 <= 13.4 | 101 <= 215 |
| 3.498 | 140.06 | 4R12 | 3R12 | 773 | 792 | | -113.73 | N/B | 12.0 <= 7.6 | 50 <= 95 |
| 6.209 | 8.85 | 4R12 | | 49 | 452 | | -3.57 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 10.820 | 170.12 | 4R12 | 3R16 | 959 | 1056 | | -140.50 | N/B | 13.7 <= 8.0 | 50 <= 114 |
| 15.383 | 8.93 | 4R12 | | 49 | 452 | | -3.43 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| 18.133 | 138.72 | 4R12 | 3R12 | 765 | 792 | | -113.66 | N/B | 12.0 <= 7.6 | 50 <= 95 |
| 20.787 | 59.33 | 4R12 | | 315 | 452 | | -48.08 | N/B | 12.0 <= 13.5 | 101 <= 217 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 10.820 | 0.42 | 1R8 | 4 | 50 |
| 13.220 | 0.42 | 1R8 | 4 | 50 |
| 16.620 | 0.42 | 1R8 | 4 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|------|------|
| 0.000 | 141.53 | R8-300 | 328 | 2 | 335 | 61.627 | 144.734 | 141.529 | N/B | N/B |

| | | | | | | | | | | |
|--------|--------|--------|-----|-----|-----|--------|---------|---------|-------|-------|
| 1.374 | 96.06 | R8-300 | 222 | 2 | 335 | 61.627 | 144.734 | 96.058 | N/B | N/B |
| 2.626 | 153.28 | R8-150 | 367 | 2 | 670 | 61.627 | 279.855 | 153.275 | N/B | N/B |
| 4.394 | 145.96 | R8-150 | 350 | 2 | 670 | 61.627 | 279.855 | 145.963 | N/B | N/B |
| 5.646 | 47.58 | R8-300 | 110 | 0 | 335 | 61.732 | 144.734 | 47.578 | N/B | N/B |
| 7.795 | 119.05 | R8-300 | 294 | 3 | 335 | 81.698 | 135.806 | 119.048 | N/B | N/B |
| 9.045 | 190.00 | R8-150 | 469 | 3 | 670 | 81.698 | 271.612 | 190.002 | N/B | N/B |
| 10.620 | 73.13 | R8-300 | 180 | 0 | 335 | 81.781 | 135.806 | 73.132 | N/B | N/B |
| 11.020 | 73.03 | R8-300 | 180 | 0 | 335 | 81.781 | 135.806 | 73.032 | N/B | N/B |
| 12.595 | 190.00 | R8-150 | 469 | 3 | 670 | 81.697 | 271.612 | 190.003 | N/B | N/B |
| 13.845 | 119.08 | R8-300 | 294 | 3 | 335 | 81.697 | 135.806 | 119.081 | N/B | N/B |
| 15.994 | 45.06 | R8-300 | 104 | 0 | 335 | 61.732 | 144.734 | 45.056 | N/B | N/B |
| 17.246 | 145.02 | R8-150 | 347 | 2 | 670 | 61.624 | 279.855 | 145.015 | N/B | N/B |
| 19.014 | 149.04 | R8-150 | 357 | 2 | 670 | 61.624 | 279.855 | 149.038 | N/B | N/B |
| 20.266 | 96.89 | R8-300 | 224 | 2 | 335 | 61.624 | 144.734 | 96.894 | N/B | N/B |
| 21.640 | 139.03 | R8-300 | 322 | 2 | 335 | 61.624 | 144.734 | 139.026 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 4 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12n(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 21.440 | 0.120 | 21.805 | 0.000 | 2,5D | 21.970 |
| 3R16o(bijleg)(bijleg) | 6.632 | 0.000 | 2,5D | 0.488 | 7.120 | 9.386 | 0.488 | 9.874 | 0.000 | 2,5D | 3.243 |
| 3R16p(bijleg)(bijleg) | 11.772 | 0.000 | 2,5D | 0.488 | 12.261 | 14.471 | 0.488 | 14.959 | 0.000 | 2,5D | 3.187 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 4 Lengte |
|----------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12q1(basis)(basis) | -0.165 | 0.347 | 4,0D | 0.506 | 0.000 | 21.440 | 0.497 | 21.799 | 0.138 | 4,0D | 22.448 |
| 3R12r1(bijleg) (bijleg) | 1.826 | 0.000 | 2,5D | 0.349 | 2.175 | 4.845 | 0.337 | 5.182 | 0.000 | 2,5D | 3.356 |
| 3R16s1(bijleg) (bijleg) | 9.018 | 0.000 | 2,5D | 0.342 | 9.359 | 12.254 | 0.342 | 12.596 | 0.000 | 2,5D | 3.578 |
| 3R12t1(bijleg) (bijleg) | 16.458 | 0.000 | 2,5D | 0.337 | 16.795 | 19.465 | 0.339 | 19.804 | 0.000 | 2,5D | 3.346 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 4 |
|-----------|--------|----------|--------|--------|--------|--------|--------|----------|
| S13 | Rechts | 6xR8-300 | -0.280 | 1.520 | 1.800 | 142.69 | 144.73 | |
| O22 | Links | 1xR8-300 | 1.520 | 1.820 | 0.300 | 97.22 | 139.93 | |
| O22 | Links | 8xR8-150 | 1.820 | 3.020 | 1.200 | 154.44 | 279.85 | |
| O22 | Rechts | 4xR8-300 | 3.020 | 4.220 | 1.200 | 123.31 | 139.93 | |
| O23 | Links | 6xR8-150 | 4.220 | 5.120 | 0.900 | 147.13 | 279.85 | |
| S14 | Rechts | 1xR8-300 | 5.120 | 5.420 | 0.300 | 48.74 | 139.93 | |
| S14 | Rechts | 4xR8-300 | 5.420 | 6.620 | 1.200 | 48.74 | 144.73 | |
| O24 | Links | 4xR8-300 | 6.620 | 7.820 | 1.200 | 120.21 | 135.81 | |
| O24 | Rechts | 1xR8-300 | 7.820 | 8.120 | 0.300 | 120.21 | 144.73 | |
| O24 | Links | 3xR8-300 | 8.120 | 9.020 | 0.900 | 191.17 | 135.81 | |
| O24 | Rechts | 6xR8-150 | 9.020 | 9.920 | 0.900 | 191.17 | 271.61 | |
| S16 | Rechts | 6xR8-300 | 9.920 | 11.720 | 1.800 | 131.46 | 135.81 | |
| O25 | Links | 6xR8-150 | 11.720 | 12.620 | 0.900 | 191.17 | 271.61 | |
| O25 | Rechts | 3xR8-300 | 12.620 | 13.520 | 0.900 | 191.17 | 135.81 | |
| O25 | Links | 1xR8-300 | 13.520 | 13.820 | 0.300 | 120.25 | 144.73 | |
| O25 | Rechts | 4xR8-300 | 13.820 | 15.020 | 1.200 | 120.25 | 135.81 | |
| O26 | Links | 4xR8-300 | 15.020 | 16.220 | 1.200 | 46.22 | 144.73 | |
| O26 | Links | 1xR8-300 | 16.220 | 16.520 | 0.300 | 46.22 | 139.93 | |
| O26 | Links | 6xR8-150 | 16.520 | 17.420 | 0.900 | 146.18 | 279.85 | |
| O26 | Rechts | 4xR8-300 | 17.420 | 18.620 | 1.200 | 127.60 | 139.93 | |
| O27 | Links | 8xR8-150 | 18.620 | 19.820 | 1.200 | 150.20 | 279.85 | |

| | | | | | | | |
|-----|--------|----------|--------|--------|-------|--------|--------|
| O27 | Rechts | 1xR8-300 | 19.820 | 20.120 | 0.300 | 98.06 | 139.93 |
| O27 | Rechts | 6xR8-300 | 20.120 | 21.920 | 1.800 | 140.19 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 4 |
|--------------------|-----------|--------------|-------------------|-----------|----------|
| V8 (18.620-21.640) | Vloer | 0,6 <= 12,1 | 1,5 <= 12,1 | 0,05 | 0,12 |
| | Handmatig | | | | |
| V7 (16.620-18.620) | Vloer | 0,8 <= 8,0 | 2,7 <= 8,0 | 0,10 | 0,34 |
| | Handmatig | | | | |
| V6 (13.220-16.620) | Vloer | -0,7 <= 13,6 | -1,5 <= 13,6 | 0,05 | 0,11 |
| | Handmatig | | | | |
| V5 (10.820-13.220) | Vloer | 0,7 <= 9,6 | 4,6 <= 9,6 | 0,07 | 0,48 |
| | Handmatig | | | | |
| V4 (8.420-10.820) | Vloer | 0,7 <= 9,6 | 4,9 <= 9,6 | 0,08 | 0,51 |
| | Handmatig | | | | |
| V3 (5.020-8.420) | Vloer | -0,7 <= 13,6 | -1,7 <= 13,6 | 0,05 | 0,13 |
| | Handmatig | | | | |
| V2 (3.020-5.020) | Vloer | 0,8 <= 8,0 | 2,9 <= 8,0 | 0,10 | 0,36 |
| | Handmatig | | | | |
| V1 (0.000-3.020) | Vloer | 0,6 <= 12,1 | 1,9 <= 12,1 | 0,05 | 0,16 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 5
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 5 |
| Staven | S10-S12 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 21.64 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 5
DEKKING

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

Ligger 5
OPLEGGEGETEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment | Ligger 5 |
|---------|---------|------------|-----------|-------|-----------|-----|----------|----------|----------|----------|----------|
| 0.000 | | | | S13 | 0,400 | Nee | | | Niet | Niet | |
| 4.320 | O32 | Ronde paal | 0,350 | | | N/B | | | afgetopt | afgetopt | |
| 5.020 | | | | S14 | 0,400 | N/B | | | afgetopt | Niet | |
| 10.820 | O33 | n.v.t. | 0,000 | | | N/B | | | Niet | afgetopt | |
| | | | | | | | | | afgetopt | afgetopt | |

