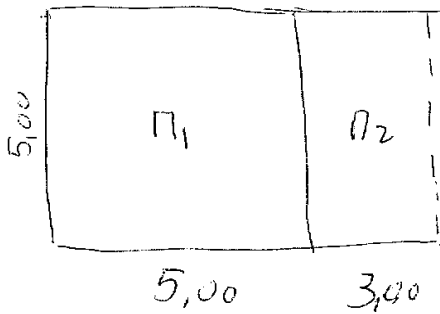


Ενδεικτικό παράδειγμα
ύψους επιφάνειας
πλάτους



C20/25 B500C ($f_{cd} = 11333 \text{ N/m}^2$)

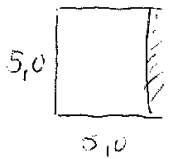
Εστω $h = 0,18 \text{ m}$ (°)

$$q' = 2,0 \text{ kN/m}^2 \quad q = 15 \text{ kN/m}^2$$

$$q = 0,18 \times 25 = 4,5 \text{ kN/m}^2$$

$$q_d = 1,35(4,5 + 2,0) + 1,5 \times 15 = 31,3 \text{ kN/m}^2$$

$\Pi_1 \quad L_x/L_y = 5,0/5,0 \quad h = 0,18$



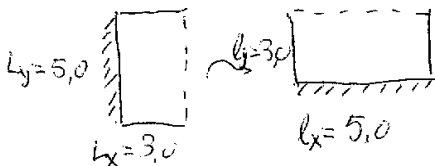
$$q_d L_x^2 = 31,3 \times 5,0^2 = 782,5 \text{ kN/m}$$

$$m_{x, \text{term}} = - \frac{782,5}{11,9} = -68,8 \text{ kN/m}$$

$$m_{z, m} = \frac{24,9}{31,4} = 24,9 \text{ kN/m}$$

$$m_{y, \text{max}} = \frac{19,0}{41,2} = 19,0 \text{ kN/m}$$

$\Pi_2 \quad L_2/L_y = 3,0/5,0 \quad h = 0,18$



$$q_d L_y^2 = 3,0^2 \times 31,3 = 281,7 \text{ kN/m}$$

Οπότε:

$\Pi_1 \quad h = 0,18 \text{ m} \quad d_x = 0,15 \quad d_y = 0,14$

$$\mu_x = \frac{24,9}{0,15^2 \times 11333} = 0,098 \sim \omega = 0,104$$

$$A_{sx} = 0,104 \times 15 \times 100 \times \frac{11,333}{435} = 4,06 \text{ cm}^2/\text{m}$$

$$\phi 8/12 \sim \frac{f_{yk}}{f_{td}}$$

$$\mu_y = \frac{19,0}{0,14^2 \times 11333} = 0,086 \sim \omega = 0,09$$

$$A_{sy} = 0,09 \times 14 \times 100 \times \frac{11,333}{435} = 3,28 \text{ cm}^2/\text{m}$$

$$\phi 8/15 \sim \frac{f_{yk}}{f_{td}}$$

$$\rho_{min} = \max \left[0,26 \frac{f_{ctm}}{f_{yk}}, 1,3\text{‰} \right] = \max \left[0,26 \frac{2,2}{500}, 1,3\text{‰} \right] = 1,3\text{‰}$$

$$A_{smin} = 1,3 \times 15 = 1,95 \text{ cm}^2/\text{m}$$

$$\varepsilon_{max} = \min(2h, 250^{mm}) = 250^{mm}$$

Εστω λοιπόν $A_{s,min} = \phi 8/25$

Ο οπλισμός αυτός απαιτείται
 ροπή: $\phi 8/25 = 2 \text{ cm}^2/\text{m} \Rightarrow$

$$\omega = \frac{2,0}{1400} \cdot \frac{435}{11,333} = 0,035 \Rightarrow$$

$$\mu = 0,052 \Rightarrow$$

$$m_{min} = 0,052 \cdot 1,0 \cdot 0,14 \cdot 11333$$

$$= 11,6 \text{ kNm/m}$$

Π_2

$$A_{sx} = \dots \phi 8/25 \dots$$

$$m_{\mu\mu\mu\mu} = \frac{13,7}{1,0 \cdot 0,15^2 \cdot 11333} = 0,054$$

$$\Rightarrow \omega = 0,056 \Rightarrow$$

$$A_{s\mu\mu\mu\mu} = 0,056 \cdot 1500 \cdot \frac{11,333}{435} = 2,2 \text{ cm}^2/\text{m}$$

$$\phi 8/22 \xrightarrow{\text{κατω οφ.}}$$

$$m_{y\alpha\mu\rho\alpha} = \frac{31,0}{1,0 \cdot 0,15^2 \cdot 11333} = 0,122$$

$$\Rightarrow \omega = 0,131 \Rightarrow$$

$$A_{s y\alpha\mu\rho\alpha} = 0,131 \cdot 1500 \cdot \frac{11,333}{435} = 5,11 \text{ cm}^2/\text{m}$$

Διατίθεται από την ηχομόχνη

200 μέτρων $2,27 \text{ cm}^2/\text{m}$

Προσδίδει $5,11 - 2,27 = 2,84 \text{ cm}^2/\text{m}$

$$\phi 10/27 \xrightarrow{\text{π. κατω οφ.}}$$

Θα τεθεί στο αμείο 1,50m

$\Pi_1 - \Pi_2$

$$M^- = \frac{68,65}{1,0 \cdot 0,15^2 \cdot 11333} = 0,269$$

$$\Rightarrow \omega = 0,336 \Rightarrow$$

$$A_s = 0,336 \cdot 1500 \cdot \frac{11,333}{435} = 13,1 \text{ cm}^2/\text{m}$$

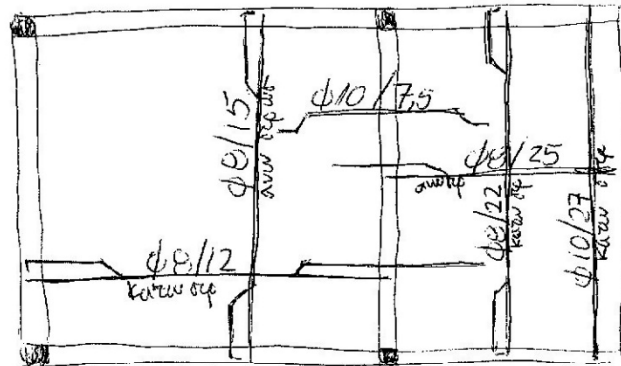
Διατίθεται:

$$\Pi_1 \phi 8/24 = 2,08$$

$$\Pi_2 \phi 8/50 = \frac{1,02}{3,08}$$

$$\text{Προσδίδει } 13,10 - 3,08 = 10,02 \text{ cm}^2/\text{m}$$

$$\phi 10/75 \xrightarrow{\text{π. κατω οφ.}}$$



Σκαρίφημα οπλισμού 1,50m

$$\phi 6/25$$

$$2\phi 8$$

$$(\geq 2,5\% h^2)$$

2h

Τοπική θερμότητα
 ε λευθέρου αέρα

Κ. Τρέσος