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Solid Timber

Constructieve berekening

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Solid Timber
Adres Ketjapweg 18
3541 RH Utrecht
Mail info@solidtimber.nl
Telefoon +31 (0)61 439 86 88 (NL)
+46 (0)70 585 17 07 (SE)

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Samenvatting

De inhoud van dit rapport bestaat uit de constructieve berekening voor de houten hoofddraagconstructie van project 'Valschermkade', te Amsterdam.

Valschermkade is een utiliteitsbouwproject te Amsterdam bestaande uit een tweelaags kantoorgebouw. Het kantoor wordt gerealiseerd op een 'binnenplaats' tussen bestaande utiliteitsgebouwen, waarbij één buitenwand direct tegen een bestaande buitenwand van een aangrenzend gebouw wordt geplaatst.

De hoofddraagconstructie bestaat uit een hybride constructie van houten gelamineerde kolommen en – balken en een schijvenstructuur van CLT (kruislingsverlijmde houten panelen). De wand op as a, vloer en dak worden ontworpen in 120, 5 laagse CLT elementen. De wanden op as 3 en 4 bestaan uit 140, 3 laagse CLT elementen. Ter plaatse van de trapsparing bevindt zich een wand van 200 mm in 5 lagen.

De begane grondvloer en fundering bestaan uit een betonconstructie welke buiten bestek vallen van Solid Timber.

Berekeningen zijn uitgevoerd volgens Eurocoden met Nederlandse bijlagen.

1. Projectuitgangspunten

1.1 Overzicht

Gebouwclassificatie volgens	NEN-EN 1990:2002
Ontwerplevensduurklasse	3
Ontwerplevensduur	50 jaar
Gevolgklasse	CC2 (Tabel B1, NEN-EN 1990:2002)
Betrouwbaarheidsklasse	RC1
K_{FI} factor	1,0

1.2 Bruikbaarheidscriteria

Doorbuiging vloeren	$U_3 \leq 0{,}003L$ (bijkomende doorbuiging)
	$U_{eind} \leq 0{,}004L$ (uiteindelijke doorbuiging)
Doorbuiging daken	$U_3 \leq 0{,}004L$ (bijkomende doorbuiging)
	$U_{eind} \leq 0{,}004L$ (uiteindelijke doorbuiging)
Trillingen vloeren	Eigenfrequentie; $f_1 \geq 8{,}0$ Hz
Vloerdoorbuiging door 1 kN	max. 1,0 mm

1.3 Belastingcombinaties

De volgende belastingcombinaties conform NEN-EN 1990:2002 zijn van toepassing op de constructieve berekeningen van de houten hoofddraagconstructie.

1.3.1 Uiterste grenstoestand (inclusief K_{FI} factor 0,9)

EQU verg. 6.10	$1{,}1G_k+1{,}5Q_{k,1}+1{,}5\Psi_{0,i}Q_{k,i}$ (ongunstig) / $0{,}9G_k+1{,}5Q_{k,1}+1{,}5\Psi_{0,i}Q_{k,i}$ (gunstig)
STR verg. 6.10a	$1{,}22G_k+1{,}5\Psi_{0,i}Q_{k,i}$ (ongunstig) / $0{,}9G_k+1{,}5\Psi_{0,i}Q_{k,i}$ (gunstig)
STR verg. 6.10b	$1{,}08G_k+1{,}5Q_{k,1}+1{,}5\Psi_{0,i}Q_{k,i}$ (ongunstig) / $0{,}81G_k+1{,}5Q_{k,1}+1{,}5\Psi_{0,i}Q_{k,i}$ (gunstig)

1.3.2 Bruikbaarheidsgrenstoestand

Karakteristieke belastingcombinaties verg. 6.14b	$1{,}0G_k+1{,}0Q_{k,1}+1{,}0\Psi_{0,i}Q_{k,i}$
Frequente belastingcombinatie verg. 6.15b	$1{,}0G_k+1{,}0\Psi_{1,1}Q_{k,1}+1{,}0\Psi_{2,i}Q_{k,i}$
Quasi-blijvende belastingcombinatie verg. 6.16b	$1{,}0G_k+1{,}0\Psi_{2,i}Q_{k,i}$

1.4 Toegepaste normen

De constructieve berekeningen zijn gebaseerd op de volgende Europese normen inclusief Nederlandse nationale bijlagen:

Eurocode 0 – Grondslagen van het constructief ontwerp	NEN-EN 1990
Eurocode 1 – Belastingen op constructies	NEN-EN 1991
Eurocode 5 – Ontwerp en berekening van houtconstructies	NEN-EN 1995

1.5 Materialen

CLT (kruislingsverlijmde houten) elementen;

- Langslagen	C24
- Dwarslagen	C14
Gelamineerde houten elementen	GL30c

1.6 Rekenprogramma's

Voor berekening van 2D elementen wordt gebruik gemaakt van 'Statcon Structures Post and Beam' van Elecosoft.

Stabiliteits- en gewichtsberekening, alsmede aanvullende statische berekeningen, worden uitgevoerd met het Eindige Elementenprogramma 'RFEM 5' van Dlubal Software. Daarnaast wordt de add-in module 'RF-LAMINATE' toegepast voor berekening van CLT.

2. Belastingen

2.1 Permanente belastingen

2.1.1 Materialen

CLT elementen; C14/C24	475 kg/m^3
Gelamineerde elementen, GL30c	475 kg/m^3

2.1.2 Bouwdelen

Wanden tpv toiletten; tegelwerk (excl. CLT)	0,25 kN/m^2
Achtergevel as a; isolatie, regels, Accoya geveldelen (excl. CLT)	0,30 kN/m^2
Vloer 1^e verdieping; installaties, akoestisch plafond, computervloer, Fermacell dekvloer, parket	0,85 kN/m^2
Dak; installaties, isolatie, bitumen dakbedekking, sedum	1,03 kN/m^2
Vliesgevels/kozijnen; lijnlast op vloerrand as 2,5 en D	3,00 kN/m
Zonnewering; lijnlast op vloer- en dakrand as 2,5 en D	1,10 kN/m

2.2 Opgelegde belastingen

Gelijkmatig verdeelde vloerbelasting; q_k (klasse B, Tabel 6.1 in NEN-EN 1991)	2,5 kN/m^2
Geconcentreerde vloerbelasting; Q_k	3,0 kN
Eigen gewicht scheidingswanden; q_k	-
Gelijkmatig verdeelde dakbelasting; q_k (klasse H, Tabel 6.10 in NEN-EN 1991)	1,0 kN/m^2
Geconcentreerde dakbelasting; Q_k	1,5 kN

2.3 Sneeuwbelasting

Karakteristieke sneeuwbelasting; s_k	0,70 kN/m^2
Sneeuwbelasting op daken (C_e=C_t=1,0)	$s=\mu C_e C_t s_k$
Sneeuwbelastingvormcoëfficiënt dak; μ	0,8 (0°)
Karakteristieke sneeuwbelasting dak; s	0,56 kN/m^2
Karakteristieke sneeuwbelasting dak; s	0,56 kN/m^2
Sneeuwophoping dak 5 meter rond daklicht; μ	2,06-0,33
Karakteristieke sneeuwbelasting dak inclusief sneeuwophoping; s (min-max)	0,79-2,00 kN/m^2

the scale towards document

P.4 Winddoelasting

Windkrachten op de constructie; F_w	$c_s c_d c_f q_p(z_e) A_{ref}$
Bouwwerkfactor; $c_s c_d$	1,0
Krachtcoëfficient; c_f	conform h.7+8 in NEN-EN 1991-1-4
Extreme stuwdruk op hoogte z_e; $q_p(z_e)$	0,59 kN/m^2 (op referentiehoogte 7,3 m) Windgebied II, bebouwd

3. Gewichtsberekening

De gewichtsberekening van de hybride hoofddraagconstructie is uitgevoerd in het Eindige Elementenprogramma RFEM 5. Dit betekent dat de hoofddraagconstructie gemodelleerd wordt in 3D en geldende belastingen volgens hoofdstuk 2 op de constructieve onderdelen ingevoerd worden.

Modellering wordt gedaan met orthotropische elementen voor CLT en balkelementen voor gelamineerde houten balken. Steunpunten voor de dragende wanden bestaan uit schamierende lijnondersteuningen. Belastingen gelden voor de constructie boven de begane grondvloer en zijn exclusief belastingen direct op de begane grondvloer anders dan vanuit de hoofddraagconstructie (bijv.de niet-dragende binnenwanden op de begane grondvloer).

De resultaten zijn samengevat op tekening DO.1100 en weergegeven in een RFEM 5 rapport in Bijlage 1.

4 Stabiliteitsberekening

Stabilisering van de hoofddraagconstructie wordt verzorgd door alle verticale dragende CLT wanden. Schijfwerking in dak- en vloerconstructie zorgen voor verdeling van horizontale windbelastingen naar de stabiliserende wanden. Een overzicht van stabiliteitswanden is weergegeven in Figuur 4.1.

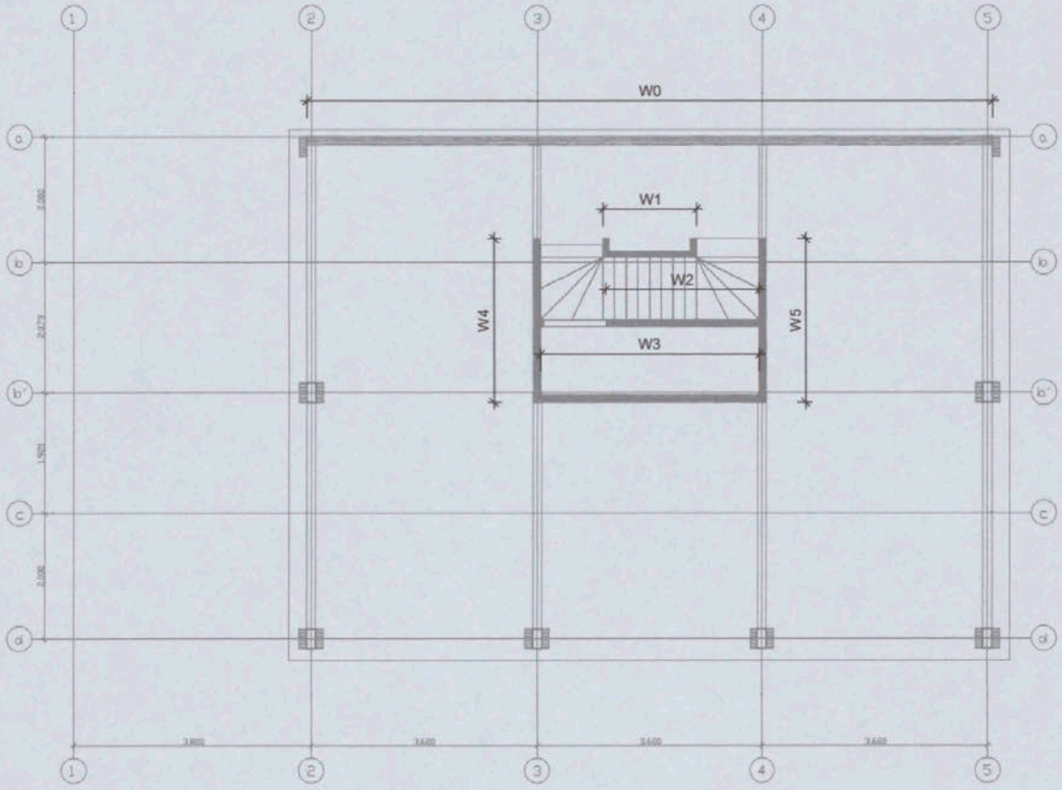


Fig. 4.1; Stabiliteitswanden

Het krachtwerkingsprincipe van schuifwanden resulteert in een horizontale lijnreactielast, een verticale drukkracht (lijzijde) en een verticale liftkracht (loefzijde) in aansluiting met de betonnen vloer. Resultaten van deze krachten zijn weergegeven in de gewichtsberekening in Bijlage 1.

De opliftende krachtcomponent wordt, waar aangrenzende dragende wanden ter plaatse van de krachtcomponent aanwezig zijn, gereduceerd door het eigen gewicht van deze aangrenzende wand. Distributie van deze krachten wordt mogelijk gemaakt door de verbindingen in deze aansluiting te dimensioneren voor de te overbrengende krachten (buiten bestek van dit rapport).

4.1 Controle op verticale krachten

De maximale verticale drukkracht (karakteristiek) vanuit windstabiliteit bevindt zich in W4 (39kN). Controle van een 1,0 meter breed wandelement wordt uitgevoerd in Statcon Structures. Totale rekenwaarde van de verticale belasting in belastingcombinatie 8 geeft: 104 kN. De Unity Check resulteert in 13,4 % < 100 % (zie Bijlage 3). Akkoord.

Overige drukkrachten vanuit stabiliteit onder windbelastingen worden gecontroleerd via de Add-on Module RF-LAMINATE in RFEM, zie Bijlage 2.

Verticale liftkrachten treden op aan de loefzijde van de beschouwde windrichting. Maximale liftkracht treedt op ter plaatse van W4; -34 kN. Deze liftkracht wordt gereduceerd door de som van de permamente belastingen. De netto liftkrachten worden gedistribueerd naar de begane grondvloer met behulp van hoekankers.

5. Dimensionering wanden

De dimensionering van CLT elementen wordt op twee manieren uitgevoerd:

- Via directe modellering in RFEM 5 => werkelijke krachtverdeling van verticale – en horizontale lasten. Hierbij worden de elementen op sterkte gecontroleerd in de uiterste grenstoestand in de Add-on Module RF-LAMINATE. Dit betreft alle dragende wanden in de constructie;
- Via 2D modellering in Statcon Structures waarbij een inschatting wordt gemaakt van de werkende belastingen op een 2D element. Dit betreft een extra controle van een aantal hogere belaste wanddelen van de constructie.

5.1 Modellering in RFEM 5

Door middel van 3D modellering en gebruik van orthotropsiche elementen voor de CLT onderdelen in de hoofddraagconstructie worden verticale – en horizontale lasten verdeeld volgens de werkelijke krachtverdeling. Verticale – en horizontale lasten zijn eerder weergegeven onder de gewichtsberekening.

Controle van CLT wanden in RF-LAMINATE resulteert in een maximale Unity Check van 52 % (schuifspanning). De meeste belaste wand bevindt zich op de begane grond op as b'.

5.2 Modellering in Statcon Structures

Het hoogste verticaal belaste wanddeel van beide elementdiktes; 120-5s en 140-3s, wordt in de Uiterste Grenstoestand gecontroleerd in Statcon Structures.

5.1.1 CLT 120-5s

Het hoogst belaste wanddeel bevindt zich ter plaatse van K4 op as a. De wand staat op een funderinggstrook van 400 mm breed en heeft een totale puntlast van 50 kN. De wand wordt gemodelleerd in Statcon Structures en resulteert in een Unity Check van 40,0 % in de UGT (Bijlage 3).

5.1.2 CLT 140-3s

Het betreft hier W4 ter plaatse van as b'. Modellering in Statcon Structures geeft een totaallast van ca. 64 kN over een beschouwde wandbreedte van 1 meter. Dit resulteert in een Unity Check van 9,3 % in de UGT (Bijlage 3). Akkoord.

Daarnaast wordt een wandbalk boven de deursparing op as 3/a – 3/b gecontroleerd. Dit wandgedeelte heeft een minimale hoogte van 450 mm. Een CLT balkdoorsnede van 140x450 mm heeft een maximale Unity Check van 50,6 % (zie Bijlage 3). Akkoord.

6. Dimensionering vloer

6.1 Ontwerp

De CLT vloeren bestaan uit 120 mm dikke elementen met 20 – 30 – 20 – 30 - 20 mm lamellen. De vloeren worden over de breedte van het gebouw opgedeeld in vier elementen tussen 1,68 en 2,40 meter breed. De steunpunten bestaan uit de balken op as 2 t/m 5 en de CLT wanden in de kern en wand op as a. Overspanning van een vloerelement is 3 x 3,60 meter. Figuur 6.1 toont de indeling van de vloerelementen.

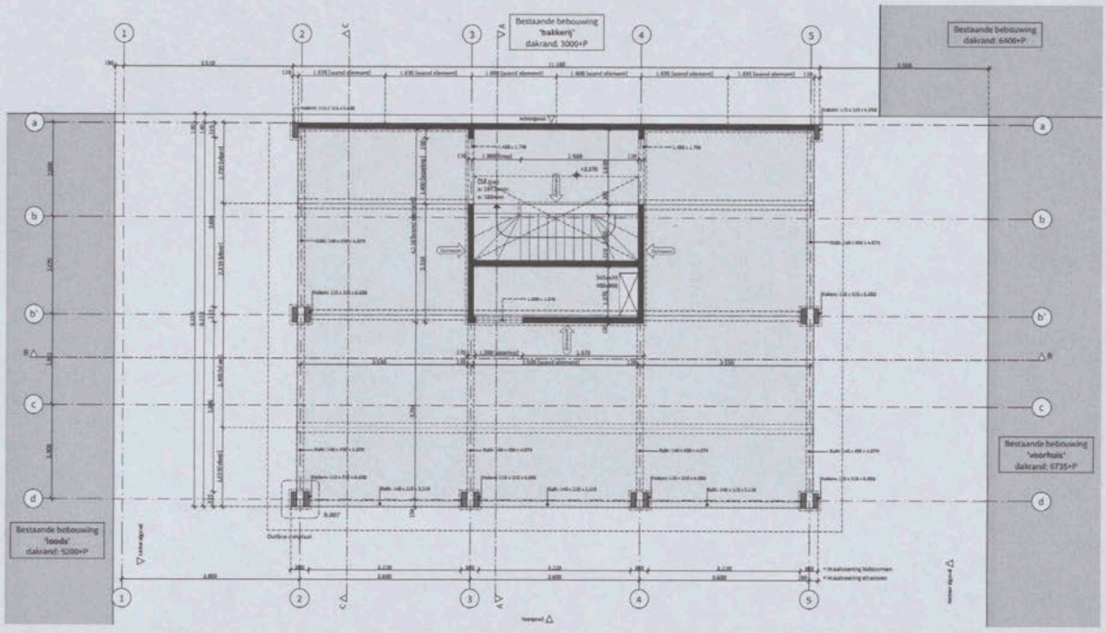


Fig. 6.1: Vloerelementindeling verdiepingsvloer

6.2 Schijfwerking in vloeren

De CLT vloeren zijn onderdeel van het stabiliserende systeem en worden gedimensioneerd voor distributie van de horizontale windbelastingen welke ingevoerd worden via de gevelelementen. De horizontale krachten worden vervolgens gedistribueerd naar de stabiliteitswanden. Schijfwerking in de vloer resulteren in normaalkrachten en momenten in de CLT elementen. Sterktecontrole van de 120-5s CLT vloerelementen wordt uitgevoerd in de RFEM berekening weergegeven in Bijlage 2.

6.3 Uiterste Grenstoestand

Dimensionering van de vloeren in de UGT wordt uitgevoerd in RFEM 5. Belastingen van de CLT trap worden als lijnlasten ingevoerd op de wanden rondom alsmede de vloerrand. Verbindingen tussen zowel de drie vloerelementen als de vloer-wandaansluitingen worden gemodelleerd met een rotatiescharnier. Figuur 6.2 toont de momentenverdeling m_x (momenten rond de x-as, parallel met cijferassen) voor de eerste verdiepingsvloer.

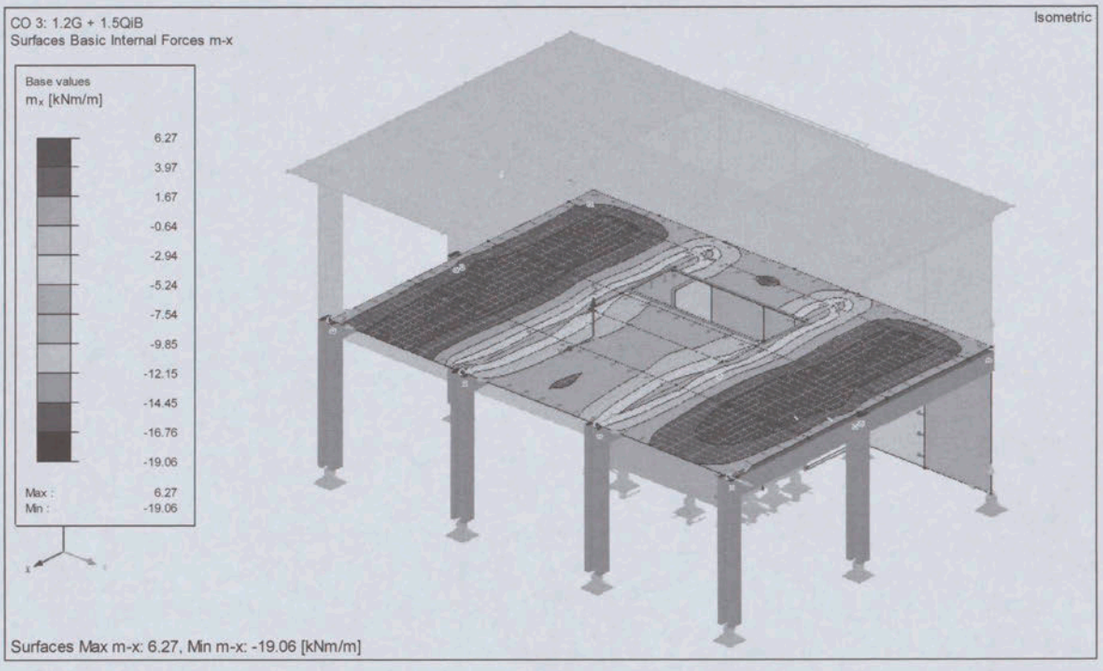


Fig. 6.2: Momentenverdeling M_x in de eerste verdiepingsvloer (BC3)

Voor controle in de UGT op de sterkte van de vloerelementen wordt verwezen naar Bijlage 2. De maximale Unity Check ligt op 51 % (schuifspanning) en bevindt zich ter plaatse van de aansluiting met een vloerbalk op as 4 (zie Figuur 6.3).

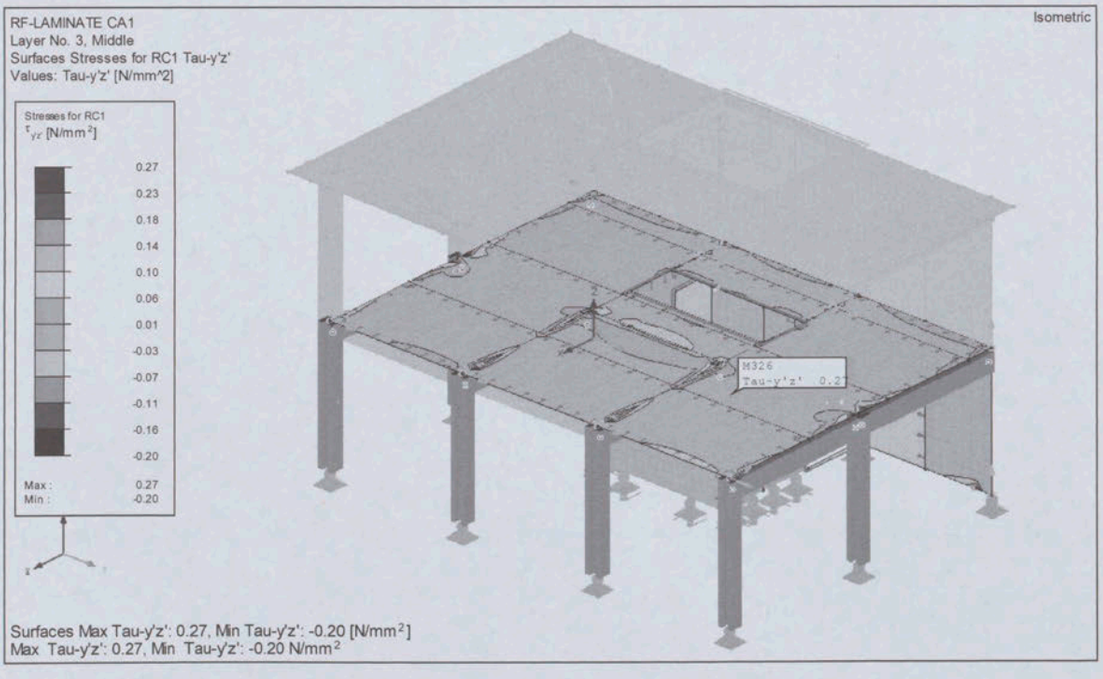


Fig. 6.3: Unity Check schuifspanning in vloerelementen

6.4 Bruikbaarheid grenstoestand

Controle in de Bruikbaarheidsgrenstoestand van een CLT vloerelement wordt uitgevoerd in Statcon Structures. Maximale overspanning van een vloerelement in een drievaks-constructie is 3,60 meter. Resultaat van de berekening is weergegeven in Bijlage 3.

Bijkomende doorbuiging U_3 bedraagt ca. 9 mm (0,0025L) < 0,003L. Akkoord.

De uiteindelijke doorbuiging U_{eind} bedraagt ca. 14 mm (0,0038L) < 0,004L. Akkoord.

Eigenfrequentie van het vloerelement is 11,18 Hz. en ligt daarmee boven de eis van minimaal 8,0 Hz.

Doorbuiging door 1 kN is 0,86 mm < 1,0 mm.

Daarmee voldoet een 3 x 3,6 meter vloerelement aan de BGT – eisen gesteld in paragraaf 1.2.

Dimensionering in RFEM 5 resulteert in een maximale uiteindelijke doorbuiging van 11,2 mm (zie Figuur 6.4). Het 3D effect van de vloerconstructie (krachtenafdracht in twee richtingen) geeft dus een reducering van 2,8 mm (=20%).

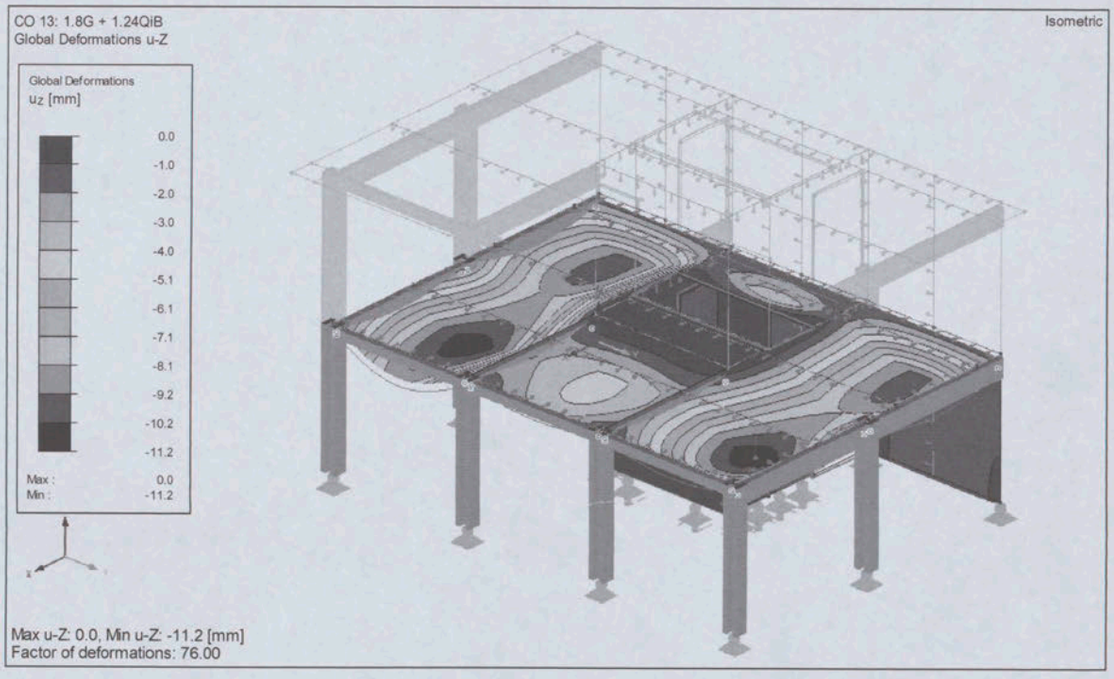


Fig. 6.4; Uiteindelijke doorbuiging eerste verdiepingsvloer

De eigenfrequentie van de vloer berekend door RFEM bedraagt 9,1 Hz. (zie Figuur 6.5). Deze ligt een stuk lager dan berekend in Statcon Structures doordat nu tevens de lijnlast vanuit de gevel en zonnewering wordt meegenomen als belasting op de vloer. In werkelijkheid zal de vloer niet minder stijf aanvoelen ter plaatse van de gevel. De tweede trillingsmodus ligt op 11,0 Hz. (zie Figuur 6.6). Deze is dus ongeveer gelijk aan de 2D modellering in Statcon. Het vermogen om in twee richtingen te overspannen wordt hiermee gecompenseerd door het effect van elastische vloerondersteuningen in de vorm van balken. Zowel de eerste – als tweede eigenfrequentie voldoet aan de minimale eis van 8,0 Hz. Akkoord.

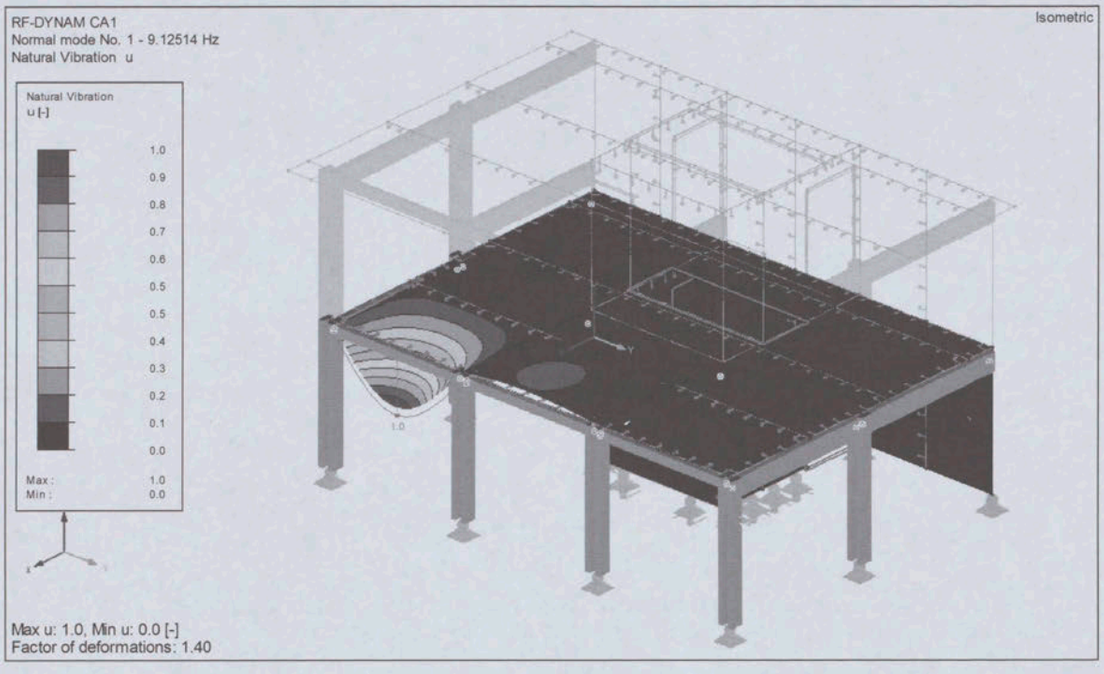


Fig. 6.5; Eerste trillingsmodus van de vloerconstructie

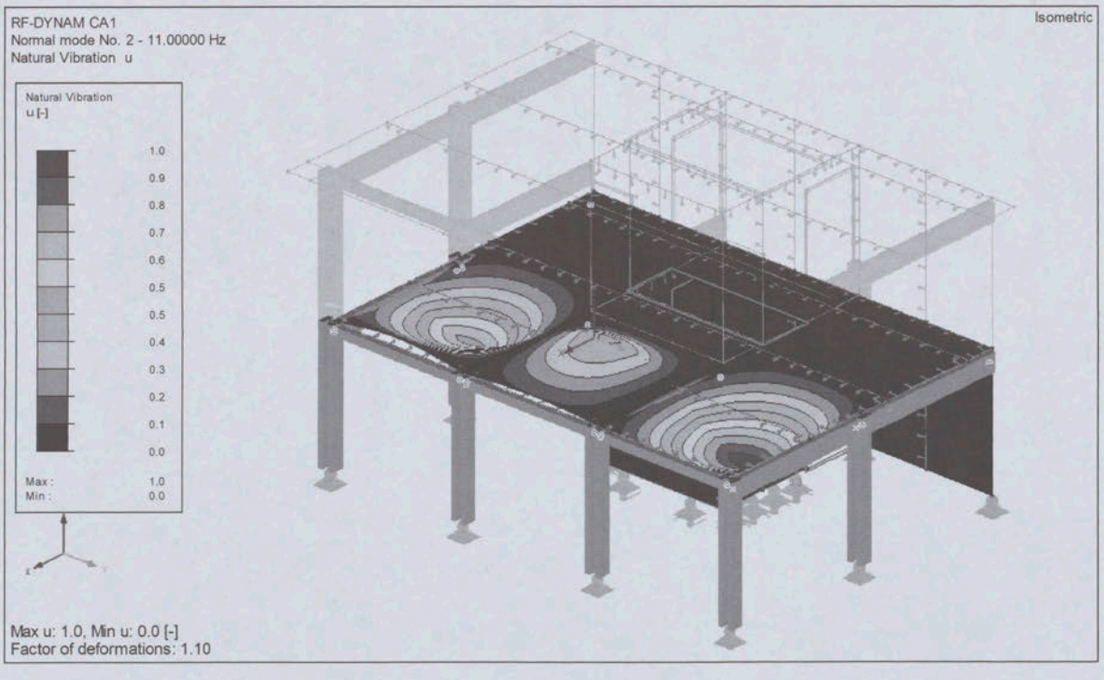


Fig. 6.6; Tweede trillingsmodus van de vloerconstructie

7. Dimensionering dak

7.1 Ontwerp

Het dak bestaat eveneens uit CLT 120-5s elementen. Voor ontwerp wordt tevens gebruik gemaakt van beide rekenprogramma's; 2D modellering in Statcon Structures voor een 1,0 meter breed dakelement en 3D modellering in RFEM 5 om de effecten van zijondersteuning van de wanden mee te nemen in de berekening.

7.2 Schijfwerking in dak

Net als de vloerelementen worden de dakelementen opgedeeld in vier elementen. Windbelastingen worden via schijfwerking in de elementen overgebracht naar de dwars- en langswanden. Sterktecontrole van de 120-5s CLT dakelementen wordt uitgevoerd in de RFEM berekening weergegeven in Bijlage 2.

7.3 Uiterste grenstoestand

De dakplaten worden net als de vloeren opgelegd op vier steunpunten, maar hebben daarnaast een overstek van 0,6 meter aan beide zijden van het gebouw alsmede aan de langszijde op as d. Aansluitingen tussen de elementen en met de wanden worden gemodelleerd met vrije rotatieschamieren. Dimensionering in Statcon Structures resulteert in een Unity Check voor buigend moment van 23,3 % (Bijlage 3). Akkoord.

Resultaat van dimensionering in RFEM 5 geeft een maximale Unity Check van 45 % (lokaal effect ter plaatse van de daksparing en een dragende binnenwand, zie Figuur 7.1 en Bijlage 2). Akkoord.

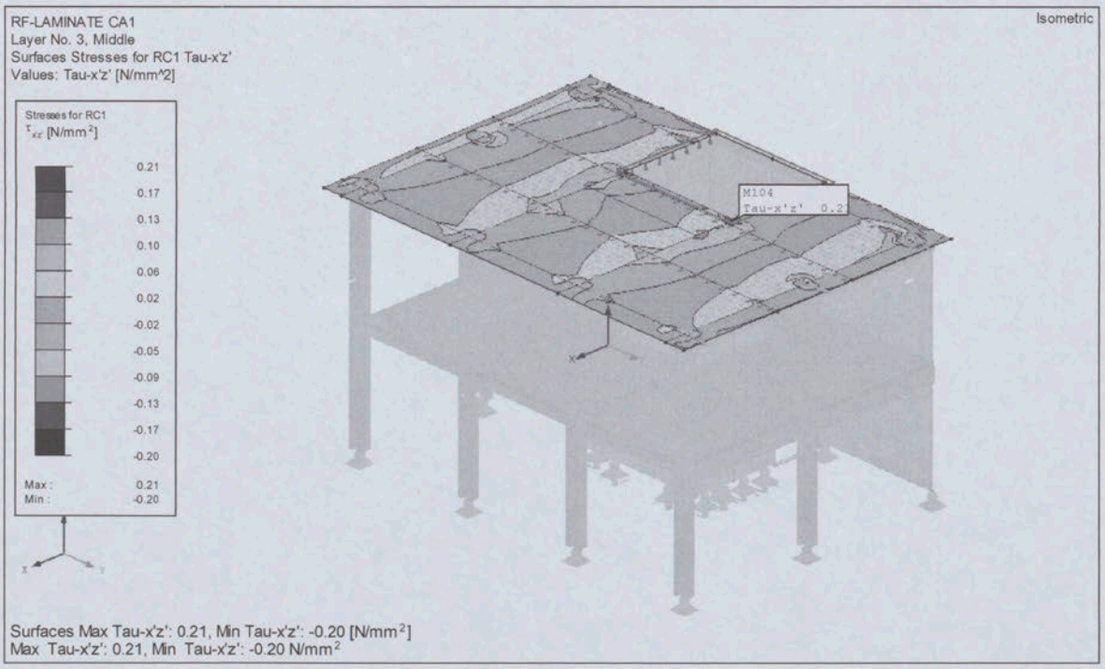


Fig. 7.1; Schuifspanningen in CLT dakelementen

7.1 Bruikbaarheid grenstoestand

De uiteindelijke doorbuiging (U_{eind}) van een 1,0 meter dakelement volgens berekening in Statcon Structures (Bijlage 3) is 12 mm (0,0033L) < 0,004L. Akkoord. Ter plaatse van een overstek is de uiteindelijke doorbuiging (U_{eind}) 4 mm (0,0067L) < 0,008L (geldend voor een overstek). Akkoord.

Dimensionering in RFEM 5 resulteert in een maximale uiteindelijke verticale doorbuiging van 8,4 mm ter plaatse van het midden van een zijveld langs de daksparing (0,0023L) (zie Figuur 7.2). Akkoord. De oorzaak van een mindere doorbuiging is de bijdrage van de zijoplegging van het betreffende dakelement ter plaatse van de achterwand op as a.

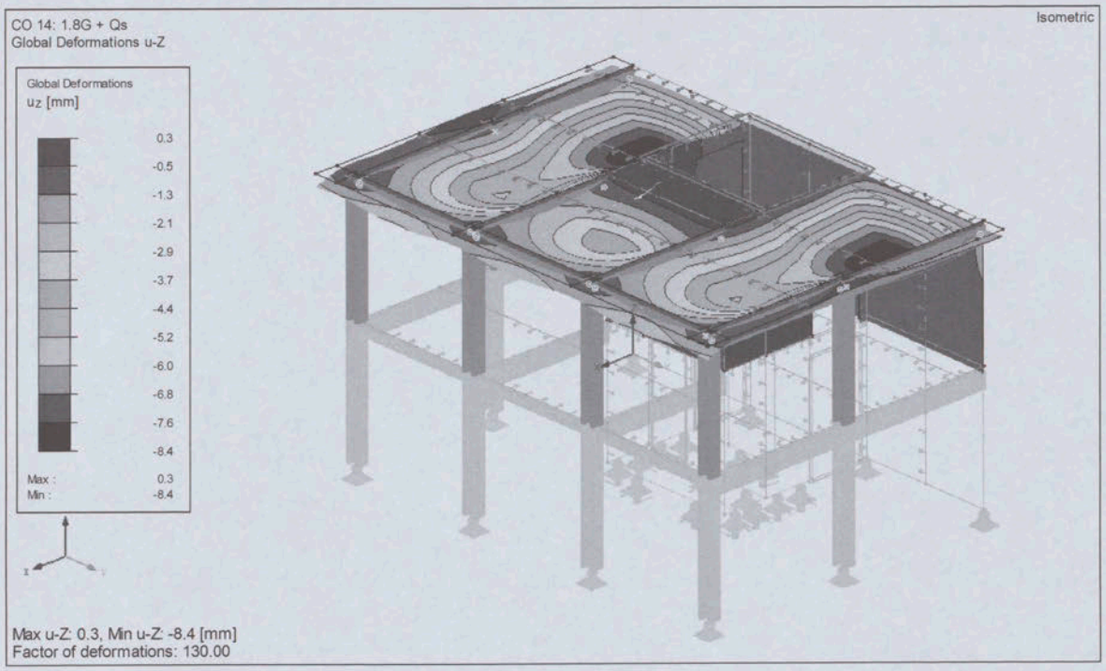


Fig. 7.2: Uiteindelijke doorbuiging dakelementen

8. Dimensionering balken

De houten gelamineerde balken worden gedimensioneerd in Statcon Structures (zie Bijlage 3). Vijf verschillende balken worden gedimensioneerd; een balk in de kopgevel (B1 vloer en B4 dak), een balk in het midden naar de kern toe (B3 vloer en B5 dak) en een balk in de langsgevel ten behoeve van een lijnlast van de vliesgevel.

8.1 Uiterste grenstoestand

De maximale Unity Check van alle typen balken is 53,6 % (B3). Akkoord.

8.1.1 Druk loodrecht op de vezel

Druk loodrecht op de vezel van de gelamineerde balken ontstaat bij oplegging op de CLT wanden. De oplegreactie van B3 bedraagt:

$R_{max,Sd}$ = 45,6 kN

Oplegoppervlak is

A = 140 x (150 + 30) = 25 200 mm^2

En hiermee druk loodrecht op de vezel

$\sigma_{c,90,d} = (45,6 \times 10^3) / 25\,200 = 1,81$ N/mm^2

Capaciteit van GL30c is

$f_{c,90,k}$ = 2,5 N/mm^2

En $k_{c,90}$ = 1,75

Dit geeft een rekenwaarde van de drukcapaciteit loodrecht op de vezel van

$f_{c,90,d} = \frac{2,50 \times 0,8}{1,25} 1,75 = 2,80$ N/mm^2 > 1,81N/mm^2. Akkoord.

8.1.2 Uitkeringen

De opleggingen ter plaatse van de kolommen worden gerealiseerd met uitkepingen aan de onderzijde van de balken. Controle op de optredende schuifspanning wordt uitgevoerd volgens 6.5.2 in NEN-EN 1995-1-1, zie berekening in Bijlage 4. De maximale schuifspanning wordt overschreden waardoor de uitkeping dient te worden versterkt met dubbel gedraade schroeven. Totaal zijn 5 stuks SW-D 8,0x330 benodigd. Akkoord.

8.2 Bruikbaarheidsgrenstoestand

Grootste relatieve doorbuiging in de eindtoestand is 11 mm (= 0,0028L) (B3). Akkoord.

De eigenfrequentie van B3 is 14,6 Hz. De totale eigenfrequentie van balk en vloer wordt berekend volgens Dunkerley's formule (met een eigenfrequentie voor de vloer van 11,2 Hz):

$f_{tot} = \sqrt{\frac{1}{f_1^2} + \frac{1}{f_2^2}} \rightarrow f_{tot} = \sqrt{\frac{1}{11,2^2} + \frac{1}{14,6^2}}$ = 8,9 Hz.> 8,0 Hz. Akkoord.

9. Dimensionering kolommen

De houten gelamineerde kolommen bestaan uit dubbele GL30c 115x315 elementen met ter plaatse van de kolomvoet en aansluitingen met de balken een klos in het midden welke verlijmd en verschroefd zijn. Ieder element draagt dus de helft van de belasting in de kolom.

9.1 Uiterste grenstoestand

De maximale Unity Check van de meest belaste kolom (as 3/d) is 18,8 % (zie Bijlage 3). Akkoord.

De klossen ten behoeve van oplegging van de balken hebben een gelijke doorsnede als de nettodoorsnede van de balken. Maximale schuifspanning in de doorsnede is hiermee akkoord.

10. Branddimensionering

Brandwerendheidseis van de hoofddraagconstructie is 30 minuten (R30).

10.1 CLT

Het principe van branddimensionering voor CLT panelen bestaat uit de gereduceerde doorsnedemethode. De methode bestaat uit de berekening van de overgebleven doorsnede na tijdsduur van de brandeis, door middel van inbrandsnelheid (β_0) en de koollaag (D_0). De overgebleven doorsnede wordt vervolgens gecontroleerd in de belastingcombinatie voor brand (vgl. 6.11 EN 1990). In Tabel 9.1 wordt een samenvatting weergegeven van ieder CLT element, bijbehorende brandeis en de overgebleven effectieve doorsnede. Berekening van de elementdikte bij de geldende brandeis is weergegeven in Bijlage 4.

Tabel 10.1; Overgebleven doorsnede CLT elementen voor branddimensionering

CLT element	Brandeis [min]	CLT dikte brand [mm]	Effectieve dikte brand* [mm]
Buitenwand as a – 120-5s	30 (éénzijdig)	60,0	60 (10-30-20)
Binnenwanden – 140-3s	30 (twee zijdig)	86,5	86,5 (20-46,5-20)
Vloer – 120-5s	30 (éénzijdig)	93,5	70 (20-30-20)
Dak – 120-5s	30 (éénzijdig)	93,5	70 (20-30-20)

*De effectieve dikte wordt berekend door de eventuele buitenste dwarslaag niet mee te rekenen.

10.1.1 Buitenwand as a

Het zwaarst belaste wanddeel K4 wordt gecontroleerd op belastingen onder brand met het overgebleven CLT element. De belasting onder brand is ca.35 kN. Dit resulteert in een Unity Check van 42 % (zie Bijlage 4). Akkoord.

10.1.2 Binnenwanden

Wand W4 bestaande uit 140-3s elementen heeft een effectieve wanddoorsnede van 20-46,5-20 mm na 30 minuten brand van twee zijden. De verticale belasting onder brand bedraagt ca.41 kN, wat resulteert in een Unity Check van 11 % (zie Bijlage 4). Akkoord.

10.1.3 Vloer

Het 120-5s vloerelement heeft een doorsnede gelijk aan een 70-3s element over na 30 minuten brand. Branddimensionering volgens vergelijking 6.11 resulteert in een Unity Check van 27,5 % (zie Bijlage 3). Akkoord.

10.1.4 Dak

Net als de vloer heeft het dak een doorsnede gelijk aan een 70-3s element over na 30 minuten brand. Dimensionering geeft een een Unity Check van 14,4 % (zie Bijlage 3). Akkoord.

10.2 Gelamineerd hout

Alle gelamineerde onderdelen dienen aan de brandeis van R30 te voldoen. Dimensionering is weergegeven in Bijlage 3. De maximale Unity Check ligt op 69,6 %. Akkoord.

Solid Timber

Bijlage 1 – Gewichtsberekening

Solid Timber
Ketjapweg 18
3541 RH Utrecht

Project: Valschermkade
1706-2

Model: Definitief

Date: 2017-10-19

STRUCTURAL ANALYSIS

PROJECT

Valschermkade
Bijlage 1 - Gewichtsberekening

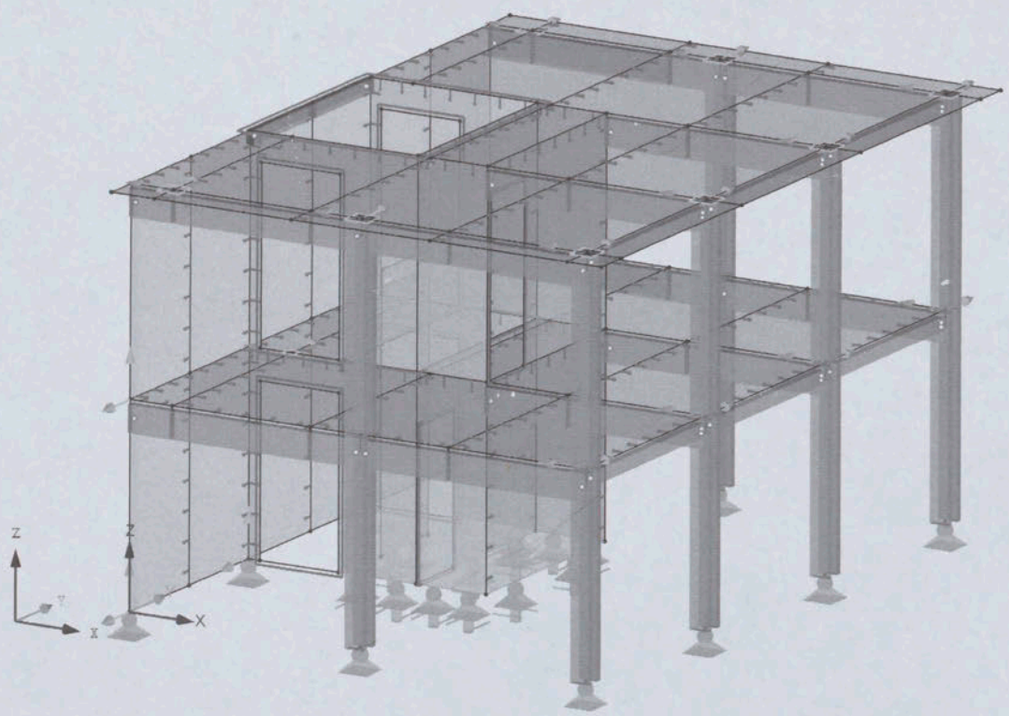
CLIENT

Valschermkade 25-26 BV

CREATED BY

Bas Boellaard

Isometric



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MODEL - GENERAL DATA

General	Model name	:	1706-2
	Type of model	:	3D
	Positive direction of global axis Z	:	Upward
	Classification of load cases and combinations	:	According to Standard: EN 1990 + EN 1995 (Wood) National Annex: NEN - Netherlands
	☒ Automatically create combinations	:	☒ Load Combinations
Options	☐ RF-FORM-FINDING - Find initial equilibrium shapes of membrane and cable structures		
	☐ RF-CUTTING-PATTERN		
	☐ Piping analysis		
	☐ Use CQC Rule		
	☐ Enable CAD/BIM model		
	Standard Gravity g	: :	 10.00 m/s²

FE MESH SETTINGS

General	Target length of finite elements	l_{FE}	:	0.2 m
	Maximum distance between a node and a line to integrate it into the line	ε	:	0.0 m
	Maximum number of mesh nodes (in thousands)		:	500
Members	Number of divisions of members with cable, elastic foundation, taper, or plastic characteristic		:	10
	☒ Activate member divisions for large deformation or post-critical analysis			
	☒ Use division for members with node lying on them			
Surfaces	Maximum ratio of FE rectangle diagonals	Δ_D	:	1.800
	Maximum out-of-plane inclination of two finite elements	α	:	0.50 °
	Shape direction of finite elements		:	Triangles and quadrangles ☒ Same squares where possible

1.3 MATERIALS

Matl. No.	Modulus E [N/mm²]	Modulus G [N/mm²]	Poisson's Ratio ν [-]	Spec. Weight γ [kN/m³]	Coeff. of Th. Exp. α [1/°C]	Partial Factor γ_M [-]	Material Model
1	Glulam Timber GL30c | SS-EN 14080:2013-08						
	13000.0	650.0	9.000	4.30	5.00E-06	1.25	Isotropic Linear Elastic
4	RF-LAMINATE Composition 11 Created by RF-LAMINATE module			3.85	5.00E-06		
5	RF-LAMINATE Composition 13 Created by RF-LAMINATE module			3.97	5.00E-06		
6	RF-LAMINATE Composition 14 Created by RF-LAMINATE module			3.92	5.00E-06		

1.7 NODAL SUPPORTS

Support No.	Nodes No.	Axis System	Column in Z	Support Conditions u_X	u_Y	u_Z	φ_X	φ_Y	φ_Z
2	1,3,5,6,15-17,19,21,23	Global X,Y,Z	☐	☒	☒	☒	☐	☐	☒

1.8 LINE SUPPORTS

Support No.	Lines No.	Reference System	Rotation β [°]	Wall in Z	Support Conditions C_{ux}	C_{uy}	C_{uz}	φ_x	φ_y	φ_z
1	31,37,40,48,49,55,56	Local		☐	☒	☐	☒	☐	☐	☐

2.1 LOAD CASES

Load Case	Load Case Description	Action Category	Self-Weight - Factor in Direction Active	X	Y	Z	EN 1990 + 1995 | NEN Load Duration
LC1	Permanent	Permanent	☒	0.000	0.000	-1.188	Permanent
LC2	Opgelegde vloerbelasting	Imposed - Category B: office areas	☐				Medium-term
LC3	Opgelegde dakbelasting	Imposed - Category H: roofs	☐				Short-term
LC4	Sneeuw	Snow (H ≤ 1000 m a.s.l.)	☐				Short-term
LC5	Wind X-	Wind	☐				Short-term
LC6	Wind Y-	Wind	☐				Short-term

2.5 LOAD COMBINATIONS

Load Combin.	DS	Load Combination Description	No.	Factor	Load Case	
CO1	ULS'	1.35G	1	1.35	LC1	Permanent
CO2	ULS'	1.35G + 0.75QiB	1	1.35	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
CO3	ULS'	1.2G + 1.5QiB	1	1.20	LC1	Permanent
			2	1.50	LC2	Opgelegde vloerbelasting
CO4	ULS'	1.2G + 1.5Qs	1	1.20	LC1	Permanent
			2	1.50	LC4	Sneeuw
CO5	ULS'	1.2G + 0.75QiB + 1.5Qs	1	1.20	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC4	Sneeuw
CO6	ULS'	1.2G + 1.5Qw1	1	1.20	LC1	Permanent
			2	1.50	LC5	Wind X-
CO7	ULS'	1.2G + 1.5Qw2	1	1.20	LC1	Permanent
			2	1.50	LC6	Wind Y-
CO8	ULS'	1.2G + 0.75QiB + 1.5Qw1	1	1.20	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC5	Wind X-
CO9	ULS'	1.2G + 0.75QiB + 1.5Qw2	1	1.20	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC6	Wind Y-
CO10	ULS'	1.2G + 1.5QiH	1	1.20	LC1	Permanent
			2	1.50	LC3	Opgelegde dakbelasting
CO11	ULS'	1.2G + 0.75QiB + 1.5QiH	1	1.20	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC3	Opgelegde dakbelasting
CO12	S Qp	1.8G	1	1.80	LC1	Permanent
CO13	S Qp	1.8G + 1.24QiB	1	1.80	LC1	Permanent
			2	1.24	LC2	Opgelegde vloerbelasting
CO14	S Qp	1.8G + Qs	1	1.80	LC1	Permanent
			2	1.00	LC4	Sneeuw
CO15	S Qp	1.8G + 0.74QiB + Qs	1	1.80	LC1	Permanent
			2	0.74	LC2	Opgelegde vloerbelasting
			3	1.00	LC4	Sneeuw
CO16	S Qp	1.8G + Qw1	1	1.80	LC1	Permanent
			2	1.00	LC5	Wind X-
CO17	S Qp	1.8G + Qw2	1	1.80	LC1	Permanent
			2	1.00	LC6	Wind Y-
CO18	S Qp	1.8G + 0.74QiB + Qw1	1	1.80	LC1	Permanent
			2	0.74	LC2	Opgelegde vloerbelasting
			3	1.00	LC5	Wind X-
CO19	S Qp	1.8G + 0.74QiB + Qw2	1	1.80	LC1	Permanent
			2	0.74	LC2	Opgelegde vloerbelasting
			3	1.00	LC6	Wind Y-
CO20	S Qp	1.8G + QiH	1	1.80	LC1	Permanent
			2	1.00	LC3	Opgelegde dakbelasting
CO21	S Qp	1.8G + 0.74QiB + QiH	1	1.80	LC1	Permanent
			2	0.74	LC2	Opgelegde vloerbelasting
			3	1.00	LC3	Opgelegde dakbelasting
CO22	EQU	1.1G	1	1.10	LC1	Permanent
CO23	EQU	1.1G + 1.5QiB	1	1.10	LC1	Permanent
			2	1.50	LC2	Opgelegde vloerbelasting
CO24	EQU	1.1G + 1.5Qs	1	1.10	LC1	Permanent
			2	1.50	LC4	Sneeuw
CO25	EQU	1.1G + 0.75QiB + 1.5Qs	1	1.10	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC4	Sneeuw
CO26	EQU	1.1G + 1.5Qw1	1	1.10	LC1	Permanent
			2	1.50	LC5	Wind X-
CO27	EQU	1.1G + 1.5Qw2	1	1.10	LC1	Permanent
			2	1.50	LC6	Wind Y-
CO28	EQU	1.1G + 0.75QiB + 1.5Qw1	1	1.10	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC5	Wind X-
CO29	EQU	1.1G + 0.75QiB + 1.5Qw2	1	1.10	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC6	Wind Y-
CO30	EQU	1.1G + 1.5QiH	1	1.10	LC1	Permanent
			2	1.50	LC3	Opgelegde dakbelasting
CO31	EQU	1.1G + 0.75QiB + 1.5QiH	1	1.10	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC3	Opgelegde dakbelasting
CO32	EQU	0.9G	1	0.90	LC1	Permanent
CO33	EQU	0.9G + 1.5QiB	1	0.90	LC1	Permanent
			2	1.50	LC2	Opgelegde vloerbelasting
CO34	EQU	0.9G + 1.5Qs	1	0.90	LC1	Permanent
			2	1.50	LC4	Sneeuw
CO35	EQU	0.9G + 0.75QiB + 1.5Qs	1	0.90	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC4	Sneeuw
CO36	EQU	0.9G + 1.5Qw1	1	0.90	LC1	Permanent
			2	1.50	LC5	Wind X-
CO37	EQU	0.9G + 1.5Qw2	1	0.90	LC1	Permanent
			2	1.50	LC6	Wind Y-
CO38	EQU	0.9G + 0.75QiB + 1.5Qw1	1	0.90	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC5	Wind X-
CO39	EQU	0.9G + 0.75QiB + 1.5Qw2	1	0.90	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC6	Wind Y-
CO40	EQU	0.9G + 1.5QiH	1	0.90	LC1	Permanent
			2	1.50	LC3	Opgelegde dakbelasting
CO41	EQU	0.9G + 0.75QiB + 1.5QiH	1	0.90	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC3	Opgelegde dakbelasting



2.5 LOAD COMBINATIONS

Load Combin.	Load Combination DS	Description	No.	Factor	Load Case	
CO42	ACC	G	1	1.00	LC1	Permanent
CO43	ACC	G + 0.5QiB	1	1.00	LC1	Permanent
			2	0.50	LC2	Opgelegde vloerbelasting
CO44	ACC	G + 0.2Qs	1	1.00	LC1	Permanent
			2	0.20	LC4	Sneeuw
CO45	ACC	G + 0.3QiB + 0.2Qs	1	1.00	LC1	Permanent
			2	0.30	LC2	Opgelegde vloerbelasting
			3	0.20	LC4	Sneeuw
CO46	ACC	G + 0.2Qw1	1	1.00	LC1	Permanent
			2	0.20	LC5	Wind X-
CO47	ACC	G + 0.2Qw2	1	1.00	LC1	Permanent
			2	0.20	LC6	Wind Y-
CO48	ACC	G + 0.3QiB + 0.2Qw1	1	1.00	LC1	Permanent
			2	0.30	LC2	Opgelegde vloerbelasting
			3	0.20	LC5	Wind X-
CO49	ACC	G + 0.3QiB + 0.2Qw2	1	1.00	LC1	Permanent
			2	0.30	LC2	Opgelegde vloerbelasting
			3	0.20	LC6	Wind Y-
CO50	ACC	G + 0.3QiB + 0QiH	1	1.00	LC1	Permanent
			2	0.30	LC2	Opgelegde vloerbelasting
			3	0.00	LC3	Opgelegde dakbelasting

LC1
Permanent

3.3 LINE LOADS

LC1: Permanent

No.	Reference to	On Lines No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	Lines =88x3,4m+110	54,60,64,65,68,70,76-78, 88,101,105,109	Force	Uniform	ZP	p	-4.100	kN/m
2	Lines	150,168,198,202,203,205, 206,208,211,214,216,223, 224,234,235	Force	Uniform	ZL	p	-1.100	kN/m

3.4 SURFACE LOADS

LC1: Permanent

No.	On Surfaces No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	10-21	Force	Uniform	ZL	p	-0.85	kN/m²
2	31,33-55	Force	Uniform	ZL	p	-1.03	kN/m²
3	1-4,23-26,56-59	Force	Uniform	ZL	p	-0.30	kN/m²
4	7,8,29,30	Force	Uniform	ZL	p	-0.25	kN/m²

3.8 FREE RECTANGULAR LOADS

LC1: Permanent

No.	On Surfaces No.	Project.	Load Distribution	Load Direction	Magnitude Symbol	Value	Unit	Load Position X [m]	Y [m]	Z [m]
1	6	XZ	Uniform	ZL	p	-0.25	kN/m²	2.910		3.310
								4.117		0.000
2	5	XZ	Uniform	ZL	p	-0.25	kN/m²	2.910		3.310
								4.117		0.000
3	27	XZ	Uniform	ZL	p	-0.25	kN/m²	2.910		6.720
								4.117		3.310
4	28	XZ	Uniform	ZL	p	-0.25	kN/m²	2.910		6.720
								4.117		3.310

3.15 GENERATED LOADS

LC1: Permanent

No.	Load Description				
1	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:	:	☒ ZP	
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant	:	-1.03	kN/m²
	Openings with area load	Openings	:	8	
	Generating total loads in direction	ΣP_{Areas} X	:	0.000	kN
		Y	:	0.000	kN
		Z	:	-10.788	kN
		ΣP_{Lines} X	:	0.000	kN
		Y	:	0.000	kN
		Z	:	-10.788	kN
	Total moment to the origin	ΣM_{Areas} X	:	-58.257	kNm
		Y	:	15.694	kNm
		Z	:	0.000	kNm
		ΣM_{Lines} X	:	-58.257	kNm
		Y	:	15.694	kNm
		Z	:	0.000	kNm
2	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:	:	☒ ZP	
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant	:	-1.20	kN/m²
	Openings with area load	Openings	:	4	

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3.15 GENERATED LOADS — LC1: Permanent

No.	Load Description				
	Generating total loads in direction	ΣP_{Areas}	X	:	0.000 kN
			Y	:	0.000 kN
			Z	:	-5.400 kN
		ΣP_{Lines}	X	:	0.000 kN
			Y	:	0.000 kN
			Z	:	-5.400 kN
	Total moment to the origin	ΣM_{Areas}	X	:	-29.160 kNm
			Y	:	12.336 kNm
			Z	:	0.000 kNm
		ΣM_{Lines}	X	:	-29.160 kNm
			Y	:	12.336 kNm
			Z	:	0.000 kNm

