COMMITTENTE:

RFI RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO ITALIANE

PROGETTAZIONE:

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PROGETTO DEFINITIVO

RADDOPPIO LINEA CODOGNO – CREMONA – MANTOVA
TRATTA PIADENA - MANTOVA

RI – OPERE DI SOSTEGNO SEDE FERROVIARIA E STRADALE
Relazione di calcolo muro di sostegno sede stradale-NV24

SCALA: -

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1. PREMESSA

La presente relazione ha per oggetto il dimensionamento del muro di sostegno della sede stradale della nuova viabilità NV24, prevista nell'ambito della progettazione definitiva del Raddoppio Ferroviario Codogno-Cremona-Mantova, tratta Piadena Mantova.

L'opera è suddivisa in conci di altezze sezioni caratteristiche diverse:

- **Concio 1:** l'opera è costituita da un muro a mensola in c.a. gettato in opera, di altezza massima 6,50m da estradosso fondazione. Il paramento ha spessore massimo in testa di 0,40m e prosegue con andamento verticale per i primi 60cm, in modo da consentire l'alloggiamento della canaletta; l'altezza restante prosegue con una pendenza 1:10 interna. La suola di fondazione ha spessore 1,10m e larghezza totale di 6,55m, con mensola di valle lunga 0,60m.
- **Concio 2:** l'opera è costituita da un muro a mensola in c.a. gettato in opera, di altezza massima 5,00m da estradosso fondazione. Il paramento ha spessore massimo in testa di 0,40m e prosegue con andamento verticale per i primi 60cm, in modo da consentire l'alloggiamento della canaletta; l'altezza restante prosegue con una pendenza 1:10 interna. La suola di fondazione ha spessore 0,90m e larghezza totale di 5,10m, con mensola di valle lunga 0,60m.
- **Concio 3:** l'opera è costituita da un muro a mensola in c.a. gettato in opera, di altezza massima 4,15m da estradosso fondazione. Il paramento ha spessore massimo in testa di 0,40m e prosegue con andamento verticale per i primi 60cm, in modo da consentire l'alloggiamento della canaletta; l'altezza restante prosegue con una pendenza 1:10 interna. La suola di fondazione ha spessore 0,80m e larghezza totale di 4,40m, con mensola di valle lunga 0,40m.

L'opera ricade in zona sismica e sono state pertanto considerate le azioni derivanti dall'analisi sismica, secondo quanto previsto dal D.M. 17/01/18.

Di seguito si riporta una sezione tipologica dell'intervento:

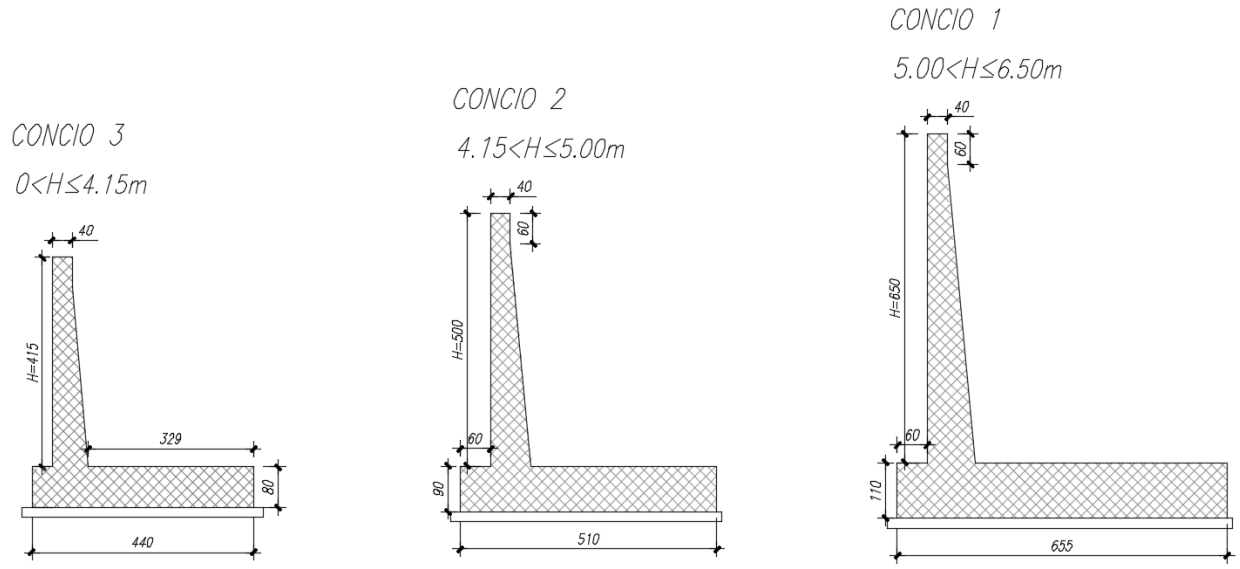


Figura 1 Sezione tipologica del muro

2. NORMATIVE DI RIFERIMENTO

2.1 Normativa

Di seguito si riportano i riferimenti delle normative prese in considerazione per lo sviluppo delle analisi e delle verifiche in oggetto:

- LEGGE n. 1086 05.11.1971: "Norme per la disciplina delle opere in conglomerato cementizio armato, normale e precompresso ed a struttura metallica".
- Decreto Ministeriale del 17 gennaio 2018: "Aggiornamento delle «Norme Tecniche per le Costruzioni»", G.U. Serie Generale n.42 del 20.02.2008, Supplemento Ordinario n.8.
- Circolare 21 gennaio 2019 n.7 " Istruzioni per l'applicazione dell'«Aggiornamento delle "Norme tecniche per le costruzioni"» di cui al decreto ministeriale 17 gennaio 2018″;
- RFI DTC SI MA IFS 001 C del 21.12.2018 - "Manuale di progettazione delle opere civili".
- RFI DTC SI PS MA IFS 001 C del 21.12.2018 - "Manuale di progettazione delle opere civili – Sezione 3 – Corpo stradale".
- RFI DTC SI CS MA IFS 001 C del 21.12.2018 - "Capitolato generale tecnico di appalto delle opere civili".
- Regolamento (UE) N. 1299/2014 della Commissione del 18 novembre 2014 relativo alle specifiche tecniche di interoperabilità per il sottosistema «infrastruttura» del sistema ferroviario dell'Unione europea, modificato dal Regolamento di esecuzione (UE) N° 2019/776 della Commissione del 16 maggio 2019.UNI EN 1997-1: Eurocodice 7 – Progettazione geotecnica – Parte 1: Regole generali;
- UNI EN 1998-5: Eurocodice 8 – Progettazione delle strutture per la resistenza sismica – Parte 5: Fondazioni, strutture di contenimento ed aspetti geotecnici.

2.2 Elaborati progettuali di riferimento

Di seguito si riportano gli elaborati di progetto di riferimento:

Opere di sostegno sede stradale – NV24 - pianta, prospetto e sezioni	N	M	2	5	0	3	D	2	6	B	Z	N	V	2	4	0	5	0	0	1	A
Relazione geotecnica generale	N	M	2	5	0	3	D	2	6	G	E	G	E	0	0	0	6	0	0	1	A

3. CARATTERISTICHE DEI MATERIALI

3.1 Calcestruzzo

3.1.1 Calcestruzzo per strutture in elevazione

Si prevede l'utilizzo di calcestruzzo avente classe di resistenza 32/40 ($R_{ck} \geq$ 40 N/mm^2) che presenta le seguenti caratteristiche:

Resistenza caratteristica a compressione (cilindrica)

$f_{ck} = 0.83 \times R_{ck} = 33.20$ N/mm^2

Resistenza media a compressione

$f_{cm} = f_{ck} + 8 = 41.20$ N/mm^2

Modulo elastico

$E_{cm}=22000 \times (f_{cm}/10)^{0.3} = 33643$ N/mm^2

Resistenza di calcolo a compressione

$f_{cd} = a_{cc} \times f_{ck}/\gamma_c = 0.85^* f_{ck}/1.5 = 18.81$ N/mm^2

Resistenza a trazione media

$f_{ctm} = 0.30 \times f_{ck}^{2/3} = 3.10$ N/mm^2

Resistenza a trazione

$f_{ctk} = 0.7 \times f_{ctm} = 2.17$ N/mm^2

Resistenza a trazione di calcolo

$f_{ctd} = f_{ctk} / \gamma_c = 1.45$ N/mm^2

3.1.2 Calcestruzzo per strutture in fondazione

Si prevede l'utilizzo di calcestruzzo avente classe di resistenza 30/37 ($R_{ck} \geq$ 37 N/mm^2) che presenta le seguenti caratteristiche:

Resistenza caratteristica a compressione (cilindrica)

$f_{ck} = 0.83 \times R_{ck} = 30.71$ N/mm^2

Resistenza media a compressione

$f_{cm} = f_{ck} + 8 = 38.71$ N/mm^2

Modulo elastico

$E_{cm}=22000 \times (f_{cm}/10)^{0.3} = 33019$ N/mm^2

Resistenza di calcolo a compressione

$f_{cd} = a_{cc} \times f_{ck}/\gamma_c = 0.85^* f_{ck}/1.5 = 17.40$ N/mm^2

Resistenza a trazione media

$f_{ctm} = 0.30 \times f_{ck}^{2/3} = 2.94$ N/mm^2

Resistenza a trazione

$f_{ctk} = 0.7 \times f_{ctm} = 2.06$ N/mm^2

Resistenza a trazione di calcolo

$f_{ctd} = f_{ctk} / \gamma_c = 1.37$ N/mm^2

Calcestruzzo per magrone

Classe di resistenza = C12/15

3.2 Acciaio per cemento armato

Tipo	B450 (controllato in stabilimento)	
f_{yk} =	450 MPa	Tensione caratteristica di snervamento
$f_{yd} = f_{yk} / 1.15$ =	391.30 MPa	Resistenza di calcolo
$\sigma_s = 0.75\ f_{yk}$ =	337.50 MPa	Tensione limite in condizione di esercizio (comb. Rara)
E_s =	210000 MPa	Modulo elastico

3.3 Durabilità e prescrizioni sui materiali

Per garantire la durabilità delle strutture in calcestruzzo armato ordinario, esposte all'azione dell'ambiente, si devono adottare i provvedimenti atti a limitare gli effetti di degrado indotti dall'attacco chimico, fisico e derivante dalla corrosione delle armature e dai cicli di gelo e disgelo.

Per le opere della presente relazione, in base a quanto prescritto dal Capitolato di Costruzione RFI 2018, si adotta quanto segue:

Fondazione	Classe di esposizione	XC3
Elevazione	Classe di esposizione	XC4

3.4 Copriferro minimo e copriferro nominale

Al fine di preservare le armature dai fenomeni di aggressione ambientale, dovrà essere previsto un idoneo copriferro; definito come la distanza tra la superficie esterna dell'armatura, inclusi collegamenti e staffe, e la superficie di calcestruzzo più vicina.

In riferimento alla Tabella 2.5.2.2.3.2.-1 del Manuale di Progettazione delle Opere Civili Parte II - Sezione 2, per l'elemento strutturale in esame risulta un copriferro minimo c_{min}=**40mm**.

4. PARAMETRI SISMICI

La vita nominale (V_N) dell'opera è stata assunta pari a 50 anni. La classe d'uso assunta è la III.

Vita nominale:	$V_N = 50$ anni
Classe d'uso	IV
Coefficiente d'uso	$C_u = 1.5$
Periodo di riferimento	$V_R = V_N \times C_u = 75$ anni
Categoria del suolo	D
Categoria topografica	T1
Stato Limite	SLV
Tempo di ritorno	712

Si assumono i parametri sismici corrispondenti al tratto A1, individuato dalla "Relazione geotecnica generale" dal km 55+286 al km 72+204 con il punto P2:

latitudine = 45.127559;

longitudine = 10.369862;

a_g = 0.091 g;

F_0 = 2.641;

T*c = 0.319 s.

S = 1.80

a_{max} = 1,603 m/s^2

Facendo riferimento alle Norme Tecniche delle Costruzioni 2018, il coefficiente di riduzione dell'accelerazione massima attesa al sito ($ß_m$) è pari a:

$ß_m = 0.38$ nelle verifiche allo stato limite ultimo (*SLV*)

$ß_m = 0.47$ nelle verifiche allo stato limite di esercizio (*SLD*).

per muri non liberi di subire spostamenti relativi rispetto al terreno, il coefficiente $ß_m$ assume valore unitario.

In accordo con il Manuale di Progettazione (SEZIONE III § 3.10.3.1), i coefficienti sismici orizzontale e verticale nel caso in esame risultano:

$$k_h = 2\,\beta_m\,a_{max}/g = 0.76 \qquad k_v = \pm 0.5\,k_h = 0.94$$

5. CARATTERIZZAZIONE GEOTECNICA

Le caratteristiche geotecniche del terreno in situ, in accordo con Relazione Geotecnica sono di seguito riportati:

UNITA'			**Wa1**	**Ws1**	**WRa2**	**Rs1**	**Ra1**	**Rs2**
Stratigrafia	**DA**	**[m P.C.]**	**0.0**	**3.0**	**5.0**	**17.0**	**21.0**	**25.5**
	A	**[m P.C.]**	**3.0**	**5.0**	**17.0**	**21.0**	**25.5**	**35.0**
Parametri di resistenza	**γ_n**	**[kN/m^3]**	19.0	19.0	19.0	19.0	19.0	19.0
	φ'	**[°]**	25.0	33.0	27.0	33.0	24.0	34.0
	c'	**[kPa]**	0	0	0	0	0	0
	c_u	**[kPa]**	30	-	50-60	-	70	-
Parametri di deformabilità	**G_0**	**[MPa]**	30.0	55-65	50-80	100.0	80.0	150.0
	E_{op2}	**[MPa]**	15.0	27.5-32.5	25-40	50.0	40.0	75.0
	OCR	**[-]**	3.0	-	2.000	-	1.0	-
	CR	**[-]**	0.180	-	0.160	-	0.180	-
	RR	**[-]**	0.036	-	0.032	-	0.036	-
	C_{ae}	**[%]**	0.120	-	0.150	-	0.120	-
	k_v (*)	**[m/s]**	5.00E-08	2.00E-07	1.00E-08	5.00E-07	1.00E-08	1.00E-06

Tabella 1: Caratterizzazione geotecnica

I parametri geotecnici impiegati per il rilevato stradale sono:

$\gamma = 19.00$ kN/m^3	peso di volume naturale
$\varphi' = 35$ °	angolo di resistenza al taglio
c' = 0.00 kPa	coesione drenata

Si individua la presenza di falda a quota 2.0m da p.c.

6. CRITERI DI CALCOLO

Sono state effettuate le verifiche con riferimento ai seguenti stati limite:

- scorrimento sul piano di posa;
- collasso per carico limite del complesso fondazione-terreno;
- ribaltamento;
- stabilità globale del complesso opera di sostegno-terreno;
- raggiungimento della resistenza negli elementi strutturali.

6.1 VERIFICHE GEOTECNICHE

6.1.1 Verifica a ribaltamento

La verifica a ribaltamento consiste nel determinare il momento risultante di tutte le forze che tendono a fare ribaltare il muro (momento ribaltante M_r) ed il momento risultante di tutte le forze che tendono a stabilizzare il muro (momento stabilizzante M_s) rispetto allo spigolo a valle della fondazione e verificare che il rapporto M_s/M_r sia maggiore di un determinato coefficiente di sicurezza η_r.

Deve quindi essere verificata la seguente diseguaglianza

$$\frac{M_s}{M_r} >= \eta_r$$

Il momento ribaltante M_r è dato dalla componente orizzontale della spinta *S*, dalle forze di inerzia del muro e del terreno gravante sulla fondazione di monte (caso di presenza di sisma) per i rispettivi bracci. Nel momento stabilizzante interviene il peso del muro (applicato nel baricentro) ed il peso del terreno gravante sulla fondazione di monte. Se sono presenti dei tiranti essi contribuiscono al momento stabilizzante. Questa verifica ha significato solo per fondazione superficiale e non per fondazione su pali.

6.1.2 Verifica a scorrimento

Per la verifica a scorrimento del muro lungo il piano di fondazione deve risultare che la somma di tutte le forze parallele al piano di posa che tendono a fare scorrere il muro deve essere minore di tutte le forze, parallele al piano di scorrimento, che si oppongono allo scivolamento, secondo un certo coefficiente di sicurezza. La verifica a scorrimento risulta soddisfatta se il rapporto fra la risultante delle forze resistenti allo scivolamento Fr e la risultante delle forze che tendono a fare scorrere il muro Fs risulta maggiore di un determinato coefficiente di sicurezza η_s

$$\frac{F_r}{F_s} >= \eta_s$$

Le forze che intervengono nella F_s sono: la componente della spinta parallela al piano di fondazione e la componente delle forze d'inerzia parallela al piano di fondazione.

La forza resistente è data dalla resistenza d'attrito e dalla resistenza per adesione lungo la base della fondazione. Detta N la componente normale al piano di fondazione del carico totale gravante in fondazione e indicando con δf l'angolo d'attrito terreno-fondazione, con c_a l'adesione terreno-fondazione e con B_r la larghezza della fondazione reagente, la forza resistente può esprimersi come

$$F_r = N \text{ tg } \delta_f + c_a B_r$$

Per quanto riguarda l'angolo d'attrito terra-fondazione, δ_f, si assume un valore di δ_f pari all'angolo d'attrito del terreno di fondazione, trascurando il contributo della spinta passiva del terreno a valle.

6.1.3 Verifica al carico limite

Il rapporto fra il carico limite in fondazione e la componente normale della risultante dei carichi trasmessi dal muro sul terreno di fondazione deve essere superiore a η_q. Cioè, detto Q_u, il carico limite ed *R* la risultante verticale dei carichi in fondazione, deve essere:

$$\frac{Q_u}{R} >= \eta_q$$

dove R rappresenta la capacità portante ultima valutata con la teoria di Brinch-Hansen.

6.1.4 Verifica alla stabilità globale

La verifica alla stabilità globale del complesso muro+terreno deve fornire un coefficiente di sicurezza non inferiore a η_g. Viene usata la tecnica della suddivisione a strisce della superficie di scorrimento da analizzare. La superficie di scorrimento viene supposta circolare e determinata in modo tale da non avere intersezione con il profilo del muro o con i pali di fondazione. Si determina il minimo coefficiente di sicurezza su una maglia di centri di dimensioni 10x10 posta in prossimità della sommità del muro. Il numero di strisce è pari a 50. Si adotta per la verifica di stabilità globale il metodo di Bishop.

6.2 VERIFICHE STRUTTURALI

Le verifiche strutturali condotte sono le seguenti:

- Verifiche di stato limite di esercizio
  - Verifiche a fessurazione
  - Verifica delle tensioni
- Verifiche di stato limite di ultimo
  - Verifica a flessione
  - Verifica a taglio

6.2.1 Verifiche allo stato limite ultimo

6.2.1.1 Sollecitazioni flettenti

La verifica agli SLU è stata realizzata attraverso il calcolo dei domini di interazione N-M, ovvero il luogo dei punti rappresentativi di sollecitazioni che portano in crisi la sezione di verifica secondo i criteri di resistenza da normativa.

Nel calcolo dei domini sono state mantenute le consuete ipotesi, tra cui:

- conservazione delle sezioni piane;
- legame costitutivo del calcestruzzo parabola-rettangolo non reagente a trazione, con plateaux ad una deformazione pari a 0.002 e a rottura pari a 0.0035 ($\sigma_{max} = 0.85 \times 0.83 \times Rck/1.5$);
- legame costitutivo dell'armatura d'acciaio elastico–perfettamente plastico con deformazione limite di rottura a 0.01 ($\sigma_{max} = fyk / 1.15$)

6.2.1.2 Sollecitazioni taglianti

La resistenza a taglio V_{Rd} di elementi sprovvisti di specifica armatura è stata calcolata sulla base della resistenza a trazione del calcestruzzo.

Con riferimento all'elemento fessurato da momento flettente, la resistenza al taglio si valuta con la seguente espressione:

$$V_{Rd} = \left\{0,18 \cdot k \cdot (100 \cdot \rho_1 \cdot f_{ck})^{1/3} / \gamma_c + 0,15 \cdot \sigma_{cp}\right\} \cdot b_w \cdot d \geq (v_{min} + 0,15 \cdot \sigma_{cp}) \cdot b_w d$$

$k = 1 + (200/d)^{1/2} \leq 2$

$v_{min} = 0,035 k^{3/2} f_{ck}^{1/2}$

dove:

d è l'altezza utile della sezione (in mm);

$\rho_1 = Asl /(bw \times d)$ è il rapporto geometrico di armatura longitudinale ($\leq 0,02$);

$\sigma_{cp} = N_{Ed}/A_c$ è la tensione media di compressione nella sezione ($\leq 0,2\ f_{cd}$);

b_w è la larghezza minima della sezione (in mm).

La resistenza a taglio V_{Rd} di elementi strutturali dotati di specifica armatura a taglio deve essere valutata sulla base di una adeguata schematizzazione a traliccio. Gli elementi resistenti dell'ideale traliccio sono: le armature trasversali, le armature longitudinali, il corrente compresso di calcestruzzo e i puntoni d'anima inclinati. L'inclinazione θ dei puntoni di calcestruzzo rispetto all'asse della trave deve rispettare i limiti seguenti:

$$1 \leq ctg\theta \leq 2.5$$

La verifica di resistenza (SLU) è soddisfatta se è verificata la seguente relazione:

$V_{Rd} \geq V_{Ed}$

dove V_{Ed} è il valore di calcolo dello sforzo di taglio agente.

La resistenza di calcolo a "taglio trazione" dell'armatura trasversale è stata calcolata con la seguente relazione:

$$V_{Rsd} = 0,9 \cdot d \cdot \frac{A_{sw}}{s} \cdot f_{yd} \cdot (ctg\alpha + ctg\theta) \cdot \sin\alpha$$

La resistenza di calcolo a "taglio compressione" del calcestruzzo d'anima è stata calcolata con la seguente relazione:

$$V_{Rcd} = 0,9 \cdot d \cdot b_w \cdot \alpha_c \cdot f'_{cd} \cdot (ctg\alpha + ctg\theta) / (1 + ctg^2\theta)$$

La resistenza al taglio della trave è la minore delle due relazioni sopra definite:

$$V_{Rd} = \min (V_{Rsd}, V_{Rcd})$$

In cui:

d è l'altezza utile della sezione;

b_w è la larghezza minima della sezione;

σ_{cp} è la tensione media di compressione della sezione;

A_{sw} è l'area dell'armatura trasversale;

S è interasse tra due armature trasversali consecutive;

α è è l'angolo di inclinazione dell'armatura trasversale rispetto all'asse della trave;

f'_{cd} è la resistenza a compressione ridotta del calcestruzzo d'anima ($f'_{cd}=0.5f_{cd}$);

α è un coefficiente maggiorativo par ad 1 per membrature non compresse.

6.2.2 Verifiche allo stato limite di esercizio

Le condizioni ambientali, ai fini della protezione contro la corrosione delle armature, sono suddivise in ordinarie, aggressive e molto aggressive in relazione a quanto indicato dalla Tab. 4.1.III delle NTC2018:

Condizioni ambientali	Classe di esposizione
Ordinarie	X0, XC1, XC2, XC3, XF1
Aggressive	XC4, XD1, XS1, XA1, XA2, XF2, XF3
Molto aggressive	XD2, XD3, XS2, XS3, XA3, XF4

Tabella 2 Descrizione delle condizioni ambientali (Tab. 4.1.III delle NTC18)

Nel caso in esame, le condizioni ambientali sono "*ordinarie*" per la fondazione e "aggressive" per il paramento.

6.2.2.1 Verifica a fessurazione

In relazione all'aggressività ambientale e alla sensibilità dell'acciaio, l'apertura limite delle fessure è pari a w1=0.2mm per la combinazione rara.

6.2.2.2 Verifica delle tensioni

I limiti tensionali considerati per i materiali sono relativi alla combinazione di carico quasi permanente e caratteristica.

Calcestruzzo:

Combinazione di azioni	Limite tensionale
Caratteristica (rara)	$\sigma_c <= 0.55 f_{ck}$
Quasi permanente	$\sigma_c <= 0.40 f_{ck}$

Acciaio:

Combinazione di azioni	Limite tensionale
Caratteristica (rara)	$\sigma_a <= 0.75\ f_{yk}$

6.2.3 Verifiche in condizioni sismiche

È stato verificato che gli spostamenti permanenti allo SLD siano inferiori a 2cm, come prescritto nel Mdp Parte II – SEZIONE 3. Gli spostamenti sono stati determinati con la seguente relazione:

$$d = (S_s\ S_t\ B)\ e^{A(a_c/a_{max})}$$

dove:

S_S e S_T sono i coefficienti di amplificazione stratigrafica e topografica (§ 3.2.3.2 NTC2018);

a_{max} è l'accelerazione orizzontale massima attesa al sito (§ 7.11.6.2.1 NTC2018);

a_c è l'accelerazione critica e rappresenta il valore limite dell'accelerazione al di sotto del quale l'opera non subisce spostamenti;

A, B sono coefficienti raccolti nella seguente tabella in funzione di a_{max} e della categoria di sottosuolo (Rampello et al., 2008).

Sottosuolo	Cat. A		Cat, B		Cat. C, D, E	
a_{max}/g	A	B	A	B	A	B
0.3 – 0.4	-7.5	1.21	-7.9	1.06	-7.4	0.56
0.2 – 0.3	-7.42	1.28	-7.79	1.11	-7.54	0.58
0.1 – 0.2	-7.48	0.65	-7.86	0.73	-8.05	0.86
≤ 0.1	-7.87	0.28	-7.86	0.3	-8.07	0.44

Tabella 3: Coefficienti A e B da utilizzare per valutare gli spostamenti dei muri di sostegno nelle verifiche SLE

L'accelerazione critica a_c è stata determinata imponendo che, nella verifica allo scorrimento, effettuata prendendo a riferimento i valori caratteristici di azioni e resistenze (coefficienti γ_F e γ_M pari ad 1), il rapporto Rd/Ed sia pari a 1.

7. ANALISI DEI CARICHI

Nel seguente paragrafo si descrivono le condizioni di carico elementari assunte per l'analisi delle sollecitazioni e per le verifiche della struttura in esame. Tali condizioni di carico elementari saranno opportunamente combinate secondo quanto previsto dalla normativa vigente.

7.1 CONDIZIONI DI CARICO ELEMENTARI

7.1.1 Peso proprio del muro

Il peso proprio del muro è stato considerato considerando un peso per unità di volume pari a $\gamma_{cls} = 25$ kN/m^3.

7.1.2 Peso del terrapieno

Il peso proprio del terrapieno è stato considerato considerando un peso per unità di volume pari a $\gamma_t = 19$ kN/m^3.

7.1.3 Carichi permanenti non strutturali

Si considera il peso proprio del pacchetto stradale posto a tergo dell'opera, attribuendo un peso per unità di volume pari a $\gamma_t = 18$ kN/m^3 e uno spessore di 0.11m.

7.1.4 Spinta da sovraccarico accidentale

Il sovraccarico accidentale di superficie è assunto pari a 20 kPa, riproducente il traffico stradale attivo sull'eventuale carreggiata presente a tergo delle opere.

7.1.5 Spinta del terreno in condizioni statiche

La spinta del terreno agente sulla struttura è stata calcolata attraverso la teoria di Culmann che adotta le stesse ipotesi di base del metodo di Coulomb. La differenza sostanziale è che mentre Coulomb considera un terrapieno con superficie a pendenza costante e carico uniformemente distribuito (il che permette di ottenere una espressione in forma chiusa per il coefficiente di spinta) il metodo di Culmann consente di analizzare situazioni con profilo di forma generica e carichi sia concentrati che distribuiti comunque disposti. Inoltre, rispetto al metodo di Coulomb, risulta più immediato e lineare tener conto della coesione del masso spingente. Il metodo di Culmann, nato come metodo essenzialmente grafico, si è evoluto per essere trattato mediante analisi numerica (noto in questa forma come metodo del cuneo di tentativo). Come il metodo di Coulomb anche questo metodo considera una superficie di rottura rettilinea. I passi del procedimento risolutivo sono i seguenti:

- si impone una superficie di rottura e si considera il cuneo di spinta delimitato dalla superficie di rottura stessa, dalla parete su cui si calcola la spinta e dal profilo del terreno;

- si valutano tutte le forze agenti sul cuneo di spinta e cioè peso proprio *(W)*, carichi sul terrapieno, resistenza per attrito e per coesione lungo la superficie di rottura *(R e C)* e resistenza per coesione lungo la parete *(A)*;

- dalle equazioni di equilibrio si ricava il valore della spinta S sulla parete.

Questo processo viene iterato fino a trovare l'angolo di rottura per cui la spinta risulta massima.

La convergenza non si raggiunge se il terrapieno risulta inclinato di un angolo maggiore dell'angolo d'attrito del terreno.

Nei casi in cui è applicabile il metodo di Coulomb (profilo a monte rettilineo e carico uniformemente distribuito) i risultati ottenuti col metodo di Culmann coincidono con quelli del metodo di Coulomb, il cui coefficiente di spinta attiva è di seguito riportata:

$$K_a = \frac{\cos^2(\phi'-\alpha)}{\cos^2\alpha \cdot \cos(\alpha+\delta) \cdot \left[1+\sqrt{\frac{\sin(\phi'+\delta)\cdot\sin(\phi'-\beta)}{\cos(\alpha+\delta)\cdot\cos(\alpha-\beta)}}\right]^2}$$

dove:

- α è l'inclinazione del paramento interno del muro rispetto alla verticale;
- β è l'inclinazione del piano campagna rispetto all'orizzontale;
- ϕ è l'angolo d'attrito del terreno;
- δ è l'angolo d'attrito terreno-struttura (considerato =0°)

Per le tipologie di muro con fondazione su pali si adotta un regime di spinte a riposo, dove il coefficiente di spinta k_0 vale.

$$k_0 = 1\text{-sen } \phi$$

7.1.6 Spinta della falda

Il pelo libero della falda è assunto al di setto della quota di intradosso della fondazione.

7.1.7 Azioni sismiche

7.1.7.1 Forze inerziali

In condizioni sismiche le forze inerziali orizzontali e verticali sul paramento, soletta di fondazione ed il terreno di riempimento sono valutate attraverso le seguenti espressioni:

$F_h = k_h W$

$F_v = k_v W$

7.1.7.2 Spinta del terreno in condizioni sismiche

Se la struttura è libera di spostarsi, la sovra spinta sismica attiva agente sulle strutture è calcolata secondo l'approccio di Mononobe-Okabe. La spinta totale esercitata dal terrapieno sul muro è data da:

$$E_d = \frac{1}{2}\gamma(1 \pm k_v)KH^2$$

dove:

H altezza muro

k_V coefficiente sismico verticale

γ peso per unità di volume del terreno

K coefficienti di spinta attiva totale (statico + dinamico)

Il coefficiente di spinta attiva (k_a) è calcolato secondo la seguente relazione:

$$K_a = \frac{sen^2(\psi + \varphi - \theta)}{\cos\theta sen^2\psi sen(\psi - \theta - \delta)\left[1 + \sqrt{\frac{sen(\varphi + \delta)sen(\varphi - \varepsilon - \theta)}{sen(\psi - \theta - \delta)sen(\psi + \varepsilon)}}\right]^2}$$

dove:

ψ =angolo di inclinazione del paramento interno del muro rispetto all'orizzontale

δ =angolo di attrito terreno-muro, assunto pari a 0° in condizioni sismiche

φ = angolo di resistenza al taglio

ε = angolo di inclinazione, rispetto all'orizzontale, del terreno a monte del muro (0-φ)

$$\theta = \arctan\frac{k_h}{1 \pm k_v}$$ per terreno sopra falda

$$\theta = \arctan\frac{\gamma}{\gamma - \gamma_w}\frac{k_h}{1 \pm k_v}$$ per terreno sotto falda

dove:

k_h = coefficiente sismico orizzontale

k_v = coefficiente sismico verticale

Detta *S* la spinta calcolata in condizioni statiche l'incremento di spinta da applicare è espresso da

$\Delta S = AS' - S$

7.2 COMBINAZIONI DI CARICO

La verifica di stabilità globale del complesso opera di sostegno-terreno è stata effettuata secondo l'Approccio 1, con la Combinazione 2 (A2+M2+R2), tenendo conto dei coefficienti parziali riportati nelle Tabelle 6.2.I e 6.2.II per le azioni e i parametri geotecnici e nella Tab. 6.8.I delle NTC 2018 per le verifiche di sicurezza di opere di materiali sciolti e fronti di scavo. Le rimanenti verifiche sono state effettuate secondo l'Approccio 2, con la combinazione (A1+M1+R3), tenendo conto dei valori dei coefficienti parziali riportati nelle Tabelle 6.2.I, 6.2.II e 6.5.I.

Nelle verifiche in condizioni sismiche si è controllato che la resistenza del sistema sia maggiore delle azioni, ponendo pari all'unità i coefficienti parziali sulle azioni e sui parametri geotecnici e impiegando le resistenze di progetto con i coefficienti parziali γ_R indicati nella tabella 7.11.III delle NTC 2018.

Ai fini delle verifiche degli stati limite di esercizio si definiscono le seguenti combinazioni:

Rara) $\Rightarrow$ $G1+G2+Q_{k1}+\sum_i \psi_{0i} \cdot Q_{ki}$

Frequente) $\Rightarrow$ $G1+G2+\psi_{11} \cdot Q_{k1}+\sum_i \psi_{2i} \cdot Q_{ki}$

Quasi permanente) $\Rightarrow$ $G1+G2+\psi_{21} \cdot Q_{k1}+\sum_i \psi_{2i} \cdot Q_{ki}$

	Effetto	Coefficiente Parziale γ_F (o γ_E)	EQU	(A1)	(A2)
Carichi permanenti G_1	Favorevole	γ_{G1}	0,9	1,0	1,0
	Sfavorevole		1,1	1,3	1,0
Carichi permanenti G_2 (1)	Favorevole	γ_{G2}	0,8	0,8	0,8
	Sfavorevole		1,5	1,5	1,3
Azioni variabili Q	Favorevole	γ_{Qi}	0,0	0,0	0,0
	Sfavorevole		1,5	1,5	1,3

Tabella 4: Coefficienti parziali per le azioni o per l'effetto delle azioni (Tabella 6.2.I – NTC 2018)

Parametro	Grandezza alla quale applicare il coefficiente parziale	Coefficiente parziale γ_M	(M1)	(M2)
Tangente dell'angolo di resistenza al taglio	$\tan \varphi'_k$	$\gamma_{\varphi'}$	1,0	1,25
Coesione efficace	c'_k	$\gamma_{c'}$	1,0	1,25
Resistenza non drenata	c_{uk}	γ_{cu}	1,0	1,4
Peso dell'unità di volume	γ_γ	γ_γ	1,0	1,0

Tabella 5: Coefficienti parziali per i parametri geotecnici del terreno (Tabella 6.2.II – NTC 2018)

Verifica	Coefficiente parziale (R3)
Capacità portante della fondazione	$\gamma_R = 1,4$
Scorrimento	$\gamma_R = 1,1$
Ribaltamento	$\gamma_R = 1,15$
Resistenza del terreno a valle	$\gamma_R = 1,4$

Tabella 6: Coefficienti parziali γ_R per le verifiche agli stati limite ultimi di muri di sostegno (Tabella 6.5.I – NTC 2018)

COEFFICIENTE	R2
γ_R	1,1

Tabella 7: Coefficienti parziali per le verifiche di sicurezza di opere di materiali sciolti e di fronti di scavo (Tabella 6.8.I – NTC 2018)

Verifica	Coefficiente parziale γ_R
Carico limite	1.2
Scorrimento	1.0
Ribaltamento	1.0
Resistenza del terreno a valle	1.2

Tabella 8: Coefficienti parziali □R per le verifiche degli stati limite (SLV) dei muri di sostegno. (Tabella 7.11.III – NTC 2018)

8. MODELLO DI CALCOLO CONCIO 1

ll modello di calcolo è stato implementato tramite il software di calcolo specifico AZTEC MAX.

8.1 DATI

Materiali

Simbologia adottata

n° Indice materiale

Descr Descrizione del materiale

Calcestruzzo armato

C Classe di resistenza del cls

A Classe di resistenza dell'acciaio

γ Peso specifico, espresso in [kN/mc]

R_{ck} Resistenza caratteristica a compressione, espressa in [kPa]

E Modulo elastico, espresso in [kPa]

ν Coeff. di Poisson

n Coeff. di omogenizzazione acciaio/cls

ntc Coeff. di omogenizzazione cls teso/compresso

Calcestruzzo armato

n°	Descr	C	A	γ	R_{ck}	E	ν	n	ntc
				[kN/mc]	*[kPa]*	*[kPa]*			
1	C32/40	C32/40	B450C	24.5170	40000	33642648	0.30	15.00	0.50
5	C30/37	C30/37	B450C	24.5170	35000	32587986	0.30	15.00	0.50

Acciai

Descr	f_{yk}	f_{uk}
	[kPa]	*[kPa]*
B450C	450000	540000

Geometria profilo terreno a monte del muro

Simbologia adottata

(Sistema di riferimento con origine in testa al muro, ascissa X positiva verso monte, ordinata Y positiva verso l'alto)

n° numero ordine del punto

X ascissa del punto espressa in [m]

Y ordinata del punto espressa in [m]

A inclinazione del tratto espressa in [°]

n°	X	Y	A
	[m]	*[m]*	*[°]*
1	0.00	0.00	0.000
2	32.00	0.00	0.000

Inclinazione terreno a valle del muro rispetto all'orizzontale 0.000 [°]

Falda

Simbologia adottata

(Sistema di riferimento con origine in testa al muro, ascissa X positiva verso monte, ordinata Y positiva verso l'alto)

n° numero ordine del punto

X ascissa del punto espressa in [m]

Y ordinata del punto espressa in [m]

A inclinazione del tratto espressa in [°]

n°	X	Y	A
	[m]	*[m]*	*[°]*
1	-5.00	-8.00	0.000
2	-0.40	-8.00	0.000
3	10.00	-8.00	0.000
4	15.00	-8.00	0.000

Geometria muro

Geometria paramento e fondazione

Lunghezza muro 1.00 [m]

Paramento

Materiale	C32/40	
Altezza paramento	6.50	[m]
Altezza paramento libero	6.50	[m]
Spessore in sommità	0.40	[m]
Spessore all'attacco con la fondazione	0.91	[m]
Inclinazione paramento esterno	0.00	[°]
Inclinazione paramento interno	4.45	[°]

Fondazione

Materiale	C30/37	
Lunghezza mensola di valle	0.60	[m]
Lunghezza mensola di monte	5.14	[m]
Lunghezza totale	6.65	[m]
Inclinazione piano di posa	0.00	[°]
Spessore	1.10	[m]
Spessore magrone	0.20	[m]

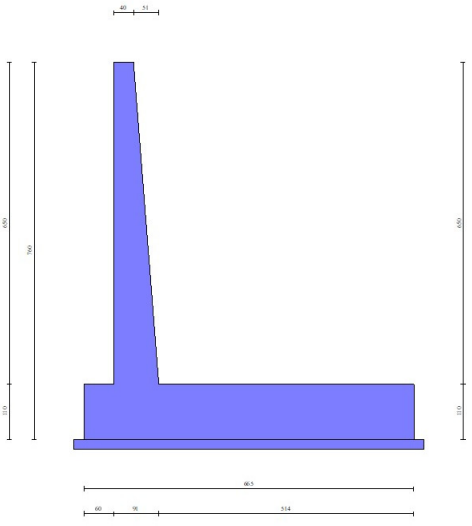


Fig. 1 - Sezione quotata del muro

Descrizione terreni

Parametri di resistenza

Simbologia adottata

n° Indice del terreno

Descr Descrizione terreno

γ Peso di volume del terreno espresso in [kN/mc]

γ_s Peso di volume saturo del terreno espresso in [kN/mc]

ϕ Angolo d'attrito interno espresso in [°]

δ Angolo d'attrito terra-muro espresso in [°]

c Coesione espressa in [kPa]

c_a Adesione terra-muro espressa in [kPa]

Per calcolo portanza con il metodo di Bustamante-Doix

Cesp Coeff. di espansione laterale (solo per il metodo di Bustamante-Doix)

τl Tensione tangenziale limite, espressa in [kPa]

n°	Descr	γ	γ_{sat}	ϕ	δ	c	ca	Cesp	τl	
		[kN/mc]	*[kN/mc]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*		*[kPa]*	
1	RILEVATO	19.0000	19.0000	35.000	0.000	0	0	---	---	
2	Wa1	19.0000	19.0000	25.000	25.000	0	0	---	---	
3	WS1	19.0000	19.0000	33.000	33.000	0	0	---	---	
4	WRa2	19.0000	19.0000	27.000	27.000	0	0	---	---	

Stratigrafia

Simbologia adottata

n° Indice dello strato

H Spessore dello strato espresso in [m]

α Inclinazione espressa in [°]

Terreno Terreno dello strato

Per calcolo pali (solo se presenti)

Kw Costante di Winkler orizzontale espressa in $Kg/cm^2/cm$

Ks Coefficiente di spinta

Cesp Coefficiente di espansione laterale (per tutti i metodi tranne il metodo di Bustamante-Doix)

Per calcolo della spinta con coeff. di spinta definiti (usati solo se attiva l'opzione 'Usa coeff. di spinta da strato')

Kst_{sta}, Kst_{sis} Coeff. di spinta statico e sismico

n°	H	α	Terreno	Kw	Ks	Cesp	Kst_{sta}	Kst_{sis}
	[m]	*[°]*		*[Kg/cm³]*				
1	7.60	0.000	RILEVATO	---	---	---	---	---
2	1.40	0.000	Wa1	---	---	---	---	---
3	2.00	0.000	WS1	---	---	---	---	---
4	12.00	0.000	WRa2	---	---	---	---	---

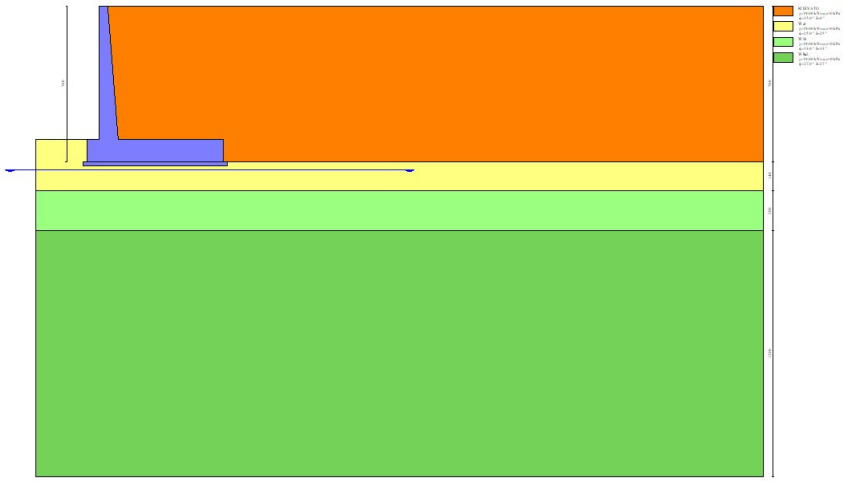


Fig. 2 - Stratigrafia

Condizioni di carico

Simbologia adottata

Carichi verticali positivi verso il basso.

Carichi orizzontali positivi verso sinistra.

Momento positivo senso antiorario.

X Ascissa del punto di applicazione del carico concentrato espressa in [m]

F_x Componente orizzontale del carico concentrato espressa in [kN]

F_Y Componente verticale del carico concentrato espressa in [kN]

M Momento espresso in [kNm]

X_i Ascissa del punto iniziale del carico ripartito espressa in [m]

X_f Ascissa del punto finale del carico ripartito espressa in [m]

Q_i Intensità del carico per $x=X_i$ espressa in [kN]

Q_f Intensità del carico per x=X_f espressa in [kN]

Condizione n° 1 (STRADA) - VARIABILE TF

Coeff. di combinazione Ψ_0=1.00 - Ψ_1=1.00 - Ψ_2=1.00

Carichi sul terreno

n°	Tipo	X	Fx	Fy	M	Xi	Xf	Qi	Qf
		[m]	*[kN]*	*[kN]*	*[kNm]*	*[m]*	*[m]*	*[kN]*	*[kN]*
1	Distribuito					3.70	9.70	20.0000	20.0000

Condizione n° 2 (PAVIMENTAZIONE STRADALE) - PERMANENTE NS

Carichi sul terreno

n°	Tipo	X	Fx	Fy	M	Xi	Xf	Qi	Qf
		[m]	*[kN]*	*[kN]*	*[kNm]*	*[m]*	*[m]*	*[kN]*	*[kN]*
1	Distribuito					0.50	13.90	2.0000	2.0000

Normativa

Normativa usata: **Norme Tecniche sulle Costruzioni 2018 (D.M. 17.01.2018) + Circolare C.S.LL.PP. 21/01/2019 n.7**

Coeff. parziali per le azioni o per l'effetto delle azioni

Carichi	Effetto		Combinazioni statiche					Combinazioni sismiche		
			HYD	UPL	EQU	A1	A2	EQU	A1	A2
Permanenti strutturali	Favorevoli	$\gamma_{G1,fav}$	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Permanenti strutturali	Sfavorevoli	$\gamma_{G1,sfav}$	1.00	1.10	1.30	1.30	1.00	1.00	1.00	1.00
Permanenti non strutturali	Favorevoli	$\gamma_{G2,fav}$	0.00	0.80	0.80	0.80	0.80	0.00	0.00	0.00
Permanenti non strutturali	Sfavorevoli	$\gamma_{G2,sfav}$	1.00	1.50	1.50	1.50	1.30	1.00	1.00	1.00
Variabili	Favorevoli	$\gamma_{Q,fav}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variabili	Sfavorevoli	$\gamma_{Q,sfav}$	1.00	1.50	1.50	1.50	1.30	1.00	1.00	1.00
Variabili da traffico	Favorevoli	$\gamma_{QT,fav}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variabili da traffico	Sfavorevoli	$\gamma_{QT,sfav}$	1.00	1.50	1.35	1.35	1.15	1.00	1.00	1.00

Coeff. parziali per i parametri geotecnici del terreno

Parametro		Combinazioni statiche		Combinazioni sismiche	
		M1	M2	M1	M2
Tangente dell'angolo di attrito	$\gamma_{\tan(\phi')}$	1.00	1.25	1.00	1.00
Coesione efficace	$\gamma_{c'}$	1.00	1.25	1.00	1.00
Resistenza non drenata	γ_{cu}	1.00	1.40	1.00	1.00
Peso nell'unita di volume	γ_{γ}	1.00	1.00	1.00	1.00

Coeff. parziali γ_R per le verifiche agli stati limite ultimi STR e GEO

Verifica	Combinazioni statiche			Combinazioni sismiche		
	R1	R2	R3	R1	R2	R3
Capacità portante	--	--	1.40	--	--	1.20
Scorrimento	--	--	1.10	--	--	1.00
Resistenza terreno a valle	--	--	1.40	--	--	1.20
Ribaltameno	--	--	1.15	--	--	1.00
Stabilità fronte di scavo	--	1.10	--	--	1.20	--

Descrizione combinazioni di carico

Con riferimento alle azioni elementari prima determinate, si sono considerate le seguenti combinazioni di carico:

- Combinazione fondamentale, impiegata per gli stati limite ultimi (SLU):

$$\gamma_{G1} G_1 + \gamma_{G2} G_2 + \gamma_{Q1} Q_{k1} + \gamma_{Q2} Q_{k2} + \gamma_{Q3} Q_{k3} + ...$$

- Combinazione caratteristica, cosiddetta rara, impiegata per gli stati limite di esercizio (SLE) irreversibili:

$$G_1 + G_2 + Q_{k1} + \Psi_{0,2} Q_{k2} + \Psi_{0,3} Q_{k3} + ...$$

- Combinazione frequente, impiegata per gli stati limite di esercizio (SLE) reversibili:

$$G_1 + G_2 + \Psi_{1,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

- Combinazione quasi permanente, impiegata per gli effetti di lungo periodo:

$$G_1 + G_2 + \Psi_{2,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

- Combinazione sismica, impiegata per gli stati limite ultimi connessi all'azione sismica E:

$$E + G_1 + G_2 + \Psi_{2,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

I valori dei coeff. $\Psi_{0,j}$, $\Psi_{1,j}$, $\Psi_{2,j}$ sono definiti nelle singole condizioni variabili.par I valori dei coeff. γ_G e γ_Q, sono definiti nella tabella normativa.

In particolare si sono considerate le seguenti combinazioni:

Simbologia adottata

γ Coefficiente di partecipazione della condizione

Ψ Coefficiente di combinazione della condizione

Combinazione n° 1 - STR (A1-M1-R3)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.30	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.50	--	Sfavorevole
STRADA	1.35	1.00	Sfavorevole

Combinazione n° 2 - STR (A1-M1-R3) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 3 - STR (A1-M1-R3) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 4 - GEO (A2-M2-R2)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.30	--	Sfavorevole
STRADA	1.15	1.00	Sfavorevole

Combinazione n° 5 - GEO (A2-M2-R2) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole

Condizione	γ	Ψ	Effetto
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 6 - GEO (A2-M2-R2) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 7 - EQU (A1-M1-R3)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.30	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.50	--	Sfavorevole
STRADA	1.35	1.00	Sfavorevole

Combinazione n° 8 - EQU (A1-M1-R3) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 9 - EQU (A1-M1-R3) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 10 - SLER

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 11 - SLEF

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 12 - SLEQ

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 13 - SLEQ H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Dati sismici

Comune	Mantova
Provincia	Mantova
Regione	Lombardia
Latitudine	45.122392
Longitudine	10.572725
Indice punti di interpolazione	14056 - 13834 - 13833 - 14055
Vita nominale	50 anni
Classe d'uso	III
Tipo costruzione	Normali affollamenti
Vita di riferimento	75 anni

	Simbolo	U.M.		SLU	SLE
Accelerazione al suolo	a_g	[m/s^2]		0.931	0.438
Accelerazione al suolo	a_g/g	[%]		0.095	0.045
Massimo fattore amplificazione spettro orizzontale	F0			2.600	2.561
Periodo inizio tratto spettro a velocità costante	Tc*			0.315	0.270
Tipo di sottosuolo - Coefficiente stratigrafico	Ss		D	1.800	1.800
Categoria topografica - Coefficiente amplificazione topografica	St		T1	1.000	

Stato limite ...	Coeff. di riduzione β_m	kh	kv
Ultimo	0.760	12.977	6.488
Ultimo - Ribaltamento	1.000	17.074	8.537
Esercizio	0.940	7.560	3.780

Forma diagramma incremento sismico **Stessa forma del diagramma statico**

8.2 Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

Cmb Indice/Tipo combinazione

S Sisma (H: componente orizzontale, V: componente verticale)

FS_{SCO} Coeff. di sicurezza allo scorrimento

FS_{RIB} Coeff. di sicurezza al ribaltamento

FS_{QLIM} Coeff. di sicurezza a carico limite

FS_{STAB} Coeff. di sicurezza a stabilità globale

FS_{HYD} Coeff. di sicurezza a sifonamento

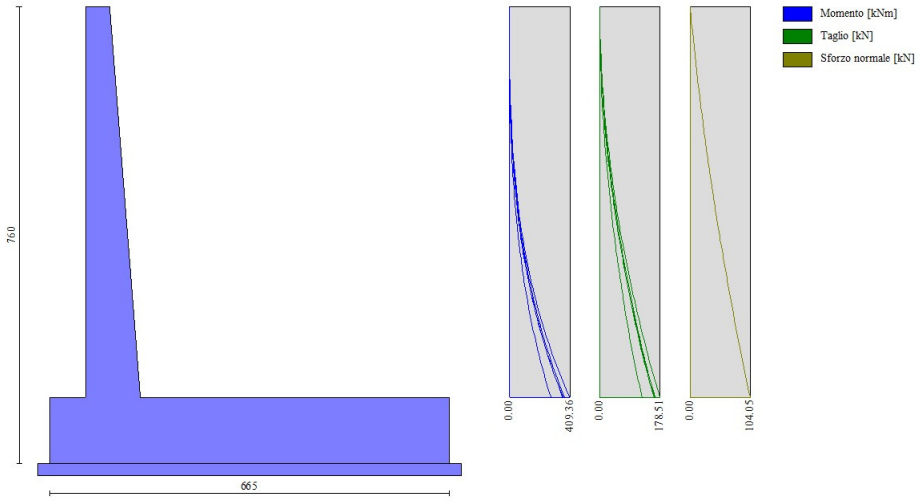
FS_{UPL} Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.860		1.790			
2 - STR (A1-M1-R3)	H + V	1.413		1.236			
3 - STR (A1-M1-R3)	H - V	1.319		1.277			
4 - GEO (A2-M2-R2)					1.380		
5 - GEO (A2-M2-R2)	H + V				1.383		
6 - GEO (A2-M2-R2)	H - V				1.332		
7 - EQU (A1-M1-R3)			4.968				
8 - EQU (A1-M1-R3)	H + V		3.055				
9 - EQU (A1-M1-R3)	H - V		2.374				

8.3 Verifiche strutturali

8.3.1 Paramento

Nella figura seguente si riportano le sollecitazioni agenti sul paramento:



la sezione del paramento viene verificata a pressoflessione (**SLU**) tenendo conto di tali azioni:

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	$M_{resistente}/M_{agente}$
409.36	100 x 91	10 ϕ 26	8.7	5ϕ26	8.7	>1

Verifica al taglio

T (kN)	BxH (cm)	As	$T_{resistente}/T_{agente}$
178.51	100 x 91	ϕ 12 / 20x40 cm	>1

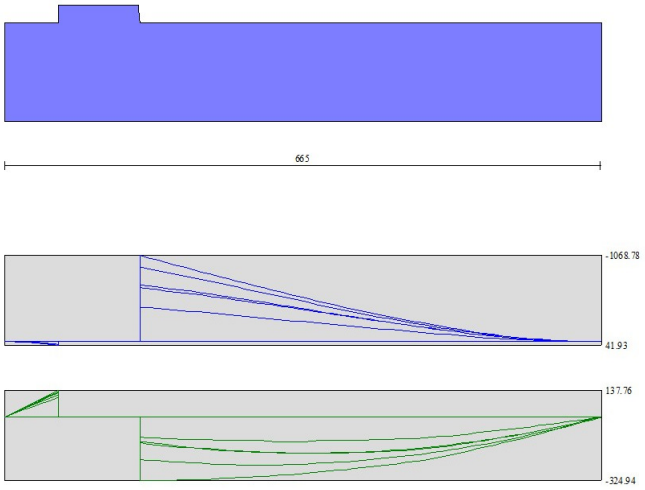
Verifica a **SLE:**

Verifica a fessurazione (**SLE**) rara, a favore di sicurezza si verifica le tensioni e le fessurazioni con la sola combinazione rara.

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	σs [MPa]	σs lim [MPa]	σc [MPa]	σc lim [MPa]	wk [mm]	wlim [mm]
282.4	100 x 91	10 ϕ 26	8.7	5 ϕ 26	8.7	27.84	360	2.35	18.26	0.00	0.3

8.3.2 Fondazione

Nella seguente figura si riportano le sollecitazioni agenti sulla fondazione:



la sezione della fondazione viene verificata a pressoflessione (**SLU**) tenendo conto di tali azioni:

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	$M_{resistente}/M_{agente}$
-1068.78	100 x 110	10 ϕ 24	8.6	5ϕ24	8.6	>1

Verifica al taglio

T (kN)	BxH (cm)	As	$T_{resistente}/T_{agente}$
481.2	100 x 110	ϕ 12 / 20x40 cm	>1

Verifica a **SLE:**

Verifica a fessurazione (**SLE**) rara, a favore di sicurezza si verifica le tensioni e le fessurazioni con la sola combinazione rara.

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	σs [MPa]	σs lim [MPa]	σc [MPa]	σc lim [MPa]	wk [mm]	wlim [mm]
-428	100 x 110	10ϕ 24	8.6	5ϕ24	8.6	100.26	360	2.63	18.26	0.00	0.3

9. MODELLO DI CALCOLO CONCIO 2

9.1 DATI

Materiali

Simbologia adottata

n° Indice materiale

Descr Descrizione del materiale

Calcestruzzo armato

C Classe di resistenza del cls

A Classe di resistenza dell'acciaio

γ Peso specifico, espresso in [kN/mc]

R_{ck} Resistenza caratteristica a compressione, espressa in [kPa]

E Modulo elastico, espresso in [kPa]

ν Coeff. di Poisson

n Coeff. di omogenizzazione acciaio/cls

ntc Coeff. di omogenizzazione cls teso/compresso

Calcestruzzo armato

n°	Descr	C	A	γ	R_{ck}	E	ν	n	ntc
				[kN/mc]	*[kPa]*	*[kPa]*			
1	C32/40	C32/40	B450C	24.5170	40000	33642648	0.30	15.00	0.50
5	C30/37	C30/37	B450C	24.5170	35000	32587986	0.30	15.00	0.50

Acciai

Descr	f_{yk}	f_{uk}
	[kPa]	*[kPa]*
B450C	450000	540000

Geometria profilo terreno a monte del muro

Simbologia adottata

(Sistema di riferimento con origine in testa al muro, ascissa X positiva verso monte, ordinata Y positiva verso l'alto)

n° numero ordine del punto

X ascissa del punto espressa in [m]

Y ordinata del punto espressa in [m]

A inclinazione del tratto espressa in [°]

n°	X	Y	A
	[m]	*[m]*	*[°]*
1	0.00	0.00	0.000
2	32.00	0.00	0.000

Inclinazione terreno a valle del muro rispetto all'orizzontale 0.000 [°]

Falda

Simbologia adottata

(Sistema di riferimento con origine in testa al muro, ascissa X positiva verso monte, ordinata Y positiva verso l'alto)

n° numero ordine del punto

X ascissa del punto espressa in [m]

Y ordinata del punto espressa in [m]

A inclinazione del tratto espressa in [°]

n°	X	Y	A
	[m]	*[m]*	*[°]*
1	-5.00	-6.50	0.000
2	-0.40	-6.50	0.000
3	10.00	-6.50	0.000
4	15.00	-6.50	0.000

Geometria muro

Geometria paramento e fondazione

Lunghezza muro 1.00 [m]

Paramento

Materiale	C32/40	
Altezza paramento	5.00	[m]
Altezza paramento libero	5.00	[m]
Spessore in sommità	0.40	[m]
Spessore all'attacco con la fondazione	0.80	[m]
Inclinazione paramento esterno	0.00	[°]
Inclinazione paramento interno	4.55	[°]

<u>Fondazione</u>

Materiale	C30/37	
Lunghezza mensola di valle	0.60	[m]
Lunghezza mensola di monte	3.70	[m]
Lunghezza totale	5.10	[m]
Inclinazione piano di posa	0.00	[°]
Spessore	0.90	[m]
Spessore magrone	0.20	[m]

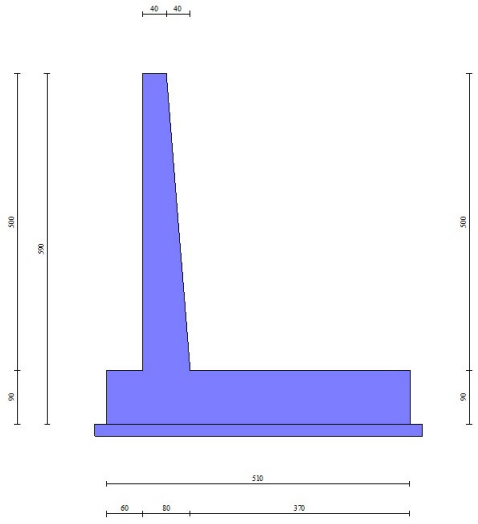


Fig. 1 - Sezione quotata del muro

Descrizione terreni

Parametri di resistenza

Simbologia adottata

n° Indice del terreno

Descr Descrizione terreno

γ Peso di volume del terreno espresso in [kN/mc]

γ_s Peso di volume saturo del terreno espresso in [kN/mc]

ϕ Angolo d'attrito interno espresso in [°]

δ Angolo d'attrito terra-muro espresso in [°]

c Coesione espressa in [kPa]

c_a Adesione terra-muro espressa in [kPa]

Per calcolo portanza con il metodo di Bustamante-Doix

Cesp Coeff. di espansione laterale (solo per il metodo di Bustamante-Doix)

τ_l Tensione tangenziale limite, espressa in [kPa]

n°	Descr	γ	γ_{sat}	ϕ	δ	c	ca	Cesp	τ_l	
		[kN/mc]	*[kN/mc]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*		*[kPa]*	
1	RILEVATO	19.0000	19.0000	35.000	0.000	0	0	---	---	
2	Wa1	19.0000	19.0000	25.000	25.000	0	0	---	---	
3	WS1	19.0000	19.0000	33.000	33.000	0	0	---	---	
4	WRa2	19.0000	19.0000	27.000	27.000	0	0	---	---	

Stratigrafia

Simbologia adottata

n° Indice dello strato

H Spessore dello strato espresso in [m]

α Inclinazione espressa in [°]

Terreno Terreno dello strato

Per calcolo pali (solo se presenti)

Kw Costante di Winkler orizzontale espressa in Kg/cm^2/cm

Ks Coefficiente di spinta

Cesp Coefficiente di espansione laterale (per tutti i metodi tranne il metodo di Bustamante-Doix)

Per calcolo della spinta con coeff. di spinta definiti (usati solo se attiva l'opzione 'Usa coeff. di spinta da strato')

K_{sta}, K_{sis} Coeff. di spinta statico e sismico

n°	H	α	Terreno	Kw	Ks	Cesp	Kst_{sta}	Kst_{sis}
	[m]	*[°]*		*[Kg/cm³]*				
1	5.90	0.000	RILEVATO	---	---	---	---	---
2	1.40	0.000	Wa1	---	---	---	---	---
3	2.00	0.000	WS1	---	---	---	---	---
4	12.00	0.000	WRa2	---	---	---	---	---

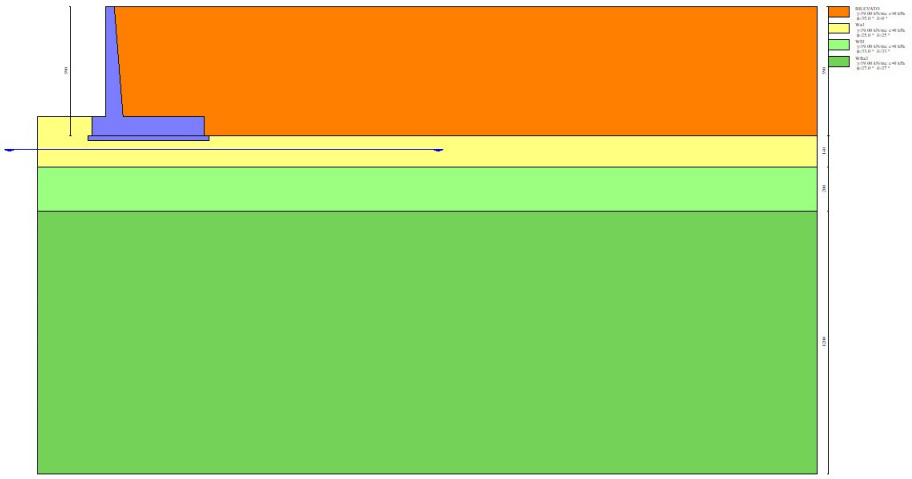


Fig. 2 - Stratigrafia

Condizioni di carico

Simbologia adottata

Carichi verticali positivi verso il basso.

Carichi orizzontali positivi verso sinistra.

Momento positivo senso antiorario.

X Ascissa del punto di applicazione del carico concentrato espressa in [m]

F_x Componente orizzontale del carico concentrato espressa in [kN]

F_Y Componente verticale del carico concentrato espressa in [kN]

M Momento espresso in [kNm]

X_i Ascissa del punto iniziale del carico ripartito espressa in [m]

X_f Ascissa del punto finale del carico ripartito espressa in [m]

Q_i Intensità del carico per $x=X_i$ espressa in [kN]

Q_f Intensità del carico per $x=X_f$ espressa in [kN]

Condizione n° 1 (STRADA) - VARIABILE TF

Coeff. di combinazione Ψ_0=1.00 - Ψ_1=1.00 - Ψ_2=1.00

Carichi sul terreno

n°	Tipo	X	Fx	Fy	M	Xi	Xf	Qi	Qf
		[m]	*[kN]*	*[kN]*	*[kNm]*	*[m]*	*[m]*	*[kN]*	*[kN]*
1	Distribuito					3.70	9.70	20.0000	20.0000

Condizione n° 2 (PAVIMENTAZIONE STRADALE) - PERMANENTE NS

Carichi sul terreno

n°	Tipo	X	Fx	Fy	M	Xi	Xf	Qi	Qf
		[m]	*[kN]*	*[kN]*	*[kNm]*	*[m]*	*[m]*	*[kN]*	*[kN]*
1	Distribuito					0.50	13.90	2.0000	2.0000

Normativa

Normativa usata: **Norme Tecniche sulle Costruzioni 2018 (D.M. 17.01.2018) + Circolare C.S.LL.PP. 21/01/2019 n.7**

Coeff. parziali per le azioni o per l'effetto delle azioni

Carichi	Effetto		Combinazioni statiche					Combinazioni sismiche		
			HYD	UPL	EQU	A1	A2	EQU	A1	A2
Permanenti strutturali	Favorevoli	$\gamma_{G1,fav}$	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Permanenti strutturali	Sfavorevoli	$\gamma_{G1,sfav}$	1.00	1.10	1.30	1.30	1.00	1.00	1.00	1.00
Permanenti non strutturali	Favorevoli	$\gamma_{G2,fav}$	0.00	0.80	0.80	0.80	0.80	0.00	0.00	0.00
Permanenti non strutturali	Sfavorevoli	$\gamma_{G2,sfav}$	1.00	1.50	1.50	1.50	1.30	1.00	1.00	1.00
Variabili	Favorevoli	$\gamma_{Q,fav}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variabili	Sfavorevoli	$\gamma_{Q,sfav}$	1.00	1.50	1.50	1.50	1.30	1.00	1.00	1.00
Variabili da traffico	Favorevoli	$\gamma_{QT,fav}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variabili da traffico	Sfavorevoli	$\gamma_{QT,sfav}$	1.00	1.50	1.35	1.35	1.15	1.00	1.00	1.00

Coeff. parziali per i parametri geotecnici del terreno

Parametro		Combinazioni statiche		Combinazioni sismiche	
		M1	M2	M1	M2
Tangente dell'angolo di attrito	$\gamma_{\tan(\phi')}$	1.00	1.25	1.00	1.00
Coesione efficace	$\gamma_{c'}$	1.00	1.25	1.00	1.00
Resistenza non drenata	γ_{cu}	1.00	1.40	1.00	1.00
Peso nell'unita di volume	γ_{γ}	1.00	1.00	1.00	1.00

Coeff. parziali γ_R per le verifiche agli stati limite ultimi STR e GEO

Verifica	Combinazioni statiche			Combinazioni sismiche		
	R1	R2	R3	R1	R2	R3
Capacità portante	--	--	1.40	--	--	1.20
Scorrimento	--	--	1.10	--	--	1.00
Resistenza terreno a valle	--	--	1.40	--	--	1.20
Ribaltameno	--	--	1.15	--	--	1.00
Stabilità fronte di scavo	--	1.10	--	--	1.20	--

Descrizione combinazioni di carico

Con riferimento alle azioni elementari prima determinate, si sono considerate le seguenti combinazioni di carico:

- Combinazione fondamentale, impiegata per gli stati limite ultimi (SLU):

$$\gamma_{G1} G_1 + \gamma_{G2} G_2 + \gamma_{Q1} Q_{k1} + \gamma_{Q2} Q_{k2} + \gamma_{Q3} Q_{k3} + ...$$

- Combinazione caratteristica, cosiddetta rara, impiegata per gli stati limite di esercizio (SLE) irreversibili:

$$G_1 + G_2 + Q_{k1} + \Psi_{0,2} Q_{k2} + \Psi_{0,3} Q_{k3} + ...$$

- Combinazione frequente, impiegata per gli stati limite di esercizio (SLE) reversibili:

$$G_1 + G_2 + \Psi_{1,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

- Combinazione quasi permanente, impiegata per gli effetti di lungo periodo:

$$G_1 + G_2 + \Psi_{2,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

- Combinazione sismica, impiegata per gli stati limite ultimi connessi all'azione sismica E:

$$E + G_1 + G_2 + \Psi_{2,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

I valori dei coeff. $\Psi_{0,j}$, $\Psi_{1,j}$, $\Psi_{2,j}$ sono definiti nelle singole condizioni variabili.par I valori dei coeff. γ_G e γ_Q, sono definiti nella tabella normativa.

In particolare si sono considerate le seguenti combinazioni:

Simbologia adottata

γ Coefficiente di partecipazione della condizione

Ψ Coefficiente di combinazione della condizione

Combinazione n° 1 - STR (A1-M1-R3)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.30	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.50	--	Sfavorevole
STRADA	1.35	1.00	Sfavorevole

Combinazione n° 2 - STR (A1-M1-R3) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 3 - STR (A1-M1-R3) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 4 - GEO (A2-M2-R2)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.30	--	Sfavorevole
STRADA	1.15	1.00	Sfavorevole

Combinazione n° 5 - GEO (A2-M2-R2) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole

Condizione	γ	Ψ	Effetto
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 6 - GEO (A2-M2-R2) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 7 - EQU (A1-M1-R3)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.30	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.50	--	Sfavorevole
STRADA	1.35	1.00	Sfavorevole

Combinazione n° 8 - EQU (A1-M1-R3) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 9 - EQU (A1-M1-R3) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 10 - SLER

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 11 - SLEF

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 12 - SLEQ

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 13 - SLEQ H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Dati sismici

Comune	Mantova
Provincia	Mantova
Regione	Lombardia
Latitudine	45.122392
Longitudine	10.572725
Indice punti di interpolazione	14056 - 13834 - 13833 - 14055
Vita nominale	50 anni
Classe d'uso	III
Tipo costruzione	Normali affollamenti
Vita di riferimento	75 anni

	Simbolo	U.M.		SLU	SLE
Accelerazione al suolo	a_g	[m/s^2]		0.931	0.438

	Simbolo	U.M.		SLU	SLE
Accelerazione al suolo	a_g/g	[%]		0.095	0.045
Massimo fattore amplificazione spettro orizzontale	F0			2.600	2.561
Periodo inizio tratto spettro a velocità costante	Tc*			0.315	0.270
Tipo di sottosuolo - Coefficiente stratigrafico	Ss		D	1.800	1.800
Categoria topografica - Coefficiente amplificazione topografica	St		T1	1.000	

Stato limite ...	Coeff. di riduzione β_m	kh	kv
Ultimo	0.760	12.977	6.488
Ultimo - Ribaltamento	1.000	17.074	8.537
Esercizio	0.940	7.560	3.780

Forma diagramma incremento sismico **Stessa forma del diagramma statico**

9.2 Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

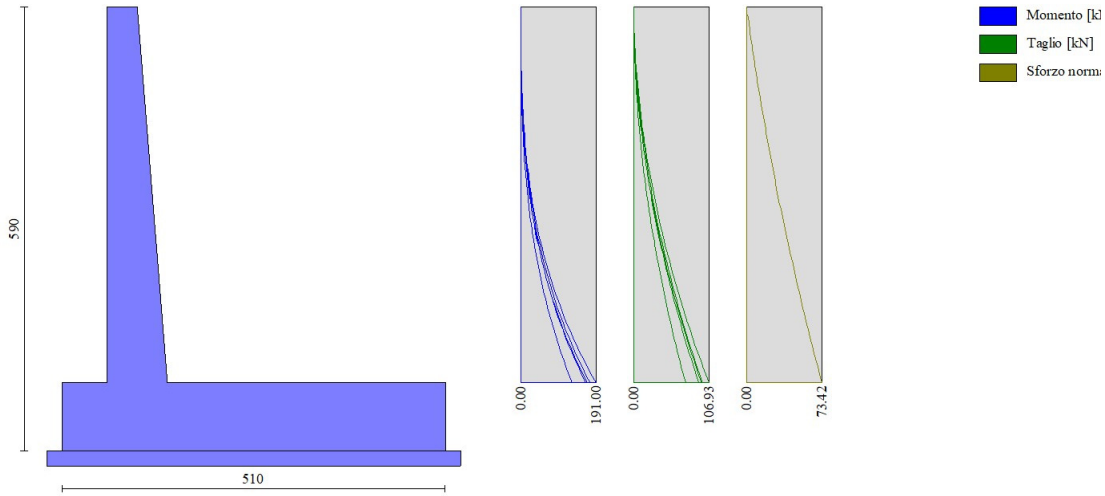
Cmb	Indice/Tipo combinazione
S	Sisma (H: componente orizzontale, V: componente verticale)
FS_{SCO}	Coeff. di sicurezza allo scorrimento
FS_{RIB}	Coeff. di sicurezza al ribaltamento
FS_{QLIM}	Coeff. di sicurezza a carico limite
FS_{STAB}	Coeff. di sicurezza a stabilità globale
FS_{HYD}	Coeff. di sicurezza a sifonamento
FS_{UPL}	Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.638		1.872			
2 - STR (A1-M1-R3)	H + V	1.359		1.387			
3 - STR (A1-M1-R3)	H - V	1.270		1.427			
4 - GEO (A2-M2-R2)					1.263		
5 - GEO (A2-M2-R2)	H + V				1.321		
6 - GEO (A2-M2-R2)	H - V				1.273		
7 - EQU (A1-M1-R3)			4.287				
8 - EQU (A1-M1-R3)	H + V		2.971				
9 - EQU (A1-M1-R3)	H - V		2.323				

9.3 Verifiche strutturali

9.3.1 Paramento

Nella figura seguente si riportano le sollecitazioni agenti sul paramento:



la sezione del paramento viene verificata a pressoflessione (**SLU**) tenendo conto di tali azioni:

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	$M_{resistente}/M_{agente}$
191	100 x 80	10 ϕ 26	8.7	5ϕ26	8.7	>1

Verifica al taglio

T (kN)	BxH (cm)	As	$T_{resistente}/T_{agente}$
106.93	100 x 80	ϕ 12 / 20x40 cm	>1

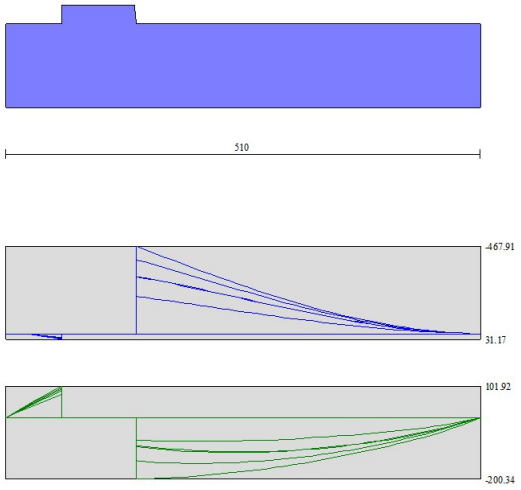
Verifica a **SLE:**

Verifica a fessurazione (**SLE**) rara, a favore di sicurezza si verifica le tensioni e le fessurazioni con la sola combinazione rara.

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	σs [MPa]	σs lim [MPa]	σc [MPa]	σc lim [MPa]	wk [mm]	wlim [mm]
130.48	100 x 91	10 ϕ 26	8.7	5 ϕ 26	8.7	31.59	360	1.37	18.26	0.00	0.3

9.3.2 Fondazione

Nella seguente figura si riportano le sollecitazioni agenti sulla fondazione:



la sezione della fondazione viene verificata a pressoflessione (**SLU**) tenendo conto di tali azioni:

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	$M_{resistente}/M_{agente}$
-448.89	100 x 90	10 ϕ 24	8.6	5ϕ24	8.6	>1

Verifica al taglio

T (kN)	BxH (cm)	As	$T_{resistente}/T_{agente}$
200.34	100 x 90	ϕ 12 / 20x40 cm	>1

Verifica a **SLE:**

Verifica a fessurazione (**SLE**) rara, a favore di sicurezza si verifica le tensioni e le fessurazioni con la sola combinazione rara.

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	σs [MPa]	σs lim [MPa]	σc [MPa]	σc lim [MPa]	wk [mm]	wlim [mm]
-199.32	100 x 90	10ϕ 24	8.6	5ϕ24	8.6	58.42	360	1.72	18.26	0.00	0.3

10. MODELLO DI CALCOLO CONCIO 3

10.1 DATI

Materiali

Simbologia adottata

n°	Indice materiale
Descr	Descrizione del materiale
Calcestruzzo armato	
C	Classe di resistenza del cls
A	Classe di resistenza dell'acciaio
γ	Peso specifico, espresso in [kN/mc]
R_{ck}	Resistenza caratteristica a compressione, espressa in [kPa]
E	Modulo elastico, espresso in [kPa]
ν	Coeff. di Poisson
n	Coeff. di omogenizzazione acciaio/cls
ntc	Coeff. di omogenizzazione cls teso/compresso

Calcestruzzo armato

n°	Descr	C	A	γ	R_{ck}	E	ν	n	ntc
				[kN/mc]	*[kPa]*	*[kPa]*			
1	C32/40	C32/40	B450C	24.5170	40000	33642648	0.30	15.00	0.50
5	C30/37	C30/37	B450C	24.5170	35000	32587986	0.30	15.00	0.50

Acciai

Descr	f_{yk}	f_{uk}
	[kPa]	*[kPa]*
B450C	450000	540000

Geometria profilo terreno a monte del muro

Simbologia adottata

(Sistema di riferimento con origine in testa al muro, ascissa X positiva verso monte, ordinata Y positiva verso l'alto)

n° numero ordine del punto

X ascissa del punto espressa in [m]

Y ordinata del punto espressa in [m]

A inclinazione del tratto espressa in [°]

n°	X	Y	A
	[m]	*[m]*	*[°]*
1	0.00	0.00	0.000
2	32.00	0.00	0.000

Inclinazione terreno a valle del muro rispetto all'orizzontale 0.000 [°]

Falda

Simbologia adottata

(Sistema di riferimento con origine in testa al muro, ascissa X positiva verso monte, ordinata Y positiva verso l'alto)

n° numero ordine del punto

X ascissa del punto espressa in [m]

Y ordinata del punto espressa in [m]

A inclinazione del tratto espressa in [°]

n°	X	Y	A
	[m]	*[m]*	*[°]*
1	-5.00	-5.75	0.000
2	-0.82	-5.75	0.000
3	10.00	-5.75	0.000
4	15.00	-5.75	0.000

Geometria muro

Geometria paramento e fondazione

Lunghezza muro 1.00 [m]

Paramento

Materiale	C32/40	
Altezza paramento	4.15	[m]
Altezza paramento libero	4.15	[m]
Spessore in sommità	0.40	[m]
Spessore all'attacco con la fondazione	0.71	[m]
Inclinazione paramento esterno	0.00	[°]
Inclinazione paramento interno	4.25	[°]

<u>Fondazione</u>

Materiale	C30/37	
Lunghezza mensola di valle	0.40	[m]
Lunghezza mensola di monte	3.29	[m]
Lunghezza totale	4.40	[m]
Inclinazione piano di posa	0.00	[°]
Spessore	0.80	[m]
Spessore magrone	0.20	[m]

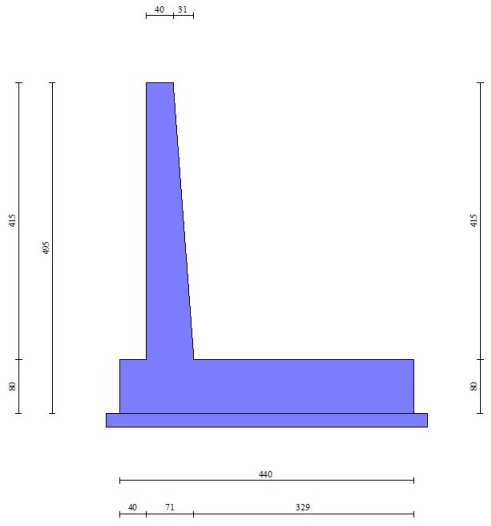


Fig. 1 - Sezione quotata del muro

Descrizione terreni

Parametri di resistenza

Simbologia adottata

n° Indice del terreno

Descr Descrizione terreno

γ Peso di volume del terreno espresso in [kN/mc]

γ_s Peso di volume saturo del terreno espresso in [kN/mc]

ϕ Angolo d'attrito interno espresso in [°]

δ Angolo d'attrito terra-muro espresso in [°]

c Coesione espressa in [kPa]

c_a Adesione terra-muro espressa in [kPa]

Per calcolo portanza con il metodo di Bustamante-Doix

Cesp Coeff. di espansione laterale (solo per il metodo di Bustamante-Doix)

τ_l Tensione tangenziale limite, espressa in [kPa]

n°	Descr	γ	γ_{sat}	ϕ	δ	c	ca	Cesp	τ_l	
		[kN/mc]	*[kN/mc]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*		*[kPa]*	
1	RILEVATO	19.0000	19.0000	35.000	0.000	0	0	---	---	
2	Wa1	19.0000	19.0000	25.000	25.000	0	0	---	---	
3	WS1	19.0000	19.0000	33.000	33.000	0	0	---	---	
4	WRa2	19.0000	19.0000	27.000	27.000	0	0	---	---	

Stratigrafia

Simbologia adottata

n° Indice dello strato

H Spessore dello strato espresso in [m]

α Inclinazione espressa in [°]

Terreno Terreno dello strato

Per calcolo pali (solo se presenti)

Kw Costante di Winkler orizzontale espressa in Kg/cm^2/cm

Ks Coefficiente di spinta

Cesp Coefficiente di espansione laterale (per tutti i metodi tranne il metodo di Bustamante-Doix)

Per calcolo della spinta con coeff. di spinta definiti (usati solo se attiva l'opzione 'Usa coeff. di spinta da strato')

Kst_{sta}, Kst_{sis} Coeff. di spinta statico e sismico

n°	H	α	Terreno	Kw	Ks	Cesp	Kst_{sta}	Kst_{sis}
	[m]	*[°]*		*[Kg/cm³]*				
1	4.95	0.000	RILEVATO	---	---	---	---	---
2	1.40	0.000	Wa1	---	---	---	---	---
3	2.00	0.000	WS1	---	---	---	---	---
4	12.00	0.000	WRa2	---	---	---	---	---

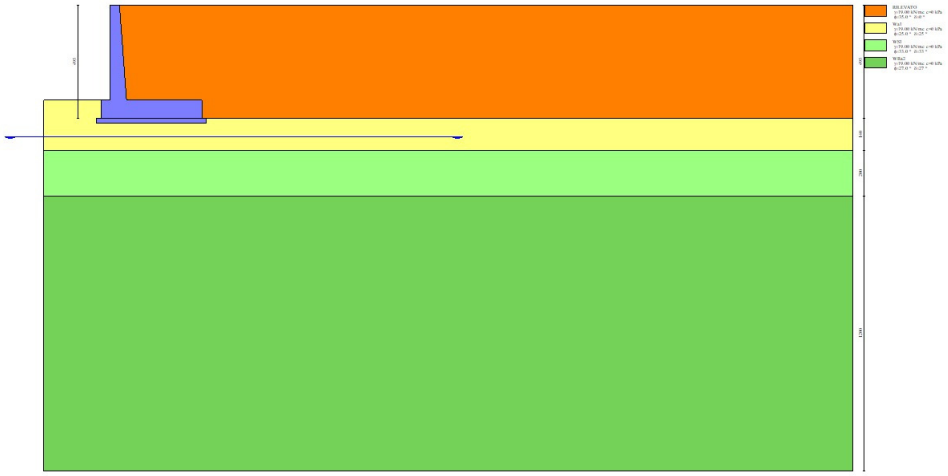


Fig. 2 - Stratigrafia

Condizioni di carico

Simbologia adottata

Carichi verticali positivi verso il basso.

Carichi orizzontali positivi verso sinistra.

Momento positivo senso antiorario.

X Ascissa del punto di applicazione del carico concentrato espressa in [m]

F_x Componente orizzontale del carico concentrato espressa in [kN]

F_y Componente verticale del carico concentrato espressa in [kN]

M Momento espresso in [kNm]

X_i Ascissa del punto iniziale del carico ripartito espressa in [m]

X_f Ascissa del punto finale del carico ripartito espressa in [m]

Q_i Intensità del carico per $x=X_i$ espressa in [kN]

Q_f Intensità del carico per $x=X_f$ espressa in [kN]

Condizione n° 1 (STRADA) - VARIABILE TF

Coeff. di combinazione Ψ_0=1.00 - Ψ_1=1.00 - Ψ_2=1.00

Carichi sul terreno

n°	Tipo	X	Fx	Fy	M	Xi	Xf	Qi	Qf
		[m]	*[kN]*	*[kN]*	*[kNm]*	*[m]*	*[m]*	*[kN]*	*[kN]*
1	Distribuito					3.70	9.70	20.0000	20.0000

Condizione n° 2 (PAVIMENTAZIONE STRADALE) - PERMANENTE NS

Carichi sul terreno

n°	Tipo	X	Fx	Fy	M	Xi	Xf	Qi	Qf
		[m]	*[kN]*	*[kN]*	*[kNm]*	*[m]*	*[m]*	*[kN]*	*[kN]*
1	Distribuito					0.50	13.90	2.0000	2.0000

Normativa

Normativa usata: **Norme Tecniche sulle Costruzioni 2018 (D.M. 17.01.2018) + Circolare C.S.LL.PP. 21/01/2019 n.7**

Coeff. parziali per le azioni o per l'effetto delle azioni

Carichi	Effetto		Combinazioni statiche					Combinazioni sismiche		
			HYD	UPL	EQU	A1	A2	EQU	A1	A2
Permanenti strutturali	Favorevoli	$\gamma_{G1,fav}$	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Permanenti strutturali	Sfavorevoli	$\gamma_{G1,sfav}$	1.00	1.10	1.30	1.30	1.00	1.00	1.00	1.00
Permanenti non strutturali	Favorevoli	$\gamma_{G2,fav}$	0.00	0.80	0.80	0.80	0.80	0.00	0.00	0.00
Permanenti non strutturali	Sfavorevoli	$\gamma_{G2,sfav}$	1.00	1.50	1.50	1.50	1.30	1.00	1.00	1.00
Variabili	Favorevoli	$\gamma_{Q,fav}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variabili	Sfavorevoli	$\gamma_{Q,sfav}$	1.00	1.50	1.50	1.50	1.30	1.00	1.00	1.00
Variabili da traffico	Favorevoli	$\gamma_{QT,fav}$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Variabili da traffico	Sfavorevoli	$\gamma_{QT,sfav}$	1.00	1.50	1.35	1.35	1.15	1.00	1.00	1.00

Coeff. parziali per i parametri geotecnici del terreno

Parametro		Combinazioni statiche		Combinazioni sismiche	
		M1	M2	M1	M2
Tangente dell'angolo di attrito	$\gamma_{\tan(\phi')}$	1.00	1.25	1.00	1.00
Coesione efficace	$\gamma_{c'}$	1.00	1.25	1.00	1.00
Resistenza non drenata	γ_{cu}	1.00	1.40	1.00	1.00
Peso nell'unita di volume	γ_{γ}	1.00	1.00	1.00	1.00

Coeff. parziali γ_R per le verifiche agli stati limite ultimi STR e GEO

Verifica	Combinazioni statiche			Combinazioni sismiche		
	R1	R2	R3	R1	R2	R3
Capacità portante	--	--	1.40	--	--	1.20
Scorrimento	--	--	1.10	--	--	1.00
Resistenza terreno a valle	--	--	1.40	--	--	1.20
Ribaltameno	--	--	1.15	--	--	1.00
Stabilità fronte di scavo	--	1.10	--	--	1.20	--

Descrizione combinazioni di carico

Con riferimento alle azioni elementari prima determinate, si sono considerate le seguenti combinazioni di carico:

- Combinazione fondamentale, impiegata per gli stati limite ultimi (SLU):

$$\gamma_{G1} G_1 + \gamma_{G2} G_2 + \gamma_{Q1} Q_{k1} + \gamma_{Q2} Q_{k2} + \gamma_{Q3} Q_{k3} + ...$$

- Combinazione caratteristica, cosiddetta rara, impiegata per gli stati limite di esercizio (SLE) irreversibili:

$$G_1 + G_2 + Q_{k1} + \Psi_{0,2} Q_{k2} + \Psi_{0,3} Q_{k3} + ...$$

- Combinazione frequente, impiegata per gli stati limite di esercizio (SLE) reversibili:

$$G_1 + G_2 + \Psi_{1,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

- Combinazione quasi permanente, impiegata per gli effetti di lungo periodo:

$$G_1 + G_2 + \Psi_{2,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

- Combinazione sismica, impiegata per gli stati limite ultimi connessi all'azione sismica E:

$$E + G_1 + G_2 + \Psi_{2,1} Q_{k1} + \Psi_{2,2} Q_{k2} + \Psi_{2,3} Q_{k3} + ...$$

I valori dei coeff. $\Psi_{0,j}$, $\Psi_{1,j}$, $\Psi_{2,j}$ sono definiti nelle singole condizioni variabili.par I valori dei coeff. γ_G e γ_Q, sono definiti nella tabella normativa.

In particolare si sono considerate le seguenti combinazioni:

Simbologia adottata

γ Coefficiente di partecipazione della condizione

Ψ Coefficiente di combinazione della condizione

Combinazione n° 1 - STR (A1-M1-R3)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.30	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.50	--	Sfavorevole
STRADA	1.35	1.00	Sfavorevole

Combinazione n° 2 - STR (A1-M1-R3) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 3 - STR (A1-M1-R3) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 4 - GEO (A2-M2-R2)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.30	--	Sfavorevole
STRADA	1.15	1.00	Sfavorevole

Combinazione n° 5 - GEO (A2-M2-R2) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole

Condizione	γ	Ψ	Effetto
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 6 - GEO (A2-M2-R2) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 7 - EQU (A1-M1-R3)

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.30	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.50	--	Sfavorevole
STRADA	1.35	1.00	Sfavorevole

Combinazione n° 8 - EQU (A1-M1-R3) H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 9 - EQU (A1-M1-R3) H - V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Favorevole
Peso terrapieno	1.00	--	Favorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	0.20	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Combinazione n° 10 - SLER

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 11 - SLEF

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 12 - SLEQ

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole

Combinazione n° 13 - SLEQ H + V

Condizione	γ	Ψ	Effetto
Peso muro	1.00	--	Sfavorevole
Peso terrapieno	1.00	--	Sfavorevole
Spinta terreno	1.00	--	Sfavorevole
STRADA	1.00	1.00	Sfavorevole
PAVIMENTAZIONE STRADALE	1.00	--	Sfavorevole

Dati sismici

Comune	Mantova
Provincia	Mantova
Regione	Lombardia
Latitudine	45.122392
Longitudine	10.572725
Indice punti di interpolazione	14056 - 13834 - 13833 - 14055
Vita nominale	50 anni
Classe d'uso	III
Tipo costruzione	Normali affollamenti
Vita di riferimento	75 anni

	Simbolo	U.M.		SLU	SLE
Accelerazione al suolo	a_g	[m/s^2]		0.931	0.438

	Simbolo	U.M.		SLU	SLE
Accelerazione al suolo	a_g/g	[%]		0.095	0.045
Massimo fattore amplificazione spettro orizzontale	F0			2.600	2.561
Periodo inizio tratto spettro a velocità costante	Tc*			0.315	0.270
Tipo di sottosuolo - Coefficiente stratigrafico	Ss		D	1.800	1.800
Categoria topografica - Coefficiente amplificazione topografica	St		T1	1.000	

Stato limite ...	Coeff. di riduzione β_m	kh	kv
Ultimo	0.760	12.977	6.488
Ultimo - Ribaltamento	1.000	17.074	8.537
Esercizio	0.940	7.560	3.780

Forma diagramma incremento sismico **Stessa forma del diagramma statico**

10.2 Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

Cmb Indice/Tipo combinazione

S Sisma (H: componente orizzontale, V: componente verticale)

FS_{SCO} Coeff. di sicurezza allo scorrimento

FS_{RIB} Coeff. di sicurezza al ribaltamento

FS_{QLIM} Coeff. di sicurezza a carico limite

FS_{STAB} Coeff. di sicurezza a stabilità globale

FS_{HYD} Coeff. di sicurezza a sifonamento

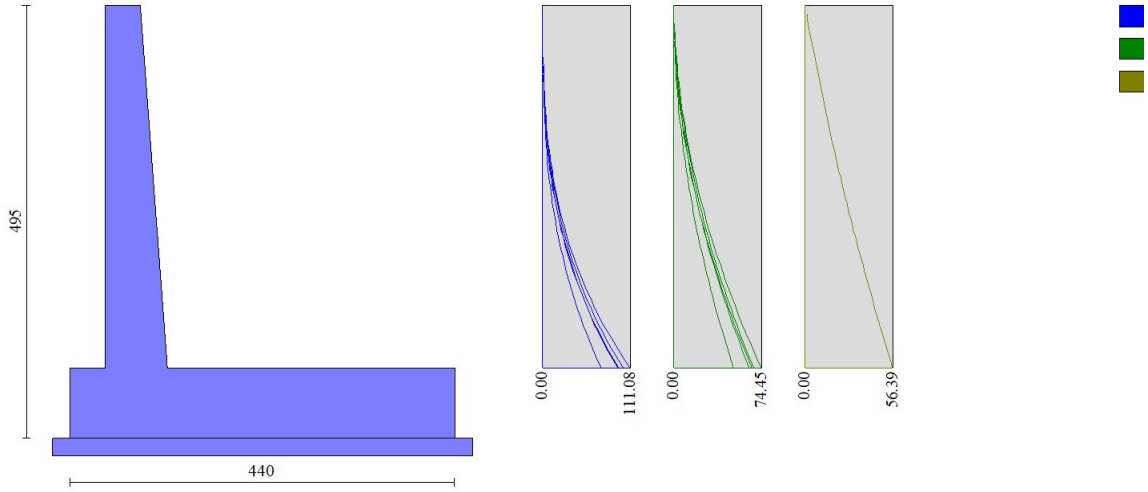
FS_{UPL} Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.635		2.015			
2 - STR (A1-M1-R3)	H + V	1.394		1.525			
3 - STR (A1-M1-R3)	H - V	1.301		1.567			
4 - GEO (A2-M2-R2)					1.298		
5 - GEO (A2-M2-R2)	H + V				1.366		
6 - GEO (A2-M2-R2)	H - V				1.314		
7 - EQU (A1-M1-R3)			4.296				
8 - EQU (A1-M1-R3)	H + V		3.042				
9 - EQU (A1-M1-R3)	H - V		2.365				

10.3 Verifiche strutturali

10.3.1 Paramento

Nella figura seguente si riportano le sollecitazioni agenti sul paramento:



la sezione del paramento viene verificata a pressoflessione (**SLU**) tenendo conto di tali azioni:

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	$M_{resistente}/M_{agente}$
111.08	100 x 71	8 ϕ 20	8.4	5ϕ20	8.4	>1

Verifica al taglio

T (kN)	BxH (cm)	As	$T_{resistente}/T_{agente}$
74.45	100 x 71	ϕ 12 / 20x40 cm	>1

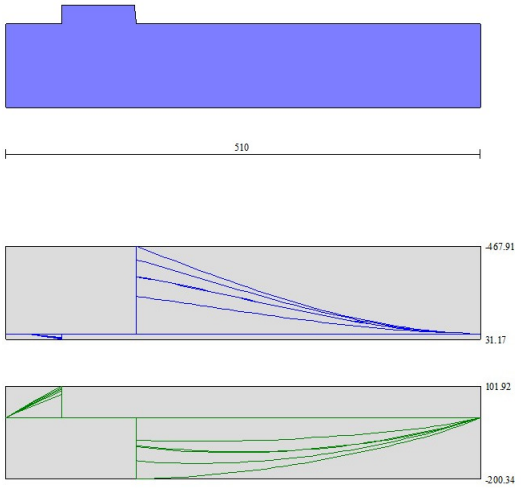
Verifica a **SLE:**

Verifica a fessurazione (**SLE**) rara, a favore di sicurezza si verifica le tensioni e le fessurazioni con la sola combinazione rara.

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	σs [MPa]	σs lim [MPa]	σc [MPa]	σc lim [MPa]	wk [mm]	wlim [mm]
56.39	100 x 71	8 ϕ 20	8.4	5 ϕ 20	8.4	40.38	360	1.30	18.26	0.00	0.3

10.3.2 Fondazione

Nella seguente figura si riportano le sollecitazioni agenti sulla fondazione:



la sezione della fondazione viene verificata a pressoflessione (**SLU**) tenendo conto di tali azioni:

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	$M_{resistente}/M_{agente}$
-305.9	100 x 80	6 ϕ 20	8.4	6ϕ20	8.4	>1

Verifica al taglio

T (kN)	BxH (cm)	As	$T_{resistente}/T_{agente}$
140.36	100 x 80	ϕ 12 / 20x40 cm	>1

Verifica a **SLE:**

Verifica a fessurazione (**SLE**) rara, a favore di sicurezza si verifica le tensioni e le fessurazioni con la sola combinazione rara.

M (kNm)	BxH (cm)	As	δ [cm]	A's	δ' [cm]	σs [MPa]	σs lim [MPa]	σc [MPa]	σc lim [MPa]	wk [mm]	wlim [mm]
-130.87	100 x 80	6ϕ 20	8.4	6ϕ20	8.4	101.78	360	1.93	18.26	0.00	0.3

11. INCIDENZE

Elemento	Incidenza di progetto [kg/m^3]
ELEVAZIONE	**130**
FONDAZIONE	**95**

12. TABULATI DI CALCOLO CONCIO 1

ll modello di calcolo è stato implementato tramite il software di calcolo specifico AZTEC MAX.

12.1 RISULTATI PER COMBINAZIONE

Spinta e forze

Simbologia adottata

Ic	Indice della combinazione
A	Tipo azione
I	Inclinazione della spinta, espressa in [°]
V	Valore dell'azione, espressa in [kN]
Cx, Cy	Componente in direzione X ed Y dell'azione, espressa in [kN]
Px, Py	Coordinata X ed Y del punto di applicazione dell'azione, espressa in [m]

Ic	A	V	I	Cx	Cy	Px	Py
		[kN]	*[°]*	*[kN]*	*[kN]*	*[m]*	*[m]*
1	Spinta statica	255.10	0.00	255.10	0.00	5.65	-4.76
	Peso/Inerzia muro			0.00	283.28/0.00	1.45	-5.81
	Peso/Inerzia terrapieno			0.00	734.00/0.00	2.96	-3.20
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
2	Spinta statica	161.06	0.00	161.06	0.00	5.65	-4.97
	Incremento di spinta sismica		53.41	53.41	0.00	5.65	-5.07
	Peso/Inerzia muro			36.76	283.28/18.38	1.45	-5.81
	Peso/Inerzia terrapieno			88.77	684.10/44.39	2.95	-3.20
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
3	Spinta statica	161.06	0.00	161.06	0.00	5.65	-4.97
	Incremento di spinta sismica		33.11	33.11	0.00	5.65	-5.07
	Peso/Inerzia muro			36.76	283.28/-18.38	1.45	-5.81
	Peso/Inerzia terrapieno			88.77	684.10/-44.39	2.95	-3.20
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
10	Spinta statica	194.01	0.00	194.01	0.00	5.65	-4.77
	Peso/Inerzia muro			0.00	283.28/0.00	1.45	-5.81
	Peso/Inerzia terrapieno			0.00	715.24/0.00	2.96	-3.20
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
11	Spinta statica	194.01	0.00	194.01	0.00	5.65	-4.77
	Peso/Inerzia muro			0.00	283.28/0.00	1.45	-5.81
	Peso/Inerzia terrapieno			0.00	715.24/0.00	2.96	-3.20
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
12	Spinta statica	194.01	0.00	194.01	0.00	5.65	-4.77
	Peso/Inerzia muro			0.00	283.28/0.00	1.45	-5.81
	Peso/Inerzia terrapieno			0.00	715.24/0.00	2.96	-3.20
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
13	Spinta statica	194.01	0.00	194.01	0.00	5.65	-4.77
	Incremento di spinta sismica		36.09	36.09	0.00	5.65	-5.07
	Peso/Inerzia muro			21.42	283.28/10.71	1.45	-5.81
	Peso/Inerzia terrapieno			54.07	715.24/27.04	2.96	-3.20

Ic	A	V	I	Cx	Cy	Px	Py
		[kN]	[°]	[kN]	[kN]	[m]	[m]
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00

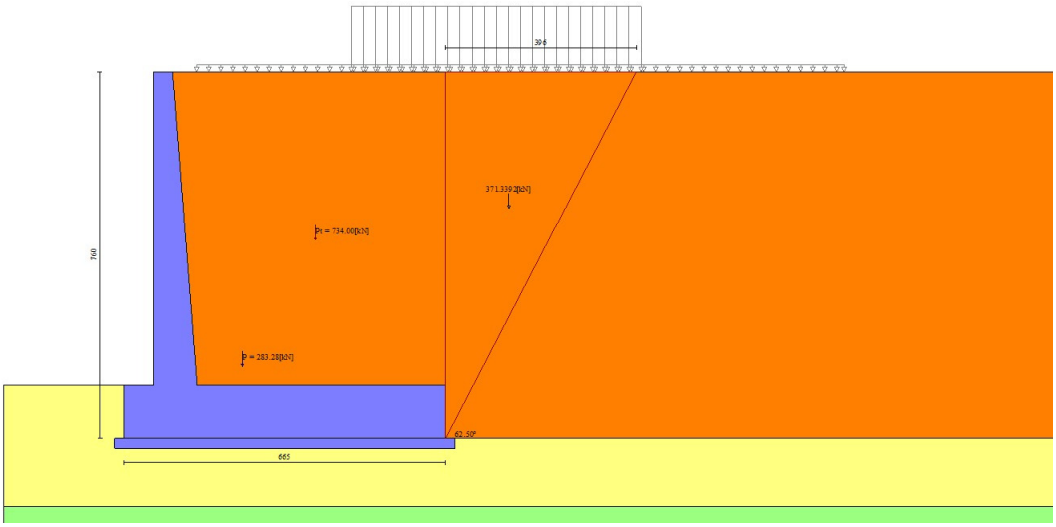


Fig. 3 - Cuneo di spinta (combinazione statica) (Combinazione n° 1)

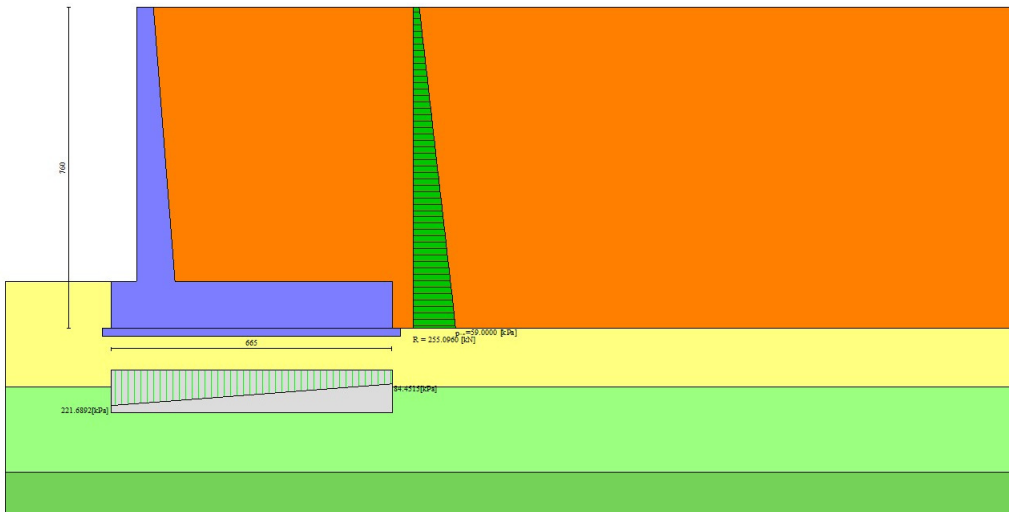


Fig. 4 - Diagramma delle pressioni (combinazione statica) (Combinazione n° 1)

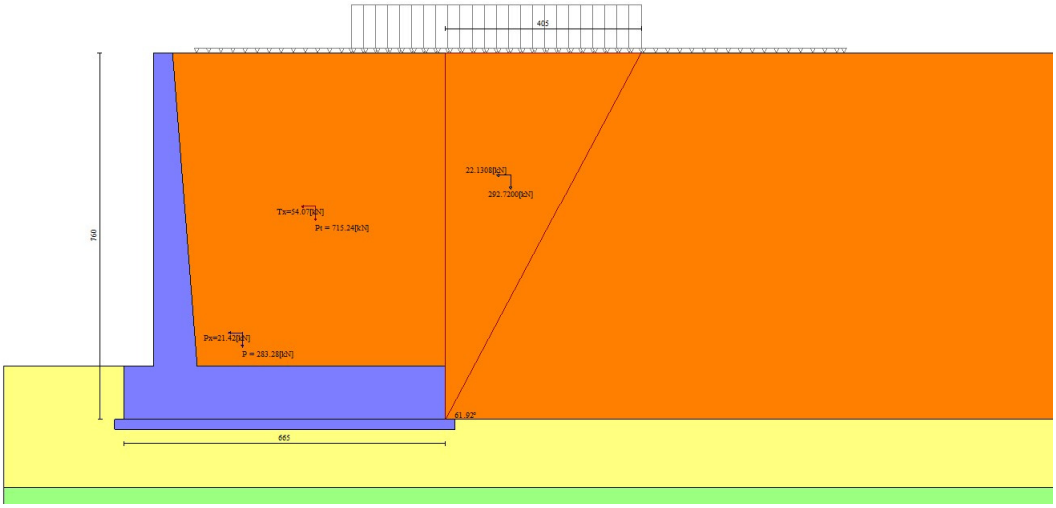


Fig. 5 - Cuneo di spinta (combinazione sismica) (Combinazione n° 13)

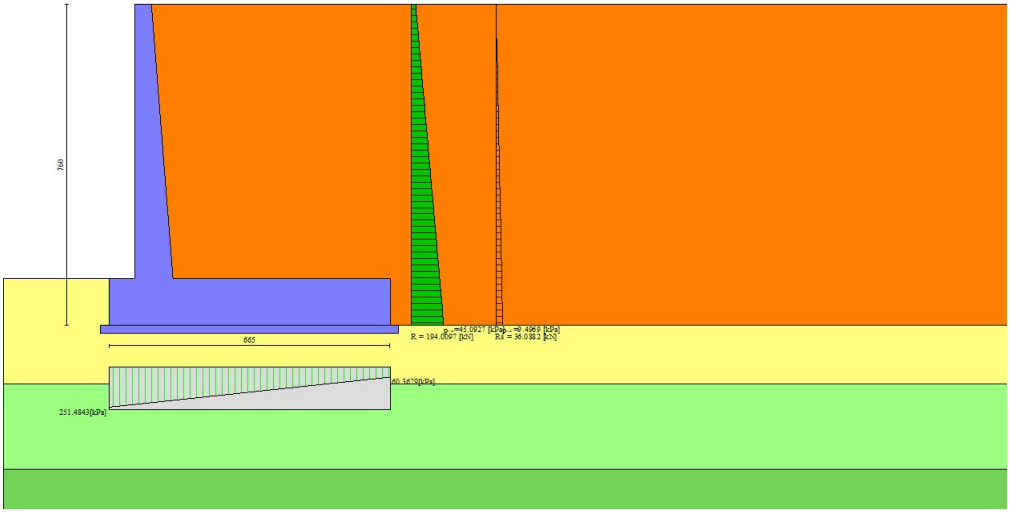


Fig. 6 - Diagramma delle pressioni (combinazione sismica) (Combinazione n° 13)

Risultanti globali

Simbologia adottata

Cmb Indice/Tipo combinazione

N Componente normale al piano di posa, espressa in [kN]

T Componente parallela al piano di posa, espressa in [kN]

M_r Momento ribaltante, espresso in [kNm]

M_s Momento stabilizzante, espresso in [kNm]

ecc Eccentricità risultante, espressa in [m]

Ic	N	T	M_r	M_s	ecc
	[kN]	*[kN]*	*[kNm]*	*[kNm]*	*[m]*
1 - STR (A1-M1-R3)	1017.28	255.10	724.52	3599.76	0.497
2 - STR (A1-M1-R3)	1030.15	340.00	1015.40	3616.76	0.798
3 - STR (A1-M1-R3)	904.62	319.70	1184.33	3396.39	0.878
4 - GEO (A2-M2-R2)	1007.44	254.18	731.09	3559.65	0.515
5 - GEO (A2-M2-R2)	1030.15	340.00	1015.40	3616.76	0.798
6 - GEO (A2-M2-R2)	904.62	319.70	1184.33	3396.39	0.878
7 - EQU (A1-M1-R3)	1017.28	255.10	724.52	3599.76	0.497
8 - EQU (A1-M1-R3)	1049.97	398.20	1206.53	3686.35	0.961
9 - EQU (A1-M1-R3)	884.80	372.22	1430.68	3396.39	1.101
10 - SLER	998.52	194.01	548.90	3523.28	0.344
11 - SLEF	998.52	194.01	548.90	3523.28	0.344
12 - SLEQ	998.52	194.01	548.90	3523.28	0.344
13 - SLEQ	1036.26	305.59	916.47	3656.47	0.679

Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

Cmb Indice/Tipo combinazione

S Sisma (H: componente orizzontale, V: componente verticale)

FS_{SCO} Coeff. di sicurezza allo scorrimento

FS_{RIB} Coeff. di sicurezza al ribaltamento

FS_{QLIM} Coeff. di sicurezza a carico limite

FS_{STAB} Coeff. di sicurezza a stabilità globale

FS_{HYD} Coeff. di sicurezza a sifonamento

FS_{UPL} Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.860		1.790			
2 - STR (A1-M1-R3)	H + V	1.413		1.236			
3 - STR (A1-M1-R3)	H - V	1.319		1.277			
4 - GEO (A2-M2-R2)					1.380		
5 - GEO (A2-M2-R2)	H + V				1.383		

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
6 - GEO (A2-M2-R2)	H - V				1.332		
7 - EQU (A1-M1-R3)			4.968				
8 - EQU (A1-M1-R3)	H + V		3.055				
9 - EQU (A1-M1-R3)	H - V		2.374				

Verifica a scorrimento fondazione

Simbologia adottata

n°	Indice combinazione
Rsa	Resistenza allo scorrimento per attrito, espresso in [kN]
Rpt	Resistenza passiva terreno antistante, espresso in [kN]
Rps	Resistenza passiva sperone, espresso in [kN]
Rp	Resistenza a carichi orizzontali pali (solo per fondazione mista), espresso in [kN]
Rt	Resistenza a carichi orizzontali tiranti (solo se presenti), espresso in [kN]
R	Resistenza allo scorrimento (somma di Rsa+Rpt+Rps+Rp), espresso in [kN]
T	Carico parallelo al piano di posa, espresso in [kN]
FS	Fattore di sicurezza (rapporto R/T)

n°	Rsa	Rpt	Rps	Rp	Rt	R	T	FS
	[kN]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1 - STR (A1-M1-R3)	474.37	0.00	0.00	--	--	474.37	255.10	1.860
2 - STR (A1-M1-R3) H + V	480.37	0.00	0.00	--	--	480.37	340.00	1.413
3 - STR (A1-M1-R3) H - V	421.83	0.00	0.00	--	--	421.83	319.70	1.319

Verifica a carico limite

Simbologia adottata

n°	Indice combinazione
N	Carico normale totale al piano di posa, espresso in [kN]
Qu	carico limite del terreno, espresso in [kN]
Qd	Portanza di progetto, espresso in [kN]
FS	Fattore di sicurezza (rapporto tra il carico limie e carico agente al piano di posa)

n°	N	Qu	Qd	FS
	[kN]	*[kN]*	*[kN]*	
1 - STR (A1-M1-R3)	1017.28	1820.97	1300.70	1.790
2 - STR (A1-M1-R3) H + V	1030.15	1273.69	1061.41	1.236
3 - STR (A1-M1-R3) H - V	904.62	1155.14	962.62	1.277

Dettagli calcolo portanza

Simbologia adottata

n°	Indice combinazione
Nc, Nq, N_γ	Fattori di capacità portante
ic, iq, i_γ	Fattori di inclinazione del carico
dc, dq, d_γ	Fattori di profondità del piano di posa
gc, gq, g_γ	Fattori di inclinazione del profilo topografico
bc, bq, b_γ	Fattori di inclinazione del piano di posa
sc, sq, s_γ	Fattori di forma della fondazione
pc, pq, p_γ	Fattori di riduzione per punzonamento secondo Vesic
Re	Fattore di riduzione capacità portante per eccentricità secondo Meyerhof
Ir, Irc	Indici di rigidezza per punzonamento secondo Vesic
r_γ	Fattori per tener conto dell'effetto piastra. Per fondazioni che hanno larghezza maggiore di 2 m, il terzo termine della formula trinomia $0.5B\gamma N_\gamma$ viene moltiplicato per questo fattore
D	Affondamento del piano di posa, espresso in [m]
B'	Larghezza fondazione ridotta, espresso in [m]
H	Altezza del cuneo di rottura, espresso in [m]
γ	Peso di volume del terreno medio, espresso in [kN/mc]
ϕ	Angolo di attrito del terreno medio, espresso in [°]
c	Coesione del terreno medio, espresso in [kPa]

Per i coeff. che in tabella sono indicati con il simbolo '--' sono coeff. non presenti nel metodo scelto (Meyerhof).

n°	Nc Nq N_γ	ic iq i_γ	dc dq d_γ	gc gq g_γ	bc bq b_γ	sc sq s_γ	pc pq p_γ	Ir	Irc	Re	r_γ
1	27.101 15.802 12.464	0.712 0.712 0.259	1.056 1.028 1.028	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.870
2	27.101 15.802 12.464	0.635 0.635 0.131	1.056 1.028 1.028	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.870
3	27.101 15.802 12.464	0.614 0.614 0.103	1.056 1.028 1.028	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.870

n°	D	B'	H	γ	ϕ	c
	[m]	*[m]*	*[m]*	*[°]*	*[kN/mc]*	*[kPa]*
1	1.10	5.65	5.60	9.89	28.64	0
2	1.10	5.05	5.60	9.89	28.64	0
3	1.10	4.89	5.60	9.89	28.64	0

Verifica a ribaltamento

Simbologia adottata

n° Indice combinazione

Ms Momento stabilizzante, espresso in [kNm]

Mr Momento ribaltante, espresso in [kNm]

FS Fattore di sicurezza (rapporto tra momento stabilizzante e momento ribaltante)

La verifica viene eseguita rispetto allo spigolo inferiore esterno della fondazione

n°	Ms	Mr	FS
	[kNm]	*[kNm]*	
7 - EQU (A1-M1-R3)	3599.76	724.52	4.968
8 - EQU (A1-M1-R3) H + V	3686.35	1206.53	3.055
9 - EQU (A1-M1-R3) H - V	3396.39	1430.68	2.374

Verifica stabilità globale muro + terreno

Simbologia adottata

Ic Indice/Tipo combinazione

C Centro superficie di scorrimento, espresso in [m]

R Raggio, espresso in [m]

FS Fattore di sicurezza

Ic	C	R	FS
	[m]	*[m]*	
4 - GEO (A2-M2-R2)	0.00; 3.50	12.46	1.380
5 - GEO (A2-M2-R2) H + V	0.00; 4.00	12.91	1.383
6 - GEO (A2-M2-R2) H - V	0.00; 4.00	12.91	1.332

Dettagli strisce verifiche stabilità

Simbologia adottata

Le ascisse X sono considerate positive verso monte

Le ordinate Y sono considerate positive verso l'alto

Origine in testa al muro (spigolo contro terra)

W peso della striscia espresso in [kN]

Qy carico sulla striscia espresso in [kN]

α angolo fra la base della striscia e l'orizzontale espresso in [°] (positivo antiorario)

ϕ angolo d'attrito del terreno lungo la base della striscia

c coesione del terreno lungo la base della striscia espressa in [kPa]

b larghezza della striscia espressa in [m]

u pressione neutra lungo la base della striscia espressa in [kPa]

Tx; Ty Resistenza al taglio fornita dai tiranti in direzione X ed Y espressa in [kPa]

Combinazione n° 4 - GEO (A2-M2-R2)

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	14.60	2.02	11.97 - 0.78	68.548	29.256	0	0.0	
2	39.26	2.02	0.78	60.320	29.256	0	0.0	
3	57.13	3.37	0.78	53.693	29.256	0	0.0	
4	71.31	19.89	0.78	48.004	29.256	0	0.0	
5	83.01	19.89	0.78	42.895	29.256	0	0.0	
6	92.85	19.89	0.78	38.184	29.256	0	0.0	
7	101.19	19.89	0.78	33.762	29.256	0	0.0	
8	108.28	19.89	0.78	29.559	29.256	0	0.0	
9	118.32	19.89	0.78	25.526	20.458	0	0.0	
10	124.00	19.89	0.78	21.625	20.458	0	0.8	
11	128.12	13.57	0.78	17.827	20.458	0	3.5	
12	131.40	2.02	0.78	14.108	20.458	0	5.7	
13	133.90	2.02	0.78	10.450	20.458	0	7.4	
14	135.65	2.02	0.78	6.834	20.458	0	8.5	
15	137.93	1.54	0.78	3.246	20.458	0	9.2	
16	151.67	0.00	0.78	-0.329	20.458	0	9.4	
17	39.13	0.00	0.78	-3.906	20.458	0	9.1	
18	34.70	0.00	0.78	-7.499	20.458	0	8.3	
19	32.82	0.00	0.78	-11.121	20.458	0	7.1	
20	30.18	0.00	0.78	-14.789	20.458	0	5.3	
21	26.74	0.00	0.78	-18.520	20.458	0	3.1	
22	22.47	0.00	0.78	-22.336	20.458	0	0.2	
23	17.28	0.00	0.78	-26.259	20.458	0	0.0	
24	11.10	0.00	0.78	-30.320	20.458	0	0.0	
25	3.79	0.00	-7.45 - 0.78	-34.011	20.458	0	0.0	

Combinazione n° 5 - GEO (A2-M2-R2) H + V

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	14.16	1.58	12.29 - 0.79	67.155	35.000	0	0.0	
2	38.43	1.58	0.79	59.441	35.000	0	0.0	
3	56.47	1.58	0.79	53.054	35.000	0	0.0	
4	70.92	3.92	0.79	47.522	35.000	0	0.0	
5	82.91	4.75	0.79	42.531	35.000	0	0.0	
6	93.03	4.75	0.79	37.914	35.000	0	0.0	
7	101.63	4.75	0.79	33.574	35.000	0	0.0	
8	108.96	4.75	0.79	29.443	35.000	0	0.0	
9	118.16	4.75	0.79	25.475	25.000	0	0.0	
10	125.19	4.75	0.79	21.635	25.000	0	0.0	
11	129.48	4.23	0.79	17.895	25.000	0	2.7	
12	132.92	1.58	0.79	14.232	25.000	0	5.0	
13	135.56	1.58	0.79	10.628	25.000	0	6.7	
14	137.42	1.58	0.79	7.067	25.000	0	7.9	
15	138.93	1.38	0.79	3.533	25.000	0	8.6	
16	161.67	0.00	0.79	0.012	25.000	0	8.9	
17	40.55	0.00	0.79	-3.509	25.000	0	8.6	
18	34.74	0.00	0.79	-7.043	25.000	0	7.9	
19	32.89	0.00	0.79	-10.604	25.000	0	6.7	
20	30.26	0.00	0.79	-14.208	25.000	0	5.0	
21	26.83	0.00	0.79	-17.870	25.000	0	2.8	
22	22.54	0.00	0.79	-21.610	25.000	0	0.0	
23	17.34	0.00	0.79	-25.449	25.000	0	0.0	
24	11.13	0.00	0.79	-29.416	25.000	0	0.0	
25	3.81	0.00	-7.53 - 0.79	-33.072	25.000	0	0.0	

Combinazione n° 6 - GEO (A2-M2-R2) H - V

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	14.16	1.58	12.29 - 0.79	67.155	35.000	0	0.0	
2	38.43	1.58	0.79	59.441	35.000	0	0.0	
3	56.47	1.58	0.79	53.054	35.000	0	0.0	
4	70.92	3.92	0.79	47.522	35.000	0	0.0	
5	82.91	4.75	0.79	42.531	35.000	0	0.0	
6	93.03	4.75	0.79	37.914	35.000	0	0.0	
7	101.63	4.75	0.79	33.574	35.000	0	0.0	
8	108.96	4.75	0.79	29.443	35.000	0	0.0	
9	118.16	4.75	0.79	25.475	25.000	0	0.0	
10	125.19	4.75	0.79	21.635	25.000	0	0.0	
11	129.48	4.23	0.79	17.895	25.000	0	2.7	
12	132.92	1.58	0.79	14.232	25.000	0	5.0	
13	135.56	1.58	0.79	10.628	25.000	0	6.7	
14	137.42	1.58	0.79	7.067	25.000	0	7.9	
15	138.93	1.38	0.79	3.533	25.000	0	8.6	
16	161.67	0.00	0.79	0.012	25.000	0	8.9	
17	40.55	0.00	0.79	-3.509	25.000	0	8.6	
18	34.74	0.00	0.79	-7.043	25.000	0	7.9	
19	32.89	0.00	0.79	-10.604	25.000	0	6.7	
20	30.26	0.00	0.79	-14.208	25.000	0	5.0	
21	26.83	0.00	0.79	-17.870	25.000	0	2.8	
22	22.54	0.00	0.79	-21.610	25.000	0	0.0	
23	17.34	0.00	0.79	-25.449	25.000	0	0.0	
24	11.13	0.00	0.79	-29.416	25.000	0	0.0	
25	3.81	0.00	-7.53 - 0.79	-33.072	25.000	0	0.0	

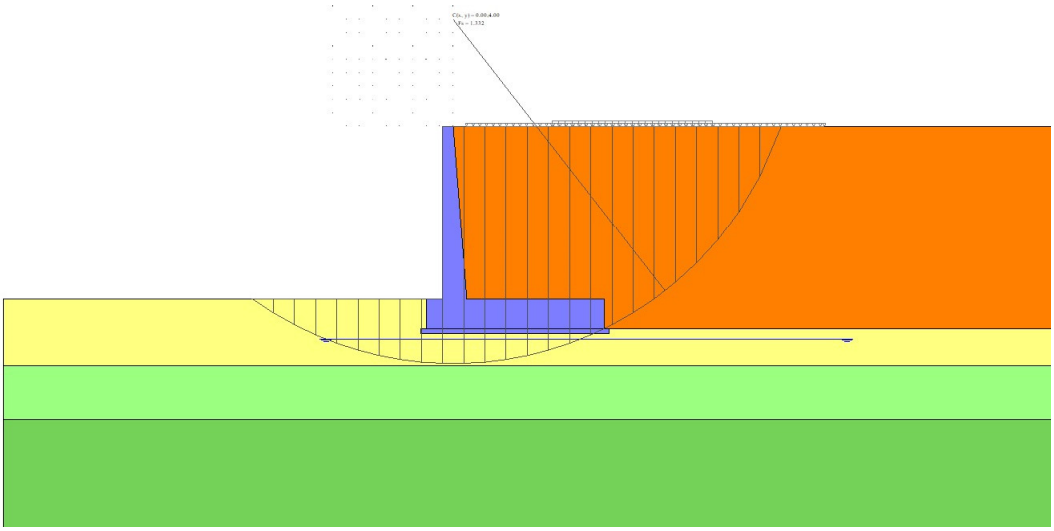


Fig. 7 - Stabilità fronte di scavo - Cerchio critico (Combinazione n° 6)

Spostamenti

Simbologia adottata

Cmb Tipo combinazione

$a_{g,crit}$ accelerazione critica, espressa in [m/s^2]

Dmax Spostamento orizzontale massimo, espressa in [cm]

Cmb	$a_{g,crit}$	Dmax
	[m/s^2]	*[cm]*
13 - SLEQ H + V	2.1328	0.0007

Sollecitazioni

Elementi calcolati a trave

Simbologia adottata

N Sforzo normale, espresso in [kN]. Positivo se di compressione.