| | | | | | | | | |
|--------|-----|--------|-------|-------|-----|---|----------|----------|
| 16.620 | | | S18 | 0,400 | N/B | | Niet | Niet |
| 17.320 | O34 | n.v.t. | 0,000 | | N/B | | afgetopt | afgetopt |
| | | | | | | | Niet | Niet |
| 21.640 | | | S19 | 0,400 | Nee | | afgetopt | afgetopt |
| | | | | | | | Niet | Niet |
| | | | | | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max | Ligger 5 |
|---------|--------|-------|--------|--------|--------|-------------------|--------|---------|-------------|-----------|----------|
| 4.320 | 110.97 | 4R12 | 2R12 | 602 | 679 | | 91.53 | N/B | 12.0 <= 8.6 | 60 <= 126 | |
| 10.820 | 153.98 | 4R12 | 4R12 | 856 | 905 | | 126.61 | N/B | 12.0 <= 7.8 | 43 <= 101 | |
| 17.320 | 110.85 | 4R12 | 2R12 | 601 | 679 | | 91.42 | N/B | 12.0 <= 8.6 | 60 <= 126 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 5 |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|--------------|------------|----------|
| 1.896 | 164.31 | 4R12 | 3R16 | 922 | 1056 | | -130.15 | N/B | 13.7 <= 9.3 | 50 <= 145 | |
| 5.020 | 37.63 | 4R12 | | 197 | 452 | | -27.76 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 6.374 | 52.14 | 4R12 | | 275 | 452 | | -43.06 | N/B | 12.0 <= 18.0 | 101 <= 250 | |
| 15.225 | 50.51 | 4R12 | | 266 | 452 | | -41.55 | N/B | 12.0 <= 19.6 | 101 <= 259 | |
| 16.620 | 30.68 | 4R12 | | 161 | 452 | | -25.18 | N/B | 12.0 <= 28.0 | 101 <= 300 | |
| 19.746 | 164.06 | 4R12 | 3R16 | 920 | 1056 | | -130.01 | N/B | 13.7 <= 9.3 | 50 <= 145 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 5 |
|---------|------|----------|--------|--------|----------|
| 16.620 | 0.26 | 1R8 | 3 | 50 | |
| 17.320 | 0.26 | 1R8 | 3 | 50 | |
| 19.747 | 0.26 | 1R8 | 3 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 5 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|------------------|
| 0.000 | 173.60 | R8-150 | 411 | 2 | 670 | 61.643 | 283.059 | 173.595 | N/B | N/B |
| 3.694 | 165.22 | R8-150 | 383 | 2 | 670 | 61.643 | 289.468 | 165.218 | N/B | N/B |
| 4.946 | 173.52 | R8-150 | 402 | 2 | 670 | 61.643 | 289.468 | 173.525 | N/B | N/B |
| 5.020 | 166.91 | R8-150 | 386 | 2 | 670 | 61.643 | 289.468 | 166.912 | N/B | N/B |
| 5.020 | 30.23 | R8-300 | 70 | 0 | 335 | 61.732 | 144.734 | 30.231 | N/B | N/B |
| 10.820 | 92.21 | R8-300 | 223 | 0 | 335 | 61.728 | 138.325 | 92.213 | N/B | N/B |
| 10.820 | 91.57 | R8-300 | 222 | 0 | 335 | 61.728 | 138.325 | 91.567 | N/B | N/B |
| 16.620 | 29.28 | R8-300 | 68 | 0 | 335 | 61.732 | 144.734 | 29.284 | N/B | N/B |
| 16.620 | 167.40 | R8-150 | 388 | 2 | 670 | 61.639 | 289.468 | 167.401 | N/B | N/B |
| 17.320 | 229.46 | R8-150 | 543 | 2 | 670 | 61.639 | 283.059 | 229.464 | N/B | N/B |
| 17.320 | 222.46 | R8-150 | 527 | 2 | 670 | 61.639 | 283.059 | 222.460 | N/B | N/B |
| 21.640 | 173.45 | R8-150 | 411 | 2 | 670 | 61.639 | 283.059 | 173.447 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 5 |
|-----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|----------|
| 4R12n(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 21.440 | 0.120 | 21.805 | 0.000 | 2,5D | 21.970 | |
| 2R12q(bijleg)(bijleg) | 3.087 | 0.000 | 2,5D | 0.569 | 3.657 | 4.987 | 0.569 | 5.557 | 0.000 | 2,5D | 2.470 | |
| 4R12r(bijleg)(bijleg) | 9.042 | 0.000 | 2,5D | 0.427 | 9.470 | 12.170 | 0.427 | 12.598 | 0.000 | 2,5D | 3.555 | |

| | | | | | | | | | | | |
|-----------------------|--------|-------|------|-------|--------|--------|-------|--------|-------|------|-------|
| 2R12s(bijleg)(bijleg) | 16.124 | 0.000 | 2,5D | 0.496 | 16.620 | 17.971 | 0.569 | 18.540 | 0.000 | 2,5D | 2.416 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------|
| 4R12u1(basis)(basis) | -0.165 | 0.461 | 4,0D | 0.620 | 0.000 | 21.440 | 0.620 | 21.799 | 0.261 | 4,0D | 22.686 |
| 3R16v1(bijleg) (bijleg) | -0.165 | 0.156 | 4,0D | 0.354 | 0.041 | 3.752 | 0.342 | 4.093 | 0.000 | 2,5D | 4.415 |
| 3R16w1(bijleg) (bijleg) | 17.563 | 0.000 | 2,5D | 0.342 | 17.904 | 21.587 | 0.354 | 21.797 | 0.144 | 4,0D | 4.378 |
| - | m | m | - | m | m | m | m | m | m | - | m |

Ligger 5
AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|--------|--------|--------|--------|
| S13 | Rechts | 6xR8-150 | -0.205 | 0.695 | 0.900 | 174.37 | 283.06 |
| S13 | Rechts | 4xR8-300 | 0.695 | 1.895 | 1.200 | 131.66 | 141.53 |
| O32 | Links | 4xR8-300 | 1.895 | 3.095 | 1.200 | 126.75 | 144.73 |
| O32 | Links | 14xR8-150 | 3.095 | 5.195 | 2.100 | 174.30 | 289.47 |
| S14 | Rechts | 9xR8-300 | 5.195 | 7.895 | 2.700 | 33.84 | 144.73 |
| O33 | Links | 19xR8-300 | 7.895 | 13.595 | 5.700 | 92.99 | 138.33 |
| S18 | Links | 10xR8-300 | 13.595 | 16.595 | 3.000 | 38.43 | 144.73 |
| S18 | Rechts | 2xR8-150 | 16.595 | 16.895 | 0.300 | 208.02 | 289.47 |
| S18 | Links | 10xR8-150 | 16.895 | 18.395 | 1.500 | 230.24 | 283.06 |
| O34 | Rechts | 9xR8-300 | 18.395 | 21.095 | 2.700 | 131.53 | 141.53 |
| S19 | Links | 5xR8-150 | 21.095 | 21.845 | 0.750 | 230.24 | 283.06 |
| - | - | - | m | m | m | kN | kN |

Ligger 5
TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|--------------------|-----------|-------------|--------------|-------------|-----------|
| V6 (20.940-21.640) | Vloer | 0,3 <= 2,8 | 1,8 <= 2,8 | 0,09 | 0,66 |
| | Handmatig | | | | |
| V5 (16.620-20.940) | Vloer | 2,9 <= 17,3 | 8,1 <= 17,3 | 0,17 | 0,47 |
| | Handmatig | | | | |
| V4 (10.820-16.620) | Vloer | 0,9 <= 23,2 | -1,5 <= 23,2 | 0,04 | 0,06 |
| | Handmatig | | | | |
| V3 (5.020-10.820) | Vloer | 0,9 <= 23,2 | -1,5 <= 23,2 | 0,04 | 0,06 |
| | Handmatig | | | | |
| V2 (0.700-5.020) | Vloer | 2,9 <= 17,3 | 8,0 <= 17,3 | 0,17 | 0,47 |
| | Handmatig | | | | |
| V1 (0.000-0.700) | Vloer | 0,3 <= 2,8 | 2,8 <= 2,8 | 0,12 | 0,99 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

Ligger 5
LIGGER 6
ALGEMEEN + KUIJP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.Dl. | Ligger 6 |
| Staven | S13 |
| Profiel | R400x500 mm |
| Betonkwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 16.70 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 6
DEKKING
Boven
Onder
Zij- + Voorkant
Ligger 6