LC2
Opgelegde vloerbelasting

3.4 SURFACE LOADS — LC2: Opgelegde vloerbelasting

No.	On Surfaces No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	10-21	Force	Uniform	ZL	p	-2.50	kN/m²

3.15 GENERATED LOADS — LC2: Opgelegde vloerbelasting

No.	Load Description				
1	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:		:	☒ ZP
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant		:	-2.50 kN/m²
	Openings with area load	Openings		:	4
	Generating total loads in direction	ΣP_{Areas}	X	:	0.000 kN
			Y	:	0.000 kN
			Z	:	-11.250 kN
		ΣP_{Lines}	X	:	0.000 kN
			Y	:	0.000 kN
			Z	:	-11.250 kN
	Total moment to the origin	ΣM_{Areas}	X	:	-60.750 kNm
			Y	:	25.701 kNm
			Z	:	0.000 kNm
		ΣM_{Lines}	X	:	-60.750 kNm
			Y	:	25.701 kNm
			Z	:	0.000 kNm

LC3
Opgelegde dakbelasting

3.4 SURFACE LOADS — LC3: Opgelegde dakbelasting

No.	On Surfaces No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	31,33-55	Force	Uniform	ZL	p	-1.00	kN/m²

3.15 GENERATED LOADS — LC3: Opgelegde dakbelasting

No.	Load Description				
1	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:		:	☒ ZP
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant		:	-1.00 kN/m²
	Openings with area load	Openings		:	8
	Generating total loads in direction	ΣP_{Areas}	X	:	0.000 kN
			Y	:	0.000 kN
			Z	:	-10.474 kN
		ΣP_{Lines}	X	:	0.000 kN
			Y	:	0.000 kN
			Z	:	-10.474 kN
	Total moment to the origin	ΣM_{Areas}	X	:	-56.561 kNm
			Y	:	15.237 kNm
			Z	:	0.000 kNm
		ΣM_{Lines}	X	:	-56.561 kNm
			Y	:	15.237 kNm
			Z	:	0.000 kNm

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LC4
Sneeuw

3.4 SURFACE LOADS

LC4: Sneeuw

No.	On Surfaces No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	31,33-55	Force	Uniform	ZL	p	-0.56	kN/m²

3.8 FREE RECTANGULAR LOADS

LC4: Sneeuw

No.	On Surfaces No.	Project.	Load Distribution	Load Direction	Magnitude Symbol	Value	Unit	Load Position X [m]	Y [m]	Z [m]
1	34	XY	Linear Y	ZL	p_1	-0.23	kN/m²	0.740	0.000	
					p_2	-1.44	kN/m²	3.140	3.600	
2	47	XY	Linear Y	ZL	p_1	0.00	kN/m²	0.740	-0.600	
					p_2	-0.23	kN/m²	3.140	0.000	
3	36	XY	Linear Y	ZL	p_1	-1.44	kN/m²	0.740	7.200	
					p_2	-0.23	kN/m²	3.140	10.800	
4	52	XY	Linear Y	ZL	p_1	-0.23	kN/m²	0.740	10.800	
					p_2	0.00	kN/m²	3.140	11.400	
5	37	XY	Linear Y	ZL	p_1	-1.44	kN/m²	3.140	3.600	
					p_2	0.00	kN/m²	5.540	0.000	
6	38	XY	Linear X	ZL	p_1	-1.44	kN/m²	3.140	3.600	
					p_2	-0.72	kN/m²	5.540	7.200	
7	41	XY	Linear X	ZL	p_1	-0.72	kN/m²	5.540	3.600	
					p_2	0.00	kN/m²	7.940	7.200	
8	39	XY	Linear Y	ZL	p_1	-1.44	kN/m²	3.140	7.200	
					p_2	0.00	kN/m²	5.540	10.800	
9	31	XY	Linear Y	ZL	p_1	-1.44	kN/m²	0.000	3.600	
					p_2	-0.23	kN/m²	0.740	0.000	
10	33	XY	Linear Y	ZL	p_1	-1.44	kN/m²	0.740	7.200	
					p_2	-0.23	kN/m²	0.000	10.800	
11	46	XY	Linear Y	ZL	p_1	-0.23	kN/m²	0.740	0.000	
					p_2	0.00	kN/m²	0.000	-0.600	
12	51	XY	Linear Y	ZL	p_1	-0.23	kN/m²	0.740	10.800	
					p_2	0.00	kN/m²	0.000	11.400	

3.15 GENERATED LOADS

LC4: Sneeuw

No.	Load Description				
1	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:	:	☑ ZP	
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant	:	-0.56	kN/m²
	Openings with area load	Openings	:	8	
	Generating total loads in direction	ΣP_{Areas}	X :	0.000	kN
			Y :	0.000	kN
			Z :	-5.866	kN
		ΣP_{Lines}	X :	0.000	kN
			Y :	0.000	kN
			Z :	-5.866	kN
	Total moment to the origin	ΣM_{Areas}	X :	-31.674	kNm
			Y :	8.533	kNm
			Z :	0.000	kNm
		ΣM_{Lines}	X :	-31.674	kNm
			Y :	8.533	kNm
			Z :	0.000	kNm

LC5
Wind X-

3.3 LINE LOADS

LC5: Wind X-

No.	Reference to	On Lines No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	Lines =0,4x2	205,206,208,223,235	Force	Uniform	y	p	0.800	kN/m
2	Lines =0,4x3,6	101,105,109	Force	Uniform	y	p	1.440	kN/m
3	Lines =0,71x3,6	54	Force	Uniform	y	p	-2.560	kN/m
4	Lines =0,71x3,6	77	Force	Uniform	y	p	2.560	kN/m
5	Lines =0,47x3,6	64,70	Force	Uniform	y	p	1.700	kN/m
6	Lines =0,47x3,6	76	Force	Uniform	y	p	-1.700	kN/m
7	Lines =0,47x3,6	88	Force	Uniform	y	p	-1.700	kN/m
8	Lines =0,47x3,6	60,65,68,78	Force	Uniform	y	p	-1.700	kN/m
9	Lines =0,71x2	198,202	Force	Uniform	y	p	-1.420	kN/m
10	Lines =0,71x2	150,168	Force	Uniform	y	p	1.420	kN/m
11	Lines =0,47x2	211,214,216	Force	Uniform	y	p	-0.940	kN/m
12	Lines =0,47x2	203,224,234	Force	Uniform	y	p	0.940	kN/m

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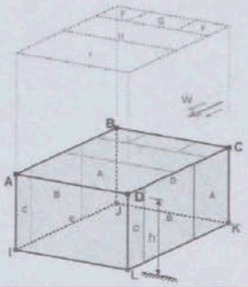
3.15 GENERATED LOADS

LC5: Wind X-

No.	Load Description				
1	**From Wind Loads (Building)**				
					
	Velocity pressure	According to Standard		:	EN 1991-1-4
		National Annex		:	Netherlands
		Wind zone		:	II
		Terrain category		:	Category III
		Structure height	h	:	7.310 m
		Fundamental wind velocity	$v_{b,0}$	:	27.0 m/s
	Base geometry	Node	I	:	5
			J	:	3
			K	:	21
			L	:	6
	Roof type and geometry	Type		:	⊙ Flat/monopitch roof
		Node	A	:	64
			B	:	69
			C	:	87
			D	:	66
	Eaves type	⊙ Sharp-edges eaves area			
	Generate LC	☒ LC w+		:	LC5
	Set wind on side	⊙ B - C			
	Create load type	⊙ Surface loads			
	Generate wind loads on surfaces No.			:	1-4,23-26,31,33-45, 56-59
	Building dimensions	h		:	7.310 m
		b		:	10.800 m
		d		:	7.940 m
		e_{Walls}		:	10.800 m
		e_{Roof}		:	10.800 m
		A_{Walls}		:	250.366 m²
		A_{Roof}		:	92.232 m²
		α		:	0.0 °
		d_A		:	2.160 m
		d_B		:	5.780 m
		d_C		:	0.000 m
		b_F		:	2.700 m
		d_F		:	1.080 m
		d_H		:	4.320 m
		d_I		:	3.140 m

Zone	External pressure coefficient $c_{pe,10}$	External pressure w_e [kN/m²]
A	-1.200	-0.71
B	-0.800	-0.47
C	-0.500	-0.29
D	0.800	0.40
E	-0.500	-0.25
F	-1.800	-1.06
G	-1.200	-0.71
H	-0.700	-0.41
I	0.200	0.12

Generated total loads	ΣP_{Areas}		:	54.806	kN
	ΣP		:	32.149	kN
Total moment to the origin	ΣM_{Areas}		:	463.527	kNm
	ΣM		:	279.266	kNm
2	**From Area Loads on Openings**				
Area load direction	Global relative to the projected area:		:	☒ ZP	
Load distribution type:	☒ Constant				
Area load magnitude	☒ Constant		:	-0.12	kN/m²
Openings with area load	Openings		:	8	
Generating total loads in direction	ΣP_{Areas}	X	:	0.000	kN
		Y	:	0.000	kN
		Z	:	-1.257	kN
	ΣP_{Lines}	X	:	0.000	kN
		Y	:	0.000	kN
		Z	:	-1.257	kN

3.15 GENERATED LOADS

LC5: Wind X-

No.	Load Description				
	Total moment to the origin	ΣM_{Areas}	X	:	-6.787 kNm
			Y	:	1.828 kNm
			Z	:	0.000 kNm
		ΣM_{Lines}	X	:	-6.787 kNm
			Y	:	1.828 kNm
			Z	:	0.000 kNm

LC6
Wind Y-

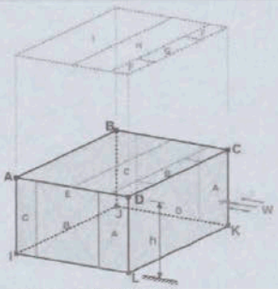
3.3 LINE LOADS

LC6: Wind Y-

No.	Reference to	On Lines No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	Lines =0,4x3,6	76,88	Force	Uniform	y	p	1.440	kN/m
2	Lines =0,4x3,6	64,70,77	Force	Uniform	y	p	-1.440	kN/m
3	Lines =0,4x2	150,168,203,224,234	Force	Uniform	y	p	-0.800	kN/m
4	Lines =0,25x3,6	54,60,65,68,78	Force	Uniform	y	p	-0.900	kN/m
5	Lines =0,25x2	198,202,211,214,216	Force	Uniform	y	p	-0.500	kN/m
6	Lines =0,71x3,6	109	Force	Uniform	y	p	-2.560	kN/m
7	Lines =0,71x2	208,235	Force	Uniform	y	p	-1.420	kN/m
8	Lines =0,47x3,6	101,105	Force	Uniform	y	p	-1.700	kN/m
9	Lines =0,47x2	205,206,223	Force	Uniform	y	p	-0.940	kN/m

3.15 GENERATED LOADS

LC6: Wind Y-

No.	Load Description				
1	**From Wind Loads (Building)**				
					
	Velocity pressure	According to Standard		:	EN 1991-1-4
		National Annex		:	Netherlands
		Wind zone		:	II
		Terrain category		:	Category III
		Structure height	h	:	7.310 m
		Fundamental wind velocity	$v_{b,0}$	:	27.0 m/s
	Base geometry	Node	I	:	5
			J	:	3
			K	:	21
			L	:	6
	Roof type and geometry	Type		:	⊙ Flat/monopitch roof
		Node	A	:	64
			B	:	69
			C	:	87
			D	:	66
	Eaves type	⊙ Sharp-edges eaves area			
	Generate LC	☒ LC w+		:	LC6
	Set wind on side	⊙ C - D			
	Create load type	⊙ Surface loads			
	Generate wind loads on surfaces No.			:	1-4,23-26,31,33-45, 56-59
	Building dimensions	h		:	7.310 m
		b		:	7.940 m
		d		:	10.800 m
		e_{Walls}		:	7.940 m
		e_{Roof}		:	8.540 m
		A_{Walls}		:	250.366 m²
		A_{Roof}		:	92.232 m²

3.15 GENERATED LOADS

LC6: Wind Y-

No.	Load Description				
		α	:	0.0	°
		d_A	:	1.588	m
		d_B	:	6.352	m
		d_C	:	2.860	m
		b_F	:	2.135	m
		d_F	:	0.854	m
		d_H	:	3.416	m
		d_I	:	6.530	m

Zone	External pressure coefficient $c_{pe,10}$	External pressure w_e [kN/m²]
A	-1.200	-0.71
B	-0.800	-0.47
C	-0.500	-0.29
D	0.800	0.40
E	-0.500	-0.25
F	-1.800	-1.06
G	-1.200	-0.71
H	-0.700	-0.41
I	0.200	0.12

Generated total loads	ΣP_{Areas}		:	35.697	kN
	ΣP		:	19.827	kN
Total moment to the origin	ΣM_{Areas}		:	279.219	kNm
	ΣM		:	177.240	kNm
2	**From Area Loads on Openings**				
Area load direction	Global relative to the projected area:		:	☒ ZP	
Load distribution type:	☒ Constant				
Area load magnitude	☒ Constant		:	-0.12	kN/m²
Openings with area load	Openings		:	8	
Generating total loads in direction	ΣP_{Areas}	X	:	0.000	kN
		Y	:	0.000	kN
		Z	:	-1.257	kN
	ΣP_{Lines}	X	:	0.000	kN
		Y	:	0.000	kN
		Z	:	-1.257	kN
Total moment to the origin	ΣM_{Areas}	X	:	-6.787	kNm
		Y	:	1.828	kNm
		Z	:	0.000	kNm
	ΣM_{Lines}	X	:	-6.787	kNm
		Y	:	1.828	kNm
		Z	:	0.000	kNm

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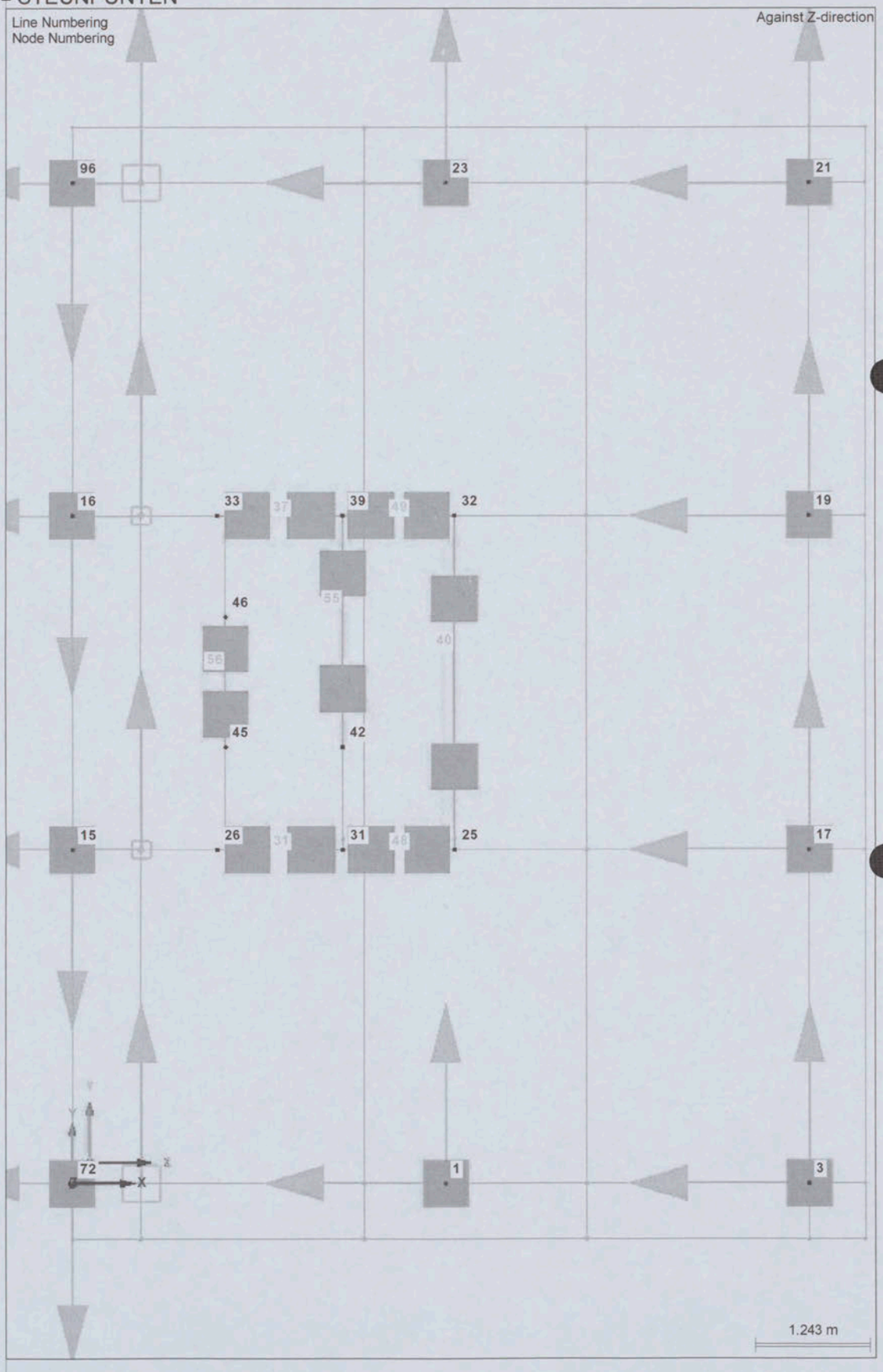

4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
1	LC1	-0.04	0.05	-52.11	0.00	0.00	0.00	Permanent
	LC2	-0.03	0.00	-14.77	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.00	0.05	-10.33	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	-0.02	0.06	-9.02	0.00	0.00	0.00	Sneeuw
	LC5	-0.17	-0.02	1.35	0.00	0.00	0.00	Wind X-
	LC6	-0.14	0.00	-0.96	0.00	0.00	-0.01	Wind Y-
	CO1	-0.05	0.06	-70.35	0.00	0.00	0.00	
	CO2	-0.08	0.07	-81.43	0.00	0.00	0.00	
	CO3	-0.09	0.06	-84.69	0.00	0.00	0.00	
	CO4	-0.07	0.15	-76.06	0.00	0.00	0.00	
	CO5	-0.09	0.15	-87.13	0.00	0.00	0.00	
	CO6	-0.30	0.03	-60.52	0.00	0.00	0.00	
	CO7	-0.25	0.06	-63.97	0.00	0.00	-0.01	
	CO8	-0.32	0.03	-71.59	0.00	0.00	0.00	
	CO9	-0.27	0.06	-75.04	0.00	0.00	-0.01	
	CO10	-0.05	0.13	-78.02	0.00	0.00	0.00	
	CO11	-0.07	0.13	-89.10	0.00	0.00	0.00	
	CO12	-0.07	0.09	-93.80	0.00	0.00	0.00	
	CO13	-0.11	0.09	-112.11	0.00	0.00	0.00	
	CO14	-0.09	0.15	-102.82	0.00	0.00	0.00	
	CO15	-0.11	0.15	-113.75	0.00	0.00	0.00	
	CO16	-0.24	0.07	-92.46	0.00	0.00	0.00	
	CO17	-0.21	0.09	-94.76	0.00	0.00	-0.01	
	CO18	-0.26	0.07	-103.38	0.00	0.00	0.00	
	CO19	-0.23	0.09	-105.69	0.00	0.00	-0.01	
	CO20	-0.08	0.13	-104.13	0.00	0.00	0.00	
	CO21	-0.10	0.13	-115.06	0.00	0.00	-0.01	
	CO22	-0.04	0.05	-57.32	0.00	0.00	0.00	
	CO23	-0.09	0.05	-79.47	0.00	0.00	0.00	
	CO24	-0.07	0.14	-70.85	0.00	0.00	0.00	
	CO25	-0.09	0.14	-81.92	0.00	0.00	0.00	
	CO26	-0.29	0.03	-55.31	0.00	0.00	0.00	
	CO27	-0.25	0.05	-58.76	0.00	0.00	-0.01	
	CO28	-0.31	0.03	-66.38	0.00	0.00	0.00	
	CO29	-0.27	0.05	-69.83	0.00	0.00	-0.01	
	CO30	-0.05	0.12	-72.81	0.00	0.00	0.00	
	CO31	-0.07	0.12	-83.89	0.00	0.00	0.00	
	CO32	-0.04	0.04	-46.90	0.00	0.00	0.00	
	CO33	-0.08	0.04	-69.05	0.00	0.00	0.00	
	CO34	-0.06	0.13	-60.43	0.00	0.00	0.00	
	CO35	-0.08	0.13	-71.50	0.00	0.00	0.00	
	CO36	-0.28	0.02	-44.88	0.00	0.00	0.00	
	CO37	-0.24	0.04	-48.34	0.00	0.00	-0.01	
	CO38	-0.30	0.02	-55.96	0.00	0.00	0.00	
	CO39	-0.26	0.04	-59.41	0.00	0.00	-0.01	
	CO40	-0.04	0.11	-62.39	0.00	0.00	0.00	
	CO41	-0.06	0.11	-73.46	0.00	0.00	0.00	
	CO42	-0.04	0.05	-52.11	0.00	0.00	0.00	
	CO43	-0.05	0.05	-59.50	0.00	0.00	0.00	
	CO44	-0.04	0.06	-53.92	0.00	0.00	0.00	
	CO45	-0.05	0.06	-58.35	0.00	0.00	0.00	
	CO46	-0.07	0.04	-51.84	0.00	0.00	0.00	
	CO47	-0.07	0.05	-52.30	0.00	0.00	0.00	
	CO48	-0.08	0.05	-56.27	0.00	0.00	0.00	
	CO49	-0.08	0.05	-56.73	0.00	0.00	0.00	
	CO50	-0.05	0.05	-56.54	0.00	0.00	0.00	
3	LC1	-0.04	-0.01	-35.97	0.00	0.00	0.00	Permanent
	LC2	0.00	-0.01	-7.18	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	-0.03	0.01	-4.97	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	-0.02	0.00	-2.68	0.00	0.00	0.00	Sneeuw
	LC5	-0.19	0.01	3.41	0.00	0.00	0.01	Wind X-
	LC6	-0.15	-0.03	-0.69	0.00	0.00	-0.01	Wind Y-
	CO1	-0.05	-0.01	-48.57	0.00	0.00	0.00	
	CO2	-0.05	-0.02	-53.95	0.00	0.00	0.00	
	CO3	-0.05	-0.03	-53.93	0.00	0.00	0.00	
	CO4	-0.08	0.00	-47.18	0.00	0.00	0.00	
	CO5	-0.08	-0.01	-52.57	0.00	0.00	0.00	
	CO6	-0.33	0.01	-38.06	0.00	0.00	0.01	
	CO7	-0.27	-0.06	-44.21	0.00	0.00	-0.01	
	CO8	-0.33	0.00	-43.44	0.00	0.00	0.01	
	CO9	-0.27	-0.06	-49.59	0.00	0.00	-0.01	
	CO10	-0.09	0.00	-50.63	0.00	0.00	0.00	
	CO11	-0.09	-0.01	-56.01	0.00	0.00	0.00	
	CO12	-0.07	-0.01	-64.75	0.00	0.00	0.00	
	CO13	-0.07	-0.03	-73.65	0.00	0.00	0.00	
	CO14	-0.09	-0.01	-67.43	0.00	0.00	0.00	
	CO15	-0.09	-0.02	-72.74	0.00	0.00	0.00	
	CO16	-0.26	0.00	-61.35	0.00	0.00	0.01	
	CO17	-0.22	-0.05	-65.45	0.00	0.00	0.00	
	CO18	-0.26	-0.01	-66.65	0.00	0.00	0.01	
	CO19	-0.22	-0.05	-70.76	0.00	0.00	0.00	
	CO20	-0.10	-0.01	-69.73	0.00	0.00	0.00	
	CO21	-0.10	-0.01	-75.04	0.00	0.00	0.00	
	CO22	-0.04	-0.01	-39.57	0.00	0.00	0.00	
	CO23	-0.04	-0.02	-50.33	0.00	0.00	0.00	
	CO24	-0.07	0.00	-43.59	0.00	0.00	0.00	
	CO25	-0.07	-0.01	-48.97	0.00	0.00	0.00	
	CO26	-0.32	0.01	-34.46	0.00	0.00	0.01	
	CO27	-0.26	-0.05	-40.61	0.00	0.00	-0.01	
	CO28	-0.32	0.00	-39.84	0.00	0.00	0.01	
	CO29	-0.26	-0.06	-46.00	0.00	0.00	-0.01	
	CO30	-0.09	0.00	-47.03	0.00	0.00	0.00	
	CO31	-0.09	0.00	-52.41	0.00	0.00	0.00	
	CO32	-0.03	-0.01	-32.38	0.00	0.00	0.00	

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4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
3	CO33	-0.03	-0.02	-43.14	0.00	0.00	0.00	
	CO34	-0.06	0.00	-36.39	0.00	0.00	0.00	
	CO35	-0.07	-0.01	-41.77	0.00	0.00	0.00	
	CO36	-0.31	0.01	-27.26	0.00	0.00	0.01	
	CO37	-0.26	-0.05	-33.42	0.00	0.00	-0.01	
	CO38	-0.32	0.00	-32.65	0.00	0.00	0.01	
	CO39	-0.26	-0.06	-38.80	0.00	0.00	-0.01	
	CO40	-0.08	0.00	-39.84	0.00	0.00	0.00	
	CO41	-0.08	0.00	-45.22	0.00	0.00	0.00	
	CO42	-0.04	-0.01	-35.97	0.00	0.00	0.00	
	CO43	-0.04	-0.01	-39.56	0.00	0.00	0.00	
	CO44	-0.04	-0.01	-36.51	0.00	0.00	0.00	
	CO45	-0.04	-0.01	-38.66	0.00	0.00	0.00	
	CO46	-0.08	-0.01	-35.29	0.00	0.00	0.00	
	CO47	-0.07	-0.01	-36.11	0.00	0.00	0.00	
	CO48	-0.08	-0.01	-37.45	0.00	0.00	0.00	
	CO49	-0.07	-0.02	-38.27	0.00	0.00	0.00	
	CO50	-0.04	-0.01	-38.13	0.00	0.00	0.00	
5	LC1	-0.01	-10.07	-30.46	0.00	0.00	0.00	Permanent
	LC2	-0.01	-2.31	-7.19	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.00	-1.28	-3.82	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	-1.37	-4.07	0.00	0.00	0.00	Sneeuw
	LC5	-0.53	-0.35	-1.18	0.00	0.00	0.24	Wind X-
	LC6	-0.62	-0.69	-1.32	0.00	0.00	0.28	Wind Y-
	CO1	-0.01	-13.60	-41.12	0.00	0.00	0.00	
	CO2	-0.02	-15.33	-46.51	0.00	0.00	0.00	
	CO3	-0.02	-15.56	-47.34	0.00	0.00	0.01	
	CO4	-0.01	-14.15	-42.65	0.00	0.00	0.00	
	CO5	-0.01	-15.89	-48.05	0.00	0.00	0.00	
	CO6	-0.80	-12.62	-38.31	0.00	0.00	0.36	
	CO7	-0.93	-13.13	-38.53	0.00	0.00	0.42	
	CO8	-0.81	-14.35	-43.71	0.00	0.00	0.36	
	CO9	-0.94	-14.86	-43.93	0.00	0.00	0.43	
	CO10	-0.01	-14.01	-42.28	0.00	0.00	0.00	
	CO11	-0.01	-15.75	-47.68	0.00	0.00	0.00	
	CO12	-0.02	-18.13	-54.82	0.00	0.00	0.00	
	CO13	-0.02	-21.00	-63.74	0.00	0.00	0.01	
	CO14	-0.02	-19.51	-58.89	0.00	0.00	0.00	
	CO15	-0.02	-21.22	-64.21	0.00	0.00	0.01	
	CO16	-0.54	-18.49	-56.00	0.00	0.00	0.24	
	CO17	-0.63	-18.83	-56.14	0.00	0.00	0.29	
	CO18	-0.55	-20.20	-61.32	0.00	0.00	0.24	
	CO19	-0.64	-20.54	-61.47	0.00	0.00	0.29	
	CO20	-0.02	-19.41	-58.65	0.00	0.00	0.00	
	CO21	-0.02	-21.13	-63.97	0.00	0.00	0.01	
	CO22	-0.01	-11.08	-33.50	0.00	0.00	0.00	
	CO23	-0.02	-14.55	-44.29	0.00	0.00	0.01	
	CO24	-0.01	-13.14	-39.60	0.00	0.00	0.00	
	CO25	-0.01	-14.88	-45.00	0.00	0.00	0.00	
	CO26	-0.80	-11.61	-35.27	0.00	0.00	0.36	
	CO27	-0.93	-12.12	-35.48	0.00	0.00	0.42	
	CO28	-0.80	-13.35	-40.66	0.00	0.00	0.36	
	CO29	-0.94	-13.86	-40.88	0.00	0.00	0.43	
	CO30	-0.01	-13.00	-39.24	0.00	0.00	0.00	
	CO31	-0.01	-14.74	-44.63	0.00	0.00	0.00	
	CO32	-0.01	-9.07	-27.41	0.00	0.00	0.00	
	CO33	-0.02	-12.54	-38.20	0.00	0.00	0.00	
	CO34	-0.01	-11.13	-33.51	0.00	0.00	0.00	
	CO35	-0.01	-12.86	-38.91	0.00	0.00	0.00	
	CO36	-0.80	-9.60	-29.18	0.00	0.00	0.36	
	CO37	-0.93	-10.11	-29.39	0.00	0.00	0.42	
	CO38	-0.80	-11.33	-34.57	0.00	0.00	0.36	
	CO39	-0.94	-11.84	-34.79	0.00	0.00	0.42	
	CO40	-0.01	-10.99	-33.15	0.00	0.00	0.00	
	CO41	-0.01	-12.72	-38.54	0.00	0.00	0.00	
	CO42	-0.01	-10.07	-30.46	0.00	0.00	0.00	
	CO43	-0.01	-11.23	-34.05	0.00	0.00	0.00	
	CO44	-0.01	-10.35	-31.27	0.00	0.00	0.00	
	CO45	-0.01	-11.04	-33.43	0.00	0.00	0.00	
	CO46	-0.11	-10.14	-30.69	0.00	0.00	0.05	
	CO47	-0.13	-10.21	-30.72	0.00	0.00	0.06	
	CO48	-0.12	-10.84	-32.85	0.00	0.00	0.05	
	CO49	-0.13	-10.91	-32.88	0.00	0.00	0.06	
	CO50	-0.01	-10.77	-32.61	0.00	0.00	0.00	
6	LC1	0.01	14.19	-30.32	0.00	0.00	0.00	Permanent
	LC2	0.00	3.32	-7.16	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.00	1.77	-3.79	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	1.85	-3.98	0.00	0.00	0.00	Sneeuw
	LC5	-0.49	0.73	-1.23	0.00	0.00	-0.20	Wind X-
	LC6	-1.16	-1.46	3.09	0.00	0.00	-0.44	Wind Y-
	CO1	0.01	19.15	-40.93	0.00	0.00	0.00	
	CO2	0.01	21.64	-46.30	0.00	0.00	0.00	
	CO3	0.00	22.00	-47.12	0.00	0.00	0.00	
	CO4	0.01	19.79	-42.35	0.00	0.00	0.00	
	CO5	0.01	22.28	-47.73	0.00	0.00	0.00	
	CO6	-0.73	18.12	-38.22	0.00	0.00	-0.30	
	CO7	-1.73	14.83	-31.74	0.00	0.00	-0.66	
	CO8	-0.73	20.61	-43.59	0.00	0.00	-0.30	
	CO9	-1.73	17.32	-37.12	0.00	0.00	-0.66	
	CO10	0.01	19.68	-42.06	0.00	0.00	0.00	
	CO11	0.01	22.16	-47.43	0.00	0.00	0.00	
	CO12	0.01	25.54	-54.57	0.00	0.00	0.00	
	CO13	0.01	29.65	-63.45	0.00	0.00	0.00	
	CO14	0.01	27.38	-58.55	0.00	0.00	0.00	

the scale towards document
Patch Reference numbers on UTT Scan Reference Chart TE263 Serial No.

4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
6	CO15	0.01	29.84	-63.85	0.00	0.00	0.00	
	CO16	-0.48	26.27	-55.80	0.00	0.00	-0.20	
	CO17	-1.15	24.07	-51.48	0.00	0.00	-0.44	
	CO18	-0.48	28.72	-61.10	0.00	0.00	-0.20	
	CO19	-1.15	26.53	-56.78	0.00	0.00	-0.44	
	CO20	0.01	27.30	-58.36	0.00	0.00	0.00	
	CO21	0.01	29.76	-63.66	0.00	0.00	0.00	
	CO22	0.01	15.61	-33.35	0.00	0.00	0.00	
	CO23	0.00	20.58	-44.09	0.00	0.00	0.00	
	CO24	0.01	18.38	-39.32	0.00	0.00	0.00	
	CO25	0.01	20.86	-44.69	0.00	0.00	0.00	
	CO26	-0.73	16.70	-35.19	0.00	0.00	-0.30	
	CO27	-1.73	13.41	-28.71	0.00	0.00	-0.66	
	CO28	-0.73	19.19	-40.56	0.00	0.00	-0.30	
	CO29	-1.73	15.90	-34.08	0.00	0.00	-0.66	
	CO30	0.01	18.26	-39.03	0.00	0.00	0.00	
	CO31	0.01	20.74	-44.40	0.00	0.00	0.00	
	CO32	0.01	12.77	-27.28	0.00	0.00	0.00	
	CO33	0.00	17.75	-38.03	0.00	0.00	0.00	
	CO34	0.01	15.54	-33.26	0.00	0.00	0.00	
	CO35	0.01	18.03	-38.63	0.00	0.00	0.00	
	CO36	-0.73	13.87	-29.13	0.00	0.00	-0.30	
	CO37	-1.73	10.57	-22.65	0.00	0.00	-0.66	
	CO38	-0.73	16.35	-34.50	0.00	0.00	-0.30	
	CO39	-1.73	13.06	-28.02	0.00	0.00	-0.66	
	CO40	0.01	15.42	-32.97	0.00	0.00	0.00	
	CO41	0.01	17.91	-38.34	0.00	0.00	0.00	
	CO42	0.01	14.19	-30.32	0.00	0.00	0.00	
	CO43	0.00	15.85	-33.90	0.00	0.00	0.00	
	CO44	0.01	14.56	-31.11	0.00	0.00	0.00	
	CO45	0.01	15.55	-33.26	0.00	0.00	0.00	
	CO46	-0.09	14.33	-30.56	0.00	0.00	-0.04	
	CO47	-0.23	13.90	-29.70	0.00	0.00	-0.09	
	CO48	-0.09	15.33	-32.71	0.00	0.00	-0.04	
	CO49	-0.23	14.89	-31.85	0.00	0.00	-0.09	
	CO50	0.00	15.18	-32.47	0.00	0.00	0.00	
15	LC1	-0.12	-0.64	-30.53	0.00	0.00	0.00	Permanent
	LC2	-0.18	-0.12	-7.56	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.00	-0.09	-3.69	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	0.00	-3.68	0.00	0.00	0.00	Sneeuw
	LC5	-0.96	-0.22	-2.53	0.00	0.00	0.23	Wind X-
	LC6	-1.43	-0.29	0.06	0.00	0.00	0.42	Wind Y-
	CO1	-0.16	-0.87	-41.22	0.00	0.00	0.00	
	CO2	-0.30	-0.96	-46.89	0.00	0.00	0.00	
	CO3	-0.42	-0.95	-47.98	0.00	0.00	0.00	
	CO4	-0.15	-0.77	-42.16	0.00	0.00	0.00	
	CO5	-0.29	-0.86	-47.83	0.00	0.00	0.00	
	CO6	-1.59	-1.10	-40.43	0.00	0.00	0.34	
	CO7	-2.29	-1.21	-36.55	0.00	0.00	0.62	
	CO8	-1.73	-1.19	-46.10	0.00	0.00	0.34	
	CO9	-2.43	-1.30	-42.22	0.00	0.00	0.62	
	CO10	-0.15	-0.90	-42.18	0.00	0.00	0.00	
	CO11	-0.29	-0.99	-47.85	0.00	0.00	0.00	
	CO12	-0.22	-1.16	-54.95	0.00	0.00	0.00	
	CO13	-0.45	-1.31	-64.33	0.00	0.00	0.00	
	CO14	-0.22	-1.16	-58.64	0.00	0.00	-0.01	
	CO15	-0.36	-1.25	-64.23	0.00	0.00	0.00	
	CO16	-1.18	-1.38	-57.49	0.00	0.00	0.23	
	CO17	-1.65	-1.45	-54.90	0.00	0.00	0.41	
	CO18	-1.32	-1.47	-63.08	0.00	0.00	0.23	
	CO19	-1.79	-1.54	-60.49	0.00	0.00	0.41	
	CO20	-0.22	-1.24	-58.65	0.00	0.00	0.00	
	CO21	-0.36	-1.33	-64.24	0.00	0.00	0.00	
	CO22	-0.13	-0.71	-33.58	0.00	0.00	0.00	
	CO23	-0.41	-0.89	-44.92	0.00	0.00	0.00	
	CO24	-0.14	-0.71	-39.11	0.00	0.00	0.00	
	CO25	-0.28	-0.80	-44.78	0.00	0.00	0.00	
	CO26	-1.58	-1.04	-37.38	0.00	0.00	0.34	
	CO27	-2.28	-1.15	-33.50	0.00	0.00	0.62	
	CO28	-1.71	-1.13	-43.05	0.00	0.00	0.34	
	CO29	-2.42	-1.24	-39.17	0.00	0.00	0.62	
	CO30	-0.14	-0.84	-39.13	0.00	0.00	0.00	
	CO31	-0.28	-0.93	-44.80	0.00	0.00	0.00	
	CO32	-0.11	-0.58	-27.48	0.00	0.00	0.00	
	CO33	-0.39	-0.76	-38.82	0.00	0.00	0.00	
	CO34	-0.12	-0.58	-33.00	0.00	0.00	0.00	
	CO35	-0.25	-0.67	-38.67	0.00	0.00	0.00	
	CO36	-1.55	-0.91	-31.28	0.00	0.00	0.34	
	CO37	-2.26	-1.02	-27.39	0.00	0.00	0.62	
	CO38	-1.69	-1.00	-36.95	0.00	0.00	0.34	
	CO39	-2.40	-1.11	-33.06	0.00	0.00	0.62	
	CO40	-0.11	-0.71	-33.02	0.00	0.00	0.00	
	CO41	-0.25	-0.80	-38.69	0.00	0.00	0.00	
	CO42	-0.12	-0.64	-30.53	0.00	0.00	0.00	
	CO43	-0.21	-0.70	-34.31	0.00	0.00	0.00	
	CO44	-0.12	-0.64	-31.27	0.00	0.00	0.00	
	CO45	-0.18	-0.68	-33.53	0.00	0.00	0.00	
	CO46	-0.31	-0.69	-31.04	0.00	0.00	0.04	
	CO47	-0.41	-0.70	-30.52	0.00	0.00	0.08	
	CO48	-0.37	-0.72	-33.30	0.00	0.00	0.04	
	CO49	-0.46	-0.74	-32.79	0.00	0.00	0.08	
	CO50	-0.18	-0.68	-32.80	0.00	0.00	0.00	
16	LC1	-0.11	-4.92	-28.76	0.00	0.00	0.00	Permanent
	LC2	-0.18	-1.20	-7.20	0.00	0.00	0.00	Opgelegde vloerbelasting

4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] $P_{X'}$	$P_{Y'}$	$P_{Z'}$	Support Moments [kNm] $M_{X'}$	$M_{Y'}$	$M_{Z'}$	
16	LC3	0.00	-0.62	-3.49	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	-0.70	-3.59	0.00	0.00	0.00	Sneeuw
	LC5	-0.93	-0.13	-2.27	0.00	0.00	0.21	Wind X-
	LC6	-1.46	0.27	1.79	0.00	0.00	0.42	Wind Y-
	CO1	-0.15	-6.64	-38.83	0.00	0.00	0.00	
	CO2	-0.29	-7.54	-44.23	0.00	0.00	0.00	
	CO3	-0.41	-7.70	-45.32	0.00	0.00	0.00	
	CO4	-0.13	-6.95	-39.90	0.00	0.00	-0.01	
	CO5	-0.27	-7.85	-45.31	0.00	0.00	0.00	
	CO6	-1.53	-6.09	-37.93	0.00	0.00	0.31	
	CO7	-2.33	-5.50	-31.83	0.00	0.00	0.62	
	CO8	-1.66	-6.99	-43.33	0.00	0.00	0.31	
	CO9	-2.47	-6.40	-37.23	0.00	0.00	0.63	
	CO10	-0.13	-6.83	-39.76	0.00	0.00	-0.01	
	CO11	-0.27	-7.73	-45.16	0.00	0.00	0.00	
	CO12	-0.20	-8.85	-51.78	0.00	0.00	-0.01	
	CO13	-0.43	-10.34	-60.71	0.00	0.00	0.00	
	CO14	-0.20	-9.55	-55.37	0.00	0.00	-0.01	
	CO15	-0.34	-10.44	-60.70	0.00	0.00	-0.01	
	CO16	-1.13	-8.98	-54.05	0.00	0.00	0.20	
	CO17	-1.66	-8.58	-49.99	0.00	0.00	0.41	
	CO18	-1.26	-9.87	-59.38	0.00	0.00	0.21	
	CO19	-1.80	-9.47	-55.32	0.00	0.00	0.41	
	CO20	-0.20	-9.48	-55.27	0.00	0.00	-0.01	
	CO21	-0.33	-10.36	-60.60	0.00	0.00	-0.01	
	CO22	-0.12	-5.41	-31.64	0.00	0.00	0.00	
	CO23	-0.40	-7.21	-42.45	0.00	0.00	0.00	
	CO24	-0.12	-6.46	-37.03	0.00	0.00	-0.01	
	CO25	-0.26	-7.36	-42.43	0.00	0.00	0.00	
	CO26	-1.51	-5.60	-35.05	0.00	0.00	0.31	
	CO27	-2.32	-5.00	-28.96	0.00	0.00	0.62	
	CO28	-1.65	-6.50	-40.45	0.00	0.00	0.31	
	CO29	-2.46	-5.90	-34.36	0.00	0.00	0.63	
	CO30	-0.12	-6.34	-36.88	0.00	0.00	-0.01	
	CO31	-0.26	-7.24	-42.28	0.00	0.00	0.00	
	CO32	-0.10	-4.43	-25.89	0.00	0.00	0.00	
	CO33	-0.37	-6.23	-36.69	0.00	0.00	0.00	
	CO34	-0.10	-5.48	-31.28	0.00	0.00	-0.01	
	CO35	-0.24	-6.38	-36.68	0.00	0.00	0.00	
	CO36	-1.49	-4.62	-29.30	0.00	0.00	0.31	
	CO37	-2.30	-4.02	-23.20	0.00	0.00	0.62	
	CO38	-1.63	-5.52	-34.70	0.00	0.00	0.31	
	CO39	-2.43	-4.92	-28.61	0.00	0.00	0.63	
	CO40	-0.10	-5.36	-31.13	0.00	0.00	-0.01	
	CO41	-0.24	-6.26	-36.53	0.00	0.00	0.00	
	CO42	-0.11	-4.92	-28.76	0.00	0.00	0.00	
	CO43	-0.20	-5.52	-32.37	0.00	0.00	0.00	
	CO44	-0.11	-5.06	-29.48	0.00	0.00	0.00	
	CO45	-0.17	-5.42	-31.64	0.00	0.00	0.00	
	CO46	-0.30	-4.94	-29.22	0.00	0.00	0.04	
	CO47	-0.40	-4.86	-28.41	0.00	0.00	0.08	
	CO48	-0.35	-5.30	-31.38	0.00	0.00	0.04	
	CO49	-0.46	-5.22	-30.57	0.00	0.00	0.08	
	CO50	-0.16	-5.28	-30.93	0.00	0.00	0.00	
17	LC1	0.23	-0.03	-51.15	0.00	0.00	-0.04	Permanent
	LC2	0.47	0.01	-19.42	0.00	0.00	-0.01	Opgelegde vloerbelasting
	LC3	-0.04	0.00	-9.99	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	-0.03	0.00	-7.57	0.00	0.00	0.00	Sneeuw
	LC5	-0.31	0.00	7.58	0.00	0.00	0.00	Wind X-
	LC6	-0.04	-0.07	-2.58	0.00	0.00	-0.01	Wind Y-
	CO1	0.32	-0.04	-69.06	0.00	0.00	-0.05	
	CO2	0.67	-0.04	-83.62	0.00	0.00	-0.06	
	CO3	0.99	-0.03	-90.51	0.00	0.00	-0.07	
	CO4	0.23	-0.04	-72.75	0.00	0.00	-0.05	
	CO5	0.58	-0.03	-87.31	0.00	0.00	-0.06	
	CO6	-0.18	-0.03	-50.02	0.00	0.00	-0.05	
	CO7	0.22	-0.14	-65.26	0.00	0.00	-0.06	
	CO8	0.18	-0.03	-64.58	0.00	0.00	-0.06	
	CO9	0.58	-0.13	-79.82	0.00	0.00	-0.07	
	CO10	0.23	-0.04	-76.36	0.00	0.00	-0.05	
	CO11	0.58	-0.03	-90.92	0.00	0.00	-0.06	
	CO12	0.42	-0.06	-92.08	0.00	0.00	-0.07	
	CO13	1.01	-0.05	-116.15	0.00	0.00	-0.09	
	CO14	0.39	-0.06	-99.65	0.00	0.00	-0.07	
	CO15	0.74	-0.05	-114.02	0.00	0.00	-0.08	
	CO16	0.12	-0.05	-84.50	0.00	0.00	-0.07	
	CO17	0.38	-0.12	-94.66	0.00	0.00	-0.08	
	CO18	0.47	-0.05	-98.87	0.00	0.00	-0.08	
	CO19	0.73	-0.12	-109.03	0.00	0.00	-0.09	
	CO20	0.39	-0.06	-102.06	0.00	0.00	-0.07	
	CO21	0.74	-0.05	-116.43	0.00	0.00	-0.08	
	CO22	0.26	-0.03	-56.27	0.00	0.00	-0.04	
	CO23	0.97	-0.02	-85.39	0.00	0.00	-0.06	
	CO24	0.21	-0.04	-67.63	0.00	0.00	-0.04	
	CO25	0.56	-0.03	-82.19	0.00	0.00	-0.05	
	CO26	-0.20	-0.03	-44.90	0.00	0.00	-0.04	
	CO27	0.20	-0.14	-60.15	0.00	0.00	-0.06	
	CO28	0.15	-0.02	-59.46	0.00	0.00	-0.05	
	CO29	0.55	-0.13	-74.71	0.00	0.00	-0.07	
	CO30	0.20	-0.04	-71.25	0.00	0.00	-0.04	
	CO31	0.56	-0.03	-85.81	0.00	0.00	-0.05	
	CO32	0.21	-0.03	-46.04	0.00	0.00	-0.03	
	CO33	0.92	-0.02	-75.16	0.00	0.00	-0.05	
	CO34	0.16	-0.03	-57.40	0.00	0.00	-0.03	

the scale towards document
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■ 4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
17	CO35	0.51	-0.02	-71.96	0.00	0.00	-0.04	
	CO36	-0.25	-0.02	-34.67	0.00	0.00	-0.04	
	CO37	0.15	-0.13	-49.91	0.00	0.00	-0.05	
	CO38	0.11	-0.02	-49.23	0.00	0.00	-0.04	
	CO39	0.51	-0.12	-64.48	0.00	0.00	-0.06	
	CO40	0.16	-0.03	-61.02	0.00	0.00	-0.03	
	CO41	0.51	-0.03	-75.58	0.00	0.00	-0.04	
	CO42	0.23	-0.03	-51.15	0.00	0.00	-0.04	
	CO43	0.47	-0.03	-60.86	0.00	0.00	-0.04	
	CO44	0.23	-0.03	-52.67	0.00	0.00	-0.04	
	CO45	0.37	-0.03	-58.49	0.00	0.00	-0.04	
	CO46	0.17	-0.03	-49.64	0.00	0.00	-0.04	
	CO47	0.23	-0.04	-51.67	0.00	0.00	-0.04	
	CO48	0.31	-0.03	-55.46	0.00	0.00	-0.04	
	CO49	0.37	-0.04	-57.50	0.00	0.00	-0.04	
	CO50	0.38	-0.03	-56.98	0.00	0.00	-0.04	
19	LC1	0.24	-0.03	-51.56	0.00	0.00	0.00	Permanent
	LC2	0.46	-0.02	-19.49	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	-0.03	0.00	-9.93	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	-0.03	0.00	-7.52	0.00	0.00	0.00	Sneeuw
	LC5	-0.31	0.00	7.65	0.00	0.00	0.00	Wind X-
	LC6	0.10	-0.08	1.24	0.00	0.00	-0.01	Wind Y-
	CO1	0.32	-0.04	-69.61	0.00	0.00	0.00	
	CO2	0.66	-0.06	-84.23	0.00	0.00	0.00	
	CO3	0.97	-0.07	-91.12	0.00	0.00	0.00	
	CO4	0.24	-0.04	-73.16	0.00	0.00	0.00	
	CO5	0.59	-0.05	-87.78	0.00	0.00	0.00	
	CO6	-0.17	-0.04	-50.40	0.00	0.00	0.00	
	CO7	0.44	-0.17	-60.02	0.00	0.00	-0.02	
	CO8	0.17	-0.06	-65.02	0.00	0.00	0.00	
	CO9	0.78	-0.18	-74.64	0.00	0.00	-0.02	
	CO10	0.24	-0.04	-76.77	0.00	0.00	0.00	
	CO11	0.58	-0.05	-91.39	0.00	0.00	0.00	
	CO12	0.42	-0.06	-92.81	0.00	0.00	0.00	
	CO13	0.99	-0.08	-116.99	0.00	0.00	0.00	
	CO14	0.40	-0.06	-100.33	0.00	0.00	0.00	
	CO15	0.74	-0.07	-114.76	0.00	0.00	0.00	
	CO16	0.12	-0.06	-85.16	0.00	0.00	0.00	
	CO17	0.53	-0.14	-91.58	0.00	0.00	-0.01	
	CO18	0.46	-0.07	-99.59	0.00	0.00	0.00	
	CO19	0.87	-0.16	-106.00	0.00	0.00	-0.01	
	CO20	0.40	-0.06	-102.74	0.00	0.00	0.00	
	CO21	0.74	-0.07	-117.17	0.00	0.00	0.00	
	CO22	0.26	-0.04	-56.72	0.00	0.00	0.00	
	CO23	0.95	-0.06	-85.96	0.00	0.00	0.00	
	CO24	0.22	-0.04	-68.00	0.00	0.00	0.00	
	CO25	0.56	-0.05	-82.62	0.00	0.00	0.00	
	CO26	-0.20	-0.04	-45.25	0.00	0.00	0.00	
	CO27	0.42	-0.16	-54.86	0.00	0.00	-0.02	
	CO28	0.15	-0.05	-59.87	0.00	0.00	0.00	
	CO29	0.76	-0.18	-69.48	0.00	0.00	-0.02	
	CO30	0.22	-0.03	-71.61	0.00	0.00	0.00	
	CO31	0.56	-0.05	-86.23	0.00	0.00	0.00	
	CO32	0.21	-0.03	-46.41	0.00	0.00	0.00	
	CO33	0.90	-0.06	-75.65	0.00	0.00	0.00	
	CO34	0.17	-0.03	-57.69	0.00	0.00	0.00	
	CO35	0.52	-0.04	-72.31	0.00	0.00	0.00	
	CO36	-0.25	-0.03	-34.93	0.00	0.00	0.00	
	CO37	0.37	-0.16	-44.55	0.00	0.00	-0.02	
	CO38	0.10	-0.05	-49.55	0.00	0.00	0.00	
	CO39	0.71	-0.17	-59.17	0.00	0.00	-0.02	
	CO40	0.17	-0.03	-61.30	0.00	0.00	0.00	
	CO41	0.51	-0.04	-75.92	0.00	0.00	0.00	
	CO42	0.24	-0.03	-51.56	0.00	0.00	0.00	
	CO43	0.47	-0.04	-61.31	0.00	0.00	0.00	
	CO44	0.23	-0.03	-53.07	0.00	0.00	0.00	
	CO45	0.37	-0.04	-58.92	0.00	0.00	0.00	
	CO46	0.17	-0.03	-50.03	0.00	0.00	0.00	
	CO47	0.26	-0.05	-51.32	0.00	0.00	0.00	
	CO48	0.31	-0.04	-55.88	0.00	0.00	0.00	
	CO49	0.39	-0.05	-57.16	0.00	0.00	0.00	
	CO50	0.37	-0.04	-57.41	0.00	0.00	0.00	
21	LC1	0.04	0.14	-36.26	0.00	0.00	0.00	Permanent
	LC2	0.01	0.05	-7.18	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	-0.01	-0.01	-5.08	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	0.00	-2.76	0.00	0.00	0.00	Sneeuw
	LC5	-0.20	0.00	3.33	0.00	0.00	-0.01	Wind X-
	LC6	0.09	-0.05	1.74	0.00	0.00	0.00	Wind Y-
	CO1	0.06	0.19	-48.94	0.00	0.00	0.00	
	CO2	0.07	0.22	-54.33	0.00	0.00	0.00	
	CO3	0.07	0.24	-54.27	0.00	0.00	0.00	
	CO4	0.06	0.16	-47.65	0.00	0.00	0.00	
	CO5	0.07	0.19	-53.03	0.00	0.00	0.00	
	CO6	-0.24	0.17	-38.51	0.00	0.00	-0.01	
	CO7	0.19	0.09	-40.89	0.00	0.00	0.00	
	CO8	-0.23	0.20	-43.89	0.00	0.00	-0.01	
	CO9	0.20	0.13	-46.27	0.00	0.00	0.00	
	CO10	0.04	0.15	-51.13	0.00	0.00	0.00	
	CO11	0.05	0.19	-56.52	0.00	0.00	0.00	
	CO12	0.08	0.25	-65.26	0.00	0.00	0.00	
	CO13	0.10	0.31	-74.16	0.00	0.00	0.00	
	CO14	0.08	0.24	-68.02	0.00	0.00	0.00	
	CO15	0.09	0.28	-73.33	0.00	0.00	-0.01	
	CO16	-0.12	0.25	-61.93	0.00	0.00	-0.01	

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■ 4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
21	CO17	0.17	0.20	-63.52	0.00	0.00	0.00	
	CO18	-0.11	0.28	-67.24	0.00	0.00	-0.01	
	CO19	0.18	0.23	-68.83	0.00	0.00	0.00	
	CO20	0.07	0.24	-70.34	0.00	0.00	-0.01	
	CO21	0.08	0.28	-75.66	0.00	0.00	-0.01	
	CO22	0.05	0.15	-39.88	0.00	0.00	0.00	
	CO23	0.07	0.22	-50.65	0.00	0.00	0.00	
	CO24	0.05	0.15	-44.02	0.00	0.00	0.00	
	CO25	0.06	0.18	-49.40	0.00	0.00	0.00	
	CO26	-0.25	0.15	-34.89	0.00	0.00	-0.01	
	CO27	0.18	0.08	-37.26	0.00	0.00	0.00	
	CO28	-0.24	0.19	-40.27	0.00	0.00	-0.01	
	CO29	0.19	0.11	-42.65	0.00	0.00	0.00	
	CO30	0.04	0.14	-47.51	0.00	0.00	0.00	
	CO31	0.05	0.18	-52.89	0.00	0.00	0.00	
	CO32	0.04	0.12	-32.63	0.00	0.00	0.00	
	CO33	0.06	0.19	-43.40	0.00	0.00	0.00	
	CO34	0.04	0.12	-36.77	0.00	0.00	0.00	
	CO35	0.05	0.15	-42.15	0.00	0.00	0.00	
	CO36	-0.26	0.12	-27.63	0.00	0.00	-0.01	
	CO37	0.17	0.05	-30.01	0.00	0.00	0.00	
	CO38	-0.25	0.16	-33.02	0.00	0.00	-0.01	
	CO39	0.18	0.09	-35.40	0.00	0.00	0.00	
	CO40	0.03	0.11	-40.26	0.00	0.00	0.00	
	CO41	0.04	0.15	-45.64	0.00	0.00	0.00	
	CO42	0.04	0.14	-36.26	0.00	0.00	0.00	
	CO43	0.05	0.16	-39.84	0.00	0.00	0.00	
	CO44	0.04	0.14	-36.81	0.00	0.00	0.00	
	CO45	0.05	0.15	-38.96	0.00	0.00	0.00	
	CO46	0.00	0.14	-35.59	0.00	0.00	0.00	
	CO47	0.06	0.13	-35.91	0.00	0.00	0.00	
	CO48	0.01	0.15	-37.74	0.00	0.00	0.00	
	CO49	0.07	0.14	-38.06	0.00	0.00	0.00	
	CO50	0.05	0.15	-38.41	0.00	0.00	0.00	
23	LC1	0.02	-0.04	-51.61	0.00	0.00	0.00	Permanent
	LC2	-0.01	0.00	-14.71	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.01	-0.05	-10.17	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	-0.06	-8.89	0.00	0.00	0.00	Sneeuw
	LC5	-0.18	0.02	1.39	0.00	0.00	0.00	Wind X-
	LC6	0.06	0.02	4.84	0.00	0.00	-0.01	Wind Y-
	CO1	0.03	-0.06	-69.67	0.00	0.00	0.00	
	CO2	0.02	-0.06	-80.71	0.00	0.00	0.00	
	CO3	0.01	-0.05	-84.00	0.00	0.00	0.00	
	CO4	0.02	-0.14	-75.27	0.00	0.00	0.00	
	CO5	0.02	-0.14	-86.30	0.00	0.00	0.00	
	CO6	-0.25	-0.02	-59.85	0.00	0.00	0.00	
	CO7	0.11	-0.02	-54.68	0.00	0.00	-0.01	
	CO8	-0.25	-0.02	-70.88	0.00	0.00	0.00	
	CO9	0.10	-0.02	-65.71	0.00	0.00	-0.01	
	CO10	0.04	-0.13	-77.19	0.00	0.00	0.00	
	CO11	0.03	-0.12	-88.22	0.00	0.00	0.00	
	CO12	0.04	-0.08	-92.90	0.00	0.00	0.00	
	CO13	0.02	-0.08	-111.14	0.00	0.00	0.00	
	CO14	0.04	-0.14	-101.79	0.00	0.00	0.00	
	CO15	0.03	-0.14	-112.68	0.00	0.00	0.00	
	CO16	-0.14	-0.06	-91.51	0.00	0.00	0.00	
	CO17	0.09	-0.06	-88.06	0.00	0.00	-0.01	
	CO18	-0.15	-0.06	-102.39	0.00	0.00	0.00	
	CO19	0.08	-0.06	-98.95	0.00	0.00	-0.01	
	CO20	0.05	-0.13	-103.07	0.00	0.00	0.00	
	CO21	0.04	-0.13	-113.96	0.00	0.00	0.00	
	CO22	0.02	-0.05	-56.77	0.00	0.00	0.00	
	CO23	0.01	-0.05	-78.84	0.00	0.00	0.00	
	CO24	0.02	-0.14	-70.11	0.00	0.00	0.00	
	CO25	0.01	-0.14	-81.14	0.00	0.00	0.00	
	CO26	-0.25	-0.02	-54.69	0.00	0.00	0.00	
	CO27	0.11	-0.02	-49.52	0.00	0.00	-0.01	
	CO28	-0.26	-0.02	-65.72	0.00	0.00	0.00	
	CO29	0.10	-0.02	-60.55	0.00	0.00	-0.01	
	CO30	0.04	-0.12	-72.03	0.00	0.00	0.00	
	CO31	0.03	-0.12	-83.06	0.00	0.00	0.00	
	CO32	0.02	-0.04	-46.45	0.00	0.00	0.00	
	CO33	0.00	-0.04	-68.51	0.00	0.00	0.00	
	CO34	0.02	-0.13	-59.79	0.00	0.00	0.00	
	CO35	0.01	-0.13	-70.82	0.00	0.00	0.00	
	CO36	-0.25	-0.01	-44.37	0.00	0.00	0.00	
	CO37	0.10	-0.01	-39.20	0.00	0.00	-0.01	
	CO38	-0.26	-0.01	-55.40	0.00	0.00	0.00	
	CO39	0.10	-0.01	-50.23	0.00	0.00	-0.01	
	CO40	0.03	-0.11	-61.71	0.00	0.00	0.00	
	CO41	0.03	-0.11	-72.74	0.00	0.00	0.00	
	CO42	0.02	-0.04	-51.61	0.00	0.00	0.00	
	CO43	0.02	-0.04	-58.97	0.00	0.00	0.00	
	CO44	0.02	-0.06	-53.39	0.00	0.00	0.00	
	CO45	0.02	-0.06	-57.80	0.00	0.00	0.00	
	CO46	-0.02	-0.04	-51.33	0.00	0.00	0.00	
	CO47	0.03	-0.04	-50.64	0.00	0.00	0.00	
	CO48	-0.02	-0.04	-55.75	0.00	0.00	0.00	
	CO49	0.03	-0.04	-55.06	0.00	0.00	0.00	
	CO50	0.02	-0.04	-56.02	0.00	0.00	0.00	