T Taglio, espresso in [kN]. Positivo se diretto da monte verso valle

M Momento, espresso in [kNm]. Positivo se tende le fibre contro terra (a monte)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.04	0.00
3	-0.20	2.00	0.15	0.02
4	-0.30	3.03	0.34	0.05
5	-0.40	4.08	0.60	0.11
6	-0.50	5.14	0.93	0.20
7	-0.60	6.23	1.34	0.34
8	-0.70	7.33	1.83	0.52
9	-0.80	8.46	2.41	0.76
10	-0.90	9.60	3.08	1.07
11	-1.00	10.76	3.85	1.46
12	-1.10	11.94	4.71	1.93
13	-1.20	13.14	5.64	2.50
14	-1.30	14.36	6.65	3.16
15	-1.40	15.60	7.73	3.94
16	-1.50	16.86	8.89	4.84
17	-1.60	18.13	10.13	5.85
18	-1.70	19.43	11.44	7.00
19	-1.80	20.74	12.82	8.29
20	-1.90	22.08	14.28	9.73
21	-2.00	23.43	15.81	11.32
22	-2.10	24.80	17.42	13.08
23	-2.20	26.19	19.10	15.00
24	-2.30	27.60	20.85	17.11

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
25	-2.40	29.03	22.68	19.39
26	-2.50	30.48	24.58	21.87
27	-2.60	31.95	26.56	24.55
28	-2.70	33.43	28.61	27.43
29	-2.80	34.94	30.74	30.53
30	-2.90	36.46	32.94	33.85
31	-3.00	38.01	35.21	37.41
32	-3.10	39.57	37.56	41.20
33	-3.20	41.15	39.98	45.23
34	-3.30	42.75	42.48	49.51
35	-3.40	44.37	45.05	54.06
36	-3.50	46.01	47.69	58.87
37	-3.60	47.67	50.41	63.96
38	-3.70	49.35	53.20	69.33
39	-3.80	51.04	56.07	74.98
40	-3.90	52.76	59.01	80.94
41	-4.00	54.49	62.02	87.20
42	-4.10	56.24	65.11	93.77
43	-4.20	58.02	68.27	100.66
44	-4.30	59.81	71.51	107.88
45	-4.40	61.62	74.82	115.43
46	-4.50	63.45	78.20	123.32
47	-4.60	65.30	81.66	131.57
48	-4.70	67.17	85.19	140.17
49	-4.80	69.05	88.80	149.13
50	-4.90	70.96	92.48	158.47
51	-5.00	72.88	96.24	168.18
52	-5.10	74.83	100.06	178.28
53	-5.20	76.79	103.97	188.78
54	-5.30	78.77	107.94	199.68
55	-5.40	80.78	112.00	210.98
56	-5.50	82.80	116.12	222.71
57	-5.60	84.84	120.32	234.85
58	-5.70	86.89	124.59	247.43
59	-5.80	88.97	129.00	260.45
60	-5.90	91.07	133.64	273.93
61	-6.00	93.18	138.50	287.90
62	-6.10	95.32	143.61	302.37
63	-6.20	97.47	148.90	317.37
64	-6.30	99.65	154.27	332.91
65	-6.40	101.84	159.73	349.00
66	-6.50	104.05	165.28	365.65

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.17	0.01
3	-0.20	2.00	0.41	0.04
4	-0.30	3.03	0.74	0.11
5	-0.40	4.08	1.14	0.22
6	-0.50	5.14	1.63	0.37
7	-0.60	6.23	2.19	0.59
8	-0.70	7.33	2.84	0.86
9	-0.80	8.46	3.57	1.21
10	-0.90	9.60	4.40	1.65
11	-1.00	10.76	5.32	2.17
12	-1.10	11.94	6.33	2.80
13	-1.20	13.14	7.42	3.53
14	-1.30	14.36	8.59	4.39
15	-1.40	15.60	9.84	5.36
16	-1.50	16.86	11.17	6.48

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
17	-1.60	18.13	12.58	7.73
18	-1.70	19.43	14.07	9.14
19	-1.80	20.74	15.64	10.70
20	-1.90	22.08	17.29	12.43
21	-2.00	23.43	19.01	14.33
22	-2.10	24.80	20.82	16.42
23	-2.20	26.19	22.70	18.69
24	-2.30	27.60	24.67	21.16
25	-2.40	29.03	26.71	23.84
26	-2.50	30.48	28.83	26.73
27	-2.60	31.95	31.03	29.85
28	-2.70	33.43	33.31	33.19
29	-2.80	34.94	35.67	36.77
30	-2.90	36.46	38.11	40.60
31	-3.00	38.01	40.63	44.68
32	-3.10	39.57	43.22	49.03
33	-3.20	41.15	45.90	53.64
34	-3.30	42.75	48.65	58.53
35	-3.40	44.37	51.49	63.70
36	-3.50	46.01	54.40	69.17
37	-3.60	47.67	57.39	74.94
38	-3.70	49.35	60.46	81.03
39	-3.80	51.04	63.61	87.42
40	-3.90	52.76	66.84	94.15
41	-4.00	54.49	70.15	101.21
42	-4.10	56.24	73.53	108.60
43	-4.20	58.02	77.00	116.35
44	-4.30	59.81	80.54	124.46
45	-4.40	61.62	84.17	132.93
46	-4.50	63.45	87.87	141.77
47	-4.60	65.30	91.65	151.00
48	-4.70	67.17	95.51	160.62
49	-4.80	69.05	99.45	170.63
50	-4.90	70.96	103.47	181.05
51	-5.00	72.88	107.57	191.88
52	-5.10	74.83	111.74	203.13
53	-5.20	76.79	116.00	214.81
54	-5.30	78.77	120.33	226.93
55	-5.40	80.78	124.75	239.49
56	-5.50	82.80	129.24	252.51
57	-5.60	84.84	133.81	265.99
58	-5.70	86.89	138.46	279.94
59	-5.80	88.97	143.19	294.36
60	-5.90	91.07	148.00	309.27
61	-6.00	93.18	152.89	324.67
62	-6.10	95.32	157.86	340.58
63	-6.20	97.47	162.90	356.99
64	-6.30	99.65	168.03	373.92
65	-6.40	101.84	173.23	391.37
66	-6.50	104.05	178.51	409.36

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.16	0.01
3	-0.20	2.00	0.40	0.04
4	-0.30	3.03	0.71	0.11
5	-0.40	4.08	1.08	0.21
6	-0.50	5.14	1.53	0.36
7	-0.60	6.23	2.06	0.56
8	-0.70	7.33	2.65	0.82

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
9	-0.80	8.46	3.34	1.15
10	-0.90	9.60	4.10	1.56
11	-1.00	10.76	4.95	2.05
12	-1.10	11.94	5.88	2.63
13	-1.20	13.14	6.89	3.32
14	-1.30	14.36	7.97	4.12
15	-1.40	15.60	9.12	5.03
16	-1.50	16.86	10.34	6.06
17	-1.60	18.13	11.64	7.23
18	-1.70	19.43	13.01	8.53
19	-1.80	20.74	14.44	9.98
20	-1.90	22.08	15.96	11.59
21	-2.00	23.43	17.54	13.35
22	-2.10	24.80	19.19	15.28
23	-2.20	26.19	20.92	17.38
24	-2.30	27.60	22.72	19.67
25	-2.40	29.03	24.59	22.15
26	-2.50	30.48	26.53	24.82
27	-2.60	31.95	28.54	27.69
28	-2.70	33.43	30.63	30.78
29	-2.80	34.94	32.79	34.08
30	-2.90	36.46	35.01	37.61
31	-3.00	38.01	37.31	41.37
32	-3.10	39.57	39.69	45.37
33	-3.20	41.15	42.13	49.62
34	-3.30	42.75	44.64	54.12
35	-3.40	44.37	47.23	58.88
36	-3.50	46.01	49.89	63.91
37	-3.60	47.67	52.62	69.22
38	-3.70	49.35	55.42	74.81
39	-3.80	51.04	58.29	80.69
40	-3.90	52.76	61.24	86.87
41	-4.00	54.49	64.26	93.35
42	-4.10	56.24	67.34	100.15
43	-4.20	58.02	70.50	107.26
44	-4.30	59.81	73.74	114.70
45	-4.40	61.62	77.04	122.47
46	-4.50	63.45	80.41	130.59
47	-4.60	65.30	83.86	139.05
48	-4.70	67.17	87.38	147.87
49	-4.80	69.05	90.97	157.05
50	-4.90	70.96	94.63	166.61
51	-5.00	72.88	98.36	176.54
52	-5.10	74.83	102.17	186.85
53	-5.20	76.79	106.04	197.55
54	-5.30	78.77	109.99	208.66
55	-5.40	80.78	114.01	220.17
56	-5.50	82.80	118.10	232.09
57	-5.60	84.84	122.27	244.43
58	-5.70	86.89	126.50	257.21
59	-5.80	88.97	130.81	270.41
60	-5.90	91.07	135.18	284.06
61	-6.00	93.18	139.63	298.16
62	-6.10	95.32	144.15	312.72
63	-6.20	97.47	148.75	327.74
64	-6.30	99.65	153.41	343.23
65	-6.40	101.84	158.15	359.20
66	-6.50	104.05	162.96	375.65

Combinazione n° 10 - SLER

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.03	0.00
3	-0.20	2.00	0.12	0.02
4	-0.30	3.03	0.26	0.04
5	-0.40	4.08	0.46	0.09
6	-0.50	5.14	0.71	0.17
7	-0.60	6.23	1.03	0.28
8	-0.70	7.33	1.40	0.42
9	-0.80	8.46	1.85	0.62
10	-0.90	9.60	2.36	0.86
11	-1.00	10.76	2.95	1.17
12	-1.10	11.94	3.59	1.54
13	-1.20	13.14	4.30	1.98
14	-1.30	14.36	5.07	2.50
15	-1.40	15.60	5.90	3.11
16	-1.50	16.86	6.78	3.81
17	-1.60	18.13	7.72	4.60
18	-1.70	19.43	8.72	5.49
19	-1.80	20.74	9.78	6.50
20	-1.90	22.08	10.89	7.61
21	-2.00	23.43	12.06	8.85
22	-2.10	24.80	13.28	10.21
23	-2.20	26.19	14.57	11.70
24	-2.30	27.60	15.91	13.33
25	-2.40	29.03	17.31	15.10
26	-2.50	30.48	18.76	17.02
27	-2.60	31.95	20.27	19.09
28	-2.70	33.43	21.84	21.32
29	-2.80	34.94	23.47	23.72
30	-2.90	36.46	25.15	26.29
31	-3.00	38.01	26.89	29.04
32	-3.10	39.57	28.69	31.97
33	-3.20	41.15	30.54	35.08
34	-3.30	42.75	32.45	38.40
35	-3.40	44.37	34.42	41.91
36	-3.50	46.01	36.44	45.63
37	-3.60	47.67	38.53	49.56
38	-3.70	49.35	40.66	53.70
39	-3.80	51.04	42.86	58.08
40	-3.90	52.76	45.11	62.68
41	-4.00	54.49	47.42	67.51
42	-4.10	56.24	49.79	72.59
43	-4.20	58.02	52.21	77.91
44	-4.30	59.81	54.69	83.48
45	-4.40	61.62	57.23	89.31
46	-4.50	63.45	59.82	95.41
47	-4.60	65.30	62.48	101.77
48	-4.70	67.17	65.18	108.41
49	-4.80	69.05	67.95	115.34
50	-4.90	70.96	70.77	122.54
51	-5.00	72.88	73.65	130.04
52	-5.10	74.83	76.59	137.84
53	-5.20	76.79	79.58	145.95
54	-5.30	78.77	82.63	154.36
55	-5.40	80.78	85.74	163.09
56	-5.50	82.80	88.90	172.14
57	-5.60	84.84	92.12	181.51
58	-5.70	86.89	95.40	191.22
59	-5.80	88.97	98.77	201.27
60	-5.90	91.07	102.30	211.67
61	-6.00	93.18	106.00	222.45
62	-6.10	95.32	109.88	233.61
63	-6.20	97.47	113.89	245.17
64	-6.30	99.65	117.99	257.15
65	-6.40	101.84	122.17	269.54
66	-6.50	104.05	126.43	282.37

Combinazione n° 11 - SLEF

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.03	0.00
3	-0.20	2.00	0.12	0.02
4	-0.30	3.03	0.26	0.04
5	-0.40	4.08	0.46	0.09
6	-0.50	5.14	0.71	0.17
7	-0.60	6.23	1.03	0.28
8	-0.70	7.33	1.40	0.42
9	-0.80	8.46	1.85	0.62
10	-0.90	9.60	2.36	0.86
11	-1.00	10.76	2.95	1.17
12	-1.10	11.94	3.59	1.54
13	-1.20	13.14	4.30	1.98
14	-1.30	14.36	5.07	2.50
15	-1.40	15.60	5.90	3.11
16	-1.50	16.86	6.78	3.81
17	-1.60	18.13	7.72	4.60
18	-1.70	19.43	8.72	5.49
19	-1.80	20.74	9.78	6.50
20	-1.90	22.08	10.89	7.61
21	-2.00	23.43	12.06	8.85
22	-2.10	24.80	13.28	10.21
23	-2.20	26.19	14.57	11.70
24	-2.30	27.60	15.91	13.33
25	-2.40	29.03	17.31	15.10
26	-2.50	30.48	18.76	17.02
27	-2.60	31.95	20.27	19.09
28	-2.70	33.43	21.84	21.32
29	-2.80	34.94	23.47	23.72
30	-2.90	36.46	25.15	26.29
31	-3.00	38.01	26.89	29.04
32	-3.10	39.57	28.69	31.97
33	-3.20	41.15	30.54	35.08
34	-3.30	42.75	32.45	38.40
35	-3.40	44.37	34.42	41.91
36	-3.50	46.01	36.44	45.63
37	-3.60	47.67	38.53	49.56
38	-3.70	49.35	40.66	53.70
39	-3.80	51.04	42.86	58.08
40	-3.90	52.76	45.11	62.68
41	-4.00	54.49	47.42	67.51
42	-4.10	56.24	49.79	72.59
43	-4.20	58.02	52.21	77.91
44	-4.30	59.81	54.69	83.48
45	-4.40	61.62	57.23	89.31
46	-4.50	63.45	59.82	95.41
47	-4.60	65.30	62.48	101.77
48	-4.70	67.17	65.18	108.41
49	-4.80	69.05	67.95	115.34
50	-4.90	70.96	70.77	122.54
51	-5.00	72.88	73.65	130.04
52	-5.10	74.83	76.59	137.84
53	-5.20	76.79	79.58	145.95
54	-5.30	78.77	82.63	154.36
55	-5.40	80.78	85.74	163.09
56	-5.50	82.80	88.90	172.14
57	-5.60	84.84	92.12	181.51
58	-5.70	86.89	95.40	191.22
59	-5.80	88.97	98.77	201.27
60	-5.90	91.07	102.30	211.67
61	-6.00	93.18	106.00	222.45

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
62	-6.10	95.32	109.88	233.61
63	-6.20	97.47	113.89	245.17
64	-6.30	99.65	117.99	257.15
65	-6.40	101.84	122.17	269.54
66	-6.50	104.05	126.43	282.37

Combinazione n° 12 - SLEQ

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.03	0.00
3	-0.20	2.00	0.12	0.02
4	-0.30	3.03	0.26	0.04
5	-0.40	4.08	0.46	0.09
6	-0.50	5.14	0.71	0.17
7	-0.60	6.23	1.03	0.28
8	-0.70	7.33	1.40	0.42
9	-0.80	8.46	1.85	0.62
10	-0.90	9.60	2.36	0.86
11	-1.00	10.76	2.95	1.17
12	-1.10	11.94	3.59	1.54
13	-1.20	13.14	4.30	1.98
14	-1.30	14.36	5.07	2.50
15	-1.40	15.60	5.90	3.11
16	-1.50	16.86	6.78	3.81
17	-1.60	18.13	7.72	4.60
18	-1.70	19.43	8.72	5.49
19	-1.80	20.74	9.78	6.50
20	-1.90	22.08	10.89	7.61
21	-2.00	23.43	12.06	8.85
22	-2.10	24.80	13.28	10.21
23	-2.20	26.19	14.57	11.70
24	-2.30	27.60	15.91	13.33
25	-2.40	29.03	17.31	15.10
26	-2.50	30.48	18.76	17.02
27	-2.60	31.95	20.27	19.09
28	-2.70	33.43	21.84	21.32
29	-2.80	34.94	23.47	23.72
30	-2.90	36.46	25.15	26.29
31	-3.00	38.01	26.89	29.04
32	-3.10	39.57	28.69	31.97
33	-3.20	41.15	30.54	35.08
34	-3.30	42.75	32.45	38.40
35	-3.40	44.37	34.42	41.91
36	-3.50	46.01	36.44	45.63
37	-3.60	47.67	38.53	49.56
38	-3.70	49.35	40.66	53.70
39	-3.80	51.04	42.86	58.08
40	-3.90	52.76	45.11	62.68
41	-4.00	54.49	47.42	67.51
42	-4.10	56.24	49.79	72.59
43	-4.20	58.02	52.21	77.91
44	-4.30	59.81	54.69	83.48
45	-4.40	61.62	57.23	89.31
46	-4.50	63.45	59.82	95.41
47	-4.60	65.30	62.48	101.77
48	-4.70	67.17	65.18	108.41
49	-4.80	69.05	67.95	115.34
50	-4.90	70.96	70.77	122.54
51	-5.00	72.88	73.65	130.04
52	-5.10	74.83	76.59	137.84
53	-5.20	76.79	79.58	145.95

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
54	-5.30	78.77	82.63	154.36
55	-5.40	80.78	85.74	163.09
56	-5.50	82.80	88.90	172.14
57	-5.60	84.84	92.12	181.51
58	-5.70	86.89	95.40	191.22
59	-5.80	88.97	98.77	201.27
60	-5.90	91.07	102.30	211.67
61	-6.00	93.18	106.00	222.45
62	-6.10	95.32	109.88	233.61
63	-6.20	97.47	113.89	245.17
64	-6.30	99.65	117.99	257.15
65	-6.40	101.84	122.17	269.54
66	-6.50	104.05	126.43	282.37

Combinazione n° 13 - SLEQ H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.11	0.01
3	-0.20	2.00	0.29	0.03
4	-0.30	3.03	0.55	0.08
5	-0.40	4.08	0.87	0.17
6	-0.50	5.14	1.26	0.29
7	-0.60	6.23	1.73	0.46
8	-0.70	7.33	2.27	0.69
9	-0.80	8.46	2.90	0.98
10	-0.90	9.60	3.61	1.34
11	-1.00	10.76	4.40	1.78
12	-1.10	11.94	5.28	2.30
13	-1.20	13.14	6.23	2.93
14	-1.30	14.36	7.25	3.65
15	-1.40	15.60	8.34	4.49
16	-1.50	16.86	9.50	5.45
17	-1.60	18.13	10.74	6.53
18	-1.70	19.43	12.05	7.74
19	-1.80	20.74	13.43	9.09
20	-1.90	22.08	14.88	10.59
21	-2.00	23.43	16.40	12.24
22	-2.10	24.80	18.00	14.05
23	-2.20	26.19	19.66	16.03
24	-2.30	27.60	21.40	18.19
25	-2.40	29.03	23.21	20.53
26	-2.50	30.48	25.09	23.06
27	-2.60	31.95	27.04	25.79
28	-2.70	33.43	29.06	28.72
29	-2.80	34.94	31.16	31.87
30	-2.90	36.46	33.32	35.23
31	-3.00	38.01	35.56	38.82
32	-3.10	39.57	37.87	42.64
33	-3.20	41.15	40.24	46.70
34	-3.30	42.75	42.69	51.01
35	-3.40	44.37	45.22	55.57
36	-3.50	46.01	47.81	60.40
37	-3.60	47.67	50.47	65.50
38	-3.70	49.35	53.21	70.87
39	-3.80	51.04	56.02	76.52
40	-3.90	52.76	58.89	82.47
41	-4.00	54.49	61.84	88.72
42	-4.10	56.24	64.86	95.27
43	-4.20	58.02	67.95	102.13
44	-4.30	59.81	71.12	109.31
45	-4.40	61.62	74.35	116.82

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
46	-4.50	63.45	77.66	124.66
47	-4.60	65.30	81.03	132.85
48	-4.70	67.17	84.48	141.38
49	-4.80	69.05	88.00	150.27
50	-4.90	70.96	91.59	159.52
51	-5.00	72.88	95.26	169.14
52	-5.10	74.83	98.99	179.14
53	-5.20	76.79	102.79	189.52
54	-5.30	78.77	106.67	200.30
55	-5.40	80.78	110.62	211.47
56	-5.50	82.80	114.63	223.05
57	-5.60	84.84	118.72	235.05
58	-5.70	86.89	122.89	247.46
59	-5.80	88.97	127.16	260.30
60	-5.90	91.07	131.60	273.59
61	-6.00	93.18	136.22	287.34
62	-6.10	95.32	141.04	301.57
63	-6.20	97.47	146.01	316.29
64	-6.30	99.65	151.08	331.53
65	-6.40	101.84	156.24	347.29
66	-6.50	104.05	161.50	363.57

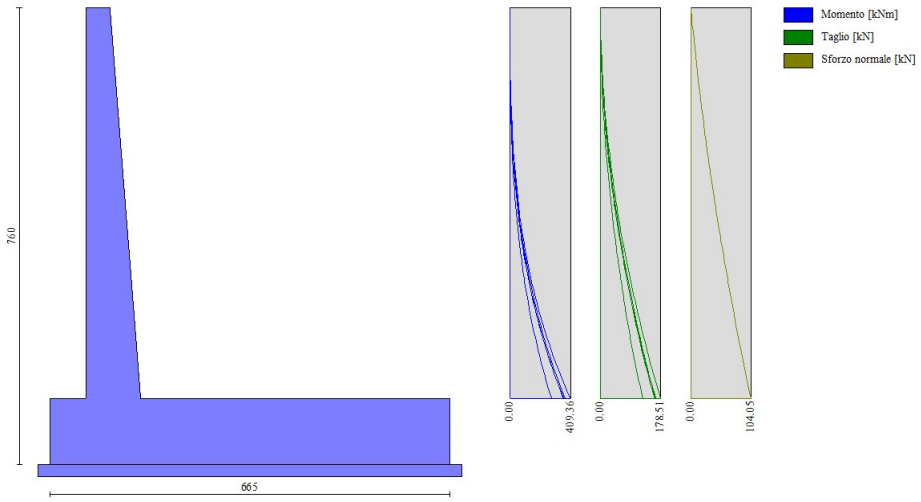


Fig. 8 - Paramento (Inviluppo)

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	19.37	0.97
3	-0.80	0.00	38.53	3.87
4	-0.70	0.00	57.49	8.67
5	-0.60	0.00	76.24	15.36
6	-0.50	0.00	94.78	23.91
7	-0.40	0.00	113.12	34.31
8	0.51	0.00	-324.94	-1068.78
9	0.60	0.00	-324.85	-1039.26
10	0.70	0.00	-324.55	-1009.76
11	0.80	0.00	-324.05	-980.30
12	0.90	0.00	-323.35	-950.90
13	1.00	0.00	-322.45	-921.57
14	1.10	0.00	-321.35	-892.35
15	1.20	0.00	-320.05	-863.24
16	1.30	0.00	-318.54	-834.28
17	1.40	0.00	-316.83	-805.47
18	1.49	0.00	-314.93	-776.84
19	1.59	0.00	-312.81	-748.41
20	1.69	0.00	-310.50	-720.20
21	1.79	0.00	-307.99	-692.23
22	1.89	0.00	-305.27	-664.52
23	1.99	0.00	-302.35	-637.08
24	2.09	0.00	-299.23	-609.94
25	2.19	0.00	-295.91	-583.12
26	2.29	0.00	-292.39	-556.64
27	2.38	0.00	-288.66	-530.52
28	2.48	0.00	-284.73	-504.78
29	2.58	0.00	-280.61	-479.43
30	2.68	0.00	-276.27	-454.50
31	2.78	0.00	-271.74	-430.01
32	2.88	0.00	-267.01	-405.98
33	2.98	0.00	-262.07	-382.43
34	3.08	0.00	-256.93	-359.37
35	3.17	0.00	-251.60	-336.83
36	3.27	0.00	-246.05	-314.83
37	3.37	0.00	-240.31	-293.39
38	3.47	0.00	-234.37	-272.53
39	3.57	0.00	-228.22	-252.26
40	3.67	0.00	-221.87	-232.61
41	3.77	0.00	-213.49	-211.88
42	3.87	0.00	-204.07	-191.24
43	3.97	0.00	-194.45	-171.54
44	4.06	0.00	-184.63	-152.80
45	4.16	0.00	-174.60	-135.05
46	4.26	0.00	-164.37	-118.29
47	4.36	0.00	-153.94	-102.56
48	4.46	0.00	-143.31	-87.87
49	4.56	0.00	-132.48	-74.23
50	4.66	0.00	-121.44	-61.68
51	4.76	0.00	-110.21	-50.23
52	4.86	0.00	-98.77	-39.90
53	4.95	0.00	-87.13	-30.71
54	5.05	0.00	-75.29	-22.68
55	5.15	0.00	-63.24	-15.84
56	5.25	0.00	-51.00	-10.19
57	5.35	0.00	-38.55	-5.76
58	5.45	0.00	-25.90	-2.57
59	5.55	0.00	-13.05	-0.65
60	5.65	0.00	0.00	0.00

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	23.80	1.19
3	-0.80	0.00	47.26	4.75
4	-0.70	0.00	70.39	10.63
5	-0.60	0.00	93.18	18.82
6	-0.50	0.00	115.64	29.26
7	-0.40	0.00	137.76	41.93
8	0.51	0.00	-124.75	-700.79
9	0.60	0.00	-130.87	-688.54
10	0.70	0.00	-136.67	-675.70
11	0.80	0.00	-142.13	-662.30
12	0.90	0.00	-147.27	-648.38
13	1.00	0.00	-152.07	-633.97
14	1.10	0.00	-156.55	-619.09
15	1.20	0.00	-160.71	-603.80
16	1.30	0.00	-164.53	-588.10
17	1.40	0.00	-168.02	-572.05
18	1.49	0.00	-171.19	-555.67
19	1.59	0.00	-174.03	-538.99
20	1.69	0.00	-176.54	-522.04
21	1.79	0.00	-178.72	-504.87
22	1.89	0.00	-180.57	-487.49
23	1.99	0.00	-182.10	-469.95
24	2.09	0.00	-183.30	-452.27
25	2.19	0.00	-184.16	-434.49
26	2.29	0.00	-184.71	-416.64
27	2.38	0.00	-184.92	-398.76
28	2.48	0.00	-184.80	-380.87
29	2.58	0.00	-184.36	-363.01
30	2.68	0.00	-183.59	-345.20
31	2.78	0.00	-182.48	-327.49
32	2.88	0.00	-181.06	-309.91
33	2.98	0.00	-179.30	-292.48
34	3.08	0.00	-177.21	-275.24
35	3.17	0.00	-174.80	-258.23
36	3.27	0.00	-172.06	-241.46
37	3.37	0.00	-168.99	-224.99
38	3.47	0.00	-165.59	-208.84
39	3.57	0.00	-161.86	-193.04
40	3.67	0.00	-157.81	-177.62
41	3.77	0.00	-153.15	-162.36
42	3.87	0.00	-148.05	-147.47
43	3.97	0.00	-142.61	-133.11
44	4.06	0.00	-136.85	-119.29
45	4.16	0.00	-130.76	-106.06
46	4.26	0.00	-124.34	-93.45
47	4.36	0.00	-117.59	-81.49
48	4.46	0.00	-110.52	-70.22
49	4.56	0.00	-103.11	-59.66
50	4.66	0.00	-95.38	-49.84
51	4.76	0.00	-87.32	-40.81
52	4.86	0.00	-78.93	-32.59
53	4.95	0.00	-70.21	-25.22
54	5.05	0.00	-61.17	-18.72
55	5.15	0.00	-51.79	-13.14
56	5.25	0.00	-42.09	-8.49
57	5.35	0.00	-32.06	-4.83
58	5.45	0.00	-21.70	-2.17
59	5.55	0.00	-11.01	-0.55
60	5.65	0.00	0.00	0.00

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	21.54	1.08
3	-0.80	0.00	42.75	4.30
4	-0.70	0.00	63.64	9.62
5	-0.60	0.00	84.20	17.01
6	-0.50	0.00	104.44	26.45
7	-0.40	0.00	124.36	37.89
8	0.51	0.00	-217.44	-926.10
9	0.60	0.00	-221.49	-904.79
10	0.70	0.00	-225.23	-883.10
11	0.80	0.00	-228.65	-861.05
12	0.90	0.00	-231.75	-838.67
13	1.00	0.00	-234.54	-816.01
14	1.10	0.00	-237.01	-793.09
15	1.20	0.00	-239.16	-769.94
16	1.30	0.00	-241.00	-746.59
17	1.40	0.00	-242.51	-723.07
18	1.49	0.00	-243.71	-699.42
19	1.59	0.00	-244.60	-675.67
20	1.69	0.00	-245.16	-651.85
21	1.79	0.00	-245.41	-627.98
22	1.89	0.00	-245.35	-604.11
23	1.99	0.00	-244.96	-580.26
24	2.09	0.00	-244.26	-556.46
25	2.19	0.00	-243.24	-532.75
26	2.29	0.00	-241.90	-509.16
27	2.38	0.00	-240.25	-485.71
28	2.48	0.00	-238.28	-462.44
29	2.58	0.00	-235.99	-439.38
30	2.68	0.00	-233.39	-416.57
31	2.78	0.00	-230.46	-394.03
32	2.88	0.00	-227.23	-371.79
33	2.98	0.00	-223.67	-349.88
34	3.08	0.00	-219.80	-328.35
35	3.17	0.00	-215.61	-307.21
36	3.27	0.00	-211.10	-286.51
37	3.37	0.00	-206.27	-266.26
38	3.47	0.00	-201.13	-246.51
39	3.57	0.00	-195.67	-227.28
40	3.67	0.00	-189.90	-208.60
41	3.77	0.00	-183.53	-190.26
42	3.87	0.00	-176.73	-172.45
43	3.97	0.00	-169.60	-155.33
44	4.06	0.00	-162.17	-138.93
45	4.16	0.00	-154.41	-123.29
46	4.26	0.00	-146.33	-108.42
47	4.36	0.00	-137.94	-94.37
48	4.46	0.00	-129.23	-81.16
49	4.56	0.00	-120.21	-68.83
50	4.66	0.00	-110.87	-57.41
51	4.76	0.00	-101.21	-46.92
52	4.86	0.00	-91.23	-37.41
53	4.95	0.00	-80.94	-28.90
54	5.05	0.00	-70.33	-21.42
55	5.15	0.00	-59.40	-15.00
56	5.25	0.00	-48.15	-9.69
57	5.35	0.00	-36.59	-5.50
58	5.45	0.00	-24.71	-2.46
59	5.55	0.00	-12.51	-0.62
60	5.65	0.00	0.00	0.00

Combinazione n° 10 - SLER

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	16.93	0.85
3	-0.80	0.00	33.71	3.38
4	-0.70	0.00	50.35	7.58
5	-0.60	0.00	66.86	13.45
6	-0.50	0.00	83.22	20.95
7	-0.40	0.00	99.44	30.09
8	0.51	0.00	-104.70	-428.05
9	0.60	0.00	-106.94	-419.51
10	0.70	0.00	-109.04	-410.76
11	0.80	0.00	-111.00	-401.81
12	0.90	0.00	-112.82	-392.67
13	1.00	0.00	-114.50	-383.36
14	1.10	0.00	-116.05	-373.88
15	1.20	0.00	-117.46	-364.27
16	1.30	0.00	-118.74	-354.51
17	1.40	0.00	-119.87	-344.64
18	1.49	0.00	-120.87	-334.67
19	1.59	0.00	-121.74	-324.60
20	1.69	0.00	-122.46	-314.45
21	1.79	0.00	-123.05	-304.24
22	1.89	0.00	-123.50	-293.98
23	1.99	0.00	-123.81	-283.68
24	2.09	0.00	-123.99	-273.35
25	2.19	0.00	-124.03	-263.02
26	2.29	0.00	-123.93	-252.68
27	2.38	0.00	-123.69	-242.37
28	2.48	0.00	-123.32	-232.08
29	2.58	0.00	-122.81	-221.84
30	2.68	0.00	-122.16	-211.65
31	2.78	0.00	-121.38	-201.54
32	2.88	0.00	-120.46	-191.51
33	2.98	0.00	-119.40	-181.58
34	3.08	0.00	-118.20	-171.76
35	3.17	0.00	-116.87	-162.06
36	3.27	0.00	-115.40	-152.51
37	3.37	0.00	-113.79	-143.10
38	3.47	0.00	-112.04	-133.86
39	3.57	0.00	-110.16	-124.80
40	3.67	0.00	-108.14	-115.94
41	3.77	0.00	-104.63	-106.00
42	3.87	0.00	-100.35	-95.87
43	3.97	0.00	-95.95	-86.17
44	4.06	0.00	-91.40	-76.91
45	4.16	0.00	-86.72	-68.10
46	4.26	0.00	-81.90	-59.77
47	4.36	0.00	-76.94	-51.92
48	4.46	0.00	-71.84	-44.56
49	4.56	0.00	-66.61	-37.72
50	4.66	0.00	-61.24	-31.40
51	4.76	0.00	-55.74	-25.62
52	4.86	0.00	-50.09	-20.38
53	4.95	0.00	-44.31	-15.72
54	5.05	0.00	-38.39	-11.63
55	5.15	0.00	-32.34	-8.13
56	5.25	0.00	-26.14	-5.24
57	5.35	0.00	-19.81	-2.97
58	5.45	0.00	-13.35	-1.33
59	5.55	0.00	-6.74	-0.33
60	5.65	0.00	0.00	0.00

Combinazione n° 11 - SLEF

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	16.93	0.85
3	-0.80	0.00	33.71	3.38
4	-0.70	0.00	50.35	7.58
5	-0.60	0.00	66.86	13.45
6	-0.50	0.00	83.22	20.95
7	-0.40	0.00	99.44	30.09
8	0.51	0.00	-104.70	-428.05
9	0.60	0.00	-106.94	-419.51
10	0.70	0.00	-109.04	-410.76
11	0.80	0.00	-111.00	-401.81
12	0.90	0.00	-112.82	-392.67
13	1.00	0.00	-114.50	-383.36
14	1.10	0.00	-116.05	-373.88
15	1.20	0.00	-117.46	-364.27
16	1.30	0.00	-118.74	-354.51
17	1.40	0.00	-119.87	-344.64
18	1.49	0.00	-120.87	-334.67
19	1.59	0.00	-121.74	-324.60
20	1.69	0.00	-122.46	-314.45
21	1.79	0.00	-123.05	-304.24
22	1.89	0.00	-123.50	-293.98
23	1.99	0.00	-123.81	-283.68
24	2.09	0.00	-123.99	-273.35
25	2.19	0.00	-124.03	-263.02
26	2.29	0.00	-123.93	-252.68
27	2.38	0.00	-123.69	-242.37
28	2.48	0.00	-123.32	-232.08
29	2.58	0.00	-122.81	-221.84
30	2.68	0.00	-122.16	-211.65
31	2.78	0.00	-121.38	-201.54
32	2.88	0.00	-120.46	-191.51
33	2.98	0.00	-119.40	-181.58
34	3.08	0.00	-118.20	-171.76
35	3.17	0.00	-116.87	-162.06
36	3.27	0.00	-115.40	-152.51
37	3.37	0.00	-113.79	-143.10
38	3.47	0.00	-112.04	-133.86
39	3.57	0.00	-110.16	-124.80
40	3.67	0.00	-108.14	-115.94
41	3.77	0.00	-104.63	-106.00
42	3.87	0.00	-100.35	-95.87
43	3.97	0.00	-95.95	-86.17
44	4.06	0.00	-91.40	-76.91
45	4.16	0.00	-86.72	-68.10
46	4.26	0.00	-81.90	-59.77
47	4.36	0.00	-76.94	-51.92
48	4.46	0.00	-71.84	-44.56
49	4.56	0.00	-66.61	-37.72
50	4.66	0.00	-61.24	-31.40
51	4.76	0.00	-55.74	-25.62
52	4.86	0.00	-50.09	-20.38
53	4.95	0.00	-44.31	-15.72
54	5.05	0.00	-38.39	-11.63
55	5.15	0.00	-32.34	-8.13
56	5.25	0.00	-26.14	-5.24
57	5.35	0.00	-19.81	-2.97
58	5.45	0.00	-13.35	-1.33
59	5.55	0.00	-6.74	-0.33
60	5.65	0.00	0.00	0.00

Combinazione n° 12 - SLEQ

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	16.93	0.85
3	-0.80	0.00	33.71	3.38
4	-0.70	0.00	50.35	7.58
5	-0.60	0.00	66.86	13.45
6	-0.50	0.00	83.22	20.95
7	-0.40	0.00	99.44	30.09
8	0.51	0.00	-104.70	-428.05
9	0.60	0.00	-106.94	-419.51
10	0.70	0.00	-109.04	-410.76
11	0.80	0.00	-111.00	-401.81
12	0.90	0.00	-112.82	-392.67
13	1.00	0.00	-114.50	-383.36
14	1.10	0.00	-116.05	-373.88
15	1.20	0.00	-117.46	-364.27
16	1.30	0.00	-118.74	-354.51
17	1.40	0.00	-119.87	-344.64
18	1.49	0.00	-120.87	-334.67
19	1.59	0.00	-121.74	-324.60
20	1.69	0.00	-122.46	-314.45
21	1.79	0.00	-123.05	-304.24
22	1.89	0.00	-123.50	-293.98
23	1.99	0.00	-123.81	-283.68
24	2.09	0.00	-123.99	-273.35
25	2.19	0.00	-124.03	-263.02
26	2.29	0.00	-123.93	-252.68
27	2.38	0.00	-123.69	-242.37
28	2.48	0.00	-123.32	-232.08
29	2.58	0.00	-122.81	-221.84
30	2.68	0.00	-122.16	-211.65
31	2.78	0.00	-121.38	-201.54
32	2.88	0.00	-120.46	-191.51
33	2.98	0.00	-119.40	-181.58
34	3.08	0.00	-118.20	-171.76
35	3.17	0.00	-116.87	-162.06
36	3.27	0.00	-115.40	-152.51
37	3.37	0.00	-113.79	-143.10
38	3.47	0.00	-112.04	-133.86
39	3.57	0.00	-110.16	-124.80
40	3.67	0.00	-108.14	-115.94
41	3.77	0.00	-104.63	-106.00
42	3.87	0.00	-100.35	-95.87
43	3.97	0.00	-95.95	-86.17
44	4.06	0.00	-91.40	-76.91
45	4.16	0.00	-86.72	-68.10
46	4.26	0.00	-81.90	-59.77
47	4.36	0.00	-76.94	-51.92
48	4.46	0.00	-71.84	-44.56
49	4.56	0.00	-66.61	-37.72
50	4.66	0.00	-61.24	-31.40
51	4.76	0.00	-55.74	-25.62
52	4.86	0.00	-50.09	-20.38
53	4.95	0.00	-44.31	-15.72
54	5.05	0.00	-38.39	-11.63
55	5.15	0.00	-32.34	-8.13
56	5.25	0.00	-26.14	-5.24
57	5.35	0.00	-19.81	-2.97
58	5.45	0.00	-13.35	-1.33
59	5.55	0.00	-6.74	-0.33
60	5.65	0.00	0.00	0.00

Combinazione n° 13 - SLEQ H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	22.31	1.12
3	-0.80	0.00	44.33	4.45
4	-0.70	0.00	66.06	9.97
5	-0.60	0.00	87.51	17.65
6	-0.50	0.00	108.66	27.47
7	-0.40	0.00	129.53	39.38
8	0.51	0.00	-132.44	-665.79
9	0.60	0.00	-137.80	-654.36
10	0.70	0.00	-142.89	-642.41
11	0.80	0.00	-147.69	-629.97
12	0.90	0.00	-152.22	-617.07
13	1.00	0.00	-156.46	-603.73
14	1.10	0.00	-160.42	-589.99
15	1.20	0.00	-164.10	-575.87
16	1.30	0.00	-167.50	-561.40
17	1.40	0.00	-170.62	-546.61
18	1.49	0.00	-173.46	-531.53
19	1.59	0.00	-176.01	-516.18
20	1.69	0.00	-178.29	-500.59
21	1.79	0.00	-180.28	-484.79
22	1.89	0.00	-182.00	-468.80
23	1.99	0.00	-183.43	-452.67
24	2.09	0.00	-184.58	-436.40
25	2.19	0.00	-185.45	-420.03
26	2.29	0.00	-186.04	-403.59
27	2.38	0.00	-186.35	-387.11
28	2.48	0.00	-186.38	-370.61
29	2.58	0.00	-186.13	-354.12
30	2.68	0.00	-185.59	-337.67
31	2.78	0.00	-184.78	-321.28
32	2.88	0.00	-183.68	-304.99
33	2.98	0.00	-182.30	-288.83
34	3.08	0.00	-180.65	-272.81
35	3.17	0.00	-178.71	-256.97
36	3.27	0.00	-176.49	-241.34
37	3.37	0.00	-173.99	-225.94
38	3.47	0.00	-171.21	-210.80
39	3.57	0.00	-168.14	-195.95
40	3.67	0.00	-164.80	-181.41
41	3.77	0.00	-159.82	-165.95
42	3.87	0.00	-153.94	-150.44
43	3.97	0.00	-147.77	-135.53
44	4.06	0.00	-141.33	-121.24
45	4.16	0.00	-134.60	-107.60
46	4.26	0.00	-127.59	-94.64
47	4.36	0.00	-120.31	-82.38
48	4.46	0.00	-112.74	-70.86
49	4.56	0.00	-104.89	-60.10
50	4.66	0.00	-96.76	-50.14
51	4.76	0.00	-88.35	-40.98
52	4.86	0.00	-79.65	-32.68
53	4.95	0.00	-70.68	-25.25
54	5.05	0.00	-61.43	-18.72
55	5.15	0.00	-51.89	-13.11
56	5.25	0.00	-42.08	-8.47
57	5.35	0.00	-31.98	-4.80
58	5.45	0.00	-21.60	-2.15
59	5.55	0.00	-10.94	-0.54
60	5.65	0.00	0.00	0.00

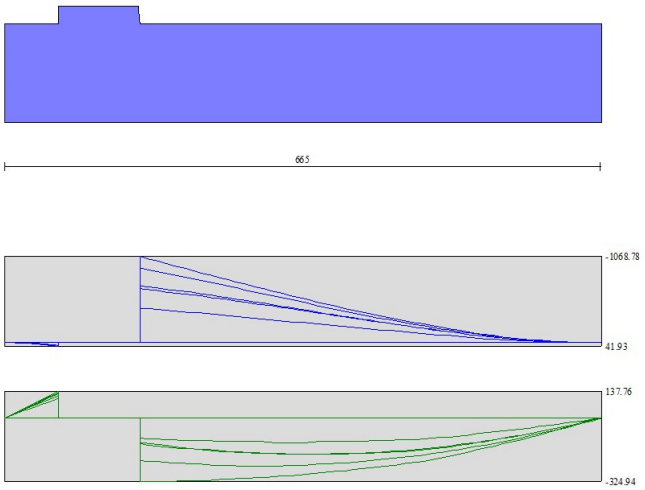


Fig. 9 - Fondazione (Inviluppo)

Verifiche strutturali

Verifiche a flessione

Elementi calcolati a trave

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Afi	area ferri inferiori espresso in [cmq]
Afs	area ferri superiori espressa in [cmq]
M	momento agente espressa in [kNm]
N	sforzo normale agente espressa in [kN]
Mu	momento ultimi espresso in [kNm]
Nu	sforzo normale ultimo espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione ultima e sollecitazione agente)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	0.00	100	40	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	26.55	53.09	0.00	0.99	0.00	0.00	100000.000
3	-0.20	100	42	26.55	53.09	0.02	2.00	77.66	8759.05	4380.575
4	-0.30	100	42	26.55	53.09	0.05	3.03	149.28	8826.19	2914.953
5	-0.40	100	43	26.55	53.09	0.11	4.08	236.20	8669.25	2127.233
6	-0.50	100	44	26.55	53.09	0.20	5.14	327.57	8232.47	1601.055
7	-0.60	100	45	26.55	53.09	0.34	6.23	423.10	7763.94	1246.713
8	-0.70	100	45	26.55	53.09	0.52	7.33	518.80	7270.77	991.619
9	-0.80	100	46	26.55	53.09	0.76	8.46	611.97	6764.58	799.973
10	-0.90	100	47	26.55	53.09	1.07	9.60	701.24	6267.36	652.927
11	-1.00	100	48	26.55	53.09	1.46	10.76	786.60	5798.71	538.873
12	-1.10	100	49	26.55	53.09	1.93	11.94	867.38	5363.25	449.115
13	-1.20	100	49	26.55	53.09	2.50	13.14	943.85	4967.79	378.011
14	-1.30	100	50	26.55	53.09	3.16	14.36	1016.54	4613.54	321.252
15	-1.40	100	51	26.55	53.09	3.94	15.60	1085.96	4298.23	275.539
16	-1.50	100	52	26.55	53.09	4.84	16.86	1150.80	4011.99	238.005
17	-1.60	100	52	26.55	53.09	5.85	18.13	1213.22	3758.16	207.254
18	-1.70	100	53	26.55	53.09	7.00	19.43	1273.54	3532.46	181.817
19	-1.80	100	54	26.55	53.09	8.29	20.74	1295.57	3239.84	156.188
20	-1.90	100	55	26.55	53.09	9.73	22.08	1312.38	2976.94	134.844
21	-2.00	100	56	26.55	53.09	11.32	23.43	1324.53	2740.27	116.958
22	-2.10	100	56	26.55	53.09	13.08	24.80	1334.57	2530.64	102.036
23	-2.20	100	57	26.55	53.09	15.00	26.19	1341.89	2342.58	89.438
24	-2.30	100	58	26.55	53.09	17.11	27.60	1351.52	2180.92	79.012
25	-2.40	100	59	26.55	53.09	19.39	29.03	1355.88	2029.94	69.922
26	-2.50	100	59	26.55	53.09	21.87	30.48	1362.13	1898.39	62.284
27	-2.60	100	60	26.55	53.09	24.55	31.95	1370.29	1783.32	55.822
28	-2.70	100	61	26.55	53.09	27.43	33.43	1377.69	1679.02	50.220
29	-2.80	100	62	26.55	53.09	30.53	34.94	1383.32	1582.93	45.306
30	-2.90	100	63	26.55	53.09	33.85	36.46	1390.51	1497.64	41.073
31	-3.00	100	63	26.55	53.09	37.41	38.01	1399.04	1421.49	37.401
32	-3.10	100	64	26.55	53.09	41.20	39.57	1408.72	1353.12	34.196
33	-3.20	100	65	26.55	53.09	45.23	41.15	1419.40	1291.43	31.383
34	-3.30	100	66	26.55	53.09	49.51	42.75	1426.69	1231.84	28.814
35	-3.40	100	66	26.55	53.09	54.06	44.37	1433.79	1176.86	26.523
36	-3.50	100	67	26.55	53.09	58.87	46.01	1441.87	1126.89	24.492
37	-3.60	100	68	26.55	53.09	63.96	47.67	1450.81	1081.31	22.684
38	-3.70	100	69	26.55	53.09	69.33	49.35	1460.51	1039.58	21.067
39	-3.80	100	70	26.55	53.09	74.98	51.04	1470.90	1001.25	19.616
40	-3.90	100	70	26.55	53.09	80.94	52.76	1481.92	965.94	18.309
41	-4.00	100	71	26.55	53.09	87.20	54.49	1493.49	933.30	17.128
42	-4.10	100	72	26.55	53.09	93.77	56.24	1505.57	903.07	16.056
43	-4.20	100	73	26.55	53.09	100.66	58.02	1518.11	874.99	15.082
44	-4.30	100	73	26.55	53.09	107.88	59.81	1529.63	848.05	14.179
45	-4.40	100	74	26.55	53.09	115.43	61.62	1541.26	822.77	13.352
46	-4.50	100	75	26.55	53.09	123.32	63.45	1553.19	799.11	12.594
47	-4.60	100	76	26.55	53.09	131.57	65.30	1565.38	776.92	11.898
48	-4.70	100	77	26.55	53.09	140.17	67.17	1577.81	756.07	11.257
49	-4.80	100	77	26.55	53.09	149.13	69.05	1590.47	736.45	10.665
50	-4.90	100	78	26.55	53.09	158.47	70.96	1603.33	717.95	10.118
51	-5.00	100	79	26.55	53.09	168.18	72.88	1616.39	700.49	9.611
52	-5.10	100	80	26.55	53.09	178.28	74.83	1629.61	683.98	9.141
53	-5.20	100	80	26.55	53.09	188.78	76.79	1642.99	668.34	8.703
54	-5.30	100	81	26.55	53.09	199.68	78.77	1656.52	653.51	8.296
55	-5.40	100	82	26.55	53.09	210.98	80.78	1670.19	639.44	7.916
56	-5.50	100	83	26.55	53.09	222.71	82.80	1683.99	626.06	7.561
57	-5.60	100	84	26.55	53.09	234.85	84.84	1697.90	613.33	7.230
58	-5.70	100	84	26.55	53.09	247.43	86.89	1711.93	601.20	6.919
59	-5.80	100	85	26.55	53.09	260.45	88.97	1726.05	589.63	6.627

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
60	-5.90	100	86	26.55	53.09	273.93	91.07	1740.27	578.55	6.353
61	-6.00	100	87	26.55	53.09	287.90	93.18	1754.55	567.90	6.094
62	-6.10	100	87	26.55	53.09	302.37	95.32	1768.88	557.63	5.850
63	-6.20	100	88	26.55	53.09	317.37	97.47	1783.27	547.70	5.619
64	-6.30	100	89	26.55	53.09	332.91	99.65	1797.69	538.09	5.400
65	-6.40	100	90	26.55	53.09	349.00	101.84	1812.16	528.80	5.192
66	-6.50	100	91	26.55	53.09	365.65	104.05	1826.68	519.81	4.996

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
1	0.00	100	40	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	26.55	53.09	0.01	0.99	0.00	0.00	100000.000
3	-0.20	100	42	26.55	53.09	0.04	2.00	189.30	8639.50	4320.783
4	-0.30	100	42	26.55	53.09	0.11	3.03	295.04	8075.92	2667.168
5	-0.40	100	43	26.55	53.09	0.22	4.08	401.14	7500.38	1840.421
6	-0.50	100	44	26.55	53.09	0.37	5.14	502.90	6918.75	1345.561
7	-0.60	100	45	26.55	53.09	0.59	6.23	598.24	6358.19	1020.982
8	-0.70	100	45	26.55	53.09	0.86	7.33	686.55	5834.70	795.762
9	-0.80	100	46	26.55	53.09	1.21	8.46	768.28	5355.38	633.322
10	-0.90	100	47	26.55	53.09	1.65	9.60	845.37	4929.78	513.580
11	-1.00	100	48	26.55	53.09	2.17	10.76	917.46	4547.67	422.614
12	-1.10	100	49	26.55	53.09	2.80	11.94	986.60	4212.52	352.753
13	-1.20	100	49	26.55	53.09	3.53	13.14	1051.32	3911.40	297.627
14	-1.30	100	50	26.55	53.09	4.39	14.36	1113.25	3645.44	253.841
15	-1.40	100	51	26.55	53.09	5.36	15.60	1172.93	3410.58	218.636
16	-1.50	100	52	26.55	53.09	6.48	16.86	1206.58	3139.79	186.263
17	-1.60	100	52	26.55	53.09	7.73	18.13	1225.32	2873.35	158.458
18	-1.70	100	53	26.55	53.09	9.14	19.43	1236.93	2629.97	135.366
19	-1.80	100	54	26.55	53.09	10.70	20.74	1248.51	2420.27	116.678
20	-1.90	100	55	26.55	53.09	12.43	22.08	1255.77	2230.49	101.033
21	-2.00	100	56	26.55	53.09	14.33	23.43	1265.38	2068.60	88.290
22	-2.10	100	56	26.55	53.09	16.42	24.80	1271.17	1920.40	77.431
23	-2.20	100	57	26.55	53.09	18.69	26.19	1277.79	1790.58	68.363
24	-2.30	100	58	26.55	53.09	21.16	27.60	1286.30	1677.62	60.778
25	-2.40	100	59	26.55	53.09	23.84	29.03	1294.48	1576.23	54.294
26	-2.50	100	59	26.55	53.09	26.73	30.48	1300.56	1482.75	48.648
27	-2.60	100	60	26.55	53.09	29.85	31.95	1308.60	1400.60	43.842
28	-2.70	100	61	26.55	53.09	33.19	33.43	1317.78	1327.35	39.702
29	-2.80	100	62	26.55	53.09	36.77	34.94	1327.95	1261.68	36.111
30	-2.90	100	63	26.55	53.09	40.60	36.46	1339.07	1202.59	32.981
31	-3.00	100	63	26.55	53.09	44.68	38.01	1347.29	1145.99	30.153
32	-3.10	100	64	26.55	53.09	49.03	39.57	1355.09	1093.71	27.641
33	-3.20	100	65	26.55	53.09	53.64	41.15	1363.79	1046.29	25.426
34	-3.30	100	66	26.55	53.09	58.53	42.75	1373.29	1003.11	23.464
35	-3.40	100	66	26.55	53.09	63.70	44.37	1383.50	963.64	21.718
36	-3.50	100	67	26.55	53.09	69.17	46.01	1394.34	927.43	20.157
37	-3.60	100	68	26.55	53.09	74.94	47.67	1405.76	894.13	18.757
38	-3.70	100	69	26.55	53.09	81.03	49.35	1417.69	863.39	17.497
39	-3.80	100	70	26.55	53.09	87.42	51.04	1430.10	834.95	16.358
40	-3.90	100	70	26.55	53.09	94.15	52.76	1442.94	808.57	15.326
41	-4.00	100	71	26.55	53.09	101.21	54.49	1455.40	783.62	14.381
42	-4.10	100	72	26.55	53.09	108.60	56.24	1467.55	760.02	13.513
43	-4.20	100	73	26.55	53.09	116.35	58.02	1479.96	737.95	12.720
44	-4.30	100	73	26.55	53.09	124.46	59.81	1492.60	717.27	11.993
45	-4.40	100	74	26.55	53.09	132.93	61.62	1505.47	697.86	11.325
46	-4.50	100	75	26.55	53.09	141.77	63.45	1518.53	679.60	10.711
47	-4.60	100	76	26.55	53.09	151.00	65.30	1531.78	662.40	10.144
48	-4.70	100	77	26.55	53.09	160.62	67.17	1545.19	646.17	9.620
49	-4.80	100	77	26.55	53.09	170.63	69.05	1558.76	630.83	9.135

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
50	-4.90	100	78	26.55	53.09	181.05	70.96	1572.47	616.31	8.686
51	-5.00	100	79	26.55	53.09	191.88	72.88	1586.32	602.56	8.267
52	-5.10	100	80	26.55	53.09	203.13	74.83	1600.28	589.51	7.878
53	-5.20	100	80	26.55	53.09	214.81	76.79	1614.36	577.11	7.515
54	-5.30	100	81	26.55	53.09	226.93	78.77	1628.54	565.32	7.176
55	-5.40	100	82	26.55	53.09	239.49	80.78	1642.82	554.08	6.860
56	-5.50	100	83	26.55	53.09	252.51	82.80	1657.19	543.38	6.563
57	-5.60	100	84	26.55	53.09	265.99	84.84	1671.65	533.16	6.285
58	-5.70	100	84	26.55	53.09	279.94	86.89	1686.19	523.41	6.023
59	-5.80	100	85	26.55	53.09	294.36	88.97	1700.80	514.08	5.778
60	-5.90	100	86	26.55	53.09	309.27	91.07	1715.48	505.15	5.547
61	-6.00	100	87	26.55	53.09	324.67	93.18	1730.22	496.60	5.329
62	-6.10	100	87	26.55	53.09	340.58	95.32	1745.03	488.40	5.124
63	-6.20	100	88	26.55	53.09	356.99	97.47	1759.90	480.53	4.930
64	-6.30	100	89	26.55	53.09	373.92	99.65	1774.82	472.98	4.747
65	-6.40	100	90	26.55	53.09	391.37	101.84	1789.79	465.73	4.573
66	-6.50	100	91	26.55	53.09	409.36	104.05	1804.82	458.75	4.409

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
1	0.00	100	40	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	26.55	53.09	0.01	0.99	0.00	0.00	100000.000
3	-0.20	100	42	26.55	53.09	0.04	2.00	185.62	8665.54	4333.806
4	-0.30	100	42	26.55	53.09	0.11	3.03	288.00	8126.52	2683.877
5	-0.40	100	43	26.55	53.09	0.21	4.08	390.82	7580.75	1860.142
6	-0.50	100	44	26.55	53.09	0.36	5.14	489.93	7028.80	1366.965
7	-0.60	100	45	26.55	53.09	0.56	6.23	583.29	6493.09	1042.644
8	-0.70	100	45	26.55	53.09	0.82	7.33	669.87	5984.93	816.250
9	-0.80	100	46	26.55	53.09	1.15	8.46	751.05	5521.30	652.944
10	-0.90	100	47	26.55	53.09	1.56	9.60	827.61	5103.62	531.690
11	-1.00	100	48	26.55	53.09	2.05	10.76	899.50	4725.84	439.171
12	-1.10	100	49	26.55	53.09	2.63	11.94	968.32	4390.92	367.692
13	-1.20	100	49	26.55	53.09	3.32	13.14	1033.88	4092.22	311.386
14	-1.30	100	50	26.55	53.09	4.12	14.36	1095.91	3823.76	266.258
15	-1.40	100	51	26.55	53.09	5.03	15.60	1155.76	3585.78	229.867
16	-1.50	100	52	26.55	53.09	6.06	16.86	1213.74	3374.21	200.170
17	-1.60	100	52	26.55	53.09	7.23	18.13	1233.43	3093.48	170.598
18	-1.70	100	53	26.55	53.09	8.53	19.43	1250.30	2846.22	146.496
19	-1.80	100	54	26.55	53.09	9.98	20.74	1263.25	2624.38	126.517
20	-1.90	100	55	26.55	53.09	11.59	22.08	1274.23	2427.70	109.966
21	-2.00	100	56	26.55	53.09	13.35	23.43	1282.67	2251.08	96.078
22	-2.10	100	56	26.55	53.09	15.28	24.80	1293.19	2099.01	84.633
23	-2.20	100	57	26.55	53.09	17.38	26.19	1299.28	1957.56	74.738
24	-2.30	100	58	26.55	53.09	19.67	27.60	1306.60	1833.47	66.424
25	-2.40	100	59	26.55	53.09	22.15	29.03	1315.65	1724.75	59.410
26	-2.50	100	59	26.55	53.09	24.82	30.48	1324.82	1627.13	53.384
27	-2.60	100	60	26.55	53.09	27.69	31.95	1331.45	1536.07	48.082
28	-2.70	100	61	26.55	53.09	30.78	33.43	1339.56	1455.20	43.526
29	-2.80	100	62	26.55	53.09	34.08	34.94	1348.83	1382.83	39.579
30	-2.90	100	63	26.55	53.09	37.61	36.46	1359.16	1317.78	36.140
31	-3.00	100	63	26.55	53.09	41.37	38.01	1370.39	1259.02	33.126
32	-3.10	100	64	26.55	53.09	45.37	39.57	1380.25	1203.80	30.423
33	-3.20	100	65	26.55	53.09	49.62	41.15	1388.02	1151.20	27.975
34	-3.30	100	66	26.55	53.09	54.12	42.75	1396.69	1103.35	25.808
35	-3.40	100	66	26.55	53.09	58.88	44.37	1406.14	1059.65	23.881
36	-3.50	100	67	26.55	53.09	63.91	46.01	1416.30	1019.61	22.160
37	-3.60	100	68	26.55	53.09	69.22	47.67	1427.10	982.79	20.617
38	-3.70	100	69	26.55	53.09	74.81	49.35	1438.46	948.84	19.228
39	-3.80	100	70	26.55	53.09	80.69	51.04	1450.34	917.44	17.974

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
40	-3.90	100	70	26.55	53.09	86.87	52.76	1462.69	888.33	16.838
41	-4.00	100	71	26.55	53.09	93.35	54.49	1475.48	861.28	15.806
42	-4.10	100	72	26.55	53.09	100.15	56.24	1488.54	836.01	14.864
43	-4.20	100	73	26.55	53.09	107.26	58.02	1500.57	811.67	13.990
44	-4.30	100	73	26.55	53.09	114.70	59.81	1512.87	788.87	13.190
45	-4.40	100	74	26.55	53.09	122.47	61.62	1525.41	767.47	12.455
46	-4.50	100	75	26.55	53.09	130.59	63.45	1538.18	747.35	11.779
47	-4.60	100	76	26.55	53.09	139.05	65.30	1551.14	728.40	11.155
48	-4.70	100	77	26.55	53.09	147.87	67.17	1564.30	710.53	10.579
49	-4.80	100	77	26.55	53.09	157.05	69.05	1577.62	693.64	10.045
50	-4.90	100	78	26.55	53.09	166.61	70.96	1591.10	677.66	9.550
51	-5.00	100	79	26.55	53.09	176.54	72.88	1604.73	662.53	9.090
52	-5.10	100	80	26.55	53.09	186.85	74.83	1618.49	648.17	8.662
53	-5.20	100	80	26.55	53.09	197.55	76.79	1632.38	634.53	8.263
54	-5.30	100	81	26.55	53.09	208.66	78.77	1646.39	621.56	7.890
55	-5.40	100	82	26.55	53.09	220.17	80.78	1660.50	609.21	7.542
56	-5.50	100	83	26.55	53.09	232.09	82.80	1674.71	597.44	7.216
57	-5.60	100	84	26.55	53.09	244.43	84.84	1689.02	586.21	6.910
58	-5.70	100	84	26.55	53.09	257.21	86.89	1703.42	575.48	6.623
59	-5.80	100	85	26.55	53.09	270.41	88.97	1717.90	565.23	6.353
60	-5.90	100	86	26.55	53.09	284.06	91.07	1732.45	555.42	6.099
61	-6.00	100	87	26.55	53.09	298.16	93.18	1747.08	546.02	5.860
62	-6.10	100	87	26.55	53.09	312.72	95.32	1761.78	537.01	5.634
63	-6.20	100	88	26.55	53.09	327.74	97.47	1776.54	528.37	5.421
64	-6.30	100	89	26.55	53.09	343.23	99.65	1791.36	520.08	5.219
65	-6.40	100	90	26.55	53.09	359.20	101.84	1806.24	512.11	5.029
66	-6.50	100	91	26.55	53.09	375.65	104.05	1821.18	504.44	4.848

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-1.00	100	110	45.24	22.62	0.00	0.00	0.00	0.00	100000.000
2	-0.90	100	110	45.24	22.62	0.97	0.00	1737.61	0.00	1791.050
3	-0.80	100	110	45.24	22.62	3.87	0.00	1737.61	0.00	449.357
4	-0.70	100	110	45.24	22.62	8.67	0.00	1737.61	0.00	200.428
5	-0.60	100	110	45.24	22.62	15.36	0.00	1737.61	0.00	113.145
6	-0.50	100	110	45.24	22.62	23.91	0.00	1737.61	0.00	72.673
7	-0.40	100	110	45.24	22.62	34.31	0.00	1737.61	0.00	50.650
8	0.51	100	110	22.62	45.24	-1068.78	0.00	-1737.61	0.00	1.626
9	0.60	100	110	22.62	45.24	-1039.26	0.00	-1737.61	0.00	1.672
10	0.70	100	110	22.62	45.24	-1009.76	0.00	-1737.61	0.00	1.721
11	0.80	100	110	22.62	45.24	-980.30	0.00	-1737.61	0.00	1.773
12	0.90	100	110	22.62	45.24	-950.90	0.00	-1737.61	0.00	1.827
13	1.00	100	110	22.62	45.24	-921.57	0.00	-1737.61	0.00	1.885
14	1.10	100	110	22.62	45.24	-892.35	0.00	-1737.61	0.00	1.947
15	1.20	100	110	22.62	45.24	-863.24	0.00	-1737.61	0.00	2.013
16	1.30	100	110	22.62	45.24	-834.28	0.00	-1737.61	0.00	2.083
17	1.40	100	110	22.62	45.24	-805.47	0.00	-1737.61	0.00	2.157
18	1.49	100	110	22.62	45.24	-776.84	0.00	-1737.61	0.00	2.237
19	1.59	100	110	22.62	45.24	-748.41	0.00	-1737.61	0.00	2.322
20	1.69	100	110	22.62	45.24	-720.20	0.00	-1737.61	0.00	2.413
21	1.79	100	110	22.62	45.24	-692.23	0.00	-1737.61	0.00	2.510
22	1.89	100	110	22.62	45.24	-664.52	0.00	-1737.61	0.00	2.615
23	1.99	100	110	22.62	45.24	-637.08	0.00	-1737.61	0.00	2.727
24	2.09	100	110	22.62	45.24	-609.94	0.00	-1737.61	0.00	2.849
25	2.19	100	110	22.62	45.24	-583.12	0.00	-1737.61	0.00	2.980

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
26	2.29	100	110	22.62	45.24	-556.64	0.00	-1737.61	0.00	3.122
27	2.38	100	110	22.62	45.24	-530.52	0.00	-1737.61	0.00	3.275
28	2.48	100	110	22.62	45.24	-504.78	0.00	-1737.61	0.00	3.442
29	2.58	100	110	22.62	45.24	-479.43	0.00	-1737.61	0.00	3.624
30	2.68	100	110	22.62	45.24	-454.50	0.00	-1737.61	0.00	3.823
31	2.78	100	110	22.62	45.24	-430.01	0.00	-1737.61	0.00	4.041
32	2.88	100	110	22.62	45.24	-405.98	0.00	-1737.61	0.00	4.280
33	2.98	100	110	22.62	45.24	-382.43	0.00	-1737.61	0.00	4.544
34	3.08	100	110	22.62	45.24	-359.37	0.00	-1737.61	0.00	4.835
35	3.17	100	110	22.62	45.24	-336.83	0.00	-1737.61	0.00	5.159
36	3.27	100	110	22.62	45.24	-314.83	0.00	-1737.61	0.00	5.519
37	3.37	100	110	22.62	45.24	-293.39	0.00	-1737.61	0.00	5.923
38	3.47	100	110	22.62	45.24	-272.53	0.00	-1737.61	0.00	6.376
39	3.57	100	110	22.62	45.24	-252.26	0.00	-1737.61	0.00	6.888
40	3.67	100	110	22.62	45.24	-232.61	0.00	-1737.61	0.00	7.470
41	3.77	100	110	22.62	45.24	-211.88	0.00	-1737.61	0.00	8.201
42	3.87	100	110	22.62	45.24	-191.24	0.00	-1737.61	0.00	9.086
43	3.97	100	110	22.62	45.24	-171.54	0.00	-1737.61	0.00	10.129
44	4.06	100	110	22.62	45.24	-152.80	0.00	-1737.61	0.00	11.372
45	4.16	100	110	22.62	45.24	-135.05	0.00	-1737.61	0.00	12.867
46	4.26	100	110	22.62	45.24	-118.29	0.00	-1737.61	0.00	14.689
47	4.36	100	110	22.62	45.24	-102.56	0.00	-1737.61	0.00	16.942
48	4.46	100	110	22.62	45.24	-87.87	0.00	-1737.61	0.00	19.776
49	4.56	100	110	22.62	45.24	-74.23	0.00	-1737.61	0.00	23.407
50	4.66	100	110	22.62	45.24	-61.68	0.00	-1737.61	0.00	28.170
51	4.76	100	110	22.62	45.24	-50.23	0.00	-1737.61	0.00	34.591
52	4.86	100	110	22.62	45.24	-39.90	0.00	-1737.61	0.00	43.546
53	4.95	100	110	22.62	45.24	-30.71	0.00	-1737.61	0.00	56.575
54	5.05	100	110	22.62	45.24	-22.68	0.00	-1737.61	0.00	76.599
55	5.15	100	110	22.62	45.24	-15.84	0.00	-1737.61	0.00	109.723
56	5.25	100	110	22.62	45.24	-10.19	0.00	-1737.61	0.00	170.547
57	5.35	100	110	22.62	45.24	-5.76	0.00	-1737.61	0.00	301.621
58	5.45	100	110	22.62	45.24	-2.57	0.00	-1737.61	0.00	675.142
59	5.55	100	110	22.62	45.24	-0.65	0.00	-1737.61	0.00	2686.687
60	5.65	100	110	0.00	0.00	0.00	0.00	0.00	0.00	100000.000

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-1.00	100	110	45.24	22.62	0.00	0.00	0.00	0.00	100000.000
2	-0.90	100	110	45.24	22.62	1.19	0.00	1737.61	0.00	1456.802
3	-0.80	100	110	45.24	22.62	4.75	0.00	1737.61	0.00	365.918
4	-0.70	100	110	45.24	22.62	10.63	0.00	1737.61	0.00	163.401
5	-0.60	100	110	45.24	22.62	18.82	0.00	1737.61	0.00	92.351
6	-0.50	100	110	45.24	22.62	29.26	0.00	1737.61	0.00	59.387
7	-0.40	100	110	45.24	22.62	41.93	0.00	1737.61	0.00	41.439
8	0.51	100	110	22.62	45.24	-700.79	0.00	-1737.61	0.00	2.480
9	0.60	100	110	22.62	45.24	-688.54	0.00	-1737.61	0.00	2.524
10	0.70	100	110	22.62	45.24	-675.70	0.00	-1737.61	0.00	2.572
11	0.80	100	110	22.62	45.24	-662.30	0.00	-1737.61	0.00	2.624
12	0.90	100	110	22.62	45.24	-648.38	0.00	-1737.61	0.00	2.680
13	1.00	100	110	22.62	45.24	-633.97	0.00	-1737.61	0.00	2.741
14	1.10	100	110	22.62	45.24	-619.09	0.00	-1737.61	0.00	2.807
15	1.20	100	110	22.62	45.24	-603.80	0.00	-1737.61	0.00	2.878
16	1.30	100	110	22.62	45.24	-588.10	0.00	-1737.61	0.00	2.955
17	1.40	100	110	22.62	45.24	-572.05	0.00	-1737.61	0.00	3.038
18	1.49	100	110	22.62	45.24	-555.67	0.00	-1737.61	0.00	3.127
19	1.59	100	110	22.62	45.24	-538.99	0.00	-1737.61	0.00	3.224
20	1.69	100	110	22.62	45.24	-522.04	0.00	-1737.61	0.00	3.328
21	1.79	100	110	22.62	45.24	-504.87	0.00	-1737.61	0.00	3.442

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
22	1.89	100	110	22.62	45.24	-487.49	0.00	-1737.61	0.00	3.564
23	1.99	100	110	22.62	45.24	-469.95	0.00	-1737.61	0.00	3.697
24	2.09	100	110	22.62	45.24	-452.27	0.00	-1737.61	0.00	3.842
25	2.19	100	110	22.62	45.24	-434.49	0.00	-1737.61	0.00	3.999
26	2.29	100	110	22.62	45.24	-416.64	0.00	-1737.61	0.00	4.170
27	2.38	100	110	22.62	45.24	-398.76	0.00	-1737.61	0.00	4.358
28	2.48	100	110	22.62	45.24	-380.87	0.00	-1737.61	0.00	4.562
29	2.58	100	110	22.62	45.24	-363.01	0.00	-1737.61	0.00	4.787
30	2.68	100	110	22.62	45.24	-345.20	0.00	-1737.61	0.00	5.034
31	2.78	100	110	22.62	45.24	-327.49	0.00	-1737.61	0.00	5.306
32	2.88	100	110	22.62	45.24	-309.91	0.00	-1737.61	0.00	5.607
33	2.98	100	110	22.62	45.24	-292.48	0.00	-1737.61	0.00	5.941
34	3.08	100	110	22.62	45.24	-275.24	0.00	-1737.61	0.00	6.313
35	3.17	100	110	22.62	45.24	-258.23	0.00	-1737.61	0.00	6.729
36	3.27	100	110	22.62	45.24	-241.46	0.00	-1737.61	0.00	7.196
37	3.37	100	110	22.62	45.24	-224.99	0.00	-1737.61	0.00	7.723
38	3.47	100	110	22.62	45.24	-208.84	0.00	-1737.61	0.00	8.320
39	3.57	100	110	22.62	45.24	-193.04	0.00	-1737.61	0.00	9.002
40	3.67	100	110	22.62	45.24	-177.62	0.00	-1737.61	0.00	9.783
41	3.77	100	110	22.62	45.24	-162.36	0.00	-1737.61	0.00	10.702
42	3.87	100	110	22.62	45.24	-147.47	0.00	-1737.61	0.00	11.782
43	3.97	100	110	22.62	45.24	-133.11	0.00	-1737.61	0.00	13.054
44	4.06	100	110	22.62	45.24	-119.29	0.00	-1737.61	0.00	14.566
45	4.16	100	110	22.62	45.24	-106.06	0.00	-1737.61	0.00	16.383
46	4.26	100	110	22.62	45.24	-93.45	0.00	-1737.61	0.00	18.594
47	4.36	100	110	22.62	45.24	-81.49	0.00	-1737.61	0.00	21.322
48	4.46	100	110	22.62	45.24	-70.22	0.00	-1737.61	0.00	24.747
49	4.56	100	110	22.62	45.24	-59.66	0.00	-1737.61	0.00	29.127
50	4.66	100	110	22.62	45.24	-49.84	0.00	-1737.61	0.00	34.862
51	4.76	100	110	22.62	45.24	-40.81	0.00	-1737.61	0.00	42.577
52	4.86	100	110	22.62	45.24	-32.59	0.00	-1737.61	0.00	53.315
53	4.95	100	110	22.62	45.24	-25.22	0.00	-1737.61	0.00	68.904
54	5.05	100	110	22.62	45.24	-18.72	0.00	-1737.61	0.00	92.811
55	5.15	100	110	22.62	45.24	-13.14	0.00	-1737.61	0.00	132.272
56	5.25	100	110	22.62	45.24	-8.49	0.00	-1737.61	0.00	204.570
57	5.35	100	110	22.62	45.24	-4.83	0.00	-1737.61	0.00	360.012
58	5.45	100	110	22.62	45.24	-2.17	0.00	-1737.61	0.00	801.941
59	5.55	100	110	22.62	45.24	-0.55	0.00	-1737.61	0.00	3176.058
60	5.65	100	110	0.00	0.00	0.00	0.00	0.00	0.00	100000.000

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-1.00	100	110	45.24	22.62	0.00	0.00	0.00	0.00	100000.000
2	-0.90	100	110	45.24	22.62	1.08	0.00	1737.61	0.00	1609.512
3	-0.80	100	110	45.24	22.62	4.30	0.00	1737.61	0.00	404.404
4	-0.70	100	110	45.24	22.62	9.62	0.00	1737.61	0.00	180.645
5	-0.60	100	110	45.24	22.62	17.01	0.00	1737.61	0.00	102.130
6	-0.50	100	110	45.24	22.62	26.45	0.00	1737.61	0.00	65.697
7	-0.40	100	110	45.24	22.62	37.89	0.00	1737.61	0.00	45.858
8	0.51	100	110	22.62	45.24	-926.10	0.00	-1737.61	0.00	1.876
9	0.60	100	110	22.62	45.24	-904.79	0.00	-1737.61	0.00	1.920
10	0.70	100	110	22.62	45.24	-883.10	0.00	-1737.61	0.00	1.968
11	0.80	100	110	22.62	45.24	-861.05	0.00	-1737.61	0.00	2.018
12	0.90	100	110	22.62	45.24	-838.67	0.00	-1737.61	0.00	2.072
13	1.00	100	110	22.62	45.24	-816.01	0.00	-1737.61	0.00	2.129
14	1.10	100	110	22.62	45.24	-793.09	0.00	-1737.61	0.00	2.191
15	1.20	100	110	22.62	45.24	-769.94	0.00	-1737.61	0.00	2.257
16	1.30	100	110	22.62	45.24	-746.59	0.00	-1737.61	0.00	2.327
17	1.40	100	110	22.62	45.24	-723.07	0.00	-1737.61	0.00	2.403

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
18	1.49	100	110	22.62	45.24	-699.42	0.00	-1737.61	0.00	2.484
19	1.59	100	110	22.62	45.24	-675.67	0.00	-1737.61	0.00	2.572
20	1.69	100	110	22.62	45.24	-651.85	0.00	-1737.61	0.00	2.666
21	1.79	100	110	22.62	45.24	-627.98	0.00	-1737.61	0.00	2.767
22	1.89	100	110	22.62	45.24	-604.11	0.00	-1737.61	0.00	2.876
23	1.99	100	110	22.62	45.24	-580.26	0.00	-1737.61	0.00	2.995
24	2.09	100	110	22.62	45.24	-556.46	0.00	-1737.61	0.00	3.123
25	2.19	100	110	22.62	45.24	-532.75	0.00	-1737.61	0.00	3.262
26	2.29	100	110	22.62	45.24	-509.16	0.00	-1737.61	0.00	3.413
27	2.38	100	110	22.62	45.24	-485.71	0.00	-1737.61	0.00	3.577
28	2.48	100	110	22.62	45.24	-462.44	0.00	-1737.61	0.00	3.757
29	2.58	100	110	22.62	45.24	-439.38	0.00	-1737.61	0.00	3.955
30	2.68	100	110	22.62	45.24	-416.57	0.00	-1737.61	0.00	4.171
31	2.78	100	110	22.62	45.24	-394.03	0.00	-1737.61	0.00	4.410
32	2.88	100	110	22.62	45.24	-371.79	0.00	-1737.61	0.00	4.674
33	2.98	100	110	22.62	45.24	-349.88	0.00	-1737.61	0.00	4.966
34	3.08	100	110	22.62	45.24	-328.35	0.00	-1737.61	0.00	5.292
35	3.17	100	110	22.62	45.24	-307.21	0.00	-1737.61	0.00	5.656
36	3.27	100	110	22.62	45.24	-286.51	0.00	-1737.61	0.00	6.065
37	3.37	100	110	22.62	45.24	-266.26	0.00	-1737.61	0.00	6.526
38	3.47	100	110	22.62	45.24	-246.51	0.00	-1737.61	0.00	7.049
39	3.57	100	110	22.62	45.24	-227.28	0.00	-1737.61	0.00	7.645
40	3.67	100	110	22.62	45.24	-208.60	0.00	-1737.61	0.00	8.330
41	3.77	100	110	22.62	45.24	-190.26	0.00	-1737.61	0.00	9.133
42	3.87	100	110	22.62	45.24	-172.45	0.00	-1737.61	0.00	10.076
43	3.97	100	110	22.62	45.24	-155.33	0.00	-1737.61	0.00	11.186
44	4.06	100	110	22.62	45.24	-138.93	0.00	-1737.61	0.00	12.507
45	4.16	100	110	22.62	45.24	-123.29	0.00	-1737.61	0.00	14.094
46	4.26	100	110	22.62	45.24	-108.42	0.00	-1737.61	0.00	16.027
47	4.36	100	110	22.62	45.24	-94.37	0.00	-1737.61	0.00	18.413
48	4.46	100	110	22.62	45.24	-81.16	0.00	-1737.61	0.00	21.410
49	4.56	100	110	22.62	45.24	-68.83	0.00	-1737.61	0.00	25.245
50	4.66	100	110	22.62	45.24	-57.41	0.00	-1737.61	0.00	30.269
51	4.76	100	110	22.62	45.24	-46.92	0.00	-1737.61	0.00	37.032
52	4.86	100	110	22.62	45.24	-37.41	0.00	-1737.61	0.00	46.450
53	4.95	100	110	22.62	45.24	-28.90	0.00	-1737.61	0.00	60.131
54	5.05	100	110	22.62	45.24	-21.42	0.00	-1737.61	0.00	81.127
55	5.15	100	110	22.62	45.24	-15.00	0.00	-1737.61	0.00	115.806
56	5.25	100	110	22.62	45.24	-9.69	0.00	-1737.61	0.00	179.385
57	5.35	100	110	22.62	45.24	-5.50	0.00	-1737.61	0.00	316.178
58	5.45	100	110	22.62	45.24	-2.46	0.00	-1737.61	0.00	705.365
59	5.55	100	110	22.62	45.24	-0.62	0.00	-1737.61	0.00	2797.728
60	5.65	100	110	0.00	0.00	0.00	0.00	0.00	0.00	100000.000

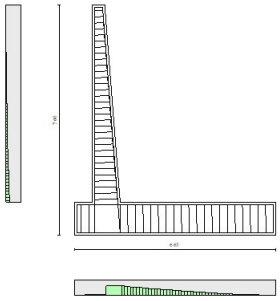


Fig. 10 - Paramento (Inviluppo)

Verifiche a taglio

Simbologia adottata

Is	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
A_{sw}	area ferri a taglio espresso in [cmq]
cotgθ	inclinazione delle bielle compresse, θ inclinazione dei puntoni di calcestruzzo
V_{Rcd}	resistenza di progetto a 'taglio compressione' espressa in [kN]
V_{Rsd}	resistenza di progetto a 'taglio trazione' espressa in [kN]
V_{Rd}	resistenza di progetto a taglio espresso in [kN]. Per elementi con armature trasversali resistenti al taglio (A_{sw}>0.0) V_{Rd}=min(V_{Rcd}, V_{Rsd}).
T	taglio agente espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione resistente e sollecitazione agente)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS

	[m]	[cm]	[cm]	[cmq]	[cm]		[kN]	[kN]	[kN]	[kN]	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	291.33	0.00	100.000
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	296.72	0.04	7914.972
3	-0.20	100	42	0.00	0.00	--	0.00	0.00	302.10	0.15	2014.645
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	307.47	0.34	914.001
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	312.83	0.60	524.920
6	-0.50	100	44	0.00	0.00	--	0.00	0.00	318.18	0.93	342.441
7	-0.60	100	45	0.00	0.00	--	0.00	0.00	323.51	1.34	242.070
8	-0.70	100	45	0.00	0.00	--	0.00	0.00	328.83	1.83	179.935
9	-0.80	100	46	0.00	0.00	--	0.00	0.00	334.13	2.41	138.684
10	-0.90	100	47	0.00	0.00	--	0.00	0.00	337.26	3.08	109.349
11	-1.00	100	48	0.00	0.00	--	0.00	0.00	340.37	3.85	88.320
12	-1.10	100	49	0.00	0.00	--	0.00	0.00	343.45	4.71	72.953
13	-1.20	100	49	0.00	0.00	--	0.00	0.00	346.52	5.64	61.432
14	-1.30	100	50	0.00	0.00	--	0.00	0.00	349.58	6.65	52.566
15	-1.40	100	51	0.00	0.00	--	0.00	0.00	352.61	7.73	45.587
16	-1.50	100	52	0.00	0.00	--	0.00	0.00	355.63	8.89	39.984
17	-1.60	100	52	0.00	0.00	--	0.00	0.00	358.63	10.13	35.408
18	-1.70	100	53	0.00	0.00	--	0.00	0.00	361.61	11.44	31.617
19	-1.80	100	54	0.00	0.00	--	0.00	0.00	364.58	12.82	28.437
20	-1.90	100	55	0.00	0.00	--	0.00	0.00	367.53	14.28	25.741
21	-2.00	100	56	0.00	0.00	--	0.00	0.00	370.47	15.81	23.432
22	-2.10	100	56	0.00	0.00	--	0.00	0.00	373.39	17.42	21.439
23	-2.20	100	57	0.00	0.00	--	0.00	0.00	376.30	19.10	19.705
24	-2.30	100	58	0.00	0.00	--	0.00	0.00	379.20	20.85	18.186
25	-2.40	100	59	0.00	0.00	--	0.00	0.00	382.08	22.68	16.846
26	-2.50	100	59	0.00	0.00	--	0.00	0.00	384.95	24.58	15.659
27	-2.60	100	60	0.00	0.00	--	0.00	0.00	387.81	26.56	14.601
28	-2.70	100	61	0.00	0.00	--	0.00	0.00	390.66	28.61	13.654
29	-2.80	100	62	0.00	0.00	--	0.00	0.00	393.49	30.74	12.802
30	-2.90	100	63	0.00	0.00	--	0.00	0.00	396.31	32.94	12.032
31	-3.00	100	63	0.00	0.00	--	0.00	0.00	399.12	35.21	11.335
32	-3.10	100	64	0.00	0.00	--	0.00	0.00	401.92	37.56	10.701
33	-3.20	100	65	0.00	0.00	--	0.00	0.00	404.71	39.98	10.123
34	-3.30	100	66	0.00	0.00	--	0.00	0.00	407.48	42.48	9.593
35	-3.40	100	66	0.00	0.00	--	0.00	0.00	410.25	45.05	9.107
36	-3.50	100	67	0.00	0.00	--	0.00	0.00	413.01	47.69	8.660
37	-3.60	100	68	0.00	0.00	--	0.00	0.00	415.75	50.41	8.248
38	-3.70	100	69	0.00	0.00	--	0.00	0.00	418.49	53.20	7.866
39	-3.80	100	70	0.00	0.00	--	0.00	0.00	421.22	56.07	7.513
40	-3.90	100	70	0.00	0.00	--	0.00	0.00	423.94	59.01	7.185
41	-4.00	100	71	0.00	0.00	--	0.00	0.00	426.65	62.02	6.879
42	-4.10	100	72	0.00	0.00	--	0.00	0.00	429.35	65.11	6.594
43	-4.20	100	73	0.00	0.00	--	0.00	0.00	432.04	68.27	6.328
44	-4.30	100	73	0.00	0.00	--	0.00	0.00	434.73	71.51	6.079
45	-4.40	100	74	0.00	0.00	--	0.00	0.00	437.41	74.82	5.846
46	-4.50	100	75	0.00	0.00	--	0.00	0.00	440.07	78.20	5.627
47	-4.60	100	76	0.00	0.00	--	0.00	0.00	442.74	81.66	5.422
48	-4.70	100	77	0.00	0.00	--	0.00	0.00	445.39	85.19	5.228
49	-4.80	100	77	0.00	0.00	--	0.00	0.00	448.03	88.80	5.045
50	-4.90	100	78	0.00	0.00	--	0.00	0.00	450.67	92.48	4.873
51	-5.00	100	79	0.00	0.00	--	0.00	0.00	453.30	96.24	4.710
52	-5.10	100	80	0.00	0.00	--	0.00	0.00	455.93	100.06	4.556
53	-5.20	100	80	0.00	0.00	--	0.00	0.00	458.55	103.97	4.410
54	-5.30	100	81	0.00	0.00	--	0.00	0.00	461.16	107.94	4.272
55	-5.40	100	82	0.00	0.00	--	0.00	0.00	463.76	112.00	4.141
56	-5.50	100	83	0.00	0.00	--	0.00	0.00	466.36	116.12	4.016
57	-5.60	100	84	0.00	0.00	--	0.00	0.00	468.95	120.32	3.898
58	-5.70	100	84	0.00	0.00	--	0.00	0.00	471.54	124.59	3.785
59	-5.80	100	85	0.00	0.00	--	0.00	0.00	474.12	129.00	3.675
60	-5.90	100	86	0.00	0.00	--	0.00	0.00	476.69	133.64	3.567
61	-6.00	100	87	0.00	0.00	--	0.00	0.00	479.26	138.50	3.460
62	-6.10	100	87	0.00	0.00	--	0.00	0.00	481.82	143.61	3.355
63	-6.20	100	88	0.00	0.00	--	0.00	0.00	484.38	148.90	3.253
64	-6.30	100	89	0.00	0.00	--	0.00	0.00	486.93	154.27	3.156
65	-6.40	100	90	0.00	0.00	--	0.00	0.00	489.48	159.73	3.064
66	-6.50	100	91	0.00	0.00	--	0.00	0.00	492.02	165.28	2.977

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	291.33	0.00	100.000
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	296.72	0.17	1775.521
3	-0.20	100	42	0.00	0.00	--	0.00	0.00	302.10	0.41	729.799
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	307.47	0.74	415.646
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	312.83	1.14	273.497
6	-0.50	100	44	0.00	0.00	--	0.00	0.00	318.18	1.63	195.612
7	-0.60	100	45	0.00	0.00	--	0.00	0.00	323.51	2.19	147.832
8	-0.70	100	45	0.00	0.00	--	0.00	0.00	328.83	2.84	115.977
9	-0.80	100	46	0.00	0.00	--	0.00	0.00	334.13	3.57	93.545
10	-0.90	100	47	0.00	0.00	--	0.00	0.00	337.26	4.40	76.649
11	-1.00	100	48	0.00	0.00	--	0.00	0.00	340.37	5.32	63.966
12	-1.10	100	49	0.00	0.00	--	0.00	0.00	343.45	6.33	54.271
13	-1.20	100	49	0.00	0.00	--	0.00	0.00	346.52	7.42	46.709
14	-1.30	100	50	0.00	0.00	--	0.00	0.00	349.58	8.59	40.697
15	-1.40	100	51	0.00	0.00	--	0.00	0.00	352.61	9.84	35.832
16	-1.50	100	52	0.00	0.00	--	0.00	0.00	355.63	11.17	31.835
17	-1.60	100	52	0.00	0.00	--	0.00	0.00	358.63	12.58	28.507
18	-1.70	100	53	0.00	0.00	--	0.00	0.00	361.61	14.07	25.702
19	-1.80	100	54	0.00	0.00	--	0.00	0.00	364.58	15.64	23.314
20	-1.90	100	55	0.00	0.00	--	0.00	0.00	367.53	17.29	21.263
21	-2.00	100	56	0.00	0.00	--	0.00	0.00	370.47	19.01	19.486
22	-2.10	100	56	0.00	0.00	--	0.00	0.00	373.39	20.82	17.936
23	-2.20	100	57	0.00	0.00	--	0.00	0.00	376.30	22.70	16.575
24	-2.30	100	58	0.00	0.00	--	0.00	0.00	379.20	24.67	15.373
25	-2.40	100	59	0.00	0.00	--	0.00	0.00	382.08	26.71	14.305
26	-2.50	100	59	0.00	0.00	--	0.00	0.00	384.95	28.83	13.352
27	-2.60	100	60	0.00	0.00	--	0.00	0.00	387.81	31.03	12.497
28	-2.70	100	61	0.00	0.00	--	0.00	0.00	390.66	33.31	11.727
29	-2.80	100	62	0.00	0.00	--	0.00	0.00	393.49	35.67	11.031
30	-2.90	100	63	0.00	0.00	--	0.00	0.00	396.31	38.11	10.399
31	-3.00	100	63	0.00	0.00	--	0.00	0.00	399.12	40.63	9.824
32	-3.10	100	64	0.00	0.00	--	0.00	0.00	401.92	43.22	9.298
33	-3.20	100	65	0.00	0.00	--	0.00	0.00	404.71	45.90	8.817
34	-3.30	100	66	0.00	0.00	--	0.00	0.00	407.48	48.65	8.375
35	-3.40	100	66	0.00	0.00	--	0.00	0.00	410.25	51.49	7.968
36	-3.50	100	67	0.00	0.00	--	0.00	0.00	413.01	54.40	7.592
37	-3.60	100	68	0.00	0.00	--	0.00	0.00	415.75	57.39	7.244
38	-3.70	100	69	0.00	0.00	--	0.00	0.00	418.49	60.46	6.922
39	-3.80	100	70	0.00	0.00	--	0.00	0.00	421.22	63.61	6.622
40	-3.90	100	70	0.00	0.00	--	0.00	0.00	423.94	66.84	6.343
41	-4.00	100	71	0.00	0.00	--	0.00	0.00	426.65	70.15	6.082
42	-4.10	100	72	0.00	0.00	--	0.00	0.00	429.35	73.53	5.839
43	-4.20	100	73	0.00	0.00	--	0.00	0.00	432.04	77.00	5.611
44	-4.30	100	73	0.00	0.00	--	0.00	0.00	434.73	80.54	5.397
45	-4.40	100	74	0.00	0.00	--	0.00	0.00	437.41	84.17	5.197
46	-4.50	100	75	0.00	0.00	--	0.00	0.00	440.07	87.87	5.008
47	-4.60	100	76	0.00	0.00	--	0.00	0.00	442.74	91.65	4.831
48	-4.70	100	77	0.00	0.00	--	0.00	0.00	445.39	95.51	4.663
49	-4.80	100	77	0.00	0.00	--	0.00	0.00	448.03	99.45	4.505
50	-4.90	100	78	0.00	0.00	--	0.00	0.00	450.67	103.47	4.356
51	-5.00	100	79	0.00	0.00	--	0.00	0.00	453.30	107.57	4.214
52	-5.10	100	80	0.00	0.00	--	0.00	0.00	455.93	111.74	4.080
53	-5.20	100	80	0.00	0.00	--	0.00	0.00	458.55	116.00	3.953
54	-5.30	100	81	0.00	0.00	--	0.00	0.00	461.16	120.33	3.832
55	-5.40	100	82	0.00	0.00	--	0.00	0.00	463.76	124.75	3.718
56	-5.50	100	83	0.00	0.00	--	0.00	0.00	466.36	129.24	3.608
57	-5.60	100	84	0.00	0.00	--	0.00	0.00	468.95	133.81	3.505
58	-5.70	100	84	0.00	0.00	--	0.00	0.00	471.54	138.46	3.406
59	-5.80	100	85	0.00	0.00	--	0.00	0.00	474.12	143.19	3.311
60	-5.90	100	86	0.00	0.00	--	0.00	0.00	476.69	148.00	3.221
61	-6.00	100	87	0.00	0.00	--	0.00	0.00	479.26	152.89	3.135

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
62	-6.10	100	87	0.00	0.00	--	0.00	0.00	481.82	157.86	3.052
63	-6.20	100	88	0.00	0.00	--	0.00	0.00	484.38	162.90	2.973
64	-6.30	100	89	0.00	0.00	--	0.00	0.00	486.93	168.03	2.898
65	-6.40	100	90	0.00	0.00	--	0.00	0.00	489.48	173.23	2.826
66	-6.50	100	91	0.00	0.00	--	0.00	0.00	492.02	178.51	2.756

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	291.33	0.00	100.000
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	296.72	0.16	1815.522
3	-0.20	100	42	0.00	0.00	--	0.00	0.00	302.10	0.40	756.722
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	307.47	0.71	435.139
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	312.83	1.08	288.348
6	-0.50	100	44	0.00	0.00	--	0.00	0.00	318.18	1.53	207.346
7	-0.60	100	45	0.00	0.00	--	0.00	0.00	323.51	2.06	157.364
8	-0.70	100	45	0.00	0.00	--	0.00	0.00	328.83	2.65	123.858
9	-0.80	100	46	0.00	0.00	--	0.00	0.00	334.13	3.34	100.152
10	-0.90	100	47	0.00	0.00	--	0.00	0.00	337.26	4.10	82.222
11	-1.00	100	48	0.00	0.00	--	0.00	0.00	340.37	4.95	68.722
12	-1.10	100	49	0.00	0.00	--	0.00	0.00	343.45	5.88	58.381
13	-1.20	100	49	0.00	0.00	--	0.00	0.00	346.52	6.89	50.304
14	-1.30	100	50	0.00	0.00	--	0.00	0.00	349.58	7.97	43.875
15	-1.40	100	51	0.00	0.00	--	0.00	0.00	352.61	9.12	38.668
16	-1.50	100	52	0.00	0.00	--	0.00	0.00	355.63	10.34	34.385
17	-1.60	100	52	0.00	0.00	--	0.00	0.00	358.63	11.64	30.815
18	-1.70	100	53	0.00	0.00	--	0.00	0.00	361.61	13.01	27.805
19	-1.80	100	54	0.00	0.00	--	0.00	0.00	364.58	14.44	25.239
20	-1.90	100	55	0.00	0.00	--	0.00	0.00	367.53	15.96	23.034
21	-2.00	100	56	0.00	0.00	--	0.00	0.00	370.47	17.54	21.123
22	-2.10	100	56	0.00	0.00	--	0.00	0.00	373.39	19.19	19.454
23	-2.20	100	57	0.00	0.00	--	0.00	0.00	376.30	20.92	17.987
24	-2.30	100	58	0.00	0.00	--	0.00	0.00	379.20	22.72	16.691
25	-2.40	100	59	0.00	0.00	--	0.00	0.00	382.08	24.59	15.539
26	-2.50	100	59	0.00	0.00	--	0.00	0.00	384.95	26.53	14.510
27	-2.60	100	60	0.00	0.00	--	0.00	0.00	387.81	28.54	13.586
28	-2.70	100	61	0.00	0.00	--	0.00	0.00	390.66	30.63	12.754
29	-2.80	100	62	0.00	0.00	--	0.00	0.00	393.49	32.79	12.002
30	-2.90	100	63	0.00	0.00	--	0.00	0.00	396.31	35.01	11.319
31	-3.00	100	63	0.00	0.00	--	0.00	0.00	399.12	37.31	10.696
32	-3.10	100	64	0.00	0.00	--	0.00	0.00	401.92	39.69	10.127
33	-3.20	100	65	0.00	0.00	--	0.00	0.00	404.71	42.13	9.606
34	-3.30	100	66	0.00	0.00	--	0.00	0.00	407.48	44.64	9.127
35	-3.40	100	66	0.00	0.00	--	0.00	0.00	410.25	47.23	8.686
36	-3.50	100	67	0.00	0.00	--	0.00	0.00	413.01	49.89	8.278
37	-3.60	100	68	0.00	0.00	--	0.00	0.00	415.75	52.62	7.901
38	-3.70	100	69	0.00	0.00	--	0.00	0.00	418.49	55.42	7.551
39	-3.80	100	70	0.00	0.00	--	0.00	0.00	421.22	58.29	7.226
40	-3.90	100	70	0.00	0.00	--	0.00	0.00	423.94	61.24	6.923
41	-4.00	100	71	0.00	0.00	--	0.00	0.00	426.65	64.26	6.640
42	-4.10	100	72	0.00	0.00	--	0.00	0.00	429.35	67.34	6.375
43	-4.20	100	73	0.00	0.00	--	0.00	0.00	432.04	70.50	6.128
44	-4.30	100	73	0.00	0.00	--	0.00	0.00	434.73	73.74	5.896
45	-4.40	100	74	0.00	0.00	--	0.00	0.00	437.41	77.04	5.678
46	-4.50	100	75	0.00	0.00	--	0.00	0.00	440.07	80.41	5.473
47	-4.60	100	76	0.00	0.00	--	0.00	0.00	442.74	83.86	5.279
48	-4.70	100	77	0.00	0.00	--	0.00	0.00	445.39	87.38	5.097
49	-4.80	100	77	0.00	0.00	--	0.00	0.00	448.03	90.97	4.925
50	-4.90	100	78	0.00	0.00	--	0.00	0.00	450.67	94.63	4.762
51	-5.00	100	79	0.00	0.00	--	0.00	0.00	453.30	98.36	4.608
52	-5.10	100	80	0.00	0.00	--	0.00	0.00	455.93	102.17	4.463
53	-5.20	100	80	0.00	0.00	--	0.00	0.00	458.55	106.04	4.324

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
54	-5.30	100	81	0.00	0.00	--	0.00	0.00	461.16	109.99	4.193
55	-5.40	100	82	0.00	0.00	--	0.00	0.00	463.76	114.01	4.068
56	-5.50	100	83	0.00	0.00	--	0.00	0.00	466.36	118.10	3.949
57	-5.60	100	84	0.00	0.00	--	0.00	0.00	468.95	122.27	3.836
58	-5.70	100	84	0.00	0.00	--	0.00	0.00	471.54	126.50	3.728
59	-5.80	100	85	0.00	0.00	--	0.00	0.00	474.12	130.81	3.625
60	-5.90	100	86	0.00	0.00	--	0.00	0.00	476.69	135.18	3.526
61	-6.00	100	87	0.00	0.00	--	0.00	0.00	479.26	139.63	3.432
62	-6.10	100	87	0.00	0.00	--	0.00	0.00	481.82	144.15	3.342
63	-6.20	100	88	0.00	0.00	--	0.00	0.00	484.38	148.75	3.256
64	-6.30	100	89	0.00	0.00	--	0.00	0.00	486.93	153.41	3.174
65	-6.40	100	90	0.00	0.00	--	0.00	0.00	489.48	158.15	3.095
66	-6.50	100	91	0.00	0.00	--	0.00	0.00	492.02	162.96	3.019

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-1.00	100	110	0.00	0.00	--	0.00	0.00	481.18	0.00	100.000
2	-0.90	100	110	0.00	0.00	--	0.00	0.00	481.18	-19.37	24.843
3	-0.80	100	110	0.00	0.00	--	0.00	0.00	481.18	-38.53	12.488
4	-0.70	100	110	0.00	0.00	--	0.00	0.00	481.18	-57.49	8.370
5	-0.60	100	110	0.00	0.00	--	0.00	0.00	481.18	-76.24	6.312
6	-0.50	100	110	0.00	0.00	--	0.00	0.00	481.18	-94.78	5.077
7	-0.40	100	110	0.00	0.00	--	0.00	0.00	481.18	-113.12	4.254
8	0.51	100	110	0.00	0.00	--	0.00	0.00	481.18	-324.94	1.481
9	0.60	100	110	0.00	0.00	--	0.00	0.00	481.18	-324.85	1.481
10	0.70	100	110	0.00	0.00	--	0.00	0.00	481.18	-324.55	1.483
11	0.80	100	110	0.00	0.00	--	0.00	0.00	481.18	-324.05	1.485
12	0.90	100	110	0.00	0.00	--	0.00	0.00	481.18	-323.35	1.488
13	1.00	100	110	0.00	0.00	--	0.00	0.00	481.18	-322.45	1.492
14	1.10	100	110	0.00	0.00	--	0.00	0.00	481.18	-321.35	1.497
15	1.20	100	110	0.00	0.00	--	0.00	0.00	481.18	-320.05	1.503
16	1.30	100	110	0.00	0.00	--	0.00	0.00	481.18	-318.54	1.511
17	1.40	100	110	0.00	0.00	--	0.00	0.00	481.18	-316.83	1.519
18	1.49	100	110	0.00	0.00	--	0.00	0.00	481.18	-314.93	1.528
19	1.59	100	110	0.00	0.00	--	0.00	0.00	481.18	-312.81	1.538
20	1.69	100	110	0.00	0.00	--	0.00	0.00	481.18	-310.50	1.550
21	1.79	100	110	0.00	0.00	--	0.00	0.00	481.18	-307.99	1.562
22	1.89	100	110	0.00	0.00	--	0.00	0.00	481.18	-305.27	1.576
23	1.99	100	110	0.00	0.00	--	0.00	0.00	481.18	-302.35	1.591
24	2.09	100	110	0.00	0.00	--	0.00	0.00	481.18	-299.23	1.608
25	2.19	100	110	0.00	0.00	--	0.00	0.00	481.18	-295.91	1.626
26	2.29	100	110	0.00	0.00	--	0.00	0.00	481.18	-292.39	1.646
27	2.38	100	110	0.00	0.00	--	0.00	0.00	481.18	-288.66	1.667
28	2.48	100	110	0.00	0.00	--	0.00	0.00	481.18	-284.73	1.690
29	2.58	100	110	0.00	0.00	--	0.00	0.00	481.18	-280.61	1.715
30	2.68	100	110	0.00	0.00	--	0.00	0.00	481.18	-276.27	1.742
31	2.78	100	110	0.00	0.00	--	0.00	0.00	481.18	-271.74	1.771
32	2.88	100	110	0.00	0.00	--	0.00	0.00	481.18	-267.01	1.802
33	2.98	100	110	0.00	0.00	--	0.00	0.00	481.18	-262.07	1.836
34	3.08	100	110	0.00	0.00	--	0.00	0.00	481.18	-256.93	1.873
35	3.17	100	110	0.00	0.00	--	0.00	0.00	481.18	-251.60	1.912
36	3.27	100	110	0.00	0.00	--	0.00	0.00	481.18	-246.05	1.956
37	3.37	100	110	0.00	0.00	--	0.00	0.00	481.18	-240.31	2.002
38	3.47	100	110	0.00	0.00	--	0.00	0.00	481.18	-234.37	2.053
39	3.57	100	110	0.00	0.00	--	0.00	0.00	481.18	-228.22	2.108

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
40	3.67	100	110	0.00	0.00	--	0.00	0.00	481.18	-221.87	2.169
41	3.77	100	110	0.00	0.00	--	0.00	0.00	481.18	-213.49	2.254
42	3.87	100	110	0.00	0.00	--	0.00	0.00	481.18	-204.07	2.358
43	3.97	100	110	0.00	0.00	--	0.00	0.00	481.18	-194.45	2.475
44	4.06	100	110	0.00	0.00	--	0.00	0.00	481.18	-184.63	2.606
45	4.16	100	110	0.00	0.00	--	0.00	0.00	481.18	-174.60	2.756
46	4.26	100	110	0.00	0.00	--	0.00	0.00	481.18	-164.37	2.927
47	4.36	100	110	0.00	0.00	--	0.00	0.00	481.18	-153.94	3.126
48	4.46	100	110	0.00	0.00	--	0.00	0.00	481.18	-143.31	3.358
49	4.56	100	110	0.00	0.00	--	0.00	0.00	481.18	-132.48	3.632
50	4.66	100	110	0.00	0.00	--	0.00	0.00	481.18	-121.44	3.962
51	4.76	100	110	0.00	0.00	--	0.00	0.00	481.18	-110.21	4.366
52	4.86	100	110	0.00	0.00	--	0.00	0.00	481.18	-98.77	4.872
53	4.95	100	110	0.00	0.00	--	0.00	0.00	481.18	-87.13	5.523
54	5.05	100	110	0.00	0.00	--	0.00	0.00	481.18	-75.29	6.391
55	5.15	100	110	0.00	0.00	--	0.00	0.00	481.18	-63.24	7.608
56	5.25	100	110	0.00	0.00	--	0.00	0.00	481.18	-51.00	9.435
57	5.35	100	110	0.00	0.00	--	0.00	0.00	481.18	-38.55	12.481
58	5.45	100	110	0.00	0.00	--	0.00	0.00	481.18	-25.90	18.576
59	5.55	100	110	0.00	0.00	--	0.00	0.00	481.18	-13.05	36.865
60	5.65	100	110	0.00	0.00	--	0.00	0.00	341.04	0.00	100.000

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-1.00	100	110	0.00	0.00	--	0.00	0.00	481.18	0.00	100.000
2	-0.90	100	110	0.00	0.00	--	0.00	0.00	481.18	-23.80	20.218
3	-0.80	100	110	0.00	0.00	--	0.00	0.00	481.18	-47.26	10.181
4	-0.70	100	110	0.00	0.00	--	0.00	0.00	481.18	-70.39	6.836
5	-0.60	100	110	0.00	0.00	--	0.00	0.00	481.18	-93.18	5.164
6	-0.50	100	110	0.00	0.00	--	0.00	0.00	481.18	-115.64	4.161
7	-0.40	100	110	0.00	0.00	--	0.00	0.00	481.18	-137.76	3.493
8	0.51	100	110	0.00	0.00	--	0.00	0.00	481.18	-124.75	3.857
9	0.60	100	110	0.00	0.00	--	0.00	0.00	481.18	-130.87	3.677
10	0.70	100	110	0.00	0.00	--	0.00	0.00	481.18	-136.67	3.521
11	0.80	100	110	0.00	0.00	--	0.00	0.00	481.18	-142.13	3.385
12	0.90	100	110	0.00	0.00	--	0.00	0.00	481.18	-147.27	3.267
13	1.00	100	110	0.00	0.00	--	0.00	0.00	481.18	-152.07	3.164
14	1.10	100	110	0.00	0.00	--	0.00	0.00	481.18	-156.55	3.074
15	1.20	100	110	0.00	0.00	--	0.00	0.00	481.18	-160.71	2.994
16	1.30	100	110	0.00	0.00	--	0.00	0.00	481.18	-164.53	2.925
17	1.40	100	110	0.00	0.00	--	0.00	0.00	481.18	-168.02	2.864
18	1.49	100	110	0.00	0.00	--	0.00	0.00	481.18	-171.19	2.811
19	1.59	100	110	0.00	0.00	--	0.00	0.00	481.18	-174.03	2.765
20	1.69	100	110	0.00	0.00	--	0.00	0.00	481.18	-176.54	2.726
21	1.79	100	110	0.00	0.00	--	0.00	0.00	481.18	-178.72	2.692
22	1.89	100	110	0.00	0.00	--	0.00	0.00	481.18	-180.57	2.665
23	1.99	100	110	0.00	0.00	--	0.00	0.00	481.18	-182.10	2.642
24	2.09	100	110	0.00	0.00	--	0.00	0.00	481.18	-183.30	2.625
25	2.19	100	110	0.00	0.00	--	0.00	0.00	481.18	-184.16	2.613
26	2.29	100	110	0.00	0.00	--	0.00	0.00	481.18	-184.71	2.605
27	2.38	100	110	0.00	0.00	--	0.00	0.00	481.18	-184.92	2.602
28	2.48	100	110	0.00	0.00	--	0.00	0.00	481.18	-184.80	2.604
29	2.58	100	110	0.00	0.00	--	0.00	0.00	481.18	-184.36	2.610
30	2.68	100	110	0.00	0.00	--	0.00	0.00	481.18	-183.59	2.621
31	2.78	100	110	0.00	0.00	--	0.00	0.00	481.18	-182.48	2.637
32	2.88	100	110	0.00	0.00	--	0.00	0.00	481.18	-181.06	2.658
33	2.98	100	110	0.00	0.00	--	0.00	0.00	481.18	-179.30	2.684
34	3.08	100	110	0.00	0.00	--	0.00	0.00	481.18	-177.21	2.715
35	3.17	100	110	0.00	0.00	--	0.00	0.00	481.18	-174.80	2.753
36	3.27	100	110	0.00	0.00	--	0.00	0.00	481.18	-172.06	2.797
37	3.37	100	110	0.00	0.00	--	0.00	0.00	481.18	-168.99	2.847

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
38	3.47	100	110	0.00	0.00	--	0.00	0.00	481.18	-165.59	2.906
39	3.57	100	110	0.00	0.00	--	0.00	0.00	481.18	-161.86	2.973
40	3.67	100	110	0.00	0.00	--	0.00	0.00	481.18	-157.81	3.049
41	3.77	100	110	0.00	0.00	--	0.00	0.00	481.18	-153.15	3.142
42	3.87	100	110	0.00	0.00	--	0.00	0.00	481.18	-148.05	3.250
43	3.97	100	110	0.00	0.00	--	0.00	0.00	481.18	-142.61	3.374
44	4.06	100	110	0.00	0.00	--	0.00	0.00	481.18	-136.85	3.516
45	4.16	100	110	0.00	0.00	--	0.00	0.00	481.18	-130.76	3.680
46	4.26	100	110	0.00	0.00	--	0.00	0.00	481.18	-124.34	3.870
47	4.36	100	110	0.00	0.00	--	0.00	0.00	481.18	-117.59	4.092
48	4.46	100	110	0.00	0.00	--	0.00	0.00	481.18	-110.52	4.354
49	4.56	100	110	0.00	0.00	--	0.00	0.00	481.18	-103.11	4.667
50	4.66	100	110	0.00	0.00	--	0.00	0.00	481.18	-95.38	5.045
51	4.76	100	110	0.00	0.00	--	0.00	0.00	481.18	-87.32	5.511
52	4.86	100	110	0.00	0.00	--	0.00	0.00	481.18	-78.93	6.096
53	4.95	100	110	0.00	0.00	--	0.00	0.00	481.18	-70.21	6.853
54	5.05	100	110	0.00	0.00	--	0.00	0.00	481.18	-61.17	7.867
55	5.15	100	110	0.00	0.00	--	0.00	0.00	481.18	-51.79	9.291
56	5.25	100	110	0.00	0.00	--	0.00	0.00	481.18	-42.09	11.432
57	5.35	100	110	0.00	0.00	--	0.00	0.00	481.18	-32.06	15.009
58	5.45	100	110	0.00	0.00	--	0.00	0.00	481.18	-21.70	22.172
59	5.55	100	110	0.00	0.00	--	0.00	0.00	481.18	-11.01	43.684
60	5.65	100	110	0.00	0.00	--	0.00	0.00	341.04	0.00	100.000

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-1.00	100	110	0.00	0.00	--	0.00	0.00	481.18	0.00	100.000
2	-0.90	100	110	0.00	0.00	--	0.00	0.00	481.18	-21.54	22.341
3	-0.80	100	110	0.00	0.00	--	0.00	0.00	481.18	-42.75	11.255
4	-0.70	100	110	0.00	0.00	--	0.00	0.00	481.18	-63.64	7.561
5	-0.60	100	110	0.00	0.00	--	0.00	0.00	481.18	-84.20	5.714
6	-0.50	100	110	0.00	0.00	--	0.00	0.00	481.18	-104.44	4.607
7	-0.40	100	110	0.00	0.00	--	0.00	0.00	481.18	-124.36	3.869
8	0.51	100	110	0.00	0.00	--	0.00	0.00	481.18	-217.44	2.213
9	0.60	100	110	0.00	0.00	--	0.00	0.00	481.18	-221.49	2.172
10	0.70	100	110	0.00	0.00	--	0.00	0.00	481.18	-225.23	2.136
11	0.80	100	110	0.00	0.00	--	0.00	0.00	481.18	-228.65	2.104
12	0.90	100	110	0.00	0.00	--	0.00	0.00	481.18	-231.75	2.076
13	1.00	100	110	0.00	0.00	--	0.00	0.00	481.18	-234.54	2.052
14	1.10	100	110	0.00	0.00	--	0.00	0.00	481.18	-237.01	2.030
15	1.20	100	110	0.00	0.00	--	0.00	0.00	481.18	-239.16	2.012
16	1.30	100	110	0.00	0.00	--	0.00	0.00	481.18	-241.00	1.997
17	1.40	100	110	0.00	0.00	--	0.00	0.00	481.18	-242.51	1.984
18	1.49	100	110	0.00	0.00	--	0.00	0.00	481.18	-243.71	1.974
19	1.59	100	110	0.00	0.00	--	0.00	0.00	481.18	-244.60	1.967
20	1.69	100	110	0.00	0.00	--	0.00	0.00	481.18	-245.16	1.963
21	1.79	100	110	0.00	0.00	--	0.00	0.00	481.18	-245.41	1.961
22	1.89	100	110	0.00	0.00	--	0.00	0.00	481.18	-245.35	1.961
23	1.99	100	110	0.00	0.00	--	0.00	0.00	481.18	-244.96	1.964
24	2.09	100	110	0.00	0.00	--	0.00	0.00	481.18	-244.26	1.970
25	2.19	100	110	0.00	0.00	--	0.00	0.00	481.18	-243.24	1.978
26	2.29	100	110	0.00	0.00	--	0.00	0.00	481.18	-241.90	1.989
27	2.38	100	110	0.00	0.00	--	0.00	0.00	481.18	-240.25	2.003
28	2.48	100	110	0.00	0.00	--	0.00	0.00	481.18	-238.28	2.019
29	2.58	100	110	0.00	0.00	--	0.00	0.00	481.18	-235.99	2.039
30	2.68	100	110	0.00	0.00	--	0.00	0.00	481.18	-233.39	2.062
31	2.78	100	110	0.00	0.00	--	0.00	0.00	481.18	-230.46	2.088
32	2.88	100	110	0.00	0.00	--	0.00	0.00	481.18	-227.23	2.118
33	2.98	100	110	0.00	0.00	--	0.00	0.00	481.18	-223.67	2.151
34	3.08	100	110	0.00	0.00	--	0.00	0.00	481.18	-219.80	2.189
35	3.17	100	110	0.00	0.00	--	0.00	0.00	481.18	-215.61	2.232

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
36	3.27	100	110	0.00	0.00	--	0.00	0.00	481.18	-211.10	2.279
37	3.37	100	110	0.00	0.00	--	0.00	0.00	481.18	-206.27	2.333
38	3.47	100	110	0.00	0.00	--	0.00	0.00	481.18	-201.13	2.392
39	3.57	100	110	0.00	0.00	--	0.00	0.00	481.18	-195.67	2.459
40	3.67	100	110	0.00	0.00	--	0.00	0.00	481.18	-189.90	2.534
41	3.77	100	110	0.00	0.00	--	0.00	0.00	481.18	-183.53	2.622
42	3.87	100	110	0.00	0.00	--	0.00	0.00	481.18	-176.73	2.723
43	3.97	100	110	0.00	0.00	--	0.00	0.00	481.18	-169.60	2.837
44	4.06	100	110	0.00	0.00	--	0.00	0.00	481.18	-162.17	2.967
45	4.16	100	110	0.00	0.00	--	0.00	0.00	481.18	-154.41	3.116
46	4.26	100	110	0.00	0.00	--	0.00	0.00	481.18	-146.33	3.288
47	4.36	100	110	0.00	0.00	--	0.00	0.00	481.18	-137.94	3.488
48	4.46	100	110	0.00	0.00	--	0.00	0.00	481.18	-129.23	3.723
49	4.56	100	110	0.00	0.00	--	0.00	0.00	481.18	-120.21	4.003
50	4.66	100	110	0.00	0.00	--	0.00	0.00	481.18	-110.87	4.340
51	4.76	100	110	0.00	0.00	--	0.00	0.00	481.18	-101.21	4.754
52	4.86	100	110	0.00	0.00	--	0.00	0.00	481.18	-91.23	5.274
53	4.95	100	110	0.00	0.00	--	0.00	0.00	481.18	-80.94	5.945
54	5.05	100	110	0.00	0.00	--	0.00	0.00	481.18	-70.33	6.842
55	5.15	100	110	0.00	0.00	--	0.00	0.00	481.18	-59.40	8.101
56	5.25	100	110	0.00	0.00	--	0.00	0.00	481.18	-48.15	9.993
57	5.35	100	110	0.00	0.00	--	0.00	0.00	481.18	-36.59	13.151
58	5.45	100	110	0.00	0.00	--	0.00	0.00	481.18	-24.71	19.473
59	5.55	100	110	0.00	0.00	--	0.00	0.00	481.18	-12.51	38.452
60	5.65	100	110	0.00	0.00	--	0.00	0.00	341.04	0.00	100.000

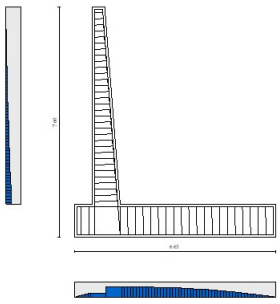


Fig. 11 - Paramento (Inviluppo)

Verifica delle tensioni

Simbologia adottata

n°	indice sezione
Y	ordinata sezione, espressa in [m]
B	larghezza sezione, espresso in [cm]
H	altezza sezione, espressa in [cm]
Afi	area ferri inferiori, espresso in [cmq]
Afs	area ferri superiori, espressa in [cmq]
M	momento agente, espressa in [kNm]
N	sforzo normale agente, espressa in [kN]
σc	tensione di compressione nel cls, espressa in [kPa]
σfi	tensione nei ferri inferiori, espressa in [kPa]
σfs	tensione nei ferri superiori, espressa in [kPa]

Combinazioni SLER

Paramento

Combinazione n° 10 - SLER

Tensione massima di compressione nel calcestruzzo 19920 [kPa]

Tensione massima di trazione dell'acciaio 360000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	26.55	53.09	0.00	0.00	0	0	0
2	-0.10	100	41	26.55	53.09	0.00	0.99	2	25	32
3	-0.20	100	42	26.55	53.09	0.02	2.00	5	47	66
4	-0.30	100	42	26.55	53.09	0.04	3.03	7	66	104
5	-0.40	100	43	26.55	53.09	0.09	4.08	11	80	147
6	-0.50	100	44	26.55	53.09	0.17	5.14	14	89	195
7	-0.60	100	45	26.55	53.09	0.28	6.23	19	91	251
8	-0.70	100	45	26.55	53.09	0.42	7.33	24	86	313
9	-0.80	100	46	26.55	53.09	0.62	8.46	30	73	385
10	-0.90	100	47	26.55	53.09	0.86	9.60	36	50	466
11	-1.00	100	48	26.55	53.09	1.17	10.76	44	9	560
12	-1.10	100	49	26.55	53.09	1.54	11.94	53	56	668
13	-1.20	100	49	26.55	53.09	1.98	13.14	64	149	791
14	-1.30	100	50	26.55	53.09	2.50	14.36	76	272	929
15	-1.40	100	51	26.55	53.09	3.11	15.60	89	427	1081
16	-1.50	100	52	26.55	53.09	3.81	16.86	104	616	1248
17	-1.60	100	52	26.55	53.09	4.60	18.13	120	839	1430
18	-1.70	100	53	26.55	53.09	5.49	19.43	137	1098	1626
19	-1.80	100	54	26.55	53.09	6.50	20.74	156	1393	1837
20	-1.90	100	55	26.55	53.09	7.61	22.08	176	1724	2062
21	-2.00	100	56	26.55	53.09	8.85	23.43	197	2091	2302
22	-2.10	100	56	26.55	53.09	10.21	24.80	220	2496	2557

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
23	-2.20	100	57	26.55	53.09	11.70	26.19	244	2939	2826
24	-2.30	100	58	26.55	53.09	13.33	27.60	269	3420	3109
25	-2.40	100	59	26.55	53.09	15.10	29.03	296	3939	3408
26	-2.50	100	59	26.55	53.09	17.02	30.48	323	4497	3721
27	-2.60	100	60	26.55	53.09	19.09	31.95	352	5095	4049
28	-2.70	100	61	26.55	53.09	21.32	33.43	382	5733	4391
29	-2.80	100	62	26.55	53.09	23.72	34.94	414	6410	4748
30	-2.90	100	63	26.55	53.09	26.29	36.46	446	7128	5120
31	-3.00	100	63	26.55	53.09	29.04	38.01	480	7887	5507
32	-3.10	100	64	26.55	53.09	31.97	39.57	515	8687	5908
33	-3.20	100	65	26.55	53.09	35.08	41.15	551	9528	6324
34	-3.30	100	66	26.55	53.09	38.40	42.75	589	10411	6754
35	-3.40	100	66	26.55	53.09	41.91	44.37	627	11335	7199
36	-3.50	100	67	26.55	53.09	45.63	46.01	667	12302	7658
37	-3.60	100	68	26.55	53.09	49.56	47.67	708	13311	8131
38	-3.70	100	69	26.55	53.09	53.70	49.35	750	14362	8619
39	-3.80	100	70	26.55	53.09	58.08	51.04	793	15456	9121
40	-3.90	100	70	26.55	53.09	62.68	52.76	837	16593	9637
41	-4.00	100	71	26.55	53.09	67.51	54.49	882	17773	10168
42	-4.10	100	72	26.55	53.09	72.59	56.24	929	18996	10712
43	-4.20	100	73	26.55	53.09	77.91	58.02	976	20263	11270
44	-4.30	100	73	26.55	53.09	83.48	59.81	1025	21573	11842
45	-4.40	100	74	26.55	53.09	89.31	61.62	1074	22927	12428
46	-4.50	100	75	26.55	53.09	95.41	63.45	1125	24325	13028
47	-4.60	100	76	26.55	53.09	101.77	65.30	1176	25767	13641
48	-4.70	100	77	26.55	53.09	108.41	67.17	1229	27253	14267
49	-4.80	100	77	26.55	53.09	115.34	69.05	1283	28783	14908
50	-4.90	100	78	26.55	53.09	122.54	70.96	1337	30358	15561
51	-5.00	100	79	26.55	53.09	130.04	72.88	1393	31977	16228
52	-5.10	100	80	26.55	53.09	137.84	74.83	1450	33641	16908
53	-5.20	100	80	26.55	53.09	145.95	76.79	1507	35349	17601
54	-5.30	100	81	26.55	53.09	154.36	78.77	1566	37102	18307
55	-5.40	100	82	26.55	53.09	163.09	80.78	1625	38900	19026
56	-5.50	100	83	26.55	53.09	172.14	82.80	1686	40743	19758
57	-5.60	100	84	26.55	53.09	181.51	84.84	1747	42631	20503
58	-5.70	100	84	26.55	53.09	191.22	86.89	1810	44564	21260
59	-5.80	100	85	26.55	53.09	201.27	88.97	1873	46542	22030
60	-5.90	100	86	26.55	53.09	211.67	91.07	1937	48568	22814
61	-6.00	100	87	26.55	53.09	222.45	93.18	2003	50644	23612
62	-6.10	100	87	26.55	53.09	233.61	95.32	2069	52774	24425
63	-6.20	100	88	26.55	53.09	245.17	97.47	2137	54959	25254
64	-6.30	100	89	26.55	53.09	257.15	99.65	2206	57201	26100
65	-6.40	100	90	26.55	53.09	269.54	101.84	2276	59501	26962
66	-6.50	100	91	26.55	53.09	282.37	104.05	2348	61857	27840

Fondazione

Combinazione n° 10 - SLER

Tensione massima di compressione nel calcestruzzo	17430	[kPa]
Tensione massima di trazione dell'acciaio	360000	[kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-1.00	100	110	45.24	22.62	0.00	0.00	0	0	0
2	-0.90	100	110	45.24	22.62	0.85	0.00	5	199	61
3	-0.80	100	110	45.24	22.62	3.38	0.00	21	792	243
4	-0.70	100	110	45.24	22.62	7.58	0.00	47	1777	545
5	-0.60	100	110	45.24	22.62	13.45	0.00	83	3150	967
6	-0.50	100	110	45.24	22.62	20.95	0.00	129	4908	1507
7	-0.40	100	110	45.24	22.62	30.09	0.00	185	7047	2163
8	0.51	100	110	22.62	45.24	-428.05	0.00	2627	30780	100265
9	0.60	100	110	22.62	45.24	-419.51	0.00	2575	30166	98265
10	0.70	100	110	22.62	45.24	-410.76	0.00	2521	29536	96215
11	0.80	100	110	22.62	45.24	-401.81	0.00	2466	28893	94118
12	0.90	100	110	22.62	45.24	-392.67	0.00	2410	28235	91978
13	1.00	100	110	22.62	45.24	-383.36	0.00	2353	27566	89796
14	1.10	100	110	22.62	45.24	-373.88	0.00	2295	26885	87577
15	1.20	100	110	22.62	45.24	-364.27	0.00	2236	26193	85324
16	1.30	100	110	22.62	45.24	-354.51	0.00	2176	25492	83040
17	1.40	100	110	22.62	45.24	-344.64	0.00	2115	24782	80728
18	1.49	100	110	22.62	45.24	-334.67	0.00	2054	24065	78391
19	1.59	100	110	22.62	45.24	-324.60	0.00	1992	23341	76033
20	1.69	100	110	22.62	45.24	-314.45	0.00	1930	22611	73656
21	1.79	100	110	22.62	45.24	-304.24	0.00	1867	21877	71264
22	1.89	100	110	22.62	45.24	-293.98	0.00	1804	21139	68860
23	1.99	100	110	22.62	45.24	-283.68	0.00	1741	20398	66447
24	2.09	100	110	22.62	45.24	-273.35	0.00	1678	19656	64029
25	2.19	100	110	22.62	45.24	-263.02	0.00	1614	18913	61608
26	2.29	100	110	22.62	45.24	-252.68	0.00	1551	18170	59188
27	2.38	100	110	22.62	45.24	-242.37	0.00	1488	17428	56771
28	2.48	100	110	22.62	45.24	-232.08	0.00	1424	16688	54362
29	2.58	100	110	22.62	45.24	-221.84	0.00	1362	15952	51963
30	2.68	100	110	22.62	45.24	-211.65	0.00	1299	15219	49577
31	2.78	100	110	22.62	45.24	-201.54	0.00	1237	14492	47208
32	2.88	100	110	22.62	45.24	-191.51	0.00	1175	13771	44859
33	2.98	100	110	22.62	45.24	-181.58	0.00	1114	13057	42532
34	3.08	100	110	22.62	45.24	-171.76	0.00	1054	12350	40232
35	3.17	100	110	22.62	45.24	-162.06	0.00	995	11653	37961
36	3.27	100	110	22.62	45.24	-152.51	0.00	936	10966	35722
37	3.37	100	110	22.62	45.24	-143.10	0.00	878	10290	33519
38	3.47	100	110	22.62	45.24	-133.86	0.00	822	9626	31355
39	3.57	100	110	22.62	45.24	-124.80	0.00	766	8974	29233
40	3.67	100	110	22.62	45.24	-115.94	0.00	712	8337	27156
41	3.77	100	110	22.62	45.24	-106.00	0.00	651	7622	24830
42	3.87	100	110	22.62	45.24	-95.87	0.00	588	6894	22456
43	3.97	100	110	22.62	45.24	-86.17	0.00	529	6196	20184
44	4.06	100	110	22.62	45.24	-76.91	0.00	472	5530	18015
45	4.16	100	110	22.62	45.24	-68.10	0.00	418	4897	15952
46	4.26	100	110	22.62	45.24	-59.77	0.00	367	4298	14000
47	4.36	100	110	22.62	45.24	-51.92	0.00	319	3733	12161
48	4.46	100	110	22.62	45.24	-44.56	0.00	274	3204	10438
49	4.56	100	110	22.62	45.24	-37.72	0.00	232	2712	8835
50	4.66	100	110	22.62	45.24	-31.40	0.00	193	2258	7355
51	4.76	100	110	22.62	45.24	-25.62	0.00	157	1842	6000
52	4.86	100	110	22.62	45.24	-20.38	0.00	125	1466	4775
53	4.95	100	110	22.62	45.24	-15.72	0.00	96	1130	3682
54	5.05	100	110	22.62	45.24	-11.63	0.00	71	836	2724
55	5.15	100	110	22.62	45.24	-8.13	0.00	50	585	1905
56	5.25	100	110	22.62	45.24	-5.24	0.00	32	377	1228
57	5.35	100	110	22.62	45.24	-2.97	0.00	18	213	695
58	5.45	100	110	22.62	45.24	-1.33	0.00	8	96	311
59	5.55	100	110	22.62	45.24	-0.33	0.00	2	24	78
60	5.65	100	110	0.00	0.00	0.00	0.00	0	0	0

