



VCON bouwconstructies
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Verbouwing Tuinmanshuis
Plantage-Centrum 14
Wouwse Plantage

Onderdeel: Constructieberekeningen

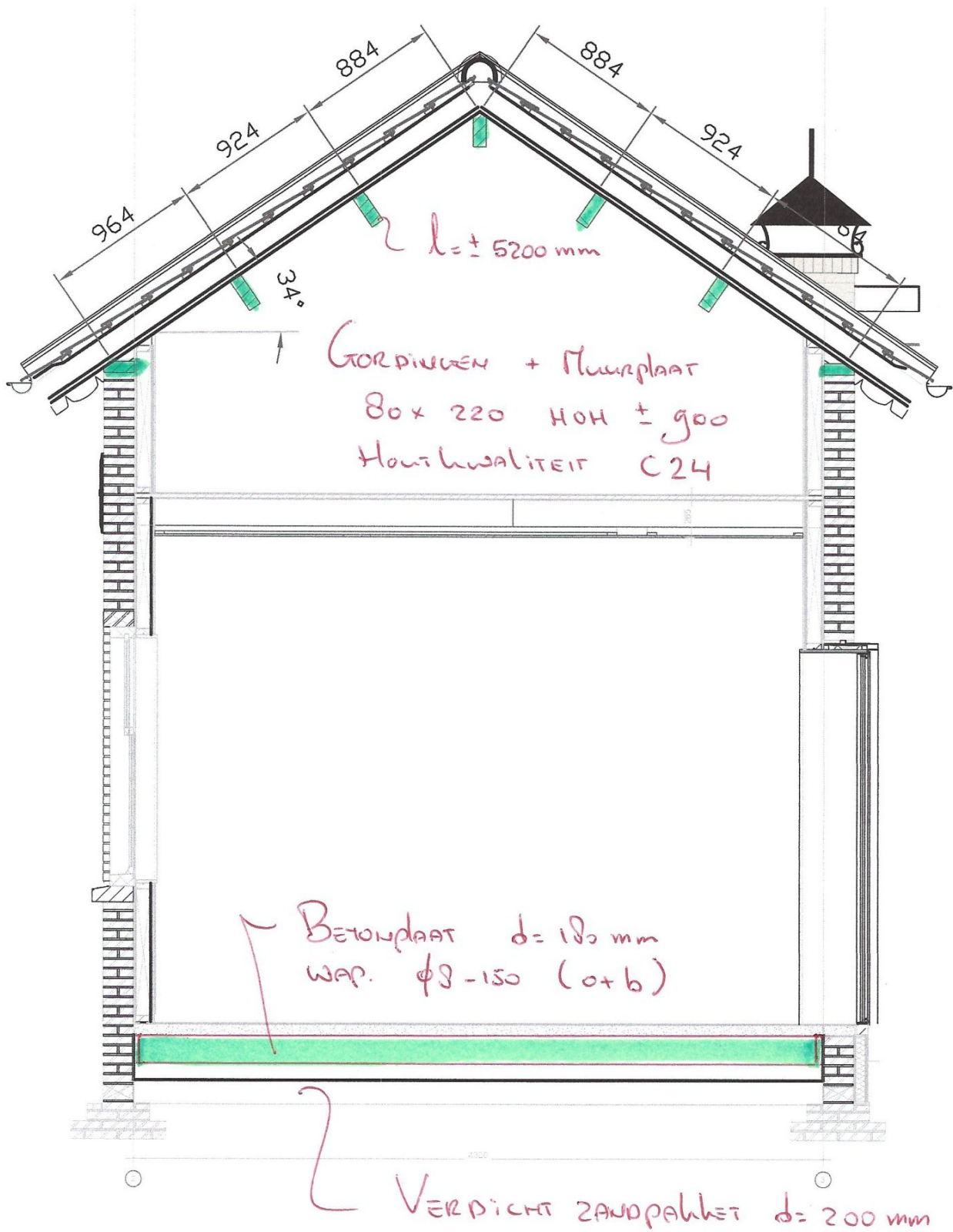
Opdrachtgever: Landgoed Wouwse Plantage
p/a Kerkstraat 54
3291 AM Strijen

Opmerkingen:					
2		Uitgave			
1		Ter goedkeu- ring			
0	25.08.2022	Ter goedkeu- ring		[redacted]	
Revisie	Datum	Status	Autorisatie:	Auteur	
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2993

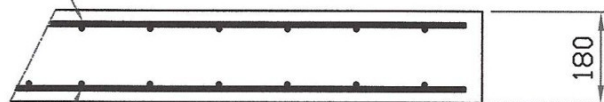
Tuinmans huis

Plantage - Centrum 14 te Wouwe plantage



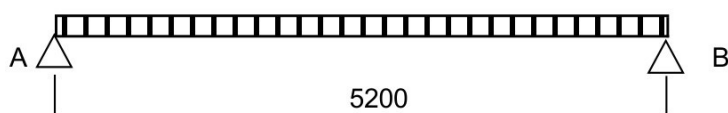
wapeningsnet boven $\varnothing 8-150$

wapeningsnet onder $\varnothing 8-150$



- EXACTE MAATVOERING IN HET WERK BEPALEN
- ZANDPAKKET MECHANISCH VERDICHTEN
- BETONKWALITEIT: C20/25
- BETONSTAALKWALITEIT: B500
- MILIEUKLASSE: XC2
- MIN. BETONSTAALDEKKING: ONDER 35mm OVERIG 30mm