■ 4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
31	LC1	26	0.000	-12.14	0.00	-26.07	0.00	0.00	0.00
			0.193	2.37	0.00	-27.24	0.00	0.00	0.00
			0.386	1.66	0.00	-26.53	0.00	0.00	0.00
			0.578	0.78	0.00	-24.94	0.00	0.00	0.00
			0.771	0.17	0.00	-23.24	0.00	0.00	0.00
			0.964	-0.19	0.00	-22.17	0.00	0.00	0.00
			1.157	-0.40	0.00	-21.76	0.00	0.00	0.00
		31	1.349	-0.61	0.00	-22.41	0.00	0.00	0.00
	LC2	26	0.000	-8.03	0.00	-17.21	0.00	0.00	0.00
			0.193	1.69	0.00	-17.89	0.00	0.00	0.00
			0.386	1.25	0.00	-17.02	0.00	0.00	0.00
			0.578	0.66	0.00	-15.43	0.00	0.00	0.00
			0.771	0.23	0.00	-13.84	0.00	0.00	0.00
			0.964	-0.02	0.00	-12.81	0.00	0.00	0.00
			1.157	-0.16	0.00	-12.36	0.00	0.00	0.00
		31	1.349	-0.32	0.00	-12.62	0.00	0.00	0.00
	LC4	26	0.000	-2.24	0.00	-4.89	0.00	0.00	0.00
			0.193	0.45	0.00	-5.71	0.00	0.00	0.00
			0.386	0.33	0.00	-5.92	0.00	0.00	0.00
			0.578	0.18	0.00	-6.02	0.00	0.00	0.00
			0.771	0.08	0.00	-6.04	0.00	0.00	0.00
			0.964	0.01	0.00	-6.13	0.00	0.00	0.00
			1.157	-0.03	0.00	-6.26	0.00	0.00	0.00
		31	1.349	-0.07	0.00	-6.85	0.00	0.00	0.00
	CO3	26	0.000	-26.62	0.00	-57.09	0.00	0.00	0.00
			0.193	5.37	0.00	-59.52	0.00	0.00	0.00
			0.386	3.86	0.00	-57.36	0.00	0.00	0.00
			0.578	1.93	0.00	-53.08	0.00	0.00	0.00
			0.771	0.55	0.00	-48.65	0.00	0.00	0.00
			0.964	-0.25	0.00	-45.82	0.00	0.00	0.00
			1.157	-0.73	0.00	-44.66	0.00	0.00	0.00
		31	1.349	-1.21	0.00	-45.82	0.00	0.00	0.00
	CO5	26	0.000	-23.96	0.00	-51.52	0.00	0.00	0.00
			0.193	4.78	0.00	-54.67	0.00	0.00	0.00
			0.386	3.42	0.00	-53.48	0.00	0.00	0.00
			0.578	1.70	0.00	-50.54	0.00	0.00	0.00
			0.771	0.49	0.00	-47.33	0.00	0.00	0.00
			0.964	-0.22	0.00	-45.41	0.00	0.00	0.00
			1.157	-0.66	0.00	-44.78	0.00	0.00	0.00
		31	1.349	-1.07	0.00	-46.62	0.00	0.00	0.00
	CO10	26	0.000	-17.45	0.00	-37.54	0.00	0.00	0.00
			0.193	3.42	0.00	-39.86	0.00	0.00	0.00
			0.386	2.41	0.00	-39.20	0.00	0.00	0.00
			0.578	1.16	0.00	-37.33	0.00	0.00	0.00
			0.771	0.30	0.00	-35.20	0.00	0.00	0.00
			0.964	-0.22	0.00	-33.94	0.00	0.00	0.00
			1.157	-0.53	0.00	-33.56	0.00	0.00	0.00
		31	1.349	-0.83	0.00	-34.92	0.00	0.00	0.00
37	LC1	33	0.000	-9.05	0.00	-19.71	0.00	0.00	0.00
			0.193	2.19	0.00	-23.04	0.00	0.00	0.00
			0.386	1.79	0.00	-22.86	0.00	0.00	0.00
			0.578	1.21	0.00	-21.81	0.00	0.00	0.00
			0.771	0.75	0.00	-20.37	0.00	0.00	0.00
			0.964	0.49	0.00	-19.28	0.00	0.00	0.00
			1.157	0.35	0.00	-18.74	0.00	0.00	0.00
		39	1.349	0.16	0.00	-18.68	0.00	0.00	0.00
	LC2	33	0.000	-7.29	0.00	-15.66	0.00	0.00	0.00
			0.193	1.64	0.00	-16.75	0.00	0.00	0.00
			0.386	1.27	0.00	-15.95	0.00	0.00	0.00
			0.578	0.76	0.00	-14.40	0.00	0.00	0.00
			0.771	0.37	0.00	-12.78	0.00	0.00	0.00
			0.964	0.15	0.00	-11.62	0.00	0.00	0.00
			1.157	0.03	0.00	-11.03	0.00	0.00	0.00
		39	1.349	-0.11	0.00	-10.85	0.00	0.00	0.00
	LC4	33	0.000	-2.00	0.00	-4.39	0.00	0.00	0.00
			0.193	0.47	0.00	-5.44	0.00	0.00	0.00
			0.386	0.38	0.00	-5.62	0.00	0.00	0.00
			0.578	0.26	0.00	-5.66	0.00	0.00	0.00
			0.771	0.17	0.00	-5.54	0.00	0.00	0.00
			0.964	0.12	0.00	-5.45	0.00	0.00	0.00
			1.157	0.09	0.00	-5.42	0.00	0.00	0.00
		39	1.349	0.05	0.00	-5.58	0.00	0.00	0.00
	CO3	33	0.000	-21.80	0.00	-47.14	0.00	0.00	0.00
			0.193	5.08	0.00	-52.78	0.00	0.00	0.00
			0.386	4.06	0.00	-51.35	0.00	0.00	0.00
			0.578	2.59	0.00	-47.78	0.00	0.00	0.00
			0.771	1.45	0.00	-43.61	0.00	0.00	0.00
			0.964	0.80	0.00	-40.57	0.00	0.00	0.00
			1.157	0.46	0.00	-39.04	0.00	0.00	0.00
		39	1.349	0.03	0.00	-38.69	0.00	0.00	0.00
	CO5	33	0.000	-19.33	0.00	-41.98	0.00	0.00	0.00
			0.193	4.55	0.00	-48.37	0.00	0.00	0.00
			0.386	3.68	0.00	-47.83	0.00	0.00	0.00
			0.578	2.41	0.00	-45.46	0.00	0.00	0.00
			0.771	1.43	0.00	-42.34	0.00	0.00	0.00
			0.964	0.87	0.00	-40.03	0.00	0.00	0.00
			1.157	0.57	0.00	-38.89	0.00	0.00	0.00
		39	1.349	0.19	0.00	-38.92	0.00	0.00	0.00
	CO10	33	0.000	-13.37	0.00	-29.15	0.00	0.00	0.00
			0.193	3.22	0.00	-34.41	0.00	0.00	0.00
			0.386	2.64	0.00	-34.38	0.00	0.00	0.00
			0.578	1.79	0.00	-33.08	0.00	0.00	0.00
			0.771	1.13	0.00	-31.12	0.00	0.00	0.00
			0.964	0.74	0.00	-29.63	0.00	0.00	0.00

the scale towards document

■ 4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
37	CO10	33	1.157	0.54	0.00	-28.88	0.00	0.00	0.00
		39	1.349	0.26	0.00	-28.87	0.00	0.00	0.00
40	LC1	25	0.000	-1.26	0.00	-11.29	0.00	0.00	0.00
			0.200	0.30	0.00	-10.86	0.00	0.00	0.00
			0.400	0.29	0.00	-10.19	0.00	0.00	0.00
			0.600	0.21	0.00	-9.36	0.00	0.00	0.00
			0.800	0.09	0.00	-8.82	0.00	0.00	0.00
			1.000	0.00	0.00	-8.69	0.00	0.00	0.00
			1.200	-0.05	0.00	-8.87	0.00	0.00	0.00
			1.400	-0.06	0.00	-9.21	0.00	0.00	0.00
			1.600	-0.06	0.00	-9.59	0.00	0.00	0.00
			1.800	-0.05	0.00	-9.95	0.00	0.00	0.00
			2.000	-0.05	0.00	-10.30	0.00	0.00	0.00
			2.200	-0.06	0.00	-10.66	0.00	0.00	0.00
			2.400	-0.08	0.00	-11.06	0.00	0.00	0.00
			2.600	-0.11	0.00	-11.55	0.00	0.00	0.00
			2.800	-0.15	0.00	-12.15	0.00	0.00	0.00
			3.000	-0.21	0.00	-12.85	0.00	0.00	0.00
			3.200	-0.27	0.00	-13.54	0.00	0.00	0.00
			3.400	-0.29	0.00	-13.99	0.00	0.00	0.00
		32	3.600	1.36	0.00	-14.10	0.00	0.00	0.00
	LC2	25	0.000	-1.03	0.00	-8.05	0.00	0.00	0.00
			0.200	0.27	0.00	-7.48	0.00	0.00	0.00
			0.400	0.28	0.00	-6.66	0.00	0.00	0.00
			0.600	0.23	0.00	-5.59	0.00	0.00	0.00
			0.800	0.13	0.00	-4.71	0.00	0.00	0.00
			1.000	0.05	0.00	-4.14	0.00	0.00	0.00
			1.200	0.01	0.00	-3.86	0.00	0.00	0.00
			1.400	-0.02	0.00	-3.76	0.00	0.00	0.00
			1.600	-0.03	0.00	-3.78	0.00	0.00	0.00
			1.800	-0.03	0.00	-3.85	0.00	0.00	0.00
			2.000	-0.03	0.00	-3.96	0.00	0.00	0.00
			2.200	-0.04	0.00	-4.13	0.00	0.00	0.00
			2.400	-0.06	0.00	-4.37	0.00	0.00	0.00
			2.600	-0.09	0.00	-4.75	0.00	0.00	0.00
			2.800	-0.15	0.00	-5.32	0.00	0.00	0.00
			3.000	-0.23	0.00	-6.11	0.00	0.00	0.00
			3.200	-0.28	0.00	-7.02	0.00	0.00	0.00
			3.400	-0.29	0.00	-7.69	0.00	0.00	0.00
		32	3.600	0.95	0.00	-8.05	0.00	0.00	0.00
	LC4	25	0.000	-0.34	0.00	-3.18	0.00	0.00	0.00
			0.200	0.12	0.00	-3.06	0.00	0.00	0.00
			0.400	0.12	0.00	-2.80	0.00	0.00	0.00
			0.600	0.10	0.00	-2.49	0.00	0.00	0.00
			0.800	0.06	0.00	-2.28	0.00	0.00	0.00
			1.000	0.02	0.00	-2.22	0.00	0.00	0.00
			1.200	0.00	0.00	-2.30	0.00	0.00	0.00
			1.400	0.00	0.00	-2.45	0.00	0.00	0.00
			1.600	0.00	0.00	-2.62	0.00	0.00	0.00
			1.800	0.00	0.00	-2.79	0.00	0.00	0.00
			2.000	0.00	0.00	-2.97	0.00	0.00	0.00
			2.200	0.00	0.00	-3.15	0.00	0.00	0.00
			2.400	-0.01	0.00	-3.36	0.00	0.00	0.00
			2.600	-0.02	0.00	-3.59	0.00	0.00	0.00
			2.800	-0.03	0.00	-3.83	0.00	0.00	0.00
			3.000	-0.04	0.00	-4.06	0.00	0.00	0.00
			3.200	-0.05	0.00	-4.26	0.00	0.00	0.00
			3.400	-0.06	0.00	-4.37	0.00	0.00	0.00
		32	3.600	0.45	0.00	-4.44	0.00	0.00	0.00
	CO3	25	0.000	-3.06	0.00	-25.63	0.00	0.00	0.00
			0.200	0.77	0.00	-24.25	0.00	0.00	0.00
			0.400	0.76	0.00	-22.22	0.00	0.00	0.00
			0.600	0.59	0.00	-19.62	0.00	0.00	0.00
			0.800	0.30	0.00	-17.65	0.00	0.00	0.00
			1.000	0.08	0.00	-16.64	0.00	0.00	0.00
			1.200	-0.05	0.00	-16.42	0.00	0.00	0.00
			1.400	-0.10	0.00	-16.69	0.00	0.00	0.00
			1.600	-0.11	0.00	-17.17	0.00	0.00	0.00
			1.800	-0.10	0.00	-17.72	0.00	0.00	0.00
			2.000	-0.11	0.00	-18.30	0.00	0.00	0.00
			2.200	-0.13	0.00	-18.98	0.00	0.00	0.00
			2.400	-0.18	0.00	-19.83	0.00	0.00	0.00
			2.600	-0.27	0.00	-20.99	0.00	0.00	0.00
			2.800	-0.42	0.00	-22.56	0.00	0.00	0.00
			3.000	-0.60	0.00	-24.58	0.00	0.00	0.00
			3.200	-0.75	0.00	-26.77	0.00	0.00	0.00
			3.400	-0.78	0.00	-28.33	0.00	0.00	0.00
		32	3.600	3.06	0.00	-28.99	0.00	0.00	0.00
	CO5	25	0.000	-2.80	0.00	-24.35	0.00	0.00	0.00
			0.200	0.74	0.00	-23.23	0.00	0.00	0.00
			0.400	0.74	0.00	-21.43	0.00	0.00	0.00
			0.600	0.57	0.00	-19.16	0.00	0.00	0.00
			0.800	0.29	0.00	-17.53	0.00	0.00	0.00
			1.000	0.07	0.00	-16.87	0.00	0.00	0.00
			1.200	-0.05	0.00	-16.98	0.00	0.00	0.00
			1.400	-0.09	0.00	-17.54	0.00	0.00	0.00
			1.600	-0.09	0.00	-18.27	0.00	0.00	0.00
			1.800	-0.08	0.00	-19.02	0.00	0.00	0.00
			2.000	-0.08	0.00	-19.78	0.00	0.00	0.00
			2.200	-0.11	0.00	-20.61	0.00	0.00	0.00
			2.400	-0.16	0.00	-21.59	0.00	0.00	0.00
			2.600	-0.23	0.00	-22.81	0.00	0.00	0.00
			2.800	-0.34	0.00	-24.32	0.00	0.00	0.00
			3.000	-0.49	0.00	-26.10	0.00	0.00	0.00



4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
40	CO5	25	3.200	-0.61	0.00	-27.89	0.00	0.00	0.00
			3.400	-0.66	0.00	-29.11	0.00	0.00	0.00
		32	3.600	3.02	0.00	-29.61	0.00	0.00	0.00
	CO10	25	0.000	-1.92	0.00	-17.08	0.00	0.00	0.00
			0.200	0.49	0.00	-16.40	0.00	0.00	0.00
			0.400	0.49	0.00	-15.27	0.00	0.00	0.00
			0.600	0.37	0.00	-13.86	0.00	0.00	0.00
			0.800	0.18	0.00	-12.89	0.00	0.00	0.00
			1.000	0.03	0.00	-12.58	0.00	0.00	0.00
			1.200	-0.05	0.00	-12.80	0.00	0.00	0.00
			1.400	-0.08	0.00	-13.32	0.00	0.00	0.00
			1.600	-0.07	0.00	-13.94	0.00	0.00	0.00
			1.800	-0.06	0.00	-14.57	0.00	0.00	0.00
			2.000	-0.07	0.00	-15.21	0.00	0.00	0.00
			2.200	-0.09	0.00	-15.88	0.00	0.00	0.00
			2.400	-0.12	0.00	-16.65	0.00	0.00	0.00
			2.600	-0.16	0.00	-17.56	0.00	0.00	0.00
			2.800	-0.23	0.00	-18.61	0.00	0.00	0.00
			3.000	-0.31	0.00	-19.76	0.00	0.00	0.00
			3.200	-0.39	0.00	-20.84	0.00	0.00	0.00
			3.400	-0.42	0.00	-21.53	0.00	0.00	0.00
		32	3.600	2.14	0.00	-21.74	0.00	0.00	0.00
48	LC1	31	0.000	-0.61	0.00	-22.41	0.00	0.00	0.00
			0.201	-0.47	0.00	-21.93	0.00	0.00	0.00
			0.402	-0.58	0.00	-22.20	0.00	0.00	0.00
			0.604	-0.69	0.00	-22.54	0.00	0.00	0.00
			0.805	-0.71	0.00	-22.52	0.00	0.00	0.00
			1.006	-0.64	0.00	-22.16	0.00	0.00	0.00
		25	1.207	2.08	0.00	-19.36	0.00	0.00	0.00
	LC2	31	0.000	-0.32	0.00	-12.62	0.00	0.00	0.00
			0.201	-0.32	0.00	-12.82	0.00	0.00	0.00
			0.402	-0.41	0.00	-13.42	0.00	0.00	0.00
			0.604	-0.54	0.00	-14.35	0.00	0.00	0.00
			0.805	-0.59	0.00	-15.22	0.00	0.00	0.00
			1.006	-0.56	0.00	-15.68	0.00	0.00	0.00
		25	1.207	1.86	0.00	-14.57	0.00	0.00	0.00
	LC4	31	0.000	-0.07	0.00	-6.85	0.00	0.00	0.00
			0.201	-0.07	0.00	-7.20	0.00	0.00	0.00
			0.402	-0.10	0.00	-7.53	0.00	0.00	0.00
			0.604	-0.13	0.00	-7.94	0.00	0.00	0.00
			0.805	-0.16	0.00	-8.20	0.00	0.00	0.00
			1.006	-0.18	0.00	-8.27	0.00	0.00	0.00
		25	1.207	1.05	0.00	-7.93	0.00	0.00	0.00
	CO3	31	0.000	-1.21	0.00	-45.82	0.00	0.00	0.00
			0.201	-1.03	0.00	-45.55	0.00	0.00	0.00
			0.402	-1.31	0.00	-46.77	0.00	0.00	0.00
			0.604	-1.63	0.00	-48.57	0.00	0.00	0.00
			0.805	-1.73	0.00	-49.86	0.00	0.00	0.00
			1.006	-1.61	0.00	-50.11	0.00	0.00	0.00
		25	1.207	5.28	0.00	-45.08	0.00	0.00	0.00
	CO5	31	0.000	-1.07	0.00	-46.62	0.00	0.00	0.00
			0.201	-0.90	0.00	-46.74	0.00	0.00	0.00
			0.402	-1.15	0.00	-48.00	0.00	0.00	0.00
			0.604	-1.43	0.00	-49.71	0.00	0.00	0.00
			0.805	-1.53	0.00	-50.74	0.00	0.00	0.00
			1.006	-1.46	0.00	-50.75	0.00	0.00	0.00
		25	1.207	5.46	0.00	-46.05	0.00	0.00	0.00
	CO10	31	0.000	-0.83	0.00	-34.92	0.00	0.00	0.00
			0.201	-0.64	0.00	-34.60	0.00	0.00	0.00
			0.402	-0.81	0.00	-35.23	0.00	0.00	0.00
			0.604	-0.98	0.00	-36.01	0.00	0.00	0.00
			0.805	-1.03	0.00	-36.21	0.00	0.00	0.00
			1.006	-0.97	0.00	-35.80	0.00	0.00	0.00
		25	1.207	3.62	0.00	-31.96	0.00	0.00	0.00
49	LC1	39	0.000	0.16	0.00	-18.68	0.00	0.00	0.00
			0.201	0.06	0.00	-19.45	0.00	0.00	0.00
			0.402	-0.01	0.00	-20.14	0.00	0.00	0.00
			0.604	-0.14	0.00	-21.13	0.00	0.00	0.00
			0.805	-0.30	0.00	-22.03	0.00	0.00	0.00
			1.006	-0.42	0.00	-22.54	0.00	0.00	0.00
		32	1.207	3.31	0.00	-22.71	0.00	0.00	0.00
	LC2	39	0.000	-0.11	0.00	-10.85	0.00	0.00	0.00
			0.201	-0.23	0.00	-11.56	0.00	0.00	0.00
			0.402	-0.30	0.00	-12.30	0.00	0.00	0.00
			0.604	-0.41	0.00	-13.41	0.00	0.00	0.00
			0.805	-0.49	0.00	-14.50	0.00	0.00	0.00
			1.006	-0.50	0.00	-15.15	0.00	0.00	0.00
		32	1.207	2.04	0.00	-14.70	0.00	0.00	0.00
	LC4	39	0.000	0.05	0.00	-5.58	0.00	0.00	0.00
			0.201	0.00	0.00	-5.98	0.00	0.00	0.00
			0.402	-0.01	0.00	-6.26	0.00	0.00	0.00
			0.604	-0.04	0.00	-6.61	0.00	0.00	0.00
			0.805	-0.08	0.00	-6.87	0.00	0.00	0.00
			1.006	-0.12	0.00	-7.00	0.00	0.00	0.00
		32	1.207	1.01	0.00	-7.04	0.00	0.00	0.00
	CO3	39	0.000	0.03	0.00	-38.69	0.00	0.00	0.00
			0.201	-0.27	0.00	-40.69	0.00	0.00	0.00
			0.402	-0.46	0.00	-42.61	0.00	0.00	0.00
			0.604	-0.78	0.00	-45.48	0.00	0.00	0.00
			0.805	-1.09	0.00	-48.18	0.00	0.00	0.00
			1.006	-1.25	0.00	-49.77	0.00	0.00	0.00
		32	1.207	7.04	0.00	-49.31	0.00	0.00	0.00
	CO5	39	0.000	0.19	0.00	-38.92	0.00	0.00	0.00
			0.201	-0.09	0.00	-40.99	0.00	0.00	0.00

■ 4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
49	CO5	39	0.402	-0.25	0.00	-42.78	0.00	0.00	0.00
			0.604	-0.53	0.00	-45.33	0.00	0.00	0.00
			0.805	-0.85	0.00	-47.62	0.00	0.00	0.00
			1.006	-1.06	0.00	-48.90	0.00	0.00	0.00
		32	1.207	7.02	0.00	-48.84	0.00	0.00	0.00
	CO10	39	0.000	0.26	0.00	-28.87	0.00	0.00	0.00
			0.201	0.11	0.00	-30.13	0.00	0.00	0.00
			0.402	0.00	0.00	-31.21	0.00	0.00	0.00
			0.604	-0.18	0.00	-32.73	0.00	0.00	0.00
			0.805	-0.43	0.00	-34.05	0.00	0.00	0.00
			1.006	-0.62	0.00	-34.77	0.00	0.00	0.00
		32	1.207	5.09	0.00	-35.05	0.00	0.00	0.00
55	LC1	42	0.000	-4.32	0.00	-7.81	0.00	0.00	0.00
			0.207	1.13	0.00	-10.02	0.00	0.00	0.00
			0.415	0.98	0.00	-10.26	0.00	0.00	0.00
			0.623	0.75	0.00	-10.18	0.00	0.00	0.00
			0.830	0.57	0.00	-9.82	0.00	0.00	0.00
			1.038	0.46	0.00	-9.49	0.00	0.00	0.00
			1.245	0.40	0.00	-9.25	0.00	0.00	0.00
			1.452	0.36	0.00	-9.13	0.00	0.00	0.00
			1.660	0.32	0.00	-9.14	0.00	0.00	0.00
			1.867	0.27	0.00	-9.28	0.00	0.00	0.00
			2.075	0.17	0.00	-9.59	0.00	0.00	0.00
			2.283	0.05	0.00	-9.91	0.00	0.00	0.00
		39	2.490	1.37	0.00	-11.05	0.00	0.00	0.00
	LC2	42	0.000	-1.59	0.00	-2.84	0.00	0.00	0.00
			0.207	0.39	0.00	-3.48	0.00	0.00	0.00
			0.415	0.33	0.00	-3.53	0.00	0.00	0.00
			0.623	0.24	0.00	-3.45	0.00	0.00	0.00
			0.830	0.17	0.00	-3.29	0.00	0.00	0.00
			1.038	0.13	0.00	-3.15	0.00	0.00	0.00
			1.245	0.11	0.00	-3.06	0.00	0.00	0.00
			1.452	0.09	0.00	-3.03	0.00	0.00	0.00
			1.660	0.07	0.00	-3.08	0.00	0.00	0.00
			1.867	0.04	0.00	-3.23	0.00	0.00	0.00
			2.075	0.00	0.00	-3.46	0.00	0.00	0.00
			2.283	-0.04	0.00	-3.68	0.00	0.00	0.00
		39	2.490	0.52	0.00	-4.09	0.00	0.00	0.00
	LC4	42	0.000	-0.65	0.00	-1.17	0.00	0.00	0.00
			0.207	0.17	0.00	-1.48	0.00	0.00	0.00
			0.415	0.15	0.00	-1.50	0.00	0.00	0.00
			0.623	0.11	0.00	-1.47	0.00	0.00	0.00
			0.830	0.08	0.00	-1.41	0.00	0.00	0.00
			1.038	0.06	0.00	-1.37	0.00	0.00	0.00
			1.245	0.05	0.00	-1.38	0.00	0.00	0.00
			1.452	0.04	0.00	-1.43	0.00	0.00	0.00
			1.660	0.03	0.00	-1.53	0.00	0.00	0.00
			1.867	0.01	0.00	-1.67	0.00	0.00	0.00
			2.075	-0.01	0.00	-1.85	0.00	0.00	0.00
			2.283	-0.02	0.00	-1.99	0.00	0.00	0.00
		39	2.490	0.28	0.00	-2.23	0.00	0.00	0.00
	CO3	42	0.000	-7.57	0.00	-13.63	0.00	0.00	0.00
			0.207	1.95	0.00	-17.24	0.00	0.00	0.00
			0.415	1.67	0.00	-17.60	0.00	0.00	0.00
			0.623	1.26	0.00	-17.39	0.00	0.00	0.00
			0.830	0.93	0.00	-16.72	0.00	0.00	0.00
			1.038	0.75	0.00	-16.11	0.00	0.00	0.00
			1.245	0.64	0.00	-15.69	0.00	0.00	0.00
			1.452	0.56	0.00	-15.51	0.00	0.00	0.00
			1.660	0.48	0.00	-15.59	0.00	0.00	0.00
			1.867	0.38	0.00	-15.98	0.00	0.00	0.00
			2.075	0.20	0.00	-16.70	0.00	0.00	0.00
			2.283	0.00	0.00	-17.40	0.00	0.00	0.00
		39	2.490	2.42	0.00	-19.40	0.00	0.00	0.00
	CO5	42	0.000	-7.36	0.00	-13.25	0.00	0.00	0.00
			0.207	1.91	0.00	-16.85	0.00	0.00	0.00
			0.415	1.65	0.00	-17.20	0.00	0.00	0.00
			0.623	1.25	0.00	-17.00	0.00	0.00	0.00
			0.830	0.93	0.00	-16.36	0.00	0.00	0.00
			1.038	0.74	0.00	-15.81	0.00	0.00	0.00
			1.245	0.63	0.00	-15.47	0.00	0.00	0.00
			1.452	0.55	0.00	-15.38	0.00	0.00	0.00
			1.660	0.47	0.00	-15.58	0.00	0.00	0.00
			1.867	0.37	0.00	-16.07	0.00	0.00	0.00
			2.075	0.19	0.00	-16.87	0.00	0.00	0.00
			2.283	0.00	0.00	-17.62	0.00	0.00	0.00
		39	2.490	2.45	0.00	-19.68	0.00	0.00	0.00
	CO10	42	0.000	-6.31	0.00	-11.37	0.00	0.00	0.00
			0.207	1.65	0.00	-14.52	0.00	0.00	0.00
			0.415	1.42	0.00	-14.84	0.00	0.00	0.00
			0.623	1.09	0.00	-14.69	0.00	0.00	0.00
			0.830	0.81	0.00	-14.16	0.00	0.00	0.00
			1.038	0.65	0.00	-13.68	0.00	0.00	0.00
			1.245	0.56	0.00	-13.36	0.00	0.00	0.00
			1.452	0.50	0.00	-13.23	0.00	0.00	0.00
			1.660	0.44	0.00	-13.30	0.00	0.00	0.00
			1.867	0.36	0.00	-13.59	0.00	0.00	0.00
			2.075	0.22	0.00	-14.11	0.00	0.00	0.00
			2.283	0.05	0.00	-14.62	0.00	0.00	0.00
		39	2.490	2.01	0.00	-16.29	0.00	0.00	0.00
56	LC1	45	0.000	1.34	0.00	2.27	0.00	0.00	0.00
			0.200	0.05	0.00	-1.47	0.00	0.00	0.00
			0.400	0.24	0.00	-2.98	0.00	0.00	0.00
			0.600	0.33	0.00	-4.80	0.00	0.00	0.00

the scale towards document

■ 4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
56	LC1	45	0.800	0.15	0.00	-6.44	0.00	0.00	0.00
			1.000	-0.31	0.00	-7.96	0.00	0.00	0.00
			1.200	-0.78	0.00	-8.99	0.00	0.00	0.00
		46	1.400	5.87	0.00	-11.16	0.00	0.00	0.00
	LC2	45	0.000	-0.27	0.00	-0.61	0.00	0.00	0.00
			0.200	0.12	0.00	-1.64	0.00	0.00	0.00
			0.400	0.13	0.00	-2.02	0.00	0.00	0.00
			0.600	0.10	0.00	-2.44	0.00	0.00	0.00
			0.800	0.02	0.00	-2.80	0.00	0.00	0.00
			1.000	-0.13	0.00	-3.10	0.00	0.00	0.00
			1.200	-0.28	0.00	-3.28	0.00	0.00	0.00
		46	1.400	1.87	0.00	-3.60	0.00	0.00	0.00
	LC4	45	0.000	0.43	0.00	0.79	0.00	0.00	0.00
			0.200	-0.04	0.00	0.44	0.00	0.00	0.00
			0.400	0.00	0.00	0.29	0.00	0.00	0.00
			0.600	0.03	0.00	0.09	0.00	0.00	0.00
			0.800	0.03	0.00	-0.11	0.00	0.00	0.00
			1.000	-0.01	0.00	-0.31	0.00	0.00	0.00
			1.200	-0.05	0.00	-0.46	0.00	0.00	0.00
		46	1.400	0.44	0.00	-0.81	0.00	0.00	0.00
	CO3	45	0.000	1.21	0.00	1.81	0.00	0.00	0.00
			0.200	0.24	0.00	-4.22	0.00	0.00	0.00
			0.400	0.49	0.00	-6.60	0.00	0.00	0.00
			0.600	0.55	0.00	-9.42	0.00	0.00	0.00
			0.800	0.20	0.00	-11.93	0.00	0.00	0.00
			1.000	-0.57	0.00	-14.21	0.00	0.00	0.00
			1.200	-1.35	0.00	-15.71	0.00	0.00	0.00
		46	1.400	9.85	0.00	-18.80	0.00	0.00	0.00
	CO5	45	0.000	2.05	0.00	3.45	0.00	0.00	0.00
			0.200	0.09	0.00	-2.33	0.00	0.00	0.00
			0.400	0.39	0.00	-4.66	0.00	0.00	0.00
			0.600	0.51	0.00	-7.45	0.00	0.00	0.00
			0.800	0.23	0.00	-9.99	0.00	0.00	0.00
			1.000	-0.48	0.00	-12.34	0.00	0.00	0.00
			1.200	-1.21	0.00	-13.94	0.00	0.00	0.00
		46	1.400	9.10	0.00	-17.32	0.00	0.00	0.00
	CO10	45	0.000	2.25	0.00	3.90	0.00	0.00	0.00
			0.200	0.00	0.00	-1.10	0.00	0.00	0.00
			0.400	0.29	0.00	-3.14	0.00	0.00	0.00
			0.600	0.44	0.00	-5.62	0.00	0.00	0.00
			0.800	0.22	0.00	-7.89	0.00	0.00	0.00
			1.000	-0.38	0.00	-10.01	0.00	0.00	0.00
			1.200	-1.00	0.00	-11.47	0.00	0.00	0.00
		46	1.400	7.69	0.00	-14.60	0.00	0.00	0.00
Σ Supp.	LC1			-0.22	1.38	-183.01			
Σ Loads	LC1			0.00	0.00	-581.74			
Σ Supp.	LC2			-0.53	0.29	-102.52			
Σ Loads	LC2			0.00	0.00	-214.38			
Σ Supp.	LC4			0.10	0.23	-47.83			
Σ Loads	LC4			0.00	0.00	-101.60			
Σ Supp.	CO3			-1.06	2.09	-373.38			
Σ Loads	CO3			0.00	0.00	-1019.66			
Σ Supp.	CO5			-0.51	2.22	-368.24			
Σ Loads	CO5			0.00	0.00	-1011.27			
Σ Supp.	CO10			-0.12	1.99	-275.42			
Σ Loads	CO10			0.00	0.00	-851.81			

Solid Timber

Bijlage 2 – Resultaten RF-LAMINATE



Solid Timber
Ketjapweg 18
3541 RH Utrecht

Project: Valschermkade Model: 1706-2 Date: 2017-10-19

STRUCTURAL ANALYSIS

PROJECT

Valschermkade
Bijlage 2 - Resultaten RF-LAMINATE

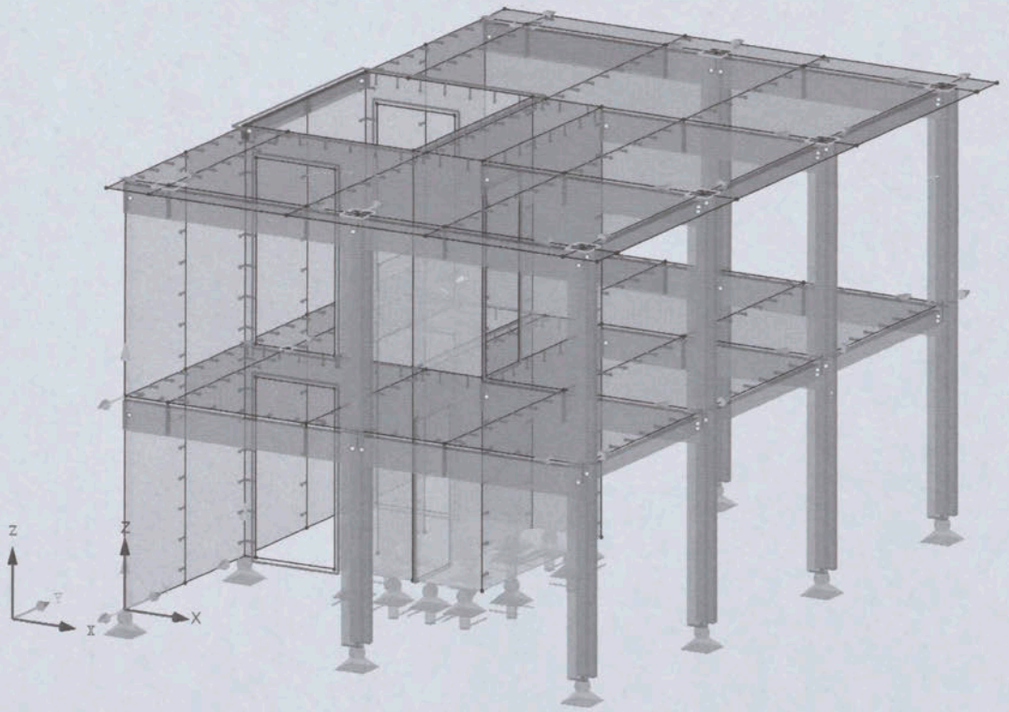
CLIENT

Valschermkade 25-26 BV

CREATED BY

Bas Boellaard

Isometric



1.1.1 GENERAL DATA

Surfaces to design	1-31,33-59
Design according to Standard	EN 1995-1-1:2004-11/NEN
Material model:	Orthotropic

Ultimate Limit State
Result combinations to design

RC1	ULS (STR/GEO) - Permanent / transient - Eq. 6.10a and 6.10b	Persistent/transient

1.1.2 DETAILS

Apply smoothed internal forces in the defined average region	☒
Plate bending theory:	Mindlin

11 - 1 I 120-5s

Surfaces assigned to composition:	1-4,7,8,10-21,23-26,29-31,33-59
Layer coupling	☒
Cross laminated timber without glue on the narrow side	☒
Effect of drilling stiffness D_{33}	k_{33} = 0.65
Effect of shear stiffness D_{44}	k_{44} = 1.00
Effect of shear stiffness D_{55}	k_{55} = 1.00
Effect of membrane stiffness D_{88}	k_{88} = 0.50
Reference plane relative to:	Composition center
Reference plane shift:	0.0 mm

13 - 140-3s

Surfaces assigned to composition:	5,6,27,28
Layer coupling	☒
Cross laminated timber without glue on the narrow side	☒
Effect of drilling stiffness D_{33}	k_{33} = 0.65
Effect of shear stiffness D_{44}	k_{44} = 1.00
Effect of shear stiffness D_{55}	k_{55} = 1.00
Effect of membrane stiffness D_{88}	k_{88} = 0.50
Reference plane relative to:	Composition center
Reference plane shift:	0.0 mm

14 - 200-5s

Surfaces assigned to composition:	9,22
Layer coupling	☒
Cross laminated timber without glue on the narrow side	☒
Effect of drilling stiffness D_{33}	k_{33} = 0.65
Effect of shear stiffness D_{44}	k_{44} = 1.00
Effect of shear stiffness D_{55}	k_{55} = 1.00
Effect of membrane stiffness D_{88}	k_{88} = 0.50
Reference plane relative to:	Composition center
Reference plane shift:	0.0 mm

1.1.3 DATA FOR STANDARD

Solid Timber

Partial Factor γ_M

Persistent/transient	1.30
Accidental	1.00

Modification Factor k_{mod}

	Service Class 1	Service Class 2	Service Class 3
Permanent	0.60	0.60	0.50
Long-term	0.70	0.70	0.55
Medium-term	0.80	0.80	0.65
Short-term	0.90	0.90	0.70
Instantaneous	1.10	1.10	0.90

Modification Factor k_{mod} for transversal tension

	Service Class 1	Service Class 2	Service Class 3
Permanent	0.50	0.50	0.40
Long-term	0.50	0.50	0.40
Medium-term	0.65	0.65	0.55
Short-term	0.80	0.80	0.65
Instantaneous	1.10	1.10	0.75

Serviceability Limits (Deflections)

Combination of actions:		Cantilevers
Characteristic	L / 300	L_c / 150
Frequent	L / 250	L_c / 125
Quasi-permanent	L / 150	L_c / 75



1.2.1 MATERIAL CHARACTERISTICS - A

Comp. No.	Layer No.	Material Description	Factor Category	Thickness t [mm]	Poisson's Ratio [-] ν_{xy}	ν_{yx}	Shear Modulus [N/mm²] G_{xz}	G_{yz}	G_{xy}
11	**1 I 120-5s**								
	1	Poplar and Softwood Timber C24	A	20.0	0.000	0.000	690.0	69.0	690.0
	2	Poplar and Softwood Timber C14	A	30.0	0.000	0.000	440.0	44.0	440.0
	3	Poplar and Softwood Timber C24	A	20.0	0.000	0.000	690.0	69.0	690.0
	4	Poplar and Softwood Timber C14	A	30.0	0.000	0.000	440.0	44.0	440.0
	5	Poplar and Softwood Timber C24	A	20.0	0.000	0.000	690.0	69.0	690.0
13	**140-3s**								
	1	Poplar and Softwood Timber C24	A	46.5	0.000	0.000	690.0	69.0	690.0
	2	Poplar and Softwood Timber C14	A	46.5	0.000	0.000	440.0	44.0	440.0
	3	Poplar and Softwood Timber C24	A	46.5	0.000	0.000	690.0	69.0	690.0
14	**200-5s**								
	1	Poplar and Softwood Timber C24	A	40.0	0.000	0.000	690.0	69.0	690.0
	2	Poplar and Softwood Timber C14	A	40.0	0.000	0.000	440.0	44.0	440.0
	3	Poplar and Softwood Timber C24	A	40.0	0.000	0.000	690.0	69.0	690.0
	4	Poplar and Softwood Timber C14	A	40.0	0.000	0.000	440.0	44.0	440.0
	5	Poplar and Softwood Timber C24	A	40.0	0.000	0.000	690.0	69.0	690.0

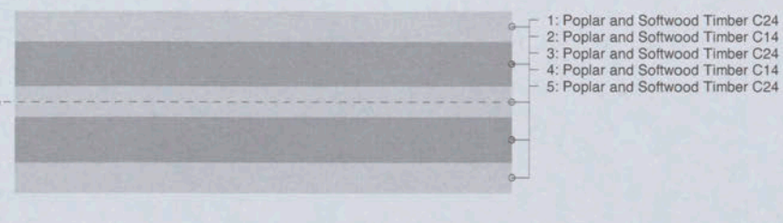
Factor Category
A - Solid Timber

1.2.2 MATERIAL CHARACTERISTICS - B

Comp. No.	Layer No.	Material Description	Angle β [°]	Modulus of Elasticity [N/mm²] E_x	E_y	Sp. Weight γ [N/m³]	Coeff. of Th. Exp. α_T []
11	**1 I 120-5s**						
	1	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	2	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	3	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	4	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	5	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
13	**140-3s**						
	1	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	2	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	3	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
14	**200-5s**						
	1	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	2	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	3	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	4	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	5	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06

1.2.4 LAYER DIAGRAMS

Composition No. 11



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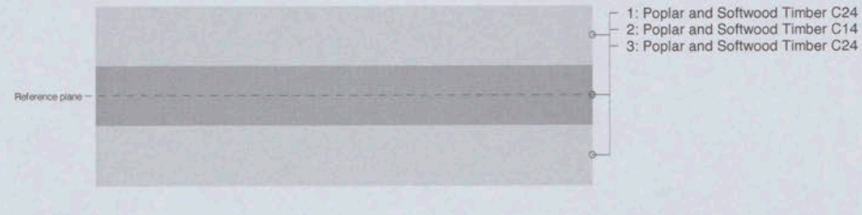
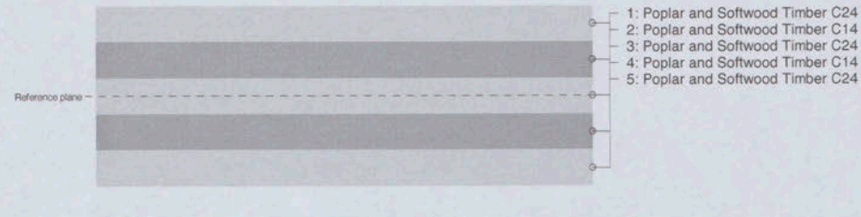
1.2.4 LAYER DIAGRAMS

Composition No. 13



Composition No. 14



1.3 MATERIAL STRENGTHS

Comp. No.	Layer No.	Material Description	Strength for Bend. /Tens. / Compr. [N/mm²]						Shear Strengths [N/mm²]		
			$f_{b,0,k}$	$f_{b,90,k}$	$f_{t,0,k}$	$f_{t,90,k}$	$f_{c,0,k}$	$f_{c,90,k}$	$f_{xy,k}$	$f_{v,k}$	$f_{R,k}$
11	**I I 120-5s**										
	1	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	2	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	3	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	4	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	5	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
13	**140-3s**										
	1	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	2	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	3	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
14	**200-5s**										
	1	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	2	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	3	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	4	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	5	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8

1.4 LOAD DURATION AND SERVICE CLASS

Load-ing	Description	Loading Type	Load Duration Class LDC
LC1	Permanent	Permanent	Permanent
LC2	Opgelegde vloerbelasting	Imposed - Category B: office areas	Medium-term
LC3	Opgelegde dakbelasting	Imposed - Category H: roofs	Short-term
LC4	Sneeuw	Snow (H ≤ 1000 m a.s.l.)	Short-term
LC5	Wind X-	Wind	Short-term
LC6	Wind Y-	Wind	Short-term
RC1	ULS (STR/GEO) - Permanent / transient - Eq. 6.10a and 6.10b		Short-term
	Service Class SECL Service Class 1	Identical for all surfaces	

■ 2.1 MAX STRESS RATIO BY LOADING

Loading	Surface No.	Point No.	Point Coordinates [m] X	Y	Z	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
RC1	ULS (STR/GEO) - Permanent / transient - Eq. 6.10a and 6.10b											
	28	63	0.200	7.200	3.310	2	46.5	Top	$\sigma_{b,0}$	3.62	9.69	0.37
	19	9765	7.940	3.200	3.310	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	18	1121	3.921	7.200	3.310	5	100.0	Top	$\sigma_{t/c,0}$	4.35	9.69	0.45
	7	186	4.116	7.200	3.310	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	18	1121	3.921	7.200	3.310	5	100.0	Top	$\sigma_{b+t/c,0}$	3.48		0.50
	7	186	4.116	7.200	3.310	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	16	154	4.019	0.000	3.310	2	35.0	Middle	$\tau_{y'z'}$	0.28	0.55	0.51
	16	154	4.019	0.000	3.310	3	60.0	Middle	$\tau_{x'z'}$	-0.30	2.77	0.11
	7	184	4.116	3.600	3.310	1	0.0	Top	$\tau_{x'y'}$	-1.45	2.77	0.52
	7	184	4.116	3.600	3.310	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.26
	16	154	4.019	0.000	3.310	2	20.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.51
	Maximum Ratio 0.52											

■ 2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Loading	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
1	3408	0.000	0.400	0.000	RC1	4	100.0	Bottom	$\sigma_{b,0}$	0.20	9.69	0.02
	942	0.000	0.800	0.389	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	831	0.000	0.000	0.389	RC1	5	100.0	Top	$\sigma_{t/c,0}$	-6.07	14.54	0.42
	831	0.000	0.000	0.389	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	831	0.000	0.000	0.389	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	-6.07		0.42
	831	0.000	0.000	0.389	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	3408	0.000	0.400	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.10	0.55	0.17
	3408	0.000	0.400	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.06	2.08	0.03
	831	0.000	0.000	0.389	RC1	1	0.0	Top	$\tau_{x'y'}$	0.85	2.77	0.31
	831	0.000	0.000	0.389	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.09
	3408	0.000	0.400	0.000	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.17
2	326	0.000	3.808	0.000	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.68	9.69	0.07
	273	0.000	4.431	0.389	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	345	0.000	3.600	0.389	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-5.56	14.54	0.38
	345	0.000	3.600	0.389	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	345	0.000	3.600	0.389	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-5.57		0.38
	345	0.000	3.600	0.389	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	326	0.000	3.808	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.27	0.55	0.49
	326	0.000	3.808	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.18	2.08	0.08
	345	0.000	3.600	0.389	RC1	1	0.0	Top	$\tau_{x'y'}$	0.58	2.77	0.21
	345	0.000	3.600	0.389	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.04
	326	0.000	3.808	0.000	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.49
3	12	0.000	5.470	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.28	16.62	0.02
	502	0.000	7.008	0.389	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	12	0.000	5.470	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.32	9.69	0.14
	385	0.000	5.854	2.142	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	12	0.000	5.470	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.04		0.15
	385	0.000	5.854	2.142	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	486	0.000	6.816	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.05	0.55	0.09
	486	0.000	6.816	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.03	2.08	0.02
	485	0.000	6.816	0.195	RC1	5	120.0	Bottom	$\tau_{x'y'}$	-0.25	2.77	0.09
	485	0.000	6.816	0.195	RC1	5	110.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.01
	486	0.000	6.816	0.000	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.09
4	537	0.000	10.400	0.000	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.24	9.69	0.02
	549	0.000	10.200	0.389	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	552	0.000	10.800	0.389	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-5.54	14.54	0.38
	682	0.000	10.800	2.921	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	552	0.000	10.800	0.389	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-5.54		0.38
	682	0.000	10.800	2.921	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	537	0.000	10.400	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.15	0.55	0.28
	537	0.000	10.400	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.10	2.08	0.05
	552	0.000	10.800	0.389	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.80	2.77	0.29
	552	0.000	10.800	0.389	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.08
	537	0.000	10.400	0.000	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.28
5	244	0.000	3.600	0.000	RC1	2	93.0	Bottom	$\sigma_{b,0}$	-2.16	9.69	0.22
	37	0.200	3.600	0.000	RC1	2	46.5	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	178	2.909	3.600	3.310	RC1	2	46.5	Top	$\sigma_{t/c,0}$	2.09	5.54	0.38
	29	1.560	3.600	2.800	RC1	2	46.5	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	178	2.909	3.600	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,0}$	2.18		0.39
	29	1.560	3.600	2.800	RC1	2	46.5	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	175	4.116	3.600	3.310	RC1	2	69.8	Middle	$\tau_{y'z'}$	-0.06	0.55	0.11
	37	0.200	3.600	0.000	RC1	2	69.8	Middle	$\tau_{x'z'}$	-0.13	2.08	0.06
	175	4.116	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.97	2.77	0.35
	175	4.116	3.600	3.310	RC1	1	23.3	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.11
	175	4.116	3.600	3.310	RC1	2	46.5	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
6	242	0.000	7.200	0.000	RC1	2	46.5	Top	$\sigma_{b,0}$	1.44	9.69	0.15
	51	0.200	7.200	0.000	RC1	2	46.5	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	170	2.909	7.200	3.310	RC1	2	46.5	Top	$\sigma_{t/c,0}$	1.99	5.54	0.36
	1254	1.363	7.200	2.970	RC1	2	46.5	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	170	2.909	7.200	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,0}$	2.18		0.38
	1254	1.363	7.200	2.970	RC1	2	46.5	Top	$\sigma_{b+t/c,90}$	0.00		0.00

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Patch Reference numbers on UTT

2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	168	4.116	7.200	3.310	RC1	2	69.8	Middle	$\tau_{y'z'}$	-0.10	0.55	0.17
	1115	4.116	7.200	3.115	RC1	2	69.8	Middle	$\tau_{x'z'}$	-0.09	2.08	0.04
	168	4.116	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.84	2.77	0.30
	168	4.116	7.200	3.310	RC1	1	23.3	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.09
	168	4.116	7.200	3.310	RC1	2	46.5	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.17
7	184	4.116	3.600	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	-0.16	9.69	0.02
	9033	4.116	3.600	3.115	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	184	4.116	3.600	3.310	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-5.35	14.54	0.37
	186	4.116	7.200	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	184	4.116	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-5.40		0.37
	186	4.116	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	184	4.116	3.600	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.05	0.55	0.09
	184	4.116	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.05	2.77	0.02
	184	4.116	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.45	2.77	0.52
	184	4.116	3.600	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.26
	184	4.116	3.600	3.310	RC1	4	70.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.09
8	1821	2.909	3.782	3.138	RC1	4	70.0	Top	$\sigma_{b,0}$	0.04	9.69	0.00
	9081	2.909	3.600	3.115	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	189	2.909	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,0}$	0.97	5.54	0.17
	189	2.909	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	189	2.909	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,0}$	0.97		0.18
	189	2.909	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	189	2.909	3.600	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.04	0.55	0.07
	189	2.909	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.04	2.77	0.01
	189	2.909	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	0.55	2.77	0.20
	189	2.909	3.600	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.04
	189	2.909	3.600	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.07
9	48	1.660	6.110	3.310	RC1	2	40.0	Top	$\sigma_{b,0}$	-0.01	9.69	0.00
	1997	1.660	5.910	3.310	RC1	2	80.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	46	1.660	6.110	0.000	RC1	2	40.0	Top	$\sigma_{t/c,0}$	0.32	5.54	0.06
	48	1.660	6.110	3.310	RC1	4	120.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	46	1.660	6.110	0.000	RC1	2	40.0	Top	$\sigma_{b+t/c,0}$	0.32		0.06
	48	1.660	6.110	3.310	RC1	4	120.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	48	1.660	6.110	3.310	RC1	3	100.0	Middle	$\tau_{y'z'}$	-0.01	0.55	0.01
	48	1.660	6.110	3.310	RC1	2	60.0	Middle	$\tau_{x'z'}$	0.00	2.08	0.00
	48	1.660	6.110	3.310	RC1	5	200.0	Bottom	$\tau_{x'y'}$	0.09	2.77	0.03
	48	1.660	6.110	3.310	RC1	5	180.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.00
	48	1.660	6.110	3.310	RC1	3	80.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.01
10	136	0.000	0.000	3.310	RC1	2	20.0	Top	$\sigma_{b,0}$	0.43	9.69	0.04
	8704	0.370	0.000	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	985	0.560	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	2.90	9.69	0.30
	8704	0.370	0.000	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	985	0.560	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.31		0.33
	8704	0.370	0.000	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	138	0.740	0.000	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.16	0.55	0.28
	138	0.740	0.000	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.16	2.77	0.06
	8704	0.370	0.000	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	1.12	2.77	0.40
	8704	0.370	0.000	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.12
	138	0.740	0.000	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.28
11	985	0.560	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.70	16.62	0.04
	141	0.000	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	985	0.560	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.51	9.69	0.36
	141	0.000	7.200	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	985	0.560	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.81		0.40
	141	0.000	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	2082	0.740	3.800	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.12	0.55	0.22
	2082	0.740	3.800	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.13	2.77	0.05
	141	0.000	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	0.37	2.77	0.13
	141	0.000	7.200	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	2082	0.740	3.800	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.22
12	144	0.000	10.800	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	-0.44	9.69	0.05
	8747	0.370	10.800	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	1279	0.560	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.42	9.69	0.35
	8748	0.185	10.800	3.310	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	1279	0.560	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.73		0.39
	8748	0.185	10.800	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	145	0.740	10.800	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.16	0.55	0.28
	145	0.740	10.800	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.17	2.77	0.06
	8747	0.370	10.800	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.12	2.77	0.41
	8747	0.370	10.800	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.12
	145	0.740	10.800	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.28
13	59	3.140	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.80	16.62	0.05
	59	3.140	3.600	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	59	3.140	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.85	9.69	0.40
	59	3.140	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	59	3.140	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.04		0.45
	59	3.140	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	90	1.560	3.600	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.16	0.55	0.29
	90	1.560	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.17	2.77	0.06

Max U.C. window

the scale towards document

2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	59	3.140	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	0.27	2.77	0.10
	38	2.909	3.600	3.310	RC1	3	60.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.01
	90	1.560	3.600	3.310	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.29
14	987	0.945	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b,0}$	0.44	9.69	0.04
	74	1.660	3.600	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	988	1.150	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.62	9.69	0.37
	74	1.660	3.600	3.310	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	988	1.150	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.88		0.42
	74	1.660	3.600	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	90	1.560	3.600	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.14	0.55	0.25
	90	1.560	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.15	2.77	0.05
	74	1.660	3.600	3.310	RC1	5	120.0	Bottom	$\tau_{x'y'}$	0.42	2.77	0.15
	74	1.660	3.600	3.310	RC1	5	110.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.02
	90	1.560	3.600	3.310	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.25
15	62	3.140	7.200	3.310	RC1	5	120.0	Bottom	$\sigma_{b,0}$	0.79	16.62	0.05
	62	3.140	7.200	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	62	3.140	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	4.02	9.69	0.42
	40	2.909	7.200	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	62	3.140	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.23		0.46
	40	2.909	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	97	1.560	7.200	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.16	0.55	0.29
	97	1.560	7.200	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.17	2.77	0.06
	62	3.140	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.24	2.77	0.09
	40	2.909	7.200	3.310	RC1	3	60.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.01
	97	1.560	7.200	3.310	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.29
16	154	4.019	0.000	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	1.12	9.69	0.12
	8842	3.799	0.000	3.310	RC1	4	100.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	826	3.726	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	4.09	9.69	0.42
	8831	4.209	0.000	3.310	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	154	4.019	0.000	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	1.02		0.50
	8831	4.209	0.000	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	154	4.019	0.000	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.28	0.55	0.51
	154	4.019	0.000	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.30	2.77	0.11
	2969	4.320	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.80	2.77	0.29
	2969	4.320	3.600	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.08
	154	4.019	0.000	3.310	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.51
17	3100	4.320	5.342	3.310	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.43	9.69	0.04
	28	4.116	3.600	3.310	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	68	5.540	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.64	9.69	0.38
	2969	4.320	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	68	5.540	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.94		0.42
	2969	4.320	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	3163	4.320	7.200	3.310	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.15	0.55	0.27
	68	5.540	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.13	2.77	0.05
	2969	4.320	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	0.93	2.77	0.34
	2969	4.320	3.600	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.10
	3163	4.320	7.200	3.310	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.27
18	157	4.019	10.800	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	1.11	9.69	0.11
	8891	3.799	10.800	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	1121	3.921	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	4.35	9.69	0.45
	3163	4.320	7.200	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	1121	3.921	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.48		0.50
	3163	4.320	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	157	4.019	10.800	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.28	0.55	0.50
	157	4.019	10.800	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.29	2.77	0.11
	3163	4.320	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	0.83	2.77	0.30
	3163	4.320	7.200	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.08
	157	4.019	10.800	3.310	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.50
19	3611	7.540	3.600	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.82	16.62	0.05
	9765	7.940	3.200	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	3611	7.540	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	4.12	9.69	0.42
	3611	7.540	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	3611	7.540	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.30		0.47
	3611	7.540	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	3588	7.740	3.200	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.16	0.55	0.29
	3588	7.740	3.200	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.17	2.77	0.06
	9765	7.940	3.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.40	2.77	0.51
	9765	7.940	3.200	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.18
	3588	7.740	3.200	3.310	RC1	4	70.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.29
20	164	5.540	7.200	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.73	16.62	0.04
	9770	7.940	4.000	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	164	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.62	9.69	0.37
	9784	7.940	6.800	3.310	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	164	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.89		0.42
	9784	7.940	6.800	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	3611	7.540	3.600	3.310	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.15	0.55	0.27
	3611	7.540	3.600	3.310	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.10	2.08	0.05
	3611	7.540	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.87	2.77	0.32
	3611	7.540	3.600	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.09

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the scale towards document

2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	3611	7.540	3.600	3.310	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.27
21	167	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b,0}$	-0.73	16.62	0.04
	8969	7.540	10.800	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	167	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.66	9.69	0.38
	9803	7.940	10.400	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	167	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.93		0.42
	9803	7.940	10.400	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	167	5.540	7.200	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.15	0.55	0.27
	167	5.540	7.200	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.15	2.77	0.06
	9789	7.940	7.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.15	2.77	0.42
	9789	7.940	7.600	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.16
	167	5.540	7.200	3.310	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.27
22	1995	1.660	5.510	3.310	RC1	4	160.0	Bottom	$\sigma_{b,0}$	-0.01	9.69	0.00
	1997	1.660	5.910	3.310	RC1	2	40.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	48	1.660	6.110	3.310	RC1	2	40.0	Top	$\sigma_{t/c,0}$	-0.15	11.08	0.01
	1991	1.660	4.910	3.310	RC1	2	40.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	48	1.660	6.110	3.310	RC1	2	40.0	Top	$\sigma_{b+t/c,0}$	-0.15		0.01
	1991	1.660	4.910	3.310	RC1	2	40.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	48	1.660	6.110	3.310	RC1	3	100.0	Middle	$\tau_{y'z'}$	-0.01	0.55	0.01
	48	1.660	6.110	3.310	RC1	3	100.0	Middle	$\tau_{x'z'}$	-0.01	2.77	0.00
	48	1.660	6.110	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.08	2.77	0.03
	48	1.660	6.110	3.310	RC1	1	20.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.00
	48	1.660	6.110	3.310	RC1	3	80.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.01
23	64	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.11	9.69	0.01
	4244	0.000	0.200	6.482	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	64	0.000	0.000	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-3.46	14.54	0.24
	64	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	1.38	0.00
	64	0.000	0.000	6.680	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-3.46		0.24
	64	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	64	0.000	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.11
	64	0.000	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	64	0.000	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.68	2.77	0.25
	64	0.000	0.000	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.06
	64	0.000	0.000	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
24	91	0.000	3.600	6.680	RC1	4	100.0	Bottom	$\sigma_{b,0}$	0.25	9.69	0.03
	27	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	91	0.000	3.600	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.81	5.54	0.15
	27	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	1.38	0.00
	91	0.000	3.600	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.56		0.17
	27	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	91	0.000	3.600	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.08	0.55	0.15
	91	0.000	3.600	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.05	2.08	0.03
	27	0.000	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.39	2.77	0.14
	27	0.000	3.600	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.02
	91	0.000	3.600	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.15
25	12	0.000	5.470	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.28	16.62	0.02
	75	0.000	5.470	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	12	0.000	5.470	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.32	9.69	0.14
	260	0.000	7.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	12	0.000	5.470	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.04		0.15
	260	0.000	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	9679	0.000	7.200	3.310	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.04	0.55	0.07
	9679	0.000	7.200	3.310	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.03	2.08	0.01
	9679	0.000	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.19	2.77	0.07
	9679	0.000	7.200	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.00
	9679	0.000	7.200	3.310	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.07
26	14	0.000	9.000	3.310	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.26	16.62	0.02
	4755	0.000	10.600	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	66	0.000	10.800	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-4.18	14.54	0.29
	66	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	66	0.000	10.800	6.680	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-4.31		0.30
	66	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	66	0.000	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.06	0.55	0.11
	66	0.000	10.800	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.06	2.77	0.02
	66	0.000	10.800	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.74	2.77	0.27
	66	0.000	10.800	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.07
	66	0.000	10.800	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
27	4778	2.909	3.600	4.103	RC1	2	46.5	Top	$\sigma_{b,0}$	-1.48	9.69	0.15
	4883	2.702	3.600	3.508	RC1	2	46.5	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	28	4.116	3.600	3.310	RC1	1	0.0	Top	$\sigma_{t/c,0}$	3.38	9.69	0.35
	90	1.560	3.600	3.310	RC1	2	46.5	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	28	4.116	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	4.07		0.39
	90	1.560	3.600	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	38	2.909	3.600	3.310	RC1	2	69.8	Middle	$\tau_{y'z'}$	0.12	0.55	0.21
	28	4.116	3.600	3.310	RC1	2	69.8	Middle	$\tau_{x'z'}$	0.10	2.08	0.05
	4868	4.116	3.600	6.482	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.96	2.77	0.35
	4868	4.116	3.600	6.482	RC1	1	23.3	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.10
	38	2.909	3.600	3.310	RC1	2	46.5	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.21



2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
28	63	0.200	7.200	3.310	RC1	2	46.5	Top	$\sigma_{b,0}$	3.62	9.69	0.37
	243	0.000	7.200	3.310	RC1	2	93.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	35	4.116	7.200	3.310	RC1	2	46.5	Top	$\sigma_{t/c,0}$	1.70	5.54	0.31
	97	1.560	7.200	3.310	RC1	2	46.5	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	63	0.200	7.200	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,0}$	3.75		0.40
	97	1.560	7.200	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	35	4.116	7.200	3.310	RC1	2	69.8	Middle	$\tau_{y'z'}$	-0.20	0.55	0.35
	35	4.116	7.200	3.310	RC1	2	69.8	Middle	$\tau_{x'z'}$	-0.17	2.08	0.08
	35	4.116	7.200	3.310	RC1	3	139.5	Bottom	$\tau_{x'y'}$	-0.84	2.77	0.30
	35	4.116	7.200	3.310	RC1	3	116.2	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.09
	35	4.116	7.200	3.310	RC1	2	46.5	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.35
29	125	4.116	3.710	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	-0.29	9.69	0.03
	228	4.116	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	231	4.116	7.200	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-3.01	14.54	0.21
	231	4.116	7.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	125	4.116	3.710	3.310	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-3.13		0.21
	231	4.116	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	230	4.116	7.200	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.08	0.55	0.14
	230	4.116	7.200	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.08	2.77	0.03
	228	4.116	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.93	2.77	0.33
	228	4.116	3.600	3.310	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.08
	230	4.116	7.200	3.310	RC1	2	20.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.14
30	1838	2.909	3.800	3.310	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.02	9.69	0.00
	232	2.909	3.600	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	233	2.909	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,0}$	0.47	5.54	0.08
	233	2.909	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	233	2.909	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,0}$	0.47		0.08
	233	2.909	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	232	2.909	3.600	3.310	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.03	0.55	0.05
	232	2.909	3.600	3.310	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.02	2.08	0.01
	233	2.909	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.41	2.77	0.15
	233	2.909	3.600	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.02
	232	2.909	3.600	3.310	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.05
31	197	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	0.46	9.69	0.05
	197	0.000	0.000	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	197	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,0}$	1.29	5.54	0.23
	5825	0.185	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	197	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,0}$	1.75		0.28
	5825	0.185	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	197	0.000	0.000	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.17	0.55	0.31
	197	0.000	0.000	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.18	2.77	0.06
	5825	0.185	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.88	2.77	0.32
	5825	0.185	0.000	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.08
	197	0.000	0.000	6.680	RC1	2	20.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.31
33	201	0.000	10.800	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	-0.47	9.69	0.05
	201	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	201	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,0}$	1.34	5.54	0.24
	201	0.000	10.800	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	201	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,0}$	1.80		0.29
	201	0.000	10.800	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	200	0.000	7.200	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.18	0.55	0.32
	201	0.000	10.800	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.18	2.77	0.06
	5981	0.185	10.800	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.90	2.77	0.32
	5981	0.185	10.800	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.08
	200	0.000	7.200	6.680	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.32
34	6107	1.335	2.000	6.680	RC1	1	20.0	Bottom	$\sigma_{b,0}$	-0.49	16.62	0.03
	5029	2.712	3.600	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	6106	1.137	2.000	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	2.46	9.69	0.25
	5029	2.712	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	6107	1.335	2.000	6.680	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	2.95		0.28
	5029	2.712	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	102	2.909	3.600	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.13	0.55	0.23
	102	2.909	3.600	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.13	2.77	0.05
	5029	2.712	3.600	6.680	RC1	5	120.0	Bottom	$\tau_{x'y'}$	-0.63	2.77	0.23
	5029	2.712	3.600	6.680	RC1	5	110.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.04
	102	2.909	3.600	6.680	RC1	4	70.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.23
U.C. → 35	102	2.909	3.600	6.680	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.80	16.62	0.05
	117	3.140	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	102	2.909	3.600	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.93	9.69	0.41
	104	2.909	7.200	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	102	2.909	3.600	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.13		0.45
	104	2.909	7.200	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	104	2.909	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.20	0.55	0.36
	104	2.909	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.21	2.77	0.07
	104	2.909	7.200	6.680	RC1	5	120.0	Bottom	$\tau_{x'y'}$	0.26	2.77	0.09
	104	2.909	7.200	6.680	RC1	5	110.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.01
	104	2.909	7.200	6.680	RC1	2	20.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.36
36	117	3.140	7.200	6.680	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.64	16.62	0.04
	104	2.909	7.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00