Combinazioni SLEF

Paramento

Combinazione n° 11 - SLEF

Tensione massima di compressione nel calcestruzzo 33200 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	26.55	53.09	0.00	0.00	0	0	0
2	-0.10	100	41	26.55	53.09	0.00	0.99	2	25	32
3	-0.20	100	42	26.55	53.09	0.02	2.00	5	47	66
4	-0.30	100	42	26.55	53.09	0.04	3.03	7	66	104
5	-0.40	100	43	26.55	53.09	0.09	4.08	11	80	147
6	-0.50	100	44	26.55	53.09	0.17	5.14	14	89	195
7	-0.60	100	45	26.55	53.09	0.28	6.23	19	91	251
8	-0.70	100	45	26.55	53.09	0.42	7.33	24	86	313
9	-0.80	100	46	26.55	53.09	0.62	8.46	30	73	385
10	-0.90	100	47	26.55	53.09	0.86	9.60	36	50	466
11	-1.00	100	48	26.55	53.09	1.17	10.76	44	9	560
12	-1.10	100	49	26.55	53.09	1.54	11.94	53	56	668
13	-1.20	100	49	26.55	53.09	1.98	13.14	64	149	791
14	-1.30	100	50	26.55	53.09	2.50	14.36	76	272	929
15	-1.40	100	51	26.55	53.09	3.11	15.60	89	427	1081
16	-1.50	100	52	26.55	53.09	3.81	16.86	104	616	1248
17	-1.60	100	52	26.55	53.09	4.60	18.13	120	839	1430
18	-1.70	100	53	26.55	53.09	5.49	19.43	137	1098	1626
19	-1.80	100	54	26.55	53.09	6.50	20.74	156	1393	1837
20	-1.90	100	55	26.55	53.09	7.61	22.08	176	1724	2062
21	-2.00	100	56	26.55	53.09	8.85	23.43	197	2091	2302
22	-2.10	100	56	26.55	53.09	10.21	24.80	220	2496	2557
23	-2.20	100	57	26.55	53.09	11.70	26.19	244	2939	2826
24	-2.30	100	58	26.55	53.09	13.33	27.60	269	3420	3109
25	-2.40	100	59	26.55	53.09	15.10	29.03	296	3939	3408
26	-2.50	100	59	26.55	53.09	17.02	30.48	323	4497	3721
27	-2.60	100	60	26.55	53.09	19.09	31.95	352	5095	4049
28	-2.70	100	61	26.55	53.09	21.32	33.43	382	5733	4391
29	-2.80	100	62	26.55	53.09	23.72	34.94	414	6410	4748
30	-2.90	100	63	26.55	53.09	26.29	36.46	446	7128	5120
31	-3.00	100	63	26.55	53.09	29.04	38.01	480	7887	5507
32	-3.10	100	64	26.55	53.09	31.97	39.57	515	8687	5908
33	-3.20	100	65	26.55	53.09	35.08	41.15	551	9528	6324
34	-3.30	100	66	26.55	53.09	38.40	42.75	589	10411	6754
35	-3.40	100	66	26.55	53.09	41.91	44.37	627	11335	7199
36	-3.50	100	67	26.55	53.09	45.63	46.01	667	12302	7658
37	-3.60	100	68	26.55	53.09	49.56	47.67	708	13311	8131
38	-3.70	100	69	26.55	53.09	53.70	49.35	750	14362	8619
39	-3.80	100	70	26.55	53.09	58.08	51.04	793	15456	9121
40	-3.90	100	70	26.55	53.09	62.68	52.76	837	16593	9637
41	-4.00	100	71	26.55	53.09	67.51	54.49	882	17773	10168
42	-4.10	100	72	26.55	53.09	72.59	56.24	929	18996	10712
43	-4.20	100	73	26.55	53.09	77.91	58.02	976	20263	11270
44	-4.30	100	73	26.55	53.09	83.48	59.81	1025	21573	11842
45	-4.40	100	74	26.55	53.09	89.31	61.62	1074	22927	12428
46	-4.50	100	75	26.55	53.09	95.41	63.45	1125	24325	13028
47	-4.60	100	76	26.55	53.09	101.77	65.30	1176	25767	13641

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
48	-4.70	100	77	26.55	53.09	108.41	67.17	1229	27253	14267
49	-4.80	100	77	26.55	53.09	115.34	69.05	1283	28783	14908
50	-4.90	100	78	26.55	53.09	122.54	70.96	1337	30358	15561
51	-5.00	100	79	26.55	53.09	130.04	72.88	1393	31977	16228
52	-5.10	100	80	26.55	53.09	137.84	74.83	1450	33641	16908
53	-5.20	100	80	26.55	53.09	145.95	76.79	1507	35349	17601
54	-5.30	100	81	26.55	53.09	154.36	78.77	1566	37102	18307
55	-5.40	100	82	26.55	53.09	163.09	80.78	1625	38900	19026
56	-5.50	100	83	26.55	53.09	172.14	82.80	1686	40743	19758
57	-5.60	100	84	26.55	53.09	181.51	84.84	1747	42631	20503
58	-5.70	100	84	26.55	53.09	191.22	86.89	1810	44564	21260
59	-5.80	100	85	26.55	53.09	201.27	88.97	1873	46542	22030
60	-5.90	100	86	26.55	53.09	211.67	91.07	1937	48568	22814
61	-6.00	100	87	26.55	53.09	222.45	93.18	2003	50644	23612
62	-6.10	100	87	26.55	53.09	233.61	95.32	2069	52774	24425
63	-6.20	100	88	26.55	53.09	245.17	97.47	2137	54959	25254
64	-6.30	100	89	26.55	53.09	257.15	99.65	2206	57201	26100
65	-6.40	100	90	26.55	53.09	269.54	101.84	2276	59501	26962
66	-6.50	100	91	26.55	53.09	282.37	104.05	2348	61857	27840

Fondazione

Combinazione n° 11 - SLEF

Tensione massima di compressione nel calcestruzzo	29050	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-1.00	100	110	45.24	22.62	0.00	0.00	0	0	0
2	-0.90	100	110	45.24	22.62	0.85	0.00	5	199	61
3	-0.80	100	110	45.24	22.62	3.38	0.00	21	792	243
4	-0.70	100	110	45.24	22.62	7.58	0.00	47	1777	545
5	-0.60	100	110	45.24	22.62	13.45	0.00	83	3150	967
6	-0.50	100	110	45.24	22.62	20.95	0.00	129	4908	1507
7	-0.40	100	110	45.24	22.62	30.09	0.00	185	7047	2163
8	0.51	100	110	22.62	45.24	-428.05	0.00	2627	30780	100265
9	0.60	100	110	22.62	45.24	-419.51	0.00	2575	30166	98265
10	0.70	100	110	22.62	45.24	-410.76	0.00	2521	29536	96215
11	0.80	100	110	22.62	45.24	-401.81	0.00	2466	28893	94118
12	0.90	100	110	22.62	45.24	-392.67	0.00	2410	28235	91978
13	1.00	100	110	22.62	45.24	-383.36	0.00	2353	27566	89796
14	1.10	100	110	22.62	45.24	-373.88	0.00	2295	26885	87577
15	1.20	100	110	22.62	45.24	-364.27	0.00	2236	26193	85324
16	1.30	100	110	22.62	45.24	-354.51	0.00	2176	25492	83040
17	1.40	100	110	22.62	45.24	-344.64	0.00	2115	24782	80728
18	1.49	100	110	22.62	45.24	-334.67	0.00	2054	24065	78391
19	1.59	100	110	22.62	45.24	-324.60	0.00	1992	23341	76033
20	1.69	100	110	22.62	45.24	-314.45	0.00	1930	22611	73656
21	1.79	100	110	22.62	45.24	-304.24	0.00	1867	21877	71264
22	1.89	100	110	22.62	45.24	-293.98	0.00	1804	21139	68860
23	1.99	100	110	22.62	45.24	-283.68	0.00	1741	20398	66447
24	2.09	100	110	22.62	45.24	-273.35	0.00	1678	19656	64029
25	2.19	100	110	22.62	45.24	-263.02	0.00	1614	18913	61608

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
26	2.29	100	110	22.62	45.24	-252.68	0.00	1551	18170	59188
27	2.38	100	110	22.62	45.24	-242.37	0.00	1488	17428	56771
28	2.48	100	110	22.62	45.24	-232.08	0.00	1424	16688	54362
29	2.58	100	110	22.62	45.24	-221.84	0.00	1362	15952	51963
30	2.68	100	110	22.62	45.24	-211.65	0.00	1299	15219	49577
31	2.78	100	110	22.62	45.24	-201.54	0.00	1237	14492	47208
32	2.88	100	110	22.62	45.24	-191.51	0.00	1175	13771	44859
33	2.98	100	110	22.62	45.24	-181.58	0.00	1114	13057	42532
34	3.08	100	110	22.62	45.24	-171.76	0.00	1054	12350	40232
35	3.17	100	110	22.62	45.24	-162.06	0.00	995	11653	37961
36	3.27	100	110	22.62	45.24	-152.51	0.00	936	10966	35722
37	3.37	100	110	22.62	45.24	-143.10	0.00	878	10290	33519
38	3.47	100	110	22.62	45.24	-133.86	0.00	822	9626	31355
39	3.57	100	110	22.62	45.24	-124.80	0.00	766	8974	29233
40	3.67	100	110	22.62	45.24	-115.94	0.00	712	8337	27156
41	3.77	100	110	22.62	45.24	-106.00	0.00	651	7622	24830
42	3.87	100	110	22.62	45.24	-95.87	0.00	588	6894	22456
43	3.97	100	110	22.62	45.24	-86.17	0.00	529	6196	20184
44	4.06	100	110	22.62	45.24	-76.91	0.00	472	5530	18015
45	4.16	100	110	22.62	45.24	-68.10	0.00	418	4897	15952
46	4.26	100	110	22.62	45.24	-59.77	0.00	367	4298	14000
47	4.36	100	110	22.62	45.24	-51.92	0.00	319	3733	12161
48	4.46	100	110	22.62	45.24	-44.56	0.00	274	3204	10438
49	4.56	100	110	22.62	45.24	-37.72	0.00	232	2712	8835
50	4.66	100	110	22.62	45.24	-31.40	0.00	193	2258	7355
51	4.76	100	110	22.62	45.24	-25.62	0.00	157	1842	6000
52	4.86	100	110	22.62	45.24	-20.38	0.00	125	1466	4775
53	4.95	100	110	22.62	45.24	-15.72	0.00	96	1130	3682
54	5.05	100	110	22.62	45.24	-11.63	0.00	71	836	2724
55	5.15	100	110	22.62	45.24	-8.13	0.00	50	585	1905
56	5.25	100	110	22.62	45.24	-5.24	0.00	32	377	1228
57	5.35	100	110	22.62	45.24	-2.97	0.00	18	213	695
58	5.45	100	110	22.62	45.24	-1.33	0.00	8	96	311
59	5.55	100	110	22.62	45.24	-0.33	0.00	2	24	78
60	5.65	100	110	0.00	0.00	0.00	0.00	0	0	0

Combinazioni SLEQ

Paramento

Combinazione n° 12 - SLEQ

Tensione massima di compressione nel calcestruzzo 14940 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	26.55	53.09	0.00	0.00	0	0	0
2	-0.10	100	41	26.55	53.09	0.00	0.99	2	25	32
3	-0.20	100	42	26.55	53.09	0.02	2.00	5	47	66
4	-0.30	100	42	26.55	53.09	0.04	3.03	7	66	104

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
5	-0.40	100	43	26.55	53.09	0.09	4.08	11	80	147
6	-0.50	100	44	26.55	53.09	0.17	5.14	14	89	195
7	-0.60	100	45	26.55	53.09	0.28	6.23	19	91	251
8	-0.70	100	45	26.55	53.09	0.42	7.33	24	86	313
9	-0.80	100	46	26.55	53.09	0.62	8.46	30	73	385
10	-0.90	100	47	26.55	53.09	0.86	9.60	36	50	466
11	-1.00	100	48	26.55	53.09	1.17	10.76	44	9	560
12	-1.10	100	49	26.55	53.09	1.54	11.94	53	56	668
13	-1.20	100	49	26.55	53.09	1.98	13.14	64	149	791
14	-1.30	100	50	26.55	53.09	2.50	14.36	76	272	929
15	-1.40	100	51	26.55	53.09	3.11	15.60	89	427	1081
16	-1.50	100	52	26.55	53.09	3.81	16.86	104	616	1248
17	-1.60	100	52	26.55	53.09	4.60	18.13	120	839	1430
18	-1.70	100	53	26.55	53.09	5.49	19.43	137	1098	1626
19	-1.80	100	54	26.55	53.09	6.50	20.74	156	1393	1837
20	-1.90	100	55	26.55	53.09	7.61	22.08	176	1724	2062
21	-2.00	100	56	26.55	53.09	8.85	23.43	197	2091	2302
22	-2.10	100	56	26.55	53.09	10.21	24.80	220	2496	2557
23	-2.20	100	57	26.55	53.09	11.70	26.19	244	2939	2826
24	-2.30	100	58	26.55	53.09	13.33	27.60	269	3420	3109
25	-2.40	100	59	26.55	53.09	15.10	29.03	296	3939	3408
26	-2.50	100	59	26.55	53.09	17.02	30.48	323	4497	3721
27	-2.60	100	60	26.55	53.09	19.09	31.95	352	5095	4049
28	-2.70	100	61	26.55	53.09	21.32	33.43	382	5733	4391
29	-2.80	100	62	26.55	53.09	23.72	34.94	414	6410	4748
30	-2.90	100	63	26.55	53.09	26.29	36.46	446	7128	5120
31	-3.00	100	63	26.55	53.09	29.04	38.01	480	7887	5507
32	-3.10	100	64	26.55	53.09	31.97	39.57	515	8687	5908
33	-3.20	100	65	26.55	53.09	35.08	41.15	551	9528	6324
34	-3.30	100	66	26.55	53.09	38.40	42.75	589	10411	6754
35	-3.40	100	66	26.55	53.09	41.91	44.37	627	11335	7199
36	-3.50	100	67	26.55	53.09	45.63	46.01	667	12302	7658
37	-3.60	100	68	26.55	53.09	49.56	47.67	708	13311	8131
38	-3.70	100	69	26.55	53.09	53.70	49.35	750	14362	8619
39	-3.80	100	70	26.55	53.09	58.08	51.04	793	15456	9121
40	-3.90	100	70	26.55	53.09	62.68	52.76	837	16593	9637
41	-4.00	100	71	26.55	53.09	67.51	54.49	882	17773	10168
42	-4.10	100	72	26.55	53.09	72.59	56.24	929	18996	10712
43	-4.20	100	73	26.55	53.09	77.91	58.02	976	20263	11270
44	-4.30	100	73	26.55	53.09	83.48	59.81	1025	21573	11842
45	-4.40	100	74	26.55	53.09	89.31	61.62	1074	22927	12428
46	-4.50	100	75	26.55	53.09	95.41	63.45	1125	24325	13028
47	-4.60	100	76	26.55	53.09	101.77	65.30	1176	25767	13641
48	-4.70	100	77	26.55	53.09	108.41	67.17	1229	27253	14267
49	-4.80	100	77	26.55	53.09	115.34	69.05	1283	28783	14908
50	-4.90	100	78	26.55	53.09	122.54	70.96	1337	30358	15561
51	-5.00	100	79	26.55	53.09	130.04	72.88	1393	31977	16228
52	-5.10	100	80	26.55	53.09	137.84	74.83	1450	33641	16908
53	-5.20	100	80	26.55	53.09	145.95	76.79	1507	35349	17601
54	-5.30	100	81	26.55	53.09	154.36	78.77	1566	37102	18307
55	-5.40	100	82	26.55	53.09	163.09	80.78	1625	38900	19026
56	-5.50	100	83	26.55	53.09	172.14	82.80	1686	40743	19758
57	-5.60	100	84	26.55	53.09	181.51	84.84	1747	42631	20503
58	-5.70	100	84	26.55	53.09	191.22	86.89	1810	44564	21260
59	-5.80	100	85	26.55	53.09	201.27	88.97	1873	46542	22030
60	-5.90	100	86	26.55	53.09	211.67	91.07	1937	48568	22814
61	-6.00	100	87	26.55	53.09	222.45	93.18	2003	50644	23612
62	-6.10	100	87	26.55	53.09	233.61	95.32	2069	52774	24425
63	-6.20	100	88	26.55	53.09	245.17	97.47	2137	54959	25254
64	-6.30	100	89	26.55	53.09	257.15	99.65	2206	57201	26100
65	-6.40	100	90	26.55	53.09	269.54	101.84	2276	59501	26962
66	-6.50	100	91	26.55	53.09	282.37	104.05	2348	61857	27840

Combinazione n° 13 - SLEQ H + V

Tensione massima di compressione nel calcestruzzo	14940	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	26.55	53.09	0.00	0.00	0	0	0
2	-0.10	100	41	26.55	53.09	0.01	0.99	2	24	33
3	-0.20	100	42	26.55	53.09	0.03	2.00	5	43	71
4	-0.30	100	42	26.55	53.09	0.08	3.03	8	57	115
5	-0.40	100	43	26.55	53.09	0.17	4.08	13	63	166
6	-0.50	100	44	26.55	53.09	0.29	5.14	17	62	226
7	-0.60	100	45	26.55	53.09	0.46	6.23	23	51	296
8	-0.70	100	45	26.55	53.09	0.69	7.33	30	27	378
9	-0.80	100	46	26.55	53.09	0.98	8.46	38	19	474
10	-0.90	100	47	26.55	53.09	1.34	9.60	48	94	587
11	-1.00	100	48	26.55	53.09	1.78	10.76	59	202	716
12	-1.10	100	49	26.55	53.09	2.30	11.94	72	346	863
13	-1.20	100	49	26.55	53.09	2.93	13.14	87	529	1027
14	-1.30	100	50	26.55	53.09	3.65	14.36	103	752	1209
15	-1.40	100	51	26.55	53.09	4.49	15.60	121	1016	1408
16	-1.50	100	52	26.55	53.09	5.45	16.86	141	1324	1625
17	-1.60	100	52	26.55	53.09	6.53	18.13	162	1674	1860
18	-1.70	100	53	26.55	53.09	7.74	19.43	185	2069	2112
19	-1.80	100	54	26.55	53.09	9.09	20.74	210	2508	2383
20	-1.90	100	55	26.55	53.09	10.59	22.08	236	2994	2672
21	-2.00	100	56	26.55	53.09	12.24	23.43	264	3525	2979
22	-2.10	100	56	26.55	53.09	14.05	24.80	293	4104	3305
23	-2.20	100	57	26.55	53.09	16.03	26.19	324	4731	3649
24	-2.30	100	58	26.55	53.09	18.19	27.60	357	5406	4011
25	-2.40	100	59	26.55	53.09	20.53	29.03	391	6129	4392
26	-2.50	100	59	26.55	53.09	23.06	30.48	426	6902	4792
27	-2.60	100	60	26.55	53.09	25.79	31.95	464	7725	5210
28	-2.70	100	61	26.55	53.09	28.72	33.43	503	8599	5647
29	-2.80	100	62	26.55	53.09	31.87	34.94	543	9523	6102
30	-2.90	100	63	26.55	53.09	35.23	36.46	585	10498	6575
31	-3.00	100	63	26.55	53.09	38.82	38.01	628	11525	7067
32	-3.10	100	64	26.55	53.09	42.64	39.57	673	12604	7577
33	-3.20	100	65	26.55	53.09	46.70	41.15	719	13735	8106
34	-3.30	100	66	26.55	53.09	51.01	42.75	767	14919	8652
35	-3.40	100	66	26.55	53.09	55.57	44.37	816	16155	9217
36	-3.50	100	67	26.55	53.09	60.40	46.01	867	17445	9800
37	-3.60	100	68	26.55	53.09	65.50	47.67	919	18789	10401
38	-3.70	100	69	26.55	53.09	70.87	49.35	972	20186	11020
39	-3.80	100	70	26.55	53.09	76.52	51.04	1027	21637	11657
40	-3.90	100	70	26.55	53.09	82.47	52.76	1084	23142	12311
41	-4.00	100	71	26.55	53.09	88.72	54.49	1141	24702	12983
42	-4.10	100	72	26.55	53.09	95.27	56.24	1200	26316	13672
43	-4.20	100	73	26.55	53.09	102.13	58.02	1260	27986	14379
44	-4.30	100	73	26.55	53.09	109.31	59.81	1322	29710	15103
45	-4.40	100	74	26.55	53.09	116.82	61.62	1385	31490	15844
46	-4.50	100	75	26.55	53.09	124.66	63.45	1449	33324	16603
47	-4.60	100	76	26.55	53.09	132.85	65.30	1515	35215	17378
48	-4.70	100	77	26.55	53.09	141.38	67.17	1582	37161	18171
49	-4.80	100	77	26.55	53.09	150.27	69.05	1650	39163	18980
50	-4.90	100	78	26.55	53.09	159.52	70.96	1719	41221	19806
51	-5.00	100	79	26.55	53.09	169.14	72.88	1789	43335	20648
52	-5.10	100	80	26.55	53.09	179.14	74.83	1861	45505	21507
53	-5.20	100	80	26.55	53.09	189.52	76.79	1934	47732	22382
54	-5.30	100	81	26.55	53.09	200.30	78.77	2008	50015	23273
55	-5.40	100	82	26.55	53.09	211.47	80.78	2084	52355	24181
56	-5.50	100	83	26.55	53.09	223.05	82.80	2160	54751	25104
57	-5.60	100	84	26.55	53.09	235.05	84.84	2238	57204	26044

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
58	-5.70	100	84	26.55	53.09	247.46	86.89	2317	59714	26999
59	-5.80	100	85	26.55	53.09	260.30	88.97	2397	62281	27970
60	-5.90	100	86	26.55	53.09	273.59	91.07	2478	64907	28958
61	-6.00	100	87	26.55	53.09	287.34	93.18	2561	67596	29963
62	-6.10	100	87	26.55	53.09	301.57	95.32	2645	70349	30986
63	-6.20	100	88	26.55	53.09	316.29	97.47	2730	73170	32028
64	-6.30	100	89	26.55	53.09	331.53	99.65	2817	76060	33090
65	-6.40	100	90	26.55	53.09	347.29	101.84	2905	79019	34171
66	-6.50	100	91	26.55	53.09	363.57	104.05	2995	82047	35272

Fondazione

Combinazione n° 12 - SLEQ

Tensione massima di compressione nel calcestruzzo 13073 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-1.00	100	110	45.24	22.62	0.00	0.00	0	0	0
2	-0.90	100	110	45.24	22.62	0.85	0.00	5	199	61
3	-0.80	100	110	45.24	22.62	3.38	0.00	21	792	243
4	-0.70	100	110	45.24	22.62	7.58	0.00	47	1777	545
5	-0.60	100	110	45.24	22.62	13.45	0.00	83	3150	967
6	-0.50	100	110	45.24	22.62	20.95	0.00	129	4908	1507
7	-0.40	100	110	45.24	22.62	30.09	0.00	185	7047	2163
8	0.51	100	110	22.62	45.24	-428.05	0.00	2627	30780	100265
9	0.60	100	110	22.62	45.24	-419.51	0.00	2575	30166	98265
10	0.70	100	110	22.62	45.24	-410.76	0.00	2521	29536	96215
11	0.80	100	110	22.62	45.24	-401.81	0.00	2466	28893	94118
12	0.90	100	110	22.62	45.24	-392.67	0.00	2410	28235	91978
13	1.00	100	110	22.62	45.24	-383.36	0.00	2353	27566	89796
14	1.10	100	110	22.62	45.24	-373.88	0.00	2295	26885	87577
15	1.20	100	110	22.62	45.24	-364.27	0.00	2236	26193	85324
16	1.30	100	110	22.62	45.24	-354.51	0.00	2176	25492	83040
17	1.40	100	110	22.62	45.24	-344.64	0.00	2115	24782	80728
18	1.49	100	110	22.62	45.24	-334.67	0.00	2054	24065	78391
19	1.59	100	110	22.62	45.24	-324.60	0.00	1992	23341	76033
20	1.69	100	110	22.62	45.24	-314.45	0.00	1930	22611	73656
21	1.79	100	110	22.62	45.24	-304.24	0.00	1867	21877	71264
22	1.89	100	110	22.62	45.24	-293.98	0.00	1804	21139	68860
23	1.99	100	110	22.62	45.24	-283.68	0.00	1741	20398	66447
24	2.09	100	110	22.62	45.24	-273.35	0.00	1678	19656	64029
25	2.19	100	110	22.62	45.24	-263.02	0.00	1614	18913	61608
26	2.29	100	110	22.62	45.24	-252.68	0.00	1551	18170	59188
27	2.38	100	110	22.62	45.24	-242.37	0.00	1488	17428	56771
28	2.48	100	110	22.62	45.24	-232.08	0.00	1424	16688	54362
29	2.58	100	110	22.62	45.24	-221.84	0.00	1362	15952	51963
30	2.68	100	110	22.62	45.24	-211.65	0.00	1299	15219	49577
31	2.78	100	110	22.62	45.24	-201.54	0.00	1237	14492	47208
32	2.88	100	110	22.62	45.24	-191.51	0.00	1175	13771	44859
33	2.98	100	110	22.62	45.24	-181.58	0.00	1114	13057	42532
34	3.08	100	110	22.62	45.24	-171.76	0.00	1054	12350	40232
35	3.17	100	110	22.62	45.24	-162.06	0.00	995	11653	37961

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
36	3.27	100	110	22.62	45.24	-152.51	0.00	936	10966	35722
37	3.37	100	110	22.62	45.24	-143.10	0.00	878	10290	33519
38	3.47	100	110	22.62	45.24	-133.86	0.00	822	9626	31355
39	3.57	100	110	22.62	45.24	-124.80	0.00	766	8974	29233
40	3.67	100	110	22.62	45.24	-115.94	0.00	712	8337	27156
41	3.77	100	110	22.62	45.24	-106.00	0.00	651	7622	24830
42	3.87	100	110	22.62	45.24	-95.87	0.00	588	6894	22456
43	3.97	100	110	22.62	45.24	-86.17	0.00	529	6196	20184
44	4.06	100	110	22.62	45.24	-76.91	0.00	472	5530	18015
45	4.16	100	110	22.62	45.24	-68.10	0.00	418	4897	15952
46	4.26	100	110	22.62	45.24	-59.77	0.00	367	4298	14000
47	4.36	100	110	22.62	45.24	-51.92	0.00	319	3733	12161
48	4.46	100	110	22.62	45.24	-44.56	0.00	274	3204	10438
49	4.56	100	110	22.62	45.24	-37.72	0.00	232	2712	8835
50	4.66	100	110	22.62	45.24	-31.40	0.00	193	2258	7355
51	4.76	100	110	22.62	45.24	-25.62	0.00	157	1842	6000
52	4.86	100	110	22.62	45.24	-20.38	0.00	125	1466	4775
53	4.95	100	110	22.62	45.24	-15.72	0.00	96	1130	3682
54	5.05	100	110	22.62	45.24	-11.63	0.00	71	836	2724
55	5.15	100	110	22.62	45.24	-8.13	0.00	50	585	1905
56	5.25	100	110	22.62	45.24	-5.24	0.00	32	377	1228
57	5.35	100	110	22.62	45.24	-2.97	0.00	18	213	695
58	5.45	100	110	22.62	45.24	-1.33	0.00	8	96	311
59	5.55	100	110	22.62	45.24	-0.33	0.00	2	24	78
60	5.65	100	110	0.00	0.00	0.00	0.00	0	0	0

Combinazione n° 13 - SLEQ H + V

Tensione massima di compressione nel calcestruzzo 13073 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-1.00	100	110	45.24	22.62	0.00	0.00	0	0	0
2	-0.90	100	110	45.24	22.62	1.12	0.00	7	262	80
3	-0.80	100	110	45.24	22.62	4.45	0.00	27	1043	320
4	-0.70	100	110	45.24	22.62	9.97	0.00	61	2336	717
5	-0.60	100	110	45.24	22.62	17.65	0.00	108	4135	1269
6	-0.50	100	110	45.24	22.62	27.47	0.00	169	6433	1975
7	-0.40	100	110	45.24	22.62	39.38	0.00	242	9224	2831
8	0.51	100	110	22.62	45.24	-665.79	0.00	4086	47875	155953
9	0.60	100	110	22.62	45.24	-654.36	0.00	4016	47052	153275
10	0.70	100	110	22.62	45.24	-642.41	0.00	3943	46193	150475
11	0.80	100	110	22.62	45.24	-629.97	0.00	3866	45299	147561
12	0.90	100	110	22.62	45.24	-617.07	0.00	3787	44371	144539
13	1.00	100	110	22.62	45.24	-603.73	0.00	3705	43412	141416
14	1.10	100	110	22.62	45.24	-589.99	0.00	3621	42424	138197
15	1.20	100	110	22.62	45.24	-575.87	0.00	3534	41409	134890
16	1.30	100	110	22.62	45.24	-561.40	0.00	3446	40368	131501
17	1.40	100	110	22.62	45.24	-546.61	0.00	3355	39305	128037
18	1.49	100	110	22.62	45.24	-531.53	0.00	3262	38220	124504
19	1.59	100	110	22.62	45.24	-516.18	0.00	3168	37117	120908
20	1.69	100	110	22.62	45.24	-500.59	0.00	3072	35996	117256
21	1.79	100	110	22.62	45.24	-484.79	0.00	2975	34859	113555
22	1.89	100	110	22.62	45.24	-468.80	0.00	2877	33710	109811
23	1.99	100	110	22.62	45.24	-452.67	0.00	2778	32549	106031
24	2.09	100	110	22.62	45.24	-436.40	0.00	2678	31380	102220
25	2.19	100	110	22.62	45.24	-420.03	0.00	2578	30203	98387

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
26	2.29	100	110	22.62	45.24	-403.59	0.00	2477	29021	94536
27	2.38	100	110	22.62	45.24	-387.11	0.00	2376	27835	90675
28	2.48	100	110	22.62	45.24	-370.61	0.00	2275	26649	86810
29	2.58	100	110	22.62	45.24	-354.12	0.00	2173	25463	82947
30	2.68	100	110	22.62	45.24	-337.67	0.00	2072	24280	79094
31	2.78	100	110	22.62	45.24	-321.28	0.00	1972	23102	75256
32	2.88	100	110	22.62	45.24	-304.99	0.00	1872	21931	71441
33	2.98	100	110	22.62	45.24	-288.83	0.00	1773	20768	67654
34	3.08	100	110	22.62	45.24	-272.81	0.00	1674	19617	63902
35	3.17	100	110	22.62	45.24	-256.97	0.00	1577	18478	60192
36	3.27	100	110	22.62	45.24	-241.34	0.00	1481	17354	56530
37	3.37	100	110	22.62	45.24	-225.94	0.00	1387	16246	52923
38	3.47	100	110	22.62	45.24	-210.80	0.00	1294	15158	49376
39	3.57	100	110	22.62	45.24	-195.95	0.00	1203	14090	45898
40	3.67	100	110	22.62	45.24	-181.41	0.00	1113	13045	42493
41	3.77	100	110	22.62	45.24	-165.95	0.00	1019	11933	38872
42	3.87	100	110	22.62	45.24	-150.44	0.00	923	10818	35239
43	3.97	100	110	22.62	45.24	-135.53	0.00	832	9745	31745
44	4.06	100	110	22.62	45.24	-121.24	0.00	744	8718	28398
45	4.16	100	110	22.62	45.24	-107.60	0.00	660	7737	25203
46	4.26	100	110	22.62	45.24	-94.64	0.00	581	6805	22167
47	4.36	100	110	22.62	45.24	-82.38	0.00	506	5924	19297
48	4.46	100	110	22.62	45.24	-70.86	0.00	435	5095	16598
49	4.56	100	110	22.62	45.24	-60.10	0.00	369	4322	14079
50	4.66	100	110	22.62	45.24	-50.14	0.00	308	3605	11744
51	4.76	100	110	22.62	45.24	-40.98	0.00	252	2947	9600
52	4.86	100	110	22.62	45.24	-32.68	0.00	201	2350	7655
53	4.95	100	110	22.62	45.24	-25.25	0.00	155	1815	5914
54	5.05	100	110	22.62	45.24	-18.72	0.00	115	1346	4384
55	5.15	100	110	22.62	45.24	-13.11	0.00	80	943	3071
56	5.25	100	110	22.62	45.24	-8.47	0.00	52	609	1983
57	5.35	100	110	22.62	45.24	-4.80	0.00	29	345	1125
58	5.45	100	110	22.62	45.24	-2.15	0.00	13	155	504
59	5.55	100	110	22.62	45.24	-0.54	0.00	3	39	127
60	5.65	100	110	0.00	0.00	0.00	0.00	0	0	0

Verifica a fessurazione

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Af	area ferri zona tesa espresso in [cmq]
Aeff	area efficace espressa in [cmq]
M	momento agente espressa in [kNm]
Mpf	momento di prima fessurazione espressa in [kNm]
ε	deformazione espresso in %
Sm	spaziatura tra le fessure espressa in [mm]
w	apertura delle fessure espressa in [mm]

Combinazioni SLER

Paramento

Combinazione n° 10 - SLER

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	5.81	0.000000	0.00	0.000
3	-0.20	100	42	0.00	0.00	0.02	16.80	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	35.28	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	65.88	0.000000	0.00	0.000
6	-0.50	100	44	0.00	0.00	0.17	118.89	0.000000	0.00	0.000
7	-0.60	100	45	0.00	0.00	0.28	222.15	0.000000	0.00	0.000
8	-0.70	100	45	0.00	0.00	0.42	484.78	0.000000	0.00	0.000
9	-0.80	100	46	0.00	0.00	0.62	2201.91	0.000000	0.00	0.000
10	-0.90	100	47	0.00	0.00	0.86	1546.90	0.000000	0.00	0.000
11	-1.00	100	48	0.00	0.00	1.17	704.98	0.000000	0.00	0.000
12	-1.10	100	49	53.09	1600.00	1.54	508.13	0.000000	0.00	0.000
13	-1.20	100	49	53.09	1600.00	1.98	423.46	0.000000	0.00	0.000
14	-1.30	100	50	53.09	1600.00	2.50	378.29	0.000000	0.00	0.000
15	-1.40	100	51	53.09	1600.00	3.11	351.57	0.000000	0.00	0.000
16	-1.50	100	52	53.09	1600.00	3.81	334.94	0.000000	0.00	0.000
17	-1.60	100	52	53.09	1600.00	4.60	324.43	0.000000	0.00	0.000
18	-1.70	100	53	53.09	1600.00	5.49	317.91	0.000000	0.00	0.000
19	-1.80	100	54	53.09	1600.00	6.50	314.14	0.000000	0.00	0.000
20	-1.90	100	55	53.09	1600.00	7.61	312.36	0.000000	0.00	0.000
21	-2.00	100	56	53.09	1600.00	8.85	312.06	0.000000	0.00	0.000
22	-2.10	100	56	53.09	1600.00	10.21	312.89	0.000000	0.00	0.000
23	-2.20	100	57	53.09	1600.00	11.70	314.62	0.000000	0.00	0.000
24	-2.30	100	58	53.09	1600.00	13.33	317.08	0.000000	0.00	0.000
25	-2.40	100	59	53.09	1600.00	15.10	320.12	0.000000	0.00	0.000
26	-2.50	100	59	53.09	1600.00	17.02	323.66	0.000000	0.00	0.000
27	-2.60	100	60	53.09	1600.00	19.09	327.62	0.000000	0.00	0.000
28	-2.70	100	61	53.09	1600.00	21.32	331.94	0.000000	0.00	0.000
29	-2.80	100	62	53.09	1600.00	23.72	336.58	0.000000	0.00	0.000
30	-2.90	100	63	53.09	1600.00	26.29	341.49	0.000000	0.00	0.000
31	-3.00	100	63	53.09	1600.00	29.04	346.65	0.000000	0.00	0.000
32	-3.10	100	64	53.09	1600.00	31.97	352.03	0.000000	0.00	0.000
33	-3.20	100	65	53.09	1600.00	35.08	357.61	0.000000	0.00	0.000
34	-3.30	100	66	53.09	1600.00	38.40	363.38	0.000000	0.00	0.000
35	-3.40	100	66	53.09	1600.00	41.91	369.31	0.000000	0.00	0.000
36	-3.50	100	67	53.09	1600.00	45.63	375.40	0.000000	0.00	0.000
37	-3.60	100	68	53.09	1600.00	49.56	381.64	0.000000	0.00	0.000
38	-3.70	100	69	53.09	1600.00	53.70	388.02	0.000000	0.00	0.000
39	-3.80	100	70	53.09	1600.00	58.08	394.53	0.000000	0.00	0.000
40	-3.90	100	70	53.09	1600.00	62.68	401.16	0.000000	0.00	0.000
41	-4.00	100	71	53.09	1600.00	67.51	407.91	0.000000	0.00	0.000
42	-4.10	100	72	53.09	1600.00	72.59	414.78	0.000000	0.00	0.000
43	-4.20	100	73	53.09	1600.00	77.91	421.75	0.000000	0.00	0.000
44	-4.30	100	73	53.09	1600.00	83.48	428.82	0.000000	0.00	0.000
45	-4.40	100	74	53.09	1600.00	89.31	436.00	0.000000	0.00	0.000
46	-4.50	100	75	53.09	1600.00	95.41	443.27	0.000000	0.00	0.000
47	-4.60	100	76	53.09	1600.00	101.77	450.64	0.000000	0.00	0.000
48	-4.70	100	77	53.09	1600.00	108.41	458.10	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
49	-4.80	100	77	53.09	1600.00	115.34	465.65	0.000000	0.00	0.000
50	-4.90	100	78	53.09	1600.00	122.54	473.29	0.000000	0.00	0.000
51	-5.00	100	79	53.09	1600.00	130.04	481.02	0.000000	0.00	0.000
52	-5.10	100	80	53.09	1600.00	137.84	488.83	0.000000	0.00	0.000
53	-5.20	100	80	53.09	1600.00	145.95	496.73	0.000000	0.00	0.000
54	-5.30	100	81	53.09	1600.00	154.36	504.70	0.000000	0.00	0.000
55	-5.40	100	82	53.09	1600.00	163.09	512.76	0.000000	0.00	0.000
56	-5.50	100	83	53.09	1600.00	172.14	520.90	0.000000	0.00	0.000
57	-5.60	100	84	53.09	1600.00	181.51	529.12	0.000000	0.00	0.000
58	-5.70	100	84	53.09	1600.00	191.22	537.41	0.000000	0.00	0.000
59	-5.80	100	85	53.09	1600.00	201.27	545.78	0.000000	0.00	0.000
60	-5.90	100	86	53.09	1600.00	211.67	554.23	0.000000	0.00	0.000
61	-6.00	100	87	53.09	1600.00	222.45	562.75	0.000000	0.00	0.000
62	-6.10	100	87	53.09	1600.00	233.61	571.33	0.000000	0.00	0.000
63	-6.20	100	88	53.09	1600.00	245.17	579.99	0.000000	0.00	0.000
64	-6.30	100	89	53.09	1600.00	257.15	588.72	0.000000	0.00	0.000
65	-6.40	100	90	53.09	1600.00	269.54	597.51	0.000000	0.00	0.000
66	-6.50	100	91	53.09	1600.00	282.37	606.37	0.000000	0.00	0.000

Fondazione

Combinazione n° 10 - SLER

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-1.00	100	110	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.90	100	110	45.24	1600.00	0.85	719.00	0.000000	0.00	0.000
3	-0.80	100	110	45.24	1600.00	3.38	719.00	0.000000	0.00	0.000
4	-0.70	100	110	45.24	1600.00	7.58	719.00	0.000000	0.00	0.000
5	-0.60	100	110	45.24	1600.00	13.45	719.00	0.000000	0.00	0.000
6	-0.50	100	110	45.24	1600.00	20.95	719.00	0.000000	0.00	0.000
7	-0.40	100	110	45.24	1600.00	30.09	719.00	0.000000	0.00	0.000
8	0.51	100	110	45.24	1600.00	-428.05	-719.00	0.000000	0.00	0.000
9	0.60	100	110	45.24	1600.00	-419.51	-719.00	0.000000	0.00	0.000
10	0.70	100	110	45.24	1600.00	-410.76	-719.00	0.000000	0.00	0.000
11	0.80	100	110	45.24	1600.00	-401.81	-719.00	0.000000	0.00	0.000
12	0.90	100	110	45.24	1600.00	-392.67	-719.00	0.000000	0.00	0.000
13	1.00	100	110	45.24	1600.00	-383.36	-719.00	0.000000	0.00	0.000
14	1.10	100	110	45.24	1600.00	-373.88	-719.00	0.000000	0.00	0.000
15	1.20	100	110	45.24	1600.00	-364.27	-719.00	0.000000	0.00	0.000
16	1.30	100	110	45.24	1600.00	-354.51	-719.00	0.000000	0.00	0.000
17	1.40	100	110	45.24	1600.00	-344.64	-719.00	0.000000	0.00	0.000
18	1.49	100	110	45.24	1600.00	-334.67	-719.00	0.000000	0.00	0.000
19	1.59	100	110	45.24	1600.00	-324.60	-719.00	0.000000	0.00	0.000
20	1.69	100	110	45.24	1600.00	-314.45	-719.00	0.000000	0.00	0.000
21	1.79	100	110	45.24	1600.00	-304.24	-719.00	0.000000	0.00	0.000
22	1.89	100	110	45.24	1600.00	-293.98	-719.00	0.000000	0.00	0.000
23	1.99	100	110	45.24	1600.00	-283.68	-719.00	0.000000	0.00	0.000
24	2.09	100	110	45.24	1600.00	-273.35	-719.00	0.000000	0.00	0.000
25	2.19	100	110	45.24	1600.00	-263.02	-719.00	0.000000	0.00	0.000
26	2.29	100	110	45.24	1600.00	-252.68	-719.00	0.000000	0.00	0.000
27	2.38	100	110	45.24	1600.00	-242.37	-719.00	0.000000	0.00	0.000
28	2.48	100	110	45.24	1600.00	-232.08	-719.00	0.000000	0.00	0.000
29	2.58	100	110	45.24	1600.00	-221.84	-719.00	0.000000	0.00	0.000
30	2.68	100	110	45.24	1600.00	-211.65	-719.00	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
31	2.78	100	110	45.24	1600.00	-201.54	-719.00	0.000000	0.00	0.000
32	2.88	100	110	45.24	1600.00	-191.51	-719.00	0.000000	0.00	0.000
33	2.98	100	110	45.24	1600.00	-181.58	-719.00	0.000000	0.00	0.000
34	3.08	100	110	45.24	1600.00	-171.76	-719.00	0.000000	0.00	0.000
35	3.17	100	110	45.24	1600.00	-162.06	-719.00	0.000000	0.00	0.000
36	3.27	100	110	45.24	1600.00	-152.51	-719.00	0.000000	0.00	0.000
37	3.37	100	110	45.24	1600.00	-143.10	-719.00	0.000000	0.00	0.000
38	3.47	100	110	45.24	1600.00	-133.86	-719.00	0.000000	0.00	0.000
39	3.57	100	110	45.24	1600.00	-124.80	-719.00	0.000000	0.00	0.000
40	3.67	100	110	45.24	1600.00	-115.94	-719.00	0.000000	0.00	0.000
41	3.77	100	110	45.24	1600.00	-106.00	-719.00	0.000000	0.00	0.000
42	3.87	100	110	45.24	1600.00	-95.87	-719.00	0.000000	0.00	0.000
43	3.97	100	110	45.24	1600.00	-86.17	-719.00	0.000000	0.00	0.000
44	4.06	100	110	45.24	1600.00	-76.91	-719.00	0.000000	0.00	0.000
45	4.16	100	110	45.24	1600.00	-68.10	-719.00	0.000000	0.00	0.000
46	4.26	100	110	45.24	1600.00	-59.77	-719.00	0.000000	0.00	0.000
47	4.36	100	110	45.24	1600.00	-51.92	-719.00	0.000000	0.00	0.000
48	4.46	100	110	45.24	1600.00	-44.56	-719.00	0.000000	0.00	0.000
49	4.56	100	110	45.24	1600.00	-37.72	-719.00	0.000000	0.00	0.000
50	4.66	100	110	45.24	1600.00	-31.40	-719.00	0.000000	0.00	0.000
51	4.76	100	110	45.24	1600.00	-25.62	-719.00	0.000000	0.00	0.000
52	4.86	100	110	45.24	1600.00	-20.38	-719.00	0.000000	0.00	0.000
53	4.95	100	110	45.24	1600.00	-15.72	-719.00	0.000000	0.00	0.000
54	5.05	100	110	45.24	1600.00	-11.63	-719.00	0.000000	0.00	0.000
55	5.15	100	110	45.24	1600.00	-8.13	-719.00	0.000000	0.00	0.000
56	5.25	100	110	45.24	1600.00	-5.24	-719.00	0.000000	0.00	0.000
57	5.35	100	110	45.24	1600.00	-2.97	-719.00	0.000000	0.00	0.000
58	5.45	100	110	45.24	1600.00	-1.33	-719.00	0.000000	0.00	0.000
59	5.55	100	110	45.24	1600.00	-0.33	-719.00	0.000000	0.00	0.000
60	5.65	100	110	0.00	0.00	0.00	0.00	---	---	0.000

Combinazioni SLEF

Paramento

Combinazione n° 11 - SLEF

Apertura limite fessure w_{lim}=0.30

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	5.81	0.000000	0.00	0.000
3	-0.20	100	42	0.00	0.00	0.02	16.80	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	35.28	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	65.88	0.000000	0.00	0.000
6	-0.50	100	44	0.00	0.00	0.17	118.89	0.000000	0.00	0.000
7	-0.60	100	45	0.00	0.00	0.28	222.15	0.000000	0.00	0.000
8	-0.70	100	45	0.00	0.00	0.42	484.78	0.000000	0.00	0.000
9	-0.80	100	46	0.00	0.00	0.62	2201.91	0.000000	0.00	0.000
10	-0.90	100	47	0.00	0.00	0.86	1546.90	0.000000	0.00	0.000
11	-1.00	100	48	0.00	0.00	1.17	704.98	0.000000	0.00	0.000
12	-1.10	100	49	53.09	1600.00	1.54	508.13	0.000000	0.00	0.000
13	-1.20	100	49	53.09	1600.00	1.98	423.46	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
14	-1.30	100	50	53.09	1600.00	2.50	378.29	0.000000	0.00	0.000
15	-1.40	100	51	53.09	1600.00	3.11	351.57	0.000000	0.00	0.000
16	-1.50	100	52	53.09	1600.00	3.81	334.94	0.000000	0.00	0.000
17	-1.60	100	52	53.09	1600.00	4.60	324.43	0.000000	0.00	0.000
18	-1.70	100	53	53.09	1600.00	5.49	317.91	0.000000	0.00	0.000
19	-1.80	100	54	53.09	1600.00	6.50	314.14	0.000000	0.00	0.000
20	-1.90	100	55	53.09	1600.00	7.61	312.36	0.000000	0.00	0.000
21	-2.00	100	56	53.09	1600.00	8.85	312.06	0.000000	0.00	0.000
22	-2.10	100	56	53.09	1600.00	10.21	312.89	0.000000	0.00	0.000
23	-2.20	100	57	53.09	1600.00	11.70	314.62	0.000000	0.00	0.000
24	-2.30	100	58	53.09	1600.00	13.33	317.08	0.000000	0.00	0.000
25	-2.40	100	59	53.09	1600.00	15.10	320.12	0.000000	0.00	0.000
26	-2.50	100	59	53.09	1600.00	17.02	323.66	0.000000	0.00	0.000
27	-2.60	100	60	53.09	1600.00	19.09	327.62	0.000000	0.00	0.000
28	-2.70	100	61	53.09	1600.00	21.32	331.94	0.000000	0.00	0.000
29	-2.80	100	62	53.09	1600.00	23.72	336.58	0.000000	0.00	0.000
30	-2.90	100	63	53.09	1600.00	26.29	341.49	0.000000	0.00	0.000
31	-3.00	100	63	53.09	1600.00	29.04	346.65	0.000000	0.00	0.000
32	-3.10	100	64	53.09	1600.00	31.97	352.03	0.000000	0.00	0.000
33	-3.20	100	65	53.09	1600.00	35.08	357.61	0.000000	0.00	0.000
34	-3.30	100	66	53.09	1600.00	38.40	363.38	0.000000	0.00	0.000
35	-3.40	100	66	53.09	1600.00	41.91	369.31	0.000000	0.00	0.000
36	-3.50	100	67	53.09	1600.00	45.63	375.40	0.000000	0.00	0.000
37	-3.60	100	68	53.09	1600.00	49.56	381.64	0.000000	0.00	0.000
38	-3.70	100	69	53.09	1600.00	53.70	388.02	0.000000	0.00	0.000
39	-3.80	100	70	53.09	1600.00	58.08	394.53	0.000000	0.00	0.000
40	-3.90	100	70	53.09	1600.00	62.68	401.16	0.000000	0.00	0.000
41	-4.00	100	71	53.09	1600.00	67.51	407.91	0.000000	0.00	0.000
42	-4.10	100	72	53.09	1600.00	72.59	414.78	0.000000	0.00	0.000
43	-4.20	100	73	53.09	1600.00	77.91	421.75	0.000000	0.00	0.000
44	-4.30	100	73	53.09	1600.00	83.48	428.82	0.000000	0.00	0.000
45	-4.40	100	74	53.09	1600.00	89.31	436.00	0.000000	0.00	0.000
46	-4.50	100	75	53.09	1600.00	95.41	443.27	0.000000	0.00	0.000
47	-4.60	100	76	53.09	1600.00	101.77	450.64	0.000000	0.00	0.000
48	-4.70	100	77	53.09	1600.00	108.41	458.10	0.000000	0.00	0.000
49	-4.80	100	77	53.09	1600.00	115.34	465.65	0.000000	0.00	0.000
50	-4.90	100	78	53.09	1600.00	122.54	473.29	0.000000	0.00	0.000
51	-5.00	100	79	53.09	1600.00	130.04	481.02	0.000000	0.00	0.000
52	-5.10	100	80	53.09	1600.00	137.84	488.83	0.000000	0.00	0.000
53	-5.20	100	80	53.09	1600.00	145.95	496.73	0.000000	0.00	0.000
54	-5.30	100	81	53.09	1600.00	154.36	504.70	0.000000	0.00	0.000
55	-5.40	100	82	53.09	1600.00	163.09	512.76	0.000000	0.00	0.000
56	-5.50	100	83	53.09	1600.00	172.14	520.90	0.000000	0.00	0.000
57	-5.60	100	84	53.09	1600.00	181.51	529.12	0.000000	0.00	0.000
58	-5.70	100	84	53.09	1600.00	191.22	537.41	0.000000	0.00	0.000
59	-5.80	100	85	53.09	1600.00	201.27	545.78	0.000000	0.00	0.000
60	-5.90	100	86	53.09	1600.00	211.67	554.23	0.000000	0.00	0.000
61	-6.00	100	87	53.09	1600.00	222.45	562.75	0.000000	0.00	0.000
62	-6.10	100	87	53.09	1600.00	233.61	571.33	0.000000	0.00	0.000
63	-6.20	100	88	53.09	1600.00	245.17	579.99	0.000000	0.00	0.000
64	-6.30	100	89	53.09	1600.00	257.15	588.72	0.000000	0.00	0.000
65	-6.40	100	90	53.09	1600.00	269.54	597.51	0.000000	0.00	0.000
66	-6.50	100	91	53.09	1600.00	282.37	606.37	0.000000	0.00	0.000

Fondazione

Combinazione n° 11 - SLEF

Apertura limite fessure w_{lim}=0.30

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-1.00	100	110	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.90	100	110	45.24	1600.00	0.85	719.00	0.000000	0.00	0.000
3	-0.80	100	110	45.24	1600.00	3.38	719.00	0.000000	0.00	0.000
4	-0.70	100	110	45.24	1600.00	7.58	719.00	0.000000	0.00	0.000
5	-0.60	100	110	45.24	1600.00	13.45	719.00	0.000000	0.00	0.000
6	-0.50	100	110	45.24	1600.00	20.95	719.00	0.000000	0.00	0.000
7	-0.40	100	110	45.24	1600.00	30.09	719.00	0.000000	0.00	0.000
8	0.51	100	110	45.24	1600.00	-428.05	-719.00	0.000000	0.00	0.000
9	0.60	100	110	45.24	1600.00	-419.51	-719.00	0.000000	0.00	0.000
10	0.70	100	110	45.24	1600.00	-410.76	-719.00	0.000000	0.00	0.000
11	0.80	100	110	45.24	1600.00	-401.81	-719.00	0.000000	0.00	0.000
12	0.90	100	110	45.24	1600.00	-392.67	-719.00	0.000000	0.00	0.000
13	1.00	100	110	45.24	1600.00	-383.36	-719.00	0.000000	0.00	0.000
14	1.10	100	110	45.24	1600.00	-373.88	-719.00	0.000000	0.00	0.000
15	1.20	100	110	45.24	1600.00	-364.27	-719.00	0.000000	0.00	0.000
16	1.30	100	110	45.24	1600.00	-354.51	-719.00	0.000000	0.00	0.000
17	1.40	100	110	45.24	1600.00	-344.64	-719.00	0.000000	0.00	0.000
18	1.49	100	110	45.24	1600.00	-334.67	-719.00	0.000000	0.00	0.000
19	1.59	100	110	45.24	1600.00	-324.60	-719.00	0.000000	0.00	0.000
20	1.69	100	110	45.24	1600.00	-314.45	-719.00	0.000000	0.00	0.000
21	1.79	100	110	45.24	1600.00	-304.24	-719.00	0.000000	0.00	0.000
22	1.89	100	110	45.24	1600.00	-293.98	-719.00	0.000000	0.00	0.000
23	1.99	100	110	45.24	1600.00	-283.68	-719.00	0.000000	0.00	0.000
24	2.09	100	110	45.24	1600.00	-273.35	-719.00	0.000000	0.00	0.000
25	2.19	100	110	45.24	1600.00	-263.02	-719.00	0.000000	0.00	0.000
26	2.29	100	110	45.24	1600.00	-252.68	-719.00	0.000000	0.00	0.000
27	2.38	100	110	45.24	1600.00	-242.37	-719.00	0.000000	0.00	0.000
28	2.48	100	110	45.24	1600.00	-232.08	-719.00	0.000000	0.00	0.000
29	2.58	100	110	45.24	1600.00	-221.84	-719.00	0.000000	0.00	0.000
30	2.68	100	110	45.24	1600.00	-211.65	-719.00	0.000000	0.00	0.000
31	2.78	100	110	45.24	1600.00	-201.54	-719.00	0.000000	0.00	0.000
32	2.88	100	110	45.24	1600.00	-191.51	-719.00	0.000000	0.00	0.000
33	2.98	100	110	45.24	1600.00	-181.58	-719.00	0.000000	0.00	0.000
34	3.08	100	110	45.24	1600.00	-171.76	-719.00	0.000000	0.00	0.000
35	3.17	100	110	45.24	1600.00	-162.06	-719.00	0.000000	0.00	0.000
36	3.27	100	110	45.24	1600.00	-152.51	-719.00	0.000000	0.00	0.000
37	3.37	100	110	45.24	1600.00	-143.10	-719.00	0.000000	0.00	0.000
38	3.47	100	110	45.24	1600.00	-133.86	-719.00	0.000000	0.00	0.000
39	3.57	100	110	45.24	1600.00	-124.80	-719.00	0.000000	0.00	0.000
40	3.67	100	110	45.24	1600.00	-115.94	-719.00	0.000000	0.00	0.000
41	3.77	100	110	45.24	1600.00	-106.00	-719.00	0.000000	0.00	0.000
42	3.87	100	110	45.24	1600.00	-95.87	-719.00	0.000000	0.00	0.000
43	3.97	100	110	45.24	1600.00	-86.17	-719.00	0.000000	0.00	0.000
44	4.06	100	110	45.24	1600.00	-76.91	-719.00	0.000000	0.00	0.000
45	4.16	100	110	45.24	1600.00	-68.10	-719.00	0.000000	0.00	0.000
46	4.26	100	110	45.24	1600.00	-59.77	-719.00	0.000000	0.00	0.000
47	4.36	100	110	45.24	1600.00	-51.92	-719.00	0.000000	0.00	0.000
48	4.46	100	110	45.24	1600.00	-44.56	-719.00	0.000000	0.00	0.000
49	4.56	100	110	45.24	1600.00	-37.72	-719.00	0.000000	0.00	0.000
50	4.66	100	110	45.24	1600.00	-31.40	-719.00	0.000000	0.00	0.000
51	4.76	100	110	45.24	1600.00	-25.62	-719.00	0.000000	0.00	0.000
52	4.86	100	110	45.24	1600.00	-20.38	-719.00	0.000000	0.00	0.000
53	4.95	100	110	45.24	1600.00	-15.72	-719.00	0.000000	0.00	0.000
54	5.05	100	110	45.24	1600.00	-11.63	-719.00	0.000000	0.00	0.000
55	5.15	100	110	45.24	1600.00	-8.13	-719.00	0.000000	0.00	0.000
56	5.25	100	110	45.24	1600.00	-5.24	-719.00	0.000000	0.00	0.000
57	5.35	100	110	45.24	1600.00	-2.97	-719.00	0.000000	0.00	0.000
58	5.45	100	110	45.24	1600.00	-1.33	-719.00	0.000000	0.00	0.000
59	5.55	100	110	45.24	1600.00	-0.33	-719.00	0.000000	0.00	0.000
60	5.65	100	110	0.00	0.00	0.00	0.00	---	---	0.000

Combinazioni SLEQ

Paramento

Combinazione n° 12 - SLEQ

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	5.81	0.000000	0.00	0.000
3	-0.20	100	42	0.00	0.00	0.02	16.80	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	35.28	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	65.88	0.000000	0.00	0.000
6	-0.50	100	44	0.00	0.00	0.17	118.89	0.000000	0.00	0.000
7	-0.60	100	45	0.00	0.00	0.28	222.15	0.000000	0.00	0.000
8	-0.70	100	45	0.00	0.00	0.42	484.78	0.000000	0.00	0.000
9	-0.80	100	46	0.00	0.00	0.62	2201.91	0.000000	0.00	0.000
10	-0.90	100	47	0.00	0.00	0.86	1546.90	0.000000	0.00	0.000
11	-1.00	100	48	0.00	0.00	1.17	704.98	0.000000	0.00	0.000
12	-1.10	100	49	53.09	1600.00	1.54	508.13	0.000000	0.00	0.000
13	-1.20	100	49	53.09	1600.00	1.98	423.46	0.000000	0.00	0.000
14	-1.30	100	50	53.09	1600.00	2.50	378.29	0.000000	0.00	0.000
15	-1.40	100	51	53.09	1600.00	3.11	351.57	0.000000	0.00	0.000
16	-1.50	100	52	53.09	1600.00	3.81	334.94	0.000000	0.00	0.000
17	-1.60	100	52	53.09	1600.00	4.60	324.43	0.000000	0.00	0.000
18	-1.70	100	53	53.09	1600.00	5.49	317.91	0.000000	0.00	0.000
19	-1.80	100	54	53.09	1600.00	6.50	314.14	0.000000	0.00	0.000
20	-1.90	100	55	53.09	1600.00	7.61	312.36	0.000000	0.00	0.000
21	-2.00	100	56	53.09	1600.00	8.85	312.06	0.000000	0.00	0.000
22	-2.10	100	56	53.09	1600.00	10.21	312.89	0.000000	0.00	0.000
23	-2.20	100	57	53.09	1600.00	11.70	314.62	0.000000	0.00	0.000
24	-2.30	100	58	53.09	1600.00	13.33	317.08	0.000000	0.00	0.000
25	-2.40	100	59	53.09	1600.00	15.10	320.12	0.000000	0.00	0.000
26	-2.50	100	59	53.09	1600.00	17.02	323.66	0.000000	0.00	0.000
27	-2.60	100	60	53.09	1600.00	19.09	327.62	0.000000	0.00	0.000
28	-2.70	100	61	53.09	1600.00	21.32	331.94	0.000000	0.00	0.000
29	-2.80	100	62	53.09	1600.00	23.72	336.58	0.000000	0.00	0.000
30	-2.90	100	63	53.09	1600.00	26.29	341.49	0.000000	0.00	0.000
31	-3.00	100	63	53.09	1600.00	29.04	346.65	0.000000	0.00	0.000
32	-3.10	100	64	53.09	1600.00	31.97	352.03	0.000000	0.00	0.000
33	-3.20	100	65	53.09	1600.00	35.08	357.61	0.000000	0.00	0.000
34	-3.30	100	66	53.09	1600.00	38.40	363.38	0.000000	0.00	0.000
35	-3.40	100	66	53.09	1600.00	41.91	369.31	0.000000	0.00	0.000
36	-3.50	100	67	53.09	1600.00	45.63	375.40	0.000000	0.00	0.000
37	-3.60	100	68	53.09	1600.00	49.56	381.64	0.000000	0.00	0.000
38	-3.70	100	69	53.09	1600.00	53.70	388.02	0.000000	0.00	0.000
39	-3.80	100	70	53.09	1600.00	58.08	394.53	0.000000	0.00	0.000
40	-3.90	100	70	53.09	1600.00	62.68	401.16	0.000000	0.00	0.000
41	-4.00	100	71	53.09	1600.00	67.51	407.91	0.000000	0.00	0.000
42	-4.10	100	72	53.09	1600.00	72.59	414.78	0.000000	0.00	0.000
43	-4.20	100	73	53.09	1600.00	77.91	421.75	0.000000	0.00	0.000
44	-4.30	100	73	53.09	1600.00	83.48	428.82	0.000000	0.00	0.000
45	-4.40	100	74	53.09	1600.00	89.31	436.00	0.000000	0.00	0.000
46	-4.50	100	75	53.09	1600.00	95.41	443.27	0.000000	0.00	0.000
47	-4.60	100	76	53.09	1600.00	101.77	450.64	0.000000	0.00	0.000
48	-4.70	100	77	53.09	1600.00	108.41	458.10	0.000000	0.00	0.000
49	-4.80	100	77	53.09	1600.00	115.34	465.65	0.000000	0.00	0.000
50	-4.90	100	78	53.09	1600.00	122.54	473.29	0.000000	0.00	0.000
51	-5.00	100	79	53.09	1600.00	130.04	481.02	0.000000	0.00	0.000
52	-5.10	100	80	53.09	1600.00	137.84	488.83	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
53	-5.20	100	80	53.09	1600.00	145.95	496.73	0.000000	0.00	0.000
54	-5.30	100	81	53.09	1600.00	154.36	504.70	0.000000	0.00	0.000
55	-5.40	100	82	53.09	1600.00	163.09	512.76	0.000000	0.00	0.000
56	-5.50	100	83	53.09	1600.00	172.14	520.90	0.000000	0.00	0.000
57	-5.60	100	84	53.09	1600.00	181.51	529.12	0.000000	0.00	0.000
58	-5.70	100	84	53.09	1600.00	191.22	537.41	0.000000	0.00	0.000
59	-5.80	100	85	53.09	1600.00	201.27	545.78	0.000000	0.00	0.000
60	-5.90	100	86	53.09	1600.00	211.67	554.23	0.000000	0.00	0.000
61	-6.00	100	87	53.09	1600.00	222.45	562.75	0.000000	0.00	0.000
62	-6.10	100	87	53.09	1600.00	233.61	571.33	0.000000	0.00	0.000
63	-6.20	100	88	53.09	1600.00	245.17	579.99	0.000000	0.00	0.000
64	-6.30	100	89	53.09	1600.00	257.15	588.72	0.000000	0.00	0.000
65	-6.40	100	90	53.09	1600.00	269.54	597.51	0.000000	0.00	0.000
66	-6.50	100	91	53.09	1600.00	282.37	606.37	0.000000	0.00	0.000

Combinazione n° 13 - SLEQ H + V

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.01	14.66	0.000000	0.00	0.000
3	-0.20	100	42	0.00	0.00	0.03	40.58	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.08	88.30	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.17	189.00	0.000000	0.00	0.000
6	-0.50	100	44	0.00	0.00	0.29	491.90	0.000000	0.00	0.000
7	-0.60	100	45	0.00	0.00	0.46	11073.41	0.000000	0.00	0.000
8	-0.70	100	45	0.00	0.00	0.69	874.79	0.000000	0.00	0.000
9	-0.80	100	46	53.09	1600.00	0.98	510.03	0.000000	0.00	0.000
10	-0.90	100	47	53.09	1600.00	1.34	397.38	0.000000	0.00	0.000
11	-1.00	100	48	53.09	1600.00	1.78	344.91	0.000000	0.00	0.000
12	-1.10	100	49	53.09	1600.00	2.30	316.14	0.000000	0.00	0.000
13	-1.20	100	49	53.09	1600.00	2.93	299.18	0.000000	0.00	0.000
14	-1.30	100	50	53.09	1600.00	3.65	288.95	0.000000	0.00	0.000
15	-1.40	100	51	53.09	1600.00	4.49	282.92	0.000000	0.00	0.000
16	-1.50	100	52	53.09	1600.00	5.45	279.69	0.000000	0.00	0.000
17	-1.60	100	52	53.09	1600.00	6.53	278.43	0.000000	0.00	0.000
18	-1.70	100	53	53.09	1600.00	7.74	278.60	0.000000	0.00	0.000
19	-1.80	100	54	53.09	1600.00	9.09	279.86	0.000000	0.00	0.000
20	-1.90	100	55	53.09	1600.00	10.59	281.96	0.000000	0.00	0.000
21	-2.00	100	56	53.09	1600.00	12.24	284.73	0.000000	0.00	0.000
22	-2.10	100	56	53.09	1600.00	14.05	288.05	0.000000	0.00	0.000
23	-2.20	100	57	53.09	1600.00	16.03	291.81	0.000000	0.00	0.000
24	-2.30	100	58	53.09	1600.00	18.19	295.96	0.000000	0.00	0.000
25	-2.40	100	59	53.09	1600.00	20.53	300.43	0.000000	0.00	0.000
26	-2.50	100	59	53.09	1600.00	23.06	305.19	0.000000	0.00	0.000
27	-2.60	100	60	53.09	1600.00	25.79	310.20	0.000000	0.00	0.000
28	-2.70	100	61	53.09	1600.00	28.72	315.43	0.000000	0.00	0.000
29	-2.80	100	62	53.09	1600.00	31.87	320.85	0.000000	0.00	0.000
30	-2.90	100	63	53.09	1600.00	35.23	326.46	0.000000	0.00	0.000
31	-3.00	100	63	53.09	1600.00	38.82	332.24	0.000000	0.00	0.000
32	-3.10	100	64	53.09	1600.00	42.64	338.17	0.000000	0.00	0.000
33	-3.20	100	65	53.09	1600.00	46.70	344.24	0.000000	0.00	0.000
34	-3.30	100	66	53.09	1600.00	51.01	350.44	0.000000	0.00	0.000
35	-3.40	100	66	53.09	1600.00	55.57	356.77	0.000000	0.00	0.000
36	-3.50	100	67	53.09	1600.00	60.40	363.22	0.000000	0.00	0.000
37	-3.60	100	68	53.09	1600.00	65.50	369.79	0.000000	0.00	0.000
38	-3.70	100	69	53.09	1600.00	70.87	376.46	0.000000	0.00	0.000
39	-3.80	100	70	53.09	1600.00	76.52	383.23	0.000000	0.00	0.000
40	-3.90	100	70	53.09	1600.00	82.47	390.11	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
41	-4.00	100	71	53.09	1600.00	88.72	397.08	0.000000	0.00	0.000
42	-4.10	100	72	53.09	1600.00	95.27	404.15	0.000000	0.00	0.000
43	-4.20	100	73	53.09	1600.00	102.13	411.31	0.000000	0.00	0.000
44	-4.30	100	73	53.09	1600.00	109.31	418.56	0.000000	0.00	0.000
45	-4.40	100	74	53.09	1600.00	116.82	425.89	0.000000	0.00	0.000
46	-4.50	100	75	53.09	1600.00	124.66	433.31	0.000000	0.00	0.000
47	-4.60	100	76	53.09	1600.00	132.85	440.82	0.000000	0.00	0.000
48	-4.70	100	77	53.09	1600.00	141.38	448.40	0.000000	0.00	0.000
49	-4.80	100	77	53.09	1600.00	150.27	456.07	0.000000	0.00	0.000
50	-4.90	100	78	53.09	1600.00	159.52	463.82	0.000000	0.00	0.000
51	-5.00	100	79	53.09	1600.00	169.14	471.64	0.000000	0.00	0.000
52	-5.10	100	80	53.09	1600.00	179.14	479.54	0.000000	0.00	0.000
53	-5.20	100	80	53.09	1600.00	189.52	487.52	0.000000	0.00	0.000
54	-5.30	100	81	53.09	1600.00	200.30	495.58	0.000000	0.00	0.000
55	-5.40	100	82	53.09	1600.00	211.47	503.71	0.000000	0.00	0.000
56	-5.50	100	83	53.09	1600.00	223.05	511.91	0.000000	0.00	0.000
57	-5.60	100	84	53.09	1600.00	235.05	520.19	0.000000	0.00	0.000
58	-5.70	100	84	53.09	1600.00	247.46	528.54	0.000000	0.00	0.000
59	-5.80	100	85	53.09	1600.00	260.30	536.97	0.000000	0.00	0.000
60	-5.90	100	86	53.09	1600.00	273.59	545.46	0.000000	0.00	0.000
61	-6.00	100	87	53.09	1600.00	287.34	554.02	0.000000	0.00	0.000
62	-6.10	100	87	53.09	1600.00	301.57	562.66	0.000000	0.00	0.000
63	-6.20	100	88	53.09	1600.00	316.29	571.36	0.000000	0.00	0.000
64	-6.30	100	89	53.09	1600.00	331.53	580.12	0.000000	0.00	0.000
65	-6.40	100	90	53.09	1600.00	347.29	588.96	0.000000	0.00	0.000
66	-6.50	100	91	53.09	1600.00	363.57	597.86	0.000000	0.00	0.000

Fondazione

Combinazione n° 12 - SLEQ

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-1.00	100	110	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.90	100	110	45.24	1600.00	0.85	719.00	0.000000	0.00	0.000
3	-0.80	100	110	45.24	1600.00	3.38	719.00	0.000000	0.00	0.000
4	-0.70	100	110	45.24	1600.00	7.58	719.00	0.000000	0.00	0.000
5	-0.60	100	110	45.24	1600.00	13.45	719.00	0.000000	0.00	0.000
6	-0.50	100	110	45.24	1600.00	20.95	719.00	0.000000	0.00	0.000
7	-0.40	100	110	45.24	1600.00	30.09	719.00	0.000000	0.00	0.000
8	0.51	100	110	45.24	1600.00	-428.05	-719.00	0.000000	0.00	0.000
9	0.60	100	110	45.24	1600.00	-419.51	-719.00	0.000000	0.00	0.000
10	0.70	100	110	45.24	1600.00	-410.76	-719.00	0.000000	0.00	0.000
11	0.80	100	110	45.24	1600.00	-401.81	-719.00	0.000000	0.00	0.000
12	0.90	100	110	45.24	1600.00	-392.67	-719.00	0.000000	0.00	0.000
13	1.00	100	110	45.24	1600.00	-383.36	-719.00	0.000000	0.00	0.000
14	1.10	100	110	45.24	1600.00	-373.88	-719.00	0.000000	0.00	0.000
15	1.20	100	110	45.24	1600.00	-364.27	-719.00	0.000000	0.00	0.000
16	1.30	100	110	45.24	1600.00	-354.51	-719.00	0.000000	0.00	0.000
17	1.40	100	110	45.24	1600.00	-344.64	-719.00	0.000000	0.00	0.000
18	1.49	100	110	45.24	1600.00	-334.67	-719.00	0.000000	0.00	0.000
19	1.59	100	110	45.24	1600.00	-324.60	-719.00	0.000000	0.00	0.000
20	1.69	100	110	45.24	1600.00	-314.45	-719.00	0.000000	0.00	0.000
21	1.79	100	110	45.24	1600.00	-304.24	-719.00	0.000000	0.00	0.000
22	1.89	100	110	45.24	1600.00	-293.98	-719.00	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
23	1.99	100	110	45.24	1600.00	-283.68	-719.00	0.000000	0.00	0.000
24	2.09	100	110	45.24	1600.00	-273.35	-719.00	0.000000	0.00	0.000
25	2.19	100	110	45.24	1600.00	-263.02	-719.00	0.000000	0.00	0.000
26	2.29	100	110	45.24	1600.00	-252.68	-719.00	0.000000	0.00	0.000
27	2.38	100	110	45.24	1600.00	-242.37	-719.00	0.000000	0.00	0.000
28	2.48	100	110	45.24	1600.00	-232.08	-719.00	0.000000	0.00	0.000
29	2.58	100	110	45.24	1600.00	-221.84	-719.00	0.000000	0.00	0.000
30	2.68	100	110	45.24	1600.00	-211.65	-719.00	0.000000	0.00	0.000
31	2.78	100	110	45.24	1600.00	-201.54	-719.00	0.000000	0.00	0.000
32	2.88	100	110	45.24	1600.00	-191.51	-719.00	0.000000	0.00	0.000
33	2.98	100	110	45.24	1600.00	-181.58	-719.00	0.000000	0.00	0.000
34	3.08	100	110	45.24	1600.00	-171.76	-719.00	0.000000	0.00	0.000
35	3.17	100	110	45.24	1600.00	-162.06	-719.00	0.000000	0.00	0.000
36	3.27	100	110	45.24	1600.00	-152.51	-719.00	0.000000	0.00	0.000
37	3.37	100	110	45.24	1600.00	-143.10	-719.00	0.000000	0.00	0.000
38	3.47	100	110	45.24	1600.00	-133.86	-719.00	0.000000	0.00	0.000
39	3.57	100	110	45.24	1600.00	-124.80	-719.00	0.000000	0.00	0.000
40	3.67	100	110	45.24	1600.00	-115.94	-719.00	0.000000	0.00	0.000
41	3.77	100	110	45.24	1600.00	-106.00	-719.00	0.000000	0.00	0.000
42	3.87	100	110	45.24	1600.00	-95.87	-719.00	0.000000	0.00	0.000
43	3.97	100	110	45.24	1600.00	-86.17	-719.00	0.000000	0.00	0.000
44	4.06	100	110	45.24	1600.00	-76.91	-719.00	0.000000	0.00	0.000
45	4.16	100	110	45.24	1600.00	-68.10	-719.00	0.000000	0.00	0.000
46	4.26	100	110	45.24	1600.00	-59.77	-719.00	0.000000	0.00	0.000
47	4.36	100	110	45.24	1600.00	-51.92	-719.00	0.000000	0.00	0.000
48	4.46	100	110	45.24	1600.00	-44.56	-719.00	0.000000	0.00	0.000
49	4.56	100	110	45.24	1600.00	-37.72	-719.00	0.000000	0.00	0.000
50	4.66	100	110	45.24	1600.00	-31.40	-719.00	0.000000	0.00	0.000
51	4.76	100	110	45.24	1600.00	-25.62	-719.00	0.000000	0.00	0.000
52	4.86	100	110	45.24	1600.00	-20.38	-719.00	0.000000	0.00	0.000
53	4.95	100	110	45.24	1600.00	-15.72	-719.00	0.000000	0.00	0.000
54	5.05	100	110	45.24	1600.00	-11.63	-719.00	0.000000	0.00	0.000
55	5.15	100	110	45.24	1600.00	-8.13	-719.00	0.000000	0.00	0.000
56	5.25	100	110	45.24	1600.00	-5.24	-719.00	0.000000	0.00	0.000
57	5.35	100	110	45.24	1600.00	-2.97	-719.00	0.000000	0.00	0.000
58	5.45	100	110	45.24	1600.00	-1.33	-719.00	0.000000	0.00	0.000
59	5.55	100	110	45.24	1600.00	-0.33	-719.00	0.000000	0.00	0.000
60	5.65	100	110	0.00	0.00	0.00	0.00	---	---	0.000

Combinazione n° 13 - SLEQ H + V

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-1.00	100	110	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.90	100	110	45.24	1600.00	1.12	719.00	0.000000	0.00	0.000
3	-0.80	100	110	45.24	1600.00	4.45	719.00	0.000000	0.00	0.000
4	-0.70	100	110	45.24	1600.00	9.97	719.00	0.000000	0.00	0.000
5	-0.60	100	110	45.24	1600.00	17.65	719.00	0.000000	0.00	0.000
6	-0.50	100	110	45.24	1600.00	27.47	719.00	0.000000	0.00	0.000
7	-0.40	100	110	45.24	1600.00	39.38	719.00	0.000000	0.00	0.000
8	0.51	100	110	45.24	1600.00	-665.79	-719.00	0.000000	0.00	0.000
9	0.60	100	110	45.24	1600.00	-654.36	-719.00	0.000000	0.00	0.000
10	0.70	100	110	45.24	1600.00	-642.41	-719.00	0.000000	0.00	0.000
11	0.80	100	110	45.24	1600.00	-629.97	-719.00	0.000000	0.00	0.000
12	0.90	100	110	45.24	1600.00	-617.07	-719.00	0.000000	0.00	0.000
13	1.00	100	110	45.24	1600.00	-603.73	-719.00	0.000000	0.00	0.000
14	1.10	100	110	45.24	1600.00	-589.99	-719.00	0.000000	0.00	0.000
15	1.20	100	110	45.24	1600.00	-575.87	-719.00	0.000000	0.00	0.000
16	1.30	100	110	45.24	1600.00	-561.40	-719.00	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
17	1.40	100	110	45.24	1600.00	-546.61	-719.00	0.000000	0.00	0.000
18	1.49	100	110	45.24	1600.00	-531.53	-719.00	0.000000	0.00	0.000
19	1.59	100	110	45.24	1600.00	-516.18	-719.00	0.000000	0.00	0.000
20	1.69	100	110	45.24	1600.00	-500.59	-719.00	0.000000	0.00	0.000
21	1.79	100	110	45.24	1600.00	-484.79	-719.00	0.000000	0.00	0.000
22	1.89	100	110	45.24	1600.00	-468.80	-719.00	0.000000	0.00	0.000
23	1.99	100	110	45.24	1600.00	-452.67	-719.00	0.000000	0.00	0.000
24	2.09	100	110	45.24	1600.00	-436.40	-719.00	0.000000	0.00	0.000
25	2.19	100	110	45.24	1600.00	-420.03	-719.00	0.000000	0.00	0.000
26	2.29	100	110	45.24	1600.00	-403.59	-719.00	0.000000	0.00	0.000
27	2.38	100	110	45.24	1600.00	-387.11	-719.00	0.000000	0.00	0.000
28	2.48	100	110	45.24	1600.00	-370.61	-719.00	0.000000	0.00	0.000
29	2.58	100	110	45.24	1600.00	-354.12	-719.00	0.000000	0.00	0.000
30	2.68	100	110	45.24	1600.00	-337.67	-719.00	0.000000	0.00	0.000
31	2.78	100	110	45.24	1600.00	-321.28	-719.00	0.000000	0.00	0.000
32	2.88	100	110	45.24	1600.00	-304.99	-719.00	0.000000	0.00	0.000
33	2.98	100	110	45.24	1600.00	-288.83	-719.00	0.000000	0.00	0.000
34	3.08	100	110	45.24	1600.00	-272.81	-719.00	0.000000	0.00	0.000
35	3.17	100	110	45.24	1600.00	-256.97	-719.00	0.000000	0.00	0.000
36	3.27	100	110	45.24	1600.00	-241.34	-719.00	0.000000	0.00	0.000
37	3.37	100	110	45.24	1600.00	-225.94	-719.00	0.000000	0.00	0.000
38	3.47	100	110	45.24	1600.00	-210.80	-719.00	0.000000	0.00	0.000
39	3.57	100	110	45.24	1600.00	-195.95	-719.00	0.000000	0.00	0.000
40	3.67	100	110	45.24	1600.00	-181.41	-719.00	0.000000	0.00	0.000
41	3.77	100	110	45.24	1600.00	-165.95	-719.00	0.000000	0.00	0.000
42	3.87	100	110	45.24	1600.00	-150.44	-719.00	0.000000	0.00	0.000
43	3.97	100	110	45.24	1600.00	-135.53	-719.00	0.000000	0.00	0.000
44	4.06	100	110	45.24	1600.00	-121.24	-719.00	0.000000	0.00	0.000
45	4.16	100	110	45.24	1600.00	-107.60	-719.00	0.000000	0.00	0.000
46	4.26	100	110	45.24	1600.00	-94.64	-719.00	0.000000	0.00	0.000
47	4.36	100	110	45.24	1600.00	-82.38	-719.00	0.000000	0.00	0.000
48	4.46	100	110	45.24	1600.00	-70.86	-719.00	0.000000	0.00	0.000
49	4.56	100	110	45.24	1600.00	-60.10	-719.00	0.000000	0.00	0.000
50	4.66	100	110	45.24	1600.00	-50.14	-719.00	0.000000	0.00	0.000
51	4.76	100	110	45.24	1600.00	-40.98	-719.00	0.000000	0.00	0.000
52	4.86	100	110	45.24	1600.00	-32.68	-719.00	0.000000	0.00	0.000
53	4.95	100	110	45.24	1600.00	-25.25	-719.00	0.000000	0.00	0.000
54	5.05	100	110	45.24	1600.00	-18.72	-719.00	0.000000	0.00	0.000
55	5.15	100	110	45.24	1600.00	-13.11	-719.00	0.000000	0.00	0.000
56	5.25	100	110	45.24	1600.00	-8.47	-719.00	0.000000	0.00	0.000
57	5.35	100	110	45.24	1600.00	-4.80	-719.00	0.000000	0.00	0.000
58	5.45	100	110	45.24	1600.00	-2.15	-719.00	0.000000	0.00	0.000
59	5.55	100	110	45.24	1600.00	-0.54	-719.00	0.000000	0.00	0.000
60	5.65	100	110	0.00	0.00	0.00	0.00	---	---	0.000

12.2 RISULTATI PER INVILUPPO

Spinta e forze

Simbologia adottata

Ic	Indice della combinazione
A	Tipo azione
I	Inclinazione della spinta, espressa in [°]
V	Valore dell'azione, espressa in [kN]
C_X, C_Y	Componente in direzione X ed Y dell'azione, espressa in [kN]

Px, Py Coordinata X ed Y del punto di applicazione dell'azione, espressa in [m]

Ic	A	V	I	Cx	Cy	Px	Py
		[kN]	[°]	[kN]	[kN]	[m]	[m]
1	Spinta statica	255.10	0.00	255.10	0.00	5.65	-4.76
	Peso/Inerzia muro			0.00	283.28/0.00	1.45	-5.81
	Peso/Inerzia terrapieno			0.00	734.00/0.00	2.96	-3.20
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00

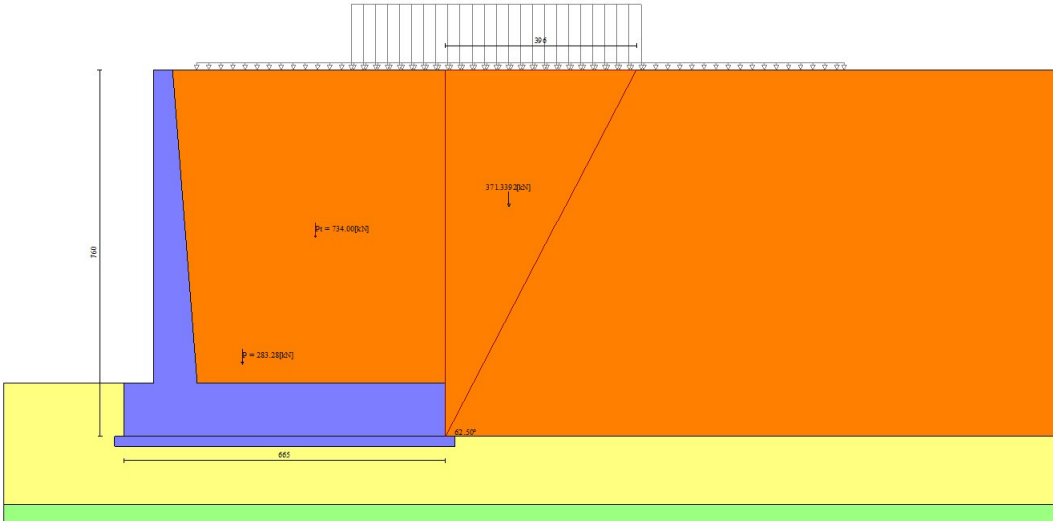


Fig. 12 - Cuneo di spinta (combinazione statica) (Combinazione n° 1)

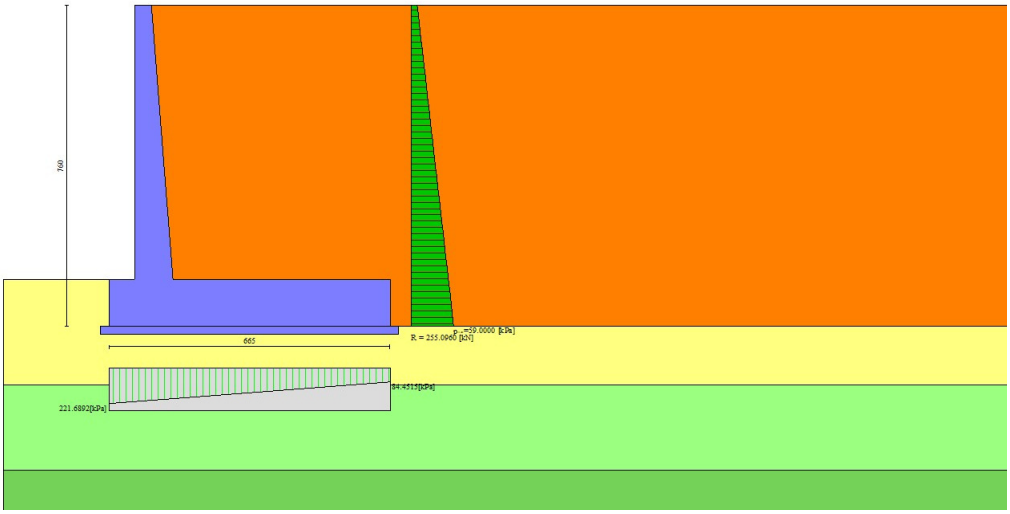


Fig. 13 - Diagramma delle pressioni (combinazione statica) (Combinazione n° 1)

Risultanti globali

Simbologia adottata

Cmb	Indice/Tipo combinazione
N	Componente normale al piano di posa, espressa in [kN]
T	Componente parallela al piano di posa, espressa in [kN]
M_r	Momento ribaltante, espresso in [kNm]
M_s	Momento stabilizzante, espresso in [kNm]
ecc	Eccentricità risultante, espressa in [m]

Ic	N	T	M_r	M_s	ecc
	[kN]	*[kN]*	*[kNm]*	*[kNm]*	*[m]*
1 - STR (A1-M1-R3)	1017.28	255.10	724.52	3599.76	0.497
2 - STR (A1-M1-R3)	1030.15	340.00	1015.40	3616.76	0.798
3 - STR (A1-M1-R3)	904.62	319.70	1184.33	3396.39	0.878
4 - GEO (A2-M2-R2)	1007.44	254.18	731.09	3559.65	0.515
5 - GEO (A2-M2-R2)	1030.15	340.00	1015.40	3616.76	0.798
6 - GEO (A2-M2-R2)	904.62	319.70	1184.33	3396.39	0.878
7 - EQU (A1-M1-R3)	1017.28	255.10	724.52	3599.76	0.497
8 - EQU (A1-M1-R3)	1049.97	398.20	1206.53	3686.35	0.961
9 - EQU (A1-M1-R3)	884.80	372.22	1430.68	3396.39	1.101
10 - SLER	998.52	194.01	548.90	3523.28	0.344
11 - SLEF	998.52	194.01	548.90	3523.28	0.344
12 - SLEQ	998.52	194.01	548.90	3523.28	0.344
13 - SLEQ	1036.26	305.59	916.47	3656.47	0.679

Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

Cmb Indice/Tipo combinazione

S Sisma (H: componente orizzontale, V: componente verticale)

FS_{SCO} Coeff. di sicurezza allo scorrimento

FS_{RIB} Coeff. di sicurezza al ribaltamento

FS_{QLIM} Coeff. di sicurezza a carico limite

FS_{STAB} Coeff. di sicurezza a stabilità globale

FS_{HYD} Coeff. di sicurezza a sifonamento

FS_{UPL} Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.860		1.790			
2 - STR (A1-M1-R3)	H + V	1.413		1.236			
3 - STR (A1-M1-R3)	H - V	1.319		1.277			
4 - GEO (A2-M2-R2)					1.380		
5 - GEO (A2-M2-R2)	H + V				1.383		
6 - GEO (A2-M2-R2)	H - V				1.332		
7 - EQU (A1-M1-R3)			4.968				
8 - EQU (A1-M1-R3)	H + V		3.055				
9 - EQU (A1-M1-R3)	H - V		2.374				

Verifica a scorrimento fondazione

Simbologia adottata

n° Indice combinazione

Rsa Resistenza allo scorrimento per attrito, espresso in [kN]

Rpt Resistenza passiva terreno antistante, espresso in [kN]

Rps Resistenza passiva sperone, espresso in [kN]

Rp Resistenza a carichi orizzontali pali (solo per fondazione mista), espresso in [kN]

Rt Resistenza a carichi orizzontali tiranti (solo se presenti), espresso in [kN]

R Resistenza allo scorrimento (somma di Rsa+Rpt+Rps+Rp), espresso in [kN]

T Carico parallelo al piano di posa, espresso in [kN]

FS Fattore di sicurezza (rapporto R/T)

n°	Rsa	Rpt	Rps	Rp	Rt	R	T	FS
	[kN]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	
3 - STR (A1-M1-R3) H - V	421.83	0.00	0.00	--	--	421.83	319.70	1.319

Verifica a carico limite

Simbologia adottata

n°	Indice combinazione
N	Carico normale totale al piano di posa, espresso in [kN]
Qu	carico limite del terreno, espresso in [kN]
Qd	Portanza di progetto, espresso in [kN]
FS	Fattore di sicurezza (rapporto tra il carico limie e carico agente al piano di posa)

n°	N	Qu	Qd	FS
	[kN]	*[kN]*	*[kN]*	
2 - STR (A1-M1-R3) H + V	1030.15	1273.69	1061.41	1.236

Dettagli calcolo portanza

Simbologia adottata

n°	Indice combinazione
Nc, Nq, N_γ	Fattori di capacità portante
ic, iq, i_γ	Fattori di inclinazione del carico
dc, dq, d_γ	Fattori di profondità del piano di posa
gc, gq, g_γ	Fattori di inclinazione del profilo topografico
bc, bq, b_γ	Fattori di inclinazione del piano di posa
sc, sq, s_γ	Fattori di forma della fondazione
pc, pq, p_γ	Fattori di riduzione per punzonamento secondo Vesic
Re	Fattore di riduzione capacità portante per eccentricità secondo Meyerhof
Ir, Irc	Indici di rigidezza per punzonamento secondo Vesic
r_γ fattore	Fattori per tener conto dell'effetto piastra. Per fondazioni che hanno larghezza maggiore di 2 m, il terzo termine della formula trinomia $0.5B\gamma N_\gamma$ viene moltiplicato per questo
D	Affondamento del piano di posa, espresso in [m]
B'	Larghezza fondazione ridotta, espresso in [m]
H	Altezza del cuneo di rottura, espresso in [m]
γ	Peso di volume del terreno medio, espresso in [kN/mc]
ϕ	Angolo di attrito del terreno medio, espresso in [°]
c	Coesione del terreno medio, espresso in [kPa]

Per i coeff. che in tabella sono indicati con il simbolo '--' sono coeff. non presenti nel metodo scelto (Meyerhof).

n°	Nc Nq Nγ	ic iq iγ	dc dq dγ	gc gq gγ	bc bq bγ	sc sq sγ	pc pq pγ	Ir	Irc	Re	rγ
2	27.101 15.802 12.464	0.635 0.635 0.131	1.056 1.028 1.028	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.870

n°	D	B'	H	γ	ϕ	c
	[m]	*[m]*	*[m]*	*[°]*	*[kN/mc]*	*[kPa]*
2	1.10	5.05	5.60	9.89	28.64	0

Verifica a ribaltamento

Simbologia adottata

n° Indice combinazione

Ms Momento stabilizzante, espresso in [kNm]

Mr Momento ribaltante, espresso in [kNm]

FS Fattore di sicurezza (rapporto tra momento stabilizzante e momento ribaltante)

La verifica viene eseguita rispetto allo spigolo inferiore esterno della fondazione

n°	Ms	Mr	FS
	[kNm]	*[kNm]*	
9 - EQU (A1-M1-R3) H - V	3396.39	1430.68	2.374

Verifica stabilità globale muro + terreno

Simbologia adottata

Ic Indice/Tipo combinazione

C Centro superficie di scorrimento, espresso in [m]

R Raggio, espresso in [m]

FS Fattore di sicurezza

Ic	C	R	FS
	[m]	*[m]*	
6 - GEO (A2-M2-R2) H - V	0.00; 4.00	12.91	1.332

Dettagli strisce verifiche stabilità

Simbologia adottata

Le ascisse X sono considerate positive verso monte

Le ordinate Y sono considerate positive verso l'alto

Origine in testa al muro (spigolo contro terra)

W peso della striscia espresso in [kN]

Qy carico sulla striscia espresso in [kN]

α angolo fra la base della striscia e l'orizzontale espresso in [°] (positivo antiorario)

ϕ angolo d'attrito del terreno lungo la base della striscia

c coesione del terreno lungo la base della striscia espressa in [kPa]

b larghezza della striscia espressa in [m]

u pressione neutra lungo la base della striscia espressa in [kPa]

Tx; Ty Resistenza al taglio fornita dai tiranti in direzione X ed Y espressa in [kPa]

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	14.16	1.58	12.29 - 0.79	67.155	35.000	0	0.0	
2	38.43	1.58	0.79	59.441	35.000	0	0.0	
3	56.47	1.58	0.79	53.054	35.000	0	0.0	
4	70.92	3.92	0.79	47.522	35.000	0	0.0	
5	82.91	4.75	0.79	42.531	35.000	0	0.0	
6	93.03	4.75	0.79	37.914	35.000	0	0.0	
7	101.63	4.75	0.79	33.574	35.000	0	0.0	
8	108.96	4.75	0.79	29.443	35.000	0	0.0	
9	118.16	4.75	0.79	25.475	25.000	0	0.0	
10	125.19	4.75	0.79	21.635	25.000	0	0.0	
11	129.48	4.23	0.79	17.895	25.000	0	2.7	
12	132.92	1.58	0.79	14.232	25.000	0	5.0	
13	135.56	1.58	0.79	10.628	25.000	0	6.7	
14	137.42	1.58	0.79	7.067	25.000	0	7.9	
15	138.93	1.38	0.79	3.533	25.000	0	8.6	
16	161.67	0.00	0.79	0.012	25.000	0	8.9	
17	40.55	0.00	0.79	-3.509	25.000	0	8.6	
18	34.74	0.00	0.79	-7.043	25.000	0	7.9	
19	32.89	0.00	0.79	-10.604	25.000	0	6.7	
20	30.26	0.00	0.79	-14.208	25.000	0	5.0	
21	26.83	0.00	0.79	-17.870	25.000	0	2.8	
22	22.54	0.00	0.79	-21.610	25.000	0	0.0	
23	17.34	0.00	0.79	-25.449	25.000	0	0.0	
24	11.13	0.00	0.79	-29.416	25.000	0	0.0	
25	3.81	0.00	-7.53 - 0.79	-33.072	25.000	0	0.0	

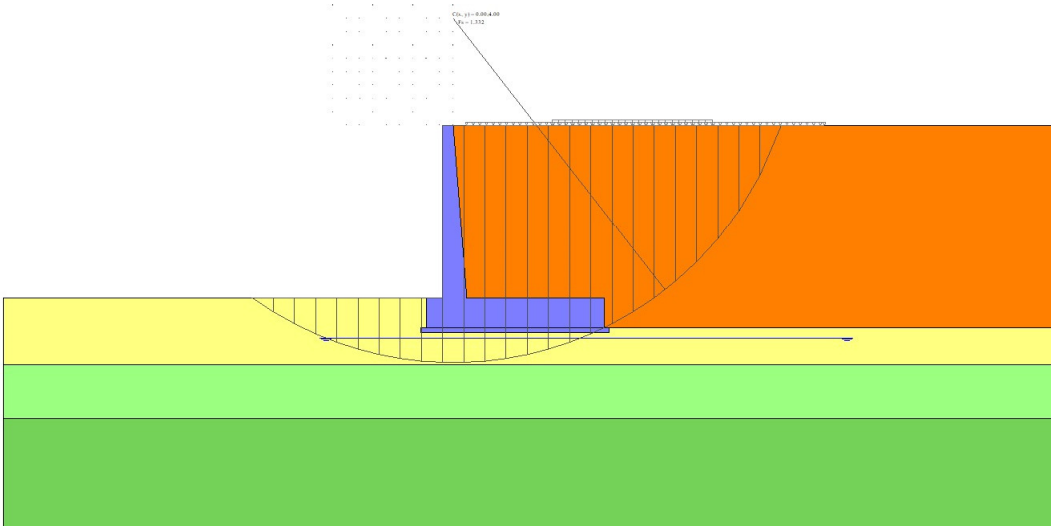


Fig. 14 - Stabilità fronte di scavo - Cerchio critico (Combinazione n° 6)

Sollecitazioni

Elementi calcolati a trave

Simbologia adottata

N Sforzo normale, espresso in [kN]. Positivo se di compressione.

T Taglio, espresso in [kN]. Positivo se diretto da monte verso valle

M Momento, espresso in [kNm]. Positivo se tende le fibre contro terra (a monte)

Paramento

n°	X	N_{min}	N_{max}	T_{min}	T_{max}	M_{min}	M_{max}
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.99	0.03	0.17	0.00	0.01
3	-0.20	2.00	2.00	0.12	0.41	0.02	0.04
4	-0.30	3.03	3.03	0.26	0.74	0.04	0.11
5	-0.40	4.08	4.08	0.46	1.14	0.09	0.22
6	-0.50	5.14	5.14	0.71	1.63	0.17	0.37
7	-0.60	6.23	6.23	1.03	2.19	0.28	0.59
8	-0.70	7.33	7.33	1.40	2.84	0.42	0.86
9	-0.80	8.46	8.46	1.85	3.57	0.62	1.21
10	-0.90	9.60	9.60	2.36	4.40	0.86	1.65
11	-1.00	10.76	10.76	2.95	5.32	1.17	2.17
12	-1.10	11.94	11.94	3.59	6.33	1.54	2.80
13	-1.20	13.14	13.14	4.30	7.42	1.98	3.53
14	-1.30	14.36	14.36	5.07	8.59	2.50	4.39
15	-1.40	15.60	15.60	5.90	9.84	3.11	5.36

n°	X	N_{min}	N_{max}	T_{min}	T_{max}	M_{min}	M_{max}
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
16	-1.50	16.86	16.86	6.78	11.17	3.81	6.48
17	-1.60	18.13	18.13	7.72	12.58	4.60	7.73
18	-1.70	19.43	19.43	8.72	14.07	5.49	9.14
19	-1.80	20.74	20.74	9.78	15.64	6.50	10.70
20	-1.90	22.08	22.08	10.89	17.29	7.61	12.43
21	-2.00	23.43	23.43	12.06	19.01	8.85	14.33
22	-2.10	24.80	24.80	13.28	20.82	10.21	16.42
23	-2.20	26.19	26.19	14.57	22.70	11.70	18.69
24	-2.30	27.60	27.60	15.91	24.67	13.33	21.16
25	-2.40	29.03	29.03	17.31	26.71	15.10	23.84
26	-2.50	30.48	30.48	18.76	28.83	17.02	26.73
27	-2.60	31.95	31.95	20.27	31.03	19.09	29.85
28	-2.70	33.43	33.43	21.84	33.31	21.32	33.19
29	-2.80	34.94	34.94	23.47	35.67	23.72	36.77
30	-2.90	36.46	36.46	25.15	38.11	26.29	40.60
31	-3.00	38.01	38.01	26.89	40.63	29.04	44.68
32	-3.10	39.57	39.57	28.69	43.22	31.97	49.03
33	-3.20	41.15	41.15	30.54	45.90	35.08	53.64
34	-3.30	42.75	42.75	32.45	48.65	38.40	58.53
35	-3.40	44.37	44.37	34.42	51.49	41.91	63.70
36	-3.50	46.01	46.01	36.44	54.40	45.63	69.17
37	-3.60	47.67	47.67	38.53	57.39	49.56	74.94
38	-3.70	49.35	49.35	40.66	60.46	53.70	81.03
39	-3.80	51.04	51.04	42.86	63.61	58.08	87.42
40	-3.90	52.76	52.76	45.11	66.84	62.68	94.15
41	-4.00	54.49	54.49	47.42	70.15	67.51	101.21
42	-4.10	56.24	56.24	49.79	73.53	72.59	108.60
43	-4.20	58.02	58.02	52.21	77.00	77.91	116.35
44	-4.30	59.81	59.81	54.69	80.54	83.48	124.46
45	-4.40	61.62	61.62	57.23	84.17	89.31	132.93
46	-4.50	63.45	63.45	59.82	87.87	95.41	141.77
47	-4.60	65.30	65.30	62.48	91.65	101.77	151.00
48	-4.70	67.17	67.17	65.18	95.51	108.41	160.62
49	-4.80	69.05	69.05	67.95	99.45	115.34	170.63
50	-4.90	70.96	70.96	70.77	103.47	122.54	181.05
51	-5.00	72.88	72.88	73.65	107.57	130.04	191.88
52	-5.10	74.83	74.83	76.59	111.74	137.84	203.13
53	-5.20	76.79	76.79	79.58	116.00	145.95	214.81
54	-5.30	78.77	78.77	82.63	120.33	154.36	226.93
55	-5.40	80.78	80.78	85.74	124.75	163.09	239.49
56	-5.50	82.80	82.80	88.90	129.24	172.14	252.51
57	-5.60	84.84	84.84	92.12	133.81	181.51	265.99
58	-5.70	86.89	86.89	95.40	138.46	191.22	279.94
59	-5.80	88.97	88.97	98.77	143.19	201.27	294.36
60	-5.90	91.07	91.07	102.30	148.00	211.67	309.27
61	-6.00	93.18	93.18	106.00	152.89	222.45	324.67
62	-6.10	95.32	95.32	109.88	157.86	233.61	340.58
63	-6.20	97.47	97.47	113.89	162.90	245.17	356.99
64	-6.30	99.65	99.65	117.99	168.03	257.15	373.92
65	-6.40	101.84	101.84	122.17	173.23	269.54	391.37
66	-6.50	104.05	104.05	126.43	178.51	282.37	409.36

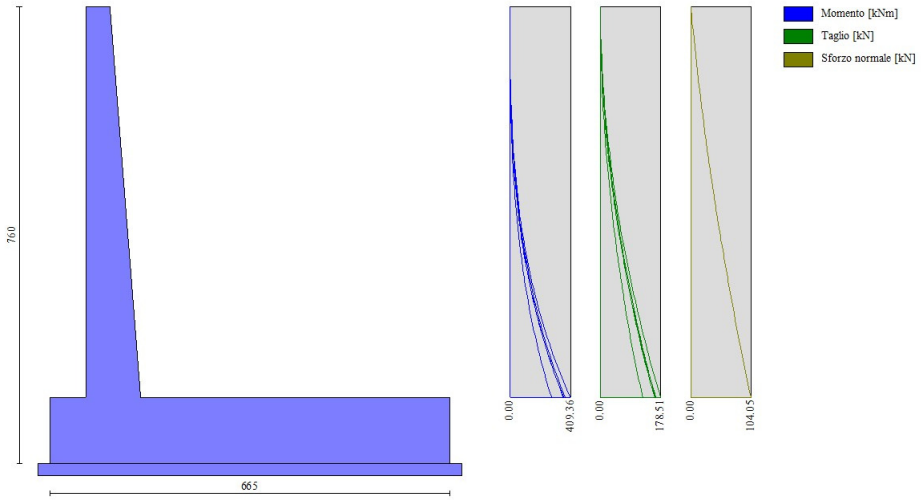


Fig. 15 - Paramento

Fondazione

n°	X	Nmin	Nmax	Tmin	Tmax	Mmin	Mmax
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
1	-1.00	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.90	0.00	0.00	16.93	23.80	0.85	1.19
3	-0.80	0.00	0.00	33.71	47.26	3.38	4.75
4	-0.70	0.00	0.00	50.35	70.39	7.58	10.63
5	-0.60	0.00	0.00	66.86	93.18	13.45	18.82
6	-0.50	0.00	0.00	83.22	115.64	20.95	29.26
7	-0.40	0.00	0.00	99.44	137.76	30.09	41.93
8	0.51	0.00	0.00	-324.94	-104.70	-1068.78	-428.05
9	0.60	0.00	0.00	-324.85	-106.94	-1039.26	-419.51
10	0.70	0.00	0.00	-324.55	-109.04	-1009.76	-410.76
11	0.80	0.00	0.00	-324.05	-111.00	-980.30	-401.81
12	0.90	0.00	0.00	-323.35	-112.82	-950.90	-392.67
13	1.00	0.00	0.00	-322.45	-114.50	-921.57	-383.36
14	1.10	0.00	0.00	-321.35	-116.05	-892.35	-373.88
15	1.20	0.00	0.00	-320.05	-117.46	-863.24	-364.27
16	1.30	0.00	0.00	-318.54	-118.74	-834.28	-354.51
17	1.40	0.00	0.00	-316.83	-119.87	-805.47	-344.64
18	1.49	0.00	0.00	-314.93	-120.87	-776.84	-334.67
19	1.59	0.00	0.00	-312.81	-121.74	-748.41	-324.60
20	1.69	0.00	0.00	-310.50	-122.46	-720.20	-314.45
21	1.79	0.00	0.00	-307.99	-123.05	-692.23	-304.24
22	1.89	0.00	0.00	-305.27	-123.50	-664.52	-293.98
23	1.99	0.00	0.00	-302.35	-123.81	-637.08	-283.68
24	2.09	0.00	0.00	-299.23	-123.99	-609.94	-273.35
25	2.19	0.00	0.00	-295.91	-124.03	-583.12	-263.02
26	2.29	0.00	0.00	-292.39	-123.93	-556.64	-252.68
27	2.38	0.00	0.00	-288.66	-123.69	-530.52	-242.37
28	2.48	0.00	0.00	-284.73	-123.32	-504.78	-232.08
29	2.58	0.00	0.00	-280.61	-122.81	-479.43	-221.84
30	2.68	0.00	0.00	-276.27	-122.16	-454.50	-211.65
31	2.78	0.00	0.00	-271.74	-121.38	-430.01	-201.54
32	2.88	0.00	0.00	-267.01	-120.46	-405.98	-191.51

n°	X	N_{min}	N_{max}	T_{min}	T_{max}	M_{min}	M_{max}
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
33	2.98	0.00	0.00	-262.07	-119.40	-382.43	-181.58
34	3.08	0.00	0.00	-256.93	-118.20	-359.37	-171.76
35	3.17	0.00	0.00	-251.60	-116.87	-336.83	-162.06
36	3.27	0.00	0.00	-246.05	-115.40	-314.83	-152.51
37	3.37	0.00	0.00	-240.31	-113.79	-293.39	-143.10
38	3.47	0.00	0.00	-234.37	-112.04	-272.53	-133.86
39	3.57	0.00	0.00	-228.22	-110.16	-252.26	-124.80
40	3.67	0.00	0.00	-221.87	-108.14	-232.61	-115.94
41	3.77	0.00	0.00	-213.49	-104.63	-211.88	-106.00
42	3.87	0.00	0.00	-204.07	-100.35	-191.24	-95.87
43	3.97	0.00	0.00	-194.45	-95.95	-171.54	-86.17
44	4.06	0.00	0.00	-184.63	-91.40	-152.80	-76.91
45	4.16	0.00	0.00	-174.60	-86.72	-135.05	-68.10
46	4.26	0.00	0.00	-164.37	-81.90	-118.29	-59.77
47	4.36	0.00	0.00	-153.94	-76.94	-102.56	-51.92
48	4.46	0.00	0.00	-143.31	-71.84	-87.87	-44.56
49	4.56	0.00	0.00	-132.48	-66.61	-74.23	-37.72
50	4.66	0.00	0.00	-121.44	-61.24	-61.68	-31.40
51	4.76	0.00	0.00	-110.21	-55.74	-50.23	-25.62
52	4.86	0.00	0.00	-98.77	-50.09	-39.90	-20.38
53	4.95	0.00	0.00	-87.13	-44.31	-30.71	-15.72
54	5.05	0.00	0.00	-75.29	-38.39	-22.68	-11.63
55	5.15	0.00	0.00	-63.24	-32.34	-15.84	-8.13
56	5.25	0.00	0.00	-51.00	-26.14	-10.19	-5.24
57	5.35	0.00	0.00	-38.55	-19.81	-5.76	-2.97
58	5.45	0.00	0.00	-25.90	-13.35	-2.57	-1.33
59	5.55	0.00	0.00	-13.05	-6.74	-0.65	-0.33
60	5.65	0.00	0.00	0.00	0.00	0.00	0.00

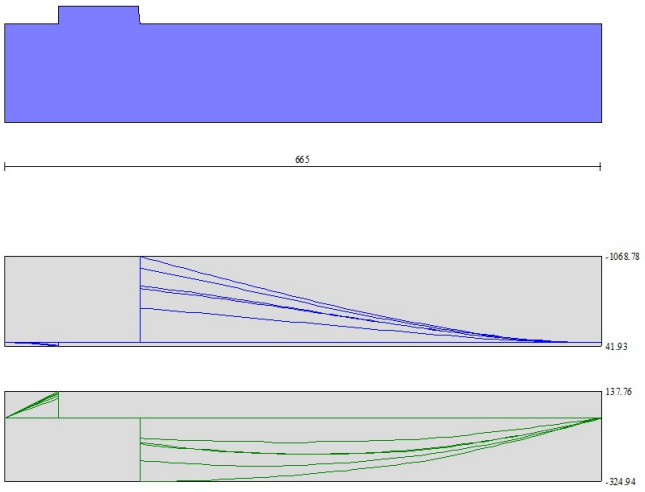


Fig. 16 - Fondazione

Verifiche strutturali

Verifiche a flessione

Elementi calcolati a trave

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Afi	area ferri inferiori espresso in [cmq]
Afs	area ferri superiori espressa in [cmq]
M	momento agente espressa in [kNm]
N	sforzo normale agente espressa in [kN]
Mu	momento ultimi espresso in [kNm]
Nu	sforzo normale ultimo espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione ultima e sollecitazione agente)

Paramento

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	100	40	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
2	100	41	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
3	100	42	26.55	53.09	0.04	2.00	189.30	8639.50	4320.783
4	100	42	26.55	53.09	0.11	3.03	295.04	8075.92	2667.168
5	100	43	26.55	53.09	0.22	4.08	401.14	7500.38	1840.421
6	100	44	26.55	53.09	0.37	5.14	502.90	6918.75	1345.561
7	100	45	26.55	53.09	0.59	6.23	598.24	6358.19	1020.982
8	100	45	26.55	53.09	0.86	7.33	686.55	5834.70	795.762
9	100	46	26.55	53.09	1.21	8.46	768.28	5355.38	633.322
10	100	47	26.55	53.09	1.65	9.60	845.37	4929.78	513.580
11	100	48	26.55	53.09	2.17	10.76	917.46	4547.67	422.614
12	100	49	26.55	53.09	2.80	11.94	986.60	4212.52	352.753
13	100	49	26.55	53.09	3.53	13.14	1051.32	3911.40	297.627
14	100	50	26.55	53.09	4.39	14.36	1113.25	3645.44	253.841
15	100	51	26.55	53.09	5.36	15.60	1172.93	3410.58	218.636
16	100	52	26.55	53.09	6.48	16.86	1206.58	3139.79	186.263
17	100	52	26.55	53.09	7.73	18.13	1225.32	2873.35	158.458
18	100	53	26.55	53.09	9.14	19.43	1236.93	2629.97	135.366
19	100	54	26.55	53.09	10.70	20.74	1248.51	2420.27	116.678
20	100	55	26.55	53.09	12.43	22.08	1255.77	2230.49	101.033
21	100	56	26.55	53.09	14.33	23.43	1265.38	2068.60	88.290
22	100	56	26.55	53.09	16.42	24.80	1271.17	1920.40	77.431
23	100	57	26.55	53.09	18.69	26.19	1277.79	1790.58	68.363
24	100	58	26.55	53.09	21.16	27.60	1286.30	1677.62	60.778
25	100	59	26.55	53.09	23.84	29.03	1294.48	1576.23	54.294
26	100	59	26.55	53.09	26.73	30.48	1300.56	1482.75	48.648
27	100	60	26.55	53.09	29.85	31.95	1308.60	1400.60	43.842

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
28	100	61	26.55	53.09	33.19	33.43	1317.78	1327.35	39.702
29	100	62	26.55	53.09	36.77	34.94	1327.95	1261.68	36.111
30	100	63	26.55	53.09	40.60	36.46	1339.07	1202.59	32.981
31	100	63	26.55	53.09	44.68	38.01	1347.29	1145.99	30.153
32	100	64	26.55	53.09	49.03	39.57	1355.09	1093.71	27.641
33	100	65	26.55	53.09	53.64	41.15	1363.79	1046.29	25.426
34	100	66	26.55	53.09	58.53	42.75	1373.29	1003.11	23.464
35	100	66	26.55	53.09	63.70	44.37	1383.50	963.64	21.718
36	100	67	26.55	53.09	69.17	46.01	1394.34	927.43	20.157
37	100	68	26.55	53.09	74.94	47.67	1405.76	894.13	18.757
38	100	69	26.55	53.09	81.03	49.35	1417.69	863.39	17.497
39	100	70	26.55	53.09	87.42	51.04	1430.10	834.95	16.358
40	100	70	26.55	53.09	94.15	52.76	1442.94	808.57	15.326
41	100	71	26.55	53.09	101.21	54.49	1455.40	783.62	14.381
42	100	72	26.55	53.09	108.60	56.24	1467.55	760.02	13.513
43	100	73	26.55	53.09	116.35	58.02	1479.96	737.95	12.720
44	100	73	26.55	53.09	124.46	59.81	1492.60	717.27	11.993
45	100	74	26.55	53.09	132.93	61.62	1505.47	697.86	11.325
46	100	75	26.55	53.09	141.77	63.45	1518.53	679.60	10.711
47	100	76	26.55	53.09	151.00	65.30	1531.78	662.40	10.144
48	100	77	26.55	53.09	160.62	67.17	1545.19	646.17	9.620
49	100	77	26.55	53.09	170.63	69.05	1558.76	630.83	9.135
50	100	78	26.55	53.09	181.05	70.96	1572.47	616.31	8.686
51	100	79	26.55	53.09	191.88	72.88	1586.32	602.56	8.267
52	100	80	26.55	53.09	203.13	74.83	1600.28	589.51	7.878
53	100	80	26.55	53.09	214.81	76.79	1614.36	577.11	7.515
54	100	81	26.55	53.09	226.93	78.77	1628.54	565.32	7.176
55	100	82	26.55	53.09	239.49	80.78	1642.82	554.08	6.860
56	100	83	26.55	53.09	252.51	82.80	1657.19	543.38	6.563
57	100	84	26.55	53.09	265.99	84.84	1671.65	533.16	6.285
58	100	84	26.55	53.09	279.94	86.89	1686.19	523.41	6.023
59	100	85	26.55	53.09	294.36	88.97	1700.80	514.08	5.778
60	100	86	26.55	53.09	309.27	91.07	1715.48	505.15	5.547
61	100	87	26.55	53.09	324.67	93.18	1730.22	496.60	5.329
62	100	87	26.55	53.09	340.58	95.32	1745.03	488.40	5.124
63	100	88	26.55	53.09	356.99	97.47	1759.90	480.53	4.930
64	100	89	26.55	53.09	373.92	99.65	1774.82	472.98	4.747
65	100	90	26.55	53.09	391.37	101.84	1789.79	465.73	4.573
66	100	91	26.55	53.09	409.36	104.05	1804.82	458.75	4.409

Fondazione

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	100	110	45.24	22.62	0.00	0.00	0.00	0.00	100000.000
2	100	110	45.24	22.62	1.19	0.00	1737.61	0.00	1456.802
3	100	110	45.24	22.62	4.75	0.00	1737.61	0.00	365.918
4	100	110	45.24	22.62	10.63	0.00	1737.61	0.00	163.401
5	100	110	45.24	22.62	18.82	0.00	1737.61	0.00	92.351
6	100	110	45.24	22.62	29.26	0.00	1737.61	0.00	59.387
7	100	110	45.24	22.62	41.93	0.00	1737.61	0.00	41.439
8	100	110	22.62	45.24	-1068.78	0.00	-1737.61	0.00	1.626
9	100	110	22.62	45.24	-1039.26	0.00	-1737.61	0.00	1.672
10	100	110	22.62	45.24	-1009.76	0.00	-1737.61	0.00	1.721
11	100	110	22.62	45.24	-980.30	0.00	-1737.61	0.00	1.773
12	100	110	22.62	45.24	-950.90	0.00	-1737.61	0.00	1.827
13	100	110	22.62	45.24	-921.57	0.00	-1737.61	0.00	1.885
14	100	110	22.62	45.24	-892.35	0.00	-1737.61	0.00	1.947
15	100	110	22.62	45.24	-863.24	0.00	-1737.61	0.00	2.013
16	100	110	22.62	45.24	-834.28	0.00	-1737.61	0.00	2.083
17	100	110	22.62	45.24	-805.47	0.00	-1737.61	0.00	2.157

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
18	100	110	22.62	45.24	-776.84	0.00	-1737.61	0.00	2.237
19	100	110	22.62	45.24	-748.41	0.00	-1737.61	0.00	2.322
20	100	110	22.62	45.24	-720.20	0.00	-1737.61	0.00	2.413
21	100	110	22.62	45.24	-692.23	0.00	-1737.61	0.00	2.510
22	100	110	22.62	45.24	-664.52	0.00	-1737.61	0.00	2.615
23	100	110	22.62	45.24	-637.08	0.00	-1737.61	0.00	2.727
24	100	110	22.62	45.24	-609.94	0.00	-1737.61	0.00	2.849
25	100	110	22.62	45.24	-583.12	0.00	-1737.61	0.00	2.980
26	100	110	22.62	45.24	-556.64	0.00	-1737.61	0.00	3.122
27	100	110	22.62	45.24	-530.52	0.00	-1737.61	0.00	3.275
28	100	110	22.62	45.24	-504.78	0.00	-1737.61	0.00	3.442
29	100	110	22.62	45.24	-479.43	0.00	-1737.61	0.00	3.624
30	100	110	22.62	45.24	-454.50	0.00	-1737.61	0.00	3.823
31	100	110	22.62	45.24	-430.01	0.00	-1737.61	0.00	4.041
32	100	110	22.62	45.24	-405.98	0.00	-1737.61	0.00	4.280
33	100	110	22.62	45.24	-382.43	0.00	-1737.61	0.00	4.544
34	100	110	22.62	45.24	-359.37	0.00	-1737.61	0.00	4.835
35	100	110	22.62	45.24	-336.83	0.00	-1737.61	0.00	5.159
36	100	110	22.62	45.24	-314.83	0.00	-1737.61	0.00	5.519
37	100	110	22.62	45.24	-293.39	0.00	-1737.61	0.00	5.923
38	100	110	22.62	45.24	-272.53	0.00	-1737.61	0.00	6.376
39	100	110	22.62	45.24	-252.26	0.00	-1737.61	0.00	6.888
40	100	110	22.62	45.24	-232.61	0.00	-1737.61	0.00	7.470
41	100	110	22.62	45.24	-211.88	0.00	-1737.61	0.00	8.201
42	100	110	22.62	45.24	-191.24	0.00	-1737.61	0.00	9.086
43	100	110	22.62	45.24	-171.54	0.00	-1737.61	0.00	10.129
44	100	110	22.62	45.24	-152.80	0.00	-1737.61	0.00	11.372
45	100	110	22.62	45.24	-135.05	0.00	-1737.61	0.00	12.867
46	100	110	22.62	45.24	-118.29	0.00	-1737.61	0.00	14.689
47	100	110	22.62	45.24	-102.56	0.00	-1737.61	0.00	16.942
48	100	110	22.62	45.24	-87.87	0.00	-1737.61	0.00	19.776
49	100	110	22.62	45.24	-74.23	0.00	-1737.61	0.00	23.407
50	100	110	22.62	45.24	-61.68	0.00	-1737.61	0.00	28.170
51	100	110	22.62	45.24	-50.23	0.00	-1737.61	0.00	34.591
52	100	110	22.62	45.24	-39.90	0.00	-1737.61	0.00	43.546
53	100	110	22.62	45.24	-30.71	0.00	-1737.61	0.00	56.575
54	100	110	22.62	45.24	-22.68	0.00	-1737.61	0.00	76.599
55	100	110	22.62	45.24	-15.84	0.00	-1737.61	0.00	109.723
56	100	110	22.62	45.24	-10.19	0.00	-1737.61	0.00	170.547
57	100	110	22.62	45.24	-5.76	0.00	-1737.61	0.00	301.621
58	100	110	22.62	45.24	-2.57	0.00	-1737.61	0.00	675.142
59	100	110	22.62	45.24	-0.65	0.00	-1737.61	0.00	2686.687
60	100	110	0.00	0.00	0.00	0.00	0.00	0.00	100000.000

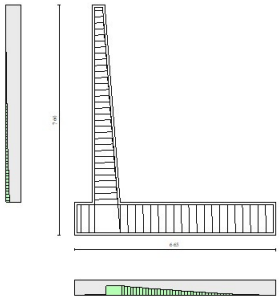


Fig. 17 - Paramento (Inviluppo)

Verifiche a taglio

Simbologia adottata

Is	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
A_{sw}	area ferri a taglio espresso in [cmq]
cotgθ	inclinazione delle bielle compresse, θ inclinazione dei puntoni di calcestruzzo
V_{Rcd}	resistenza di progetto a 'taglio compressione' espressa in [kN]
V_{Rsd}	resistenza di progetto a 'taglio trazione' espressa in [kN]
V_{Rd}	resistenza di progetto a taglio espresso in [kN]. Per elementi con armature trasversali resistenti al taglio (A_{sw}>0.0) V_{Rd}=min(V_{Rcd}, V_{Rsd}).
T	taglio agente espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione resistente e sollecitazione agente)

Paramento

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[cm]	*[cm]*	*[cmq]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	100	40	0.00	--	0.00	0.00	291.33	0.00	100.000
2	100	41	0.00	--	0.00	0.00	296.72	0.17	1775.521
3	100	42	0.00	--	0.00	0.00	302.10	0.41	729.799

