

Gewichts-, stabiliteits- en sterkteberekening  
**Uitbreiding loods**

**485970-C01**

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Projectnummer: 180170  
Datum: 13-11-2020

Berekening: C01  
Revisie: 01

III SCHOENMAKERS III

|           |   |                                               |         |                      |
|-----------|---|-----------------------------------------------|---------|----------------------|
| project   | : | Uitbreiding loods                             |         |                      |
| onderdeel | : | Gewichts-, stabiliteits- en sterkteberekening | ber.nr  | : 180170 -- C01 - 01 |
| onderwerp | : | Revisiebeheer                                 | revisie | : 01                 |

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Alle vervaardigde documenten worden, binnen de scope van de de opdracht, getoetst aan de geldende wet- en regelgeving en worden op basis van product- en klanteisen geverifieerd en gevalideerd.

|                 |   |            |
|-----------------|---|------------|
| <b>REVISIE</b>  | : | <b>01</b>  |
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# Inhoudsopgave

|                                                      |           |
|------------------------------------------------------|-----------|
| <b>1 - Algemeen</b>                                  | <b>4</b>  |
| 1.1 - Korte projectomschrijving                      | 4         |
| 1.2 - Documentomschrijving                           | 4         |
| 1.3 - Constructieopbouw                              | 4         |
| 1.4 - Bijbehorende documenten                        | 4         |
| <b>2 - Berekeningsuitgangspunten en -grondslagen</b> | <b>5</b>  |
| 2.1 - Toegepaste normen, voorschriften en tabellen   | 5         |
| 2.2 - Gevolgklasse en betrouwbaarheidsklasse         | 5         |
| 2.3 - Combinatiefactoren voor gebouwen               | 6         |
| 2.4 - Belastingfactoren en belastingcombinaties      | 6         |
| 2.5 - Windbelasting                                  | 6         |
| 2.6 - Materialen                                     | 7         |
| 2.7 - Milieuklassen en dekkingen                     | 8         |
| <b>3 - Aangehouden belastingen</b>                   | <b>9</b>  |
| 3.1 - Vloeren e.d.                                   | 9         |
| <b>4 - Stabiliteitsberekening</b>                    | <b>10</b> |
| 4.1 - Windbelasting                                  | 10        |
| 4.2 - Controle stabiliteit                           | 12        |
| <b>5 - Gewichtsberekening</b>                        | <b>14</b> |
| 5.1 - Overzichten                                    | 14        |
| 5.2 - Hoofdspant - as H                              | 15        |
| 5.3 - Kopsant - as I                                 | 15        |
| 5.4 - Kolom in kopsant - as I                        | 15        |
| 5.5 - Houten gordingen                               | 16        |
| <b>6 - Fundering</b>                                 | <b>17</b> |
| 6.1 - Overzichten                                    | 17        |
| 6.2 - Kolomreacties                                  | 18        |
| 6.3 - Afmetingen strook t.p.v. windbok               | 19        |
| 6.4 - Toetsing horizontale belasting                 | 19        |

**Bijlage A; Stabiliteitsberekening**

**Bijlage B; Computeruitvoer gewichtsberekening**

**Bijlage C; Draagkracht fundering**

project : Uitbreiding loods

onderdeel : Gewichts-, stabiliteits- en sterkteberekening

onderwerp : Algemeen

ber.nr : 180170 -- C01 - 01

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# 1 - Algemeen

## 1.1 - Korte projectomschrijving

Adviesburo Schoenmakers heeft het bouwkundige ontwerp, de verdere bouwkundige uitwerking en de constructieve engineering van een uitbreiding van een loods aan de Hoop 5 te Hoeven verzorgd.

## 1.2 - Documentomschrijving

Dit document betreft de gewichts-, stabiliteits- en sterkteberekening van de uitbreiding.

## 1.3 - Constructieopbouw

De loods bestaat uit stalen spanten, houten gordingen en dakplaten. De uitbreiding is aanpendelend aan de bestaande loods. Door middel van stabiliteitsverbanden in het dakvlak, werkt deze als een stijve schijf. De stabiliteitsverbanden in de gevels dragen de krachten af naar de fundering. De bestaande stabiliteitselementen worden in deze berekening getoetst met de nieuwe afmetingen van de loods.

De spanten worden ondersteund door funderingspoeren en een ringbalk.

## 1.4 - Bijbehorende documenten

In de onderstaande tabel zijn de documenten weergegeven, waarop onderliggende berekening is gebaseerd.

|     | Opgesteld door                | Documentnummer | Omschrijving                                         |
|-----|-------------------------------|----------------|------------------------------------------------------|
| [1] | Architecten Buro Schoenmakers | Best.sit.      | Bestaande situatie - Plattegrond, gevels & doorsnede |
| [2] | Architecten Buro Schoenmakers | B01            | Bestektekening - Plattegrond, gevels & situatie      |
| [3] | Architecten Buro Schoenmakers | B02            | Bestektekening - Fundering, kapplan & spanten        |
| [4] | Architecten Buro Schoenmakers | B03            | Bestektekening - Constructie bovenbouw               |
| [5] | Architecten Buro Schoenmakers | B04            | Bestektekening - Dwarsprofiel-1 Brabantse Delta      |
| [6] | Architecten Buro Schoenmakers | B05            | Bestektekening - Dwarsprofiel-2 Brabantse Delta      |

## 2 - Berekeningsuitgangspunten en -grondslagen

### 2.1 - Toegepaste normen, voorschriften en tabellen

#### *Eurocode 0: Technische Grondslagen voor Bouwconstructies*

**NEN-EN 1990** 2011 Grondslagen van het constructieve ontwerp (inclusief bijlage A1, C1, C2 en NB)

#### *Eurocode 1: Belastingen op constructies*

**NEN-EN 1991-1-1** 2011 Algemene belastingen - Volumieke gewichten, eigen gewicht en opgelegde belastingen voor gebouwen (inclusief NB)

**NEN-EN 1991-1-2** 2002 Algemene belastingen - Belastingen bij brand (inclusief NB)

**NEN-EN 1991-1-3** 2003 Algemene belastingen - Sneeuwbelasting (inclusief NB)

**NEN-EN 1991-1-4** 2005 Algemene belastingen - Windbelasting (inclusief bijlage A1, C1, C2 en NB)

**NEN-EN 1991-1-5** 2011 Algemene belastingen - Thermische belastingen (inclusief NB)

**NEN-EN 1991-1-6** 2005 Algemene belastingen - Belastingen uitvoering

**NEN-EN 1991-1-7** 2011 Algemene belastingen - Buitengewone belastingen, stootbelastingen en ontploffingen (inclusief NB)

#### *Eurocode 2: Ontwerp en berekening van betonconstructies*

**NEN-EN 1992-1-1** 2005 Algemene regels en regels voor gebouwen (inclusief NB:2011)

**NEN-EN 1992-1-2** 2005 Algemene regels - Ontwerp en berekening van constructies bij brand (inclusief NB:2011)

#### *Eurocode 3: Ontwerp en berekening van staalconstructies*

**NEN-EN 1993-1-1** 2006 Algemene regels en regels voor gebouwen

**NEN-EN 1993-1-2** 2011 Algemene regels - Ontwerp en berekening van constructies bij brand (inclusief bijlage C1, C2 en NB)

**NEN-EN 1993-1-8** 2011 Ontwerp en berekening van verbindingen (inclusief bijlage C2 en NB)

**NEN-EN 1993-1-10** 2011 Materiaal en eigenschappen in de dikterichting (inclusief bijlage C2 en NB)

#### *Eurocode 5: Ontwerp en berekening van houtconstructies*

**NEN-EN 1995-1-1** 2013 Algemene regels en regels voor gebouwen (inclusief A1, C1 en NB)

**NEN-EN 1995-1-2** 2005 Algemene regels - Ontwerp en berekening van constructies bij brand

#### *Eurocode 6: Ontwerp en berekening van constructies van metselwerk*

**NEN-EN 1996-1-1** 2011 Algemene regels voor constructies van gewapend en ongewapend metselwerk (inclusief C1 en NB)

**NEN-EN 1996-1-2** 2011 Algemene regels - Ontwerp en berekening van constructies bij brand (inclusief C1 en NB)

#### *Eurocode 7: Geotechnisch ontwerp van constructies*

**NEN-EN 9997-1** 2012 Algemene regels

### 2.2 - Gevolgklasse en betrouwbaarheidsklasse

|                                  |   |             | ontwerplevens-<br>duurklasse                                                                    | gevolgs-<br>klasse | belasting-<br>catergorie |
|----------------------------------|---|-------------|-------------------------------------------------------------------------------------------------|--------------------|--------------------------|
| soort gebouwfunctie 1            | : | opslagloods | 2                                                                                               | CC1                | E1                       |
|                                  |   |             | maatgevend: 2                                                                                   | CC1                |                          |
| Gevolgklasse                     | : | CC1         | (tabel B1 NEN-EN 1990+A1+A1/C2:2011/NB:2011)                                                    |                    |                          |
| Betrouwbaarheidsklasse           | : | RC1         | mag in 1 verband worden gezien met gevolgklasse<br>(tabel B3 NEN-EN 1990+A1+A1/C2:2011/NB:2011) |                    |                          |
| Betrouwbaarheidsfactor $\beta$ = | : | 3,30        | (tabel B2 blz 87 NEN-EN 1990 voor een referentieperiode van 50 jaar)                            |                    |                          |
| Ontwerplevensduur                | : | 2           | landbouw, tuinbouw, industrie tot 2 verdiepingen                                                |                    |                          |
| Referentieperiode                | : | 15          | jaar                                                                                            |                    |                          |

## 2.3 - Combinatiefactoren voor gebouwen

Conform de NEN-EN 1990 - tabel NB.2 zijn de combinatiewaarden gegeven voor gebouwen. In de onderstaande zijn de combinatiewaarden weergegeven.

| A    | B    | C    | D    | E    | F    | G    | H | gebruikscategorie                                                  |
|------|------|------|------|------|------|------|---|--------------------------------------------------------------------|
| 0,4  | 0,5  | 0,4  | 0,4  | 1    | 0,7  | 0,7  | 0 | $\psi_0$ = factor combinatie-waarde van de veranderlijke belasting |
| 0,5  | 0,5  | 0,7  | 0,7  | 0,9  | 0,7  | 0,5  | 0 | $\psi_1$ = factor frequent aanwezige veranderlijke belasting       |
| 0,3  | 0,3  | 0,6  | 0,6  | 0,8  | 0,6  | 0,3  | 0 | $\psi_2$ = factor quasi-blijvende veranderlijke belasting          |
| 0,92 | 0,93 | 0,92 | 0,92 | 1,00 | 0,96 | 0,96 |   | $F_t/F_{t0}$ $\psi_t$ = correctiefactor voor levensduur            |

## 2.4 - Belastingfactoren en belastingcombinaties

In de onderstaande tabel zijn de belastingfactoren " $\gamma$ " en belastingcombinaties weergegeven conform de NEN-EN 1990.

|                                                       | blijvende belasting        |                            | overheersend<br>variabele belasting | gelijktijdig optredende variabele belasting |                           |                |
|-------------------------------------------------------|----------------------------|----------------------------|-------------------------------------|---------------------------------------------|---------------------------|----------------|
|                                                       | ongunstig                  | gunstig                    |                                     | belangrijk                                  | andere ongunstig          | andere gunstig |
| formules van belastingcombinaties                     | $\gamma \cdot G_{k,j;sup}$ | $\gamma \cdot G_{k,j;inf}$ | $\gamma$                            | $\gamma \cdot Q_{k,i}$                      | $\gamma$                  | $\gamma$       |
| tabel A1.2(A) (EQU) (groep A) formule 6.10            | 1,10                       | 0,9                        | 1,50 $Q_{k,1}$                      | 0                                           | 1,50 $\psi_{0,i} Q_{k,i}$ | 0              |
| tabel A1.2(B) (STR/GEO) (groep B) formule 6.10a       | 1,22                       | 0,9                        |                                     | 0                                           | 1,35 $\psi_{0,i} Q_{k,i}$ | 0              |
| tabel A1.2(B) (STR/GEO) (groep B) formule 6.10b       | 1,08                       | 0,9                        | 1,35 $Q_{k,1}$                      | 0                                           | 1,35 $\psi_{0,i} Q_{k,i}$ | 0              |
| tabel A1.3 buitengewone sit. form. 6.11b (brand)      | 1                          | 1                          | 1 $A_d$                             | 1 $\gamma_{1,1} Q_{k,1}$                    | 1 $\psi_{2,1} Q_{k,i}$    | 0              |
| tabel A1.3 buitengewone sit. form. 6.12b (aardbeving) | 1                          | 1                          | 1 $A_{ek}$                          | 0                                           | 1 $\psi_{2,1} Q_{k,i}$    | 0              |
| tabel A1.4 bruikbaarheidsgrenstoestand form. 6.14b    | 1                          | 1                          | 1 $Q_{k,1}$                         | 0                                           | 1 $\psi_{0,1} Q_{k,i}$    | 0              |
| tabel A1.4 frequente waarde formule 6.15b             | 1                          | 1                          | 1 $\psi_{1,1} Q_{k,1}$              | 0                                           | 1 $\psi_{2,1} Q_{k,i}$    | 0              |
| tabel A1.4 quasi blijvend formule 6.16b               | 1                          | 1                          | 1 $\psi_{2,1} Q_{k,1}$              | 0                                           | 1 $\psi_{2,1} Q_{k,i}$    | 0              |

## 2.5 - Windbelasting

Conform de NEN-EN 1991-1-4 kan de optredende stuwdruk worden bepaald, o.b.v. de onderstaande uitgangspunten.

|               |     |   |                                   |
|---------------|-----|---|-----------------------------------|
| Windgebied    | III | - | Het resterende deel van Nederland |
| Soort terrein | II  | - | onbebouwd                         |

project : Uitbreiding loods

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## 2.6 - Materialen

### 2.6.1 - Gewapend beton

| Sterkteklasse | $f_{cm}$<br>(N/mm <sup>2</sup> ) | $f_{cd}$<br>(N/mm <sup>2</sup> ) | $f_{ctm}$<br>(N/mm <sup>2</sup> ) | $f_{ctd}$<br>(N/mm <sup>2</sup> ) | $E_{cm}$<br>(N/mm <sup>2</sup> ) | $\epsilon_{c3}$<br>(%) | $\epsilon_{cu3}$<br>(%) |                   |
|---------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|------------------------|-------------------------|-------------------|
| C 20 / 25     | 28                               | 13,333                           | 2,2104                            | 1,0315                            | 29962                            | 1,75                   | 3,50                    | funderingsbalken  |
| C 35 / 45     | 43                               | 23,333                           | 3,21                              | 1,498                             | 34077                            | 1,75                   | 3,50                    | prefab onderdelen |

### 2.6.2 - Betonstaal

| Sterkteklasse | $f_{yk}$<br>(N/mm <sup>2</sup> ) | $f_{tk}$<br>(N/mm <sup>2</sup> ) | $\epsilon_{uk}$<br>(%) |              |
|---------------|----------------------------------|----------------------------------|------------------------|--------------|
| B 500 A       | 500                              | 434,78                           | 2,75                   | netten       |
| B 500 B       | 500                              | 434,78                           | 5                      | losse staven |

### 2.6.3 - Constructiestaal

| type               | kwaliteit | behandeling |
|--------------------|-----------|-------------|
| gewalste profielen | S235      | n.t.b.      |
| kokers en buizen   | S275      | n.t.b.      |
| SFB en THQ-liggers | S355      | n.t.b.      |

### 2.6.4 - Bouten en ankers

| type   | kwaliteit | draad         | behandeling |
|--------|-----------|---------------|-------------|
| bouten | 8.8       | gerolde draad | n.t.b.      |
| ankers | n.v.t.    | n.v.t.        | n.v.t.      |

### 2.6.5 - Conserveringen

Alle onderdelen, welke direct blootgesteld worden aan vocht moeten van een duplexsysteem worden voorzien.

Thermische verzinkt conform (NEN-EN-ISO 1461-99)

Alle in te storten wapening moet onbehandeld worden aangebracht.

### 2.6.6 - Houtconstructies

| type             | kwaliteit |              |
|------------------|-----------|--------------|
| constructiehout  | n.v.t.    | binnenmilieu |
|                  | n.v.t.    | buitenmilieu |
| gelamineerd hout | n.v.t.    |              |

## 2.7 - Milieuklassen en dekkingen

### 2.7.1 - Funderingsbalken

Milieuklasse bovenzijde en zijkant

XC2 Corrosie ingeleid door carbonatatie; nat zelden droog

Milieuklasse onderzijde

XC2 Corrosie ingeleid door carbonatatie; nat zelden droog

Minimale dekking **wapeningsstaal** (conform NEN-EN 1992-1-1; artikel 4.4.1.2)

Basisconstructieklasse S 4

|                                 |     |   |                                                                |
|---------------------------------|-----|---|----------------------------------------------------------------|
| Onwerplevensduur 100 jaar       | Nee | 0 | } In rekening te brengen<br>constructieklasse is<br><b>S 4</b> |
| Onwerplevensduur 75 jaar        | Nee | 0 |                                                                |
| Sterkteklasse $\geq$ C35/45     | Nee | 0 |                                                                |
| Element met plaatgeometrie      | Nee | 0 |                                                                |
| Specifieke kwaliteitsbeheersing | Nee | 0 |                                                                |

Toeslag in het ontwerp voor uitvoeringstoleranties (conform NEN-EN 1992-1-1; artikel 4.4.1.3)

|                                    |     | bovenzijde       |   |     | onderzijde       |    |     | zijkant          |   |
|------------------------------------|-----|------------------|---|-----|------------------|----|-----|------------------|---|
|                                    |     | $\Delta c_{dev}$ | 5 |     | $\Delta c_{dev}$ | 5  |     | $\Delta c_{dev}$ | 5 |
| minimaal toeslag                   |     |                  |   |     |                  |    |     |                  |   |
| Gestort op voorbereide ondergrond  | Nee | $k_1$            | 0 | Ja  | $k_1$            | 10 | Nee | $k_1$            | 0 |
| Direct gestort op of tegen grond   | Nee | $k_2$            | 0 | Nee | $k_2$            | 0  | Nee | $k_2$            | 0 |
| $\Delta c_{dev} =$                 |     | 5                |   |     | 10               |    |     | 5                |   |
| $c_{min,dur} =$                    |     | 25               |   |     | 25               |    |     | 25               |   |
| Minimaal toe te passen dekking =   |     | <b>30</b>        |   |     | <b>35</b>        |    |     | <b>30</b>        |   |
| Extra dekking (brand, afwerking) = |     | 0                |   |     | 0                |    |     | 0                |   |
| <b>Toegepaste dekking =</b>        |     | <b>30</b>        |   |     | <b>35</b>        |    |     | <b>30</b>        |   |

### 3 - Aangehouden belastingen

#### 3.1 - Vloeren e.d.

|                                                     |                                                      | G                    | Q                    | $\psi_0$   |
|-----------------------------------------------------|------------------------------------------------------|----------------------|----------------------|------------|
|                                                     |                                                      | [kN/m <sup>2</sup> ] | [kN/m <sup>2</sup> ] |            |
| <b>1 dak</b>                                        | helling $\alpha$ = 20 graden                         |                      |                      |            |
|                                                     | stalen dakplaten, isolatie dakbedekking en gordingen | = 0,27               |                      |            |
|                                                     | zonnepanelen (zonder ballast)                        | = 0,16               |                      |            |
| H4: Daken met sneeuwbelasting onbelemmerd afglijden |                                                      | =                    | 0,56                 | 0,0        |
| <b>Totaal dak</b>                                   |                                                      | = <b>0,43</b>        | <b>0,56</b>          | <b>0,0</b> |

## 4 - Stabiliteitsberekening

### 4.1 - Windbelasting

#### 4.1.1 - Gebouwafmetingen

|                                           |     |      |   |
|-------------------------------------------|-----|------|---|
| gebouwbreedte (loodrecht op windrichting) | b = | 18,0 | m |
| gebouwdiepte (in de windrichting)         | d = | 41,0 | m |
| gebouwhoogte                              | h = | 7,4  | m |
| werkelijke hoogte boven terrein           | z = | 7,4  | m |

#### 4.1.2 - Bepaling extreme stuwdruk

De onderstaande berekening is alleen van toepassing op gebouwen lager dan 200 meter.

|                   |           |      |
|-------------------|-----------|------|
| windgebied        | III       | -    |
| soort terrein     | onbebouwd | II - |
| ontwerplevensduur | 15        | jaar |

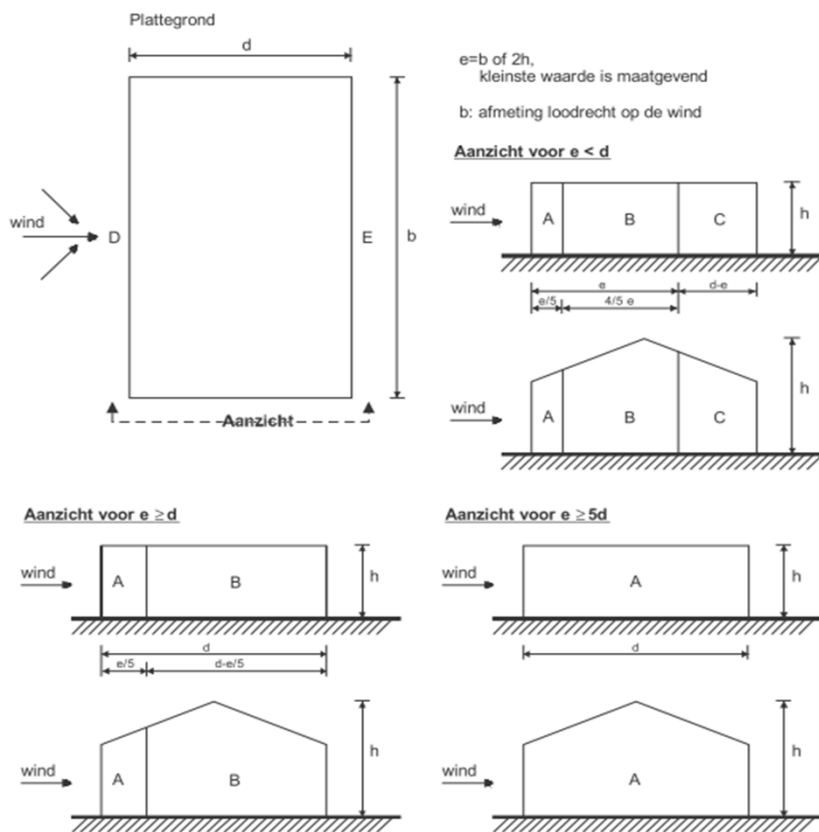
|                                              |                                                   |        |                                           |
|----------------------------------------------|---------------------------------------------------|--------|-------------------------------------------|
| minimum waarde volgens 4.3.2 tabel 4.1       | $z_{min} =$                                       | 4      | m                                         |
| minimum rekenwaarde hoogte volgens 7.2.2     | $z_e =$                                           | 7,4    | m                                         |
| maatgevende rekenwaarde hoogte boven terrein | $z =$                                             | 7,4    | m                                         |
| ruwheidslengte 4.3.2 bijlage                 | $z_0 =$                                           | 0,2    | m                                         |
| ruwheidslengte 4.3.2                         | $z_{0,II} =$                                      | 0,05   | m                                         |
| factor afhankelijk van ruwheidslengte 4.3.2  | $k_r =$                                           | 0,2094 | -                                         |
| orografische factor 4.3.1                    | $C_{0(z)} =$                                      | 1      | -                                         |
| fundamentele waarde basiswindsnelheid 4.2    | $v_{b,0} =$                                       | 24,5   | m/sec                                     |
| basiswindsnelheid:                           | $v_b = C_{prob} * C_{dir} * C_{season} * v_{b,0}$ |        |                                           |
| waarschijnlijkheidsfactor 4.2 opm. 4         | $C_{prob} =$                                      | 0,914  | -                                         |
| windrichtingsfactor bijlage opm 2            | $C_{dir} =$                                       | 1      | -                                         |
| seizoensfactor bijlage opm 3                 | $C_{season} =$                                    | 1      | -                                         |
| basiswindsnelheid 4.2                        | $v_b =$                                           | 22,393 | m/sec                                     |
| ruwheidsfactor 4.3.2                         | $C_{r(z)} =$                                      | 0,756  | -                                         |
| gemiddelde snelheid op hoogte z 4.3.1        | $v_{m(z)} =$                                      | 16,929 | m/sec                                     |
| turbulentie-intensiteit 4.4                  | $I_{v(z)} =$                                      | 0,2769 | -                                         |
| stuwdruk 4.5                                 | $q_{p(z)} =$                                      | 526    | N/m <sup>2</sup> = 0,53 kN/m <sup>2</sup> |

opmerking: de stuwdruk wordt kleiner als  $C_{prob}$  kleiner is dan 1,0

#### 4.1.3 - Bepaling verdeling windbelasting over gebouwhoogte

De hoogte van het gebouw is kleiner dan de breedte dus de windbelasting mag worden beschouwd als 1 geheel.

#### 4.1.4 - Bepaling uitwendige drukcoëfficiënten



| zone        |            |
|-------------|------------|
| h/d         |            |
| 0,18        |            |
| A           |            |
| $C_{pe,10}$ | $C_{pe,1}$ |
| -1,20       | -1,40      |
| B           |            |
| $C_{pe,10}$ | $C_{pe,1}$ |
| -0,80       | -1,10      |
| C           |            |
| $C_{pe,10}$ | $C_{pe,1}$ |
| -0,50       | -0,50      |
| D           |            |
| $C_{pe,10}$ | $C_{pe,1}$ |
| 0,80        | 1,00       |
| E           |            |
| $C_{pe,10}$ | $C_{pe,1}$ |
| -0,50       | -0,50      |

#### 4.1.5 - Bepaling windbelastingen

##### druk + zuiging

Conform NEN-EN 1991-1-4; art. 5.2 moet er op de buitenzijde van een bouwwerk een winddruk en zuiging worden gerekend.

Als conservatief uitgangspunt wordt er voor de factor  $c_{scd}$  een waarde van 1 aangehouden.

Conform art. 7.2.2 (3), mag voor de factor  $c_{pe}$  door het gebrek aan correlatie, 0,85 worden aangehouden.

De totale winddruk- en zuigingsbelasting wordt nu:

$$\begin{aligned}
 w_e &= c_{scd} \cdot c_{pe} \cdot q_{p(z)} \\
 &= 1 \cdot (0,85 \cdot (0,8 - -0,5)) \cdot 0,53 \\
 &= 0,58 \text{ kN/m}^2
 \end{aligned}$$

##### wrijving gevels en daken

Conform NEN-EN 1991-1-4; art. 7.5 moet er gerekend worden wrijving op het dak en de gevels.

Als conservatief uitgangspunt wordt er geen reductie gerekend conform art. 7.5 (3) en wordt dus de gehele lengte van het gebouw in rekening gebracht.

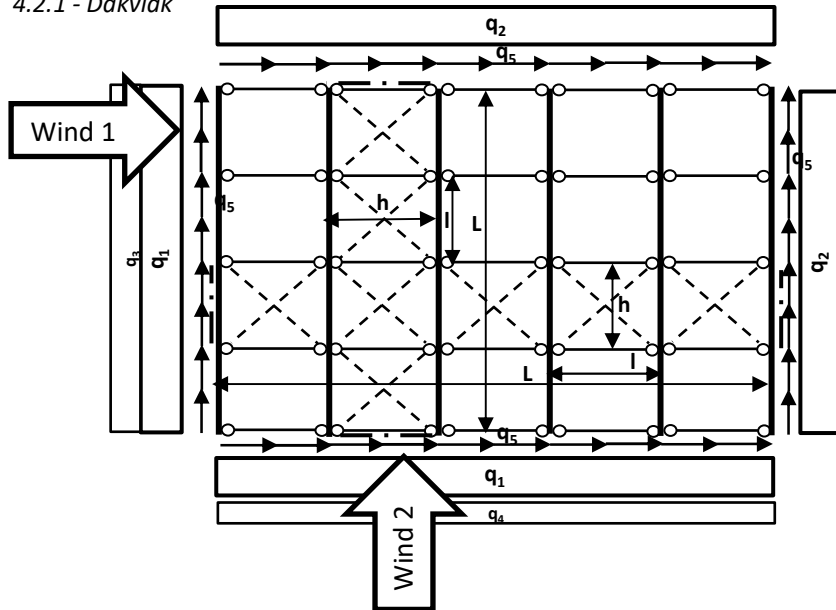
Er wordt uitgegaan van een zeer ruw oppervlakte van zowel het dak als de gevels.

De totale wrijvingsbelasting wordt nu:

$$\begin{aligned}
 w_w &= c_f \cdot q_{p(z)} \\
 &= 0,04 \cdot 0,53 \\
 &= 0,02 \text{ kN/m}^2
 \end{aligned}$$

## 4.2 - Controle stabiliteit

### 4.2.1 - Dakvlak



|                      | Wind 1    | Wind 2    |
|----------------------|-----------|-----------|
| aantal windliggers:  | 1 stuk(s) | 1 stuk(s) |
| L =                  | 18,0 m    | 18,0 m    |
| l =                  | 4,5 m     | 5,0 m     |
| h =                  | 5,0 m     | 4,5 m     |
| diagonaal =          | 6,73 m    | 6,73 m    |
| aantal steunpunten = |           | 2 stuk(s) |

| winddruk & windzuiging    | $C_s C_d$ | $C_{pe}$ | $C_{pe,10}$ | $q_{p(z)}$ | h (m)                               |
|---------------------------|-----------|----------|-------------|------------|-------------------------------------|
| $q_{1,rep}$ winddruk =    | 1 x       | 0,85 x   | 0,8 x       | 0,53 x     | 7,4 x 1/2 = 1,32 kN/m <sup>2</sup>  |
| $q_{2,rep}$ windzuiging = | 1 x       | 0,85 x   | -0,5 x      | 0,53 x     | 7,4 x 1/2 = -0,83 kN/m <sup>2</sup> |

| windwrijving gevels & dak         | b (m)  | $C_f$  | $q_{p(z)}$       | h (m)                    |
|-----------------------------------|--------|--------|------------------|--------------------------|
| $q_{3,rep}$ windwrijving dak =    | 18,0 x | 0,04 x | 0,53             | = 0,38 kN/m <sup>2</sup> |
| $q_{4,rep}$ windwrijving dak =    | 41,0 x | 0,04 x | 0,53             | = 0,86 kN/m <sup>2</sup> |
| $q_{5,rep}$ windwrijving gevels = |        | 0,04 x | 0,53 x 7,4 x 1/2 | = 0,08 kN/m <sup>2</sup> |

#### Wind 1

|                                |                                        |                          |
|--------------------------------|----------------------------------------|--------------------------|
| $q_{1,rep}$ winddruk =         | =                                      | 1,32 kN/m <sup>2</sup>   |
| $q_{2,rep}$ windzuiging =      | =                                      | 0,83 kN/m <sup>2</sup>   |
| $q_{3,rep}$ windwrijving dak = | $q_{3,rep} / \text{aantal windbokken}$ | = 0,38 kN/m <sup>2</sup> |
| $q_{w,rep}$                    | =                                      | 2,53 kN/m <sup>2</sup>   |
| $q_{w,d}$                      | =                                      | 3,42 kN/m <sup>2</sup>   |

|             |                                    |
|-------------|------------------------------------|
| $M_{w,d}$   | 138,38 kNm                         |
| $R_{w,d}$   | 32,15 kN → Koker 80.80.5           |
| $T/D_{w,d}$ | 27,68 kN → Randligger              |
| $FT_{w,d}$  | 37,23 kN → staaf Ø20 mm (bestaand) |

|                              |                                        |
|------------------------------|----------------------------------------|
| Staalkwaliteit S235          | $\sigma = 235 \text{ N/mm}^2$          |
| $A_{staaf} = \pi \times r^2$ | $= \pi \times 10^2 = 314 \text{ mm}^2$ |

$$F_{,max} = \sigma \times A_{staaf}$$

$$F_{,max} = 235 \times 314 \times 0,9$$

$$F_{,max} = 66411 \text{ N} = 66,4 \text{ kN}$$

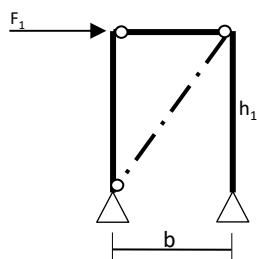
$$F_{d,optr} = 37,23 \text{ kN}$$

$$u.c. = 37,2 / 66,4 = 0,56$$

#### Wind 2 NVT Wordt opgenomen door de spanten zelf

|                                |                                        |                          |
|--------------------------------|----------------------------------------|--------------------------|
| $q_{1,rep}$ winddruk =         | =                                      | 1,32 kN/m <sup>2</sup>   |
| $q_{2,rep}$ windzuiging =      | =                                      | 0,83 kN/m <sup>2</sup>   |
| $q_{4,rep}$ windwrijving dak = | $q_{4,rep} / \text{aantal windbokken}$ | = 0,86 kN/m <sup>2</sup> |
| $q_{w,rep}$                    | =                                      | 3,02 kN/m <sup>2</sup>   |
| $q_{w,d}$                      | =                                      | 4,07 kN/m <sup>2</sup>   |

#### 4.2.2 - Stabiliteitsverbanden Wind 1



$$b = 5,0 \text{ m}$$

$$h_1 = 4,0 \text{ m}$$

$$l_{\text{diagonaal}} = 6,40 \text{ m}$$

$$F_{1,\text{rep}} = 32,2 \text{ kN}$$

$$\text{Druk / Trek kolom } h_1 = h_1 / b * F_{1,\text{rep}} = 4,00 / 5 * 32,152 = 25,7 \text{ kN}$$

$$\text{Trek diagonaal } h_1 = l_{\text{diagonaal}} / b * F_{1,\text{rep}} = 6,40 / 5 * 32,152 = 41,2 \text{ kN}$$

Toepassing diagonaal: staaf Ø20 mm (bestaand)

$$\text{Staalkwaliteit S235} \quad \sigma = 235 \text{ N/mm}^2$$

$$A_{\text{staaf}} = \pi \times r^2 = \pi \times 10^2 = 314 \text{ mm}^2$$

$$F_{\text{max}} = \sigma \times A_{\text{staaf}}$$

$$F_{\text{max}} = 235 \times 314 \times 0,9$$

$$F_{\text{max}} = 66411 \text{ N} = 66,4 \text{ kN}$$

$$F_{d,\text{optr}} = 41,18 \text{ kN}$$

$$\text{u.c.} = 41,2 / 66,4 = 0,62$$

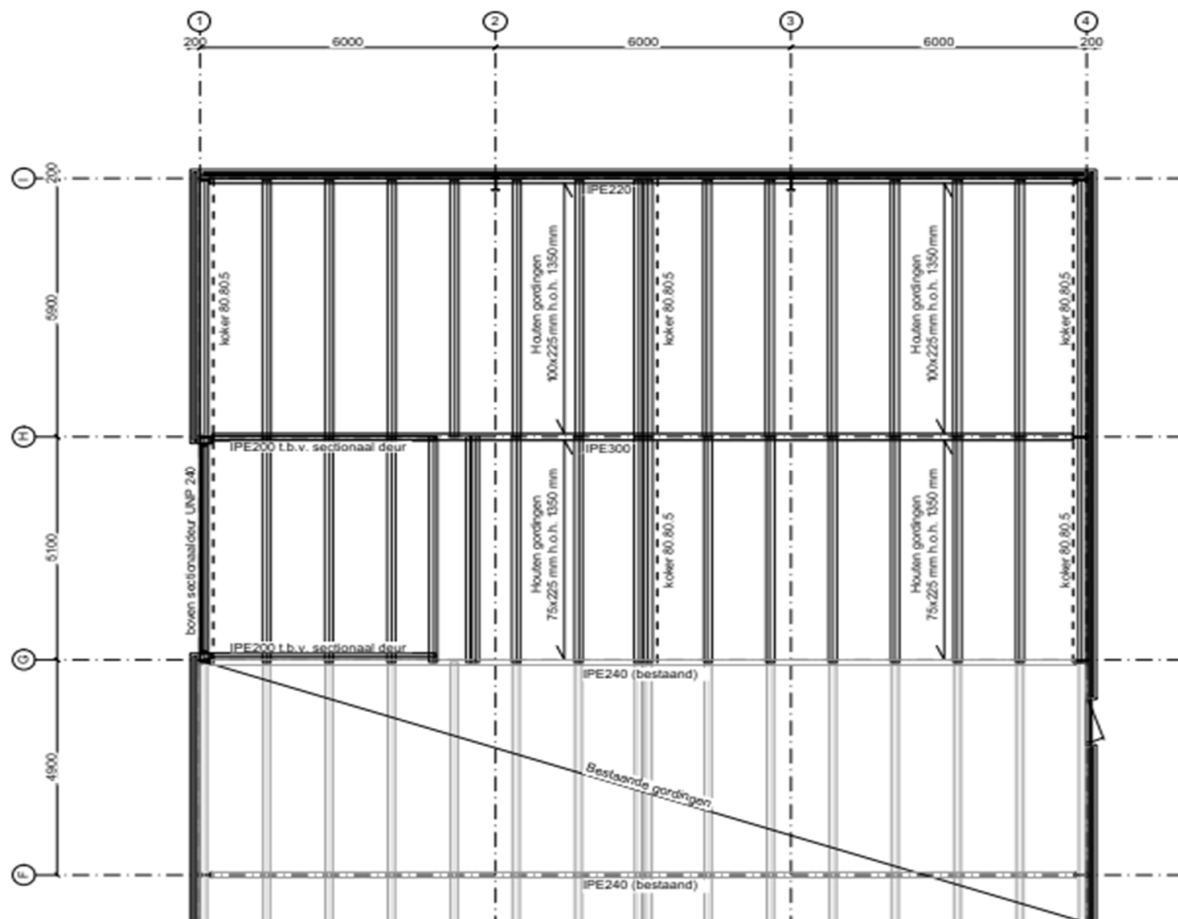
## 5 - Gewichtsberekening

Zie bijlage B voor de bijbehorende constructieberekeningen

Het bouwbesluit 2012 stelt geen eisen aan de maximale horizontale verplaatsingen van de constructies. De opdrachtgever is in deze geïnformeerd en gaat akkoord dat de eis met betrekking tot de horizontale verplaatsingen conform NEN-EN1990 niet bepalend is voor de dimensionering van de constructie.