| | | | |
|--------------------|-------|-------|-------|
| Gereduceerd Mil. | Nee | Nee | Nee |
| Met. | XC2 | XC2 | XC2 |
| Nab. | Norm. | Norm. | Norm. |
| Benodigde dekking | Nee | Nee | Nee |
| Toegepaste dekking | 30 mm | 30 mm | 30 mm |
| - | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Ligger 6 Moment |
|---------|---------|------------|-----------|-------|-----------|-----|----------|----------|---------------|--------------------|
| 0.000 | | | | S1 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.175 | O6 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 4.250 | | | | S4 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 6.950 | | | | S6 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 8.350 | O20 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 11.870 | | | | S7 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 12.525 | O28 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 16.400 | O30 | Ronde paal | 0,350 | | | N/B | | | Afgetopt | Niet afgetopt |
| 16.700 | | | | S10 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 6 S,max |
|---------|--------|-------|--------|--------|--------|---------------|-------|---------|--------------|-------------------|
| 4.175 | 88.77 | 4R12 | 1R12 | 476 | 565 | | 62.94 | N/B | 12.0 <= 12.4 | 76 <= 199 |
| 8.350 | 129.35 | 4R12 | 3R12 | 709 | 792 | | 93.05 | N/B | 12.0 <= 10.8 | 50 <= 173 |
| 12.525 | 88.01 | 4R12 | 1R12 | 472 | 565 | | 63.84 | N/B | 12.0 <= 12.1 | 76 <= 195 |
| 16.400 | 54.30 | 4R12 | | 287 | 452 | | 43.63 | N/B | 12.0 <= 17.4 | 101 <= 246 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | Ligger 6 S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|-------------------|
| 1.784 | 99.17 | 4R12 | 1R12 | 535 | 565 | | -59.32 | N/B | 12.0 <= 13.6 | 76 <= 218 |
| 6.199 | 67.47 | 4R12 | | 358 | 452 | | -36.86 | N/B | 12.0 <= 23.8 | 101 <= 282 |
| 10.806 | 82.68 | 4R12 | | 442 | 452 | | -53.29 | N/B | 12.0 <= 11.5 | 101 <= 184 |
| 14.573 | 47.75 | 4R12 | | 252 | 452 | | -39.19 | N/B | 12.0 <= 22.1 | 101 <= 274 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 6 |
|---------|------|----------|--------|--------|----------|
| 4.250 | 0.31 | 1R8 | 3 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 6 VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|------------------|
| 0.000 | 111.33 | R8-300 | 261 | 2 | 335 | 61.647 | 143.132 | 111.329 | N/B | N/B |
| 3.549 | 112.44 | R8-300 | 263 | 2 | 335 | 66.425 | 143.132 | 112.441 | N/B | N/B |
| 4.250 | 192.30 | R8-150 | 450 | 2 | 670 | 61.647 | 286.263 | 192.298 | N/B | N/B |
| 4.250 | 121.61 | R8-300 | 285 | 2 | 335 | 61.621 | 143.132 | 121.614 | N/B | N/B |
| 4.801 | 87.23 | R8-300 | 204 | 2 | 335 | 66.403 | 143.132 | 87.228 | N/B | N/B |
| 6.950 | 54.63 | R8-300 | 126 | 0 | 335 | 61.732 | 144.734 | 54.628 | N/B | N/B |
| 6.950 | 72.52 | R8-300 | 168 | 1 | 335 | 61.692 | 144.734 | 72.522 | N/B | N/B |
| 7.724 | 120.83 | R8-300 | 289 | 1 | 335 | 74.364 | 139.927 | 120.825 | N/B | N/B |
| 8.976 | 120.78 | R8-300 | 289 | 1 | 335 | 74.364 | 139.927 | 120.778 | N/B | N/B |
| 11.870 | 66.67 | R8-300 | 154 | 1 | 335 | 61.692 | 144.734 | 66.673 | N/B | N/B |
| 11.870 | 190.19 | R8-150 | 440 | 1 | 670 | 61.655 | 289.468 | 190.189 | N/B | N/B |
| 11.899 | 191.76 | R8-150 | 444 | 1 | 670 | 61.655 | 289.468 | 191.762 | N/B | N/B |
| 13.151 | 81.35 | R8-300 | 190 | 1 | 335 | 66.432 | 143.132 | 81.354 | N/B | N/B |
| 15.774 | 70.75 | R8-300 | 164 | 1 | 335 | 61.655 | 144.734 | 70.751 | N/B | N/B |
| 16.700 | 173.60 | R8-150 | 402 | 1 | 670 | 61.655 | 289.468 | 173.595 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 6 Lengte |
|-----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------------------|
| 4R12t(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 16.500 | 0.546 | 16.859 | 0.187 | 4,0D | 17.211 |
| 1R12u(bijleg)(bijleg) | 2.931 | 0.000 | 2,5D | 0.683 | 3.615 | 4.731 | 0.683 | 5.415 | 0.000 | 2,5D | 2.483 |
| 3R12v(bijleg)(bijleg) | 7.011 | 0.000 | 2,5D | 0.488 | 7.499 | 9.243 | 0.488 | 9.731 | 0.000 | 2,5D | 2.720 |
| 1R12w(bijleg)(bijleg) | 11.294 | 0.000 | 2,5D | 0.683 | 11.977 | 13.089 | 0.683 | 13.772 | 0.000 | 2,5D | 2.479 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 6 Lengte |
|------------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------------------|
| 4R12x1(basis)(basis) | -0.165 | 0.239 | 4,0D | 0.398 | 0.000 | 16.500 | 0.620 | 16.859 | 0.261 | 4,0D | 17.524 |
| 1R12y1(bijleg)(bijleg) | 0.097 | 0.000 | 2,5D | 0.478 | 0.576 | 2.990 | 0.478 | 3.468 | 0.000 | 2,5D | 3.371 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 6 |
|-----------|--------|-----------|--------|--------|--------|--------|--------|----------|
| S1 | Rechts | 20xR8-300 | -0.200 | 5.800 | 6.000 | 113.35 | 143.13 | |
| S6 | Links | 5xR8-300 | 5.800 | 7.300 | 1.500 | 95.44 | 144.73 | |
| O20 | Links | 2xR8-300 | 7.300 | 7.900 | 0.600 | 121.73 | 139.93 | |
| O20 | Rechts | 3xR8-300 | 7.900 | 8.800 | 0.900 | 121.73 | 144.73 | |
| O20 | Rechts | 5xR8-300 | 8.800 | 10.300 | 1.500 | 121.69 | 139.93 | |
| S7 | Links | 5xR8-300 | 10.300 | 11.800 | 1.500 | 67.58 | 144.73 | |
| S7 | Rechts | 6xR8-150 | 11.800 | 12.700 | 0.900 | 192.67 | 289.47 | |
| O28 | Rechts | 1xR8-300 | 12.700 | 13.000 | 0.300 | 82.26 | 144.73 | |
| O28 | Rechts | 5xR8-300 | 13.000 | 14.500 | 1.500 | 82.26 | 143.13 | |
| O30 | Links | 6xR8-300 | 14.500 | 16.300 | 1.800 | 71.66 | 144.73 | |
| S10 | Links | 3xR8-150 | 16.300 | 16.825 | 0.525 | 174.50 | 289.47 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) | Ligger 6 |
|--------------------|--------------------|-------------|-------------------|-----------|----------|
| V8 (16.400-16.700) | Vloer | 0,1 <= 1,2 | 0,3 <= 1,2 | 0,10 | 0,23 |
| V7 (12.525-16.400) | Handmatig Vloer | 0,9 <= 15,5 | 1,3 <= 15,5 | 0,06 | 0,09 |
| V6 (11.870-12.525) | Handmatig Vloer | 0,2 <= 2,6 | 0,0 <= 2,6 | 0,06 | 0,01 |

| | | | | | |
|-------------------|--------------------|-------------|-------------|------|------|
| V5 (8.350-11.870) | Handmatig Vloer | 1,4 <= 14,1 | 1,0 <= 14,1 | 0,10 | 0,07 |
| V4 (6.950-8.350) | Handmatig Vloer | -0,3 <= 5,6 | 0,2 <= 5,6 | 0,05 | 0,04 |
| V3 (4.250-6.950) | Handmatig Vloer | 0,6 <= 10,8 | 0,8 <= 10,8 | 0,05 | 0,08 |
| V2 (4.175-4.250) | Handmatig Vloer | 0,0 <= 0,3 | 0,1 <= 0,3 | 0,12 | 0,28 |
| V1 (0.000-4.175) | Handmatig Vloer | 2,6 <= 16,7 | 2,0 <= 16,7 | 0,16 | 0,12 |
| m | - | mm | mm | - | - |

LIGGER 7
ALGEMEEN + KRUIP
Algemene gegevens
Kruipgegevens
Ligger 7

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 7 | Cement | S |
| Staven | S14 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonekwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.83 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 7

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS
Ligger 7

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|-------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S7 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.830 | | | | S10 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 7

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|-------------------|------|---------|-------|-------|
| 0.000 | 0.00 | 4R12 | - | 1 | 452 | N/B | | N/B | N/B | N/B |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 7

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|-----------|
| 2.417 | 166.43 | 4R12 | 3R16 | 933 | 1056 | | -137.10 | N/B | 13.7 <= 8.3 | 50 <= 124 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 7

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|----|----------|--------|--------|
|---------|----|----------|--------|--------|

| | | | | |
|-------|------|-----|-----------------|-----------------|
| 0.000 | 0.08 | 1R8 | 1 | 50 |
| m | kNm | - | mm ² | mm ² |

BEUGELWAPENING

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 7 VEdi |
|---------|--------|---------|-----------------|-----------------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0.000 | 138.30 | R8-300 | 320 | 1 | 335 | 61.702 | 144.734 | 138.304 | N/B | N/B |
| 4.830 | 138.13 | R8-300 | 320 | 1 | 335 | 61.702 | 144.734 | 138.126 | N/B | N/B |
| m | kN | - | mm ² | mm ² | mm ² | N/mm ² | N/mm ² | N/mm ² | N/mm ² | N/mm ² |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 7 Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------------------|
| 4R12x(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.630 | 0.120 | 4.995 | 0.000 | 2,5D | 5.160 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Ligger 7 Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------------------|
| 4R12a2(basis)(basis) | -0.165 | 0.335 | 4,0D | 0.494 | 0.000 | 4.630 | 0.493 | 4.989 | 0.134 | 4,0D | 5.623 |
| 3R16b2(bijleg) | -0.165 | 0.000 | 2,5D | 0.282 | 0.185 | 4.648 | 0.282 | 4.995 | 0.000 | 2,5D | 5.160 |
| (bijleg) | - | m | m | - | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | Ligger 7 |
|-----------|--------|-----------|--------|-------|--------|--------|--------|----------|
| S7 | Rechts | 18xR8-300 | -0.285 | 5.115 | 5.400 | 138.55 | 144.73 | |
| - | - | - | m | m | m | kN | kN | |

TOETSING DOORBUIGING

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|--------------|-------------|-----------|
| V1 (0.000-4.830) | Vloer | 4,2 <= 19,3 | 12,9 <= 19,3 | 0,22 | 0,67 |
| m | Handmatig | mm | mm | - | - |

LIGGER 8
ALGEMEEN + KRUIP
Algemene gegevens

| | |
|-------------|-------------|
| Constr.DI. | Ligger 8 |
| Staven | S15 |
| Profiel | R400x500 mm |
| Betonskwal. | C20/25 |
| Staal | B500B |
| Type | Ligger |
| Lengte | 4.25 m |
| Extra begin | 0.200 m |
| Extra eind | 0.200 m |
| Fabric. | I.h.w. |
| - | - |

Kruipgegevens

| | |
|-----------------|------------|
| Cement | S |
| Rel.V.(%) | 60 % |
| Ouderdom | 28 Dagen |
| Tijd T | Inf. Dagen |
| Kruip type | Berekend |
| Kruipcoeff. | 2.64 |
| Nominale korrel | 31.5 mm |
| Stortsl. | 0 mm |
| - | - |

Ligger 8
DEKKING

| | Boven | Onder | Zij- + Voorkant | Ligger 8 |
|--------------------|-------|-------|-----------------|----------|
| Gereduceerd | Nee | Nee | Nee | |
| Mil. | XC2 | XC2 | XC2 | |
| Met. | Norm. | Norm. | Norm. | |
| Nab. | Nee | Nee | Nee | |
| Benodigde dekking | 30 mm | 30 mm | 30 mm | |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm | |
| - | - | - | - | |

| OPLEGGEGEVEN | | | | | | | | | | Ligger 8 |
|--------------|---------|------|---------|--------|---------|-----|----------|----------|---------------|---------------|
| Positie | Oplegg. | Type | Afmetin | Staaft | Afmetin | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
| 0.000 | | | g | S1 | g | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.250 | | | | S4 | | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

| BOVENWAPENING | | | | | | | | | | Ligger 8 |
|---------------|------|-------|--------|--------|--------|-------------|------|---------|-------|----------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi | Mrep | As,min: | D,max | S,max |
| 0.000 | 0.00 | 4R12 | | 0 | 452 | N/B | | N/B | N/B | N/B |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| ONDERWAPENING | | | | | | | | | | Ligger 8 |
|---------------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
| 2.114 | 13.82 | 4R12 | | 71 | 452 | | -11.33 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

| FLANKWAPENING | | | | | | | | | | Ligger 8 |
|---------------|------|----------|--|--------|--------|--|--|--|--|----------|
| Positie | Mx | Wapening | | As,ben | As,toe | | | | | |
| 0.000 | 0.15 | 1R8 | | 0 | 50 | | | | | |
| m | kNm | - | | mm2 | mm2 | | | | | |

| BEUGELWAPENING | | | | | | | | | | Ligger 8 |
|----------------|-------|---------|----------|----------|--------|--------|---------|--------|-------|----------|
| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
| 0.000 | 12.89 | R8-300 | 30 | 0 | 335 | 61.732 | 144.734 | 12.893 | N/B | N/B |
| 4.250 | 13.04 | R8-300 | 30 | 0 | 335 | 61.732 | 144.734 | 13.037 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

| AFBOUWEN BOVENWAPENING | | | | | | | | | | | Ligger 8 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12y(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.050 | 0.120 | 4.415 | 0.000 | 2,5D | 4.580 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN ONDERWAPENING | | | | | | | | | | | Ligger 8 |
|------------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|----------|
| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
| 4R12y(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.050 | 0.120 | 4.415 | 0.000 | 2,5D | 4.580 |
| - | m | m | - | m | m | m | m | m | m | - | m |

| AFBOUWEN BEUGELWAPENING | | | | | | | | | | Ligger 8 |
|-------------------------|--------|-----------|--------|-------|--------|-------|--------|--|--|----------|
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu | | | |
| S1 | Rechts | 16xR8-300 | -0.275 | 4.525 | 4.800 | 13.04 | 144.73 | | | |
| - | - | - | m | m | m | kN | kN | | | |

| TOETSING DOORBUIGING | | | | | | | | | | Ligger 8 |
|----------------------|-----------|--|-------------|--|-------------------|--|-----------|--|--|----------|
| Veld | Toetsing | | w;2+w;3 | | w;max UC(w;2+w;3) | | UC(w;max) | | | |
| V1 (0.000-4.250) | Vloer | | 0,4 <= 17,0 | | 0,6 <= 17,0 | | 0,02 | | | 0,03 |
| m | Handmatig | | mm | | mm | | - | | | - |

