



## I.A.C.P - CATANIA

COMPLETAMENTO DEL PROGRAMMA COSTRUTTIVO EX 162/CT RELATIVO ALLA COSTRUZIONE DI  
SESSANTA ALLOGGI IN LOCALITA' JUNGO DEL COMUNE DI GIARRE

Deliberazione n. 207 Giunta Regionale del 10 giugno 2009

Deliberazione n. 224 Giunta Regionale del 6 agosto 2014



Elaborato

TABULATI DI CALCOLO  
VASCA 5X9

TAV.  
OE.6-D3

rapp:

data

agg.FEB./2019

**RESPONSABILE UNICO DEL PROCEDIMENTO**

Dott. Ing. Salvatore Bella (dal 04/02/2019)

**SUPPORTO AL RUP**

Geom. Alfio Mirabella

Geom. Marco Rapisarda

**PROGETTO**

Dott. Arch. Ida Maria Baratta

Dott. Arch. Giuseppe Lanza

Dott. Ing. Valeria Vadalà

**VISTI E APPROVAZIONI:**



# TABULATI DI INPUT

## Dati generali

Nome struttura	
Numero di frequenze	15
% Filtro masse libere	0.1
% Coefficiente di smorzamento viscoso	5
Spostamenti modali con segno	Si
Deformabilità a taglio delle aste	Si
Spostamento ammissibile impalcati	0.0050*h

## Impalcati

N°	Quota mm	Rigido	Incr.Soll.Pil	Inc.Soll.Par.
0	0	No	1.000	1.000
1	3200	Si	1.000	1.000

## Percentuali Spostamento masse impalcati

Posizione	% Spostamento direzione X	% Spostamento direzione Y
1	0	-5
2	5	0
3	0	5
4	-5	0

## Combinazioni del Sisma in X e Y e Verticale

Comb	Pos. SismaX	Pos. SismaY	Fx	Fy	Fz
1	1	2	1	0.3	0.3
2	1	2	0.3	1	0.3
3	1	2	0.3	0.3	1
4	1	4	1	0.3	0.3
5	1	4	0.3	1	0.3
6	1	4	0.3	0.3	1
7	3	2	1	0.3	0.3
8	3	2	0.3	1	0.3
9	3	2	0.3	0.3	1
10	3	4	1	0.3	0.3
11	3	4	0.3	1	0.3
12	3	4	0.3	0.3	1

Comb. = Numero di combinazione dei sismi

Pos. SismaX = Posizione in cui viene scelto il sisma in direzione X

Pos. SismaY = Posizione in cui viene scelto il sisma in direzione Y

Fx = Fattore con cui il sisma X partecipa

Fy = Fattore con cui il sisma Y partecipa

Fz = Fattore con cui il sisma Verticale partecipa (quando richiesto)

Ogni combinazione genera al massimo 8 sotto-combinazioni in base a tutte le combinazioni possibili dei segni di Fx ed Fy ed Fz

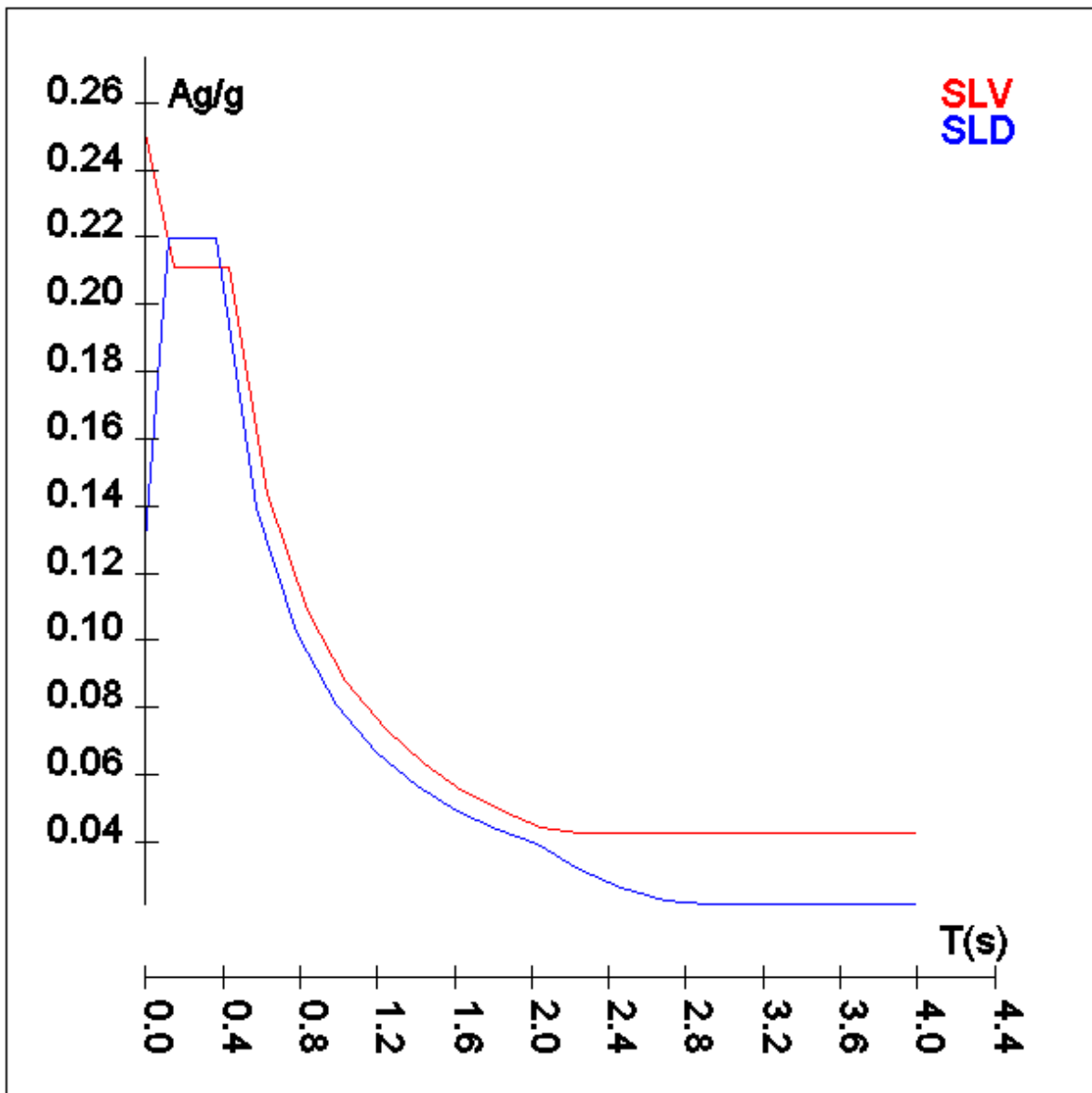
## Spettri di risposta

### **Spettro :SpettroNT\_ 2018**

Il calcolo degli spettri e del fattore di comportamento sono stati calcolati per la seguente tipologia di terreno e struttura

<b>Vita della struttura</b>	
Tipo	Opere ordinarie (50-100)
Vita nominale(anni)	50.0
Classe d'uso	II
Coefficiente d'uso	1.000
Periodo di riferimento(anni)	50.000
Stato limite di esercizio - SLD	PVR=63.0%
Stato limite ultimo - SLV	PVR=10.0%
Periodo di ritorno SLD(anni)	TR=50.0
Periodo di ritorno SLV(anni)	TR=475.0
<b>Parametri del sito</b>	
Comune	Via Gorizia, 1, 95014 Giarre CT, Italia
Longitudine	15.1942
Latitudine	37.7209
Id reticolo del sito	47203-46981-46980-47202
<b>Valori di riferimento del sito</b>	
Ag/g(TR=50.0) SLD	0.1077
F0(TR=50.0) SLD	2.5502
T°C(TR=50.0) SLD	0.251
Ag/g(TR=475.0) SLV	0.2135
F0(TR=475.0) SLV	2.6196
T°C(TR=475.0) SLV	0.311
Coefficiente Amplificazione Topografica	St=1.000
<b>Categoria terreno B</b>	
stato limite SLV	
	Ss=1.18
	TB=0.14
	TC=0.43
	TD=2.45
stato limite SLD	
	Ss=1.20
	TB=0.12
	TC=0.36
	TD=2.03
<b>Fattore di comportamento (SLV)</b>	
Classe duttilità	B
Tipo struttura	Cemento armato
Struttura non regolare in altezza	Kr=0.800000
	Kw=1.000
Regolare in pianta	SI
Tipologia : struttura a telaio, a pareti accoppiate e miste	Ce=3.000
Telaio + piani + campate	Au/A1=1.300
Fattore di comportamento $q=Kw*Kr*q0=Kw*Kr*Ce*au/a1$	3.120
Fattore di comportamento q SLD	1.500

TSLV [s]	SLV[a/g]	TSLD [s]	SLD[a/g]
0.00000	0.25109	0.00000	0.12919
0.14417	0.21082	0.12117	0.21964
0.43250	0.21082	0.36351	0.21964
0.63463	0.14367	0.57190	0.13961
0.83676	0.10897	0.78029	0.10232
1.03889	0.08777	0.98868	0.08076
1.24102	0.07347	1.19707	0.06670
1.44315	0.06318	1.40546	0.05681
1.64528	0.05542	1.61385	0.04947
1.84741	0.04935	1.82224	0.04382
2.04954	0.04449	2.03063	0.03932
2.25167	0.04269	2.24945	0.03204
2.45380	0.04269	2.46827	0.02661
2.67469	0.04269	2.68709	0.02245
2.89557	0.04269	2.90591	0.02153
3.11646	0.04269	3.12472	0.02153
3.33734	0.04269	3.34354	0.02153
3.55823	0.04269	3.56236	0.02153
3.77911	0.04269	3.78118	0.02153
4.00000	0.04269	4.00000	0.02153



## Caratteristiche del terreno

<b>Terreno1-</b> Cost.Winkler=2.00 kg/cm Falda assente										
Strato n°	Spessore	$\gamma$	$\gamma_{Sat}$	$\phi$	Addensato	OCR	Coesione	Cu	E	v
	cm	kg/mc	kg/mc	°			kg/cmq	kg/cmq	kg/cmq	
1	100	1800	1800	30	No	--	0.00	0.00	2E02	0.30

## Materiali

<b>Materiale: C25/30</b>		
Peso specifico	kg/mc	2500
Modulo di Young E	kg/cmq	3E05
Modulo di Poisson v		0.13
Coefficiente di dilatazione termica $\lambda$	1/°C	1e-05

## Nodi - Geometria e vincoli

Nodo	X	Y	Z	Tx	Ty	Tz	Rx	Ry	Rz	Impalcato
	Coordinate [mm]			Vincoli						
1	0	0	0	1	1	0	0	0	1	0
2	5000	0	0	1	1	0	0	0	1	0
3	0	9000	0	1	1	0	0	0	1	0
4	5000	9000	0	1	1	0	0	0	1	0
101	0	0	3200	0	0	0	0	0	0	1
102	5000	0	3200	0	0	0	0	0	0	1
103	0	9000	3200	0	0	0	0	0	0	1
104	5000	9000	3200	0	0	0	0	0	0	1

## Input - Aste - Tabella sezioni tipo

Tipo	Nome	Base	Altezza	Larg.mag.
<b>R</b>		cm	cm	cm
	70x50	70	50	70

## Aste - Geometria e vincoli

	Ni	Nf	Vinc.	Sez.	Mat.	Crit.pr.	Rot.	f.f.	xi	yi	zi	xf	yf	zf	Tipo	L2	L3
							°							cm			cm
9001	1	2	I-I	70x50	C25/30	CLS_TraviFondazione_Rett	0	8585	0	0	0	0	0	0	Fond.	500	500
9002	3	4	I-I	70x50	C25/30	CLS_TraviFondazione_Rett	0	8585	0	0	0	0	0	0	Fond.	500	500
9003	1	3	I-I	70x50	C25/30	CLS_TraviFondazione_Rett	0	8585	0	0	0	0	0	0	Fond.	900	900
9004	2	4	I-I	70x50	C25/30	CLS_TraviFondazione_Rett	0	8585	0	0	0	0	0	0	Fond.	900	900

## Aste - Carichi

Descrizione carichi aste

UnifG	Uniforme globale
UnifL	Uniforme locale
VarG	Variabile lineare globale
VarL	Variabile lineare locale
PolG	Poligonale globale
Termico	Distorsione termica
Torcente	Carico torcente
Precomp.	Carico da precompressione
PolL	Poligonale locale