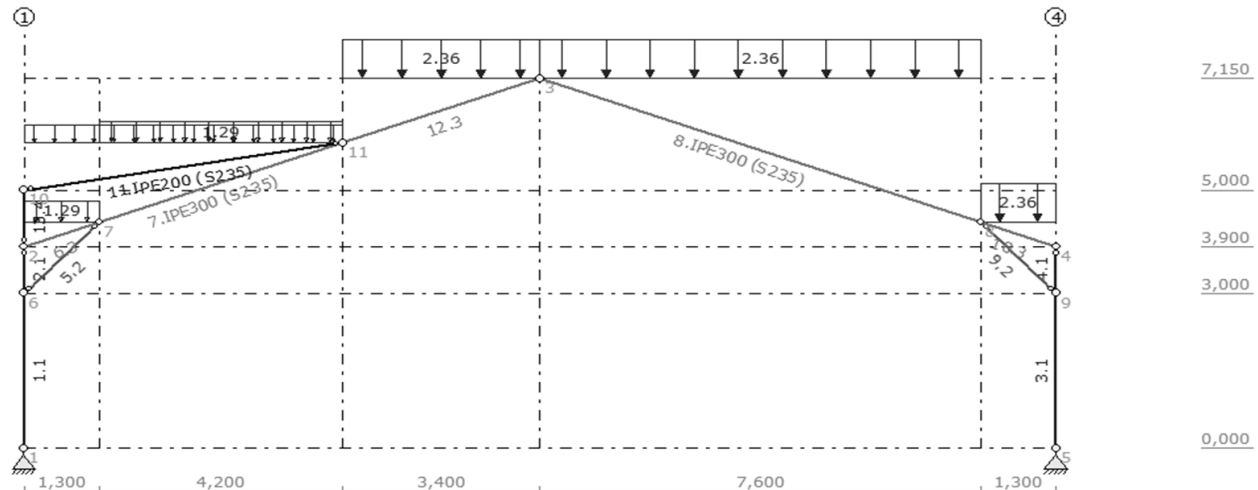
### 5.1 - Overzichten

#### 5.1.1 - Kapplan



## 5.2 - Hoofdspant - as H

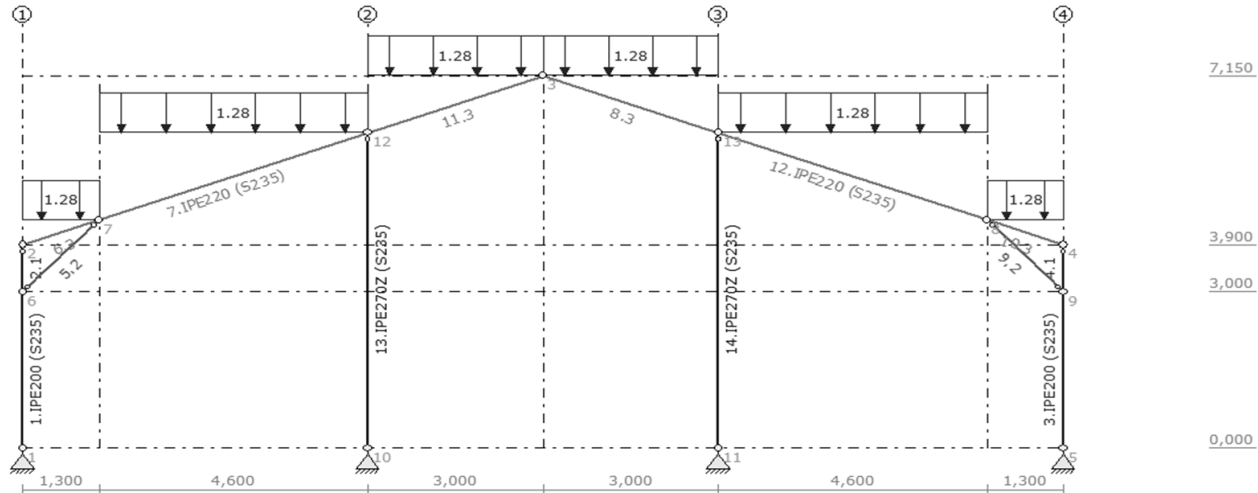
Belastingbreedte: 5,55 m



| $q_{1,rep}$   | n | factor | breedte<br>[m] | lengte<br>[m] | p.b.<br>[kN/m²] | v.b.<br>[kN/m²] | $\psi_0$ | extr. | G<br>[kN/m] | $\psi_0 \cdot Q$<br>[kN/m] | $Q_{extr}$<br>[kN/m] |
|---------------|---|--------|----------------|---------------|-----------------|-----------------|----------|-------|-------------|----------------------------|----------------------|
| 1 dak         | 1 | x      | 5,55           | x             | 0,43            | 0,56            | 0        | ja    | = 2,36      | 0,00                       | 3,11                 |
| $q_{1,rep} =$ |   |        |                |               |                 |                 |          |       | 2,36        | 0,00                       | 3,11 kN/m²           |

## 5.3 - Kopsant - as I

Belastingbreedte: 3,00 m

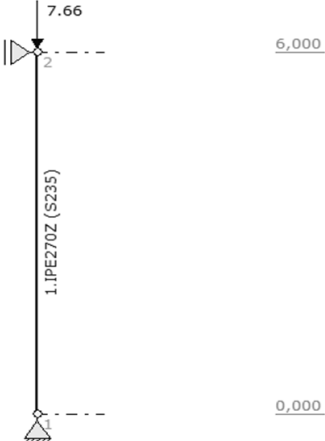


| $q_{1,rep}$   | n | factor | breedte<br>[m] | lengte<br>[m] | p.b.<br>[kN/m²] | v.b.<br>[kN/m²] | $\psi_0$ | extr. | G<br>[kN/m] | $\psi_0 \cdot Q$<br>[kN/m] | $Q_{extr}$<br>[kN/m] |
|---------------|---|--------|----------------|---------------|-----------------|-----------------|----------|-------|-------------|----------------------------|----------------------|
| 1 dak         | 1 | x      | 3,00           | x             | 0,43            | 0,56            | 0        | ja    | = 1,28      | 0,00                       | 1,68                 |
| $q_{1,rep} =$ |   |        |                |               |                 |                 |          |       | 1,28        | 0,00                       | 1,68 kN/m²           |

## 5.4 - Kolom in kopsant - as I

Belastingbreedte: 3,00 m

Belastingbreedte: 6,00 m



| $F_{1,rep}$   | n | factor | breedte<br>[m] | lengte<br>[m] | p.b.<br>[kN/m²] | v.b.<br>[kN/m²] | $\psi_0$ | extr. | G<br>[kN] | $\psi_0 \cdot Q$<br>[kN] | $Q_{extr}$<br>[kN] |
|---------------|---|--------|----------------|---------------|-----------------|-----------------|----------|-------|-----------|--------------------------|--------------------|
| 1 dak         | 1 | x      | 3,00           | x             | 0,43            | 0,56            | 0        | ja    | = 7,66    | 0,00                     | 10,08              |
| $F_{1,rep} =$ |   |        |                |               |                 |                 |          |       | 7,66      | 0,00                     | 10,08 kN           |

## 5.5 - Houten gordingen

Belastingbreedte: 1,35 m

*Zie uitvoer 'bijlage B' voor berekening houten gordingen*

Stramien G-H: 75 x 225 mm, h.o.h. max. 1350 mm

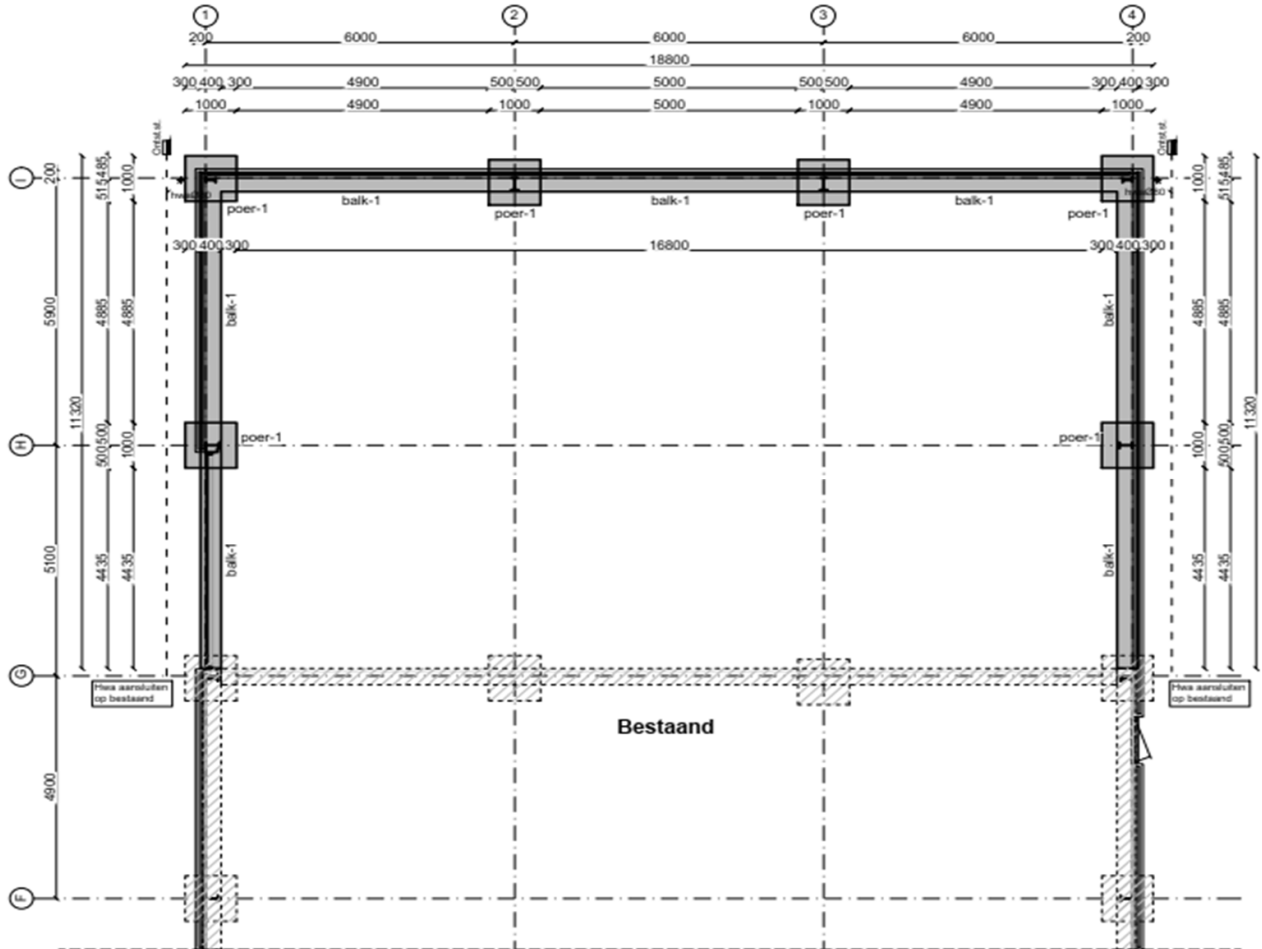
Stramien G-H: 100 x 225 mm, h.o.h. max. 1350 mm

## 6 - Fundering

Fundering op vaste grondslag i.h.w. te controleren en waar nodig grondverbetering (min. 4 MPa) toepassen.

### 6.1 - Overzichten

#### 6.1.1 - Fundering



**6.2 - Kolomreacties****6.2.1 - Permanente belasting - verticaal**

|   | I    | H    |
|---|------|------|
| 4 | 5,8  | 26,8 |
| 3 | 11,3 |      |
| 2 | 11,3 |      |
| 1 | 5,8  | 28,0 |

**6.2.2 - Sneeuw / Personen**

|   | I   | H    |
|---|-----|------|
| 4 | 3,9 | 20,7 |
| 3 | 7,4 |      |
| 2 | 7,4 |      |
| 1 | 3,9 | 20,7 |

**6.2.3 - Wind - druk**

|   | I   | H    |
|---|-----|------|
| 4 | 5,5 | 11,8 |
| 3 | 9,1 |      |
| 2 | 9,1 |      |
| 1 | 5,5 | 11,8 |

**6.2.4 - Wind - trek (loodrecht)**

|   | I      | H     |
|---|--------|-------|
| 4 | -7,0   | -23,9 |
| 3 | n.v.t. |       |
| 2 | n.v.t. |       |
| 1 | -7,0   | -23,9 |

**6.2.5 - Windbokken**

|   | I      | H      |
|---|--------|--------|
| 4 | n.v.t. | n.v.t. |
| 3 |        |        |
| 2 |        |        |
| 1 | n.v.t. | n.v.t. |

**6.2.6 - Permanente belasting - horizontaal**

|   | I      | H    |
|---|--------|------|
| 4 | n.v.t. | 13,7 |
| 3 | n.v.t. |      |
| 2 | n.v.t. |      |
| 1 | n.v.t. | 13,7 |

**6.2.7 - Wind - horizontaal**

|   | I      | H    |
|---|--------|------|
| 4 | n.v.t. | 11,3 |
| 3 | n.v.t. |      |
| 2 | n.v.t. |      |
| 1 | n.v.t. | 11,3 |

**6.2.8 - Fundamentele combinatie - verticaal**

|   | I    | H    |
|---|------|------|
| 4 | 13,7 | 56,9 |
| 3 | 24,5 |      |
| 2 | 24,5 |      |
| 1 | 13,7 | 58,2 |

**6.2.10 - Fundamentele combinatie - horizontaal**

|   | I      | H    |
|---|--------|------|
| 4 | n.v.t. | 30,1 |
| 3 | n.v.t. | 0,0  |
| 2 | n.v.t. | 0,0  |
| 1 | n.v.t. | 30,1 |

project : Uitbreiding loods

onderdeel : Gewichts-, stabiliteits- en sterkteberekening

onderwerp : Fundering

ber.nr : 180170 -- C01 - 01

revisie : 01

### 6.3 - Afmetingen strook t.p.v. windbok

$$\text{Gewapend beton 600 mm} \rightarrow 0,6 \cdot 2500 = \frac{1500,0 \text{ kg/m}^2}{1500,0 \text{ kg/m}^2}$$

$$\text{Totale trek: } 2286,2 / 1500,0 = 1,5 \text{ m}^2 \text{ benodigd}$$

$$\text{Lengte strook windbok} \rightarrow 1,5 / 5,0 = 0,3 \text{ m} \quad \text{Breedte benodigd}$$

Aanwezig: 300 mm breed

### 6.4 - Toetsing horizontale belasting

#### Gronddekking fundering

Zand - schoon - los

$$\phi'_{cv,d} = \delta_d = 30,0 \quad \text{voor i.h.w. gestorte betonnen fundering geldt: } \phi'_{cv,d} = \delta_d$$

$$\gamma'_{dekking} = 18,0 \text{ kN/m}^3$$

$$h = \text{hoogte} = 0,9 \text{ m}$$

$$R_{p,d} = 0,9 \times \tan^2(45^\circ + 0,5 \times \phi) \times \gamma'_{dekking} \times h^2$$

$$R_{p,d} = 0,9 \times 3,0 \times 18,0 \times 0,81 = 39,4 \text{ kN/m}$$

#### **Poer-1 b=1000 mm**

$$R_{\text{totaal}} = R_{h,d} + R_{p,d} \times b_{\text{poer}}$$

$$R_{\text{totaal}} = 0,0 + 39,4 \times 1,0 = 39,4 \text{ kN} \quad R_{h,d} = 0 \text{ kN/m t.b.v. veiligheid}$$

$$H_d \leq R_{\text{totaal}}$$

$$30,1 \leq 39,4 \quad \textbf{Voldoet}$$

# Bijlage A

## Stabiliteitsberekening

## CENTRISCH GEDRUKTE STAAF

Berekening volgens NEN-EN 1993-1-1 --- Eurocode 3: Ontwerp en berekening van staalconstructies –  
Deel 1-1: Algemene regels en regels voor gebouwen

### Koker 80.80.5

|                     |                           |                        |          |
|---------------------|---------------------------|------------------------|----------|
| <b>Profielnaam:</b> | <b>VK-BUIS HF 80.80.5</b> | <b>Doorsnedeklasse</b> | <b>1</b> |
|---------------------|---------------------------|------------------------|----------|

|             |                     |                       |  |                  |                          |
|-------------|---------------------|-----------------------|--|------------------|--------------------------|
| Oppervlakte | A =                 | 1473 mm <sup>2</sup>  |  |                  |                          |
|             | i <sub>y</sub> =    | 30,4 mm               |  | i <sub>z</sub> = | 30,4 mm                  |
| Staalsoort  | f <sub>y;d</sub> =  | 275 N/mm <sup>2</sup> |  | E <sub>d</sub> = | 210000 N/mm <sup>2</sup> |
|             | y of z as?          | z -as                 |  |                  |                          |
| Kniklengte  | L <sub>cr;y</sub> = | 5500 mm               |  | knikkromme = a   |                          |
|             | L <sub>cr;z</sub> = | 5500 mm               |  | a = 0,21         |                          |

**Paragraaf /Formule**      **N<sub>Ed</sub> = 32,2 kN**

**6.3.1.3.**      λ<sub>1</sub> = 86,81

$$\lambda_1 = \pi \sqrt{\frac{E_d}{f_y}}$$

**6.3.1.2**      λ̄ = 2,08

λ̄<sub>y</sub> = 2,08

λ̄<sub>z</sub> = 2,08

$$\bar{\lambda} = \sqrt{\frac{A \cdot f_y}{N_{cr}}} = \frac{L_{cr}}{i \cdot \lambda_1}$$

$$\bar{\lambda} = \sqrt{\frac{A_{eff} \cdot f_y}{N_{cr}}} = \frac{L_{cr}}{i \cdot \lambda_1} \sqrt{\frac{A_{eff}}{A}}$$

**6.3.1.2**      Φ = 2,87

Φ<sub>y</sub> = 2,87

Φ<sub>z</sub> = 2,87

$$\Phi = \frac{1}{2} \left( 1 + \alpha (\bar{\lambda} - 0,2) + \bar{\lambda}^2 \right)$$

**6.3.1.2**  
**(6.49)**      χ = 0,21

χ<sub>y</sub> = 0,21

χ<sub>z</sub> = 0,21

$$\chi = \frac{1}{\Phi + \sqrt{\Phi^2 - \bar{\lambda}^2}}$$

**6.3.1.1**  
**(6.47)**      **N<sub>b;Rd</sub> = 83,7 kN**

**Nationale Bijlage; 6.1**

N<sub>y;b;Rd</sub> = 83,7 kN

N<sub>z;b;Rd</sub> = 83,7 kN

$$N_{b;Rd} = \frac{\chi \cdot A \cdot f_y}{\gamma_{M1}}$$

**6.3.1.1**  
**(6.46)**      Unity Check = 0,38

Unity Check y = 0,38

Unity Check z = 0,38

$$\frac{N_{Ed}}{N_{b;Rd}} \leq 1,0$$

**PROFIEL VOLDOET**

# Bijlage B

Computeruitvoer gewichtsberekening

Project.....: 180170 - Uitbreiding loods  
 Onderdeel.....: Hoofdspant - as H  
 Constructeur.: ing. J.F.H. De Jong  
 Opdrachtgever: Jongenelen Akkerbouw  
 Dimensies.....: kN;m;rad (tenzij anders aangegeven)  
 Datum.....: 21/09/2020  
 Bestand.....: \\DC01\Tekeningen\2018\180170\Bouwvergunning\3.  
 Constructieberekeningen\3.1 Constructieberekening\Aanbouw  
 bestaande  
 loods\Raamwerken\180170\_Hoofdspant-asH\_2020-11-11.rww

Belastingbreedte.: 5.550  
 Rekenmodel.....: 2e-orde-elastisch.  
 Theorieën voor de bepaling van de krachtsverdeling:  
 1) Losse belastinggevallen:  
 Lineaire-elasticiteitstheorie  
 2) Uiterste grenstoestand:  
 Geometrisch niet lineair alle staven.  
 Fysisch lineair alle staven.  
 3) Gebruiksgrenstoestand:  
 Geometrisch niet lineair alle staven.  
 Fysisch lineair alle staven.

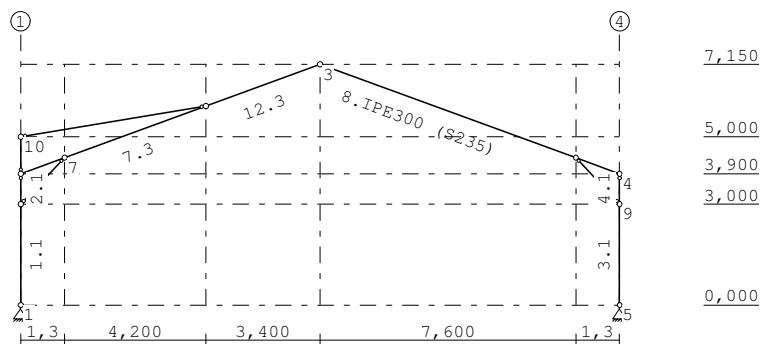
Maximum aantal iteraties.....: 50  
 Max.deellengte kolommen/wanden: 0.500 Max.deellengte balken/vloeren: 0.500  
 Max. X-verplaatsing in UGT....: 0.500 Max. Z-verplaatsing in UGT...: 0.250

Gunstige werking van de permanente belasting wordt automatisch verwerkt.

### Toegepaste normen volgens Eurocode met Nederlandse NB

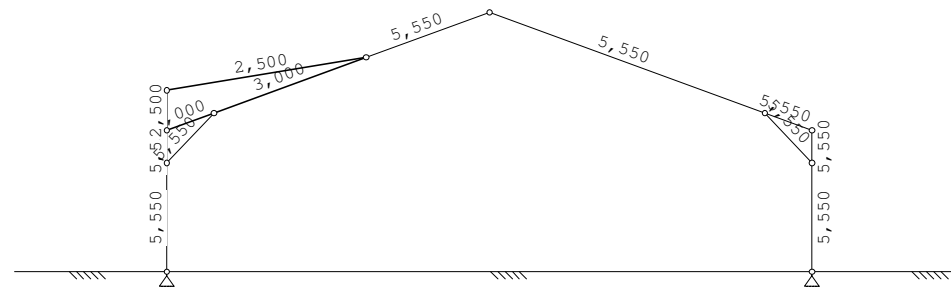
|             |                      |                  |             |
|-------------|----------------------|------------------|-------------|
| Belastingen | NEN-EN 1990:2002     | C2:2010          | NB:2011(nl) |
|             | NEN-EN 1991-1-1:2002 | C1:2009          | NB:2011(nl) |
|             | NEN-EN 1991-1-3:2003 | C1:2009          | NB:2011(nl) |
|             | NEN-EN 1991-1-4:2005 | C2:2011          | NB:2011(nl) |
| Staal       | NEN-EN 1993-1-1:2006 | C2:2011, A1:2016 | NB:2016(nl) |

### GEOMETRIE



Project.....: 180170 - Uitbreiding loods  
 Onderdeel.....: Hoofdspant - as H

### BELASTINGBREEDTEN



### STRAMIENLIJNEN

| Nr. | Naam | X      | Z-min | Z-max |
|-----|------|--------|-------|-------|
| 1   | 1    | 0.000  | 0.000 | 7.150 |
| 2   |      | 8.900  | 0.000 | 7.150 |
| 3   | 4    | 17.800 | 0.000 | 7.150 |
| 4   |      | 1.300  | 0.000 | 7.150 |
| 5   |      | 16.500 | 0.000 | 7.150 |
| 6   |      | 5.500  | 0.000 | 7.150 |

### NIVEAUS

| Nr. | Z     | X-min | X-max  |
|-----|-------|-------|--------|
| 1   | 0.000 | 0.000 | 17.800 |
| 2   | 3.000 | 0.000 | 17.800 |
| 3   | 3.900 | 0.000 | 17.800 |
| 4   | 7.150 | 0.000 | 17.800 |
| 5   | 5.000 | 0.000 | 17.800 |

### MATERIALEN

| Mt | Omschrijving | E-modulus[N/mm2] | S.G. | Pois. | Uitz. coëff |
|----|--------------|------------------|------|-------|-------------|
| 1  | S235         | 210000           | 78.5 | 0.30  | 1.2000e-05  |
| 2  | S275         | 210000           | 78.5 | 0.30  | 1.2000e-05  |

### PROFIELEN [mm]

| Prof. | Omschrijving | Materiaal | Oppervlak  | Traagheid  | Vormf. |
|-------|--------------|-----------|------------|------------|--------|
| 1     | IPE270       | 1:S235    | 4.5900e+03 | 5.7900e+07 | 0.00   |
| 2     | K80/80/SCF   | 2:S275    | 1.4356e+03 | 1.3144e+06 | 0.00   |
| 3     | IPE300       | 1:S235    | 5.3800e+03 | 8.3560e+07 | 0.00   |
| 4     | IPE200       | 1:S235    | 2.8480e+03 | 1.9430e+07 | 0.00   |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

PROFIELEN vervolg [mm]

| Prof. | Staaftype | Breedte | Hoogte | e     | Type | b1 | h1 | b2 | h2 |
|-------|-----------|---------|--------|-------|------|----|----|----|----|
| 1     | 0:Normaal | 135     | 270    | 135.0 |      |    |    |    |    |
| 2     | 0:Normaal | 80      | 80     | 40.0  |      |    |    |    |    |
| 3     | 0:Normaal | 150     | 300    | 150.0 |      |    |    |    |    |
| 4     | 0:Normaal | 100     | 200    | 100.0 |      |    |    |    |    |

KNOPEN

| Knoop | X      | Z     | Knoop | X      | Z     |
|-------|--------|-------|-------|--------|-------|
| 1     | 0.000  | 0.000 | 6     | 0.000  | 3.000 |
| 2     | 0.000  | 3.900 | 7     | 1.300  | 4.375 |
| 3     | 8.900  | 7.150 | 8     | 16.500 | 4.375 |
| 4     | 17.800 | 3.900 | 9     | 17.800 | 3.000 |
| 5     | 17.800 | 0.000 | 10    | 0.000  | 5.000 |
| 11    | 5.500  | 5.908 |       |        |       |

STAVEN

| St. | ki | kj | Profiel      | Aansl.i | Aansl.j | Lengte Opm. |
|-----|----|----|--------------|---------|---------|-------------|
| 1   | 1  | 6  | 1:IPE270     | NDM     | NDM     | 3.000       |
| 2   | 6  | 2  | 1:IPE270     | NDM     | ND-     | 0.900       |
| 3   | 9  | 5  | 1:IPE270     | NDM     | NDM     | 3.000       |
| 4   | 4  | 9  | 1:IPE270     | ND-     | NDM     | 0.900       |
| 5   | 6  | 7  | 2:K80/80/5CF | ND-     | ND-     | 1.892       |
| 6   | 2  | 7  | 3:IPE300     | NDM     | NDM     | 1.384       |
| 7   | 7  | 11 | 3:IPE300     | NDM     | NDM     | 4.471       |
| 8   | 3  | 8  | 3:IPE300     | NDM     | NDM     | 8.091       |
| 9   | 8  | 9  | 2:K80/80/5CF | ND-     | ND-     | 1.892       |
| 10  | 8  | 4  | 3:IPE300     | NDM     | NDM     | 1.384       |
| 11  | 10 | 11 | 4:IPE200     | ND-     | ND-     | 5.575       |
| 12  | 11 | 3  | 3:IPE300     | NDM     | NDM     | 3.620       |
| 13  | 2  | 10 | 4:IPE200     | ND-     | NDM     | 1.100       |

VASTE STEUNPUNTEN

| Nr. | knoop | Kode | XZR | l=vast | 0=vrij | Hoek |
|-----|-------|------|-----|--------|--------|------|
| 1   | 1     | 110  |     |        |        | 0.00 |
| 2   | 5     | 110  |     |        |        | 0.00 |

BELASTINGBREEDTEN

| Staaft | Breedte-i | Breedte-j | Staaft | Breedte-i | Breedte-j |
|--------|-----------|-----------|--------|-----------|-----------|
| 1      | 5.550     | 5.550     | 6      | 3.000     | 3.000     |
| 2      | 5.550     | 5.550     | 7      | 3.000     | 3.000     |
| 3      | 5.550     | 5.550     | 8      | 5.550     | 5.550     |
| 4      | 5.550     | 5.550     | 9      | 5.550     | 5.550     |
| 5      | 5.550     | 5.550     | 10     | 5.550     | 5.550     |
| 11     | 2.500     | 2.500     |        |           |           |
| 12     | 5.550     | 5.550     |        |           |           |
| 13     | 2.500     | 2.500     |        |           |           |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

BELASTINGGENERATIE ALGEMEEN.

|                              |       |                         |      |
|------------------------------|-------|-------------------------|------|
| Betrouwbaarheidsklasse.....: | 1     | Referentieperiode.....: | 15   |
| Gebouwdiepte.....:           | 41.00 | Gebouwhoogte.....:      | 7.15 |
| Niveau aansl.terrein.....:   | 0.00  | E.g. scheid.w. [kN/m2]: | 1.20 |

WIND

|                                  |           |
|----------------------------------|-----------|
| Terrein categorie ...[4.3.2]...: | Onbebouwd |
| Windgebied .....                 | 3         |
| Vb,0 ..[4.2].....:               | 24.500    |
| Referentie periode wind.....:    | 15.00     |
| Vb(p) ..[4.2].....:              | 22.397    |
| K .....[4.2].....:               | 0.280     |
| n .....[4.2].....:               | 0.500     |
| Positie spant in het gebouw....: | 5.000     |
| Kr .....[4.3.2].....:            | 0.209     |
| z0 .....[4.3.2]...:              | 0.200     |
| Zmin ..[4.3.2].....:             | 4.000     |
| Co wind van links ..[4.3.3]...:  | 1.000     |
| Co wind van rechts.....:         | 1.000     |
| Co wind loodrecht ..[4.3.3]...:  | 1.000     |
| Cpi wind van links ..[7.2.9]...: | 0.200     |
| -0.300                           |           |
| Cpi windloodrecht ...[7.2.9]...: | 0.200     |
| -0.300                           |           |
| Cpi wind van rechts .[7.2.9]...: | 0.200     |
| -0.300                           |           |
| Cfr windwrijving ....[7.5].....: | 0.040     |

SNEEUW

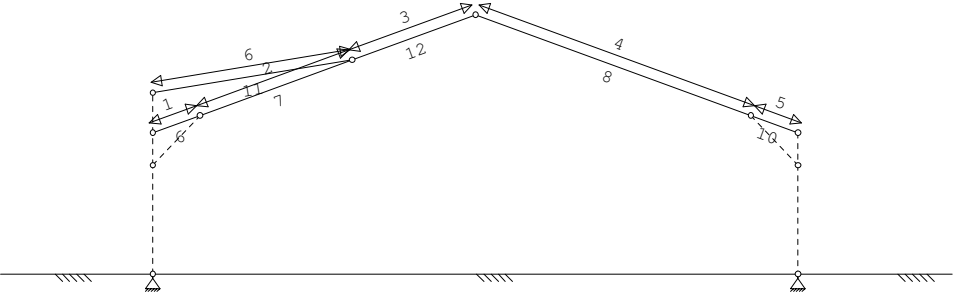
|                                |      |
|--------------------------------|------|
| Sneeuwbelasting (sk) 50 jaar : | 0.70 |
| Sneeuwbelasting (sn) n jaar :  | 0.53 |

STAIFTYPEN

| Type             | staven      |
|------------------|-------------|
| 5:Linker gevel.  | : 1,2,13    |
| 6:Rechter gevel. | : 3,4       |
| 7:Dak.           | : 6-8,10-12 |
| 9:Open.          | : 5,9       |

LASTVELDEN

Veranderlijke belastingen door personen



Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

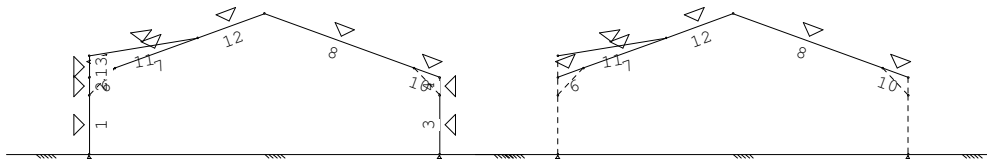
**LASTVELDEN**

| Nr | Staaft | Tabel | Klasse-Gebruiksfunctie   | Verd. | $q_k$ | $Q_k$ | $F_t/F_{t0}$ |
|----|--------|-------|--------------------------|-------|-------|-------|--------------|
| 1  | 6-6    | 6.10  | H-Dak (onder dakbeschot) | 1     | 0.00  | -2.00 | 0.87         |
| 2  | 7-7    | 6.10  | H-Dak (onder dakbeschot) | 1     | 0.00  | -2.00 | 0.87         |
| 3  | 12-12  | 6.10  | H-Dak (onder dakbeschot) | 1     | 0.00  | -2.00 | 0.87         |
| 4  | 8-8    | 6.10  | H-Dak (onder dakbeschot) | 2     | 0.00  | -2.00 | 0.87         |
| 5  | 10-10  | 6.10  | H-Dak (onder dakbeschot) | 2     | 0.00  | -2.00 | 0.87         |
| 6  | 11-11  | 6.10  | H-Dak (onder dakbeschot) | 0     | -1.00 | -2.00 | 0.87         |

**LASTVELDEN**

Wind staven

Sneeuw staven

**WIND DAKTYPES**

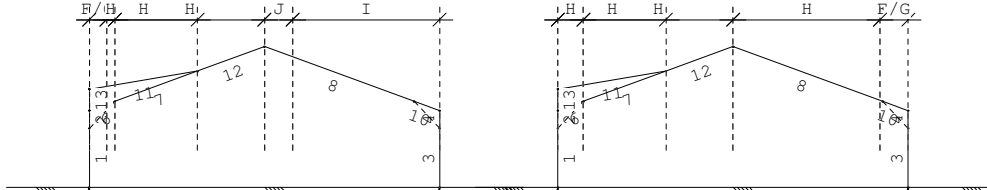
| Nr. | Staaft | Type          | reductie bij wind van links | reductie bij wind van rechts | Cpe volgens art: |
|-----|--------|---------------|-----------------------------|------------------------------|------------------|
| 1   | 1-13   | Gevel         | 1.000                       | 1.000                        | 7.2.2            |
| 2   | 6      | Lessenaarsdak | 1.000                       | 0.600                        | 7.2.4            |
| 3   | 11     | Lessenaarsdak | 0.800                       | 0.600                        | 7.2.4            |
| 4   | 7-12   | Lessenaarsdak | 0.600                       | 0.800                        | 7.2.4            |
| 5   | 8-10   | Zadeldak      | 1.000                       | 1.000                        | 7.2.5            |
| 6   | 4-3    | Gevel         | 1.000                       | 1.000                        | 7.2.2            |

Ten behoeve van daken met aaneengeschakelde vormen zijn de reductiefactoren volgens EN1991-1-4 art. 7.2.7 in rekening gebracht.