LIGGER 9

| ALGEMEEN + KRUIP | | | | | | | | | | Ligger 9 |
|-------------------|----------|--|-----------|--|---------------|--|--|--|--|----------|
| Algemene gegevens | | | | | Kruipgegevens | | | | | |
| Constr.Dl. | Ligger 9 | | Cement | | S | | | | | |
| Staven | S16 | | Rel.V.(%) | | 60 % | | | | | |

| | | | |
|-------------|-------------|-----------------|------------|
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 4.92 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 9

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEENS
Ligger 9

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|--------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S6 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.920 | | | | S8 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 9

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|---------------|------|---------|-------|-------|
| 0.000 | 0.00 | 4R12 | | 0 | 452 | N/B | | N/B | N/B | N/B |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 9

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|----------|
| 2.458 | 142.43 | 4R12 | 3R12 | 784 | 792 | | -117.39 | N/B | 12.0 <= 7.2 | 50 <= 81 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 9

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.02 | 1R8 | 0 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 9

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|-----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 116.13 | R8-300 | 269 | 0 | 335 | 61.724 | 144.734 | 116.128 | N/B | N/B |
| 4.920 | 116.36 | R8-300 | 269 | 0 | 335 | 61.724 | 144.734 | 116.355 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 9

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12a1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.720 | 0.120 | 5.085 | 0.000 | 2,5D | 5.250 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 9

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------|-----|------|--------|---------|------|------|---------|-----|------|--------|--------|
|----------|-----|------|--------|---------|------|------|---------|-----|------|--------|--------|

| | | | | | | | | | | | |
|----------------------|--------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|
| 4R12c2(basis)(basis) | -0.165 | 0.256 | 4,0D | 0.415 | 0.000 | 4.720 | 0.416 | 5.079 | 0.057 | 4,0D | 5.556 |
| 3R12d2(bijleg) | 0.020 | 0.000 | 2,5D | 0.342 | 0.362 | 4.553 | 0.342 | 4.895 | 0.000 | 2,5D | 4.874 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 9

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S6 | Rechts | 18xR8-300 | -0.240 | 5.160 | 5.400 | 116.42 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 9

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V1 (0.000-4.920) | Vloer | 4,4 <= 19,7 | 13,5 <= 19,7 | 0,22 |
| | Handmatig | | | 0,69 |
| m | - | mm | mm | - |

LIGGER 10
ALGEMEEN + KRUIP
Ligger 10
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 10 | Cement | S |
| Staven | S17 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 6.95 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 10

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENS
Ligger 10

| Positie | Oplegg. | Type | Afmetin g | Staaf | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|-----------|-------|-----------|-----|----------|----------|---------------|---------------|
| 0.000 | | | | S2 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.250 | | | | S5 | 0,400 | N/B | | | Niet afgetopt | Niet afgetopt |
| 6.950 | | | | S6 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 10

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|-------------|----------|
| 4.250 | 156.78 | 4R12 | 4R12 | 872 | 905 | | 127.51 | N/B | 12.0 <= 7.7 | 43 <= 98 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 10

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|-------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|
| 1.643 | 92.55 | 4R12 | 1R12 | 497 | 565 | | -73.34 | N/B | 12.0 <= 9.5 | 76 <= 145 |
| 6.360 | 11.92 | 4R12 | | 63 | 452 | | -8.12 | N/B | 12.0 <= 28.0 | 101 <= 300 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 10

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 4.250 | 0.23 | 1R8 | 2 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 10

| Positie | Vd | Wapening | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|----------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 112.79 | R8-300 | 273 | 1 | 335 | 61.701 | 138.325 | 112.794 | N/B | N/B |
| 4.250 | 182.75 | R8-150 | 443 | 1 | 670 | 61.701 | 276.650 | 182.754 | N/B | N/B |
| 4.250 | 150.75 | R8-150 | 365 | 2 | 670 | 61.650 | 276.650 | 150.755 | N/B | N/B |
| 6.950 | 40.54 | R8-300 | 94 | 0 | 335 | 61.732 | 144.734 | 40.541 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 10

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12b1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 6.750 | 0.120 | 7.115 | 0.000 | 2,5D | 7.280 |
| 4R12c1(bijleg) | 2.831 | 0.000 | 2,5D | 0.427 | 3.258 | 5.351 | 0.427 | 5.779 | 0.000 | 2,5D | 2.948 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 10

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12e2(basis)(basis) | -0.165 | 0.244 | 4,0D | 0.403 | 0.000 | 6.750 | 0.145 | 7.115 | 0.000 | 2,5D | 7.524 |
| 1R12f2(bijleg) | 0.189 | 0.000 | 2,5D | 0.478 | 0.668 | 2.625 | 0.478 | 3.103 | 0.000 | 2,5D | 2.914 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 10

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S5 | Links | 12xR8-300 | -0.275 | 3.325 | 3.600 | 133.71 | 138.33 |
| S5 | Links | 8xR8-150 | 3.325 | 4.525 | 1.200 | 183.41 | 276.65 |
| S5 | Rechts | 9xR8-300 | 4.525 | 7.225 | 2.700 | 136.50 | 138.33 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 10

| Veld | Toetsing | w;2+w;3 | w;max | UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|--------------|--------------|-------------|-----------|
| V2 (4.250-6.950) | Vloer | -1,0 <= 10,8 | -0,8 <= 10,8 | 0,09 | 0,07 |
| | Handmatig | | | | |
| V1 (0.000-4.250) | Vloer | 2,4 <= 17,0 | 4,0 <= 17,0 | 0,14 | 0,23 |
| | Handmatig | | | | |
| m | - | mm | mm | - | - |

LIGGER 11
ALGEMEEN + KRUIP
Algemene gegevens
Ligger 11

| Constr.DI. | Ligger 11 | Cement | S |
|------------|-------------|-------------|------------|
| Staven | S18 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |

| | | | | |
|-------------|--------|---|-----------------|---------|
| Lengte | 4.83 | m | | |
| Extra begin | 0.200 | m | | |
| Extra eind | 0.200 | m | Nominale korrel | 31.5 mm |
| Fabric. | l.h.w. | | Stortsl. | 0 mm |
| - | - | | - | - |

DEKKING
Ligger 11

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVEN
Ligger 11

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|------|--------------|--------|--------------|-----|----------|----------|------------------|------------------|
| 0.000 | | | | S8 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| 4.830 | | | | S11 | 0,400 | Nee | | | Niet afgetopt | Niet afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 11

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi ng | Mrep | As,min: | D,max | S,max |
|---------|------|-------|--------|--------|--------|-------------------|------|---------|-------|-------|
| 0.000 | 0.00 | 4R12 | | 1 | 452 | N/B | | N/B | N/B | N/B |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING
Ligger 11

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|---------------|---------|---------|-------------|-----------|
| 2.416 | 166.43 | 4R12 | 3R16 | 933 | 1056 | | -137.10 | N/B | 13.7 <= 8.3 | 50 <= 124 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

FLANKWAPENING
Ligger 11

| Positie | Mx | Wapening | As,ben | As,toe |
|---------|------|----------|--------|--------|
| 0.000 | 0.09 | 1R8 | 1 | 50 |
| m | kNm | - | mm2 | mm2 |

BEUGELWAPENING
Ligger 11

| Positie | Vd | Wapenin g | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | VEdi |
|---------|--------|--------------|----------|----------|--------|--------|---------|---------|-------|-------|
| 0.000 | 138.31 | R8-300 | 320 | 1 | 335 | 61.700 | 144.734 | 138.307 | N/B | N/B |
| 4.830 | 138.13 | R8-300 | 320 | 1 | 335 | 61.700 | 144.734 | 138.129 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING
Ligger 11

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|---------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12x(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 4.630 | 0.120 | 4.995 | 0.000 | 2,5D | 5.160 |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN ONDERWAPENING
Ligger 11

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte |
|----------------------|--------|-------|--------|---------|-------|-------|---------|-------|-------|--------|--------|
| 4R12g2(basis)(basis) | -0.165 | 0.335 | 4,0D | 0.494 | 0.000 | 4.630 | 0.493 | 4.989 | 0.134 | 4,0D | 5.623 |
| 3R16b2(bijleg) | -0.165 | 0.000 | 2,5D | 0.282 | 0.185 | 4.648 | 0.282 | 4.995 | 0.000 | 2,5D | 5.160 |
| (bijleg) | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m |

AFBOUWEN BEUGELWAPENING
Ligger 11

| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|-------|--------|--------|--------|
| S8 | Rechts | 18xR8-300 | -0.285 | 5.115 | 5.400 | 138.57 | 144.73 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING
Ligger 11

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|------------------|-----------|-------------|-------------------|-----------|
| V1 (0.000-4.830) | Vloer | 4,2 <= 19,3 | 12,9 <= 19,3 | 0,22 |
| m | Handmatig | mm | mm | - |
| - | - | - | - | - |

LIGGER 12
ALGEMEEN + KRUIP
Ligger 12
Algemene gegevens
Kruipgegevens

| | | | |
|-------------|-------------|-----------------|------------|
| Constr.Dl. | Ligger 12 | Cement | S |
| Staven | S19 | Rel.V.(%) | 60 % |
| Profiel | R400x500 mm | Ouderdom | 28 Dagen |
| Betonkwal. | C20/25 | Tijd T | Inf. Dagen |
| Staal | B500B | Kruip type | Berekend |
| Type | Ligger | Kruipcoeff. | 2.64 |
| Lengte | 16.70 m | | |
| Extra begin | 0.200 m | | |
| Extra eind | 0.200 m | Nominale korrel | 31.5 mm |
| Fabric. | I.h.w. | Stortsl. | 0 mm |
| - | - | - | - |

DEKKING
Ligger 12

| | Boven | Onder | Zij- + Voorkant |
|--------------------|-------|-------|-----------------|
| Gereduceerd | Nee | Nee | Nee |
| Mil. | XC2 | XC2 | XC2 |
| Met. | Norm. | Norm. | Norm. |
| Nab. | Nee | Nee | Nee |
| Benodigde dekking | 30 mm | 30 mm | 30 mm |
| Toegepaste dekking | 35 mm | 35 mm | 35 mm |
| - | - | - | - |

