Verbouw N.W. Frankenstraat 2.
t.n.v. de heer J. W. Saap.

Stalen balk van timmerman naar achteren.

$l = 2{,}70 + 0{,}15 = 2{,}91$ m'

kap	$6{,}50/2 \times (90+50) =$		455 kgf
zolder	$6{,}50/2 \times 210$	=	682,5
verd.	$6{,}50/2 \times 210$	=	682,5
muur	$4{,}50 \times 200$	=	900
e.g.			25
			2745 kgf/m'

I ben. $= 2{,}8 \times 2{,}745 \times 2{,}91^3 = 1677{,}57$ cm^4 → IPE 20 = 1940 cm^4.

Opleggingen op kolom. ENP 12.
Opleggingen $= 2{,}91/2 \times 2745 = 3988$ kgf.
i min. ENP 12 = 1,59.
$\lambda = l/i = 250/1{,}59 = 157 \rightarrow \omega = 0{,}172 \rightarrow \bar{\sigma} = 240$ kgf/cm^2.
$F = P/\bar{\sigma} = 3988/240 = 15{,}98$ cm^2 → ENP 12 = 17 cm^2.

Randbalk op fundering, Lengte $55 - 6 = 49$ cm.
Breedte 2×12 cm $= 24$ cm.
$M = 1/8 \times 2745 \times 2{,}9^2 = 2885$ kgm.
$k = h : \sqrt{M/b} = 49 : \sqrt{2885/0{,}24} = 0{,}447$
$\omega = 0{,}375 + 1/21 \times 0{,}25^2 = 3{,}91$
$A = 3{,}91 \times 0{,}24 \times 49 = 4{,}6$ cm^2 = 2 ϕ 14 + 2 ϕ 10 QR 24.