**WIND ZONES**

Wind van links

Wind van rechts



Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**WIND VAN LINKS ZONES****WIND VAN RECHTS ZONES**

| Nr. | Staaft | Positie | Lengte | Zone | Nr. | Staaft | Positie | Lengte | Zone |
|-----|--------|---------|--------|------|-----|--------|---------|--------|------|
| 1   | 1-13   | 0.000   | 5.000  | D    | 1   | 4-3    | 0.000   | 3.900  | D    |
| 2   | 6      | 0.000   | 0.875  | F/G  | 2   | 8-10   | 0.000   | 1.430  | F/G  |
| 3   | 6      | 0.875   | 0.425  | H    | 3   | 8-10   | 1.430   | 7.470  | H    |
| 4   | 11     | 0.000   | 5.500  | H    | 4   | 7-12   | 0.000   | 7.600  | H    |
| 5   | 7-12   | 0.000   | 7.600  | H    | 5   | 11     | 0.000   | 5.500  | H    |
| 6   | 8-10   | 0.000   | 1.430  | J    | 6   | 6      | 0.000   | 1.300  | H    |
| 7   | 8-10   | 1.430   | 7.470  | I    | 7   | 1-13   | 0.000   | 5.000  | E    |
| 8   | 4-3    | 0.000   | 3.900  | E    |     |        |         |        |      |

**Wind indexen**

| Index | CsCd | Cpe/Cpi | qp    | breedte | reductie | Qw     | Zone | Hoek(en) |
|-------|------|---------|-------|---------|----------|--------|------|----------|
| Qw1   |      | 0.300   | 0.518 | 5.550   |          | -0.862 | -i   |          |
| Qw2   |      | 0.300   | 0.518 | 2.500   |          | -0.389 | -i   |          |
| Qw3   |      | 0.300   | 0.518 | 3.000   |          | -0.466 | -i   |          |
| Qw4   | 1.00 | 0.800   | 0.518 | 5.550   |          | -2.300 | D    |          |
| Qw5   | 1.00 | 0.800   | 0.518 | 2.500   |          | -1.036 | D    |          |
| Qw6   | 1.00 | 0.370   | 0.518 | 3.000   |          | -0.575 | G    | 20.1     |
| Qw7   | 1.00 | 0.268   | 0.518 | 3.000   |          | -0.416 | H    | 20.1     |
| Qw8   | 1.00 | -0.468  | 0.518 | 2.500   | 0.80     | 0.485  | H    | 9.4      |
| Qw9   | 1.00 | 0.268   | 0.518 | 3.000   | 0.60     | -0.250 | H    | 20.1     |
| Qw10  | 1.00 | 0.268   | 0.518 | 5.550   | 0.60     | -0.462 | H    | 20.1     |
| Qw11  | 1.00 | -0.830  | 0.518 | 5.550   |          | 2.386  | J    | 20.1     |
| Qw12  | 1.00 | -0.400  | 0.518 | 5.550   |          | 1.150  | I    | 20.1     |
| Qw13  | 1.00 | -0.500  | 0.518 | 5.550   |          | 1.437  | E    |          |
| Qw14  |      | -0.200  | 0.518 | 5.550   |          | 0.575  | +i   |          |
| Qw15  |      | -0.200  | 0.518 | 2.500   |          | 0.259  | +i   |          |
| Qw16  |      | -0.200  | 0.518 | 3.000   |          | 0.311  | +i   |          |
| Qw17  | 1.00 | -0.698  | 0.518 | 3.000   |          | 1.085  | G    | 20.1     |
| Qw18  | 1.00 | -0.266  | 0.518 | 3.000   |          | 0.413  | H    | 20.1     |
| Qw19  | 1.00 | -0.266  | 0.518 | 3.000   | 0.60     | 0.248  | H    | 20.1     |
| Qw20  | 1.00 | -0.266  | 0.518 | 5.550   | 0.60     | 0.459  | H    | 20.1     |
| Qw21  | 1.00 | 0.370   | 0.518 | 1.350   |          | -0.259 | F    | 20.1     |
| Qw22  | 1.00 | 0.370   | 0.518 | 4.200   |          | -0.805 | G    | 20.1     |
| Qw23  | 1.00 | 0.268   | 0.518 | 5.550   |          | -0.770 | H    | 20.1     |
| Qw24  | 1.00 | -0.866  | 0.518 | 5.550   | 0.80     | 1.992  | H    | 20.1     |
| Qw25  | 1.00 | -0.866  | 0.518 | 3.000   | 0.80     | 1.077  | H    | 20.1     |
| Qw26  | 1.00 | -0.844  | 0.518 | 2.500   | 0.60     | 0.656  | H    | 9.4      |
| Qw27  | 1.00 | -0.866  | 0.518 | 3.000   | 0.60     | 0.807  | H    | 20.1     |
| Qw28  | 1.00 | -0.500  | 0.518 | 2.500   |          | 0.648  | E    |          |
| Qw29  | 1.00 | -0.764  | 0.518 | 1.350   |          | 0.534  | F    | 20.1     |
| Qw30  | 1.00 | -0.698  | 0.518 | 4.200   |          | 1.519  | G    | 20.1     |
| Qw31  | 1.00 | -0.266  | 0.518 | 5.550   |          | 0.765  | H    | 20.1     |
| Qw32  | 1.00 | -1.200  | 0.518 | 0.635   |          | 0.395  | A    |          |
| Qw33  | 1.00 | -0.800  | 0.518 | 4.915   |          | 2.037  | B    |          |
| Qw34  | 1.00 | -1.200  | 0.518 | 0.286   |          | 0.178  | A    |          |
| Qw35  | 1.00 | -0.800  | 0.518 | 2.214   |          | 0.917  | B    |          |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**Wind indexen**

| Index | CsCd | Cpe/Cpi | qp    | breedte | reductie | Qw    | Zone | Hoek(en) |
|-------|------|---------|-------|---------|----------|-------|------|----------|
| Qw36  | 1.00 | -0.868  | 0.518 | 2.662   |          | 1.197 | H    | 20.1     |
| Qw37  | 1.00 | -0.734  | 0.518 | 0.338   |          | 0.128 | I    | 20.1     |
| Qw38  | 1.00 | -0.688  | 0.518 | 2.218   |          | 0.791 | H    | 9.4      |
| Qw39  | 1.00 | -0.588  | 0.518 | 0.282   |          | 0.086 | I    | 9.4      |
| Qw40  | 1.00 | -0.868  | 0.518 | 4.925   |          | 2.214 | H    | 20.1     |
| Qw41  | 1.00 | -0.734  | 0.518 | 0.625   |          | 0.238 | I    | 20.1     |
| Qw42  | 1.00 | -0.668  | 0.518 | 4.925   |          | 1.704 | H    | 20.1     |
| Qw43  | 1.00 | -0.500  | 0.518 | 0.625   |          | 0.162 | I    | 20.1     |
| Qw44  | 1.00 | -0.500  | 0.518 | 5.550   |          | 1.437 | C    |          |
| Qw45  | 1.00 | -0.500  | 0.518 | 2.500   |          | 0.648 | C    |          |
| Qw46  | 1.00 | -0.734  | 0.518 | 3.000   |          | 1.141 | I    | 20.1     |
| Qw47  | 1.00 | -0.588  | 0.518 | 2.500   |          | 0.761 | I    | 9.4      |
| Qw48  | 1.00 | -0.734  | 0.518 | 5.550   |          | 2.110 | I    | 20.1     |
| Qw49  | 1.00 | -0.500  | 0.518 | 5.550   |          | 1.437 | I    | 20.1     |

**SNEEUW DAKTYPEN**

| Staaf | artikel         |
|-------|-----------------|
| 11-11 | 5.3.3 Zadel dak |
| 8-10  | 5.3.3 Zadel dak |
| 6-12  | 5.3.3 Zadel dak |

**Sneeuw indexen**

| Index | art   | $\mu$ | $s_k$ | red. posfac | breedte | $Q_s$ | hoek |
|-------|-------|-------|-------|-------------|---------|-------|------|
| Qs1   | 5.3.3 | 0.800 | 0.53  | 1.00        | 3.000   | 1.261 | 20.1 |
| Qs2   | 5.3.3 | 0.800 | 0.53  | 1.00        | 5.550   | 2.333 | 20.1 |
| Qs3   | 5.3.3 | 0.800 | 0.53  | 1.00        | 2.500   | 1.051 | 9.4  |
| Qs4   | 5.3.3 | 0.400 | 0.53  | 1.00        | 3.000   | 0.631 | 20.1 |
| Qs5   | 5.3.3 | 0.400 | 0.53  | 1.00        | 2.500   | 0.526 | 9.4  |
| Qs6   | 5.3.3 | 0.400 | 0.53  | 1.00        | 5.550   | 1.167 | 20.1 |

**BELASTINGGEVALLEN**

| B.G. | Omschrijving                     | Type |
|------|----------------------------------|------|
|      | 1 Permanente belasting EGZ=-1.00 | 1    |
| g    | 2 Ver. bel. pers. ed. (p_rep)    | 2    |
| g    | 3 Ver. bel. pers. ed. (F_rep)    | 3    |
| g    | 4 Wind van links onderdruk A     | 7    |
| g    | 5 Wind van links overdruk A      | 8    |
| g    | 6 Wind van links onderdruk B     | 9    |
| g    | 7 Wind van links overdruk B      | 10   |
| g    | 8 Wind van links onderdruk C     | 37   |
| g    | 9 Wind van links overdruk C      | 38   |
| g    | 10 Wind van links onderdruk D    | 39   |
| g    | 11 Wind van links overdruk D     | 40   |
| g    | 12 Wind van rechts onderdruk A   | 11   |
| g    | 13 Wind van rechts overdruk A    | 12   |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGGEVALLEN**

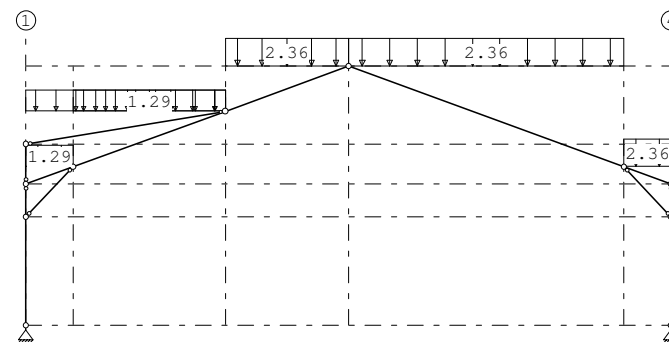
| B.G. | Omschrijving                   | Type |
|------|--------------------------------|------|
| g    | 14 Wind van rechts onderdruk B | 13   |
| g    | 15 Wind van rechts overdruk B  | 14   |
| g    | 16 Wind loodrecht onderdruk A  | 15   |
| g    | 17 Wind loodrecht overdruk A   | 16   |
| g    | 18 Wind loodrecht onderdruk B  | 45   |
| g    | 19 Wind loodrecht overdruk B   | 46   |
| g    | 20 Sneeuw A                    | 22   |
| g    | 21 Sneeuw B                    | 23   |
| g    | 22 Sneeuw C                    | 33   |

g = gegenereerd belastinggeval

**BELASTINGEN**

B.G:1 Permanente belasting

Eigen gewicht van alle staven is meegenomen in berekening. Richting:↓

**STAAFBELASTINGEN**

B.G:1 Permanente belasting

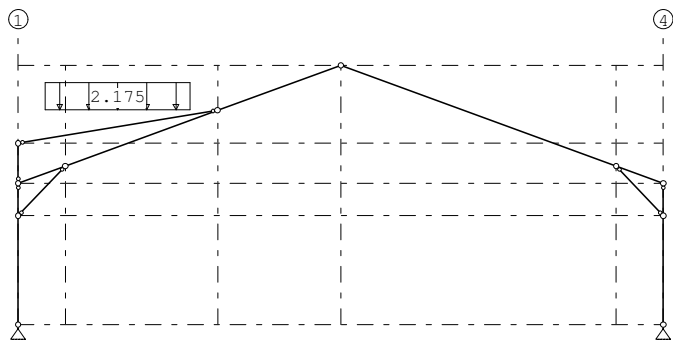
| Staaf | Type        | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-------|-------------|--------|-------|-------|-------|----------|----------|----------|
| 6     | 3:QZgeProj. | -1.29  | -1.29 | 0.000 | 0.000 |          |          |          |
| 7     | 3:QZgeProj. | -1.29  | -1.29 | 0.000 | 0.000 |          |          |          |
| 8     | 3:QZgeProj. | -2.36  | -2.36 | 0.000 | 0.000 |          |          |          |
| 10    | 3:QZgeProj. | -2.36  | -2.36 | 0.000 | 0.000 |          |          |          |
| 12    | 3:QZgeProj. | -2.36  | -2.36 | 0.000 | 0.000 |          |          |          |
| 11    | 3:QZgeProj. | -1.08  | -1.08 | 0.000 | 0.000 |          |          |          |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:2 Ver. bel. pers. ed. (p\_rep)

**STAAFBELASTINGEN**

B.G:2 Ver. bel. pers. ed. (p\_rep)

| Staaft Type    | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|----------------|--------|-------|-------|-------|----------|----------|----------|
| 11 3:QZgeProj. | -2.17  | -2.17 | 0.750 | 0.750 | 0.0      | 0.0      | 0.0      |

**SITUATIES BELAST/ONBELAST**

Belastingtype: P-rep

| Nr Lastvelden belast | Lastvelden onbelast |
|----------------------|---------------------|
| 1 2,4-6              | 1,3                 |
| 2 1,3-6              | 2                   |
| 3 2-6                | 1                   |
| 4 1,2,4-6            | 3                   |
| 5 1-3,5,6            | 4                   |
| 6 1-4,6              | 5                   |
| 7 1-6                |                     |

**SITUATIES EXTREME VERDIEPINGSVLOEREN**

Belastingtype: P-rep

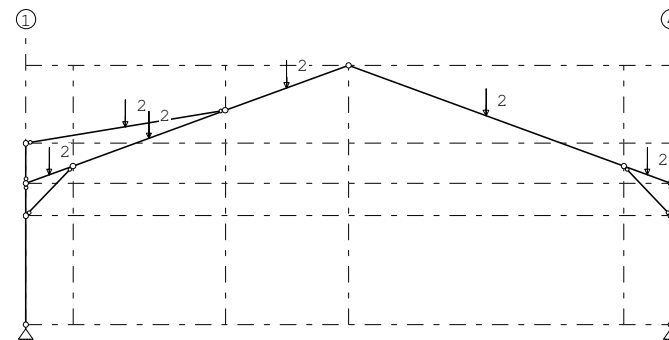
| Nr Verdieping extreem belast | Verdieping *Psi0 belast |
|------------------------------|-------------------------|
| 1 0,1                        | 2                       |
| 2 0,2                        | 1                       |
| 3 1,2                        | 0                       |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:3 Ver. bel. pers. ed. (F-rep)

**STAAFBELASTINGEN**

B.G:3 Ver. bel. pers. ed. (F-rep)

| Staaft Type      | q1/p/m | q2 | A     | B | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|------------------|--------|----|-------|---|----------|----------|----------|
| 6 10:PZGepro.j.  | -2.00  |    | 0.692 |   | 0.0      | 0.0      | 0.0      |
| 7 10:PZGepro.j.  | -2.00  |    | 2.236 |   | 0.0      | 0.0      | 0.0      |
| 12 10:PZGepro.j. | -2.00  |    | 1.810 |   | 0.0      | 0.0      | 0.0      |
| 8 10:PZGepro.j.  | -2.00  |    | 4.045 |   | 0.0      | 0.0      | 0.0      |
| 10 10:PZGepro.j. | -2.00  |    | 0.692 |   | 0.0      | 0.0      | 0.0      |
| 11 10:PZGepro.j. | -2.00  |    | 2.787 |   | 0.0      | 0.0      | 0.0      |

**SITUATIES BELAST/ONBELAST**

Belastingtype: F-rep

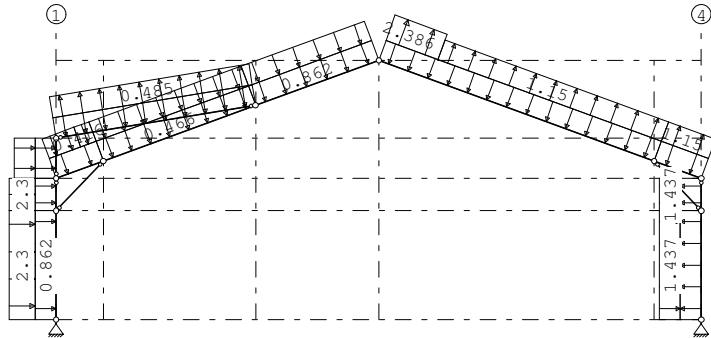
| Nr Lastvelden belast | Lastvelden onbelast |
|----------------------|---------------------|
| 1 1,4-6              | 2,3                 |
| 2 2,4-6              | 1,3                 |
| 3 3-6                | 1,2                 |
| 4 1-4,6              | 5                   |
| 5 1-3,5,6            | 4                   |
| 6 1-6                |                     |
| 7 1-5                | 6                   |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:4 Wind van links onderdruk A

**STAAFBELASTINGEN**

B.G:4 Wind van links onderdruk A

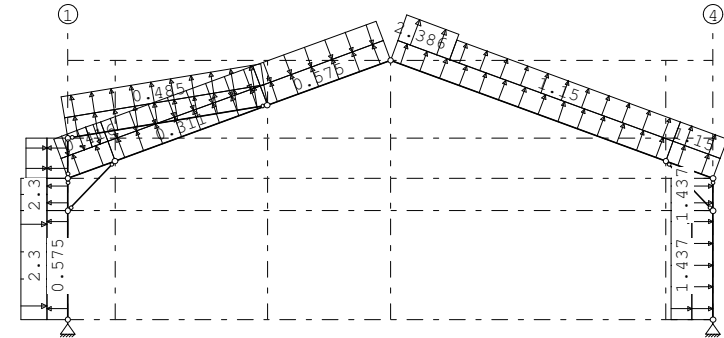
| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13        | 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13        | 1:QZLokaal | Qw5   | -1.04  | -1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal |       | -0.00  | -0.00 | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw6   | -0.57  | -0.57 | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw7   | -0.42  | -0.42 | 0.931 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw8   | 0.48   | 0.48  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw9   | -0.25  | -0.25 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw10  | -0.46  | -0.46 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw11  | 2.39   | 2.39  | 0.000 | 6.569 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw12  | 1.15   | 1.15  | 1.522 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw12  | 1.15   | 1.15  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:5 Wind van links overdruk A

**STAAFBELASTINGEN**

B.G:5 Wind van links overdruk A

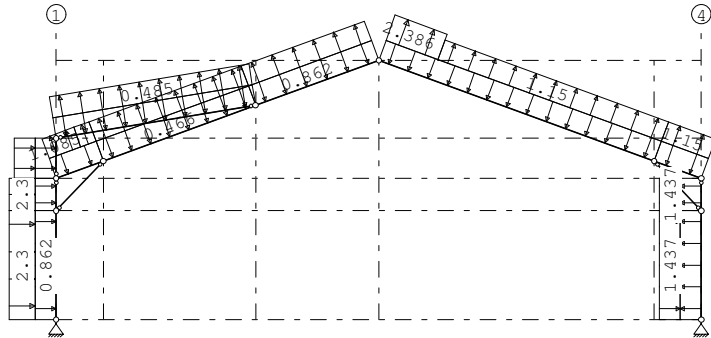
| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13        | 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13        | 1:QZLokaal | Qw5   | -1.04  | -1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal |       | -0.00  | -0.00 | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw6   | -0.57  | -0.57 | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw7   | -0.42  | -0.42 | 0.931 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw8   | 0.48   | 0.48  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw9   | -0.25  | -0.25 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw10  | -0.46  | -0.46 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw11  | 2.39   | 2.39  | 0.000 | 6.569 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw12  | 1.15   | 1.15  | 1.522 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw12  | 1.15   | 1.15  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:6 Wind van links onderdruk B

**STAAFBELASTINGEN**

B.G:6 Wind van links onderdruk B

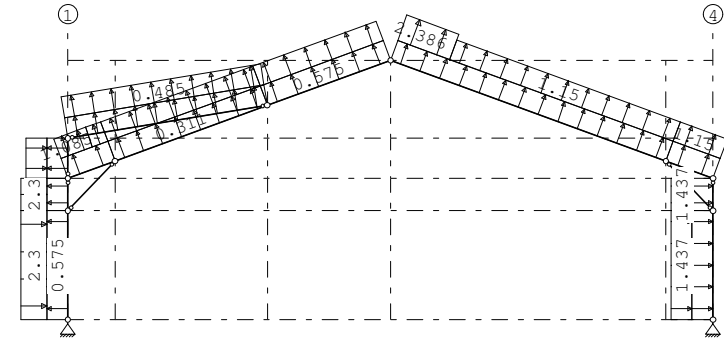
| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13        | 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13        | 1:QZLokaal | Qw5   | -1.04  | -1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal |       | 0.00   | 0.00  | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw17  | 1.08   | 1.08  | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw18  | 0.41   | 0.41  | 0.931 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw8   | 0.48   | 0.48  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw19  | 0.25   | 0.25  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw20  | 0.46   | 0.46  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw11  | 2.39   | 2.39  | 0.000 | 6.569 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw12  | 1.15   | 1.15  | 1.522 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw12  | 1.15   | 1.15  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:7 Wind van links overdruk B

**STAAFBELASTINGEN**

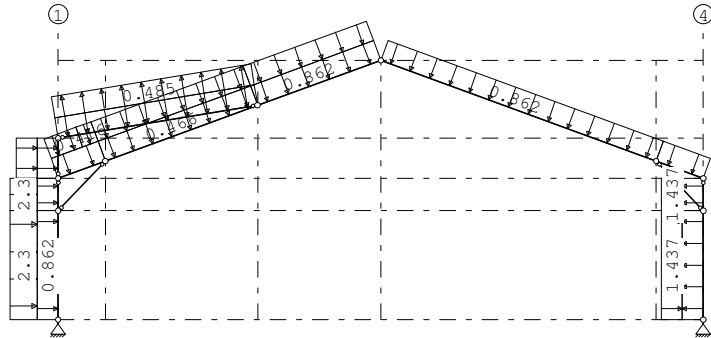
B.G:7 Wind van links overdruk B

| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13        | 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13        | 1:QZLokaal | Qw5   | -1.04  | -1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal |       | 0.00   | 0.00  | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw17  | 1.08   | 1.08  | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw18  | 0.41   | 0.41  | 0.931 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw8   | 0.48   | 0.48  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw19  | 0.25   | 0.25  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw20  | 0.46   | 0.46  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw11  | 2.39   | 2.39  | 0.000 | 6.569 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw12  | 1.15   | 1.15  | 1.522 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw12  | 1.15   | 1.15  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel....: Hoofdspant - as H

## BELASTINGEN

B.G:8 Wind van links onderdruk C



## STAAFBELASTINGEN

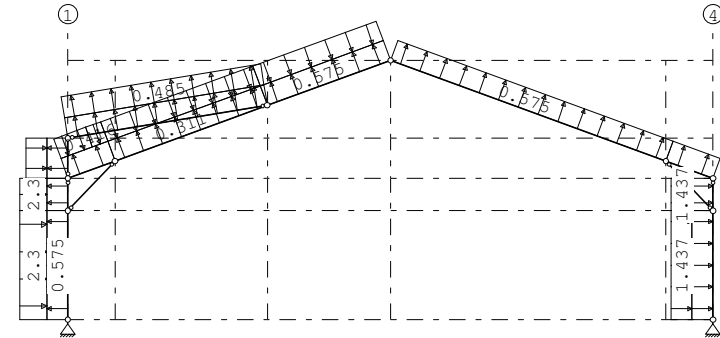
B.G:8 Wind van links onderdruk C

| Staaf | Type       | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13    | 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6     | 1:QZLokaal | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11    | 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7     | 1:QZLokaal | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10    | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1     | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2     | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13    | 1:QZLokaal | Qw5   | -1.04  | -1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6     | 1:QZLokaal |       | -0.00  | -0.00 | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6     | 1:QZLokaal | Qw6   | -0.57  | -0.57 | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6     | 1:QZLokaal | Qw7   | -0.42  | -0.42 | 0.931 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11    | 1:QZLokaal | Qw8   | 0.48   | 0.48  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7     | 1:QZLokaal | Qw9   | -0.25  | -0.25 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw10  | -0.46  | -0.46 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4     | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3     | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel....: Hoofdspant - as H

## BELASTINGEN

B.G:9 Wind van links overdruk C



## STAAFBELASTINGEN

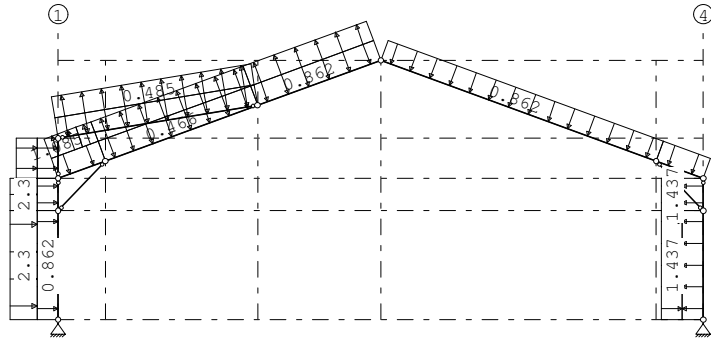
B.G:9 Wind van links overdruk C

| Staa | Type       | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1    | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2    | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13   | 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6    | 1:QZLokaal | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11   | 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7    | 1:QZLokaal | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12   | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8    | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10   | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4    | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3    | 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1    | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2    | 1:QZLokaal | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13   | 1:QZLokaal | Qw5   | -1.04  | -1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6    | 1:QZLokaal |       | -0.00  | -0.00 | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6    | 1:QZLokaal | Qw6   | -0.57  | -0.57 | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6    | 1:QZLokaal | Qw7   | -0.42  | -0.42 | 0.931 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11   | 1:QZLokaal | Qw8   | 0.48   | 0.48  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7    | 1:QZLokaal | Qw9   | -0.25  | -0.25 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12   | 1:QZLokaal | Qw10  | -0.46  | -0.46 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4    | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3    | 1:QZLokaal | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:10 Wind van links onderdruk D

**STAAFBELASTINGEN**

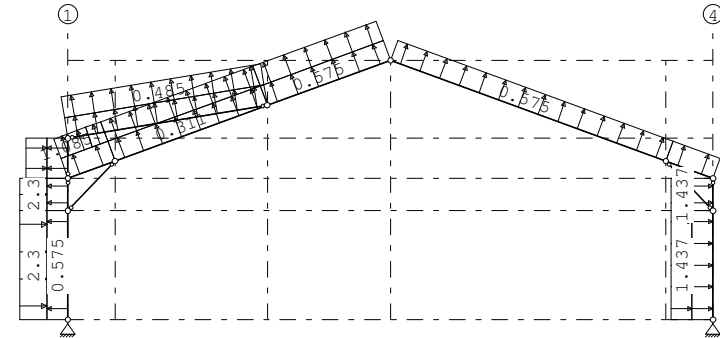
B.G:10 Wind van links onderdruk D

| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw5   | -1.04  | -1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  |       | 0.00   | 0.00  | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw17  | 1.08   | 1.08  | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw18  | 0.41   | 0.41  | 0.931 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw8   | 0.48   | 0.48  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw19  | 0.25   | 0.25  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw20  | 0.46   | 0.46  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:11 Wind van links overdruk D

**STAAFBELASTINGEN**

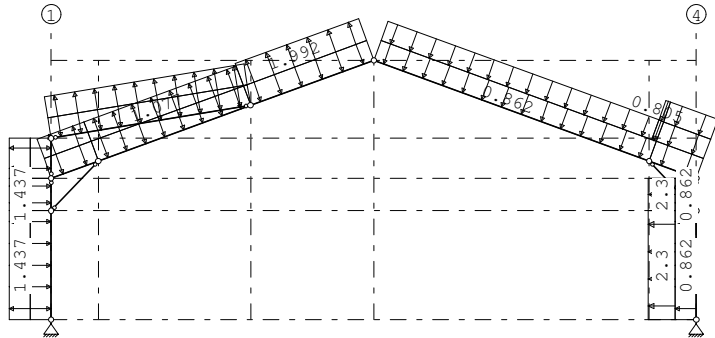
B.G:11 Wind van links overdruk D

| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw5   | -1.04  | -1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  |       | 0.00   | 0.00  | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw17  | 1.08   | 1.08  | 0.000 | 0.453 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw18  | 0.41   | 0.41  | 0.931 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw8   | 0.48   | 0.48  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw19  | 0.25   | 0.25  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw20  | 0.46   | 0.46  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:12 Wind van rechts onderdruk A

**STAAFBELASTINGEN**

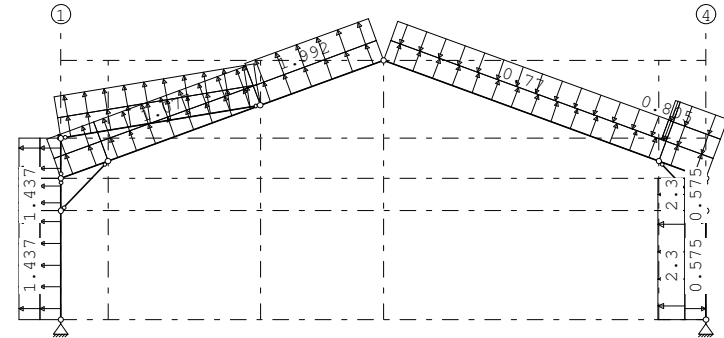
B.G:12 Wind van rechts onderdruk A

| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw21  | -0.26  | -0.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw22  | -0.80  | -0.80 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw21  | -0.26  | -0.26 | 7.952 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw22  | -0.80  | -0.80 | 7.952 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw23  | -0.77  | -0.77 | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw24  | 1.99   | 1.99  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw25  | 1.08   | 1.08  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw26  | 0.66   | 0.66  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw27  | 0.81   | 0.81  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw28  | 0.65   | 0.65  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:13 Wind van rechts overdruk A

**STAAFBELASTINGEN**

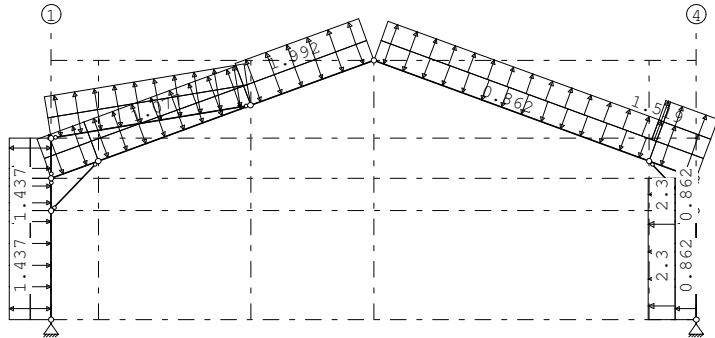
B.G:13 Wind van rechts overdruk A

| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw21  | -0.26  | -0.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw22  | -0.80  | -0.80 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw21  | -0.26  | -0.26 | 7.952 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw22  | -0.80  | -0.80 | 7.952 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw23  | -0.77  | -0.77 | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw24  | 1.99   | 1.99  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw25  | 1.08   | 1.08  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw26  | 0.66   | 0.66  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw27  | 0.81   | 0.81  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw28  | 0.65   | 0.65  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:14 Wind van rechts onderdruk B

**STAAFBELASTINGEN**

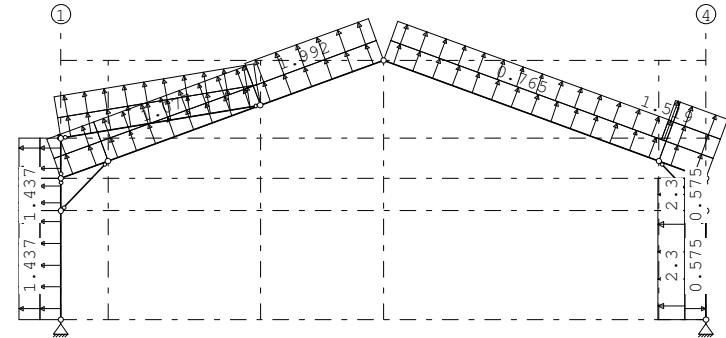
B.G:14 Wind van rechts onderdruk B

| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw29  | 0.53   | 0.53  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw30  | 1.52   | 1.52  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw29  | 0.53   | 0.53  | 7.952 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw30  | 1.52   | 1.52  | 7.952 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw31  | 0.76   | 0.76  | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw24  | 1.99   | 1.99  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw25  | 1.08   | 1.08  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw26  | 0.66   | 0.66  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw27  | 0.81   | 0.81  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw28  | 0.65   | 0.65  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:15 Wind van rechts overdruk B

**STAAFBELASTINGEN**

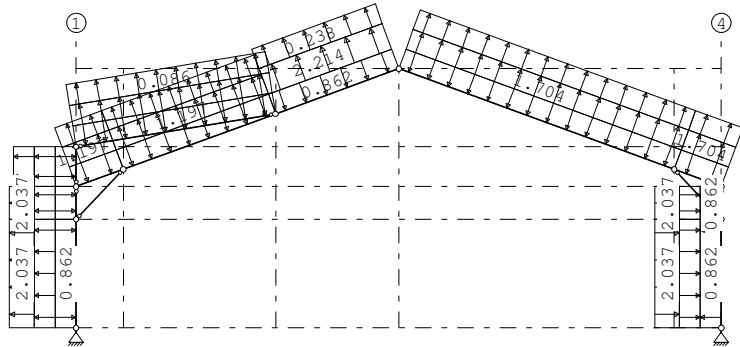
B.G:15 Wind van rechts overdruk B

| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw15  | 0.26   | 0.26  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw16  | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw14  | 0.57   | 0.57  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw4   | -2.30  | -2.30 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw29  | 0.53   | 0.53  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw30  | 1.52   | 1.52  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw29  | 0.53   | 0.53  | 7.952 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw30  | 1.52   | 1.52  | 7.952 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw31  | 0.76   | 0.76  | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw24  | 1.99   | 1.99  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw25  | 1.08   | 1.08  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw26  | 0.66   | 0.66  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw27  | 0.81   | 0.81  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw28  | 0.65   | 0.65  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw13  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel....: Hoofdspant - as H

## BELASTINGEN

B.G:16 Wind loodrecht onderdruk A



## STAAFBELASTINGEN

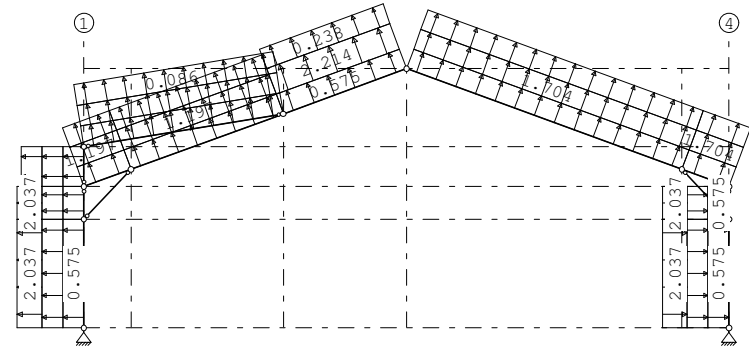
B.G:16 Wind loodrecht onderdruk A

| Staaf | Type       | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|-------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13    | 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6     | 1:QZLokaal | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11    | 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7     | 1:QZLokaal | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10    | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3     | 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1     | 1:QZLokaal | Qw32  | 0.39   | 0.39  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1     | 1:QZLokaal | Qw33  | 2.04   | 2.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2     | 1:QZLokaal | Qw32  | 0.39   | 0.39  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2     | 1:QZLokaal | Qw33  | 2.04   | 2.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13    | 1:QZLokaal | Qw34  | 0.18   | 0.18  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13    | 1:QZLokaal | Qw35  | 0.92   | 0.92  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4     | 1:QZLokaal | Qw32  | 0.39   | 0.39  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4     | 1:QZLokaal | Qw33  | 2.04   | 2.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3     | 1:QZLokaal | Qw32  | 0.39   | 0.39  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3     | 1:QZLokaal | Qw33  | 2.04   | 2.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6     | 1:QZLokaal | Qw36  | 1.20   | 1.20  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6     | 1:QZLokaal | Qw37  | 0.13   | 0.13  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11    | 1:QZLokaal | Qw38  | 0.79   | 0.79  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11    | 1:QZLokaal | Qw39  | 0.09   | 0.09  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7     | 1:QZLokaal | Qw36  | 1.20   | 1.20  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7     | 1:QZLokaal | Qw37  | 0.13   | 0.13  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw40  | 2.21   | 2.21  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw41  | 0.24   | 0.24  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8     | 1:QZLokaal | Qw42  | 1.70   | 1.70  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8     | 1:QZLokaal | Qw43  | 0.16   | 0.16  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10    | 1:QZLokaal | Qw42  | 1.70   | 1.70  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10    | 1:QZLokaal | Qw43  | 0.16   | 0.16  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel....: Hoofdspan - as H

