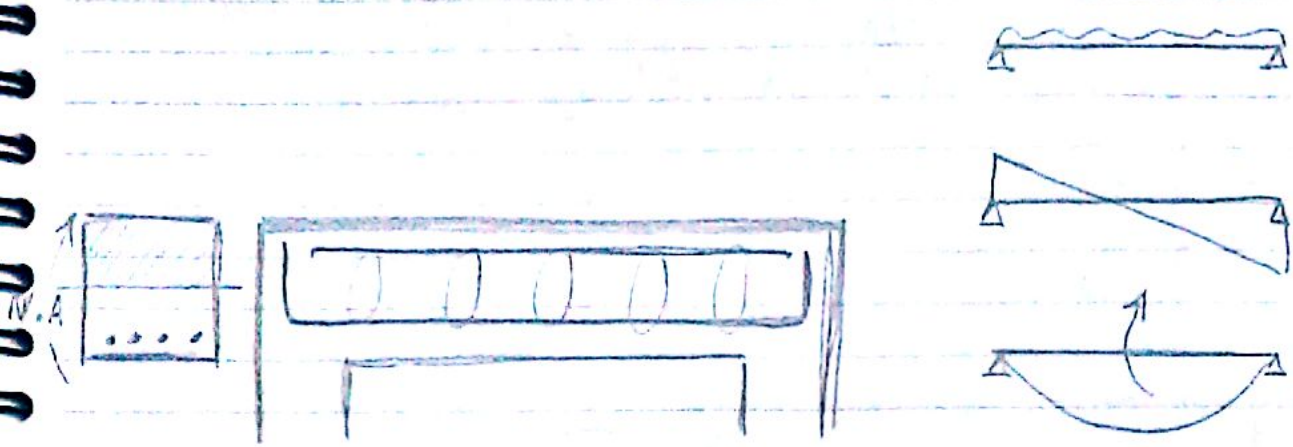
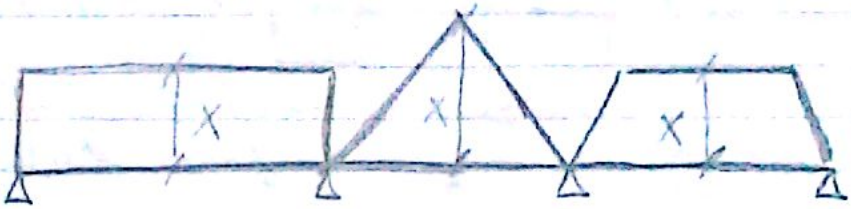
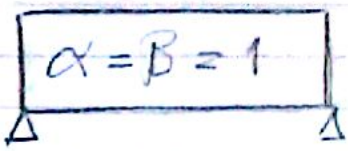
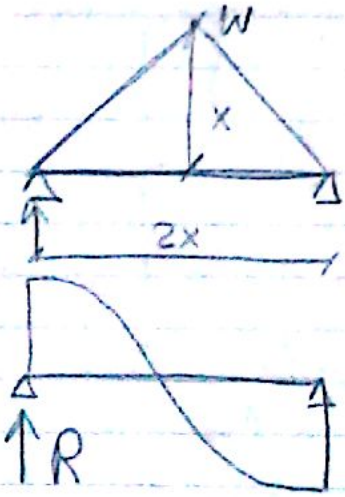
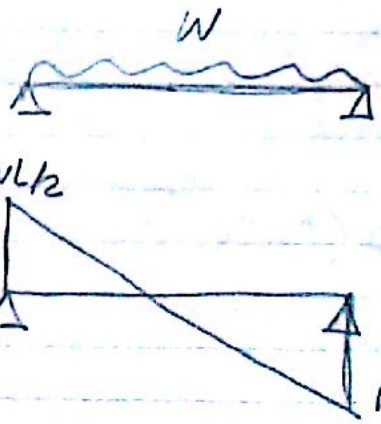










$\beta = \frac{1}{2}$

$\alpha = \frac{2}{3}$

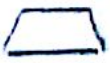
سما ن يكون للشكل α أو β

لازم يكون حمل منتظم + بين 2 supports

Date : NO :

