I.N.A. CASA

COSTRUZIONE DI N° 3 CASE ALLA COMMENDA OVEST

TERZO LOTTO

CALCOLI STATICI DELLE STRUTTURE IN CEMENTO ARMATO

IMPRESA

REDATTI DA

CALCOLO DEI PILASTRI

PILASTRO	ORDINE	CARICO P	SEZIONE NECESS.	ARMATURA MET. NECESSARIA		SEZIONE EFFETTIVA F_c'	ARMATURA EFFETTIVA F_f'	SEZIONE IDEALE $F_c + 10F_f$	σ_c
N°	N°	Kg	$F_c = \frac{P}{43.20}$	μ	$F_f = \mu F_c$	cmq.	cmq.	cmq.	$\frac{Kg}{cmq}$
1	4	6.800	157	0.008	1.26	30 x 30 = 900	4ϕ12 = 4.52	945	28
	3	14.530	336	"	2.68	" = "	4ϕ12 = 4.52	945	15
	2	21.900	507	"	4.05	" = "	4ϕ12 = 4.52	"	23
	1	29.020	672	"	5.37	" = "	2ϕ12+2ϕ14 = 5.34	953	30
	SCANT.	35.660	825	"	6.60	" = "	2ϕ14+2ϕ16 = 7.10	971	37
2	4	8.040	186	0.008	1.48	30 x 30 = 900	4ϕ12 = 4.52	945	28
	3	17.440	404	"	3.23	" = "	4ϕ12 = 4.52	945	18
	2	26.230	607	"	4.85	" = "	2ϕ12+2ϕ14 = 5.34	953	27
	1	37.860	876	"	7.00	" = "	2ϕ14+2ϕ16 = 7.10	971	39
	SCANT.	45.390	1050	"	8.40	30x40 = 1.200	2ϕ16+2ϕ18 = 9.11	1291	35
3-4	4	7.000	162	0.008	1.29	30 x 30 = 900	4ϕ12 = 4.52	945	28
	3	14.930	346	"	2.76	" = "	4ϕ12 = 4.62	945	16
	2	22.320	517	"	4.13	" = "	4ϕ12 = 4.52	"	23
	1	29.350	679	"	5.43	" = "	4ϕ14 = 6.16	961	30
	SCANT	37.950	880	"	7.04	" = "	2ϕ14+2ϕ16 = 7.10	971	39
5	4	7.650	177	0.008	1.41	30x30 = 900	4ϕ12	945	28
	3	16.370	379	"	3.03	" = "	4ϕ12 = 4.52	945	17
	2	24.530	568	"	4.54	" = "	4ϕ12 = 4.52	"	26
	1	32.310	750	"	6.00	" = "	4ϕ14 = 6.16	961	34
	SCANT.	42.522	980	"	7.84	30x40 = 1.200	4ϕ16 = 8.04	1280	33
6	4	5.320	123	0.008	0.98	30x30 = 900	4ϕ12 = 4.52	945	28
	3	12.640	293	"	2.34	" = "	4ϕ12 = 4.52	945	13
	2	19.690	456	"	3.64	" = "	4ϕ12 = 4.52	"	21
	1	26.560	615	"	4.92	" = "	2ϕ12+2ϕ14 = 5.34	953	28
	SCANT.	33.150	765	"	6.12	" = "	2ϕ12+2ϕ16 = 6.28	963	34
7	4	11.940	276	0.008	2.20	30 x 35 = 1050	4ϕ12 = 4.52	1095	11
	3	27.180	629	"	5.03	" = "	2ϕ12+2ϕ14 = 5.34	1103	25
	2	41.500	961	"	7.68	" = "	4ϕ16 = 8.04	1130	37
	1	55.300	1280	"	10.24	35 x 35 = 1225	2ϕ16+2ϕ20 = 10.30	1328	42
	SCANT.	68.220	1579	"	12.63	45 x 35 = 1575	4ϕ20 = 12.57	1701	40

