

**ING. MICHELE PERES**

Tel. e fax 045/7550238- Via Monte Baldo 11

37019 Peschiera del Garda ( VR )

Tel. 347/4566219- Via Montanara 18

25015 Desenzano del Garda ( BS )

e-mail : Studioperes@libero.it

Pec : Michele.peres@ingpec.eu

P.IVA : 02098820984

Codice Fiscale PRS MHL 72L26 B709V

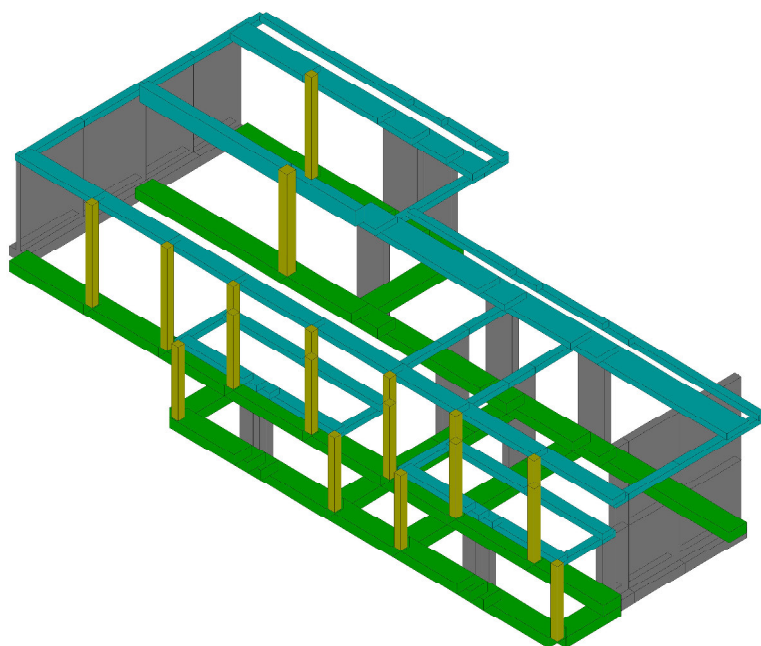
Ordine degli Ingegneri di Brescia n° 3129

*Peschiera del Garda, li 05/11/2018*

## **RELAZIONE DI CALCOLO e FASCICOLO DEI CALCOLI DELLE STRUTTURE PORTANTI**

**RICHIESTA DI AUTORIZZAZIONE SISMICA PER LA COSTRUZIONE DI NUOVO CENTRO  
SPORTIVO IN DESENZANO DEL GARDA (BS) – FRAZIONE S.MARTINO DELLA BATTAGLIA -  
VIA ZENERONI**

### **STRUTTURA 2 – LATO EST**



# En.Ex.Sys. WinStrand

## Structural Analysis & Design

Ditta produttrice:

**En.Ex.Sys.** s.r.l. - Via Tizzano 46/2 - Casalecchio di Reno (Bologna)

Sigla:

WinStrand

Piattaforma software:

Microsoft Windows XP Home, Microsoft Windows XP Home Professional

Documentazione in uso:

Manuale teorico - Manuale d'uso

Campo di applicazione:

Analisi statica e dinamica di strutture in campo elastico lineare.

Elementi finiti implementati

- Truss.
- Beam (Modellazione di Travi e Pilastri).
- Travi su suolo elastico alla Winckler.
- Plinti su suolo elastico alla Winckler.
- Elementi Shear Wall per la modellazione di pareti di taglio.
- Elementi shell (lastra/piastra) equivalenti.
- Elementi Isoparametrici a 8 Nodi Shell (lastra/piastra).

Schemi di Carico

- Carichi nodali concentrati.
- Carichi applicati direttamente agli elementi.
- Carichi Superficiali.

Tipo di Risoluzione

- Analisi statica e/o dinamica in campo lineare con il metodo dell'equilibrio.
- Fattorizzazione LDL<sup>T</sup>.
- Analisi Statica:
  - - modellazione generale 6 gradi di libertà per nodo.
    - ipotesi di solai infinitamente rigidi nel proprio piano (3 gradi di libertà per nodo + 3 per impalcato).
- Analisi dinamica. (Nel caso di analisi modale gli autovettori ed autovalori possono essere calcolati mediante *subspace iteration* oppure tramite il *metodo dei vettori di Ritz*):
  - - Via statica equivalente.
    - Modale con il metodo dello spettro di risposta.

Normativa di riferimento

La normativa italiana cui viene fatto riferimento nelle fasi di calcolo e progettazione è la seguente:

- Circolare del 2 Febbraio 2009, n. 617 "Istruzioni per l'applicazione delle "Norme tecniche per le costruzioni" di cui al D.M. 14 gennaio 2008"
- D.M. del 14 Gennaio 2008 "Approvazione delle nuove norme tecniche per le costruzioni"
- Ordinanza n. 3274 del 20 Marzo 2003. "Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica"
- Ordinanza n. 3316. "Modifiche ed integrazioni all'ordinanza del Presidente del Consiglio dei Ministri n. 3274 del 20 Marzo 2003"
- D.M. del 16 Gennaio 1996. "Norme tecniche relative ai «Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi»".
- D.M. del 16 Gennaio 1996. "Norme tecniche per le costruzioni in zone sismiche"
- D.M. del 9 Gennaio 1996. "Norme Tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche".
- D.M. del 14 Febbraio 1992. "Norme Tecniche per l'esecuzione delle opere in C.A. normale e precompresso e per le strutture metalliche".
- D.M. del 3 Ottobre 1978. "Criteri generali per la verifica della sicurezza delle costruzioni e dei carichi e sovraccarichi".
- D.M. del 3 Marzo 1975. "Disposizioni concernenti l'applicazione delle norme tecniche per le costruzioni in zone sismiche".
- D.M. del 3 Marzo 1975. "Approvazione delle norme tecniche per le costruzioni in zone sismiche".
- Legge n. 64 del 2 Febbraio 1974. "Provvedimenti per le costruzioni con particolari prescrizioni per le zone sismiche".
- Legge n. 1086 del 5 Novembre 1971. "Norme per la disciplina delle opere di conglomerato cementizio armato, normale e precompresso, ed a struttura metallica".
- Istruzioni per la valutazione delle: Azioni sulle Costruzioni. (C.N.R. 10012/85)

## Condizioni e combinazioni di carico

**Convenzioni adottate**

Nel seguito vengono riportate il numero di condizioni di carico statiche e dinamiche che sollecitano la struttura. Si noti che:

- Per quanto riguarda le condizioni di carico dinamiche, il programma assimila ogni direzione di ingresso del sisma, definita dal progettista, ad una condizione di carico. Pertanto qualora agiscano sulla struttura  $n$  condizioni di carico statiche e il progettista abbia supposto che la struttura venga sollecitata da un sisma entrante in  $m$  direzioni, la struttura stessa viene considerata dal programma come soggetta ad  $n + m$  condizioni di carico.

- Le combinazioni di carico, definite dal progettista, combinano fra loro le  $n + m$  condizioni di carico ognuna partecipante alla combinazione  $i$ -esima secondo i fattori di partecipazione nel seguito riportati. N.B.: se la condizione  $j$ -esima ha fattore di partecipazione unitario, allora partecipa per intero alla combinazione  $i$ -esima.
- Le prime  $n$  condizioni sono sempre statiche mentre sono di origine dinamica le (eventuali) condizioni da  $n+1$  a  $n+m$ .

#### Condizioni di carico definite:

##### Condizione

1	G1 Peso proprio
2	G2 Permanenti portati
3	Q Variabili
4	Sisma 0+SLU
5	Sisma 0-SLU
6	Sisma 90+SLU
7	Sisma 90-SLU
8	Sisma 180+SLU
9	Sisma 180-SLU
10	Sisma 270+SLU
11	Sisma 270-SLU
12	Sisma 0+SLD
13	Sisma 0-SLD
14	Sisma 90+SLD
15	Sisma 90-SLD
16	Sisma 180+SLD
17	Sisma 180-SLD
18	Sisma 270+SLD
19	Sisma 270-SLD

#### Combinazioni agli Stati Limite Ultimi

##### Combinazione di carico numero

1				SLU Statica
	Comb.\Cond	1	2	3
1		1.3	1.3	1.5

#### Combinazioni agli Stati Limite di Salvaguardia della Vita

##### Combinazione di carico numero

2												Sisma 0+ / 90+
3												Sisma 0+ / 270+
4												Sisma 0- / 90-
5												Sisma 0- / 270-
6												Sisma 90+ / 0+
7												Sisma 90+ / 180+
8												Sisma 90- / 0-
9												Sisma 90- / 180-
10												Sisma 180+ / 90+
11												Sisma 180+ / 270+
12												Sisma 180- / 90-
13												Sisma 180- / 270-
14												Sisma 270+ / 0+
15												Sisma 270+ / 180+
16												Sisma 270- / 0-
17												Sisma 270- / 180-
Comb.\Cond	1	2	3	4	5	6	7	8	9	10	11	
2		1	1	0.3	1		0.3					
3		1	1	0.3	1						0.3	
4		1	1	0.3		1		0.3				
5		1	1	0.3		1						0.3
6		1	1	0.3	0.3		1					
7		1	1	0.3			1		0.3			
8		1	1	0.3		0.3		1				
9		1	1	0.3			1			0.3		
10		1	1	0.3			0.3		1			
11		1	1	0.3				1			0.3	
12		1	1	0.3				0.3		1		
13		1	1	0.3						1		0.3
14		1	1	0.3	0.3						1	
15		1	1	0.3					0.3		1	
16		1	1	0.3		0.3						1
17		1	1	0.3						0.3		1



segno riposta = sign(  $\Sigma S_i$  )

$U_{\text{nodo,solaio}} = CQC( U_{i,\text{master}} + \Theta_{zi,\text{master}} \times d )$

Masse, Coordinate baricentriche, Eccentricità

Solaio	Massa [UTM]	Variazione %	Massa %	Jp [UTM m <sup>2</sup> ]	Is [m]	Xg [m]	Yg [m]	Zg [m]	Dx [m]	Dy [m]
1	1777	0.0		9741	2.341	26.350	-0.694	2.900	-0.004	0.521
2	2670	50.2		29638	3.332	37.636	0.662	2.900	2.361	2.332
3	21448	703.4		1654948	8.784	24.977	5.306	4.000	14.486	-1.498

**Percentuale della massa di piano utilizzata per la valutazione delle azioni dovute ad eccentricità aggiuntive del centro di massa 100.0%**

Sub-Matrici di rigidezza 3x3

Solaio	U <sub>x</sub>	U <sub>y</sub>	R <sub>z</sub>	r <sub>1</sub> [m]	r <sub>2</sub> [m]	r <sub>min</sub> /Is	e / 0.3 r	ΔK <sub>x</sub> %	ΔK <sub>y</sub> %	ΔK <sub>θz</sub> %
1	1.3783466882e+07	-2.0706156905e+04	-2.0880615539e+04							
	-2.0706156905e+04	8.5209898734e+06	-7.1750580446e+06	3.529	2.775	1.185	0.625			
	-2.0880615539e+04	-7.1750580446e+06	1.0611513609e+08							
	1.0943699116e+08	-2.5432477600e+05	6.9107753773e+09					693.97		
2	-2.5432477600e+05	2.9264938589e+09	-2.5579918957e+08	12.845	2.484	1.068	3.226		34244.53	
	6.9107753773e+09	-2.5579918957e+08	1.8056229231e+10							16915.70
	7.9719391893e+07	6.0786585556e+04	2.2826580582e+10					-27.15		
3	6.0786585556e+04	1.5757695028e+09	1.2032710884e+08	66.437	14.943	1.701	3.232		-46.16	
	2.2826580582e+10	1.2032710884e+08	3.5187285910e+11							1848.76

Spettro in accordo con TU 2018

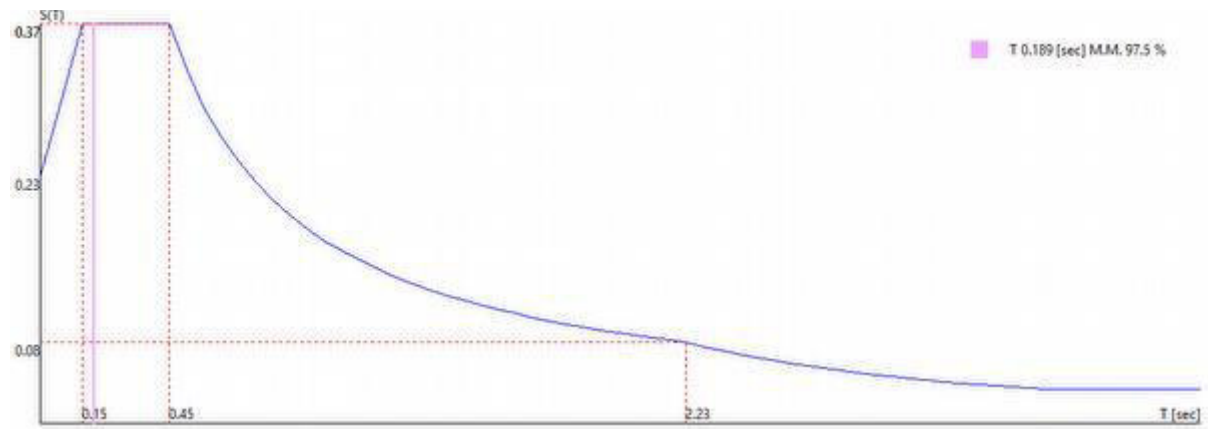
- Via Henry Dunant, 39, 25015 San Martino della Battaglia BS, Italia Longitudine 10.6012 Latitudine 45.4363
- Tipo di Terreno C
- Coefficiente di amplificazione topografica (S<sub>T</sub>) 1.0000
- Vita nominale della costruzione (V<sub>N</sub>) 50.0 anni
- Classe d'uso II coefficiente C<sub>U</sub> 1.0
- Classe di duttilità impostata Non Dissipativa
- Fattore di duttilità α<sub>w</sub>/α<sub>1</sub> per sisma orizzontale 1.00
- Fattore riduttivo regolarità in altezza K<sub>R</sub> 1.00
- Fattore riduttivo per la presenza di setti K<sub>W</sub> 1.00

Stato Limite	C	q <sub>w</sub> = C α <sub>w</sub> /α <sub>1</sub>	q <sub>H</sub>	q <sub>V</sub>
SLV	1.50		1.50	1.50
SLD	1.50		1.50	1.50
SLC	1.50		1.50	1.50
SLO	1.00		1.00	1.50

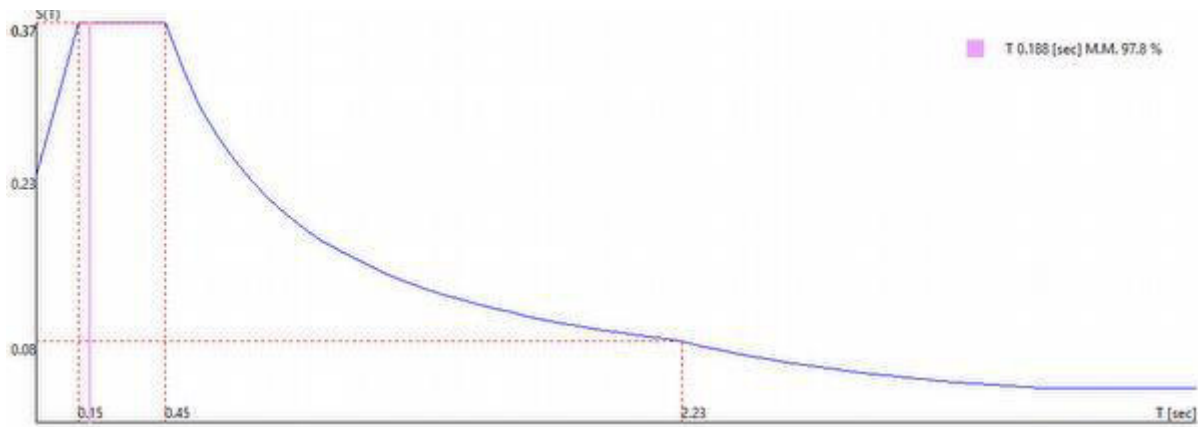
- Smorzamento Viscoso ( 0.05 = 5% ) 0.05

TU 2018 SLV H

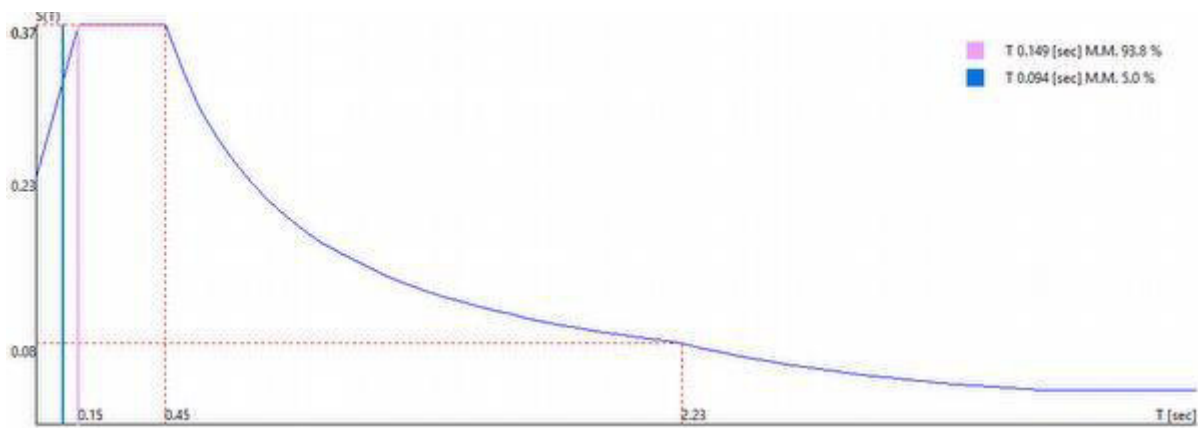
- Probabilità di superamento (P<sub>VR</sub>) 10.0 e periodo di ritorno (T<sub>R</sub>) 475 (anni)
- S<sub>s</sub> 1.471
- T<sub>B</sub> 0.149 [sec]
- T<sub>C</sub> 0.447 [sec]
- T<sub>D</sub> 2.228 [sec]
- a<sub>g</sub>/g 0.1571
- F<sub>o</sub> 2.4313
- T<sub>C</sub><sup>\*</sup> 0.2800



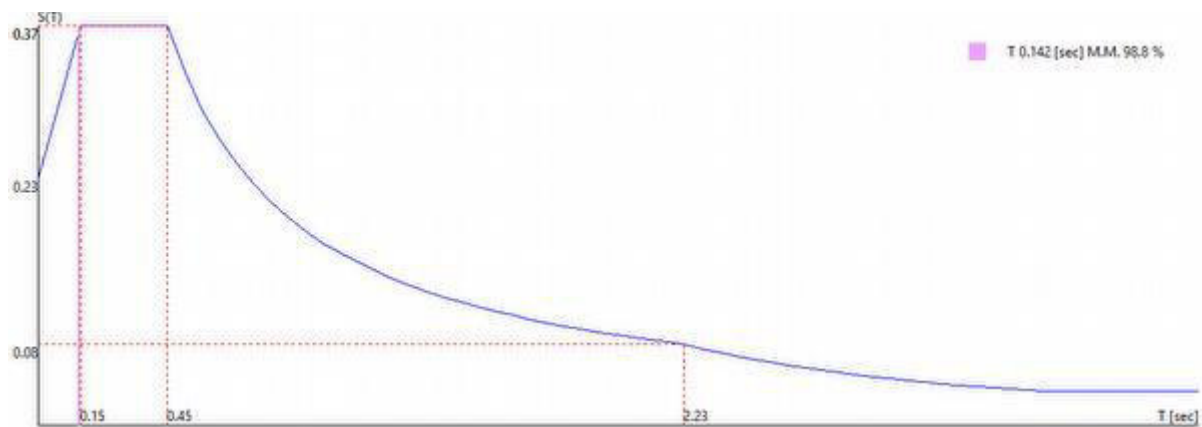
$0.00 [^\circ] + \text{SLV}$



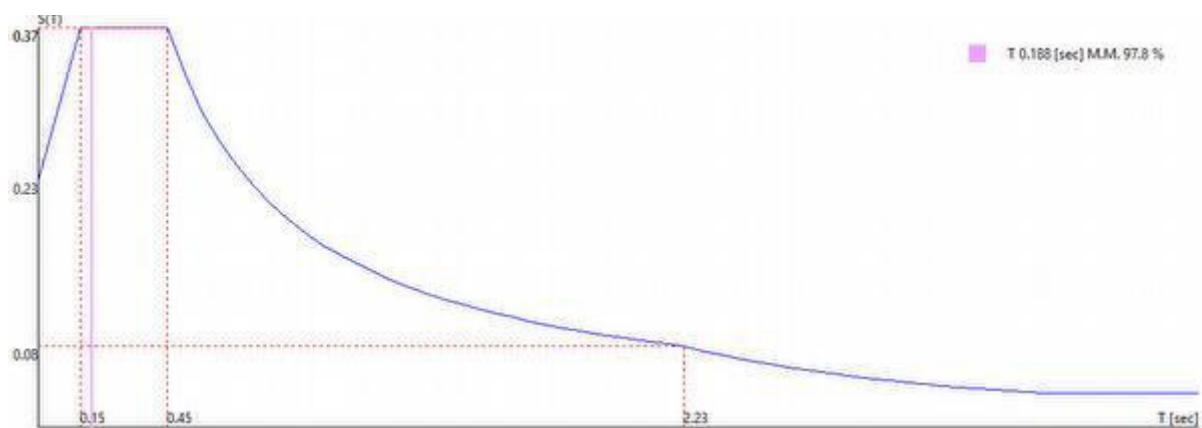
$0.00 [^\circ] - \text{SLV}$



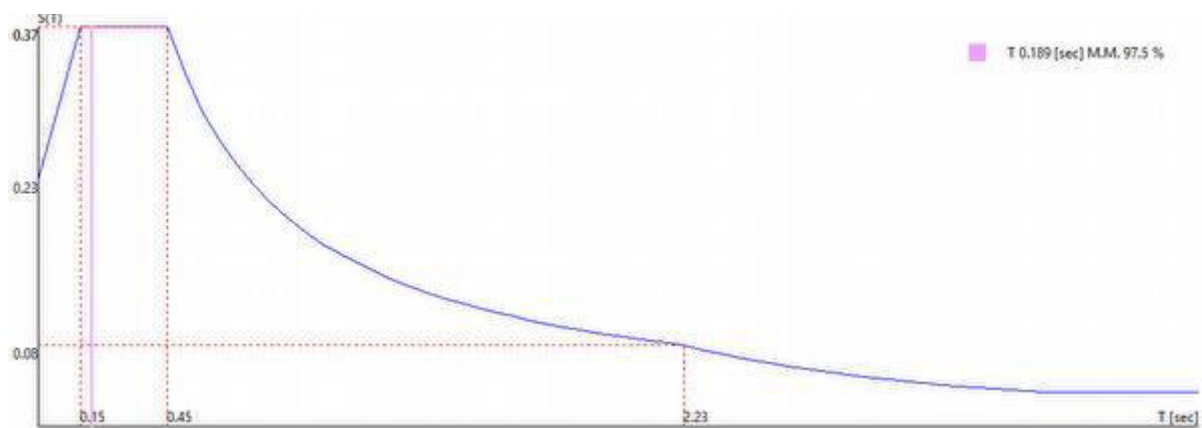
$90.00 [^\circ] + \text{SLV}$



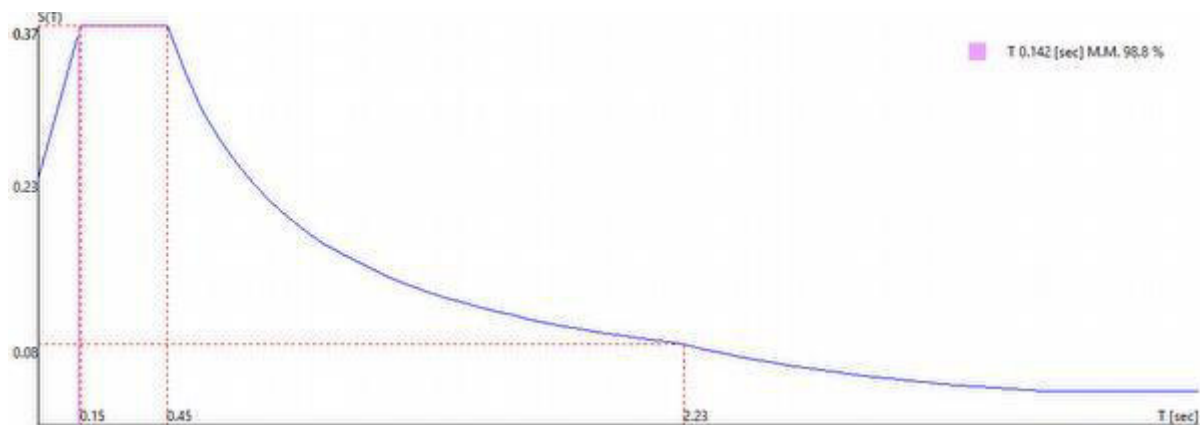
90.00 [°] - SLV



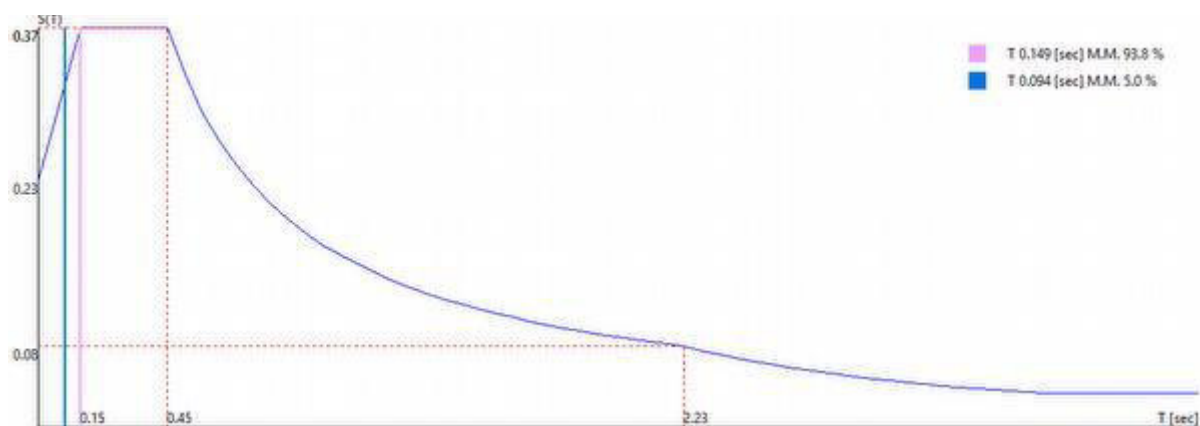
180.00 [°] + SLV



180.00 [°] - SLV



270.00 [°] + SLV



270.00 [°] - SLV

Sintesi dei risultati SLV per direzione d'ingresso del sisma.

Direzione d'ingresso	Modo Principale	Periodo [sec]	% Massa Modale Modo Principale	% Massa Modale Totale
0.00 [°] + SLV	1	0.189	97.5	97.8
0.00 [°] - SLV	4	0.188	97.8	98.0
90.00 [°] + SLV	7	0.149	93.8	99.1
90.00 [°] - SLV	10	0.142	98.8	99.2
180.00 [°] + SLV	13	0.188	97.8	98.0
180.00 [°] - SLV	16	0.189	97.5	97.8
270.00 [°] + SLV	19	0.142	98.8	99.2
270.00 [°] - SLV	22	0.149	93.8	99.1

Spettro in accordo con TU 2018

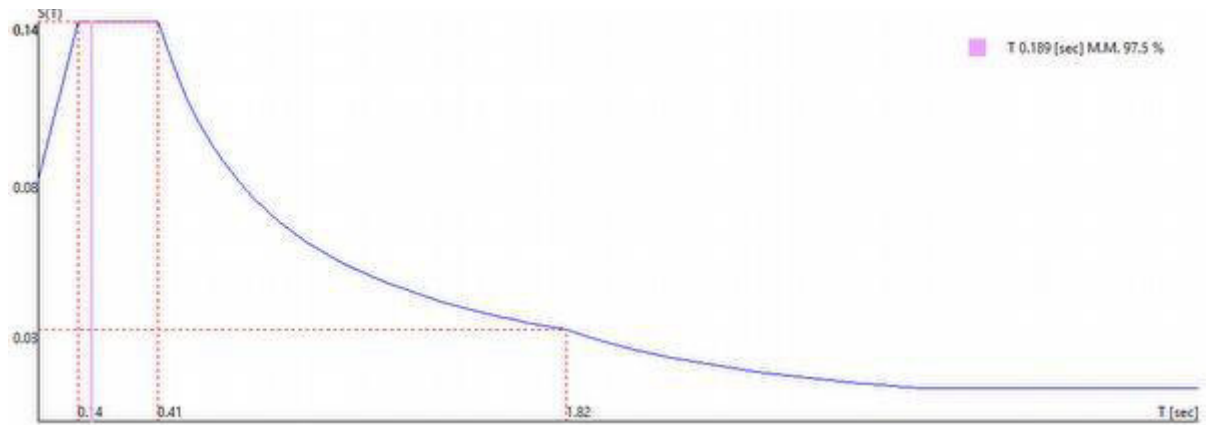
- Via Henry Dunant, 39, 25015 San Martino della Battaglia BS, Italia Longitudine 10.6012 Latitudine 45.4363
- Tipo di Terreno C
- Coefficiente di amplificazione topografica ( $S_T$ ) 1.0000
- Vita nominale della costruzione ( $V_N$ ) 50.0 anni
- Classe d'uso II coefficiente  $C_U$  1.0
- Classe di duttilità impostata Non Dissipativa
- Fattore di duttilità  $\alpha_w/\alpha_1$  per sisma orizzontale 1.00
- Fattore riduttivo regolarità in altezza  $K_R$  1.00
- Fattore riduttivo per la presenza di setti  $K_W$  1.00

Stato Limite	C	$q_H$	$q_V$
SLV	1.50	1.50	1.50
SLD	1.50	1.50	1.50
SLC	1.50	1.50	1.50
SLO	1.00	1.00	1.50

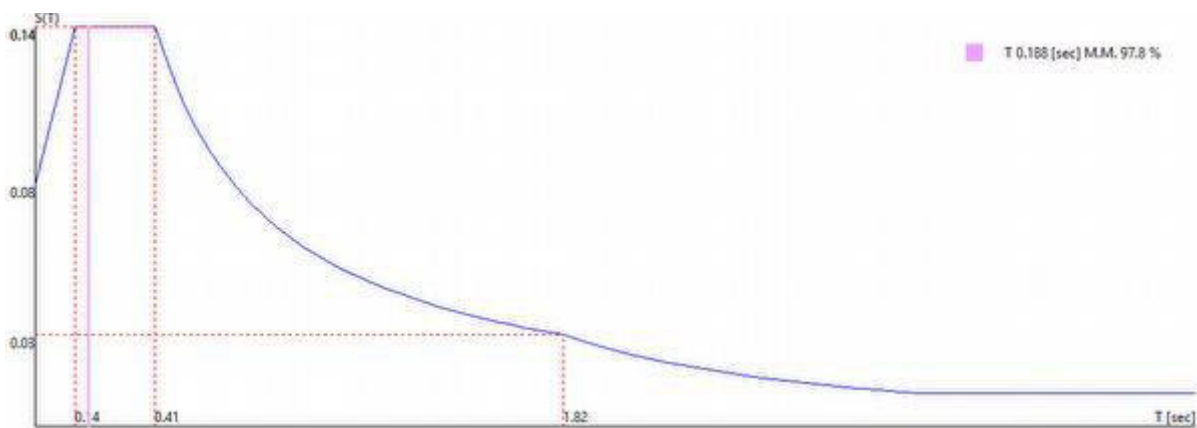
- Smorzamento Viscoso ( 0.05 = 5% ) 0.05



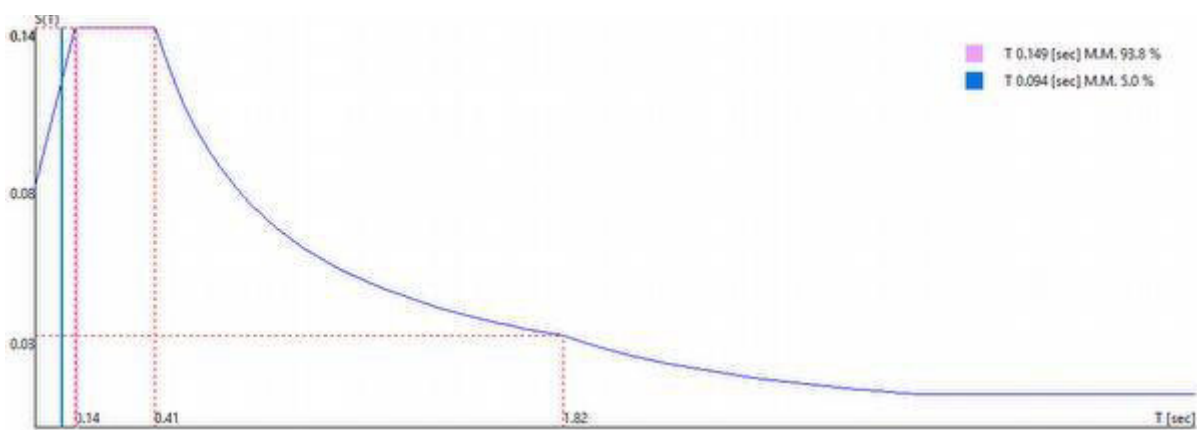
- Probabilità di superamento ( $P_{VR}$ ) 63.0 e periodo di ritorno ( $T_R$ ) 50 (anni)
- $S_s$  1.500
- $T_B$  0.138 [sec]
- $T_C$  0.415 [sec]
- $T_D$  1.820 [sec]
- $a_g/g$  0.0551
- $F_o$  2.4836
- $T_C^*$  0.2500



