IL CONCEDENTE

Regione Emilia-Romagna

IL CONCESSIONARIO

ARC AUTOSTRADA REGIONALE CISPADANA

AUTOSTRADA REGIONALE CISPADANA

DAL CASELLO DI REGGIOLO-ROLO SULLA A22
AL CASELLO DI FERRARA SUD SULLA A13

CODICE C.U.P. E81B08000060009

PROGETTO DEFINITIVO

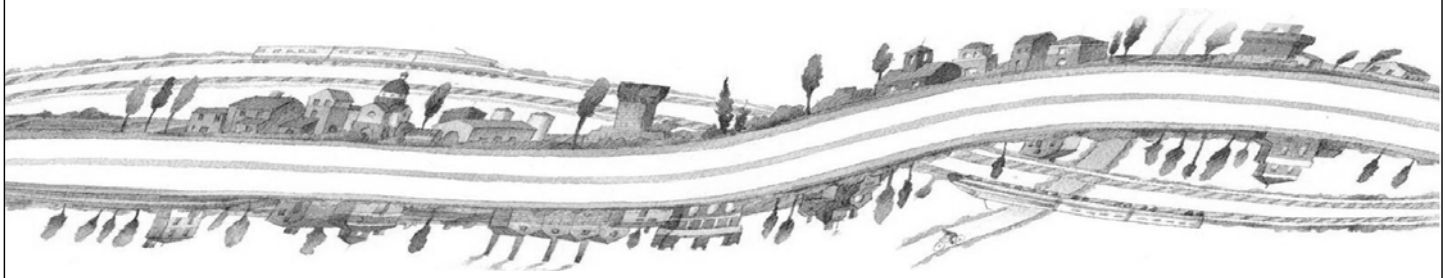
ASSE AUTOSTRADALE

OPERE STRUTTURALI

ARCHITETTONICI

CASERMA DI POLIZIA - S.Felice sul Panaro

RELAZIONE DI CALCOLO STRUTTURE



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INGEGNERE
ANTONIO DE FAZIO
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IL CONCESSIONARIO

Autostrada Regionale Cispadana S.p.A.
IL PRESIDENTE
Graziano Pattuzzi

REV.	DATA	DESCRIZIONE	REDAZIONE	CONTROLLO	APPROVAZIONE
G					
F					
E					
D					
C					
B					
A	17.04.2012	EMISSIONE	Zadra	De Fazio	Salsi

IDENTIFICAZIONE ELABORATO

NUM. PROGR.	FASE	LOTTO	GRUPPO	CODICE OPERA WBS	TRATTO OPERA	AMBITO	TIPO ELABORATO	PROGRESSIVO	REV.
3467	PD	0	S03	SFB03	0	FB	RC	03	A

DATA: MAGGIO 2012

SCALA:

I N D I C E

1. INTRODUZIONE

La presente relazione di calcolo è relativa al progetto definitivo dell'edificio *"Caserma di Polizia"* nell'ambito dell'intervento di realizzazione della nuova Autostrada Regionale Cispadana, infrastruttura stradale di categoria A, avente origine in corrispondenza del casello di Reggiolo-Rolo sulla A22 "Autostrada del Brennero" e termine al casello di Ferrara Sud sulla A13 "Autostrada Bologna-Padova".

Nello specifico l'edificio in oggetto sarà costruito in località San Felice sul Panaro.

2. DESCRIZIONE DELL'OPERA

La "Caserma di Polizia" è un edificio composto da n°.3 corpi di fabbrica giuntati sismicamente realizzati con struttura portante intelaiata in c.a. gettata in opera.

Nello specifico si distinguono:

Edificio A) Fabbricato di forma pressochè rettangolare di dimensioni massime in pianta ***14,90x41,20ml,*** costituito da un interrato e da un piano fuori terra.

La parte interrata sarà realizzata con platea di fondazione in c.a. di spessore 50cm e con muri controterra di spessore di 40cm.

Il primo impalcato (P.T.) sarà realizzato con lastre Predalles di spessore, comprensivo di soletta, pari a 28cm (4+20+4cm), mentre quello di copertura sarà in latero-cemento a travetti prefabbricati con soletta collaborante per uno spessore totale di 28cm (24+4cm).

Pilastri e travi verranno realizzati in cemento armato gettato in opera. I pilastri dipartono dalla platea con una sezione 40x60cm (P1) e rastremano dal piano terra sino a quota copertura con sezione 30x50cm (P2). A quota primo impalcato (P.T.) le travi principali (T1) sono in altezza di sezione 50x60cm; le secondarie (T2) sono in spessore di solaio 60x28cm. A quota copertura le sezioni delle travi principali e secondarie si mantengono; sono presenti inoltre cordoli di chiusura di sezione 30x28cm.

Edificio B) Fabbricato di forma pressochè rettangolare di dimensioni massime in pianta ***41,20x19,95ml,*** costituito da un unico piano fuori terra.

Vista la semplicità dell'edificio, si realizzeranno travi di fondazione a T rovescia, pilastri e travi in elevazione in cemento armato gettato in opera con solaio di copertura in latero-cemento di spessore 28cm (24+4cm).

In particolare le travi a T di fondazione principali (TF1) avranno ciabatta di dimiensioni 160x40cm e collo 40x60cm; le secondarie (TF2) manterranno a geometria del collo ma presenteranno ciabatta di sezione 120x40cm.

Il pilastri saranno di sezione costante 30x50cm (P2). A quota copertura (P.1.) sono disposte travi principali in altezza 50x60cm (T1) e cordoli in spessore di solaio 30x28cm (Cordolo C1).

Edificio C) Fabbricato di forma a "C" di dimensioni massime in pianta ***37.00x18.70ml;*** si sviluppa principalmente su piano terra e si caratterizza per una porzione quadrata di dimensioni in pianta 11,50x11,50ml che si eleva per un ulteriore piano.

Come per l'Edificio "B" le fondazioni sono realizzate con travi a T rovesca, rispettivamente principali (TF1) e secondarie (TF2), a formare un graticcio; i solai sono latero-cemento di spessore totale 28cm.

Le pilastrate presentano due sezioni tipo: rettangolare 30x50cm (P2) e quadrata 30x30cm (P3). A quota primo impalcato (P.1.) sono disposte travi principali in altezza 50x60cm (T1), travi secondarie (T2) in spessore di solaio 60x28cm e cordoli 40x28cm o 30x28cm (Cordolo C1); a quota copertura sono presenti esclusivamente le travate principali (T1) ed i cordoli 30x28cm (Cordolo C1).

Nella presente relazione si eseguiranno i dimensionamenti e le verifiche strutturali come richiesti nella redazione di un progetto definitivo considerando le azioni sismiche, l'azione neve e l'azione del vento definite dalla normativa vigente nel luogo di costruzione.

3. RIFERIMENTI NORMATIVI

Per quanto concerne i riferimenti normativi inerenti la progettazione dell'opera, si fa riferimento all'elaborato di riferimento PD_0_0000_0000_0_GE_KT_01_A "*Elenco delle Normative di riferimento*".

4. SOFTWARE IN USO

Le calcolazioni sono effettuate con il codice di calcolo ad elementi finiti PRO_SAP PROfessional Structural *Analysis Program versione 8.5.0* prodotto dalla *2S.I. Software e Servizi per l'Ingegneria s.r.l.*, Ferrara.

Un attento esame preliminare della documentazione a corredo del software ha consentito di valutarne l'affidabilità e soprattutto l'idoneità al caso specifico. La documentazione, fornita dal produttore e distributore del software, contiene una esauriente descrizione delle basi teoriche e degli algoritmi impiegati, l'individuazione dei campi d'impiego, nonché casi prova interamente risolti e commentati, corredati dei file di input necessari a riprodurre l'elaborazione. Nello specifico, 2S.I. ha verificato l'affidabilità e la robustezza del codice di calcolo attraverso un numero significativo di casi prova in cui i risultati dell'analisi numerica sono stati confrontati con soluzioni teoriche. E' possibile reperire la documentazione contenente alcuni dei più significativi casi trattati al link: http://www.2si.it/Software/Affidabilità.htm.

La verifica della sicurezza degli elementi strutturali avviene con i metodi della scienza delle costruzioni. L'analisi strutturale è condotta con il metodo degli spostamenti per la valutazione dello stato tensodeformativo indotto da carichi statici. Operativamente essa è effettuata con il metodo degli elementi finiti. Tale metodo si basa sulla schematizzazione della struttura in elementi connessi solo in corrispondenza di un numero prefissato di punti denominati nodi. I nodi sono definiti dalle tre coordinate cartesiane in un sistema di riferimento globale. Le incognite del problema (nell'ambito del metodo degli spostamenti) sono le componenti di spostamento dei nodi riferite al sistema di riferimento globale (traslazioni secondo X, Y, Z, rotazioni attorno X, Y, Z). La soluzione del problema si ottiene con un sistema di equazioni algebriche lineari i cui termini noti sono costituiti dai carichi agenti sulla struttura opportunamente concentrati ai nodi:

$$\boldsymbol{K\ u = F}$$

K = matrice di rigidezza; u = vettore spostamenti nodali; F = vettore forze nodali.

Dagli spostamenti ottenuti con la risoluzione del sistema vengono quindi dedotte le sollecitazioni e/o le tensioni di ogni elemento, riferite generalmente ad una terna locale all'elemento stesso. Il sistema di riferimento utilizzato è costituito da una terna cartesiana destrorsa XYZ. Si assume l'asse Z verticale ed orientato verso l'alto.

Si precisa che il software prevede una serie di controlli automatici (check) che consentono l'individuazione di errori di modellazione. Al termine dell'analisi un controllo automatico identifica la presenza di spostamenti o rotazioni abnormi. Si può pertanto asserire che l'elaborazione sia corretta e completa.

I risultati delle elaborazioni sono stati sottoposti a controlli che ne comprovano l'attendibilità. Tale valutazione ha compreso il confronto con i risultati di semplici calcoli, eseguiti con metodi tradizionali e adottati, anche in fase di primo proporzionamento della struttura. Inoltre, sulla base di considerazioni riguardanti gli stati tensionali e deformativi determinati, si è valutata la validità delle scelte operate in sede di schematizzazione e di modellazione della struttura e delle azioni.

5. CARATTERISTICHE DEI MATERIALI IMPIEGATI

Relativamente alle caratteristiche dei materiali impiegati per la realizzazione della struttura si fa riferimento all'elaborato di riferimento PD_0_0000_0000_0_GE_TB_01_A "*Tabella materiali e classi di esposizione calcestruzzo*".

6. SICUREZZA E PRESTAZIONI ATTESE

La sicurezza e le prestazioni dell'opera vengono valutate conformemente a quanto prescritto dal D.M. Infrastrutture e Trasporti 14 gennaio 2008 (Suppl. Ord. alla G.U. 4.2.2008, n. 29) e allegate norme tecniche in relazione agli stati limite che possono verificarsi durante la vita nominale dell'opera.

La sicurezza delle strutture deve essere valutata nei confronti degli stati limite ultimi e nei confronti degli stati limite di esercizio.

Il superamento di uno stato limite ultimo ha carattere irreversibile e si definisce collasso.

Il superamento di uno stato limite di esercizio può avere carattere irreversibile o reversibile.

In relazione alla tipologia costruttiva ed al tipo di struttura la norma prescrive le verifiche da effettuarsi sia per gli SLU sia per gli SLE.

Nel caso in esame di costruzione in calcestruzzo armato si fa riferimento al paragrafo §4.1.2 per verifiche statiche e ai paragrafi §7.3.6 e §7.3.7. per le verifiche sismiche.

6.1. COMBINAZIONI DELLE AZIONI

Le azioni che cimentano le strutture per le verifiche agli stati SLU ed SLE sono indicate ai paragrafi §2.5.3 ed §7.1.

In particolare per lo stato limite ultimo SLU statico con coefficienti parziali γ tipo A1 ed A2:

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

$$\gamma_{G1} \cdot G_1 + \gamma_{G2} \cdot G_2 + \gamma_P \cdot P + \gamma_{Q1} \cdot Q_{K1} + \gamma_{Q2} \cdot \psi_{02} \cdot Q_{K2} + \gamma_{Q3} \cdot \psi_{03} \cdot Q_{K3} + \ldots$$

In particolare per lo stato limite ultimo SLE statico:

- Combinazione caratteristica (rara), generalmente impiegata per gli stati limite di esercizio (SLE) irreversibili, da utilizzarsi nelle verifiche delle tensioni ammissibili (→ § 2.7 – D.M.08):

$$G_1 + G_2 + P + Q_{K1} + \psi_{02} Q_{K2} + \psi_{03} Q_{K3} + \ldots$$

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

$$G_1 + G_2 + P + \psi_{11} \cdot Q_{K1} + \psi_{22} \cdot Q_{K2} + \psi_{23} \cdot Q_{K3} + \ldots$$

- Combinazione quasi permanente (SLE), generalmente impiegata per gli effetti a lungo termine:

$$G_1 + G_2 + P + \psi_{21} \cdot Q_{K1} + \psi_{22} \cdot Q_{K2} + \psi_{23} \cdot Q_{K3} + \ldots$$

In particolare per lo stato limite ultimo SLU sismico con azione SLV con Pvr 10%

$$E + G_1 + G_2 + P + \psi_{21} \cdot Q_{K1} + \psi_{22} \cdot Q_{K2} + ...$$

In particolare per lo stato limite esercizio SLE sismico con azione SLD con Pvr 63%

$$E + G_1 + G_2 + P + \psi_{21} \cdot Q_{K1} + \psi_{22} \cdot Q_{K2} + ...$$

Essendo la costruzione di classe IV in fase di progetto esecutiva dovranno essere eseguite le verifiche sismica con azione SLO per gli elementi non strutturali e per gli impianti.

Relativamente alla ***progettazione strutturale e geotecnica,*** si fa riferimento all'Approccio 1 che prevede due combinazione di coefficienti da adottare:

- Per verifiche strutturali: combinazione 1 (A1+M1+R1)
- Per verifiche geotecniche: combinazione 2 (A2+M1+R2)

6.2. VALORI LIMITE DI APERTURA DELLE FESSURE

Si assumono i seguenti valori di classe di esposizione:

- Fondazioni e muri di fondazioni = XC2 condizioni ambientali ordinarie
- Pilastri e muri in elevazione =XC3 condizioni ambientali ordinarie

combinazione frequente: w3 = 0.40 mm;

combinazione quasi permanente: w2 = 0.30 mm.

- Travi e solai =XC4 condizioni ambientali aggressive

combinazione frequente: w2 = 0.30 mm;

combinazione quasi permanente: w1 = 0.20 mm.

7. PARAMETRI DI PROGETTO

Il presente paragrafo mira a definire correttamente i parametri di "Vita Nominale", "Classe d'Uso" e "Periodo di Riferimento" da adottare per lo studio delle opere strutturali inerenti il progetto definitivo dell'Autostrada Cispadana in accordo a quanto riportato nelle Nuove Norme Tecniche per le Costruzioni NTC, approvate con D.M. del 14 Gennaio 2008, alla luce di quanto già stabilito nel Progetto Preliminare dell'Autostrada stessa.

I parametri in oggetto sono indispensabili per una corretta valutazione puntuale della sollecitazione sismica da considerare in fase di progettazione delle opere strutturali; in quanto da essi dipende la definizione del Periodo di Ritorno T_R dell'opera e quindi la valutazione dei parametri a_g, F_0 e T_C^*.

In ambito di NTC08 vi è infatti la possibilità di definire in maniera "locale" le componenti fondamentali della stima di pericolosità sismica.

Si riporta nel seguito quanto riportato in Normativa, al punto §2.4, in merito ai parametri oggetto della trattazione:

7.1. ELABORATO DI RIFERIMENTO

Nello specifico, si fa riferimento all'elaborato PD_0_0000_0000_0_GE_KT_02_A "*Vita Utile e Classi d'uso delle opere*".

7.2. VITA NOMINALE

La vita nominale di un'opera strutturale V_N è intesa come il numero di anni nel quale la struttura, purché soggetta alla manutenzione ordinaria, deve potere essere usata per lo scopo al quale è destinata. La vita nominale dei diversi tipi di opere è quella riportata nella tabella seguente e deve essere precisata nei documenti di progetto.

TIPI DI COSTRUZIONE		*Vita Nominale V_N (in anni)*
1	*Opere provvisorie – Opere provvisionali – Strutture in fase costruttiva*	*≤ 10*
2	*Opere ordinarie, ponti, opere infrastrutturali e dighe di dimensioni contenute o di importanza normale*	*≥ 50*
3	*Grandi opere , ponti, opere infrastrutturali e dighe di grandi dimensioni o di importanza strategica*	*≥ 100*

7.3. CLASSI D'USO

In presenza di azioni sismiche, con riferimento alle conseguenze di una interruzione di operatività o di un eventuale collasso, le costruzioni sono suddivise in classi d'uso così definite:

Classe I: Costruzioni con presenza solo occasionale di persone, edifici agricoli.

Classe II: Costruzioni il cui uso preveda normali affollamenti, senza contenuti pericolosi per l'ambiente e senza funzioni pubbliche e sociali essenziali. Industrie con attività non pericolose per l'ambiente. Ponti, opere infrastrutturali, reti viarie non ricadenti in Classe d'uso III o in Classe d'uso IV, reti ferroviarie la cui interruzione non provochi situazioni di emergenza. Dighe il cui collasso non provochi conseguenze rilevanti.

Classe III: Costruzioni il cui uso preveda affollamenti significativi. Industrie con attività pericolose per l'ambiente. Reti viarie extraurbane non ricadenti in Classe d'uso IV. Ponti e reti ferroviarie la cui interruzione provochi situazioni di emergenza. Dighe rilevanti per le conseguenze di un loro eventuale collasso.

Classe IV: Costruzioni con funzioni pubbliche o strategiche importanti, anche con riferimento alla gestione della protezione civile in caso di calamità. Industrie con attività particolarmente pericolose per l'ambiente. Reti viarie di tipo A o B, di cui al D.M. 5 novembre 2001, n. 6792, "Norme funzionali e geometriche per la costruzione delle strade", e di tipo C quando appartenenti ad itinerari di collegamento tra capoluoghi di provincia non altresì serviti da strade di tipo A o B. Ponti e reti ferroviarie di importanza critica per il mantenimento delle vie di comunicazione, particolarmente dopo un evento sismico. Dighe connesse al funzionamento di acquedotti e a impianti di produzione di energia elettrica.

7.4. PERIODO DI RIFERIMENTO PER L'AZIONE SISMICA

Le azioni sismiche su ciascuna costruzione vengono valutate in relazione ad un periodo di riferimento V_R che si ricava, per ciascun tipo di costruzione, moltiplicandone la vita nominale V_N per il coefficiente d'uso C_U : $V_R = V_N \cdot C_U$. Il valore del coefficiente d'uso C_U è definito, al variare della classe d'uso, come mostrato nella tabella seguente:

CLASSE D'USO	*I*	*II*	*III*	*IV*
COEFFICIENTE C_U	*0,7*	*1,0*	*1,5*	*2,0*

Alla luce di quanto riportato, ed in relazione alla importanza critica delle opere di progetto, è possibile riassumere nella tabella seguente i parametri da adottare per i manufatti in progetto:

ASSE AUTOSTRADALE				
OPERA	*Vita Nominale V_N [anni]*	*Classe d'uso*	*Coefficiente d'uso*	*Periodo di riferimento V_R [anni]*
Edifici di stazione di esazione	*50*	*IV*	*2,0*	*100*
Caserma di polizia	***50***	***IV***	***2,0***	***100***
Centro assistenza utenza (C.A.U)	*50*	*IV*	*2,0*	*100*

Centro servizi assistenza (C.S.A)	*50*	*IV*	*2,0*	*100*
Sede del Concessionario	*50*	*IV*	*2,0*	*100*
Porta di esazione e pensilina	*50*	*IV*	*2,0*	*100*

8. MODELLAZIONE DELLA STRUTTURA E DELLE AZIONI SISMICHE

Il modello della struttura è tridimensionale ed è tale da rappresentare in modo adeguato le effettive distribuzioni spaziali di massa, rigidezza e resistenza.

Gli elementi non strutturali quali le pareti interne non portanti (divisori), sono rappresentati unicamente in termini di massa in quanto caratterizzati da rigidezza e resistenza tali da non modificare significativamente il comportamento globale della struttura.

Le murature perimetrali sono schematizzate come carico lineare distribuito applicato alla travi di bordo.

Gli orizzontamenti sono assunti infinitamente rigidi nel loro piano, in quanto realizzati in latero-cemento con soletta collaborante di spessore pari a 4cm.

L'intera struttura si considererà, in primo luogo, "incastrata" alla base sullo spiccato di fondazione trascurando così gli effetti indotti dall'interazione terreno-struttura al fine di determinare le massime sollecitazioni gli elementi portanti; si realizzerà poi un secondo modello in cui il suolo è assunto come un sistema di molle aventi rigidezza equivalente (in accordo con la teoria di Winkler), utile esclusivamente al dimensionamento e verifica delle fondazioni.

Il modello della struttura è lineare: la rigidezza degli elementi strutturali sono determinate trascurando le non linearità geometriche e di materiale.

Le azioni sismiche sono modellate direttamente con l'ausilio degli spettri di risposta.

Si precisa infine, che per tener conto della variabilità spaziale del moto sismico, nonché delle eventuali incertezze nella localizzazione delle masse, al centro di massa è attribuita un'eccentricità accidentale rispetto alla sua posizione effettiva (di calcolo).

Tale eccentricità, trattandosi di "edificio", è assunta costante, per entità e direzione, su tutti gli orizzontamenti e pari a 0.05 volte la dimensione dell'edificio stesso misurata perpendicolarmente alla direzione di applicazione dell'azione sismica.

8.1. ANALISI SISMICA

Il metodo di analisi assunto per le calcolazioni è la dinamica lineare. Con essa si determinano i modi di vibrare (analisi modale) della struttura e gli effetti dell'azione sismica per ciascun modo.

Si considerano tutti i modi con massa partecipante significativa e tali da garantire globalmente un massa eccitata (partecipante) uguale o superiore all'85%.

La combinazione degli effetti avviene utilizzando la combinazione quadratica proposta al §7.3.3.1 del D.M.2008. Si precisa inoltre che gli effetti sulla struttura (sollecitazioni, deformazioni, spostamenti, ecc.) sono combinati successivamente con la seguenti relazioni:

$$\begin{Bmatrix} 1.00\,E_x + 0.30\,E_y \\ 1.00\,E_y + 0.30\,E_x \end{Bmatrix}$$

8.2. CRITERI DI VERIFICA

Le verifiche degli elementi strutturali in c.a. per azione sismica sono condotte con riferimento agli Stati limite ultimi §7.3.6.e di esercizio §7.3.7.Più precisamente ci si riferirà allo SLV e allo SLD.

Relativamente al paragrafo §7.3.7.2 si verificano che gli spostamenti d'interpiano siano inferiori a 0.01h (tamponamenti progettati per non subire danni a seguito degli spostamenti d'interpiano) allo SLD.

Per costruzioni ricadenti in classe d'uso IV, in questa fase di progetto definitivo si rimanda alla successiva progettazione esecutiva la verifica (§7.3.7.1) che l'azione sismica allo SLD con η = 2/3 produca una sollecitazione Ed<Rd (verifica elementi strutturali in termini di resistenza) e la verifica (§7.3.7.2) che gli spostamenti d'interpiano siano inferiori a 2/3 di 0.01h (tamponamenti progettati per non subire danni a seguito degli spostamenti d'interpiano) allo SLO.

8.3. DIMENSIONAMENTO E VERIFICA DEGLI ELEMENTI STRUTTURALI

A seguire si riportano i criteri necessari al dimensionamento e alla verifica degli elementi strutturali dell'edificio. Si precisa che le verifiche sono condotte in automatico dal programma di calcolo in accordo con quanto previsto delle NTC2008 e relativa Circolare esplicativa 2 febbraio 2009, n. 617.

Travi in c.a. di fondazione

In merito alle travi di fondazione, le azioni considerante agenti sulle stesse sono le resistenze degli elementi strutturali soprastanti. Più precisamente, le forze assiali negli elementi strutturali verticali vengono associate ai concomitanti valori resistenti di momento flettente e taglio, verificando che essi non siano superiori a quelli trasferiti dagli elementi stessi amplificati di un fattore γ_{Rd} = 1.1 (CD"B") e comunque non maggiori di quelli derivanti da un'analisi elastica della struttura in elevazione eseguita con fattore di struttura *q* unitario.

Le fondazioni vengono progettate in modo tale da *rimanere in campo elastico*.

Non vengono quindi inserite armature specifiche per ottenere un comportamento duttile.

Si precisa che le travi di fondazione, per tutta la lunghezza, presenteranno *armature longitudinali* in *percentuale non inferiore* allo *0.2% sia inferiormente che superiormente*.

Travi in c.a. in elevazione

I momenti flettenti assunti per il dimensionamento e la verifica delle travi sono quelli da calcolo, ossia quelli massimi ottenuti dall'analisi dinamica elastica lineare.

Al fine di escludere la formazione di meccanismi inelastici dovuti al taglio, le sollecitazioni di taglio sono ottenute come prescritto al *§7.4.4.1* applicando il fattore di sovraresistenza γ_{Rd} *= 1.00 (CD"B").*

Pilastri in c.a.

Al fine di proteggere i pilastri dalla plasticizzazione prematura si adottano i momenti flettenti di calcolo in modo tale che:

$$\sum M_{c,Rd} \geq 1.10 \sum M_{b,Rd}$$

ove $M_{c,Rd}$ è il momento resistente del generico pilastro, $M_{b,Rd}$ è il momento resistente della generica trave e γ_{Rd} *= 1.1* è il fattore di sovraresistenza in CD"B".

Al fine di escludere la formazione di meccanismi inelastici dovuti al taglio, le sollecitazioni di taglio sono ottenuti come prescritto al §7.4.4.1 applicando il fattore di sovraresistenza γ_{Rd} *= 1.1 (CD"B").*

SI precisa che il suddetto criterio di gerarchia delle resistenze non è applicato alle sezioni di sommità dei pilastri dell'ultimo piano.

9. ANALISI DEI CARICHI

9.1. AZIONI STATICHE

Il fabbricato è ubicato in San Felice sul Panaro.

Azione vento.

Zona vento = 2
(Vb.o = 25 m/s; Ao = 750 m; Ka = 0,015 1/s)

Classe di rugosità del terreno: D
[Aree prive di ostacoli o con al di più rari ostacoli isolati (aperta campagna, aeroporti, aree agricole, zone paludose o sabbiose, superfici innevate o ghiacciate, mare, laghi,..)]

Categoria esposizione: tipo II
(Kr = 0,19; Zo = 0,05 m; Zmin = 4 m)

Velocità di riferimento = 25,00 m/s
Pressione cinetica di riferimento (qb) = 39 daN/mq

Coefficiente di forma (Cp) = 1,00
Coefficiente dinamico (Cd) = 1,00
Coefficiente di esposizione (Ce) = 2,35
Coefficiente di esposizione topografica (Ct) = 1,00
Altezza dell'edificio = 10,00 m

Pressione del vento (p = qb Ce Cp Cd) = 92 daN/mq (con coefficiente di forma unitario)

Azione neve

Zona Neve = I Mediterranea
Ce (coeff. di esposizione al vento) = 1,00
Valore caratteristico del carico al suolo (qsk Ce) = 150 daN/mq
Copertura ad una falda:
Angolo di inclinazione della falda = 0,0°
$\mu 1$ = 0,80 => Q = 120 daN/mq

a) Il peso proprio delle strutture

Computato automaticamente dal programma di calcolo in ragione del peso specifico del c.a. (**25 kN/m^3**) e dell'acciaio da carpenteria (**78.5 kN/m^3**).

b) Impalcato a quota piano terra (Edificio "A")

Carichi permanenti G1

• P.P solaio predalles + cappa in c.a. (sp. 4+20+4cm)		3.70	kN/mq
• Sottofondo in CLS alleggerito,	=0.15x8.00	1.20	kN/mq
• Pavimento (sp.1+4cm)	=	1.00	kN/mq
Totale permanenti portati G1k		***5.90***	***kN/mq***

Carichi permanenti G2 ***1.20 kN/mq***

Carichi variabili Qk (Cat. C1) ***3.00 kN/mq***

Ψ0 = 0.7 Ψ1 = 0.7 Ψ2 = 0.6

c) Impalcato di copertura a quota piano primo e secondo (Edificio "A", "B", parte di "C")

Carichi permanenti G1

• Intonaco intradosso	=0.01x20	0.20	kN/mq
• P.P solaio latero-cemento + cappa in c.a. (sp. 24+4cm)		3.70	kN/mq
• Sottofondo in CLS alleggerito,	=0.15x8.00	1.20	kN/mq
• Isolante+ impermeabilizzazione	=	0.10	kN/mq
• Quadrotti in c.l.s	=0.04x25	1.00	kN/mq
• Controsoffitto ed impianti		0.50	kN/mq

Totale permanenti portati G1k ***6.70 kN/mq***

- Copertura praticabile (Cat. H2) ***2.00 kN/mq***

Ψ0 = 0.0 Ψ1 = 0.0 Ψ2 = 0.0

Carichi variabili Qk

- Neve <1000m *1.20 kN/mq*

Ψ0 = 0.5 Ψ1 = 0.2 Ψ2 = 0.0

A favore di sicurezza si assume il variabile "H2" come variabile tipo "Neve".

d) Impalcato interno a quota piano primo (Edificio "C")

Carichi permanenti G1

• Intonaco intradosso	=0.01x20	0.20	kN/mq
• P.P solaio latero-cemento + cappa in c.a. (sp. 24+4cm)		3.70	kN/mq
• Sottofondo in CLS alleggerito,	=0.15x8.00	1.20	kN/mq
• Pavimento (1+4cm)	=	1.00	kN/mq
• Controsoffitto ed impianti		0.50	kN/mq

Totale permanenti portati G1k ***6.70 kN/mq***

Carichi permanenti G2 ***1.20 kN/mq***

Carichi variabili Qk (Cat. A) ***2.00 kN/mq***

$\Psi 0 = 0.7$ $\Psi 1 = 0.7$ $\Psi 2 = 0.6$

e) Murature perimetrali.

Carichi permanenti Gk

- Peso proprio muratura (poroton sp.30cm, h = 3.70m) = 7.77 kN/ml
- Intonaco (interno+esterno) 3 cm = 1.11 kN/ml
- Isolante = 0.13 kN/ml

Totale permanenti portati G_{1k} ≈ 9.00 kN/ml

- Muratura parapetto sp=20cm =0.20x18x0.80x1.00 = 2.88 kN/ml
- Intonaco 1.5+1.5cm =0.03x20x1.00 = 0.60 kN/ml

Totale permanenti portati G_{1k} ≈ 3.50 kN/ml

9.2. AZIONI SISMICHE E FATTORE DI STRUTTURA

Le azioni sismiche di progetto, in base alle quali si verifica il rispetto dei diversi stati limite, si definiscono a partire dalla "pericolosità sismica di base" In condizioni ideali di sito di riferimento rigido con superficie topografica orizzontale. Allo stato attuale, la pericolosità sismica su reticolo di riferimento nell'intervallo di riferimento è fornita dai dati pubblicati sul sito http://esse1.mi.ingv.it/.

Per punti non coincidenti con il reticolo di riferimento e periodi di ritorno non contemplati direttamente si opera come indicato nell'allegato alle *NTC* (rispettivamente media pesata e interpolazione).

L'azione sismica viene definita in relazione ad un periodo di riferimento *Vr* che si ricava, per ciascun tipo di costruzione, moltiplicandone la vita nominale per il coefficiente d'uso. Fissato il periodo di riferimento *Vr* e la probabilità di superamento *Pver* associata a ciascuno degli stati limite considerati, si ottiene il periodo di ritorno *Tr* e i relativi parametri di pericolosità sismica:

- a_g: accelerazione orizzontale massima del terreno;
- F_o: valore massimo del fattore di amplificazione dello spettro in accelerazione orizzontale;
- T*c: periodo di inizio del tratto a velocità costante dello spettro in accelzione orizzontale.

Individuati su reticolo di riferimento i parametri di pericolosità sismica si valutano i parametri spettrali:

S è il coefficiente che tiene conto della categoria di sottosuolo e delle condizioni topografiche mediante la relazione seguente $S = S_s * S_t$ *(§3.2.5);*

- F_o è il fattore che quantifica l'amplificazione spettrale massima, su sito di riferimento rigido orizzontale;
- F_v è il fattore che quantifica l'amplificazione spettrale massima verticale, in termini di accelerazione orizzontale massima del terreno ag su sito di riferimento rigido orizzontale;
- T_b è il periodo corrispondente all'inizio del tratto dello spettro ad accelerazione costante;
- T_c è il periodo corrispondente all'inizio del tratto dello spettro a velocità costante;
- T_d è il periodo corrispondente all'inizio del tratto dello spettro a spostamento costante;

L'Opera è ubicata in San Felice sul Panaro, per cui:

- latitudine 44,84194° N longitudine 11,1825° E;
- Categoria di sottosuolo "C" → *Depositi di terreni a grana grossa mediamente addensati o terreni a grana fina mediamente consistenti* con spessori superiori a 30 m, caratterizzati da un graduale miglioramento delle proprietà meccaniche con la profondità e da valori di Vs,30 compresi tra 180 m/s e 360 m/s (ovvero 15 < NSPT,30 < 50 nei terreni a grana grossa e 70 < cu,30 < 250 kPa nei terreni a grana fina);

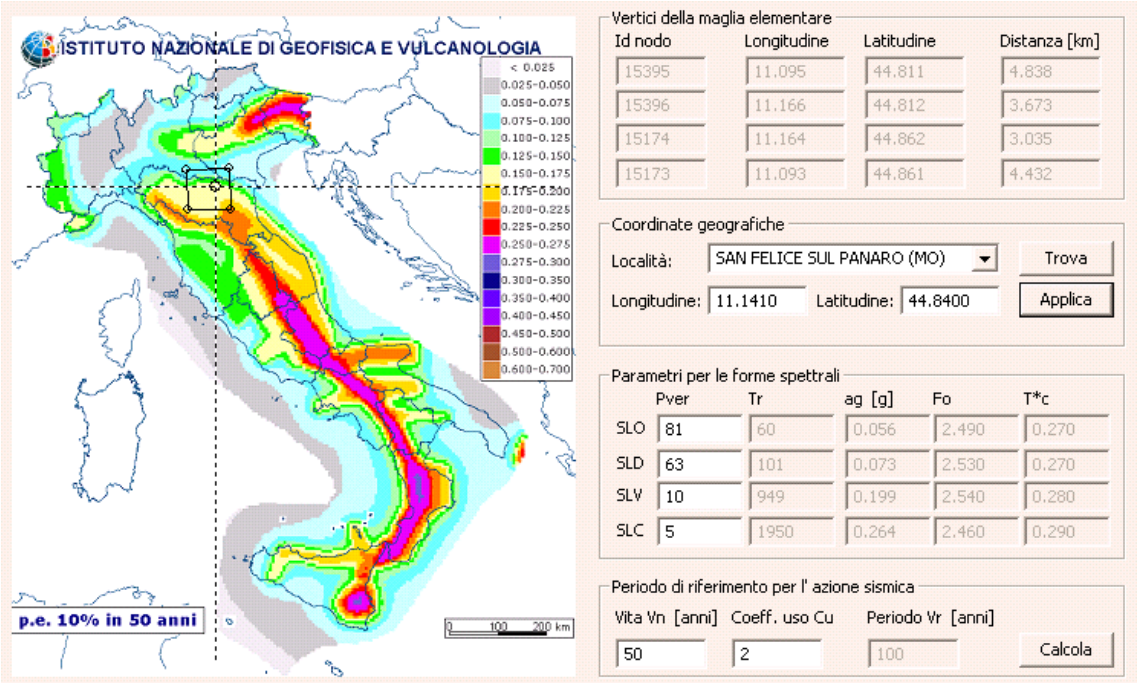

Figura 9.2 - 1 – Località San Felice sul Panaro (Mo)

In particolare si riportano la tabella riassuntiva relativamente alla pericolosità sismica e i parametri di calcolo per l'azione sismica:

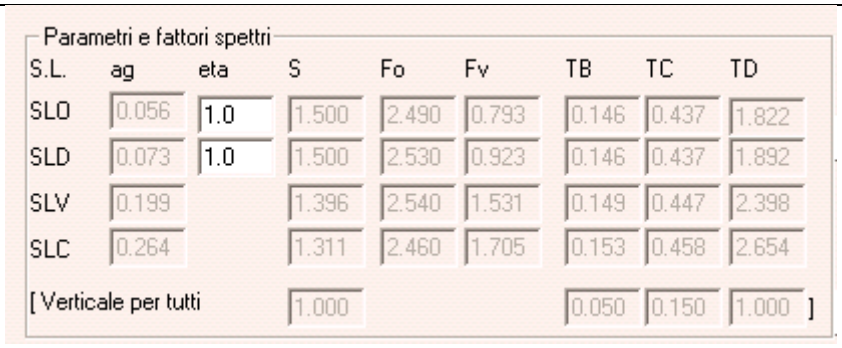

Figura 9.2 - 2 – Località San Felice sul Panaro (Mo)

In particolare, in riferimento alla verifica del giunto sismico, si assumono i seguenti valori per i parametri "a_g/g" ed "S":

- $a_g/g = 0.199$
- $S = 1.396$

10. EDIFICIO "A" – MODELLO DI CALCOLO, RISULTATI E VERIFICHE

Gli elementi utilizzati per la modellazione dello schema statico della struttura sono i seguenti:

- *Elemento tipo BEAM* *(trave-D2)*
- *Elemento tipo BOUNDARY* *(molla)*
- *Elemento tipo PLATE* *(piastra-guscio-D3)*
- *Elemento tipo MEMBRANE* *(membrana-D3)*
- *Elemento tipo SOLAIO* *(macro elemento composto da più membrane)*

Il programma prevede una serie di controlli automatici (check) che consentono l'individuazione di errori di modellazione. Al termine dell'analisi un controllo automatico identifica la presenza di spostamenti o rotazioni abnormi. Si può pertanto asserire che l' elaborazione sia corretta e completa. I risultati delle elaborazioni sono stati sottoposti a controlli che ne comprovano l'attendibilità. Tale valutazione ha compreso il confronto con i risultati di semplici calcoli, eseguiti con metodi tradizionali e adottati, anche in fase di primo proporzionamento della struttura. Inoltre, sulla base di considerazioni riguardanti gli stati tensionali e deformativi determinati, si è valutata la validità delle scelte operate in sede di schematizzazione e di modellazione della struttura e delle azioni. Si allega al termine della presente relazione elenco sintetico dei controlli svolti (verifiche di equilibrio tra reazioni vincolari e carichi applicati, comparazioni tra i risultati delle analisi e quelli di valutazioni semplificate, etc.).

Per quanto concerne il terreno di fondazione, esso può essere schematizzato secondo il modello di Winkler che prevede una relazione lineare fra il cedimento in un punto della superficie e la pressione agente nello stesso punto.

10.1. MATERIALI

A seguire si riportano le caratteristiche meccaniche dei materiali utilizzati nella modellazione. Nella figura seguente la sigla "Id" (abbreviazione per "identificativo"), identifica il tipo di materiale impiegato per ogni elemento strutturale. Si precisa che per le fondazioni è stato impiegato un *cls C25/30*; per i pilastri un *cls C28/35* ed infine per le travi un *cls C32/40.* La platea di fondazione e i muri controterra sono modellati con materiale id = 1 (Cls Classe C25/30

Id	Tipo / Note		Young	Poisson	G	Gamma	Alfa
		daN/cm2	daN/cm2		daN/cm2	daN/cm3	
1	Calcestruzzo Classe C25/30		3.145e+05	0.12	1.404e+05	2.50e-03	1.00e-05
	Rck	300.0					
	fctm	25.6					
3	Calcestruzzo Classe C28/35		3.260e+05	0.12	1.455e+05	2.50e-03	1.00e-05
	Rck	350.0					
	fctm	28.4					
4	Calcestruzzo Classe C32/40		3.360e+05	0.12	1.500e+05	2.50e-03	1.00e-05
	Rck	400.0					

Id	Tipo / Note		Young	Poisson	G	Gamma	Alfa
	fctm	31.0					

ove:

1	*cemento armato*	
	Rck	*resistenza caratteristica cubica*
	Fctm	*resistenza media a trazione semplice*
Young	*modulo di elasticità normale*	
Poisson	*coefficiente di contrazione trasversale*	
G	*modulo di elasticità tangenziale*	
Gamma	*peso specifico*	
Alfa	*coefficiente di dilatazione termica*	

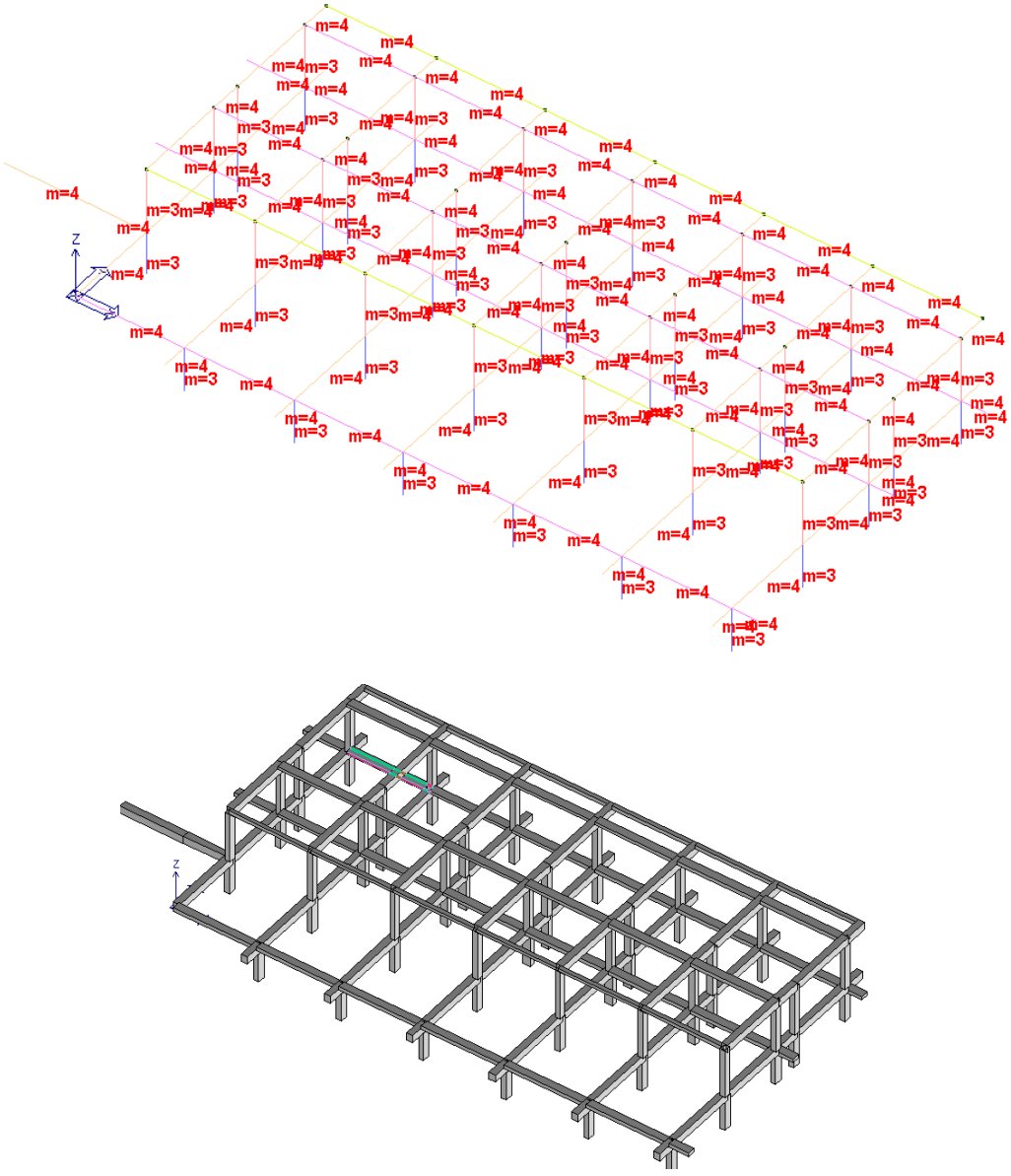

Figura 10.1 - 1 – Codice “Id” materiali (elementi D2)

10.2. MODELLAZIONE ELEMENTI STRUTTURALI

Le sezioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni sezione vengono riportati in tabella i seguenti dati:

Id	Tipo	Area	A V2	A V3	Jt	J 2-2	J 3-3	W 2-2	W 3-3	Wp 2-2	Wp 3-3
		cm2	cm2	cm2	cm4	cm4	cm4	cm3	cm3	cm3	cm3
1	Rettangolare: b=40.00 h=50.00	2000.00	1666.67	1666.67	5.498e+05	2.667e+05	4.167e+05	1.333e+04	1.667e+04	2.000e+04	2.500e+04
2	trave: b=50.00 h =60.00	3000.00	2500.00	2500.00	1.246e+06	6.250e+05	9.000e+05	2.500e+04	3.000e+04	3.750e+04	4.500e+04
3	cordolo: b=30.00 h=28.00	840.00	700.00	700.00	9.876e+04	6.300e+04	5.488e+04	4200.00	3920.00	6300.00	5880.00
6	pilastro: b=60.00 h=40.00	2400.00	2000.00	2000.00	7.424e+05	7.200e+05	3.200e+05	2.400e+04	1.600e+04	3.600e+04	2.400e+04
7	trave: b=60.00 h =28.00	1680.00	1400.00	1400.00	3.100e+05	5.040e+05	1.098e+05	1.680e+04	7840.00	2.520e+04	1.176e+04
8	Rettangolare: b=40.00 h=50.00	2000.00	1666.67	1666.67	5.498e+05	2.667e+05	4.167e+05	1.333e+04	1.667e+04	2.000e+04	2.500e+04

Ove:

Area	*area della sezione*
Jt	*fattore torsionale di rigidezza*
J2-2	*momento d'inerzia della sezione riferito all'asse 2*
J3-3	*momento d'inerzia della sezione riferito all'asse 3*
W2-2	*modulo di resistenza della sezione riferito all'asse 2*
W3-3	*modulo di resistenza della sezione riferito all'asse 3*
Wp2-2	*modulo di resistenza plastico della sezione riferito all'asse 2*
Wp3-3	*modulo di resistenza plastico della sezione riferito all'asse 3*

I dati soprariportati vengono utilizzati per la determinazione dei carichi inerziali e per la definizione delle rigidezze degli elementi strutturali. La valutazione delle caratteristiche inerziali delle sezioni è condotta nel riferimento 2-3 dell'elemento.

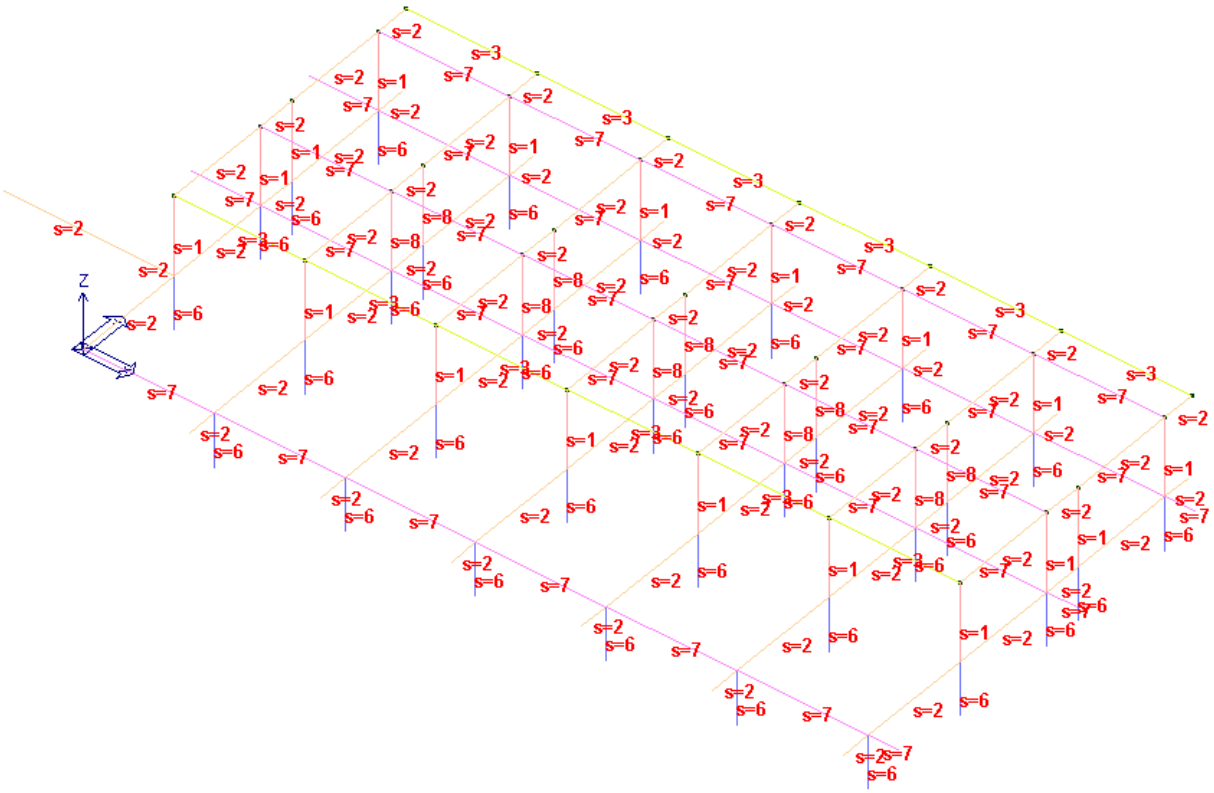

Figura 10.2 - 1 – Codice "Id"elementi strutturali

Infine si riporta una rappresentazione 3D del modello di calcolo strutturale adottato:

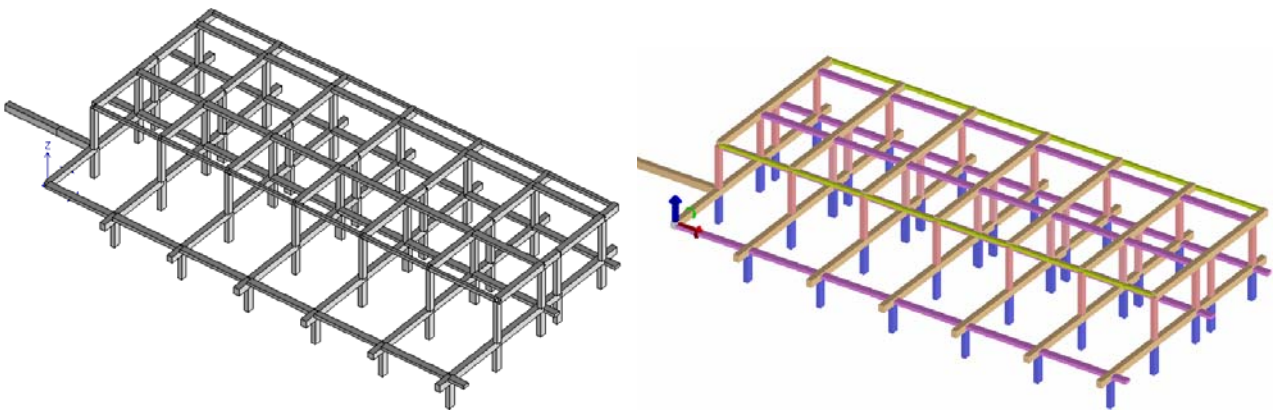

Figura 10.2 - 2 – Viste 3D solide: modello di calcolo – Elementi beam

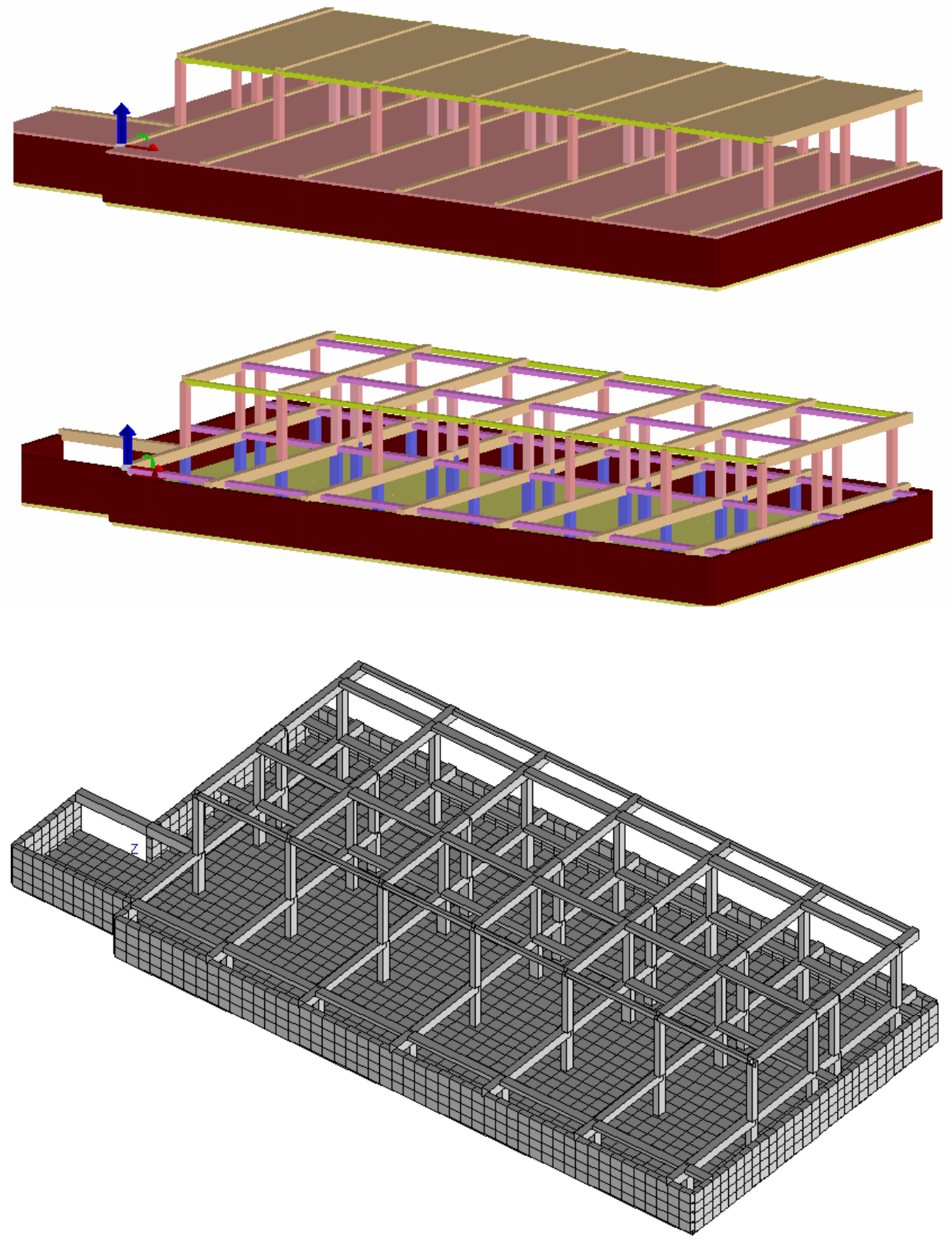

Figura 10.2 - 2 – Viste 3D solide: modello di calcolo completo

10.3. FATTORE DI STRUTTURA

Nella seguente figura si riassumono i principali parametri utilizzati dal programma di calcolo per l'analisi elastica dinamica lineare.

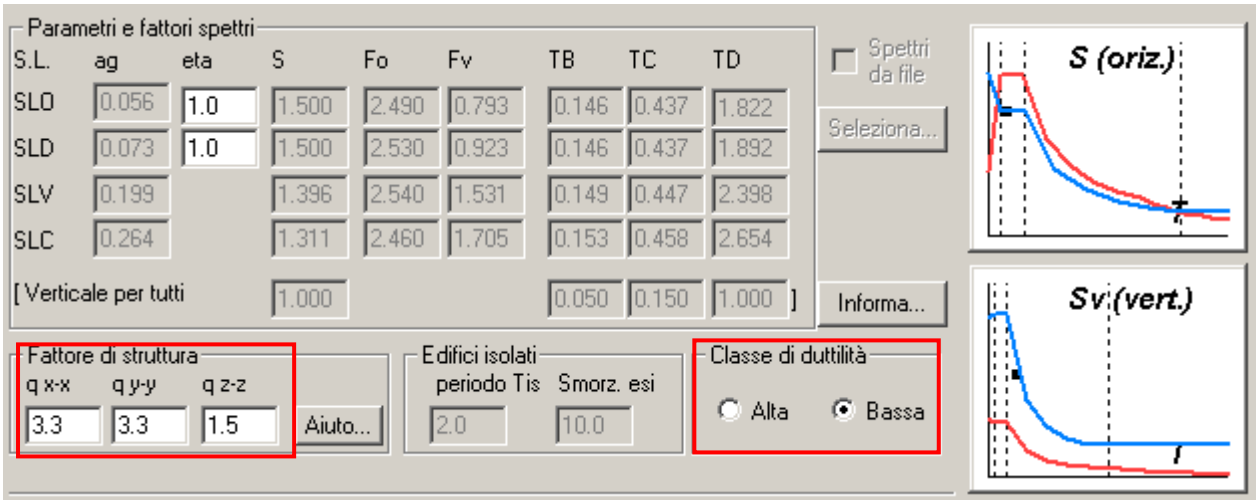

Figura 10.3 - 1 – Parametri per l'analisi modale

10.4. CASI DI CARICO

Il programma consente l'applicazione di diverse tipologie di casi di carico.

Sono di tipo automatico A (ossia non prevedono introduzione dati da parte dell'utente).

Sono di tipo semi-automatico *SA* (ossia prevedono una minima introduzione dati da parte dell'utente.

Sono di tipo non automatico NA ossia prevedono la diretta applicazione di carichi generici agli elementi strutturali (si veda il precedente punto Modellazione delle Azioni) i restanti casi di carico.

Nella tabella successiva vengono riportati i casi di carico agenti sulla struttura, con l'indicazione dei dati relativi al caso di carico stesso: *Numero*, *Tipo* e *Sigla identificativa*, *Valore di riferimento del caso di carico* (se previsto).

CDC	Tipo	Sigla Id	Note
1	Ggk	CDC=Ggk (peso proprio della struttura)	
2	Gsk	CDC=G1sk (permanente solai-coperture)	
3	Qnk	CDC=Qnk (carico da neve)	
4	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	partecipazione:1.00 per 1 CDC=Ggk (peso proprio della struttura)
			partecipazione:1.00 per 2 CDC=G1sk (permanente solai-coperture)
			partecipazione:1.00 per 3 CDC=Qnk (carico da neve)
			partecipazione:1.00 per 12 CDC=G1k (perm. murature)
			partecipazione:1.00 per 13 CDC=Qsk (variabile solai)
5	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	come precedente CDC sismico
6	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	come precedente CDC sismico
7	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	come precedente CDC sismico
8	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	come precedente CDC sismico
9	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	come precedente CDC sismico
10	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	come precedente CDC sismico
11	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	come precedente CDC sismico

CDC	Tipo	Sigla Id	Note
12	Gk	CDC=G1k (perm. murature)	D2 :da 39 a 41 Azione : Pareti:Fzi=-9.00 Fzf=-9.00
			D2 :da 75 a 77 Azione : Pareti:Fzi=-9.00 Fzf=-9.00
			D2 :da 80 a 85 Azione : Pareti:Fzi=-9.00 Fzf=-9.00
			D2 :da 129 a 132 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
			D2 :da 129 a 132 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
			D2 :da 169 a 180 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
			D2 :da 169 a 180 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
13	Qsk	CDC=Qsk (variabile solai)	

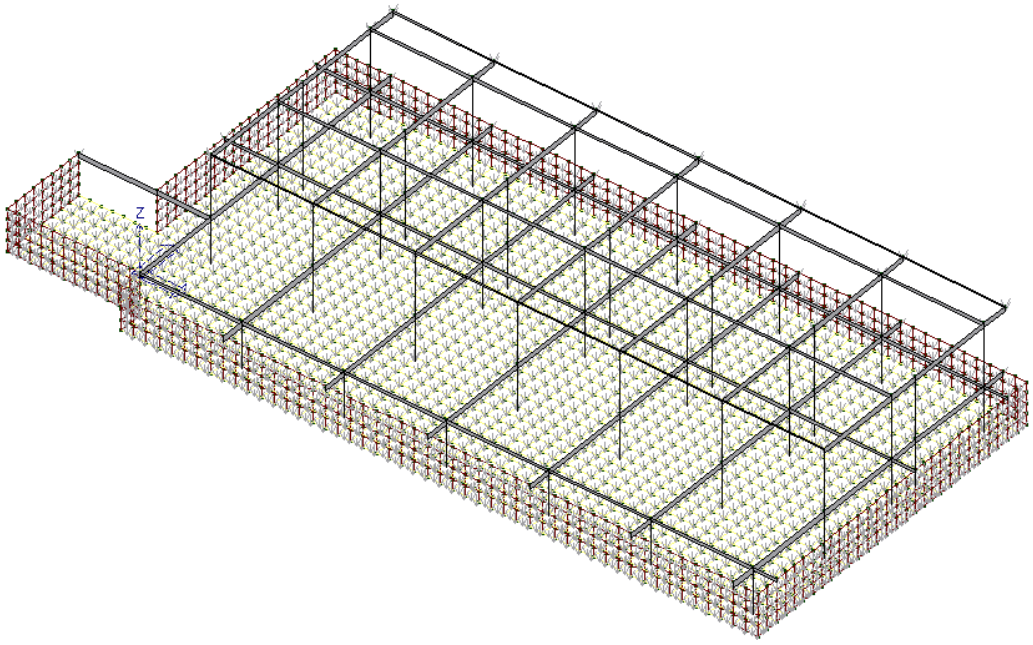

Figura 10.4 - 1 – Caso di carico 1

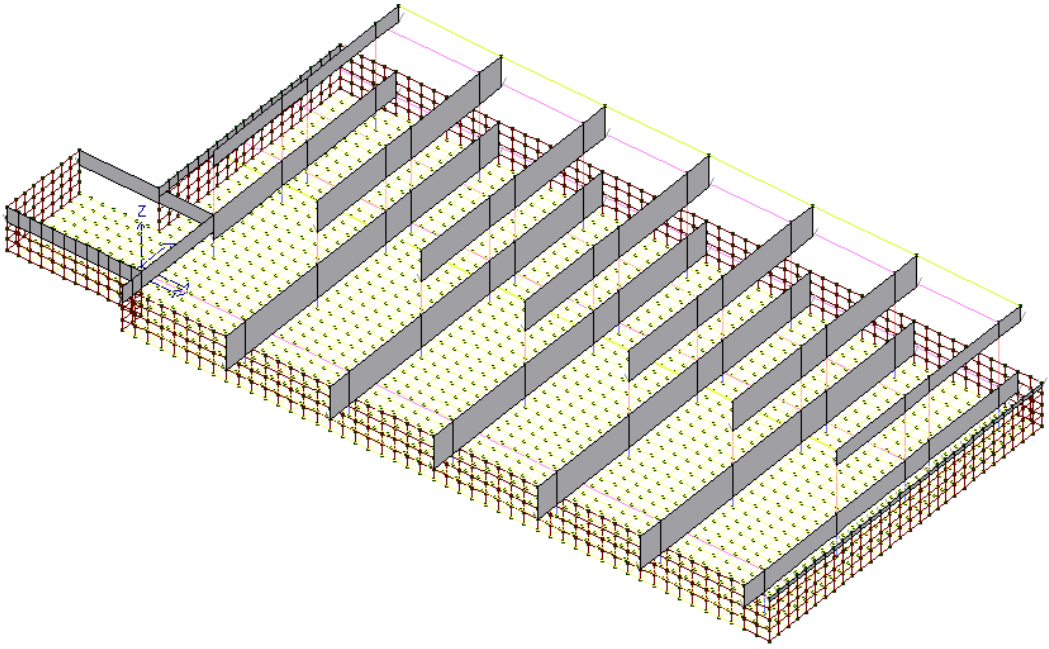

Figura 10.4 - 2 – Caso di carico 2

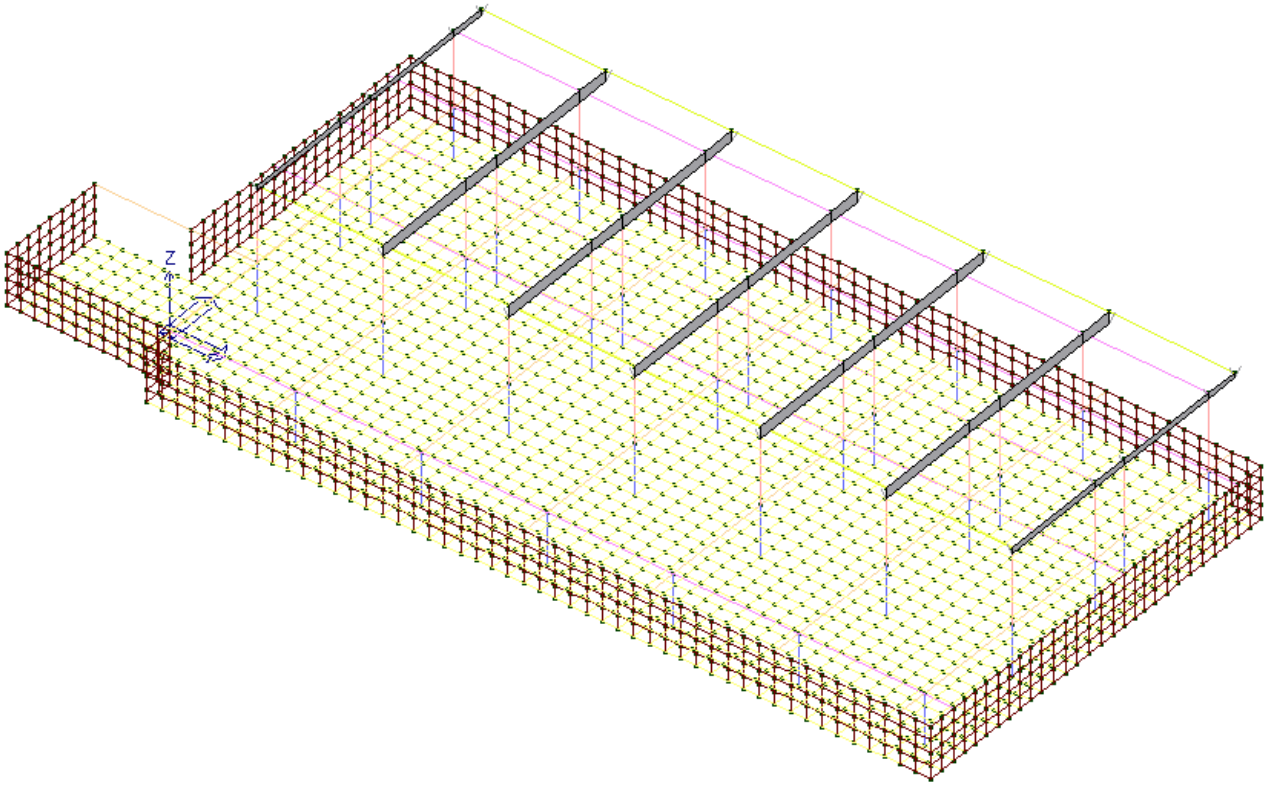

Figura 10.4 - 3 – Caso di carico 3

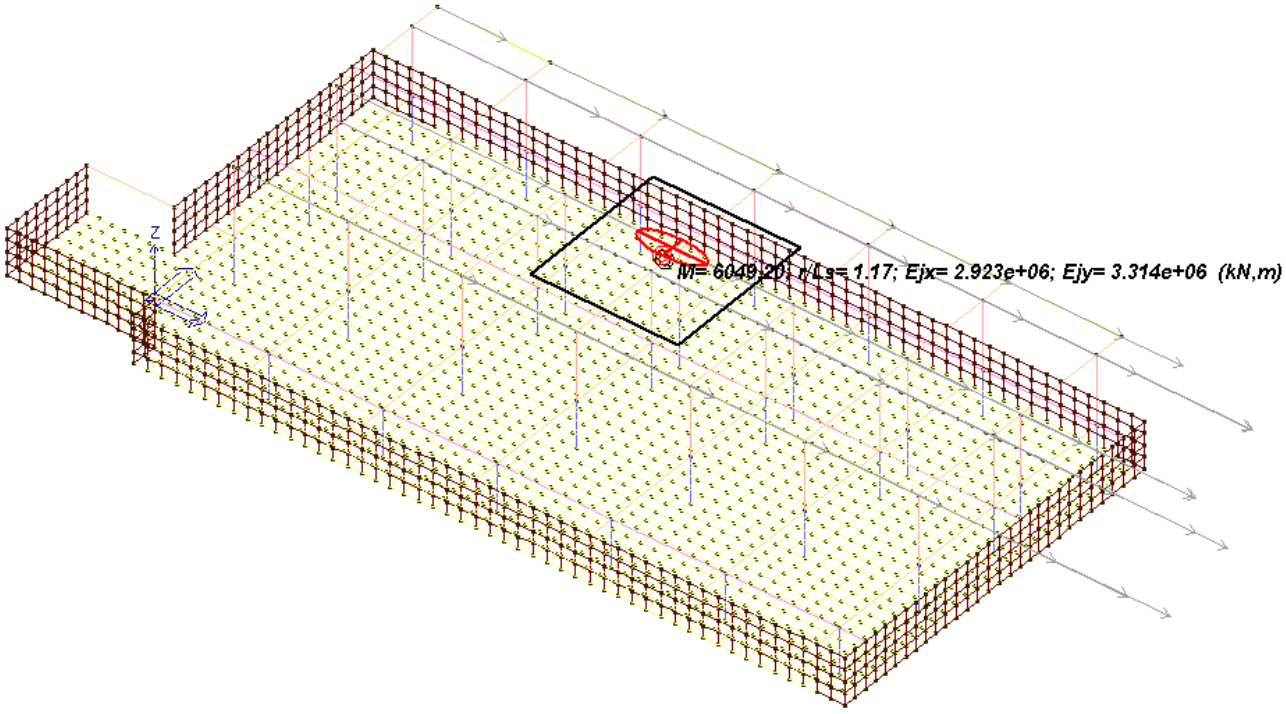

Figura 10.4 - 4 – Caso di carico 4

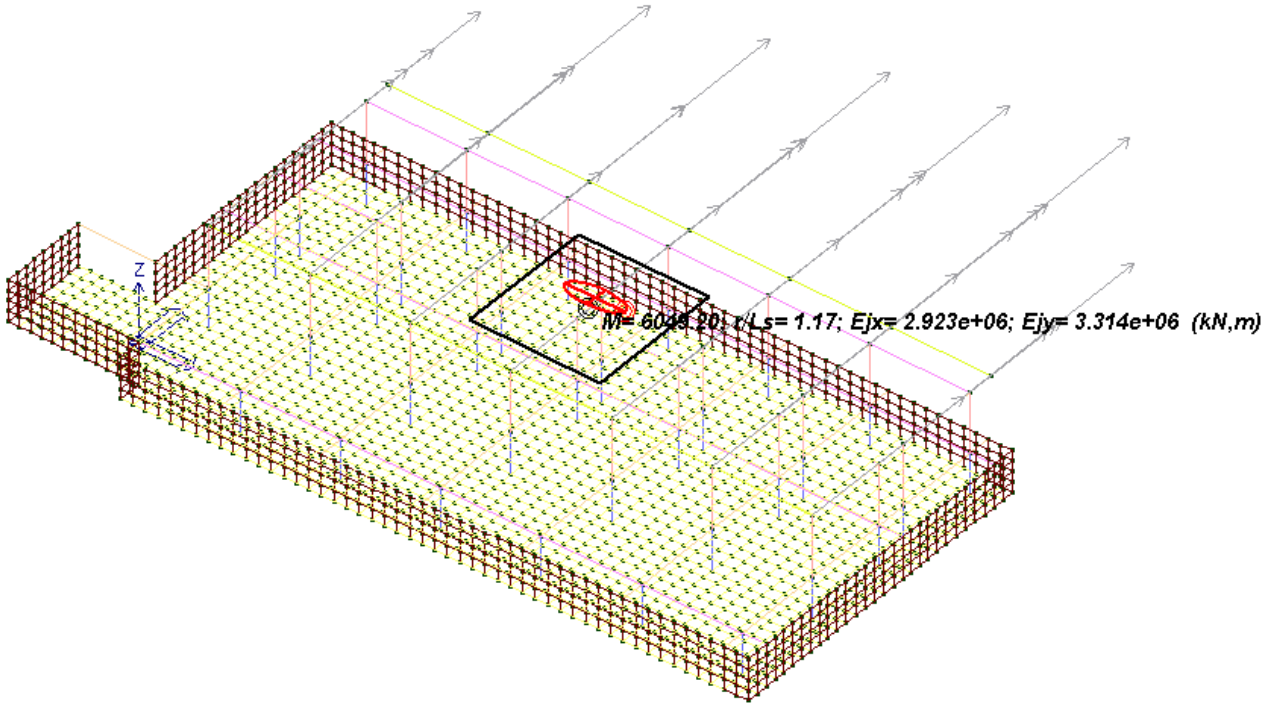

Figura 10.4 - 5 – Caso di carico 6

10.5. COMBINAZIONI DI CARICO

Il programma combina i diversi tipi di casi di carico (CDC) secondo le regole previste dalla normativa vigente.

Le combinazioni previste sono destinate al controllo di sicurezza della struttura ed alla verifica degli spostamenti e delle sollecitazioni.

La prima tabella delle combinazioni riportata di seguito comprende le seguenti informazioni: Numero, Tipo, Sigla identificativa. Una seconda tabella riporta il peso nella combinazione, assunto per ogni caso di carico.

Cmb	Tipo	Sigla Id	effetto P-delta
1	SLU	Comb. SLU A1 1	
2	SLU	Comb. SLU A1 2	
3	SLU	Comb. SLU A1 3	
4	SLU	Comb. SLU A1 4	
5	SLU	Comb. SLU A1 5	
6	SLU	Comb. SLU A1 6	
7	SLU	Comb. SLU A1 7	
8	SLU	Comb. SLU A1 8	
9	SLU	Comb. SLU A1 9	
10	SLU	Comb. SLU A1 10	
11	SLU	Comb. SLU A1 11	
12	SLU	Comb. SLU A1 12	
13	SLU	Comb. SLU A1 13	
14	SLU	Comb. SLU A1 14	
15	SLU (Terr. A2)	Comb. SLU A2 15	
16	SLU (Terr. A2)	Comb. SLU A2 16	
17	SLU (Terr. A2)	Comb. SLU A2 17	
18	SLU (Terr. A2)	Comb. SLU A2 18	
19	SLU (Terr. A2)	Comb. SLU A2 19	

Cmb	Tipo	Sigla Id	effetto P-delta
20	SLU (Terr. A2)	Comb. SLU A2 20	
21	SLU (Terr. A2)	Comb. SLU A2 21	
22	SLU	Comb. SLU A1 (SLV sism.) 22	
23	SLU	Comb. SLU A1 (SLV sism.) 23	
24	SLU	Comb. SLU A1 (SLV sism.) 24	
25	SLU	Comb. SLU A1 (SLV sism.) 25	
26	SLU	Comb. SLU A1 (SLV sism.) 26	
27	SLU	Comb. SLU A1 (SLV sism.) 27	
28	SLU	Comb. SLU A1 (SLV sism.) 28	
29	SLU	Comb. SLU A1 (SLV sism.) 29	
30	SLU	Comb. SLU A1 (SLV sism.) 30	
31	SLU	Comb. SLU A1 (SLV sism.) 31	
32	SLU	Comb. SLU A1 (SLV sism.) 32	
33	SLU	Comb. SLU A1 (SLV sism.) 33	
34	SLU	Comb. SLU A1 (SLV sism.) 34	
35	SLU	Comb. SLU A1 (SLV sism.) 35	
36	SLU	Comb. SLU A1 (SLV sism.) 36	
37	SLU	Comb. SLU A1 (SLV sism.) 37	
38	SLU	Comb. SLU A1 (SLV sism.) 38	
39	SLU	Comb. SLU A1 (SLV sism.) 39	
40	SLU	Comb. SLU A1 (SLV sism.) 40	
41	SLU	Comb. SLU A1 (SLV sism.) 41	
42	SLU	Comb. SLU A1 (SLV sism.) 42	
43	SLU	Comb. SLU A1 (SLV sism.) 43	
44	SLU	Comb. SLU A1 (SLV sism.) 44	
45	SLU	Comb. SLU A1 (SLV sism.) 45	
46	SLU	Comb. SLU A1 (SLV sism.) 46	
47	SLU	Comb. SLU A1 (SLV sism.) 47	
48	SLU	Comb. SLU A1 (SLV sism.) 48	
49	SLU	Comb. SLU A1 (SLV sism.) 49	
50	SLU	Comb. SLU A1 (SLV sism.) 50	
51	SLU	Comb. SLU A1 (SLV sism.) 51	
52	SLU	Comb. SLU A1 (SLV sism.) 52	
53	SLU	Comb. SLU A1 (SLV sism.) 53	
54	SLD(sis)	Comb. SLE (SLD Danno sism.) 54	
55	SLD(sis)	Comb. SLE (SLD Danno sism.) 55	
56	SLD(sis)	Comb. SLE (SLD Danno sism.) 56	
57	SLD(sis)	Comb. SLE (SLD Danno sism.) 57	
58	SLD(sis)	Comb. SLE (SLD Danno sism.) 58	
59	SLD(sis)	Comb. SLE (SLD Danno sism.) 59	
60	SLD(sis)	Comb. SLE (SLD Danno sism.) 60	
61	SLD(sis)	Comb. SLE (SLD Danno sism.) 61	
62	SLD(sis)	Comb. SLE (SLD Danno sism.) 62	
63	SLD(sis)	Comb. SLE (SLD Danno sism.) 63	
64	SLD(sis)	Comb. SLE (SLD Danno sism.) 64	
65	SLD(sis)	Comb. SLE (SLD Danno sism.) 65	
66	SLD(sis)	Comb. SLE (SLD Danno sism.) 66	
67	SLD(sis)	Comb. SLE (SLD Danno sism.) 67	
68	SLD(sis)	Comb. SLE (SLD Danno sism.) 68	
69	SLD(sis)	Comb. SLE (SLD Danno sism.) 69	
70	SLD(sis)	Comb. SLE (SLD Danno sism.) 70	
71	SLD(sis)	Comb. SLE (SLD Danno sism.) 71	
72	SLD(sis)	Comb. SLE (SLD Danno sism.) 72	
73	SLD(sis)	Comb. SLE (SLD Danno sism.) 73	
74	SLD(sis)	Comb. SLE (SLD Danno sism.) 74	
75	SLD(sis)	Comb. SLE (SLD Danno sism.) 75	
76	SLD(sis)	Comb. SLE (SLD Danno sism.) 76	
77	SLD(sis)	Comb. SLE (SLD Danno sism.) 77	
78	SLD(sis)	Comb. SLE (SLD Danno sism.) 78	
79	SLD(sis)	Comb. SLE (SLD Danno sism.) 79	
80	SLD(sis)	Comb. SLE (SLD Danno sism.) 80	
81	SLD(sis)	Comb. SLE (SLD Danno sism.) 81	
82	SLD(sis)	Comb. SLE (SLD Danno sism.) 82	
83	SLD(sis)	Comb. SLE (SLD Danno sism.) 83	
84	SLD(sis)	Comb. SLE (SLD Danno sism.) 84	
85	SLD(sis)	Comb. SLE (SLD Danno sism.) 85	
86	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 86	
87	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 87	
88	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 88	

Cmb	Tipo	Sigla Id	effetto P-delta
89	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 89	
90	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 90	
91	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 91	
92	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 92	
93	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 93	
94	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 94	
95	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 95	
96	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 96	
97	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 97	
98	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 98	
99	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 99	
100	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 100	
101	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 101	
102	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 102	
103	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 103	
104	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 104	
105	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 105	
106	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 106	
107	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 107	
108	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 108	
109	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 109	
110	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 110	
111	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 111	
112	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 112	
113	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 113	
114	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 114	
115	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 115	
116	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 116	
117	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 117	
118	SLE(r)	Comb. SLE(rara) 118	
119	SLE(r)	Comb. SLE(rara) 119	
120	SLE(r)	Comb. SLE(rara) 120	
121	SLE(r)	Comb. SLE(rara) 121	
122	SLE(r)	Comb. SLE(rara) 122	
123	SLE(r)	Comb. SLE(rara) 123	
124	SLE(r)	Comb. SLE(rara) 124	
125	SLE(f)	Comb. SLE(freq.) 125	
126	SLE(f)	Comb. SLE(freq.) 126	
127	SLE(f)	Comb. SLE(freq.) 127	
128	SLE(f)	Comb. SLE(freq.) 128	
129	SLE(f)	Comb. SLE(freq.) 129	
130	SLE(p)	Comb. SLE(perm.) 130	
131	SLE(p)	Comb. SLE(perm.) 131	

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...	CDC 14/28...
1	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	0.0	
2	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	1.05	
3	1.30	1.30	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	0.0	
4	1.30	1.30	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	1.05	
5	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
6	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.05	
7	1.00	1.00	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
8	1.00	1.00	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.05	
9	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	1.50	
10	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	0.0	
11	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	1.50	
12	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.50	
13	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
14	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.50	
15	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
16	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.91	
17	1.00	1.00	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
18	1.00	1.00	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.91	
19	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.30	
20	1.00	1.00	0.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
21	1.00	1.00	0.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.30	
22	1.00	1.00	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...	CDC 14/28...
23	1.00	1.00	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
24	1.00	1.00	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
25	1.00	1.00	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
26	1.00	1.00	0.0	-1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.60	
27	1.00	1.00	0.0	-1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.60	
28	1.00	1.00	0.0	1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.60	
29	1.00	1.00	0.0	1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.60	
30	1.00	1.00	0.0	0.0	-1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
31	1.00	1.00	0.0	0.0	-1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
32	1.00	1.00	0.0	0.0	1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
33	1.00	1.00	0.0	0.0	1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
34	1.00	1.00	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.60	
35	1.00	1.00	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.60	
36	1.00	1.00	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.60	
37	1.00	1.00	0.0	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.60	
38	1.00	1.00	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
39	1.00	1.00	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
40	1.00	1.00	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
41	1.00	1.00	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
42	1.00	1.00	0.0	0.0	-0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
43	1.00	1.00	0.0	0.0	-0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
44	1.00	1.00	0.0	0.0	0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
45	1.00	1.00	0.0	0.0	0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
46	1.00	1.00	0.0	-0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.60	
47	1.00	1.00	0.0	-0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.60	
48	1.00	1.00	0.0	0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.60	
49	1.00	1.00	0.0	0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.60	
50	1.00	1.00	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.60	
51	1.00	1.00	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.60	
52	1.00	1.00	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.60	
53	1.00	1.00	0.0	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.60	
54	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	-0.30	0.0	1.00	0.60	
55	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.30	0.0	1.00	0.60	
56	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	-0.30	0.0	1.00	0.60	
57	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.30	0.0	1.00	0.60	
58	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.0	-0.30	1.00	0.60	
59	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.0	0.30	1.00	0.60	
60	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	-0.30	1.00	0.60	
61	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.30	1.00	0.60	
62	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	-0.30	0.0	1.00	0.60	
63	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.30	0.0	1.00	0.60	
64	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	-0.30	0.0	1.00	0.60	
65	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.30	0.0	1.00	0.60	
66	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	-0.30	1.00	0.60	
67	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.30	1.00	0.60	
68	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	-0.30	1.00	0.60	
69	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.30	1.00	0.60	
70	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	-1.00	0.0	1.00	0.60	
71	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	1.00	0.0	1.00	0.60	
72	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	-1.00	0.0	1.00	0.60	
73	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.00	0.0	1.00	0.60	
74	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	-1.00	0.0	1.00	0.60	
75	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	1.00	0.0	1.00	0.60	
76	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	-1.00	0.0	1.00	0.60	
77	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	1.00	0.0	1.00	0.60	
78	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	0.0	-1.00	1.00	0.60	
79	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	0.0	1.00	1.00	0.60	
80	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	0.0	-1.00	1.00	0.60	
81	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	0.0	1.00	1.00	0.60	
82	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	-1.00	1.00	0.60	
83	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	1.00	1.00	0.60	
84	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	0.0	-1.00	1.00	0.60	
85	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.00	1.00	0.60	
86	1.00	1.00	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
87	1.00	1.00	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
88	1.00	1.00	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
89	1.00	1.00	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
90	1.00	1.00	0.0	-1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.60	

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...	CDC 14/28...
91	1.00	1.00	0.0	-1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.60	
92	1.00	1.00	0.0	1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.60	
93	1.00	1.00	0.0	1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.60	
94	1.00	1.00	0.0	0.0	-1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
95	1.00	1.00	0.0	0.0	-1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
96	1.00	1.00	0.0	0.0	1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
97	1.00	1.00	0.0	0.0	1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
98	1.00	1.00	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.60	
99	1.00	1.00	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.60	
100	1.00	1.00	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.60	
101	1.00	1.00	0.0	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.60	
102	1.00	1.00	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
103	1.00	1.00	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
104	1.00	1.00	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
105	1.00	1.00	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
106	1.00	1.00	0.0	0.0	-0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
107	1.00	1.00	0.0	0.0	-0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
108	1.00	1.00	0.0	0.0	0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
109	1.00	1.00	0.0	0.0	0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
110	1.00	1.00	0.0	-0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.60	
111	1.00	1.00	0.0	-0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.60	
112	1.00	1.00	0.0	0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.60	
113	1.00	1.00	0.0	0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.60	
114	1.00	1.00	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.60	
115	1.00	1.00	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.60	
116	1.00	1.00	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.60	
117	1.00	1.00	0.0	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.60	
118	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
119	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.70	
120	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
121	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.70	
122	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.00	
123	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
124	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.00	
125	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
126	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
127	1.00	1.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
128	1.00	1.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.60	
129	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.70	
130	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
131	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.60	

A chiarimento si riportano i parametri implementati per la formulazione delle combinazioni di carico.

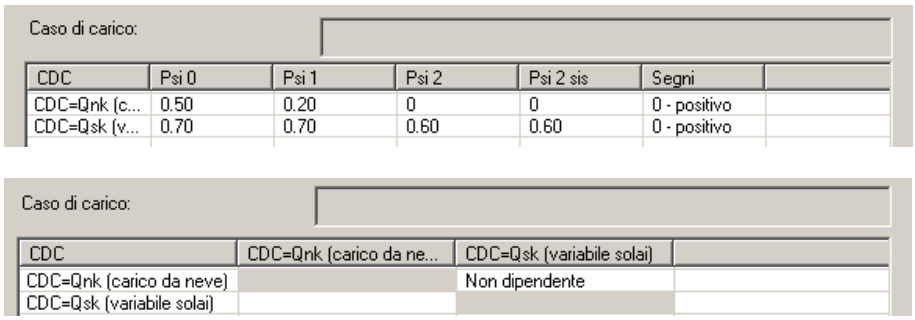

Figura 10.5 – 1 - Parametri combinazioni di carico

10.6. RISULTATI DELL'ANALISI SISMICA

Il programma consente l'analisi di diverse configurazioni sismiche. Si è deciso di procedere con un'analisi dinamica lineare prevedendo i casi di carico sismico *Edk* di cui al paragrafo precedente.

Ciascun caso di carico è caratterizzato da un angolo di ingresso e da una configurazione di masse determinante la forza sismica complessiva.

Nella colonna *Note*, sono riportati i parametri fondamentali che caratterizzano l'azione sismica: in particolare possono essere presenti i seguenti valori:

Angolo di ingresso	Angolo di ingresso dell'azione sismica orizzontale
Fattore di importanza	Fattore di importanza dell'edificio, in base alla categoria di appartenenza
Zona sismica	Zona sismica
Accelerazione ag	Accelerazione orizzontale massima sul suolo
Categoria suolo	Categoria di profilo stratigrafico del suolo di fondazione
Fattore di struttura q	Fattore dipendente dalla tipologia strutturale
Fattore di sito S	Fattore dipendente dalla stratigrafia e dal profilo topografico
Classe di duttilità CD	Classe di duttilità della struttura – "A" duttilità alta, "B" duttilità bassa
Fattore riduz. SLD	Fattore di riduzione dello spettro elastico per lo stato limite di danno
Periodo proprio T1	Periodo proprio di vibrazione della struttura
Coefficiente Lambda	Coefficiente dipendente dal periodo proprio T1 e dal numero di piani della struttura
Ordinata spettro Sd(T1)	Valore delle ordinate dello spettro di progetto per lo stato limite ultimo, componente orizzontale (verticale Svd)
Ordinata spettro Se(T1)	Valore delle ordinate dello spettro elastico ridotta del fattore SLD per lo stato limite di danno, componente orizzontale (verticale Sve)
Ordinata spettro S (Tb-Tc)	Valore dell' ordinata dello spettro in uso nel tratto costante
numero di modi considerati	Numero di modi di vibrare della struttura considerati nell'analisi dinamica

Per ciascun caso di carico sismico viene riportato l'insieme di dati sottoriportati (le masse sono espresse in unità di forza):

- quota, posizione del centro di massa e massa risultante, posizione del baricentro delle rigidezze, rapporto r/Ls (per strutture a nucleo)
- frequenza, periodo,accelerazione spettrale, massa eccitata nelle tre direzioni globali per tutti i modi
- massa complessiva ed aliquota di massa complessiva eccitata.

Per ciascuna combinazione sismica *SLD* viene riportato il livello di deformazione etaT (dr) degli elementi strutturali verticali. Per semplicità di consultazione il livello è espresso anche in unità *1000*etaT/h* da confrontare direttamente con i valori forniti dalle *NTC2008 al §7.3.7.2* (*1000 etaT/h ≤ 10.0 per edifici con tamponamenti collegati elasticamente*).

Nel caso in esame *1000 etaT/h = 2.67 ≤ 10.0* *verificato*

CDC	Tipo	Sigla Id	Note
4	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.214 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.372 sec.