■ 2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	117	3.140	7.200	6.680	RC1	5	100.0	Top	$\sigma_{t,0}$	3.00	9.69	0.31
	118	3.140	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t,90}$	0.00	0.25	0.00
	117	3.140	7.200	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.35		0.35
	118	3.140	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	104	2.909	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.11	0.55	0.21
	104	2.909	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.12	2.77	0.04
	104	2.909	7.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.68	2.77	0.25
	104	2.909	7.200	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.04
	104	2.909	7.200	6.680	RC1	4	70.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.21
37	4874	3.921	3.600	6.680	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.44	16.62	0.03
	6434	3.360	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	6438	3.799	0.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	2.16	5.54	0.39
	6444	4.399	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	6438	3.799	0.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	2.08		0.40
	6444	4.399	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	6438	3.799	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.12	0.55	0.21
	4874	3.921	3.600	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.12	2.77	0.04
	6438	3.799	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.79	2.77	0.29
	6438	3.799	0.000	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.08
	6438	3.799	0.000	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.21
38	5527	4.116	5.400	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.46	9.69	0.05
	208	3.140	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	120	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	2.30	9.69	0.24
	6650	4.320	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	120	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.86		0.26
	6650	4.320	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	121	5.540	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.10	0.55	0.17
	121	5.540	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.10	2.77	0.04
	208	3.140	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.62	2.77	0.23
	6650	4.320	3.600	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.04
	121	5.540	7.200	6.680	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.17
39	5145	3.531	7.200	6.680	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.44	16.62	0.03
	210	3.140	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7057	3.799	10.800	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	1.70	5.54	0.31
	7057	3.799	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	7057	3.799	10.800	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	1.63		0.31
	7057	3.799	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7057	3.799	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.11	0.55	0.20
	99	4.116	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.12	2.77	0.04
	210	3.140	7.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.17	2.77	0.42
	210	3.140	7.200	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.12
	7057	3.799	10.800	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.20
40	7174	7.940	1.600	6.680	RC1	4	70.0	Top	$\sigma_{b,0}$	-0.45	9.69	0.05
	7291	7.340	3.600	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	213	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.92	9.69	0.20
	7270	7.940	3.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	213	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.53		0.22
	7270	7.940	3.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	213	5.540	3.600	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.08	0.55	0.15
	213	5.540	3.600	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.08	2.77	0.03
	7292	7.540	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.48	2.77	0.17
	7292	7.540	3.600	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.03
	213	5.540	3.600	6.680	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.15
41	7402	7.940	5.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.43	9.69	0.04
	7291	7.340	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	214	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	2.18	9.69	0.23
	7508	7.540	7.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	214	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.74		0.25
	7508	7.540	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	215	5.540	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.09	0.55	0.16
	215	5.540	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.09	2.77	0.03
	7292	7.540	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.45	2.77	0.16
	7292	7.540	3.600	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.02
	215	5.540	7.200	6.680	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.16
42	7630	7.940	9.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.45	9.69	0.05
	7507	7.340	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	216	5.540	7.200	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.94	9.69	0.20
	7724	7.540	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	216	5.540	7.200	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.55		0.22
	7724	7.540	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	216	5.540	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.08	0.55	0.15
	216	5.540	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.08	2.77	0.03
	7508	7.540	7.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.47	2.77	0.17
	7508	7.540	7.200	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.03
	216	5.540	7.200	6.680	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.15
43	7102	7.940	0.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.60	9.69	0.06
	7733	8.140	0.400	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7102	7.940	0.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.97	5.54	0.17
	7102	7.940	0.400	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00



2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	7102	7.940	0.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.37		0.24
	7102	7.940	0.400	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7729	8.340	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.11
	7729	8.340	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	7270	7.940	3.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.32	2.77	0.12
	7270	7.940	3.200	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	7729	8.340	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.11
44	7318	7.940	4.000	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.55	9.69	0.06
	7330	7.940	4.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7318	7.940	4.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.86	5.54	0.15
	7318	7.940	4.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	7318	7.940	4.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.30		0.21
	7318	7.940	4.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7782	8.340	3.600	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.10
	7782	8.340	3.600	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	7318	7.940	4.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.27	2.77	0.10
	7318	7.940	4.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	7782	8.340	3.600	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.10
45	7702	7.940	10.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.60	9.69	0.06
	7883	8.140	10.400	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7702	7.940	10.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.97	5.54	0.17
	7534	7.940	7.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	7702	7.940	10.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.37		0.24
	7534	7.940	7.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7890	8.340	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.11
	7890	8.340	10.800	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	7534	7.940	7.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.33	2.77	0.12
	7534	7.940	7.600	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	7890	8.340	10.800	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.11
46	64	0.000	0.000	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.11	9.69	0.01
	7904	0.370	-0.200	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	5827	0.370	0.000	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	0.63	9.69	0.07
	5827	0.370	0.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	1.38	0.00
	5827	0.370	0.000	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	0.51		0.07
	5827	0.370	0.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	64	0.000	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.07	0.55	0.13
	64	0.000	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.05	2.08	0.02
	5827	0.370	0.000	6.680	RC1	5	120.0	Bottom	$\tau_{x'y'}$	-0.29	2.77	0.10
	5827	0.370	0.000	6.680	RC1	3	60.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	64	0.000	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.13
47	5987	1.140	0.000	6.680	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.16	16.62	0.01
	9621	0.740	-0.400	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	5987	1.140	0.000	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	0.82	9.69	0.08
	115	3.140	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	5987	1.140	0.000	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	0.66		0.09
	115	3.140	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	115	3.140	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.06	0.55	0.12
	115	3.140	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.04	2.08	0.02
	115	3.140	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.34	2.77	0.12
	115	3.140	0.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	115	3.140	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.12
48	6438	3.799	0.000	6.680	RC1	4	100.0	Bottom	$\sigma_{b,0}$	0.15	9.69	0.02
	119	5.540	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	6438	3.799	0.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	2.08	5.54	0.38
	6438	3.799	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	6438	3.799	0.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	1.99		0.39
	6438	3.799	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	6438	3.799	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.11	0.55	0.20
	6438	3.799	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.07	2.08	0.03
	6436	3.579	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.53	2.77	0.19
	6438	3.799	0.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.04
	6438	3.799	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.20
49	8002	7.940	-0.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.32	9.69	0.03
	8012	7.540	-0.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	8002	7.940	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.51	5.54	0.09
	7085	7.540	0.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	8002	7.940	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.19		0.13
	7085	7.540	0.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7085	7.540	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.04	0.55	0.08
	8002	7.940	-0.400	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.04	2.77	0.01
	7083	7.340	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.15	2.77	0.05
	7083	7.340	0.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.00
	7085	7.540	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.08
50	77	7.940	-0.600	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.31	9.69	0.03
	8002	7.940	-0.400	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	8002	7.940	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.44	5.54	0.08
	8016	8.140	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	8002	7.940	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.15		0.11
	8016	8.140	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00



■ 2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	7729	8.340	0.000	6.680	RC1	3	60.0	Middle	τ_{yz}	0.06	0.55	0.11
	7729	8.340	0.000	6.680	RC1	2	35.0	Middle	τ_{xz}	0.04	2.08	0.02
	8002	7.940	-0.400	6.680	RC1	1	0.0	Top	τ_{xy}	-0.08	2.77	0.03
	8002	7.940	-0.400	6.680	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.00
	7729	8.340	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t,90}$+τ_{yz})			0.11
51	66	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.11	9.69	0.01
	8026	0.370	11.000	6.680	RC1	4	100.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	5982	0.370	10.800	6.680	RC1	5	100.0	Top	$\sigma_{t,0}$	0.61	9.69	0.06
	5982	0.370	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t,90}$	0.00	0.25	0.00
	5982	0.370	10.800	6.680	RC1	5	100.0	Top	$\sigma_{b+t,0}$	0.49		0.07
	5982	0.370	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t,90}$	0.00		0.00
	66	0.000	10.800	6.680	RC1	3	60.0	Middle	τ_{yz}	0.07	0.55	0.13
	66	0.000	10.800	6.680	RC1	2	35.0	Middle	τ_{xz}	0.05	2.08	0.02
	5982	0.370	10.800	6.680	RC1	1	0.0	Top	τ_{xy}	0.31	2.77	0.11
	5982	0.370	10.800	6.680	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.01
	66	0.000	10.800	6.680	RC1	3	50.0	Top	int($\sigma_{t,90}$+τ_{yz})			0.13
52	6423	1.140	10.800	6.680	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.16	16.62	0.01
	9634	0.740	11.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	118	3.140	10.800	6.680	RC1	1	0.0	Top	$\sigma_{t,0}$	-1.21	14.54	0.08
	6423	1.140	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t,90}$	0.00	0.25	0.00
	118	3.140	10.800	6.680	RC1	1	0.0	Top	$\sigma_{b+t,0}$	-1.36		0.09
	6423	1.140	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t,90}$	0.00		0.00
	118	3.140	10.800	6.680	RC1	3	60.0	Middle	τ_{yz}	-0.06	0.55	0.11
	118	3.140	10.800	6.680	RC1	2	35.0	Middle	τ_{xz}	-0.04	2.08	0.02
	118	3.140	10.800	6.680	RC1	1	0.0	Top	τ_{xy}	-0.35	2.77	0.13
	118	3.140	10.800	6.680	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.02
	118	3.140	10.800	6.680	RC1	3	50.0	Top	int($\sigma_{t,90}$+τ_{yz})			0.11
53	8090	3.966	11.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.15	9.69	0.02
	8077	3.780	11.000	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7057	3.799	10.800	6.680	RC1	4	70.0	Top	$\sigma_{t,0}$	1.67	5.54	0.30
	7060	4.399	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t,90}$	0.00	0.25	0.00
	7057	3.799	10.800	6.680	RC1	4	70.0	Top	$\sigma_{b+t,0}$	1.60		0.31
	7060	4.399	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t,90}$	0.00		0.00
	7057	3.799	10.800	6.680	RC1	3	60.0	Middle	τ_{yz}	-0.11	0.55	0.19
	7057	3.799	10.800	6.680	RC1	2	35.0	Middle	τ_{xz}	-0.07	2.08	0.03
	7057	3.799	10.800	6.680	RC1	1	0.0	Top	τ_{xy}	-0.63	2.77	0.23
	7057	3.799	10.800	6.680	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.05
	7057	3.799	10.800	6.680	RC1	3	50.0	Top	int($\sigma_{t,90}$+τ_{yz})			0.19
54	8134	7.940	11.200	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.32	9.69	0.03
	8120	7.540	11.000	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	8134	7.940	11.200	6.680	RC1	4	70.0	Top	$\sigma_{t,0}$	0.51	5.54	0.09
	7715	5.740	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t,90}$	0.00	0.25	0.00
	8134	7.940	11.200	6.680	RC1	4	70.0	Top	$\sigma_{b+t,0}$	0.19		0.12
	7715	5.740	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t,90}$	0.00		0.00
	7724	7.540	10.800	6.680	RC1	3	60.0	Middle	τ_{yz}	-0.04	0.55	0.08
	7724	7.540	10.800	6.680	RC1	2	35.0	Middle	τ_{xz}	-0.03	2.08	0.01
	7723	7.340	10.800	6.680	RC1	1	0.0	Top	τ_{xy}	-0.19	2.77	0.07
	7723	7.340	10.800	6.680	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.00
	7724	7.540	10.800	6.680	RC1	3	50.0	Top	int($\sigma_{t,90}$+τ_{yz})			0.08
55	81	7.940	11.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.31	9.69	0.03
	8134	7.940	11.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	8134	7.940	11.200	6.680	RC1	4	70.0	Top	$\sigma_{t,0}$	0.44	5.54	0.08
	8134	7.940	11.200	6.680	RC1	2	20.0	Top	$\sigma_{t,90}$	0.00	0.25	0.00
	8134	7.940	11.200	6.680	RC1	4	70.0	Top	$\sigma_{b+t,0}$	0.14		0.11
	8134	7.940	11.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t,90}$	0.00		0.00
	7890	8.340	10.800	6.680	RC1	3	60.0	Middle	τ_{yz}	0.06	0.55	0.11
	7890	8.340	10.800	6.680	RC1	2	35.0	Middle	τ_{xz}	0.04	2.08	0.02
	8134	7.940	11.200	6.680	RC1	1	0.0	Top	τ_{xy}	0.09	2.77	0.03
	8134	7.940	11.200	6.680	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.00
	7890	8.340	10.800	6.680	RC1	3	50.0	Top	int($\sigma_{t,90}$+τ_{yz})			0.11
56	8290	0.000	7.600	0.000	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.28	9.69	0.03
	8272	0.000	8.000	0.389	RC1	4	100.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	520	0.000	7.200	0.389	RC1	1	0.0	Top	$\sigma_{t,0}$	-5.15	14.54	0.35
	520	0.000	7.200	0.389	RC1	2	20.0	Top	$\sigma_{t,90}$	0.00	0.25	0.00
	520	0.000	7.200	0.389	RC1	1	0.0	Top	$\sigma_{b+t,0}$	-5.16		0.35
	520	0.000	7.200	0.389	RC1	2	20.0	Top	$\sigma_{b+t,90}$	0.00		0.00
	8290	0.000	7.600	0.000	RC1	3	60.0	Middle	τ_{yz}	0.13	0.55	0.24
	8290	0.000	7.600	0.000	RC1	2	35.0	Middle	τ_{xz}	0.09	2.08	0.04
	520	0.000	7.200	0.389	RC1	1	0.0	Top	τ_{xy}	0.53	2.77	0.19
	520	0.000	7.200	0.389	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.04
	8290	0.000	7.600	0.000	RC1	3	50.0	Top	int($\sigma_{t,90}$+τ_{yz})			0.24
57	263	0.000	9.000	3.310	RC1	5	100.0	Top	$\sigma_{b,0}$	-0.26	16.62	0.02
	34	0.000	7.200	3.310	RC1	4	100.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	263	0.000	9.000	3.310	RC1	5	100.0	Top	$\sigma_{t,0}$	1.27	9.69	0.13
	9748	0.000	9.000	6.482	RC1	2	20.0	Top	$\sigma_{t,90}$	0.00	0.25	0.00
	263	0.000	9.000	3.310	RC1	5	100.0	Top	$\sigma_{b+t,0}$	1.01		0.15
	9748	0.000	9.000	6.482	RC1	2	20.0	Top	$\sigma_{b+t,90}$	0.00		0.00
	34	0.000	7.200	3.310	RC1	3	60.0	Middle	τ_{yz}	0.05	0.55	0.10
	34	0.000	7.200	3.310	RC1	2	35.0	Middle	τ_{xz}	0.03	2.08	0.02

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■ 2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	34	0.000	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.41	2.77	0.15
	34	0.000	7.200	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.02
	34	0.000	7.200	3.310	RC1	3	50.0	Top	$int(\sigma_{tc,90}+\tau_{y'z'})$			0.10
58	10	0.000	1.800	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.16	16.62	0.01
	8532	0.000	3.400	0.389	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	9644	0.000	3.600	3.310	RC1	1	0.0	Top	$\sigma_{tc,0}$	1.21	9.69	0.13
	9644	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{tc,90}$	0.00	0.25	0.00
	9644	0.000	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b+tc,0}$	1.23		0.13
	9644	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+tc,90}$	0.00		0.00
	8549	0.000	3.200	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.04	0.55	0.07
	8549	0.000	3.200	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.02	2.08	0.01
	8541	0.000	3.200	0.195	RC1	5	120.0	Bottom	$\tau_{x'y'}$	-0.26	2.77	0.10
	8541	0.000	3.200	0.195	RC1	5	110.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.01
	8549	0.000	3.200	0.000	RC1	3	50.0	Top	$int(\sigma_{tc,90}+\tau_{y'z'})$			0.07
59	9662	0.000	3.600	6.680	RC1	4	70.0	Top	$\sigma_{b,0}$	-0.24	9.69	0.02
	9663	0.000	3.600	6.482	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	9644	0.000	3.600	3.310	RC1	1	0.0	Top	$\sigma_{tc,0}$	-1.30	14.54	0.09
	9662	0.000	3.600	6.680	RC1	2	20.0	Top	$\sigma_{tc,90}$	0.00	0.25	0.00
	9662	0.000	3.600	6.680	RC1	4	70.0	Top	$\sigma_{b+tc,0}$	0.20		0.11
	9662	0.000	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+tc,90}$	0.00		0.00
	9662	0.000	3.600	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.05	0.55	0.08
	9662	0.000	3.600	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.03	2.08	0.01
	9662	0.000	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.39	2.77	0.14
	9662	0.000	3.600	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.02
	9662	0.000	3.600	6.680	RC1	3	50.0	Top	$int(\sigma_{tc,90}+\tau_{y'z'})$			0.08

Maximum Ratio 0.52



Solid Timber

Bijlage 1 – Gewichtsberekening



Solid Timber
Ketjapweg 18
3541 RH Utrecht

Project: Valschermkade
1706-2

Model: Definitief

Date: 2017-10-19

STRUCTURAL ANALYSIS

PROJECT

Valschermkade
Bijlage 1 - Gewichtsberekening

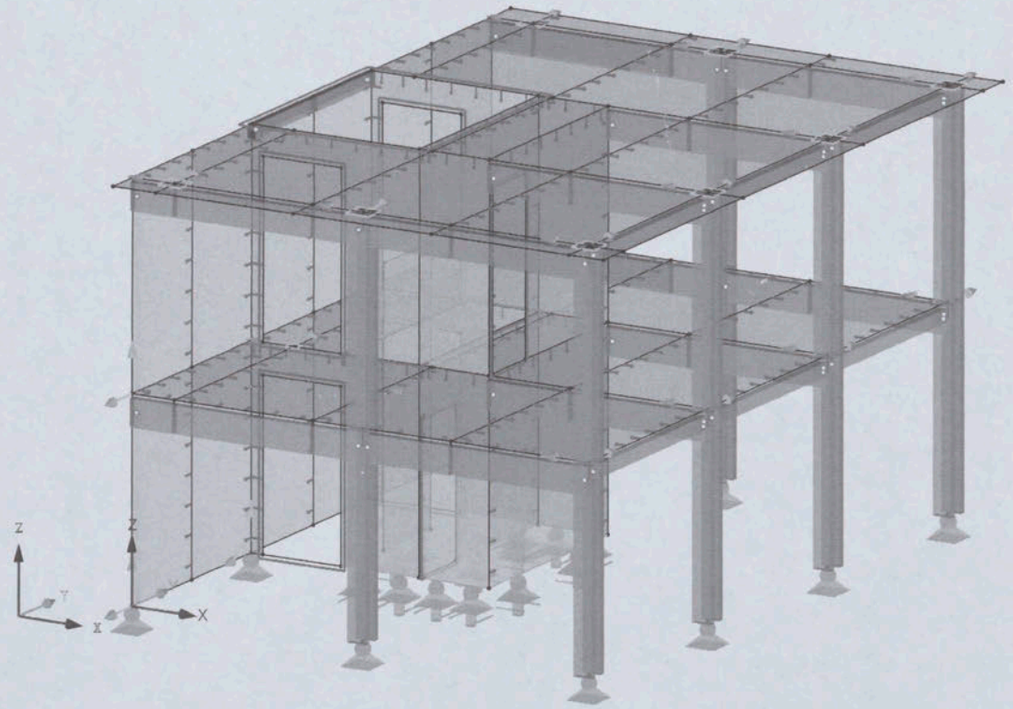
CLIENT

Valschermkade 25-26 BV

CREATED BY

Bas Boellaard

Isometric



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Patch Reference numbers on UTT

MODEL - GENERAL DATA

General	Model name	:	1706-2	
	Type of model	:	3D	
	Positive direction of global axis Z	:	Upward	
	Classification of load cases and combinations	:	According to Standard: EN 1990 + EN 1995 (Wood) National Annex: NEN - Netherlands	
	☒ Automatically create combinations	:	☒ Load Combinations	
Options	☐ RF-FORM-FINDING - Find initial equilibrium shapes of membrane and cable structures			
	☐ RF-CUTTING-PATTERN			
	☐ Piping analysis			
	☐ Use CQC Rule			
	☐ Enable CAD/BIM model			
	Standard Gravity g	: :	 10.00 m/s²	

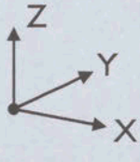
FE MESH SETTINGS

General	Target length of finite elements	l_{FE}	:	0.2 m
	Maximum distance between a node and a line to integrate it into the line	ε	:	0.0 m
	Maximum number of mesh nodes (in thousands)		:	500
Members	Number of divisions of members with cable, elastic foundation, taper, or plastic characteristic		:	10
	☒ Activate member divisions for large deformation or post-critical analysis			
	☒ Use division for members with node lying on them			
Surfaces	Maximum ratio of FE rectangle diagonals	Δ_D	:	1.800
	Maximum out-of-plane inclination of two finite elements	α	:	0.50 °
	Shape direction of finite elements		:	Triangles and quadrangles ☒ Same squares where possible

1.3 MATERIALS

Matl. No.	Modulus E [N/mm²]	Modulus G [N/mm²]	Poisson's Ratio ν [-]	Spec. Weight γ [kN/m³]	Coeff. of Th. Exp. α [1/°C]	Partial Factor γ_M [-]	Material Model
1	Glulam Timber GL30c | SS-EN 14080:2013-08						
	13000.0	650.0	9.000	4.30	5.00E-06	1.25	Isotropic Linear Elastic
4	RF-LAMINATE Composition 11 Created by RF-LAMINATE module			3.85	5.00E-06		
5	RF-LAMINATE Composition 13 Created by RF-LAMINATE module			3.97	5.00E-06		
6	RF-LAMINATE Composition 14 Created by RF-LAMINATE module			3.92	5.00E-06		

1.7 NODAL SUPPORTS



Support No.	Nodes No.	Axis System	Column in Z	Support Conditions u_X	u_Y	u_Z	φ_X	φ_Y	φ_Z
2	1,3,5,6,15-17,19,21,23	Global X,Y,Z	☐	☒	☒	☒	☐	☐	☒

1.8 LINE SUPPORTS

Support No.	Lines No.	Reference System	Rotation β [°]	Wall in Z	Support Conditions C_{ux}	C_{uy}	C_{uz}	φ_x	φ_y	φ_z
1	31,37,40,48,49,55,56	Local		☐	☒	☐	☒	☐	☐	☐

2.1 LOAD CASES

Load Case	Load Case Description	Action Category	Self-Weight - Factor in Direction Active	X	Y	Z	EN 1990 + 1995 | NEN Load Duration
LC1	Permanent	Permanent	☒	0.000	0.000	-1.188	Permanent
LC2	Opgelegde vloerbelasting	Imposed - Category B: office areas	☐				Medium-term
LC3	Opgelegde dakbelasting	Imposed - Category H: roofs	☐				Short-term
LC4	Sneeuw	Snow (H ≤ 1000 m a.s.l.)	☐				Short-term
LC5	Wind X-	Wind	☐				Short-term
LC6	Wind Y-	Wind	☐				Short-term

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2.5 LOAD COMBINATIONS

Load Combin.	DS	Load Combination Description	No.	Factor	Load Case	
CO1	ULS'	1.35G	1	1.35	LC1	Permanent
CO2	ULS'	1.35G + 0.75QiB	1	1.35	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
CO3	ULS'	1.2G + 1.5QiB	1	1.20	LC1	Permanent
			2	1.50	LC2	Opgelegde vloerbelasting
CO4	ULS'	1.2G + 1.5Qs	1	1.20	LC1	Permanent
			2	1.50	LC4	Sneeuw
CO5	ULS'	1.2G + 0.75QiB + 1.5Qs	1	1.20	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC4	Sneeuw
CO6	ULS'	1.2G + 1.5Qw1	1	1.20	LC1	Permanent
			2	1.50	LC5	Wind X-
CO7	ULS'	1.2G + 1.5Qw2	1	1.20	LC1	Permanent
			2	1.50	LC6	Wind Y-
CO8	ULS'	1.2G + 0.75QiB + 1.5Qw1	1	1.20	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC5	Wind X-
CO9	ULS'	1.2G + 0.75QiB + 1.5Qw2	1	1.20	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC6	Wind Y-
CO10	ULS'	1.2G + 1.5QiH	1	1.20	LC1	Permanent
			2	1.50	LC3	Opgelegde dakbelasting
CO11	ULS'	1.2G + 0.75QiB + 1.5QiH	1	1.20	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC3	Opgelegde dakbelasting
CO12	S Qp	1.8G	1	1.80	LC1	Permanent
CO13	S Qp	1.8G + 1.24QiB	1	1.80	LC1	Permanent
			2	1.24	LC2	Opgelegde vloerbelasting
CO14	S Qp	1.8G + Qs	1	1.80	LC1	Permanent
			2	1.00	LC4	Sneeuw
CO15	S Qp	1.8G + 0.74QiB + Qs	1	1.80	LC1	Permanent
			2	0.74	LC2	Opgelegde vloerbelasting
			3	1.00	LC4	Sneeuw
CO16	S Qp	1.8G + Qw1	1	1.80	LC1	Permanent
			2	1.00	LC5	Wind X-
CO17	S Qp	1.8G + Qw2	1	1.80	LC1	Permanent
			2	1.00	LC6	Wind Y-
CO18	S Qp	1.8G + 0.74QiB + Qw1	1	1.80	LC1	Permanent
			2	0.74	LC2	Opgelegde vloerbelasting
			3	1.00	LC5	Wind X-
CO19	S Qp	1.8G + 0.74QiB + Qw2	1	1.80	LC1	Permanent
			2	0.74	LC2	Opgelegde vloerbelasting
			3	1.00	LC6	Wind Y-
CO20	S Qp	1.8G + QiH	1	1.80	LC1	Permanent
			2	1.00	LC3	Opgelegde dakbelasting
CO21	S Qp	1.8G + 0.74QiB + QiH	1	1.80	LC1	Permanent
			2	0.74	LC2	Opgelegde vloerbelasting
			3	1.00	LC3	Opgelegde dakbelasting
CO22	EQU	1.1G	1	1.10	LC1	Permanent
CO23	EQU	1.1G + 1.5QiB	1	1.10	LC1	Permanent
			2	1.50	LC2	Opgelegde vloerbelasting
CO24	EQU	1.1G + 1.5Qs	1	1.10	LC1	Permanent
			2	1.50	LC4	Sneeuw
CO25	EQU	1.1G + 0.75QiB + 1.5Qs	1	1.10	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC4	Sneeuw
CO26	EQU	1.1G + 1.5Qw1	1	1.10	LC1	Permanent
			2	1.50	LC5	Wind X-
CO27	EQU	1.1G + 1.5Qw2	1	1.10	LC1	Permanent
			2	1.50	LC6	Wind Y-
CO28	EQU	1.1G + 0.75QiB + 1.5Qw1	1	1.10	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC5	Wind X-
CO29	EQU	1.1G + 0.75QiB + 1.5Qw2	1	1.10	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC6	Wind Y-
CO30	EQU	1.1G + 1.5QiH	1	1.10	LC1	Permanent
			2	1.50	LC3	Opgelegde dakbelasting
CO31	EQU	1.1G + 0.75QiB + 1.5QiH	1	1.10	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC3	Opgelegde dakbelasting
CO32	EQU	0.9G	1	0.90	LC1	Permanent
CO33	EQU	0.9G + 1.5QiB	1	0.90	LC1	Permanent
			2	1.50	LC2	Opgelegde vloerbelasting
CO34	EQU	0.9G + 1.5Qs	1	0.90	LC1	Permanent
			2	1.50	LC4	Sneeuw
CO35	EQU	0.9G + 0.75QiB + 1.5Qs	1	0.90	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC4	Sneeuw
CO36	EQU	0.9G + 1.5Qw1	1	0.90	LC1	Permanent
			2	1.50	LC5	Wind X-
CO37	EQU	0.9G + 1.5Qw2	1	0.90	LC1	Permanent
			2	1.50	LC6	Wind Y-
CO38	EQU	0.9G + 0.75QiB + 1.5Qw1	1	0.90	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC5	Wind X-
CO39	EQU	0.9G + 0.75QiB + 1.5Qw2	1	0.90	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC6	Wind Y-
CO40	EQU	0.9G + 1.5QiH	1	0.90	LC1	Permanent
			2	1.50	LC3	Opgelegde dakbelasting
CO41	EQU	0.9G + 0.75QiB + 1.5QiH	1	0.90	LC1	Permanent
			2	0.75	LC2	Opgelegde vloerbelasting
			3	1.50	LC3	Opgelegde dakbelasting

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C1 B1 A1 C2 B2 A2 B5 A5 20 18 17 16 11 10 09 03 02 01 C7 B7 A7 C8 B8 C9 B9

2.5 LOAD COMBINATIONS

Load Combin.	DS	Load Combination Description	No.	Factor	Load Case	
CO42	ACC	G	1	1.00	LC1	Permanent
CO43	ACC	G + 0.5QiB	1	1.00	LC1	Permanent
			2	0.50	LC2	Opgelegde vloerbelasting
CO44	ACC	G + 0.2Qs	1	1.00	LC1	Permanent
			2	0.20	LC4	Sneeuw
CO45	ACC	G + 0.3QiB + 0.2Qs	1	1.00	LC1	Permanent
			2	0.30	LC2	Opgelegde vloerbelasting
			3	0.20	LC4	Sneeuw
CO46	ACC	G + 0.2Qw1	1	1.00	LC1	Permanent
			2	0.20	LC5	Wind X-
CO47	ACC	G + 0.2Qw2	1	1.00	LC1	Permanent
			2	0.20	LC6	Wind Y-
CO48	ACC	G + 0.3QiB + 0.2Qw1	1	1.00	LC1	Permanent
			2	0.30	LC2	Opgelegde vloerbelasting
			3	0.20	LC5	Wind X-
CO49	ACC	G + 0.3QiB + 0.2Qw2	1	1.00	LC1	Permanent
			2	0.30	LC2	Opgelegde vloerbelasting
			3	0.20	LC6	Wind Y-
CO50	ACC	G + 0.3QiB + 0QiH	1	1.00	LC1	Permanent
			2	0.30	LC2	Opgelegde vloerbelasting
			3	0.00	LC3	Opgelegde dakbelasting

LC1
Permanent

3.3 LINE LOADS

LC1: Permanent

No.	Reference to	On Lines No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	Lines =88x3,4m+110	54,60,64,65,68,70,76-78, 88,101,105,109	Force	Uniform	ZP	p	-4.100	kN/m
2	Lines	150,168,198,202,203,205, 206,208,211,214,216,223, 224,234,235	Force	Uniform	ZL	p	-1.100	kN/m

3.4 SURFACE LOADS

LC1: Permanent

No.	On Surfaces No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	10-21	Force	Uniform	ZL	p	-0.85	kN/m²
2	31,33-55	Force	Uniform	ZL	p	-1.03	kN/m²
3	1-4,23-26,56-59	Force	Uniform	ZL	p	-0.30	kN/m²
4	7,8,29,30	Force	Uniform	ZL	p	-0.25	kN/m²

3.8 FREE RECTANGULAR LOADS

LC1: Permanent

No.	On Surfaces No.	Project.	Load Distribution	Load Direction	Magnitude Symbol	Value	Unit	Load Position X [m]	Y [m]	Z [m]
1	6	XZ	Uniform	ZL	p	-0.25	kN/m²	2.910		3.310
								4.117		0.000
2	5	XZ	Uniform	ZL	p	-0.25	kN/m²	2.910		3.310
								4.117		0.000
3	27	XZ	Uniform	ZL	p	-0.25	kN/m²	2.910		6.720
								4.117		3.310
4	28	XZ	Uniform	ZL	p	-0.25	kN/m²	2.910		6.720
								4.117		3.310

3.15 GENERATED LOADS

LC1: Permanent

No.	Load Description					
1	**From Area Loads on Openings**					
	Area load direction	Global relative to the projected area:		:	☒ ZP	
	Load distribution type:	☒ Constant				
	Area load magnitude	☒ Constant		:	-1.03	kN/m²
	Openings with area load	Openings		:	8	
	Generating total loads in direction	ΣP_{Areas}	X	:	0.000	kN
			Y	:	0.000	kN
			Z	:	-10.788	kN
		ΣP_{Lines}	X	:	0.000	kN
			Y	:	0.000	kN
			Z	:	-10.788	kN
	Total moment to the origin	ΣM_{Areas}	X	:	-58.257	kNm
			Y	:	15.694	kNm
			Z	:	0.000	kNm
		ΣM_{Lines}	X	:	-58.257	kNm
			Y	:	15.694	kNm
			Z	:	0.000	kNm
2	**From Area Loads on Openings**					
	Area load direction	Global relative to the projected area:		:	☒ ZP	
	Load distribution type:	☒ Constant				
	Area load magnitude	☒ Constant		:	-1.20	kN/m²
	Openings with area load	Openings		:	4	

3.15 GENERATED LOADS — LC1: Permanent

No.	Load Description				
	Generating total loads in direction	ΣP_{Areas}	X	0.000	kN
			Y	0.000	kN
			Z	-5.400	kN
		ΣP_{Lines}	X	0.000	kN
			Y	0.000	kN
			Z	-5.400	kN
	Total moment to the origin	ΣM_{Areas}	X	-29.160	kNm
			Y	12.336	kNm
			Z	0.000	kNm
		ΣM_{Lines}	X	-29.160	kNm
			Y	12.336	kNm
			Z	0.000	kNm

LC2
Opgelegde vloerbelasting

3.4 SURFACE LOADS — LC2: Opgelegde vloerbelasting

No.	On Surfaces No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	10-21	Force	Uniform	ZL	p	-2.50	kN/m²

3.15 GENERATED LOADS — LC2: Opgelegde vloerbelasting

No.	Load Description				
1	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:		☒ ZP	
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant		-2.50	kN/m²
	Openings with area load	Openings		4	
	Generating total loads in direction	ΣP_{Areas}	X	0.000	kN
			Y	0.000	kN
			Z	-11.250	kN
		ΣP_{Lines}	X	0.000	kN
			Y	0.000	kN
			Z	-11.250	kN
	Total moment to the origin	ΣM_{Areas}	X	-60.750	kNm
			Y	25.701	kNm
			Z	0.000	kNm
		ΣM_{Lines}	X	-60.750	kNm
			Y	25.701	kNm
			Z	0.000	kNm

LC3
Opgelegde dakbelasting

3.4 SURFACE LOADS — LC3: Opgelegde dakbelasting

No.	On Surfaces No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	31,33-55	Force	Uniform	ZL	p	-1.00	kN/m²

3.15 GENERATED LOADS — LC3: Opgelegde dakbelasting

No.	Load Description				
1	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:		☒ ZP	
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant		-1.00	kN/m²
	Openings with area load	Openings		8	
	Generating total loads in direction	ΣP_{Areas}	X	0.000	kN
			Y	0.000	kN
			Z	-10.474	kN
		ΣP_{Lines}	X	0.000	kN
			Y	0.000	kN
			Z	-10.474	kN
	Total moment to the origin	ΣM_{Areas}	X	-56.561	kNm
			Y	15.237	kNm
			Z	0.000	kNm
		ΣM_{Lines}	X	-56.561	kNm
			Y	15.237	kNm
			Z	0.000	kNm

the scale towards document
Patch Reference numbers on UTT
Bridge Engineering Scan Reference Chart TE263 Serial No.

LC4
Sneeuw

3.4 SURFACE LOADS

LC4: Sneeuw

No.	On Surfaces No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	31,33-55	Force	Uniform	ZL	p	-0.56	kN/m²

3.8 FREE RECTANGULAR LOADS

LC4: Sneeuw

No.	On Surfaces No.	Project.	Load Distribution	Load Direction	Magnitude Symbol	Value	Unit	Load Position X [m]	Y [m]	Z [m]
1	34	XY	Linear Y	ZL	p_1	-0.23	kN/m²	0.740	0.000	
					p_2	-1.44	kN/m²	3.140	3.600	
2	47	XY	Linear Y	ZL	p_1	0.00	kN/m²	0.740	-0.600	
					p_2	-0.23	kN/m²	3.140	0.000	
3	36	XY	Linear Y	ZL	p_1	-1.44	kN/m²	0.740	7.200	
					p_2	-0.23	kN/m²	3.140	10.800	
4	52	XY	Linear Y	ZL	p_1	-0.23	kN/m²	0.740	10.800	
					p_2	0.00	kN/m²	3.140	11.400	
5	37	XY	Linear Y	ZL	p_1	-1.44	kN/m²	3.140	3.600	
					p_2	0.00	kN/m²	5.540	0.000	
6	38	XY	Linear X	ZL	p_1	-1.44	kN/m²	3.140	3.600	
					p_2	-0.72	kN/m²	5.540	7.200	
7	41	XY	Linear X	ZL	p_1	-0.72	kN/m²	5.540	3.600	
					p_2	0.00	kN/m²	7.940	7.200	
8	39	XY	Linear Y	ZL	p_1	-1.44	kN/m²	3.140	7.200	
					p_2	0.00	kN/m²	5.540	10.800	
9	31	XY	Linear Y	ZL	p_1	-1.44	kN/m²	0.000	3.600	
					p_2	-0.23	kN/m²	0.740	0.000	
10	33	XY	Linear Y	ZL	p_1	-1.44	kN/m²	0.740	7.200	
					p_2	-0.23	kN/m²	0.000	10.800	
11	46	XY	Linear Y	ZL	p_1	-0.23	kN/m²	0.740	0.000	
					p_2	0.00	kN/m²	0.000	-0.600	
12	51	XY	Linear Y	ZL	p_1	-0.23	kN/m²	0.740	10.800	
					p_2	0.00	kN/m²	0.000	11.400	

3.15 GENERATED LOADS

LC4: Sneeuw

No.	Load Description				
1	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:	:	☒ ZP	
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant	:	-0.56	kN/m²
	Openings with area load	Openings	:	8	
	Generating total loads in direction	ΣP_{Areas}	X :	0.000	kN
			Y :	0.000	kN
			Z :	-5.866	kN
		ΣP_{Lines}	X :	0.000	kN
			Y :	0.000	kN
			Z :	-5.866	kN
	Total moment to the origin	ΣM_{Areas}	X :	-31.674	kNm
			Y :	8.533	kNm
			Z :	0.000	kNm
		ΣM_{Lines}	X :	-31.674	kNm
			Y :	8.533	kNm
			Z :	0.000	kNm

LC5
Wind X-

3.3 LINE LOADS

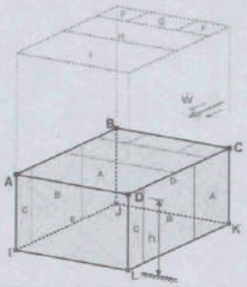
LC5: Wind X-

No.	Reference to	On Lines No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	Lines =0,4x2	205,206,208,223,235	Force	Uniform	y	p	0.800	kN/m
2	Lines =0,4x3,6	101,105,109	Force	Uniform	y	p	1.440	kN/m
3	Lines =0,71x3,6	54	Force	Uniform	y	p	-2.560	kN/m
4	Lines =0,71x3,6	77	Force	Uniform	y	p	2.560	kN/m
5	Lines =0,47x3,6	64,70	Force	Uniform	y	p	1.700	kN/m
6	Lines =0,47x3,6	76	Force	Uniform	y	p	-1.700	kN/m
7	Lines =0,47x3,6	88	Force	Uniform	y	p	-1.700	kN/m
8	Lines =0,47x3,6	60,65,68,78	Force	Uniform	y	p	-1.700	kN/m
9	Lines =0,71x2	198,202	Force	Uniform	y	p	-1.420	kN/m
10	Lines =0,71x2	150,168	Force	Uniform	y	p	1.420	kN/m
11	Lines =0,47x2	211,214,216	Force	Uniform	y	p	-0.940	kN/m
12	Lines =0,47x2	203,224,234	Force	Uniform	y	p	0.940	kN/m

the scale towards document
Patch Reference numbers on UTT

3.15 GENERATED LOADS

LC5: Wind X-

No.	Load Description				
1	**From Wind Loads (Building)**				
					
	Velocity pressure	According to Standard		:	EN 1991-1-4
		National Annex		:	Netherlands
		Wind zone		:	II
		Terrain category		:	Category III
		Structure height	h	:	7.310 m
		Fundamental wind velocity	$v_{b,0}$	:	27.0 m/s
	Base geometry	Node	I	:	5
			J	:	3
			K	:	21
			L	:	6
	Roof type and geometry	Type		:	⊙ Flat/monopitch roof
		Node	A	:	64
			B	:	69
			C	:	87
			D	:	66
	Eaves type	⊙ Sharp-edges eaves area			
	Generate LC	☒ LC w+		:	LC5
	Set wind on side	⊙ B - C			
	Create load type	⊙ Surface loads			
	Generate wind loads on surfaces No.			:	1-4,23-26,31,33-45, 56-59
	Building dimensions	h		:	7.310 m
		b		:	10.800 m
		d		:	7.940 m
		e_{Walls}		:	10.800 m
		e_{Roof}		:	10.800 m
		A_{Walls}		:	250.366 m²
		A_{Roof}		:	92.232 m²
		α		:	0.0 °
		d_A		:	2.160 m
		d_B		:	5.780 m
		d_C		:	0.000 m
		b_F		:	2.700 m
		d_F		:	1.080 m
		d_H		:	4.320 m
		d_I		:	3.140 m

Zone	External pressure coefficient $c_{pe,10}$	External pressure w_e [kN/m²]
A	-1.200	-0.71
B	-0.800	-0.47
C	-0.500	-0.29
D	0.800	0.40
E	-0.500	-0.25
F	-1.800	-1.06
G	-1.200	-0.71
H	-0.700	-0.41
I	0.200	0.12

	Generated total loads	ΣP_{Areas}		:	54.806 kN
		ΣP		:	32.149 kN
	Total moment to the origin	ΣM_{Areas}		:	463.527 kNm
		ΣM		:	279.266 kNm
2	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:		:	☒ ZP
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant		:	-0.12 kN/m²
	Openings with area load	Openings		:	8
	Generating total loads in direction	ΣP_{Areas}	X	:	0.000 kN
			Y	:	0.000 kN
			Z	:	-1.257 kN
		ΣP_{Lines}	X	:	0.000 kN
			Y	:	0.000 kN
			Z	:	-1.257 kN

3.15 GENERATED LOADS

LC5: Wind X-

No.	Load Description				
	Total moment to the origin	ΣM_{Areas}	X	:	-6.787 kNm
			Y	:	1.828 kNm
			Z	:	0.000 kNm
		ΣM_{Lines}	X	:	-6.787 kNm
			Y	:	1.828 kNm
			Z	:	0.000 kNm

LC6
Wind Y-

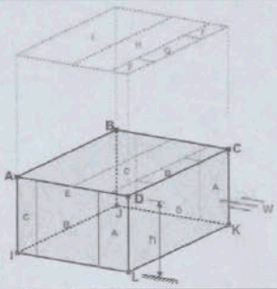
3.3 LINE LOADS

LC6: Wind Y-

No.	Reference to	On Lines No.	Load Type	Load Distribution	Load Direction	Load Parameters Symbol	Value	Unit
1	Lines =0,4x3,6	76,88	Force	Uniform	y	p	1.440	kN/m
2	Lines =0,4x3,6	64,70,77	Force	Uniform	y	p	-1.440	kN/m
3	Lines =0,4x2	150,168,203,224,234	Force	Uniform	y	p	-0.800	kN/m
4	Lines =0,25x3,6	54,60,65,68,78	Force	Uniform	y	p	-0.900	kN/m
5	Lines =0,25x2	198,202,211,214,216	Force	Uniform	y	p	-0.500	kN/m
6	Lines =0,71x3,6	109	Force	Uniform	y	p	-2.560	kN/m
7	Lines =0,71x2	208,235	Force	Uniform	y	p	-1.420	kN/m
8	Lines =0,47x3,6	101,105	Force	Uniform	y	p	-1.700	kN/m
9	Lines =0,47x2	205,206,223	Force	Uniform	y	p	-0.940	kN/m

3.15 GENERATED LOADS

LC6: Wind Y-

No.	Load Description				
1	**From Wind Loads (Building)**				
					
	Velocity pressure	According to Standard		:	EN 1991-1-4
		National Annex		:	Netherlands
		Wind zone		:	II
		Terrain category		:	Category III
		Structure height	h	:	7.310 m
		Fundamental wind velocity	$v_{b,0}$	:	27.0 m/s
	Base geometry	Node	I	:	5
			J	:	3
			K	:	21
			L	:	6
	Roof type and geometry	Type		:	⊙ Flat/monopitch roof
		Node	A	:	64
			B	:	69
			C	:	87
			D	:	66
	Eaves type	⊙ Sharp-edges eaves area			
	Generate LC	☒ LC w+		:	LC6
	Set wind on side	⊙ C - D			
	Create load type	⊙ Surface loads			
	Generate wind loads on surfaces No.			:	1-4,23-26,31,33-45, 56-59
	Building dimensions	h		:	7.310 m
		b		:	7.940 m
		d		:	10.800 m
		e_{Walls}		:	7.940 m
		e_{Roof}		:	8.540 m
		A_{Walls}		:	250.366 m²
		A_{Roof}		:	92.232 m²

3.15 GENERATED LOADS

LC6: Wind Y-

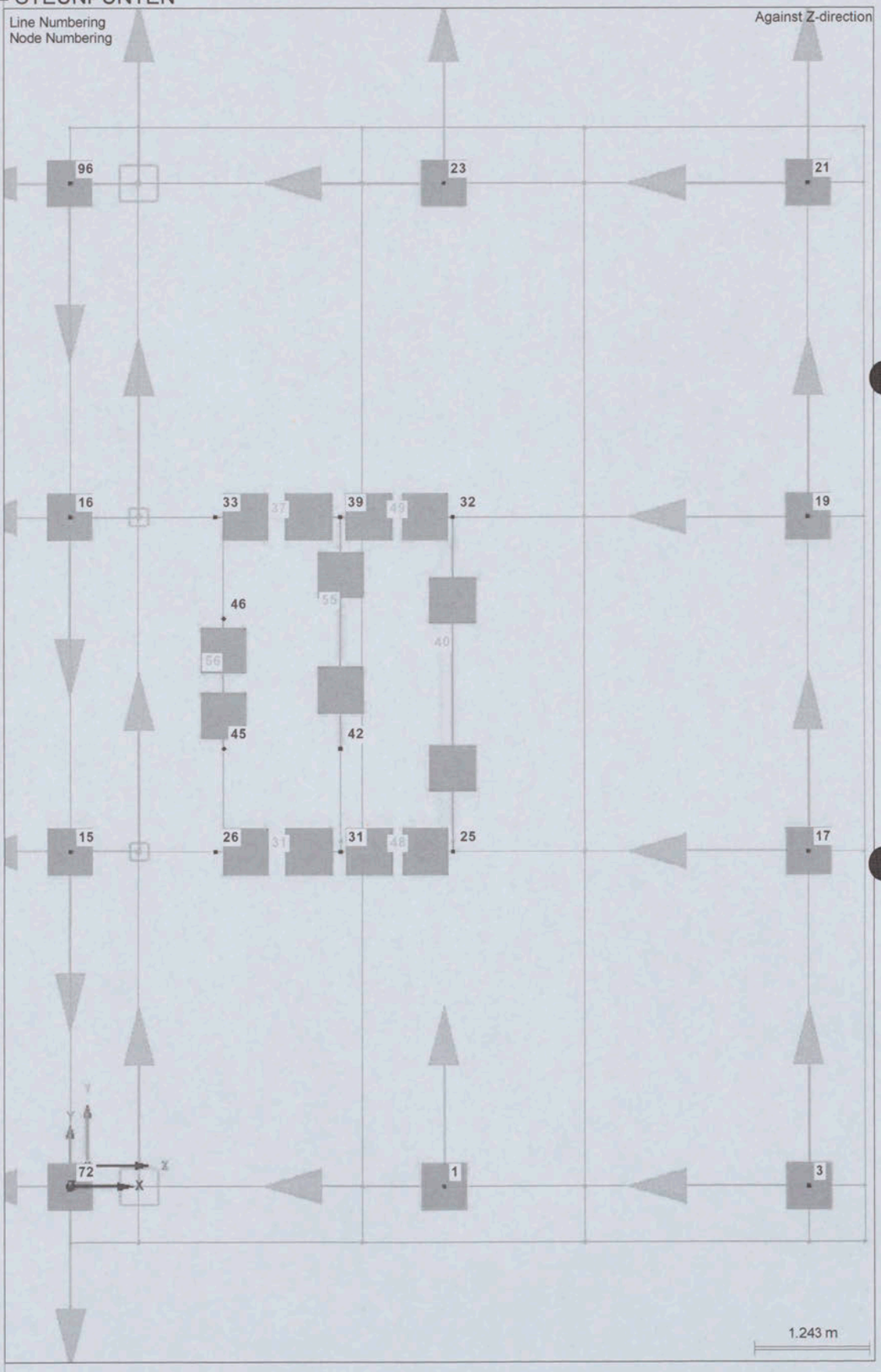
No.	Load Description				
		α	:	0.0	°
		d_A	:	1.588	m
		d_B	:	6.352	m
		d_C	:	2.860	m
		b_F	:	2.135	m
		d_F	:	0.854	m
		d_H	:	3.416	m
		d_I	:	6.530	m

Zone	External pressure coefficient $c_{pe,10}$	External pressure w_e [kN/m²]
A	-1.200	-0.71
B	-0.800	-0.47
C	-0.500	-0.29
D	0.800	0.40
E	-0.500	-0.25
F	-1.800	-1.06
G	-1.200	-0.71
H	-0.700	-0.41
I	0.200	0.12

Generated total loads	ΣP_{Areas}		:	35.697	kN
	ΣP		:	19.827	kN
Total moment to the origin	ΣM_{Areas}		:	279.219	kNm
	ΣM		:	177.240	kNm

2	**From Area Loads on Openings**				
	Area load direction	Global relative to the projected area:	:	☒ ZP	
	Load distribution type:	☒ Constant			
	Area load magnitude	☒ Constant	:	-0.12	kN/m²
	Openings with area load	Openings	:	8	
	Generating total loads in direction	ΣP_{Areas} X	:	0.000	kN
		Y	:	0.000	kN
		Z	:	-1.257	kN
		ΣP_{Lines} X	:	0.000	kN
		Y	:	0.000	kN
		Z	:	-1.257	kN
	Total moment to the origin	ΣM_{Areas} X	:	-6.787	kNm
		Y	:	1.828	kNm
		Z	:	0.000	kNm
		ΣM_{Lines} X	:	-6.787	kNm
		Y	:	1.828	kNm
		Z	:	0.000	kNm

STEUNPUNTEN



4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
1	LC1	-0.04	0.05	-52.11	0.00	0.00	0.00	Permanent
	LC2	-0.03	0.00	-14.77	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.00	0.05	-10.33	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	-0.02	0.06	-9.02	0.00	0.00	0.00	Sneeuw
	LC5	-0.17	-0.02	1.35	0.00	0.00	0.00	Wind X-
	LC6	-0.14	0.00	-0.96	0.00	0.00	-0.01	Wind Y-
	CO1	-0.05	0.06	-70.35	0.00	0.00	0.00	
	CO2	-0.08	0.07	-81.43	0.00	0.00	0.00	
	CO3	-0.09	0.06	-84.69	0.00	0.00	0.00	
	CO4	-0.07	0.15	-76.06	0.00	0.00	0.00	
	CO5	-0.09	0.15	-87.13	0.00	0.00	0.00	
	CO6	-0.30	0.03	-60.52	0.00	0.00	0.00	
	CO7	-0.25	0.06	-63.97	0.00	0.00	-0.01	
	CO8	-0.32	0.03	-71.59	0.00	0.00	0.00	
	CO9	-0.27	0.06	-75.04	0.00	0.00	-0.01	
	CO10	-0.05	0.13	-78.02	0.00	0.00	0.00	
	CO11	-0.07	0.13	-89.10	0.00	0.00	0.00	
	CO12	-0.07	0.09	-93.80	0.00	0.00	0.00	
	CO13	-0.11	0.09	-112.11	0.00	0.00	0.00	
	CO14	-0.09	0.15	-102.82	0.00	0.00	0.00	
	CO15	-0.11	0.15	-113.75	0.00	0.00	0.00	
	CO16	-0.24	0.07	-92.46	0.00	0.00	0.00	
	CO17	-0.21	0.09	-94.76	0.00	0.00	-0.01	
	CO18	-0.26	0.07	-103.38	0.00	0.00	0.00	
	CO19	-0.23	0.09	-105.69	0.00	0.00	-0.01	
	CO20	-0.08	0.13	-104.13	0.00	0.00	0.00	
	CO21	-0.10	0.13	-115.06	0.00	0.00	-0.01	
	CO22	-0.04	0.05	-57.32	0.00	0.00	0.00	
	CO23	-0.09	0.05	-79.47	0.00	0.00	0.00	
	CO24	-0.07	0.14	-70.85	0.00	0.00	0.00	
	CO25	-0.09	0.14	-81.92	0.00	0.00	0.00	
	CO26	-0.29	0.03	-55.31	0.00	0.00	0.00	
	CO27	-0.25	0.05	-58.76	0.00	0.00	-0.01	
	CO28	-0.31	0.03	-66.38	0.00	0.00	0.00	
	CO29	-0.27	0.05	-69.83	0.00	0.00	-0.01	
	CO30	-0.05	0.12	-72.81	0.00	0.00	0.00	
	CO31	-0.07	0.12	-83.89	0.00	0.00	0.00	
	CO32	-0.04	0.04	-46.90	0.00	0.00	0.00	
	CO33	-0.08	0.04	-69.05	0.00	0.00	0.00	
	CO34	-0.06	0.13	-60.43	0.00	0.00	0.00	
	CO35	-0.08	0.13	-71.50	0.00	0.00	0.00	
	CO36	-0.28	0.02	-44.88	0.00	0.00	0.00	
	CO37	-0.24	0.04	-48.34	0.00	0.00	-0.01	
	CO38	-0.30	0.02	-55.96	0.00	0.00	0.00	
	CO39	-0.26	0.04	-59.41	0.00	0.00	-0.01	
	CO40	-0.04	0.11	-62.39	0.00	0.00	0.00	
	CO41	-0.06	0.11	-73.46	0.00	0.00	0.00	
	CO42	-0.04	0.05	-52.11	0.00	0.00	0.00	
	CO43	-0.05	0.05	-59.50	0.00	0.00	0.00	
	CO44	-0.04	0.06	-53.92	0.00	0.00	0.00	
	CO45	-0.05	0.06	-58.35	0.00	0.00	0.00	
	CO46	-0.07	0.04	-51.84	0.00	0.00	0.00	
	CO47	-0.07	0.05	-52.30	0.00	0.00	0.00	
	CO48	-0.08	0.05	-56.27	0.00	0.00	0.00	
	CO49	-0.08	0.05	-56.73	0.00	0.00	0.00	
	CO50	-0.05	0.05	-56.54	0.00	0.00	0.00	
3	LC1	-0.04	-0.01	-35.97	0.00	0.00	0.00	Permanent
	LC2	0.00	-0.01	-7.18	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	-0.03	0.01	-4.97	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	-0.02	0.00	-2.68	0.00	0.00	0.00	Sneeuw
	LC5	-0.19	0.01	3.41	0.00	0.00	0.01	Wind X-
	LC6	-0.15	-0.03	-0.69	0.00	0.00	-0.01	Wind Y-
	CO1	-0.05	-0.01	-48.57	0.00	0.00	0.00	
	CO2	-0.05	-0.02	-53.95	0.00	0.00	0.00	
	CO3	-0.05	-0.03	-53.93	0.00	0.00	0.00	
	CO4	-0.08	0.00	-47.18	0.00	0.00	0.00	
	CO5	-0.08	-0.01	-52.57	0.00	0.00	0.00	
	CO6	-0.33	0.01	-38.06	0.00	0.00	0.01	
	CO7	-0.27	-0.06	-44.21	0.00	0.00	-0.01	
	CO8	-0.33	0.00	-43.44	0.00	0.00	0.01	
	CO9	-0.27	-0.06	-49.59	0.00	0.00	-0.01	
	CO10	-0.09	0.00	-50.63	0.00	0.00	0.00	
	CO11	-0.09	-0.01	-56.01	0.00	0.00	0.00	
	CO12	-0.07	-0.01	-64.75	0.00	0.00	0.00	
	CO13	-0.07	-0.03	-73.65	0.00	0.00	0.00	
	CO14	-0.09	-0.01	-67.43	0.00	0.00	0.00	
	CO15	-0.09	-0.02	-72.74	0.00	0.00	0.00	
	CO16	-0.26	0.00	-61.35	0.00	0.00	0.01	
	CO17	-0.22	-0.05	-65.45	0.00	0.00	0.00	
	CO18	-0.26	-0.01	-66.65	0.00	0.00	0.01	
	CO19	-0.22	-0.05	-70.76	0.00	0.00	0.00	
	CO20	-0.10	-0.01	-69.73	0.00	0.00	0.00	
	CO21	-0.10	-0.01	-75.04	0.00	0.00	0.00	
	CO22	-0.04	-0.01	-39.57	0.00	0.00	0.00	
	CO23	-0.04	-0.02	-50.33	0.00	0.00	0.00	
	CO24	-0.07	0.00	-43.59	0.00	0.00	0.00	
	CO25	-0.07	-0.01	-48.97	0.00	0.00	0.00	
	CO26	-0.32	0.01	-34.46	0.00	0.00	0.01	
	CO27	-0.26	-0.05	-40.61	0.00	0.00	-0.01	
	CO28	-0.32	0.00	-39.84	0.00	0.00	0.01	
	CO29	-0.26	-0.06	-46.00	0.00	0.00	-0.01	
	CO30	-0.09	0.00	-47.03	0.00	0.00	0.00	
	CO31	-0.09	0.00	-52.41	0.00	0.00	0.00	
	CO32	-0.03	-0.01	-32.38	0.00	0.00	0.00	