CALCOLO DEI PI

PILASTRO	ORDINE	CARICO P	SEZIONE NECESSARIA.	ARMATURA METAL. NECESSARIA	
N°	N°	Kg	$F_c = \frac{P}{43.20}$	μ	$F_f = \mu F_c$
8.	4	4.860	113	0.008	0.90
	3	12.680	294	"	2.35
	2	20.200	468	"	3,74
	1	27.520	637	"	5.09
	SCANT.	34.540	800	"	6.40
9.	4	8.590	199	0.008	1.59
	3	17.900	414	"	3.31
	2	25.550	591	"	4.72
	1	34.780	805	"	6.44
	SCANT.	42.490	984	"	7.87
10	TORRIN	4.480	104	0.008	0.83
	4	15.000	347	"	2.77
	3	28.420	658	"	5.26
	2	40.980	948	"	7.58
	1	53.010	1.227	"	9.81
	SCANT.	64.350	1.490	"	11.84
11.	TORRIN	1.650	38	0.008	
	4	5.570	129	"	1.03
	3	10.630	246	"	1.96
	2	15.450	358	"	2.86
	1	20.120	466	"	3.72
	SCANT.	24.640	570	"	4.56
12.	TORRINO	5.440	126	0.008	1.00
	4	12.910	299	"	2.39
	3	23.600	546	"	4.36
	2	33.580	777	"	6.21
	1	43.120	998	"	7.98
	SCANT.	51.950	1.203	"	9.62
13	4	8.860	205	0.008	1.64
	3	19.480	451	"	3.60
	2	29.550	684	"	5.47
	1	39.090	905	"	7.24
	SCANT.	48.000	1110	"	8.88

ILASTRI

SEZIONE EFFETTIVA F_c'	ARMATURA EFFETTIVA F_f'	SEZIONE IDEALE $F_c'+10F_f$	σ_c
cmq.	cmq.	cmq.	Kg/cmq
30x30 = 900	4φ12 = 4.52	945	28
" = "	4φ12 = 4.52	945	13
" = "	" = "	"	21
" = "	2φ12+2φ14 = 5.34	953	29
" = "	2φ14+2φ16 = 7.10	971	35
30x30 = 900	4φ12 = 4.52	945	28
" = "	4φ12 = 4.52	945	19
" = "	2φ12+2φ14 = 5.34	953	27
" = "	2φ14+2φ16 = 7.10	971	36
30x40 = 1.200	4φ16 = 8.04	1 280	33
30x30 = 900	4φ12 = 4.52	945	28
" = "	4φ12 = 4.52	945	16
" = "	2φ12+2φ14 = 5.34	953	30
35x30 = 1.050	4φ16 = 8.04	1.130	36
40x30 = 1.200	4φ18 = 10.18	1. 301	41
50x30 = 1.500	4φ20 = 12.57	1.625	40
30x30 = 900	4φ12 = 4.52	945	28
" = "	4φ12 = 4.52	945	
" = "	" = "	"	11
" = "	" = "	"	16
" = "	" = "	"	21
" = "	2φ12+2φ14 = 5.34	953	26
30x30 = 900	4φ12 = 4.52	945	28
30x40 = 1.200	4φ12 = 4.52	1.245	10
" = "	" = "	"	19
" = "	2φ12+2φ16 = 6.28	1 263	27
" = "	4φ16 = 8.04	1 280	34
" = "	4φ18 = 10.18	1 302	40
30x30 = 900	4φ12 = 4.52	945	28
" = "	4φ12 = 4.52	945	21
" = "	4φ14 = 6.16	962	31
" = "	4φ16 = 8.04	980	40
30x40 = 1.200	2φ16+2φ18 = 9.11	1 291	37

