IMPRESA CORRADO PIER MARCELLO - BRINDISI, CORSO ROMA 101

COSTRUZIONE CASE PER CONTADINI IN ERCHIE

CALCOLI STATICI DELLE STRUTTURE IN C.A.

IL CALCOLATORE
(DOTT. ING. ANTONIO E. CORRADO)

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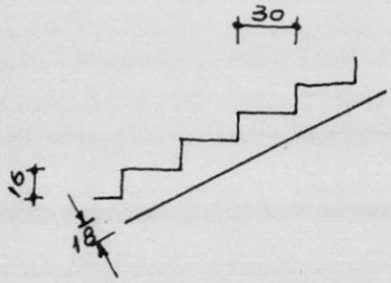
SCALA

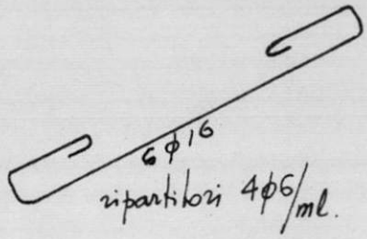


Luce in proiez. orizz. m. 4,70.–

Analisi dei carichi:

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

Carico totale $q = 1126$ Kg/ml



Sollecitazioni e verifica:

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

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

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

$\sigma_f = 1200$ Kg/cmq.
$n = 10$
$\sigma_c = 54$ Kg/cmq.
$t = 0{,}00253$

$A_f = 0{,}00253 \times 100 \times 45 = 11{,}38$ cmq. ($6\phi16 = 12{,}06$ cmq.)

$\tau = \frac{2646}{90 \times 16{,}5} = 1{,}78$ Kg/cmq.

BALCONI

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

Analisi dei carichi:

peso proprio: $\frac{0{,}16 + 0{,}12}{2} \times 2500 \times 1{,}50 = 525$ Kg.
carichi permanenti $100 \times 1{,}50 = 150$ "
" accidentali $400 \times 1{,}50 = 600$ "
Carico totale $q = 1275$ Kg.

ringhiera . . . . . $P = 20$ Kg/m

Sollecitazioni e verifica:

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

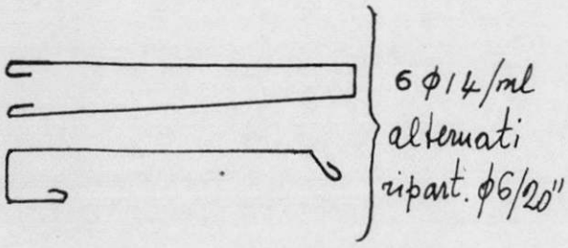
$T_{max} = 1275 + 20 = 1295$ Kg.

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

$\sigma_f = 1400$ Kg/cmq.
$n = 10$
$\sigma_c = 46$ Kg/cmq.
$t = 0{,}00178$

$A_f = 0{,}00178 \times 100 \times 32 = 5{,}70$ cmq. ($6\phi14 = 9{,}24$ cmq.)

$\tau = \frac{1295}{90 \times 14} = 1{,}02$ Kg/cmq.



PENSILINA DI CORONAMENTO

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

Analisi dei carichi:

peso proprio $\frac{0,20+0,12}{2} \times 2500 \times 2 = 800$ Kg
carichi perman. $100 \times 2 = 200$ "
" accid. $100 \times 2 = 200$ "
(carico totale $q = 1200$ Kg.

Sollecitazioni e verifica:

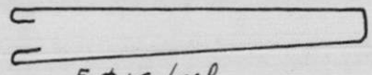
$M_{max} = 1200 \times 2/2 = 1200$ Kgm.
$T_{max} = 1200$ Kg.

$\tau = 18/\sqrt{1200} = 18/35 = 0,514$

$\sigma_f = 1400$ Kg/cmq.
$n = 10$
$\sigma_c = 38$ Kg/cmq.
$t = 0,00149$

$A_f = 0,00149 \times 100 \times 35 = 5,22$ cmq. ($5\phi16 = 10,05$ cmq.)

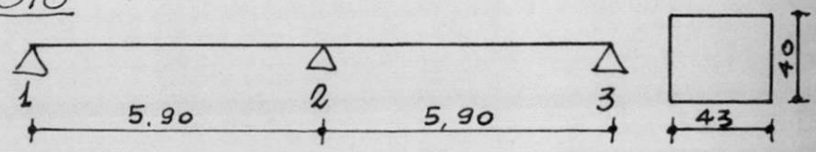
$\tau = 1200/90 \times 18 = 0,74$ Kg/cmq.