Sezione	Ni	Nf	Cond.	Tipo c.	Xi	QXi	QYi	QZi	Xf	QXf	QYf	QZf
					cm	car. dist. kg/m coppie torc. kg*m/m			cm	car. dist. kg/m coppie torc. kg*m/m		
<b>Fondazione 9001</b>												
70x50	1	2	Peso Proprio	UnifG	0	0	0	875	500	0	0	875
<b>Fondazione 9002</b>												
70x50	3	4	Peso Proprio	UnifG	0	0	0	875	500	0	0	875
<b>Fondazione 9003</b>												
70x50	1	3	Peso Proprio	UnifG	0	0	0	875	900	0	0	875
<b>Fondazione 9004</b>												
70x50	2	4	Peso Proprio	UnifG	0	0	0	875	900	0	0	875

## Pareti - geometria e vincoli

Parete	Nodi	Tipo	Materiale	Criterio	N.P.	N.P.X	N.P.Y	Spess.
								cm
1	4-2-102-104	Discreto	C25/30	CLS_Muri	100	10	10	30
2	2-1-101-102	Discreto	C25/30	CLS_Muri	100	10	10	30
3	1-3-103-101	Discreto	C25/30	CLS_Muri	100	10	10	30
4	3-4-104-103	Discreto	C25/30	CLS_Muri	100	10	10	30
5	104-103-101-102	Discreto	C25/30	CLS_Muri	100	10	10	20

## Muri - Carichi

P ar	P a n	Condizione	Tipo	Caric o	Vert. 1	Vert. 2	Vert. 3	Vert. 4	Altezza	Peso sp.	Coesion e	Ang. at.	K0
									cm	kg/mc	kg/cmq	°	
1		Peso Proprio	Peso Proprio kg	2160 0									
1		Spinta terreno	Terreno - Attivo - Dir.Neg.						320	1800	0.00	30	
1		Carico idrostatico	Idrostatico - Negativo						320	1000			
2		Peso Proprio	Peso Proprio kg	1200 0									
2		Spinta terreno	Terreno - Attivo - Dir.Neg.						320	1800	0.00	30	
2		Carico idrostatico	Idrostatico - Negativo						320	1000			
3		Peso Proprio	Peso Proprio kg	2160 0									
3		Spinta terreno	Terreno - Attivo - Dir.Neg.						320	1800	0.00	30	
3		Carico idrostatico	Idrostatico - Negativo						320	1000			
4		Peso Proprio	Peso Proprio kg	1200 0									
4		Spinta terreno	Terreno - Attivo - Dir.Neg.						320	1800	0.00	30	
4		Carico idrostatico	Idrostatico - Negativo						320	1000			
5		Peso Proprio	Peso Proprio kg	2250 0									
5		Carico idrostatico	Uniforme_GLOBZ	400									
5		Peso terreno	Uniforme_GLOBZ	1500									

## TABULATI DI VERIFICA

L'esito di ogni elaborazione viene sintetizzato nei disegni e schemi grafici allegati, che evidenziano i valori numerici nei punti e/o nelle sezioni significative, ai fini della valutazione del comportamento complessivo della struttura, e quelli necessari ai fini delle verifiche di misura della sicurezza.

Di seguito si riportano le tabelle relative a:

Forze sismiche e masse  
 Spostamenti Relativi dei nodi (SLD)  
 Fattori di partecipazione e masse modali  
 Massime tensioni sul terreno aste

### Risultati Analisi Dinamica - Baricentri masse e masse

Scenario di calcolo : ScenarioNT\_2018 A2\_SLV\_SLD\_STR\_GEO

Piano	Rigido	Massa	X	Y	Z
		kg	cm	cm	cm
0	No	0	0	0	0
1	Si	52740	250	405	279

Piano	Rigido	Massa	X	Y	Z
		kg	cm	cm	cm
0	No	0	0	0	0
1	Si	52740	275	450	279

Piano	Rigido	Massa	X	Y	Z
		kg	cm	cm	cm
0	No	0	0	0	0
1	Si	52740	250	495	279

Piano	Rigido	Massa	X	Y	Z
		kg	cm	cm	cm
0	No	0	0	0	0
1	Si	52740	225	450	279

### Verifica Degli Spostamenti Relativi

Scenario di calcolo : ScenarioNT\_2018 A2\_SLV\_SLD\_STR\_GEO

Interp.	Comb.	$\eta_{Xv}$	$\eta_{Xh}$	$\eta_{Yv}$	$\eta_{Yh}$	Nodo1	Nodo2	$\eta$	$\eta_{Amm}$	Cs
		mm	mm	mm	mm			mm	mm	
0-1	(10+11)-IV-4	0.00	0.85	0.02	0.11	1	101	0.86	16.00	19
0-1	(10+11)-I-3	0.00	0.85	0.02	0.11	2	102	0.86	16.00	19
0-1	(10+11)-X-3	0.00	0.85	0.02	0.11	3	103	0.86	16.00	19
0-1	(10+11)-VII-4	0.00	0.85	0.02	0.11	4	104	0.86	16.00	19
<b>Minimo</b>										
0-1	(10+11)-I-3	0.00	0.85	0.02	0.11	2	102	0.86	16.00	19



## Periodi di vibrazione e Masse modali

Scenario di calcolo : ScenarioNT\_ 2018 A2\_SLV\_SLD\_STR\_GEO

Posizione masse 1

Numero di Frequenze calcolate =50, filtrate=32

N	T(s)	Coeff. Partecipazione		Masse Modali kgm*g		Percentuali	
		Dir=0°	Dir=90°	Dir=0°	Dir=90°	Dir=0°	Dir=90°
1(1)	0.1163	60.490	0.000	35883	0	68.04	0.00
2(2)	0.0924	0.000	-46.728	0	21413	0.00	40.60
3(3)	0.0750	0.000	15.014	0	2211	0.00	4.19
4(5)	0.0240	-0.000	13.917	0	1899	0.00	3.60
5(7)	0.0157	23.773	-0.000	5542	0	10.51	0.00
6(8)	0.0127	-20.766	-0.000	4229	0	8.02	0.00
7(9)	0.0125	4.798	0.000	226	0	0.43	0.00
8(10)	0.0110	-0.000	-7.846	0	604	0.00	1.14
9(11)	0.0105	-0.000	5.258	0	271	0.00	0.51
10(12)	0.0101	-2.485	0.000	61	0	0.11	0.00
11(14)	0.0094	-0.000	-24.208	0	5747	0.00	10.90
12(15)	0.0084	-0.000	17.954	0	3161	0.00	5.99
13(17)	0.0080	0.000	20.258	0	4024	0.00	7.63
14(19)	0.0073	-0.000	-17.284	0	2930	0.00	5.55
15(21)	0.0070	0.000	-4.653	0	212	0.00	0.40
16(22)	0.0068	-0.000	18.869	0	3492	0.00	6.62
17(23)	0.0065	-12.217	0.000	1464	0	2.78	0.00
18(24)	0.0065	-0.000	-6.393	0	401	0.00	0.76
19(25)	0.0062	0.000	-8.519	0	712	0.00	1.35
20(26)	0.0062	5.339	0.000	280	0	0.53	0.00
21(28)	0.0059	2.896	0.000	82	0	0.16	0.00
22(30)	0.0054	-5.056	-0.000	251	0	0.48	0.00
23(32)	0.0050	0.000	-8.445	0	699	0.00	1.33
24(33)	0.0050	4.151	-0.000	169	0	0.32	0.00
25(34)	0.0049	-14.689	-0.000	2116	0	4.01	0.00
26(36)	0.0047	0.000	-7.963	0	622	0.00	1.18
27(37)	0.0046	0.000	5.404	0	286	0.00	0.54
28(39)	0.0044	7.002	0.000	481	0	0.91	0.00
29(41)	0.0042	-5.610	0.000	309	0	0.59	0.00
30(43)	0.0041	0.000	10.132	0	1007	0.00	1.91
31(45)	0.0039	-7.119	0.000	497	0	0.94	0.00
32(47)	0.0038	-3.981	0.000	155	0	0.29	0.00
Somma delle Masse Modali [kgm*g]				51744	49691		
Masse strutturali libere [kgm*g]				52740	52740		
Percentuale				98.11	94.22	98.11	94.22

Posizione masse 2

Numero di Frequenze calcolate =50, filtrate=35

N	T(s)	Coeff. Partecipazione		Masse Modali kgm*g		Percentuali	
		Dir=0°	Dir=90°	Dir=0°	Dir=90°	Dir=0°	Dir=90°
1(1)	0.1165	60.196	0.000	35535	0	67.38	0.00
2(2)	0.0914	0.000	-48.823	0	23376	0.00	44.32
3(3)	0.0759	-7.271	-0.000	518	0	0.98	0.00
4(4)	0.0307	-2.789	-0.000	76	0	0.14	0.00
5(5)	0.0241	-0.000	13.798	0	1867	0.00	3.54
6(6)	0.0160	-7.637	-0.000	572	0	1.08	0.00
7(7)	0.0156	22.390	-0.000	4916	0	9.32	0.00
8(8)	0.0128	-20.422	-0.000	4090	0	7.76	0.00
9(10)	0.0110	-0.000	-8.847	0	768	0.00	1.46
10(11)	0.0103	3.954	-0.000	153	0	0.29	0.00
11(12)	0.0102	-0.000	-4.146	0	169	0.00	0.32
12(15)	0.0088	0.000	-32.248	0	10198	0.00	19.34

N	T(s)	Coeff. Partecipazione		Masse Modali		Percentuali	
13(16)	0.0082	0.000	20.218	0	4009	0.00	7.60
14(18)	0.0076	0.000	-6.836	0	458	0.00	0.87
15(20)	0.0071	-0.000	-4.691	0	216	0.00	0.41
16(22)	0.0068	-0.000	23.742	0	5528	0.00	10.48
17(23)	0.0067	-9.085	-0.000	809	0	1.53	0.00
18(24)	0.0062	-0.000	7.693	0	580	0.00	1.10
19(25)	0.0061	-8.616	-0.000	728	0	1.38	0.00
20(26)	0.0061	0.000	2.901	0	83	0.00	0.16
21(28)	0.0059	-2.735	0.000	73	0	0.14	0.00
22(29)	0.0055	6.986	-0.000	479	0	0.91	0.00
23(32)	0.0051	0.000	-9.337	0	855	0.00	1.62
24(34)	0.0049	-14.714	0.000	2123	0	4.03	0.00
25(35)	0.0048	0.000	4.676	0	214	0.00	0.41
26(36)	0.0047	0.000	-3.891	0	148	0.00	0.28
27(37)	0.0047	-2.378	-0.000	55	0	0.11	0.00
28(38)	0.0044	0.000	-2.801	0	77	0.00	0.15
29(40)	0.0043	10.286	0.000	1037	0	1.97	0.00
30(41)	0.0043	-0.000	5.081	0	253	0.00	0.48
31(43)	0.0040	0.000	7.860	0	606	0.00	1.15
32(45)	0.0039	6.773	-0.000	450	0	0.85	0.00
33(46)	0.0039	0.000	3.531	0	122	0.00	0.23
34(48)	0.0037	-0.000	-4.806	0	227	0.00	0.43
35(50)	0.0037	2.568	-0.000	65	0	0.12	0.00
Somma delle Masse Modali [kgm*g]				51681	49754		
Masse strutturali libere [kgm*g]				52740	52740		
Percentuale				97.99	94.34	97.99	94.34