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[cm]	*[cm]*	*[cmq]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
4	100	42	0.00	--	0.00	0.00	307.47	0.74	415.646
5	100	43	0.00	--	0.00	0.00	312.83	1.14	273.497
6	100	44	0.00	--	0.00	0.00	318.18	1.63	195.612
7	100	45	0.00	--	0.00	0.00	323.51	2.19	147.832
8	100	45	0.00	--	0.00	0.00	328.83	2.84	115.977
9	100	46	0.00	--	0.00	0.00	334.13	3.57	93.545
10	100	47	0.00	--	0.00	0.00	337.26	4.40	76.649
11	100	48	0.00	--	0.00	0.00	340.37	5.32	63.966
12	100	49	0.00	--	0.00	0.00	343.45	6.33	54.271
13	100	49	0.00	--	0.00	0.00	346.52	7.42	46.709
14	100	50	0.00	--	0.00	0.00	349.58	8.59	40.697
15	100	51	0.00	--	0.00	0.00	352.61	9.84	35.832
16	100	52	0.00	--	0.00	0.00	355.63	11.17	31.835
17	100	52	0.00	--	0.00	0.00	358.63	12.58	28.507
18	100	53	0.00	--	0.00	0.00	361.61	14.07	25.702
19	100	54	0.00	--	0.00	0.00	364.58	15.64	23.314
20	100	55	0.00	--	0.00	0.00	367.53	17.29	21.263
21	100	56	0.00	--	0.00	0.00	370.47	19.01	19.486
22	100	56	0.00	--	0.00	0.00	373.39	20.82	17.936
23	100	57	0.00	--	0.00	0.00	376.30	22.70	16.575
24	100	58	0.00	--	0.00	0.00	379.20	24.67	15.373
25	100	59	0.00	--	0.00	0.00	382.08	26.71	14.305
26	100	59	0.00	--	0.00	0.00	384.95	28.83	13.352
27	100	60	0.00	--	0.00	0.00	387.81	31.03	12.497
28	100	61	0.00	--	0.00	0.00	390.66	33.31	11.727
29	100	62	0.00	--	0.00	0.00	393.49	35.67	11.031
30	100	63	0.00	--	0.00	0.00	396.31	38.11	10.399
31	100	63	0.00	--	0.00	0.00	399.12	40.63	9.824
32	100	64	0.00	--	0.00	0.00	401.92	43.22	9.298
33	100	65	0.00	--	0.00	0.00	404.71	45.90	8.817
34	100	66	0.00	--	0.00	0.00	407.48	48.65	8.375
35	100	66	0.00	--	0.00	0.00	410.25	51.49	7.968
36	100	67	0.00	--	0.00	0.00	413.01	54.40	7.592
37	100	68	0.00	--	0.00	0.00	415.75	57.39	7.244
38	100	69	0.00	--	0.00	0.00	418.49	60.46	6.922
39	100	70	0.00	--	0.00	0.00	421.22	63.61	6.622
40	100	70	0.00	--	0.00	0.00	423.94	66.84	6.343
41	100	71	0.00	--	0.00	0.00	426.65	70.15	6.082
42	100	72	0.00	--	0.00	0.00	429.35	73.53	5.839
43	100	73	0.00	--	0.00	0.00	432.04	77.00	5.611
44	100	73	0.00	--	0.00	0.00	434.73	80.54	5.397
45	100	74	0.00	--	0.00	0.00	437.41	84.17	5.197
46	100	75	0.00	--	0.00	0.00	440.07	87.87	5.008
47	100	76	0.00	--	0.00	0.00	442.74	91.65	4.831
48	100	77	0.00	--	0.00	0.00	445.39	95.51	4.663
49	100	77	0.00	--	0.00	0.00	448.03	99.45	4.505
50	100	78	0.00	--	0.00	0.00	450.67	103.47	4.356
51	100	79	0.00	--	0.00	0.00	453.30	107.57	4.214
52	100	80	0.00	--	0.00	0.00	455.93	111.74	4.080
53	100	80	0.00	--	0.00	0.00	458.55	116.00	3.953
54	100	81	0.00	--	0.00	0.00	461.16	120.33	3.832
55	100	82	0.00	--	0.00	0.00	463.76	124.75	3.718
56	100	83	0.00	--	0.00	0.00	466.36	129.24	3.608
57	100	84	0.00	--	0.00	0.00	468.95	133.81	3.505
58	100	84	0.00	--	0.00	0.00	471.54	138.46	3.406
59	100	85	0.00	--	0.00	0.00	474.12	143.19	3.311
60	100	86	0.00	--	0.00	0.00	476.69	148.00	3.221
61	100	87	0.00	--	0.00	0.00	479.26	152.89	3.135
62	100	87	0.00	--	0.00	0.00	481.82	157.86	3.052
63	100	88	0.00	--	0.00	0.00	484.38	162.90	2.973
64	100	89	0.00	--	0.00	0.00	486.93	168.03	2.898
65	100	90	0.00	--	0.00	0.00	489.48	173.23	2.826
66	100	91	0.00	--	0.00	0.00	492.02	178.51	2.756

Fondazione

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[cm]	*[cm]*	*[cmq]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	100	110	0.00	--	0.00	0.00	481.18	0.00	100.000
2	100	110	0.00	--	0.00	0.00	481.18	-23.80	20.218
3	100	110	0.00	--	0.00	0.00	481.18	-47.26	10.181
4	100	110	0.00	--	0.00	0.00	481.18	-70.39	6.836
5	100	110	0.00	--	0.00	0.00	481.18	-93.18	5.164
6	100	110	0.00	--	0.00	0.00	481.18	-115.64	4.161
7	100	110	0.00	--	0.00	0.00	481.18	-137.76	3.493
8	100	110	0.00	--	0.00	0.00	481.18	-324.94	1.481
9	100	110	0.00	--	0.00	0.00	481.18	-324.85	1.481
10	100	110	0.00	--	0.00	0.00	481.18	-324.55	1.483
11	100	110	0.00	--	0.00	0.00	481.18	-324.05	1.485
12	100	110	0.00	--	0.00	0.00	481.18	-323.35	1.488
13	100	110	0.00	--	0.00	0.00	481.18	-322.45	1.492
14	100	110	0.00	--	0.00	0.00	481.18	-321.35	1.497
15	100	110	0.00	--	0.00	0.00	481.18	-320.05	1.503
16	100	110	0.00	--	0.00	0.00	481.18	-318.54	1.511
17	100	110	0.00	--	0.00	0.00	481.18	-316.83	1.519
18	100	110	0.00	--	0.00	0.00	481.18	-314.93	1.528
19	100	110	0.00	--	0.00	0.00	481.18	-312.81	1.538
20	100	110	0.00	--	0.00	0.00	481.18	-310.50	1.550
21	100	110	0.00	--	0.00	0.00	481.18	-307.99	1.562
22	100	110	0.00	--	0.00	0.00	481.18	-305.27	1.576
23	100	110	0.00	--	0.00	0.00	481.18	-302.35	1.591
24	100	110	0.00	--	0.00	0.00	481.18	-299.23	1.608
25	100	110	0.00	--	0.00	0.00	481.18	-295.91	1.626
26	100	110	0.00	--	0.00	0.00	481.18	-292.39	1.646
27	100	110	0.00	--	0.00	0.00	481.18	-288.66	1.667
28	100	110	0.00	--	0.00	0.00	481.18	-284.73	1.690
29	100	110	0.00	--	0.00	0.00	481.18	-280.61	1.715
30	100	110	0.00	--	0.00	0.00	481.18	-276.27	1.742
31	100	110	0.00	--	0.00	0.00	481.18	-271.74	1.771
32	100	110	0.00	--	0.00	0.00	481.18	-267.01	1.802
33	100	110	0.00	--	0.00	0.00	481.18	-262.07	1.836
34	100	110	0.00	--	0.00	0.00	481.18	-256.93	1.873
35	100	110	0.00	--	0.00	0.00	481.18	-251.60	1.912
36	100	110	0.00	--	0.00	0.00	481.18	-246.05	1.956
37	100	110	0.00	--	0.00	0.00	481.18	-240.31	2.002
38	100	110	0.00	--	0.00	0.00	481.18	-234.37	2.053
39	100	110	0.00	--	0.00	0.00	481.18	-228.22	2.108
40	100	110	0.00	--	0.00	0.00	481.18	-221.87	2.169
41	100	110	0.00	--	0.00	0.00	481.18	-213.49	2.254
42	100	110	0.00	--	0.00	0.00	481.18	-204.07	2.358
43	100	110	0.00	--	0.00	0.00	481.18	-194.45	2.475
44	100	110	0.00	--	0.00	0.00	481.18	-184.63	2.606
45	100	110	0.00	--	0.00	0.00	481.18	-174.60	2.756
46	100	110	0.00	--	0.00	0.00	481.18	-164.37	2.927
47	100	110	0.00	--	0.00	0.00	481.18	-153.94	3.126
48	100	110	0.00	--	0.00	0.00	481.18	-143.31	3.358
49	100	110	0.00	--	0.00	0.00	481.18	-132.48	3.632
50	100	110	0.00	--	0.00	0.00	481.18	-121.44	3.962
51	100	110	0.00	--	0.00	0.00	481.18	-110.21	4.366
52	100	110	0.00	--	0.00	0.00	481.18	-98.77	4.872
53	100	110	0.00	--	0.00	0.00	481.18	-87.13	5.523
54	100	110	0.00	--	0.00	0.00	481.18	-75.29	6.391
55	100	110	0.00	--	0.00	0.00	481.18	-63.24	7.608
56	100	110	0.00	--	0.00	0.00	481.18	-51.00	9.435
57	100	110	0.00	--	0.00	0.00	481.18	-38.55	12.481
58	100	110	0.00	--	0.00	0.00	481.18	-25.90	18.576
59	100	110	0.00	--	0.00	0.00	481.18	-13.05	36.865
60	100	110	0.00	--	0.00	0.00	341.04	0.00	100.000

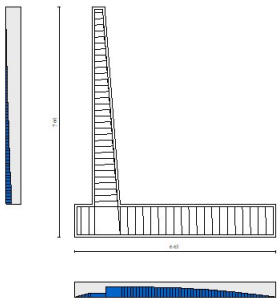


Fig. 18 - Paramento (Inviluppo)

Verifica delle tensioni

Simbologia adottata

n°	indice sezione
Y	ordinata sezione, espressa in [m]
B	larghezza sezione, espresso in [cm]
H	altezza sezione, espressa in [cm]
Afi	area ferri inferiori, espresso in [cmq]
Afs	area ferri superiori, espressa in [cmq]
M	momento agente, espressa in [kNm]
N	sforzo normale agente, espressa in [kN]
σc	tensione di compressione nel cls, espressa in [kPa]
σfi	tensione nei ferri inferiori, espressa in [kPa]
σfs	tensione nei ferri superiori, espressa in [kPa]

Combinazioni SLER

Paramento

Tensione massima di compressione nel calcestruzzo	19920	[kPa]
Tensione massima di trazione dell'acciaio	360000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	26.55	53.09	0.00	0.00	0 (10)	0 (10)	0 (10)
2	100	41	26.55	53.09	0.00	0.99	2 (10)	25 (10)	32 (10)
3	100	42	26.55	53.09	0.02	2.00	5 (10)	47 (10)	66 (10)
4	100	42	26.55	53.09	0.04	3.03	7 (10)	66 (10)	104 (10)
5	100	43	26.55	53.09	0.09	4.08	11 (10)	80 (10)	147 (10)
6	100	44	26.55	53.09	0.17	5.14	14 (10)	89 (10)	195 (10)
7	100	45	26.55	53.09	0.28	6.23	19 (10)	91 (10)	251 (10)
8	100	45	26.55	53.09	0.42	7.33	24 (10)	86 (10)	313 (10)
9	100	46	26.55	53.09	0.62	8.46	30 (10)	73 (10)	385 (10)
10	100	47	26.55	53.09	0.86	9.60	36 (10)	50 (10)	466 (10)
11	100	48	26.55	53.09	1.17	10.76	44 (10)	9 (10)	560 (10)
12	100	49	26.55	53.09	1.54	11.94	53 (10)	56 (10)	668 (10)
13	100	49	26.55	53.09	1.98	13.14	64 (10)	149 (10)	791 (10)
14	100	50	26.55	53.09	2.50	14.36	76 (10)	272 (10)	929 (10)
15	100	51	26.55	53.09	3.11	15.60	89 (10)	427 (10)	1081 (10)
16	100	52	26.55	53.09	3.81	16.86	104 (10)	616 (10)	1248 (10)
17	100	52	26.55	53.09	4.60	18.13	120 (10)	839 (10)	1430 (10)
18	100	53	26.55	53.09	5.49	19.43	137 (10)	1098 (10)	1626 (10)
19	100	54	26.55	53.09	6.50	20.74	156 (10)	1393 (10)	1837 (10)
20	100	55	26.55	53.09	7.61	22.08	176 (10)	1724 (10)	2062 (10)
21	100	56	26.55	53.09	8.85	23.43	197 (10)	2091 (10)	2302 (10)
22	100	56	26.55	53.09	10.21	24.80	220 (10)	2496 (10)	2557 (10)
23	100	57	26.55	53.09	11.70	26.19	244 (10)	2939 (10)	2826 (10)
24	100	58	26.55	53.09	13.33	27.60	269 (10)	3420 (10)	3109 (10)
25	100	59	26.55	53.09	15.10	29.03	296 (10)	3939 (10)	3408 (10)
26	100	59	26.55	53.09	17.02	30.48	323 (10)	4497 (10)	3721 (10)
27	100	60	26.55	53.09	19.09	31.95	352 (10)	5095 (10)	4049 (10)
28	100	61	26.55	53.09	21.32	33.43	382 (10)	5733 (10)	4391 (10)
29	100	62	26.55	53.09	23.72	34.94	414 (10)	6410 (10)	4748 (10)
30	100	63	26.55	53.09	26.29	36.46	446 (10)	7128 (10)	5120 (10)
31	100	63	26.55	53.09	29.04	38.01	480 (10)	7887 (10)	5507 (10)
32	100	64	26.55	53.09	31.97	39.57	515 (10)	8687 (10)	5908 (10)
33	100	65	26.55	53.09	35.08	41.15	551 (10)	9528 (10)	6324 (10)
34	100	66	26.55	53.09	38.40	42.75	589 (10)	10411 (10)	6754 (10)
35	100	66	26.55	53.09	41.91	44.37	627 (10)	11335 (10)	7199 (10)
36	100	67	26.55	53.09	45.63	46.01	667 (10)	12302 (10)	7658 (10)
37	100	68	26.55	53.09	49.56	47.67	708 (10)	13311 (10)	8131 (10)
38	100	69	26.55	53.09	53.70	49.35	750 (10)	14362 (10)	8619 (10)
39	100	70	26.55	53.09	58.08	51.04	793 (10)	15456 (10)	9121 (10)
40	100	70	26.55	53.09	62.68	52.76	837 (10)	16593 (10)	9637 (10)
41	100	71	26.55	53.09	67.51	54.49	882 (10)	17773 (10)	10168 (10)
42	100	72	26.55	53.09	72.59	56.24	929 (10)	18996 (10)	10712 (10)
43	100	73	26.55	53.09	77.91	58.02	976 (10)	20263 (10)	11270 (10)
44	100	73	26.55	53.09	83.48	59.81	1025 (10)	21573 (10)	11842 (10)
45	100	74	26.55	53.09	89.31	61.62	1074 (10)	22927 (10)	12428 (10)
46	100	75	26.55	53.09	95.41	63.45	1125 (10)	24325 (10)	13028 (10)
47	100	76	26.55	53.09	101.77	65.30	1176 (10)	25767 (10)	13641 (10)
48	100	77	26.55	53.09	108.41	67.17	1229 (10)	27253 (10)	14267 (10)
49	100	77	26.55	53.09	115.34	69.05	1283 (10)	28783 (10)	14908 (10)
50	100	78	26.55	53.09	122.54	70.96	1337 (10)	30358 (10)	15561 (10)
51	100	79	26.55	53.09	130.04	72.88	1393 (10)	31977 (10)	16228 (10)
52	100	80	26.55	53.09	137.84	74.83	1450 (10)	33641 (10)	16908 (10)
53	100	80	26.55	53.09	145.95	76.79	1507 (10)	35349 (10)	17601 (10)
54	100	81	26.55	53.09	154.36	78.77	1566 (10)	37102 (10)	18307 (10)
55	100	82	26.55	53.09	163.09	80.78	1625 (10)	38900 (10)	19026 (10)
56	100	83	26.55	53.09	172.14	82.80	1686 (10)	40743 (10)	19758 (10)
57	100	84	26.55	53.09	181.51	84.84	1747 (10)	42631 (10)	20503 (10)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
58	100	84	26.55	53.09	191.22	86.89	1810 (10)	44564 (10)	21260 (10)
59	100	85	26.55	53.09	201.27	88.97	1873 (10)	46542 (10)	22030 (10)
60	100	86	26.55	53.09	211.67	91.07	1937 (10)	48568 (10)	22814 (10)
61	100	87	26.55	53.09	222.45	93.18	2003 (10)	50644 (10)	23612 (10)
62	100	87	26.55	53.09	233.61	95.32	2069 (10)	52774 (10)	24425 (10)
63	100	88	26.55	53.09	245.17	97.47	2137 (10)	54959 (10)	25254 (10)
64	100	89	26.55	53.09	257.15	99.65	2206 (10)	57201 (10)	26100 (10)
65	100	90	26.55	53.09	269.54	101.84	2276 (10)	59501 (10)	26962 (10)
66	100	91	26.55	53.09	282.37	104.05	2348 (10)	61857 (10)	27840 (10)

Fondazione

Tensione massima di compressione nel calcestruzzo	17430	[kPa]
Tensione massima di trazione dell'acciaio	360000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	110	45.24	22.62	0.00	0.00	0 (10)	0 (10)	0 (10)
2	100	110	45.24	22.62	0.85	0.00	5 (10)	199 (10)	61 (10)
3	100	110	45.24	22.62	3.38	0.00	21 (10)	792 (10)	243 (10)
4	100	110	45.24	22.62	7.58	0.00	47 (10)	1777 (10)	545 (10)
5	100	110	45.24	22.62	13.45	0.00	83 (10)	3150 (10)	967 (10)
6	100	110	45.24	22.62	20.95	0.00	129 (10)	4908 (10)	1507 (10)
7	100	110	45.24	22.62	30.09	0.00	185 (10)	7047 (10)	2163 (10)
8	100	110	22.62	45.24	-428.05	0.00	2627 (10)	30780 (10)	100265 (10)
9	100	110	22.62	45.24	-419.51	0.00	2575 (10)	30166 (10)	98265 (10)
10	100	110	22.62	45.24	-410.76	0.00	2521 (10)	29536 (10)	96215 (10)
11	100	110	22.62	45.24	-401.81	0.00	2466 (10)	28893 (10)	94118 (10)
12	100	110	22.62	45.24	-392.67	0.00	2410 (10)	28235 (10)	91978 (10)
13	100	110	22.62	45.24	-383.36	0.00	2353 (10)	27566 (10)	89796 (10)
14	100	110	22.62	45.24	-373.88	0.00	2295 (10)	26885 (10)	87577 (10)
15	100	110	22.62	45.24	-364.27	0.00	2236 (10)	26193 (10)	85324 (10)
16	100	110	22.62	45.24	-354.51	0.00	2176 (10)	25492 (10)	83040 (10)
17	100	110	22.62	45.24	-344.64	0.00	2115 (10)	24782 (10)	80728 (10)
18	100	110	22.62	45.24	-334.67	0.00	2054 (10)	24065 (10)	78391 (10)
19	100	110	22.62	45.24	-324.60	0.00	1992 (10)	23341 (10)	76033 (10)
20	100	110	22.62	45.24	-314.45	0.00	1930 (10)	22611 (10)	73656 (10)
21	100	110	22.62	45.24	-304.24	0.00	1867 (10)	21877 (10)	71264 (10)
22	100	110	22.62	45.24	-293.98	0.00	1804 (10)	21139 (10)	68860 (10)
23	100	110	22.62	45.24	-283.68	0.00	1741 (10)	20398 (10)	66447 (10)
24	100	110	22.62	45.24	-273.35	0.00	1678 (10)	19656 (10)	64029 (10)
25	100	110	22.62	45.24	-263.02	0.00	1614 (10)	18913 (10)	61608 (10)
26	100	110	22.62	45.24	-252.68	0.00	1551 (10)	18170 (10)	59188 (10)
27	100	110	22.62	45.24	-242.37	0.00	1488 (10)	17428 (10)	56771 (10)
28	100	110	22.62	45.24	-232.08	0.00	1424 (10)	16688 (10)	54362 (10)
29	100	110	22.62	45.24	-221.84	0.00	1362 (10)	15952 (10)	51963 (10)
30	100	110	22.62	45.24	-211.65	0.00	1299 (10)	15219 (10)	49577 (10)
31	100	110	22.62	45.24	-201.54	0.00	1237 (10)	14492 (10)	47208 (10)
32	100	110	22.62	45.24	-191.51	0.00	1175 (10)	13771 (10)	44859 (10)
33	100	110	22.62	45.24	-181.58	0.00	1114 (10)	13057 (10)	42532 (10)
34	100	110	22.62	45.24	-171.76	0.00	1054 (10)	12350 (10)	40232 (10)
35	100	110	22.62	45.24	-162.06	0.00	995 (10)	11653 (10)	37961 (10)
36	100	110	22.62	45.24	-152.51	0.00	936 (10)	10966 (10)	35722 (10)
37	100	110	22.62	45.24	-143.10	0.00	878 (10)	10290 (10)	33519 (10)
38	100	110	22.62	45.24	-133.86	0.00	822 (10)	9626 (10)	31355 (10)
39	100	110	22.62	45.24	-124.80	0.00	766 (10)	8974 (10)	29233 (10)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
40	100	110	22.62	45.24	-115.94	0.00	712 (10)	8337 (10)	27156 (10)
41	100	110	22.62	45.24	-106.00	0.00	651 (10)	7622 (10)	24830 (10)
42	100	110	22.62	45.24	-95.87	0.00	588 (10)	6894 (10)	22456 (10)
43	100	110	22.62	45.24	-86.17	0.00	529 (10)	6196 (10)	20184 (10)
44	100	110	22.62	45.24	-76.91	0.00	472 (10)	5530 (10)	18015 (10)
45	100	110	22.62	45.24	-68.10	0.00	418 (10)	4897 (10)	15952 (10)
46	100	110	22.62	45.24	-59.77	0.00	367 (10)	4298 (10)	14000 (10)
47	100	110	22.62	45.24	-51.92	0.00	319 (10)	3733 (10)	12161 (10)
48	100	110	22.62	45.24	-44.56	0.00	274 (10)	3204 (10)	10438 (10)
49	100	110	22.62	45.24	-37.72	0.00	232 (10)	2712 (10)	8835 (10)
50	100	110	22.62	45.24	-31.40	0.00	193 (10)	2258 (10)	7355 (10)
51	100	110	22.62	45.24	-25.62	0.00	157 (10)	1842 (10)	6000 (10)
52	100	110	22.62	45.24	-20.38	0.00	125 (10)	1466 (10)	4775 (10)
53	100	110	22.62	45.24	-15.72	0.00	96 (10)	1130 (10)	3682 (10)
54	100	110	22.62	45.24	-11.63	0.00	71 (10)	836 (10)	2724 (10)
55	100	110	22.62	45.24	-8.13	0.00	50 (10)	585 (10)	1905 (10)
56	100	110	22.62	45.24	-5.24	0.00	32 (10)	377 (10)	1228 (10)
57	100	110	22.62	45.24	-2.97	0.00	18 (10)	213 (10)	695 (10)
58	100	110	22.62	45.24	-1.33	0.00	8 (10)	96 (10)	311 (10)
59	100	110	22.62	45.24	-0.33	0.00	2 (10)	24 (10)	78 (10)
60	100	110	0.00	0.00	0.00	0.00	0 (10)	0 (10)	0 (10)

Combinazioni SLEF

Paramento

Tensione massima di compressione nel calcestruzzo	33200	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	26.55	53.09	0.00	0.00	0 (11)	0 (11)	0 (11)
2	100	41	26.55	53.09	0.00	0.99	2 (11)	25 (11)	32 (11)
3	100	42	26.55	53.09	0.02	2.00	5 (11)	47 (11)	66 (11)
4	100	42	26.55	53.09	0.04	3.03	7 (11)	66 (11)	104 (11)
5	100	43	26.55	53.09	0.09	4.08	11 (11)	80 (11)	147 (11)
6	100	44	26.55	53.09	0.17	5.14	14 (11)	89 (11)	195 (11)
7	100	45	26.55	53.09	0.28	6.23	19 (11)	91 (11)	251 (11)
8	100	45	26.55	53.09	0.42	7.33	24 (11)	86 (11)	313 (11)
9	100	46	26.55	53.09	0.62	8.46	30 (11)	73 (11)	385 (11)
10	100	47	26.55	53.09	0.86	9.60	36 (11)	50 (11)	466 (11)
11	100	48	26.55	53.09	1.17	10.76	44 (11)	9 (11)	560 (11)
12	100	49	26.55	53.09	1.54	11.94	53 (11)	56 (11)	668 (11)
13	100	49	26.55	53.09	1.98	13.14	64 (11)	149 (11)	791 (11)
14	100	50	26.55	53.09	2.50	14.36	76 (11)	272 (11)	929 (11)
15	100	51	26.55	53.09	3.11	15.60	89 (11)	427 (11)	1081 (11)
16	100	52	26.55	53.09	3.81	16.86	104 (11)	616 (11)	1248 (11)
17	100	52	26.55	53.09	4.60	18.13	120 (11)	839 (11)	1430 (11)
18	100	53	26.55	53.09	5.49	19.43	137 (11)	1098 (11)	1626 (11)
19	100	54	26.55	53.09	6.50	20.74	156 (11)	1393 (11)	1837 (11)
20	100	55	26.55	53.09	7.61	22.08	176 (11)	1724 (11)	2062 (11)
21	100	56	26.55	53.09	8.85	23.43	197 (11)	2091 (11)	2302 (11)
22	100	56	26.55	53.09	10.21	24.80	220 (11)	2496 (11)	2557 (11)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
23	100	57	26.55	53.09	11.70	26.19	244 (11)	2939 (11)	2826 (11)
24	100	58	26.55	53.09	13.33	27.60	269 (11)	3420 (11)	3109 (11)
25	100	59	26.55	53.09	15.10	29.03	296 (11)	3939 (11)	3408 (11)
26	100	59	26.55	53.09	17.02	30.48	323 (11)	4497 (11)	3721 (11)
27	100	60	26.55	53.09	19.09	31.95	352 (11)	5095 (11)	4049 (11)
28	100	61	26.55	53.09	21.32	33.43	382 (11)	5733 (11)	4391 (11)
29	100	62	26.55	53.09	23.72	34.94	414 (11)	6410 (11)	4748 (11)
30	100	63	26.55	53.09	26.29	36.46	446 (11)	7128 (11)	5120 (11)
31	100	63	26.55	53.09	29.04	38.01	480 (11)	7887 (11)	5507 (11)
32	100	64	26.55	53.09	31.97	39.57	515 (11)	8687 (11)	5908 (11)
33	100	65	26.55	53.09	35.08	41.15	551 (11)	9528 (11)	6324 (11)
34	100	66	26.55	53.09	38.40	42.75	589 (11)	10411 (11)	6754 (11)
35	100	66	26.55	53.09	41.91	44.37	627 (11)	11335 (11)	7199 (11)
36	100	67	26.55	53.09	45.63	46.01	667 (11)	12302 (11)	7658 (11)
37	100	68	26.55	53.09	49.56	47.67	708 (11)	13311 (11)	8131 (11)
38	100	69	26.55	53.09	53.70	49.35	750 (11)	14362 (11)	8619 (11)
39	100	70	26.55	53.09	58.08	51.04	793 (11)	15456 (11)	9121 (11)
40	100	70	26.55	53.09	62.68	52.76	837 (11)	16593 (11)	9637 (11)
41	100	71	26.55	53.09	67.51	54.49	882 (11)	17773 (11)	10168 (11)
42	100	72	26.55	53.09	72.59	56.24	929 (11)	18996 (11)	10712 (11)
43	100	73	26.55	53.09	77.91	58.02	976 (11)	20263 (11)	11270 (11)
44	100	73	26.55	53.09	83.48	59.81	1025 (11)	21573 (11)	11842 (11)
45	100	74	26.55	53.09	89.31	61.62	1074 (11)	22927 (11)	12428 (11)
46	100	75	26.55	53.09	95.41	63.45	1125 (11)	24325 (11)	13028 (11)
47	100	76	26.55	53.09	101.77	65.30	1176 (11)	25767 (11)	13641 (11)
48	100	77	26.55	53.09	108.41	67.17	1229 (11)	27253 (11)	14267 (11)
49	100	77	26.55	53.09	115.34	69.05	1283 (11)	28783 (11)	14908 (11)
50	100	78	26.55	53.09	122.54	70.96	1337 (11)	30358 (11)	15561 (11)
51	100	79	26.55	53.09	130.04	72.88	1393 (11)	31977 (11)	16228 (11)
52	100	80	26.55	53.09	137.84	74.83	1450 (11)	33641 (11)	16908 (11)
53	100	80	26.55	53.09	145.95	76.79	1507 (11)	35349 (11)	17601 (11)
54	100	81	26.55	53.09	154.36	78.77	1566 (11)	37102 (11)	18307 (11)
55	100	82	26.55	53.09	163.09	80.78	1625 (11)	38900 (11)	19026 (11)
56	100	83	26.55	53.09	172.14	82.80	1686 (11)	40743 (11)	19758 (11)
57	100	84	26.55	53.09	181.51	84.84	1747 (11)	42631 (11)	20503 (11)
58	100	84	26.55	53.09	191.22	86.89	1810 (11)	44564 (11)	21260 (11)
59	100	85	26.55	53.09	201.27	88.97	1873 (11)	46542 (11)	22030 (11)
60	100	86	26.55	53.09	211.67	91.07	1937 (11)	48568 (11)	22814 (11)
61	100	87	26.55	53.09	222.45	93.18	2003 (11)	50644 (11)	23612 (11)
62	100	87	26.55	53.09	233.61	95.32	2069 (11)	52774 (11)	24425 (11)
63	100	88	26.55	53.09	245.17	97.47	2137 (11)	54959 (11)	25254 (11)
64	100	89	26.55	53.09	257.15	99.65	2206 (11)	57201 (11)	26100 (11)
65	100	90	26.55	53.09	269.54	101.84	2276 (11)	59501 (11)	26962 (11)
66	100	91	26.55	53.09	282.37	104.05	2348 (11)	61857 (11)	27840 (11)

Fondazione

Tensione massima di compressione nel calcestruzzo	29050	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	110	45.24	22.62	0.00	0.00	0 (11)	0 (11)	0 (11)
2	100	110	45.24	22.62	0.85	0.00	5 (11)	199 (11)	61 (11)
3	100	110	45.24	22.62	3.38	0.00	21 (11)	792 (11)	243 (11)
4	100	110	45.24	22.62	7.58	0.00	47 (11)	1777 (11)	545 (11)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
5	100	110	45.24	22.62	13.45	0.00	83 (11)	3150 (11)	967 (11)
6	100	110	45.24	22.62	20.95	0.00	129 (11)	4908 (11)	1507 (11)
7	100	110	45.24	22.62	30.09	0.00	185 (11)	7047 (11)	2163 (11)
8	100	110	22.62	45.24	-428.05	0.00	2627 (11)	30780 (11)	100265 (11)
9	100	110	22.62	45.24	-419.51	0.00	2575 (11)	30166 (11)	98265 (11)
10	100	110	22.62	45.24	-410.76	0.00	2521 (11)	29536 (11)	96215 (11)
11	100	110	22.62	45.24	-401.81	0.00	2466 (11)	28893 (11)	94118 (11)
12	100	110	22.62	45.24	-392.67	0.00	2410 (11)	28235 (11)	91978 (11)
13	100	110	22.62	45.24	-383.36	0.00	2353 (11)	27566 (11)	89796 (11)
14	100	110	22.62	45.24	-373.88	0.00	2295 (11)	26885 (11)	87577 (11)
15	100	110	22.62	45.24	-364.27	0.00	2236 (11)	26193 (11)	85324 (11)
16	100	110	22.62	45.24	-354.51	0.00	2176 (11)	25492 (11)	83040 (11)
17	100	110	22.62	45.24	-344.64	0.00	2115 (11)	24782 (11)	80728 (11)
18	100	110	22.62	45.24	-334.67	0.00	2054 (11)	24065 (11)	78391 (11)
19	100	110	22.62	45.24	-324.60	0.00	1992 (11)	23341 (11)	76033 (11)
20	100	110	22.62	45.24	-314.45	0.00	1930 (11)	22611 (11)	73656 (11)
21	100	110	22.62	45.24	-304.24	0.00	1867 (11)	21877 (11)	71264 (11)
22	100	110	22.62	45.24	-293.98	0.00	1804 (11)	21139 (11)	68860 (11)
23	100	110	22.62	45.24	-283.68	0.00	1741 (11)	20398 (11)	66447 (11)
24	100	110	22.62	45.24	-273.35	0.00	1678 (11)	19656 (11)	64029 (11)
25	100	110	22.62	45.24	-263.02	0.00	1614 (11)	18913 (11)	61608 (11)
26	100	110	22.62	45.24	-252.68	0.00	1551 (11)	18170 (11)	59188 (11)
27	100	110	22.62	45.24	-242.37	0.00	1488 (11)	17428 (11)	56771 (11)
28	100	110	22.62	45.24	-232.08	0.00	1424 (11)	16688 (11)	54362 (11)
29	100	110	22.62	45.24	-221.84	0.00	1362 (11)	15952 (11)	51963 (11)
30	100	110	22.62	45.24	-211.65	0.00	1299 (11)	15219 (11)	49577 (11)
31	100	110	22.62	45.24	-201.54	0.00	1237 (11)	14492 (11)	47208 (11)
32	100	110	22.62	45.24	-191.51	0.00	1175 (11)	13771 (11)	44859 (11)
33	100	110	22.62	45.24	-181.58	0.00	1114 (11)	13057 (11)	42532 (11)
34	100	110	22.62	45.24	-171.76	0.00	1054 (11)	12350 (11)	40232 (11)
35	100	110	22.62	45.24	-162.06	0.00	995 (11)	11653 (11)	37961 (11)
36	100	110	22.62	45.24	-152.51	0.00	936 (11)	10966 (11)	35722 (11)
37	100	110	22.62	45.24	-143.10	0.00	878 (11)	10290 (11)	33519 (11)
38	100	110	22.62	45.24	-133.86	0.00	822 (11)	9626 (11)	31355 (11)
39	100	110	22.62	45.24	-124.80	0.00	766 (11)	8974 (11)	29233 (11)
40	100	110	22.62	45.24	-115.94	0.00	712 (11)	8337 (11)	27156 (11)
41	100	110	22.62	45.24	-106.00	0.00	651 (11)	7622 (11)	24830 (11)
42	100	110	22.62	45.24	-95.87	0.00	588 (11)	6894 (11)	22456 (11)
43	100	110	22.62	45.24	-86.17	0.00	529 (11)	6196 (11)	20184 (11)
44	100	110	22.62	45.24	-76.91	0.00	472 (11)	5530 (11)	18015 (11)
45	100	110	22.62	45.24	-68.10	0.00	418 (11)	4897 (11)	15952 (11)
46	100	110	22.62	45.24	-59.77	0.00	367 (11)	4298 (11)	14000 (11)
47	100	110	22.62	45.24	-51.92	0.00	319 (11)	3733 (11)	12161 (11)
48	100	110	22.62	45.24	-44.56	0.00	274 (11)	3204 (11)	10438 (11)
49	100	110	22.62	45.24	-37.72	0.00	232 (11)	2712 (11)	8835 (11)
50	100	110	22.62	45.24	-31.40	0.00	193 (11)	2258 (11)	7355 (11)
51	100	110	22.62	45.24	-25.62	0.00	157 (11)	1842 (11)	6000 (11)
52	100	110	22.62	45.24	-20.38	0.00	125 (11)	1466 (11)	4775 (11)
53	100	110	22.62	45.24	-15.72	0.00	96 (11)	1130 (11)	3682 (11)
54	100	110	22.62	45.24	-11.63	0.00	71 (11)	836 (11)	2724 (11)
55	100	110	22.62	45.24	-8.13	0.00	50 (11)	585 (11)	1905 (11)
56	100	110	22.62	45.24	-5.24	0.00	32 (11)	377 (11)	1228 (11)
57	100	110	22.62	45.24	-2.97	0.00	18 (11)	213 (11)	695 (11)
58	100	110	22.62	45.24	-1.33	0.00	8 (11)	96 (11)	311 (11)
59	100	110	22.62	45.24	-0.33	0.00	2 (11)	24 (11)	78 (11)
60	100	110	0.00	0.00	0.00	0.00	0 (11)	0 (11)	0 (11)

Combinazioni SLEQ

Paramento

Tensione massima di compressione nel calcestruzzo	14940	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	26.55	53.09	0.00	0.00	0 (12)	0 (12)	0 (12)
2	100	41	26.55	53.09	0.01	0.99	2 (13)	25 (12)	33 (13)
3	100	42	26.55	53.09	0.03	2.00	5 (13)	47 (12)	71 (13)
4	100	42	26.55	53.09	0.08	3.03	8 (13)	66 (12)	115 (13)
5	100	43	26.55	53.09	0.17	4.08	13 (13)	80 (12)	166 (13)
6	100	44	26.55	53.09	0.29	5.14	17 (13)	89 (12)	226 (13)
7	100	45	26.55	53.09	0.46	6.23	23 (13)	91 (12)	296 (13)
8	100	45	26.55	53.09	0.69	7.33	30 (13)	86 (12)	378 (13)
9	100	46	26.55	53.09	0.98	8.46	38 (13)	73 (12)	474 (13)
10	100	47	26.55	53.09	1.34	9.60	48 (13)	94 (13)	587 (13)
11	100	48	26.55	53.09	1.78	10.76	59 (13)	202 (13)	716 (13)
12	100	49	26.55	53.09	2.30	11.94	72 (13)	346 (13)	863 (13)
13	100	49	26.55	53.09	2.93	13.14	87 (13)	529 (13)	1027 (13)
14	100	50	26.55	53.09	3.65	14.36	103 (13)	752 (13)	1209 (13)
15	100	51	26.55	53.09	4.49	15.60	121 (13)	1016 (13)	1408 (13)
16	100	52	26.55	53.09	5.45	16.86	141 (13)	1324 (13)	1625 (13)
17	100	52	26.55	53.09	6.53	18.13	162 (13)	1674 (13)	1860 (13)
18	100	53	26.55	53.09	7.74	19.43	185 (13)	2069 (13)	2112 (13)
19	100	54	26.55	53.09	9.09	20.74	210 (13)	2508 (13)	2383 (13)
20	100	55	26.55	53.09	10.59	22.08	236 (13)	2994 (13)	2672 (13)
21	100	56	26.55	53.09	12.24	23.43	264 (13)	3525 (13)	2979 (13)
22	100	56	26.55	53.09	14.05	24.80	293 (13)	4104 (13)	3305 (13)
23	100	57	26.55	53.09	16.03	26.19	324 (13)	4731 (13)	3649 (13)
24	100	58	26.55	53.09	18.19	27.60	357 (13)	5406 (13)	4011 (13)
25	100	59	26.55	53.09	20.53	29.03	391 (13)	6129 (13)	4392 (13)
26	100	59	26.55	53.09	23.06	30.48	426 (13)	6902 (13)	4792 (13)
27	100	60	26.55	53.09	25.79	31.95	464 (13)	7725 (13)	5210 (13)
28	100	61	26.55	53.09	28.72	33.43	503 (13)	8599 (13)	5647 (13)
29	100	62	26.55	53.09	31.87	34.94	543 (13)	9523 (13)	6102 (13)
30	100	63	26.55	53.09	35.23	36.46	585 (13)	10498 (13)	6575 (13)
31	100	63	26.55	53.09	38.82	38.01	628 (13)	11525 (13)	7067 (13)
32	100	64	26.55	53.09	42.64	39.57	673 (13)	12604 (13)	7577 (13)
33	100	65	26.55	53.09	46.70	41.15	719 (13)	13735 (13)	8106 (13)
34	100	66	26.55	53.09	51.01	42.75	767 (13)	14919 (13)	8652 (13)
35	100	66	26.55	53.09	55.57	44.37	816 (13)	16155 (13)	9217 (13)
36	100	67	26.55	53.09	60.40	46.01	867 (13)	17445 (13)	9800 (13)
37	100	68	26.55	53.09	65.50	47.67	919 (13)	18789 (13)	10401 (13)
38	100	69	26.55	53.09	70.87	49.35	972 (13)	20186 (13)	11020 (13)
39	100	70	26.55	53.09	76.52	51.04	1027 (13)	21637 (13)	11657 (13)
40	100	70	26.55	53.09	82.47	52.76	1084 (13)	23142 (13)	12311 (13)
41	100	71	26.55	53.09	88.72	54.49	1141 (13)	24702 (13)	12983 (13)
42	100	72	26.55	53.09	95.27	56.24	1200 (13)	26316 (13)	13672 (13)
43	100	73	26.55	53.09	102.13	58.02	1260 (13)	27986 (13)	14379 (13)
44	100	73	26.55	53.09	109.31	59.81	1322 (13)	29710 (13)	15103 (13)
45	100	74	26.55	53.09	116.82	61.62	1385 (13)	31490 (13)	15844 (13)
46	100	75	26.55	53.09	124.66	63.45	1449 (13)	33324 (13)	16603 (13)
47	100	76	26.55	53.09	132.85	65.30	1515 (13)	35215 (13)	17378 (13)
48	100	77	26.55	53.09	141.38	67.17	1582 (13)	37161 (13)	18171 (13)
49	100	77	26.55	53.09	150.27	69.05	1650 (13)	39163 (13)	18980 (13)
50	100	78	26.55	53.09	159.52	70.96	1719 (13)	41221 (13)	19806 (13)
51	100	79	26.55	53.09	169.14	72.88	1789 (13)	43335 (13)	20648 (13)
52	100	80	26.55	53.09	179.14	74.83	1861 (13)	45505 (13)	21507 (13)
53	100	80	26.55	53.09	189.52	76.79	1934 (13)	47732 (13)	22382 (13)
54	100	81	26.55	53.09	200.30	78.77	2008 (13)	50015 (13)	23273 (13)
55	100	82	26.55	53.09	211.47	80.78	2084 (13)	52355 (13)	24181 (13)
56	100	83	26.55	53.09	223.05	82.80	2160 (13)	54751 (13)	25104 (13)
57	100	84	26.55	53.09	235.05	84.84	2238 (13)	57204 (13)	26044 (13)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
58	100	84	26.55	53.09	247.46	86.89	2317 (13)	59714 (13)	26999 (13)
59	100	85	26.55	53.09	260.30	88.97	2397 (13)	62281 (13)	27970 (13)
60	100	86	26.55	53.09	273.59	91.07	2478 (13)	64907 (13)	28958 (13)
61	100	87	26.55	53.09	287.34	93.18	2561 (13)	67596 (13)	29963 (13)
62	100	87	26.55	53.09	301.57	95.32	2645 (13)	70349 (13)	30986 (13)
63	100	88	26.55	53.09	316.29	97.47	2730 (13)	73170 (13)	32028 (13)
64	100	89	26.55	53.09	331.53	99.65	2817 (13)	76060 (13)	33090 (13)
65	100	90	26.55	53.09	347.29	101.84	2905 (13)	79019 (13)	34171 (13)
66	100	91	26.55	53.09	363.57	104.05	2995 (13)	82047 (13)	35272 (13)

Fondazione

Tensione massima di compressione nel calcestruzzo	13073	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	110	45.24	22.62	0.00	0.00	0 (12)	0 (12)	0 (12)
2	100	110	45.24	22.62	1.12	0.00	7 (13)	262 (13)	80 (13)
3	100	110	45.24	22.62	4.45	0.00	27 (13)	1043 (13)	320 (13)
4	100	110	45.24	22.62	9.97	0.00	61 (13)	2336 (13)	717 (13)
5	100	110	45.24	22.62	17.65	0.00	108 (13)	4135 (13)	1269 (13)
6	100	110	45.24	22.62	27.47	0.00	169 (13)	6433 (13)	1975 (13)
7	100	110	45.24	22.62	39.38	0.00	242 (13)	9224 (13)	2831 (13)
8	100	110	22.62	45.24	-665.79	0.00	4086 (13)	47875 (13)	155953 (13)
9	100	110	22.62	45.24	-654.36	0.00	4016 (13)	47052 (13)	153275 (13)
10	100	110	22.62	45.24	-642.41	0.00	3943 (13)	46193 (13)	150475 (13)
11	100	110	22.62	45.24	-629.97	0.00	3866 (13)	45299 (13)	147561 (13)
12	100	110	22.62	45.24	-617.07	0.00	3787 (13)	44371 (13)	144539 (13)
13	100	110	22.62	45.24	-603.73	0.00	3705 (13)	43412 (13)	141416 (13)
14	100	110	22.62	45.24	-589.99	0.00	3621 (13)	42424 (13)	138197 (13)
15	100	110	22.62	45.24	-575.87	0.00	3534 (13)	41409 (13)	134890 (13)
16	100	110	22.62	45.24	-561.40	0.00	3446 (13)	40368 (13)	131501 (13)
17	100	110	22.62	45.24	-546.61	0.00	3355 (13)	39305 (13)	128037 (13)
18	100	110	22.62	45.24	-531.53	0.00	3262 (13)	38220 (13)	124504 (13)
19	100	110	22.62	45.24	-516.18	0.00	3168 (13)	37117 (13)	120908 (13)
20	100	110	22.62	45.24	-500.59	0.00	3072 (13)	35996 (13)	117256 (13)
21	100	110	22.62	45.24	-484.79	0.00	2975 (13)	34859 (13)	113555 (13)
22	100	110	22.62	45.24	-468.80	0.00	2877 (13)	33710 (13)	109811 (13)
23	100	110	22.62	45.24	-452.67	0.00	2778 (13)	32549 (13)	106031 (13)
24	100	110	22.62	45.24	-436.40	0.00	2678 (13)	31380 (13)	102220 (13)
25	100	110	22.62	45.24	-420.03	0.00	2578 (13)	30203 (13)	98387 (13)
26	100	110	22.62	45.24	-403.59	0.00	2477 (13)	29021 (13)	94536 (13)
27	100	110	22.62	45.24	-387.11	0.00	2376 (13)	27835 (13)	90675 (13)
28	100	110	22.62	45.24	-370.61	0.00	2275 (13)	26649 (13)	86810 (13)
29	100	110	22.62	45.24	-354.12	0.00	2173 (13)	25463 (13)	82947 (13)
30	100	110	22.62	45.24	-337.67	0.00	2072 (13)	24280 (13)	79094 (13)
31	100	110	22.62	45.24	-321.28	0.00	1972 (13)	23102 (13)	75256 (13)
32	100	110	22.62	45.24	-304.99	0.00	1872 (13)	21931 (13)	71441 (13)
33	100	110	22.62	45.24	-288.83	0.00	1773 (13)	20768 (13)	67654 (13)
34	100	110	22.62	45.24	-272.81	0.00	1674 (13)	19617 (13)	63902 (13)
35	100	110	22.62	45.24	-256.97	0.00	1577 (13)	18478 (13)	60192 (13)
36	100	110	22.62	45.24	-241.34	0.00	1481 (13)	17354 (13)	56530 (13)
37	100	110	22.62	45.24	-225.94	0.00	1387 (13)	16246 (13)	52923 (13)
38	100	110	22.62	45.24	-210.80	0.00	1294 (13)	15158 (13)	49376 (13)
39	100	110	22.62	45.24	-195.95	0.00	1203 (13)	14090 (13)	45898 (13)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
40	100	110	22.62	45.24	-181.41	0.00	1113 (13)	13045 (13)	42493 (13)
41	100	110	22.62	45.24	-165.95	0.00	1019 (13)	11933 (13)	38872 (13)
42	100	110	22.62	45.24	-150.44	0.00	923 (13)	10818 (13)	35239 (13)
43	100	110	22.62	45.24	-135.53	0.00	832 (13)	9745 (13)	31745 (13)
44	100	110	22.62	45.24	-121.24	0.00	744 (13)	8718 (13)	28398 (13)
45	100	110	22.62	45.24	-107.60	0.00	660 (13)	7737 (13)	25203 (13)
46	100	110	22.62	45.24	-94.64	0.00	581 (13)	6805 (13)	22167 (13)
47	100	110	22.62	45.24	-82.38	0.00	506 (13)	5924 (13)	19297 (13)
48	100	110	22.62	45.24	-70.86	0.00	435 (13)	5095 (13)	16598 (13)
49	100	110	22.62	45.24	-60.10	0.00	369 (13)	4322 (13)	14079 (13)
50	100	110	22.62	45.24	-50.14	0.00	308 (13)	3605 (13)	11744 (13)
51	100	110	22.62	45.24	-40.98	0.00	252 (13)	2947 (13)	9600 (13)
52	100	110	22.62	45.24	-32.68	0.00	201 (13)	2350 (13)	7655 (13)
53	100	110	22.62	45.24	-25.25	0.00	155 (13)	1815 (13)	5914 (13)
54	100	110	22.62	45.24	-18.72	0.00	115 (13)	1346 (13)	4384 (13)
55	100	110	22.62	45.24	-13.11	0.00	80 (13)	943 (13)	3071 (13)
56	100	110	22.62	45.24	-8.47	0.00	52 (13)	609 (13)	1983 (13)
57	100	110	22.62	45.24	-4.80	0.00	29 (13)	345 (13)	1125 (13)
58	100	110	22.62	45.24	-2.15	0.00	13 (13)	155 (13)	504 (13)
59	100	110	22.62	45.24	-0.54	0.00	3 (13)	39 (13)	127 (13)
60	100	110	0.00	0.00	0.00	0.00	0 (12)	0 (12)	0 (12)

Verifica a fessurazione

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Af	area ferri zona tesa espresso in [cmq]
Aeff	area efficace espressa in [cmq]
M	momento agente espressa in [kNm]
Mpf	momento di prima fessurazione espressa in [kNm]
ε	deformazione espresso in %
Sm	spaziatura tra le fessure espressa in [mm]
w	apertura delle fessure espressa in [mm]

Combinazioni SLER

<u>Paramento</u>

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (10)
2	100	41	0.00	0.00	0.00	5.81	0.000000	0.00	0.000 (10)
3	100	42	0.00	0.00	0.02	16.80	0.000000	0.00	0.000 (10)
4	100	42	0.00	0.00	0.04	35.28	0.000000	0.00	0.000 (10)
5	100	43	0.00	0.00	0.09	65.88	0.000000	0.00	0.000 (10)
6	100	44	0.00	0.00	0.17	118.89	0.000000	0.00	0.000 (10)
7	100	45	0.00	0.00	0.28	222.15	0.000000	0.00	0.000 (10)
8	100	45	0.00	0.00	0.42	484.78	0.000000	0.00	0.000 (10)
9	100	46	0.00	0.00	0.62	2201.91	0.000000	0.00	0.000 (10)
10	100	47	0.00	0.00	0.86	1546.90	0.000000	0.00	0.000 (10)
11	100	48	0.00	0.00	1.17	704.98	0.000000	0.00	0.000 (10)
12	100	49	53.09	1600.00	1.54	508.13	0.000000	0.00	0.000 (10)
13	100	49	53.09	1600.00	1.98	423.46	0.000000	0.00	0.000 (10)
14	100	50	53.09	1600.00	2.50	378.29	0.000000	0.00	0.000 (10)
15	100	51	53.09	1600.00	3.11	351.57	0.000000	0.00	0.000 (10)
16	100	52	53.09	1600.00	3.81	334.94	0.000000	0.00	0.000 (10)
17	100	52	53.09	1600.00	4.60	324.43	0.000000	0.00	0.000 (10)
18	100	53	53.09	1600.00	5.49	317.91	0.000000	0.00	0.000 (10)
19	100	54	53.09	1600.00	6.50	314.14	0.000000	0.00	0.000 (10)
20	100	55	53.09	1600.00	7.61	312.36	0.000000	0.00	0.000 (10)
21	100	56	53.09	1600.00	8.85	312.06	0.000000	0.00	0.000 (10)
22	100	56	53.09	1600.00	10.21	312.89	0.000000	0.00	0.000 (10)
23	100	57	53.09	1600.00	11.70	314.62	0.000000	0.00	0.000 (10)
24	100	58	53.09	1600.00	13.33	317.08	0.000000	0.00	0.000 (10)
25	100	59	53.09	1600.00	15.10	320.12	0.000000	0.00	0.000 (10)
26	100	59	53.09	1600.00	17.02	323.66	0.000000	0.00	0.000 (10)
27	100	60	53.09	1600.00	19.09	327.62	0.000000	0.00	0.000 (10)
28	100	61	53.09	1600.00	21.32	331.94	0.000000	0.00	0.000 (10)
29	100	62	53.09	1600.00	23.72	336.58	0.000000	0.00	0.000 (10)
30	100	63	53.09	1600.00	26.29	341.49	0.000000	0.00	0.000 (10)
31	100	63	53.09	1600.00	29.04	346.65	0.000000	0.00	0.000 (10)
32	100	64	53.09	1600.00	31.97	352.03	0.000000	0.00	0.000 (10)
33	100	65	53.09	1600.00	35.08	357.61	0.000000	0.00	0.000 (10)
34	100	66	53.09	1600.00	38.40	363.38	0.000000	0.00	0.000 (10)
35	100	66	53.09	1600.00	41.91	369.31	0.000000	0.00	0.000 (10)
36	100	67	53.09	1600.00	45.63	375.40	0.000000	0.00	0.000 (10)
37	100	68	53.09	1600.00	49.56	381.64	0.000000	0.00	0.000 (10)
38	100	69	53.09	1600.00	53.70	388.02	0.000000	0.00	0.000 (10)
39	100	70	53.09	1600.00	58.08	394.53	0.000000	0.00	0.000 (10)
40	100	70	53.09	1600.00	62.68	401.16	0.000000	0.00	0.000 (10)
41	100	71	53.09	1600.00	67.51	407.91	0.000000	0.00	0.000 (10)
42	100	72	53.09	1600.00	72.59	414.78	0.000000	0.00	0.000 (10)
43	100	73	53.09	1600.00	77.91	421.75	0.000000	0.00	0.000 (10)
44	100	73	53.09	1600.00	83.48	428.82	0.000000	0.00	0.000 (10)
45	100	74	53.09	1600.00	89.31	436.00	0.000000	0.00	0.000 (10)
46	100	75	53.09	1600.00	95.41	443.27	0.000000	0.00	0.000 (10)
47	100	76	53.09	1600.00	101.77	450.64	0.000000	0.00	0.000 (10)
48	100	77	53.09	1600.00	108.41	458.10	0.000000	0.00	0.000 (10)
49	100	77	53.09	1600.00	115.34	465.65	0.000000	0.00	0.000 (10)
50	100	78	53.09	1600.00	122.54	473.29	0.000000	0.00	0.000 (10)
51	100	79	53.09	1600.00	130.04	481.02	0.000000	0.00	0.000 (10)
52	100	80	53.09	1600.00	137.84	488.83	0.000000	0.00	0.000 (10)
53	100	80	53.09	1600.00	145.95	496.73	0.000000	0.00	0.000 (10)
54	100	81	53.09	1600.00	154.36	504.70	0.000000	0.00	0.000 (10)
55	100	82	53.09	1600.00	163.09	512.76	0.000000	0.00	0.000 (10)
56	100	83	53.09	1600.00	172.14	520.90	0.000000	0.00	0.000 (10)
57	100	84	53.09	1600.00	181.51	529.12	0.000000	0.00	0.000 (10)
58	100	84	53.09	1600.00	191.22	537.41	0.000000	0.00	0.000 (10)
59	100	85	53.09	1600.00	201.27	545.78	0.000000	0.00	0.000 (10)
60	100	86	53.09	1600.00	211.67	554.23	0.000000	0.00	0.000 (10)
61	100	87	53.09	1600.00	222.45	562.75	0.000000	0.00	0.000 (10)
62	100	87	53.09	1600.00	233.61	571.33	0.000000	0.00	0.000 (10)
63	100	88	53.09	1600.00	245.17	579.99	0.000000	0.00	0.000 (10)
64	100	89	53.09	1600.00	257.15	588.72	0.000000	0.00	0.000 (10)
65	100	90	53.09	1600.00	269.54	597.51	0.000000	0.00	0.000 (10)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
66	100	91	53.09	1600.00	282.37	606.37	0.000000	0.00	0.000 (10)

Fondazione

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
1	100	110	0.00	0.00	0.00	0.00	---	---	0.000 (10)
2	100	110	45.24	1600.00	0.85	719.00	0.000000	0.00	0.000 (10)
3	100	110	45.24	1600.00	3.38	719.00	0.000000	0.00	0.000 (10)
4	100	110	45.24	1600.00	7.58	719.00	0.000000	0.00	0.000 (10)
5	100	110	45.24	1600.00	13.45	719.00	0.000000	0.00	0.000 (10)
6	100	110	45.24	1600.00	20.95	719.00	0.000000	0.00	0.000 (10)
7	100	110	45.24	1600.00	30.09	719.00	0.000000	0.00	0.000 (10)
8	100	110	45.24	1600.00	-428.05	-719.00	0.000000	0.00	0.000 (10)
9	100	110	45.24	1600.00	-419.51	-719.00	0.000000	0.00	0.000 (10)
10	100	110	45.24	1600.00	-410.76	-719.00	0.000000	0.00	0.000 (10)
11	100	110	45.24	1600.00	-401.81	-719.00	0.000000	0.00	0.000 (10)
12	100	110	45.24	1600.00	-392.67	-719.00	0.000000	0.00	0.000 (10)
13	100	110	45.24	1600.00	-383.36	-719.00	0.000000	0.00	0.000 (10)
14	100	110	45.24	1600.00	-373.88	-719.00	0.000000	0.00	0.000 (10)
15	100	110	45.24	1600.00	-364.27	-719.00	0.000000	0.00	0.000 (10)
16	100	110	45.24	1600.00	-354.51	-719.00	0.000000	0.00	0.000 (10)
17	100	110	45.24	1600.00	-344.64	-719.00	0.000000	0.00	0.000 (10)
18	100	110	45.24	1600.00	-334.67	-719.00	0.000000	0.00	0.000 (10)
19	100	110	45.24	1600.00	-324.60	-719.00	0.000000	0.00	0.000 (10)
20	100	110	45.24	1600.00	-314.45	-719.00	0.000000	0.00	0.000 (10)
21	100	110	45.24	1600.00	-304.24	-719.00	0.000000	0.00	0.000 (10)
22	100	110	45.24	1600.00	-293.98	-719.00	0.000000	0.00	0.000 (10)
23	100	110	45.24	1600.00	-283.68	-719.00	0.000000	0.00	0.000 (10)
24	100	110	45.24	1600.00	-273.35	-719.00	0.000000	0.00	0.000 (10)
25	100	110	45.24	1600.00	-263.02	-719.00	0.000000	0.00	0.000 (10)
26	100	110	45.24	1600.00	-252.68	-719.00	0.000000	0.00	0.000 (10)
27	100	110	45.24	1600.00	-242.37	-719.00	0.000000	0.00	0.000 (10)
28	100	110	45.24	1600.00	-232.08	-719.00	0.000000	0.00	0.000 (10)
29	100	110	45.24	1600.00	-221.84	-719.00	0.000000	0.00	0.000 (10)
30	100	110	45.24	1600.00	-211.65	-719.00	0.000000	0.00	0.000 (10)
31	100	110	45.24	1600.00	-201.54	-719.00	0.000000	0.00	0.000 (10)
32	100	110	45.24	1600.00	-191.51	-719.00	0.000000	0.00	0.000 (10)
33	100	110	45.24	1600.00	-181.58	-719.00	0.000000	0.00	0.000 (10)
34	100	110	45.24	1600.00	-171.76	-719.00	0.000000	0.00	0.000 (10)
35	100	110	45.24	1600.00	-162.06	-719.00	0.000000	0.00	0.000 (10)
36	100	110	45.24	1600.00	-152.51	-719.00	0.000000	0.00	0.000 (10)
37	100	110	45.24	1600.00	-143.10	-719.00	0.000000	0.00	0.000 (10)
38	100	110	45.24	1600.00	-133.86	-719.00	0.000000	0.00	0.000 (10)
39	100	110	45.24	1600.00	-124.80	-719.00	0.000000	0.00	0.000 (10)
40	100	110	45.24	1600.00	-115.94	-719.00	0.000000	0.00	0.000 (10)
41	100	110	45.24	1600.00	-106.00	-719.00	0.000000	0.00	0.000 (10)
42	100	110	45.24	1600.00	-95.87	-719.00	0.000000	0.00	0.000 (10)
43	100	110	45.24	1600.00	-86.17	-719.00	0.000000	0.00	0.000 (10)
44	100	110	45.24	1600.00	-76.91	-719.00	0.000000	0.00	0.000 (10)
45	100	110	45.24	1600.00	-68.10	-719.00	0.000000	0.00	0.000 (10)
46	100	110	45.24	1600.00	-59.77	-719.00	0.000000	0.00	0.000 (10)
47	100	110	45.24	1600.00	-51.92	-719.00	0.000000	0.00	0.000 (10)
48	100	110	45.24	1600.00	-44.56	-719.00	0.000000	0.00	0.000 (10)
49	100	110	45.24	1600.00	-37.72	-719.00	0.000000	0.00	0.000 (10)
50	100	110	45.24	1600.00	-31.40	-719.00	0.000000	0.00	0.000 (10)
51	100	110	45.24	1600.00	-25.62	-719.00	0.000000	0.00	0.000 (10)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
52	100	110	45.24	1600.00	-20.38	-719.00	0.000000	0.00	0.000 (10)
53	100	110	45.24	1600.00	-15.72	-719.00	0.000000	0.00	0.000 (10)
54	100	110	45.24	1600.00	-11.63	-719.00	0.000000	0.00	0.000 (10)
55	100	110	45.24	1600.00	-8.13	-719.00	0.000000	0.00	0.000 (10)
56	100	110	45.24	1600.00	-5.24	-719.00	0.000000	0.00	0.000 (10)
57	100	110	45.24	1600.00	-2.97	-719.00	0.000000	0.00	0.000 (10)
58	100	110	45.24	1600.00	-1.33	-719.00	0.000000	0.00	0.000 (10)
59	100	110	45.24	1600.00	-0.33	-719.00	0.000000	0.00	0.000 (10)
60	100	110	0.00	0.00	0.00	0.00	---	---	0.000 (10)

Combinazioni SLEF

Paramento

Apertura limite fessure w_{lim}=0.30

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (11)
2	100	41	0.00	0.00	0.00	5.81	0.000000	0.00	0.000 (11)
3	100	42	0.00	0.00	0.02	16.80	0.000000	0.00	0.000 (11)
4	100	42	0.00	0.00	0.04	35.28	0.000000	0.00	0.000 (11)
5	100	43	0.00	0.00	0.09	65.88	0.000000	0.00	0.000 (11)
6	100	44	0.00	0.00	0.17	118.89	0.000000	0.00	0.000 (11)
7	100	45	0.00	0.00	0.28	222.15	0.000000	0.00	0.000 (11)
8	100	45	0.00	0.00	0.42	484.78	0.000000	0.00	0.000 (11)
9	100	46	0.00	0.00	0.62	2201.91	0.000000	0.00	0.000 (11)
10	100	47	0.00	0.00	0.86	1546.90	0.000000	0.00	0.000 (11)
11	100	48	0.00	0.00	1.17	704.98	0.000000	0.00	0.000 (11)
12	100	49	53.09	1600.00	1.54	508.13	0.000000	0.00	0.000 (11)
13	100	49	53.09	1600.00	1.98	423.46	0.000000	0.00	0.000 (11)
14	100	50	53.09	1600.00	2.50	378.29	0.000000	0.00	0.000 (11)
15	100	51	53.09	1600.00	3.11	351.57	0.000000	0.00	0.000 (11)
16	100	52	53.09	1600.00	3.81	334.94	0.000000	0.00	0.000 (11)
17	100	52	53.09	1600.00	4.60	324.43	0.000000	0.00	0.000 (11)
18	100	53	53.09	1600.00	5.49	317.91	0.000000	0.00	0.000 (11)
19	100	54	53.09	1600.00	6.50	314.14	0.000000	0.00	0.000 (11)
20	100	55	53.09	1600.00	7.61	312.36	0.000000	0.00	0.000 (11)
21	100	56	53.09	1600.00	8.85	312.06	0.000000	0.00	0.000 (11)
22	100	56	53.09	1600.00	10.21	312.89	0.000000	0.00	0.000 (11)
23	100	57	53.09	1600.00	11.70	314.62	0.000000	0.00	0.000 (11)
24	100	58	53.09	1600.00	13.33	317.08	0.000000	0.00	0.000 (11)
25	100	59	53.09	1600.00	15.10	320.12	0.000000	0.00	0.000 (11)
26	100	59	53.09	1600.00	17.02	323.66	0.000000	0.00	0.000 (11)
27	100	60	53.09	1600.00	19.09	327.62	0.000000	0.00	0.000 (11)
28	100	61	53.09	1600.00	21.32	331.94	0.000000	0.00	0.000 (11)
29	100	62	53.09	1600.00	23.72	336.58	0.000000	0.00	0.000 (11)
30	100	63	53.09	1600.00	26.29	341.49	0.000000	0.00	0.000 (11)
31	100	63	53.09	1600.00	29.04	346.65	0.000000	0.00	0.000 (11)
32	100	64	53.09	1600.00	31.97	352.03	0.000000	0.00	0.000 (11)
33	100	65	53.09	1600.00	35.08	357.61	0.000000	0.00	0.000 (11)
34	100	66	53.09	1600.00	38.40	363.38	0.000000	0.00	0.000 (11)
35	100	66	53.09	1600.00	41.91	369.31	0.000000	0.00	0.000 (11)
36	100	67	53.09	1600.00	45.63	375.40	0.000000	0.00	0.000 (11)
37	100	68	53.09	1600.00	49.56	381.64	0.000000	0.00	0.000 (11)
38	100	69	53.09	1600.00	53.70	388.02	0.000000	0.00	0.000 (11)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
39	100	70	53.09	1600.00	58.08	394.53	0.000000	0.00	0.000 (11)
40	100	70	53.09	1600.00	62.68	401.16	0.000000	0.00	0.000 (11)
41	100	71	53.09	1600.00	67.51	407.91	0.000000	0.00	0.000 (11)
42	100	72	53.09	1600.00	72.59	414.78	0.000000	0.00	0.000 (11)
43	100	73	53.09	1600.00	77.91	421.75	0.000000	0.00	0.000 (11)
44	100	73	53.09	1600.00	83.48	428.82	0.000000	0.00	0.000 (11)
45	100	74	53.09	1600.00	89.31	436.00	0.000000	0.00	0.000 (11)
46	100	75	53.09	1600.00	95.41	443.27	0.000000	0.00	0.000 (11)
47	100	76	53.09	1600.00	101.77	450.64	0.000000	0.00	0.000 (11)
48	100	77	53.09	1600.00	108.41	458.10	0.000000	0.00	0.000 (11)
49	100	77	53.09	1600.00	115.34	465.65	0.000000	0.00	0.000 (11)
50	100	78	53.09	1600.00	122.54	473.29	0.000000	0.00	0.000 (11)
51	100	79	53.09	1600.00	130.04	481.02	0.000000	0.00	0.000 (11)
52	100	80	53.09	1600.00	137.84	488.83	0.000000	0.00	0.000 (11)
53	100	80	53.09	1600.00	145.95	496.73	0.000000	0.00	0.000 (11)
54	100	81	53.09	1600.00	154.36	504.70	0.000000	0.00	0.000 (11)
55	100	82	53.09	1600.00	163.09	512.76	0.000000	0.00	0.000 (11)
56	100	83	53.09	1600.00	172.14	520.90	0.000000	0.00	0.000 (11)
57	100	84	53.09	1600.00	181.51	529.12	0.000000	0.00	0.000 (11)
58	100	84	53.09	1600.00	191.22	537.41	0.000000	0.00	0.000 (11)
59	100	85	53.09	1600.00	201.27	545.78	0.000000	0.00	0.000 (11)
60	100	86	53.09	1600.00	211.67	554.23	0.000000	0.00	0.000 (11)
61	100	87	53.09	1600.00	222.45	562.75	0.000000	0.00	0.000 (11)
62	100	87	53.09	1600.00	233.61	571.33	0.000000	0.00	0.000 (11)
63	100	88	53.09	1600.00	245.17	579.99	0.000000	0.00	0.000 (11)
64	100	89	53.09	1600.00	257.15	588.72	0.000000	0.00	0.000 (11)
65	100	90	53.09	1600.00	269.54	597.51	0.000000	0.00	0.000 (11)
66	100	91	53.09	1600.00	282.37	606.37	0.000000	0.00	0.000 (11)

Fondazione

Apertura limite fessure w_{lim}=0.30

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
1	100	110	0.00	0.00	0.00	0.00	---	---	0.000 (11)
2	100	110	45.24	1600.00	0.85	719.00	0.000000	0.00	0.000 (11)
3	100	110	45.24	1600.00	3.38	719.00	0.000000	0.00	0.000 (11)
4	100	110	45.24	1600.00	7.58	719.00	0.000000	0.00	0.000 (11)
5	100	110	45.24	1600.00	13.45	719.00	0.000000	0.00	0.000 (11)
6	100	110	45.24	1600.00	20.95	719.00	0.000000	0.00	0.000 (11)
7	100	110	45.24	1600.00	30.09	719.00	0.000000	0.00	0.000 (11)
8	100	110	45.24	1600.00	-428.05	-719.00	0.000000	0.00	0.000 (11)
9	100	110	45.24	1600.00	-419.51	-719.00	0.000000	0.00	0.000 (11)
10	100	110	45.24	1600.00	-410.76	-719.00	0.000000	0.00	0.000 (11)
11	100	110	45.24	1600.00	-401.81	-719.00	0.000000	0.00	0.000 (11)
12	100	110	45.24	1600.00	-392.67	-719.00	0.000000	0.00	0.000 (11)
13	100	110	45.24	1600.00	-383.36	-719.00	0.000000	0.00	0.000 (11)
14	100	110	45.24	1600.00	-373.88	-719.00	0.000000	0.00	0.000 (11)
15	100	110	45.24	1600.00	-364.27	-719.00	0.000000	0.00	0.000 (11)
16	100	110	45.24	1600.00	-354.51	-719.00	0.000000	0.00	0.000 (11)
17	100	110	45.24	1600.00	-344.64	-719.00	0.000000	0.00	0.000 (11)
18	100	110	45.24	1600.00	-334.67	-719.00	0.000000	0.00	0.000 (11)
19	100	110	45.24	1600.00	-324.60	-719.00	0.000000	0.00	0.000 (11)
20	100	110	45.24	1600.00	-314.45	-719.00	0.000000	0.00	0.000 (11)
21	100	110	45.24	1600.00	-304.24	-719.00	0.000000	0.00	0.000 (11)
22	100	110	45.24	1600.00	-293.98	-719.00	0.000000	0.00	0.000 (11)
23	100	110	45.24	1600.00	-283.68	-719.00	0.000000	0.00	0.000 (11)
24	100	110	45.24	1600.00	-273.35	-719.00	0.000000	0.00	0.000 (11)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
25	100	110	45.24	1600.00	-263.02	-719.00	0.000000	0.00	0.000 (11)
26	100	110	45.24	1600.00	-252.68	-719.00	0.000000	0.00	0.000 (11)
27	100	110	45.24	1600.00	-242.37	-719.00	0.000000	0.00	0.000 (11)
28	100	110	45.24	1600.00	-232.08	-719.00	0.000000	0.00	0.000 (11)
29	100	110	45.24	1600.00	-221.84	-719.00	0.000000	0.00	0.000 (11)
30	100	110	45.24	1600.00	-211.65	-719.00	0.000000	0.00	0.000 (11)
31	100	110	45.24	1600.00	-201.54	-719.00	0.000000	0.00	0.000 (11)
32	100	110	45.24	1600.00	-191.51	-719.00	0.000000	0.00	0.000 (11)
33	100	110	45.24	1600.00	-181.58	-719.00	0.000000	0.00	0.000 (11)
34	100	110	45.24	1600.00	-171.76	-719.00	0.000000	0.00	0.000 (11)
35	100	110	45.24	1600.00	-162.06	-719.00	0.000000	0.00	0.000 (11)
36	100	110	45.24	1600.00	-152.51	-719.00	0.000000	0.00	0.000 (11)
37	100	110	45.24	1600.00	-143.10	-719.00	0.000000	0.00	0.000 (11)
38	100	110	45.24	1600.00	-133.86	-719.00	0.000000	0.00	0.000 (11)
39	100	110	45.24	1600.00	-124.80	-719.00	0.000000	0.00	0.000 (11)
40	100	110	45.24	1600.00	-115.94	-719.00	0.000000	0.00	0.000 (11)
41	100	110	45.24	1600.00	-106.00	-719.00	0.000000	0.00	0.000 (11)
42	100	110	45.24	1600.00	-95.87	-719.00	0.000000	0.00	0.000 (11)
43	100	110	45.24	1600.00	-86.17	-719.00	0.000000	0.00	0.000 (11)
44	100	110	45.24	1600.00	-76.91	-719.00	0.000000	0.00	0.000 (11)
45	100	110	45.24	1600.00	-68.10	-719.00	0.000000	0.00	0.000 (11)
46	100	110	45.24	1600.00	-59.77	-719.00	0.000000	0.00	0.000 (11)
47	100	110	45.24	1600.00	-51.92	-719.00	0.000000	0.00	0.000 (11)
48	100	110	45.24	1600.00	-44.56	-719.00	0.000000	0.00	0.000 (11)
49	100	110	45.24	1600.00	-37.72	-719.00	0.000000	0.00	0.000 (11)
50	100	110	45.24	1600.00	-31.40	-719.00	0.000000	0.00	0.000 (11)
51	100	110	45.24	1600.00	-25.62	-719.00	0.000000	0.00	0.000 (11)
52	100	110	45.24	1600.00	-20.38	-719.00	0.000000	0.00	0.000 (11)
53	100	110	45.24	1600.00	-15.72	-719.00	0.000000	0.00	0.000 (11)
54	100	110	45.24	1600.00	-11.63	-719.00	0.000000	0.00	0.000 (11)
55	100	110	45.24	1600.00	-8.13	-719.00	0.000000	0.00	0.000 (11)
56	100	110	45.24	1600.00	-5.24	-719.00	0.000000	0.00	0.000 (11)
57	100	110	45.24	1600.00	-2.97	-719.00	0.000000	0.00	0.000 (11)
58	100	110	45.24	1600.00	-1.33	-719.00	0.000000	0.00	0.000 (11)
59	100	110	45.24	1600.00	-0.33	-719.00	0.000000	0.00	0.000 (11)
60	100	110	0.00	0.00	0.00	0.00	---	---	0.000 (11)

Combinazioni SLEQ

Paramento

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (12)
2	100	41	0.00	0.00	0.00	5.81	0.000000	0.00	0.000 (12)
3	100	42	0.00	0.00	0.02	16.80	0.000000	0.00	0.000 (12)
4	100	42	0.00	0.00	0.04	35.28	0.000000	0.00	0.000 (12)
5	100	43	0.00	0.00	0.09	65.88	0.000000	0.00	0.000 (12)
6	100	44	0.00	0.00	0.17	118.89	0.000000	0.00	0.000 (12)
7	100	45	0.00	0.00	0.28	222.15	0.000000	0.00	0.000 (12)
8	100	45	0.00	0.00	0.42	484.78	0.000000	0.00	0.000 (12)
9	100	46	0.00	0.00	0.62	2201.91	0.000000	0.00	0.000 (12)
10	100	47	0.00	0.00	0.86	1546.90	0.000000	0.00	0.000 (12)
11	100	48	0.00	0.00	1.17	704.98	0.000000	0.00	0.000 (12)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
12	100	49	53.09	1600.00	1.54	508.13	0.000000	0.00	0.000 (12)
13	100	49	53.09	1600.00	1.98	423.46	0.000000	0.00	0.000 (12)
14	100	50	53.09	1600.00	2.50	378.29	0.000000	0.00	0.000 (12)
15	100	51	53.09	1600.00	3.11	351.57	0.000000	0.00	0.000 (12)
16	100	52	53.09	1600.00	3.81	334.94	0.000000	0.00	0.000 (12)
17	100	52	53.09	1600.00	4.60	324.43	0.000000	0.00	0.000 (12)
18	100	53	53.09	1600.00	5.49	317.91	0.000000	0.00	0.000 (12)
19	100	54	53.09	1600.00	6.50	314.14	0.000000	0.00	0.000 (12)
20	100	55	53.09	1600.00	7.61	312.36	0.000000	0.00	0.000 (12)
21	100	56	53.09	1600.00	8.85	312.06	0.000000	0.00	0.000 (12)
22	100	56	53.09	1600.00	10.21	312.89	0.000000	0.00	0.000 (12)
23	100	57	53.09	1600.00	11.70	314.62	0.000000	0.00	0.000 (12)
24	100	58	53.09	1600.00	13.33	317.08	0.000000	0.00	0.000 (12)
25	100	59	53.09	1600.00	15.10	320.12	0.000000	0.00	0.000 (12)
26	100	59	53.09	1600.00	17.02	323.66	0.000000	0.00	0.000 (12)
27	100	60	53.09	1600.00	19.09	327.62	0.000000	0.00	0.000 (12)
28	100	61	53.09	1600.00	21.32	331.94	0.000000	0.00	0.000 (12)
29	100	62	53.09	1600.00	23.72	336.58	0.000000	0.00	0.000 (12)
30	100	63	53.09	1600.00	26.29	341.49	0.000000	0.00	0.000 (12)
31	100	63	53.09	1600.00	29.04	346.65	0.000000	0.00	0.000 (12)
32	100	64	53.09	1600.00	31.97	352.03	0.000000	0.00	0.000 (12)
33	100	65	53.09	1600.00	35.08	357.61	0.000000	0.00	0.000 (12)
34	100	66	53.09	1600.00	38.40	363.38	0.000000	0.00	0.000 (12)
35	100	66	53.09	1600.00	41.91	369.31	0.000000	0.00	0.000 (12)
36	100	67	53.09	1600.00	45.63	375.40	0.000000	0.00	0.000 (12)
37	100	68	53.09	1600.00	49.56	381.64	0.000000	0.00	0.000 (12)
38	100	69	53.09	1600.00	53.70	388.02	0.000000	0.00	0.000 (12)
39	100	70	53.09	1600.00	58.08	394.53	0.000000	0.00	0.000 (12)
40	100	70	53.09	1600.00	62.68	401.16	0.000000	0.00	0.000 (12)
41	100	71	53.09	1600.00	67.51	407.91	0.000000	0.00	0.000 (12)
42	100	72	53.09	1600.00	72.59	414.78	0.000000	0.00	0.000 (12)
43	100	73	53.09	1600.00	77.91	421.75	0.000000	0.00	0.000 (12)
44	100	73	53.09	1600.00	83.48	428.82	0.000000	0.00	0.000 (12)
45	100	74	53.09	1600.00	89.31	436.00	0.000000	0.00	0.000 (12)
46	100	75	53.09	1600.00	95.41	443.27	0.000000	0.00	0.000 (12)
47	100	76	53.09	1600.00	101.77	450.64	0.000000	0.00	0.000 (12)
48	100	77	53.09	1600.00	108.41	458.10	0.000000	0.00	0.000 (12)
49	100	77	53.09	1600.00	115.34	465.65	0.000000	0.00	0.000 (12)
50	100	78	53.09	1600.00	122.54	473.29	0.000000	0.00	0.000 (12)
51	100	79	53.09	1600.00	130.04	481.02	0.000000	0.00	0.000 (12)
52	100	80	53.09	1600.00	137.84	488.83	0.000000	0.00	0.000 (12)
53	100	80	53.09	1600.00	145.95	496.73	0.000000	0.00	0.000 (12)
54	100	81	53.09	1600.00	154.36	504.70	0.000000	0.00	0.000 (12)
55	100	82	53.09	1600.00	163.09	512.76	0.000000	0.00	0.000 (12)
56	100	83	53.09	1600.00	172.14	520.90	0.000000	0.00	0.000 (12)
57	100	84	53.09	1600.00	181.51	529.12	0.000000	0.00	0.000 (12)
58	100	84	53.09	1600.00	191.22	537.41	0.000000	0.00	0.000 (12)
59	100	85	53.09	1600.00	201.27	545.78	0.000000	0.00	0.000 (12)
60	100	86	53.09	1600.00	211.67	554.23	0.000000	0.00	0.000 (12)
61	100	87	53.09	1600.00	222.45	562.75	0.000000	0.00	0.000 (12)
62	100	87	53.09	1600.00	233.61	571.33	0.000000	0.00	0.000 (12)
63	100	88	53.09	1600.00	245.17	579.99	0.000000	0.00	0.000 (12)
64	100	89	53.09	1600.00	257.15	588.72	0.000000	0.00	0.000 (12)
65	100	90	53.09	1600.00	269.54	597.51	0.000000	0.00	0.000 (12)
66	100	91	53.09	1600.00	282.37	606.37	0.000000	0.00	0.000 (12)

Fondazione

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	110	0.00	0.00	0.00	0.00	---	---	0.000 (12)
2	100	110	45.24	1600.00	0.85	719.00	0.000000	0.00	0.000 (12)
3	100	110	45.24	1600.00	3.38	719.00	0.000000	0.00	0.000 (12)
4	100	110	45.24	1600.00	7.58	719.00	0.000000	0.00	0.000 (12)
5	100	110	45.24	1600.00	13.45	719.00	0.000000	0.00	0.000 (12)
6	100	110	45.24	1600.00	20.95	719.00	0.000000	0.00	0.000 (12)
7	100	110	45.24	1600.00	30.09	719.00	0.000000	0.00	0.000 (12)
8	100	110	45.24	1600.00	-428.05	-719.00	0.000000	0.00	0.000 (12)
9	100	110	45.24	1600.00	-419.51	-719.00	0.000000	0.00	0.000 (12)
10	100	110	45.24	1600.00	-410.76	-719.00	0.000000	0.00	0.000 (12)
11	100	110	45.24	1600.00	-401.81	-719.00	0.000000	0.00	0.000 (12)
12	100	110	45.24	1600.00	-392.67	-719.00	0.000000	0.00	0.000 (12)
13	100	110	45.24	1600.00	-383.36	-719.00	0.000000	0.00	0.000 (12)
14	100	110	45.24	1600.00	-373.88	-719.00	0.000000	0.00	0.000 (12)
15	100	110	45.24	1600.00	-364.27	-719.00	0.000000	0.00	0.000 (12)
16	100	110	45.24	1600.00	-354.51	-719.00	0.000000	0.00	0.000 (12)
17	100	110	45.24	1600.00	-344.64	-719.00	0.000000	0.00	0.000 (12)
18	100	110	45.24	1600.00	-334.67	-719.00	0.000000	0.00	0.000 (12)
19	100	110	45.24	1600.00	-324.60	-719.00	0.000000	0.00	0.000 (12)
20	100	110	45.24	1600.00	-314.45	-719.00	0.000000	0.00	0.000 (12)
21	100	110	45.24	1600.00	-304.24	-719.00	0.000000	0.00	0.000 (12)
22	100	110	45.24	1600.00	-293.98	-719.00	0.000000	0.00	0.000 (12)
23	100	110	45.24	1600.00	-283.68	-719.00	0.000000	0.00	0.000 (12)
24	100	110	45.24	1600.00	-273.35	-719.00	0.000000	0.00	0.000 (12)
25	100	110	45.24	1600.00	-263.02	-719.00	0.000000	0.00	0.000 (12)
26	100	110	45.24	1600.00	-252.68	-719.00	0.000000	0.00	0.000 (12)
27	100	110	45.24	1600.00	-242.37	-719.00	0.000000	0.00	0.000 (12)
28	100	110	45.24	1600.00	-232.08	-719.00	0.000000	0.00	0.000 (12)
29	100	110	45.24	1600.00	-221.84	-719.00	0.000000	0.00	0.000 (12)
30	100	110	45.24	1600.00	-211.65	-719.00	0.000000	0.00	0.000 (12)
31	100	110	45.24	1600.00	-201.54	-719.00	0.000000	0.00	0.000 (12)
32	100	110	45.24	1600.00	-191.51	-719.00	0.000000	0.00	0.000 (12)
33	100	110	45.24	1600.00	-181.58	-719.00	0.000000	0.00	0.000 (12)
34	100	110	45.24	1600.00	-171.76	-719.00	0.000000	0.00	0.000 (12)
35	100	110	45.24	1600.00	-162.06	-719.00	0.000000	0.00	0.000 (12)
36	100	110	45.24	1600.00	-152.51	-719.00	0.000000	0.00	0.000 (12)
37	100	110	45.24	1600.00	-143.10	-719.00	0.000000	0.00	0.000 (12)
38	100	110	45.24	1600.00	-133.86	-719.00	0.000000	0.00	0.000 (12)
39	100	110	45.24	1600.00	-124.80	-719.00	0.000000	0.00	0.000 (12)
40	100	110	45.24	1600.00	-115.94	-719.00	0.000000	0.00	0.000 (12)
41	100	110	45.24	1600.00	-106.00	-719.00	0.000000	0.00	0.000 (12)
42	100	110	45.24	1600.00	-95.87	-719.00	0.000000	0.00	0.000 (12)
43	100	110	45.24	1600.00	-86.17	-719.00	0.000000	0.00	0.000 (12)
44	100	110	45.24	1600.00	-76.91	-719.00	0.000000	0.00	0.000 (12)
45	100	110	45.24	1600.00	-68.10	-719.00	0.000000	0.00	0.000 (12)
46	100	110	45.24	1600.00	-59.77	-719.00	0.000000	0.00	0.000 (12)
47	100	110	45.24	1600.00	-51.92	-719.00	0.000000	0.00	0.000 (12)
48	100	110	45.24	1600.00	-44.56	-719.00	0.000000	0.00	0.000 (12)
49	100	110	45.24	1600.00	-37.72	-719.00	0.000000	0.00	0.000 (12)
50	100	110	45.24	1600.00	-31.40	-719.00	0.000000	0.00	0.000 (12)
51	100	110	45.24	1600.00	-25.62	-719.00	0.000000	0.00	0.000 (12)
52	100	110	45.24	1600.00	-20.38	-719.00	0.000000	0.00	0.000 (12)
53	100	110	45.24	1600.00	-15.72	-719.00	0.000000	0.00	0.000 (12)
54	100	110	45.24	1600.00	-11.63	-719.00	0.000000	0.00	0.000 (12)
55	100	110	45.24	1600.00	-8.13	-719.00	0.000000	0.00	0.000 (12)
56	100	110	45.24	1600.00	-5.24	-719.00	0.000000	0.00	0.000 (12)
57	100	110	45.24	1600.00	-2.97	-719.00	0.000000	0.00	0.000 (12)
58	100	110	45.24	1600.00	-1.33	-719.00	0.000000	0.00	0.000 (12)
59	100	110	45.24	1600.00	-0.33	-719.00	0.000000	0.00	0.000 (12)
60	100	110	0.00	0.00	0.00	0.00	---	---	0.000 (12)

13. TABULATI DI CALCOLO CONCIO 2

13.1 RISULTATI PER COMBINAZIONE

Spinta e forze

Simbologia adottata

Ic — Indice della combinazione

A — Tipo azione

I — Inclinazione della spinta, espressa in [°]

V — Valore dell'azione, espressa in [kN]

C_X, C_Y — Componente in direzione X ed Y dell'azione, espressa in [kN]

P_X, P_Y — Coordinata X ed Y del punto di applicazione dell'azione, espressa in [m]

Ic	A	V	I	C_X	C_Y	P_X	P_Y
		[kN]	*[°]*	*[kN]*	*[kN]*	*[m]*	*[m]*
1	Spinta statica	164.47	0.00	164.47	0.00	4.10	-3.65
	Peso/Inerzia muro			0.00	185.91/0.00	0.90	-4.39
	Peso/Inerzia terrapieno			0.00	391.94/0.00	2.15	-2.46
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
2	Spinta statica	99.21	0.00	99.21	0.00	4.10	-3.84
	Incremento di spinta sismica		33.94	33.94	0.00	4.10	-3.93
	Peso/Inerzia muro			24.12	185.91/12.06	0.90	-4.39
	Peso/Inerzia terrapieno			49.21	379.19/24.60	2.15	-2.46
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
3	Spinta statica	99.21	0.00	99.21	0.00	4.10	-3.84
	Incremento di spinta sismica		21.49	21.49	0.00	4.10	-3.93
	Peso/Inerzia muro			24.12	185.91/-12.06	0.90	-4.39
	Peso/Inerzia terrapieno			49.21	379.19/-24.60	2.15	-2.46
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
10	Spinta statica	124.79	0.00	124.79	0.00	4.10	-3.66
	Peso/Inerzia muro			0.00	185.91/0.00	0.90	-4.39
	Peso/Inerzia terrapieno			0.00	385.55/0.00	2.15	-2.46
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
11	Spinta statica	124.79	0.00	124.79	0.00	4.10	-3.66
	Peso/Inerzia muro			0.00	185.91/0.00	0.90	-4.39
	Peso/Inerzia terrapieno			0.00	385.55/0.00	2.15	-2.46
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
12	Spinta statica	124.79	0.00	124.79	0.00	4.10	-3.66
	Peso/Inerzia muro			0.00	185.91/0.00	0.90	-4.39
	Peso/Inerzia terrapieno			0.00	385.55/0.00	2.15	-2.46
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
13	Spinta statica	124.79	0.00	124.79	0.00	4.10	-3.66
	Incremento di spinta sismica		24.01	24.01	0.00	4.10	-3.93
	Peso/Inerzia muro			14.06	185.91/7.03	0.90	-4.39
	Peso/Inerzia terrapieno			29.15	385.55/14.57	2.15	-2.46
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00

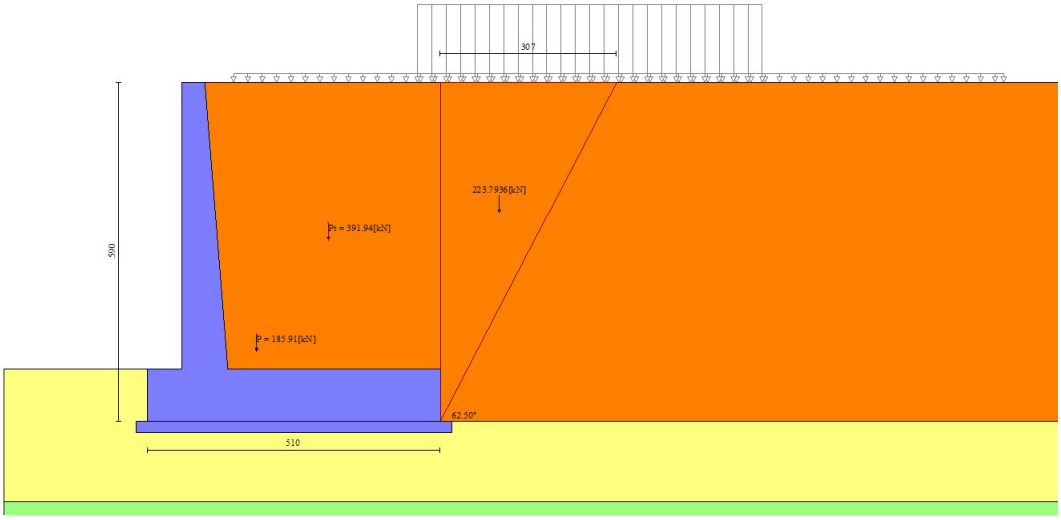


Fig. 3 - Cuneo di spinta (combinazione statica) (Combinazione n° 1)

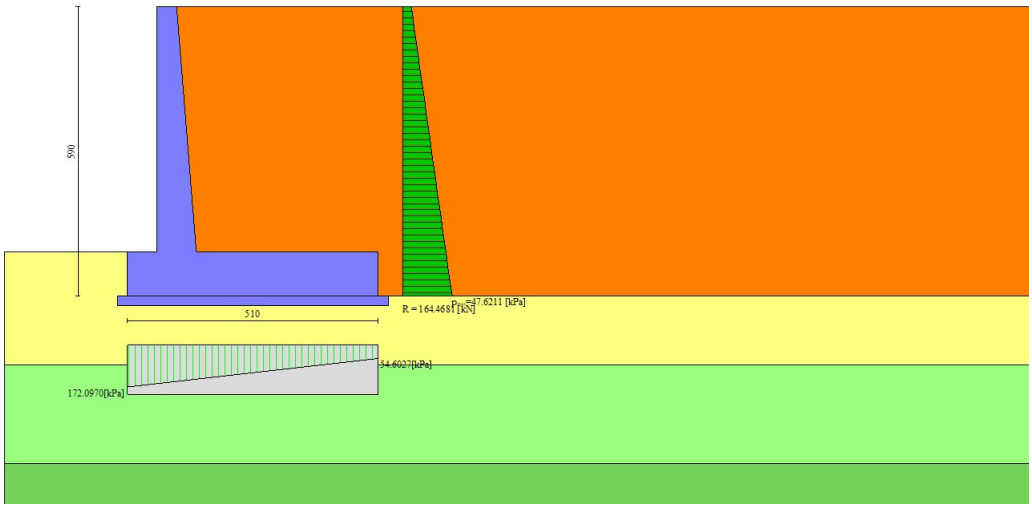


Fig. 4 - Diagramma delle pressioni (combinazione statica) (Combinazione n° 1)

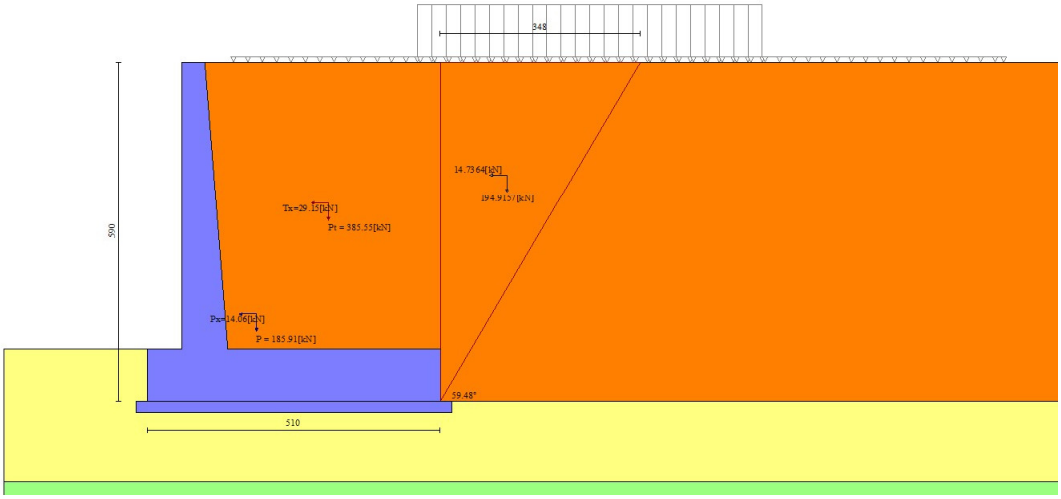


Fig. 5 - Cuneo di spinta (combinazione sismica) (Combinazione n° 13)

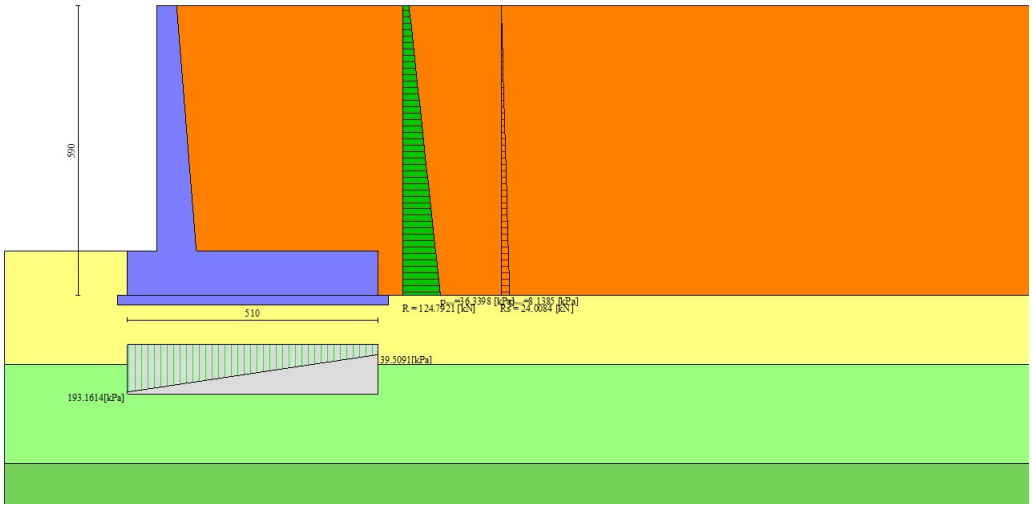


Fig. 6 - Diagramma delle pressioni (combinazione sismica) (Combinazione n° 13)

Risultanti globali

Simbologia adottata

Cmb Indice/Tipo combinazione

N Componente normale al piano di posa, espressa in [kN]

T Componente parallela al piano di posa, espressa in [kN]

M_r Momento ribaltante, espresso in [kNm]

M_s Momento stabilizzante, espresso in [kNm]

ecc Eccentricità risultante, espressa in [m]

Ic	N	T	M_r	M_s	ecc
	[kN]	*[kN]*	*[kNm]*	*[kNm]*	*[m]*
1 - STR (A1-M1-R3)	577.85	164.47	370.63	1589.07	0.440
2 - STR (A1-M1-R3)	601.76	206.48	476.97	1648.08	0.603
3 - STR (A1-M1-R3)	528.43	194.03	552.91	1547.66	0.666
4 - GEO (A2-M2-R2)	574.82	165.45	376.41	1579.23	0.456
5 - GEO (A2-M2-R2)	601.76	206.48	476.97	1648.08	0.603
6 - GEO (A2-M2-R2)	528.43	194.03	552.91	1547.66	0.666
7 - EQU (A1-M1-R3)	577.85	164.47	370.63	1589.07	0.440
8 - EQU (A1-M1-R3)	613.34	241.56	565.36	1679.79	0.732
9 - EQU (A1-M1-R3)	516.85	225.67	666.25	1547.66	0.844
10 - SLER	571.46	124.79	280.02	1568.34	0.295
11 - SLEF	571.46	124.79	280.02	1568.34	0.295
12 - SLEQ	571.46	124.79	280.02	1568.34	0.295
13 - SLEQ	593.07	192.01	448.70	1627.63	0.561

Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

Cmb Indice/Tipo combinazione

S Sisma (H: componente orizzontale, V: componente verticale)

FS_{SCO} Coeff. di sicurezza allo scorrimento

FS_{RIB} Coeff. di sicurezza al ribaltamento

FS_{QLIM} Coeff. di sicurezza a carico limite

FS_{STAB} Coeff. di sicurezza a stabilità globale

FS_{HYD} Coeff. di sicurezza a sifonamento

FS_{UPL} Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.638		1.872			
2 - STR (A1-M1-R3)	H + V	1.359		1.387			
3 - STR (A1-M1-R3)	H - V	1.270		1.427			
4 - GEO (A2-M2-R2)					1.263		
5 - GEO (A2-M2-R2)	H + V				1.321		
6 - GEO (A2-M2-R2)	H - V				1.273		
7 - EQU (A1-M1-R3)			4.287				
8 - EQU (A1-M1-R3)	H + V		2.971				
9 - EQU (A1-M1-R3)	H - V		2.323				

Verifica a scorrimento fondazione

Simbologia adottata

n° Indice combinazione

Rsa Resistenza allo scorrimento per attrito, espresso in [kN]

Rpt Resistenza passiva terreno antistante, espresso in [kN]

Rps Resistenza passiva sperone, espresso in [kN]

Rp Resistenza a carichi orizzontali pali (solo per fondazione mista), espresso in [kN]

Rt Resistenza a carichi orizzontali tiranti (solo se presenti), espresso in [kN]

R Resistenza allo scorrimento (somma di Rsa+Rpt+Rps+Rp), espresso in [kN]

T Carico parallelo al piano di posa, espresso in [kN]

FS Fattore di sicurezza (rapporto R/T)

n°	Rsa	Rpt	Rps	Rp	Rt	R	T	FS
	[kN]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1 - STR (A1-M1-R3)	269.45	0.00	0.00	--	--	269.45	164.47	1.638
2 - STR (A1-M1-R3) H + V	280.61	0.00	0.00	--	--	280.61	206.48	1.359
3 - STR (A1-M1-R3) H - V	246.41	0.00	0.00	--	--	246.41	194.03	1.270

Verifica a carico limite

Simbologia adottata

n° Indice combinazione

N Carico normale totale al piano di posa, espresso in [kN]

Qu carico limite del terreno, espresso in [kN]

Qd Portanza di progetto, espresso in [kN]

FS Fattore di sicurezza (rapporto tra il carico limie e carico agente al piano di posa)

n°	N	Qu	Qd	FS
	[kN]	*[kN]*	*[kN]*	
1 - STR (A1-M1-R3)	577.85	1081.62	772.59	1.872
2 - STR (A1-M1-R3) H + V	601.76	834.45	695.37	1.387
3 - STR (A1-M1-R3) H - V	528.43	753.92	628.26	1.427

Dettagli calcolo portanza

Simbologia adottata

n° Indice combinazione

Nc, Nq, N_γ	Fattori di capacità portante
ic, iq, i_γ	Fattori di inclinazione del carico
dc, dq, d_γ	Fattori di profondità del piano di posa
gc, gq, g_γ	Fattori di inclinazione del profilo topografico
bc, bq, b_γ	Fattori di inclinazione del piano di posa
sc, sq, s_γ	Fattori di forma della fondazione
pc, pq, p_γ	Fattori di riduzione per punzonamento secondo Vesic
Re	Fattore di riduzione capacità portante per eccentricità secondo Meyerhof
Ir, Irc	Indici di rigidezza per punzonamento secondo Vesic
r_γ	Fattori per tener conto dell'effetto piastra. Per fondazioni che hanno larghezza maggiore di 2 m, il terzo termine della formula trinomia $0.5B\gamma N_\gamma$ viene moltiplicato per questo fattore
D	Affondamento del piano di posa, espresso in [m]
B'	Larghezza fondazione ridotta, espresso in [m]
H	Altezza del cuneo di rottura, espresso in [m]
γ	Peso di volume del terreno medio, espresso in [kN/mc]
ϕ	Angolo di attrito del terreno medio, espresso in [°]
c	Coesione del terreno medio, espresso in [kPa]

Per i coeff. che in tabella sono indicati con il simbolo '--' sono coeff. non presenti nel metodo scelto (Meyerhof).

n°	Nc Nq N_γ	ic iq i_γ	dc dq d_γ	gc gq g_γ	bc bq b_γ	sc sq s_γ	pc pq p_γ	Ir	Irc	Re	r_γ
1	28.123 16.666 13.508	0.678 0.678 0.206	1.060 1.030 1.030	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.898
2	28.123 16.666 13.508	0.623 0.623 0.122	1.060 1.030 1.030	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.898
3	28.123 16.666 13.508	0.602 0.602 0.095	1.060 1.030 1.030	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.898

n°	D	B'	H	γ	ϕ	c
	[m]	*[m]*	*[m]*	*[°]*	*[kN/mc]*	*[kPa]*
1	0.90	4.22	4.34	10.55	29.12	0
2	0.90	3.89	4.34	10.55	29.12	0
3	0.90	3.76	4.34	10.55	29.12	0

Verifica a ribaltamento

Simbologia adottata

n°	Indice combinazione
Ms	Momento stabilizzante, espresso in [kNm]
Mr	Momento ribaltante, espresso in [kNm]
FS	Fattore di sicurezza (rapporto tra momento stabilizzante e momento ribaltante)

La verifica viene eseguita rispetto allo spigolo inferiore esterno della fondazione

n°	Ms	Mr	FS
	[kNm]	*[kNm]*	
7 - EQU (A1-M1-R3)	1589.07	370.63	4.287
8 - EQU (A1-M1-R3) H + V	1679.79	565.36	2.971
9 - EQU (A1-M1-R3) H - V	1547.66	666.25	2.323

Verifica stabilità globale muro + terreno

Simbologia adottata

Ic Indice/Tipo combinazione

C Centro superficie di scorrimento, espresso in [m]

R Raggio, espresso in [m]

FS Fattore di sicurezza

Ic	C	R	FS
	[m]	*[m]*	
4 - GEO (A2-M2-R2)	-1.00; 3.00	10.27	1.263
5 - GEO (A2-M2-R2) H + V	-1.00; 3.00	10.27	1.321
6 - GEO (A2-M2-R2) H - V	-1.00; 3.00	10.27	1.273

Dettagli strisce verifiche stabilità

Simbologia adottata

Le ascisse X sono considerate positive verso monte

Le ordinate Y sono considerate positive verso l'alto

Origine in testa al muro (spigolo contro terra)

W peso della striscia espresso in [kN]

Qy carico sulla striscia espresso in [kN]

α angolo fra la base della striscia e l'orizzontale espresso in [°] (positivo antiorario)

ϕ angolo d'attrito del terreno lungo la base della striscia

c coesione del terreno lungo la base della striscia espressa in [kPa]

b larghezza della striscia espressa in [m]

u pressione neutra lungo la base della striscia espressa in [kPa]

Tx; Ty Resistenza al taglio fornita dai tiranti in direzione X ed Y espressa in [kPa]

Combinazione n° 4 - GEO (A2-M2-R2)

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	9.90	16.67	8.83 - 0.65	67.871	29.256	0	0.0	

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	[kN]	[m]	[°]	[°]	[kPa]	[kPa]	[kN]
2	26.71	16.67	0.65	59.765	29.256	0	0.0	
3	38.99	16.67	0.65	53.126	29.256	0	0.0	
4	48.74	16.67	0.65	47.412	29.256	0	0.0	
5	56.78	16.67	0.65	42.271	29.256	0	0.0	
6	63.53	16.67	0.65	37.524	29.256	0	0.0	
7	69.24	16.67	0.65	33.065	29.256	0	0.0	
8	76.45	14.84	0.65	28.823	20.458	0	0.0	
9	81.38	1.69	0.65	24.748	20.458	0	0.0	
10	84.77	1.69	0.65	20.804	20.458	0	0.9	
11	87.53	1.69	0.65	16.960	20.458	0	3.1	
12	89.70	1.69	0.65	13.195	20.458	0	4.8	
13	91.35	1.34	0.65	9.486	20.458	0	6.1	
14	105.72	0.00	0.65	5.818	20.458	0	6.9	
15	38.77	0.00	0.65	2.173	20.458	0	7.4	
16	28.25	0.00	0.65	-1.462	20.458	0	7.4	
17	27.47	0.00	0.65	-5.104	20.458	0	7.1	
18	26.49	0.00	0.65	-8.767	20.458	0	6.3	
19	24.98	0.00	0.65	-12.466	20.458	0	5.1	
20	22.92	0.00	0.65	-16.219	20.458	0	3.5	
21	20.28	0.00	0.65	-20.045	20.458	0	1.4	
22	17.02	0.00	0.65	-23.968	20.458	0	0.0	
23	13.08	0.00	0.65	-28.014	20.458	0	0.0	
24	8.41	0.00	0.65	-32.220	20.458	0	0.0	
25	2.87	0.00	-7.45 - 0.65	-36.078	20.458	0	0.0	

Combinazione n° 5 - GEO (A2-M2-R2) H + V

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	[kN]	[m]	[°]	[°]	[kPa]	[kPa]	[kN]
1	9.90	3.91	8.83 - 0.65	67.871	35.000	0	0.0	
2	26.71	3.91	0.65	59.765	35.000	0	0.0	
3	38.99	3.91	0.65	53.126	35.000	0	0.0	
4	48.74	3.91	0.65	47.412	35.000	0	0.0	
5	56.78	3.91	0.65	42.271	35.000	0	0.0	
6	63.53	3.91	0.65	37.524	35.000	0	0.0	
7	69.24	3.91	0.65	33.065	35.000	0	0.0	
8	76.45	3.59	0.65	28.823	25.000	0	0.0	
9	81.38	1.30	0.65	24.748	25.000	0	0.0	
10	84.77	1.30	0.65	20.804	25.000	0	0.9	
11	87.53	1.30	0.65	16.960	25.000	0	3.1	
12	89.70	1.30	0.65	13.195	25.000	0	4.8	
13	91.35	1.03	0.65	9.486	25.000	0	6.1	
14	105.72	0.00	0.65	5.818	25.000	0	6.9	
15	38.77	0.00	0.65	2.173	25.000	0	7.4	
16	28.25	0.00	0.65	-1.462	25.000	0	7.4	
17	27.47	0.00	0.65	-5.104	25.000	0	7.1	
18	26.49	0.00	0.65	-8.767	25.000	0	6.3	
19	24.98	0.00	0.65	-12.466	25.000	0	5.1	
20	22.92	0.00	0.65	-16.219	25.000	0	3.5	
21	20.28	0.00	0.65	-20.045	25.000	0	1.4	
22	17.02	0.00	0.65	-23.968	25.000	0	0.0	
23	13.08	0.00	0.65	-28.014	25.000	0	0.0	
24	8.41	0.00	0.65	-32.220	25.000	0	0.0	
25	2.87	0.00	-7.45 - 0.65	-36.078	25.000	0	0.0	

Combinazione n° 6 - GEO (A2-M2-R2) H - V

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	[kN]	[m]	[°]	[°]	[kPa]	[kPa]	[kN]

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	9.90	3.91	8.83 - 0.65	67.871	35.000	0	0.0	
2	26.71	3.91	0.65	59.765	35.000	0	0.0	
3	38.99	3.91	0.65	53.126	35.000	0	0.0	
4	48.74	3.91	0.65	47.412	35.000	0	0.0	
5	56.78	3.91	0.65	42.271	35.000	0	0.0	
6	63.53	3.91	0.65	37.524	35.000	0	0.0	
7	69.24	3.91	0.65	33.065	35.000	0	0.0	
8	76.45	3.59	0.65	28.823	25.000	0	0.0	
9	81.38	1.30	0.65	24.748	25.000	0	0.0	
10	84.77	1.30	0.65	20.804	25.000	0	0.9	
11	87.53	1.30	0.65	16.960	25.000	0	3.1	
12	89.70	1.30	0.65	13.195	25.000	0	4.8	
13	91.35	1.03	0.65	9.486	25.000	0	6.1	
14	105.72	0.00	0.65	5.818	25.000	0	6.9	
15	38.77	0.00	0.65	2.173	25.000	0	7.4	
16	28.25	0.00	0.65	-1.462	25.000	0	7.4	
17	27.47	0.00	0.65	-5.104	25.000	0	7.1	
18	26.49	0.00	0.65	-8.767	25.000	0	6.3	
19	24.98	0.00	0.65	-12.466	25.000	0	5.1	
20	22.92	0.00	0.65	-16.219	25.000	0	3.5	
21	20.28	0.00	0.65	-20.045	25.000	0	1.4	
22	17.02	0.00	0.65	-23.968	25.000	0	0.0	
23	13.08	0.00	0.65	-28.014	25.000	0	0.0	
24	8.41	0.00	0.65	-32.220	25.000	0	0.0	
25	2.87	0.00	-7.45 - 0.65	-36.078	25.000	0	0.0	

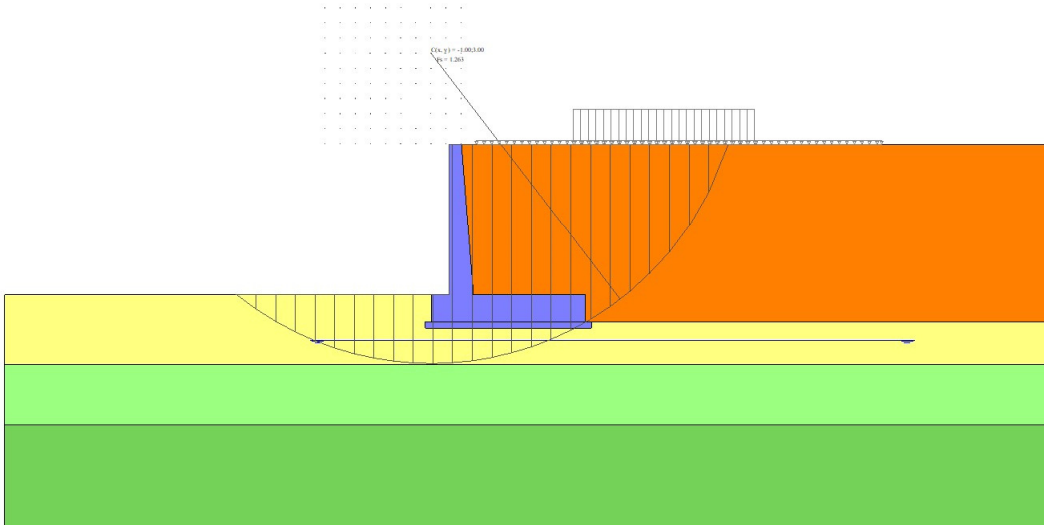


Fig. 7 - Stabilità fronte di scavo - Cerchio critico (Combinazione n° 4)

Spostamenti

Simbologia adottata

Cmb Tipo combinazione

$a_{g,crit}$ accelerazione critica, espressa in [m/s^2]

Dmax Spostamento orizzontale massimo, espressa in [cm]

Cmb	$a_{g,crit}$	Dmax
	[m/s^2]	*[cm]*
13 - SLEQ H + V	1.7818	0.0014

Sollecitazioni

Elementi calcolati a trave

Simbologia adottata

N Sforzo normale, espresso in [kN]. Positivo se di compressione.