## BELASTINGEN

B.G:17 Wind loodrecht overdruk A



## STAAFBELASTINGEN

B.G:17 Wind loodrecht overdruk A

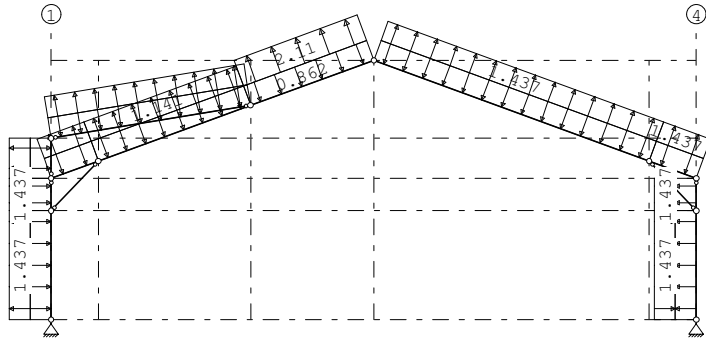
| Staaft | Type       | Index | q1/p/m | q2   | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|--------|------------|-------|--------|------|-------|-------|----------|----------|----------|
| 1      | 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2      | 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13     | 1:QZLokaal | Qw15  | 0.26   | 0.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6      | 1:QZLokaal | Qw16  | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11     | 1:QZLokaal | Qw15  | 0.26   | 0.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7      | 1:QZLokaal | Qw16  | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12     | 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8      | 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10     | 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4      | 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3      | 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1      | 1:QZLokaal | Qw32  | 0.39   | 0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1      | 1:QZLokaal | Qw33  | 2.04   | 2.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2      | 1:QZLokaal | Qw32  | 0.39   | 0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2      | 1:QZLokaal | Qw33  | 2.04   | 2.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13     | 1:QZLokaal | Qw34  | 0.18   | 0.18 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13     | 1:QZLokaal | Qw35  | 0.92   | 0.92 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4      | 1:QZLokaal | Qw32  | 0.39   | 0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4      | 1:QZLokaal | Qw33  | 2.04   | 2.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3      | 1:QZLokaal | Qw32  | 0.39   | 0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3      | 1:QZLokaal | Qw33  | 2.04   | 2.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6      | 1:QZLokaal | Qw36  | 1.20   | 1.20 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6      | 1:QZLokaal | Qw37  | 0.13   | 0.13 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11     | 1:QZLokaal | Qw38  | 0.79   | 0.79 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11     | 1:QZLokaal | Qw39  | 0.09   | 0.09 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7      | 1:QZLokaal | Qw36  | 1.20   | 1.20 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7      | 1:QZLokaal | Qw37  | 0.13   | 0.13 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12     | 1:QZLokaal | Qw40  | 2.21   | 2.21 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12     | 1:QZLokaal | Qw41  | 0.24   | 0.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8      | 1:QZLokaal | Qw42  | 1.70   | 1.70 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8      | 1:QZLokaal | Qw43  | 0.16   | 0.16 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10     | 1:QZLokaal | Qw42  | 1.70   | 1.70 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10     | 1:QZLokaal | Qw43  | 0.16   | 0.16 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:18 Wind loodrecht onderdruk B

**STAAFBELASTINGEN**

B.G:18 Wind loodrecht onderdruk B

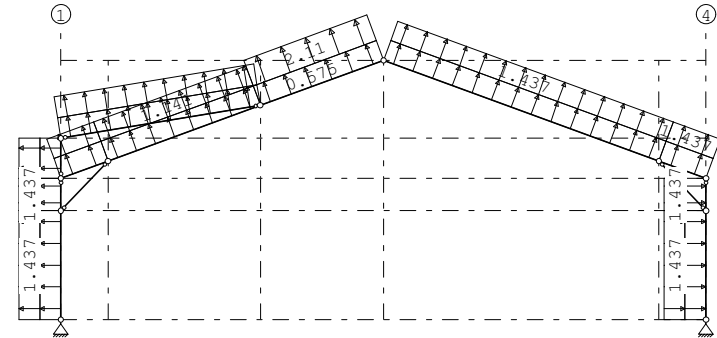
| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw2   | -0.39  | -0.39 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw3   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.86  | -0.86 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw44  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw44  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw45  | 0.65   | 0.65  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw44  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw44  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw46  | 1.14   | 1.14  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw47  | 0.76   | 0.76  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw46  | 1.14   | 1.14  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw48  | 2.11   | 2.11  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw49  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw49  | 1.44   | 1.44  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BELASTINGEN**

B.G:19 Wind loodrecht overdruk B

**STAAFBELASTINGEN**

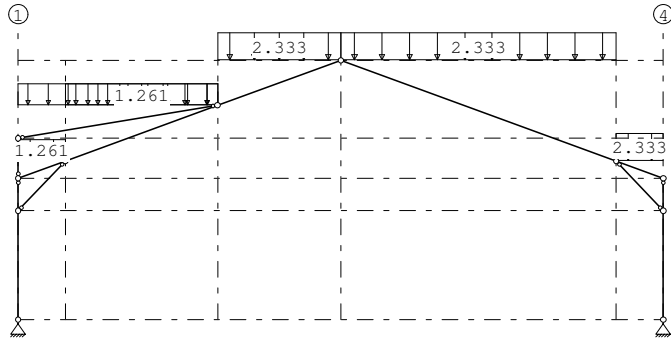
B.G:19 Wind loodrecht overdruk B

| Staaftype     | Index | q1/p/m | q2   | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw15  | 0.26   | 0.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw16  | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw15  | 0.26   | 0.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw16  | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw14  | 0.57   | 0.57 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw44  | 1.44   | 1.44 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw44  | 1.44   | 1.44 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 13 1:QZLokaal | Qw45  | 0.65   | 0.65 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw44  | 1.44   | 1.44 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw44  | 1.44   | 1.44 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw46  | 1.14   | 1.14 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw47  | 0.76   | 0.76 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw46  | 1.14   | 1.14 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw48  | 2.11   | 2.11 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw49  | 1.44   | 1.44 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw49  | 1.44   | 1.44 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loads  
Onderdeel.....: Hoofdspan - as H

**BELASTINGEN**

B.G:20 Sneeuw A

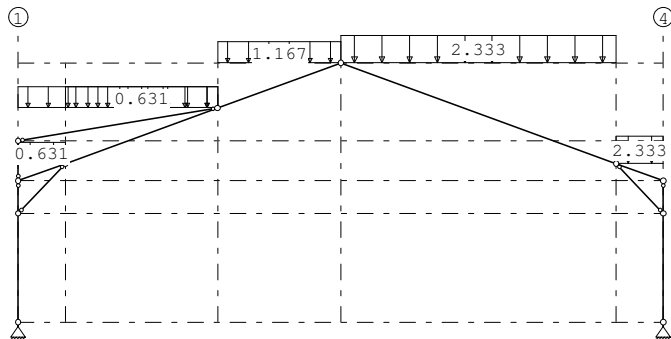
**STAAFBELASTINGEN**

B.G:20 Sneeuw A

| Staaftype      | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|----------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 6 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 3:QZgeProj.  | Qs2   | -2.33  | -2.33 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 3:QZgeProj. | Qs2   | -2.33  | -2.33 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 3:QZgeProj. | Qs3   | -1.05  | -1.05 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 3:QZgeProj. | Qs2   | -2.33  | -2.33 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**BELASTINGEN**

B.G:21 Sneeuw B



Project.....: 180170 - Uitbreiding loads  
Onderdeel.....: Hoofdspan - as H

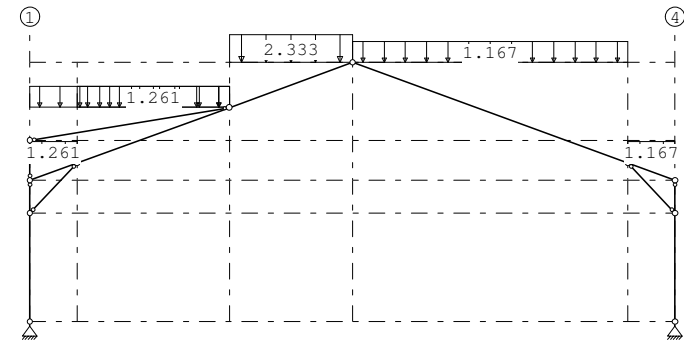
**STAAFBELASTINGEN**

B.G:21 Sneeuw B

| Staaftype      | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|----------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 6 3:QZgeProj.  | Qs4   | -0.63  | -0.63 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 3:QZgeProj.  | Qs4   | -0.63  | -0.63 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 3:QZgeProj.  | Qs2   | -2.33  | -2.33 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 3:QZgeProj. | Qs2   | -2.33  | -2.33 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 3:QZgeProj. | Qs5   | -0.53  | -0.53 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 3:QZgeProj. | Qs6   | -1.17  | -1.17 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**BELASTINGEN**

B.G:22 Sneeuw C

**STAAFBELASTINGEN**

B.G:22 Sneeuw C

| Staaftype      | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|----------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 6 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 3:QZgeProj.  | Qs6   | -1.17  | -1.17 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 3:QZgeProj. | Qs6   | -1.17  | -1.17 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 3:QZgeProj. | Qs3   | -1.05  | -1.05 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 3:QZgeProj. | Qs2   | -2.33  | -2.33 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**REACTIES**

1e orde

| Kn. | B.G. | X-min  | X-max | Z-min  | Z-max | M-min | M-max |
|-----|------|--------|-------|--------|-------|-------|-------|
| 1   | 1    | 13.72  |       | 27.97  |       |       |       |
| 1   | 2    | 0.00   | 1.52  | 0.00   | 7.36  |       |       |
| 1   | 3    | 1.23   | 2.52  | 3.53   | 7.07  |       |       |
| 1   | 4    | -12.89 |       | 0.92   |       |       |       |
| 1   | 5    | -15.67 |       | -11.82 |       |       |       |
| 1   | 6    | -13.28 |       | -3.59  |       |       |       |
| 1   | 7    | -16.05 |       | -16.33 |       |       |       |
| 1   | 8    | -7.39  |       | 5.71   |       |       |       |
| 1   | 9    | -10.16 |       | -7.03  |       |       |       |
| 1   | 10   | -7.78  |       | 1.19   |       |       |       |
| 1   | 11   | -10.55 |       | -11.55 |       |       |       |
| 1   | 12   | 9.69   |       | 1.87   |       |       |       |
| 1   | 13   | 6.92   |       | -10.87 |       |       |       |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**REACTIES**

1e orde

| Kn. | B.G. | X-min  | X-max | Z-min  | Z-max | M-min | M-max |
|-----|------|--------|-------|--------|-------|-------|-------|
| 1   | 14   | 3.32   |       | -3.38  |       |       |       |
| 1   | 15   | 0.54   |       | -16.12 |       |       |       |
| 1   | 16   | -0.75  |       | -11.20 |       |       |       |
| 1   | 17   | -3.52  |       | -23.94 |       |       |       |
| 1   | 18   | -1.61  |       | -8.14  |       |       |       |
| 1   | 19   | -4.38  |       | -20.88 |       |       |       |
| 1   | 20   | 11.14  |       | 20.67  |       |       |       |
| 1   | 21   | 8.39   |       | 12.93  |       |       |       |
| 1   | 22   | 8.32   |       | 18.07  |       |       |       |
|     |      |        |       |        |       |       |       |
| 5   | 1    | -13.72 |       | 26.83  |       |       |       |
| 5   | 2    | -1.52  | 0.00  | 0.00   | 1.34  |       |       |
| 5   | 3    | -2.52  | -1.23 | 3.00   | 4.93  |       |       |
| 5   | 4    | -7.95  |       | 3.02   |       |       |       |
| 5   | 5    | -5.21  |       | -9.76  |       |       |       |
| 5   | 6    | -5.00  |       | 0.50   |       |       |       |
| 5   | 7    | -2.25  |       | -12.27 |       |       |       |
| 5   | 8    | -9.07  |       | 10.24  |       |       |       |
| 5   | 9    | -6.33  |       | -2.54  |       |       |       |
| 5   | 10   | -6.12  |       | 7.72   |       |       |       |
| 5   | 11   | -3.37  |       | -5.05  |       |       |       |
| 5   | 12   | 13.37  |       | 4.77   |       |       |       |
| 5   | 13   | 16.12  |       | -8.01  |       |       |       |
| 5   | 14   | 13.93  |       | -5.91  |       |       |       |
| 5   | 15   | 16.68  |       | -18.68 |       |       |       |
| 5   | 16   | 2.41   |       | -10.55 |       |       |       |
| 5   | 17   | 5.16   |       | -23.32 |       |       |       |
| 5   | 18   | 3.27   |       | -6.98  |       |       |       |
| 5   | 19   | 6.01   |       | -19.76 |       |       |       |
| 5   | 20   | -11.14 |       | 20.75  |       |       |       |
| 5   | 21   | -8.39  |       | 18.16  |       |       |       |
| 5   | 22   | -8.32  |       | 12.96  |       |       |       |

**BEREKENINGSTATUS**

Controlerende berekening

| B.C. | Iteratie | Status                 |
|------|----------|------------------------|
| 1    | 3        | Nauwkeurigheid bereikt |
| 2    | 3        | Nauwkeurigheid bereikt |
| 3    | 3        | Nauwkeurigheid bereikt |
| 4    | 3        | Nauwkeurigheid bereikt |
| 5    | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 6    | 3        | Nauwkeurigheid bereikt |
| 7    | 3        | Nauwkeurigheid bereikt |
| 8    | 3        | Nauwkeurigheid bereikt |
| 9    | 3        | Nauwkeurigheid bereikt |
| 10   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 11   | 3        | Nauwkeurigheid bereikt |
| 12   | 3        | Nauwkeurigheid bereikt |
| 13   | 3        | Nauwkeurigheid bereikt |
| 14   | 3        | Nauwkeurigheid bereikt |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Hoofdspant - as H

**BEREKENINGSTATUS**

Controlerende berekening

| B.C. | Iteratie | Status                 |
|------|----------|------------------------|
| 15   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 16   | 3        | Nauwkeurigheid bereikt |
| 17   | 3        | Nauwkeurigheid bereikt |
| 18   | 3        | Nauwkeurigheid bereikt |
| 19   | 3        | Nauwkeurigheid bereikt |
| 20   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 21   | 3        | Nauwkeurigheid bereikt |
| 22   | 3        | Nauwkeurigheid bereikt |
| 23   | 3        | Nauwkeurigheid bereikt |
| 24   | 3        | Nauwkeurigheid bereikt |
| 25   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 26   | 3        | Nauwkeurigheid bereikt |
| 27   | 3        | Nauwkeurigheid bereikt |
| 28   | 3        | Nauwkeurigheid bereikt |
| 29   | 3        | Nauwkeurigheid bereikt |
| 30   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 31   | 3        | Nauwkeurigheid bereikt |
| 32   | 3        | Nauwkeurigheid bereikt |
| 33   | 3        | Nauwkeurigheid bereikt |
| 34   | 3        | Nauwkeurigheid bereikt |
| 35   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 36   | 3        | Nauwkeurigheid bereikt |
| 37   | 3        | Nauwkeurigheid bereikt |
| 38   | 3        | Nauwkeurigheid bereikt |
| 39   | 3        | Nauwkeurigheid bereikt |
| 40   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 41   | 3        | Nauwkeurigheid bereikt |
| 42   | 3        | Nauwkeurigheid bereikt |
| 43   | 3        | Nauwkeurigheid bereikt |
| 44   | 3        | Nauwkeurigheid bereikt |
| 45   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 46   | 3        | Nauwkeurigheid bereikt |
| 47   | 3        | Nauwkeurigheid bereikt |
| 48   | 3        | Nauwkeurigheid bereikt |
| 49   | 3        | Nauwkeurigheid bereikt |
| 50   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 51   | 3        | Nauwkeurigheid bereikt |
| 52   | 3        | Nauwkeurigheid bereikt |
| 53   | 3        | Nauwkeurigheid bereikt |
| 54   | 3        | Nauwkeurigheid bereikt |
| 55   | 3        | Nauwkeurigheid bereikt |
|      |          |                        |
| 56   | 3        | Nauwkeurigheid bereikt |
| 57   | 3        | Nauwkeurigheid bereikt |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Hoofdspant - as H

**BEREKENINGSTATUS**

Controlerende berekening

B.C. Iteratie Status

|    |   |                        |
|----|---|------------------------|
| 58 | 3 | Nauwkeurigheid bereikt |
| 59 | 3 | Nauwkeurigheid bereikt |
| 60 | 3 | Nauwkeurigheid bereikt |
| 61 | 3 | Nauwkeurigheid bereikt |
| 62 | 2 | Nauwkeurigheid bereikt |
| 63 | 3 | Nauwkeurigheid bereikt |
| 64 | 3 | Nauwkeurigheid bereikt |
| 65 | 3 | Nauwkeurigheid bereikt |
| 66 | 3 | Nauwkeurigheid bereikt |
| 67 | 3 | Nauwkeurigheid bereikt |
| 68 | 3 | Nauwkeurigheid bereikt |
| 69 | 3 | Nauwkeurigheid bereikt |
| 70 | 3 | Nauwkeurigheid bereikt |
| 71 | 3 | Nauwkeurigheid bereikt |
| 72 | 3 | Nauwkeurigheid bereikt |
| 73 | 3 | Nauwkeurigheid bereikt |
| 74 | 3 | Nauwkeurigheid bereikt |
| 75 | 3 | Nauwkeurigheid bereikt |
| 76 | 3 | Nauwkeurigheid bereikt |
| 77 | 3 | Nauwkeurigheid bereikt |
| 78 | 3 | Nauwkeurigheid bereikt |
| 79 | 3 | Nauwkeurigheid bereikt |
| 80 | 3 | Nauwkeurigheid bereikt |
| 81 | 3 | Nauwkeurigheid bereikt |
| 82 | 3 | Nauwkeurigheid bereikt |
| 83 | 3 | Nauwkeurigheid bereikt |
| 84 | 3 | Nauwkeurigheid bereikt |
| 85 | 3 | Nauwkeurigheid bereikt |
| 86 | 3 | Nauwkeurigheid bereikt |
| 87 | 3 | Nauwkeurigheid bereikt |

**BELASTINGCOMBINATIES**

BC Type

|          |      |           |   |                 |
|----------|------|-----------|---|-----------------|
| 1 Fund.  | 1.22 | $G_{k,1}$ |   |                 |
| 2 Fund.  | 0.90 | $G_{k,1}$ |   |                 |
| 3 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,2}$  |
| 4 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,3}$  |
| 5 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,4}$  |
| 6 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,5}$  |
| 7 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,6}$  |
| 8 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,7}$  |
| 9 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,8}$  |
| 10 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,9}$  |
| 11 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,10}$ |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Hoofdspant - as H

**BELASTINGCOMBINATIES**

BC Type

|          |      |           |   |                 |
|----------|------|-----------|---|-----------------|
| 12 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,11}$ |
| 13 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,12}$ |
| 14 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,13}$ |
| 15 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,14}$ |
| 16 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,15}$ |
| 17 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,16}$ |
| 18 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,17}$ |
| 19 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,18}$ |
| 20 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,19}$ |
| 21 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,20}$ |
| 22 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,21}$ |
| 23 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,22}$ |
| 24 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,2}$  |
| 25 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,3}$  |
| 26 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,4}$  |
| 27 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,5}$  |
| 28 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,6}$  |
| 29 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,7}$  |
| 30 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,8}$  |
| 31 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,9}$  |
| 32 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,10}$ |
| 33 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,11}$ |
| 34 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,12}$ |
| 35 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,13}$ |
| 36 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,14}$ |
| 37 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,15}$ |
| 38 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,16}$ |
| 39 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,17}$ |
| 40 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,18}$ |
| 41 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,19}$ |
| 42 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,20}$ |
| 43 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,21}$ |
| 44 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,22}$ |
| 45 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,2}$  |
| 46 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,3}$  |
| 47 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,4}$  |
| 48 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,5}$  |
| 49 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,6}$  |
| 50 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,7}$  |
| 51 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,8}$  |
| 52 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,9}$  |
| 53 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,10}$ |
| 54 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,11}$ |
| 55 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,12}$ |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Hoofdspant - as H

**BELASTINGCOMBINATIES**

| BC Type  |      |           |   |                        |
|----------|------|-----------|---|------------------------|
| 56 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,13}$        |
| 57 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,14}$        |
| 58 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,15}$        |
| 59 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,16}$        |
| 60 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,17}$        |
| 61 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,18}$        |
| 62 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,19}$        |
| 63 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,20}$        |
| 64 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,21}$        |
| 65 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,22}$        |
| 66 Quas. | 1.00 | $G_{k,1}$ |   |                        |
| 67 Freq. | 1.00 | $G_{k,1}$ |   |                        |
| 68 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,4}$  |
| 69 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,5}$  |
| 70 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,6}$  |
| 71 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,7}$  |
| 72 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,8}$  |
| 73 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,9}$  |
| 74 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,10}$ |
| 75 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,11}$ |
| 76 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,12}$ |
| 77 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,13}$ |
| 78 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,14}$ |
| 79 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,15}$ |
| 80 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,16}$ |
| 81 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,17}$ |
| 82 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,18}$ |
| 83 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,19}$ |
| 84 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,20}$ |
| 85 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,21}$ |
| 86 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 $\Psi_1 Q_{k,22}$ |
| 87 Blij. | 1.00 | $G_{k,1}$ |   |                        |

**GUNSTIGE WERKING PERMANENTE BELASTINGEN**

| BC Staven met gunstige werking |                            |
|--------------------------------|----------------------------|
| 1                              | Geen                       |
| 2                              | Alle staven de factor:0.90 |
| 3                              | Geen                       |
| 4                              | Geen                       |
| 5                              | Geen                       |
| 6                              | Geen                       |
| 7                              | Geen                       |
| 8                              | Geen                       |
| 9                              | Geen                       |
| 10                             | Geen                       |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Hoofdspant - as H

**GUNSTIGE WERKING PERMANENTE BELASTINGEN**

| BC Staven met gunstige werking |                            |
|--------------------------------|----------------------------|
| 11                             | Geen                       |
| 12                             | Geen                       |
| 13                             | Geen                       |
| 14                             | Geen                       |
| 15                             | Geen                       |
| 16                             | Geen                       |
| 17                             | Geen                       |
| 18                             | Geen                       |
| 19                             | Geen                       |
| 20                             | Geen                       |
| 21                             | Geen                       |
| 22                             | Geen                       |
| 23                             | Geen                       |
| 24                             | Alle staven de factor:0.90 |
| 25                             | Alle staven de factor:0.90 |
| 26                             | Alle staven de factor:0.90 |
| 27                             | Alle staven de factor:0.90 |
| 28                             | Alle staven de factor:0.90 |
| 29                             | Alle staven de factor:0.90 |
| 30                             | Alle staven de factor:0.90 |
| 31                             | Alle staven de factor:0.90 |
| 32                             | Alle staven de factor:0.90 |
| 33                             | Alle staven de factor:0.90 |
| 34                             | Alle staven de factor:0.90 |
| 35                             | Alle staven de factor:0.90 |
| 36                             | Alle staven de factor:0.90 |
| 37                             | Alle staven de factor:0.90 |
| 38                             | Alle staven de factor:0.90 |
| 39                             | Alle staven de factor:0.90 |
| 40                             | Alle staven de factor:0.90 |
| 41                             | Alle staven de factor:0.90 |
| 42                             | Alle staven de factor:0.90 |
| 43                             | Alle staven de factor:0.90 |
| 44                             | Alle staven de factor:0.90 |

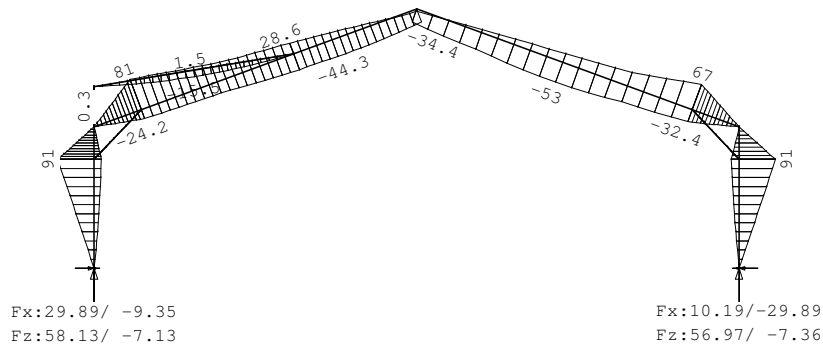
Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

## OMHULLENDE VAN DE FUNDAMENTELE COMBINATIES

### MOMENTEN

2e orde

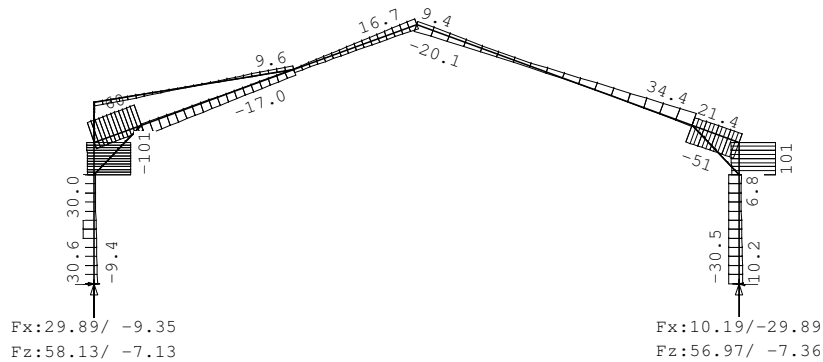
Fundamentele combinatie



### DWARSKRACHTEN

2e orde

Fundamentele combinatie

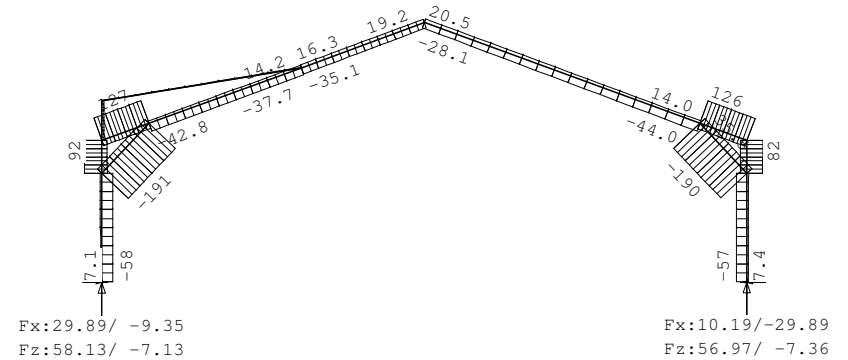


Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Hoofdspant - as H

## NORMAALKRACHTEN

2e orde

Fundamentele combinatie



## REACTIES

2e orde

Fundamentele combinatie

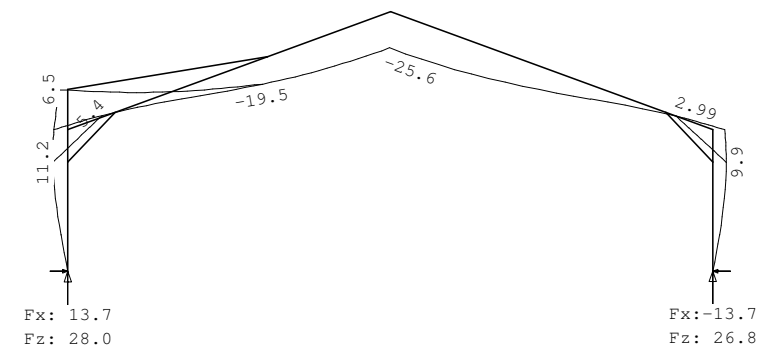
| Kn. | X-min  | X-max | Z-min | Z-max | M-min | M-max |
|-----|--------|-------|-------|-------|-------|-------|
| 1   | -9.35  | 29.89 | -7.13 | 58.13 |       |       |
| 5   | -29.89 | 10.19 | -7.36 | 56.97 |       |       |

## OMHULLENDE VAN DE BLIJVENDE COMBINATIES

### VERPLAATSINGEN

2e orde [mm]

Blijvende combinatie



STAALPROFIELEN - ALGEMENE GEGEVENS

|                                          |                                   |             |
|------------------------------------------|-----------------------------------|-------------|
| Stabiliteit:                             | Classificatie gehele constructie: | Ongeschoord |
| Doorbuiging en verplaatsing:             |                                   |             |
| Aantal bouwlagen:                        | 1                                 |             |
| Gebouwtype:                              | Overig                            |             |
| Toel. horiz. verplaatsing gehele gebouw: | h/300                             |             |
| Kleinste gevelhoogte [m]:                | 0.0                               |             |

MATERIAAL

| Mat nr. | Profielnaam | Vloeisp. [N/mm²] | Productie methode | Min. drsn. klasse |
|---------|-------------|------------------|-------------------|-------------------|
| 1       | IPE270      | 235              | Gewalst           | 1                 |
| 2       | K80/80/5CF  | 275              | Koudgevormd       | 1                 |
| 3       | IPE300      | 235              | Gewalst           | 1                 |
| 4       | IPE200      | 235              | Gewalst           | 1                 |

Partiële veiligheidsfactoren:

Gamma M;0 : 1.00      Gamma M;1 : 1.00

KNIKSTABILITEIT

| Staafl | l <sub>sys</sub> [m] | Classif. y sterke as | l <sub>knik,y</sub> [m] | Extra        | Classif. z zwakke as | l <sub>knik,z</sub> [m] | Extra        |
|--------|----------------------|----------------------|-------------------------|--------------|----------------------|-------------------------|--------------|
|        |                      |                      |                         | aanp. y [kN] |                      |                         | aanp. z [kN] |
| 1-2    | 3.900                | Ongeschoord          | 2e orde                 | Geschoord    | 3.900                | 0.0                     |              |
| 4-3    | 3.900                | Ongeschoord          | 2e orde                 | Geschoord    | 3.900                | 0.0                     |              |
| 5      | 1.892                | Geschoord            | 2e orde                 | Geschoord    | 1.892                | 0.0                     |              |
| 6-12   | 9.475                | Ongeschoord          | 2e orde                 | Geschoord    | 9.475                | 0.0                     |              |
| 8-10   | 9.475                | Ongeschoord          | 2e orde                 | Geschoord    | 9.475                | 0.0                     |              |
| 9      | 1.892                | Geschoord            | 2e orde                 | Geschoord    | 1.892                | 0.0                     |              |
| 11     | 5.575                | Geschoord            | 2e orde                 | Geschoord    | 5.575                | 0.0                     |              |
| 13     | 1.100                | Geschoord            | 2e orde                 | Geschoord    | 1.100                | 0.0                     |              |

KIPSTABILITEIT

| Staafl | Plts. aangr. | l gaffel [m]                                                   | Kipsteunafstanden [m] |
|--------|--------------|----------------------------------------------------------------|-----------------------|
| 1-2    | 1.0*h        | boven: 3.90 2*1,95<br>onder: 3.90 3;0,9                        |                       |
| 4-3    | 1.0*h        | boven: 3.90 2*1,95<br>onder: 3.90 0,9;3                        |                       |
| 5      | 1.0*h        | boven: 1.89 1.892<br>onder: 1.89 1.892                         |                       |
| 6-12   | 1.0*h        | boven: 9.47 3.16;2,6;0,56;3,155<br>onder: 9.47 1,384;4,4;3,691 |                       |
| 8-10   | 1.0*h        | boven: 9.47 3*3,158<br>onder: 9.47 8,0909;1,384                |                       |
| 9      | 1.0*h        | boven: 1.89 1.892<br>onder: 1.89 1.892                         |                       |
| 11     | 1.0*h        | boven: 5.57 5.575<br>onder: 5.57 5.575                         |                       |
| 13     | 1.0*h        | boven: 1.10 1.100<br>onder: 1.10 1.100                         |                       |

TOETSING SPANNINGEN

| Staafl | Mat | BC | Sit | Kl | Plaats | Norm    | Artikel | Formule | Hoogste toetsing U.C. [N/mm²] | Opm.     |
|--------|-----|----|-----|----|--------|---------|---------|---------|-------------------------------|----------|
| 1-2    | 1   | 21 | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.936 220                     | 42,46,47 |
| 4-3    | 1   | 21 | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.932 219                     | 42,46,47 |
| 5      | 2   | 21 | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.61)  | 0.684 188                     |          |
| 6-12   | 3   | 13 | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.880 207                     | 42,46,47 |
| 8-10   | 3   | 5  | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.893 210                     | 42,46,47 |
| 9      | 2   | 21 | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.61)  | 0.682 187                     |          |
| 11     | 4   | 3  | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.699 164                     | 47       |
| 13     | 4   | 3  | 1   | 1  | Staafl | EN3-1-1 | 6.3.1.1 | (6.46z) | 0.017 4                       |          |

Opmerkingen:

[ 42] Waarschuwing: Er sluiten tussentijds staven en/of opleggingen aan.

[ 46] T.b.v. kip is een equivalente Q-last berekend.

[ 47] Bij verlopende normaalkracht wordt de grootste drukkracht genomen.

TOETSING DOORBUIGING

| Staafl | Soort | Mtg | Lengte [m] | Overst I | Zeeg J | u <sub>tot</sub> [mm] | BC | Sit    | u [mm] | Toelaatbaar [mm] | *1      |
|--------|-------|-----|------------|----------|--------|-----------------------|----|--------|--------|------------------|---------|
| 6-12   | Dak   | ss  | 9.47       | N        | N      | 0.0 -52.4             | 63 | 1 Eind | -52.4  | -75.8            | 2*0.004 |
|        |       | db  |            |          |        |                       | 47 | 1 Bijk | -17.2  | -37.9            | 0.004   |
| 8-10   | Dak   | ss  | 9.47       | N        | N      | 0.0 -52.5             | 63 | 1 Eind | -52.5  | -75.8            | 2*0.004 |
|        |       | db  |            |          |        |                       | 55 | 1 Bijk | -21.1  | -37.9            | 0.004   |
| 11     | Dak   | ss  | 5.57       | N        | N      | 0.0 -37.2             | 63 | 1 Eind | -37.2  | -44.6            | 2*0.004 |
|        |       | ss  |            |          |        |                       | 58 | 1 Bijk | -19.5  | -44.6            | 2*0.004 |

TOETSING HORIZONTALE VERPLAATSING

| Staafl | BC | Sit | Lengte [m] | u <sub>eind</sub> [mm] | Toelaatbaar [mm] | [h/] |
|--------|----|-----|------------|------------------------|------------------|------|
| 1-2    | 55 | 1   | 3.900      | 47.8                   | 13.0             | 300  |
| 4-3    | 47 | 1   | 3.900      | -37.2                  | 13.0             | 300  |
| 13     | 63 | 1   | 1.100      | 7.3                    | 3.7              | 300  |

TOETSING HOR. VERPLAATSING GLOBAAL

Er is een maximale horizontale verplaatsing van -0.0501 [m] gevonden bij knoop 7 en combinatie 55; belastingsituatie 1, iter:3 (combinatietype 2). Bij een hoogte van 4.375 [m] levert dit h / 87 (toel.: h / 300).

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kolom in kopspant - as I  
Constructeur.: ing. J.F.H. De Jong  
Opdrachtgever: Jongenelen Akkerbouw  
Dimensies.....: kN;m;rad (tenzij anders aangegeven)  
Datum.....: 21/09/2020  
Bestand.....: \\DC01\Tekeningen\2018\180170\Bouwvergunning\3.  
Constructieberekeningen\3.1 Constructieberekening\Aanbouw  
bestaande  
loods\Raamwerken\180170\_Kolom-kopspant\_2020-09-21.rww

Belastingbreedte.: 6.000  
Rekenmodel.....: 2e-orde-elastisch.  
Theorieën voor de bepaling van de krachtsverdeling:  
1) Losse belastinggevallen:  
Lineaire-elasticiteitstheorie  
2) Uiterste grenstoestand:  
Geometrisch niet lineair alle staven.  
Fysisch lineair alle staven.  
3) Gebruiksgrenstoestand:  
Geometrisch niet lineair alle staven.  
Fysisch lineair alle staven.

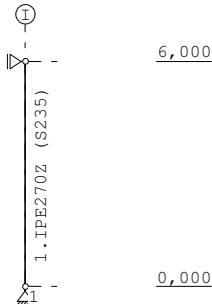
Maximum aantal iteraties.....: 50  
Max.deellengte kolommen/wanden: 0.500 Max.deellengte balken/vloeren: 0.500  
Max. X-verplaatsing in UGT....: 0.500 Max. Z-verplaatsing in UGT...: 0.250

Gunstige werking van de permanente belasting wordt automatisch verwerkt.