Posizione masse 3

Numero di Frequenze calcolate =50, filtrate=32

N	T(s)	Coeff. Partecipazione		Masse Modali		Percentuali	
		kgm*g					
		Dir=0°	Dir=90°	Dir=0°	Dir=90°	Dir=0°	Dir=90°
1(1)	0.1163	60.490	0.000	35883	0	68.04	0.00
2(2)	0.0924	0.000	-46.728	0	21413	0.00	40.60
3(3)	0.0750	0.000	-15.014	0	2211	0.00	4.19
4(5)	0.0240	-0.000	13.917	0	1899	0.00	3.60
5(7)	0.0157	23.773	0.000	5542	0	10.51	0.00
6(8)	0.0127	-20.766	-0.000	4229	0	8.02	0.00
7(9)	0.0125	-4.798	-0.000	226	0	0.43	0.00
8(10)	0.0110	-0.000	-7.846	0	604	0.00	1.14
9(11)	0.0105	0.000	5.258	0	271	0.00	0.51
10(12)	0.0101	-2.485	-0.000	61	0	0.11	0.00
11(14)	0.0094	0.000	24.208	0	5747	0.00	10.90
12(15)	0.0084	0.000	17.954	0	3161	0.00	5.99
13(17)	0.0080	-0.000	-20.258	0	4024	0.00	7.63
14(19)	0.0073	0.000	17.284	0	2930	0.00	5.55
15(21)	0.0070	-0.000	-4.653	0	212	0.00	0.40
16(22)	0.0068	-0.000	18.869	0	3492	0.00	6.62
17(23)	0.0065	-12.217	-0.000	1464	0	2.78	0.00
18(24)	0.0065	0.000	-6.393	0	401	0.00	0.76
19(25)	0.0062	-0.000	-8.519	0	712	0.00	1.35
20(26)	0.0062	5.339	0.000	280	0	0.53	0.00
21(28)	0.0059	-2.896	-0.000	82	0	0.16	0.00
22(30)	0.0054	5.056	-0.000	251	0	0.48	0.00
23(32)	0.0050	0.000	-8.445	0	699	0.00	1.33
24(33)	0.0050	-4.151	-0.000	169	0	0.32	0.00
25(34)	0.0049	-14.689	-0.000	2116	0	4.01	0.00
26(36)	0.0047	0.000	-7.963	0	622	0.00	1.18
27(37)	0.0046	0.000	5.404	0	286	0.00	0.54
28(39)	0.0044	7.002	-0.000	481	0	0.91	0.00
29(41)	0.0042	-5.610	-0.000	309	0	0.59	0.00
30(43)	0.0041	0.000	10.132	0	1007	0.00	1.91
31(45)	0.0039	-7.119	0.000	497	0	0.94	0.00

N	T(s)	Coeff. Partecipazione		Masse Modali		Percentuali	
32(47)	0.0038	-3.981	-0.000	155	0	0.29	0.00
Somma delle Masse Modali [kgm*g]				51744	49691		
Masse strutturali libere [kgm*g]				52740	52740		
Percentuale				98.11	94.22	98.11	94.22

Posizione masse 4

Numero di Frequenze calcolate =50, filtrate=35

N	T(s)	Coeff. Partecipazione		Masse Modali		Percentuali	
		Dir=0°	Dir=90°	Dir=0°	Dir=90°	Dir=0°	Dir=90°
1(1)	0.1165	60.196	0.000	35535	0	67.38	0.00
2(2)	0.0914	0.000	-48.823	0	23376	0.00	44.32
3(3)	0.0759	7.271	-0.000	518	0	0.98	0.00
4(4)	0.0307	2.789	-0.000	76	0	0.14	0.00
5(5)	0.0241	-0.000	13.798	0	1867	0.00	3.54
6(6)	0.0160	-7.637	0.000	572	0	1.08	0.00
7(7)	0.0156	22.390	0.000	4916	0	9.32	0.00
8(8)	0.0128	-20.422	-0.000	4090	0	7.76	0.00
9(10)	0.0110	-0.000	-8.847	0	768	0.00	1.46
10(11)	0.0103	3.954	0.000	153	0	0.29	0.00
11(12)	0.0102	0.000	-4.146	0	169	0.00	0.32
12(15)	0.0088	0.000	32.248	0	10198	0.00	19.34
13(16)	0.0082	-0.000	-20.218	0	4009	0.00	7.60
14(18)	0.0076	-0.000	-6.836	0	458	0.00	0.87
15(20)	0.0071	-0.000	4.691	0	216	0.00	0.41
16(22)	0.0068	0.000	23.742	0	5528	0.00	10.48
17(23)	0.0067	-9.085	-0.000	809	0	1.53	0.00
18(24)	0.0062	-0.000	7.693	0	580	0.00	1.10
19(25)	0.0061	-8.616	0.000	728	0	1.38	0.00
20(26)	0.0061	0.000	2.901	0	83	0.00	0.16
21(28)	0.0059	-2.735	0.000	73	0	0.14	0.00
22(29)	0.0055	6.986	-0.000	479	0	0.91	0.00
23(32)	0.0051	0.000	9.337	0	855	0.00	1.62
24(34)	0.0049	14.714	-0.000	2123	0	4.03	0.00
25(35)	0.0048	-0.000	4.676	0	214	0.00	0.41
26(36)	0.0047	-0.000	-3.891	0	148	0.00	0.28
27(37)	0.0047	2.378	-0.000	55	0	0.11	0.00
28(38)	0.0044	0.000	2.801	0	77	0.00	0.15
29(40)	0.0043	10.286	-0.000	1037	0	1.97	0.00
30(41)	0.0043	0.000	5.081	0	253	0.00	0.48
31(43)	0.0040	-0.000	-7.860	0	606	0.00	1.15
32(45)	0.0039	6.773	0.000	450	0	0.85	0.00
33(46)	0.0039	-0.000	3.531	0	122	0.00	0.23
34(48)	0.0037	0.000	-4.806	0	227	0.00	0.43
35(50)	0.0037	2.568	-0.000	65	0	0.12	0.00
Somma delle Masse Modali [kgm*g]				51681	49754		
Masse strutturali libere [kgm*g]				52740	52740		
Percentuale				97.99	94.34	97.99	94.34

## Risultati Analisi Dinamica - Massime tensioni sul terreno aste

Scenario di calcolo : ScenarioNT\_2018 A2\_SLV\_SLD\_STR\_GEO

Asta	N.in.	N.fin.	0/5	1/5	2/5	3/5	4/5	5/5
			kg/cmq	kg/cmq	kg/cmq	kg/cmq	kg/cmq	kg/cmq
9001	1	2	1.32(2)	1.33(2)	1.33(2)	1.33(2)	1.33(2)	1.32(2)
9002	3	4	1.32(2)	1.33(2)	1.33(2)	1.33(2)	1.33(2)	1.32(2)
9003	1	3	1.32(2)	1.34(2)	1.34(2)	1.34(2)	1.34(2)	1.32(2)
9004	2	4	1.32(2)	1.34(2)	1.34(2)	1.34(2)	1.34(2)	1.32(2)

Asta	N.in.	N.fin.	0/5	1/5	2/5	3/5	4/5	5/5
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## VERIFICHE STATO LIMITE ULTIMO

### Verifica delle travi

Scenario di calcolo : ScenarioNT\_2018 A2\_SLV\_SLD\_STR\_GEO

#### Trave di Fond. : 9001 [ 1 , 2 ] Pilastrate [- , -]

Sez. R: By= 70.0 cm Bz=50.0 cm L=500.0 cm Ln=500.0 cm Terreno: Terreno1

Criterio : CLS\_TraviFondazione\_Rett - Verifica a flessione : **Verificato**

X	M-	M+	ΔM-	ΔM+	Afs	Afi	Mr-	Mr+	C-	C+	CS
cm	kg*m	kg*m	kg*m	kg*m	cmq	cmq	kg*m	kg*m			
ILN	--	1511	--	--	9.24	9.24	15210	15210	1	1	10
50.0	--	774	--	305	9.24	9.24	15210	15210	1	1	14
CAMP	--	319	--	215	9.24	9.24	15210	15210	1	1	29
450.0	--	839	--	278	9.24	9.24	15210	15210	1	1	14
FLN	--	1511	--	--	9.24	9.24	15210	15210	1	1	10

X	x-	d-	x-/d-	x+	d+	x+/d+	Mr-	Mr+	C-	C+	Stato-	Stato+
cm	cm	cm		cm	cm		kg*m	kg*m				
ILN	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.
50.0	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.
CAMP	--	--	--	10.6	45.9	0.232	15210	15210	1	1	--	Parz.
450.0	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.
FLN	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.

Verifica a taglio: cot(θ) Sin=2.500, cot(θ) Cen=2.500, cot(θ) Des=2.500

Comb Sin=2 Cen=2 Des=2

Sez	Td	VRdns	VRcd	VRsd	VRd	Tpl	Mr	Dx	Staffe	CS
	kg	kg	kg	kg	kg	kg	kg*m	cm	cmq/m	
Sin	3373	--	70348	48752	48752	0	15210	51.0	12.06	14
Cen	2340	--	70348	45141	45141	--	--	--	11.17	19
Des	3373	--	70348	48752	48752	0	15210	51.0	12.06	14

#### Trave di Fond. : 9002 [ 3 , 4 ] Pilastrate [- , -]

Sez. R: By= 70.0 cm Bz=50.0 cm L=500.0 cm Ln=500.0 cm Terreno: Terreno1

Criterio : CLS\_TraviFondazione\_Rett - Verifica a flessione : **Verificato**

X	M-	M+	ΔM-	ΔM+	Afs	Afi	Mr-	Mr+	C-	C+	CS
cm	kg*m	kg*m	kg*m	kg*m	cmq	cmq	kg*m	kg*m			
ILN	--	1511	--	--	9.24	9.24	15210	15210	1	1	10
50.0	--	774	--	305	9.24	9.24	15210	15210	1	1	14
CAMP	--	319	--	215	9.24	9.24	15210	15210	1	1	29
450.0	--	839	--	278	9.24	9.24	15210	15210	1	1	14
FLN	--	1511	--	--	9.24	9.24	15210	15210	1	1	10

X	x-	d-	x-/d-	x+	d+	x+/d+	Mr-	Mr+	C-	C+	Stato-	Stato+
cm	cm	cm		cm	cm		kg*m	kg*m				
ILN	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.
50.0	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.
CAMP	--	--	--	10.6	45.9	0.232	15210	15210	1	1	--	Parz.
450.0	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.
FLN	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.

Verifica a taglio: cot( $\theta$ ) Sin=2.500, cot( $\theta$ ) Cen=2.500, cot( $\theta$ ) Des=2.500  
 Comb Sin=2 Cen=2 Des=2

Sez	Td	VRdns	VRcd	VRsd	VRd	Tpl	Mr	Dx	Staffe	CS
	kg	kg	kg	kg	kg	kg	kg*m	cm	cmq/m	
Sin	3373	--	70348	48752	48752	0	15210	51.0	12.06	14
Cen	2340	--	70348	45141	45141	--	--	--	11.17	19
Des	3373	--	70348	48752	48752	0	15210	51.0	12.06	14

**Trave di Fond. : 9003 [ 1 , 3 ] Pilastrate [- , -]**

Sez. R: By= 70.0 cm Bz=50.0 cm L=900.0 cm Ln=900.0 cm Terreno: **Terreno1**

Criterio : CLS\_TraviFondazione\_Rett - Verifica a flessione : **Verificato**

X	M-	M+	$\Delta$ M-	$\Delta$ M+	Afs	Afi	Mr-	Mr+	C-	C+	CS
cm	kg*m	kg*m	kg*m	kg*m	cmq	cmq	kg*m	kg*m			
ILN	--	1536	--	--	9.24	9.24	15210	15210	1	1	9.9
90.0	--	705	--	191	9.24	9.24	15210	15210	1	1	17
CAMP	--	650	--	246	9.24	9.24	15210	15210	1	1	17
810.0	--	841	--	159	9.24	9.24	15210	15210	1	1	15
FLN	--	1536	--	--	9.24	9.24	15210	15210	1	1	9.9

X	x-	d-	x-/d-	x+	d+	x+/d+	Mr-	Mr+	C-	C+	Stato-	Stato+
cm	cm	cm		cm	cm		kg*m	kg*m				
ILN	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.
90.0	--	--	--	10.6	45.9	0.232	15210	15210	1	1	--	Parz.
CAMP	--	--	--	10.6	45.9	0.232	15210	15210	1	1	--	Parz.
810.0	--	--	--	10.6	45.9	0.232	15210	15210	1	1	--	Parz.
FLN	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.