T Taglio, espresso in [kN]. Positivo se diretto da monte verso valle

M Momento, espresso in [kNm]. Positivo se tende le fibre contro terra (a monte)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.04	0.00
3	-0.20	2.00	0.15	0.02
4	-0.30	3.03	0.34	0.05
5	-0.40	4.08	0.60	0.11
6	-0.50	5.15	0.93	0.21
7	-0.60	6.24	1.34	0.34
8	-0.70	7.34	1.83	0.53
9	-0.80	8.47	2.41	0.77
10	-0.90	9.62	3.09	1.08
11	-1.00	10.78	3.86	1.47
12	-1.10	11.97	4.72	1.94
13	-1.20	13.17	5.65	2.51
14	-1.30	14.40	6.67	3.18
15	-1.40	15.64	7.75	3.96
16	-1.50	16.91	8.91	4.86
17	-1.60	18.19	10.15	5.88
18	-1.70	19.49	11.46	7.03
19	-1.80	20.81	12.85	8.33
20	-1.90	22.15	14.31	9.77
21	-2.00	23.52	15.84	11.37
22	-2.10	24.90	17.45	13.13
23	-2.20	26.30	19.14	15.06
24	-2.30	27.72	20.90	17.17
25	-2.40	29.16	22.73	19.46
26	-2.50	30.61	24.64	21.95
27	-2.60	32.09	26.62	24.64
28	-2.70	33.59	28.67	27.53

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
29	-2.80	35.11	30.80	30.64
30	-2.90	36.64	33.01	33.97
31	-3.00	38.20	35.29	37.54
32	-3.10	39.78	37.64	41.34
33	-3.20	41.37	40.06	45.38
34	-3.30	42.99	42.57	49.68
35	-3.40	44.62	45.14	54.24
36	-3.50	46.27	47.79	59.07
37	-3.60	47.95	50.51	64.17
38	-3.70	49.64	53.31	69.55
39	-3.80	51.35	56.18	75.23
40	-3.90	53.08	59.13	81.20
41	-4.00	54.84	62.15	87.48
42	-4.10	56.61	65.25	94.07
43	-4.20	58.40	68.42	100.98
44	-4.30	60.21	71.66	108.22
45	-4.40	62.04	74.98	115.80
46	-4.50	63.89	78.37	123.71
47	-4.60	65.75	81.83	131.98
48	-4.70	67.64	85.37	140.61
49	-4.80	69.55	88.99	149.60
50	-4.90	71.48	92.68	158.96
51	-5.00	73.42	96.44	168.70

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.17	0.01
3	-0.20	2.00	0.41	0.04
4	-0.30	3.03	0.74	0.11
5	-0.40	4.08	1.14	0.22
6	-0.50	5.15	1.62	0.37
7	-0.60	6.24	2.18	0.59
8	-0.70	7.34	2.82	0.86
9	-0.80	8.47	3.56	1.21
10	-0.90	9.62	4.38	1.64
11	-1.00	10.78	5.30	2.17
12	-1.10	11.97	6.30	2.79
13	-1.20	13.17	7.38	3.52
14	-1.30	14.40	8.55	4.38
15	-1.40	15.64	9.79	5.35
16	-1.50	16.91	11.11	6.46
17	-1.60	18.19	12.52	7.71
18	-1.70	19.49	14.00	9.11
19	-1.80	20.81	15.56	10.67
20	-1.90	22.15	17.19	12.39
21	-2.00	23.52	18.91	14.29
22	-2.10	24.90	20.71	16.36
23	-2.20	26.30	22.58	18.63
24	-2.30	27.72	24.53	21.09
25	-2.40	29.16	26.56	23.76
26	-2.50	30.61	28.67	26.64
27	-2.60	32.09	30.86	29.74
28	-2.70	33.59	33.13	33.07
29	-2.80	35.11	35.48	36.64
30	-2.90	36.64	37.90	40.45
31	-3.00	38.20	40.40	44.51
32	-3.10	39.78	42.98	48.83
33	-3.20	41.37	45.64	53.43
34	-3.30	42.99	48.38	58.29
35	-3.40	44.62	51.20	63.45

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
36	-3.50	46.27	54.09	68.89
37	-3.60	47.95	57.06	74.64
38	-3.70	49.64	60.12	80.69
39	-3.80	51.35	63.25	87.06
40	-3.90	53.08	66.46	93.75
41	-4.00	54.84	69.74	100.77
42	-4.10	56.61	73.11	108.14
43	-4.20	58.40	76.55	115.85
44	-4.30	60.21	80.08	123.91
45	-4.40	62.04	83.68	132.34
46	-4.50	63.89	87.36	141.15
47	-4.60	65.75	91.12	150.33
48	-4.70	67.64	94.95	159.90
49	-4.80	69.55	98.87	169.86
50	-4.90	71.48	102.86	180.23
51	-5.00	73.42	106.93	191.00

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.16	0.01
3	-0.20	2.00	0.40	0.04
4	-0.30	3.03	0.70	0.11
5	-0.40	4.08	1.08	0.21
6	-0.50	5.15	1.53	0.36
7	-0.60	6.24	2.05	0.56
8	-0.70	7.34	2.64	0.82
9	-0.80	8.47	3.32	1.15
10	-0.90	9.62	4.08	1.55
11	-1.00	10.78	4.92	2.04
12	-1.10	11.97	5.85	2.63
13	-1.20	13.17	6.85	3.31
14	-1.30	14.40	7.92	4.10
15	-1.40	15.64	9.06	5.01
16	-1.50	16.91	10.28	6.04
17	-1.60	18.19	11.56	7.20
18	-1.70	19.49	12.92	8.50
19	-1.80	20.81	14.35	9.94
20	-1.90	22.15	15.85	11.54
21	-2.00	23.52	17.42	13.29
22	-2.10	24.90	19.06	15.21
23	-2.20	26.30	20.78	17.31
24	-2.30	27.72	22.56	19.58
25	-2.40	29.16	24.42	22.04
26	-2.50	30.61	26.35	24.70
27	-2.60	32.09	28.34	27.56
28	-2.70	33.59	30.41	30.63
29	-2.80	35.11	32.55	33.91
30	-2.90	36.64	34.77	37.42
31	-3.00	38.20	37.05	41.16
32	-3.10	39.78	39.40	45.13
33	-3.20	41.37	41.83	49.36
34	-3.30	42.99	44.32	53.83
35	-3.40	44.62	46.89	58.57
36	-3.50	46.27	49.53	63.57
37	-3.60	47.95	52.24	68.84
38	-3.70	49.64	55.02	74.40
39	-3.80	51.35	57.87	80.24
40	-3.90	53.08	60.79	86.38
41	-4.00	54.84	63.78	92.83
42	-4.10	56.61	66.85	99.58

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
43	-4.20	58.40	69.98	106.65
44	-4.30	60.21	73.19	114.04
45	-4.40	62.04	76.47	121.77
46	-4.50	63.89	79.81	129.83
47	-4.60	65.75	83.23	138.24
48	-4.70	67.64	86.72	147.00
49	-4.80	69.55	90.29	156.13
50	-4.90	71.48	93.92	165.62
51	-5.00	73.42	97.62	175.48

Combinazione n° 10 - SLER

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.03	0.00
3	-0.20	2.00	0.12	0.02
4	-0.30	3.03	0.26	0.04
5	-0.40	4.08	0.46	0.09
6	-0.50	5.15	0.72	0.17
7	-0.60	6.24	1.03	0.28
8	-0.70	7.34	1.41	0.43
9	-0.80	8.47	1.85	0.62
10	-0.90	9.62	2.37	0.87
11	-1.00	10.78	2.95	1.17
12	-1.10	11.97	3.60	1.55
13	-1.20	13.17	4.31	1.99
14	-1.30	14.40	5.08	2.52
15	-1.40	15.64	5.91	3.13
16	-1.50	16.91	6.80	3.82
17	-1.60	18.19	7.74	4.62
18	-1.70	19.49	8.74	5.52
19	-1.80	20.81	9.80	6.53
20	-1.90	22.15	10.91	7.65
21	-2.00	23.52	12.08	8.89
22	-2.10	24.90	13.31	10.25
23	-2.20	26.30	14.60	11.75
24	-2.30	27.72	15.94	13.38
25	-2.40	29.16	17.34	15.16
26	-2.50	30.61	18.80	17.09
27	-2.60	32.09	20.32	19.17
28	-2.70	33.59	21.89	21.41
29	-2.80	35.11	23.52	23.81
30	-2.90	36.64	25.20	26.39
31	-3.00	38.20	26.95	29.15
32	-3.10	39.78	28.75	32.09
33	-3.20	41.37	30.61	35.22
34	-3.30	42.99	32.52	38.54
35	-3.40	44.62	34.49	42.06
36	-3.50	46.27	36.52	45.79
37	-3.60	47.95	38.61	49.74
38	-3.70	49.64	40.75	53.90
39	-3.80	51.35	42.95	58.29
40	-3.90	53.08	45.21	62.90
41	-4.00	54.84	47.52	67.75
42	-4.10	56.61	49.89	72.84
43	-4.20	58.40	52.32	78.18
44	-4.30	60.21	54.81	83.77
45	-4.40	62.04	57.35	89.62
46	-4.50	63.89	59.95	95.74
47	-4.60	65.75	62.61	102.13
48	-4.70	67.64	65.32	108.79
49	-4.80	69.55	68.09	115.73

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
50	-4.90	71.48	70.92	122.96
51	-5.00	73.42	73.80	130.48

Combinazione n° 11 - SLEF

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.03	0.00
3	-0.20	2.00	0.12	0.02
4	-0.30	3.03	0.26	0.04
5	-0.40	4.08	0.46	0.09
6	-0.50	5.15	0.72	0.17
7	-0.60	6.24	1.03	0.28
8	-0.70	7.34	1.41	0.43
9	-0.80	8.47	1.85	0.62
10	-0.90	9.62	2.37	0.87
11	-1.00	10.78	2.95	1.17
12	-1.10	11.97	3.60	1.55
13	-1.20	13.17	4.31	1.99
14	-1.30	14.40	5.08	2.52
15	-1.40	15.64	5.91	3.13
16	-1.50	16.91	6.80	3.82
17	-1.60	18.19	7.74	4.62
18	-1.70	19.49	8.74	5.52
19	-1.80	20.81	9.80	6.53
20	-1.90	22.15	10.91	7.65
21	-2.00	23.52	12.08	8.89
22	-2.10	24.90	13.31	10.25
23	-2.20	26.30	14.60	11.75
24	-2.30	27.72	15.94	13.38
25	-2.40	29.16	17.34	15.16
26	-2.50	30.61	18.80	17.09
27	-2.60	32.09	20.32	19.17
28	-2.70	33.59	21.89	21.41
29	-2.80	35.11	23.52	23.81
30	-2.90	36.64	25.20	26.39
31	-3.00	38.20	26.95	29.15
32	-3.10	39.78	28.75	32.09
33	-3.20	41.37	30.61	35.22
34	-3.30	42.99	32.52	38.54
35	-3.40	44.62	34.49	42.06
36	-3.50	46.27	36.52	45.79
37	-3.60	47.95	38.61	49.74
38	-3.70	49.64	40.75	53.90
39	-3.80	51.35	42.95	58.29
40	-3.90	53.08	45.21	62.90
41	-4.00	54.84	47.52	67.75
42	-4.10	56.61	49.89	72.84
43	-4.20	58.40	52.32	78.18
44	-4.30	60.21	54.81	83.77
45	-4.40	62.04	57.35	89.62
46	-4.50	63.89	59.95	95.74
47	-4.60	65.75	62.61	102.13
48	-4.70	67.64	65.32	108.79
49	-4.80	69.55	68.09	115.73
50	-4.90	71.48	70.92	122.96
51	-5.00	73.42	73.80	130.48

Combinazione n° 12 - SLEQ

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.03	0.00
3	-0.20	2.00	0.12	0.02
4	-0.30	3.03	0.26	0.04
5	-0.40	4.08	0.46	0.09
6	-0.50	5.15	0.72	0.17
7	-0.60	6.24	1.03	0.28
8	-0.70	7.34	1.41	0.43
9	-0.80	8.47	1.85	0.62
10	-0.90	9.62	2.37	0.87
11	-1.00	10.78	2.95	1.17
12	-1.10	11.97	3.60	1.55
13	-1.20	13.17	4.31	1.99
14	-1.30	14.40	5.08	2.52
15	-1.40	15.64	5.91	3.13
16	-1.50	16.91	6.80	3.82
17	-1.60	18.19	7.74	4.62
18	-1.70	19.49	8.74	5.52
19	-1.80	20.81	9.80	6.53
20	-1.90	22.15	10.91	7.65
21	-2.00	23.52	12.08	8.89
22	-2.10	24.90	13.31	10.25
23	-2.20	26.30	14.60	11.75
24	-2.30	27.72	15.94	13.38
25	-2.40	29.16	17.34	15.16
26	-2.50	30.61	18.80	17.09
27	-2.60	32.09	20.32	19.17
28	-2.70	33.59	21.89	21.41
29	-2.80	35.11	23.52	23.81
30	-2.90	36.64	25.20	26.39
31	-3.00	38.20	26.95	29.15
32	-3.10	39.78	28.75	32.09
33	-3.20	41.37	30.61	35.22
34	-3.30	42.99	32.52	38.54
35	-3.40	44.62	34.49	42.06
36	-3.50	46.27	36.52	45.79
37	-3.60	47.95	38.61	49.74
38	-3.70	49.64	40.75	53.90
39	-3.80	51.35	42.95	58.29
40	-3.90	53.08	45.21	62.90
41	-4.00	54.84	47.52	67.75
42	-4.10	56.61	49.89	72.84
43	-4.20	58.40	52.32	78.18
44	-4.30	60.21	54.81	83.77
45	-4.40	62.04	57.35	89.62
46	-4.50	63.89	59.95	95.74
47	-4.60	65.75	62.61	102.13
48	-4.70	67.64	65.32	108.79
49	-4.80	69.55	68.09	115.73
50	-4.90	71.48	70.92	122.96
51	-5.00	73.42	73.80	130.48

Combinazione n° 13 - SLEQ H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.11	0.01
3	-0.20	2.00	0.29	0.03
4	-0.30	3.03	0.54	0.08
5	-0.40	4.08	0.85	0.17
6	-0.50	5.15	1.24	0.29

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
7	-0.60	6.24	1.69	0.46
8	-0.70	7.34	2.22	0.68
9	-0.80	8.47	2.83	0.96
10	-0.90	9.62	3.52	1.32
11	-1.00	10.78	4.30	1.75
12	-1.10	11.97	5.15	2.26
13	-1.20	13.17	6.08	2.87
14	-1.30	14.40	7.07	3.59
15	-1.40	15.64	8.14	4.41
16	-1.50	16.91	9.27	5.34
17	-1.60	18.19	10.47	6.40
18	-1.70	19.49	11.75	7.58
19	-1.80	20.81	13.09	8.90
20	-1.90	22.15	14.50	10.37
21	-2.00	23.52	15.99	11.98
22	-2.10	24.90	17.54	13.75
23	-2.20	26.30	19.16	15.69
24	-2.30	27.72	20.85	17.80
25	-2.40	29.16	22.61	20.08
26	-2.50	30.61	24.44	22.55
27	-2.60	32.09	26.33	25.22
28	-2.70	33.59	28.30	28.08
29	-2.80	35.11	30.34	31.15
30	-2.90	36.64	32.44	34.43
31	-3.00	38.20	34.62	37.93
32	-3.10	39.78	36.86	41.66
33	-3.20	41.37	39.17	45.62
34	-3.30	42.99	41.56	49.82
35	-3.40	44.62	44.01	54.28
36	-3.50	46.27	46.53	58.98
37	-3.60	47.95	49.12	63.95
38	-3.70	49.64	51.78	69.19
39	-3.80	51.35	54.50	74.70
40	-3.90	53.08	57.30	80.50
41	-4.00	54.84	60.17	86.59
42	-4.10	56.61	63.10	92.97
43	-4.20	58.40	66.11	99.66
44	-4.30	60.21	69.18	106.66
45	-4.40	62.04	72.33	113.98
46	-4.50	63.89	75.54	121.62
47	-4.60	65.75	78.82	129.60
48	-4.70	67.64	82.17	137.91
49	-4.80	69.55	85.59	146.57
50	-4.90	71.48	89.08	155.59
51	-5.00	73.42	92.64	164.96

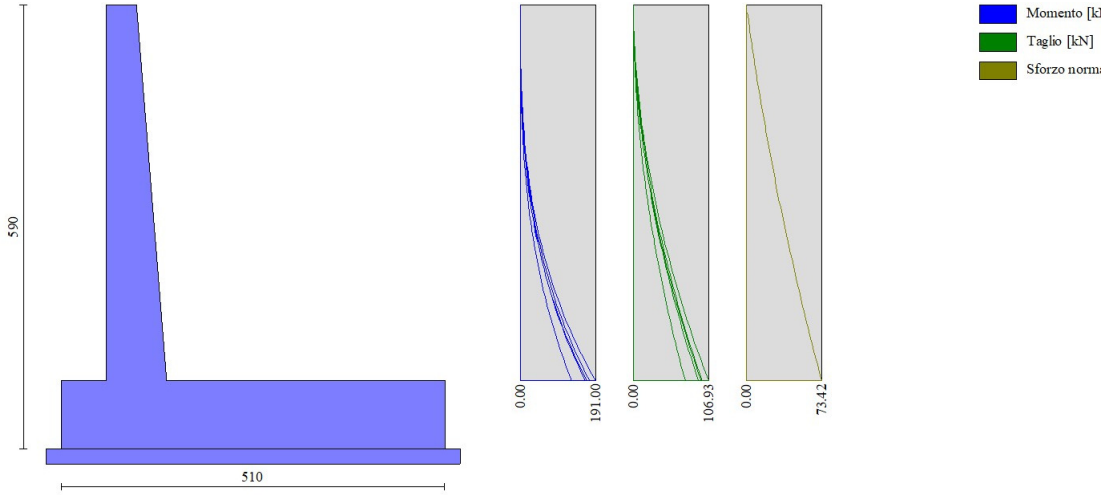


Fig. 8 - Paramento (Inviluppo)

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	14.89	0.75
3	-0.80	0.00	29.55	2.97
4	-0.70	0.00	43.97	6.65
5	-0.60	0.00	58.17	11.76
6	-0.50	0.00	72.13	18.27
7	-0.40	0.00	85.87	26.18
8	0.40	0.00	-200.34	-467.91
9	0.50	0.00	-199.65	-448.99
10	0.60	0.00	-198.45	-429.63
11	0.70	0.00	-197.00	-410.39
12	0.80	0.00	-195.33	-391.31
13	0.90	0.00	-193.42	-372.41
14	1.00	0.00	-191.28	-353.71
15	1.10	0.00	-188.92	-335.23
16	1.20	0.00	-186.32	-317.01
17	1.30	0.00	-183.49	-299.05
18	1.40	0.00	-180.43	-281.39
19	1.50	0.00	-177.15	-264.05
20	1.60	0.00	-173.63	-247.04
21	1.70	0.00	-169.88	-230.40
22	1.80	0.00	-165.90	-214.15
23	1.90	0.00	-161.69	-198.31
24	2.00	0.00	-157.24	-182.89
25	2.10	0.00	-152.57	-167.94
26	2.20	0.00	-147.67	-153.46
27	2.30	0.00	-142.54	-139.49
28	2.40	0.00	-137.18	-126.04

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
29	2.50	0.00	-131.58	-113.13
30	2.60	0.00	-125.76	-100.80
31	2.70	0.00	-119.70	-89.06
32	2.80	0.00	-113.42	-77.94
33	2.90	0.00	-106.90	-67.46
34	3.00	0.00	-100.16	-57.64
35	3.10	0.00	-93.18	-48.51
36	3.20	0.00	-85.98	-40.09
37	3.30	0.00	-78.54	-32.40
38	3.40	0.00	-70.87	-25.46
39	3.50	0.00	-62.97	-19.31
40	3.60	0.00	-54.84	-13.95
41	3.70	0.00	-46.48	-9.42
42	3.80	0.00	-35.25	-5.34
43	3.90	0.00	-23.73	-2.39
44	4.00	0.00	-11.98	-0.60
45	4.10	0.00	0.00	0.00

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	17.81	0.89
3	-0.80	0.00	35.29	3.55
4	-0.70	0.00	52.44	7.94
5	-0.60	0.00	69.26	14.03
6	-0.50	0.00	85.75	21.78
7	-0.40	0.00	101.92	31.17
8	0.40	0.00	-90.15	-305.46
9	0.50	0.00	-93.86	-296.69
10	0.60	0.00	-97.05	-287.23
11	0.70	0.00	-99.91	-277.46
12	0.80	0.00	-102.44	-267.42
13	0.90	0.00	-104.64	-257.14
14	1.00	0.00	-106.51	-246.66
15	1.10	0.00	-108.06	-236.01
16	1.20	0.00	-109.27	-225.22
17	1.30	0.00	-110.16	-214.33
18	1.40	0.00	-110.72	-203.36
19	1.50	0.00	-110.95	-192.35
20	1.60	0.00	-110.85	-181.34
21	1.70	0.00	-110.42	-170.35
22	1.80	0.00	-109.66	-159.43
23	1.90	0.00	-108.58	-148.59
24	2.00	0.00	-107.17	-137.88
25	2.10	0.00	-105.42	-127.33
26	2.20	0.00	-103.35	-116.97
27	2.30	0.00	-100.96	-106.83
28	2.40	0.00	-98.23	-96.95
29	2.50	0.00	-95.17	-87.35
30	2.60	0.00	-91.79	-78.08
31	2.70	0.00	-88.07	-69.16
32	2.80	0.00	-84.03	-60.64
33	2.90	0.00	-79.66	-52.53
34	3.00	0.00	-74.96	-44.87
35	3.10	0.00	-69.94	-37.71
36	3.20	0.00	-64.58	-31.06
37	3.30	0.00	-58.90	-24.96
38	3.40	0.00	-52.88	-19.45
39	3.50	0.00	-46.54	-14.55
40	3.60	0.00	-39.87	-10.31
41	3.70	0.00	-32.87	-6.75

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
42	3.80	0.00	-25.15	-3.85
43	3.90	0.00	-17.10	-1.73
44	4.00	0.00	-8.71	-0.44
45	4.10	0.00	0.00	0.00

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	16.13	0.81
3	-0.80	0.00	31.94	3.22
4	-0.70	0.00	47.44	7.19
5	-0.60	0.00	62.61	12.69
6	-0.50	0.00	77.46	19.70
7	-0.40	0.00	92.00	28.17
8	0.40	0.00	-140.90	-395.31
9	0.50	0.00	-143.07	-381.55
10	0.60	0.00	-144.72	-367.24
11	0.70	0.00	-146.06	-352.78
12	0.80	0.00	-147.07	-338.20
13	0.90	0.00	-147.77	-323.54
14	1.00	0.00	-148.14	-308.82
15	1.10	0.00	-148.20	-294.08
16	1.20	0.00	-147.94	-279.35
17	1.30	0.00	-147.36	-264.66
18	1.40	0.00	-146.46	-250.04
19	1.50	0.00	-145.24	-235.54
20	1.60	0.00	-143.70	-221.17
21	1.70	0.00	-141.85	-206.97
22	1.80	0.00	-139.67	-192.97
23	1.90	0.00	-137.18	-179.20
24	2.00	0.00	-134.36	-165.70
25	2.10	0.00	-131.23	-152.50
26	2.20	0.00	-127.78	-139.62
27	2.30	0.00	-124.01	-127.11
28	2.40	0.00	-119.92	-114.99
29	2.50	0.00	-115.51	-103.30
30	2.60	0.00	-110.78	-92.06
31	2.70	0.00	-105.74	-81.31
32	2.80	0.00	-100.37	-71.08
33	2.90	0.00	-94.69	-61.41
34	3.00	0.00	-88.68	-52.31
35	3.10	0.00	-82.36	-43.84
36	3.20	0.00	-75.72	-36.01
37	3.30	0.00	-68.76	-28.86
38	3.40	0.00	-61.48	-22.43
39	3.50	0.00	-53.88	-16.74
40	3.60	0.00	-45.96	-11.82
41	3.70	0.00	-37.73	-7.72
42	3.80	0.00	-28.78	-4.39
43	3.90	0.00	-19.51	-1.97
44	4.00	0.00	-9.91	-0.50
45	4.10	0.00	0.00	0.00

Combinazione n° 10 - SLER

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	12.81	0.64
3	-0.80	0.00	25.47	2.56
4	-0.70	0.00	37.98	5.73
5	-0.60	0.00	50.34	10.15
6	-0.50	0.00	62.54	15.79
7	-0.40	0.00	74.59	22.65
8	0.40	0.00	-72.96	-199.32
9	0.50	0.00	-74.14	-192.72
10	0.60	0.00	-74.97	-185.67
11	0.70	0.00	-75.65	-178.54
12	0.80	0.00	-76.17	-171.34
13	0.90	0.00	-76.55	-164.10
14	1.00	0.00	-76.77	-156.83
15	1.10	0.00	-76.83	-149.55
16	1.20	0.00	-76.75	-142.27
17	1.30	0.00	-76.51	-135.00
18	1.40	0.00	-76.12	-127.77
19	1.50	0.00	-75.58	-120.58
20	1.60	0.00	-74.88	-113.45
21	1.70	0.00	-74.03	-106.40
22	1.80	0.00	-73.03	-99.45
23	1.90	0.00	-71.88	-92.60
24	2.00	0.00	-70.58	-85.87
25	2.10	0.00	-69.12	-79.28
26	2.20	0.00	-67.51	-72.85
27	2.30	0.00	-65.75	-66.58
28	2.40	0.00	-63.83	-60.50
29	2.50	0.00	-61.77	-54.62
30	2.60	0.00	-59.55	-48.95
31	2.70	0.00	-57.17	-43.51
32	2.80	0.00	-54.65	-38.31
33	2.90	0.00	-51.97	-33.38
34	3.00	0.00	-49.14	-28.72
35	3.10	0.00	-46.16	-24.35
36	3.20	0.00	-43.03	-20.29
37	3.30	0.00	-39.74	-16.55
38	3.40	0.00	-36.30	-13.14
39	3.50	0.00	-32.71	-10.09
40	3.60	0.00	-28.97	-7.40
41	3.70	0.00	-25.07	-5.10
42	3.80	0.00	-19.06	-2.89
43	3.90	0.00	-12.86	-1.30
44	4.00	0.00	-6.51	-0.33
45	4.10	0.00	0.00	0.00

Combinazione n° 11 - SLEF

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	12.81	0.64
3	-0.80	0.00	25.47	2.56
4	-0.70	0.00	37.98	5.73
5	-0.60	0.00	50.34	10.15
6	-0.50	0.00	62.54	15.79
7	-0.40	0.00	74.59	22.65
8	0.40	0.00	-72.96	-199.32
9	0.50	0.00	-74.14	-192.72
10	0.60	0.00	-74.97	-185.67
11	0.70	0.00	-75.65	-178.54
12	0.80	0.00	-76.17	-171.34
13	0.90	0.00	-76.55	-164.10

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
14	1.00	0.00	-76.77	-156.83
15	1.10	0.00	-76.83	-149.55
16	1.20	0.00	-76.75	-142.27
17	1.30	0.00	-76.51	-135.00
18	1.40	0.00	-76.12	-127.77
19	1.50	0.00	-75.58	-120.58
20	1.60	0.00	-74.88	-113.45
21	1.70	0.00	-74.03	-106.40
22	1.80	0.00	-73.03	-99.45
23	1.90	0.00	-71.88	-92.60
24	2.00	0.00	-70.58	-85.87
25	2.10	0.00	-69.12	-79.28
26	2.20	0.00	-67.51	-72.85
27	2.30	0.00	-65.75	-66.58
28	2.40	0.00	-63.83	-60.50
29	2.50	0.00	-61.77	-54.62
30	2.60	0.00	-59.55	-48.95
31	2.70	0.00	-57.17	-43.51
32	2.80	0.00	-54.65	-38.31
33	2.90	0.00	-51.97	-33.38
34	3.00	0.00	-49.14	-28.72
35	3.10	0.00	-46.16	-24.35
36	3.20	0.00	-43.03	-20.29
37	3.30	0.00	-39.74	-16.55
38	3.40	0.00	-36.30	-13.14
39	3.50	0.00	-32.71	-10.09
40	3.60	0.00	-28.97	-7.40
41	3.70	0.00	-25.07	-5.10
42	3.80	0.00	-19.06	-2.89
43	3.90	0.00	-12.86	-1.30
44	4.00	0.00	-6.51	-0.33
45	4.10	0.00	0.00	0.00

Combinazione n° 12 - SLEQ

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	12.81	0.64
3	-0.80	0.00	25.47	2.56
4	-0.70	0.00	37.98	5.73
5	-0.60	0.00	50.34	10.15
6	-0.50	0.00	62.54	15.79
7	-0.40	0.00	74.59	22.65
8	0.40	0.00	-72.96	-199.32
9	0.50	0.00	-74.14	-192.72
10	0.60	0.00	-74.97	-185.67
11	0.70	0.00	-75.65	-178.54
12	0.80	0.00	-76.17	-171.34
13	0.90	0.00	-76.55	-164.10
14	1.00	0.00	-76.77	-156.83
15	1.10	0.00	-76.83	-149.55
16	1.20	0.00	-76.75	-142.27
17	1.30	0.00	-76.51	-135.00
18	1.40	0.00	-76.12	-127.77
19	1.50	0.00	-75.58	-120.58
20	1.60	0.00	-74.88	-113.45
21	1.70	0.00	-74.03	-106.40
22	1.80	0.00	-73.03	-99.45
23	1.90	0.00	-71.88	-92.60
24	2.00	0.00	-70.58	-85.87
25	2.10	0.00	-69.12	-79.28
26	2.20	0.00	-67.51	-72.85

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
27	2.30	0.00	-65.75	-66.58
28	2.40	0.00	-63.83	-60.50
29	2.50	0.00	-61.77	-54.62
30	2.60	0.00	-59.55	-48.95
31	2.70	0.00	-57.17	-43.51
32	2.80	0.00	-54.65	-38.31
33	2.90	0.00	-51.97	-33.38
34	3.00	0.00	-49.14	-28.72
35	3.10	0.00	-46.16	-24.35
36	3.20	0.00	-43.03	-20.29
37	3.30	0.00	-39.74	-16.55
38	3.40	0.00	-36.30	-13.14
39	3.50	0.00	-32.71	-10.09
40	3.60	0.00	-28.97	-7.40
41	3.70	0.00	-25.07	-5.10
42	3.80	0.00	-19.06	-2.89
43	3.90	0.00	-12.86	-1.30
44	4.00	0.00	-6.51	-0.33
45	4.10	0.00	0.00	0.00

Combinazione n° 13 - SLEQ H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-1.00	0.00	0.00	0.00
2	-0.90	0.00	16.96	0.85
3	-0.80	0.00	33.62	3.38
4	-0.70	0.00	49.97	7.56
5	-0.60	0.00	66.03	13.37
6	-0.50	0.00	81.78	20.76
7	-0.40	0.00	97.23	29.71
8	0.40	0.00	-95.80	-304.46
9	0.50	0.00	-99.05	-295.47
10	0.60	0.00	-101.80	-285.83
11	0.70	0.00	-104.24	-275.92
12	0.80	0.00	-106.38	-265.79
13	0.90	0.00	-108.22	-255.45
14	1.00	0.00	-109.76	-244.95
15	1.10	0.00	-111.00	-234.31
16	1.20	0.00	-111.93	-223.56
17	1.30	0.00	-112.57	-212.73
18	1.40	0.00	-112.90	-201.85
19	1.50	0.00	-112.93	-190.95
20	1.60	0.00	-112.66	-180.07
21	1.70	0.00	-112.09	-169.23
22	1.80	0.00	-111.22	-158.46
23	1.90	0.00	-110.04	-147.79
24	2.00	0.00	-108.57	-137.26
25	2.10	0.00	-106.79	-126.88
26	2.20	0.00	-104.71	-116.70
27	2.30	0.00	-102.33	-106.75
28	2.40	0.00	-99.65	-97.04
29	2.50	0.00	-96.67	-87.62
30	2.60	0.00	-93.38	-78.52
31	2.70	0.00	-89.80	-69.75
32	2.80	0.00	-85.91	-61.36
33	2.90	0.00	-81.72	-53.37
34	3.00	0.00	-77.23	-45.82
35	3.10	0.00	-72.44	-38.73
36	3.20	0.00	-67.35	-32.14
37	3.30	0.00	-61.96	-26.07
38	3.40	0.00	-56.26	-20.55
39	3.50	0.00	-50.27	-15.62

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
40	3.60	0.00	-43.97	-11.31
41	3.70	0.00	-37.37	-7.63
42	3.80	0.00	-28.51	-4.34
43	3.90	0.00	-19.31	-1.95
44	4.00	0.00	-9.80	-0.49
45	4.10	0.00	0.00	0.00

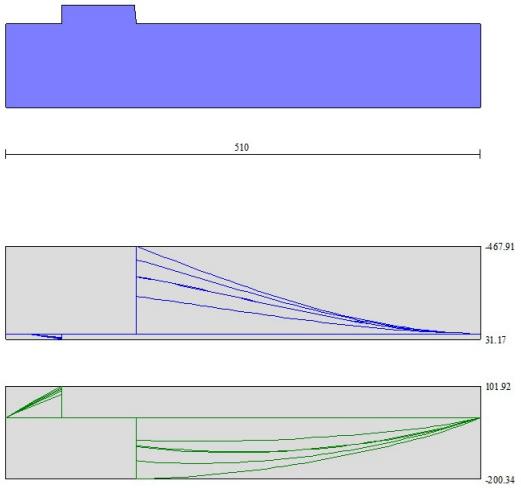


Fig. 9 - Fondazione (Inviluppo)

Verifiche strutturali

Verifiche a flessione

Elementi calcolati a trave

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Afi	area ferri inferiori espresso in [cmq]
Afs	area ferri superiori espressa in [cmq]

M	momento agente espressa in [kNm]
N	sforzo normale agente espressa in [kN]
Mu	momento ultimi espresso in [kNm]
Nu	sforzo normale ultimo espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione ultima e sollecitazione agente)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	0.00	100	40	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	26.55	53.09	0.00	0.99	0.00	0.00	100000.000
3	-0.20	100	42	26.55	53.09	0.02	2.00	78.53	8763.96	4381.143
4	-0.30	100	42	26.55	53.09	0.05	3.03	150.68	8833.67	2915.558
5	-0.40	100	43	26.55	53.09	0.11	4.08	238.00	8673.21	2126.409
6	-0.50	100	44	26.55	53.09	0.21	5.15	329.84	8238.66	1600.583
7	-0.60	100	45	26.55	53.09	0.34	6.24	425.84	7772.54	1246.543
8	-0.70	100	46	26.55	53.09	0.53	7.34	522.02	7282.52	991.794
9	-0.80	100	46	26.55	53.09	0.77	8.47	615.73	6779.80	800.469
10	-0.90	100	47	26.55	53.09	1.08	9.62	705.65	6285.56	653.636
11	-1.00	100	48	26.55	53.09	1.47	10.78	791.76	5819.65	539.739
12	-1.10	100	49	26.55	53.09	1.94	11.97	873.36	5386.30	450.063
13	-1.20	100	50	26.55	53.09	2.51	13.17	950.73	4992.60	379.005
14	-1.30	100	50	26.55	53.09	3.18	14.40	1024.36	4639.77	322.262
15	-1.40	100	51	26.55	53.09	3.96	15.64	1094.77	4325.72	276.553
16	-1.50	100	52	26.55	53.09	4.86	16.91	1160.56	4040.19	238.991
17	-1.60	100	53	26.55	53.09	5.88	18.19	1223.94	3786.92	208.207
18	-1.70	100	54	26.55	53.09	7.03	19.49	1285.25	3561.64	182.734
19	-1.80	100	54	26.55	53.09	8.33	20.81	1308.32	3269.48	157.089
20	-1.90	100	55	26.55	53.09	9.77	22.15	1325.92	3006.27	135.695
21	-2.00	100	56	26.55	53.09	11.37	23.52	1338.67	2768.86	117.745
22	-2.10	100	57	26.55	53.09	13.13	24.90	1349.37	2558.64	102.771
23	-2.20	100	58	26.55	53.09	15.06	26.30	1357.17	2369.69	90.114
24	-2.30	100	58	26.55	53.09	17.17	27.72	1367.30	2207.23	79.637
25	-2.40	100	59	26.55	53.09	19.46	29.16	1372.14	2055.46	70.500
26	-2.50	100	60	26.55	53.09	21.95	30.61	1378.80	1923.08	62.817
27	-2.60	100	61	26.55	53.09	24.64	32.09	1387.38	1807.26	56.314
28	-2.70	100	61	26.55	53.09	27.53	33.59	1395.19	1702.25	50.677
29	-2.80	100	62	26.55	53.09	30.64	35.11	1401.16	1605.41	45.729
30	-2.90	100	63	26.55	53.09	33.97	36.64	1408.71	1519.45	41.465
31	-3.00	100	64	26.55	53.09	37.54	38.20	1417.61	1442.69	37.767
32	-3.10	100	65	26.55	53.09	41.34	39.78	1427.67	1373.77	34.538
33	-3.20	100	65	26.55	53.09	45.38	41.37	1438.75	1311.58	31.703
34	-3.30	100	66	26.55	53.09	49.68	42.99	1446.21	1251.31	29.110
35	-3.40	100	67	26.55	53.09	54.24	44.62	1453.62	1195.81	26.800
36	-3.50	100	68	26.55	53.09	59.07	46.27	1462.02	1145.37	24.752
37	-3.60	100	69	26.55	53.09	64.17	47.95	1471.30	1099.36	22.929
38	-3.70	100	69	26.55	53.09	69.55	49.64	1481.36	1057.24	21.298
39	-3.80	100	70	26.55	53.09	75.23	51.35	1492.12	1018.54	19.834
40	-3.90	100	71	26.55	53.09	81.20	53.08	1503.51	982.89	18.516
41	-4.00	100	72	26.55	53.09	87.48	54.84	1515.47	949.95	17.324
42	-4.10	100	73	26.55	53.09	94.07	56.61	1527.95	919.43	16.242
43	-4.20	100	73	26.55	53.09	100.98	58.40	1540.80	891.03	15.258
44	-4.30	100	74	26.55	53.09	108.22	60.21	1552.41	863.65	14.345
45	-4.40	100	75	26.55	53.09	115.80	62.04	1564.35	838.08	13.510

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
46	-4.50	100	76	26.55	53.09	123.71	63.89	1576.59	814.15	12.744
47	-4.60	100	77	26.55	53.09	131.98	65.75	1589.10	791.70	12.040
48	-4.70	100	77	26.55	53.09	140.61	67.64	1601.85	770.61	11.393
49	-4.80	100	78	26.55	53.09	149.60	69.55	1614.84	750.76	10.795
50	-4.90	100	79	26.55	53.09	158.96	71.48	1628.03	732.04	10.242
51	-5.00	100	80	26.55	53.09	168.70	73.42	1641.41	714.37	9.730

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
1	0.00	100	40	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	26.55	53.09	0.01	0.99	0.00	0.00	100000.000
3	-0.20	100	42	26.55	53.09	0.04	2.00	189.78	8643.99	4321.170
4	-0.30	100	42	26.55	53.09	0.11	3.03	295.63	8084.71	2668.362
5	-0.40	100	43	26.55	53.09	0.22	4.08	401.87	7514.22	1842.259
6	-0.50	100	44	26.55	53.09	0.37	5.15	503.89	6937.95	1347.885
7	-0.60	100	45	26.55	53.09	0.59	6.24	599.63	6382.56	1023.621
8	-0.70	100	46	26.55	53.09	0.86	7.34	688.39	5863.12	798.488
9	-0.80	100	46	26.55	53.09	1.21	8.47	770.77	5387.70	636.108
10	-0.90	100	47	26.55	53.09	1.64	9.62	848.63	4965.08	516.319
11	-1.00	100	48	26.55	53.09	2.17	10.78	921.51	4584.81	425.215
12	-1.10	100	49	26.55	53.09	2.79	11.97	991.51	4250.97	355.198
13	-1.20	100	50	26.55	53.09	3.52	13.17	1057.22	3951.00	299.934
14	-1.30	100	50	26.55	53.09	4.38	14.40	1120.06	3685.48	255.980
15	-1.40	100	51	26.55	53.09	5.35	15.64	1180.69	3450.87	220.622
16	-1.50	100	52	26.55	53.09	6.46	16.91	1217.61	3185.83	188.453
17	-1.60	100	53	26.55	53.09	7.71	18.19	1237.74	2919.20	160.499
18	-1.70	100	54	26.55	53.09	9.11	19.49	1249.84	2673.51	137.167
19	-1.80	100	54	26.55	53.09	10.67	20.81	1262.65	2463.15	118.347
20	-1.90	100	55	26.55	53.09	12.39	22.15	1270.27	2271.11	102.512
21	-2.00	100	56	26.55	53.09	14.29	23.52	1280.28	2107.29	89.612
22	-2.10	100	57	26.55	53.09	16.36	24.90	1287.04	1958.16	78.653
23	-2.20	100	58	26.55	53.09	18.63	26.30	1293.96	1826.52	69.459
24	-2.30	100	58	26.55	53.09	21.09	27.72	1302.80	1711.98	61.768
25	-2.40	100	59	26.55	53.09	23.76	29.16	1311.90	1609.86	55.217
26	-2.50	100	60	26.55	53.09	26.64	30.61	1318.32	1515.02	49.488
27	-2.60	100	61	26.55	53.09	29.74	32.09	1326.57	1431.48	44.605
28	-2.70	100	61	26.55	53.09	33.07	33.59	1335.95	1356.95	40.398
29	-2.80	100	62	26.55	53.09	36.64	35.11	1346.44	1290.25	36.752
30	-2.90	100	63	26.55	53.09	40.45	36.64	1357.90	1230.22	33.572
31	-3.00	100	64	26.55	53.09	44.51	38.20	1366.81	1173.04	30.708
32	-3.10	100	65	26.55	53.09	48.83	39.78	1374.85	1119.83	28.154
33	-3.20	100	65	26.55	53.09	53.43	41.37	1383.81	1071.57	25.901
34	-3.30	100	66	26.55	53.09	58.29	42.99	1393.59	1027.63	23.906
35	-3.40	100	67	26.55	53.09	63.45	44.62	1404.09	987.46	22.130
36	-3.50	100	68	26.55	53.09	68.89	46.27	1415.25	950.62	20.543
37	-3.60	100	69	26.55	53.09	74.64	47.95	1427.00	916.73	19.120
38	-3.70	100	69	26.55	53.09	80.69	49.64	1439.28	885.46	17.838
39	-3.80	100	70	26.55	53.09	87.06	51.35	1452.04	856.52	16.679
40	-3.90	100	71	26.55	53.09	93.75	53.08	1465.25	829.68	15.629
41	-4.00	100	72	26.55	53.09	100.77	54.84	1477.93	804.22	14.666
42	-4.10	100	73	26.55	53.09	108.14	56.61	1490.37	780.17	13.782
43	-4.20	100	73	26.55	53.09	115.85	58.40	1503.07	757.67	12.975
44	-4.30	100	74	26.55	53.09	123.91	60.21	1516.02	736.59	12.234
45	-4.40	100	75	26.55	53.09	132.34	62.04	1529.19	716.80	11.555
46	-4.50	100	76	26.55	53.09	141.15	63.89	1542.56	698.19	10.929
47	-4.60	100	77	26.55	53.09	150.33	65.75	1556.12	680.65	10.352
48	-4.70	100	77	26.55	53.09	159.90	67.64	1569.86	664.10	9.818
49	-4.80	100	78	26.55	53.09	169.86	69.55	1583.75	648.47	9.324
50	-4.90	100	79	26.55	53.09	180.23	71.48	1597.78	633.67	8.865

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
51	-5.00	100	80	26.55	53.09	191.00	73.42	1611.96	619.64	8.439

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	0.00	100	40	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	26.55	53.09	0.01	0.99	0.00	0.00	100000.000
3	-0.20	100	42	26.55	53.09	0.04	2.00	186.05	8670.31	4334.326
4	-0.30	100	42	26.55	53.09	0.11	3.03	288.50	8135.85	2685.241
5	-0.40	100	43	26.55	53.09	0.21	4.08	391.42	7595.51	1862.189
6	-0.50	100	44	26.55	53.09	0.36	5.15	490.72	7049.38	1369.533
7	-0.60	100	45	26.55	53.09	0.56	6.24	584.37	6518.58	1045.437
8	-0.70	100	46	26.55	53.09	0.82	7.34	671.40	6015.60	819.255
9	-0.80	100	46	26.55	53.09	1.15	8.47	753.20	5556.39	656.025
10	-0.90	100	47	26.55	53.09	1.55	9.62	830.40	5141.55	534.670
11	-1.00	100	48	26.55	53.09	2.04	10.78	903.13	4766.47	442.062
12	-1.10	100	49	26.55	53.09	2.63	11.97	972.77	4433.08	370.415
13	-1.20	100	50	26.55	53.09	3.31	13.17	1039.34	4135.95	313.974
14	-1.30	100	50	26.55	53.09	4.10	14.40	1102.27	3868.08	268.664
15	-1.40	100	51	26.55	53.09	5.01	15.64	1163.05	3630.46	232.103
16	-1.50	100	52	26.55	53.09	6.04	16.91	1222.00	3419.09	202.251
17	-1.60	100	53	26.55	53.09	7.20	18.19	1245.36	3144.56	172.890
18	-1.70	100	54	26.55	53.09	8.50	19.49	1263.73	2897.18	148.643
19	-1.80	100	54	26.55	53.09	9.94	20.81	1277.18	2672.92	128.426
20	-1.90	100	55	26.55	53.09	11.54	22.15	1289.52	2475.68	111.746
21	-2.00	100	56	26.55	53.09	13.29	23.52	1298.32	2296.67	97.665
22	-2.10	100	57	26.55	53.09	15.21	24.90	1309.25	2142.53	86.058
23	-2.20	100	58	26.55	53.09	17.31	26.30	1316.45	2000.23	76.064
24	-2.30	100	58	26.55	53.09	19.58	27.72	1324.06	1874.16	67.620
25	-2.40	100	59	26.55	53.09	22.04	29.16	1333.44	1763.72	60.494
26	-2.50	100	60	26.55	53.09	24.70	30.61	1343.65	1665.42	54.400
27	-2.60	100	61	26.55	53.09	27.56	32.09	1350.52	1572.73	49.007
28	-2.70	100	61	26.55	53.09	30.63	33.59	1358.83	1490.34	44.369
29	-2.80	100	62	26.55	53.09	33.91	35.11	1368.39	1416.68	40.353
30	-2.90	100	63	26.55	53.09	37.42	36.64	1379.03	1350.47	36.854
31	-3.00	100	64	26.55	53.09	41.16	38.20	1390.60	1290.67	33.787
32	-3.10	100	65	26.55	53.09	45.13	39.78	1401.36	1234.98	31.048
33	-3.20	100	65	26.55	53.09	49.36	41.37	1409.35	1181.32	28.554
34	-3.30	100	66	26.55	53.09	53.83	42.99	1418.26	1132.51	26.346
35	-3.40	100	67	26.55	53.09	58.57	44.62	1427.98	1087.94	24.382
36	-3.50	100	68	26.55	53.09	63.57	46.27	1438.42	1047.11	22.628
37	-3.60	100	69	26.55	53.09	68.84	47.95	1449.52	1009.56	21.056
38	-3.70	100	69	26.55	53.09	74.40	49.64	1461.20	974.94	19.640
39	-3.80	100	70	26.55	53.09	80.24	51.35	1473.42	942.93	18.362
40	-3.90	100	71	26.55	53.09	86.38	53.08	1486.12	913.25	17.204
41	-4.00	100	72	26.55	53.09	92.83	54.84	1499.26	885.67	16.151
42	-4.10	100	73	26.55	53.09	99.58	56.61	1512.64	859.88	15.190
43	-4.20	100	73	26.55	53.09	106.65	58.40	1524.95	835.01	14.299
44	-4.30	100	74	26.55	53.09	114.04	60.21	1537.54	811.72	13.482
45	-4.40	100	75	26.55	53.09	121.77	62.04	1550.37	789.86	12.732
46	-4.50	100	76	26.55	53.09	129.83	63.89	1563.43	769.30	12.042
47	-4.60	100	77	26.55	53.09	138.24	65.75	1576.70	749.95	11.405
48	-4.70	100	77	26.55	53.09	147.00	67.64	1590.16	731.68	10.817
49	-4.80	100	78	26.55	53.09	156.13	69.55	1603.80	714.43	10.272
50	-4.90	100	79	26.55	53.09	165.62	71.48	1617.59	698.11	9.767
51	-5.00	100	80	26.55	53.09	175.48	73.42	1631.54	682.64	9.297

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-1.00	100	90	45.24	22.62	0.00	0.00	0.00	0.00	100000.000
2	-0.90	100	90	45.24	22.62	0.75	0.00	1388.66	0.00	1860.687
3	-0.80	100	90	45.24	22.62	2.97	0.00	1388.66	0.00	467.578
4	-0.70	100	90	45.24	22.62	6.65	0.00	1388.66	0.00	208.893
5	-0.60	100	90	45.24	22.62	11.76	0.00	1388.66	0.00	118.117
6	-0.50	100	90	45.24	22.62	18.27	0.00	1388.66	0.00	75.992
7	-0.40	100	90	45.24	22.62	26.18	0.00	1388.66	0.00	53.051
8	0.40	100	90	22.62	45.24	-467.91	0.00	-1388.66	0.00	2.968
9	0.50	100	90	22.62	45.24	-448.99	0.00	-1388.66	0.00	3.093
10	0.60	100	90	22.62	45.24	-429.63	0.00	-1388.66	0.00	3.232
11	0.70	100	90	22.62	45.24	-410.39	0.00	-1388.66	0.00	3.384
12	0.80	100	90	22.62	45.24	-391.31	0.00	-1388.66	0.00	3.549
13	0.90	100	90	22.62	45.24	-372.41	0.00	-1388.66	0.00	3.729
14	1.00	100	90	22.62	45.24	-353.71	0.00	-1388.66	0.00	3.926
15	1.10	100	90	22.62	45.24	-335.23	0.00	-1388.66	0.00	4.142
16	1.20	100	90	22.62	45.24	-317.01	0.00	-1388.66	0.00	4.381
17	1.30	100	90	22.62	45.24	-299.05	0.00	-1388.66	0.00	4.644
18	1.40	100	90	22.62	45.24	-281.39	0.00	-1388.66	0.00	4.935
19	1.50	100	90	22.62	45.24	-264.05	0.00	-1388.66	0.00	5.259
20	1.60	100	90	22.62	45.24	-247.04	0.00	-1388.66	0.00	5.621
21	1.70	100	90	22.62	45.24	-230.40	0.00	-1388.66	0.00	6.027
22	1.80	100	90	22.62	45.24	-214.15	0.00	-1388.66	0.00	6.485
23	1.90	100	90	22.62	45.24	-198.31	0.00	-1388.66	0.00	7.003
24	2.00	100	90	22.62	45.24	-182.89	0.00	-1388.66	0.00	7.593
25	2.10	100	90	22.62	45.24	-167.94	0.00	-1388.66	0.00	8.269
26	2.20	100	90	22.62	45.24	-153.46	0.00	-1388.66	0.00	9.049
27	2.30	100	90	22.62	45.24	-139.49	0.00	-1388.66	0.00	9.956
28	2.40	100	90	22.62	45.24	-126.04	0.00	-1388.66	0.00	11.018
29	2.50	100	90	22.62	45.24	-113.13	0.00	-1388.66	0.00	12.275
30	2.60	100	90	22.62	45.24	-100.80	0.00	-1388.66	0.00	13.776
31	2.70	100	90	22.62	45.24	-89.06	0.00	-1388.66	0.00	15.592
32	2.80	100	90	22.62	45.24	-77.94	0.00	-1388.66	0.00	17.817
33	2.90	100	90	22.62	45.24	-67.46	0.00	-1388.66	0.00	20.585
34	3.00	100	90	22.62	45.24	-57.64	0.00	-1388.66	0.00	24.091
35	3.10	100	90	22.62	45.24	-48.51	0.00	-1388.66	0.00	28.625
36	3.20	100	90	22.62	45.24	-40.09	0.00	-1388.66	0.00	34.639
37	3.30	100	90	22.62	45.24	-32.40	0.00	-1388.66	0.00	42.862
38	3.40	100	90	22.62	45.24	-25.46	0.00	-1388.66	0.00	54.536
39	3.50	100	90	22.62	45.24	-19.31	0.00	-1388.66	0.00	71.927
40	3.60	100	90	22.62	45.24	-13.95	0.00	-1388.66	0.00	99.539
41	3.70	100	90	22.62	45.24	-9.42	0.00	-1388.66	0.00	147.419
42	3.80	100	90	22.62	45.24	-5.34	0.00	-1388.66	0.00	260.069
43	3.90	100	90	22.62	45.24	-2.39	0.00	-1388.66	0.00	581.390
44	4.00	100	90	22.62	45.24	-0.60	0.00	-1388.66	0.00	2310.696
45	4.10	100	90	22.62	45.24	0.00	0.00	0.00	0.00	100000.000

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-1.00	100	90	45.24	22.62	0.00	0.00	0.00	0.00	100000.000
2	-0.90	100	90	45.24	22.62	0.89	0.00	1388.66	0.00	1554.803
3	-0.80	100	90	45.24	22.62	3.55	0.00	1388.66	0.00	391.099

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
4	-0.70	100	90	45.24	22.62	7.94	0.00	1388.66	0.00	174.901
5	-0.60	100	90	45.24	22.62	14.03	0.00	1388.66	0.00	98.996
6	-0.50	100	90	45.24	22.62	21.78	0.00	1388.66	0.00	63.756
7	-0.40	100	90	45.24	22.62	31.17	0.00	1388.66	0.00	44.555
8	0.40	100	90	22.62	45.24	-305.46	0.00	-1388.66	0.00	4.546
9	0.50	100	90	22.62	45.24	-296.69	0.00	-1388.66	0.00	4.680
10	0.60	100	90	22.62	45.24	-287.23	0.00	-1388.66	0.00	4.835
11	0.70	100	90	22.62	45.24	-277.46	0.00	-1388.66	0.00	5.005
12	0.80	100	90	22.62	45.24	-267.42	0.00	-1388.66	0.00	5.193
13	0.90	100	90	22.62	45.24	-257.14	0.00	-1388.66	0.00	5.400
14	1.00	100	90	22.62	45.24	-246.66	0.00	-1388.66	0.00	5.630
15	1.10	100	90	22.62	45.24	-236.01	0.00	-1388.66	0.00	5.884
16	1.20	100	90	22.62	45.24	-225.22	0.00	-1388.66	0.00	6.166
17	1.30	100	90	22.62	45.24	-214.33	0.00	-1388.66	0.00	6.479
18	1.40	100	90	22.62	45.24	-203.36	0.00	-1388.66	0.00	6.829
19	1.50	100	90	22.62	45.24	-192.35	0.00	-1388.66	0.00	7.219
20	1.60	100	90	22.62	45.24	-181.34	0.00	-1388.66	0.00	7.658
21	1.70	100	90	22.62	45.24	-170.35	0.00	-1388.66	0.00	8.152
22	1.80	100	90	22.62	45.24	-159.43	0.00	-1388.66	0.00	8.710
23	1.90	100	90	22.62	45.24	-148.59	0.00	-1388.66	0.00	9.346
24	2.00	100	90	22.62	45.24	-137.88	0.00	-1388.66	0.00	10.071
25	2.10	100	90	22.62	45.24	-127.33	0.00	-1388.66	0.00	10.906
26	2.20	100	90	22.62	45.24	-116.97	0.00	-1388.66	0.00	11.872
27	2.30	100	90	22.62	45.24	-106.83	0.00	-1388.66	0.00	12.999
28	2.40	100	90	22.62	45.24	-96.95	0.00	-1388.66	0.00	14.324
29	2.50	100	90	22.62	45.24	-87.35	0.00	-1388.66	0.00	15.897
30	2.60	100	90	22.62	45.24	-78.08	0.00	-1388.66	0.00	17.785
31	2.70	100	90	22.62	45.24	-69.16	0.00	-1388.66	0.00	20.078
32	2.80	100	90	22.62	45.24	-60.64	0.00	-1388.66	0.00	22.901
33	2.90	100	90	22.62	45.24	-52.53	0.00	-1388.66	0.00	26.436
34	3.00	100	90	22.62	45.24	-44.87	0.00	-1388.66	0.00	30.946
35	3.10	100	90	22.62	45.24	-37.71	0.00	-1388.66	0.00	36.829
36	3.20	100	90	22.62	45.24	-31.06	0.00	-1388.66	0.00	44.713
37	3.30	100	90	22.62	45.24	-24.96	0.00	-1388.66	0.00	55.635
38	3.40	100	90	22.62	45.24	-19.45	0.00	-1388.66	0.00	71.404
39	3.50	100	90	22.62	45.24	-14.55	0.00	-1388.66	0.00	95.417
40	3.60	100	90	22.62	45.24	-10.31	0.00	-1388.66	0.00	134.692
41	3.70	100	90	22.62	45.24	-6.75	0.00	-1388.66	0.00	205.739
42	3.80	100	90	22.62	45.24	-3.85	0.00	-1388.66	0.00	360.982
43	3.90	100	90	22.62	45.24	-1.73	0.00	-1388.66	0.00	801.936
44	4.00	100	90	22.62	45.24	-0.44	0.00	-1388.66	0.00	3167.673
45	4.10	100	90	22.62	45.24	0.00	0.00	0.00	0.00	100000.000

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-1.00	100	90	45.24	22.62	0.00	0.00	0.00	0.00	100000.000
2	-0.90	100	90	45.24	22.62	0.81	0.00	1388.66	0.00	1716.103
3	-0.80	100	90	45.24	22.62	3.22	0.00	1388.66	0.00	431.863
4	-0.70	100	90	45.24	22.62	7.19	0.00	1388.66	0.00	193.217
5	-0.60	100	90	45.24	22.62	12.69	0.00	1388.66	0.00	109.413
6	-0.50	100	90	45.24	22.62	19.70	0.00	1388.66	0.00	70.497
7	-0.40	100	90	45.24	22.62	28.17	0.00	1388.66	0.00	49.289
8	0.40	100	90	22.62	45.24	-395.31	0.00	-1388.66	0.00	3.513
9	0.50	100	90	22.62	45.24	-381.55	0.00	-1388.66	0.00	3.640
10	0.60	100	90	22.62	45.24	-367.24	0.00	-1388.66	0.00	3.781
11	0.70	100	90	22.62	45.24	-352.78	0.00	-1388.66	0.00	3.936
12	0.80	100	90	22.62	45.24	-338.20	0.00	-1388.66	0.00	4.106
13	0.90	100	90	22.62	45.24	-323.54	0.00	-1388.66	0.00	4.292
14	1.00	100	90	22.62	45.24	-308.82	0.00	-1388.66	0.00	4.497

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
15	1.10	100	90	22.62	45.24	-294.08	0.00	-1388.66	0.00	4.722
16	1.20	100	90	22.62	45.24	-279.35	0.00	-1388.66	0.00	4.971
17	1.30	100	90	22.62	45.24	-264.66	0.00	-1388.66	0.00	5.247
18	1.40	100	90	22.62	45.24	-250.04	0.00	-1388.66	0.00	5.554
19	1.50	100	90	22.62	45.24	-235.54	0.00	-1388.66	0.00	5.896
20	1.60	100	90	22.62	45.24	-221.17	0.00	-1388.66	0.00	6.279
21	1.70	100	90	22.62	45.24	-206.97	0.00	-1388.66	0.00	6.710
22	1.80	100	90	22.62	45.24	-192.97	0.00	-1388.66	0.00	7.196
23	1.90	100	90	22.62	45.24	-179.20	0.00	-1388.66	0.00	7.749
24	2.00	100	90	22.62	45.24	-165.70	0.00	-1388.66	0.00	8.381
25	2.10	100	90	22.62	45.24	-152.50	0.00	-1388.66	0.00	9.106
26	2.20	100	90	22.62	45.24	-139.62	0.00	-1388.66	0.00	9.946
27	2.30	100	90	22.62	45.24	-127.11	0.00	-1388.66	0.00	10.925
28	2.40	100	90	22.62	45.24	-114.99	0.00	-1388.66	0.00	12.076
29	2.50	100	90	22.62	45.24	-103.30	0.00	-1388.66	0.00	13.443
30	2.60	100	90	22.62	45.24	-92.06	0.00	-1388.66	0.00	15.084
31	2.70	100	90	22.62	45.24	-81.31	0.00	-1388.66	0.00	17.079
32	2.80	100	90	22.62	45.24	-71.08	0.00	-1388.66	0.00	19.536
33	2.90	100	90	22.62	45.24	-61.41	0.00	-1388.66	0.00	22.614
34	3.00	100	90	22.62	45.24	-52.31	0.00	-1388.66	0.00	26.545
35	3.10	100	90	22.62	45.24	-43.84	0.00	-1388.66	0.00	31.676
36	3.20	100	90	22.62	45.24	-36.01	0.00	-1388.66	0.00	38.561
37	3.30	100	90	22.62	45.24	-28.86	0.00	-1388.66	0.00	48.109
38	3.40	100	90	22.62	45.24	-22.43	0.00	-1388.66	0.00	61.912
39	3.50	100	90	22.62	45.24	-16.74	0.00	-1388.66	0.00	82.962
40	3.60	100	90	22.62	45.24	-11.82	0.00	-1388.66	0.00	117.452
41	3.70	100	90	22.62	45.24	-7.72	0.00	-1388.66	0.00	179.981
42	3.80	100	90	22.62	45.24	-4.39	0.00	-1388.66	0.00	316.408
43	3.90	100	90	22.62	45.24	-1.97	0.00	-1388.66	0.00	704.241
44	4.00	100	90	22.62	45.24	-0.50	0.00	-1388.66	0.00	2786.905
45	4.10	100	90	22.62	45.24	0.00	0.00	0.00	0.00	100000.000

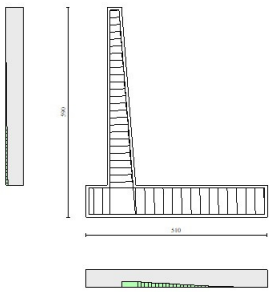


Fig. 10 - Paramento (Inviluppo)

Verifiche a taglio

Simbologia adottata

Is	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
A_{sw}	area ferri a taglio espresso in [cmq]
cotgθ	inclinazione delle bielle compresse, θ inclinazione dei puntoni di calcestruzzo
V_{Rcd}	resistenza di progetto a 'taglio compressione' espressa in [kN]
V_{Rsd}	resistenza di progetto a 'taglio trazione' espressa in [kN]
V_{Rd}	resistenza di progetto a taglio espresso in [kN]. Per elementi con armature trasversali resistenti al taglio (A_{sw}>0.0) V_{Rd}=min(V_{Rcd}, V_{Rsd}).
T	taglio agente espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione resistente e sollecitazione agente)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	291.33	0.00	100.000
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	296.84	0.04	7903.093
3	-0.20	100	42	0.00	0.00	--	0.00	0.00	302.34	0.15	2012.382
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	307.83	0.34	913.120
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	313.30	0.60	524.562
6	-0.50	100	44	0.00	0.00	--	0.00	0.00	318.76	0.93	342.336
7	-0.60	100	45	0.00	0.00	--	0.00	0.00	324.21	1.34	242.092
8	-0.70	100	46	0.00	0.00	--	0.00	0.00	329.65	1.83	180.101
9	-0.80	100	46	0.00	0.00	--	0.00	0.00	334.67	2.41	138.666
10	-0.90	100	47	0.00	0.00	--	0.00	0.00	337.86	3.09	109.341
11	-1.00	100	48	0.00	0.00	--	0.00	0.00	341.03	3.86	88.323
12	-1.10	100	49	0.00	0.00	--	0.00	0.00	344.18	4.72	72.942
13	-1.20	100	50	0.00	0.00	--	0.00	0.00	347.31	5.65	61.432
14	-1.30	100	50	0.00	0.00	--	0.00	0.00	350.43	6.67	52.576
15	-1.40	100	51	0.00	0.00	--	0.00	0.00	353.52	7.75	45.603
16	-1.50	100	52	0.00	0.00	--	0.00	0.00	356.59	8.91	40.004
17	-1.60	100	53	0.00	0.00	--	0.00	0.00	359.65	10.15	35.431
18	-1.70	100	54	0.00	0.00	--	0.00	0.00	362.69	11.46	31.642
19	-1.80	100	54	0.00	0.00	--	0.00	0.00	365.72	12.85	28.464
20	-1.90	100	55	0.00	0.00	--	0.00	0.00	368.73	14.31	25.769
21	-2.00	100	56	0.00	0.00	--	0.00	0.00	371.72	15.84	23.461
22	-2.10	100	57	0.00	0.00	--	0.00	0.00	374.70	17.45	21.468
23	-2.20	100	58	0.00	0.00	--	0.00	0.00	377.66	19.14	19.734
24	-2.30	100	58	0.00	0.00	--	0.00	0.00	380.61	20.90	18.215
25	-2.40	100	59	0.00	0.00	--	0.00	0.00	383.55	22.73	16.875
26	-2.50	100	60	0.00	0.00	--	0.00	0.00	386.47	24.64	15.687
27	-2.60	100	61	0.00	0.00	--	0.00	0.00	389.38	26.62	14.629
28	-2.70	100	61	0.00	0.00	--	0.00	0.00	392.28	28.67	13.681
29	-2.80	100	62	0.00	0.00	--	0.00	0.00	395.17	30.80	12.829

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
30	-2.90	100	63	0.00	0.00	--	0.00	0.00	398.04	33.01	12.059
31	-3.00	100	64	0.00	0.00	--	0.00	0.00	400.90	35.29	11.362
32	-3.10	100	65	0.00	0.00	--	0.00	0.00	403.75	37.64	10.727
33	-3.20	100	65	0.00	0.00	--	0.00	0.00	406.59	40.06	10.148
34	-3.30	100	66	0.00	0.00	--	0.00	0.00	409.41	42.57	9.618
35	-3.40	100	67	0.00	0.00	--	0.00	0.00	412.23	45.14	9.132
36	-3.50	100	68	0.00	0.00	--	0.00	0.00	415.04	47.79	8.685
37	-3.60	100	69	0.00	0.00	--	0.00	0.00	417.83	50.51	8.272
38	-3.70	100	69	0.00	0.00	--	0.00	0.00	420.62	53.31	7.890
39	-3.80	100	70	0.00	0.00	--	0.00	0.00	423.39	56.18	7.536
40	-3.90	100	71	0.00	0.00	--	0.00	0.00	426.16	59.13	7.207
41	-4.00	100	72	0.00	0.00	--	0.00	0.00	428.92	62.15	6.901
42	-4.10	100	73	0.00	0.00	--	0.00	0.00	431.67	65.25	6.616
43	-4.20	100	73	0.00	0.00	--	0.00	0.00	434.41	68.42	6.350
44	-4.30	100	74	0.00	0.00	--	0.00	0.00	437.14	71.66	6.100
45	-4.40	100	75	0.00	0.00	--	0.00	0.00	439.86	74.98	5.867
46	-4.50	100	76	0.00	0.00	--	0.00	0.00	442.58	78.37	5.647
47	-4.60	100	77	0.00	0.00	--	0.00	0.00	445.29	81.83	5.441
48	-4.70	100	77	0.00	0.00	--	0.00	0.00	447.98	85.37	5.247
49	-4.80	100	78	0.00	0.00	--	0.00	0.00	450.68	88.99	5.064
50	-4.90	100	79	0.00	0.00	--	0.00	0.00	453.36	92.68	4.892
51	-5.00	100	80	0.00	0.00	--	0.00	0.00	456.04	96.44	4.729

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	291.33	0.00	100.000
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	296.84	0.17	1779.004
3	-0.20	100	42	0.00	0.00	--	0.00	0.00	302.34	0.41	732.213
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	307.83	0.74	417.418
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	313.30	1.14	274.880
6	-0.50	100	44	0.00	0.00	--	0.00	0.00	318.76	1.62	196.740
7	-0.60	100	45	0.00	0.00	--	0.00	0.00	324.21	2.18	148.779
8	-0.70	100	46	0.00	0.00	--	0.00	0.00	329.65	2.82	116.804
9	-0.80	100	46	0.00	0.00	--	0.00	0.00	334.67	3.56	94.136
10	-0.90	100	47	0.00	0.00	--	0.00	0.00	337.86	4.38	77.153
11	-1.00	100	48	0.00	0.00	--	0.00	0.00	341.03	5.30	64.402
12	-1.10	100	49	0.00	0.00	--	0.00	0.00	344.18	6.30	54.645
13	-1.20	100	50	0.00	0.00	--	0.00	0.00	347.31	7.38	47.042
14	-1.30	100	50	0.00	0.00	--	0.00	0.00	350.43	8.55	40.996
15	-1.40	100	51	0.00	0.00	--	0.00	0.00	353.52	9.79	36.104
16	-1.50	100	52	0.00	0.00	--	0.00	0.00	356.59	11.11	32.083
17	-1.60	100	53	0.00	0.00	--	0.00	0.00	359.65	12.52	28.734
18	-1.70	100	54	0.00	0.00	--	0.00	0.00	362.69	14.00	25.912
19	-1.80	100	54	0.00	0.00	--	0.00	0.00	365.72	15.56	23.509
20	-1.90	100	55	0.00	0.00	--	0.00	0.00	368.73	17.19	21.444
21	-2.00	100	56	0.00	0.00	--	0.00	0.00	371.72	18.91	19.656
22	-2.10	100	57	0.00	0.00	--	0.00	0.00	374.70	20.71	18.095
23	-2.20	100	58	0.00	0.00	--	0.00	0.00	377.66	22.58	16.725
24	-2.30	100	58	0.00	0.00	--	0.00	0.00	380.61	24.53	15.514
25	-2.40	100	59	0.00	0.00	--	0.00	0.00	383.55	26.56	14.438
26	-2.50	100	60	0.00	0.00	--	0.00	0.00	386.47	28.67	13.478
27	-2.60	100	61	0.00	0.00	--	0.00	0.00	389.38	30.86	12.617
28	-2.70	100	61	0.00	0.00	--	0.00	0.00	392.28	33.13	11.841
29	-2.80	100	62	0.00	0.00	--	0.00	0.00	395.17	35.48	11.139
30	-2.90	100	63	0.00	0.00	--	0.00	0.00	398.04	37.90	10.503
31	-3.00	100	64	0.00	0.00	--	0.00	0.00	400.90	40.40	9.923
32	-3.10	100	65	0.00	0.00	--	0.00	0.00	403.75	42.98	9.393
33	-3.20	100	65	0.00	0.00	--	0.00	0.00	406.59	45.64	8.908
34	-3.30	100	66	0.00	0.00	--	0.00	0.00	409.41	48.38	8.463
35	-3.40	100	67	0.00	0.00	--	0.00	0.00	412.23	51.20	8.052
36	-3.50	100	68	0.00	0.00	--	0.00	0.00	415.04	54.09	7.673

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	[cm]	[cm]	[cmq]	[cm]		[kN]	[kN]	[kN]	[kN]	
37	-3.60	100	69	0.00	0.00	--	0.00	0.00	417.83	57.06	7.322
38	-3.70	100	69	0.00	0.00	--	0.00	0.00	420.62	60.12	6.997
39	-3.80	100	70	0.00	0.00	--	0.00	0.00	423.39	63.25	6.694
40	-3.90	100	71	0.00	0.00	--	0.00	0.00	426.16	66.46	6.413
41	-4.00	100	72	0.00	0.00	--	0.00	0.00	428.92	69.74	6.150
42	-4.10	100	73	0.00	0.00	--	0.00	0.00	431.67	73.11	5.904
43	-4.20	100	73	0.00	0.00	--	0.00	0.00	434.41	76.55	5.675
44	-4.30	100	74	0.00	0.00	--	0.00	0.00	437.14	80.08	5.459
45	-4.40	100	75	0.00	0.00	--	0.00	0.00	439.86	83.68	5.257
46	-4.50	100	76	0.00	0.00	--	0.00	0.00	442.58	87.36	5.066
47	-4.60	100	77	0.00	0.00	--	0.00	0.00	445.29	91.12	4.887
48	-4.70	100	77	0.00	0.00	--	0.00	0.00	447.98	94.95	4.718
49	-4.80	100	78	0.00	0.00	--	0.00	0.00	450.68	98.87	4.558
50	-4.90	100	79	0.00	0.00	--	0.00	0.00	453.36	102.86	4.407
51	-5.00	100	80	0.00	0.00	--	0.00	0.00	456.04	106.93	4.265

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	[cm]	[cm]	[cmq]	[cm]		[kN]	[kN]	[kN]	[kN]	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	291.33	0.00	100.000
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	296.84	0.16	1819.627
3	-0.20	100	42	0.00	0.00	--	0.00	0.00	302.34	0.40	759.624
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	307.83	0.70	437.298
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	313.30	1.08	290.047
6	-0.50	100	44	0.00	0.00	--	0.00	0.00	318.76	1.53	208.738
7	-0.60	100	45	0.00	0.00	--	0.00	0.00	324.21	2.05	158.535
8	-0.70	100	46	0.00	0.00	--	0.00	0.00	329.65	2.64	124.881
9	-0.80	100	46	0.00	0.00	--	0.00	0.00	334.67	3.32	100.903
10	-0.90	100	47	0.00	0.00	--	0.00	0.00	337.86	4.08	82.862
11	-1.00	100	48	0.00	0.00	--	0.00	0.00	341.03	4.92	69.275
12	-1.10	100	49	0.00	0.00	--	0.00	0.00	344.18	5.85	58.857
13	-1.20	100	50	0.00	0.00	--	0.00	0.00	347.31	6.85	50.728
14	-1.30	100	50	0.00	0.00	--	0.00	0.00	350.43	7.92	44.255
15	-1.40	100	51	0.00	0.00	--	0.00	0.00	353.52	9.06	39.013
16	-1.50	100	52	0.00	0.00	--	0.00	0.00	356.59	10.28	34.699
17	-1.60	100	53	0.00	0.00	--	0.00	0.00	359.65	11.56	31.104
18	-1.70	100	54	0.00	0.00	--	0.00	0.00	362.69	12.92	28.070
19	-1.80	100	54	0.00	0.00	--	0.00	0.00	365.72	14.35	25.486
20	-1.90	100	55	0.00	0.00	--	0.00	0.00	368.73	15.85	23.263
21	-2.00	100	56	0.00	0.00	--	0.00	0.00	371.72	17.42	21.337
22	-2.10	100	57	0.00	0.00	--	0.00	0.00	374.70	19.06	19.654
23	-2.20	100	58	0.00	0.00	--	0.00	0.00	377.66	20.78	18.176
24	-2.30	100	58	0.00	0.00	--	0.00	0.00	380.61	22.56	16.869
25	-2.40	100	59	0.00	0.00	--	0.00	0.00	383.55	24.42	15.707
26	-2.50	100	60	0.00	0.00	--	0.00	0.00	386.47	26.35	14.669
27	-2.60	100	61	0.00	0.00	--	0.00	0.00	389.38	28.34	13.737
28	-2.70	100	61	0.00	0.00	--	0.00	0.00	392.28	30.41	12.898
29	-2.80	100	62	0.00	0.00	--	0.00	0.00	395.17	32.55	12.139
30	-2.90	100	63	0.00	0.00	--	0.00	0.00	398.04	34.77	11.449
31	-3.00	100	64	0.00	0.00	--	0.00	0.00	400.90	37.05	10.821
32	-3.10	100	65	0.00	0.00	--	0.00	0.00	403.75	39.40	10.247
33	-3.20	100	65	0.00	0.00	--	0.00	0.00	406.59	41.83	9.721
34	-3.30	100	66	0.00	0.00	--	0.00	0.00	409.41	44.32	9.237
35	-3.40	100	67	0.00	0.00	--	0.00	0.00	412.23	46.89	8.791
36	-3.50	100	68	0.00	0.00	--	0.00	0.00	415.04	49.53	8.380
37	-3.60	100	69	0.00	0.00	--	0.00	0.00	417.83	52.24	7.999
38	-3.70	100	69	0.00	0.00	--	0.00	0.00	420.62	55.02	7.645
39	-3.80	100	70	0.00	0.00	--	0.00	0.00	423.39	57.87	7.317
40	-3.90	100	71	0.00	0.00	--	0.00	0.00	426.16	60.79	7.010
41	-4.00	100	72	0.00	0.00	--	0.00	0.00	428.92	63.78	6.725
42	-4.10	100	73	0.00	0.00	--	0.00	0.00	431.67	66.85	6.458
43	-4.20	100	73	0.00	0.00	--	0.00	0.00	434.41	69.98	6.207

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
44	-4.30	100	74	0.00	0.00	--	0.00	0.00	437.14	73.19	5.973
45	-4.40	100	75	0.00	0.00	--	0.00	0.00	439.86	76.47	5.752
46	-4.50	100	76	0.00	0.00	--	0.00	0.00	442.58	79.81	5.545
47	-4.60	100	77	0.00	0.00	--	0.00	0.00	445.29	83.23	5.350
48	-4.70	100	77	0.00	0.00	--	0.00	0.00	447.98	86.72	5.166
49	-4.80	100	78	0.00	0.00	--	0.00	0.00	450.68	90.29	4.992
50	-4.90	100	79	0.00	0.00	--	0.00	0.00	453.36	93.92	4.827
51	-5.00	100	80	0.00	0.00	--	0.00	0.00	456.04	97.62	4.671

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-1.00	100	90	0.00	0.00	--	0.00	0.00	431.48	0.00	100.000
2	-0.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-14.89	28.982
3	-0.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-29.55	14.604
4	-0.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-43.97	9.812
5	-0.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-58.17	7.418
6	-0.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-72.13	5.982
7	-0.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-85.87	5.025
8	0.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-200.34	2.154
9	0.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-199.65	2.161
10	0.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-198.45	2.174
11	0.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-197.00	2.190
12	0.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-195.33	2.209
13	0.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-193.42	2.231
14	1.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-191.28	2.256
15	1.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-188.92	2.284
16	1.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-186.32	2.316
17	1.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-183.49	2.351
18	1.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-180.43	2.391
19	1.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-177.15	2.436
20	1.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-173.63	2.485
21	1.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-169.88	2.540
22	1.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-165.90	2.601
23	1.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-161.69	2.669
24	2.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-157.24	2.744
25	2.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-152.57	2.828
26	2.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-147.67	2.922
27	2.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-142.54	3.027
28	2.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-137.18	3.145
29	2.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-131.58	3.279
30	2.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-125.76	3.431
31	2.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-119.70	3.605
32	2.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-113.42	3.804
33	2.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-106.90	4.036
34	3.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-100.16	4.308
35	3.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-93.18	4.630
36	3.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-85.98	5.019
37	3.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-78.54	5.494
38	3.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-70.87	6.088
39	3.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-62.97	6.852
40	3.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-54.84	7.867
41	3.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-46.48	9.282
42	3.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-35.25	12.240
43	3.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-23.73	18.182
44	4.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-11.98	36.013

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
45	4.10	100	90	0.00	0.00	--	0.00	0.00	431.48	0.00	100.000

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-1.00	100	90	0.00	0.00	--	0.00	0.00	431.48	0.00	100.000
2	-0.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-17.81	24.229
3	-0.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-35.29	12.227
4	-0.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-52.44	8.228
5	-0.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-69.26	6.230
6	-0.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-85.75	5.031
7	-0.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-101.92	4.233
8	0.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-90.15	4.786
9	0.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-93.86	4.597
10	0.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-97.05	4.446
11	0.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-99.91	4.319
12	0.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-102.44	4.212
13	0.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-104.64	4.123
14	1.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-106.51	4.051
15	1.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-108.06	3.993
16	1.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-109.27	3.949
17	1.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-110.16	3.917
18	1.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-110.72	3.897
19	1.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-110.95	3.889
20	1.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-110.85	3.893
21	1.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-110.42	3.908
22	1.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-109.66	3.935
23	1.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-108.58	3.974
24	2.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-107.17	4.026
25	2.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-105.42	4.093
26	2.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-103.35	4.175
27	2.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-100.96	4.274
28	2.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-98.23	4.393
29	2.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-95.17	4.534
30	2.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-91.79	4.701
31	2.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-88.07	4.899
32	2.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-84.03	5.135
33	2.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-79.66	5.416
34	3.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-74.96	5.756
35	3.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-69.94	6.170
36	3.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-64.58	6.681
37	3.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-58.90	7.326
38	3.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-52.88	8.159
39	3.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-46.54	9.271
40	3.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-39.87	10.822
41	3.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-32.87	13.126
42	3.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-25.15	17.154
43	3.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-17.10	25.236
44	4.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-8.71	49.521
45	4.10	100	90	0.00	0.00	--	0.00	0.00	431.48	0.00	100.000

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-1.00	100	90	0.00	0.00	--	0.00	0.00	431.48	0.00	100.000
2	-0.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-16.13	26.749
3	-0.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-31.94	13.508

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
4	-0.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-47.44	9.096
5	-0.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-62.61	6.892
6	-0.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-77.46	5.570
7	-0.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-92.00	4.690
8	0.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-140.90	3.062
9	0.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-143.07	3.016
10	0.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-144.72	2.981
11	0.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-146.06	2.954
12	0.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-147.07	2.934
13	0.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-147.77	2.920
14	1.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-148.14	2.913
15	1.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-148.20	2.911
16	1.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-147.94	2.917
17	1.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-147.36	2.928
18	1.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-146.46	2.946
19	1.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-145.24	2.971
20	1.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-143.70	3.003
21	1.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-141.85	3.042
22	1.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-139.67	3.089
23	1.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-137.18	3.145
24	2.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-134.36	3.211
25	2.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-131.23	3.288
26	2.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-127.78	3.377
27	2.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-124.01	3.479
28	2.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-119.92	3.598
29	2.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-115.51	3.735
30	2.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-110.78	3.895
31	2.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-105.74	4.081
32	2.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-100.37	4.299
33	2.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-94.69	4.557
34	3.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-88.68	4.865
35	3.10	100	90	0.00	0.00	--	0.00	0.00	431.48	-82.36	5.239
36	3.20	100	90	0.00	0.00	--	0.00	0.00	431.48	-75.72	5.698
37	3.30	100	90	0.00	0.00	--	0.00	0.00	431.48	-68.76	6.275
38	3.40	100	90	0.00	0.00	--	0.00	0.00	431.48	-61.48	7.018
39	3.50	100	90	0.00	0.00	--	0.00	0.00	431.48	-53.88	8.008
40	3.60	100	90	0.00	0.00	--	0.00	0.00	431.48	-45.96	9.387
41	3.70	100	90	0.00	0.00	--	0.00	0.00	431.48	-37.73	11.437
42	3.80	100	90	0.00	0.00	--	0.00	0.00	431.48	-28.78	14.992
43	3.90	100	90	0.00	0.00	--	0.00	0.00	431.48	-19.51	22.120
44	4.00	100	90	0.00	0.00	--	0.00	0.00	431.48	-9.91	43.529
45	4.10	100	90	0.00	0.00	--	0.00	0.00	431.48	0.00	100.000

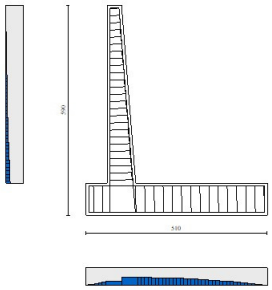


Fig. 11 - Paramento (Inviluppo)

Verifica delle tensioni

Simbologia adottata

n°	indice sezione
Y	ordinata sezione, espressa in [m]
B	larghezza sezione, espresso in [cm]
H	altezza sezione, espressa in [cm]
Afi	area ferri inferiori, espresso in [cmq]
Afs	area ferri superiori, espressa in [cmq]
M	momento agente, espressa in [kNm]
N	sforzo normale agente, espressa in [kN]
σc	tensione di compressione nel cls, espressa in [kPa]
σfi	tensione nei ferri inferiori, espressa in [kPa]
σfs	tensione nei ferri superiori, espressa in [kPa]

Combinazioni SLER

<u>Paramento</u>

Combinazione n° 10 - SLER

Tensione massima di compressione nel calcestruzzo 19920 [kPa]

Tensione massima di trazione dell'acciaio 360000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	26.55	53.09	0.00	0.00	0	0	0
2	-0.10	100	41	26.55	53.09	0.00	0.99	2	25	32
3	-0.20	100	42	26.55	53.09	0.02	2.00	5	47	66
4	-0.30	100	42	26.55	53.09	0.04	3.03	7	66	104
5	-0.40	100	43	26.55	53.09	0.09	4.08	11	80	147
6	-0.50	100	44	26.55	53.09	0.17	5.15	14	88	195
7	-0.60	100	45	26.55	53.09	0.28	6.24	19	90	251
8	-0.70	100	46	26.55	53.09	0.43	7.34	24	85	313
9	-0.80	100	46	26.55	53.09	0.62	8.47	30	72	385
10	-0.90	100	47	26.55	53.09	0.87	9.62	36	49	466
11	-1.00	100	48	26.55	53.09	1.17	10.78	44	8	559
12	-1.10	100	49	26.55	53.09	1.55	11.97	53	56	667
13	-1.20	100	50	26.55	53.09	1.99	13.17	64	148	790
14	-1.30	100	50	26.55	53.09	2.52	14.40	75	270	927
15	-1.40	100	51	26.55	53.09	3.13	15.64	89	424	1079
16	-1.50	100	52	26.55	53.09	3.82	16.91	103	612	1245
17	-1.60	100	53	26.55	53.09	4.62	18.19	119	834	1426
18	-1.70	100	54	26.55	53.09	5.52	19.49	136	1090	1621
19	-1.80	100	54	26.55	53.09	6.53	20.81	155	1382	1830
20	-1.90	100	55	26.55	53.09	7.65	22.15	175	1710	2054
21	-2.00	100	56	26.55	53.09	8.89	23.52	196	2075	2292
22	-2.10	100	57	26.55	53.09	10.25	24.90	218	2476	2544
23	-2.20	100	58	26.55	53.09	11.75	26.30	242	2914	2811
24	-2.30	100	58	26.55	53.09	13.38	27.72	267	3390	3092
25	-2.40	100	59	26.55	53.09	15.16	29.16	293	3905	3388
26	-2.50	100	60	26.55	53.09	17.09	30.61	320	4457	3698
27	-2.60	100	61	26.55	53.09	19.17	32.09	349	5049	4022
28	-2.70	100	61	26.55	53.09	21.41	33.59	379	5680	4361
29	-2.80	100	62	26.55	53.09	23.81	35.11	410	6350	4715
30	-2.90	100	63	26.55	53.09	26.39	36.64	442	7060	5082
31	-3.00	100	64	26.55	53.09	29.15	38.20	475	7810	5465
32	-3.10	100	65	26.55	53.09	32.09	39.78	510	8601	5861
33	-3.20	100	65	26.55	53.09	35.22	41.37	545	9432	6272
34	-3.30	100	66	26.55	53.09	38.54	42.99	582	10305	6697
35	-3.40	100	67	26.55	53.09	42.06	44.62	620	11218	7136
36	-3.50	100	68	26.55	53.09	45.79	46.27	659	12173	7589
37	-3.60	100	69	26.55	53.09	49.74	47.95	699	13169	8056
38	-3.70	100	69	26.55	53.09	53.90	49.64	740	14208	8537
39	-3.80	100	70	26.55	53.09	58.29	51.35	783	15288	9032
40	-3.90	100	71	26.55	53.09	62.90	53.08	826	16411	9541
41	-4.00	100	72	26.55	53.09	67.75	54.84	871	17576	10064
42	-4.10	100	73	26.55	53.09	72.84	56.61	916	18783	10600
43	-4.20	100	73	26.55	53.09	78.18	58.40	963	20033	11150
44	-4.30	100	74	26.55	53.09	83.77	60.21	1010	21326	11713
45	-4.40	100	75	26.55	53.09	89.62	62.04	1059	22662	12290
46	-4.50	100	76	26.55	53.09	95.74	63.89	1109	24041	12880
47	-4.60	100	77	26.55	53.09	102.13	65.75	1159	25463	13484
48	-4.70	100	77	26.55	53.09	108.79	67.64	1211	26929	14100
49	-4.80	100	78	26.55	53.09	115.73	69.55	1264	28438	14730
50	-4.90	100	79	26.55	53.09	122.96	71.48	1317	29991	15373
51	-5.00	100	80	26.55	53.09	130.48	73.42	1372	31587	16029

Fondazione

Combinazione n° 10 - SLER

Tensione massima di compressione nel calcestruzzo	17430	[kPa]
Tensione massima di trazione dell'acciaio	360000	[kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-1.00	100	90	45.24	22.62	0.00	0.00	0	0	0
2	-0.90	100	90	45.24	22.62	0.64	0.00	6	188	62
3	-0.80	100	90	45.24	22.62	2.56	0.00	22	750	249
4	-0.70	100	90	45.24	22.62	5.73	0.00	49	1680	557
5	-0.60	100	90	45.24	22.62	10.15	0.00	88	2975	986
6	-0.50	100	90	45.24	22.62	15.79	0.00	136	4629	1535
7	-0.40	100	90	45.24	22.62	22.65	0.00	196	6639	2201
8	0.40	100	90	22.62	45.24	-199.32	0.00	1721	19369	58424
9	0.50	100	90	22.62	45.24	-192.72	0.00	1664	18727	56490
10	0.60	100	90	22.62	45.24	-185.67	0.00	1603	18042	54423
11	0.70	100	90	22.62	45.24	-178.54	0.00	1542	17349	52331
12	0.80	100	90	22.62	45.24	-171.34	0.00	1480	16650	50223
13	0.90	100	90	22.62	45.24	-164.10	0.00	1417	15946	48101
14	1.00	100	90	22.62	45.24	-156.83	0.00	1354	15240	45970
15	1.10	100	90	22.62	45.24	-149.55	0.00	1291	14532	43835
16	1.20	100	90	22.62	45.24	-142.27	0.00	1229	13825	41701
17	1.30	100	90	22.62	45.24	-135.00	0.00	1166	13118	39571
18	1.40	100	90	22.62	45.24	-127.77	0.00	1103	12415	37450
19	1.50	100	90	22.62	45.24	-120.58	0.00	1041	11717	35343
20	1.60	100	90	22.62	45.24	-113.45	0.00	980	11024	33254
21	1.70	100	90	22.62	45.24	-106.40	0.00	919	10339	31188
22	1.80	100	90	22.62	45.24	-99.45	0.00	859	9663	29149
23	1.90	100	90	22.62	45.24	-92.60	0.00	800	8998	27141
24	2.00	100	90	22.62	45.24	-85.87	0.00	742	8344	25170
25	2.10	100	90	22.62	45.24	-79.28	0.00	685	7704	23239
26	2.20	100	90	22.62	45.24	-72.85	0.00	629	7079	21353
27	2.30	100	90	22.62	45.24	-66.58	0.00	575	6470	19516
28	2.40	100	90	22.62	45.24	-60.50	0.00	522	5879	17733
29	2.50	100	90	22.62	45.24	-54.62	0.00	472	5307	16009
30	2.60	100	90	22.62	45.24	-48.95	0.00	423	4756	14347
31	2.70	100	90	22.62	45.24	-43.51	0.00	376	4228	12753
32	2.80	100	90	22.62	45.24	-38.31	0.00	331	3723	11230
33	2.90	100	90	22.62	45.24	-33.38	0.00	288	3243	9784
34	3.00	100	90	22.62	45.24	-28.72	0.00	248	2791	8418
35	3.10	100	90	22.62	45.24	-24.35	0.00	210	2366	7138
36	3.20	100	90	22.62	45.24	-20.29	0.00	175	1971	5947
37	3.30	100	90	22.62	45.24	-16.55	0.00	143	1608	4850
38	3.40	100	90	22.62	45.24	-13.14	0.00	113	1277	3852
39	3.50	100	90	22.62	45.24	-10.09	0.00	87	980	2957
40	3.60	100	90	22.62	45.24	-7.40	0.00	64	719	2169
41	3.70	100	90	22.62	45.24	-5.10	0.00	44	495	1493
42	3.80	100	90	22.62	45.24	-2.89	0.00	25	281	848
43	3.90	100	90	22.62	45.24	-1.30	0.00	11	126	380
44	4.00	100	90	22.62	45.24	-0.33	0.00	3	32	96
45	4.10	100	90	22.62	45.24	0.00	0.00	0	0	0

Combinazioni SLEF

Paramento

Combinazione n° 11 - SLEF

Tensione massima di compressione nel calcestruzzo 33200 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	26.55	53.09	0.00	0.00	0	0	0
2	-0.10	100	41	26.55	53.09	0.00	0.99	2	25	32
3	-0.20	100	42	26.55	53.09	0.02	2.00	5	47	66
4	-0.30	100	42	26.55	53.09	0.04	3.03	7	66	104
5	-0.40	100	43	26.55	53.09	0.09	4.08	11	80	147
6	-0.50	100	44	26.55	53.09	0.17	5.15	14	88	195
7	-0.60	100	45	26.55	53.09	0.28	6.24	19	90	251
8	-0.70	100	46	26.55	53.09	0.43	7.34	24	85	313
9	-0.80	100	46	26.55	53.09	0.62	8.47	30	72	385
10	-0.90	100	47	26.55	53.09	0.87	9.62	36	49	466
11	-1.00	100	48	26.55	53.09	1.17	10.78	44	8	559
12	-1.10	100	49	26.55	53.09	1.55	11.97	53	56	667
13	-1.20	100	50	26.55	53.09	1.99	13.17	64	148	790
14	-1.30	100	50	26.55	53.09	2.52	14.40	75	270	927
15	-1.40	100	51	26.55	53.09	3.13	15.64	89	424	1079
16	-1.50	100	52	26.55	53.09	3.82	16.91	103	612	1245
17	-1.60	100	53	26.55	53.09	4.62	18.19	119	834	1426
18	-1.70	100	54	26.55	53.09	5.52	19.49	136	1090	1621
19	-1.80	100	54	26.55	53.09	6.53	20.81	155	1382	1830
20	-1.90	100	55	26.55	53.09	7.65	22.15	175	1710	2054
21	-2.00	100	56	26.55	53.09	8.89	23.52	196	2075	2292
22	-2.10	100	57	26.55	53.09	10.25	24.90	218	2476	2544
23	-2.20	100	58	26.55	53.09	11.75	26.30	242	2914	2811
24	-2.30	100	58	26.55	53.09	13.38	27.72	267	3390	3092
25	-2.40	100	59	26.55	53.09	15.16	29.16	293	3905	3388
26	-2.50	100	60	26.55	53.09	17.09	30.61	320	4457	3698
27	-2.60	100	61	26.55	53.09	19.17	32.09	349	5049	4022
28	-2.70	100	61	26.55	53.09	21.41	33.59	379	5680	4361
29	-2.80	100	62	26.55	53.09	23.81	35.11	410	6350	4715
30	-2.90	100	63	26.55	53.09	26.39	36.64	442	7060	5082
31	-3.00	100	64	26.55	53.09	29.15	38.20	475	7810	5465
32	-3.10	100	65	26.55	53.09	32.09	39.78	510	8601	5861
33	-3.20	100	65	26.55	53.09	35.22	41.37	545	9432	6272
34	-3.30	100	66	26.55	53.09	38.54	42.99	582	10305	6697
35	-3.40	100	67	26.55	53.09	42.06	44.62	620	11218	7136
36	-3.50	100	68	26.55	53.09	45.79	46.27	659	12173	7589
37	-3.60	100	69	26.55	53.09	49.74	47.95	699	13169	8056
38	-3.70	100	69	26.55	53.09	53.90	49.64	740	14208	8537
39	-3.80	100	70	26.55	53.09	58.29	51.35	783	15288	9032
40	-3.90	100	71	26.55	53.09	62.90	53.08	826	16411	9541
41	-4.00	100	72	26.55	53.09	67.75	54.84	871	17576	10064
42	-4.10	100	73	26.55	53.09	72.84	56.61	916	18783	10600
43	-4.20	100	73	26.55	53.09	78.18	58.40	963	20033	11150
44	-4.30	100	74	26.55	53.09	83.77	60.21	1010	21326	11713
45	-4.40	100	75	26.55	53.09	89.62	62.04	1059	22662	12290
46	-4.50	100	76	26.55	53.09	95.74	63.89	1109	24041	12880
47	-4.60	100	77	26.55	53.09	102.13	65.75	1159	25463	13484

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
48	-4.70	100	77	26.55	53.09	108.79	67.64	1211	26929	14100
49	-4.80	100	78	26.55	53.09	115.73	69.55	1264	28438	14730
50	-4.90	100	79	26.55	53.09	122.96	71.48	1317	29991	15373
51	-5.00	100	80	26.55	53.09	130.48	73.42	1372	31587	16029

Fondazione

Combinazione n° 11 - SLEF

Tensione massima di compressione nel calcestruzzo 29050 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-1.00	100	90	45.24	22.62	0.00	0.00	0	0	0
2	-0.90	100	90	45.24	22.62	0.64	0.00	6	188	62
3	-0.80	100	90	45.24	22.62	2.56	0.00	22	750	249
4	-0.70	100	90	45.24	22.62	5.73	0.00	49	1680	557
5	-0.60	100	90	45.24	22.62	10.15	0.00	88	2975	986
6	-0.50	100	90	45.24	22.62	15.79	0.00	136	4629	1535
7	-0.40	100	90	45.24	22.62	22.65	0.00	196	6639	2201
8	0.40	100	90	22.62	45.24	-199.32	0.00	1721	19369	58424
9	0.50	100	90	22.62	45.24	-192.72	0.00	1664	18727	56490
10	0.60	100	90	22.62	45.24	-185.67	0.00	1603	18042	54423
11	0.70	100	90	22.62	45.24	-178.54	0.00	1542	17349	52331
12	0.80	100	90	22.62	45.24	-171.34	0.00	1480	16650	50223
13	0.90	100	90	22.62	45.24	-164.10	0.00	1417	15946	48101
14	1.00	100	90	22.62	45.24	-156.83	0.00	1354	15240	45970
15	1.10	100	90	22.62	45.24	-149.55	0.00	1291	14532	43835
16	1.20	100	90	22.62	45.24	-142.27	0.00	1229	13825	41701
17	1.30	100	90	22.62	45.24	-135.00	0.00	1166	13118	39571
18	1.40	100	90	22.62	45.24	-127.77	0.00	1103	12415	37450
19	1.50	100	90	22.62	45.24	-120.58	0.00	1041	11717	35343
20	1.60	100	90	22.62	45.24	-113.45	0.00	980	11024	33254
21	1.70	100	90	22.62	45.24	-106.40	0.00	919	10339	31188
22	1.80	100	90	22.62	45.24	-99.45	0.00	859	9663	29149
23	1.90	100	90	22.62	45.24	-92.60	0.00	800	8998	27141
24	2.00	100	90	22.62	45.24	-85.87	0.00	742	8344	25170
25	2.10	100	90	22.62	45.24	-79.28	0.00	685	7704	23239
26	2.20	100	90	22.62	45.24	-72.85	0.00	629	7079	21353
27	2.30	100	90	22.62	45.24	-66.58	0.00	575	6470	19516
28	2.40	100	90	22.62	45.24	-60.50	0.00	522	5879	17733
29	2.50	100	90	22.62	45.24	-54.62	0.00	472	5307	16009
30	2.60	100	90	22.62	45.24	-48.95	0.00	423	4756	14347
31	2.70	100	90	22.62	45.24	-43.51	0.00	376	4228	12753
32	2.80	100	90	22.62	45.24	-38.31	0.00	331	3723	11230
33	2.90	100	90	22.62	45.24	-33.38	0.00	288	3243	9784
34	3.00	100	90	22.62	45.24	-28.72	0.00	248	2791	8418
35	3.10	100	90	22.62	45.24	-24.35	0.00	210	2366	7138
36	3.20	100	90	22.62	45.24	-20.29	0.00	175	1971	5947
37	3.30	100	90	22.62	45.24	-16.55	0.00	143	1608	4850
38	3.40	100	90	22.62	45.24	-13.14	0.00	113	1277	3852
39	3.50	100	90	22.62	45.24	-10.09	0.00	87	980	2957
40	3.60	100	90	22.62	45.24	-7.40	0.00	64	719	2169

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
41	3.70	100	90	22.62	45.24	-5.10	0.00	44	495	1493
42	3.80	100	90	22.62	45.24	-2.89	0.00	25	281	848
43	3.90	100	90	22.62	45.24	-1.30	0.00	11	126	380
44	4.00	100	90	22.62	45.24	-0.33	0.00	3	32	96
45	4.10	100	90	22.62	45.24	0.00	0.00	0	0	0

Combinazioni SLEQ

Paramento

Combinazione n° 12 - SLEQ

Tensione massima di compressione nel calcestruzzo 14940 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	26.55	53.09	0.00	0.00	0	0	0
2	-0.10	100	41	26.55	53.09	0.00	0.99	2	25	32
3	-0.20	100	42	26.55	53.09	0.02	2.00	5	47	66
4	-0.30	100	42	26.55	53.09	0.04	3.03	7	66	104
5	-0.40	100	43	26.55	53.09	0.09	4.08	11	80	147
6	-0.50	100	44	26.55	53.09	0.17	5.15	14	88	195
7	-0.60	100	45	26.55	53.09	0.28	6.24	19	90	251
8	-0.70	100	46	26.55	53.09	0.43	7.34	24	85	313
9	-0.80	100	46	26.55	53.09	0.62	8.47	30	72	385
10	-0.90	100	47	26.55	53.09	0.87	9.62	36	49	466
11	-1.00	100	48	26.55	53.09	1.17	10.78	44	8	559
12	-1.10	100	49	26.55	53.09	1.55	11.97	53	56	667
13	-1.20	100	50	26.55	53.09	1.99	13.17	64	148	790
14	-1.30	100	50	26.55	53.09	2.52	14.40	75	270	927
15	-1.40	100	51	26.55	53.09	3.13	15.64	89	424	1079
16	-1.50	100	52	26.55	53.09	3.82	16.91	103	612	1245
17	-1.60	100	53	26.55	53.09	4.62	18.19	119	834	1426
18	-1.70	100	54	26.55	53.09	5.52	19.49	136	1090	1621
19	-1.80	100	54	26.55	53.09	6.53	20.81	155	1382	1830
20	-1.90	100	55	26.55	53.09	7.65	22.15	175	1710	2054
21	-2.00	100	56	26.55	53.09	8.89	23.52	196	2075	2292
22	-2.10	100	57	26.55	53.09	10.25	24.90	218	2476	2544
23	-2.20	100	58	26.55	53.09	11.75	26.30	242	2914	2811
24	-2.30	100	58	26.55	53.09	13.38	27.72	267	3390	3092
25	-2.40	100	59	26.55	53.09	15.16	29.16	293	3905	3388
26	-2.50	100	60	26.55	53.09	17.09	30.61	320	4457	3698
27	-2.60	100	61	26.55	53.09	19.17	32.09	349	5049	4022
28	-2.70	100	61	26.55	53.09	21.41	33.59	379	5680	4361
29	-2.80	100	62	26.55	53.09	23.81	35.11	410	6350	4715
30	-2.90	100	63	26.55	53.09	26.39	36.64	442	7060	5082
31	-3.00	100	64	26.55	53.09	29.15	38.20	475	7810	5465
32	-3.10	100	65	26.55	53.09	32.09	39.78	510	8601	5861
33	-3.20	100	65	26.55	53.09	35.22	41.37	545	9432	6272
34	-3.30	100	66	26.55	53.09	38.54	42.99	582	10305	6697

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
35	-3.40	100	67	26.55	53.09	42.06	44.62	620	11218	7136
36	-3.50	100	68	26.55	53.09	45.79	46.27	659	12173	7589
37	-3.60	100	69	26.55	53.09	49.74	47.95	699	13169	8056
38	-3.70	100	69	26.55	53.09	53.90	49.64	740	14208	8537
39	-3.80	100	70	26.55	53.09	58.29	51.35	783	15288	9032
40	-3.90	100	71	26.55	53.09	62.90	53.08	826	16411	9541
41	-4.00	100	72	26.55	53.09	67.75	54.84	871	17576	10064
42	-4.10	100	73	26.55	53.09	72.84	56.61	916	18783	10600
43	-4.20	100	73	26.55	53.09	78.18	58.40	963	20033	11150
44	-4.30	100	74	26.55	53.09	83.77	60.21	1010	21326	11713
45	-4.40	100	75	26.55	53.09	89.62	62.04	1059	22662	12290
46	-4.50	100	76	26.55	53.09	95.74	63.89	1109	24041	12880
47	-4.60	100	77	26.55	53.09	102.13	65.75	1159	25463	13484
48	-4.70	100	77	26.55	53.09	108.79	67.64	1211	26929	14100
49	-4.80	100	78	26.55	53.09	115.73	69.55	1264	28438	14730
50	-4.90	100	79	26.55	53.09	122.96	71.48	1317	29991	15373
51	-5.00	100	80	26.55	53.09	130.48	73.42	1372	31587	16029

Combinazione n° 13 - SLEQ H + V

Tensione massima di compressione nel calcestruzzo 14940 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	26.55	53.09	0.00	0.00	0	0	0
2	-0.10	100	41	26.55	53.09	0.01	0.99	2	24	33
3	-0.20	100	42	26.55	53.09	0.03	2.00	5	43	71
4	-0.30	100	42	26.55	53.09	0.08	3.03	8	57	115
5	-0.40	100	43	26.55	53.09	0.17	4.08	12	64	166
6	-0.50	100	44	26.55	53.09	0.29	5.15	17	63	225
7	-0.60	100	45	26.55	53.09	0.46	6.24	23	53	294
8	-0.70	100	46	26.55	53.09	0.68	7.34	29	30	374
9	-0.80	100	46	26.55	53.09	0.96	8.47	37	13	469
10	-0.90	100	47	26.55	53.09	1.32	9.62	47	84	579
11	-1.00	100	48	26.55	53.09	1.75	10.78	58	186	705
12	-1.10	100	49	26.55	53.09	2.26	11.97	70	323	848
13	-1.20	100	50	26.55	53.09	2.87	13.17	85	498	1009
14	-1.30	100	50	26.55	53.09	3.59	14.40	101	711	1186
15	-1.40	100	51	26.55	53.09	4.41	15.64	118	964	1380
16	-1.50	100	52	26.55	53.09	5.34	16.91	137	1259	1591
17	-1.60	100	53	26.55	53.09	6.40	18.19	158	1595	1819
18	-1.70	100	54	26.55	53.09	7.58	19.49	180	1973	2064
19	-1.80	100	54	26.55	53.09	8.90	20.81	204	2395	2327
20	-1.90	100	55	26.55	53.09	10.37	22.15	229	2861	2607
21	-2.00	100	56	26.55	53.09	11.98	23.52	256	3371	2905
22	-2.10	100	57	26.55	53.09	13.75	24.90	284	3927	3220
23	-2.20	100	58	26.55	53.09	15.69	26.30	314	4528	3553
24	-2.30	100	58	26.55	53.09	17.80	27.72	345	5175	3903
25	-2.40	100	59	26.55	53.09	20.08	29.16	378	5870	4271
26	-2.50	100	60	26.55	53.09	22.55	30.61	413	6611	4657
27	-2.60	100	61	26.55	53.09	25.22	32.09	448	7400	5060
28	-2.70	100	61	26.55	53.09	28.08	33.59	486	8238	5481
29	-2.80	100	62	26.55	53.09	31.15	35.11	524	9124	5920
30	-2.90	100	63	26.55	53.09	34.43	36.64	565	10058	6376
31	-3.00	100	64	26.55	53.09	37.93	38.20	606	11043	6849
32	-3.10	100	65	26.55	53.09	41.66	39.78	649	12076	7340
33	-3.20	100	65	26.55	53.09	45.62	41.37	693	13160	7848

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
34	-3.30	100	66	26.55	53.09	49.82	42.99	739	14294	8374
35	-3.40	100	67	26.55	53.09	54.28	44.62	786	15478	8917
36	-3.50	100	68	26.55	53.09	58.98	46.27	835	16713	9477
37	-3.60	100	69	26.55	53.09	63.95	47.95	885	18000	10053
38	-3.70	100	69	26.55	53.09	69.19	49.64	936	19337	10647
39	-3.80	100	70	26.55	53.09	74.70	51.35	988	20726	11258
40	-3.90	100	71	26.55	53.09	80.50	53.08	1042	22166	11885
41	-4.00	100	72	26.55	53.09	86.59	54.84	1097	23659	12529
42	-4.10	100	73	26.55	53.09	92.97	56.61	1153	25203	13190
43	-4.20	100	73	26.55	53.09	99.66	58.40	1211	26800	13867
44	-4.30	100	74	26.55	53.09	106.66	60.21	1269	28449	14560
45	-4.40	100	75	26.55	53.09	113.98	62.04	1329	30151	15270
46	-4.50	100	76	26.55	53.09	121.62	63.89	1391	31905	15996
47	-4.60	100	77	26.55	53.09	129.60	65.75	1453	33713	16738
48	-4.70	100	77	26.55	53.09	137.91	67.64	1517	35573	17495
49	-4.80	100	78	26.55	53.09	146.57	69.55	1582	37487	18269
50	-4.90	100	79	26.55	53.09	155.59	71.48	1648	39453	19058
51	-5.00	100	80	26.55	53.09	164.96	73.42	1715	41473	19863

Fondazione

Combinazione n° 12 - SLEQ

Tensione massima di compressione nel calcestruzzo 13073 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-1.00	100	90	45.24	22.62	0.00	0.00	0	0	0
2	-0.90	100	90	45.24	22.62	0.64	0.00	6	188	62
3	-0.80	100	90	45.24	22.62	2.56	0.00	22	750	249
4	-0.70	100	90	45.24	22.62	5.73	0.00	49	1680	557
5	-0.60	100	90	45.24	22.62	10.15	0.00	88	2975	986
6	-0.50	100	90	45.24	22.62	15.79	0.00	136	4629	1535
7	-0.40	100	90	45.24	22.62	22.65	0.00	196	6639	2201
8	0.40	100	90	22.62	45.24	-199.32	0.00	1721	19369	58424
9	0.50	100	90	22.62	45.24	-192.72	0.00	1664	18727	56490
10	0.60	100	90	22.62	45.24	-185.67	0.00	1603	18042	54423
11	0.70	100	90	22.62	45.24	-178.54	0.00	1542	17349	52331
12	0.80	100	90	22.62	45.24	-171.34	0.00	1480	16650	50223
13	0.90	100	90	22.62	45.24	-164.10	0.00	1417	15946	48101
14	1.00	100	90	22.62	45.24	-156.83	0.00	1354	15240	45970
15	1.10	100	90	22.62	45.24	-149.55	0.00	1291	14532	43835
16	1.20	100	90	22.62	45.24	-142.27	0.00	1229	13825	41701
17	1.30	100	90	22.62	45.24	-135.00	0.00	1166	13118	39571
18	1.40	100	90	22.62	45.24	-127.77	0.00	1103	12415	37450
19	1.50	100	90	22.62	45.24	-120.58	0.00	1041	11717	35343
20	1.60	100	90	22.62	45.24	-113.45	0.00	980	11024	33254
21	1.70	100	90	22.62	45.24	-106.40	0.00	919	10339	31188
22	1.80	100	90	22.62	45.24	-99.45	0.00	859	9663	29149
23	1.90	100	90	22.62	45.24	-92.60	0.00	800	8998	27141
24	2.00	100	90	22.62	45.24	-85.87	0.00	742	8344	25170
25	2.10	100	90	22.62	45.24	-79.28	0.00	685	7704	23239
26	2.20	100	90	22.62	45.24	-72.85	0.00	629	7079	21353

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
27	2.30	100	90	22.62	45.24	-66.58	0.00	575	6470	19516
28	2.40	100	90	22.62	45.24	-60.50	0.00	522	5879	17733
29	2.50	100	90	22.62	45.24	-54.62	0.00	472	5307	16009
30	2.60	100	90	22.62	45.24	-48.95	0.00	423	4756	14347
31	2.70	100	90	22.62	45.24	-43.51	0.00	376	4228	12753
32	2.80	100	90	22.62	45.24	-38.31	0.00	331	3723	11230
33	2.90	100	90	22.62	45.24	-33.38	0.00	288	3243	9784
34	3.00	100	90	22.62	45.24	-28.72	0.00	248	2791	8418
35	3.10	100	90	22.62	45.24	-24.35	0.00	210	2366	7138
36	3.20	100	90	22.62	45.24	-20.29	0.00	175	1971	5947
37	3.30	100	90	22.62	45.24	-16.55	0.00	143	1608	4850
38	3.40	100	90	22.62	45.24	-13.14	0.00	113	1277	3852
39	3.50	100	90	22.62	45.24	-10.09	0.00	87	980	2957
40	3.60	100	90	22.62	45.24	-7.40	0.00	64	719	2169
41	3.70	100	90	22.62	45.24	-5.10	0.00	44	495	1493
42	3.80	100	90	22.62	45.24	-2.89	0.00	25	281	848
43	3.90	100	90	22.62	45.24	-1.30	0.00	11	126	380
44	4.00	100	90	22.62	45.24	-0.33	0.00	3	32	96
45	4.10	100	90	22.62	45.24	0.00	0.00	0	0	0

Combinazione n° 13 - SLEQ H + V

Tensione massima di compressione nel calcestruzzo 13073 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-1.00	100	90	45.24	22.62	0.00	0.00	0	0	0
2	-0.90	100	90	45.24	22.62	0.85	0.00	7	249	83
3	-0.80	100	90	45.24	22.62	3.38	0.00	29	991	329
4	-0.70	100	90	45.24	22.62	7.56	0.00	65	2217	735
5	-0.60	100	90	45.24	22.62	13.37	0.00	115	3918	1299
6	-0.50	100	90	45.24	22.62	20.76	0.00	179	6085	2017
7	-0.40	100	90	45.24	22.62	29.71	0.00	257	8709	2887
8	0.40	100	90	22.62	45.24	-304.46	0.00	2629	29585	89240
9	0.50	100	90	22.62	45.24	-295.47	0.00	2551	28711	86606
10	0.60	100	90	22.62	45.24	-285.83	0.00	2468	27775	83780
11	0.70	100	90	22.62	45.24	-275.92	0.00	2383	26812	80877
12	0.80	100	90	22.62	45.24	-265.79	0.00	2295	25827	77906
13	0.90	100	90	22.62	45.24	-255.45	0.00	2206	24823	74877
14	1.00	100	90	22.62	45.24	-244.95	0.00	2115	23802	71798
15	1.10	100	90	22.62	45.24	-234.31	0.00	2023	22768	68679
16	1.20	100	90	22.62	45.24	-223.56	0.00	1930	21724	65527
17	1.30	100	90	22.62	45.24	-212.73	0.00	1837	20671	62353
18	1.40	100	90	22.62	45.24	-201.85	0.00	1743	19614	59165
19	1.50	100	90	22.62	45.24	-190.95	0.00	1649	18555	55971
20	1.60	100	90	22.62	45.24	-180.07	0.00	1555	17498	52781
21	1.70	100	90	22.62	45.24	-169.23	0.00	1461	16444	49603
22	1.80	100	90	22.62	45.24	-158.46	0.00	1368	15398	46446
23	1.90	100	90	22.62	45.24	-147.79	0.00	1276	14361	43319
24	2.00	100	90	22.62	45.24	-137.26	0.00	1185	13337	40231
25	2.10	100	90	22.62	45.24	-126.88	0.00	1096	12330	37191
26	2.20	100	90	22.62	45.24	-116.70	0.00	1008	11340	34207
27	2.30	100	90	22.62	45.24	-106.75	0.00	922	10373	31289
28	2.40	100	90	22.62	45.24	-97.04	0.00	838	9430	28444
29	2.50	100	90	22.62	45.24	-87.62	0.00	757	8514	25683
30	2.60	100	90	22.62	45.24	-78.52	0.00	678	7629	23014
31	2.70	100	90	22.62	45.24	-69.75	0.00	602	6778	20445

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
32	2.80	100	90	22.62	45.24	-61.36	0.00	530	5963	17986
33	2.90	100	90	22.62	45.24	-53.37	0.00	461	5187	15645
34	3.00	100	90	22.62	45.24	-45.82	0.00	396	4453	13431
35	3.10	100	90	22.62	45.24	-38.73	0.00	334	3764	11353
36	3.20	100	90	22.62	45.24	-32.14	0.00	278	3123	9420
37	3.30	100	90	22.62	45.24	-26.07	0.00	225	2533	7641
38	3.40	100	90	22.62	45.24	-20.55	0.00	177	1997	6024
39	3.50	100	90	22.62	45.24	-15.62	0.00	135	1518	4579
40	3.60	100	90	22.62	45.24	-11.31	0.00	98	1099	3314
41	3.70	100	90	22.62	45.24	-7.63	0.00	66	742	2238
42	3.80	100	90	22.62	45.24	-4.34	0.00	38	422	1273
43	3.90	100	90	22.62	45.24	-1.95	0.00	17	190	572
44	4.00	100	90	22.62	45.24	-0.49	0.00	4	48	144
45	4.10	100	90	22.62	45.24	0.00	0.00	0	0	0

Verifica a fessurazione

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Af	area ferri zona tesa espresso in [cmq]
Aeff	area efficace espressa in [cmq]
M	momento agente espressa in [kNm]
Mpf	momento di prima fessurazione espressa in [kNm]
ε	deformazione espresso in %
Sm	spaziatura tra le fessure espressa in [mm]
w	apertura delle fessure espressa in [mm]

Combinazioni SLER

Paramento

Combinazione n° 10 - SLER

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	5.90	0.000000	0.00	0.000
3	-0.20	100	42	0.00	0.00	0.02	17.03	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	35.74	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	66.70	0.000000	0.00	0.000
6	-0.50	100	44	0.00	0.00	0.17	120.39	0.000000	0.00	0.000
7	-0.60	100	45	0.00	0.00	0.28	225.07	0.000000	0.00	0.000
8	-0.70	100	46	0.00	0.00	0.43	491.79	0.000000	0.00	0.000
9	-0.80	100	46	0.00	0.00	0.62	2252.78	0.000000	0.00	0.000
10	-0.90	100	47	0.00	0.00	0.87	1553.66	0.000000	0.00	0.000
11	-1.00	100	48	0.00	0.00	1.17	711.18	0.000000	0.00	0.000
12	-1.10	100	49	53.09	1600.00	1.55	513.20	0.000000	0.00	0.000
13	-1.20	100	50	53.09	1600.00	1.99	427.98	0.000000	0.00	0.000
14	-1.30	100	50	53.09	1600.00	2.52	382.54	0.000000	0.00	0.000
15	-1.40	100	51	53.09	1600.00	3.13	355.69	0.000000	0.00	0.000
16	-1.50	100	52	53.09	1600.00	3.82	339.01	0.000000	0.00	0.000
17	-1.60	100	53	53.09	1600.00	4.62	328.51	0.000000	0.00	0.000
18	-1.70	100	54	53.09	1600.00	5.52	322.03	0.000000	0.00	0.000
19	-1.80	100	54	53.09	1600.00	6.53	318.34	0.000000	0.00	0.000
20	-1.90	100	55	53.09	1600.00	7.65	316.65	0.000000	0.00	0.000
21	-2.00	100	56	53.09	1600.00	8.89	316.45	0.000000	0.00	0.000
22	-2.10	100	57	53.09	1600.00	10.25	317.41	0.000000	0.00	0.000
23	-2.20	100	58	53.09	1600.00	11.75	319.27	0.000000	0.00	0.000
24	-2.30	100	58	53.09	1600.00	13.38	321.86	0.000000	0.00	0.000
25	-2.40	100	59	53.09	1600.00	15.16	325.06	0.000000	0.00	0.000
26	-2.50	100	60	53.09	1600.00	17.09	328.76	0.000000	0.00	0.000
27	-2.60	100	61	53.09	1600.00	19.17	332.88	0.000000	0.00	0.000
28	-2.70	100	61	53.09	1600.00	21.41	337.37	0.000000	0.00	0.000
29	-2.80	100	62	53.09	1600.00	23.81	342.18	0.000000	0.00	0.000
30	-2.90	100	63	53.09	1600.00	26.39	347.27	0.000000	0.00	0.000
31	-3.00	100	64	53.09	1600.00	29.15	352.62	0.000000	0.00	0.000
32	-3.10	100	65	53.09	1600.00	32.09	358.19	0.000000	0.00	0.000
33	-3.20	100	65	53.09	1600.00	35.22	363.96	0.000000	0.00	0.000
34	-3.30	100	66	53.09	1600.00	38.54	369.93	0.000000	0.00	0.000
35	-3.40	100	67	53.09	1600.00	42.06	376.07	0.000000	0.00	0.000
36	-3.50	100	68	53.09	1600.00	45.79	382.37	0.000000	0.00	0.000
37	-3.60	100	69	53.09	1600.00	49.74	388.82	0.000000	0.00	0.000
38	-3.70	100	69	53.09	1600.00	53.90	395.41	0.000000	0.00	0.000
39	-3.80	100	70	53.09	1600.00	58.29	402.14	0.000000	0.00	0.000
40	-3.90	100	71	53.09	1600.00	62.90	408.99	0.000000	0.00	0.000
41	-4.00	100	72	53.09	1600.00	67.75	415.97	0.000000	0.00	0.000
42	-4.10	100	73	53.09	1600.00	72.84	423.06	0.000000	0.00	0.000
43	-4.20	100	73	53.09	1600.00	78.18	430.26	0.000000	0.00	0.000
44	-4.30	100	74	53.09	1600.00	83.77	437.57	0.000000	0.00	0.000
45	-4.40	100	75	53.09	1600.00	89.62	444.99	0.000000	0.00	0.000
46	-4.50	100	76	53.09	1600.00	95.74	452.50	0.000000	0.00	0.000
47	-4.60	100	77	53.09	1600.00	102.13	460.12	0.000000	0.00	0.000
48	-4.70	100	77	53.09	1600.00	108.79	467.83	0.000000	0.00	0.000
49	-4.80	100	78	53.09	1600.00	115.73	475.64	0.000000	0.00	0.000
50	-4.90	100	79	53.09	1600.00	122.96	483.53	0.000000	0.00	0.000
51	-5.00	100	80	53.09	1600.00	130.48	491.52	0.000000	0.00	0.000

Fondazione

Combinazione n° 10 - SLER

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-1.00	100	90	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.90	100	90	45.24	1600.00	0.64	496.13	0.000000	0.00	0.000
3	-0.80	100	90	45.24	1600.00	2.56	496.13	0.000000	0.00	0.000
4	-0.70	100	90	45.24	1600.00	5.73	496.13	0.000000	0.00	0.000
5	-0.60	100	90	45.24	1600.00	10.15	496.13	0.000000	0.00	0.000
6	-0.50	100	90	45.24	1600.00	15.79	496.13	0.000000	0.00	0.000
7	-0.40	100	90	45.24	1600.00	22.65	496.13	0.000000	0.00	0.000
8	0.40	100	90	45.24	1600.00	-199.32	-496.13	0.000000	0.00	0.000
9	0.50	100	90	45.24	1600.00	-192.72	-496.13	0.000000	0.00	0.000
10	0.60	100	90	45.24	1600.00	-185.67	-496.13	0.000000	0.00	0.000
11	0.70	100	90	45.24	1600.00	-178.54	-496.13	0.000000	0.00	0.000
12	0.80	100	90	45.24	1600.00	-171.34	-496.13	0.000000	0.00	0.000
13	0.90	100	90	45.24	1600.00	-164.10	-496.13	0.000000	0.00	0.000
14	1.00	100	90	45.24	1600.00	-156.83	-496.13	0.000000	0.00	0.000
15	1.10	100	90	45.24	1600.00	-149.55	-496.13	0.000000	0.00	0.000
16	1.20	100	90	45.24	1600.00	-142.27	-496.13	0.000000	0.00	0.000
17	1.30	100	90	45.24	1600.00	-135.00	-496.13	0.000000	0.00	0.000
18	1.40	100	90	45.24	1600.00	-127.77	-496.13	0.000000	0.00	0.000
19	1.50	100	90	45.24	1600.00	-120.58	-496.13	0.000000	0.00	0.000
20	1.60	100	90	45.24	1600.00	-113.45	-496.13	0.000000	0.00	0.000
21	1.70	100	90	45.24	1600.00	-106.40	-496.13	0.000000	0.00	0.000
22	1.80	100	90	45.24	1600.00	-99.45	-496.13	0.000000	0.00	0.000
23	1.90	100	90	45.24	1600.00	-92.60	-496.13	0.000000	0.00	0.000
24	2.00	100	90	45.24	1600.00	-85.87	-496.13	0.000000	0.00	0.000
25	2.10	100	90	45.24	1600.00	-79.28	-496.13	0.000000	0.00	0.000
26	2.20	100	90	45.24	1600.00	-72.85	-496.13	0.000000	0.00	0.000
27	2.30	100	90	45.24	1600.00	-66.58	-496.13	0.000000	0.00	0.000
28	2.40	100	90	45.24	1600.00	-60.50	-496.13	0.000000	0.00	0.000
29	2.50	100	90	45.24	1600.00	-54.62	-496.13	0.000000	0.00	0.000
30	2.60	100	90	45.24	1600.00	-48.95	-496.13	0.000000	0.00	0.000
31	2.70	100	90	45.24	1600.00	-43.51	-496.13	0.000000	0.00	0.000
32	2.80	100	90	45.24	1600.00	-38.31	-496.13	0.000000	0.00	0.000
33	2.90	100	90	45.24	1600.00	-33.38	-496.13	0.000000	0.00	0.000
34	3.00	100	90	45.24	1600.00	-28.72	-496.13	0.000000	0.00	0.000
35	3.10	100	90	45.24	1600.00	-24.35	-496.13	0.000000	0.00	0.000
36	3.20	100	90	45.24	1600.00	-20.29	-496.13	0.000000	0.00	0.000
37	3.30	100	90	45.24	1600.00	-16.55	-496.13	0.000000	0.00	0.000
38	3.40	100	90	45.24	1600.00	-13.14	-496.13	0.000000	0.00	0.000
39	3.50	100	90	45.24	1600.00	-10.09	-496.13	0.000000	0.00	0.000
40	3.60	100	90	45.24	1600.00	-7.40	-496.13	0.000000	0.00	0.000
41	3.70	100	90	45.24	1600.00	-5.10	-496.13	0.000000	0.00	0.000
42	3.80	100	90	45.24	1600.00	-2.89	-496.13	0.000000	0.00	0.000
43	3.90	100	90	45.24	1600.00	-1.30	-496.13	0.000000	0.00	0.000
44	4.00	100	90	45.24	1600.00	-0.33	-496.13	0.000000	0.00	0.000
45	4.10	100	90	0.00	0.00	0.00	0.00	---	---	0.000

Combinazioni SLEF

Paramento

Combinazione n° 11 - SLEF

Apertura limite fessure w_{lim}=0.30

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	5.90	0.000000	0.00	0.000
3	-0.20	100	42	0.00	0.00	0.02	17.03	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	35.74	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	66.70	0.000000	0.00	0.000
6	-0.50	100	44	0.00	0.00	0.17	120.39	0.000000	0.00	0.000
7	-0.60	100	45	0.00	0.00	0.28	225.07	0.000000	0.00	0.000
8	-0.70	100	46	0.00	0.00	0.43	491.79	0.000000	0.00	0.000
9	-0.80	100	46	0.00	0.00	0.62	2252.78	0.000000	0.00	0.000
10	-0.90	100	47	0.00	0.00	0.87	1553.66	0.000000	0.00	0.000
11	-1.00	100	48	0.00	0.00	1.17	711.18	0.000000	0.00	0.000
12	-1.10	100	49	53.09	1600.00	1.55	513.20	0.000000	0.00	0.000
13	-1.20	100	50	53.09	1600.00	1.99	427.98	0.000000	0.00	0.000
14	-1.30	100	50	53.09	1600.00	2.52	382.54	0.000000	0.00	0.000
15	-1.40	100	51	53.09	1600.00	3.13	355.69	0.000000	0.00	0.000
16	-1.50	100	52	53.09	1600.00	3.82	339.01	0.000000	0.00	0.000
17	-1.60	100	53	53.09	1600.00	4.62	328.51	0.000000	0.00	0.000
18	-1.70	100	54	53.09	1600.00	5.52	322.03	0.000000	0.00	0.000
19	-1.80	100	54	53.09	1600.00	6.53	318.34	0.000000	0.00	0.000
20	-1.90	100	55	53.09	1600.00	7.65	316.65	0.000000	0.00	0.000
21	-2.00	100	56	53.09	1600.00	8.89	316.45	0.000000	0.00	0.000
22	-2.10	100	57	53.09	1600.00	10.25	317.41	0.000000	0.00	0.000
23	-2.20	100	58	53.09	1600.00	11.75	319.27	0.000000	0.00	0.000
24	-2.30	100	58	53.09	1600.00	13.38	321.86	0.000000	0.00	0.000
25	-2.40	100	59	53.09	1600.00	15.16	325.06	0.000000	0.00	0.000
26	-2.50	100	60	53.09	1600.00	17.09	328.76	0.000000	0.00	0.000
27	-2.60	100	61	53.09	1600.00	19.17	332.88	0.000000	0.00	0.000
28	-2.70	100	61	53.09	1600.00	21.41	337.37	0.000000	0.00	0.000
29	-2.80	100	62	53.09	1600.00	23.81	342.18	0.000000	0.00	0.000
30	-2.90	100	63	53.09	1600.00	26.39	347.27	0.000000	0.00	0.000
31	-3.00	100	64	53.09	1600.00	29.15	352.62	0.000000	0.00	0.000
32	-3.10	100	65	53.09	1600.00	32.09	358.19	0.000000	0.00	0.000
33	-3.20	100	65	53.09	1600.00	35.22	363.96	0.000000	0.00	0.000
34	-3.30	100	66	53.09	1600.00	38.54	369.93	0.000000	0.00	0.000
35	-3.40	100	67	53.09	1600.00	42.06	376.07	0.000000	0.00	0.000
36	-3.50	100	68	53.09	1600.00	45.79	382.37	0.000000	0.00	0.000
37	-3.60	100	69	53.09	1600.00	49.74	388.82	0.000000	0.00	0.000
38	-3.70	100	69	53.09	1600.00	53.90	395.41	0.000000	0.00	0.000
39	-3.80	100	70	53.09	1600.00	58.29	402.14	0.000000	0.00	0.000
40	-3.90	100	71	53.09	1600.00	62.90	408.99	0.000000	0.00	0.000
41	-4.00	100	72	53.09	1600.00	67.75	415.97	0.000000	0.00	0.000
42	-4.10	100	73	53.09	1600.00	72.84	423.06	0.000000	0.00	0.000
43	-4.20	100	73	53.09	1600.00	78.18	430.26	0.000000	0.00	0.000
44	-4.30	100	74	53.09	1600.00	83.77	437.57	0.000000	0.00	0.000
45	-4.40	100	75	53.09	1600.00	89.62	444.99	0.000000	0.00	0.000
46	-4.50	100	76	53.09	1600.00	95.74	452.50	0.000000	0.00	0.000
47	-4.60	100	77	53.09	1600.00	102.13	460.12	0.000000	0.00	0.000
48	-4.70	100	77	53.09	1600.00	108.79	467.83	0.000000	0.00	0.000
49	-4.80	100	78	53.09	1600.00	115.73	475.64	0.000000	0.00	0.000
50	-4.90	100	79	53.09	1600.00	122.96	483.53	0.000000	0.00	0.000
51	-5.00	100	80	53.09	1600.00	130.48	491.52	0.000000	0.00	0.000

Fondazione

Combinazione n° 11 - SLEF

Apertura limite fessure w_{lim}=0.30

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-1.00	100	90	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.90	100	90	45.24	1600.00	0.64	496.13	0.000000	0.00	0.000
3	-0.80	100	90	45.24	1600.00	2.56	496.13	0.000000	0.00	0.000
4	-0.70	100	90	45.24	1600.00	5.73	496.13	0.000000	0.00	0.000
5	-0.60	100	90	45.24	1600.00	10.15	496.13	0.000000	0.00	0.000
6	-0.50	100	90	45.24	1600.00	15.79	496.13	0.000000	0.00	0.000
7	-0.40	100	90	45.24	1600.00	22.65	496.13	0.000000	0.00	0.000
8	0.40	100	90	45.24	1600.00	-199.32	-496.13	0.000000	0.00	0.000
9	0.50	100	90	45.24	1600.00	-192.72	-496.13	0.000000	0.00	0.000
10	0.60	100	90	45.24	1600.00	-185.67	-496.13	0.000000	0.00	0.000
11	0.70	100	90	45.24	1600.00	-178.54	-496.13	0.000000	0.00	0.000
12	0.80	100	90	45.24	1600.00	-171.34	-496.13	0.000000	0.00	0.000
13	0.90	100	90	45.24	1600.00	-164.10	-496.13	0.000000	0.00	0.000
14	1.00	100	90	45.24	1600.00	-156.83	-496.13	0.000000	0.00	0.000
15	1.10	100	90	45.24	1600.00	-149.55	-496.13	0.000000	0.00	0.000
16	1.20	100	90	45.24	1600.00	-142.27	-496.13	0.000000	0.00	0.000
17	1.30	100	90	45.24	1600.00	-135.00	-496.13	0.000000	0.00	0.000
18	1.40	100	90	45.24	1600.00	-127.77	-496.13	0.000000	0.00	0.000
19	1.50	100	90	45.24	1600.00	-120.58	-496.13	0.000000	0.00	0.000
20	1.60	100	90	45.24	1600.00	-113.45	-496.13	0.000000	0.00	0.000
21	1.70	100	90	45.24	1600.00	-106.40	-496.13	0.000000	0.00	0.000
22	1.80	100	90	45.24	1600.00	-99.45	-496.13	0.000000	0.00	0.000
23	1.90	100	90	45.24	1600.00	-92.60	-496.13	0.000000	0.00	0.000
24	2.00	100	90	45.24	1600.00	-85.87	-496.13	0.000000	0.00	0.000
25	2.10	100	90	45.24	1600.00	-79.28	-496.13	0.000000	0.00	0.000
26	2.20	100	90	45.24	1600.00	-72.85	-496.13	0.000000	0.00	0.000
27	2.30	100	90	45.24	1600.00	-66.58	-496.13	0.000000	0.00	0.000
28	2.40	100	90	45.24	1600.00	-60.50	-496.13	0.000000	0.00	0.000
29	2.50	100	90	45.24	1600.00	-54.62	-496.13	0.000000	0.00	0.000
30	2.60	100	90	45.24	1600.00	-48.95	-496.13	0.000000	0.00	0.000
31	2.70	100	90	45.24	1600.00	-43.51	-496.13	0.000000	0.00	0.000
32	2.80	100	90	45.24	1600.00	-38.31	-496.13	0.000000	0.00	0.000
33	2.90	100	90	45.24	1600.00	-33.38	-496.13	0.000000	0.00	0.000
34	3.00	100	90	45.24	1600.00	-28.72	-496.13	0.000000	0.00	0.000
35	3.10	100	90	45.24	1600.00	-24.35	-496.13	0.000000	0.00	0.000
36	3.20	100	90	45.24	1600.00	-20.29	-496.13	0.000000	0.00	0.000
37	3.30	100	90	45.24	1600.00	-16.55	-496.13	0.000000	0.00	0.000
38	3.40	100	90	45.24	1600.00	-13.14	-496.13	0.000000	0.00	0.000
39	3.50	100	90	45.24	1600.00	-10.09	-496.13	0.000000	0.00	0.000
40	3.60	100	90	45.24	1600.00	-7.40	-496.13	0.000000	0.00	0.000
41	3.70	100	90	45.24	1600.00	-5.10	-496.13	0.000000	0.00	0.000
42	3.80	100	90	45.24	1600.00	-2.89	-496.13	0.000000	0.00	0.000
43	3.90	100	90	45.24	1600.00	-1.30	-496.13	0.000000	0.00	0.000
44	4.00	100	90	45.24	1600.00	-0.33	-496.13	0.000000	0.00	0.000
45	4.10	100	90	0.00	0.00	0.00	0.00	---	---	0.000