OPLEGGEGEVENEN
Ligger 12

| Positie | Oplegg. | Type | Afmetin g | Staaft | Afmetin g | Mti | Mti bov. | Mti ond. | Dwarskr. | Moment |
|---------|---------|-------|-----------|--------|-----------|-----|----------|----------|----------|----------|
| 0.000 | | | | S3 | 0,400 | Nee | | | Niet | Niet |
| 4.175 | O7 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 6.950 | | paal | | S6 | 0,400 | N/B | | | afgetopt | Niet |
| 8.350 | O21 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 11.870 | | paal | | S9 | 0,400 | N/B | | | afgetopt | Niet |
| 12.525 | O29 | Ronde | 0,350 | | | N/B | | | afgetopt | afgetopt |
| 16.400 | O31 | paal | 0,350 | | | N/B | | | afgetopt | Niet |
| 16.700 | | Ronde | | S12 | 0,400 | Nee | | | afgetopt | afgetopt |
| m | - | - | m | - | m | - | kNm | kNm | - | - |

BOVENWAPENING
Ligger 12

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvormi | Mrep | As,min: | D,max | S,max |
|---------|--------|-------|--------|--------|--------|-------------|-------|---------|--------------|------------|
| 4.175 | 114.82 | 4R12 | 2R12 | 623 | 679 | ng | 87.46 | N/B | 12.0 <= 9.4 | 60 <= 144 |
| 8.350 | 123.01 | 4R12 | 2R12 | 671 | 679 | | 99.99 | N/B | 12.0 <= 7.4 | 60 <= 89 |
| 12.525 | 88.20 | 4R12 | 1R12 | 472 | 565 | | 62.23 | N/B | 12.0 <= 12.6 | 76 <= 203 |
| 16.400 | 54.23 | 4R12 | | 286 | 452 | | 43.59 | N/B | 12.0 <= 17.4 | 101 <= 246 |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm |

ONDERWAPENING

| Positie | Md | Basis | Bijleg | As,ben | As,toe | Scheurvorming | Mrep | As,min: | D,max | S,max | Ligger 12 |
|---------|--------|-------|--------|--------|--------|---------------|--------|---------|--------------|------------|-----------|
| 1.737 | 103.57 | 4R12 | 1R12 | 559 | 565 | | -84.76 | N/B | 12.0 <= 7.4 | 76 <= 86 | |
| 6.269 | 52.19 | 4R12 | | 275 | 452 | | -36.98 | N/B | 12.0 <= 23.7 | 101 <= 282 | |
| 10.899 | 84.26 | 4R12 | | 450 | 452 | | -51.62 | N/B | 12.0 <= 12.1 | 101 <= 195 | |
| 14.553 | 49.76 | 4R12 | | 262 | 452 | | -41.06 | N/B | 12.0 <= 20.1 | 101 <= 262 | |
| m | kNm | - | - | mm2 | mm2 | - | kNm | mm2 | mm | mm | |

FLANKWAPENING

| Positie | Mx | Wapening | As,ben | As,toe | Ligger 12 |
|---------|------|----------|--------|--------|-----------|
| 11.870 | 0.22 | 1R8 | 2 | 50 | |
| m | kNm | - | mm2 | mm2 | |

BEUGELWAPENING

| Positie | Vd | Wapenin | AsV;ben. | AsT;ben. | As,toe | Vrd;c | Vrd | Ved | VRdi | Ligger 12 |
|---------|--------|---------|----------|----------|--------|--------|---------|---------|-------|-----------|
| 0.000 | 119.26 | R8-300 | 282 | 1 | 335 | 61.697 | 141.530 | 119.265 | N/B | N/B |
| 3.549 | 127.83 | R8-300 | 303 | 1 | 335 | 70.639 | 141.530 | 127.833 | N/B | N/B |
| 4.801 | 105.41 | R8-300 | 250 | 1 | 335 | 70.639 | 141.530 | 105.407 | N/B | N/B |
| 6.950 | 51.41 | R8-300 | 119 | 0 | 335 | 61.732 | 144.734 | 51.409 | N/B | N/B |
| 6.950 | 71.46 | R8-300 | 165 | 1 | 335 | 61.699 | 144.734 | 71.456 | N/B | N/B |
| 7.724 | 113.82 | R8-300 | 269 | 1 | 335 | 70.640 | 141.530 | 113.820 | N/B | N/B |
| 8.976 | 119.99 | R8-300 | 284 | 1 | 335 | 70.640 | 141.530 | 119.990 | N/B | N/B |
| 11.870 | 66.24 | R8-300 | 153 | 1 | 335 | 61.699 | 144.734 | 66.241 | N/B | N/B |
| 11.870 | 189.63 | R8-150 | 439 | 1 | 670 | 61.656 | 289.468 | 189.630 | N/B | N/B |
| 11.899 | 191.20 | R8-150 | 443 | 1 | 670 | 61.656 | 289.468 | 191.202 | N/B | N/B |
| 13.151 | 81.40 | R8-300 | 191 | 1 | 335 | 66.433 | 143.132 | 81.396 | N/B | N/B |
| 15.774 | 70.52 | R8-300 | 163 | 1 | 335 | 61.656 | 144.734 | 70.523 | N/B | N/B |
| 16.700 | 173.45 | R8-150 | 402 | 1 | 670 | 61.656 | 289.468 | 173.447 | N/B | N/B |
| m | kN | - | mm2 | mm2 | mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 | N/mm2 |

AFBOUWEN BOVENWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 12 |
|----------------------|--------|-------|--------|---------|--------|--------|---------|--------|-------|--------|--------|-----------|
| 4R12d1(basis)(basis) | -0.165 | 0.000 | 2,5D | 0.120 | 0.000 | 16.500 | 0.545 | 16.859 | 0.186 | 4,0D | 17.210 | |
| 2R12e1(bijleg) | 2.894 | 0.000 | 2,5D | 0.569 | 3.464 | 4.924 | 0.569 | 5.493 | 0.000 | 2,5D | 2.599 | |
| (bijleg) | | | | | | | | | | | | |
| 2R12f1(bijleg) | 6.900 | 0.000 | 2,5D | 0.569 | 7.470 | 9.218 | 0.569 | 9.787 | 0.000 | 2,5D | 2.887 | |
| (bijleg) | | | | | | | | | | | | |
| 1R12g1(bijleg) | 11.293 | 0.000 | 2,5D | 0.683 | 11.976 | 13.089 | 0.683 | 13.773 | 0.000 | 2,5D | 2.480 | |
| (bijleg) | | | | | | | | | | | | |
| - | m | m | - | m | m | m | m | m | m | - | m | |

AFBOUWEN ONDERWAPENING

| Wapening | X-b | Y1-b | Straal | Verank. | M0-b | M0-e | Verank. | X-e | Y1-e | Straal | Lengte | Ligger 12 |
|----------------------|--------|-------|--------|---------|-------|--------|---------|--------|-------|--------|--------|-----------|
| 4R12h2(basis)(basis) | -0.165 | 0.267 | 4,0D | 0.426 | 0.000 | 16.500 | 0.620 | 16.859 | 0.261 | 4,0D | 17.552 | |
| 1R12i2(bijleg) | 0.002 | 0.000 | 2,5D | 0.478 | 0.480 | 2.995 | 0.478 | 3.473 | 0.000 | 2,5D | 3.471 | |
| (bijleg) | | | | | | | | | | | | |

- m m - m m m m m m - m

AFBOUWEN BEUGELWAPENING

Ligger 12

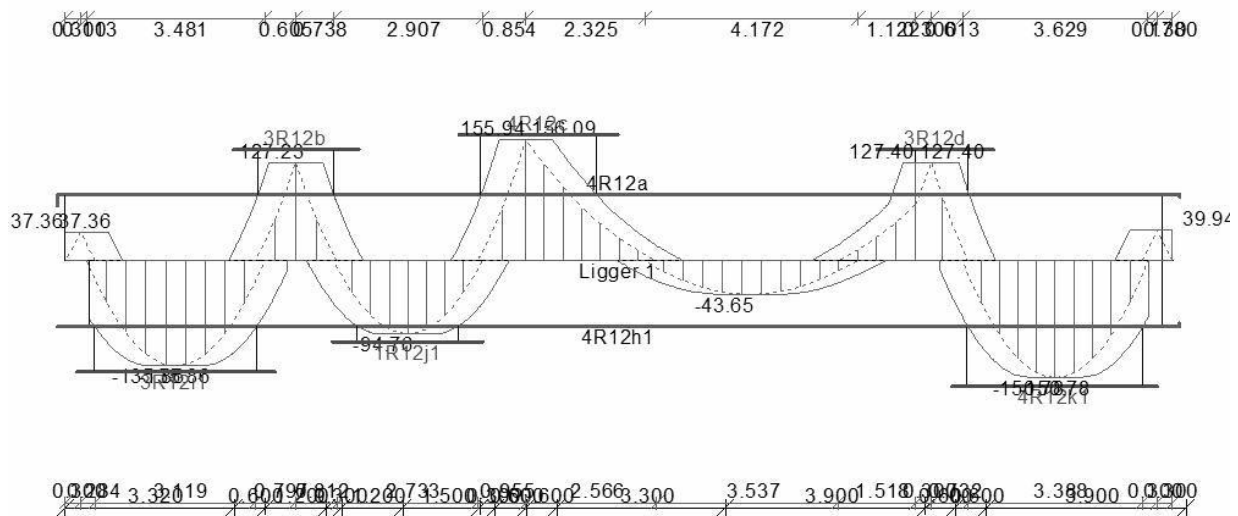
| Oplegging | Zijde | Wapening | X-b | X-e | Lengte | Vd | Vu |
|-----------|--------|-----------|--------|--------|--------|--------|--------|
| S3 | Rechts | 13xR8-300 | -0.200 | 3.700 | 3.900 | 128.47 | 141.53 |
| O7 | Links | 3xR8-300 | 3.700 | 4.600 | 0.900 | 128.47 | 144.73 |
| O7 | Rechts | 4xR8-300 | 4.600 | 5.800 | 1.200 | 106.04 | 141.53 |
| S6 | Links | 5xR8-300 | 5.800 | 7.300 | 1.500 | 88.68 | 144.73 |
| O21 | Links | 2xR8-300 | 7.300 | 7.900 | 0.600 | 114.45 | 141.53 |
| O21 | Rechts | 3xR8-300 | 7.900 | 8.800 | 0.900 | 120.62 | 144.73 |
| O21 | Rechts | 5xR8-300 | 8.800 | 10.300 | 1.500 | 120.62 | 141.53 |
| S9 | Links | 5xR8-300 | 10.300 | 11.800 | 1.500 | 66.87 | 144.73 |
| S9 | Rechts | 6xR8-150 | 11.800 | 12.700 | 0.900 | 191.83 | 289.47 |
| O29 | Rechts | 1xR8-300 | 12.700 | 13.000 | 0.300 | 82.03 | 144.73 |
| O29 | Rechts | 5xR8-300 | 13.000 | 14.500 | 1.500 | 82.03 | 143.13 |
| O31 | Links | 6xR8-300 | 14.500 | 16.300 | 1.800 | 71.16 | 144.73 |
| S12 | Links | 3xR8-150 | 16.300 | 16.825 | 0.525 | 174.08 | 289.47 |
| - | - | - | m | m | m | kN | kN |

