

Betreft:	Uitbouw woning aan de Lindeselaak 2 te Wichmond
Opdrachtgever:	Fam. Spiegelenberg Lindeselaak 2 7234 TB Wichmond

Berekening Stalen balk

mei 2017

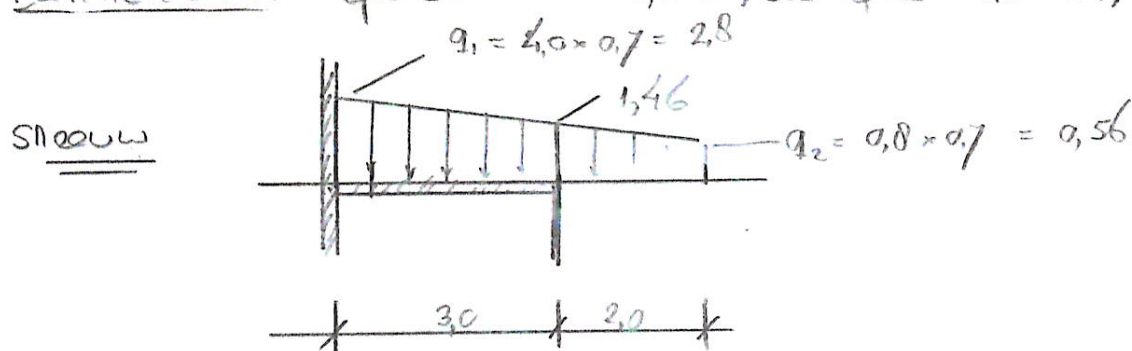
Lindsebaak 2

Eurocode CC1

veiligheidscoëfficiënt eigen gewicht variabel = $\frac{1,08}{1,35}$

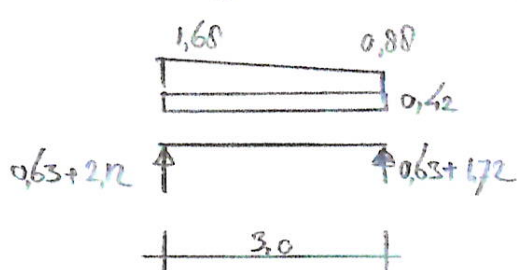
Platdak dakbedekking, beschot balklaag platond $0,70 \text{ kN/m}^2$

Pannendak $\varphi = 35^\circ$ $0,82 / \cos \varphi = 1,0 \text{ kN/m}^2$



Balklaag

59/156 hoh 600



$$q_1 \cdot q = 0,6 \times 0,7 = 0,42 \text{ kN/m}$$

$$q_1 \cdot q = 0,6 \times 2,8 = 1,68$$

$$q_2 \cdot q = 0,6 \times 1,46 = 0,88$$

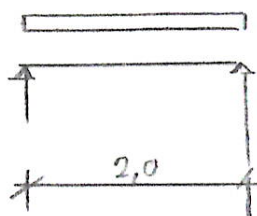
$$q_n = 1,08 \cdot 420 + 1,35 \cdot 1280 = 2182 \text{ N/m}$$

$$\text{sterkte: } M = \frac{1}{8} \cdot 2182 \cdot 3^2 = 2455 \text{ Nm}$$

$$\sigma_b = 2455 / 239 = 103 \text{ N/mm}^2$$

$$\text{doorb. } \left. \begin{array}{l} f_g = 120 \cdot 0,42 \cdot 3^4 / 1870 = 2,2 \\ f_g = 128 \\ \text{kruip } 0,6 \cdot 2,2 = 1,3 \end{array} \right\} 10,2$$

latei 71/156



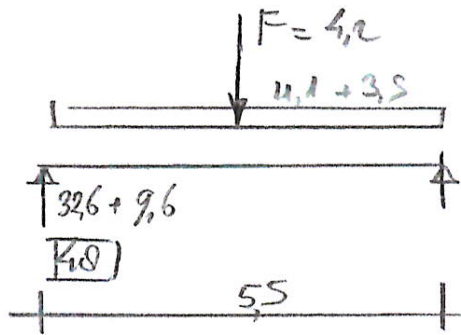
$$q_1 = 1,5 \times 0,7 = 1,1 \text{ kN/m}$$

$$q_2 = 1,5 \times 1,28 / 0,6 = 3,2$$

$$q_n = 1,08 \times 1,1 + 1,35 \cdot 3,2 = 5,5 \text{ kN/m}$$

$$\text{sterkte } \sigma_b = 2750 / 288 = 9,6 \text{ N/mm}^2$$

$$\text{doorbuiging: } \left. \begin{array}{l} f_g = 120 \cdot 1,1 \cdot 2,0^4 / 2246 = 1 \text{ mm} \\ f_g = 32 \\ \text{kruip } 0,6 \cdot 1,0 = 0,6 \end{array} \right\} 2,7 \text{ mm}$$

Lindseleak 2

 J 200-100-10
HEA 200

Stalen balk bestaande
achtergevel

$$q_g: \begin{array}{l} \text{gevel} \quad 2,2 \times 4,0 = 8,8 \text{ kN/m} \\ \text{pannendak} \quad 0,5 \text{ "} \\ \text{plattendak} \quad 1,1 \text{ "} \\ \text{erg gew.} \quad 0,7 \\ \hline 11,1 \text{ kN/m} \end{array}$$

$$q_g \text{ sneeuw } 1,66 \times \frac{12,8}{0,6} = 3,5$$

$$q_d = 1,08 \times 11,1 + 1,35 \times 3,5 = 16,7 \text{ kN/m}$$

$$F_g = \text{dak} \leq 35 - 12 \times 1 = 4,2 \text{ kN} \\ 1,08 \times 4,2 = 4,5 \text{ kn}$$

Storke $M = \frac{1}{8} 16,7 \times 5,5^2 + \frac{1}{4} 4,5 \times 5,5 = 70 \text{ kNm}$

$$Gb = 70 / (430 + 91) = 0,13 \text{ f}$$

doorbuiging $f_g = \frac{6,2 \times 11,1 \times 5,5^4}{10 \times 4,2 \times 5,5^3} \left(\frac{3692 + 1220}{4912} \right) = \frac{12,8}{1,4} \text{ mm}$

$$f_g = \frac{6,2 \times 3,5 \times 5,5^4}{4912} = \frac{14,2}{4,0} \text{ mm}$$

$$18,2 \text{ mm}$$

oploegging

$$\sigma_{mw} = \frac{48000}{100 \times 300} = 1,6 \text{ N/mm}^2$$

Lindselaak 2