CDC	Tipo	Sigla Id	Note
			fattore di struttura q: 3.300
			fattore per spost. mu d: 3.767
			classe di duttilità CD: B
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	6.049e+05	19.17	13.24	0.0	-0.74	19.50	12.30	1.168	0.024	0.063
Risulta	6.049e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	2.691	0.372	0.214	6.019e+05	99.5	1.33e-03	0.0	0.67	1.11e-04
2	3.855	0.259	0.214	0.42	7.00e-05	5.923e+05	97.9	1460.51	0.2
3	4.407	0.227	0.214	101.42	1.68e-02	3840.89	0.6	24.47	4.04e-03
4	5.016	0.199	0.214	2765.22	0.5	8.29e-03	1.37e-06	0.01	1.96e-06
5	9.797	0.102	0.234	0.23	3.82e-05	6663.95	1.1	1.337e+05	22.1
6	10.192	0.098	0.236	1.28	2.12e-04	31.40	5.19e-03	408.08	6.75e-02
7	10.550	0.095	0.237	35.92	5.94e-03	6.04	9.99e-04	9.29	1.54e-03
8	11.248	0.089	0.240	0.08	1.34e-05	504.24	8.34e-02	5857.70	1.0
9	11.718	0.085	0.241	2.85	4.72e-04	0.49	8.06e-05	12.72	2.10e-03
Risulta				6.048e+05		6.033e+05		1.414e+05	
In percentuale				99.98		99.74		23.38	

CDC	Tipo	Sigla Id	Note
5	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.214 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.373 sec.
			fattore di struttura q: 3.300
			fattore per spost. mu d: 3.755
			classe di duttilità CD: B
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	6.049e+05	19.17	13.24	0.0	0.74	19.50	12.30	1.168	0.024	0.063
Risulta	6.049e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	2.680	0.373	0.214	5.984e+05	98.9	7.25	1.20e-03	0.68	1.12e-04
2	3.856	0.259	0.214	56.33	9.31e-03	5.922e+05	97.9	1459.16	0.2
3	4.381	0.228	0.214	4018.07	0.7	3856.11	0.6	25.52	4.22e-03
4	5.219	0.192	0.214	2320.08	0.4	48.57	8.03e-03	0.79	1.31e-04
5	9.797	0.102	0.234	0.25	4.15e-05	6668.27	1.1	1.338e+05	22.1
6	10.261	0.097	0.236	1.38	2.28e-04	27.49	4.54e-03	333.16	5.51e-02
7	10.552	0.095	0.237	43.77	7.24e-03	6.05	1.00e-03	10.24	1.69e-03
8	11.248	0.089	0.240	0.08	1.33e-05	508.26	8.40e-02	5795.74	1.0
9	11.718	0.085	0.241	3.42	5.66e-04	0.21	3.47e-05	12.78	2.11e-03
Risulta				6.048e+05		6.033e+05		1.414e+05	
In percentuale				99.98		99.74		23.37	

CDC	Tipo	Sigla Id	Note
6	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.396

CDC	Tipo	Sigla Id	Note
			ordinata spettro (tratto Tb-Tc) = 0.214 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.264 sec.
			fattore di struttura q: 3.300
			fattore per spost. mu d: 4.887
			classe di duttilità CD: B
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	6.049e+05	19.17	13.24	1.95	0.0	19.50	12.30	1.168	0.024	0.063
Risulta	6.049e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	2.689	0.372	0.214	6.011e+05	99.4	18.83	3.11e-03	0.49	8.08e-05
2	3.781	0.264	0.214	128.46	2.12e-02	5.398e+05	89.2	1230.47	0.2
3	4.519	0.221	0.214	746.55	0.1	5.554e+04	9.2	282.18	4.66e-02
4	5.104	0.196	0.214	2757.72	0.5	717.35	0.1	7.52	1.24e-03
5	9.798	0.102	0.234	0.32	5.37e-05	6708.63	1.1	1.337e+05	22.1
6	10.228	0.098	0.236	1.29	2.14e-04	28.02	4.63e-03	353.87	5.85e-02
7	10.551	0.095	0.237	39.57	6.54e-03	0.66	1.09e-04	0.54	8.98e-05
8	11.248	0.089	0.240	0.08	1.33e-05	508.99	8.41e-02	5854.64	1.0
9	11.718	0.085	0.241	3.12	5.16e-04	0.13	2.09e-05	18.95	3.13e-03
Risulta				6.048e+05		6.033e+05		1.415e+05	
In percentuale				99.98		99.74		23.39	

CDC	Tipo	Sigla Id	Note
7	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.214 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.269 sec.
			fattore di struttura q: 3.300
			fattore per spost. mu d: 4.826
			classe di duttilità CD: B
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	6.049e+05	19.17	13.24	-1.95	0.0	19.50	12.30	1.168	0.024	0.063
Risulta	6.049e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	2.689	0.372	0.214	6.011e+05	99.4	52.63	8.70e-03	0.90	1.50e-04
2	3.721	0.269	0.214	249.70	4.13e-02	5.130e+05	84.8	1050.87	0.2
3	4.592	0.218	0.214	725.98	0.1	8.131e+04	13.4	519.11	8.58e-02
4	5.106	0.196	0.214	2708.90	0.4	1632.97	0.3	18.08	2.99e-03
5	9.799	0.102	0.234	0.17	2.75e-05	6736.79	1.1	1.336e+05	22.1
6	10.229	0.098	0.236	1.35	2.23e-04	30.67	5.07e-03	374.95	6.20e-02
7	10.551	0.095	0.237	39.47	6.53e-03	17.32	2.86e-03	31.56	5.22e-03
8	11.249	0.089	0.240	0.07	1.22e-05	513.51	8.49e-02	5886.34	1.0
9	11.719	0.085	0.241	2.99	4.94e-04	1.48	2.45e-04	24.27	4.01e-03
Risulta				6.048e+05		6.033e+05		1.415e+05	
In percentuale				99.98		99.73		23.39	

CDC	Tipo	Sigla Id	Note
8	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.372 sec.
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	6.049e+05	19.17	13.24	0.0	-0.74	19.50	12.30	1.168	0.024	0.063
Risulta	6.049e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	2.691	0.372	0.277	6.019e+05	99.5	1.33e-03	0.0	0.67	1.11e-04
2	3.855	0.259	0.277	0.42	7.00e-05	5.923e+05	97.9	1460.51	0.2
3	4.407	0.227	0.277	101.42	1.68e-02	3840.89	0.6	24.47	4.04e-03
4	5.016	0.199	0.277	2765.22	0.5	8.29e-03	1.37e-06	0.01	1.96e-06
5	9.797	0.102	0.227	0.23	3.82e-05	6663.95	1.1	1.337e+05	22.1
6	10.192	0.098	0.222	1.28	2.12e-04	31.40	5.19e-03	408.08	6.75e-02
7	10.550	0.095	0.218	35.92	5.94e-03	6.04	9.99e-04	9.29	1.54e-03
8	11.248	0.089	0.212	0.08	1.34e-05	504.24	8.34e-02	5857.70	1.0
9	11.718	0.085	0.207	2.85	4.72e-04	0.49	8.06e-05	12.72	2.10e-03
Risulta				6.048e+05		6.033e+05		1.414e+05	
In percentuale				99.98		99.74		23.38	

CDC	Tipo	Sigla Id	Note
9	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.373 sec.
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	6.049e+05	19.17	13.24	0.0	0.74	19.50	12.30	1.168	0.024	0.063
Risulta	6.049e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	2.680	0.373	0.277	5.984e+05	98.9	7.25	1.20e-03	0.68	1.12e-04
2	3.856	0.259	0.277	56.33	9.31e-03	5.922e+05	97.9	1459.16	0.2
3	4.381	0.228	0.277	4018.07	0.7	3856.11	0.6	25.52	4.22e-03
4	5.219	0.192	0.277	2320.08	0.4	48.57	8.03e-03	0.79	1.31e-04
5	9.797	0.102	0.227	0.25	4.15e-05	6668.27	1.1	1.338e+05	22.1
6	10.261	0.097	0.221	1.38	2.28e-04	27.49	4.54e-03	333.16	5.51e-02
7	10.552	0.095	0.218	43.77	7.24e-03	6.05	1.00e-03	10.24	1.69e-03
8	11.248	0.089	0.212	0.08	1.33e-05	508.26	8.40e-02	5795.74	1.0
9	11.718	0.085	0.207	3.42	5.66e-04	0.21	3.47e-05	12.78	2.11e-03
Risulta				6.048e+05		6.033e+05		1.414e+05	
In percentuale				99.98		99.74		23.37	

CDC	Tipo	Sigla Id	Note

CDC	Tipo	Sigla Id	Note
10	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.264 sec.
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	6.049e+05	19.17	13.24	1.95	0.0	19.50	12.30	1.168	0.024	0.063
Risulta	6.049e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	2.689	0.372	0.277	6.011e+05	99.4	18.83	3.11e-03	0.49	8.08e-05
2	3.781	0.264	0.277	128.46	2.12e-02	5.398e+05	89.2	1230.47	0.2
3	4.519	0.221	0.277	746.55	0.1	5.554e+04	9.2	282.18	4.66e-02
4	5.104	0.196	0.277	2757.72	0.5	717.35	0.1	7.52	1.24e-03
5	9.798	0.102	0.227	0.32	5.37e-05	6708.63	1.1	1.337e+05	22.1
6	10.228	0.098	0.222	1.29	2.14e-04	28.02	4.63e-03	353.87	5.85e-02
7	10.551	0.095	0.218	39.57	6.54e-03	0.66	1.09e-04	0.54	8.98e-05
8	11.248	0.089	0.212	0.08	1.33e-05	508.99	8.41e-02	5854.64	1.0
9	11.718	0.085	0.207	3.12	5.16e-04	0.13	2.09e-05	18.95	3.13e-03
Risulta				6.048e+05		6.033e+05		1.415e+05	
In percentuale				99.98		99.74		23.39	

CDC	Tipo	Sigla Id	Note
11	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.269 sec.
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	6.049e+05	19.17	13.24	-1.95	0.0	19.50	12.30	1.168	0.024	0.063
Risulta	6.049e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	2.689	0.372	0.277	6.011e+05	99.4	52.63	8.70e-03	0.90	1.50e-04
2	3.721	0.269	0.277	249.70	4.13e-02	5.130e+05	84.8	1050.87	0.2
3	4.592	0.218	0.277	725.98	0.1	8.131e+04	13.4	519.11	8.58e-02
4	5.106	0.196	0.277	2708.90	0.4	1632.97	0.3	18.08	2.99e-03
5	9.799	0.102	0.227	0.17	2.75e-05	6736.79	1.1	1.336e+05	22.1
6	10.229	0.098	0.222	1.35	2.23e-04	30.67	5.07e-03	374.95	6.20e-02
7	10.551	0.095	0.218	39.47	6.53e-03	17.32	2.86e-03	31.56	5.22e-03
8	11.249	0.089	0.212	0.07	1.22e-05	513.51	8.49e-02	5886.34	1.0
9	11.719	0.085	0.207	2.99	4.94e-04	1.48	2.45e-04	24.27	4.01e-03
Risulta				6.048e+05		6.033e+05		1.415e+05	
In percentuale				99.98		99.73		23.39	

A seguire si riportano le deformate relative ai modi globali più significativi.

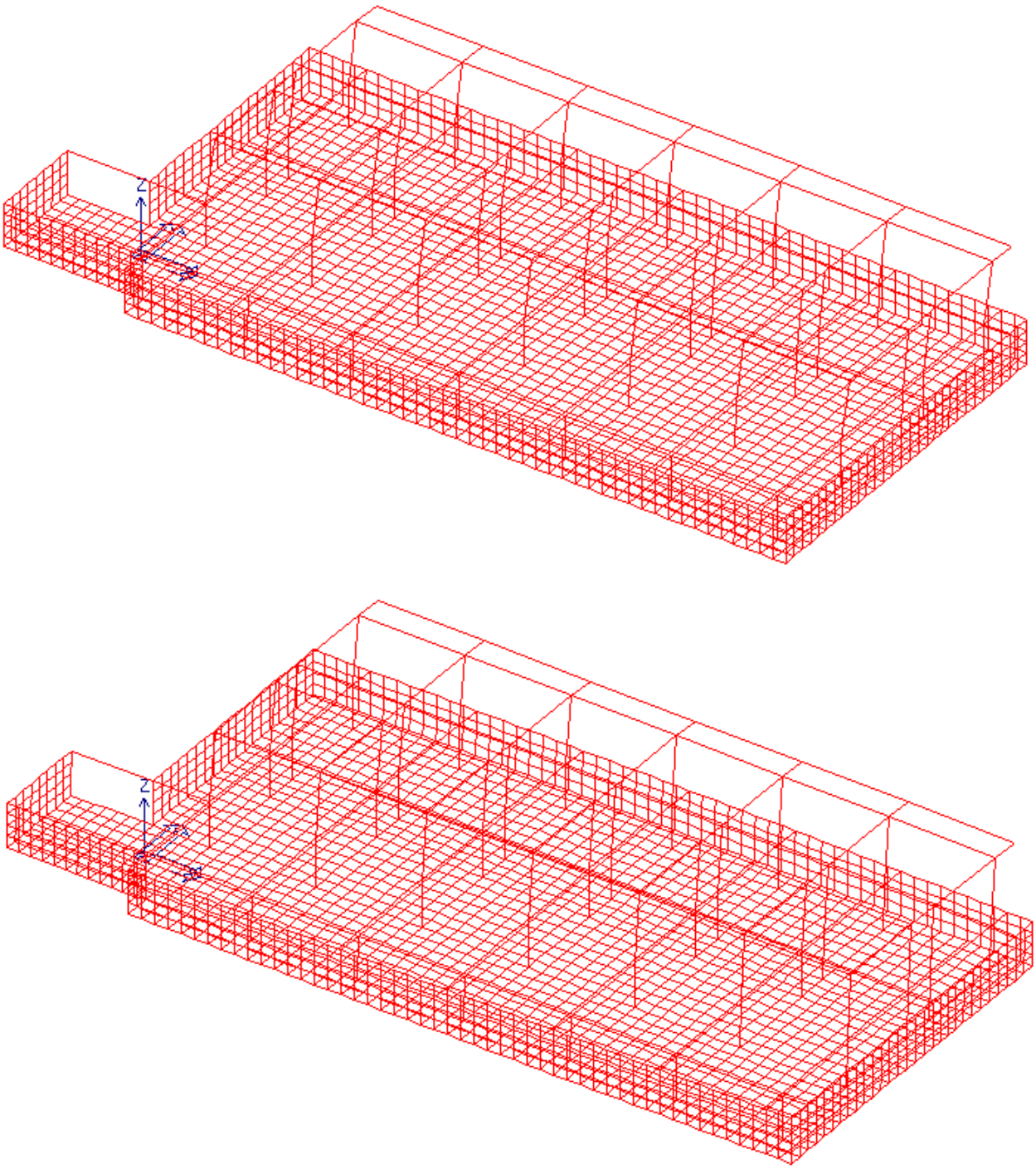

Figura 10.6 – 1 – Deformata tipo 1° e 2° Modo

10.7. CALCOLO GIUNTI SISMICI

I fabbricati sono tra loro separati in fondazione ed elevazione con giunto sismico di larghezza pari a δ=15cm.

Come previsto al punto 7.2.2 del DM 14 gennaio 2008 la distanza minima tra fabbricati contigui è:

$$\delta > \frac{1}{100} \cdot H \cdot \frac{2 \cdot a_g}{g} \cdot S \rightarrow \delta > \frac{1}{100} \cdot 886 \cdot \frac{2 \cdot 0.199 \cdot g}{g} \cdot 1.396 = 4.92cm$$

Verificato

10.8. INVILUPPO SOLLECITAZIONI - PILASTRI

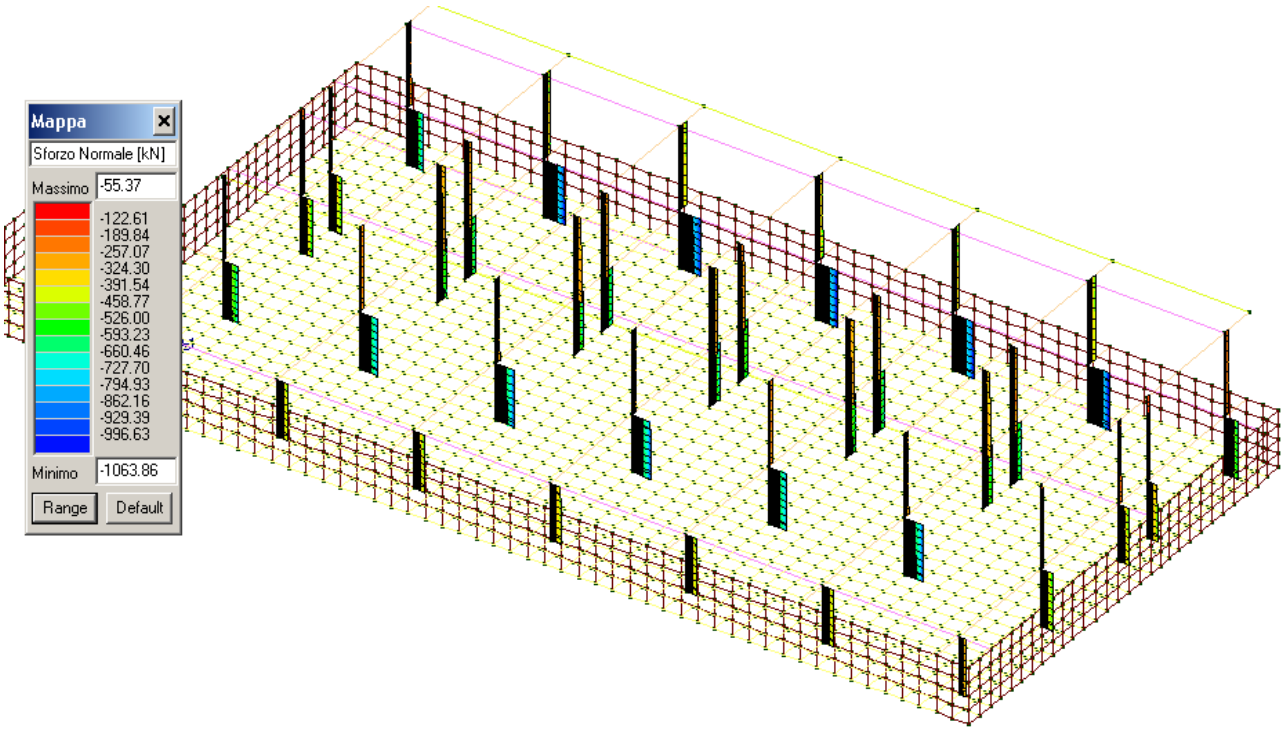

Figura 10.7 – 1 – Pilastri: inviluppo Sforzo normale N

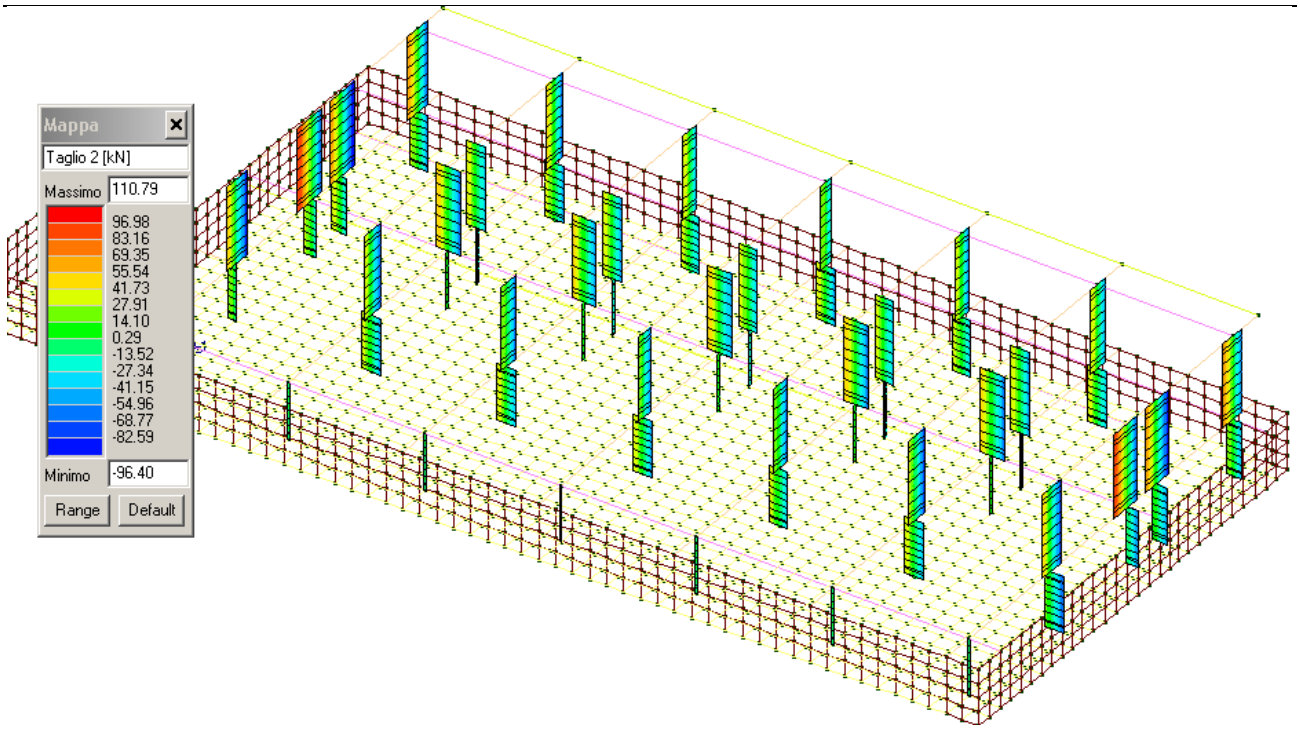

Figura 10.7 – 2 – Pilastri: inviluppo Taglio T 2-2

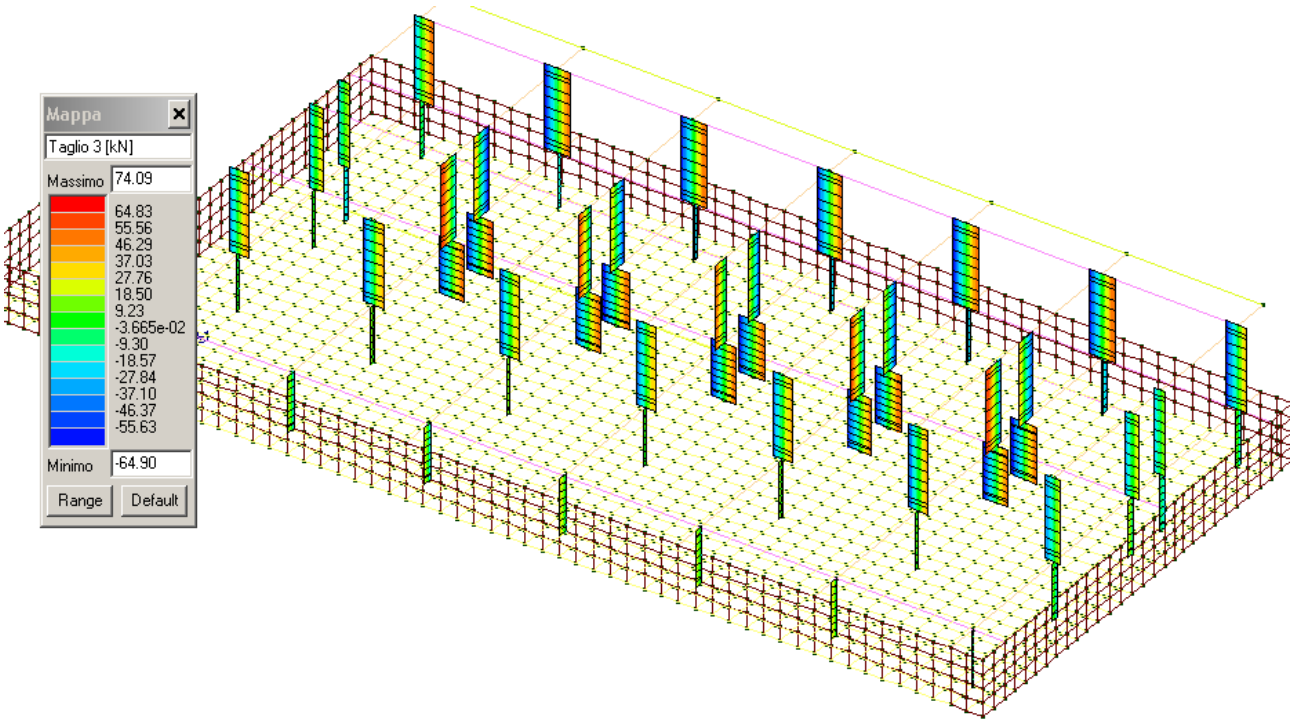

Figura 10.7 – 3 – Pilastri: inviluppo Taglio T 3-3

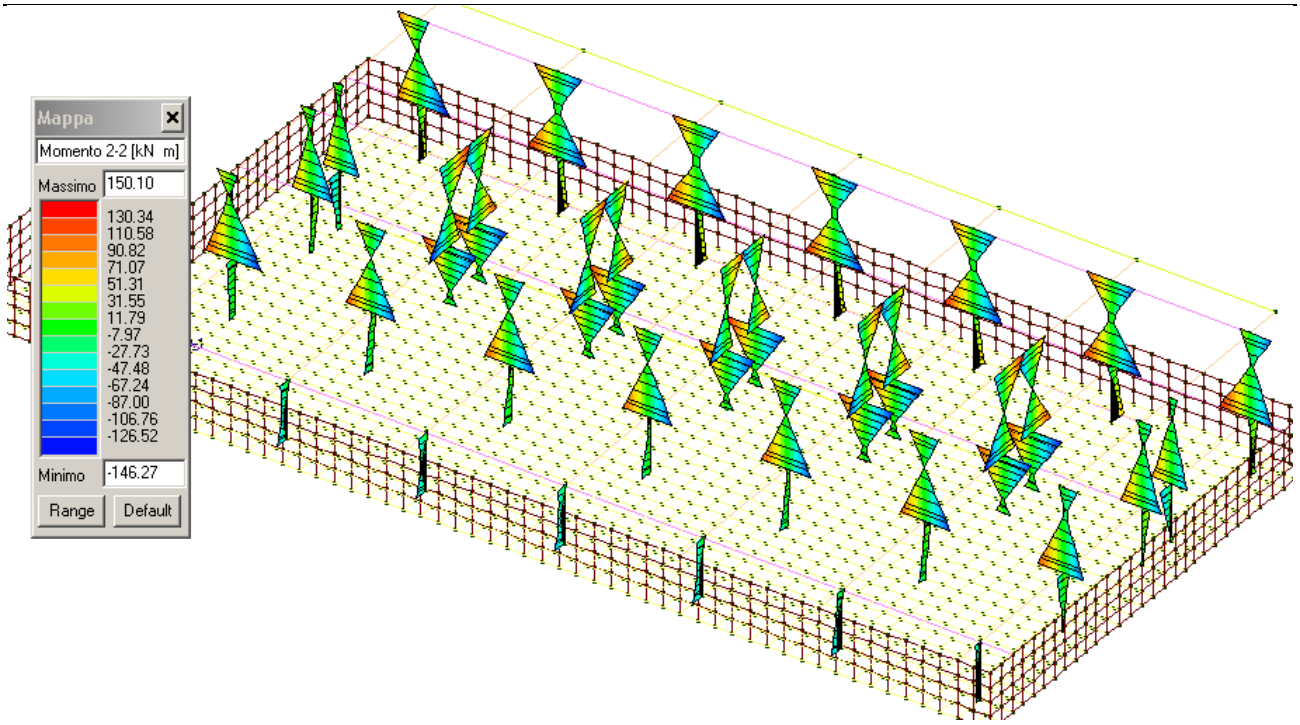

Figura 10.7 – 4 – Pilastri: inviluppo Momento flettente M 2-2

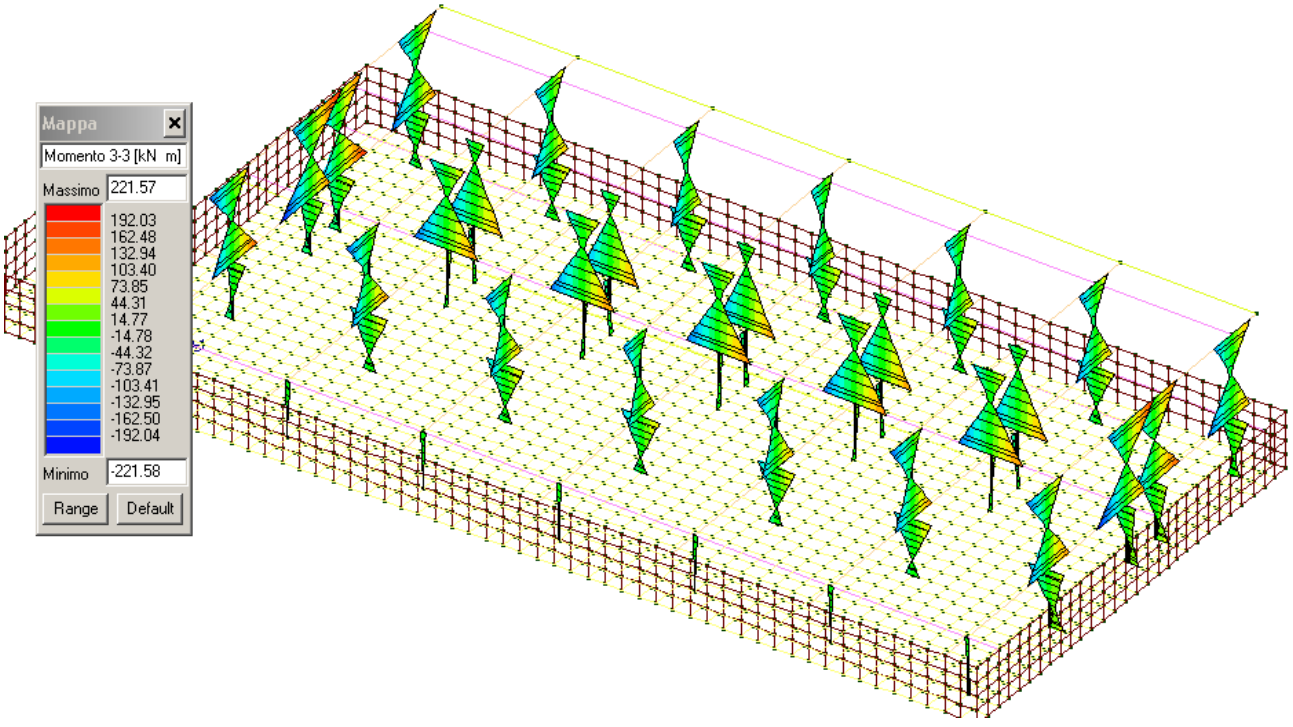

Figura 10.7 – 5 – Pilastri: inviluppo Momento flettente M 3-3

10.9. INVILUPPO SOLLECITAZIONI – TRAVATE

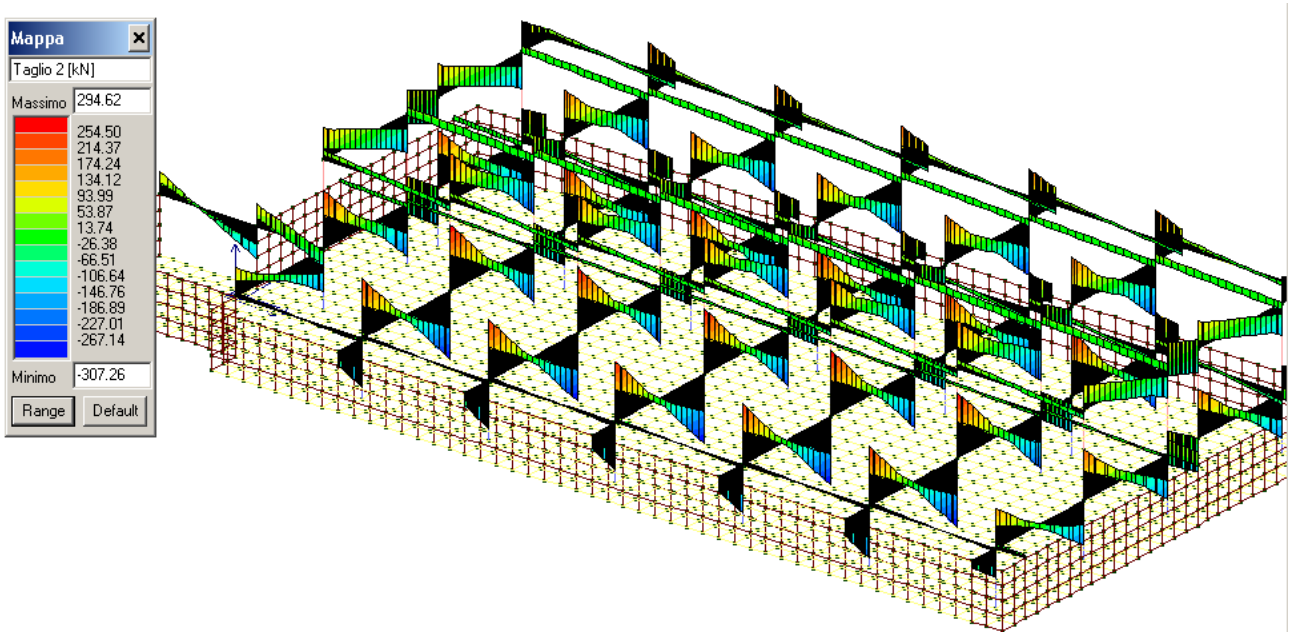

Figura 10.8 – 1 – Travi: inviluppo Taglio T 2-2

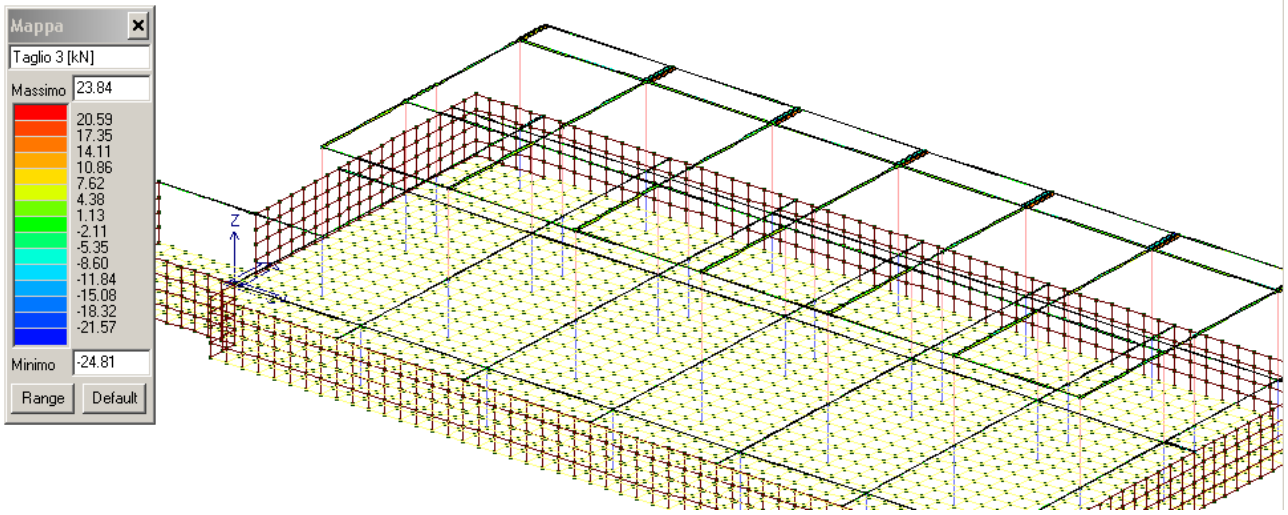

Figura 10.8 – 2 – Travi: inviluppo Taglio T 3-3

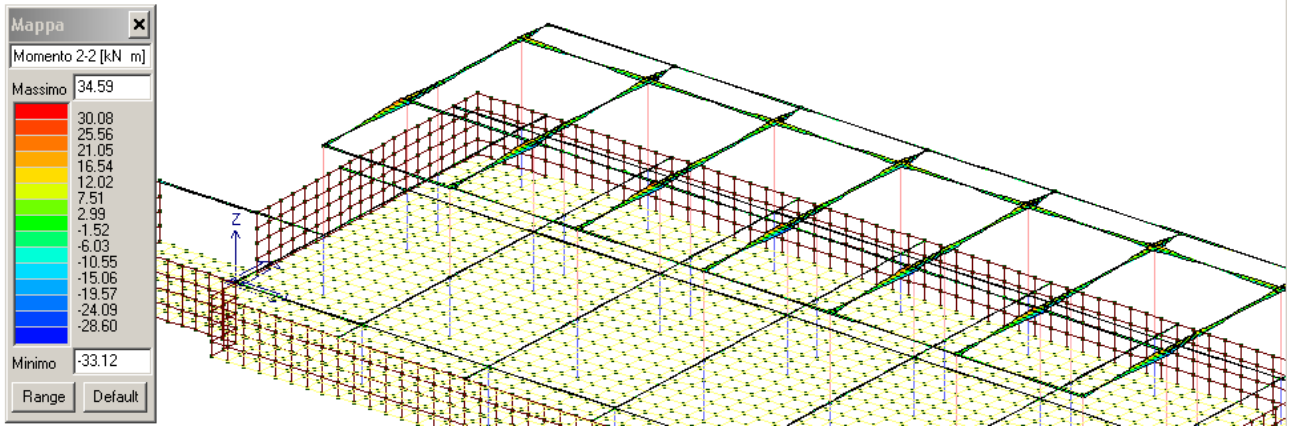

Figura 10.8 – 3 – Travi: inviluppo Momento flettente M 2-2

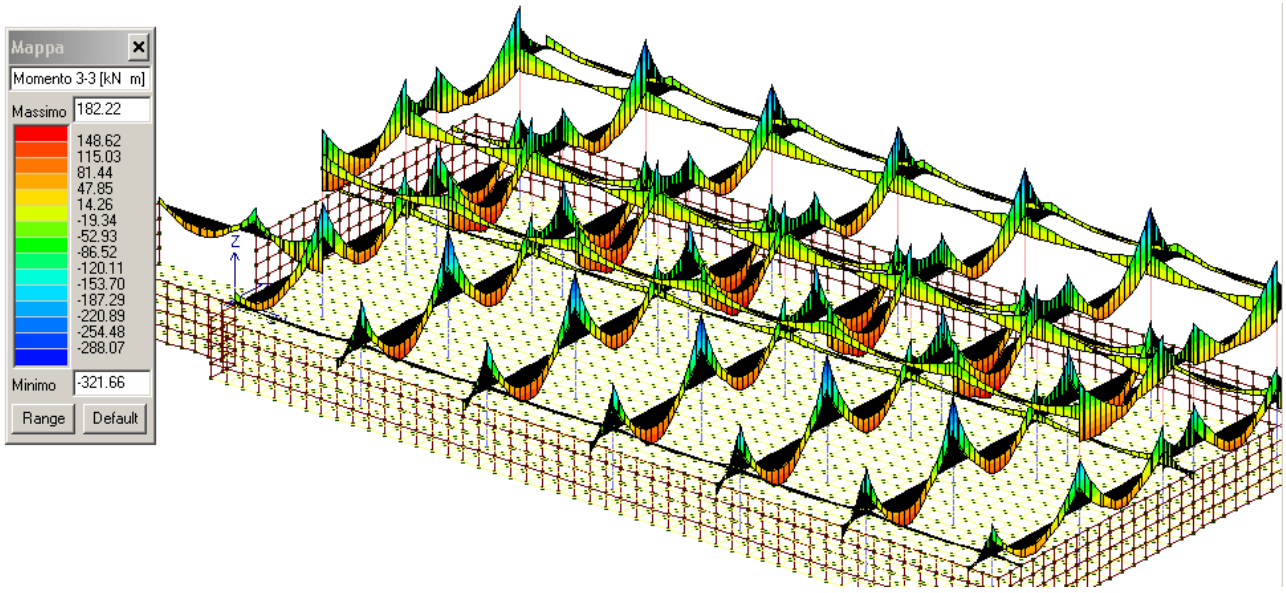

Figura 10.8 – 4 – Travi: inviluppo Momento flettente M 3-3

10.10. INVILUPPO SOLLECITAZIONI – MURI CONTROTERRA

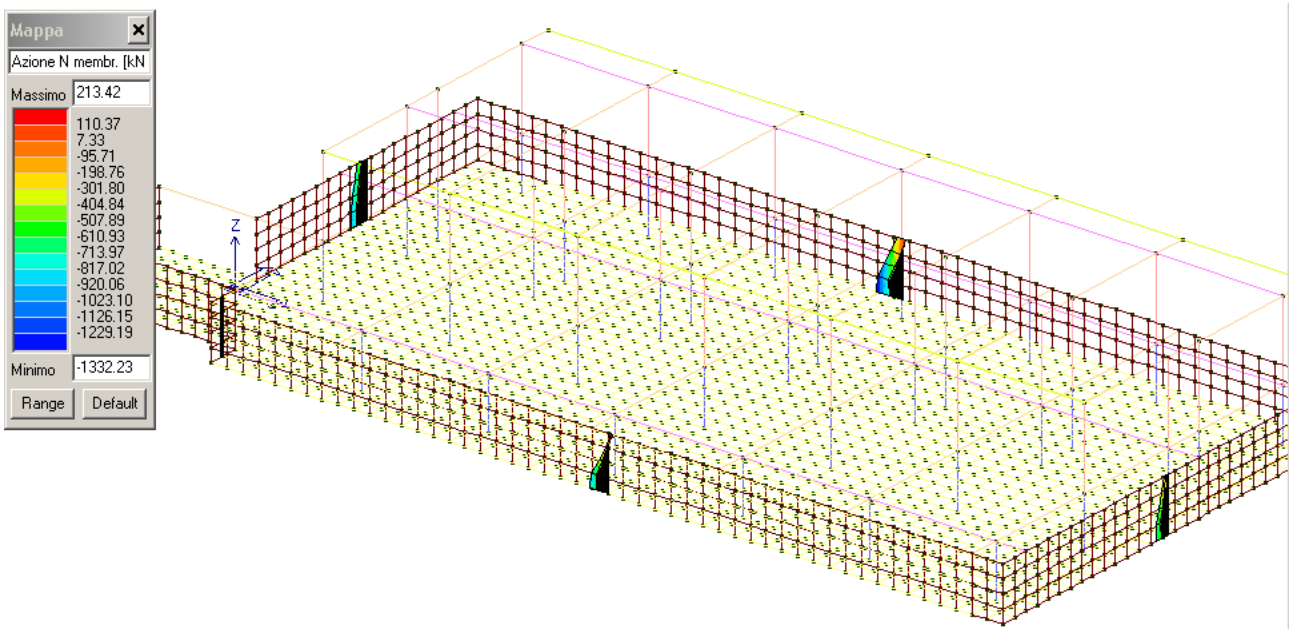

Figura 10.9 – 1 – Pareti: Sforno normale membranale N

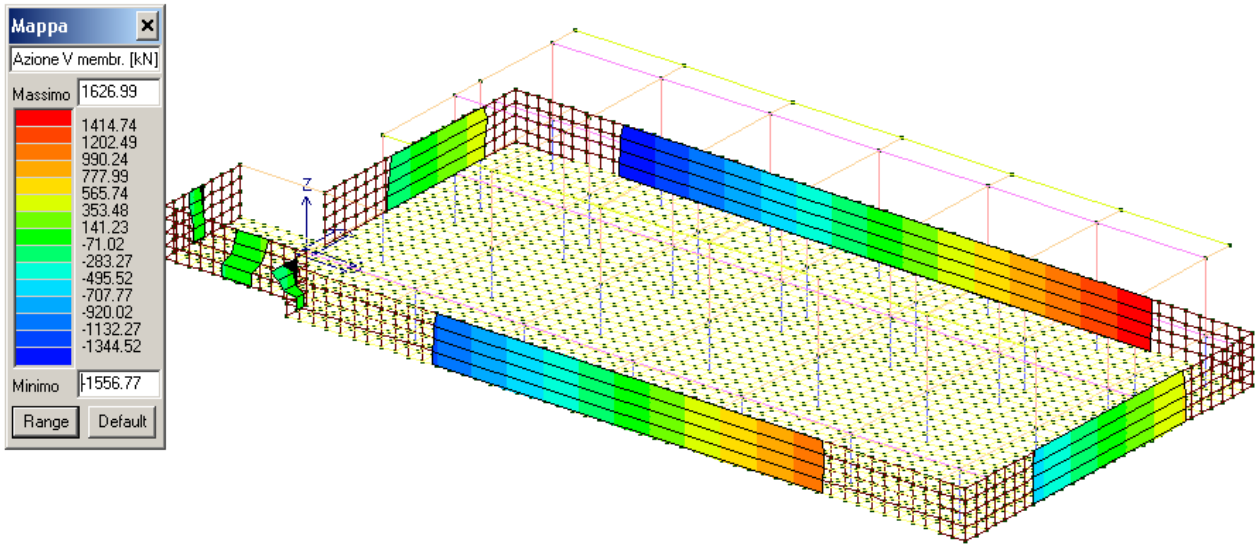

Figura 10.9 – 2 – Pareti: Taglio membranale V

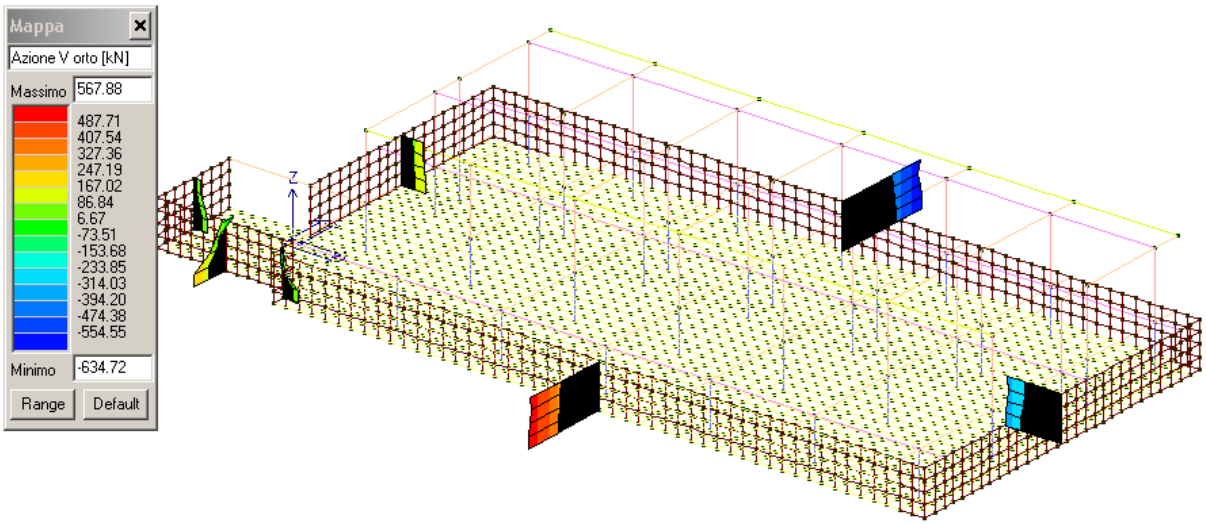

Figura 10.9 – 3 – Pareti: taglio ortogonale

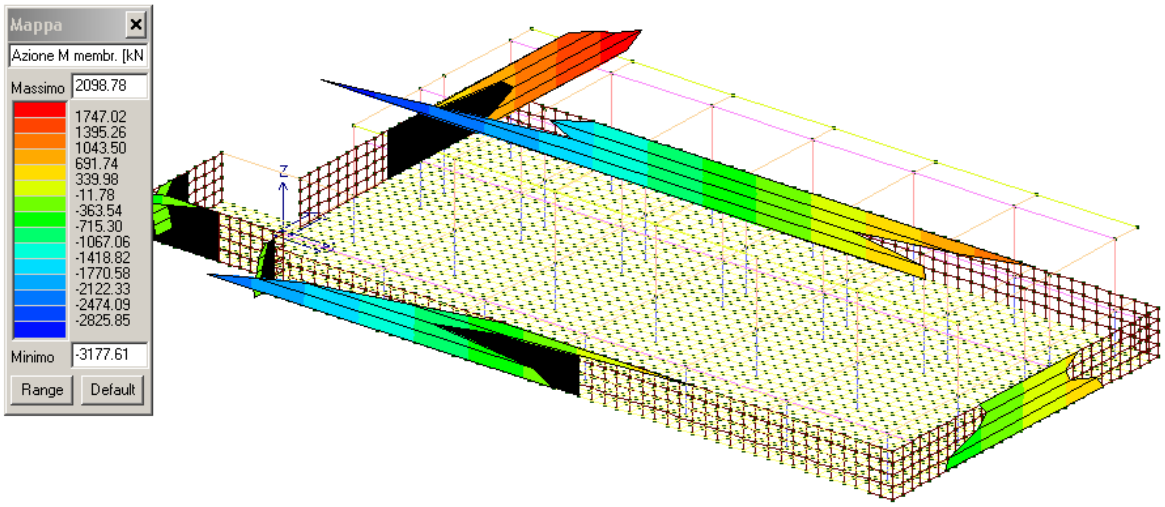

Figura 10.9 – 4 – Pareti: momento flettente membranale

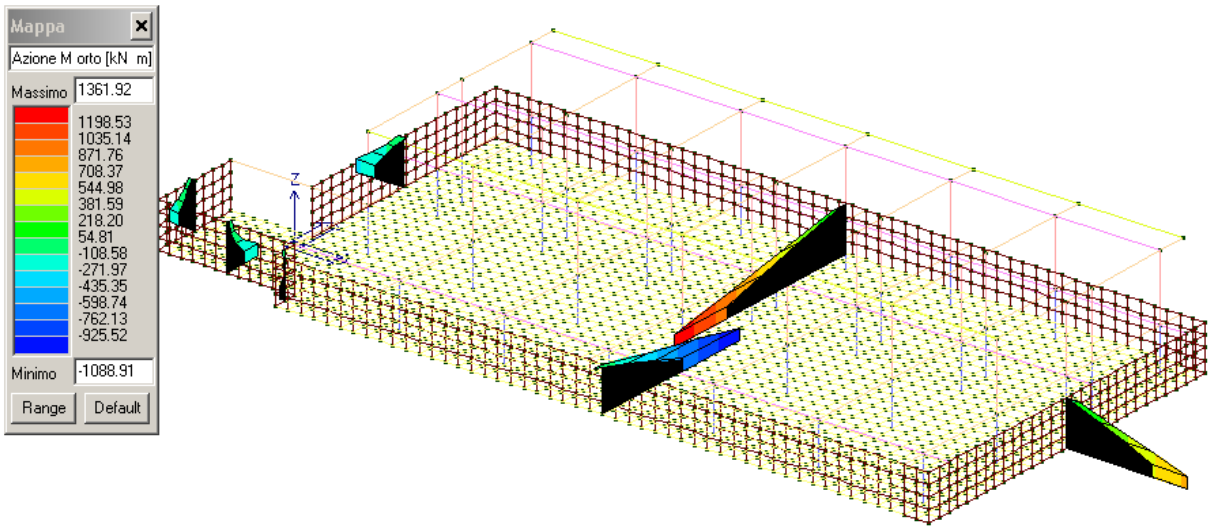

Figura 10.9 – 5 – Pareti: momento flettente ortogonale

10.11. VERIFICHE SLU ED SLE TRAVI IN ELEVAZIONE

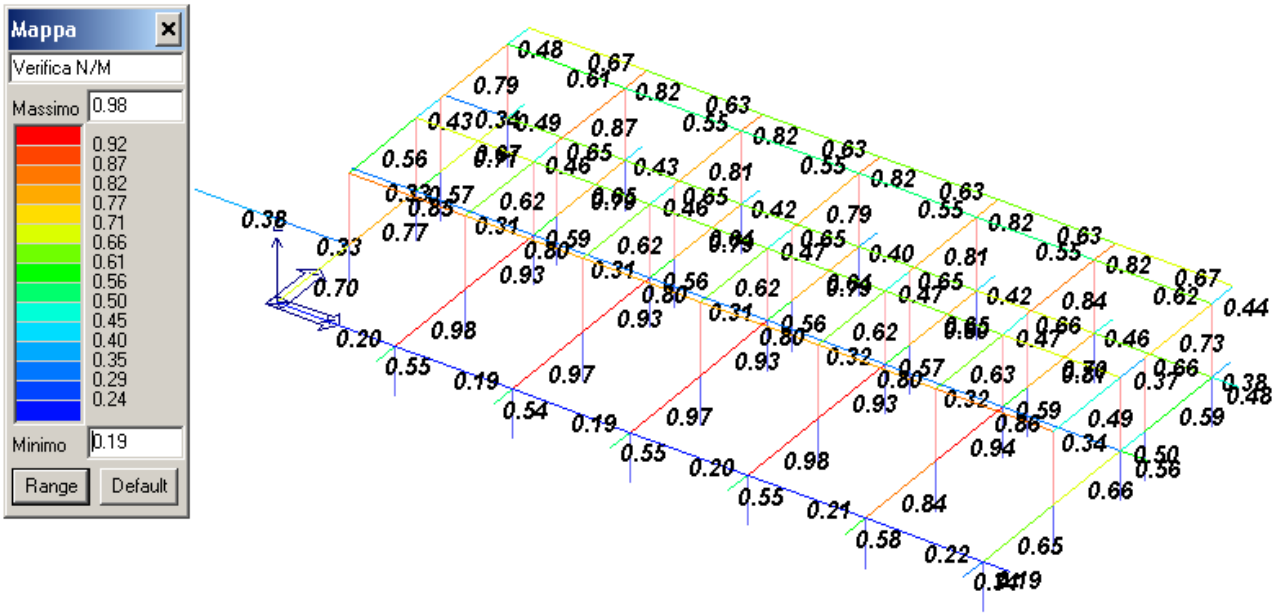

Figura 10.10 – 1 – Verifica N-M Travi copertura

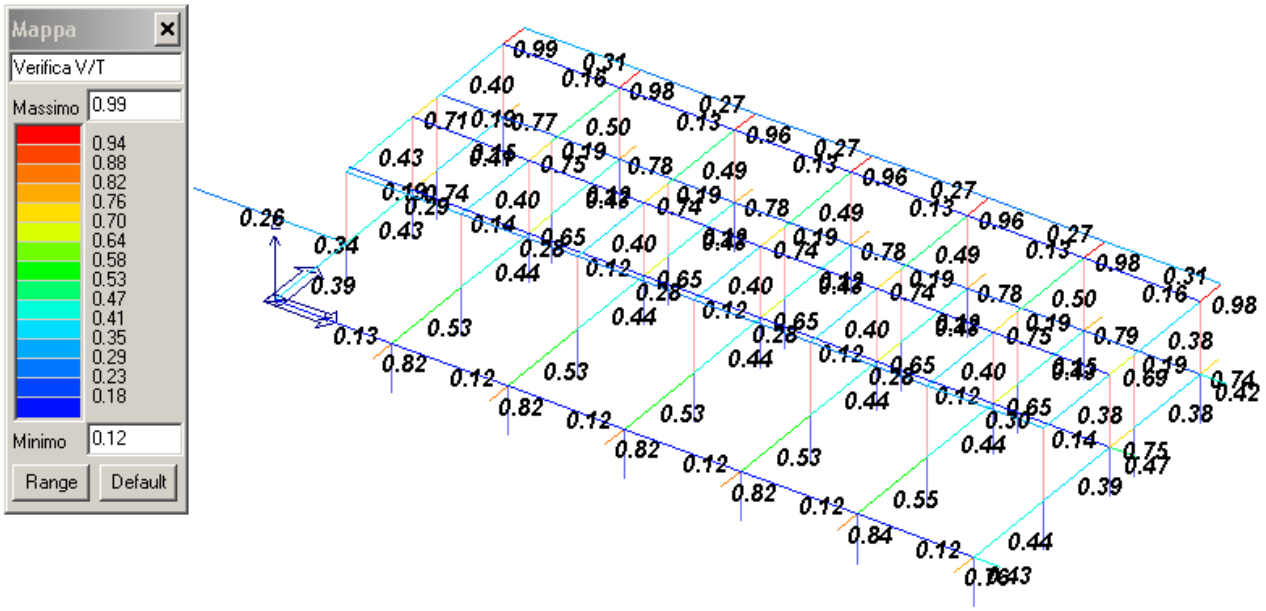

Figura 10.10 – 2 – Verifica V-T Travi copertura

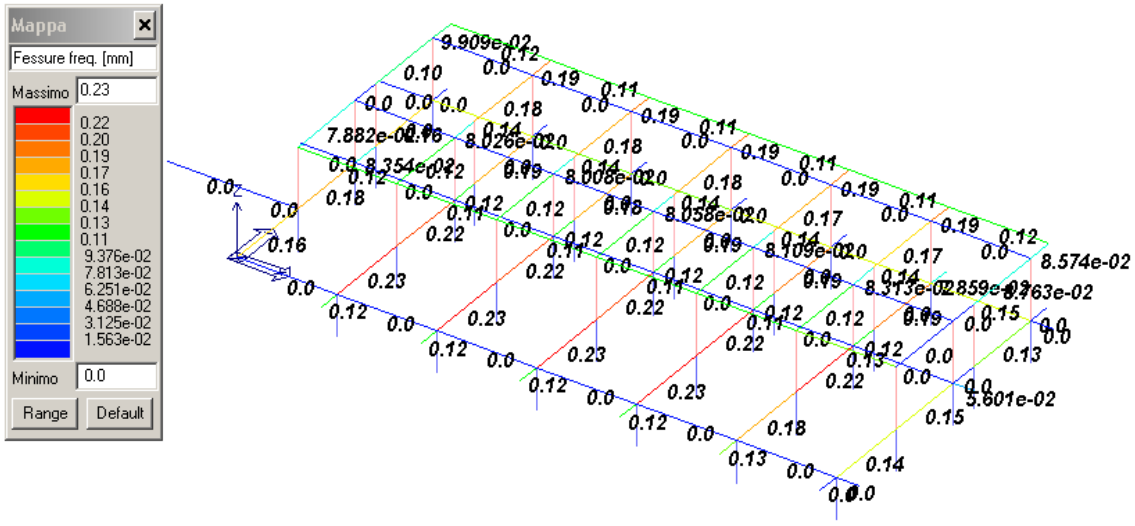

Figura 10.10 – 3 – S.L.E. Travi copertura: fessure comb. frequenti

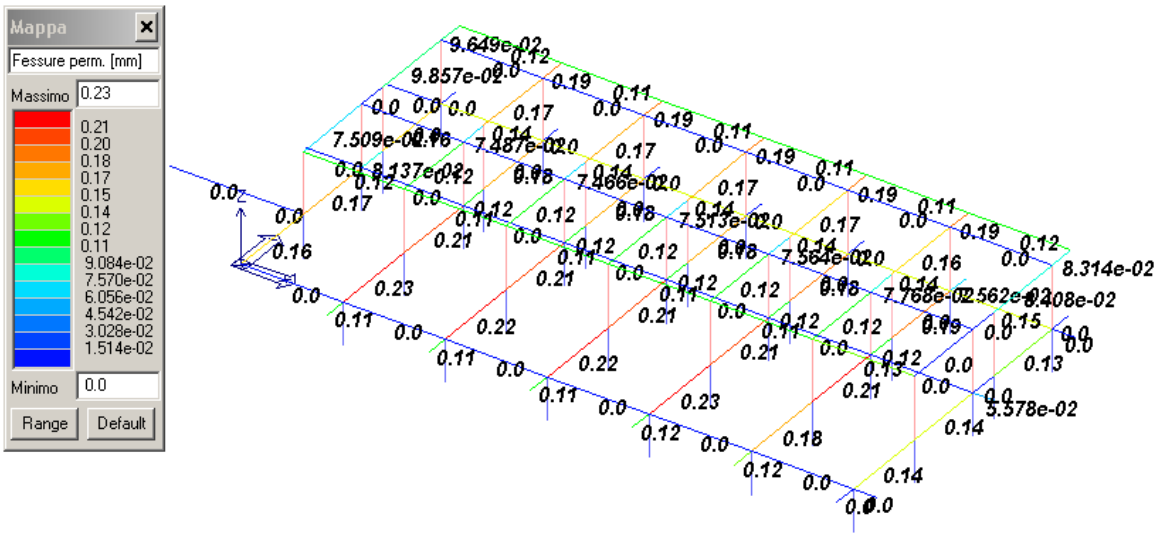

Figura 10.10 – 4 – S.L.E. Travi copertura: fessure comb. quasi perm.

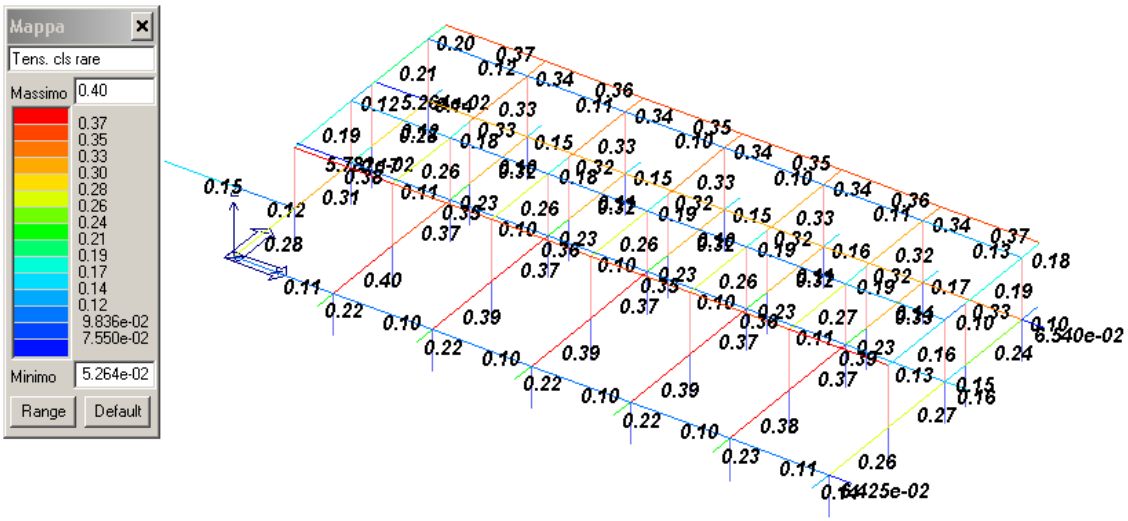

Figura 10.10 – 5 – S.L.E. Travi copertura: tensioni cls comb. rare

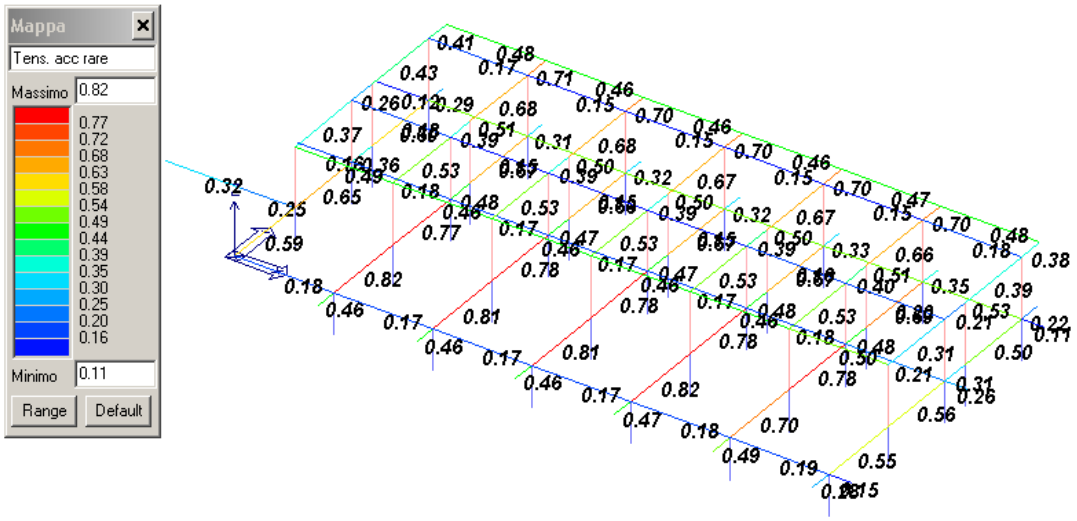

Figura 10.10 – 6 – S.L.E. Travi copertura: tensioni acciaio comb. rare

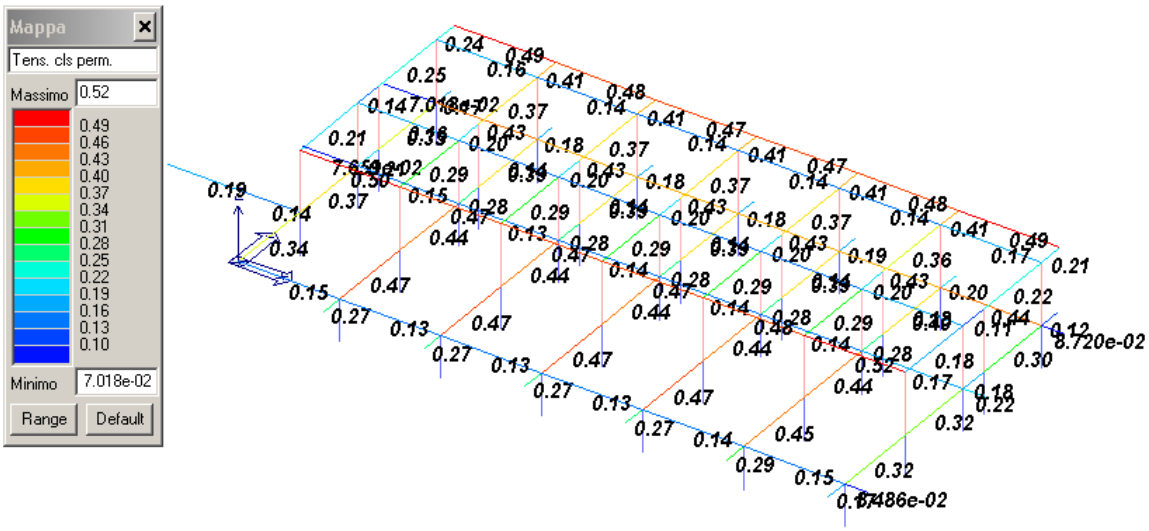

Figura 10.10 – 7 – S.L.E. Travi copertura: tensioni cls comb. Permanenti

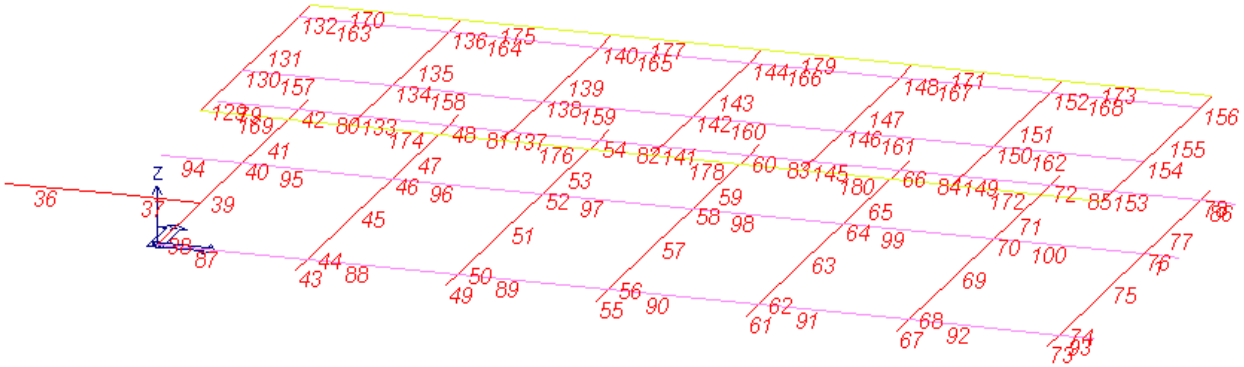

Figura 10.10 – 8 – Numerazione delle sezioni

Verifiche SLU

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
		cm									L=cm			
1	ok,ok	0.0	0.75	12.6	12.6	0.18	0.56	0.47	9.0	0.0	2d10/5 L=50	0.0	0.0	24,44
	s=7,m=4	77.5	0.75	12.6	12.6	0.18	0.11	0.47	8.9	0.0	2d10/15 L=55	0.0	0.0	28,44
		155.0	0.75	12.6	12.6	0.18	0.34	0.46	8.7	0.0	2d10/5 L=50	0.0	0.0	32,44
36	ok,ok	0.0	0.52	15.7	15.7	0.09	0.08	0.26	4.3	0.0	2d10/12 L=62	0.0	0.0	9,50
	s=2,m=4	250.0	0.52	15.7	15.7	0.09	0.26	0.16	2.6	0.0	2d10/20 L=375	0.0	0.0	9,50
		500.0	0.52	15.7	15.7	0.09	0.38	0.26	4.3	0.0	2d10/12 L=62	0.0	0.0	11,50
37	ok,ok	0.0	0.52	15.7	15.7	0.09	0.30	0.34	5.5	0.0	2d10/12 L=62	0.0	0.0	11,51
	s=2,m=4	172.5	0.52	15.7	15.7	0.09	0.14	0.27	4.3	0.0	2d10/20 L=220	0.0	0.0	25,51
		345.0	0.52	15.7	15.7	0.09	0.33	0.30	5.0	0.0	2d10/12 L=62	0.0	0.0	27,51
38	ok,ok	0.0	0.52	15.7	15.7	0.09	0.18	0.34	4.1	0.0	2d10/12 L=62	0.0	0.0	53,28
	s=2,m=4	290.0	0.52	15.7	15.7	0.09	0.29	0.26	2.8	0.0	2d10/20 L=455	0.0	0.0	11,28
		580.0	0.52	15.7	15.7	0.09	0.70	0.39	5.0	0.0	2d10/12 L=62	0.0	0.0	9,28
39	ok,ok	0.0	0.52	15.7	15.7	0.09	0.77	0.43	6.3	0.0	2d10/12 L=62	0.0	0.0	11,23
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.41	0.23	2.9	0.0	2d10/20 L=425	0.0	0.0	11,23
		550.0	0.52	15.7	15.7	0.09	0.63	0.42	5.9	0.0	2d10/12 L=62	0.0	0.0	50,23
40	ok,ok	0.0	0.52	15.7	15.7	0.09	0.40	0.69	10.2	0.0	2d10/12 L=56	0.0	0.0	53,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.19	0.67	9.9	0.0	2d10/12 L=88	0.0	0.0	9,34
		200.0	0.52	15.7	15.7	0.09	0.57	0.74	11.2	0.0	2d10/12 L=56	0.0	0.0	48,34
41	ok,ok	0.0	0.52	15.7	15.7	0.09	0.71	0.41	6.2	0.0	2d10/12 L=62	0.0	0.0	9,45
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.44	0.20	2.8	0.0	2d10/20 L=425	0.0	0.0	11,45
		550.0	0.52	15.7	15.7	0.09	0.55	0.39	5.9	0.0	2d10/12 L=62	0.0	0.0	11,45
42	ok,ok	0.0	0.52	15.7	15.7	0.09	0.49	0.77	12.5	0.0	2d10/12 L=56	0.0	0.0	53,32
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.20	0.72	11.7	0.0	2d10/12 L=43	0.0	0.0	53,32
		155.0	0.52	15.7	15.7	0.09	0.11	0.67	10.9	0.0	2d10/12 L=56	0.0	0.0	53,32
43	ok,ok	0.0	0.52	15.7	15.7	0.09	0.15	0.70	11.6	0.0	2d10/12 L=56	0.0	0.0	48,48
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.12	0.76	12.6	0.0	2d10/10 L=43	0.0	0.0	11,48
		155.0	0.52	15.7	15.7	0.09	0.55	0.82	13.6	0.0	2d10/10 L=56	0.0	0.0	11,48
44	ok,ok	0.0	0.52	15.7	15.7	0.09	0.65	0.50	6.1	0.0	2d10/12 L=62	0.0	0.0	11,27
	s=2,m=4	290.0	0.63	18.8	15.7	0.10	0.40	0.30	2.8	0.0	2d10/20 L=455	0.0	0.0	11,27
		580.0	0.52	15.7	15.7	0.09	0.98	0.53	6.7	0.0	2d10/12 L=62	0.0	0.0	9,27
45	ok,ok	0.0	0.52	15.7	15.7	0.09	0.93	0.44	6.6	0.0	2d10/12 L=62	0.0	0.0	11,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.43	0.22	2.9	0.0	2d10/20 L=425	0.0	0.0	9,28
		550.0	0.52	15.7	15.7	0.09	0.56	0.41	6.0	0.0	2d10/12 L=62	0.0	0.0	9,28
46	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.57	8.9	0.0	2d10/12 L=62	0.0	0.0	53,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.28	0.57	9.0	0.0	2d10/15 L=75	0.0	0.0	9,34
		200.0	0.52	15.7	15.7	0.09	0.59	0.65	10.3	0.0	2d10/12 L=62	0.0	0.0	50,34
47	ok,ok	0.0	0.52	15.7	15.7	0.09	0.79	0.43	6.5	0.0	2d10/12 L=62	0.0	0.0	9,34
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.50	0.21	2.9	0.0	2d10/20 L=425	0.0	0.0	11,34
		550.0	0.52	15.7	15.7	0.09	0.55	0.40	6.1	0.0	2d10/12 L=62	0.0	0.0	11,34
48	ok,ok	0.0	0.52	15.7	15.7	0.09	0.43	0.78	12.8	0.0	2d10/10 L=60	0.0	0.0	53,34
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.12	0.71	11.8	0.0	2d10/12 L=39	0.0	0.0	53,34
		155.0	0.52	15.7	15.7	0.09	0.08	0.65	10.8	0.0	2d10/12 L=56	0.0	0.0	53,34
49	ok,ok	0.0	0.52	15.7	15.7	0.09	0.15	0.70	11.5	0.0	2d10/12 L=56	0.0	0.0	48,27
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.13	0.76	12.5	0.0	2d10/10 L=43	0.0	0.0	11,27
		155.0	0.52	15.7	15.7	0.09	0.54	0.82	13.6	0.0	2d10/10 L=56	0.0	0.0	11,27
50	ok,ok	0.0	0.52	15.7	15.7	0.09	0.66	0.50	6.1	0.0	2d10/12 L=62	0.0	0.0	11,27
	s=2,m=4	290.0	0.63	18.8	15.7	0.10	0.40	0.30	2.8	0.0	2d10/20 L=455	0.0	0.0	11,27
		580.0	0.52	15.7	15.7	0.09	0.97	0.53	6.6	0.0	2d10/12 L=62	0.0	0.0	9,27
51	ok,ok	0.0	0.52	15.7	15.7	0.09	0.93	0.44	6.6	0.0	2d10/12 L=62	0.0	0.0	11,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.43	0.22	2.9	0.0	2d10/20 L=425	0.0	0.0	9,28
		550.0	0.52	15.7	15.7	0.09	0.56	0.41	6.0	0.0	2d10/12 L=62	0.0	0.0	9,28
52	ok,ok	0.0	0.52	15.7	15.7	0.09	0.34	0.57	8.9	0.0	2d10/12 L=62	0.0	0.0	53,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.27	0.57	8.9	0.0	2d10/15 L=75	0.0	0.0	9,34
		200.0	0.52	15.7	15.7	0.09	0.56	0.65	10.3	0.0	2d10/12 L=62	0.0	0.0	50,34
53	ok,ok	0.0	0.52	15.7	15.7	0.09	0.79	0.43	6.5	0.0	2d10/12 L=62	0.0	0.0	9,37
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.50	0.21	2.9	0.0	2d10/20 L=425	0.0	0.0	11,37
		550.0	0.52	15.7	15.7	0.09	0.55	0.40	6.1	0.0	2d10/12 L=62	0.0	0.0	11,37
54	ok,ok	0.0	0.52	15.7	15.7	0.09	0.42	0.78	12.8	0.0	2d10/10 L=60	0.0	0.0	53,37
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.11	0.72	11.8	0.0	2d10/12 L=39	0.0	0.0	53,37
		155.0	0.52	15.7	15.7	0.09	0.10	0.65	10.8	0.0	2d10/12 L=56	0.0	0.0	53,37
55	ok,ok	0.0	0.52	15.7	15.7	0.09	0.15	0.70	11.5	0.0	2d10/12 L=56	0.0	0.0	40,27
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.13	0.76	12.6	0.0	2d10/10 L=43	0.0	0.0	11,27
		155.0	0.52	15.7	15.7	0.09	0.55	0.82	13.6	0.0	2d10/10 L=56	0.0	0.0	11,27
56	ok,ok	0.0	0.52	15.7	15.7	0.09	0.66	0.50	6.1	0.0	2d10/12 L=62	0.0	0.0	11,27
	s=2,m=4	290.0	0.63	18.8	15.7	0.10	0.40	0.30	2.8	0.0	2d10/20 L=455	0.0	0.0	11,27
		580.0	0.52	15.7	15.7	0.09	0.97	0.53	6.6	0.0	2d10/12 L=62	0.0	0.0	9,27

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
57	ok,ok	0.0	0.52	15.7	15.7	0.09	0.93	0.44	6.6	0.0	2d10/12 L=62	0.0	0.0	11,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.43	0.22	2.9	0.0	2d10/20 L=425	0.0	0.0	9,28
		550.0	0.52	15.7	15.7	0.09	0.56	0.41	6.0	0.0	2d10/12 L=62	0.0	0.0	9,28
58	ok,ok	0.0	0.52	15.7	15.7	0.09	0.33	0.57	8.9	0.0	2d10/12 L=62	0.0	0.0	45,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.27	0.57	8.9	0.0	2d10/15 L=75	0.0	0.0	9,34
		200.0	0.52	15.7	15.7	0.09	0.56	0.65	10.3	0.0	2d10/12 L=62	0.0	0.0	11,34
59	ok,ok	0.0	0.52	15.7	15.7	0.09	0.79	0.43	6.5	0.0	2d10/12 L=62	0.0	0.0	9,37
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.50	0.21	2.9	0.0	2d10/20 L=425	0.0	0.0	11,37
		550.0	0.52	15.7	15.7	0.09	0.55	0.40	6.1	0.0	2d10/12 L=62	0.0	0.0	11,37
60	ok,ok	0.0	0.52	15.7	15.7	0.09	0.40	0.78	12.9	0.0	2d10/10 L=60	0.0	0.0	43,34
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.10	0.72	11.8	0.0	2d10/12 L=39	0.0	0.0	41,34
		155.0	0.52	15.7	15.7	0.09	0.10	0.66	10.8	0.0	2d10/12 L=56	0.0	0.0	43,34
61	ok,ok	0.0	0.52	15.7	15.7	0.09	0.16	0.70	11.6	0.0	2d10/12 L=56	0.0	0.0	38,25
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.13	0.76	12.6	0.0	2d10/10 L=43	0.0	0.0	11,25
		155.0	0.52	15.7	15.7	0.09	0.55	0.82	13.6	0.0	2d10/10 L=56	0.0	0.0	11,25
62	ok,ok	0.0	0.52	15.7	15.7	0.09	0.66	0.50	6.1	0.0	2d10/12 L=62	0.0	0.0	11,27
	s=2,m=4	290.0	0.63	18.8	15.7	0.10	0.40	0.30	2.8	0.0	2d10/20 L=455	0.0	0.0	11,27
		580.0	0.52	15.7	15.7	0.09	0.98	0.53	6.7	0.0	2d10/12 L=62	0.0	0.0	9,27
63	ok,ok	0.0	0.52	15.7	15.7	0.09	0.93	0.44	6.6	0.0	2d10/12 L=62	0.0	0.0	11,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.43	0.22	2.9	0.0	2d10/20 L=425	0.0	0.0	9,27
		550.0	0.52	15.7	15.7	0.09	0.56	0.41	6.0	0.0	2d10/12 L=62	0.0	0.0	9,27
64	ok,ok	0.0	0.52	15.7	15.7	0.09	0.35	0.57	8.9	0.0	2d10/12 L=62	0.0	0.0	43,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.28	0.57	8.9	0.0	2d10/15 L=75	0.0	0.0	9,34
		200.0	0.52	15.7	15.7	0.09	0.57	0.65	10.3	0.0	2d10/12 L=62	0.0	0.0	44,34
65	ok,ok	0.0	0.52	15.7	15.7	0.09	0.80	0.43	6.5	0.0	2d10/12 L=62	0.0	0.0	9,37
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.50	0.21	2.9	0.0	2d10/20 L=425	0.0	0.0	11,37
		550.0	0.52	15.7	15.7	0.09	0.55	0.40	6.1	0.0	2d10/12 L=62	0.0	0.0	11,37
66	ok,ok	0.0	0.52	15.7	15.7	0.09	0.42	0.78	12.9	0.0	2d10/10 L=60	0.0	0.0	43,31
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.11	0.72	11.9	0.0	2d10/12 L=39	0.0	0.0	43,31
		155.0	0.52	15.7	15.7	0.09	0.10	0.66	10.9	0.0	2d10/12 L=56	0.0	0.0	43,31
67	ok,ok	0.0	0.52	15.7	15.7	0.09	0.17	0.71	11.8	0.0	2d10/12 L=56	0.0	0.0	1,41
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.13	0.77	12.8	0.0	2d10/10 L=43	0.0	0.0	11,41
		155.0	0.52	15.7	15.7	0.09	0.58	0.84	13.8	0.0	2d10/10 L=56	0.0	0.0	11,41
68	ok,ok	0.0	0.52	15.7	15.7	0.09	0.65	0.50	6.1	0.0	2d10/12 L=62	0.0	0.0	11,25
	s=2,m=4	290.0	0.63	18.8	15.7	0.10	0.40	0.32	3.1	0.0	2d10/20 L=455	0.0	0.0	11,25
		580.0	0.63	15.7	18.8	0.10	0.84	0.55	6.9	0.0	2d10/12 L=62	0.0	0.0	9,25
69	ok,ok	0.0	0.52	15.7	15.7	0.09	0.94	0.44	6.6	0.0	2d10/12 L=62	0.0	0.0	11,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.43	0.22	2.9	0.0	2d10/20 L=425	0.0	0.0	9,28
		550.0	0.52	15.7	15.7	0.09	0.57	0.41	6.0	0.0	2d10/12 L=62	0.0	0.0	9,28
70	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.57	8.9	0.0	2d10/12 L=62	0.0	0.0	43,37
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.28	0.57	8.9	0.0	2d10/15 L=75	0.0	0.0	9,37
		200.0	0.52	15.7	15.7	0.09	0.59	0.65	10.3	0.0	2d10/12 L=62	0.0	0.0	38,37
71	ok,ok	0.0	0.52	15.7	15.7	0.09	0.81	0.43	6.6	0.0	2d10/12 L=62	0.0	0.0	9,37
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.50	0.21	2.9	0.0	2d10/20 L=425	0.0	0.0	11,37
		550.0	0.52	15.7	15.7	0.09	0.54	0.40	6.0	0.0	2d10/12 L=62	0.0	0.0	11,37
72	ok,ok	0.0	0.52	15.7	15.7	0.09	0.46	0.79	13.1	0.0	2d10/10 L=60	0.0	0.0	43,32
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.13	0.73	12.0	0.0	2d10/12 L=39	0.0	0.0	43,32
		155.0	0.52	15.7	15.7	0.09	0.11	0.67	11.0	0.0	2d10/12 L=56	0.0	0.0	31,32
73	ok,ok	0.0	0.52	15.7	15.7	0.09	0.07	0.68	11.1	0.0	2d10/12 L=56	0.0	0.0	22,39
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.08	0.72	11.8	0.0	2d10/12 L=43	0.0	0.0	11,39
		155.0	0.52	15.7	15.7	0.09	0.34	0.76	12.4	0.0	2d10/12 L=56	0.0	0.0	11,39
74	ok,ok	0.0	0.52	15.7	15.7	0.09	0.43	0.42	4.9	0.0	2d10/12 L=62	0.0	0.0	11,22
	s=2,m=4	290.0	0.52	15.7	15.7	0.09	0.31	0.28	2.7	0.0	2d10/20 L=455	0.0	0.0	11,22
		580.0	0.52	15.7	15.7	0.09	0.65	0.44	5.3	0.0	2d10/12 L=62	0.0	0.0	9,22
75	ok,ok	0.0	0.52	15.7	15.7	0.09	0.66	0.39	5.8	0.0	2d10/12 L=62	0.0	0.0	11,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.33	0.22	2.8	0.0	2d10/20 L=425	0.0	0.0	9,28
		550.0	0.52	15.7	15.7	0.09	0.53	0.37	5.5	0.0	2d10/12 L=62	0.0	0.0	38,28
76	ok,ok	0.0	0.52	15.7	15.7	0.09	0.34	0.70	10.1	0.0	2d10/12 L=62	0.0	0.0	43,32
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.16	0.69	9.9	0.0	2d10/15 L=75	0.0	0.0	9,32
		200.0	0.52	15.7	15.7	0.09	0.50	0.75	11.0	0.0	2d10/12 L=62	0.0	0.0	38,32
77	ok,ok	0.0	0.52	15.7	15.7	0.09	0.59	0.38	5.7	0.0	2d10/12 L=62	0.0	0.0	11,47
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.37	0.20	2.8	0.0	2d10/20 L=425	0.0	0.0	11,47
		550.0	0.52	15.7	15.7	0.09	0.47	0.36	5.5	0.0	2d10/12 L=62	0.0	0.0	11,47
78	ok,ok	0.0	0.52	15.7	15.7	0.09	0.38	0.74	12.0	0.0	2d10/12 L=56	0.0	0.0	43,26
	s=2,m=4	77.5	0.52	15.7	15.7	0.09	0.14	0.70	11.4	0.0	2d10/12 L=43	0.0	0.0	43,26
		155.0	0.52	15.7	15.7	0.09	0.05	0.66	10.7	0.0	2d10/12 L=56	0.0	0.0	31,26
79	ok,ok	0.0	0.75	12.6	12.6	0.18	0.13	0.18	3.4	0.0	2d10/5 L=50	0.0	0.0	37,48
	s=7,m=4	172.5	0.75	12.6	12.6	0.18	0.09	0.17	3.2	0.0	2d10/15 L=245	0.0	0.0	32,48
		345.0	0.75	12.6	12.6	0.18	0.34	0.19	3.6	0.0	2d10/5 L=50	0.0	0.0	34,48

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
80	ok,ok	0.0	0.75	12.6	12.6	0.18	0.60	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	37,41
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.30	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,41
		650.0	0.75	12.6	12.6	0.18	0.65	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	34,41
81	ok,ok	0.0	0.75	12.6	12.6	0.18	0.65	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	32,48
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.28	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,48
		650.0	0.75	12.6	12.6	0.18	0.65	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	34,48
82	ok,ok	0.0	0.75	12.6	12.6	0.18	0.64	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	32,47
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.29	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,47
		650.0	0.75	12.6	12.6	0.18	0.65	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	34,47
83	ok,ok	0.0	0.75	12.6	12.6	0.18	0.64	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	32,47
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.29	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,47
		650.0	0.75	12.6	12.6	0.18	0.65	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	34,47
84	ok,ok	0.0	0.75	12.6	12.6	0.18	0.65	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	32,47
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.30	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,47
		650.0	0.75	12.6	12.6	0.18	0.66	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	34,47
85	ok,ok	0.0	0.75	12.6	12.6	0.18	0.66	0.19	3.7	0.0	2d10/5 L=50	0.0	0.0	32,47
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.31	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	11,47
		650.0	0.75	12.6	12.6	0.18	0.59	0.19	3.6	0.0	2d10/5 L=50	0.0	0.0	31,47
86	ok,ok	0.0	0.75	12.6	12.6	0.18	0.48	0.42	8.0	0.0	2d10/5 L=50	0.0	0.0	32,42
	s=7,m=4	77.5	0.75	12.6	12.6	0.18	0.15	0.42	7.9	0.0	2d10/15 L=55	0.0	0.0	32,42
		155.0	0.75	12.6	12.6	0.18	0.18	0.41	7.7	0.0	2d10/5 L=50	0.0	0.0	32,42
87	ok,ok	0.0	0.75	12.6	12.6	0.18	0.16	0.13	2.2	0.0	2d10/5 L=50	0.0	0.0	9,47
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.10	1.6	0.0	2d10/15 L=550	0.0	0.0	9,47
		650.0	0.75	12.6	12.6	0.18	0.20	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	1,47
88	ok,ok	0.0	0.75	12.6	12.6	0.18	0.19	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	9,28
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,28
		650.0	0.75	12.6	12.6	0.18	0.19	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	9,28
89	ok,ok	0.0	0.75	12.6	12.6	0.18	0.19	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	9,27
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,27
		650.0	0.75	12.6	12.6	0.18	0.19	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	11,27
90	ok,ok	0.0	0.75	12.6	12.6	0.18	0.19	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	9,27
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	11,27
		650.0	0.75	12.6	12.6	0.18	0.20	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	11,27
91	ok,ok	0.0	0.75	12.6	12.6	0.18	0.19	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	9,27
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.11	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	11,27
		650.0	0.75	12.6	12.6	0.18	0.21	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	11,27
92	ok,ok	0.0	0.75	12.6	12.6	0.18	0.22	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	11,38
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.11	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,38
		650.0	0.75	12.6	12.6	0.18	0.17	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	4,38
93	ok,ok	0.0	0.75	12.6	12.6	0.18	0.19	0.43	8.2	0.0	2d10/5 L=50	0.0	0.0	25,43
	s=7,m=4	77.5	0.75	12.6	12.6	0.18	0.06	0.43	8.0	0.0	2d10/15 L=55	0.0	0.0	25,43
		155.0	0.75	12.6	12.6	0.18	0.13	0.42	7.8	0.0	2d10/5 L=50	0.0	0.0	41,43
94	ok,ok	0.0	0.75	12.6	12.6	0.18	0.16	0.18	3.3	0.0	2d10/5 L=50	0.0	0.0	26,53
	s=7,m=4	172.5	0.75	12.6	12.6	0.18	0.10	0.18	3.3	0.0	2d10/15 L=245	0.0	0.0	28,53
		345.0	0.75	12.6	12.6	0.18	0.33	0.19	3.6	0.0	2d10/5 L=50	0.0	0.0	22,53
95	ok,ok	0.0	0.75	12.6	12.6	0.18	0.28	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	28,50
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.10	1.7	0.0	2d10/15 L=550	0.0	0.0	9,50
		650.0	0.75	12.6	12.6	0.18	0.31	0.14	2.4	0.0	2d10/5 L=50	0.0	0.0	27,50
96	ok,ok	0.0	0.75	12.6	12.6	0.18	0.31	0.12	2.4	0.0	2d10/5 L=50	0.0	0.0	28,50
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,50
		650.0	0.75	12.6	12.6	0.18	0.31	0.12	2.4	0.0	2d10/5 L=50	0.0	0.0	22,50
97	ok,ok	0.0	0.75	12.6	12.6	0.18	0.30	0.12	2.4	0.0	2d10/5 L=50	0.0	0.0	28,53
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,53
		650.0	0.75	12.6	12.6	0.18	0.31	0.12	2.4	0.0	2d10/5 L=50	0.0	0.0	22,53
98	ok,ok	0.0	0.75	12.6	12.6	0.18	0.30	0.12	2.4	0.0	2d10/5 L=50	0.0	0.0	28,53
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,53
		650.0	0.75	12.6	12.6	0.18	0.32	0.12	2.4	0.0	2d10/5 L=50	0.0	0.0	22,53
99	ok,ok	0.0	0.75	12.6	12.6	0.18	0.30	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	28,53
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	2,53
		650.0	0.75	12.6	12.6	0.18	0.32	0.12	2.4	0.0	2d10/5 L=50	0.0	0.0	22,53
100	ok,ok	0.0	0.75	12.6	12.6	0.18	0.34	0.14	2.4	0.0	2d10/5 L=50	0.0	0.0	28,44
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.10	0.11	1.8	0.0	2d10/15 L=550	0.0	0.0	11,44
		650.0	0.75	12.6	12.6	0.18	0.25	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	27,44
129	ok,ok	0.0	0.52	15.7	15.7	0.09	0.54	0.40	4.4	0.0	2d10/12 L=62	0.0	0.0	53,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.34	0.31	2.9	0.0	2d10/20 L=425	0.0	0.0	3,27
		550.0	0.52	15.7	15.7	0.09	0.56	0.43	4.9	0.0	2d10/12 L=62	0.0	0.0	50,27
130	ok,ok	0.0	0.52	15.7	15.7	0.09	0.39	0.70	9.5	0.0	2d10/12 L=62	0.0	0.0	53,37
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.20	0.67	8.9	0.0	2d10/15 L=75	0.0	0.0	3,37
		200.0	0.52	15.7	15.7	0.09	0.43	0.71	9.7	0.0	2d10/12 L=62	0.0	0.0	50,37