4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
3	CO33	-0.03	-0.02	-43.14	0.00	0.00	0.00	
	CO34	-0.06	0.00	-36.39	0.00	0.00	0.00	
	CO35	-0.07	-0.01	-41.77	0.00	0.00	0.00	
	CO36	-0.31	0.01	-27.26	0.00	0.00	0.01	
	CO37	-0.26	-0.05	-33.42	0.00	0.00	-0.01	
	CO38	-0.32	0.00	-32.65	0.00	0.00	0.01	
	CO39	-0.26	-0.06	-38.80	0.00	0.00	-0.01	
	CO40	-0.08	0.00	-39.84	0.00	0.00	0.00	
	CO41	-0.08	0.00	-45.22	0.00	0.00	0.00	
	CO42	-0.04	-0.01	-35.97	0.00	0.00	0.00	
	CO43	-0.04	-0.01	-39.56	0.00	0.00	0.00	
	CO44	-0.04	-0.01	-36.51	0.00	0.00	0.00	
	CO45	-0.04	-0.01	-38.66	0.00	0.00	0.00	
	CO46	-0.08	-0.01	-35.29	0.00	0.00	0.00	
	CO47	-0.07	-0.01	-36.11	0.00	0.00	0.00	
	CO48	-0.08	-0.01	-37.45	0.00	0.00	0.00	
	CO49	-0.07	-0.02	-38.27	0.00	0.00	0.00	
	CO50	-0.04	-0.01	-38.13	0.00	0.00	0.00	
5	LC1	-0.01	-10.07	-30.46	0.00	0.00	0.00	Permanent
	LC2	-0.01	-2.31	-7.19	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.00	-1.28	-3.82	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	-1.37	-4.07	0.00	0.00	0.00	Sneeuw
	LC5	-0.53	-0.35	-1.18	0.00	0.00	0.24	Wind X-
	LC6	-0.62	-0.69	-1.32	0.00	0.00	0.28	Wind Y-
	CO1	-0.01	-13.60	-41.12	0.00	0.00	0.00	
	CO2	-0.02	-15.33	-46.51	0.00	0.00	0.00	
	CO3	-0.02	-15.56	-47.34	0.00	0.00	0.01	
	CO4	-0.01	-14.15	-42.65	0.00	0.00	0.00	
	CO5	-0.01	-15.89	-48.05	0.00	0.00	0.00	
	CO6	-0.80	-12.62	-38.31	0.00	0.00	0.36	
	CO7	-0.93	-13.13	-38.53	0.00	0.00	0.42	
	CO8	-0.81	-14.35	-43.71	0.00	0.00	0.36	
	CO9	-0.94	-14.86	-43.93	0.00	0.00	0.43	
	CO10	-0.01	-14.01	-42.28	0.00	0.00	0.00	
	CO11	-0.01	-15.75	-47.68	0.00	0.00	0.00	
	CO12	-0.02	-18.13	-54.82	0.00	0.00	0.00	
	CO13	-0.02	-21.00	-63.74	0.00	0.00	0.01	
	CO14	-0.02	-19.51	-58.89	0.00	0.00	0.00	
	CO15	-0.02	-21.22	-64.21	0.00	0.00	0.01	
	CO16	-0.54	-18.49	-56.00	0.00	0.00	0.24	
	CO17	-0.63	-18.83	-56.14	0.00	0.00	0.29	
	CO18	-0.55	-20.20	-61.32	0.00	0.00	0.24	
	CO19	-0.64	-20.54	-61.47	0.00	0.00	0.29	
	CO20	-0.02	-19.41	-58.65	0.00	0.00	0.00	
	CO21	-0.02	-21.13	-63.97	0.00	0.00	0.01	
	CO22	-0.01	-11.08	-33.50	0.00	0.00	0.00	
	CO23	-0.02	-14.55	-44.29	0.00	0.00	0.01	
	CO24	-0.01	-13.14	-39.60	0.00	0.00	0.00	
	CO25	-0.01	-14.88	-45.00	0.00	0.00	0.00	
	CO26	-0.80	-11.61	-35.27	0.00	0.00	0.36	
	CO27	-0.93	-12.12	-35.48	0.00	0.00	0.42	
	CO28	-0.80	-13.35	-40.66	0.00	0.00	0.36	
	CO29	-0.94	-13.86	-40.88	0.00	0.00	0.43	
	CO30	-0.01	-13.00	-39.24	0.00	0.00	0.00	
	CO31	-0.01	-14.74	-44.63	0.00	0.00	0.00	
	CO32	-0.01	-9.07	-27.41	0.00	0.00	0.00	
	CO33	-0.02	-12.54	-38.20	0.00	0.00	0.00	
	CO34	-0.01	-11.13	-33.51	0.00	0.00	0.00	
	CO35	-0.01	-12.86	-38.91	0.00	0.00	0.00	
	CO36	-0.80	-9.60	-29.18	0.00	0.00	0.36	
	CO37	-0.93	-10.11	-29.39	0.00	0.00	0.42	
	CO38	-0.80	-11.33	-34.57	0.00	0.00	0.36	
	CO39	-0.94	-11.84	-34.79	0.00	0.00	0.42	
	CO40	-0.01	-10.99	-33.15	0.00	0.00	0.00	
	CO41	-0.01	-12.72	-38.54	0.00	0.00	0.00	
	CO42	-0.01	-10.07	-30.46	0.00	0.00	0.00	
	CO43	-0.01	-11.23	-34.05	0.00	0.00	0.00	
	CO44	-0.01	-10.35	-31.27	0.00	0.00	0.00	
	CO45	-0.01	-11.04	-33.43	0.00	0.00	0.00	
	CO46	-0.11	-10.14	-30.69	0.00	0.00	0.05	
	CO47	-0.13	-10.21	-30.72	0.00	0.00	0.06	
	CO48	-0.12	-10.84	-32.85	0.00	0.00	0.05	
	CO49	-0.13	-10.91	-32.88	0.00	0.00	0.06	
	CO50	-0.01	-10.77	-32.61	0.00	0.00	0.00	
6	LC1	0.01	14.19	-30.32	0.00	0.00	0.00	Permanent
	LC2	0.00	3.32	-7.16	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.00	1.77	-3.79	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	1.85	-3.98	0.00	0.00	0.00	Sneeuw
	LC5	-0.49	0.73	-1.23	0.00	0.00	-0.20	Wind X-
	LC6	-1.16	-1.46	3.09	0.00	0.00	-0.44	Wind Y-
	CO1	0.01	19.15	-40.93	0.00	0.00	0.00	
	CO2	0.01	21.64	-46.30	0.00	0.00	0.00	
	CO3	0.00	22.00	-47.12	0.00	0.00	0.00	
	CO4	0.01	19.79	-42.35	0.00	0.00	0.00	
	CO5	0.01	22.28	-47.73	0.00	0.00	0.00	
	CO6	-0.73	18.12	-38.22	0.00	0.00	-0.30	
	CO7	-1.73	14.83	-31.74	0.00	0.00	-0.66	
	CO8	-0.73	20.61	-43.59	0.00	0.00	-0.30	
	CO9	-1.73	17.32	-37.12	0.00	0.00	-0.66	
	CO10	0.01	19.68	-42.06	0.00	0.00	0.00	
	CO11	0.01	22.16	-47.43	0.00	0.00	0.00	
	CO12	0.01	25.54	-54.57	0.00	0.00	0.00	
	CO13	0.01	29.65	-63.45	0.00	0.00	0.00	
	CO14	0.01	27.38	-58.55	0.00	0.00	0.00	

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■ 4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
6	CO15	0.01	29.84	-63.85	0.00	0.00	0.00	
	CO16	-0.48	26.27	-55.80	0.00	0.00	-0.20	
	CO17	-1.15	24.07	-51.48	0.00	0.00	-0.44	
	CO18	-0.48	28.72	-61.10	0.00	0.00	-0.20	
	CO19	-1.15	26.53	-56.78	0.00	0.00	-0.44	
	CO20	0.01	27.30	-58.36	0.00	0.00	0.00	
	CO21	0.01	29.76	-63.66	0.00	0.00	0.00	
	CO22	0.01	15.61	-33.35	0.00	0.00	0.00	
	CO23	0.00	20.58	-44.09	0.00	0.00	0.00	
	CO24	0.01	18.38	-39.32	0.00	0.00	0.00	
	CO25	0.01	20.86	-44.69	0.00	0.00	0.00	
	CO26	-0.73	16.70	-35.19	0.00	0.00	-0.30	
	CO27	-1.73	13.41	-28.71	0.00	0.00	-0.66	
	CO28	-0.73	19.19	-40.56	0.00	0.00	-0.30	
	CO29	-1.73	15.90	-34.08	0.00	0.00	-0.66	
	CO30	0.01	18.26	-39.03	0.00	0.00	0.00	
	CO31	0.01	20.74	-44.40	0.00	0.00	0.00	
	CO32	0.01	12.77	-27.28	0.00	0.00	0.00	
	CO33	0.00	17.75	-38.03	0.00	0.00	0.00	
	CO34	0.01	15.54	-33.26	0.00	0.00	0.00	
	CO35	0.01	18.03	-38.63	0.00	0.00	0.00	
	CO36	-0.73	13.87	-29.13	0.00	0.00	-0.30	
	CO37	-1.73	10.57	-22.65	0.00	0.00	-0.66	
	CO38	-0.73	16.35	-34.50	0.00	0.00	-0.30	
	CO39	-1.73	13.06	-28.02	0.00	0.00	-0.66	
	CO40	0.01	15.42	-32.97	0.00	0.00	0.00	
	CO41	0.01	17.91	-38.34	0.00	0.00	0.00	
	CO42	0.01	14.19	-30.32	0.00	0.00	0.00	
	CO43	0.00	15.85	-33.90	0.00	0.00	0.00	
	CO44	0.01	14.56	-31.11	0.00	0.00	0.00	
	CO45	0.01	15.55	-33.26	0.00	0.00	0.00	
	CO46	-0.09	14.33	-30.56	0.00	0.00	-0.04	
	CO47	-0.23	13.90	-29.70	0.00	0.00	-0.09	
	CO48	-0.09	15.33	-32.71	0.00	0.00	-0.04	
	CO49	-0.23	14.89	-31.85	0.00	0.00	-0.09	
	CO50	0.00	15.18	-32.47	0.00	0.00	0.00	
15	LC1	-0.12	-0.64	-30.53	0.00	0.00	0.00	Permanent
	LC2	-0.18	-0.12	-7.56	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.00	-0.09	-3.69	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	0.00	-3.68	0.00	0.00	0.00	Sneeuw
	LC5	-0.96	-0.22	-2.53	0.00	0.00	0.23	Wind X-
	LC6	-1.43	-0.29	0.06	0.00	0.00	0.42	Wind Y-
	CO1	-0.16	-0.87	-41.22	0.00	0.00	0.00	
	CO2	-0.30	-0.96	-46.89	0.00	0.00	0.00	
	CO3	-0.42	-0.95	-47.98	0.00	0.00	0.00	
	CO4	-0.15	-0.77	-42.16	0.00	0.00	0.00	
	CO5	-0.29	-0.86	-47.83	0.00	0.00	0.00	
	CO6	-1.59	-1.10	-40.43	0.00	0.00	0.34	
	CO7	-2.29	-1.21	-36.55	0.00	0.00	0.62	
	CO8	-1.73	-1.19	-46.10	0.00	0.00	0.34	
	CO9	-2.43	-1.30	-42.22	0.00	0.00	0.62	
	CO10	-0.15	-0.90	-42.18	0.00	0.00	0.00	
	CO11	-0.29	-0.99	-47.85	0.00	0.00	0.00	
	CO12	-0.22	-1.16	-54.95	0.00	0.00	0.00	
	CO13	-0.45	-1.31	-64.33	0.00	0.00	0.00	
	CO14	-0.22	-1.16	-58.64	0.00	0.00	-0.01	
	CO15	-0.36	-1.25	-64.23	0.00	0.00	0.00	
	CO16	-1.18	-1.38	-57.49	0.00	0.00	0.23	
	CO17	-1.65	-1.45	-54.90	0.00	0.00	0.41	
	CO18	-1.32	-1.47	-63.08	0.00	0.00	0.23	
	CO19	-1.79	-1.54	-60.49	0.00	0.00	0.41	
	CO20	-0.22	-1.24	-58.65	0.00	0.00	0.00	
	CO21	-0.36	-1.33	-64.24	0.00	0.00	0.00	
	CO22	-0.13	-0.71	-33.58	0.00	0.00	0.00	
	CO23	-0.41	-0.89	-44.92	0.00	0.00	0.00	
	CO24	-0.14	-0.71	-39.11	0.00	0.00	0.00	
	CO25	-0.28	-0.80	-44.78	0.00	0.00	0.00	
	CO26	-1.58	-1.04	-37.38	0.00	0.00	0.34	
	CO27	-2.28	-1.15	-33.50	0.00	0.00	0.62	
	CO28	-1.71	-1.13	-43.05	0.00	0.00	0.34	
	CO29	-2.42	-1.24	-39.17	0.00	0.00	0.62	
	CO30	-0.14	-0.84	-39.13	0.00	0.00	0.00	
	CO31	-0.28	-0.93	-44.80	0.00	0.00	0.00	
	CO32	-0.11	-0.58	-27.48	0.00	0.00	0.00	
	CO33	-0.39	-0.76	-38.82	0.00	0.00	0.00	
	CO34	-0.12	-0.58	-33.00	0.00	0.00	0.00	
	CO35	-0.25	-0.67	-38.67	0.00	0.00	0.00	
	CO36	-1.55	-0.91	-31.28	0.00	0.00	0.34	
	CO37	-2.26	-1.02	-27.39	0.00	0.00	0.62	
	CO38	-1.69	-1.00	-36.95	0.00	0.00	0.34	
	CO39	-2.40	-1.11	-33.06	0.00	0.00	0.62	
	CO40	-0.11	-0.71	-33.02	0.00	0.00	0.00	
	CO41	-0.25	-0.80	-38.69	0.00	0.00	0.00	
	CO42	-0.12	-0.64	-30.53	0.00	0.00	0.00	
	CO43	-0.21	-0.70	-34.31	0.00	0.00	0.00	
	CO44	-0.12	-0.64	-31.27	0.00	0.00	0.00	
	CO45	-0.18	-0.68	-33.53	0.00	0.00	0.00	
	CO46	-0.31	-0.69	-31.04	0.00	0.00	0.04	
	CO47	-0.41	-0.70	-30.52	0.00	0.00	0.08	
	CO48	-0.37	-0.72	-33.30	0.00	0.00	0.04	
	CO49	-0.46	-0.74	-32.79	0.00	0.00	0.08	
	CO50	-0.18	-0.68	-32.80	0.00	0.00	0.00	
16	LC1	-0.11	-4.92	-28.76	0.00	0.00	0.00	Permanent
	LC2	-0.18	-1.20	-7.20	0.00	0.00	0.00	Opgelegde vloerbelasting

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4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
16	LC3	0.00	-0.62	-3.49	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	-0.70	-3.59	0.00	0.00	0.00	Sneeuw
	LC5	-0.93	-0.13	-2.27	0.00	0.00	0.21	Wind X-
	LC6	-1.46	0.27	1.79	0.00	0.00	0.42	Wind Y-
	CO1	-0.15	-6.64	-38.83	0.00	0.00	0.00	
	CO2	-0.29	-7.54	-44.23	0.00	0.00	0.00	
	CO3	-0.41	-7.70	-45.32	0.00	0.00	0.00	
	CO4	-0.13	-6.95	-39.90	0.00	0.00	-0.01	
	CO5	-0.27	-7.85	-45.31	0.00	0.00	0.00	
	CO6	-1.53	-6.09	-37.93	0.00	0.00	0.31	
	CO7	-2.33	-5.50	-31.83	0.00	0.00	0.62	
	CO8	-1.66	-6.99	-43.33	0.00	0.00	0.31	
	CO9	-2.47	-6.40	-37.23	0.00	0.00	0.63	
	CO10	-0.13	-6.83	-39.76	0.00	0.00	-0.01	
	CO11	-0.27	-7.73	-45.16	0.00	0.00	0.00	
	CO12	-0.20	-8.85	-51.78	0.00	0.00	-0.01	
	CO13	-0.43	-10.34	-60.71	0.00	0.00	0.00	
	CO14	-0.20	-9.55	-55.37	0.00	0.00	-0.01	
	CO15	-0.34	-10.44	-60.70	0.00	0.00	-0.01	
	CO16	-1.13	-8.98	-54.05	0.00	0.00	0.20	
	CO17	-1.66	-8.58	-49.99	0.00	0.00	0.41	
	CO18	-1.26	-9.87	-59.38	0.00	0.00	0.21	
	CO19	-1.80	-9.47	-55.32	0.00	0.00	0.41	
	CO20	-0.20	-9.48	-55.27	0.00	0.00	-0.01	
	CO21	-0.33	-10.36	-60.60	0.00	0.00	-0.01	
	CO22	-0.12	-5.41	-31.64	0.00	0.00	0.00	
	CO23	-0.40	-7.21	-42.45	0.00	0.00	0.00	
	CO24	-0.12	-6.46	-37.03	0.00	0.00	-0.01	
	CO25	-0.26	-7.36	-42.43	0.00	0.00	0.00	
	CO26	-1.51	-5.60	-35.05	0.00	0.00	0.31	
	CO27	-2.32	-5.00	-28.96	0.00	0.00	0.62	
	CO28	-1.65	-6.50	-40.45	0.00	0.00	0.31	
	CO29	-2.46	-5.90	-34.36	0.00	0.00	0.63	
	CO30	-0.12	-6.34	-36.88	0.00	0.00	-0.01	
	CO31	-0.26	-7.24	-42.28	0.00	0.00	0.00	
	CO32	-0.10	-4.43	-25.89	0.00	0.00	0.00	
	CO33	-0.37	-6.23	-36.69	0.00	0.00	0.00	
	CO34	-0.10	-5.48	-31.28	0.00	0.00	-0.01	
	CO35	-0.24	-6.38	-36.68	0.00	0.00	0.00	
	CO36	-1.49	-4.62	-29.30	0.00	0.00	0.31	
	CO37	-2.30	-4.02	-23.20	0.00	0.00	0.62	
	CO38	-1.63	-5.52	-34.70	0.00	0.00	0.31	
	CO39	-2.43	-4.92	-28.61	0.00	0.00	0.63	
	CO40	-0.10	-5.36	-31.13	0.00	0.00	-0.01	
	CO41	-0.24	-6.26	-36.53	0.00	0.00	0.00	
	CO42	-0.11	-4.92	-28.76	0.00	0.00	0.00	
	CO43	-0.20	-5.52	-32.37	0.00	0.00	0.00	
	CO44	-0.11	-5.06	-29.48	0.00	0.00	0.00	
	CO45	-0.17	-5.42	-31.64	0.00	0.00	0.00	
	CO46	-0.30	-4.94	-29.22	0.00	0.00	0.04	
	CO47	-0.40	-4.86	-28.41	0.00	0.00	0.08	
	CO48	-0.35	-5.30	-31.38	0.00	0.00	0.04	
	CO49	-0.46	-5.22	-30.57	0.00	0.00	0.08	
	CO50	-0.16	-5.28	-30.93	0.00	0.00	0.00	
17	LC1	0.23	-0.03	-51.15	0.00	0.00	-0.04	Permanent
	LC2	0.47	0.01	-19.42	0.00	0.00	-0.01	Opgelegde vloerbelasting
	LC3	-0.04	0.00	-9.99	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	-0.03	0.00	-7.57	0.00	0.00	0.00	Sneeuw
	LC5	-0.31	0.00	7.58	0.00	0.00	0.00	Wind X-
	LC6	-0.04	-0.07	-2.58	0.00	0.00	-0.01	Wind Y-
	CO1	0.32	-0.04	-69.06	0.00	0.00	-0.05	
	CO2	0.67	-0.04	-83.62	0.00	0.00	-0.06	
	CO3	0.99	-0.03	-90.51	0.00	0.00	-0.07	
	CO4	0.23	-0.04	-72.75	0.00	0.00	-0.05	
	CO5	0.58	-0.03	-87.31	0.00	0.00	-0.06	
	CO6	-0.18	-0.03	-50.02	0.00	0.00	-0.05	
	CO7	0.22	-0.14	-65.26	0.00	0.00	-0.06	
	CO8	0.18	-0.03	-64.58	0.00	0.00	-0.06	
	CO9	0.58	-0.13	-79.82	0.00	0.00	-0.07	
	CO10	0.23	-0.04	-76.36	0.00	0.00	-0.05	
	CO11	0.58	-0.03	-90.92	0.00	0.00	-0.06	
	CO12	0.42	-0.06	-92.08	0.00	0.00	-0.07	
	CO13	1.01	-0.05	-116.15	0.00	0.00	-0.09	
	CO14	0.39	-0.06	-99.65	0.00	0.00	-0.07	
	CO15	0.74	-0.05	-114.02	0.00	0.00	-0.08	
	CO16	0.12	-0.05	-84.50	0.00	0.00	-0.07	
	CO17	0.38	-0.12	-94.66	0.00	0.00	-0.08	
	CO18	0.47	-0.05	-98.87	0.00	0.00	-0.08	
	CO19	0.73	-0.12	-109.03	0.00	0.00	-0.09	
	CO20	0.39	-0.06	-102.06	0.00	0.00	-0.07	
	CO21	0.74	-0.05	-116.43	0.00	0.00	-0.08	
	CO22	0.26	-0.03	-56.27	0.00	0.00	-0.04	
	CO23	0.97	-0.02	-85.39	0.00	0.00	-0.06	
	CO24	0.21	-0.04	-67.63	0.00	0.00	-0.04	
	CO25	0.56	-0.03	-82.19	0.00	0.00	-0.05	
	CO26	-0.20	-0.03	-44.90	0.00	0.00	-0.04	
	CO27	0.20	-0.14	-60.15	0.00	0.00	-0.06	
	CO28	0.15	-0.02	-59.46	0.00	0.00	-0.05	
	CO29	0.55	-0.13	-74.71	0.00	0.00	-0.07	
	CO30	0.20	-0.04	-71.25	0.00	0.00	-0.04	
	CO31	0.56	-0.03	-85.81	0.00	0.00	-0.05	
	CO32	0.21	-0.03	-46.04	0.00	0.00	-0.03	
	CO33	0.92	-0.02	-75.16	0.00	0.00	-0.05	
	CO34	0.16	-0.03	-57.40	0.00	0.00	-0.03	

4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] P_X	P_Y	P_Z	Support Moments [kNm] M_X	M_Y	M_Z	
17	CO35	0.51	-0.02	-71.96	0.00	0.00	-0.04	
	CO36	-0.25	-0.02	-34.67	0.00	0.00	-0.04	
	CO37	0.15	-0.13	-49.91	0.00	0.00	-0.05	
	CO38	0.11	-0.02	-49.23	0.00	0.00	-0.04	
	CO39	0.51	-0.12	-64.48	0.00	0.00	-0.06	
	CO40	0.16	-0.03	-61.02	0.00	0.00	-0.03	
	CO41	0.51	-0.03	-75.58	0.00	0.00	-0.04	
	CO42	0.23	-0.03	-51.15	0.00	0.00	-0.04	
	CO43	0.47	-0.03	-60.86	0.00	0.00	-0.04	
	CO44	0.23	-0.03	-52.67	0.00	0.00	-0.04	
	CO45	0.37	-0.03	-58.49	0.00	0.00	-0.04	
	CO46	0.17	-0.03	-49.64	0.00	0.00	-0.04	
	CO47	0.23	-0.04	-51.67	0.00	0.00	-0.04	
	CO48	0.31	-0.03	-55.46	0.00	0.00	-0.04	
	CO49	0.37	-0.04	-57.50	0.00	0.00	-0.04	
	CO50	0.38	-0.03	-56.98	0.00	0.00	-0.04	
19	LC1	0.24	-0.03	-51.56	0.00	0.00	0.00	Permanent
	LC2	0.46	-0.02	-19.49	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	-0.03	0.00	-9.93	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	-0.03	0.00	-7.52	0.00	0.00	0.00	Sneeuw
	LC5	-0.31	0.00	7.65	0.00	0.00	0.00	Wind X-
	LC6	0.10	-0.08	1.24	0.00	0.00	-0.01	Wind Y-
	CO1	0.32	-0.04	-69.61	0.00	0.00	0.00	
	CO2	0.66	-0.06	-84.23	0.00	0.00	0.00	
	CO3	0.97	-0.07	-91.12	0.00	0.00	0.00	
	CO4	0.24	-0.04	-73.16	0.00	0.00	0.00	
	CO5	0.59	-0.05	-87.78	0.00	0.00	0.00	
	CO6	-0.17	-0.04	-50.40	0.00	0.00	0.00	
	CO7	0.44	-0.17	-60.02	0.00	0.00	-0.02	
	CO8	0.17	-0.06	-65.02	0.00	0.00	0.00	
	CO9	0.78	-0.18	-74.64	0.00	0.00	-0.02	
	CO10	0.24	-0.04	-76.77	0.00	0.00	0.00	
	CO11	0.58	-0.05	-91.39	0.00	0.00	0.00	
	CO12	0.42	-0.06	-92.81	0.00	0.00	0.00	
	CO13	0.99	-0.08	-116.99	0.00	0.00	0.00	
	CO14	0.40	-0.06	-100.33	0.00	0.00	0.00	
	CO15	0.74	-0.07	-114.76	0.00	0.00	0.00	
	CO16	0.12	-0.06	-85.16	0.00	0.00	0.00	
	CO17	0.53	-0.14	-91.58	0.00	0.00	-0.01	
	CO18	0.46	-0.07	-99.59	0.00	0.00	0.00	
	CO19	0.87	-0.16	-106.00	0.00	0.00	-0.01	
	CO20	0.40	-0.06	-102.74	0.00	0.00	0.00	
	CO21	0.74	-0.07	-117.17	0.00	0.00	0.00	
	CO22	0.26	-0.04	-56.72	0.00	0.00	0.00	
	CO23	0.95	-0.06	-85.96	0.00	0.00	0.00	
	CO24	0.22	-0.04	-68.00	0.00	0.00	0.00	
	CO25	0.56	-0.05	-82.62	0.00	0.00	0.00	
	CO26	-0.20	-0.04	-45.25	0.00	0.00	0.00	
	CO27	0.42	-0.16	-54.86	0.00	0.00	-0.02	
	CO28	0.15	-0.05	-59.87	0.00	0.00	0.00	
	CO29	0.76	-0.18	-69.48	0.00	0.00	-0.02	
	CO30	0.22	-0.03	-71.61	0.00	0.00	0.00	
	CO31	0.56	-0.05	-86.23	0.00	0.00	0.00	
	CO32	0.21	-0.03	-46.41	0.00	0.00	0.00	
	CO33	0.90	-0.06	-75.65	0.00	0.00	0.00	
	CO34	0.17	-0.03	-57.69	0.00	0.00	0.00	
	CO35	0.52	-0.04	-72.31	0.00	0.00	0.00	
	CO36	-0.25	-0.03	-34.93	0.00	0.00	0.00	
	CO37	0.37	-0.16	-44.55	0.00	0.00	-0.02	
	CO38	0.10	-0.05	-49.55	0.00	0.00	0.00	
	CO39	0.71	-0.17	-59.17	0.00	0.00	-0.02	
	CO40	0.17	-0.03	-61.30	0.00	0.00	0.00	
	CO41	0.51	-0.04	-75.92	0.00	0.00	0.00	
	CO42	0.24	-0.03	-51.56	0.00	0.00	0.00	
	CO43	0.47	-0.04	-61.31	0.00	0.00	0.00	
	CO44	0.23	-0.03	-53.07	0.00	0.00	0.00	
	CO45	0.37	-0.04	-58.92	0.00	0.00	0.00	
	CO46	0.17	-0.03	-50.03	0.00	0.00	0.00	
	CO47	0.26	-0.05	-51.32	0.00	0.00	0.00	
	CO48	0.31	-0.04	-55.88	0.00	0.00	0.00	
	CO49	0.39	-0.05	-57.16	0.00	0.00	0.00	
	CO50	0.37	-0.04	-57.41	0.00	0.00	0.00	
21	LC1	0.04	0.14	-36.26	0.00	0.00	0.00	Permanent
	LC2	0.01	0.05	-7.18	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	-0.01	-0.01	-5.08	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	0.00	-2.76	0.00	0.00	0.00	Sneeuw
	LC5	-0.20	0.00	3.33	0.00	0.00	-0.01	Wind X-
	LC6	0.09	-0.05	1.74	0.00	0.00	0.00	Wind Y-
	CO1	0.06	0.19	-48.94	0.00	0.00	0.00	
	CO2	0.07	0.22	-54.33	0.00	0.00	0.00	
	CO3	0.07	0.24	-54.27	0.00	0.00	0.00	
	CO4	0.06	0.16	-47.65	0.00	0.00	0.00	
	CO5	0.07	0.19	-53.03	0.00	0.00	0.00	
	CO6	-0.24	0.17	-38.51	0.00	0.00	-0.01	
	CO7	0.19	0.09	-40.89	0.00	0.00	0.00	
	CO8	-0.23	0.20	-43.89	0.00	0.00	-0.01	
	CO9	0.20	0.13	-46.27	0.00	0.00	0.00	
	CO10	0.04	0.15	-51.13	0.00	0.00	0.00	
	CO11	0.05	0.19	-56.52	0.00	0.00	0.00	
	CO12	0.08	0.25	-65.26	0.00	0.00	0.00	
	CO13	0.10	0.31	-74.16	0.00	0.00	0.00	
	CO14	0.08	0.24	-68.02	0.00	0.00	0.00	
	CO15	0.09	0.28	-73.33	0.00	0.00	-0.01	
	CO16	-0.12	0.25	-61.93	0.00	0.00	-0.01	

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Patch Reference numbers on UTT
Scan Reference Chart TE263 Serial No.

■ 4.1 NODES - SUPPORT FORCES

Node No.	LC/CO	Support Forces [kN] $P_{X'}$	$P_{Y'}$	$P_{Z'}$	Support Moments [kNm] $M_{X'}$	$M_{Y'}$	$M_{Z'}$	
21	CO17	0.17	0.20	-63.52	0.00	0.00	0.00	
	CO18	-0.11	0.28	-67.24	0.00	0.00	-0.01	
	CO19	0.18	0.23	-68.83	0.00	0.00	0.00	
	CO20	0.07	0.24	-70.34	0.00	0.00	-0.01	
	CO21	0.08	0.28	-75.66	0.00	0.00	-0.01	
	CO22	0.05	0.15	-39.88	0.00	0.00	0.00	
	CO23	0.07	0.22	-50.65	0.00	0.00	0.00	
	CO24	0.05	0.15	-44.02	0.00	0.00	0.00	
	CO25	0.06	0.18	-49.40	0.00	0.00	0.00	
	CO26	-0.25	0.15	-34.89	0.00	0.00	-0.01	
	CO27	0.18	0.08	-37.26	0.00	0.00	0.00	
	CO28	-0.24	0.19	-40.27	0.00	0.00	-0.01	
	CO29	0.19	0.11	-42.65	0.00	0.00	0.00	
	CO30	0.04	0.14	-47.51	0.00	0.00	0.00	
	CO31	0.05	0.18	-52.89	0.00	0.00	0.00	
	CO32	0.04	0.12	-32.63	0.00	0.00	0.00	
	CO33	0.06	0.19	-43.40	0.00	0.00	0.00	
	CO34	0.04	0.12	-36.77	0.00	0.00	0.00	
	CO35	0.05	0.15	-42.15	0.00	0.00	0.00	
	CO36	-0.26	0.12	-27.63	0.00	0.00	-0.01	
	CO37	0.17	0.05	-30.01	0.00	0.00	0.00	
	CO38	-0.25	0.16	-33.02	0.00	0.00	-0.01	
	CO39	0.18	0.09	-35.40	0.00	0.00	0.00	
	CO40	0.03	0.11	-40.26	0.00	0.00	0.00	
	CO41	0.04	0.15	-45.64	0.00	0.00	0.00	
	CO42	0.04	0.14	-36.26	0.00	0.00	0.00	
	CO43	0.05	0.16	-39.84	0.00	0.00	0.00	
	CO44	0.04	0.14	-36.81	0.00	0.00	0.00	
	CO45	0.05	0.15	-38.96	0.00	0.00	0.00	
	CO46	0.00	0.14	-35.59	0.00	0.00	0.00	
	CO47	0.06	0.13	-35.91	0.00	0.00	0.00	
	CO48	0.01	0.15	-37.74	0.00	0.00	0.00	
	CO49	0.07	0.14	-38.06	0.00	0.00	0.00	
	CO50	0.05	0.15	-38.41	0.00	0.00	0.00	
23	LC1	0.02	-0.04	-51.61	0.00	0.00	0.00	Permanent
	LC2	-0.01	0.00	-14.71	0.00	0.00	0.00	Opgelegde vloerbelasting
	LC3	0.01	-0.05	-10.17	0.00	0.00	0.00	Opgelegde dakbelasting
	LC4	0.00	-0.06	-8.89	0.00	0.00	0.00	Sneeuw
	LC5	-0.18	0.02	1.39	0.00	0.00	0.00	Wind X-
	LC6	0.06	0.02	4.84	0.00	0.00	-0.01	Wind Y-
	CO1	0.03	-0.06	-69.67	0.00	0.00	0.00	
	CO2	0.02	-0.06	-80.71	0.00	0.00	0.00	
	CO3	0.01	-0.05	-84.00	0.00	0.00	0.00	
	CO4	0.02	-0.14	-75.27	0.00	0.00	0.00	
	CO5	0.02	-0.14	-86.30	0.00	0.00	0.00	
	CO6	-0.25	-0.02	-59.85	0.00	0.00	0.00	
	CO7	0.11	-0.02	-54.68	0.00	0.00	-0.01	
	CO8	-0.25	-0.02	-70.88	0.00	0.00	0.00	
	CO9	0.10	-0.02	-65.71	0.00	0.00	-0.01	
	CO10	0.04	-0.13	-77.19	0.00	0.00	0.00	
	CO11	0.03	-0.12	-88.22	0.00	0.00	0.00	
	CO12	0.04	-0.08	-92.90	0.00	0.00	0.00	
	CO13	0.02	-0.08	-111.14	0.00	0.00	0.00	
	CO14	0.04	-0.14	-101.79	0.00	0.00	0.00	
	CO15	0.03	-0.14	-112.68	0.00	0.00	0.00	
	CO16	-0.14	-0.06	-91.51	0.00	0.00	0.00	
	CO17	0.09	-0.06	-88.06	0.00	0.00	-0.01	
	CO18	-0.15	-0.06	-102.39	0.00	0.00	0.00	
	CO19	0.08	-0.06	-98.95	0.00	0.00	-0.01	
	CO20	0.05	-0.13	-103.07	0.00	0.00	0.00	
	CO21	0.04	-0.13	-113.96	0.00	0.00	0.00	
	CO22	0.02	-0.05	-56.77	0.00	0.00	0.00	
	CO23	0.01	-0.05	-78.84	0.00	0.00	0.00	
	CO24	0.02	-0.14	-70.11	0.00	0.00	0.00	
	CO25	0.01	-0.14	-81.14	0.00	0.00	0.00	
	CO26	-0.25	-0.02	-54.69	0.00	0.00	0.00	
	CO27	0.11	-0.02	-49.52	0.00	0.00	-0.01	
	CO28	-0.26	-0.02	-65.72	0.00	0.00	0.00	
	CO29	0.10	-0.02	-60.55	0.00	0.00	-0.01	
	CO30	0.04	-0.12	-72.03	0.00	0.00	0.00	
	CO31	0.03	-0.12	-83.06	0.00	0.00	0.00	
	CO32	0.02	-0.04	-46.45	0.00	0.00	0.00	
	CO33	0.00	-0.04	-68.51	0.00	0.00	0.00	
	CO34	0.02	-0.13	-59.79	0.00	0.00	0.00	
	CO35	0.01	-0.13	-70.82	0.00	0.00	0.00	
	CO36	-0.25	-0.01	-44.37	0.00	0.00	0.00	
	CO37	0.10	-0.01	-39.20	0.00	0.00	-0.01	
	CO38	-0.26	-0.01	-55.40	0.00	0.00	0.00	
	CO39	0.10	-0.01	-50.23	0.00	0.00	-0.01	
	CO40	0.03	-0.11	-61.71	0.00	0.00	0.00	
	CO41	0.03	-0.11	-72.74	0.00	0.00	0.00	
	CO42	0.02	-0.04	-51.61	0.00	0.00	0.00	
	CO43	0.02	-0.04	-58.97	0.00	0.00	0.00	
	CO44	0.02	-0.06	-53.39	0.00	0.00	0.00	
	CO45	0.02	-0.06	-57.80	0.00	0.00	0.00	
	CO46	-0.02	-0.04	-51.33	0.00	0.00	0.00	
	CO47	0.03	-0.04	-50.64	0.00	0.00	0.00	
	CO48	-0.02	-0.04	-55.75	0.00	0.00	0.00	
	CO49	0.03	-0.04	-55.06	0.00	0.00	0.00	
	CO50	0.02	-0.04	-56.02	0.00	0.00	0.00	

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4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
31	LC1	26	0.000	-12.14	0.00	-26.07	0.00	0.00	0.00
			0.193	2.37	0.00	-27.24	0.00	0.00	0.00
			0.386	1.66	0.00	-26.53	0.00	0.00	0.00
			0.578	0.78	0.00	-24.94	0.00	0.00	0.00
			0.771	0.17	0.00	-23.24	0.00	0.00	0.00
			0.964	-0.19	0.00	-22.17	0.00	0.00	0.00
			1.157	-0.40	0.00	-21.76	0.00	0.00	0.00
		31	1.349	-0.61	0.00	-22.41	0.00	0.00	0.00
	LC2	26	0.000	-8.03	0.00	-17.21	0.00	0.00	0.00
			0.193	1.69	0.00	-17.89	0.00	0.00	0.00
			0.386	1.25	0.00	-17.02	0.00	0.00	0.00
			0.578	0.66	0.00	-15.43	0.00	0.00	0.00
			0.771	0.23	0.00	-13.84	0.00	0.00	0.00
			0.964	-0.02	0.00	-12.81	0.00	0.00	0.00
			1.157	-0.16	0.00	-12.36	0.00	0.00	0.00
		31	1.349	-0.32	0.00	-12.62	0.00	0.00	0.00
	LC4	26	0.000	-2.24	0.00	-4.89	0.00	0.00	0.00
			0.193	0.45	0.00	-5.71	0.00	0.00	0.00
			0.386	0.33	0.00	-5.92	0.00	0.00	0.00
			0.578	0.18	0.00	-6.02	0.00	0.00	0.00
			0.771	0.08	0.00	-6.04	0.00	0.00	0.00
			0.964	0.01	0.00	-6.13	0.00	0.00	0.00
			1.157	-0.03	0.00	-6.26	0.00	0.00	0.00
		31	1.349	-0.07	0.00	-6.85	0.00	0.00	0.00
	CO3	26	0.000	-26.62	0.00	-57.09	0.00	0.00	0.00
			0.193	5.37	0.00	-59.52	0.00	0.00	0.00
			0.386	3.86	0.00	-57.36	0.00	0.00	0.00
			0.578	1.93	0.00	-53.08	0.00	0.00	0.00
			0.771	0.55	0.00	-48.65	0.00	0.00	0.00
			0.964	-0.25	0.00	-45.82	0.00	0.00	0.00
			1.157	-0.73	0.00	-44.66	0.00	0.00	0.00
		31	1.349	-1.21	0.00	-45.82	0.00	0.00	0.00
	CO5	26	0.000	-23.96	0.00	-51.52	0.00	0.00	0.00
			0.193	4.78	0.00	-54.67	0.00	0.00	0.00
			0.386	3.42	0.00	-53.48	0.00	0.00	0.00
			0.578	1.70	0.00	-50.54	0.00	0.00	0.00
			0.771	0.49	0.00	-47.33	0.00	0.00	0.00
			0.964	-0.22	0.00	-45.41	0.00	0.00	0.00
			1.157	-0.66	0.00	-44.78	0.00	0.00	0.00
		31	1.349	-1.07	0.00	-46.62	0.00	0.00	0.00
	CO10	26	0.000	-17.45	0.00	-37.54	0.00	0.00	0.00
			0.193	3.42	0.00	-39.86	0.00	0.00	0.00
			0.386	2.41	0.00	-39.20	0.00	0.00	0.00
			0.578	1.16	0.00	-37.33	0.00	0.00	0.00
			0.771	0.30	0.00	-35.20	0.00	0.00	0.00
			0.964	-0.22	0.00	-33.94	0.00	0.00	0.00
			1.157	-0.53	0.00	-33.56	0.00	0.00	0.00
		31	1.349	-0.83	0.00	-34.92	0.00	0.00	0.00
37	LC1	33	0.000	-9.05	0.00	-19.71	0.00	0.00	0.00
			0.193	2.19	0.00	-23.04	0.00	0.00	0.00
			0.386	1.79	0.00	-22.86	0.00	0.00	0.00
			0.578	1.21	0.00	-21.81	0.00	0.00	0.00
			0.771	0.75	0.00	-20.37	0.00	0.00	0.00
			0.964	0.49	0.00	-19.28	0.00	0.00	0.00
			1.157	0.35	0.00	-18.74	0.00	0.00	0.00
		39	1.349	0.16	0.00	-18.68	0.00	0.00	0.00
	LC2	33	0.000	-7.29	0.00	-15.66	0.00	0.00	0.00
			0.193	1.64	0.00	-16.75	0.00	0.00	0.00
			0.386	1.27	0.00	-15.95	0.00	0.00	0.00
			0.578	0.76	0.00	-14.40	0.00	0.00	0.00
			0.771	0.37	0.00	-12.78	0.00	0.00	0.00
			0.964	0.15	0.00	-11.62	0.00	0.00	0.00
			1.157	0.03	0.00	-11.03	0.00	0.00	0.00
		39	1.349	-0.11	0.00	-10.85	0.00	0.00	0.00
	LC4	33	0.000	-2.00	0.00	-4.39	0.00	0.00	0.00
			0.193	0.47	0.00	-5.44	0.00	0.00	0.00
			0.386	0.38	0.00	-5.62	0.00	0.00	0.00
			0.578	0.26	0.00	-5.66	0.00	0.00	0.00
			0.771	0.17	0.00	-5.54	0.00	0.00	0.00
			0.964	0.12	0.00	-5.45	0.00	0.00	0.00
			1.157	0.09	0.00	-5.42	0.00	0.00	0.00
		39	1.349	0.05	0.00	-5.58	0.00	0.00	0.00
	CO3	33	0.000	-21.80	0.00	-47.14	0.00	0.00	0.00
			0.193	5.08	0.00	-52.78	0.00	0.00	0.00
			0.386	4.06	0.00	-51.35	0.00	0.00	0.00
			0.578	2.59	0.00	-47.78	0.00	0.00	0.00
			0.771	1.45	0.00	-43.61	0.00	0.00	0.00
			0.964	0.80	0.00	-40.57	0.00	0.00	0.00
			1.157	0.46	0.00	-39.04	0.00	0.00	0.00
		39	1.349	0.03	0.00	-38.69	0.00	0.00	0.00
	CO5	33	0.000	-19.33	0.00	-41.98	0.00	0.00	0.00
			0.193	4.55	0.00	-48.37	0.00	0.00	0.00
			0.386	3.68	0.00	-47.83	0.00	0.00	0.00
			0.578	2.41	0.00	-45.46	0.00	0.00	0.00
			0.771	1.43	0.00	-42.34	0.00	0.00	0.00
			0.964	0.87	0.00	-40.03	0.00	0.00	0.00
			1.157	0.57	0.00	-38.89	0.00	0.00	0.00
		39	1.349	0.19	0.00	-38.92	0.00	0.00	0.00
	CO10	33	0.000	-13.37	0.00	-29.15	0.00	0.00	0.00
			0.193	3.22	0.00	-34.41	0.00	0.00	0.00
			0.386	2.64	0.00	-34.38	0.00	0.00	0.00
			0.578	1.79	0.00	-33.08	0.00	0.00	0.00
			0.771	1.13	0.00	-31.12	0.00	0.00	0.00
			0.964	0.74	0.00	-29.63	0.00	0.00	0.00

the scale towards document

■ 4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
37	CO10	33	1.157	0.54	0.00	-28.88	0.00	0.00	0.00
		39	1.349	0.26	0.00	-28.87	0.00	0.00	0.00
40	LC1	25	0.000	-1.26	0.00	-11.29	0.00	0.00	0.00
			0.200	0.30	0.00	-10.86	0.00	0.00	0.00
			0.400	0.29	0.00	-10.19	0.00	0.00	0.00
			0.600	0.21	0.00	-9.36	0.00	0.00	0.00
			0.800	0.09	0.00	-8.82	0.00	0.00	0.00
			1.000	0.00	0.00	-8.69	0.00	0.00	0.00
			1.200	-0.05	0.00	-8.87	0.00	0.00	0.00
			1.400	-0.06	0.00	-9.21	0.00	0.00	0.00
			1.600	-0.06	0.00	-9.59	0.00	0.00	0.00
			1.800	-0.05	0.00	-9.95	0.00	0.00	0.00
			2.000	-0.05	0.00	-10.30	0.00	0.00	0.00
			2.200	-0.06	0.00	-10.66	0.00	0.00	0.00
			2.400	-0.08	0.00	-11.06	0.00	0.00	0.00
			2.600	-0.11	0.00	-11.55	0.00	0.00	0.00
			2.800	-0.15	0.00	-12.15	0.00	0.00	0.00
			3.000	-0.21	0.00	-12.85	0.00	0.00	0.00
			3.200	-0.27	0.00	-13.54	0.00	0.00	0.00
			3.400	-0.29	0.00	-13.99	0.00	0.00	0.00
		32	3.600	1.36	0.00	-14.10	0.00	0.00	0.00
	LC2	25	0.000	-1.03	0.00	-8.05	0.00	0.00	0.00
			0.200	0.27	0.00	-7.48	0.00	0.00	0.00
			0.400	0.28	0.00	-6.66	0.00	0.00	0.00
			0.600	0.23	0.00	-5.59	0.00	0.00	0.00
			0.800	0.13	0.00	-4.71	0.00	0.00	0.00
			1.000	0.05	0.00	-4.14	0.00	0.00	0.00
			1.200	0.01	0.00	-3.86	0.00	0.00	0.00
			1.400	-0.02	0.00	-3.76	0.00	0.00	0.00
			1.600	-0.03	0.00	-3.78	0.00	0.00	0.00
			1.800	-0.03	0.00	-3.85	0.00	0.00	0.00
			2.000	-0.03	0.00	-3.96	0.00	0.00	0.00
			2.200	-0.04	0.00	-4.13	0.00	0.00	0.00
			2.400	-0.06	0.00	-4.37	0.00	0.00	0.00
			2.600	-0.09	0.00	-4.75	0.00	0.00	0.00
			2.800	-0.15	0.00	-5.32	0.00	0.00	0.00
			3.000	-0.23	0.00	-6.11	0.00	0.00	0.00
			3.200	-0.28	0.00	-7.02	0.00	0.00	0.00
			3.400	-0.29	0.00	-7.69	0.00	0.00	0.00
		32	3.600	0.95	0.00	-8.05	0.00	0.00	0.00
	LC4	25	0.000	-0.34	0.00	-3.18	0.00	0.00	0.00
			0.200	0.12	0.00	-3.06	0.00	0.00	0.00
			0.400	0.12	0.00	-2.80	0.00	0.00	0.00
			0.600	0.10	0.00	-2.49	0.00	0.00	0.00
			0.800	0.06	0.00	-2.28	0.00	0.00	0.00
			1.000	0.02	0.00	-2.22	0.00	0.00	0.00
			1.200	0.00	0.00	-2.30	0.00	0.00	0.00
			1.400	0.00	0.00	-2.45	0.00	0.00	0.00
			1.600	0.00	0.00	-2.62	0.00	0.00	0.00
			1.800	0.00	0.00	-2.79	0.00	0.00	0.00
			2.000	0.00	0.00	-2.97	0.00	0.00	0.00
			2.200	0.00	0.00	-3.15	0.00	0.00	0.00
			2.400	-0.01	0.00	-3.36	0.00	0.00	0.00
			2.600	-0.02	0.00	-3.59	0.00	0.00	0.00
			2.800	-0.03	0.00	-3.83	0.00	0.00	0.00
			3.000	-0.04	0.00	-4.06	0.00	0.00	0.00
			3.200	-0.05	0.00	-4.26	0.00	0.00	0.00
			3.400	-0.06	0.00	-4.37	0.00	0.00	0.00
		32	3.600	0.45	0.00	-4.44	0.00	0.00	0.00
	CO3	25	0.000	-3.06	0.00	-25.63	0.00	0.00	0.00
			0.200	0.77	0.00	-24.25	0.00	0.00	0.00
			0.400	0.76	0.00	-22.22	0.00	0.00	0.00
			0.600	0.59	0.00	-19.62	0.00	0.00	0.00
			0.800	0.30	0.00	-17.65	0.00	0.00	0.00
			1.000	0.08	0.00	-16.64	0.00	0.00	0.00
			1.200	-0.05	0.00	-16.42	0.00	0.00	0.00
			1.400	-0.10	0.00	-16.69	0.00	0.00	0.00
			1.600	-0.11	0.00	-17.17	0.00	0.00	0.00
			1.800	-0.10	0.00	-17.72	0.00	0.00	0.00
			2.000	-0.11	0.00	-18.30	0.00	0.00	0.00
			2.200	-0.13	0.00	-18.98	0.00	0.00	0.00
			2.400	-0.18	0.00	-19.83	0.00	0.00	0.00
			2.600	-0.27	0.00	-20.99	0.00	0.00	0.00
			2.800	-0.42	0.00	-22.56	0.00	0.00	0.00
			3.000	-0.60	0.00	-24.58	0.00	0.00	0.00
			3.200	-0.75	0.00	-26.77	0.00	0.00	0.00
			3.400	-0.78	0.00	-28.33	0.00	0.00	0.00
		32	3.600	3.06	0.00	-28.99	0.00	0.00	0.00
	CO5	25	0.000	-2.80	0.00	-24.35	0.00	0.00	0.00
			0.200	0.74	0.00	-23.23	0.00	0.00	0.00
			0.400	0.74	0.00	-21.43	0.00	0.00	0.00
			0.600	0.57	0.00	-19.16	0.00	0.00	0.00
			0.800	0.29	0.00	-17.53	0.00	0.00	0.00
			1.000	0.07	0.00	-16.87	0.00	0.00	0.00
			1.200	-0.05	0.00	-16.98	0.00	0.00	0.00
			1.400	-0.09	0.00	-17.54	0.00	0.00	0.00
			1.600	-0.09	0.00	-18.27	0.00	0.00	0.00
			1.800	-0.08	0.00	-19.02	0.00	0.00	0.00
			2.000	-0.08	0.00	-19.78	0.00	0.00	0.00
			2.200	-0.11	0.00	-20.61	0.00	0.00	0.00
			2.400	-0.16	0.00	-21.59	0.00	0.00	0.00
			2.600	-0.23	0.00	-22.81	0.00	0.00	0.00
			2.800	-0.34	0.00	-24.32	0.00	0.00	0.00
			3.000	-0.49	0.00	-26.10	0.00	0.00	0.00

the scale towards document

■ 4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
40	CO5	25	3.200	-0.61	0.00	-27.89	0.00	0.00	0.00
			3.400	-0.66	0.00	-29.11	0.00	0.00	0.00
		32	3.600	3.02	0.00	-29.61	0.00	0.00	0.00
	CO10	25	0.000	-1.92	0.00	-17.08	0.00	0.00	0.00
			0.200	0.49	0.00	-16.40	0.00	0.00	0.00
			0.400	0.49	0.00	-15.27	0.00	0.00	0.00
			0.600	0.37	0.00	-13.86	0.00	0.00	0.00
			0.800	0.18	0.00	-12.89	0.00	0.00	0.00
			1.000	0.03	0.00	-12.58	0.00	0.00	0.00
			1.200	-0.05	0.00	-12.80	0.00	0.00	0.00
			1.400	-0.08	0.00	-13.32	0.00	0.00	0.00
			1.600	-0.07	0.00	-13.94	0.00	0.00	0.00
			1.800	-0.06	0.00	-14.57	0.00	0.00	0.00
			2.000	-0.07	0.00	-15.21	0.00	0.00	0.00
			2.200	-0.09	0.00	-15.88	0.00	0.00	0.00
			2.400	-0.12	0.00	-16.65	0.00	0.00	0.00
			2.600	-0.16	0.00	-17.56	0.00	0.00	0.00
			2.800	-0.23	0.00	-18.61	0.00	0.00	0.00
			3.000	-0.31	0.00	-19.76	0.00	0.00	0.00
			3.200	-0.39	0.00	-20.84	0.00	0.00	0.00
			3.400	-0.42	0.00	-21.53	0.00	0.00	0.00
		32	3.600	2.14	0.00	-21.74	0.00	0.00	0.00
48	LC1	31	0.000	-0.61	0.00	-22.41	0.00	0.00	0.00
			0.201	-0.47	0.00	-21.93	0.00	0.00	0.00
			0.402	-0.58	0.00	-22.20	0.00	0.00	0.00
			0.604	-0.69	0.00	-22.54	0.00	0.00	0.00
			0.805	-0.71	0.00	-22.52	0.00	0.00	0.00
			1.006	-0.64	0.00	-22.16	0.00	0.00	0.00
		25	1.207	2.08	0.00	-19.36	0.00	0.00	0.00
	LC2	31	0.000	-0.32	0.00	-12.62	0.00	0.00	0.00
			0.201	-0.32	0.00	-12.82	0.00	0.00	0.00
			0.402	-0.41	0.00	-13.42	0.00	0.00	0.00
			0.604	-0.54	0.00	-14.35	0.00	0.00	0.00
			0.805	-0.59	0.00	-15.22	0.00	0.00	0.00
			1.006	-0.56	0.00	-15.68	0.00	0.00	0.00
		25	1.207	1.86	0.00	-14.57	0.00	0.00	0.00
	LC4	31	0.000	-0.07	0.00	-6.85	0.00	0.00	0.00
			0.201	-0.07	0.00	-7.20	0.00	0.00	0.00
			0.402	-0.10	0.00	-7.53	0.00	0.00	0.00
			0.604	-0.13	0.00	-7.94	0.00	0.00	0.00
			0.805	-0.16	0.00	-8.20	0.00	0.00	0.00
			1.006	-0.18	0.00	-8.27	0.00	0.00	0.00
		25	1.207	1.05	0.00	-7.93	0.00	0.00	0.00
	CO3	31	0.000	-1.21	0.00	-45.82	0.00	0.00	0.00
			0.201	-1.03	0.00	-45.55	0.00	0.00	0.00
			0.402	-1.31	0.00	-46.77	0.00	0.00	0.00
			0.604	-1.63	0.00	-48.57	0.00	0.00	0.00
			0.805	-1.73	0.00	-49.86	0.00	0.00	0.00
			1.006	-1.61	0.00	-50.11	0.00	0.00	0.00
		25	1.207	5.28	0.00	-45.08	0.00	0.00	0.00
	CO5	31	0.000	-1.07	0.00	-46.62	0.00	0.00	0.00
			0.201	-0.90	0.00	-46.74	0.00	0.00	0.00
			0.402	-1.15	0.00	-48.00	0.00	0.00	0.00
			0.604	-1.43	0.00	-49.71	0.00	0.00	0.00
			0.805	-1.53	0.00	-50.74	0.00	0.00	0.00
			1.006	-1.46	0.00	-50.75	0.00	0.00	0.00
		25	1.207	5.46	0.00	-46.05	0.00	0.00	0.00
	CO10	31	0.000	-0.83	0.00	-34.92	0.00	0.00	0.00
			0.201	-0.64	0.00	-34.60	0.00	0.00	0.00
			0.402	-0.81	0.00	-35.23	0.00	0.00	0.00
			0.604	-0.98	0.00	-36.01	0.00	0.00	0.00
			0.805	-1.03	0.00	-36.21	0.00	0.00	0.00
			1.006	-0.97	0.00	-35.80	0.00	0.00	0.00
		25	1.207	3.62	0.00	-31.96	0.00	0.00	0.00
49	LC1	39	0.000	0.16	0.00	-18.68	0.00	0.00	0.00
			0.201	0.06	0.00	-19.45	0.00	0.00	0.00
			0.402	-0.01	0.00	-20.14	0.00	0.00	0.00
			0.604	-0.14	0.00	-21.13	0.00	0.00	0.00
			0.805	-0.30	0.00	-22.03	0.00	0.00	0.00
			1.006	-0.42	0.00	-22.54	0.00	0.00	0.00
		32	1.207	3.31	0.00	-22.71	0.00	0.00	0.00
	LC2	39	0.000	-0.11	0.00	-10.85	0.00	0.00	0.00
			0.201	-0.23	0.00	-11.56	0.00	0.00	0.00
			0.402	-0.30	0.00	-12.30	0.00	0.00	0.00
			0.604	-0.41	0.00	-13.41	0.00	0.00	0.00
			0.805	-0.49	0.00	-14.50	0.00	0.00	0.00
			1.006	-0.50	0.00	-15.15	0.00	0.00	0.00
		32	1.207	2.04	0.00	-14.70	0.00	0.00	0.00
	LC4	39	0.000	0.05	0.00	-5.58	0.00	0.00	0.00
			0.201	0.00	0.00	-5.98	0.00	0.00	0.00
			0.402	-0.01	0.00	-6.26	0.00	0.00	0.00
			0.604	-0.04	0.00	-6.61	0.00	0.00	0.00
			0.805	-0.08	0.00	-6.87	0.00	0.00	0.00
			1.006	-0.12	0.00	-7.00	0.00	0.00	0.00
		32	1.207	1.01	0.00	-7.04	0.00	0.00	0.00
	CO3	39	0.000	0.03	0.00	-38.69	0.00	0.00	0.00
			0.201	-0.27	0.00	-40.69	0.00	0.00	0.00
			0.402	-0.46	0.00	-42.61	0.00	0.00	0.00
			0.604	-0.78	0.00	-45.48	0.00	0.00	0.00
			0.805	-1.09	0.00	-48.18	0.00	0.00	0.00
			1.006	-1.25	0.00	-49.77	0.00	0.00	0.00
		32	1.207	7.04	0.00	-49.31	0.00	0.00	0.00
	CO5	39	0.000	0.19	0.00	-38.92	0.00	0.00	0.00
			0.201	-0.09	0.00	-40.99	0.00	0.00	0.00

the scale towards document
Image Engineering Scan Reference Chart T263 Serial No. 40
Patch Reference numbers on UTT

4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
49	CO5	39	0.402	-0.25	0.00	-42.78	0.00	0.00	0.00
			0.604	-0.53	0.00	-45.33	0.00	0.00	0.00
			0.805	-0.85	0.00	-47.62	0.00	0.00	0.00
			1.006	-1.06	0.00	-48.90	0.00	0.00	0.00
		32	1.207	7.02	0.00	-48.84	0.00	0.00	0.00
	CO10	39	0.000	0.26	0.00	-28.87	0.00	0.00	0.00
			0.201	0.11	0.00	-30.13	0.00	0.00	0.00
			0.402	0.00	0.00	-31.21	0.00	0.00	0.00
			0.604	-0.18	0.00	-32.73	0.00	0.00	0.00
			0.805	-0.43	0.00	-34.05	0.00	0.00	0.00
			1.006	-0.62	0.00	-34.77	0.00	0.00	0.00
		32	1.207	5.09	0.00	-35.05	0.00	0.00	0.00
55	LC1	42	0.000	-4.32	0.00	-7.81	0.00	0.00	0.00
			0.207	1.13	0.00	-10.02	0.00	0.00	0.00
			0.415	0.98	0.00	-10.26	0.00	0.00	0.00
			0.623	0.75	0.00	-10.18	0.00	0.00	0.00
			0.830	0.57	0.00	-9.82	0.00	0.00	0.00
			1.038	0.46	0.00	-9.49	0.00	0.00	0.00
			1.245	0.40	0.00	-9.25	0.00	0.00	0.00
			1.452	0.36	0.00	-9.13	0.00	0.00	0.00
			1.660	0.32	0.00	-9.14	0.00	0.00	0.00
			1.867	0.27	0.00	-9.28	0.00	0.00	0.00
			2.075	0.17	0.00	-9.59	0.00	0.00	0.00
			2.283	0.05	0.00	-9.91	0.00	0.00	0.00
		39	2.490	1.37	0.00	-11.05	0.00	0.00	0.00
	LC2	42	0.000	-1.59	0.00	-2.84	0.00	0.00	0.00
			0.207	0.39	0.00	-3.48	0.00	0.00	0.00
			0.415	0.33	0.00	-3.53	0.00	0.00	0.00
			0.623	0.24	0.00	-3.45	0.00	0.00	0.00
			0.830	0.17	0.00	-3.29	0.00	0.00	0.00
			1.038	0.13	0.00	-3.15	0.00	0.00	0.00
			1.245	0.11	0.00	-3.06	0.00	0.00	0.00
			1.452	0.09	0.00	-3.03	0.00	0.00	0.00
			1.660	0.07	0.00	-3.08	0.00	0.00	0.00
			1.867	0.04	0.00	-3.23	0.00	0.00	0.00
			2.075	0.00	0.00	-3.46	0.00	0.00	0.00
			2.283	-0.04	0.00	-3.68	0.00	0.00	0.00
		39	2.490	0.52	0.00	-4.09	0.00	0.00	0.00
	LC4	42	0.000	-0.65	0.00	-1.17	0.00	0.00	0.00
			0.207	0.17	0.00	-1.48	0.00	0.00	0.00
			0.415	0.15	0.00	-1.50	0.00	0.00	0.00
			0.623	0.11	0.00	-1.47	0.00	0.00	0.00
			0.830	0.08	0.00	-1.41	0.00	0.00	0.00
			1.038	0.06	0.00	-1.37	0.00	0.00	0.00
			1.245	0.05	0.00	-1.38	0.00	0.00	0.00
			1.452	0.04	0.00	-1.43	0.00	0.00	0.00
			1.660	0.03	0.00	-1.53	0.00	0.00	0.00
			1.867	0.01	0.00	-1.67	0.00	0.00	0.00
			2.075	-0.01	0.00	-1.85	0.00	0.00	0.00
			2.283	-0.02	0.00	-1.99	0.00	0.00	0.00
		39	2.490	0.28	0.00	-2.23	0.00	0.00	0.00
	CO3	42	0.000	-7.57	0.00	-13.63	0.00	0.00	0.00
			0.207	1.95	0.00	-17.24	0.00	0.00	0.00
			0.415	1.67	0.00	-17.60	0.00	0.00	0.00
			0.623	1.26	0.00	-17.39	0.00	0.00	0.00
			0.830	0.93	0.00	-16.72	0.00	0.00	0.00
			1.038	0.75	0.00	-16.11	0.00	0.00	0.00
			1.245	0.64	0.00	-15.69	0.00	0.00	0.00
			1.452	0.56	0.00	-15.51	0.00	0.00	0.00
			1.660	0.48	0.00	-15.59	0.00	0.00	0.00
			1.867	0.38	0.00	-15.98	0.00	0.00	0.00
			2.075	0.20	0.00	-16.70	0.00	0.00	0.00
			2.283	0.00	0.00	-17.40	0.00	0.00	0.00
		39	2.490	2.42	0.00	-19.40	0.00	0.00	0.00
	CO5	42	0.000	-7.36	0.00	-13.25	0.00	0.00	0.00
			0.207	1.91	0.00	-16.85	0.00	0.00	0.00
			0.415	1.65	0.00	-17.20	0.00	0.00	0.00
			0.623	1.25	0.00	-17.00	0.00	0.00	0.00
			0.830	0.93	0.00	-16.36	0.00	0.00	0.00
			1.038	0.74	0.00	-15.81	0.00	0.00	0.00
			1.245	0.63	0.00	-15.47	0.00	0.00	0.00
			1.452	0.55	0.00	-15.38	0.00	0.00	0.00
			1.660	0.47	0.00	-15.58	0.00	0.00	0.00
			1.867	0.37	0.00	-16.07	0.00	0.00	0.00
			2.075	0.19	0.00	-16.87	0.00	0.00	0.00
			2.283	0.00	0.00	-17.62	0.00	0.00	0.00
		39	2.490	2.45	0.00	-19.68	0.00	0.00	0.00
	CO10	42	0.000	-6.31	0.00	-11.37	0.00	0.00	0.00
			0.207	1.65	0.00	-14.52	0.00	0.00	0.00
			0.415	1.42	0.00	-14.84	0.00	0.00	0.00
			0.623	1.09	0.00	-14.69	0.00	0.00	0.00
			0.830	0.81	0.00	-14.16	0.00	0.00	0.00
			1.038	0.65	0.00	-13.68	0.00	0.00	0.00
			1.245	0.56	0.00	-13.36	0.00	0.00	0.00
			1.452	0.50	0.00	-13.23	0.00	0.00	0.00
			1.660	0.44	0.00	-13.30	0.00	0.00	0.00
			1.867	0.36	0.00	-13.59	0.00	0.00	0.00
			2.075	0.22	0.00	-14.11	0.00	0.00	0.00
			2.283	0.05	0.00	-14.62	0.00	0.00	0.00
		39	2.490	2.01	0.00	-16.29	0.00	0.00	0.00
56	LC1	45	0.000	1.34	0.00	2.27	0.00	0.00	0.00
			0.200	0.05	0.00	-1.47	0.00	0.00	0.00
			0.400	0.24	0.00	-2.98	0.00	0.00	0.00
			0.600	0.33	0.00	-4.80	0.00	0.00	0.00

the scale towards document
Patch Reference numbers on UTT
Scan Reference Chart TE263 Serial No. 40