$\frac{L}{2x} = 1,1$
$= 1,2$
$\vdots$
$= 1,9$

L/2x	1,1	1,2	1,3	....	1,9	2
α						
β						

$\rightarrow \alpha > \beta$ في 

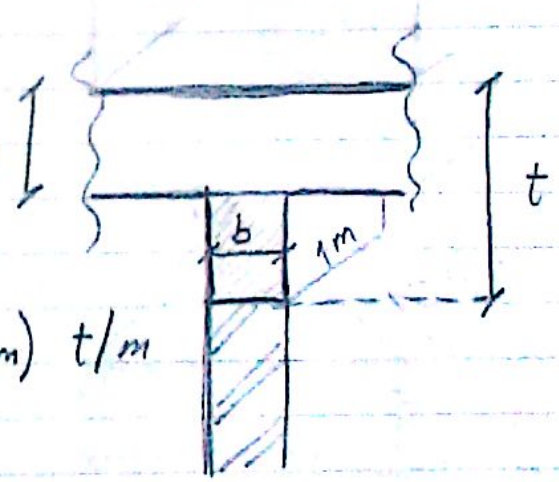
الكمرة شايلة نفسها + البلاطة + الحيطة

width of beam → b
depth of beam → t
slap thickness → t_s

(O.W beam)
Own weight beam = $\gamma_c \cdot V$ (كثافة × حجم)

$= 2,5 * (b * (t - t_s) * 1m)$ t/m

$\gamma_c \equiv t/m^3$



O.W beam $= b\,(t - t_s)\,2,5$ t/m

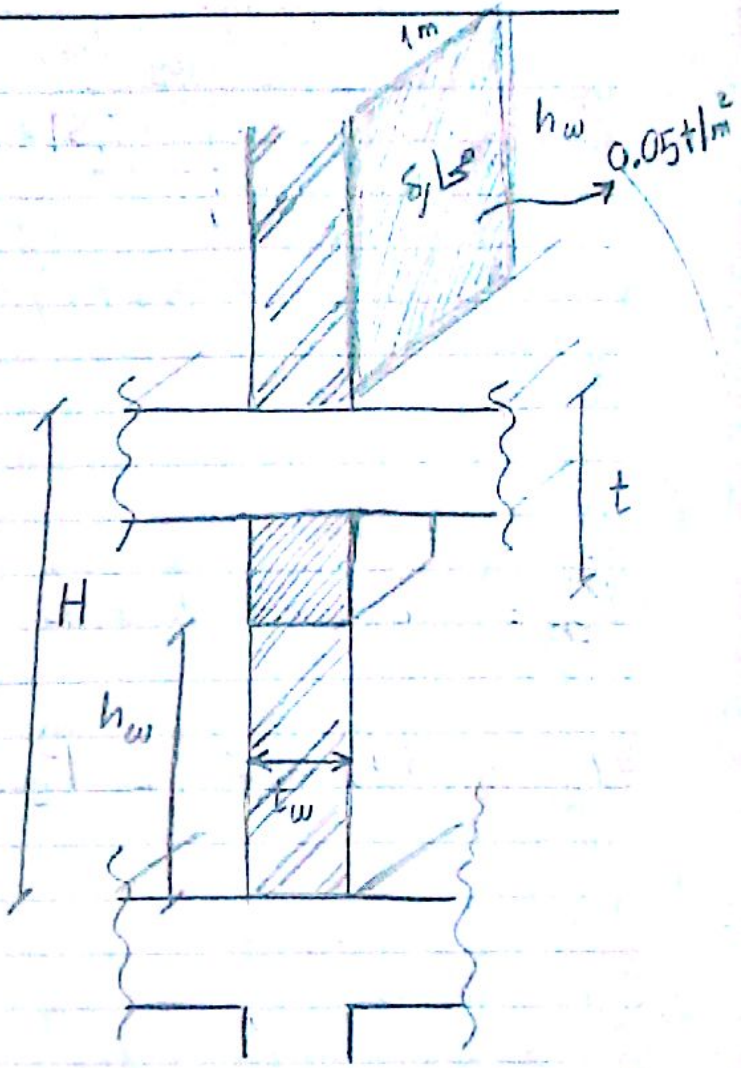
ton & meter ← Design التعويض في
Kg & cm ← التعويض في