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
131	ok,ok	0.0	0.52	15.7	15.7	0.09	0.51	0.39	4.5	0.0	2d10/12 L=62	0.0	0.0	53,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.23	0.28	2.8	0.0	2d10/20 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.79	0.40	4.8	0.0	2d10/12 L=62	0.0	0.0	50,28
132	ok,ok	0.0	0.52	15.7	15.7	0.09	0.48	0.99	10.7	0.0	2d10/12 L=62	0.0	0.0	3,29
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.18	0.95	10.1	0.0	2d10/15 L=50	0.0	0.0	3,29
		175.0	0.52	15.7	15.7	0.09	0.05	0.92	9.4	0.0	2d10/12 L=62	0.0	0.0	50,29
133	ok,ok	0.0	0.52	15.7	15.7	0.09	0.48	0.37	5.2	0.0	2d10/12 L=62	0.0	0.0	53,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.54	0.23	2.9	0.0	2d10/20 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.62	0.40	5.8	0.0	2d10/12 L=62	0.0	0.0	4,28
134	ok,ok	0.0	0.52	15.7	15.7	0.09	0.45	0.74	9.3	0.0	2d10/12 L=62	0.0	0.0	3,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.33	0.68	8.3	0.0	2d10/15 L=75	0.0	0.0	3,34
		200.0	0.52	15.7	15.7	0.09	0.46	0.75	9.3	0.0	2d10/12 L=62	0.0	0.0	3,34
135	ok,ok	0.0	0.52	15.7	15.7	0.09	0.54	0.47	5.2	0.0	2d10/12 L=62	0.0	0.0	53,22
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.34	0.33	2.8	0.0	2d10/20 L=425	0.0	0.0	3,22
		550.0	0.52	15.7	15.7	0.09	0.87	0.50	5.7	0.0	2d10/12 L=62	0.0	0.0	50,22
136	ok,ok	0.0	0.52	15.7	15.7	0.09	0.82	0.98	11.9	0.0	2d10/12 L=56	0.0	0.0	4,26
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.31	0.92	11.0	0.0	2d10/12 L=63	0.0	0.0	4,26
		175.0	0.52	15.7	15.7	0.09	0.01	0.87	10.1	0.0	2d10/12 L=56	0.0	0.0	51,26
137	ok,ok	0.0	0.52	15.7	15.7	0.09	0.42	0.37	5.2	0.0	2d10/12 L=62	0.0	0.0	53,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.54	0.23	2.9	0.0	2d10/20 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.62	0.40	5.8	0.0	2d10/12 L=62	0.0	0.0	4,28
138	ok,ok	0.0	0.52	15.7	15.7	0.09	0.46	0.74	9.3	0.0	2d10/12 L=62	0.0	0.0	3,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.33	0.68	8.3	0.0	2d10/15 L=75	0.0	0.0	3,34
		200.0	0.52	15.7	15.7	0.09	0.46	0.74	9.3	0.0	2d10/12 L=62	0.0	0.0	3,34
139	ok,ok	0.0	0.52	15.7	15.7	0.09	0.53	0.46	5.2	0.0	2d10/12 L=62	0.0	0.0	4,22
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.34	0.32	2.9	0.0	2d10/20 L=425	0.0	0.0	3,22
		550.0	0.52	15.7	15.7	0.09	0.81	0.49	5.7	0.0	2d10/12 L=62	0.0	0.0	50,22
140	ok,ok	0.0	0.52	15.7	15.7	0.09	0.82	0.96	11.8	0.0	2d10/12 L=56	0.0	0.0	4,29
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.31	0.91	10.9	0.0	2d10/12 L=63	0.0	0.0	4,29
		175.0	0.52	15.7	15.7	0.09	6.43e-03	0.85	10.0	0.0	2d10/12 L=56	0.0	0.0	51,29
141	ok,ok	0.0	0.52	15.7	15.7	0.09	0.38	0.37	5.2	0.0	2d10/12 L=62	0.0	0.0	45,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.54	0.23	2.9	0.0	2d10/20 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.62	0.40	5.8	0.0	2d10/12 L=62	0.0	0.0	4,28
142	ok,ok	0.0	0.52	15.7	15.7	0.09	0.46	0.74	9.3	0.0	2d10/12 L=62	0.0	0.0	3,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.33	0.68	8.3	0.0	2d10/15 L=75	0.0	0.0	3,34
		200.0	0.52	15.7	15.7	0.09	0.47	0.74	9.3	0.0	2d10/12 L=62	0.0	0.0	3,34
143	ok,ok	0.0	0.52	15.7	15.7	0.09	0.53	0.46	5.2	0.0	2d10/12 L=62	0.0	0.0	4,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.34	0.32	2.8	0.0	2d10/20 L=425	0.0	0.0	3,27
		550.0	0.52	15.7	15.7	0.09	0.79	0.49	5.7	0.0	2d10/12 L=62	0.0	0.0	4,27
144	ok,ok	0.0	0.52	15.7	15.7	0.09	0.82	0.96	11.8	0.0	2d10/12 L=56	0.0	0.0	4,26
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.31	0.91	10.9	0.0	2d10/12 L=63	0.0	0.0	4,26
		175.0	0.52	15.7	15.7	0.09	6.37e-03	0.85	10.0	0.0	2d10/12 L=56	0.0	0.0	53,26
145	ok,ok	0.0	0.52	15.7	15.7	0.09	0.42	0.37	5.2	0.0	2d10/12 L=62	0.0	0.0	43,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.54	0.23	2.9	0.0	2d10/20 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.62	0.40	5.8	0.0	2d10/12 L=62	0.0	0.0	4,28
146	ok,ok	0.0	0.52	15.7	15.7	0.09	0.46	0.74	9.3	0.0	2d10/12 L=62	0.0	0.0	3,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.33	0.68	8.3	0.0	2d10/15 L=75	0.0	0.0	3,34
		200.0	0.52	15.7	15.7	0.09	0.47	0.74	9.3	0.0	2d10/12 L=62	0.0	0.0	3,34
147	ok,ok	0.0	0.52	15.7	15.7	0.09	0.54	0.46	5.3	0.0	2d10/12 L=62	0.0	0.0	4,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.34	0.32	2.8	0.0	2d10/20 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.81	0.49	5.7	0.0	2d10/12 L=62	0.0	0.0	44,28
148	ok,ok	0.0	0.52	15.7	15.7	0.09	0.82	0.96	11.8	0.0	2d10/12 L=56	0.0	0.0	4,26
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.31	0.91	10.9	0.0	2d10/12 L=63	0.0	0.0	4,26
		175.0	0.52	15.7	15.7	0.09	8.14e-03	0.85	10.0	0.0	2d10/12 L=56	0.0	0.0	45,26
149	ok,ok	0.0	0.52	15.7	15.7	0.09	0.46	0.37	5.2	0.0	2d10/12 L=62	0.0	0.0	43,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.54	0.23	2.9	0.0	2d10/20 L=425	0.0	0.0	3,27
		550.0	0.52	15.7	15.7	0.09	0.63	0.40	5.8	0.0	2d10/12 L=62	0.0	0.0	4,27
150	ok,ok	0.0	0.52	15.7	15.7	0.09	0.46	0.74	9.3	0.0	2d10/12 L=62	0.0	0.0	3,37
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.34	0.68	8.3	0.0	2d10/15 L=75	0.0	0.0	3,37
		200.0	0.52	15.7	15.7	0.09	0.47	0.75	9.3	0.0	2d10/12 L=62	0.0	0.0	3,37
151	ok,ok	0.0	0.52	15.7	15.7	0.09	0.55	0.48	5.3	0.0	2d10/12 L=62	0.0	0.0	4,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.34	0.33	2.8	0.0	2d10/20 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.84	0.50	5.7	0.0	2d10/12 L=62	0.0	0.0	44,28
152	ok,ok	0.0	0.52	15.7	15.7	0.09	0.82	0.98	11.9	0.0	2d10/12 L=56	0.0	0.0	4,29
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.31	0.92	11.0	0.0	2d10/12 L=63	0.0	0.0	4,29
		175.0	0.52	15.7	15.7	0.09	0.02	0.87	10.1	0.0	2d10/12 L=56	0.0	0.0	45,29
153	ok,ok	0.0	0.52	15.7	15.7	0.09	0.49	0.36	4.1	0.0	2d10/12 L=62	0.0	0.0	43,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.29	0.28	2.8	0.0	2d10/20 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.48	0.38	4.5	0.0	2d10/12 L=62	0.0	0.0	44,28

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
154	ok,ok	0.0	0.52	15.7	15.7	0.09	0.35	0.68	9.3	0.0	2d10/12 L=62	0.0	0.0	43,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.16	0.66	8.9	0.0	2d10/15 L=75	0.0	0.0	3,34
		200.0	0.52	15.7	15.7	0.09	0.37	0.69	9.5	0.0	2d10/12 L=62	0.0	0.0	44,34
155	ok,ok	0.0	0.52	15.7	15.7	0.09	0.43	0.36	4.1	0.0	2d10/12 L=62	0.0	0.0	43,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.19	0.28	2.8	0.0	2d10/20 L=425	0.0	0.0	3,27
		550.0	0.52	15.7	15.7	0.09	0.73	0.38	4.4	0.0	2d10/12 L=62	0.0	0.0	44,27
156	ok,ok	0.0	0.52	15.7	15.7	0.09	0.44	0.98	10.5	0.0	2d10/12 L=62	0.0	0.0	3,26
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.17	0.95	9.9	0.0	2d10/15 L=50	0.0	0.0	3,26
		175.0	0.52	15.7	15.7	0.09	0.06	0.91	9.4	0.0	2d10/12 L=62	0.0	0.0	44,26
157	ok,ok	0.0	0.75	12.6	12.6	0.18	0.65	0.15	2.3	0.0	2d10/5 L=50	0.0	0.0	28,48
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.09	0.12	1.7	0.0	2d10/15 L=550	0.0	0.0	1,48
		650.0	0.75	12.6	12.6	0.18	0.67	0.15	2.4	0.0	2d10/5 L=50	0.0	0.0	27,48
158	ok,ok	0.0	0.75	12.6	12.6	0.18	0.65	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	28,37
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.08	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,37
		650.0	0.75	12.6	12.6	0.18	0.63	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	27,37
159	ok,ok	0.0	0.75	12.6	12.6	0.18	0.64	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	28,37
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.08	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,37
		650.0	0.75	12.6	12.6	0.18	0.64	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	27,37
160	ok,ok	0.0	0.75	12.6	12.6	0.18	0.64	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	28,37
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.08	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,37
		650.0	0.75	12.6	12.6	0.18	0.64	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	27,37
161	ok,ok	0.0	0.75	12.6	12.6	0.18	0.64	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	28,32
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.08	0.09	1.7	0.0	2d10/15 L=550	0.0	0.0	9,32
		650.0	0.75	12.6	12.6	0.18	0.65	0.12	2.3	0.0	2d10/5 L=50	0.0	0.0	27,32
162	ok,ok	0.0	0.75	12.6	12.6	0.18	0.70	0.15	2.4	0.0	2d10/5 L=50	0.0	0.0	28,38
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.09	0.12	1.8	0.0	2d10/15 L=550	0.0	0.0	1,38
		650.0	0.75	12.6	12.6	0.18	0.61	0.15	2.2	0.0	2d10/5 L=50	0.0	0.0	27,38
163	ok,ok	0.0	0.75	12.6	12.6	0.18	0.57	0.15	2.2	0.0	2d10/5 L=50	0.0	0.0	37,22
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.11	0.13	1.7	0.0	2d10/15 L=550	0.0	0.0	34,22
		650.0	0.75	12.6	12.6	0.18	0.61	0.16	2.4	0.0	2d10/5 L=50	0.0	0.0	34,22
164	ok,ok	0.0	0.75	12.6	12.6	0.18	0.54	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	37,53
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.08	0.10	1.7	0.0	2d10/15 L=550	0.0	0.0	2,53
		650.0	0.75	12.6	12.6	0.18	0.55	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	34,53
165	ok,ok	0.0	0.75	12.6	12.6	0.18	0.55	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	32,53
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.08	0.10	1.7	0.0	2d10/15 L=550	0.0	0.0	2,53
		650.0	0.75	12.6	12.6	0.18	0.55	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	34,53
166	ok,ok	0.0	0.75	12.6	12.6	0.18	0.55	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	32,53
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.08	0.10	1.7	0.0	2d10/15 L=550	0.0	0.0	1,53
		650.0	0.75	12.6	12.6	0.18	0.54	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	34,53
167	ok,ok	0.0	0.75	12.6	12.6	0.18	0.55	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	32,37
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.08	0.10	1.7	0.0	2d10/15 L=550	0.0	0.0	2,37
		650.0	0.75	12.6	12.6	0.18	0.53	0.13	2.3	0.0	2d10/5 L=50	0.0	0.0	34,37
168	ok,ok	0.0	0.75	12.6	12.6	0.18	0.62	0.16	2.4	0.0	2d10/5 L=50	0.0	0.0	32,28
	s=7,m=4	325.0	0.75	12.6	12.6	0.18	0.12	0.13	1.7	0.0	2d10/15 L=550	0.0	0.0	32,28
		650.0	0.75	12.6	12.6	0.18	0.55	0.15	2.2	0.0	2d10/5 L=50	0.0	0.0	31,28
169	ok,ok	0.0	1.12	9.4	9.4	0.21	0.81	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	28,53
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.28	0.15	1.3	0.0	2d10/15 L=550	0.0	0.0	9,53
		650.0	1.12	9.4	9.4	0.21	0.85	0.29	2.7	0.0	2d10/5 L=50	0.0	0.0	27,53
170	ok,ok	0.0	1.12	9.4	9.4	0.21	0.64	0.31	2.5	0.0	2d10/5 L=50	0.0	0.0	37,22
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.30	0.17	1.1	0.0	2d10/15 L=550	0.0	0.0	3,22
		650.0	1.12	9.4	9.4	0.21	0.67	0.31	2.5	0.0	2d10/5 L=50	0.0	0.0	34,22
171	ok,ok	0.0	1.12	9.4	9.4	0.21	0.63	0.27	2.5	0.0	2d10/5 L=50	0.0	0.0	32,44
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.27	0.13	1.1	0.0	2d10/15 L=550	0.0	0.0	3,44
		650.0	1.12	9.4	9.4	0.21	0.63	0.27	2.5	0.0	2d10/5 L=50	0.0	0.0	34,44
172	ok,ok	0.0	1.12	9.4	9.4	0.21	0.86	0.30	2.7	0.0	2d10/5 L=50	0.0	0.0	25,31
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.28	0.16	1.3	0.0	2d10/15 L=550	0.0	0.0	1,31
		650.0	1.12	9.4	9.4	0.21	0.77	0.29	2.6	0.0	2d10/5 L=50	0.0	0.0	27,31
173	ok,ok	0.0	1.12	9.4	9.4	0.21	0.67	0.31	2.5	0.0	2d10/5 L=50	0.0	0.0	32,28
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.30	0.17	1.1	0.0	2d10/15 L=550	0.0	0.0	1,28
		650.0	1.12	9.4	9.4	0.21	0.64	0.31	2.5	0.0	2d10/5 L=50	0.0	0.0	34,28
174	ok,ok	0.0	1.12	9.4	9.4	0.21	0.80	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	25,53
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.26	0.14	1.2	0.0	2d10/15 L=550	0.0	0.0	9,53
		650.0	1.12	9.4	9.4	0.21	0.80	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	27,53
175	ok,ok	0.0	1.12	9.4	9.4	0.21	0.63	0.27	2.5	0.0	2d10/5 L=50	0.0	0.0	32,53
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.27	0.13	1.1	0.0	2d10/15 L=550	0.0	0.0	3,53
		650.0	1.12	9.4	9.4	0.21	0.63	0.27	2.5	0.0	2d10/5 L=50	0.0	0.0	34,53
176	ok,ok	0.0	1.12	9.4	9.4	0.21	0.80	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	25,53
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.27	0.14	1.2	0.0	2d10/15 L=550	0.0	0.0	9,53
		650.0	1.12	9.4	9.4	0.21	0.80	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	27,53

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
177	ok,ok	0.0	1.12	9.4	9.4	0.21	0.63	0.27	2.5	0.0	2d10/5 L=50	0.0	0.0	32,53
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.27	0.13	1.1	0.0	2d10/15 L=550	0.0	0.0	3,53
		650.0	1.12	9.4	9.4	0.21	0.63	0.27	2.5	0.0	2d10/5 L=50	0.0	0.0	34,53
178	ok,ok	0.0	1.12	9.4	9.4	0.21	0.80	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	25,53
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.27	0.14	1.2	0.0	2d10/15 L=550	0.0	0.0	9,53
		650.0	1.12	9.4	9.4	0.21	0.80	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	27,53
179	ok,ok	0.0	1.12	9.4	9.4	0.21	0.63	0.27	2.5	0.0	2d10/5 L=50	0.0	0.0	32,50
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.27	0.13	1.1	0.0	2d10/15 L=550	0.0	0.0	3,53
		650.0	1.12	9.4	9.4	0.21	0.63	0.27	2.5	0.0	2d10/5 L=50	0.0	0.0	34,50
180	ok,ok	0.0	1.12	9.4	9.4	0.21	0.80	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	25,50
	s=3,m=4	325.0	1.12	9.4	9.4	0.21	0.26	0.14	1.2	0.0	2d10/15 L=550	0.0	0.0	4,50
		650.0	1.12	9.4	9.4	0.21	0.80	0.28	2.6	0.0	2d10/5 L=50	0.0	0.0	27,50
Trave			**%Af**	**Af inf.**	**Af. sup**	**x/d**	**verif.**	**ver. V/T**	**Af V**	**Af T**		**Scorr. P**	**Af long.**	
			1.12	18.83	18.83	0.21	0.98	0.99	13.82	0.0		0.0	0.0	

Verifiche SLE

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	cm					mm	mm	mm		cm	cm	cm	
1	0.0	0.16	0.26	0.22	122,122,131	0.06	0.06	0.06	122,129,131	0.05	0.05	0.05	122,129,131
	77.5	0.0	8.71e-03	0.0	0,124,0	0.0	0.0	0.0	0,0,0				
	155.0	0.15	0.24	0.19	122,122,131	0.0	0.0	0.0	0,0,0				
36	0.0	0.03	0.07	0.03	122,122,131	0.0	0.0	0.0	0,0,0	0.11	0.10	0.10	122,129,131
	250.0	0.10	0.22	0.12	122,122,131	0.0	0.0	0.0	0,0,0				
	500.0	0.15	0.32	0.19	124,124,131	0.07	0.0	0.0	124,0,0				
37	0.0	0.12	0.25	0.14	124,124,131	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	122,129,131
	172.5	0.02	0.05	0.02	122,122,131	0.0	0.0	0.0	0,0,0				
	345.0	0.03	0.07	0.04	122,122,131	0.0	0.0	0.0	0,0,0				
38	0.0	0.06	0.14	0.07	124,124,131	0.0	0.0	0.0	0,0,0	0.10	0.09	0.09	122,129,131
	290.0	0.11	0.25	0.13	124,124,131	0.0	0.0	0.0	0,0,0				
	580.0	0.28	0.59	0.34	122,122,131	0.16	0.16	0.16	122,129,131				
39	0.0	0.31	0.65	0.37	124,124,131	0.18	0.18	0.17	124,129,131	0.20	0.17	0.14	124,129,131
	275.0	0.16	0.34	0.19	122,124,131	0.07	0.08	0.0	124,129,0				
	550.0	0.23	0.48	0.27	122,122,131	0.12	0.12	0.12	122,129,131				
40	0.0	0.09	0.19	0.10	122,122,131	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	120,127,130
	100.0	0.07	0.16	0.09	122,122,131	0.0	0.0	0.0	0,0,0				
	200.0	0.17	0.36	0.21	124,124,131	0.08	0.08	0.08	124,129,131				
41	0.0	0.28	0.60	0.35	122,122,131	0.16	0.16	0.16	122,129,131	0.34	0.33	0.29	124,129,131
	275.0	0.17	0.37	0.21	122,124,131	0.08	0.09	0.08	124,129,131				
	550.0	0.22	0.46	0.26	124,124,131	0.11	0.11	0.11	124,129,131				
42	0.0	0.14	0.29	0.17	122,122,131	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	120,127,130
	77.5	0.03	0.08	0.04	122,122,131	0.0	0.0	0.0	0,0,0				
	155.0	0.01	0.04	0.02	118,118,130	0.0	0.0	0.0	0,0,0				
43	0.0	0.05	0.11	0.07	118,118,130	0.0	0.0	0.0	0,0,0	0.01	0.01	0.01	124,128,131
	77.5	0.05	0.10	0.06	124,124,131	0.0	0.0	0.0	0,0,0				
	155.0	0.22	0.46	0.27	124,124,131	0.11	0.12	0.11	124,129,131				
44	0.0	0.26	0.54	0.31	124,124,131	0.14	0.14	0.13	124,129,131	0.21	0.22	0.21	122,129,131
	290.0	0.18	0.34	0.21	124,124,131	0.07	0.07	0.07	124,129,131				
	580.0	0.40	0.82	0.47	122,122,131	0.24	0.23	0.23	122,129,131				
45	0.0	0.37	0.77	0.44	124,124,131	0.22	0.22	0.21	124,129,131	0.24	0.20	0.19	124,129,131
	275.0	0.17	0.36	0.20	122,122,131	0.08	0.08	0.08	122,129,131				
	550.0	0.22	0.47	0.26	122,122,131	0.11	0.12	0.11	122,129,131				
46	0.0	0.11	0.24	0.13	122,122,131	0.0	0.0	0.0	0,0,0	0.03	0.02	0.02	120,127,130
	100.0	0.11	0.23	0.13	122,122,131	0.0	0.0	0.0	0,0,0				
	200.0	0.23	0.48	0.28	124,124,131	0.11	0.12	0.12	124,129,131				
47	0.0	0.32	0.67	0.39	122,122,131	0.18	0.19	0.18	122,129,131	0.47	0.45	0.44	122,129,131
	275.0	0.20	0.42	0.23	124,124,131	0.09	0.10	0.10	124,129,131				
	550.0	0.22	0.46	0.25	124,124,131	0.11	0.11	0.10	124,129,131				
48	0.0	0.15	0.31	0.18	122,122,131	0.07	0.0	0.0	122,0,0	0.01	0.01	0.01	118,125,130
	77.5	0.03	0.07	0.03	122,122,131	0.0	0.0	0.0	0,0,0				
	155.0	0.02	0.05	0.03	118,118,130	0.0	0.0	0.0	0,0,0				
49	0.0	0.05	0.11	0.07	118,118,130	0.0	0.0	0.0	0,0,0	0.02	0.01	0.01	124,128,131
	77.5	0.05	0.11	0.06	124,124,131	0.0	0.0	0.0	0,0,0				
	155.0	0.22	0.46	0.27	124,124,131	0.11	0.12	0.11	124,129,131				
50	0.0	0.26	0.55	0.31	124,124,131	0.14	0.14	0.13	124,129,131	0.21	0.21	0.20	124,129,131
	290.0	0.18	0.34	0.21	124,124,131	0.07	0.07	0.07	124,129,131				
	580.0	0.39	0.81	0.47	122,122,131	0.23	0.23	0.22	122,129,131				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
51	0.0	0.37	0.78	0.44	124,124,131	0.22	0.22	0.21	124,129,131	0.24	0.20	0.20	124,129,131
	275.0	0.17	0.36	0.20	122,122,131	0.08	0.08	0.08	122,129,131				
	550.0	0.22	0.47	0.26	122,122,131	0.11	0.12	0.11	122,129,131				
52	0.0	0.11	0.24	0.13	122,122,131	0.0	0.0	0.0	0,0,0	0.03	0.02	0.02	120,127,130
	100.0	0.11	0.23	0.13	122,122,131	0.0	0.0	0.0	0,0,0				
	200.0	0.23	0.47	0.28	124,124,131	0.11	0.12	0.12	124,129,131				
53	0.0	0.32	0.66	0.39	122,122,131	0.18	0.18	0.18	122,129,131	0.47	0.45	0.44	124,129,131
	275.0	0.20	0.41	0.24	124,124,131	0.09	0.10	0.09	124,129,131				
	550.0	0.22	0.46	0.25	124,124,131	0.11	0.11	0.10	124,129,131				
54	0.0	0.15	0.32	0.18	122,122,131	0.07	0.0	0.0	122,0,0	0.01	0.01	0.01	118,125,130
	77.5	0.03	0.07	0.03	122,122,131	0.0	0.0	0.0	0,0,0				
	155.0	0.02	0.05	0.03	118,118,130	0.0	0.0	0.0	0,0,0				
55	0.0	0.05	0.11	0.07	118,118,130	0.0	0.0	0.0	0,0,0	0.02	0.01	0.01	124,129,131
	77.5	0.05	0.11	0.06	124,124,131	0.0	0.0	0.0	0,0,0				
	155.0	0.22	0.46	0.27	124,124,131	0.11	0.12	0.11	124,129,131				
56	0.0	0.26	0.55	0.31	124,124,131	0.14	0.14	0.14	124,129,131	0.21	0.21	0.20	124,129,131
	290.0	0.18	0.34	0.21	124,124,131	0.07	0.07	0.07	124,129,131				
	580.0	0.39	0.81	0.47	122,122,131	0.23	0.23	0.22	122,129,131				
57	0.0	0.37	0.78	0.44	124,124,131	0.22	0.22	0.21	124,129,131	0.24	0.20	0.20	124,129,131
	275.0	0.17	0.36	0.20	122,122,131	0.08	0.08	0.08	122,129,131				
	550.0	0.22	0.47	0.26	122,122,131	0.11	0.12	0.11	122,129,131				
58	0.0	0.11	0.24	0.13	122,122,131	0.0	0.0	0.0	0,0,0	0.03	0.02	0.02	120,127,130
	100.0	0.11	0.23	0.13	122,122,131	0.0	0.0	0.0	0,0,0				
	200.0	0.23	0.47	0.28	124,124,131	0.11	0.12	0.12	124,129,131				
59	0.0	0.32	0.67	0.39	122,122,131	0.18	0.19	0.18	122,129,131	0.48	0.46	0.45	124,129,131
	275.0	0.20	0.42	0.23	122,124,131	0.09	0.10	0.10	124,129,131				
	550.0	0.22	0.45	0.25	124,124,131	0.11	0.11	0.10	124,129,131				
60	0.0	0.15	0.32	0.18	122,122,131	0.07	0.0	0.0	122,0,0	0.01	0.01	0.01	118,125,130
	77.5	0.03	0.07	0.03	122,122,131	0.0	0.0	0.0	0,0,0				
	155.0	0.02	0.06	0.03	118,118,130	0.0	0.0	0.0	0,0,0				
61	0.0	0.06	0.12	0.07	118,118,130	0.0	0.0	0.0	0,0,0	0.01	9.19e-03	8.44e-03	124,129,131
	77.5	0.05	0.11	0.06	124,124,131	0.0	0.0	0.0	0,0,0				
	155.0	0.22	0.47	0.27	124,124,131	0.11	0.12	0.12	124,129,131				
62	0.0	0.26	0.55	0.31	124,124,131	0.14	0.14	0.13	124,129,131	0.21	0.22	0.21	122,129,131
	290.0	0.18	0.34	0.21	124,124,131	0.07	0.07	0.07	124,129,131				
	580.0	0.39	0.82	0.47	122,122,131	0.24	0.23	0.23	122,129,131				
63	0.0	0.37	0.78	0.44	124,124,131	0.22	0.22	0.21	124,129,131	0.24	0.20	0.20	124,129,131
	275.0	0.17	0.36	0.20	122,122,131	0.08	0.08	0.08	122,129,131				
	550.0	0.22	0.47	0.26	122,122,131	0.11	0.12	0.11	122,129,131				
64	0.0	0.11	0.25	0.13	122,122,131	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	120,127,130
	100.0	0.11	0.23	0.13	122,122,131	0.0	0.0	0.0	0,0,0				
	200.0	0.23	0.48	0.28	124,124,131	0.11	0.12	0.12	124,129,131				
65	0.0	0.32	0.67	0.39	122,122,131	0.18	0.19	0.18	122,129,131	0.49	0.47	0.46	124,129,131
	275.0	0.20	0.42	0.23	122,124,131	0.09	0.10	0.10	124,129,131				
	550.0	0.21	0.45	0.25	124,124,131	0.10	0.11	0.10	124,129,131				
66	0.0	0.16	0.33	0.19	122,122,131	0.07	0.0	0.0	122,0,0	0.02	0.02	0.02	118,125,130
	77.5	0.03	0.07	0.03	122,122,131	0.0	0.0	0.0	0,0,0				
	155.0	0.03	0.07	0.04	118,118,130	0.0	0.0	0.0	0,0,0				
67	0.0	0.07	0.15	0.09	118,118,130	0.0	0.0	0.0	0,0,0	6.39e-03	6.97e-03	6.97e-03	119,126,131
	77.5	0.05	0.11	0.05	124,124,131	0.0	0.0	0.0	0,0,0				
	155.0	0.23	0.49	0.29	124,124,131	0.12	0.13	0.12	124,129,131				
68	0.0	0.26	0.54	0.30	124,124,131	0.14	0.14	0.13	124,129,131	0.23	0.24	0.23	122,129,131
	290.0	0.18	0.34	0.21	124,124,131	0.07	0.07	0.07	124,129,131				
	580.0	0.38	0.70	0.45	122,122,131	0.19	0.18	0.18	122,129,131				
69	0.0	0.37	0.78	0.44	124,124,131	0.22	0.22	0.21	124,129,131	0.24	0.20	0.19	124,129,131
	275.0	0.17	0.36	0.20	122,122,131	0.08	0.08	0.08	122,129,131				
	550.0	0.22	0.47	0.26	122,122,131	0.11	0.12	0.11	122,129,131				
70	0.0	0.11	0.25	0.13	122,122,131	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	120,127,130
	100.0	0.11	0.24	0.13	122,122,131	0.0	0.0	0.0	0,0,0				
	200.0	0.23	0.48	0.28	124,124,131	0.11	0.12	0.12	124,129,131				
71	0.0	0.33	0.69	0.40	122,122,131	0.19	0.19	0.19	122,129,131	0.51	0.49	0.48	124,129,131
	275.0	0.20	0.42	0.23	122,124,131	0.09	0.10	0.10	124,129,131				
	550.0	0.21	0.45	0.24	124,124,131	0.10	0.11	0.10	124,129,131				
72	0.0	0.17	0.35	0.20	122,122,131	0.08	0.08	0.08	122,129,131	0.02	0.02	0.02	118,125,130
	77.5	0.03	0.07	0.03	122,122,131	0.0	0.0	0.0	0,0,0				
	155.0	0.04	0.08	0.05	118,118,130	0.0	0.0	0.0	0,0,0				
73	0.0	0.02	0.06	0.03	120,120,130	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	121,128,131
	77.5	0.03	0.07	0.04	124,124,131	0.0	0.0	0.0	0,0,0				
	155.0	0.14	0.28	0.17	124,124,131	0.0	0.0	0.0	0,0,0				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
74	0.0	0.17	0.36	0.20	124,124,131	0.08	0.08	0.08	124,129,131	0.11	0.10	0.10	124,129,131
	290.0	0.12	0.26	0.15	124,124,131	0.0	0.0	0.0	0,0,0				
	580.0	0.26	0.55	0.32	122,122,131	0.14	0.14	0.14	122,129,131				
75	0.0	0.27	0.56	0.32	124,124,131	0.14	0.15	0.14	124,129,131	0.13	0.12	0.12	124,129,131
	275.0	0.13	0.28	0.16	122,122,131	0.0	0.0	0.0	0,0,0				
	550.0	0.19	0.41	0.24	122,122,131	0.09	0.10	0.10	122,129,131				
76	0.0	0.07	0.16	0.08	122,122,131	0.0	0.0	0.0	0,0,0	0.03	0.02	0.02	120,127,130
	100.0	0.06	0.13	0.07	122,122,131	0.0	0.0	0.0	0,0,0				
	200.0	0.15	0.31	0.18	124,124,131	0.0	0.0	0.0	0,0,0				
77	0.0	0.24	0.50	0.30	124,124,131	0.12	0.13	0.13	124,129,131	0.21	0.18	0.17	124,129,131
	275.0	0.15	0.32	0.18	122,124,131	0.07	0.0	0.0	124,0,0				
	550.0	0.19	0.39	0.23	122,124,131	0.08	0.09	0.09	124,129,131				
78	0.0	0.10	0.22	0.12	122,122,131	0.0	0.0	0.0	0,0,0	0.01	0.01	0.01	120,127,130
	77.5	0.02	0.06	0.03	122,122,131	0.0	0.0	0.0	0,0,0				
	155.0	3.00e-03	0.02	4.01e-03	118,118,130	0.0	0.0	0.0	0,0,0				
79	0.0	0.0	0.05	0.0	0,121,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	121,128,131
	172.5	0.0	0.05	0.0	0,122,0	0.0	0.0	0.0	0,0,0				
	345.0	0.05	0.12	0.07	118,122,130	0.0	0.0	0.0	0,0,0				
80	0.0	0.30	0.47	0.40	120,121,130	0.11	0.13	0.13	121,128,131	0.33	0.34	0.34	121,128,131
	325.0	0.16	0.26	0.22	120,122,130	0.06	0.06	0.06	122,129,131				
	650.0	0.33	0.51	0.43	118,122,130	0.12	0.14	0.14	122,129,131				
81	0.0	0.32	0.49	0.42	121,122,131	0.12	0.14	0.14	122,129,131	0.30	0.32	0.32	121,128,131
	325.0	0.16	0.25	0.21	120,122,130	0.05	0.05	0.05	122,129,131				
	650.0	0.32	0.50	0.43	120,122,130	0.12	0.14	0.14	122,129,131				
82	0.0	0.32	0.49	0.42	120,122,130	0.12	0.14	0.14	122,129,131	0.30	0.31	0.31	120,127,130
	325.0	0.16	0.25	0.21	120,122,130	0.05	0.05	0.05	122,129,131				
	650.0	0.32	0.50	0.43	120,122,130	0.12	0.14	0.14	122,129,131				
83	0.0	0.32	0.50	0.42	120,122,130	0.12	0.14	0.14	122,129,131	0.30	0.31	0.31	121,128,131
	325.0	0.16	0.25	0.21	120,122,130	0.05	0.05	0.05	122,129,131				
	650.0	0.32	0.50	0.43	120,122,130	0.12	0.14	0.14	122,129,131				
84	0.0	0.32	0.50	0.42	118,122,130	0.12	0.14	0.14	122,129,131	0.30	0.32	0.32	118,125,130
	325.0	0.16	0.26	0.21	120,122,130	0.06	0.06	0.06	122,129,131				
	650.0	0.32	0.51	0.43	120,122,130	0.12	0.14	0.14	122,129,131				
85	0.0	0.33	0.53	0.44	118,122,130	0.13	0.15	0.15	122,129,131	0.38	0.42	0.42	122,129,131
	325.0	0.16	0.27	0.22	120,124,130	0.06	0.06	0.06	122,129,131				
	650.0	0.29	0.47	0.39	120,121,130	0.11	0.13	0.13	121,128,131				
86	0.0	0.07	0.11	0.09	118,118,130	0.0	0.0	0.0	0,0,0	5.62e-03	3.90e-03	3.51e-03	121,128,131
	77.5	0.01	0.03	0.02	122,122,131	0.0	0.0	0.0	0,0,0				
	155.0	0.02	0.04	0.03	118,118,130	0.0	0.0	0.0	0,0,0				
87	0.0	0.09	0.14	0.11	124,122,131	0.0	0.0	0.0	0,0,0	0.12	0.12	0.12	118,125,130
	325.0	0.05	0.09	0.07	121,122,131	0.0	0.0	0.0	0,0,0				
	650.0	0.11	0.18	0.15	118,118,130	0.0	0.0	0.0	0,0,0				
88	0.0	0.10	0.17	0.13	122,122,131	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	118,125,130
	325.0	0.05	0.09	0.07	120,122,130	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.17	0.13	120,122,130	0.0	0.0	0.0	0,0,0				
89	0.0	0.10	0.17	0.13	118,122,130	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	120,127,130
	325.0	0.05	0.09	0.07	120,122,130	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.17	0.13	120,124,130	0.0	0.0	0.0	0,0,0				
90	0.0	0.10	0.17	0.13	118,122,130	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	121,128,131
	325.0	0.05	0.09	0.06	118,124,130	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.17	0.13	120,124,130	0.0	0.0	0.0	0,0,0				
91	0.0	0.10	0.17	0.13	118,124,130	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	120,127,130
	325.0	0.05	0.09	0.06	118,124,130	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.18	0.14	121,124,131	0.0	0.0	0.0	0,0,0				
92	0.0	0.11	0.19	0.15	118,124,130	0.0	0.0	0.0	0,0,0	0.14	0.14	0.14	124,129,131
	325.0	0.05	0.10	0.07	118,124,130	0.0	0.0	0.0	0,0,0				
	650.0	0.08	0.15	0.11	120,121,130	0.0	0.0	0.0	0,0,0				
93	0.0	0.06	0.15	0.08	120,120,130	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	120,127,130
	77.5	0.0	0.05	0.0	0,124,0	0.0	0.0	0.0	0,0,0				
	155.0	0.04	0.11	0.05	120,120,130	0.0	0.0	0.0	0,0,0				
94	0.0	0.0	0.08	0.0	0,122,0	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	122,129,131
	172.5	0.0	0.08	0.0	0,122,0	0.0	0.0	0.0	0,0,0				
	345.0	0.06	0.16	0.08	122,122,131	0.0	0.0	0.0	0,0,0				
95	0.0	0.09	0.15	0.12	120,121,130	0.0	0.0	0.0	0,0,0	0.11	0.11	0.11	118,125,130
	325.0	0.05	0.09	0.07	120,122,130	0.0	0.0	0.0	0,0,0				
	650.0	0.11	0.18	0.15	118,122,130	0.0	0.0	0.0	0,0,0				
96	0.0	0.10	0.17	0.13	124,122,131	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	121,128,131
	325.0	0.05	0.09	0.07	120,122,130	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.16	0.13	120,118,130	0.0	0.0	0.0	0,0,0				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
97	0.0	0.10	0.16	0.13	118,122,130	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	118,125,130
	325.0	0.05	0.09	0.07	120,122,130	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.17	0.14	120,122,130	0.0	0.0	0.0	0,0,0				
98	0.0	0.10	0.16	0.13	118,122,130	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	120,127,130
	325.0	0.05	0.09	0.07	120,122,130	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.17	0.14	120,122,130	0.0	0.0	0.0	0,0,0				
99	0.0	0.09	0.15	0.12	118,118,130	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	121,128,131
	325.0	0.05	0.09	0.07	120,122,130	0.0	0.0	0.0	0,0,0				
	650.0	0.11	0.18	0.14	121,124,131	0.0	0.0	0.0	0,0,0				
100	0.0	0.13	0.21	0.17	122,122,131	0.0	0.0	0.0	0,0,0	0.20	0.20	0.20	122,129,131
	325.0	0.05	0.09	0.07	121,122,131	0.0	0.0	0.0	0,0,0				
	650.0	0.07	0.12	0.09	120,120,130	0.0	0.0	0.0	0,0,0				
129	0.0	0.07	0.13	0.08	121,121,131	0.0	0.0	0.0	0,0,0	0.18	0.16	0.16	120,127,130
	275.0	0.15	0.29	0.17	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.19	0.37	0.21	120,121,130	0.08	0.08	0.08	121,128,131				
130	0.0	0.10	0.22	0.11	120,120,130	0.0	0.0	0.0	0,0,0	0.03	0.02	0.02	120,127,130
	100.0	0.08	0.17	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
	200.0	0.12	0.26	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
131	0.0	0.15	0.31	0.17	121,121,131	0.0	0.0	0.0	0,0,0	0.18	0.17	0.17	121,128,131
	275.0	0.09	0.20	0.10	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.21	0.43	0.25	121,120,131	0.10	0.10	0.10	120,127,130				
132	0.0	0.20	0.41	0.24	121,120,131	0.09	0.10	0.10	120,127,130	0.15	0.14	0.14	124,129,131
	87.5	0.07	0.15	0.09	121,120,131	0.0	0.0	0.0	0,0,0				
	175.0	0.0	0.01	0.0	0,120,0	0.0	0.0	0.0	0,0,0				
133	0.0	0.11	0.21	0.11	121,121,131	0.0	0.0	0.0	0,0,0	0.44	0.36	0.34	120,127,130
	275.0	0.23	0.46	0.24	120,120,130	0.11	0.10	0.09	120,127,130				
	550.0	0.26	0.53	0.29	121,121,131	0.13	0.12	0.12	121,128,131				
134	0.0	0.18	0.38	0.19	120,120,130	0.08	0.08	0.0	120,127,0	0.02	0.02	0.02	120,127,130
	100.0	0.13	0.28	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
	200.0	0.18	0.39	0.20	120,120,130	0.08	0.08	0.07	120,127,130				
135	0.0	0.22	0.45	0.24	121,121,131	0.10	0.10	0.09	121,128,131	0.22	0.21	0.21	124,129,131
	275.0	0.14	0.28	0.13	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.33	0.68	0.37	121,121,131	0.19	0.18	0.17	121,128,131				
136	0.0	0.34	0.71	0.41	120,121,130	0.20	0.19	0.19	121,128,131	0.35	0.38	0.38	122,129,131
	87.5	0.13	0.27	0.16	120,121,130	0.0	0.0	0.0	0,0,0				
	175.0	9.29e-04	7.33e-03	1.24e-03	118,121,130	0.0	0.0	0.0	0,0,0				
137	0.0	0.11	0.21	0.11	121,121,131	0.0	0.0	0.0	0,0,0	0.44	0.36	0.34	120,127,130
	275.0	0.23	0.46	0.24	120,120,130	0.11	0.10	0.09	120,127,130				
	550.0	0.26	0.53	0.29	121,121,131	0.13	0.12	0.12	121,128,131				
138	0.0	0.18	0.38	0.19	120,120,130	0.08	0.08	0.0	120,127,0	0.02	0.02	0.02	120,127,130
	100.0	0.13	0.28	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
	200.0	0.18	0.39	0.20	120,120,130	0.08	0.08	0.07	120,127,130				
139	0.0	0.22	0.45	0.24	121,121,131	0.10	0.10	0.09	121,128,131	0.22	0.21	0.21	120,127,130
	275.0	0.14	0.28	0.13	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.33	0.68	0.37	121,121,131	0.19	0.18	0.17	121,128,131				
140	0.0	0.34	0.70	0.41	120,121,130	0.19	0.19	0.19	121,128,131	0.35	0.38	0.38	122,129,131
	87.5	0.13	0.27	0.16	120,121,130	0.0	0.0	0.0	0,0,0				
	175.0	0.0	4.84e-03	0.0	0,121,0	0.0	0.0	0.0	0,0,0				
141	0.0	0.11	0.21	0.11	121,121,131	0.0	0.0	0.0	0,0,0	0.44	0.36	0.34	120,127,130
	275.0	0.23	0.46	0.24	120,120,130	0.11	0.10	0.09	120,127,130				
	550.0	0.26	0.53	0.29	121,121,131	0.13	0.12	0.12	121,128,131				
142	0.0	0.18	0.38	0.19	120,120,130	0.08	0.08	0.0	120,127,0	0.02	0.02	0.02	120,127,130
	100.0	0.13	0.28	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
	200.0	0.19	0.39	0.20	120,120,130	0.08	0.08	0.08	120,127,130				
143	0.0	0.22	0.45	0.24	121,121,131	0.10	0.10	0.09	121,128,131	0.23	0.22	0.22	120,127,130
	275.0	0.14	0.28	0.13	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.33	0.67	0.37	121,121,131	0.18	0.18	0.17	121,128,131				
144	0.0	0.34	0.70	0.41	120,121,130	0.19	0.19	0.19	121,128,131	0.35	0.38	0.38	122,129,131
	87.5	0.13	0.27	0.16	120,121,130	0.0	0.0	0.0	0,0,0				
	175.0	0.0	4.42e-03	0.0	0,121,0	0.0	0.0	0.0	0,0,0				
145	0.0	0.11	0.21	0.11	121,121,131	0.0	0.0	0.0	0,0,0	0.44	0.36	0.34	120,127,130
	275.0	0.23	0.46	0.24	120,120,130	0.11	0.10	0.09	120,127,130				
	550.0	0.26	0.53	0.29	121,121,131	0.13	0.12	0.12	121,128,131				
146	0.0	0.18	0.39	0.19	120,120,130	0.08	0.08	0.0	120,127,0	0.02	0.02	0.02	120,127,130
	100.0	0.13	0.28	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
	200.0	0.19	0.39	0.20	120,120,130	0.09	0.08	0.08	120,127,130				
147	0.0	0.22	0.46	0.24	121,121,131	0.11	0.10	0.09	121,128,131	0.23	0.22	0.22	120,127,130
	275.0	0.14	0.28	0.13	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.33	0.67	0.37	121,121,131	0.18	0.17	0.17	121,128,131				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
148	0.0	0.34	0.70	0.41	120,121,130	0.19	0.19	0.19	121,128,131	0.35	0.38	0.38	122,129,131
	87.5	0.13	0.27	0.16	120,121,130	0.0	0.0	0.0	0,0,0				
	175.0	0.0	3.81e-03	0.0	0,121,0	0.0	0.0	0.0	0,0,0				
149	0.0	0.11	0.21	0.11	121,121,131	0.0	0.0	0.0	0,0,0	0.43	0.36	0.34	120,127,130
	275.0	0.23	0.46	0.24	120,120,130	0.11	0.10	0.09	120,127,130				
	550.0	0.27	0.53	0.29	121,121,131	0.13	0.12	0.12	121,128,131				
150	0.0	0.18	0.39	0.19	120,120,130	0.08	0.08	0.0	120,127,0	0.03	0.02	0.02	120,127,130
	100.0	0.13	0.28	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
	200.0	0.19	0.40	0.20	120,120,130	0.09	0.08	0.08	120,127,130				
151	0.0	0.23	0.47	0.25	121,121,131	0.11	0.10	0.10	121,128,131	0.25	0.24	0.24	121,128,131
	275.0	0.14	0.28	0.13	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.32	0.66	0.36	121,121,131	0.18	0.17	0.16	121,128,131				
152	0.0	0.34	0.70	0.41	120,121,130	0.20	0.19	0.19	121,128,131	0.36	0.39	0.39	122,129,131
	87.5	0.13	0.27	0.16	120,121,130	0.0	0.0	0.0	0,0,0				
	175.0	1.61e-03	5.18e-03	2.15e-03	118,121,130	0.0	0.0	0.0	0,0,0				
153	0.0	0.05	0.10	0.06	121,121,131	0.0	0.0	0.0	0,0,0	0.16	0.14	0.13	120,127,130
	275.0	0.13	0.25	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.16	0.31	0.18	121,121,131	0.07	0.0	0.0	121,0,0				
154	0.0	0.08	0.18	0.09	120,121,130	0.0	0.0	0.0	0,0,0	0.03	0.02	0.02	120,127,130
	100.0	0.06	0.14	0.07	120,120,130	0.0	0.0	0.0	0,0,0				
	200.0	0.10	0.21	0.11	120,120,130	0.0	0.0	0.0	0,0,0				
155	0.0	0.12	0.24	0.13	121,121,131	0.0	0.0	0.0	0,0,0	0.15	0.14	0.14	121,128,131
	275.0	0.08	0.16	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.19	0.39	0.22	121,120,131	0.08	0.09	0.08	120,127,130				
156	0.0	0.18	0.38	0.21	121,120,131	0.08	0.09	0.08	120,127,130	0.14	0.14	0.13	121,128,131
	87.5	0.07	0.15	0.08	121,120,131	0.0	0.0	0.0	0,0,0				
	175.0	0.0	0.01	0.0	0,120,0	0.0	0.0	0.0	0,0,0				
157	0.0	0.08	0.10	0.10	121,120,131	0.0	0.0	0.0	0,0,0	0.13	0.13	0.13	118,125,130
	325.0	0.06	0.08	0.08	120,118,130	0.0	0.0	0.0	0,0,0				
	650.0	0.12	0.18	0.16	122,118,131	0.0	0.0	0.0	0,0,0				
158	0.0	0.10	0.15	0.14	122,122,131	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	121,128,131
	325.0	0.05	0.07	0.07	121,122,131	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.15	0.14	120,118,130	0.0	0.0	0.0	0,0,0				
159	0.0	0.10	0.15	0.13	118,118,130	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	122,129,131
	325.0	0.05	0.07	0.07	121,122,131	0.0	0.0	0.0	0,0,0				
	650.0	0.11	0.15	0.14	120,118,130	0.0	0.0	0.0	0,0,0				
160	0.0	0.10	0.15	0.13	122,122,131	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	122,129,131
	325.0	0.05	0.07	0.07	121,122,131	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.15	0.14	120,118,130	0.0	0.0	0.0	0,0,0				
161	0.0	0.10	0.15	0.13	118,118,130	0.0	0.0	0.0	0,0,0	0.10	0.09	0.09	121,128,131
	325.0	0.05	0.07	0.07	121,122,131	0.0	0.0	0.0	0,0,0				
	650.0	0.11	0.16	0.14	121,122,131	0.0	0.0	0.0	0,0,0				
162	0.0	0.14	0.20	0.18	122,122,131	0.0	0.0	0.0	0,0,0	0.20	0.20	0.20	122,129,131
	325.0	0.06	0.08	0.08	118,118,130	0.0	0.0	0.0	0,0,0				
	650.0	0.06	0.08	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
163	0.0	0.06	0.08	0.08	121,121,131	0.0	0.0	0.0	0,0,0	0.16	0.16	0.16	121,128,131
	325.0	0.07	0.09	0.09	118,118,130	0.0	0.0	0.0	0,0,0				
	650.0	0.12	0.17	0.16	118,118,130	0.0	0.0	0.0	0,0,0				
164	0.0	0.11	0.15	0.14	120,118,130	0.0	0.0	0.0	0,0,0	0.10	0.09	0.09	121,128,131
	325.0	0.05	0.07	0.07	121,118,131	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.15	0.14	118,118,130	0.0	0.0	0.0	0,0,0				
165	0.0	0.10	0.15	0.13	121,122,131	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	121,128,131
	325.0	0.05	0.07	0.07	121,118,131	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.15	0.14	118,118,130	0.0	0.0	0.0	0,0,0				
166	0.0	0.10	0.15	0.14	122,122,131	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	122,129,131
	325.0	0.05	0.07	0.07	121,118,131	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.15	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
167	0.0	0.10	0.15	0.14	122,122,131	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	122,129,131
	325.0	0.05	0.07	0.07	121,118,131	0.0	0.0	0.0	0,0,0				
	650.0	0.11	0.15	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
168	0.0	0.13	0.18	0.17	122,122,131	0.0	0.0	0.0	0,0,0	0.16	0.16	0.16	118,125,130
	325.0	0.07	0.09	0.09	118,118,130	0.0	0.0	0.0	0,0,0				
	650.0	0.06	0.07	0.07	120,120,130	0.0	0.0	0.0	0,0,0				
169	0.0	0.31	0.41	0.42	120,120,130	0.09	0.10	0.10	120,127,130	0.51	0.58	0.58	118,125,130
	325.0	0.19	0.24	0.25	122,122,131	0.04	0.05	0.05	122,129,131				
	650.0	0.38	0.49	0.50	118,118,130	0.11	0.12	0.12	118,125,130				
170	0.0	0.30	0.40	0.40	121,121,131	0.08	0.09	0.09	121,128,131	0.64	0.71	0.71	121,128,131
	325.0	0.20	0.25	0.26	118,120,130	0.04	0.05	0.05	120,127,130				
	650.0	0.37	0.48	0.49	118,118,130	0.11	0.12	0.12	118,125,130				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
171	0.0	0.35	0.46	0.47	122,122,131	0.10	0.11	0.11	122,129,131	0.44	0.51	0.51	122,129,131
	325.0	0.18	0.23	0.23	121,120,131	0.04	0.05	0.05	120,127,130				
	650.0	0.36	0.47	0.48	120,120,130	0.10	0.11	0.11	120,127,130				
172	0.0	0.39	0.50	0.52	122,122,131	0.11	0.13	0.13	122,129,131	0.58	0.65	0.65	118,125,130
	325.0	0.19	0.24	0.25	118,118,130	0.04	0.05	0.05	118,125,130				
	650.0	0.30	0.39	0.40	121,121,131	0.08	0.09	0.09	121,128,131				
173	0.0	0.37	0.48	0.49	118,118,130	0.11	0.12	0.12	118,125,130	0.60	0.67	0.67	121,128,131
	325.0	0.20	0.25	0.26	118,118,130	0.04	0.05	0.05	118,125,130				
	650.0	0.30	0.39	0.40	121,121,131	0.08	0.09	0.09	121,128,131				
174	0.0	0.35	0.46	0.47	122,122,131	0.10	0.11	0.11	122,129,131	0.45	0.51	0.51	121,128,131
	325.0	0.18	0.23	0.24	120,124,130	0.04	0.04	0.04	124,129,131				
	650.0	0.35	0.46	0.47	120,120,130	0.10	0.11	0.11	120,127,130				
175	0.0	0.36	0.46	0.48	118,120,130	0.10	0.11	0.11	120,127,130	0.44	0.51	0.51	121,128,131
	325.0	0.18	0.23	0.23	121,120,131	0.04	0.05	0.05	120,127,130				
	650.0	0.35	0.46	0.47	122,118,131	0.10	0.11	0.11	118,125,130				
176	0.0	0.35	0.46	0.47	122,122,131	0.10	0.11	0.11	122,129,131	0.44	0.51	0.51	122,129,131
	325.0	0.18	0.23	0.24	120,122,130	0.04	0.04	0.04	122,129,131				
	650.0	0.36	0.46	0.47	120,121,130	0.10	0.11	0.11	121,128,131				
177	0.0	0.35	0.46	0.47	124,120,131	0.10	0.11	0.11	120,127,130	0.45	0.52	0.52	121,128,131
	325.0	0.18	0.23	0.24	122,120,131	0.04	0.05	0.05	120,127,130				
	650.0	0.35	0.46	0.47	118,120,130	0.10	0.11	0.11	120,127,130				
178	0.0	0.35	0.46	0.47	122,122,131	0.10	0.11	0.11	122,129,131	0.45	0.51	0.51	122,129,131
	325.0	0.18	0.23	0.24	120,122,130	0.04	0.04	0.04	122,129,131				
	650.0	0.35	0.46	0.47	120,120,130	0.10	0.11	0.11	120,127,130				
179	0.0	0.35	0.46	0.47	122,118,131	0.10	0.11	0.11	118,125,130	0.45	0.52	0.52	122,129,131
	325.0	0.18	0.23	0.24	122,120,131	0.04	0.05	0.05	120,127,130				
	650.0	0.35	0.46	0.47	120,120,130	0.10	0.11	0.11	120,127,130				
180	0.0	0.35	0.46	0.47	118,118,130	0.10	0.11	0.11	118,125,130	0.44	0.51	0.51	124,128,131
	325.0	0.18	0.23	0.24	121,124,131	0.04	0.04	0.04	122,129,131				
	650.0	0.36	0.46	0.48	121,121,131	0.10	0.11	0.11	121,128,131				
Trave		**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**		**dR**	**dF**	**dP**	
		0.40	0.82	0.52		0.24	0.23	0.23		0.64	0.71	0.71	

10.12. VERIFICHE SLU ED SLE PILASTRI

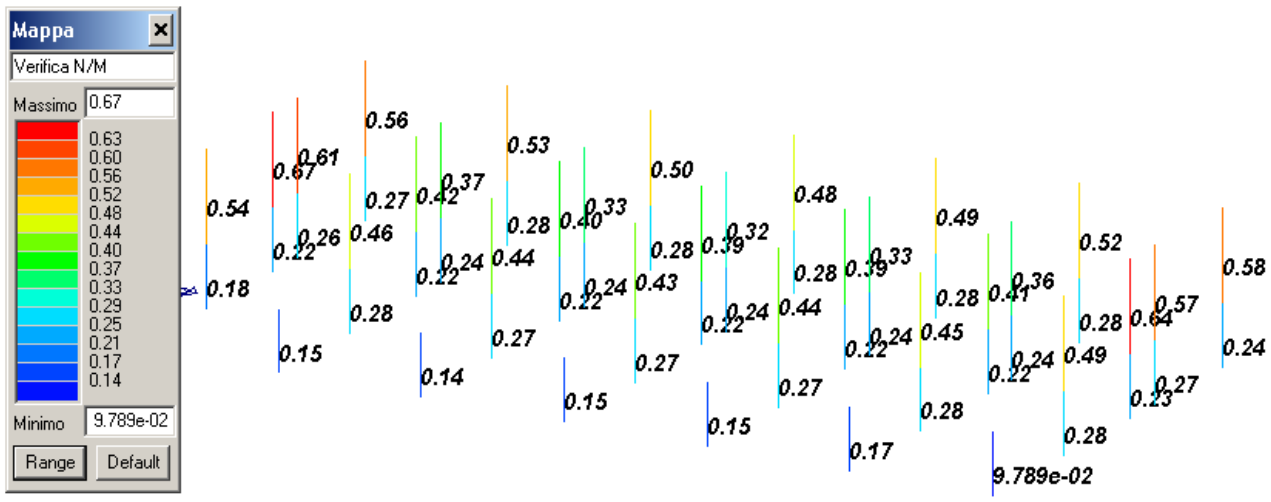

Figura 10.11 – 1 – Verifica N-M Pilastri

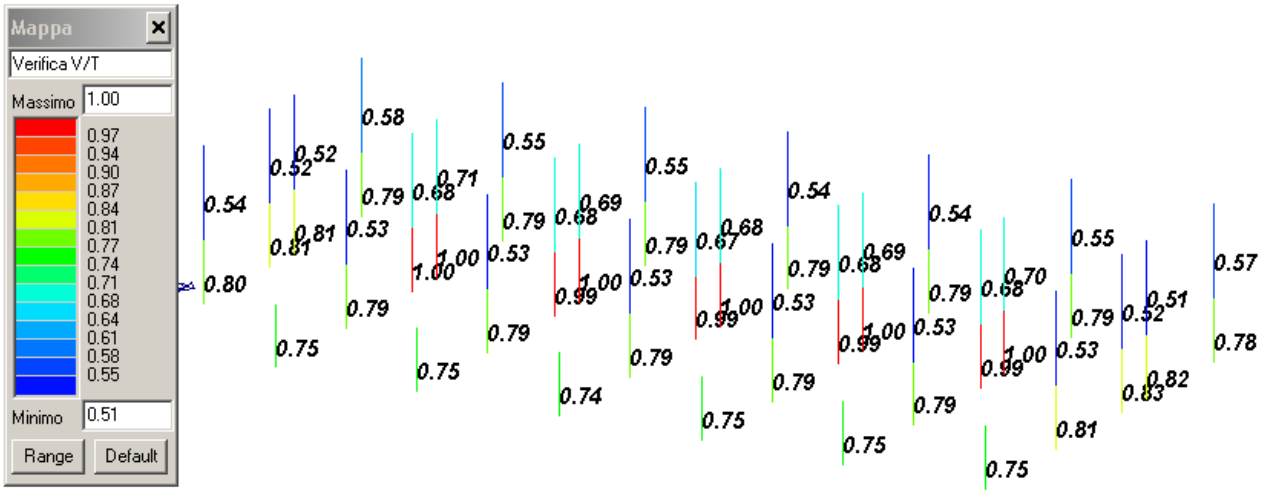

Figura 10.11 – 2 – Verifica V-T Pilastri

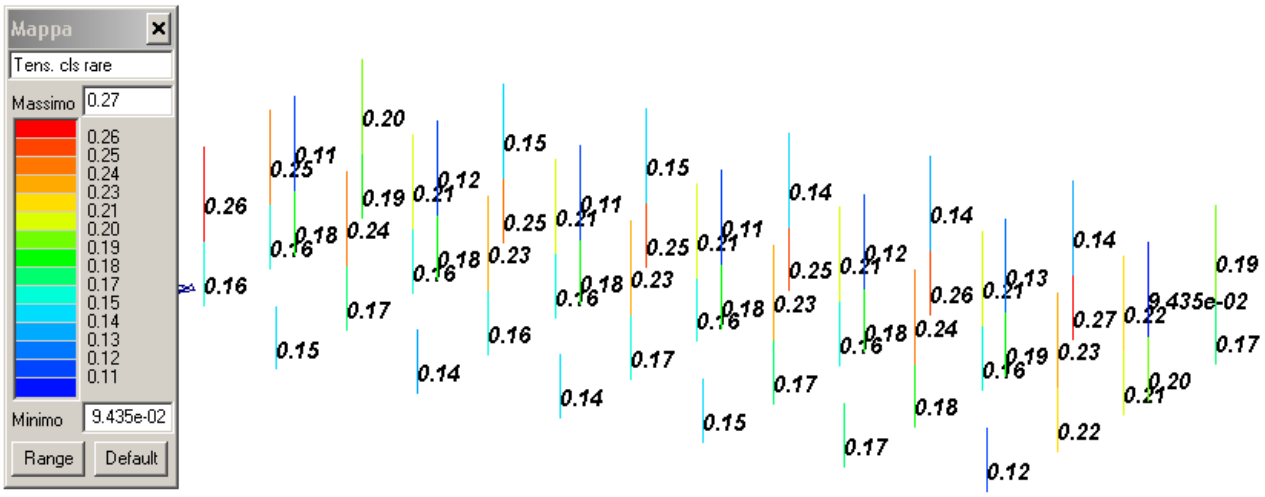

Figura 10.11 – 3 – S.L.E. Pilastri: tensioni cls comb. Rare

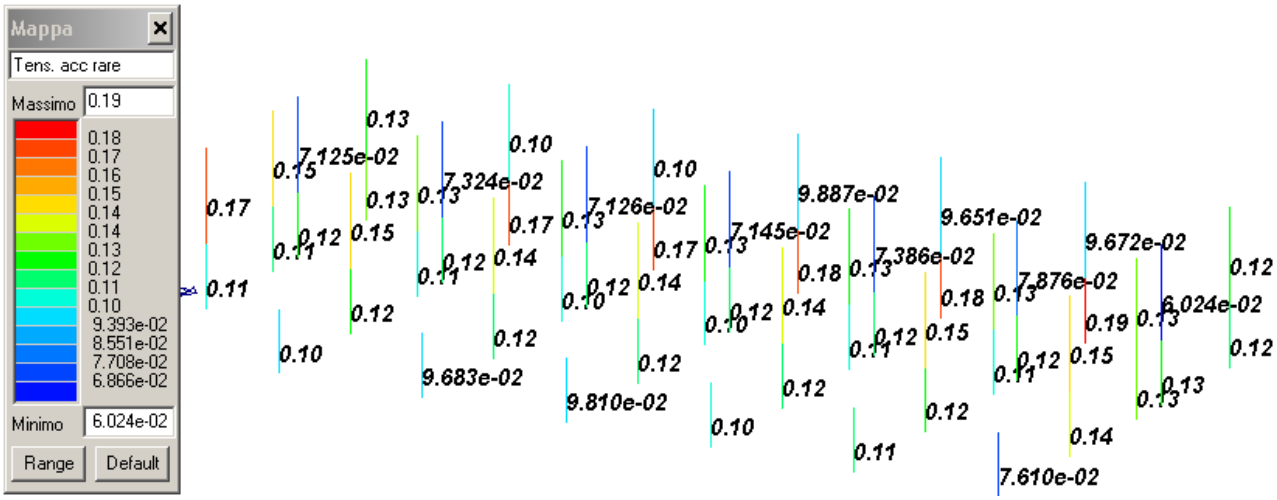

Figura 10.11 – 4 – S.L.E. Pilastri: tensioni acciaio comb. rare

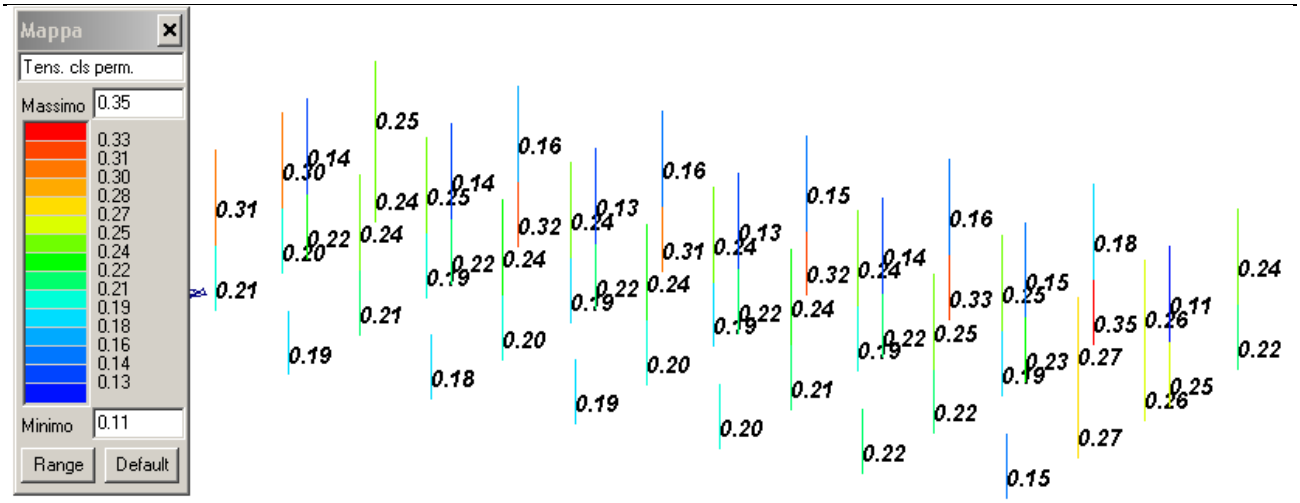

Figura 10.11 – 5 – S.L.E. Pilastri: tensioni cls comb. Permanenti

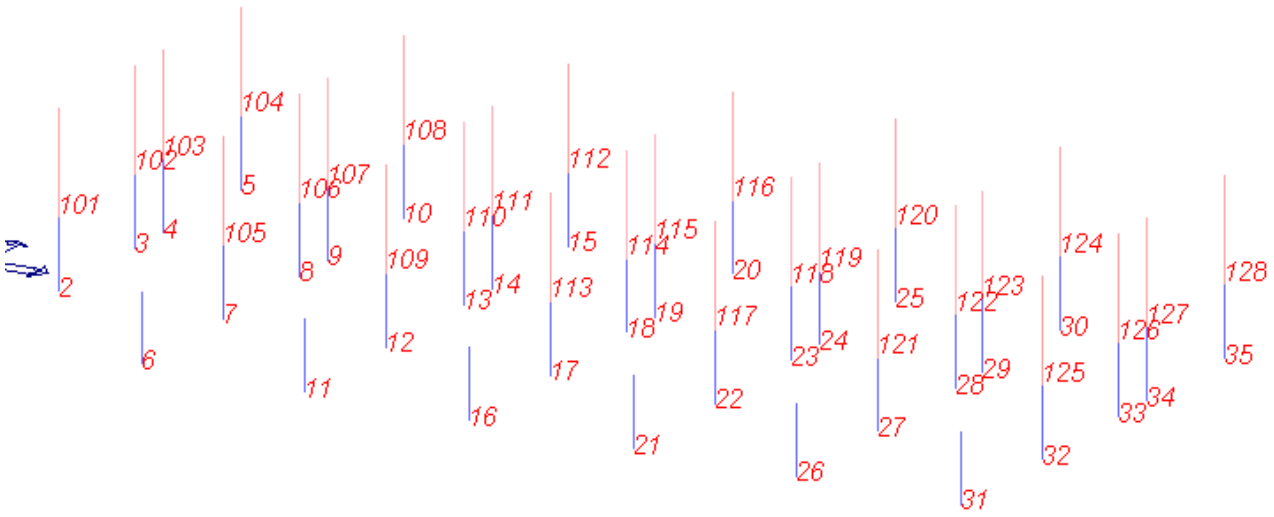

Figura 10.11 – 6 – Numerazione delle sezioni

Verifiche SLU

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
			cm						L=cm		
2	s=6,m=3	ok,ok	-270.0	1.57	0.42	4d20 4+4 d20	0.17	0.22	4+2d10/12 L=62	0.80	11,47,48
			-135.0	1.57	0.42	4d20 4+4 d20	0.16	0.22	4+2d10/15 L=145	0.80	11,47,48
	[b=1.0;1.0]		0.0	1.57	0.42	4d20 4+4 d20	0.18	0.21	4+2d10/12 L=62	0.80	25,47,48
3	s=6,m=3	ok,ok	-270.0	1.57	0.63	4d20 4+4 d20	0.15	0.20	4+2d10/12 L=62	0.81	11,53,48
			-135.0	1.57	0.63	4d20 4+4 d20	0.13	0.19	4+2d10/15 L=145	0.81	11,53,48
	[b=1.0;1.0]		0.0	1.57	0.63	4d20 4+4 d20	0.22	0.19	4+2d10/12 L=62	0.81	37,53,48
4	s=6,m=3	ok,ok	-270.0	1.57	0.74	4d20 4+4 d20	0.16	0.20	4+2d10/12 L=62	0.81	28,50,53
			-135.0	1.57	0.74	4d20 4+4 d20	0.15	0.20	4+2d10/15 L=145	0.81	11,50,53
	[b=1.0;1.0]		0.0	1.57	0.74	4d20 4+4 d20	0.26	0.20	4+2d10/12 L=62	0.81	28,50,53
5	s=6,m=3	ok,ok	-270.0	1.57	0.50	4d20 4+4 d20	0.19	0.23	4+2d10/12 L=62	0.79	11,28,43
			-135.0	1.57	0.50	4d20 4+4 d20	0.18	0.22	4+2d10/15 L=145	0.79	11,28,43
	[b=1.0;1.0]		0.0	1.57	0.50	4d20 4+4 d20	0.27	0.22	4+2d10/12 L=62	0.79	31,28,43
6	s=6,m=3	ok,ok	-270.0	1.57	0.41	4d20 4+4 d20	0.15	0.15	4+2d10/12 L=62	0.75	9,53,48
			-135.0	1.57	0.41	4d20 4+4 d20	0.14	0.14	4+2d10/15 L=145	0.75	11,53,48
	[b=1.0;1.0]		0.0	1.57	0.41	4d20 4+4 d20	0.13	0.14	4+2d10/12 L=62	0.75	11,53,48
7	s=6,m=3	ok,ok	-270.0	1.57	0.32	4d20 4+4 d20	0.20	0.26	4+2d10/12 L=62	0.79	11,53,48
			-135.0	1.57	0.32	4d20 4+4 d20	0.20	0.25	4+2d10/15 L=145	0.79	11,53,48
	[b=1.0;1.0]		0.0	1.57	0.32	4d20 4+4 d20	0.28	0.25	4+2d10/12 L=62	0.79	27,53,48
8	s=6,m=3	ok,ok	-270.0	2.26	0.68	4d24 4+4 d24	0.14	0.21	4+2d10/10 L=270	0.99	4,53,30

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
	[b=1.0;1.0]		0.0	2.26	0.68	4d24 4+4 d24	0.22	0.20	4+2d10/10 L=270	1.00	22,53,30
9	s=6,m=3	ok,ok	-270.0	2.26	0.54	4d24 4+4 d24	0.15	0.22	4+2d10/10 L=210	1.00	4,50,33
	[b=1.0;1.0]		0.0	2.26	0.54	4d24 4+4 d24	0.24	0.21	4+2d10/10 L=60	1.00	25,50,25
10	s=6,m=3	ok,ok	-270.0	1.57	0.44	4d20 4+4 d20	0.26	0.29	4+2d10/12 L=62	0.79	4,48,53
			-135.0	1.57	0.44	4d20 4+4 d20	0.24	0.29	4+2d10/15 L=145	0.79	11,48,53
	[b=1.0;1.0]		0.0	1.57	0.44	4d20 4+4 d20	0.28	0.29	4+2d10/12 L=62	0.79	34,48,53
11	s=6,m=3	ok,ok	-270.0	1.57	0.47	4d20 4+4 d20	0.14	0.14	4+2d10/12 L=62	0.74	9,53,48
			-135.0	1.57	0.47	4d20 4+4 d20	0.14	0.14	4+2d10/15 L=145	0.74	11,53,48
	[b=1.0;1.0]		0.0	1.57	0.47	4d20 4+4 d20	0.13	0.14	4+2d10/12 L=62	0.75	11,53,48
12	s=6,m=3	ok,ok	-270.0	1.57	0.68	4d20 4+4 d20	0.20	0.25	4+2d10/12 L=62	0.79	11,53,48
			-135.0	1.57	0.68	4d20 4+4 d20	0.20	0.25	4+2d10/15 L=145	0.79	11,53,48
	[b=1.0;1.0]		0.0	1.57	0.68	4d20 4+4 d20	0.27	0.25	4+2d10/12 L=62	0.79	27,53,48
13	s=6,m=3	ok,ok	-270.0	2.26	0.67	4d24 4+4 d24	0.14	0.21	4+2d10/10 L=270	0.99	4,53,30
	[b=1.0;1.0]		0.0	2.26	0.67	4d24 4+4 d24	0.22	0.20	4+2d10/10 L=270	0.99	22,53,30
14	s=6,m=3	ok,ok	-270.0	2.26	0.57	4d24 4+4 d24	0.15	0.21	4+2d10/10 L=270	1.00	4,50,33
	[b=1.0;1.0]		0.0	2.26	0.57	4d24 4+4 d24	0.24	0.21	4+2d10/10 L=270	1.00	25,50,33
15	s=6,m=3	ok,ok	-270.0	1.57	0.97	4d20 4+4 d20	0.26	0.29	4+2d10/12 L=62	0.78	4,49,50
			-135.0	1.57	0.97	4d20 4+4 d20	0.24	0.29	4+2d10/15 L=145	0.79	11,49,50
	[b=1.0;1.0]		0.0	1.57	0.97	4d20 4+4 d20	0.28	0.28	4+2d10/12 L=62	0.79	37,49,50
16	s=6,m=3	ok,ok	-270.0	1.57	0.48	4d20 4+4 d20	0.15	0.14	4+2d10/12 L=62	0.74	9,53,41
			-135.0	1.57	0.48	4d20 4+4 d20	0.14	0.14	4+2d10/15 L=145	0.74	11,53,41
	[b=1.0;1.0]		0.0	1.57	0.48	4d20 4+4 d20	0.13	0.14	4+2d10/12 L=62	0.74	11,53,41
17	s=6,m=3	ok,ok	-270.0	1.57	0.50	4d20 4+4 d20	0.20	0.25	4+2d10/12 L=62	0.79	11,45,48
			-135.0	1.57	0.50	4d20 4+4 d20	0.20	0.25	4+2d10/15 L=145	0.79	11,45,48
	[b=1.0;1.0]		0.0	1.57	0.50	4d20 4+4 d20	0.27	0.25	4+2d10/12 L=62	0.79	25,45,48
18	s=6,m=3	ok,ok	-270.0	2.26	0.56	4d24 4+4 d24	0.14	0.21	4+2d10/10 L=270	0.99	4,45,30
	[b=1.0;1.0]		0.0	2.26	0.56	4d24 4+4 d24	0.22	0.20	4+2d10/10 L=270	0.99	28,45,30
19	s=6,m=3	ok,ok	-270.0	2.26	0.54	4d24 4+4 d24	0.15	0.21	4+2d10/10 L=270	0.99	4,42,33
	[b=1.0;1.0]		0.0	2.26	0.54	4d24 4+4 d24	0.24	0.21	4+2d10/10 L=270	1.00	29,42,33
20	s=6,m=3	ok,ok	-270.0	1.57	0.42	4d20 4+4 d20	0.27	0.29	4+2d10/12 L=62	0.78	4,43,50
			-135.0	1.57	0.42	4d20 4+4 d20	0.24	0.29	4+2d10/15 L=145	0.78	11,43,50
	[b=1.0;1.0]		0.0	1.57	0.42	4d20 4+4 d20	0.28	0.28	4+2d10/12 L=62	0.79	37,43,50
21	s=6,m=3	ok,ok	-270.0	1.57	0.43	4d20 4+4 d20	0.15	0.15	4+2d10/12 L=62	0.74	9,43,48
			-135.0	1.57	0.43	4d20 4+4 d20	0.14	0.14	4+2d10/15 L=145	0.74	11,43,48
	[b=1.0;1.0]		0.0	1.57	0.43	4d20 4+4 d20	0.13	0.14	4+2d10/12 L=62	0.75	11,43,48
22	s=6,m=3	ok,ok	-270.0	1.57	0.51	4d20 4+4 d20	0.20	0.25	4+2d10/12 L=62	0.79	11,43,48
			-135.0	1.57	0.51	4d20 4+4 d20	0.20	0.25	4+2d10/15 L=145	0.79	11,43,48
	[b=1.0;1.0]		0.0	1.57	0.51	4d20 4+4 d20	0.27	0.25	4+2d10/12 L=62	0.79	25,43,48
23	s=6,m=3	ok,ok	-270.0	2.26	0.70	4d24 4+4 d24	0.14	0.21	4+2d10/10 L=270	0.99	4,43,24
	[b=1.0;1.0]		0.0	2.26	0.70	4d24 4+4 d24	0.22	0.20	4+2d10/10 L=270	0.99	28,43,24
24	s=6,m=3	ok,ok	-270.0	2.26	0.50	4d24 4+4 d24	0.15	0.21	4+2d10/10 L=270	1.00	4,38,31
	[b=1.0;1.0]		0.0	2.26	0.50	4d24 4+4 d24	0.24	0.21	4+2d10/10 L=270	1.00	29,38,31
25	s=6,m=3	ok,ok	-270.0	1.57	0.39	4d20 4+4 d20	0.27	0.29	4+2d10/12 L=62	0.79	4,38,53
			-135.0	1.57	0.39	4d20 4+4 d20	0.24	0.29	4+2d10/15 L=145	0.79	11,38,53
	[b=1.0;1.0]		0.0	1.57	0.39	4d20 4+4 d20	0.28	0.29	4+2d10/12 L=62	0.79	32,38,53
26	s=6,m=3	ok,ok	-270.0	1.57	0.78	4d20 4+4 d20	0.17	0.15	4+2d10/12 L=62	0.75	9,43,38
			-135.0	1.57	0.78	4d20 4+4 d20	0.14	0.15	4+2d10/15 L=145	0.75	11,43,38
	[b=1.0;1.0]		0.0	1.57	0.78	4d20 4+4 d20	0.12	0.15	4+2d10/12 L=62	0.75	11,43,38
27	s=6,m=3	ok,ok	-270.0	1.57	0.32	4d20 4+4 d20	0.20	0.26	4+2d10/12 L=62	0.79	11,43,48
			-135.0	1.57	0.32	4d20 4+4 d20	0.20	0.25	4+2d10/15 L=145	0.79	11,43,48
	[b=1.0;1.0]		0.0	1.57	0.32	4d20 4+4 d20	0.28	0.25	4+2d10/12 L=62	0.79	25,43,48
28	s=6,m=3	ok,ok	-270.0	2.26	0.79	4d24 4+4 d24	0.14	0.21	4+2d10/10 L=270	0.99	4,43,28
	[b=1.0;1.0]		0.0	2.26	0.79	4d24 4+4 d24	0.22	0.20	4+2d10/10 L=270	0.99	28,43,28
29	s=6,m=3	ok,ok	-270.0	2.26	0.42	4d24 4+4 d24	0.15	0.22	4+2d10/10 L=60	1.00	4,38,27
			-135.0	2.26	0.42	4d24 4+4 d24	0.15	0.22	4+2d10/10 L=150	1.00	11,38,27
	[b=1.0;1.0]		0.0	2.26	0.42	4d24 4+4 d24	0.24	0.21	4+2d10/10 L=60	1.00	27,38,37
30	s=6,m=3	ok,ok	-270.0	1.57	0.40	4d20 4+4 d20	0.28	0.30	4+2d10/12 L=62	0.79	4,38,53
			-135.0	1.57	0.40	4d20 4+4 d20	0.24	0.30	4+2d10/15 L=145	0.79	11,38,53
	[b=1.0;1.0]		0.0	1.57	0.40	4d20 4+4 d20	0.28	0.29	4+2d10/12 L=62	0.79	32,38,53
31	s=6,m=3	ok,ok	-270.0	1.57	0.48	4d20 4+4 d20	0.10	0.11	4+2d10/12 L=62	0.75	11,43,47
			-135.0	1.57	0.48	4d20 4+4 d20	0.09	0.10	4+2d10/15 L=145	0.75	11,43,47
	[b=1.0;1.0]		0.0	1.57	0.48	4d20 4+4 d20	0.09	0.10	4+2d10/12 L=62	0.75	11,43,47
32	s=6,m=3	ok,ok	-270.0	1.57	0.51	4d20 4+4 d20	0.22	0.19	4+2d10/12 L=62	0.81	27,43,38
			-135.0	1.57	0.51	4d20 4+4 d20	0.14	0.18	4+2d10/15 L=145	0.81	11,43,38
	[b=1.0;1.0]		0.0	1.57	0.51	4d20 4+4 d20	0.28	0.18	4+2d10/12 L=62	0.81	27,43,38
33	s=6,m=3	ok,ok	-270.0	1.57	0.40	4d20 4+4 d20	0.19	0.18	4+2d10/12 L=62	0.83	11,43,38
			-135.0	1.57	0.40	4d20 4+4 d20	0.13	0.17	4+2d10/15 L=145	0.83	11,43,38
	[b=1.0;1.0]		0.0	1.57	0.40	4d20 4+4 d20	0.23	0.17	4+2d10/12 L=62	0.83	31,43,38
34	s=6,m=3	ok,ok	-270.0	1.57	0.35	4d20 4+4 d20	0.20	0.18	4+2d10/12 L=62	0.82	22,44,43

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
			-135.0	1.57	0.35	4d20 4+4 d20	0.14	0.18	4+2d10/15 L=145	0.82	32,44,43
	[b=1.0;1.0]		0.0	1.57	0.35	4d20 4+4 d20	0.27	0.17	4+2d10/12 L=62	0.82	22,44,43
35	s=6,m=3	ok,ok	-270.0	1.57	0.80	4d20 4+4 d20	0.16	0.20	4+2d10/12 L=62	0.77	30,38,53
			-135.0	1.57	0.80	4d20 4+4 d20	0.16	0.19	4+2d10/15 L=145	0.78	11,38,53
	[b=1.0;1.0]		0.0	1.57	0.80	4d20 4+4 d20	0.24	0.19	4+2d10/12 L=62	0.78	37,38,53
101	s=1,m=3	ok,ok	0.0	1.88	0.50	4d20 4+4 d20	0.54	0.09	2+4d10/12 L=75	0.54	28,53,48
			200.0	1.88	0.50	4d20 4+4 d20	0.17	0.08	2+4d10/20 L=250	0.54	30,53,48
	[b=1.0;1.0]		400.0	1.88	0.50	4d20 4+4 d20	0.51	0.08	2+4d10/12 L=75	0.54	53,53,48
102	s=1,m=3	ok,ok	0.0	1.88	0.44	4d20 4+4 d20	0.67	0.10	2+4d10/12 L=75	0.52	48,53,48
			200.0	1.88	0.44	4d20 4+4 d20	0.10	0.09	2+4d10/20 L=250	0.52	27,53,48
	[b=1.0;1.0]		400.0	1.88	0.44	4d20 4+4 d20	0.66	0.09	2+4d10/12 L=75	0.52	50,53,48
103	s=1,m=3	ok,ok	0.0	1.88	0.35	4d20 4+4 d20	0.61	0.09	2+4d10/12 L=75	0.52	53,50,53
			200.0	1.88	0.35	4d20 4+4 d20	0.10	0.08	2+4d10/20 L=250	0.52	22,50,53
	[b=1.0;1.0]		400.0	1.88	0.35	4d20 4+4 d20	0.58	0.08	2+4d10/12 L=75	0.52	53,50,53
104	s=1,m=3	ok,ok	0.0	1.88	0.63	4d20 4+4 d20	0.56	0.13	2+4d10/12 L=75	0.58	37,48,53
			200.0	1.88	0.63	4d20 4+4 d20	0.11	0.13	2+4d10/20 L=250	0.58	34,48,53
	[b=1.0;1.0]		400.0	1.88	0.63	4d20 4+4 d20	0.46	0.12	2+4d10/12 L=75	0.58	53,48,53
105	s=1,m=3	ok,ok	0.0	1.88	0.45	4d20 4+4 d20	0.46	0.11	2+4d10/12 L=75	0.52	27,53,48
			200.0	1.88	0.45	4d20 4+4 d20	0.11	0.11	2+4d10/20 L=250	0.53	4,53,48
	[b=1.0;1.0]		400.0	1.88	0.45	4d20 4+4 d20	0.46	0.10	2+4d10/12 L=75	0.53	47,53,48
106	s=8,m=3	ok,ok	0.0	2.71	0.31	4d24 4+4 d24	0.42	0.12	2+4d10/12 L=75	0.68	48,47,28
			200.0	2.71	0.31	4d24 4+4 d24	0.09	0.12	2+4d10/20 L=250	0.68	27,47,28
	[b=1.0;1.0]		400.0	2.71	0.31	4d24 4+4 d24	0.41	0.11	2+4d10/12 L=75	0.68	48,47,28
107	s=8,m=3	ok,ok	0.0	2.71	0.52	4d24 4+4 d24	0.37	0.10	2+4d10/12 L=75	0.70	53,48,37
			200.0	2.71	0.52	4d24 4+4 d24	0.09	0.09	2+4d10/20 L=250	0.70	22,48,37
	[b=1.0;1.0]		400.0	2.71	0.52	4d24 4+4 d24	0.34	0.09	2+4d10/12 L=75	0.71	53,48,37
108	s=1,m=3	ok,ok	0.0	1.88	0.86	4d20 4+4 d20	0.53	0.19	2+4d10/12 L=75	0.55	34,50,53
			200.0	1.88	0.86	4d20 4+4 d20	0.14	0.18	2+4d10/20 L=250	0.55	4,50,53
	[b=1.0;1.0]		400.0	1.88	0.86	4d20 4+4 d20	0.42	0.18	2+4d10/12 L=75	0.55	37,50,53
109	s=1,m=3	ok,ok	0.0	1.88	0.55	4d20 4+4 d20	0.44	0.11	2+4d10/12 L=75	0.52	27,53,48
			200.0	1.88	0.55	4d20 4+4 d20	0.11	0.11	2+4d10/20 L=250	0.52	4,53,48
	[b=1.0;1.0]		400.0	1.88	0.55	4d20 4+4 d20	0.40	0.10	2+4d10/12 L=75	0.53	47,53,48
110	s=8,m=3	ok,ok	0.0	2.71	0.31	4d24 4+4 d24	0.40	0.12	2+4d10/12 L=75	0.67	28,53,28
			200.0	2.71	0.31	4d24 4+4 d24	0.09	0.12	2+4d10/20 L=250	0.68	27,53,28
	[b=1.0;1.0]		400.0	2.71	0.31	4d24 4+4 d24	0.36	0.11	2+4d10/12 L=75	0.68	48,53,28
111	s=8,m=3	ok,ok	0.0	2.71	0.42	4d24 4+4 d24	0.33	0.10	2+4d10/12 L=75	0.69	37,48,37
			200.0	2.71	0.42	4d24 4+4 d24	0.10	0.09	2+4d10/20 L=250	0.69	22,48,37
	[b=1.0;1.0]		400.0	2.71	0.42	4d24 4+4 d24	0.29	0.09	2+4d10/12 L=75	0.69	53,48,37
112	s=1,m=3	ok,ok	0.0	1.88	0.82	4d20 4+4 d20	0.50	0.18	2+4d10/12 L=75	0.54	34,50,53
			200.0	1.88	0.82	4d20 4+4 d20	0.14	0.18	2+4d10/20 L=250	0.55	4,50,53
	[b=1.0;1.0]		400.0	1.88	0.82	4d20 4+4 d20	0.39	0.17	2+4d10/12 L=75	0.55	37,50,53
113	s=1,m=3	ok,ok	0.0	1.88	0.84	4d20 4+4 d20	0.43	0.11	2+4d10/12 L=75	0.52	25,45,48
			200.0	1.88	0.84	4d20 4+4 d20	0.11	0.10	2+4d10/20 L=250	0.52	4,45,48
	[b=1.0;1.0]		400.0	1.88	0.84	4d20 4+4 d20	0.37	0.10	2+4d10/12 L=75	0.53	41,45,48
114	s=8,m=3	ok,ok	0.0	2.71	0.33	4d24 4+4 d24	0.39	0.12	2+4d10/12 L=75	0.67	22,43,28
			200.0	2.71	0.33	4d24 4+4 d24	0.09	0.11	2+4d10/20 L=250	0.67	25,43,28
	[b=1.0;1.0]		400.0	2.71	0.33	4d24 4+4 d24	0.33	0.11	2+4d10/12 L=75	0.67	38,43,28
115	s=8,m=3	ok,ok	0.0	2.71	0.58	4d24 4+4 d24	0.32	0.10	2+4d10/12 L=75	0.68	23,42,37
			200.0	2.71	0.58	4d24 4+4 d24	0.09	0.09	2+4d10/20 L=250	0.68	24,42,37
	[b=1.0;1.0]		400.0	2.71	0.58	4d24 4+4 d24	0.25	0.09	2+4d10/12 L=75	0.68	39,42,37
116	s=1,m=3	ok,ok	0.0	1.88	0.92	4d20 4+4 d20	0.48	0.18	2+4d10/12 L=75	0.54	34,42,53
			200.0	1.88	0.92	4d20 4+4 d20	0.14	0.17	2+4d10/20 L=250	0.54	4,42,53
	[b=1.0;1.0]		400.0	1.88	0.92	4d20 4+4 d20	0.38	0.17	2+4d10/12 L=75	0.54	31,42,53
117	s=1,m=3	ok,ok	0.0	1.88	0.62	4d20 4+4 d20	0.44	0.11	2+4d10/12 L=75	0.52	25,43,48
			200.0	1.88	0.62	4d20 4+4 d20	0.11	0.11	2+4d10/20 L=250	0.52	4,43,48
	[b=1.0;1.0]		400.0	1.88	0.62	4d20 4+4 d20	0.40	0.10	2+4d10/12 L=75	0.53	41,43,48
118	s=8,m=3	ok,ok	0.0	2.71	0.90	4d24 4+4 d24	0.39	0.12	2+4d10/12 L=75	0.67	22,43,22
			200.0	2.71	0.90	4d24 4+4 d24	0.09	0.12	2+4d10/20 L=250	0.67	25,43,22
	[b=1.0;1.0]		400.0	2.71	0.90	4d24 4+4 d24	0.36	0.11	2+4d10/12 L=75	0.68	38,43,22
119	s=8,m=3	ok,ok	0.0	2.71	0.54	4d24 4+4 d24	0.33	0.10	2+4d10/12 L=75	0.69	31,38,31
			200.0	2.71	0.54	4d24 4+4 d24	0.10	0.09	2+4d10/20 L=250	0.69	24,38,31
	[b=1.0;1.0]		400.0	2.71	0.54	4d24 4+4 d24	0.29	0.09	2+4d10/12 L=75	0.69	43,38,31
120	s=1,m=3	ok,ok	0.0	1.88	1.01	4d20 4+4 d20	0.49	0.18	2+4d10/12 L=75	0.54	32,44,53
			200.0	1.88	1.01	4d20 4+4 d20	0.14	0.18	2+4d10/20 L=250	0.54	4,44,53
	[b=1.0;1.0]		400.0	1.88	1.01	4d20 4+4 d20	0.39	0.17	2+4d10/12 L=75	0.54	31,44,53
121	s=1,m=3	ok,ok	0.0	1.88	0.44	4d20 4+4 d20	0.45	0.11	2+4d10/12 L=75	0.52	25,43,48
			200.0	1.88	0.44	4d20 4+4 d20	0.11	0.11	2+4d10/20 L=250	0.53	4,43,48
	[b=1.0;1.0]		400.0	1.88	0.44	4d20 4+4 d20	0.44	0.10	2+4d10/12 L=75	0.53	41,43,48
122	s=8,m=3	ok,ok	0.0	2.71	0.31	4d24 4+4 d24	0.41	0.12	2+4d10/12 L=75	0.68	32,41,22

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
			200.0	2.71	0.31	4d24 4+4 d24	0.09	0.12	2+4d10/20 L=250	0.68	25,41,22
	[b=1.0;1.0]		400.0	2.71	0.31	4d24 4+4 d24	0.40	0.11	2+4d10/12 L=75	0.68	44,41,22
123	s=8,m=3	ok,ok	0.0	2.71	0.28	4d24 4+4 d24	0.36	0.10	2+4d10/12 L=75	0.70	43,38,31
			200.0	2.71	0.28	4d24 4+4 d24	0.09	0.09	2+4d10/20 L=250	0.70	28,38,31
	[b=1.0;1.0]		400.0	2.71	0.28	4d24 4+4 d24	0.34	0.09	2+4d10/12 L=75	0.70	43,38,31
124	s=1,m=3	ok,ok	0.0	1.88	0.82	4d20 4+4 d20	0.52	0.19	2+4d10/12 L=75	0.54	32,44,53
			200.0	1.88	0.82	4d20 4+4 d20	0.14	0.18	2+4d10/20 L=250	0.54	4,44,53
	[b=1.0;1.0]		400.0	1.88	0.82	4d20 4+4 d20	0.42	0.18	2+4d10/12 L=75	0.55	31,44,53
125	s=1,m=3	ok,ok	0.0	1.88	0.36	4d20 4+4 d20	0.49	0.08	2+4d10/12 L=75	0.53	38,43,38
			200.0	1.88	0.36	4d20 4+4 d20	0.13	0.07	2+4d10/20 L=250	0.53	36,43,38
	[b=1.0;1.0]		400.0	1.88	0.36	4d20 4+4 d20	0.46	0.07	2+4d10/12 L=75	0.53	43,43,38
126	s=1,m=3	ok,ok	0.0	1.88	0.37	4d20 4+4 d20	0.64	0.09	2+4d10/12 L=75	0.51	44,43,47
			200.0	1.88	0.37	4d20 4+4 d20	0.10	0.08	2+4d10/20 L=250	0.51	28,43,47
	[b=1.0;1.0]		400.0	1.88	0.37	4d20 4+4 d20	0.62	0.08	2+4d10/12 L=75	0.52	44,43,47
127	s=1,m=3	ok,ok	0.0	1.88	0.32	4d20 4+4 d20	0.57	0.08	2+4d10/12 L=75	0.51	43,44,43
			200.0	1.88	0.32	4d20 4+4 d20	0.10	0.07	2+4d10/20 L=250	0.51	28,44,43
	[b=1.0;1.0]		400.0	1.88	0.32	4d20 4+4 d20	0.54	0.07	2+4d10/12 L=75	0.51	43,44,43
128	s=1,m=3	ok,ok	0.0	1.88	0.54	4d20 4+4 d20	0.58	0.12	2+4d10/12 L=75	0.56	31,38,43
			200.0	1.88	0.54	4d20 4+4 d20	0.11	0.11	2+4d10/20 L=250	0.57	32,38,43
	[b=1.0;1.0]		400.0	1.88	0.54	4d20 4+4 d20	0.44	0.11	2+4d10/12 L=75	0.57	43,38,43
Pilas.				**%Af**	**r. snell.**		**verif.**	**ver. rid**		**ver. V/T**	
				2.71	1.01		0.67	0.30		1.00	