3.1 GORDINGEN



$$P_{\text{rep};e.g.} = 0,58 \text{ kN/m}^2 *$$

$$P_{\text{rep};v.b.} = 0,56 \text{ kN/m}^2$$

$$* = \cos 34 \times 0,70$$

$$\text{lengthe} = 5,2 \text{ m}$$

$$b = 0,9 \text{ m}$$

E.G. $q_{e.g.} = 0,9 \times 0,58 = 0,52 \text{ kN/m}^1$

$$R_a = R_b = 1,36 \text{ kN}$$

V.B. $q_w = 0,9 \times 0,56 = 0,50 \text{ kN/m}^1$

$$R_a = R_b = 1,31 \text{ kN}$$

$$M_{y;s;d} = 1,1 (1/8 \times q_{e.g.} \times l^2) + 1,35 (1/8 \times q_w \times l^2) = 4,33 \text{ kNm}$$

$$V_{z;s;d} = 1,1 \times 1,36 + 1,35 \times 1,31 = 3,26 \text{ kN}$$

Profiel 220 x 80

$$W_y = 645 \times 10^3 \text{ mm}^3$$

$$I_y = 7099 \times 10^4 \text{ mm}^4$$

Naaldhoutklasse B ;sterkteklasse C24

Belastingduurklasse 1 (lang)

Klimaatklasse 1 (droog)

$$k_{\text{mod}} = 0,85$$

$$k_{\text{mod}} = 1$$

$$\psi_{\text{krp}} = 1$$

$$\gamma_m = 1,2 \quad (\text{sterkte})$$

$$k_h = 1 \quad (h > 200)$$

$$k_{\text{con}} = 1$$

$$f_{m;O;d} = \frac{f_{m;O;rep}}{\gamma_m} \times k_{\text{mod}} \times k_h = 17,00 \text{ N/mm}^2$$

$$f_{v;O;d} = \frac{f_{v;O;rep}}{\gamma_m} \times k_{\text{mod}} = 1,2 \text{ N/mm}^2$$

$$f_{c;90;rep} = \frac{f_{v;O;rep}}{\gamma_m} \times k_{\text{mod}} \times k_{\text{con}} = 4,7 \text{ N/mm}^2$$

berekening:

datum: 26-08-22

bladzijde: 3. 1

revisie: 0

Controle op sterkte

$$\sigma_{m;O;d} = \frac{M_{y;s;d}}{W_y} = \frac{4,33 \times 10^6}{645 \times 10^3} = 6,7 \text{ N/mm}^2 < f_{m;O;d} = 17,0 \text{ N/mm}^2$$

$$\sigma_{v;O;d} = \frac{3 \times V_{z;s;d}}{2 \times b \times h} = \frac{3 \times 3,26 \times 10^3}{2 \times 80 \times 220} = 0,28 < f_{v;O;d} = 1,4 \text{ N/mm}^2$$

Controle op doorbuiging

- Incidentele combinatie

$$E_d = \frac{E_{O;ser;rep}}{\gamma_m} \times k_{mod} = \frac{11000}{1} \times 1 = 11000 \text{ N/mm}^2$$

- momentane combinatie

$$E_{O;ser;d} = \frac{E_{O;ser;rep}}{\gamma_m(1+\psi_{kr})} \times k_{mod} = \frac{11000}{1(1+1)} \times 1 = 5500 \text{ N/mm}^2$$

- Incidentele combinatie

$$u_{el} = \frac{5}{384} \times \frac{1,03 \times 5200^4}{11000 \times 7099 \times 10^4} = 12,5 \text{ mm}$$

- Momentane combinatie

$$u_{kr} = \frac{5}{384} \times \frac{0,52 \times 5200^4}{11000 \times 7099 \times 10^4} = 6,4 \text{ mm} \quad (\text{t.g.v. eigen gewicht})$$

$$q_{mom} = 0,6 \times 0,4 \times 0,50 = 0,12 \text{ kN/m}^1$$

$$u_{kr} = \frac{5}{384} \times \frac{0,12 \times 5200^4}{5500 \times 7099 \times 10^4} - \frac{5}{384} \times \frac{0,12 \times 5200^4}{11000 \times 7099 \times 10^4}$$

$$= 2,9 - 1,5 = 1,5 \text{ mm} \quad (\text{t.g.v. v.b.})$$

$$u_{eind} = 12,5 + 6,4 + 1,5 = 20,3 \text{ mm} < 0,004 l = 20,8 \text{ mm}$$

voldoet