Combinazioni SLEQ

Paramento

Combinazione n° 12 - SLEQ

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	5.90	0.000000	0.00	0.000
3	-0.20	100	42	0.00	0.00	0.02	17.03	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	35.74	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	66.70	0.000000	0.00	0.000
6	-0.50	100	44	0.00	0.00	0.17	120.39	0.000000	0.00	0.000
7	-0.60	100	45	0.00	0.00	0.28	225.07	0.000000	0.00	0.000
8	-0.70	100	46	0.00	0.00	0.43	491.79	0.000000	0.00	0.000
9	-0.80	100	46	0.00	0.00	0.62	2252.78	0.000000	0.00	0.000
10	-0.90	100	47	0.00	0.00	0.87	1553.66	0.000000	0.00	0.000
11	-1.00	100	48	0.00	0.00	1.17	711.18	0.000000	0.00	0.000
12	-1.10	100	49	53.09	1600.00	1.55	513.20	0.000000	0.00	0.000
13	-1.20	100	50	53.09	1600.00	1.99	427.98	0.000000	0.00	0.000
14	-1.30	100	50	53.09	1600.00	2.52	382.54	0.000000	0.00	0.000
15	-1.40	100	51	53.09	1600.00	3.13	355.69	0.000000	0.00	0.000
16	-1.50	100	52	53.09	1600.00	3.82	339.01	0.000000	0.00	0.000
17	-1.60	100	53	53.09	1600.00	4.62	328.51	0.000000	0.00	0.000
18	-1.70	100	54	53.09	1600.00	5.52	322.03	0.000000	0.00	0.000
19	-1.80	100	54	53.09	1600.00	6.53	318.34	0.000000	0.00	0.000
20	-1.90	100	55	53.09	1600.00	7.65	316.65	0.000000	0.00	0.000
21	-2.00	100	56	53.09	1600.00	8.89	316.45	0.000000	0.00	0.000
22	-2.10	100	57	53.09	1600.00	10.25	317.41	0.000000	0.00	0.000
23	-2.20	100	58	53.09	1600.00	11.75	319.27	0.000000	0.00	0.000
24	-2.30	100	58	53.09	1600.00	13.38	321.86	0.000000	0.00	0.000
25	-2.40	100	59	53.09	1600.00	15.16	325.06	0.000000	0.00	0.000
26	-2.50	100	60	53.09	1600.00	17.09	328.76	0.000000	0.00	0.000
27	-2.60	100	61	53.09	1600.00	19.17	332.88	0.000000	0.00	0.000
28	-2.70	100	61	53.09	1600.00	21.41	337.37	0.000000	0.00	0.000
29	-2.80	100	62	53.09	1600.00	23.81	342.18	0.000000	0.00	0.000
30	-2.90	100	63	53.09	1600.00	26.39	347.27	0.000000	0.00	0.000
31	-3.00	100	64	53.09	1600.00	29.15	352.62	0.000000	0.00	0.000
32	-3.10	100	65	53.09	1600.00	32.09	358.19	0.000000	0.00	0.000
33	-3.20	100	65	53.09	1600.00	35.22	363.96	0.000000	0.00	0.000
34	-3.30	100	66	53.09	1600.00	38.54	369.93	0.000000	0.00	0.000
35	-3.40	100	67	53.09	1600.00	42.06	376.07	0.000000	0.00	0.000
36	-3.50	100	68	53.09	1600.00	45.79	382.37	0.000000	0.00	0.000
37	-3.60	100	69	53.09	1600.00	49.74	388.82	0.000000	0.00	0.000
38	-3.70	100	69	53.09	1600.00	53.90	395.41	0.000000	0.00	0.000
39	-3.80	100	70	53.09	1600.00	58.29	402.14	0.000000	0.00	0.000
40	-3.90	100	71	53.09	1600.00	62.90	408.99	0.000000	0.00	0.000
41	-4.00	100	72	53.09	1600.00	67.75	415.97	0.000000	0.00	0.000
42	-4.10	100	73	53.09	1600.00	72.84	423.06	0.000000	0.00	0.000
43	-4.20	100	73	53.09	1600.00	78.18	430.26	0.000000	0.00	0.000
44	-4.30	100	74	53.09	1600.00	83.77	437.57	0.000000	0.00	0.000
45	-4.40	100	75	53.09	1600.00	89.62	444.99	0.000000	0.00	0.000
46	-4.50	100	76	53.09	1600.00	95.74	452.50	0.000000	0.00	0.000
47	-4.60	100	77	53.09	1600.00	102.13	460.12	0.000000	0.00	0.000
48	-4.70	100	77	53.09	1600.00	108.79	467.83	0.000000	0.00	0.000
49	-4.80	100	78	53.09	1600.00	115.73	475.64	0.000000	0.00	0.000
50	-4.90	100	79	53.09	1600.00	122.96	483.53	0.000000	0.00	0.000
51	-5.00	100	80	53.09	1600.00	130.48	491.52	0.000000	0.00	0.000

Combinazione n° 13 - SLEQ H + V

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.01	14.68	0.000000	0.00	0.000
3	-0.20	100	42	0.00	0.00	0.03	40.40	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
4	-0.30	100	42	0.00	0.00	0.08	87.26	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.17	184.45	0.000000	0.00	0.000
6	-0.50	100	44	0.00	0.00	0.29	464.27	0.000000	0.00	0.000
7	-0.60	100	45	0.00	0.00	0.46	4947.06	0.000000	0.00	0.000
8	-0.70	100	46	0.00	0.00	0.68	962.51	0.000000	0.00	0.000
9	-0.80	100	46	53.09	1600.00	0.96	536.75	0.000000	0.00	0.000
10	-0.90	100	47	53.09	1600.00	1.32	412.45	0.000000	0.00	0.000
11	-1.00	100	48	53.09	1600.00	1.75	355.60	0.000000	0.00	0.000
12	-1.10	100	49	53.09	1600.00	2.26	324.68	0.000000	0.00	0.000
13	-1.20	100	50	53.09	1600.00	2.87	306.51	0.000000	0.00	0.000
14	-1.30	100	50	53.09	1600.00	3.59	295.54	0.000000	0.00	0.000
15	-1.40	100	51	53.09	1600.00	4.41	289.05	0.000000	0.00	0.000
16	-1.50	100	52	53.09	1600.00	5.34	285.53	0.000000	0.00	0.000
17	-1.60	100	53	53.09	1600.00	6.40	284.09	0.000000	0.00	0.000
18	-1.70	100	54	53.09	1600.00	7.58	284.16	0.000000	0.00	0.000
19	-1.80	100	54	53.09	1600.00	8.90	285.37	0.000000	0.00	0.000
20	-1.90	100	55	53.09	1600.00	10.37	287.46	0.000000	0.00	0.000
21	-2.00	100	56	53.09	1600.00	11.98	290.26	0.000000	0.00	0.000
22	-2.10	100	57	53.09	1600.00	13.75	293.62	0.000000	0.00	0.000
23	-2.20	100	58	53.09	1600.00	15.69	297.46	0.000000	0.00	0.000
24	-2.30	100	58	53.09	1600.00	17.80	301.70	0.000000	0.00	0.000
25	-2.40	100	59	53.09	1600.00	20.08	306.28	0.000000	0.00	0.000
26	-2.50	100	60	53.09	1600.00	22.55	311.16	0.000000	0.00	0.000
27	-2.60	100	61	53.09	1600.00	25.22	316.30	0.000000	0.00	0.000
28	-2.70	100	61	53.09	1600.00	28.08	321.66	0.000000	0.00	0.000
29	-2.80	100	62	53.09	1600.00	31.15	327.24	0.000000	0.00	0.000
30	-2.90	100	63	53.09	1600.00	34.43	333.01	0.000000	0.00	0.000
31	-3.00	100	64	53.09	1600.00	37.93	338.95	0.000000	0.00	0.000
32	-3.10	100	65	53.09	1600.00	41.66	345.04	0.000000	0.00	0.000
33	-3.20	100	65	53.09	1600.00	45.62	351.29	0.000000	0.00	0.000
34	-3.30	100	66	53.09	1600.00	49.82	357.68	0.000000	0.00	0.000
35	-3.40	100	67	53.09	1600.00	54.28	364.20	0.000000	0.00	0.000
36	-3.50	100	68	53.09	1600.00	58.98	370.84	0.000000	0.00	0.000
37	-3.60	100	69	53.09	1600.00	63.95	377.61	0.000000	0.00	0.000
38	-3.70	100	69	53.09	1600.00	69.19	384.48	0.000000	0.00	0.000
39	-3.80	100	70	53.09	1600.00	74.70	391.47	0.000000	0.00	0.000
40	-3.90	100	71	53.09	1600.00	80.50	398.55	0.000000	0.00	0.000
41	-4.00	100	72	53.09	1600.00	86.59	405.74	0.000000	0.00	0.000
42	-4.10	100	73	53.09	1600.00	92.97	413.03	0.000000	0.00	0.000
43	-4.20	100	73	53.09	1600.00	99.66	420.42	0.000000	0.00	0.000
44	-4.30	100	74	53.09	1600.00	106.66	427.90	0.000000	0.00	0.000
45	-4.40	100	75	53.09	1600.00	113.98	435.46	0.000000	0.00	0.000
46	-4.50	100	76	53.09	1600.00	121.62	443.12	0.000000	0.00	0.000
47	-4.60	100	77	53.09	1600.00	129.60	450.87	0.000000	0.00	0.000
48	-4.70	100	77	53.09	1600.00	137.91	458.70	0.000000	0.00	0.000
49	-4.80	100	78	53.09	1600.00	146.57	466.61	0.000000	0.00	0.000
50	-4.90	100	79	53.09	1600.00	155.59	474.61	0.000000	0.00	0.000
51	-5.00	100	80	53.09	1600.00	164.96	482.69	0.000000	0.00	0.000

Fondazione

Combinazione n° 12 - SLEQ

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-1.00	100	90	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.90	100	90	45.24	1600.00	0.64	496.13	0.000000	0.00	0.000
3	-0.80	100	90	45.24	1600.00	2.56	496.13	0.000000	0.00	0.000
4	-0.70	100	90	45.24	1600.00	5.73	496.13	0.000000	0.00	0.000
5	-0.60	100	90	45.24	1600.00	10.15	496.13	0.000000	0.00	0.000
6	-0.50	100	90	45.24	1600.00	15.79	496.13	0.000000	0.00	0.000
7	-0.40	100	90	45.24	1600.00	22.65	496.13	0.000000	0.00	0.000
8	0.40	100	90	45.24	1600.00	-199.32	-496.13	0.000000	0.00	0.000
9	0.50	100	90	45.24	1600.00	-192.72	-496.13	0.000000	0.00	0.000
10	0.60	100	90	45.24	1600.00	-185.67	-496.13	0.000000	0.00	0.000
11	0.70	100	90	45.24	1600.00	-178.54	-496.13	0.000000	0.00	0.000
12	0.80	100	90	45.24	1600.00	-171.34	-496.13	0.000000	0.00	0.000
13	0.90	100	90	45.24	1600.00	-164.10	-496.13	0.000000	0.00	0.000
14	1.00	100	90	45.24	1600.00	-156.83	-496.13	0.000000	0.00	0.000
15	1.10	100	90	45.24	1600.00	-149.55	-496.13	0.000000	0.00	0.000
16	1.20	100	90	45.24	1600.00	-142.27	-496.13	0.000000	0.00	0.000
17	1.30	100	90	45.24	1600.00	-135.00	-496.13	0.000000	0.00	0.000
18	1.40	100	90	45.24	1600.00	-127.77	-496.13	0.000000	0.00	0.000
19	1.50	100	90	45.24	1600.00	-120.58	-496.13	0.000000	0.00	0.000
20	1.60	100	90	45.24	1600.00	-113.45	-496.13	0.000000	0.00	0.000
21	1.70	100	90	45.24	1600.00	-106.40	-496.13	0.000000	0.00	0.000
22	1.80	100	90	45.24	1600.00	-99.45	-496.13	0.000000	0.00	0.000
23	1.90	100	90	45.24	1600.00	-92.60	-496.13	0.000000	0.00	0.000
24	2.00	100	90	45.24	1600.00	-85.87	-496.13	0.000000	0.00	0.000
25	2.10	100	90	45.24	1600.00	-79.28	-496.13	0.000000	0.00	0.000
26	2.20	100	90	45.24	1600.00	-72.85	-496.13	0.000000	0.00	0.000
27	2.30	100	90	45.24	1600.00	-66.58	-496.13	0.000000	0.00	0.000
28	2.40	100	90	45.24	1600.00	-60.50	-496.13	0.000000	0.00	0.000
29	2.50	100	90	45.24	1600.00	-54.62	-496.13	0.000000	0.00	0.000
30	2.60	100	90	45.24	1600.00	-48.95	-496.13	0.000000	0.00	0.000
31	2.70	100	90	45.24	1600.00	-43.51	-496.13	0.000000	0.00	0.000
32	2.80	100	90	45.24	1600.00	-38.31	-496.13	0.000000	0.00	0.000
33	2.90	100	90	45.24	1600.00	-33.38	-496.13	0.000000	0.00	0.000
34	3.00	100	90	45.24	1600.00	-28.72	-496.13	0.000000	0.00	0.000
35	3.10	100	90	45.24	1600.00	-24.35	-496.13	0.000000	0.00	0.000
36	3.20	100	90	45.24	1600.00	-20.29	-496.13	0.000000	0.00	0.000
37	3.30	100	90	45.24	1600.00	-16.55	-496.13	0.000000	0.00	0.000
38	3.40	100	90	45.24	1600.00	-13.14	-496.13	0.000000	0.00	0.000
39	3.50	100	90	45.24	1600.00	-10.09	-496.13	0.000000	0.00	0.000
40	3.60	100	90	45.24	1600.00	-7.40	-496.13	0.000000	0.00	0.000
41	3.70	100	90	45.24	1600.00	-5.10	-496.13	0.000000	0.00	0.000
42	3.80	100	90	45.24	1600.00	-2.89	-496.13	0.000000	0.00	0.000
43	3.90	100	90	45.24	1600.00	-1.30	-496.13	0.000000	0.00	0.000
44	4.00	100	90	45.24	1600.00	-0.33	-496.13	0.000000	0.00	0.000
45	4.10	100	90	0.00	0.00	0.00	0.00	---	---	0.000

Combinazione n° 13 - SLEQ H + V

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-1.00	100	90	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.90	100	90	45.24	1600.00	0.85	496.13	0.000000	0.00	0.000
3	-0.80	100	90	45.24	1600.00	3.38	496.13	0.000000	0.00	0.000
4	-0.70	100	90	45.24	1600.00	7.56	496.13	0.000000	0.00	0.000
5	-0.60	100	90	45.24	1600.00	13.37	496.13	0.000000	0.00	0.000
6	-0.50	100	90	45.24	1600.00	20.76	496.13	0.000000	0.00	0.000
7	-0.40	100	90	45.24	1600.00	29.71	496.13	0.000000	0.00	0.000
8	0.40	100	90	45.24	1600.00	-304.46	-496.13	0.000000	0.00	0.000
9	0.50	100	90	45.24	1600.00	-295.47	-496.13	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
10	0.60	100	90	45.24	1600.00	-285.83	-496.13	0.000000	0.00	0.000
11	0.70	100	90	45.24	1600.00	-275.92	-496.13	0.000000	0.00	0.000
12	0.80	100	90	45.24	1600.00	-265.79	-496.13	0.000000	0.00	0.000
13	0.90	100	90	45.24	1600.00	-255.45	-496.13	0.000000	0.00	0.000
14	1.00	100	90	45.24	1600.00	-244.95	-496.13	0.000000	0.00	0.000
15	1.10	100	90	45.24	1600.00	-234.31	-496.13	0.000000	0.00	0.000
16	1.20	100	90	45.24	1600.00	-223.56	-496.13	0.000000	0.00	0.000
17	1.30	100	90	45.24	1600.00	-212.73	-496.13	0.000000	0.00	0.000
18	1.40	100	90	45.24	1600.00	-201.85	-496.13	0.000000	0.00	0.000
19	1.50	100	90	45.24	1600.00	-190.95	-496.13	0.000000	0.00	0.000
20	1.60	100	90	45.24	1600.00	-180.07	-496.13	0.000000	0.00	0.000
21	1.70	100	90	45.24	1600.00	-169.23	-496.13	0.000000	0.00	0.000
22	1.80	100	90	45.24	1600.00	-158.46	-496.13	0.000000	0.00	0.000
23	1.90	100	90	45.24	1600.00	-147.79	-496.13	0.000000	0.00	0.000
24	2.00	100	90	45.24	1600.00	-137.26	-496.13	0.000000	0.00	0.000
25	2.10	100	90	45.24	1600.00	-126.88	-496.13	0.000000	0.00	0.000
26	2.20	100	90	45.24	1600.00	-116.70	-496.13	0.000000	0.00	0.000
27	2.30	100	90	45.24	1600.00	-106.75	-496.13	0.000000	0.00	0.000
28	2.40	100	90	45.24	1600.00	-97.04	-496.13	0.000000	0.00	0.000
29	2.50	100	90	45.24	1600.00	-87.62	-496.13	0.000000	0.00	0.000
30	2.60	100	90	45.24	1600.00	-78.52	-496.13	0.000000	0.00	0.000
31	2.70	100	90	45.24	1600.00	-69.75	-496.13	0.000000	0.00	0.000
32	2.80	100	90	45.24	1600.00	-61.36	-496.13	0.000000	0.00	0.000
33	2.90	100	90	45.24	1600.00	-53.37	-496.13	0.000000	0.00	0.000
34	3.00	100	90	45.24	1600.00	-45.82	-496.13	0.000000	0.00	0.000
35	3.10	100	90	45.24	1600.00	-38.73	-496.13	0.000000	0.00	0.000
36	3.20	100	90	45.24	1600.00	-32.14	-496.13	0.000000	0.00	0.000
37	3.30	100	90	45.24	1600.00	-26.07	-496.13	0.000000	0.00	0.000
38	3.40	100	90	45.24	1600.00	-20.55	-496.13	0.000000	0.00	0.000
39	3.50	100	90	45.24	1600.00	-15.62	-496.13	0.000000	0.00	0.000
40	3.60	100	90	45.24	1600.00	-11.31	-496.13	0.000000	0.00	0.000
41	3.70	100	90	45.24	1600.00	-7.63	-496.13	0.000000	0.00	0.000
42	3.80	100	90	45.24	1600.00	-4.34	-496.13	0.000000	0.00	0.000
43	3.90	100	90	45.24	1600.00	-1.95	-496.13	0.000000	0.00	0.000
44	4.00	100	90	45.24	1600.00	-0.49	-496.13	0.000000	0.00	0.000
45	4.10	100	90	0.00	0.00	0.00	0.00	---	---	0.000

13.2 RISULTATI PER INVILUPPO

Spinta e forze

Simbologia adottata

Ic	Indice della combinazione
A	Tipo azione
I	Inclinazione della spinta, espressa in [°]
V	Valore dell'azione, espressa in [kN]
C_X, C_Y	Componente in direzione X ed Y dell'azione, espressa in [kN]
P_X, P_Y	Coordinata X ed Y del punto di applicazione dell'azione, espressa in [m]

Ic	A	V	I	C_X	C_Y	P_X	P_Y
		[kN]	*[°]*	*[kN]*	*[kN]*	*[m]*	*[m]*

Ic	A	V	I	Cx	Cy	Px	Py
		[kN]	[°]	[kN]	[kN]	[m]	[m]
1	Spinta statica	164.47	0.00	164.47	0.00	4.10	-3.65
	Peso/Inerzia muro			0.00	185.91/0.00	0.90	-4.39
	Peso/Inerzia terrapieno			0.00	391.94/0.00	2.15	-2.46
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00

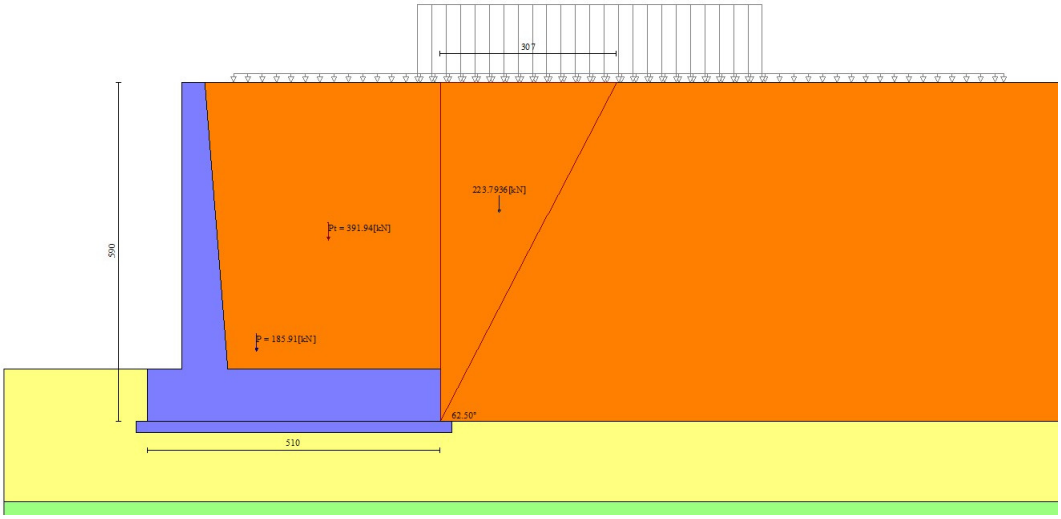


Fig. 12 - Cuneo di spinta (combinazione statica) (Combinazione n° 1)

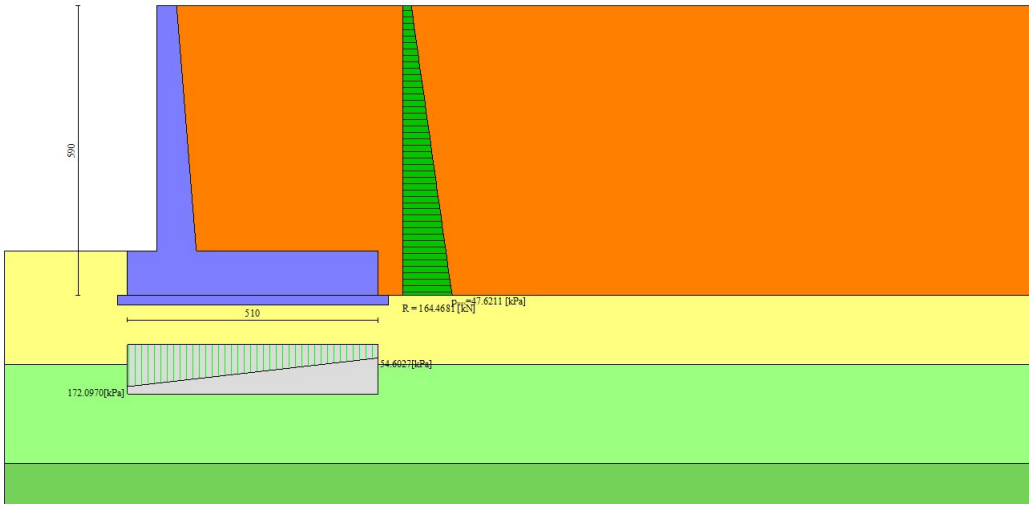


Fig. 13 - Diagramma delle pressioni (combinazione statica) (Combinazione n° 1)

Risultanti globali

Simbologia adottata

Cmb Indice/Tipo combinazione

N Componente normale al piano di posa, espressa in [kN]

T Componente parallela al piano di posa, espressa in [kN]

M_r Momento ribaltante, espresso in [kNm]

M_s Momento stabilizzante, espresso in [kNm]

ecc Eccentricità risultante, espressa in [m]

Ic	N	T	M_r	M_s	ecc
	[kN]	*[kN]*	*[kNm]*	*[kNm]*	*[m]*
1 - STR (A1-M1-R3)	577.85	164.47	370.63	1589.07	0.440
2 - STR (A1-M1-R3)	601.76	206.48	476.97	1648.08	0.603
3 - STR (A1-M1-R3)	528.43	194.03	552.91	1547.66	0.666
4 - GEO (A2-M2-R2)	574.82	165.45	376.41	1579.23	0.456
5 - GEO (A2-M2-R2)	601.76	206.48	476.97	1648.08	0.603
6 - GEO (A2-M2-R2)	528.43	194.03	552.91	1547.66	0.666
7 - EQU (A1-M1-R3)	577.85	164.47	370.63	1589.07	0.440
8 - EQU (A1-M1-R3)	613.34	241.56	565.36	1679.79	0.732
9 - EQU (A1-M1-R3)	516.85	225.67	666.25	1547.66	0.844
10 - SLER	571.46	124.79	280.02	1568.34	0.295
11 - SLEF	571.46	124.79	280.02	1568.34	0.295
12 - SLEQ	571.46	124.79	280.02	1568.34	0.295
13 - SLEQ	593.07	192.01	448.70	1627.63	0.561

Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

Cmb Indice/Tipo combinazione

S Sisma (H: componente orizzontale, V: componente verticale)

FS_{SCO} Coeff. di sicurezza allo scorrimento

FS_{RIB} Coeff. di sicurezza al ribaltamento

FS_{QLIM} Coeff. di sicurezza a carico limite

FS_{STAB} Coeff. di sicurezza a stabilità globale

FS_{HYD} Coeff. di sicurezza a sifonamento

FS_{UPL} Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.638		1.872			
2 - STR (A1-M1-R3)	H + V	1.359		1.387			
3 - STR (A1-M1-R3)	H - V	1.270		1.427			
4 - GEO (A2-M2-R2)					1.263		
5 - GEO (A2-M2-R2)	H + V				1.321		
6 - GEO (A2-M2-R2)	H - V				1.273		
7 - EQU (A1-M1-R3)			4.287				
8 - EQU (A1-M1-R3)	H + V		2.971				
9 - EQU (A1-M1-R3)	H - V		2.323				

Verifica a scorrimento fondazione

Simbologia adottata

n° Indice combinazione

Rsa Resistenza allo scorrimento per attrito, espresso in [kN]

Rpt Resistenza passiva terreno antistante, espresso in [kN]

Rps Resistenza passiva sperone, espresso in [kN]

Rp Resistenza a carichi orizzontali pali (solo per fondazione mista), espresso in [kN]

Rt Resistenza a carichi orizzontali tiranti (solo se presenti), espresso in [kN]

R Resistenza allo scorrimento (somma di Rsa+Rpt+Rps+Rp), espresso in [kN]

T Carico parallelo al piano di posa, espresso in [kN]

FS Fattore di sicurezza (rapporto R/T)

n°	Rsa	Rpt	Rps	Rp	Rt	R	T	FS
	[kN]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	
3 - STR (A1-M1-R3) H - V	246.41	0.00	0.00	--	--	246.41	194.03	1.270

Verifica a carico limite

Simbologia adottata

n° Indice combinazione

N Carico normale totale al piano di posa, espresso in [kN]

Qu carico limite del terreno, espresso in [kN]

Qd Portanza di progetto, espresso in [kN]

FS Fattore di sicurezza (rapporto tra il carico limie e carico agente al piano di posa)

n°	N	Qu	Qd	FS
	[kN]	*[kN]*	*[kN]*	
2 - STR (A1-M1-R3) H + V	601.76	834.45	695.37	1.387

Dettagli calcolo portanza

Simbologia adottata

n°	Indice combinazione
Nc, Nq, N_γ	Fattori di capacità portante
ic, iq, i_γ	Fattori di inclinazione del carico
dc, dq, d_γ	Fattori di profondità del piano di posa
gc, gq, g_γ	Fattori di inclinazione del profilo topografico
bc, bq, b_γ	Fattori di inclinazione del piano di posa
sc, sq, s_γ	Fattori di forma della fondazione
pc, pq, p_γ	Fattori di riduzione per punzonamento secondo Vesic
Re	Fattore di riduzione capacità portante per eccentricità secondo Meyerhof
Ir, Irc	Indici di rigidezza per punzonamento secondo Vesic
r_γ fattore	Fattori per tener conto dell'effetto piastra. Per fondazioni che hanno larghezza maggiore di 2 m, il terzo termine della formula trinomia $0.5B_\gamma N_\gamma$ viene moltiplicato per questo
D	Affondamento del piano di posa, espresso in [m]
B'	Larghezza fondazione ridotta, espresso in [m]
H	Altezza del cuneo di rottura, espresso in [m]
γ	Peso di volume del terreno medio, espresso in [kN/mc]
ϕ	Angolo di attrito del terreno medio, espresso in [°]
c	Coesione del terreno medio, espresso in [kPa]

Per i coeff. che in tabella sono indicati con il simbolo '--' sono coeff. non presenti nel metodo scelto (Meyerhof).

n°	Nc Nq Nγ	ic iq iγ	dc dq dγ	gc gq gγ	bc bq bγ	sc sq sγ	pc pq pγ	Ir	Irc	Re	rγ
2	28.123 16.666 13.508	0.623 0.623 0.122	1.060 1.030 1.030	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.898

n°	D	B'	H	γ	ϕ	c
	[m]	*[m]*	*[m]*	*[°]*	*[kN/mc]*	*[kPa]*
2	0.90	3.89	4.34	10.55	29.12	0

Verifica a ribaltamento

Simbologia adottata

n°	Indice combinazione
Ms	Momento stabilizzante, espresso in [kNm]
Mr	Momento ribaltante, espresso in [kNm]
FS	Fattore di sicurezza (rapporto tra momento stabilizzante e momento ribaltante)

La verifica viene eseguita rispetto allo spigolo inferiore esterno della fondazione

n°	Ms	Mr	FS
	[kNm]	*[kNm]*	
9 - EQU (A1-M1-R3) H - V	1547.66	666.25	2.323

Verifica stabilità globale muro + terreno

Simbologia adottata

Ic Indice/Tipo combinazione

C Centro superficie di scorrimento, espresso in [m]

R Raggio, espresso in [m]

FS Fattore di sicurezza

Ic	C	R	FS
	[m]	*[m]*	
4 - GEO (A2-M2-R2)	-1.00; 3.00	10.27	1.263

Dettagli strisce verifiche stabilità

Simbologia adottata

Le ascisse X sono considerate positive verso monte

Le ordinate Y sono considerate positive verso l'alto

Origine in testa al muro (spigolo contro terra)

W peso della striscia espresso in [kN]

Qy carico sulla striscia espresso in [kN]

α angolo fra la base della striscia e l'orizzontale espresso in [°] (positivo antiorario)

ϕ angolo d'attrito del terreno lungo la base della striscia

c coesione del terreno lungo la base della striscia espressa in [kPa]

b larghezza della striscia espressa in [m]

u pressione neutra lungo la base della striscia espressa in [kPa]

Tx; Ty Resistenza al taglio fornita dai tiranti in direzione X ed Y espressa in [kPa]

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	9.90	16.67	8.83 - 0.65	67.871	29.256	0	0.0	
2	26.71	16.67	0.65	59.765	29.256	0	0.0	
3	38.99	16.67	0.65	53.126	29.256	0	0.0	
4	48.74	16.67	0.65	47.412	29.256	0	0.0	
5	56.78	16.67	0.65	42.271	29.256	0	0.0	
6	63.53	16.67	0.65	37.524	29.256	0	0.0	
7	69.24	16.67	0.65	33.065	29.256	0	0.0	

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
8	76.45	14.84	0.65	28.823	20.458	0	0.0	
9	81.38	1.69	0.65	24.748	20.458	0	0.0	
10	84.77	1.69	0.65	20.804	20.458	0	0.9	
11	87.53	1.69	0.65	16.960	20.458	0	3.1	
12	89.70	1.69	0.65	13.195	20.458	0	4.8	
13	91.35	1.34	0.65	9.486	20.458	0	6.1	
14	105.72	0.00	0.65	5.818	20.458	0	6.9	
15	38.77	0.00	0.65	2.173	20.458	0	7.4	
16	28.25	0.00	0.65	-1.462	20.458	0	7.4	
17	27.47	0.00	0.65	-5.104	20.458	0	7.1	
18	26.49	0.00	0.65	-8.767	20.458	0	6.3	
19	24.98	0.00	0.65	-12.466	20.458	0	5.1	
20	22.92	0.00	0.65	-16.219	20.458	0	3.5	
21	20.28	0.00	0.65	-20.045	20.458	0	1.4	
22	17.02	0.00	0.65	-23.968	20.458	0	0.0	
23	13.08	0.00	0.65	-28.014	20.458	0	0.0	
24	8.41	0.00	0.65	-32.220	20.458	0	0.0	
25	2.87	0.00	-7.45 - 0.65	-36.078	20.458	0	0.0	

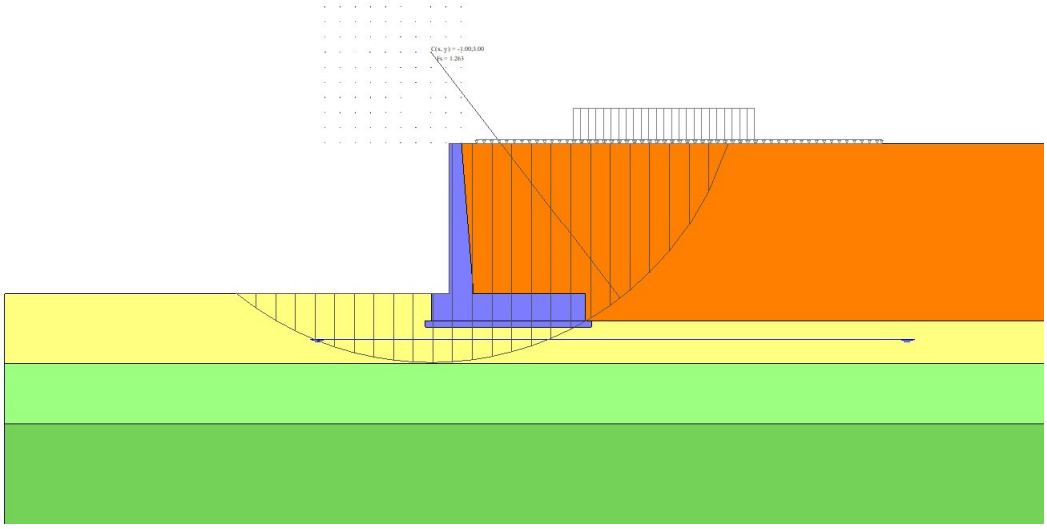


Fig. 14 - Stabilità fronte di scavo - Cerchio critico (Combinazione n° 4)

Sollecitazioni

Elementi calcolati a trave

Simbologia adottata

N Sforzo normale, espresso in [kN]. Positivo se di compressione.

T Taglio, espresso in [kN]. Positivo se diretto da monte verso valle

M Momento, espresso in [kNm]. Positivo se tende le fibre contro terra (a monte)

Paramento

n°	X	N_{min}	N_{max}	T_{min}	T_{max}	M_{min}	M_{max}
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.10	0.99	0.99	0.03	0.17	0.00	0.01
3	-0.20	2.00	2.00	0.12	0.41	0.02	0.04
4	-0.30	3.03	3.03	0.26	0.74	0.04	0.11
5	-0.40	4.08	4.08	0.46	1.14	0.09	0.22
6	-0.50	5.15	5.15	0.72	1.62	0.17	0.37
7	-0.60	6.24	6.24	1.03	2.18	0.28	0.59
8	-0.70	7.34	7.34	1.41	2.82	0.43	0.86
9	-0.80	8.47	8.47	1.85	3.56	0.62	1.21
10	-0.90	9.62	9.62	2.37	4.38	0.87	1.64
11	-1.00	10.78	10.78	2.95	5.30	1.17	2.17
12	-1.10	11.97	11.97	3.60	6.30	1.55	2.79
13	-1.20	13.17	13.17	4.31	7.38	1.99	3.52
14	-1.30	14.40	14.40	5.08	8.55	2.52	4.38
15	-1.40	15.64	15.64	5.91	9.79	3.13	5.35
16	-1.50	16.91	16.91	6.80	11.11	3.82	6.46
17	-1.60	18.19	18.19	7.74	12.52	4.62	7.71
18	-1.70	19.49	19.49	8.74	14.00	5.52	9.11
19	-1.80	20.81	20.81	9.80	15.56	6.53	10.67
20	-1.90	22.15	22.15	10.91	17.19	7.65	12.39
21	-2.00	23.52	23.52	12.08	18.91	8.89	14.29
22	-2.10	24.90	24.90	13.31	20.71	10.25	16.36
23	-2.20	26.30	26.30	14.60	22.58	11.75	18.63
24	-2.30	27.72	27.72	15.94	24.53	13.38	21.09
25	-2.40	29.16	29.16	17.34	26.56	15.16	23.76
26	-2.50	30.61	30.61	18.80	28.67	17.09	26.64
27	-2.60	32.09	32.09	20.32	30.86	19.17	29.74
28	-2.70	33.59	33.59	21.89	33.13	21.41	33.07
29	-2.80	35.11	35.11	23.52	35.48	23.81	36.64
30	-2.90	36.64	36.64	25.20	37.90	26.39	40.45
31	-3.00	38.20	38.20	26.95	40.40	29.15	44.51
32	-3.10	39.78	39.78	28.75	42.98	32.09	48.83
33	-3.20	41.37	41.37	30.61	45.64	35.22	53.43
34	-3.30	42.99	42.99	32.52	48.38	38.54	58.29
35	-3.40	44.62	44.62	34.49	51.20	42.06	63.45
36	-3.50	46.27	46.27	36.52	54.09	45.79	68.89
37	-3.60	47.95	47.95	38.61	57.06	49.74	74.64
38	-3.70	49.64	49.64	40.75	60.12	53.90	80.69
39	-3.80	51.35	51.35	42.95	63.25	58.29	87.06
40	-3.90	53.08	53.08	45.21	66.46	62.90	93.75
41	-4.00	54.84	54.84	47.52	69.74	67.75	100.77
42	-4.10	56.61	56.61	49.89	73.11	72.84	108.14
43	-4.20	58.40	58.40	52.32	76.55	78.18	115.85
44	-4.30	60.21	60.21	54.81	80.08	83.77	123.91
45	-4.40	62.04	62.04	57.35	83.68	89.62	132.34
46	-4.50	63.89	63.89	59.95	87.36	95.74	141.15
47	-4.60	65.75	65.75	62.61	91.12	102.13	150.33
48	-4.70	67.64	67.64	65.32	94.95	108.79	159.90
49	-4.80	69.55	69.55	68.09	98.87	115.73	169.86
50	-4.90	71.48	71.48	70.92	102.86	122.96	180.23
51	-5.00	73.42	73.42	73.80	106.93	130.48	191.00

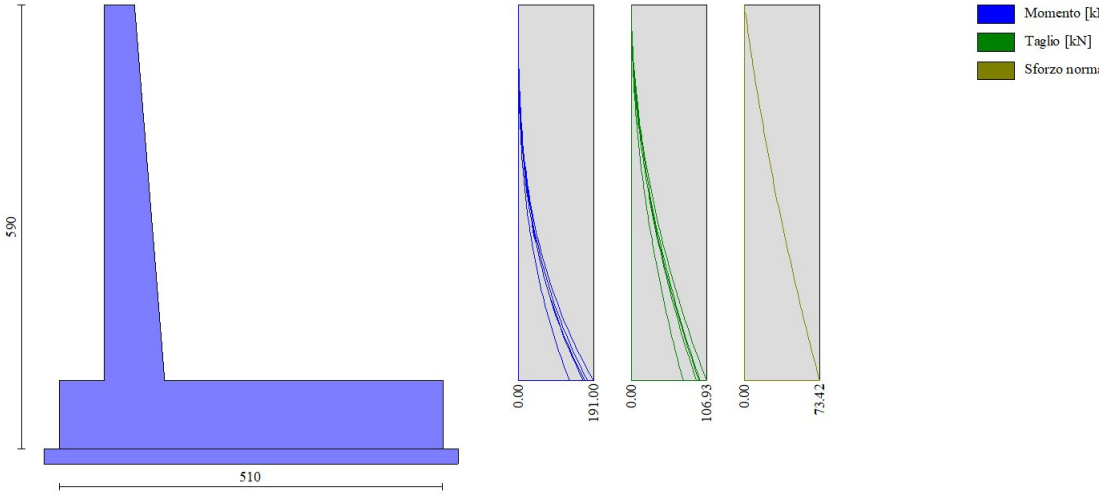


Fig. 15 - Paramento

Fondazione

n°	X	Nmin	Nmax	Tmin	Tmax	Mmin	Mmax
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
1	-1.00	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.90	0.00	0.00	12.81	17.81	0.64	0.89
3	-0.80	0.00	0.00	25.47	35.29	2.56	3.55
4	-0.70	0.00	0.00	37.98	52.44	5.73	7.94
5	-0.60	0.00	0.00	50.34	69.26	10.15	14.03
6	-0.50	0.00	0.00	62.54	85.75	15.79	21.78
7	-0.40	0.00	0.00	74.59	101.92	22.65	31.17
8	0.40	0.00	0.00	-200.34	-72.96	-467.91	-199.32
9	0.50	0.00	0.00	-199.65	-74.14	-448.99	-192.72
10	0.60	0.00	0.00	-198.45	-74.97	-429.63	-185.67
11	0.70	0.00	0.00	-197.00	-75.65	-410.39	-178.54
12	0.80	0.00	0.00	-195.33	-76.17	-391.31	-171.34
13	0.90	0.00	0.00	-193.42	-76.55	-372.41	-164.10
14	1.00	0.00	0.00	-191.28	-76.77	-353.71	-156.83
15	1.10	0.00	0.00	-188.92	-76.83	-335.23	-149.55
16	1.20	0.00	0.00	-186.32	-76.75	-317.01	-142.27
17	1.30	0.00	0.00	-183.49	-76.51	-299.05	-135.00
18	1.40	0.00	0.00	-180.43	-76.12	-281.39	-127.77
19	1.50	0.00	0.00	-177.15	-75.58	-264.05	-120.58
20	1.60	0.00	0.00	-173.63	-74.88	-247.04	-113.45
21	1.70	0.00	0.00	-169.88	-74.03	-230.40	-106.40
22	1.80	0.00	0.00	-165.90	-73.03	-214.15	-99.45
23	1.90	0.00	0.00	-161.69	-71.88	-198.31	-92.60
24	2.00	0.00	0.00	-157.24	-70.58	-182.89	-85.87
25	2.10	0.00	0.00	-152.57	-69.12	-167.94	-79.28
26	2.20	0.00	0.00	-147.67	-67.51	-153.46	-72.85
27	2.30	0.00	0.00	-142.54	-65.75	-139.49	-66.58
28	2.40	0.00	0.00	-137.18	-63.83	-126.04	-60.50
29	2.50	0.00	0.00	-131.58	-61.77	-113.13	-54.62
30	2.60	0.00	0.00	-125.76	-59.55	-100.80	-48.95
31	2.70	0.00	0.00	-119.70	-57.17	-89.06	-43.51
32	2.80	0.00	0.00	-113.42	-54.65	-77.94	-38.31

n°	X	N_{min}	N_{max}	T_{min}	T_{max}	M_{min}	M_{max}
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
33	2.90	0.00	0.00	-106.90	-51.97	-67.46	-33.38
34	3.00	0.00	0.00	-100.16	-49.14	-57.64	-28.72
35	3.10	0.00	0.00	-93.18	-46.16	-48.51	-24.35
36	3.20	0.00	0.00	-85.98	-43.03	-40.09	-20.29
37	3.30	0.00	0.00	-78.54	-39.74	-32.40	-16.55
38	3.40	0.00	0.00	-70.87	-36.30	-25.46	-13.14
39	3.50	0.00	0.00	-62.97	-32.71	-19.31	-10.09
40	3.60	0.00	0.00	-54.84	-28.97	-13.95	-7.40
41	3.70	0.00	0.00	-46.48	-25.07	-9.42	-5.10
42	3.80	0.00	0.00	-35.25	-19.06	-5.34	-2.89
43	3.90	0.00	0.00	-23.73	-12.86	-2.39	-1.30
44	4.00	0.00	0.00	-11.98	-6.51	-0.60	-0.33
45	4.10	0.00	0.00	0.00	0.00	0.00	0.00

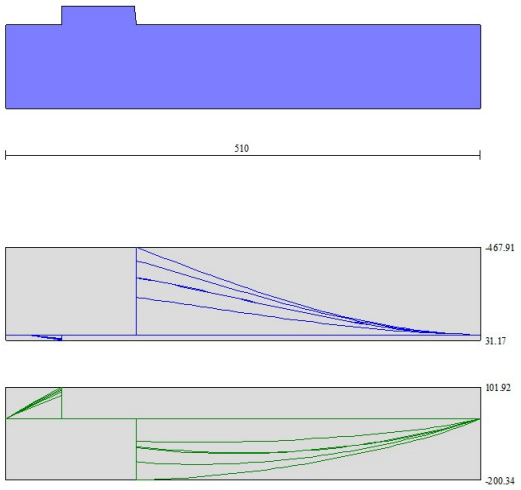


Fig. 16 - Fondazione

Verifiche strutturali

Verifiche a flessione

Elementi calcolati a trave

Simbologia adottata

n° indice sezione

Y ordinata sezione espressa in [m]

B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Afi	area ferri inferiori espresso in [cmq]
Afs	area ferri superiori espressa in [cmq]
M	momento agente espressa in [kNm]
N	sforzo normale agente espressa in [kN]
Mu	momento ultimi espresso in [kNm]
Nu	sforzo normale ultimo espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione ultima e sollecitazione agente)

Paramento

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	100	40	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
2	100	41	26.55	53.09	0.00	0.00	0.00	0.00	100000.000
3	100	42	26.55	53.09	0.04	2.00	189.78	8643.99	4321.170
4	100	42	26.55	53.09	0.11	3.03	295.63	8084.71	2668.362
5	100	43	26.55	53.09	0.22	4.08	401.87	7514.22	1842.259
6	100	44	26.55	53.09	0.37	5.15	503.89	6937.95	1347.885
7	100	45	26.55	53.09	0.59	6.24	599.63	6382.56	1023.621
8	100	46	26.55	53.09	0.86	7.34	688.39	5863.12	798.488
9	100	46	26.55	53.09	1.21	8.47	770.77	5387.70	636.108
10	100	47	26.55	53.09	1.64	9.62	848.63	4965.08	516.319
11	100	48	26.55	53.09	2.17	10.78	921.51	4584.81	425.215
12	100	49	26.55	53.09	2.79	11.97	991.51	4250.97	355.198
13	100	50	26.55	53.09	3.52	13.17	1057.22	3951.00	299.934
14	100	50	26.55	53.09	4.38	14.40	1120.06	3685.48	255.980
15	100	51	26.55	53.09	5.35	15.64	1180.69	3450.87	220.622
16	100	52	26.55	53.09	6.46	16.91	1217.61	3185.83	188.453
17	100	53	26.55	53.09	7.71	18.19	1237.74	2919.20	160.499
18	100	54	26.55	53.09	9.11	19.49	1249.84	2673.51	137.167
19	100	54	26.55	53.09	10.67	20.81	1262.65	2463.15	118.347
20	100	55	26.55	53.09	12.39	22.15	1270.27	2271.11	102.512
21	100	56	26.55	53.09	14.29	23.52	1280.28	2107.29	89.612
22	100	57	26.55	53.09	16.36	24.90	1287.04	1958.16	78.653
23	100	58	26.55	53.09	18.63	26.30	1293.96	1826.52	69.459
24	100	58	26.55	53.09	21.09	27.72	1302.80	1711.98	61.768
25	100	59	26.55	53.09	23.76	29.16	1311.90	1609.86	55.217
26	100	60	26.55	53.09	26.64	30.61	1318.32	1515.02	49.488
27	100	61	26.55	53.09	29.74	32.09	1326.57	1431.48	44.605
28	100	61	26.55	53.09	33.07	33.59	1335.95	1356.95	40.398
29	100	62	26.55	53.09	36.64	35.11	1346.44	1290.25	36.752
30	100	63	26.55	53.09	40.45	36.64	1357.90	1230.22	33.572
31	100	64	26.55	53.09	44.51	38.20	1366.81	1173.04	30.708
32	100	65	26.55	53.09	48.83	39.78	1374.85	1119.83	28.154
33	100	65	26.55	53.09	53.43	41.37	1383.81	1071.57	25.901
34	100	66	26.55	53.09	58.29	42.99	1393.59	1027.63	23.906
35	100	67	26.55	53.09	63.45	44.62	1404.09	987.46	22.130
36	100	68	26.55	53.09	68.89	46.27	1415.25	950.62	20.543
37	100	69	26.55	53.09	74.64	47.95	1427.00	916.73	19.120
38	100	69	26.55	53.09	80.69	49.64	1439.28	885.46	17.838
39	100	70	26.55	53.09	87.06	51.35	1452.04	856.52	16.679
40	100	71	26.55	53.09	93.75	53.08	1465.25	829.68	15.629
41	100	72	26.55	53.09	100.77	54.84	1477.93	804.22	14.666
42	100	73	26.55	53.09	108.14	56.61	1490.37	780.17	13.782

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
43	100	73	26.55	53.09	115.85	58.40	1503.07	757.67	12.975
44	100	74	26.55	53.09	123.91	60.21	1516.02	736.59	12.234
45	100	75	26.55	53.09	132.34	62.04	1529.19	716.80	11.555
46	100	76	26.55	53.09	141.15	63.89	1542.56	698.19	10.929
47	100	77	26.55	53.09	150.33	65.75	1556.12	680.65	10.352
48	100	77	26.55	53.09	159.90	67.64	1569.86	664.10	9.818
49	100	78	26.55	53.09	169.86	69.55	1583.75	648.47	9.324
50	100	79	26.55	53.09	180.23	71.48	1597.78	633.67	8.865
51	100	80	26.55	53.09	191.00	73.42	1611.96	619.64	8.439

Fondazione

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
1	100	90	45.24	22.62	0.00	0.00	0.00	0.00	100000.000
2	100	90	45.24	22.62	0.89	0.00	1388.66	0.00	1554.803
3	100	90	45.24	22.62	3.55	0.00	1388.66	0.00	391.099
4	100	90	45.24	22.62	7.94	0.00	1388.66	0.00	174.901
5	100	90	45.24	22.62	14.03	0.00	1388.66	0.00	98.996
6	100	90	45.24	22.62	21.78	0.00	1388.66	0.00	63.756
7	100	90	45.24	22.62	31.17	0.00	1388.66	0.00	44.555
8	100	90	22.62	45.24	-467.91	0.00	-1388.66	0.00	2.968
9	100	90	22.62	45.24	-448.99	0.00	-1388.66	0.00	3.093
10	100	90	22.62	45.24	-429.63	0.00	-1388.66	0.00	3.232
11	100	90	22.62	45.24	-410.39	0.00	-1388.66	0.00	3.384
12	100	90	22.62	45.24	-391.31	0.00	-1388.66	0.00	3.549
13	100	90	22.62	45.24	-372.41	0.00	-1388.66	0.00	3.729
14	100	90	22.62	45.24	-353.71	0.00	-1388.66	0.00	3.926
15	100	90	22.62	45.24	-335.23	0.00	-1388.66	0.00	4.142
16	100	90	22.62	45.24	-317.01	0.00	-1388.66	0.00	4.381
17	100	90	22.62	45.24	-299.05	0.00	-1388.66	0.00	4.644
18	100	90	22.62	45.24	-281.39	0.00	-1388.66	0.00	4.935
19	100	90	22.62	45.24	-264.05	0.00	-1388.66	0.00	5.259
20	100	90	22.62	45.24	-247.04	0.00	-1388.66	0.00	5.621
21	100	90	22.62	45.24	-230.40	0.00	-1388.66	0.00	6.027
22	100	90	22.62	45.24	-214.15	0.00	-1388.66	0.00	6.485
23	100	90	22.62	45.24	-198.31	0.00	-1388.66	0.00	7.003
24	100	90	22.62	45.24	-182.89	0.00	-1388.66	0.00	7.593
25	100	90	22.62	45.24	-167.94	0.00	-1388.66	0.00	8.269
26	100	90	22.62	45.24	-153.46	0.00	-1388.66	0.00	9.049
27	100	90	22.62	45.24	-139.49	0.00	-1388.66	0.00	9.956
28	100	90	22.62	45.24	-126.04	0.00	-1388.66	0.00	11.018
29	100	90	22.62	45.24	-113.13	0.00	-1388.66	0.00	12.275
30	100	90	22.62	45.24	-100.80	0.00	-1388.66	0.00	13.776
31	100	90	22.62	45.24	-89.06	0.00	-1388.66	0.00	15.592
32	100	90	22.62	45.24	-77.94	0.00	-1388.66	0.00	17.817
33	100	90	22.62	45.24	-67.46	0.00	-1388.66	0.00	20.585
34	100	90	22.62	45.24	-57.64	0.00	-1388.66	0.00	24.091
35	100	90	22.62	45.24	-48.51	0.00	-1388.66	0.00	28.625
36	100	90	22.62	45.24	-40.09	0.00	-1388.66	0.00	34.639
37	100	90	22.62	45.24	-32.40	0.00	-1388.66	0.00	42.862
38	100	90	22.62	45.24	-25.46	0.00	-1388.66	0.00	54.536
39	100	90	22.62	45.24	-19.31	0.00	-1388.66	0.00	71.927
40	100	90	22.62	45.24	-13.95	0.00	-1388.66	0.00	99.539
41	100	90	22.62	45.24	-9.42	0.00	-1388.66	0.00	147.419
42	100	90	22.62	45.24	-5.34	0.00	-1388.66	0.00	260.069
43	100	90	22.62	45.24	-2.39	0.00	-1388.66	0.00	581.390
44	100	90	22.62	45.24	-0.60	0.00	-1388.66	0.00	2310.696
45	100	90	22.62	45.24	0.00	0.00	0.00	0.00	100000.000

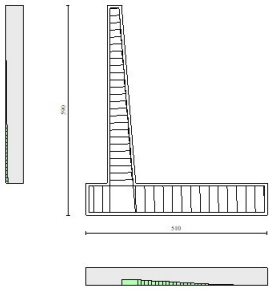


Fig. 17 - Paramento (Inviluppo)

Verifiche a taglio

Simbologia adottata

Is	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
A_{sw}	area ferri a taglio espresso in [cmq]
cotgθ	inclinazione delle bielle compresse, θ inclinazione dei puntoni di calcestruzzo
V_{Rcd}	resistenza di progetto a 'taglio compressione' espressa in [kN]
V_{Rsd}	resistenza di progetto a 'taglio trazione' espressa in [kN]
V_{Rd}	resistenza di progetto a taglio espresso in [kN]. Per elementi con armature trasversali resistenti al taglio (A_{sw}>0.0) V_{Rd}=min(V_{Rcd}, V_{Rsd}).
T	taglio agente espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione resistente e sollecitazione agente)

Paramento

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS

	[cm]	[cm]	[cmq]		[kN]	[kN]	[kN]	[kN]	
1	100	40	0.00	--	0.00	0.00	291.33	0.00	100.000
2	100	41	0.00	--	0.00	0.00	296.84	0.17	1779.004
3	100	42	0.00	--	0.00	0.00	302.34	0.41	732.213
4	100	42	0.00	--	0.00	0.00	307.83	0.74	417.418
5	100	43	0.00	--	0.00	0.00	313.30	1.14	274.880
6	100	44	0.00	--	0.00	0.00	318.76	1.62	196.740
7	100	45	0.00	--	0.00	0.00	324.21	2.18	148.779
8	100	46	0.00	--	0.00	0.00	329.65	2.82	116.804
9	100	46	0.00	--	0.00	0.00	334.67	3.56	94.136
10	100	47	0.00	--	0.00	0.00	337.86	4.38	77.153
11	100	48	0.00	--	0.00	0.00	341.03	5.30	64.402
12	100	49	0.00	--	0.00	0.00	344.18	6.30	54.645
13	100	50	0.00	--	0.00	0.00	347.31	7.38	47.042
14	100	50	0.00	--	0.00	0.00	350.43	8.55	40.996
15	100	51	0.00	--	0.00	0.00	353.52	9.79	36.104
16	100	52	0.00	--	0.00	0.00	356.59	11.11	32.083
17	100	53	0.00	--	0.00	0.00	359.65	12.52	28.734
18	100	54	0.00	--	0.00	0.00	362.69	14.00	25.912
19	100	54	0.00	--	0.00	0.00	365.72	15.56	23.509
20	100	55	0.00	--	0.00	0.00	368.73	17.19	21.444
21	100	56	0.00	--	0.00	0.00	371.72	18.91	19.656
22	100	57	0.00	--	0.00	0.00	374.70	20.71	18.095
23	100	58	0.00	--	0.00	0.00	377.66	22.58	16.725
24	100	58	0.00	--	0.00	0.00	380.61	24.53	15.514
25	100	59	0.00	--	0.00	0.00	383.55	26.56	14.438
26	100	60	0.00	--	0.00	0.00	386.47	28.67	13.478
27	100	61	0.00	--	0.00	0.00	389.38	30.86	12.617
28	100	61	0.00	--	0.00	0.00	392.28	33.13	11.841
29	100	62	0.00	--	0.00	0.00	395.17	35.48	11.139
30	100	63	0.00	--	0.00	0.00	398.04	37.90	10.503
31	100	64	0.00	--	0.00	0.00	400.90	40.40	9.923
32	100	65	0.00	--	0.00	0.00	403.75	42.98	9.393
33	100	65	0.00	--	0.00	0.00	406.59	45.64	8.908
34	100	66	0.00	--	0.00	0.00	409.41	48.38	8.463
35	100	67	0.00	--	0.00	0.00	412.23	51.20	8.052
36	100	68	0.00	--	0.00	0.00	415.04	54.09	7.673
37	100	69	0.00	--	0.00	0.00	417.83	57.06	7.322
38	100	69	0.00	--	0.00	0.00	420.62	60.12	6.997
39	100	70	0.00	--	0.00	0.00	423.39	63.25	6.694
40	100	71	0.00	--	0.00	0.00	426.16	66.46	6.413
41	100	72	0.00	--	0.00	0.00	428.92	69.74	6.150
42	100	73	0.00	--	0.00	0.00	431.67	73.11	5.904
43	100	73	0.00	--	0.00	0.00	434.41	76.55	5.675
44	100	74	0.00	--	0.00	0.00	437.14	80.08	5.459
45	100	75	0.00	--	0.00	0.00	439.86	83.68	5.257
46	100	76	0.00	--	0.00	0.00	442.58	87.36	5.066
47	100	77	0.00	--	0.00	0.00	445.29	91.12	4.887
48	100	77	0.00	--	0.00	0.00	447.98	94.95	4.718
49	100	78	0.00	--	0.00	0.00	450.68	98.87	4.558
50	100	79	0.00	--	0.00	0.00	453.36	102.86	4.407
51	100	80	0.00	--	0.00	0.00	456.04	106.93	4.265

Fondazione

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[cm]	[cm]	[cmq]		[kN]	[kN]	[kN]	[kN]	
1	100	90	0.00	--	0.00	0.00	431.48	0.00	100.000
2	100	90	0.00	--	0.00	0.00	431.48	-17.81	24.229
3	100	90	0.00	--	0.00	0.00	431.48	-35.29	12.227
4	100	90	0.00	--	0.00	0.00	431.48	-52.44	8.228
5	100	90	0.00	--	0.00	0.00	431.48	-69.26	6.230
6	100	90	0.00	--	0.00	0.00	431.48	-85.75	5.031
7	100	90	0.00	--	0.00	0.00	431.48	-101.92	4.233

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[cm]	*[cm]*	*[cmq]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
8	100	90	0.00	--	0.00	0.00	431.48	-200.34	2.154
9	100	90	0.00	--	0.00	0.00	431.48	-199.65	2.161
10	100	90	0.00	--	0.00	0.00	431.48	-198.45	2.174
11	100	90	0.00	--	0.00	0.00	431.48	-197.00	2.190
12	100	90	0.00	--	0.00	0.00	431.48	-195.33	2.209
13	100	90	0.00	--	0.00	0.00	431.48	-193.42	2.231
14	100	90	0.00	--	0.00	0.00	431.48	-191.28	2.256
15	100	90	0.00	--	0.00	0.00	431.48	-188.92	2.284
16	100	90	0.00	--	0.00	0.00	431.48	-186.32	2.316
17	100	90	0.00	--	0.00	0.00	431.48	-183.49	2.351
18	100	90	0.00	--	0.00	0.00	431.48	-180.43	2.391
19	100	90	0.00	--	0.00	0.00	431.48	-177.15	2.436
20	100	90	0.00	--	0.00	0.00	431.48	-173.63	2.485
21	100	90	0.00	--	0.00	0.00	431.48	-169.88	2.540
22	100	90	0.00	--	0.00	0.00	431.48	-165.90	2.601
23	100	90	0.00	--	0.00	0.00	431.48	-161.69	2.669
24	100	90	0.00	--	0.00	0.00	431.48	-157.24	2.744
25	100	90	0.00	--	0.00	0.00	431.48	-152.57	2.828
26	100	90	0.00	--	0.00	0.00	431.48	-147.67	2.922
27	100	90	0.00	--	0.00	0.00	431.48	-142.54	3.027
28	100	90	0.00	--	0.00	0.00	431.48	-137.18	3.145
29	100	90	0.00	--	0.00	0.00	431.48	-131.58	3.279
30	100	90	0.00	--	0.00	0.00	431.48	-125.76	3.431
31	100	90	0.00	--	0.00	0.00	431.48	-119.70	3.605
32	100	90	0.00	--	0.00	0.00	431.48	-113.42	3.804
33	100	90	0.00	--	0.00	0.00	431.48	-106.90	4.036
34	100	90	0.00	--	0.00	0.00	431.48	-100.16	4.308
35	100	90	0.00	--	0.00	0.00	431.48	-93.18	4.630
36	100	90	0.00	--	0.00	0.00	431.48	-85.98	5.019
37	100	90	0.00	--	0.00	0.00	431.48	-78.54	5.494
38	100	90	0.00	--	0.00	0.00	431.48	-70.87	6.088
39	100	90	0.00	--	0.00	0.00	431.48	-62.97	6.852
40	100	90	0.00	--	0.00	0.00	431.48	-54.84	7.867
41	100	90	0.00	--	0.00	0.00	431.48	-46.48	9.282
42	100	90	0.00	--	0.00	0.00	431.48	-35.25	12.240
43	100	90	0.00	--	0.00	0.00	431.48	-23.73	18.182
44	100	90	0.00	--	0.00	0.00	431.48	-11.98	36.013
45	100	90	0.00	--	0.00	0.00	431.48	0.00	100.000

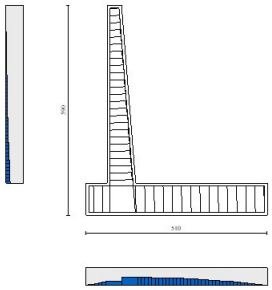


Fig. 18 - Paramento (Inviluppo)

Verifica delle tensioni

Simbologia adottata

n°	indice sezione
Y	ordinata sezione, espressa in [m]
B	larghezza sezione, espresso in [cm]
H	altezza sezione, espressa in [cm]
Afi	area ferri inferiori, espresso in [cmq]
Afs	area ferri superiori, espressa in [cmq]
M	momento agente, espressa in [kNm]
N	sforzo normale agente, espressa in [kN]
σc	tensione di compressione nel cls, espressa in [kPa]
σfi	tensione nei ferri inferiori, espressa in [kPa]
σfs	tensione nei ferri superiori, espressa in [kPa]

Combinazioni SLER

<u>Paramento</u>

Tensione massima di compressione nel calcestruzzo 19920 [kPa]

Tensione massima di trazione dell'acciaio 360000 [kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	26.55	53.09	0.00	0.00	0 (10)	0 (10)	0 (10)
2	100	41	26.55	53.09	0.00	0.99	2 (10)	25 (10)	32 (10)
3	100	42	26.55	53.09	0.02	2.00	5 (10)	47 (10)	66 (10)
4	100	42	26.55	53.09	0.04	3.03	7 (10)	66 (10)	104 (10)
5	100	43	26.55	53.09	0.09	4.08	11 (10)	80 (10)	147 (10)
6	100	44	26.55	53.09	0.17	5.15	14 (10)	88 (10)	195 (10)
7	100	45	26.55	53.09	0.28	6.24	19 (10)	90 (10)	251 (10)
8	100	46	26.55	53.09	0.43	7.34	24 (10)	85 (10)	313 (10)
9	100	46	26.55	53.09	0.62	8.47	30 (10)	72 (10)	385 (10)
10	100	47	26.55	53.09	0.87	9.62	36 (10)	49 (10)	466 (10)
11	100	48	26.55	53.09	1.17	10.78	44 (10)	8 (10)	559 (10)
12	100	49	26.55	53.09	1.55	11.97	53 (10)	56 (10)	667 (10)
13	100	50	26.55	53.09	1.99	13.17	64 (10)	148 (10)	790 (10)
14	100	50	26.55	53.09	2.52	14.40	75 (10)	270 (10)	927 (10)
15	100	51	26.55	53.09	3.13	15.64	89 (10)	424 (10)	1079 (10)
16	100	52	26.55	53.09	3.82	16.91	103 (10)	612 (10)	1245 (10)
17	100	53	26.55	53.09	4.62	18.19	119 (10)	834 (10)	1426 (10)
18	100	54	26.55	53.09	5.52	19.49	136 (10)	1090 (10)	1621 (10)
19	100	54	26.55	53.09	6.53	20.81	155 (10)	1382 (10)	1830 (10)
20	100	55	26.55	53.09	7.65	22.15	175 (10)	1710 (10)	2054 (10)
21	100	56	26.55	53.09	8.89	23.52	196 (10)	2075 (10)	2292 (10)
22	100	57	26.55	53.09	10.25	24.90	218 (10)	2476 (10)	2544 (10)
23	100	58	26.55	53.09	11.75	26.30	242 (10)	2914 (10)	2811 (10)
24	100	58	26.55	53.09	13.38	27.72	267 (10)	3390 (10)	3092 (10)
25	100	59	26.55	53.09	15.16	29.16	293 (10)	3905 (10)	3388 (10)
26	100	60	26.55	53.09	17.09	30.61	320 (10)	4457 (10)	3698 (10)
27	100	61	26.55	53.09	19.17	32.09	349 (10)	5049 (10)	4022 (10)
28	100	61	26.55	53.09	21.41	33.59	379 (10)	5680 (10)	4361 (10)
29	100	62	26.55	53.09	23.81	35.11	410 (10)	6350 (10)	4715 (10)
30	100	63	26.55	53.09	26.39	36.64	442 (10)	7060 (10)	5082 (10)
31	100	64	26.55	53.09	29.15	38.20	475 (10)	7810 (10)	5465 (10)
32	100	65	26.55	53.09	32.09	39.78	510 (10)	8601 (10)	5861 (10)
33	100	65	26.55	53.09	35.22	41.37	545 (10)	9432 (10)	6272 (10)
34	100	66	26.55	53.09	38.54	42.99	582 (10)	10305 (10)	6697 (10)
35	100	67	26.55	53.09	42.06	44.62	620 (10)	11218 (10)	7136 (10)
36	100	68	26.55	53.09	45.79	46.27	659 (10)	12173 (10)	7589 (10)
37	100	69	26.55	53.09	49.74	47.95	699 (10)	13169 (10)	8056 (10)
38	100	69	26.55	53.09	53.90	49.64	740 (10)	14208 (10)	8537 (10)
39	100	70	26.55	53.09	58.29	51.35	783 (10)	15288 (10)	9032 (10)
40	100	71	26.55	53.09	62.90	53.08	826 (10)	16411 (10)	9541 (10)
41	100	72	26.55	53.09	67.75	54.84	871 (10)	17576 (10)	10064 (10)
42	100	73	26.55	53.09	72.84	56.61	916 (10)	18783 (10)	10600 (10)
43	100	73	26.55	53.09	78.18	58.40	963 (10)	20033 (10)	11150 (10)
44	100	74	26.55	53.09	83.77	60.21	1010 (10)	21326 (10)	11713 (10)
45	100	75	26.55	53.09	89.62	62.04	1059 (10)	22662 (10)	12290 (10)
46	100	76	26.55	53.09	95.74	63.89	1109 (10)	24041 (10)	12880 (10)
47	100	77	26.55	53.09	102.13	65.75	1159 (10)	25463 (10)	13484 (10)
48	100	77	26.55	53.09	108.79	67.64	1211 (10)	26929 (10)	14100 (10)
49	100	78	26.55	53.09	115.73	69.55	1264 (10)	28438 (10)	14730 (10)
50	100	79	26.55	53.09	122.96	71.48	1317 (10)	29991 (10)	15373 (10)
51	100	80	26.55	53.09	130.48	73.42	1372 (10)	31587 (10)	16029 (10)

Fondazione

Tensione massima di compressione nel calcestruzzo 17430 [kPa]

Tensione massima di trazione dell'acciaio 360000 [kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	90	45.24	22.62	0.00	0.00	0 (10)	0 (10)	0 (10)
2	100	90	45.24	22.62	0.64	0.00	6 (10)	188 (10)	62 (10)
3	100	90	45.24	22.62	2.56	0.00	22 (10)	750 (10)	249 (10)
4	100	90	45.24	22.62	5.73	0.00	49 (10)	1680 (10)	557 (10)
5	100	90	45.24	22.62	10.15	0.00	88 (10)	2975 (10)	986 (10)
6	100	90	45.24	22.62	15.79	0.00	136 (10)	4629 (10)	1535 (10)
7	100	90	45.24	22.62	22.65	0.00	196 (10)	6639 (10)	2201 (10)
8	100	90	22.62	45.24	-199.32	0.00	1721 (10)	19369 (10)	58424 (10)
9	100	90	22.62	45.24	-192.72	0.00	1664 (10)	18727 (10)	56490 (10)
10	100	90	22.62	45.24	-185.67	0.00	1603 (10)	18042 (10)	54423 (10)
11	100	90	22.62	45.24	-178.54	0.00	1542 (10)	17349 (10)	52331 (10)
12	100	90	22.62	45.24	-171.34	0.00	1480 (10)	16650 (10)	50223 (10)
13	100	90	22.62	45.24	-164.10	0.00	1417 (10)	15946 (10)	48101 (10)
14	100	90	22.62	45.24	-156.83	0.00	1354 (10)	15240 (10)	45970 (10)
15	100	90	22.62	45.24	-149.55	0.00	1291 (10)	14532 (10)	43835 (10)
16	100	90	22.62	45.24	-142.27	0.00	1229 (10)	13825 (10)	41701 (10)
17	100	90	22.62	45.24	-135.00	0.00	1166 (10)	13118 (10)	39571 (10)
18	100	90	22.62	45.24	-127.77	0.00	1103 (10)	12415 (10)	37450 (10)
19	100	90	22.62	45.24	-120.58	0.00	1041 (10)	11717 (10)	35343 (10)
20	100	90	22.62	45.24	-113.45	0.00	980 (10)	11024 (10)	33254 (10)
21	100	90	22.62	45.24	-106.40	0.00	919 (10)	10339 (10)	31188 (10)
22	100	90	22.62	45.24	-99.45	0.00	859 (10)	9663 (10)	29149 (10)
23	100	90	22.62	45.24	-92.60	0.00	800 (10)	8998 (10)	27141 (10)
24	100	90	22.62	45.24	-85.87	0.00	742 (10)	8344 (10)	25170 (10)
25	100	90	22.62	45.24	-79.28	0.00	685 (10)	7704 (10)	23239 (10)
26	100	90	22.62	45.24	-72.85	0.00	629 (10)	7079 (10)	21353 (10)
27	100	90	22.62	45.24	-66.58	0.00	575 (10)	6470 (10)	19516 (10)
28	100	90	22.62	45.24	-60.50	0.00	522 (10)	5879 (10)	17733 (10)
29	100	90	22.62	45.24	-54.62	0.00	472 (10)	5307 (10)	16009 (10)
30	100	90	22.62	45.24	-48.95	0.00	423 (10)	4756 (10)	14347 (10)
31	100	90	22.62	45.24	-43.51	0.00	376 (10)	4228 (10)	12753 (10)
32	100	90	22.62	45.24	-38.31	0.00	331 (10)	3723 (10)	11230 (10)
33	100	90	22.62	45.24	-33.38	0.00	288 (10)	3243 (10)	9784 (10)
34	100	90	22.62	45.24	-28.72	0.00	248 (10)	2791 (10)	8418 (10)
35	100	90	22.62	45.24	-24.35	0.00	210 (10)	2366 (10)	7138 (10)
36	100	90	22.62	45.24	-20.29	0.00	175 (10)	1971 (10)	5947 (10)
37	100	90	22.62	45.24	-16.55	0.00	143 (10)	1608 (10)	4850 (10)
38	100	90	22.62	45.24	-13.14	0.00	113 (10)	1277 (10)	3852 (10)
39	100	90	22.62	45.24	-10.09	0.00	87 (10)	980 (10)	2957 (10)
40	100	90	22.62	45.24	-7.40	0.00	64 (10)	719 (10)	2169 (10)
41	100	90	22.62	45.24	-5.10	0.00	44 (10)	495 (10)	1493 (10)
42	100	90	22.62	45.24	-2.89	0.00	25 (10)	281 (10)	848 (10)
43	100	90	22.62	45.24	-1.30	0.00	11 (10)	126 (10)	380 (10)
44	100	90	22.62	45.24	-0.33	0.00	3 (10)	32 (10)	96 (10)
45	100	90	22.62	45.24	0.00	0.00	0 (10)	0 (10)	0 (10)

Combinazioni SLEF

Paramento

Tensione massima di compressione nel calcestruzzo	33200	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	26.55	53.09	0.00	0.00	0 (11)	0 (11)	0 (11)
2	100	41	26.55	53.09	0.00	0.99	2 (11)	25 (11)	32 (11)
3	100	42	26.55	53.09	0.02	2.00	5 (11)	47 (11)	66 (11)
4	100	42	26.55	53.09	0.04	3.03	7 (11)	66 (11)	104 (11)
5	100	43	26.55	53.09	0.09	4.08	11 (11)	80 (11)	147 (11)
6	100	44	26.55	53.09	0.17	5.15	14 (11)	88 (11)	195 (11)
7	100	45	26.55	53.09	0.28	6.24	19 (11)	90 (11)	251 (11)
8	100	46	26.55	53.09	0.43	7.34	24 (11)	85 (11)	313 (11)
9	100	46	26.55	53.09	0.62	8.47	30 (11)	72 (11)	385 (11)
10	100	47	26.55	53.09	0.87	9.62	36 (11)	49 (11)	466 (11)
11	100	48	26.55	53.09	1.17	10.78	44 (11)	8 (11)	559 (11)
12	100	49	26.55	53.09	1.55	11.97	53 (11)	56 (11)	667 (11)
13	100	50	26.55	53.09	1.99	13.17	64 (11)	148 (11)	790 (11)
14	100	50	26.55	53.09	2.52	14.40	75 (11)	270 (11)	927 (11)
15	100	51	26.55	53.09	3.13	15.64	89 (11)	424 (11)	1079 (11)
16	100	52	26.55	53.09	3.82	16.91	103 (11)	612 (11)	1245 (11)
17	100	53	26.55	53.09	4.62	18.19	119 (11)	834 (11)	1426 (11)
18	100	54	26.55	53.09	5.52	19.49	136 (11)	1090 (11)	1621 (11)
19	100	54	26.55	53.09	6.53	20.81	155 (11)	1382 (11)	1830 (11)
20	100	55	26.55	53.09	7.65	22.15	175 (11)	1710 (11)	2054 (11)
21	100	56	26.55	53.09	8.89	23.52	196 (11)	2075 (11)	2292 (11)
22	100	57	26.55	53.09	10.25	24.90	218 (11)	2476 (11)	2544 (11)
23	100	58	26.55	53.09	11.75	26.30	242 (11)	2914 (11)	2811 (11)
24	100	58	26.55	53.09	13.38	27.72	267 (11)	3390 (11)	3092 (11)
25	100	59	26.55	53.09	15.16	29.16	293 (11)	3905 (11)	3388 (11)
26	100	60	26.55	53.09	17.09	30.61	320 (11)	4457 (11)	3698 (11)
27	100	61	26.55	53.09	19.17	32.09	349 (11)	5049 (11)	4022 (11)
28	100	61	26.55	53.09	21.41	33.59	379 (11)	5680 (11)	4361 (11)
29	100	62	26.55	53.09	23.81	35.11	410 (11)	6350 (11)	4715 (11)
30	100	63	26.55	53.09	26.39	36.64	442 (11)	7060 (11)	5082 (11)
31	100	64	26.55	53.09	29.15	38.20	475 (11)	7810 (11)	5465 (11)
32	100	65	26.55	53.09	32.09	39.78	510 (11)	8601 (11)	5861 (11)
33	100	65	26.55	53.09	35.22	41.37	545 (11)	9432 (11)	6272 (11)
34	100	66	26.55	53.09	38.54	42.99	582 (11)	10305 (11)	6697 (11)
35	100	67	26.55	53.09	42.06	44.62	620 (11)	11218 (11)	7136 (11)
36	100	68	26.55	53.09	45.79	46.27	659 (11)	12173 (11)	7589 (11)
37	100	69	26.55	53.09	49.74	47.95	699 (11)	13169 (11)	8056 (11)
38	100	69	26.55	53.09	53.90	49.64	740 (11)	14208 (11)	8537 (11)
39	100	70	26.55	53.09	58.29	51.35	783 (11)	15288 (11)	9032 (11)
40	100	71	26.55	53.09	62.90	53.08	826 (11)	16411 (11)	9541 (11)
41	100	72	26.55	53.09	67.75	54.84	871 (11)	17576 (11)	10064 (11)
42	100	73	26.55	53.09	72.84	56.61	916 (11)	18783 (11)	10600 (11)
43	100	73	26.55	53.09	78.18	58.40	963 (11)	20033 (11)	11150 (11)
44	100	74	26.55	53.09	83.77	60.21	1010 (11)	21326 (11)	11713 (11)
45	100	75	26.55	53.09	89.62	62.04	1059 (11)	22662 (11)	12290 (11)
46	100	76	26.55	53.09	95.74	63.89	1109 (11)	24041 (11)	12880 (11)
47	100	77	26.55	53.09	102.13	65.75	1159 (11)	25463 (11)	13484 (11)
48	100	77	26.55	53.09	108.79	67.64	1211 (11)	26929 (11)	14100 (11)
49	100	78	26.55	53.09	115.73	69.55	1264 (11)	28438 (11)	14730 (11)
50	100	79	26.55	53.09	122.96	71.48	1317 (11)	29991 (11)	15373 (11)
51	100	80	26.55	53.09	130.48	73.42	1372 (11)	31587 (11)	16029 (11)

Fondazione

Tensione massima di compressione nel calcestruzzo 29050 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	90	45.24	22.62	0.00	0.00	0 (11)	0 (11)	0 (11)
2	100	90	45.24	22.62	0.64	0.00	6 (11)	188 (11)	62 (11)
3	100	90	45.24	22.62	2.56	0.00	22 (11)	750 (11)	249 (11)
4	100	90	45.24	22.62	5.73	0.00	49 (11)	1680 (11)	557 (11)
5	100	90	45.24	22.62	10.15	0.00	88 (11)	2975 (11)	986 (11)
6	100	90	45.24	22.62	15.79	0.00	136 (11)	4629 (11)	1535 (11)
7	100	90	45.24	22.62	22.65	0.00	196 (11)	6639 (11)	2201 (11)
8	100	90	22.62	45.24	-199.32	0.00	1721 (11)	19369 (11)	58424 (11)
9	100	90	22.62	45.24	-192.72	0.00	1664 (11)	18727 (11)	56490 (11)
10	100	90	22.62	45.24	-185.67	0.00	1603 (11)	18042 (11)	54423 (11)
11	100	90	22.62	45.24	-178.54	0.00	1542 (11)	17349 (11)	52331 (11)
12	100	90	22.62	45.24	-171.34	0.00	1480 (11)	16650 (11)	50223 (11)
13	100	90	22.62	45.24	-164.10	0.00	1417 (11)	15946 (11)	48101 (11)
14	100	90	22.62	45.24	-156.83	0.00	1354 (11)	15240 (11)	45970 (11)
15	100	90	22.62	45.24	-149.55	0.00	1291 (11)	14532 (11)	43835 (11)
16	100	90	22.62	45.24	-142.27	0.00	1229 (11)	13825 (11)	41701 (11)
17	100	90	22.62	45.24	-135.00	0.00	1166 (11)	13118 (11)	39571 (11)
18	100	90	22.62	45.24	-127.77	0.00	1103 (11)	12415 (11)	37450 (11)
19	100	90	22.62	45.24	-120.58	0.00	1041 (11)	11717 (11)	35343 (11)
20	100	90	22.62	45.24	-113.45	0.00	980 (11)	11024 (11)	33254 (11)
21	100	90	22.62	45.24	-106.40	0.00	919 (11)	10339 (11)	31188 (11)
22	100	90	22.62	45.24	-99.45	0.00	859 (11)	9663 (11)	29149 (11)
23	100	90	22.62	45.24	-92.60	0.00	800 (11)	8998 (11)	27141 (11)
24	100	90	22.62	45.24	-85.87	0.00	742 (11)	8344 (11)	25170 (11)
25	100	90	22.62	45.24	-79.28	0.00	685 (11)	7704 (11)	23239 (11)
26	100	90	22.62	45.24	-72.85	0.00	629 (11)	7079 (11)	21353 (11)
27	100	90	22.62	45.24	-66.58	0.00	575 (11)	6470 (11)	19516 (11)
28	100	90	22.62	45.24	-60.50	0.00	522 (11)	5879 (11)	17733 (11)
29	100	90	22.62	45.24	-54.62	0.00	472 (11)	5307 (11)	16009 (11)
30	100	90	22.62	45.24	-48.95	0.00	423 (11)	4756 (11)	14347 (11)
31	100	90	22.62	45.24	-43.51	0.00	376 (11)	4228 (11)	12753 (11)
32	100	90	22.62	45.24	-38.31	0.00	331 (11)	3723 (11)	11230 (11)
33	100	90	22.62	45.24	-33.38	0.00	288 (11)	3243 (11)	9784 (11)
34	100	90	22.62	45.24	-28.72	0.00	248 (11)	2791 (11)	8418 (11)
35	100	90	22.62	45.24	-24.35	0.00	210 (11)	2366 (11)	7138 (11)
36	100	90	22.62	45.24	-20.29	0.00	175 (11)	1971 (11)	5947 (11)
37	100	90	22.62	45.24	-16.55	0.00	143 (11)	1608 (11)	4850 (11)
38	100	90	22.62	45.24	-13.14	0.00	113 (11)	1277 (11)	3852 (11)
39	100	90	22.62	45.24	-10.09	0.00	87 (11)	980 (11)	2957 (11)
40	100	90	22.62	45.24	-7.40	0.00	64 (11)	719 (11)	2169 (11)
41	100	90	22.62	45.24	-5.10	0.00	44 (11)	495 (11)	1493 (11)
42	100	90	22.62	45.24	-2.89	0.00	25 (11)	281 (11)	848 (11)
43	100	90	22.62	45.24	-1.30	0.00	11 (11)	126 (11)	380 (11)
44	100	90	22.62	45.24	-0.33	0.00	3 (11)	32 (11)	96 (11)
45	100	90	22.62	45.24	0.00	0.00	0 (11)	0 (11)	0 (11)

Combinazioni SLEQ

Paramento

Tensione massima di compressione nel calcestruzzo 14940 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	26.55	53.09	0.00	0.00	0 (12)	0 (12)	0 (12)
2	100	41	26.55	53.09	0.01	0.99	2 (13)	25 (12)	33 (13)
3	100	42	26.55	53.09	0.03	2.00	5 (13)	47 (12)	71 (13)
4	100	42	26.55	53.09	0.08	3.03	8 (13)	66 (12)	115 (13)
5	100	43	26.55	53.09	0.17	4.08	12 (13)	80 (12)	166 (13)
6	100	44	26.55	53.09	0.29	5.15	17 (13)	88 (12)	225 (13)
7	100	45	26.55	53.09	0.46	6.24	23 (13)	90 (12)	294 (13)
8	100	46	26.55	53.09	0.68	7.34	29 (13)	85 (12)	374 (13)
9	100	46	26.55	53.09	0.96	8.47	37 (13)	72 (12)	469 (13)
10	100	47	26.55	53.09	1.32	9.62	47 (13)	84 (13)	579 (13)
11	100	48	26.55	53.09	1.75	10.78	58 (13)	186 (13)	705 (13)
12	100	49	26.55	53.09	2.26	11.97	70 (13)	323 (13)	848 (13)
13	100	50	26.55	53.09	2.87	13.17	85 (13)	498 (13)	1009 (13)
14	100	50	26.55	53.09	3.59	14.40	101 (13)	711 (13)	1186 (13)
15	100	51	26.55	53.09	4.41	15.64	118 (13)	964 (13)	1380 (13)
16	100	52	26.55	53.09	5.34	16.91	137 (13)	1259 (13)	1591 (13)
17	100	53	26.55	53.09	6.40	18.19	158 (13)	1595 (13)	1819 (13)
18	100	54	26.55	53.09	7.58	19.49	180 (13)	1973 (13)	2064 (13)
19	100	54	26.55	53.09	8.90	20.81	204 (13)	2395 (13)	2327 (13)
20	100	55	26.55	53.09	10.37	22.15	229 (13)	2861 (13)	2607 (13)
21	100	56	26.55	53.09	11.98	23.52	256 (13)	3371 (13)	2905 (13)
22	100	57	26.55	53.09	13.75	24.90	284 (13)	3927 (13)	3220 (13)
23	100	58	26.55	53.09	15.69	26.30	314 (13)	4528 (13)	3553 (13)
24	100	58	26.55	53.09	17.80	27.72	345 (13)	5175 (13)	3903 (13)
25	100	59	26.55	53.09	20.08	29.16	378 (13)	5870 (13)	4271 (13)
26	100	60	26.55	53.09	22.55	30.61	413 (13)	6611 (13)	4657 (13)
27	100	61	26.55	53.09	25.22	32.09	448 (13)	7400 (13)	5060 (13)
28	100	61	26.55	53.09	28.08	33.59	486 (13)	8238 (13)	5481 (13)
29	100	62	26.55	53.09	31.15	35.11	524 (13)	9124 (13)	5920 (13)
30	100	63	26.55	53.09	34.43	36.64	565 (13)	10058 (13)	6376 (13)
31	100	64	26.55	53.09	37.93	38.20	606 (13)	11043 (13)	6849 (13)
32	100	65	26.55	53.09	41.66	39.78	649 (13)	12076 (13)	7340 (13)
33	100	65	26.55	53.09	45.62	41.37	693 (13)	13160 (13)	7848 (13)
34	100	66	26.55	53.09	49.82	42.99	739 (13)	14294 (13)	8374 (13)
35	100	67	26.55	53.09	54.28	44.62	786 (13)	15478 (13)	8917 (13)
36	100	68	26.55	53.09	58.98	46.27	835 (13)	16713 (13)	9477 (13)
37	100	69	26.55	53.09	63.95	47.95	885 (13)	18000 (13)	10053 (13)
38	100	69	26.55	53.09	69.19	49.64	936 (13)	19337 (13)	10647 (13)
39	100	70	26.55	53.09	74.70	51.35	988 (13)	20726 (13)	11258 (13)
40	100	71	26.55	53.09	80.50	53.08	1042 (13)	22166 (13)	11885 (13)
41	100	72	26.55	53.09	86.59	54.84	1097 (13)	23659 (13)	12529 (13)
42	100	73	26.55	53.09	92.97	56.61	1153 (13)	25203 (13)	13190 (13)
43	100	73	26.55	53.09	99.66	58.40	1211 (13)	26800 (13)	13867 (13)
44	100	74	26.55	53.09	106.66	60.21	1269 (13)	28449 (13)	14560 (13)
45	100	75	26.55	53.09	113.98	62.04	1329 (13)	30151 (13)	15270 (13)
46	100	76	26.55	53.09	121.62	63.89	1391 (13)	31905 (13)	15996 (13)
47	100	77	26.55	53.09	129.60	65.75	1453 (13)	33713 (13)	16738 (13)
48	100	77	26.55	53.09	137.91	67.64	1517 (13)	35573 (13)	17495 (13)
49	100	78	26.55	53.09	146.57	69.55	1582 (13)	37487 (13)	18269 (13)
50	100	79	26.55	53.09	155.59	71.48	1648 (13)	39453 (13)	19058 (13)
51	100	80	26.55	53.09	164.96	73.42	1715 (13)	41473 (13)	19863 (13)

Fondazione

Tensione massima di compressione nel calcestruzzo 13073 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	90	45.24	22.62	0.00	0.00	0 (12)	0 (12)	0 (12)
2	100	90	45.24	22.62	0.85	0.00	7 (13)	249 (13)	83 (13)
3	100	90	45.24	22.62	3.38	0.00	29 (13)	991 (13)	329 (13)
4	100	90	45.24	22.62	7.56	0.00	65 (13)	2217 (13)	735 (13)
5	100	90	45.24	22.62	13.37	0.00	115 (13)	3918 (13)	1299 (13)
6	100	90	45.24	22.62	20.76	0.00	179 (13)	6085 (13)	2017 (13)
7	100	90	45.24	22.62	29.71	0.00	257 (13)	8709 (13)	2887 (13)
8	100	90	22.62	45.24	-304.46	0.00	2629 (13)	29585 (13)	89240 (13)
9	100	90	22.62	45.24	-295.47	0.00	2551 (13)	28711 (13)	86606 (13)
10	100	90	22.62	45.24	-285.83	0.00	2468 (13)	27775 (13)	83780 (13)
11	100	90	22.62	45.24	-275.92	0.00	2383 (13)	26812 (13)	80877 (13)
12	100	90	22.62	45.24	-265.79	0.00	2295 (13)	25827 (13)	77906 (13)
13	100	90	22.62	45.24	-255.45	0.00	2206 (13)	24823 (13)	74877 (13)
14	100	90	22.62	45.24	-244.95	0.00	2115 (13)	23802 (13)	71798 (13)
15	100	90	22.62	45.24	-234.31	0.00	2023 (13)	22768 (13)	68679 (13)
16	100	90	22.62	45.24	-223.56	0.00	1930 (13)	21724 (13)	65527 (13)
17	100	90	22.62	45.24	-212.73	0.00	1837 (13)	20671 (13)	62353 (13)
18	100	90	22.62	45.24	-201.85	0.00	1743 (13)	19614 (13)	59165 (13)
19	100	90	22.62	45.24	-190.95	0.00	1649 (13)	18555 (13)	55971 (13)
20	100	90	22.62	45.24	-180.07	0.00	1555 (13)	17498 (13)	52781 (13)
21	100	90	22.62	45.24	-169.23	0.00	1461 (13)	16444 (13)	49603 (13)
22	100	90	22.62	45.24	-158.46	0.00	1368 (13)	15398 (13)	46446 (13)
23	100	90	22.62	45.24	-147.79	0.00	1276 (13)	14361 (13)	43319 (13)
24	100	90	22.62	45.24	-137.26	0.00	1185 (13)	13337 (13)	40231 (13)
25	100	90	22.62	45.24	-126.88	0.00	1096 (13)	12330 (13)	37191 (13)
26	100	90	22.62	45.24	-116.70	0.00	1008 (13)	11340 (13)	34207 (13)
27	100	90	22.62	45.24	-106.75	0.00	922 (13)	10373 (13)	31289 (13)
28	100	90	22.62	45.24	-97.04	0.00	838 (13)	9430 (13)	28444 (13)
29	100	90	22.62	45.24	-87.62	0.00	757 (13)	8514 (13)	25683 (13)
30	100	90	22.62	45.24	-78.52	0.00	678 (13)	7629 (13)	23014 (13)
31	100	90	22.62	45.24	-69.75	0.00	602 (13)	6778 (13)	20445 (13)
32	100	90	22.62	45.24	-61.36	0.00	530 (13)	5963 (13)	17986 (13)
33	100	90	22.62	45.24	-53.37	0.00	461 (13)	5187 (13)	15645 (13)
34	100	90	22.62	45.24	-45.82	0.00	396 (13)	4453 (13)	13431 (13)
35	100	90	22.62	45.24	-38.73	0.00	334 (13)	3764 (13)	11353 (13)
36	100	90	22.62	45.24	-32.14	0.00	278 (13)	3123 (13)	9420 (13)
37	100	90	22.62	45.24	-26.07	0.00	225 (13)	2533 (13)	7641 (13)
38	100	90	22.62	45.24	-20.55	0.00	177 (13)	1997 (13)	6024 (13)
39	100	90	22.62	45.24	-15.62	0.00	135 (13)	1518 (13)	4579 (13)
40	100	90	22.62	45.24	-11.31	0.00	98 (13)	1099 (13)	3314 (13)
41	100	90	22.62	45.24	-7.63	0.00	66 (13)	742 (13)	2238 (13)
42	100	90	22.62	45.24	-4.34	0.00	38 (13)	422 (13)	1273 (13)
43	100	90	22.62	45.24	-1.95	0.00	17 (13)	190 (13)	572 (13)
44	100	90	22.62	45.24	-0.49	0.00	4 (13)	48 (13)	144 (13)
45	100	90	22.62	45.24	0.00	0.00	0 (12)	0 (12)	0 (12)

Verifica a fessurazione

Simbologia adottata

n° indice sezione

Y ordinata sezione espressa in [m]

B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Af	area ferri zona tesa espresso in [cmq]
Aeff	area efficace espressa in [cmq]
M	momento agente espressa in [kNm]
Mpf	momento di prima fessurazione espressa in [kNm]
ε	deformazione espresso in %
Sm	spaziatura tra le fessure espressa in [mm]
w	apertura delle fessure espressa in [mm]

Combinazioni SLER

Paramento

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (10)
2	100	41	0.00	0.00	0.00	5.90	0.000000	0.00	0.000 (10)
3	100	42	0.00	0.00	0.02	17.03	0.000000	0.00	0.000 (10)
4	100	42	0.00	0.00	0.04	35.74	0.000000	0.00	0.000 (10)
5	100	43	0.00	0.00	0.09	66.70	0.000000	0.00	0.000 (10)
6	100	44	0.00	0.00	0.17	120.39	0.000000	0.00	0.000 (10)
7	100	45	0.00	0.00	0.28	225.07	0.000000	0.00	0.000 (10)
8	100	46	0.00	0.00	0.43	491.79	0.000000	0.00	0.000 (10)
9	100	46	0.00	0.00	0.62	2252.78	0.000000	0.00	0.000 (10)
10	100	47	0.00	0.00	0.87	1553.66	0.000000	0.00	0.000 (10)
11	100	48	0.00	0.00	1.17	711.18	0.000000	0.00	0.000 (10)
12	100	49	53.09	1600.00	1.55	513.20	0.000000	0.00	0.000 (10)
13	100	50	53.09	1600.00	1.99	427.98	0.000000	0.00	0.000 (10)
14	100	50	53.09	1600.00	2.52	382.54	0.000000	0.00	0.000 (10)
15	100	51	53.09	1600.00	3.13	355.69	0.000000	0.00	0.000 (10)
16	100	52	53.09	1600.00	3.82	339.01	0.000000	0.00	0.000 (10)
17	100	53	53.09	1600.00	4.62	328.51	0.000000	0.00	0.000 (10)
18	100	54	53.09	1600.00	5.52	322.03	0.000000	0.00	0.000 (10)
19	100	54	53.09	1600.00	6.53	318.34	0.000000	0.00	0.000 (10)
20	100	55	53.09	1600.00	7.65	316.65	0.000000	0.00	0.000 (10)
21	100	56	53.09	1600.00	8.89	316.45	0.000000	0.00	0.000 (10)
22	100	57	53.09	1600.00	10.25	317.41	0.000000	0.00	0.000 (10)
23	100	58	53.09	1600.00	11.75	319.27	0.000000	0.00	0.000 (10)
24	100	58	53.09	1600.00	13.38	321.86	0.000000	0.00	0.000 (10)
25	100	59	53.09	1600.00	15.16	325.06	0.000000	0.00	0.000 (10)
26	100	60	53.09	1600.00	17.09	328.76	0.000000	0.00	0.000 (10)
27	100	61	53.09	1600.00	19.17	332.88	0.000000	0.00	0.000 (10)
28	100	61	53.09	1600.00	21.41	337.37	0.000000	0.00	0.000 (10)
29	100	62	53.09	1600.00	23.81	342.18	0.000000	0.00	0.000 (10)
30	100	63	53.09	1600.00	26.39	347.27	0.000000	0.00	0.000 (10)
31	100	64	53.09	1600.00	29.15	352.62	0.000000	0.00	0.000 (10)
32	100	65	53.09	1600.00	32.09	358.19	0.000000	0.00	0.000 (10)
33	100	65	53.09	1600.00	35.22	363.96	0.000000	0.00	0.000 (10)
34	100	66	53.09	1600.00	38.54	369.93	0.000000	0.00	0.000 (10)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
35	100	67	53.09	1600.00	42.06	376.07	0.000000	0.00	0.000 (10)
36	100	68	53.09	1600.00	45.79	382.37	0.000000	0.00	0.000 (10)
37	100	69	53.09	1600.00	49.74	388.82	0.000000	0.00	0.000 (10)
38	100	69	53.09	1600.00	53.90	395.41	0.000000	0.00	0.000 (10)
39	100	70	53.09	1600.00	58.29	402.14	0.000000	0.00	0.000 (10)
40	100	71	53.09	1600.00	62.90	408.99	0.000000	0.00	0.000 (10)
41	100	72	53.09	1600.00	67.75	415.97	0.000000	0.00	0.000 (10)
42	100	73	53.09	1600.00	72.84	423.06	0.000000	0.00	0.000 (10)
43	100	73	53.09	1600.00	78.18	430.26	0.000000	0.00	0.000 (10)
44	100	74	53.09	1600.00	83.77	437.57	0.000000	0.00	0.000 (10)
45	100	75	53.09	1600.00	89.62	444.99	0.000000	0.00	0.000 (10)
46	100	76	53.09	1600.00	95.74	452.50	0.000000	0.00	0.000 (10)
47	100	77	53.09	1600.00	102.13	460.12	0.000000	0.00	0.000 (10)
48	100	77	53.09	1600.00	108.79	467.83	0.000000	0.00	0.000 (10)
49	100	78	53.09	1600.00	115.73	475.64	0.000000	0.00	0.000 (10)
50	100	79	53.09	1600.00	122.96	483.53	0.000000	0.00	0.000 (10)
51	100	80	53.09	1600.00	130.48	491.52	0.000000	0.00	0.000 (10)

Fondazione

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
1	100	90	0.00	0.00	0.00	0.00	---	---	0.000 (10)
2	100	90	45.24	1600.00	0.64	496.13	0.000000	0.00	0.000 (10)
3	100	90	45.24	1600.00	2.56	496.13	0.000000	0.00	0.000 (10)
4	100	90	45.24	1600.00	5.73	496.13	0.000000	0.00	0.000 (10)
5	100	90	45.24	1600.00	10.15	496.13	0.000000	0.00	0.000 (10)
6	100	90	45.24	1600.00	15.79	496.13	0.000000	0.00	0.000 (10)
7	100	90	45.24	1600.00	22.65	496.13	0.000000	0.00	0.000 (10)
8	100	90	45.24	1600.00	-199.32	-496.13	0.000000	0.00	0.000 (10)
9	100	90	45.24	1600.00	-192.72	-496.13	0.000000	0.00	0.000 (10)
10	100	90	45.24	1600.00	-185.67	-496.13	0.000000	0.00	0.000 (10)
11	100	90	45.24	1600.00	-178.54	-496.13	0.000000	0.00	0.000 (10)
12	100	90	45.24	1600.00	-171.34	-496.13	0.000000	0.00	0.000 (10)
13	100	90	45.24	1600.00	-164.10	-496.13	0.000000	0.00	0.000 (10)
14	100	90	45.24	1600.00	-156.83	-496.13	0.000000	0.00	0.000 (10)
15	100	90	45.24	1600.00	-149.55	-496.13	0.000000	0.00	0.000 (10)
16	100	90	45.24	1600.00	-142.27	-496.13	0.000000	0.00	0.000 (10)
17	100	90	45.24	1600.00	-135.00	-496.13	0.000000	0.00	0.000 (10)
18	100	90	45.24	1600.00	-127.77	-496.13	0.000000	0.00	0.000 (10)
19	100	90	45.24	1600.00	-120.58	-496.13	0.000000	0.00	0.000 (10)
20	100	90	45.24	1600.00	-113.45	-496.13	0.000000	0.00	0.000 (10)
21	100	90	45.24	1600.00	-106.40	-496.13	0.000000	0.00	0.000 (10)
22	100	90	45.24	1600.00	-99.45	-496.13	0.000000	0.00	0.000 (10)
23	100	90	45.24	1600.00	-92.60	-496.13	0.000000	0.00	0.000 (10)
24	100	90	45.24	1600.00	-85.87	-496.13	0.000000	0.00	0.000 (10)
25	100	90	45.24	1600.00	-79.28	-496.13	0.000000	0.00	0.000 (10)
26	100	90	45.24	1600.00	-72.85	-496.13	0.000000	0.00	0.000 (10)
27	100	90	45.24	1600.00	-66.58	-496.13	0.000000	0.00	0.000 (10)
28	100	90	45.24	1600.00	-60.50	-496.13	0.000000	0.00	0.000 (10)
29	100	90	45.24	1600.00	-54.62	-496.13	0.000000	0.00	0.000 (10)
30	100	90	45.24	1600.00	-48.95	-496.13	0.000000	0.00	0.000 (10)
31	100	90	45.24	1600.00	-43.51	-496.13	0.000000	0.00	0.000 (10)
32	100	90	45.24	1600.00	-38.31	-496.13	0.000000	0.00	0.000 (10)
33	100	90	45.24	1600.00	-33.38	-496.13	0.000000	0.00	0.000 (10)
34	100	90	45.24	1600.00	-28.72	-496.13	0.000000	0.00	0.000 (10)
35	100	90	45.24	1600.00	-24.35	-496.13	0.000000	0.00	0.000 (10)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
36	100	90	45.24	1600.00	-20.29	-496.13	0.000000	0.00	0.000 (10)
37	100	90	45.24	1600.00	-16.55	-496.13	0.000000	0.00	0.000 (10)
38	100	90	45.24	1600.00	-13.14	-496.13	0.000000	0.00	0.000 (10)
39	100	90	45.24	1600.00	-10.09	-496.13	0.000000	0.00	0.000 (10)
40	100	90	45.24	1600.00	-7.40	-496.13	0.000000	0.00	0.000 (10)
41	100	90	45.24	1600.00	-5.10	-496.13	0.000000	0.00	0.000 (10)
42	100	90	45.24	1600.00	-2.89	-496.13	0.000000	0.00	0.000 (10)
43	100	90	45.24	1600.00	-1.30	-496.13	0.000000	0.00	0.000 (10)
44	100	90	45.24	1600.00	-0.33	-496.13	0.000000	0.00	0.000 (10)
45	100	90	0.00	0.00	0.00	0.00	---	---	0.000 (10)

Combinazioni SLEF

Paramento

Apertura limite fessure w_{lim}=0.30

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (11)
2	100	41	0.00	0.00	0.00	5.90	0.000000	0.00	0.000 (11)
3	100	42	0.00	0.00	0.02	17.03	0.000000	0.00	0.000 (11)
4	100	42	0.00	0.00	0.04	35.74	0.000000	0.00	0.000 (11)
5	100	43	0.00	0.00	0.09	66.70	0.000000	0.00	0.000 (11)
6	100	44	0.00	0.00	0.17	120.39	0.000000	0.00	0.000 (11)
7	100	45	0.00	0.00	0.28	225.07	0.000000	0.00	0.000 (11)
8	100	46	0.00	0.00	0.43	491.79	0.000000	0.00	0.000 (11)
9	100	46	0.00	0.00	0.62	2252.78	0.000000	0.00	0.000 (11)
10	100	47	0.00	0.00	0.87	1553.66	0.000000	0.00	0.000 (11)
11	100	48	0.00	0.00	1.17	711.18	0.000000	0.00	0.000 (11)
12	100	49	53.09	1600.00	1.55	513.20	0.000000	0.00	0.000 (11)
13	100	50	53.09	1600.00	1.99	427.98	0.000000	0.00	0.000 (11)
14	100	50	53.09	1600.00	2.52	382.54	0.000000	0.00	0.000 (11)
15	100	51	53.09	1600.00	3.13	355.69	0.000000	0.00	0.000 (11)
16	100	52	53.09	1600.00	3.82	339.01	0.000000	0.00	0.000 (11)
17	100	53	53.09	1600.00	4.62	328.51	0.000000	0.00	0.000 (11)
18	100	54	53.09	1600.00	5.52	322.03	0.000000	0.00	0.000 (11)
19	100	54	53.09	1600.00	6.53	318.34	0.000000	0.00	0.000 (11)
20	100	55	53.09	1600.00	7.65	316.65	0.000000	0.00	0.000 (11)
21	100	56	53.09	1600.00	8.89	316.45	0.000000	0.00	0.000 (11)
22	100	57	53.09	1600.00	10.25	317.41	0.000000	0.00	0.000 (11)
23	100	58	53.09	1600.00	11.75	319.27	0.000000	0.00	0.000 (11)
24	100	58	53.09	1600.00	13.38	321.86	0.000000	0.00	0.000 (11)
25	100	59	53.09	1600.00	15.16	325.06	0.000000	0.00	0.000 (11)
26	100	60	53.09	1600.00	17.09	328.76	0.000000	0.00	0.000 (11)
27	100	61	53.09	1600.00	19.17	332.88	0.000000	0.00	0.000 (11)
28	100	61	53.09	1600.00	21.41	337.37	0.000000	0.00	0.000 (11)
29	100	62	53.09	1600.00	23.81	342.18	0.000000	0.00	0.000 (11)
30	100	63	53.09	1600.00	26.39	347.27	0.000000	0.00	0.000 (11)
31	100	64	53.09	1600.00	29.15	352.62	0.000000	0.00	0.000 (11)
32	100	65	53.09	1600.00	32.09	358.19	0.000000	0.00	0.000 (11)
33	100	65	53.09	1600.00	35.22	363.96	0.000000	0.00	0.000 (11)
34	100	66	53.09	1600.00	38.54	369.93	0.000000	0.00	0.000 (11)
35	100	67	53.09	1600.00	42.06	376.07	0.000000	0.00	0.000 (11)
36	100	68	53.09	1600.00	45.79	382.37	0.000000	0.00	0.000 (11)
37	100	69	53.09	1600.00	49.74	388.82	0.000000	0.00	0.000 (11)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
38	100	69	53.09	1600.00	53.90	395.41	0.000000	0.00	0.000 (11)
39	100	70	53.09	1600.00	58.29	402.14	0.000000	0.00	0.000 (11)
40	100	71	53.09	1600.00	62.90	408.99	0.000000	0.00	0.000 (11)
41	100	72	53.09	1600.00	67.75	415.97	0.000000	0.00	0.000 (11)
42	100	73	53.09	1600.00	72.84	423.06	0.000000	0.00	0.000 (11)
43	100	73	53.09	1600.00	78.18	430.26	0.000000	0.00	0.000 (11)
44	100	74	53.09	1600.00	83.77	437.57	0.000000	0.00	0.000 (11)
45	100	75	53.09	1600.00	89.62	444.99	0.000000	0.00	0.000 (11)
46	100	76	53.09	1600.00	95.74	452.50	0.000000	0.00	0.000 (11)
47	100	77	53.09	1600.00	102.13	460.12	0.000000	0.00	0.000 (11)
48	100	77	53.09	1600.00	108.79	467.83	0.000000	0.00	0.000 (11)
49	100	78	53.09	1600.00	115.73	475.64	0.000000	0.00	0.000 (11)
50	100	79	53.09	1600.00	122.96	483.53	0.000000	0.00	0.000 (11)
51	100	80	53.09	1600.00	130.48	491.52	0.000000	0.00	0.000 (11)

Fondazione

Apertura limite fessure w_{lim}=0.30

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	90	0.00	0.00	0.00	0.00	---	---	0.000 (11)
2	100	90	45.24	1600.00	0.64	496.13	0.000000	0.00	0.000 (11)
3	100	90	45.24	1600.00	2.56	496.13	0.000000	0.00	0.000 (11)
4	100	90	45.24	1600.00	5.73	496.13	0.000000	0.00	0.000 (11)
5	100	90	45.24	1600.00	10.15	496.13	0.000000	0.00	0.000 (11)
6	100	90	45.24	1600.00	15.79	496.13	0.000000	0.00	0.000 (11)
7	100	90	45.24	1600.00	22.65	496.13	0.000000	0.00	0.000 (11)
8	100	90	45.24	1600.00	-199.32	-496.13	0.000000	0.00	0.000 (11)
9	100	90	45.24	1600.00	-192.72	-496.13	0.000000	0.00	0.000 (11)
10	100	90	45.24	1600.00	-185.67	-496.13	0.000000	0.00	0.000 (11)
11	100	90	45.24	1600.00	-178.54	-496.13	0.000000	0.00	0.000 (11)
12	100	90	45.24	1600.00	-171.34	-496.13	0.000000	0.00	0.000 (11)
13	100	90	45.24	1600.00	-164.10	-496.13	0.000000	0.00	0.000 (11)
14	100	90	45.24	1600.00	-156.83	-496.13	0.000000	0.00	0.000 (11)
15	100	90	45.24	1600.00	-149.55	-496.13	0.000000	0.00	0.000 (11)
16	100	90	45.24	1600.00	-142.27	-496.13	0.000000	0.00	0.000 (11)
17	100	90	45.24	1600.00	-135.00	-496.13	0.000000	0.00	0.000 (11)
18	100	90	45.24	1600.00	-127.77	-496.13	0.000000	0.00	0.000 (11)
19	100	90	45.24	1600.00	-120.58	-496.13	0.000000	0.00	0.000 (11)
20	100	90	45.24	1600.00	-113.45	-496.13	0.000000	0.00	0.000 (11)
21	100	90	45.24	1600.00	-106.40	-496.13	0.000000	0.00	0.000 (11)
22	100	90	45.24	1600.00	-99.45	-496.13	0.000000	0.00	0.000 (11)
23	100	90	45.24	1600.00	-92.60	-496.13	0.000000	0.00	0.000 (11)
24	100	90	45.24	1600.00	-85.87	-496.13	0.000000	0.00	0.000 (11)
25	100	90	45.24	1600.00	-79.28	-496.13	0.000000	0.00	0.000 (11)
26	100	90	45.24	1600.00	-72.85	-496.13	0.000000	0.00	0.000 (11)
27	100	90	45.24	1600.00	-66.58	-496.13	0.000000	0.00	0.000 (11)
28	100	90	45.24	1600.00	-60.50	-496.13	0.000000	0.00	0.000 (11)
29	100	90	45.24	1600.00	-54.62	-496.13	0.000000	0.00	0.000 (11)
30	100	90	45.24	1600.00	-48.95	-496.13	0.000000	0.00	0.000 (11)
31	100	90	45.24	1600.00	-43.51	-496.13	0.000000	0.00	0.000 (11)
32	100	90	45.24	1600.00	-38.31	-496.13	0.000000	0.00	0.000 (11)
33	100	90	45.24	1600.00	-33.38	-496.13	0.000000	0.00	0.000 (11)
34	100	90	45.24	1600.00	-28.72	-496.13	0.000000	0.00	0.000 (11)
35	100	90	45.24	1600.00	-24.35	-496.13	0.000000	0.00	0.000 (11)
36	100	90	45.24	1600.00	-20.29	-496.13	0.000000	0.00	0.000 (11)
37	100	90	45.24	1600.00	-16.55	-496.13	0.000000	0.00	0.000 (11)
38	100	90	45.24	1600.00	-13.14	-496.13	0.000000	0.00	0.000 (11)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
39	100	90	45.24	1600.00	-10.09	-496.13	0.000000	0.00	0.000 (11)
40	100	90	45.24	1600.00	-7.40	-496.13	0.000000	0.00	0.000 (11)
41	100	90	45.24	1600.00	-5.10	-496.13	0.000000	0.00	0.000 (11)
42	100	90	45.24	1600.00	-2.89	-496.13	0.000000	0.00	0.000 (11)
43	100	90	45.24	1600.00	-1.30	-496.13	0.000000	0.00	0.000 (11)
44	100	90	45.24	1600.00	-0.33	-496.13	0.000000	0.00	0.000 (11)
45	100	90	0.00	0.00	0.00	0.00	---	---	0.000 (11)

Combinazioni SLEQ

Paramento

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (12)
2	100	41	0.00	0.00	0.00	5.90	0.000000	0.00	0.000 (12)
3	100	42	0.00	0.00	0.02	17.03	0.000000	0.00	0.000 (12)
4	100	42	0.00	0.00	0.04	35.74	0.000000	0.00	0.000 (12)
5	100	43	0.00	0.00	0.09	66.70	0.000000	0.00	0.000 (12)
6	100	44	0.00	0.00	0.17	120.39	0.000000	0.00	0.000 (12)
7	100	45	0.00	0.00	0.28	225.07	0.000000	0.00	0.000 (12)
8	100	46	0.00	0.00	0.43	491.79	0.000000	0.00	0.000 (12)
9	100	46	0.00	0.00	0.62	2252.78	0.000000	0.00	0.000 (12)
10	100	47	0.00	0.00	0.87	1553.66	0.000000	0.00	0.000 (12)
11	100	48	0.00	0.00	1.17	711.18	0.000000	0.00	0.000 (12)
12	100	49	53.09	1600.00	1.55	513.20	0.000000	0.00	0.000 (12)
13	100	50	53.09	1600.00	1.99	427.98	0.000000	0.00	0.000 (12)
14	100	50	53.09	1600.00	2.52	382.54	0.000000	0.00	0.000 (12)
15	100	51	53.09	1600.00	3.13	355.69	0.000000	0.00	0.000 (12)
16	100	52	53.09	1600.00	3.82	339.01	0.000000	0.00	0.000 (12)
17	100	53	53.09	1600.00	4.62	328.51	0.000000	0.00	0.000 (12)
18	100	54	53.09	1600.00	5.52	322.03	0.000000	0.00	0.000 (12)
19	100	54	53.09	1600.00	6.53	318.34	0.000000	0.00	0.000 (12)
20	100	55	53.09	1600.00	7.65	316.65	0.000000	0.00	0.000 (12)
21	100	56	53.09	1600.00	8.89	316.45	0.000000	0.00	0.000 (12)
22	100	57	53.09	1600.00	10.25	317.41	0.000000	0.00	0.000 (12)
23	100	58	53.09	1600.00	11.75	319.27	0.000000	0.00	0.000 (12)
24	100	58	53.09	1600.00	13.38	321.86	0.000000	0.00	0.000 (12)
25	100	59	53.09	1600.00	15.16	325.06	0.000000	0.00	0.000 (12)
26	100	60	53.09	1600.00	17.09	328.76	0.000000	0.00	0.000 (12)
27	100	61	53.09	1600.00	19.17	332.88	0.000000	0.00	0.000 (12)
28	100	61	53.09	1600.00	21.41	337.37	0.000000	0.00	0.000 (12)
29	100	62	53.09	1600.00	23.81	342.18	0.000000	0.00	0.000 (12)
30	100	63	53.09	1600.00	26.39	347.27	0.000000	0.00	0.000 (12)
31	100	64	53.09	1600.00	29.15	352.62	0.000000	0.00	0.000 (12)
32	100	65	53.09	1600.00	32.09	358.19	0.000000	0.00	0.000 (12)
33	100	65	53.09	1600.00	35.22	363.96	0.000000	0.00	0.000 (12)
34	100	66	53.09	1600.00	38.54	369.93	0.000000	0.00	0.000 (12)
35	100	67	53.09	1600.00	42.06	376.07	0.000000	0.00	0.000 (12)
36	100	68	53.09	1600.00	45.79	382.37	0.000000	0.00	0.000 (12)
37	100	69	53.09	1600.00	49.74	388.82	0.000000	0.00	0.000 (12)
38	100	69	53.09	1600.00	53.90	395.41	0.000000	0.00	0.000 (12)
39	100	70	53.09	1600.00	58.29	402.14	0.000000	0.00	0.000 (12)
40	100	71	53.09	1600.00	62.90	408.99	0.000000	0.00	0.000 (12)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
41	100	72	53.09	1600.00	67.75	415.97	0.000000	0.00	0.000 (12)
42	100	73	53.09	1600.00	72.84	423.06	0.000000	0.00	0.000 (12)
43	100	73	53.09	1600.00	78.18	430.26	0.000000	0.00	0.000 (12)
44	100	74	53.09	1600.00	83.77	437.57	0.000000	0.00	0.000 (12)
45	100	75	53.09	1600.00	89.62	444.99	0.000000	0.00	0.000 (12)
46	100	76	53.09	1600.00	95.74	452.50	0.000000	0.00	0.000 (12)
47	100	77	53.09	1600.00	102.13	460.12	0.000000	0.00	0.000 (12)
48	100	77	53.09	1600.00	108.79	467.83	0.000000	0.00	0.000 (12)
49	100	78	53.09	1600.00	115.73	475.64	0.000000	0.00	0.000 (12)
50	100	79	53.09	1600.00	122.96	483.53	0.000000	0.00	0.000 (12)
51	100	80	53.09	1600.00	130.48	491.52	0.000000	0.00	0.000 (12)

Fondazione

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	90	0.00	0.00	0.00	0.00	---	---	0.000 (12)
2	100	90	45.24	1600.00	0.64	496.13	0.000000	0.00	0.000 (12)
3	100	90	45.24	1600.00	2.56	496.13	0.000000	0.00	0.000 (12)
4	100	90	45.24	1600.00	5.73	496.13	0.000000	0.00	0.000 (12)
5	100	90	45.24	1600.00	10.15	496.13	0.000000	0.00	0.000 (12)
6	100	90	45.24	1600.00	15.79	496.13	0.000000	0.00	0.000 (12)
7	100	90	45.24	1600.00	22.65	496.13	0.000000	0.00	0.000 (12)
8	100	90	45.24	1600.00	-199.32	-496.13	0.000000	0.00	0.000 (12)
9	100	90	45.24	1600.00	-192.72	-496.13	0.000000	0.00	0.000 (12)
10	100	90	45.24	1600.00	-185.67	-496.13	0.000000	0.00	0.000 (12)
11	100	90	45.24	1600.00	-178.54	-496.13	0.000000	0.00	0.000 (12)
12	100	90	45.24	1600.00	-171.34	-496.13	0.000000	0.00	0.000 (12)
13	100	90	45.24	1600.00	-164.10	-496.13	0.000000	0.00	0.000 (12)
14	100	90	45.24	1600.00	-156.83	-496.13	0.000000	0.00	0.000 (12)
15	100	90	45.24	1600.00	-149.55	-496.13	0.000000	0.00	0.000 (12)
16	100	90	45.24	1600.00	-142.27	-496.13	0.000000	0.00	0.000 (12)
17	100	90	45.24	1600.00	-135.00	-496.13	0.000000	0.00	0.000 (12)
18	100	90	45.24	1600.00	-127.77	-496.13	0.000000	0.00	0.000 (12)
19	100	90	45.24	1600.00	-120.58	-496.13	0.000000	0.00	0.000 (12)
20	100	90	45.24	1600.00	-113.45	-496.13	0.000000	0.00	0.000 (12)
21	100	90	45.24	1600.00	-106.40	-496.13	0.000000	0.00	0.000 (12)
22	100	90	45.24	1600.00	-99.45	-496.13	0.000000	0.00	0.000 (12)
23	100	90	45.24	1600.00	-92.60	-496.13	0.000000	0.00	0.000 (12)
24	100	90	45.24	1600.00	-85.87	-496.13	0.000000	0.00	0.000 (12)
25	100	90	45.24	1600.00	-79.28	-496.13	0.000000	0.00	0.000 (12)
26	100	90	45.24	1600.00	-72.85	-496.13	0.000000	0.00	0.000 (12)
27	100	90	45.24	1600.00	-66.58	-496.13	0.000000	0.00	0.000 (12)
28	100	90	45.24	1600.00	-60.50	-496.13	0.000000	0.00	0.000 (12)
29	100	90	45.24	1600.00	-54.62	-496.13	0.000000	0.00	0.000 (12)
30	100	90	45.24	1600.00	-48.95	-496.13	0.000000	0.00	0.000 (12)
31	100	90	45.24	1600.00	-43.51	-496.13	0.000000	0.00	0.000 (12)
32	100	90	45.24	1600.00	-38.31	-496.13	0.000000	0.00	0.000 (12)
33	100	90	45.24	1600.00	-33.38	-496.13	0.000000	0.00	0.000 (12)
34	100	90	45.24	1600.00	-28.72	-496.13	0.000000	0.00	0.000 (12)
35	100	90	45.24	1600.00	-24.35	-496.13	0.000000	0.00	0.000 (12)
36	100	90	45.24	1600.00	-20.29	-496.13	0.000000	0.00	0.000 (12)
37	100	90	45.24	1600.00	-16.55	-496.13	0.000000	0.00	0.000 (12)
38	100	90	45.24	1600.00	-13.14	-496.13	0.000000	0.00	0.000 (12)
39	100	90	45.24	1600.00	-10.09	-496.13	0.000000	0.00	0.000 (12)
40	100	90	45.24	1600.00	-7.40	-496.13	0.000000	0.00	0.000 (12)
41	100	90	45.24	1600.00	-5.10	-496.13	0.000000	0.00	0.000 (12)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
42	100	90	45.24	1600.00	-2.89	-496.13	0.000000	0.00	0.000 (12)
43	100	90	45.24	1600.00	-1.30	-496.13	0.000000	0.00	0.000 (12)
44	100	90	45.24	1600.00	-0.33	-496.13	0.000000	0.00	0.000 (12)
45	100	90	0.00	0.00	0.00	0.00	---	---	0.000 (12)

14. TABULATI DI CALCOLO CONCIO 3

14.1 RISULTATI PER COMBINAZIONE

Spinta e forze

Simbologia adottata

Ic — Indice della combinazione

A — Tipo azione

I — Inclinazione della spinta, espressa in [°]

V — Valore dell'azione, espressa in [kN]

C_X, C_Y — Componente in direzione X ed Y dell'azione, espressa in [kN]

P_X, P_Y — Coordinata X ed Y del punto di applicazione dell'azione, espressa in [m]

Ic	A	V	I	C_X	C_Y	P_X	P_Y
		[kN]	*[°]*	*[kN]*	*[kN]*	*[m]*	*[m]*
1	Spinta statica	120.81	0.00	120.81	0.00	3.60	-3.06
	Peso/Inerzia muro			0.00	142.66/0.00	0.80	-3.65
	Peso/Inerzia terrapieno			0.00	280.87/0.00	1.88	-2.05
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
2	Spinta statica	70.92	0.00	70.92	0.00	3.60	-3.22
	Incremento di spinta sismica		24.32	24.32	0.00	3.60	-3.30
	Peso/Inerzia muro			18.51	142.66/9.26	0.80	-3.65
	Peso/Inerzia terrapieno			36.05	277.77/18.02	1.88	-2.04
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
3	Spinta statica	70.92	0.00	70.92	0.00	3.60	-3.22
	Incremento di spinta sismica		15.42	15.42	0.00	3.60	-3.30
	Peso/Inerzia muro			18.51	142.66/-9.26	0.80	-3.65
	Peso/Inerzia terrapieno			36.05	277.77/-18.02	1.88	-2.04
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
10	Spinta statica	91.53	0.00	91.53	0.00	3.60	-3.07
	Peso/Inerzia muro			0.00	142.66/0.00	0.80	-3.65
	Peso/Inerzia terrapieno			0.00	277.77/0.00	1.88	-2.04
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
11	Spinta statica	91.53	0.00	91.53	0.00	3.60	-3.07
	Peso/Inerzia muro			0.00	142.66/0.00	0.80	-3.65
	Peso/Inerzia terrapieno			0.00	277.77/0.00	1.88	-2.04
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
12	Spinta statica	91.53	0.00	91.53	0.00	3.60	-3.07
	Peso/Inerzia muro			0.00	142.66/0.00	0.80	-3.65
	Peso/Inerzia terrapieno			0.00	277.77/0.00	1.88	-2.04
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00
13	Spinta statica	91.53	0.00	91.53	0.00	3.60	-3.07
	Incremento di spinta sismica		17.77	17.77	0.00	3.60	-3.30
	Peso/Inerzia muro			10.79	142.66/5.39	0.80	-3.65
	Peso/Inerzia terrapieno			21.00	277.77/10.50	1.88	-2.04
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00

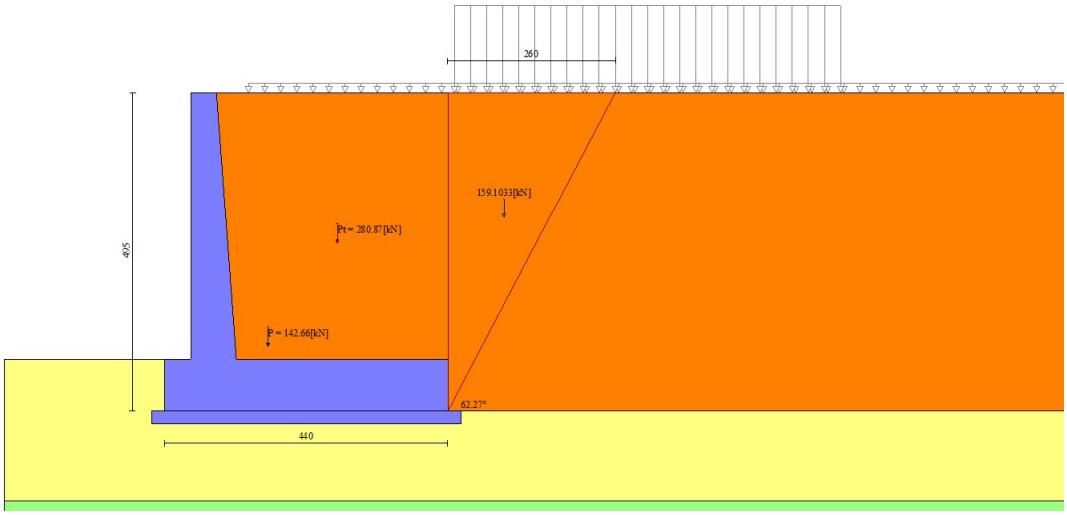


Fig. 3 - Cuneo di spinta (combinazione statica) (Combinazione n° 1)

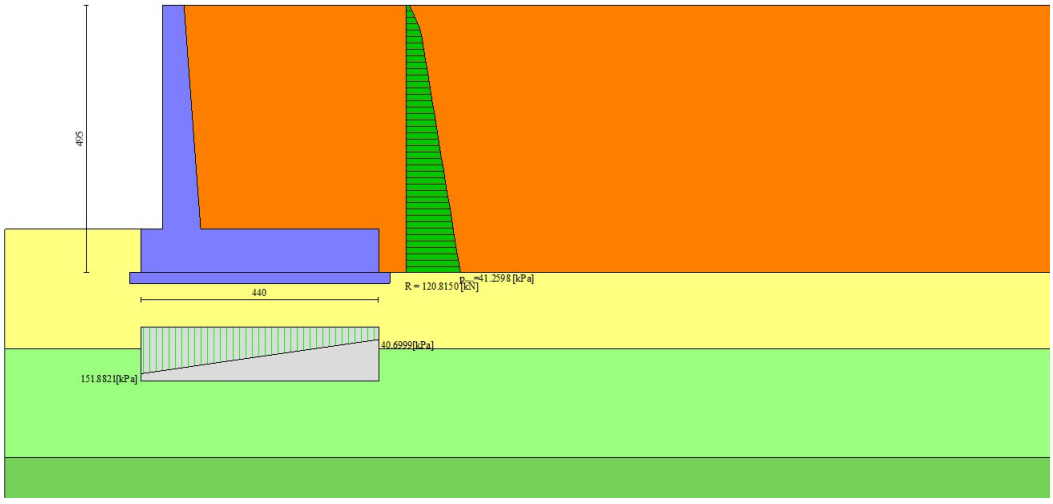


Fig. 4 - Diagramma delle pressioni (combinazione statica) (Combinazione n° 1)

