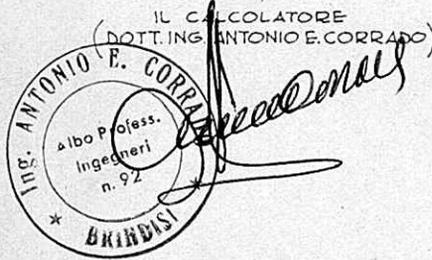
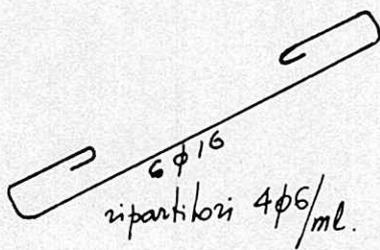
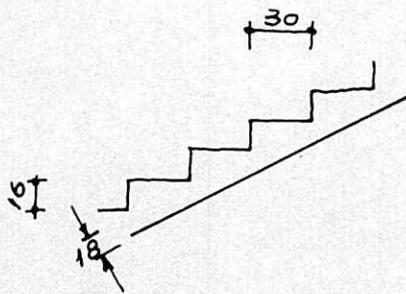


IMPRESA CORRADO PIER MARCELLO. BRINDISI, CORSO ROMA 101
COSTRUZIONE CASE PER CONTADINI
IN ERCHIE

CALCOLI STATICI DELLE
STRUTTURE IN C.A.





SCALA

Luce in proiezz. orizz. m. 4,70.-

Analisi dei carichi:

p. pr. soletta:	$1,00 \times 1,00 \times 0,18 \times 2500 = 450$	Kg/ml
p. fr. gradini ripart:	$3,1 \times \frac{0,3 \times 0,17}{2} \times 1 \times 2200 = 173$	v
p. rivestimento	$3,1 \times 0,3 \times 1,00 \times 0,03 \times 1600 = 45$	v
	$3,1 \times 0,14 \times 1,00 \times 0,02 \times 1600 = 14$	v
intuaco intradosso	= 30	v
ringhiera	= 14	v
sovraccarico accidentale	= 400	v

(carico totale $q = 1126$ Kg/ml)

Sollecitazioni e verifica:

$$M_{max} = \pm \frac{1126 \times 4,7^2}{12} = 2073 \text{ Kg.m.}$$

$$T_{max} = \frac{1126 \times 4,7}{2} = 2646 \text{ Kg.}$$

$$\tau = \frac{16,5}{\sqrt{2073}} = \frac{16,5}{45} = 0,367$$

$$\left\{ \begin{array}{l} \sigma_f = 1200 \text{ Kg/cm}^2 \\ n = 10 \\ \sigma_c = 54 \text{ Kg/cm}^2 \\ t = 0,00253 \end{array} \right.$$

$$A_f = 0,00253 \times 100 \times 45 = 11,38 \text{ cm}^2. \quad (6\phi 16 = 12,06 \text{ cm}^2)$$

$$\tau = \frac{2646}{90 \times 16,5} = 1,78 \text{ Kg/cm}^2.$$

BALCONI

Luce dello sbalzo m. 1,50 -
spessore variabile da m. 0,16 a m. 0,12 -

Analisi dei carichi:

$$p. \text{so proprio: } \frac{0,16 + 0,12}{2} \times 2500 \times 1,50 = 525 \text{ Kg.}$$

$$\text{carichi permanenti } 100 \times 1,50 = 150 \text{ v}$$

$$\text{accidentali } 400 \times 1,50 = 600 \text{ v}$$

$$\text{Carico totale } q = 1275 \text{ Kg.}$$

$$\text{ringhiera } \dots \dots \dots P = 20 \text{ Kg/m}$$

Sollecitazioni e verifica:

$$M_{max} = \frac{1275 \times 1,5^2}{2} + 20 \times 1,5 = 956 + 30 = 986 \text{ Kg.m.}$$

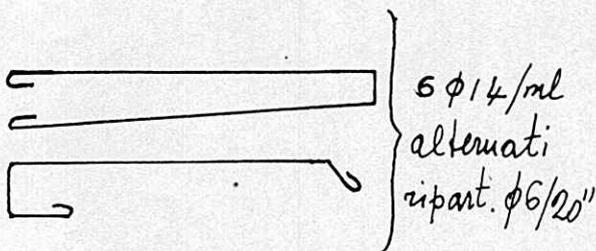
$$T_{max} = 1275 + 20 = 1295 \text{ Kg.}$$