CALCOLO DEI PILASTRI

PILASTRO	ORDINE	CARICO P	SEZIONE NECESSARIA	ARMATURA METALL. NECESSARIA		SEZIONE EFFETTIVA F_c'	ARMATURA EFFETTIVA F_f'	SEZIONE IDEALE F_c+10F_f	σ_c
N°	N°	Kg	$F_c = \frac{P}{43.20}$	μ	$F_f = \mu F_c$	cmq.	cmq.	cmq.	Kg/cmq
14	4	7.540	175	0.008	1.40	30x30 = 900	4φ12 = 4.52	945	28
	3	16.090	372	"	2.97	" = "	4φ12 = 4.52	945	17
	2	24.210	560	"	4.48	" = "	" = "	"	26
	1	32.060	742	"	5.93	" = "	4φ14 = 6.16	961	33
	SCANT	39.330	910	"	7.28	" = "	4φ16 = 8.04	980	40
15	4	12.620	292	0.008	2.33	30x35 = 1050	4φ12 = 4.52	1.095	11
	3	27.520	639	"	5.11	" = "	2φ12+2φ14 = 5.34	1.103	25
	2	41.670	965	"	7.72	" = "	4φ16 = 8.04	1.130	37
	1	54.900	1.270	"	10.16	35x35 = 1225	4φ18 = 10.18	1.326	42
	SCANT.	67.700	1 570	"	12.56	45x35 = 1575	4φ20 = 12.57	1.701	40
16	4	21.290	493	0.008	3.94	30x35 = 1050	4φ12 = 4.52	1.095	19
	3	43.300	1,002	"	8.01	" = "	4φ16 = 8.04	1.130	38
	2	63.240	1.464	"	11.71	40x35 = 1.400	4φ20 = 12.57	1.525	41
	1	81.980	1.898	"	15.18	55x35 = 1.925	6φ18 = 15.27	2.078	39
	SCANT.	98.780	2.287	0.0079	18.06	65x35 = 2275	6φ20 = 18.85	2.463	40
17	TORRINO	4.200	97	0.008	0.77	30x35 = 1050	4φ12 = 4.52	1,095	28
	4	24.630	570	"	4.56	" = "	4φ14 = 6.16	1.111	22
	3	46.900	1.086	"	8.68	" = "	2φ16+2φ18 = 9.11	1.141	41
	2	67.460	1.562	"	12.49	45x35 = 1.575	4φ20 = 12.57	1.701	40
	1	86.950	2.013	"	16.10	60x35 = 2.100	4φ18+2φ20 = 16.38	2.264	38
	SCANT	105 350	2.439	0.0078	19.02	70x35 = 2.450	4φ22+2φ16 = 19.22	2.642	40
18	TORRINO	4. 330	100	0.008	0.80	30x35 = 1.050	4φ12 = 4.52	1.095	28
	4	21. 000	486	"	3.88	" = "	" = "	"	20
	3	39.230	908	"	7.26	" = "	4φ16 = 8.04	1.130	35
	2	56. 250	1.302	"	10.41	40x35 = 1400	2φ18+2φ20 = 11.37	1.514	37
	1	72. 500	1.678	"	13.42	50x35 = 1750	3φ16+3φ18 = 13.66	1.886	39
	SCANT.	87 470	2.025	"	16. 20	60 x35 = 2.100	4φ18+2φ20 = 16.38	2.264	39
19	4	17.630	408	0.008	3.26	30x35 = 1050	4φ12 = 4.52	1.095	16
	3	35. 840	830	"	6.64	" = "	2φ14+2φ16 = 7.10	1.121	32
	2	52. 250	1.210	"	9.68	40x35 = 1400	4φ18 = 10.18	1.502	35
	1	67.610	1.565	"	12.52	45x35 = 1.575	4φ20 = 12.57	1.701	40
	SCANT	81. 450	1.885	"	15.08	55x35 = 1925	4φ22+2φ16 = 19.22	2.117	38

PILASTRO	CARICO AL PIEDE PIL.	INTERASSE DELLE TRAVI FONDAZIONE
	P = Kg	λ = mt.
15	67.700	$\frac{1}{2}(5.90+4.92+4.55) =$ 7.69
1	35.600	$\frac{1}{2}(4.92+4.80) =$ 4.86
2	45.300	$\frac{1}{2}(4.80+3.85) =$ 4.33
3	37.950	$\frac{1}{2}(3.85+2.80+4.75) =$ 5.70
4	"	$\frac{1}{2}(2.80+3.85) =$ 3.33
5	42.500	$\frac{1}{2}(3.85+4.10) =$ 3.98
6	33.150	$\frac{1}{2}(4.10+4.75) =$ 4.43
7	68.200	$\frac{1}{2}(4.75+5.40+4.05) =$ 7.10
8	34.500	$\frac{1}{2}(5.40+4.00) =$ 4.70
9	42.500	$\frac{1}{2}(4.00+4.00) =$ 4.00
10	64.400	$\frac{1}{2}(4.00+2.70+5.75) =$ 6.23
11	24.600	$\frac{1}{2}(2.70+0.75) =$ 1.73
12	52.000	$\frac{1}{2}(0.75+4.00+5.00) =$ 4.88
13	48.000	$\frac{1}{2}(4.00+4.70) =$ 4.85
14	39.300	$\frac{1}{2}(4.70+5.90) =$ 5.30
15	67.700	$\frac{1}{2}(5.90+4.92+4.55) =$ 7.69
16	98.800	$\frac{1}{2}(4.55+5.33) =$ 4.94
17	105.300	$\frac{1}{2}(5.33+4.75+5.00+2.90) =$ 8.99
18	87.500	$\frac{1}{2}(2.90+3.82+5.75) =$ 6.24
19	81.500	$\frac{1}{2}(3.82+4.05) =$ 3.94
7	62.200	$\frac{1}{2}(4.75+5.40+4.05) =$ 7.10
12	52.000	$\frac{1}{2}(0.75+4.00+5.00) =$ 4.88
17	105.300	$\frac{1}{2}(5.33+4.75+5.00+2.90) =$ 8.99
3	35.900	$\frac{1}{2}(3.85+2.80+4.75) =$ 5.70
10	64.400	$\frac{1}{2}(4.00+2.70+5.75) =$ 6.23
18	87.500	$\frac{1}{2}(2.90+3.82+5.75) =$ 6.24