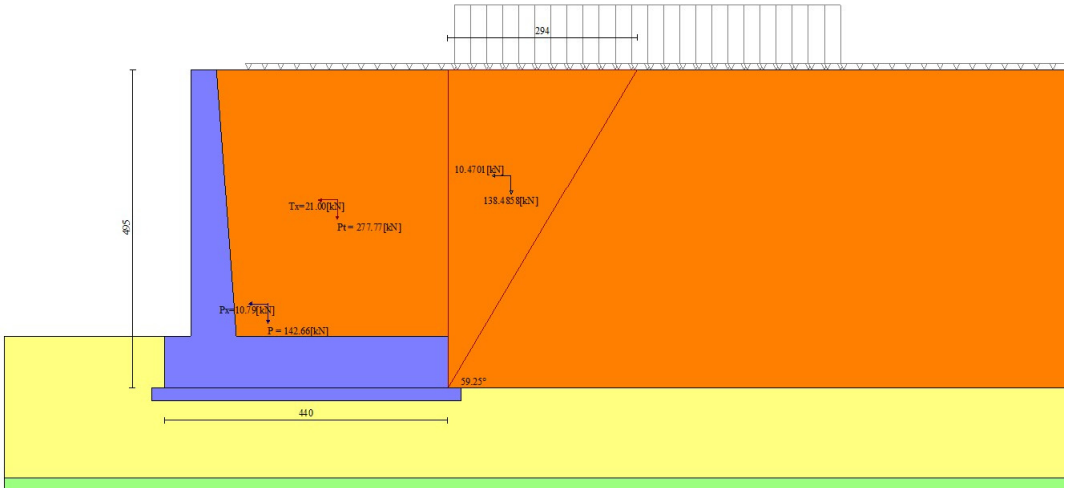


Fig. 5 - Cuneo di spinta (combinazione sismica) (Combinazione n° 13)

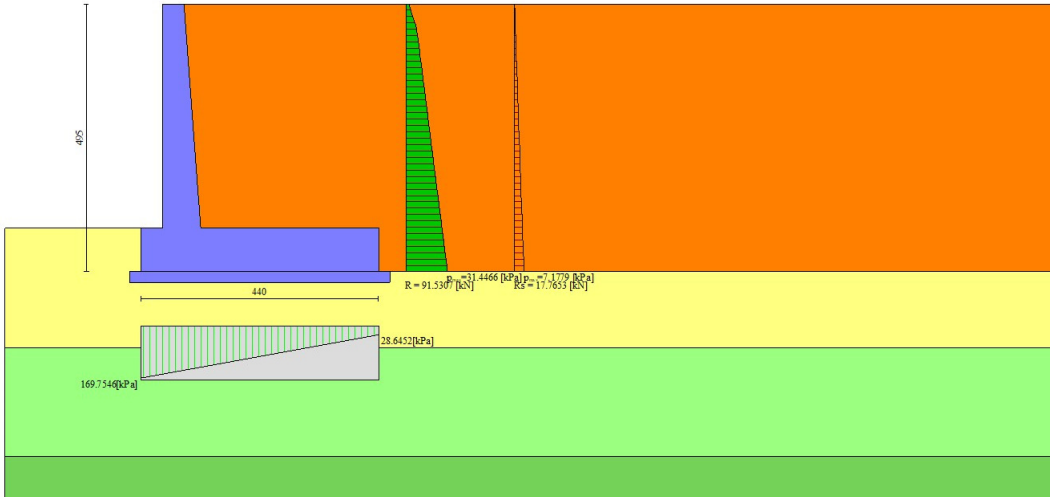


Fig. 6 - Diagramma delle pressioni (combinazione sismica) (Combinazione n° 13)

Risultanti globali

Simbologia adottata

Cmb Indice/Tipo combinazione

N Componente normale al piano di posa, espressa in [kN]

T Componente parallela al piano di posa, espressa in [kN]

M_r Momento ribaltante, espresso in [kNm]

M_s Momento stabilizzante, espresso in [kNm]

ecc Eccentricità risultante, espressa in [m]

Ic	N	T	M_r	M_s	ecc
	[kN]	*[kN]*	*[kNm]*	*[kNm]*	*[m]*
1 - STR (A1-M1-R3)	423.53	120.81	228.23	980.40	0.423
2 - STR (A1-M1-R3)	447.71	149.79	291.95	1034.93	0.540
3 - STR (A1-M1-R3)	393.15	140.90	340.33	971.87	0.593
4 - GEO (A2-M2-R2)	422.29	122.11	233.28	976.99	0.438
5 - GEO (A2-M2-R2)	447.71	149.79	291.95	1034.93	0.540
6 - GEO (A2-M2-R2)	393.15	140.90	340.33	971.87	0.593
7 - EQU (A1-M1-R3)	423.53	120.81	228.23	980.40	0.423
8 - EQU (A1-M1-R3)	456.32	175.56	346.73	1054.84	0.647
9 - EQU (A1-M1-R3)	384.53	164.21	410.97	971.87	0.741
10 - SLER	420.43	91.53	172.17	971.87	0.297
11 - SLEF	420.43	91.53	172.17	971.87	0.297
12 - SLEQ	420.43	91.53	172.17	971.87	0.297
13 - SLEQ	436.32	141.08	276.54	1008.61	0.521

Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

Cmb Indice/Tipo combinazione

S Sisma (H: componente orizzontale, V: componente verticale)

FS_{SCO} Coeff. di sicurezza allo scorrimento

FS_{RIB} Coeff. di sicurezza al ribaltamento

FS_{QLIM} Coeff. di sicurezza a carico limite

FS_{STAB} Coeff. di sicurezza a stabilità globale

FS_{HYD} Coeff. di sicurezza a sifonamento

FS_{UPL} Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.635		2.015			
2 - STR (A1-M1-R3)	H + V	1.394		1.525			
3 - STR (A1-M1-R3)	H - V	1.301		1.567			
4 - GEO (A2-M2-R2)					1.298		
5 - GEO (A2-M2-R2)	H + V				1.366		
6 - GEO (A2-M2-R2)	H - V				1.314		
7 - EQU (A1-M1-R3)			4.296				
8 - EQU (A1-M1-R3)	H + V		3.042				
9 - EQU (A1-M1-R3)	H - V		2.365				

Verifica a scorrimento fondazione

Simbologia adottata

n° Indice combinazione

Rsa Resistenza allo scorrimento per attrito, espresso in [kN]

Rpt Resistenza passiva terreno antistante, espresso in [kN]

Rps Resistenza passiva sperone, espresso in [kN]

Rp Resistenza a carichi orizzontali pali (solo per fondazione mista), espresso in [kN]

Rt Resistenza a carichi orizzontali tiranti (solo se presenti), espresso in [kN]

R Resistenza allo scorrimento (somma di Rsa+Rpt+Rps+Rp), espresso in [kN]

T Carico parallelo al piano di posa, espresso in [kN]

FS Fattore di sicurezza (rapporto R/T)

n°	Rsa	Rpt	Rps	Rp	Rt	R	T	FS
	[kN]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1 - STR (A1-M1-R3)	197.49	0.00	0.00	--	--	197.49	120.81	1.635
2 - STR (A1-M1-R3) H + V	208.77	0.00	0.00	--	--	208.77	149.79	1.394
3 - STR (A1-M1-R3) H - V	183.33	0.00	0.00	--	--	183.33	140.90	1.301

Verifica a carico limite

Simbologia adottata

n° Indice combinazione

N Carico normale totale al piano di posa, espresso in [kN]

Qu carico limite del terreno, espresso in [kN]

Qd Portanza di progetto, espresso in [kN]

FS Fattore di sicurezza (rapporto tra il carico limie e carico agente al piano di posa)

n°	N	Qu	Qd	FS
	[kN]	*[kN]*	*[kN]*	
1 - STR (A1-M1-R3)	423.53	853.34	609.53	2.015
2 - STR (A1-M1-R3) H + V	447.71	682.64	568.87	1.525
3 - STR (A1-M1-R3) H - V	393.15	615.93	513.28	1.567

Dettagli calcolo portanza

Simbologia adottata

n° Indice combinazione

Nc, Nq, N_γ	Fattori di capacità portante
ic, iq, i_γ	Fattori di inclinazione del carico
dc, dq, d_γ	Fattori di profondità del piano di posa
gc, gq, g_γ	Fattori di inclinazione del profilo topografico
bc, bq, b_γ	Fattori di inclinazione del piano di posa
sc, sq, s_γ	Fattori di forma della fondazione
pc, pq, p_γ	Fattori di riduzione per punzonamento secondo Vesic
Re	Fattore di riduzione capacità portante per eccentricità secondo Meyerhof
Ir, Irc	Indici di rigidezza per punzonamento secondo Vesic
r_γ	Fattori per tener conto dell'effetto piastra. Per fondazioni che hanno larghezza maggiore di 2 m, il terzo termine della formula trinomia $0.5B\gamma N_\gamma$ viene moltiplicato per questo fattore
D	Affondamento del piano di posa, espresso in [m]
B'	Larghezza fondazione ridotta, espresso in [m]
H	Altezza del cuneo di rottura, espresso in [m]
γ	Peso di volume del terreno medio, espresso in [kN/mc]
ϕ	Angolo di attrito del terreno medio, espresso in [°]
c	Coesione del terreno medio, espresso in [kPa]

Per i coeff. che in tabella sono indicati con il simbolo '--' sono coeff. non presenti nel metodo scelto (Meyerhof).

n°	Nc Nq N_γ	ic iq i_γ	dc dq d_γ	gc gq g_γ	bc bq b_γ	sc sq s_γ	pc pq p_γ	Ir	Irc	Re	r_γ
1	28.838 17.277 14.259	0.677 0.677 0.211	1.062 1.031 1.031	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.914
2	28.838 17.277 14.259	0.631 0.631 0.138	1.062 1.031 1.031	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.914
3	28.838 17.277 14.259	0.610 0.610 0.109	1.062 1.031 1.031	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.914

n°	D	B'	H	γ	ϕ	c
	[m]	*[m]*	*[m]*	*[°]*	*[kN/mc]*	*[kPa]*
1	0.80	3.55	3.77	11.28	29.44	0
2	0.80	3.32	3.77	11.28	29.44	0
3	0.80	3.21	3.77	11.28	29.44	0

Verifica a ribaltamento

Simbologia adottata

n°	Indice combinazione
Ms	Momento stabilizzante, espresso in [kNm]
Mr	Momento ribaltante, espresso in [kNm]
FS	Fattore di sicurezza (rapporto tra momento stabilizzante e momento ribaltante)

La verifica viene eseguita rispetto allo spigolo inferiore esterno della fondazione

n°	Ms	Mr	FS
	[kNm]	*[kNm]*	
7 - EQU (A1-M1-R3)	980.40	228.23	4.296
8 - EQU (A1-M1-R3) H + V	1054.84	346.73	3.042
9 - EQU (A1-M1-R3) H - V	971.87	410.97	2.365

Verifica stabilità globale muro + terreno

Simbologia adottata

Ic Indice/Tipo combinazione

C Centro superficie di scorrimento, espresso in [m]

R Raggio, espresso in [m]

FS Fattore di sicurezza

Ic	C	R	FS
	[m]	*[m]*	
4 - GEO (A2-M2-R2)	-1.00; 2.00	8.34	1.298
5 - GEO (A2-M2-R2) H + V	-1.00; 3.50	9.63	1.366
6 - GEO (A2-M2-R2) H - V	-1.50; 4.50	10.75	1.314

Dettagli strisce verifiche stabilità

Simbologia adottata

Le ascisse X sono considerate positive verso monte

Le ordinate Y sono considerate positive verso l'alto

Origine in testa al muro (spigolo contro terra)

W peso della striscia espresso in [kN]

Qy carico sulla striscia espresso in [kN]

α angolo fra la base della striscia e l'orizzontale espresso in [°] (positivo antiorario)

ϕ angolo d'attrito del terreno lungo la base della striscia

c coesione del terreno lungo la base della striscia espressa in [kPa]

b larghezza della striscia espressa in [m]

u pressione neutra lungo la base della striscia espressa in [kPa]

Tx; Ty Resistenza al taglio fornita dai tiranti in direzione X ed Y espressa in [kPa]

Combinazione n° 4 - GEO (A2-M2-R2)

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	8.00	14.09	7.11 - 0.55	70.210	29.256	0	0.0	

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	[kN]	[m]	[°]	[°]	[kPa]	[kPa]	[kN]
2	21.20	14.09	0.55	61.065	29.256	0	0.0	
3	30.36	14.09	0.55	53.944	29.256	0	0.0	
4	37.50	14.09	0.55	47.911	29.256	0	0.0	
5	43.32	14.09	0.55	42.526	29.256	0	0.0	
6	48.17	14.09	0.55	37.576	29.256	0	0.0	
7	53.75	3.92	0.55	32.939	20.458	0	0.0	
8	58.11	1.43	0.55	28.535	20.458	0	0.0	
9	60.98	1.43	0.55	24.309	20.458	0	0.0	
10	63.33	1.43	0.55	20.221	20.458	0	0.7	
11	65.23	1.43	0.55	16.238	20.458	0	2.5	
12	66.70	1.43	0.55	12.335	20.458	0	3.9	
13	72.30	0.02	0.55	8.489	20.458	0	4.9	
14	61.23	0.00	0.55	4.682	20.458	0	5.5	
15	23.79	0.00	0.55	0.895	20.458	0	5.8	
16	22.78	0.00	0.55	-2.887	20.458	0	5.7	
17	22.30	0.00	0.55	-6.683	20.458	0	5.2	
18	21.43	0.00	0.55	-10.508	20.458	0	4.4	
19	20.15	0.00	0.55	-14.382	20.458	0	3.2	
20	18.46	0.00	0.55	-18.324	20.458	0	1.6	
21	16.33	0.00	0.55	-22.359	20.458	0	0.0	
22	13.71	0.00	0.55	-26.515	20.458	0	0.0	
23	10.55	0.00	0.55	-30.828	20.458	0	0.0	
24	6.80	0.00	0.55	-35.347	20.458	0	0.0	
25	2.33	0.00	-6.65 - 0.55	-39.568	20.458	0	0.0	

Combinazione n° 5 - GEO (A2-M2-R2) H + V

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	[kN]	[m]	[°]	[°]	[kPa]	[kPa]	[kN]
1	6.94	3.56	7.98 - 0.59	64.229	35.000	0	0.0	
2	19.10	3.56	0.59	57.309	35.000	0	0.0	
3	28.49	3.56	0.59	51.215	35.000	0	0.0	
4	36.12	3.56	0.59	45.856	35.000	0	0.0	
5	42.48	3.56	0.59	40.977	35.000	0	0.0	
6	47.86	3.56	0.59	36.440	35.000	0	0.0	
7	52.44	3.56	0.59	32.156	35.000	0	0.0	
8	57.96	1.69	0.59	28.066	25.000	0	0.0	
9	62.25	1.19	0.59	24.127	25.000	0	0.0	
10	64.99	1.19	0.59	20.307	25.000	0	0.0	
11	67.22	1.19	0.59	16.579	25.000	0	0.0	
12	68.99	1.19	0.59	12.922	25.000	0	1.3	
13	70.39	0.71	0.59	9.319	25.000	0	2.4	
14	82.25	0.00	0.59	5.752	25.000	0	3.2	
15	27.55	0.00	0.59	2.208	25.000	0	3.6	
16	22.26	0.00	0.59	-1.328	25.000	0	3.7	
17	21.90	0.00	0.59	-4.869	25.000	0	3.3	
18	21.12	0.00	0.59	-8.429	25.000	0	2.7	
19	19.91	0.00	0.59	-12.022	25.000	0	1.6	
20	18.26	0.00	0.59	-15.664	25.000	0	0.2	
21	16.14	0.00	0.59	-19.372	25.000	0	0.0	
22	13.53	0.00	0.59	-23.167	25.000	0	0.0	
23	10.38	0.00	0.59	-27.074	25.000	0	0.0	
24	6.64	0.00	0.59	-31.123	25.000	0	0.0	
25	2.24	0.00	-6.87 - 0.59	-34.580	25.000	0	0.0	

Combinazione n° 6 - GEO (A2-M2-R2) H - V

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	[kN]	[m]	[°]	[°]	[kPa]	[kPa]	[kN]

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	7.24	3.88	8.27 - 0.65	61.262	35.000	0	0.0	
2	20.18	3.88	0.65	55.089	35.000	0	0.0	
3	30.50	3.88	0.65	49.426	35.000	0	0.0	
4	39.02	3.88	0.65	44.364	35.000	0	0.0	
5	46.21	3.88	0.65	39.712	35.000	0	0.0	
6	52.32	3.88	0.65	35.357	35.000	0	0.0	
7	57.55	3.88	0.65	31.228	35.000	0	0.0	
8	64.21	1.47	0.65	27.273	25.000	0	0.0	
9	68.63	1.29	0.65	23.455	25.000	0	0.0	
10	71.78	1.29	0.65	19.744	25.000	0	0.0	
11	74.35	1.29	0.65	16.119	25.000	0	0.7	
12	76.38	1.29	0.65	12.559	25.000	0	2.3	
13	84.50	0.03	0.65	9.047	25.000	0	3.5	
14	55.00	0.00	0.65	5.570	25.000	0	4.3	
15	25.70	0.00	0.65	2.114	25.000	0	4.8	
16	25.67	0.00	0.65	-1.335	25.000	0	4.8	
17	25.25	0.00	0.65	-4.789	25.000	0	4.5	
18	24.34	0.00	0.65	-8.261	25.000	0	3.7	
19	22.93	0.00	0.65	-11.763	25.000	0	2.6	
20	21.02	0.00	0.65	-15.311	25.000	0	1.1	
21	18.57	0.00	0.65	-18.920	25.000	0	0.0	
22	15.56	0.00	0.65	-22.609	25.000	0	0.0	
23	11.93	0.00	0.65	-26.401	25.000	0	0.0	
24	7.64	0.00	0.65	-30.322	25.000	0	0.0	
25	2.59	0.00	-7.89 - 0.65	-33.787	25.000	0	0.0	

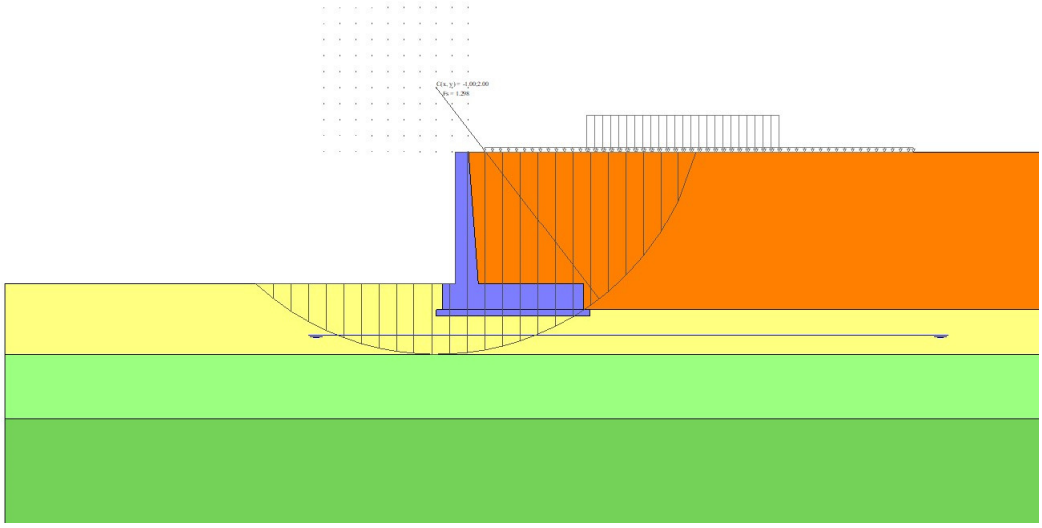


Fig. 7 - Stabilità fronte di scavo - Cerchio critico (Combinazione n° 4)

Spostamenti

Simbologia adottata

Cmb Tipo combinazione

$a_{g,crit}$ accelerazione critica, espressa in [m/s^2]

Dmax Spostamento orizzontale massimo, espressa in [cm]

Cmb	$a_{g,crit}$	Dmax
	[m/s^2]	*[cm]*
13 - SLEQ H + V	1.7814	0.0014

Sollecitazioni

Elementi calcolati a trave

Simbologia adottata

N Sforzo normale, espresso in [kN]. Positivo se di compressione.

T Taglio, espresso in [kN]. Positivo se diretto da monte verso valle

M Momento, espresso in [kNm]. Positivo se tende le fibre contro terra (a monte)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.98	0.04	0.00
3	-0.20	1.97	0.15	0.02
4	-0.30	2.99	0.33	0.05
5	-0.40	4.02	0.58	0.11
6	-0.49	5.07	0.90	0.20
7	-0.59	6.13	1.30	0.32
8	-0.69	7.22	1.78	0.50
9	-0.79	8.32	2.34	0.73
10	-0.89	9.44	2.99	1.03
11	-0.99	10.58	3.74	1.39
12	-1.09	11.74	4.57	1.85
13	-1.19	12.91	5.48	2.39
14	-1.28	14.10	6.46	3.03
15	-1.38	15.31	7.52	3.77
16	-1.48	16.54	8.64	4.63
17	-1.58	17.78	9.84	5.60
18	-1.68	19.04	11.12	6.70
19	-1.78	20.32	12.46	7.94
20	-1.88	21.62	13.88	9.32
21	-1.98	22.94	15.37	10.84
22	-2.08	24.27	16.93	12.53
23	-2.17	25.62	18.57	14.37
24	-2.27	26.99	20.28	16.39
25	-2.37	28.38	22.06	18.58
26	-2.47	29.78	23.91	20.96
27	-2.57	31.21	25.83	23.53
28	-2.67	32.65	27.83	26.29

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
29	-2.77	34.11	29.89	29.27
30	-2.87	35.58	32.03	32.45
31	-2.96	37.07	34.24	35.86
32	-3.06	38.59	36.53	39.49
33	-3.16	40.12	38.88	43.36
34	-3.26	41.66	41.31	47.48
35	-3.36	43.23	43.81	51.84
36	-3.46	44.81	46.38	56.45
37	-3.56	46.41	49.02	61.33
38	-3.66	48.03	51.74	66.48
39	-3.75	49.67	54.53	71.91
40	-3.85	51.32	57.39	77.63
41	-3.95	52.99	60.32	83.63
42	-4.05	54.68	63.32	89.94
43	-4.15	56.39	66.40	96.55

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.98	0.16	0.01
3	-0.20	1.97	0.41	0.04
4	-0.30	2.99	0.72	0.11
5	-0.40	4.02	1.12	0.21
6	-0.49	5.07	1.58	0.36
7	-0.59	6.13	2.13	0.56
8	-0.69	7.22	2.76	0.83
9	-0.79	8.32	3.47	1.16
10	-0.89	9.44	4.27	1.58
11	-0.99	10.58	5.16	2.08
12	-1.09	11.74	6.14	2.68
13	-1.19	12.91	7.19	3.38
14	-1.28	14.10	8.32	4.20
15	-1.38	15.31	9.53	5.13
16	-1.48	16.54	10.82	6.19
17	-1.58	17.78	12.19	7.39
18	-1.68	19.04	13.63	8.74
19	-1.78	20.32	15.14	10.23
20	-1.88	21.62	16.74	11.88
21	-1.98	22.94	18.41	13.70
22	-2.08	24.27	20.15	15.69
23	-2.17	25.62	21.98	17.86
24	-2.27	26.99	23.88	20.22
25	-2.37	28.38	25.85	22.78
26	-2.47	29.78	27.90	25.54
27	-2.57	31.21	30.03	28.52
28	-2.67	32.65	32.23	31.71
29	-2.77	34.11	34.51	35.13
30	-2.87	35.58	36.87	38.78
31	-2.96	37.07	39.30	42.68
32	-3.06	38.59	41.81	46.82
33	-3.16	40.12	44.40	51.23
34	-3.26	41.66	47.06	55.90
35	-3.36	43.23	49.80	60.84
36	-3.46	44.81	52.61	66.06
37	-3.56	46.41	55.50	71.56
38	-3.66	48.03	58.47	77.37
39	-3.75	49.67	61.51	83.47
40	-3.85	51.32	64.63	89.89
41	-3.95	52.99	67.83	96.63
42	-4.05	54.68	71.10	103.69
43	-4.15	56.39	74.45	111.08

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.98	0.16	0.01
3	-0.20	1.97	0.39	0.04
4	-0.30	2.99	0.69	0.10
5	-0.40	4.02	1.06	0.20
6	-0.49	5.07	1.49	0.34
7	-0.59	6.13	2.00	0.54
8	-0.69	7.22	2.58	0.79
9	-0.79	8.32	3.24	1.10
10	-0.89	9.44	3.98	1.49
11	-0.99	10.58	4.80	1.96
12	-1.09	11.74	5.70	2.52
13	-1.19	12.91	6.67	3.17
14	-1.28	14.10	7.71	3.93
15	-1.38	15.31	8.82	4.80
16	-1.48	16.54	10.01	5.79
17	-1.58	17.78	11.26	6.90
18	-1.68	19.04	12.58	8.15
19	-1.78	20.32	13.97	9.53
20	-1.88	21.62	15.43	11.06
21	-1.98	22.94	16.96	12.74
22	-2.08	24.27	18.55	14.58
23	-2.17	25.62	20.22	16.59
24	-2.27	26.99	21.96	18.77
25	-2.37	28.38	23.76	21.13
26	-2.47	29.78	25.63	23.67
27	-2.57	31.21	27.58	26.41
28	-2.67	32.65	29.59	29.36
29	-2.77	34.11	31.67	32.50
30	-2.87	35.58	33.82	35.87
31	-2.96	37.07	36.04	39.45
32	-3.06	38.59	38.33	43.26
33	-3.16	40.12	40.68	47.31
34	-3.26	41.66	43.11	51.60
35	-3.36	43.23	45.60	56.14
36	-3.46	44.81	48.17	60.93
37	-3.56	46.41	50.80	65.99
38	-3.66	48.03	53.50	71.31
39	-3.75	49.67	56.27	76.91
40	-3.85	51.32	59.11	82.80
41	-3.95	52.99	62.02	88.98
42	-4.05	54.68	65.00	95.45
43	-4.15	56.39	68.04	102.22

Combinazione n° 10 - SLER

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.98	0.03	0.00
3	-0.20	1.97	0.11	0.01
4	-0.30	2.99	0.25	0.04
5	-0.40	4.02	0.45	0.09
6	-0.49	5.07	0.69	0.16
7	-0.59	6.13	1.00	0.26
8	-0.69	7.22	1.36	0.41
9	-0.79	8.32	1.80	0.59
10	-0.89	9.44	2.29	0.82

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
11	-0.99	10.58	2.86	1.11
12	-1.09	11.74	3.49	1.47
13	-1.19	12.91	4.18	1.89
14	-1.28	14.10	4.93	2.39
15	-1.38	15.31	5.73	2.97
16	-1.48	16.54	6.59	3.64
17	-1.58	17.78	7.51	4.40
18	-1.68	19.04	8.48	5.25
19	-1.78	20.32	9.50	6.21
20	-1.88	21.62	10.59	7.28
21	-1.98	22.94	11.72	8.47
22	-2.08	24.27	12.92	9.77
23	-2.17	25.62	14.17	11.20
24	-2.27	26.99	15.47	12.76
25	-2.37	28.38	16.83	14.46
26	-2.47	29.78	18.24	16.30
27	-2.57	31.21	19.71	18.28
28	-2.67	32.65	21.24	20.42
29	-2.77	34.11	22.82	22.72
30	-2.87	35.58	24.46	25.18
31	-2.96	37.07	26.15	27.82
32	-3.06	38.59	27.90	30.63
33	-3.16	40.12	29.70	33.62
34	-3.26	41.66	31.56	36.79
35	-3.36	43.23	33.47	40.16
36	-3.46	44.81	35.44	43.73
37	-3.56	46.41	37.47	47.50
38	-3.66	48.03	39.55	51.47
39	-3.75	49.67	41.68	55.67
40	-3.85	51.32	43.87	60.08
41	-3.95	52.99	46.12	64.71
42	-4.05	54.68	48.42	69.58
43	-4.15	56.39	50.78	74.69

Combinazione n° 11 - SLEF

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.98	0.03	0.00
3	-0.20	1.97	0.11	0.01
4	-0.30	2.99	0.25	0.04
5	-0.40	4.02	0.45	0.09
6	-0.49	5.07	0.69	0.16
7	-0.59	6.13	1.00	0.26
8	-0.69	7.22	1.36	0.41
9	-0.79	8.32	1.80	0.59
10	-0.89	9.44	2.29	0.82
11	-0.99	10.58	2.86	1.11
12	-1.09	11.74	3.49	1.47
13	-1.19	12.91	4.18	1.89
14	-1.28	14.10	4.93	2.39
15	-1.38	15.31	5.73	2.97
16	-1.48	16.54	6.59	3.64
17	-1.58	17.78	7.51	4.40
18	-1.68	19.04	8.48	5.25
19	-1.78	20.32	9.50	6.21
20	-1.88	21.62	10.59	7.28
21	-1.98	22.94	11.72	8.47
22	-2.08	24.27	12.92	9.77
23	-2.17	25.62	14.17	11.20
24	-2.27	26.99	15.47	12.76
25	-2.37	28.38	16.83	14.46

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
26	-2.47	29.78	18.24	16.30
27	-2.57	31.21	19.71	18.28
28	-2.67	32.65	21.24	20.42
29	-2.77	34.11	22.82	22.72
30	-2.87	35.58	24.46	25.18
31	-2.96	37.07	26.15	27.82
32	-3.06	38.59	27.90	30.63
33	-3.16	40.12	29.70	33.62
34	-3.26	41.66	31.56	36.79
35	-3.36	43.23	33.47	40.16
36	-3.46	44.81	35.44	43.73
37	-3.56	46.41	37.47	47.50
38	-3.66	48.03	39.55	51.47
39	-3.75	49.67	41.68	55.67
40	-3.85	51.32	43.87	60.08
41	-3.95	52.99	46.12	64.71
42	-4.05	54.68	48.42	69.58
43	-4.15	56.39	50.78	74.69

Combinazione n° 12 - SLEQ

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.98	0.03	0.00
3	-0.20	1.97	0.11	0.01
4	-0.30	2.99	0.25	0.04
5	-0.40	4.02	0.45	0.09
6	-0.49	5.07	0.69	0.16
7	-0.59	6.13	1.00	0.26
8	-0.69	7.22	1.36	0.41
9	-0.79	8.32	1.80	0.59
10	-0.89	9.44	2.29	0.82
11	-0.99	10.58	2.86	1.11
12	-1.09	11.74	3.49	1.47
13	-1.19	12.91	4.18	1.89
14	-1.28	14.10	4.93	2.39
15	-1.38	15.31	5.73	2.97
16	-1.48	16.54	6.59	3.64
17	-1.58	17.78	7.51	4.40
18	-1.68	19.04	8.48	5.25
19	-1.78	20.32	9.50	6.21
20	-1.88	21.62	10.59	7.28
21	-1.98	22.94	11.72	8.47
22	-2.08	24.27	12.92	9.77
23	-2.17	25.62	14.17	11.20
24	-2.27	26.99	15.47	12.76
25	-2.37	28.38	16.83	14.46
26	-2.47	29.78	18.24	16.30
27	-2.57	31.21	19.71	18.28
28	-2.67	32.65	21.24	20.42
29	-2.77	34.11	22.82	22.72
30	-2.87	35.58	24.46	25.18
31	-2.96	37.07	26.15	27.82
32	-3.06	38.59	27.90	30.63
33	-3.16	40.12	29.70	33.62
34	-3.26	41.66	31.56	36.79
35	-3.36	43.23	33.47	40.16
36	-3.46	44.81	35.44	43.73
37	-3.56	46.41	37.47	47.50
38	-3.66	48.03	39.55	51.47
39	-3.75	49.67	41.68	55.67
40	-3.85	51.32	43.87	60.08

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
41	-3.95	52.99	46.12	64.71
42	-4.05	54.68	48.42	69.58
43	-4.15	56.39	50.78	74.69

Combinazione n° 13 - SLEQ H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	0.00	0.00	0.00	0.00
2	-0.10	0.98	0.11	0.01
3	-0.20	1.97	0.28	0.03
4	-0.30	2.99	0.52	0.08
5	-0.40	4.02	0.83	0.16
6	-0.49	5.07	1.21	0.28
7	-0.59	6.13	1.65	0.44
8	-0.69	7.22	2.17	0.65
9	-0.79	8.32	2.76	0.92
10	-0.89	9.44	3.43	1.26
11	-0.99	10.58	4.18	1.67
12	-1.09	11.74	5.01	2.16
13	-1.19	12.91	5.91	2.75
14	-1.28	14.10	6.88	3.43
15	-1.38	15.31	7.91	4.21
16	-1.48	16.54	9.01	5.11
17	-1.58	17.78	10.19	6.12
18	-1.68	19.04	11.42	7.25
19	-1.78	20.32	12.73	8.52
20	-1.88	21.62	14.10	9.92
21	-1.98	22.94	15.54	11.47
22	-2.08	24.27	17.05	13.16
23	-2.17	25.62	18.63	15.02
24	-2.27	26.99	20.27	17.03
25	-2.37	28.38	21.98	19.22
26	-2.47	29.78	23.76	21.59
27	-2.57	31.21	25.60	24.14
28	-2.67	32.65	27.51	26.88
29	-2.77	34.11	29.49	29.82
30	-2.87	35.58	31.53	32.96
31	-2.96	37.07	33.65	36.31
32	-3.06	38.59	35.83	39.88
33	-3.16	40.12	38.07	43.68
34	-3.26	41.66	40.39	47.70
35	-3.36	43.23	42.77	51.97
36	-3.46	44.81	45.22	56.47
37	-3.56	46.41	47.73	61.23
38	-3.66	48.03	50.32	66.25
39	-3.75	49.67	52.97	71.53
40	-3.85	51.32	55.69	77.09
41	-3.95	52.99	58.47	82.92
42	-4.05	54.68	61.32	89.03
43	-4.15	56.39	64.24	95.44

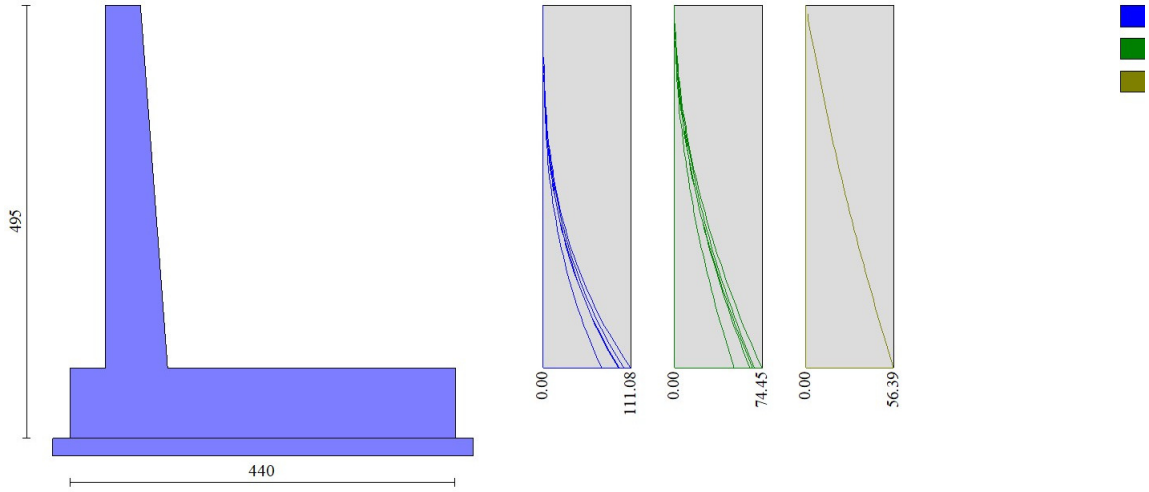


Fig. 8 - Paramento (Inviluppo)

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-0.80	0.00	0.00	0.00
2	-0.70	0.00	13.10	0.66
3	-0.60	0.00	25.95	2.61
4	-0.50	0.00	38.54	5.84
5	-0.40	0.00	50.89	10.31
6	0.31	0.00	-140.36	-305.90
7	0.41	0.00	-140.41	-292.37
8	0.51	0.00	-140.18	-278.81
9	0.61	0.00	-139.43	-264.87
10	0.71	0.00	-138.42	-251.01
11	0.81	0.00	-137.17	-237.27
12	0.91	0.00	-135.66	-223.67
13	1.01	0.00	-133.90	-210.23
14	1.11	0.00	-131.89	-196.98
15	1.21	0.00	-129.63	-183.94
16	1.31	0.00	-127.12	-171.14
17	1.41	0.00	-124.36	-158.60
18	1.50	0.00	-121.34	-146.35
19	1.60	0.00	-118.08	-134.42
20	1.70	0.00	-114.56	-122.82
21	1.80	0.00	-110.79	-111.58
22	1.90	0.00	-106.77	-100.74
23	2.00	0.00	-102.50	-90.30
24	2.10	0.00	-97.98	-80.31
25	2.20	0.00	-93.21	-70.77
26	2.30	0.00	-88.18	-61.73
27	2.40	0.00	-82.91	-53.20
28	2.50	0.00	-77.38	-45.21

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
29	2.60	0.00	-71.60	-37.78
30	2.70	0.00	-65.57	-30.94
31	2.80	0.00	-59.29	-24.71
32	2.90	0.00	-52.76	-19.13
33	3.00	0.00	-45.98	-14.20
34	3.10	0.00	-38.94	-9.97
35	3.20	0.00	-31.66	-6.45
36	3.30	0.00	-24.12	-3.66
37	3.40	0.00	-16.33	-1.64
38	3.50	0.00	-8.29	-0.42
39	3.60	0.00	0.00	0.00

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-0.80	0.00	0.00	0.00
2	-0.70	0.00	15.54	0.78
3	-0.60	0.00	30.74	3.10
4	-0.50	0.00	45.60	6.92
5	-0.40	0.00	60.12	12.21
6	0.31	0.00	-57.39	-195.52
7	0.41	0.00	-61.25	-189.91
8	0.51	0.00	-64.77	-183.91
9	0.61	0.00	-67.76	-177.30
10	0.71	0.00	-70.41	-170.41
11	0.81	0.00	-72.72	-163.27
12	0.91	0.00	-74.70	-155.92
13	1.01	0.00	-76.34	-148.39
14	1.11	0.00	-77.63	-140.71
15	1.21	0.00	-78.59	-132.92
16	1.31	0.00	-79.21	-125.05
17	1.41	0.00	-79.49	-117.14
18	1.50	0.00	-79.44	-109.21
19	1.60	0.00	-79.04	-101.31
20	1.70	0.00	-78.31	-93.46
21	1.80	0.00	-77.23	-85.71
22	1.90	0.00	-75.82	-78.08
23	2.00	0.00	-74.07	-70.60
24	2.10	0.00	-71.98	-63.32
25	2.20	0.00	-69.55	-56.26
26	2.30	0.00	-66.79	-49.46
27	2.40	0.00	-63.68	-42.95
28	2.50	0.00	-60.24	-36.77
29	2.60	0.00	-56.45	-30.96
30	2.70	0.00	-52.33	-25.53
31	2.80	0.00	-47.87	-20.53
32	2.90	0.00	-43.07	-16.00
33	3.00	0.00	-37.94	-11.95
34	3.10	0.00	-32.46	-8.44
35	3.20	0.00	-26.65	-5.49
36	3.30	0.00	-20.49	-3.14
37	3.40	0.00	-14.00	-1.42
38	3.50	0.00	-7.17	-0.36
39	3.60	0.00	0.00	0.00

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	X	N	T	M

	[m]	[kN]	[kN]	[kNm]
1	-0.80	0.00	0.00	0.00
2	-0.70	0.00	14.04	0.70
3	-0.60	0.00	27.75	2.80
4	-0.50	0.00	41.14	6.24
5	-0.40	0.00	54.19	11.01
6	0.31	0.00	-96.00	-255.46
7	0.41	0.00	-98.50	-246.07
8	0.51	0.00	-100.67	-236.42
9	0.61	0.00	-102.32	-226.30
10	0.71	0.00	-103.65	-216.03
11	0.81	0.00	-104.65	-205.65
12	0.91	0.00	-105.32	-195.18
13	1.01	0.00	-105.67	-184.66
14	1.11	0.00	-105.69	-174.12
15	1.21	0.00	-105.38	-163.60
16	1.31	0.00	-104.75	-153.12
17	1.41	0.00	-103.79	-142.72
18	1.50	0.00	-102.50	-132.43
19	1.60	0.00	-100.88	-122.29
20	1.70	0.00	-98.94	-112.33
21	1.80	0.00	-96.68	-102.58
22	1.90	0.00	-94.08	-93.06
23	2.00	0.00	-91.16	-83.83
24	2.10	0.00	-87.92	-74.90
25	2.20	0.00	-84.34	-66.31
26	2.30	0.00	-80.44	-58.09
27	2.40	0.00	-76.21	-50.28
28	2.50	0.00	-71.66	-42.91
29	2.60	0.00	-66.78	-36.00
30	2.70	0.00	-61.57	-29.60
31	2.80	0.00	-56.04	-23.74
32	2.90	0.00	-50.17	-18.44
33	3.00	0.00	-43.99	-13.74
34	3.10	0.00	-37.47	-9.68
35	3.20	0.00	-30.63	-6.28
36	3.30	0.00	-23.46	-3.58
37	3.40	0.00	-15.97	-1.61
38	3.50	0.00	-8.15	-0.41
39	3.60	0.00	0.00	0.00

Combinazione n° 10 - SLER

n°	X	N	T	M
	[m]	[kN]	[kN]	[kNm]
1	-0.80	0.00	0.00	0.00
2	-0.70	0.00	11.38	0.57
3	-0.60	0.00	22.59	2.27
4	-0.50	0.00	33.62	5.08
5	-0.40	0.00	44.48	8.99
6	0.31	0.00	-47.78	-130.87
7	0.41	0.00	-49.32	-126.34
8	0.51	0.00	-50.67	-121.64
9	0.61	0.00	-51.66	-116.54
10	0.71	0.00	-52.48	-111.34
11	0.81	0.00	-53.12	-106.08
12	0.91	0.00	-53.59	-100.76
13	1.01	0.00	-53.88	-95.40
14	1.11	0.00	-54.00	-90.02
15	1.21	0.00	-53.94	-84.64
16	1.31	0.00	-53.70	-79.27
17	1.41	0.00	-53.29	-73.93
18	1.50	0.00	-52.71	-68.65
19	1.60	0.00	-51.95	-63.43
20	1.70	0.00	-51.02	-58.30

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
21	1.80	0.00	-49.91	-53.26
22	1.90	0.00	-48.62	-48.35
23	2.00	0.00	-47.16	-43.57
24	2.10	0.00	-45.53	-38.95
25	2.20	0.00	-43.72	-34.50
26	2.30	0.00	-41.73	-30.24
27	2.40	0.00	-39.57	-26.19
28	2.50	0.00	-37.24	-22.36
29	2.60	0.00	-34.73	-18.77
30	2.70	0.00	-32.04	-15.44
31	2.80	0.00	-29.18	-12.38
32	2.90	0.00	-26.15	-9.62
33	3.00	0.00	-22.94	-7.18
34	3.10	0.00	-19.55	-5.06
35	3.20	0.00	-15.99	-3.28
36	3.30	0.00	-12.26	-1.87
37	3.40	0.00	-8.35	-0.84
38	3.50	0.00	-4.26	-0.21
39	3.60	0.00	0.00	0.00

Combinazione n° 11 - SLEF

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-0.80	0.00	0.00	0.00
2	-0.70	0.00	11.38	0.57
3	-0.60	0.00	22.59	2.27
4	-0.50	0.00	33.62	5.08
5	-0.40	0.00	44.48	8.99
6	0.31	0.00	-47.78	-130.87
7	0.41	0.00	-49.32	-126.34
8	0.51	0.00	-50.67	-121.64
9	0.61	0.00	-51.66	-116.54
10	0.71	0.00	-52.48	-111.34
11	0.81	0.00	-53.12	-106.08
12	0.91	0.00	-53.59	-100.76
13	1.01	0.00	-53.88	-95.40
14	1.11	0.00	-54.00	-90.02
15	1.21	0.00	-53.94	-84.64
16	1.31	0.00	-53.70	-79.27
17	1.41	0.00	-53.29	-73.93
18	1.50	0.00	-52.71	-68.65
19	1.60	0.00	-51.95	-63.43
20	1.70	0.00	-51.02	-58.30
21	1.80	0.00	-49.91	-53.26
22	1.90	0.00	-48.62	-48.35
23	2.00	0.00	-47.16	-43.57
24	2.10	0.00	-45.53	-38.95
25	2.20	0.00	-43.72	-34.50
26	2.30	0.00	-41.73	-30.24
27	2.40	0.00	-39.57	-26.19
28	2.50	0.00	-37.24	-22.36
29	2.60	0.00	-34.73	-18.77
30	2.70	0.00	-32.04	-15.44
31	2.80	0.00	-29.18	-12.38
32	2.90	0.00	-26.15	-9.62
33	3.00	0.00	-22.94	-7.18
34	3.10	0.00	-19.55	-5.06
35	3.20	0.00	-15.99	-3.28
36	3.30	0.00	-12.26	-1.87
37	3.40	0.00	-8.35	-0.84
38	3.50	0.00	-4.26	-0.21
39	3.60	0.00	0.00	0.00

Combinazione n° 12 - SLEQ

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-0.80	0.00	0.00	0.00
2	-0.70	0.00	11.38	0.57
3	-0.60	0.00	22.59	2.27
4	-0.50	0.00	33.62	5.08
5	-0.40	0.00	44.48	8.99
6	0.31	0.00	-47.78	-130.87
7	0.41	0.00	-49.32	-126.34
8	0.51	0.00	-50.67	-121.64
9	0.61	0.00	-51.66	-116.54
10	0.71	0.00	-52.48	-111.34
11	0.81	0.00	-53.12	-106.08
12	0.91	0.00	-53.59	-100.76
13	1.01	0.00	-53.88	-95.40
14	1.11	0.00	-54.00	-90.02
15	1.21	0.00	-53.94	-84.64
16	1.31	0.00	-53.70	-79.27
17	1.41	0.00	-53.29	-73.93
18	1.50	0.00	-52.71	-68.65
19	1.60	0.00	-51.95	-63.43
20	1.70	0.00	-51.02	-58.30
21	1.80	0.00	-49.91	-53.26
22	1.90	0.00	-48.62	-48.35
23	2.00	0.00	-47.16	-43.57
24	2.10	0.00	-45.53	-38.95
25	2.20	0.00	-43.72	-34.50
26	2.30	0.00	-41.73	-30.24
27	2.40	0.00	-39.57	-26.19
28	2.50	0.00	-37.24	-22.36
29	2.60	0.00	-34.73	-18.77
30	2.70	0.00	-32.04	-15.44
31	2.80	0.00	-29.18	-12.38
32	2.90	0.00	-26.15	-9.62
33	3.00	0.00	-22.94	-7.18
34	3.10	0.00	-19.55	-5.06
35	3.20	0.00	-15.99	-3.28
36	3.30	0.00	-12.26	-1.87
37	3.40	0.00	-8.35	-0.84
38	3.50	0.00	-4.26	-0.21
39	3.60	0.00	0.00	0.00

Combinazione n° 13 - SLEQ_H + V

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
1	-0.80	0.00	0.00	0.00
2	-0.70	0.00	14.85	0.75
3	-0.60	0.00	29.39	2.96
4	-0.50	0.00	43.60	6.61
5	-0.40	0.00	57.49	11.67
6	0.31	0.00	-62.27	-197.64
7	0.41	0.00	-65.67	-191.57
8	0.51	0.00	-68.74	-185.15
9	0.61	0.00	-71.31	-178.17
10	0.71	0.00	-73.55	-170.94
11	0.81	0.00	-75.48	-163.51
12	0.91	0.00	-77.09	-155.90
13	1.01	0.00	-78.38	-148.15
14	1.11	0.00	-79.35	-140.28

n°	X	N	T	M
	[m]	*[kN]*	*[kN]*	*[kNm]*
15	1.21	0.00	-80.00	-132.34
16	1.31	0.00	-80.34	-124.34
17	1.41	0.00	-80.35	-116.33
18	1.50	0.00	-80.05	-108.33
19	1.60	0.00	-79.43	-100.38
20	1.70	0.00	-78.48	-92.51
21	1.80	0.00	-77.22	-84.74
22	1.90	0.00	-75.64	-77.12
23	2.00	0.00	-73.74	-69.67
24	2.10	0.00	-71.53	-62.42
25	2.20	0.00	-68.99	-55.42
26	2.30	0.00	-66.14	-48.68
27	2.40	0.00	-62.96	-42.24
28	2.50	0.00	-59.47	-36.13
29	2.60	0.00	-55.66	-30.39
30	2.70	0.00	-51.53	-25.05
31	2.80	0.00	-47.08	-20.13
32	2.90	0.00	-42.31	-15.67
33	3.00	0.00	-37.22	-11.70
34	3.10	0.00	-31.81	-8.26
35	3.20	0.00	-26.09	-5.37
36	3.30	0.00	-20.05	-3.07
37	3.40	0.00	-13.68	-1.39
38	3.50	0.00	-7.00	-0.35
39	3.60	0.00	0.00	0.00

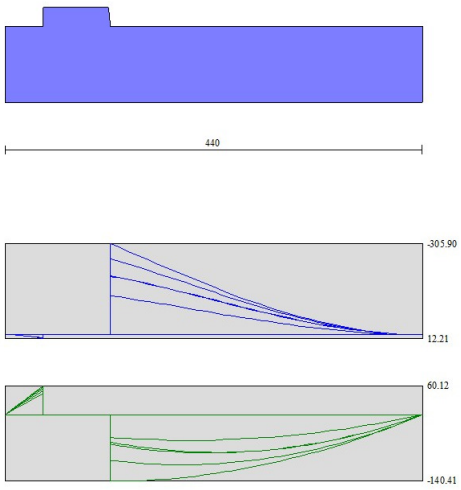


Fig. 9 - Fondazione (Inviluppo)

Verifiche strutturali

Verifiche a flessione

Elementi calcolati a trave

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Afi	area ferri inferiori espresso in [cmq]
Afs	area ferri superiori espressa in [cmq]
M	momento agente espressa in [kNm]
N	sforzo normale agente espressa in [kN]
Mu	momento ultimi espresso in [kNm]
Nu	sforzo normale ultimo espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione ultima e sollecitazione agente)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	0.00	100	40	15.71	15.71	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	15.71	15.71	0.00	0.98	0.00	0.00	100000.000
3	-0.20	100	41	15.71	15.71	0.02	1.97	63.61	7470.61	3785.296
4	-0.30	100	42	15.71	15.71	0.05	2.99	123.56	7581.13	2537.987
5	-0.40	100	43	15.71	15.71	0.11	4.02	202.41	7691.64	1914.140
6	-0.49	100	44	15.71	15.71	0.20	5.07	291.96	7583.52	1496.537
7	-0.59	100	44	15.71	15.71	0.32	6.13	378.08	7160.70	1167.336
8	-0.69	100	45	15.71	15.71	0.50	7.22	462.48	6682.89	925.755
9	-0.79	100	46	15.71	15.71	0.73	8.32	541.19	6163.46	740.688
10	-0.89	100	47	15.71	15.71	1.03	9.44	611.36	5626.02	595.884
11	-0.99	100	47	15.71	15.71	1.39	10.58	671.97	5097.44	481.824
12	-1.09	100	48	15.71	15.71	1.85	11.74	723.50	4600.48	392.023
13	-1.19	100	49	15.71	15.71	2.39	12.91	765.89	4142.60	320.912
14	-1.28	100	50	15.71	15.71	3.03	14.10	762.09	3551.86	251.902
15	-1.38	100	50	15.71	15.71	3.77	15.31	739.90	3005.27	196.303
16	-1.48	100	51	15.71	18.85	4.63	16.54	766.90	2741.76	165.803
17	-1.58	100	52	15.71	18.85	5.60	17.78	735.60	2335.18	131.330
18	-1.68	100	52	15.71	18.85	6.70	19.04	699.86	1988.11	104.398
19	-1.78	100	53	15.71	18.85	7.94	20.32	670.13	1715.21	84.394
20	-1.88	100	54	15.71	18.85	9.32	21.62	638.54	1481.62	68.524
21	-1.98	100	55	15.71	18.85	10.84	22.94	614.26	1299.20	56.640
22	-2.08	100	55	15.71	18.85	12.53	24.27	592.47	1147.93	47.296
23	-2.17	100	56	15.71	18.85	14.37	25.62	575.20	1025.49	40.022
24	-2.27	100	57	15.71	18.85	16.39	26.99	562.24	926.09	34.310
25	-2.37	100	58	15.71	18.85	18.58	28.38	552.49	843.89	29.736
26	-2.47	100	58	15.71	18.85	20.96	29.78	545.21	774.87	26.017

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
27	-2.57	100	59	15.71	18.85	23.53	31.21	539.88	716.16	22.949
28	-2.67	100	60	15.71	18.85	26.29	32.65	536.08	665.65	20.389
29	-2.77	100	61	15.71	18.85	29.27	34.11	533.55	621.77	18.231
30	-2.87	100	61	15.71	25.13	32.45	35.58	692.38	759.13	21.335
31	-2.96	100	62	15.71	25.13	35.86	37.07	691.45	714.88	19.282
32	-3.06	100	63	15.71	25.13	39.49	38.59	691.45	675.55	17.508
33	-3.16	100	63	15.71	25.13	43.36	40.12	692.25	640.40	15.964
34	-3.26	100	64	15.71	25.13	47.48	41.66	693.73	608.80	14.613
35	-3.36	100	65	15.71	25.13	51.84	43.23	695.81	580.26	13.423
36	-3.46	100	66	15.71	25.13	56.45	44.81	698.39	554.36	12.371
37	-3.56	100	66	15.71	25.13	61.33	46.41	701.42	530.77	11.436
38	-3.66	100	67	15.71	25.13	66.48	48.03	704.85	509.19	10.602
39	-3.75	100	68	15.71	25.13	71.91	49.67	708.62	489.39	9.854
40	-3.85	100	69	15.71	25.13	77.63	51.32	712.70	471.17	9.181
41	-3.95	100	69	15.71	25.13	83.63	52.99	717.07	454.34	8.574
42	-4.05	100	70	15.71	25.13	89.94	54.68	721.68	438.76	8.024
43	-4.15	100	71	15.71	25.13	96.55	56.39	726.51	424.30	7.525

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	0.00	100	40	15.71	15.71	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	15.71	15.71	0.01	0.98	0.00	0.00	100000.000
3	-0.20	100	41	15.71	15.71	0.04	1.97	159.68	7470.61	3785.296
4	-0.30	100	42	15.71	15.71	0.11	2.99	264.37	7422.37	2484.839
5	-0.40	100	43	15.71	15.71	0.21	4.02	359.95	6906.09	1718.647
6	-0.49	100	44	15.71	15.71	0.36	5.07	449.23	6343.28	1251.787
7	-0.59	100	44	15.71	15.71	0.56	6.13	528.11	5761.64	939.262
8	-0.69	100	45	15.71	15.71	0.83	7.22	594.86	5190.15	718.972
9	-0.79	100	46	15.71	15.71	1.16	8.32	650.22	4653.64	559.247
10	-0.89	100	47	15.71	15.71	1.58	9.44	695.89	4166.82	441.331
11	-0.99	100	47	15.71	15.71	2.08	10.58	713.26	3630.24	343.141
12	-1.09	100	48	15.71	15.71	2.68	11.74	698.69	3062.93	261.003
13	-1.19	100	49	15.71	15.71	3.38	12.91	667.02	2547.58	197.352
14	-1.28	100	50	15.71	15.71	4.20	14.10	627.12	2107.71	149.481
15	-1.38	100	50	15.71	15.71	5.13	15.31	584.23	1743.18	113.864
16	-1.48	100	51	15.71	18.85	6.19	16.54	627.67	1675.56	101.327
17	-1.58	100	52	15.71	18.85	7.39	17.78	599.70	1442.21	81.110
18	-1.68	100	52	15.71	18.85	8.74	19.04	575.96	1255.53	65.930
19	-1.78	100	53	15.71	18.85	10.23	20.32	556.19	1105.09	54.374
20	-1.88	100	54	15.71	18.85	11.88	21.62	539.90	982.59	45.444
21	-1.98	100	55	15.71	18.85	13.70	22.94	527.85	883.90	38.535
22	-2.08	100	55	15.71	18.85	15.69	24.27	518.95	802.82	33.077
23	-2.17	100	56	15.71	18.85	17.86	25.62	512.44	735.11	28.690
24	-2.27	100	57	15.71	18.85	20.22	26.99	507.80	677.78	25.110
25	-2.37	100	58	15.71	18.85	22.78	28.38	504.64	628.66	22.152
26	-2.47	100	58	15.71	18.85	25.54	29.78	502.67	586.15	19.680
27	-2.57	100	59	15.71	18.85	28.52	31.21	501.69	549.03	17.593
28	-2.67	100	60	15.71	18.85	31.71	32.65	501.51	516.35	15.816
29	-2.77	100	61	15.71	18.85	35.13	34.11	502.02	487.40	14.291
30	-2.87	100	61	15.71	25.13	38.78	35.58	654.72	600.67	16.882
31	-2.96	100	62	15.71	25.13	42.68	37.07	656.67	570.45	15.387
32	-3.06	100	63	15.71	25.13	46.82	38.59	659.18	543.21	14.078
33	-3.16	100	63	15.71	25.13	51.23	40.12	662.16	518.53	12.926
34	-3.26	100	64	15.71	25.13	55.90	41.66	665.56	496.09	11.907
35	-3.36	100	65	15.71	25.13	60.84	43.23	669.33	475.60	11.002
36	-3.46	100	66	15.71	25.13	66.06	44.81	673.41	456.82	10.195
37	-3.56	100	66	15.71	25.13	71.56	46.41	677.79	439.56	9.471
38	-3.66	100	67	15.71	25.13	77.37	48.03	682.42	423.64	8.820
39	-3.75	100	68	15.71	25.13	83.47	49.67	687.28	408.91	8.233

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
40	-3.85	100	69	15.71	25.13	89.89	51.32	692.34	395.26	7.702
41	-3.95	100	69	15.71	25.13	96.63	52.99	697.60	382.57	7.220
42	-4.05	100	70	15.71	25.13	103.69	54.68	703.02	370.75	6.780
43	-4.15	100	71	15.71	25.13	111.08	56.39	708.60	359.70	6.379

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	0.00	100	40	15.71	15.71	0.00	0.00	0.00	0.00	100000.000
2	-0.10	100	41	15.71	15.71	0.01	0.98	0.00	0.00	100000.000
3	-0.20	100	41	15.71	15.71	0.04	1.97	156.06	7470.61	3785.296
4	-0.30	100	42	15.71	15.71	0.10	2.99	257.91	7467.60	2499.978
5	-0.40	100	43	15.71	15.71	0.20	4.02	350.65	6982.77	1737.729
6	-0.49	100	44	15.71	15.71	0.34	5.07	437.94	6452.63	1273.367
7	-0.59	100	44	15.71	15.71	0.54	6.13	516.04	5900.92	961.967
8	-0.69	100	45	15.71	15.71	0.79	7.22	583.21	5353.81	741.643
9	-0.79	100	46	15.71	15.71	1.10	8.32	639.88	4834.07	580.930
10	-0.89	100	47	15.71	15.71	1.49	9.44	687.56	4357.79	461.559
11	-0.99	100	47	15.71	15.71	1.96	10.58	721.14	3894.27	368.097
12	-1.09	100	48	15.71	15.71	2.52	11.74	715.62	3335.37	284.218
13	-1.19	100	49	15.71	15.71	3.17	12.91	693.57	2821.39	218.563
14	-1.28	100	50	15.71	15.71	3.93	14.10	660.23	2367.17	167.883
15	-1.38	100	50	15.71	15.71	4.80	15.31	618.40	1971.12	128.753
16	-1.48	100	51	15.71	18.85	5.79	16.54	658.75	1881.05	113.753
17	-1.58	100	52	15.71	18.85	6.90	17.78	632.57	1629.16	91.624
18	-1.68	100	52	15.71	18.85	8.15	19.04	604.93	1413.73	74.237
19	-1.78	100	53	15.71	18.85	9.53	20.32	584.00	1245.20	61.268
20	-1.88	100	54	15.71	18.85	11.06	21.62	565.19	1104.87	51.100
21	-1.98	100	55	15.71	18.85	12.74	22.94	550.24	990.55	43.184
22	-2.08	100	55	15.71	18.85	14.58	24.27	539.07	897.26	36.968
23	-2.17	100	56	15.71	18.85	16.59	25.62	530.74	819.79	31.994
24	-2.27	100	57	15.71	18.85	18.77	26.99	524.62	754.49	27.952
25	-2.37	100	58	15.71	18.85	21.13	28.38	520.23	698.77	24.623
26	-2.47	100	58	15.71	18.85	23.67	29.78	517.23	650.70	21.847
27	-2.57	100	59	15.71	18.85	26.41	31.21	515.36	608.84	19.510
28	-2.67	100	60	15.71	18.85	29.36	32.65	514.42	572.10	17.524
29	-2.77	100	61	15.71	18.85	32.50	34.11	514.27	539.60	15.822
30	-2.87	100	61	15.71	25.13	35.87	35.58	669.90	664.57	18.678
31	-2.96	100	62	15.71	25.13	39.45	37.07	671.20	630.77	17.014
32	-3.06	100	63	15.71	25.13	43.26	38.59	673.11	600.35	15.559
33	-3.16	100	63	15.71	25.13	47.31	40.12	675.57	572.84	14.280
34	-3.26	100	64	15.71	25.13	51.60	41.66	678.50	547.84	13.149
35	-3.36	100	65	15.71	25.13	56.14	43.23	681.84	525.04	12.146
36	-3.46	100	66	15.71	25.13	60.93	44.81	685.54	504.16	11.251
37	-3.56	100	66	15.71	25.13	65.99	46.41	689.56	484.99	10.450
38	-3.66	100	67	15.71	25.13	71.31	48.03	693.87	467.32	9.730
39	-3.75	100	68	15.71	25.13	76.91	49.67	698.44	450.99	9.081
40	-3.85	100	69	15.71	25.13	82.80	51.32	703.23	435.86	8.493
41	-3.95	100	69	15.71	25.13	88.98	52.99	708.24	421.80	7.960
42	-4.05	100	70	15.71	25.13	95.45	54.68	713.44	408.71	7.475
43	-4.15	100	71	15.71	25.13	102.22	56.39	718.80	396.50	7.032

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-0.80	100	80	18.85	18.85	0.00	0.00	0.00	0.00	100000.000
2	-0.70	100	80	18.85	18.85	0.66	0.00	520.00	0.00	791.323
3	-0.60	100	80	18.85	18.85	2.61	0.00	520.00	0.00	199.107
4	-0.50	100	80	18.85	18.85	5.84	0.00	520.00	0.00	89.067
5	-0.40	100	80	18.85	18.85	10.31	0.00	520.00	0.00	50.428
6	0.31	100	80	18.85	18.85	-305.90	0.00	-520.00	0.00	1.700
7	0.41	100	80	18.85	18.85	-292.37	0.00	-520.00	0.00	1.779
8	0.51	100	80	18.85	18.85	-278.81	0.00	-520.00	0.00	1.865
9	0.61	100	80	18.85	18.85	-264.87	0.00	-520.00	0.00	1.963
10	0.71	100	80	18.85	18.85	-251.01	0.00	-520.00	0.00	2.072
11	0.81	100	80	18.85	18.85	-237.27	0.00	-520.00	0.00	2.192
12	0.91	100	80	18.85	18.85	-223.67	0.00	-520.00	0.00	2.325
13	1.01	100	80	18.85	18.85	-210.23	0.00	-520.00	0.00	2.473
14	1.11	100	80	18.85	18.85	-196.98	0.00	-520.00	0.00	2.640
15	1.21	100	80	18.85	18.85	-183.94	0.00	-520.00	0.00	2.827
16	1.31	100	80	18.85	18.85	-171.14	0.00	-520.00	0.00	3.038
17	1.41	100	80	18.85	18.85	-158.60	0.00	-520.00	0.00	3.279
18	1.50	100	80	18.85	18.85	-146.35	0.00	-520.00	0.00	3.553
19	1.60	100	80	18.85	18.85	-134.42	0.00	-520.00	0.00	3.869
20	1.70	100	80	18.85	18.85	-122.82	0.00	-520.00	0.00	4.234
21	1.80	100	80	18.85	18.85	-111.58	0.00	-520.00	0.00	4.660
22	1.90	100	80	18.85	18.85	-100.74	0.00	-520.00	0.00	5.162
23	2.00	100	80	18.85	18.85	-90.30	0.00	-520.00	0.00	5.758
24	2.10	100	80	18.85	18.85	-80.31	0.00	-520.00	0.00	6.475
25	2.20	100	80	18.85	18.85	-70.77	0.00	-520.00	0.00	7.347
26	2.30	100	80	18.85	18.85	-61.73	0.00	-520.00	0.00	8.424
27	2.40	100	80	18.85	18.85	-53.20	0.00	-520.00	0.00	9.775
28	2.50	100	80	18.85	18.85	-45.21	0.00	-520.00	0.00	11.503
29	2.60	100	80	18.85	18.85	-37.78	0.00	-520.00	0.00	13.764
30	2.70	100	80	18.85	18.85	-30.94	0.00	-520.00	0.00	16.807
31	2.80	100	80	18.85	18.85	-24.71	0.00	-520.00	0.00	21.042
32	2.90	100	80	18.85	18.85	-19.13	0.00	-520.00	0.00	27.189
33	3.00	100	80	18.85	18.85	-14.20	0.00	-520.00	0.00	36.616
34	3.10	100	80	18.85	18.85	-9.97	0.00	-520.00	0.00	52.174
35	3.20	100	80	18.85	18.85	-6.45	0.00	-520.00	0.00	80.677
36	3.30	100	80	18.85	18.85	-3.66	0.00	-520.00	0.00	141.955
37	3.40	100	80	18.85	18.85	-1.64	0.00	-520.00	0.00	316.157
38	3.50	100	80	18.85	18.85	-0.42	0.00	-520.00	0.00	1251.916
39	3.60	100	80	18.85	18.85	0.00	0.00	0.00	0.00	100000.000

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-0.80	100	80	18.85	18.85	0.00	0.00	0.00	0.00	100000.000
2	-0.70	100	80	18.85	18.85	0.78	0.00	520.00	0.00	666.775
3	-0.60	100	80	18.85	18.85	3.10	0.00	520.00	0.00	167.917
4	-0.50	100	80	18.85	18.85	6.92	0.00	520.00	0.00	75.181
5	-0.40	100	80	18.85	18.85	12.21	0.00	520.00	0.00	42.604
6	0.31	100	80	18.85	18.85	-195.52	0.00	-520.00	0.00	2.660
7	0.41	100	80	18.85	18.85	-189.91	0.00	-520.00	0.00	2.738
8	0.51	100	80	18.85	18.85	-183.91	0.00	-520.00	0.00	2.827
9	0.61	100	80	18.85	18.85	-177.30	0.00	-520.00	0.00	2.933
10	0.71	100	80	18.85	18.85	-170.41	0.00	-520.00	0.00	3.051
11	0.81	100	80	18.85	18.85	-163.27	0.00	-520.00	0.00	3.185
12	0.91	100	80	18.85	18.85	-155.92	0.00	-520.00	0.00	3.335
13	1.01	100	80	18.85	18.85	-148.39	0.00	-520.00	0.00	3.504
14	1.11	100	80	18.85	18.85	-140.71	0.00	-520.00	0.00	3.696
15	1.21	100	80	18.85	18.85	-132.92	0.00	-520.00	0.00	3.912

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
16	1.31	100	80	18.85	18.85	-125.05	0.00	-520.00	0.00	4.158
17	1.41	100	80	18.85	18.85	-117.14	0.00	-520.00	0.00	4.439
18	1.50	100	80	18.85	18.85	-109.21	0.00	-520.00	0.00	4.761
19	1.60	100	80	18.85	18.85	-101.31	0.00	-520.00	0.00	5.133
20	1.70	100	80	18.85	18.85	-93.46	0.00	-520.00	0.00	5.564
21	1.80	100	80	18.85	18.85	-85.71	0.00	-520.00	0.00	6.067
22	1.90	100	80	18.85	18.85	-78.08	0.00	-520.00	0.00	6.660
23	2.00	100	80	18.85	18.85	-70.60	0.00	-520.00	0.00	7.365
24	2.10	100	80	18.85	18.85	-63.32	0.00	-520.00	0.00	8.212
25	2.20	100	80	18.85	18.85	-56.26	0.00	-520.00	0.00	9.243
26	2.30	100	80	18.85	18.85	-49.46	0.00	-520.00	0.00	10.513
27	2.40	100	80	18.85	18.85	-42.95	0.00	-520.00	0.00	12.106
28	2.50	100	80	18.85	18.85	-36.77	0.00	-520.00	0.00	14.140
29	2.60	100	80	18.85	18.85	-30.96	0.00	-520.00	0.00	16.798
30	2.70	100	80	18.85	18.85	-25.53	0.00	-520.00	0.00	20.369
31	2.80	100	80	18.85	18.85	-20.53	0.00	-520.00	0.00	25.327
32	2.90	100	80	18.85	18.85	-16.00	0.00	-520.00	0.00	32.510
33	3.00	100	80	18.85	18.85	-11.95	0.00	-520.00	0.00	43.499
34	3.10	100	80	18.85	18.85	-8.44	0.00	-520.00	0.00	61.595
35	3.20	100	80	18.85	18.85	-5.49	0.00	-520.00	0.00	94.665
36	3.30	100	80	18.85	18.85	-3.14	0.00	-520.00	0.00	165.579
37	3.40	100	80	18.85	18.85	-1.42	0.00	-520.00	0.00	366.639
38	3.50	100	80	18.85	18.85	-0.36	0.00	-520.00	0.00	1443.643
39	3.60	100	80	18.85	18.85	0.00	0.00	0.00	0.00	100000.000

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
1	-0.80	100	80	18.85	18.85	0.00	0.00	0.00	0.00	100000.000
2	-0.70	100	80	18.85	18.85	0.70	0.00	520.00	0.00	737.790
3	-0.60	100	80	18.85	18.85	2.80	0.00	520.00	0.00	185.892
4	-0.50	100	80	18.85	18.85	6.24	0.00	520.00	0.00	83.271
5	-0.40	100	80	18.85	18.85	11.01	0.00	520.00	0.00	47.213
6	0.31	100	80	18.85	18.85	-255.46	0.00	-520.00	0.00	2.036
7	0.41	100	80	18.85	18.85	-246.07	0.00	-520.00	0.00	2.113
8	0.51	100	80	18.85	18.85	-236.42	0.00	-520.00	0.00	2.199
9	0.61	100	80	18.85	18.85	-226.30	0.00	-520.00	0.00	2.298
10	0.71	100	80	18.85	18.85	-216.03	0.00	-520.00	0.00	2.407
11	0.81	100	80	18.85	18.85	-205.65	0.00	-520.00	0.00	2.529
12	0.91	100	80	18.85	18.85	-195.18	0.00	-520.00	0.00	2.664
13	1.01	100	80	18.85	18.85	-184.66	0.00	-520.00	0.00	2.816
14	1.11	100	80	18.85	18.85	-174.12	0.00	-520.00	0.00	2.986
15	1.21	100	80	18.85	18.85	-163.60	0.00	-520.00	0.00	3.179
16	1.31	100	80	18.85	18.85	-153.12	0.00	-520.00	0.00	3.396
17	1.41	100	80	18.85	18.85	-142.72	0.00	-520.00	0.00	3.644
18	1.50	100	80	18.85	18.85	-132.43	0.00	-520.00	0.00	3.926
19	1.60	100	80	18.85	18.85	-122.29	0.00	-520.00	0.00	4.252
20	1.70	100	80	18.85	18.85	-112.33	0.00	-520.00	0.00	4.629
21	1.80	100	80	18.85	18.85	-102.58	0.00	-520.00	0.00	5.069
22	1.90	100	80	18.85	18.85	-93.06	0.00	-520.00	0.00	5.588
23	2.00	100	80	18.85	18.85	-83.83	0.00	-520.00	0.00	6.203
24	2.10	100	80	18.85	18.85	-74.90	0.00	-520.00	0.00	6.943
25	2.20	100	80	18.85	18.85	-66.31	0.00	-520.00	0.00	7.842
26	2.30	100	80	18.85	18.85	-58.09	0.00	-520.00	0.00	8.951
27	2.40	100	80	18.85	18.85	-50.28	0.00	-520.00	0.00	10.342
28	2.50	100	80	18.85	18.85	-42.91	0.00	-520.00	0.00	12.120
29	2.60	100	80	18.85	18.85	-36.00	0.00	-520.00	0.00	14.444
30	2.70	100	80	18.85	18.85	-29.60	0.00	-520.00	0.00	17.567
31	2.80	100	80	18.85	18.85	-23.74	0.00	-520.00	0.00	21.908
32	2.90	100	80	18.85	18.85	-18.44	0.00	-520.00	0.00	28.201

n°	Y	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
33	3.00	100	80	18.85	18.85	-13.74	0.00	-520.00	0.00	37.839
34	3.10	100	80	18.85	18.85	-9.68	0.00	-520.00	0.00	53.724
35	3.20	100	80	18.85	18.85	-6.28	0.00	-520.00	0.00	82.784
36	3.30	100	80	18.85	18.85	-3.58	0.00	-520.00	0.00	145.163
37	3.40	100	80	18.85	18.85	-1.61	0.00	-520.00	0.00	322.223
38	3.50	100	80	18.85	18.85	-0.41	0.00	-520.00	0.00	1271.779
39	3.60	100	80	18.85	18.85	0.00	0.00	0.00	0.00	100000.000

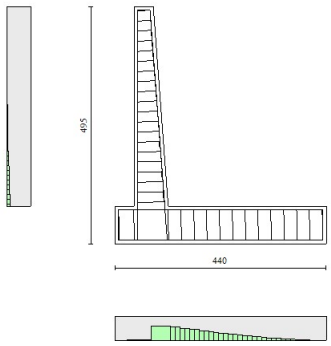


Fig. 10 - Paramento (Inviluppo)

Verifiche a taglio

Simbologia adottata

Is	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
A_{sw}	area ferri a taglio espresso in [cmq]
cotgθ	inclinazione delle bielle compresse, θ inclinazione dei puntoni di calcestruzzo
V_{Rcd}	resistenza di progetto a 'taglio compressione' espressa in [kN]
V_{Rsd}	resistenza di progetto a 'taglio trazione' espressa in [kN]
V_{Rd}	resistenza di progetto a taglio espresso in [kN]. Per elementi con armature trasversali resistenti al taglio (A_{sw}>0.0) V_{Rd}=min(V_{Rcd}, V_{Rsd}).

T taglio agente espressa in [kN]

FS fattore di sicurezza (rapporto tra sollecitazione resistente e sollecitazione agente)

Paramento

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	226.71	0.00	100.000
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	229.03	0.04	6284.150
3	-0.20	100	41	0.00	0.00	--	0.00	0.00	231.35	0.15	1586.890
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	233.64	0.33	714.259
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	235.92	0.58	407.105
6	-0.49	100	44	0.00	0.00	--	0.00	0.00	238.19	0.90	263.644
7	-0.59	100	44	0.00	0.00	--	0.00	0.00	240.44	1.30	185.044
8	-0.69	100	45	0.00	0.00	--	0.00	0.00	242.68	1.78	136.693
9	-0.79	100	46	0.00	0.00	--	0.00	0.00	244.90	2.34	104.683
10	-0.89	100	47	0.00	0.00	--	0.00	0.00	247.11	2.99	82.545
11	-0.99	100	47	0.00	0.00	--	0.00	0.00	249.31	3.74	66.662
12	-1.09	100	48	0.00	0.00	--	0.00	0.00	251.50	4.57	55.026
13	-1.19	100	49	0.00	0.00	--	0.00	0.00	253.68	5.48	46.309
14	-1.28	100	50	0.00	0.00	--	0.00	0.00	255.84	6.46	39.604
15	-1.38	100	50	0.00	0.00	--	0.00	0.00	258.00	7.52	34.330
16	-1.48	100	51	0.00	0.00	--	0.00	0.00	268.47	8.64	31.060
17	-1.58	100	52	0.00	0.00	--	0.00	0.00	270.66	9.84	27.495
18	-1.68	100	52	0.00	0.00	--	0.00	0.00	272.85	11.12	24.542
19	-1.78	100	53	0.00	0.00	--	0.00	0.00	275.03	12.46	22.067
20	-1.88	100	54	0.00	0.00	--	0.00	0.00	277.19	13.88	19.969
21	-1.98	100	55	0.00	0.00	--	0.00	0.00	279.35	15.37	18.173
22	-2.08	100	55	0.00	0.00	--	0.00	0.00	281.50	16.93	16.623
23	-2.17	100	56	0.00	0.00	--	0.00	0.00	283.64	18.57	15.275
24	-2.27	100	57	0.00	0.00	--	0.00	0.00	285.77	20.28	14.094
25	-2.37	100	58	0.00	0.00	--	0.00	0.00	287.89	22.06	13.053
26	-2.47	100	58	0.00	0.00	--	0.00	0.00	290.01	23.91	12.131
27	-2.57	100	59	0.00	0.00	--	0.00	0.00	292.11	25.83	11.309
28	-2.67	100	60	0.00	0.00	--	0.00	0.00	294.21	27.83	10.574
29	-2.77	100	61	0.00	0.00	--	0.00	0.00	296.30	29.89	9.912
30	-2.87	100	61	0.00	0.00	--	0.00	0.00	315.20	32.03	9.840
31	-2.96	100	62	0.00	0.00	--	0.00	0.00	317.38	34.24	9.268
32	-3.06	100	63	0.00	0.00	--	0.00	0.00	319.56	36.53	8.749
33	-3.16	100	63	0.00	0.00	--	0.00	0.00	321.72	38.88	8.274
34	-3.26	100	64	0.00	0.00	--	0.00	0.00	323.88	41.31	7.840
35	-3.36	100	65	0.00	0.00	--	0.00	0.00	326.04	43.81	7.442
36	-3.46	100	66	0.00	0.00	--	0.00	0.00	328.19	46.38	7.076
37	-3.56	100	66	0.00	0.00	--	0.00	0.00	330.33	49.02	6.738
38	-3.66	100	67	0.00	0.00	--	0.00	0.00	332.46	51.74	6.426
39	-3.75	100	68	0.00	0.00	--	0.00	0.00	334.59	54.53	6.136
40	-3.85	100	69	0.00	0.00	--	0.00	0.00	336.71	57.39	5.867
41	-3.95	100	69	0.00	0.00	--	0.00	0.00	338.83	60.32	5.617
42	-4.05	100	70	0.00	0.00	--	0.00	0.00	340.94	63.32	5.384
43	-4.15	100	71	0.00	0.00	--	0.00	0.00	343.04	66.40	5.166

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	226.71	0.00	100.000

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	229.03	0.16	1394.827
3	-0.20	100	41	0.00	0.00	--	0.00	0.00	231.35	0.41	570.768
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	233.64	0.72	323.305
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	235.92	1.12	211.489
6	-0.49	100	44	0.00	0.00	--	0.00	0.00	238.19	1.58	150.346
7	-0.59	100	44	0.00	0.00	--	0.00	0.00	240.44	2.13	112.924
8	-0.69	100	45	0.00	0.00	--	0.00	0.00	242.68	2.76	88.070
9	-0.79	100	46	0.00	0.00	--	0.00	0.00	244.90	3.47	70.612
10	-0.89	100	47	0.00	0.00	--	0.00	0.00	247.11	4.27	57.884
11	-0.99	100	47	0.00	0.00	--	0.00	0.00	249.31	5.16	48.319
12	-1.09	100	48	0.00	0.00	--	0.00	0.00	251.50	6.14	40.994
13	-1.19	100	49	0.00	0.00	--	0.00	0.00	253.68	7.19	35.280
14	-1.28	100	50	0.00	0.00	--	0.00	0.00	255.84	8.32	30.735
15	-1.38	100	50	0.00	0.00	--	0.00	0.00	258.00	9.53	27.058
16	-1.48	100	51	0.00	0.00	--	0.00	0.00	268.47	10.82	24.807
17	-1.58	100	52	0.00	0.00	--	0.00	0.00	270.66	12.19	22.210
18	-1.68	100	52	0.00	0.00	--	0.00	0.00	272.85	13.63	20.023
19	-1.78	100	53	0.00	0.00	--	0.00	0.00	275.03	15.14	18.161
20	-1.88	100	54	0.00	0.00	--	0.00	0.00	277.19	16.74	16.561
21	-1.98	100	55	0.00	0.00	--	0.00	0.00	279.35	18.41	15.176
22	-2.08	100	55	0.00	0.00	--	0.00	0.00	281.50	20.15	13.967
23	-2.17	100	56	0.00	0.00	--	0.00	0.00	283.64	21.98	12.906
24	-2.27	100	57	0.00	0.00	--	0.00	0.00	285.77	23.88	11.969
25	-2.37	100	58	0.00	0.00	--	0.00	0.00	287.89	25.85	11.137
26	-2.47	100	58	0.00	0.00	--	0.00	0.00	290.01	27.90	10.394
27	-2.57	100	59	0.00	0.00	--	0.00	0.00	292.11	30.03	9.727
28	-2.67	100	60	0.00	0.00	--	0.00	0.00	294.21	32.23	9.127
29	-2.77	100	61	0.00	0.00	--	0.00	0.00	296.30	34.51	8.585
30	-2.87	100	61	0.00	0.00	--	0.00	0.00	315.20	36.87	8.549
31	-2.96	100	62	0.00	0.00	--	0.00	0.00	317.38	39.30	8.075
32	-3.06	100	63	0.00	0.00	--	0.00	0.00	319.56	41.81	7.642
33	-3.16	100	63	0.00	0.00	--	0.00	0.00	321.72	44.40	7.246
34	-3.26	100	64	0.00	0.00	--	0.00	0.00	323.88	47.06	6.882
35	-3.36	100	65	0.00	0.00	--	0.00	0.00	326.04	49.80	6.547
36	-3.46	100	66	0.00	0.00	--	0.00	0.00	328.19	52.61	6.238
37	-3.56	100	66	0.00	0.00	--	0.00	0.00	330.33	55.50	5.952
38	-3.66	100	67	0.00	0.00	--	0.00	0.00	332.46	58.47	5.686
39	-3.75	100	68	0.00	0.00	--	0.00	0.00	334.59	61.51	5.439
40	-3.85	100	69	0.00	0.00	--	0.00	0.00	336.71	64.63	5.210
41	-3.95	100	69	0.00	0.00	--	0.00	0.00	338.83	67.83	4.996
42	-4.05	100	70	0.00	0.00	--	0.00	0.00	340.94	71.10	4.795
43	-4.15	100	71	0.00	0.00	--	0.00	0.00	343.04	74.45	4.608

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	0.00	100	40	0.00	0.00	--	0.00	0.00	226.71	0.00	100.000
2	-0.10	100	41	0.00	0.00	--	0.00	0.00	229.03	0.16	1426.355
3	-0.20	100	41	0.00	0.00	--	0.00	0.00	231.35	0.39	591.971
4	-0.30	100	42	0.00	0.00	--	0.00	0.00	233.64	0.69	338.611
5	-0.40	100	43	0.00	0.00	--	0.00	0.00	235.92	1.06	223.104
6	-0.49	100	44	0.00	0.00	--	0.00	0.00	238.19	1.49	159.481
7	-0.59	100	44	0.00	0.00	--	0.00	0.00	240.44	2.00	120.307
8	-0.69	100	45	0.00	0.00	--	0.00	0.00	242.68	2.58	94.146
9	-0.79	100	46	0.00	0.00	--	0.00	0.00	244.90	3.24	75.681
10	-0.89	100	47	0.00	0.00	--	0.00	0.00	247.11	3.98	62.165
11	-0.99	100	47	0.00	0.00	--	0.00	0.00	249.31	4.80	51.975
12	-1.09	100	48	0.00	0.00	--	0.00	0.00	251.50	5.70	44.154
13	-1.19	100	49	0.00	0.00	--	0.00	0.00	253.68	6.67	38.045
14	-1.28	100	50	0.00	0.00	--	0.00	0.00	255.84	7.71	33.180
15	-1.38	100	50	0.00	0.00	--	0.00	0.00	258.00	8.82	29.240
16	-1.48	100	51	0.00	0.00	--	0.00	0.00	268.47	10.01	26.831

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
17	-1.58	100	52	0.00	0.00	--	0.00	0.00	270.66	11.26	24.044
18	-1.68	100	52	0.00	0.00	--	0.00	0.00	272.85	12.58	21.692
19	-1.78	100	53	0.00	0.00	--	0.00	0.00	275.03	13.97	19.690
20	-1.88	100	54	0.00	0.00	--	0.00	0.00	277.19	15.43	17.968
21	-1.98	100	55	0.00	0.00	--	0.00	0.00	279.35	16.96	16.475
22	-2.08	100	55	0.00	0.00	--	0.00	0.00	281.50	18.55	15.172
23	-2.17	100	56	0.00	0.00	--	0.00	0.00	283.64	20.22	14.028
24	-2.27	100	57	0.00	0.00	--	0.00	0.00	285.77	21.96	13.016
25	-2.37	100	58	0.00	0.00	--	0.00	0.00	287.89	23.76	12.117
26	-2.47	100	58	0.00	0.00	--	0.00	0.00	290.01	25.63	11.313
27	-2.57	100	59	0.00	0.00	--	0.00	0.00	292.11	27.58	10.593
28	-2.67	100	60	0.00	0.00	--	0.00	0.00	294.21	29.59	9.943
29	-2.77	100	61	0.00	0.00	--	0.00	0.00	296.30	31.67	9.356
30	-2.87	100	61	0.00	0.00	--	0.00	0.00	315.20	33.82	9.320
31	-2.96	100	62	0.00	0.00	--	0.00	0.00	317.38	36.04	8.807
32	-3.06	100	63	0.00	0.00	--	0.00	0.00	319.56	38.33	8.338
33	-3.16	100	63	0.00	0.00	--	0.00	0.00	321.72	40.68	7.908
34	-3.26	100	64	0.00	0.00	--	0.00	0.00	323.88	43.11	7.513
35	-3.36	100	65	0.00	0.00	--	0.00	0.00	326.04	45.60	7.150
36	-3.46	100	66	0.00	0.00	--	0.00	0.00	328.19	48.17	6.814
37	-3.56	100	66	0.00	0.00	--	0.00	0.00	330.33	50.80	6.503
38	-3.66	100	67	0.00	0.00	--	0.00	0.00	332.46	53.50	6.214
39	-3.75	100	68	0.00	0.00	--	0.00	0.00	334.59	56.27	5.946
40	-3.85	100	69	0.00	0.00	--	0.00	0.00	336.71	59.11	5.696
41	-3.95	100	69	0.00	0.00	--	0.00	0.00	338.83	62.02	5.463
42	-4.05	100	70	0.00	0.00	--	0.00	0.00	340.94	65.00	5.245
43	-4.15	100	71	0.00	0.00	--	0.00	0.00	343.04	68.04	5.042

Fondazione

Combinazione n° 1 - STR (A1-M1-R3)

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-0.80	100	80	0.00	0.00	--	0.00	0.00	333.31	0.00	100.000
2	-0.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-13.10	25.442
3	-0.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-25.95	12.845
4	-0.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-38.54	8.648
5	-0.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-50.89	6.550
6	0.31	100	80	0.00	0.00	--	0.00	0.00	333.31	-140.36	2.375
7	0.41	100	80	0.00	0.00	--	0.00	0.00	333.31	-140.41	2.374
8	0.51	100	80	0.00	0.00	--	0.00	0.00	333.31	-140.18	2.378
9	0.61	100	80	0.00	0.00	--	0.00	0.00	333.31	-139.43	2.391
10	0.71	100	80	0.00	0.00	--	0.00	0.00	333.31	-138.42	2.408
11	0.81	100	80	0.00	0.00	--	0.00	0.00	333.31	-137.17	2.430
12	0.91	100	80	0.00	0.00	--	0.00	0.00	333.31	-135.66	2.457
13	1.01	100	80	0.00	0.00	--	0.00	0.00	333.31	-133.90	2.489
14	1.11	100	80	0.00	0.00	--	0.00	0.00	333.31	-131.89	2.527
15	1.21	100	80	0.00	0.00	--	0.00	0.00	333.31	-129.63	2.571
16	1.31	100	80	0.00	0.00	--	0.00	0.00	333.31	-127.12	2.622
17	1.41	100	80	0.00	0.00	--	0.00	0.00	333.31	-124.36	2.680
18	1.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-121.34	2.747
19	1.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-118.08	2.823
20	1.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-114.56	2.909
21	1.80	100	80	0.00	0.00	--	0.00	0.00	333.31	-110.79	3.008
22	1.90	100	80	0.00	0.00	--	0.00	0.00	333.31	-106.77	3.122
23	2.00	100	80	0.00	0.00	--	0.00	0.00	333.31	-102.50	3.252
24	2.10	100	80	0.00	0.00	--	0.00	0.00	333.31	-97.98	3.402
25	2.20	100	80	0.00	0.00	--	0.00	0.00	333.31	-93.21	3.576

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
26	2.30	100	80	0.00	0.00	--	0.00	0.00	333.31	-88.18	3.780
27	2.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-82.91	4.020
28	2.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-77.38	4.307
29	2.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-71.60	4.655
30	2.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-65.57	5.083
31	2.80	100	80	0.00	0.00	--	0.00	0.00	333.31	-59.29	5.622
32	2.90	100	80	0.00	0.00	--	0.00	0.00	333.31	-52.76	6.318
33	3.00	100	80	0.00	0.00	--	0.00	0.00	333.31	-45.98	7.250
34	3.10	100	80	0.00	0.00	--	0.00	0.00	333.31	-38.94	8.559
35	3.20	100	80	0.00	0.00	--	0.00	0.00	333.31	-31.66	10.529
36	3.30	100	80	0.00	0.00	--	0.00	0.00	333.31	-24.12	13.820
37	3.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-16.33	20.411
38	3.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-8.29	40.203
39	3.60	100	80	0.00	0.00	--	0.00	0.00	333.31	0.00	100.000

Combinazione n° 2 - STR (A1-M1-R3) H + V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-0.80	100	80	0.00	0.00	--	0.00	0.00	333.31	0.00	100.000
2	-0.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-15.54	21.447
3	-0.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-30.74	10.843
4	-0.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-45.60	7.309
5	-0.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-60.12	5.544
6	0.31	100	80	0.00	0.00	--	0.00	0.00	333.31	-57.39	5.808
7	0.41	100	80	0.00	0.00	--	0.00	0.00	333.31	-61.25	5.441
8	0.51	100	80	0.00	0.00	--	0.00	0.00	333.31	-64.77	5.146
9	0.61	100	80	0.00	0.00	--	0.00	0.00	333.31	-67.76	4.919
10	0.71	100	80	0.00	0.00	--	0.00	0.00	333.31	-70.41	4.734
11	0.81	100	80	0.00	0.00	--	0.00	0.00	333.31	-72.72	4.583
12	0.91	100	80	0.00	0.00	--	0.00	0.00	333.31	-74.70	4.462
13	1.01	100	80	0.00	0.00	--	0.00	0.00	333.31	-76.34	4.366
14	1.11	100	80	0.00	0.00	--	0.00	0.00	333.31	-77.63	4.293
15	1.21	100	80	0.00	0.00	--	0.00	0.00	333.31	-78.59	4.241
16	1.31	100	80	0.00	0.00	--	0.00	0.00	333.31	-79.21	4.208
17	1.41	100	80	0.00	0.00	--	0.00	0.00	333.31	-79.49	4.193
18	1.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-79.44	4.196
19	1.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-79.04	4.217
20	1.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-78.31	4.257
21	1.80	100	80	0.00	0.00	--	0.00	0.00	333.31	-77.23	4.316
22	1.90	100	80	0.00	0.00	--	0.00	0.00	333.31	-75.82	4.396
23	2.00	100	80	0.00	0.00	--	0.00	0.00	333.31	-74.07	4.500
24	2.10	100	80	0.00	0.00	--	0.00	0.00	333.31	-71.98	4.631
25	2.20	100	80	0.00	0.00	--	0.00	0.00	333.31	-69.55	4.792
26	2.30	100	80	0.00	0.00	--	0.00	0.00	333.31	-66.79	4.991
27	2.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-63.68	5.234
28	2.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-60.24	5.533
29	2.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-56.45	5.904
30	2.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-52.33	6.369
31	2.80	100	80	0.00	0.00	--	0.00	0.00	333.31	-47.87	6.962
32	2.90	100	80	0.00	0.00	--	0.00	0.00	333.31	-43.07	7.738
33	3.00	100	80	0.00	0.00	--	0.00	0.00	333.31	-37.94	8.786
34	3.10	100	80	0.00	0.00	--	0.00	0.00	333.31	-32.46	10.268
35	3.20	100	80	0.00	0.00	--	0.00	0.00	333.31	-26.65	12.509
36	3.30	100	80	0.00	0.00	--	0.00	0.00	333.31	-20.49	16.265
37	3.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-14.00	23.807
38	3.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-7.17	46.490
39	3.60	100	80	0.00	0.00	--	0.00	0.00	333.31	0.00	100.000

Combinazione n° 3 - STR (A1-M1-R3) H - V

n°	Y	B	H	A_{sw}	s	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cm]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	-0.80	100	80	0.00	0.00	--	0.00	0.00	333.31	0.00	100.000
2	-0.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-14.04	23.737
3	-0.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-27.75	12.009
4	-0.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-41.14	8.102
5	-0.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-54.19	6.150
6	0.31	100	80	0.00	0.00	--	0.00	0.00	333.31	-96.00	3.472
7	0.41	100	80	0.00	0.00	--	0.00	0.00	333.31	-98.50	3.384
8	0.51	100	80	0.00	0.00	--	0.00	0.00	333.31	-100.67	3.311
9	0.61	100	80	0.00	0.00	--	0.00	0.00	333.31	-102.32	3.257
10	0.71	100	80	0.00	0.00	--	0.00	0.00	333.31	-103.65	3.216
11	0.81	100	80	0.00	0.00	--	0.00	0.00	333.31	-104.65	3.185
12	0.91	100	80	0.00	0.00	--	0.00	0.00	333.31	-105.32	3.165
13	1.01	100	80	0.00	0.00	--	0.00	0.00	333.31	-105.67	3.154
14	1.11	100	80	0.00	0.00	--	0.00	0.00	333.31	-105.69	3.154
15	1.21	100	80	0.00	0.00	--	0.00	0.00	333.31	-105.38	3.163
16	1.31	100	80	0.00	0.00	--	0.00	0.00	333.31	-104.75	3.182
17	1.41	100	80	0.00	0.00	--	0.00	0.00	333.31	-103.79	3.212
18	1.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-102.50	3.252
19	1.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-100.88	3.304
20	1.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-98.94	3.369
21	1.80	100	80	0.00	0.00	--	0.00	0.00	333.31	-96.68	3.448
22	1.90	100	80	0.00	0.00	--	0.00	0.00	333.31	-94.08	3.543
23	2.00	100	80	0.00	0.00	--	0.00	0.00	333.31	-91.16	3.656
24	2.10	100	80	0.00	0.00	--	0.00	0.00	333.31	-87.92	3.791
25	2.20	100	80	0.00	0.00	--	0.00	0.00	333.31	-84.34	3.952
26	2.30	100	80	0.00	0.00	--	0.00	0.00	333.31	-80.44	4.144
27	2.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-76.21	4.373
28	2.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-71.66	4.651
29	2.60	100	80	0.00	0.00	--	0.00	0.00	333.31	-66.78	4.991
30	2.70	100	80	0.00	0.00	--	0.00	0.00	333.31	-61.57	5.413
31	2.80	100	80	0.00	0.00	--	0.00	0.00	333.31	-56.04	5.948
32	2.90	100	80	0.00	0.00	--	0.00	0.00	333.31	-50.17	6.643
33	3.00	100	80	0.00	0.00	--	0.00	0.00	333.31	-43.99	7.577
34	3.10	100	80	0.00	0.00	--	0.00	0.00	333.31	-37.47	8.895
35	3.20	100	80	0.00	0.00	--	0.00	0.00	333.31	-30.63	10.881
36	3.30	100	80	0.00	0.00	--	0.00	0.00	333.31	-23.46	14.205
37	3.40	100	80	0.00	0.00	--	0.00	0.00	333.31	-15.97	20.872
38	3.50	100	80	0.00	0.00	--	0.00	0.00	333.31	-8.15	40.907
39	3.60	100	80	0.00	0.00	--	0.00	0.00	333.31	0.00	100.000

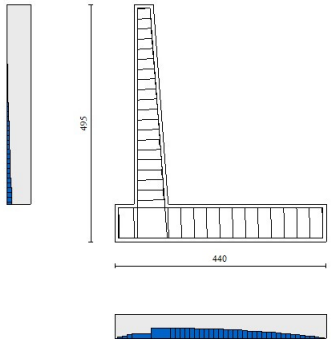


Fig. 11 - Paramento (Inviluppo)

Verifica delle tensioni

Simbologia adottata

n°	indice sezione
Y	ordinata sezione, espressa in [m]
B	larghezza sezione, espresso in [cm]
H	altezza sezione, espressa in [cm]
Afi	area ferri inferiori, espresso in [cmq]
Afs	area ferri superiori, espressa in [cmq]
M	momento agente, espressa in [kNm]
N	sforzo normale agente, espressa in [kN]
σc	tensione di compressione nel cls, espressa in [kPa]
σfi	tensione nei ferri inferiori, espressa in [kPa]
σfs	tensione nei ferri superiori, espressa in [kPa]

Combinazioni SLER

Paramento

Combinazione n° 10 - SLER

Tensione massima di compressione nel calcestruzzo 19920 [kPa]

Tensione massima di trazione dell'acciaio 360000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	15.71	15.71	0.00	0.00	0	0	0
2	-0.10	100	41	15.71	15.71	0.00	0.98	2	31	33
3	-0.20	100	41	15.71	15.71	0.01	1.97	5	60	69
4	-0.30	100	42	15.71	15.71	0.04	2.99	8	83	108
5	-0.40	100	43	15.71	15.71	0.09	4.02	11	100	153
6	-0.49	100	44	15.71	15.71	0.16	5.07	15	111	204
7	-0.59	100	44	15.71	15.71	0.26	6.13	19	113	262
8	-0.69	100	45	15.71	15.71	0.41	7.22	25	106	329
9	-0.79	100	46	15.71	15.71	0.59	8.32	31	89	405
10	-0.89	100	47	15.71	15.71	0.82	9.44	38	60	491
11	-0.99	100	47	15.71	15.71	1.11	10.58	47	4	594
12	-1.09	100	48	15.71	15.71	1.47	11.74	57	99	718
13	-1.19	100	49	15.71	15.71	1.89	12.91	71	270	865
14	-1.28	100	50	15.71	15.71	2.39	14.10	87	533	1037
15	-1.38	100	50	15.71	15.71	2.97	15.31	105	904	1232
16	-1.48	100	51	15.71	18.85	3.64	16.54	124	1241	1429
17	-1.58	100	52	15.71	18.85	4.40	17.78	147	1765	1658
18	-1.68	100	52	15.71	18.85	5.25	19.04	171	2390	1906
19	-1.78	100	53	15.71	18.85	6.21	20.32	198	3116	2173
20	-1.88	100	54	15.71	18.85	7.28	21.62	228	3944	2457
21	-1.98	100	55	15.71	18.85	8.47	22.94	259	4874	2760
22	-2.08	100	55	15.71	18.85	9.77	24.27	292	5906	3081
23	-2.17	100	56	15.71	18.85	11.20	25.62	327	7041	3421
24	-2.27	100	57	15.71	18.85	12.76	26.99	364	8280	3780
25	-2.37	100	58	15.71	18.85	14.46	28.38	403	9625	4157
26	-2.47	100	58	15.71	18.85	16.30	29.78	444	11076	4554
27	-2.57	100	59	15.71	18.85	18.28	31.21	487	12635	4970
28	-2.67	100	60	15.71	18.85	20.42	32.65	532	14302	5406
29	-2.77	100	61	15.71	18.85	22.72	34.11	579	16077	5861
30	-2.87	100	61	15.71	25.13	25.18	35.58	575	13837	6094
31	-2.96	100	62	15.71	25.13	27.82	37.07	620	15358	6568
32	-3.06	100	63	15.71	25.13	30.63	38.59	668	16963	7060
33	-3.16	100	63	15.71	25.13	33.62	40.12	717	18655	7572
34	-3.26	100	64	15.71	25.13	36.79	41.66	768	20432	8102
35	-3.36	100	65	15.71	25.13	40.16	43.23	820	22295	8651
36	-3.46	100	66	15.71	25.13	43.73	44.81	874	24246	9219
37	-3.56	100	66	15.71	25.13	47.50	46.41	930	26285	9805
38	-3.66	100	67	15.71	25.13	51.47	48.03	987	28411	10411
39	-3.75	100	68	15.71	25.13	55.67	49.67	1046	30626	11035
40	-3.85	100	69	15.71	25.13	60.08	51.32	1106	32930	11678
41	-3.95	100	69	15.71	25.13	64.71	52.99	1168	35324	12339
42	-4.05	100	70	15.71	25.13	69.58	54.68	1232	37807	13020
43	-4.15	100	71	15.71	25.13	74.69	56.39	1297	40381	13718

Fondazione

Combinazione n° 10 - SLER

Tensione massima di compressione nel calcestruzzo 17430 [kPa]

Tensione massima di trazione dell'acciaio 360000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-0.80	100	80	18.85	18.85	0.00	0.00	0	0	0
2	-0.70	100	80	18.85	18.85	0.57	0.00	8	444	78
3	-0.60	100	80	18.85	18.85	2.27	0.00	34	1766	312
4	-0.50	100	80	18.85	18.85	5.08	0.00	75	3953	699
5	-0.40	100	80	18.85	18.85	8.99	0.00	133	6991	1236
6	0.31	100	80	18.85	18.85	-130.87	0.00	1932	17989	101780
7	0.41	100	80	18.85	18.85	-126.34	0.00	1865	17366	98254
8	0.51	100	80	18.85	18.85	-121.64	0.00	1795	16720	94598
9	0.61	100	80	18.85	18.85	-116.54	0.00	1720	16018	90629
10	0.71	100	80	18.85	18.85	-111.34	0.00	1643	15305	86591
11	0.81	100	80	18.85	18.85	-106.08	0.00	1566	14581	82496
12	0.91	100	80	18.85	18.85	-100.76	0.00	1487	13849	78358
13	1.01	100	80	18.85	18.85	-95.40	0.00	1408	13113	74190
14	1.11	100	80	18.85	18.85	-90.02	0.00	1329	12374	70007
15	1.21	100	80	18.85	18.85	-84.64	0.00	1249	11634	65822
16	1.31	100	80	18.85	18.85	-79.27	0.00	1170	10896	61648
17	1.41	100	80	18.85	18.85	-73.93	0.00	1091	10163	57499
18	1.50	100	80	18.85	18.85	-68.65	0.00	1013	9436	53388
19	1.60	100	80	18.85	18.85	-63.43	0.00	936	8719	49330
20	1.70	100	80	18.85	18.85	-58.30	0.00	860	8013	45337
21	1.80	100	80	18.85	18.85	-53.26	0.00	786	7321	41423
22	1.90	100	80	18.85	18.85	-48.35	0.00	714	6646	37602
23	2.00	100	80	18.85	18.85	-43.57	0.00	643	5990	33888
24	2.10	100	80	18.85	18.85	-38.95	0.00	575	5354	30293
25	2.20	100	80	18.85	18.85	-34.50	0.00	509	4743	26832
26	2.30	100	80	18.85	18.85	-30.24	0.00	446	4157	23518
27	2.40	100	80	18.85	18.85	-26.19	0.00	386	3599	20365
28	2.50	100	80	18.85	18.85	-22.36	0.00	330	3073	17386
29	2.60	100	80	18.85	18.85	-18.77	0.00	277	2580	14595
30	2.70	100	80	18.85	18.85	-15.44	0.00	228	2122	12005
31	2.80	100	80	18.85	18.85	-12.38	0.00	183	1702	9630
32	2.90	100	80	18.85	18.85	-9.62	0.00	142	1323	7484
33	3.00	100	80	18.85	18.85	-7.18	0.00	106	986	5580
34	3.10	100	80	18.85	18.85	-5.06	0.00	75	695	3932
35	3.20	100	80	18.85	18.85	-3.28	0.00	48	451	2552
36	3.30	100	80	18.85	18.85	-1.87	0.00	28	257	1456
37	3.40	100	80	18.85	18.85	-0.84	0.00	12	116	656
38	3.50	100	80	18.85	18.85	-0.21	0.00	3	29	166
39	3.60	100	80	18.85	18.85	0.00	0.00	0	0	0

Combinazioni SLEF

Paramento

Combinazione n° 11 - SLEF

Tensione massima di compressione nel calcestruzzo 33200 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	0.00	100	40	15.71	15.71	0.00	0.00	0	0	0
2	-0.10	100	41	15.71	15.71	0.00	0.98	2	31	33
3	-0.20	100	41	15.71	15.71	0.01	1.97	5	60	69
4	-0.30	100	42	15.71	15.71	0.04	2.99	8	83	108
5	-0.40	100	43	15.71	15.71	0.09	4.02	11	100	153
6	-0.49	100	44	15.71	15.71	0.16	5.07	15	111	204
7	-0.59	100	44	15.71	15.71	0.26	6.13	19	113	262
8	-0.69	100	45	15.71	15.71	0.41	7.22	25	106	329
9	-0.79	100	46	15.71	15.71	0.59	8.32	31	89	405
10	-0.89	100	47	15.71	15.71	0.82	9.44	38	60	491
11	-0.99	100	47	15.71	15.71	1.11	10.58	47	4	594
12	-1.09	100	48	15.71	15.71	1.47	11.74	57	99	718
13	-1.19	100	49	15.71	15.71	1.89	12.91	71	270	865
14	-1.28	100	50	15.71	15.71	2.39	14.10	87	533	1037
15	-1.38	100	50	15.71	15.71	2.97	15.31	105	904	1232
16	-1.48	100	51	15.71	18.85	3.64	16.54	124	1241	1429
17	-1.58	100	52	15.71	18.85	4.40	17.78	147	1765	1658
18	-1.68	100	52	15.71	18.85	5.25	19.04	171	2390	1906
19	-1.78	100	53	15.71	18.85	6.21	20.32	198	3116	2173
20	-1.88	100	54	15.71	18.85	7.28	21.62	228	3944	2457
21	-1.98	100	55	15.71	18.85	8.47	22.94	259	4874	2760
22	-2.08	100	55	15.71	18.85	9.77	24.27	292	5906	3081
23	-2.17	100	56	15.71	18.85	11.20	25.62	327	7041	3421
24	-2.27	100	57	15.71	18.85	12.76	26.99	364	8280	3780
25	-2.37	100	58	15.71	18.85	14.46	28.38	403	9625	4157
26	-2.47	100	58	15.71	18.85	16.30	29.78	444	11076	4554
27	-2.57	100	59	15.71	18.85	18.28	31.21	487	12635	4970
28	-2.67	100	60	15.71	18.85	20.42	32.65	532	14302	5406
29	-2.77	100	61	15.71	18.85	22.72	34.11	579	16077	5861
30	-2.87	100	61	15.71	25.13	25.18	35.58	575	13837	6094
31	-2.96	100	62	15.71	25.13	27.82	37.07	620	15358	6568
32	-3.06	100	63	15.71	25.13	30.63	38.59	668	16963	7060
33	-3.16	100	63	15.71	25.13	33.62	40.12	717	18655	7572
34	-3.26	100	64	15.71	25.13	36.79	41.66	768	20432	8102
35	-3.36	100	65	15.71	25.13	40.16	43.23	820	22295	8651
36	-3.46	100	66	15.71	25.13	43.73	44.81	874	24246	9219
37	-3.56	100	66	15.71	25.13	47.50	46.41	930	26285	9805
38	-3.66	100	67	15.71	25.13	51.47	48.03	987	28411	10411
39	-3.75	100	68	15.71	25.13	55.67	49.67	1046	30626	11035
40	-3.85	100	69	15.71	25.13	60.08	51.32	1106	32930	11678
41	-3.95	100	69	15.71	25.13	64.71	52.99	1168	35324	12339
42	-4.05	100	70	15.71	25.13	69.58	54.68	1232	37807	13020
43	-4.15	100	71	15.71	25.13	74.69	56.39	1297	40381	13718

Fondazione

Combinazione n° 11 - SLEF

Tensione massima di compressione nel calcestruzzo 29050 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-0.80	100	80	18.85	18.85	0.00	0.00	0	0	0
2	-0.70	100	80	18.85	18.85	0.57	0.00	8	444	78
3	-0.60	100	80	18.85	18.85	2.27	0.00	34	1766	312
4	-0.50	100	80	18.85	18.85	5.08	0.00	75	3953	699
5	-0.40	100	80	18.85	18.85	8.99	0.00	133	6991	1236
6	0.31	100	80	18.85	18.85	-130.87	0.00	1932	17989	101780
7	0.41	100	80	18.85	18.85	-126.34	0.00	1865	17366	98254
8	0.51	100	80	18.85	18.85	-121.64	0.00	1795	16720	94598
9	0.61	100	80	18.85	18.85	-116.54	0.00	1720	16018	90629
10	0.71	100	80	18.85	18.85	-111.34	0.00	1643	15305	86591
11	0.81	100	80	18.85	18.85	-106.08	0.00	1566	14581	82496
12	0.91	100	80	18.85	18.85	-100.76	0.00	1487	13849	78358
13	1.01	100	80	18.85	18.85	-95.40	0.00	1408	13113	74190
14	1.11	100	80	18.85	18.85	-90.02	0.00	1329	12374	70007
15	1.21	100	80	18.85	18.85	-84.64	0.00	1249	11634	65822
16	1.31	100	80	18.85	18.85	-79.27	0.00	1170	10896	61648
17	1.41	100	80	18.85	18.85	-73.93	0.00	1091	10163	57499
18	1.50	100	80	18.85	18.85	-68.65	0.00	1013	9436	53388
19	1.60	100	80	18.85	18.85	-63.43	0.00	936	8719	49330
20	1.70	100	80	18.85	18.85	-58.30	0.00	860	8013	45337
21	1.80	100	80	18.85	18.85	-53.26	0.00	786	7321	41423
22	1.90	100	80	18.85	18.85	-48.35	0.00	714	6646	37602
23	2.00	100	80	18.85	18.85	-43.57	0.00	643	5990	33888
24	2.10	100	80	18.85	18.85	-38.95	0.00	575	5354	30293
25	2.20	100	80	18.85	18.85	-34.50	0.00	509	4743	26832
26	2.30	100	80	18.85	18.85	-30.24	0.00	446	4157	23518
27	2.40	100	80	18.85	18.85	-26.19	0.00	386	3599	20365
28	2.50	100	80	18.85	18.85	-22.36	0.00	330	3073	17386
29	2.60	100	80	18.85	18.85	-18.77	0.00	277	2580	14595
30	2.70	100	80	18.85	18.85	-15.44	0.00	228	2122	12005
31	2.80	100	80	18.85	18.85	-12.38	0.00	183	1702	9630
32	2.90	100	80	18.85	18.85	-9.62	0.00	142	1323	7484
33	3.00	100	80	18.85	18.85	-7.18	0.00	106	986	5580
34	3.10	100	80	18.85	18.85	-5.06	0.00	75	695	3932
35	3.20	100	80	18.85	18.85	-3.28	0.00	48	451	2552
36	3.30	100	80	18.85	18.85	-1.87	0.00	28	257	1456
37	3.40	100	80	18.85	18.85	-0.84	0.00	12	116	656
38	3.50	100	80	18.85	18.85	-0.21	0.00	3	29	166
39	3.60	100	80	18.85	18.85	0.00	0.00	0	0	0

Combinazioni SLEQ

Paramento

Combinazione n° 12 - SLEQ

Tensione massima di compressione nel calcestruzzo	14940	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs

	[m]	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kPa]	[kPa]	[kPa]
1	0.00	100	40	15.71	15.71	0.00	0.00	0	0	0
2	-0.10	100	41	15.71	15.71	0.00	0.98	2	31	33
3	-0.20	100	41	15.71	15.71	0.01	1.97	5	60	69
4	-0.30	100	42	15.71	15.71	0.04	2.99	8	83	108
5	-0.40	100	43	15.71	15.71	0.09	4.02	11	100	153
6	-0.49	100	44	15.71	15.71	0.16	5.07	15	111	204
7	-0.59	100	44	15.71	15.71	0.26	6.13	19	113	262
8	-0.69	100	45	15.71	15.71	0.41	7.22	25	106	329
9	-0.79	100	46	15.71	15.71	0.59	8.32	31	89	405
10	-0.89	100	47	15.71	15.71	0.82	9.44	38	60	491
11	-0.99	100	47	15.71	15.71	1.11	10.58	47	4	594
12	-1.09	100	48	15.71	15.71	1.47	11.74	57	99	718
13	-1.19	100	49	15.71	15.71	1.89	12.91	71	270	865
14	-1.28	100	50	15.71	15.71	2.39	14.10	87	533	1037
15	-1.38	100	50	15.71	15.71	2.97	15.31	105	904	1232
16	-1.48	100	51	15.71	18.85	3.64	16.54	124	1241	1429
17	-1.58	100	52	15.71	18.85	4.40	17.78	147	1765	1658
18	-1.68	100	52	15.71	18.85	5.25	19.04	171	2390	1906
19	-1.78	100	53	15.71	18.85	6.21	20.32	198	3116	2173
20	-1.88	100	54	15.71	18.85	7.28	21.62	228	3944	2457
21	-1.98	100	55	15.71	18.85	8.47	22.94	259	4874	2760
22	-2.08	100	55	15.71	18.85	9.77	24.27	292	5906	3081
23	-2.17	100	56	15.71	18.85	11.20	25.62	327	7041	3421
24	-2.27	100	57	15.71	18.85	12.76	26.99	364	8280	3780
25	-2.37	100	58	15.71	18.85	14.46	28.38	403	9625	4157
26	-2.47	100	58	15.71	18.85	16.30	29.78	444	11076	4554
27	-2.57	100	59	15.71	18.85	18.28	31.21	487	12635	4970
28	-2.67	100	60	15.71	18.85	20.42	32.65	532	14302	5406
29	-2.77	100	61	15.71	18.85	22.72	34.11	579	16077	5861
30	-2.87	100	61	15.71	25.13	25.18	35.58	575	13837	6094
31	-2.96	100	62	15.71	25.13	27.82	37.07	620	15358	6568
32	-3.06	100	63	15.71	25.13	30.63	38.59	668	16963	7060
33	-3.16	100	63	15.71	25.13	33.62	40.12	717	18655	7572
34	-3.26	100	64	15.71	25.13	36.79	41.66	768	20432	8102
35	-3.36	100	65	15.71	25.13	40.16	43.23	820	22295	8651
36	-3.46	100	66	15.71	25.13	43.73	44.81	874	24246	9219
37	-3.56	100	66	15.71	25.13	47.50	46.41	930	26285	9805
38	-3.66	100	67	15.71	25.13	51.47	48.03	987	28411	10411
39	-3.75	100	68	15.71	25.13	55.67	49.67	1046	30626	11035
40	-3.85	100	69	15.71	25.13	60.08	51.32	1106	32930	11678
41	-3.95	100	69	15.71	25.13	64.71	52.99	1168	35324	12339
42	-4.05	100	70	15.71	25.13	69.58	54.68	1232	37807	13020
43	-4.15	100	71	15.71	25.13	74.69	56.39	1297	40381	13718

Combinazione n° 13 - SLEQ H + V

Tensione massima di compressione nel calcestruzzo 14940 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kPa]	[kPa]	[kPa]
1	0.00	100	40	15.71	15.71	0.00	0.00	0	0	0
2	-0.10	100	41	15.71	15.71	0.01	0.98	2	30	34
3	-0.20	100	41	15.71	15.71	0.03	1.97	5	54	74
4	-0.30	100	42	15.71	15.71	0.08	2.99	9	71	120
5	-0.40	100	43	15.71	15.71	0.16	4.02	13	79	174
6	-0.49	100	44	15.71	15.71	0.28	5.07	18	77	237
7	-0.59	100	44	15.71	15.71	0.44	6.13	24	64	311
8	-0.69	100	45	15.71	15.71	0.65	7.22	31	36	397

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
9	-0.79	100	46	15.71	15.71	0.92	8.32	40	28	502
10	-0.89	100	47	15.71	15.71	1.26	9.44	51	152	631
11	-0.99	100	47	15.71	15.71	1.67	10.58	66	365	786
12	-1.09	100	48	15.71	15.71	2.16	11.74	84	692	967
13	-1.19	100	49	15.71	15.71	2.75	12.91	105	1147	1173
14	-1.28	100	50	15.71	15.71	3.43	14.10	128	1738	1402
15	-1.38	100	50	15.71	15.71	4.21	15.31	155	2467	1652
16	-1.48	100	51	15.71	18.85	5.11	16.54	177	2881	1888
17	-1.58	100	52	15.71	18.85	6.12	17.78	207	3732	2174
18	-1.68	100	52	15.71	18.85	7.25	19.04	239	4701	2481
19	-1.78	100	53	15.71	18.85	8.52	20.32	274	5789	2811
20	-1.88	100	54	15.71	18.85	9.92	21.62	312	6998	3163
21	-1.98	100	55	15.71	18.85	11.47	22.94	352	8329	3537
22	-2.08	100	55	15.71	18.85	13.16	24.27	394	9784	3935
23	-2.17	100	56	15.71	18.85	15.02	25.62	439	11365	4355
24	-2.27	100	57	15.71	18.85	17.03	26.99	486	13073	4799
25	-2.37	100	58	15.71	18.85	19.22	28.38	536	14910	5267
26	-2.47	100	58	15.71	18.85	21.59	29.78	587	16876	5758
27	-2.57	100	59	15.71	18.85	24.14	31.21	642	18975	6273
28	-2.67	100	60	15.71	18.85	26.88	32.65	698	21206	6813
29	-2.77	100	61	15.71	18.85	29.82	34.11	757	23571	7377
30	-2.87	100	61	15.71	25.13	32.96	35.58	746	19977	7678
31	-2.96	100	62	15.71	25.13	36.31	37.07	803	21982	8266
32	-3.06	100	63	15.71	25.13	39.88	38.59	862	24092	8876
33	-3.16	100	63	15.71	25.13	43.68	40.12	924	26307	9510
34	-3.26	100	64	15.71	25.13	47.70	41.66	987	28627	10166
35	-3.36	100	65	15.71	25.13	51.97	43.23	1053	31053	10846
36	-3.46	100	66	15.71	25.13	56.47	44.81	1120	33586	11548
37	-3.56	100	66	15.71	25.13	61.23	46.41	1189	36227	12274
38	-3.66	100	67	15.71	25.13	66.25	48.03	1261	38976	13022
39	-3.75	100	68	15.71	25.13	71.53	49.67	1334	41833	13794
40	-3.85	100	69	15.71	25.13	77.09	51.32	1409	44800	14588
41	-3.95	100	69	15.71	25.13	82.92	52.99	1486	47877	15405
42	-4.05	100	70	15.71	25.13	89.03	54.68	1565	51063	16244
43	-4.15	100	71	15.71	25.13	95.44	56.39	1646	54360	17106

Fondazione

Combinazione n° 12 - SLEQ

Tensione massima di compressione nel calcestruzzo 13073 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-0.80	100	80	18.85	18.85	0.00	0.00	0	0	0
2	-0.70	100	80	18.85	18.85	0.57	0.00	8	444	78
3	-0.60	100	80	18.85	18.85	2.27	0.00	34	1766	312
4	-0.50	100	80	18.85	18.85	5.08	0.00	75	3953	699
5	-0.40	100	80	18.85	18.85	8.99	0.00	133	6991	1236
6	0.31	100	80	18.85	18.85	-130.87	0.00	1932	17989	101780
7	0.41	100	80	18.85	18.85	-126.34	0.00	1865	17366	98254
8	0.51	100	80	18.85	18.85	-121.64	0.00	1795	16720	94598
9	0.61	100	80	18.85	18.85	-116.54	0.00	1720	16018	90629

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
10	0.71	100	80	18.85	18.85	-111.34	0.00	1643	15305	86591
11	0.81	100	80	18.85	18.85	-106.08	0.00	1566	14581	82496
12	0.91	100	80	18.85	18.85	-100.76	0.00	1487	13849	78358
13	1.01	100	80	18.85	18.85	-95.40	0.00	1408	13113	74190
14	1.11	100	80	18.85	18.85	-90.02	0.00	1329	12374	70007
15	1.21	100	80	18.85	18.85	-84.64	0.00	1249	11634	65822
16	1.31	100	80	18.85	18.85	-79.27	0.00	1170	10896	61648
17	1.41	100	80	18.85	18.85	-73.93	0.00	1091	10163	57499
18	1.50	100	80	18.85	18.85	-68.65	0.00	1013	9436	53388
19	1.60	100	80	18.85	18.85	-63.43	0.00	936	8719	49330
20	1.70	100	80	18.85	18.85	-58.30	0.00	860	8013	45337
21	1.80	100	80	18.85	18.85	-53.26	0.00	786	7321	41423
22	1.90	100	80	18.85	18.85	-48.35	0.00	714	6646	37602
23	2.00	100	80	18.85	18.85	-43.57	0.00	643	5990	33888
24	2.10	100	80	18.85	18.85	-38.95	0.00	575	5354	30293
25	2.20	100	80	18.85	18.85	-34.50	0.00	509	4743	26832
26	2.30	100	80	18.85	18.85	-30.24	0.00	446	4157	23518
27	2.40	100	80	18.85	18.85	-26.19	0.00	386	3599	20365
28	2.50	100	80	18.85	18.85	-22.36	0.00	330	3073	17386
29	2.60	100	80	18.85	18.85	-18.77	0.00	277	2580	14595
30	2.70	100	80	18.85	18.85	-15.44	0.00	228	2122	12005
31	2.80	100	80	18.85	18.85	-12.38	0.00	183	1702	9630
32	2.90	100	80	18.85	18.85	-9.62	0.00	142	1323	7484
33	3.00	100	80	18.85	18.85	-7.18	0.00	106	986	5580
34	3.10	100	80	18.85	18.85	-5.06	0.00	75	695	3932
35	3.20	100	80	18.85	18.85	-3.28	0.00	48	451	2552
36	3.30	100	80	18.85	18.85	-1.87	0.00	28	257	1456
37	3.40	100	80	18.85	18.85	-0.84	0.00	12	116	656
38	3.50	100	80	18.85	18.85	-0.21	0.00	3	29	166
39	3.60	100	80	18.85	18.85	0.00	0.00	0	0	0

Combinazione n° 13 - SLEQ H + V

Tensione massima di compressione nel calcestruzzo 13073 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	-0.80	100	80	18.85	18.85	0.00	0.00	0	0	0
2	-0.70	100	80	18.85	18.85	0.75	0.00	11	580	102
3	-0.60	100	80	18.85	18.85	2.96	0.00	44	2302	407
4	-0.50	100	80	18.85	18.85	6.61	0.00	98	5142	909
5	-0.40	100	80	18.85	18.85	11.67	0.00	172	9075	1604
6	0.31	100	80	18.85	18.85	-197.64	0.00	2917	27167	153704
7	0.41	100	80	18.85	18.85	-191.57	0.00	2827	26332	148983
8	0.51	100	80	18.85	18.85	-185.15	0.00	2733	25450	143991
9	0.61	100	80	18.85	18.85	-178.17	0.00	2630	24490	138559
10	0.71	100	80	18.85	18.85	-170.94	0.00	2523	23497	132942
11	0.81	100	80	18.85	18.85	-163.51	0.00	2413	22475	127162
12	0.91	100	80	18.85	18.85	-155.90	0.00	2301	21430	121245
13	1.01	100	80	18.85	18.85	-148.15	0.00	2187	20364	115216
14	1.11	100	80	18.85	18.85	-140.28	0.00	2070	19283	109099
15	1.21	100	80	18.85	18.85	-132.34	0.00	1953	18191	102919
16	1.31	100	80	18.85	18.85	-124.34	0.00	1835	17092	96701
17	1.41	100	80	18.85	18.85	-116.33	0.00	1717	15990	90469
18	1.50	100	80	18.85	18.85	-108.33	0.00	1599	14891	84249
19	1.60	100	80	18.85	18.85	-100.38	0.00	1482	13798	78065
20	1.70	100	80	18.85	18.85	-92.51	0.00	1365	12715	71941

n°	Y	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
21	1.80	100	80	18.85	18.85	-84.74	0.00	1251	11648	65902
22	1.90	100	80	18.85	18.85	-77.12	0.00	1138	10600	59974
23	2.00	100	80	18.85	18.85	-69.67	0.00	1028	9576	54181
24	2.10	100	80	18.85	18.85	-62.42	0.00	921	8581	48547
25	2.20	100	80	18.85	18.85	-55.42	0.00	818	7617	43098
26	2.30	100	80	18.85	18.85	-48.68	0.00	718	6691	37857
27	2.40	100	80	18.85	18.85	-42.24	0.00	623	5806	32850
28	2.50	100	80	18.85	18.85	-36.13	0.00	533	4967	28102
29	2.60	100	80	18.85	18.85	-30.39	0.00	449	4178	23637
30	2.70	100	80	18.85	18.85	-25.05	0.00	370	3443	19480
31	2.80	100	80	18.85	18.85	-20.13	0.00	297	2767	15655
32	2.90	100	80	18.85	18.85	-15.67	0.00	231	2154	12188
33	3.00	100	80	18.85	18.85	-11.70	0.00	173	1609	9103
34	3.10	100	80	18.85	18.85	-8.26	0.00	122	1135	6424
35	3.20	100	80	18.85	18.85	-5.37	0.00	79	738	4177
36	3.30	100	80	18.85	18.85	-3.07	0.00	45	422	2387
37	3.40	100	80	18.85	18.85	-1.39	0.00	20	190	1077
38	3.50	100	80	18.85	18.85	-0.35	0.00	5	48	273
39	3.60	100	80	18.85	18.85	0.00	0.00	0	0	0