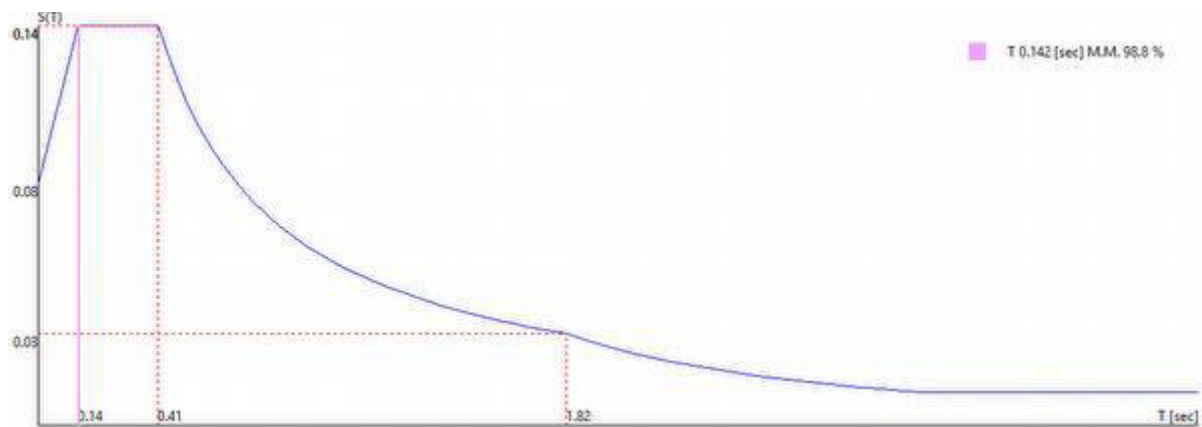
0.00 [°] + SLD



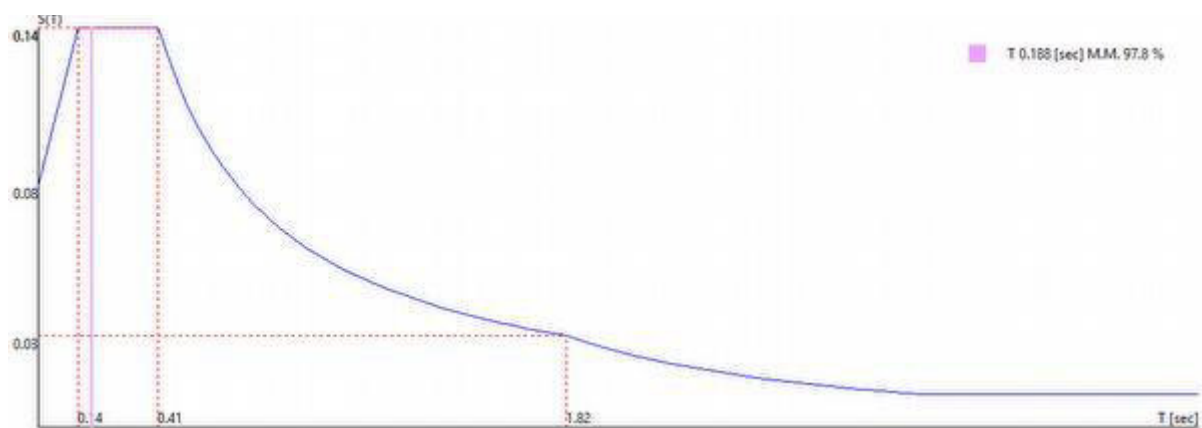
0.00 [°] - SLD



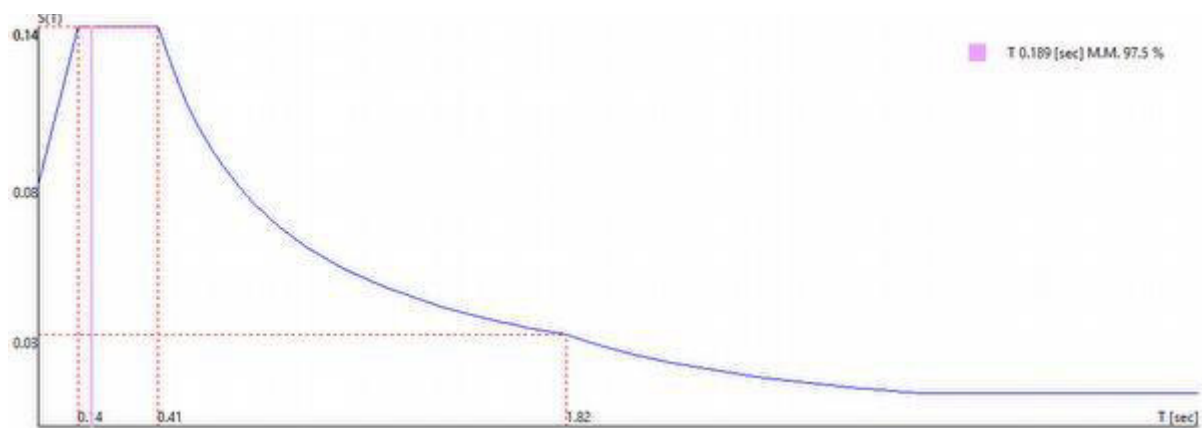
90.00 [°] + SLD



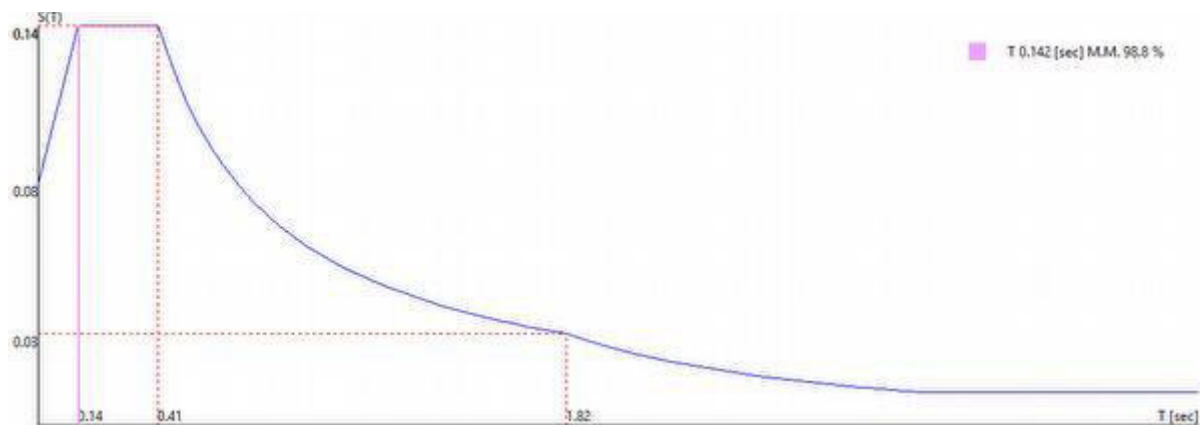
90.00 [°] - SLD



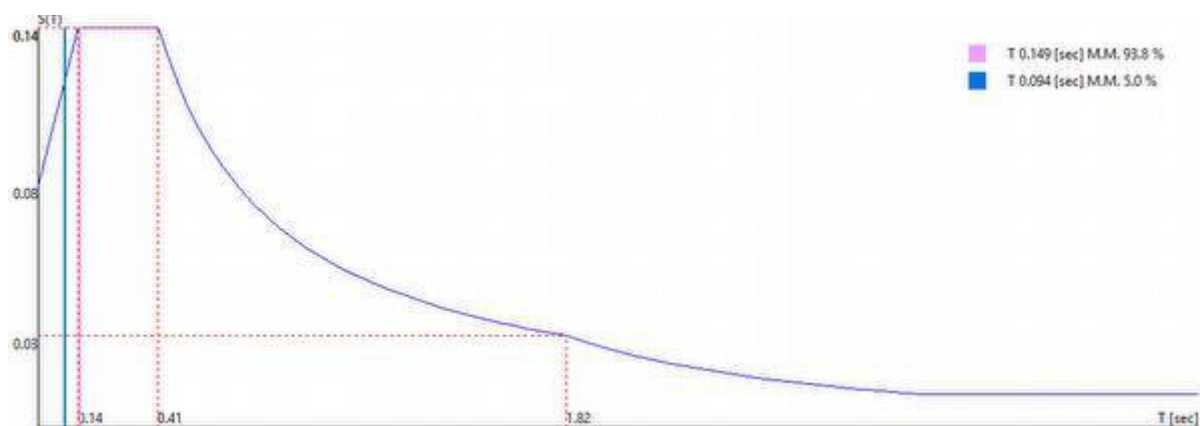
180.00 [°] + SLD



180.00 [°] - SLD



270.00 [°] + SLD



270.00 [°] - SLD

Sintesi dei risultati SLD per direzione d'ingresso del sisma.

Direzione d'ingresso	Modo Principale	Periodo [sec]	% Massa Modale Modo Principale	% Massa Modale Totale
0.00 [°] + SLD	25	0.189	97.5	97.8
0.00 [°] - SLD	28	0.188	97.8	98.0
90.00 [°] + SLD	31	0.149	93.8	99.1
90.00 [°] - SLD	34	0.142	98.8	99.2
180.00 [°] + SLD	37	0.188	97.8	98.0
180.00 [°] - SLD	40	0.189	97.5	97.8
270.00 [°] + SLD	43	0.142	98.8	99.2
270.00 [°] - SLD	46	0.149	93.8	99.1

## Sollecitazioni nei pilastri

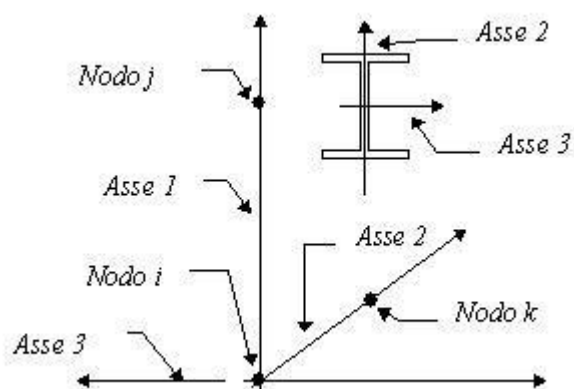
Tabella delle combinazioni di carico presentate come involuipi

Commento	Sigla Combinazione	Combinazioni utilizzate
SLU Statiche	SLU Statiche +-	1
SLE Rare	SLE Rare +-	18
SLE Frequenti	SLE Frequenti +-	19
SLE Quasi Permanenti	SLE Quasi Permanenti +-	20

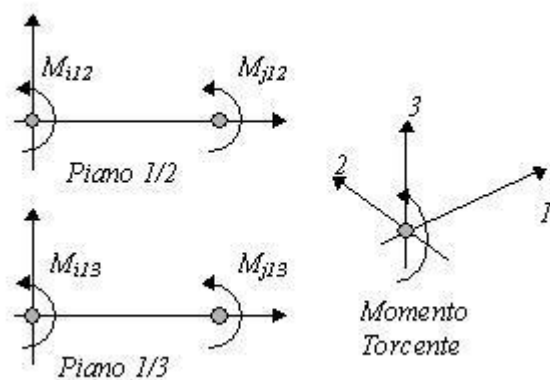
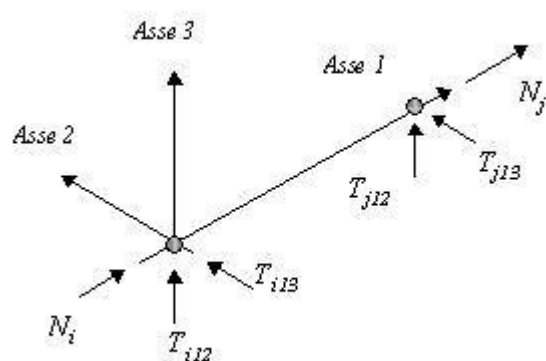
Convenzioni adottate

Le sollecitazioni nei pilastri sono da intendersi nel sistema di riferimento locale dell'elemento e si riferiscono all'asta.

L'orientamento del pilastro nello spazio è definito a mezzo del nodo K. La terna di riferimento locale dell'asta è così disposta:



Per quanto concerne i segni positivi assunti per le varie componenti di sollecitazione si assumono come positivi i versi e le sollecitazioni così diretti:



Per ogni pilastro vengono riportate, nelle varie combinazioni di carico, le componenti di sollecitazione alle estremità dell'asta.

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLU Statiche -	101	1956	-2	-2	-7	9	-2
	1	-2804	2	2	7	-2	-2
SLU Statiche +	101	1956	-2	-2	-7	9	-2
	1	-2804	2	2	7	-2	-2
SLE Rare -	101	1369	-1	-2	-6	7	-2
	1	-2021	1	2	6	-1	-2
SLE Rare +	101	1369	-1	-2	-6	7	-2
	1	-2021	1	2	6	-1	-2
SLE Frequenti -	101	1309	-1	-2	-7	7	-1
	1	-1961	1	2	7	-1	-1
SLE Frequenti +	101	1309	-1	-2	-7	7	-1
	1	-1961	1	2	7	-1	-1

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLE Quasi Permanenti -	101	1249	-1	-2	-7	7	-1
	1	-1901	1	2	7	-1	-1
SLE Quasi Permanenti +	101	1249	-1	-2	-7	7	-1
	1	-1901	1	2	7	-1	-1
SLU Statiche -	105	2097	-3	5	-7	-13	-5
	5	-2945	3	-5	7	-2	-3
SLU Statiche +	105	2097	-3	5	-7	-13	-5
	5	-2945	3	-5	7	-2	-3
SLE Rare -	105	1444	-2	3	-6	-8	-4
	5	-2097	2	-3	6	-1	-2
SLE Rare +	105	1444	-2	3	-6	-8	-4
	5	-2097	2	-3	6	-1	-2
SLE Frequenti -	105	1370	-2	3	-7	-8	-3
	5	-2023	2	-3	7	-0	-2
SLE Frequenti +	105	1370	-2	3	-7	-8	-3
	5	-2023	2	-3	7	-0	-2
SLE Quasi Permanenti -	105	1296	-2	2	-7	-7	-3
	5	-1948	2	-2	7	0	-1
SLE Quasi Permanenti +	105	1296	-2	2	-7	-7	-3
	5	-1948	2	-2	7	0	-1
SLU Statiche -	10	19496	23	-50	-7	2	2
	110	-18648	-23	50	7	144	64
SLU Statiche +	10	19496	23	-50	-7	2	2
	110	-18648	-23	50	7	144	64
SLE Rare -	10	13260	9	-37	-6	2	1
	110	-12608	-9	37	6	104	26
SLE Rare +	10	13260	9	-37	-6	2	1
	110	-12608	-9	37	6	104	26
SLE Frequenti -	10	12495	6	-36	-7	2	1
	110	-11842	-6	36	7	101	16
SLE Frequenti +	10	12495	6	-36	-7	2	1
	110	-11842	-6	36	7	101	16
SLE Quasi Permanenti -	10	11729	2	-35	-7	2	1
	110	-11077	-2	35	7	98	6
SLE Quasi Permanenti +	10	11729	2	-35	-7	2	1
	110	-11077	-2	35	7	98	6
SLU Statiche -	110	13336	-48	76	-10	-88	-52
	210	-13014	48	-76	10	4	-1
SLU Statiche +	110	13336	-48	76	-10	-88	-52
	210	-13014	48	-76	10	4	-1
SLE Rare -	110	8864	-17	-7	-2	3	-18
	210	-8616	17	7	2	4	-0
SLE Rare +	110	8864	-17	-7	-2	3	-18
	210	-8616	17	7	2	4	-0
SLE Frequenti -	110	8250	-8	-35	1	34	-8
	210	-8002	8	35	-1	5	0
SLE Frequenti +	110	8250	-8	-35	1	34	-8
	210	-8002	8	35	-1	5	0
SLE Quasi Permanenti -	110	7635	1	-64	3	65	1
	210	-7388	-1	64	-3	5	0
SLE Quasi Permanenti +	110	7635	1	-64	3	65	1
	210	-7388	-1	64	-3	5	0
SLU Statiche -	11	15779	57	137	-7	-4	6
	111	-14931	-57	-137	7	-393	161
SLU Statiche +	11	15779	57	137	-7	-4	6
	111	-14931	-57	-137	7	-393	161
SLE Rare -	11	10708	27	93	-6	-2	4
	111	-10055	-27	-93	6	-267	74
SLE Rare +	11	10708	27	93	-6	-2	4
	111	-10055	-27	-93	6	-267	74
SLE Frequenti -	11	10077	19	87	-7	-2	3
	111	-9425	-19	-87	7	-252	52
SLE Frequenti +	11	10077	19	87	-7	-2	3

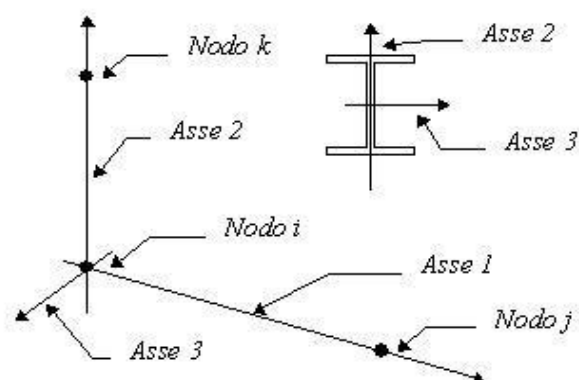
Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
	111	-9425	-19	-87	7	-252	52
SLE Quasi Permanenti -	11	9447	11	82	-7	-1	3
	111	-8795	-11	-82	7	-236	30
SLE Quasi Permanenti +	11	9447	11	82	-7	-1	3
	111	-8795	-11	-82	7	-236	30
SLU Statiche -	111	12275	145	1358	-10	-1455	160
	211	-11953	-145	-1358	10	-39	-1
SLU Statiche +	111	12275	145	1358	-10	-1455	160
	211	-11953	-145	-1358	10	-39	-1
SLE Rare -	111	8242	141	878	-2	-943	155
	211	-7994	-141	-878	2	-23	0
SLE Rare +	111	8242	141	878	-2	-943	155
	211	-7994	-141	-878	2	-23	0
SLE Frequenti -	111	7712	154	804	1	-865	169
	211	-7465	-154	-804	-1	-20	1
SLE Frequenti +	111	7712	154	804	1	-865	169
	211	-7465	-154	-804	-1	-20	1
SLE Quasi Permanenti -	111	7183	168	731	3	-787	183
	211	-6936	-168	-731	-3	-17	2
SLE Quasi Permanenti +	111	7183	168	731	3	-787	183
	211	-6936	-168	-731	-3	-17	2
SLU Statiche -	19	32856	-0	8	-25	4	-0
	219	-30776	0	-8	25	-35	-0
SLU Statiche +	19	32856	-0	8	-25	4	-0
	219	-30776	0	-8	25	-35	-0
SLE Rare -	19	22263	-0	4	-16	5	-0
	219	-20663	0	-4	16	-22	-0
SLE Rare +	19	22263	-0	4	-16	5	-0
	219	-20663	0	-4	16	-22	-0
SLE Frequenti -	19	20936	-0	4	-15	5	-0
	219	-19336	0	-4	15	-19	-0
SLE Frequenti +	19	20936	-0	4	-15	5	-0
	219	-19336	0	-4	15	-19	-0
SLE Quasi Permanenti -	19	19610	-0	3	-13	6	-0
	219	-18010	0	-3	13	-17	-0
SLE Quasi Permanenti +	19	19610	-0	3	-13	6	-0
	219	-18010	0	-3	13	-17	-0

## Sollecitazioni nelle travi

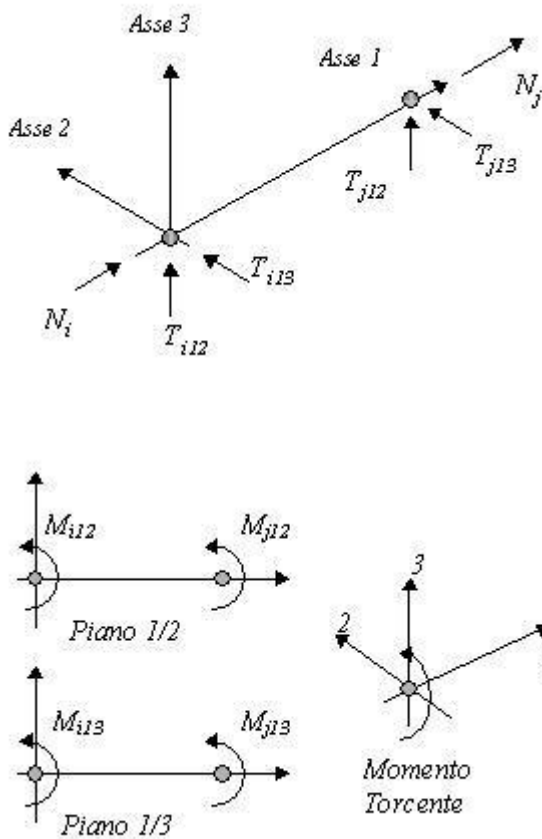
Tabella delle combinazioni di carico presentate come involuppi

Commento	Sigla Combinazione	Combinazioni utilizzate
SLU Statiche	SLU Statiche +-	1
SLE Rare	SLE Rare +-	18
SLE Frequenti	SLE Frequenti +-	19
SLE Quasi Permanenti	SLE Quasi Permanenti +-	20
Convenzioni adottate		

Le sollecitazioni nelle travi sono da intendersi nel sistema di riferimento locale dell'elemento, e si riferiscono all'asta. L'orientamento della trave nello spazio è definito a mezzo del nodo K. La terna di riferimento locale dell'asta è così disposta:



Per quanto concerne i segni positivi assunti per le varie componenti di sollecitazione si assumono come positivi i versi e le sollecitazioni se così diretti:



Per ogni trave vengono riportate, nelle varie combinazioni di carico, le componenti di sollecitazione alle estremità dell'asta.

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLU Statiche -	101	0	1818	0	-87	0	175
	102	0	2816	0	87	0	-1648
SLU Statiche +	101	0	1818	0	-87	0	175
	102	0	2816	0	87	0	-1648
SLE Rare -	101	0	1282	0	-54	0	133
	102	0	1948	0	54	0	-1115
SLE Rare +	101	0	1282	0	-54	0	133
	102	0	1948	0	54	0	-1115
SLE Frequenti -	101	0	1231	0	-48	0	133
	102	0	1852	0	48	0	-1048
SLE Frequenti +	101	0	1231	0	-48	0	133
	102	0	1852	0	48	0	-1048
SLE Quasi Permanenti -	101	0	1180	0	-42	0	132
	102	0	1755	0	42	0	-981
SLE Quasi Permanenti +	101	0	1180	0	-42	0	132
	102	0	1755	0	42	0	-981
SLU Statiche -	102	0	262	0	8	0	1
	103	0	680	0	-8	0	-127
SLU Statiche +	102	0	262	0	8	0	1
	103	0	680	0	-8	0	-127
SLE Rare -	102	0	195	0	7	0	-4
	103	0	462	0	-7	0	-76
SLE Rare +	102	0	195	0	7	0	-4
	103	0	462	0	-7	0	-76
SLE Frequenti -	102	0	192	0	7	0	-6
	103	0	435	0	-7	0	-67
SLE Frequenti +	102	0	192	0	7	0	-6
	103	0	435	0	-7	0	-67

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLE Quasi Permanenti -	102	0	189	0	8	0	-8
	103	0	408	0	-8	0	-57
SLE Quasi Permanenti +	102	0	189	0	8	0	-8
	103	0	408	0	-8	0	-57
SLU Statiche -	103	0	630	0	9	0	75
	104	0	313	0	-9	0	20
SLU Statiche +	103	0	630	0	9	0	75
	104	0	313	0	-9	0	20
SLE Rare -	103	0	456	0	8	0	65
	104	0	201	0	-8	0	11
SLE Rare +	103	0	456	0	8	0	65
	104	0	201	0	-8	0	11
SLE Frequenti -	103	0	443	0	9	0	68
	104	0	184	0	-9	0	10
SLE Frequenti +	103	0	443	0	9	0	68
	104	0	184	0	-9	0	10
SLE Quasi Permanenti -	103	0	430	0	10	0	71
	104	0	167	0	-10	0	8
SLE Quasi Permanenti +	103	0	430	0	10	0	71
	104	0	167	0	-10	0	8
SLU Statiche -	104	0	2760	0	197	0	1469
	105	0	1875	0	-197	0	-164
SLU Statiche +	104	0	2760	0	197	0	1469
	105	0	1875	0	-197	0	-164
SLE Rare -	104	0	1939	0	131	0	1060
	105	0	1291	0	-131	0	-105
SLE Rare +	104	0	1939	0	131	0	1060
	105	0	1291	0	-131	0	-105
SLE Frequenti -	104	0	1858	0	122	0	1029
	105	0	1225	0	-122	0	-96
SLE Frequenti +	104	0	1858	0	122	0	1029
	105	0	1225	0	-122	0	-96
SLE Quasi Permanenti -	104	0	1777	0	113	0	998
	105	0	1159	0	-113	0	-87
SLE Quasi Permanenti +	104	0	1777	0	113	0	998
	105	0	1159	0	-113	0	-87
SLU Statiche -	109	0	2963	0	20	0	1943
	110	0	2614	0	-20	0	-1322
SLU Statiche +	109	0	2963	0	20	0	1943
	110	0	2614	0	-20	0	-1322
SLE Rare -	109	0	2064	0	11	0	1353
	110	0	1823	0	-11	0	-924
SLE Rare +	109	0	2064	0	11	0	1353
	110	0	1823	0	-11	0	-924
SLE Frequenti -	109	0	1969	0	9	0	1290
	110	0	1740	0	-9	0	-884
SLE Frequenti +	109	0	1969	0	9	0	1290
	110	0	1740	0	-9	0	-884
SLE Quasi Permanenti -	109	0	1875	0	7	0	1228
	110	0	1658	0	-7	0	-843
SLE Quasi Permanenti +	109	0	1875	0	7	0	1228
	110	0	1658	0	-7	0	-843
SLU Statiche -	110	0	2699	0	32	0	1378
	111	0	2878	0	-32	0	-1697
SLU Statiche +	110	0	2699	0	32	0	1378
	111	0	2878	0	-32	0	-1697
SLE Rare -	110	0	1921	0	19	0	1031
	111	0	1967	0	-19	0	-1113
SLE Rare +	110	0	1921	0	19	0	1031
	111	0	1967	0	-19	0	-1113
SLE Frequenti -	110	0	1852	0	17	0	1019
	111	0	1858	0	-17	0	-1028
SLE Frequenti +	110	0	1852	0	17	0	1019



Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
	111	0	1858	0	-17	0	-1028
SLE Quasi Permanenti -	110	0	1784	0	14	0	1006
	111	0	1749	0	-14	0	-944
SLE Quasi Permanenti +	110	0	1784	0	14	0	1006
	111	0	1749	0	-14	0	-944
SLU Statiche -	101	0	138	0	166	0	89
	107	0	-138	0	-166	0	173
SLU Statiche +	101	0	138	0	166	0	89
	107	0	-138	0	-166	0	173
SLE Rare -	101	0	86	0	127	0	55
	107	0	-86	0	-127	0	109
SLE Rare +	101	0	86	0	127	0	55
	107	0	-86	0	-127	0	109
SLE Frequenti -	101	0	78	0	126	0	49
	107	0	-78	0	-126	0	98
SLE Frequenti +	101	0	78	0	126	0	49
	107	0	-78	0	-126	0	98
SLE Quasi Permanenti -	101	0	69	0	126	0	43
	107	0	-69	0	-126	0	88
SLE Quasi Permanenti +	101	0	69	0	126	0	43
	107	0	-69	0	-126	0	88
SLU Statiche -	107	0	84	0	-10	0	-19
	109	0	-84	0	10	0	69
SLU Statiche +	107	0	84	0	-10	0	-19
	109	0	-84	0	10	0	69
SLE Rare -	107	0	58	0	-9	0	-12
	109	0	-58	0	9	0	47
SLE Rare +	107	0	58	0	-9	0	-12
	109	0	-58	0	9	0	47
SLE Frequenti -	107	0	55	0	-9	0	-11
	109	0	-55	0	9	0	44
SLE Frequenti +	107	0	55	0	-9	0	-11
	109	0	-55	0	9	0	44
SLE Quasi Permanenti -	107	0	52	0	-10	0	-10
	109	0	-52	0	10	0	41
SLE Quasi Permanenti +	107	0	52	0	-10	0	-10
	109	0	-52	0	10	0	41
SLU Statiche -	105	0	222	0	-151	0	202
	111	0	-222	0	151	0	354
SLU Statiche +	105	0	222	0	-151	0	202
	111	0	-222	0	151	0	354
SLE Rare -	105	0	153	0	-97	0	134
	111	0	-153	0	97	0	248
SLE Rare +	105	0	153	0	-97	0	134
	111	0	-153	0	97	0	248
SLE Frequenti -	105	0	145	0	-88	0	125
	111	0	-145	0	88	0	237
SLE Frequenti +	105	0	145	0	-88	0	125
	111	0	-145	0	88	0	237
SLE Quasi Permanenti -	105	0	137	0	-80	0	116
	111	0	-137	0	80	0	227
SLE Quasi Permanenti +	105	0	137	0	-80	0	116
	111	0	-137	0	80	0	227
SLU Statiche -	208	0	1240	0	31	0	-617
	209	0	3587	0	-31	0	-2787
SLU Statiche +	208	0	1240	0	31	0	-617
	209	0	3587	0	-31	0	-2787
SLE Rare -	208	0	827	0	24	0	-465
	209	0	2466	0	-24	0	-1911
SLE Rare +	208	0	827	0	24	0	-465
	209	0	2466	0	-24	0	-1911
SLE Frequenti -	208	0	772	0	24	0	-460
	209	0	2337	0	-24	0	-1809

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLE Frequenti +	208	0	772	0	24	0	-460
	209	0	2337	0	-24	0	-1809
SLE Quasi Permanenti -	208	0	716	0	24	0	-456
	209	0	2207	0	-24	0	-1706
SLE Quasi Permanenti +	208	0	716	0	24	0	-456
	209	0	2207	0	-24	0	-1706
SLU Statiche -	209	0	6663	0	9	0	4124
	210	0	6390	0	-9	0	-3639
SLU Statiche +	209	0	6663	0	9	0	4124
	210	0	6390	0	-9	0	-3639
SLE Rare -	209	0	4435	0	4	0	2780
	210	0	4228	0	-4	0	-2412
SLE Rare +	209	0	4435	0	4	0	2780
	210	0	4228	0	-4	0	-2412
SLE Frequenti -	209	0	4131	0	3	0	2607
	210	0	3925	0	-3	0	-2242
SLE Frequenti +	209	0	4131	0	3	0	2607
	210	0	3925	0	-3	0	-2242
SLE Quasi Permanenti -	209	0	3827	0	1	0	2435
	210	0	3623	0	-1	0	-2072
SLE Quasi Permanenti +	209	0	3827	0	1	0	2435
	210	0	3623	0	-1	0	-2072
SLU Statiche -	210	0	6624	0	8	0	3643
	211	0	6430	0	-8	0	-3299
SLU Statiche +	210	0	6624	0	8	0	3643
	211	0	6430	0	-8	0	-3299
SLE Rare -	210	0	4388	0	4	0	2417
	211	0	4276	0	-4	0	-2217
SLE Rare +	210	0	4388	0	4	0	2417
	211	0	4276	0	-4	0	-2217
SLE Frequenti -	210	0	4077	0	3	0	2247
	211	0	3980	0	-3	0	-2075
SLE Frequenti +	210	0	4077	0	3	0	2247
	211	0	3980	0	-3	0	-2075
SLE Quasi Permanenti -	210	0	3765	0	2	0	2077
	211	0	3684	0	-2	0	-1934
SLE Quasi Permanenti +	210	0	3765	0	2	0	2077
	211	0	3684	0	-2	0	-1934
SLU Statiche -	211	0	5523	0	7	0	3260
	212	0	4773	0	-7	0	-2210
SLU Statiche +	211	0	5523	0	7	0	3260
	212	0	4773	0	-7	0	-2210
SLE Rare -	211	0	3718	0	4	0	2194
	212	0	3115	0	-4	0	-1349
SLE Rare +	211	0	3718	0	4	0	2194
	212	0	3115	0	-4	0	-1349
SLE Frequenti -	211	0	3485	0	4	0	2055
	212	0	2870	0	-4	0	-1194
SLE Frequenti +	211	0	3485	0	4	0	2055
	212	0	2870	0	-4	0	-1194
SLE Quasi Permanenti -	211	0	3251	0	3	0	1917
	212	0	2625	0	-3	0	-1039
SLE Quasi Permanenti +	211	0	3251	0	3	0	1917
	212	0	2625	0	-3	0	-1039
SLU Statiche -	232	0	6031	0	416	0	3408
	201	0	4294	0	-416	0	-889
SLU Statiche +	232	0	6031	0	416	0	3408
	201	0	4294	0	-416	0	-889
SLE Rare -	232	0	3978	0	290	0	2240
	201	0	2838	0	-290	0	-587
SLE Rare +	232	0	3978	0	290	0	2240
	201	0	2838	0	-290	0	-587
SLE Frequenti -	232	0	3687	0	277	0	2072

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLE Frequenti +	201	0	2633	0	-277	0	-544
	232	0	3687	0	277	0	2072
SLE Quasi Permanenti -	201	0	2633	0	-277	0	-544
	232	0	3396	0	263	0	1904
SLE Quasi Permanenti +	201	0	2428	0	-263	0	-501
	232	0	3396	0	263	0	1904
SLU Statiche -	201	0	2428	0	-263	0	-501
	217	0	4176	0	-1	0	1989
SLU Statiche +	218	0	4274	0	1	0	-2131
	217	0	4176	0	-1	0	1989
SLE Rare -	218	0	4274	0	1	0	-2131
	217	0	2705	0	-1	0	1288
SLE Rare +	218	0	2772	0	1	0	-1384
	217	0	2705	0	-1	0	1288
SLE Frequenti -	218	0	2772	0	1	0	-1384
	217	0	2482	0	-2	0	1181
SLE Frequenti +	218	0	2545	0	2	0	-1272
	217	0	2482	0	-2	0	1181
SLE Quasi Permanenti -	218	0	2545	0	2	0	-1272
	217	0	2259	0	-2	0	1074
SLE Quasi Permanenti +	218	0	2318	0	2	0	-1160
	217	0	2259	0	-2	0	1074
SLU Statiche -	218	0	2318	0	2	0	-1160
	219	0	25053	0	80	0	32216
SLU Statiche +	219	0	19211	0	-80	0	-12207
	218	0	25053	0	80	0	32216
SLE Rare -	219	0	19211	0	-80	0	-12207
	218	0	16625	0	53	0	21466
SLE Rare +	219	0	12762	0	-53	0	-8235
	218	0	16625	0	53	0	21466
SLE Frequenti -	219	0	12762	0	-53	0	-8235
	218	0	15458	0	49	0	20004
SLE Frequenti +	219	0	11873	0	-49	0	-7727
	218	0	15458	0	49	0	20004
SLE Quasi Permanenti -	219	0	11873	0	-49	0	-7727
	218	0	14292	0	46	0	18543
SLE Quasi Permanenti +	219	0	10985	0	-46	0	-7218
	218	0	14292	0	46	0	18543
SLU Statiche -	219	0	10985	0	-46	0	-7218
	220	0	11564	0	79	0	12173
SLU Statiche +	220	0	8145	0	-79	0	-6958
	219	0	11564	0	79	0	12173
SLE Rare -	220	0	8145	0	-79	0	-6958
	219	0	7901	0	53	0	8214
SLE Rare +	220	0	5183	0	-53	0	-4069
	219	0	7901	0	53	0	8214
SLE Frequenti -	220	0	5183	0	-53	0	-4069
	219	0	7463	0	49	0	7707
SLE Frequenti +	220	0	4707	0	-49	0	-3504
	219	0	7463	0	49	0	7707
SLE Quasi Permanenti -	220	0	4707	0	-49	0	-3504
	219	0	7025	0	46	0	7200
SLE Quasi Permanenti +	220	0	4230	0	-46	0	-2938
	219	0	7025	0	46	0	7200
SLU Statiche -	220	0	4230	0	-46	0	-2938
	222	0	4421	0	-61	0	2261
SLU Statiche +	202	0	3617	0	61	0	-1095
	222	0	4421	0	-61	0	2261
SLE Rare -	202	0	3617	0	61	0	-1095
	222	0	2930	0	-45	0	1492
SLE Rare +	202	0	2404	0	45	0	-730
	222	0	2930	0	-45	0	1492
	202	0	2404	0	45	0	-730