CALCOLO DELLE TRAVI DI FONDAZIONE ($\sigma_f = 1200\ Kg/cm^2$)

DI	CARICO UNIF. RIP.	TRAVE	INTERASSE	P_{max}	$M_f = \frac{1}{12} pl^2$	SEZIONE D'INCAS.		$\sqrt{\frac{M}{b}}$	$r = \frac{h}{\sqrt{\frac{M}{b}}}$	σ_c	t	F_f d'INCASTRO		VERIFICA ALLA FLESSIONE				VERIFICA						A
						b	h					$bt\sqrt{\frac{M}{b}}$	ϕ ADOTTATI	x	$h - \frac{x}{3}$	σ_c	σ_f	TRAVE	$\frac{l}{2}$	p	$T = \frac{pl}{2}$	b	h	$\tau = \frac{T}{0.9bh}$
	$p = \frac{P}{\lambda}$ Kg/m		l	Kg/ml.	Kgcm.	cm.	cm.						cmq											
	8.800	8-14																						
		15-1	4.92	8.800	1.775.000	50	97,5	188	0.515	36	0.00177	16.63	5φ16+2φ20 = 16.33	22.20	90.10	35.60	1.200	15-1	2.46	8.800	21.650	50	97.50	4.93
	7.400	14-15																						
		1-2	4.80	10.500	2.020.000	"	"	201,50	0.482	38	0.00186	18.73	6φ20 = 18.85	23.60	89.65	38.40	1.200	1-2	2.40	10.600	25.440	"	"	5.80
	10.500	17-18																						
		2-3	3.85	10.500	1.300.000	"	"	162.	0.600	30	0.00149	12.07	3φ16+2φ20 = 12.31	19.50	91.00	29.6	1.170	2-3	1.93	"	20.460	"	"	4.66
	6.650	16-17																						
		3-4	2.80	11.400	745.000	"	"	122	0.800	21	0.00107	6.37	3φ16 = 6.03	14.20	92.78	21.50	1.260	3-4	1.40	10.800	15.120	"	"	3.45
	11.400	15-16																						
		4-5	3.85	11.400	1.408.000	"	"	168	0.580	31	0.00154	12.93	5φ16+1φ20 = 13.19	20.20	90.77	30.70	1.180	4-5	1.93	11.400	22.000	"	"	5.01
	10.700	18-19																						
		5-6	4.10	11.400	1.596.000	"	"	179	0.540	33	0.00163	14.58	7φ16 = 14.07	20.80	90.57	33.80	1.250	5-6	2.05	"	23.370	"	"	5.33
	7.500	13-19																						
		6-7	4.75	9.600	1.805.000	"	"	190	0.508	36	0.00177	16.81	4φ20+2φ16 = 16.58	22.40	91.97	35.00	1.190	6-7	2.38	9.600	22.850	"	"	5.21
	9.600	7-13																						
		7-8	5.40	9.600	2.333.000	"	"	216	0.446	42	0.00203	21.92	7φ20 = 21.99	25.20	89.10	41.60	1.190	7-8	2.70	"	25.920	"	"	5.91
	7.400	6-7																						
		8-9	4.00	10.600	1.413.000	"	"	168	0.580	31	0.00154	12.93	5φ16+1φ20 = 13.19	20.02	90.77	31.20	1.170	8-9	2.00	10.600	21.200	"	"	4.83
	10.600	2-3																						
		9-10	4.00	10.600	1.413.000	"	"	168	0.580	31	"	"	" = "	"	"	"	"	9-10	2.00	"	"	"	"	"
	10.300	3-4																						