Verifiche SLE

Pilas.	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	Pos.	rRfck	rRfyk	rPfck	Rif. cmb
	cm					cm				
2	0.0	0.16	0.11	0.21	124,124,131	135.0	0.11	0.08	0.14	124,124,131
	270.0	0.15	0.10	0.19	122,122,131					
3	0.0	0.15	0.10	0.18	124,124,131	135.0	0.14	0.10	0.17	124,124,131
	270.0	0.16	0.11	0.20	124,124,131					
4	0.0	0.16	0.11	0.20	124,124,131	135.0	0.16	0.11	0.20	124,124,131
	270.0	0.18	0.12	0.22	124,124,131					
5	0.0	0.19	0.13	0.24	124,124,131	135.0	0.19	0.13	0.23	124,124,131
	270.0	0.18	0.13	0.23	124,124,131					
6	0.0	0.15	0.10	0.19	122,122,131	135.0	0.13	0.09	0.16	124,124,131
	270.0	0.12	0.08	0.13	124,124,131					
7	0.0	0.16	0.12	0.20	124,124,131	135.0	0.14	0.10	0.17	124,124,131
	270.0	0.17	0.12	0.21	124,124,131					
8	0.0	0.11	0.08	0.13	121,121,131	270.0	0.16	0.11	0.19	124,124,131
9	0.0	0.11	0.08	0.13	121,121,131	270.0	0.18	0.12	0.22	124,124,131
10	0.0	0.25	0.17	0.32	121,121,131	135.0	0.22	0.15	0.27	124,124,131
	270.0	0.19	0.13	0.22	124,124,131					
11	0.0	0.14	0.10	0.18	122,122,131	135.0	0.13	0.09	0.16	124,124,131
	270.0	0.12	0.08	0.13	124,124,131					
12	0.0	0.15	0.11	0.19	124,124,131	135.0	0.14	0.10	0.17	124,124,131
	270.0	0.16	0.12	0.20	124,124,131					
13	0.0	0.10	0.07	0.12	121,121,131	270.0	0.16	0.10	0.19	124,124,131
14	0.0	0.11	0.08	0.13	121,121,131	270.0	0.18	0.12	0.22	124,124,131
15	0.0	0.25	0.17	0.31	121,121,131	135.0	0.22	0.15	0.27	124,124,131
	270.0	0.19	0.13	0.22	124,124,131					
16	0.0	0.14	0.10	0.19	122,122,131	135.0	0.13	0.09	0.16	124,124,131
	270.0	0.12	0.08	0.13	124,124,131					
17	0.0	0.16	0.11	0.20	124,124,131	135.0	0.14	0.10	0.17	124,124,131
	270.0	0.17	0.12	0.20	124,124,131					
18	0.0	0.11	0.08	0.12	121,121,131	270.0	0.16	0.10	0.19	124,124,131
19	0.0	0.11	0.08	0.13	121,121,131	270.0	0.18	0.12	0.22	124,124,131
20	0.0	0.25	0.18	0.32	121,121,131	135.0	0.22	0.15	0.27	124,124,131
	270.0	0.18	0.13	0.22	124,124,131					
21	0.0	0.15	0.10	0.20	122,122,131	135.0	0.13	0.09	0.16	124,124,131
	270.0	0.11	0.08	0.13	124,124,131					
22	0.0	0.16	0.12	0.20	124,124,131	135.0	0.14	0.10	0.17	124,124,131
	270.0	0.17	0.12	0.21	124,124,131					
23	0.0	0.11	0.08	0.13	121,121,131	270.0	0.16	0.11	0.19	124,124,131
24	0.0	0.11	0.08	0.14	124,124,131	270.0	0.18	0.12	0.22	124,124,131
25	0.0	0.26	0.18	0.33	121,121,131	135.0	0.22	0.15	0.27	124,124,131
	270.0	0.18	0.13	0.21	124,124,131					

Pilas.	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	Pos.	rRfck	rRfyk	rPfck	Rif. cmb
26	0.0	0.17	0.11	0.22	122,122,131	135.0	0.13	0.09	0.16	124,124,131
	270.0	0.10	0.07	0.11	124,124,131					
27	0.0	0.17	0.12	0.21	124,124,131	135.0	0.14	0.10	0.17	124,124,131
	270.0	0.18	0.12	0.22	124,124,131					
28	0.0	0.11	0.08	0.13	121,121,131	270.0	0.16	0.11	0.19	124,124,131
29	0.0	0.11	0.08	0.14	124,124,131	135.0	0.14	0.10	0.17	124,124,131
	270.0	0.19	0.12	0.23	124,124,131					
30	0.0	0.27	0.19	0.35	121,121,131	135.0	0.22	0.15	0.27	124,124,131
	270.0	0.18	0.13	0.21	124,124,131					
31	0.0	0.12	0.08	0.15	124,124,131	135.0	0.10	0.07	0.13	124,124,131
	270.0	0.09	0.06	0.11	124,124,131					
32	0.0	0.22	0.14	0.27	124,124,131	135.0	0.13	0.09	0.16	124,124,131
	270.0	0.13	0.09	0.15	124,124,131					
33	0.0	0.21	0.13	0.26	122,124,131	135.0	0.14	0.10	0.18	124,124,131
	270.0	0.18	0.12	0.22	124,124,131					
34	0.0	0.20	0.13	0.25	124,121,131	135.0	0.16	0.10	0.19	124,124,131
	270.0	0.17	0.12	0.22	124,124,131					
35	0.0	0.17	0.11	0.21	121,121,131	135.0	0.17	0.12	0.21	124,124,131
	270.0	0.17	0.12	0.22	124,124,131					
101	0.0	0.08	0.05	0.10	121,121,131	200.0	0.10	0.06	0.12	120,120,130
	400.0	0.26	0.17	0.31	121,121,131					
102	0.0	0.21	0.13	0.26	121,121,131	200.0	0.06	0.04	0.07	120,120,130
	400.0	0.25	0.15	0.30	121,121,131					
103	0.0	0.11	0.07	0.13	124,124,131	200.0	0.05	0.03	0.06	121,121,131
	400.0	0.11	0.07	0.14	121,121,131					
104	0.0	0.20	0.13	0.25	121,121,131	200.0	0.09	0.06	0.12	121,121,131
	400.0	0.18	0.11	0.21	121,121,131					
105	0.0	0.09	0.06	0.09	121,121,131	200.0	0.11	0.07	0.12	121,121,131
	400.0	0.24	0.15	0.24	121,121,131					
106	0.0	0.20	0.12	0.24	121,121,131	200.0	0.07	0.05	0.07	120,120,130
	400.0	0.21	0.13	0.25	121,121,131					
107	0.0	0.12	0.07	0.14	124,121,131	200.0	0.05	0.04	0.06	120,120,131
	400.0	0.11	0.07	0.12	121,121,131					
108	0.0	0.15	0.10	0.16	121,121,131	200.0	0.13	0.09	0.15	121,121,131
	400.0	0.12	0.08	0.16	118,118,130					
109	0.0	0.09	0.06	0.09	121,121,131	200.0	0.11	0.07	0.12	121,121,131
	400.0	0.23	0.14	0.24	121,121,131					
110	0.0	0.19	0.12	0.23	121,121,131	200.0	0.07	0.05	0.07	120,120,130
	400.0	0.21	0.13	0.24	121,121,131					
111	0.0	0.11	0.07	0.13	124,121,131	200.0	0.05	0.04	0.06	120,120,131
	400.0	0.11	0.07	0.12	121,121,131					
112	0.0	0.15	0.10	0.16	121,121,131	200.0	0.12	0.09	0.15	121,121,131
	400.0	0.11	0.08	0.15	118,118,130					
113	0.0	0.09	0.06	0.09	121,121,131	200.0	0.11	0.07	0.12	121,121,131
	400.0	0.23	0.14	0.24	121,121,131					
114	0.0	0.19	0.12	0.23	121,121,131	200.0	0.07	0.05	0.07	120,120,130
	400.0	0.21	0.13	0.24	121,121,131					
115	0.0	0.11	0.07	0.13	124,121,131	200.0	0.05	0.04	0.06	120,120,131
	400.0	0.11	0.07	0.12	121,121,131					
116	0.0	0.14	0.10	0.15	121,121,131	200.0	0.12	0.09	0.15	121,121,131
	400.0	0.12	0.08	0.15	118,118,130					
117	0.0	0.09	0.06	0.09	121,121,131	200.0	0.11	0.07	0.12	121,121,131
	400.0	0.23	0.14	0.24	121,121,131					
118	0.0	0.19	0.12	0.23	121,121,131	200.0	0.07	0.05	0.08	120,120,130
	400.0	0.21	0.13	0.24	121,121,131					
119	0.0	0.12	0.07	0.14	124,121,131	200.0	0.05	0.04	0.06	120,120,131
	400.0	0.11	0.07	0.12	121,121,131					
120	0.0	0.14	0.10	0.15	121,121,131	200.0	0.12	0.09	0.15	121,121,131
	400.0	0.12	0.08	0.16	118,118,130					
121	0.0	0.09	0.06	0.09	121,121,131	200.0	0.11	0.07	0.12	120,120,130
	400.0	0.24	0.15	0.25	121,121,131					
122	0.0	0.20	0.12	0.24	121,121,131	200.0	0.07	0.05	0.07	120,120,130
	400.0	0.21	0.13	0.25	121,121,131					
123	0.0	0.13	0.08	0.15	124,124,131	200.0	0.05	0.04	0.06	120,120,131
	400.0	0.12	0.07	0.13	121,121,131					
124	0.0	0.14	0.10	0.15	121,121,131	200.0	0.12	0.09	0.15	121,121,131
	400.0	0.13	0.09	0.18	118,118,130					
125	0.0	0.09	0.06	0.11	121,121,131	200.0	0.08	0.05	0.09	120,120,130
	400.0	0.23	0.15	0.27	121,121,131					

Pilas.	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	Pos.	rRfck	rRfyk	rPfck	Rif. cmb
126	0.0	0.19	0.12	0.23	121,121,131	200.0	0.05	0.03	0.05	120,120,130
	400.0	0.22	0.13	0.26	121,121,131					
127	0.0	0.09	0.06	0.11	124,124,131	200.0	0.04	0.03	0.04	121,121,131
	400.0	0.09	0.06	0.10	121,121,131					
128	0.0	0.19	0.12	0.24	121,121,131	200.0	0.08	0.06	0.10	121,121,131
	400.0	0.16	0.10	0.19	120,120,130					
Pilas.		**rRfck**	**rRfyk**	**rPfck**			**rRfck**	**rRfyk**	**rPfck**	
		0.27	0.19	0.35						

10.13. VERIFICHE SLU ED SLE PARETI CONTROTERRA

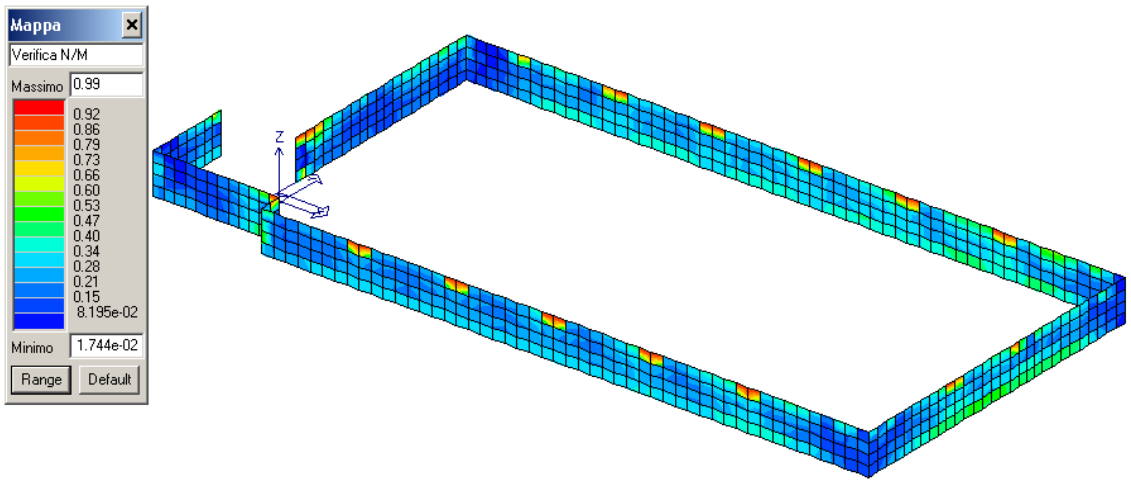

Figura 10.12 – 1 – Verifica N-M

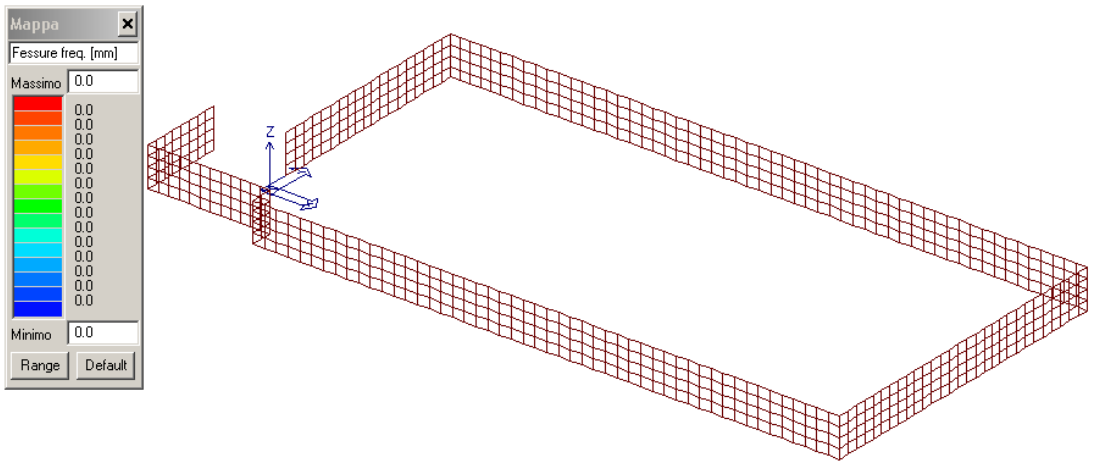

Figura 10.12 – 2 – S.L.E. Travi fondazione: fessure comb. frequenti

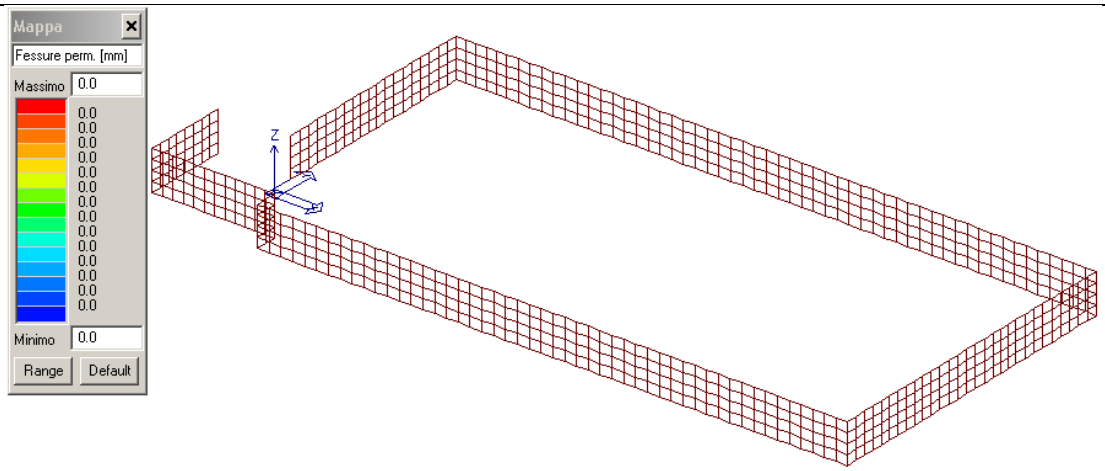

Figura 10.12 – 3 – S.L.E. Travi fondazione: fessure comb. quasi perm.

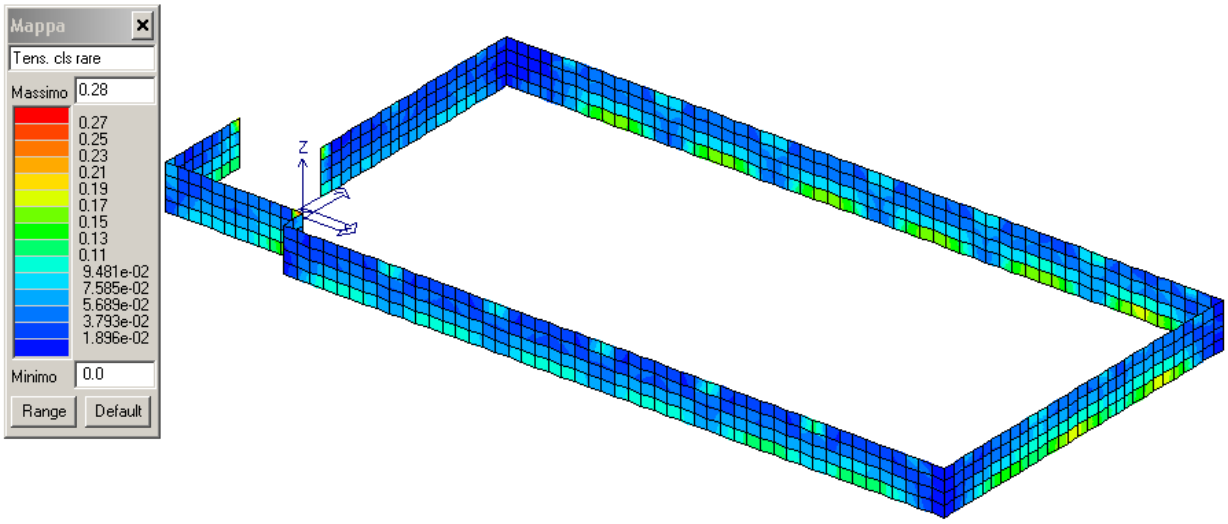

Figura 10.12 – 4 – S.L.E. Travi fondazione: tensioni cls comb. rare

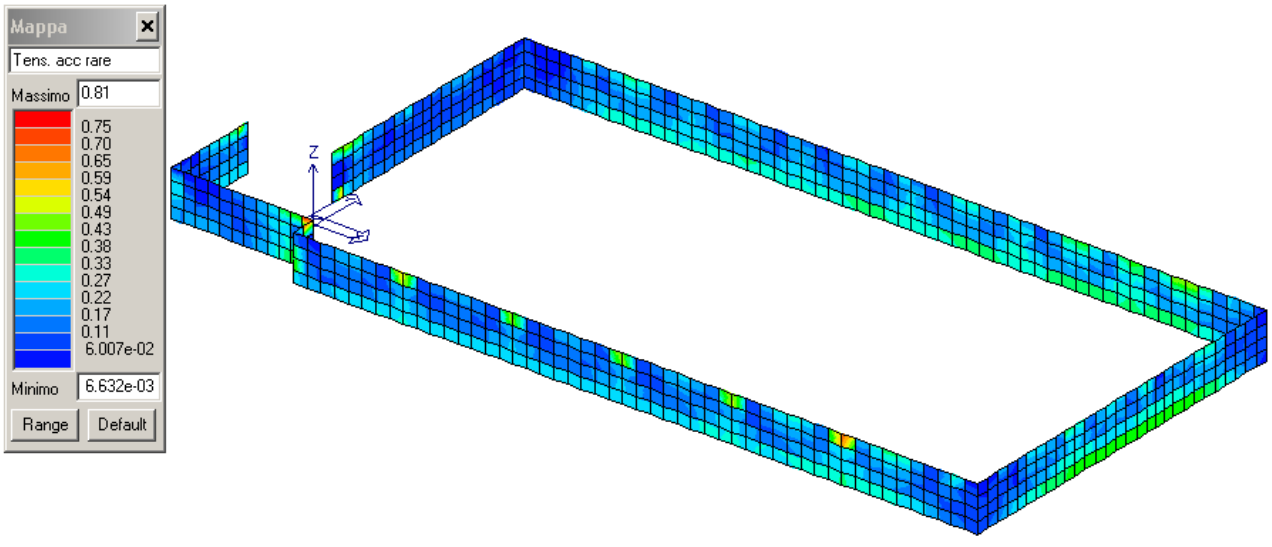

Figura 10.12 – 5 – S.L.E. Travi fondazione: tensioni acciaio comb. rare

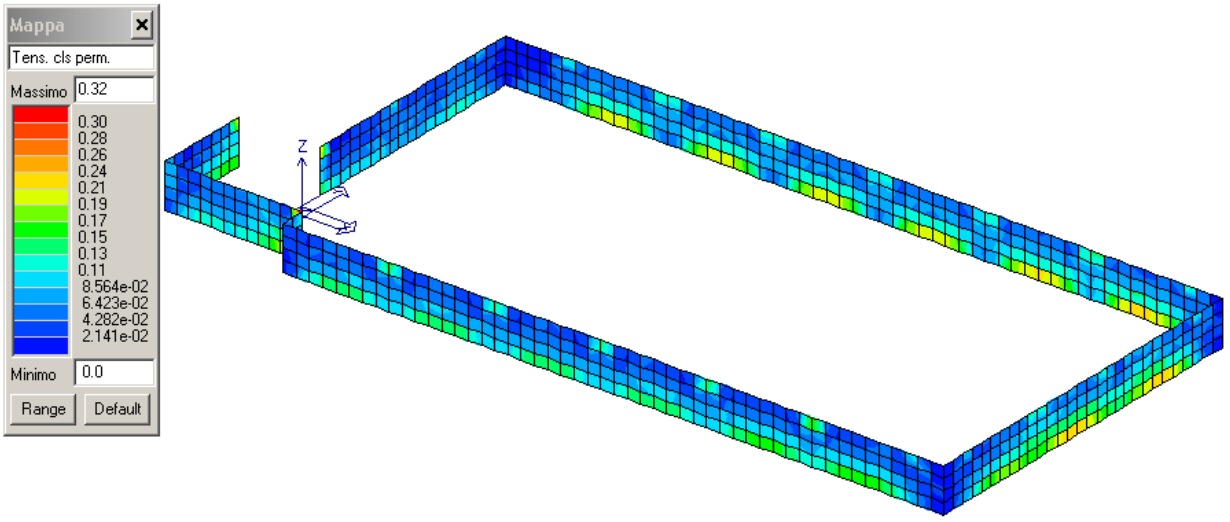

Figura 10.12 – 6 – S.L.E. Travi fondazione: tensioni cls comb. perm.

Setto	Stato	Nodo	x/d	verif.	ver. rid	Rif. cmb	Af pr-	Af pr+	Af sec-	Af sec+	Rete pr + Aggiuntivi	Rete sec + Aggiuntivi
1	ok	100	0.06	0.31	0.0	9,0	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		101	0.06	0.20	0.0	9,0	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		102	0.06	0.21	4.36e-03	9,47	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		98	0.06	0.31	2.45e-03	9,47	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
2	ok	103	0.06	0.54	0.0	11,0	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		104	0.06	0.16	2.67e-03	48,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		101	0.06	0.17	2.22e-03	48,47	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		100	0.06	0.54	0.0	11,0	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
3	ok	105	0.06	0.45	0.0	11,0	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		106	0.06	0.17	4.43e-03	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		104	0.06	0.17	2.96e-03	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		103	0.06	0.46	0.0	11,0	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
4	ok	71	0.06	0.47	0.05	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		107	0.06	0.48	0.05	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		106	0.06	0.16	8.45e-03	25,25	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		105	0.06	0.18	8.39e-03	11,25	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
5	ok	101	0.06	0.22	6.72e-04	9,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		108	0.06	0.24	7.33e-03	9,47	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		109	0.06	0.26	0.01	48,47	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		102	0.06	0.24	7.32e-03	48,47	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
6	ok	104	0.06	0.19	3.70e-03	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		110	0.06	0.15	8.98e-03	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		108	0.06	0.16	9.52e-03	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		101	0.06	0.20	4.53e-03	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
7	ok	106	0.06	0.20	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		111	0.06	0.15	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		110	0.06	0.13	0.01	27,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		104	0.06	0.18	8.36e-03	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
8	ok	107	0.06	0.18	0.03	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		112	0.06	0.16	0.03	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		111	0.06	0.13	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		106	0.06	0.15	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
9	ok	108	0.06	0.25	9.42e-03	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		113	0.06	0.27	0.01	9,9	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		114	0.06	0.26	0.01	9,9	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		109	0.06	0.24	0.01	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
10	ok	110	0.06	0.19	0.01	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		115	0.06	0.18	0.01	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		113	0.06	0.16	0.01	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		108	0.06	0.18	0.01	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
11	ok	111	0.06	0.19	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		116	0.06	0.18	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		115	0.06	0.14	9.99e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		110	0.06	0.15	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
12	ok	112	0.06	0.20	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		117	0.06	0.20	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		116	0.06	0.17	7.04e-03	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		111	0.06	0.17	6.74e-03	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
13	ok	113	0.06	0.26	0.01	9,9	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)

Setto	Stato	Nodo	x/d	verif.	ver. rid	Rif. cmb	Af pr-	Af pr+	Af sec-	Af sec+	Rete pr + Aggiuntivi	Rete sec + Aggiuntivi
		118	0.06	0.29	0.01	9,9	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		119	0.06	0.28	0.01	9,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		114	0.06	0.25	0.01	9,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
14	ok	115	0.06	0.19	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		120	0.06	0.18	0.01	25,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		118	0.06	0.16	0.01	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		113	0.06	0.16	0.01	28,27	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
15	ok	116	0.06	0.20	8.39e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		121	0.06	0.21	8.16e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		120	0.06	0.17	7.86e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		115	0.06	0.16	8.11e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
16	ok	117	0.06	0.26	2.67e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		122	0.06	0.26	2.98e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		121	0.06	0.20	3.25e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		116	0.06	0.20	2.96e-03	9,22	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)

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2341	ok	2428	0.06	0.22	0.01	50,11	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		2471	0.06	0.27	0.01	50,11	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		2022	0.06	0.27	0.01	48,9	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
		467	0.06	0.21	0.01	48,9	5.7	5.7	5.7	5.7	12/20+(12/0 i 12/0 s)	12/20+(12/0 i 12/0 s)
Setto			**x/d**	**verif.**	**ver. rid**		**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**		
			0.08	0.99	0.20		7.55	7.55	12.35	14.00		

Verifiche SLE

Setto	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
					mm	mm	mm	
1	0.04	0.26	0.05	122,122,131	0.0	0.0	0.0	0,0,0
2	0.03	0.45	0.04	122,124,131	0.0	0.0	0.0	0,0,0
3	0.03	0.38	0.04	122,124,131	0.0	0.0	0.0	0,0,0
4	0.03	0.15	0.04	122,124,131	0.0	0.0	0.0	0,0,0
5	0.09	0.22	0.12	122,122,131	0.0	0.0	0.0	0,0,0
6	0.05	0.15	0.07	122,122,131	0.0	0.0	0.0	0,0,0
7	0.03	0.13	0.04	124,122,131	0.0	0.0	0.0	0,0,0
8	0.02	0.09	0.03	122,122,131	0.0	0.0	0.0	0,0,0
9	0.11	0.23	0.14	122,122,131	0.0	0.0	0.0	0,0,0
10	0.06	0.12	0.08	122,122,131	0.0	0.0	0.0	0,0,0
11	0.04	0.13	0.05	122,122,131	0.0	0.0	0.0	0,0,0
12	0.03	0.12	0.04	122,122,131	0.0	0.0	0.0	0,0,0
13	0.11	0.25	0.14	122,122,131	0.0	0.0	0.0	0,0,0
14	0.07	0.15	0.08	122,122,131	0.0	0.0	0.0	0,0,0
15	0.04	0.18	0.05	122,122,131	0.0	0.0	0.0	0,0,0
16	0.03	0.22	0.05	124,122,131	0.0	0.0	0.0	0,0,0
17	0.11	0.26	0.14	122,122,131	0.0	0.0	0.0	0,0,0
18	0.07	0.17	0.09	122,122,131	0.0	0.0	0.0	0,0,0
19	0.04	0.18	0.06	122,122,131	0.0	0.0	0.0	0,0,0
20	0.04	0.24	0.05	122,122,131	0.0	0.0	0.0	0,0,0
21	0.11	0.28	0.14	122,122,131	0.0	0.0	0.0	0,0,0
22	0.07	0.18	0.09	122,122,131	0.0	0.0	0.0	0,0,0
23	0.05	0.15	0.06	122,122,131	0.0	0.0	0.0	0,0,0
24	0.03	0.16	0.04	122,122,131	0.0	0.0	0.0	0,0,0
25	0.10	0.28	0.13	122,122,131	0.0	0.0	0.0	0,0,0
26	0.06	0.22	0.08	122,122,131	0.0	0.0	0.0	0,0,0
27	0.04	0.12	0.05	122,124,131	0.0	0.0	0.0	0,0,0
28	0.04	0.12	0.05	122,122,131	0.0	0.0	0.0	0,0,0
29	0.08	0.28	0.10	118,122,130	0.0	0.0	0.0	0,0,0
30	0.06	0.24	0.08	122,122,131	0.0	0.0	0.0	0,0,0
31	0.06	0.22	0.08	122,122,131	0.0	0.0	0.0	0,0,0
32	0.11	0.59	0.15	118,118,130	0.0	0.0	0.0	0,0,0
33	0.07	0.28	0.10	118,122,130	0.0	0.0	0.0	0,0,0
34	0.06	0.24	0.07	122,122,131	0.0	0.0	0.0	0,0,0
35	0.06	0.22	0.08	122,122,131	0.0	0.0	0.0	0,0,0
36	0.11	0.54	0.15	118,118,130	0.0	0.0	0.0	0,0,0
37	0.10	0.27	0.13	122,122,131	0.0	0.0	0.0	0,0,0
38	0.06	0.21	0.08	122,122,131	0.0	0.0	0.0	0,0,0

Setto	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
39	0.03	0.10	0.05	122,122,131	0.0	0.0	0.0	0,0,0
40	0.04	0.09	0.05	122,122,131	0.0	0.0	0.0	0,0,0
41	0.11	0.27	0.14	122,122,131	0.0	0.0	0.0	0,0,0
42	0.07	0.16	0.09	122,122,131	0.0	0.0	0.0	0,0,0
43	0.04	0.12	0.06	122,122,131	0.0	0.0	0.0	0,0,0
44	0.03	0.13	0.04	124,122,131	0.0	0.0	0.0	0,0,0
45	0.11	0.26	0.14	122,122,131	0.0	0.0	0.0	0,0,0
46	0.07	0.15	0.09	122,122,131	0.0	0.0	0.0	0,0,0
47	0.04	0.16	0.05	122,122,131	0.0	0.0	0.0	0,0,0
48	0.04	0.21	0.05	122,122,131	0.0	0.0	0.0	0,0,0
49	0.11	0.26	0.14	122,122,131	0.0	0.0	0.0	0,0,0
50	0.07	0.16	0.09	122,122,131	0.0	0.0	0.0	0,0,0
51	0.04	0.16	0.05	122,122,131	0.0	0.0	0.0	0,0,0
52	0.04	0.21	0.05	122,122,131	0.0	0.0	0.0	0,0,0
53	0.11	0.27	0.14	122,122,131	0.0	0.0	0.0	0,0,0
54	0.07	0.17	0.09	122,122,131	0.0	0.0	0.0	0,0,0
2341	0.10	0.23	0.13	124,124,131	0.0	0.0	0.0	0,0,0
Setto	**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**	
	0.28	0.81	0.32		0.0	0.0	0.0	

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10.14. VERIFICHE SLU ED SLE PLATEA DI FONDAZIONI

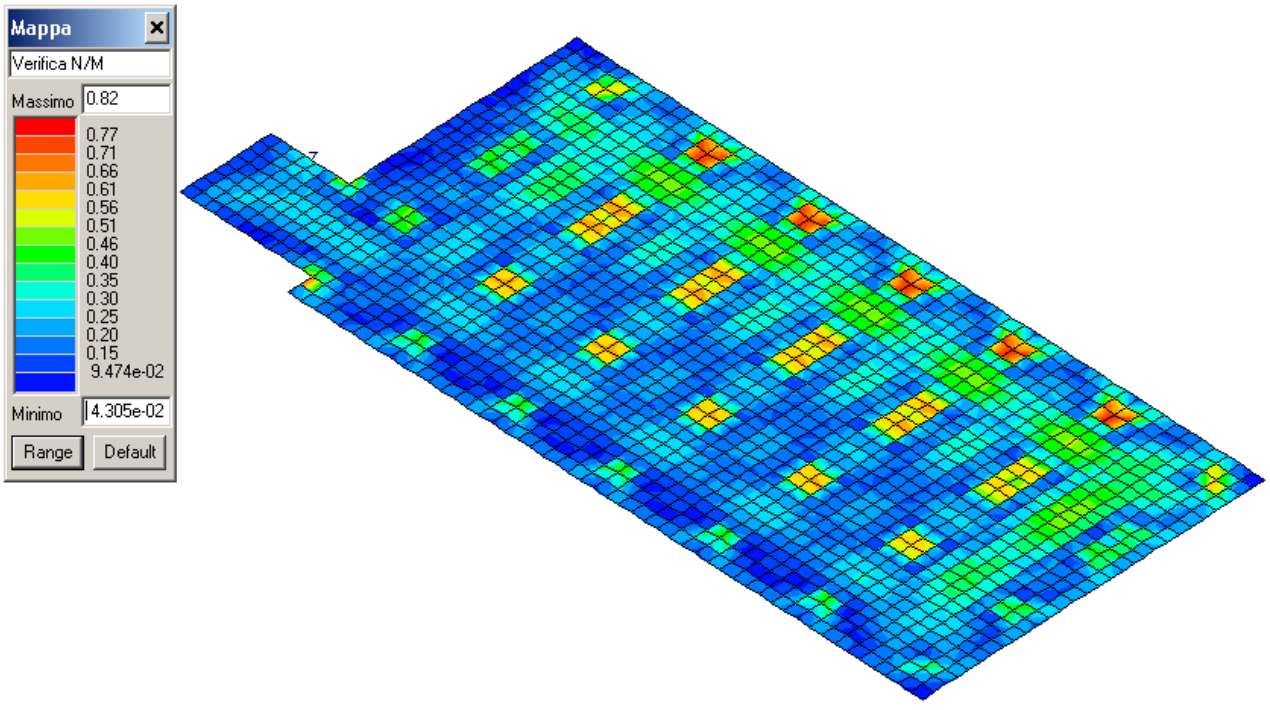

Figura 10.13 – 1 – Verifica N-M

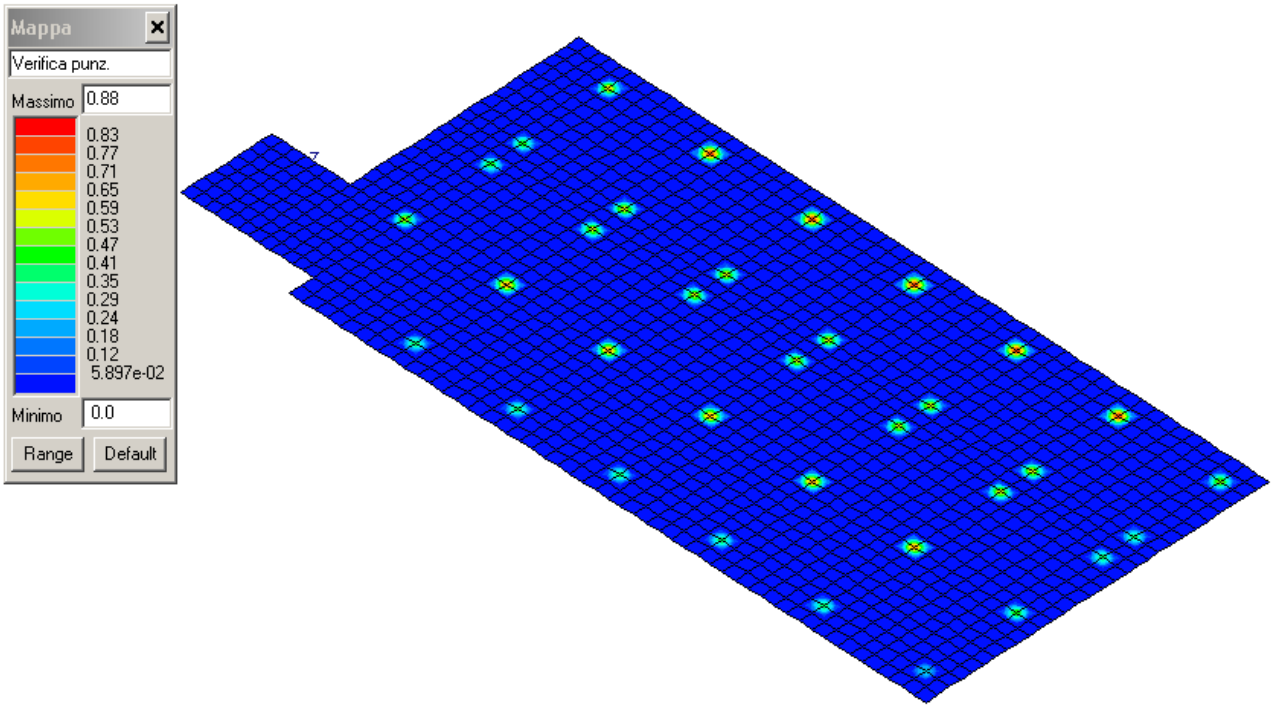

Figura 10.13 – 2 – Verifica a punzonamento

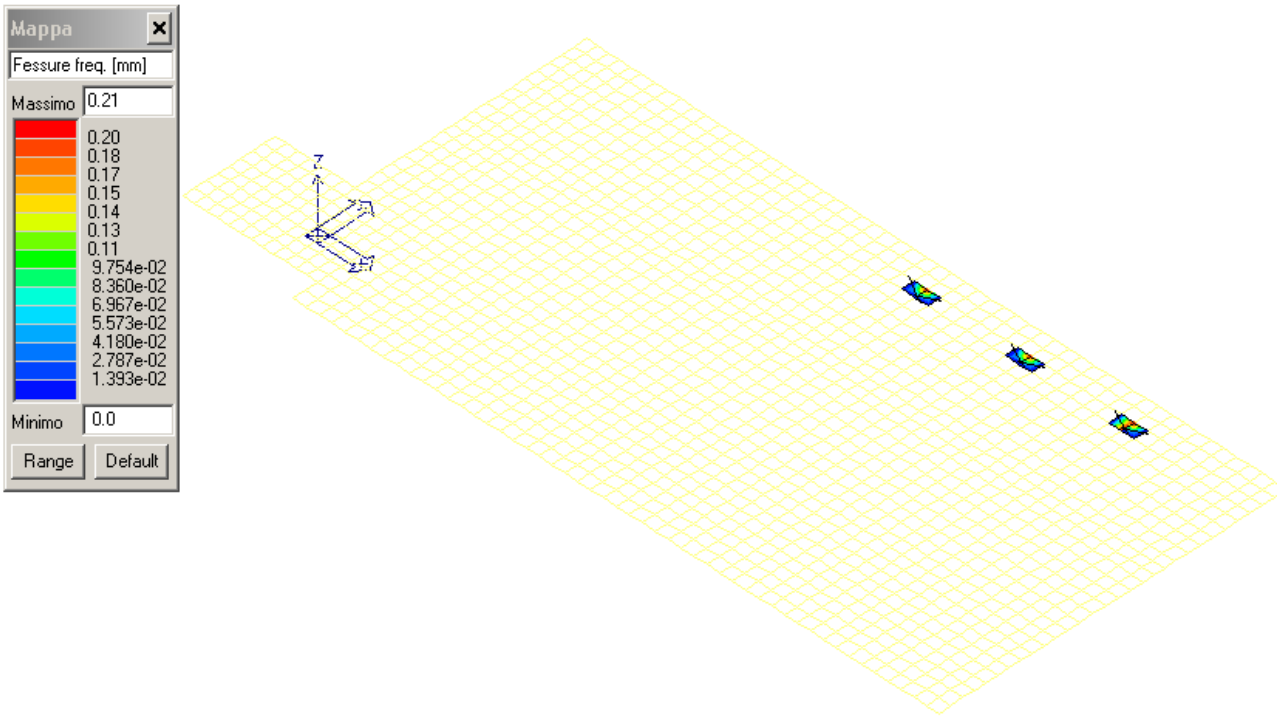

Figura 10.13 – 3 – S.L.E. Travi fondazione: fessure comb. frequenti

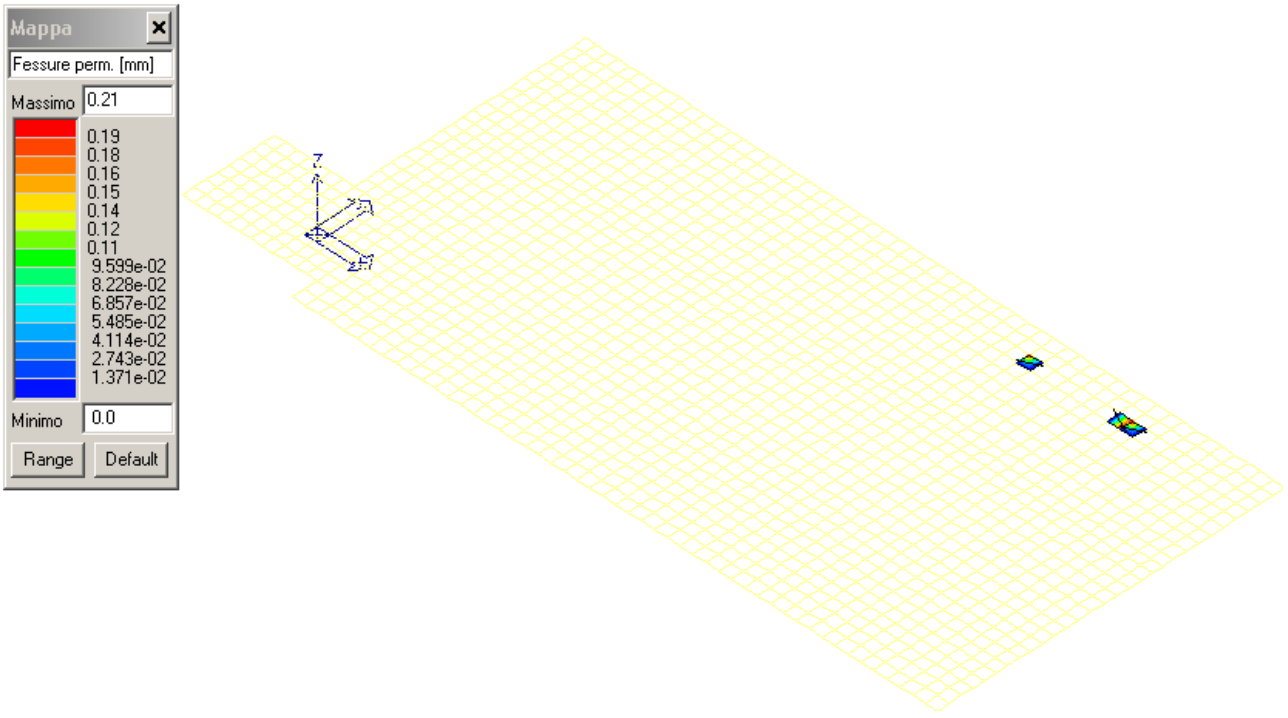

Figura 10.13 – 4 – S.L.E. Travi fondazione: fessure comb. quasi perm.

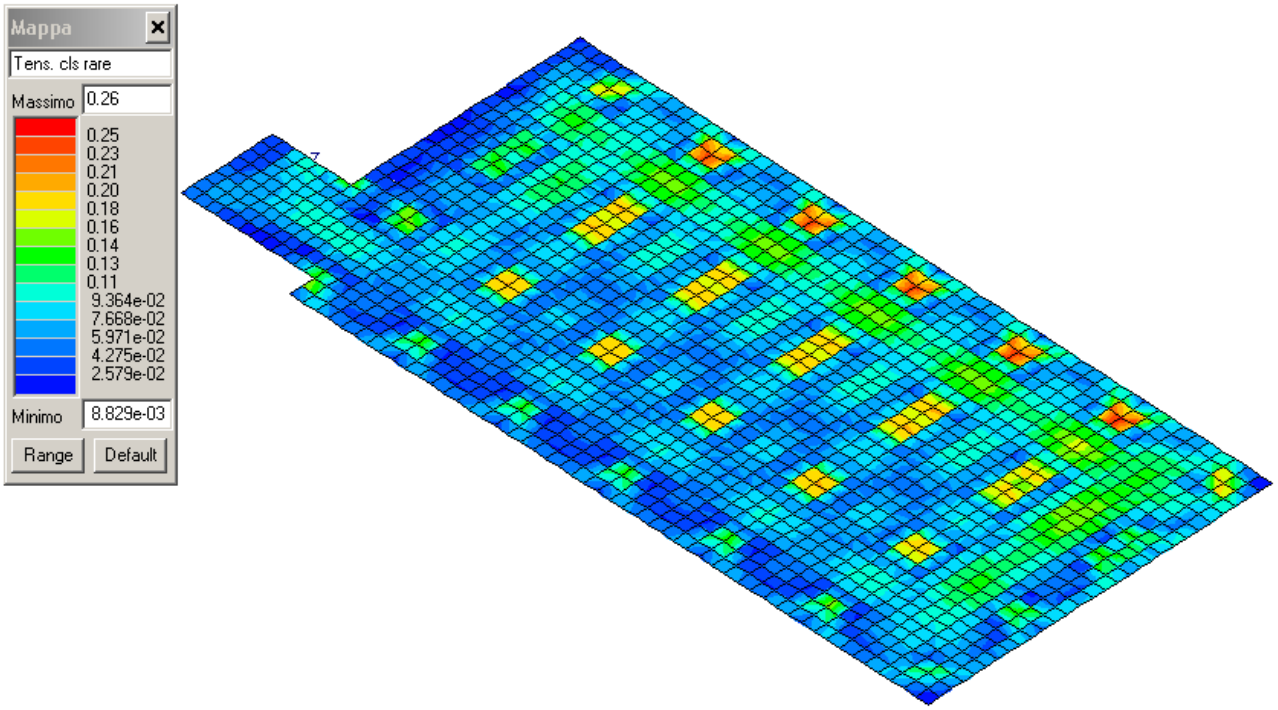

Figura 10.13 – 5 – S.L.E. Travi fondazione: tensioni cls comb. rare

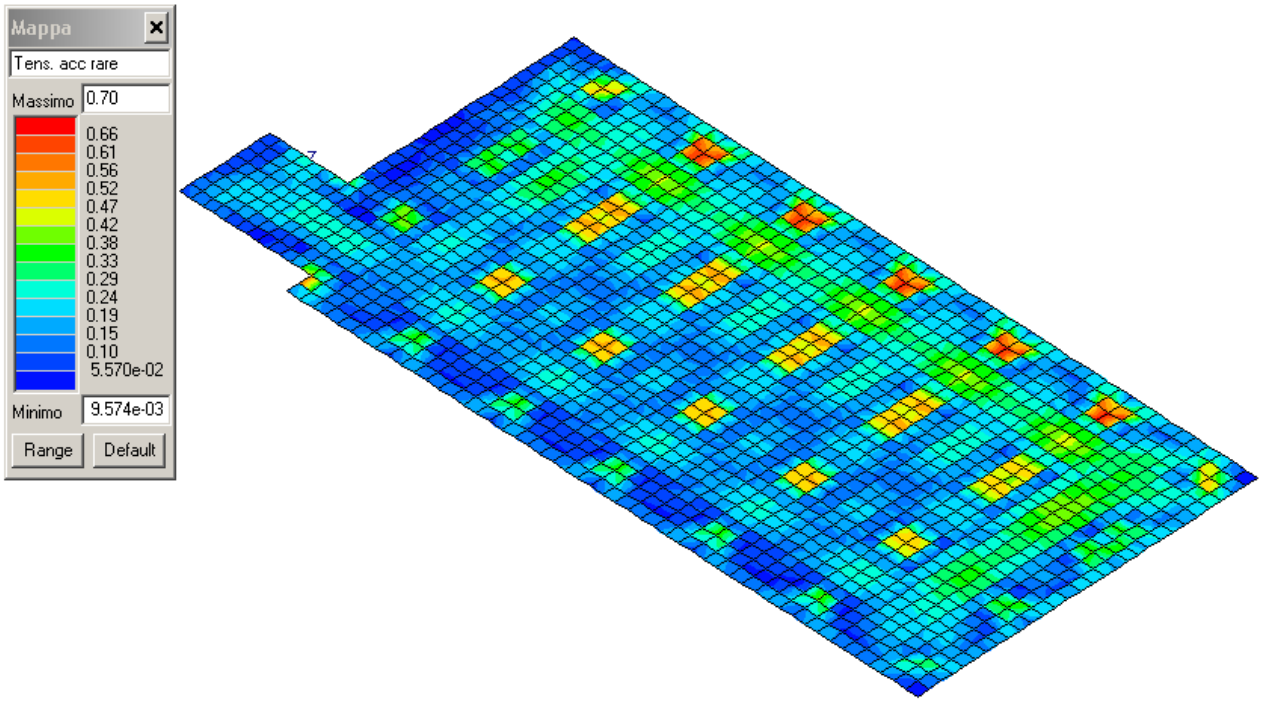

Figura 10.13 – 6 – S.L.E. Travi fondazione: tensioni acciaio comb. rare

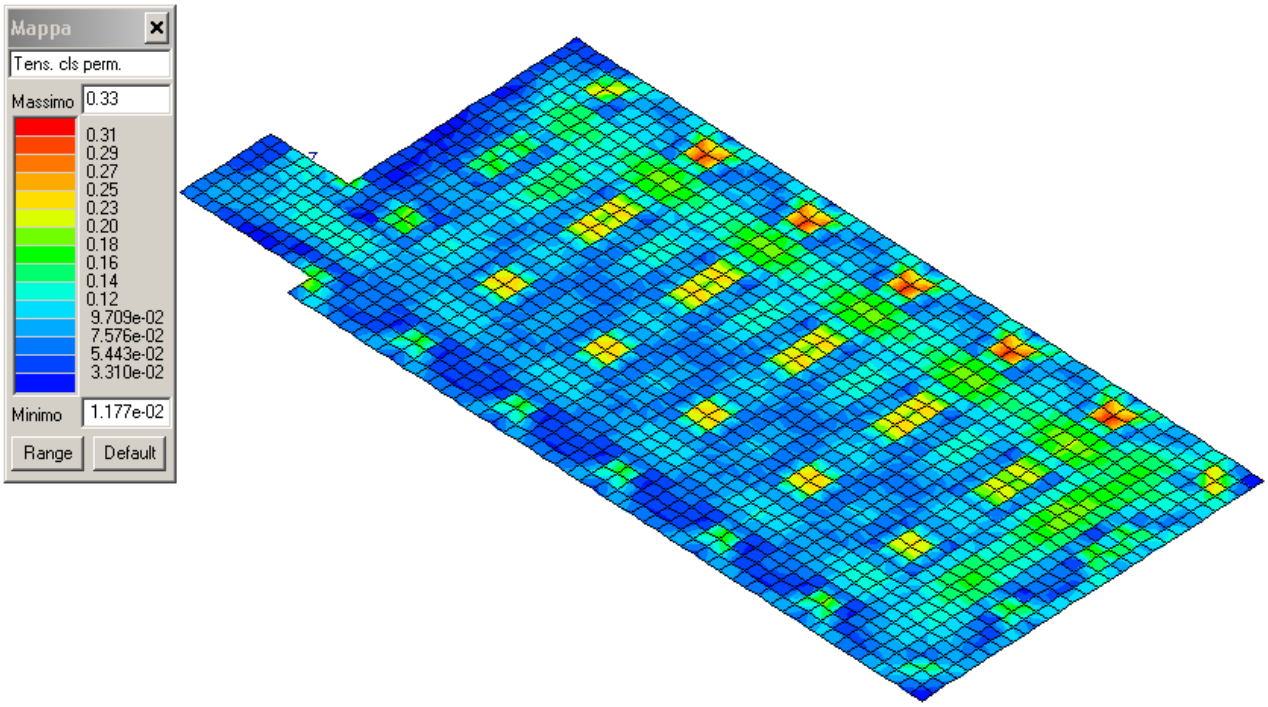

Figura 10.13 – 7 – S.L.E. Travi fondazione: tensioni cls comb. perm.

Verifiche SLU

Guscio	Stato	Nodo	x/d	verif.	ver. rid	Rif. cmb	Af pr-	Af pr+	Af sec-	Af sec+	Rete pr + Aggiuntivi	Rete sec + Aggiuntivi
385	ok	10	0.06	0.56	7.50e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		590	0.06	0.62	7.87e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		589	0.06	0.53	5.40e-03	11,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		588	0.06	0.49	4.60e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
386	ok	588	0.06	0.28	5.39e-03	4,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)

Guscio	Stato	Nodo	x/d	verif.	ver. rid	Rif. cmb	Af pr-	Af pr+	Af sec-	Af sec+	Rete pr + Aggiuntivi	Rete sec + Aggiuntivi
		589	0.06	0.40	5.49e-03	11,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		553	0.06	0.29	3.54e-03	11,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		584	0.06	0.16	3.40e-03	37,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
387	ok	590	0.06	0.34	6.71e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		592	0.06	0.22	7.23e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		591	0.06	0.24	7.01e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		589	0.06	0.45	6.47e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
388	ok	589	0.06	0.29	6.30e-03	11,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		591	0.06	0.30	7.07e-03	11,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		560	0.06	0.30	7.13e-03	11,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		553	0.06	0.29	6.41e-03	11,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
389	ok	592	0.06	0.23	7.36e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		594	0.06	0.23	7.77e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		593	0.06	0.19	8.27e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		591	0.06	0.19	7.89e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
390	ok	591	0.06	0.23	7.78e-03	11,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		593	0.06	0.20	7.89e-03	37,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		565	0.06	0.21	0.01	37,44	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		560	0.06	0.24	0.01	37,44	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
391	ok	594	0.06	0.24	7.96e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		596	0.06	0.23	8.00e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		595	0.06	0.12	8.89e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		593	0.06	0.14	8.84e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
392	ok	593	0.06	0.18	8.60e-03	37,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		595	0.06	0.17	8.54e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		570	0.06	0.17	0.01	11,44	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		565	0.06	0.19	0.01	37,44	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
393	ok	596	0.06	0.23	8.14e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		598	0.06	0.24	7.96e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		597	0.06	0.15	8.55e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		595	0.06	0.13	8.72e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
394	ok	595	0.06	0.17	9.69e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		597	0.06	0.18	9.89e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		146	0.06	0.19	0.01	11,44	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		570	0.06	0.17	0.01	11,44	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
395	ok	598	0.06	0.21	7.85e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		600	0.06	0.20	7.35e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		599	0.06	0.21	7.38e-03	43,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		597	0.06	0.20	7.86e-03	4,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
396	ok	597	0.06	0.20	9.81e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		599	0.06	0.24	9.87e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		226	0.06	0.27	0.01	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		146	0.06	0.22	0.01	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
397	ok	600	0.06	0.17	7.27e-03	47,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		602	0.06	0.45	6.87e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		601	0.06	0.56	6.58e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		599	0.06	0.30	7.01e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
398	ok	599	0.06	0.34	8.94e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		601	0.06	0.32	8.04e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		305	0.06	0.32	6.74e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		226	0.06	0.33	7.74e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
399	ok	602	0.06	0.79	8.46e-03	4,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		20	0.06	0.70	7.97e-03	4,34	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		603	0.06	0.59	7.13e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		601	0.06	0.65	8.62e-03	11,32	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)

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2023	ok	2171	0.06	0.15	3.64e-03	11,38	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		2170	0.06	0.12	2.30e-03	11,43	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		549	0.06	0.14	1.91e-03	11,41	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		2157	0.06	0.17	3.61e-03	11,38	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
2024	ok	577	0.06	0.11	5.97e-03	11,43	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		2172	0.06	0.08	5.86e-03	11,43	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		2171	0.06	0.12	6.03e-03	11,43	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		1924	0.06	0.14	6.06e-03	11,43	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
2025	ok	1924	0.06	0.23	4.47e-03	11,43	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		2171	0.06	0.19	4.32e-03	11,43	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		2157	0.06	0.24	3.50e-03	11,41	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
		62	0.06	0.29	3.74e-03	11,41	10.1	10.1	10.1	10.1	16/20+(16/0 i 16/0 s)	16/20+(20/0 i 20/0 s)
Guscio			**x/d**	**verif.**	**ver. rid**		**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**		
			0.06	0.82	0.04		10.05	10.05	10.05	10.05		

Verifiche SLE

Guscio	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
					mm	mm	mm	

Guscio	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
385	0.19	0.53	0.24	124,124,131	0.0	0.0	0.0	0,0,0
386	0.13	0.34	0.16	124,124,131	0.0	0.0	0.0	0,0,0
387	0.14	0.38	0.17	124,124,131	0.0	0.0	0.0	0,0,0
388	0.10	0.26	0.13	124,124,131	0.0	0.0	0.0	0,0,0
389	0.08	0.20	0.10	124,124,131	0.0	0.0	0.0	0,0,0
390	0.09	0.21	0.11	124,124,131	0.0	0.0	0.0	0,0,0
391	0.08	0.21	0.10	124,121,131	0.0	0.0	0.0	0,0,0
392	0.07	0.16	0.08	124,124,131	0.0	0.0	0.0	0,0,0
393	0.07	0.21	0.09	124,121,131	0.0	0.0	0.0	0,0,0
394	0.07	0.16	0.09	124,124,131	0.0	0.0	0.0	0,0,0
395	0.07	0.18	0.09	124,121,131	0.0	0.0	0.0	0,0,0
396	0.10	0.23	0.12	124,124,131	0.0	0.0	0.0	0,0,0
397	0.17	0.48	0.21	124,124,131	0.0	0.0	0.0	0,0,0
398	0.11	0.29	0.14	124,124,131	0.0	0.0	0.0	0,0,0
399	0.24	0.68	0.30	121,121,131	0.18	0.0	0.0	121,0,0
400	0.14	0.40	0.18	124,121,131	0.0	0.0	0.0	0,0,0
401	0.14	0.38	0.17	124,124,131	0.0	0.0	0.0	0,0,0
402	0.09	0.22	0.11	124,124,131	0.0	0.0	0.0	0,0,0
403	0.12	0.31	0.15	124,124,131	0.0	0.0	0.0	0,0,0
404	0.13	0.34	0.16	124,124,131	0.0	0.0	0.0	0,0,0
405	0.12	0.31	0.15	124,124,131	0.0	0.0	0.0	0,0,0
406	0.09	0.23	0.11	124,124,131	0.0	0.0	0.0	0,0,0
407	0.20	0.55	0.25	124,124,131	0.0	0.0	0.0	0,0,0
408	0.07	0.17	0.08	124,124,131	0.0	0.0	0.0	0,0,0
409	0.09	0.22	0.11	124,124,131	0.0	0.0	0.0	0,0,0
410	0.12	0.33	0.16	124,124,131	0.0	0.0	0.0	0,0,0
411	0.13	0.35	0.16	124,124,131	0.0	0.0	0.0	0,0,0
412	0.12	0.32	0.15	124,124,131	0.0	0.0	0.0	0,0,0
413	0.06	0.14	0.07	121,121,131	0.0	0.0	0.0	0,0,0
414	0.07	0.19	0.09	124,124,131	0.0	0.0	0.0	0,0,0
415	0.10	0.27	0.13	124,124,131	0.0	0.0	0.0	0,0,0
416	0.11	0.30	0.14	124,124,131	0.0	0.0	0.0	0,0,0
417	0.12	0.31	0.15	124,124,131	0.0	0.0	0.0	0,0,0
418	0.12	0.33	0.16	124,124,131	0.0	0.0	0.0	0,0,0
419	0.11	0.28	0.13	124,124,131	0.0	0.0	0.0	0,0,0
420	0.09	0.23	0.11	124,121,131	0.0	0.0	0.0	0,0,0
421	0.08	0.22	0.10	124,124,131	0.0	0.0	0.0	0,0,0
422	0.13	0.34	0.16	124,124,131	0.0	0.0	0.0	0,0,0
423	0.12	0.31	0.14	124,124,131	0.0	0.0	0.0	0,0,0
424	0.11	0.29	0.14	124,124,131	0.0	0.0	0.0	0,0,0
425	0.11	0.29	0.14	124,124,131	0.0	0.0	0.0	0,0,0
426	0.10	0.27	0.13	124,124,131	0.0	0.0	0.0	0,0,0
427	0.09	0.26	0.12	124,124,131	0.0	0.0	0.0	0,0,0
428	0.09	0.24	0.11	124,121,131	0.0	0.0	0.0	0,0,0
429	0.12	0.32	0.15	124,124,131	0.0	0.0	0.0	0,0,0
430	0.11	0.29	0.13	124,124,131	0.0	0.0	0.0	0,0,0
431	0.11	0.28	0.13	124,121,131	0.0	0.0	0.0	0,0,0
432	0.12	0.31	0.15	124,124,131	0.0	0.0	0.0	0,0,0
433	0.11	0.29	0.14	124,124,131	0.0	0.0	0.0	0,0,0

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2000	0.11	0.29	0.14	124,124,131	0.0	0.0	0.0	0,0,0
2001	0.05	0.11	0.06	124,124,131	0.0	0.0	0.0	0,0,0
2002	0.05	0.14	0.07	124,124,131	0.0	0.0	0.0	0,0,0
2003	0.05	0.13	0.06	124,124,131	0.0	0.0	0.0	0,0,0
2004	0.11	0.29	0.14	124,124,131	0.0	0.0	0.0	0,0,0
2005	0.14	0.37	0.17	124,124,131	0.0	0.0	0.0	0,0,0
2006	0.09	0.24	0.11	124,124,131	0.0	0.0	0.0	0,0,0
2007	0.08	0.21	0.11	124,124,131	0.0	0.0	0.0	0,0,0
2008	0.07	0.18	0.09	124,124,131	0.0	0.0	0.0	0,0,0
2009	0.06	0.15	0.08	124,124,131	0.0	0.0	0.0	0,0,0
2010	0.07	0.16	0.08	124,124,131	0.0	0.0	0.0	0,0,0
2011	0.08	0.19	0.10	124,124,131	0.0	0.0	0.0	0,0,0
2012	0.08	0.21	0.10	124,124,131	0.0	0.0	0.0	0,0,0
2013	0.09	0.23	0.11	124,124,131	0.0	0.0	0.0	0,0,0
2014	0.13	0.35	0.17	124,124,131	0.0	0.0	0.0	0,0,0
2015	0.10	0.26	0.12	124,124,131	0.0	0.0	0.0	0,0,0
2016	0.07	0.19	0.09	124,124,131	0.0	0.0	0.0	0,0,0
2017	0.07	0.18	0.09	124,124,131	0.0	0.0	0.0	0,0,0

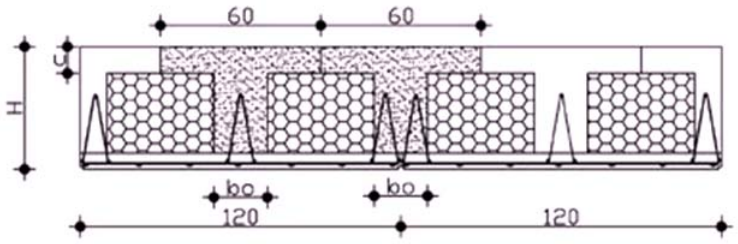
2018	0.06	0.15	0.07	124,124,131	0.0	0.0	0.0	0,0,0
2019	0.04	0.11	0.05	124,124,131	0.0	0.0	0.0	0,0,0
2020	0.10	0.26	0.12	124,124,131	0.0	0.0	0.0	0,0,0
2021	0.13	0.36	0.17	124,124,131	0.0	0.0	0.0	0,0,0
2022	0.03	0.06	0.04	121,120,131	0.0	0.0	0.0	0,0,0
2023	0.06	0.15	0.07	124,124,131	0.0	0.0	0.0	0,0,0
2024	0.06	0.12	0.07	124,124,131	0.0	0.0	0.0	0,0,0
2025	0.10	0.24	0.12	124,124,131	0.0	0.0	0.0	0,0,0
Guscio	**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**	
	0.26	0.70	0.33		0.19	0.21	0.21	

10.15. VERIFICA SOLAI

Si riporta di seguito la verifica dei solai in cls – polistirolo tipo “Predalles” impiegati per l’edificio in esame. Per la verifica è stato considerato il solaio maggiormente sollecitato dai carichi permanenti e variabili ovvero il solaio del piano terra (si veda § 9.1 azioni statiche).
Complessivamente la somma dei carichi permanenti con i variabili risulta essere pari a:

Q_{max} = 5.90kN/mq + 1.20kN/mq + 3.00kN/mq = ***10.10kN/mq***

La luce massima coperta dal solaio risulta essere di 6.00m. La verifica agli S.L.U. del solaio Predalles viene eseguita mediante un foglio di calcolo Excel.



Tipo di solaio scelto	predalle 4+20+4		
Luce solaio [m]	6	h solaio [cm]	28
h soletta [cm]	4	I.sol. coll. [cm]	54
f_{ck} [N/mm^2]	25	Altezza utile [cm]	22
F_{cd} [N/mm^2]	14,17	F_{cm} [N/mm^2]	28,75
F_{yk} [N/mm^2]	450	F_{yd} [N/mm^2]	391

Analisi Carichi	**I [m]**	**kN/m^2**	**kN/m**
Tramezzi	0,54	1,20	0,65
Totale Permanenti non Strutturali G_2			**0,65**

Pavimentazione	0,54	1,00	0,54
Sottofondo in cls cm 8	0,54	1,20	0,65
Peso proprio solaio	0,54	3,70	2,00
Intonaco in calce cm.3	0,54	0,00	0,00
Totale Permanenti Strutturali G_1			**3,19**
Carichi Accidentali Q	0,54	3,00	**1,62**

Combinazioni di carico SLU	$\gamma_{G1}\cdot G_1 + \gamma_{G2}\cdot G_2 + \gamma_P\cdot P + \gamma_{Q1}\cdot Q_{k1}$						
γ_{G1}	1,3	γ_{G2}	1,5			γ_Q	1,5
$M^+_{ed.max}$ [KN*m]	27,16	Grado di vincolo:		Semi-incastro		V_{ed} [KN]	**22,63**
$M^-_{ed.max}$ [KN*m]	-27,16						
VERIFICA APPROSSIMATA A MOMENTO							
Area minima ferri superiori			3,51	Area minima ferri inferiori			3,51
Ferri Superiori			ρ'	0,69%	A. ferri sup [cm^2]		**3,83**
$\varphi_{1\,sup}$	10	$n._{1\,sup}$	2	$\varphi_{2\,sup}$	12	$n._{2\,sup}$	2
Ferri Inferiori			ρ	0,69%	A. ferri Inf [cm^2]		**3,83**
$\varphi_{1\,inf}$	10	$n._{1\,inf}$	2	$\varphi_{2\,inf}$	12	$n._{2\,inf}$	2
M^+_{rd} [KN*m^2]		29,70	**OK**	M^-_{rd} [KN*m^2]		-29,70	**OK**

VERIFICA A TAGLIO		f_{ck} [N/mm^2]	25,00	Larghezza travetto [mm]		140
K	1,95	v_{min}	0,48	ρ_1	0,0196	
V_{rd} [KN]	26,40	**OK**				

10.16. VERIFICA MURI CONTRO TERRA

Le verifiche sui muri contro terra sono state effettuate attraverso lo schema semplificato di una trave incastrata alla base e incernierata in sommità. Tale trave ha uno spessore di 40cm e larghezza unitaria ed è armata con ferri ϕ12 passo 20cm.

Cautelativamente si assume che la falda acquifera si trovi alla quota z_1= 1.00m, la profondità della struttura contro terra è 2.70m (z_2).

Ai fini progettuali, ipotizzando di impiegare del materiale di riporto, si assume un'angolo di attrito del terreno pari a 38° e quindi la spinta del terreno a riposo (K_0 = 1-senΦ') equivale a 0.384.

f) Azioni statiche

I carichi lineari applicati alla trave sono i seguenti:

- Peso della sovrastruttura q_s = 40.00 kN/mq
- Carico triangolare dovuto al terreno asciutto fino alla quota z_1

  (γ = 20kN/mq; z_1= 1.00m) q_{t1max} = 7.68 kN/m
- Carico triangolare dovuto al terreno immerso fino alla quota z_2

  (γ_i = 10kN/mq; z_1= 2.70m) q_{t2max} = 14.21 kN/m
- Carico triangolare dovuto alla falda acquifera:

  (γ_i = 10kN/mq) q_{water} = 17.00 kN/m

g) Azioni sismiche

Relativamente allo stato limite di salvaguardia della vita (SLV), la risultante delle forze inerziali orizzontali indotte dal sisma viene valutata con la seguente espressione:

- $F_h = P \times k_h$

Dove

- P = peso proprio;
- $k_h=\beta_m \times a_{max} / g$
- $a_{max} = S_s \times S_t \times a_g = S \times a_g$

Località	*cat. Suolo*	*S*	a_g[g]	$a_{max}[g] = S \times a_g$
S. Possidonio – Concordia - Mirandola	C	1.414	0.188	0.266
S. Felice SP – Finale Emilia	C	1.396	0.199	0.278
Cento	D	1.611	0.207	0.333
Poggio Renatico	D	1.619	0.205	0.332
Ferrara Sud	D	1.725	0.176	0.304

Allo stato SLV

- $k_h=\beta_m \times a_{max} / g$ = 1 x 0.278 = 0.278

Nel caso di sisma orizzontale si considera la spinta derivante dall'oscillazione del cuneo di terreno spingente con l'applicazione del diagramma triangolare di pressioni, tipico dei muri di sostegno, avente la risultante a 1/3 dell'altezza.

Per tener conto dell'incremento di spinta del terreno dovuta al sisma si fa riferimento all'EC8, in cui l'incremento di spinta dei terreni ΔP per azione sismica per la condizione a riposo viene valutato:

h) $\Delta P_d = \beta_m \cdot S \cdot a_g / g \cdot \gamma \cdot h_{tot}^2$

Spinta inerziale orizzontale del piedritto

- S_h = peso piedritti x K_h = 25 x 0.4 x 0.278 = 2.78 kN/m2

Sovraspinta sismica del terreno

i) $\Delta P_d = 1 \cdot 0.278 \times 20 \times 2.70^2$ = 40.53 kN/m

j) $\Delta p_d = 40.53 / 2.70$ = 15.00 kN/mq

dove si indica con h_{tot} l'altezza totale del muro controterra.

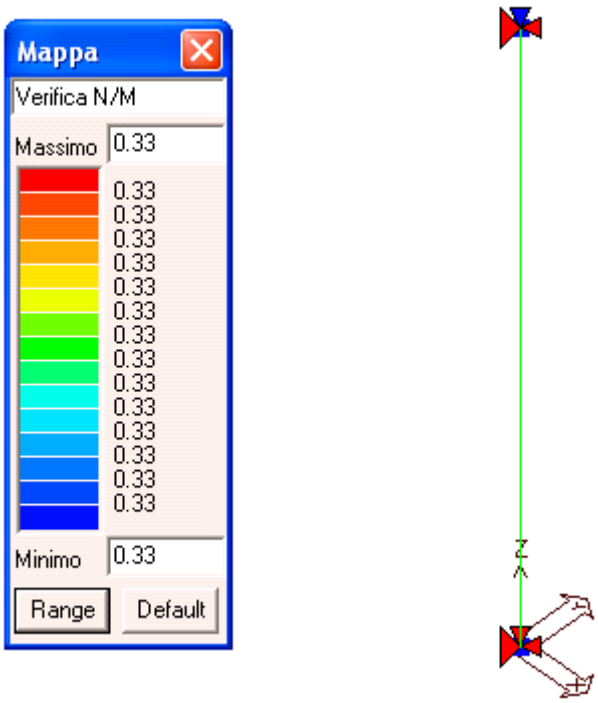


Figura 10.16 – 1 – Muro controterra: Verifica N/M

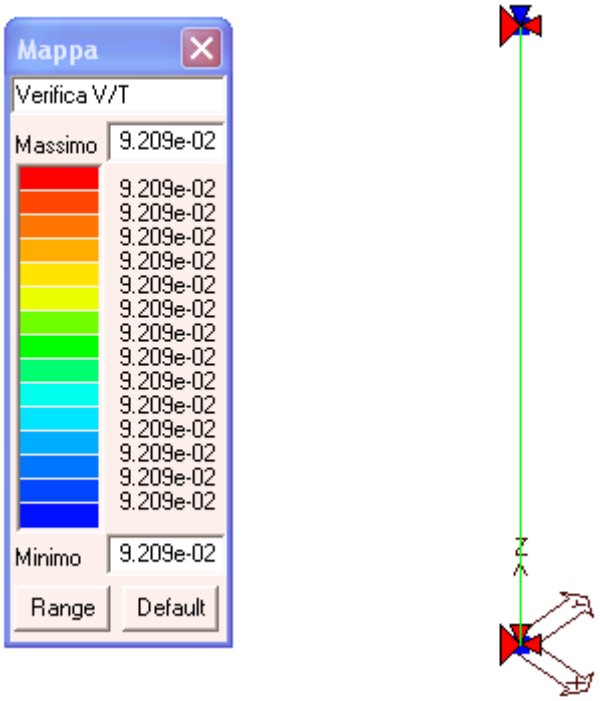


Figura 10.16 – 2 – Muro controterra: Verifica V/T

Verifiche SLU

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
			cm						L=cm		
1	s=1,m=1	ok,ok	0.0	0.34	0.05	4d12 0+8 d12	0.33	0.0	2+2d12/14 L=270	0.09	1,0,1
	[b=1.0;1.0]		270.0	0.34	0.05	4d12 0+8 d12	0.02	0.0	2+2d12/14 L=270	0.04	1,0,1
Pilas.				**%Af**	**r. snell.**		**verif.**	**ver. rid**		**ver. V/T**	
				0.34	0.05		0.33	0.0		0.09	

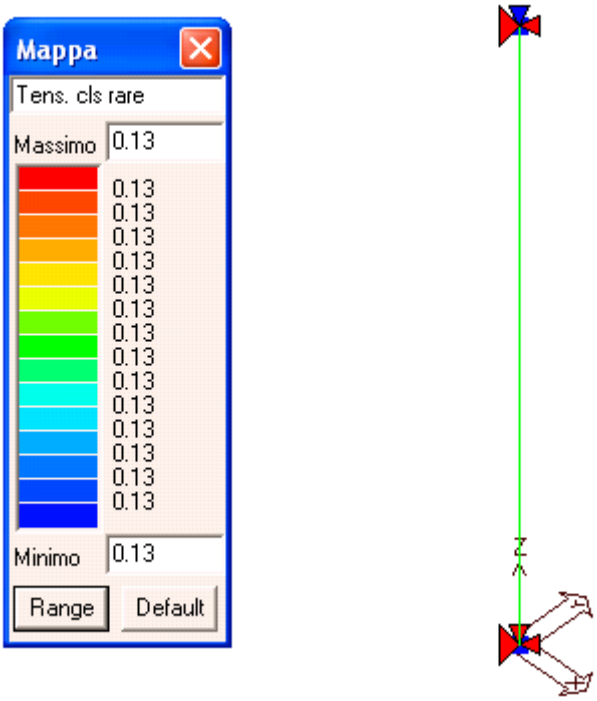


Figura 10.16 – 3 – S.L.E. Tensioni cls comb. rara

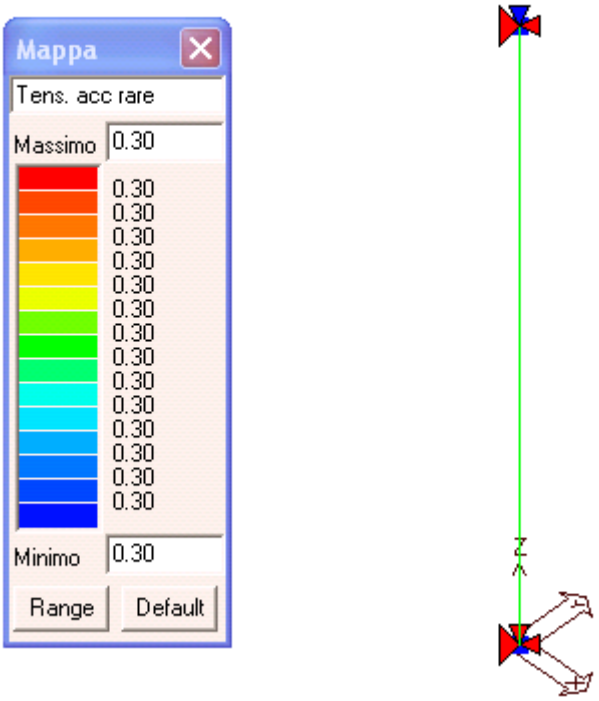


Figura 10.16 – 4 – S.L.E. Tensioni acciaio comb. rara

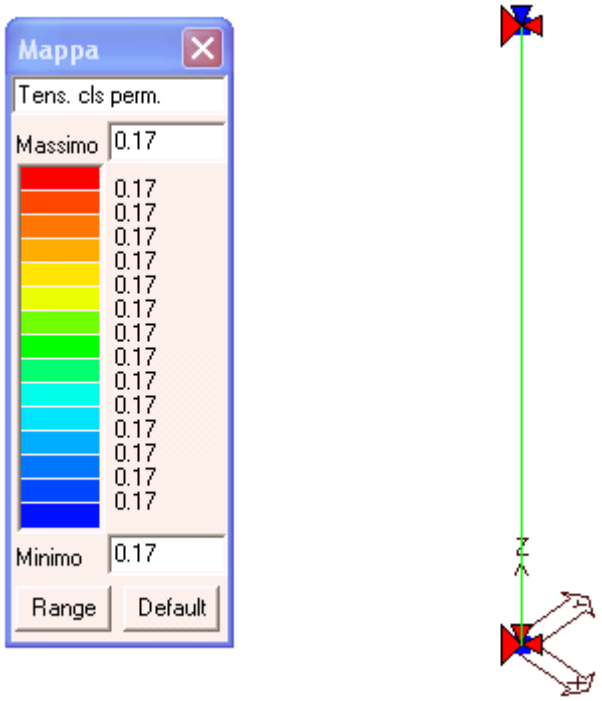


Figura 10.16 – 5 – S.L.E. Tensioni cls comb. permanente

Verifiche SLE

Pilas.	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	Pos.	rRfck	rRfyk	rPfck	Rif. cmb
	cm					cm				
1	0.0	0.13	0.30	0.17	7,7,9	270.0	0.0	0.03	0.0	0,7,0
Pilas.		**rRfck**	**rRfyk**	**rPfck**			**rRfck**	**rRfyk**	**rPfck**	
		0.13	0.30	0.17						

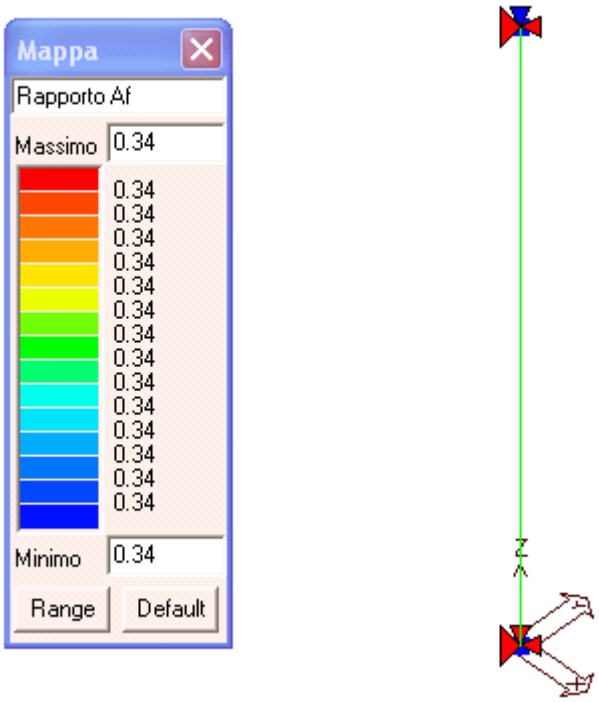


Figura 10.16 – 6 – Rapporto Af

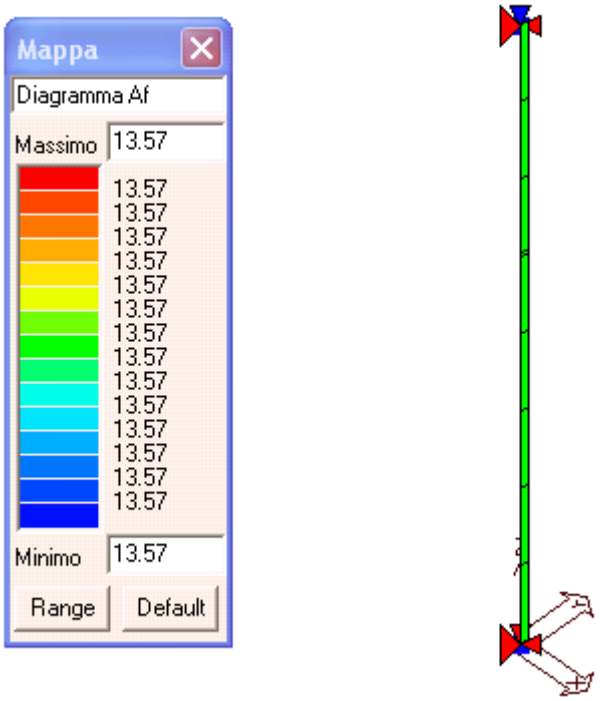


Figura 10.16 – 6 – Diagramma area armatura

11. VERIFICA DELLE PRESSIONI SUL TERRENO

Verifiche agli SLU

Gli stati limite ultimi delle fondazioni superficiali si riferiscono allo sviluppo di meccanismi di collasso determinati dalla mobilitazione della resistenza del terreno (GEO) e/o al raggiungimento della resistenza degli elementi strutturali (STR) che compongono la fondazione stessa.

Le verifiche geotecniche vengono effettuate nei confronti dello *SLU di tipo geotecnico (GEO)* accertando che la condizione $E_d \leq R_d$ sia soddisfatta per ogni stato limite.

La verifica di tale condizione viene effettuata seguendo:

- *Approccio 1:*
  - *Combinazione (GEO) 2: (A2+M2+R2);*

Il valore di progetto dell'azione E_d è calcolata dal programma di calcolo tenendo conto dei coefficienti parziali in riferimento allo SLU di tipo geotecnico (A2). Si riportano nelle immagini a seguire le pressioni massime indotte dalle suddette combinazioni. Si ricorda che le pressioni *tipo A1* sono le pressioni indotte nel terreno nella verifica al *SLU di tipo strutturale* e quindi utili solo alla valutazione delle caratteristiche della sollecitazione interna per le verifiche strutturali degli elementi di fondazione. In questa fase vengono omesse.

Per le seguenti verifiche si fa riferimento ai dati forniti nella *RELAZIONE GEOTECNICA SVINCOLO – AUTOSTAZIONE DI SAN FELICE SUL PANARO E FINALE EMILIA*.

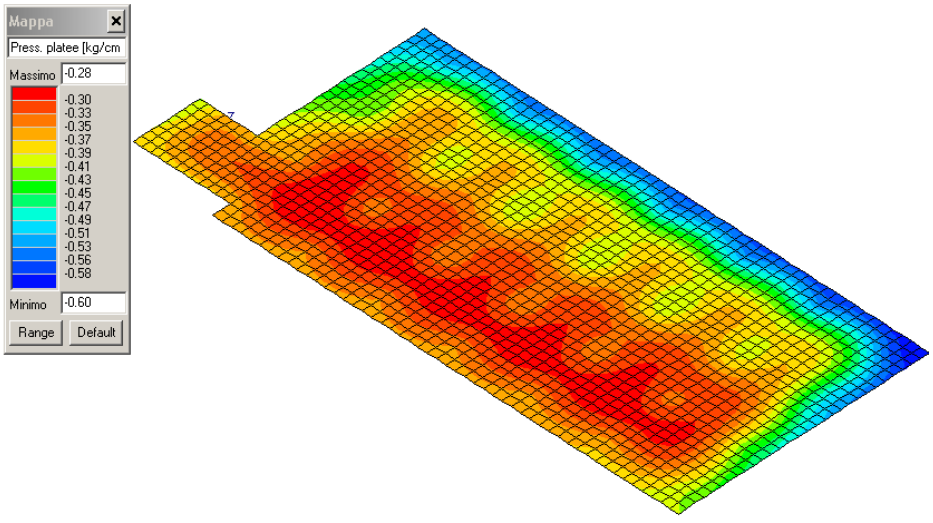


Figura 11 – 1 - Combinazione SLU A2: pressioni massime indotte dalle travi di fondazione nel terreno

Statica drenata		
H/V [%]	$q_{Rd\text{-}A1\text{-}C1\text{-}drenata}$ [kPa]	$q_{Rd\text{-}A1\text{-}C2\text{-}drenata}$ [kPa]
0	769	243
10	767	242
20	766	242

TABELLA 11-1: PRESSIONE DI CONTATTO LIMITE DI PROGETTO – B=23.5M – L=50.0M - D=3.00M – CONDIZIONE STATICA DRENATA

Per il rapporto H/V = 10% si ha il valore di $q_{Rd\text{-}A1\text{-}C2\text{-}drenata}$ = 242 kPa = 2.42Kg/cmq.
La verifica risulterà essere perciò:

Ed = 0.60 kg/cmq < 2.42 kg/cmq = Rd **Verificato**

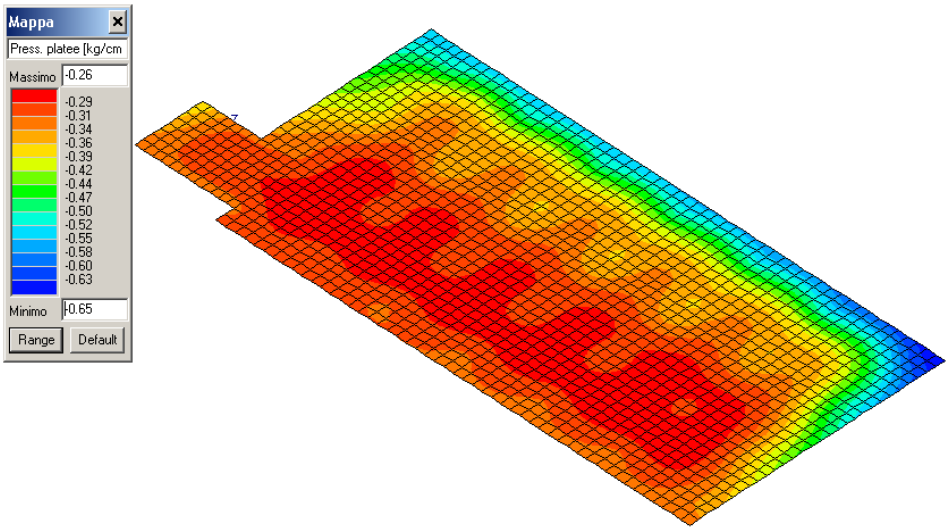


Figura 11 – 2 - Combinazione SLU A2 sismica: pressioni massime indotte dalle travi di fondazione nel terreno

Sismica non drenata		
H/V [%]	$q_{Rd\text{-}A1\text{-}C1\text{-}non\ drenata}$ [kPa]	$q_{Rd\text{-}A1\text{-}C2\text{-}non\ drenata}$ [kPa]
10	351	148
20	351	148
30	351	148

TABELLA 11-1: PRESSIONE DI CONTATTO LIMITE DI PROGETTO – B=23.5M – L=50.0M - D=3.00M – CONDIZIONE SISMICA

Per il rapporto H/V = 30% si ha il valore di $q_{Rd\text{-}A1\text{-}C2\text{-}non\ drenata}$ = 148 kPa = 1.48Kg/cmq.
La verifica risulterà essere:

Ed = 0.65 kg/cmq < 1.48 kg/cmq = Rd **Verificato**

EDIFICIO "B" – MODELLO DI CALCOLO, RISULTATI E VERIFICHE

Gli elementi utilizzati per la modellazione dello schema statico della struttura sono gli stessi impiegati nel modello precedente.

Al termine dell'analisi si è svolto il controllo automatico verificando la presenza di spostamenti o rotazioni abnormi. I risultati delle elaborazioni sono stati sottoposti a controlli che ne comprovano l'attendibilità. Tale valutazione ha compreso il confronto con i risultati di semplici calcoli, eseguiti con metodi tradizionali e adottati, anche in fase di primo proporzionamento della struttura.

11.1. MATERIALI

A seguire si riportano le caratteristiche meccaniche dei materiali utilizzati nella modellazione. Nella figura seguente la sigla "Id" (abbreviazione per "identificativo"), identifica il tipo di materiale impiegato per ogni elemento strutturale. Si precisa che per le fondazioni è stato impiegato un *cls C25/30*; per i pilastri un *cls C28/35* ed infine per le travi un *cls C32/40.*

Id	Tipo / Note		Young	Poisson	G	Gamma	Alfa
		daN/cm2	daN/cm2		daN/cm2	daN/cm3	
1	Calcestruzzo Classe C25/30		3.145e+05	0.12	1.404e+05	2.50e-03	1.00e-05
	Rck	300.0					
	fctm	25.6					
3	Calcestruzzo Classe C28/35		3.260e+05	0.12	1.455e+05	2.50e-03	1.00e-05
	Rck	350.0					
	fctm	28.4					
4	Calcestruzzo Classe C32/40		3.360e+05	0.12	1.500e+05	2.50e-03	1.00e-05
	Rck	400.0					
	fctm	31.0					

ove:

1	*cemento armato*	
	Rck	*resistenza caratteristica cubica*
	Fctm	*resistenza media a trazione semplice*
Young	*modulo di elasticità normale*	
Poisson	*coefficiente di contrazione trasversale*	
G	*modulo di elasticità tangenziale*	
Gamma	*peso specifico*	
Alfa	*coefficiente di dilatazione termica*	

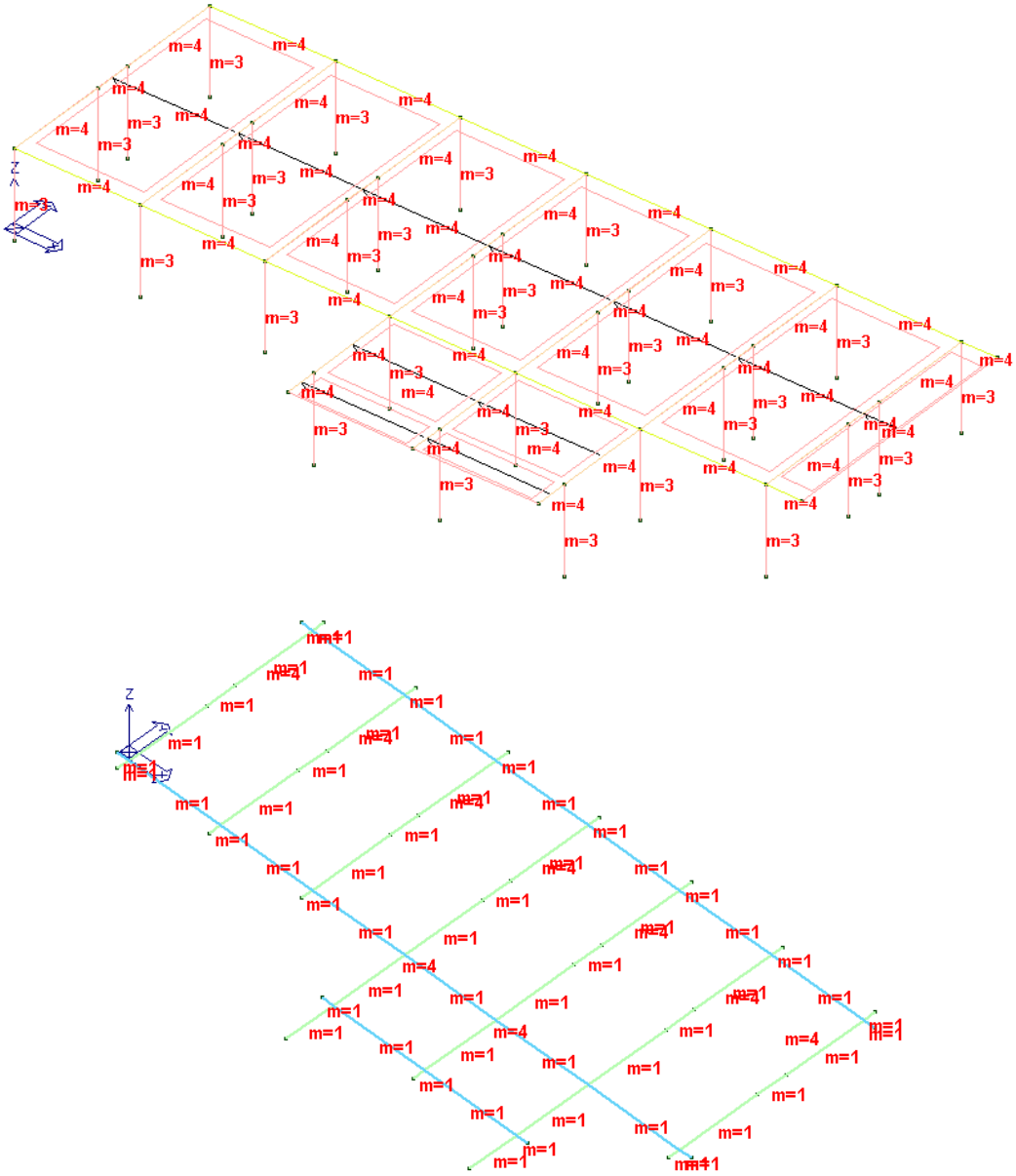


Figura 0.1 - 1 – Codice "Id" materiali

11.2. MODELLAZIONE ELEMENTI STRUTTURALI

Le sezioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni sezione vengono riportati in tabella i seguenti dati:

Id	Tipo	Area	A V2	A V3	Jt	J 2-2	J 3-3	W 2-2	W 3-3	Wp 2-2	Wp 3-3
		cm2	cm2	cm2	cm4	cm4	cm4	cm3	cm3	cm3	cm3
1	pilastro: b=30.00 h	1500.00	1250.00	1250.00	2.799e+05	1.125e+05	3.125e+05	7500.00	1.250e+04	1.125e+04	1.875e+04

Id	Tipo	Area	A V2	A V3	Jt	J 2-2	J 3-3	W 2-2	W 3-3	Wp 2-2	Wp 3-3
	=50.00										
2	trave: b=50.00 h =60.00	3000.00	2500.00	2500.00	1.246e+06	6.250e+05	9.000e+05	2.500e+04	3.000e+04	3.750e+04	4.500e+04
3	cordolo: b=30.00 h =28.00	840.00	700.00	700.00	9.876e+04	6.300e+04	5.488e+04	4200.00	3920.00	6300.00	5880.00
4	T rovescia: bi=160.00 ht=100.00 bs=40.00 hi=40.00	8800.00	0.0	0.0	4.471e+06	1.397e+07	5.937e+06	1.747e+05	8.946e+04	2.096e+05	1.074e+05
5	T rovescia: bi=120.00 ht=100.00 bs=40.00 hi=40.00	7200.00	0.0	0.0	3.618e+06	6.080e+06	5.360e+06	1.013e+05	8.463e+04	1.216e+05	1.016e+05

I dati soprariportati vengono utilizzati per la determinazione dei carichi inerziali e per la definizione delle rigidezze degli elementi strutturali. La valutazione delle caratteristiche inerziali delle sezioni è condotta nel riferimento 2-3 dell'elemento.