Date : NO :

$$D.W_{wall} = \gamma_B \cdot V$$

$$= \left(\gamma_B \cdot t_w + 0{,}05\right) * h_w$$

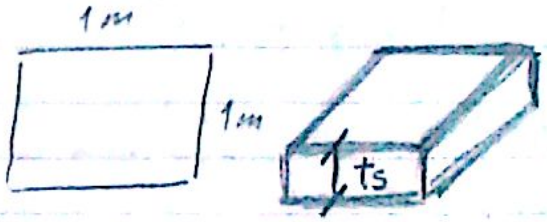
t/m^2 t/m^2



$$h_w = H - t$$

$$D.W_{wall} = \left(\gamma_B \cdot t_w + 0{,}05\right) h_w \quad t/m$$

Slab ← D.W وزنيا
← F.C تشطيبات
← L.L أحمال حية



$$W_{slab} = \gamma_c \cdot V = 2{,}5\left(1*1*t_s\right) \quad t/m^2$$

$$D.W_{slab} = t_s * 2{,}5 \quad t/m^2$$

$$W_{slab\,(D.L)} = D.W + F.C \quad t/m^2$$

← flooring تشطيبات floor covering

$$W_{slab\,(L.L)} = L.L \quad t/m^2$$

Date : NO :

$$g_{shear} = \underbrace{b\,(t - t_s) * 2{,}5}_{O.W_{beam}\ t/m} + \underbrace{(\gamma_B\, t_w + 0{,}05)\, h_w}_{W_{wall}\ t/m}$$

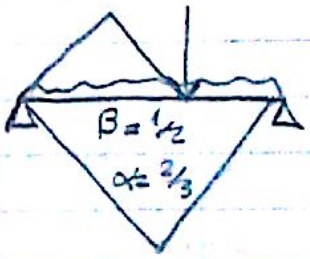
$$+ \underbrace{(t_s * 2{,}5 + f.c) * X * \beta}_{W_{slab}\ t/m}$$

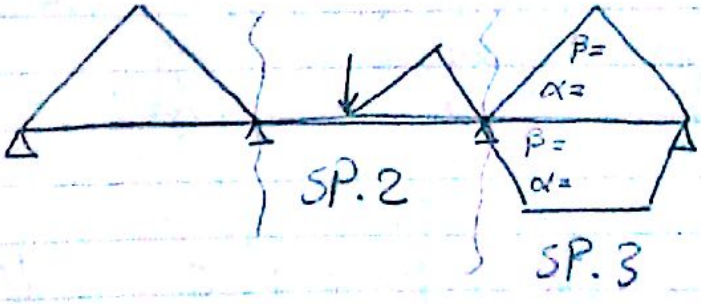
$$P_{sh} = L.L * X * \beta \quad (t/m^2)$$

$$W_{sh} = 1{,}5\,(g_{sh} + P_{sh})$$

: على B *

$$g_{sh} = \cdots\cdots + \left[W_{span} * \frac{\Sigma A}{span} \right]$$





Date : NO :

$b = 12 \rightarrow O.W = b(t - t_s)\,2.5 = 0,15$ t/m

$b = 25 \rightarrow O.W = b\,(t - t_s)\,2,5 = 0,3$ t/m

B_1

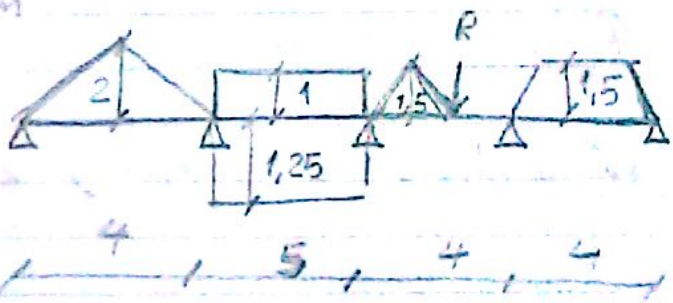
shear $\rightarrow$ $\delta_{sh} = 0,15 + 0,3 +$

$$\frac{L}{10} = \frac{500}{10} = 50$$

Ex: f.c = 150 Kg/m³, L.L = 200 Kg/m³

b = 25, t_w = 25, γ_w = 1400 Kg/m³

t_s = 12



$O.W_{beam} = b(t - t_s)\,2,5 = 0,25\,(0,5 - 0,12)\,2,5 = 0,24$ t/m

$W_{wall} = \left((\gamma_w t_w + 0,05)\,h_w\right) = (1,4 * 0,25 + 0,05)\,2,5 = 1$ t/m

$W_{slab\ D.L} = (t_s * 2,5 + f.c) = 0,12 * 2,5 + 0,15 = 0,45$ t/m²

Date : NO :

