

**DIMENSIONAMENTO  
FONDAZIONI  
SUPERFICIALI: ASPETTI  
ESECUTIVI**

# **TIPOLOGIE DI FONDAZIONI DIRETTE**

## **PLINTI:**

- **Isolati**
- **Composti**
- **Fondazione a mensola (Strap footing)**

## **TRAVI:**

- **Travi rovesce**
- **Nastriformi**

## **PLATEE:**

- **Spessore costante**
- **Nervate**

**PIANO DI POSA:** Falda, alveo

**MATERIALE:** Cls

**COLLEGAMENTI:** Cordoli, travi

# PLINTI RIGIDI: DIMENSIONAMENTO

$$v < 2h$$

$$T_d = A_s f_{yd} = \frac{N_d}{8} (a_2 - a_1) \frac{1}{0.85 \cdot d}$$

$$T_d = A_s f_{yd} = R_{1d} \frac{(x_1 - 0.25 \cdot a_1)}{0.85 \cdot d}$$

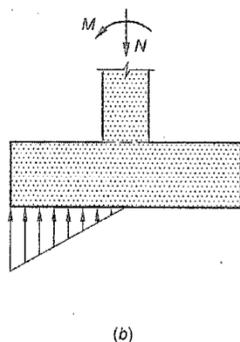
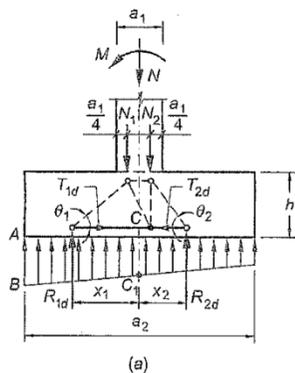


Figura 8.12 (a) Meccanismo resistente in presenza di carico eccentrico; (b) configurazione a sezione parzializzata.

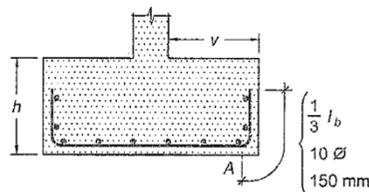


Figura 8.13 Ancoraggio delle barre.

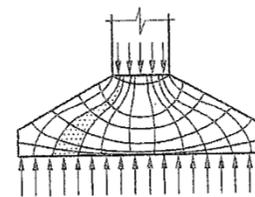


Figura 8.7 Isostatiche di compressione e di trazione.

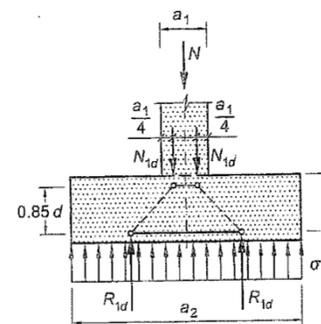


Figura 8.8 Meccanismo resistente.

# PLINTI FLESSIBILI: DIMENSIONAMENTO (1)

$$v > 2h$$

$$M_d = \frac{N_d}{a_2} \left( \frac{a_2 - a_1}{2} + e_1 \right)^2 \cdot \frac{1}{2}$$

$$e_1 = 0.15 \cdot a_1 \div 0.25 \cdot a_1$$

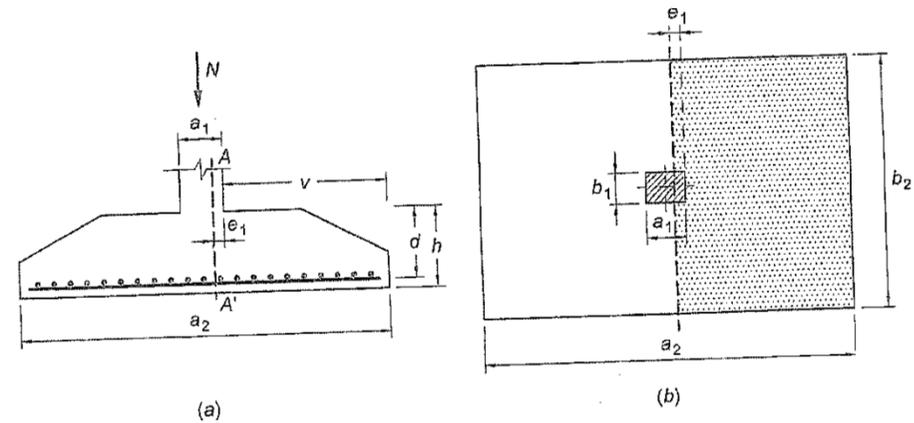


Figura 8.22 Dimensionamento di un plinto flessibile.