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLE Frequenti -	222	0	2723	0	-44	0	1383
	202	0	2238	0	44	0	-681
SLE Frequenti +	222	0	2723	0	-44	0	1383
	202	0	2238	0	44	0	-681
SLE Quasi Permanenti -	222	0	2515	0	-44	0	1275
	202	0	2071	0	44	0	-631
SLE Quasi Permanenti +	222	0	2515	0	-44	0	1275
	202	0	2071	0	44	0	-631
SLU Statiche -	225	0	4552	0	156	0	1416
	226	0	5736	0	-156	0	-3133
SLU Statiche +	225	0	4552	0	156	0	1416
	226	0	5736	0	-156	0	-3133
SLE Rare -	225	0	2972	0	106	0	868
	226	0	3830	0	-106	0	-2112
SLE Rare +	225	0	2972	0	106	0	868
	226	0	3830	0	-106	0	-2112
SLE Frequenti -	225	0	2738	0	100	0	770
	226	0	3573	0	-100	0	-1981
SLE Frequenti +	225	0	2738	0	100	0	770
	226	0	3573	0	-100	0	-1981
SLE Quasi Permanenti -	225	0	2505	0	94	0	673
	226	0	3317	0	-94	0	-1849
SLE Quasi Permanenti +	225	0	2505	0	94	0	673
	226	0	3317	0	-94	0	-1849
SLU Statiche -	226	0	7867	0	-52	0	4909
	227	0	7258	0	52	0	-3874
SLU Statiche +	226	0	7867	0	-52	0	4909
	227	0	7258	0	52	0	-3874
SLE Rare -	226	0	5238	0	-37	0	3332
	227	0	4722	0	37	0	-2456
SLE Rare +	226	0	5238	0	-37	0	3332
	227	0	4722	0	37	0	-2456
SLE Frequenti -	226	0	4879	0	-36	0	3137
	227	0	4343	0	36	0	-2225
SLE Frequenti +	226	0	4879	0	-36	0	3137
	227	0	4343	0	36	0	-2225
SLE Quasi Permanenti -	226	0	4521	0	-35	0	2941
	227	0	3964	0	35	0	-1994
SLE Quasi Permanenti +	226	0	4521	0	-35	0	2941
	227	0	3964	0	35	0	-1994
SLU Statiche -	227	0	2463	0	-6	0	350
	228	0	2875	0	6	0	-597
SLU Statiche +	227	0	2463	0	-6	0	350
	228	0	2875	0	6	0	-597
SLE Rare -	227	0	1630	0	-5	0	232
	228	0	1886	0	5	0	-386
SLE Rare +	227	0	1630	0	-5	0	232
	228	0	1886	0	5	0	-386
SLE Frequenti -	227	0	1513	0	-5	0	216
	228	0	1742	0	5	0	-353
SLE Frequenti +	227	0	1513	0	-5	0	216
	228	0	1742	0	5	0	-353
SLE Quasi Permanenti -	227	0	1396	0	-5	0	200
	228	0	1598	0	5	0	-321
SLE Quasi Permanenti +	227	0	1396	0	-5	0	200
	228	0	1598	0	5	0	-321
SLU Statiche -	228	0	12276	0	19	0	11162
	229	0	11301	0	-19	0	-8577
SLU Statiche +	228	0	12276	0	19	0	11162
	229	0	11301	0	-19	0	-8577
SLE Rare -	228	0	8122	0	12	0	7444
	229	0	7405	0	-12	0	-5544
SLE Rare +	228	0	8122	0	12	0	7444
	229	0	7405	0	-12	0	-5544

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
	229	0	7405	0	-12	0	-5544
SLE Frequenti -	228	0	7539	0	11	0	6941
	229	0	6837	0	-11	0	-5080
SLE Frequenti +	228	0	7539	0	11	0	6941
	229	0	6837	0	-11	0	-5080
SLE Quasi Permanenti -	228	0	6957	0	9	0	6438
	229	0	6269	0	-9	0	-4616
SLE Quasi Permanenti +	228	0	6957	0	9	0	6438
	229	0	6269	0	-9	0	-4616
SLU Statiche -	230	0	23	0	5	0	82
	203	0	-23	0	-5	0	-14
SLU Statiche +	230	0	23	0	5	0	82
	203	0	-23	0	-5	0	-14
SLE Rare -	230	0	16	0	3	0	58
	203	0	-16	0	-3	0	-11
SLE Rare +	230	0	16	0	3	0	58
	203	0	-16	0	-3	0	-11
SLE Frequenti -	230	0	15	0	3	0	56
	203	0	-15	0	-3	0	-11
SLE Frequenti +	230	0	15	0	3	0	56
	203	0	-15	0	-3	0	-11
SLE Quasi Permanenti -	230	0	15	0	3	0	54
	203	0	-15	0	-3	0	-11
SLE Quasi Permanenti +	230	0	15	0	3	0	54
	203	0	-15	0	-3	0	-11
SLU Statiche -	203	0	23	0	5	0	14
	204	0	-23	0	-5	0	146
SLU Statiche +	203	0	23	0	5	0	14
	204	0	-23	0	-5	0	146
SLE Rare -	203	0	16	0	3	0	11
	204	0	-16	0	-3	0	100
SLE Rare +	203	0	16	0	3	0	11
	204	0	-16	0	-3	0	100
SLE Frequenti -	203	0	15	0	3	0	11
	204	0	-15	0	-3	0	95
SLE Frequenti +	203	0	15	0	3	0	11
	204	0	-15	0	-3	0	95
SLE Quasi Permanenti -	203	0	15	0	3	0	11
	204	0	-15	0	-3	0	89
SLE Quasi Permanenti +	203	0	15	0	3	0	11
	204	0	-15	0	-3	0	89
SLU Statiche -	204	0	23	0	5	0	-146
	205	0	-23	0	-5	0	218
SLU Statiche +	204	0	23	0	5	0	-146
	205	0	-23	0	-5	0	218
SLE Rare -	204	0	16	0	3	0	-100
	205	0	-16	0	-3	0	150
SLE Rare +	204	0	16	0	3	0	-100
	205	0	-16	0	-3	0	150
SLE Frequenti -	204	0	15	0	3	0	-95
	205	0	-15	0	-3	0	142
SLE Frequenti +	204	0	15	0	3	0	-95
	205	0	-15	0	-3	0	142
SLE Quasi Permanenti -	204	0	15	0	3	0	-89
	205	0	-15	0	-3	0	134
SLE Quasi Permanenti +	204	0	15	0	3	0	-89
	205	0	-15	0	-3	0	134
SLU Statiche -	208	0	1	0	21	0	2
	232	0	-1	0	-21	0	0
SLU Statiche +	208	0	1	0	21	0	2
	232	0	-1	0	-21	0	0
SLE Rare -	208	0	0	0	17	0	1
	232	0	-0	0	-17	0	-0

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLE Rare +	208	0	0	0	17	0	1
	232	0	-0	0	-17	0	-0
SLE Frequenti -	208	0	0	0	18	0	1
	232	0	-0	0	-18	0	-0
SLE Frequenti +	208	0	0	0	18	0	1
	232	0	-0	0	-18	0	-0
SLE Quasi Permanenti -	208	0	0	0	18	0	1
	232	0	-0	0	-18	0	-0
SLE Quasi Permanenti +	208	0	0	0	18	0	1
	232	0	-0	0	-18	0	-0
SLU Statiche -	232	0	-31	0	76	0	-16
	214	0	31	0	-76	0	-6
SLU Statiche +	232	0	-31	0	76	0	-16
	214	0	31	0	-76	0	-6
SLE Rare -	232	0	-20	0	51	0	-11
	214	0	20	0	-51	0	-4
SLE Rare +	232	0	-20	0	51	0	-11
	214	0	20	0	-51	0	-4
SLE Frequenti -	232	0	-18	0	48	0	-10
	214	0	18	0	-48	0	-3
SLE Frequenti +	232	0	-18	0	48	0	-10
	214	0	18	0	-48	0	-3
SLE Quasi Permanenti -	232	0	-17	0	45	0	-10
	214	0	17	0	-45	0	-3
SLE Quasi Permanenti +	232	0	-17	0	45	0	-10
	214	0	17	0	-45	0	-3
SLU Statiche -	214	0	-4	0	36	0	-5
	217	0	4	0	-36	0	-7
SLU Statiche +	214	0	-4	0	36	0	-5
	217	0	4	0	-36	0	-7
SLE Rare -	214	0	-3	0	25	0	-4
	217	0	3	0	-25	0	-5
SLE Rare +	214	0	-3	0	25	0	-4
	217	0	3	0	-25	0	-5
SLE Frequenti -	214	0	-3	0	23	0	-3
	217	0	3	0	-23	0	-5
SLE Frequenti +	214	0	-3	0	23	0	-3
	217	0	3	0	-23	0	-5
SLE Quasi Permanenti -	214	0	-3	0	22	0	-3
	217	0	3	0	-22	0	-4
SLE Quasi Permanenti +	214	0	-3	0	22	0	-3
	217	0	3	0	-22	0	-4
SLU Statiche -	217	0	17	0	-45	0	12
	222	0	-17	0	45	0	15
SLU Statiche +	217	0	17	0	-45	0	12
	222	0	-17	0	45	0	15
SLE Rare -	217	0	12	0	-31	0	9
	222	0	-12	0	31	0	11
SLE Rare +	217	0	12	0	-31	0	9
	222	0	-12	0	31	0	11
SLE Frequenti -	217	0	12	0	-29	0	8
	222	0	-12	0	29	0	10
SLE Frequenti +	217	0	12	0	-29	0	8
	222	0	-12	0	29	0	10
SLE Quasi Permanenti -	217	0	11	0	-27	0	8
	222	0	-11	0	27	0	10
SLE Quasi Permanenti +	217	0	11	0	-27	0	8
	222	0	-11	0	27	0	10
SLU Statiche -	222	0	1	0	-24	0	1
	225	0	-1	0	24	0	1
SLU Statiche +	222	0	1	0	-24	0	1
	225	0	-1	0	24	0	1
SLE Rare -	222	0	1	0	-18	0	1

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
	225	0	-1	0	18	0	1
SLE Rare +	222	0	1	0	-18	0	1
	225	0	-1	0	18	0	1
SLE Frequenti -	222	0	1	0	-18	0	1
	225	0	-1	0	18	0	1
SLE Frequenti +	222	0	1	0	-18	0	1
	225	0	-1	0	18	0	1
SLE Quasi Permanenti -	222	0	1	0	-18	0	1
	225	0	-1	0	18	0	1
SLE Quasi Permanenti +	222	0	1	0	-18	0	1
	225	0	-1	0	18	0	1
SLU Statiche -	225	0	-30	0	48	0	-17
	230	0	30	0	-48	0	-16
SLU Statiche +	225	0	-30	0	48	0	-17
	230	0	30	0	-48	0	-16
SLE Rare -	225	0	-20	0	34	0	-11
	230	0	20	0	-34	0	-11
SLE Rare +	225	0	-20	0	34	0	-11
	230	0	20	0	-34	0	-11
SLE Frequenti -	225	0	-19	0	32	0	-11
	230	0	19	0	-32	0	-10
SLE Frequenti +	225	0	-19	0	32	0	-11
	230	0	19	0	-32	0	-10
SLE Quasi Permanenti -	225	0	-18	0	31	0	-10
	230	0	18	0	-31	0	-10
SLE Quasi Permanenti +	225	0	-18	0	31	0	-10
	230	0	18	0	-31	0	-10
SLU Statiche -	209	0	-826	0	274	0	-4
	213	0	1036	0	-274	0	-554
SLU Statiche +	209	0	-826	0	274	0	-4
	213	0	1036	0	-274	0	-554
SLE Rare -	209	0	-560	0	169	0	-3
	213	0	722	0	-169	0	-381
SLE Rare +	209	0	-560	0	169	0	-3
	213	0	722	0	-169	0	-381
SLE Frequenti -	209	0	-526	0	151	0	-3
	213	0	688	0	-151	0	-361
SLE Frequenti +	209	0	-526	0	151	0	-3
	213	0	688	0	-151	0	-361
SLE Quasi Permanenti -	209	0	-493	0	132	0	-3
	213	0	655	0	-132	0	-341
SLE Quasi Permanenti +	209	0	-493	0	132	0	-3
	213	0	655	0	-132	0	-341
SLU Statiche -	213	0	4118	0	588	0	3543
	201	0	-3583	0	-588	0	2329
SLU Statiche +	213	0	4118	0	588	0	3543
	201	0	-3583	0	-588	0	2329
SLE Rare -	213	0	2818	0	383	0	2419
	201	0	-2407	0	-383	0	1565
SLE Rare +	213	0	2818	0	383	0	2419
	201	0	-2407	0	-383	0	1565
SLE Frequenti -	213	0	2665	0	352	0	2283
	201	0	-2253	0	-352	0	1466
SLE Frequenti +	213	0	2665	0	352	0	2283
	201	0	-2253	0	-352	0	1466
SLE Quasi Permanenti -	213	0	2511	0	322	0	2148
	201	0	-2099	0	-322	0	1366
SLE Quasi Permanenti +	213	0	2511	0	322	0	2148
	201	0	-2099	0	-322	0	1366
SLU Statiche -	201	0	-711	0	-301	0	-1912
	216	0	1755	0	301	0	-1755
SLU Statiche +	201	0	-711	0	-301	0	-1912
	216	0	1755	0	301	0	-1755

Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLE Rare -	201	0	-431	0	-204	0	-1276
	216	0	1235	0	204	0	-1202
SLE Rare +	201	0	-431	0	-204	0	-1276
	216	0	1235	0	204	0	-1202
SLE Frequenti -	201	0	-380	0	-191	0	-1189
	216	0	1184	0	191	0	-1137
SLE Frequenti +	201	0	-380	0	-191	0	-1189
	216	0	1184	0	191	0	-1137
SLE Quasi Permanenti -	201	0	-330	0	-179	0	-1103
	216	0	1133	0	179	0	-1072
SLE Quasi Permanenti +	201	0	-330	0	-179	0	-1103
	216	0	1133	0	179	0	-1072
SLU Statiche -	216	0	258	0	-102	0	5
	218	0	-47	0	102	0	87
SLU Statiche +	216	0	258	0	-102	0	5
	218	0	-47	0	102	0	87
SLE Rare -	216	0	176	0	-67	0	0
	218	0	-14	0	67	0	57
SLE Rare +	216	0	176	0	-67	0	0
	218	0	-14	0	67	0	57
SLE Frequenti -	216	0	166	0	-62	0	-2
	218	0	-4	0	62	0	52
SLE Frequenti +	216	0	166	0	-62	0	-2
	218	0	-4	0	62	0	52
SLE Quasi Permanenti -	216	0	156	0	-56	0	-3
	218	0	6	0	56	0	48
SLE Quasi Permanenti +	216	0	156	0	-56	0	-3
	218	0	6	0	56	0	48
SLU Statiche -	218	0	106	0	203	0	-25
	221	0	105	0	-203	0	25
SLU Statiche +	218	0	106	0	203	0	-25
	221	0	105	0	-203	0	25
SLE Rare -	218	0	94	0	135	0	-13
	221	0	68	0	-135	0	21
SLE Rare +	218	0	94	0	135	0	-13
	221	0	68	0	-135	0	21
SLE Frequenti -	218	0	99	0	126	0	-11
	221	0	63	0	-126	0	22
SLE Frequenti +	218	0	99	0	126	0	-11
	221	0	63	0	-126	0	22
SLE Quasi Permanenti -	218	0	105	0	117	0	-9
	221	0	57	0	-117	0	23
SLE Quasi Permanenti +	218	0	105	0	117	0	-9
	221	0	57	0	-117	0	23
SLU Statiche -	221	0	2411	0	732	0	1022
	202	0	-2060	0	-732	0	1213
SLU Statiche +	221	0	2411	0	732	0	1022
	202	0	-2060	0	-732	0	1213
SLE Rare -	221	0	1632	0	491	0	680
	202	0	-1362	0	-491	0	817
SLE Rare +	221	0	1632	0	491	0	680
	202	0	-1362	0	-491	0	817
SLE Frequenti -	221	0	1534	0	459	0	633
	202	0	-1264	0	-459	0	766
SLE Frequenti +	221	0	1534	0	459	0	633
	202	0	-1264	0	-459	0	766
SLE Quasi Permanenti -	221	0	1436	0	427	0	586
	202	0	-1166	0	-427	0	715
SLE Quasi Permanenti +	221	0	1436	0	427	0	586
	202	0	-1166	0	-427	0	715
SLU Statiche -	202	0	-1557	0	-362	0	-1274
	224	0	2136	0	362	0	-1773
SLU Statiche +	202	0	-1557	0	-362	0	-1274



Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
	224	0	2136	0	362	0	-1773
SLE Rare -	202	0	-1042	0	-239	0	-862
	224	0	1488	0	239	0	-1225
SLE Rare +	202	0	-1042	0	-239	0	-862
	224	0	1488	0	239	0	-1225
SLE Frequenti -	202	0	-974	0	-221	0	-810
	224	0	1419	0	221	0	-1164
SLE Frequenti +	202	0	-974	0	-221	0	-810
	224	0	1419	0	221	0	-1164
SLE Quasi Permanenti -	202	0	-905	0	-204	0	-758
	224	0	1351	0	204	0	-1103
SLE Quasi Permanenti +	202	0	-905	0	-204	0	-758
	224	0	1351	0	204	0	-1103
SLU Statiche -	224	0	267	0	-29	0	108
	226	0	101	0	29	0	-21
SLU Statiche +	224	0	267	0	-29	0	108
	226	0	101	0	29	0	-21
SLE Rare -	224	0	196	0	-17	0	77
	226	0	87	0	17	0	-19
SLE Rare +	224	0	196	0	-17	0	77
	226	0	87	0	17	0	-19
SLE Frequenti -	224	0	192	0	-15	0	74
	226	0	92	0	15	0	-21
SLE Frequenti +	224	0	192	0	-15	0	74
	226	0	92	0	15	0	-21
SLE Quasi Permanenti -	224	0	188	0	-13	0	71
	226	0	96	0	13	0	-22
SLE Quasi Permanenti +	224	0	188	0	-13	0	71
	226	0	96	0	13	0	-22
SLU Statiche -	212	0	-4	0	-0	0	-4
	215	0	4	0	0	0	-9
SLU Statiche +	212	0	-4	0	-0	0	-4
	215	0	4	0	0	0	-9
SLE Rare -	212	0	-3	0	-4	0	-2
	215	0	3	0	4	0	-6
SLE Rare +	212	0	-3	0	-4	0	-2
	215	0	3	0	4	0	-6
SLE Frequenti -	212	0	-3	0	-5	0	-2
	215	0	3	0	5	0	-5
SLE Frequenti +	212	0	-3	0	-5	0	-2
	215	0	3	0	5	0	-5
SLE Quasi Permanenti -	212	0	-2	0	-7	0	-2
	215	0	2	0	7	0	-5
SLE Quasi Permanenti +	212	0	-2	0	-7	0	-2
	215	0	2	0	7	0	-5
SLU Statiche -	215	0	6	0	45	0	9
	220	0	-6	0	-45	0	7
SLU Statiche +	215	0	6	0	45	0	9
	220	0	-6	0	-45	0	7
SLE Rare -	215	0	4	0	27	0	6
	220	0	-4	0	-27	0	4
SLE Rare +	215	0	4	0	27	0	6
	220	0	-4	0	-27	0	4
SLE Frequenti -	215	0	3	0	23	0	6
	220	0	-3	0	-23	0	4
SLE Frequenti +	215	0	3	0	23	0	6
	220	0	-3	0	-23	0	4
SLE Quasi Permanenti -	215	0	3	0	20	0	5
	220	0	-3	0	-20	0	4
SLE Quasi Permanenti +	215	0	3	0	20	0	5
	220	0	-3	0	-20	0	4
SLU Statiche -	220	0	-24	0	92	0	-25
	223	0	24	0	-92	0	-26

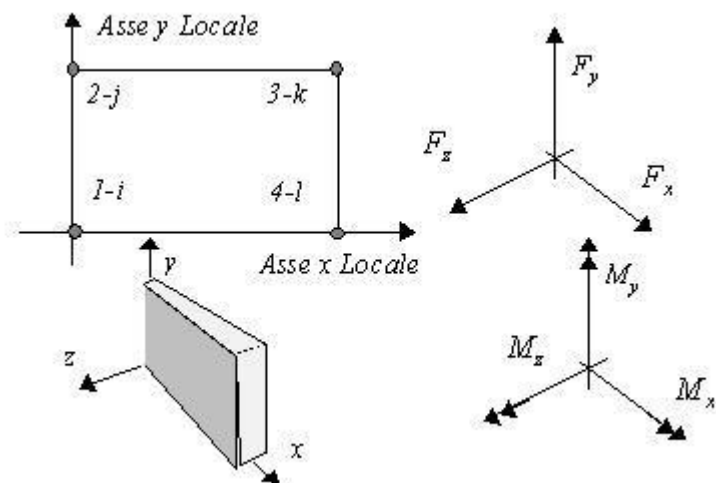
Comb.	Nodo	N [kg]	T1-2 [kg]	T1-3 [kg]	Mt [kgm]	M1-3 [kgm]	M1-2 [kgm]
SLU Statiche +	220	0	-24	0	92	0	-25
	223	0	24	0	-92	0	-26
SLE Rare -	220	0	-16	0	64	0	-17
	223	0	16	0	-64	0	-17
SLE Rare +	220	0	-16	0	64	0	-17
	223	0	16	0	-64	0	-17
SLE Frequenti -	220	0	-15	0	61	0	-15
	223	0	15	0	-61	0	-16
SLE Frequenti +	220	0	-15	0	61	0	-15
	223	0	15	0	-61	0	-16
SLE Quasi Permanenti -	220	0	-13	0	59	0	-14
	223	0	13	0	-59	0	-15
SLE Quasi Permanenti +	220	0	-13	0	59	0	-14
	223	0	13	0	-59	0	-15
SLU Statiche -	223	0	26	0	245	0	35
	229	0	-26	0	-245	0	20
SLU Statiche +	223	0	26	0	245	0	35
	229	0	-26	0	-245	0	20
SLE Rare -	223	0	17	0	165	0	23
	229	0	-17	0	-165	0	14
SLE Rare +	223	0	17	0	165	0	23
	229	0	-17	0	-165	0	14
SLE Frequenti -	223	0	16	0	154	0	21
	229	0	-16	0	-154	0	13
SLE Frequenti +	223	0	16	0	154	0	21
	229	0	-16	0	-154	0	13
SLE Quasi Permanenti -	223	0	15	0	143	0	20
	229	0	-15	0	-143	0	12
SLE Quasi Permanenti +	223	0	15	0	143	0	20
	229	0	-15	0	-143	0	12
SLU Statiche -	229	0	-23	0	-218	0	-31
	205	0	23	0	218	0	5
SLU Statiche +	229	0	-23	0	-218	0	-31
	205	0	23	0	218	0	5
SLE Rare -	229	0	-16	0	-150	0	-21
	205	0	16	0	150	0	3
SLE Rare +	229	0	-16	0	-150	0	-21
	205	0	16	0	150	0	3
SLE Frequenti -	229	0	-15	0	-142	0	-20
	205	0	15	0	142	0	3
SLE Frequenti +	229	0	-15	0	-142	0	-20
	205	0	15	0	142	0	3
SLE Quasi Permanenti -	229	0	-15	0	-134	0	-19
	205	0	15	0	134	0	3
SLE Quasi Permanenti +	229	0	-15	0	-134	0	-19
	205	0	15	0	134	0	3

## **Sollecitazioni nei setti**

Tabella delle combinazioni di carico presentate come involuppi

Commento	Sigla Combinazione	Combinazioni utilizzate															
SLU Statiche	SLU Statiche +- 1																
SLV	SLV +- 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
SLD	SLD +- 21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Convenzioni adottate																	

L'elemento parete viene individuato tramite il numero dei due nodi a numerazione più bassa cui fa capo l'elemento. La numerazione dei nodi e le convenzioni sulle sollecitazioni agenti nel setto sono le seguenti:



Dove:

$F_x, F_y, F_z$

forze, agenti nel generico nodo, in direzione degli assi locali  $x, y, z$ .

$M_x, M_y, M_z$

momenti agenti nel generico nodo ed aventi asse vettore concorde con gli assi locali  $x, y, z$ .

Comb.	Nodo	$F_x$ [kg]	$F_y$ [kg]	$F_z$ [kg]	$M_x$ [kgm]	$M_y$ [kgm]	$M_z$ [kgm]
SLU Statiche -	3	4494	1836	52	70	-19	-2145
	103	4893	1055	-52	-42	-45	3589
	102	-4454	-3015	-142	212	19	-1623
	2	-4933	1820	142	321	45	2679
SLU Statiche +	3	4494	1836	52	70	-19	-2145
	103	4893	1055	-52	-42	-45	3589
	102	-4454	-3015	-142	212	19	-1623
	2	-4933	1820	142	321	45	2679
SLV -	3	2605	-520	-285	-1060	-249	-2514
	103	-1264	-11559	-325	-1101	-300	1998
	102	-3014	-1952	-696	-295	-234	-2248
	2	-7937	-9259	-571	-1088	-253	-2019
SLV +	3	3215	2983	325	1102	234	-211
	103	7730	12955	285	1019	253	2774
	102	-2740	-1846	571	510	249	208
	2	1405	11806	696	1391	300	5610
SLD -	3	2799	592	-92	-375	-97	-1783
	103	1591	-3777	-132	-428	-125	2244
	102	-2927	-1918	-297	-42	-82	-1469
	2	-4972	-2572	-172	-309	-78	402
SLD +	3	3022	1871	132	417	82	-942
	103	4875	5173	92	346	78	2528
	102	-2827	-1879	172	257	97	-572
	2	-1561	5120	297	612	125	3189
SLU Statiche -	4	6354	4744	141	250	-29	-3884
	104	4487	-2995	-141	115	-38	1228
	103	-6261	-2403	-51	48	29	-3743
	3	-4579	2351	51	144	38	1794
SLU Statiche +	4	6354	4744	141	250	-29	-3884
	104	4487	-2995	-141	115	-38	1228
	103	-6261	-2403	-51	48	29	-3743
	3	-4579	2351	51	144	38	1794
SLV -	4	-1112	-7440	-804	-1372	-283	-6951
	104	2618	-1930	-983	-536	-285	-560
	103	-9256	-13837	-461	-1004	-256	-3287
	3	-3423	-49	-394	-1076	-243	-56
SLV +	4	9501	13805	983	1674	256	1784
	104	3178	-1839	804	682	243	2081
	103	1002	10714	394	1094	283	-1686
	3	-2509	3186	461	1252	285	2321
SLD -	4	2257	-696	-237	-406	-114	-4178
	104	2796	-1901	-416	-150	-118	279

Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
SLD +	103	-6000	-6044	-190	-338	-86	-2779
	3	-3133	978	-123	-337	-75	699
	4	6132	7061	416	708	86	-989
	104	3001	-1868	237	296	75	1243
	103	-2254	2921	123	428	114	-2194
	3	-2799	2159	190	513	118	1567
SLU Statiche -	8	4373	2062	-112	-400	76	-2078
	208	4740	611	112	-336	-9	3318
	207	-4323	-3017	203	-6	-76	-1559
	7	-4790	2041	-203	-172	9	2624
SLU Statiche +	8	4373	2062	-112	-400	76	-2078
	208	4740	611	112	-336	-9	3318
	207	-4323	-3017	203	-6	-76	-1559
	7	-4790	2041	-203	-172	9	2624
SLV -	8	2054	-738	-417	-1221	-233	-2677
	208	-2885	-14214	-285	-415	-259	176
	207	-3506	-2062	-657	-596	-319	-2450
	7	-9308	-11040	-893	-1652	-246	-3287
SLV +	8	3580	3547	285	761	319	43
	208	9081	14933	417	13	246	4148
	207	-2046	-1746	893	590	233	494
	7	3030	13930	657	1454	259	6753
SLD -	8	2538	622	-194	-593	-58	-1814
	208	913	-4962	-63	-280	-99	1436
	207	-3043	-1962	-165	-220	-144	-1516
	7	-5391	-3114	-401	-667	-86	-100
SLD +	8	3096	2187	63	132	144	-821
	208	5283	5680	194	-121	86	2888
	207	-2510	-1846	401	213	58	-440
	7	-886	6003	165	468	99	3566
SLU Statiche -	9	5760	4425	134	-49	71	-3307
	209	4371	-3007	-134	21	-16	1372
	208	-5682	-1937	-57	350	-71	-3406
	8	-4449	2215	57	232	16	1881
SLU Statiche +	9	5760	4425	134	-49	71	-3307
	209	4371	-3007	-134	21	-16	1372
	208	-5682	-1937	-57	350	-71	-3406
	8	-4449	2215	57	232	16	1881
SLV -	9	-2789	-9712	-609	-1781	-278	-7543
	209	2280	-2291	-788	-687	-232	-790
	208	-9973	-15813	-351	-32	-357	-4339
	8	-3519	-377	-275	-480	-211	-266
SLV +	9	10244	15581	788	1770	357	3286
	209	3352	-1523	609	738	211	2552
	208	2631	13403	275	450	278	-88
	8	-2225	3341	351	764	232	2679
SLD -	9	1348	-1683	-166	-654	-77	-4106
	209	2620	-2047	-345	-235	-92	271
	208	-5972	-6539	-153	120	-155	-2990
	8	-3109	803	-76	-86	-70	669
SLD +	9	6107	7552	345	644	155	-151
	209	3012	-1766	166	286	70	1491
	208	-1370	4128	76	298	77	-1436
	8	-2636	2161	153	369	92	1744
SLU Statiche -	20	1021	833	45	-263	83	-92
	220	2714	-4171	-45	-52	-10	1274
	211	-951	-29	-34	293	-83	12
	11	-2784	5064	34	252	10	1406
SLU Statiche +	20	1021	833	45	-263	83	-92
	220	2714	-4171	-45	-52	-10	1274
	211	-951	-29	-34	293	-83	12
	11	-2784	5064	34	252	10	1406
SLV -	20	-4754	-2911	-961	-1939	-260	-351
	220	-15198	-15013	-958	-844	-372	-10520

Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
SLV +	211	-6165	-1273	-983	-613	-385	-1275
	11	-19685	-10410	-960	-2176	-386	-11543
	20	6350	4080	958	1482	385	228
	220	19499	8907	961	754	386	12649
SLD -	211	4678	1279	960	972	260	1338
	11	15274	17950	983	2423	372	13890
	20	-1231	-693	-352	-853	-55	-167
	220	-4191	-7425	-349	-336	-132	-3170
SLD +	211	-2725	-463	-367	-110	-180	-446
	11	-8595	-1414	-343	-716	-146	-3475
	20	2828	1862	349	396	180	44
	220	8492	1319	352	247	146	5299
SLU Statiche -	211	1238	469	343	469	55	509
	11	4184	8953	367	963	132	5822
	24	3075	6375	1005	2746	-140	942
	324	2635	-897	-1005	1349	-87	1364
SLU Statiche +	312	-2931	-5652	792	-2272	140	-29
	12	-2778	10548	-792	-972	87	-2633
	24	3075	6375	1005	2746	-140	942
	324	2635	-897	-1005	1349	-87	1364
SLV -	312	-2931	-5652	792	-2272	140	-29
	12	-2778	10548	-792	-972	87	-2633
	24	-1460	124	-87	79	-165	-272
	324	-5685	-11024	-1235	-544	-155	621
SLV +	312	-4483	-4294	-1463	-4065	10	-181
	12	-8843	-6183	-2145	-4598	-45	-3615
	24	5118	8650	1235	3120	-10	1817
	324	9103	9834	87	2028	45	987
SLD -	312	1201	-2012	2145	1822	165	152
	12	5049	20864	1463	4022	155	-93
	24	608	2805	329	1036	-116	385
	324	-1037	-4468	-819	271	-92	737
SLD +	312	-2696	-3575	-327	-2211	59	-76
	12	-4476	2319	-1009	-1883	18	-2507
	24	3050	5969	819	2163	-59	1159
	324	4455	3277	-329	1213	-18	871
SLU Statiche -	312	-586	-2730	1009	-32	116	47
	12	682	12363	327	1307	92	-1201
	21	1648	420	-58	-598	117	-1005
	221	2230	-3925	58	-46	18	615
SLU Statiche +	220	-1595	321	1	194	-117	-999
	20	-2283	5504	-1	280	-18	433
	21	1648	420	-58	-598	117	-1005
	221	2230	-3925	58	-46	18	615
SLV -	220	-1595	321	1	194	-117	-999
	20	-2283	5504	-1	280	-18	433
	21	-10165	-5082	-313	-806	-165	-8695
	221	-10715	-16162	-186	-258	-309	-3607
SLV +	220	-12786	-8344	-559	-280	-325	-10353
	20	-14230	-5665	-638	-1764	-356	-4575
	21	12789	5517	186	19	325	7076
	221	14227	10277	313	131	356	4606
SLD -	220	10243	9221	638	465	165	8676
	20	10637	13808	559	1898	309	5340
	21	-2883	-1720	-155	-544	-10	-3692
	221	-2803	-7775	-28	-135	-98	-1002
SLD +	220	-5481	-2772	-179	-44	-169	-4316
	20	-6342	512	-258	-602	-145	-1430
	21	5507	2155	28	-243	169	2073
	221	6315	1890	155	9	145	2001
SLU Statiche -	220	2937	3649	258	228	10	2640
	20	2749	7631	179	736	98	2195
SLU Statiche -	221	1778	3114	2762	1119	73	-158
	321	-642	588	-2762	2136	192	-109

Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
	320	-1806	-3836	-5266	3482	-73	-40
	220	670	776	5266	2093	-192	-357
SLU Statiche +	221	1778	3114	2762	1119	73	-158
	321	-642	588	-2762	2136	192	-109
	320	-1806	-3836	-5266	3482	-73	-40
	220	670	776	5266	2093	-192	-357
SLV -	221	-2081	-782	-86	-440	-71	-299
	321	-2960	-2642	-3328	41	-49	-1193
	320	-3813	-3843	-6005	291	-140	-127
	220	-2369	-3196	155	13	-269	-2073
SLV +	221	4068	4590	3328	1793	140	114
	321	2114	2943	86	2450	269	979
	320	1791	-727	-155	3702	71	82
	220	3250	4646	6005	2494	49	1531
SLD -	221	-130	922	998	268	-4	-168
	321	-1350	-870	-2244	805	52	-504
	320	-2035	-2854	-4148	1374	-73	-61
	220	-586	-708	2012	800	-168	-930
SLD +	221	2117	2886	2244	1084	73	-17
	321	504	1171	-998	1686	168	290
	320	13	-1715	-2012	2619	4	16
	220	1467	2158	4148	1706	-52	387
SLU Statiche -	321	-475	2753	-142	-51	82	590
	44	-965	1093	-328	577	322	-629
	43	-0	0	-0	-0	0	-0
	320	1441	-2560	470	196	-123	-163
SLU Statiche +	321	-475	2753	-142	-51	82	590
	44	-965	1093	-328	577	322	-629
	43	-0	0	-0	-0	0	-0
	320	1441	-2560	470	196	-123	-163
SLV -	321	-321	788	-222	-81	-15	113
	44	-607	500	-408	-118	-59	-397
	43	-0	0	-0	-0	-0	-0
	320	713	-2285	-80	-265	-218	-383
SLV +	321	-184	2649	54	39	105	582
	44	-494	723	63	794	435	-328
	43	0	0	0	0	0	0
	320	893	-395	594	391	60	193
SLD -	321	-277	1378	-135	-43	23	262
	44	-571	571	-259	171	98	-375
	43	-0	0	-0	-0	-0	-0
	320	770	-1686	134	-57	-130	-200
SLD +	321	-227	2059	-34	1	67	433
	44	-530	652	-87	505	279	-350
	43	0	0	0	0	0	-0
	320	836	-995	380	183	-29	10
SLU Statiche -	25	367	7130	2238	1343	360	2999
	225	2995	-4760	-2238	4736	34	234
	221	53	-4078	-899	2419	-360	2290
	21	-3415	10603	899	599	-34	-1461
SLU Statiche +	25	367	7130	2238	1343	360	2999
	225	2995	-4760	-2238	4736	34	234
	221	53	-4078	-899	2419	-360	2290
	21	-3415	10603	899	599	-34	-1461
SLV -	25	-2113	-1743	732	418	121	1693
	225	-9193	-11926	-1926	1243	-234	-1562
	221	-3154	-11345	-885	-374	-314	-1193
	21	-14613	757	109	-696	-291	-8166
SLV +	25	2764	12020	1926	1129	314	2502
	225	13477	5309	-732	4443	291	1738
	221	3248	6203	-109	3231	-121	4104
	21	9584	14409	885	1198	234	6263
SLD -	25	-566	2623	1111	644	181	1950
	225	-2001	-6459	-1547	2259	-68	-515
	221	-1123	-5778	-639	771	-253	487

Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
SLD +	21	-6937	5088	355	-95	-124	-3589
	25	1217	7654	1547	903	253	2245
	225	6286	-158	-1111	3427	124	691
	221	1217	636	-355	2087	-181	2423
	21	1908	10079	639	597	68	1686
SLU Statiche -	225	2654	6106	-6043	-4754	-517	1499
	325	-2235	-3638	6043	-1302	720	-2285
	321	-2640	-4889	2530	118	517	1010
	221	2221	4888	-2530	-3493	-720	-2747
	225	2654	6106	-6043	-4754	-517	1499
SLU Statiche +	325	-2235	-3638	6043	-1302	720	-2285
	321	-2640	-4889	2530	118	517	1010
	221	2221	4888	-2530	-3493	-720	-2747
	225	-7165	183	-4963	-4204	-1006	582
	325	-9725	-6747	2207	-1626	-284	-1910
SLV -	321	-9540	-4209	-141	-424	-382	-45
	221	-6868	-3524	-3106	-2955	-1147	-3135
	225	10127	8046	-2207	-1463	382	1599
	325	7376	1585	4963	117	1147	-1102
	321	6657	-2281	3106	534	1006	1537
SLV +	221	9139	10742	141	-1128	284	-590
	225	-1680	2677	-4088	-3334	-566	904
	325	-4300	-4104	3082	-1073	170	-1654
	321	-4402	-3598	890	-120	58	457
	221	-1790	1002	-2075	-2375	-693	-2328
SLD -	225	4641	5551	-3082	-2333	-58	1276
	325	1951	-1058	4088	-436	693	-1359
	321	1519	-2893	2075	230	566	1036
	221	4061	6216	-890	-1708	-170	-1397
	225	-1680	2677	-4088	-3334	-566	904
SLD +	325	-4300	-4104	3082	-1073	170	-1654
	321	-4402	-3598	890	-120	58	457
	221	-1790	1002	-2075	-2375	-693	-2328
	225	4641	5551	-3082	-2333	-58	1276
	325	1951	-1058	4088	-436	693	-1359
SLU Statiche -	321	1519	-2893	2075	230	566	1036
	221	4061	6216	-890	-1708	-170	-1397
	325	911	4109	-249	-728	-579	894
	45	-3738	560	927	559	198	-998
	44	965	-1093	328	-577	-322	629
SLU Statiche +	321	1862	1358	-1006	-2014	-856	-1560
	325	911	4109	-249	-728	-579	894
	45	-3738	560	927	559	198	-998
	44	965	-1093	328	-577	-322	629
	321	1862	1358	-1006	-2014	-856	-1560
SLV -	325	252	2310	-392	-997	-922	599
	45	-3188	-19	-71	-25	-146	-917
	44	494	-723	-63	-794	-435	328
	321	254	455	-1412	-2676	-1161	-1200
	325	907	3329	153	255	208	719
SLV +	45	-1047	660	1145	674	333	-249
	44	607	-500	408	118	59	397
	321	1721	2077	230	320	142	-854
	325	460	2634	-219	-600	-564	637
	45	-2509	196	315	197	6	-705
SLD -	44	530	-652	87	-505	-279	350
	321	720	970	-891	-1725	-748	-1090
	325	699	3006	-20	-143	-150	681
	45	-1726	445	759	452	181	-461
	44	571	-571	259	-171	-98	375
SLD +	321	1255	1563	-291	-630	-271	-964
	26	-690	3711	-20	58	-63	2141
	326	-664	-569	20	-0	-22	497
	322	405	-178	-269	289	63	-305
	22	949	1716	269	652	22	-2407
SLU Statiche -	26	-690	3711	-20	58	-63	2141
	326	-664	-569	20	-0	-22	497
	322	405	-178	-269	289	63	-305
	22	949	1716	269	652	22	-2407
	26	-2440	-4074	-277	-913	-329	-4586
SLU Statiche +	326	-4428	-1726	-260	-28	-296	-1546
	322	-2313	-606	-899	-380	-244	-1449

Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
SLV +	22	-3832	-6316	-563	-1842	-264	-8922
	26	2080	9379	260	1026	244	6611
	326	3770	1177	277	29	264	2016
	322	2502	413	563	726	329	1102
SLD -	22	4661	8953	899	2662	296	6285
	26	-1006	194	-106	-297	-147	-1034
	326	-1827	-805	-90	-10	-118	-416
	322	-785	-283	-435	-29	-62	-639
SLD +	22	-1138	-1472	-99	-412	-86	-4098
	26	646	5111	90	411	62	3059
	326	1170	256	106	11	86	886
	322	974	90	99	375	147	293
	22	1967	4109	435	1232	118	1461
SLU Statiche -	27	-657	3967	37	341	-77	2020
	327	-884	-465	-37	-11	-22	363
	323	361	-218	-10	-143	77	-362
	23	1180	1396	10	-2	22	-2719
SLU Statiche +	27	-657	3967	37	341	-77	2020
	327	-884	-465	-37	-11	-22	363
	323	361	-218	-10	-143	77	-362
	23	1180	1396	10	-2	22	-2719
SLV -	27	-2806	-4665	-260	-810	-341	-5463
	327	-5015	-1812	-300	-23	-302	-1878
	323	-2761	-774	-742	-620	-245	-1654
	23	-4098	-7464	-713	-2248	-277	-9801
SLV +	27	2550	10378	300	1216	245	7204
	327	4036	1430	260	9	277	2138
	323	2843	527	713	468	341	1224
	23	5252	9581	742	2282	302	6714
SLD -	27	-1107	107	-83	-167	-155	-1445
	327	-2144	-784	-122	-13	-118	-604
	323	-984	-362	-280	-275	-59	-741
	23	-1132	-2057	-251	-810	-93	-4562
SLD +	27	851	5606	122	573	59	3186
	327	1165	402	83	-1	93	864
	323	1065	114	251	122	155	311
	23	2286	4174	280	844	118	1475
SLU Statiche -	28	1042	10933	-3458	-5437	-205	4066
	328	2953	-9884	3458	-8380	-193	-3523
	324	-530	874	328	-1554	205	-1351
	24	-3465	8451	-328	226	193	-1293
SLU Statiche +	28	1042	10933	-3458	-5437	-205	4066
	328	2953	-9884	3458	-8380	-193	-3523
	324	-530	874	328	-1554	205	-1351
	24	-3465	8451	-328	226	193	-1293
SLV -	28	-6920	-2848	-5081	-9286	-164	1725
	328	-5952	-16447	-1455	-11061	-161	-2416
	324	-8106	-9837	-535	-2166	82	-974
	24	-9758	-5081	-859	-1247	64	-1959
SLV +	28	8417	17517	1455	3775	-82	3750
	328	9307	5376	5081	2097	-64	-1549
	324	7371	11001	859	438	164	-618
	24	5641	16278	535	1649	161	37
SLD -	28	-2099	3554	-3007	-5141	-138	2361
	328	-1155	-9586	619	-6885	-130	-2141
	324	-3240	-3287	-93	-1341	108	-861
	24	-4916	1635	-417	-328	94	-1331
SLD +	28	3595	11115	-619	-370	-108	3113
	328	4509	-1485	3007	-2079	-94	-1824
	324	2506	4451	417	-387	138	-731
	24	800	9562	93	730	130	-591
SLU Statiche -	33	6596	24907	-1321	-5156	594	5817
	233	1323	-15981	1321	817	103	-6030
	225	-5261	-11277	-1517	5075	-594	4068



Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
SLU Statiche +	25	-2658	13181	1517	-168	-103	-5444
	33	6596	24907	-1321	-5156	594	5817
	233	1323	-15981	1321	817	103	-6030
	225	-5261	-11277	-1517	5075	-594	4068
SLV -	25	-2658	13181	1517	-168	-103	-5444
	33	-4591	-1263	-4412	-10599	4	1808
	233	-2562	-14495	-2454	-2590	-180	-4832
	225	-12410	-20134	-2021	1922	-726	-1451
SLV +	25	-4633	7256	-369	-3248	-332	-5775
	33	13560	34674	2454	3612	726	6055
	233	3969	-5458	4412	3300	332	-2907
	225	5254	5438	369	4019	-4	6500
SLD -	25	1411	10642	2021	2695	180	-1709
	33	1167	10137	-2233	-6088	233	3155
	233	-490	-11628	-274	-720	-17	-4221
	225	-6806	-12022	-1262	2588	-497	1071
SLD +	25	-2716	8331	390	-1361	-170	-4485
	33	7803	23274	274	-898	497	4708
	233	1897	-8325	2233	1430	170	-3518
	225	-349	-2674	-390	3354	-233	3978
	25	-506	9567	1262	809	17	-2999
SLU Statiche -	233	-3021	15981	8152	-817	-677	6030
	333	4813	-16535	-8152	10491	1120	-3871
	325	1086	-6374	1741	2435	677	4375
	225	-2877	9931	-1741	-5056	-1120	-5801
SLU Statiche +	233	-3021	15981	8152	-817	-677	6030
	333	4813	-16535	-8152	10491	1120	-3871
	325	1086	-6374	1741	2435	677	4375
	225	-2877	9931	-1741	-5056	-1120	-5801
SLV -	233	-8731	5458	1189	-3300	-1280	2907
	333	-3792	-11287	-8121	2755	-172	-3832
	325	-7618	-9471	-706	-436	-452	2591
	225	-9721	6084	-2975	-4188	-1498	-5521
SLV +	233	5177	14495	8121	2590	452	4832
	333	9505	-8767	-1189	9043	1498	-1072
	325	8948	1109	2975	3055	1280	2976
	225	6232	6999	706	-1773	172	-1885
SLD -	233	-4319	8325	3388	-1430	-731	3518
	333	426	-10487	-5922	4749	357	-2956
	325	-2363	-6115	462	671	98	2713
	225	-4660	6375	-1808	-3422	-968	-4367
SLD +	233	765	11628	5922	720	-98	4221
	333	5287	-9567	-3388	7048	968	-1947
	325	3693	-2248	1808	1947	731	2854
	225	1171	6709	-462	-2539	-357	-3038
SLU Statiche -	333	-4154	668	1030	2865	-1371	3661
	46	0	-0	-0	0	-0	0
	45	3738	-560	-927	-559	-198	998
	325	416	5898	-103	-268	-1314	-2973
SLU Statiche +	333	-4154	668	1030	2865	-1371	3661
	46	0	-0	-0	0	-0	0
	45	3738	-560	-927	-559	-198	998
	325	416	5898	-103	-268	-1314	-2973
SLV -	333	-3816	712	-69	-188	-1650	871
	46	-0	-0	-0	-0	-0	-0
	45	1047	-660	-1145	-674	-333	249
	325	-259	3320	-330	-681	-1570	-2161
SLV +	333	-788	1290	1223	3427	89	3810
	46	0	-0	0	0	0	0
	45	3188	19	71	25	146	917
	325	628	4559	250	455	86	-1698
SLD -	333	-2855	896	341	959	-1098	1803
	46	-0	-0	-0	-0	-0	0
	45	1726	-445	-759	-452	-181	461
	325	22	3713	-146	-321	-1044	-2014

Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
SLD +	333	-1749	1107	813	2279	-463	2878
	46	0	-0	0	0	0	0
	45	2509	-196	-315	-197	-6	705
	325	347	4166	66	95	-440	-1845
SLU Statiche -	37	3396	8116	-137	514	-244	-498
	337	-211	2702	137	-958	-188	2078
	328	-2855	-11161	2554	-6359	244	4000
	28	-329	8169	-2554	-3959	188	-3000
SLU Statiche +	37	3396	8116	-137	514	-244	-498
	337	-211	2702	137	-958	-188	2078
	328	-2855	-11161	2554	-6359	244	4000
	28	-329	8169	-2554	-3959	188	-3000
SLV -	37	-3805	-4474	-439	-374	-185	-1525
	337	-4685	-7412	-314	-1391	-140	793
	328	-7519	-16905	-948	-8040	102	1873
	28	-4912	-2670	-3624	-6564	81	-2854
SLV +	37	7880	14937	314	1058	-102	1088
	337	4533	10664	439	326	-81	1644
	328	4183	4223	3624	1223	185	2657
	28	4325	13678	948	2554	140	-1081
SLD -	37	-132	1628	-202	80	-159	-703
	337	-1788	-1731	-77	-851	-122	1061
	328	-3841	-10264	504	-5100	128	2122
	28	-2009	2468	-2173	-3669	100	-2297
SLD +	37	4207	8835	77	605	-128	266
	337	1636	4983	202	-214	-100	1377
	328	505	-2419	2173	-1718	159	2408
	28	1422	8540	-504	-340	122	-1639
SLU Statiche -	31	13138	14979	-283	-828	230	-7650
	331	13060	-16718	283	-23	314	8303
	330	-13788	-12992	953	-1088	-230	-9134
	30	-12411	19411	-953	-3006	-314	674
SLU Statiche +	31	13138	14979	-283	-828	230	-7650
	331	13060	-16718	283	-23	314	8303
	330	-13788	-12992	953	-1088	-230	-9134
	30	-12411	19411	-953	-3006	-314	674
SLV -	31	-8013	-1994	-730	-1785	-68	-22262
	331	6242	-11783	-402	-642	-83	-1700
	330	-23165	-12322	-183	-1455	-334	-23253
	30	-8802	4213	-1275	-3988	-453	-8608
SLV +	31	22579	19039	402	822	334	13999
	331	8762	-7305	730	640	453	11226
	330	7992	-2071	1275	206	68	13484
	30	-5595	19424	183	520	83	9664
SLD -	31	1699	4683	-371	-962	59	-10751
	331	7042	-10362	-43	-235	87	2403
	330	-13274	-9068	276	-928	-207	-11591
	30	-7784	9041	-816	-2561	-283	-2807
SLD +	31	12868	12362	43	-1	207	2488
	331	7962	-8727	371	233	283	7123
	330	-1899	-5325	816	-321	-59	1822
	30	-6613	14595	-276	-907	-87	3864
SLU Statiche -	34	13632	19341	673	1890	-132	-6037
	334	9275	-10287	-673	1068	-52	2685
	332	-13671	-16717	-104	24	132	-9652
	32	-9236	12343	104	124	52	3478
SLU Statiche +	34	13632	19341	673	1890	-132	-6037
	334	9275	-10287	-673	1068	-52	2685
	332	-13671	-16717	-104	24	132	-9652
	32	-9236	12343	104	124	52	3478
SLV -	34	2007	434	-1011	-2283	-269	-16970
	334	-4501	-10861	-1669	-1406	-263	-6539
	332	-14193	-11641	-231	-68	-138	-12130
	32	-15228	-7101	-124	-764	-226	-14480

Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
SLV +	34	14077	23197	1669	4161	138	9471
	334	14999	-854	1011	2478	226	9380
	332	-1787	-7429	124	106	269	1060
	32	4626	21455	231	839	263	18257
SLD -	34	5839	7660	-161	-239	-141	-8576
	334	1689	-7684	-819	-174	-108	-1486
	332	-10255	-10304	-120	-13	-10	-7943
	32	-8925	1964	-12	-256	-71	-4088
SLD +	34	10246	15971	819	2117	10	1077
	334	8809	-4030	161	1246	71	4327
	332	-5725	-8766	12	51	141	-3127
	32	-1677	12390	120	331	108	7865
SLU Statiche -	36	15547	18767	42	327	-137	-9631
	336	19272	-20881	-42	-74	-111	16020
	335	-15675	-11466	-667	870	137	-4979
	35	-19144	18260	667	1711	111	7634
SLU Statiche +	36	15547	18767	42	327	-137	-9631
	336	19272	-20881	-42	-74	-111	16020
	335	-15675	-11466	-667	870	137	-4979
	35	-19144	18260	667	1711	111	7634
SLV -	36	122	-2649	-308	-636	-226	-19368
	336	6126	-12815	-327	-74	-347	4644
	335	-18632	-11669	-1678	-1912	-87	-10645
	35	-16526	1205	-1059	-2908	-251	-8526
SLV +	36	18416	25616	327	931	87	7768
	336	16255	-11118	308	-1	251	13840
	335	69	-1720	1059	2675	226	4698
	35	-5829	20350	1678	4476	347	17379
SLD -	36	5929	6324	-107	-139	-127	-10755
	336	9341	-12276	-126	-51	-157	7563
	335	-12695	-8511	-809	-457	11	-5774
	35	-13130	7282	-191	-566	-61	-302
SLD +	36	12608	16644	126	434	-11	-845
	336	13039	-11657	107	-24	61	10921
	335	-5868	-4878	191	1220	127	-173
	35	-9225	14272	809	2133	157	9156
SLU Statiche -	38	3565	12027	-826	-1035	-150	2285
	338	3072	-6804	826	-2246	-138	-49
	337	-3602	-2766	-727	759	150	-2098
	37	-3035	5369	727	2129	138	558
SLU Statiche +	38	3565	12027	-826	-1035	-150	2285
	338	3072	-6804	826	-2246	-138	-49
	337	-3602	-2766	-727	759	150	-2098
	37	-3035	5369	727	2129	138	558
SLV -	38	-2845	-3793	-2680	-5469	-187	607
	338	178	-5196	-1924	-5285	-145	-175
	337	-7514	-10723	-908	-411	-3	-1696
	37	-3563	-462	-74	98	19	6
SLV +	38	7367	19578	1924	4715	3	2397
	338	3314	-2389	2680	3053	-19	119
	337	3098	7397	74	1245	187	-765
	37	-35	7628	908	2371	145	498
SLD -	38	365	3552	-1221	-2243	-127	1170
	338	1165	-4312	-466	-2643	-105	-82
	337	-4179	-5028	-600	110	56	-1403
	37	-2453	2082	235	813	59	162
SLD +	38	4157	12233	466	1488	-56	1835
	338	2327	-3273	1221	411	-59	26
	337	-237	1702	-235	724	127	-1058
	37	-1144	5083	600	1656	105	342
SLU Statiche -	41	10330	7751	-20	376	-109	-6458
	341	10653	-5572	20	-285	-43	6772
	340	-9655	-11101	-79	-88	109	-3159
	40	-11328	14967	79	233	43	5530

Comb.	Nodo	F <sub>x</sub> [kg]	F <sub>y</sub> [kg]	F <sub>z</sub> [kg]	M <sub>x</sub> [kgm]	M <sub>y</sub> [kgm]	M <sub>z</sub> [kgm]
SLU Statiche +	41	10330	7751	-20	376	-109	-6458
	341	10653	-5572	20	-285	-43	6772
	340	-9655	-11101	-79	-88	109	-3159
	40	-11328	14967	79	233	43	5530
SLV -	41	3345	3593	-204	-61	-209	-4388
	341	-5604	-14232	-178	-1222	-215	-2754
	340	-7215	-7097	-140	-201	-72	-4401
	40	-20792	-1505	-39	-313	-163	-10870
SLV +	41	8963	6000	178	529	72	-3059
	341	18955	7263	204	871	163	11253
	340	-4081	-5419	39	92	209	1004
	40	6428	20697	140	603	215	18300
SLD -	41	5128	4356	-83	126	-120	-3967
	341	2192	-7408	-57	-558	-95	1693
	340	-6221	-6566	-83	-108	17	-2686
	40	-12151	5543	17	-24	-43	-1611
SLD +	41	7180	5237	57	342	-17	-3481
	341	11159	440	83	207	43	6806
	340	-5075	-5951	-17	-1	120	-712
	40	-2213	13649	83	314	95	9040
SLU Statiche -	42	7239	13324	518	1882	-194	253
	342	7363	-9064	-518	400	-113	2408
	341	-7263	-1862	-200	43	194	-6647
	41	-7339	3647	200	547	113	6306
SLU Statiche +	42	7239	13324	518	1882	-194	253
	342	7363	-9064	-518	400	-113	2408
	341	-7263	-1862	-200	43	194	-6647
	41	-7339	3647	200	547	113	6306
SLV -	42	3270	-1787	-1166	-3045	-403	-449
	342	2009	-5584	-1817	-1464	-338	603
	341	-4771	-11466	-658	-713	-161	-10805
	41	-5727	1399	-409	-1187	-200	3315
SLV +	42	5408	18160	1817	5398	161	856
	342	6618	-4711	1166	1983	200	2134
	341	-3883	9955	409	764	403	2477
	41	-2923	3332	658	1864	338	3976
SLD -	42	3948	4545	-219	-365	-225	-35
	342	3472	-5309	-870	-370	-167	1089
	341	-4492	-4666	-320	-244	18	-6589
	41	-4837	2008	-70	-218	-29	3525
SLD +	42	4729	11828	870	2718	-18	441
	342	5155	-4985	219	889	29	1648
	341	-4162	3155	70	295	225	-1739
	41	-3813	2724	320	896	167	3766

## Verifiche pilastri

Modalità di verifica

I pilastri vengono verificati (a discrezione dell'utente) secondo una delle seguenti modalità:

- Presso-tenso flessione deviata.
- Presso-tenso flessione retta. In tale caso viene svolta prima la verifica a presso-tenso flessione considerando come azioni agenti lo sforzo normale ed il momento  $M_x$  agente sulla sezione poi, disgiuntamente, considerando come azioni agenti lo sforzo normale e l'altro momento  $M_y$ . A discrezione dell'operatore tali momenti (a favore della sicurezza) possono essere incrementati di un fattore di amplificazione anch'esso a discrezione dell'utente.

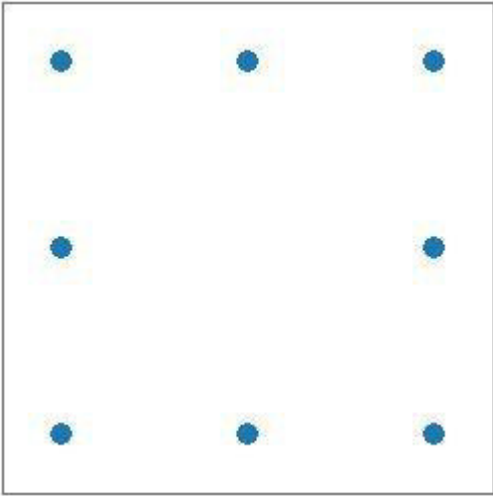
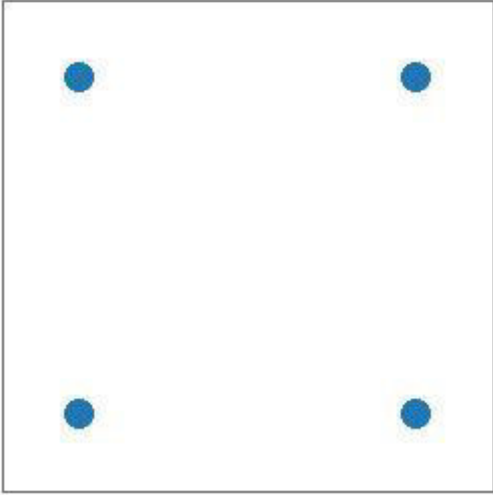
Le verifiche vengono effettuate nella sezione di sommità e in quella di base in tutte le combinazioni di carico.

Nelle stampe si riportano (per le due sezioni di verifica succitate) le sollecitazioni relative alla combinazione di carico critica. Le sollecitazioni di verifica alle estremità sono valutate ad una ascissa di spunto definita dall'utente. Sezioni Impiegate:

Sez. Num.	Info	Dimensioni	Criterio	Calcestruzzo	$\gamma_M$	F.C.	$f_{ck}$ [kg/cm <sup>2</sup> ]	$f_{cd}$ [kg/cm <sup>2</sup> ]	$\sigma_{RARE}$ [kg/cm <sup>2</sup> ]	$\sigma_{FREQ}$ [kg/cm <sup>2</sup> ]	$\sigma_{QP}$ [kg/cm <sup>2</sup> ]	Acciaio	$\gamma_M$	F.C.	$f_{yk}$ [kg/cm <sup>2</sup> ]	$f_{yd}$ [kg/cm <sup>2</sup> ]	$\sigma_{sRARE}$ [kg/cm <sup>2</sup> ]	$\sigma_{sFREQ}$ [kg/cm <sup>2</sup> ]	$\sigma_{sQP}$ [kg/cm <sup>2</sup> ]	Copr. [cm]	Verifica	cotg $\theta$
1	Rett.	B 40 [cm] H 40 [cm]	Verpil	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	Retta (N/Mx - N/My)	1.00
2	Rett.	B 30 [cm] H 30 [cm]	Verpil	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	Retta (N/Mx - N/My)	1.00

Verifiche Pilastri:

Sezioni trasversali impiegate

Identificativo	Sezione trasversale	info
Sezione 1 / Posizione A		8 ø 18 Af=20.36 [cm²]
Sezione 2 / Posizione A		4 ø 18 Af=10.18 [cm²]

ATTENZIONE AI PILASTRI AVENTI LE SEGUENTI SEZIONI NON VENGONO APPLICATI LE PRESCRIZIONI SUI MINIMI DEL CAPITOLO 7

Sezione Numero	Info
2	Rett. Rett. B 30 [cm] H 30 [cm]
1	Rett. Rett. Rett. B 40 [cm] H 40 [cm]

L'area complessiva dei bracci di staffa  $A_{st}$  è l'area totale delle staffe in entrambe le direzioni.

Pilastro: 101/1 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe: ø 8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
101	1	-2113	0	11	0.01
101 - 1	1	-2537	0	5	0.02
1	1	-2961	3	0	0.02

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	2.700	1.00	9	6042	0.00	1.00	15	6042	0.00	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
Combinazioni Rare					
101	Ft. 18	-1461	0	8	-19.4

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
------	--------------	-----------	--------------------------	--------------------------	---------------

**Combinazioni Rare**

	σ <sub>s,c</sub> 18	-1461	0	8	-22.3
	σ <sub>cls,Max</sub> 18	-1461	0	8	-1.5
	σ <sub>cls,Med</sub> 18	-1461	-4	0	-1.4
101 - 1	Ft. 18	-1787	0	4	-24.8
	σ <sub>s,c</sub> 18	-1787	0	4	-26.2
	σ <sub>cls,Max</sub> 18	-1787	0	4	-1.8
	σ <sub>cls,Med</sub> 18	-1787	-1	0	-1.7
1	Ft. 18	-2113	2	0	-29.8
	σ <sub>s,c</sub> 18	-2113	2	0	-30.4
	σ <sub>cls,Max</sub> 18	-2113	2	0	-2.0
	σ <sub>cls,Med</sub> 18	-2113	2	0	-2.0

**Combinazioni Frequenti**

101	Ft. 19	-1388	0	7	-18.4
	σ <sub>s,c</sub> 19	-1388	0	7	-21.2
	σ <sub>cls,Max</sub> 19	-1388	0	7	-1.5
	σ <sub>cls,Med</sub> 19	-1388	-4	0	-1.3
101 - 1	Ft. 19	-1715	0	4	-23.8
	σ <sub>s,c</sub> 19	-1715	0	4	-25.1
	σ <sub>cls,Max</sub> 19	-1715	0	4	-1.7
	σ <sub>cls,Med</sub> 19	-1715	-1	0	-1.6
1	Ft. 19	-2041	1	0	-28.8
	σ <sub>s,c</sub> 19	-2041	1	0	-29.3
	σ <sub>cls,Max</sub> 19	-2041	1	0	-2.0
	σ <sub>cls,Med</sub> 19	-2041	1	0	-1.9

**Combinazioni Quasi Permanenti**

101	Ft. 20	-1316	0	7	-17.4
	σ <sub>s,c</sub> 20	-1316	0	7	-20.1
	σ <sub>cls,Max</sub> 20	-1316	0	7	-1.4
	σ <sub>cls,Med</sub> 20	-1316	-4	0	-1.3
101 - 1	Ft. 20	-1642	0	3	-22.8
	σ <sub>s,c</sub> 20	-1642	0	3	-24.0
	σ <sub>cls,Max</sub> 20	-1642	0	3	-1.6
	σ <sub>cls,Med</sub> 20	-1642	-1	0	-1.6
1	Ft. 20	-1968	1	0	-27.8
	σ <sub>s,c</sub> 20	-1968	1	0	-28.2
	σ <sub>cls,Max</sub> 20	-1968	1	0	-1.9
	σ <sub>cls,Med</sub> 20	-1968	1	0	-1.9

Pilastro: 105/5 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe: ø 8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
105	1	-2088	0	-17	0.01
105 - 5	1	-2512	-0	0	0.02
5	1	-2936	0	6	0.02

Verifiche a Taglio

Da	A	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	2.700	1.00	12	6042	0.00	1.00	19	6042	0.00	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
------	--------------	-----------	--------------------------	--------------------------	---------------

**Combinazioni Rare**

105	Ft. 18	-1457	0	-12	-18.5
	σ <sub>s,c</sub> 18	-1457	0	-12	-23.0
	σ <sub>cls,Max</sub> 18	-1457	0	-12	-1.6
	σ <sub>cls,Med</sub> 18	-1457	-2	0	-1.4
105 - 5	Ft. 18	-1784	0	-4	-24.7
	σ <sub>s,c</sub> 18	-1784	0	-4	-26.1
	σ <sub>cls,Max</sub> 18	-1784	0	-4	-1.8
	σ <sub>cls,Med</sub> 18	-1784	-0	0	-1.7
5	Ft. 18	-2110	0	4	-29.3

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
	σ <sub>s,c</sub> 18	-2110	0	4	-30.9
	σ <sub>cls,Max</sub> 18	-2110	0	4	-2.1
	σ <sub>cls,Med</sub> 18	-2110	2	0	-2.0
<b>Combinazioni Frequenti</b>					
105	Ft. 19	-1392	0	-12	-17.7
	σ <sub>s,c</sub> 19	-1392	0	-12	-22.0
	σ <sub>cls,Max</sub> 19	-1392	0	-12	-1.5
	σ <sub>cls,Med</sub> 19	-1392	-2	0	-1.3
105 - 5	Ft. 19	-1718	0	-4	-23.8
	σ <sub>s,c</sub> 19	-1718	0	-4	-25.2
	σ <sub>cls,Max</sub> 19	-1718	0	-4	-1.7
	σ <sub>cls,Med</sub> 19	-1718	-0	0	-1.6
5	Ft. 19	-2045	0	4	-28.4
	σ <sub>s,c</sub> 19	-2045	0	4	-29.9
	σ <sub>cls,Max</sub> 19	-2045	0	4	-2.0
	σ <sub>cls,Med</sub> 19	-2045	2	0	-1.9
<b>Combinazioni Quasi Permanenti</b>					
105	Ft. 20	-1327	0	-11	-16.8
	σ <sub>s,c</sub> 20	-1327	0	-11	-21.0
	σ <sub>cls,Max</sub> 20	-1327	0	-11	-1.5
	σ <sub>cls,Med</sub> 20	-1327	-2	0	-1.3
105 - 5	Ft. 20	-1653	0	-4	-22.9
	σ <sub>s,c</sub> 20	-1653	0	-4	-24.2
	σ <sub>cls,Max</sub> 20	-1653	0	-4	-1.6
	σ <sub>cls,Med</sub> 20	-1653	-0	0	-1.6
5	Ft. 20	-1979	0	4	-27.5
	σ <sub>s,c</sub> 20	-1979	0	4	-28.9
	σ <sub>cls,Max</sub> 20	-1979	0	4	-2.0
	σ <sub>cls,Med</sub> 20	-1979	2	0	-1.9

Pilastro: 206/6 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe: ø 8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
206	13	-2065	0	30	0.01
206 - 6	1	-2512	0	5	0.02
6	1	-2936	-3	0	0.02

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	2.700	1.00	10	6042	0.00	1.00	18	6042	0.00	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
206	Ft. 18	-1454	0	8	-19.2
	σ <sub>s,c</sub> 18	-1454	0	8	-22.2
	σ <sub>cls,Max</sub> 18	-1454	0	8	-1.5
	σ <sub>cls,Med</sub> 18	-1454	-1	0	-1.4
206 - 6	Ft. 18	-1780	0	4	-24.7
	σ <sub>s,c</sub> 18	-1780	0	4	-26.1
	σ <sub>cls,Max</sub> 18	-1780	0	4	-1.8
	σ <sub>cls,Med</sub> 18	-1780	-1	0	-1.7
6	Ft. 18	-2107	-2	0	-29.7
	σ <sub>s,c</sub> 18	-2107	-2	0	-30.3
	σ <sub>cls,Max</sub> 18	-2107	-2	0	-2.0
	σ <sub>cls,Med</sub> 18	-2107	-2	0	-2.0
<b>Combinazioni Frequenti</b>					
206	Ft. 19	-1387	0	8	-18.3
	σ <sub>s,c</sub> 19	-1387	0	8	-21.2
	σ <sub>cls,Max</sub> 19	-1387	0	8	-1.5
	σ <sub>cls,Med</sub> 19	-1387	-1	0	-1.3
206 - 6	Ft. 19	-1713	0	4	-23.8

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
	σ <sub>s,c</sub> 19	-1713	0	4	-25.1
	σ <sub>cls,Max</sub> 19	-1713	0	4	-1.7
	σ <sub>cls,Med</sub> 19	-1713	-1	0	-1.6
6	Ft. 19	-2040	-2	0	-28.8
	σ <sub>s,c</sub> 19	-2040	-2	0	-29.4
	σ <sub>cls,Max</sub> 19	-2040	-2	0	-2.0
	σ <sub>cls,Med</sub> 19	-2040	-2	0	-1.9
<b>Combinazioni Quasi Permanenti</b>					
206	Ft. 20	-1320	0	8	-17.4
	σ <sub>s,c</sub> 20	-1320	0	8	-20.2
	σ <sub>cls,Max</sub> 20	-1320	0	8	-1.4
	σ <sub>cls,Med</sub> 20	-1320	-1	0	-1.3
206 - 6	Ft. 20	-1647	0	3	-22.8
	σ <sub>s,c</sub> 20	-1647	0	3	-24.1
	σ <sub>cls,Max</sub> 20	-1647	0	3	-1.6
	σ <sub>cls,Med</sub> 20	-1647	-1	0	-1.6
6	Ft. 20	-1973	-2	0	-27.8
	σ <sub>s,c</sub> 20	-1973	-2	0	-28.4
	σ <sub>cls,Max</sub> 20	-1973	-2	0	-1.9
	σ <sub>cls,Med</sub> 20	-1973	-2	0	-1.9

Pilastro: 210/10 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe: ø 8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
210	16	-2075	-15	0	0.01
210 - 10	16	-2401	0	-5	0.01
10	16	-2728	16	0	0.02

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	2.700	1.00	12	6042	0.00	1.00	17	6042	0.00	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
210	Ft. 18	-1373	0	-9	-18.0
	σ <sub>s,c</sub> 18	-1373	0	-9	-21.2
	σ <sub>cls,Max</sub> 18	-1373	0	-9	-1.5
	σ <sub>cls,Med</sub> 18	-1373	-1	0	-1.3
210 - 10	Ft. 18	-1699	0	-4	-23.5
	σ <sub>s,c</sub> 18	-1699	0	-4	-25.0
	σ <sub>cls,Max</sub> 18	-1699	0	-4	-1.7
	σ <sub>cls,Med</sub> 18	-1699	-0	0	-1.6
10	Ft. 18	-2025	0	1	-28.8
	σ <sub>s,c</sub> 18	-2025	0	1	-29.0
	σ <sub>cls,Max</sub> 18	-2025	0	1	-1.9
	σ <sub>cls,Med</sub> 18	-2025	0	0	-1.9
<b>Combinazioni Frequenti</b>					
210	Ft. 19	-1314	0	-8	-17.2
	σ <sub>s,c</sub> 19	-1314	0	-8	-20.2
	σ <sub>cls,Max</sub> 19	-1314	0	-8	-1.4
	σ <sub>cls,Med</sub> 19	-1314	-1	0	-1.2
210 - 10	Ft. 19	-1640	0	-4	-22.7
	σ <sub>s,c</sub> 19	-1640	0	-4	-24.1
	σ <sub>cls,Max</sub> 19	-1640	0	-4	-1.6
	σ <sub>cls,Med</sub> 19	-1640	-0	0	-1.6
10	Ft. 19	-1966	0	0	-27.9
	σ <sub>s,c</sub> 19	-1966	0	0	-28.1
	σ <sub>cls,Max</sub> 19	-1966	0	0	-1.9
	σ <sub>cls,Med</sub> 19	-1966	0	0	-1.9
<b>Combinazioni Quasi Permanenti</b>					
210	Ft. 20	-1255	0	-8	-16.4



Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
210 - 10	σ <sub>s,c</sub> 20	-1255	0	-8	-19.3
	σ <sub>cls,Max</sub> 20	-1255	0	-8	-1.3
	σ <sub>cls,Med</sub> 20	-1255	-1	0	-1.2
	Ft. 20	-1581	0	-4	-21.8
	σ <sub>s,c</sub> 20	-1581	0	-4	-23.2
	σ <sub>cls,Max</sub> 20	-1581	0	-4	-1.6
10	σ <sub>cls,Med</sub> 20	-1581	-0	0	-1.5
	Ft. 20	-1907	0	0	-27.1
	σ <sub>s,c</sub> 20	-1907	0	0	-27.2
	σ <sub>cls,Max</sub> 20	-1907	0	0	-1.8
	σ <sub>cls,Med</sub> 20	-1907	0	0	-1.8

Pilastro: 13/313 / L 3.680[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe: ø 8/15.0 x 368.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
13	1	-14384	0	-0	0.11
13 - 313	1	-13799	1	0	0.08
313	1	-13214	0	1	0.08

Verifiche a Taglio

Da	A	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.200	3.880	1.00	1	6042	0.00	1.00	9	6042	0.00	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
13	Ft. 18	-9722	1	0	-138.3
	σ <sub>s,c</sub> 18	-9722	1	0	-138.7
	σ <sub>cls,Max</sub> 18	-9722	1	0	-9.3
	σ <sub>cls,Med</sub> 18	-9722	1	0	-9.2
13 - 313	Ft. 18	-9272	1	0	-132.0
	σ <sub>s,c</sub> 18	-9272	1	0	-132.3
	σ <sub>cls,Max</sub> 18	-9272	1	0	-8.8
	σ <sub>cls,Med</sub> 18	-9272	1	0	-8.8
313	Ft. 18	-8822	0	1	-125.5
	σ <sub>s,c</sub> 18	-8822	0	1	-125.9
	σ <sub>cls,Max</sub> 18	-8822	0	1	-8.4
	σ <sub>cls,Med</sub> 18	-8822	1	0	-8.4
<b>Combinazioni Frequenti</b>					
13	Ft. 19	-9130	1	0	-129.9
	σ <sub>s,c</sub> 19	-9130	1	0	-130.3
	σ <sub>cls,Max</sub> 19	-9130	1	0	-8.7
	σ <sub>cls,Med</sub> 19	-9130	1	0	-8.7
13 - 313	Ft. 19	-8680	1	0	-123.5
	σ <sub>s,c</sub> 19	-8680	1	0	-123.8
	σ <sub>cls,Max</sub> 19	-8680	1	0	-8.3
	σ <sub>cls,Med</sub> 19	-8680	1	0	-8.2
313	Ft. 19	-8230	0	1	-117.0
	σ <sub>s,c</sub> 19	-8230	0	1	-117.5
	σ <sub>cls,Max</sub> 19	-8230	0	1	-7.8
	σ <sub>cls,Med</sub> 19	-8230	1	0	-7.8
<b>Combinazioni Quasi Permanenti</b>					
13	Ft. 20	-8538	1	0	-121.5
	σ <sub>s,c</sub> 20	-8538	1	0	-121.8
	σ <sub>cls,Max</sub> 20	-8538	1	0	-8.1
	σ <sub>cls,Med</sub> 20	-8538	1	0	-8.1
13 - 313	Ft. 20	-8088	1	0	-115.1
	σ <sub>s,c</sub> 20	-8088	1	0	-115.4
	σ <sub>cls,Max</sub> 20	-8088	1	0	-7.7
	σ <sub>cls,Med</sub> 20	-8088	1	0	-7.7
313	Ft. 20	-7638	0	1	-108.6
	σ <sub>s,c</sub> 20	-7638	0	1	-109.1

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm <sup>2</sup> ]
<b>Combinazioni Rare</b>					
	σ <sub>cls,Max</sub> 20	-7638	0	1	-7.3
	σ <sub>cls,Med</sub> 20	-7638	1	0	-7.3

Pilastro: 314/14 / L 3.680[m] / Sezione 2 B 30 [cm]H 30 [cm]

**Af:** Sezione 2 / Posizione A

**Staffe:** ø 8/15.0 x 368.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
314	1	-11290	0	-4	0.07
314 - 14	1	-11875	3	0	0.07
14	1	-12460	3	0	0.07

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	3.800	1.00	3	6042	0.00	1.00	8	6042	0.00	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm <sup>2</sup> ]
<b>Combinazioni Rare</b>					
314	Ft. 18	-7480	0	-3	-106.1
	σ <sub>s,c</sub> 18	-7480	0	-3	-107.1
	σ <sub>cls,Max</sub> 18	-7480	0	-3	-7.2
	σ <sub>cls,Med</sub> 18	-7480	1	0	-7.1
314 - 14	Ft. 18	-7930	2	0	-112.7
	σ <sub>s,c</sub> 18	-7930	2	0	-113.3
	σ <sub>cls,Max</sub> 18	-7930	2	0	-7.6
	σ <sub>cls,Med</sub> 18	-7930	2	0	-7.5
14	Ft. 18	-8380	2	0	-119.0
	σ <sub>s,c</sub> 18	-8380	2	0	-119.8
	σ <sub>cls,Max</sub> 18	-8380	2	0	-8.0
	σ <sub>cls,Med</sub> 18	-8380	2	0	-8.0
<b>Combinazioni Frequenti</b>					
314	Ft. 19	-6950	0	-2	-98.6
	σ <sub>s,c</sub> 19	-6950	0	-2	-99.5
	σ <sub>cls,Max</sub> 19	-6950	0	-2	-6.6
	σ <sub>cls,Med</sub> 19	-6950	1	0	-6.6
314 - 14	Ft. 19	-7400	2	0	-105.2
	σ <sub>s,c</sub> 19	-7400	2	0	-105.7
	σ <sub>cls,Max</sub> 19	-7400	2	0	-7.1
	σ <sub>cls,Med</sub> 19	-7400	2	0	-7.0
14	Ft. 19	-7850	2	0	-111.5
	σ <sub>s,c</sub> 19	-7850	2	0	-112.2
	σ <sub>cls,Max</sub> 19	-7850	2	0	-7.5
	σ <sub>cls,Med</sub> 19	-7850	2	0	-7.5
<b>Combinazioni Quasi Permanenti</b>					
314	Ft. 20	-6419	0	-2	-91.1
	σ <sub>s,c</sub> 20	-6419	0	-2	-91.9
	σ <sub>cls,Max</sub> 20	-6419	0	-2	-6.1
	σ <sub>cls,Med</sub> 20	-6419	1	0	-6.1
314 - 14	Ft. 20	-6869	1	0	-97.6
	σ <sub>s,c</sub> 20	-6869	1	0	-98.1
	σ <sub>cls,Max</sub> 20	-6869	1	0	-6.6
	σ <sub>cls,Med</sub> 20	-6869	1	0	-6.5
14	Ft. 20	-7319	2	0	-104.0
	σ <sub>s,c</sub> 20	-7319	2	0	-104.6
	σ <sub>cls,Max</sub> 20	-7319	2	0	-7.0
	σ <sub>cls,Med</sub> 20	-7319	2	0	-7.0

Pilastro: 15/115 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

**Af:** Sezione 2 / Posizione A

**Staffe:** ø 8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
15	1	-15729	6	0	0.09
15 - 115	8	-8810	1079	0	0.16
115	8	-8484	2183	0	0.32

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.200	2.780	1.00	761	6042	0.13	1.00	280	6042	0.05	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
15	Ft. 18	-10654	4	0	-151.1
	σ <sub>s,c</sub> 18	-10654	4	0	-152.5
	σ <sub>cls,Max</sub> 18	-10654	4	0	-10.2
	σ <sub>cls,Med</sub> 18	-10654	4	0	-10.1
15 - 115	Ft. 18	-10328	0	-186	-112.8
	σ <sub>s,c</sub> 18	-10328	0	-186	-181.5
	σ <sub>cls,Max</sub> 18	-10328	0	-186	-13.1
	σ <sub>cls,Med</sub> 18	-10328	39	0	-9.8
115	Ft. 18	-10002	0	-374	-73.5
	σ <sub>s,c</sub> 18	-10002	0	-374	-211.5
	σ <sub>cls,Max</sub> 18	-10002	0	-374	-16.2
	σ <sub>cls,Med</sub> 18	-10002	74	0	-9.5
<b>Combinazioni Frequenti</b>					
15	Ft. 19	-10017	3	0	-142.1
	σ <sub>s,c</sub> 19	-10017	3	0	-143.3
	σ <sub>cls,Max</sub> 19	-10017	3	0	-9.6
	σ <sub>cls,Med</sub> 19	-10017	3	0	-9.5
15 - 115	Ft. 19	-9691	0	-179	-105.1
	σ <sub>s,c</sub> 19	-9691	0	-179	-171.1
	σ <sub>cls,Max</sub> 19	-9691	0	-179	-12.4
	σ <sub>cls,Med</sub> 19	-9691	39	0	-9.2
115	Ft. 19	-9365	0	-359	-67.2
	σ <sub>s,c</sub> 19	-9365	0	-359	-199.7
	σ <sub>cls,Max</sub> 19	-9365	0	-359	-15.3
	σ <sub>cls,Med</sub> 19	-9365	75	0	-8.9
<b>Combinazioni Quasi Permanenti</b>					
15	Ft. 20	-9381	3	0	-133.1
	σ <sub>s,c</sub> 20	-9381	3	0	-134.2
	σ <sub>cls,Max</sub> 20	-9381	3	0	-9.0
	σ <sub>cls,Med</sub> 20	-9381	3	0	-8.9
15 - 115	Ft. 20	-9054	0	-171	-97.5
	σ <sub>s,c</sub> 20	-9054	0	-171	-160.6
	σ <sub>cls,Max</sub> 20	-9054	0	-171	-11.7
	σ <sub>cls,Med</sub> 20	-9054	40	0	-8.6
115	Ft. 20	-8728	0	-344	-60.9
	σ <sub>s,c</sub> 20	-8728	0	-344	-187.8
	σ <sub>cls,Max</sub> 20	-8728	0	-344	-14.4
	σ <sub>cls,Med</sub> 20	-8728	77	0	-8.3

Pilastro: 115/315 / L 0.860[m] / Sezione 2 B 30 [cm]H 30 [cm]

**Af:** Sezione 2 / Posizione A

**Staffe:** ø 8/15.0 x 86.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
115	4	-7241	2944	0	0.51
115 - 315	4	-7117	1446	0	0.20
315	1	-12162	0	-19	0.07

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	0.980	1.00	2724	6042	0.45	1.00	1993	6042	0.33	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
------	--------------	-----------	--------------------------	--------------------------	---------------

### Combinazioni Rare

115	Ft. 18	-8320 0	648	20.2
	$\sigma_{s,c}18$	-8320 0	648	-243.0
	$\sigma_{cls,Max}18$	-8320 0	648	-20.2
	$\sigma_{cls,Med}18$	-8320 0	648	-10.1
115 - 315	Ft. 18	-8197 0	318	-58.2
	$\sigma_{s,c}18$	-8197 0	318	-175.4
	$\sigma_{cls,Max}18$	-8197 0	318	-13.5
	$\sigma_{cls,Med}18$	-8197 220	0	-7.8
315	Ft. 18	-8073 0	-13	-112.7
	$\sigma_{s,c}18$	-8073 0	-13	-117.4
	$\sigma_{cls,Max}18$	-8073 0	-13	-7.9
	$\sigma_{cls,Med}18$	-8073 -1	0	-7.7

### Combinazioni Frequenti

115	Ft. 19	-7755 0	614	22.8
	$\sigma_{s,c}19$	-7755 0	614	-228.8
	$\sigma_{cls,Max}19$	-7755 0	614	-19.1
	$\sigma_{cls,Med}19$	-7755 0	614	-9.5
115 - 315	Ft. 19	-7632 0	301	-53.2
	$\sigma_{s,c}19$	-7632 0	301	-164.3
	$\sigma_{cls,Max}19$	-7632 0	301	-12.6
	$\sigma_{cls,Med}19$	-7632 207	0	-7.2
315	Ft. 19	-7508 0	-12	-104.8
	$\sigma_{s,c}19$	-7508 0	-12	-109.2
	$\sigma_{cls,Max}19$	-7508 0	-12	-7.3
	$\sigma_{cls,Med}19$	-7508 -1	0	-7.1

### Combinazioni Quasi Permanenti

115	Ft. 20	-7190 0	580	25.5
	$\sigma_{s,c}20$	-7190 0	580	-214.6
	$\sigma_{cls,Max}20$	-7190 0	580	-18.0
	$\sigma_{cls,Med}20$	-7190 0	580	-9.0
115 - 315	Ft. 20	-7067 0	285	-48.2
	$\sigma_{s,c}20$	-7067 0	285	-153.2
	$\sigma_{cls,Max}20$	-7067 0	285	-11.8
	$\sigma_{cls,Med}20$	-7067 194	0	-6.7
315	Ft. 20	-6943 0	-11	-96.9
	$\sigma_{s,c}20$	-6943 0	-11	-101.0
	$\sigma_{cls,Max}20$	-6943 0	-11	-6.8
	$\sigma_{cls,Med}20$	-6943 -1	0	-6.6

Pilastro: 16/116 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe:  $\varnothing$  8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
16	1	-19601 0	-4	0.12	
16 - 116	15	-11512 -851	0	0.14	
116	14	-11154 -1729	0	0.25	

Verifiche a Taglio

Da [m]	A [m]	$\cotg(0)_{12}$	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	$\cotg(0)_{13}$	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	$\omega_{st}$
0.200	2.780	1.00	606	6042	0.10	1.00	276	6042	0.05	$\varnothing$ 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	$\sigma$ [kg/cm <sup>2</sup> ]
<b>Combinazioni Rare</b>					
16	Ft. 18	-13317 0	-3	-189.3	
	$\sigma_{s,c}18$	-13317 0	-3	-190.2	
	$\sigma_{cls,Max}18$	-13317 0	-3	-12.7	
	$\sigma_{cls,Med}18$	-13317 2	0	-12.7	
16 - 116	Ft. 18	-12991 0	24	-180.7	
	$\sigma_{s,c}18$	-12991 0	24	-189.5	
	$\sigma_{cls,Max}18$	-12991 0	24	-12.8	
	$\sigma_{cls,Med}18$	-12991 2	0	-12.3	
116	Ft. 18	-12665 0	50	-171.2	
	$\sigma_{s,c}18$	-12665 0	50	-189.7	
	$\sigma_{cls,Max}18$	-12665 0	50	-12.9	

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
	σ <sub>cls,Med</sub> 18	-12665	2	0	-12.0
<b>Combinazioni Frequenti</b>					
16	Ft. 19	-12542	0	-2	-178.3
	σ <sub>s,c</sub> 19	-12542	0	-2	-179.2
	σ <sub>cls,Max</sub> 19	-12542	0	-2	-12.0
	σ <sub>cls,Med</sub> 19	-12542	2	0	-11.9
16 - 116	Ft. 19	-12215	0	21	-170.2
	σ <sub>s,c</sub> 19	-12215	0	21	-177.9
	σ <sub>cls,Max</sub> 19	-12215	0	21	-12.0
	σ <sub>cls,Med</sub> 19	-12215	1	0	-11.6
116	Ft. 19	-11889	0	45	-161.2
	σ <sub>s,c</sub> 19	-11889	0	45	-177.6
	σ <sub>cls,Max</sub> 19	-11889	0	45	-12.1
	σ <sub>cls,Med</sub> 19	-11889	1	0	-11.3
<b>Combinazioni Quasi Permanenti</b>					
16	Ft. 20	-11766	0	-2	-167.2
	σ <sub>s,c</sub> 20	-11766	0	-2	-168.1
	σ <sub>cls,Max</sub> 20	-11766	0	-2	-11.2
	σ <sub>cls,Med</sub> 20	-11766	2	0	-11.2
16 - 116	Ft. 20	-11440	0	18	-159.6
	σ <sub>s,c</sub> 20	-11440	0	18	-166.4
	σ <sub>cls,Max</sub> 20	-11440	0	18	-11.2
	σ <sub>cls,Med</sub> 20	-11440	1	0	-10.9
116	Ft. 20	-11113	0	39	-151.2
	σ <sub>s,c</sub> 20	-11113	0	39	-165.5
	σ <sub>cls,Max</sub> 20	-11113	0	39	-11.3
	σ <sub>cls,Med</sub> 20	-11113	0	0	-10.6

Pilastro: 116/316 / L 0.860[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe: ø 8/15.0 x 86.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
116	4	-7654	0	-2670	0.44
116 - 316	4	-7530	0	-1299	0.18
316	1	-13102	0	17	0.08

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	0.980	1.00	1583	6042	0.26	1.00	2494	6042	0.41	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
116	Ft. 18	-8940	0	-430	-48.0
	σ <sub>s,c</sub> 18	-8940	0	-430	-206.8
	σ <sub>cls,Max</sub> 18	-8940	0	-430	-16.2
	σ <sub>cls,Med</sub> 18	-8940	27	0	-8.5
116 - 316	Ft. 18	-8816	0	-209	-87.0
	σ <sub>s,c</sub> 18	-8816	0	-209	-164.2
	σ <sub>cls,Max</sub> 18	-8816	0	-209	-12.1
	σ <sub>cls,Med</sub> 18	-8816	17	0	-8.4
316	Ft. 18	-8692	0	12	-121.7
	σ <sub>s,c</sub> 18	-8692	0	12	-126.1
	σ <sub>cls,Max</sub> 18	-8692	0	12	-8.5
	σ <sub>cls,Med</sub> 18	-8692	8	0	-8.3
<b>Combinazioni Frequenti</b>					
116	Ft. 19	-8329	0	-411	-42.8
	σ <sub>s,c</sub> 19	-8329	0	-411	-194.5
	σ <sub>cls,Max</sub> 19	-8329	0	-411	-15.3
	σ <sub>cls,Med</sub> 19	-8329	24	0	-7.9
116 - 316	Ft. 19	-8205	0	-200	-80.0
	σ <sub>s,c</sub> 19	-8205	0	-200	-153.8
	σ <sub>cls,Max</sub> 19	-8205	0	-200	-11.4

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
316	σ <sub>cls,Med</sub> 19	-8205	16	0	-7.8
	Ft. 19	-8082	0	11	-113.1
	σ <sub>s,c</sub> 19	-8082	0	11	-117.3
	σ <sub>cls,Max</sub> 19	-8082	0	11	-7.9
	σ <sub>cls,Med</sub> 19	-8082	7	0	-7.7
<b>Combinazioni Quasi Permanenti</b>					
116	Ft. 20	-7718	0	-392	-37.6
	σ <sub>s,c</sub> 20	-7718	0	-392	-182.3
	σ <sub>cls,Max</sub> 20	-7718	0	-392	-14.4
	σ <sub>cls,Med</sub> 20	-7718	22	0	-7.3
116 - 316	Ft. 20	-7595	0	-191	-73.0
	σ <sub>s,c</sub> 20	-7595	0	-191	-143.4
	σ <sub>cls,Max</sub> 20	-7595	0	-191	-10.6
	σ <sub>cls,Med</sub> 20	-7595	14	0	-7.2
316	Ft. 20	-7471	0	11	-104.5
	σ <sub>s,c</sub> 20	-7471	0	11	-108.5
	σ <sub>cls,Max</sub> 20	-7471	0	11	-7.3
	σ <sub>cls,Med</sub> 20	-7471	7	0	-7.1

Pilastro: 17/117 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe: ø 8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
17	1	-16027	0	-7	0.10
17 - 117	14	-9604	-1109	0	0.16
117	14	-9277	-2251	0	0.32

Verifiche a Taglio

Da	A	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.200	2.780	1.00	787	6042	0.13	1.00	281	6042	0.05	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
17	Ft. 18	-10860	0	-5	-153.8
	σ <sub>s,c</sub> 18	-10860	0	-5	-155.7
	σ <sub>cls,Max</sub> 18	-10860	0	-5	-10.4
	σ <sub>cls,Med</sub> 18	-10860	1	0	-10.3
17 - 117	Ft. 18	-10534	0	184	-116.1
	σ <sub>s,c</sub> 18	-10534	0	184	-184.1
	σ <sub>cls,Max</sub> 18	-10534	0	184	-13.3
	σ <sub>cls,Med</sub> 18	-10534	-86	0	-10.0
117	Ft. 18	-10207	0	374	-76.4
	σ <sub>s,c</sub> 18	-10207	0	374	-214.5
	σ <sub>cls,Max</sub> 18	-10207	0	374	-16.4
	σ <sub>cls,Med</sub> 18	-10207	-174	0	-9.7
<b>Combinazioni Frequenti</b>					
17	Ft. 19	-10213	0	-5	-144.6
	σ <sub>s,c</sub> 19	-10213	0	-5	-146.4
	σ <sub>cls,Max</sub> 19	-10213	0	-5	-9.8
	σ <sub>cls,Med</sub> 19	-10213	1	0	-9.7
17 - 117	Ft. 19	-9887	0	174	-108.7
	σ <sub>s,c</sub> 19	-9887	0	174	-173.0
	σ <sub>cls,Max</sub> 19	-9887	0	174	-12.5
	σ <sub>cls,Med</sub> 19	-9887	-84	0	-9.4
117	Ft. 19	-9560	0	353	-71.0
	σ <sub>s,c</sub> 19	-9560	0	353	-201.4
	σ <sub>cls,Max</sub> 19	-9560	0	353	-15.4
	σ <sub>cls,Med</sub> 19	-9560	-169	0	-9.1
<b>Combinazioni Quasi Permanenti</b>					
17	Ft. 20	-9566	0	-5	-135.5
	σ <sub>s,c</sub> 20	-9566	0	-5	-137.1
	σ <sub>cls,Max</sub> 20	-9566	0	-5	-9.2

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
17 - 117	σ <sub>cls,Med</sub> 20	-9566	1	0	-9.1
	Ft. 20	-9240	0	164	-101.4
	σ <sub>s,c</sub> 20	-9240	0	164	-161.9
	σ <sub>cls,Max</sub> 20	-9240	0	164	-11.7
117	σ <sub>cls,Med</sub> 20	-9240	-81	0	-8.8
	Ft. 20	-8913	0	332	-65.6
	σ <sub>s,c</sub> 20	-8913	0	332	-188.4
	σ <sub>cls,Max</sub> 20	-8913	0	332	-14.4
	σ <sub>cls,Med</sub> 20	-8913	-164	0	-8.5

Pilastro: 117/317 / L 0.860[m] / Sezione 2 B 30 [cm]H 30 [cm]

**Af:** Sezione 2 / Posizione A

**Staffe:** ø 8/15.0 x 86.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
117	4	-6506	0	-2698	0.47
117 - 317	4	-6383	0	-1307	0.18
317	1	-11833	0	43	0.07

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	0.980	1.00	2319	6042	0.38	1.00	2528	6042	0.42	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
117	Ft. 18	-8104	0	-1253	412.6
	σ <sub>s,c</sub> 18	-8104	0	-1253	-383.1
	σ <sub>cls,Max</sub> 18	-8104	0	-1253	-37.6
	σ <sub>cls,Med</sub> 18	-8104	0	-1253	-18.8
117 - 317	Ft. 18	-7980	0	-612	15.8
	σ <sub>s,c</sub> 18	-7980	0	-612	-230.9
	σ <sub>cls,Max</sub> 18	-7980	0	-612	-19.1
	σ <sub>cls,Med</sub> 18	-7980	0	-612	-9.6
317	Ft. 18	-7856	0	30	-106.5
	σ <sub>s,c</sub> 18	-7856	0	30	-117.4
	σ <sub>cls,Max</sub> 18	-7856	0	30	-8.0
	σ <sub>cls,Med</sub> 18	-7856	16	0	-7.5
<b>Combinazioni Frequenti</b>					
117	Ft. 19	-7555	0	-1195	406.1
	σ <sub>s,c</sub> 19	-7555	0	-1195	-363.3
	σ <sub>cls,Max</sub> 19	-7555	0	-1195	-35.9
	σ <sub>cls,Med</sub> 19	-7555	0	-1195	-18.0
117 - 317	Ft. 19	-7431	0	-584	20.1
	σ <sub>s,c</sub> 19	-7431	0	-584	-218.2
	σ <sub>cls,Max</sub> 19	-7431	0	-584	-18.2
	σ <sub>cls,Med</sub> 19	-7431	0	-584	-9.1
317	Ft. 19	-7308	0	28	-99.0
	σ <sub>s,c</sub> 19	-7308	0	28	-109.3
	σ <sub>cls,Max</sub> 19	-7308	0	28	-7.4
	σ <sub>cls,Med</sub> 19	-7308	15	0	-6.9
<b>Combinazioni Quasi Permanenti</b>					
117	Ft. 20	-7006	0	-1138	399.8
	σ <sub>s,c</sub> 20	-7006	0	-1138	-343.4
	σ <sub>cls,Max</sub> 20	-7006	0	-1138	-34.2
	σ <sub>cls,Med</sub> 20	-7006	0	-1138	-17.1
117 - 317	Ft. 20	-6882	0	-556	24.6
	σ <sub>s,c</sub> 20	-6882	0	-556	-205.6
	σ <sub>cls,Max</sub> 20	-6882	0	-556	-17.2
	σ <sub>cls,Med</sub> 20	-6882	0	-556	-8.6
317	Ft. 20	-6759	0	26	-91.5
	σ <sub>s,c</sub> 20	-6759	0	26	-101.2
	σ <sub>cls,Max</sub> 20	-6759	0	26	-6.9
	σ <sub>cls,Med</sub> 20	-6759	14	0	-6.4

Pilastro: 18/218 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

**Af:** Sezione 2 / Posizione A

**Staffe:** ø 8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
18	1	-15694	-12	0	0.09
18 - 218	6	-8654	998	0	0.15
218	6	-8328	2030	0	0.29

Verifiche a Taglio

Da	A	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.200	2.780	1.00	712	6042	0.12	1.00	175	6042	0.03	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
18	Ft. 18	-10619	-8	0	-149.8
	σ <sub>s,c</sub> 18	-10619	-8	0	-152.8
	σ <sub>cls,Max</sub> 18	-10619	-8	0	-10.2
	σ <sub>cls,Med</sub> 18	-10619	-8	0	-10.1
18 - 218	Ft. 18	-10292	370	0	-78.4
	σ <sub>s,c</sub> 18	-10292	370	0	-214.9
	σ <sub>cls,Max</sub> 18	-10292	370	0	-16.4
	σ <sub>cls,Med</sub> 18	-10292	370	0	-9.8
218	Ft. 18	-9966	747	0	13.7
	σ <sub>s,c</sub> 18	-9966	747	0	-284.5
	σ <sub>cls,Max</sub> 18	-9966	747	0	-23.5
	σ <sub>cls,Med</sub> 18	-9966	747	0	-11.8
<b>Combinazioni Frequenti</b>					
18	Ft. 19	-9978	-7	0	-140.8
	σ <sub>s,c</sub> 19	-9978	-7	0	-143.6
	σ <sub>cls,Max</sub> 19	-9978	-7	0	-9.6
	σ <sub>cls,Med</sub> 19	-9978	-7	0	-9.5
18 - 218	Ft. 19	-9652	348	0	-73.4
	σ <sub>s,c</sub> 19	-9652	348	0	-201.7
	σ <sub>cls,Max</sub> 19	-9652	348	0	-15.4
	σ <sub>cls,Med</sub> 19	-9652	348	0	-9.2
218	Ft. 19	-9326	703	0	14.0
	σ <sub>s,c</sub> 19	-9326	703	0	-267.0
	σ <sub>cls,Max</sub> 19	-9326	703	0	-22.1
	σ <sub>cls,Med</sub> 19	-9326	703	0	-11.0
<b>Combinazioni Quasi Permanenti</b>					
18	Ft. 20	-9337	-7	0	-131.8
	σ <sub>s,c</sub> 20	-9337	-7	0	-134.3
	σ <sub>cls,Max</sub> 20	-9337	-7	0	-9.0
	σ <sub>cls,Med</sub> 20	-9337	-7	0	-8.9
18 - 218	Ft. 20	-9011	326	0	-68.3
	σ <sub>s,c</sub> 20	-9011	326	0	-188.5
	σ <sub>cls,Max</sub> 20	-9011	326	0	-14.4
	σ <sub>cls,Med</sub> 20	-9011	326	0	-8.6
218	Ft. 20	-8685	658	0	14.3
	σ <sub>s,c</sub> 20	-8685	658	0	-249.5
	σ <sub>cls,Max</sub> 20	-8685	658	0	-20.6
	σ <sub>cls,Med</sub> 20	-8685	658	0	-10.3

Pilastro: 218/318 / L 0.860[m] / Sezione 2 B 30 [cm]H 30 [cm]

**Af:** Sezione 2 / Posizione A

**Staffe:** ø 8/15.0 x 86.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
218	13	-6822	0	3162	0.57
218 - 318	13	-6698	0	1537	0.21



Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr						
318	1	-11856	0	-33	0.07						
Verifiche a Taglio											
Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	0.980	1.00	1874	6042	0.31	1.00	2954	6042	0.49	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
218	Ft. 18	-8112	1173	0	350.5
	σ <sub>s,c</sub> 18	-8112	1173	0	-365.1
	σ <sub>cls,Max</sub> 18	-8112	1173	0	-35.2
	σ <sub>cls,Med</sub> 18	-8112	1173	0	-17.6
218 - 318	Ft. 18	-7988	578	0	3.8
	σ <sub>s,c</sub> 18	-7988	578	0	-223.5
	σ <sub>cls,Max</sub> 18	-7988	578	0	-18.4
	σ <sub>cls,Med</sub> 18	-7988	578	0	-9.2
318	Ft. 18	-7865	0	-22	-108.0
	σ <sub>s,c</sub> 18	-7865	0	-22	-116.2
	σ <sub>cls,Max</sub> 18	-7865	0	-22	-7.9
	σ <sub>cls,Med</sub> 18	-7865	-17	0	-7.5
<b>Combinazioni Frequenti</b>					
218	Ft. 19	-7559	1104	0	334.8
	σ <sub>s,c</sub> 19	-7559	1104	0	-342.7
	σ <sub>cls,Max</sub> 19	-7559	1104	0	-33.2
	σ <sub>cls,Med</sub> 19	-7559	1104	0	-16.6
218 - 318	Ft. 19	-7435	544	0	5.5
	σ <sub>s,c</sub> 19	-7435	544	0	-209.3
	σ <sub>cls,Max</sub> 19	-7435	544	0	-17.2
	σ <sub>cls,Med</sub> 19	-7435	544	0	-8.6
318	Ft. 19	-7312	0	-21	-100.4
	σ <sub>s,c</sub> 19	-7312	0	-21	-108.0
	σ <sub>cls,Max</sub> 19	-7312	0	-21	-7.3
	σ <sub>cls,Med</sub> 19	-7312	-16	0	-6.9
<b>Combinazioni Quasi Permanenti</b>					
218	Ft. 20	-7006	1035	0	319.1
	σ <sub>s,c</sub> 20	-7006	1035	0	-320.2
	σ <sub>cls,Max</sub> 20	-7006	1035	0	-31.1
	σ <sub>cls,Med</sub> 20	-7006	1035	0	-15.5
218 - 318	Ft. 20	-6882	510	0	7.3
	σ <sub>s,c</sub> 20	-6882	510	0	-195.1
	σ <sub>cls,Max</sub> 20	-6882	510	0	-16.1
	σ <sub>cls,Med</sub> 20	-6882	510	0	-8.0
318	Ft. 20	-6758	0	-19	-92.8
	σ <sub>s,c</sub> 20	-6758	0	-19	-99.8
	σ <sub>cls,Max</sub> 20	-6758	0	-19	-6.8
	σ <sub>cls,Med</sub> 20	-6758	-15	0	-6.4

Pilastro: 19/219 / L 2.580[m] / Sezione 2 B 30 [cm]H 30 [cm]

Af: Sezione 2 / Posizione A

Staffe: ø 8/15.0 x 258.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr						
19	1	-19297	-7	0	0.12						
19 - 219	1	-18872	310	0	0.14						
219	1	-18448	627	0	0.16						
Verifiche a Taglio											
Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.200	2.780	1.00	351	6042	0.06	1.00	244	6042	0.04	ø 8/15.0	0.000
Verifiche a Presso-Flessione S.L.E.											