■ 4.3 LINES - SUPPORT FORCES

Line No.	LC/CO	Node No.	Location x [m]	Support Forces [kN/m] p_X	p_Y	p_Z	Support Moments [kNm/m] m_X	m_Y	m_Z
56	LC1	45	0.800	0.15	0.00	-6.44	0.00	0.00	0.00
			1.000	-0.31	0.00	-7.96	0.00	0.00	0.00
			1.200	-0.78	0.00	-8.99	0.00	0.00	0.00
		46	1.400	5.87	0.00	-11.16	0.00	0.00	0.00
	LC2	45	0.000	-0.27	0.00	-0.61	0.00	0.00	0.00
			0.200	0.12	0.00	-1.64	0.00	0.00	0.00
			0.400	0.13	0.00	-2.02	0.00	0.00	0.00
			0.600	0.10	0.00	-2.44	0.00	0.00	0.00
			0.800	0.02	0.00	-2.80	0.00	0.00	0.00
			1.000	-0.13	0.00	-3.10	0.00	0.00	0.00
			1.200	-0.28	0.00	-3.28	0.00	0.00	0.00
		46	1.400	1.87	0.00	-3.60	0.00	0.00	0.00
	LC4	45	0.000	0.43	0.00	0.79	0.00	0.00	0.00
			0.200	-0.04	0.00	0.44	0.00	0.00	0.00
			0.400	0.00	0.00	0.29	0.00	0.00	0.00
			0.600	0.03	0.00	0.09	0.00	0.00	0.00
			0.800	0.03	0.00	-0.11	0.00	0.00	0.00
			1.000	-0.01	0.00	-0.31	0.00	0.00	0.00
			1.200	-0.05	0.00	-0.46	0.00	0.00	0.00
		46	1.400	0.44	0.00	-0.81	0.00	0.00	0.00
	CO3	45	0.000	1.21	0.00	1.81	0.00	0.00	0.00
			0.200	0.24	0.00	-4.22	0.00	0.00	0.00
			0.400	0.49	0.00	-6.60	0.00	0.00	0.00
			0.600	0.55	0.00	-9.42	0.00	0.00	0.00
			0.800	0.20	0.00	-11.93	0.00	0.00	0.00
			1.000	-0.57	0.00	-14.21	0.00	0.00	0.00
			1.200	-1.35	0.00	-15.71	0.00	0.00	0.00
		46	1.400	9.85	0.00	-18.80	0.00	0.00	0.00
	CO5	45	0.000	2.05	0.00	3.45	0.00	0.00	0.00
			0.200	0.09	0.00	-2.33	0.00	0.00	0.00
			0.400	0.39	0.00	-4.66	0.00	0.00	0.00
			0.600	0.51	0.00	-7.45	0.00	0.00	0.00
			0.800	0.23	0.00	-9.99	0.00	0.00	0.00
			1.000	-0.48	0.00	-12.34	0.00	0.00	0.00
			1.200	-1.21	0.00	-13.94	0.00	0.00	0.00
		46	1.400	9.10	0.00	-17.32	0.00	0.00	0.00
	CO10	45	0.000	2.25	0.00	3.90	0.00	0.00	0.00
			0.200	0.00	0.00	-1.10	0.00	0.00	0.00
			0.400	0.29	0.00	-3.14	0.00	0.00	0.00
			0.600	0.44	0.00	-5.62	0.00	0.00	0.00
			0.800	0.22	0.00	-7.89	0.00	0.00	0.00
			1.000	-0.38	0.00	-10.01	0.00	0.00	0.00
			1.200	-1.00	0.00	-11.47	0.00	0.00	0.00
		46	1.400	7.69	0.00	-14.60	0.00	0.00	0.00
Σ Supp.	LC1			-0.22	1.38	-183.01			
Σ Loads	LC1			0.00	0.00	-581.74			
Σ Supp.	LC2			-0.53	0.29	-102.52			
Σ Loads	LC2			0.00	0.00	-214.38			
Σ Supp.	LC4			0.10	0.23	-47.83			
Σ Loads	LC4			0.00	0.00	-101.60			
Σ Supp.	CO3			-1.06	2.09	-373.38			
Σ Loads	CO3			0.00	0.00	-1019.66			
Σ Supp.	CO5			-0.51	2.22	-368.24			
Σ Loads	CO5			0.00	0.00	-1011.27			
Σ Supp.	CO10			-0.12	1.99	-275.42			
Σ Loads	CO10			0.00	0.00	-851.81			

Solid Timber

Bijlage 2 – Resultaten RF-LAMINATE



Solid Timber
Ketjapweg 18
3541 RH Utrecht

Project: Valschermkade Model: 1706-2 Date: 2017-10-19

STRUCTURAL ANALYSIS

PROJECT

Valschermkade
Bijlage 2 - Resultaten RF-LAMINATE

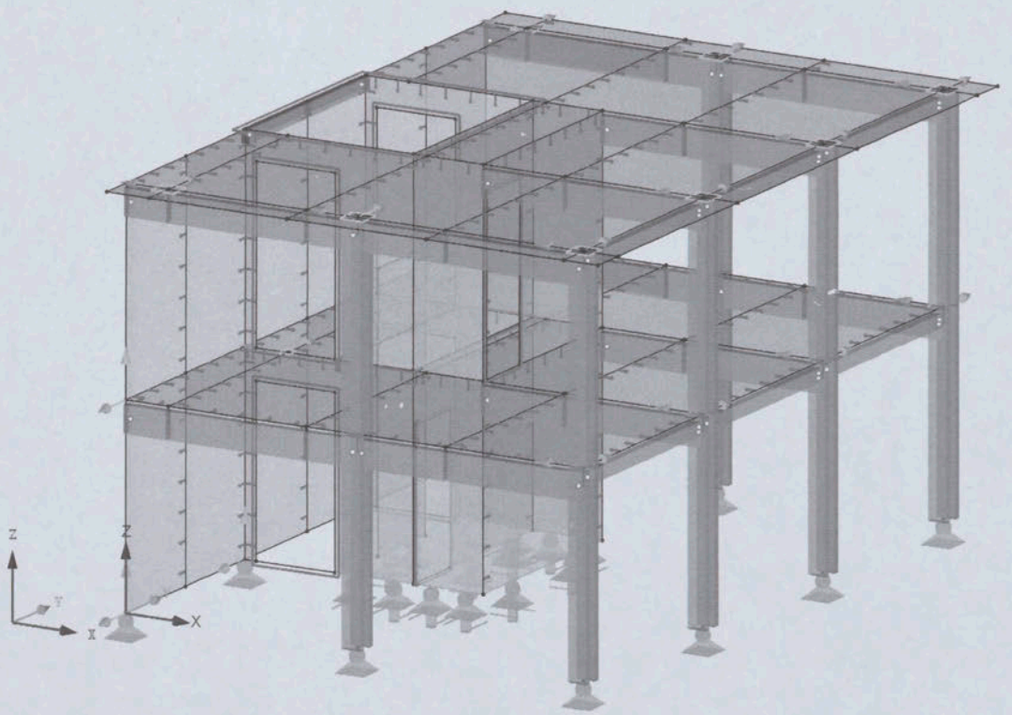
CLIENT

Valschermkade 25-26 BV

CREATED BY

Bas Boellaard

Isometric



RF-LAMINATE

Project: Valschermkade Model: 1706-2 Date: 2017-10-19

1.1.1 GENERAL DATA

Surfaces to design	1-31,33-59
Design according to Standard	EN 1995-1-1:2004-11/NEN
Material model:	Orthotropic

Ultimate Limit State
Result combinations to design

RC1	ULS (STR/GEO) - Permanent / transient - Eq. 6.10a and 6.10b	Persistent/transient

1.1.2 DETAILS

Apply smoothed internal forces in the defined average region	☒
Plate bending theory:	Mindlin

11 - 1 | 120-5s

Surfaces assigned to composition:	1-4,7,8,10-21,23-26,29-31,33-59
Layer coupling	☒
Cross laminated timber without glue on the narrow side	☒
Effect of drilling stiffness D_{33}	k_{33} = 0.65
Effect of shear stiffness D_{44}	k_{44} = 1.00
Effect of shear stiffness D_{55}	k_{55} = 1.00
Effect of membrane stiffness D_{88}	k_{88} = 0.50
Reference plane relative to:	Composition center
Reference plane shift:	0.0 mm

13 - 140-3s

Surfaces assigned to composition:	5,6,27,28
Layer coupling	☒
Cross laminated timber without glue on the narrow side	☒
Effect of drilling stiffness D_{33}	k_{33} = 0.65
Effect of shear stiffness D_{44}	k_{44} = 1.00
Effect of shear stiffness D_{55}	k_{55} = 1.00
Effect of membrane stiffness D_{88}	k_{88} = 0.50
Reference plane relative to:	Composition center
Reference plane shift:	0.0 mm

14 - 200-5s

Surfaces assigned to composition:	9,22
Layer coupling	☒
Cross laminated timber without glue on the narrow side	☒
Effect of drilling stiffness D_{33}	k_{33} = 0.65
Effect of shear stiffness D_{44}	k_{44} = 1.00
Effect of shear stiffness D_{55}	k_{55} = 1.00
Effect of membrane stiffness D_{88}	k_{88} = 0.50
Reference plane relative to:	Composition center
Reference plane shift:	0.0 mm

1.1.3 DATA FOR STANDARD

Solid Timber

Partial Factor γ_M

Persistent/transient	1.30
Accidental	1.00

Modification Factor k_{mod}

	Service Class 1	Service Class 2	Service Class 3
Permanent	0.60	0.60	0.50
Long-term	0.70	0.70	0.55
Medium-term	0.80	0.80	0.65
Short-term	0.90	0.90	0.70
Instantaneous	1.10	1.10	0.90

Modification Factor k_{mod} for transversal tension

	Service Class 1	Service Class 2	Service Class 3
Permanent	0.50	0.50	0.40
Long-term	0.50	0.50	0.40
Medium-term	0.65	0.65	0.55
Short-term	0.80	0.80	0.65
Instantaneous	1.10	1.10	0.75

Serviceability Limits (Deflections)

Combination of actions: Cantilevers

Characteristic	L / 300	L_c / 150
Frequent	L / 250	L_c / 125
Quasi-permanent	L / 150	L_c / 75

the scale towards document
Patch Reference numbers on UTT Scan Reference Chart TE263 Serial No. 40
Image Engineering

■ 1.2.1 MATERIAL CHARACTERISTICS - A

Comp. No.	Layer No.	Material Description	Factor Category	Thickness t [mm]	Poisson's Ratio [-] ν_{xy}	ν_{yx}	Shear Modulus [N/mm²] G_{xz}	G_{yz}	G_{xy}
11	**1 | 120-5s**								
	1	Poplar and Softwood Timber C24	A	20.0	0.000	0.000	690.0	69.0	690.0
	2	Poplar and Softwood Timber C14	A	30.0	0.000	0.000	440.0	44.0	440.0
	3	Poplar and Softwood Timber C24	A	20.0	0.000	0.000	690.0	69.0	690.0
	4	Poplar and Softwood Timber C14	A	30.0	0.000	0.000	440.0	44.0	440.0
	5	Poplar and Softwood Timber C24	A	20.0	0.000	0.000	690.0	69.0	690.0
13	**140-3s**								
	1	Poplar and Softwood Timber C24	A	46.5	0.000	0.000	690.0	69.0	690.0
	2	Poplar and Softwood Timber C14	A	46.5	0.000	0.000	440.0	44.0	440.0
	3	Poplar and Softwood Timber C24	A	46.5	0.000	0.000	690.0	69.0	690.0
14	**200-5s**								
	1	Poplar and Softwood Timber C24	A	40.0	0.000	0.000	690.0	69.0	690.0
	2	Poplar and Softwood Timber C14	A	40.0	0.000	0.000	440.0	44.0	440.0
	3	Poplar and Softwood Timber C24	A	40.0	0.000	0.000	690.0	69.0	690.0
	4	Poplar and Softwood Timber C14	A	40.0	0.000	0.000	440.0	44.0	440.0
	5	Poplar and Softwood Timber C24	A	40.0	0.000	0.000	690.0	69.0	690.0

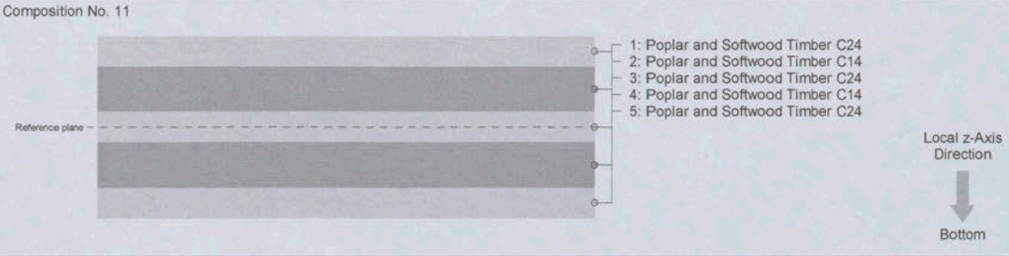
Factor Category
A - Solid Timber

■ 1.2.2 MATERIAL CHARACTERISTICS - B

Comp. No.	Layer No.	Material Description	Angle β [°]	Modulus of Elasticity [N/mm²] E_x	E_y	Sp. Weight γ [N/m³]	Coeff. of Th. Exp. α_T []
11	**1 | 120-5s**						
	1	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	2	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	3	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	4	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	5	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
13	**140-3s**						
	1	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	2	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	3	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
14	**200-5s**						
	1	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	2	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	3	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06
	4	Poplar and Softwood Timber C14	90.00	7000.0	0.0	3500.0	5.0E-06
	5	Poplar and Softwood Timber C24	0.00	11000.0	0.0	4200.0	5.0E-06

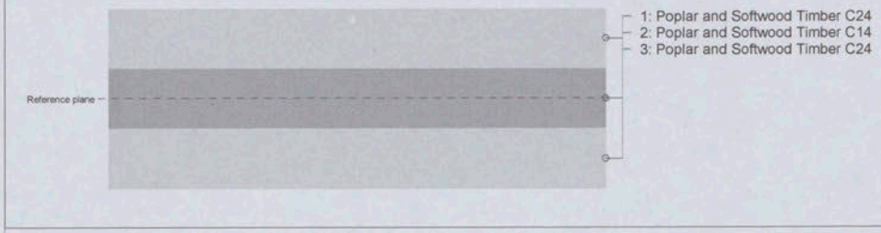
■ 1.2.4 LAYER DIAGRAMS

Composition No. 11

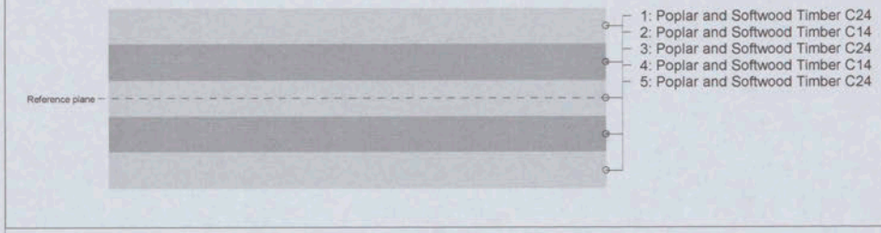


■ 1.2.4 LAYER DIAGRAMS

Composition No. 13



Composition No. 14



■ 1.3 MATERIAL STRENGTHS

Comp. No.	Layer No.	Material Description	Strength for Bend. /Tens. / Compr. [N/mm²]						Shear Strengths [N/mm²]		
			$f_{b,0,k}$	$f_{b,90,k}$	$f_{t,0,k}$	$f_{t,90,k}$	$f_{c,0,k}$	$f_{c,90,k}$	$f_{xy,k}$	$f_{v,k}$	$f_{R,k}$
11	**1 | 120-5s**										
	1	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	2	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	3	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	4	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	5	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
13	**140-3s**										
	1	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	2	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	3	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
14	**200-5s**										
	1	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	2	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	3	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8
	4	Poplar and Softwood Timber C14	14.0	14.0	8.0	0.4	16.0	2.0	3.0	3.0	0.8
	5	Poplar and Softwood Timber C24	24.0	24.0	14.0	0.4	21.0	2.5	4.0	4.0	0.8

■ 1.4 LOAD DURATION AND SERVICE CLASS

Load-ing	Description	Loading Type	Load Duration Class LDC
LC1	Permanent	Permanent	Permanent
LC2	Opgelegde vloerbelasting	Imposed - Category B: office areas	Medium-term
LC3	Opgelegde dakbelasting	Imposed - Category H: roofs	Short-term
LC4	Sneeuw	Snow (H ≤ 1000 m a.s.l.)	Short-term
LC5	Wind X-	Wind	Short-term
LC6	Wind Y-	Wind	Short-term
RC1	ULS (STR/GEO) - Permanent / transient - Eq. 6.10a and 6.10b		Short-term
	Service Class SECL Service Class 1	Identical for all surfaces	

the scale towards document
Patch Reference numbers on UTT
Scan Reference Chart TE263 Serial No. 40

2.1 MAX STRESS RATIO BY LOADING

Load-ing	Surface No.	Point No.	Point Coordinates [m] X	Y	Z	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
RC1	ULS (STR/GEO) - Permanent / transient - Eq. 6.10a and 6.10b											
	28	63	0.200	7.200	3.310	2	46.5	Top	$\sigma_{b,0}$	3.62	9.69	0.37
	19	9765	7.940	3.200	3.310	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	18	1121	3.921	7.200	3.310	5	100.0	Top	$\sigma_{t/c,0}$	4.35	9.69	0.45
	7	186	4.116	7.200	3.310	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	18	1121	3.921	7.200	3.310	5	100.0	Top	$\sigma_{b+t/c,0}$	3.48		0.50
	7	186	4.116	7.200	3.310	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	16	154	4.019	0.000	3.310	2	35.0	Middle	$\tau_{y'z'}$	0.28	0.55	0.51
	16	154	4.019	0.000	3.310	3	60.0	Middle	$\tau_{x'z'}$	-0.30	2.77	0.11
	7	184	4.116	3.600	3.310	1	0.0	Top	$\tau_{x'y'}$	-1.45	2.77	0.52
	7	184	4.116	3.600	3.310	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.26
	16	154	4.019	0.000	3.310	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.51
	Maximum Ratio 0.52											

2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
1	3408	0.000	0.400	0.000	RC1	4	100.0	Bottom	$\sigma_{b,0}$	0.20	9.69	0.02
	942	0.000	0.800	0.389	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	831	0.000	0.000	0.389	RC1	5	100.0	Top	$\sigma_{t/c,0}$	-6.07	14.54	0.42
	831	0.000	0.000	0.389	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	831	0.000	0.000	0.389	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	-6.07		0.42
	831	0.000	0.000	0.389	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	3408	0.000	0.400	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.10	0.55	0.17
	3408	0.000	0.400	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.06	2.08	0.03
	831	0.000	0.000	0.389	RC1	1	0.0	Top	$\tau_{x'y'}$	0.85	2.77	0.31
	831	0.000	0.000	0.389	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.09
	3408	0.000	0.400	0.000	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.17
2	326	0.000	3.808	0.000	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.68	9.69	0.07
	273	0.000	4.431	0.389	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	345	0.000	3.600	0.389	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-5.56	14.54	0.38
	345	0.000	3.600	0.389	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	345	0.000	3.600	0.389	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-5.57		0.38
	345	0.000	3.600	0.389	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	326	0.000	3.808	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.27	0.55	0.49
	326	0.000	3.808	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.18	2.08	0.08
	345	0.000	3.600	0.389	RC1	1	0.0	Top	$\tau_{x'y'}$	0.58	2.77	0.21
	345	0.000	3.600	0.389	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.04
	326	0.000	3.808	0.000	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.49
3	12	0.000	5.470	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.28	16.62	0.02
	502	0.000	7.008	0.389	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	12	0.000	5.470	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.32	9.69	0.14
	385	0.000	5.854	2.142	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	12	0.000	5.470	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.04		0.15
	385	0.000	5.854	2.142	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	486	0.000	6.816	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.05	0.55	0.09
	486	0.000	6.816	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.03	2.08	0.02
	485	0.000	6.816	0.195	RC1	5	120.0	Bottom	$\tau_{x'y'}$	-0.25	2.77	0.09
	485	0.000	6.816	0.195	RC1	5	110.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.01
	486	0.000	6.816	0.000	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.09
4	537	0.000	10.400	0.000	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.24	9.69	0.02
	549	0.000	10.200	0.389	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	552	0.000	10.800	0.389	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-5.54	14.54	0.38
	682	0.000	10.800	2.921	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	552	0.000	10.800	0.389	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-5.54		0.38
	682	0.000	10.800	2.921	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	537	0.000	10.400	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.15	0.55	0.28
	537	0.000	10.400	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.10	2.08	0.05
	552	0.000	10.800	0.389	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.80	2.77	0.29
	552	0.000	10.800	0.389	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.08
	537	0.000	10.400	0.000	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.28
5	244	0.000	3.600	0.000	RC1	2	93.0	Bottom	$\sigma_{b,0}$	-2.16	9.69	0.22
	37	0.200	3.600	0.000	RC1	2	46.5	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	178	2.909	3.600	3.310	RC1	2	46.5	Top	$\sigma_{t/c,0}$	2.09	5.54	0.38
	29	1.560	3.600	2.800	RC1	2	46.5	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	178	2.909	3.600	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,0}$	2.18		0.39
	29	1.560	3.600	2.800	RC1	2	46.5	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	175	4.116	3.600	3.310	RC1	2	69.8	Middle	$\tau_{y'z'}$	-0.06	0.55	0.11
	37	0.200	3.600	0.000	RC1	2	69.8	Middle	$\tau_{x'z'}$	-0.13	2.08	0.06
	175	4.116	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.97	2.77	0.35
	175	4.116	3.600	3.310	RC1	1	23.3	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.11
	175	4.116	3.600	3.310	RC1	2	46.5	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
6	242	0.000	7.200	0.000	RC1	2	46.5	Top	$\sigma_{b,0}$	1.44	9.69	0.15
	51	0.200	7.200	0.000	RC1	2	46.5	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	170	2.909	7.200	3.310	RC1	2	46.5	Top	$\sigma_{t/c,0}$	1.99	5.54	0.36
	1254	1.363	7.200	2.970	RC1	2	46.5	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	170	2.909	7.200	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,0}$	2.18		0.38
	1254	1.363	7.200	2.970	RC1	2	46.5	Top	$\sigma_{b+t/c,90}$	0.00		0.00



2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	168	4.116	7.200	3.310	RC1	2	69.8	Middle	$\tau_{y'z'}$	-0.10	0.55	0.17
	1115	4.116	7.200	3.115	RC1	2	69.8	Middle	$\tau_{x'z'}$	-0.09	2.08	0.04
	168	4.116	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.84	2.77	0.30
	168	4.116	7.200	3.310	RC1	1	23.3	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.09
	168	4.116	7.200	3.310	RC1	2	46.5	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.17
Max U.C. wanden → 7	184	4.116	3.600	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	-0.16	9.69	0.02
	9033	4.116	3.600	3.115	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	184	4.116	3.600	3.310	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-5.35	14.54	0.37
	186	4.116	7.200	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	184	4.116	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-5.40		0.37
	186	4.116	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	184	4.116	3.600	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.05	0.55	0.09
	184	4.116	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.05	2.77	0.02
	184	4.116	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.45	2.77	0.52
	184	4.116	3.600	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.26
	184	4.116	3.600	3.310	RC1	4	70.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.09
8	1821	2.909	3.782	3.138	RC1	4	70.0	Top	$\sigma_{b,0}$	0.04	9.69	0.00
	9081	2.909	3.600	3.115	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	189	2.909	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,0}$	0.97	5.54	0.17
	189	2.909	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	189	2.909	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,0}$	0.97		0.18
	189	2.909	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	189	2.909	3.600	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.04	0.55	0.07
	189	2.909	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.04	2.77	0.01
	189	2.909	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	0.55	2.77	0.20
	189	2.909	3.600	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.04
	189	2.909	3.600	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.07
9	48	1.660	6.110	3.310	RC1	2	40.0	Top	$\sigma_{b,0}$	-0.01	9.69	0.00
	1997	1.660	5.910	3.310	RC1	2	80.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	46	1.660	6.110	0.000	RC1	2	40.0	Top	$\sigma_{t/c,0}$	0.32	5.54	0.06
	48	1.660	6.110	3.310	RC1	4	120.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	46	1.660	6.110	0.000	RC1	2	40.0	Top	$\sigma_{b+t/c,0}$	0.32		0.06
	48	1.660	6.110	3.310	RC1	4	120.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	48	1.660	6.110	3.310	RC1	3	100.0	Middle	$\tau_{y'z'}$	-0.01	0.55	0.01
	48	1.660	6.110	3.310	RC1	2	60.0	Middle	$\tau_{x'z'}$	0.00	2.08	0.00
	48	1.660	6.110	3.310	RC1	5	200.0	Bottom	$\tau_{x'y'}$	0.09	2.77	0.03
	48	1.660	6.110	3.310	RC1	5	180.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.00
	48	1.660	6.110	3.310	RC1	3	80.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.01
10	136	0.000	0.000	3.310	RC1	2	20.0	Top	$\sigma_{b,0}$	0.43	9.69	0.04
	8704	0.370	0.000	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	985	0.560	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	2.90	9.69	0.30
	8704	0.370	0.000	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	985	0.560	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.31		0.33
	8704	0.370	0.000	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	138	0.740	0.000	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.16	0.55	0.28
	138	0.740	0.000	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.16	2.77	0.06
	8704	0.370	0.000	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	1.12	2.77	0.40
	8704	0.370	0.000	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.12
	138	0.740	0.000	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.28
11	985	0.560	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.70	16.62	0.04
	141	0.000	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	985	0.560	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.51	9.69	0.36
	141	0.000	7.200	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	985	0.560	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.81		0.40
	141	0.000	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	2082	0.740	3.800	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.12	0.55	0.22
	2082	0.740	3.800	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.13	2.77	0.05
	141	0.000	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	0.37	2.77	0.13
	141	0.000	7.200	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	2082	0.740	3.800	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.22
12	144	0.000	10.800	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	-0.44	9.69	0.05
	8747	0.370	10.800	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	1279	0.560	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.42	9.69	0.35
	8748	0.185	10.800	3.310	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	1279	0.560	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.73		0.39
	8748	0.185	10.800	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	145	0.740	10.800	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.16	0.55	0.28
	145	0.740	10.800	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.17	2.77	0.06
	8747	0.370	10.800	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.12	2.77	0.41
	8747	0.370	10.800	3.310	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.12
	145	0.740	10.800	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.28
13	59	3.140	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.80	16.62	0.05
	59	3.140	3.600	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	59	3.140	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.85	9.69	0.40
	59	3.140	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	59	3.140	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.04		0.45
	59	3.140	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	90	1.560	3.600	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.16	0.55	0.29
	90	1.560	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.17	2.77	0.06



2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	59	3.140	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y}$	0.27	2.77	0.10
	38	2.909	3.600	3.310	RC1	3	60.0	Middle	int($\tau_{x'z}$+$\tau_{x'y}$)			0.01
	90	1.560	3.600	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.29
14	987	0.945	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b,0}$	0.44	9.69	0.04
	74	1.660	3.600	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	988	1.150	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.62	9.69	0.37
	74	1.660	3.600	3.310	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	988	1.150	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.88		0.42
	74	1.660	3.600	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	90	1.560	3.600	3.310	RC1	2	35.0	Middle	$\tau_{y'z}$	0.14	0.55	0.25
	90	1.560	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z}$	-0.15	2.77	0.05
	74	1.660	3.600	3.310	RC1	5	120.0	Bottom	$\tau_{x'y}$	0.42	2.77	0.15
	74	1.660	3.600	3.310	RC1	5	110.0	Middle	int($\tau_{x'z}$+$\tau_{x'y}$)			0.02
	90	1.560	3.600	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.25
15	62	3.140	7.200	3.310	RC1	5	120.0	Bottom	$\sigma_{b,0}$	0.79	16.62	0.05
	62	3.140	7.200	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	62	3.140	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	4.02	9.69	0.42
	40	2.909	7.200	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	62	3.140	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.23		0.46
	40	2.909	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	97	1.560	7.200	3.310	RC1	2	35.0	Middle	$\tau_{y'z}$	0.16	0.55	0.29
	97	1.560	7.200	3.310	RC1	3	60.0	Middle	$\tau_{x'z}$	-0.17	2.77	0.06
	62	3.140	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y}$	-0.24	2.77	0.09
	40	2.909	7.200	3.310	RC1	3	60.0	Middle	int($\tau_{x'z}$+$\tau_{x'y}$)			0.01
	97	1.560	7.200	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.29
16	154	4.019	0.000	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	1.12	9.69	0.12
	8842	3.799	0.000	3.310	RC1	4	100.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	826	3.726	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	4.09	9.69	0.42
	8831	4.209	0.000	3.310	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	154	4.019	0.000	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	1.02		0.50
	8831	4.209	0.000	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	154	4.019	0.000	3.310	RC1	2	35.0	Middle	$\tau_{y'z}$	0.28	0.55	0.51
	154	4.019	0.000	3.310	RC1	3	60.0	Middle	$\tau_{x'z}$	-0.30	2.77	0.11
	2969	4.320	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y}$	-0.80	2.77	0.29
	2969	4.320	3.600	3.310	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y}$)			0.08
	154	4.019	0.000	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.51
17	3100	4.320	5.342	3.310	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.43	9.69	0.04
	28	4.116	3.600	3.310	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	68	5.540	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.64	9.69	0.38
	2969	4.320	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	68	5.540	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.94		0.42
	2969	4.320	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	3163	4.320	7.200	3.310	RC1	3	60.0	Middle	$\tau_{y'z}$	0.15	0.55	0.27
	68	5.540	3.600	3.310	RC1	3	60.0	Middle	$\tau_{x'z}$	-0.13	2.77	0.05
	2969	4.320	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y}$	0.93	2.77	0.34
	2969	4.320	3.600	3.310	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y}$)			0.10
	3163	4.320	7.200	3.310	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.27
18	157	4.019	10.800	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	1.11	9.69	0.11
	8891	3.799	10.800	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	1121	3.921	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	4.35	9.69	0.45
	3163	4.320	7.200	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	1121	3.921	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.48		0.50
	3163	4.320	7.200	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	157	4.019	10.800	3.310	RC1	2	35.0	Middle	$\tau_{y'z}$	-0.28	0.55	0.50
	157	4.019	10.800	3.310	RC1	3	60.0	Middle	$\tau_{x'z}$	0.29	2.77	0.11
	3163	4.320	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y}$	0.83	2.77	0.30
	3163	4.320	7.200	3.310	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y}$)			0.08
	157	4.019	10.800	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.50
19	3611	7.540	3.600	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.82	16.62	0.05
	9765	7.940	3.200	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	3611	7.540	3.600	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	4.12	9.69	0.42
	3611	7.540	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	3611	7.540	3.600	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.30		0.47
	3611	7.540	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	3588	7.740	3.200	3.310	RC1	2	35.0	Middle	$\tau_{y'z}$	-0.16	0.55	0.29
	3588	7.740	3.200	3.310	RC1	3	60.0	Middle	$\tau_{x'z}$	0.17	2.77	0.06
	9765	7.940	3.200	3.310	RC1	1	0.0	Top	$\tau_{x'y}$	-1.40	2.77	0.51
	9765	7.940	3.200	3.310	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y}$)			0.18
	3588	7.740	3.200	3.310	RC1	4	70.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.29
20	164	5.540	7.200	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.73	16.62	0.04
	9770	7.940	4.000	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	164	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.62	9.69	0.37
	9784	7.940	6.800	3.310	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	164	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.89		0.42
	9784	7.940	6.800	3.310	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	3611	7.540	3.600	3.310	RC1	3	60.0	Middle	$\tau_{y'z}$	-0.15	0.55	0.27
	3611	7.540	3.600	3.310	RC1	2	35.0	Middle	$\tau_{x'z}$	-0.10	2.08	0.05
	3611	7.540	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y}$	-0.87	2.77	0.32
	3611	7.540	3.600	3.310	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y}$)			0.09

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2.2 MAX STRESS RATIO BY SURFACE

Surface	Point	Point Coordinates [m]			Load-	Layer			Stresses [N/mm²]			Ratio
No	No.	X	Y	Z	ing	No.	z [mm]	Side	Symbol	Existing	Limit	[-]
	3611	7.540	3.600	3.310	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.27
21	167	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b,0}$	-0.73	16.62	0.04
	8969	7.540	10.800	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	167	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.66	9.69	0.38
	9803	7.940	10.400	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	167	5.540	7.200	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.93		0.42
	9803	7.940	10.400	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	167	5.540	7.200	3.310	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.15	0.55	0.27
	167	5.540	7.200	3.310	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.15	2.77	0.06
	9789	7.940	7.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.15	2.77	0.42
	9789	7.940	7.600	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.16
	167	5.540	7.200	3.310	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.27
22	1995	1.660	5.510	3.310	RC1	4	160.0	Bottom	$\sigma_{b,0}$	-0.01	9.69	0.00
	1997	1.660	5.910	3.310	RC1	2	40.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	48	1.660	6.110	3.310	RC1	2	40.0	Top	$\sigma_{t/c,0}$	-0.15	11.08	0.01
	1991	1.660	4.910	3.310	RC1	2	40.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	48	1.660	6.110	3.310	RC1	2	40.0	Top	$\sigma_{b+t/c,0}$	-0.15		0.01
	1991	1.660	4.910	3.310	RC1	2	40.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	48	1.660	6.110	3.310	RC1	3	100.0	Middle	$\tau_{y'z'}$	-0.01	0.55	0.01
	48	1.660	6.110	3.310	RC1	3	100.0	Middle	$\tau_{x'z'}$	-0.01	2.77	0.00
	48	1.660	6.110	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.08	2.77	0.03
	48	1.660	6.110	3.310	RC1	1	20.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.00
	48	1.660	6.110	3.310	RC1	3	80.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.01
23	64	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.11	9.69	0.01
	4244	0.000	0.200	6.482	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	64	0.000	0.000	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-3.46	14.54	0.24
	64	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	1.38	0.00
	64	0.000	0.000	6.680	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-3.46		0.24
	64	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	64	0.000	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.11
	64	0.000	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	64	0.000	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.68	2.77	0.25
	64	0.000	0.000	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.06
	64	0.000	0.000	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
24	91	0.000	3.600	6.680	RC1	4	100.0	Bottom	$\sigma_{b,0}$	0.25	9.69	0.03
	27	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	91	0.000	3.600	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.81	5.54	0.15
	27	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	1.38	0.00
	91	0.000	3.600	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.56		0.17
	27	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	91	0.000	3.600	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.08	0.55	0.15
	91	0.000	3.600	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.05	2.08	0.03
	27	0.000	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.39	2.77	0.14
	27	0.000	3.600	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.02
	91	0.000	3.600	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.15
25	12	0.000	5.470	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.28	16.62	0.02
	75	0.000	5.470	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	12	0.000	5.470	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.32	9.69	0.14
	260	0.000	7.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	12	0.000	5.470	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.04		0.15
	260	0.000	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	9679	0.000	7.200	3.310	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.04	0.55	0.07
	9679	0.000	7.200	3.310	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.03	2.08	0.01
	9679	0.000	7.200	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.19	2.77	0.07
	9679	0.000	7.200	3.310	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.00
	9679	0.000	7.200	3.310	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.07
26	14	0.000	9.000	3.310	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.26	16.62	0.02
	4755	0.000	10.600	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	66	0.000	10.800	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-4.18	14.54	0.29
	66	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	66	0.000	10.800	6.680	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-4.31		0.30
	66	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	66	0.000	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.06	0.55	0.11
	66	0.000	10.800	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.06	2.77	0.02
	66	0.000	10.800	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.74	2.77	0.27
	66	0.000	10.800	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.07
	66	0.000	10.800	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
27	4778	2.909	3.600	4.103	RC1	2	46.5	Top	$\sigma_{b,0}$	-1.48	9.69	0.15
	4883	2.702	3.600	3.508	RC1	2	46.5	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	28	4.116	3.600	3.310	RC1	1	0.0	Top	$\sigma_{t/c,0}$	3.38	9.69	0.35
	90	1.560	3.600	3.310	RC1	2	46.5	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	28	4.116	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	4.07		0.39
	90	1.560	3.600	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	38	2.909	3.600	3.310	RC1	2	69.8	Middle	$\tau_{y'z'}$	0.12	0.55	0.21
	28	4.116	3.600	3.310	RC1	2	69.8	Middle	$\tau_{x'z'}$	0.10	2.08	0.05
	4868	4.116	3.600	6.482	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.96	2.77	0.35
	4868	4.116	3.600	6.482	RC1	1	23.3	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.10
	38	2.909	3.600	3.310	RC1	2	46.5	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.21



■ 2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
28	63	0.200	7.200	3.310	RC1	2	46.5	Top	$\sigma_{b,0}$	3.62	9.69	0.37
	243	0.000	7.200	3.310	RC1	2	93.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	35	4.116	7.200	3.310	RC1	2	46.5	Top	$\sigma_{t/c,0}$	1.70	5.54	0.31
	97	1.560	7.200	3.310	RC1	2	46.5	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	63	0.200	7.200	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,0}$	3.75		0.40
	97	1.560	7.200	3.310	RC1	2	46.5	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	35	4.116	7.200	3.310	RC1	2	69.8	Middle	$\tau_{y'z}$	-0.20	0.55	0.35
	35	4.116	7.200	3.310	RC1	2	69.8	Middle	$\tau_{x'z}$	-0.17	2.08	0.08
	35	4.116	7.200	3.310	RC1	3	139.5	Bottom	$\tau_{x'y'}$	-0.84	2.77	0.30
	35	4.116	7.200	3.310	RC1	3	116.2	Middle	int($\tau_{x'z}$+$\tau_{x'y'}$)			0.09
	35	4.116	7.200	3.310	RC1	2	46.5	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.35
29	125	4.116	3.710	3.310	RC1	2	50.0	Bottom	$\sigma_{b,0}$	-0.29	9.69	0.03
	228	4.116	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	231	4.116	7.200	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-3.01	14.54	0.21
	231	4.116	7.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	125	4.116	3.710	3.310	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-3.13		0.21
	231	4.116	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	230	4.116	7.200	3.310	RC1	2	35.0	Middle	$\tau_{y'z}$	0.08	0.55	0.14
	230	4.116	7.200	3.310	RC1	3	60.0	Middle	$\tau_{x'z}$	-0.08	2.77	0.03
	228	4.116	3.600	3.310	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.93	2.77	0.33
	228	4.116	3.600	3.310	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y'}$)			0.08
	230	4.116	7.200	3.310	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.14
30	1838	2.909	3.800	3.310	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.02	9.69	0.00
	232	2.909	3.600	3.310	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	233	2.909	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,0}$	0.47	5.54	0.08
	233	2.909	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	233	2.909	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,0}$	0.47		0.08
	233	2.909	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	232	2.909	3.600	3.310	RC1	3	60.0	Middle	$\tau_{y'z}$	0.03	0.55	0.05
	232	2.909	3.600	3.310	RC1	2	35.0	Middle	$\tau_{x'z}$	0.02	2.08	0.01
	233	2.909	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.41	2.77	0.15
	233	2.909	3.600	6.680	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y'}$)			0.02
	232	2.909	3.600	3.310	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.05
31	197	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	0.46	9.69	0.05
	197	0.000	0.000	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	197	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,0}$	1.29	5.54	0.23
	5825	0.185	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	197	0.000	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,0}$	1.75		0.28
	5825	0.185	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	197	0.000	0.000	6.680	RC1	2	35.0	Middle	$\tau_{y'z}$	-0.17	0.55	0.31
	197	0.000	0.000	6.680	RC1	3	60.0	Middle	$\tau_{x'z}$	0.18	2.77	0.06
	5825	0.185	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.88	2.77	0.32
	5825	0.185	0.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y'}$)			0.08
	197	0.000	0.000	6.680	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.31
33	201	0.000	10.800	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	-0.47	9.69	0.05
	201	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	201	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,0}$	1.34	5.54	0.24
	201	0.000	10.800	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	201	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,0}$	1.80		0.29
	201	0.000	10.800	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	200	0.000	7.200	6.680	RC1	3	60.0	Middle	$\tau_{y'z}$	-0.18	0.55	0.32
	201	0.000	10.800	6.680	RC1	3	60.0	Middle	$\tau_{x'z}$	-0.18	2.77	0.06
	5981	0.185	10.800	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.90	2.77	0.32
	5981	0.185	10.800	6.680	RC1	1	10.0	Middle	int($\tau_{x'z}$+$\tau_{x'y'}$)			0.08
	200	0.000	7.200	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.32
34	6107	1.335	2.000	6.680	RC1	1	20.0	Bottom	$\sigma_{b,0}$	-0.49	16.62	0.03
	5029	2.712	3.600	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	6106	1.137	2.000	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	2.46	9.69	0.25
	5029	2.712	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	6107	1.335	2.000	6.680	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	2.95		0.28
	5029	2.712	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	102	2.909	3.600	6.680	RC1	2	35.0	Middle	$\tau_{y'z}$	-0.13	0.55	0.23
	102	2.909	3.600	6.680	RC1	3	60.0	Middle	$\tau_{x'z}$	0.13	2.77	0.05
	5029	2.712	3.600	6.680	RC1	5	120.0	Bottom	$\tau_{x'y'}$	-0.63	2.77	0.23
	5029	2.712	3.600	6.680	RC1	5	110.0	Middle	int($\tau_{x'z}$+$\tau_{x'y'}$)			0.04
	102	2.909	3.600	6.680	RC1	4	70.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.23
Max U.C. daken → 35	102	2.909	3.600	6.680	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.80	16.62	0.05
	117	3.140	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	102	2.909	3.600	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.93	9.69	0.41
	104	2.909	7.200	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	102	2.909	3.600	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	3.13		0.45
	104	2.909	7.200	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	104	2.909	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z}$	-0.20	0.55	0.36
	104	2.909	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z}$	0.21	2.77	0.07
	104	2.909	7.200	6.680	RC1	5	120.0	Bottom	$\tau_{x'y'}$	0.26	2.77	0.09
	104	2.909	7.200	6.680	RC1	5	110.0	Middle	int($\tau_{x'z}$+$\tau_{x'y'}$)			0.01
	104	2.909	7.200	6.680	RC1	2	20.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z}$)			0.36
36	117	3.140	7.200	6.680	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.64	16.62	0.04
	104	2.909	7.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00



2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	117	3.140	7.200	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	3.00	9.69	0.31
	118	3.140	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	117	3.140	7.200	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	2.35		0.35
	118	3.140	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	104	2.909	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.11	0.55	0.21
	104	2.909	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.12	2.77	0.04
	104	2.909	7.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.68	2.77	0.25
	104	2.909	7.200	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.04
	104	2.909	7.200	6.680	RC1	4	70.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.21
37	4874	3.921	3.600	6.680	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.44	16.62	0.03
	6434	3.360	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	6438	3.799	0.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	2.16	5.54	0.39
	6444	4.399	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	6438	3.799	0.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	2.08		0.40
	6444	4.399	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	6438	3.799	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.12	0.55	0.21
	4874	3.921	3.600	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.12	2.77	0.04
	6438	3.799	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.79	2.77	0.29
	6438	3.799	0.000	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.08
	6438	3.799	0.000	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.21
38	5527	4.116	5.400	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.46	9.69	0.05
	208	3.140	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	120	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	2.30	9.69	0.24
	6650	4.320	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	120	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.86		0.26
	6650	4.320	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	121	5.540	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.10	0.55	0.17
	121	5.540	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.10	2.77	0.04
	208	3.140	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.62	2.77	0.23
	6650	4.320	3.600	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.04
	121	5.540	7.200	6.680	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.17
39	5145	3.531	7.200	6.680	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.44	16.62	0.03
	210	3.140	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7057	3.799	10.800	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	1.70	5.54	0.31
	7057	3.799	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	7057	3.799	10.800	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	1.63		0.31
	7057	3.799	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7057	3.799	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.11	0.55	0.20
	99	4.116	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.12	2.77	0.04
	210	3.140	7.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-1.17	2.77	0.42
	210	3.140	7.200	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.12
	7057	3.799	10.800	6.680	RC1	3	50.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.20
40	7174	7.940	1.600	6.680	RC1	4	70.0	Top	$\sigma_{b,0}$	-0.45	9.69	0.05
	7291	7.340	3.600	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	213	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.92	9.69	0.20
	7270	7.940	3.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	213	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.53		0.22
	7270	7.940	3.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	213	5.540	3.600	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.08	0.55	0.15
	213	5.540	3.600	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.08	2.77	0.03
	7292	7.540	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.48	2.77	0.17
	7292	7.540	3.600	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.03
	213	5.540	3.600	6.680	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.15
41	7402	7.940	5.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.43	9.69	0.04
	7291	7.340	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	214	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	2.18	9.69	0.23
	7508	7.540	7.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	214	5.540	3.600	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.74		0.25
	7508	7.540	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	215	5.540	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	-0.09	0.55	0.16
	215	5.540	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.09	2.77	0.03
	7292	7.540	3.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.45	2.77	0.16
	7292	7.540	3.600	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.02
	215	5.540	7.200	6.680	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.16
42	7630	7.940	9.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.45	9.69	0.05
	7507	7.340	7.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	216	5.540	7.200	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.94	9.69	0.20
	7724	7.540	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	216	5.540	7.200	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.55		0.22
	7724	7.540	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	216	5.540	7.200	6.680	RC1	2	35.0	Middle	$\tau_{y'z'}$	0.08	0.55	0.15
	216	5.540	7.200	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	-0.08	2.77	0.03
	7508	7.540	7.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.47	2.77	0.17
	7508	7.540	7.200	6.680	RC1	1	10.0	Middle	$int(\tau_{x'z'}+\tau_{x'y'})$			0.03
	216	5.540	7.200	6.680	RC1	2	20.0	Top	$int(\sigma_{t/c,90}+\tau_{y'z'})$			0.15
43	7102	7.940	0.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.60	9.69	0.06
	7733	8.140	0.400	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7102	7.940	0.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.97	5.54	0.17
	7102	7.940	0.400	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00

the scale towards document

2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	7102	7.940	0.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.37		0.24
	7102	7.940	0.400	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7729	8.340	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.11
	7729	8.340	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	7270	7.940	3.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.32	2.77	0.12
	7270	7.940	3.200	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	7729	8.340	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.11
44	7318	7.940	4.000	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.55	9.69	0.06
	7330	7.940	4.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7318	7.940	4.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.86	5.54	0.15
	7318	7.940	4.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	7318	7.940	4.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.30		0.21
	7318	7.940	4.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7782	8.340	3.600	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.10
	7782	8.340	3.600	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	7318	7.940	4.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.27	2.77	0.10
	7318	7.940	4.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	7782	8.340	3.600	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.10
45	7702	7.940	10.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.60	9.69	0.06
	7883	8.140	10.400	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7702	7.940	10.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.97	5.54	0.17
	7534	7.940	7.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	7702	7.940	10.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.37		0.24
	7534	7.940	7.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7890	8.340	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.11
	7890	8.340	10.800	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	7534	7.940	7.600	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.33	2.77	0.12
	7534	7.940	7.600	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	7890	8.340	10.800	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.11
46	64	0.000	0.000	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.11	9.69	0.01
	7904	0.370	-0.200	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	5827	0.370	0.000	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	0.63	9.69	0.07
	5827	0.370	0.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	1.38	0.00
	5827	0.370	0.000	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	0.51		0.07
	5827	0.370	0.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	64	0.000	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.07	0.55	0.13
	64	0.000	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.05	2.08	0.02
	5827	0.370	0.000	6.680	RC1	5	120.0	Bottom	$\tau_{x'y'}$	-0.29	2.77	0.10
	5827	0.370	0.000	6.680	RC1	3	60.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	64	0.000	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.13
47	5987	1.140	0.000	6.680	RC1	1	0.0	Top	$\sigma_{b,0}$	-0.16	16.62	0.01
	9621	0.740	-0.400	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	5987	1.140	0.000	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	0.82	9.69	0.08
	115	3.140	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	5987	1.140	0.000	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	0.66		0.09
	115	3.140	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	115	3.140	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.06	0.55	0.12
	115	3.140	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.04	2.08	0.02
	115	3.140	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.34	2.77	0.12
	115	3.140	0.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.01
	115	3.140	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.12
48	6438	3.799	0.000	6.680	RC1	4	100.0	Bottom	$\sigma_{b,0}$	0.15	9.69	0.02
	119	5.540	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	6438	3.799	0.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	2.08	5.54	0.38
	6438	3.799	0.000	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	6438	3.799	0.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	1.99		0.39
	6438	3.799	0.000	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	6438	3.799	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.11	0.55	0.20
	6438	3.799	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.07	2.08	0.03
	6436	3.579	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.53	2.77	0.19
	6438	3.799	0.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.04
	6438	3.799	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.20
49	8002	7.940	-0.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.32	9.69	0.03
	8012	7.540	-0.200	6.680	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	8002	7.940	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.51	5.54	0.09
	7085	7.540	0.000	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	8002	7.940	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.19		0.13
	7085	7.540	0.000	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7085	7.540	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.04	0.55	0.08
	8002	7.940	-0.400	6.680	RC1	3	60.0	Middle	$\tau_{x'z'}$	0.04	2.77	0.01
	7083	7.340	0.000	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.15	2.77	0.05
	7083	7.340	0.000	6.680	RC1	1	10.0	Middle	int($\tau_{x'z'}$+$\tau_{x'y'}$)			0.00
	7085	7.540	0.000	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+$\tau_{y'z'}$)			0.08
50	77	7.940	-0.600	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.31	9.69	0.03
	8002	7.940	-0.400	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	8002	7.940	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.44	5.54	0.08
	8016	8.140	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	8002	7.940	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.15		0.11
	8016	8.140	-0.400	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00

the scale towards document
Image Engineering Scan Reference Chart TE263 Serial No. 40
Patch Reference numbers on UTT

2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	7729	8.340	0.000	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.11
	7729	8.340	0.000	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	8002	7.940	-0.400	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.08	2.77	0.03
	8002	7.940	-0.400	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.00
	7729	8.340	0.000	6.680	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
51	66	0.000	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.11	9.69	0.01
	8026	0.370	11.000	6.680	RC1	4	100.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	5982	0.370	10.800	6.680	RC1	5	100.0	Top	$\sigma_{t/c,0}$	0.61	9.69	0.06
	5982	0.370	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	5982	0.370	10.800	6.680	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	0.49		0.07
	5982	0.370	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	66	0.000	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.07	0.55	0.13
	66	0.000	10.800	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.05	2.08	0.02
	5982	0.370	10.800	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.31	2.77	0.11
	5982	0.370	10.800	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.01
	66	0.000	10.800	6.680	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.13
52	6423	1.140	10.800	6.680	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.16	16.62	0.01
	9634	0.740	11.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	118	3.140	10.800	6.680	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-1.21	14.54	0.08
	6423	1.140	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	118	3.140	10.800	6.680	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-1.36		0.09
	6423	1.140	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	118	3.140	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.06	0.55	0.11
	118	3.140	10.800	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.04	2.08	0.02
	118	3.140	10.800	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.35	2.77	0.13
	118	3.140	10.800	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.02
	118	3.140	10.800	6.680	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
53	8090	3.966	11.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,0}$	0.15	9.69	0.02
	8077	3.780	11.000	6.680	RC1	4	70.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	7057	3.799	10.800	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	1.67	5.54	0.30
	7060	4.399	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	7057	3.799	10.800	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	1.60		0.31
	7060	4.399	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7057	3.799	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.11	0.55	0.19
	7057	3.799	10.800	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.07	2.08	0.03
	7057	3.799	10.800	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.63	2.77	0.23
	7057	3.799	10.800	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.05
	7057	3.799	10.800	6.680	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.19
54	8134	7.940	11.200	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.32	9.69	0.03
	8120	7.540	11.000	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	8134	7.940	11.200	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.51	5.54	0.09
	7715	5.740	10.800	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	8134	7.940	11.200	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.19		0.12
	7715	5.740	10.800	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7724	7.540	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	-0.04	0.55	0.08
	7724	7.540	10.800	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	-0.03	2.08	0.01
	7723	7.340	10.800	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	-0.19	2.77	0.07
	7723	7.340	10.800	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.00
	7724	7.540	10.800	6.680	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.08
55	81	7.940	11.400	6.680	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.31	9.69	0.03
	8134	7.940	11.200	6.680	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	8134	7.940	11.200	6.680	RC1	4	70.0	Top	$\sigma_{t/c,0}$	0.44	5.54	0.08
	8134	7.940	11.200	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	8134	7.940	11.200	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.14		0.11
	8134	7.940	11.200	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	7890	8.340	10.800	6.680	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.06	0.55	0.11
	7890	8.340	10.800	6.680	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.04	2.08	0.02
	8134	7.940	11.200	6.680	RC1	1	0.0	Top	$\tau_{x'y'}$	0.09	2.77	0.03
	8134	7.940	11.200	6.680	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.00
	7890	8.340	10.800	6.680	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.11
56	8290	0.000	7.600	0.000	RC1	2	20.0	Top	$\sigma_{b,0}$	-0.28	9.69	0.03
	8272	0.000	8.000	0.389	RC1	4	100.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	520	0.000	7.200	0.389	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-5.15	14.54	0.35
	520	0.000	7.200	0.389	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	520	0.000	7.200	0.389	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	-5.16		0.35
	520	0.000	7.200	0.389	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	8290	0.000	7.600	0.000	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.13	0.55	0.24
	8290	0.000	7.600	0.000	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.09	2.08	0.04
	520	0.000	7.200	0.389	RC1	1	0.0	Top	$\tau_{x'y'}$	0.53	2.77	0.19
	520	0.000	7.200	0.389	RC1	1	10.0	Middle	$\text{int}(\tau_{x'z'}+\tau_{x'y'})$			0.04
	8290	0.000	7.600	0.000	RC1	3	50.0	Top	$\text{int}(\sigma_{t/c,90}+\tau_{y'z'})$			0.24
57	263	0.000	9.000	3.310	RC1	5	100.0	Top	$\sigma_{b,0}$	-0.26	16.62	0.02
	34	0.000	7.200	3.310	RC1	4	100.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	263	0.000	9.000	3.310	RC1	5	100.0	Top	$\sigma_{t/c,0}$	1.27	9.69	0.13
	9748	0.000	9.000	6.482	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	263	0.000	9.000	3.310	RC1	5	100.0	Top	$\sigma_{b+t/c,0}$	1.01		0.15
	9748	0.000	9.000	6.482	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	34	0.000	7.200	3.310	RC1	3	60.0	Middle	$\tau_{y'z'}$	0.05	0.55	0.10
	34	0.000	7.200	3.310	RC1	2	35.0	Middle	$\tau_{x'z'}$	0.03	2.08	0.02

the scale towards document
Patch Reference numbers on UTT
Trusjet Engineering Scan Reference Chart TE283 Serial No.