Verifica a taglio: cot( $\theta$ ) Sin=2.500, cot( $\theta$ ) Cen=2.500, cot( $\theta$ ) Des=2.500  
 Comb Sin=2 Cen=2 Des=2

Sez	Td	VRdns	VRcd	VRsd	VRd	Tpl	Mr	Dx	Staffe	CS
	kg	kg	kg	kg	kg	kg	kg*m	cm	cmq/m	
Sin	4424	--	70348	48752	48752	0	15210	51.0	12.06	11
Cen	3839	--	70348	45375	45375	--	--	--	11.23	12
Des	4424	--	70348	48752	48752	0	15210	51.0	12.06	11

**Trave di Fond. : 9004 [ 2 , 4 ] Pilastrate [- , -]**

Sez. R: By= 70.0 cm Bz=50.0 cm L=900.0 cm Ln=900.0 cm Terreno: **Terreno1**

Criterio : CLS\_TraviFondazione\_Rett - Verifica a flessione : **Verificato**

X	M-	M+	$\Delta$ M-	$\Delta$ M+	Afs	Afi	Mr-	Mr+	C-	C+	CS
cm	kg*m	kg*m	kg*m	kg*m	cmq	cmq	kg*m	kg*m			
ILN	--	1536	--	--	9.24	9.24	15210	15210	1	1	9.9
90.0	--	705	--	191	9.24	9.24	15210	15210	1	1	17
CAMP	--	650	--	246	9.24	9.24	15210	15210	1	1	17
810.0	--	841	--	159	9.24	9.24	15210	15210	1	1	15
FLN	--	1536	--	--	9.24	9.24	15210	15210	1	1	9.9

X	x-	d-	x-/d-	x+	d+	x+/d+	Mr-	Mr+	C-	C+	Stato-	Stato+
cm	cm	cm		cm	cm		kg*m	kg*m				
ILN	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.
90.0	--	--	--	10.6	45.9	0.232	15210	15210	1	1	--	Parz.
CAMP	--	--	--	10.6	45.9	0.232	15210	15210	1	1	--	Parz.
810.0	--	--	--	10.6	45.9	0.232	15210	15210	1	1	--	Parz.
FLN	--	--	--	10.7	45.9	0.232	15210	15210	1	1	--	Parz.

Verifica a taglio: cot( $\theta$ ) Sin=2.500, cot( $\theta$ ) Cen=2.500, cot( $\theta$ ) Des=2.500  
 Comb Sin=2 Cen=2 Des=2

Sez	Td	VRdns	VRcd	VRsd	VRd	Tpl	Mr	Dx	Staffe	CS
-----	----	-------	------	------	-----	-----	----	----	--------	----

Sez	Td	VRdns	VRcd	VRsd	VRd	Tpl	Mr	Dx	Staffe	CS
	kg	kg	kg	kg	kg	kg	kg*m	cm	cmq/m	
Sin	4424	--	70348	48752	48752	0	15210	51.0	12.06	11
Cen	3839	--	70348	45375	45375	--	--	--	11.23	12
Des	4424	--	70348	48752	48752	0	15210	51.0	12.06	11

## Verifica dei Muri in calcestruzzo

Scenario di calcolo : ScenarioNT\_2018 A2\_SLV\_SLD\_STR\_GEO

Muro :1 - Nodi : [4 - 2 - 102 - 104 ]: *Verificato*

Pann.X=10 Pann.Y=10 Spess.= 30 cm Criterio CLS\_Muri Materiale: C25/30

Armatura a maglia doppia

Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
	kg	kg	kg	kg*m	kg*m	kg*m	cmq	cmq		
1	-3515	-7467	-534	-54	366	-443	10.26	10.26	1	7.7
2	-5763	-7577	-1567	-265	397	-419	10.26	10.26	1	7.6
3	-6136	-7791	-1954	-453	375	-227	10.26	10.26	1	8.9
4	-5896	-7056	-2296	-548	313	-17	10.26	10.26	1	11
5	-5127	-6029	-2558	-539	217	164	10.26	10.26	1	8.4
6	-3924	-4877	-2669	-444	89	288	10.26	10.26	1	7.9
7	-2462	-3731	-2544	-301	-77	330	10.26	10.26	1	8.9
8	-1067	-2699	-2081	-167	-290	266	10.26	10.26	1	10
9	-290	-1409	-1278	-101	-533	72	10.26	10.26	1	9.1
10	228	328	-305	-104	-723	-153	10.26	10.26	1	6.1
11	-1862	-6868	-625	85	111	-479	10.26	10.26	1	9.9
12	-3315	-6626	-1242	323	891	-446	10.26	10.26	1	4.6
13	-4165	-6100	-2006	477	1197	-274	10.26	10.26	1	4.1
14	-4423	-5844	-2694	534	1183	-37	10.26	10.26	1	4.9
15	-4249	-5703	-3166	502	940	188	10.26	10.26	1	5.3
16	-3820	-5595	-3369	403	519	346	10.26	10.26	1	6.9
17	-3310	-5474	-3264	255	-54	393	10.26	10.26	1	8.9
18	-2870	-5314	-2854	79	-764	298	10.26	10.26	1	5.6
19	-2574	-5037	-2174	-108	-1599	32	10.26	10.26	1	3.6
20	-2860	-4329	-778	-277	-2496	-374	10.26	10.26	1	2.0
21	-1415	-7752	-1567	47	80	-213	10.26	10.26	1	21
22	-2067	-7654	-1669	263	1172	-150	10.26	10.26	1	4.7
23	-2735	-7222	-1930	402	1680	-62	10.26	10.26	1	3.5
24	-3205	-7067	-2215	452	1716	40	10.26	10.26	1	3.5
25	-3515	-7019	-2434	416	1373	135	10.26	10.26	1	4.1
26	-3728	-7051	-2514	303	722	193	10.26	10.26	1	6.7
27	-3936	-7126	-2410	131	-186	186	10.26	10.26	1	17
28	-4250	-7191	-2095	-78	-1316	88	10.26	10.26	1	4.4
29	-4837	-7172	-1525	-292	-2648	-120	10.26	10.26	1	2.2
30	-5761	-7328	-739	-502	-4191	-353	10.26	10.26	1	1.4
31	-1297	-8099	-1333	55	303	-78	10.26	10.26	1	16
32	-1796	-8066	-1367	216	1369	-23	10.26	10.26	1	4.5
33	-2321	-7964	-1424	294	1878	27	10.26	10.26	1	3.3
34	-2825	-7955	-1477	297	1896	66	10.26	10.26	1	3.2
35	-3330	-7981	-1504	233	1487	92	10.26	10.26	1	4.0
36	-3862	-8035	-1473	111	711	95	10.26	10.26	1	7.8
37	-4468	-8097	-1356	-54	-376	64	10.26	10.26	1	14
38	-5209	-8136	-1144	-244	-1731	-10	10.26	10.26	1	3.6
39	-6134	-8185	-846	-437	-3314	-131	10.26	10.26	1	1.8
40	-7227	-8583	-487	-637	-5071	-243	10.26	10.26	1	1.2
41	-1262	-8212	-505	62	444	-18	10.26	10.26	1	14
42	-1752	-8220	-509	198	1483	2	10.26	10.26	1	4.2
43	-2257	-8272	-515	252	1965	18	10.26	10.26	1	3.2
44	-2794	-8318	-515	232	1950	29	10.26	10.26	1	3.2
45	-3379	-8375	-506	151	1496	33	10.26	10.26	1	4.1
46	-4037	-8426	-479	23	659	29	10.26	10.26	1	9.2
47	-4794	-8457	-429	-140	-506	14	10.26	10.26	1	12

Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
48	-5676	-8459	-355	-320	-1949	-13	10.26	10.26	1	3.2
49	-6680	-8503	-260	-503	-3618	-52	10.26	10.26	1	1.7
50	-7740	-8793	-179	-698	-5452	-84	10.26	10.26	1	1.1
51	-1262	-8212	505	62	444	18	10.26	10.26	1	14
52	-1752	-8220	509	198	1483	-2	10.26	10.26	1	4.2
53	-2257	-8272	515	252	1965	-18	10.26	10.26	1	3.2
54	-2794	-8318	515	232	1950	-29	10.26	10.26	1	3.2
55	-3379	-8375	506	151	1496	-33	10.26	10.26	1	4.1
56	-4037	-8426	479	23	659	-29	10.26	10.26	1	9.2
57	-4794	-8457	429	-140	-506	-14	10.26	10.26	1	12
58	-5676	-8459	355	-320	-1949	13	10.26	10.26	1	3.2
59	-6680	-8503	260	-503	-3618	52	10.26	10.26	1	1.7
60	-7740	-8793	179	-698	-5452	84	10.26	10.26	1	1.1
61	-1297	-8099	1333	55	303	78	10.26	10.26	1	16
62	-1796	-8066	1367	216	1369	23	10.26	10.26	1	4.5
63	-2321	-7964	1424	294	1878	-27	10.26	10.26	1	3.3
64	-2825	-7955	1477	297	1896	-66	10.26	10.26	1	3.2
65	-3330	-7981	1504	233	1487	-92	10.26	10.26	1	4.0
66	-3862	-8035	1473	111	711	-95	10.26	10.26	1	7.8
67	-4468	-8097	1356	-54	-376	-64	10.26	10.26	1	14
68	-5209	-8136	1144	-244	-1731	10	10.26	10.26	1	3.6
69	-6134	-8185	846	-437	-3314	131	10.26	10.26	1	1.8
70	-7227	-8583	487	-637	-5071	243	10.26	10.26	1	1.2
71	-1415	-7752	1567	47	80	213	10.26	10.26	1	21
72	-2067	-7654	1669	263	1172	150	10.26	10.26	1	4.7
73	-2735	-7222	1930	402	1680	62	10.26	10.26	1	3.5
74	-3205	-7067	2215	452	1716	-40	10.26	10.26	1	3.5
75	-3515	-7019	2434	416	1373	-135	10.26	10.26	1	4.1
76	-3728	-7051	2514	303	722	-193	10.26	10.26	1	6.7
77	-3936	-7126	2410	131	-186	-186	10.26	10.26	1	17
78	-4250	-7191	2095	-78	-1316	-88	10.26	10.26	1	4.4
79	-4837	-7172	1525	-292	-2648	120	10.26	10.26	1	2.2
80	-5761	-7328	739	-502	-4191	353	10.26	10.26	1	1.4
81	-1862	-6868	625	85	111	479	10.26	10.26	1	9.9
82	-3315	-6626	1242	323	891	446	10.26	10.26	1	4.6
83	-4165	-6100	2006	477	1197	274	10.26	10.26	1	4.1
84	-4423	-5844	2694	534	1183	37	10.26	10.26	1	4.9
85	-4249	-5703	3166	502	940	-188	10.26	10.26	1	5.3
86	-3820	-5595	3369	403	519	-346	10.26	10.26	1	6.9
87	-3310	-5474	3264	255	-54	-393	10.26	10.26	1	8.9
88	-2870	-5314	2854	79	-764	-298	10.26	10.26	1	5.6
89	-2574	-5037	2174	-108	-1599	-32	10.26	10.26	1	3.6
90	-2860	-4329	778	-277	-2496	374	10.26	10.26	1	2.0
91	-3515	-7467	534	-54	366	443	10.26	10.26	1	7.7
92	-5763	-7577	1567	-265	397	419	10.26	10.26	1	7.6
93	-6136	-7791	1954	-453	375	227	10.26	10.26	1	8.9
94	-5896	-7056	2296	-548	313	17	10.26	10.26	1	11
95	-5127	-6029	2558	-539	217	-164	10.26	10.26	1	8.4
96	-3924	-4877	2669	-444	89	-288	10.26	10.26	1	7.9
97	-2462	-3731	2544	-301	-77	-330	10.26	10.26	1	8.9
98	-1067	-2699	2081	-167	-290	-266	10.26	10.26	1	10
99	-290	-1409	1278	-101	-533	-72	10.26	10.26	1	9.1
100	228	328	305	-104	-723	153	10.26	10.26	1	6.1
Massimi/minimi										
1							10.26			
1								10.26		
60										1.1