		10-11	2.70	10.300	626.000	"	"	112	0.860	20	0.00102	5.71	3φ16 = 6.03	14.20	92.78	19.00	1.120	10-11	1.35	10.300	13.900	"	"	3.17
	14.300	4-5																						
		11-12	0.75	14.300	67.000	"	"	37	0.261	–								11-12	0.38	14.300		"	"	
	10.700	5-6																						
		12-13	4.00	10.700	1.427.000	"	"	169	0.574	32	0.00159	13.43	3φ20+2φ16 = 13.44	20.40	90.70	31.00	1.170	12-13	2.00	10.700	21.400	"	"	4.88
	9.900	1-2																						
		13-14	4.70	9.900	1.822.000	"	"	191	0.506	36	0.00177	16.90	4φ20+2φ16 = 16.58	22.40	91.97	35.50	1.200	13-14	2.35	9.900	23.270	"	"	5.30
	7.400	1-8																						
		14-15	5.90	8.800	2.552.000	"	105	226	0.465	40	0.00195	22.00	7φ20 = 21.99	26.20	96.36	40.50	1.200	14-15	2.95	8.800	25.960	"	105	5.45
	8.800	8-9																						
		15-16	4.50	20.000	3.450.000	60	125	240	0.520	35	0.00172	24.80	6φ22+1φ16 = 24.82	28.40	115.50	35.70	1.200	15-16	2.28	20.000	45.600	60	125	6.75
	20.000	11-12																						
		16-17	5.27^{5}	20.000	4.733.000	"	"	281	0.444	42	0.00205	34.50	10φ22 = 38.01	34.20	113.16	41.00	1.120	16-17	2.67	"	53.400	"	"	7.87
	11.700	11-10																						
		17-18	2.95	14.000	980.000	"	97,5	129	0.750	23	0.00117	9.05	3φ20 = 9.42	16.00	92.17	22.10	1.130	17-18	1.45	14.000	20.300	"	97.5	3.86
	14.000	9-10																						
		18-19	3.82^{5}	20.700	2.530.000	"	"	205	0.472	39	0.00190	28.37	6φ22 = 22.81	28.80	89.57	39.50	1.240	18-19	1.92	20.700	39.740	"	"	7.55
	20.700	12-13																						
		19-7	4.00	20.700	2.829.000	"	"	217	0.446	42	0.00203	26.43	7φ22 = 26.61	25.20	89.10	42.00	1.200	19-7	2.03	"	42.000	"	"	7.98
	9.610																							
	10.700	5-11																						
		12-17	5.00	11.700	2.437.000	"	"	201.50	0.485	38	0.00186	22.49	6φ22 = 22,81	23.80	89.57	38.00	1.190	12-17	2.50	11.700	29.250	60	"	5.56
	11.700																							
		17-3	4.75	11.700	2.200.000	"	"	191.50	0.510	36	0.00177	20.34	4φ20+2φ22 = 20.17	22.50	90.00	36.00	1.220	17-3	2.38	"	27.850	"	"	5.29
	6.300																							
	10.300	3-10																						
		10-18	5.75	14.000	3.860.000	"	125	254	0.494	37	0.00181	27.50	6φ22+2φ20 = 29.09	30.30	114.90	37.00	1.150	10-18	2.88	14.000	40.320	60	125	6.00
	14.000																							