$$\tau = \frac{14}{\sqrt{986}} = \frac{14}{32} = 0,437$$

$$\left\{ \begin{array}{l} \sigma_f = 1400 \text{ Kg/cm}^2 \\ n = 10 \\ \sigma_c = 46 \text{ Kg/cm}^2 \\ t = 0,00178 \end{array} \right.$$

$$A_f = 0,00178 \times 100 \times 32 = 5,70 \text{ cm}^2. \quad (6\phi 14 = 9,24 \text{ cm}^2)$$

$$\tau = \frac{1295}{90 \times 14} = 1,02 \text{ Kg/cm}^2.$$



PENSILINA DI CORONAMENTO

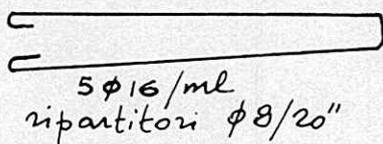
luce dello sbalzo $L = 2,00 \text{ m.}$
 spessore variabile da $\text{m. } 0,20$ a $\text{m. } 0,12$

Analisi dei carichi:

$$\begin{aligned} \text{peso proprio} & \frac{0,20+0,12}{2} \times 2500 \times 2 = 800 \text{ Kg} \\ \text{carichi perman.} & 100 \times 2 = 200 \text{ v} \\ \text{ " acid.} & 100 \times 2 = 200 \text{ v} \\ \text{Carico totale } q & = 1200 \text{ Kg.} \end{aligned}$$

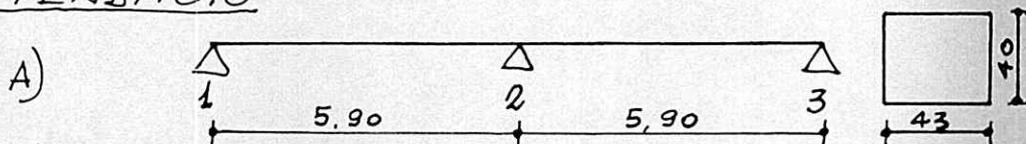
Sollecitazioni e verifica:

$$\begin{aligned} M_{\max} & = 1200 \times 2 / 2 = 1200 \text{ Kg.m.} \\ T_{\max} & = 1200 \text{ Kg.} \\ \tau & = 18 / \sqrt{1200} = 18 / 35 = 0,514 \\ A_f & = 0,00149 \times 100 \times 35 = 5,22 \text{ cmq.} \quad (5\phi 16 = 10,05 \text{ cmq.}) \\ \tau & = 1200 / 90 \times 18 = 0,74 \text{ Kg/cmq.} \end{aligned} \quad \left\{ \begin{array}{l} \sigma_f = 1400 \text{ Kg/cmq.} \\ n = 10 \\ \sigma_c = 38 \text{ Kg/cmq.} \\ t = 0,00149 \end{array} \right.$$



TRAVI PORTANTI IL SOLAIO COPERTURA

STENDITOIO



Analisi dei carichi

$$\begin{aligned} \text{peso proprio solaio in opera} & = 175 \text{ Kg/m}^2 \\ \text{Sovraccarico acc.} & = 150 \text{ v} \\ \text{tegole mansigliati} & = 90 \text{ v} \\ \text{Carico tot. } q_1 & = 415 \text{ Kg/m}^2 \end{aligned}$$

Scarico a ml. di trave: $415 \times 6 / 2 = 1245 \text{ Kg/ml}$

Peso proprio trave: $0,43 \times 0,4 \times 2500 = 430 \text{ v}$
 Carico tot. agente sulla trave $q = 1675 \text{ Kg/ml}$

Sollecitazioni e verifica:

$$M_{1-2} = M_{2-3} = 1675 \times 5,9^2 / 14 = 4165 \text{ Kg.m.}$$

$$M_2 = -1675 \times 5,9^2 / 8 = -7288 \text{ Kg.m.}$$

$$T_{\max} = 1675 \times 5,9 / 2 = 4941 \text{ Kg.}$$

$$\tau_1 = 37 / \sqrt{416500 / 43} = 37 / 98 = 0,377$$

$$A_f = 0,00209 \times 43 \times 98 = 8,81 \text{ cmq.} \quad (5\phi 16 = 10,05 \text{ cmq.})$$