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
19 - 219	σ <sub>cls,Max</sub> 18	-13159	-4	0	-12.6
	σ <sub>cls,Med</sub> 18	-13159	-4	0	-12.5
	Ft. 18	-12833	210	0	-144.0
	σ <sub>s,c</sub> 18	-12833	210	0	-221.7
219	σ <sub>cls,Max</sub> 18	-12833	210	0	-16.0
	σ <sub>cls,Med</sub> 18	-12833	210	0	-12.2
	Ft. 18	-12506	425	0	-99.8
	σ <sub>s,c</sub> 18	-12506	425	0	-256.6
	σ <sub>cls,Max</sub> 18	-12506	425	0	-19.5
	σ <sub>cls,Med</sub> 18	-12506	425	0	-11.9
<b>Combinazioni Frequenti</b>					
19	Ft. 19	-12416	-4	0	-176.2
	σ <sub>s,c</sub> 19	-12416	-4	0	-177.7
	σ <sub>cls,Max</sub> 19	-12416	-4	0	-11.9
	σ <sub>cls,Med</sub> 19	-12416	-4	0	-11.8
19 - 219	Ft. 19	-12090	198	0	-135.8
	σ <sub>s,c</sub> 19	-12090	198	0	-208.8
	σ <sub>cls,Max</sub> 19	-12090	198	0	-15.0
	σ <sub>cls,Med</sub> 19	-12090	198	0	-11.5
219	Ft. 19	-11764	400	0	-93.9
	σ <sub>s,c</sub> 19	-11764	400	0	-241.4
	σ <sub>cls,Max</sub> 19	-11764	400	0	-18.3
	σ <sub>cls,Med</sub> 19	-11764	400	0	-11.2
<b>Combinazioni Quasi Permanenti</b>					
19	Ft. 20	-11674	-4	0	-165.6
	σ <sub>s,c</sub> 20	-11674	-4	0	-167.0
	σ <sub>cls,Max</sub> 20	-11674	-4	0	-11.2
	σ <sub>cls,Med</sub> 20	-11674	-4	0	-11.1
19 - 219	Ft. 20	-11348	185	0	-127.5
	σ <sub>s,c</sub> 20	-11348	185	0	-195.9
	σ <sub>cls,Max</sub> 20	-11348	185	0	-14.1
	σ <sub>cls,Med</sub> 20	-11348	185	0	-10.8
219	Ft. 20	-11021	374	0	-87.9
	σ <sub>s,c</sub> 20	-11021	374	0	-226.2
	σ <sub>cls,Max</sub> 20	-11021	374	0	-17.2
	σ <sub>cls,Med</sub> 20	-11021	374	0	-10.5

Pilastro: 219/319 / L 0.860[m] / Sezione 2 B 30 [cm]H 30 [cm]

**Af:** Sezione 2 / Posizione A

**Staffe:** ø 8/15.0 x 86.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
219	13	-8472	0	3250	0.55
219 - 319	13	-8349	0	1578	0.22
319	1	-12985	-11	0	0.08

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	0.980	1.00	924	6042	0.15	1.00	3040	6042	0.50	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
219	Ft. 18	-8883	449	0	-43.7
	σ <sub>s,c</sub> 18	-8883	449	0	-209.4
	σ <sub>cls,Max</sub> 18	-8883	449	0	-16.5
	σ <sub>cls,Med</sub> 18	-8883	449	0	-8.4
219 - 319	Ft. 18	-8759	221	0	-84.1
	σ <sub>s,c</sub> 18	-8759	221	0	-165.6
	σ <sub>cls,Max</sub> 18	-8759	221	0	-12.3
	σ <sub>cls,Med</sub> 18	-8759	221	0	-8.3
319	Ft. 18	-8635	-7	0	-121.7
	σ <sub>s,c</sub> 18	-8635	-7	0	-124.4
	σ <sub>cls,Max</sub> 18	-8635	-7	0	-8.3

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
	σ <sub>cls,Med</sub> 18	-8635	-7	0	-8.2
<b>Combinazioni Frequenti</b>					
219	Ft. 19	-8286	422	0	-40.1
	σ <sub>s,c</sub> 19	-8286	422	0	-196.0
	σ <sub>cls,Max</sub> 19	-8286	422	0	-15.4
	σ <sub>cls,Med</sub> 19	-8286	422	0	-7.9
219 - 319	Ft. 19	-8162	208	0	-78.0
	σ <sub>s,c</sub> 19	-8162	208	0	-154.6
	σ <sub>cls,Max</sub> 19	-8162	208	0	-11.5
	σ <sub>cls,Med</sub> 19	-8162	208	0	-7.8
319	Ft. 19	-8039	-7	0	-113.3
	σ <sub>s,c</sub> 19	-8039	-7	0	-115.8
	σ <sub>cls,Max</sub> 19	-8039	-7	0	-7.8
	σ <sub>cls,Med</sub> 19	-8039	-7	0	-7.6
<b>Combinazioni Quasi Permanenti</b>					
219	Ft. 20	-7690	395	0	-36.6
	σ <sub>s,c</sub> 20	-7690	395	0	-182.6
	σ <sub>cls,Max</sub> 20	-7690	395	0	-14.4
	σ <sub>cls,Med</sub> 20	-7690	395	0	-7.3
219 - 319	Ft. 20	-7566	194	0	-71.9
	σ <sub>s,c</sub> 20	-7566	194	0	-143.7
	σ <sub>cls,Max</sub> 20	-7566	194	0	-10.7
	σ <sub>cls,Med</sub> 20	-7566	194	0	-7.2
319	Ft. 20	-7442	-7	0	-104.8
	σ <sub>s,c</sub> 20	-7442	-7	0	-107.3
	σ <sub>cls,Max</sub> 20	-7442	-7	0	-7.2
	σ <sub>cls,Med</sub> 20	-7442	-7	0	-7.1

Pilastro: 29/329 / L 3.280[m] / Sezione 1 B 40 [cm]H 40 [cm]

Af: Sezione 1 / Posizione A

Staffe: ø 8 4br./15.0 x 328.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
29	1	-34967	-12	0	0.11
29 - 329	1	-33927	0	25	0.11
329	1	-32887	0	38	0.11

Verifiche a Taglio

Da [m]	A [m]	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.200	3.480	1.00	0	16805	0.00	1.00	32	16805	0.00	ø 8 4br./15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
29	Ft. 18	-23623	-8	0	-185.3
	σ <sub>s,c</sub> 18	-23623	-8	0	-186.7
	σ <sub>cls,Max</sub> 18	-23623	-8	0	-12.5
	σ <sub>cls,Med</sub> 18	-23623	-8	0	-12.4
29 - 329	Ft. 18	-22823	0	17	-178.2
	σ <sub>s,c</sub> 18	-22823	0	17	-181.1
	σ <sub>cls,Max</sub> 18	-22823	0	17	-12.1
	σ <sub>cls,Med</sub> 18	-22823	-8	0	-12.0
329	Ft. 18	-22023	0	26	-171.2
	σ <sub>s,c</sub> 18	-22023	0	26	-175.6
	σ <sub>cls,Max</sub> 18	-22023	0	26	-11.8
	σ <sub>cls,Med</sub> 18	-22023	-8	0	-11.6
<b>Combinazioni Frequenti</b>					
29	Ft. 19	-22180	-8	0	-173.9
	σ <sub>s,c</sub> 19	-22180	-8	0	-175.3
	σ <sub>cls,Max</sub> 19	-22180	-8	0	-11.7
	σ <sub>cls,Med</sub> 19	-22180	-8	0	-11.6
29 - 329	Ft. 19	-21380	0	16	-167.0
	σ <sub>s,c</sub> 19	-21380	0	16	-169.7
	σ <sub>cls,Max</sub> 19	-21380	0	16	-11.3

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
329	σ <sub>cls,Med</sub> 19	-21380	-8	0	-11.2
	Ft. 19	-20580	0	24	-160.0
	σ <sub>s,c</sub> 19	-20580	0	24	-164.1
	σ <sub>cls,Max</sub> 19	-20580	0	24	-11.0
	σ <sub>cls,Med</sub> 19	-20580	-8	0	-10.8
<b>Combinazioni Quasi Permanenti</b>					
29	Ft. 20	-20737	-7	0	-162.6
	σ <sub>s,c</sub> 20	-20737	-7	0	-163.9
	σ <sub>cls,Max</sub> 20	-20737	-7	0	-10.9
	σ <sub>cls,Med</sub> 20	-20737	-7	0	-10.9
29 - 329	Ft. 20	-19937	0	14	-155.7
	σ <sub>s,c</sub> 20	-19937	0	14	-158.2
	σ <sub>cls,Max</sub> 20	-19937	0	14	-10.6
	σ <sub>cls,Med</sub> 20	-19937	-7	0	-10.5
329	Ft. 20	-19137	0	22	-148.8
	σ <sub>s,c</sub> 20	-19137	0	22	-152.6
	σ <sub>cls,Max</sub> 20	-19137	0	22	-10.2
	σ <sub>cls,Med</sub> 20	-19137	-7	0	-10.0

Pilastro: 339/39 / L 3.680[m] / Sezione 2 B 30 [cm]H 30 [cm]

**Af:** Sezione 2 / Posizione A

**Staffe:** ø 8/15.0 x 368.0

Verifiche a Presso-Flessione S.L.U.

Nodo	Comb	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
339	1	-16613	0	-1	0.10
339 - 39	1	-17198	0	-1	0.10
39	1	-17783	0	-2	0.11

Verifiche a Toglio

Da	A	cotg(θ) <sub>12</sub>	V <sub>d12</sub> [kg]	V <sub>Rd12</sub> [kg]	S/R <sub>12</sub> [kg]	cotg(θ) <sub>13</sub>	V <sub>d13</sub> [kg]	V <sub>Rd13</sub> [kg]	S/R <sub>13</sub> [kg]	Staffe	ω <sub>st</sub>
0.120	3.800	1.00	0	6042	0.00	1.00	12	6042	0.00	ø 8/15.0	0.000

Verifiche a Presso-Flessione S.L.E.

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
339	Ft. 18	-11090	0	-1	-157.9
	σ <sub>s,c</sub> 18	-11090	0	-1	-158.1
	σ <sub>cls,Max</sub> 18	-11090	0	-1	-10.5
	σ <sub>cls,Med</sub> 18	-11090	0	0	-10.5
339 - 39	Ft. 18	-11540	0	-1	-164.3
	σ <sub>s,c</sub> 18	-11540	0	-1	-164.6
	σ <sub>cls,Max</sub> 18	-11540	0	-1	-11.0
	σ <sub>cls,Med</sub> 18	-11540	0	0	-11.0
39	Ft. 18	-11990	0	-1	-170.6
	σ <sub>s,c</sub> 18	-11990	0	-1	-171.1
	σ <sub>cls,Max</sub> 18	-11990	0	-1	-11.4
	σ <sub>cls,Med</sub> 18	-11990	0	0	-11.4
<b>Combinazioni Frequenti</b>					
339	Ft. 19	-10346	0	-1	-147.3
	σ <sub>s,c</sub> 19	-10346	0	-1	-147.5
	σ <sub>cls,Max</sub> 19	-10346	0	-1	-9.8
	σ <sub>cls,Med</sub> 19	-10346	0	0	-9.8
339 - 39	Ft. 19	-10796	0	-1	-153.7
	σ <sub>s,c</sub> 19	-10796	0	-1	-154.0
	σ <sub>cls,Max</sub> 19	-10796	0	-1	-10.3
	σ <sub>cls,Med</sub> 19	-10796	0	0	-10.3
39	Ft. 19	-11246	0	-1	-160.0
	σ <sub>s,c</sub> 19	-11246	0	-1	-160.5
	σ <sub>cls,Max</sub> 19	-11246	0	-1	-10.7
	σ <sub>cls,Med</sub> 19	-11246	0	0	-10.7
<b>Combinazioni Quasi Permanenti</b>					
339	Ft. 20	-9602	0	-1	-136.7
	σ <sub>s,c</sub> 20	-9602	0	-1	-136.9
	σ <sub>cls,Max</sub> 20	-9602	0	-1	-9.1

Nodo	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Combinazioni Rare</b>					
339 - 39	σ <sub>cls,Med</sub> 20	-9602	0	0	-9.1
	Ft. 20	-10052	0	-1	-143.1
	σ <sub>s,c</sub> 20	-10052	0	-1	-143.4
	σ <sub>cls,Max</sub> 20	-10052	0	-1	-9.6
39	σ <sub>cls,Med</sub> 20	-10052	0	0	-9.5
	Ft. 20	-10502	0	-1	-149.4
	σ <sub>s,c</sub> 20	-10502	0	-1	-149.9
	σ <sub>cls,Max</sub> 20	-10502	0	-1	-10.0
	σ <sub>cls,Med</sub> 20	-10502	0	0	-10.0

## Verifiche setti in c.a.

Modalità di verifica

Le pareti in c.a. vengono verificate come setti/diaframmi o nuclei.

La verifica dei setti/diaframmi viene condotta a pressoflessione retta e a taglio. Viene calcolato lo sforzo normale medio agente sul setto e il momento ad esso associato. Quando previsto, sono introdotti ferri verticali aggiuntivi da disporsi sulle estremità del setto stesso.

La verifica dei nuclei viene condotta a pressoflessione deviata sulla sezione compressiva e a taglio sulle singole pareti costituenti il nucleo.

Sezioni Impiegate:

Sez. Num.	Info	Dimensioni	Criterio	Calcestruzzo	γ <sub>M</sub>	F.C.	f <sub>ck</sub> [kg/cm²]	f <sub>cd</sub> [kg/cm²]	σ <sub>RARE</sub> [kg/cm²]	σ <sub>FREQ</sub> [kg/cm²]	σ <sub>QP</sub> [kg/cm²]	Acciaio	γ <sub>M</sub>	F.C.	f <sub>yk</sub> [kg/cm²]	f <sub>yd</sub> [kg/cm²]	σ <sub>YRARE</sub> [kg/cm²]	σ <sub>YFREQ</sub> [kg/cm²]	σ <sub>YQP</sub> [kg/cm²]	Copriferro [cm]	cotg θ
1	Muro fondazione	B 80 [cm] H 40 [cm] s 30 [cm] Terreno numero 1	Verset	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	1.00
2	Muro fondazione	B 80 [cm] H 40 [cm] s 20 [cm] Terreno numero 1	Verset	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	1.00
3	Muro	s 30 [cm]	Verset	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	1.00

## Taglio di progetto pari al taglio di calcolo

$$V_{Rdc}=0.90 lw bw \alpha_c v f_{cd} (\cotg(\alpha)+\cotg(\theta))/(1+\cotg(\theta)^2)$$

Verifiche Setti:

NUCLEO 3 2 4 / Nodi: 3 2 4

Armature Nucleo

Nodi	Sezione Numero	B [cm]	H [cm]	Spessore [cm]	Armatura Verticale	Armatura Orizzontale
3 2	3	60	290	30	2x ø 16 10'	2x ø 8 20'
4 3	3	60	290	30	2x ø 16 10'	2x ø 8 20'

Sezione	Comb.	N <sub>Ed</sub> [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
Base	2	-7212	0	25376	0.45
Sommità	2	-4598	-0	-3961	0.05

S.L.E.	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
<b>Base</b>					
σ <sub>cls,Max</sub>	20	-7256	0	2163	-4.5
σ <sub>cls,Med</sub>	20	-7256	0	2163	-2.3
σ <sub>s,t</sub>	18	-7731	0	2343	15.9
σ <sub>s,c</sub>	18	-7731	0	2343	-65.3
<b>Sommità</b>					
σ <sub>cls,Max</sub>	20	-4646	-0	-368	-1.5
σ <sub>cls,Med</sub>	20	-4646	-0	-368	-1.1
σ <sub>s,t</sub>	18	-5121	-0	-398	-12.0
σ <sub>s,c</sub>	18	-5121	-0	-398	-24.0

Verifiche a taglio dei diaframmi

Diaframma	B [m]	H [m]	Comb	compressione				taglio - trazione							scorrimento							S/R			
				ε	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	S/R	Comb	ε	V <sub>Ed</sub> [kg]	α <sub>s</sub>	V <sub>Rcd</sub> [kg]	V <sub>Rsd</sub> [kg]	V <sub>Rd</sub> [kg]	ρ <sub>v</sub> +ρ <sub>N</sub>	S/R	Comb	ε	V <sub>Ed</sub> [kg]	V <sub>dd</sub> [kg]	V <sub>id</sub> [kg]		V <sub>fd</sub> [kg]	V <sub>Rd,s</sub> [kg]	V <sub>id</sub> V <sub>Ed</sub> /2
4-3-2	1.200	2.900	2	1.00	10120	111908	0.09	2	1.00	10120	2.00	0	0	20711		0.49									0.49

Nodi	Sezione Numero	B [cm]	H [cm]	Spessore [cm]	Armatura Verticale	Armatura Orizzontale
8 7	3	60	290	30	2x ø 16 10'	2x ø 8 20'
9 8	3	60	290	30	2x ø 16 10'	2x ø 8 20'

Sezione	Comb.	N <sub>Ed</sub> [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
Base	2	-7038	0	29038	0.53
Sommità	2	-4460	-0	-4637	0.06

S.L.E.	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
Base					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-7267	0	1400	-3.4
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-7267	0	1400	-1.7
σ <sub>s,t</sub>	20	-7267	0	1400	-4.5
σ <sub>s,c</sub>	18	-7734	0	1576	-51.0
Sommità					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-4657	-0	-147	-1.3
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-4657	-0	-147	-1.1
σ <sub>s,t</sub>	18	-5124	-0	-180	-15.3
σ <sub>s,c</sub>	18	-5124	-0	-180	-20.7

Verifiche a taglio dei diaframmi

Diaframma	B		H	compressione				taglio - trazione						scorrimento								S/R				
	[m]	[m]	Comb	ε	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	S/R	Comb	ε	V <sub>Ed</sub> [kg]	α <sub>s</sub>	V <sub>Rcd</sub> [kg]	V <sub>Rsd</sub> [kg]	V <sub>Rd</sub> [kg]	$\frac{p_h}{p_v+p_N}$	S/R	Comb	ε	V <sub>Ed</sub> [kg]	V <sub>dd</sub> [kg]	V <sub>id</sub> [kg]		V <sub>fd</sub> [kg]	V <sub>Rd,s</sub> [kg]	V <sub>Ed/2</sub> V <sub>id</sub>	S/R
9-8-7	1.200	2.900	2	1.00	11565	111907	0.10	2	1.00	11565	2.00	0	0	20711		0.56										0.56

NUCLEO 33 25 21 20 11 / Nodi: 33 25 21 20 11

Nodi	Sezione Numero	B [cm]	H [cm]	Spessore [cm]	Armatura Verticale	Armatura Orizzontale
33 25	1	280	290	30	2x ø 10 20'	2x ø 10 20'
25 21	1	230	290	30	2x ø 10 20'	2x ø 10 20'
21 20	1	60	290	30	2x ø 10 20'	2x ø 10 20'
20 11	3	60	290	30	2x ø 10 20'	2x ø 10 20'

Sezione	Comb.	N <sub>Ed</sub> [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
Base	10	-44366	-50043	-17570	0.55
Sommità	1	-43900	-31904	-13436	0.37

S.L.E.	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
Base					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-47020	-16573	-3177	-6.7
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-47020	-16573	-3177	-2.9
σ <sub>s,t</sub>	20	-47020	-16573	-3177	19.0
σ <sub>s,c</sub>	18	-49368	-19370	-3025	-88.5
Sommità					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-28757	-18704	-7761	-21.4
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-28757	-18704	-7761	-9.1
σ <sub>s,t</sub>	18	-31105	-21439	-8967	901.3
σ <sub>s,c</sub>	18	-31105	-21439	-8967	-219.2

Verifiche a taglio dei diaframmi

Diaframma	B [m]	H [m]	compressione							taglio - trazione							scorrimento							S/R	
			Comb	ε	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	S/R	Comb	ε	V <sub>Ed</sub> [kg]	α <sub>s</sub>	V <sub>Rcd</sub> [kg]	V <sub>Rsd</sub> [kg]	V <sub>Rd</sub> [kg]	$\frac{p_h}{p_v+p_N}$	S/R	Comb	ε	V <sub>Ed</sub> [kg]	V <sub>dd</sub> [kg]	V <sub>id</sub> [kg]	V <sub>fd</sub> [kg]	V <sub>Rd,s</sub> [kg]		V <sub>id</sub> V <sub>Ed</sub> /2
20-11	0.600	2.900	17	1.00	13334	54519	0.24	17	1.00	13334	2.00	0	0	15766		0.85									0.85
33-25-21-20	5.700	2.900	6	1.00	27253	542321	0.05	6	1.00	27253	2.00	0	0	156829		0.17									0.17

NUCLEO 38 37 28 24 12 / Nodi: 38 37 28 24 12

Nodi	Sezione Numero	B [cm]	H [cm]	Spessore [cm]	Armatura Verticale	Armatura Orizzontale
38 37	2	215	400	20	2x ø 10 20'	2x ø 10 20'
37 28	2	215	400	20	2x ø 10 20'	2x ø 10 20'
28 24	2	285	400	20	2x ø 10 20'	2x ø 10 20'
24 12	2	285	400	20	2x ø 10 20'	2x ø 10 20'

Sezione	Comb.	N <sub>Ed</sub> [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
Base	8	-45653	-174420	-0	0.05
Sommità	1	-33588	-21017	-0	0.01

S.L.E.	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
Base					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-46873	-15135	-0	-2.6
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-46873	-15135	-0	-2.2
σ <sub>s,t</sub>	18	-50135	-17737	-0	-28.3
σ <sub>s,c</sub>	18	-50135	-17737	-0	-42.8
Sommita					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-18873	-11825	-0	-1.2
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-18873	-11825	-0	-0.9
σ <sub>s,t</sub>	18	-22135	-13859	-0	-10.0
σ <sub>s,c</sub>	18	-22135	-13859	-0	-21.4

Verifiche a taglio dei diaframmi

Diaframma	B [m]	H [m]	compressione				taglio - trazione						scorrimento								S/R				
			Comb	ε	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	S/R	Comb	ε	V <sub>Ed</sub> [kg]	α <sub>s</sub>	V <sub>Rcd</sub> [kg]	V <sub>Rsd</sub> [kg]	V <sub>Rd</sub> [kg]	$\frac{p_h}{\rho_v+\rho_N}$	S/R	Comb	ε	V <sub>Ed</sub> [kg]	V <sub>dd</sub> [kg]		V <sub>id</sub> [kg]	V <sub>fd</sub> [kg]	V <sub>Rd,s</sub> [kg]	V <sub>id</sub> V <sub>Ed</sub> /2
38-37-28-24-12	10.000	4.000	8	1.00	42977	635737	0.07	8	1.00	42977	2.00	0	0	275764	0.16										0.16

NUCLEO 221 220 225 233 / Nodi: 221 220 225 233

Armature Nucleo

Nodi	Sezione Numero	B [cm]	H [cm]	Spessore [cm]	Armatura Verticale	Armatura Orizzontale
221 220	3	60	110	30	2x ø 10 20'	2x ø 10 20'
225 221	3	230	110	30	2x ø 10 20'	2x ø 10 20'
233 225	3	280	110	30	2x ø 10 20'	2x ø 10 20'

Sezione	Comb.	N <sub>Ed</sub> [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
Base	6	-27213	-47856	-0	0.03
Sommità	1	-34684	-26098	-0	0.02

S.L.E.	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
Base					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-26871	-15465	-0	-2.4
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-26871	-15465	-0	-1.5
σ <sub>s,t</sub>	18	-28984	-18189	-0	-8.6
σ <sub>s,c</sub>	18	-28984	-18189	-0	-40.3
Sommita					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-22169	-14883	-0	-2.1
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-22169	-14883	-0	-1.2
σ <sub>s,t</sub>	18	-24282	-17316	-0	-5.4
σ <sub>s,c</sub>	18	-24282	-17316	-0	-35.6

Verifiche a taglio dei diaframmi

Diaframma				compressione				taglio - trazione							scorrimento								S/R			
	B [m]	H [m]	Comb	ε	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	S/R	Comb	ε	V <sub>Ed</sub> [kg]	α <sub>s</sub>	V <sub>Rcd</sub> [kg]	V <sub>Rsd</sub> [kg]	V <sub>Rd</sub> [kg]	ρ <sub>v</sub> +ρ <sub>N</sub>	S/R	Comb	ε	V <sub>Ed</sub> [kg]	V <sub>dd</sub> [kg]	V <sub>id</sub> [kg]	V <sub>fd</sub> [kg]		V <sub>Rd,s</sub> [kg]	V <sub>id</sub> /2	S/R
233-225-221-220	5.700	1.100	6	1.00	32371	542321	0.06	6	1.00	32371	2.00	0	0	156829		0.21										0.21

NUCLEO 321 320 325 333 / Nodi: 321 320 325 333

Armature Nucleo

Nodi	Sezione Numero	B [cm]	H [cm]	Spessore [cm]	Armatura Verticale	Armatura Orizzontale
321 320	3	60	220	30	2x ø 10 20'	2x ø 10 20'
325 321	3	230	220	30	2x ø 10 20'	2x ø 10 20'
333 325	3	280	220	30	2x ø 10 20'	2x ø 10 20'

Sezione	Comb.	N <sub>Ed</sub> [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	Sd/Sr
Base	1	-12226	0	0	0.00
Sommità	15	0	-0	-0	0.00

S.L.E.	Combinazione	N [kg]	M <sub>12</sub> [kgm]	M <sub>13</sub> [kgm]	σ [kg/cm²]
Base					
σ <sub>Cl<sub>s</sub>,Max</sub>	20	-9405	-0	-0	-0.5
σ <sub>Cl<sub>s</sub>,Med</sub>	20	-9405	-0	-0	-0.5
σ <sub>s,t</sub>	18	-9405	0	0	-7.9
σ <sub>s,c</sub>	18	-9405	0	0	-7.9

Sommità					
$\sigma_{Cl_s,Max}$	20	0	-0	-0	-0.0
$\sigma_{Cl_s,Med}$	18	0	-0	-0	0.0
$\sigma_{s,t}$	18	0	-0	-0	0.0
$\sigma_{s,c}$	18	0	-0	-0	-0.0

Verifiche a taglio dei diaframmi

Diaframma	compressione		taglio - trazione										scorrimento													
	B [m]	H [m]	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$V_{Rd,c}$ [kg]	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$\alpha_s$	$V_{Rcd}$ [kg]	$V_{Rsd}$ [kg]	$V_{Rd}$ [kg]	$\frac{\rho_h}{\rho_v+\rho_N}$	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$V_{dd}$ [kg]	$V_{id}$ [kg]	$V_{fd}$ [kg]	$V_{Rd,s}$ [kg]	$V_{id}/2$ $V_{Ed}/2$	S/R	S/R
333-325-321-320	5.700	2.200	7	1.00	1	542321	0.00	7	1.00	1	2.00	0	0	156829		0.00										0.00

NUCLEO 42 41 40 / Nodi: 42 41 40

Armature Nucleo

Nodi	Sezione Numero	B [cm]	H [cm]	Spessore [cm]	Armatura Verticale	Armatura Orizzontale
42 41 3		155	400	30	2x ø 10 20'	2x ø 10 20'
41 40 3		155	400	30	2x ø 10 20'	2x ø 10 20'

Sezione	Comb.	$N_{Ed}$ [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	Sd/Sr
Base	10	-24509	-0	-53732	0.31
Sommità	1	-27598	-0	-3784	0.02

S.L.E.	Combinazione	N [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	$\sigma$ [kg/cm²]
--------	--------------	-----------	-------------------	-------------------	----------------------

Base					
$\sigma_{Cl_s,Max}$	20	-24945	-0	-6024	-3.8
$\sigma_{Cl_s,Med}$	20	-24945	-0	-6024	-2.6
$\sigma_{s,t}$	18	-27561	-0	-6149	-26.1
$\sigma_{s,c}$	18	-27561	-0	-6149	-59.6
Sommità					
$\sigma_{Cl_s,Max}$	20	-15645	-0	-1968	-2.0
$\sigma_{Cl_s,Med}$	20	-15645	-0	-1968	-1.6
$\sigma_{s,t}$	18	-18261	-0	-2410	-21.8
$\sigma_{s,c}$	18	-18261	-0	-2410	-34.9

Verifiche a taglio dei diaframmi

Diaframma	B [m]	H [m]	Comb	compressione				taglio - trazione							scorrimento							S/R		
				$\varepsilon$	$V_{Ed}$ [kg]	$V_{Rd,c}$ [kg]	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$\alpha_s$	$V_{Rcd}$ [kg]	$V_{Rsd}$ [kg]	$V_{Rd}$ [kg]	$\frac{\rho_h}{\rho_v+\rho_N}$	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$V_{dd}$ [kg]	$V_{id}$ [kg]		$V_{fd}$ [kg]	$V_{Rd,s}$ [kg]
42-41-40	3.100	4.000	10	1.00	14326	293638	0.05	10	1.00	14326	2.00	0	0	84914	0.17									0.17

SETTI ISOLATI

Setto : 26 326 322 22 / Sezione 3

B = 120.000 H = 400.000 [cm]

Armature su ogni faccia: Verticali : ø 16 10' [cm], Orizzontali : ø 8 20' [cm]

Sezione	Comb.	$N_{Ed}$ [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	Sd/Sr
---------	-------	------------------	-------------------	-------------------	-------

Base	6	-3075	0	-22923	0.43
Sommità	6	525	0	-4026	0.08

S.L.E.	Combinazione	N [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	$\sigma$ [kg/cm²]
--------	--------------	-----------	-------------------	-------------------	----------------------

Base					
$\sigma_{Cl_s,Max}$	20	-3971	0	-1106	-2.3
$\sigma_{Cl_s,Med}$	20	-3971	0	-1106	-1.2
$\sigma_{s,t}$	18	-4066	0	-1115	4.6
$\sigma_{s,c}$	18	-4066	0	-1115	-31.9
Sommità					
$\sigma_{Cl_s,Max}$	18	-466	0	243	-0.5
$\sigma_{Cl_s,Med}$	18	-466	0	243	-0.3
$\sigma_{s,t}$	18	-466	0	243	6.4
$\sigma_{s,c}$	18	-466	0	243	-6.5

Verifiche a Taglio

Parete	B [m]	H [m]	compressione				taglio - trazione							scorrimento											
			Comb	$\varepsilon$	$V_{Ed}$ [kg]	$V_{Rd,c}$ [kg]	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$\alpha_s$	$V_{Rcd}$ [kg]	$V_{Rsd}$ [kg]	$V_{Rd}$ [kg]	$\frac{\rho_h}{\rho_v+\rho_N}$	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$V_{dd}$ [kg]	$V_{id}$ [kg]	$V_{fd}$ [kg]	$V_{Rd,s}$ [kg]	$V_{id}$ $V_{Ed}/2$	S/R
26 322	1.200	4.000	6	1.00	6736	111908	0.06	6	1.00	6736	2.00	0	0	20711		0.33									0.33



Setto : 27 327 323 23 / Sezione 3

B = 120.000 H = 400.000 [cm]

Armature su ogni faccia: Verticali :  $\varnothing$  16 10' [cm], Orizzontali :  $\varnothing$  8 20' [cm]

Sezione	Comb.	$N_{Ed}$ [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	Sd/Sr
Base	7	-3015	0	-25769	0.49
Sommità	6	678	0	-4825	0.10

S.L.E.	Combinazione	N [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	$\sigma$ [kg/cm <sup>2</sup> ]
Base					
$\sigma_{Cls,Max}$	20	-3915	0	-1752	-3.7
$\sigma_{Cls,Med}$	20	-3915	0	-1752	-1.8
$\sigma_{s,t}$	18	-4013	0	-1739	33.3
$\sigma_{s,c}$	18	-4013	0	-1739	-46.5
Sommità					
$\sigma_{Cls,Max}$	20	-315	0	-44	-0.1
$\sigma_{Cls,Med}$	20	-315	0	-44	-0.1
$\sigma_{s,t}$	18	-413	0	30	-1.0
$\sigma_{s,c}$	18	-413	0	30	-1.9

Verifiche a Taglio

Parete	B [m]	H [m]	compressione					taglio - trazione							scorrimento											
			Comb	$\varepsilon$	$V_{Ed}$ [kg]	$V_{Rd,c}$ [kg]	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$\alpha_s$	$V_{Rd}$ [kg]	$V_{Rsd}$ [kg]	$V_{Rd}$ [kg]	$\rho_v + \rho_N$	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$V_{dd}$ [kg]	$V_{id}$ [kg]	$V_{fd}$ [kg]	$V_{Rd,s}$ [kg]	$V_{id}/2$	S/R	S/R
27 323	1.200	4.000	7	1.00	7628	111908	0.07	7	1.00	7628	2.00	0	0	20711		0.37										0.37
Setto : 31 331 330 30 / Sezione 3																										

B = 120.000 H = 400.000 [cm]

Armature su ogni faccia: Verticali :  $\varnothing$  16 10' [cm], Orizzontali :  $\varnothing$  8 20' [cm]

Sezione	Comb.	$N_{Ed}$ [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	Sd/Sr
Base	5	-23252	0	-39674	0.63
Sommità	10	-13829	0	30595	0.51

S.L.E.	Combinazione	N [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	$\sigma$ [kg/cm <sup>2</sup> ]
Base					
$\sigma_{Cls,Max}$	20	-20341	0	-1626	-6.7
$\sigma_{Cls,Med}$	20	-20341	0	-1626	-4.8
$\sigma_{s,t}$	18	-23204	0	-2420	-45.2
$\sigma_{s,c}$	18	-23204	0	-2420	-118.1
Sommità					
$\sigma_{Cls,Max}$	20	-16741	0	1287	-5.5
$\sigma_{Cls,Med}$	20	-16741	0	1287	-3.9
$\sigma_{s,t}$	18	-19604	0	1191	-51.1
$\sigma_{s,c}$	18	-19604	0	1191	-86.9

Verifiche a Taglio

Parete	B [m]	H [m]	Comb	compressione				taglio - trazione							scorrimento										
				$\varepsilon$	$V_{Ed}$ [kg]	$V_{Rd,c}$ [kg]	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$\alpha_s$	$V_{Rd}$ [kg]	$V_{Rsd}$ [kg]	$V_{Rd}$ [kg]	$\rho_v + \rho_N$	S/R	Comb	$\varepsilon$	$V_{Ed}$ [kg]	$V_{dd}$ [kg]	$V_{id}$ [kg]	$V_{fd}$ [kg]	$V_{Rd,s}$ [kg]	$V_{id}/2$	S/R
31 330	1.200	4.000	5	1.00	16923	111908	0.15	5	1.00	16923	2.00	0	0	20711		0.82									0.82
Setto : 34 334 332 32 / Sezione 3																									

B = 120.000 H = 400.000 [cm]

Armature su ogni faccia: Verticali :  $\varnothing$  16 10' [cm], Orizzontali :  $\varnothing$  8 20' [cm]

Sezione	Comb.	$N_{Ed}$ [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	Sd/Sr
Base	5	-16092	0	-49607	0.87
Sommità	5	-12492	0	-25128	0.41

S.L.E.	Combinazione	N	$M_{12}$	$M_{13}$	$\sigma$
--------	--------------	---	----------	----------	----------

		[kg]	[kgm]	[kgm]	[kg/cm²]
<b>Base</b>					
$\sigma_{Cl,s,Max}$	20	-18992	0	-4644	-10.2
$\sigma_{Cl,s,Med}$	20	-18992	0	-4644	-5.1
$\sigma_{s,t}$	20	-18992	0	-4644	6.8
$\sigma_{s,c}$	18	-21513	0	-4904	-150.2
<b>Sommità</b>					
$\sigma_{Cl,s,Max}$	20	-15392	0	-6321	-13.2
$\sigma_{Cl,s,Med}$	20	-15392	0	-6321	-6.6
$\sigma_{s,t}$	18	-17913	0	-7261	120.5
$\sigma_{s,c}$	18	-17913	0	-7261	-195.0

Verifiche a Taglio

Parete	B [m]	H [m]	Comb	compressione				taglio - trazione							scorrimento										
				$\epsilon$	$V_{Ed}$ [kg]	$V_{Rd,c}$ [kg]	S/R	Comb	$\epsilon$	$V_{Ed}$ [kg]	$\alpha_s$	$V_{Rcd}$ [kg]	$V_{Rsd}$ [kg]	$V_{Rd}$ [kg]	$\frac{\rho_h}{\rho_v+\rho_N}$	S/R	Comb	$\epsilon$	$V_{Ed}$ [kg]	$V_{dd}$ [kg]	$V_{id}$ [kg]	$V_{fd}$ [kg]	$V_{Rd,s}$ [kg]	$V_{id}$ $V_{Ed}/2$	S/R
34	332	1.200	4.000	5	1.00	18684	111907	0.17	5	1.00	18684	2.00	0	0	20711		0.90								0.90
Setto : 36 336 335 35 / Sezione 3																									

B = 120.000 H = 400.000 [cm]

Armature su ogni faccia: Verticali :  $\phi$  16 10' [cm], Orizzontali :  $\phi$  8 20' [cm]

Sezione	Comb.	$N_{Ed}$ [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	Sd/Sr
Base	4	-26589	0	-41420	0.64
Sommità	11	-14333	0	24463	0.39

S.L.E.	Combinazione	N [kg]	$M_{12}$ [kgm]	$M_{13}$ [kgm]	$\sigma$ [kg/cm²]
<b>Base</b>					
$\sigma_{Cl,s,Max}$	20	-22261	0	-1797	-7.4
$\sigma_{Cl,s,Med}$	20	-22261	0	-1797	-5.2
$\sigma_{s,t}$	18	-25175	0	-1785	-61.7
$\sigma_{s,c}$	18	-25175	0	-1785	-115.4
<b>Sommità</b>					
$\sigma_{Cl,s,Max}$	20	-18661	0	9432	-20.0
$\sigma_{Cl,s,Med}$	20	-18661	0	9432	-10.0
$\sigma_{s,t}$	18	-21575	0	11028	283.1
$\sigma_{s,c}$	18	-21575	0	11028	-293.1

Verifiche a Taglio

Parete	B [m]	H [m]	Comb	compressione				taglio - trazione								scorrimento									
				$\epsilon$	$V_{Ed}$ [kg]	$V_{Rd,c}$ [kg]	S/R	Comb	$\epsilon$	$V_{Ed}$ [kg]	$\alpha_s$	$V_{Rcd}$ [kg]	$V_{Rsd}$ [kg]	$V_{Rd}$ [kg]	$\frac{\rho_h}{\rho_v+\rho_N}$	S/R	Comb	$\epsilon$	$V_{Ed}$ [kg]	$V_{dd}$ [kg]	$V_{id}$ [kg]	$V_{fd}$ [kg]	$V_{Rd,s}$ [kg]	$V_{id}/2$	S/R
36	335	1.200	4.000	11	1.00	15510	111908	0.14	11	1.00	15510	2.00	0	0	20711		0.75								0.75

## Verifiche travi

### Modalità di verifica

Le travi vengono progettate-verificate a flessione retta e taglio nel piano longitudinale della trave sulla base dell'involuppo delle sollecitazioni.