Muro :2 - Nodi : [2 - 1 - 101 - 102 ]: **Verificato**

Pann.X=10 Pann.Y=10 Spess.= 30 cm Criterio CLS\_Muri Materiale: C25/30

Armatura a maglia doppia

Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
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Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
	kg	kg	kg	kg*m	kg*m	kg*m	cmq	cmq		
1	-4676	-9396	759	-232	362	-295	10.26	10.26	1	9.8
2	-6387	-10128	267	-738	202	-307	10.26	10.26	1	5.8
3	-6429	-9545	156	-1072	115	-162	10.26	10.26	1	4.9
4	-6119	-8349	-138	-1199	65	-11	10.26	10.26	1	5.0
5	-5203	-6863	-469	-1125	21	122	10.26	10.26	1	4.8
6	-3795	-5186	-742	-895	-29	219	10.26	10.26	1	5.2
7	-2084	-3474	-876	-580	-99	262	10.26	10.26	1	6.7
8	-413	-1965	-747	-275	-206	227	10.26	10.26	1	11
9	508	-765	-184	-108	-327	76	10.26	10.26	1	14
10	310	-894	321	-84	-405	-135	10.26	10.26	1	10
11	-2786	-5995	2177	55	195	-565	10.26	10.26	1	7.9
12	-4888	-6239	984	139	537	-551	10.26	10.26	1	5.6
13	-5571	-6174	-103	149	641	-338	10.26	10.26	1	6.2
14	-5300	-5982	-893	115	608	-61	10.26	10.26	1	9.0
15	-4536	-5609	-1505	70	481	197	10.26	10.26	1	8.8
16	-3429	-5150	-1895	25	273	384	10.26	10.26	1	9.0
17	-2208	-4660	-1977	-19	-19	461	10.26	10.26	1	12
18	-1199	-4127	-1682	-72	-403	391	10.26	10.26	1	7.3
19	-728	-3618	-1094	-140	-879	135	10.26	10.26	1	5.7
20	-166	-2748	-1000	-214	-1366	-280	10.26	10.26	1	3.4
21	-1842	-6878	1637	56	-92	-417	10.26	10.26	1	12
22	-3226	-6219	1050	293	730	-426	10.26	10.26	1	5.2
23	-4023	-5857	141	440	1067	-290	10.26	10.26	1	4.4
24	-4112	-5672	-703	487	1095	-78	10.26	10.26	1	5.1
25	-3706	-5588	-1347	445	906	138	10.26	10.26	1	5.7
26	-3033	-5551	-1750	336	543	304	10.26	10.26	1	7.1
27	-2311	-5510	-1884	182	22	376	10.26	10.26	1	10
28	-1757	-5409	-1768	7	-659	318	10.26	10.26	1	6.1
29	-1366	-5220	-1518	-161	-1505	84	10.26	10.26	1	3.7
30	-1562	-4675	-926	-314	-2545	-276	10.26	10.26	1	2.1
31	-1429	-7534	857	35	-228	-241	10.26	10.26	1	13
32	-2328	-6789	593	292	817	-239	10.26	10.26	1	5.8
33	-2905	-6323	127	461	1317	-169	10.26	10.26	1	4.1
34	-3117	-6084	-399	529	1408	-51	10.26	10.26	1	4.1
35	-2983	-6038	-848	496	1191	79	10.26	10.26	1	4.8
36	-2637	-6122	-1152	374	725	182	10.26	10.26	1	6.7
37	-2250	-6267	-1298	189	38	228	10.26	10.26	1	13
38	-1983	-6403	-1295	-26	-868	189	10.26	10.26	1	5.8
39	-2062	-6431	-1099	-229	-2015	32	10.26	10.26	1	3.0
40	-2790	-6296	-623	-412	-3427	-200	10.26	10.26	1	1.7
41	-1281	-7792	254	24	-270	-78	10.26	10.26	1	18
42	-1940	-7136	178	276	856	-75	10.26	10.26	1	6.6
43	-2394	-6673	39	441	1427	-53	10.26	10.26	1	4.1
44	-2601	-6431	-130	507	1554	-16	10.26	10.26	1	3.9
45	-2575	-6393	-285	472	1328	26	10.26	10.26	1	4.5
46	-2385	-6514	-398	346	813	60	10.26	10.26	1	7.0
47	-2166	-6729	-460	154	41	75	10.26	10.26	1	25
48	-2109	-6954	-463	-71	-985	61	10.26	10.26	1	5.9
49	-2466	-7087	-387	-280	-2289	6	10.26	10.26	1	2.7
50	-3455	-7055	-218	-473	-3893	-73	10.26	10.26	1	1.6
51	-1281	-7792	-254	24	-270	78	10.26	10.26	1	18
52	-1940	-7136	-178	276	856	75	10.26	10.26	1	6.6
53	-2394	-6673	-39	441	1427	53	10.26	10.26	1	4.1
54	-2601	-6431	130	507	1554	16	10.26	10.26	1	3.9
55	-2575	-6393	285	472	1328	-26	10.26	10.26	1	4.5
56	-2385	-6514	398	346	813	-60	10.26	10.26	1	7.0
57	-2166	-6729	460	154	41	-75	10.26	10.26	1	25
58	-2109	-6954	463	-71	-985	-61	10.26	10.26	1	5.9
59	-2466	-7087	387	-280	-2289	-6	10.26	10.26	1	2.7
60	-3455	-7055	218	-473	-3893	73	10.26	10.26	1	1.6
61	-1429	-7534	-857	35	-228	241	10.26	10.26	1	13
62	-2328	-6789	-593	292	817	239	10.26	10.26	1	5.8
63	-2905	-6323	-127	461	1317	169	10.26	10.26	1	4.1
64	-3117	-6084	399	529	1408	51	10.26	10.26	1	4.1
65	-2983	-6038	848	496	1191	-79	10.26	10.26	1	4.8



Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
66	-2637	-6122	1152	374	725	-182	10.26	10.26	1	6.7
67	-2250	-6267	1298	189	38	-228	10.26	10.26	1	13
68	-1983	-6403	1295	-26	-868	-189	10.26	10.26	1	5.8
69	-2062	-6431	1099	-229	-2015	-32	10.26	10.26	1	3.0
70	-2790	-6296	623	-412	-3427	200	10.26	10.26	1	1.7
71	-1842	-6878	-1637	56	-92	417	10.26	10.26	1	12
72	-3226	-6219	-1050	293	730	426	10.26	10.26	1	5.2
73	-4023	-5857	-141	440	1067	290	10.26	10.26	1	4.4
74	-4112	-5672	703	487	1095	78	10.26	10.26	1	5.1
75	-3706	-5588	1347	445	906	-138	10.26	10.26	1	5.7
76	-3033	-5551	1750	336	543	-304	10.26	10.26	1	7.1
77	-2311	-5510	1884	182	22	-376	10.26	10.26	1	10
78	-1757	-5409	1768	7	-659	-318	10.26	10.26	1	6.1
79	-1366	-5220	1518	-161	-1505	-84	10.26	10.26	1	3.7
80	-1562	-4675	926	-314	-2545	276	10.26	10.26	1	2.1
81	-2786	-5995	-2177	55	195	565	10.26	10.26	1	7.9
82	-4888	-6239	-984	139	537	551	10.26	10.26	1	5.6
83	-5571	-6174	103	149	641	338	10.26	10.26	1	6.2
84	-5300	-5982	893	115	608	61	10.26	10.26	1	9.0
85	-4536	-5609	1505	70	481	-197	10.26	10.26	1	8.8
86	-3429	-5150	1895	25	273	-384	10.26	10.26	1	9.0
87	-2208	-4660	1977	-19	-19	-461	10.26	10.26	1	12
88	-1199	-4127	1682	-72	-403	-391	10.26	10.26	1	7.3
89	-728	-3618	1094	-140	-879	-135	10.26	10.26	1	5.7
90	-166	-2748	1000	-214	-1366	280	10.26	10.26	1	3.4
91	-4676	-9396	-759	-232	362	295	10.26	10.26	1	9.8
92	-6387	-10128	-267	-738	202	307	10.26	10.26	1	5.8
93	-6429	-9545	-156	-1072	115	162	10.26	10.26	1	4.9
94	-6119	-8349	138	-1199	65	11	10.26	10.26	1	5.0
95	-5203	-6863	469	-1125	21	-122	10.26	10.26	1	4.8
96	-3795	-5186	742	-895	-29	-219	10.26	10.26	1	5.2
97	-2084	-3474	876	-580	-99	-262	10.26	10.26	1	6.7
98	-413	-1965	747	-275	-206	-227	10.26	10.26	1	11
99	508	-765	184	-108	-327	-76	10.26	10.26	1	14
100	310	-894	-321	-84	-405	135	10.26	10.26	1	10
<b>Massimi/minimi</b>										
1							10.26			
1								10.26		
60										1.6

**Muro :3 - Nodi : [1 - 3 - 103 - 101 ]:Verificato**

Pann.X=10 Pann.Y=10 Spess.= 30 cm Criterio CLS\_Muri Materiale: C25/30

**Armatura a maglia doppia**

Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
	kg	kg	kg	kg*m	kg*m	kg*m	cmq	cmq		
1	-3515	-7467	-534	-54	366	-443	10.26	10.26	1	7.7
2	-5763	-7577	-1567	-265	397	-419	10.26	10.26	1	7.6
3	-6136	-7791	-1954	-453	375	-227	10.26	10.26	1	8.9
4	-5896	-7056	-2296	-548	313	-17	10.26	10.26	1	11
5	-5127	-6029	-2558	-539	217	164	10.26	10.26	1	8.4
6	-3924	-4877	-2669	-444	89	288	10.26	10.26	1	7.9
7	-2462	-3731	-2544	-301	-77	330	10.26	10.26	1	8.9
8	-1067	-2699	-2081	-167	-290	266	10.26	10.26	1	10
9	-290	-1409	-1278	-101	-533	72	10.26	10.26	1	9.1
10	228	328	-305	-104	-723	-153	10.26	10.26	1	6.1
11	-1862	-6868	-625	85	111	-479	10.26	10.26	1	9.9
12	-3315	-6626	-1242	323	891	-446	10.26	10.26	1	4.6
13	-4165	-6100	-2006	477	1197	-274	10.26	10.26	1	4.1
14	-4423	-5844	-2694	534	1183	-37	10.26	10.26	1	4.9
15	-4249	-5703	-3166	502	940	188	10.26	10.26	1	5.3
16	-3820	-5595	-3369	403	519	346	10.26	10.26	1	6.9
17	-3310	-5474	-3264	255	-54	393	10.26	10.26	1	8.9

Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
18	-2870	-5314	-2854	79	-764	298	10.26	10.26	1	5.6
19	-2574	-5037	-2174	-108	-1599	32	10.26	10.26	1	3.6
20	-2860	-4329	-778	-277	-2496	-374	10.26	10.26	1	2.0
21	-1415	-7752	-1567	47	80	-213	10.26	10.26	1	21
22	-2067	-7654	-1669	263	1172	-150	10.26	10.26	1	4.7
23	-2735	-7222	-1930	402	1680	-62	10.26	10.26	1	3.5
24	-3205	-7067	-2215	452	1716	40	10.26	10.26	1	3.5
25	-3515	-7019	-2434	416	1373	135	10.26	10.26	1	4.1
26	-3728	-7051	-2514	303	722	193	10.26	10.26	1	6.7
27	-3936	-7126	-2410	131	-186	186	10.26	10.26	1	17
28	-4250	-7191	-2095	-78	-1316	88	10.26	10.26	1	4.4
29	-4837	-7172	-1525	-292	-2648	-120	10.26	10.26	1	2.2
30	-5761	-7328	-739	-502	-4191	-353	10.26	10.26	1	1.4
31	-1297	-8099	-1333	55	303	-78	10.26	10.26	1	16
32	-1796	-8066	-1367	216	1369	-23	10.26	10.26	1	4.5
33	-2321	-7964	-1424	294	1878	27	10.26	10.26	1	3.3
34	-2825	-7955	-1477	297	1896	66	10.26	10.26	1	3.2
35	-3330	-7981	-1504	233	1487	92	10.26	10.26	1	4.0
36	-3862	-8035	-1473	111	711	95	10.26	10.26	1	7.8
37	-4468	-8097	-1356	-54	-376	64	10.26	10.26	1	14
38	-5209	-8136	-1144	-244	-1731	-10	10.26	10.26	1	3.6
39	-6134	-8185	-846	-437	-3314	-131	10.26	10.26	1	1.8
40	-7227	-8583	-487	-637	-5071	-243	10.26	10.26	1	1.2
41	-1262	-8212	-505	62	444	-18	10.26	10.26	1	14
42	-1752	-8220	-509	198	1483	2	10.26	10.26	1	4.2
43	-2257	-8272	-515	252	1965	18	10.26	10.26	1	3.2
44	-2794	-8318	-515	232	1950	29	10.26	10.26	1	3.2
45	-3379	-8375	-506	151	1496	33	10.26	10.26	1	4.1
46	-4037	-8426	-479	23	659	29	10.26	10.26	1	9.2
47	-4794	-8457	-429	-140	-506	14	10.26	10.26	1	12
48	-5676	-8459	-355	-320	-1949	-13	10.26	10.26	1	3.2
49	-6680	-8503	-260	-503	-3618	-52	10.26	10.26	1	1.7
50	-7740	-8793	-179	-698	-5452	-84	10.26	10.26	1	1.1
51	-1262	-8212	505	62	444	18	10.26	10.26	1	14
52	-1752	-8220	509	198	1483	-2	10.26	10.26	1	4.2
53	-2257	-8272	515	252	1965	-18	10.26	10.26	1	3.2
54	-2794	-8318	515	232	1950	-29	10.26	10.26	1	3.2
55	-3379	-8375	506	151	1496	-33	10.26	10.26	1	4.1
56	-4037	-8426	479	23	659	-29	10.26	10.26	1	9.2
57	-4794	-8457	429	-140	-506	-14	10.26	10.26	1	12
58	-5676	-8459	355	-320	-1949	13	10.26	10.26	1	3.2
59	-6680	-8503	260	-503	-3618	52	10.26	10.26	1	1.7
60	-7740	-8793	179	-698	-5452	84	10.26	10.26	1	1.1
61	-1297	-8099	1333	55	303	78	10.26	10.26	1	16
62	-1796	-8066	1367	216	1369	23	10.26	10.26	1	4.5
63	-2321	-7964	1424	294	1878	-27	10.26	10.26	1	3.3
64	-2825	-7955	1477	297	1896	-66	10.26	10.26	1	3.2
65	-3330	-7981	1504	233	1487	-92	10.26	10.26	1	4.0
66	-3862	-8035	1473	111	711	-95	10.26	10.26	1	7.8
67	-4468	-8097	1356	-54	-376	-64	10.26	10.26	1	14
68	-5209	-8136	1144	-244	-1731	10	10.26	10.26	1	3.6
69	-6134	-8185	846	-437	-3314	131	10.26	10.26	1	1.8
70	-7227	-8583	487	-637	-5071	243	10.26	10.26	1	1.2
71	-1415	-7752	1567	47	80	213	10.26	10.26	1	21
72	-2067	-7654	1669	263	1172	150	10.26	10.26	1	4.7
73	-2735	-7222	1930	402	1680	62	10.26	10.26	1	3.5
74	-3205	-7067	2215	452	1716	-40	10.26	10.26	1	3.5
75	-3515	-7019	2434	416	1373	-135	10.26	10.26	1	4.1
76	-3728	-7051	2514	303	722	-193	10.26	10.26	1	6.7
77	-3936	-7126	2410	131	-186	-186	10.26	10.26	1	17
78	-4250	-7191	2095	-78	-1316	-88	10.26	10.26	1	4.4
79	-4837	-7172	1525	-292	-2648	120	10.26	10.26	1	2.2
80	-5761	-7328	739	-502	-4191	353	10.26	10.26	1	1.4
81	-1862	-6868	625	85	111	479	10.26	10.26	1	9.9
82	-3315	-6626	1242	323	891	446	10.26	10.26	1	4.6
83	-4165	-6100	2006	477	1197	274	10.26	10.26	1	4.1



Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
36	-2637	-6122	-1152	374	725	182	10.26	10.26	1	6.7
37	-2250	-6267	-1298	189	38	228	10.26	10.26	1	13
38	-1983	-6403	-1295	-26	-868	189	10.26	10.26	1	5.8
39	-2062	-6431	-1099	-229	-2015	32	10.26	10.26	1	3.0
40	-2790	-6296	-623	-412	-3427	-200	10.26	10.26	1	1.7
41	-1281	-7792	254	24	-270	-78	10.26	10.26	1	18
42	-1940	-7136	178	276	856	-75	10.26	10.26	1	6.6
43	-2394	-6673	39	441	1427	-53	10.26	10.26	1	4.1
44	-2601	-6431	-130	507	1554	-16	10.26	10.26	1	3.9
45	-2575	-6393	-285	472	1328	26	10.26	10.26	1	4.5
46	-2385	-6514	-398	346	813	60	10.26	10.26	1	7.0
47	-2166	-6729	-460	154	41	75	10.26	10.26	1	25
48	-2109	-6954	-463	-71	-985	61	10.26	10.26	1	5.9
49	-2466	-7087	-387	-280	-2289	6	10.26	10.26	1	2.7
50	-3455	-7055	-218	-473	-3893	-73	10.26	10.26	1	1.6
51	-1281	-7792	-254	24	-270	78	10.26	10.26	1	18
52	-1940	-7136	-178	276	856	75	10.26	10.26	1	6.6
53	-2394	-6673	-39	441	1427	53	10.26	10.26	1	4.1
54	-2601	-6431	130	507	1554	16	10.26	10.26	1	3.9
55	-2575	-6393	285	472	1328	-26	10.26	10.26	1	4.5
56	-2385	-6514	398	346	813	-60	10.26	10.26	1	7.0
57	-2166	-6729	460	154	41	-75	10.26	10.26	1	25
58	-2109	-6954	463	-71	-985	-61	10.26	10.26	1	5.9
59	-2466	-7087	387	-280	-2289	-6	10.26	10.26	1	2.7
60	-3455	-7055	218	-473	-3893	73	10.26	10.26	1	1.6
61	-1429	-7534	-857	35	-228	241	10.26	10.26	1	13
62	-2328	-6789	-593	292	817	239	10.26	10.26	1	5.8
63	-2905	-6323	-127	461	1317	169	10.26	10.26	1	4.1
64	-3117	-6084	399	529	1408	51	10.26	10.26	1	4.1
65	-2983	-6038	848	496	1191	-79	10.26	10.26	1	4.8
66	-2637	-6122	1152	374	725	-182	10.26	10.26	1	6.7
67	-2250	-6267	1298	189	38	-228	10.26	10.26	1	13
68	-1983	-6403	1295	-26	-868	-189	10.26	10.26	1	5.8
69	-2062	-6431	1099	-229	-2015	-32	10.26	10.26	1	3.0
70	-2790	-6296	623	-412	-3427	200	10.26	10.26	1	1.7
71	-1842	-6878	-1637	56	-92	417	10.26	10.26	1	12
72	-3226	-6219	-1050	293	730	426	10.26	10.26	1	5.2
73	-4023	-5857	-141	440	1067	290	10.26	10.26	1	4.4
74	-4112	-5672	703	487	1095	78	10.26	10.26	1	5.1
75	-3706	-5588	1347	445	906	-138	10.26	10.26	1	5.7
76	-3033	-5551	1750	336	543	-304	10.26	10.26	1	7.1
77	-2311	-5510	1884	182	22	-376	10.26	10.26	1	10
78	-1757	-5409	1768	7	-659	-318	10.26	10.26	1	6.1
79	-1366	-5220	1518	-161	-1505	-84	10.26	10.26	1	3.7
80	-1562	-4675	926	-314	-2545	276	10.26	10.26	1	2.1
81	-2786	-5995	-2177	55	195	565	10.26	10.26	1	7.9
82	-4888	-6239	-984	139	537	551	10.26	10.26	1	5.6
83	-5571	-6174	103	149	641	338	10.26	10.26	1	6.2
84	-5300	-5982	893	115	608	61	10.26	10.26	1	9.0
85	-4536	-5609	1505	70	481	-197	10.26	10.26	1	8.8
86	-3429	-5150	1895	25	273	-384	10.26	10.26	1	9.0
87	-2208	-4660	1977	-19	-19	-461	10.26	10.26	1	12
88	-1199	-4127	1682	-72	-403	-391	10.26	10.26	1	7.3
89	-728	-3618	1094	-140	-879	-135	10.26	10.26	1	5.7
90	-166	-2748	1000	-214	-1366	280	10.26	10.26	1	3.4
91	-4676	-9396	-759	-232	362	295	10.26	10.26	1	9.8
92	-6387	-10128	-267	-738	202	307	10.26	10.26	1	5.8
93	-6429	-9545	-156	-1072	115	162	10.26	10.26	1	4.9
94	-6119	-8349	138	-1199	65	11	10.26	10.26	1	5.0
95	-5203	-6863	469	-1125	21	-122	10.26	10.26	1	4.8
96	-3795	-5186	742	-895	-29	-219	10.26	10.26	1	5.2
97	-2084	-3474	876	-580	-99	-262	10.26	10.26	1	6.7
98	-413	-1965	747	-275	-206	-227	10.26	10.26	1	11
99	508	-765	184	-108	-327	-76	10.26	10.26	1	14
100	310	-894	-321	-84	-405	135	10.26	10.26	1	10

Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
									Massimi/minimi	
1							10.26			
1								10.26		
60										1.6

Muro :5 - Nodi : [104 - 103 - 101 - 102 ]: **Verificato**

Pann.X=10 Pann.Y=10 Spess.= 20 cm Criterio CLS\_Muri Materiale: C25/30

Armatura a maglia doppia

Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
	kg	kg	kg	kg*m	kg*m	kg*m	cmq	cmq		
1	-817	-943	-66	515	262	509	10.26	10.26	1	3.3
2	-3436	-2370	102	1764	180	682	10.26	10.26	1	1.5
3	-4926	-3573	-159	2979	292	488	10.26	10.26	1	1.1
4	-5477	-4273	-242	3693	384	264	12.00	10.26	1	1.0
5	-5620	-4559	-108	4000	433	82	12.00	10.26	1	1.0
6	-5620	-4559	108	4000	433	-82	12.00	10.26	1	1.0
7	-5477	-4273	242	3693	384	-264	12.00	10.26	1	1.0
8	-4926	-3573	159	2979	292	-488	10.26	10.26	1	1.1
9	-3436	-2370	-102	1764	180	-682	10.26	10.26	1	1.5
10	-817	-943	66	515	262	-509	10.26	10.26	1	3.3
11	-1226	-2022	421	160	665	781	10.26	10.26	1	2.4
12	-3219	-2703	638	331	-101	1050	10.26	10.26	1	2.6
13	-4710	-3263	254	638	-188	771	10.26	10.26	1	2.6
14	-5448	-3690	-20	887	-119	416	10.26	10.26	1	2.8
15	-5716	-3909	-41	1008	-61	127	10.26	10.26	1	3.3
16	-5716	-3909	41	1008	-61	-127	10.26	10.26	1	3.3
17	-5448	-3690	20	887	-119	-416	10.26	10.26	1	2.8
18	-4710	-3263	-254	638	-188	-771	10.26	10.26	1	2.6
19	-3219	-2703	-638	331	-101	-1050	10.26	10.26	1	2.6
20	-1226	-2022	-421	160	665	-781	10.26	10.26	1	2.4
21	-1644	-3351	519	2	1187	728	10.26	10.26	1	1.9
22	-3117	-3248	778	-539	-296	1019	10.26	10.26	1	2.3
23	-4500	-3258	417	-897	-613	776	10.26	10.26	1	2.2
24	-5354	-3375	109	-1063	-563	428	10.26	10.26	1	2.5
25	-5723	-3476	6	-1125	-490	132	10.26	10.26	1	3.0
26	-5723	-3476	-6	-1125	-490	-132	10.26	10.26	1	3.0
27	-5354	-3375	-109	-1063	-563	-428	10.26	10.26	1	2.5
28	-4500	-3258	-417	-897	-613	-776	10.26	10.26	1	2.2
29	-3117	-3248	-778	-539	-296	-1019	10.26	10.26	1	2.3
30	-1644	-3351	-519	2	1187	-728	10.26	10.26	1	1.9
31	-2142	-4341	364	-62	1631	495	10.26	10.26	1	1.7
32	-3007	-3789	602	-1030	-414	714	10.26	10.26	1	2.0
33	-4313	-3384	352	-1823	-919	556	10.26	10.26	1	1.5
34	-5255	-3234	123	-2285	-890	312	10.26	10.26	1	1.4
35	-5699	-3218	21	-2487	-803	97	10.26	10.26	1	1.4
36	-5699	-3218	-21	-2487	-803	-97	10.26	10.26	1	1.4
37	-5255	-3234	-123	-2285	-890	-312	10.26	10.26	1	1.4
38	-4313	-3384	-352	-1823	-919	-556	10.26	10.26	1	1.5
39	-3007	-3789	-602	-1030	-414	-714	10.26	10.26	1	2.0
40	-2142	-4341	-364	-62	1631	-495	10.26	10.26	1	1.7
41	-2449	-4838	126	-84	1879	174	10.26	10.26	1	1.8
42	-2952	-4108	223	-1251	-466	254	10.26	10.26	1	2.4
43	-4210	-3482	135	-2257	-1077	200	10.26	10.26	1	1.5
44	-5194	-3186	51	-2872	-1063	114	10.26	10.26	1	1.2
45	-5677	-3100	10	-3150	-969	36	10.26	10.26	1	1.2
46	-5677	-3100	-10	-3150	-969	-36	10.26	10.26	1	1.2
47	-5194	-3186	-51	-2872	-1063	-114	10.26	10.26	1	1.2
48	-4210	-3482	-135	-2257	-1077	-200	10.26	10.26	1	1.5
49	-2952	-4108	-223	-1251	-466	-254	10.26	10.26	1	2.4
50	-2449	-4838	-126	-84	1879	-174	10.26	10.26	1	1.8
51	-2449	-4838	-126	-84	1879	-174	10.26	10.26	1	1.8
52	-2952	-4108	-223	-1251	-466	-254	10.26	10.26	1	2.4
53	-4210	-3482	-135	-2257	-1077	-200	10.26	10.26	1	1.5
54	-5194	-3186	-51	-2872	-1063	-114	10.26	10.26	1	1.2