TOETSING DOORBUIGING

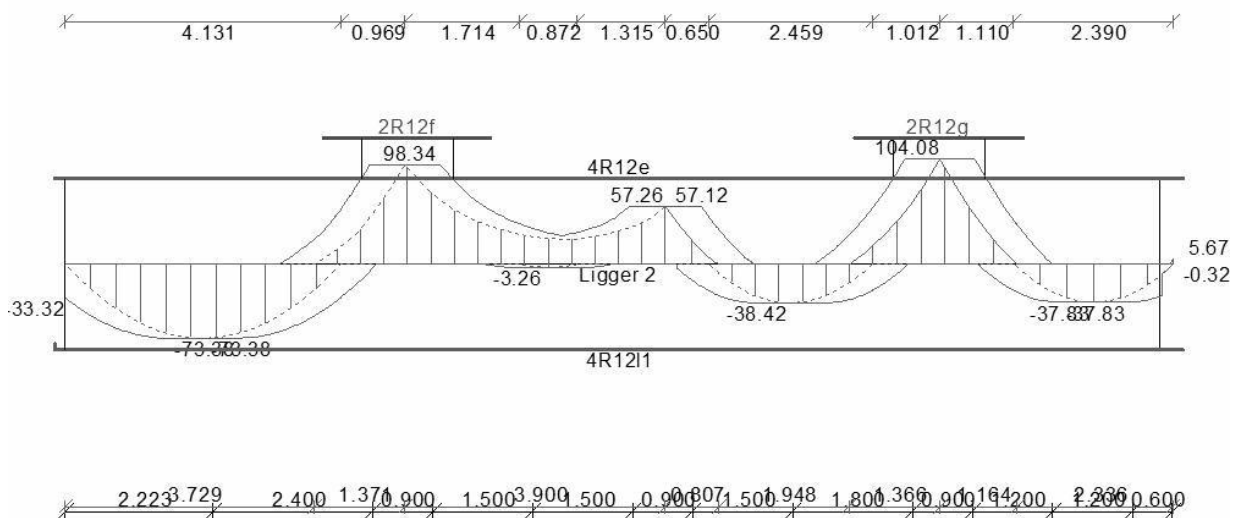
Ligger 12

| Veld | Toetsing | w;2+w;3 | w;max UC(w;2+w;3) | UC(w;max) |
|--------------------|-----------|-------------|-------------------|-----------|
| V7 (16.400-16.700) | Vloer | 0,0 <= 1,2 | 0,4 <= 1,2 | 0,03 |
| | Handmatig | | | 0,37 |
| V6 (12.525-16.400) | Vloer | 0,8 <= 15,5 | 1,5 <= 15,5 | 0,05 |
| | Handmatig | | | 0,09 |
| V5 (11.870-12.525) | Vloer | -0,1 <= 2,6 | 0,0 <= 2,6 | 0,04 |
| | Handmatig | | | 0,00 |
| V4 (8.350-11.870) | Vloer | 1,0 <= 14,1 | 0,6 <= 14,1 | 0,07 |
| | Handmatig | | | 0,04 |
| V3 (6.950-8.350) | Vloer | 0,2 <= 5,6 | -0,1 <= 5,6 | 0,03 |
| | Handmatig | | | 0,02 |
| V2 (4.175-6.950) | Vloer | 0,6 <= 11,1 | 0,7 <= 11,1 | 0,06 |
| | Handmatig | | | 0,07 |
| V1 (0.000-4.175) | Vloer | 2,6 <= 16,7 | 6,2 <= 16,7 | 0,16 |
| | Handmatig | | | 0,37 |
| m | - | mm | mm | - |