### Toegepaste normen volgens Eurocode met Nederlandse NB

|             |                      |                 |             |
|-------------|----------------------|-----------------|-------------|
| Belastingen | NEN-EN 1990:2002     | C2:2010         | NB:2011(nl) |
|             | NEN-EN 1991-1-1:2002 | C1:2009         | NB:2011(nl) |
|             | NEN-EN 1991-1-4:2005 | C2:2011         | NB:2011(nl) |
| Staal       | NEN-EN 1993-1-1:2006 | C2:2011,A1:2016 | NB:2016(nl) |

### GEOMETRIE



Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kolom in kopspant - as I

### STRAMIENLIJNEN

| Nr. | Naam | X     | Z-min | Z-max |
|-----|------|-------|-------|-------|
| 1   | I    | 0.000 | 0.000 | 6.000 |

### NIVEAUS

| Nr. | Z     | X-min | X-max |
|-----|-------|-------|-------|
| 1   | 0.000 | 0.000 | 1.000 |
| 2   | 6.000 | 0.000 | 1.000 |

### MATERIALEN

| Mt | Omschrijving | E-modulus[N/mm2] | S.G. | Pois. | Uitz. coëff |
|----|--------------|------------------|------|-------|-------------|
| 1  | S235         | 210000           | 78.5 | 0.30  | 1.2000e-05  |

### PROFIELEN [mm]

| Prof. | Omschrijving | Materiaal | Oppervlak  | Traagheid  | Vormf. |
|-------|--------------|-----------|------------|------------|--------|
| 1     | IPE270Z      | 1:S235    | 4.5900e+03 | 4.2000e+06 | 0.00   |

### PROFIELEN vervolg [mm]

| Prof. | Staaftype | Breedte | Hoogte | e    | Type | b1 | h1 | b2 | h2 |
|-------|-----------|---------|--------|------|------|----|----|----|----|
| 1     | 0:Normaal | 135     | 270    | 67.5 |      |    |    |    |    |

### KNOPEN

| Knoop | X     | Z     |
|-------|-------|-------|
| 1     | 0.000 | 0.000 |
| 2     | 0.000 | 6.000 |

### STAVEN

| St. | ki | kj | Profiel   | Aansl.i | Aansl.j | Lengte | Opm. |
|-----|----|----|-----------|---------|---------|--------|------|
| 1   | 1  | 2  | 1:IPE270Z | NDM     | NDM     | 6.000  |      |

### VASTE STEUNPUNTEN

| Nr. | knoop | Kode | XZR | 1=vast | 0=vrij | Hoek |
|-----|-------|------|-----|--------|--------|------|
| 1   | 1     | 110  |     |        |        | 0.00 |
| 2   | 2     | 100  |     |        |        | 0.00 |

### BELASTINGGENERATIE ALGEMEEN.

|                              |       |                         |      |
|------------------------------|-------|-------------------------|------|
| Betrouwbaarheidsklasse.....: | 1     | Referentieperiode.....: | 15   |
| Gebouwdiepte.....:           | 18.00 | Gebouwhoogte.....:      | 7.40 |
| Niveau aansl.terrein.....:   | 0.00  | E.g. scheid.w. [kN/m2]: | 0.00 |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kolom in kopsant - as I

WIND

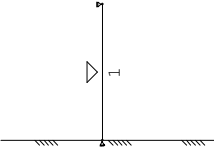
Terrein categorie ...[4.3.2]...: Onbebouwd  
Windgebied .....: 3 Vb,0 ..[4.2].....: 24.500  
Referentie periode wind.....: 15.00 Vb(p) ..[4.2].....: 22.397  
K .....[4.2].....: 0.280 n ....[4.2].....: 0.500  
Positie spant in het gebouw....: 0.000 Kr ....[4.3.2].....: 0.209  
z0 .....[4.3.2]...: 0.200 Zmin ..[4.3.2].....: 4.000  
Co wind van links ..[4.3.3]...: 1.000 Co wind van rechts....: 1.000  
Co wind loodrecht ..[4.3.3]...: 1.000  
Cpi wind van links ..[7.2.9]...: 0.200 -0.300  
Cpi windloodrecht ..[7.2.9]...: 0.200 -0.300  
Cpi wind van rechts .[7.2.9]...: 0.200 -0.300  
Cfr windwrijving ....[7.5].....: 0.040

STAAFTYPEN

| Type            | staven |
|-----------------|--------|
| 5:Linker gevel. | : 1    |

LASTVELDEN

|             |               |
|-------------|---------------|
| Wind staven | Sneeuw staven |
|-------------|---------------|

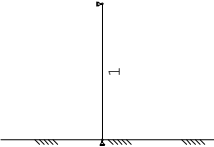


WIND DAKTYPES

| Nr. | Staaf | Type  | reductie bij   |                 | Cpe volgens art: |
|-----|-------|-------|----------------|-----------------|------------------|
|     |       |       | wind van links | wind van rechts |                  |
| 1   | 1     | Gevel | 1.000          | 1.000           | 7.2.2            |

WIND ZONES

|                |                 |
|----------------|-----------------|
| Wind van links | Wind van rechts |
|----------------|-----------------|



Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kolom in kopsant - as -

WIND VAN LINKS ZONES

| Nr. | Staaf | Positie | Lengte | Zone |
|-----|-------|---------|--------|------|
| 1   | 1     | 0.000   | 6.000  | D    |

Wind indexen

| Index | CsCd | Cpe/Cpi | qp    | breedte | reductie | Qw     | Zone | Hoek(en) |
|-------|------|---------|-------|---------|----------|--------|------|----------|
| Qw1   |      | 0.300   | 0.525 | 6.000   |          | -0.944 | -i   |          |
| Qw2   | 1.00 | 0.800   | 0.525 | 6.000   |          | -2.519 | D    |          |
| Qw3   |      | -0.200  | 0.525 | 6.000   |          | 0.630  | +i   |          |

BELASTINGGEVALLEN

| B.G. Omschrijving |   |                                | Type |
|-------------------|---|--------------------------------|------|
|                   | 1 | Permanente belasting EGZ=-1.00 | 1    |
| g                 | 2 | Wind van links onderdruk A     | 7    |
| g                 | 3 | Wind van links overdruk A      | 8    |
|                   | 4 | Sneeuw A                       | 22   |

g = gegenereerd belastinggeval

BELASTINGEN

B.G:1 Permanente belasting

Eigen gewicht van alle staven is meegenomen in berekening. Richting:↓



KNOOPBELASTINGEN

B.G:1 Permanente belasting

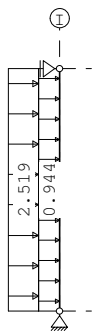
| Last | Knoop | Richting | waarde | ψ <sub>0</sub> | ψ <sub>1</sub> | ψ <sub>2</sub> |
|------|-------|----------|--------|----------------|----------------|----------------|
|      | 1     | 2 Z      | -4.790 |                |                |                |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kolom in kopsant - as I

**BELASTINGEN**

B.G:2 Wind van links onderdruk A

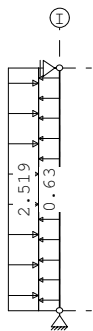
**STAAFBELASTINGEN**

B.G:2 Wind van links onderdruk A

| StAAF Type   | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|--------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal | Qw1   | -0.94  | -0.94 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal | Qw2   | -2.52  | -2.52 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**BELASTINGEN**

B.G:3 Wind van links overdruk A

**STAAFBELASTINGEN**

B.G:3 Wind van links overdruk A

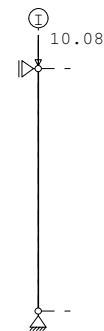
| StAAF Type   | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|--------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal | Qw3   | 0.63   | 0.63  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal | Qw2   | -2.52  | -2.52 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kolom in kopsant - as I

**BELASTINGEN**

B.G:4 Sneeuw A

**KNOOPBELASTINGEN**

B.G:4 Sneeuw A

| Last | Knoop | Richting | waarde  | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|------|-------|----------|---------|----------|----------|----------|
|      | 1     | 2 Z      | -10.080 | 0.0      | 0.2      | 0.0      |

**REACTIES**

1e orde

| Kn. | B.G. | X      | Z     | M |
|-----|------|--------|-------|---|
| 1   | 1    | 0.00   | 6.95  |   |
| 1   | 2    | -10.39 | 0.00  |   |
| 1   | 3    | -5.67  | 0.00  |   |
| 1   | 4    | 0.00   | 10.08 |   |
| 2   | 1    | 0.00   |       |   |
| 2   | 2    | -10.39 |       |   |
| 2   | 3    | -5.67  |       |   |
| 2   | 4    | 0.00   |       |   |

**BEREKENINGSTATUS**

Controlerende berekening

| B.C. | Iteratie | Status                 |
|------|----------|------------------------|
| 1    | 2        | Nauwkeurigheid bereikt |
| 2    | 2        | Nauwkeurigheid bereikt |
| 3    | 3        | Nauwkeurigheid bereikt |
| 4    | 3        | Nauwkeurigheid bereikt |
| 5    | 2        | Nauwkeurigheid bereikt |
| 6    | 3        | Nauwkeurigheid bereikt |
| 7    | 3        | Nauwkeurigheid bereikt |
| 8    | 2        | Nauwkeurigheid bereikt |
| 9    | 3        | Nauwkeurigheid bereikt |
| 10   | 3        | Nauwkeurigheid bereikt |
| 11   | 2        | Nauwkeurigheid bereikt |
| 12   | 2        | Nauwkeurigheid bereikt |
| 13   | 2        | Nauwkeurigheid bereikt |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kolom in kopsant - as I

**BEREKENINGSTATUS**

Controlerende berekening

**B.C. Iteratie Status**

|    |                          |
|----|--------------------------|
| 14 | 3 Nauwkeurigheid bereikt |
| 15 | 3 Nauwkeurigheid bereikt |
| 16 | 2 Nauwkeurigheid bereikt |
| 17 | 2 Nauwkeurigheid bereikt |

**BELASTINGCOMBINATIES****BC Type**

|          |      |           |   |      |                  |
|----------|------|-----------|---|------|------------------|
| 1 Fund.  | 1.22 | $G_{k,1}$ |   |      |                  |
| 2 Fund.  | 0.90 | $G_{k,1}$ |   |      |                  |
| 3 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 | $Q_{k,2}$        |
| 4 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 | $Q_{k,3}$        |
| 5 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 | $Q_{k,4}$        |
| 6 Fund.  | 0.90 | $G_{k,1}$ | + | 1.35 | $Q_{k,2}$        |
| 7 Fund.  | 0.90 | $G_{k,1}$ | + | 1.35 | $Q_{k,3}$        |
| 8 Fund.  | 0.90 | $G_{k,1}$ | + | 1.35 | $Q_{k,4}$        |
| 9 Kar.   | 1.00 | $G_{k,1}$ | + | 1.00 | $Q_{k,2}$        |
| 10 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 | $Q_{k,3}$        |
| 11 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 | $Q_{k,4}$        |
| 12 Quas. | 1.00 | $G_{k,1}$ |   |      |                  |
| 13 Freq. | 1.00 | $G_{k,1}$ |   |      |                  |
| 14 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 | $\psi_1 Q_{k,2}$ |
| 15 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 | $\psi_1 Q_{k,3}$ |
| 16 Freq. | 1.00 | $G_{k,1}$ | + | 1.00 | $\psi_1 Q_{k,4}$ |
| 17 Blij. | 1.00 | $G_{k,1}$ |   |      |                  |

**GUNSTIGE WERKING PERMANENTE BELASTINGEN****BC Staven met gunstige werking**

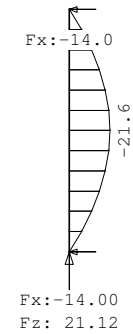
- Geen
- Alle staven de factor:0.90
- Geen
- Geen
- Geen
- Alle staven de factor:0.90
- Alle staven de factor:0.90
- Alle staven de factor:0.90

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kolom in kopsant - as I

**OMHULLENDE VAN DE FUNDAMENTELE COMBINATIES****MOMENTEN**

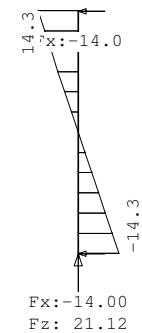
2e orde

Fundamentele combinatie

**DWARSKRACHTEN**

2e orde

Fundamentele combinatie

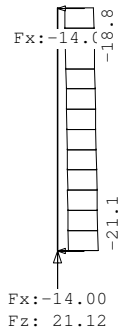


Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kolom in kopsant - as I

**NORMAALKRACHTEN**

2e orde

Fundamentele combinatie

**REACTIES**

2e orde

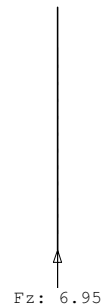
Fundamentele combinatie

| Kn. | X-min  | X-max | Z-min | Z-max | M-min | M-max |
|-----|--------|-------|-------|-------|-------|-------|
| 1   | -14.00 | 0.00  | 6.26  | 21.12 |       |       |
| 2   | -14.04 | 0.00  |       |       |       |       |

**OMHULLENDE VAN DE BLIJVENDE COMBINATIES****VERPLAATSINGEN**

2e orde [mm]

Blijvende combinatie



Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kolom in kopsant - as I

**STAALPROFIELEN - ALGEMENE GEGEVENS**

|                              |                                          |             |
|------------------------------|------------------------------------------|-------------|
| Stabiliteit:                 | Classificatie gehele constructie:        | Ongeschoord |
| Doorbuiging en verplaatsing: | Aantal bouwlagen:                        | 1           |
|                              | Gebouwtype:                              | Overig      |
|                              | Toel. horiz. verplaatsing gehele gebouw: | h/300       |
|                              | Kleinste gevelhoogte [m]:                | 0.0         |

**MATERIAAL**

| Mat nr.                       | Profielnaam | Vloeisp. [N/mm²] | Productie methode | Min. drsn. klasse |      |
|-------------------------------|-------------|------------------|-------------------|-------------------|------|
| 1                             | IPE270Z     | 235              | Gewalst           | 1                 |      |
| Partiële veiligheidsfactoren: |             |                  |                   |                   |      |
| Gamma M;0                     | :           | 1.00             | Gamma M;1         | :                 | 1.00 |

**KNIKSTABILITEIT**

| Staafl | l <sub>sys</sub> [m] | Classif. y sterke as | l <sub>knik,y</sub> [m] | aanp. y [kN] | Classif. z zwakke as | l <sub>knik,z</sub> [m] | aanp. z [kN] |
|--------|----------------------|----------------------|-------------------------|--------------|----------------------|-------------------------|--------------|
| 1      | 6.000                | Geschoord            | 6.000                   | 0.0          | Ongeschoord          | 2e orde                 |              |

**KIPSTABILITEIT**

| Staafl | Plts. aangr. | l gaffel [m]               | Kipsteunafstanden [m] |
|--------|--------------|----------------------------|-----------------------|
| 1      | 1.0*h        | boven: 6.00<br>onder: 6.00 | 6.000<br>6.000        |

**TOETSING SPANNINGEN**

| Staafl                                                                   | Mat nr. | BC | Sit | Kl | Plaats | Norm    | Artikel | Formule | Hoogste toetsing U.C. [N/mm <sup>2</sup> ] | Opm. |
|--------------------------------------------------------------------------|---------|----|-----|----|--------|---------|---------|---------|--------------------------------------------|------|
| 1                                                                        | 1       | 3  | 1   | 1  | Mz-max | EN3-1-1 | 6.2.10  | (6.31)  | 0.946 222                                  | 47   |
| Opmerkingen:                                                             |         |    |     |    |        |         |         |         |                                            |      |
| [ 47] Bij verlopende normaalkracht wordt de grootste drukkracht genomen. |         |    |     |    |        |         |         |         |                                            |      |

**TOETSING HORIZONTALE VERPLAATSING**

| Staafl | BC | Sit | Lengte [m] | u <sub>eind</sub> [mm] | Toelaatbaar [mm] | [h/] |
|--------|----|-----|------------|------------------------|------------------|------|
| 1      | 9  | 1   | 6.000      | -67.8                  | 20.0             | 300  |

Project.....: 180170 - Uitbreiding loods  
 Onderdeel.....: Kopsant - as I  
 Constructeur.: ing. J.F.H. De Jong  
 Opdrachtgever: Jongenelen Akkerbouw  
 Dimensies.....: kN;m;rad (tenzij anders aangegeven)  
 Datum.....: 21/09/2020  
 Bestand.....: \\DC01\Tekeningen\2018\180170\Bouwvergunning\3.  
 Constructieberekeningen\3.1 Constructieberekening\Aanbouw  
 bestaande loods\Raamwerken\180170\_Kopsant\_2020-09-21.rww

Belastingbreedte.: 3.000  
 Rekenmodel.....: 2e-orde-elastisch.  
 Theorieën voor de bepaling van de krachtsverdeling:  
 1) Losse belastinggevallen:  
 Lineaire-elasticiteitstheorie  
 2) Uiterste grenstoestand:  
 Geometrisch niet lineair alle staven.  
 Fysisch lineair alle staven.  
 3) Gebruiksgrenstoestand:  
 Geometrisch niet lineair alle staven.  
 Fysisch lineair alle staven.

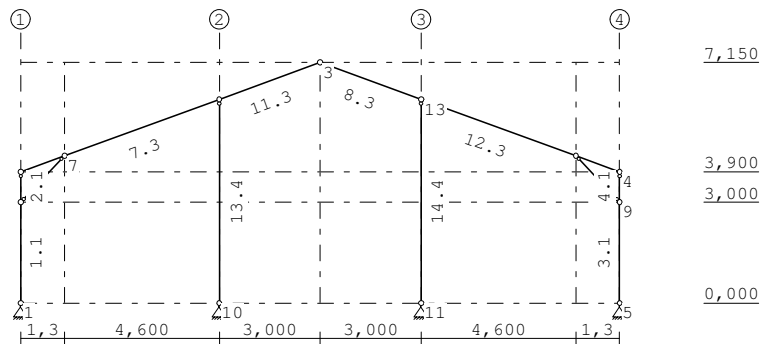
Maximum aantal iteraties.....: 50  
 Max.deellengte kolommen/wanden: 0.500 Max.deellengte balken/vloeren: 0.500  
 Max. X-verplaatsing in UGT.....: 0.500 Max. Z-verplaatsing in UGT...: 0.250

Gunstige werking van de permanente belasting wordt automatisch verwerkt.

### Toegepaste normen volgens Eurocode met Nederlandse NB

|             |                      |                  |             |
|-------------|----------------------|------------------|-------------|
| Belastingen | NEN-EN 1990:2002     | C2:2010          | NB:2011(nl) |
|             | NEN-EN 1991-1-1:2002 | C1:2009          | NB:2011(nl) |
|             | NEN-EN 1991-1-3:2003 | C1:2009          | NB:2011(nl) |
|             | NEN-EN 1991-1-4:2005 | C2:2011          | NB:2011(nl) |
| Staal       | NEN-EN 1993-1-1:2006 | C2:2011, A1:2016 | NB:2016(nl) |

### GEOMETRIE



Project.....: 180170 - Uitbreiding loods  
 Onderdeel.....: Kopsant - as I

### STRAMIENLIJNEN

| Nr. | Naam | X      | Z-min | Z-max |
|-----|------|--------|-------|-------|
| 1   | 1    | 0.000  | 0.000 | 7.150 |
| 2   |      | 8.900  | 0.000 | 7.150 |
| 3   | 4    | 17.800 | 0.000 | 7.150 |
| 4   |      | 1.300  | 0.000 | 7.150 |
| 5   |      | 16.500 | 0.000 | 7.150 |
| 6   | 2    | 5.900  | 0.000 | 7.150 |
| 7   | 3    | 11.900 | 0.000 | 7.150 |

### NIVEAUS

| Nr. | Z     | X-min | X-max  |
|-----|-------|-------|--------|
| 1   | 0.000 | 0.000 | 17.800 |
| 2   | 3.000 | 0.000 | 17.800 |
| 3   | 3.900 | 0.000 | 17.800 |
| 4   | 7.150 | 0.000 | 17.800 |

### MATERIALEN

| Mt | Omschrijving | E-modulus[N/mm2] | S.G. | Pois. | Uitz. coëff |
|----|--------------|------------------|------|-------|-------------|
| 1  | S235         | 210000           | 78.5 | 0.30  | 1.2000e-05  |
| 2  | S275         | 210000           | 78.5 | 0.30  | 1.2000e-05  |

### PROFIELEN [mm]

| Prof. | Omschrijving | Materiaal | Oppervlak  | Traagheid  | Vormf. |
|-------|--------------|-----------|------------|------------|--------|
| 1     | IPE200       | 1:S235    | 2.8480e+03 | 1.9430e+07 | 0.00   |
| 2     | K80/80/5CF   | 2:S275    | 1.4356e+03 | 1.3144e+06 | 0.00   |
| 3     | IPE220       | 1:S235    | 3.3400e+03 | 2.7720e+07 | 0.00   |
| 4     | IPE270Z      | 1:S235    | 4.5900e+03 | 4.2000e+06 | 0.00   |

### PROFIELEN vervolg [mm]

| Prof. | Staaftype | Breedte | Hoogte | e     | Type | b1 | h1 | b2 | h2 |
|-------|-----------|---------|--------|-------|------|----|----|----|----|
| 1     | 0:Normaal | 100     | 200    | 100.0 |      |    |    |    |    |
| 2     | 0:Normaal | 80      | 80     | 40.0  |      |    |    |    |    |
| 3     | 0:Normaal | 110     | 220    | 110.0 |      |    |    |    |    |
| 4     | 0:Normaal | 135     | 270    | 67.5  |      |    |    |    |    |

### KNOPEN

| Knoop | X      | Z     | Knoop | X      | Z     |
|-------|--------|-------|-------|--------|-------|
| 1     | 0.000  | 0.000 | 6     | 0.000  | 3.000 |
| 2     | 0.000  | 3.900 | 7     | 1.300  | 4.375 |
| 3     | 8.900  | 7.150 | 8     | 16.500 | 4.375 |
| 4     | 17.800 | 3.900 | 9     | 17.800 | 3.000 |
| 5     | 17.800 | 0.000 | 10    | 5.900  | 0.000 |
| 11    | 11.900 | 0.000 |       |        |       |
| 12    | 5.900  | 6.054 |       |        |       |
| 13    | 11.900 | 6.054 |       |        |       |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**STAVEN**

| St. | ki | kj | Profiel      | Aansl.i | Aansl.j | Lengte Opm. |
|-----|----|----|--------------|---------|---------|-------------|
| 1   | 1  | 6  | 1:IPE200     | NDM     | NDM     | 3.000       |
| 2   | 6  | 2  | 1:IPE200     | NDM     | ND-     | 0.900       |
| 3   | 9  | 5  | 1:IPE200     | NDM     | NDM     | 3.000       |
| 4   | 4  | 9  | 1:IPE200     | ND-     | NDM     | 0.900       |
| 5   | 6  | 7  | 2:K80/80/5CF | ND-     | ND-     | 1.892       |
| 6   | 2  | 7  | 3:IPE220     | NDM     | NDM     | 1.384       |
| 7   | 7  | 12 | 3:IPE220     | NDM     | NDM     | 4.897       |
| 8   | 3  | 13 | 3:IPE220     | NDM     | NDM     | 3.194       |
| 9   | 8  | 9  | 2:K80/80/5CF | ND-     | ND-     | 1.892       |
| 10  | 8  | 4  | 3:IPE220     | NDM     | NDM     | 1.384       |
| 11  | 12 | 3  | 3:IPE220     | NDM     | NDM     | 3.194       |
| 12  | 13 | 8  | 3:IPE220     | NDM     | NDM     | 4.897       |
| 13  | 10 | 12 | 4:IPE270Z    | NDM     | ND-     | 6.054       |
| 14  | 11 | 13 | 4:IPE270Z    | NDM     | ND-     | 6.054       |

**VASTE STEUNPUNTEN**

| Nr. | knoop | Kode | XZR l=vast 0=vrij | Hoek |
|-----|-------|------|-------------------|------|
| 1   | 1     | 110  |                   | 0.00 |
| 2   | 5     | 110  |                   | 0.00 |
| 3   | 10    | 110  |                   | 0.00 |
| 4   | 11    | 110  |                   | 0.00 |

**BELASTINGGENERATIE ALGEMEEN.**

Betrouwbaarheidsklasse.....: 1      Referentieperiode.....: 15  
Gebouwdiepte.....: 41.00      Gebouwhoogte.....: 7.15  
Niveau aansl.terrein.....: 0.00      E.g. scheid.w. [kN/m2]: 1.20

**WIND**

Terrein categorie ...[4.3.2]....: Onbebouwd  
Windgebied .....: 3      Vb,0 ..[4.2].....: 24.500  
Referentie periode wind.....: 15.00      Vb(p) ..[4.2].....: 22.397  
K .....[4.2].....: 0.280      n ....[4.2].....: 0.500  
Positie spant in het gebouw.....: 5.000      Kr ....[4.3.2].....: 0.209  
z0 .....[4.3.2].....: 0.200      Zmin ..[4.3.2].....: 4.000

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**WIND**

Co wind van links ..[4.3.3]....: 1.000      Co wind van rechts.....: 1.000  
Co wind loodrecht ..[4.3.3]....: 1.000  
Cpi wind van links ..[7.2.9]....: 0.200      -0.300  
Cpi windloodrecht ...[7.2.9]....: 0.200      -0.300  
Cpi wind van rechts .[7.2.9]....: 0.200      -0.300  
Cfr windwrijving ....[7.5].....: 0.040

**SNEEUW**

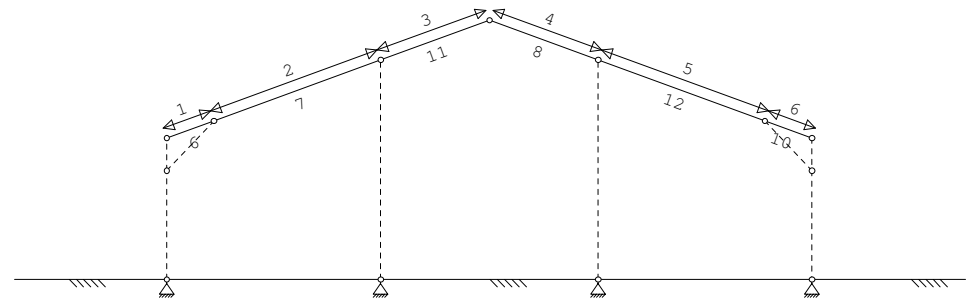
Sneeuwbelasting (sk) 50 jaar : 0.70  
Sneeuwbelasting (sn) n jaar : 0.53

**STAAFTYPEN**

| Type             | staven      |
|------------------|-------------|
| 4:Wand / kolom.  | : 13,14     |
| 5:Linker gevel.  | : 1,2       |
| 6:Rechter gevel. | : 3,4       |
| 7:Dak.           | : 6-8,10-12 |
| 9:Open.          | : 5,9       |

**LASTVELDEN**

Veranderlijke belastingen door personen

**LASTVELDEN**

| Nr | Staaft | Tabel | Klasse-Gebruiksfunctie    | Verd. | q <sub>k</sub> | Q <sub>k</sub> | F <sub>t</sub> /F <sub>t0</sub> |
|----|--------|-------|---------------------------|-------|----------------|----------------|---------------------------------|
| 1  | 6-6    | 6.10  | H-Dak (onder dakbeschoot) | 1     | 0.00           | -2.00          | 0.87                            |
| 2  | 7-7    | 6.10  | H-Dak (onder dakbeschoot) | 1     | 0.00           | -2.00          | 0.87                            |
| 3  | 11-11  | 6.10  | H-Dak (onder dakbeschoot) | 1     | 0.00           | -2.00          | 0.87                            |
| 4  | 8-8    | 6.10  | H-Dak (onder dakbeschoot) | 2     | 0.00           | -2.00          | 0.87                            |
| 5  | 12-12  | 6.10  | H-Dak (onder dakbeschoot) | 2     | 0.00           | -2.00          | 0.87                            |
| 6  | 10-10  | 6.10  | H-Dak (onder dakbeschoot) | 2     | 0.00           | -2.00          | 0.87                            |

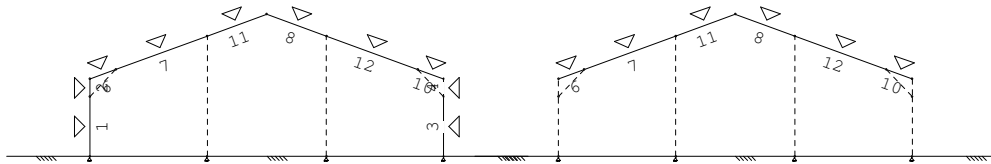
Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

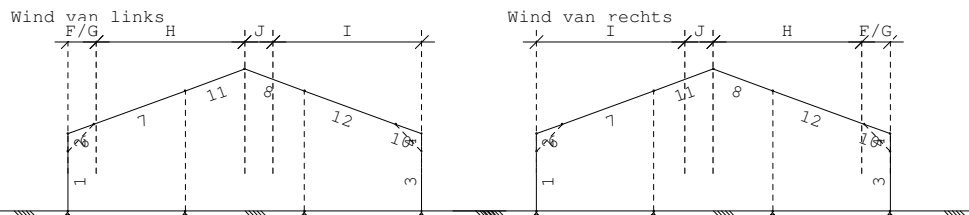
**LASTVELDEN**

Wind staven

Sneeuw staven

**WIND DAKTYPES**

| Nr. | Staaft Type   | reductie bij<br>wind van links | reductie bij<br>wind van rechts | Cpe volgens art: |
|-----|---------------|--------------------------------|---------------------------------|------------------|
| 1   | 1-2 Gevel     | 1.000                          | 1.000                           | 7.2.2            |
| 2   | 6-11 Zadeldak | 1.000                          | 1.000                           | 7.2.5            |
| 3   | 8-10 Zadeldak | 1.000                          | 1.000                           | 7.2.5            |
| 4   | 4-3 Gevel     | 1.000                          | 1.000                           | 7.2.2            |

**WIND ZONES****WIND VAN LINKS ZONES**

| Nr. | Staaft | Positie | Lengte | Zone |
|-----|--------|---------|--------|------|
| 1   | 1-2    | 0.000   | 3.900  | D    |
| 2   | 6-11   | 0.000   | 1.430  | F/G  |
| 3   | 6-11   | 1.430   | 7.470  | H    |
| 4   | 8-10   | 0.000   | 1.430  | J    |
| 5   | 8-10   | 1.430   | 7.470  | I    |
| 6   | 4-3    | 0.000   | 3.900  | E    |

**WIND VAN RECHTS ZONES**

| Nr. | Staaft | Positie | Lengte | Zone |
|-----|--------|---------|--------|------|
| 1   | 4-3    | 0.000   | 3.900  | D    |
| 2   | 8-10   | 0.000   | 1.430  | F/G  |
| 3   | 8-10   | 1.430   | 7.470  | H    |
| 4   | 6-11   | 0.000   | 1.430  | J    |
| 5   | 6-11   | 1.430   | 7.470  | I    |
| 6   | 1-2    | 0.000   | 3.900  | E    |

**Wind indexen**

| Index | CsCd | Cpe/Cpi | qp    | breedte | reductie | Qw     | Zone | Hoek(en) |
|-------|------|---------|-------|---------|----------|--------|------|----------|
| Qw1   |      | 0.300   | 0.518 | 3.000   |          | -0.466 | -i   |          |
| Qw2   | 1.00 | 0.800   | 0.518 | 3.000   |          | -1.243 | D    |          |
| Qw3   | 1.00 | 0.370   | 0.518 | 0.075   |          | -0.014 | F    | 20.1     |
| Qw4   | 1.00 | 0.370   | 0.518 | 2.925   |          | -0.561 | G    | 20.1     |
| Qw5   | 1.00 | 0.268   | 0.518 | 3.000   |          | -0.416 | H    | 20.1     |
| Qw6   | 1.00 | -0.830  | 0.518 | 3.000   |          | 1.290  | J    | 20.1     |
| Qw7   | 1.00 | -0.400  | 0.518 | 3.000   |          | 0.622  | I    | 20.1     |
| Qw8   | 1.00 | -0.500  | 0.518 | 3.000   |          | 0.777  | E    |          |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

**Wind indexen**

| Index | CsCd | Cpe/Cpi | qp    | breedte | reductie | Qw    | Zone | Hoek(en) |
|-------|------|---------|-------|---------|----------|-------|------|----------|
| Qw9   |      | -0.200  | 0.518 | 3.000   |          | 0.311 | +i   |          |
| Qw10  | 1.00 | -0.764  | 0.518 | 0.075   |          | 0.030 | F    | 20.1     |
| Qw11  | 1.00 | -0.698  | 0.518 | 2.925   |          | 1.058 | G    | 20.1     |
| Qw12  | 1.00 | -0.266  | 0.518 | 3.000   |          | 0.413 | H    | 20.1     |
| Qw13  | 1.00 | -0.800  | 0.518 | 3.000   |          | 1.243 | B    |          |
| Qw14  | 1.00 | -0.668  | 0.518 | 3.000   |          | 1.038 | H    | 20.1     |
| Qw15  | 1.00 | -0.500  | 0.518 | 3.000   |          | 0.777 | C    |          |
| Qw16  | 1.00 | -0.500  | 0.518 | 3.000   |          | 0.777 | I    | 20.1     |

**SNEEUW DAKTYPEN**

| Staaft | artikel        |
|--------|----------------|
| 6-11   | 5.3.3 Zadeldak |
| 8-10   | 5.3.3 Zadeldak |

**Sneeuw indexen**

| Index | art   | $\mu$ | $s_k$ | red. posfac | breedte | $Q_s$ | hoek |
|-------|-------|-------|-------|-------------|---------|-------|------|
| Qs1   | 5.3.3 | 0.800 | 0.53  | 1.00        | 3.000   | 1.261 | 20.1 |
| Qs2   | 5.3.3 | 0.400 | 0.53  | 1.00        | 3.000   | 0.631 | 20.1 |

**BELASTINGGEVALLEN**

| B.G. | Omschrijving                     | Type |
|------|----------------------------------|------|
|      | 1 Permanente belasting EGZ=-1.00 | 1    |
| g    | 2 Ver. bel. pers. ed. (p_rep)    | 2    |
| g    | 3 Ver. bel. pers. ed. (F_rep)    | 3    |
| g    | 4 Wind van links onderdruk A     | 7    |
| g    | 5 Wind van links overdruk A      | 8    |
| g    | 6 Wind van links onderdruk B     | 9    |
| g    | 7 Wind van links overdruk B      | 10   |
| g    | 8 Wind van links onderdruk C     | 37   |
| g    | 9 Wind van links overdruk C      | 38   |
| g    | 10 Wind van links onderdruk D    | 39   |
| g    | 11 Wind van links overdruk D     | 40   |
| g    | 12 Wind van rechts onderdruk A   | 11   |
| g    | 13 Wind van rechts overdruk A    | 12   |
| g    | 14 Wind van rechts onderdruk B   | 13   |
| g    | 15 Wind van rechts overdruk B    | 14   |
| g    | 16 Wind van rechts onderdruk C   | 41   |
| g    | 17 Wind van rechts overdruk C    | 42   |
| g    | 18 Wind van rechts onderdruk D   | 43   |
| g    | 19 Wind van rechts overdruk D    | 44   |
| g    | 20 Wind loodrecht onderdruk A    | 15   |
| g    | 21 Wind loodrecht overdruk A     | 16   |
| g    | 22 Wind loodrecht onderdruk B    | 45   |
| g    | 23 Wind loodrecht overdruk B     | 46   |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

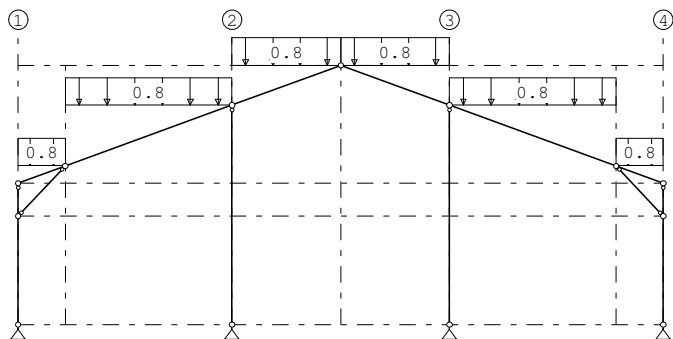
**BELASTINGGEVALLEN**

| B.G. | Omschrijving                 | Type |
|------|------------------------------|------|
| g    | 24 Sneeuw A                  | 22   |
| g    | 25 Sneeuw B                  | 23   |
| g    | 26 Sneeuw C                  | 33   |
| g    | = gegenereerd belastinggeval |      |

**BELASTINGEN**

B.G:1 Permanente belasting

Eigen gewicht van alle staven is meegenomen in berekening. Richting:↓

**STAAFBELASTINGEN**

B.G:1 Permanente belasting

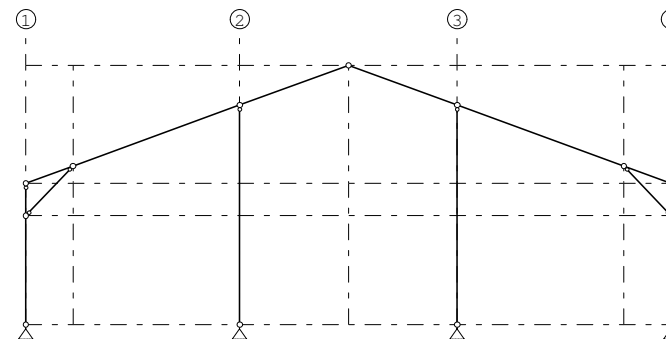
| Staaftype | Type        | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|-----------|-------------|--------|-------|-------|-------|----------|----------|----------|
| 6         | 3:QZgeProj. | -0.80  | -0.80 | 0.000 | 0.000 |          |          |          |
| 7         | 3:QZgeProj. | -0.80  | -0.80 | 0.000 | 0.000 |          |          |          |
| 8         | 3:QZgeProj. | -0.80  | -0.80 | 0.000 | 0.000 |          |          |          |
| 10        | 3:QZgeProj. | -0.80  | -0.80 | 0.000 | 0.000 |          |          |          |
| 11        | 3:QZgeProj. | -0.80  | -0.80 | 0.000 | 0.000 |          |          |          |
| 12        | 3:QZgeProj. | -0.80  | -0.80 | 0.000 | 0.000 |          |          |          |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:2 Ver. bel. pers. ed. (p\_rep)