Pannello	Nx	Ny	Nxy	Mx	My	Mxy	Ax	Ay	C	Cs
55	-5677	-3100	-10	-3150	-969	-36	10.26	10.26	1	1.2
56	-5677	-3100	10	-3150	-969	36	10.26	10.26	1	1.2
57	-5194	-3186	51	-2872	-1063	114	10.26	10.26	1	1.2
58	-4210	-3482	135	-2257	-1077	200	10.26	10.26	1	1.5
59	-2952	-4108	223	-1251	-466	254	10.26	10.26	1	2.4
60	-2449	-4838	126	-84	1879	174	10.26	10.26	1	1.8
61	-2142	-4341	-364	-62	1631	-495	10.26	10.26	1	1.7
62	-3007	-3789	-602	-1030	-414	-714	10.26	10.26	1	2.0
63	-4313	-3384	-352	-1823	-919	-556	10.26	10.26	1	1.5
64	-5255	-3234	-123	-2285	-890	-312	10.26	10.26	1	1.4
65	-5699	-3218	-21	-2487	-803	-97	10.26	10.26	1	1.4
66	-5699	-3218	21	-2487	-803	97	10.26	10.26	1	1.4
67	-5255	-3234	123	-2285	-890	312	10.26	10.26	1	1.4
68	-4313	-3384	352	-1823	-919	556	10.26	10.26	1	1.5
69	-3007	-3789	602	-1030	-414	714	10.26	10.26	1	2.0
70	-2142	-4341	364	-62	1631	495	10.26	10.26	1	1.7
71	-1644	-3351	-519	2	1187	-728	10.26	10.26	1	1.9
72	-3117	-3248	-778	-539	-296	-1019	10.26	10.26	1	2.3
73	-4500	-3258	-417	-897	-613	-776	10.26	10.26	1	2.2
74	-5354	-3375	-109	-1063	-563	-428	10.26	10.26	1	2.5
75	-5723	-3476	-6	-1125	-490	-132	10.26	10.26	1	3.0
76	-5723	-3476	6	-1125	-490	132	10.26	10.26	1	3.0
77	-5354	-3375	109	-1063	-563	428	10.26	10.26	1	2.5
78	-4500	-3258	417	-897	-613	776	10.26	10.26	1	2.2
79	-3117	-3248	778	-539	-296	1019	10.26	10.26	1	2.3
80	-1644	-3351	519	2	1187	728	10.26	10.26	1	1.9
81	-1226	-2022	-421	160	665	-781	10.26	10.26	1	2.4
82	-3219	-2703	-638	331	-101	-1050	10.26	10.26	1	2.6
83	-4710	-3263	-254	638	-188	-771	10.26	10.26	1	2.6
84	-5448	-3690	20	887	-119	-416	10.26	10.26	1	2.8
85	-5716	-3909	41	1008	-61	-127	10.26	10.26	1	3.3
86	-5716	-3909	-41	1008	-61	127	10.26	10.26	1	3.3
87	-5448	-3690	-20	887	-119	416	10.26	10.26	1	2.8
88	-4710	-3263	254	638	-188	771	10.26	10.26	1	2.6
89	-3219	-2703	638	331	-101	1050	10.26	10.26	1	2.6
90	-1226	-2022	421	160	665	781	10.26	10.26	1	2.4
91	-817	-943	66	515	262	-509	10.26	10.26	1	3.3
92	-3436	-2370	-102	1764	180	-682	10.26	10.26	1	1.5
93	-4926	-3573	159	2979	292	-488	10.26	10.26	1	1.1
94	-5477	-4273	242	3693	384	-264	12.00	10.26	1	1.0
95	-5620	-4559	108	4000	433	-82	12.00	10.26	1	1.0
96	-5620	-4559	-108	4000	433	82	12.00	10.26	1	1.0
97	-5477	-4273	-242	3693	384	264	12.00	10.26	1	1.0
98	-4926	-3573	-159	2979	292	488	10.26	10.26	1	1.1
99	-3436	-2370	102	1764	180	682	10.26	10.26	1	1.5
100	-817	-943	-66	515	262	509	10.26	10.26	1	3.3
									Massimi/minimi	
4							12.00			
1								10.26		
95										1.0

# VERIFICHE STATO LIMITE DI ESERCIZIO

## Verifica delle travi (Stati limite esercizio)

Scenario di calcolo : ScenarioNT\_2018 A2\_SLV\_SLD\_STR\_GEO

### Trave di Fond. : 9001 [ 1 , 2 ] Pilastrate [- , -]

Sez. R:  $B_y = 70.0 \text{ cm}$   $B_z = 50.0 \text{ cm}$   $L = 500.0 \text{ cm}$   $L_n = 500.0 \text{ cm}$  Terreno: **Terreno1**

Criterio : CLS\_TraviFondazione\_Rett

Combinazione Rara:  $\sigma_{ca}[\text{kg/cmq}] = 149$   $\sigma_{fa}[\text{kg/cmq}] = 3600$

X	M+	M-	Afsup	Afinf	$\sigma_c+$	$\sigma_f+$	$\sigma_c-$	$\sigma_f-$	Cb+	Cb-	Ver.	CS
cm	kg*m	kg*m	cmq	cmq	kg/cmq	kg/cmq	kg/cmq	kg/cmq				
0.0	1163	--	9.24	9.24	-6	298	--	--	7	7	Si	12
50.0	595	--	9.24	9.24	-3	153	--	--	7	7	Si	24
250.0	128	--	9.24	9.24	-1	33	--	--	7	7	Si	>100
450.0	645	--	9.24	9.24	-3	165	--	--	7	7	Si	22
500.0	1163	--	9.24	9.24	-6	298	--	--	7	7	Si	12

Verifica aperture fessure:  $Wamm\_Freq[\text{mm}] = 0.400$   $Wamm\_Qp[\text{mm}] = 0.300$

X	M	Act	Aft	pAft	$S_{r,max}$	$\sigma_{fmed}$	Wd	Wk	Cb	Ver.	Cs
cm	kg*m	mq	cmq	cm	cm	kg/cmq	mm	mm			
0.0	-1163	0.1	9.24	26.39	27.0	298	0.023	0.023	8(Fr)	Si	17
0.0	-1163	0.1	9.24	26.39	27.0	298	0.023	0.023	9(Qp)	Si	13
50.0	-595	0.1	9.24	26.39	27.0	153	0.012	0.012	9(Qp)	Si	25
50.0	-595	0.1	9.24	26.39	27.0	153	0.012	0.012	8(Fr)	Si	34
250.0	-128	0.1	9.24	26.39	27.0	33	0.003	0.003	9(Qp)	Si	>100
250.0	-128	0.1	9.24	26.39	27.0	33	0.003	0.003	8(Fr)	Si	>100
450.0	-645	0.1	9.24	26.39	27.0	165	0.013	0.013	9(Qp)	Si	24
450.0	-645	0.1	9.24	26.39	27.0	165	0.013	0.013	8(Fr)	Si	31
500.0	-1163	0.1	9.24	26.39	27.0	298	0.023	0.023	9(Qp)	Si	13
500.0	-1163	0.1	9.24	26.39	27.0	298	0.023	0.023	8(Fr)	Si	17

### Trave di Fond. : 9002 [ 3 , 4 ] Pilastrate [- , -]

Sez. R:  $B_y = 70.0 \text{ cm}$   $B_z = 50.0 \text{ cm}$   $L = 500.0 \text{ cm}$   $L_n = 500.0 \text{ cm}$  Terreno: **Terreno1**

Criterio : CLS\_TraviFondazione\_Rett

Combinazione Rara:  $\sigma_{ca}[\text{kg/cmq}] = 149$   $\sigma_{fa}[\text{kg/cmq}] = 3600$

X	M+	M-	Afsup	Afinf	$\sigma_c+$	$\sigma_f+$	$\sigma_c-$	$\sigma_f-$	Cb+	Cb-	Ver.	CS
cm	kg*m	kg*m	cmq	cmq	kg/cmq	kg/cmq	kg/cmq	kg/cmq				
0.0	1163	--	9.24	9.24	-6	298	--	--	7	7	Si	12
50.0	595	--	9.24	9.24	-3	153	--	--	7	7	Si	24
250.0	128	--	9.24	9.24	-1	33	--	--	7	7	Si	>100
450.0	645	--	9.24	9.24	-3	165	--	--	7	7	Si	22
500.0	1163	--	9.24	9.24	-6	298	--	--	7	7	Si	12

Verifica aperture fessure:  $Wamm\_Freq[\text{mm}] = 0.400$   $Wamm\_Qp[\text{mm}] = 0.300$

X	M	Act	Aft	pAft	$S_{r,max}$	$\sigma_{fmed}$	Wd	Wk	Cb	Ver.	Cs
cm	kg*m	mq	cmq	cm	cm	kg/cmq	mm	mm			
0.0	-1163	0.1	9.24	26.39	27.0	298	0.023	0.023	8(Fr)	Si	17
0.0	-1163	0.1	9.24	26.39	27.0	298	0.023	0.023	9(Qp)	Si	13
50.0	-595	0.1	9.24	26.39	27.0	153	0.012	0.012	9(Qp)	Si	25
50.0	-595	0.1	9.24	26.39	27.0	153	0.012	0.012	8(Fr)	Si	34
250.0	-128	0.1	9.24	26.39	27.0	33	0.003	0.003	9(Qp)	Si	>100
250.0	-128	0.1	9.24	26.39	27.0	33	0.003	0.003	8(Fr)	Si	>100
450.0	-645	0.1	9.24	26.39	27.0	165	0.013	0.013	9(Qp)	Si	24
450.0	-645	0.1	9.24	26.39	27.0	165	0.013	0.013	8(Fr)	Si	31
500.0	-1163	0.1	9.24	26.39	27.0	298	0.023	0.023	9(Qp)	Si	13
500.0	-1163	0.1	9.24	26.39	27.0	298	0.023	0.023	8(Fr)	Si	17

**Trave di Fond. : 9003 [ 1 , 3 ] Pilastrate [- , -]**Sez. R:  $B_y=70.0\text{ cm}$   $B_z=50.0\text{ cm}$   $L=900.0\text{ cm}$   $L_n=900.0\text{ cm}$  Terreno: **Terreno1**Criterio : *CLS\_TraviFondazione\_Rett*Combinazione Rara:  $\sigma_{ca}[\text{kg/cmq}]=149$   $\sigma_{fa}[\text{kg/cmq}]=3600$ 

X	M+	M-	Afsup	Afinf	$\sigma_{c+}$	$\sigma_{f+}$	$\sigma_{c-}$	$\sigma_{f-}$	Cb+	Cb-	Ver.	CS
cm	kg*m	kg*m	cmq	cmq	kg/cmq	kg/cmq	kg/cmq	kg/cmq				
0.0	1181	--	9.24	9.24	-6	303	--	--	7	7	Si	12
90.0	543	--	9.24	9.24	-3	139	--	--	7	7	Si	26
450.0	500	--	9.24	9.24	-3	128	--	--	7	7	Si	28
810.0	647	--	9.24	9.24	-3	166	--	--	7	7	Si	22
900.0	1181	--	9.24	9.24	-6	303	--	--	7	7	Si	12

Verifica aperture fessure:  $W_{amm\_Freq}[\text{mm}]=0.400$   $W_{amm\_Qp}[\text{mm}]=0.300$ 