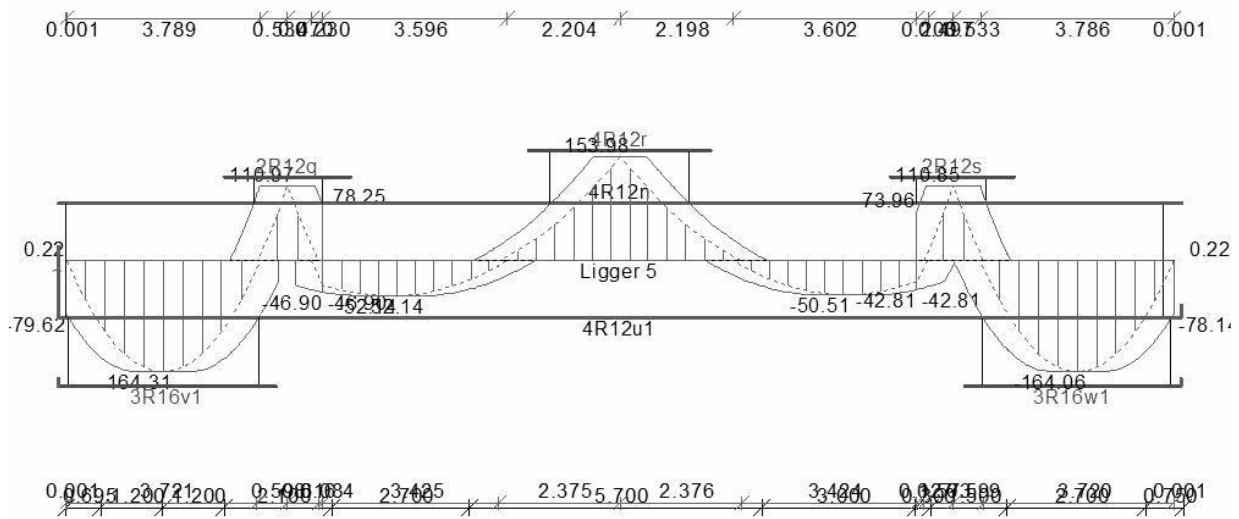
AFB. LANGSWAPENING. (AFBOUW) LIGGER 1



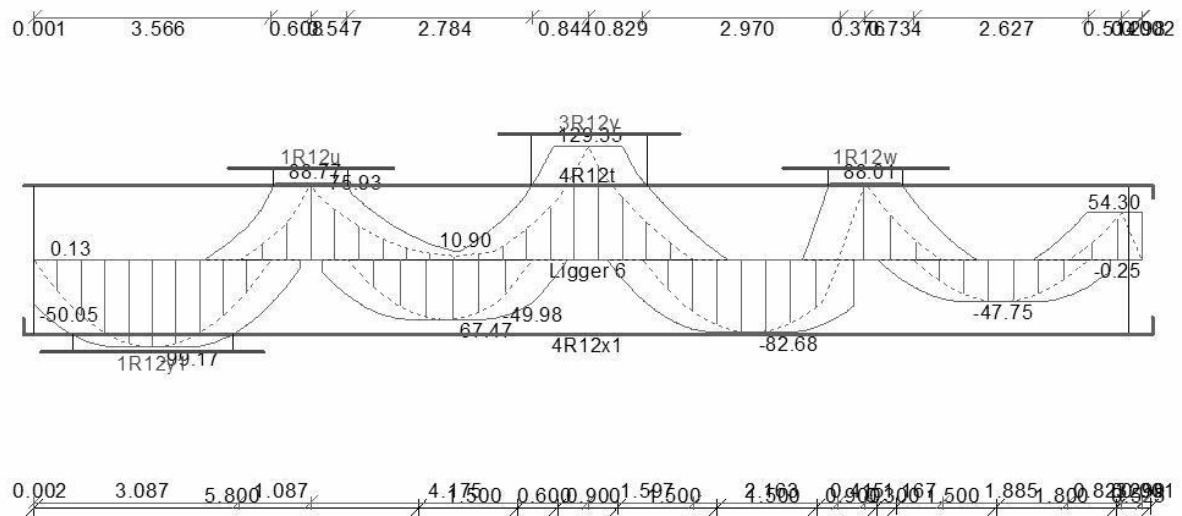
AFB. LANGSWAPENING. (AFBOUW) LIGGER 2



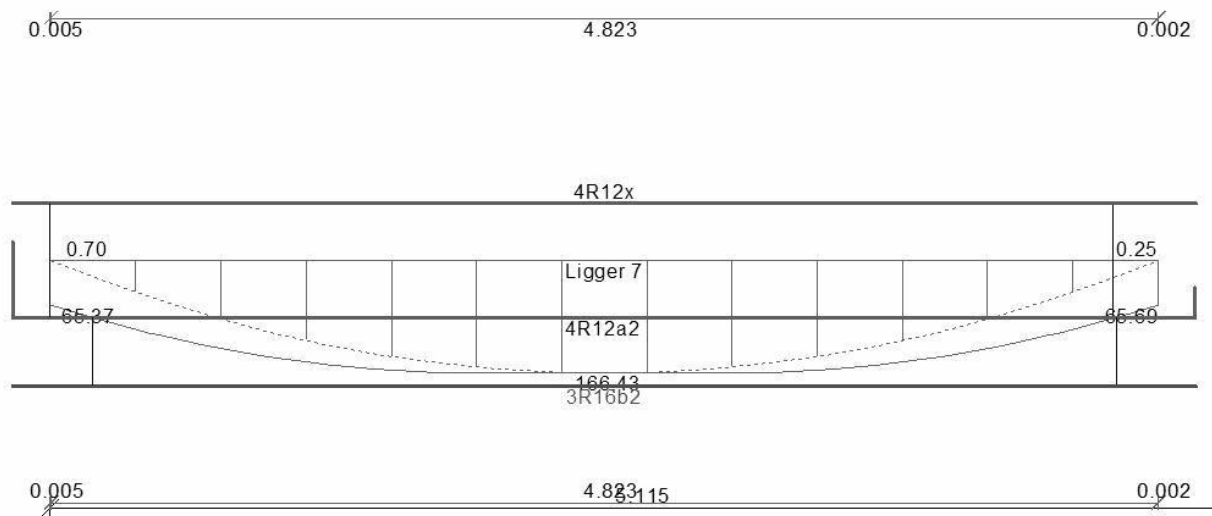
AFB. LANGSWAPENING. (AFBOUW) LIGGER 5



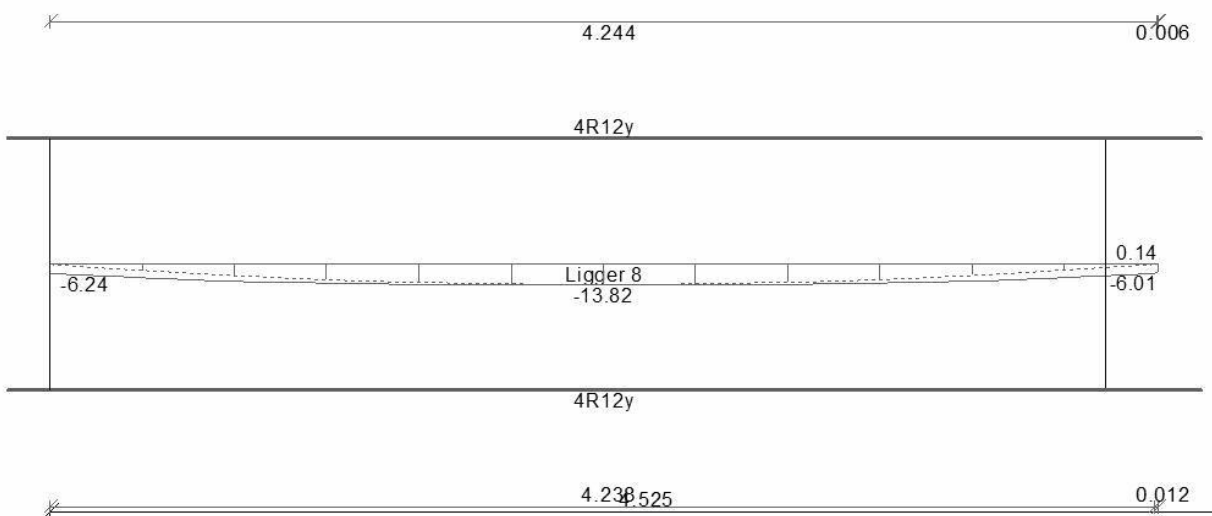
AFB. LANGSWAPENING. (AFBOUW) LIGGER 6



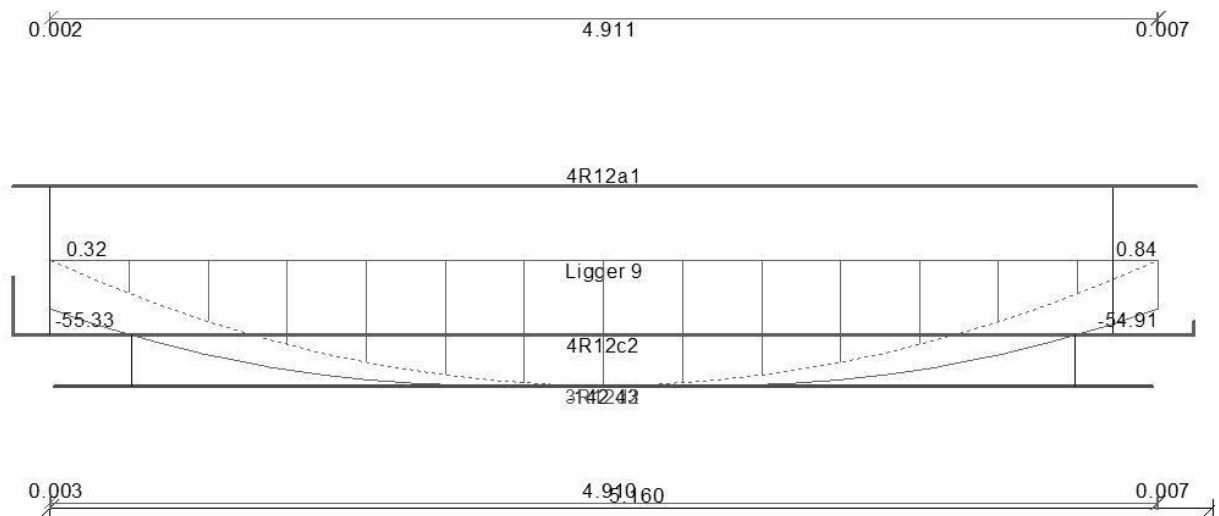
AFB. LANGSWAPENING. (AFBOUW) LIGGER 7



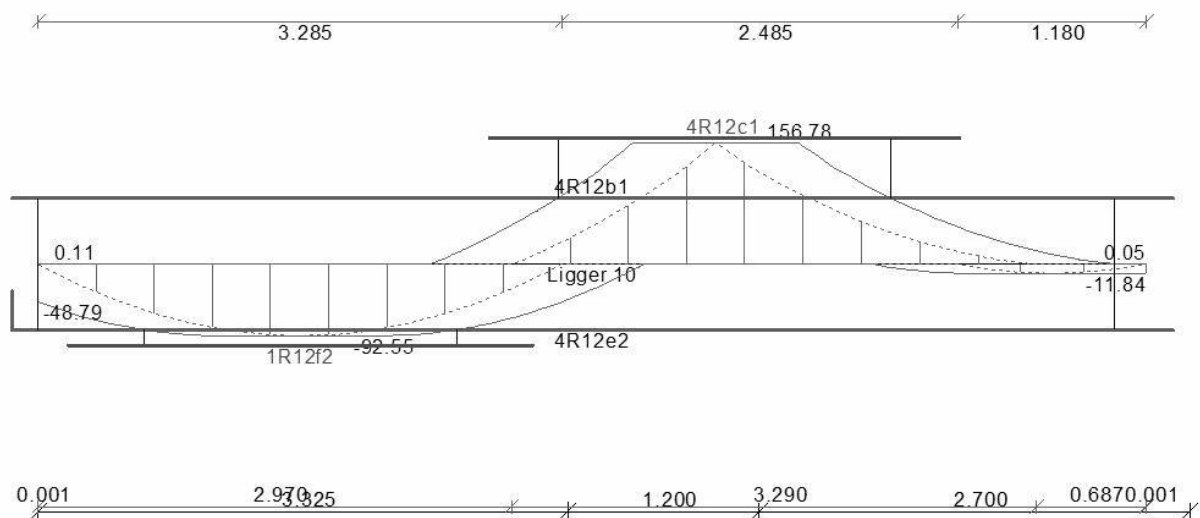
AFB. LANGSWAPENING. (AFBOUW) LIGGER 8



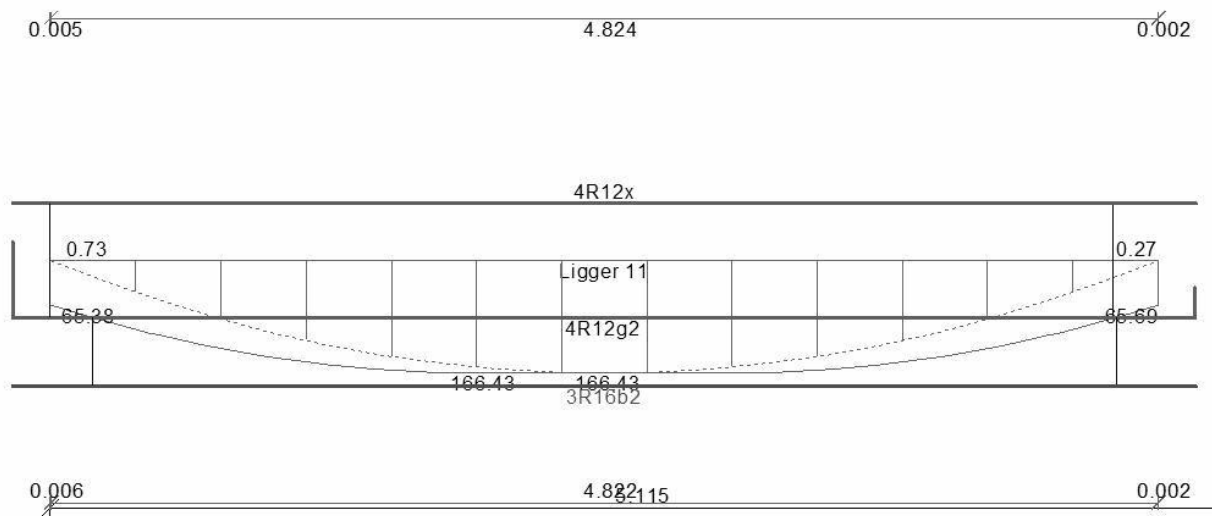
AFB. LANGSWAPENING. (AFBOUW) LIGGER 9



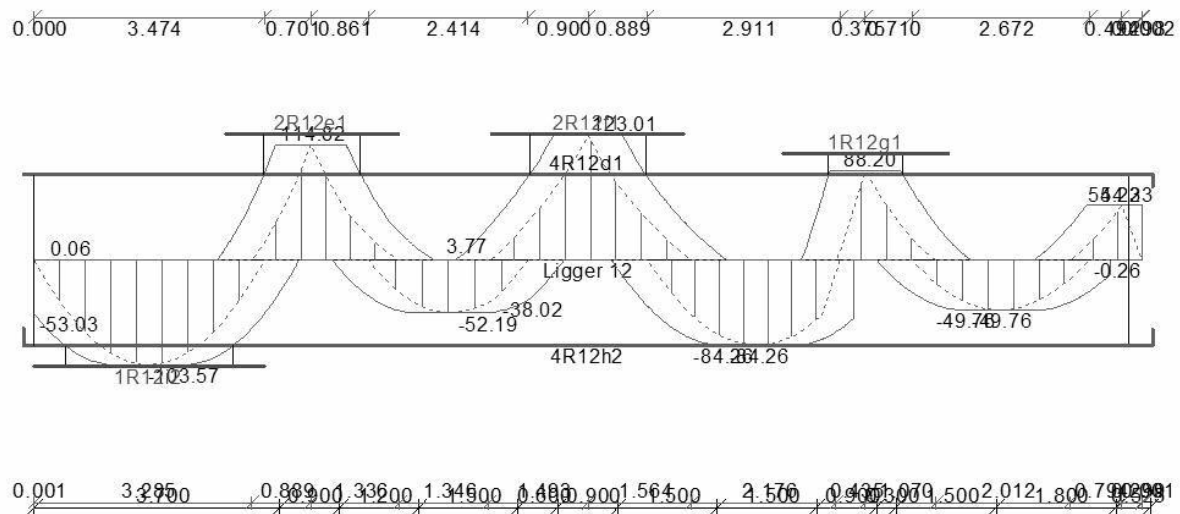
AFB. LANGSWAPENING. (AFBOUW) LIGGER 10