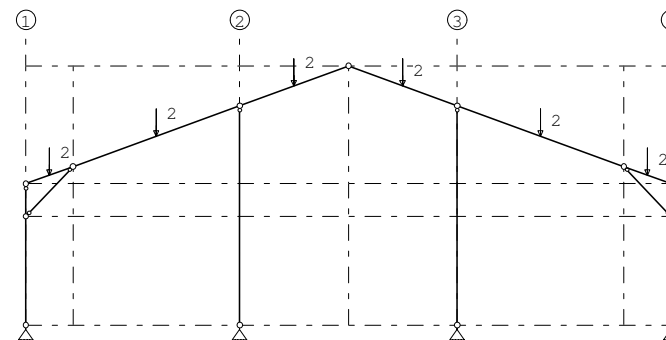
**SITUATIES BELAST/ONBELAST**

Belastingtype: P-rep

| Nr | Lastvelden belast | Lastvelden onbelast |
|----|-------------------|---------------------|
| 1  | 2, 4-6            | 1, 3                |
| 2  | 1, 3-6            | 2                   |
| 3  | 2-6               | 1                   |
| 4  | 1, 2, 4-6         | 3                   |
| 5  | 1-3, 5            | 4, 6                |
| 6  | 1-4, 6            | 5                   |
| 7  | 1-3, 5, 6         | 4                   |
| 8  | 1-5               | 6                   |

**BELASTINGEN**

B.G:3 Ver. bel. pers. ed. (F-rep)



Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopsant - as I

**STAAFBELASTINGEN**

B.G:3 Ver. bel. pers. ed. (F-rep)

| Staaft Type      | q1/p/m | q2    | A | B | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|------------------|--------|-------|---|---|----------|----------|----------|
| 6 10:PZGepro.j.  | -2.00  | 0.692 |   |   | 0.0      | 0.0      | 0.0      |
| 7 10:PZGepro.j.  | -2.00  | 2.449 |   |   | 0.0      | 0.0      | 0.0      |
| 11 10:PZGepro.j. | -2.00  | 1.597 |   |   | 0.0      | 0.0      | 0.0      |
| 8 10:PZGepro.j.  | -2.00  | 1.597 |   |   | 0.0      | 0.0      | 0.0      |
| 12 10:PZGepro.j. | -2.00  | 2.449 |   |   | 0.0      | 0.0      | 0.0      |
| 10 10:PZGepro.j. | -2.00  | 0.692 |   |   | 0.0      | 0.0      | 0.0      |

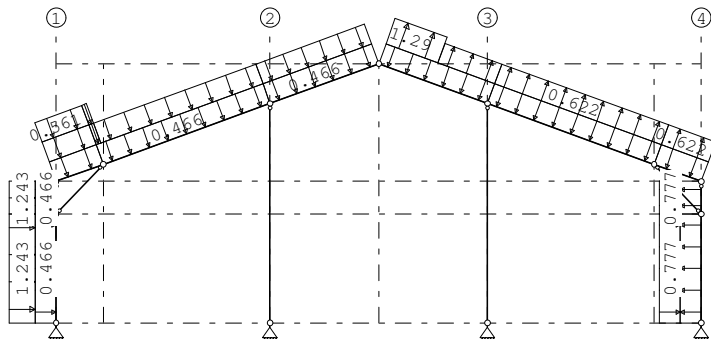
**SITUATIES BELAST/ONBELAST**

Belastingtype: F-rep

| Nr Lastvelden belast | Lastvelden onbelast |
|----------------------|---------------------|
| 1 1,4-6              | 2,3                 |
| 2 2,4-6              | 1,3                 |
| 3 3-6                | 1,2                 |
| 4 1-4                | 5,6                 |
| 5 1-3,5              | 4,6                 |
| 6 1-3,6              | 4,5                 |

**BELASTINGEN**

B.G:4 Wind van links onderdruk A

**STAAFBELASTINGEN**

B.G:4 Wind van links onderdruk A

| Staaft Type   | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw3   | -0.01  | -0.01 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopsant - as I

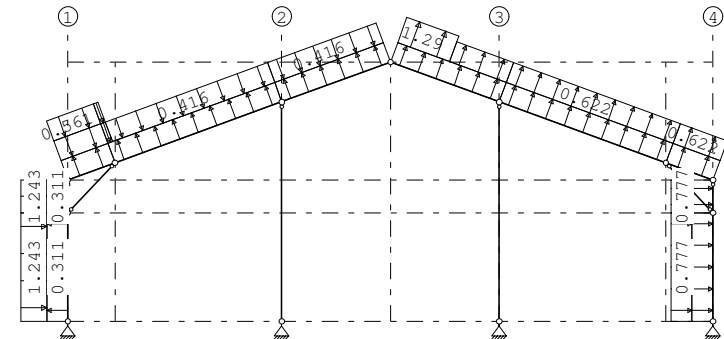
**STAAFBELASTINGEN**

B.G:4 Wind van links onderdruk A

| Staaft Type   | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 6 1:QZLokaal  | Qw4   | -0.56  | -0.56 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw3   | -0.01  | -0.01 | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw4   | -0.56  | -0.56 | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw5   | -0.42  | -0.42 | 0.138 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw6   | 1.29   | 1.29  | 0.000 | 1.671 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw7   | 0.62   | 0.62  | 1.522 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**BELASTINGEN**

B.G:5 Wind van links overdruk A

**STAAFBELASTINGEN**

B.G:5 Wind van links overdruk A

| Staaft Type   | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw3   | -0.01  | -0.01 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw4   | -0.56  | -0.56 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw3   | -0.01  | -0.01 | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw4   | -0.56  | -0.56 | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw5   | -0.42  | -0.42 | 0.138 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopspant - as I

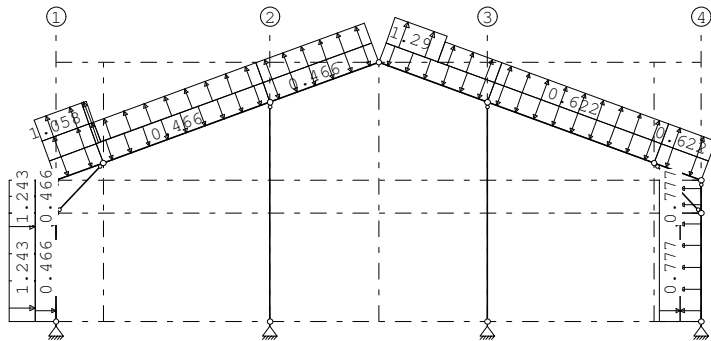
**STAAFBELASTINGEN**

B.G:5 Wind van links overdruk A

| Staaft Type   | Index | q1/p/m | q2   | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|------|-------|-------|----------|----------|----------|
| 8 1:QZLokaal  | Qw6   | 1.29   | 1.29 | 0.000 | 1.671 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw7   | 0.62   | 0.62 | 1.522 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw7   | 0.62   | 0.62 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw7   | 0.62   | 0.62 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw8   | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw8   | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**BELASTINGEN**

B.G:6 Wind van links onderdruk B

**STAAFBELASTINGEN**

B.G:6 Wind van links onderdruk B

| Staaft Type   | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw10  | 0.03   | 0.03  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw11  | 1.06   | 1.06  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw10  | 0.03   | 0.03  | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw11  | 1.06   | 1.06  | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw12  | 0.41   | 0.41  | 0.138 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw6   | 1.29   | 1.29  | 0.000 | 1.671 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw7   | 0.62   | 0.62  | 1.522 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopspant - as I

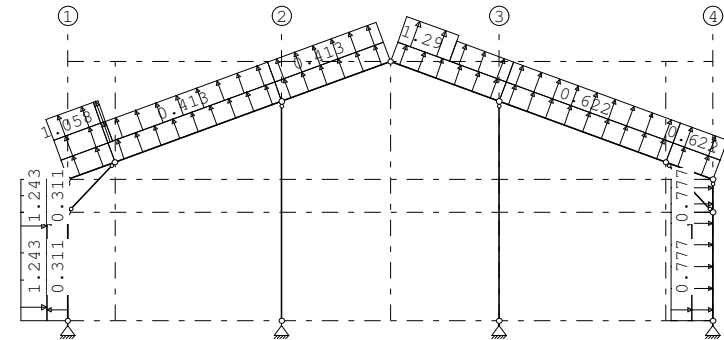
**STAAFBELASTINGEN**

B.G:6 Wind van links onderdruk B

| Staaft Type  | Index | q1/p/m | q2   | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|--------------|-------|--------|------|-------|-------|----------|----------|----------|
| 3 1:QZLokaal | Qw8   | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**BELASTINGEN**

B.G:7 Wind van links overdruk B

**STAAFBELASTINGEN**

B.G:7 Wind van links overdruk B

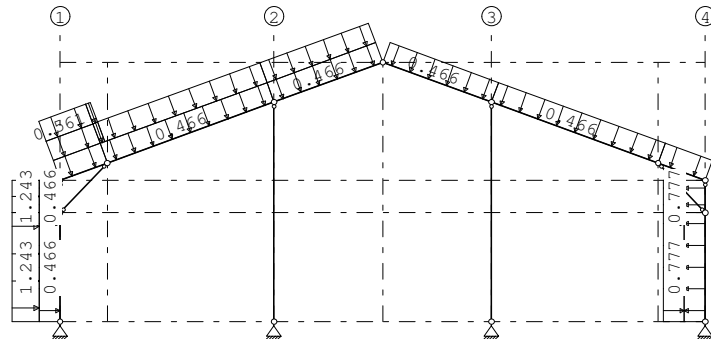
| Staaft Type   | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw10  | 0.03   | 0.03  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw11  | 1.06   | 1.06  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw10  | 0.03   | 0.03  | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw11  | 1.06   | 1.06  | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw12  | 0.41   | 0.41  | 0.138 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw6   | 1.29   | 1.29  | 0.000 | 1.671 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw7   | 0.62   | 0.62  | 1.522 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:8 Wind van links onderdruk C

**STAAFBELASTINGEN**

B.G:8 Wind van links onderdruk C

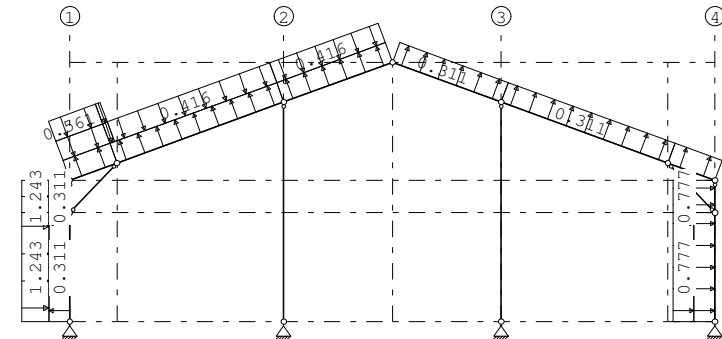
| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw3   | -0.01  | -0.01 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw4   | -0.56  | -0.56 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw3   | -0.01  | -0.01 | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw4   | -0.56  | -0.56 | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw5   | -0.42  | -0.42 | 0.138 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:9 Wind van links overdruk C

**STAAFBELASTINGEN**

B.G:9 Wind van links overdruk C

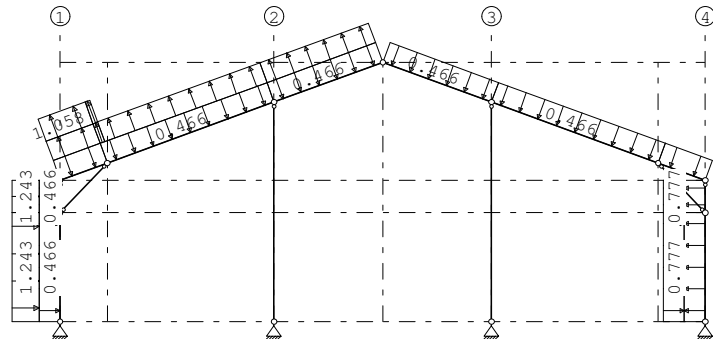
| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw3   | -0.01  | -0.01 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw4   | -0.56  | -0.56 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw3   | -0.01  | -0.01 | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw4   | -0.56  | -0.56 | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw5   | -0.42  | -0.42 | 0.138 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:10 Wind van links onderdruk D

**STAAFBELASTINGEN**

B.G:10 Wind van links onderdruk D

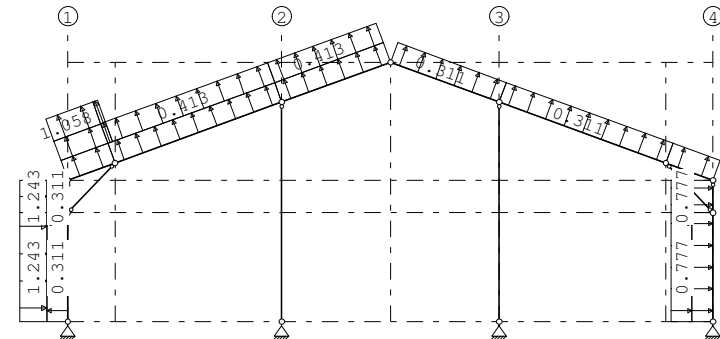
| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.138 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:11 Wind van links overdruk D

**STAAFBELASTINGEN**

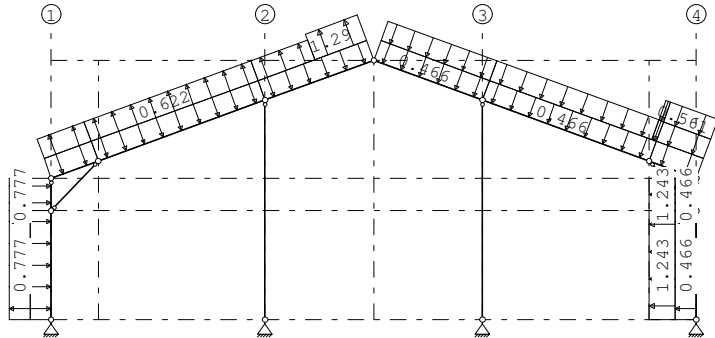
B.G:11 Wind van links overdruk D

| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 0.000 | 4.759 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.138 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:12 Wind van rechts onderdruk A

**STAAFBELASTINGEN**

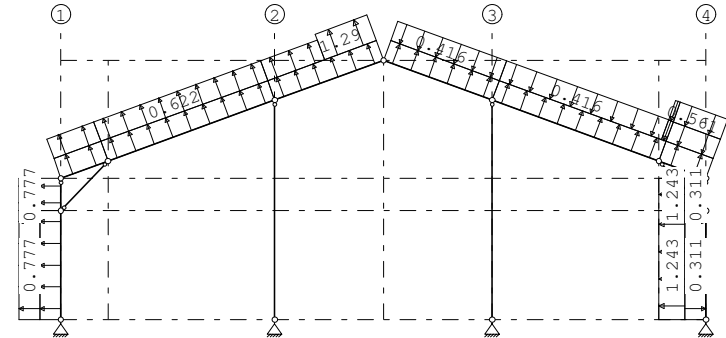
B.G:12 Wind van rechts onderdruk A

| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw3   | -0.01  | -0.01 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw4   | -0.56  | -0.56 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw3   | -0.01  | -0.01 | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw4   | -0.56  | -0.56 | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw6   | 1.29   | 1.29  | 1.671 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 1.522 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:13 Wind van rechts overdruk A

**STAAFBELASTINGEN**

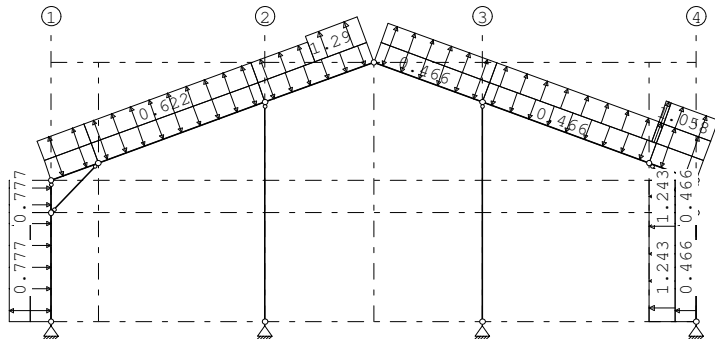
B.G:13 Wind van rechts overdruk A

| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw3   | -0.01  | -0.01 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw4   | -0.56  | -0.56 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw3   | -0.01  | -0.01 | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw4   | -0.56  | -0.56 | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw6   | 1.29   | 1.29  | 1.671 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 1.522 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:14 Wind van rechts onderdruk B

**STAAFBELASTINGEN**

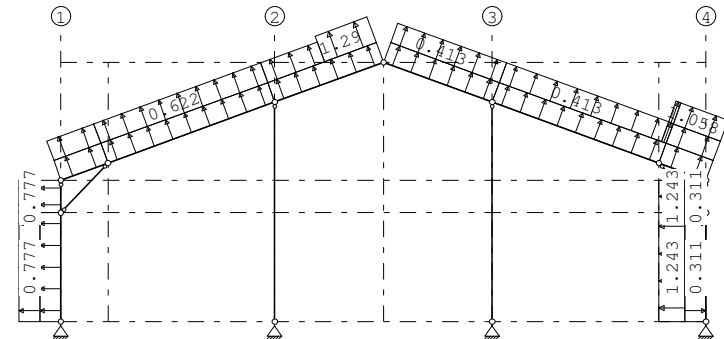
B.G:14 Wind van rechts onderdruk B

| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw6   | 1.29   | 1.29  | 1.671 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 1.522 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:15 Wind van rechts overdruk B

**STAAFBELASTINGEN**

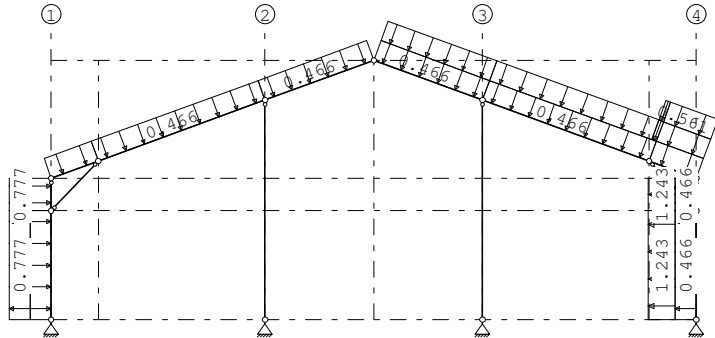
B.G:15 Wind van rechts overdruk B

| Staaftype | Type       | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|-----------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4         | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10        | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12        | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 8         | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw6   | 1.29   | 1.29  | 1.671 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11        | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 1.522 | 0.0      | 0.2      | 0.0      |
| 7         | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6         | 1:QZLokaal | Qw7   | 0.62   | 0.62  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1         | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:16 Wind van rechts onderdruk C

**STAAFBELASTINGEN**

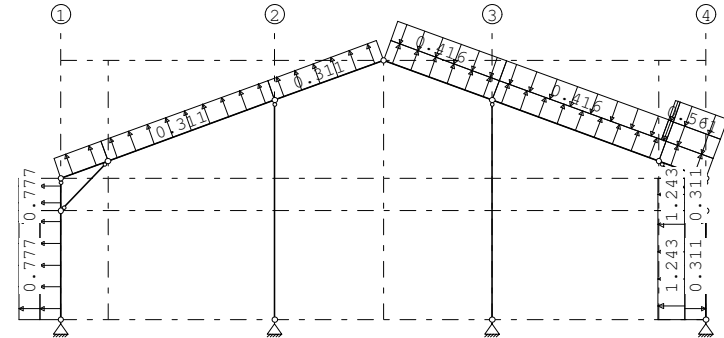
B.G:16 Wind van rechts onderdruk C

| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw3   | -0.01  | -0.01 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw4   | -0.56  | -0.56 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw3   | -0.01  | -0.01 | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw4   | -0.56  | -0.56 | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw5   | -0.42  | -0.42 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:17 Wind van rechts overdruk C

**STAAFBELASTINGEN**

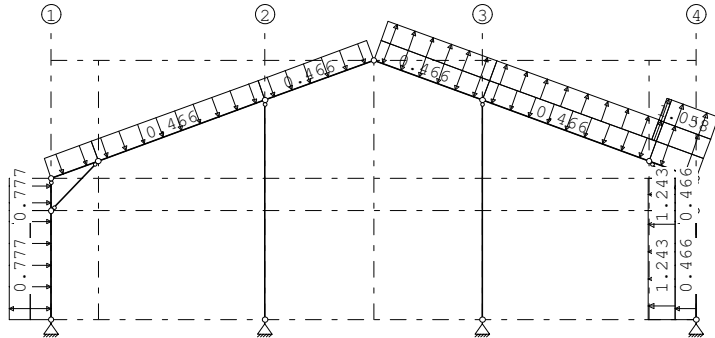
B.G:17 Wind van rechts overdruk C

| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw3   | -0.01  | -0.01 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw4   | -0.56  | -0.56 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw3   | -0.01  | -0.01 | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw4   | -0.56  | -0.56 | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw5   | -0.42  | -0.42 | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw5   | -0.42  | -0.42 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel....: Kopsant - as I

## BELASTINGEN

B.G:18 Wind van rechts onderdruk D



## STAAFBELASTINGEN

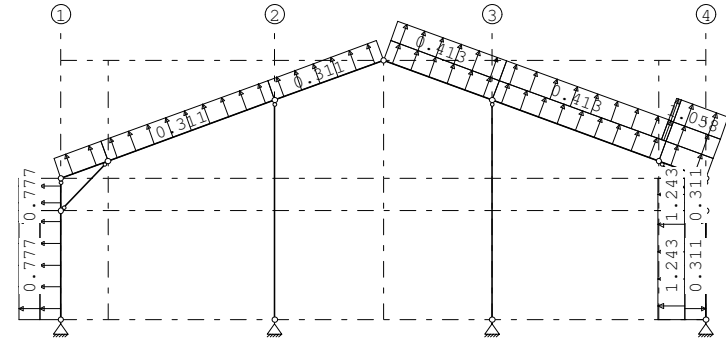
B.G:18 Wind van rechts onderdruk D

| Staaf | Type       | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|-------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1     | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2     | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6     | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7     | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11    | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8     | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10    | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4     | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3     | 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3     | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4     | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10    | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10    | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12    | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 8     | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2     | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1     | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods  
Onderdeel....: Kopspant - as I

## BELASTINGEN

B.G:19 Wind van rechts overdruk D



## STAAFBELASTINGEN

B.G:19 Wind van rechts overdruk D

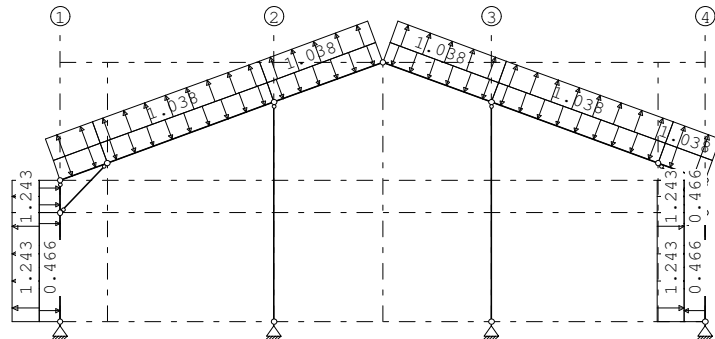
| Staa | Type       | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|------|------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1    | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2    | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6    | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7    | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11   | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8    | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12   | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10   | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4    | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3    | 1:QZLokaal | Qw9   | 0.31   | 0.31  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3    | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4    | 1:QZLokaal | Qw2   | -1.24  | -1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10   | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10   | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12   | 1:QZLokaal | Qw10  | 0.03   | 0.03  | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12   | 1:QZLokaal | Qw11  | 1.06   | 1.06  | 4.759 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12   | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.138 | 0.0      | 0.2      | 0.0      |
| 8    | 1:QZLokaal | Qw12  | 0.41   | 0.41  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2    | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1    | 1:QZLokaal | Qw8   | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:20 Wind loodrecht onderdruk A

**STAAFBELASTINGEN**

B.G:20 Wind loodrecht onderdruk A

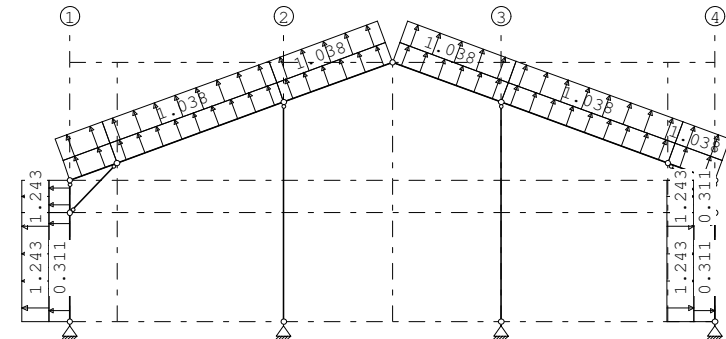
| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw13  | 1.24   | 1.24  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw13  | 1.24   | 1.24  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw13  | 1.24   | 1.24  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw13  | 1.24   | 1.24  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw14  | 1.04   | 1.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw14  | 1.04   | 1.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw14  | 1.04   | 1.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw14  | 1.04   | 1.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw14  | 1.04   | 1.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw14  | 1.04   | 1.04  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:21 Wind loodrecht overdruk A

**STAAFBELASTINGEN**

B.G:21 Wind loodrecht overdruk A

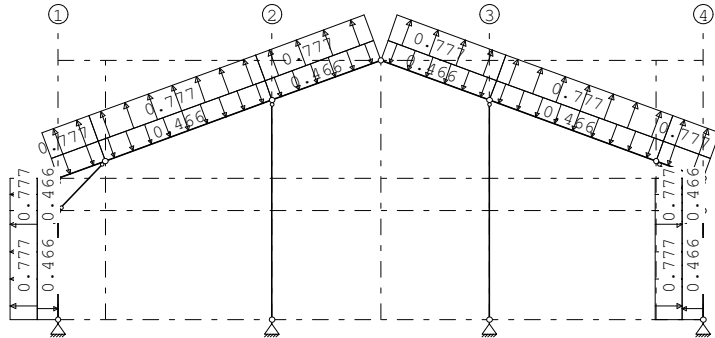
| Staaftype     | Index | q1/p/m | q2   | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw13  | 1.24   | 1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw13  | 1.24   | 1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw13  | 1.24   | 1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw13  | 1.24   | 1.24 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw14  | 1.04   | 1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw14  | 1.04   | 1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw14  | 1.04   | 1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw14  | 1.04   | 1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw14  | 1.04   | 1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw14  | 1.04   | 1.04 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:22 Wind loodrecht onderdruk B

**STAAFBELASTINGEN**

B.G:22 Wind loodrecht onderdruk B

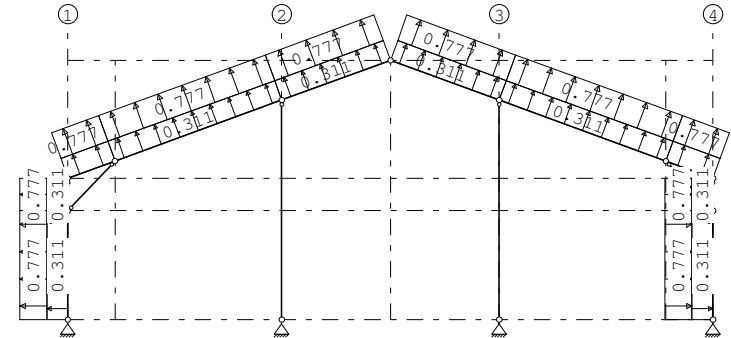
| Staaftype     | Index | q1/p/m | q2    | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw1   | -0.47  | -0.47 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw15  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw15  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw15  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw15  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw16  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw16  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw16  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw16  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw16  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw16  | 0.78   | 0.78  | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:23 Wind loodrecht overdruk B

**STAAFBELASTINGEN**

B.G:23 Wind loodrecht overdruk B

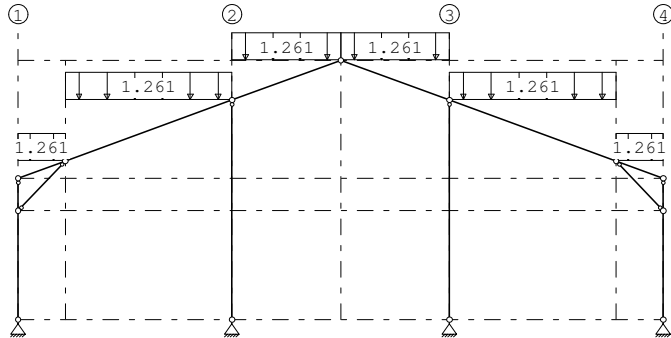
| Staaftype     | Index | q1/p/m | q2   | A     | B     | $\psi_0$ | $\psi_1$ | $\psi_2$ |
|---------------|-------|--------|------|-------|-------|----------|----------|----------|
| 1 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw9   | 0.31   | 0.31 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 1 1:QZLokaal  | Qw15  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 2 1:QZLokaal  | Qw15  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 4 1:QZLokaal  | Qw15  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 3 1:QZLokaal  | Qw15  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 6 1:QZLokaal  | Qw16  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 1:QZLokaal  | Qw16  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 1:QZLokaal | Qw16  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 1:QZLokaal  | Qw16  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 1:QZLokaal | Qw16  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 1:QZLokaal | Qw16  | 0.78   | 0.78 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

**BELASTINGEN**

B.G:24 Sneeuw A

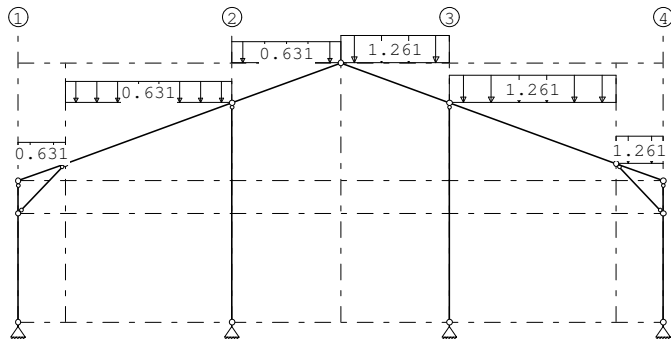
**STAAFBELASTINGEN**

B.G:24 Sneeuw A

| Staaft Type    | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|----------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 6 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 3:QZgeProj. | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 3:QZgeProj. | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 3:QZgeProj. | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**BELASTINGEN**

B.G:25 Sneeuw B



Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

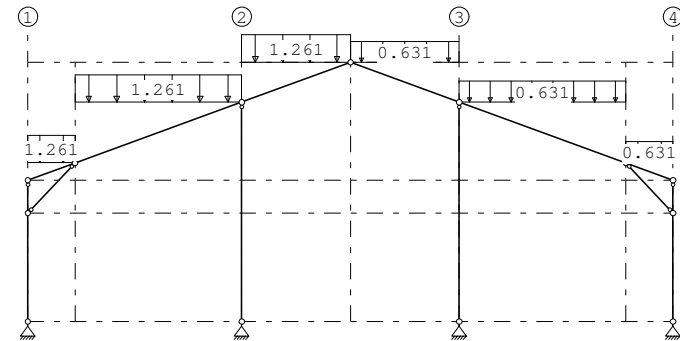
**STAAFBELASTINGEN**

B.G:25 Sneeuw B

| Staaft Type    | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|----------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 6 3:QZgeProj.  | Qs2   | -0.63  | -0.63 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 3:QZgeProj.  | Qs2   | -0.63  | -0.63 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 3:QZgeProj. | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 3:QZgeProj. | Qs2   | -0.63  | -0.63 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 3:QZgeProj. | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**BELASTINGEN**

B.G:26 Sneeuw C

**STAAFBELASTINGEN**

B.G:26 Sneeuw C

| Staaft Type    | Index | q1/p/m | q2    | A     | B     | $\Psi_0$ | $\Psi_1$ | $\Psi_2$ |
|----------------|-------|--------|-------|-------|-------|----------|----------|----------|
| 6 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 7 3:QZgeProj.  | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 8 3:QZgeProj.  | Qs2   | -0.63  | -0.63 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 10 3:QZgeProj. | Qs2   | -0.63  | -0.63 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 11 3:QZgeProj. | Qs1   | -1.26  | -1.26 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |
| 12 3:QZgeProj. | Qs2   | -0.63  | -0.63 | 0.000 | 0.000 | 0.0      | 0.2      | 0.0      |

**REACTIES**

1e orde

| Kn. | B.G. | X-min | X-max | Z-min | Z-max | M-min | M-max |
|-----|------|-------|-------|-------|-------|-------|-------|
| 1   | 1    | 0.65  |       | 4.38  |       |       |       |
| 1   | 2    | 0.00  |       | 0.00  |       |       |       |
| 1   | 3    | 0.15  | 0.35  | 0.02  | 2.62  |       |       |
| 1   | 4    | -6.63 |       | -0.06 |       |       |       |
| 1   | 5    | -5.98 |       | -3.96 |       |       |       |
| 1   | 6    | -5.42 |       | -2.03 |       |       |       |
| 1   | 7    | -4.78 |       | -5.93 |       |       |       |
| 1   | 8    | -5.24 |       | 1.62  |       |       |       |
| 1   | 9    | -4.60 |       | -2.28 |       |       |       |
| 1   | 10   | -4.04 |       | -0.35 |       |       |       |
| 1   | 11   | -3.39 |       | -4.25 |       |       |       |
| 1   | 12   | 5.06  |       | 5.03  |       |       |       |
| 1   | 13   | 5.70  |       | 1.13  |       |       |       |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopspant - as I

**REACTIES**

1e orde

| Kn. | B.G. | X-min | X-max | Z-min | Z-max | M-min | M-max |
|-----|------|-------|-------|-------|-------|-------|-------|
| 1   | 14   | 3.13  |       | 2.59  |       |       |       |
| 1   | 15   | 3.78  |       | -1.31 |       |       |       |
| 1   | 16   | 4.07  |       | 5.47  |       |       |       |
| 1   | 17   | 4.72  |       | 1.57  |       |       |       |
| 1   | 18   | 2.15  |       | 3.03  |       |       |       |
| 1   | 19   | 2.79  |       | -0.87 |       |       |       |
| 1   | 20   | 0.79  |       | -3.14 |       |       |       |
| 1   | 21   | 1.44  |       | -7.04 |       |       |       |
| 1   | 22   | 0.26  |       | -1.56 |       |       |       |
| 1   | 23   | 0.90  |       | -5.46 |       |       |       |
| 1   | 24   | 0.74  |       | 3.85  |       |       |       |
| 1   | 25   | 0.55  |       | 2.13  |       |       |       |
| 1   | 26   | 0.55  |       | 3.65  |       |       |       |
|     |      |       |       |       |       |       |       |
| 5   | 1    | -0.65 |       | 4.38  |       |       |       |
| 5   | 2    | 0.00  |       | 0.00  |       |       |       |
| 5   | 3    | -0.35 | -0.15 | 0.02  | 2.62  |       |       |
| 5   | 4    | -5.06 |       | 5.03  |       |       |       |
| 5   | 5    | -5.70 |       | 1.13  |       |       |       |
| 5   | 6    | -3.13 |       | 2.59  |       |       |       |
| 5   | 7    | -3.78 |       | -1.31 |       |       |       |
| 5   | 8    | -4.07 |       | 5.47  |       |       |       |
| 5   | 9    | -4.72 |       | 1.57  |       |       |       |
| 5   | 10   | -2.15 |       | 3.03  |       |       |       |
| 5   | 11   | -2.79 |       | -0.87 |       |       |       |
| 5   | 12   | 6.63  |       | -0.06 |       |       |       |
| 5   | 13   | 5.98  |       | -3.96 |       |       |       |
| 5   | 14   | 5.42  |       | -2.03 |       |       |       |
| 5   | 15   | 4.78  |       | -5.93 |       |       |       |
| 5   | 16   | 5.24  |       | 1.62  |       |       |       |
| 5   | 17   | 4.60  |       | -2.28 |       |       |       |
| 5   | 18   | 4.04  |       | -0.35 |       |       |       |
| 5   | 19   | 3.39  |       | -4.25 |       |       |       |
| 5   | 20   | -0.79 |       | -3.14 |       |       |       |
| 5   | 21   | -1.44 |       | -7.04 |       |       |       |
| 5   | 22   | -0.26 |       | -1.56 |       |       |       |
| 5   | 23   | -0.90 |       | -5.46 |       |       |       |
| 5   | 24   | -0.74 |       | 3.85  |       |       |       |
| 5   | 25   | -0.55 |       | 3.65  |       |       |       |
| 5   | 26   | -0.55 |       | 2.13  |       |       |       |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopspant - as I