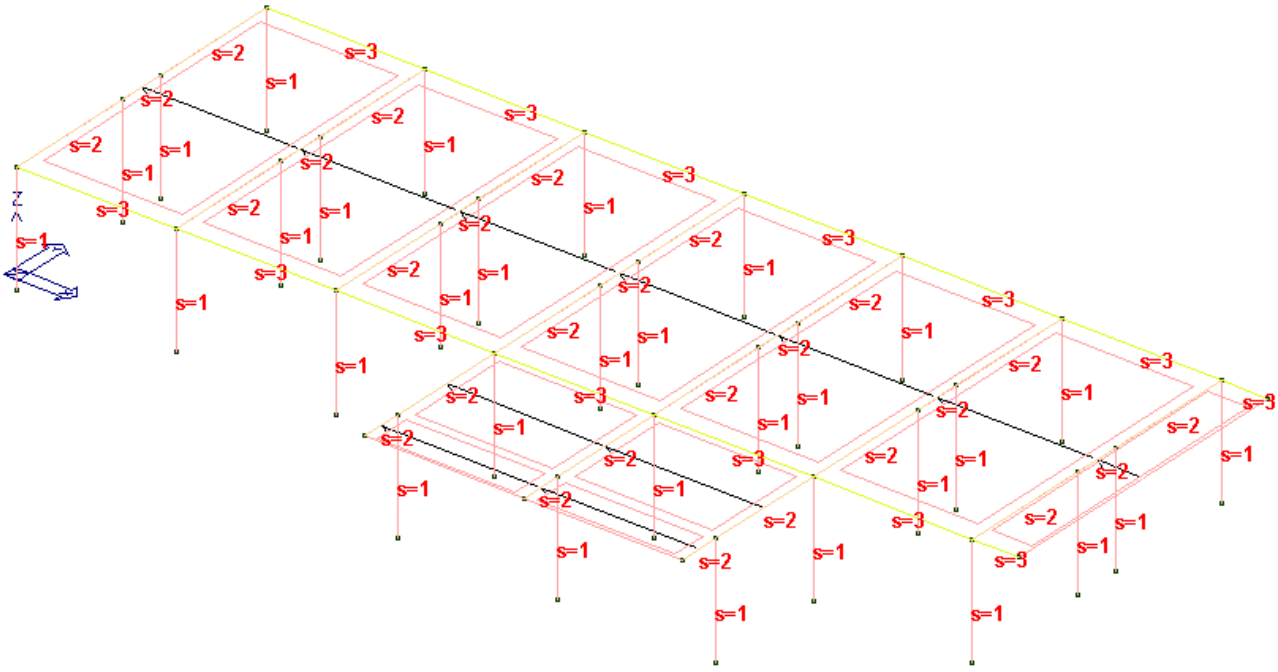


Figura 0.2 - 1 – Codice "Id"elementi strutturali in elevazione

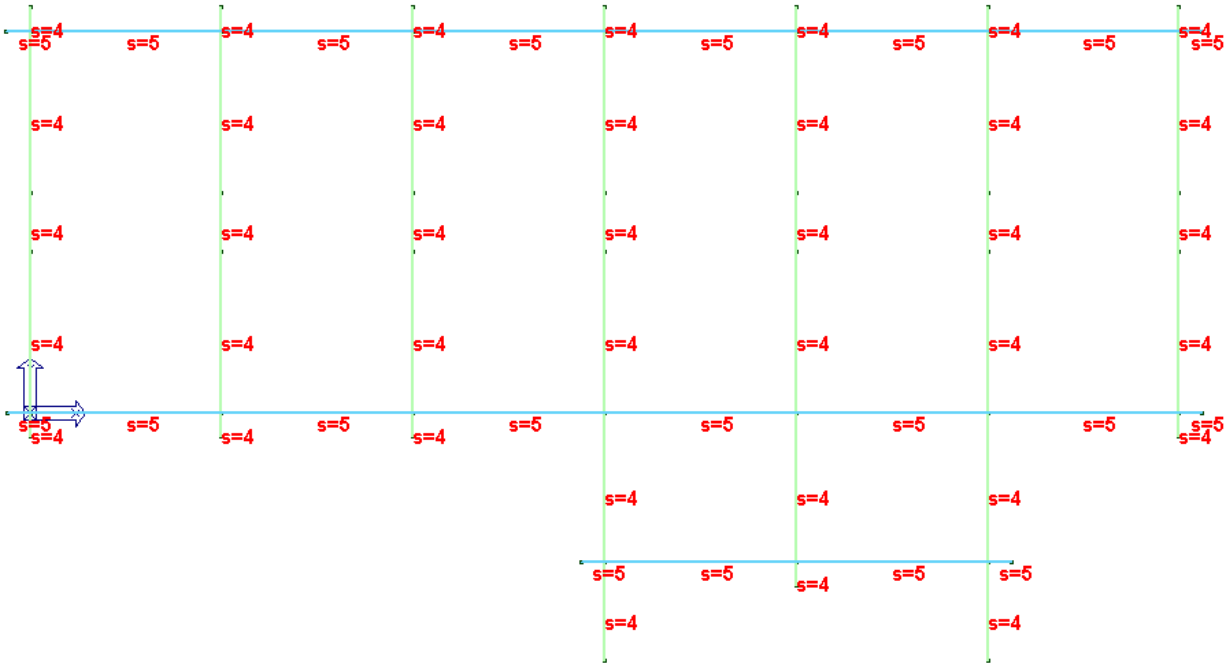


Figura 0.3 - 2 – Codice "Id"elementi strutturali in fondazione

Infine si riportano alcune rappresentazioni 3D del modello di calcolo strutturale adottato.

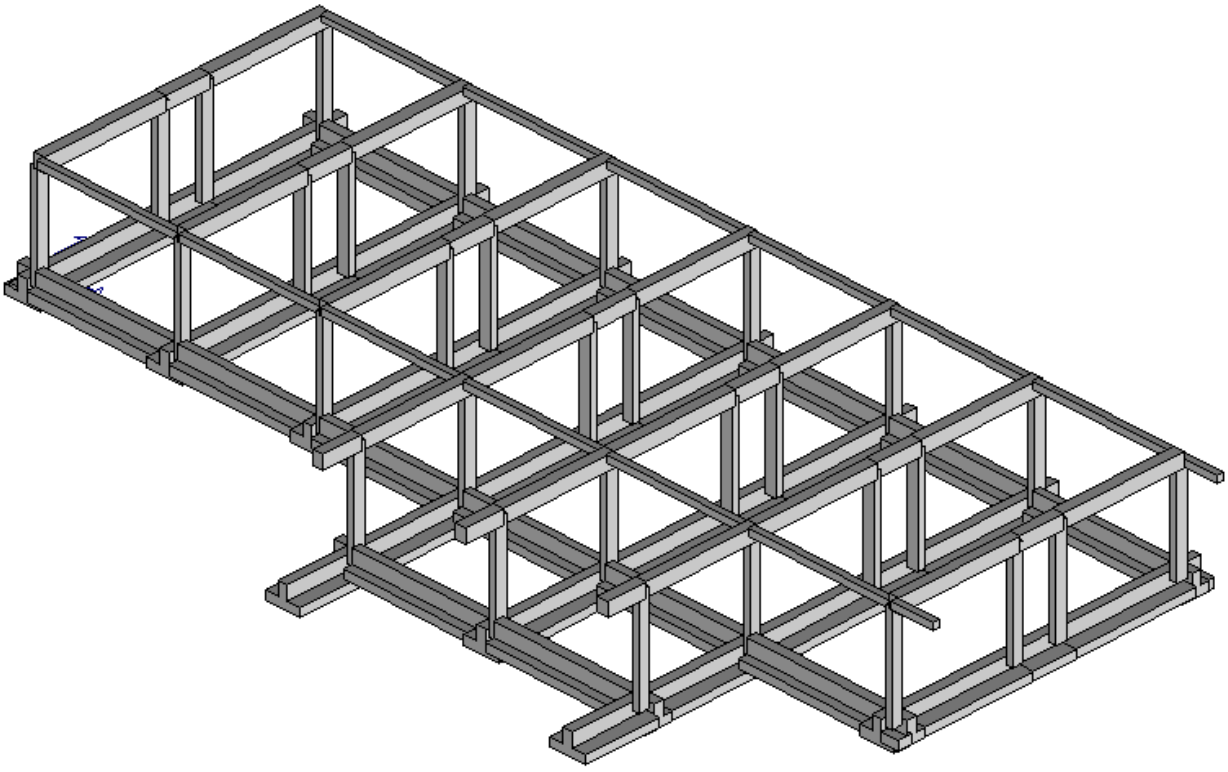


Figura 0.2 - 3 – Viste 3D solide: modello di calcolo completo

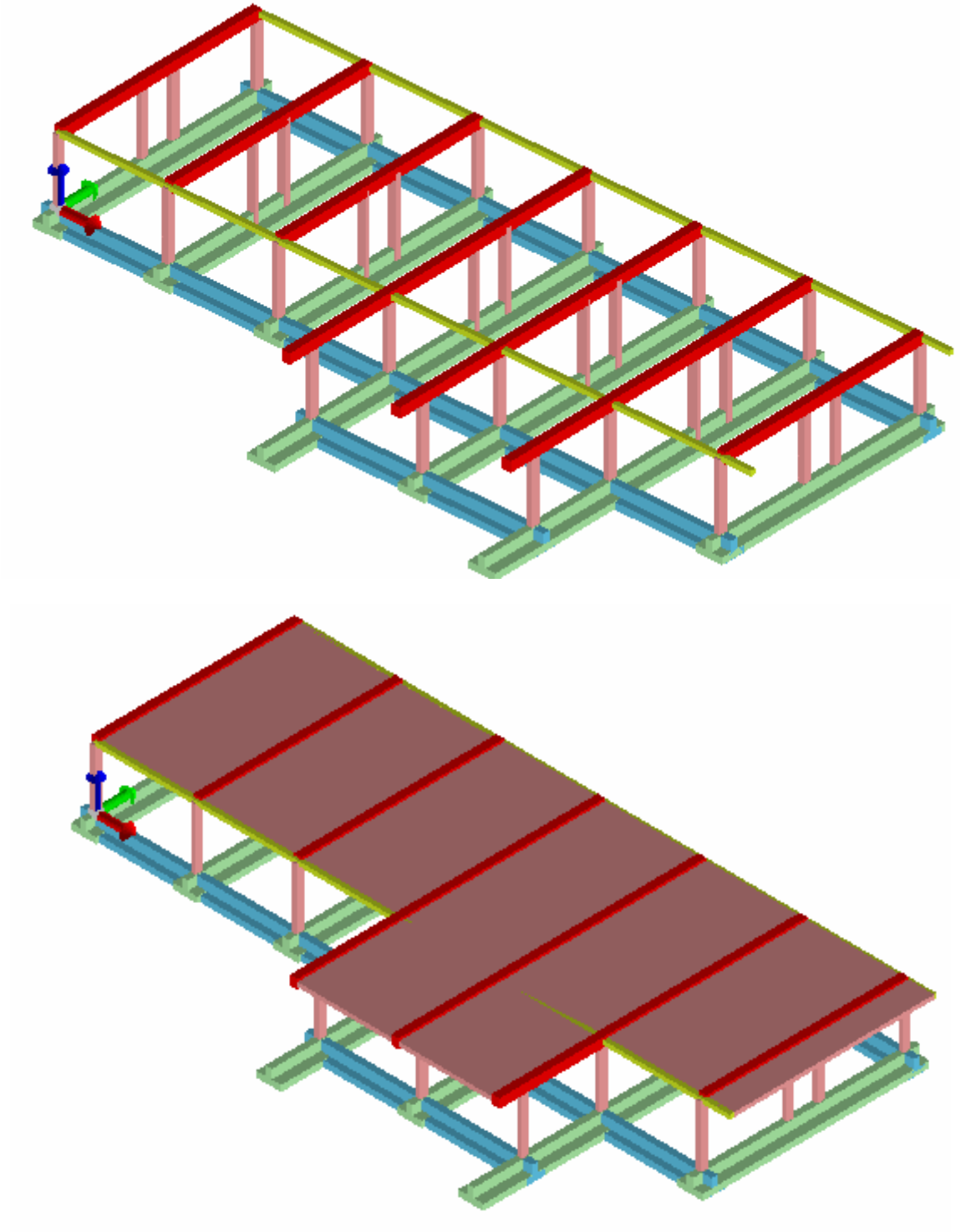


Figura 0.2 - 4 – Viste 3D solide: modello di calcolo completo

11.3. FATTORE DI STRUTTURA

Nella seguente figura si riassumono i principali parametri utilizzati dal programma di calcolo per l'analisi elastica dinamica lineare.

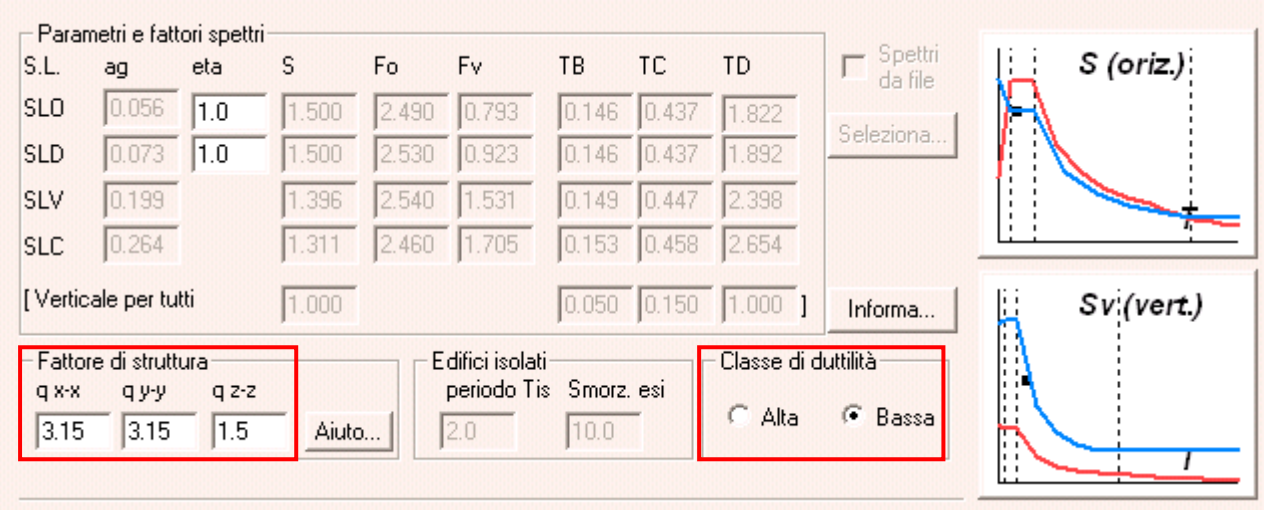


Figura 11.3 - 1 – Parametri per l'analisi modale

11.4. CASI DI CARICO

CDC	Tipo	Sigla Id	Note
1	Ggk	CDC=Ggk (peso proprio della struttura)	
2	Gsk	CDC=G1sk (permanente solai-coperture)	
3	Qnk	CDC=Qnk (carico da neve)	
4	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	partecipazione:1.00 per 1 CDC=Ggk (peso proprio della struttura)
			partecipazione:1.00 per 2 CDC=G1sk (permanente solai-coperture)
			partecipazione:1.00 per 3 CDC=Qnk (carico da neve)
			partecipazione:1.00 per 12 CDC=G1k (permanente murature)
5	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	come precedente CDC sismico
6	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	come precedente CDC sismico
7	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	come precedente CDC sismico
8	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	come precedente CDC sismico
9	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	come precedente CDC sismico
10	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	come precedente CDC sismico
11	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	come precedente CDC sismico
12	Gk	CDC=G1k (permanente murature)	D2 :da 29 a 31 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
			D2 :da 47 a 49 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
			D2 :da 52 a 53 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
			D2 :da 55 a 56 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
			D2 :da 59 a 61 Azione : parapetto:Fzi=-3.50 Fzf=-3.50
			D2 :da 64 a 70 Azione : parapetto:Fzi=-3.50 Fzf=-3.50

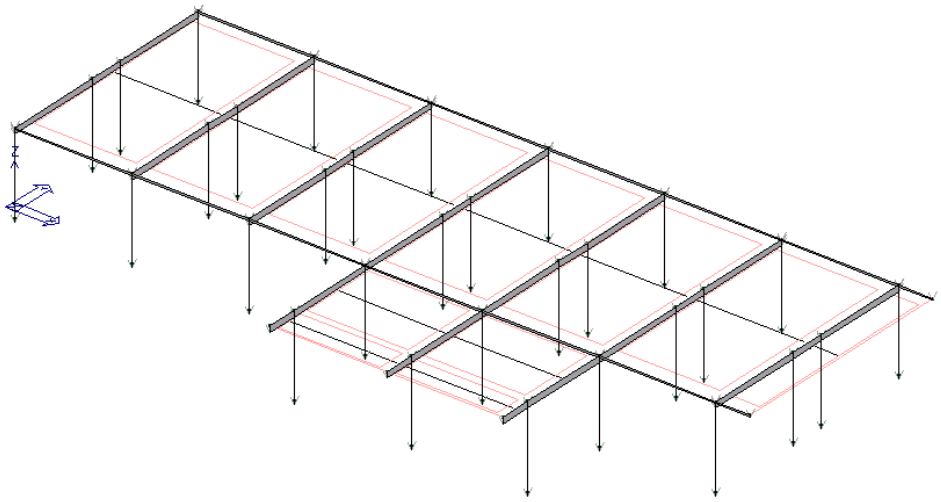


Figura 0.4 - 1 – Caso di carico 1

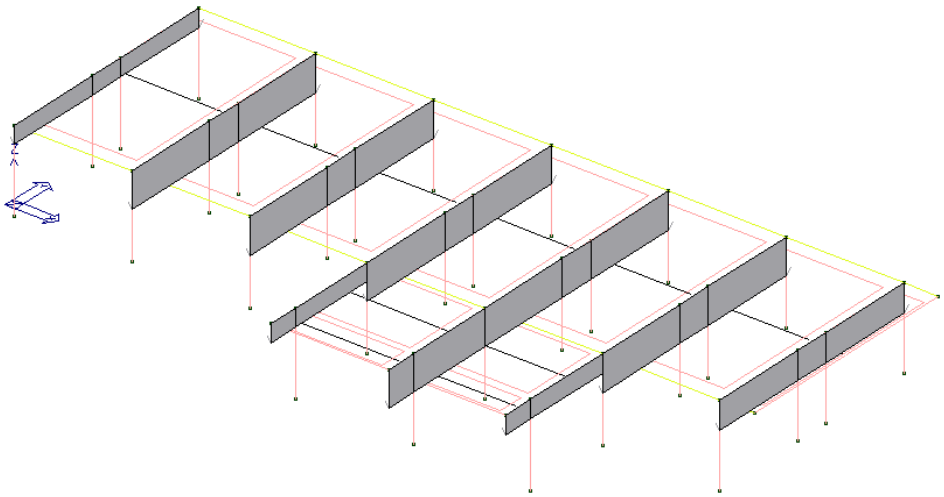


Figura 0.4 - 2 – Caso di carico 2

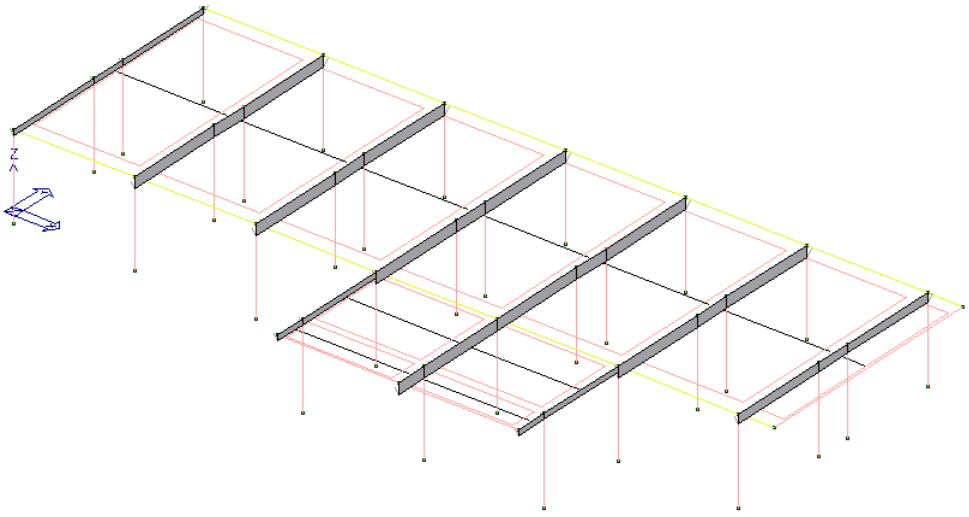


Figura 0.4 - 3 – Caso di carico 3

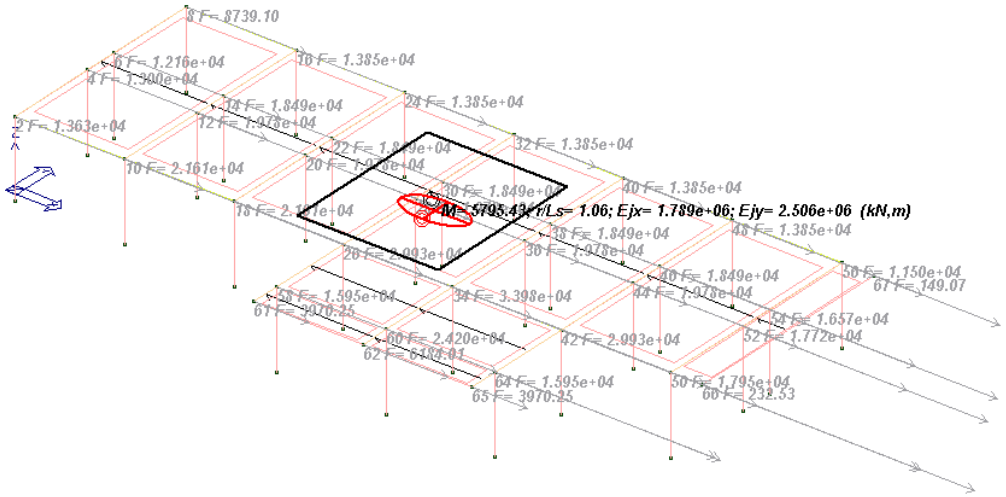


Figura 0.4 - 4 – Caso di carico 4

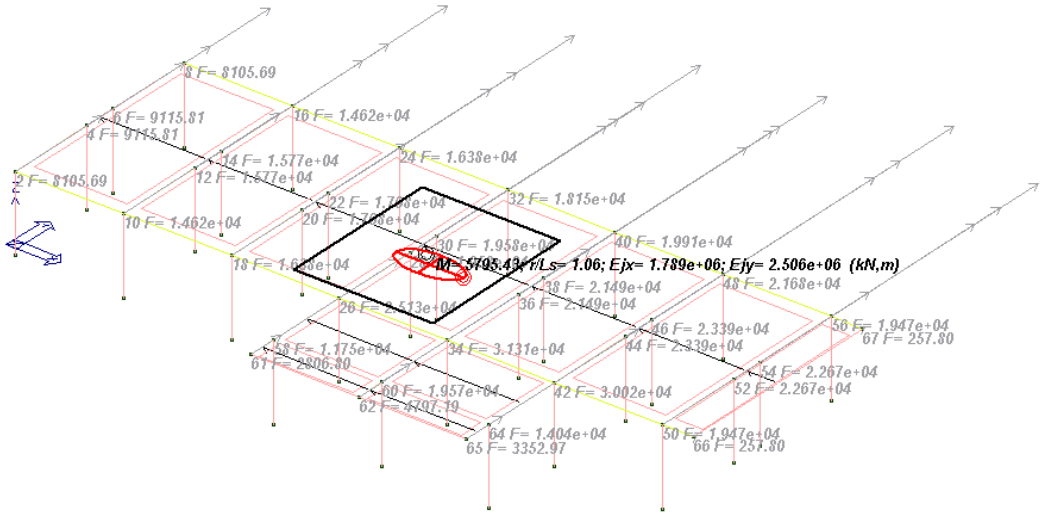


Figura 0.4 - 5 – Caso di carico 7

11.5. COMBINAZIONI DI CARICO

Cmb	Tipo	Sigla Id	effetto P-delta
1	SLU	Comb. SLU A1 1	
2	SLU	Comb. SLU A1 2	
3	SLU (Terr. A2)	Comb. SLU A2 3	
4	SLU	Comb. SLU A1 (SLV sism.) 4	
5	SLU	Comb. SLU A1 (SLV sism.) 5	
6	SLU	Comb. SLU A1 (SLV sism.) 6	
7	SLU	Comb. SLU A1 (SLV sism.) 7	
8	SLU	Comb. SLU A1 (SLV sism.) 8	
9	SLU	Comb. SLU A1 (SLV sism.) 9	
10	SLU	Comb. SLU A1 (SLV sism.) 10	
11	SLU	Comb. SLU A1 (SLV sism.) 11	
12	SLU	Comb. SLU A1 (SLV sism.) 12	
13	SLU	Comb. SLU A1 (SLV sism.) 13	
14	SLU	Comb. SLU A1 (SLV sism.) 14	
15	SLU	Comb. SLU A1 (SLV sism.) 15	

Cmb	Tipo	Sigla Id	effetto P-delta
16	SLU	Comb. SLU A1 (SLV sism.) 16	
17	SLU	Comb. SLU A1 (SLV sism.) 17	
18	SLU	Comb. SLU A1 (SLV sism.) 18	
19	SLU	Comb. SLU A1 (SLV sism.) 19	
20	SLU	Comb. SLU A1 (SLV sism.) 20	
21	SLU	Comb. SLU A1 (SLV sism.) 21	
22	SLU	Comb. SLU A1 (SLV sism.) 22	
23	SLU	Comb. SLU A1 (SLV sism.) 23	
24	SLU	Comb. SLU A1 (SLV sism.) 24	
25	SLU	Comb. SLU A1 (SLV sism.) 25	
26	SLU	Comb. SLU A1 (SLV sism.) 26	
27	SLU	Comb. SLU A1 (SLV sism.) 27	
28	SLU	Comb. SLU A1 (SLV sism.) 28	
29	SLU	Comb. SLU A1 (SLV sism.) 29	
30	SLU	Comb. SLU A1 (SLV sism.) 30	
31	SLU	Comb. SLU A1 (SLV sism.) 31	
32	SLU	Comb. SLU A1 (SLV sism.) 32	
33	SLU	Comb. SLU A1 (SLV sism.) 33	
34	SLU	Comb. SLU A1 (SLV sism.) 34	
35	SLU	Comb. SLU A1 (SLV sism.) 35	
36	SLD(sis)	Comb. SLE (SLD Danno sism.) 36	
37	SLD(sis)	Comb. SLE (SLD Danno sism.) 37	
38	SLD(sis)	Comb. SLE (SLD Danno sism.) 38	
39	SLD(sis)	Comb. SLE (SLD Danno sism.) 39	
40	SLD(sis)	Comb. SLE (SLD Danno sism.) 40	
41	SLD(sis)	Comb. SLE (SLD Danno sism.) 41	
42	SLD(sis)	Comb. SLE (SLD Danno sism.) 42	
43	SLD(sis)	Comb. SLE (SLD Danno sism.) 43	
44	SLD(sis)	Comb. SLE (SLD Danno sism.) 44	
45	SLD(sis)	Comb. SLE (SLD Danno sism.) 45	
46	SLD(sis)	Comb. SLE (SLD Danno sism.) 46	
47	SLD(sis)	Comb. SLE (SLD Danno sism.) 47	
48	SLD(sis)	Comb. SLE (SLD Danno sism.) 48	
49	SLD(sis)	Comb. SLE (SLD Danno sism.) 49	
50	SLD(sis)	Comb. SLE (SLD Danno sism.) 50	
51	SLD(sis)	Comb. SLE (SLD Danno sism.) 51	
52	SLD(sis)	Comb. SLE (SLD Danno sism.) 52	
53	SLD(sis)	Comb. SLE (SLD Danno sism.) 53	
54	SLD(sis)	Comb. SLE (SLD Danno sism.) 54	
55	SLD(sis)	Comb. SLE (SLD Danno sism.) 55	
56	SLD(sis)	Comb. SLE (SLD Danno sism.) 56	
57	SLD(sis)	Comb. SLE (SLD Danno sism.) 57	
58	SLD(sis)	Comb. SLE (SLD Danno sism.) 58	
59	SLD(sis)	Comb. SLE (SLD Danno sism.) 59	
60	SLD(sis)	Comb. SLE (SLD Danno sism.) 60	
61	SLD(sis)	Comb. SLE (SLD Danno sism.) 61	
62	SLD(sis)	Comb. SLE (SLD Danno sism.) 62	
63	SLD(sis)	Comb. SLE (SLD Danno sism.) 63	
64	SLD(sis)	Comb. SLE (SLD Danno sism.) 64	
65	SLD(sis)	Comb. SLE (SLD Danno sism.) 65	
66	SLD(sis)	Comb. SLE (SLD Danno sism.) 66	
67	SLD(sis)	Comb. SLE (SLD Danno sism.) 67	
68	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 68	
69	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 69	
70	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 70	
71	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 71	
72	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 72	
73	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 73	
74	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 74	
75	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 75	
76	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 76	
77	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 77	
78	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 78	
79	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 79	
80	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 80	
81	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 81	
82	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 82	
83	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 83	
84	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 84	

Cmb	Tipo	Sigla Id	effetto P-delta
85	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 85	
86	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 86	
87	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 87	
88	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 88	
89	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 89	
90	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 90	
91	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 91	
92	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 92	
93	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 93	
94	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 94	
95	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 95	
96	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 96	
97	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 97	
98	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 98	
99	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 99	
100	SLE(r)	Comb. SLE(rara) 100	
101	SLE(f)	Comb. SLE(freq.) 101	
102	SLE(p)	Comb. SLE(perm.) 102	

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...	CDC 14/28...
1	1.30	1.30	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30		
2	1.00	1.00	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00		
3	1.00	1.00	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00		
4	1.00	1.00	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00		
5	1.00	1.00	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00		
6	1.00	1.00	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00		
7	1.00	1.00	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00		
8	1.00	1.00	0.0	-1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00		
9	1.00	1.00	0.0	-1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00		
10	1.00	1.00	0.0	1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00		
11	1.00	1.00	0.0	1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00		
12	1.00	1.00	0.0	0.0	-1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00		
13	1.00	1.00	0.0	0.0	-1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00		
14	1.00	1.00	0.0	0.0	1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00		
15	1.00	1.00	0.0	0.0	1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00		
16	1.00	1.00	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00		
17	1.00	1.00	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00		
18	1.00	1.00	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00		
19	1.00	1.00	0.0	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00		
20	1.00	1.00	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00		
21	1.00	1.00	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00		
22	1.00	1.00	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00		
23	1.00	1.00	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00		
24	1.00	1.00	0.0	0.0	-0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00		
25	1.00	1.00	0.0	0.0	-0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00		
26	1.00	1.00	0.0	0.0	0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00		
27	1.00	1.00	0.0	0.0	0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00		
28	1.00	1.00	0.0	-0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00		
29	1.00	1.00	0.0	-0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00		
30	1.00	1.00	0.0	0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00		
31	1.00	1.00	0.0	0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00		
32	1.00	1.00	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00		
33	1.00	1.00	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00		
34	1.00	1.00	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00		
35	1.00	1.00	0.0	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00		
36	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	-0.30	0.0	1.00		
37	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.30	0.0	1.00		
38	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	-0.30	0.0	1.00		
39	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.30	0.0	1.00		
40	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.0	-0.30	1.00		
41	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.0	0.30	1.00		
42	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	-0.30	1.00		
43	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.30	1.00		
44	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	-0.30	0.0	1.00		
45	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.30	0.0	1.00		
46	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	-0.30	0.0	1.00		
47	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.30	0.0	1.00		

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...	CDC 14/28...
48	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	-0.30	1.00		
49	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.30	1.00		
50	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	-0.30	1.00		
51	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.30	1.00		
52	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	-1.00	0.0	1.00		
53	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	1.00	0.0	1.00		
54	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	-1.00	0.0	1.00		
55	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.00	0.0	1.00		
56	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	-1.00	0.0	1.00		
57	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	1.00	0.0	1.00		
58	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	-1.00	0.0	1.00		
59	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	1.00	0.0	1.00		
60	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	0.0	-1.00	1.00		
61	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	0.0	1.00	1.00		
62	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	0.0	-1.00	1.00		
63	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	0.0	1.00	1.00		
64	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	-1.00	1.00		
65	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	1.00	1.00		
66	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	0.0	-1.00	1.00		
67	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.00	1.00		
68	1.00	1.00	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00		
69	1.00	1.00	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00		
70	1.00	1.00	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00		
71	1.00	1.00	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00		
72	1.00	1.00	0.0	-1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00		
73	1.00	1.00	0.0	-1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00		
74	1.00	1.00	0.0	1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00		
75	1.00	1.00	0.0	1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00		
76	1.00	1.00	0.0	0.0	-1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00		
77	1.00	1.00	0.0	0.0	-1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00		
78	1.00	1.00	0.0	0.0	1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00		
79	1.00	1.00	0.0	0.0	1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00		
80	1.00	1.00	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00		
81	1.00	1.00	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00		
82	1.00	1.00	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00		
83	1.00	1.00	0.0	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00		
84	1.00	1.00	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00		
85	1.00	1.00	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00		
86	1.00	1.00	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00		
87	1.00	1.00	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00		
88	1.00	1.00	0.0	0.0	-0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00		
89	1.00	1.00	0.0	0.0	-0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00		
90	1.00	1.00	0.0	0.0	0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00		
91	1.00	1.00	0.0	0.0	0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00		
92	1.00	1.00	0.0	-0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00		
93	1.00	1.00	0.0	-0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00		
94	1.00	1.00	0.0	0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00		
95	1.00	1.00	0.0	0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00		
96	1.00	1.00	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00		
97	1.00	1.00	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00		
98	1.00	1.00	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00		
99	1.00	1.00	0.0	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00		
100	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00		
101	1.00	1.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00		
102	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00		

A chiarimento si riportano i parametri implementati per la formulazione delle combinazioni di carico.

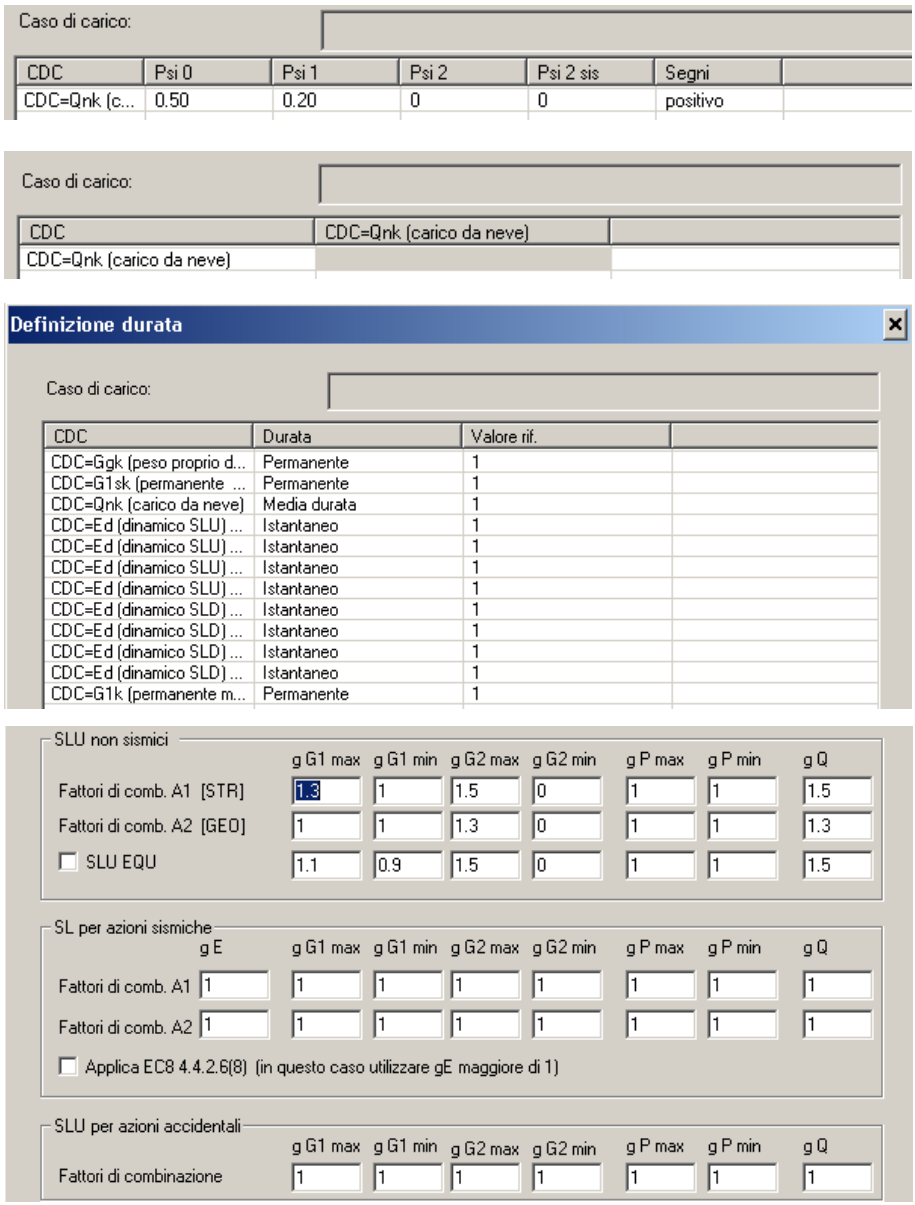


Figura 0.5 – 1 - Parametri combinazioni di carico

11.6. RISULTATI DELL'ANALISI SISMICA

Il programma consente l'analisi di diverse configurazioni sismiche. Si è deciso di procedere con un'analisi dinamica lineare prevedendo i casi di carico sismico *Edk* di cui al paragrafo precedente.

Ciascun caso di carico è caratterizzato da un angolo di ingresso e da una configurazione di masse determinante la forza sismica complessiva.

Nella colonna *Note*, sono riportati i parametri fondamentali che caratterizzano l'azione sismica: in particolare possono essere presenti i seguenti valori:

Angolo di ingresso	Angolo di ingresso dell'azione sismica orizzontale
Fattore di importanza	Fattore di importanza dell'edificio, in base alla categoria di appartenenza
Zona sismica	Zona sismica
Accelerazione ag	Accelerazione orizzontale massima sul suolo
Categoria suolo	Categoria di profilo stratigrafico del suolo di fondazione
Fattore di struttura q	Fattore dipendente dalla tipologia strutturale
Fattore di sito S	Fattore dipendente dalla stratigrafia e dal profilo topografico
Classe di duttilità CD	Classe di duttilità della struttura – "A" duttilità alta, "B" duttilità bassa
Fattore riduz. SLD	Fattore di riduzione dello spettro elastico per lo stato limite di danno
Periodo proprio T1	Periodo proprio di vibrazione della struttura
Coefficiente Lambda	Coefficiente dipendente dal periodo proprio T1 e dal numero di piani della struttura
Ordinata spettro Sd(T1)	Valore delle ordinate dello spettro di progetto per lo stato limite ultimo, componente orizzontale (verticale Svd)
Ordinata spettro Se(T1)	Valore delle ordinate dello spettro elastico ridotta del fattore SLD per lo stato limite di danno, componente orizzontale (verticale Sve)
Ordinata spettro S (Tb-Tc)	Valore dell' ordinata dello spettro in uso nel tratto costante
numero di modi considerati	Numero di modi di vibrare della struttura considerati nell'analisi dinamica

Per ciascun caso di carico sismico viene riportato l'insieme di dati sottoriportati (le masse sono espresse in unità di forza):

- quota, posizione del centro di massa e massa risultante, posizione del baricentro delle rigidezze, rapporto r/Ls (per strutture a nucleo)
- frequenza, periodo,accelerazione spettrale, massa eccitata nelle tre direzioni globali per tutti i modi
- massa complessiva ed aliquota di massa complessiva eccitata.

Per ciascuna combinazione sismica *SLD* viene riportato il livello di deformazione etaT (dr) degli elementi strutturali verticali. Per semplicità di consultazione il livello è espresso anche in unità *1000*etaT/h* da confrontare direttamente con i valori forniti dalle *NTC2008 al §7.3.7.2* (*1000 etaT/h ≤ 10.0 per edifici con tamponamenti collegati elasticamente*).

Nel caso in esame *1000 etaT/h = 4.86 ≤ 10.0* *verificato*

CDC	Tipo	Sigla Id	Note
4	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.224 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.604 sec.
			fattore di struttura q: 3.150
			fattore per spost. mu d: 3.150
			classe di duttilità CD: B
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	5.772e+05	20.96	5.15	0.0	-0.99	20.29	5.79	1.059	0.048	0.039
Risulta	5.772e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.657	0.604	0.166	5.736e+05	99.4	1.88	3.25e-04	4.47	7.74e-04
2	2.875	0.348	0.224	111.74	1.94e-02	5.106e+05	88.5	32.69	5.66e-03
3	2.991	0.334	0.224	0.16	2.79e-05	48.79	8.45e-03	0.54	9.39e-05
4	3.010	0.332	0.224	868.09	0.2	4.952e+04	8.6	0.61	1.05e-04
5	3.107	0.322	0.224	1332.60	0.2	166.87	2.89e-02	0.41	7.09e-05
6	3.170	0.315	0.224	228.31	3.96e-02	532.96	9.23e-02	1.90	3.29e-04
7	3.308	0.302	0.224	2.33	4.04e-04	0.13	2.21e-05	0.08	1.35e-05
8	3.350	0.298	0.224	243.03	4.21e-02	15.16	2.63e-03	1.38	2.39e-04
9	3.365	0.297	0.224	27.11	4.70e-03	85.48	1.48e-02	0.07	1.15e-05
Risulta				5.764e+05		5.610e+05		42.14	
In percentuale				99.86		97.19		7.30e-03	

CDC	Tipo	Sigla Id	Note
5	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.224 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.603 sec.
			fattore di struttura q: 3.150
			fattore per spost. mu d: 3.150
			classe di duttilità CD: B
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	5.772e+05	20.96	5.15	0.0	0.99	20.29	5.79	1.059	0.048	0.039
Risulta	5.772e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.660	0.603	0.166	5.743e+05	99.5	0.45	7.73e-05	4.16	7.21e-04
2	2.863	0.349	0.224	5.26	9.11e-04	6598.56	1.1	1.08e-05	0.0
3	2.877	0.348	0.224	38.76	6.72e-03	5.221e+05	90.5	35.39	6.13e-03
4	2.975	0.336	0.224	1414.65	0.2	1188.50	0.2	0.59	1.03e-04
5	3.025	0.331	0.224	233.88	4.05e-02	2878.63	0.5	1.03	1.78e-04
6	3.058	0.327	0.224	112.05	1.94e-02	2.809e+04	4.9	0.83	1.44e-04
7	3.162	0.316	0.224	1.58	2.73e-04	1.45	2.51e-04	0.10	1.66e-05
8	3.205	0.312	0.224	223.09	3.87e-02	19.36	3.35e-03	1.03	1.79e-04
9	3.216	0.311	0.224	26.29	4.55e-03	165.52	2.87e-02	0.06	1.08e-05
Risulta				5.764e+05		5.610e+05		43.20	
In percentuale				99.86		97.20		7.48e-03	

CDC	Tipo	Sigla Id	Note
6	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.224 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.368 sec.
			fattore di struttura q: 3.150
			fattore per spost. mu d: 3.610
			classe di duttilità CD: B
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	5.772e+05	20.96	5.15	2.05	0.0	20.29	5.79	1.059	0.048	0.039
Risulta	5.772e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.660	0.602	0.166	5.746e+05	99.6	7.29	1.26e-03	4.36	7.56e-04
2	2.716	0.368	0.224	40.04	6.94e-03	4.055e+05	70.3	23.56	4.08e-03
3	2.925	0.342	0.224	7.33	1.27e-03	0.45	7.80e-05	0.47	8.22e-05
4	3.039	0.329	0.224	1366.93	0.2	59.67	1.03e-02	0.33	5.66e-05
5	3.091	0.324	0.224	97.50	1.69e-02	3661.89	0.6	2.65	4.59e-04
6	3.233	0.309	0.224	2.43	4.21e-04	373.89	6.48e-02	0.17	3.03e-05
7	3.265	0.306	0.224	46.44	8.05e-03	5.732e+04	9.9	5.34	9.25e-04
8	3.287	0.304	0.224	132.16	2.29e-02	1.153e+04	2.0	0.05	7.99e-06
9	3.293	0.304	0.224	116.97	2.03e-02	8.185e+04	14.2	1.93	3.34e-04
Risulta				5.764e+05		5.603e+05		38.86	
In percentuale				99.86		97.08		6.73e-03	

CDC	Tipo	Sigla Id	Note
7	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.224 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.361 sec.
			fattore di struttura q: 3.150
			fattore per spost. mu d: 3.662
			classe di duttilità CD: B
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	5.772e+05	20.96	5.15	-2.05	0.0	20.29	5.79	1.059	0.048	0.039
Risulta	5.772e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.660	0.602	0.166	5.746e+05	99.5	4.08	7.06e-04	4.33	7.50e-04
2	2.770	0.361	0.224	45.08	7.81e-03	3.944e+05	68.3	10.40	1.80e-03
3	2.925	0.342	0.224	8.09	1.40e-03	48.00	8.32e-03	0.51	8.81e-05
4	3.039	0.329	0.224	1347.20	0.2	193.46	3.35e-02	0.09	1.52e-05
5	3.087	0.324	0.224	47.28	8.19e-03	2.178e+04	3.8	0.57	9.86e-05
6	3.150	0.318	0.224	96.80	1.68e-02	1.431e+05	24.8	34.37	5.95e-03
7	3.233	0.309	0.224	1.70	2.95e-04	60.83	1.05e-02	0.17	2.91e-05
8	3.276	0.305	0.224	234.02	4.05e-02	898.49	0.2	2.44	4.23e-04
9	3.288	0.304	0.224	33.54	5.81e-03	333.57	5.78e-02	0.18	3.11e-05
Risulta				5.764e+05		5.607e+05		53.05	
In percentuale				99.86		97.15		9.19e-03	

CDC	Tipo	Sigla Id	Note
8	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva

CDC	Tipo	Sigla Id	Note
			periodo proprio T1: 0.604 sec.
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	5.772e+05	20.96	5.15	0.0	-0.99	20.29	5.79	1.059	0.048	0.039
Risulta	5.772e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.657	0.604	0.201	5.736e+05	99.4	1.88	3.25e-04	4.47	7.74e-04
2	2.875	0.348	0.277	111.74	1.94e-02	5.106e+05	88.5	32.69	5.66e-03
3	2.991	0.334	0.277	0.16	2.79e-05	48.79	8.45e-03	0.54	9.39e-05
4	3.010	0.332	0.277	868.09	0.2	4.952e+04	8.6	0.61	1.05e-04
5	3.107	0.322	0.277	1332.60	0.2	166.87	2.89e-02	0.41	7.09e-05
6	3.170	0.315	0.277	228.31	3.96e-02	532.96	9.23e-02	1.90	3.29e-04
7	3.308	0.302	0.277	2.33	4.04e-04	0.13	2.21e-05	0.08	1.35e-05
8	3.350	0.298	0.277	243.03	4.21e-02	15.16	2.63e-03	1.38	2.39e-04
9	3.365	0.297	0.277	27.11	4.70e-03	85.48	1.48e-02	0.07	1.15e-05
Risulta				5.764e+05		5.610e+05		42.14	
In percentuale				99.86		97.19		7.30e-03	

CDC	Tipo	Sigla Id	Note
9	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.603 sec.
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	5.772e+05	20.96	5.15	0.0	0.99	20.29	5.79	1.059	0.048	0.039
Risulta	5.772e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.660	0.603	0.201	5.743e+05	99.5	0.45	7.73e-05	4.16	7.21e-04
2	2.863	0.349	0.277	5.26	9.11e-04	6598.56	1.1	1.08e-05	0.0
3	2.877	0.348	0.277	38.76	6.72e-03	5.221e+05	90.5	35.39	6.13e-03
4	2.975	0.336	0.277	1414.65	0.2	1188.50	0.2	0.59	1.03e-04
5	3.025	0.331	0.277	233.88	4.05e-02	2878.63	0.5	1.03	1.78e-04
6	3.058	0.327	0.277	112.05	1.94e-02	2.809e+04	4.9	0.83	1.44e-04
7	3.162	0.316	0.277	1.58	2.73e-04	1.45	2.51e-04	0.10	1.66e-05
8	3.205	0.312	0.277	223.09	3.87e-02	19.36	3.35e-03	1.03	1.79e-04
9	3.216	0.311	0.277	26.29	4.55e-03	165.52	2.87e-02	0.06	1.08e-05
Risulta				5.764e+05		5.610e+05		43.20	
In percentuale				99.86		97.20		7.48e-03	

CDC	Tipo	Sigla Id	Note
10	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:90.00

CDC	Tipo	Sigla Id	Note
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.368 sec.
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	5.772e+05	20.96	5.15	2.05	0.0	20.29	5.79	1.059	0.048	0.039
Risulta	5.772e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.660	0.602	0.201	5.746e+05	99.6	7.29	1.26e-03	4.36	7.56e-04
2	2.716	0.368	0.277	40.04	6.94e-03	4.055e+05	70.3	23.56	4.08e-03
3	2.925	0.342	0.277	7.33	1.27e-03	0.45	7.80e-05	0.47	8.22e-05
4	3.039	0.329	0.277	1366.93	0.2	59.67	1.03e-02	0.33	5.66e-05
5	3.091	0.324	0.277	97.50	1.69e-02	3661.89	0.6	2.65	4.59e-04
6	3.233	0.309	0.277	2.43	4.21e-04	373.89	6.48e-02	0.17	3.03e-05
7	3.265	0.306	0.277	46.44	8.05e-03	5.732e+04	9.9	5.34	9.25e-04
8	3.287	0.304	0.277	132.16	2.29e-02	1.153e+04	2.0	0.05	7.99e-06
9	3.293	0.304	0.277	116.97	2.03e-02	8.185e+04	14.2	1.93	3.34e-04
Risulta				5.764e+05		5.603e+05		38.86	
In percentuale				99.86		97.08		6.73e-03	

CDC	Tipo	Sigla Id	Note
11	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.361 sec.
			numero di modi considerati: 9
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
4.00	5.772e+05	20.96	5.15	-2.05	0.0	20.29	5.79	1.059	0.048	0.039
Risulta	5.772e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.660	0.602	0.201	5.746e+05	99.5	4.08	7.06e-04	4.33	7.50e-04
2	2.770	0.361	0.277	45.08	7.81e-03	3.944e+05	68.3	10.40	1.80e-03
3	2.925	0.342	0.277	8.09	1.40e-03	48.00	8.32e-03	0.51	8.81e-05
4	3.039	0.329	0.277	1347.20	0.2	193.46	3.35e-02	0.09	1.52e-05
5	3.087	0.324	0.277	47.28	8.19e-03	2.178e+04	3.8	0.57	9.86e-05
6	3.150	0.318	0.277	96.80	1.68e-02	1.431e+05	24.8	34.37	5.95e-03
7	3.233	0.309	0.277	1.70	2.95e-04	60.83	1.05e-02	0.17	2.91e-05
8	3.276	0.305	0.277	234.02	4.05e-02	898.49	0.2	2.44	4.23e-04
9	3.288	0.304	0.277	33.54	5.81e-03	333.57	5.78e-02	0.18	3.11e-05
Risulta				5.764e+05		5.607e+05		53.05	
In percentuale				99.86		97.15		9.19e-03	

A seguire si riportano le deformate relative ai modi globali più significativi.

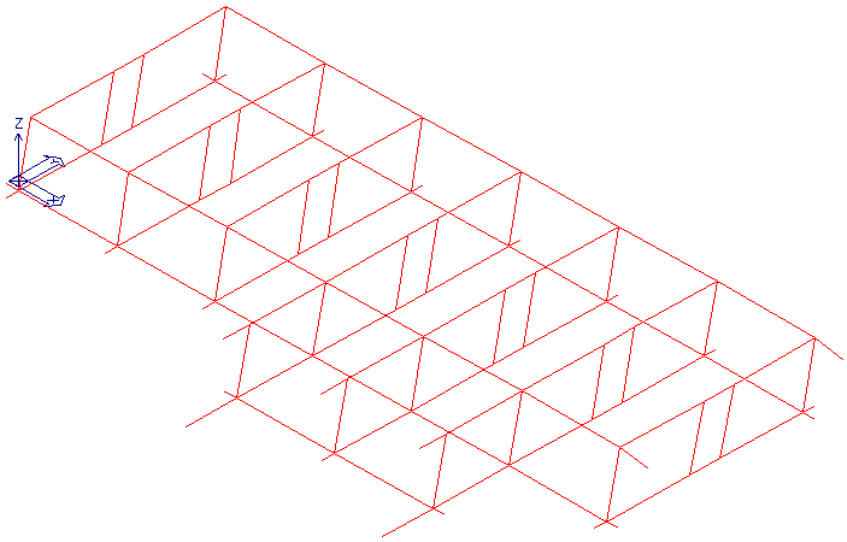


Figura 11.6 – 1 – Deformata tipo 1° Modo

11.7. INVILUPPO SOLLECITAZIONI - PILASTRI

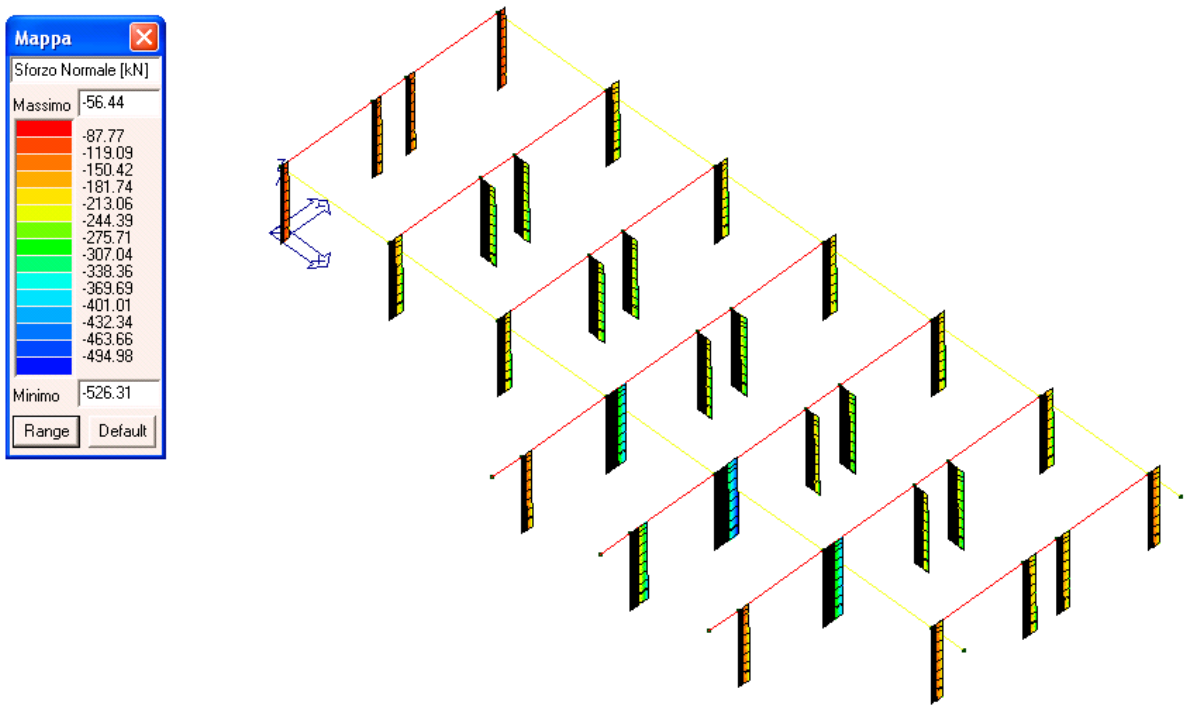


Figura 11.7 – 1 – Pilastri: inviluppo Sforzo normale N

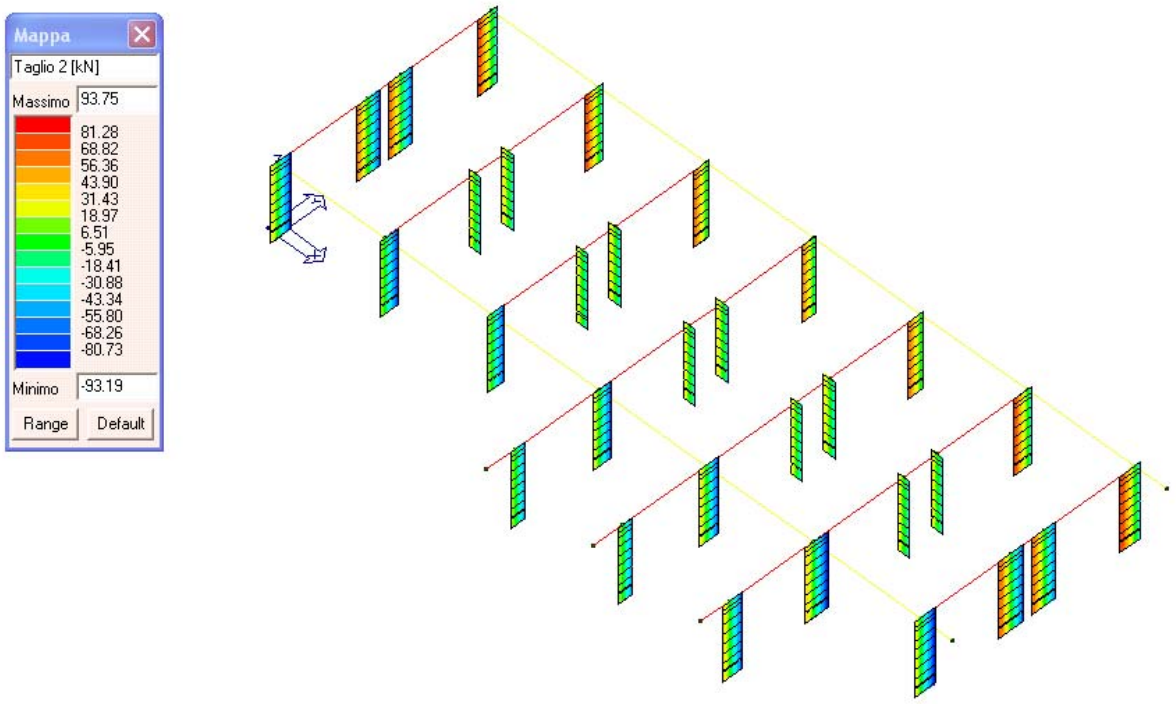


Figura 11.7 – 2 – Pilastri: inviluppo Taglio T 2-2

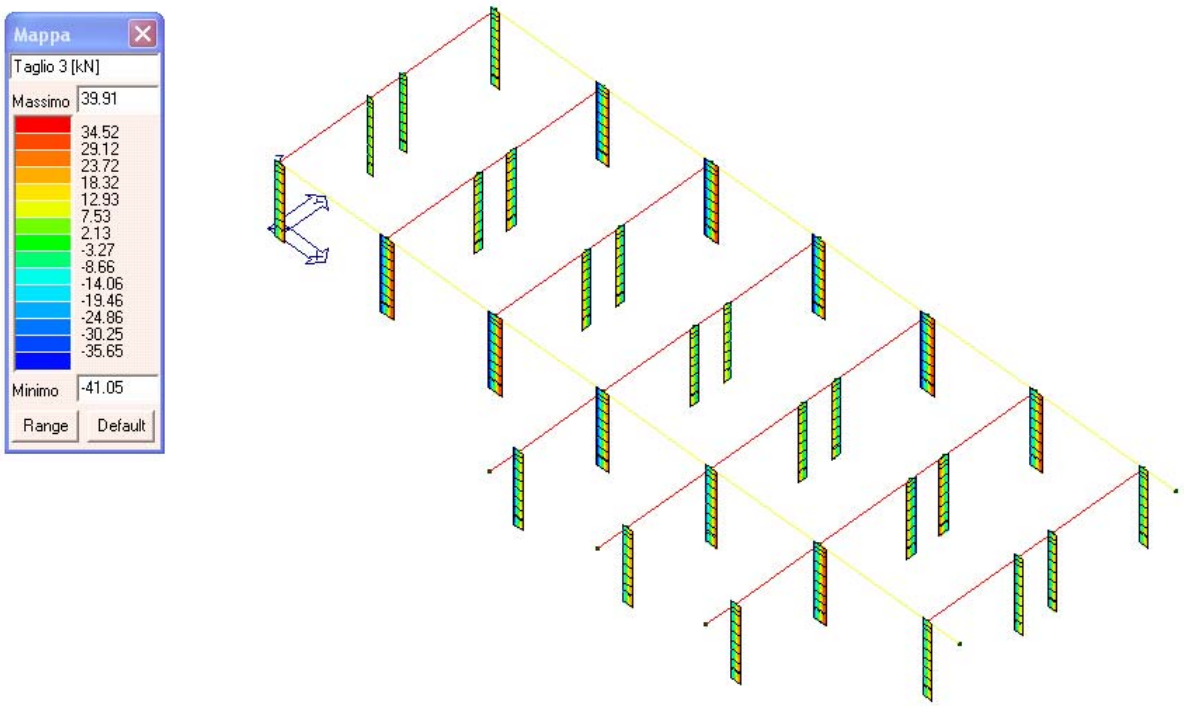


Figura 11.7 – 3 – Pilastri: inviluppo Taglio T 3-3

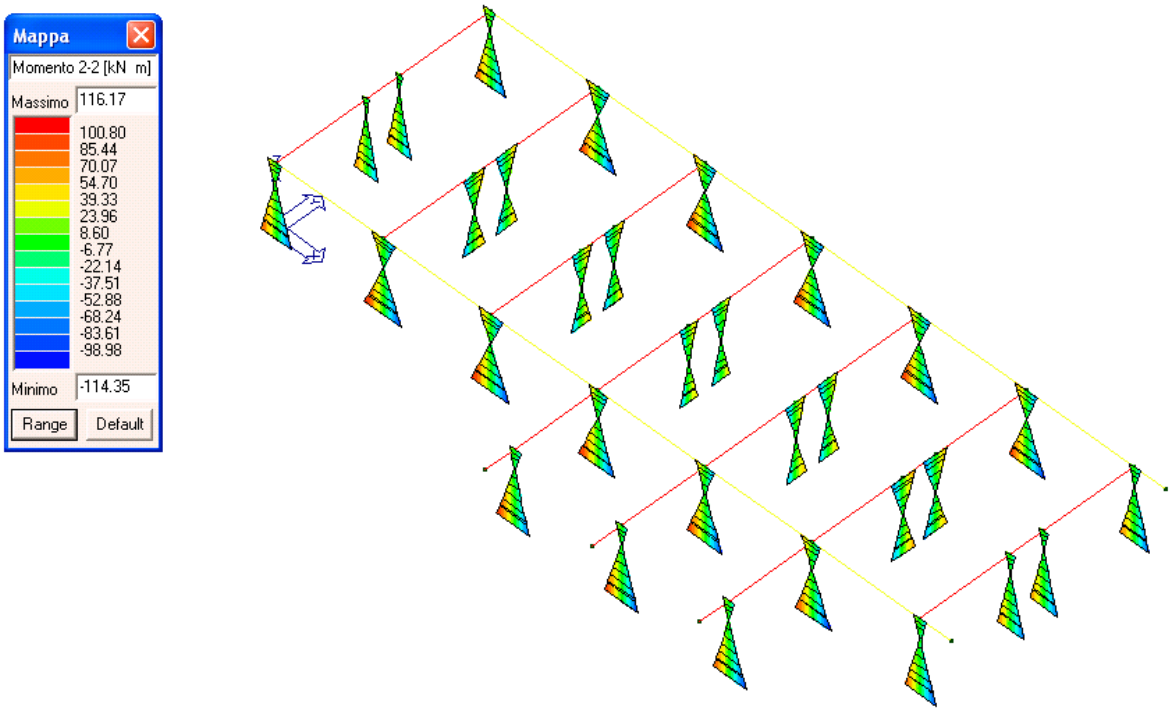


Figura 11.7 – 4 – Pilastri: inviluppo Momento flettente M 2-2

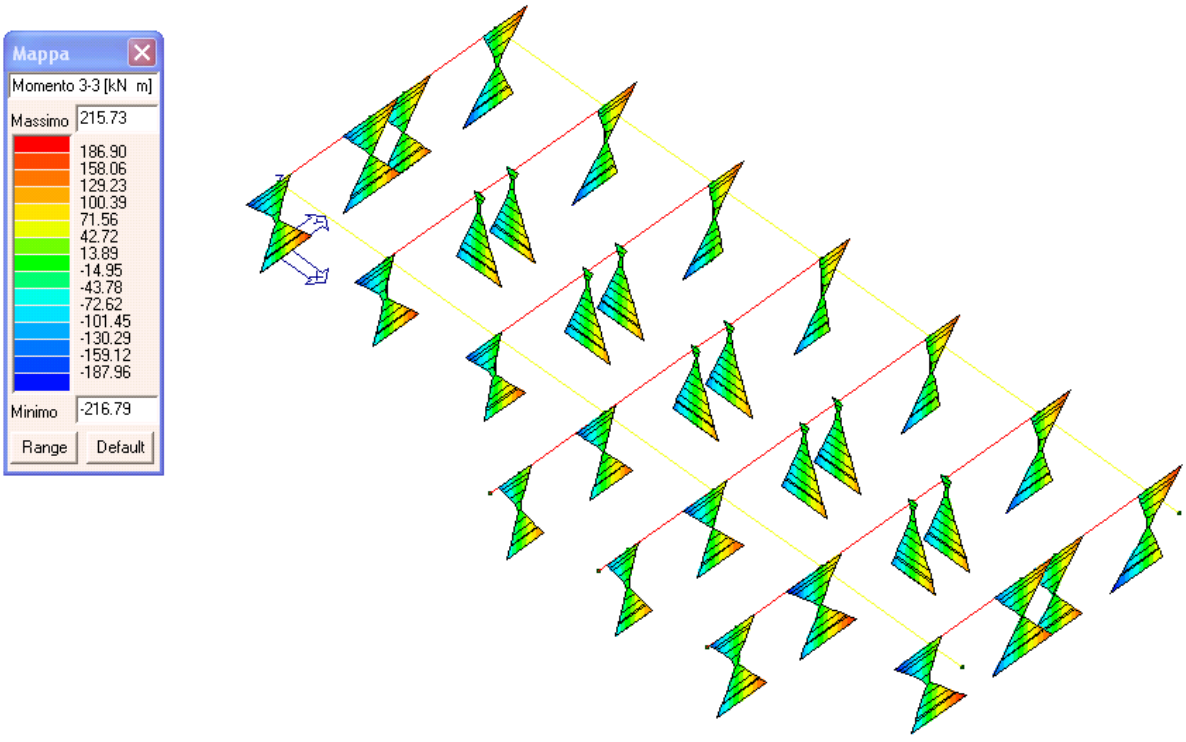


Figura 11.7 – 5 – Pilastri: inviluppo Momento flettente M 3-3

11.8. INVILUPPO SOLLECITAZIONI – TRAVI COPERTURA

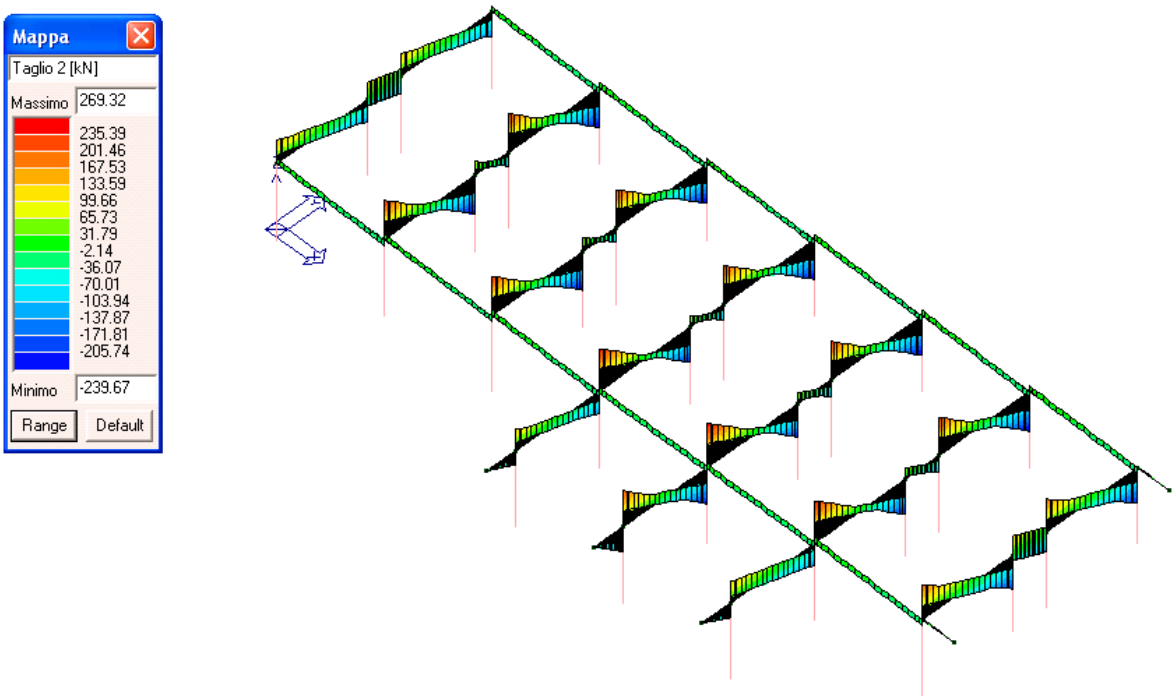


Figura 11.8 – 1 – Travi: inviluppo Taglio T 2-2

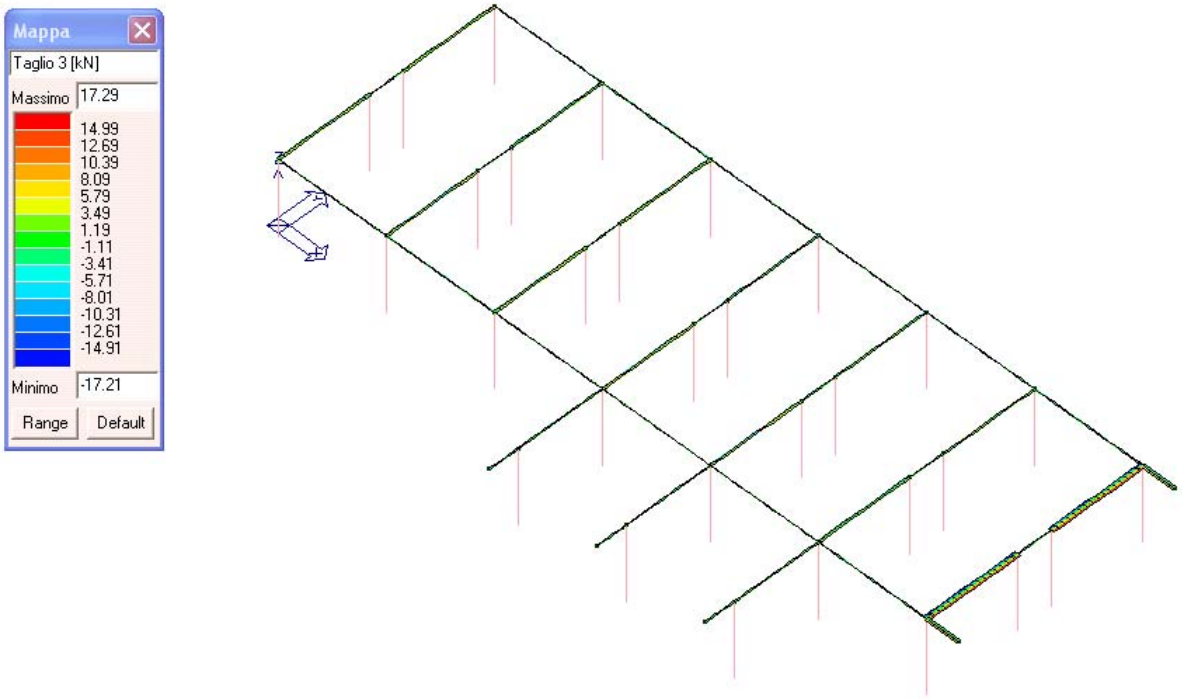


Figura 11. 8 – 2 – Travi: inviluppo Taglio T 3-3

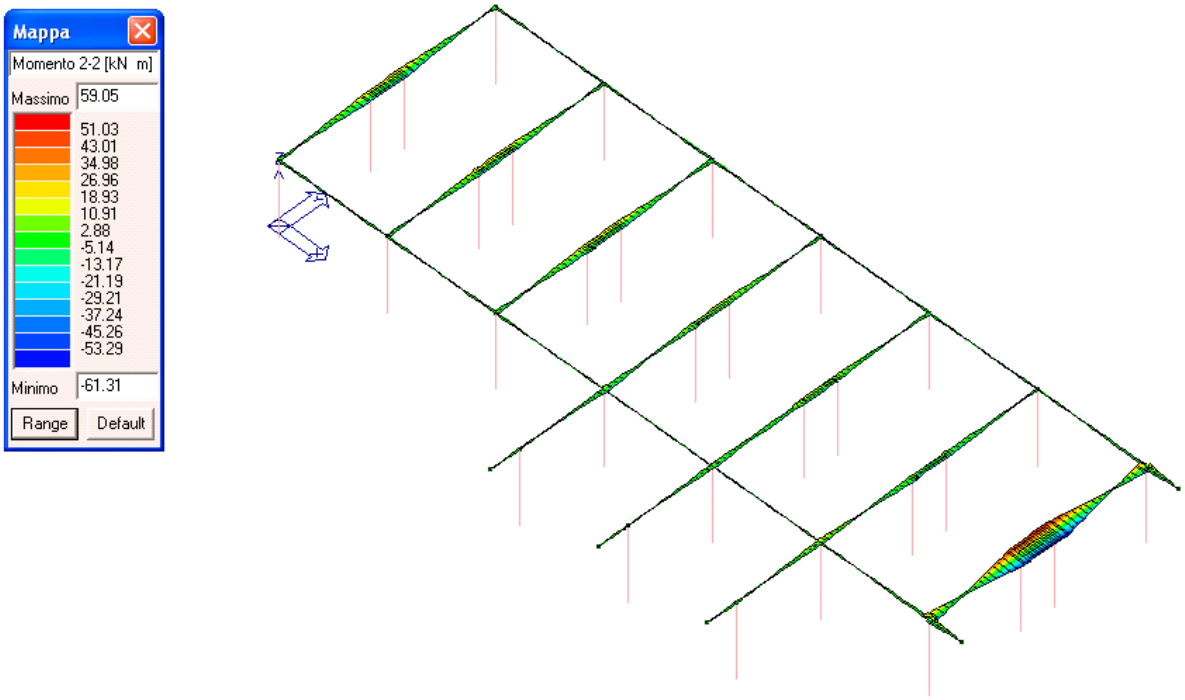


Figura 11. 8 – 3 – Travi: inviluppo Momento flettente M 2-2

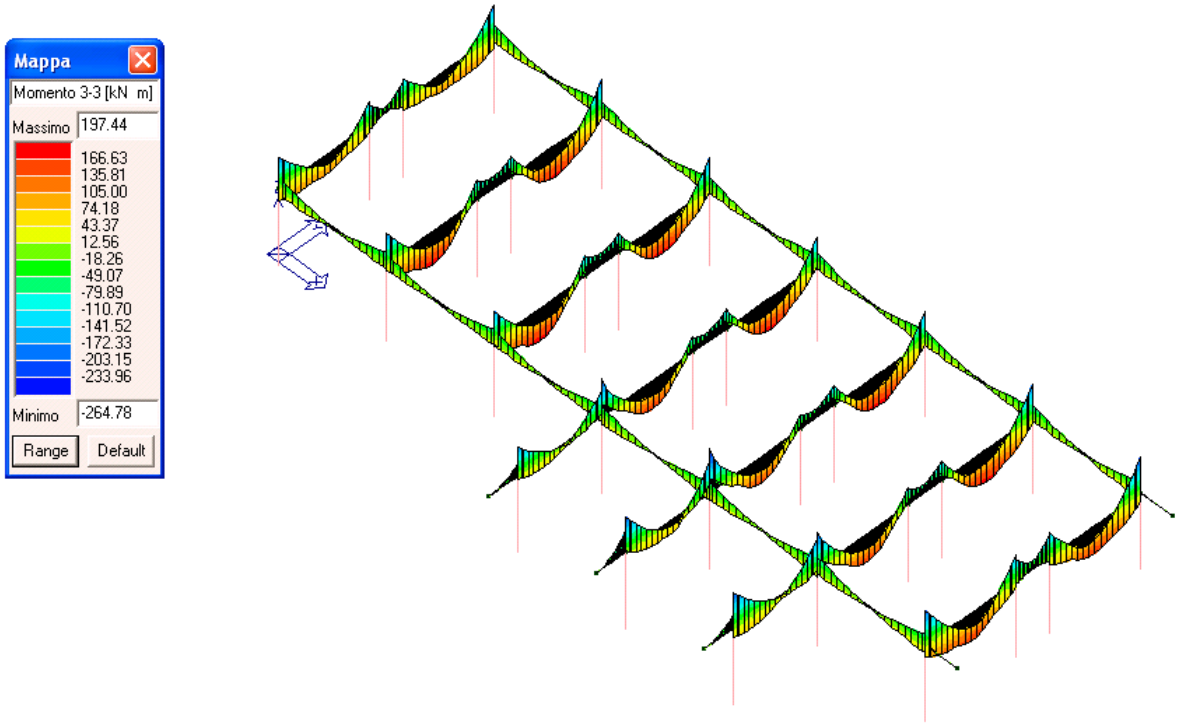


Figura 11. 8 – 4 – Travi: inviluppo Momento flettente M 3-3

11.9. INVILUPPO SOLLECITAZIONI – TRAVI FONDAZIONE

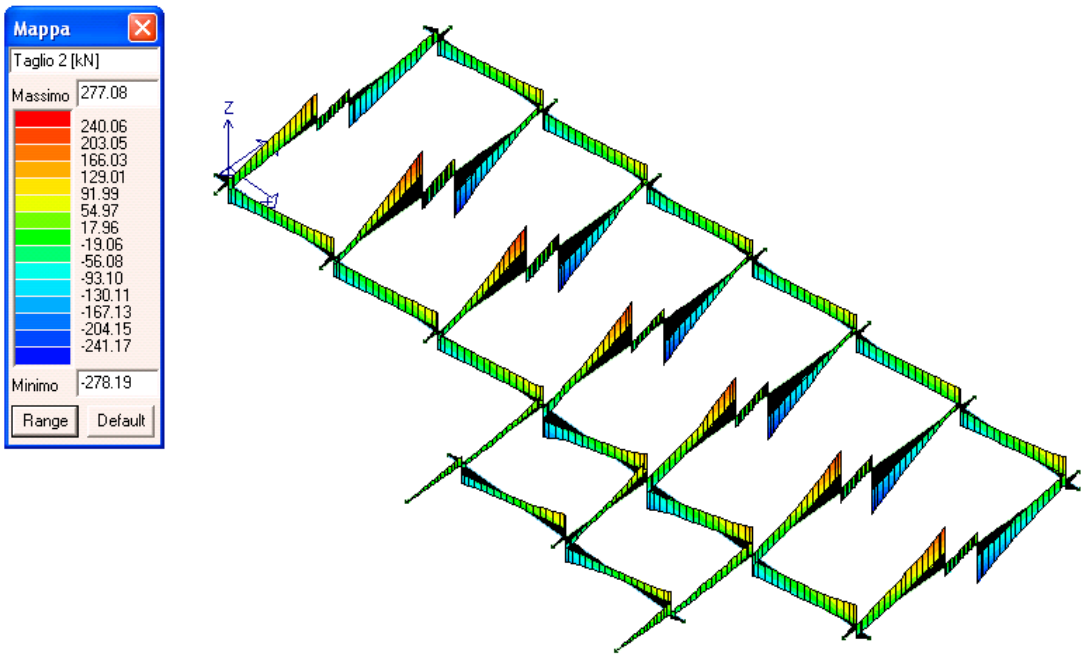


Figura 11.9 – 1 – Travi: inviluppo Taglio T 2-2

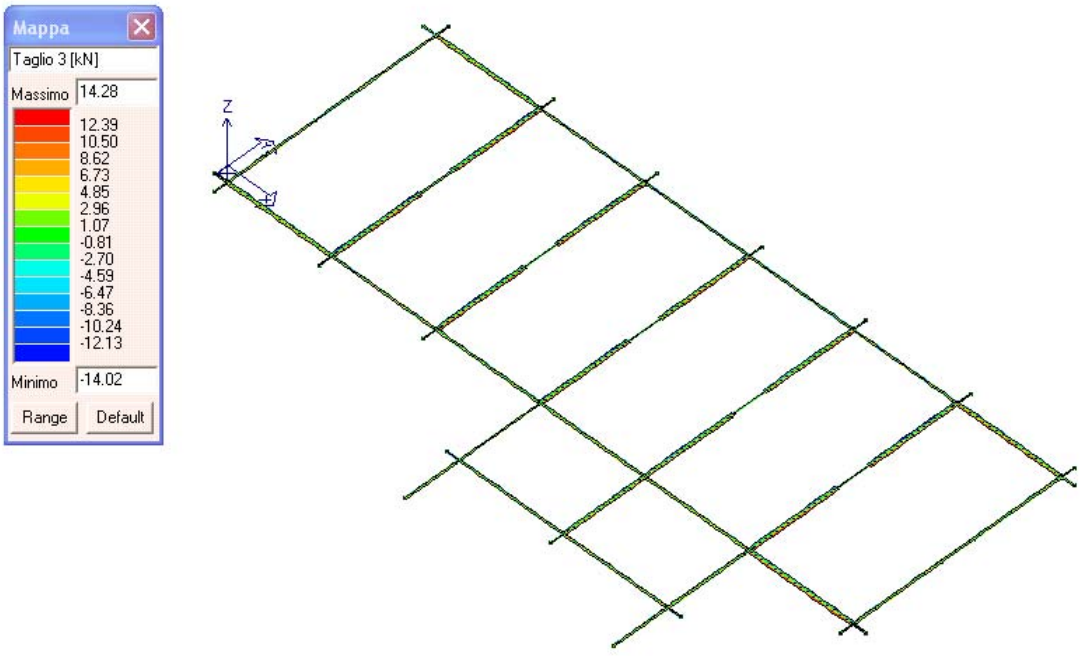


Figura 11.9 – 2 – Travi: inviluppo Taglio T 3-3

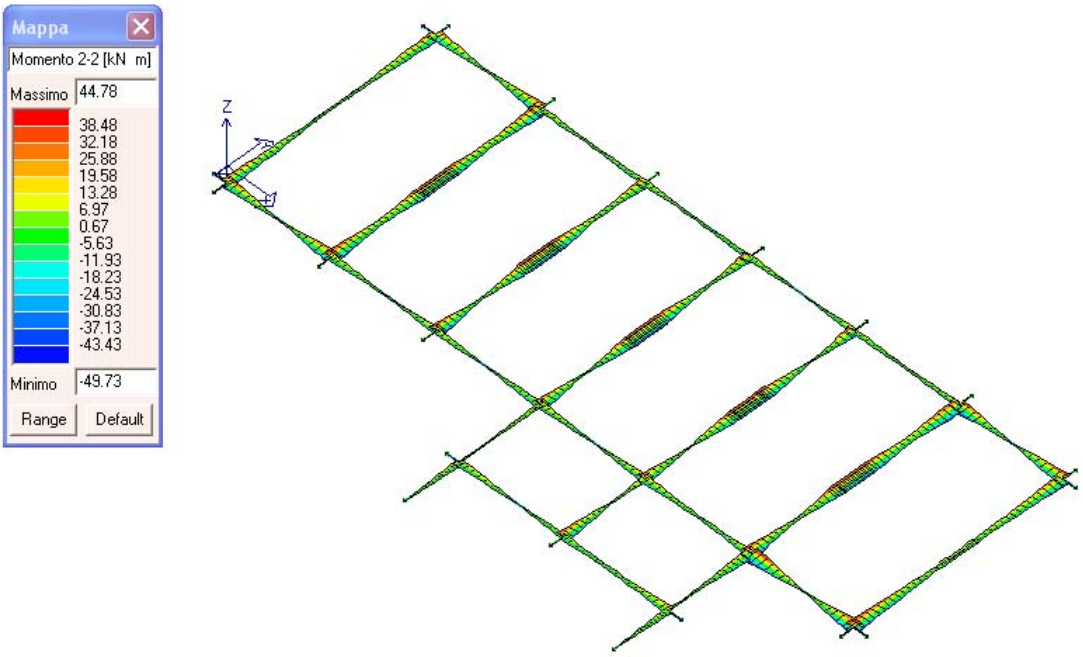


Figura 11.9 – 3 – Travi: inviluppo Momento flettente M 2-2

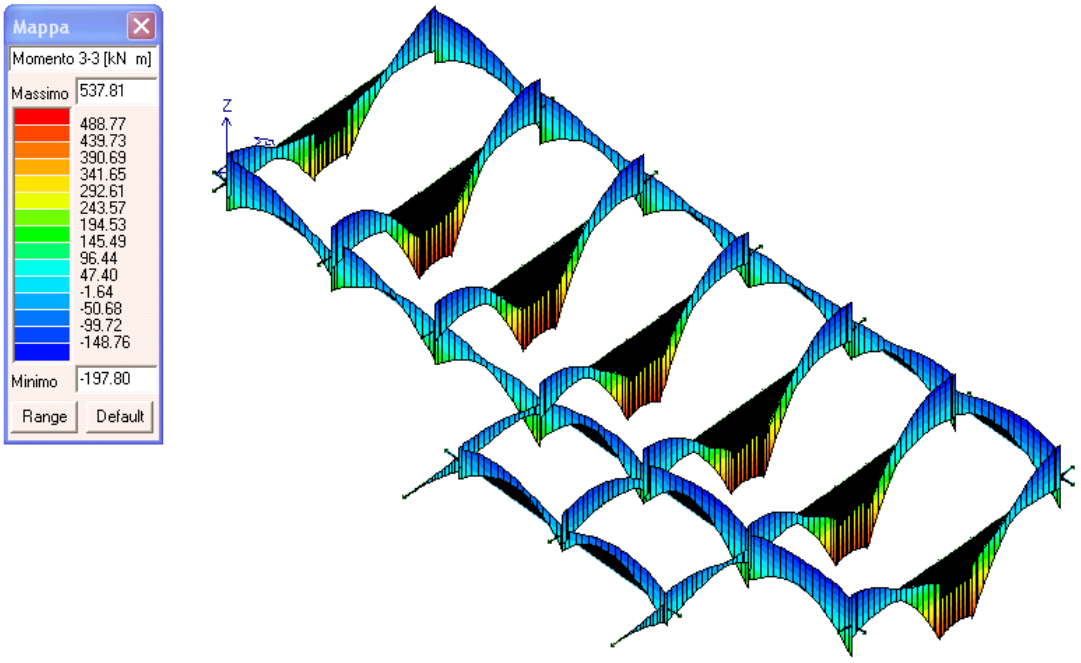


Figura 11.9 – 4 – Travi: inviluppo Momento flettente M 3-3

11.10. VERIFICHE SLU ED SLE TRAVI IN ELEVAZIONE

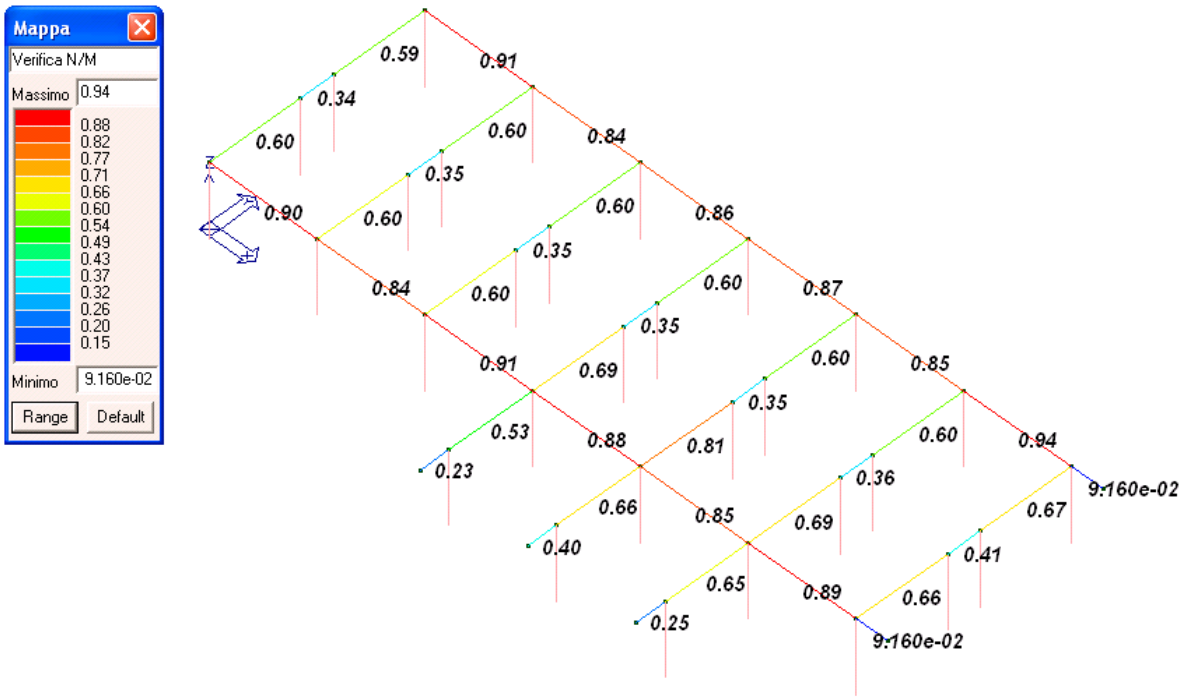


Figura 11.10 – 1 – Verifica N-M Travi copertura

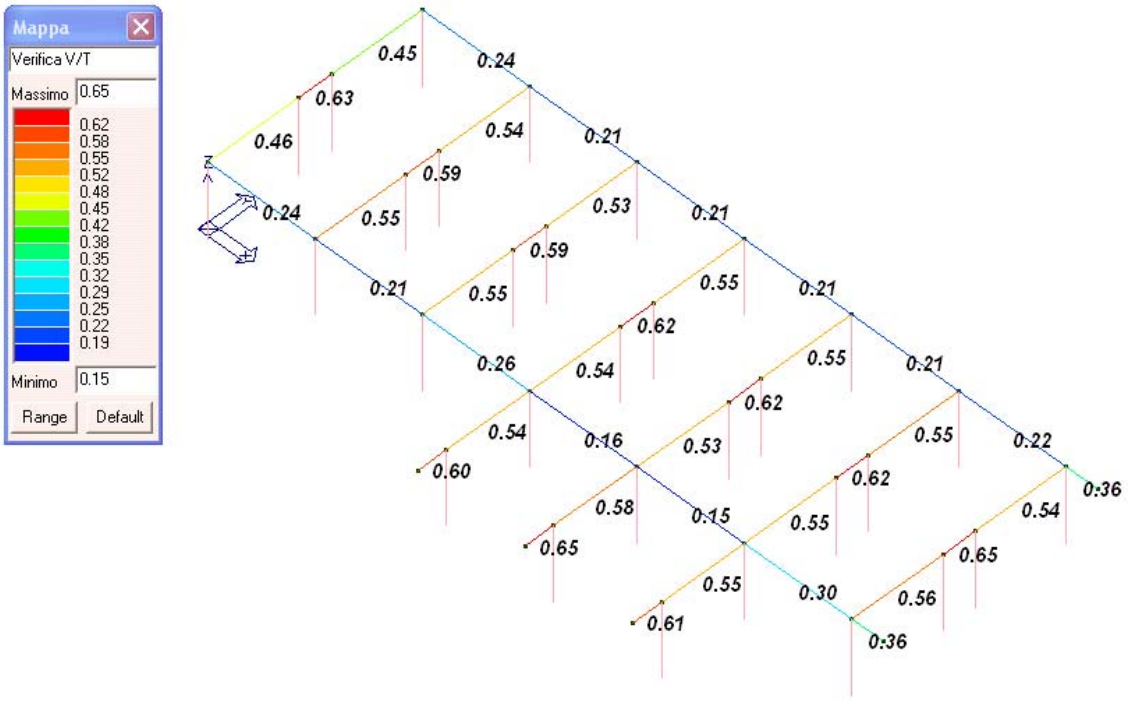


Figura 11.10 – 2 – Verifica V-T Travi copertura

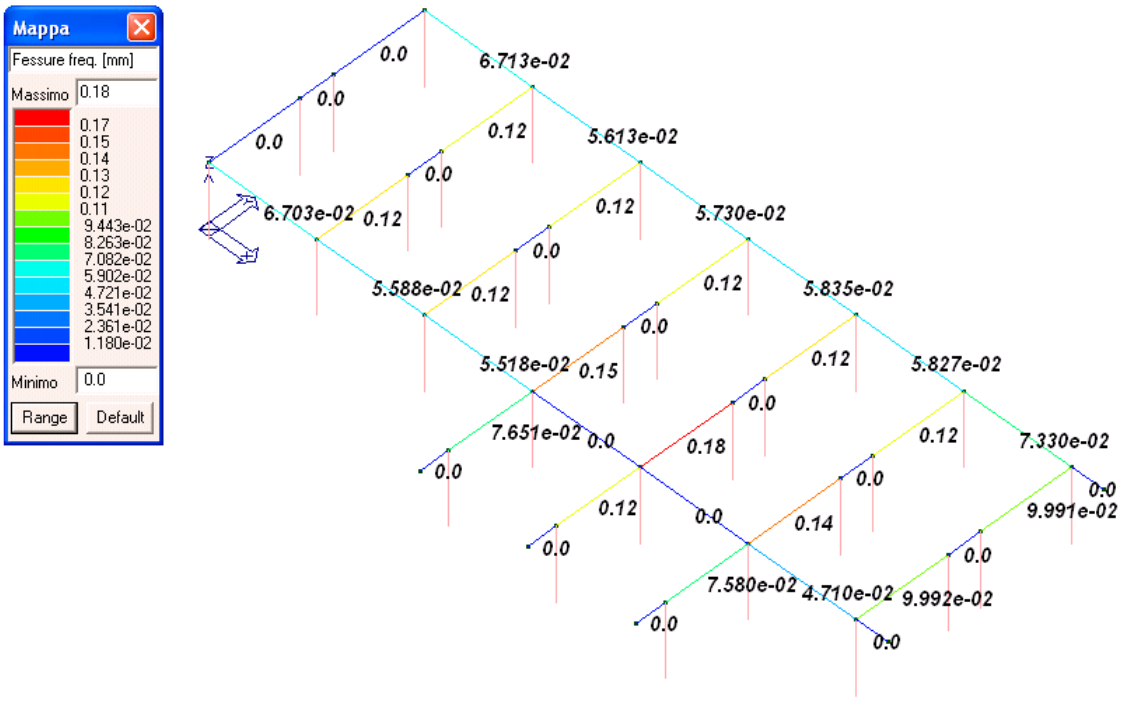


Figura 11.10 – 3 – S.L.E. Travi copertura: fessure comb. frequenti

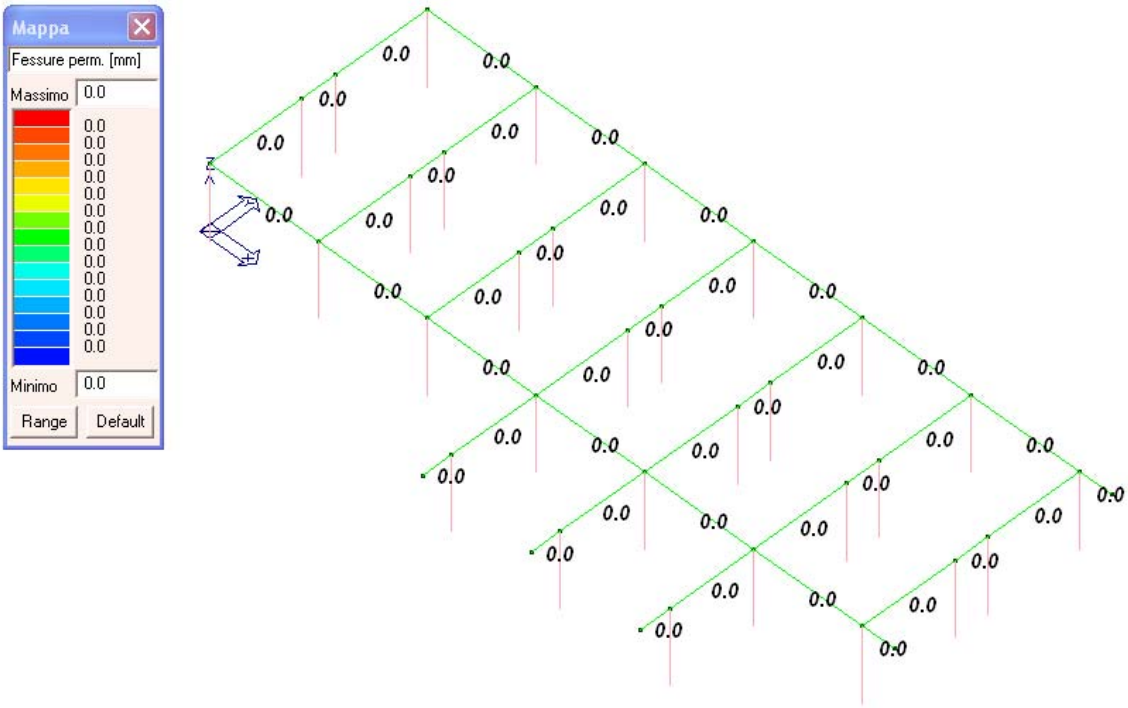


Figura 11.10 – 4 – S.L.E. Travi copertura: fessure comb. quasi perm.