Viene comunque sempre predisposta l'armatura minima mentre gli sforzi di taglio vengono integralmente assorbiti dalle staffe.

Le operazioni di progetto-verifica vengono condotte, per ogni asta, in tre diverse sezioni e precisamente in corrispondenza dei fili esterni dei pilastri e della sezione in campata nella quale viene riscontrato il massimo momento positivo (negativo).

I momenti si intendono positivi se tendono le fibre di intradosso (inferiori).

Per quanto concerne il progetto e la verifica delle travi a taglio esse vengono condotte nel modo seguente:

- Si controlla se la trave necessita o meno di armatura aggiuntiva a taglio:
  1. Se non occorre armatura aggiuntiva a taglio si procede a disporre la staffatura minima di regolamento e la progettazione ha termine.
  2. Se occorre armatura aggiuntiva a taglio la staffatura viene progettata andando a suddividere la trave, a seconda del caso, in uno, tre o cinque conci:
    - due tronchi in prossimità degli appoggi di lunghezza pari all'altezza della sezione;
    - due altri (eventuali) tronchi dall'ascissa precedente a quella in cui il taglio può essere assorbito con la sola staffatura minima da regolamento
    - un restante (eventuale) concio di chiusura centrale.

- In ogni caso l'armatura a taglio si intende simmetrica rispetto alla mezzzeria della trave e viene progettata considerando, rispetto alla mezzzeria, la zona della trave più sollecitata.

Per quanto concerne le verifiche a taglio esse vengono condotte suddividendo la trave in cinque conci:

due tronchi in prossimità degli appoggi di lunghezza pari all'altezza della sezione; due altri (eventuali) tronchi dall'ascissa precedente a quella in cui il taglio può essere assorbito con la sola staffatura minima da regolamento; il restante (eventuale) concio di chiusura centrale.

L'armatura a taglio si intende simmetrica rispetto alla mezzzeria della trave e viene progettata considerando, rispetto alla mezzzeria, la zona della trave più sollecitata.

Simbologia utilizzata:

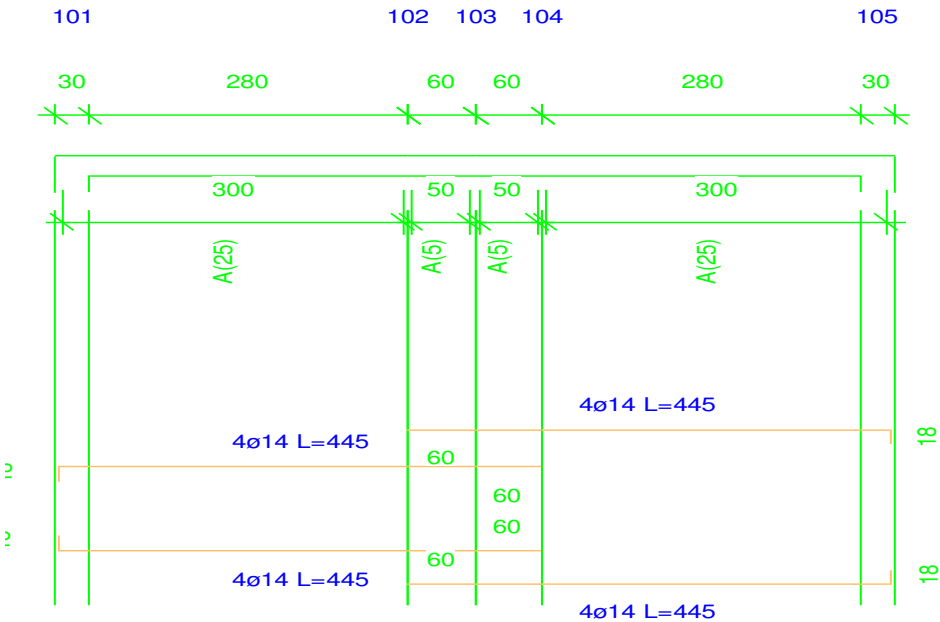
- Af Es. Area di ferro all’estradosso
- Af In. Area di ferro all’intradosso
- Sigb.Es. Tensione del calcestruzzo estradosso
- Sigb. In. Tensione del calcestruzzo intradosso
- Sigf. Es. Tensione dell’acciaio estradosso
- Sigf. In. Tensione dell’acciaio intradosso
- Sezioni Impiegate: Trave

Sezioni Nuove																							
Sez. Num.	Info	Dimensioni	Criterio	Calcestruzzo	$\gamma_M$	F.C.	$f_{ck}$ [kg/cm <sup>2</sup> ]	$f_{cd}$ [kg/cm <sup>2</sup> ]	$\sigma_{RARE}$ [kg/cm <sup>2</sup> ]	$\sigma_{FREQ}$ [kg/cm <sup>2</sup> ]	$\sigma_{OP}$ [kg/cm <sup>2</sup> ]	Acciaio	$\gamma_M$	F.C.	$f_{yk}$ [kg/cm <sup>2</sup> ]	$f_d$ [kg/cm <sup>2</sup> ]	$\sigma_{RARE}$ [kg/cm <sup>2</sup> ]	$\sigma_{FREQ}$ [kg/cm <sup>2</sup> ]	$\sigma_{OP}$ [kg/cm <sup>2</sup> ]	Cop. ES [cm]	Cop. In [cm]	cotg $\theta_1$	cotg $\theta$
1	Rett.	B 100 [cm] H 24 [cm]	Vertrav	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	3.000	1.00	1.00
2	Rett.	B 80 [cm] H 24 [cm]	Vertrav	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	3.000	1.00	1.00
3	Rett.	B 60 [cm] H 24 [cm]	Vertrav	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	3.000	1.00	1.00
4	Rett.	B 45 [cm] H 24 [cm]	Vertrav	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	3.000	1.00	1.00
5	Rett.	B 40 [cm] H 64 [cm]	Vertrav	C25/30	1.50	1.00	250.0	141.7	150.0	250.0	112.5	B 450 C	1.15	1.00	4500.0	3913.0	3600.0	4500.0	4500.0	3.000	3.000	1.00	1.00

Verifica a fessurazione indiretta

Verifiche Travate :

Travata: *Travata 201 Nodi 101 102 103 104 105*



Schema armature

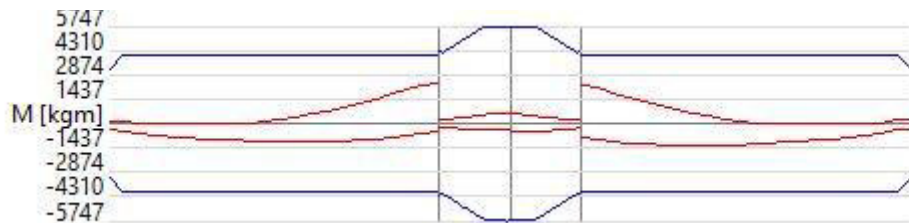


Diagramma dei momenti flettenti

Nodo	x [m]	A <sub>re</sub> [cm <sup>2</sup> ]	A <sub>ri</sub> [cm <sup>2</sup> ]	q <sub>T</sub> [kg/m]	M <sub>rif</sub> [kgm]	M <sub>de</sub> [kgm]	M <sub>re</sub> [kgm]	x/d	M <sub>di</sub> [kgm]	M <sub>ri</sub> [kgm]	x/d	σ <sub>be</sub> [kg/cm <sup>2</sup> ]	σ <sub>bi</sub> [kg/cm <sup>2</sup> ]	σ <sub>fe</sub> [kg/cm <sup>2</sup> ]	σ <sub>fi</sub> [kg/cm <sup>2</sup> ]	w mm
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
101	0.150	4.86	4.86			166	3213	0.33	-387	-3213	0.33					
				SLE Rare	0				-113			4.2	0.0	13.3	107.1	
				SLE Freq.	0				-108			4.0	0.0	12.6	102.0	OK
				SLE Q.P.	0				-102			3.8	0.0	12.0	96.9	OK
Camp.	1.550	6.16	6.16	1571	854	152	4008	0.36	-1082	-4008	0.36					
				SLE Rare	0				-620			20.5	0.0	98.9	595.8	
				SLE Freq.	0				-593			19.6	0.0	94.6	569.6	OK
				SLE Q.P.	0				-566			18.7	0.0	90.2	543.4	OK
102	2.950	6.16	6.16			2401	4008	0.36	-470	-4008	0.36					
				SLE Rare	1128				0			0.0	37.2	1083.1	179.9	
				SLE Freq.	1074				0			0.0	35.5	1031.1	171.2	OK
				SLE Q.P.	1019				0			0.0	33.7	979.1	162.6	OK
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
102	0.000	6.54	6.54			206	4236	0.37	-219	-4236	0.37					
				SLE Rare	0				0			0.0	0.0	0.3	0.1	
				SLE Freq.	0				-0			0.0	0.0	0.0	0.2	OK
				SLE Q.P.	0				-1			0.0	0.0	0.1	0.7	OK
Camp.	0.300	8.42	8.42	1571	35	430	5366	0.40	-362	-5366	0.40					
				SLE Rare	13				-25			0.7	0.4	9.0	17.6	
				SLE Freq.	12				-24			0.7	0.3	8.6	16.8	OK
				SLE Q.P.	11				-22			0.6	0.3	8.1	16.0	OK
103	0.600	9.07	9.07			635	5747	0.40	-409	-5747	0.40					
				SLE Rare	123				0			0.0	3.4	65.6	15.9	
				SLE Freq.	118				0			0.0	3.2	62.9	15.3	OK
				SLE Q.P.	113				0			0.0	3.1	60.1	14.6	OK
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
103	0.000	9.07	9.07			535	5747	0.40	-510	-5747	0.40					
				SLE Rare	14				0			0.0	0.4	7.7	1.9	
				SLE Freq.	13				0			0.0	0.4	7.1	1.7	OK
				SLE Q.P.	12				0			0.0	0.3	6.6	1.6	OK
Camp.	0.300	8.42	8.42	1571	35	357	5366	0.40	-444	-5366	0.40					
				SLE Rare	0				-60			1.7	0.0	9.7	42.6	
				SLE Freq.	0				-58			1.6	0.0	9.4	41.1	OK
				SLE Q.P.	0				-55			1.6	0.0	9.0	39.6	OK
104	0.600	6.54	6.54			172	4236	0.37	-273	-4236	0.37					
				SLE Rare	0				-35			1.1	0.0	5.7	31.9	
				SLE Freq.	0				-34			1.1	0.0	5.5	31.2	OK
				SLE Q.P.	0				-34			1.1	0.0	5.4	30.5	OK
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
104	0.000	6.16	6.16			2214	4008	0.36	-851	-4008	0.36					
				SLE Rare	812				0			0.0	26.8	779.6	129.5	
				SLE Freq.	769				0			0.0	25.4	739.1	122.7	OK
				SLE Q.P.	727				0			0.0	24.0	698.5	116.0	OK
Camp.	1.400	6.16	6.16	1571	854	73	4008	0.36	-1256	-4008	0.36					
				SLE Rare	0				-732			24.2	0.0	116.8	703.5	
				SLE Freq.	0				-701			23.1	0.0	111.7	672.9	OK
				SLE Q.P.	0				-669			22.1	0.0	106.7	642.3	OK
105	2.800	4.86	4.86			245	3213	0.33	-345	-3213	0.33					
				SLE Rare	0				-53			2.0	0.0	6.2	50.1	
				SLE Freq.	0				-49			1.8	0.0	5.8	46.5	OK
				SLE Q.P.	0				-45			1.7	0.0	5.3	42.8	OK

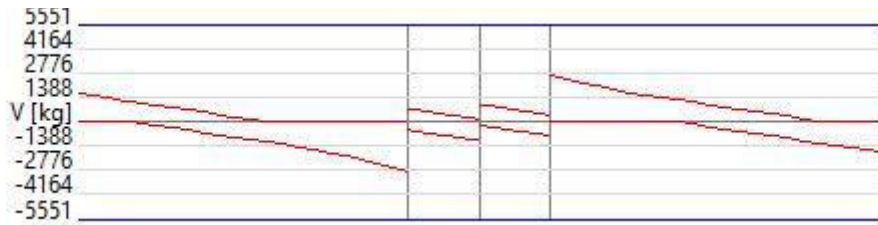
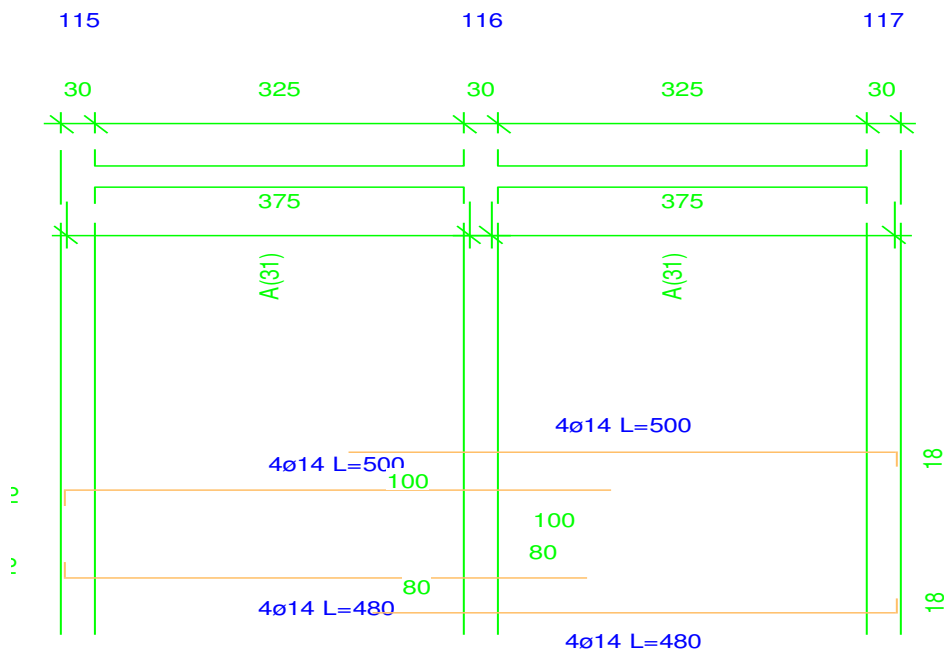


Diagramma del taglio

Da [m]	A [m]	Dx [m]	cotg(θ)	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	V <sub>Rd</sub> [kg]	Staffe
<b>Trave 101 102 Sez. 4 Rett. 45x24 [cm]</b>							
0.150	2.950	2.800	1.00	2832	5073	28120	5551 ø 8 2br. 12.5'
<b>Trave 102 103 Sez. 4 Rett. 45x24 [cm]</b>							
0.000	0.600	0.600	1.00	1100	5551	28120	5551 ø 8 2br. 12.5'
<b>Trave 103 104 Sez. 4 Rett. 45x24 [cm]</b>							
0.000	0.600	0.600	1.00	968	5551	28120	5551 ø 8 2br. 12.5'
<b>Trave 104 105 Sez. 4 Rett. 45x24 [cm]</b>							
0.000	2.800	2.800	1.00	2640	5073	28120	5551 ø 8 2br. 12.5'

Travata: Travata 202 Nodi 115 116 117



Schema armature

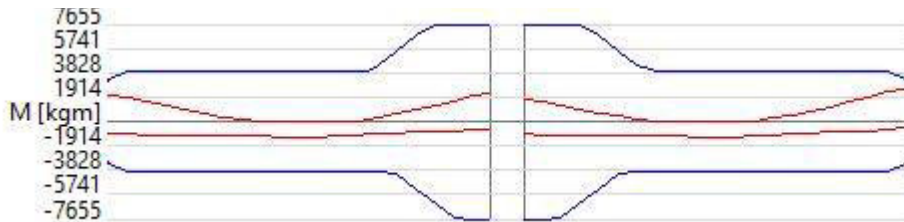


Diagramma dei momenti flettenti

Nodo	x [m]	A <sub>fe</sub> [cm <sup>2</sup> ]	A <sub>fi</sub> [cm <sup>2</sup> ]	q <sub>T</sub> [kg/m]	M <sub>inf</sub> [kgm]	M <sub>de</sub> [kgm]	M <sub>re</sub> [kgm]	x/d	M <sub>di</sub> [kgm]	M <sub>ri</sub> [kgm]	x/d	σ <sub>bc</sub> [kg/cm <sup>2</sup> ]	σ <sub>bi</sub> [kg/cm <sup>2</sup> ]	σ <sub>fc</sub> [kg/cm <sup>2</sup> ]	σ <sub>fi</sub> [kg/cm <sup>2</sup> ]	w mm
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
115	0.150	4.86	4.86			2081	3213	0.33	-898	-3213	0.33					
				SLE Rare		685			0			0.0	25.3	649.0	80.4	
				SLE Freq.		651			0			0.0	24.0	617.0	76.4	OK
				SLE Q.P.		618			0			0.0	22.8	585.1	72.5	OK

Camp.	1.775	6.16	6.16	1571	1237	0	4008	0.36	-1237	-4008	0.36						
				SLE Rare		0			-862		28.5	0.0	137.6	828.4			
				SLE Freq.		0			-823		27.2	0.0	131.3	790.6	OK		
				SLE Q.P.		0			-784		25.9	0.0	125.0	752.8	OK		
116	3.400	12.32	12.32			2137	7655	0.44	-596	-7655	0.44						
				SLE Rare		880			0		0.0	20.6	439.4	136.3			
				SLE Freq.		842			0		0.0	19.7	420.9	130.6	OK		
				SLE Q.P.		805			0		0.0	18.9	402.3	124.8	OK		
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																	
116	0.150	12.32	12.32			1760	7655	0.44	-980	-7655	0.44						
				SLE Rare		442			0		0.0	10.3	220.7	68.5			
				SLE Freq.		427			0		0.0	10.0	213.4	66.2	OK		
				SLE Q.P.		412			0		0.0	9.7	206.1	63.9	OK		
Camp.	1.775	6.16	6.16	1571	1237	0	4008	0.36	-1237	-4008	0.36						
				SLE Rare		0			-862		28.5	0.0	137.6	828.4			
				SLE Freq.		0			-823		27.2	0.0	131.3	790.6	OK		
				SLE Q.P.		0			-784		25.9	0.0	125.0	752.8	OK		
117	3.400	4.86	4.86			2523	3213	0.33	-503	-3213	0.33						
				SLE Rare		1165			0		0.0	43.0	1103.4	136.7			
				SLE Freq.		1106			0		0.0	40.8	1047.9	129.8	OK		
				SLE Q.P.		1048			0		0.0	38.7	992.4	122.9	OK		

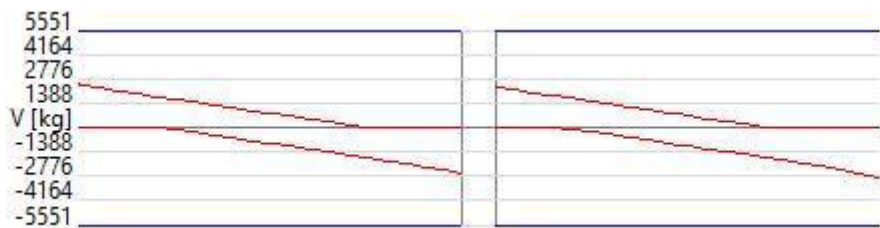
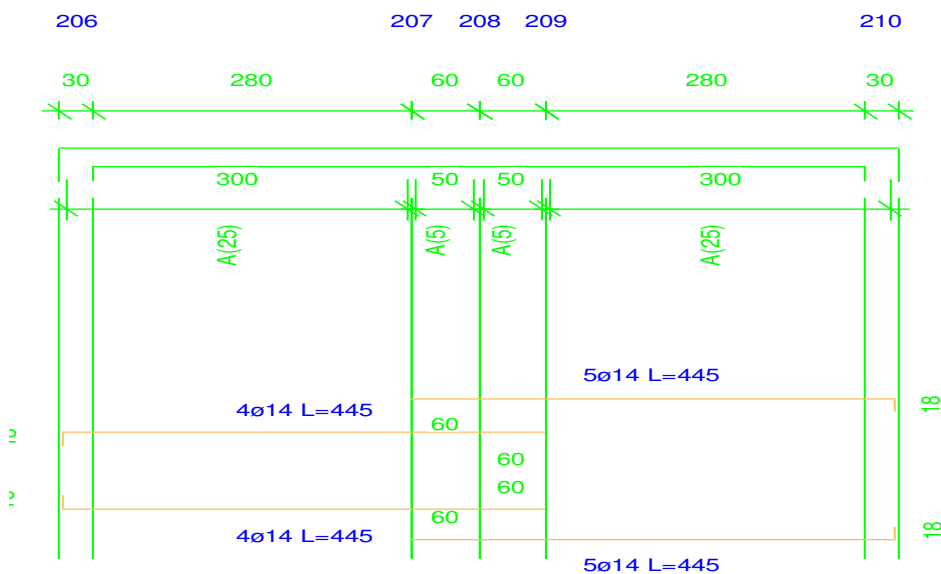


Diagramma del taglio

Da	A	Dx	cotg(θ)	V <sub>Ed</sub>	V <sub>Rd,c</sub>	V <sub>Rcd</sub>	V <sub>Rd</sub>	Staffe
[m]	[m]	[m]		[kg]	[kg]	[kg]	[kg]	
<b>Trave 115 116 Sez. 4 Rett. 45x24 [cm]</b>								
0.150	3.400	3.250	1.00	2634	5073	28120	5551	ø 8 2br. 12.5'
<b>Trave 116 117 Sez. 4 Rett. 45x24 [cm]</b>								
0.150	3.400	3.250	1.00	2882	5073	28120	5551	ø 8 2br. 12.5'

Travata: Travata 301 Nodi 206 207 208 209 210



Schema armature

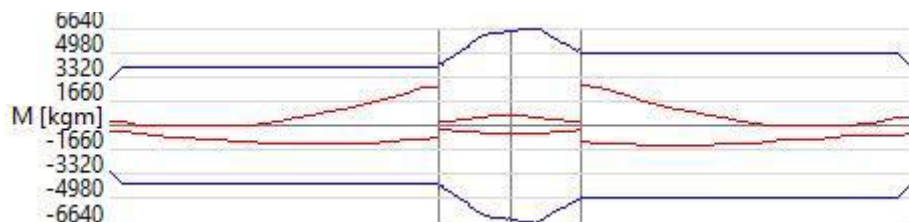


Diagramma dei momenti flettenti

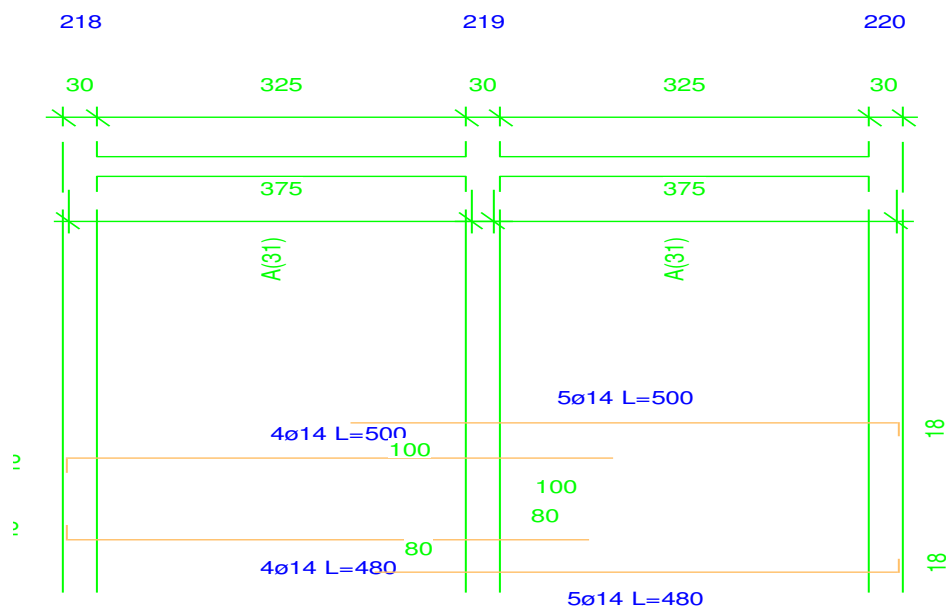
Nodo	x [m]	A <sub>fe</sub> [cm <sup>2</sup> ]	A <sub>fi</sub> [cm <sup>2</sup> ]	q <sub>T</sub> [kg/m]	M <sub>ref</sub> [kgm]	M <sub>de</sub> [kgm]	M <sub>re</sub> [kgm]	x/d	M <sub>di</sub> [kgm]	M <sub>ri</sub> [kgm]	x/d	σ <sub>he</sub> [kg/cm <sup>2</sup> ]	σ <sub>bi</sub> [kg/cm <sup>2</sup> ]	σ <sub>fe</sub> [kg/cm <sup>2</sup> ]	σ <sub>fi</sub> [kg/cm <sup>2</sup> ]	w mm
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
206	0.150	4.86	4.86			243	3213	0.33	-407	-3213	0.33					
				SLE Rare	0				-92			3.4	0.0	10.8	87.1	
				SLE Freq.	0				-87			3.2	0.0	10.2	82.2	OK
				SLE Q.P.	0				-82			3.0	0.0	9.6	77.4	OK
Camp.	1.550	6.16	6.16	1571	854	270	4008	0.36	-1230	-4008	0.36					
				SLE Rare	0				-633			20.9	0.0	101.0	608.1	
				SLE Freq.	0				-605			20.0	0.0	96.5	581.2	OK
				SLE Q.P.	0				-577			19.1	0.0	92.0	554.3	OK
207	2.950	6.16	6.16			2635	4008	0.36	-787	-4008	0.36					
				SLE Rare	1076				0			0.0	35.5	1033.3	171.6	
				SLE Freq.	1024				0			0.0	33.8	983.2	163.3	OK
				SLE Q.P.	971				0			0.0	32.1	933.0	154.9	OK
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
207	0.000	6.63	6.63			238	4293	0.37	-269	-4293	0.37					
				SLE Rare	0				-6			0.2	0.0	0.9	5.2	
				SLE Freq.	0				-6			0.2	0.0	1.0	5.6	OK
				SLE Q.P.	0				-7			0.2	0.0	1.1	6.0	OK
Camp.	0.300	8.99	8.99	1571	35	489	5702	0.40	-458	-5702	0.40					
				SLE Rare	0				-25			0.7	0.0	4.0	16.6	
				SLE Freq.	0				-24			0.6	0.0	3.8	15.8	OK
				SLE Q.P.	0				-22			0.6	0.0	3.6	15.1	OK
208	0.600	10.11	10.11			713	6360	0.42	-536	-6360	0.42					
				SLE Rare	99				0			0.0	2.6	47.4	12.6	
				SLE Freq.	94				0			0.0	2.4	45.0	12.0	OK
				SLE Q.P.	89				0			0.0	2.3	42.6	11.3	OK
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
208	0.000	10.29	10.29			662	6471	0.42	-588	-6471	0.42					
				SLE Rare	39				0			0.0	1.0	18.5	5.0	
				SLE Freq.	38				0			0.0	1.0	18.0	4.9	OK
				SLE Q.P.	37				0			0.0	1.0	17.5	4.7	OK
Camp.	0.300	9.96	9.96	1571	35	459	6277	0.42	-503	-6277	0.42					
				SLE Rare	0				-40			1.0	0.0	6.4	24.4	
				SLE Freq.	0				-38			1.0	0.0	6.1	23.1	OK
				SLE Q.P.	0				-36			0.9	0.0	5.7	21.8	OK
209	0.600	8.07	8.07			239	5159	0.39	-303	-5159	0.39					
				SLE Rare	0				-19			0.5	0.0	3.0	13.8	
				SLE Freq.	0				-18			0.5	0.0	2.9	13.2	OK
				SLE Q.P.	0				-17			0.5	0.0	2.8	12.6	OK
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
209	0.000	7.70	7.70			2741	4933	0.39	-1084	-4933	0.39					
				SLE Rare	944				0			0.0	28.0	734.8	153.7	
				SLE Freq.	904				0			0.0	26.8	703.6	147.2	OK
				SLE Q.P.	864				0			0.0	25.6	672.5	140.7	OK
Camp.	1.400	7.70	7.70	1571	854	216	4933	0.39	-1219	-4933	0.39					
				SLE Rare	0				-651			19.3	0.0	106.0	506.7	
				SLE Freq.	0				-621			18.4	0.0	101.1	483.2	OK
				SLE Q.P.	0				-591			17.5	0.0	96.2	459.7	OK
210	2.800	6.07	6.07			615	3955	0.36	-613	-3955	0.36					
				SLE Rare	30				-17			0.6	1.0	22.9	13.4	
				SLE Freq.	27				-17			0.6	0.9	20.4	12.9	OK
				SLE Q.P.	23				-16			0.5	0.8	18.0	12.5	OK



Diagramma del taglio

Da	A	Dx	cotg(θ)	V <sub>Ed</sub>	V <sub>Rd,c</sub>	V <sub>Rd</sub>	V <sub>Rd</sub>	Staffe
[m]	[m]	[m]		[kg]	[kg]	[kg]	[kg]	
<b>Trave 206 207 Sez. 4 Rett. 45x24 [cm]</b>								
0.150	2.950	2.800	1.00	2795	5073	28120	5551	ø 8 2br. 12.5'
<b>Trave 207 208 Sez. 4 Rett. 45x24 [cm]</b>								
0.000	0.600	0.600	1.00	1191	5566	28120	5551	ø 8 2br. 12.5'
<b>Trave 208 209 Sez. 4 Rett. 45x24 [cm]</b>								
0.000	0.600	0.600	1.00	1089	5967	28120	5551	ø 8 2br. 12.5'
<b>Trave 209 210 Sez. 4 Rett. 45x24 [cm]</b>								
0.000	2.800	2.800	1.00	2670	5465	28120	5551	ø 8 2br. 12.5'

Travata: Travata 302 Nodi 218 219 220



Schema armature



Diagramma dei momenti flettenti

Nodo	x	A <sub>re</sub>	A <sub>ri</sub>	q <sub>T</sub>	M <sub>rif</sub>	M <sub>de</sub>	M <sub>re</sub>	x/d	M <sub>di</sub>	M <sub>ri</sub>	x/d	σ <sub>be</sub>	σ <sub>bi</sub>	σ <sub>fe</sub>	σ <sub>fi</sub>	w
[m]	[cm²]	[cm²]	[kg/m]	[kgm]	[kgm]	[kgm]	[kgm]		[kgm]	[kgm]		[kg/cm²]	[kg/cm²]	[kg/cm²]	[kg/cm²]	mm
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>																
218	0.150	4.86	4.86			2550	3213	0.33	-955	-3213	0.33					
				SLE Rare		918			0			0.0	33.9	869.6	107.7	
				SLE Freq.		870			0			0.0	32.1	823.8	102.0	OK
				SLE Q.P.		821			0			0.0	30.3	778.0	96.4	OK
Camp.	1.775	6.16	6.16	1571	1237	0	4008	0.36	-1237	-4008	0.36					



				SLE Rare	0		-862	28.5	0.0	137.6	828.4	
				SLE Freq.	0		-823	27.2	0.0	131.3	790.6	OK
				SLE Q.P.	0		-784	25.9	0.0	125.0	752.8	OK
219	3.400	13.85	13.85		2179	8552	0.45	-989	-8552	0.45		
				SLE Rare	660		0	0.0	14.5	295.0	99.5	
				SLE Freq.	639		0	0.0	14.1	285.5	96.3	OK
				SLE Q.P.	617		0	0.0	13.6	275.9	93.1	OK
<b>Trave Sez. 4 Rett. 45x24 [cm]</b>												
219	0.150	13.85	13.85		2295	8552	0.45	-1150	-8552	0.45		
				SLE Rare	593		0	0.0	13.0	264.8	89.4	
				SLE Freq.	587		0	0.0	12.9	262.3	88.5	OK
				SLE Q.P.	581		0	0.0	12.8	259.8	87.7	OK
Camp.	1.775	7.70	7.70	1571	1237	0	4933	0.39	-1237	-4933	0.39	
				SLE Rare	0		-862	25.6	0.0	140.5	671.5	
				SLE Freq.	0		-823	24.4	0.0	134.0	640.8	OK
				SLE Q.P.	0		-784	23.3	0.0	127.6	610.1	OK
220	3.400	6.07	6.07		3295	3955	0.36	-1266	-3955	0.36		
				SLE Rare	1193		0	0.0	39.7	916.2	149.7	
				SLE Freq.	1112		0	0.0	37.0	853.9	139.6	OK
				SLE Q.P.	1031		0	0.0	34.3	791.6	129.4	OK

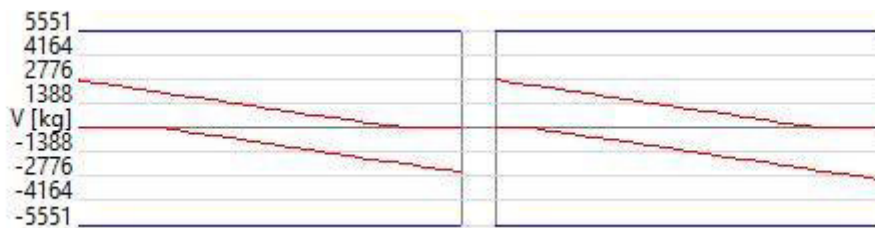
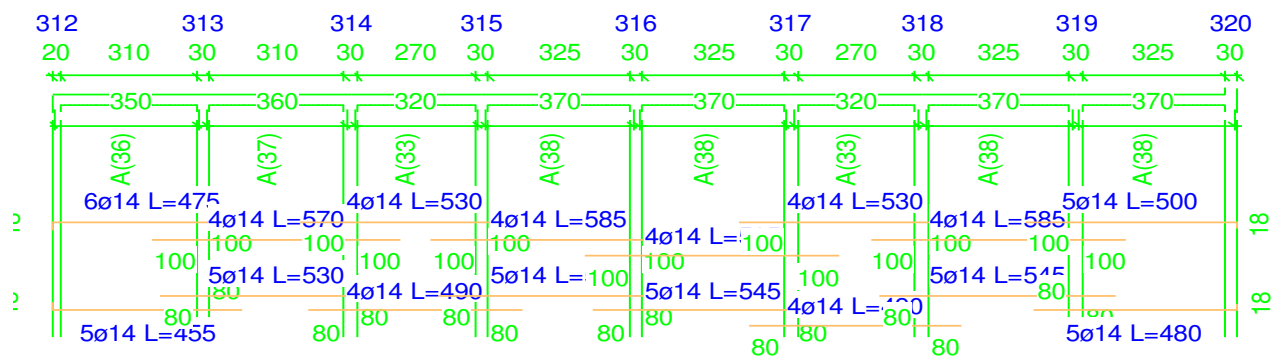


Diagramma del taglio

Da	A	Dx	cotg(θ)	V <sub>Ed</sub>	V <sub>Rd,c</sub>	V <sub>Rd</sub>	V <sub>Rd</sub>	Staffe
[m]	[m]	[m]		[kg]	[kg]	[kg]	[kg]	
<b>Trave 218 219 Sez. 4 Rett. 45x24 [cm]</b>								
0.150	3.400	3.250	1.00	2694	5073	28120	5551	ø 8 2br. 12.5'
<b>Trave 219 220 Sez. 4 Rett. 45x24 [cm]</b>								
0.150	3.400	3.250	1.00	2975	5465	28120	5551	ø 8 2br. 12.5'
Travata: Travata 201 Nodi 312 313 314 315 316 317 318 319 320								