**REACTIES**

1e orde

| Kn. | B.G. | X-min | X-max | Z-min  | Z-max | M-min | M-max |
|-----|------|-------|-------|--------|-------|-------|-------|
| 10  | 1    | 0.00  |       | 8.50   |       |       |       |
| 10  | 2    | 0.00  |       | 0.00   |       |       |       |
| 10  | 3    | 0.00  |       | 0.15   | 4.06  |       |       |
| 10  | 4    | 0.00  |       | 9.09   |       |       |       |
| 10  | 5    | 0.00  |       | 6.07   |       |       |       |
| 10  | 6    | 0.00  |       | 1.99   |       |       |       |
| 10  | 7    | 0.00  |       | -1.02  |       |       |       |
| 10  | 8    | 0.00  |       | 7.47   |       |       |       |
| 10  | 9    | 0.00  |       | 4.45   |       |       |       |
| 10  | 10   | 0.00  |       | 0.37   |       |       |       |
| 10  | 11   | 0.00  |       | -2.65  |       |       |       |
| 10  | 12   | 0.00  |       | -8.32  |       |       |       |
| 10  | 13   | 0.00  |       | -11.33 |       |       |       |
| 10  | 14   | 0.00  |       | -5.39  |       |       |       |
| 10  | 15   | 0.00  |       | -8.40  |       |       |       |
| 10  | 16   | 0.00  |       | -2.32  |       |       |       |
| 10  | 17   | 0.00  |       | -5.34  |       |       |       |
| 10  | 18   | 0.00  |       | 0.61   |       |       |       |
| 10  | 19   | 0.00  |       | -2.41  |       |       |       |
| 10  | 20   | 0.00  |       | -1.95  |       |       |       |
| 10  | 21   | 0.00  |       | -4.97  |       |       |       |
| 10  | 22   | 0.00  |       | -1.21  |       |       |       |
| 10  | 23   | 0.00  |       | -4.22  |       |       |       |
| 10  | 24   | 0.00  |       | 7.37   |       |       |       |
| 10  | 25   | 0.00  |       | 3.61   |       |       |       |
| 10  | 26   | 0.00  |       | 7.44   |       |       |       |
|     |      |       |       |        |       |       |       |
| 11  | 1    | 0.00  |       | 8.50   |       |       |       |
| 11  | 2    | 0.00  |       | 0.00   |       |       |       |
| 11  | 3    | 0.00  |       | 0.15   | 4.06  |       |       |
| 11  | 4    | 0.00  |       | -8.32  |       |       |       |
| 11  | 5    | 0.00  |       | -11.33 |       |       |       |
| 11  | 6    | 0.00  |       | -5.39  |       |       |       |
| 11  | 7    | 0.00  |       | -8.40  |       |       |       |
| 11  | 8    | 0.00  |       | -2.32  |       |       |       |
| 11  | 9    | 0.00  |       | -5.34  |       |       |       |
| 11  | 10   | 0.00  |       | 0.61   |       |       |       |
| 11  | 11   | 0.00  |       | -2.41  |       |       |       |
| 11  | 12   | 0.00  |       | 9.09   |       |       |       |
| 11  | 13   | 0.00  |       | 6.07   |       |       |       |
| 11  | 14   | 0.00  |       | 1.99   |       |       |       |
| 11  | 15   | 0.00  |       | -1.02  |       |       |       |
| 11  | 16   | 0.00  |       | 7.47   |       |       |       |
| 11  | 17   | 0.00  |       | 4.45   |       |       |       |
| 11  | 18   | 0.00  |       | 0.37   |       |       |       |
| 11  | 19   | 0.00  |       | -2.65  |       |       |       |
| 11  | 20   | 0.00  |       | -1.95  |       |       |       |
| 11  | 21   | 0.00  |       | -4.97  |       |       |       |
| 11  | 22   | 0.00  |       | -1.21  |       |       |       |
| 11  | 23   | 0.00  |       | -4.22  |       |       |       |
| 11  | 24   | 0.00  |       | 7.37   |       |       |       |
| 11  | 25   | 0.00  |       | 7.44   |       |       |       |
| 11  | 26   | 0.00  |       | 3.61   |       |       |       |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopsant - as I

**BEREKENINGSTATUS**

Controlerende berekening

B.C. Iteratie Status

|    |   |                        |
|----|---|------------------------|
| 1  | 2 | Nauwkeurigheid bereikt |
| 2  | 2 | Nauwkeurigheid bereikt |
| 3  | 3 | Nauwkeurigheid bereikt |
| 4  | 3 | Nauwkeurigheid bereikt |
| 5  | 3 | Nauwkeurigheid bereikt |
| 6  | 3 | Nauwkeurigheid bereikt |
| 7  | 3 | Nauwkeurigheid bereikt |
| 8  | 3 | Nauwkeurigheid bereikt |
| 9  | 3 | Nauwkeurigheid bereikt |
| 10 | 3 | Nauwkeurigheid bereikt |
| 11 | 3 | Nauwkeurigheid bereikt |
| 12 | 3 | Nauwkeurigheid bereikt |
| 13 | 3 | Nauwkeurigheid bereikt |
| 14 | 3 | Nauwkeurigheid bereikt |
| 15 | 3 | Nauwkeurigheid bereikt |
| 16 | 3 | Nauwkeurigheid bereikt |
| 17 | 3 | Nauwkeurigheid bereikt |
| 18 | 3 | Nauwkeurigheid bereikt |
| 19 | 3 | Nauwkeurigheid bereikt |
| 20 | 2 | Nauwkeurigheid bereikt |
| 21 | 3 | Nauwkeurigheid bereikt |
| 22 | 2 | Nauwkeurigheid bereikt |
| 23 | 3 | Nauwkeurigheid bereikt |
| 24 | 3 | Nauwkeurigheid bereikt |
| 25 | 3 | Nauwkeurigheid bereikt |
| 26 | 3 | Nauwkeurigheid bereikt |
| 27 | 3 | Nauwkeurigheid bereikt |
| 28 | 3 | Nauwkeurigheid bereikt |
| 29 | 3 | Nauwkeurigheid bereikt |
| 30 | 3 | Nauwkeurigheid bereikt |
| 31 | 3 | Nauwkeurigheid bereikt |
| 32 | 3 | Nauwkeurigheid bereikt |
| 33 | 3 | Nauwkeurigheid bereikt |
| 34 | 3 | Nauwkeurigheid bereikt |
| 35 | 3 | Nauwkeurigheid bereikt |
| 36 | 3 | Nauwkeurigheid bereikt |
| 37 | 3 | Nauwkeurigheid bereikt |
| 38 | 3 | Nauwkeurigheid bereikt |
| 39 | 3 | Nauwkeurigheid bereikt |
| 40 | 3 | Nauwkeurigheid bereikt |
| 41 | 3 | Nauwkeurigheid bereikt |
| 42 | 3 | Nauwkeurigheid bereikt |
| 43 | 3 | Nauwkeurigheid bereikt |
| 44 | 3 | Nauwkeurigheid bereikt |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopsant - as I

**BEREKENINGSTATUS**

Controlerende berekening

B.C. Iteratie Status

|    |   |                        |
|----|---|------------------------|
| 45 | 3 | Nauwkeurigheid bereikt |
| 46 | 2 | Nauwkeurigheid bereikt |
| 47 | 3 | Nauwkeurigheid bereikt |
| 48 | 3 | Nauwkeurigheid bereikt |
| 49 | 3 | Nauwkeurigheid bereikt |
| 50 | 3 | Nauwkeurigheid bereikt |
| 51 | 3 | Nauwkeurigheid bereikt |
| 52 | 3 | Nauwkeurigheid bereikt |
| 53 | 3 | Nauwkeurigheid bereikt |
| 54 | 3 | Nauwkeurigheid bereikt |
| 55 | 3 | Nauwkeurigheid bereikt |
| 56 | 3 | Nauwkeurigheid bereikt |
| 57 | 3 | Nauwkeurigheid bereikt |
| 58 | 3 | Nauwkeurigheid bereikt |
| 59 | 3 | Nauwkeurigheid bereikt |
| 60 | 3 | Nauwkeurigheid bereikt |
| 61 | 3 | Nauwkeurigheid bereikt |
| 62 | 3 | Nauwkeurigheid bereikt |
| 63 | 3 | Nauwkeurigheid bereikt |
| 64 | 3 | Nauwkeurigheid bereikt |
| 65 | 3 | Nauwkeurigheid bereikt |
| 66 | 3 | Nauwkeurigheid bereikt |
| 67 | 3 | Nauwkeurigheid bereikt |
| 68 | 2 | Nauwkeurigheid bereikt |
| 69 | 3 | Nauwkeurigheid bereikt |
| 70 | 2 | Nauwkeurigheid bereikt |
| 71 | 3 | Nauwkeurigheid bereikt |
| 72 | 3 | Nauwkeurigheid bereikt |
| 73 | 3 | Nauwkeurigheid bereikt |
| 74 | 3 | Nauwkeurigheid bereikt |
| 75 | 2 | Nauwkeurigheid bereikt |
| 76 | 2 | Nauwkeurigheid bereikt |
| 77 | 3 | Nauwkeurigheid bereikt |
| 78 | 3 | Nauwkeurigheid bereikt |
| 79 | 3 | Nauwkeurigheid bereikt |
| 80 | 3 | Nauwkeurigheid bereikt |
| 81 | 3 | Nauwkeurigheid bereikt |
| 82 | 3 | Nauwkeurigheid bereikt |
| 83 | 3 | Nauwkeurigheid bereikt |
| 84 | 3 | Nauwkeurigheid bereikt |
| 85 | 3 | Nauwkeurigheid bereikt |
| 86 | 3 | Nauwkeurigheid bereikt |
| 87 | 3 | Nauwkeurigheid bereikt |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopsant - as I

**BEREKENINGSTATUS**

Controlerende berekening

**B.C. Iteratie Status**

|     |   |                        |
|-----|---|------------------------|
| 88  | 3 | Nauwkeurigheid bereikt |
| 89  | 3 | Nauwkeurigheid bereikt |
| 90  | 3 | Nauwkeurigheid bereikt |
| 91  | 3 | Nauwkeurigheid bereikt |
| 92  | 3 | Nauwkeurigheid bereikt |
| 93  | 2 | Nauwkeurigheid bereikt |
| 94  | 2 | Nauwkeurigheid bereikt |
| 95  | 2 | Nauwkeurigheid bereikt |
| 96  | 2 | Nauwkeurigheid bereikt |
| 97  | 2 | Nauwkeurigheid bereikt |
| 98  | 3 | Nauwkeurigheid bereikt |
| 99  | 3 | Nauwkeurigheid bereikt |
| 100 | 2 | Nauwkeurigheid bereikt |

**BELASTINGCOMBINATIES****BC Type**

|          |      |           |   |                 |
|----------|------|-----------|---|-----------------|
| 1 Fund.  | 1.22 | $G_{k,1}$ |   |                 |
| 2 Fund.  | 0.90 | $G_{k,1}$ |   |                 |
| 3 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,3}$  |
| 4 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,4}$  |
| 5 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,5}$  |
| 6 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,6}$  |
| 7 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,7}$  |
| 8 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,8}$  |
| 9 Fund.  | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,9}$  |
| 10 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,10}$ |
| 11 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,11}$ |
| 12 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,12}$ |
| 13 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,13}$ |
| 14 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,14}$ |
| 15 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,15}$ |
| 16 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,16}$ |
| 17 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,17}$ |
| 18 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,18}$ |
| 19 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,19}$ |
| 20 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,20}$ |
| 21 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,21}$ |
| 22 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,22}$ |
| 23 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,23}$ |
| 24 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,24}$ |
| 25 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,25}$ |
| 26 Fund. | 1.08 | $G_{k,1}$ | + | 1.35 $Q_{k,26}$ |
| 27 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,3}$  |
| 28 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,4}$  |
| 29 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,5}$  |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopsant - as I

**BELASTINGCOMBINATIES****BC Type**

|          |      |           |   |                 |
|----------|------|-----------|---|-----------------|
| 30 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,6}$  |
| 31 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,7}$  |
| 32 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,8}$  |
| 33 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,9}$  |
| 34 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,10}$ |
| 35 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,11}$ |
| 36 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,12}$ |
| 37 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,13}$ |
| 38 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,14}$ |
| 39 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,15}$ |
| 40 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,16}$ |
| 41 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,17}$ |
| 42 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,18}$ |
| 43 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,19}$ |
| 44 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,20}$ |
| 45 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,21}$ |
| 46 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,22}$ |
| 47 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,23}$ |
| 48 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,24}$ |
| 49 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,25}$ |
| 50 Fund. | 0.90 | $G_{k,1}$ | + | 1.35 $Q_{k,26}$ |
| 51 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,3}$  |
| 52 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,4}$  |
| 53 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,5}$  |
| 54 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,6}$  |
| 55 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,7}$  |
| 56 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,8}$  |
| 57 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,9}$  |
| 58 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,10}$ |
| 59 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,11}$ |
| 60 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,12}$ |
| 61 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,13}$ |
| 62 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,14}$ |
| 63 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,15}$ |
| 64 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,16}$ |
| 65 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,17}$ |
| 66 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,18}$ |
| 67 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,19}$ |
| 68 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,20}$ |
| 69 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,21}$ |
| 70 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,22}$ |
| 71 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,23}$ |
| 72 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,24}$ |
| 73 Kar.  | 1.00 | $G_{k,1}$ | + | 1.00 $Q_{k,25}$ |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**BELASTINGCOMBINATIES**

| BC Type   |      |           |   |      |                   |
|-----------|------|-----------|---|------|-------------------|
| 74 Kar.   | 1.00 | $G_{k,1}$ | + | 1.00 | $Q_{k,26}$        |
| 75 Quas.  | 1.00 | $G_{k,1}$ |   |      |                   |
| 76 Freq.  | 1.00 | $G_{k,1}$ |   |      |                   |
| 77 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,4}$  |
| 78 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,5}$  |
| 79 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,6}$  |
| 80 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,7}$  |
| 81 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,8}$  |
| 82 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,9}$  |
| 83 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,10}$ |
| 84 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,11}$ |
| 85 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,12}$ |
| 86 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,13}$ |
| 87 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,14}$ |
| 88 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,15}$ |
| 89 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,16}$ |
| 90 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,17}$ |
| 91 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,18}$ |
| 92 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,19}$ |
| 93 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,20}$ |
| 94 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,21}$ |
| 95 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,22}$ |
| 96 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,23}$ |
| 97 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,24}$ |
| 98 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,25}$ |
| 99 Freq.  | 1.00 | $G_{k,1}$ | + | 1.00 | $\Psi_1 Q_{k,26}$ |
| 100 Blij. | 1.00 | $G_{k,1}$ |   |      |                   |

**GUNSTIGE WERKING PERMANENTE BELASTINGEN**

| BC Staven met gunstige werking |                            |
|--------------------------------|----------------------------|
| 1                              | Geen                       |
| 2                              | Alle staven de factor:0.90 |
| 3                              | Geen                       |
| 4                              | Geen                       |
| 5                              | Geen                       |
| 6                              | Geen                       |
| 7                              | Geen                       |
| 8                              | Geen                       |
| 9                              | Geen                       |
| 10                             | Geen                       |
| 11                             | Geen                       |
| 12                             | Geen                       |
| 13                             | Geen                       |
| 14                             | Geen                       |
| 15                             | Geen                       |

Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

**GUNSTIGE WERKING PERMANENTE BELASTINGEN**

| BC Staven met gunstige werking |                            |
|--------------------------------|----------------------------|
| 16                             | Geen                       |
| 17                             | Geen                       |
| 18                             | Geen                       |
| 19                             | Geen                       |
| 20                             | Geen                       |
| 21                             | Geen                       |
| 22                             | Geen                       |
| 23                             | Geen                       |
| 24                             | Geen                       |
| 25                             | Geen                       |
| 26                             | Geen                       |
| 27                             | Alle staven de factor:0.90 |
| 28                             | Alle staven de factor:0.90 |
| 29                             | Alle staven de factor:0.90 |
| 30                             | Alle staven de factor:0.90 |
| 31                             | Alle staven de factor:0.90 |
| 32                             | Alle staven de factor:0.90 |
| 33                             | Alle staven de factor:0.90 |
| 34                             | Alle staven de factor:0.90 |
| 35                             | Alle staven de factor:0.90 |
| 36                             | Alle staven de factor:0.90 |
| 37                             | Alle staven de factor:0.90 |
| 38                             | Alle staven de factor:0.90 |
| 39                             | Alle staven de factor:0.90 |
| 40                             | Alle staven de factor:0.90 |
| 41                             | Alle staven de factor:0.90 |
| 42                             | Alle staven de factor:0.90 |
| 43                             | Alle staven de factor:0.90 |
| 44                             | Alle staven de factor:0.90 |
| 45                             | Alle staven de factor:0.90 |
| 46                             | Alle staven de factor:0.90 |
| 47                             | Alle staven de factor:0.90 |
| 48                             | Alle staven de factor:0.90 |
| 49                             | Alle staven de factor:0.90 |
| 50                             | Alle staven de factor:0.90 |

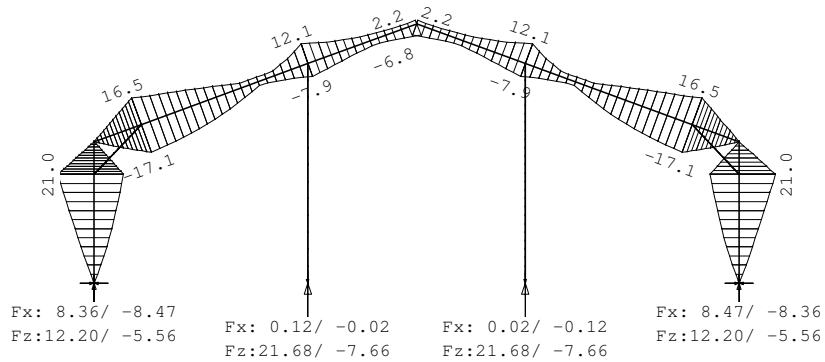
Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

## OMHULLENDE VAN DE FUNDAMENTELE COMBINATIES

### MOMENTEN

2e orde

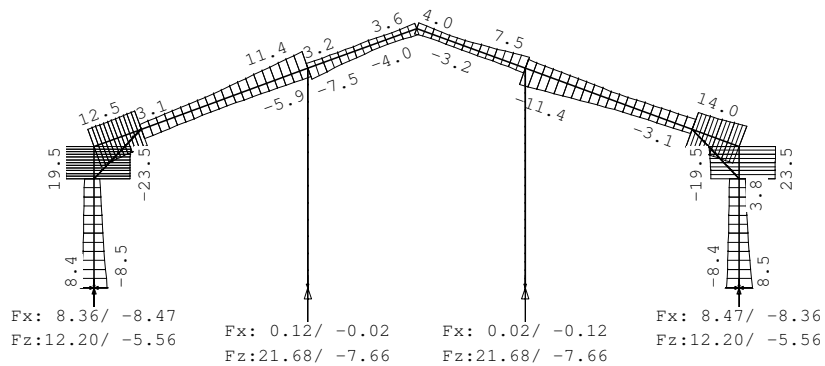
Fundamentele combinatie



### DWARSKRACHTEN

2e orde

Fundamentele combinatie

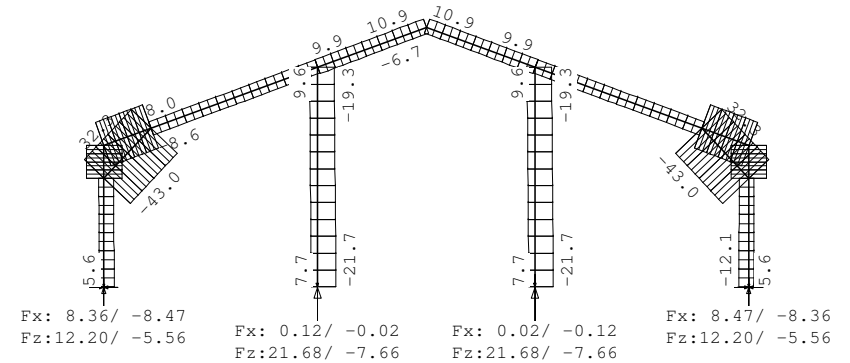


Project.....: 180170 - Uitbreiding loods  
Onderdeel.....: Kopspant - as I

## NORMAALKRACHTEN

2e orde

Fundamentele combinatie



## REACTIES

2e orde

Fundamentele combinatie

| Kn. | X-min | X-max | Z-min | Z-max | M-min | M-max |
|-----|-------|-------|-------|-------|-------|-------|
| 1   | -8.47 | 8.36  | -5.56 | 12.20 |       |       |
| 5   | -8.36 | 8.47  | -5.56 | 12.20 |       |       |
| 10  | -0.02 | 0.12  | -7.66 | 21.68 |       |       |
| 11  | -0.12 | 0.02  | -7.66 | 21.68 |       |       |

## OMHULLENDE VAN DE BLIJVENDE COMBINATIES

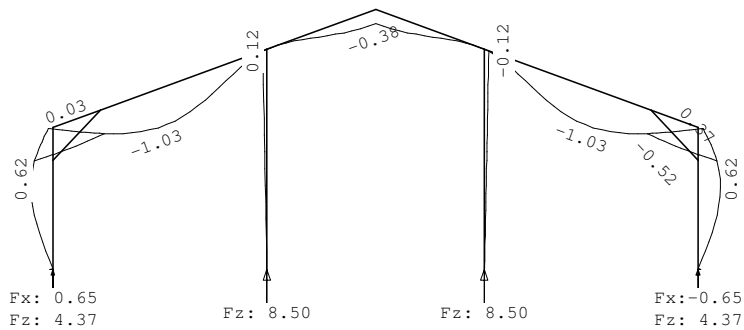
Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopsant - as I

**VERPLAATSINGEN**

2e orde [mm]

Blijvende combinatie

**STAALPROFIELEN - ALGEMENE GEGEVENS**

|                                          |                                   |             |
|------------------------------------------|-----------------------------------|-------------|
| Stabiliteit:                             | Classificatie gehele constructie: | Ongeschoord |
| Doorbuiging en verplaatsing:             |                                   |             |
| Aantal bouwlagen:                        | 1                                 |             |
| Gebouwtype:                              | Overig                            |             |
| Toel. horiz. verplaatsing gehele gebouw: | h/300                             |             |
| Kleinste gevelhoogte [m]:                | 0.0                               |             |

**MATERIAAL**

| Mat nr. | Profielnaam | Vloeis.p.<br>[N/mm <sup>2</sup> ] | Productie methode | Min. drsn. klasse |
|---------|-------------|-----------------------------------|-------------------|-------------------|
| 1       | IPE200      | 235                               | Gewalst           | 1                 |
| 2       | K80/80/5CF  | 275                               | Koudgevormd       | 1                 |
| 3       | IPE220      | 235                               | Gewalst           | 1                 |
| 4       | IPE270Z     | 235                               | Gewalst           | 1                 |

Partiële veiligheidsfactoren:

Gamma M;0 : 1.00 Gamma M;1 : 1.00

**KNIKSTABILITEIT**

| Staafl | l <sub>sys</sub><br>[m] | Classif. y<br>sterke as | l <sub>knik,y</sub><br>[m] | Extra aanp. y<br>[kN] | Classif. z<br>zwakke as | l <sub>knik,z</sub><br>[m] | Extra aanp. z<br>[kN] |
|--------|-------------------------|-------------------------|----------------------------|-----------------------|-------------------------|----------------------------|-----------------------|
| 1-2    | 3.900                   | Ongeschoord             | 2e orde                    |                       | Geschoord               | 3.900                      | 0.0                   |
| 4-3    | 3.900                   | Ongeschoord             | 2e orde                    |                       | Geschoord               | 3.900                      | 0.0                   |
| 5      | 1.892                   | Geschoord               | 2e orde                    |                       | Geschoord               | 1.892                      | 0.0                   |
| 6-11   | 9.475                   | Ongeschoord             | 2e orde                    |                       | Geschoord               | 9.475                      | 0.0                   |
| 8-10   | 9.475                   | Ongeschoord             | 2e orde                    |                       | Geschoord               | 9.475                      | 0.0                   |
| 9      | 1.892                   | Geschoord               | 2e orde                    |                       | Geschoord               | 1.892                      | 0.0                   |
| 13     | 6.054                   | Ongeschoord             | 6.054                      | 0.0                   | Geschoord               | 2e orde                    |                       |
| 14     | 6.054                   | Ongeschoord             | 6.054                      | 0.0                   | Geschoord               | 2e orde                    |                       |

Project.....: 180170 - Uitbreiding loads

Onderdeel.....: Kopsant - as I

**KIPSTABILITEIT**

| Staafl | Plts. aangr. | l gaffel<br>[m]            | Kipsteunafstanden<br>[m]    |
|--------|--------------|----------------------------|-----------------------------|
| 1-2    | 1.0*h        | boven: 3.90<br>onder: 3.90 | 2*1,95<br>3;0,9             |
| 4-3    | 1.0*h        | boven: 3.90<br>onder: 3.90 | 2*1,95<br>0,9;3             |
| 5      | 1.0*h        | boven: 1.89<br>onder: 1.89 | 1.892<br>1.892              |
| 6-11   | 1.0*h        | boven: 9.47<br>onder: 9.47 | 3*3,158<br>1,384;4,9;3,191  |
| 8-10   | 1.0*h        | boven: 9.47<br>onder: 9.47 | 3*3,158<br>3,1909;4,9;1,384 |
| 9      | 1.0*h        | boven: 1.89<br>onder: 1.89 | 1.892<br>1.892              |
| 13     | 1.0*h        | boven: 6.05<br>onder: 6.05 | 6.054<br>6.054              |
| 14     | 1.0*h        | boven: 6.05<br>onder: 6.05 | 6.054<br>6.054              |

**TOETSING SPANNINGEN**

| Staafl | Mat nr. | BC | Sit | Kl | Plaats | Norm    | Artikel | Formule | Hoogste toetsing<br>U.C. [N/mm <sup>2</sup> ] | Opm.         |
|--------|---------|----|-----|----|--------|---------|---------|---------|-----------------------------------------------|--------------|
| 1-2    | 1       | 12 | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.523                                         | 123 42,46,47 |
| 4-3    | 1       | 4  | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.523                                         | 123 42,46,47 |
| 5      | 2       | 12 | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.61)  | 0.157                                         | 43           |
| 6-11   | 3       | 5  | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.920                                         | 216 42,46,47 |
| 8-10   | 3       | 13 | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.62)  | 0.920                                         | 216 42,46,47 |
| 9      | 2       | 4  | 1   | 1  | Staafl | EN3-1-1 | 6.3.3   | (6.61)  | 0.157                                         | 43           |
| 13     | 4       | 4  | 1   | 1  | Staafl | EN3-1-1 | 6.3.1.1 | (6.46z) | 0.108                                         | 25 47        |
| 14     | 4       | 12 | 1   | 1  | Staafl | EN3-1-1 | 6.3.1.1 | (6.46z) | 0.108                                         | 25 47        |

Opmerkingen:

[ 42] Waarschuwing: Er sluiten tussentijds staven en/of opleggingen aan.

[ 46] T.b.v. kip is een equivalente Q-last berekend.

[ 47] Bij verlopende normaalkracht wordt de grootste drukkracht genomen.

**TOETSING DOORBUIGING**

| Staafl | Soort | Mtg | Lengte<br>[m] | Overst I | Zeeg J | u <sub>tot</sub><br>[mm] | BC | Sit    | u<br>[mm] | Toelaatbaar<br>[mm] | *1    |
|--------|-------|-----|---------------|----------|--------|--------------------------|----|--------|-----------|---------------------|-------|
| 6-11   | Dak   | db  | 9.47          | N        | N      | 0.0                      | 52 | 1 Eind | -7.1      | -37.9               | 0.004 |
|        |       | db  |               |          |        |                          | 52 | 1 Bijk | -6.1      | -37.9               | 0.004 |
| 8-10   | Dak   | db  | 9.47          | N        | N      | 0.0                      | 60 | 1 Eind | -7.1      | -37.9               | 0.004 |
|        |       | db  |               |          |        |                          | 60 | 1 Bijk | -6.1      | -37.9               | 0.004 |

**TOETSING HORIZONTALE VERPLAATSING**

| Staafl | BC | Sit | Lengte<br>[m] | u <sub>eind</sub><br>[mm] | Toelaatbaar<br>[h/] |
|--------|----|-----|---------------|---------------------------|---------------------|
| 1-2    | 52 | 1   | 3.900         | -27.1                     | 13.0 300            |
| 4-3    | 60 | 1   | 3.900         | 27.1                      | 13.0 300            |
| 13     | 52 | 1   | 6.054         | -27.1                     | 20.2 300            |
| 14     | 60 | 1   | 6.054         | 27.1                      | 20.2 300            |

Project.....: 180170 - Uitbreiding loods

Onderdeel.....: Kopspant - as I

### **TOETSING HOR. VERPLAATSING GLOBAAL**

Er is een maximale horizontale verplaatsing van 0.0289 [m] gevonden  
bij knoop 7 en combinatie 52; belastingsituatie 1, iter:3 (combinatietype 2).  
Bij een hoogte van 4.375 [m] levert dit h / 152 (toel.: h / 300).

Project : 180170 - uitbreiding loads  
 Onderdeel : Houten gordingen  
 Datum : 23/09/2020  
 Eenheden : kN/m/rad  
 Bestand : \\DC01\Tekeningen\2018\180170\Bouwvergunning\3.  
 Constructieberekeningen\3.1  
 Constructieberekening\Aanbouw bestaande  
 loads\Construct\180170\_Houten  
 gordingen\_2020-09-23.cnw

### Toegepaste normen volgens Eurocode met Nederlandse NB

|             |                      |                 |             |
|-------------|----------------------|-----------------|-------------|
| Belastingen | NEN-EN 1990:2002     | C2:2010         | NB:2011(nl) |
|             | NEN-EN 1991-1-1:2002 | C1:2009         | NB:2011(nl) |
|             | NEN-EN 1991-1-3:2003 | C1:2009         | NB:2011(nl) |
|             | NEN-EN 1991-1-4:2005 | C2:2011         | NB:2011(nl) |
| Hout        | NEN-EN 1995-1-1:2005 | A1:2011,C1:2006 | NB:2013(nl) |
|             | NEN-EN 14080:2013    |                 |             |

### Gording berekening - as G-H

zadeldak dubbele buiging

#### Algemene gegevens

|                        |      |                        |                        |                      |           |
|------------------------|------|------------------------|------------------------|----------------------|-----------|
| B x H                  | [mm] | : 75 x 225             | Sterkteklasse          | :                    | C24       |
| Overspanning           | [mm] | : 5100                 | Klimaatklasse          | :                    | I         |
| Aantal zijdl. steunen  |      | : 1                    | Referentie periode [j] | :                    | 15        |
| Opleglengte            | [mm] | : 100                  |                        |                      |           |
| Hoh in het dakvlak[mm] |      | : 1350                 |                        |                      |           |
| Helling                |      | : 20.00                |                        |                      |           |
| Beschot sterkteklasse  |      | : C18                  |                        |                      |           |
| Dikte beschot          | [mm] | : 0                    | $E_{0,mean} \times I$  | [Nm <sup>2</sup> /m] | : 0.0     |
| Windgebied             |      | : 3                    | Terrein                | :                    | Onbebouwd |
| Gebouw L x B x H       | [m]  | : 41.00 x 18.10 x 7.40 |                        |                      |           |

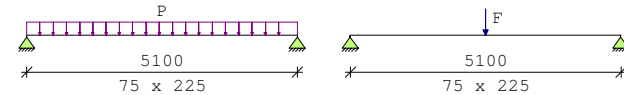
#### Permanente belastingen $G_{rep}$

|                             |   |      |
|-----------------------------|---|------|
| EG balklaag                 | : | 0.40 |
| Isolatie                    | : | 0.00 |
| Extra gewicht               | : | 0.00 |
| Totaal [kN/m <sup>2</sup> ] | : | 0.40 |

#### Veranderlijke belastingen

|                           |                      |                                                          |
|---------------------------|----------------------|----------------------------------------------------------|
| $Q_k$                     | [kN]                 | : 2.00                                                   |
| $Q_k$ oppervlak           | [m <sup>2</sup> ]    | : 0.05 x 0.05                                            |
| Reductiefactor            | :                    | 1.00                                                     |
| Wind $Q_{p,prob}$         | [kN/m <sup>2</sup> ] | : 0.53 (= $C_{prob}^2 \times Q_p = 0.91^2 \times 0.63$ ) |
| Sneeuw vormfactor $\mu_1$ | :                    | 1.00                                                     |

Project : 180170 - uitbreiding loads  
 Onderdeel : Houten gordingen  
 Datum : 23/09/2020  
 Eenheden : kN/m/rad



Belastingfactoren (NEN-EN 1990 - Bijlage A1.3)

Formule 6.10a:  $\gamma_G$  : 1.22  $\gamma_Q$  : 1.35

Formule 6.10b:  $\xi \gamma_G$  : 1.08  $\gamma_Q$  : 1.35

Perm.bel. gunstig : 0.90

Partiële factor (Tabel 2.3 NEN-EN 1995-1-1)

$\gamma_M$ [-]: 1.30

#### Stabiliteit

1.Toetsing kipstabiliteit m.b.t. montagefase volgens par.6.3.3. is n.v.t.:  
 - u hebt het belastingsgeval 'Uitvoering' niet toegepast.

2.Factoren t.b.v. toetsing kipstabiliteit m.b.t. gebruiksfase volgens par.6.3.3:

$k_{crit,y}$  [-] : 1.00 frm(6.34)

$k_{crit,z}$  [-] : 1.00 frm(6.34)

Belastingcombinatie wind omhoog (opbuigend moment):

$k_{crit,y}$  [-] : 0.91 frm(6.34)

$k_{crit,z}$  [-] : 1.00 frm(6.34)

#### Resultaten (maatgevende combinaties)

Factoren t.b.v. toetsing ULS:

$k_m$  [-] : 0.70 par(6.1.6)

|                                                                                                                                                         |           |                                                                                                                                                        | eis | u.c. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|
| Geconc. belasting                                                                                                                                       | frm(6.13) | $\tau_{v,d} = 0.32 < 2.46$ [N/mm <sup>2</sup> ]                                                                                                        |     | 0.13 |
| Sneeuw                                                                                                                                                  | frm(6.3)  | $\sigma_{c,90,q,d} / (k_{c,90,q} \cdot f_{c,90,d}) + \sigma_{c,90,F,d} / (k_{c,90,F} \cdot f_{c,90,d}) < 1.00$<br>$= 0.47 / 1.73 + 0.00 / 2.60 = 0.27$ |     | 0.27 |
|                                                                                                                                                         | frm(6.11) | $\sigma_{m,y,d} = 7.93 < 14.77$ [N/mm <sup>2</sup> ]                                                                                                   |     | 0.54 |
|                                                                                                                                                         | frm(6.12) | $\sigma_{m,z,d} = 3.04 < 16.97$ [N/mm <sup>2</sup> ]                                                                                                   |     | 0.18 |
| Geconc. belasting                                                                                                                                       | frm(6.11) | Maatgevende combinatie buiging                                                                                                                         |     | 0.66 |
| Let op: bij 1 of meerdere belastingcombinaties wind treedt een opwaartse oplegreactie op. Houdt hiermee rekening in het ontwerp van de oplegverbinding. |           |                                                                                                                                                        |     |      |

|        |               |                 |      |      |
|--------|---------------|-----------------|------|------|
| Sneeuw | $u_{bij}$     | = 10.47 < 20.40 | [mm] | 0.51 |
| Sneeuw | $u_{net,fin}$ | = 16.18 < 20.40 | [mm] | 0.79 |

|                   |                 |                |      |      |
|-------------------|-----------------|----------------|------|------|
| Geconc. belasting | $u_{bij,z}$     | = 2.44 < 10.20 | [mm] | 0.24 |
| Geconc. belasting | $u_{net,fin,z}$ | = 3.26 < 10.20 | [mm] | 0.32 |

Project : 180170 - uitbreiding loods  
 Onderdeel : Houten gordingen  
 Datum : 23/09/2020  
 Eenheden : kN/m/rad

**Gording berekening - as H-I**

zadeldak dubbele buiging

**Algemene gegevens**

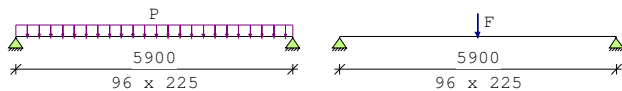
|                        |      |                        |                        |                      |           |
|------------------------|------|------------------------|------------------------|----------------------|-----------|
| B x H                  | [mm] | : 96 x 225             | Sterkteklasse          | :                    | C24       |
| Overspanning           | [mm] | : 5900                 | Klimaatklasse          | :                    | I         |
| Aantal zijdl. steunen  | :    | 1                      | Referentie periode [j] | :                    | 15        |
| Opleglengte            | [mm] | : 100                  |                        |                      |           |
| Hoh in het dakvlak[mm] | :    | 1350                   |                        |                      |           |
| Helling                | :    | 20.00                  |                        |                      |           |
| Beschot sterkteklasse  | :    | C18                    |                        |                      |           |
| Dikte beschot          | [mm] | : 0                    | $E_{0,mean} \times I$  | [Nm <sup>2</sup> /m] | : 0.0     |
| Windgebied             | :    | 3                      | Terrein                | :                    | Onbebouwd |
| Gebouw L x B x H       | [m]  | : 41.00 x 18.10 x 7.40 |                        |                      |           |

**Permanente belastingen  $G_{rep}$** 

|                             |   |      |
|-----------------------------|---|------|
| EG balklaag                 | : | 0.40 |
| Isolatie                    | : | 0.00 |
| Extra gewicht               | : | 0.00 |
| Totaal [kN/m <sup>2</sup> ] | : | 0.40 |

**Veranderlijke belastingen**

|                           |                      |   |                                                        |
|---------------------------|----------------------|---|--------------------------------------------------------|
| $Q_k$                     | [kN]                 | : | 2.00                                                   |
| $Q_k$ oppervlak           | [m <sup>2</sup> ]    | : | 0.05 x 0.05                                            |
| Reductiefactor            | :                    |   | 1.00                                                   |
| Wind $Q_{p,prob}$         | [kN/m <sup>2</sup> ] | : | 0.53 (= $C_{prob}^2 \times Q_p = 0.91^2 \times 0.63$ ) |
| Sneeuw vormfactor $\mu_1$ | :                    |   | 1.00                                                   |



Belastingfactoren (NEN-EN 1990 - Bijlage A1.3)

Formule 6.10a:  $\gamma_G$  : 1.22  $\gamma_Q$  : 1.35Formule 6.10b:  $\xi \gamma_G$  : 1.08  $\gamma_Q$  : 1.35

Perm.bel. gunstig : 0.90

Partiële factor (Tabel 2.3 NEN-EN 1995-1-1)

 $\gamma_M$  [-]: 1.30**Stabiliteit**

1.Toetsing kipstabiliteit m.b.t. montagefase volgens par.6.3.3. is n.v.t.:

- u hebt het belastingsgeval 'Uitvoering' niet toegepast.