L TAGLIO

STAFFE			FERRI PIEGATI				
Δ_s	f_s	$\tau_s = \frac{f_s \sigma_f}{\Delta b}$	$\tau_p = \tau - \tau_s$	$l'/2 = \frac{\tau_p l/2}{\tau}$	$S_p = 1/2\, \tau_p\, l'/2\, b$	f_p	$R_p = f_p \sigma_f \sqrt{2}$
17.50	2ϕ10=1,57	2.15	2.78	1.39	9.960	5ϕ16 = 10.05	17.060
〃	〃	〃	3.75	1.55	14.530	4ϕ20 = 12.57	21.340
〃	〃	〃	2.51	1.01	6.530	3ϕ16 = 6.03	10.340
〃	〃	〃	1.30	0.53	1.720	2ϕ16 = 4.02	6.820
〃	〃	〃	2.86	1.10	7.865	1ϕ20+3ϕ16 = 9.17	15.570
〃	〃	〃	3.18	1.20	9.540	4ϕ16 = 8.04	13.650
〃	〃	〃	3.06	1.40	10.710	2ϕ20+2ϕ16 = 10.30	17.490
〃	〃	〃	3.76	1.72	16.170	4ϕ20 = 12.57	21.340
〃	〃	〃	2.68	1.11	7.440	3ϕ16 = 6.03	10.340
〃	〃	〃	〃	〃	〃	〃 = 〃	〃
〃	〃	〃	1.02	0.44	1.120	2ϕ16 = 4.02	6.820
〃	〃	〃					
〃	〃	〃	2.73	1.12	7.650	3ϕ20 = 9.42	16.000
〃	〃	〃	3.15	1.40	11.030	2ϕ20+2ϕ16 = 10.30	17.490
〃	〃	〃	3.30	1.78	14.700	4ϕ20 = 12.57	21.150
〃	〃	1.79	4.96	1.68	25.000	4ϕ22+1ϕ16 = 17.22	29.100
〃	〃	〃	6.08	2.03	37.500	6ϕ22 = 22.81	38.400
〃	〃	〃	2.07	0.78	4.840	2ϕ20 = 6.28	10.660
〃	〃	〃	5.76	1.46	25.230	4ϕ22 = 15.21	25.850
〃	〃	〃	6.90	1.57	29.160	5ϕ22 = 19.01	32.280
〃	〃	〃	3.77	1.86	18.770	4ϕ22 = 15.21	25.830
〃	〃	〃	3.50	1.57	16.490	4ϕ20 = 12.57	21.350
〃	〃	〃	4.21	2.05	25.950	5ϕ22 = 19.01	34.600

TRAVI D

CALCOLO

TRAVE	l	p	$M = \frac{1}{12} p l^2$	b	$\sqrt{\frac{M}{b}}$	σ_c	σ_f	m	r	$h = r\sqrt{\frac{M}{b}}$	ARMATURA	
											t	$F_f = t \times b \times \sqrt{\frac{M}{b}}$
nº	ml.	Kg/ml.	Kgcm.	cm.		$\frac{Kg}{cm^2}$	$\frac{Kg}{cm^2}$					cm²
15-1	4.92	1.390	280.000	30	96.5	50	1800	8	0.484	46.7	0.001222	3.54
14-15 1-2	4.80	2.540	488.000	〃	128	〃	〃	〃	〃	61.9	〃	4.69
18-17 2-3	3.85	3.140	388.000	〃	114	〃	〃	〃	〃	55	〃	4.17
17-16 3-4	2.80	2.540	166.000	〃	74.5	〃	〃	〃	〃	36	〃	2.73
16-15 4-5	3.85	3.140	388.000	〃	114	〃	〃	〃	〃	55	〃	4.17
19-13 5-6	4.10	2.540	356.000	〃	109	〃	〃	〃	〃	52	〃	4.00
6-7	4.75	615	115.000	〃	62	〃	〃	〃	〃	30	〃	2.26
7-8	5.40	615	149.000	〃	70	〃	〃	〃	〃	34	〃	2.56
2-7 8-9	4.00	2.835	378.000	〃	112	〃	〃	〃	〃	54	〃	4.10
2-3 9-10	4.00	3.195	426.000	〃	119	〃	〃	〃	〃	57	〃	4.36
3-4 10-11	2.70	1.215	74.000	〃	49.5	〃	〃	〃	〃	24	〃	1.81
4-15 11-12	0.75	1.040	49.000	〃	40.5	〃	〃	〃	〃	20	〃	1.48
5-6 12-13	4.00	3.215	429.000	〃	119.5	〃	〃	〃	〃	58	〃	4.37
6-1 13-14	4.70	3.055	562.000	〃	137	〃	〃	〃	〃	66	〃	5.00
8 14-15	5.90	1.395	405.000	〃	116	〃	〃	〃	〃	56	〃	4.25
8-12 15-16	4.50	3.475	586.000	35	129	〃	〃	〃	〃	62	〃	5.51
12-11 16-17	5.27	3.660	847.000	〃	155,5	〃	〃	〃	〃	75	〃	6.65
11-10 17-18	2.95	2.550	185.000	〃	72.5	〃	〃	〃	〃	35	〃	3.10
10-9 18-19	3.82	3.807	463.000	〃	115	〃	〃	〃	〃	56	〃	4.91
9-13 19-7	4.00	3.807	507.000	〃	120	〃	〃	〃	〃	58	〃	5.13
12-17	5.00			20		〃	〃	〃			VEDI	CALCOLO A
10-18	5.75			〃		〃	〃	〃			〃	〃 〃