X	M	Act	Aft	pAft	$S_{r,max}$	$\sigma_{fmed}$	Wd	Wk	Cb	Ver.	Cs
cm	kg*m	mq	cmq	cm	cm	kg/cmq	mm	mm			
0.0	-1181	0.1	9.24	26.39	27.0	303	0.023	0.023	8(Fr)	Si	17
0.0	-1181	0.1	9.24	26.39	27.0	303	0.023	0.023	9(Qp)	Si	13
90.0	-543	0.1	9.24	26.39	27.0	139	0.011	0.011	9(Qp)	Si	28
90.0	-543	0.1	9.24	26.39	27.0	139	0.011	0.011	8(Fr)	Si	37
450.0	-500	0.1	9.24	26.39	27.0	128	0.010	0.010	9(Qp)	Si	30
450.0	-500	0.1	9.24	26.39	27.0	128	0.010	0.010	8(Fr)	Si	40
810.0	-647	0.1	9.24	26.39	27.0	166	0.013	0.013	9(Qp)	Si	23
810.0	-647	0.1	9.24	26.39	27.0	166	0.013	0.013	8(Fr)	Si	31
900.0	-1181	0.1	9.24	26.39	27.0	303	0.023	0.023	9(Qp)	Si	13
900.0	-1181	0.1	9.24	26.39	27.0	303	0.023	0.023	8(Fr)	Si	17

**Trave di Fond. : 9004 [ 2 , 4 ] Pilastrate [- , -]**Sez. R:  $B_y=70.0\text{ cm}$   $B_z=50.0\text{ cm}$   $L=900.0\text{ cm}$   $L_n=900.0\text{ cm}$  Terreno: **Terreno1**Criterio : *CLS\_TraviFondazione\_Rett*Combinazione Rara:  $\sigma_{ca}[\text{kg/cmq}]=149$   $\sigma_{fa}[\text{kg/cmq}]=3600$ 

X	M+	M-	Afsup	Afinf	$\sigma_{c+}$	$\sigma_{f+}$	$\sigma_{c-}$	$\sigma_{f-}$	Cb+	Cb-	Ver.	CS
cm	kg*m	kg*m	cmq	cmq	kg/cmq	kg/cmq	kg/cmq	kg/cmq				
0.0	1181	--	9.24	9.24	-6	303	--	--	7	7	Si	12
90.0	543	--	9.24	9.24	-3	139	--	--	7	7	Si	26
450.0	500	--	9.24	9.24	-3	128	--	--	7	7	Si	28
810.0	647	--	9.24	9.24	-3	166	--	--	7	7	Si	22
900.0	1181	--	9.24	9.24	-6	303	--	--	7	7	Si	12

Verifica aperture fessure:  $W_{amm\_Freq}[\text{mm}]=0.400$   $W_{amm\_Qp}[\text{mm}]=0.300$ 

X	M	Act	Aft	pAft	$S_{r,max}$	$\sigma_{fmed}$	Wd	Wk	Cb	Ver.	Cs
cm	kg*m	mq	cmq	cm	cm	kg/cmq	mm	mm			
0.0	-1181	0.1	9.24	26.39	27.0	303	0.023	0.023	8(Fr)	Si	17
0.0	-1181	0.1	9.24	26.39	27.0	303	0.023	0.023	9(Qp)	Si	13
90.0	-543	0.1	9.24	26.39	27.0	139	0.011	0.011	9(Qp)	Si	28
90.0	-543	0.1	9.24	26.39	27.0	139	0.011	0.011	8(Fr)	Si	37
450.0	-500	0.1	9.24	26.39	27.0	128	0.010	0.010	9(Qp)	Si	30
450.0	-500	0.1	9.24	26.39	27.0	128	0.010	0.010	8(Fr)	Si	40
810.0	-647	0.1	9.24	26.39	27.0	166	0.013	0.013	9(Qp)	Si	23
810.0	-647	0.1	9.24	26.39	27.0	166	0.013	0.013	8(Fr)	Si	31
900.0	-1181	0.1	9.24	26.39	27.0	303	0.023	0.023	9(Qp)	Si	13
900.0	-1181	0.1	9.24	26.39	27.0	303	0.023	0.023	8(Fr)	Si	17



## Verifica dei Muri (Stati limite esercizio)

Scenario di calcolo : ScenarioNT\_2018 A2\_SLV\_SLD\_STR\_GEO

Muro :1 - Nodi : [4 - 2 - 102 - 104 ]

Pann.X=10 Pann.Y=10 Spess.= 30 cm Criterio CLS\_Muri Materiale: C25/30

Armatura a maglia doppia, Stampa elementi piu' gravosi

Combinazione Rara:  $\sigma_{ca}$ [kg/cmq]=149  $\sigma_{fa}$ [kg/cmq]=3600

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cmq	kg/cmq				
50	-19845	-22546	-460	-537	-4194	-64	20.11	20.11	-42	1420	7	7	Si	2.5
60	-19845	-22546	460	-537	-4194	64	20.11	20.11	-42	1420	7	7	Si	2.5

Combinazione QP:  $\sigma_{ca}$ [kg/cmq]=112  $\sigma_{fa}$ [kg/cmq]=3600

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cmq	kg/cmq				
50	-19845	-22546	-460	-537	-4194	-64	20.11	20.11	-42	1420	9	9	Si	2.5
60	-19845	-22546	460	-537	-4194	64	20.11	20.11	-42	1420	9	9	Si	2.5

Verifica aperture fessure:Wamm\_Freq[mm]=0.400 Wamm\_Qp[mm]=0.300

P.	Nx	Ny	Nxy	Mx	My	Mxy	$\sigma_{fmed}$	Wd	Wk	Cb	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	kg/cmq	mm	mm			
60	-19845	-22546	460	-537	-4194	64	1420	0.112	0.112	9(Qp)	Si	2.7
60	-19845	-22546	460	-537	-4194	64	1420	0.112	0.112	8(Fr)	Si	3.6

Muro :2 - Nodi : [2 - 1 - 101 - 102 ]

Pann.X=10 Pann.Y=10 Spess.= 30 cm Criterio CLS\_Muri Materiale: C25/30

Armatura a maglia doppia, Stampa elementi piu' gravosi

Combinazione Rara:  $\sigma_{ca}$ [kg/cmq]=149  $\sigma_{fa}$ [kg/cmq]=3600

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cmq	kg/cmq				
60	-8860	-18090	558	-364	-2995	56	20.11	20.11	-30	986	7	7	Si	3.7

Combinazione QP:  $\sigma_{ca}$ [kg/cmq]=112  $\sigma_{fa}$ [kg/cmq]=3600

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cmq	kg/cmq				
60	-8860	-18090	558	-364	-2995	56	20.11	20.11	-30	986	9	9	Si	3.7

Verifica aperture fessure:Wamm\_Freq[mm]=0.400 Wamm\_Qp[mm]=0.300

P.	Nx	Ny	Nxy	Mx	My	Mxy	$\sigma_{fmed}$	Wd	Wk	Cb	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	kg/cmq	mm	mm			
60	-8860	-18090	558	-364	-2995	56	986	0.077	0.077	9(Qp)	Si	3.9
60	-8860	-18090	558	-364	-2995	56	986	0.077	0.077	8(Fr)	Si	5.2

Muro :3 - Nodi : [1 - 3 - 103 - 101 ]

Pann.X=10 Pann.Y=10 Spess.= 30 cm Criterio CLS\_Muri Materiale: C25/30

Armatura a maglia doppia, Stampa elementi piu' gravosi

Combinazione Rara:  $\sigma_{ca}$ [kg/cm<sup>2</sup>]=149  $\sigma_{fa}$ [kg/cm<sup>2</sup>]=3600

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cm <sup>2</sup>	kg/cm <sup>2</sup>				
60	-19845	-22546	460	-537	-4194	64	20.11	20.11	-42	1420	7	7	Si	2.5
50	-19845	-22546	-460	-537	-4194	-64	20.11	20.11	-42	1420	7	7	Si	2.5

Combinazione QP:  $\sigma_{ca}$ [kg/cm<sup>2</sup>]=112  $\sigma_{fa}$ [kg/cm<sup>2</sup>]=3600

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cm <sup>2</sup>	kg/cm <sup>2</sup>				
60	-19845	-22546	460	-537	-4194	64	20.11	20.11	-42	1420	9	9	Si	2.5
50	-19845	-22546	-460	-537	-4194	-64	20.11	20.11	-42	1420	9	9	Si	2.5

Verifica aperture fessure:Wamm\_Freq[mm]=0.400 Wamm\_Qp[mm]=0.300

P.	Nx	Ny	Nxy	Mx	My	Mxy	$\sigma_{fmed}$	Wd	Wk	Cb	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	kg/cm <sup>2</sup>	mm	mm			
50	-19845	-22546	-460	-537	-4194	-64	1420	0.112	0.112	9(Qp)	Si	2.7
50	-19845	-22546	-460	-537	-4194	-64	1420	0.112	0.112	8(Fr)	Si	3.6

Muro :4 - Nodi : [3 - 4 - 104 - 103 ]

Pann.X=10 Pann.Y=10 Spess.= 30 cm Criterio CLS\_Muri Materiale: C25/30

Armatura a maglia doppia, Stampa elementi piu' gravosi

Combinazione Rara:  $\sigma_{ca}$ [kg/cm<sup>2</sup>]=149  $\sigma_{fa}$ [kg/cm<sup>2</sup>]=3600

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cm <sup>2</sup>	kg/cm <sup>2</sup>				
50	-8860	-18090	-558	-364	-2995	-56	20.11	20.11	-30	986	7	7	Si	3.7
60	-8860	-18090	558	-364	-2995	56	20.11	20.11	-30	986	7	7	Si	3.7

Combinazione QP:  $\sigma_{ca}$ [kg/cm<sup>2</sup>]=112  $\sigma_{fa}$ [kg/cm<sup>2</sup>]=3600

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cm <sup>2</sup>	kg/cm <sup>2</sup>				
50	-8860	-18090	-558	-364	-2995	-56	20.11	20.11	-30	986	9	9	Si	3.7
60	-8860	-18090	558	-364	-2995	56	20.11	20.11	-30	986	9	9	Si	3.7

Verifica aperture fessure:Wamm\_Freq[mm]=0.400 Wamm\_Qp[mm]=0.300

P.	Nx	Ny	Nxy	Mx	My	Mxy	$\sigma_{fmed}$	Wd	Wk	Cb	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	kg/cm <sup>2</sup>	mm	mm			
60	-8860	-18090	558	-364	-2995	56	986	0.077	0.077	9(Qp)	Si	3.9
60	-8860	-18090	558	-364	-2995	56	986	0.077	0.077	8(Fr)	Si	5.2

Muro :5 - Nodi : [104 - 103 - 101 - 102 ]

Pann.X=10 Pann.Y=10 Spess.= 20 cm Criterio CLS\_Platee Materiale: C25/30

Armatura a maglia doppia, Stampa elementi piu' gravosi

Combinazione Rara:  $\sigma_{ca}[\text{kg/cmq}]=149$   $\sigma_{fa}[\text{kg/cmq}]=3600$

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cmq	kg/cmq				
95	-21617	-17534	416	3077	333	-63	20.11	20.11	-68	1903	7	7	Si	1.9

Combinazione QP:  $\sigma_{ca}[\text{kg/cmq}]=112$   $\sigma_{fa}[\text{kg/cmq}]=3600$

P.	Nx	Ny	Nxy	Mx	My	Mxy	Afx	Afy	$\sigma_{cmax}$	$\sigma_{fmax}$	Cbc	Cbf	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	cmq/m	cmq/m	kg/cmq	kg/cmq				
95	-21617	-17534	416	3077	333	-63	20.11	20.11	-68	1903	9	9	Si	1.7

Verifica aperture fessure:  $W_{amm\_Freq}[\text{mm}]=0.300$   $W_{amm\_Qp}[\text{mm}]=0.200$

P.	Nx	Ny	Nxy	Mx	My	Mxy	$\sigma_{fmed}$	Wd	Wk	Cb	Ver	Cs
	kg/mq	kg/mq	kg/mq	kg	kg	kg	kg/cmq	mm	mm			
95	-21617	-17534	416	3077	333	-63	1903	0.122	0.122	9(Qp)	Si	1.6
95	-21617	-17534	416	3077	333	-63	1903	0.122	0.122	8(Fr)	Si	2.5