2.Factoren t.b.v. toetsing kipstabiliteit m.b.t. gebruiksfase volgens par.6.3.3:

 $\kappa_{crit,y}$  [-] : 1.00 frm(6.34) $\kappa_{crit,z}$  [-] : 1.00 frm(6.34)

Project : 180170 - uitbreiding loods  
 Onderdeel : Houten gordingen  
 Datum : 23/09/2020  
 Eenheden : kN/m/rad

**Resultaten (maatgevende combinaties)**

Factoren t.b.v. toetsing ULS:

 $k_m$  [-] : 0.70 par(6.1.6)

|                   |                                                                                                                                                                 | eis | u.c. |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|
| Geconc. belasting | frm(6.13) $\tau_{v,d} = 0.26 < 2.46$ [N/mm <sup>2</sup> ]                                                                                                       |     | 0.11 |
| Sneeuw            | frm(6.3) $\sigma_{c,90,q,d} / (k_{c,90,q} \cdot f_{c,90,d}) + \sigma_{c,90,F,d} / (k_{c,90,F} \cdot f_{c,90,d}) < 1.00$<br>$= 0.43 / 1.73 + 0.00 / 2.60 = 0.25$ |     | 0.25 |
|                   | frm(6.11) $\sigma_{m,y,d} = 7.56 < 14.77$ [N/mm <sup>2</sup> ]                                                                                                  |     | 0.51 |
|                   | frm(6.12) $\sigma_{m,z,d} = 2.23 < 16.15$ [N/mm <sup>2</sup> ]                                                                                                  |     | 0.14 |
| Geconc. belasting | frm(6.11) Maatgevende combinatie buiging                                                                                                                        |     | 0.61 |

Let op: bij 1 of meerdere belastingcombinaties wind treedt een opwaartse oplegreactie op. Houdt hiermee rekening in het ontwerp van de oplegverbinding.

Sneeuw  $u_{bij} = 14.65 < 23.60$  [mm] 0.62Sneeuw  $u_{net,fin} = 22.64 < 23.60$  [mm] 0.96Geconc. belasting  $u_{bij,z} = 1.86 < 11.80$  [mm] 0.16Geconc. belasting  $u_{net,fin,z} = 2.56 < 11.80$  [mm] 0.22

# Bijlage C

Draagkracht fundering

Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering

**ALGEMENE GEGEVENS**

Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering  
Eenheden : [kN] [m] [MPa] [graden] tenzij anders vermeld  
Datum : 21-09-2020  
Referentieniveau (RN) : N.A.P.  
Referentieperiode : 15 jaar  
Bestand : \\DC01\Tekeningen\2018\180170\Bouwvergunning\  
3. Constructieberekeningen\3.1  
Constructieberekening\Aanbouw bestaande  
loods\Fundering\  
180170\_Fundering\_2020-09-21.fsw

**Toegepaste normen volgens Eurocode met Nederlandse NB**

|             |                          |                |             |
|-------------|--------------------------|----------------|-------------|
| Beton       | NEN-EN 1992-1-1:2011(nl) | C2/A1:2015(nl) | NB:2016(nl) |
| Geotechniek | EN 1997-1:2004           | AC:2009        |             |
|             | NEN-EN 1997-1:2005       | C1+A1:2013     | NB:2016     |
|             | NEN 9997-1:2016          | C2:2017        |             |

**PROFIELGEGEVENS Poer 1000 mm**

|            |                |        |                      |
|------------|----------------|--------|----------------------|
| Type       | : Poer         |        |                      |
|            | Links          | Rechts |                      |
| Breedte    | min [mm] :     | 500    | 500                  |
|            | max [mm] :     | nvt    | nvt                  |
|            | stap [mm] :    | 0      | 0                    |
| Lengte     | voor [mm] :    | 500    |                      |
|            | achter [mm] :  | 500    | De poer is vierkant. |
| Hoogte     | [mm] :         | 200    |                      |
| Opstorting | breedte [mm] : | 360    |                      |
|            | lengte [mm] :  | 1000   |                      |

**BELASTINGGEGEVENS Poer 1000 mm**

| Permanent |              | Type | Richting | Waarde | AfstandX | AfstandY | AfstandZ |
|-----------|--------------|------|----------|--------|----------|----------|----------|
| Nr.       | Omschrijving |      |          | [kN,m] | [m]      | [m]      | [m]      |
| 1         | Perm.        | F/q  | Z        | -28.00 | 0.00     | 0.00     | -        |

Extra lasten t.g.v. eigengewicht poer en opstort staan bij de rekengegevens.

| Variabel |              | Type | Richting | Waarde | AfstandX | AfstandY | AfstandZ |
|----------|--------------|------|----------|--------|----------|----------|----------|
| Nr.      | Omschrijving |      |          | [kN,m] | [m]      | [m]      | [m]      |
| 1        | Var.         | F/q  | Z        | -20.70 | 0.00     | 0.00     | -        |

**SONDERINGSGEGEVENS ALGEMEEN: Sondering 1**

Alle niveaus/hogtes/peilmaten zijn t.o.v.: N.A.P.  
Hoogte maaiveld [m] : 0.20

Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering

**SONDERINGSGEGEVENS GRAFIEK: Sondering 1**

Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering

**SONDERINGSGEGEVENS ALGEMEEN: Sondering 2**

Alle niveaus/hoogtes/peilmaten zijn t.o.v.: N.A.P.  
Hoogte maaiveld [m] : 0.36

**SONDERINGSGEGEVENS GRAFIEK: Sondering 2****WAPENINGGEGEVENS Wapening 8-150 mm**

Betonkwaliteit : C20/25      Soortelijke massa [kN/m<sup>3</sup>] : 25.0  
Betonstaalsoort : B500B      Diameter wapening X-ri[mm] : 8.0 1e laag  
Diameter wapening Y-ri[mm] : 8.0

Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering

**Betondekking**

Milieu : XC2  
  
Gestort tegen bestaand beton : Nee  
Element met plaatgeometrie : Ja  
Specifieke kwaliteitsbeheersing : Nee  
Oneffen beton oppervlak : Nee  
Ondergrond : Oneffen, voorbereid  
Constructieklasse : S3  
Grootste korrel : 31.5

Hoofdwapening : 1ste laag  
Nominale dekking : 30  
Toegepaste dekking : 35  
Gelijkwaardige diameter : 8  
C<sub>min,b</sub> C<sub>min,dur</sub> ΔC<sub>dur</sub> : 8 20 0  
C<sub>min</sub> ΔC<sub>dev</sub> C<sub>nom</sub> : 20 5 30

Beugel / Verdeelwapening : 2de laag  
Nominale dekking : 30  
Toegepaste dekking : 43  
Gelijkwaardige diameter : 8  
C<sub>min,b</sub> C<sub>min,dur</sub> ΔC<sub>dur</sub> : 8 20 0  
C<sub>min</sub> ΔC<sub>dev</sub> C<sub>nom</sub> : 20 5 30

**REKENGEGEVENS Poer 1000 mm**

Profiel : Poer 1000 mm  
Belasting : Poer 1000 mm  
Bodemprofielen : Sondering 1, Sondering 2  
Wapening : Wapening 8-150 mm  
Niveau onderkant fnd[m] : -0.40      Niveau bovenkant [m] : 0.00  
Grondwaterniveau [m] : -3.00  
Opstort : 0.60 Zand - Schoon - Los

Materiaalfactoren      gunstig      ongunstig

γ<sub>γ</sub> gewicht grond : 1.10      1.00  
γ<sub>φ</sub> inwendige wrijving : 1.15  
γ<sub>c</sub> cohesie : 1.60  
γ<sub>cu</sub> ongedr. schuifst. : 1.35  
γ<sub>γ</sub> gewicht grond BGT : 1.00

Belastingfactoren      ongunstig      gunstig      Ψ  
Permanent : 1.08      0.90  
Variabel : 1.35      0.00      0.40  
Grond :      0.90

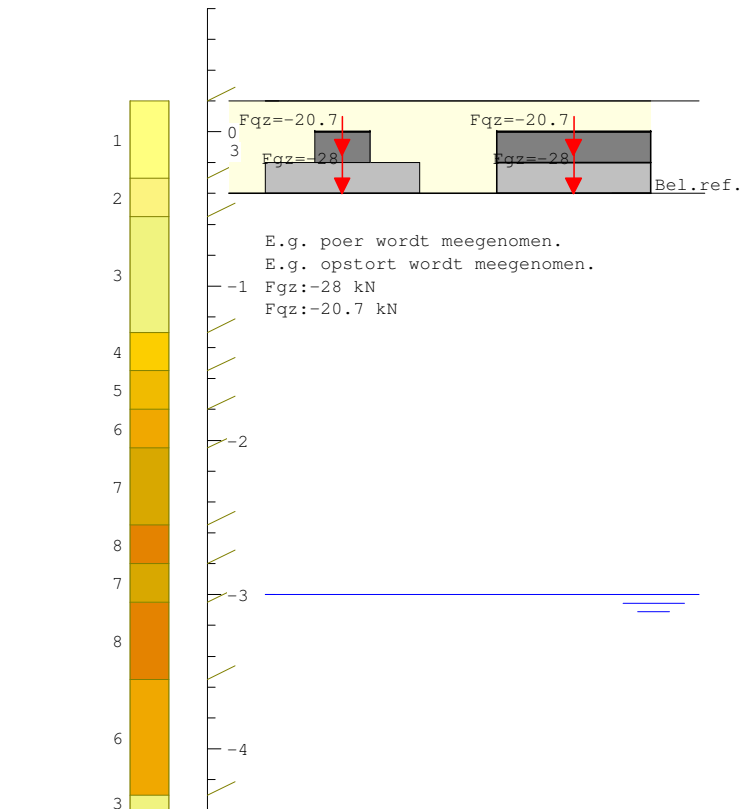
**Extra belastingen t.g.v. eigengewicht poer en opstort**

| B-tot [m] | B-li [m] | B-re [m] | L [m] | H [m] | Omschrijving        | Type | Rich-ting | Waarde [kN] | AfstX [m] | AfstY [m] | AfstZ [m] |
|-----------|----------|----------|-------|-------|---------------------|------|-----------|-------------|-----------|-----------|-----------|
| 1.00      | 0.50     | 0.50     | 1.00  | 0.20  | E.G poer, plaat     | F Z  |           | 5.00        | 0.00      | 0.00      | -         |
| 0.36      | 0.18     | 0.18     | 1.00  | 0.20  | + opstorting        | F Z  |           | 1.80        | 0.00      | 0.00      | -         |
| 1.00      | 0.50     | 0.50     | 1.00  | 0.40  | E.G opstort (droog) | F Z  |           | 6.80        | 0.00      | 0.00      | -         |
| 0.36      | 0.18     | 0.18     | 1.00  | 0.40  | - tpv opstorting    | F Z  |           | -2.45       | 0.00      | 0.00      | -         |

Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering

**INVOER GRAFISCH Poer 1000 mm**

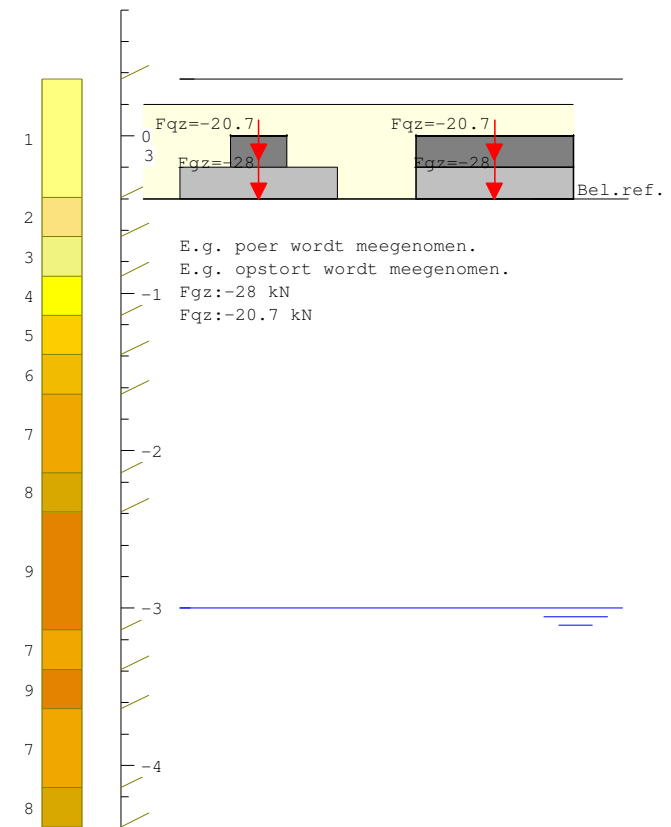
Bodemprofiel: Sondering 1



Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering

**INVOER GRAFISCH Poer 1000 mm (vervolg)**

Bodemprofiel: Sondering 2



Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering

**RESULTATEN ONGEDRAINEERD Poer 1000 mm****Resultaten ongedraineerd gedrag laag 3 (Bodemprofiel Sondering 1)****Er is gerekend volgens art. 6.5.2.2 (f) Geval: c pons**

| B-tot | B-li | B-re | Niv.  | B <sub>fic</sub> | L <sub>fic</sub> | b'   | l'   | A'                | $\sigma'_{v,z;d}$ | S <sub>c</sub> | i <sub>c</sub> | $\sigma'_{max;d}$ | V <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|-------|------------------|------------------|------|------|-------------------|-------------------|----------------|----------------|-------------------|------------------|----------------|
| [m]   | [m]  | [m]  | [m]   | [m]              | [m]              | [m]  | [m]  | [m <sup>2</sup> ] | [kPa]             | [-]            | [-]            | [kPa]             | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | -1.30 | 1.25             | 1.25             | 1.25 | 1.25 | 1.57              | 23.3              | 1.20           | 1.000          | 571.8             | 87               | 898            |

**Resultaten ongedraineerd gedrag laag 3 (Bodemprofiel Sondering 2)****Er is gerekend volgens art. 6.5.2.2 (f) Geval: c pons**

| B-tot | B-li | B-re | Niv.  | B <sub>fic</sub> | L <sub>fic</sub> | b'   | l'   | A'                | $\sigma'_{v,z;d}$ | S <sub>c</sub> | i <sub>c</sub> | $\sigma'_{max;d}$ | V <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|-------|------------------|------------------|------|------|-------------------|-------------------|----------------|----------------|-------------------|------------------|----------------|
| [m]   | [m]  | [m]  | [m]   | [m]              | [m]              | [m]  | [m]  | [m <sup>2</sup> ] | [kPa]             | [-]            | [-]            | [kPa]             | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | -0.89 | 1.14             | 1.14             | 1.14 | 1.14 | 1.29              | 17.1              | 1.20           | 1.000          | 931.1             | 79               | 1205           |

**RESULTATEN GEDRAINEERD Poer 1000 mm****Resultaten gedraineerd gedrag alle lagen (Bodemprofiel Sondering 1)****Er is gerekend volgens art. 6.5.2.2 (h) Geval: c**

| B-tot | B-li | B-re | A'                | $\sigma'_{max;d;c}$ | $\sigma'_{max;d;q}$ | $\sigma'_{max;d;\gamma}$ | $\sigma'_{max;d}$ | V <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|-------------------|---------------------|---------------------|--------------------------|-------------------|------------------|----------------|
| [m]   | [m]  | [m]  | [m <sup>2</sup> ] | [kPa]               | [kPa]               | [kPa]                    | [kPa]             | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | 1.00              | 37.3                | 138.3               | 49.3                     | 224.9             | 70               | 225            |

**Resultaten gedraineerd gedrag alle lagen (Bodemprofiel Sondering 2)****Er is gerekend volgens art. 6.5.2.2 (h) Geval: c**

| B-tot | B-li | B-re | A'                | $\sigma'_{max;d;c}$ | $\sigma'_{max;d;q}$ | $\sigma'_{max;d;\gamma}$ | $\sigma'_{max;d}$ | V <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|-------------------|---------------------|---------------------|--------------------------|-------------------|------------------|----------------|
| [m]   | [m]  | [m]  | [m <sup>2</sup> ] | [kPa]               | [kPa]               | [kPa]                    | [kPa]             | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | 1.00              | 52.5                | 110.9               | 38.2                     | 201.7             | 70               | 202            |

**RESULTATEN GEDRAINEERD PONS Poer 1000 mm****Resultaten gedraineerd gedrag ponsberekening (Bodemprofiel Sondering 1)**

| B-tot | B-li | B-re | Niv.  | A'                | $\sigma'_{max;d;c}$ | $\sigma'_{max;d;q}$ | $\sigma'_{max;d;\gamma}$ | $\sigma'_{max;d}$ | V <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|-------|-------------------|---------------------|---------------------|--------------------------|-------------------|------------------|----------------|
| [m]   | [m]  | [m]  | [m]   | [m <sup>2</sup> ] | [kPa]               | [kPa]               | [kPa]                    | [kPa]             | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | -1.30 | 1.57              | 97.9                | 187.8               | 22.2                     | 307.9             | 86               | 483            |

**Resultaten gedraineerd gedrag ponsberekening (Bodemprofiel Sondering 2)**

| B-tot | B-li | B-re | Niv.  | A'                | $\sigma'_{max;d;c}$ | $\sigma'_{max;d;q}$ | $\sigma'_{max;d;\gamma}$ | $\sigma'_{max;d}$ | V <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|-------|-------------------|---------------------|---------------------|--------------------------|-------------------|------------------|----------------|
| [m]   | [m]  | [m]  | [m]   | [m <sup>2</sup> ] | [kPa]               | [kPa]               | [kPa]                    | [kPa]             | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | -1.14 | 1.46              | 108.1               | 176.2               | 22.0                     | 306.3             | 84               | 447            |

**RESULTATEN ONGEDRAINEERDE AFSCHUIVING Poer 1000 mm****Resultaten ongedraineerde afschuiving (Bodemprofiel Sondering 1)**

| B-tot | B-li | B-re | Niv.  | B <sub>fic</sub> | L <sub>fic</sub> | V <sub>d</sub> | b'   | l'   | A'                | C <sub>u;d</sub> | H <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|-------|------------------|------------------|----------------|------|------|-------------------|------------------|------------------|----------------|
| [m]   | [m]  | [m]  | [m]   | [m]              | [m]              | [kN]           | [m]  | [m]  | [m <sup>2</sup> ] | [kPa]            | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | -1.30 | 1.25             | 1.25             | 49.1           | 1.25 | 1.25 | 1.57              | 88.9             | 0.0              | 139.6          |

**Resultaten ongedraineerde afschuiving (Bodemprofiel Sondering 2)**

| B-tot | B-li | B-re | Niv.  | B <sub>fic</sub> | L <sub>fic</sub> | V <sub>d</sub> | b'   | l'   | A'                | C <sub>u;d</sub> | H <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|-------|------------------|------------------|----------------|------|------|-------------------|------------------|------------------|----------------|
| [m]   | [m]  | [m]  | [m]   | [m]              | [m]              | [kN]           | [m]  | [m]  | [m <sup>2</sup> ] | [kPa]            | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | -0.89 | 1.14             | 1.14             | 42.9           | 1.14 | 1.14 | 1.29              | 148.1            | 0.0              | 191.8          |

Project : 180170 - Uitbreiding loods  
Onderdeel : Poeren fundering

**RESULTATEN GEDRAINEERDE AFSCHUIVING Poer 1000 mm****Resultaten gedraineerde afschuiving (Bodemprofiel Sondering 1)**

| B-tot | B-li | B-re | $\phi'_{cv;d}$ | $\delta_d$ | V' <sub>d</sub> | H <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|----------------|------------|-----------------|------------------|----------------|
| [m]   | [m]  | [m]  | [°]            | [°]        | [kN]            | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | 23.9           | 15.9       | 35.2            | 0.0              | 10.1           |

**Resultaten gedraineerde afschuiving (Bodemprofiel Sondering 2)**

| B-tot | B-li | B-re | $\phi'_{cv;d}$ | $\delta_d$ | V' <sub>d</sub> | H <sub>d</sub> ≤ | R <sub>d</sub> |
|-------|------|------|----------------|------------|-----------------|------------------|----------------|
| [m]   | [m]  | [m]  | [°]            | [°]        | [kN]            | [kN]             | [kN]           |
| 1.00  | 0.50 | 0.50 | 22.1           | 14.7       | 35.2            | 0.0              | 9.3            |

**RESULTATEN ZAKKING Poer 1000 mm****Resultaten zakking (Bodemprofiel Sondering 1)**

| B-tot | B-li | B-re | b'   | l'   | V <sub>d</sub> | $\sigma_{gem;d}$ | s <sub>1</sub> | s <sub>2</sub> | s ≤  | s <sub>req</sub> | Veerw. |
|-------|------|------|------|------|----------------|------------------|----------------|----------------|------|------------------|--------|
| [m]   | [m]  | [m]  | [m]  | [m]  | [kN]           | [kPa]            | [mm]           | [mm]           | [mm] | [mm]             | [kN/m] |
| 1.00  | 0.50 | 0.50 | 1.00 | 1.00 | 47.4           | 47.4             | 13.3           | 11.4           | 24.7 | 50.0             | 3568   |

**Resultaten zakking (Bodemprofiel Sondering 2)**

| B-tot | B-li | B-re | b'   | l'   | V <sub>d</sub> | $\sigma_{gem;d}$ | s <sub>1</sub> | s <sub>2</sub> | s ≤  | s <sub>req</sub> | Veerw. |
|-------|------|------|------|------|----------------|------------------|----------------|----------------|------|------------------|--------|
| [m]   | [m]  | [m]  | [m]  | [m]  | [kN]           | [kPa]            | [mm]           | [mm]           | [mm] | [mm]             | [kN/m] |
| 1.00  | 0.50 | 0.50 | 1.00 | 1.00 | 47.4           | 47.4             | 19.7           | 17.3           | 37.0 | 50.0             | 2403   |

**WAPENING Poer 1000 mm****Resultaten wapening (Bodemprofiel Sondering 1)**

| B-tot | B-li | B-re | x/y | Str. | $\sigma'_d$ | M <sub>Ed</sub> | A <sub>s</sub>            | A <sub>s</sub>     | M <sub>Efreq</sub> | Schr | hoh-afst. | kenm |
|-------|------|------|-----|------|-------------|-----------------|---------------------------|--------------------|--------------------|------|-----------|------|
|       |      |      |     |      | [kPa]       | [kNm]           | Boven                     | Onder              |                    |      | max.      | max. |
|       | [m]  | [m]  | [m] | [m]  | [kPa]       | [kNm]           | [mm <sup>2</sup> ]        | [mm <sup>2</sup> ] | [kNm]              |      | [mm]      | [mm] |
|       |      |      |     |      |             |                 | Eenheid per strookbreedte |                    |                    |      |           |      |
| 1.00  | 0.50 | 0.50 | x   | 1.0  | 70.2        | -3.1            | 0                         | 177*               | -1.8               | Vol  | 300.0     | 14.1 |
| 1.00  | 0.50 | 0.50 | y   | 0.8  | 70.2        | 0.0             | 0                         | 134*               | 0.0                | Vol  | 300.0     | 11.7 |

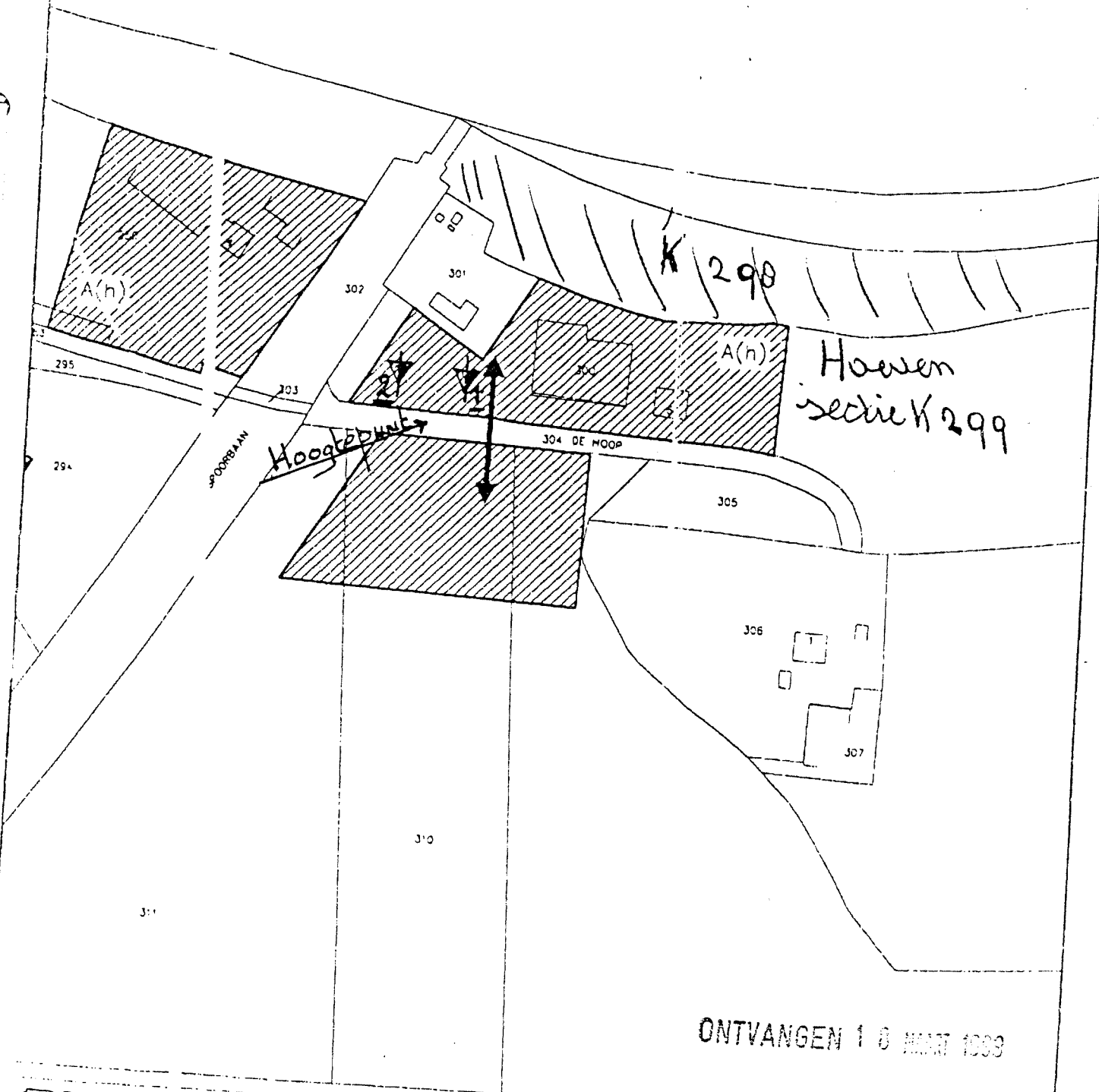
**Resultaten wapening (Bodemprofiel Sondering 2)**

| B-tot | B-li | B-re | x/y | Str. | $\sigma'_d$ | M <sub>Ed</sub> | A <sub>s</sub>            | A <sub>s</sub>     | M <sub>Efreq</sub> | Schr | hoh-afst. | kenm |
|-------|------|------|-----|------|-------------|-----------------|---------------------------|--------------------|--------------------|------|-----------|------|
|       |      |      |     |      | [kPa]       | [kNm]           | Boven                     | Onder              |                    |      | max.      | max. |
|       | [m]  | [m]  | [m] | [m]  | [kPa]       | [kNm]           | [mm <sup>2</sup> ]        | [mm <sup>2</sup> ] | [kNm]              |      | [mm]      | [mm] |
|       |      |      |     |      |             |                 | Eenheid per strookbreedte |                    |                    |      |           |      |
| 1.00  | 0.50 | 0.50 | x   | 1.0  | 70.2        | -3.1            | 0                         | 177*               | -1.8               | Vol  | 300.0     | 14.1 |
| 1.00  | 0.50 | 0.50 | y   | 0.8  | 70.2        | 0.0             | 0                         | 134*               | 0.0                | Vol  | 300.0     | 11.7 |

**Opmerkingen****[ 10] \* = Minimum wapening X-ri.****[ 10] \* = Minimum wapening Y-ri.**



opslagruimten



ONTVANGEN 10 MAART 1983



ADVISEURS

SCHAAL 1:2000

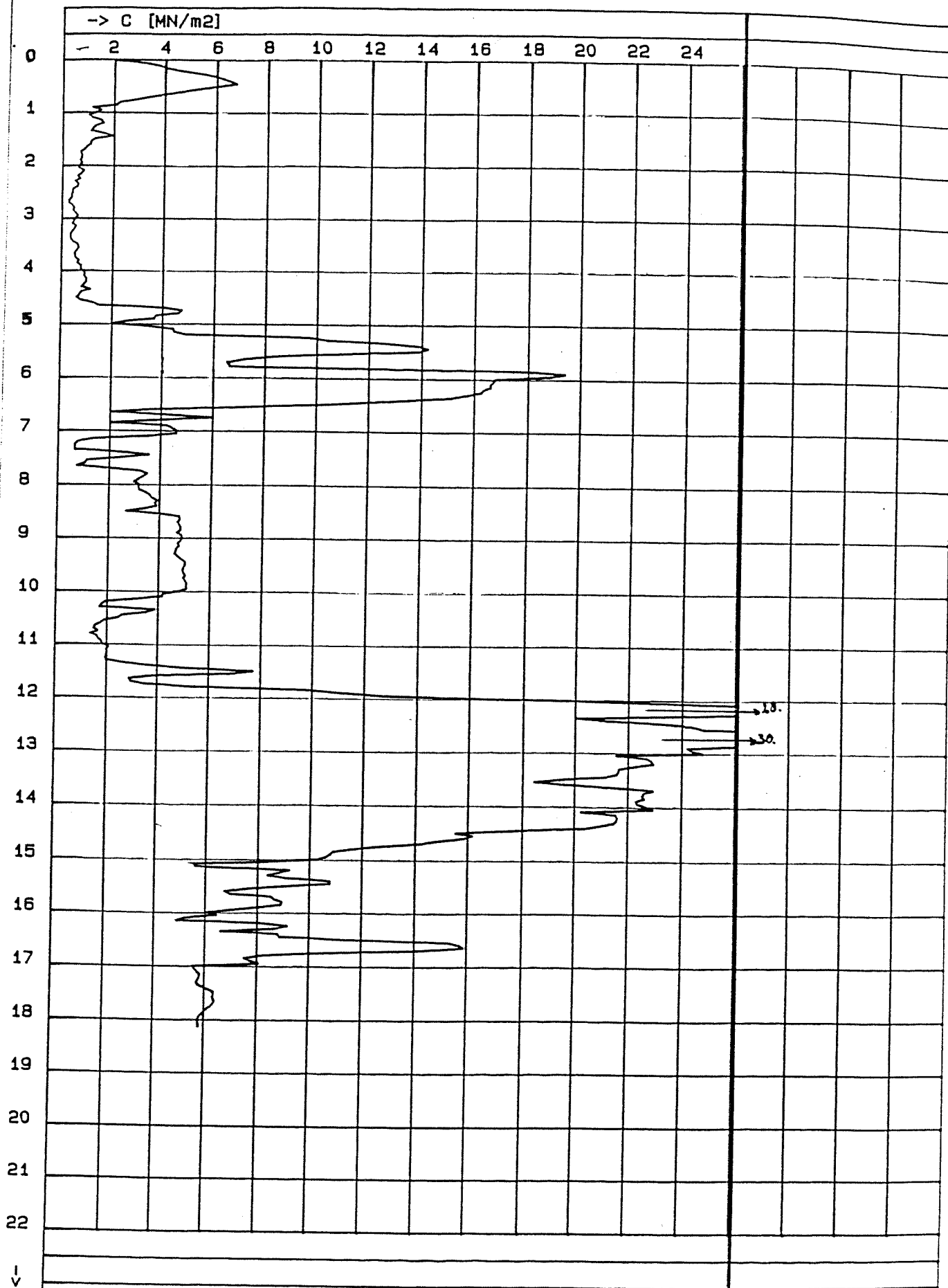


40350768 CAD\40351078.DWG

KAART 12

M.V. =

20.cm hoger dan hart weg, De Hoop.

↓  
Diepte [m]

Plaats : Hoeven: De Hoop 5.

Opdracht nummer : 98.151

Datum/Tijd : 20-03-98 16:42:17

Sondeer nummer : 1.

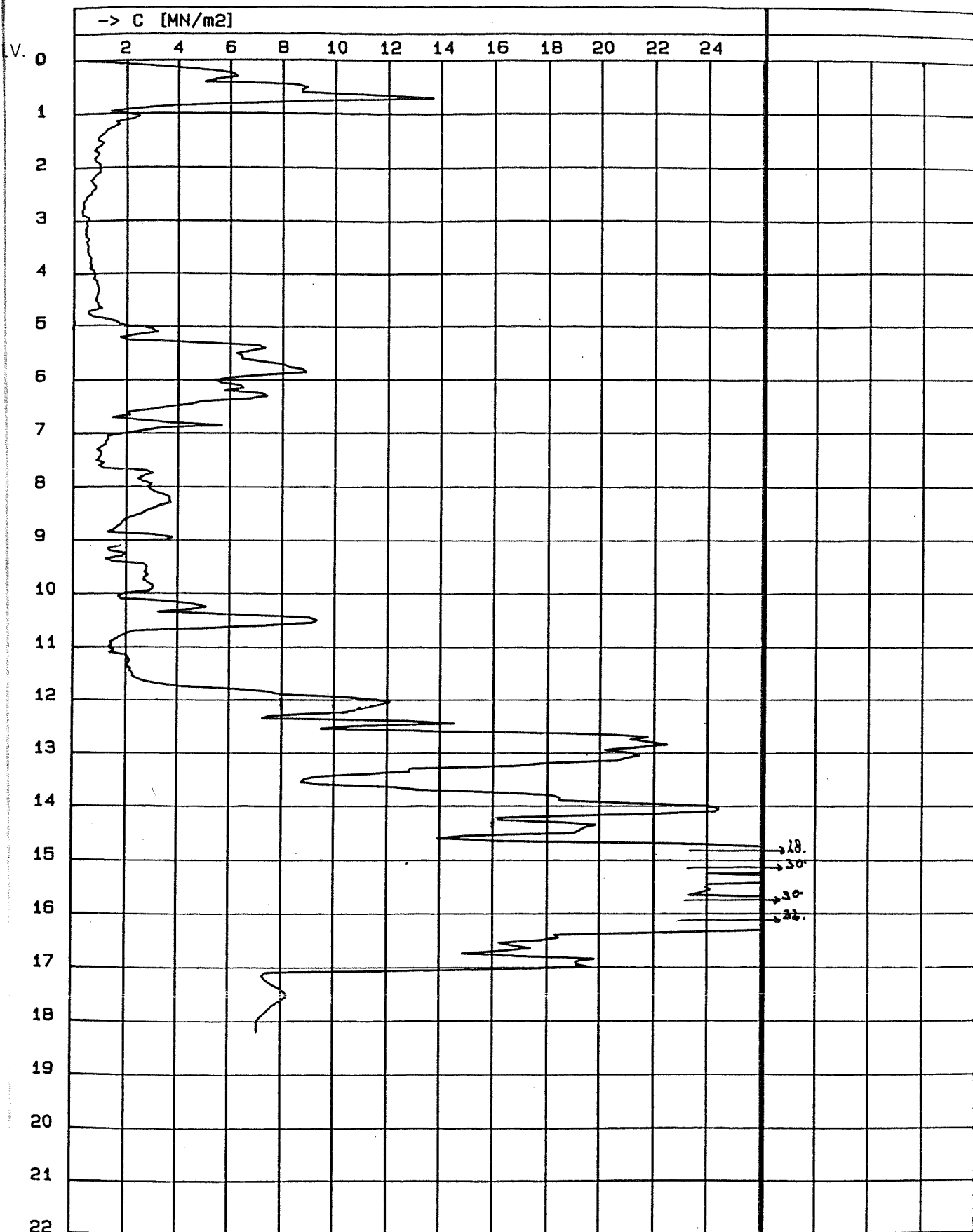
Startdiepte : 0

**Fa. Konings Grondboorbedrijf**

NEN 3680 CYL : Electrisch

Tel. 0165 - 540167 Fax 0165 - 562876 Kruisstraat 18, 4707 RC Roosendaal

M.V. = 36 .cm hoger dan hart weg, De Hoop.



Plaats : Hoeven: De Hoop 5.

Opdracht nummer : 98.151

Datum/Tijd : 20-03-98 17:14:29

Sondeer nummer : 2.

Startdiepte : 0

**Fa. Konings Grondboorbedrijf**

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