Schema armature

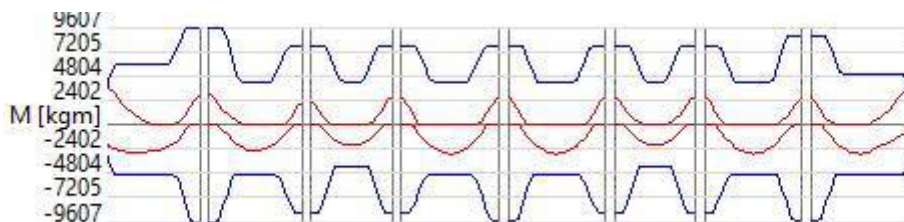
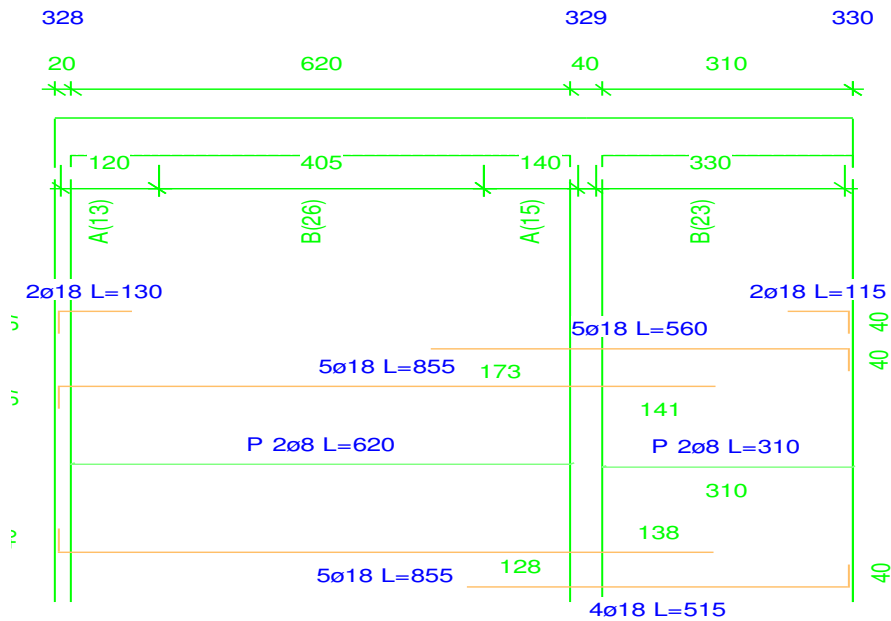


Diagramma dei momenti flettenti

Nodo	x [m]	A <sub>fe</sub> [cm <sup>2</sup> ]	A <sub>fi</sub> [cm <sup>2</sup> ]	q <sub>T</sub> [kg/m]	M <sub>rif</sub> [kgm]	M <sub>de</sub> [kgm]	M <sub>re</sub> [kgm]	x/d	M <sub>di</sub> [kgm]	M <sub>ri</sub> [kgm]	x/d	σ <sub>be</sub> [kg/cm <sup>2</sup> ]	σ <sub>bi</sub> [kg/cm <sup>2</sup> ]	σ <sub>fe</sub> [kg/cm <sup>2</sup> ]	σ <sub>fi</sub> [kg/cm <sup>2</sup> ]	w mm
<b>Trave Sez. 3 Rett. 60x24 [cm]</b>																
312	0.100	5.67	4.72			3550	3788	0.32	-2050	-3187	0.29					
				SLE Rare		1062			0			0.0	31.5	664.3	69.7	
				SLE Freq.		943			0			0.0	28.0	590.2	61.9	OK
				SLE Q.P.		825			0			0.0	24.5	516.1	54.1	OK
Camp.	1.650	9.24	7.70	3677	2579	15	5969	0.38	-2577	-5024	0.35					
				SLE Rare		0			-1707			43.0	0.0	193.6	1309.4	
				SLE Freq.		0			-1588			40.0	0.0	180.0	1217.7	OK
				SLE Q.P.		0			-1468			36.9	0.0	166.5	1125.9	OK
313	3.200	15.39	15.39			2995	9607	0.43	0	-9607	0.43					
				SLE Rare		2018			0			0.0	36.7	803.7	237.6	
				SLE Freq.		1894			0			0.0	34.4	754.3	223.0	OK
				SLE Q.P.		1770			0			0.0	32.2	704.9	208.4	OK
<b>Trave Sez. 3 Rett. 60x24 [cm]</b>																
313	0.150	15.39	15.39			3015	9607	0.43	0	-9607	0.43					
				SLE Rare		2032			0			0.0	36.9	809.2	239.2	
				SLE Freq.		1908			0			0.0	34.7	760.1	224.7	OK
				SLE Q.P.		1785			0			0.0	32.4	711.0	210.2	OK
Camp.	1.700	6.16	7.70	3677	2657	0	4080	0.32	-2657	-5040	0.36					
				SLE Rare		0			-1763			45.7	0.0	217.0	1346.9	
				SLE Freq.		0			-1640			42.5	0.0	201.8	1252.5	OK
				SLE Q.P.		0			-1516			39.3	0.0	186.6	1158.1	OK
314	3.250	12.32	13.85			2063	7794	0.40	0	-8704	0.43					
				SLE Rare		1372			0			0.0	27.5	675.5	161.0	
				SLE Freq.		1275			0			0.0	25.5	627.8	149.7	OK
				SLE Q.P.		1178			0			0.0	23.6	580.1	138.3	OK
<b>Trave Sez. 3 Rett. 60x24 [cm]</b>																
314	0.150	12.32	13.85			2141	7794	0.40	0	-8704	0.43					
				SLE Rare		1427			0			0.0	28.6	702.5	167.5	
				SLE Freq.		1325			0			0.0	26.5	652.5	155.6	OK
				SLE Q.P.		1224			0			0.0	24.5	602.5	143.6	OK
Camp.	1.500	6.16	6.16	3677	2068	0	4088	0.33	-2068	-4088	0.33					
				SLE Rare		0			-1373			38.9	0.0	149.6	1296.5	
				SLE Freq.		0			-1277			36.2	0.0	139.1	1205.6	OK
				SLE Q.P.		0			-1180			33.4	0.0	128.6	1114.8	OK
315	2.850	12.32	13.85			2610	7794	0.40	0	-8704	0.43					
				SLE Rare		1740			0			0.0	34.8	856.5	204.2	
				SLE Freq.		1616			0			0.0	32.4	796.0	189.8	OK
				SLE Q.P.		1493			0			0.0	29.9	735.4	175.3	OK
<b>Trave Sez. 3 Rett. 60x24 [cm]</b>																
315	0.150	12.32	13.85			2550	7794	0.40	0	-8704	0.43					
				SLE Rare		1681			0			0.0	33.7	827.7	197.3	
				SLE Freq.		1562			0			0.0	31.3	769.2	183.4	OK
				SLE Q.P.		1443			0			0.0	28.9	710.6	169.4	OK
Camp.	1.775	6.16	7.70	3677	2896	0	4080	0.32	-2896	-5040	0.36					
				SLE Rare		0			-1922			49.9	0.0	236.5	1468.3	
				SLE Freq.		0			-1788			46.4	0.0	220.0	1365.4	OK
				SLE Q.P.		0			-1653			42.9	0.0	203.4	1262.5	OK
316	3.400	12.32	15.39			2763	7790	0.40	0	-9601	0.45					
				SLE Rare		1793			0			0.0	35.3	884.0	203.8	
				SLE Freq.		1665			0			0.0	32.8	820.8	189.2	OK
				SLE Q.P.		1536			0			0.0	30.3	757.5	174.6	OK
<b>Trave Sez. 3 Rett. 60x24 [cm]</b>																
316	0.150	12.32	15.39			2721	7790	0.40	0	-9601	0.45					
				SLE Rare		1784			0			0.0	35.2	879.8	202.8	
				SLE Freq.		1657			0			0.0	32.7	816.8	188.3	OK
				SLE Q.P.		1529			0			0.0	30.1	753.7	173.7	OK
Camp.	1.775	6.16	7.70	3677	2896	0	4080	0.32	-2896	-5040	0.36					
				SLE Rare		0			-1922			49.9	0.0	236.5	1468.3	
				SLE Freq.		0			-1788			46.4	0.0	220.0	1365.4	OK
				SLE Q.P.		0			-1653			42.9	0.0	203.4	1262.5	OK
317	3.400	12.32	13.85			2765	7794	0.40	0	-8704	0.43					
				SLE Rare		1809			0			0.0	36.2	890.8	212.4	
				SLE Freq.		1684			0			0.0	33.7	829.0	197.6	OK
				SLE Q.P.		1558			0			0.0	31.2	767.2	182.9	OK
<b>Trave Sez. 3 Rett. 60x24 [cm]</b>																
317	0.150	12.32	13.85			2563	7794	0.40	0	-8704	0.43					



Travata: Travata 202 Nodi 328 329 330



Schema armature

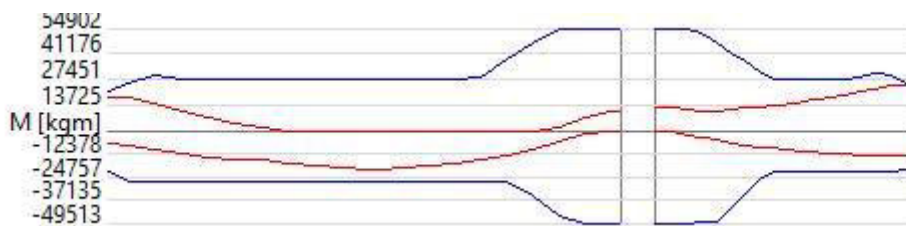


Diagramma dei momenti flettenti

Nodo	x [m]	A <sub>re</sub> [cm <sup>2</sup> ]	A <sub>ri</sub> [cm <sup>2</sup> ]	q <sub>T</sub> [kg/m]	M <sub>rif</sub> [kgm]	M <sub>de</sub> [kgm]	M <sub>re</sub> [kgm]	x/d	M <sub>di</sub> [kgm]	M <sub>ri</sub> [kgm]	x/d	σ <sub>be</sub> [kg/cm <sup>2</sup> ]	σ <sub>bi</sub> [kg/cm <sup>2</sup> ]	σ <sub>fe</sub> [kg/cm <sup>2</sup> ]	σ <sub>fi</sub> [kg/cm <sup>2</sup> ]	w mm
<b>Trave Sez. 5 Rett. 40x64 [cm]</b>																
328	0.100	9.42	9.89			18109	20733	0.09	-6538	-21733	0.10					
				SLE Rare		8476			0			0.0	38.3	878.6	308.7	
				SLE Freq.		7744			0			0.0	35.0	802.8	282.0	OK
				SLE Q.P.		7012			0			0.0	31.7	726.9	255.4	OK
Camp.	3.200	12.72	12.72	6462	17064	0	27789	0.10	-20716	-27789	0.10					
				SLE Rare		0			-13791			53.6	0.0	581.3	2010.1	
				SLE Freq.		0			-12847			50.0	0.0	541.5	1872.4	OK
				SLE Q.P.		0			-11902			46.3	0.0	501.7	1734.6	OK
329	6.300	25.45	22.90			10517	54902	0.13	0	-49513	0.12					
				SLE Rare		7169			0			0.0	19.6	529.9	228.1	
				SLE Freq.		6764			0			0.0	18.4	499.9	215.1	OK
				SLE Q.P.		6358			0			0.0	17.3	470.0	202.2	OK
<b>Trave Sez. 5 Rett. 40x64 [cm]</b>																
329	0.200	25.45	22.90			12184	54902	0.13	0	-49513	0.12					
				SLE Rare		8268			0			0.0	22.6	611.2	263.0	
				SLE Freq.		7781			0			0.0	21.2	575.2	247.5	OK
				SLE Q.P.		7295			0			0.0	19.9	539.2	232.0	OK
Camp.	1.750	12.72	10.18	6462	4398	13968	27781	0.11	-10153	-22356	0.09					
				SLE Rare		2232			-2898			12.2	9.0	326.3	524.2	
				SLE Freq.		2076			-2696			11.3	8.4	303.4	487.6	OK
				SLE Q.P.		1919			-2493			10.5	7.8	280.5	450.9	OK
330	3.300	11.44	9.34			23990	25051	0.10	-13172	-20565	0.09					
				SLE Rare		6502			0			0.0	27.7	677.0	274.0	
				SLE Freq.		5956			0			0.0	25.3	620.1	251.0	OK
				SLE Q.P.		5409			0			0.0	23.0	563.2	227.9	OK

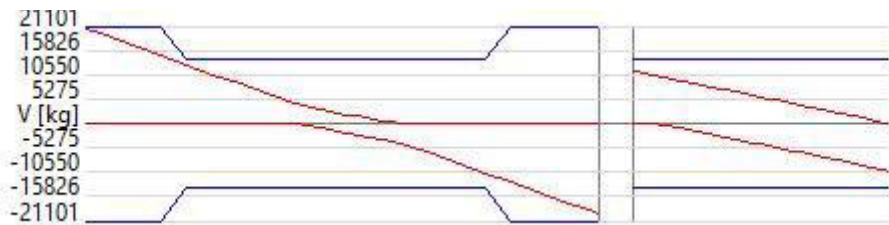
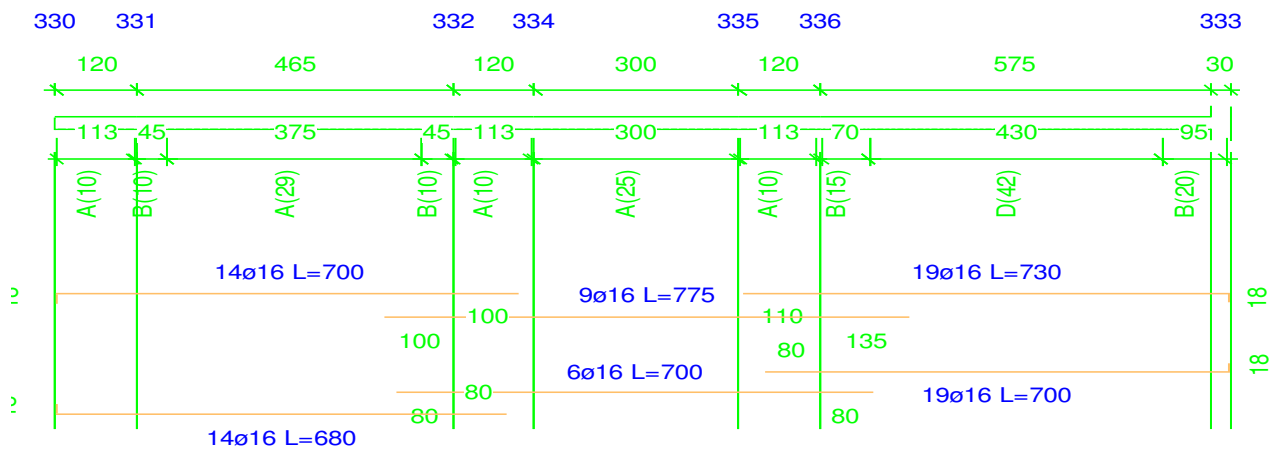


Diagramma del taglio

Da [m]	A [m]	Dx [m]	cotg(θ)	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	V <sub>Rd</sub> [kg]	Staffe
<b>Trave 328 329 Sez. 5 Rett. 40x64 [cm]</b>							
0.100	1.181	1.081	1.00	20462	9852	76008	21101 ø 8 2br. 10.0'
1.181	5.219	4.037	1.00	13474	10716	76008	14067 ø 8 2br. 15.0'
5.219	6.300	1.081	1.00	19603	11546	76008	21101 ø 8 2br. 10.0'
<b>Trave 329 330 Sez. 5 Rett. 40x64 [cm]</b>							
0.200	3.300	3.100	1.00	11460	9667	76008	14067 ø 8 2br. 15.0'

Travata: Travata 202 Nodi 330 331 332 334 335 336 333



Schema armature

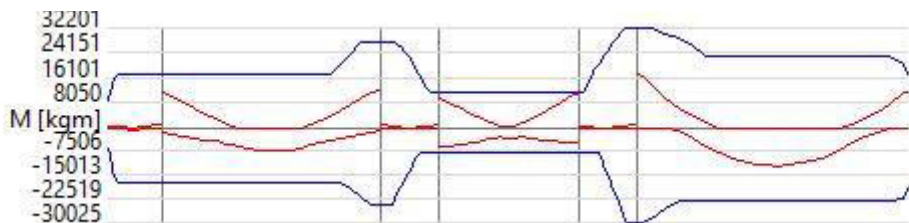


Diagramma dei momenti flettenti

Nodo	x [m]	A <sub>fe</sub> [cm <sup>2</sup> ]	A <sub>fi</sub> [cm <sup>2</sup> ]	q <sub>T</sub> [kg/m]	M <sub>rif</sub> [kgm]	M <sub>de</sub> [kgm]	M <sub>re</sub> [kgm]	x/d	M <sub>di</sub> [kgm]	M <sub>ri</sub> [kgm]	x/d	σ <sub>bc</sub> [kg/cm <sup>2</sup> ]	σ <sub>bi</sub> [kg/cm <sup>2</sup> ]	σ <sub>fc</sub> [kg/cm <sup>2</sup> ]	σ <sub>fi</sub> [kg/cm <sup>2</sup> ]	w mm
<b>Trave Sez. 1 Rett. 100x24 [cm]</b>																
330	0.050	13.84	9.69			758	8962	0.37	0	-6397	0.31					
				SLE Rare		499			0			0.0	7.7	105.2	12.8	
				SLE Freq.		462			0			0.0	7.1	97.4	11.8	OK
				SLE Q.P.		425			0			0.0	6.5	89.6	10.9	OK
Camp.	0.625	28.15	28.15	6410	577	105	17320	0.45	-573	-17320	0.45					
				SLE Rare		0			-380			4.0	0.0	26.0	83.7	
				SLE Freq.		0			-353			3.7	0.0	24.2	77.8	OK
				SLE Q.P.		0			-326			3.4	0.0	22.3	71.9	OK
331	1.200	28.15	28.15			1157	17320	0.45	0	-17320	0.45					
				SLE Rare		763			0			0.0	8.1	168.2	52.2	
				SLE Freq.		706			0			0.0	7.5	155.8	48.4	OK

			SLE Q.P.	650		0		0.0	6.9	143.4	44.5	OK
<b>Trave Sez. 1 Rett. 100x24 [cm]</b>												
331	0.000	28.15	28.15	11470	17320	0.45	-1158	-17320	0.45			
			SLE Rare	6221		0		0.0	65.7	1372.1	426.2	
			SLE Freq.	5789		0		0.0	61.1	1276.6	396.6	OK
			SLE Q.P.	5356		0		0.0	56.5	1181.2	366.9	OK
Camp.	2.325	28.15	28.15	5579	7539	0	17320	0.45	-7539	-17320	0.45	
			SLE Rare	0		-5005		52.8	0.0	342.9	1103.8	
			SLE Freq.	0		-4655		49.1	0.0	318.9	1026.6	OK
			SLE Q.P.	0		-4305		45.4	0.0	294.9	949.4	OK
332	4.650	46.24	40.21	12310	27608	0.51	-728	-24270	0.47			
			SLE Rare	6977		0		0.0	58.1	959.8	437.1	
			SLE Freq.	6491		0		0.0	54.0	892.9	406.6	OK
			SLE Q.P.	6005		0		0.0	50.0	826.1	376.2	OK
<b>Trave Sez. 1 Rett. 100x24 [cm]</b>												
332	0.000	46.24	40.21	852	27608	0.51	0	-24270	0.47			
			SLE Rare	557		0		0.0	4.6	76.6	34.9	
			SLE Freq.	513		0		0.0	4.3	70.6	32.2	OK
			SLE Q.P.	470		0		0.0	3.9	64.6	29.4	OK
Camp.	0.600	37.47	21.75	5579	502	0	22249	0.52	-502	-13571	0.39	
			SLE Rare	0		-333		3.7	0.0	19.7	94.5	
			SLE Freq.	0		-310		3.4	0.0	18.3	87.9	OK
			SLE Q.P.	0		-287		3.2	0.0	17.0	81.3	OK
334	1.200	18.10	12.06	767	11490	0.41	-119	-7840	0.34			
			SLE Rare	440		0		0.0	6.0	146.6	34.4	
			SLE Freq.	409		0		0.0	5.6	136.0	31.9	OK
			SLE Q.P.	377		0		0.0	5.2	125.4	29.4	OK
<b>Trave Sez. 1 Rett. 100x24 [cm]</b>												
334	0.000	18.10	12.06	9378	11490	0.41	-5823	-7840	0.34			
			SLE Rare	2141		0		0.0	29.4	712.8	167.1	
			SLE Freq.	1959		0		0.0	26.9	652.3	152.9	OK
			SLE Q.P.	1777		0		0.0	24.4	591.8	138.7	OK
Camp.	1.500	18.10	12.06	5579	3138	161	11490	0.41	-3138	-7840	0.34	
			SLE Rare	0		-2083		32.3	0.0	126.8	1024.5	
			SLE Freq.	0		-1938		30.1	0.0	117.9	952.9	OK
			SLE Q.P.	0		-1792		27.8	0.0	109.1	881.2	OK
335	3.000	18.10	12.06	10999	11490	0.41	-4538	-7840	0.34			
			SLE Rare	3683		0		0.0	50.5	1226.4	287.5	
			SLE Freq.	3458		0		0.0	47.4	1151.5	269.9	OK
			SLE Q.P.	3233		0		0.0	44.4	1076.5	252.3	OK
<b>Trave Sez. 1 Rett. 100x24 [cm]</b>												
335	0.000	18.10	12.06	532	11490	0.41	-72	-7840	0.34			
			SLE Rare	324		0		0.0	4.4	107.9	25.3	
			SLE Freq.	298		0		0.0	4.1	99.4	23.3	OK
			SLE Q.P.	273		0		0.0	3.7	90.9	21.3	OK
Camp.	0.600	50.96	25.21	5579	502	56	24919	0.57	-502	-15577	0.39	
			SLE Rare	0		-333		3.3	0.0	17.7	82.4	
			SLE Freq.	0		-310		3.0	0.0	16.5	76.7	OK
			SLE Q.P.	0		-287		2.8	0.0	15.2	70.9	OK
336	1.200	56.30	50.27	1103	32201	0.53	0	-30025	0.49			
			SLE Rare	732		0		0.0	5.4	83.5	42.1	
			SLE Freq.	681		0		0.0	5.0	77.6	39.1	OK
			SLE Q.P.	630		0		0.0	4.7	71.8	36.2	OK
<b>Trave Sez. 1 Rett. 100x24 [cm]</b>												
336	0.000	56.30	50.27	17123	32201	0.53	0	-30025	0.49			
			SLE Rare	11417		0		0.0	84.3	1301.9	656.3	
			SLE Freq.	10645		0		0.0	78.6	1213.8	611.8	OK
			SLE Q.P.	9872		0		0.0	72.9	1125.7	567.4	OK
Camp.	2.875	38.20	38.20	5579	12137	0	23087	0.48	-12095	-23087	0.48	
			SLE Rare	0		-8030		71.9	0.0	508.0	1326.2	
			SLE Freq.	0		-7468		66.8	0.0	472.4	1233.4	OK
			SLE Q.P.	0		-6907		61.8	0.0	436.9	1140.7	OK
333	5.750	26.37	29.58	11648	16291	0.43	0	-18134	0.46			
			SLE Rare	7566		0		0.0	81.0	1226.7	391.5	
			SLE Freq.	7009		0		0.0	75.0	1136.5	362.7	OK
			SLE Q.P.	6452		0		0.0	69.1	1046.2	333.9	OK

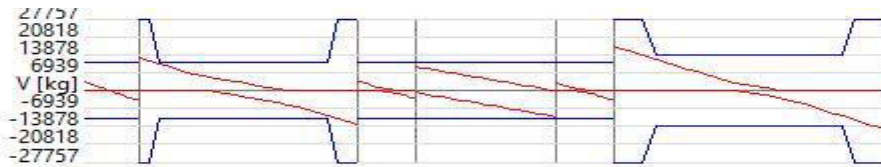
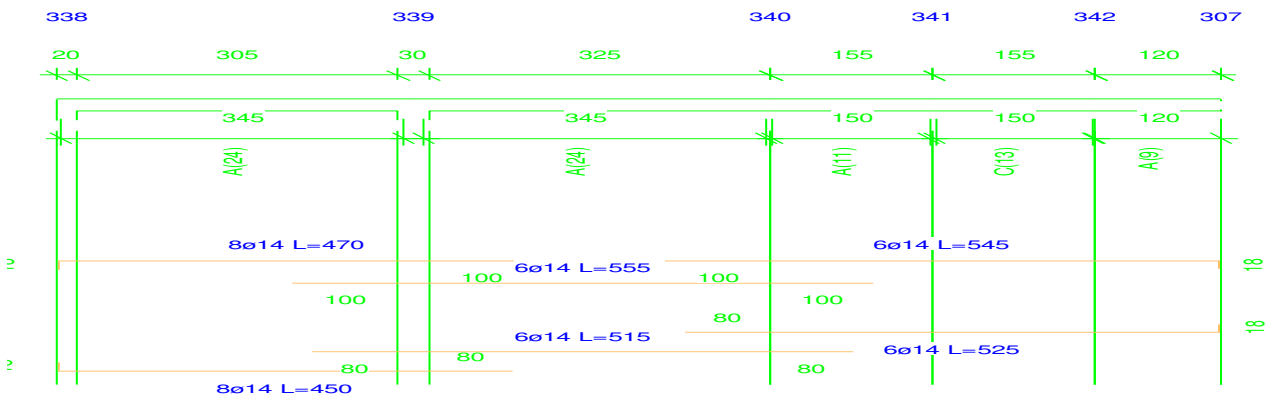


Diagramma del taglio

Da [m]	A [m]	Dx [m]	cotg(θ)	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	V <sub>Red</sub> [kg]	V <sub>Rd</sub> [kg]	Staffe
<b>Trave 330 331 Sez. 1 Rett. 100x24 [cm]</b>								
0.050	1.200	1.150	1.00	4033	10875	62490	11103	ø 8 4br. 12.5'
<b>Trave 331 332 Sez. 1 Rett. 100x24 [cm]</b>								
0.000	0.450	0.450	1.00	12725	15518	62490	27757	ø 8 4br. 5.0'
0.450	4.200	3.750	1.00	10705	15518	62490	11103	ø 8 4br. 12.5'
4.200	4.650	0.450	1.00	13215	16753	62490	27757	ø 8 4br. 5.0'
<b>Trave 332 334 Sez. 1 Rett. 100x24 [cm]</b>								
0.000	1.200	1.200	1.00	3502	11700	62490	11103	ø 8 4br. 12.5'
<b>Trave 334 335 Sez. 1 Rett. 100x24 [cm]</b>								
0.000	3.000	3.000	1.00	10274	11700	62490	11103	ø 8 4br. 12.5'
<b>Trave 335 336 Sez. 1 Rett. 100x24 [cm]</b>								
0.000	1.200	1.200	1.00	3853	11700	62490	11103	ø 8 4br. 12.5'
<b>Trave 336 333 Sez. 1 Rett. 100x24 [cm]</b>								
0.000	0.718	0.718	1.00	17029	17330	62490	27757	ø 8 4br. 5.0'
0.718	5.032	4.315	1.00	13026	17181	62490	13878	ø 8 4br. 10.0'
5.032	5.750	0.718	1.00	15048	15777	62490	27757	ø 8 4br. 5.0'

Travata: Travata 204 Nodi 338 339 340 341 342 307



Schema armature

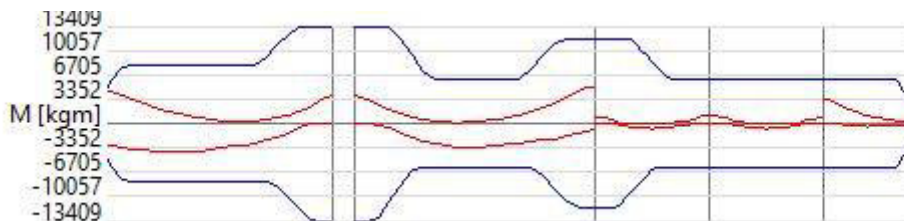


Diagramma dei momenti flettenti

Nodo	x [m]	A <sub>fe</sub> [cm <sup>2</sup> ]	A <sub>fi</sub> [cm <sup>2</sup> ]	q <sub>T</sub> [kg/m]	M <sub>rif</sub> [kgm]	M <sub>de</sub> [kgm]	M <sub>re</sub> [kgm]	x/d	M <sub>di</sub> [kgm]	M <sub>ri</sub> [kgm]	x/d	σ <sub>be</sub> [kg/cm <sup>2</sup> ]	σ <sub>bi</sub> [kg/cm <sup>2</sup> ]	σ <sub>fe</sub> [kg/cm <sup>2</sup> ]	σ <sub>fi</sub> [kg/cm <sup>2</sup> ]	w mm
<b>Trave Sez. 2 Rett. 80x24 [cm]</b>																
338	0.100	7.56	7.56			4485	5044	0.32	-3015	-5044	0.32					
				SLE Rare		1064			0			0.0	23.5	499.8	50.9	
				SLE Freq.		948			0			0.0	20.9	445.7	45.4	OK
				SLE Q.P.		833			0			0.0	18.4	391.6	39.9	OK
Camp.	1.625	12.32	12.32	4634	3154	341	7950	0.37	-3438	-7950	0.37					
				SLE Rare		0			-2085			36.6	0.0	190.0	1008.5	
				SLE Freq.		0			-1938			34.0	0.0	176.6	937.3	OK

				SLE Q.P.	0		-1791		31.5	0.0	163.2	866.0	OK
339	3.150	21.55	21.55		3788	13409	0.44	0	-13409	0.44			
				SLE Rare	2564			0	0.0	34.1	731.3	224.2	
				SLE Freq.	2409			0	0.0	32.0	687.3	210.8	OK
				SLE Q.P.	2255			0	0.0	30.0	643.3	197.3	OK
<b>Trave Sez. 2 Rett. 80x24 [cm]</b>													
339	0.150	21.55	21.55		3842	13409	0.44	0	-13409	0.44			
				SLE Rare	2593			0	0.0	34.4	739.6	226.8	
				SLE Freq.	2437			0	0.0	32.4	695.2	213.2	OK
				SLE Q.P.	2281			0	0.0	30.3	650.8	199.6	OK
Camp.	1.775	9.24	9.24	4634	3348	213	6082	0.34	-3319	-6082	0.34		
				SLE Rare	0			-2201	44.3	0.0	189.0	1395.2	
				SLE Freq.	0			-2045	41.2	0.0	175.6	1296.6	OK
				SLE Q.P.	0			-1890	38.0	0.0	162.3	1198.1	OK
340	3.400	18.47	18.47		4886	11606	0.42	-827	-11606	0.42			
				SLE Rare	2606			0	0.0	37.5	859.9	234.1	
				SLE Freq.	2394			0	0.0	34.4	789.9	215.0	OK
				SLE Q.P.	2182			0	0.0	31.4	720.0	196.0	OK
<b>Trave Sez. 2 Rett. 80x24 [cm]</b>													
340	0.000	18.47	18.47		854	11606	0.42	0	-11606	0.42			
				SLE Rare	564			0	0.0	8.1	186.2	50.7	
				SLE Freq.	524			0	0.0	7.5	172.8	47.0	OK
				SLE Q.P.	483			0	0.0	6.9	159.3	43.4	OK
Camp.	0.775	13.32	9.69	4634	696	0	8568	0.39	-696	-6342	0.34		
				SLE Rare	0			-461	8.9	0.0	37.4	280.6	
				SLE Freq.	0			-429	8.2	0.0	34.8	260.8	OK
				SLE Q.P.	0			-396	7.6	0.0	32.2	240.9	OK
341	1.550	9.24	9.24		976	6082	0.34	0	-6082	0.34			
				SLE Rare	644			0	0.0	13.0	408.5	55.3	
				SLE Freq.	597			0	0.0	12.0	378.7	51.3	OK
				SLE Q.P.	551			0	0.0	11.1	349.0	47.3	OK
<b>Trave Sez. 2 Rett. 80x24 [cm]</b>													
341	0.000	9.24	9.24		1100	6082	0.34	0	-6082	0.34			
				SLE Rare	735			0	0.0	14.8	465.7	63.1	
				SLE Freq.	685			0	0.0	13.8	434.5	58.9	OK
				SLE Q.P.	636			0	0.0	12.8	403.3	54.6	OK
Camp.	0.775	9.24	9.24	4634	696	0	6082	0.34	-696	-6082	0.34		
				SLE Rare	0			-461	9.3	0.0	39.6	292.5	
				SLE Freq.	0			-429	8.6	0.0	36.8	271.8	OK
				SLE Q.P.	0			-396	8.0	0.0	34.0	251.2	OK
342	1.550	9.24	9.24		834	6082	0.34	0	-6082	0.34			
				SLE Rare	551			0	0.0	11.1	349.5	47.3	
				SLE Freq.	511			0	0.0	10.3	324.2	43.9	OK
				SLE Q.P.	472			0	0.0	9.5	299.0	40.5	OK
<b>Trave Sez. 2 Rett. 80x24 [cm]</b>													
342	0.000	9.24	9.24		3242	6082	0.34	0	-6082	0.34			
				SLE Rare	2146			0	0.0	43.2	1360.5	184.3	
				SLE Freq.	1993			0	0.0	40.1	1263.4	171.1	OK
				SLE Q.P.	1840			0	0.0	37.0	1166.3	158.0	OK
Camp.	0.575	9.24	9.24	4634	417	1122	6082	0.34	-414	-6082	0.34		
				SLE Rare	505			-274	5.5	10.2	320.2	174.0	
				SLE Freq.	469			-255	5.1	9.4	297.0	161.7	OK
				SLE Q.P.	432			-236	4.7	8.7	273.8	149.4	OK
307	1.150	5.19	5.19		182	3550	0.28	-342	-3550	0.28			
				SLE Rare	0			-122	3.2	0.0	3.4	74.8	
				SLE Freq.	0			-113	3.0	0.0	3.2	69.6	OK
				SLE Q.P.	0			-105	2.8	0.0	3.0	64.5	OK

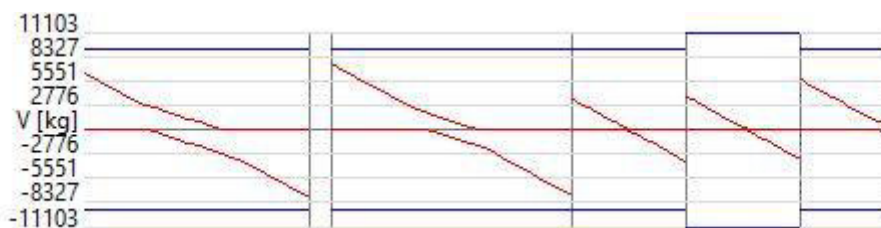


Diagramma del taglio



Da [m]	A [m]	Dx [m]	cotg(θ)	V <sub>Ed</sub> [kg]	V <sub>Rd,c</sub> [kg]	V <sub>Rcd</sub> [kg]	V <sub>Rd</sub> [kg]	Staffe
<b>Trave 338 339 Sez. 2 Rett. 80x24 [cm]</b>								
0.100	3.150	3.050	1.00	7748	8627	49992	9252	ø 8 4br. 15.0'
<b>Trave 339 340 Sez. 2 Rett. 80x24 [cm]</b>								
0.150	3.400	3.250	1.00	7588	9224	49992	9252	ø 8 4br. 15.0'
<b>Trave 340 341 Sez. 2 Rett. 80x24 [cm]</b>								
0.000	1.550	1.550	1.00	3670	9224	49992	9252	ø 8 4br. 15.0'
<b>Trave 341 342 Sez. 2 Rett. 80x24 [cm]</b>								
0.000	1.550	1.550	1.00	3763	9224	49992	11103	ø 8 4br. 12.5'
<b>Trave 342 307 Sez. 2 Rett. 80x24 [cm]</b>								
0.000	1.150	1.150	1.00	5644	7761	49992	9252	ø 8 4br. 15.0'

Il Progettista  
Ing. Michele Peres