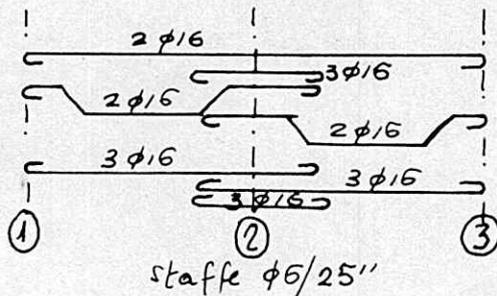
$$\tau_2 = 37 / \sqrt{728800 / 43} = 37 / 130 = 0,284$$

$$A_f' = 17,78 \text{ cmq.} \quad (9\phi 16 = 18,10 \text{ cmq.})$$

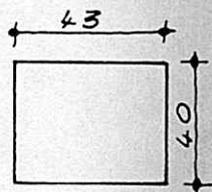
$$A_f' = 17,78 \text{ cmq.} \quad (9\phi 16 = 18,10 \text{ cmq.})$$

$$\tau = 4941 / 0,9 \times 43 \times 37 = 3,45 \text{ Kg/cmq.}$$

$$\left\{ \begin{array}{l} \sigma_f = 1400 \text{ Kg/cmq.} \\ n = 10 \\ \sigma_c = 55 \text{ Kg/cm}^2 \\ t = 0,00209 \\ \sigma_f = 1400 \text{ Kg/cmq.} \\ A_f' = A_f \\ \sigma_c = 53 \text{ Kg/cmq.} \\ t = 0,00318 \end{array} \right.$$



B) sezione 40x43 cm.
 luce effettiva m. 4,35
 luce teorica: $1,05 \times 4,35 = 4,57$ m.



Analisi dei carichi:

$$\begin{array}{r} \text{scarico colato } 415 \times 6/2 = 1245 \text{ Kg/ml} \\ \text{peso proprio } 0,43 \times 0,40 \times 2500 = 430 \end{array} \quad \underline{\hspace{1cm}}$$

(carico totale $q = 1675 \text{ Kg/ml}$)

Sollecitazioni e verifica:

$$M_{max} = \frac{1675 \times 4,57^2}{10} = 3498 \text{ Kg.m.}$$

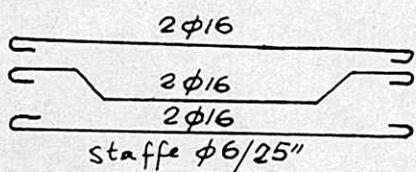
$$T_{max} = 1675 \times 4,35/2 = 3643 \text{ Kg.}$$

$$\tau = 37 / \sqrt{349800/43} = 37/90 = 0,411$$

$$A_f = 0,00191 \times 43 \times 90 = 7,39 \text{ cm}^2 \quad (4\phi 16 = 8,04 \text{ cm}^2)$$

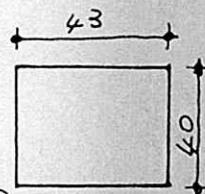
$$\tau = 3643 / (0,9 \times 43 \times 37) = 3643 / 1432 = 2,54 \text{ Kg/cm}^2$$

$$\left. \begin{array}{l} \sigma_f = 1400 \text{ Kg/cm}^2 \\ n = 10 \\ \sigma_c = 50 \text{ Kg/cm}^2 \\ t = 0,00191 \end{array} \right\}$$



TRAVE PORTICO

sezione 43x50 cm.
 luce effettiva m. 4,50
 luce teorica: m. $1,05 \times 4,50 =$ m. 4,73



Analisi dei carichi:

$$\begin{array}{r} \text{muratura } 0,43 \times 4,00 \times 1500 = 2580 \text{ Kg/ml} \\ \text{peso proprio } 0,43 \times 0,5 \times 2500 = 538 \end{array} \quad \underline{\hspace{1cm}}$$

(carico totale $q = 3118 \text{ Kg/ml}$)

Sollecitazioni e verifica

$$M_{max} = 3118 \times 4,73^2 / 10 = 6976 \text{ Kg.m.}$$

$$T_{max} = 3118 \times 4,5/2 = 7016 \text{ Kg.}$$

$$\tau = 47 / \sqrt{697600/43} = 47/128 = 0,370$$

$$A_f = 0,00210 \times 43 \times 128 = 11,58 \text{ cm}^2 \quad (6\phi 16 = 12,06 \text{ cm}^2)$$

$$A_f' = 0,5 \times 11,58 = 5,79 \text{ cm}^2 \quad (3\phi 16 = 6,03 \text{ cm}^2)$$

$$\tau = 7016 / (0,9 \times 43 \times 47) = 7016 / 1819 = 3,85 \text{ Kg/cm}^2$$

$$\left. \begin{array}{l} \sigma_f = 1400 \text{ Kg/cm}^2 \\ A_f' = 0,5 A_f \\ \sigma_c = 51 \text{ Kg/cm}^2 \\ t = 0,00210 \end{array} \right\}$$

