

Gemeente Heemskerk

A.W. Grootestraat 8

Uitbreiding keuken



1969-032

BEREKENING, BEHORENDE BIJ
"BOUWPLAN UIT GEBOUWDE KEUKEN"
A.W. GROOTE STR. 8

HEEMSKERK 11-2-69

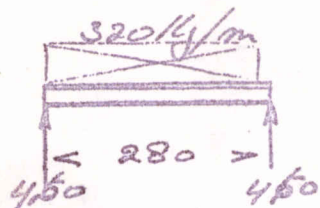
BEREKENING LATEI BALK (INP 12), ONDERSLAG BALK (DIN 18 OF 2x INP 18)
+ STAANDERS (INP 14)

1 LATEI BALK INP 12.

$$I_{p1} = 328 \text{ cm}^4$$

$$W_{x1} = 54,7 \text{ cm}^3$$

$$G_{EW} = 11,2 \text{ kg/m}$$



GEVELSTEEN 180 kg/m^2

$$\text{BELASTING} \frac{(6,8 - 2) 180}{2,8} + 11,2 \rightarrow 320 \text{ kg/m}$$

$$M_{\text{max}} = \frac{1}{8} \cdot 320 \cdot 2,8^2 = 315 \text{ kg.m}$$

$$\sigma = 1400 \text{ kg/cm}^2$$

$$W_{\text{ben}} = \frac{31500}{1400} = 22,5 \text{ cm}^3$$

$$I_{\text{mod}} = \chi Q l^2 \quad \frac{f_{\text{max}}}{\chi} = \frac{1}{600} \rightarrow \chi = 37,2$$

$$= 37,2 \cdot (2,8 \cdot 0,32) \cdot 2,8^2 \rightarrow 265 \text{ cm}^4$$

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2 ONDERSLAG BALK DIN 18

$$I_{p2} = 2510 \text{ cm}^4$$

$$W_{x2} = 294 \text{ cm}^3$$

$$G = 35,5 \text{ kg/m}$$

BALKGEWICHT

$$35,5 \text{ kg/m}$$

MEISELWERK KALKZ. ST $200 \text{ kg/m}^2 \rightarrow 800 \text{ kg/m}$

VLOER 1^{ste} etage + ZOLDER $280 \text{ kg/m}^2 \rightarrow 480 \text{ kg/m}$

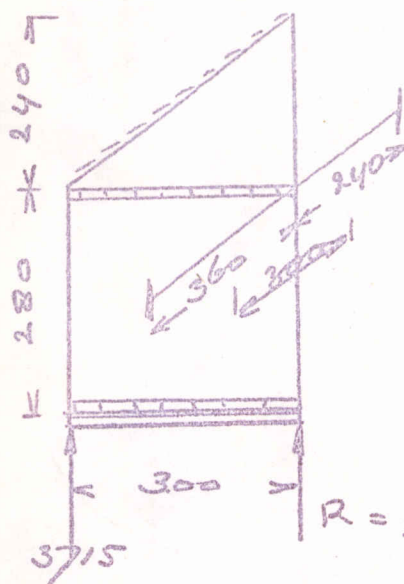
VLOERBELASTING 1^{ste} ETAGE $200 \text{ kg/m}^2 \rightarrow 600 \text{ kg/m}$

" " ZOLDER $150 \text{ kg/m}^2 \rightarrow 450 \text{ kg/m}$

DAKBED + GORDINGEN + BESHOOT

$$90 \text{ kg/m}^2 \rightarrow 110 \text{ kg/m}$$

$$2475,5 \text{ kg/m}$$



$$R = \frac{3 \times 2475,5}{2} = 3715 \text{ kg}$$

$$M_{\text{max}} = \frac{1}{8} \cdot 2475 \cdot 3^2 = 2800 \text{ kg.m}$$

$$W_{\text{ben}} = \frac{280000}{1400} = 200 \text{ cm}^3$$

$$I_{\text{Ben}} = 37,2 \cdot (3 \cdot 2,475) \cdot 3^2$$

$$= 2500 \text{ cm}^4$$

ZIE OPM.

3 BEREKENING STAANDERS $\angle N 14$ $i_{min} = 1,75 \text{ cm}$
 CONTROLE OP KNIK. $F = 20,4 \text{ cm}^2$

SLANKH. $\lambda = \frac{\text{LENGTE}}{i_{min}} = \frac{280}{1,75} \rightarrow 160 \text{ (EULER)}$

$\sigma_k = \frac{2073}{(160/100)^2} \rightarrow 800 \text{ kg/cm}^2$

$P_k = \sigma_k \cdot F = 800 \cdot 20,4 \rightarrow 16400 \text{ kg}$

$n = \frac{16400}{3715} = 4,3$

$\sigma_{da} = \frac{800}{4,3} = 160 \text{ kg/cm}^2 \text{ (TOELAATBAAR VOOR } \lambda = 160)$

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VOETPLAAT $\sigma_d \text{ BETON } 25 \text{ kg/cm}^2$

$F = \frac{3715}{25} = 150 \text{ cm}^2 \text{ (} 150 \times 10 \times 20 \text{ mm)}$

GEMETSELENDE POER. KLINKERS 20×20

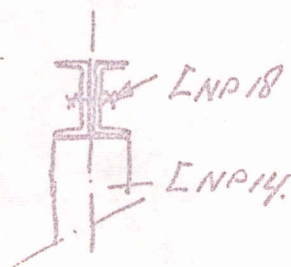
$\sigma_d = 10 \text{ kg/cm}^2$

$F = 3715 \text{ cm}^2 \text{ (} 200 \times 200 \times 20 \text{ mm)}$

Opm:

VOOR DE ONDERSLAGBALK KAN ALS ALTERNATIEF

DIENEN $2 \times \angle N 18$ $I_{x_{TOT}} 2700 \text{ cm}^4$



$W_{x_{TOT}} 300 \text{ cm}^3$

BEREKEND DOOR
M. M. H. de Vries