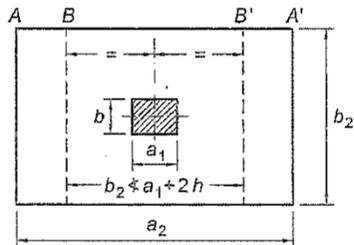


Figura 8.23 Disposizione dell'armatura.

# PLINTI FLESSIBILI: DIMENSIONAMENTO (2)

$$V_d = \sigma_{td} b_2 \left( \frac{a_2 - a_1}{2} - d \right)$$

$$V_{pd} = \sigma_{td} (a_2 b_2 - A_p)$$

$$V_{pu} = S_{pu} \tau_{rd} k (1.2 + 40 \rho_1)$$

$$V_d < V_{Rd1}$$

$$\beta V_{pd} < V_{pu}$$

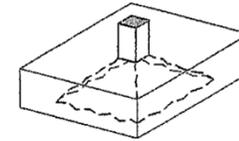


Figura 8.21 Rottura per punzonamento.

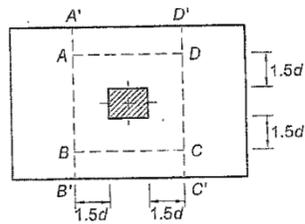
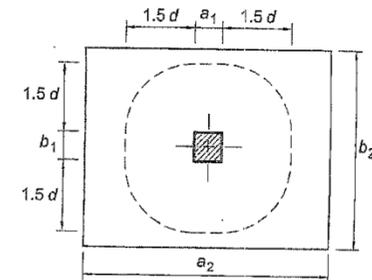
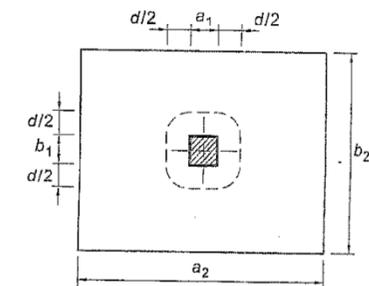


Figura 8.26 Possibili superfici critiche.

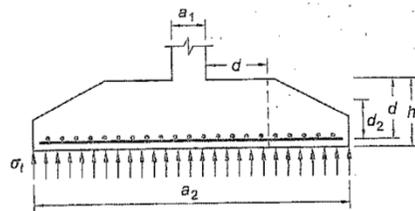
Figura 8.25 Verifica a punzonamento: (a) perimetro critico secondo l'EC-2; (b) perimetro critico secondo la norma ACI-318-95.



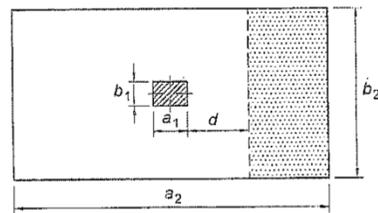
(a)



(b)



(a)



(b)

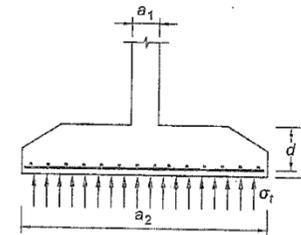
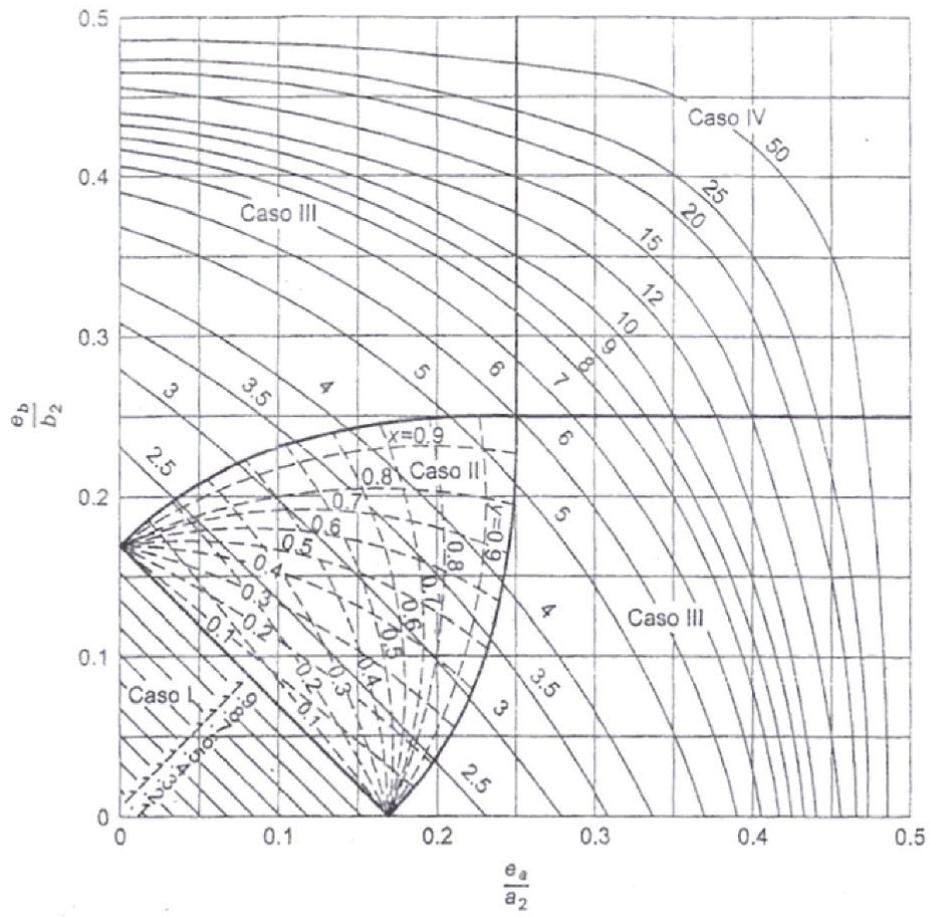