■ 2.2 MAX STRESS RATIO BY SURFACE

Surface No	Point No.	Point Coordinates [m] X	Y	Z	Load-ing	Layer No.	z [mm]	Side	Stresses [N/mm²] Symbol	Existing	Limit	Ratio [-]
	34	0.000	7.200	3.310	RC1	1	0.0	Top	τ_{xy}	-0.41	2.77	0.15
	34	0.000	7.200	3.310	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.02
	34	0.000	7.200	3.310	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+τ_{yz})			0.10
58	10	0.000	1.800	3.310	RC1	1	20.0	Bottom	$\sigma_{b,0}$	0.16	16.62	0.01
	8532	0.000	3.400	0.389	RC1	2	20.0	Top	$\sigma_{b,90}$	0.00	9.69	0.00
	9644	0.000	3.600	3.310	RC1	1	0.0	Top	$\sigma_{t/c,0}$	1.21	9.69	0.13
	9644	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	9644	0.000	3.600	3.310	RC1	1	0.0	Top	$\sigma_{b+t/c,0}$	1.23		0.13
	9644	0.000	3.600	3.310	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	8549	0.000	3.200	0.000	RC1	3	60.0	Middle	τ_{yz}	-0.04	0.55	0.07
	8549	0.000	3.200	0.000	RC1	2	35.0	Middle	τ_{xz}	-0.02	2.08	0.01
	8541	0.000	3.200	0.195	RC1	5	120.0	Bottom	τ_{xy}	-0.26	2.77	0.10
	8541	0.000	3.200	0.195	RC1	5	110.0	Middle	int(τ_{xz}+τ_{xy})			0.01
	8549	0.000	3.200	0.000	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+τ_{yz})			0.07
59	9662	0.000	3.600	6.680	RC1	4	70.0	Top	$\sigma_{b,0}$	-0.24	9.69	0.02
	9663	0.000	3.600	6.482	RC1	2	50.0	Bottom	$\sigma_{b,90}$	0.00	9.69	0.00
	9644	0.000	3.600	3.310	RC1	1	0.0	Top	$\sigma_{t/c,0}$	-1.30	14.54	0.09
	9662	0.000	3.600	6.680	RC1	2	20.0	Top	$\sigma_{t/c,90}$	0.00	0.25	0.00
	9662	0.000	3.600	6.680	RC1	4	70.0	Top	$\sigma_{b+t/c,0}$	0.20		0.11
	9662	0.000	3.600	6.680	RC1	2	20.0	Top	$\sigma_{b+t/c,90}$	0.00		0.00
	9662	0.000	3.600	6.680	RC1	3	60.0	Middle	τ_{yz}	-0.05	0.55	0.08
	9662	0.000	3.600	6.680	RC1	2	35.0	Middle	τ_{xz}	-0.03	2.08	0.01
	9662	0.000	3.600	6.680	RC1	1	0.0	Top	τ_{xy}	0.39	2.77	0.14
	9662	0.000	3.600	6.680	RC1	1	10.0	Middle	int(τ_{xz}+τ_{xy})			0.02
	9662	0.000	3.600	6.680	RC1	3	50.0	Top	int($\sigma_{t/c,90}$+τ_{yz})			0.08

Maximum Ratio 0.52



Solid Timber

Bijlage 3 – Resultaten Statcon Structures

Statcon Structure 2017.1 SP1	Solid Timber 10494	1706-2
	Construction Vloer 3x3,6m	**Object reference** **Customer** 2017-04-30 Bas

Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-120-5S 1000×120 10800 mm 1,296 m³ 518,4 kg γm=1.25
Shear force reduction: Yes

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@7200,0,0)	#34	
My [kNm]	8,641	(@7200,0,0)	#34	31,6 %
Mz [kNm]	0,000	(@7200,0,0)	#34	
Vy [kN]	0,000	(@7400,0,0)	#34	21,6 %
Vz [kN]	-12,154	(@7400,0,0)	#34	

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 20. {Min. value}	L.phys. = 99. {L.eff = 30 + L.phys. = 129}	2,6 %
@ Support 2	L.phys. = 20. {Min. value}	-	- %
@ Upplag 3	L.phys. = 20. {Min. value}	-	- %
@ Upplag 4	L.phys. = 20. {Min. value}	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans	Lx [mm]	Buckl. length Lcy [mm]	Lcz [mm]	Deflections Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Fält :1	3600	3600	3600	-14	-9	L/264	L/380	#69
Fält :2	3600	3600	3600	-8	-7	L/457	L/524	#66
Fält :3	3600	3600	3600	-14	-9	L/264	L/380	#69

Support material check	C.S.I [%] / C.S.I (edge) [%]	Support reactions Ult. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Support reactions Serv. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Support 1	1,0 (kc90=1)	9,607	0,000	0,000	8,818	0,000	0,000
Size: 99×1000 ,C14 [P]		1,507	0,000	0,000	2,446	0,000	0,000
Support 2		25,615	0,000	0,000	23,601	0,000	0,000
-		4,809	0,000	0,000	7,234	0,000	0,000
Upplag 3		25,615	0,000	0,000	23,601	0,000	0,000
-		4,809	0,000	0,000	7,234	0,000	0,000
Upplag 4		9,607	0,000	0,000	8,818	0,000	0,000
-		1,507	0,000	0,000	2,446	0,000	0,000

Vibration check
Material
[E=3500 E.90=3500 Ec=2100 Ec.90=2100, ρ=500, t=22 mm]
s=1000 mm, b=1000 mm, n=5, Interact=Yes, Pred=No

Results
Eigen-frequence: 11,18Hz -OK-
Responce: -OK-
Instant defl.: 0,86 mm

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: All; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 10800 **Load width, end [mm]:** 1000

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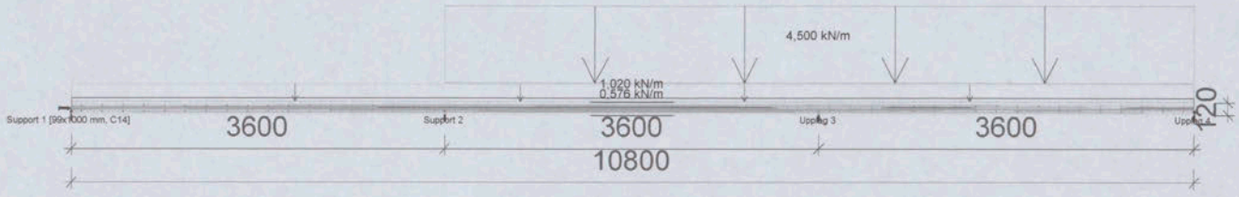
the scale towards document

Permanent Loads: 0,850 kN/m²
Live Loads: 2,500 kN/m², Office (MT), Self-Weight <= 1 kN/m
Snow Loads: -
Wind Load: -

Loaded Area [m²] [m²]: 10, αA [1]

Defl. ULS

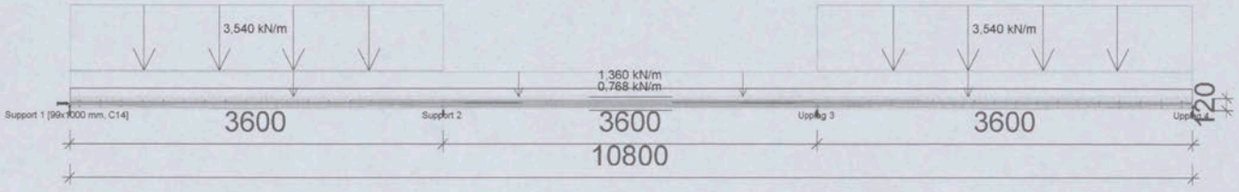
#34 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:66

Defl. SLS

#69 Permanent + Office {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:66

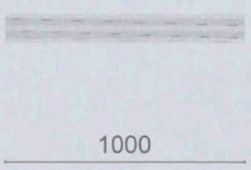
Section

L-120-5S 1000×120

A= 120000 mm²
W.y= 2400000 mm³
W.z= 20000000 mm³
I.y= 144000000 mrn*mm³
I.z= 10000000000 mm*mm³

L-120-5S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 5242,00 N/mm²
Em = 7859,00 N/mm²
E90m = 2304,00 N/mm²
fc90k = 3,00 N/mm²
fck = 10,50 N/mm²
fmk = 17,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 7,00 N/mm²
fvk = 1,10 N/mm²
G005 = 327,62 N/mm²
Gm = 83,00 N/mm²



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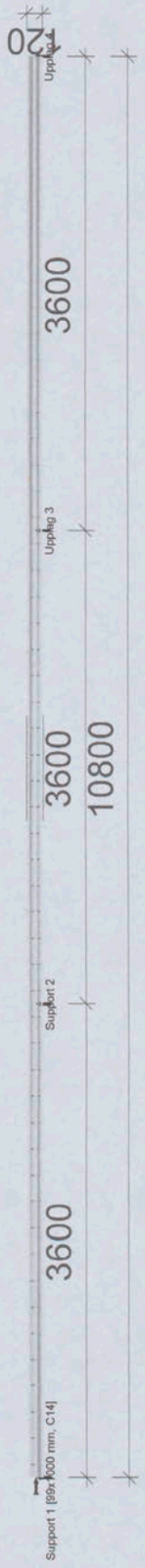
Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** Vloer 3x3,6m	**Object reference** 1706-2 **Customer** 2017-04-30 Bas

Scale: 1:52



Over view - Elevation

Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#4 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#5 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#6 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#7 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#8 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#9 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#10 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#11 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#12 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#13 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#14 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#15 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#16 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#17 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#18 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#19 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#20 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#21 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#22 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#23 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#24 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#25 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#26 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#27 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#28 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#29 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#30 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#31 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#32 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#33 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#34 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#35 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#36 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#37 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#38 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#39 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#40 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#41 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#42 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#43 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#44 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#45 Permanent {6.16b [QUASI-PERM]}
#46 Permanent + Snow {6.16b [QUASI-PERM]}
#47 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#48 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#49 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#50 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#51 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#52 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#53 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#54 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#55 Permanent + Wind {6.16b [QUASI-PERM]}
#56 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#57 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#58 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#59 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#60 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#61 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#62 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#63 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#64 Permanent + Office {6.16b [QUASI-PERM]}
#65 Permanent + Office {6.16b [QUASI-PERM]}
#66 Permanent + Office {6.16b [QUASI-PERM]}
#67 Permanent + Office {6.16b [QUASI-PERM]}
#68 Permanent + Office {6.16b [QUASI-PERM]}
#69 Permanent + Office {6.16b [QUASI-PERM]}
#70 Permanent + Office {6.16b [QUASI-PERM]}
#71 Permanent + Office {6.16b [QUASI-PERM]}

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#72 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#73 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#74 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#75 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#76 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#77 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#78 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#79 Permanent + Office + Roof* {6.16b [QUASI-PERM]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-70-3S 1000×70 10800 mm 0,756 m³ 302,4 kg -

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@0,0,0)	#-1	
My [kNm]	0,000	(@0,0,0)	#-1	
Mz [kNm]	0,000	(@0,0,0)	#-1	
Vy [kN]	0,000	(@0,0,0)	#1	0,0 %
Vz [kN]	0,000	(@0,0,0)	#1	

Accidental loads			
	Axial + Bend	#4	27,5 %
	Shear	#4	16,7 %

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	-	-	- %
@ Support 2	-	-	- %
@ Upplag 3	-	-	- %
@ Upplag 4	-	-	- %

Bearing check method: EN 1995-1-1 6.1.5

Spans	Lx [mm]	Buckl. length Lcy [mm]	Lcz [mm]	Deflections Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Fält :1	3600	3600	3600	0	0	< L/1000	< L/1000	#
Fält :2	3600	3600	3600	0	0	< L/1000	< L/1000	#
Fält :3	3600	3600	3600	0	0	< L/1000	< L/1000	#

Support material check

	C.S.I [%] / C.S.I (edge) [%]	Support reactions Ult. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Support reactions Serv. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Support 1	0,0 (kc90=1)	0,000	0,000	0,000	0,000	0,000	0,000
Size: 99×1000 ,C14 [P]		0,000	0,000	0,000	0,000	0,000	0,000
Support 2		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000
Upplag 3		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000
Upplag 4		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: All; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 10800 **Load width, end [mm]:** 1000

Permanent Loads: 0,850 kN/m²
Live Loads: 2,500 kN/m², Office (MT), Self-Weight <= 1 kN/m **Loaded Area [m²] [m²]:** 10, αA [1]

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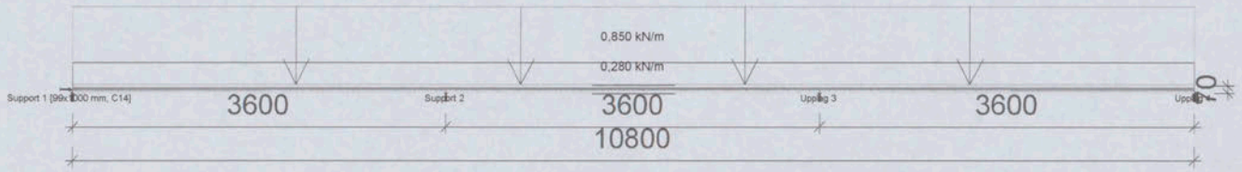
Snow Loads: -

Wind Load: -

Defl. ULS

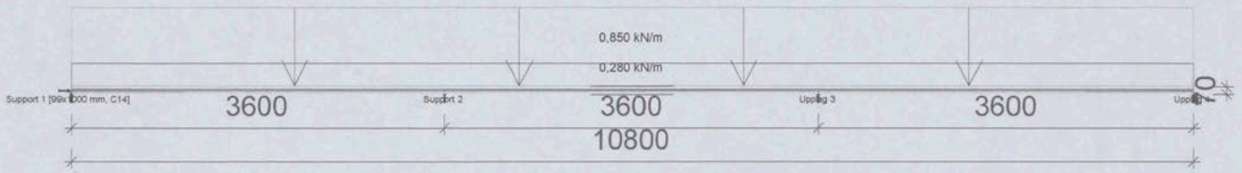
-



Scale: 1:66

Defl. SLS

-



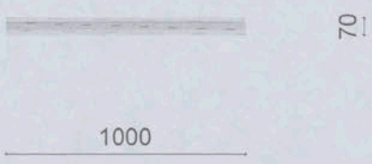
Scale: 1:66

Section
L-70-3S 1000×70

A= 70000 mm²
W.y= 816667 mm³
W.z= 11666667 mm³
I.y= 28583333 mm⁴mm³
I.z= 5833333333 mm⁴mm³

L-70-3S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 6817,00 N/mm²
Em = 10152,00 N/mm²
E90m = 892,00 N/mm²
fc90k = 3,00 N/mm²
fck = 12,00 N/mm²
fmk = 22,11 N/mm²
ft90k = 0,40 N/mm²
ftk = 8,00 N/mm²
fvk = 1,10 N/mm²
G005 = 426,06 N/mm²
Gm = 95,00 N/mm²



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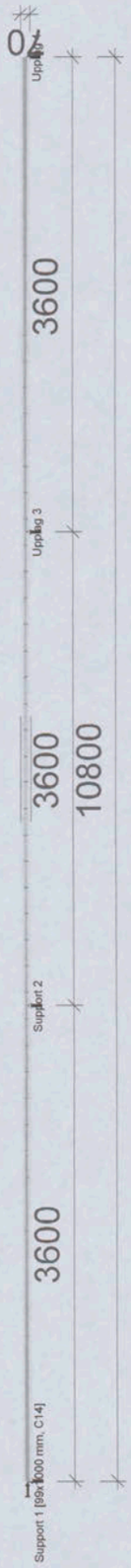
Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** Vloer 3x3,6m - Brand	**Object reference** 1706-2 **Customer** 2017-04-30 Bas

Scale: 1:52



Over view - Elevation

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Load Combinations

#1 Permanent {P} <Ult. 6.11a/b -A1.3 [ACCIDENT] >
#2 Permanent + 0,5 × Office* {MT} <Ult. 6.11a/b -A1.3 [ACCIDENT] >
#3 Permanent + 0,5 × Office* {MT} <Ult. 6.11a/b -A1.3 [ACCIDENT] >
#4 Permanent + 0,5 × Office* {MT} <Ult. 6.11a/b -A1.3 [ACCIDENT] >
#5 Permanent + 0,5 × Office* {MT} <Ult. 6.11a/b -A1.3 [ACCIDENT] >
#6 Permanent + 0,5 × Office* {MT} <Ult. 6.11a/b -A1.3 [ACCIDENT] >
#7 Permanent + 0,5 × Office* {MT} <Ult. 6.11a/b -A1.3 [ACCIDENT] >
#8 Permanent + 0,5 × Office* {MT} <Ult. 6.11a/b -A1.3 [ACCIDENT] >

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-120-5S 1000×120 12000 mm 1,44 m³ 576 kg γm=1.25
Shear force reduction: Yes

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@7800,0,0)	#6	
My [kNm]	4,083	(@7800,0,0)	#6	15,0 %
Mz [kNm]	0,000	(@7800,0,0)	#6	
Vy [kN]	0,000	(@8000,0,0)	#6	11,0 %
Vz [kN]	-6,178	(@8000,0,0)	#6	

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 20. {Min. value}	L.phys. = 99. {L.eff = 60 + L.phys. = 159}	1,9 %
@ Support 2	L.phys. = 20. {Min. value}	-	- %
@ Upplag 3	L.phys. = 20. {Min. value}	-	- %
@ Upplag 4	L.phys. = 20. {Min. value}	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans		Buckl. length		Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Cantilever, left	600	1350	1350	1	1	L/414	L/743	#10
Span no: 1	3600	3600	3600	-5	-2	L/680	< L/1000	#10
Span no: 2	3600	3600	3600	-2	-1	< L/1000	< L/1000	#10
Span no: 3	3600	3600	3600	-5	-2	L/680	< L/1000	#10
Cantilever, right	600	1350	1350	1	1	L/414	L/743	#10

Support material check		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%] / C.S.I (edge) [%]	Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Support 1	0,9 (kc90=1)	8,726	0,000	0,000	9,531	0,000	0,000
Size: 99×1000 ,C14 [P]	-	5,570	0,000	0,000	7,427	0,000	0,000
Support 2		12,970	0,000	0,000	13,397	0,000	0,000
-		7,126	0,000	0,000	9,501	0,000	0,000
Upplag 3		12,970	0,000	0,000	13,397	0,000	0,000
-		7,126	0,000	0,000	9,501	0,000	0,000
Upplag 4		8,726	0,000	0,000	9,531	0,000	0,000
-		5,570	0,000	0,000	7,427	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 12000 **Load width, end [mm]:** 1000

Permanent Loads: 1,100 kN/m²

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the scale towards document

Live Loads:	1,000 kN/m², Public, loose tables (MT), No partition walls	**Loaded Area [m²] [m²]:**	10, αA [1]
Snow Loads:	0,700 kN/m² (MT), Ct [1], μ-from=0,80, μ-to=0,80	**Snow guard:** Yes	**Apply Snow Overh** No
Wind Load:	-		

Extra loads

Name

Zonwering, Permanent, (P), Standard, 1,100 kN, @0 mm, Vertical, 270,00°

Zonwering, Permanent, (P), Standard, 1,100 kN, @12000 mm, Vertical, 270,00°

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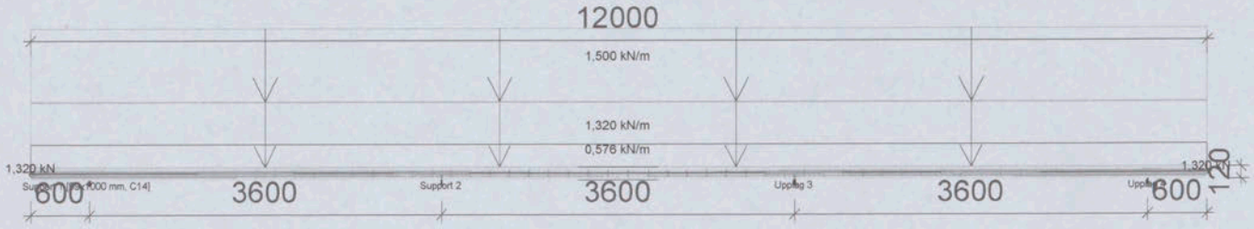
Defl. ULS

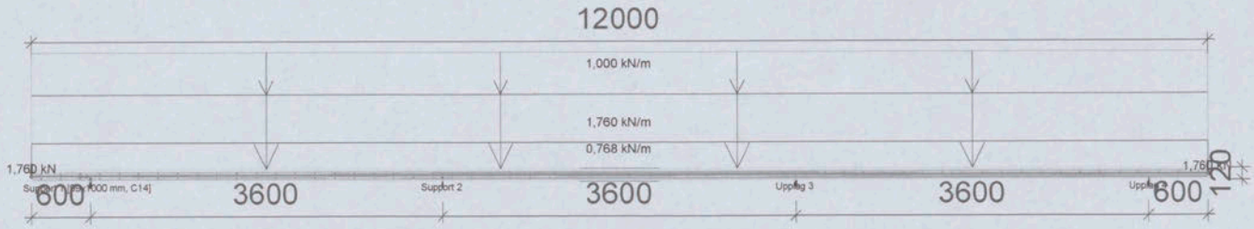
#6 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:70

Defl. SLS

#10 Permanent + Roof {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:70

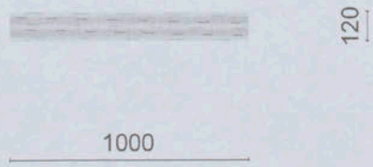
Section

L-120-5S 1000×120

A= 120000 mm²
W.y= 2400000 mm³
W.z= 20000000 mm³
I.y= 144000000 mm⁴mm²
I.z= 10000000000 mm⁴mm²

L-120-5S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 5242,00 N/mm²
Em = 7859,00 N/mm²
E90m = 2304,00 N/mm²
fc90k = 3,00 N/mm²
fck = 10,50 N/mm²
fmk = 17,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 7,00 N/mm²
fvk = 1,10 N/mm²
G005 = 327,62 N/mm²
Gm = 83,00 N/mm²



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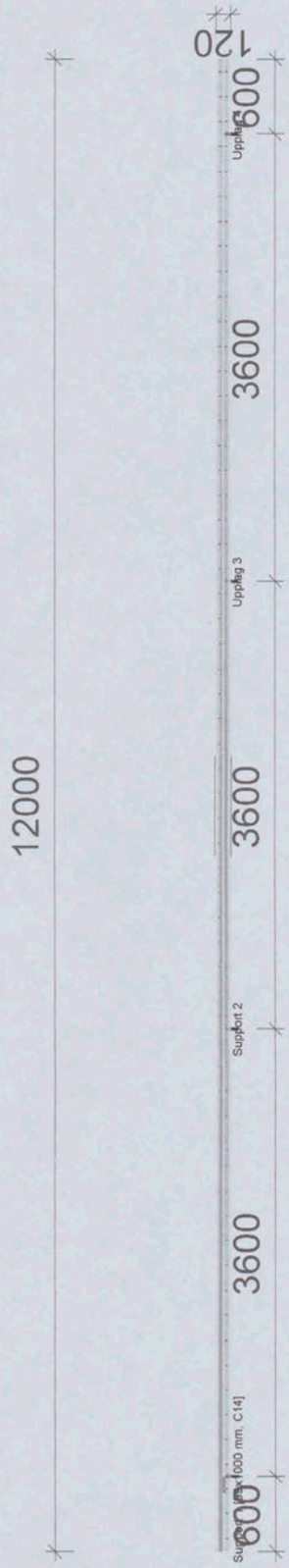
Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** Dak 3x3,6m	**Object reference** 1706-2 **Customer** 2017-04-30 Bas

Scale: 1:55



Over view - Elevation

Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Roof {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Roof + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent {6.16b [QUASI-PERM]}
#8 Permanent + Snow {6.16b [QUASI-PERM]}
#9 Permanent + Wind {6.16b [QUASI-PERM]}
#10 Permanent + Roof {6.16b [QUASI-PERM]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-120-5S 1000×120 4200 mm 0,504 m³ 201,6 kg γm=1.25
Shear force reduction: Yes

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@1700,0,0)	#3	
My [kNm]	-6,349	(@1700,0,0)	#3	23,3 %
Mz [kNm]	0,000	(@1700,0,0)	#3	
Vy [kN]	0,000	(@0,0,0)	#3	13,1 %
Vz [kN]	-7,919	(@0,0,0)	#3	

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 20. {Min. value}	L.phys. = 99. {L.eff = 30 + L.phys. = 129}	2,1 %
@ Support 2	L.phys. = 20. {Min. value}	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans	Lx [mm]	Buckl. length Lcy [mm]	Lcz [mm]	Deflections Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Span no: 1	3600	3600	3600	-12	-5	L/295	L/678	#8
Cantilever, right	600	1350	1350	4	2	L/135	L/252	#8

Support material check		Support reactions Ult. Max vert. [kN]	Max hor. [kN]	Max rot. [kNm	Support reactions Serv. Max vert. [kN]	Max hor. [kN]	Max rot. [kNm
	C.S.I [%]						
	C.S.I (edge) [%]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]
Support 1	0,8 (kc90=1)	7,921	0,000	0,000	7,346	0,000	0,000
Size: 99×1000 ,C14 [P]	-	3,098	0,000	0,000	4,131	0,000	0,000
Support 2		10,912	0,000	0,000	11,398	0,000	0,000
-		6,185	0,000	0,000	8,247	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 4200 **Load width, end [mm]:** 1000
Permanent Loads: 1,100 kN/m²
Live Loads: 1,000 kN/m², Public, loose tables (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=0,80, μ-to=0,80 **Snow guard:** Yes **Apply Snow Overh** No
Wind Load: -

Load surface, snow pocket **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 4200 **Load width, end [mm]:** 1000
Permanent Loads: 0,000 kN/m²
Live Loads: -
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=2,35, μ-to=0,38 **Snow guard:** No **Apply Snow Overh** No
Wind Load: -

Extra loads
Name

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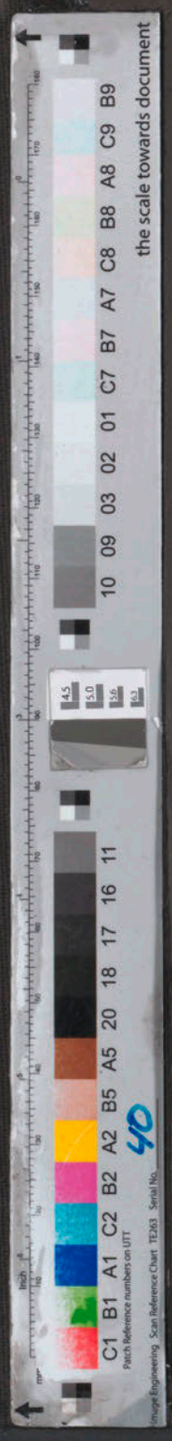
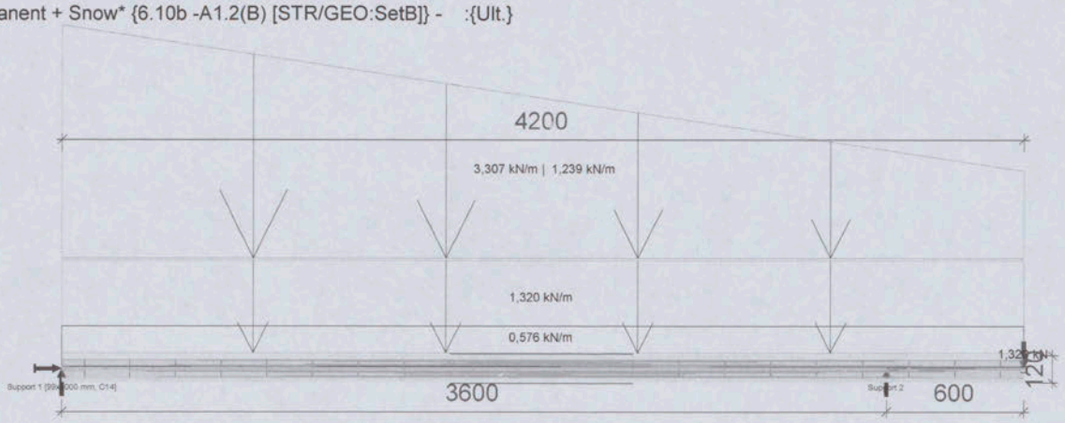
the scale towards document

Zonwering, Permanent, (P), Standard, 1,100 kN, @4200 mm, Vertical, 270,00°



Defl. ULS

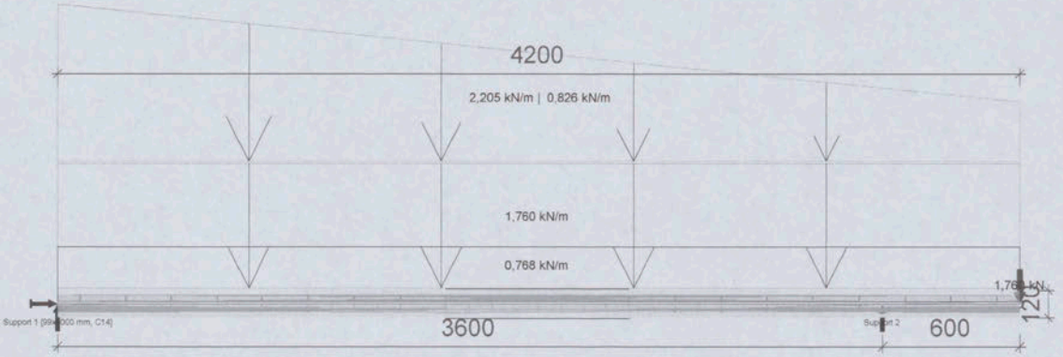
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:30

Defl. SLS

#8 Permanent + Snow {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:30

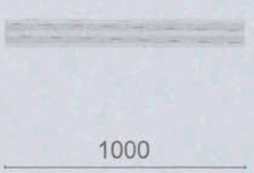
Section

L-120-5S 1000×120

A= 120000 mm²
W.y= 2400000 mm³
W.z= 20000000 mm³
I.y= 144000000 mm*mm³
I.z= 10000000000 mm*mm³

L-120-5S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 5242,00 N/mm²
Em = 7859,00 N/mm²
E90m = 2304,00 N/mm²
fc90k = 3,00 N/mm²
fck = 10,50 N/mm²
fmk = 17,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 7,00 N/mm²
fvk = 1,10 N/mm²
G005 = 327,62 N/mm²
Gm = 83,00 N/mm²



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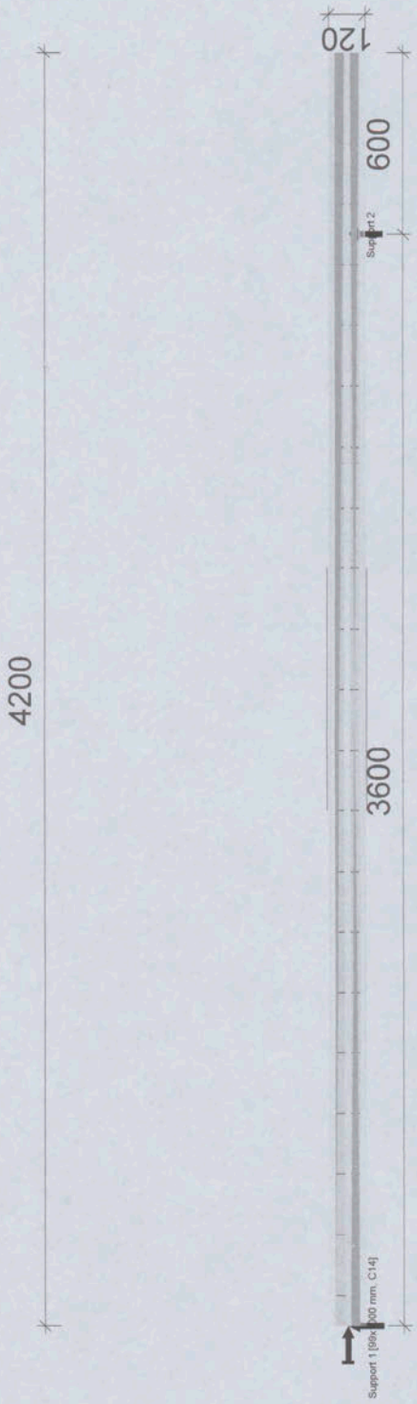
Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** Dak 3,6m	**Object reference** 1706-2 **Customer** 2017-04-30 Bas

Scale: 1:23



Over view - Elevation

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Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Roof {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Roof + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent {6.16b [QUASI-PERM]}
#8 Permanent + Snow {6.16b [QUASI-PERM]}
#9 Permanent + Wind {6.16b [QUASI-PERM]}
#10 Permanent + Roof {6.16b [QUASI-PERM]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile:	L-120-5S 1000×120	4200 mm	0,504 m³	201,6 kg	-

Forces and moments			**Load Combination**	**C.S.I**
Nx [kN]	0,000	(@0,0,0)	#-1	
My [kNm]	0,000	(@0,0,0)	#-1	
Mz [kNm]	0,000	(@0,0,0)	#-1	
Vy [kN]	0,000	(@0,0,0)	#1	
Vz [kN]	0,000	(@0,0,0)	#1	0,0 %

Bearing	**Needed bearing length [mm]**	**Current bearing length. [mm]**	**C.S.I [%]**
@ Support 1	-	-	- %
@ Support 2	-	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans		**Buckl. length**		**Deflections**				
	Lx [mm]	**Lcy [mm]**	**Lcz [mm]**	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Span no: 1	3600	3600	3600	0	0	< L/1000	< L/1000	#
Cantilever, right	600	1350	1350	0	0	< L/1000	< L/1000	#

Support material check

		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%]	**Max vert. [kN]**	**Max hor. [kN]**	**Max rot. [kNm**	**Max vert. [kN]**	**Max hor. [kN]**	**Max rot. [kNm**
	C.S.I (edge) [%]	**Min vert. [kN]**	**Min hor. [kN]**	**Min rot. [kNm]**	**Min vert. [kN]**	**Min hor. [kN]**	**Min rot. [kNm]**
Support 1	0,0 (kc90=1)	0,000	0,000	0,000	0,000	0,000	0,000
Size: 99×1000 ,C14 [P]		0,000	0,000	0,000	0,000	0,000	0,000
Support 2		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 4200 **Load width, end [mm]:** 1000

Permanent Loads: 1,100 kN/m²
Live Loads: 1,000 kN/m², Public, loose tables (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=0,80, μ-to=0,80 **Snow guard:** Yes **Apply Snow Overh** No
Wind Load: -

Load surface, snow pocket **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 4200 **Load width, end [mm]:** 1000

Permanent Loads: 0,000 kN/m²
Live Loads: -
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=2,35, μ-to=0,38 **Snow guard:** No **Apply Snow Overh** No
Wind Load: -

Extra loads
Name
Zonwering, Permanent, (P), Standard, 1,100 kN, @4200 mm, Vertical, 270,00°

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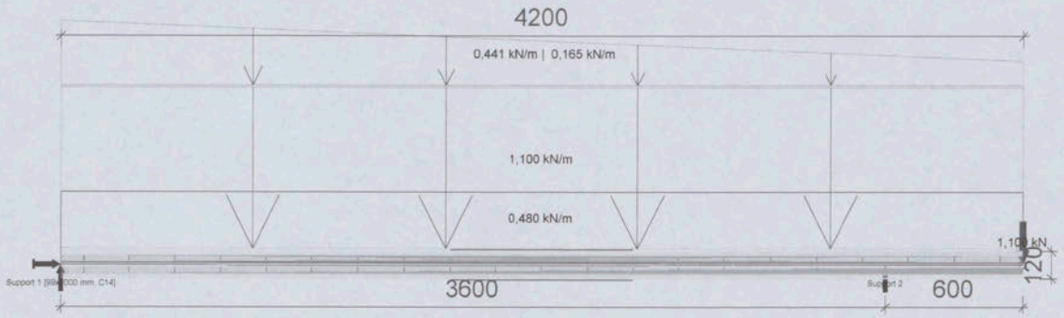
the scale towards document

Defl. ULS

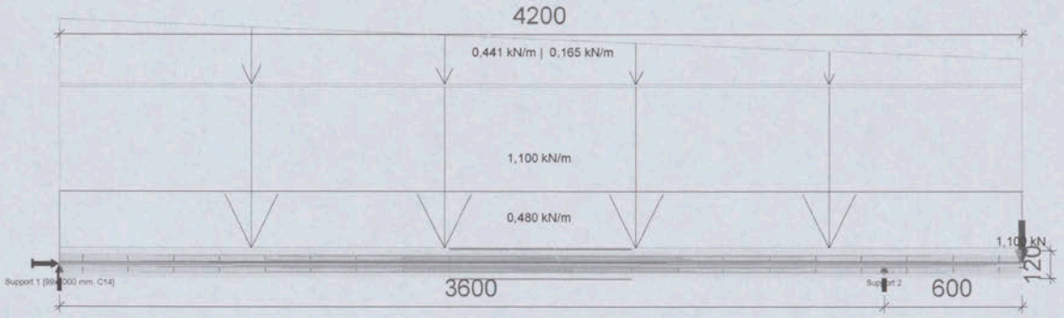
-



Scale: 1:30

Defl. SLS

-



Scale: 1:30

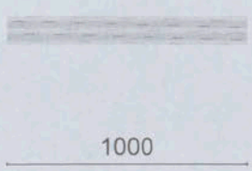
Section

L-120-5S 1000×120

A= 120000 mm²
W.y= 2400000 mm³
W.z= 20000000 mm³
I.y= 144000000 mm⁴mm³
I.z= 10000000000 mm⁴mm³

L-120-5S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 5242,00 N/mm²
Em = 7859,00 N/mm²
E90m = 2304,00 N/mm²
fc90k = 3,00 N/mm²
fck = 10,50 N/mm²
fmk = 17,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 7,00 N/mm²
fvk = 1,10 N/mm²
G005 = 327,62 N/mm²
Gm = 83,00 N/mm²



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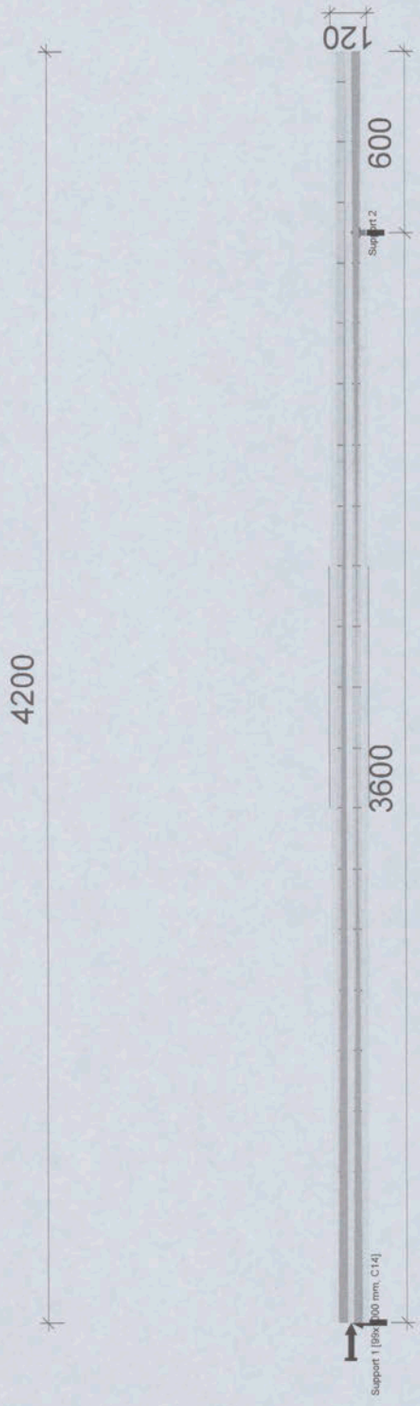
Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** Dak 3,6m - Brand	**Object reference** 1706-2 **Customer** 2017-04-30 Bas

Scale: 1:23



Over view - Elevation

Load Combinations

#1 Permanent + Snow* + Roof {6.11a/b -A1.3 [ACCIDENT]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-120-5S 1000×120 12000 mm 1,44 m³ 576 kg γm=1.25
Shear force reduction: Yes

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@7800,0,0)	#3	
My [kNm]	4,738	(@7800,0,0)	#3	17,4 %
Mz [kNm]	0,000	(@7800,0,0)	#3	
Vy [kN]	0,000	(@4200,0,0)	#3	14,5 %
Vz [kN]	-9,083	(@4200,0,0)	#3	

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 20. {Min. value}	L.phys. = 99. {L.eff = 60 + L.phys. = 159}	1,9 %
@ Support 2	L.phys. = 20. {Min. value}	-	- %
@ Upplag 3	L.phys. = 20. {Min. value}	-	- %
@ Upplag 4	L.phys. = 20. {Min. value}	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans		Buckl. length		Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Cantilever, left	600	1350	1350	1	1	L/414	L/743	#10
Span no: 1	3600	3600	3600	-5	-2	L/680	< L/1000	#10
Span no: 2	3600	3600	3600	-5	-3	L/701	< L/1000	#8
Span no: 3	3600	3600	3600	-5	-2	L/680	< L/1000	#10
Cantilever, right	600	1350	1350	1	1	L/414	L/743	#10

Support material check		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%] / C.S.I (edge) [%]	Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Support 1	0,9 (kc90=1)	8,726	0,000	0,000	9,531	0,000	0,000
Size: 99×1000 .C14 [P]	-	5,570	0,000	0,000	7,427	0,000	0,000
Support 2		14,967	0,000	0,000	14,729	0,000	0,000
-		7,126	0,000	0,000	9,501	0,000	0,000
Upplag 3		14,967	0,000	0,000	14,729	0,000	0,000
-		7,126	0,000	0,000	9,501	0,000	0,000
Upplag 4		8,726	0,000	0,000	9,531	0,000	0,000
-		5,570	0,000	0,000	7,427	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 12000 **Load width, end [mm]:** 1000

Permanent Loads: 1,100 kN/m²

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the scale towards document

Live Loads:	1,000 kN/m², Public, loose tables (MT), No partition walls	**Loaded Area [m²] [m²]:**	10, αA [1]
Snow Loads:	0,700 kN/m² (MT), Ct [1], μ-from=0,80, μ-to=0,80	**Snow guard:** Yes	**Apply Snow Overh** No
Wind Load:	-		

Load surface, snow pocket	**Start X [mm]:** 4200 **End X [mm]:** 7800	**Load width, start [mm]** 1000 **Load width, end [mm]:** 1000	**Pitch [°]:**	0	

Permanent Loads:	0,000 kN/m²		
Live Loads:	-		
Snow Loads:	0,700 kN/m² (MT), Ct [1], μ-from=2,20, μ-to=2,20	**Snow guard:** No	**Apply Snow Overh** No
Wind Load:	-		

Extra loads

Name

Zonwering, Permanent, (P), Standard, 1,100 kN, @0 mm, Vertical, 270,00°

Zonwering, Permanent, (P), Standard, 1,100 kN, @12000 mm, Vertical, 270,00°

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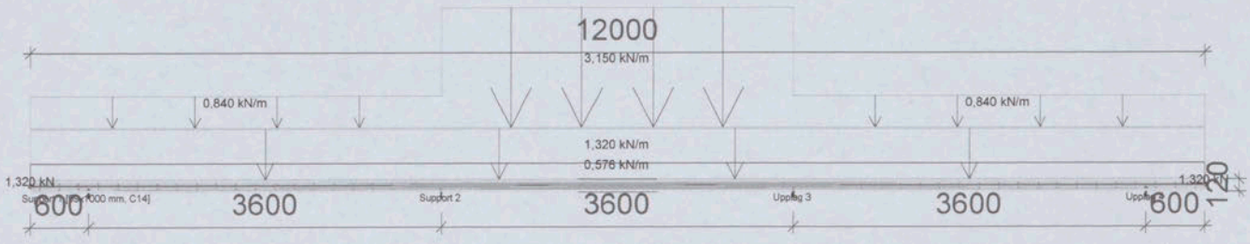
the scale towards document

Defl. ULS

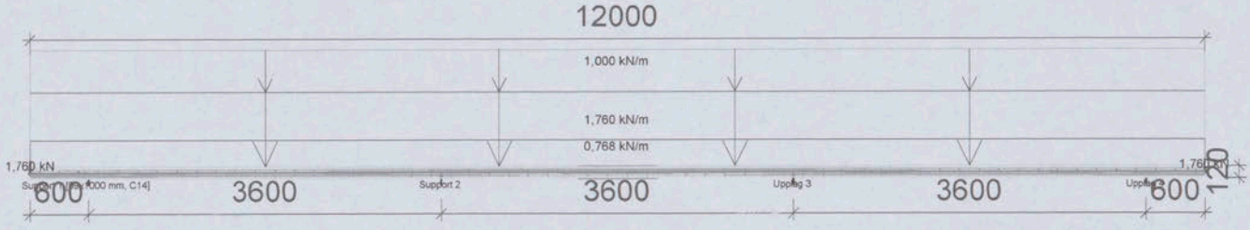
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:70

Defl. SLS

#10 Permanent + Roof {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:70

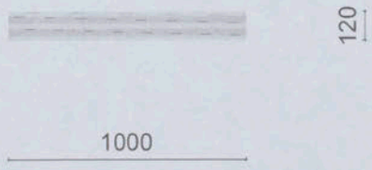
Section

L-120-5S 1000×120

A= 120000 mm²
W.y= 2400000 mm³
W.z= 20000000 mm³
I.y= 144000000 mm⁴mm²
I.z= 10000000000 mm⁴mm²

L-120-5S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 5242,00 N/mm²
Em = 7859,00 N/mm²
E90m = 2304,00 N/mm²
fc90k = 3,00 N/mm²
fck = 10,50 N/mm²
fmk = 17,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 7,00 N/mm²
fvk = 1,10 N/mm²
G005 = 327,62 N/mm²
Gm = 83,00 N/mm²



Over view - Elevation

Scale: 1:55

Statcon Structure 2017.1 SP1	
Solid Timber	10494
Construction Dak 3x3,6m - incl sneeuwophoping	**Object reference**
	Customer
2017-04-30	Bas

1706-2

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Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Roof {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Roof + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent {6.16b [QUASI-PERM]}
#8 Permanent + Snow {6.16b [QUASI-PERM]}
#9 Permanent + Wind {6.16b [QUASI-PERM]}
#10 Permanent + Roof {6.16b [QUASI-PERM]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-70-3S 1000×70 12000 mm 0,84 m³ 336 kg -

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@0,0,0)	#-1	
My [kNm]	0,000	(@0,0,0)	#-1	
Mz [kNm]	0,000	(@0,0,0)	#-1	
Vy [kN]	0,000	(@0,0,0)	#1	0,0 %
Vz [kN]	0,000	(@0,0,0)	#1	

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	-	-	- %
@ Support 2	-	-	- %
@ Upplag 3	-	-	- %
@ Upplag 4	-	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans		Buckl. length		Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Cantilever, left	600	1350	1350	0	0	< L/1000	< L/1000	#
Span no: 1	3600	3600	3600	0	0	< L/1000	< L/1000	#
Span no: 2	3600	3600	3600	0	0	< L/1000	< L/1000	#
Span no: 3	3600	3600	3600	0	0	< L/1000	< L/1000	#
Cantilever, right	600	1350	1350	0	0	< L/1000	< L/1000	#

Support material check		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%]	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm
	C.S.I (edge) [%]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]
Support 1	0,0 (kc90=1)	0,000	0,000	0,000	0,000	0,000	0,000
Size: 99×1000 ,C14 [P]	-	0,000	0,000	0,000	0,000	0,000	0,000
Support 2		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000
Upplag 3		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000
Upplag 4		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 12000 **Load width, end [mm]:** 1000

Permanent Loads: 1,100 kN/m²
Live Loads: 1,000 kN/m², Public, loose tables (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=0,80, μ-to=0,80 **Snow guard:** Yes **Apply Snow Overh** No

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Wind Load: -

Load surface, snow pocket	**Start X [mm]:** 4200 **End X [mm]:** 7800	**Load width, start [mm]** 1000 **Load width, end [mm]:** 1000		**Pitch [°]:**	0

Permanent Loads: 0,000 kN/m²
Live Loads: -
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=2,20, μ-to=2,20 **Snow guard:** No **Apply Snow Overh** No
Wind Load: -

Extra loads

Name

Zonwering, Permanent, (P), Standard, 1,100 kN, @0 mm, Vertical, 270,00°

Zonwering, Permanent, (P), Standard, 1,100 kN, @12000 mm, Vertical, 270,00°

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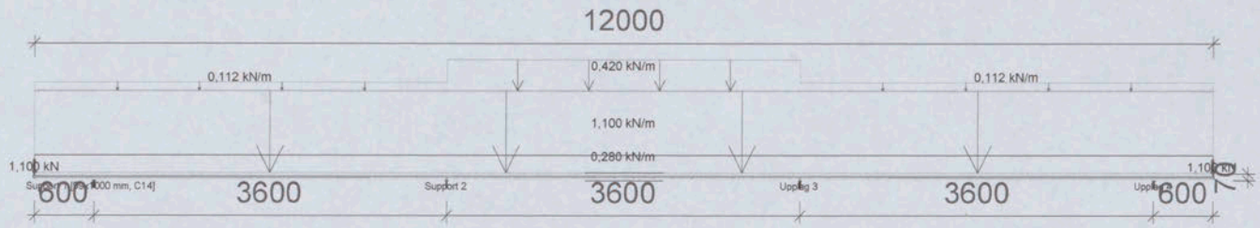
Defl. ULS

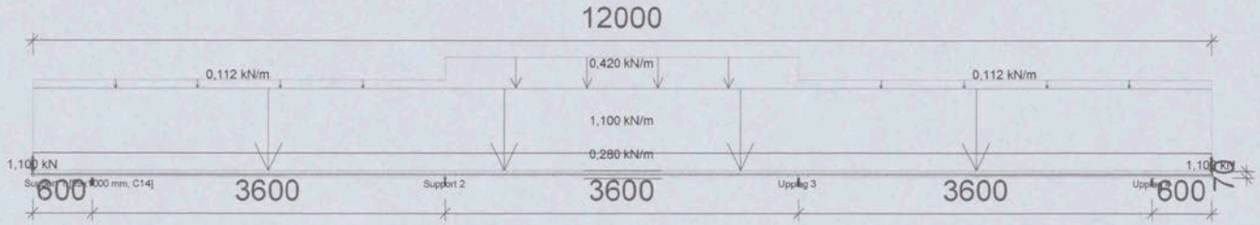
-



Scale: 1:70

Defl. SLS

-



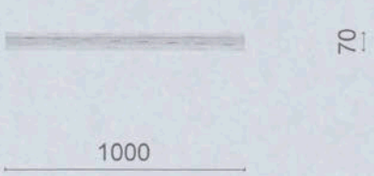
Scale: 1:70

Section
L-70-3S 1000×70

A= 70000 mm²
W.y= 816667 mm³
W.z= 11666667 mm³
I.y= 28583333 mm⁴mm³
I.z= 5833333333 mm⁴mm³

L-70-3S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 6817,00 N/mm²
Em = 10152,00 N/mm²
E90m = 892,00 N/mm²
fc90k = 3,00 N/mm²
fck = 12,00 N/mm²
fmk = 22,11 N/mm²
ft90k = 0,40 N/mm²
ftk = 8,00 N/mm²
fvk = 1,10 N/mm²
G005 = 426,06 N/mm²
Gm = 95,00 N/mm²



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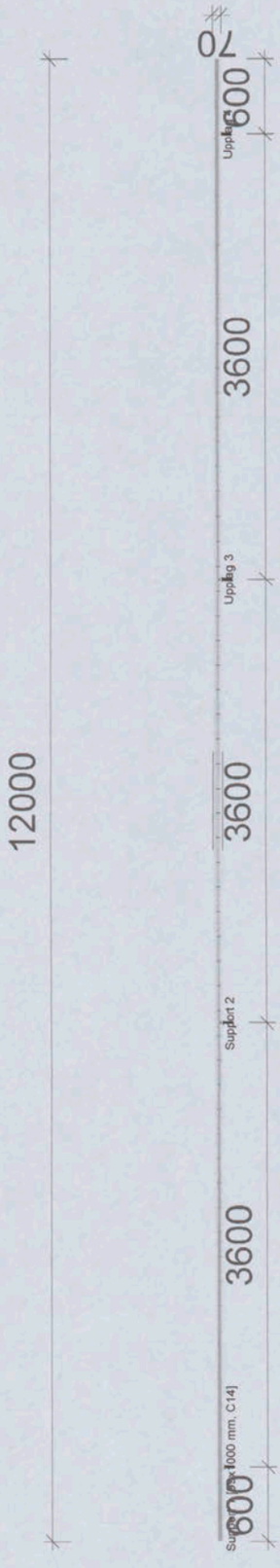
Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** Dak 3x3,6m - incl sneeuwophoping - Brand	**1706-2** **Object reference** **Customer** 2017-04-30 Bas

Scale: 1:55



Over view - Elevation

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Load Combinations

#1 Permanent + Snow* + Roof {6.11a/b -A1.3 [ACCIDENT]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: R- 140×450 GL28c 4100 mm 0,258 m³ 98,2 kg γm=1.25
Shear force reduction: Yes, kCr = 1.00

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@2050,0,0)	#7	
My [kNm]	-24,526	(@2050,0,0)	#7	28,1 %
Mz [kNm]	0,000	(@2050,0,0)	#7	
Vy [kN]	0,000	(@4100,0,0)	#7	25,7 %
Vz [kN]	23,928	(@4100,0,0)	#7	

Fire Axial + Bend #17 17,5 %
Shear 0,0 %
Fire exposure: R30 (30 min.)
About Y-axis (major): Use given value
About Z-axis (minor): Use given value
Code: EN 1995-1-2 4.2.2
Exposed faces: West East South
Reduced cross section: R- 84×422 GL28c

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 27. {L.eff = 30 + L.phys. = 57}	L.phys. = 315. {L.eff = 30 + L.phys. = 345}	16,4 %
@ Support 2	L.phys. = 27. {L.eff = 30 + L.phys. = 57}	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans	Lx [mm]	Buckl. length Lcy [mm]	Lcz [mm]	Deflections Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Span no: 1	4100	4100	Fully restrained	-7	-2	L/621	< L/1000	#15

Support material check

	C.S.I [%] / C.S.I (edge) [%]	Support reactions Ult. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Support reactions Serv. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Support 1	8,6 (kc90=1)	23,928	0,000	0,000	25,600	0,000	0,000
Size: 315×90 ,C14 [P]		12,397	0,000	0,000	16,529	0,000	0,000
Support 2		23,928	0,000	0,000	25,600	0,000	0,000
-		12,397	0,000	0,000	16,529	0,000	0,000

Vibration check
Material
[E=3500 E.90=3500 Ec=2100 Ec.90=2100, ρ=500, t=22 mm]
s=1600 mm, b=1000 mm, n=5, Interact=No, Pred=No

Results
Eigen-frequence: 17,639Hz -OK-
Responce: -OK-
Instant defl.: 0,13 mm

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: All; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1500 **Pitch [°]:** 0
End X [mm]: 4100 **Load width, end [mm]:** 1500

Permanent Loads: 1,450 kN/m²
Live Loads: 2,500 kN/m², Office (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: -
Wind Load: -

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the scale towards document

Load surface	**Start X [mm]:**	0	**Load width, start [mm]**	3500	**Pitch [°]:** 0
	End X [mm]:	4100	**Load width, end [mm]:**	3500	

Permanent Loads: 0,750 kN/m²
Live Loads: -
Snow Loads: -
Wind Load: -

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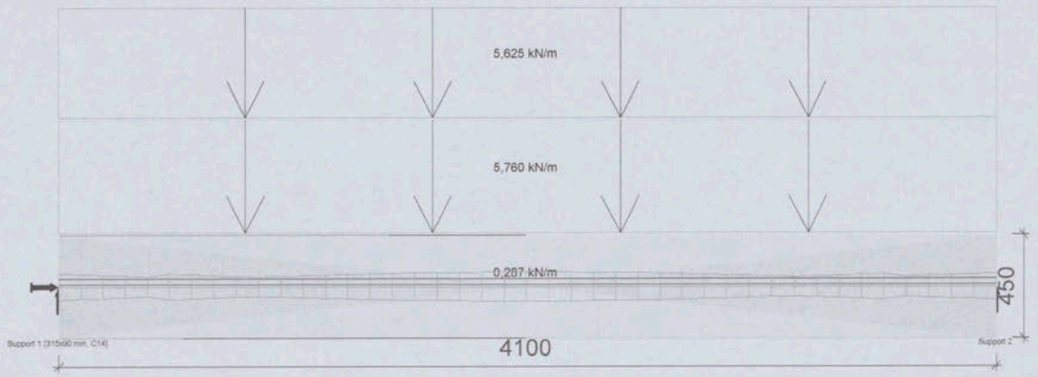
Defl. ULS

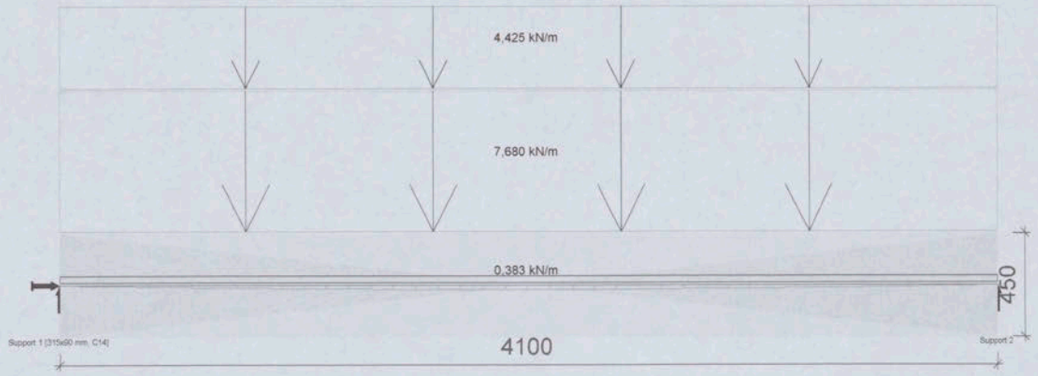
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:30

Defl. SLS

#15 Permanent + Office {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:30

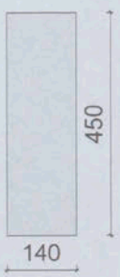
Section

R- 140×450 GL28c

A= 63000 mm²
W.y= 4725000 mm³
W.z= 1470000 mm³
I.y= 1063125000 mm⁴mm³
I.z= 102900000 mm⁴mm³

GL28c

Dens k = 380 kg/m³
Dens m = 380 kg/m³
E005 = 10200,00 N/mm²
Em = 12600,00 N/mm²
E90m = 390,00 N/mm²
fc90k = 2,70 N/mm²
fck = 24,00 N/mm²
fmk = 28,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 16,50 N/mm²
fvk = 2,70 N/mm²
G005 = 637,50 N/mm²
Gm = 720,00 N/mm²
fmk.flat = 28,00 N/mm²



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Over view - Elevation

Scale: 1:23

Statcon Structure 2017.1 SP1	Solid Timber	10494	1706-2
	Construction B1	Object reference	
		Customer	
		2017-04-30	Bas

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Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#8 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#9 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#10 Permanent {6.16b [QUASI-PERM]}
#11 Permanent + Snow {6.16b [QUASI-PERM]}
#12 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#13 Permanent + Wind {6.16b [QUASI-PERM]}
#14 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#15 Permanent + Office {6.16b [QUASI-PERM]}
#16 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#17 Permanent + 0,5 × Office* {I} <Ult. 6.11a/b -A1.3 [FIRE] >

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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the scale towards document

Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** B2	**1706-2** **Object reference** **Customer** 2017-04-30 Bas

Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: T-140-3S 140×450 1600 mm 0,1 m³ 40,2 kg γm=1.25
Shear force reduction: Yes

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@800,0,0)	#7	
My [kNm]	-7,124	(@800,0,0)	#7	50,6 %
Mz [kNm]	0,000	(@800,0,0)	#7	
Vy [kN]	0,000	(@1600,0,0)	#7	29,1 %
Vz [kN]	17,809	(@1600,0,0)	#7	

Information
- Vibration check :

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 20. {Min. value}	L.phys. = 315. {L.eff = 30 + L.phys. = 345}	2,8 %
@ Support 2	L.phys. = 20. {Min. value}	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans		Buckl. length		Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Span no: 1	1600	1600	Fully restrained	-1	-1	< L/1000	< L/1000	#15

Support material check		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%] / C.S.I (edge) [%]	Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Support 1	6,4 (kc90=1)	17,809	0,000	0,000	17,185	0,000	0,000
Size: 315×90 ,C14 [P]	-	5,809	0,000	0,000	7,745	0,000	0,000
Support 2		17,809	0,000	0,000	17,185	0,000	0,000
-		5,809	0,000	0,000	7,745	0,000	0,000

Vibration check
Material
[E=3500 E.90=3500 Ec=2100 Ec.90=2100, ρ=500, t=22 mm]
s=1600 mm, b=1000 mm, n=5, Interact=No, Pred=No

Results
Eigen-frequence: 0Hz -Not OK-
Responce: -Not OK-
Instant defl.: 0 mm

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: All; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 4000 **Pitch [°]:** 0
End X [mm]: 1600 **Load width, end [mm]:** 4000

Permanent Loads: 1,450 kN/m²
Live Loads: 2,500 kN/m², Office (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: -
Wind Load: -

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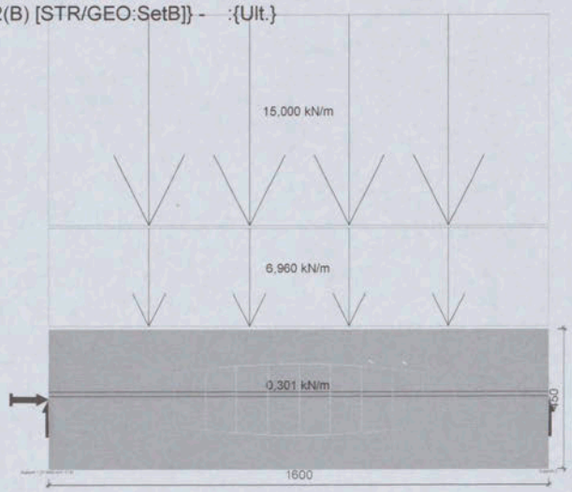
Defl. ULS

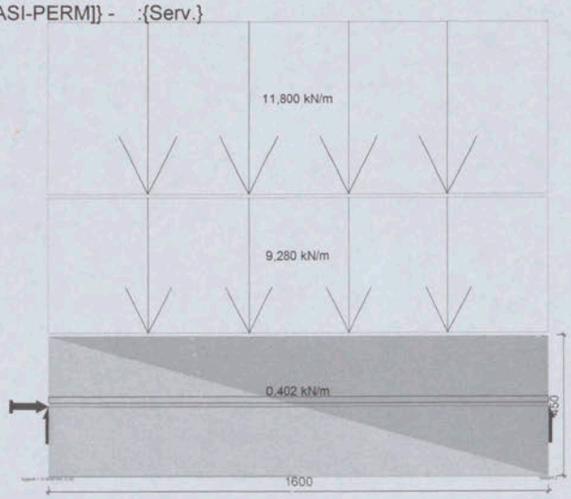
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:22

Defl. SLS

#15 Permanent + Office {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:22

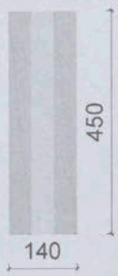
Section

T-140-3S 140×450

A= 62775 mm²
W.y= 4708125 mm³
W.z= 1459519 mm³
I.y= 1059328125 mm*mm³
I.z= 101801433 mm*mm³

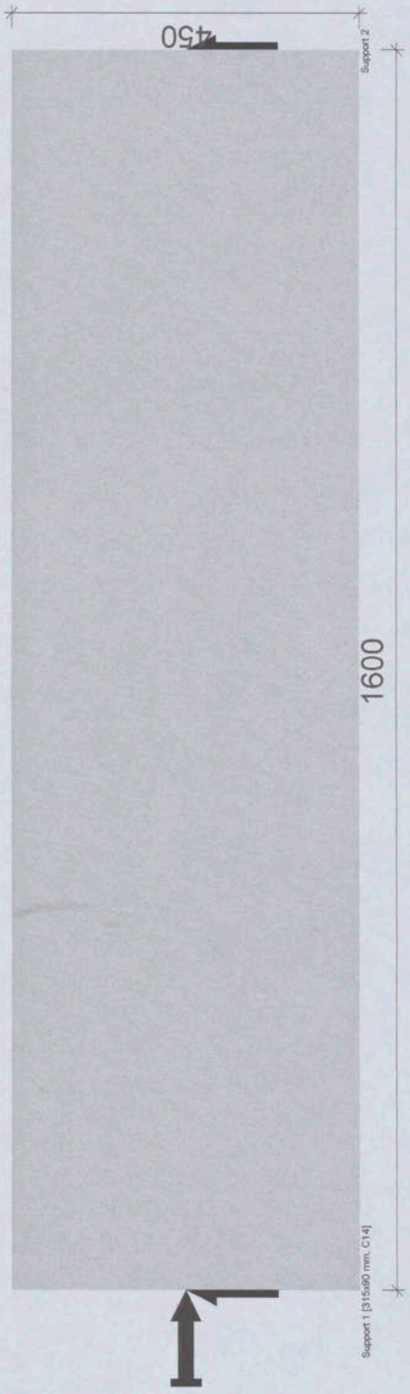
T-140-3S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 1567,00 N/mm²
Em = 2580,00 N/mm²
E90m = 10601,00 N/mm²
fc90k = 14,00 N/mm²
fck = 5,33 N/mm²
fmk = 4,67 N/mm²
ft90k = 9,33 N/mm²
ftk = 2,67 N/mm²
fvk = 1,00 N/mm²
G005 = 97,94 N/mm²
Gm = 606,00 N/mm²



Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** B2	**1706-2** **Object reference** **Customer** 2017-04-30 Bas

Scale: 1:9



Over view - Elevation

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Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#8 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#9 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#10 Permanent {6.16b [QUASI-PERM]}
#11 Permanent + Snow {6.16b [QUASI-PERM]}
#12 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#13 Permanent + Wind {6.16b [QUASI-PERM]}
#14 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#15 Permanent + Office {6.16b [QUASI-PERM]}
#16 Permanent + Office + Roof* {6.16b [QUASI-PERM]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: R- 140×450 GL28c 4100 mm 0,258 m³ 98,2 kg γm=1.25
Shear force reduction: Yes, kCr = 1.00

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@2050,0,0)	#7	
My [kNm]	-46,747	(@2050,0,0)	#7	53,6 %
Mz [kNm]	0,000	(@2050,0,0)	#7	
Vy [kN]	0,000	(@4100,0,0)	#7	49,0 %
Vz [kN]	45,607	(@4100,0,0)	#7	

Fire **Axial + Bend** #17 27,9 %
Shear 0,0 %
Fire exposure: R30 (30 min.)
About Y-axis (major): Use given value
About Z-axis (minor): Use given value
Code: EN 1995-1-2 4.2.2
Exposed faces: West East South
Reduced cross section: R- 84×422 GL28c

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Kolom gevel (Support 1)	L.phys. = 78. {L.eff = 30 + L.phys. = 108}	L.phys. = 315. {L.eff = 30 + L.phys. = 345}	31,2 %
@ W4 (Support 2)	L.phys. = 78. {L.eff = 30 + L.phys. = 108}	L.phys. = 140. {L.eff = 30 + L.phys. = 170}	63,6 %
Bearing check method	EN 1995-1-1 6.1.5		

Spans		Buckl. length		Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Span no: 1	4100	4100	Fully restrained	-11	-6	L/361	L/657	#15

Support material check

		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%]	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm
	C.S.I (edge) [%]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]
Kolom gevel (Support 1)	Element contact - Kolom gevel	45,607	0,000	0,000	43,999	0,000	0,000
Size: 315×115 ,C14 [P]	-	14,857	0,000	0,000	19,809	0,000	0,000
W4 (Support 2)	Element contact - W4 Max value: 16,6	45,607	0,000	0,000	43,999	0,000	0,000
Size: 140×1000 ,C14 [P]	-	14,857	0,000	0,000	19,809	0,000	0,000

Vibration check
Material
[E=3500 E.90=3500 Ec=2100 Ec.90=2100, ρ=500, t=22 mm]
s=3600 mm, b=3600 mm, n=5, Interact=No, Pred=No

Results
Eigen-frequence: 14,637Hz -OK-
Responce: -OK-
Instant defl.: 0,13 mm

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: All; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 4000 **Pitch [°]:** 0
End X [mm]: 4100 **Load width, end [mm]:** 4000

Permanent Loads: 1,450 kN/m²
Live Loads: 2,500 kN/m², Office (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: -
Wind Load: -

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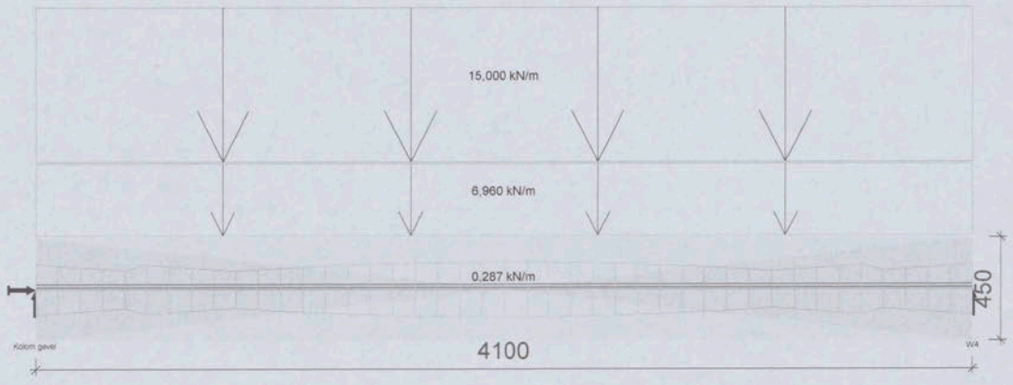
Defl. ULS

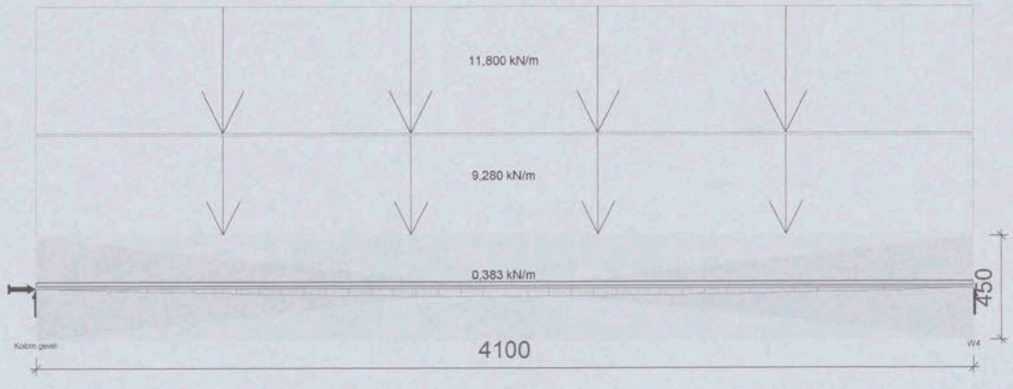
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:30