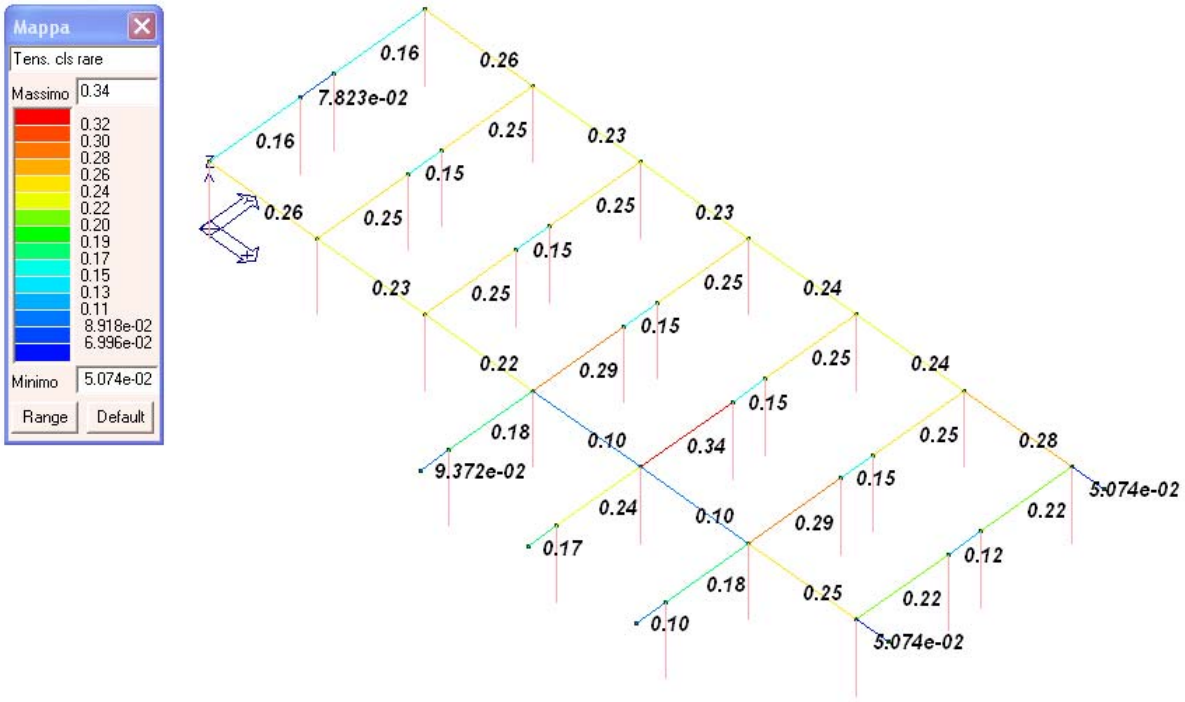


Figura 11.10 – 5 – S.L.E. Travi copertura: tensioni cls comb. Rare

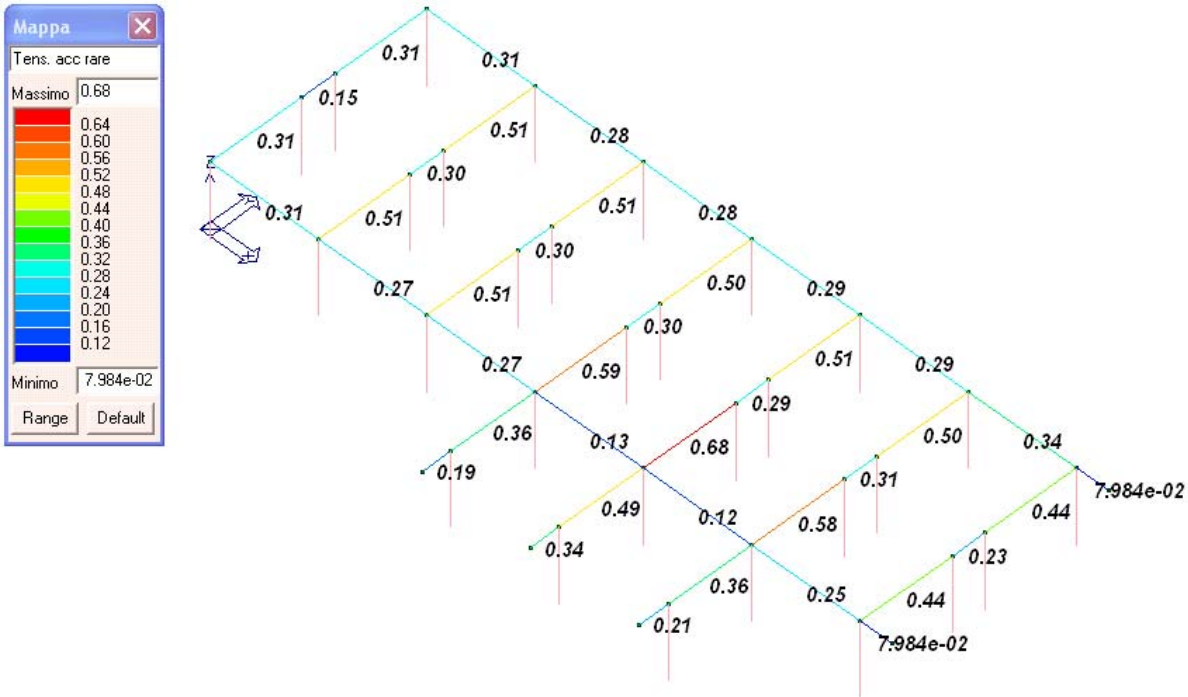


Figura 11.10 – 6 – S.L.E. Travi copertura: tensioni acciaio comb. rare

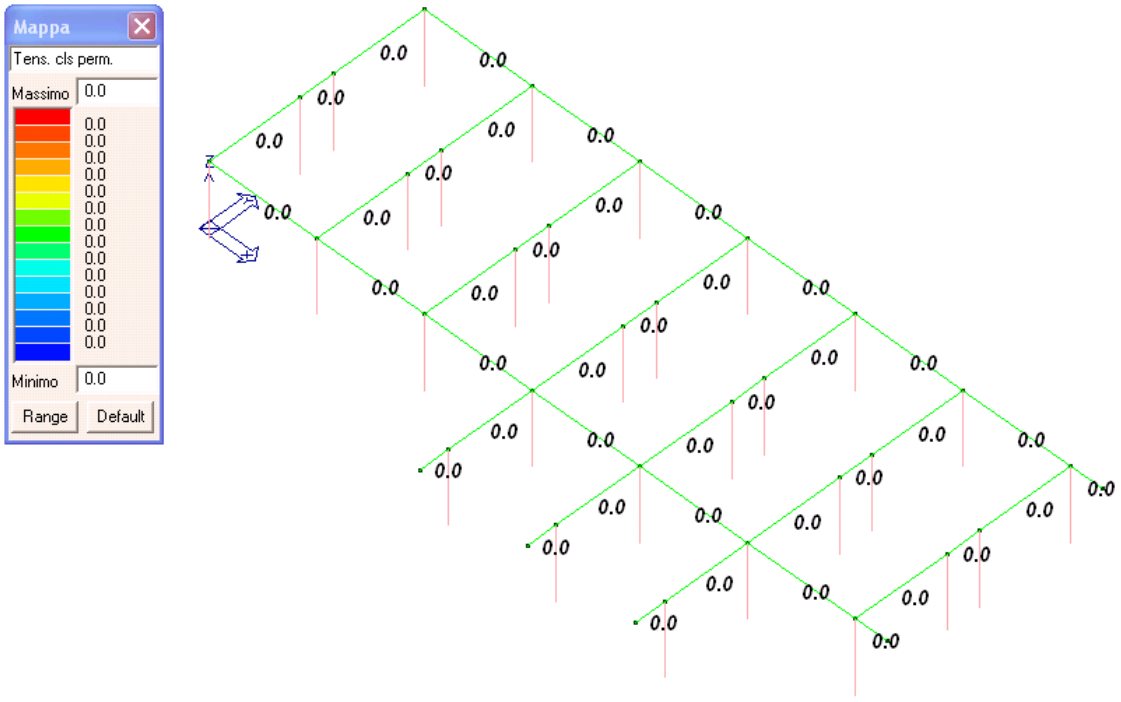


Figura 11.10 – 7 – S.L.E. Travi copertura: tensioni cls comb. Permanenti

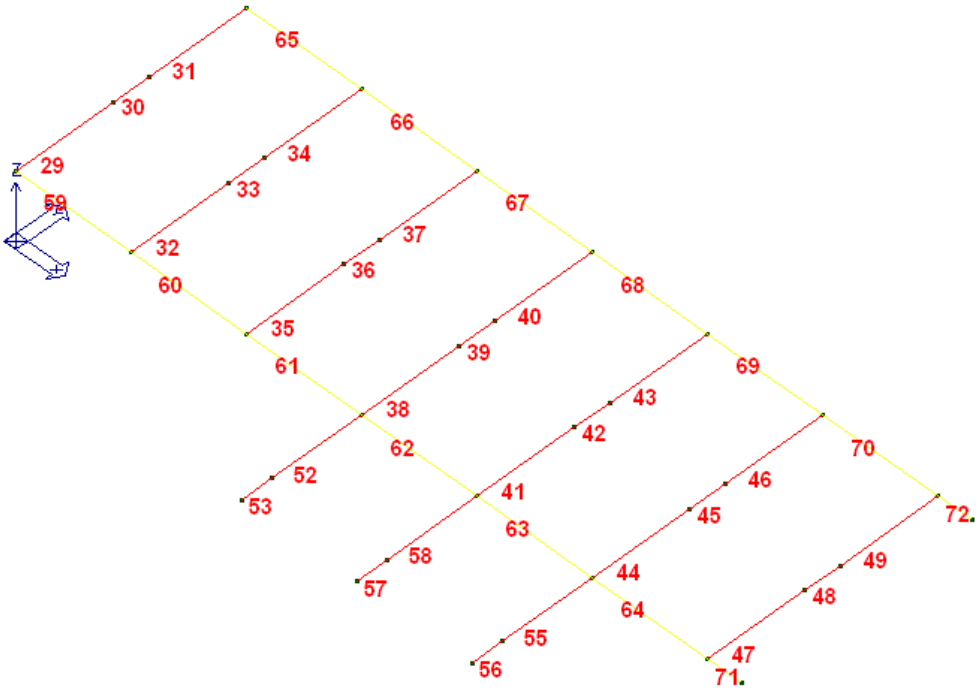


Figura 11.10 – 8 – Numerazione delle sezioni

Verifiche SLU

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
		cm									L=cm			
29	ok,ok	0.0	0.52	15.7	15.7	0.09	0.60	0.46	4.5	0.0	2d12/12 L=62	0.0	0.0	29,14
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.36	0.35	2.7	0.0	2d12/30 L=425	0.0	0.0	1,14
		550.0	0.52	15.7	15.7	0.09	0.38	0.46	4.4	0.0	2d12/12 L=62	0.0	0.0	30,14
30	ok,ok	0.0	0.52	15.7	15.7	0.09	0.33	0.63	9.5	0.0	2d12/12 L=62	0.0	0.0	35,20
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.10	0.59	8.8	0.0	2d12/20 L=75	0.0	0.0	1,20
		200.0	0.52	15.7	15.7	0.09	0.34	0.63	9.5	0.0	2d12/12 L=62	0.0	0.0	30,20
31	ok,ok	0.0	0.52	15.7	15.7	0.09	0.38	0.44	4.4	0.0	2d12/12 L=62	0.0	0.0	35,15
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.36	0.34	2.7	0.0	2d12/30 L=425	0.0	0.0	1,15
		550.0	0.52	15.7	15.7	0.09	0.59	0.45	4.5	0.0	2d12/12 L=62	0.0	0.0	32,15
32	ok,ok	0.0	0.52	15.7	15.7	0.09	0.57	0.55	5.5	0.0	2d12/12 L=62	0.0	0.0	29,13
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.60	0.38	2.6	0.0	2d12/30 L=425	0.0	0.0	1,13
		550.0	0.52	15.7	15.7	0.09	0.40	0.55	5.4	0.0	2d12/12 L=62	0.0	0.0	30,13
33	ok,ok	0.0	0.52	15.7	15.7	0.09	0.35	0.59	8.8	0.0	2d12/12 L=62	0.0	0.0	1,20
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.22	0.53	7.8	0.0	2d12/25 L=75	0.0	0.0	1,20
		200.0	0.52	15.7	15.7	0.09	0.35	0.59	8.8	0.0	2d12/12 L=62	0.0	0.0	1,20
34	ok,ok	0.0	0.52	15.7	15.7	0.09	0.39	0.54	5.4	0.0	2d12/12 L=62	0.0	0.0	29,12
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.60	0.37	2.6	0.0	2d12/30 L=425	0.0	0.0	1,12
		550.0	0.52	15.7	15.7	0.09	0.58	0.54	5.5	0.0	2d12/12 L=62	0.0	0.0	30,12
35	ok,ok	0.0	0.52	15.7	15.7	0.09	0.54	0.55	5.4	0.0	2d12/12 L=62	0.0	0.0	29,13
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.60	0.38	2.6	0.0	2d12/30 L=425	0.0	0.0	1,13
		550.0	0.52	15.7	15.7	0.09	0.38	0.55	5.5	0.0	2d12/12 L=62	0.0	0.0	30,13
36	ok,ok	0.0	0.52	15.7	15.7	0.09	0.35	0.59	8.8	0.0	2d12/12 L=62	0.0	0.0	1,20
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.22	0.53	7.8	0.0	2d12/25 L=75	0.0	0.0	1,20
		200.0	0.52	15.7	15.7	0.09	0.35	0.59	8.8	0.0	2d12/12 L=62	0.0	0.0	1,20
37	ok,ok	0.0	0.52	15.7	15.7	0.09	0.37	0.53	5.4	0.0	2d12/12 L=62	0.0	0.0	29,12
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.60	0.36	2.6	0.0	2d12/30 L=425	0.0	0.0	1,12
		550.0	0.52	15.7	15.7	0.09	0.54	0.53	5.5	0.0	2d12/12 L=62	0.0	0.0	30,12
38	ok,ok	0.0	0.52	15.7	15.7	0.09	0.69	0.54	5.7	0.0	2d12/12 L=62	0.0	0.0	1,13
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.50	0.37	2.9	0.0	2d12/30 L=425	0.0	0.0	1,13
		550.0	0.52	15.7	15.7	0.09	0.29	0.50	5.2	0.0	2d12/12 L=62	0.0	0.0	34,13
39	ok,ok	0.0	0.52	15.7	15.7	0.09	0.27	0.60	8.7	0.0	2d12/12 L=62	0.0	0.0	1,23
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.18	0.56	7.9	0.0	2d12/25 L=75	0.0	0.0	1,23
		200.0	0.52	15.7	15.7	0.09	0.35	0.62	9.0	0.0	2d12/12 L=62	0.0	0.0	1,23
40	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.55	5.4	0.0	2d12/12 L=62	0.0	0.0	1,15
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.60	0.37	2.6	0.0	2d12/30 L=425	0.0	0.0	1,15
		550.0	0.52	15.7	15.7	0.09	0.50	0.55	5.5	0.0	2d12/12 L=62	0.0	0.0	30,15
41	ok,ok	0.0	0.52	15.7	15.7	0.09	0.81	0.53	5.9	0.0	2d12/12 L=62	0.0	0.0	1,14
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.46	0.36	3.0	0.0	2d12/30 L=425	0.0	0.0	1,14
		550.0	0.52	15.7	15.7	0.09	0.27	0.48	5.0	0.0	2d12/12 L=62	0.0	0.0	20,14
42	ok,ok	0.0	0.52	15.7	15.7	0.09	0.24	0.60	8.6	0.0	2d12/12 L=62	0.0	0.0	1,20
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.16	0.56	8.0	0.0	2d12/25 L=75	0.0	0.0	1,20
		200.0	0.52	15.7	15.7	0.09	0.35	0.62	9.0	0.0	2d12/12 L=62	0.0	0.0	1,20
43	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.54	5.4	0.0	2d12/12 L=62	0.0	0.0	1,17
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.60	0.37	2.6	0.0	2d12/30 L=425	0.0	0.0	1,12
		550.0	0.52	15.7	15.7	0.09	0.53	0.55	5.5	0.0	2d12/12 L=62	0.0	0.0	20,17
44	ok,ok	0.0	0.52	15.7	15.7	0.09	0.69	0.55	5.7	0.0	2d12/12 L=62	0.0	0.0	1,14
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.50	0.37	2.9	0.0	2d12/30 L=425	0.0	0.0	1,14
		550.0	0.52	15.7	15.7	0.09	0.33	0.51	5.2	0.0	2d12/12 L=62	0.0	0.0	20,14
45	ok,ok	0.0	0.52	15.7	15.7	0.09	0.28	0.60	8.6	0.0	2d12/12 L=62	0.0	0.0	1,20
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.19	0.56	7.9	0.0	2d12/25 L=75	0.0	0.0	1,20
		200.0	0.52	15.7	15.7	0.09	0.36	0.62	9.0	0.0	2d12/12 L=62	0.0	0.0	1,20
46	ok,ok	0.0	0.52	15.7	15.7	0.09	0.38	0.55	5.4	0.0	2d12/12 L=62	0.0	0.0	25,18
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.60	0.38	2.6	0.0	2d12/30 L=425	0.0	0.0	1,18
		550.0	0.52	15.7	15.7	0.09	0.58	0.55	5.5	0.0	2d12/12 L=62	0.0	0.0	20,18
47	ok,ok	0.0	0.52	15.7	15.7	0.09	0.66	0.56	5.2	0.0	2d12/12 L=62	0.0	0.0	23,13
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.52	0.40	2.7	0.0	2d12/30 L=425	0.0	0.0	1,13
		550.0	0.52	15.7	15.7	0.09	0.48	0.55	5.1	0.0	2d12/12 L=62	0.0	0.0	20,13
48	ok,ok	0.0	0.52	15.7	15.7	0.09	0.38	0.64	9.7	0.0	2d12/12 L=62	0.0	0.0	25,20
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.15	0.59	8.9	0.0	2d12/20 L=75	0.0	0.0	1,20
		200.0	0.52	15.7	15.7	0.09	0.41	0.65	9.8	0.0	2d12/12 L=62	0.0	0.0	20,20
49	ok,ok	0.0	0.52	15.7	15.7	0.09	0.45	0.53	5.1	0.0	2d12/12 L=62	0.0	0.0	25,12
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.52	0.38	2.7	0.0	2d12/30 L=425	0.0	0.0	1,12
		550.0	0.52	15.7	15.7	0.09	0.67	0.54	5.3	0.0	2d12/12 L=62	0.0	0.0	26,12
52	ok,ok	0.0	0.52	15.7	15.7	0.09	0.53	0.53	4.5	0.0	2d12/12 L=62	0.0	0.0	29,4

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
	s=2,m=4	252.5	0.52	15.7	15.7	0.09	0.12	0.44	3.0	0.0	2d12/30 L=380	0.0	0.0	28,4
		505.0	0.52	15.7	15.7	0.09	0.47	0.54	4.6	0.0	2d12/12 L=62	0.0	0.0	30,4
53	ok,ok	0.0	0.52	15.7	15.7	0.09	1.22e-03	0.54	8.8	0.0	2d12/12 L=62	0.0	0.0	29,29
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.06	0.57	9.3	0.0	2d12/20 L=50	0.0	0.0	1,29
		175.0	0.52	15.7	15.7	0.09	0.23	0.60	9.9	0.0	2d12/12 L=62	0.0	0.0	1,29
55	ok,ok	0.0	0.52	15.7	15.7	0.09	0.65	0.54	4.5	0.0	2d12/12 L=62	0.0	0.0	23,7
	s=2,m=4	252.5	0.52	15.7	15.7	0.09	0.13	0.44	2.9	0.0	2d12/30 L=380	0.0	0.0	20,7
		505.0	0.52	15.7	15.7	0.09	0.55	0.55	4.6	0.0	2d12/12 L=62	0.0	0.0	20,7
56	ok,ok	0.0	0.52	15.7	15.7	0.09	2.11e-03	0.54	8.8	0.0	2d12/12 L=62	0.0	0.0	23,23
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.06	0.57	9.4	0.0	2d12/20 L=50	0.0	0.0	1,23
		175.0	0.52	15.7	15.7	0.09	0.25	0.61	10.0	0.0	2d12/12 L=62	0.0	0.0	1,23
57	ok,ok	0.0	0.52	15.7	15.7	0.09	4.26e-04	0.54	8.8	0.0	2d12/12 L=62	0.0	0.0	21,20
	s=2,m=4	87.5	0.52	15.7	15.7	0.09	0.10	0.59	9.7	0.0	2d12/20 L=50	0.0	0.0	1,20
		175.0	0.52	15.7	15.7	0.09	0.40	0.65	10.6	0.0	2d12/12 L=62	0.0	0.0	1,20
58	ok,ok	0.0	0.52	15.7	15.7	0.09	0.66	0.57	5.5	0.0	2d12/12 L=62	0.0	0.0	23,4
	s=2,m=4	252.5	0.52	15.7	15.7	0.09	0.26	0.42	2.9	0.0	2d12/30 L=380	0.0	0.0	1,4
		505.0	0.52	15.7	15.7	0.09	0.58	0.58	5.5	0.0	2d12/12 L=62	0.0	0.0	1,4
59	ok,ok	0.0	1.12	6.3	9.4	0.22	0.85	0.22	1.8	0.0	2d8/5 L=50	0.0	0.0	10,26
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.26	0.15	1.1	0.0	2d8/15 L=550	0.0	0.0	1,26
		650.0	1.12	6.3	9.4	0.22	0.90	0.24	1.9	0.0	2d8/5 L=50	0.0	0.0	9,26
60	ok,ok	0.0	1.12	6.3	9.4	0.22	0.83	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	7,29
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.23	0.13	1.0	0.0	2d8/15 L=550	0.0	0.0	1,29
		650.0	1.12	6.3	9.4	0.22	0.84	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	9,29
61	ok,ok	0.0	1.12	6.3	9.4	0.22	0.85	0.26	1.8	0.0	2d8/5 L=50	0.0	0.0	10,30
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.24	0.18	1.0	0.0	2d8/15 L=550	0.0	0.0	1,30
		650.0	1.12	6.3	9.4	0.22	0.91	0.26	1.8	0.0	2d8/5 L=50	0.0	0.0	9,30
62	ok,ok	0.0	1.12	6.3	9.4	0.22	0.88	0.15	1.3	0.0	2d8/5 L=50	0.0	0.0	9,25
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.08	0.12	1.0	0.0	2d8/15 L=550	0.0	0.0	1,25
		650.0	1.12	6.3	9.4	0.22	0.83	0.16	1.3	0.0	2d8/5 L=50	0.0	0.0	7,25
63	ok,ok	0.0	1.12	6.3	9.4	0.22	0.85	0.15	1.3	0.0	2d8/5 L=50	0.0	0.0	4,26
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.08	0.12	1.0	0.0	2d8/15 L=550	0.0	0.0	1,26
		650.0	1.12	6.3	9.4	0.22	0.83	0.15	1.3	0.0	2d8/5 L=50	0.0	0.0	7,26
64	ok,ok	0.0	1.49	6.3	12.6	0.27	0.76	0.30	2.1	0.0	2d8/5 L=50	0.0	0.0	7,26
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.26	0.22	1.3	0.0	2d8/15 L=550	0.0	0.0	1,26
		650.0	1.12	6.3	9.4	0.22	0.89	0.27	1.8	0.0	2d8/5 L=50	0.0	0.0	4,26
65	ok,ok	0.0	1.12	6.3	9.4	0.22	0.86	0.23	1.8	0.0	2d8/5 L=50	0.0	0.0	19,23
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.26	0.16	1.1	0.0	2d8/15 L=550	0.0	0.0	1,23
		650.0	1.12	6.3	9.4	0.22	0.91	0.24	1.9	0.0	2d8/5 L=50	0.0	0.0	16,23
66	ok,ok	0.0	1.12	6.3	9.4	0.22	0.84	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	14,29
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.23	0.13	1.0	0.0	2d8/15 L=550	0.0	0.0	1,29
		650.0	1.12	6.3	9.4	0.22	0.84	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	16,29
67	ok,ok	0.0	1.12	6.3	9.4	0.22	0.84	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	14,29
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.23	0.13	1.0	0.0	2d8/15 L=550	0.0	0.0	1,29
		650.0	1.12	6.3	9.4	0.22	0.86	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	16,29
68	ok,ok	0.0	1.12	6.3	9.4	0.22	0.85	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	14,26
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.23	0.13	1.0	0.0	2d8/15 L=550	0.0	0.0	1,26
		650.0	1.12	6.3	9.4	0.22	0.87	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	16,26
69	ok,ok	0.0	1.12	6.3	9.4	0.22	0.84	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	14,26
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.23	0.13	1.0	0.0	2d8/15 L=550	0.0	0.0	1,26
		650.0	1.12	6.3	9.4	0.22	0.85	0.21	1.8	0.0	2d8/5 L=50	0.0	0.0	13,26
70	ok,ok	0.0	1.12	6.3	9.4	0.22	0.94	0.22	1.9	0.0	2d8/5 L=50	0.0	0.0	14,20
	s=3,m=4	325.0	0.75	6.3	6.3	0.18	0.26	0.13	1.1	0.0	2d8/15 L=550	0.0	0.0	1,20
		650.0	1.12	6.3	9.4	0.22	0.86	0.20	1.8	0.0	2d8/5 L=50	0.0	0.0	13,20
71	ok,ok	0.0	0.75	6.3	6.3	0.18	0.09	0.36	3.1	0.0	2d8/5 L=50	0.0	0.0	1,13
	s=3,m=4	95.0	0.75	6.3	6.3	0.18	0.02	0.35	3.0	0.0	2d8/15 L=90	0.0	0.0	1,13
		190.0	0.75	6.3	6.3	0.18	4.86e-04	0.34	2.9	0.0	2d8/5 L=50	0.0	0.0	1,13
72	ok,ok	0.0	0.75	6.3	6.3	0.18	0.09	0.36	3.1	0.0	2d8/5 L=50	0.0	0.0	1,13
	s=3,m=4	95.0	0.75	6.3	6.3	0.18	0.02	0.35	3.0	0.0	2d8/15 L=90	0.0	0.0	1,13
		190.0	0.75	6.3	6.3	0.18	4.86e-04	0.34	2.9	0.0	2d8/5 L=50	0.0	0.0	1,13
Trave			**%Af**	**Af inf.**	**Af. sup**	**x/d**	**verif.**	**ver. V/T**	**Af V**	**Af T**		**Scorr. P**	**Af long.**	
			1.49	15.69	15.69	0.27	0.94	0.65	10.64	0.0		0.0	0.0	

Verifiche SLE

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	cm					mm	mm	mm		cm	cm	cm	
29	0.0	0.11	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.35	0.29	0.0	100,101,0
	275.0	0.16	0.31	0.0	100,100,0	0.07	0.0	0.0	100,0,0				
	550.0	0.08	0.16	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
30	0.0	0.08	0.15	0.0	100,100,0	0.0	0.0	0.0	0,0,0	7.61e-03	6.36e-03	0.0	100,101,0
	100.0	0.04	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	200.0	0.08	0.15	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
31	0.0	0.08	0.16	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.35	0.28	0.0	100,101,0
	275.0	0.16	0.31	0.0	100,100,0	0.07	0.0	0.0	100,0,0				
	550.0	0.12	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
32	0.0	0.17	0.34	0.0	100,100,0	0.08	0.0	0.0	100,0,0	0.82	0.70	0.0	100,101,0
	275.0	0.25	0.51	0.0	100,100,0	0.13	0.12	0.0	100,101,0				
	550.0	0.16	0.31	0.0	100,100,0	0.07	0.0	0.0	100,0,0				
33	0.0	0.15	0.30	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	100.0	0.09	0.18	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	200.0	0.15	0.30	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
34	0.0	0.15	0.31	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.81	0.70	0.0	100,101,0
	275.0	0.25	0.51	0.0	100,100,0	0.13	0.12	0.0	100,101,0				
	550.0	0.18	0.35	0.0	100,100,0	0.08	0.0	0.0	100,0,0				
35	0.0	0.17	0.34	0.0	100,100,0	0.08	0.0	0.0	100,0,0	0.80	0.70	0.0	100,101,0
	275.0	0.25	0.51	0.0	100,100,0	0.13	0.12	0.0	100,101,0				
	550.0	0.16	0.31	0.0	100,100,0	0.07	0.0	0.0	100,0,0				
36	0.0	0.15	0.30	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.01	0.0	100,101,0
	100.0	0.09	0.19	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	200.0	0.15	0.30	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
37	0.0	0.15	0.31	0.0	100,100,0	0.07	0.0	0.0	100,0,0	0.81	0.70	0.0	100,101,0
	275.0	0.25	0.51	0.0	100,100,0	0.13	0.12	0.0	100,101,0				
	550.0	0.18	0.35	0.0	100,100,0	0.08	0.0	0.0	100,0,0				
38	0.0	0.29	0.59	0.0	100,100,0	0.16	0.15	0.0	100,101,0	0.67	0.53	0.0	100,101,0
	275.0	0.21	0.42	0.0	100,100,0	0.10	0.09	0.0	100,101,0				
	550.0	0.12	0.24	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
39	0.0	0.12	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.01	0.01	0.0	100,101,0
	100.0	0.08	0.15	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	200.0	0.15	0.30	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
40	0.0	0.16	0.31	0.0	100,100,0	0.07	0.0	0.0	100,0,0	0.80	0.68	0.0	100,101,0
	275.0	0.25	0.50	0.0	100,100,0	0.13	0.12	0.0	100,101,0				
	550.0	0.18	0.35	0.0	100,100,0	0.08	0.0	0.0	100,0,0				
41	0.0	0.34	0.68	0.0	100,100,0	0.20	0.18	0.0	100,101,0	0.65	0.52	0.0	100,101,0
	275.0	0.19	0.39	0.0	100,100,0	0.09	0.08	0.0	100,101,0				
	550.0	0.11	0.21	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
42	0.0	0.10	0.21	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.03	0.0	100,101,0
	100.0	0.07	0.14	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	200.0	0.15	0.29	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
43	0.0	0.15	0.31	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.78	0.66	0.0	100,101,0
	275.0	0.25	0.51	0.0	100,100,0	0.13	0.12	0.0	100,101,0				
	550.0	0.17	0.35	0.0	100,100,0	0.08	0.0	0.0	100,0,0				
44	0.0	0.29	0.58	0.0	100,100,0	0.16	0.14	0.0	100,101,0	0.66	0.53	0.0	100,101,0
	275.0	0.21	0.42	0.0	100,100,0	0.10	0.09	0.0	100,101,0				
	550.0	0.12	0.25	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
45	0.0	0.12	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.01	0.01	0.0	100,101,0
	100.0	0.08	0.16	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	200.0	0.15	0.31	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
46	0.0	0.16	0.31	0.0	100,100,0	0.07	0.0	0.0	100,0,0	0.78	0.67	0.0	100,101,0
	275.0	0.25	0.50	0.0	100,100,0	0.13	0.12	0.0	100,101,0				
	550.0	0.17	0.35	0.0	100,100,0	0.08	0.0	0.0	100,0,0				
47	0.0	0.15	0.30	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.72	0.62	0.0	100,101,0
	275.0	0.22	0.44	0.0	100,100,0	0.10	0.10	0.0	100,101,0				
	550.0	0.13	0.26	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
48	0.0	0.11	0.22	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.01	0.01	0.0	100,101,0
	100.0	0.07	0.13	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	200.0	0.12	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
49	0.0	0.12	0.24	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.73	0.63	0.0	100,101,0
	275.0	0.22	0.44	0.0	100,100,0	0.10	0.10	0.0	100,101,0				
	550.0	0.17	0.33	0.0	100,100,0	0.08	0.0	0.0	100,0,0				
52	0.0	0.16	0.33	0.0	100,100,0	0.07	0.0	0.0	100,0,0	0.44	0.31	0.0	100,101,0

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	252.5	0.04	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	505.0	0.18	0.36	0.0	100,100,0	0.08	0.08	0.0	100,101,0				
53	0.0	0.0	6.34e-06	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.07	0.06	0.0	100,101,0
	87.5	0.02	0.05	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	175.0	0.09	0.19	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
55	0.0	0.17	0.33	0.0	100,100,0	0.08	0.0	0.0	100,0,0	0.43	0.36	0.0	100,101,0
	252.5	0.04	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	505.0	0.18	0.36	0.0	100,100,0	0.08	0.08	0.0	100,101,0				
56	0.0	0.0	2.51e-05	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.06	0.05	0.0	100,101,0
	87.5	0.03	0.05	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	175.0	0.10	0.21	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
57	0.0	2.69e-05	2.23e-05	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.07	0.06	0.0	100,101,0
	87.5	0.04	0.09	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	175.0	0.17	0.34	0.0	100,100,0	0.08	0.0	0.0	100,0,0				
58	0.0	0.24	0.49	0.0	100,100,0	0.12	0.11	0.0	100,101,0	0.36	0.32	0.0	100,101,0
	252.5	0.11	0.22	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	505.0	0.24	0.49	0.0	100,100,0	0.12	0.12	0.0	100,101,0				
59	0.0	0.16	0.20	0.0	100,100,0	0.03	0.03	0.0	100,101,0	0.30	0.32	0.0	100,101,0
	325.0	0.14	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.26	0.31	0.0	100,100,0	0.06	0.07	0.0	100,101,0				
60	0.0	0.23	0.27	0.0	100,100,0	0.04	0.05	0.0	100,101,0	0.24	0.23	0.0	100,101,0
	325.0	0.13	0.20	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.23	0.27	0.0	100,100,0	0.05	0.06	0.0	100,101,0				
61	0.0	0.22	0.26	0.0	100,100,0	0.04	0.05	0.0	100,101,0	0.25	0.26	0.0	100,101,0
	325.0	0.13	0.21	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.22	0.27	0.0	100,100,0	0.04	0.06	0.0	100,101,0				
62	0.0	0.08	0.09	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.12	0.13	0.0	100,101,0
	325.0	0.05	0.07	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.13	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
63	0.0	0.08	0.10	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.12	0.13	0.0	100,101,0
	325.0	0.04	0.07	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.12	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
64	0.0	0.25	0.25	0.0	100,100,0	0.04	0.05	0.0	100,101,0	0.49	0.49	0.0	100,101,0
	325.0	0.15	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.15	0.18	0.0	100,100,0	0.03	0.03	0.0	100,101,0				
65	0.0	0.16	0.20	0.0	100,100,0	0.03	0.03	0.0	100,101,0	0.30	0.32	0.0	100,101,0
	325.0	0.14	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.26	0.31	0.0	100,100,0	0.06	0.07	0.0	100,101,0				
66	0.0	0.22	0.27	0.0	100,100,0	0.04	0.05	0.0	100,101,0	0.24	0.22	0.0	100,101,0
	325.0	0.13	0.20	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.23	0.28	0.0	100,100,0	0.05	0.06	0.0	100,101,0				
67	0.0	0.22	0.26	0.0	100,100,0	0.04	0.05	0.0	100,101,0	0.24	0.23	0.0	100,101,0
	325.0	0.13	0.20	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.23	0.28	0.0	100,100,0	0.05	0.06	0.0	100,101,0				
68	0.0	0.21	0.26	0.0	100,100,0	0.04	0.05	0.0	100,101,0	0.24	0.23	0.0	100,101,0
	325.0	0.13	0.20	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.24	0.29	0.0	100,100,0	0.05	0.06	0.0	100,101,0				
69	0.0	0.22	0.26	0.0	100,100,0	0.04	0.05	0.0	100,101,0	0.25	0.24	0.0	100,101,0
	325.0	0.12	0.20	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.24	0.29	0.0	100,100,0	0.05	0.06	0.0	100,101,0				
70	0.0	0.28	0.34	0.0	100,100,0	0.06	0.07	0.0	100,101,0	0.47	0.46	0.0	100,101,0
	325.0	0.14	0.23	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.14	0.17	0.0	100,100,0	0.0	0.03	0.0	0,101,0				
71	0.0	0.05	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.06	0.06	0.0	100,101,0
	95.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	190.0	0.0	3.96e-04	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
72	0.0	0.05	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.06	0.06	0.0	100,101,0
	95.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	190.0	0.0	3.96e-04	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
Trave		**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**		**dR**	**dF**	**dP**	
		0.34	0.68	0.0		0.20	0.18	0.0		0.82	0.70	0.0	

11.11. VERIFICHE SLU ED SLE PILASTRI

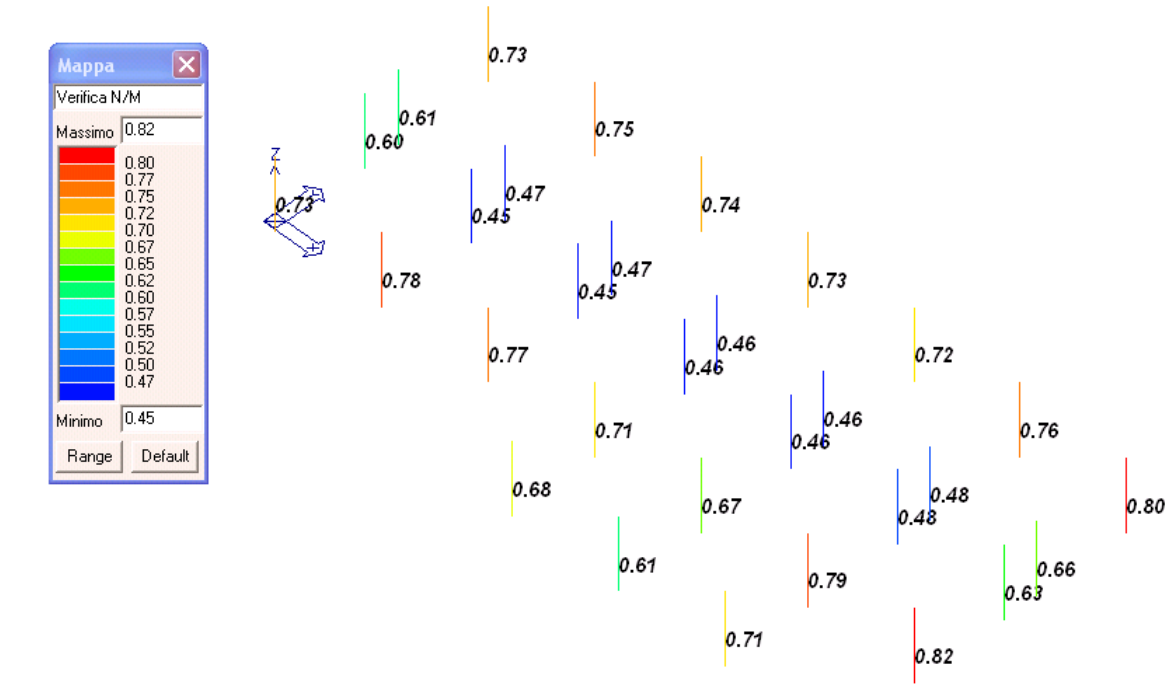


Figura 11.11 – 1 – Verifica N-M Pilastri

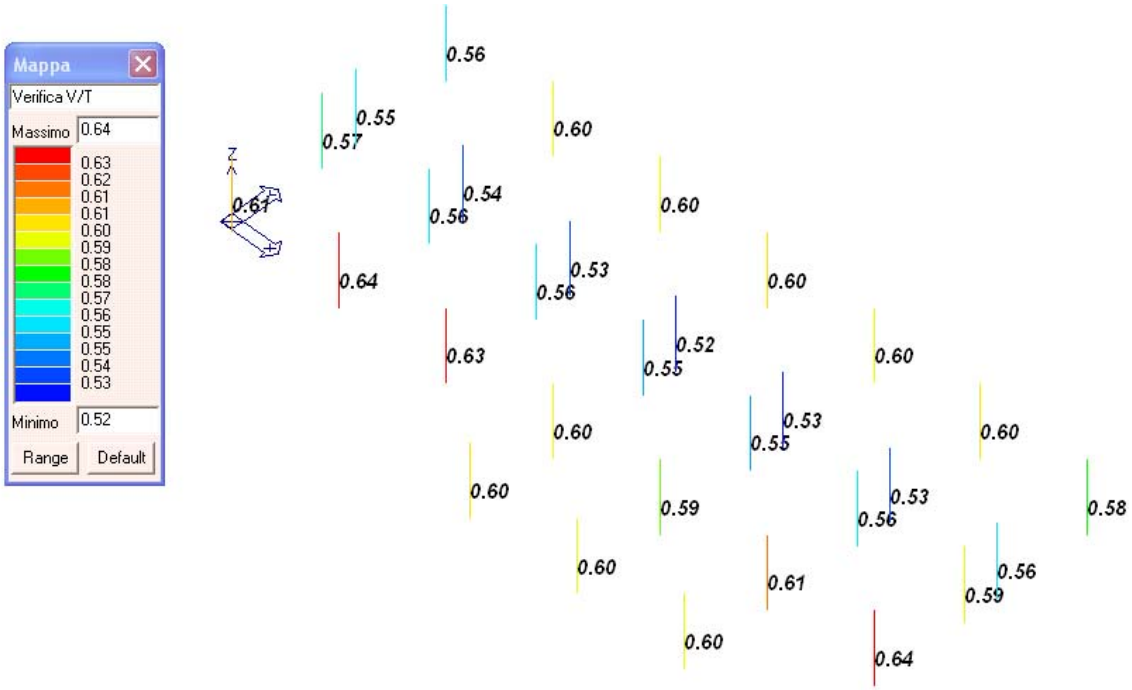


Figura 11.11 – 2 – Verifica V-T Pilastri

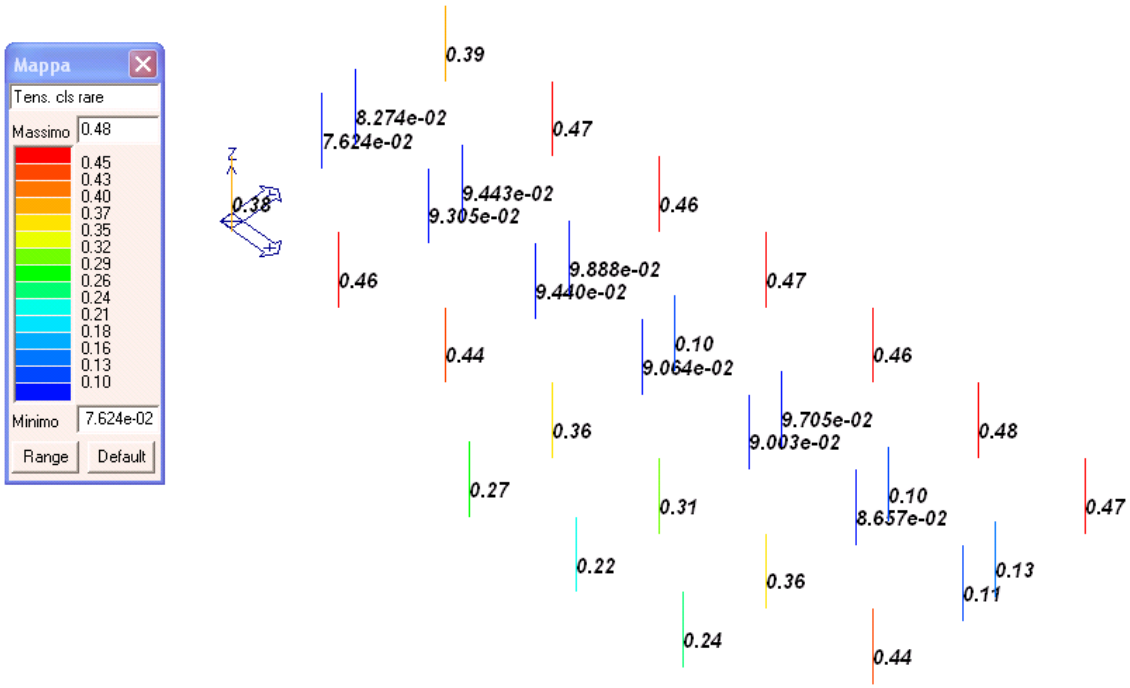


Figura 11.11 – 3 – S.L.E. Pilastri: tensioni cls comb. rare

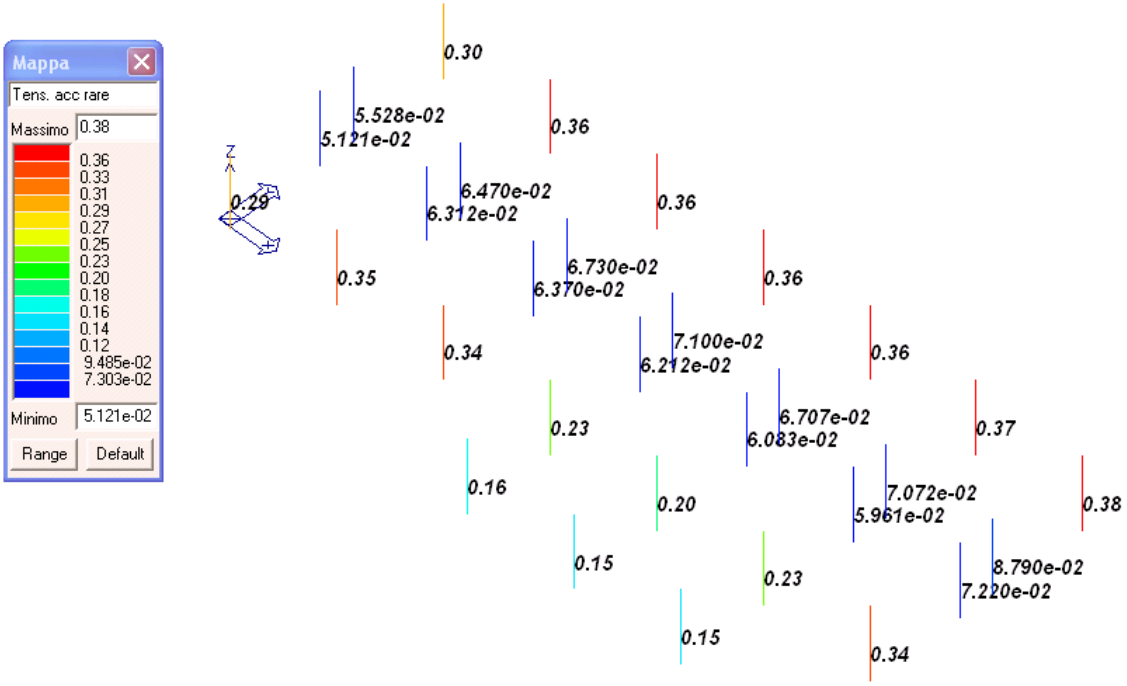


Figura 11.11 – 4 – S.L.E. Pilastri: tensioni acciaio comb. rare

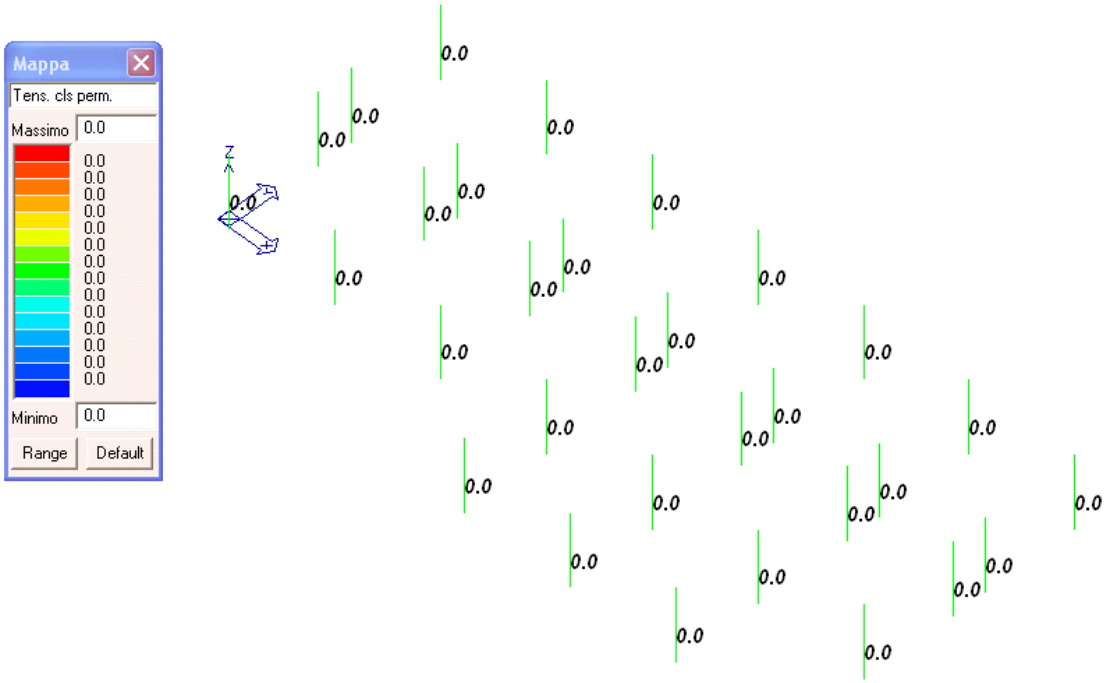


Figura 11.11 – 5 – S.L.E. Pilastri: tensioni cls comb. Permanenti

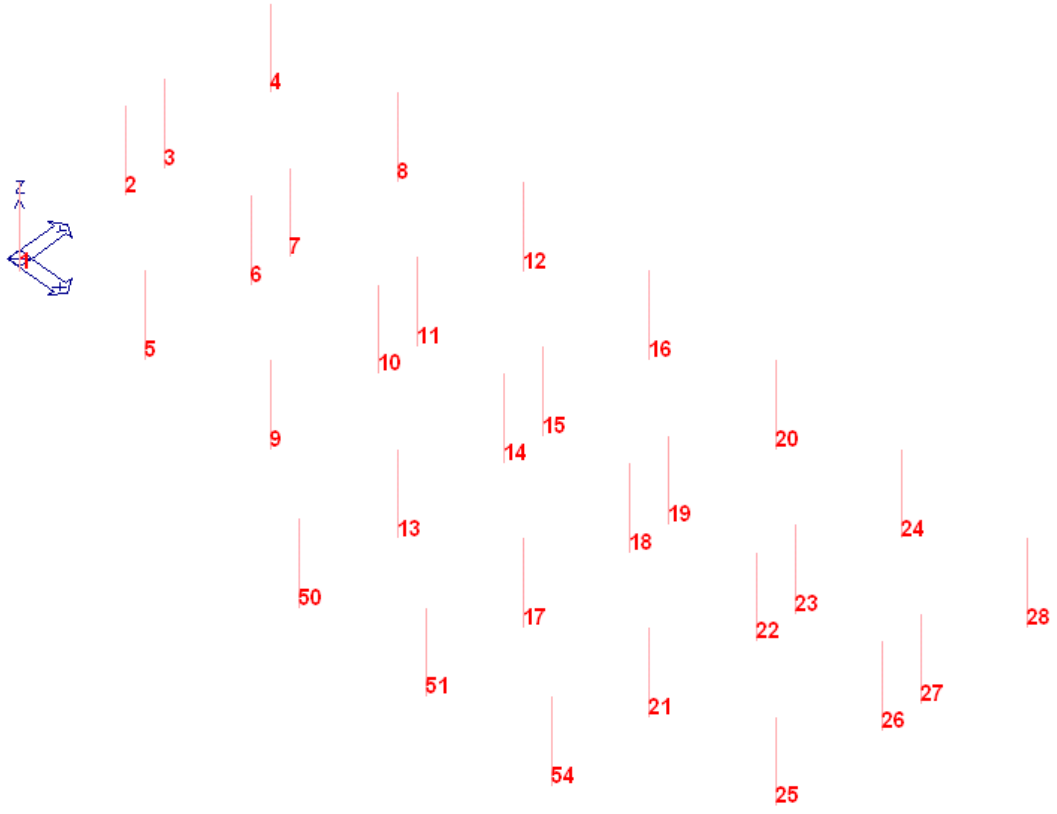


Figura 11.11 – 6 – Numerazione delle sezioni

Verifiche SLU

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
			cm						L=cm		
1	s=1,m=3	ok,ok	-60.0	2.38	0.98	4d18 4+6 d18	0.73	0.11	2+2d8/5 L=80	0.61	29,35,30
			170.0	2.38	0.98	4d18 4+6 d18	0.16	0.11	2+2d8/15 L=300	0.61	4,35,30
	[b=1.0;1.0]		400.0	2.38	0.98	4d18 4+6 d18	0.63	0.10	2+2d8/5 L=80	0.61	29,35,30
2	s=1,m=3	ok,ok	-60.0	2.38	0.82	4d18 4+6 d18	0.60	0.11	2+2d8/5 L=80	0.57	29,35,26
			170.0	2.38	0.82	4d18 4+6 d18	0.15	0.10	2+2d8/20 L=300	0.57	13,35,26
	[b=1.0;1.0]		400.0	2.38	0.82	4d18 4+6 d18	0.58	0.10	2+2d8/5 L=80	0.57	30,35,26
3	s=1,m=3	ok,ok	-60.0	2.38	0.82	4d18 4+6 d18	0.61	0.11	2+2d8/5 L=80	0.55	32,30,35
			170.0	2.38	0.82	4d18 4+6 d18	0.14	0.10	2+2d8/20 L=300	0.55	13,30,35
	[b=1.0;1.0]		400.0	2.38	0.82	4d18 4+6 d18	0.56	0.10	2+2d8/5 L=80	0.55	35,30,35
4	s=1,m=3	ok,ok	-60.0	2.38	1.07	4d18 4+6 d18	0.73	0.11	2+2d8/5 L=80	0.56	32,30,31
			170.0	2.38	1.07	4d18 4+6 d18	0.16	0.11	2+2d8/20 L=300	0.56	13,30,31
	[b=1.0;1.0]		400.0	2.38	1.07	4d18 4+6 d18	0.63	0.10	2+2d8/5 L=80	0.56	32,30,31
5	s=1,m=3	ok,ok	-60.0	2.38	0.58	4d18 4+6 d18	0.78	0.15	2+2d8/5 L=80	0.63	9,29,20
			170.0	2.38	0.58	4d18 4+6 d18	0.13	0.14	2+2d8/15 L=300	0.64	10,29,20
	[b=1.0;1.0]		400.0	2.38	0.58	4d18 4+6 d18	0.68	0.14	2+2d8/5 L=80	0.64	29,29,20
6	s=1,m=3	ok,ok	-60.0	2.38	1.09	4d18 4+6 d18	0.45	0.14	2+2d8/5 L=80	0.56	9,30,9
			170.0	2.38	1.09	4d18 4+6 d18	0.15	0.13	2+2d8/15 L=300	0.56	12,30,9
	[b=1.0;1.0]		400.0	2.38	1.09	4d18 4+6 d18	0.36	0.13	2+2d8/5 L=80	0.56	30,30,9
7	s=1,m=3	ok,ok	-60.0	2.38	1.28	4d18 4+6 d18	0.47	0.14	2+2d8/5 L=80	0.53	16,35,16
			170.0	2.38	1.28	4d18 4+6 d18	0.15	0.13	2+2d8/20 L=300	0.53	13,35,16
	[b=1.0;1.0]		400.0	2.38	1.28	4d18 4+6 d18	0.35	0.12	2+2d8/5 L=80	0.54	35,35,16
8	s=1,m=3	ok,ok	-60.0	2.38	0.74	4d18 4+6 d18	0.75	0.15	2+2d8/5 L=80	0.59	16,32,21
			170.0	2.38	0.74	4d18 4+6 d18	0.12	0.14	2+2d8/20 L=300	0.59	19,32,21
	[b=1.0;1.0]		400.0	2.38	0.74	4d18 4+6 d18	0.67	0.14	2+2d8/5 L=80	0.60	32,32,21
9	s=1,m=3	ok,ok	-60.0	2.38	0.53	4d18 4+6 d18	0.77	0.14	2+2d8/5 L=80	0.63	9,35,30
			170.0	2.38	0.53	4d18 4+6 d18	0.13	0.14	2+2d8/15 L=300	0.63	10,35,30
	[b=1.0;1.0]		400.0	2.38	0.53	4d18 4+6 d18	0.64	0.13	2+2d8/5 L=80	0.63	29,35,30
10	s=1,m=3	ok,ok	-60.0	2.38	0.92	4d18 4+6 d18	0.45	0.14	2+2d8/5 L=80	0.55	9,30,10
			170.0	2.38	0.92	4d18 4+6 d18	0.16	0.13	2+2d8/15 L=300	0.55	13,30,10
	[b=1.0;1.0]		400.0	2.38	0.92	4d18 4+6 d18	0.32	0.13	2+2d8/5 L=80	0.56	30,30,10
11	s=1,m=3	ok,ok	-60.0	2.38	1.10	4d18 4+6 d18	0.47	0.14	2+2d8/5 L=80	0.53	16,29,16
			170.0	2.38	1.10	4d18 4+6 d18	0.16	0.13	2+2d8/20 L=300	0.53	16,29,16
	[b=1.0;1.0]		400.0	2.38	1.10	4d18 4+6 d18	0.31	0.12	2+2d8/5 L=80	0.53	35,29,16
12	s=1,m=3	ok,ok	-60.0	2.38	0.53	4d18 4+6 d18	0.74	0.14	2+2d8/5 L=80	0.59	16,30,21
			170.0	2.38	0.53	4d18 4+6 d18	0.13	0.14	2+2d8/20 L=300	0.60	13,30,21
	[b=1.0;1.0]		400.0	2.38	0.53	4d18 4+6 d18	0.62	0.13	2+2d8/5 L=80	0.60	32,30,21
13	s=1,m=3	ok,ok	-60.0	2.38	0.64	4d18 4+6 d18	0.71	0.18	2+2d8/5 L=80	0.59	9,30,29
			170.0	2.38	0.64	4d18 4+6 d18	0.15	0.18	2+2d8/15 L=300	0.60	4,30,29
	[b=1.0;1.0]		400.0	2.38	0.64	4d18 4+6 d18	0.58	0.17	2+2d8/5 L=80	0.60	29,30,29
14	s=1,m=3	ok,ok	-60.0	2.38	1.31	4d18 4+6 d18	0.46	0.12	2+2d8/5 L=80	0.55	17,35,9
			170.0	2.38	1.31	4d18 4+6 d18	0.17	0.11	2+2d8/20 L=300	0.55	13,35,9
	[b=1.0;1.0]		400.0	2.38	1.31	4d18 4+6 d18	0.28	0.11	2+2d8/5 L=80	0.55	30,35,9
15	s=1,m=3	ok,ok	-60.0	2.38	1.20	4d18 4+6 d18	0.46	0.14	2+2d8/5 L=80	0.52	16,29,13
			170.0	2.38	1.20	4d18 4+6 d18	0.17	0.13	2+2d8/20 L=300	0.52	13,29,13
	[b=1.0;1.0]		400.0	2.38	1.20	4d18 4+6 d18	0.28	0.12	2+2d8/5 L=80	0.52	35,29,13
16	s=1,m=3	ok,ok	-60.0	2.38	0.51	4d18 4+6 d18	0.73	0.14	2+2d8/5 L=80	0.60	16,30,25
			170.0	2.38	0.51	4d18 4+6 d18	0.13	0.13	2+2d8/20 L=300	0.60	13,30,25
	[b=1.0;1.0]		400.0	2.38	0.51	4d18 4+6 d18	0.59	0.13	2+2d8/5 L=80	0.60	32,30,25
17	s=1,m=3	ok,ok	-60.0	2.38	0.70	4d18 4+6 d18	0.67	0.21	2+2d8/5 L=80	0.58	7,20,20
			170.0	2.38	0.70	4d18 4+6 d18	0.16	0.20	2+2d8/15 L=300	0.58	1,20,20
	[b=1.0;1.0]		400.0	2.38	0.70	4d18 4+6 d18	0.57	0.20	2+2d8/5 L=80	0.59	23,20,20
18	s=1,m=3	ok,ok	-60.0	2.38	0.86	4d18 4+6 d18	0.46	0.11	2+2d8/5 L=80	0.55	13,23,7
			170.0	2.38	0.86	4d18 4+6 d18	0.16	0.11	2+2d8/20 L=300	0.55	12,23,7
	[b=1.0;1.0]		400.0	2.38	0.86	4d18 4+6 d18	0.31	0.10	2+2d8/5 L=80	0.55	20,23,7
19	s=1,m=3	ok,ok	-60.0	2.38	1.67	4d18 4+6 d18	0.46	0.14	2+2d8/5 L=80	0.53	13,23,13
			170.0	2.38	1.67	4d18 4+6 d18	0.17	0.13	2+2d8/20 L=300	0.53	13,23,13
	[b=1.0;1.0]		400.0	2.38	1.67	4d18 4+6 d18	0.32	0.13	2+2d8/5 L=80	0.53	25,23,13
20	s=1,m=3	ok,ok	-60.0	2.38	0.53	4d18 4+6 d18	0.72	0.14	2+2d8/5 L=80	0.59	14,20,25
			170.0	2.38	0.53	4d18 4+6 d18	0.13	0.14	2+2d8/20 L=300	0.59	13,20,25
	[b=1.0;1.0]		400.0	2.38	0.53	4d18 4+6 d18	0.62	0.13	2+2d8/5 L=80	0.60	26,20,25
21	s=1,m=3	ok,ok	-60.0	2.38	1.28	4d18 4+6 d18	0.79	0.19	2+2d8/5 L=80	0.61	23,20,23
			170.0	2.38	1.28	4d18 4+6 d18	0.15	0.18	2+2d8/15 L=300	0.61	4,20,23
	[b=1.0;1.0]		400.0	2.38	1.28	4d18 4+6 d18	0.73	0.18	2+2d8/5 L=80	0.61	23,20,23
22	s=1,m=3	ok,ok	-60.0	2.38	1.06	4d18 4+6 d18	0.48	0.12	2+2d8/5 L=80	0.56	7,25,7
			170.0	2.38	1.06	4d18 4+6 d18	0.16	0.11	2+2d8/15 L=300	0.56	15,25,7

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
	[b=1.0;1.0]		400.0	2.38	1.06	4d18 4+6 d18	0.38	0.11	2+2d8/5 L=80	0.56	20,25,7
23	s=1,m=3	ok,ok	-60.0	2.38	1.14	4d18 4+6 d18	0.48	0.14	2+2d8/5 L=80	0.53	14,25,4
			170.0	2.38	1.14	4d18 4+6 d18	0.16	0.13	2+2d8/20 L=300	0.53	14,25,4
	[b=1.0;1.0]		400.0	2.38	1.14	4d18 4+6 d18	0.37	0.12	2+2d8/5 L=80	0.53	25,25,4
24	s=1,m=3	ok,ok	-60.0	2.38	0.63	4d18 4+6 d18	0.76	0.15	2+2d8/5 L=80	0.60	14,26,35
			170.0	2.38	0.63	4d18 4+6 d18	0.13	0.14	2+2d8/20 L=300	0.60	13,26,35
	[b=1.0;1.0]		400.0	2.38	0.63	4d18 4+6 d18	0.68	0.14	2+2d8/5 L=80	0.60	26,26,35
25	s=1,m=3	ok,ok	-60.0	2.38	1.44	4d18 4+6 d18	0.82	0.14	2+2d8/5 L=80	0.63	23,25,32
			170.0	2.38	1.44	4d18 4+6 d18	0.16	0.13	2+2d8/15 L=300	0.63	7,25,32
	[b=1.0;1.0]		400.0	2.38	1.44	4d18 4+6 d18	0.72	0.13	2+2d8/5 L=80	0.64	23,25,32
26	s=1,m=3	ok,ok	-60.0	2.38	1.18	4d18 4+6 d18	0.63	0.14	2+2d8/5 L=80	0.59	23,25,26
			170.0	2.38	1.18	4d18 4+6 d18	0.16	0.13	2+2d8/15 L=300	0.59	15,25,26
	[b=1.0;1.0]		400.0	2.38	1.18	4d18 4+6 d18	0.61	0.13	2+2d8/5 L=80	0.59	20,25,26
27	s=1,m=3	ok,ok	-60.0	2.38	1.16	4d18 4+6 d18	0.66	0.14	2+2d8/5 L=80	0.56	26,20,29
			170.0	2.38	1.16	4d18 4+6 d18	0.16	0.13	2+2d8/20 L=300	0.56	14,20,29
	[b=1.0;1.0]		400.0	2.38	1.16	4d18 4+6 d18	0.57	0.13	2+2d8/5 L=80	0.56	25,20,29
28	s=1,m=3	ok,ok	-60.0	2.38	1.20	4d18 4+6 d18	0.80	0.14	2+2d8/5 L=80	0.57	26,20,33
			170.0	2.38	1.20	4d18 4+6 d18	0.17	0.13	2+2d8/15 L=300	0.58	19,20,33
	[b=1.0;1.0]		400.0	2.38	1.20	4d18 4+6 d18	0.71	0.13	2+2d8/5 L=80	0.58	26,20,33
50	s=1,m=3	ok,ok	-60.0	2.38	0.53	4d18 4+6 d18	0.68	0.12	2+2d8/5 L=80	0.60	9,29,20
			170.0	2.38	0.53	4d18 4+6 d18	0.17	0.11	2+2d8/20 L=300	0.60	4,29,20
	[b=1.0;1.0]		400.0	2.38	0.53	4d18 4+6 d18	0.43	0.11	2+2d8/5 L=80	0.60	29,29,20
51	s=1,m=3	ok,ok	-60.0	2.38	1.10	4d18 4+6 d18	0.61	0.17	2+2d8/5 L=80	0.59	7,23,20
			170.0	2.38	1.10	4d18 4+6 d18	0.17	0.17	2+2d8/20 L=300	0.59	9,23,20
	[b=1.0;1.0]		400.0	2.38	1.10	4d18 4+6 d18	0.42	0.16	2+2d8/5 L=80	0.60	23,23,20
54	s=1,m=3	ok,ok	-60.0	2.38	0.52	4d18 4+6 d18	0.71	0.13	2+2d8/5 L=80	0.59	23,23,20
			170.0	2.38	0.52	4d18 4+6 d18	0.16	0.12	2+2d8/20 L=300	0.59	7,23,20
	[b=1.0;1.0]		400.0	2.38	0.52	4d18 4+6 d18	0.54	0.12	2+2d8/5 L=80	0.60	23,23,20
Pilas.				**%Af**	**r. snell.**		**verif.**	**ver. rid**		**ver. V/T**	
				2.38	1.67		0.82	0.21		0.64	

Verifiche SLE

Pilas.	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	Pos.	rRfck	rRfyk	rPfck	Rif. cmb
	cm					cm				
1	0.0	0.24	0.16	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.38	0.29	0.0	100,100,0					
2	0.0	0.08	0.05	0.0	100,100,0	230.0	0.08	0.05	0.0	100,100,0
	460.0	0.08	0.05	0.0	100,100,0					
3	0.0	0.08	0.06	0.0	100,100,0	230.0	0.08	0.05	0.0	100,100,0
	460.0	0.07	0.05	0.0	100,100,0					
4	0.0	0.25	0.17	0.0	100,100,0	230.0	0.08	0.05	0.0	100,100,0
	460.0	0.39	0.30	0.0	100,100,0					
5	0.0	0.34	0.21	0.0	100,100,0	230.0	0.11	0.07	0.0	100,100,0
	460.0	0.46	0.35	0.0	100,100,0					
6	0.0	0.09	0.06	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.09	0.06	0.0	100,100,0					
7	0.0	0.09	0.06	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.08	0.06	0.0	100,100,0					
8	0.0	0.36	0.22	0.0	100,100,0	230.0	0.11	0.07	0.0	100,100,0
	460.0	0.47	0.36	0.0	100,100,0					
9	0.0	0.34	0.21	0.0	100,100,0	230.0	0.11	0.07	0.0	100,100,0
	460.0	0.44	0.34	0.0	100,100,0					
10	0.0	0.08	0.06	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.09	0.06	0.0	100,100,0					
11	0.0	0.10	0.07	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.08	0.06	0.0	100,100,0					
12	0.0	0.36	0.22	0.0	100,100,0	230.0	0.11	0.07	0.0	100,100,0
	460.0	0.46	0.36	0.0	100,100,0					
13	0.0	0.33	0.21	0.0	100,100,0	230.0	0.11	0.08	0.0	100,100,0
	460.0	0.36	0.23	0.0	100,100,0					
14	0.0	0.09	0.06	0.0	100,100,0	230.0	0.08	0.06	0.0	100,100,0
	460.0	0.08	0.06	0.0	100,100,0					
15	0.0	0.10	0.07	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.09	0.06	0.0	100,100,0					
16	0.0	0.37	0.22	0.0	100,100,0	230.0	0.11	0.07	0.0	100,100,0

Pilas.	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	Pos.	rRfck	rRfyk	rPfck	Rif. cmb
	460.0	0.47	0.36	0.0	100,100,0					
17	0.0	0.31	0.20	0.0	100,100,0	230.0	0.11	0.08	0.0	100,100,0
	460.0	0.30	0.20	0.0	100,100,0					
18	0.0	0.09	0.06	0.0	100,100,0	230.0	0.08	0.05	0.0	100,100,0
	460.0	0.06	0.04	0.0	100,100,0					
19	0.0	0.10	0.07	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.09	0.06	0.0	100,100,0					
20	0.0	0.36	0.22	0.0	100,100,0	230.0	0.11	0.07	0.0	100,100,0
	460.0	0.46	0.36	0.0	100,100,0					
21	0.0	0.33	0.21	0.0	100,100,0	230.0	0.11	0.08	0.0	100,100,0
	460.0	0.36	0.23	0.0	100,100,0					
22	0.0	0.09	0.06	0.0	100,100,0	230.0	0.08	0.05	0.0	100,100,0
	460.0	0.09	0.06	0.0	100,100,0					
23	0.0	0.10	0.07	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.09	0.06	0.0	100,100,0					
24	0.0	0.37	0.23	0.0	100,100,0	230.0	0.10	0.07	0.0	100,100,0
	460.0	0.48	0.37	0.0	100,100,0					
25	0.0	0.35	0.22	0.0	100,100,0	230.0	0.12	0.08	0.0	100,100,0
	460.0	0.44	0.34	0.0	100,100,0					
26	0.0	0.10	0.07	0.0	100,100,0	230.0	0.11	0.07	0.0	100,100,0
	460.0	0.11	0.07	0.0	100,100,0					
27	0.0	0.13	0.09	0.0	100,100,0	230.0	0.11	0.07	0.0	100,100,0
	460.0	0.08	0.05	0.0	100,100,0					
28	0.0	0.39	0.26	0.0	100,100,0	230.0	0.12	0.07	0.0	100,100,0
	460.0	0.47	0.38	0.0	100,100,0					
50	0.0	0.27	0.16	0.0	100,100,0	230.0	0.06	0.04	0.0	100,100,0
	460.0	0.22	0.14	0.0	100,100,0					
51	0.0	0.22	0.15	0.0	100,100,0	230.0	0.09	0.06	0.0	100,100,0
	460.0	0.22	0.15	0.0	100,100,0					
54	0.0	0.24	0.15	0.0	100,100,0	230.0	0.06	0.04	0.0	100,100,0
	460.0	0.21	0.13	0.0	100,100,0					
Pilas.		**rRfck**	**rRfyk**	**rPfck**			**rRfck**	**rRfyk**	**rPfck**	
		0.48	0.38	0.0						

11.12. VERIFICHE SLU ED SLE TRAVI DI FONDAZIONE

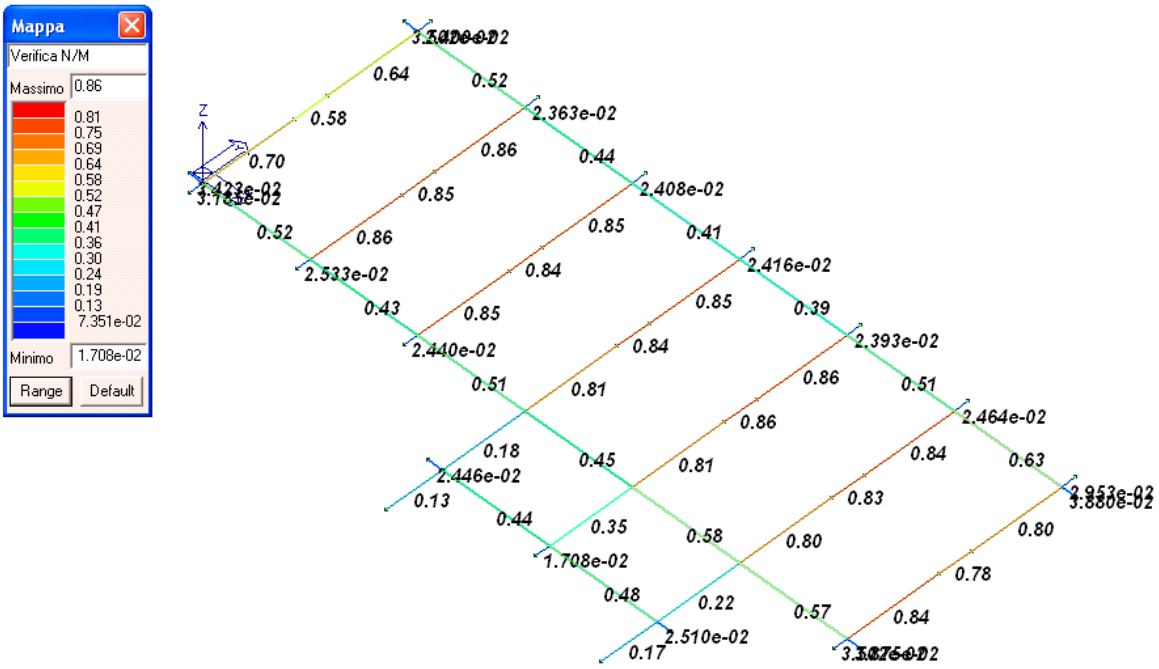


Figura 11.12 – 1 – Verifica N-M Travi fondazione

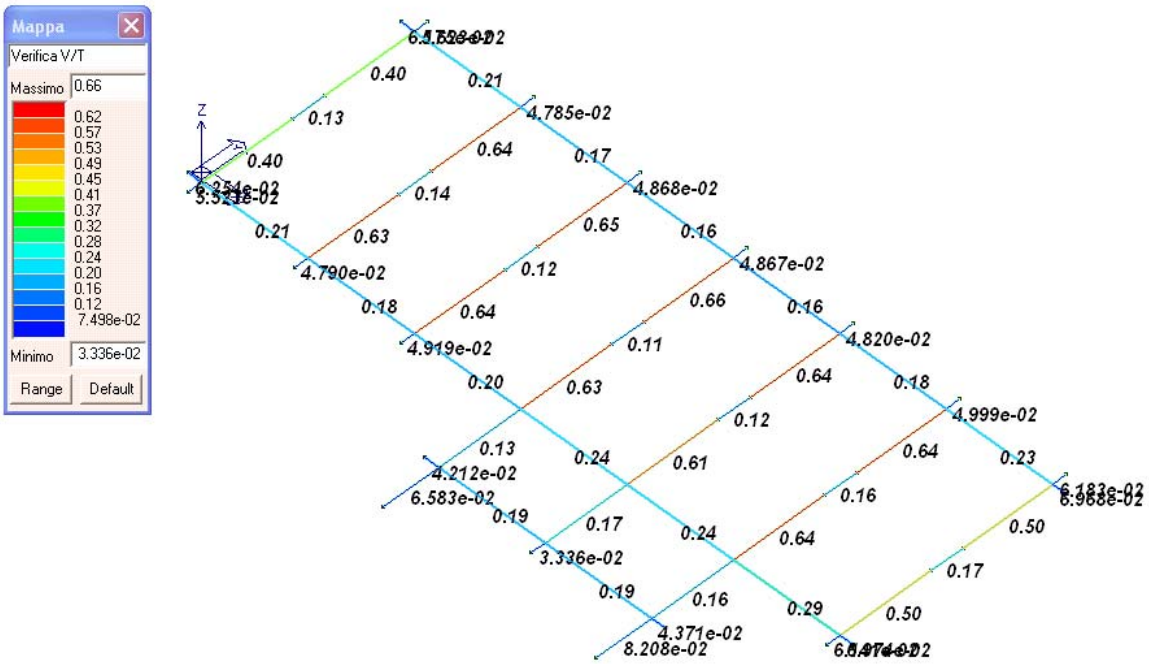


Figura 11.12 – 2 – Verifica V-T Travi fondazione

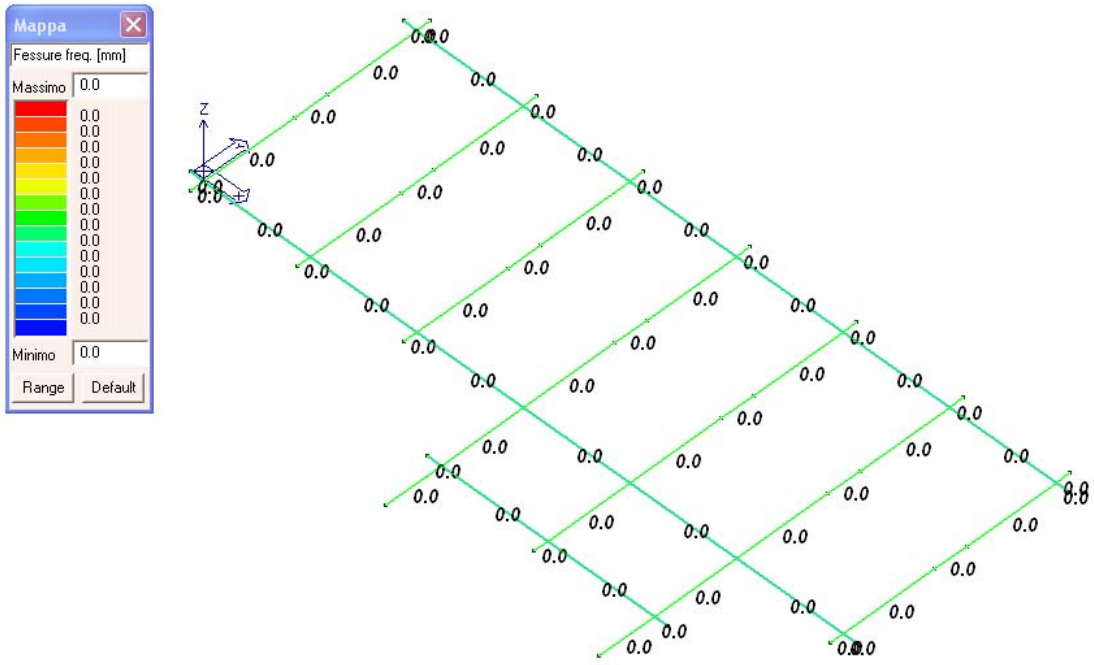


Figura 11.12 – 3 – S.L.E. Travi fondazione: fessure comb. frequenti

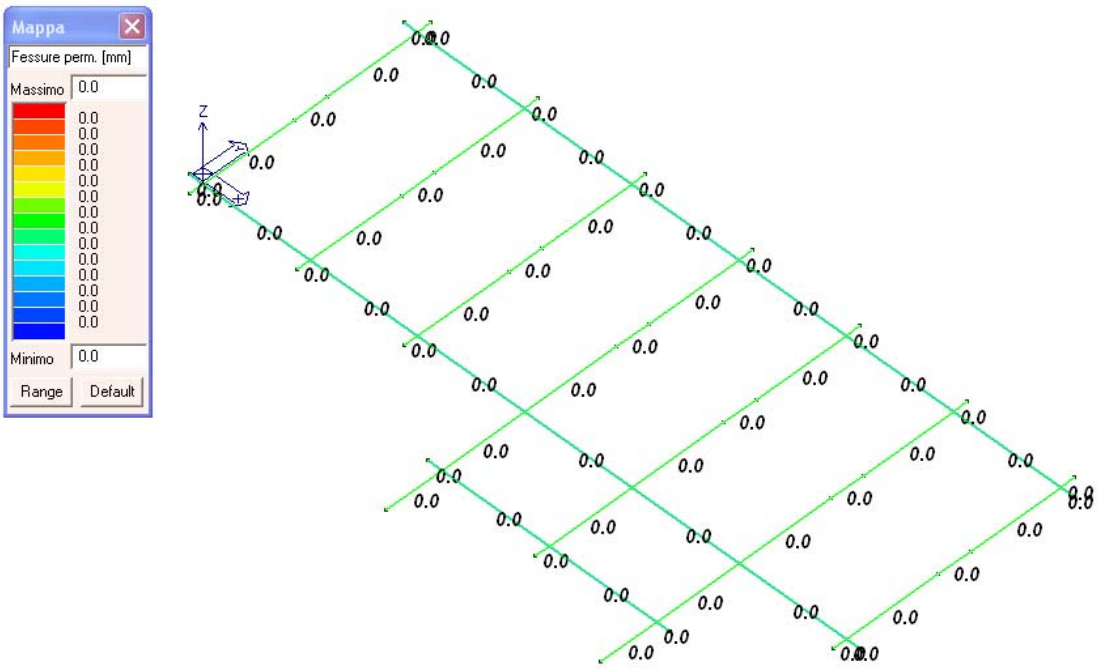


Figura 11.12 – 4 – S.L.E. Travi fondazione: fessure comb. quasi perm.

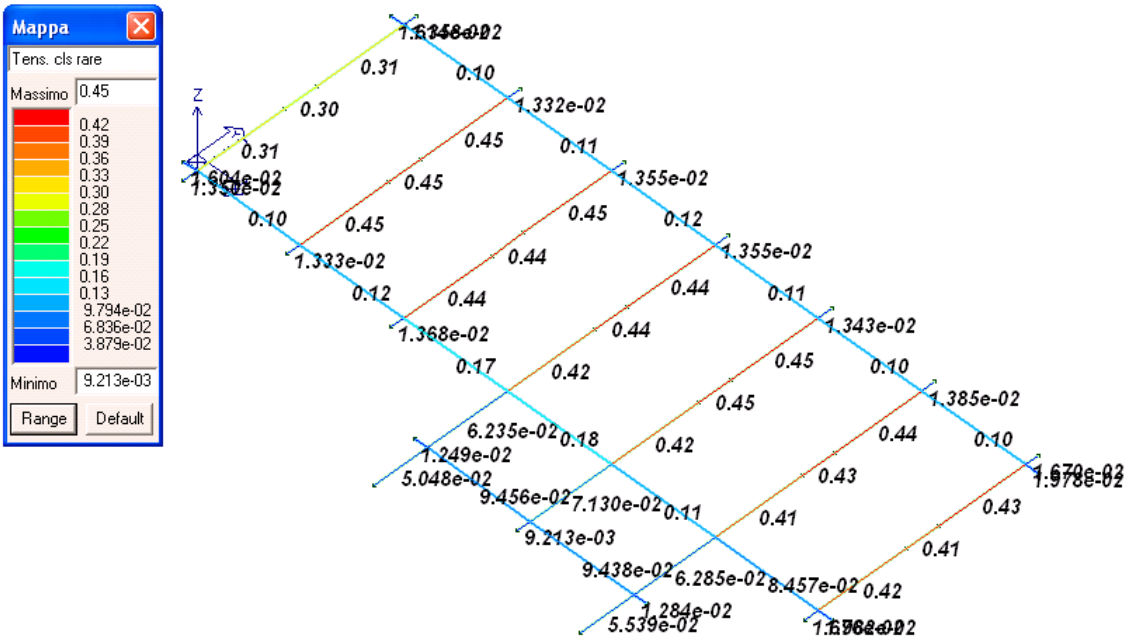


Figura 11.12 – 5 – S.L.E. Travi fondazione: tensioni cls comb. rare

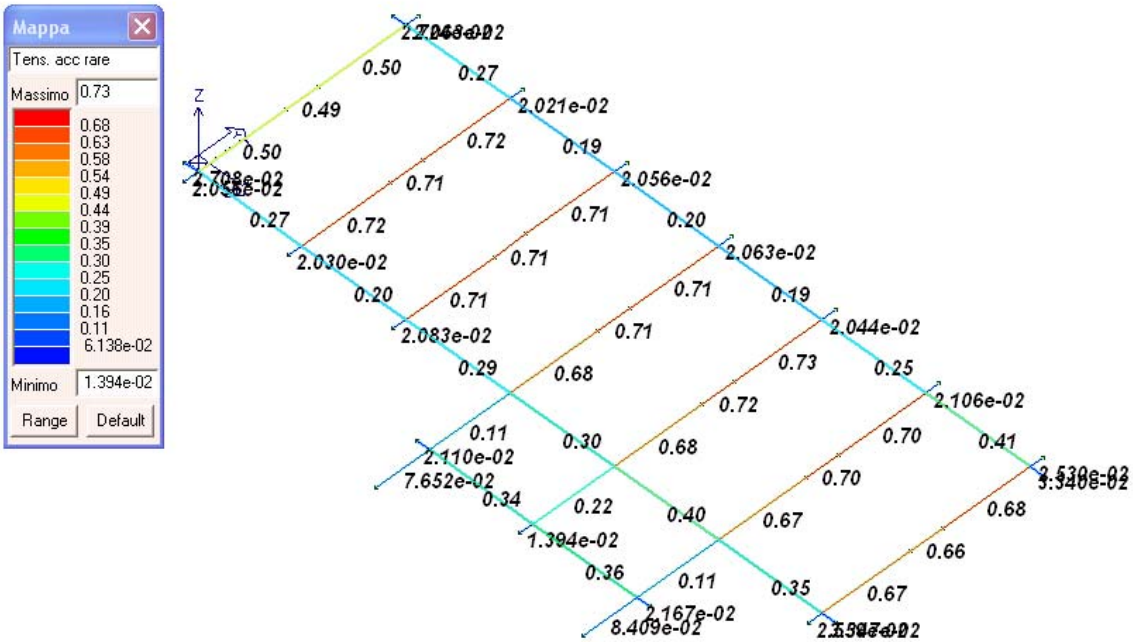


Figura 11.12 – 6 – S.L.E. Travi fondazione: tensioni acciaio comb. rare

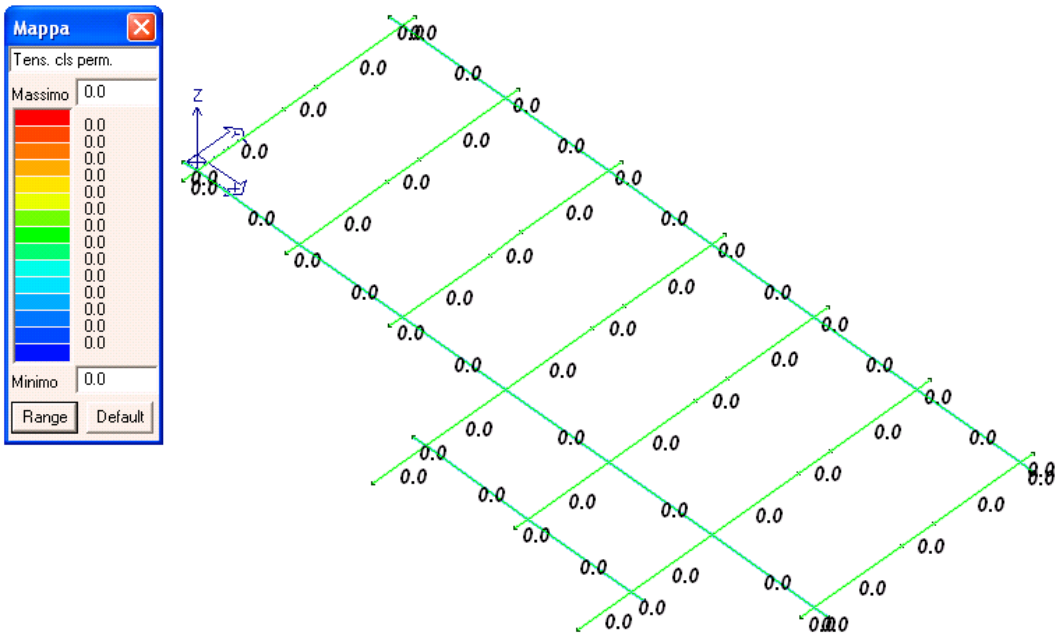


Figura 11.12 – 7 – S.L.E. Travi fondazione: tensioni cls comb. perm.