Figura 8.24 Verifica a taglio.



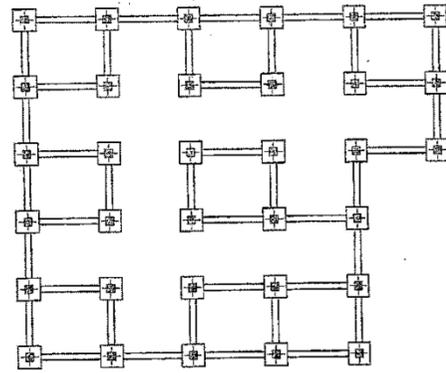
Le curve continue forniscono il valore di  $K$

$$\sigma_{t,max} = K \frac{N}{b_2 \cdot a_2}$$

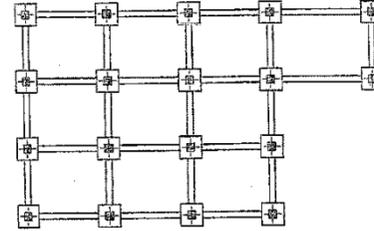
<p>Caso I</p> $\sigma_{t,max} = \frac{N}{b_2 a_2} \left( 1 + \frac{6e_a}{a_2} + \frac{6e_b}{b_2} \right)$	<p>Caso III</p> $D = \frac{a_2(1+2R+3R^2)}{4(1+R+R^2)}$ $A = \frac{U(1+R+R^2+R^3)}{4(1+R+R^2)}$ $R = \frac{V}{U}$ $\sigma_{t,max} = \frac{6N}{a_2 U(1+R+R^2)}$
<p>Caso II</p> $\sigma_{t,max} = K \frac{N}{b_2 a_2}$ <p>x e y del diagramma</p>	<p>Caso IV</p> $\sigma_{t,max} = \frac{3N}{a_2 GH}$

Plinto rettangolare con doppia eccentricità

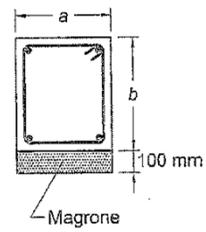
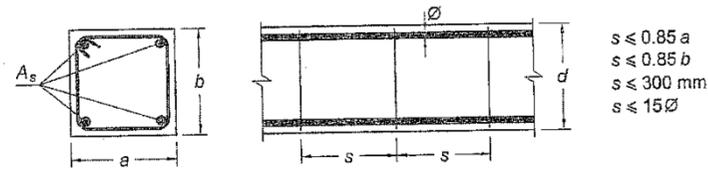
8 Abaco per la determinazione del valore massimo della reazione del terreno (Teng, 1962).



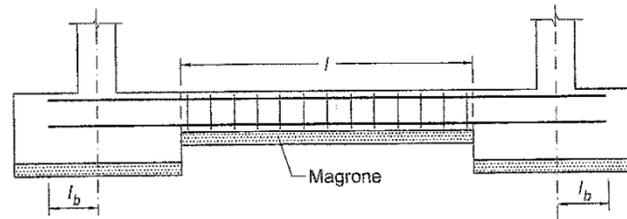
(a)



(b)



(a)



(b)

## **TRAVI DI COLLEGAMENTO DEI PLINTI**

**DM 1996: sforzo di trazione  $0.1 \cdot N_{\max}$**

**EC8, OPCM3274 (sforzi assiali di progetto):**

- $\pm \alpha S a_g \gamma_I N_{sd}$ ;
- $N_{sd}$  = valore medio sforzi verticali tra elementi collegati;
- $\alpha = 0.3 - 0.5 - 0.6$  (suolo B – C – D)