Defl. SLS

#15 Permanent + Office {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:30

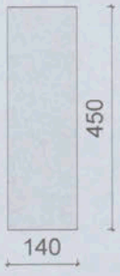
Section

R- 140×450 GL28c

A= 63000 mm²
W.y= 4725000 mm³
W.z= 1470000 mm³
I.y= 1063125000 mm*mm³
I.z= 102900000 mm*mm³

GL28c

Dens k = 380 kg/m³
Dens m = 380 kg/m³
E005 = 10200,00 N/mm²
Em = 12600,00 N/mm²
E90m = 390,00 N/mm²
fc90k = 2,70 N/mm²
fck = 24,00 N/mm²
fmk = 28,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 16,50 N/mm²
fvk = 2,70 N/mm²
G005 = 637,50 N/mm²
Gm = 720,00 N/mm²
fmk.flat = 28,00 N/mm²



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Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** B3	**1706-2** **Object reference** **Customer** 2017-04-30 Bas

Scale: 1:23



Over view - Elevation

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Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#8 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#9 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#10 Permanent {6.16b [QUASI-PERM]}
#11 Permanent + Snow {6.16b [QUASI-PERM]}
#12 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#13 Permanent + Wind {6.16b [QUASI-PERM]}
#14 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#15 Permanent + Office {6.16b [QUASI-PERM]}
#16 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#17 Permanent + 0,5 × Office* {I} <Ult. 6.11a/b -A1.3 [FIRE] >

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: R- 140×450 GL28c 4100 mm 0,258 m³ 98,2 kg γm=1.25
Shear force reduction: Yes, kCr = 1.00

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@2050,0,0)	#9	
My [kNm]	-11,572	(@2050,0,0)	#9	13,3 %
Mz [kNm]	0,000	(@2050,0,0)	#9	
Vy [kN]	0,000	(@4100,0,0)	#9	12,1 %
Vz [kN]	11,290	(@4100,0,0)	#9	

Fire **Axial + Bend** #18 10,2 %
Shear 0,0 %
Fire exposure: R30 (30 min.)
About Y-axis (major): Use given value
About Z-axis (minor): Use given value
Code: EN 1995-1-2 4.2.2
Exposed faces: West East South
Reduced cross section: R- 84×422 GL28c

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 20. {Min. value}	L.phys. = 315. {L.eff = 30 + L.phys. = 345}	7,7 %
@ Support 2	L.phys. = 20. {Min. value}	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans		Buckl. length		Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Span no: 1	4100	4100	Fully restrained	-3	-1	< L/1000	< L/1000	#16

Support material check

		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%]	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm
	C.S.I (edge) [%]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]
Support 1	4,0 (kc90=1)	11,290	0,000	0,000	11,978	0,000	0,000
Size: 315×90 ,C14 [P]		6,677	0,000	0,000	8,903	0,000	0,000
Support 2		11,290	0,000	0,000	11,978	0,000	0,000
-		6,677	0,000	0,000	8,903	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1500 **Pitch [°]:** 0
End X [mm]: 4100 **Load width, end [mm]:** 1500

Permanent Loads: 1,650 kN/m²
Live Loads: 1,000 kN/m², Public, loose tables (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=0,80, μ-to=0,80 **Snow guard:** Yes **Apply Snow Overh** No
Wind Load: -

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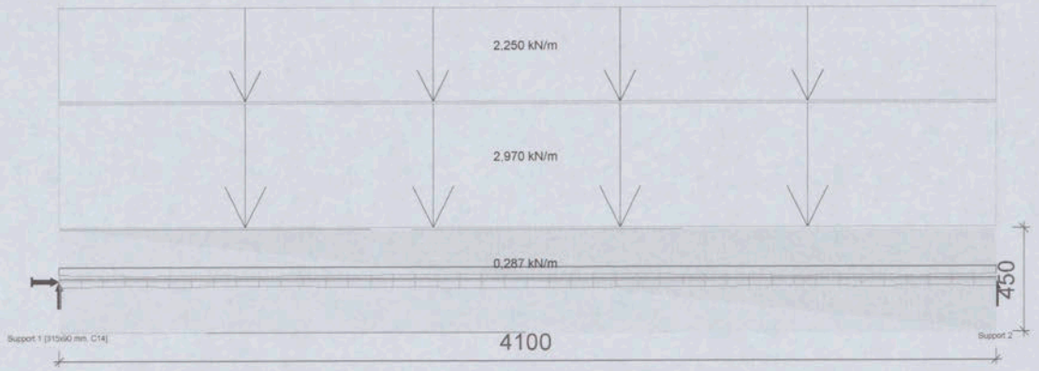
Defl. ULS

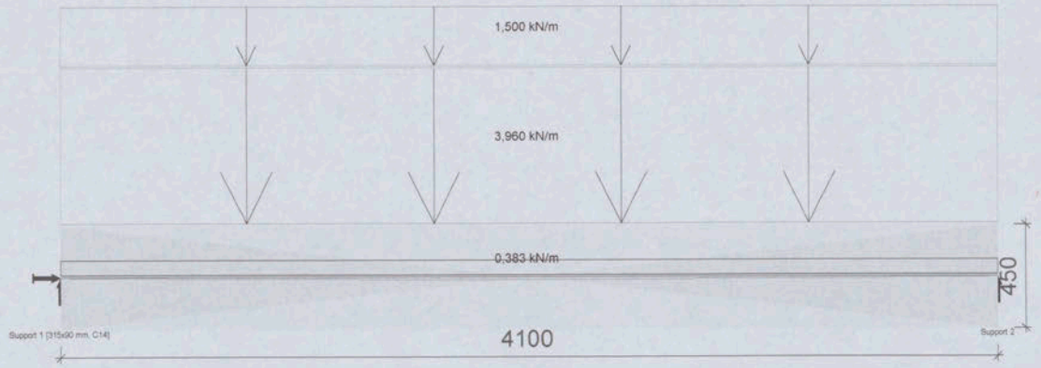
#9 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:30

Defl. SLS

#17 Permanent + Office + Roof* {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:30

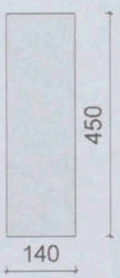
Section

R- 140×450 GL28c

A= 63000 mm²
W.y= 4725000 mm³
W.z= 1470000 mm³
I.y= 1063125000 mm*mm³
I.z= 102900000 mm*mm³

GL28c

Dens k = 380 kg/m³
Dens m = 380 kg/m³
E005 = 10200,00 N/mm²
Em = 12600,00 N/mm²
E90m = 390,00 N/mm²
fc90k = 2,70 N/mm²
fck = 24,00 N/mm²
fmk = 28,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 16,50 N/mm²
fvk = 2,70 N/mm²
G005 = 637,50 N/mm²
Gm = 720,00 N/mm²
fmk.flat = 28,00 N/mm²



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Over view - Elevation

Scale: 1:23

Statcon Structure 2017.1 SP1	Solid Timber	10494	1706-2
	Construction B4	Object reference	
		Customer	
		2017-04-30	Bas

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Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#8 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#9 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#10 Permanent {6.16b [QUASI-PERM]}
#11 Permanent + Snow {6.16b [QUASI-PERM]}
#12 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#13 Permanent + Wind {6.16b [QUASI-PERM]}
#14 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#15 Permanent + Office {6.16b [QUASI-PERM]}
#16 Permanent + Roof {6.16b [QUASI-PERM]}
#17 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#18 Permanent + 0,5 × Snow [μ2]* + 0,6 × Public, loose tables {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#19 Permanent + 0,5 × Snow [μ2]* {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#20 Permanent + 0,2 × Snow [μ2] + 0,7 × Public, loose tables* {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#21 Permanent + 0,7 × Public, loose tables* {I} <Ult. 6.11a/b -A1.3 [FIRE] >

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: T-140-3S 140×450 1600 mm 0,1 m³ 40,2 kg γm=1.25
Shear force reduction: Yes

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@800,0,0)	#9	
My [kNm]	-4,551	(@800,0,0)	#9	32,3 %
Mz [kNm]	0,000	(@800,0,0)	#9	
Vy [kN]	0,000	(@1600,0,0)	#9	18,6 %
Vz [kN]	11,377	(@1600,0,0)	#9	

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 20. {Min. value}	L.phys. = 315. {L.eff = 30 + L.phys. = 345}	1,8 %
@ Support 2	L.phys. = 20. {Min. value}	-	- %

Bearing check method EN 1995-1-1 6.1.5

Spans	Lx [mm]	Buckl. length Lcy [mm]	Lcz [mm]	Deflections Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Span no: 1	1600	1600	Fully restrained	-1	0	< L/1000	< L/1000	#16

Support material check

	C.S.I [%] / C.S.I (edge) [%]	Support reactions Ult. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Support reactions Serv. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Support 1	4,1 (kc90=1)	11,377	0,000	0,000	11,969	0,000	0,000
Size: 315×90 ,C14 [P]	-	6,577	0,000	0,000	8,769	0,000	0,000
Support 2		11,377	0,000	0,000	11,969	0,000	0,000
-		6,577	0,000	0,000	8,769	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 4000 **Pitch [°]:** 0
End X [mm]: 1600 **Load width, end [mm]:** 4000

Permanent Loads: 1,650 kN/m²
Live Loads: 1,000 kN/m², Public, loose tables (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=0,80, μ-to=0,80 **Snow guard:** Yes **Apply Snow Overh** No
Wind Load: -

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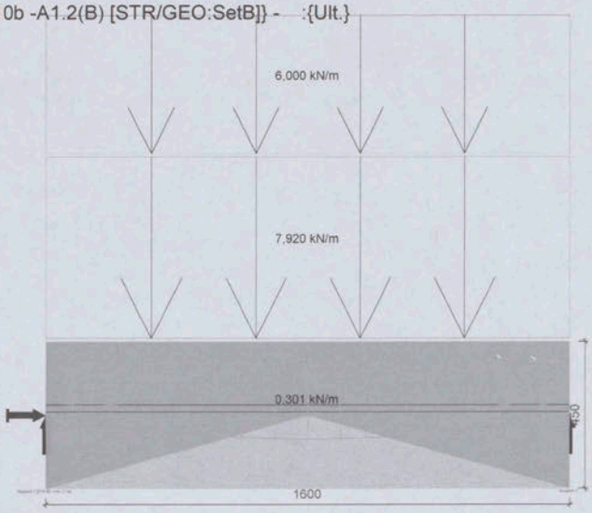
Defl. ULS

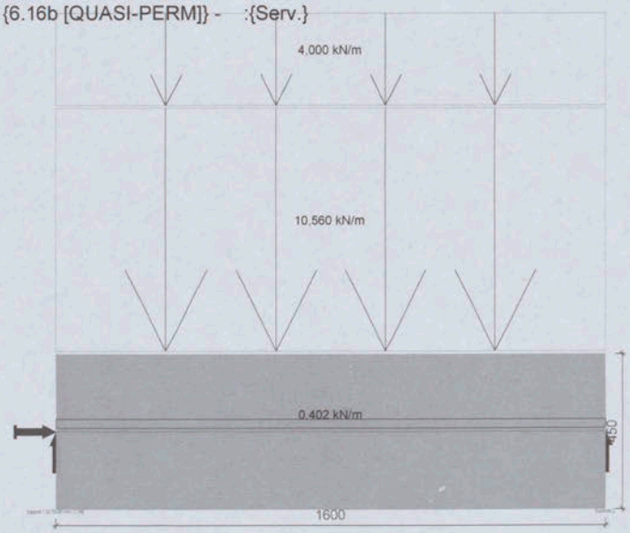
#9 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:21

Defl. SLS

#17 Permanent + Office + Roof* {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:20

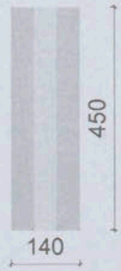
Section

T-140-3S 140×450

A= 62775 mm²
W.y= 4708125 mm³
W.z= 1459519 mm³
I.y= 1059328125 mm⁴mm³
I.z= 101801433 mm⁴mm³

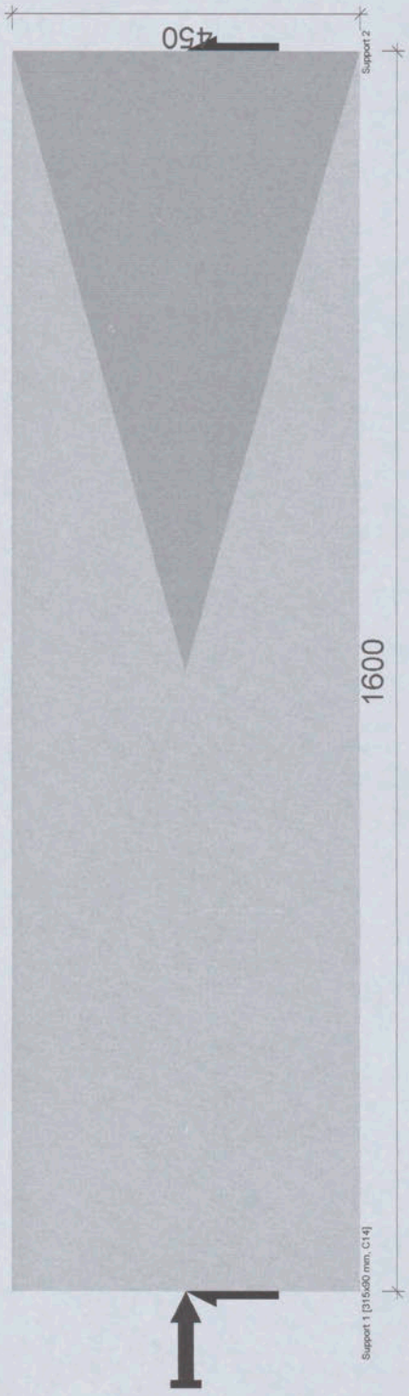
T-140-3S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 1567,00 N/mm²
Em = 2580,00 N/mm²
E90m = 10601,00 N/mm²
fc90k = 14,00 N/mm²
fck = 5,33 N/mm²
fmk = 4,67 N/mm²
ft90k = 9,33 N/mm²
ftk = 2,67 N/mm²
fvk = 1,00 N/mm²
G005 = 97,94 N/mm²
Gm = 606,00 N/mm²



Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** B5	**1706-2** **Object reference** **Customer** 2017-04-30 Bas

Scale: 1:9



Over view - Elevation

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Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#8 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#9 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#10 Permanent {6.16b [QUASI-PERM]}
#11 Permanent + Snow {6.16b [QUASI-PERM]}
#12 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#13 Permanent + Wind {6.16b [QUASI-PERM]}
#14 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#15 Permanent + Office {6.16b [QUASI-PERM]}
#16 Permanent + Roof {6.16b [QUASI-PERM]}
#17 Permanent + Office + Roof* {6.16b [QUASI-PERM]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: R- 140×450 GL28c 4100 mm 0,258 m³ 98,2 kg γm=1.25
Shear force reduction: Yes, kCr = 0.67

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@2050,0,0)	#9	
My [kNm]	-29,853	(@2050,0,0)	#9	34,3 %
Mz [kNm]	0,000	(@2050,0,0)	#9	
Vy [kN]	0,000	(@4100,0,0)	#9	46,7 %
Vz [kN]	29,125	(@4100,0,0)	#9	

Fire **Axial + Bend** #18 26,2 %
Shear 0,0 %
Fire exposure: R30 (30 min.)
About Y-axis (major): Use given value
About Z-axis (minor): Use given value
Code: EN 1995-1-2 4.2.2
Exposed faces: West East South
Reduced cross section: R- 84×422 GL28c

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Kolom gevel (Support 1)	L.phys. = 39. {L.eff = 30 + L.phys. = 69}	L.phys. = 315. {L.eff = 30 + L.phys. = 345}	19,9 %
@ W4 (Support 2)	L.phys. = 39. {L.eff = 30 + L.phys. = 69}	L.phys. = 140. {L.eff = 30 + L.phys. = 170}	40,6 %
Bearing check method	EN 1995-1-1 6.1.5		

Spans		Buckl. length		Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Fält :1	4100	4100	Fully restrained	-8	-2	L/519	< L/1000	#16

Support material check

		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%]	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm
	C.S.I (edge) [%]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]
Kolom gevel (Support 1)	Element contact - Kolom gevel	29,125	0,000	0,000	30,633	0,000	0,000
Size: 315×115 ,C14 [P]	-	16,825	0,000	0,000	22,433	0,000	0,000
W4 (Support 2)	Element contact - W4 Max value: 16,6	29,125	0,000	0,000	30,633	0,000	0,000
Size: 140×1000 ,C14 [P]	-	16,825	0,000	0,000	22,433	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 4000 **Pitch [°]:** 0
End X [mm]: 4100 **Load width, end [mm]:** 4000

Permanent Loads: 1,650 kN/m²
Live Loads: 1,000 kN/m², Public, loose tables (MT), No partition walls **Loaded Area [m²] [m²]:** 10, αA [1]
Snow Loads: 0,700 kN/m² (MT), Ct [1], μ-from=0,80, μ-to=0,80 **Snow guard:** Yes **Apply Snow Overh** No
Wind Load: -

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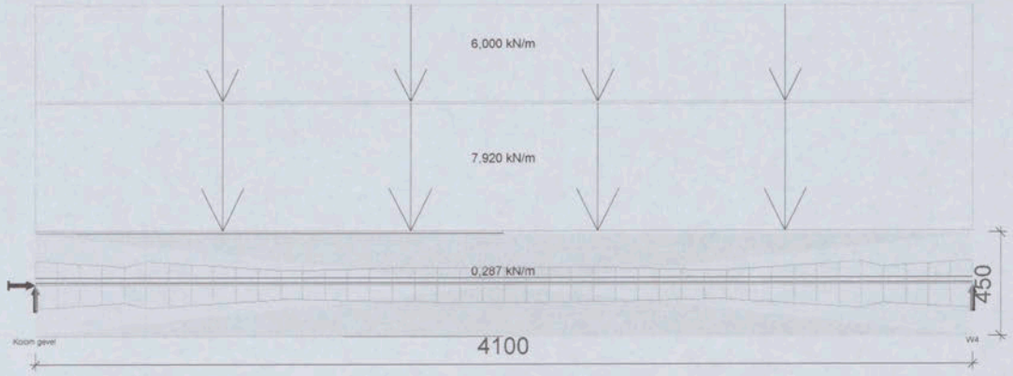
Defl. ULS

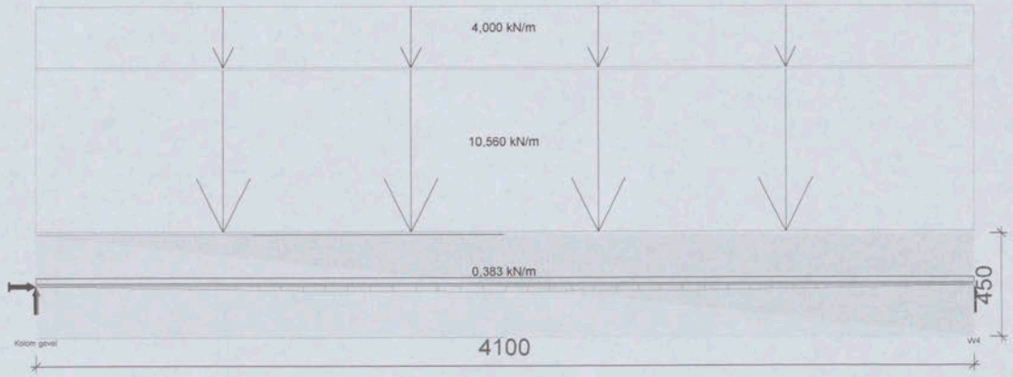
#9 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:30

Defl. SLS

#17 Permanent + Office + Roof* {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:30

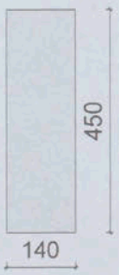
Section

R- 140×450 GL28c

A= 63000 mm²
W.y= 4725000 mm³
W.z= 1470000 mm³
I.y= 1063125000 mm⁴mm³
I.z= 102900000 mm⁴mm³

GL28c

Dens k = 380 kg/m³
Dens m = 380 kg/m³
E005 = 10200,00 N/mm²
Em = 12600,00 N/mm²
E90m = 390,00 N/mm²
fc90k = 2,70 N/mm²
fck = 24,00 N/mm²
fmk = 28,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 16,50 N/mm²
fvk = 2,70 N/mm²
G005 = 637,50 N/mm²
Gm = 720,00 N/mm²
fmk.flat = 28,00 N/mm²



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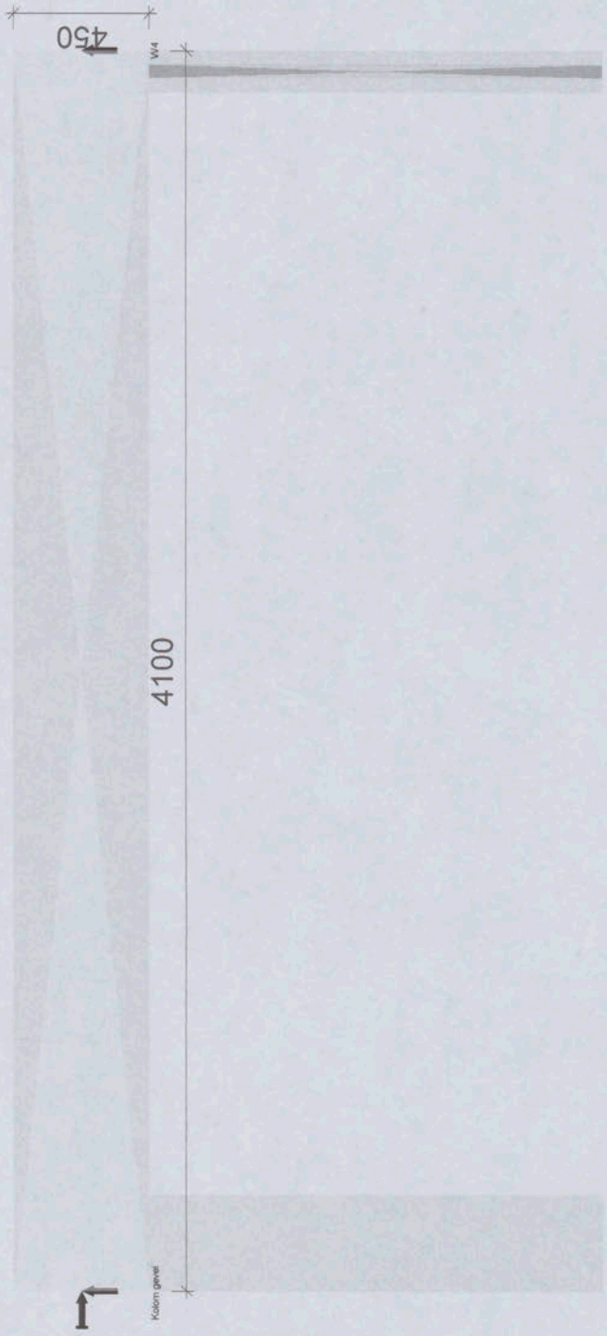
Scale: 1:23



Over view - Elevation

Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#8 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#9 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#10 Permanent {6.16b [QUASI-PERM]}
#11 Permanent + Snow {6.16b [QUASI-PERM]}
#12 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#13 Permanent + Wind {6.16b [QUASI-PERM]}
#14 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#15 Permanent + Office {6.16b [QUASI-PERM]}
#16 Permanent + Roof {6.16b [QUASI-PERM]}
#17 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#18 Permanent + 0,5 × Snow [μ2]* + 0,6 × Public, loose tables {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#19 Permanent + 0,5 × Snow [μ2]* {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#20 Permanent + 0,2 × Snow [μ2] + 0,7 × Public, loose tables* {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#21 Permanent + 0,7 × Public, loose tables* {I} <Ult. 6.11a/b -A1.3 [FIRE] >

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Not specified] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: R- 140×225 GL28c 3600 mm 0,113 m³ 43,1 kg γm=1.25
Shear force reduction: Yes, kCr = 0.67

Forces and moments			Load Combination	C.S.I
Nx [kN]	0,000	(@1800,0,0)	#2	
My [kNm]	-9,228	(@1800,0,0)	#2	52,8 %
Mz [kNm]	0,000	(@1800,0,0)	#2	
Vy [kN]	0,000	(@3600,0,0)	#2	49,2 %
Vz [kN]	10,254	(@3600,0,0)	#2	

Fire **Axial + Bend** #17 35,5 %
Shear 0,0 %
Fire exposure: R30 (30 min.)
About Y-axis (major): No bracing
About Z-axis (minor): No bracing
Code: EN 1995-1-2 4.2.2
Exposed faces: West East South
Reduced cross section: R- 84×197 GL28c

Bearing	Needed bearing length [mm]	Current bearing length. [mm]	C.S.I [%]
@ Support 1	L.phys. = 20. {Min. value}	L.phys. = 99. {L.eff = 30 + L.phys. = 129}	25,0 %
@ Support 2	L.phys. = 20. {Min. value}	-	- %
Bearing check method	EN 1995-1-1 6.1.5		

Spans	Lx [mm]	Buckl. length Lcy [mm]	Lcz [mm]	Deflections Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Fält :1	3600	3600	3600	-15	0	L/239	< L/1000	#10

Support material check

	C.S.I [%] / C.S.I (edge) [%]	Support reactions Ult. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Support reactions Serv. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Support 1	1,4 (kc90=1)	10,254	0,000	0,000	12,153	0,000	0,000
Size: 99×1000 ,C14 [P]		9,115	0,000	0,000	12,153	0,000	0,000
Support 2		10,254	0,000	0,000	12,153	0,000	0,000
-		9,115	0,000	0,000	12,153	0,000	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: All; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 1000 **Pitch [°]:** 0
End X [mm]: 3600 **Load width, end [mm]:** 1000

Permanent Loads: 4,100 kN/m²
Live Loads: -
Snow Loads: -
Wind Load: -

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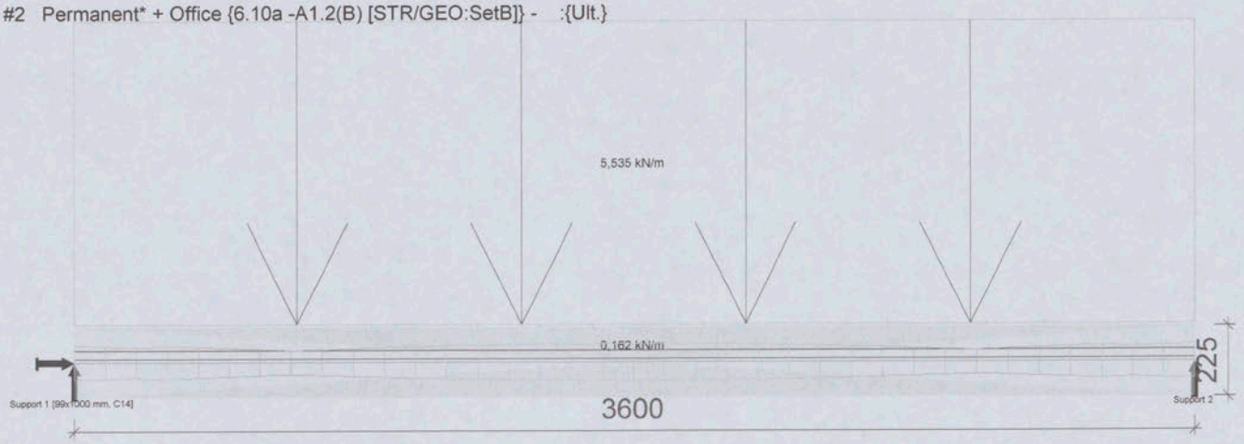
Defl. ULS

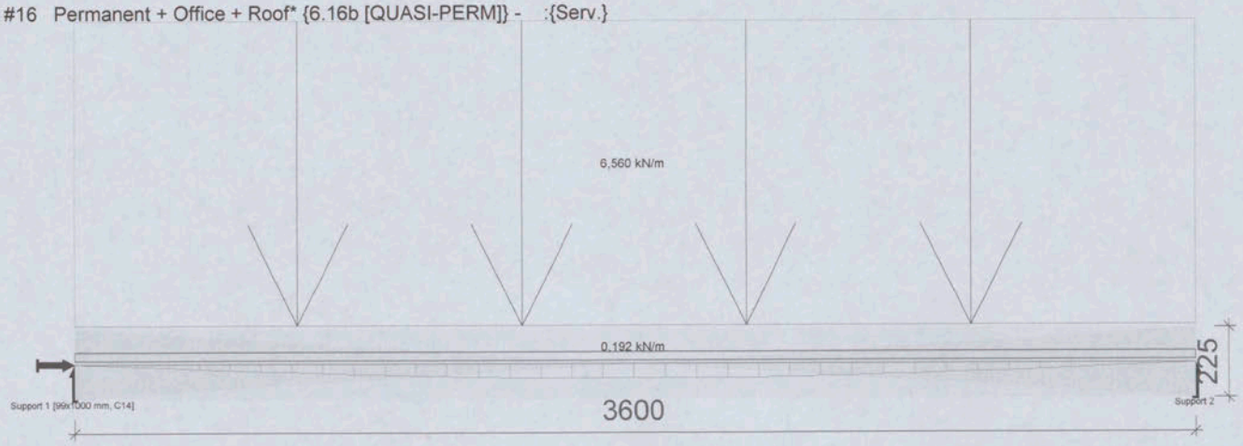
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:22

Defl. SLS

#16 Permanent + Office + Roof* {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:22

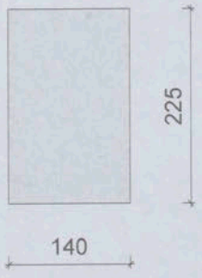
Section

R- 140×225 GL28c

A= 31500 mm²
W.y= 1181250 mm³
W.z= 735000 mm³
I.y= 132890625 mm⁴mm³
I.z= 51450000 mm⁴mm³

GL28c

Dens k = 380 kg/m³
Dens m = 380 kg/m³
E005 = 10200,00 N/mm²
Em = 12600,00 N/mm²
E90m = 390,00 N/mm²
fc90k = 2,70 N/mm²
fck = 24,00 N/mm²
fmk = 28,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 16,50 N/mm²
fvk = 2,70 N/mm²
G005 = 637,50 N/mm²
Gm = 720,00 N/mm²
fmk.flat = 28,00 N/mm²



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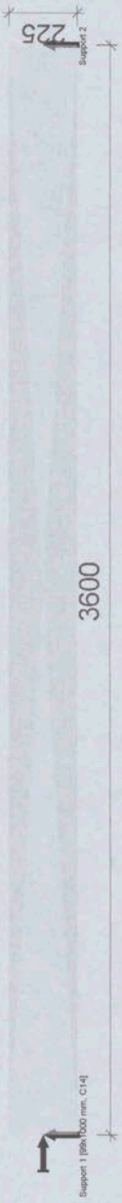
Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** B7	**Object reference** 1706-2 **Customer** 2017-04-30 Bas

Scale: 1:23



Over view - Elevation

Load Combinations

#1 Permanent* {6.10a -A1.2(B) [STR/GEO:SetB]}
#2 Permanent* + Office {6.10a -A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Office + Snow* {6.10b -A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#6 Permanent + Office + Wind* {6.10b -A1.2(B) [STR/GEO:SetB]}
#7 Permanent + Office* {6.10b -A1.2(B) [STR/GEO:SetB]}
#8 Permanent + Office + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#9 Permanent + Roof* {6.10b -A1.2(B) [STR/GEO:SetB]}
#10 Permanent {6.16b [QUASI-PERM]}
#11 Permanent + Snow {6.16b [QUASI-PERM]}
#12 Permanent + Office + Snow* {6.16b [QUASI-PERM]}
#13 Permanent + Wind {6.16b [QUASI-PERM]}
#14 Permanent + Office + Wind* {6.16b [QUASI-PERM]}
#15 Permanent + Office {6.16b [QUASI-PERM]}
#16 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#17 Permanent* {I} <Ult. 6.11a/b -A1.3 [FIRE] >

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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the scale towards document

Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Ej specificerad] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: R- 115×315 GL28c 6800 mm 0,246 m³ 93,6 kg γm=1.25
Shear force reduction: Yes, kCr = 1.00

Forces and moments			Load Combination	C.S.I
Nx [kN]	-28,999	(@0,0,0)	#2	
My [kNm]	0,000	(@0,0,0)	#2	18,8 %
Mz [kNm]	0,000	(@0,0,0)	#2	
Vy [kN]	0,000	(@0,0,3000)	#4	14,3 %
Vz [kN]	6,708	(@0,0,3000)	#4	

Fire **Axial + Bend** #14 69,6 %
Shear 0,0 %
Fire exposure: R30 (30 min.)
About Y-axis (major): Use given value
About Z-axis (minor): Use given value
Code: EN 1995-1-2 4.2.2
Exposed faces: North West East South
Reduced cross section: R- 59×259 GL28c

Storeys	Buckl. length			Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Storey :1	3400	3400	3400	-1	-1	< L/1000	< L/1000	#8
Storey :2	3400	3400	3400	0	0	< L/1000	< L/1000	#

Support material check

	C.S.I [%] / C.S.I (edge) [%]	Support reactions Ult. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Support reactions Serv. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Upplag 1		37,052	0,000	0,000	45,439	0,000	0,000
-		19,333	-5,086	0,000	34,369	-3,390	0,000
Upplag 2		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	-16,561	0,000	0,000	-11,040	0,000
Upplag 3		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	-5,086	0,000	0,000	-3,390	0,000

Standard loads **Apply eigen load:** Yes **Use load sharing:** No
Use altenative live load layout: Normal; EN 1991-1-1 3.3.1(2)

Load surface **Start X [mm]:** 0 **Load width, start [mm]** 3600 **Pitch [°]:** 90
End X [mm]: 6800 **Load width, end [mm]:** 3600

Permanent Loads: 0,300 kN/m²
Live Loads: -
Snow Loads: -
Wind Load: 0,662 kN/m² (ST)

Facing Wind	Lee to Wind	Perpendicular to Wi	Internal
0,80/-	-/-	-/-	-/-0,30

Extra loads
Name
B3: Kolom gevel (Support 1), @3400 mm, n=1, Import vertical reactions, ×0,5

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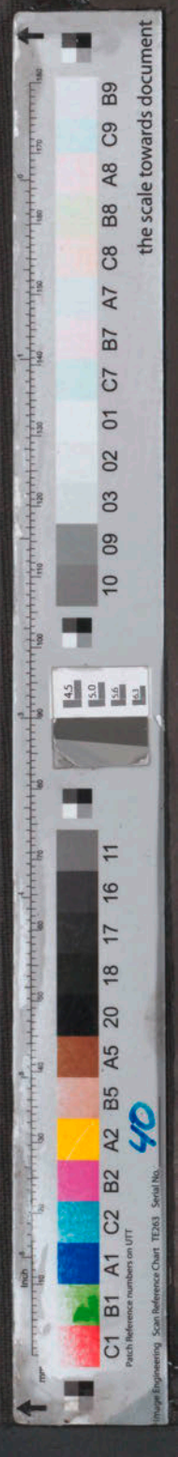
B6: Kolom gevel (Support 1), @6800 mm, n=1, Import vertical reactions, ×0,5
Element Contact = 2,6 %, @0,0,6800, kc90 =1, Aeff = 36225



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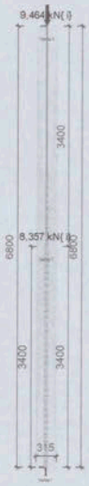
Defl. ULS

#2 Permanent* {6.10 - A1.2(B) [STR/GEO:SetB]} - :{Ult.}





Scale: 1:86

Defl. SLS

#8 Permanent + Wind {6.16b [QUASI-PERM]} - :{Serv.}





Scale: 1:86

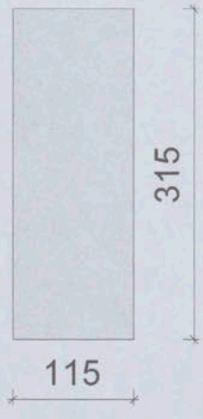
Section

R- 115×315 GL28c

A= 36225 mm²
W.y= 1901812 mm³
W.z= 694312 mm³
I.y= 299535469 mm⁴mm³
I.z= 39922969 mm⁴mm³

GL28c

Dens k = 380 kg/m³
Dens m = 380 kg/m³
E005 = 10200,00 N/mm²
Em = 12600,00 N/mm²
E90m = 390,00 N/mm²
fc90k = 2,70 N/mm²
fck = 24,00 N/mm²
fmk = 28,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 16,50 N/mm²
fvk = 2,70 N/mm²
G005 = 637,50 N/mm²
Gm = 720,00 N/mm²
fmk.flat = 28,00 N/mm²



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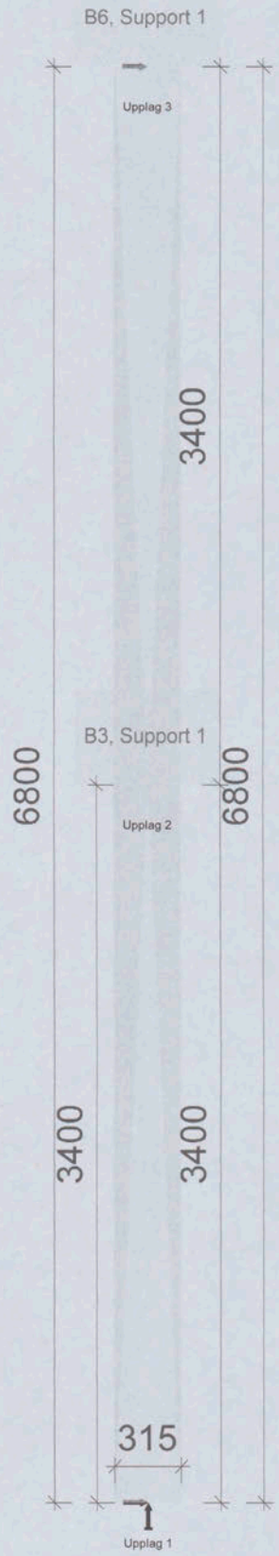
Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** Kolom gevel	**1706-2** **Object reference** **Customer** 2017-04-30 Bas

Scale: 1:33



Over view - Elevation

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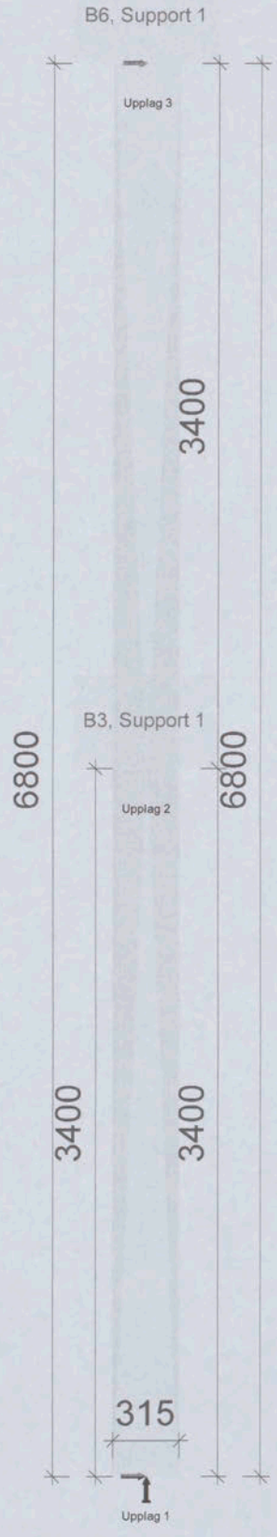
Scale: 1:33



Over view - Elevation

Load Combinations

#1 Permanent + Wind* {6.10 -A1.2(A)[EQU:SetA]}
#2 Permanent* {6.10 - A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow {6.10 - A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Wind {6.10 - A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Office + Roof* {6.10 - A1.2(B) [STR/GEO:SetB]}
#6 Permanent* {6.16b [QUASI-PERM]}
#7 Permanent + Snow {6.16b [QUASI-PERM]}
#8 Permanent + Wind {6.16b [QUASI-PERM]}
#9 Permanent + Office + Roof* {6.16b [QUASI-PERM]}
#10 Permanent + 0,5 × Snow* + 0,3 × Office + 0,6 × Public, loose tables {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#11 Permanent + 0,5 × Snow* {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#12 Permanent + 0,2 × Snow + 0,2 × Wind [From left +]* + 0,3 × Office + 0,6 × Public, loose tables {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#13 Permanent + 0,2 × Wind [From left +]* {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#14 Permanent + 0,2 × Snow + 0,5 × Office* + 0,7 × Public, loose tables* {I} <Ult. 6.11a/b -A1.3 [FIRE] >
#15 Permanent + 0,5 × Office* + 0,7 × Public, loose tables* {I} <Ult. 6.11a/b -A1.3 [FIRE] >

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Ej specificerad] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-120-5S 400×120 6800 mm 0,326 m³ 130,6 kg γm=1.25
Shear force reduction: Yes

Forces and moments			Load Combination	C.S.I
Nx [kN]	-41,351	(@0,0,3400)	#2	
My [kNm]	0,000	(@0,0,3400)	#2	40,0 %
Mz [kNm]	0,000	(@0,0,3400)	#2	
Vy [kN]	0,000	(@0,0,0)	#1	0,0 %
Vz [kN]	0,000	(@0,0,0)	#1	

Storeys	Lx [mm]	Buckl. length Lcy [mm]	Lcz [mm]	Deflections Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Våning :1	3400	3400	3400	0	0	< L/1000	< L/1000	#
Våning :2	3400	3400	3400	0	0	< L/1000	< L/1000	#

Support material check

	C.S.I [%] / C.S.I (edge) [%]	Support reactions Ult. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]	Support reactions Serv. Max vert. [kN] / Min vert. [kN]	Max hor. [kN] / Min hor. [kN]	Max rot. [kNm / Min rot. [kNm]
Upplag 1		49,544	0,000	0,000	56,578	0,000	0,000
-		27,567	0,000	0,000	49,008	0,000	0,000
Upplag 2		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000
Upplag 3		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000

Extra loads

Name

Point load +, Standard, @6800 mm, n=1, Point load
{Permanent:30,630 kN, Snow:4,740 kN, Office:7,570 kN}

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the scale towards document

Defl. ULS

#2 Permanent* {6.10 - A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:117

Defl. SLS

#9 Permanent + Office + Roof* {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:117

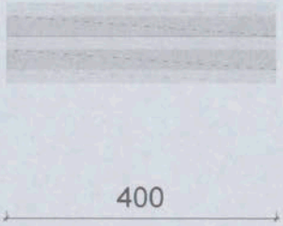
Section

L-120-5S 400×120

A= 48000 mm²
W.y= 960000 mm³
W.z= 3200000 mm³
I.y= 57600000 mm*mm³
I.z= 640000000 mm*mm³

L-120-5S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 5242,00 N/mm²
Em = 7859,00 N/mm²
E90m = 2304,00 N/mm²
fc90k = 3,00 N/mm²
fck = 10,50 N/mm²
fmk = 17,00 N/mm²
ft90k = 0,40 N/mm²
ftk = 7,00 N/mm²
fvk = 1,10 N/mm²
G005 = 327,62 N/mm²
Gm = 83,00 N/mm²



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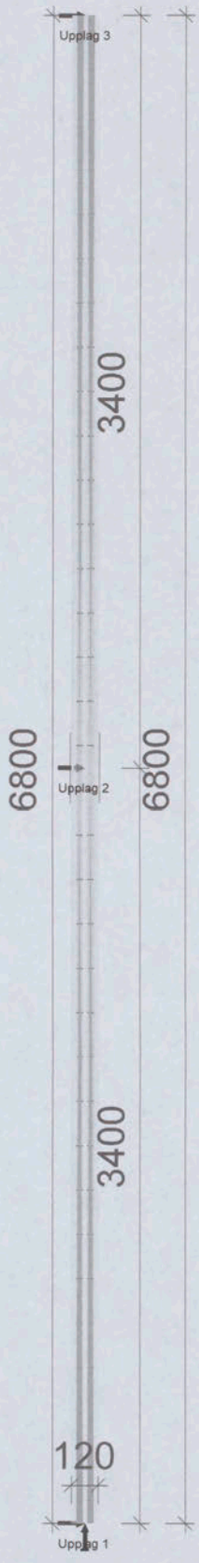
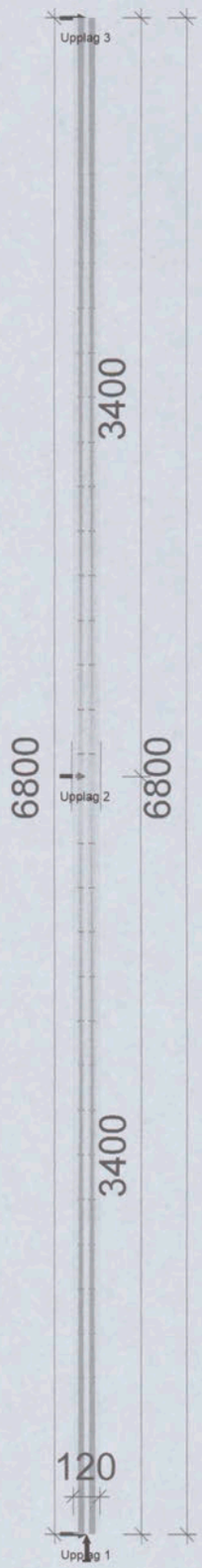
Scale: 1:31



Over view - Elevation

Statcon Structure 2017.1 SP1	Solid Timber 10494 **Construction** K4	**Object reference** 1706-2 **Customer** 2017-04-30 Bas

Scale: 1:31



Over view - Elevation

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Load Combinations

#1 Permanent + Wind* {6.10 -A1.2(A)[EQU:SetA]}
#2 Permanent* {6.10 - A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow {6.10 - A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Office + Snow* {6.10 - A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Wind {6.10 - A1.2(B) [STR/GEO:SetB]}
#6 Permanent* {6.16b [QUASI-PERM]}
#7 Permanent + Snow {6.16b [QUASI-PERM]}
#8 Permanent + Wind {6.16b [QUASI-PERM]}
#9 Permanent + Office + Roof* {6.16b [QUASI-PERM]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Ej specificerad] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-140-3S 1000×140 6800 mm 0,949 m³ 379,4 kg γm=1.25
Shear force reduction: Yes

Forces and moments			Load Combination	C.S.I
Nx [kN]	-63,910	(@0,0,0)	#5	
My [kNm]	0,000	(@0,0,0)	#5	9,3 %
Mz [kNm]	0,000	(@0,0,0)	#5	
Vy [kN]	0,000	(@0,0,0)	#1	0,0 %
Vz [kN]	0,000	(@0,0,0)	#1	

Storeys	Buckl. length			Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Våning :1	6800	3400	3400	0	0	< L/1000	< L/1000	#

Support material check

		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%]	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm
	C.S.I (edge) [%]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]
Upplag 1		63,910	0,000	0,000	70,454	0,000	0,000
-		27,176	0,000	0,000	48,314	0,000	0,000
Upplag 2		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000

Extra loads

Name

B3: W4 (Support 2), @3400 mm, n=1, Import vertical reactions, ×1

B6: W4 (Support 2), @6800 mm, n=1, Import vertical reactions, ×1
Element Contact = 16,6 %, @0,0,6800, kc90 =1, Aeff = 19530

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Defl. ULS

#5 Permanent + Office + Roof* {6.10 - A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:117

Defl. SLS

#9 Permanent + Office + Roof* {6.16b [QUASI-PERM]} - :{Serv.}



Scale: 1:117

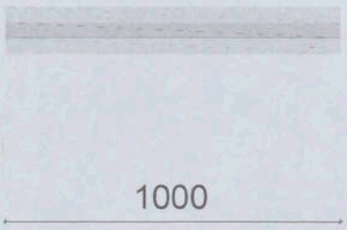
Section

L-140-3S 1000×140

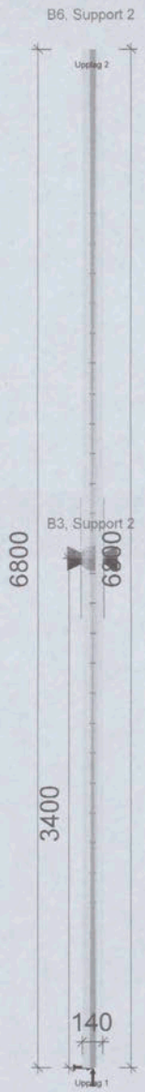
A= 139500 mm²
W.y= 3243375 mm³
W.z= 23250000 mm³
I.y= 226225406 mm*mm³
I.z= 11625000000 mm*mm³

L-140-3S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 7126,00 N/mm²
Em = 10601,00 N/mm²
E90m = 616,00 N/mm²
fc90k = 3,00 N/mm²
fck = 14,00 N/mm²
fmk = 23,11 N/mm²
ft90k = 0,40 N/mm²
ftk = 9,33 N/mm²
fvk = 0,70 N/mm²
G005 = 445,38 N/mm²
Gm = 117,00 N/mm²



Scale: 1:46



Over view - Elevation

Load Combinations

#1 Permanent + Wind* {6.10 -A1.2(A)[EQU:SetA]}
#2 Permanent* {6.10 - A1.2(B) [STR/GEO:SetB]}
#3 Permanent + Snow {6.10 - A1.2(B) [STR/GEO:SetB]}
#4 Permanent + Wind {6.10 - A1.2(B) [STR/GEO:SetB]}
#5 Permanent + Office + Roof* {6.10 - A1.2(B) [STR/GEO:SetB]}
#6 Permanent* {6.16b [QUASI-PERM]}
#7 Permanent + Snow {6.16b [QUASI-PERM]}
#8 Permanent + Wind {6.16b [QUASI-PERM]}
#9 Permanent + Office + Roof* {6.16b [QUASI-PERM]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Buildingparameters [Gable×Long×Height]: 7000×15000×8000 - Roof shape: Duo-pitched roof
Area: [Ej specificerad] **Meters Over Sea [m]:** 100
Site Snow Load: 0,700 kN/m², Snow topography: Normal Ce [1]
Site Wind Speed [m/s]: 26 **Wind preassure:** 0,662 kN/m², III. Area with regular cover of vegetation or buildings or with isolated obstacles of maximum 20 obstacle heights (such as villages, suburban terrain, permanent forest)

Service Class: SC1

Profile: L-140-3S 1000×140 3400 mm 0,474 m³ 189,7 kg γm=1.25
Shear force reduction: Yes

Forces and moments		Load Combination	C.S.I
Nx [kN]	-104,000 (@0,0,1100)	#2	
My [kNm]	0,000 (@0,0,1100)	#2	13,4 %
Mz [kNm]	0,000 (@0,0,1100)	#2	
Vy [kN]	0,000 (@0,0,0)	#1	0,0 %
Vz [kN]	0,000 (@0,0,0)	#1	

Storeys	Buckl. length			Deflections				
	Lx [mm]	Lcy [mm]	Lcz [mm]	Abs. - total load [m	Abs. - variable load	Rel. - total load	Rel. - variable lo	Load Combina
Våning :1	3400	3400	3400	0	0	< L/1000	< L/1000	#

Support material check

		Support reactions Ult.			Support reactions Serv.		
	C.S.I [%]	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm	Max vert. [kN]	Max hor. [kN]	Max rot. [kNm
	C.S.I (edge) [%]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]	Min vert. [kN]	Min hor. [kN]	Min rot. [kNm]
Upplag 1		104,000	0,000	0,000	0,000	0,000	0,000
-		104,000	0,000	0,000	0,000	0,000	0,000
Upplag 2		0,000	0,000	0,000	0,000	0,000	0,000
-		0,000	0,000	0,000	0,000	0,000	0,000

Extra loads

Name

Verticale puntlast BC8, Wind, (ST), ULS design load, 104,000 kN, @3400 mm, Vertical, 270,00°

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Defl. ULS

#2 Permanent + Wind {6.10 - A1.2(B) [STR/GEO:SetB]} - :{Ult.}



Scale: 1:59

Defl. SLS

-



Scale: 1:59

Section

L-140-3S 1000×140

A= 139500 mm²
W.y= 3243375 mm³
W.z= 23250000 mm³
I.y= 226225406 mm⁴mm²
I.z= 11625000000 mm⁴mm²

L-140-3S

Dens k = 400 kg/m³
Dens m = 400 kg/m³
E005 = 7126,00 N/mm²
Em = 10601,00 N/mm²
E90m = 616,00 N/mm²
fc90k = 3,00 N/mm²
fck = 14,00 N/mm²
fmk = 23,11 N/mm²
ft90k = 0,40 N/mm²
ftk = 9,33 N/mm²
fvk = 0,70 N/mm²
G005 = 445,38 N/mm²
Gm = 117,00 N/mm²



140

1000

Scale: 1:16

Over view - Elevation

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Load Combinations

#1 Permanent + Wind* {6.10 -A1.2(A)[EQU:SetA]}
#2 Permanent + Wind {6.10 - A1.2(B) [STR/GEO:SetB]}

Implemented code standards

General Design	EN 1990/AC:2010
Live Loads	EN 1991-1-1/AC:2009
Snow Loads	EN 1991-1-3/AC:2009/A1:2015
Wind Loads	EN 1991-1-4/AC:2010
Actions induced by cranes and machinery	EN 1991-3:2006
Steel Design	EN 1993-1-1:2005/A1:2014
Wood Design	EN 1995-1-1:2004/A2:2014

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Solid Timber

Bijlage 4 – Brandberekening CLT

Branddimensionering - Effectieve doorsnede CLT

Buitenwand

CLT	120-5s
Type element	Wand
Brandzijde	Trek
t_0	0
t_{ch}	0
t_f	0
k_2	0
$ß_0$	0,65
$k_{3,\ laag\ 1}$	2
$k_{3,\ overige\ lagen}$	2
$t_j(k_3)$	25
d_0	7
R_{eis}	30

Doorsnede vóór brand		Doorsnede na brand
Laag 1	20 mm	0 mm
Laag 2	30 mm	23,5 mm
Laag 3	20 mm	20 mm
Laag 4	30 mm	30 mm
Laag 5	20 mm	20 mm
Laag 6	0 mm	0 mm
Laag 7	0 mm	0 mm
Totaal	120 mm	93,5 mm

Branddimensionering - Effectieve doorsnede CLT

Vloer

CLT	120-5s
Type element	Vloer
Brandzijde	Trek
t_0	0
t_{ch}	0
t_f	0
k_2	0
$ß_0$	0,65
$k_{3,\ laag\ 1}$	2
$k_{3,\ overige\ lagen}$	2
$t_j(k_3)$	25
d_0	7
R_{eis}	30

Doorsnede vóór brand		Doorsnede na brand
Laag 1	20 mm	0 mm
Laag 2	30 mm	23,5 mm
Laag 3	20 mm	20 mm
Laag 4	30 mm	30 mm
Laag 5	20 mm	20 mm
Laag 6	0 mm	0 mm
Laag 7	0 mm	0 mm
Totaal	120 mm	93,5 mm



Branddimensionering - Effectieve doorsnede CLT				
Wand kern				
CLT	140-3s			
Type element	Wand			
Brandzijde	Trek			
t_0	0	Doorsnede vóór brand		Doorsnede na brand
t_{ch}	0	Laag 1	46,5 mm	20 mm
t_f	0	Laag 2	46,5 mm	46,5 mm
k_2	0	Laag 3	46,5 mm	20 mm
$ß_0$	0,65	Laag 4	0 mm	0 mm
$k_{3,\ laag\ 1}$	2	Laag 5	0 mm	0 mm
$k_{3,\ overige\ lagen}$	2	Laag 6	0 mm	0 mm
$t_j(k_3)$	25	Laag 7	0 mm	0 mm
d_0	7			
R_{eis}	30	Totaal	139,5 mm	86,5 mm



Knik CLT wand as a	Order: 1706-2	Datum	2017-10-13

BRANDBEREKENING

INPUT	Waarde	Eenheid	OUTPUT	Waarde	Eenheid
CONSTRUCTIE			k_{mod} =	1,1	
CLT element	70	[mm]	λ_y =	136,00	$\lambda_y \leq 200$
b	400	[mm]	$\ell_{k,i}$ =	3400	[mm]
h	3400	[mm]	$i_{y,0,ef}$ =	25,00	
Klimaatklasse	1		$I_{y,0,ef}$ =	9999902	[mm^4]
Belastingsduur	Zeer kort		$W_{y,0,ef}$ =	285711	[mm^3]
			$A_{0,net}$ =	16000	[mm^2]
BELASTINGOPGAVEN			$\lambda_{y,rel}$ =	1,85	
$F_{c,Sd}$	34,42	[kN]	k_y =	2,29	
$q_{v,Sd}$	0,00	[kN/m]	$k_{c,y}$ =	0,28	
M_{Sd}	0,00	[kNm]	$f_{c,0,d}$ =	18,48	[MPa.]
			$f_{m,d}$ =	21,12	[MPa.]

RESULTAAT		
Unity Check	**0,42**	OK!
knik		



Knik CLT wand as 3	Order: 1706-2	Datum	2017-10-13

BRANDBEREKENING

INPUT	Waarde	Eenheid	OUTPUT	Waarde	Eenheid
CONSTRUCTIE			k_{mod} =	1,1	
CLT element	86,5	[mm]	λ_y =	104,92	$\lambda_y \leq 200$
b	1000	[mm]	$\ell_{k,i}$ =	3400	[mm]
h	3400	[mm]	$i_{y,0,ef}$ =	32,41	
Klimaatklasse	1		$I_{y,0,ef}$ =	42003652	[mm^4]
Belastingsduur	Zeer kort		$W_{y,0,ef}$ =	971183	[mm^3]
			$A_{0,net}$ =	40000	[mm^2]
BELASTINGOPGAVEN			$\lambda_{y,rel}$ =	1,35	
$F_{c,Sd}$	40,45	[kN]	k_y =	1,47	
$q_{v,Sd}$	0,00	[kN/m]	$k_{c,y}$ =	0,49	
M_{Sd}	0,00	[kNm]	$f_{c,0,d}$ =	18,48	[MPa.]
			$f_{m,d}$ =	21,12	[MPa.]

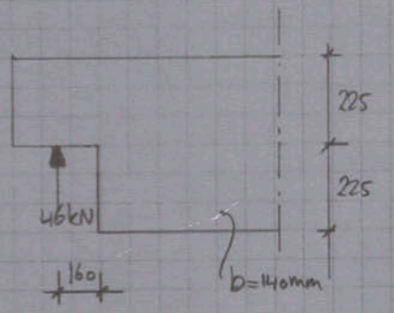
RESULTAAT		
Unity Check	**0,11**	OK!
knik		



Solid Timber

Bijlage 5 – Handberekeningen

Uitkoping balk B3



$h_{ef} = 225\,mm \geq 0{,}5h$. Ok.

$\alpha = \frac{225}{450} = 0{,}5$

$k_n = 6{,}5 \qquad i = 0$

$$k_v = \frac{6{,}5\left(1+\frac{1{,}1.0^{1{,}5}}{\sqrt{450}}\right)}{\sqrt{450}\left(\sqrt{0{,}5(1-0{,}5)}+0{,}8\frac{160}{450}\sqrt{\frac{1}{0{,}5}-0{,}5^2}\right)}$$

$= 0{,}35$

$\tau_d = \frac{1{,}5.46.10^3}{140.225} = 2{,}19\,MPa.$

$f_{v,d} = \frac{0{,}35.0{,}8}{1{,}25} = 2{,}24\,MPa.$

$k_v f_{v,d} = 0{,}35.2{,}24 = 0{,}784\,MPa.$ U.C. $\frac{2{,}19}{0{,}784} = 2{,}79 > 1{,}0$ Niet akkoord

Controle nettodoorsnede: $\tau_d = \frac{1{,}5.46.10^3}{140.225} = 2{,}19\,MPa.$ U.C. $\frac{2{,}19}{2{,}24} = 0{,}96 < 1{,}0$. Akkoord

Versterk de doorsnede met dubbel gedraade schroeven SW-D 8,0x330

$R_{ax,d} = 10{,}53\,kN \rightarrow n_s = 46/10{,}53 = 4{,}4 \rightarrow 5\,st.$ Akkoord.

Gbo Fastening Systems AB Bruksvägen 9 590 93 Gunnebo +46 490 300 00 kundservice@gunnebofastening.com www.gunnebofastening.com

DOUBLE THREADED WOOD SCREW SW-D



Specifications

Manufacturer: Gunnebo Fastening
Product: Double threaded wood screw sw-d 8.0x330
Predrilling is not required

Project data

Project number: 1706-2
Project name: SW-D 8.0x330
Project part: Valschermkade
Wood Joint ID:
City:

Responsible: Bas Boellaard
Tel: 0705864707

Company: Solid Timber
Adress: Falujägarvägen 46B

E-mail: bas@solidtimber.nl
Zip Code: 93144
City: Skellefteå

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Patch Reference numbers on UTT Scan Reference Chart TE263 Serial No. 40

Gbo Fastening Systems AB Bruksvagen 2 590 93 Gunnebo +46 490 300 00 kundservice@gunnebofastening.com www.gunnebofastening.com

DOUBLE THREADED WOOD SCREW SW-D



Can be countersunked into the wood to create a hidden joint. Shear capacity can be optimized when mounting screw in an 30-45° angle

Corrosivity class: C3
Material: EN ISO 16120
Bits: TX40

Specifications

Manufacturer: Gunnebo Fastening
Product: Double threaded wood screw sw-d 8.0x330
Predrilling is not required

Project data

Project number: 1706-2
Project name: SW-D 8.0x330
Project part: Valschermkade
Wood Joint ID:
City:

Joint data

Joint type: Single shear

Material (A):
Type: Glulam
Thickness: 225 mm
Class density: GL30c (390kg/m3)

Base material (B):
Type: Glulam
Thickness: 225 mm
Class density: GL30c (390 kg/m³)

Bas material (C):
Type:
Thickness:
Class density

Corrosivity class: C3
Load duration: M

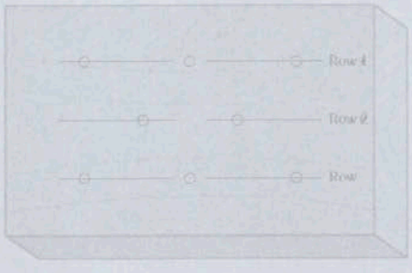
Result

Design axial load capacity per fastener $F_{ax,Rd}$ 10.53 kN
Design racking load capacity per fastener $F_{v,Rd}$ kN

Total number of parallel fasteners: 1

Total number of parallel fasteners per row parallel to the grain direction (Entered for wood part)

Row 1: Row 3: Row 5:
Row 2: Row 4: Row 6:



Total design axial load capacity $F_{ax,ef,Rd}$ kN
Total design racking load capacity $F_{v,ef,Rd}$ kN

Entered design axial load impact $F_{ax,Ed}$
Entered design shear load impact $F_{v,Ed}$
Verification of combined loads

Responsible: Bas Boellaard
Tel: 0705854707
Company: Solid Timber
Adress: Falgagarvagen 45B
E-mail: bas@solidtimber.nl
Zip code: 93144
City: Skellefteå

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