Verifica a fessurazione

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Af	area ferri zona tesa espresso in [cmq]
Aeff	area efficace espressa in [cmq]
M	momento agente espressa in [kNm]
Mpf	momento di prima fessurazione espressa in [kNm]
ε	deformazione espresso in %
Sm	spaziatura tra le fessure espressa in [mm]
w	apertura delle fessure espressa in [mm]

Combinazioni SLER

Paramento

Combinazione n° 10 - SLER

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	4.10	0.000000	0.00	0.000
3	-0.20	100	41	0.00	0.00	0.01	11.89	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	24.90	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	46.10	0.000000	0.00	0.000
6	-0.49	100	44	0.00	0.00	0.16	81.86	0.000000	0.00	0.000
7	-0.59	100	44	0.00	0.00	0.26	148.17	0.000000	0.00	0.000
8	-0.69	100	45	0.00	0.00	0.41	299.26	0.000000	0.00	0.000
9	-0.79	100	46	0.00	0.00	0.59	914.46	0.000000	0.00	0.000
10	-0.89	100	47	0.00	0.00	0.82	2240.61	0.000000	0.00	0.000
11	-0.99	100	47	0.00	0.00	1.11	654.18	0.000000	0.00	0.000
12	-1.09	100	48	15.71	1550.00	1.47	434.45	0.000000	0.00	0.000
13	-1.19	100	49	15.71	1550.00	1.89	349.89	0.000000	0.00	0.000
14	-1.28	100	50	15.71	1550.00	2.39	306.82	0.000000	0.00	0.000
15	-1.38	100	50	15.71	1550.00	2.97	281.88	0.000000	0.00	0.000
16	-1.48	100	51	18.85	1550.00	3.64	270.61	0.000000	0.00	0.000
17	-1.58	100	52	18.85	1550.00	4.40	260.84	0.000000	0.00	0.000
18	-1.68	100	52	18.85	1550.00	5.25	254.68	0.000000	0.00	0.000
19	-1.78	100	53	18.85	1550.00	6.21	250.97	0.000000	0.00	0.000
20	-1.88	100	54	18.85	1550.00	7.28	249.01	0.000000	0.00	0.000
21	-1.98	100	55	18.85	1550.00	8.47	248.34	0.000000	0.00	0.000
22	-2.08	100	55	18.85	1550.00	9.77	248.66	0.000000	0.00	0.000
23	-2.17	100	56	18.85	1550.00	11.20	249.76	0.000000	0.00	0.000
24	-2.27	100	57	18.85	1550.00	12.76	251.48	0.000000	0.00	0.000
25	-2.37	100	58	18.85	1550.00	14.46	253.70	0.000000	0.00	0.000
26	-2.47	100	58	18.85	1550.00	16.30	256.35	0.000000	0.00	0.000
27	-2.57	100	59	18.85	1550.00	18.28	259.37	0.000000	0.00	0.000
28	-2.67	100	60	18.85	1550.00	20.42	262.69	0.000000	0.00	0.000
29	-2.77	100	61	18.85	1550.00	22.72	266.27	0.000000	0.00	0.000
30	-2.87	100	61	25.13	1550.00	25.18	279.38	0.000000	0.00	0.000
31	-2.96	100	62	25.13	1550.00	27.82	283.53	0.000000	0.00	0.000
32	-3.06	100	63	25.13	1550.00	30.63	287.87	0.000000	0.00	0.000
33	-3.16	100	63	25.13	1550.00	33.62	292.39	0.000000	0.00	0.000
34	-3.26	100	64	25.13	1550.00	36.79	297.06	0.000000	0.00	0.000
35	-3.36	100	65	25.13	1550.00	40.16	301.89	0.000000	0.00	0.000
36	-3.46	100	66	25.13	1550.00	43.73	306.84	0.000000	0.00	0.000
37	-3.56	100	66	25.13	1550.00	47.50	311.93	0.000000	0.00	0.000
38	-3.66	100	67	25.13	1550.00	51.47	317.13	0.000000	0.00	0.000
39	-3.75	100	68	25.13	1550.00	55.67	322.45	0.000000	0.00	0.000
40	-3.85	100	69	25.13	1550.00	60.08	327.88	0.000000	0.00	0.000
41	-3.95	100	69	25.13	1550.00	64.71	333.41	0.000000	0.00	0.000
42	-4.05	100	70	25.13	1550.00	69.58	339.03	0.000000	0.00	0.000
43	-4.15	100	71	25.13	1550.00	74.69	344.75	0.000000	0.00	0.000

Fondazione

Combinazione n° 10 - SLER

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-0.80	100	80	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.70	100	80	18.85	1550.00	0.57	351.49	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
3	-0.60	100	80	18.85	1550.00	2.27	351.49	0.000000	0.00	0.000
4	-0.50	100	80	18.85	1550.00	5.08	351.49	0.000000	0.00	0.000
5	-0.40	100	80	18.85	1550.00	8.99	351.49	0.000000	0.00	0.000
6	0.31	100	80	18.85	1550.00	-130.87	-351.49	0.000000	0.00	0.000
7	0.41	100	80	18.85	1550.00	-126.34	-351.49	0.000000	0.00	0.000
8	0.51	100	80	18.85	1550.00	-121.64	-351.49	0.000000	0.00	0.000
9	0.61	100	80	18.85	1550.00	-116.54	-351.49	0.000000	0.00	0.000
10	0.71	100	80	18.85	1550.00	-111.34	-351.49	0.000000	0.00	0.000
11	0.81	100	80	18.85	1550.00	-106.08	-351.49	0.000000	0.00	0.000
12	0.91	100	80	18.85	1550.00	-100.76	-351.49	0.000000	0.00	0.000
13	1.01	100	80	18.85	1550.00	-95.40	-351.49	0.000000	0.00	0.000
14	1.11	100	80	18.85	1550.00	-90.02	-351.49	0.000000	0.00	0.000
15	1.21	100	80	18.85	1550.00	-84.64	-351.49	0.000000	0.00	0.000
16	1.31	100	80	18.85	1550.00	-79.27	-351.49	0.000000	0.00	0.000
17	1.41	100	80	18.85	1550.00	-73.93	-351.49	0.000000	0.00	0.000
18	1.50	100	80	18.85	1550.00	-68.65	-351.49	0.000000	0.00	0.000
19	1.60	100	80	18.85	1550.00	-63.43	-351.49	0.000000	0.00	0.000
20	1.70	100	80	18.85	1550.00	-58.30	-351.49	0.000000	0.00	0.000
21	1.80	100	80	18.85	1550.00	-53.26	-351.49	0.000000	0.00	0.000
22	1.90	100	80	18.85	1550.00	-48.35	-351.49	0.000000	0.00	0.000
23	2.00	100	80	18.85	1550.00	-43.57	-351.49	0.000000	0.00	0.000
24	2.10	100	80	18.85	1550.00	-38.95	-351.49	0.000000	0.00	0.000
25	2.20	100	80	18.85	1550.00	-34.50	-351.49	0.000000	0.00	0.000
26	2.30	100	80	18.85	1550.00	-30.24	-351.49	0.000000	0.00	0.000
27	2.40	100	80	18.85	1550.00	-26.19	-351.49	0.000000	0.00	0.000
28	2.50	100	80	18.85	1550.00	-22.36	-351.49	0.000000	0.00	0.000
29	2.60	100	80	18.85	1550.00	-18.77	-351.49	0.000000	0.00	0.000
30	2.70	100	80	18.85	1550.00	-15.44	-351.49	0.000000	0.00	0.000
31	2.80	100	80	18.85	1550.00	-12.38	-351.49	0.000000	0.00	0.000
32	2.90	100	80	18.85	1550.00	-9.62	-351.49	0.000000	0.00	0.000
33	3.00	100	80	18.85	1550.00	-7.18	-351.49	0.000000	0.00	0.000
34	3.10	100	80	18.85	1550.00	-5.06	-351.49	0.000000	0.00	0.000
35	3.20	100	80	18.85	1550.00	-3.28	-351.49	0.000000	0.00	0.000
36	3.30	100	80	18.85	1550.00	-1.87	-351.49	0.000000	0.00	0.000
37	3.40	100	80	18.85	1550.00	-0.84	-351.49	0.000000	0.00	0.000
38	3.50	100	80	18.85	1550.00	-0.21	-351.49	0.000000	0.00	0.000
39	3.60	100	80	0.00	0.00	0.00	0.00	---	---	0.000

Combinazioni SLEF

Paramento

Combinazione n° 11 - SLEF

Apertura limite fessure w_{lim}=0.30

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	4.10	0.000000	0.00	0.000
3	-0.20	100	41	0.00	0.00	0.01	11.89	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	24.90	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	46.10	0.000000	0.00	0.000
6	-0.49	100	44	0.00	0.00	0.16	81.86	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
7	-0.59	100	44	0.00	0.00	0.26	148.17	0.000000	0.00	0.000
8	-0.69	100	45	0.00	0.00	0.41	299.26	0.000000	0.00	0.000
9	-0.79	100	46	0.00	0.00	0.59	914.46	0.000000	0.00	0.000
10	-0.89	100	47	0.00	0.00	0.82	2240.61	0.000000	0.00	0.000
11	-0.99	100	47	0.00	0.00	1.11	654.18	0.000000	0.00	0.000
12	-1.09	100	48	15.71	1550.00	1.47	434.45	0.000000	0.00	0.000
13	-1.19	100	49	15.71	1550.00	1.89	349.89	0.000000	0.00	0.000
14	-1.28	100	50	15.71	1550.00	2.39	306.82	0.000000	0.00	0.000
15	-1.38	100	50	15.71	1550.00	2.97	281.88	0.000000	0.00	0.000
16	-1.48	100	51	18.85	1550.00	3.64	270.61	0.000000	0.00	0.000
17	-1.58	100	52	18.85	1550.00	4.40	260.84	0.000000	0.00	0.000
18	-1.68	100	52	18.85	1550.00	5.25	254.68	0.000000	0.00	0.000
19	-1.78	100	53	18.85	1550.00	6.21	250.97	0.000000	0.00	0.000
20	-1.88	100	54	18.85	1550.00	7.28	249.01	0.000000	0.00	0.000
21	-1.98	100	55	18.85	1550.00	8.47	248.34	0.000000	0.00	0.000
22	-2.08	100	55	18.85	1550.00	9.77	248.66	0.000000	0.00	0.000
23	-2.17	100	56	18.85	1550.00	11.20	249.76	0.000000	0.00	0.000
24	-2.27	100	57	18.85	1550.00	12.76	251.48	0.000000	0.00	0.000
25	-2.37	100	58	18.85	1550.00	14.46	253.70	0.000000	0.00	0.000
26	-2.47	100	58	18.85	1550.00	16.30	256.35	0.000000	0.00	0.000
27	-2.57	100	59	18.85	1550.00	18.28	259.37	0.000000	0.00	0.000
28	-2.67	100	60	18.85	1550.00	20.42	262.69	0.000000	0.00	0.000
29	-2.77	100	61	18.85	1550.00	22.72	266.27	0.000000	0.00	0.000
30	-2.87	100	61	25.13	1550.00	25.18	279.38	0.000000	0.00	0.000
31	-2.96	100	62	25.13	1550.00	27.82	283.53	0.000000	0.00	0.000
32	-3.06	100	63	25.13	1550.00	30.63	287.87	0.000000	0.00	0.000
33	-3.16	100	63	25.13	1550.00	33.62	292.39	0.000000	0.00	0.000
34	-3.26	100	64	25.13	1550.00	36.79	297.06	0.000000	0.00	0.000
35	-3.36	100	65	25.13	1550.00	40.16	301.89	0.000000	0.00	0.000
36	-3.46	100	66	25.13	1550.00	43.73	306.84	0.000000	0.00	0.000
37	-3.56	100	66	25.13	1550.00	47.50	311.93	0.000000	0.00	0.000
38	-3.66	100	67	25.13	1550.00	51.47	317.13	0.000000	0.00	0.000
39	-3.75	100	68	25.13	1550.00	55.67	322.45	0.000000	0.00	0.000
40	-3.85	100	69	25.13	1550.00	60.08	327.88	0.000000	0.00	0.000
41	-3.95	100	69	25.13	1550.00	64.71	333.41	0.000000	0.00	0.000
42	-4.05	100	70	25.13	1550.00	69.58	339.03	0.000000	0.00	0.000
43	-4.15	100	71	25.13	1550.00	74.69	344.75	0.000000	0.00	0.000

Fondazione

Combinazione n° 11 - SLEF

Apertura limite fessure w_{lim}=0.30

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-0.80	100	80	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.70	100	80	18.85	1550.00	0.57	351.49	0.000000	0.00	0.000
3	-0.60	100	80	18.85	1550.00	2.27	351.49	0.000000	0.00	0.000
4	-0.50	100	80	18.85	1550.00	5.08	351.49	0.000000	0.00	0.000
5	-0.40	100	80	18.85	1550.00	8.99	351.49	0.000000	0.00	0.000
6	0.31	100	80	18.85	1550.00	-130.87	-351.49	0.000000	0.00	0.000
7	0.41	100	80	18.85	1550.00	-126.34	-351.49	0.000000	0.00	0.000
8	0.51	100	80	18.85	1550.00	-121.64	-351.49	0.000000	0.00	0.000
9	0.61	100	80	18.85	1550.00	-116.54	-351.49	0.000000	0.00	0.000
10	0.71	100	80	18.85	1550.00	-111.34	-351.49	0.000000	0.00	0.000
11	0.81	100	80	18.85	1550.00	-106.08	-351.49	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
12	0.91	100	80	18.85	1550.00	-100.76	-351.49	0.000000	0.00	0.000
13	1.01	100	80	18.85	1550.00	-95.40	-351.49	0.000000	0.00	0.000
14	1.11	100	80	18.85	1550.00	-90.02	-351.49	0.000000	0.00	0.000
15	1.21	100	80	18.85	1550.00	-84.64	-351.49	0.000000	0.00	0.000
16	1.31	100	80	18.85	1550.00	-79.27	-351.49	0.000000	0.00	0.000
17	1.41	100	80	18.85	1550.00	-73.93	-351.49	0.000000	0.00	0.000
18	1.50	100	80	18.85	1550.00	-68.65	-351.49	0.000000	0.00	0.000
19	1.60	100	80	18.85	1550.00	-63.43	-351.49	0.000000	0.00	0.000
20	1.70	100	80	18.85	1550.00	-58.30	-351.49	0.000000	0.00	0.000
21	1.80	100	80	18.85	1550.00	-53.26	-351.49	0.000000	0.00	0.000
22	1.90	100	80	18.85	1550.00	-48.35	-351.49	0.000000	0.00	0.000
23	2.00	100	80	18.85	1550.00	-43.57	-351.49	0.000000	0.00	0.000
24	2.10	100	80	18.85	1550.00	-38.95	-351.49	0.000000	0.00	0.000
25	2.20	100	80	18.85	1550.00	-34.50	-351.49	0.000000	0.00	0.000
26	2.30	100	80	18.85	1550.00	-30.24	-351.49	0.000000	0.00	0.000
27	2.40	100	80	18.85	1550.00	-26.19	-351.49	0.000000	0.00	0.000
28	2.50	100	80	18.85	1550.00	-22.36	-351.49	0.000000	0.00	0.000
29	2.60	100	80	18.85	1550.00	-18.77	-351.49	0.000000	0.00	0.000
30	2.70	100	80	18.85	1550.00	-15.44	-351.49	0.000000	0.00	0.000
31	2.80	100	80	18.85	1550.00	-12.38	-351.49	0.000000	0.00	0.000
32	2.90	100	80	18.85	1550.00	-9.62	-351.49	0.000000	0.00	0.000
33	3.00	100	80	18.85	1550.00	-7.18	-351.49	0.000000	0.00	0.000
34	3.10	100	80	18.85	1550.00	-5.06	-351.49	0.000000	0.00	0.000
35	3.20	100	80	18.85	1550.00	-3.28	-351.49	0.000000	0.00	0.000
36	3.30	100	80	18.85	1550.00	-1.87	-351.49	0.000000	0.00	0.000
37	3.40	100	80	18.85	1550.00	-0.84	-351.49	0.000000	0.00	0.000
38	3.50	100	80	18.85	1550.00	-0.21	-351.49	0.000000	0.00	0.000
39	3.60	100	80	0.00	0.00	0.00	0.00	---	---	0.000

Combinazioni SLEQ

Paramento

Combinazione n° 12 - SLEQ

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.00	4.10	0.000000	0.00	0.000
3	-0.20	100	41	0.00	0.00	0.01	11.89	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.04	24.90	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.09	46.10	0.000000	0.00	0.000
6	-0.49	100	44	0.00	0.00	0.16	81.86	0.000000	0.00	0.000
7	-0.59	100	44	0.00	0.00	0.26	148.17	0.000000	0.00	0.000
8	-0.69	100	45	0.00	0.00	0.41	299.26	0.000000	0.00	0.000
9	-0.79	100	46	0.00	0.00	0.59	914.46	0.000000	0.00	0.000
10	-0.89	100	47	0.00	0.00	0.82	2240.61	0.000000	0.00	0.000
11	-0.99	100	47	0.00	0.00	1.11	654.18	0.000000	0.00	0.000
12	-1.09	100	48	15.71	1550.00	1.47	434.45	0.000000	0.00	0.000
13	-1.19	100	49	15.71	1550.00	1.89	349.89	0.000000	0.00	0.000
14	-1.28	100	50	15.71	1550.00	2.39	306.82	0.000000	0.00	0.000
15	-1.38	100	50	15.71	1550.00	2.97	281.88	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
16	-1.48	100	51	18.85	1550.00	3.64	270.61	0.000000	0.00	0.000
17	-1.58	100	52	18.85	1550.00	4.40	260.84	0.000000	0.00	0.000
18	-1.68	100	52	18.85	1550.00	5.25	254.68	0.000000	0.00	0.000
19	-1.78	100	53	18.85	1550.00	6.21	250.97	0.000000	0.00	0.000
20	-1.88	100	54	18.85	1550.00	7.28	249.01	0.000000	0.00	0.000
21	-1.98	100	55	18.85	1550.00	8.47	248.34	0.000000	0.00	0.000
22	-2.08	100	55	18.85	1550.00	9.77	248.66	0.000000	0.00	0.000
23	-2.17	100	56	18.85	1550.00	11.20	249.76	0.000000	0.00	0.000
24	-2.27	100	57	18.85	1550.00	12.76	251.48	0.000000	0.00	0.000
25	-2.37	100	58	18.85	1550.00	14.46	253.70	0.000000	0.00	0.000
26	-2.47	100	58	18.85	1550.00	16.30	256.35	0.000000	0.00	0.000
27	-2.57	100	59	18.85	1550.00	18.28	259.37	0.000000	0.00	0.000
28	-2.67	100	60	18.85	1550.00	20.42	262.69	0.000000	0.00	0.000
29	-2.77	100	61	18.85	1550.00	22.72	266.27	0.000000	0.00	0.000
30	-2.87	100	61	25.13	1550.00	25.18	279.38	0.000000	0.00	0.000
31	-2.96	100	62	25.13	1550.00	27.82	283.53	0.000000	0.00	0.000
32	-3.06	100	63	25.13	1550.00	30.63	287.87	0.000000	0.00	0.000
33	-3.16	100	63	25.13	1550.00	33.62	292.39	0.000000	0.00	0.000
34	-3.26	100	64	25.13	1550.00	36.79	297.06	0.000000	0.00	0.000
35	-3.36	100	65	25.13	1550.00	40.16	301.89	0.000000	0.00	0.000
36	-3.46	100	66	25.13	1550.00	43.73	306.84	0.000000	0.00	0.000
37	-3.56	100	66	25.13	1550.00	47.50	311.93	0.000000	0.00	0.000
38	-3.66	100	67	25.13	1550.00	51.47	317.13	0.000000	0.00	0.000
39	-3.75	100	68	25.13	1550.00	55.67	322.45	0.000000	0.00	0.000
40	-3.85	100	69	25.13	1550.00	60.08	327.88	0.000000	0.00	0.000
41	-3.95	100	69	25.13	1550.00	64.71	333.41	0.000000	0.00	0.000
42	-4.05	100	70	25.13	1550.00	69.58	339.03	0.000000	0.00	0.000
43	-4.15	100	71	25.13	1550.00	74.69	344.75	0.000000	0.00	0.000

Combinazione n° 13 - SLEQ H + V

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	0.00	100	40	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.10	100	41	0.00	0.00	0.01	10.47	0.000000	0.00	0.000
3	-0.20	100	41	0.00	0.00	0.03	28.52	0.000000	0.00	0.000
4	-0.30	100	42	0.00	0.00	0.08	60.50	0.000000	0.00	0.000
5	-0.40	100	43	0.00	0.00	0.16	123.44	0.000000	0.00	0.000
6	-0.49	100	44	0.00	0.00	0.28	283.05	0.000000	0.00	0.000
7	-0.59	100	44	0.00	0.00	0.44	1255.52	0.000000	0.00	0.000
8	-0.69	100	45	0.00	0.00	0.65	1052.56	0.000000	0.00	0.000
9	-0.79	100	46	15.71	1550.00	0.92	472.78	0.000000	0.00	0.000
10	-0.89	100	47	15.71	1550.00	1.26	343.20	0.000000	0.00	0.000
11	-0.99	100	47	15.71	1550.00	1.67	288.21	0.000000	0.00	0.000
12	-1.09	100	48	15.71	1550.00	2.16	259.19	0.000000	0.00	0.000
13	-1.19	100	49	15.71	1550.00	2.75	242.27	0.000000	0.00	0.000
14	-1.28	100	50	15.71	1550.00	3.43	231.99	0.000000	0.00	0.000
15	-1.38	100	50	15.71	1550.00	4.21	225.72	0.000000	0.00	0.000
16	-1.48	100	51	18.85	1550.00	5.11	225.95	0.000000	0.00	0.000
17	-1.58	100	52	18.85	1550.00	6.12	224.16	0.000000	0.00	0.000
18	-1.68	100	52	18.85	1550.00	7.25	223.69	0.000000	0.00	0.000
19	-1.78	100	53	18.85	1550.00	8.52	224.20	0.000000	0.00	0.000
20	-1.88	100	54	18.85	1550.00	9.92	225.47	0.000000	0.00	0.000
21	-1.98	100	55	18.85	1550.00	11.47	227.34	0.000000	0.00	0.000
22	-2.08	100	55	18.85	1550.00	13.16	229.70	0.000000	0.00	0.000
23	-2.17	100	56	18.85	1550.00	15.02	232.46	0.000000	0.00	0.000
24	-2.27	100	57	18.85	1550.00	17.03	235.55	0.000000	0.00	0.000
25	-2.37	100	58	18.85	1550.00	19.22	238.93	0.000000	0.00	0.000
26	-2.47	100	58	18.85	1550.00	21.59	242.57	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
27	-2.57	100	59	18.85	1550.00	24.14	246.42	0.000000	0.00	0.000
28	-2.67	100	60	18.85	1550.00	26.88	250.46	0.000000	0.00	0.000
29	-2.77	100	61	18.85	1550.00	29.82	254.68	0.000000	0.00	0.000
30	-2.87	100	61	25.13	1550.00	32.96	268.08	0.000000	0.00	0.000
31	-2.96	100	62	25.13	1550.00	36.31	272.73	0.000000	0.00	0.000
32	-3.06	100	63	25.13	1550.00	39.88	277.52	0.000000	0.00	0.000
33	-3.16	100	63	25.13	1550.00	43.68	282.43	0.000000	0.00	0.000
34	-3.26	100	64	25.13	1550.00	47.70	287.46	0.000000	0.00	0.000
35	-3.36	100	65	25.13	1550.00	51.97	292.60	0.000000	0.00	0.000
36	-3.46	100	66	25.13	1550.00	56.47	297.84	0.000000	0.00	0.000
37	-3.56	100	66	25.13	1550.00	61.23	303.19	0.000000	0.00	0.000
38	-3.66	100	67	25.13	1550.00	66.25	308.63	0.000000	0.00	0.000
39	-3.75	100	68	25.13	1550.00	71.53	314.16	0.000000	0.00	0.000
40	-3.85	100	69	25.13	1550.00	77.09	319.79	0.000000	0.00	0.000
41	-3.95	100	69	25.13	1550.00	82.92	325.49	0.000000	0.00	0.000
42	-4.05	100	70	25.13	1550.00	89.03	331.28	0.000000	0.00	0.000
43	-4.15	100	71	25.13	1550.00	95.44	337.15	0.000000	0.00	0.000

Fondazione

Combinazione n° 12 - SLEQ

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-0.80	100	80	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.70	100	80	18.85	1550.00	0.57	351.49	0.000000	0.00	0.000
3	-0.60	100	80	18.85	1550.00	2.27	351.49	0.000000	0.00	0.000
4	-0.50	100	80	18.85	1550.00	5.08	351.49	0.000000	0.00	0.000
5	-0.40	100	80	18.85	1550.00	8.99	351.49	0.000000	0.00	0.000
6	0.31	100	80	18.85	1550.00	-130.87	-351.49	0.000000	0.00	0.000
7	0.41	100	80	18.85	1550.00	-126.34	-351.49	0.000000	0.00	0.000
8	0.51	100	80	18.85	1550.00	-121.64	-351.49	0.000000	0.00	0.000
9	0.61	100	80	18.85	1550.00	-116.54	-351.49	0.000000	0.00	0.000
10	0.71	100	80	18.85	1550.00	-111.34	-351.49	0.000000	0.00	0.000
11	0.81	100	80	18.85	1550.00	-106.08	-351.49	0.000000	0.00	0.000
12	0.91	100	80	18.85	1550.00	-100.76	-351.49	0.000000	0.00	0.000
13	1.01	100	80	18.85	1550.00	-95.40	-351.49	0.000000	0.00	0.000
14	1.11	100	80	18.85	1550.00	-90.02	-351.49	0.000000	0.00	0.000
15	1.21	100	80	18.85	1550.00	-84.64	-351.49	0.000000	0.00	0.000
16	1.31	100	80	18.85	1550.00	-79.27	-351.49	0.000000	0.00	0.000
17	1.41	100	80	18.85	1550.00	-73.93	-351.49	0.000000	0.00	0.000
18	1.50	100	80	18.85	1550.00	-68.65	-351.49	0.000000	0.00	0.000
19	1.60	100	80	18.85	1550.00	-63.43	-351.49	0.000000	0.00	0.000
20	1.70	100	80	18.85	1550.00	-58.30	-351.49	0.000000	0.00	0.000
21	1.80	100	80	18.85	1550.00	-53.26	-351.49	0.000000	0.00	0.000
22	1.90	100	80	18.85	1550.00	-48.35	-351.49	0.000000	0.00	0.000
23	2.00	100	80	18.85	1550.00	-43.57	-351.49	0.000000	0.00	0.000
24	2.10	100	80	18.85	1550.00	-38.95	-351.49	0.000000	0.00	0.000
25	2.20	100	80	18.85	1550.00	-34.50	-351.49	0.000000	0.00	0.000
26	2.30	100	80	18.85	1550.00	-30.24	-351.49	0.000000	0.00	0.000
27	2.40	100	80	18.85	1550.00	-26.19	-351.49	0.000000	0.00	0.000
28	2.50	100	80	18.85	1550.00	-22.36	-351.49	0.000000	0.00	0.000
29	2.60	100	80	18.85	1550.00	-18.77	-351.49	0.000000	0.00	0.000
30	2.70	100	80	18.85	1550.00	-15.44	-351.49	0.000000	0.00	0.000
31	2.80	100	80	18.85	1550.00	-12.38	-351.49	0.000000	0.00	0.000

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
32	2.90	100	80	18.85	1550.00	-9.62	-351.49	0.000000	0.00	0.000
33	3.00	100	80	18.85	1550.00	-7.18	-351.49	0.000000	0.00	0.000
34	3.10	100	80	18.85	1550.00	-5.06	-351.49	0.000000	0.00	0.000
35	3.20	100	80	18.85	1550.00	-3.28	-351.49	0.000000	0.00	0.000
36	3.30	100	80	18.85	1550.00	-1.87	-351.49	0.000000	0.00	0.000
37	3.40	100	80	18.85	1550.00	-0.84	-351.49	0.000000	0.00	0.000
38	3.50	100	80	18.85	1550.00	-0.21	-351.49	0.000000	0.00	0.000
39	3.60	100	80	0.00	0.00	0.00	0.00	---	---	0.000

Combinazione n° 13 - SLEQ H + V

Apertura limite fessure w_{lim}=0.20

n°	Y	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[m]	*[cm]*	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	-0.80	100	80	0.00	0.00	0.00	0.00	---	---	0.000
2	-0.70	100	80	18.85	1550.00	0.75	351.49	0.000000	0.00	0.000
3	-0.60	100	80	18.85	1550.00	2.96	351.49	0.000000	0.00	0.000
4	-0.50	100	80	18.85	1550.00	6.61	351.49	0.000000	0.00	0.000
5	-0.40	100	80	18.85	1550.00	11.67	351.49	0.000000	0.00	0.000
6	0.31	100	80	18.85	1550.00	-197.64	-351.49	0.000000	0.00	0.000
7	0.41	100	80	18.85	1550.00	-191.57	-351.49	0.000000	0.00	0.000
8	0.51	100	80	18.85	1550.00	-185.15	-351.49	0.000000	0.00	0.000
9	0.61	100	80	18.85	1550.00	-178.17	-351.49	0.000000	0.00	0.000
10	0.71	100	80	18.85	1550.00	-170.94	-351.49	0.000000	0.00	0.000
11	0.81	100	80	18.85	1550.00	-163.51	-351.49	0.000000	0.00	0.000
12	0.91	100	80	18.85	1550.00	-155.90	-351.49	0.000000	0.00	0.000
13	1.01	100	80	18.85	1550.00	-148.15	-351.49	0.000000	0.00	0.000
14	1.11	100	80	18.85	1550.00	-140.28	-351.49	0.000000	0.00	0.000
15	1.21	100	80	18.85	1550.00	-132.34	-351.49	0.000000	0.00	0.000
16	1.31	100	80	18.85	1550.00	-124.34	-351.49	0.000000	0.00	0.000
17	1.41	100	80	18.85	1550.00	-116.33	-351.49	0.000000	0.00	0.000
18	1.50	100	80	18.85	1550.00	-108.33	-351.49	0.000000	0.00	0.000
19	1.60	100	80	18.85	1550.00	-100.38	-351.49	0.000000	0.00	0.000
20	1.70	100	80	18.85	1550.00	-92.51	-351.49	0.000000	0.00	0.000
21	1.80	100	80	18.85	1550.00	-84.74	-351.49	0.000000	0.00	0.000
22	1.90	100	80	18.85	1550.00	-77.12	-351.49	0.000000	0.00	0.000
23	2.00	100	80	18.85	1550.00	-69.67	-351.49	0.000000	0.00	0.000
24	2.10	100	80	18.85	1550.00	-62.42	-351.49	0.000000	0.00	0.000
25	2.20	100	80	18.85	1550.00	-55.42	-351.49	0.000000	0.00	0.000
26	2.30	100	80	18.85	1550.00	-48.68	-351.49	0.000000	0.00	0.000
27	2.40	100	80	18.85	1550.00	-42.24	-351.49	0.000000	0.00	0.000
28	2.50	100	80	18.85	1550.00	-36.13	-351.49	0.000000	0.00	0.000
29	2.60	100	80	18.85	1550.00	-30.39	-351.49	0.000000	0.00	0.000
30	2.70	100	80	18.85	1550.00	-25.05	-351.49	0.000000	0.00	0.000
31	2.80	100	80	18.85	1550.00	-20.13	-351.49	0.000000	0.00	0.000
32	2.90	100	80	18.85	1550.00	-15.67	-351.49	0.000000	0.00	0.000
33	3.00	100	80	18.85	1550.00	-11.70	-351.49	0.000000	0.00	0.000
34	3.10	100	80	18.85	1550.00	-8.26	-351.49	0.000000	0.00	0.000
35	3.20	100	80	18.85	1550.00	-5.37	-351.49	0.000000	0.00	0.000
36	3.30	100	80	18.85	1550.00	-3.07	-351.49	0.000000	0.00	0.000
37	3.40	100	80	18.85	1550.00	-1.39	-351.49	0.000000	0.00	0.000
38	3.50	100	80	18.85	1550.00	-0.35	-351.49	0.000000	0.00	0.000
39	3.60	100	80	0.00	0.00	0.00	0.00	---	---	0.000

14.2 RISULTATI PER INVILUPPO

Spinta e forze

Simbologia adottata

Ic	Indice della combinazione
A	Tipo azione
I	Inclinazione della spinta, espressa in [°]
V	Valore dell'azione, espressa in [kN]
Cx, Cy	Componente in direzione X ed Y dell'azione, espressa in [kN]
Px, Py	Coordinata X ed Y del punto di applicazione dell'azione, espressa in [m]

Ic	A	V	I	Cx	Cy	Px	Py
		[kN]	*[°]*	*[kN]*	*[kN]*	*[m]*	*[m]*
1	Spinta statica	120.81	0.00	120.81	0.00	3.60	-3.06
	Peso/Inerzia muro			0.00	142.66/0.00	0.80	-3.65
	Peso/Inerzia terrapieno			0.00	280.87/0.00	1.88	-2.05
	Peso dell'acqua sulla fondazione di valle				0.00	0.00	0.00

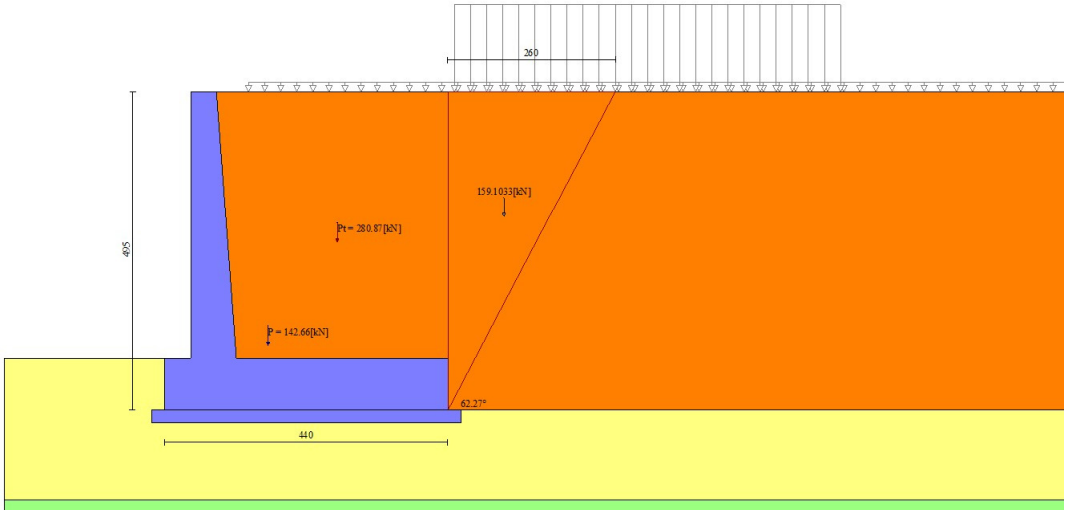


Fig. 12 - Cuneo di spinta (combinazione statica) (Combinazione n° 1)

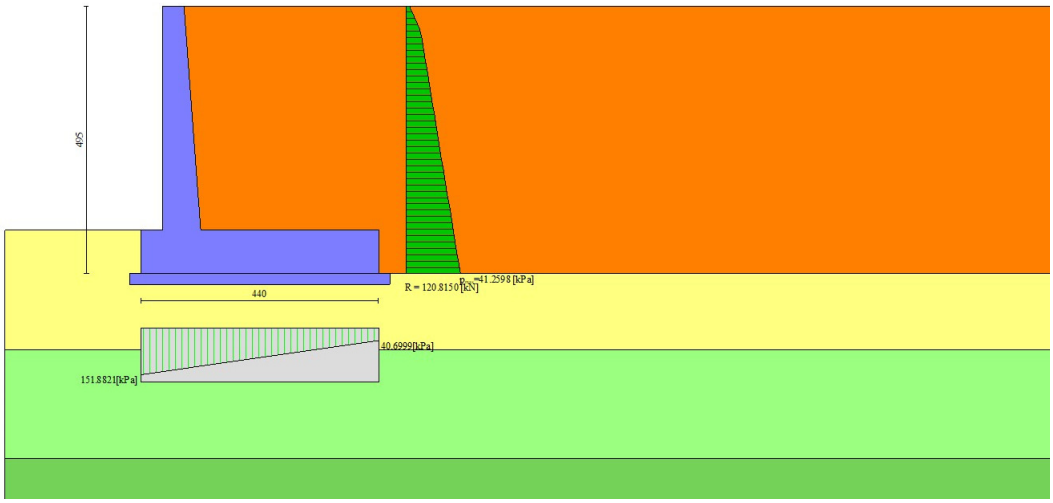


Fig. 13 - Diagramma delle pressioni (combinazione statica) (Combinazione n° 1)

Risultanti globali

Simbologia adottata

Cmb	Indice/Tipo combinazione
N	Componente normale al piano di posa, espressa in [kN]
T	Componente parallela al piano di posa, espressa in [kN]
M_r	Momento ribaltante, espresso in [kNm]
M_s	Momento stabilizzante, espresso in [kNm]
ecc	Eccentricità risultante, espressa in [m]

Ic	N	T	M_r	M_s	ecc
	[kN]	*[kN]*	*[kNm]*	*[kNm]*	*[m]*
1 - STR (A1-M1-R3)	423.53	120.81	228.23	980.40	0.423
2 - STR (A1-M1-R3)	447.71	149.79	291.95	1034.93	0.540
3 - STR (A1-M1-R3)	393.15	140.90	340.33	971.87	0.593
4 - GEO (A2-M2-R2)	422.29	122.11	233.28	976.99	0.438
5 - GEO (A2-M2-R2)	447.71	149.79	291.95	1034.93	0.540
6 - GEO (A2-M2-R2)	393.15	140.90	340.33	971.87	0.593
7 - EQU (A1-M1-R3)	423.53	120.81	228.23	980.40	0.423
8 - EQU (A1-M1-R3)	456.32	175.56	346.73	1054.84	0.647
9 - EQU (A1-M1-R3)	384.53	164.21	410.97	971.87	0.741
10 - SLER	420.43	91.53	172.17	971.87	0.297
11 - SLEF	420.43	91.53	172.17	971.87	0.297
12 - SLEQ	420.43	91.53	172.17	971.87	0.297
13 - SLEQ	436.32	141.08	276.54	1008.61	0.521

Verifiche geotecniche

Quadro riassuntivo coeff. di sicurezza calcolati

Simbologia adottata

Cmb Indice/Tipo combinazione

S Sisma (H: componente orizzontale, V: componente verticale)

FS_{SCO} Coeff. di sicurezza allo scorrimento

FS_{RIB} Coeff. di sicurezza al ribaltamento

FS_{QLIM} Coeff. di sicurezza a carico limite

FS_{STAB} Coeff. di sicurezza a stabilità globale

FS_{HYD} Coeff. di sicurezza a sifonamento

FS_{UPL} Coeff. di sicurezza a sollevamento

Cmb	Sismica	FS_{SCO}	FS_{RIB}	FS_{QLIM}	FS_{STAB}	FS_{HYD}	FS_{UPL}
1 - STR (A1-M1-R3)		1.635		2.015			
2 - STR (A1-M1-R3)	H + V	1.394		1.525			
3 - STR (A1-M1-R3)	H - V	1.301		1.567			
4 - GEO (A2-M2-R2)					1.298		
5 - GEO (A2-M2-R2)	H + V				1.366		
6 - GEO (A2-M2-R2)	H - V				1.314		
7 - EQU (A1-M1-R3)			4.296				
8 - EQU (A1-M1-R3)	H + V		3.042				
9 - EQU (A1-M1-R3)	H - V		2.365				

Verifica a scorrimento fondazione

Simbologia adottata

n° Indice combinazione

Rsa Resistenza allo scorrimento per attrito, espresso in [kN]

Rpt Resistenza passiva terreno antistante, espresso in [kN]

Rps Resistenza passiva sperone, espresso in [kN]

Rp Resistenza a carichi orizzontali pali (solo per fondazione mista), espresso in [kN]

Rt Resistenza a carichi orizzontali tiranti (solo se presenti), espresso in [kN]

R Resistenza allo scorrimento (somma di Rsa+Rpt+Rps+Rp), espresso in [kN]

T Carico parallelo al piano di posa, espresso in [kN]

FS Fattore di sicurezza (rapporto R/T)

n°	Rsa	Rpt	Rps	Rp	Rt	R	T	FS
	[kN]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kN]*	
3 - STR (A1-M1-R3) H - V	183.33	0.00	0.00	--	--	183.33	140.90	1.301

Verifica a carico limite

Simbologia adottata

n°	Indice combinazione
N	Carico normale totale al piano di posa, espresso in [kN]
Qu	carico limite del terreno, espresso in [kN]
Qd	Portanza di progetto, espresso in [kN]
FS	Fattore di sicurezza (rapporto tra il carico limie e carico agente al piano di posa)

n°	N	Qu	Qd	FS
	[kN]	*[kN]*	*[kN]*	
2 - STR (A1-M1-R3) H + V	447.71	682.64	568.87	1.525

Dettagli calcolo portanza

Simbologia adottata

n°	Indice combinazione
Nc, Nq, N_γ	Fattori di capacità portante
ic, iq, i_γ	Fattori di inclinazione del carico
dc, dq, d_γ	Fattori di profondità del piano di posa
gc, gq, g_γ	Fattori di inclinazione del profilo topografico
bc, bq, b_γ	Fattori di inclinazione del piano di posa
sc, sq, s_γ	Fattori di forma della fondazione
pc, pq, p_γ	Fattori di riduzione per punzonamento secondo Vesic
Re	Fattore di riduzione capacità portante per eccentricità secondo Meyerhof
Ir, Irc	Indici di rigidezza per punzonamento secondo Vesic
r_γ fattore	Fattori per tener conto dell'effetto piastra. Per fondazioni che hanno larghezza maggiore di 2 m, il terzo termine della formula trinomia $0.5B\gamma N_\gamma$ viene moltiplicato per questo
D	Affondamento del piano di posa, espresso in [m]
B'	Larghezza fondazione ridotta, espresso in [m]
H	Altezza del cuneo di rottura, espresso in [m]
γ	Peso di volume del terreno medio, espresso in [kN/mc]
ϕ	Angolo di attrito del terreno medio, espresso in [°]
c	Coesione del terreno medio, espresso in [kPa]

Per i coeff. che in tabella sono indicati con il simbolo '--' sono coeff. non presenti nel metodo scelto (Meyerhof).

n°	Nc Nq Nγ	ic iq iγ	dc dq dγ	gc gq gγ	bc bq bγ	sc sq sγ	pc pq pγ	Ir	Irc	Re	rγ
2	28.838 17.277 14.259	0.631 0.631 0.138	1.062 1.031 1.031	-- -- --	-- -- --	-- -- --	-- -- --	--	--	--	0.914

n°	D	B'	H	γ	ϕ	c
	[m]	*[m]*	*[m]*	*[°]*	*[kN/mc]*	*[kPa]*
2	0.80	3.32	3.77	11.28	29.44	0

Verifica a ribaltamento

Simbologia adottata

n° Indice combinazione

Ms Momento stabilizzante, espresso in [kNm]

Mr Momento ribaltante, espresso in [kNm]

FS Fattore di sicurezza (rapporto tra momento stabilizzante e momento ribaltante)

La verifica viene eseguita rispetto allo spigolo inferiore esterno della fondazione

n°	Ms	Mr	FS
	[kNm]	*[kNm]*	
9 - EQU (A1-M1-R3) H - V	971.87	410.97	2.365

Verifica stabilità globale muro + terreno

Simbologia adottata

Ic Indice/Tipo combinazione

C Centro superficie di scorrimento, espresso in [m]

R Raggio, espresso in [m]

FS Fattore di sicurezza

Ic	C	R	FS
	[m]	*[m]*	
4 - GEO (A2-M2-R2)	-1.00; 2.00	8.34	1.298

Dettagli strisce verifiche stabilità

Simbologia adottata

Le ascisse X sono considerate positive verso monte

Le ordinate Y sono considerate positive verso l'alto

Origine in testa al muro (spigolo contro terra)

W peso della striscia espresso in [kN]

Qy carico sulla striscia espresso in [kN]

α angolo fra la base della striscia e l'orizzontale espresso in [°] (positivo antiorario)

ϕ angolo d'attrito del terreno lungo la base della striscia

c coesione del terreno lungo la base della striscia espressa in [kPa]

b larghezza della striscia espressa in [m]

u pressione neutra lungo la base della striscia espressa in [kPa]

Tx; Ty Resistenza al taglio fornita dai tiranti in direzione X ed Y espressa in [kPa]

n°	W	Qy	b	α	ϕ	c	u	Tx; Ty
	[kN]	*[kN]*	*[m]*	*[°]*	*[°]*	*[kPa]*	*[kPa]*	*[kN]*
1	8.00	14.09	7.11 - 0.55	70.210	29.256	0	0.0	
2	21.20	14.09	0.55	61.065	29.256	0	0.0	
3	30.36	14.09	0.55	53.944	29.256	0	0.0	
4	37.50	14.09	0.55	47.911	29.256	0	0.0	
5	43.32	14.09	0.55	42.526	29.256	0	0.0	
6	48.17	14.09	0.55	37.576	29.256	0	0.0	
7	53.75	3.92	0.55	32.939	20.458	0	0.0	
8	58.11	1.43	0.55	28.535	20.458	0	0.0	
9	60.98	1.43	0.55	24.309	20.458	0	0.0	
10	63.33	1.43	0.55	20.221	20.458	0	0.7	
11	65.23	1.43	0.55	16.238	20.458	0	2.5	
12	66.70	1.43	0.55	12.335	20.458	0	3.9	
13	72.30	0.02	0.55	8.489	20.458	0	4.9	
14	61.23	0.00	0.55	4.682	20.458	0	5.5	
15	23.79	0.00	0.55	0.895	20.458	0	5.8	
16	22.78	0.00	0.55	-2.887	20.458	0	5.7	
17	22.30	0.00	0.55	-6.683	20.458	0	5.2	
18	21.43	0.00	0.55	-10.508	20.458	0	4.4	
19	20.15	0.00	0.55	-14.382	20.458	0	3.2	
20	18.46	0.00	0.55	-18.324	20.458	0	1.6	
21	16.33	0.00	0.55	-22.359	20.458	0	0.0	
22	13.71	0.00	0.55	-26.515	20.458	0	0.0	
23	10.55	0.00	0.55	-30.828	20.458	0	0.0	
24	6.80	0.00	0.55	-35.347	20.458	0	0.0	
25	2.33	0.00	-6.65 - 0.55	-39.568	20.458	0	0.0	

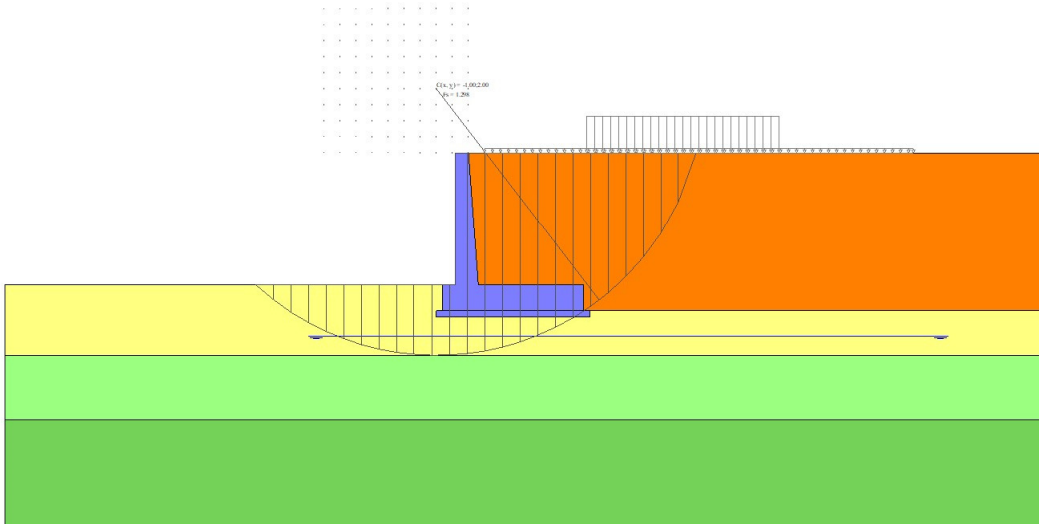


Fig. 14 - Stabilità fronte di scavo - Cerchio critico (Combinazione n° 4)

Sollecitazioni

Elementi calcolati a trave

Simbologia adottata

N Sforzo normale, espresso in [kN]. Positivo se di compressione.

T Taglio, espresso in [kN]. Positivo se diretto da monte verso valle

M Momento, espresso in [kNm]. Positivo se tende le fibre contro terra (a monte)

Paramento

n°	X	N_{min}	N_{max}	T_{min}	T_{max}	M_{min}	M_{max}
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.10	0.98	0.98	0.03	0.16	0.00	0.01
3	-0.20	1.97	1.97	0.11	0.41	0.01	0.04
4	-0.30	2.99	2.99	0.25	0.72	0.04	0.11
5	-0.40	4.02	4.02	0.45	1.12	0.09	0.21
6	-0.49	5.07	5.07	0.69	1.58	0.16	0.36
7	-0.59	6.13	6.13	1.00	2.13	0.26	0.56
8	-0.69	7.22	7.22	1.36	2.76	0.41	0.83
9	-0.79	8.32	8.32	1.80	3.47	0.59	1.16
10	-0.89	9.44	9.44	2.29	4.27	0.82	1.58
11	-0.99	10.58	10.58	2.86	5.16	1.11	2.08
12	-1.09	11.74	11.74	3.49	6.14	1.47	2.68
13	-1.19	12.91	12.91	4.18	7.19	1.89	3.38
14	-1.28	14.10	14.10	4.93	8.32	2.39	4.20
15	-1.38	15.31	15.31	5.73	9.53	2.97	5.13

n°	X	N_{min}	N_{max}	T_{min}	T_{max}	M_{min}	M_{max}
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
16	-1.48	16.54	16.54	6.59	10.82	3.64	6.19
17	-1.58	17.78	17.78	7.51	12.19	4.40	7.39
18	-1.68	19.04	19.04	8.48	13.63	5.25	8.74
19	-1.78	20.32	20.32	9.50	15.14	6.21	10.23
20	-1.88	21.62	21.62	10.59	16.74	7.28	11.88
21	-1.98	22.94	22.94	11.72	18.41	8.47	13.70
22	-2.08	24.27	24.27	12.92	20.15	9.77	15.69
23	-2.17	25.62	25.62	14.17	21.98	11.20	17.86
24	-2.27	26.99	26.99	15.47	23.88	12.76	20.22
25	-2.37	28.38	28.38	16.83	25.85	14.46	22.78
26	-2.47	29.78	29.78	18.24	27.90	16.30	25.54
27	-2.57	31.21	31.21	19.71	30.03	18.28	28.52
28	-2.67	32.65	32.65	21.24	32.23	20.42	31.71
29	-2.77	34.11	34.11	22.82	34.51	22.72	35.13
30	-2.87	35.58	35.58	24.46	36.87	25.18	38.78
31	-2.96	37.07	37.07	26.15	39.30	27.82	42.68
32	-3.06	38.59	38.59	27.90	41.81	30.63	46.82
33	-3.16	40.12	40.12	29.70	44.40	33.62	51.23
34	-3.26	41.66	41.66	31.56	47.06	36.79	55.90
35	-3.36	43.23	43.23	33.47	49.80	40.16	60.84
36	-3.46	44.81	44.81	35.44	52.61	43.73	66.06
37	-3.56	46.41	46.41	37.47	55.50	47.50	71.56
38	-3.66	48.03	48.03	39.55	58.47	51.47	77.37
39	-3.75	49.67	49.67	41.68	61.51	55.67	83.47
40	-3.85	51.32	51.32	43.87	64.63	60.08	89.89
41	-3.95	52.99	52.99	46.12	67.83	64.71	96.63
42	-4.05	54.68	54.68	48.42	71.10	69.58	103.69
43	-4.15	56.39	56.39	50.78	74.45	74.69	111.08

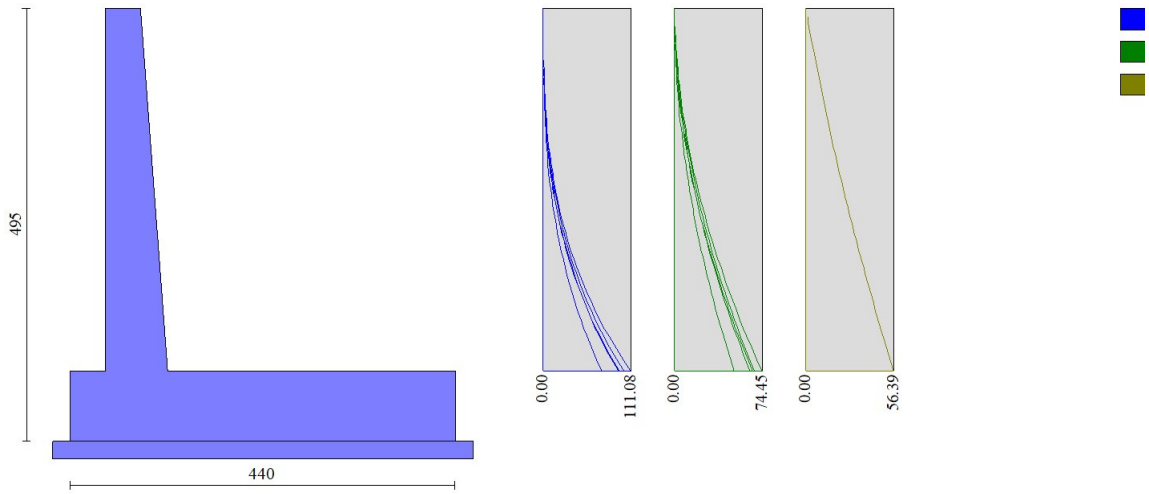


Fig. 15 - Paramento

Fondazione

n°	X	N_{min}	N_{max}	T_{min}	T_{max}	M_{min}	M_{max}
	[m]	*[kN]*	*[kN]*	*[kN]*	*[kN]*	*[kNm]*	*[kNm]*
1	-0.80	0.00	0.00	0.00	0.00	0.00	0.00
2	-0.70	0.00	0.00	11.38	15.54	0.57	0.78
3	-0.60	0.00	0.00	22.59	30.74	2.27	3.10
4	-0.50	0.00	0.00	33.62	45.60	5.08	6.92
5	-0.40	0.00	0.00	44.48	60.12	8.99	12.21
6	0.31	0.00	0.00	-140.36	-47.78	-305.90	-130.87
7	0.41	0.00	0.00	-140.41	-49.32	-292.37	-126.34
8	0.51	0.00	0.00	-140.18	-50.67	-278.81	-121.64
9	0.61	0.00	0.00	-139.43	-51.66	-264.87	-116.54
10	0.71	0.00	0.00	-138.42	-52.48	-251.01	-111.34
11	0.81	0.00	0.00	-137.17	-53.12	-237.27	-106.08
12	0.91	0.00	0.00	-135.66	-53.59	-223.67	-100.76
13	1.01	0.00	0.00	-133.90	-53.88	-210.23	-95.40
14	1.11	0.00	0.00	-131.89	-54.00	-196.98	-90.02
15	1.21	0.00	0.00	-129.63	-53.94	-183.94	-84.64
16	1.31	0.00	0.00	-127.12	-53.70	-171.14	-79.27
17	1.41	0.00	0.00	-124.36	-53.29	-158.60	-73.93
18	1.50	0.00	0.00	-121.34	-52.71	-146.35	-68.65
19	1.60	0.00	0.00	-118.08	-51.95	-134.42	-63.43
20	1.70	0.00	0.00	-114.56	-51.02	-122.82	-58.30
21	1.80	0.00	0.00	-110.79	-49.91	-111.58	-53.26
22	1.90	0.00	0.00	-106.77	-48.62	-100.74	-48.35
23	2.00	0.00	0.00	-102.50	-47.16	-90.30	-43.57
24	2.10	0.00	0.00	-97.98	-45.53	-80.31	-38.95
25	2.20	0.00	0.00	-93.21	-43.72	-70.77	-34.50
26	2.30	0.00	0.00	-88.18	-41.73	-61.73	-30.24
27	2.40	0.00	0.00	-82.91	-39.57	-53.20	-26.19
28	2.50	0.00	0.00	-77.38	-37.24	-45.21	-22.36
29	2.60	0.00	0.00	-71.60	-34.73	-37.78	-18.77
30	2.70	0.00	0.00	-65.57	-32.04	-30.94	-15.44
31	2.80	0.00	0.00	-59.29	-29.18	-24.71	-12.38
32	2.90	0.00	0.00	-52.76	-26.15	-19.13	-9.62
33	3.00	0.00	0.00	-45.98	-22.94	-14.20	-7.18
34	3.10	0.00	0.00	-38.94	-19.55	-9.97	-5.06
35	3.20	0.00	0.00	-31.66	-15.99	-6.45	-3.28
36	3.30	0.00	0.00	-24.12	-12.26	-3.66	-1.87
37	3.40	0.00	0.00	-16.33	-8.35	-1.64	-0.84
38	3.50	0.00	0.00	-8.29	-4.26	-0.42	-0.21
39	3.60	0.00	0.00	0.00	0.00	0.00	0.00

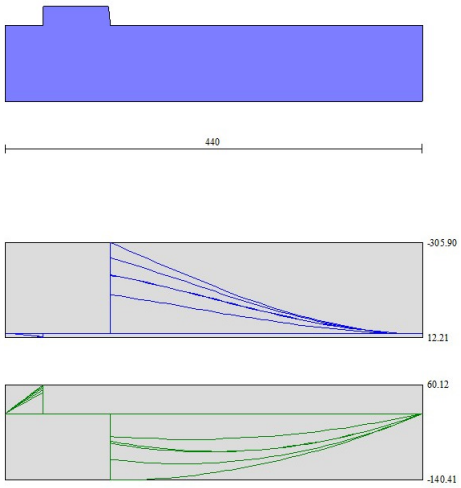


Fig. 16 - Fondazione

Verifiche strutturali

Verifiche a flessione

Elementi calcolati a trave

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Afi	area ferri inferiori espresso in [cmq]
Afs	area ferri superiori espressa in [cmq]
M	momento agente espressa in [kNm]
N	sforzo normale agente espressa in [kN]
Mu	momento ultimi espresso in [kNm]
Nu	sforzo normale ultimo espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione ultima e sollecitazione agente)

Paramento

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
1	100	40	15.71	15.71	0.00	0.00	0.00	0.00	100000.000
2	100	41	15.71	15.71	0.00	0.00	0.00	0.00	100000.000
3	100	41	15.71	15.71	0.04	1.97	159.68	7470.61	3785.296
4	100	42	15.71	15.71	0.11	2.99	264.37	7422.37	2484.839
5	100	43	15.71	15.71	0.21	4.02	359.95	6906.09	1718.647
6	100	44	15.71	15.71	0.36	5.07	449.23	6343.28	1251.787
7	100	44	15.71	15.71	0.56	6.13	528.11	5761.64	939.262
8	100	45	15.71	15.71	0.83	7.22	594.86	5190.15	718.972
9	100	46	15.71	15.71	1.16	8.32	650.22	4653.64	559.247
10	100	47	15.71	15.71	1.58	9.44	695.89	4166.82	441.331
11	100	47	15.71	15.71	2.08	10.58	713.26	3630.24	343.141
12	100	48	15.71	15.71	2.68	11.74	698.69	3062.93	261.003
13	100	49	15.71	15.71	3.38	12.91	667.02	2547.58	197.352
14	100	50	15.71	15.71	4.20	14.10	627.12	2107.71	149.481
15	100	50	15.71	15.71	5.13	15.31	584.23	1743.18	113.864
16	100	51	15.71	18.85	6.19	16.54	627.67	1675.56	101.327
17	100	52	15.71	18.85	7.39	17.78	599.70	1442.21	81.110
18	100	52	15.71	18.85	8.74	19.04	575.96	1255.53	65.930
19	100	53	15.71	18.85	10.23	20.32	556.19	1105.09	54.374
20	100	54	15.71	18.85	11.88	21.62	539.90	982.59	45.444
21	100	55	15.71	18.85	13.70	22.94	527.85	883.90	38.535
22	100	55	15.71	18.85	15.69	24.27	518.95	802.82	33.077
23	100	56	15.71	18.85	17.86	25.62	512.44	735.11	28.690
24	100	57	15.71	18.85	20.22	26.99	507.80	677.78	25.110
25	100	58	15.71	18.85	22.78	28.38	504.64	628.66	22.152
26	100	58	15.71	18.85	25.54	29.78	502.67	586.15	19.680
27	100	59	15.71	18.85	28.52	31.21	501.69	549.03	17.593
28	100	60	15.71	18.85	31.71	32.65	501.51	516.35	15.816
29	100	61	15.71	18.85	35.13	34.11	502.02	487.40	14.291
30	100	61	15.71	25.13	38.78	35.58	654.72	600.67	16.882
31	100	62	15.71	25.13	42.68	37.07	656.67	570.45	15.387
32	100	63	15.71	25.13	46.82	38.59	659.18	543.21	14.078
33	100	63	15.71	25.13	51.23	40.12	662.16	518.53	12.926
34	100	64	15.71	25.13	55.90	41.66	665.56	496.09	11.907
35	100	65	15.71	25.13	60.84	43.23	669.33	475.60	11.002
36	100	66	15.71	25.13	66.06	44.81	673.41	456.82	10.195
37	100	66	15.71	25.13	71.56	46.41	677.79	439.56	9.471
38	100	67	15.71	25.13	77.37	48.03	682.42	423.64	8.820
39	100	68	15.71	25.13	83.47	49.67	687.28	408.91	8.233
40	100	69	15.71	25.13	89.89	51.32	692.34	395.26	7.702
41	100	69	15.71	25.13	96.63	52.99	697.60	382.57	7.220
42	100	70	15.71	25.13	103.69	54.68	703.02	370.75	6.780
43	100	71	15.71	25.13	111.08	56.39	708.60	359.70	6.379

Fondazione

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kN]	[kNm]	[kN]	
1	100	80	18.85	18.85	0.00	0.00	0.00	0.00	100000.000
2	100	80	18.85	18.85	0.78	0.00	520.00	0.00	666.775
3	100	80	18.85	18.85	3.10	0.00	520.00	0.00	167.917
4	100	80	18.85	18.85	6.92	0.00	520.00	0.00	75.181
5	100	80	18.85	18.85	12.21	0.00	520.00	0.00	42.604
6	100	80	18.85	18.85	-305.90	0.00	-520.00	0.00	1.700
7	100	80	18.85	18.85	-292.37	0.00	-520.00	0.00	1.779
8	100	80	18.85	18.85	-278.81	0.00	-520.00	0.00	1.865
9	100	80	18.85	18.85	-264.87	0.00	-520.00	0.00	1.963
10	100	80	18.85	18.85	-251.01	0.00	-520.00	0.00	2.072

n°	B	H	Afi	Afs	M	N	Mu	Nu	FS
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kNm]*	*[kN]*	
11	100	80	18.85	18.85	-237.27	0.00	-520.00	0.00	2.192
12	100	80	18.85	18.85	-223.67	0.00	-520.00	0.00	2.325
13	100	80	18.85	18.85	-210.23	0.00	-520.00	0.00	2.473
14	100	80	18.85	18.85	-196.98	0.00	-520.00	0.00	2.640
15	100	80	18.85	18.85	-183.94	0.00	-520.00	0.00	2.827
16	100	80	18.85	18.85	-171.14	0.00	-520.00	0.00	3.038
17	100	80	18.85	18.85	-158.60	0.00	-520.00	0.00	3.279
18	100	80	18.85	18.85	-146.35	0.00	-520.00	0.00	3.553
19	100	80	18.85	18.85	-134.42	0.00	-520.00	0.00	3.869
20	100	80	18.85	18.85	-122.82	0.00	-520.00	0.00	4.234
21	100	80	18.85	18.85	-111.58	0.00	-520.00	0.00	4.660
22	100	80	18.85	18.85	-100.74	0.00	-520.00	0.00	5.162
23	100	80	18.85	18.85	-90.30	0.00	-520.00	0.00	5.758
24	100	80	18.85	18.85	-80.31	0.00	-520.00	0.00	6.475
25	100	80	18.85	18.85	-70.77	0.00	-520.00	0.00	7.347
26	100	80	18.85	18.85	-61.73	0.00	-520.00	0.00	8.424
27	100	80	18.85	18.85	-53.20	0.00	-520.00	0.00	9.775
28	100	80	18.85	18.85	-45.21	0.00	-520.00	0.00	11.503
29	100	80	18.85	18.85	-37.78	0.00	-520.00	0.00	13.764
30	100	80	18.85	18.85	-30.94	0.00	-520.00	0.00	16.807
31	100	80	18.85	18.85	-24.71	0.00	-520.00	0.00	21.042
32	100	80	18.85	18.85	-19.13	0.00	-520.00	0.00	27.189
33	100	80	18.85	18.85	-14.20	0.00	-520.00	0.00	36.616
34	100	80	18.85	18.85	-9.97	0.00	-520.00	0.00	52.174
35	100	80	18.85	18.85	-6.45	0.00	-520.00	0.00	80.677
36	100	80	18.85	18.85	-3.66	0.00	-520.00	0.00	141.955
37	100	80	18.85	18.85	-1.64	0.00	-520.00	0.00	316.157
38	100	80	18.85	18.85	-0.42	0.00	-520.00	0.00	1251.916
39	100	80	18.85	18.85	0.00	0.00	0.00	0.00	100000.000

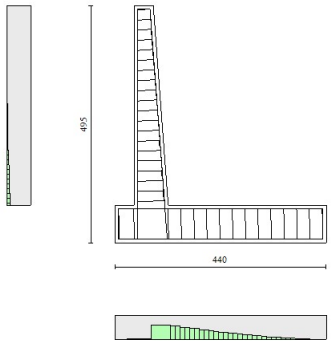


Fig. 17 - Paramento (Inviluppo)

Verifiche a taglio

Simbologia adottata

Is	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
A_{sw}	area ferri a taglio espresso in [cmq]
cotgθ	inclinazione delle bielle compresse, θ inclinazione dei puntoni di calcestruzzo
V_{Rcd}	resistenza di progetto a 'taglio compressione' espressa in [kN]
V_{Rsd}	resistenza di progetto a 'taglio trazione' espressa in [kN]
V_{Rd}	resistenza di progetto a taglio espresso in [kN]. Per elementi con armature trasversali resistenti al taglio (A_{sw}>0.0) V_{Rd}=min(V_{Rcd}, V_{Rsd}).
T	taglio agente espressa in [kN]
FS	fattore di sicurezza (rapporto tra sollecitazione resistente e sollecitazione agente)

Paramento

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[cm]	*[cm]*	*[cmq]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	100	40	0.00	--	0.00	0.00	226.71	0.00	100.000
2	100	41	0.00	--	0.00	0.00	229.03	0.16	1394.827
3	100	41	0.00	--	0.00	0.00	231.35	0.41	570.768
4	100	42	0.00	--	0.00	0.00	233.64	0.72	323.305
5	100	43	0.00	--	0.00	0.00	235.92	1.12	211.489
6	100	44	0.00	--	0.00	0.00	238.19	1.58	150.346
7	100	44	0.00	--	0.00	0.00	240.44	2.13	112.924
8	100	45	0.00	--	0.00	0.00	242.68	2.76	88.070
9	100	46	0.00	--	0.00	0.00	244.90	3.47	70.612
10	100	47	0.00	--	0.00	0.00	247.11	4.27	57.884
11	100	47	0.00	--	0.00	0.00	249.31	5.16	48.319
12	100	48	0.00	--	0.00	0.00	251.50	6.14	40.994
13	100	49	0.00	--	0.00	0.00	253.68	7.19	35.280
14	100	50	0.00	--	0.00	0.00	255.84	8.32	30.735
15	100	50	0.00	--	0.00	0.00	258.00	9.53	27.058
16	100	51	0.00	--	0.00	0.00	268.47	10.82	24.807
17	100	52	0.00	--	0.00	0.00	270.66	12.19	22.210
18	100	52	0.00	--	0.00	0.00	272.85	13.63	20.023
19	100	53	0.00	--	0.00	0.00	275.03	15.14	18.161
20	100	54	0.00	--	0.00	0.00	277.19	16.74	16.561
21	100	55	0.00	--	0.00	0.00	279.35	18.41	15.176
22	100	55	0.00	--	0.00	0.00	281.50	20.15	13.967
23	100	56	0.00	--	0.00	0.00	283.64	21.98	12.906
24	100	57	0.00	--	0.00	0.00	285.77	23.88	11.969
25	100	58	0.00	--	0.00	0.00	287.89	25.85	11.137
26	100	58	0.00	--	0.00	0.00	290.01	27.90	10.394
27	100	59	0.00	--	0.00	0.00	292.11	30.03	9.727
28	100	60	0.00	--	0.00	0.00	294.21	32.23	9.127
29	100	61	0.00	--	0.00	0.00	296.30	34.51	8.585
30	100	61	0.00	--	0.00	0.00	315.20	36.87	8.549
31	100	62	0.00	--	0.00	0.00	317.38	39.30	8.075
32	100	63	0.00	--	0.00	0.00	319.56	41.81	7.642
33	100	63	0.00	--	0.00	0.00	321.72	44.40	7.246
34	100	64	0.00	--	0.00	0.00	323.88	47.06	6.882

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[cm]	*[cm]*	*[cmq]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
35	100	65	0.00	--	0.00	0.00	326.04	49.80	6.547
36	100	66	0.00	--	0.00	0.00	328.19	52.61	6.238
37	100	66	0.00	--	0.00	0.00	330.33	55.50	5.952
38	100	67	0.00	--	0.00	0.00	332.46	58.47	5.686
39	100	68	0.00	--	0.00	0.00	334.59	61.51	5.439
40	100	69	0.00	--	0.00	0.00	336.71	64.63	5.210
41	100	69	0.00	--	0.00	0.00	338.83	67.83	4.996
42	100	70	0.00	--	0.00	0.00	340.94	71.10	4.795
43	100	71	0.00	--	0.00	0.00	343.04	74.45	4.608

Fondazione

n°	B	H	A_{sw}	cotθ	V_{Rcd}	V_{Rsd}	V_{Rd}	T	FS
	[cm]	*[cm]*	*[cmq]*		*[kN]*	*[kN]*	*[kN]*	*[kN]*	
1	100	80	0.00	--	0.00	0.00	333.31	0.00	100.000
2	100	80	0.00	--	0.00	0.00	333.31	-15.54	21.447
3	100	80	0.00	--	0.00	0.00	333.31	-30.74	10.843
4	100	80	0.00	--	0.00	0.00	333.31	-45.60	7.309
5	100	80	0.00	--	0.00	0.00	333.31	-60.12	5.544
6	100	80	0.00	--	0.00	0.00	333.31	-140.36	2.375
7	100	80	0.00	--	0.00	0.00	333.31	-140.41	2.374
8	100	80	0.00	--	0.00	0.00	333.31	-140.18	2.378
9	100	80	0.00	--	0.00	0.00	333.31	-139.43	2.391
10	100	80	0.00	--	0.00	0.00	333.31	-138.42	2.408
11	100	80	0.00	--	0.00	0.00	333.31	-137.17	2.430
12	100	80	0.00	--	0.00	0.00	333.31	-135.66	2.457
13	100	80	0.00	--	0.00	0.00	333.31	-133.90	2.489
14	100	80	0.00	--	0.00	0.00	333.31	-131.89	2.527
15	100	80	0.00	--	0.00	0.00	333.31	-129.63	2.571
16	100	80	0.00	--	0.00	0.00	333.31	-127.12	2.622
17	100	80	0.00	--	0.00	0.00	333.31	-124.36	2.680
18	100	80	0.00	--	0.00	0.00	333.31	-121.34	2.747
19	100	80	0.00	--	0.00	0.00	333.31	-118.08	2.823
20	100	80	0.00	--	0.00	0.00	333.31	-114.56	2.909
21	100	80	0.00	--	0.00	0.00	333.31	-110.79	3.008
22	100	80	0.00	--	0.00	0.00	333.31	-106.77	3.122
23	100	80	0.00	--	0.00	0.00	333.31	-102.50	3.252
24	100	80	0.00	--	0.00	0.00	333.31	-97.98	3.402
25	100	80	0.00	--	0.00	0.00	333.31	-93.21	3.576
26	100	80	0.00	--	0.00	0.00	333.31	-88.18	3.780
27	100	80	0.00	--	0.00	0.00	333.31	-82.91	4.020
28	100	80	0.00	--	0.00	0.00	333.31	-77.38	4.307
29	100	80	0.00	--	0.00	0.00	333.31	-71.60	4.655
30	100	80	0.00	--	0.00	0.00	333.31	-65.57	5.083
31	100	80	0.00	--	0.00	0.00	333.31	-59.29	5.622
32	100	80	0.00	--	0.00	0.00	333.31	-52.76	6.318
33	100	80	0.00	--	0.00	0.00	333.31	-45.98	7.250
34	100	80	0.00	--	0.00	0.00	333.31	-38.94	8.559
35	100	80	0.00	--	0.00	0.00	333.31	-31.66	10.529
36	100	80	0.00	--	0.00	0.00	333.31	-24.12	13.820
37	100	80	0.00	--	0.00	0.00	333.31	-16.33	20.411
38	100	80	0.00	--	0.00	0.00	333.31	-8.29	40.203
39	100	80	0.00	--	0.00	0.00	333.31	0.00	100.000

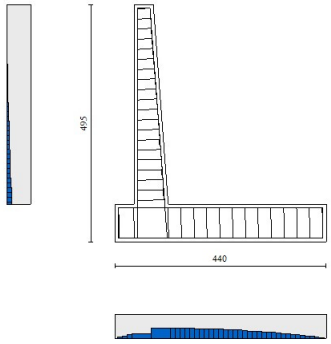


Fig. 18 - Paramento (Inviluppo)

Verifica delle tensioni

Simbologia adottata

n°	indice sezione
Y	ordinata sezione, espressa in [m]
B	larghezza sezione, espresso in [cm]
H	altezza sezione, espressa in [cm]
Afi	area ferri inferiori, espresso in [cmq]
Afs	area ferri superiori, espressa in [cmq]
M	momento agente, espressa in [kNm]
N	sforzo normale agente, espressa in [kN]
σc	tensione di compressione nel cls, espressa in [kPa]
σfi	tensione nei ferri inferiori, espressa in [kPa]
σfs	tensione nei ferri superiori, espressa in [kPa]

Combinazioni SLER

Paramento

Tensione massima di compressione nel calcestruzzo 19920 [kPa]

Tensione massima di trazione dell'acciaio 360000 [kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	15.71	15.71	0.00	0.00	0 (10)	0 (10)	0 (10)
2	100	41	15.71	15.71	0.00	0.98	2 (10)	31 (10)	33 (10)
3	100	41	15.71	15.71	0.01	1.97	5 (10)	60 (10)	69 (10)
4	100	42	15.71	15.71	0.04	2.99	8 (10)	83 (10)	108 (10)
5	100	43	15.71	15.71	0.09	4.02	11 (10)	100 (10)	153 (10)
6	100	44	15.71	15.71	0.16	5.07	15 (10)	111 (10)	204 (10)
7	100	44	15.71	15.71	0.26	6.13	19 (10)	113 (10)	262 (10)
8	100	45	15.71	15.71	0.41	7.22	25 (10)	106 (10)	329 (10)
9	100	46	15.71	15.71	0.59	8.32	31 (10)	89 (10)	405 (10)
10	100	47	15.71	15.71	0.82	9.44	38 (10)	60 (10)	491 (10)
11	100	47	15.71	15.71	1.11	10.58	47 (10)	4 (10)	594 (10)
12	100	48	15.71	15.71	1.47	11.74	57 (10)	99 (10)	718 (10)
13	100	49	15.71	15.71	1.89	12.91	71 (10)	270 (10)	865 (10)
14	100	50	15.71	15.71	2.39	14.10	87 (10)	533 (10)	1037 (10)
15	100	50	15.71	15.71	2.97	15.31	105 (10)	904 (10)	1232 (10)
16	100	51	15.71	18.85	3.64	16.54	124 (10)	1241 (10)	1429 (10)
17	100	52	15.71	18.85	4.40	17.78	147 (10)	1765 (10)	1658 (10)
18	100	52	15.71	18.85	5.25	19.04	171 (10)	2390 (10)	1906 (10)
19	100	53	15.71	18.85	6.21	20.32	198 (10)	3116 (10)	2173 (10)
20	100	54	15.71	18.85	7.28	21.62	228 (10)	3944 (10)	2457 (10)
21	100	55	15.71	18.85	8.47	22.94	259 (10)	4874 (10)	2760 (10)
22	100	55	15.71	18.85	9.77	24.27	292 (10)	5906 (10)	3081 (10)
23	100	56	15.71	18.85	11.20	25.62	327 (10)	7041 (10)	3421 (10)
24	100	57	15.71	18.85	12.76	26.99	364 (10)	8280 (10)	3780 (10)
25	100	58	15.71	18.85	14.46	28.38	403 (10)	9625 (10)	4157 (10)
26	100	58	15.71	18.85	16.30	29.78	444 (10)	11076 (10)	4554 (10)
27	100	59	15.71	18.85	18.28	31.21	487 (10)	12635 (10)	4970 (10)
28	100	60	15.71	18.85	20.42	32.65	532 (10)	14302 (10)	5406 (10)
29	100	61	15.71	18.85	22.72	34.11	579 (10)	16077 (10)	5861 (10)
30	100	61	15.71	25.13	25.18	35.58	575 (10)	13837 (10)	6094 (10)
31	100	62	15.71	25.13	27.82	37.07	620 (10)	15358 (10)	6568 (10)
32	100	63	15.71	25.13	30.63	38.59	668 (10)	16963 (10)	7060 (10)
33	100	63	15.71	25.13	33.62	40.12	717 (10)	18655 (10)	7572 (10)
34	100	64	15.71	25.13	36.79	41.66	768 (10)	20432 (10)	8102 (10)
35	100	65	15.71	25.13	40.16	43.23	820 (10)	22295 (10)	8651 (10)
36	100	66	15.71	25.13	43.73	44.81	874 (10)	24246 (10)	9219 (10)
37	100	66	15.71	25.13	47.50	46.41	930 (10)	26285 (10)	9805 (10)
38	100	67	15.71	25.13	51.47	48.03	987 (10)	28411 (10)	10411 (10)
39	100	68	15.71	25.13	55.67	49.67	1046 (10)	30626 (10)	11035 (10)
40	100	69	15.71	25.13	60.08	51.32	1106 (10)	32930 (10)	11678 (10)
41	100	69	15.71	25.13	64.71	52.99	1168 (10)	35324 (10)	12339 (10)
42	100	70	15.71	25.13	69.58	54.68	1232 (10)	37807 (10)	13020 (10)
43	100	71	15.71	25.13	74.69	56.39	1297 (10)	40381 (10)	13718 (10)

Fondazione

Tensione massima di compressione nel calcestruzzo 17430 [kPa]

Tensione massima di trazione dell'acciaio 360000 [kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	80	18.85	18.85	0.00	0.00	0 (10)	0 (10)	0 (10)
2	100	80	18.85	18.85	0.57	0.00	8 (10)	444 (10)	78 (10)
3	100	80	18.85	18.85	2.27	0.00	34 (10)	1766 (10)	312 (10)
4	100	80	18.85	18.85	5.08	0.00	75 (10)	3953 (10)	699 (10)
5	100	80	18.85	18.85	8.99	0.00	133 (10)	6991 (10)	1236 (10)
6	100	80	18.85	18.85	-130.87	0.00	1932 (10)	17989 (10)	101780 (10)
7	100	80	18.85	18.85	-126.34	0.00	1865 (10)	17366 (10)	98254 (10)
8	100	80	18.85	18.85	-121.64	0.00	1795 (10)	16720 (10)	94598 (10)
9	100	80	18.85	18.85	-116.54	0.00	1720 (10)	16018 (10)	90629 (10)
10	100	80	18.85	18.85	-111.34	0.00	1643 (10)	15305 (10)	86591 (10)
11	100	80	18.85	18.85	-106.08	0.00	1566 (10)	14581 (10)	82496 (10)
12	100	80	18.85	18.85	-100.76	0.00	1487 (10)	13849 (10)	78358 (10)
13	100	80	18.85	18.85	-95.40	0.00	1408 (10)	13113 (10)	74190 (10)
14	100	80	18.85	18.85	-90.02	0.00	1329 (10)	12374 (10)	70007 (10)
15	100	80	18.85	18.85	-84.64	0.00	1249 (10)	11634 (10)	65822 (10)
16	100	80	18.85	18.85	-79.27	0.00	1170 (10)	10896 (10)	61648 (10)
17	100	80	18.85	18.85	-73.93	0.00	1091 (10)	10163 (10)	57499 (10)
18	100	80	18.85	18.85	-68.65	0.00	1013 (10)	9436 (10)	53388 (10)
19	100	80	18.85	18.85	-63.43	0.00	936 (10)	8719 (10)	49330 (10)
20	100	80	18.85	18.85	-58.30	0.00	860 (10)	8013 (10)	45337 (10)
21	100	80	18.85	18.85	-53.26	0.00	786 (10)	7321 (10)	41423 (10)
22	100	80	18.85	18.85	-48.35	0.00	714 (10)	6646 (10)	37602 (10)
23	100	80	18.85	18.85	-43.57	0.00	643 (10)	5990 (10)	33888 (10)
24	100	80	18.85	18.85	-38.95	0.00	575 (10)	5354 (10)	30293 (10)
25	100	80	18.85	18.85	-34.50	0.00	509 (10)	4743 (10)	26832 (10)
26	100	80	18.85	18.85	-30.24	0.00	446 (10)	4157 (10)	23518 (10)
27	100	80	18.85	18.85	-26.19	0.00	386 (10)	3599 (10)	20365 (10)
28	100	80	18.85	18.85	-22.36	0.00	330 (10)	3073 (10)	17386 (10)
29	100	80	18.85	18.85	-18.77	0.00	277 (10)	2580 (10)	14595 (10)
30	100	80	18.85	18.85	-15.44	0.00	228 (10)	2122 (10)	12005 (10)
31	100	80	18.85	18.85	-12.38	0.00	183 (10)	1702 (10)	9630 (10)
32	100	80	18.85	18.85	-9.62	0.00	142 (10)	1323 (10)	7484 (10)
33	100	80	18.85	18.85	-7.18	0.00	106 (10)	986 (10)	5580 (10)
34	100	80	18.85	18.85	-5.06	0.00	75 (10)	695 (10)	3932 (10)
35	100	80	18.85	18.85	-3.28	0.00	48 (10)	451 (10)	2552 (10)
36	100	80	18.85	18.85	-1.87	0.00	28 (10)	257 (10)	1456 (10)
37	100	80	18.85	18.85	-0.84	0.00	12 (10)	116 (10)	656 (10)
38	100	80	18.85	18.85	-0.21	0.00	3 (10)	29 (10)	166 (10)
39	100	80	18.85	18.85	0.00	0.00	0 (10)	0 (10)	0 (10)

Combinazioni SLEF

Paramento

Tensione massima di compressione nel calcestruzzo	33200	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	15.71	15.71	0.00	0.00	0 (11)	0 (11)	0 (11)
2	100	41	15.71	15.71	0.00	0.98	2 (11)	31 (11)	33 (11)
3	100	41	15.71	15.71	0.01	1.97	5 (11)	60 (11)	69 (11)
4	100	42	15.71	15.71	0.04	2.99	8 (11)	83 (11)	108 (11)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
5	100	43	15.71	15.71	0.09	4.02	11 (11)	100 (11)	153 (11)
6	100	44	15.71	15.71	0.16	5.07	15 (11)	111 (11)	204 (11)
7	100	44	15.71	15.71	0.26	6.13	19 (11)	113 (11)	262 (11)
8	100	45	15.71	15.71	0.41	7.22	25 (11)	106 (11)	329 (11)
9	100	46	15.71	15.71	0.59	8.32	31 (11)	89 (11)	405 (11)
10	100	47	15.71	15.71	0.82	9.44	38 (11)	60 (11)	491 (11)
11	100	47	15.71	15.71	1.11	10.58	47 (11)	0 (1)	594 (11)
12	100	48	15.71	15.71	1.47	11.74	57 (11)	99 (11)	718 (11)
13	100	49	15.71	15.71	1.89	12.91	71 (11)	270 (11)	865 (11)
14	100	50	15.71	15.71	2.39	14.10	87 (11)	533 (11)	1037 (11)
15	100	50	15.71	15.71	2.97	15.31	105 (11)	904 (11)	1232 (11)
16	100	51	15.71	18.85	3.64	16.54	124 (11)	1241 (11)	1429 (11)
17	100	52	15.71	18.85	4.40	17.78	147 (11)	1765 (11)	1658 (11)
18	100	52	15.71	18.85	5.25	19.04	171 (11)	2390 (11)	1906 (11)
19	100	53	15.71	18.85	6.21	20.32	198 (11)	3116 (11)	2173 (11)
20	100	54	15.71	18.85	7.28	21.62	228 (11)	3944 (11)	2457 (11)
21	100	55	15.71	18.85	8.47	22.94	259 (11)	4874 (11)	2760 (11)
22	100	55	15.71	18.85	9.77	24.27	292 (11)	5906 (11)	3081 (11)
23	100	56	15.71	18.85	11.20	25.62	327 (11)	7041 (11)	3421 (11)
24	100	57	15.71	18.85	12.76	26.99	364 (11)	8280 (11)	3780 (11)
25	100	58	15.71	18.85	14.46	28.38	403 (11)	9625 (11)	4157 (11)
26	100	58	15.71	18.85	16.30	29.78	444 (11)	11076 (11)	4554 (11)
27	100	59	15.71	18.85	18.28	31.21	487 (11)	12635 (11)	4970 (11)
28	100	60	15.71	18.85	20.42	32.65	532 (11)	14302 (11)	5406 (11)
29	100	61	15.71	18.85	22.72	34.11	579 (11)	16077 (11)	5861 (11)
30	100	61	15.71	25.13	25.18	35.58	575 (11)	13837 (11)	6094 (11)
31	100	62	15.71	25.13	27.82	37.07	620 (11)	15358 (11)	6568 (11)
32	100	63	15.71	25.13	30.63	38.59	668 (11)	16963 (11)	7060 (11)
33	100	63	15.71	25.13	33.62	40.12	717 (11)	18655 (11)	7572 (11)
34	100	64	15.71	25.13	36.79	41.66	768 (11)	20432 (11)	8102 (11)
35	100	65	15.71	25.13	40.16	43.23	820 (11)	22295 (11)	8651 (11)
36	100	66	15.71	25.13	43.73	44.81	874 (11)	24246 (11)	9219 (11)
37	100	66	15.71	25.13	47.50	46.41	930 (11)	26285 (11)	9805 (11)
38	100	67	15.71	25.13	51.47	48.03	987 (11)	28411 (11)	10411 (11)
39	100	68	15.71	25.13	55.67	49.67	1046 (11)	30626 (11)	11035 (11)
40	100	69	15.71	25.13	60.08	51.32	1106 (11)	32930 (11)	11678 (11)
41	100	69	15.71	25.13	64.71	52.99	1168 (11)	35324 (11)	12339 (11)
42	100	70	15.71	25.13	69.58	54.68	1232 (11)	37807 (11)	13020 (11)
43	100	71	15.71	25.13	74.69	56.39	1297 (11)	40381 (11)	13718 (11)

Fondazione

Tensione massima di compressione nel calcestruzzo	29050	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	80	18.85	18.85	0.00	0.00	0 (11)	0 (11)	0 (11)
2	100	80	18.85	18.85	0.57	0.00	8 (11)	444 (11)	78 (11)
3	100	80	18.85	18.85	2.27	0.00	34 (11)	1766 (11)	312 (11)
4	100	80	18.85	18.85	5.08	0.00	75 (11)	3953 (11)	699 (11)
5	100	80	18.85	18.85	8.99	0.00	133 (11)	6991 (11)	1236 (11)
6	100	80	18.85	18.85	-130.87	0.00	1932 (11)	17989 (11)	101780 (11)
7	100	80	18.85	18.85	-126.34	0.00	1865 (11)	17366 (11)	98254 (11)
8	100	80	18.85	18.85	-121.64	0.00	1795 (11)	16720 (11)	94598 (11)
9	100	80	18.85	18.85	-116.54	0.00	1720 (11)	16018 (11)	90629 (11)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
10	100	80	18.85	18.85	-111.34	0.00	1643 (11)	15305 (11)	86591 (11)
11	100	80	18.85	18.85	-106.08	0.00	1566 (11)	14581 (11)	82496 (11)
12	100	80	18.85	18.85	-100.76	0.00	1487 (11)	13849 (11)	78358 (11)
13	100	80	18.85	18.85	-95.40	0.00	1408 (11)	13113 (11)	74190 (11)
14	100	80	18.85	18.85	-90.02	0.00	1329 (11)	12374 (11)	70007 (11)
15	100	80	18.85	18.85	-84.64	0.00	1249 (11)	11634 (11)	65822 (11)
16	100	80	18.85	18.85	-79.27	0.00	1170 (11)	10896 (11)	61648 (11)
17	100	80	18.85	18.85	-73.93	0.00	1091 (11)	10163 (11)	57499 (11)
18	100	80	18.85	18.85	-68.65	0.00	1013 (11)	9436 (11)	53388 (11)
19	100	80	18.85	18.85	-63.43	0.00	936 (11)	8719 (11)	49330 (11)
20	100	80	18.85	18.85	-58.30	0.00	860 (11)	8013 (11)	45337 (11)
21	100	80	18.85	18.85	-53.26	0.00	786 (11)	7321 (11)	41423 (11)
22	100	80	18.85	18.85	-48.35	0.00	714 (11)	6646 (11)	37602 (11)
23	100	80	18.85	18.85	-43.57	0.00	643 (11)	5990 (11)	33888 (11)
24	100	80	18.85	18.85	-38.95	0.00	575 (11)	5354 (11)	30293 (11)
25	100	80	18.85	18.85	-34.50	0.00	509 (11)	4743 (11)	26832 (11)
26	100	80	18.85	18.85	-30.24	0.00	446 (11)	4157 (11)	23518 (11)
27	100	80	18.85	18.85	-26.19	0.00	386 (11)	3599 (11)	20365 (11)
28	100	80	18.85	18.85	-22.36	0.00	330 (11)	3073 (11)	17386 (11)
29	100	80	18.85	18.85	-18.77	0.00	277 (11)	2580 (11)	14595 (11)
30	100	80	18.85	18.85	-15.44	0.00	228 (11)	2122 (11)	12005 (11)
31	100	80	18.85	18.85	-12.38	0.00	183 (11)	1702 (11)	9630 (11)
32	100	80	18.85	18.85	-9.62	0.00	142 (11)	1323 (11)	7484 (11)
33	100	80	18.85	18.85	-7.18	0.00	106 (11)	986 (11)	5580 (11)
34	100	80	18.85	18.85	-5.06	0.00	75 (11)	695 (11)	3932 (11)
35	100	80	18.85	18.85	-3.28	0.00	48 (11)	451 (11)	2552 (11)
36	100	80	18.85	18.85	-1.87	0.00	28 (11)	257 (11)	1456 (11)
37	100	80	18.85	18.85	-0.84	0.00	12 (11)	116 (11)	656 (11)
38	100	80	18.85	18.85	-0.21	0.00	3 (11)	29 (11)	166 (11)
39	100	80	18.85	18.85	0.00	0.00	0 (11)	0 (11)	0 (11)

Combinazioni SLEQ

Paramento

Tensione massima di compressione nel calcestruzzo	14940	[kPa]
Tensione massima di trazione dell'acciaio	450000	[kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	40	15.71	15.71	0.00	0.00	0 (12)	0 (12)	0 (12)
2	100	41	15.71	15.71	0.01	0.98	2 (13)	31 (12)	34 (13)
3	100	41	15.71	15.71	0.03	1.97	5 (13)	60 (12)	74 (13)
4	100	42	15.71	15.71	0.08	2.99	9 (13)	83 (12)	120 (13)
5	100	43	15.71	15.71	0.16	4.02	13 (13)	100 (12)	174 (13)
6	100	44	15.71	15.71	0.28	5.07	18 (13)	111 (12)	237 (13)
7	100	44	15.71	15.71	0.44	6.13	24 (13)	113 (12)	311 (13)
8	100	45	15.71	15.71	0.65	7.22	31 (13)	106 (12)	397 (13)
9	100	46	15.71	15.71	0.92	8.32	40 (13)	89 (12)	502 (13)
10	100	47	15.71	15.71	1.26	9.44	51 (13)	152 (13)	631 (13)
11	100	47	15.71	15.71	1.67	10.58	66 (13)	365 (13)	786 (13)
12	100	48	15.71	15.71	2.16	11.74	84 (13)	692 (13)	967 (13)
13	100	49	15.71	15.71	2.75	12.91	105 (13)	1147 (13)	1173 (13)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
14	100	50	15.71	15.71	3.43	14.10	128 (13)	1738 (13)	1402 (13)
15	100	50	15.71	15.71	4.21	15.31	155 (13)	2467 (13)	1652 (13)
16	100	51	15.71	18.85	5.11	16.54	177 (13)	2881 (13)	1888 (13)
17	100	52	15.71	18.85	6.12	17.78	207 (13)	3732 (13)	2174 (13)
18	100	52	15.71	18.85	7.25	19.04	239 (13)	4701 (13)	2481 (13)
19	100	53	15.71	18.85	8.52	20.32	274 (13)	5789 (13)	2811 (13)
20	100	54	15.71	18.85	9.92	21.62	312 (13)	6998 (13)	3163 (13)
21	100	55	15.71	18.85	11.47	22.94	352 (13)	8329 (13)	3537 (13)
22	100	55	15.71	18.85	13.16	24.27	394 (13)	9784 (13)	3935 (13)
23	100	56	15.71	18.85	15.02	25.62	439 (13)	11365 (13)	4355 (13)
24	100	57	15.71	18.85	17.03	26.99	486 (13)	13073 (13)	4799 (13)
25	100	58	15.71	18.85	19.22	28.38	536 (13)	14910 (13)	5267 (13)
26	100	58	15.71	18.85	21.59	29.78	587 (13)	16876 (13)	5758 (13)
27	100	59	15.71	18.85	24.14	31.21	642 (13)	18975 (13)	6273 (13)
28	100	60	15.71	18.85	26.88	32.65	698 (13)	21206 (13)	6813 (13)
29	100	61	15.71	18.85	29.82	34.11	757 (13)	23571 (13)	7377 (13)
30	100	61	15.71	25.13	32.96	35.58	746 (13)	19977 (13)	7678 (13)
31	100	62	15.71	25.13	36.31	37.07	803 (13)	21982 (13)	8266 (13)
32	100	63	15.71	25.13	39.88	38.59	862 (13)	24092 (13)	8876 (13)
33	100	63	15.71	25.13	43.68	40.12	924 (13)	26307 (13)	9510 (13)
34	100	64	15.71	25.13	47.70	41.66	987 (13)	28627 (13)	10166 (13)
35	100	65	15.71	25.13	51.97	43.23	1053 (13)	31053 (13)	10846 (13)
36	100	66	15.71	25.13	56.47	44.81	1120 (13)	33586 (13)	11548 (13)
37	100	66	15.71	25.13	61.23	46.41	1189 (13)	36227 (13)	12274 (13)
38	100	67	15.71	25.13	66.25	48.03	1261 (13)	38976 (13)	13022 (13)
39	100	68	15.71	25.13	71.53	49.67	1334 (13)	41833 (13)	13794 (13)
40	100	69	15.71	25.13	77.09	51.32	1409 (13)	44800 (13)	14588 (13)
41	100	69	15.71	25.13	82.92	52.99	1486 (13)	47877 (13)	15405 (13)
42	100	70	15.71	25.13	89.03	54.68	1565 (13)	51063 (13)	16244 (13)
43	100	71	15.71	25.13	95.44	56.39	1646 (13)	54360 (13)	17106 (13)

Fondazione

Tensione massima di compressione nel calcestruzzo 13073 [kPa]

Tensione massima di trazione dell'acciaio 450000 [kPa]

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
1	100	80	18.85	18.85	0.00	0.00	0 (12)	0 (12)	0 (12)
2	100	80	18.85	18.85	0.75	0.00	11 (13)	580 (13)	102 (13)
3	100	80	18.85	18.85	2.96	0.00	44 (13)	2302 (13)	407 (13)
4	100	80	18.85	18.85	6.61	0.00	98 (13)	5142 (13)	909 (13)
5	100	80	18.85	18.85	11.67	0.00	172 (13)	9075 (13)	1604 (13)
6	100	80	18.85	18.85	-197.64	0.00	2917 (13)	27167 (13)	153704 (13)
7	100	80	18.85	18.85	-191.57	0.00	2827 (13)	26332 (13)	148983 (13)
8	100	80	18.85	18.85	-185.15	0.00	2733 (13)	25450 (13)	143991 (13)
9	100	80	18.85	18.85	-178.17	0.00	2630 (13)	24490 (13)	138559 (13)
10	100	80	18.85	18.85	-170.94	0.00	2523 (13)	23497 (13)	132942 (13)
11	100	80	18.85	18.85	-163.51	0.00	2413 (13)	22475 (13)	127162 (13)
12	100	80	18.85	18.85	-155.90	0.00	2301 (13)	21430 (13)	121245 (13)
13	100	80	18.85	18.85	-148.15	0.00	2187 (13)	20364 (13)	115216 (13)
14	100	80	18.85	18.85	-140.28	0.00	2070 (13)	19283 (13)	109099 (13)
15	100	80	18.85	18.85	-132.34	0.00	1953 (13)	18191 (13)	102919 (13)
16	100	80	18.85	18.85	-124.34	0.00	1835 (13)	17092 (13)	96701 (13)
17	100	80	18.85	18.85	-116.33	0.00	1717 (13)	15990 (13)	90469 (13)
18	100	80	18.85	18.85	-108.33	0.00	1599 (13)	14891 (13)	84249 (13)

n°	B	H	Afi	Afs	M	N	σc	σfi	σfs
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kN]*	*[kPa]*	*[kPa]*	*[kPa]*
19	100	80	18.85	18.85	-100.38	0.00	1482 (13)	13798 (13)	78065 (13)
20	100	80	18.85	18.85	-92.51	0.00	1365 (13)	12715 (13)	71941 (13)
21	100	80	18.85	18.85	-84.74	0.00	1251 (13)	11648 (13)	65902 (13)
22	100	80	18.85	18.85	-77.12	0.00	1138 (13)	10600 (13)	59974 (13)
23	100	80	18.85	18.85	-69.67	0.00	1028 (13)	9576 (13)	54181 (13)
24	100	80	18.85	18.85	-62.42	0.00	921 (13)	8581 (13)	48547 (13)
25	100	80	18.85	18.85	-55.42	0.00	818 (13)	7617 (13)	43098 (13)
26	100	80	18.85	18.85	-48.68	0.00	718 (13)	6691 (13)	37857 (13)
27	100	80	18.85	18.85	-42.24	0.00	623 (13)	5806 (13)	32850 (13)
28	100	80	18.85	18.85	-36.13	0.00	533 (13)	4967 (13)	28102 (13)
29	100	80	18.85	18.85	-30.39	0.00	449 (13)	4178 (13)	23637 (13)
30	100	80	18.85	18.85	-25.05	0.00	370 (13)	3443 (13)	19480 (13)
31	100	80	18.85	18.85	-20.13	0.00	297 (13)	2767 (13)	15655 (13)
32	100	80	18.85	18.85	-15.67	0.00	231 (13)	2154 (13)	12188 (13)
33	100	80	18.85	18.85	-11.70	0.00	173 (13)	1609 (13)	9103 (13)
34	100	80	18.85	18.85	-8.26	0.00	122 (13)	1135 (13)	6424 (13)
35	100	80	18.85	18.85	-5.37	0.00	79 (13)	738 (13)	4177 (13)
36	100	80	18.85	18.85	-3.07	0.00	45 (13)	422 (13)	2387 (13)
37	100	80	18.85	18.85	-1.39	0.00	20 (13)	190 (13)	1077 (13)
38	100	80	18.85	18.85	-0.35	0.00	5 (13)	48 (13)	273 (13)
39	100	80	18.85	18.85	0.00	0.00	0 (12)	0 (12)	0 (12)

Verifica a fessurazione

Simbologia adottata

n°	indice sezione
Y	ordinata sezione espressa in [m]
B	larghezza sezione espresso in [cm]
H	altezza sezione espressa in [cm]
Af	area ferri zona tesa espresso in [cmq]
Aeff	area efficace espressa in [cmq]
M	momento agente espressa in [kNm]
Mpf	momento di prima fessurazione espressa in [kNm]
ε	deformazione espresso in %
Sm	spaziatura tra le fessure espressa in [mm]
w	apertura delle fessure espressa in [mm]

Combinazioni SLER

<u>Paramento</u>

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (10)
2	100	41	0.00	0.00	0.00	4.10	0.000000	0.00	0.000 (10)
3	100	41	0.00	0.00	0.01	11.89	0.000000	0.00	0.000 (10)
4	100	42	0.00	0.00	0.04	24.90	0.000000	0.00	0.000 (10)
5	100	43	0.00	0.00	0.09	46.10	0.000000	0.00	0.000 (10)
6	100	44	0.00	0.00	0.16	81.86	0.000000	0.00	0.000 (10)
7	100	44	0.00	0.00	0.26	148.17	0.000000	0.00	0.000 (10)
8	100	45	0.00	0.00	0.41	299.26	0.000000	0.00	0.000 (10)
9	100	46	0.00	0.00	0.59	914.46	0.000000	0.00	0.000 (10)
10	100	47	0.00	0.00	0.82	2240.61	0.000000	0.00	0.000 (10)
11	100	47	0.00	0.00	1.11	654.18	0.000000	0.00	0.000 (10)
12	100	48	15.71	1550.00	1.47	434.45	0.000000	0.00	0.000 (10)
13	100	49	15.71	1550.00	1.89	349.89	0.000000	0.00	0.000 (10)
14	100	50	15.71	1550.00	2.39	306.82	0.000000	0.00	0.000 (10)
15	100	50	15.71	1550.00	2.97	281.88	0.000000	0.00	0.000 (10)
16	100	51	18.85	1550.00	3.64	270.61	0.000000	0.00	0.000 (10)
17	100	52	18.85	1550.00	4.40	260.84	0.000000	0.00	0.000 (10)
18	100	52	18.85	1550.00	5.25	254.68	0.000000	0.00	0.000 (10)
19	100	53	18.85	1550.00	6.21	250.97	0.000000	0.00	0.000 (10)
20	100	54	18.85	1550.00	7.28	249.01	0.000000	0.00	0.000 (10)
21	100	55	18.85	1550.00	8.47	248.34	0.000000	0.00	0.000 (10)
22	100	55	18.85	1550.00	9.77	248.66	0.000000	0.00	0.000 (10)
23	100	56	18.85	1550.00	11.20	249.76	0.000000	0.00	0.000 (10)
24	100	57	18.85	1550.00	12.76	251.48	0.000000	0.00	0.000 (10)
25	100	58	18.85	1550.00	14.46	253.70	0.000000	0.00	0.000 (10)
26	100	58	18.85	1550.00	16.30	256.35	0.000000	0.00	0.000 (10)
27	100	59	18.85	1550.00	18.28	259.37	0.000000	0.00	0.000 (10)
28	100	60	18.85	1550.00	20.42	262.69	0.000000	0.00	0.000 (10)
29	100	61	18.85	1550.00	22.72	266.27	0.000000	0.00	0.000 (10)
30	100	61	25.13	1550.00	25.18	279.38	0.000000	0.00	0.000 (10)
31	100	62	25.13	1550.00	27.82	283.53	0.000000	0.00	0.000 (10)
32	100	63	25.13	1550.00	30.63	287.87	0.000000	0.00	0.000 (10)
33	100	63	25.13	1550.00	33.62	292.39	0.000000	0.00	0.000 (10)
34	100	64	25.13	1550.00	36.79	297.06	0.000000	0.00	0.000 (10)
35	100	65	25.13	1550.00	40.16	301.89	0.000000	0.00	0.000 (10)
36	100	66	25.13	1550.00	43.73	306.84	0.000000	0.00	0.000 (10)
37	100	66	25.13	1550.00	47.50	311.93	0.000000	0.00	0.000 (10)
38	100	67	25.13	1550.00	51.47	317.13	0.000000	0.00	0.000 (10)
39	100	68	25.13	1550.00	55.67	322.45	0.000000	0.00	0.000 (10)
40	100	69	25.13	1550.00	60.08	327.88	0.000000	0.00	0.000 (10)
41	100	69	25.13	1550.00	64.71	333.41	0.000000	0.00	0.000 (10)
42	100	70	25.13	1550.00	69.58	339.03	0.000000	0.00	0.000 (10)
43	100	71	25.13	1550.00	74.69	344.75	0.000000	0.00	0.000 (10)

Fondazione

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	80	0.00	0.00	0.00	0.00	---	---	0.000 (10)
2	100	80	18.85	1550.00	0.57	351.49	0.000000	0.00	0.000 (10)
3	100	80	18.85	1550.00	2.27	351.49	0.000000	0.00	0.000 (10)
4	100	80	18.85	1550.00	5.08	351.49	0.000000	0.00	0.000 (10)
5	100	80	18.85	1550.00	8.99	351.49	0.000000	0.00	0.000 (10)
6	100	80	18.85	1550.00	-130.87	-351.49	0.000000	0.00	0.000 (10)
7	100	80	18.85	1550.00	-126.34	-351.49	0.000000	0.00	0.000 (10)
8	100	80	18.85	1550.00	-121.64	-351.49	0.000000	0.00	0.000 (10)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
9	100	80	18.85	1550.00	-116.54	-351.49	0.000000	0.00	0.000 (10)
10	100	80	18.85	1550.00	-111.34	-351.49	0.000000	0.00	0.000 (10)
11	100	80	18.85	1550.00	-106.08	-351.49	0.000000	0.00	0.000 (10)
12	100	80	18.85	1550.00	-100.76	-351.49	0.000000	0.00	0.000 (10)
13	100	80	18.85	1550.00	-95.40	-351.49	0.000000	0.00	0.000 (10)
14	100	80	18.85	1550.00	-90.02	-351.49	0.000000	0.00	0.000 (10)
15	100	80	18.85	1550.00	-84.64	-351.49	0.000000	0.00	0.000 (10)
16	100	80	18.85	1550.00	-79.27	-351.49	0.000000	0.00	0.000 (10)
17	100	80	18.85	1550.00	-73.93	-351.49	0.000000	0.00	0.000 (10)
18	100	80	18.85	1550.00	-68.65	-351.49	0.000000	0.00	0.000 (10)
19	100	80	18.85	1550.00	-63.43	-351.49	0.000000	0.00	0.000 (10)
20	100	80	18.85	1550.00	-58.30	-351.49	0.000000	0.00	0.000 (10)
21	100	80	18.85	1550.00	-53.26	-351.49	0.000000	0.00	0.000 (10)
22	100	80	18.85	1550.00	-48.35	-351.49	0.000000	0.00	0.000 (10)
23	100	80	18.85	1550.00	-43.57	-351.49	0.000000	0.00	0.000 (10)
24	100	80	18.85	1550.00	-38.95	-351.49	0.000000	0.00	0.000 (10)
25	100	80	18.85	1550.00	-34.50	-351.49	0.000000	0.00	0.000 (10)
26	100	80	18.85	1550.00	-30.24	-351.49	0.000000	0.00	0.000 (10)
27	100	80	18.85	1550.00	-26.19	-351.49	0.000000	0.00	0.000 (10)
28	100	80	18.85	1550.00	-22.36	-351.49	0.000000	0.00	0.000 (10)
29	100	80	18.85	1550.00	-18.77	-351.49	0.000000	0.00	0.000 (10)
30	100	80	18.85	1550.00	-15.44	-351.49	0.000000	0.00	0.000 (10)
31	100	80	18.85	1550.00	-12.38	-351.49	0.000000	0.00	0.000 (10)
32	100	80	18.85	1550.00	-9.62	-351.49	0.000000	0.00	0.000 (10)
33	100	80	18.85	1550.00	-7.18	-351.49	0.000000	0.00	0.000 (10)
34	100	80	18.85	1550.00	-5.06	-351.49	0.000000	0.00	0.000 (10)
35	100	80	18.85	1550.00	-3.28	-351.49	0.000000	0.00	0.000 (10)
36	100	80	18.85	1550.00	-1.87	-351.49	0.000000	0.00	0.000 (10)
37	100	80	18.85	1550.00	-0.84	-351.49	0.000000	0.00	0.000 (10)
38	100	80	18.85	1550.00	-0.21	-351.49	0.000000	0.00	0.000 (10)
39	100	80	0.00	0.00	0.00	0.00	---	---	0.000 (10)

Combinazioni SLEF

Paramento

Apertura limite fessure w_{lim}=0.30

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (11)
2	100	41	0.00	0.00	0.00	4.10	0.000000	0.00	0.000 (11)
3	100	41	0.00	0.00	0.01	11.89	0.000000	0.00	0.000 (11)
4	100	42	0.00	0.00	0.04	24.90	0.000000	0.00	0.000 (11)
5	100	43	0.00	0.00	0.09	46.10	0.000000	0.00	0.000 (11)
6	100	44	0.00	0.00	0.16	81.86	0.000000	0.00	0.000 (11)
7	100	44	0.00	0.00	0.26	148.17	0.000000	0.00	0.000 (11)
8	100	45	0.00	0.00	0.41	299.26	0.000000	0.00	0.000 (11)
9	100	46	0.00	0.00	0.59	914.46	0.000000	0.00	0.000 (11)
10	100	47	0.00	0.00	0.82	2240.61	0.000000	0.00	0.000 (11)
11	100	47	0.00	0.00	1.11	654.18	0.000000	0.00	0.000 (11)
12	100	48	15.71	1550.00	1.47	434.45	0.000000	0.00	0.000 (11)
13	100	49	15.71	1550.00	1.89	349.89	0.000000	0.00	0.000 (11)
14	100	50	15.71	1550.00	2.39	306.82	0.000000	0.00	0.000 (11)
15	100	50	15.71	1550.00	2.97	281.88	0.000000	0.00	0.000 (11)
16	100	51	18.85	1550.00	3.64	270.61	0.000000	0.00	0.000 (11)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
17	100	52	18.85	1550.00	4.40	260.84	0.000000	0.00	0.000 (11)
18	100	52	18.85	1550.00	5.25	254.68	0.000000	0.00	0.000 (11)
19	100	53	18.85	1550.00	6.21	250.97	0.000000	0.00	0.000 (11)
20	100	54	18.85	1550.00	7.28	249.01	0.000000	0.00	0.000 (11)
21	100	55	18.85	1550.00	8.47	248.34	0.000000	0.00	0.000 (11)
22	100	55	18.85	1550.00	9.77	248.66	0.000000	0.00	0.000 (11)
23	100	56	18.85	1550.00	11.20	249.76	0.000000	0.00	0.000 (11)
24	100	57	18.85	1550.00	12.76	251.48	0.000000	0.00	0.000 (11)
25	100	58	18.85	1550.00	14.46	253.70	0.000000	0.00	0.000 (11)
26	100	58	18.85	1550.00	16.30	256.35	0.000000	0.00	0.000 (11)
27	100	59	18.85	1550.00	18.28	259.37	0.000000	0.00	0.000 (11)
28	100	60	18.85	1550.00	20.42	262.69	0.000000	0.00	0.000 (11)
29	100	61	18.85	1550.00	22.72	266.27	0.000000	0.00	0.000 (11)
30	100	61	25.13	1550.00	25.18	279.38	0.000000	0.00	0.000 (11)
31	100	62	25.13	1550.00	27.82	283.53	0.000000	0.00	0.000 (11)
32	100	63	25.13	1550.00	30.63	287.87	0.000000	0.00	0.000 (11)
33	100	63	25.13	1550.00	33.62	292.39	0.000000	0.00	0.000 (11)
34	100	64	25.13	1550.00	36.79	297.06	0.000000	0.00	0.000 (11)
35	100	65	25.13	1550.00	40.16	301.89	0.000000	0.00	0.000 (11)
36	100	66	25.13	1550.00	43.73	306.84	0.000000	0.00	0.000 (11)
37	100	66	25.13	1550.00	47.50	311.93	0.000000	0.00	0.000 (11)
38	100	67	25.13	1550.00	51.47	317.13	0.000000	0.00	0.000 (11)
39	100	68	25.13	1550.00	55.67	322.45	0.000000	0.00	0.000 (11)
40	100	69	25.13	1550.00	60.08	327.88	0.000000	0.00	0.000 (11)
41	100	69	25.13	1550.00	64.71	333.41	0.000000	0.00	0.000 (11)
42	100	70	25.13	1550.00	69.58	339.03	0.000000	0.00	0.000 (11)
43	100	71	25.13	1550.00	74.69	344.75	0.000000	0.00	0.000 (11)

<u>Fondazione</u>

Apertura limite fessure w_{lim}=0.30

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	80	0.00	0.00	0.00	0.00	---	---	0.000 (11)
2	100	80	18.85	1550.00	0.57	351.49	0.000000	0.00	0.000 (11)
3	100	80	18.85	1550.00	2.27	351.49	0.000000	0.00	0.000 (11)
4	100	80	18.85	1550.00	5.08	351.49	0.000000	0.00	0.000 (11)
5	100	80	18.85	1550.00	8.99	351.49	0.000000	0.00	0.000 (11)
6	100	80	18.85	1550.00	-130.87	-351.49	0.000000	0.00	0.000 (11)
7	100	80	18.85	1550.00	-126.34	-351.49	0.000000	0.00	0.000 (11)
8	100	80	18.85	1550.00	-121.64	-351.49	0.000000	0.00	0.000 (11)
9	100	80	18.85	1550.00	-116.54	-351.49	0.000000	0.00	0.000 (11)
10	100	80	18.85	1550.00	-111.34	-351.49	0.000000	0.00	0.000 (11)
11	100	80	18.85	1550.00	-106.08	-351.49	0.000000	0.00	0.000 (11)
12	100	80	18.85	1550.00	-100.76	-351.49	0.000000	0.00	0.000 (11)
13	100	80	18.85	1550.00	-95.40	-351.49	0.000000	0.00	0.000 (11)
14	100	80	18.85	1550.00	-90.02	-351.49	0.000000	0.00	0.000 (11)
15	100	80	18.85	1550.00	-84.64	-351.49	0.000000	0.00	0.000 (11)
16	100	80	18.85	1550.00	-79.27	-351.49	0.000000	0.00	0.000 (11)
17	100	80	18.85	1550.00	-73.93	-351.49	0.000000	0.00	0.000 (11)
18	100	80	18.85	1550.00	-68.65	-351.49	0.000000	0.00	0.000 (11)
19	100	80	18.85	1550.00	-63.43	-351.49	0.000000	0.00	0.000 (11)
20	100	80	18.85	1550.00	-58.30	-351.49	0.000000	0.00	0.000 (11)
21	100	80	18.85	1550.00	-53.26	-351.49	0.000000	0.00	0.000 (11)
22	100	80	18.85	1550.00	-48.35	-351.49	0.000000	0.00	0.000 (11)
23	100	80	18.85	1550.00	-43.57	-351.49	0.000000	0.00	0.000 (11)
24	100	80	18.85	1550.00	-38.95	-351.49	0.000000	0.00	0.000 (11)
25	100	80	18.85	1550.00	-34.50	-351.49	0.000000	0.00	0.000 (11)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
26	100	80	18.85	1550.00	-30.24	-351.49	0.000000	0.00	0.000 (11)
27	100	80	18.85	1550.00	-26.19	-351.49	0.000000	0.00	0.000 (11)
28	100	80	18.85	1550.00	-22.36	-351.49	0.000000	0.00	0.000 (11)
29	100	80	18.85	1550.00	-18.77	-351.49	0.000000	0.00	0.000 (11)
30	100	80	18.85	1550.00	-15.44	-351.49	0.000000	0.00	0.000 (11)
31	100	80	18.85	1550.00	-12.38	-351.49	0.000000	0.00	0.000 (11)
32	100	80	18.85	1550.00	-9.62	-351.49	0.000000	0.00	0.000 (11)
33	100	80	18.85	1550.00	-7.18	-351.49	0.000000	0.00	0.000 (11)
34	100	80	18.85	1550.00	-5.06	-351.49	0.000000	0.00	0.000 (11)
35	100	80	18.85	1550.00	-3.28	-351.49	0.000000	0.00	0.000 (11)
36	100	80	18.85	1550.00	-1.87	-351.49	0.000000	0.00	0.000 (11)
37	100	80	18.85	1550.00	-0.84	-351.49	0.000000	0.00	0.000 (11)
38	100	80	18.85	1550.00	-0.21	-351.49	0.000000	0.00	0.000 (11)
39	100	80	0.00	0.00	0.00	0.00	---	---	0.000 (11)

Combinazioni SLEQ

Paramento

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	[cm]	[cmq]	[cmq]	[kNm]	[kNm]	[%]	[mm]	[mm]
1	100	40	0.00	0.00	0.00	0.00	---	---	0.000 (12)
2	100	41	0.00	0.00	0.00	4.10	0.000000	0.00	0.000 (12)
3	100	41	0.00	0.00	0.01	11.89	0.000000	0.00	0.000 (12)
4	100	42	0.00	0.00	0.04	24.90	0.000000	0.00	0.000 (12)
5	100	43	0.00	0.00	0.09	46.10	0.000000	0.00	0.000 (12)
6	100	44	0.00	0.00	0.16	81.86	0.000000	0.00	0.000 (12)
7	100	44	0.00	0.00	0.26	148.17	0.000000	0.00	0.000 (12)
8	100	45	0.00	0.00	0.41	299.26	0.000000	0.00	0.000 (12)
9	100	46	0.00	0.00	0.59	914.46	0.000000	0.00	0.000 (12)
10	100	47	0.00	0.00	0.82	2240.61	0.000000	0.00	0.000 (12)
11	100	47	0.00	0.00	1.11	654.18	0.000000	0.00	0.000 (12)
12	100	48	15.71	1550.00	1.47	434.45	0.000000	0.00	0.000 (12)
13	100	49	15.71	1550.00	1.89	349.89	0.000000	0.00	0.000 (12)
14	100	50	15.71	1550.00	2.39	306.82	0.000000	0.00	0.000 (12)
15	100	50	15.71	1550.00	2.97	281.88	0.000000	0.00	0.000 (12)
16	100	51	18.85	1550.00	3.64	270.61	0.000000	0.00	0.000 (12)
17	100	52	18.85	1550.00	4.40	260.84	0.000000	0.00	0.000 (12)
18	100	52	18.85	1550.00	5.25	254.68	0.000000	0.00	0.000 (12)
19	100	53	18.85	1550.00	6.21	250.97	0.000000	0.00	0.000 (12)
20	100	54	18.85	1550.00	7.28	249.01	0.000000	0.00	0.000 (12)
21	100	55	18.85	1550.00	8.47	248.34	0.000000	0.00	0.000 (12)
22	100	55	18.85	1550.00	9.77	248.66	0.000000	0.00	0.000 (12)
23	100	56	18.85	1550.00	11.20	249.76	0.000000	0.00	0.000 (12)
24	100	57	18.85	1550.00	12.76	251.48	0.000000	0.00	0.000 (12)
25	100	58	18.85	1550.00	14.46	253.70	0.000000	0.00	0.000 (12)
26	100	58	18.85	1550.00	16.30	256.35	0.000000	0.00	0.000 (12)
27	100	59	18.85	1550.00	18.28	259.37	0.000000	0.00	0.000 (12)
28	100	60	18.85	1550.00	20.42	262.69	0.000000	0.00	0.000 (12)
29	100	61	18.85	1550.00	22.72	266.27	0.000000	0.00	0.000 (12)
30	100	61	25.13	1550.00	25.18	279.38	0.000000	0.00	0.000 (12)
31	100	62	25.13	1550.00	27.82	283.53	0.000000	0.00	0.000 (12)
32	100	63	25.13	1550.00	30.63	287.87	0.000000	0.00	0.000 (12)
33	100	63	25.13	1550.00	33.62	292.39	0.000000	0.00	0.000 (12)

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
34	100	64	25.13	1550.00	36.79	297.06	0.000000	0.00	0.000 (12)
35	100	65	25.13	1550.00	40.16	301.89	0.000000	0.00	0.000 (12)
36	100	66	25.13	1550.00	43.73	306.84	0.000000	0.00	0.000 (12)
37	100	66	25.13	1550.00	47.50	311.93	0.000000	0.00	0.000 (12)
38	100	67	25.13	1550.00	51.47	317.13	0.000000	0.00	0.000 (12)
39	100	68	25.13	1550.00	55.67	322.45	0.000000	0.00	0.000 (12)
40	100	69	25.13	1550.00	60.08	327.88	0.000000	0.00	0.000 (12)
41	100	69	25.13	1550.00	64.71	333.41	0.000000	0.00	0.000 (12)
42	100	70	25.13	1550.00	69.58	339.03	0.000000	0.00	0.000 (12)
43	100	71	25.13	1550.00	74.69	344.75	0.000000	0.00	0.000 (12)

Fondazione

Apertura limite fessure w_{lim}=0.20

n°	B	H	Af	Aeff	M	Mpf	ε	Sm	w
	[cm]	*[cm]*	*[cmq]*	*[cmq]*	*[kNm]*	*[kNm]*	*[%]*	*[mm]*	*[mm]*
1	100	80	0.00	0.00	0.00	0.00	---	---	0.000 (12)
2	100	80	18.85	1550.00	0.57	351.49	0.000000	0.00	0.000 (12)
3	100	80	18.85	1550.00	2.27	351.49	0.000000	0.00	0.000 (12)
4	100	80	18.85	1550.00	5.08	351.49	0.000000	0.00	0.000 (12)
5	100	80	18.85	1550.00	8.99	351.49	0.000000	0.00	0.000 (12)
6	100	80	18.85	1550.00	-130.87	-351.49	0.000000	0.00	0.000 (12)
7	100	80	18.85	1550.00	-126.34	-351.49	0.000000	0.00	0.000 (12)
8	100	80	18.85	1550.00	-121.64	-351.49	0.000000	0.00	0.000 (12)
9	100	80	18.85	1550.00	-116.54	-351.49	0.000000	0.00	0.000 (12)
10	100	80	18.85	1550.00	-111.34	-351.49	0.000000	0.00	0.000 (12)
11	100	80	18.85	1550.00	-106.08	-351.49	0.000000	0.00	0.000 (12)
12	100	80	18.85	1550.00	-100.76	-351.49	0.000000	0.00	0.000 (12)
13	100	80	18.85	1550.00	-95.40	-351.49	0.000000	0.00	0.000 (12)
14	100	80	18.85	1550.00	-90.02	-351.49	0.000000	0.00	0.000 (12)
15	100	80	18.85	1550.00	-84.64	-351.49	0.000000	0.00	0.000 (12)
16	100	80	18.85	1550.00	-79.27	-351.49	0.000000	0.00	0.000 (12)
17	100	80	18.85	1550.00	-73.93	-351.49	0.000000	0.00	0.000 (12)
18	100	80	18.85	1550.00	-68.65	-351.49	0.000000	0.00	0.000 (12)
19	100	80	18.85	1550.00	-63.43	-351.49	0.000000	0.00	0.000 (12)
20	100	80	18.85	1550.00	-58.30	-351.49	0.000000	0.00	0.000 (12)
21	100	80	18.85	1550.00	-53.26	-351.49	0.000000	0.00	0.000 (12)
22	100	80	18.85	1550.00	-48.35	-351.49	0.000000	0.00	0.000 (12)
23	100	80	18.85	1550.00	-43.57	-351.49	0.000000	0.00	0.000 (12)
24	100	80	18.85	1550.00	-38.95	-351.49	0.000000	0.00	0.000 (12)
25	100	80	18.85	1550.00	-34.50	-351.49	0.000000	0.00	0.000 (12)
26	100	80	18.85	1550.00	-30.24	-351.49	0.000000	0.00	0.000 (12)
27	100	80	18.85	1550.00	-26.19	-351.49	0.000000	0.00	0.000 (12)
28	100	80	18.85	1550.00	-22.36	-351.49	0.000000	0.00	0.000 (12)
29	100	80	18.85	1550.00	-18.77	-351.49	0.000000	0.00	0.000 (12)
30	100	80	18.85	1550.00	-15.44	-351.49	0.000000	0.00	0.000 (12)
31	100	80	18.85	1550.00	-12.38	-351.49	0.000000	0.00	0.000 (12)
32	100	80	18.85	1550.00	-9.62	-351.49	0.000000	0.00	0.000 (12)
33	100	80	18.85	1550.00	-7.18	-351.49	0.000000	0.00	0.000 (12)
34	100	80	18.85	1550.00	-5.06	-351.49	0.000000	0.00	0.000 (12)
35	100	80	18.85	1550.00	-3.28	-351.49	0.000000	0.00	0.000 (12)
36	100	80	18.85	1550.00	-1.87	-351.49	0.000000	0.00	0.000 (12)
37	100	80	18.85	1550.00	-0.84	-351.49	0.000000	0.00	0.000 (12)
38	100	80	18.85	1550.00	-0.21	-351.49	0.000000	0.00	0.000 (12)
39	100	80	0.00	0.00	0.00	0.00	---	---	0.000 (12)