5 φ 16/ml
ripartitori φ 8/20"

TRAVI PORTANTI IL SOLAIO COPERTURA STENDITOIO

A)



Analisi dei carichi

peso proprio solaio in opera $= 175$ Kg/m²
Sovraccarico acc. $= 150$ "
tegole marsigliesi $= 90$ "
(carico tot. $q_1 = 415$ Kg/m²

Scarico a ml. di trave: $415 \times 6/2 = 1245$ Kg/ml
Peso proprio trave: $0,43 \times 0,4 \times 2500 = 430$ "
(carico tot. agente sulla trave $q = 1675$ Kg/ml

Sollecitazioni e verifica:

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

$M_2 = -1675 \times 5,9^2/8 = -7288$ Kgm.

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

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

$\sigma_f = 1400$ Kg/cmq.
$n = 10$
$\sigma_c = 55$ Kg/cm²
$t = 0,00209$

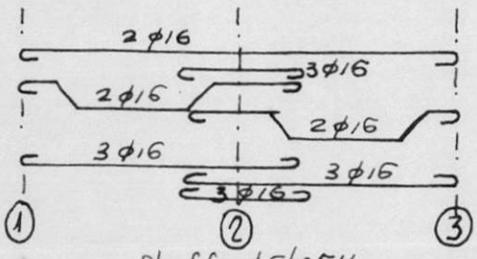
$A_f = 0,00209 \times 43 \times 98 = 8,81$ cmq. ($5\phi16 = 10,05$ cmq.)

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

$\sigma_f = 1400$ Kg/cmq.
$A'_f = A_f$
$\sigma_c = 53$ Kg/cmq.
$t = 0,00318$

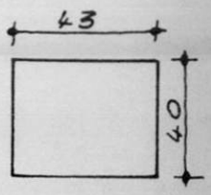
$A_f = 0,00318 \times 43 \times 130 = 17,78$ cmq. ($9\phi16 = 18,10$ cmq)
$A'_f = 17,78$ cmq. ($9\phi16 = 18,10$ cmq.)

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



staffe φ6/25"

B)



Sezione 40×43 cm.
Luce effettiva m. 4,35
Luce teorica: 1,05×4,35 = 4,57 m.

Analisi dei carichi:

scarico solaio 415×6/2 = 1245 Kg/ml
peso proprio 0,43×0,40×2500 = 430 "
carico totale q = 1675 Kg/ml

Sollecitazioni e verifica:

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

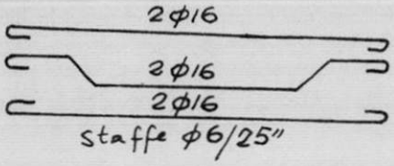
$T_{max} = 1675 \times 4,35/2 = 3643$ Kg.

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

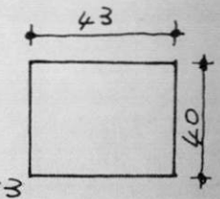
$A_f = 0,00191 \times 43 \times 90 = 7,39\ cm^2$ ($4\phi16 = 8,04\ cm^2$)

$\sigma_f = 1400$ Kg/cmq.
$n = 10$
$\sigma_c = 50$ Kg/cmq.
$t = 0,00191$

$\tau = 3643/0,9 \times 43 \times 37 = 3643/1432 = 2,54$ Kg/cm²



TRAVE PORTICO



Sezione 43×50 cm.
Luce effettiva m. 4,50
Luce teorica: m. 1,05×4,50 = m. 4,73

Analisi dei carichi

muratura 0,43×4,00×1500 = 2580 Kg/ml
peso proprio 0,43×0,5×2500 = 538 "
carico totale q = 3118 Kg/ml

Sollecitazioni e verifica

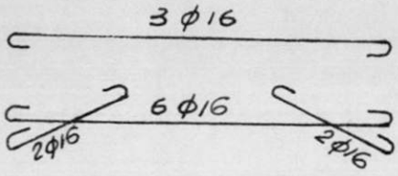
$M_{max} = 3118 \times 4,73^2/10 = 6976$ Kgm.

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

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

$A_f = 0,00210 \times 43 \times 128 = 11,58\ cm^2$ ($6\phi16 = 12,06\ cm^2$)

$A'_f = 0,5 \times 11,58 = 5,79\ cm^2$ ($3\phi16 = 6,03\ cm^2$)

$\tau = 7016/0,9 \times 43 \times 47 = 7016/1819 = 3,85$ Kg/cmq.

$\sigma_f = 1400$ Kg/cmq.
$A'_f = 0,5 A_f$
$\sigma_c = 51$ Kg/cmq
$t = 0,00210$