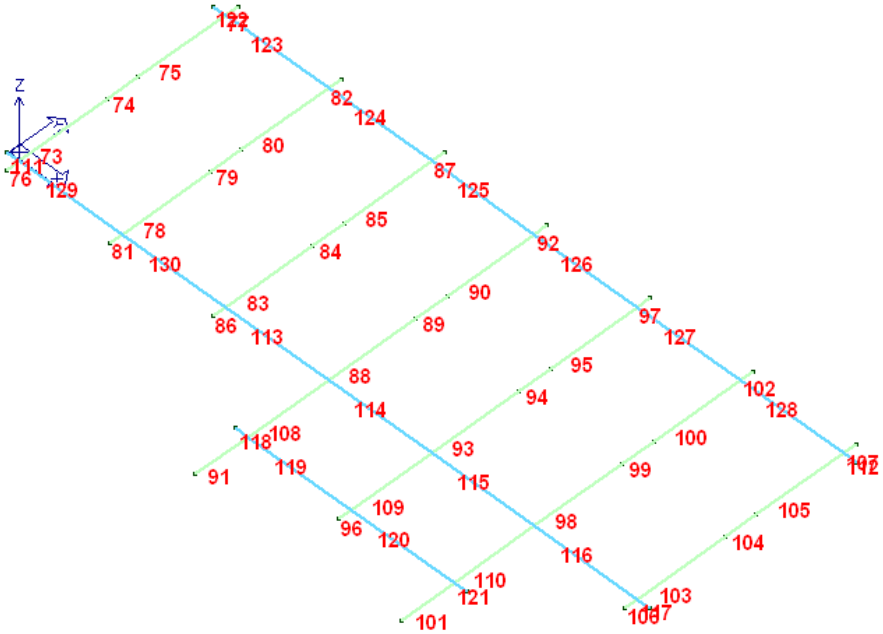


Figura 11.12 – 8 – Numerazione delle sezioni

Verifiche SLU

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
		cm									L=cm			
73	ok,ok	0.0	0.21	18.8	12.6	0.10	0.40	0.28	0.5	0.0	2d10/15 L=94	0.0	0.0	31,11
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.15	0.32	1.4	0.0	2d10/26 L=362	0.0	0.0	32,8
		550.0	0.21	18.8	12.6	0.10	0.70	0.40	2.4	0.0	2d10/15 L=94	0.0	0.0	28,8
74	ok,ok	0.0	0.21	18.8	12.6	0.10	0.58	0.13	0.8	0.0	2d10/26 L=200	0.0	0.0	1,31
	s=4,m=1	200.0	0.21	18.8	12.6	0.10	0.58	0.13	0.7	0.0	2d10/26 L=200	0.0	0.0	1,28
75	ok,ok	0.0	0.21	18.8	12.6	0.10	0.64	0.40	2.4	0.0	2d10/15 L=94	0.0	0.0	32,19
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.12	0.31	1.4	0.0	2d10/26 L=362	0.0	0.0	8,19
		550.0	0.21	18.8	12.6	0.10	0.44	0.28	0.5	0.0	2d10/15 L=94	0.0	0.0	35,16
76	ok,ok	0.0	0.21	18.8	12.6	0.05	4.86e-03	1.68e-03	1.18e-04	0.0	2d10/26 L=80	0.0	0.0	30,9
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	0.03	0.06	0.5	0.0	2d10/26 L=80	0.0	0.0	32,32
77	ok,ok	0.0	0.21	18.8	12.6	0.10	0.02	0.06	0.5	0.0	2d10/26 L=80	0.0	0.0	1,31
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	4.75e-03	1.88e-03	2.11e-04	0.0	2d10/26 L=80	0.0	0.0	29,14
78	ok,ok	0.0	0.21	18.8	12.6	0.10	0.43	0.43	0.6	0.0	2d10/15 L=94	0.0	0.0	31,19
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.21	0.48	1.3	0.0	2d10/26 L=362	0.0	0.0	35,16
		550.0	0.21	18.8	12.6	0.10	0.86	0.63	3.3	0.0	2d10/15 L=94	0.0	0.0	1,16
79	ok,ok	0.0	0.21	18.8	12.6	0.10	0.85	0.14	1.1	0.0	2d10/26 L=200	0.0	0.0	1,31
	s=4,m=1	200.0	0.21	18.8	12.6	0.10	0.85	0.14	1.1	0.0	2d10/26 L=200	0.0	0.0	1,28
80	ok,ok	0.0	0.21	18.8	12.6	0.10	0.86	0.64	3.4	0.0	2d10/15 L=94	0.0	0.0	1,19
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.21	0.49	1.3	0.0	2d10/26 L=362	0.0	0.0	31,19
		550.0	0.21	18.8	12.6	0.10	0.45	0.45	0.6	0.0	2d10/15 L=94	0.0	0.0	31,16
81	ok,ok	0.0	0.21	18.8	12.6	0.05	3.12e-03	1.67e-03	4.01e-04	0.0	2d10/26 L=80	0.0	0.0	30,9
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	0.03	0.05	0.5	0.0	2d10/26 L=80	0.0	0.0	32,1
82	ok,ok	0.0	0.21	18.8	12.6	0.10	0.02	0.05	0.5	0.0	2d10/26 L=80	0.0	0.0	1,1
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	3.04e-03	1.87e-03	4.18e-04	0.0	2d10/26 L=80	0.0	0.0	29,14
83	ok,ok	0.0	0.21	18.8	12.6	0.10	0.38	0.46	0.7	0.0	2d10/15 L=94	0.0	0.0	31,19
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.16	0.49	1.3	0.0	2d10/26 L=362	0.0	0.0	31,16
		550.0	0.21	18.8	12.6	0.10	0.85	0.64	3.3	0.0	2d10/15 L=94	0.0	0.0	1,16
84	ok,ok	0.0	0.21	18.8	12.6	0.10	0.84	0.12	1.1	0.0	2d10/26 L=200	0.0	0.0	1,31
	s=4,m=1	200.0	0.21	18.8	12.6	0.10	0.84	0.12	1.0	0.0	2d10/26 L=200	0.0	0.0	1,28
85	ok,ok	0.0	0.21	18.8	12.6	0.10	0.85	0.65	3.4	0.0	2d10/15 L=94	0.0	0.0	1,19
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.20	0.50	1.3	0.0	2d10/26 L=362	0.0	0.0	31,19
		550.0	0.21	18.8	12.6	0.10	0.41	0.46	0.6	0.0	2d10/15 L=94	0.0	0.0	31,16
86	ok,ok	0.0	0.21	18.8	12.6	0.05	2.47e-03	1.63e-03	1.20e-04	0.0	2d10/26 L=80	0.0	0.0	30,4
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	0.02	0.05	0.5	0.0	2d10/26 L=80	0.0	0.0	1,1
87	ok,ok	0.0	0.21	18.8	12.6	0.10	0.02	0.05	0.5	0.0	2d10/26 L=80	0.0	0.0	1,1
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	2.39e-03	1.88e-03	4.86e-04	0.0	2d10/26 L=80	0.0	0.0	29,14
88	ok,ok	0.0	0.21	18.8	12.6	0.10	0.30	0.50	1.0	0.0	2d10/15 L=94	0.0	0.0	23,19
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.10	0.49	1.1	0.0	2d10/26 L=362	0.0	0.0	20,19
		550.0	0.21	18.8	12.6	0.10	0.81	0.63	3.1	0.0	2d10/15 L=94	0.0	0.0	1,19
89	ok,ok	0.0	0.21	18.8	12.6	0.10	0.80	0.10	0.8	0.0	2d10/26 L=200	0.0	0.0	1,23
	s=4,m=1	200.0	0.21	18.8	12.6	0.10	0.84	0.11	1.0	0.0	2d10/26 L=200	0.0	0.0	1,1
90	ok,ok	0.0	0.21	18.8	12.6	0.10	0.85	0.66	3.3	0.0	2d10/15 L=94	0.0	0.0	1,19
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.18	0.51	1.3	0.0	2d10/26 L=362	0.0	0.0	31,19
		550.0	0.21	18.8	12.6	0.10	0.36	0.45	0.5	0.0	2d10/15 L=94	0.0	0.0	31,19
91	ok,ok	0.0	0.21	18.8	12.6	0.10	8.37e-03	4.69e-03	2.65e-05	0.0	2d10/15 L=94	0.0	0.0	32,4
	s=4,m=1	167.5	0.21	18.8	12.6	0.10	0.04	0.03	0.3	0.0	2d10/26 L=147	0.0	0.0	28,20
		335.0	0.21	18.8	12.6	0.10	0.13	0.07	0.6	0.0	2d10/15 L=94	0.0	0.0	20,20
92	ok,ok	0.0	0.21	18.8	12.6	0.10	0.02	0.05	0.5	0.0	2d10/26 L=80	0.0	0.0	1,1
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	2.09e-03	1.86e-03	2.83e-04	0.0	2d10/26 L=80	0.0	0.0	35,14
93	ok,ok	0.0	0.21	18.8	12.6	0.10	0.41	0.46	1.0	0.0	2d10/15 L=94	0.0	0.0	27,15
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.14	0.47	1.2	0.0	2d10/26 L=362	0.0	0.0	24,12
		550.0	0.21	18.8	12.6	0.10	0.81	0.61	3.0	0.0	2d10/15 L=94	0.0	0.0	1,12
94	ok,ok	0.0	0.21	18.8	12.6	0.10	0.80	0.09	0.8	0.0	2d10/26 L=200	0.0	0.0	1,23
	s=4,m=1	200.0	0.21	18.8	12.6	0.10	0.86	0.12	1.1	0.0	2d10/26 L=200	0.0	0.0	1,24
95	ok,ok	0.0	0.21	18.8	12.6	0.10	0.86	0.64	3.3	0.0	2d10/15 L=94	0.0	0.0	1,15
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.19	0.49	1.3	0.0	2d10/26 L=362	0.0	0.0	27,15
		550.0	0.21	18.8	12.6	0.10	0.41	0.45	0.6	0.0	2d10/15 L=94	0.0	0.0	23,12
96	ok,ok	0.0	0.21	18.8	12.6	0.05	2.30e-03	1.39e-03	2.02e-04	0.0	2d10/26 L=80	0.0	0.0	20,4
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	0.02	0.03	0.3	0.0	2d10/26 L=80	0.0	0.0	20,1
97	ok,ok	0.0	0.21	18.8	12.6	0.10	0.02	0.05	0.5	0.0	2d10/26 L=80	0.0	0.0	1,1
	s=4,m=1	80.0	0.21	18.8	12.6	0.05	2.41e-03	1.86e-03	1.67e-04	0.0	2d10/26 L=80	0.0	0.0	23,14
98	ok,ok	0.0	0.21	18.8	12.6	0.10	0.35	0.47	1.1	0.0	2d10/15 L=94	0.0	0.0	27,16
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.11	0.49	1.2	0.0	2d10/26 L=362	0.0	0.0	24,4
		550.0	0.21	18.8	12.6	0.10	0.80	0.64	3.1	0.0	2d10/15 L=94	0.0	0.0	1,12

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
99	ok,ok	0.0	0.21	18.8	12.6	0.10	0.79	0.11	0.9	0.0	2d10/26 L=200	0.0	0.0	1,23
	s=4,m=1	200.0	0.21	18.8	12.6	0.10	0.83	0.16	1.1	0.0	2d10/26 L=200	0.0	0.0	1,20
100	ok,ok	0.0	0.21	18.8	12.6	0.10	0.84	0.64	3.3	0.0	2d10/15 L=94	0.0	0.0	1,19
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.25	0.49	1.3	0.0	2d10/26 L=362	0.0	0.0	23,19
		550.0	0.21	18.8	12.6	0.10	0.43	0.46	0.6	0.0	2d10/15 L=94	0.0	0.0	23,16
101	ok,ok	0.0	0.21	18.8	12.6	0.10	0.01	4.70e-03	3.56e-05	0.0	2d10/15 L=94	0.0	0.0	20,4
	s=4,m=1	167.5	0.21	18.8	12.6	0.10	0.05	0.04	0.4	0.0	2d10/26 L=147	0.0	0.0	24,24
		335.0	0.21	18.8	12.6	0.10	0.17	0.08	0.8	0.0	2d10/15 L=94	0.0	0.0	24,24
102	ok,ok	0.0	0.21	18.8	12.6	0.10	0.02	0.05	0.5	0.0	2d10/26 L=80	0.0	0.0	1,1
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	3.05e-03	1.87e-03	7.56e-05	0.0	2d10/26 L=80	0.0	0.0	23,14
103	ok,ok	0.0	0.21	18.8	12.6	0.10	0.42	0.30	0.7	0.0	2d10/15 L=94	0.0	0.0	23,8
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.14	0.39	1.6	0.0	2d10/26 L=362	0.0	0.0	20,4
		550.0	0.21	18.8	12.6	0.10	0.84	0.50	2.9	0.0	2d10/15 L=94	0.0	0.0	20,4
104	ok,ok	0.0	0.21	18.8	12.6	0.10	0.78	0.17	0.9	0.0	2d10/26 L=200	0.0	0.0	1,23
	s=4,m=1	200.0	0.21	18.8	12.6	0.10	0.78	0.17	0.9	0.0	2d10/26 L=200	0.0	0.0	1,20
105	ok,ok	0.0	0.21	18.8	12.6	0.10	0.80	0.50	3.0	0.0	2d10/15 L=94	0.0	0.0	1,15
	s=4,m=1	275.0	0.21	18.8	12.6	0.10	0.11	0.39	1.6	0.0	2d10/26 L=362	0.0	0.0	4,15
		550.0	0.21	18.8	12.6	0.10	0.50	0.30	0.6	0.0	2d10/15 L=94	0.0	0.0	27,15
106	ok,ok	0.0	0.21	18.8	12.6	0.10	5.03e-03	1.62e-03	2.95e-04	0.0	2d10/26 L=80	0.0	0.0	20,7
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	0.04	0.06	0.6	0.0	2d10/26 L=80	0.0	0.0	24,24
107	ok,ok	0.0	0.21	18.8	12.6	0.10	0.03	0.06	0.6	0.0	2d10/26 L=80	0.0	0.0	1,23
	s=4,m=1	80.0	0.21	18.8	12.6	0.10	4.84e-03	1.88e-03	1.94e-04	0.0	2d10/26 L=80	0.0	0.0	23,14
108	ok,ok	0.0	0.21	18.8	12.6	0.10	0.18	0.10	0.4	0.0	2d10/15 L=94	0.0	0.0	31,7
	s=4,m=1	252.5	0.21	18.8	12.6	0.10	0.15	0.07	0.3	0.0	2d10/26 L=317	0.0	0.0	23,23
		505.0	0.21	18.8	12.6	0.10	0.13	0.13	0.9	0.0	2d10/15 L=94	0.0	0.0	1,1
109	ok,ok	0.0	0.21	18.8	12.6	0.10	0.28	0.10	0.9	0.0	2d10/15 L=94	0.0	0.0	23,1
	s=4,m=1	252.5	0.21	18.8	12.6	0.05	0.32	0.07	0.4	0.0	2d10/26 L=317	0.0	0.0	27,20
		505.0	0.21	18.8	12.6	0.10	0.15	0.17	1.6	0.0	2d10/15 L=94	0.0	0.0	1,1
110	ok,ok	0.0	0.21	18.8	12.6	0.10	0.22	0.07	0.5	0.0	2d10/15 L=94	0.0	0.0	23,23
	s=4,m=1	252.5	0.21	18.8	12.6	0.10	0.14	0.10	0.5	0.0	2d10/26 L=317	0.0	0.0	23,20
		505.0	0.21	18.8	12.6	0.10	0.17	0.16	1.1	0.0	2d10/15 L=94	0.0	0.0	20,20
111	ok,ok	0.0	0.22	15.7	9.4	0.07	1.74e-03	3.98e-03	2.29e-04	0.0	2d8/17 L=80	0.0	0.0	4,29
	s=5,m=1	80.0	0.22	15.7	9.4	0.07	0.03	0.06	0.6	0.0	2d8/17 L=80	0.0	0.0	32,32
112	ok,ok	0.0	0.22	15.7	9.4	0.07	0.04	0.07	0.6	0.0	2d8/17 L=80	0.0	0.0	20,23
	s=5,m=1	80.0	0.22	15.7	9.4	0.07	1.96e-03	4.20e-03	5.33e-05	0.0	2d8/17 L=80	0.0	0.0	14,20
113	ok,ok	0.0	0.22	15.7	9.4	0.07	0.41	0.16	1.4	0.0	2d8/15 L=96	0.0	0.0	16,11
	s=5,m=1	325.0	0.22	15.7	9.4	0.07	0.07	0.11	0.6	0.0	2d8/17 L=457	0.0	0.0	31,8
		650.0	0.22	15.7	9.4	0.07	0.51	0.20	1.5	0.0	2d8/15 L=96	0.0	0.0	8,8
114	ok,ok	0.0	0.22	15.7	9.4	0.07	0.45	0.24	2.2	0.0	2d8/15 L=96	0.0	0.0	16,1
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.35	0.08	0.6	0.0	2d8/17 L=457	0.0	0.0	1,10
		650.0	0.22	15.7	9.4	0.07	0.31	0.21	1.9	0.0	2d8/15 L=96	0.0	0.0	16,12
115	ok,ok	0.0	0.22	15.7	9.4	0.07	0.32	0.24	2.1	0.0	2d8/15 L=96	0.0	0.0	4,15
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.55	0.09	0.6	0.0	2d8/17 L=457	0.0	0.0	27,15
		650.0	0.22	15.7	9.4	0.07	0.46	0.22	2.1	0.0	2d8/15 L=96	0.0	0.0	12,1
116	ok,ok	0.0	0.22	15.7	9.4	0.07	0.38	0.23	1.6	0.0	2d8/15 L=96	0.0	0.0	20,27
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.52	0.15	0.7	0.0	2d8/17 L=457	0.0	0.0	27,27
		650.0	0.22	15.7	9.4	0.07	0.46	0.29	1.9	0.0	2d8/15 L=96	0.0	0.0	7,24
117	ok,ok	0.0	0.22	15.7	9.4	0.07	0.04	0.07	0.7	0.0	2d8/17 L=80	0.0	0.0	1,27
	s=5,m=1	80.0	0.22	15.7	9.4	0.07	1.67e-03	4.15e-03	2.12e-04	0.0	2d8/17 L=80	0.0	0.0	7,20
118	ok,ok	0.0	0.22	15.7	9.4	0.07	1.45e-03	1.79e-03	1.77e-04	0.0	2d8/17 L=80	0.0	0.0	4,35
	s=5,m=1	80.0	0.22	15.7	9.4	0.07	0.02	0.04	0.4	0.0	2d8/17 L=80	0.0	0.0	1,1
119	ok,ok	0.0	0.22	15.7	9.4	0.07	0.24	0.19	1.5	0.0	2d8/15 L=96	0.0	0.0	4,27
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.41	0.07	0.3	0.0	2d8/17 L=457	0.0	0.0	23,27
		650.0	0.22	15.7	9.4	0.07	0.20	0.19	1.7	0.0	2d8/15 L=96	0.0	0.0	1,24
120	ok,ok	0.0	0.22	15.7	9.4	0.07	0.20	0.19	1.7	0.0	2d8/15 L=96	0.0	0.0	1,1
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.46	0.05	0.3	0.0	2d8/17 L=457	0.0	0.0	15,8
		650.0	0.22	15.7	9.4	0.07	0.23	0.18	1.5	0.0	2d8/15 L=96	0.0	0.0	11,20
121	ok,ok	0.0	0.22	15.7	9.4	0.07	0.03	0.04	0.4	0.0	2d8/17 L=80	0.0	0.0	1,27
	s=5,m=1	80.0	0.22	15.7	9.4	0.04	1.41e-03	2.54e-03	4.06e-04	0.0	2d8/17 L=80	0.0	0.0	7,23
122	ok,ok	0.0	0.22	15.7	9.4	0.04	1.93e-03	4.01e-03	1.49e-04	0.0	2d8/17 L=80	0.0	0.0	13,30
	s=5,m=1	80.0	0.22	15.7	9.4	0.07	0.04	0.06	0.6	0.0	2d8/17 L=80	0.0	0.0	28,28
123	ok,ok	0.0	0.22	15.7	9.4	0.07	0.45	0.21	1.5	0.0	2d8/15 L=96	0.0	0.0	19,35
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.45	0.10	0.6	0.0	2d8/17 L=457	0.0	0.0	11,8
		650.0	0.22	15.7	9.4	0.07	0.27	0.19	1.5	0.0	2d8/15 L=96	0.0	0.0	16,8
124	ok,ok	0.0	0.22	15.7	9.4	0.07	0.44	0.17	1.5	0.0	2d8/15 L=96	0.0	0.0	12,31
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.25	0.08	0.6	0.0	2d8/17 L=457	0.0	0.0	31,8
		650.0	0.22	15.7	9.4	0.07	0.37	0.17	1.5	0.0	2d8/15 L=96	0.0	0.0	12,8
125	ok,ok	0.0	0.22	15.7	9.4	0.07	0.41	0.15	1.4	0.0	2d8/15 L=96	0.0	0.0	16,19
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.15	0.07	0.5	0.0	2d8/17 L=457	0.0	0.0	1,16

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
		650.0	0.22	15.7	9.4	0.07	0.39	0.16	1.4	0.0	2d8/15 L=96	0.0	0.0	12,12
126	ok,ok	0.0	0.22	15.7	9.4	0.07	0.39	0.15	1.4	0.0	2d8/15 L=96	0.0	0.0	16,19
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.17	0.07	0.5	0.0	2d8/17 L=457	0.0	0.0	1,16
		650.0	0.22	15.7	9.4	0.07	0.37	0.16	1.4	0.0	2d8/15 L=96	0.0	0.0	12,12
127	ok,ok	0.0	0.22	15.7	9.4	0.07	0.34	0.18	1.6	0.0	2d8/15 L=96	0.0	0.0	16,7
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.34	0.09	0.7	0.0	2d8/17 L=457	0.0	0.0	23,7
		650.0	0.22	15.7	9.4	0.07	0.49	0.17	1.4	0.0	2d8/15 L=96	0.0	0.0	19,20
128	ok,ok	0.0	0.22	15.7	9.4	0.07	0.23	0.21	1.5	0.0	2d8/15 L=96	0.0	0.0	15,7
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.58	0.11	0.5	0.0	2d8/17 L=457	0.0	0.0	7,23
		650.0	0.22	15.7	9.4	0.07	0.46	0.23	1.9	0.0	2d8/15 L=96	0.0	0.0	15,20
129	ok,ok	0.0	0.22	15.7	9.4	0.07	0.47	0.21	1.5	0.0	2d8/15 L=96	0.0	0.0	11,35
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.43	0.09	0.6	0.0	2d8/17 L=457	0.0	0.0	19,16
		650.0	0.22	15.7	9.4	0.07	0.26	0.20	1.5	0.0	2d8/15 L=96	0.0	0.0	8,32
130	ok,ok	0.0	0.22	15.7	9.4	0.07	0.43	0.17	1.5	0.0	2d8/15 L=96	0.0	0.0	16,31
	s=5,m=1	325.0	0.22	15.7	9.4	0.04	0.22	0.08	0.6	0.0	2d8/17 L=457	0.0	0.0	19,16
		650.0	0.22	15.7	9.4	0.07	0.39	0.18	1.5	0.0	2d8/15 L=96	0.0	0.0	4,16
Trave			**%Af**	**Af inf.**	**Af. sup**	**x/d**	**verif.**	**ver. V/T**	**Af V**	**Af T**		**Scorr. P**	**Af long.**	
			0.22	18.85	12.57	0.10	0.86	0.66	3.36	0.0		0.0	0.0	

Verifiche SLE

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	cm					mm	mm	mm		cm	cm	cm	
73	0.0	0.02	0.11	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.32	0.29	0.0	100,101,0
	275.0	0.02	0.07	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.31	0.50	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
74	0.0	0.30	0.49	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.01	0.01	0.0	100,101,0
	200.0	0.30	0.49	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
75	0.0	0.31	0.50	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.31	0.28	0.0	100,101,0
	275.0	0.02	0.06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.02	0.11	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
76	0.0	2.15e-06	3.07e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.05	0.04	0.0	100,101,0
	80.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
77	0.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.05	0.04	0.0	100,101,0
	80.0	7.48e-06	4.53e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
78	0.0	0.04	0.19	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.43	0.34	0.0	100,101,0
	275.0	0.0	0.04	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.45	0.72	0.0	100,100,0	0.45	0.0	0.0	100,0,0				
79	0.0	0.45	0.71	0.0	100,100,0	0.44	0.0	0.0	100,0,0	0.02	0.02	0.0	100,101,0
	200.0	0.45	0.71	0.0	100,100,0	0.44	0.0	0.0	100,0,0				
80	0.0	0.45	0.72	0.0	100,100,0	0.45	0.0	0.0	100,0,0	0.43	0.34	0.0	100,101,0
	275.0	0.0	0.04	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.04	0.20	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
81	0.0	7.90e-06	1.57e-05	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.06	0.05	0.0	100,101,0
	80.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
82	0.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.06	0.04	0.0	100,101,0
	80.0	1.28e-05	7.61e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
83	0.0	0.03	0.16	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.42	0.33	0.0	100,101,0
	275.0	0.0	0.04	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.44	0.71	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
84	0.0	0.44	0.71	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	200.0	0.44	0.70	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
85	0.0	0.45	0.71	0.0	100,100,0	0.44	0.0	0.0	100,0,0	0.43	0.34	0.0	100,101,0
	275.0	0.0	0.04	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.04	0.19	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
86	0.0	2.25e-06	1.31e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.06	0.04	0.0	100,101,0
	80.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
87	0.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.06	0.04	0.0	100,101,0
	80.0	1.39e-05	8.23e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
88	0.0	0.0	0.04	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.43	0.35	0.0	100,101,0
	275.0	0.02	0.07	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.42	0.68	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
89	0.0	0.42	0.67	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	200.0	0.44	0.71	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
90	0.0	0.44	0.71	0.0	100,100,0	0.44	0.0	0.0	100,0,0	0.42	0.32	0.0	100,101,0
	275.0	0.0	0.04	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.03	0.19	0.0	100,100,0	0.0	0.0	0.0	0,0,0				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
91	0.0	3.35e-05	2.08e-05	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.27	0.21	0.0	100,101,0
	167.5	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	335.0	0.05	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
92	0.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.06	0.04	0.0	100,101,0
	80.0	6.12e-06	3.57e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
93	0.0	0.0	0.03	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.47	0.41	0.0	100,101,0
	275.0	0.03	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.42	0.68	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
94	0.0	0.42	0.67	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	200.0	0.45	0.72	0.0	100,100,0	0.45	0.0	0.0	100,0,0				
95	0.0	0.45	0.73	0.0	100,100,0	0.45	0.0	0.0	100,0,0	0.40	0.30	0.0	100,101,0
	275.0	0.0	0.05	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.03	0.18	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
96	0.0	9.99e-06	6.01e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.05	0.04	0.0	100,101,0
	80.0	9.21e-03	0.01	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
97	0.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.05	0.04	0.0	100,101,0
	80.0	3.09e-06	1.73e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
98	0.0	0.0	0.04	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.42	0.35	0.0	100,101,0
	275.0	0.02	0.07	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.41	0.67	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
99	0.0	0.41	0.66	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	200.0	0.43	0.70	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
100	0.0	0.44	0.70	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.40	0.31	0.0	100,101,0
	275.0	0.0	0.03	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.03	0.18	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
101	0.0	2.51e-05	1.56e-05	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.27	0.22	0.0	100,101,0
	167.5	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	335.0	0.06	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
102	0.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.05	0.04	0.0	100,101,0
	80.0	4.31e-06	2.65e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
103	0.0	0.03	0.15	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.42	0.36	0.0	100,101,0
	275.0	0.02	0.07	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.42	0.67	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
104	0.0	0.41	0.66	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	200.0	0.41	0.66	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
105	0.0	0.43	0.68	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.42	0.37	0.0	100,101,0
	275.0	0.02	0.07	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	550.0	0.04	0.18	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
106	0.0	0.0	7.29e-05	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.06	0.05	0.0	100,101,0
	80.0	0.02	0.03	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
107	0.0	0.02	0.03	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.06	0.05	0.0	100,101,0
	80.0	1.29e-05	8.00e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
108	0.0	0.0	0.02	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.41	0.33	0.0	100,101,0
	252.5	0.01	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	505.0	0.06	0.11	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
109	0.0	0.01	0.07	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.41	0.35	0.0	100,101,0
	252.5	0.05	0.21	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	505.0	0.07	0.12	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
110	0.0	0.0	0.02	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.40	0.33	0.0	100,101,0
	252.5	0.01	0.08	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	505.0	0.06	0.11	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
111	0.0	5.83e-06	9.55e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	80.0	0.02	0.03	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
112	0.0	0.02	0.03	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.07	0.06	0.0	100,101,0
	80.0	0.0	1.57e-05	0.0	0,100,0	0.0	0.0	0.0	0,0,0				
113	0.0	0.12	0.21	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.03	0.05	0.0	100,101,0
	325.0	0.01	0.05	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.17	0.29	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
114	0.0	0.18	0.29	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.09	0.11	0.0	100,101,0
	325.0	0.08	0.30	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.17	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
115	0.0	0.11	0.18	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.12	0.14	0.0	100,101,0
	325.0	0.10	0.40	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.16	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
116	0.0	0.08	0.14	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.38	0.39	0.0	100,101,0
	325.0	0.08	0.34	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.04	0.06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
117	0.0	0.02	0.03	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.07	0.06	0.0	100,101,0
	80.0	5.47e-06	1.12e-05	0.0	100,100,0	0.0	0.0	0.0	0,0,0				

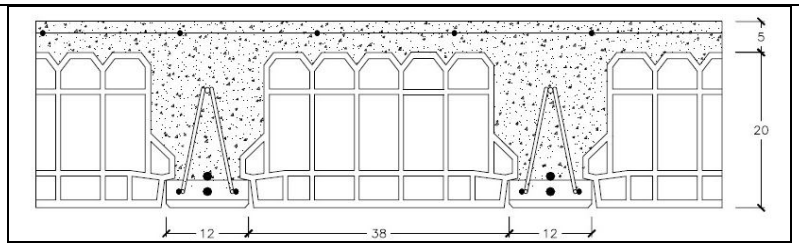
Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
118	0.0	0.0	2.02e-05	0.0	0,100,0	0.0	0.0	0.0	0,0,0	0.03	0.03	0.0	100,101,0
	80.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
119	0.0	0.04	0.06	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.10	0.13	0.0	100,101,0
	325.0	0.08	0.34	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.09	0.16	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
120	0.0	0.09	0.16	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.13	0.16	0.0	100,101,0
	325.0	0.09	0.36	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.03	0.04	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
121	0.0	0.01	0.02	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.04	0.04	0.0	100,101,0
	80.0	9.48e-06	2.70e-05	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
122	0.0	3.39e-06	4.37e-06	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	80.0	0.02	0.03	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
123	0.0	0.02	0.03	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.04	0.07	0.0	100,101,0
	325.0	0.06	0.26	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.18	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
124	0.0	0.11	0.18	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.03	0.01	0.0	100,101,0
	325.0	0.03	0.13	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.11	0.19	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
125	0.0	0.12	0.20	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.01	8.57e-03	0.0	100,101,0
	325.0	0.03	0.13	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.11	0.19	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
126	0.0	0.11	0.19	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.02	0.02	0.0	100,101,0
	325.0	0.04	0.15	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.16	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
127	0.0	0.10	0.17	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.05	0.06	0.0	100,101,0
	325.0	0.06	0.25	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.03	0.05	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
128	0.0	0.03	0.05	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.35	0.34	0.0	100,101,0
	325.0	0.10	0.41	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.04	0.06	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
129	0.0	0.02	0.03	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.04	0.06	0.0	100,101,0
	325.0	0.06	0.26	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.10	0.17	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
130	0.0	0.10	0.18	0.0	100,100,0	0.0	0.0	0.0	0,0,0	0.04	0.02	0.0	100,101,0
	325.0	0.03	0.13	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
	650.0	0.12	0.20	0.0	100,100,0	0.0	0.0	0.0	0,0,0				
Trave		**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**		**dR**	**dF**	**dP**	
		0.45	0.73	0.0		0.45	0.0	0.0		0.47	0.41	0.0	

11.13. VERIFICA SOLAI

Si riporta di seguito la verifica del solaio in latero-cemento tipo “Bausta” impiegato per la copertura piana dell’edificio in esame. Per la verifica è stato considerato il solaio di copertura (si veda § 9.1 azioni statiche). Complessivamente la somma dei carichi permanenti con i variabili risulta essere pari a:

Q_{max} = 6.70kN/mq + 2.00kN/mq = ***8.70kN/mq***

La luce massima coperta dal solaio risulta essere di 6.20m. La verifica agli S.L.U. del solaio in latero-cemento viene eseguita mediante un foglio di calcolo Excel.



Tipo di solaio scelto	latero-cemento 24+4		
Luce solaio [m]	6,2	h solaio [cm]	28
h soletta [cm]	4	l.sol. coll. [cm]	50
f_{ck} [N/mm^2]	25	Altezza utile [cm]	22
F_{cd} [N/mm^2]	14,17	F_{cm} [N/mm^2]	28,75
F_{yk} [N/mm^2]	450	F_{yd} [N/mm^2]	391

Analisi Carichi	**l [m]**	**kN/m^2**	**kN/m**
Tramezzi	0,00	0,00	0,00
Totale Permanenti non Strutturali G_2			**0,00**
Pavimentazione	0,50	1,00	0,50
Sottofondo in cls cm 8	0,50	1,20	0,60
Peso proprio solaio	0,50	3,70	1,85
Intonaco in calce cm.1	0,50	0,20	0,10
Isolante+imperm.	0,50	0,10	0,05
Controsoff+impianti	0,50	0,50	0,25
Totale Permanenti Strutturali G_1			**3,35**
Carichi Accidentali Q	0,50	2,00	**1,00**

Combinazioni di carico SLU $\gamma_{G1}\cdot G_1 + \gamma_{G2}\cdot G_2 + \gamma_P\cdot P + \gamma_{Q1}\cdot Q_{k1}$

γ_{G1}	1,3	γ_{G2}	1,5			γ_Q	1,5
$M^+_{ed.max}$ [KN*m]	22,51	Grado di vincolo:		Semi-incastro		V_{ed} [KN]	**18,15**
$M^-_{ed.max}$ [KN*m]	-22,51						
VERIFICA APPROSSIMATA A MOMENTO							
Area minima ferri superiori			2,90	Area minima ferri inferiori			2,90
Ferri Superiori			ρ'	0,79%	A. ferri sup [cm^2]		**3,83**
$\varphi_{1\,sup}$	10	$n._{1\,sup}$	2	$\varphi_{2\,sup}$	12	$n._{2\,sup}$	2
Ferri Inferiori			ρ	0,79%	A. ferri Inf [cm^2]		**3,83**

$\varphi_{1\,inf}$	10	$n_{\cdot 1\,inf}$	2	$\varphi_{2\,inf}$	12	$n_{\cdot 2\,inf}$	2
M^{+}_{rd} [KN*m^2]		29,70	OK	M^{-}_{rd} [KN*m^2]		-29,70	OK

VERIFICA A TAGLIO		f_{ck} [N/mm^2]	25,00	Larghezza travetto [mm]		120
K	1,95	v_{min}	0,48	ρ_1	0,0200	
V_{rd} [KN]	22,80	OK				

12. VERIFICA DELLE PRESSIONI SUL TERRENO

Verifiche agli SLU

La verifica è condotta, come descritto in precedenza, seguendo l'*approccio 1 - Combinazione (GEO) 2 (A2+M2+R2).*

Sempre con riferimento alla *RELAZIONE GEOTECNICA SVINCOLO – AUTOSTAZIONE DI SAN FELICE SUL PANARO E FINALE EMILIA* per le verifiche sia in *Condizione Statica Drenata* che per *Sismica non Drenata* relativamente alle travi rovesce di fondazione del fabbricato in esame, si è proceduto come segue:

- si sono confrontati i valori delle tabelle delle pressioni di contatto limite di progetto relativi alla fondazione di larghezza B=1.20m e approfondimento D=1.00m con quelli della fondazione di larghezza B=1.80m ed approfondimento D=1.00m;
- si sono assunti i valori di tabella più cautelativi emersi dal confronto tra le due tipologie di fondazione: nello specifico, tali valori sono stati garantiti dalla fondazione di larghezza B=1.80m ed approfondimento D=1.00m;

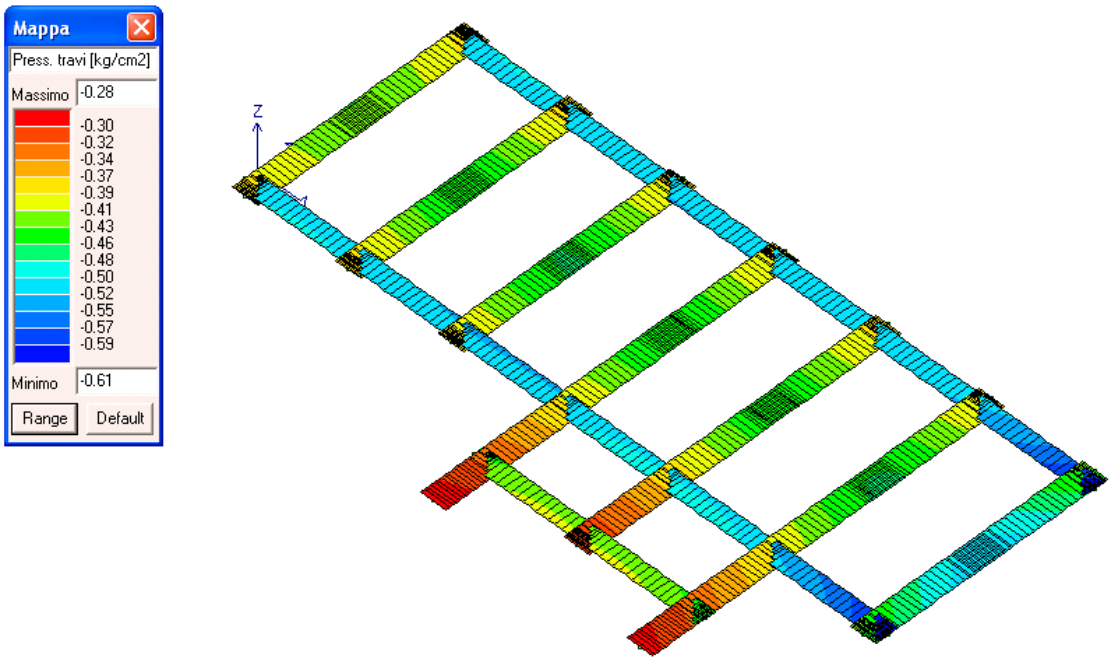


Figura 12 – 1 - Combinazione SLU A2: pressioni massime indotte dalle travi di fondazione nel terreno

Statica drenata		
H/V [%]	$q_{Rd\text{-}A1\text{-}C1\text{-}drenata}$ [kPa]	$q_{Rd\text{-}A1\text{-}C2\text{-}drenata}$ [kPa]
0	292	100
10	231	78
20	181	61

TABELLA 12-1: PRESSIONE DI CONTATTO LIMITE DI PROGETTO – B=1.80M – D=1.00M – CONDIZIONE STATICA DRENATA

Per il rapporto H/V = 10% si ha il valore di $q_{Rd\text{-}A1\text{-}C2\text{-}drenata}$ = 78 kPa = 0.78Kg/cmq.

La verifica risulterà essere perciò:

Ed = 0.61kg/cmq < 0.78kg/cmq = Rd **Verificato**

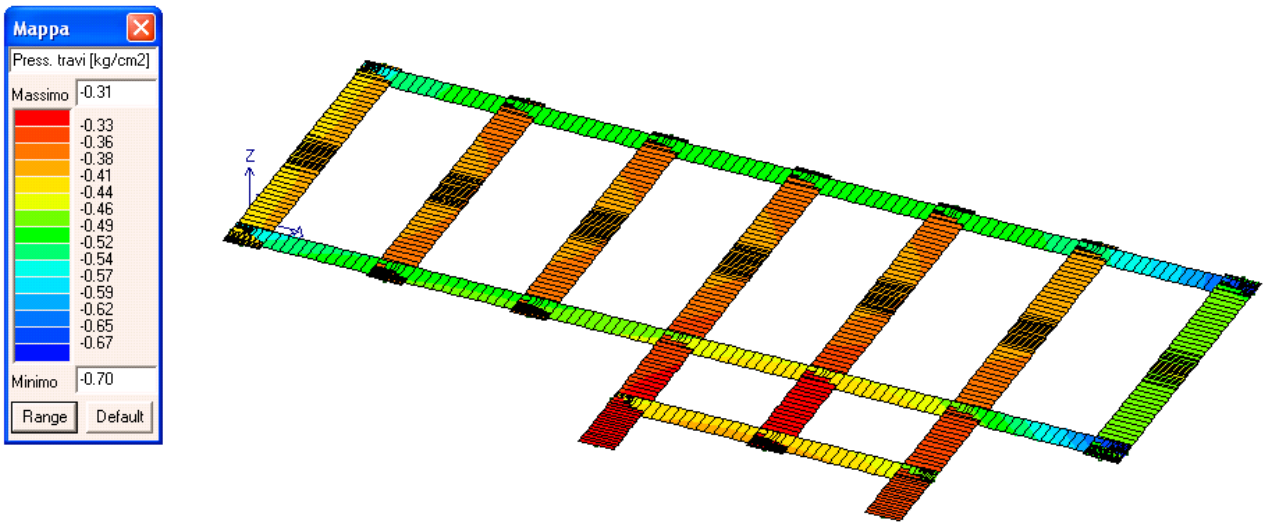


Figura 12 – 2 - Combinazione SLU A2 sismica: pressioni massime indotte dalle travi di fondazione nel terreno

Sismica non drenata		
H/V [%]	$q_{Rd\text{-}A1\text{-}C1\text{-}non\ drenata}$ [kPa]	$q_{Rd\text{-}A1\text{-}C2\text{-}non\ drenata}$ [kPa]
10	326	131
20	318	127
30	310	121

TABELLA 12-2: PRESSIONE DI CONTATTO LIMITE DI PROGETTO – B=1.80M – D=1.00M – CONDIZIONE SISMICA

Per il rapporto H/V = 30% si ha il valore di $\mathbf{q_{Rd\text{-}A1\text{-}C2\text{-}\ non\ drenata}}$ = 121 kPa = 1.21Kg/cmq.

La verifica risulterà essere perciò:

Ed = 0.70kg/cmq < 1.21kg/cmq = Rd **Verificato**

13. EDIFICIO "C" – MODELLO DI CALCOLO, RISULTATI E VERIFICHE

Gli elementi utilizzati per la modellazione dello schema statico della struttura sono gli stessi impiegati nel modello precedente.

Al termine dell'analisi si è svolto il controllo automatico verificando la presenza di spostamenti o rotazioni abnormi. I risultati delle elaborazioni sono stati sottoposti a controlli che ne comprovano l'attendibilità. Tale valutazione ha compreso il confronto con i risultati di semplici calcoli, eseguiti con metodi tradizionali e adottati, anche in fase di primo proporzionamento della struttura.

13.1. MATERIALI

Id	Tipo / Note		Young	Poisson	G	Gamma	Alfa
		daN/cm2	daN/cm2		daN/cm2	daN/cm3	
1	Calcestruzzo Classe C25/30		3.145e+05	0.12	1.404e+05	2.50e-03	1.00e-05
	Rck	300.0					
	fctm	25.6					
3	Calcestruzzo Classe C28/35		3.260e+05	0.12	1.455e+05	2.50e-03	1.00e-05
	Rck	350.0					
	fctm	28.4					
4	Calcestruzzo Classe C32/40		3.360e+05	0.12	1.500e+05	2.50e-03	1.00e-05
	Rck	400.0					
	fctm	31.0					

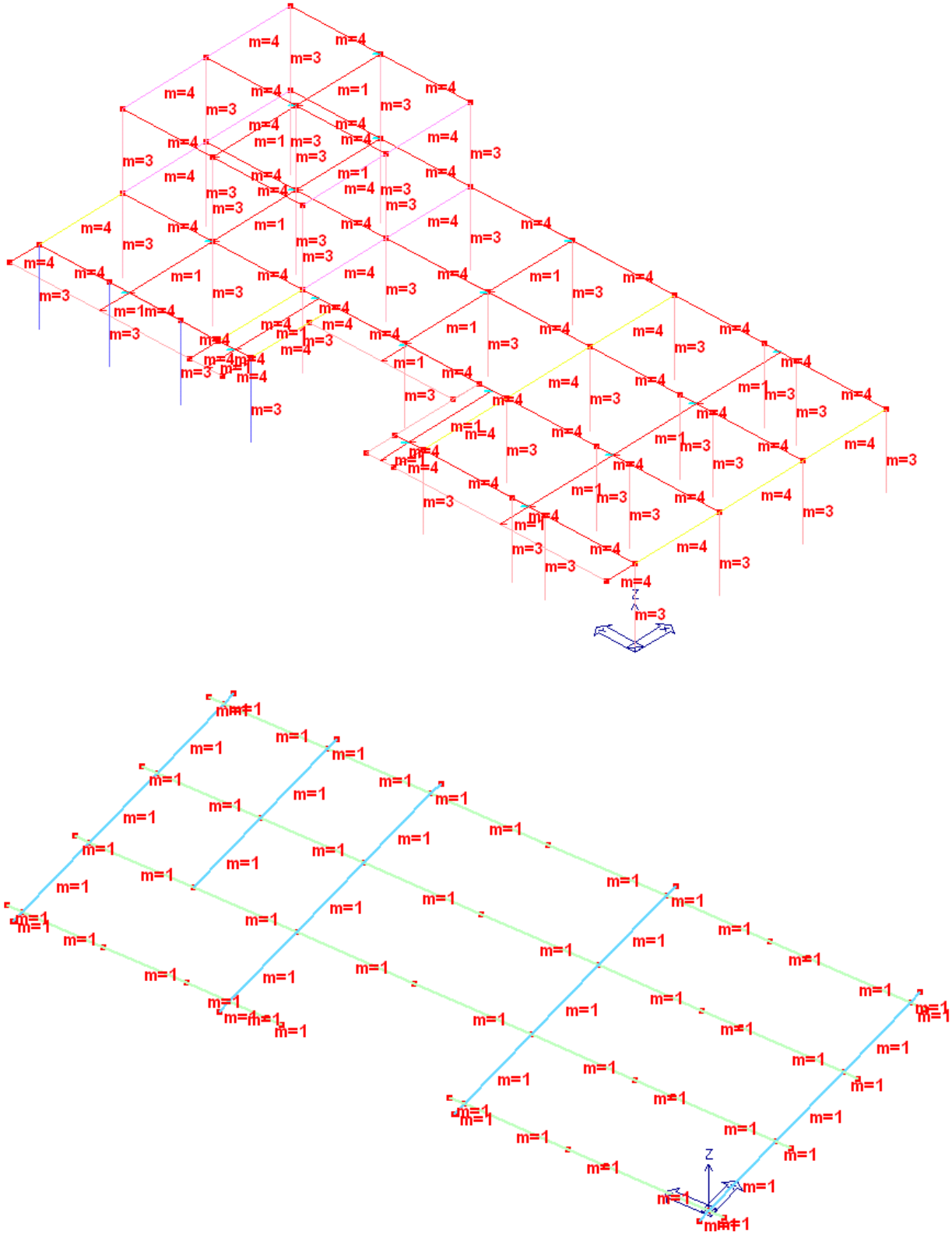


Figura 13.1 - 1 – Codice "Id" materiali

13.2. MODELLAZIONE ELEMENTI STRUTTURALI

Le sezioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni sezione vengono riportati in tabella i seguenti dati:

Id	Tipo	Area	A V2	A V3	Jt	J 2-2	J 3-3	W 2-2	W 3-3	Wp 2-2	Wp 3-3
		cm2	cm2	cm2	cm4	cm4	cm4	cm3	cm3	cm3	cm3
1	pilastro: b=50.00 h=30.00	1500.00	1250.00	1250.00	2.799e+05	3.125e+05	1.125e+05	1.250e+04	7500.00	1.875e+04	1.125e+04
2	trave: b=50.00 h =60.00	3000.00	2500.00	2500.00	1.246e+06	6.250e+05	9.000e+05	2.500e+04	3.000e+04	3.750e+04	4.500e+04
3	cordolo: b=30.00 h=28.00	840.00	700.00	700.00	9.876e+04	6.300e+04	5.488e+04	4200.00	3920.00	6300.00	5880.00
4	T rovescia: bi=160.00 ht=100.00 bs=40.00 hi=40.00	8800.00	0.0	0.0	4.471e+06	1.397e+07	5.937e+06	1.747e+05	8.946e+04	2.096e+05	1.074e+05
5	T rovescia: bi=120.00 ht=100.00 bs=40.00 hi=40.00	7200.00	0.0	0.0	3.618e+06	6.080e+06	5.360e+06	1.013e+05	8.463e+04	1.216e+05	1.016e+05
6	pilastro: b=30.00 h=30.00	900.00	750.00	750.00	1.139e+05	6.750e+04	6.750e+04	4500.00	4500.00	6750.00	6750.00
7	Cordolo: b=40.00 h=28.00	1120.00	933.33	933.33	1.663e+05	1.493e+05	7.317e+04	7466.67	5226.67	1.120e+04	7840.00
8	pilastro2: b=50.00 h=30.00	1500.00	1250.00	1250.00	2.799e+05	3.125e+05	1.125e+05	1.250e+04	7500.00	1.875e+04	1.125e+04

I dati soprariportati vengono utilizzati per la determinazione dei carichi inerziali e per la definizione delle rigidezze degli elementi strutturali. La valutazione delle caratteristiche inerziali delle sezioni è condotta nel riferimento 2-3 dell'elemento.

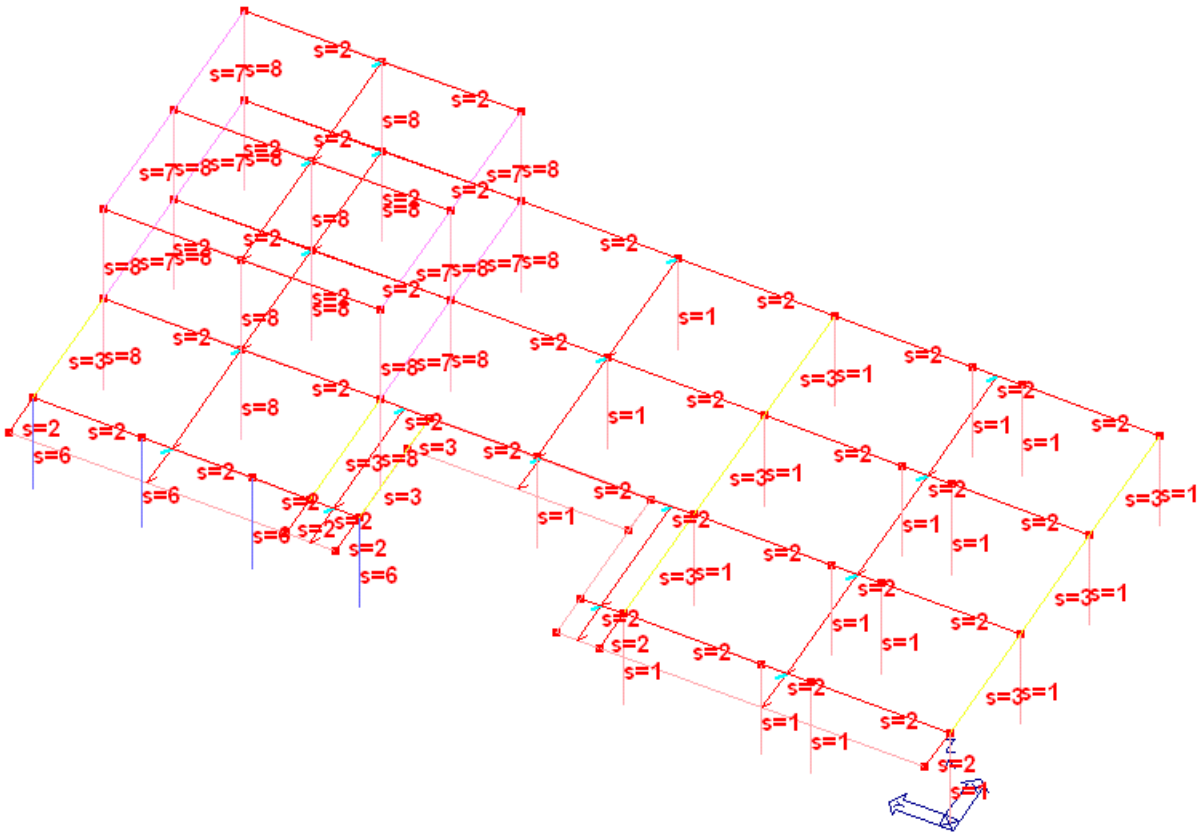


Figura 13.2 - 1 – Codice "Id"elementi strutturali in elevazione

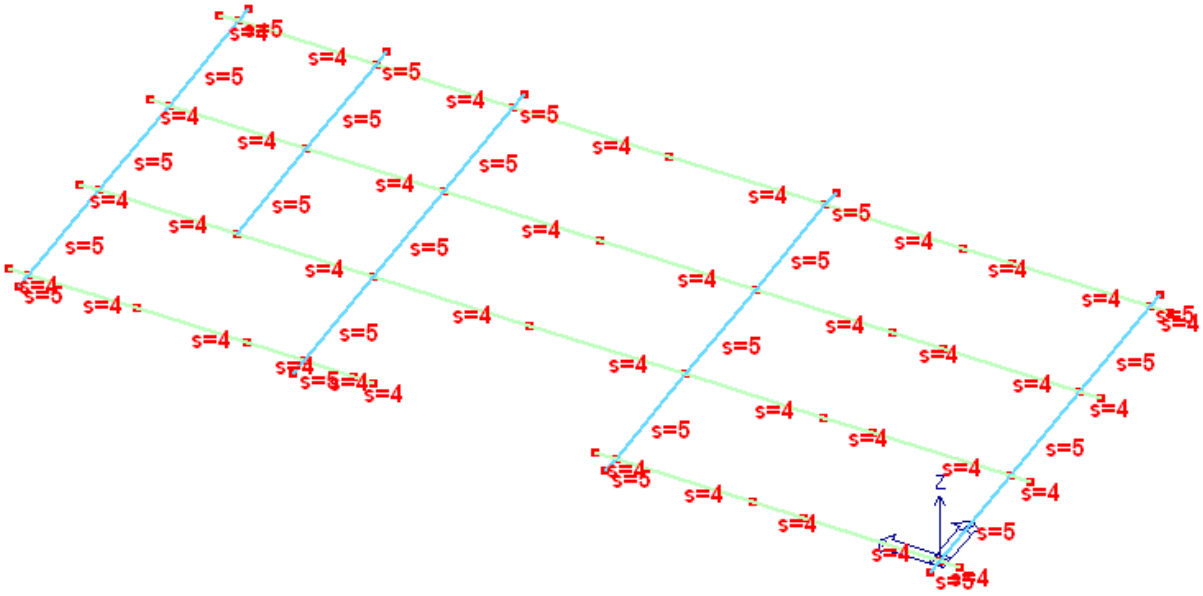


Figura 13.3 - 2 – Codice "Id"elementi strutturali in fondazione

Infine si riportano alcune rappresentazioni 3D del modello di calcolo strutturale adottato.

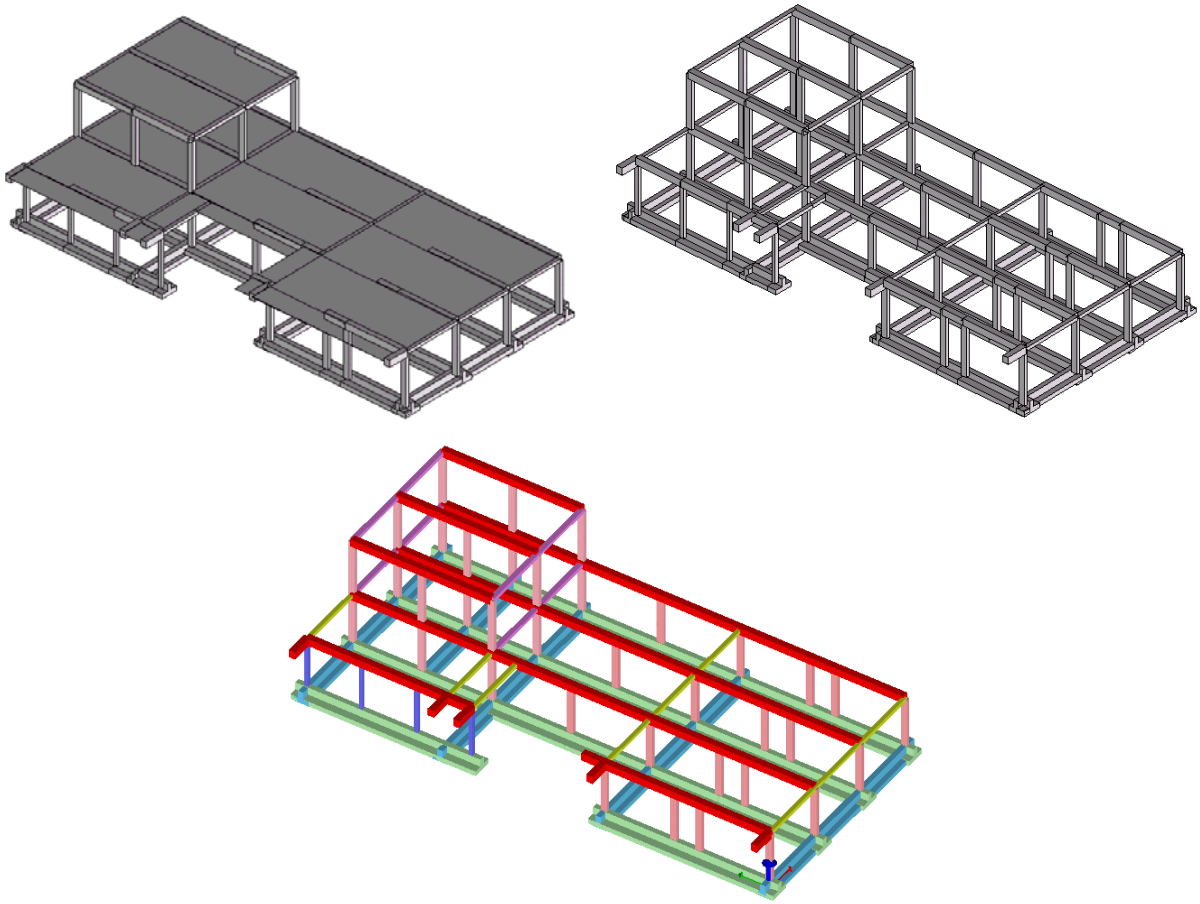


Figura 13.2 - 3 – Viste 3D solide della sola elevazione: modello di calcolo

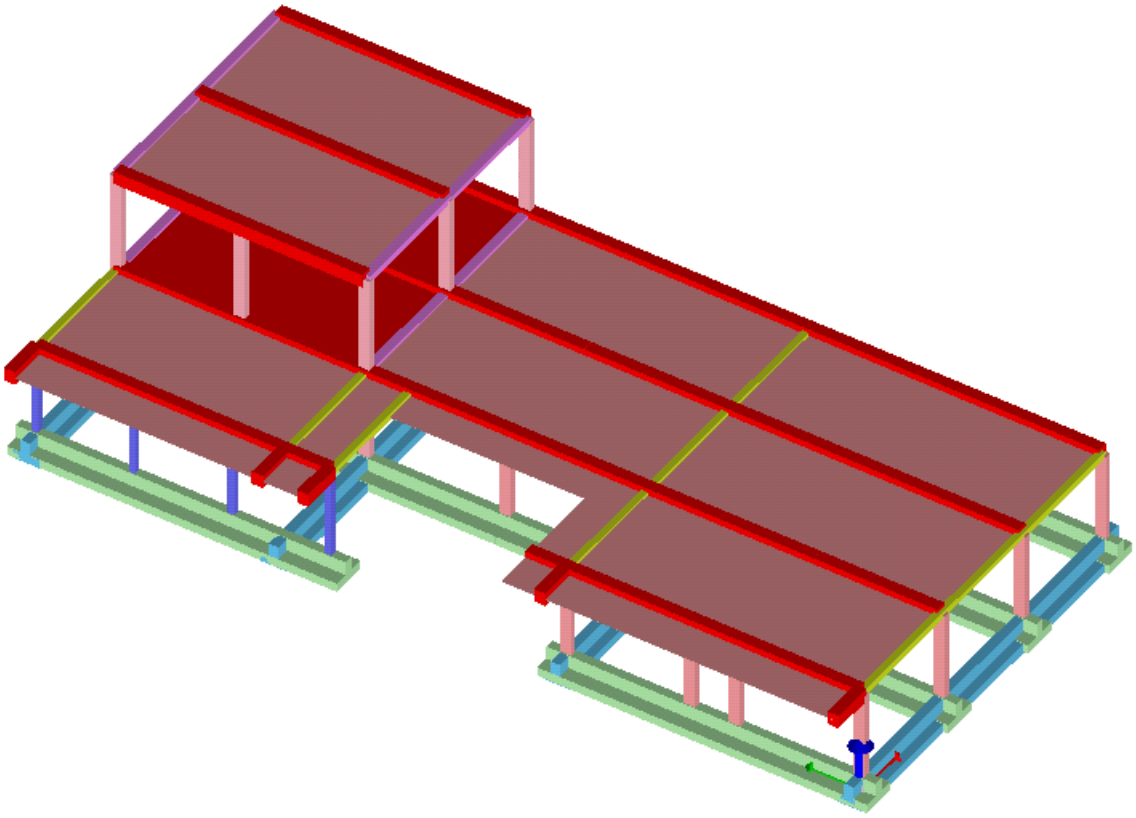


Figura 13.2 - 4 – Viste 3D solide: modello di calcolo completo

13.3. FATTORE DI STRUTTURA

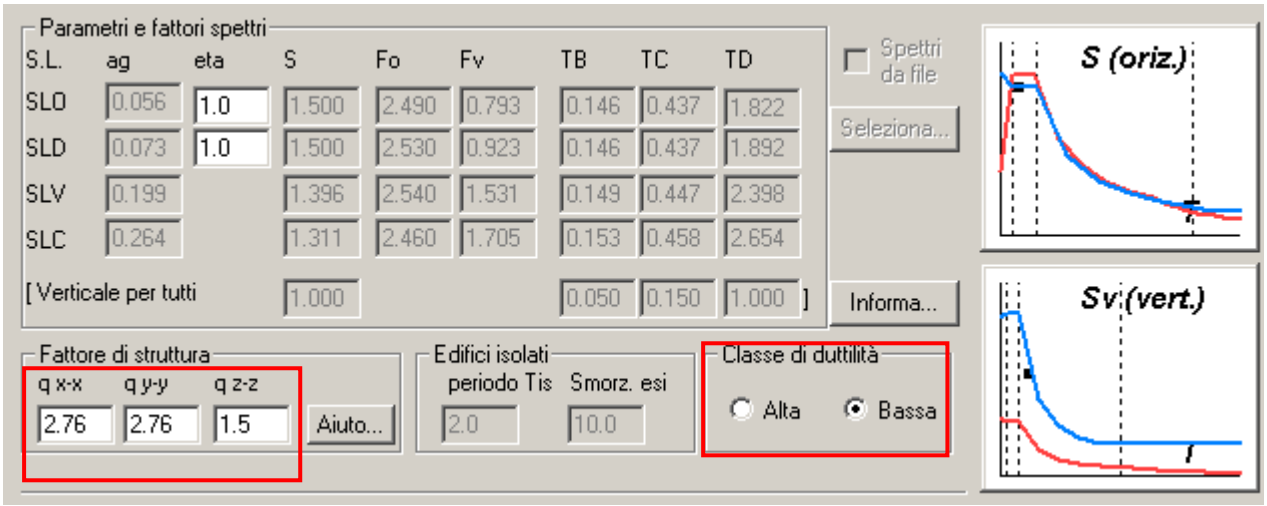


Figura 12.3 - 1 – Parametri per l'analisi modale

13.4. CASI DI CARICO

CDC	Tipo	Sigla Id	Note
1	Ggk	CDC=Ggk (peso proprio della struttura)	
2	Gsk	CDC=G1sk (permanente solai-coperture)	
3	Qnk	CDC=Qnk (carico da neve)	
4	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	partecipazione:1.00 per 1 CDC=Ggk (peso proprio della struttura)
			partecipazione:1.00 per 2 CDC=G1sk (permanente solai-coperture)
			partecipazione:1.00 per 3 CDC=Qnk (carico da neve)
			partecipazione:1.00 per 12 CDC=G1k (permanente murature)
			partecipazione:1.00 per 13 CDC=Qsk (variabile solai)
5	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	come precedente CDC sismico
6	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	come precedente CDC sismico
7	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	come precedente CDC sismico
8	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	come precedente CDC sismico
9	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	come precedente CDC sismico
10	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	come precedente CDC sismico
11	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	come precedente CDC sismico
12	Gk	CDC=G1k (permanente murature)	D2 :da 1 a 6 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 10 a 11 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 21 a 30 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 33 a 35 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 38 a 40 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 47 a 49 Azione : parapetto:Fzi=-3.33 Fzf=-3.33
			D2 : 52 Azione : parapetto:Fzi=-3.33 Fzf=-3.33
			D2 :da 55 a 56 Azione : parapetto:Fzi=-3.33 Fzf=-3.33
			D2 :da 59 a 61 Azione : parapetto:Fzi=-3.33 Fzf=-3.33
			D2 :da 64 a 69 Azione : parapetto:Fzi=-3.33 Fzf=-3.33
			D2 : 70 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 73 a 74 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 87 a 88 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 100 a 101 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 108 a 109 Azione : muratura:Fzi=-16.42 Fzf=-16.42
			D2 :da 160 a 161 Azione : muratura:Fzi=-16.42 Fzf=-16.42
13	Qsk	CDC=Qsk (variabile solai)	

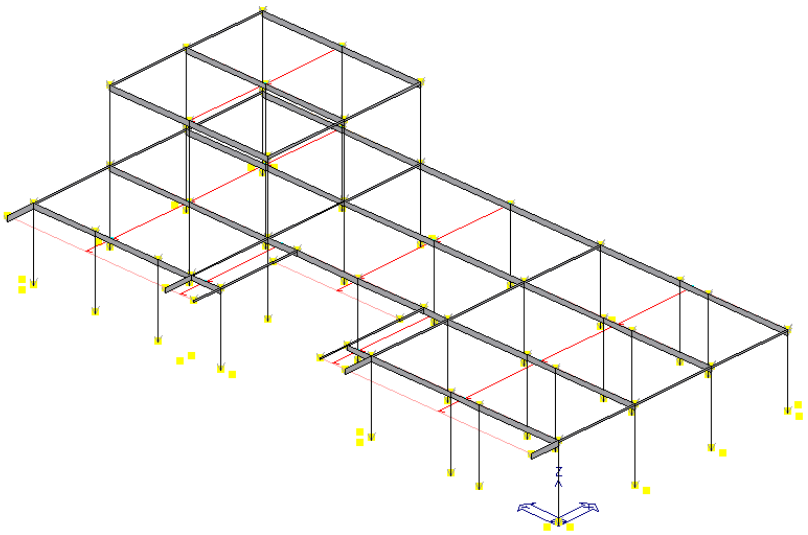


Figura 13.4 - 1 – Caso di carico 1

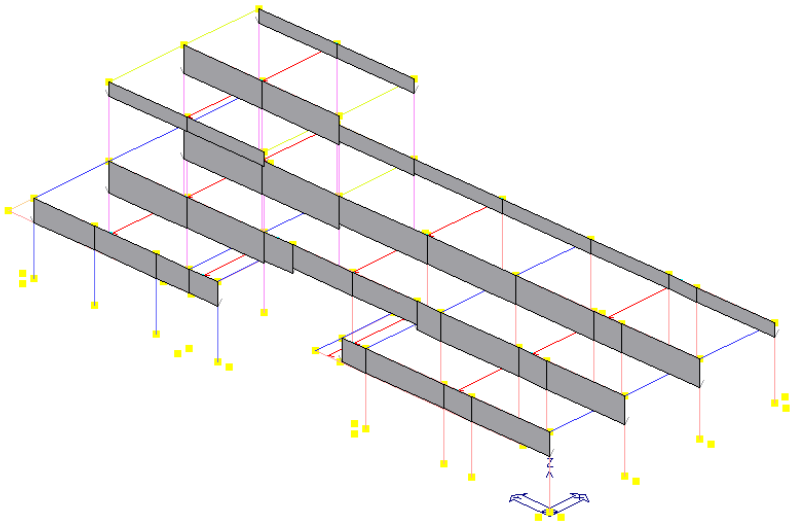


Figura 13.4 - 2 – Caso di carico 2

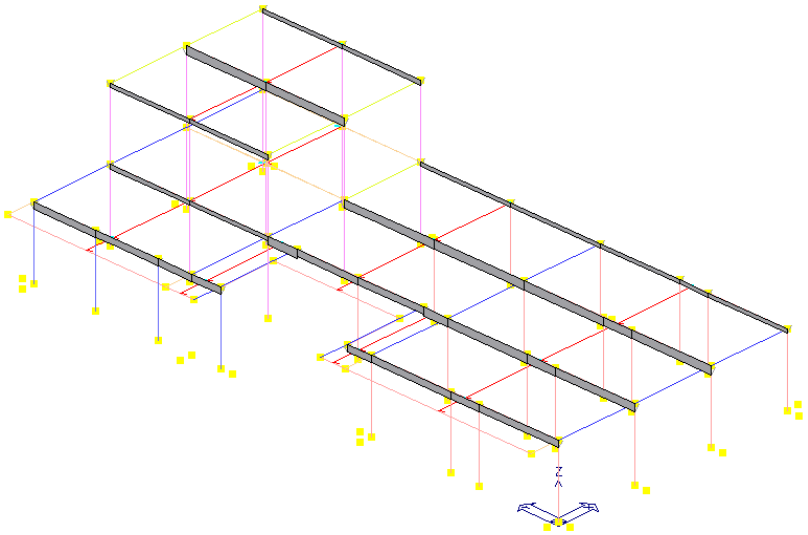


Figura 13.4 - 3 – Caso di carico 3 (neve)

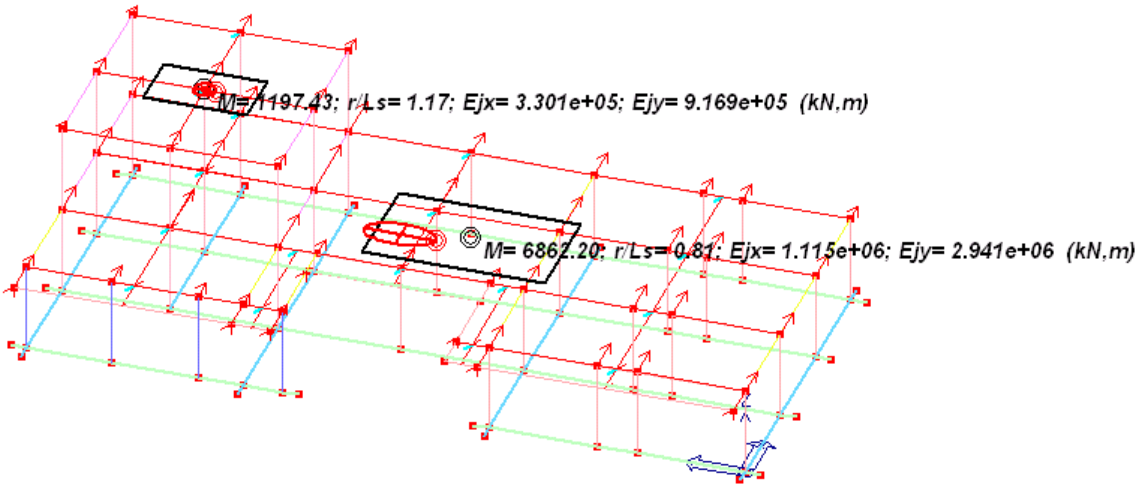


Figura 13.4 - 4 – Caso di carico 4

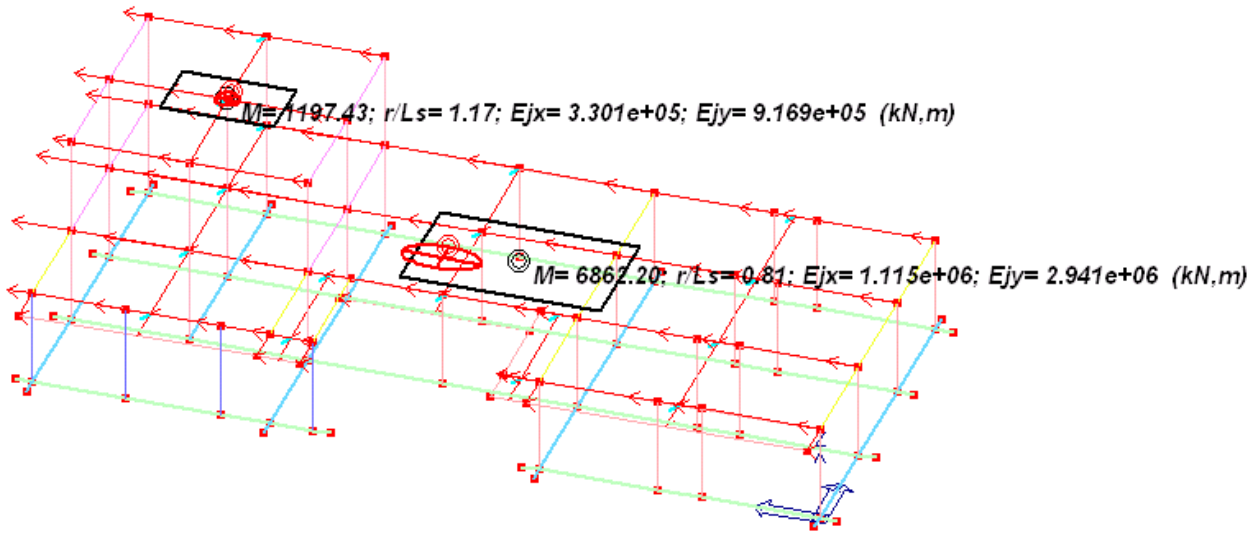


Figura 13.4 - 5 – Caso di carico 7

13.5. COMBINAZIONI DI CARICO

Cmb	Tipo	Sigla Id
1	SLU	Comb. SLU A1 1
2	SLU	Comb. SLU A1 2
3	SLU	Comb. SLU A1 3
4	SLU	Comb. SLU A1 4
5	SLU	Comb. SLU A1 5
6	SLU	Comb. SLU A1 6
7	SLU	Comb. SLU A1 7
8	SLU	Comb. SLU A1 8
9	SLU	Comb. SLU A1 9
10	SLU	Comb. SLU A1 10
11	SLU	Comb. SLU A1 11
12	SLU	Comb. SLU A1 12
13	SLU	Comb. SLU A1 13
14	SLU	Comb. SLU A1 14
15	SLU (Terr. A2)	Comb. SLU A2 15
16	SLU (Terr. A2)	Comb. SLU A2 16
17	SLU (Terr. A2)	Comb. SLU A2 17
18	SLU (Terr. A2)	Comb. SLU A2 18
19	SLU (Terr. A2)	Comb. SLU A2 19
20	SLU (Terr. A2)	Comb. SLU A2 20
21	SLU (Terr. A2)	Comb. SLU A2 21
22	SLU	Comb. SLU A1 (SLV sism.) 22
23	SLU	Comb. SLU A1 (SLV sism.) 23
24	SLU	Comb. SLU A1 (SLV sism.) 24
25	SLU	Comb. SLU A1 (SLV sism.) 25
26	SLU	Comb. SLU A1 (SLV sism.) 26
27	SLU	Comb. SLU A1 (SLV sism.) 27
28	SLU	Comb. SLU A1 (SLV sism.) 28
29	SLU	Comb. SLU A1 (SLV sism.) 29
30	SLU	Comb. SLU A1 (SLV sism.) 30
31	SLU	Comb. SLU A1 (SLV sism.) 31
32	SLU	Comb. SLU A1 (SLV sism.) 32
33	SLU	Comb. SLU A1 (SLV sism.) 33
34	SLU	Comb. SLU A1 (SLV sism.) 34
35	SLU	Comb. SLU A1 (SLV sism.) 35
36	SLU	Comb. SLU A1 (SLV sism.) 36
37	SLU	Comb. SLU A1 (SLV sism.) 37

Cmb	Tipo	Sigla Id
38	SLU	Comb. SLU A1 (SLV sism.) 38
39	SLU	Comb. SLU A1 (SLV sism.) 39
40	SLU	Comb. SLU A1 (SLV sism.) 40
41	SLU	Comb. SLU A1 (SLV sism.) 41
42	SLU	Comb. SLU A1 (SLV sism.) 42
43	SLU	Comb. SLU A1 (SLV sism.) 43
44	SLU	Comb. SLU A1 (SLV sism.) 44
45	SLU	Comb. SLU A1 (SLV sism.) 45
46	SLU	Comb. SLU A1 (SLV sism.) 46
47	SLU	Comb. SLU A1 (SLV sism.) 47
48	SLU	Comb. SLU A1 (SLV sism.) 48
49	SLU	Comb. SLU A1 (SLV sism.) 49
50	SLU	Comb. SLU A1 (SLV sism.) 50
51	SLU	Comb. SLU A1 (SLV sism.) 51
52	SLU	Comb. SLU A1 (SLV sism.) 52
53	SLU	Comb. SLU A1 (SLV sism.) 53
54	SLD(sis)	Comb. SLE (SLD Danno sism.) 54
55	SLD(sis)	Comb. SLE (SLD Danno sism.) 55
56	SLD(sis)	Comb. SLE (SLD Danno sism.) 56
57	SLD(sis)	Comb. SLE (SLD Danno sism.) 57
58	SLD(sis)	Comb. SLE (SLD Danno sism.) 58
59	SLD(sis)	Comb. SLE (SLD Danno sism.) 59
60	SLD(sis)	Comb. SLE (SLD Danno sism.) 60
61	SLD(sis)	Comb. SLE (SLD Danno sism.) 61
62	SLD(sis)	Comb. SLE (SLD Danno sism.) 62
63	SLD(sis)	Comb. SLE (SLD Danno sism.) 63
64	SLD(sis)	Comb. SLE (SLD Danno sism.) 64
65	SLD(sis)	Comb. SLE (SLD Danno sism.) 65
66	SLD(sis)	Comb. SLE (SLD Danno sism.) 66
67	SLD(sis)	Comb. SLE (SLD Danno sism.) 67
68	SLD(sis)	Comb. SLE (SLD Danno sism.) 68
69	SLD(sis)	Comb. SLE (SLD Danno sism.) 69
70	SLD(sis)	Comb. SLE (SLD Danno sism.) 70
71	SLD(sis)	Comb. SLE (SLD Danno sism.) 71
72	SLD(sis)	Comb. SLE (SLD Danno sism.) 72
73	SLD(sis)	Comb. SLE (SLD Danno sism.) 73
74	SLD(sis)	Comb. SLE (SLD Danno sism.) 74
75	SLD(sis)	Comb. SLE (SLD Danno sism.) 75
76	SLD(sis)	Comb. SLE (SLD Danno sism.) 76
77	SLD(sis)	Comb. SLE (SLD Danno sism.) 77
78	SLD(sis)	Comb. SLE (SLD Danno sism.) 78
79	SLD(sis)	Comb. SLE (SLD Danno sism.) 79
80	SLD(sis)	Comb. SLE (SLD Danno sism.) 80
81	SLD(sis)	Comb. SLE (SLD Danno sism.) 81
82	SLD(sis)	Comb. SLE (SLD Danno sism.) 82
83	SLD(sis)	Comb. SLE (SLD Danno sism.) 83
84	SLD(sis)	Comb. SLE (SLD Danno sism.) 84
85	SLD(sis)	Comb. SLE (SLD Danno sism.) 85
86	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 86
87	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 87
88	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 88
89	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 89
90	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 90
91	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 91
92	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 92
93	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 93
94	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 94
95	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 95
96	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 96
97	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 97
98	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 98
99	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 99
100	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 100
101	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 101
102	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 102
103	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 103
104	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 104
105	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 105
106	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 106

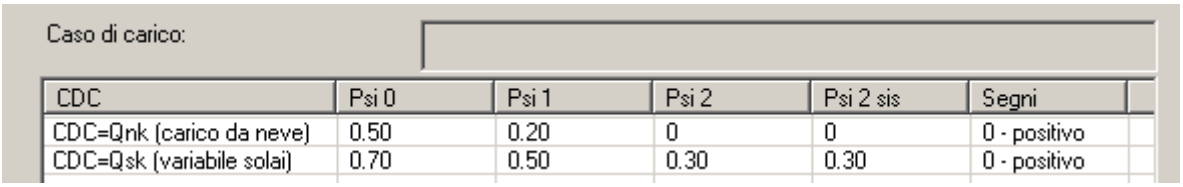
Cmb	Tipo	Sigla Id
107	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 107
108	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 108
109	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 109
110	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 110
111	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 111
112	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 112
113	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 113
114	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 114
115	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 115
116	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 116
117	SLU (Terr. A2)	Comb. SLU A2 (SLV sism.) 117
118	SLE(r)	Comb. SLE(rara) 118
119	SLE(r)	Comb. SLE(rara) 119
120	SLE(r)	Comb. SLE(rara) 120
121	SLE(r)	Comb. SLE(rara) 121
122	SLE(r)	Comb. SLE(rara) 122
123	SLE(r)	Comb. SLE(rara) 123
124	SLE(r)	Comb. SLE(rara) 124
125	SLE(f)	Comb. SLE(freq.) 125
126	SLE(f)	Comb. SLE(freq.) 126
127	SLE(f)	Comb. SLE(freq.) 127
128	SLE(f)	Comb. SLE(freq.) 128
129	SLE(f)	Comb. SLE(freq.) 129
130	SLE(p)	Comb. SLE(perm.) 130
131	SLE(p)	Comb. SLE(perm.) 131

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...
1	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	0.0
2	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	1.05
3	1.30	1.30	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	0.0
4	1.30	1.30	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	1.05
5	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
6	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.05
7	1.00	1.00	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
8	1.00	1.00	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.05
9	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	1.50
10	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	0.0
11	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.30	1.50
12	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.50
13	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
14	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.50
15	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
16	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.91
17	1.00	1.00	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
18	1.00	1.00	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.91
19	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.30
20	1.00	1.00	0.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
21	1.00	1.00	0.65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.30
22	1.00	1.00	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
23	1.00	1.00	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
24	1.00	1.00	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
25	1.00	1.00	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
26	1.00	1.00	0.0	-1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.30
27	1.00	1.00	0.0	-1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.30
28	1.00	1.00	0.0	1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.30
29	1.00	1.00	0.0	1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.30
30	1.00	1.00	0.0	0.0	-1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
31	1.00	1.00	0.0	0.0	-1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
32	1.00	1.00	0.0	0.0	1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
33	1.00	1.00	0.0	0.0	1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
34	1.00	1.00	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.30
35	1.00	1.00	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.30
36	1.00	1.00	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.30
37	1.00	1.00	0.0	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.30
38	1.00	1.00	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
39	1.00	1.00	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...
40	1.00	1.00	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
41	1.00	1.00	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
42	1.00	1.00	0.0	0.0	-0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
43	1.00	1.00	0.0	0.0	-0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
44	1.00	1.00	0.0	0.0	0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
45	1.00	1.00	0.0	0.0	0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
46	1.00	1.00	0.0	-0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.30
47	1.00	1.00	0.0	-0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.30
48	1.00	1.00	0.0	0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.30
49	1.00	1.00	0.0	0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.30
50	1.00	1.00	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.30
51	1.00	1.00	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.30
52	1.00	1.00	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.30
53	1.00	1.00	0.0	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.30
54	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	-0.30	0.0	1.00	0.30
55	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.30	0.0	1.00	0.30
56	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	-0.30	0.0	1.00	0.30
57	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.30	0.0	1.00	0.30
58	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.0	-0.30	1.00	0.30
59	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.0	0.30	1.00	0.30
60	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	-0.30	1.00	0.30
61	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.30	1.00	0.30
62	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	-0.30	0.0	1.00	0.30
63	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.30	0.0	1.00	0.30
64	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	-0.30	0.0	1.00	0.30
65	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.30	0.0	1.00	0.30
66	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	-0.30	1.00	0.30
67	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.30	1.00	0.30
68	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	-0.30	1.00	0.30
69	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.30	1.00	0.30
70	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	-1.00	0.0	1.00	0.30
71	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	1.00	0.0	1.00	0.30
72	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	-1.00	0.0	1.00	0.30
73	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.00	0.0	1.00	0.30
74	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	-1.00	0.0	1.00	0.30
75	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	1.00	0.0	1.00	0.30
76	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	-1.00	0.0	1.00	0.30
77	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	1.00	0.0	1.00	0.30
78	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	0.0	-1.00	1.00	0.30
79	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	0.0	1.00	1.00	0.30
80	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	0.0	-1.00	1.00	0.30
81	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	0.0	1.00	1.00	0.30
82	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	-1.00	1.00	0.30
83	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	1.00	1.00	0.30
84	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	0.0	-1.00	1.00	0.30
85	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.00	1.00	0.30
86	1.00	1.00	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
87	1.00	1.00	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
88	1.00	1.00	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
89	1.00	1.00	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
90	1.00	1.00	0.0	-1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.30
91	1.00	1.00	0.0	-1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.30
92	1.00	1.00	0.0	1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.30
93	1.00	1.00	0.0	1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.30
94	1.00	1.00	0.0	0.0	-1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
95	1.00	1.00	0.0	0.0	-1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
96	1.00	1.00	0.0	0.0	1.00	-0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
97	1.00	1.00	0.0	0.0	1.00	0.30	0.0	0.0	0.0	0.0	0.0	1.00	0.30
98	1.00	1.00	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.30
99	1.00	1.00	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.30
100	1.00	1.00	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	1.00	0.30
101	1.00	1.00	0.0	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	1.00	0.30
102	1.00	1.00	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
103	1.00	1.00	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
104	1.00	1.00	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
105	1.00	1.00	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
106	1.00	1.00	0.0	0.0	-0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
107	1.00	1.00	0.0	0.0	-0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30

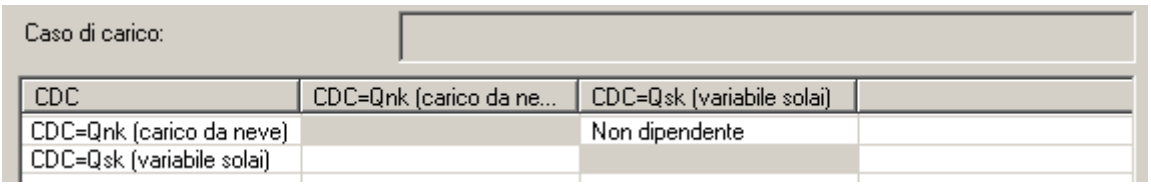
Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...
108	1.00	1.00	0.0	0.0	0.30	-1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
109	1.00	1.00	0.0	0.0	0.30	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.30
110	1.00	1.00	0.0	-0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.30
111	1.00	1.00	0.0	-0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.30
112	1.00	1.00	0.0	0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.30
113	1.00	1.00	0.0	0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.30
114	1.00	1.00	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.30
115	1.00	1.00	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.30
116	1.00	1.00	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	1.00	0.30
117	1.00	1.00	0.0	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	1.00	0.30
118	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
119	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.70
120	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
121	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.70
122	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.00
123	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
124	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	1.00
125	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
126	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.30
127	1.00	1.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
128	1.00	1.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.30
129	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.50
130	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0
131	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.30

A chiarimento si riportano i parametri implementati per la formulazione delle combinazioni di carico.