Span ①

$g_{sh} = 0,24 + 1 + (0,45 * 2 * \frac{1}{2}) = 1,69$ t/m

O.W Wall S.D.L * X * B

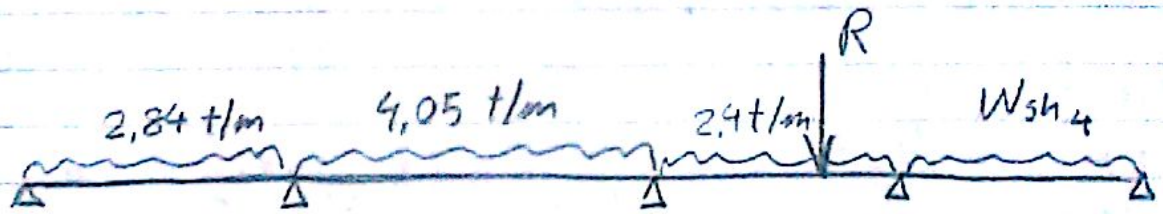
$P_{sh} = 0,2 * 2 * \frac{1}{2} = 0,2$ t/m

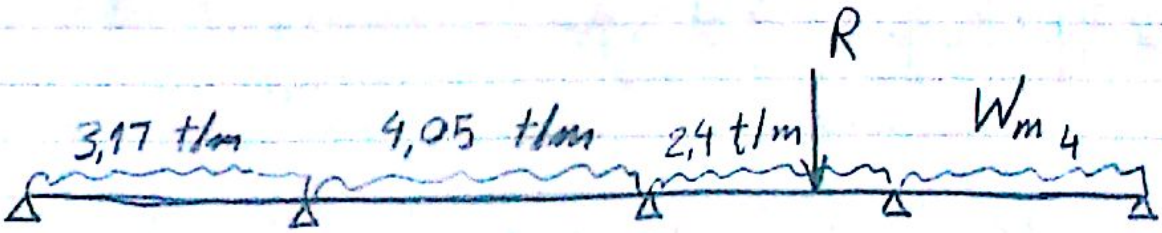
$W_{sh} = 1,5\,(1,69 + 0,2) = 2,84$ t/m²

$g_{moment} = 0,24 + 1 + (0,45 * 2 * \frac{2}{3}) = 1,84$ t/m

$P_m = 0,2 * 2 * \frac{2}{3} = 0,27$ t/m

$W_m = 1,5\,(1,84 + 0,27) = 3,17$ t/m





Date : NO :

Span (2)

$W_{sh} = W_m$

$g_{sh} = 0,24 + 1 + (0,45 * 1 * 1) + (0,45 * 1,25 * 1) = 2,25$ t/m

$P_{sh} = (0,2 * 1 * 1) + (0,2 * 1,25 * 1) = 0,45$ t/m

$W_{sh} = 1,5 (2,25 + 0,45) = 4,05$ t/m

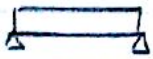
Span (3) $W_{sh} = W_m$

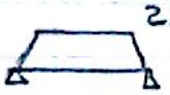
$g_{sh} = 0,24 + 1 + \left(0,45 * \frac{\frac{1}{2} * 3 * 1,5}{4}\right) = 1,49$ t/m

$P_{sh} = \left(0,2 * \frac{\frac{1}{2} * 3 * 1,5}{4}\right) = 0,11$ t/m

$W_{sh} = 1,5 (1,49 + 0,11) = 2,4$ t/m

Span (4)





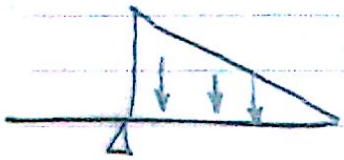
$g_{sh} = 0,24 + 1 + (0,45 * 1,5 * 1) + (0,45 * 1,5 * \beta)$

$P_{sh} = (0,2 * 1,5 * 1) + (0,2 * 1,5 * \beta)$

$W_{sh} = 1,5 (g + P)$

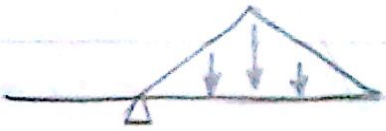
Date : NO :

$\alpha = \frac{5}{6}$ $\beta = \frac{3}{8}$



$\beta = \frac{1}{2}$

$\alpha = \frac{1}{3}$



$\beta = \frac{1}{2}$

$\alpha = \frac{1}{2}$

$\beta = \frac{1}{2}$

$\alpha = \frac{2}{3}$