I COPERTURA [illegible]

VERIFICA								SCORRIMENTO					
b	h	ARMATURA ADOTTATA	$\frac{mF_f}{b}$	x	$h-\frac{x}{3}$	σ_c	σ_f	$\frac{l}{2}$	p	$T=\frac{pl}{2}$	b	h	$\tau=\frac{T}{0.9bh}$
cm.	cm.	cm²		cm	cm.	Kg/cm²	Kg/cm²	ml	Kg/ml.	Kg	cm	cm.	Kg/cm²
30	52.5	2ϕ10+2ϕ12 = 3.83	1.02	9.10	49.37	40	1.490	2.46	1.390	3.420	30	52.5	2.41
〃	62.5	3ϕ12+2ϕ10 = 4.96	1.32	11.60	58.63	48	1.670	2.40	2.540	6.100	〃	62.5	3.58
〃	52.5	3ϕ10+2ϕ12 = 4.62	1.23	10.20	49.10	51	1.700	1.92	3.140	6.030	〃	52.5	4.25
〃	〃	2ϕ10+2ϕ8 = 2.58	0.69	7.85	49.88	28	1.290	1.40	2.540	3.556	〃	52.5	2.51
〃	〃	3ϕ10+2ϕ12 = 4.62	1.23	10.20	49.10	51	1.700	1.92	3.140	6.030	〃	52.5	4.25
〃	〃	3ϕ12+1ϕ10 = 4.18	1.11	9.75	49.23	50	1.730	2.05	2.540	5.200	〃	52.5	3.66
〃	32.5	2ϕ10+2ϕ8 = 2.58	0.69	6.10	30.48	41	1.460	2.37	615	1.452	〃	32.5	1.65
〃	32.5	4ϕ10 = 3.14	0.84	6.70	30.30	49	1.570	2.70	615	1.662	〃	32.5	1.89
〃	57.5	5ϕ10 = 3.93	1.04	9.85	54.20	47	1.775	2.00	2.835	5.670	〃	57.5	3.66
〃	57.5	3ϕ10+2ϕ12 = 4.62	1.23	10.70	53.92	49	1.715	2.00	3.195	6.400	〃	57.5	4.12
〃	27.5	2ϕ10+2ϕ8 = 2.58	0.69	5.50	25.67	35	1.160	1.35	1.215	1.640	〃	27.5	2.50
〃	27.5	3ϕ8 = 1.51	0.40	4.32	26.06	29	1.250	0.37	1.040	282	〃	27.5	0.38
〃	57.5	3ϕ10+2ϕ12 = 4.62	1.23	10.70	53.92	50	1.730	2.00	3.215	6.430	〃	57.5	4.15
〃	67.5	2ϕ10+3ϕ12 = 4.96	1.32	12.30	63.40	48	1.780	2.35	3.055	7.150	〃	67.5	3.93
〃	57.5	4ϕ10+1ϕ12 = 4.27	1.14	10.40	54.05	48	1.750	2.95	1.395	4.160	〃	54.5	2.90
35	57.5	4ϕ12+1ϕ14 = 6.06	1.61	12.10	53.48	52	1.820	2.25	3.475	7.830	35	54.5	5.15
〃	72.5	5ϕ12+1ϕ14 = 7.20	1.65	13.90	67.85	51	1.740	2.64	3.660	9.650	〃	72.5	4.95
〃	37.5	4ϕ10 = 3.14	0.72	6.65	35.28	45	1.670	1.47	2.550	3.745	〃	37.5	3.70
〃	57.5	2ϕ10+3ϕ12 = 4.96	1.32	11.00	53.80	45	1.740	1.92	3.807	7.300	〃	57.5	4.70
〃	57.5	4ϕ12+1ϕ10 = 5.31	1.41	11.40	53.70	49	1.780	2.00	3.807	7.600	〃	57.5	4.90
PA	RT E			VEDI	CALCOLO		A PA	RTE					
	〃			〃		〃	〃	〃					