**E' consentito omettere i collegamenti in suoli tipo A o suoli tipo B zone 3 e 4.**

# SCHEMI DI CALCOLO PLINTO CON TRAVE DI CENTRAMENTO

## - PLINTO INTERNO COME PLINTO ISOLATO

$$M_{1d} = -\gamma_f \frac{N_{p1}}{2} \left[ a_2 \left( 2 - \frac{l}{c} \right) - a_1 \right]$$

$$V_{1d} = \gamma_f N_{p1} \left[ \frac{l}{c} - 1 \right]$$

$$V_{2d} = \gamma_f [N_{p1} - (a_1 + d)b_2 p]$$

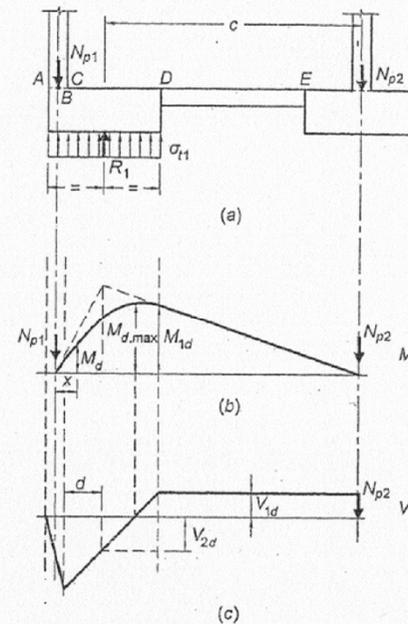


Figura 8.42 Calcolo della trave di centra-

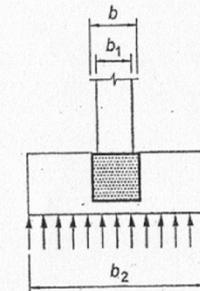


Figura 8.43 Dimensionamento del plinto

# SCHEMI DI CALCOLO PLINTI COMPOSTI

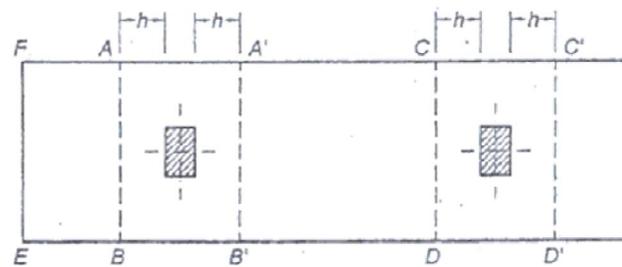
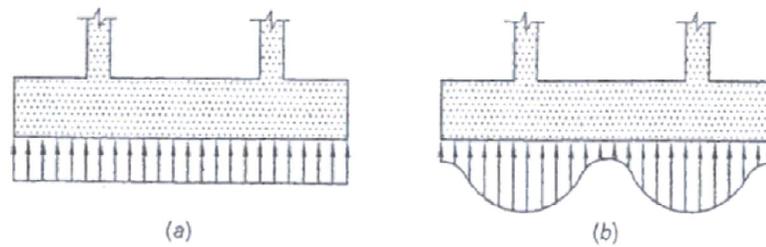


Figura 8.56 Flessione nel piano trasversale.

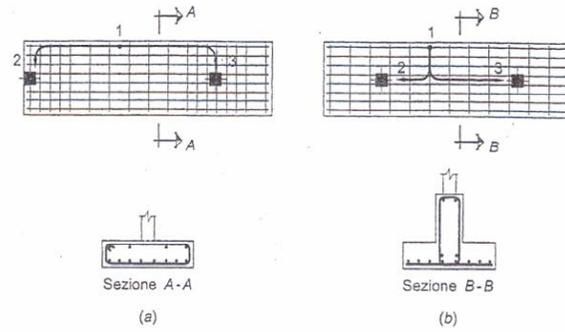


Figura 8.57 Verifica a taglio.

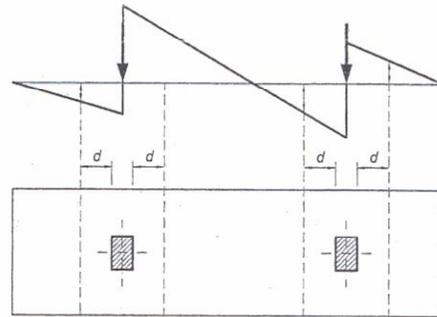


Figura 8.58 Armatura per gli sforzi taglianti.