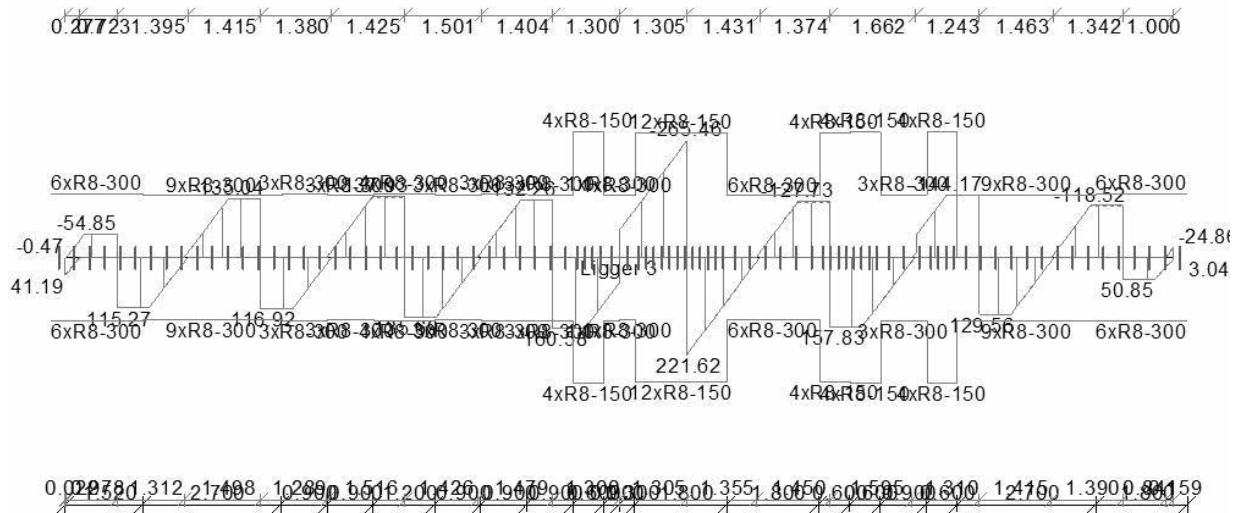
AFB. LANGSWAPENING. (AFBOUW) LIGGER 11



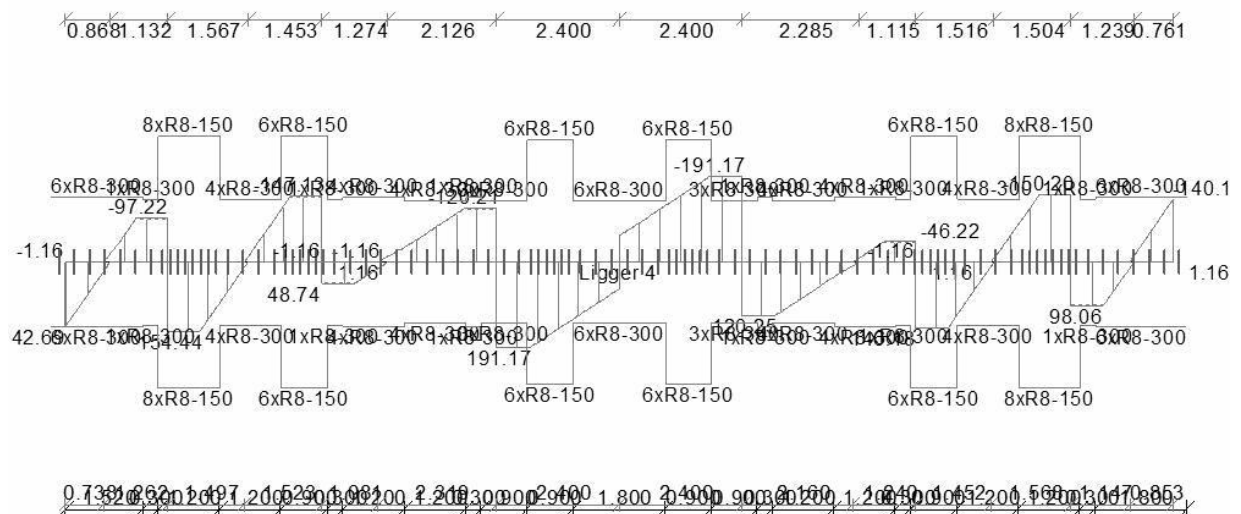
AFB. LANGSWAPENING. (AFBOUW) LIGGER 12



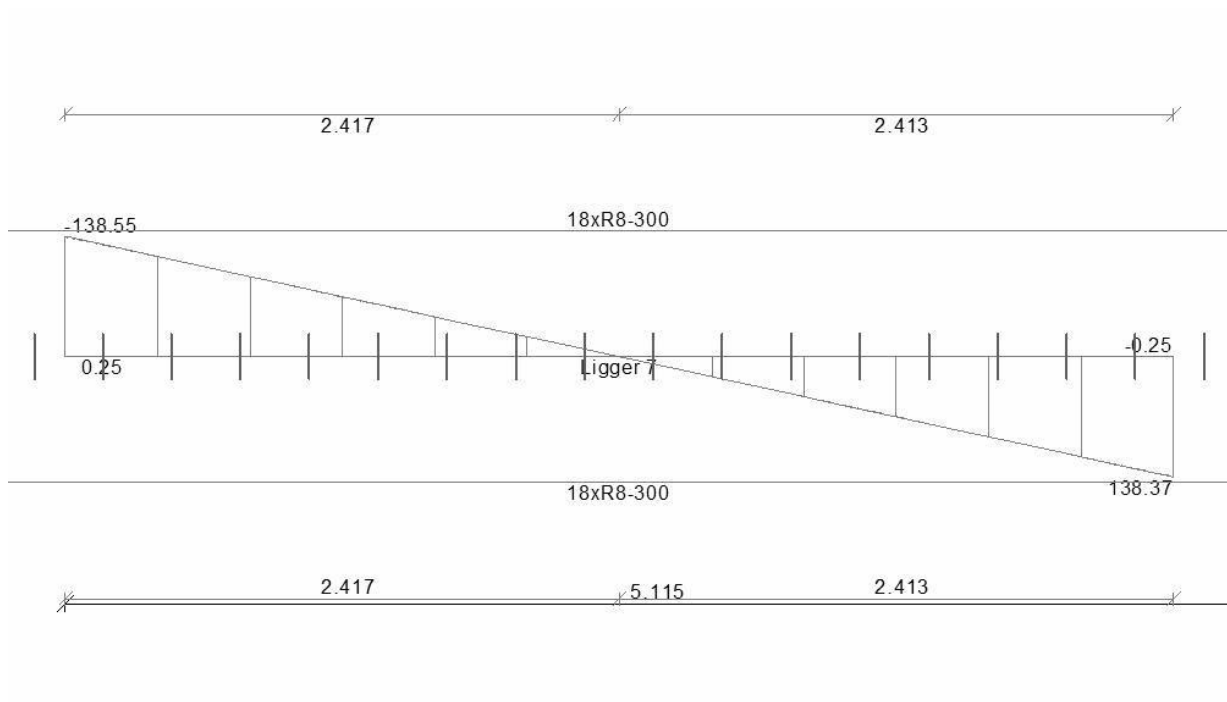
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 3



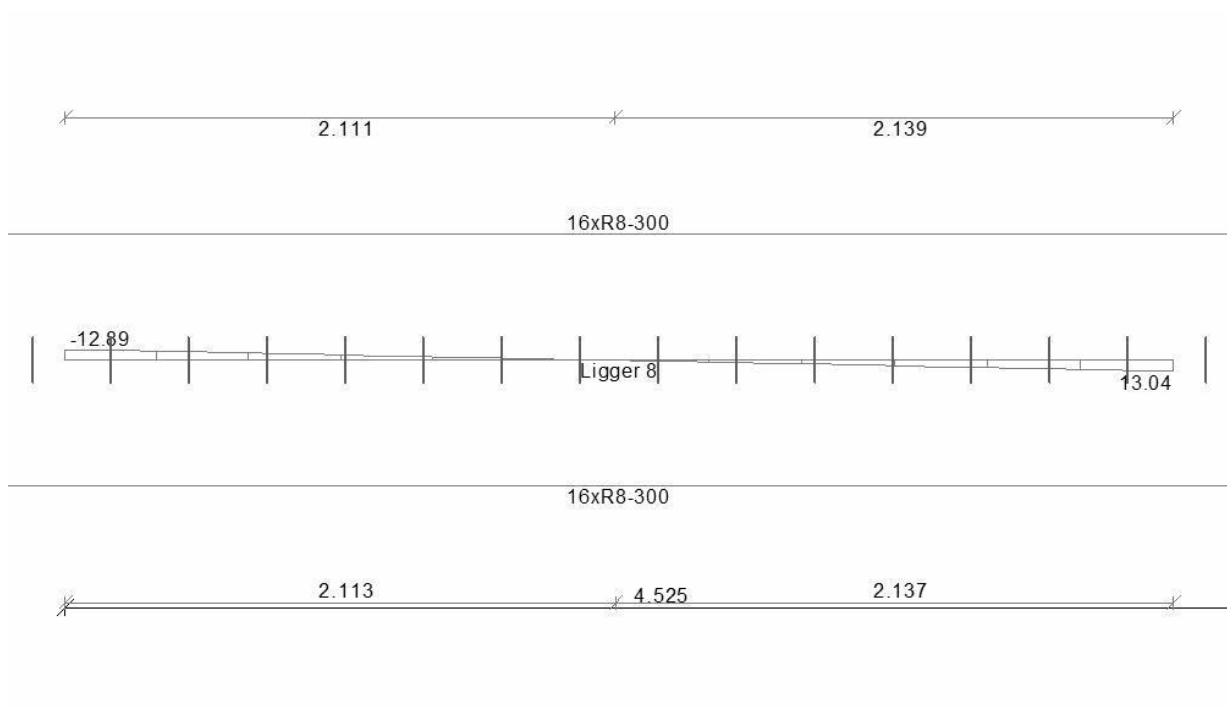
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 4



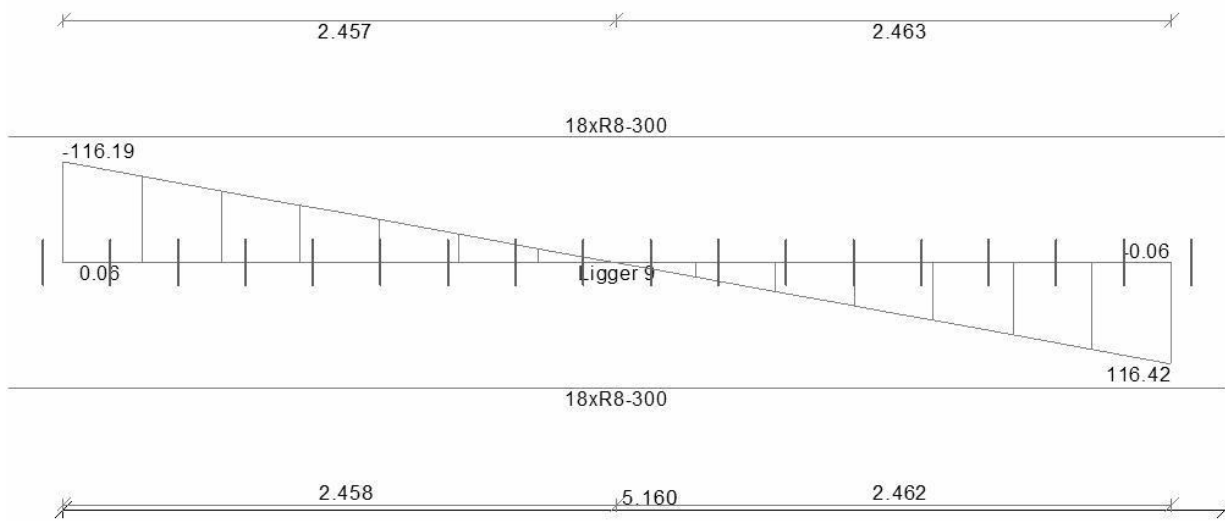
AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 7



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 8



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 9



AFB. DWARSKRACHTWAPENING. (AFBOUW) LIGGER 10