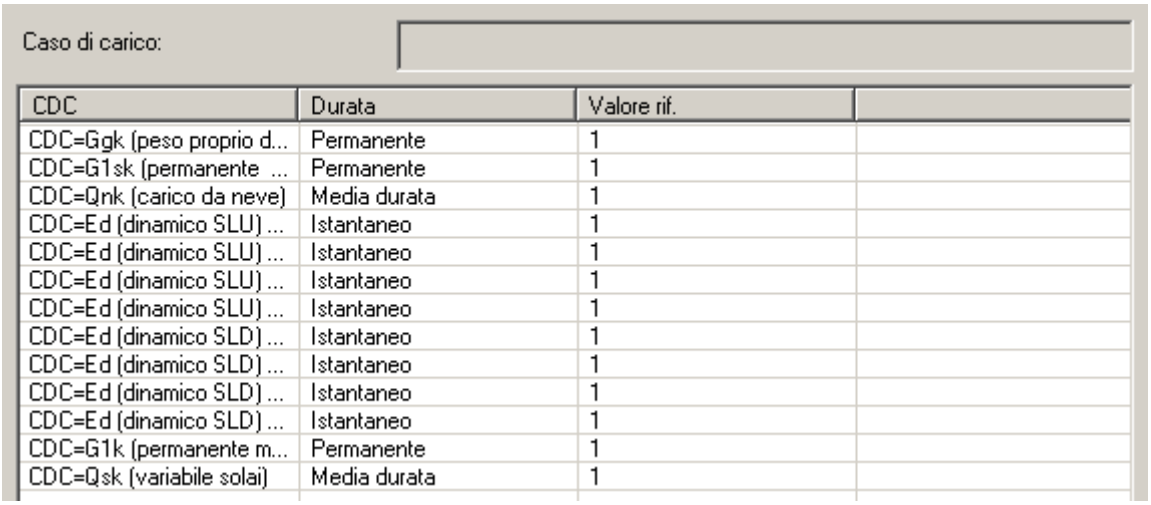
Caso di carico:

CDC	Psi 0	Psi 1	Psi 2	Psi 2 sis	Segni
CDC=Qnk (carico da neve)	0.50	0.20	0	0	0 - positivo
CDC=Qsk (variabile solai)	0.70	0.50	0.30	0.30	0 - positivo



Caso di carico:

CDC	CDC=Qnk (carico da ne...	CDC=Qsk (variabile solai)
CDC=Qnk (carico da neve)		Non dipendente
CDC=Qsk (variabile solai)		



Caso di carico:

CDC	Durata	Valore rif.
CDC=Ggk (peso proprio d...	Permanente	1
CDC=G1sk (permanente ...	Permanente	1
CDC=Qnk (carico da neve)	Media durata	1
CDC=Ed (dinamico SLU) ...	Istantaneo	1
CDC=Ed (dinamico SLU) ...	Istantaneo	1
CDC=Ed (dinamico SLU) ...	Istantaneo	1
CDC=Ed (dinamico SLU) ...	Istantaneo	1
CDC=Ed (dinamico SLD) ...	Istantaneo	1
CDC=Ed (dinamico SLD) ...	Istantaneo	1
CDC=Ed (dinamico SLD) ...	Istantaneo	1
CDC=Ed (dinamico SLD) ...	Istantaneo	1
CDC=G1k (permanente m...	Permanente	1
CDC=Qsk (variabile solai)	Media durata	1

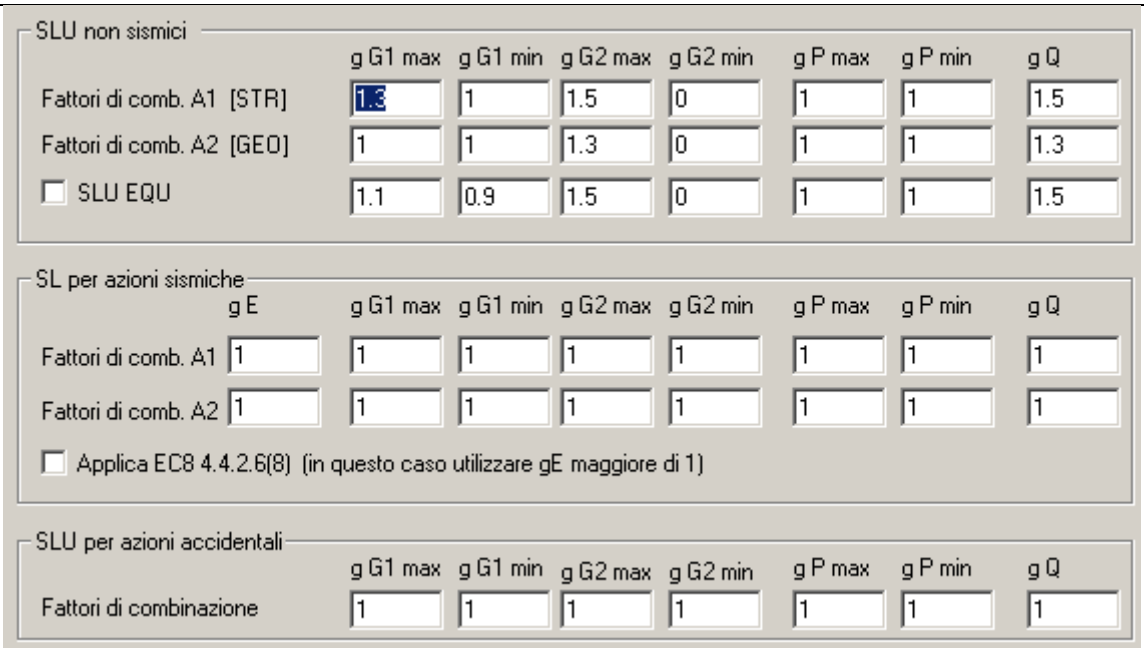


Figura 13.5 – 1 - Parametri combinazioni di carico

13.6. RISULTATI DELL'ANALISI SISMICA

Per ciascun caso di carico sismico viene riportato l'insieme di dati sottoriportati (le masse sono espresse in unità di forza):

- quota, posizione del centro di massa e massa risultante, posizione del baricentro delle rigidezze, rapporto r/Ls (per strutture a nucleo)
- frequenza, periodo,accelerazione spettrale, massa eccitata nelle tre direzioni globali per tutti i modi
- massa complessiva ed aliquota di massa complessiva eccitata.

Per ciascuna combinazione sismica *SLD* viene riportato il livello di deformazione etaT (dr) degli elementi strutturali verticali. Per semplicità di consultazione il livello è espresso anche in unità *1000*etaT/h* da confrontare direttamente con i valori forniti dalle *NTC2008 al §7.3.7.2* (*1000 etaT/h ≤ 10.0 per edifici con tamponamenti collegati elasticamente*).

Nel caso in esame *1000 etaT/h = 6.27 ≤ 10.0* *verificato*

CDC	Tipo	Sigla Id	Note
4	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.256 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.901 sec.

CDC	Tipo	Sigla Id	Note
			fattore di struttura q: 2.760
			fattore per spost. mu d: 2.760
			classe di duttilità CD: B
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
9.20	1.197e+05	11.00	31.00	0.0	-0.55	11.00	31.00	1.166	0.0	0.0
4.60	6.862e+05	8.41	20.25	0.0	-1.82	9.15	16.87	0.805	0.077	0.219
Risulta	8.060e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.109	0.901	0.127	5.877e+05	72.9	67.71	8.40e-03	8.63e-03	1.07e-06
2	1.748	0.572	0.200	1.627e+05	20.2	1968.16	0.2	14.50	1.80e-03
3	2.492	0.401	0.256	316.50	3.93e-02	7.064e+05	87.7	820.09	0.1
4	2.657	0.376	0.256	4.959e+04	6.2	131.80	1.64e-02	4.62	5.73e-04
5	2.832	0.353	0.256	1291.03	0.2	1.08	1.34e-04	1.55	1.93e-04
6	3.147	0.318	0.256	5.43	6.74e-04	0.61	7.53e-05	2.78	3.44e-04
7	3.409	0.293	0.256	18.13	2.25e-03	18.47	2.29e-03	26.15	3.24e-03
8	3.576	0.280	0.256	43.48	5.39e-03	12.68	1.57e-03	119.50	1.48e-02
9	3.747	0.267	0.256	1228.30	0.2	11.34	1.41e-03	122.91	1.52e-02
10	3.870	0.258	0.256	86.23	1.07e-02	2.54e-03	0.0	59.09	7.33e-03
11	4.157	0.241	0.256	50.95	6.32e-03	893.09	0.1	73.30	9.09e-03
12	4.337	0.231	0.256	18.37	2.28e-03	8409.34	1.0	45.46	5.64e-03
13	4.487	0.223	0.256	50.00	6.20e-03	5.712e+04	7.1	0.19	2.40e-05
14	4.813	0.208	0.256	191.58	2.38e-02	1.701e+04	2.1	4736.76	0.6
15	4.923	0.203	0.256	109.75	1.36e-02	695.02	8.62e-02	4.798e+05	59.5
16	5.008	0.200	0.256	25.34	3.14e-03	1566.63	0.2	1566.56	0.2
17	5.231	0.191	0.256	3.16	3.92e-04	1.80	2.24e-04	289.75	3.60e-02
18	5.363	0.186	0.256	851.01	0.1	224.58	2.79e-02	4.093e+04	5.1
19	5.612	0.178	0.256	72.42	8.99e-03	9.70	1.20e-03	992.79	0.1
20	5.726	0.175	0.256	5.88	7.29e-04	1.27	1.57e-04	1.174e+04	1.5
Risulta				8.044e+05		7.946e+05		5.414e+05	
In percentuale				99.80		98.59		67.17	

CDC	Tipo	Sigla Id	Note
5	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.256 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.941 sec.
			fattore di struttura q: 2.760
			fattore per spost. mu d: 2.760
			classe di duttilità CD: B
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
9.20	1.197e+05	11.00	31.00	0.0	0.55	11.00	31.00	1.166	0.0	0.0
4.60	6.862e+05	8.41	20.25	0.0	1.82	9.15	16.87	0.805	0.077	0.219
Risulta	8.060e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.063	0.941	0.121	5.945e+05	73.8	111.28	1.38e-02	0.04	5.29e-06
2	1.984	0.504	0.227	1.664e+05	20.7	3976.95	0.5	18.74	2.33e-03
3	2.491	0.402	0.256	3879.66	0.5	6.732e+05	83.5	777.09	9.64e-02
4	2.540	0.394	0.256	3.725e+04	4.6	3.093e+04	3.8	44.28	5.49e-03
5	3.222	0.310	0.256	562.62	6.98e-02	0.88	1.09e-04	5.44	6.76e-04
6	3.556	0.281	0.256	50.16	6.22e-03	1.46	1.81e-04	17.49	2.17e-03
7	3.592	0.278	0.256	179.28	2.22e-02	157.77	1.96e-02	216.37	2.68e-02
8	3.700	0.270	0.256	51.50	6.39e-03	7.70	9.56e-04	8.32	1.03e-03
9	3.773	0.265	0.256	114.68	1.42e-02	86.46	1.07e-02	39.69	4.92e-03
10	3.948	0.253	0.256	157.54	1.95e-02	179.35	2.23e-02	78.09	9.69e-03
11	4.195	0.238	0.256	0.12	1.50e-05	782.49	9.71e-02	17.25	2.14e-03
12	4.407	0.227	0.256	18.24	2.26e-03	1708.49	0.2	96.68	1.20e-02
13	4.473	0.224	0.256	0.13	1.59e-05	6.221e+04	7.7	26.32	3.27e-03
14	4.645	0.215	0.256	7.15	8.87e-04	8143.01	1.0	754.77	9.36e-02
15	4.807	0.208	0.256	134.31	1.67e-02	1.021e+04	1.3	6081.51	0.8
16	4.925	0.203	0.256	86.09	1.07e-02	531.49	6.59e-02	4.803e+05	59.6
17	5.113	0.196	0.256	19.79	2.46e-03	389.74	4.84e-02	0.66	8.15e-05
18	5.363	0.186	0.256	835.48	0.1	104.65	1.30e-02	4.060e+04	5.0
19	5.500	0.182	0.256	41.90	5.20e-03	1965.59	0.2	421.01	5.22e-02
20	5.722	0.175	0.256	4.95	6.14e-04	478.93	5.94e-02	3644.78	0.5
Risulta				8.043e+05		7.952e+05		5.332e+05	
In percentuale				99.80		98.66		66.15	

CDC	Tipo	Sigla Id	Note
6	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.256 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.404 sec.
			fattore di struttura q: 2.760
			fattore per spost. mu d: 2.945
			classe di duttilità CD: B
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
9.20	1.197e+05	11.00	31.00	0.55	0.0	11.00	31.00	1.166	0.0	0.0
4.60	6.862e+05	8.41	20.25	0.92	0.0	9.15	16.87	0.805	0.077	0.219
Risulta	8.060e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.087	0.920	0.124	5.875e+05	72.9	27.11	3.36e-03	9.60e-03	1.19e-06
2	1.856	0.539	0.212	1.661e+05	20.6	1650.60	0.2	6.94	8.62e-04
3	2.473	0.404	0.256	8465.65	1.1	6.132e+05	76.1	740.55	9.19e-02
4	2.615	0.382	0.256	4.005e+04	5.0	8.846e+04	11.0	125.85	1.56e-02
5	3.032	0.330	0.256	337.57	4.19e-02	924.17	0.1	0.06	7.84e-06
6	3.382	0.296	0.256	10.12	1.26e-03	1589.28	0.2	2.93	3.63e-04
7	3.575	0.280	0.256	1.78	2.21e-04	3401.50	0.4	43.22	5.36e-03
8	3.664	0.273	0.256	306.23	3.80e-02	202.82	2.52e-02	6.62	8.22e-04
9	3.725	0.268	0.256	388.85	4.82e-02	3871.39	0.5	59.93	7.44e-03
10	3.885	0.257	0.256	0.02	2.30e-06	67.52	8.38e-03	13.06	1.62e-03
11	3.999	0.250	0.256	17.24	2.14e-03	143.77	1.78e-02	6.92	8.59e-04
12	4.367	0.229	0.256	2.38	2.96e-04	67.44	8.37e-03	0.51	6.36e-05
13	4.563	0.219	0.256	1.15	1.42e-04	7.711e+04	9.6	17.28	2.14e-03
14	4.751	0.210	0.256	113.15	1.40e-02	1738.68	0.2	811.34	0.1
15	4.818	0.208	0.256	70.20	8.71e-03	1422.92	0.2	6195.29	0.8
16	4.923	0.203	0.256	97.21	1.21e-02	899.85	0.1	4.789e+05	59.4
17	5.146	0.194	0.256	20.28	2.52e-03	101.15	1.26e-02	392.97	4.88e-02
18	5.363	0.186	0.256	874.18	0.1	177.33	2.20e-02	4.084e+04	5.1

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
19	5.484	0.182	0.256	24.35	3.02e-03	137.44	1.71e-02	1795.39	0.2
20	5.851	0.171	0.256	34.20	4.24e-03	126.65	1.57e-02	3.985e+04	4.9
Risulta				8.044e+05		7.953e+05		5.698e+05	
In percentuale				99.81		98.68		70.70	

CDC	Tipo	Sigla Id	Note
7	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.396
			ordinata spettro (tratto Tb-Tc) = 0.256 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.405 sec.
			fattore di struttura q: 2.760
			fattore per spost. mu d: 2.941
			classe di duttilità CD: B
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
9.20	1.197e+05	11.00	31.00	-0.55	0.0	11.00	31.00	1.166	0.0	0.0
4.60	6.862e+05	8.41	20.25	-0.92	0.0	9.15	16.87	0.805	0.077	0.219
Risulta	8.060e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.087	0.920	0.124	5.864e+05	72.8	600.74	7.45e-02	0.05	6.58e-06
2	1.845	0.542	0.211	1.643e+05	20.4	2.015e+04	2.5	28.15	3.49e-03
3	2.467	0.405	0.256	1.762e+04	2.2	5.732e+05	71.1	572.21	7.10e-02
4	2.625	0.381	0.256	3.383e+04	4.2	1.107e+05	13.7	193.23	2.40e-02
5	3.033	0.330	0.256	345.21	4.28e-02	796.25	9.88e-02	11.74	1.46e-03
6	3.385	0.295	0.256	17.98	2.23e-03	1014.92	0.1	55.48	6.88e-03
7	3.579	0.279	0.256	0.13	1.64e-05	2394.46	0.3	252.92	3.14e-02
8	3.663	0.273	0.256	300.89	3.73e-02	199.63	2.48e-02	26.95	3.34e-03
9	3.721	0.269	0.256	349.61	4.34e-02	2866.42	0.4	307.38	3.81e-02
10	3.882	0.258	0.256	0.44	5.52e-05	172.89	2.15e-02	5.92	7.35e-04
11	3.997	0.250	0.256	11.71	1.45e-03	417.17	5.18e-02	17.95	2.23e-03
12	4.315	0.232	0.256	24.29	3.01e-03	2.723e+04	3.4	0.28	3.42e-05
13	4.406	0.227	0.256	51.69	6.41e-03	2.535e+04	3.1	1.11	1.38e-04
14	4.777	0.209	0.256	17.87	2.22e-03	1906.23	0.2	112.04	1.39e-02
15	4.899	0.204	0.256	224.71	2.79e-02	1.674e+04	2.1	2.427e+05	30.1
16	4.953	0.202	0.256	0.03	4.12e-06	6140.12	0.8	2.465e+05	30.6
17	5.147	0.194	0.256	32.31	4.01e-03	1669.51	0.2	172.54	2.14e-02
18	5.362	0.187	0.256	772.26	9.58e-02	171.11	2.12e-02	3.763e+04	4.7
19	5.485	0.182	0.256	88.86	1.10e-02	1330.40	0.2	1328.42	0.2
20	5.600	0.179	0.256	20.33	2.52e-03	1130.70	0.1	2906.82	0.4
Risulta				8.044e+05		7.942e+05		5.328e+05	
In percentuale				99.80		98.54		66.11	

CDC	Tipo	Sigla Id	Note
8	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.901 sec.
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
9.20	1.197e+05	11.00	31.00	0.0	-0.55	11.00	31.00	1.166	0.0	0.0
4.60	6.862e+05	8.41	20.25	0.0	-1.82	9.15	16.87	0.805	0.077	0.219
Risulta	8.060e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.109	0.901	0.134	5.877e+05	72.9	67.71	8.40e-03	8.63e-03	1.07e-06
2	1.748	0.572	0.212	1.627e+05	20.2	1968.16	0.2	14.50	1.80e-03
3	2.492	0.401	0.277	316.50	3.93e-02	7.064e+05	87.7	820.09	0.1
4	2.657	0.376	0.277	4.959e+04	6.2	131.80	1.64e-02	4.62	5.73e-04
5	2.832	0.353	0.277	1291.03	0.2	1.08	1.34e-04	1.55	1.93e-04
6	3.147	0.318	0.277	5.43	6.74e-04	0.61	7.53e-05	2.78	3.44e-04
7	3.409	0.293	0.277	18.13	2.25e-03	18.47	2.29e-03	26.15	3.24e-03
8	3.576	0.280	0.277	43.48	5.39e-03	12.68	1.57e-03	119.50	1.48e-02
9	3.747	0.267	0.277	1228.30	0.2	11.34	1.41e-03	122.91	1.52e-02
10	3.870	0.258	0.277	86.23	1.07e-02	2.54e-03	0.0	59.09	7.33e-03
11	4.157	0.241	0.277	50.95	6.32e-03	893.09	0.1	73.30	9.09e-03
12	4.337	0.231	0.277	18.37	2.28e-03	8409.34	1.0	45.46	5.64e-03
13	4.487	0.223	0.277	50.00	6.20e-03	5.712e+04	7.1	0.19	2.40e-05
14	4.813	0.208	0.277	191.58	2.38e-02	1.701e+04	2.1	4736.76	0.6
15	4.923	0.203	0.277	109.75	1.36e-02	695.02	8.62e-02	4.798e+05	59.5
16	5.008	0.200	0.277	25.34	3.14e-03	1566.63	0.2	1566.56	0.2
17	5.231	0.191	0.277	3.16	3.92e-04	1.80	2.24e-04	289.75	3.60e-02
18	5.363	0.186	0.277	851.01	0.1	224.58	2.79e-02	4.093e+04	5.1
19	5.612	0.178	0.277	72.42	8.99e-03	9.70	1.20e-03	992.79	0.1
20	5.726	0.175	0.277	5.88	7.29e-04	1.27	1.57e-04	1.174e+04	1.5
Risulta				8.044e+05		7.946e+05		5.414e+05	
In percentuale				99.80		98.59		67.17	

CDC	Tipo	Sigla Id	Note
9	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.941 sec.
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
9.20	1.197e+05	11.00	31.00	0.0	0.55	11.00	31.00	1.166	0.0	0.0
4.60	6.862e+05	8.41	20.25	0.0	1.82	9.15	16.87	0.805	0.077	0.219
Risulta	8.060e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.063	0.941	0.129	5.945e+05	73.8	111.28	1.38e-02	0.04	5.29e-06
2	1.984	0.504	0.240	1.664e+05	20.7	3976.95	0.5	18.74	2.33e-03
3	2.491	0.402	0.277	3879.66	0.5	6.732e+05	83.5	777.09	9.64e-02
4	2.540	0.394	0.277	3.725e+04	4.6	3.093e+04	3.8	44.28	5.49e-03
5	3.222	0.310	0.277	562.62	6.98e-02	0.88	1.09e-04	5.44	6.76e-04
6	3.556	0.281	0.277	50.16	6.22e-03	1.46	1.81e-04	17.49	2.17e-03
7	3.592	0.278	0.277	179.28	2.22e-02	157.77	1.96e-02	216.37	2.68e-02
8	3.700	0.270	0.277	51.50	6.39e-03	7.70	9.56e-04	8.32	1.03e-03
9	3.773	0.265	0.277	114.68	1.42e-02	86.46	1.07e-02	39.69	4.92e-03
10	3.948	0.253	0.277	157.54	1.95e-02	179.35	2.23e-02	78.09	9.69e-03

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
11	4.195	0.238	0.277	0.12	1.50e-05	782.49	9.71e-02	17.25	2.14e-03
12	4.407	0.227	0.277	18.24	2.26e-03	1708.49	0.2	96.68	1.20e-02
13	4.473	0.224	0.277	0.13	1.59e-05	6.221e+04	7.7	26.32	3.27e-03
14	4.645	0.215	0.277	7.15	8.87e-04	8143.01	1.0	754.77	9.36e-02
15	4.807	0.208	0.277	134.31	1.67e-02	1.021e+04	1.3	6081.51	0.8
16	4.925	0.203	0.277	86.09	1.07e-02	531.49	6.59e-02	4.803e+05	59.6
17	5.113	0.196	0.277	19.79	2.46e-03	389.74	4.84e-02	0.66	8.15e-05
18	5.363	0.186	0.277	835.48	0.1	104.65	1.30e-02	4.060e+04	5.0
19	5.500	0.182	0.277	41.90	5.20e-03	1965.59	0.2	421.01	5.22e-02
20	5.722	0.175	0.277	4.95	6.14e-04	478.93	5.94e-02	3644.78	0.5
Risulta				8.043e+05		7.952e+05		5.332e+05	
In percentuale				99.80		98.66		66.15	

CDC	Tipo	Sigla Id	Note
10	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.404 sec.
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
9.20	1.197e+05	11.00	31.00	0.55	0.0	11.00	31.00	1.166	0.0	0.0
4.60	6.862e+05	8.41	20.25	0.92	0.0	9.15	16.87	0.805	0.077	0.219
Risulta	8.060e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.087	0.920	0.132	5.875e+05	72.9	27.11	3.36e-03	9.60e-03	1.19e-06
2	1.856	0.539	0.225	1.661e+05	20.6	1650.60	0.2	6.94	8.62e-04
3	2.473	0.404	0.277	8465.65	1.1	6.132e+05	76.1	740.55	9.19e-02
4	2.615	0.382	0.277	4.005e+04	5.0	8.846e+04	11.0	125.85	1.56e-02
5	3.032	0.330	0.277	337.57	4.19e-02	924.17	0.1	0.06	7.84e-06
6	3.382	0.296	0.277	10.12	1.26e-03	1589.28	0.2	2.93	3.63e-04
7	3.575	0.280	0.277	1.78	2.21e-04	3401.50	0.4	43.22	5.36e-03
8	3.664	0.273	0.277	306.23	3.80e-02	202.82	2.52e-02	6.62	8.22e-04
9	3.725	0.268	0.277	388.85	4.82e-02	3871.39	0.5	59.93	7.44e-03
10	3.885	0.257	0.277	0.02	2.30e-06	67.52	8.38e-03	13.06	1.62e-03
11	3.999	0.250	0.277	17.24	2.14e-03	143.77	1.78e-02	6.92	8.59e-04
12	4.367	0.229	0.277	2.38	2.96e-04	67.44	8.37e-03	0.51	6.36e-05
13	4.563	0.219	0.277	1.15	1.42e-04	7.711e+04	9.6	17.28	2.14e-03
14	4.751	0.210	0.277	113.15	1.40e-02	1738.68	0.2	811.34	0.1
15	4.818	0.208	0.277	70.20	8.71e-03	1422.92	0.2	6195.29	0.8
16	4.923	0.203	0.277	97.21	1.21e-02	899.85	0.1	4.789e+05	59.4
17	5.146	0.194	0.277	20.28	2.52e-03	101.15	1.26e-02	392.97	4.88e-02
18	5.363	0.186	0.277	874.18	0.1	177.33	2.20e-02	4.084e+04	5.1
19	5.484	0.182	0.277	24.35	3.02e-03	137.44	1.71e-02	1795.39	0.2
20	5.851	0.171	0.277	34.20	4.24e-03	126.65	1.57e-02	3.985e+04	4.9
Risulta				8.044e+05		7.953e+05		5.698e+05	
In percentuale				99.81		98.68		70.70	

CDC	Tipo	Sigla Id	Note
11	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.277 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa

CDC	Tipo	Sigla Id	Note
			periodo proprio T1: 0.405 sec.
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	rapp. r/Ls	rapp. ex/rx	rapp. ey/ry
m	kg	m	m	m	m	m	m			
9.20	1.197e+05	11.00	31.00	-0.55	0.0	11.00	31.00	1.166	0.0	0.0
4.60	6.862e+05	8.41	20.25	-0.92	0.0	9.15	16.87	0.805	0.077	0.219
Risulta	8.060e+05									

Modo	Frequenza	Periodo	Acc. Spettrale	M eccitata X x g	%	M eccitata Y x g	%	M eccitata Z x g	%
	Hz	sec	g	kg		kg		kg	
1	1.087	0.920	0.132	5.864e+05	72.8	600.74	7.45e-02	0.05	6.58e-06
2	1.845	0.542	0.223	1.643e+05	20.4	2.015e+04	2.5	28.15	3.49e-03
3	2.467	0.405	0.277	1.762e+04	2.2	5.732e+05	71.1	572.21	7.10e-02
4	2.625	0.381	0.277	3.383e+04	4.2	1.107e+05	13.7	193.23	2.40e-02
5	3.033	0.330	0.277	345.21	4.28e-02	796.25	9.88e-02	11.74	1.46e-03
6	3.385	0.295	0.277	17.98	2.23e-03	1014.92	0.1	55.48	6.88e-03
7	3.579	0.279	0.277	0.13	1.64e-05	2394.46	0.3	252.92	3.14e-02
8	3.663	0.273	0.277	300.89	3.73e-02	199.63	2.48e-02	26.95	3.34e-03
9	3.721	0.269	0.277	349.61	4.34e-02	2866.42	0.4	307.38	3.81e-02
10	3.882	0.258	0.277	0.44	5.52e-05	172.89	2.15e-02	5.92	7.35e-04
11	3.997	0.250	0.277	11.71	1.45e-03	417.17	5.18e-02	17.95	2.23e-03
12	4.315	0.232	0.277	24.29	3.01e-03	2.723e+04	3.4	0.28	3.42e-05
13	4.406	0.227	0.277	51.69	6.41e-03	2.535e+04	3.1	1.11	1.38e-04
14	4.777	0.209	0.277	17.87	2.22e-03	1906.23	0.2	112.04	1.39e-02
15	4.899	0.204	0.277	224.71	2.79e-02	1.674e+04	2.1	2.427e+05	30.1
16	4.953	0.202	0.277	0.03	4.12e-06	6140.12	0.8	2.465e+05	30.6
17	5.147	0.194	0.277	32.31	4.01e-03	1669.51	0.2	172.54	2.14e-02
18	5.362	0.187	0.277	772.26	9.58e-02	171.11	2.12e-02	3.763e+04	4.7
19	5.485	0.182	0.277	88.86	1.10e-02	1330.40	0.2	1328.42	0.2
20	5.600	0.179	0.277	20.33	2.52e-03	1130.70	0.1	2906.82	0.4
Risulta				8.044e+05		7.942e+05		5.328e+05	
In percentuale				99.80		98.54		66.11	

A seguire si riportano le deformate relative ai modi globali più significativi.

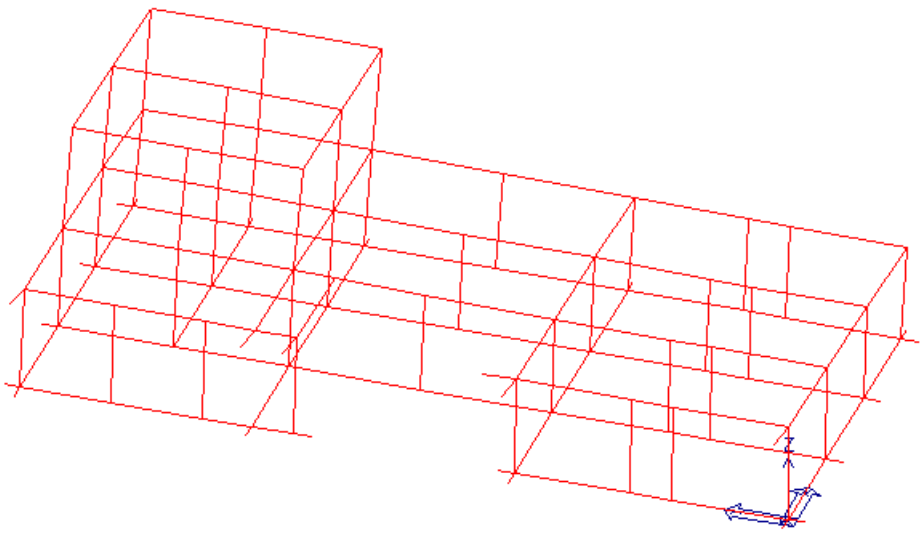


Figura 12.6 – 1 – Deformata tipo 1° Modo

13.7. INVILUPPO SOLLECITAZIONI - PILASTRI

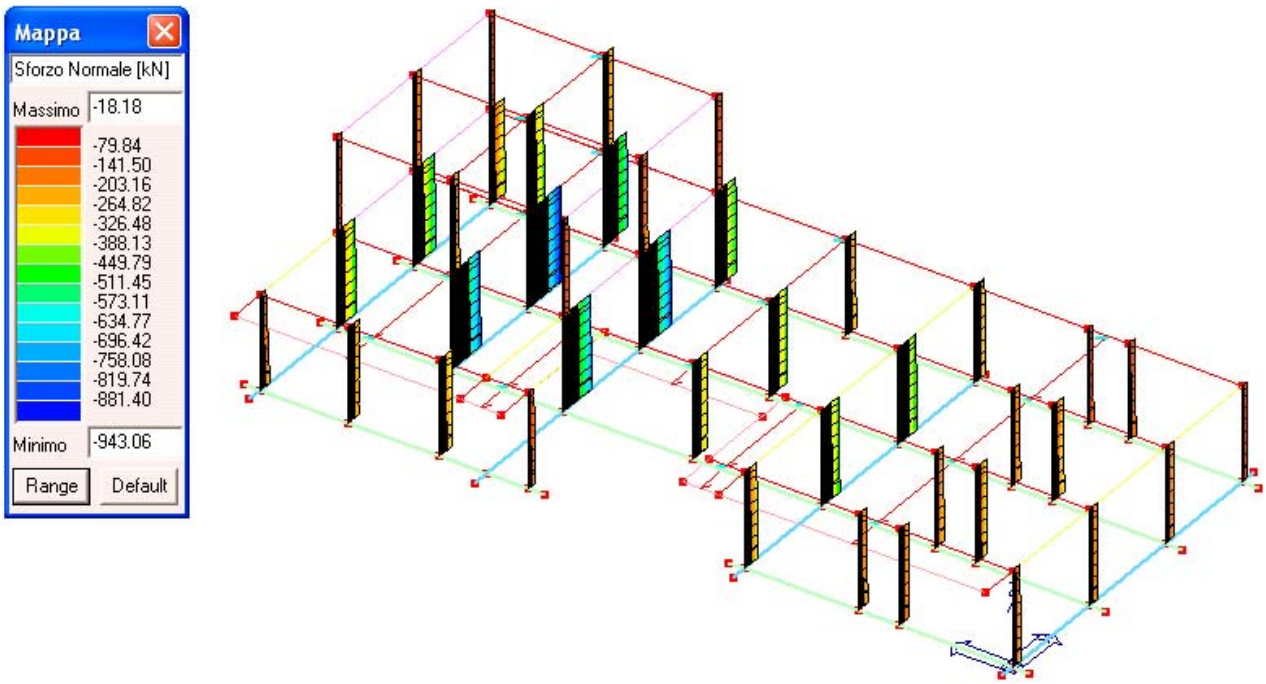


Figura 12.7 – 1 – Pilastri: inviluppo Sforzo normale N

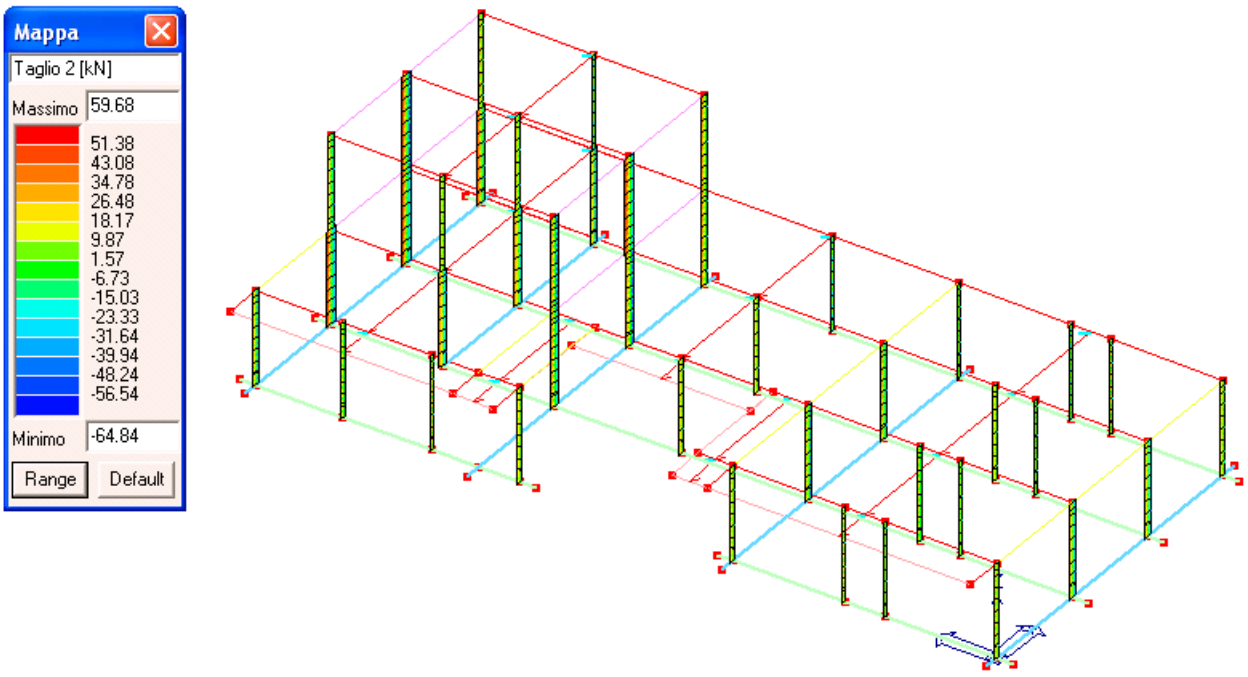


Figura 12.7 – 2 – Pilastri: inviluppo Taglio T 2-2

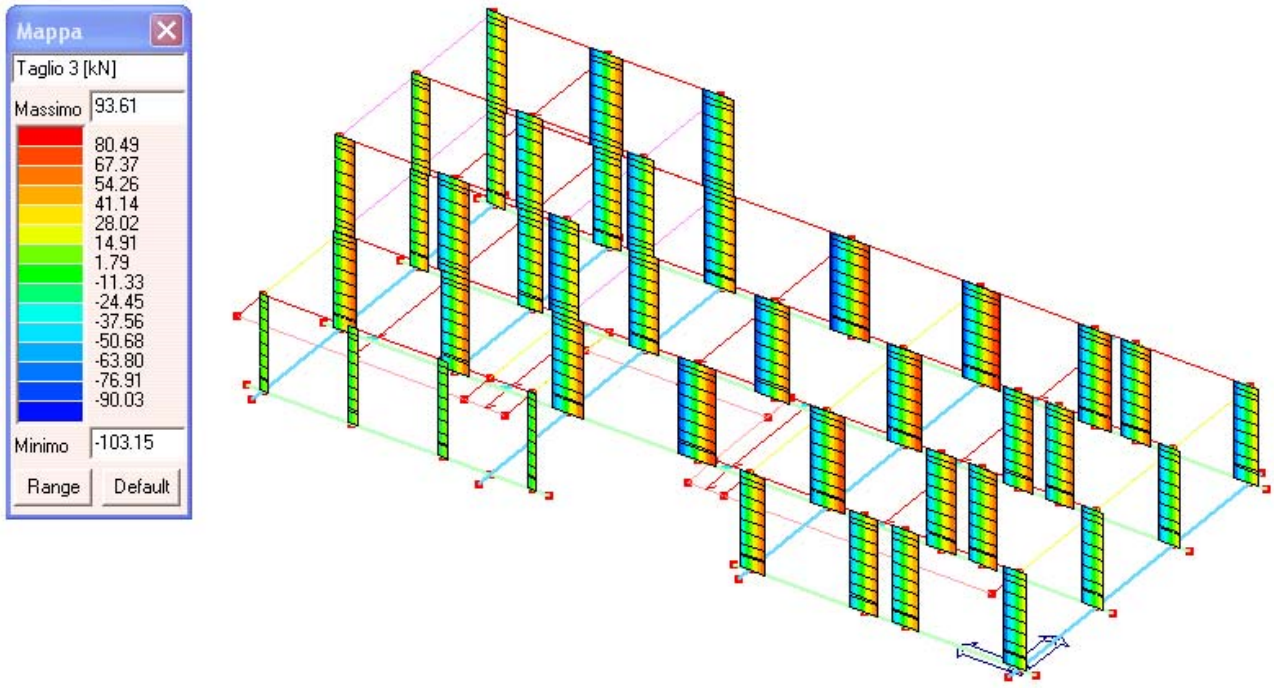


Figura 12.7 – 3 – Pilastri: inviluppo Taglio T 3-3

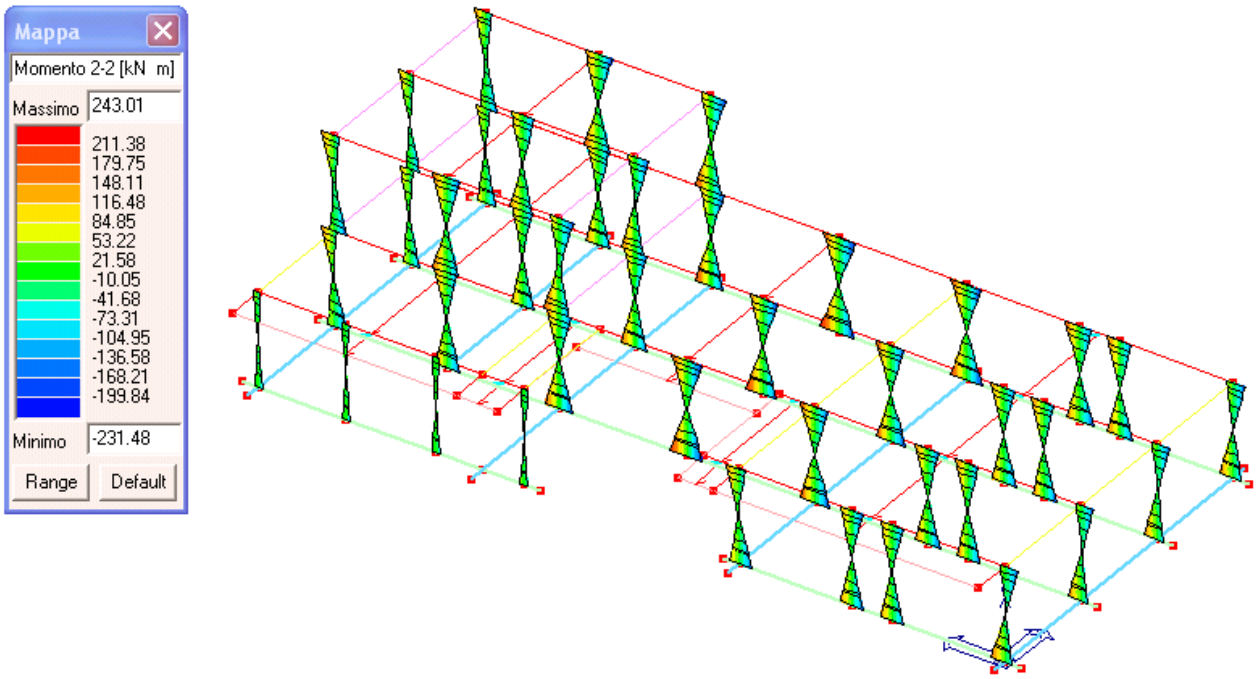


Figura 12.7 – 4 – Pilastri: inviluppo Momento flettente M 2-2

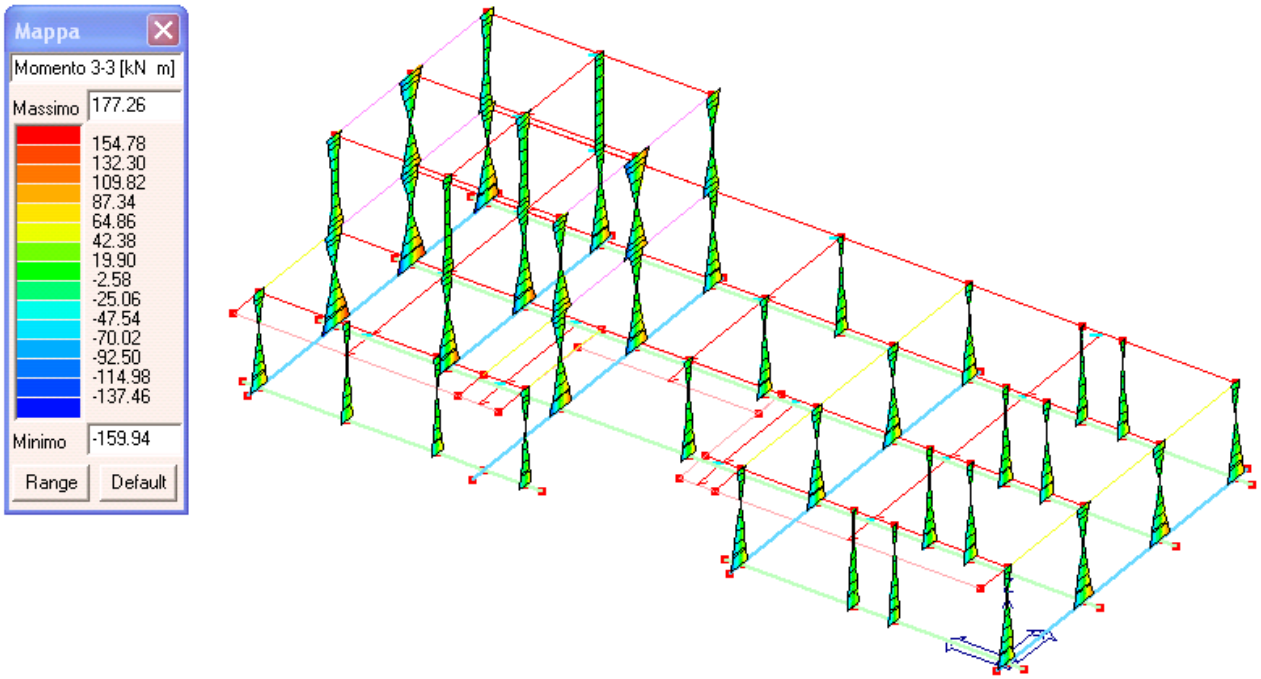


Figura 12.7 – 5 – Pilastri: inviluppo Momento flettente M 3-3

13.8. INVILUPPO SOLLECITAZIONI – TRAVATE

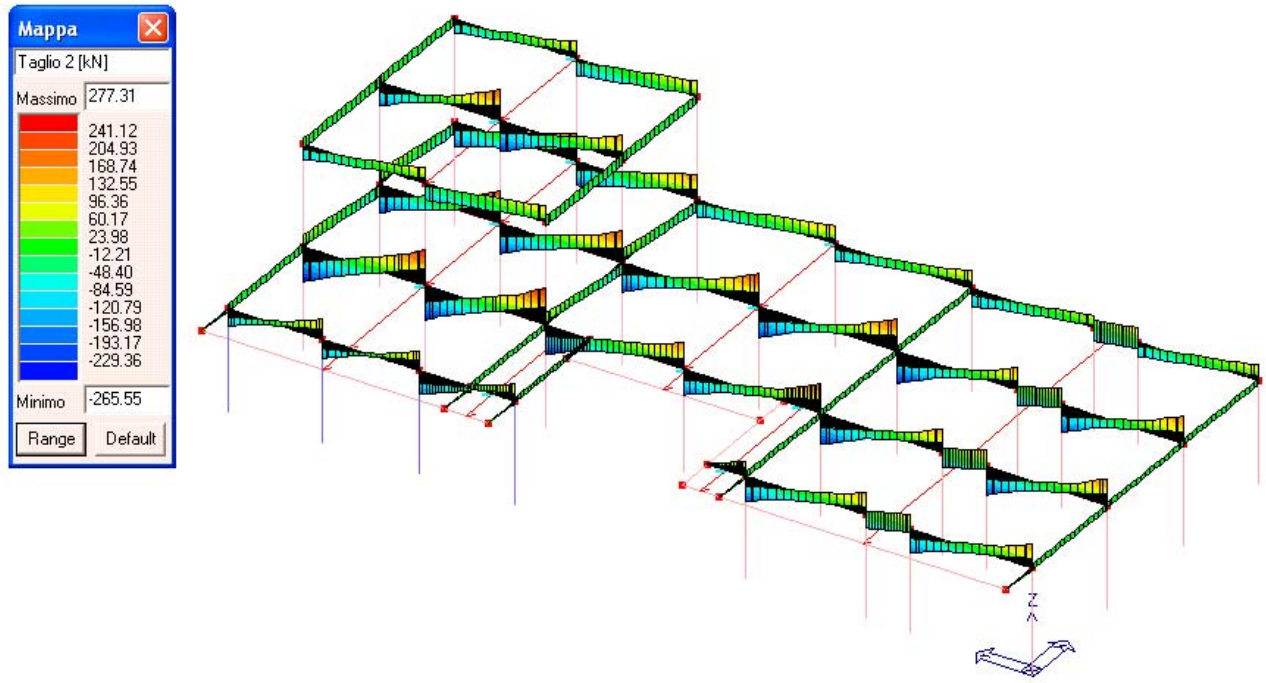


Figura 12.8 – 1 – Travi: inviluppo Taglio T 2-2

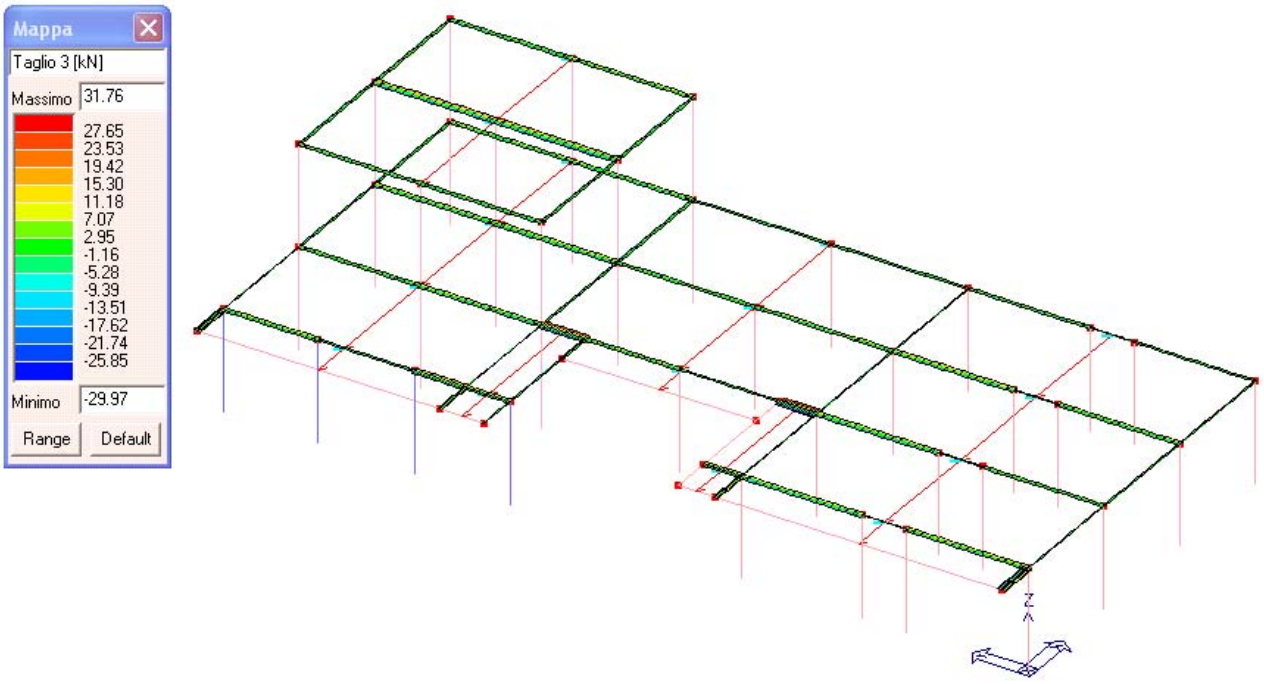


Figura 12.8 – 2 – Travi: inviluppo Taglio T 3-3

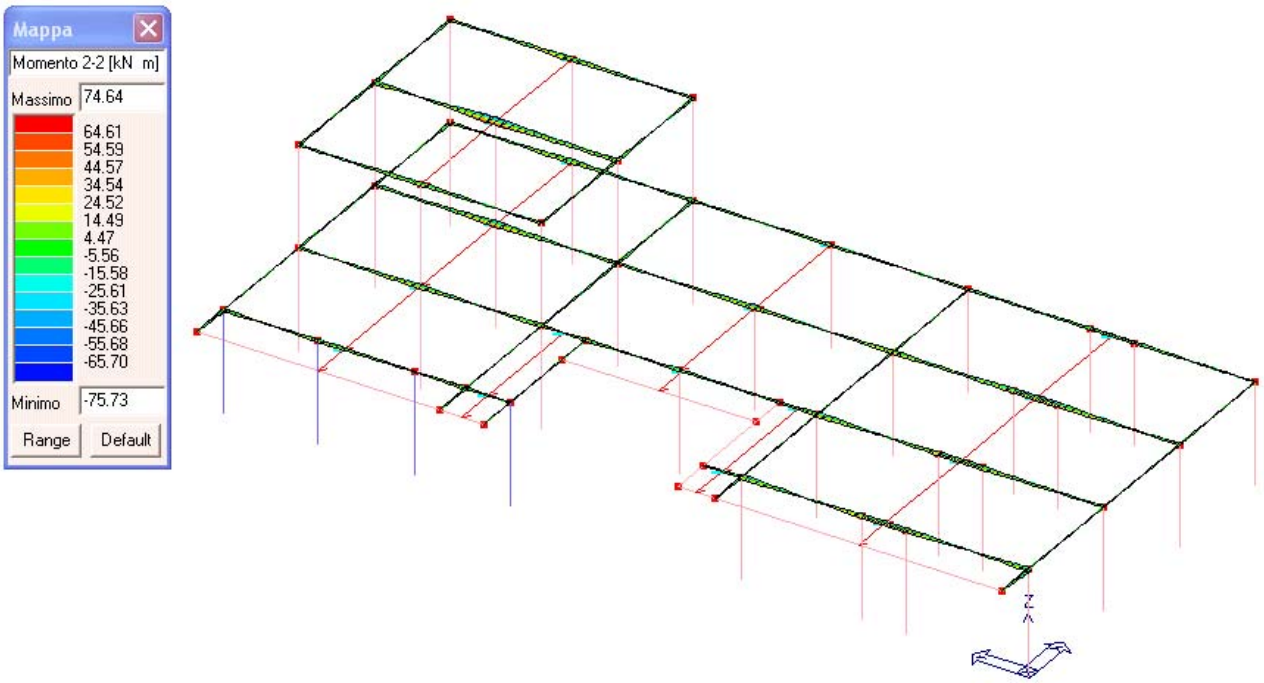


Figura 12.8 – 3 – Travi: inviluppo Momento flettente M 2-2

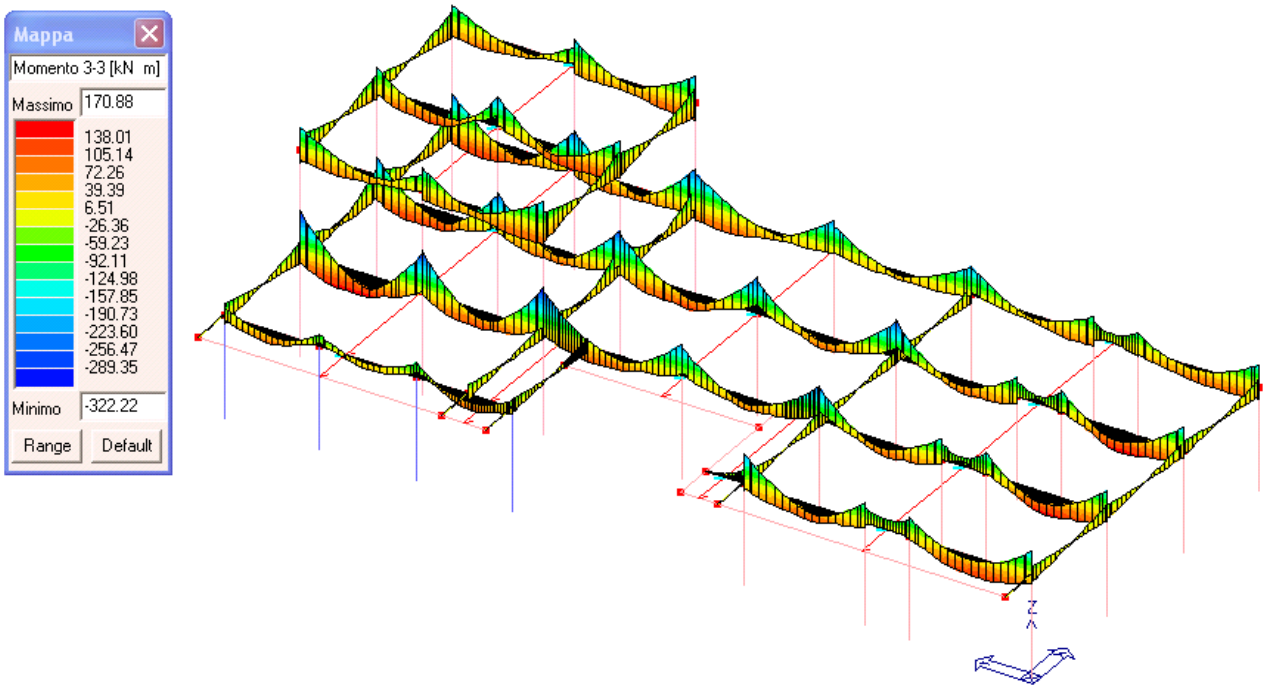


Figura 12.8 – 4 – Travi: inviluppo Momento flettente M 3-3

13.9. INVILUPPO SOLLECITAZIONI – TRAVI FONDAZIONE

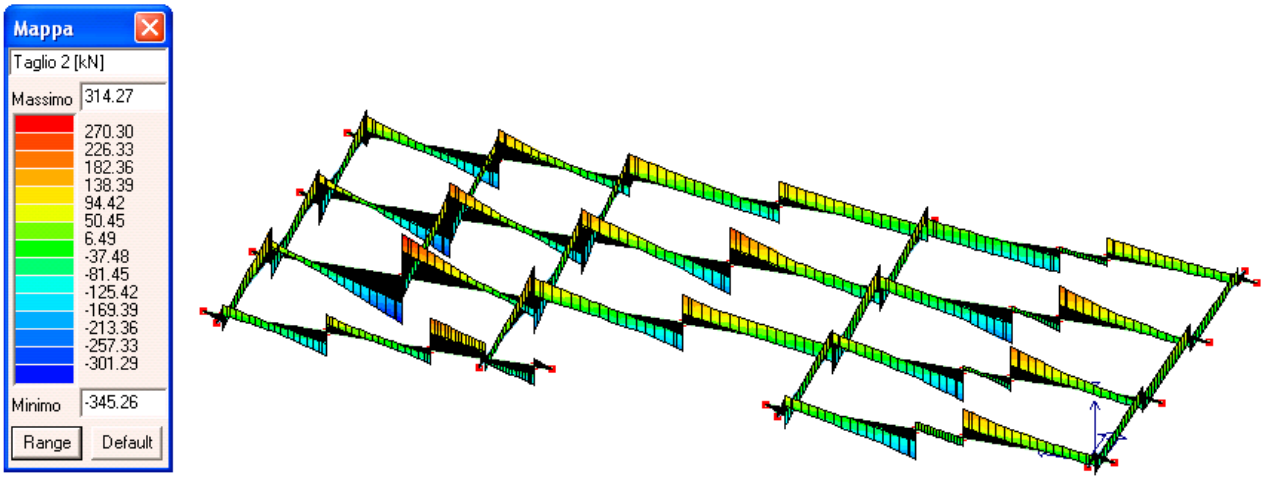


Figura 12.9 – 1 – Travi: inviluppo Taglio T 2-2

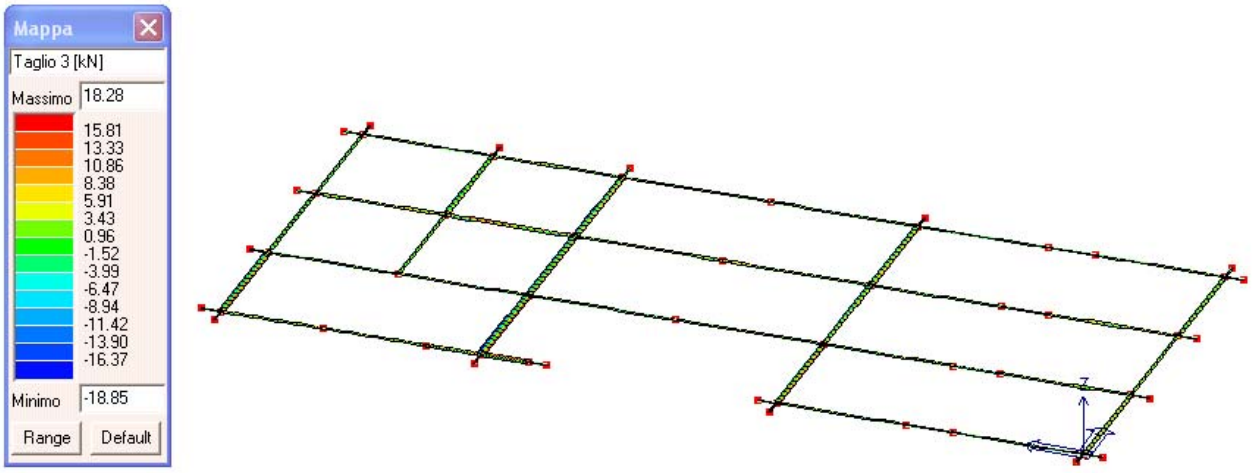


Figura 12.9 – 2 – Travi: inviluppo Taglio T 3-3

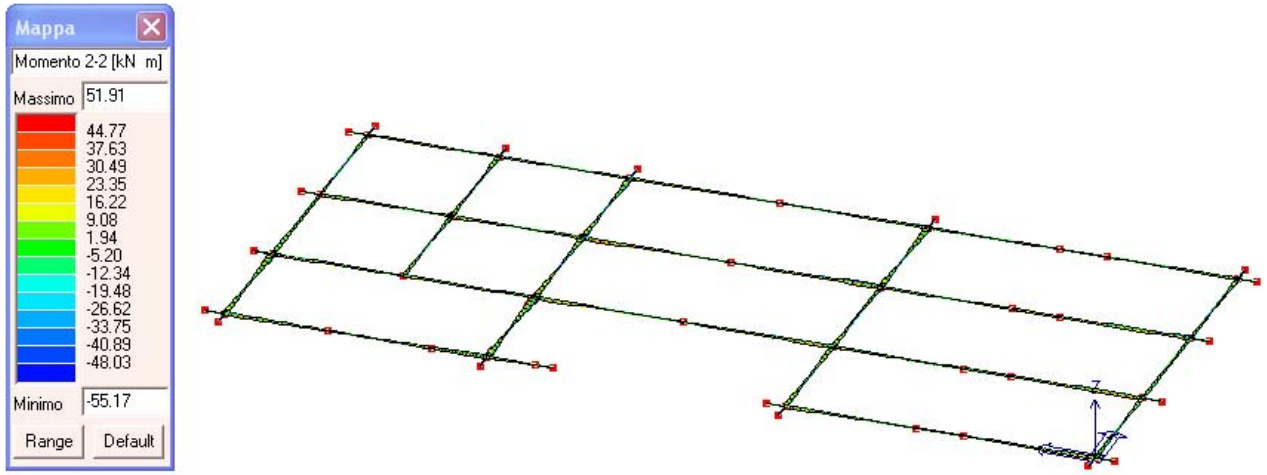


Figura 12.9 – 3 – Travi: inviluppo Momento flettente M 2-2

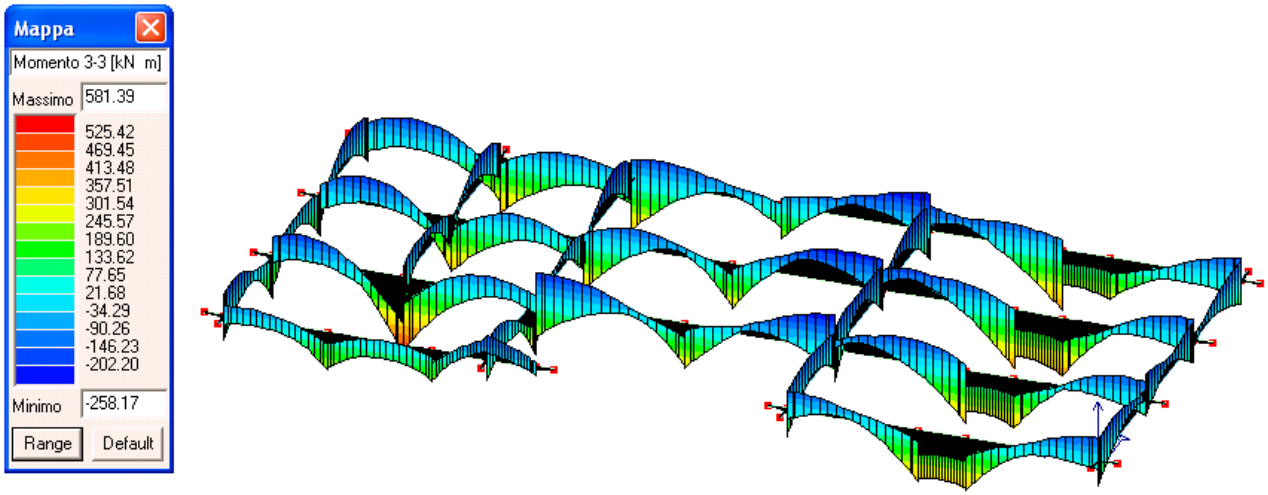


Figura 12.9 – 4 – Travi: inviluppo Momento flettente M 3-3

13.10. VERIFICHE SLU ED SLE TRAVI IN ELEVAZIONE

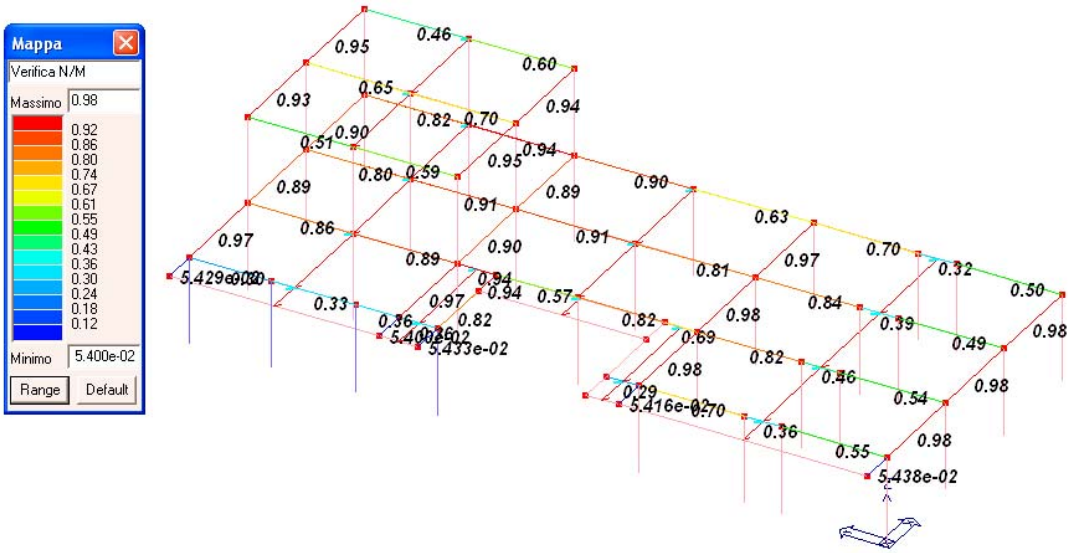


Figura 12.10 – 1 – Verifica N-M Travate

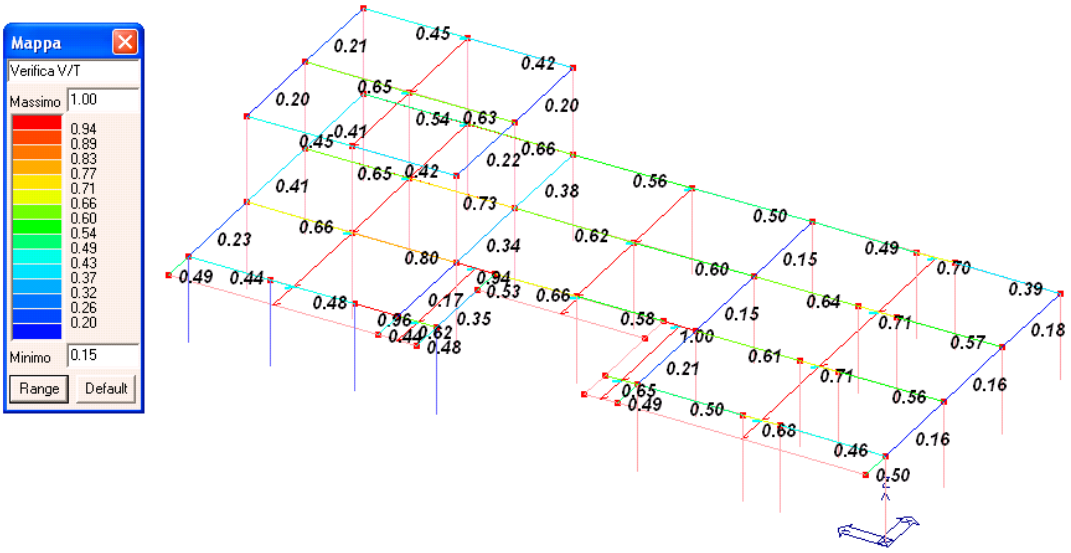


Figura 12.10 – 2 – Verifica V-T Travate

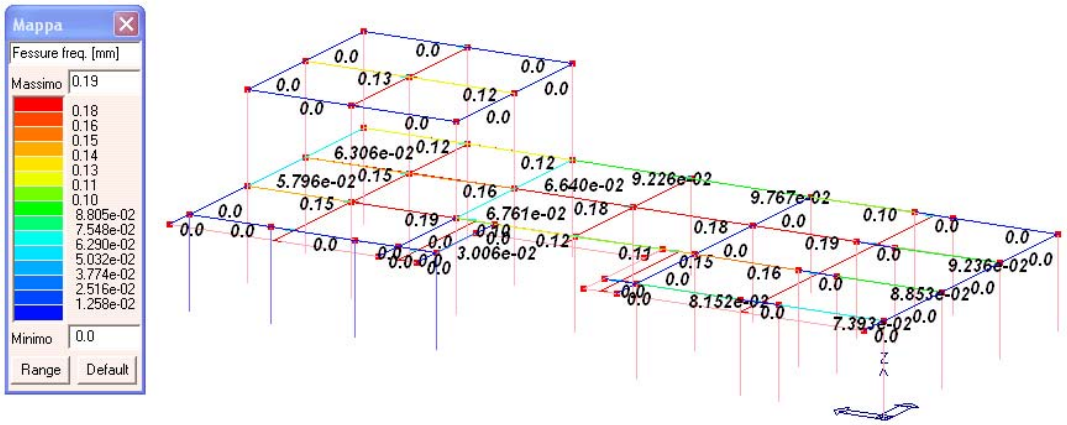


Figura 12.10 – 3 – S.L.E. Travi copertura: fessure comb. frequenti

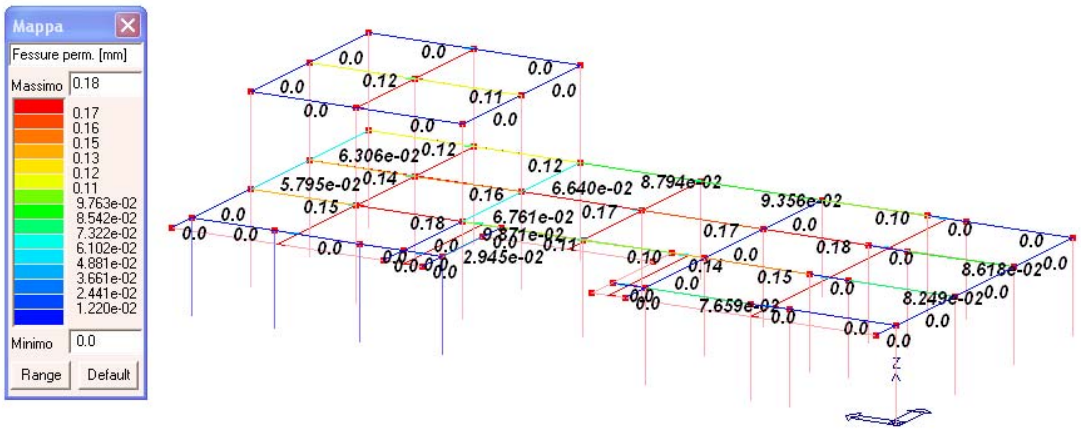


Figura 12.10 – 4 – S.L.E. Travi copertura: fessure comb. quasi perm.

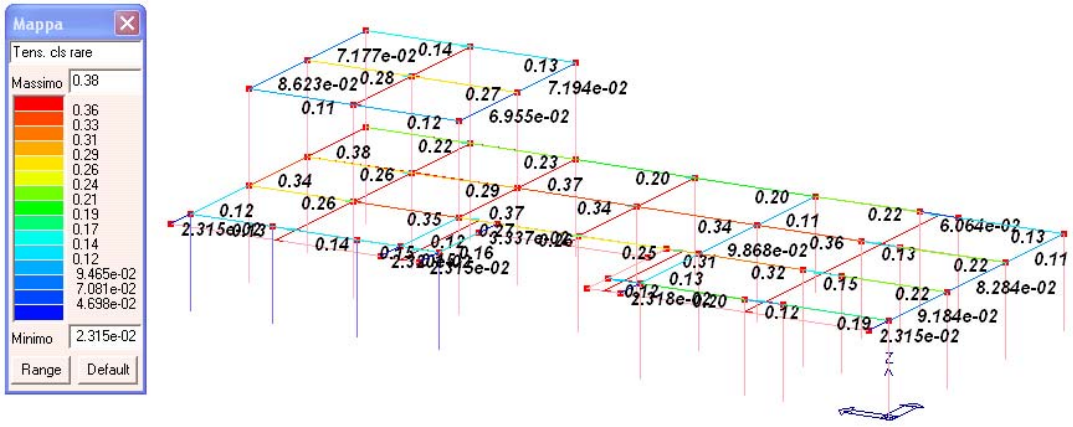


Figura 12.10 – 5 – S.L.E. Travi copertura: tensioni cls comb. Rare

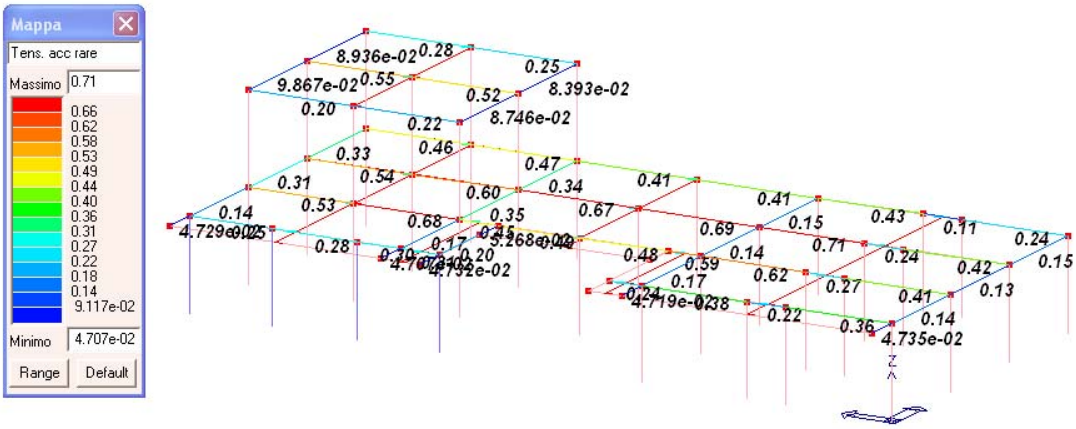


Figura 12.10 – 6 – S.L.E. Travi copertura: tensioni acciaio comb. rare

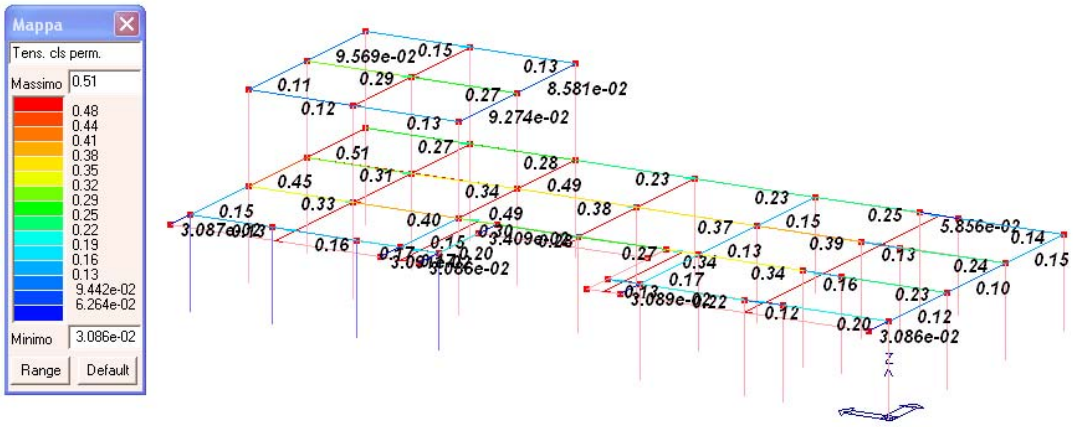


Figura 12.10 – 7 – S.L.E. Travi copertura: tensioni cls comb. Permanenti

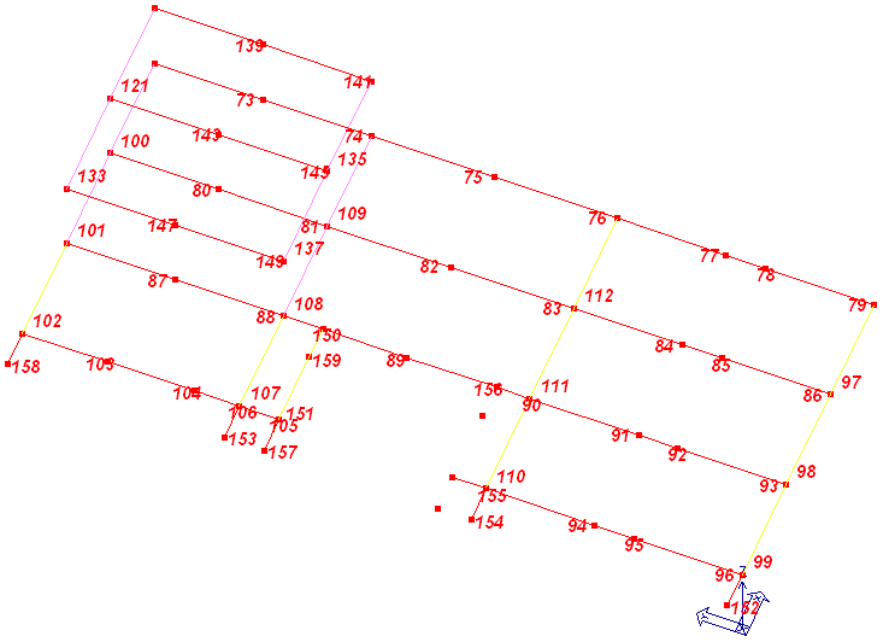


Figura 12.10 – 8 – Numerazione delle sezioni

Verifiche SLU

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
		cm									L=cm			
73	ok,ok	0.0	0.52	15.7	15.7	0.09	0.76	0.54	5.5	0.0	2d12/12 L=62	0.0	0.0	43,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.37	0.38	2.8	0.0	2d12/30 L=425	0.0	0.0	11,27
		550.0	0.52	15.7	15.7	0.09	0.82	0.52	5.1	0.0	2d12/12 L=62	0.0	0.0	44,27
74	ok,ok	0.0	0.52	15.7	15.7	0.09	0.74	0.66	5.3	0.0	2d12/12 L=62	0.0	0.0	43,34
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.30	0.50	2.7	0.0	2d12/30 L=425	0.0	0.0	9,34
		550.0	0.52	15.7	15.7	0.09	0.94	0.65	5.2	0.0	2d12/12 L=62	0.0	0.0	38,34
75	ok,ok	0.0	0.52	15.7	15.7	0.09	0.56	0.56	4.0	0.0	2d12/12 L=62	0.0	0.0	27,35
	s=2,m=4	312.5	0.52	15.7	15.7	0.09	0.21	0.46	2.4	0.0	2d12/30 L=500	0.0	0.0	3,35
		625.0	0.52	15.7	15.7	0.09	0.90	0.55	3.9	0.0	2d12/12 L=62	0.0	0.0	44,35
76	ok,ok	0.0	0.52	15.7	15.7	0.09	0.60	0.50	4.0	0.0	2d12/12 L=62	0.0	0.0	51,37
	s=2,m=4	312.5	0.52	15.7	15.7	0.09	0.23	0.40	2.4	0.0	2d12/30 L=500	0.0	0.0	42,37
		625.0	0.52	15.7	15.7	0.09	0.63	0.49	3.9	0.0	2d12/12 L=62	0.0	0.0	40,37
77	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.45	3.8	0.0	2d12/12 L=62	0.0	0.0	44,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.22	0.40	3.0	0.0	2d12/30 L=425	0.0	0.0	52,27
		550.0	0.52	15.7	15.7	0.09	0.70	0.49	4.4	0.0	2d12/12 L=62	0.0	0.0	44,27
78	ok,ok	0.0	0.52	15.7	15.7	0.09	0.31	0.70	9.4	0.0	2d12/12 L=62	0.0	0.0	39,37
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.16	0.67	8.8	0.0	2d12/20 L=75	0.0	0.0	26,37
		200.0	0.52	15.7	15.7	0.09	0.32	0.70	9.3	0.0	2d12/12 L=62	0.0	0.0	44,37
79	ok,ok	0.0	0.52	15.7	15.7	0.09	0.50	0.39	4.1	0.0	2d12/12 L=62	0.0	0.0	43,26
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.31	0.31	2.7	0.0	2d12/30 L=425	0.0	0.0	24,26
		550.0	0.52	15.7	15.7	0.09	0.34	0.39	4.1	0.0	2d12/12 L=62	0.0	0.0	38,26
80	ok,ok	0.0	0.52	15.7	15.7	0.09	0.75	0.65	5.9	0.0	2d12/12 L=62	0.0	0.0	43,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.45	0.47	2.8	0.0	2d12/30 L=425	0.0	0.0	11,28
		550.0	0.52	15.7	15.7	0.09	0.80	0.63	5.5	0.0	2d12/12 L=62	0.0	0.0	44,28
81	ok,ok	0.0	0.52	15.7	15.7	0.09	0.78	0.73	5.8	0.0	2d12/12 L=62	0.0	0.0	43,34
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.33	0.55	2.7	0.0	2d12/30 L=425	0.0	0.0	9,37
		550.0	0.52	15.7	15.7	0.09	0.91	0.72	5.6	0.0	2d12/12 L=62	0.0	0.0	44,34
82	ok,ok	0.0	0.52	15.7	15.7	0.09	0.79	0.62	5.3	0.0	2d12/12 L=62	0.0	0.0	4,36
	s=2,m=4	312.5	0.52	15.7	15.7	0.09	0.41	0.45	2.5	0.0	2d12/30 L=500	0.0	0.0	3,36
		625.0	0.52	15.7	15.7	0.09	0.91	0.60	4.9	0.0	2d12/12 L=62	0.0	0.0	44,36
83	ok,ok	0.0	0.52	15.7	15.7	0.09	0.81	0.60	5.2	0.0	2d12/12 L=62	0.0	0.0	4,34
	s=2,m=4	312.5	0.52	15.7	15.7	0.09	0.32	0.43	2.4	0.0	2d12/30 L=500	0.0	0.0	3,34
		625.0	0.52	15.7	15.7	0.09	0.81	0.59	5.1	0.0	2d12/12 L=62	0.0	0.0	44,34
84	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.58	4.7	0.0	2d12/12 L=62	0.0	0.0	39,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.29	0.49	3.1	0.0	2d12/30 L=425	0.0	0.0	3,28
		550.0	0.52	15.7	15.7	0.09	0.84	0.64	5.6	0.0	2d12/12 L=62	0.0	0.0	44,28

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
85	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.71	9.8	0.0	2d12/12 L=62	0.0	0.0	43,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.14	0.65	8.9	0.0	2d12/20 L=75	0.0	0.0	4,34
		200.0	0.52	15.7	15.7	0.09	0.39	0.70	9.7	0.0	2d12/12 L=62	0.0	0.0	44,34
86	ok,ok	0.0	0.52	15.7	15.7	0.09	0.49	0.57	5.1	0.0	2d12/12 L=62	0.0	0.0	43,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.49	0.42	2.7	0.0	2d12/30 L=425	0.0	0.0	4,28
		550.0	0.52	15.7	15.7	0.09	0.47	0.57	5.2	0.0	2d12/12 L=62	0.0	0.0	38,28
87	ok,ok	0.0	0.52	15.7	15.7	0.09	0.81	0.66	6.4	0.0	2d12/12 L=62	0.0	0.0	53,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.52	0.44	2.8	0.0	2d12/30 L=425	0.0	0.0	4,28
		550.0	0.63	15.7	18.8	0.10	0.86	0.66	6.5	0.0	2d12/12 L=62	0.0	0.0	50,28
88	ok,ok	0.0	0.52	15.7	15.7	0.09	0.85	0.80	6.4	0.0	2d12/12 L=62	0.0	0.0	53,37
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.42	0.58	2.8	0.0	2d12/30 L=425	0.0	0.0	48,37
		550.0	0.63	15.7	18.8	0.10	0.89	0.80	6.5	0.0	2d12/12 L=62	0.0	0.0	50,37
89	ok,ok	0.0	0.52	15.7	15.7	0.09	0.57	0.66	5.7	0.0	2d12/12 L=62	0.0	0.0	4,36
	s=2,m=4	212.5	0.52	15.7	15.7	0.09	0.43	0.56	4.1	0.0	2d12/30 L=300	0.0	0.0	50,36
		425.0	0.52	15.7	15.7	0.09	0.33	0.57	4.1	0.0	2d12/12 L=62	0.0	0.0	48,36
90	ok,ok	0.0	0.52	15.7	15.7	0.09	0.69	1.00	11.9	0.0	2d12/12 L=62	0.0	0.0	4,34
	s=2,m=4	85.0	0.52	15.7	15.7	0.09	0.29	0.96	11.0	0.0	2d12/15 L=45	0.0	0.0	50,34
		170.0	0.52	15.7	15.7	0.09	0.41	0.91	10.3	0.0	2d12/12 L=62	0.0	0.0	50,34
91	ok,ok	0.0	0.52	15.7	15.7	0.09	0.35	0.57	4.8	0.0	2d12/12 L=62	0.0	0.0	49,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.33	0.46	3.0	0.0	2d12/30 L=425	0.0	0.0	42,28
		550.0	0.52	15.7	15.7	0.09	0.82	0.61	5.5	0.0	2d12/12 L=62	0.0	0.0	42,28
92	ok,ok	0.0	0.52	15.7	15.7	0.09	0.34	0.71	9.8	0.0	2d12/12 L=62	0.0	0.0	49,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.19	0.66	8.9	0.0	2d12/20 L=75	0.0	0.0	42,34
		200.0	0.52	15.7	15.7	0.09	0.46	0.70	9.6	0.0	2d12/12 L=62	0.0	0.0	42,34
93	ok,ok	0.0	0.52	15.7	15.7	0.09	0.45	0.55	5.0	0.0	2d12/12 L=62	0.0	0.0	41,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.48	0.42	2.8	0.0	2d12/30 L=425	0.0	0.0	4,27
		550.0	0.52	15.7	15.7	0.09	0.54	0.56	5.2	0.0	2d12/12 L=62	0.0	0.0	42,27
94	ok,ok	0.0	0.52	15.7	15.7	0.09	0.39	0.48	4.6	0.0	2d12/12 L=62	0.0	0.0	53,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.36	0.37	2.8	0.0	2d12/30 L=425	0.0	0.0	4,27
		550.0	0.52	15.7	15.7	0.09	0.70	0.50	5.0	0.0	2d12/12 L=62	0.0	0.0	50,27
95	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.68	9.7	0.0	2d12/12 L=62	0.0	0.0	53,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.19	0.63	8.9	0.0	2d12/20 L=75	0.0	0.0	29,34
		200.0	0.52	15.7	15.7	0.09	0.32	0.67	9.5	0.0	2d12/12 L=62	0.0	0.0	48,34
96	ok,ok	0.0	0.52	15.7	15.7	0.09	0.55	0.46	4.8	0.0	2d12/12 L=62	0.0	0.0	53,26
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.43	0.34	2.7	0.0	2d12/30 L=425	0.0	0.0	4,26
		550.0	0.52	15.7	15.7	0.09	0.40	0.46	4.8	0.0	2d12/12 L=62	0.0	0.0	48,26
97	ok,ok	0.0	0.94	6.3	7.9	0.20	0.97	0.14	1.3	0.0	2d8/5 L=50	0.0	0.0	28,28
	s=3,m=4	275.0	0.75	6.3	6.3	0.18	0.12	0.15	1.1	0.0	2d8/15 L=450	0.0	0.0	25,27
		550.0	0.88	7.3	7.4	0.19	0.98	0.18	1.2	0.0	2d8/5 L=50	0.0	0.0	28,27
98	ok,ok	0.0	0.86	6.3	7.2	0.19	0.98	0.16	1.2	0.0	2d8/5 L=50	0.0	0.0	28,24
	s=3,m=4	275.0	0.75	6.3	6.3	0.18	0.12	0.13	0.9	0.0	2d8/15 L=450	0.0	0.0	45,24
		550.0	0.81	6.3	6.8	0.18	0.98	0.16	1.2	0.0	2d8/5 L=50	0.0	0.0	27,23
99	ok,ok	0.0	0.96	6.8	8.1	0.20	0.98	0.15	1.2	0.0	2d8/5 L=50	0.0	0.0	27,28
	s=3,m=4	275.0	0.75	6.3	6.3	0.18	0.11	0.14	1.0	0.0	2d8/15 L=450	0.0	0.0	47,27
		550.0	0.90	6.3	7.6	0.19	0.97	0.16	1.3	0.0	2d8/5 L=50	0.0	0.0	27,27
100	ok,ok	0.0	2.06	12.6	23.1	0.31	0.90	0.41	4.6	0.0	2d8/5 L=50	0.0	0.0	37,32
	s=7,m=4	275.0	1.12	12.6	12.6	0.20	0.33	0.22	2.1	0.0	2d8/15 L=450	0.0	0.0	3,32
		550.0	1.89	12.6	21.2	0.29	0.89	0.38	4.3	0.0	2d8/5 L=50	0.0	0.0	34,27
101	ok,ok	0.0	1.87	12.6	21.0	0.28	0.89	0.41	4.3	0.0	2d8/5 L=50	0.0	0.0	37,32
	s=7,m=4	275.0	1.12	12.6	12.6	0.20	0.32	0.22	1.9	0.0	2d8/15 L=450	0.0	0.0	3,32
		550.0	1.94	12.6	21.7	0.29	0.89	0.36	4.4	0.0	2d8/5 L=50	0.0	0.0	34,31
102	ok,ok	0.0	1.31	8.2	11.0	0.23	0.97	0.23	1.6	0.0	2d8/5 L=50	0.0	0.0	31,37
	s=3,m=4	275.0	0.75	6.3	6.3	0.18	0.09	0.20	1.4	0.0	2d8/15 L=450	0.0	0.0	47,37
		550.0	1.27	9.0	10.7	0.22	0.95	0.19	1.5	0.0	2d8/5 L=50	0.0	0.0	37,34
103	ok,ok	0.0	0.52	15.7	15.7	0.09	0.26	0.44	5.2	0.0	2d12/12 L=62	0.0	0.0	37,23
	s=2,m=4	215.0	0.52	15.7	15.7	0.09	0.30	0.34	3.5	0.0	2d12/30 L=305	0.0	0.0	3,23
		430.0	0.52	15.7	15.7	0.09	0.18	0.42	4.8	0.0	2d12/12 L=62	0.0	0.0	42,23
104	ok,ok	0.0	0.52	15.7	15.7	0.09	0.33	0.48	5.0	0.0	2d12/12 L=62	0.0	0.0	3,34
	s=2,m=4	220.0	0.52	15.7	15.7	0.09	0.17	0.38	3.3	0.0	2d12/30 L=315	0.0	0.0	3,34
		440.0	0.52	15.7	15.7	0.09	0.27	0.48	4.9	0.0	2d12/12 L=62	0.0	0.0	4,34
105	ok,ok	0.0	0.52	15.7	15.7	0.09	0.16	0.62	8.8	0.0	2d12/12 L=62	0.0	0.0	53,37
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.26	0.58	8.0	0.0	2d12/25 L=75	0.0	0.0	4,37
		200.0	0.52	15.7	15.7	0.09	0.36	0.53	7.2	0.0	2d12/12 L=62	0.0	0.0	4,37
106	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.85	6.5	0.0	2d12/12 L=125	0.0	0.0	4,34
	s=2,m=4	115.0	0.52	15.7	15.7	0.09	0.13	0.91	7.4	0.0	2d12/12 L=125	0.0	0.0	4,34
		230.0	0.52	15.7	15.7	0.09	0.34	0.96	8.3	0.0	2d12/12 L=62	0.0	0.0	4,34
107	ok,ok	0.0	0.91	6.3	7.7	0.19	0.97	0.17	1.3	0.0	2d8/5 L=50	0.0	0.0	32,24
	s=3,m=4	275.0	0.75	6.3	6.3	0.18	0.09	0.14	1.0	0.0	2d8/15 L=450	0.0	0.0	22,24
		550.0	0.97	6.3	8.2	0.20	0.97	0.15	1.2	0.0	2d8/5 L=50	0.0	0.0	26,23

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
108	ok,ok	0.0	1.59	12.6	17.8	0.25	0.90	0.34	4.0	0.0	2d8/5 L=50	0.0	0.0	29,33
	s=7,m=4	275.0	1.12	12.6	12.6	0.20	0.31	0.16	1.7	0.0	2d8/15 L=450	0.0	0.0	1,30
		550.0	1.84	12.6	20.6	0.28	0.88	0.34	4.2	0.0	2d8/5 L=50	0.0	0.0	26,30
109	ok,ok	0.0	1.89	12.6	21.2	0.29	0.89	0.38	4.4	0.0	2d8/5 L=50	0.0	0.0	29,37
	s=7,m=4	275.0	1.12	12.6	12.6	0.20	0.33	0.19	1.9	0.0	2d8/15 L=450	0.0	0.0	1,37
		550.0	1.79	12.6	20.0	0.27	0.88	0.36	4.1	0.0	2d8/5 L=50	0.0	0.0	26,22
110	ok,ok	0.0	0.91	7.6	7.1	0.19	0.98	0.21	1.2	0.0	2d8/5 L=50	0.0	0.0	26,29
	s=3,m=4	275.0	0.75	6.3	6.3	0.18	0.16	0.19	1.1	0.0	2d8/15 L=450	0.0	0.0	34,29
		550.0	1.02	6.3	8.6	0.21	0.97	0.17	1.4	0.0	2d8/5 L=50	0.0	0.0	26,26
111	ok,ok	0.0	0.78	6.5	6.6	0.18	0.98	0.13	1.2	0.0	2d8/5 L=50	0.0	0.0	27,28
	s=3,m=4	275.0	0.75	6.3	6.3	0.18	0.13	0.12	1.0	0.0	2d8/15 L=450	0.0	0.0	30,27
		550.0	0.95	6.3	8.0	0.20	0.98	0.15	1.3	0.0	2d8/5 L=50	0.0	0.0	27,27
112	ok,ok	0.0	1.00	6.3	8.4	0.20	0.97	0.15	1.4	0.0	2d8/5 L=50	0.0	0.0	28,28
	s=3,m=4	275.0	0.75	6.3	6.3	0.18	0.13	0.13	1.1	0.0	2d8/15 L=450	0.0	0.0	28,28
		550.0	0.92	7.7	7.5	0.19	0.97	0.14	1.2	0.0	2d8/5 L=50	0.0	0.0	28,27
121	ok,ok	0.0	1.12	12.6	12.6	0.20	0.86	0.18	1.9	0.0	2d8/5 L=50	0.0	0.0	37,37
	s=7,m=4	275.0	1.12	12.6	12.6	0.20	0.09	0.18	1.6	0.0	2d8/15 L=450	0.0	0.0	24,26
		550.0	1.13	12.6	12.7	0.20	0.95	0.21	1.9	0.0	2d8/5 L=50	0.0	0.0	34,26
133	ok,ok	0.0	1.30	12.6	14.5	0.22	0.93	0.20	2.1	0.0	2d8/5 L=50	0.0	0.0	37,32
	s=7,m=4	275.0	1.12	12.6	12.6	0.20	0.10	0.17	1.7	0.0	2d8/15 L=450	0.0	0.0	26,32
		550.0	1.12	12.6	12.6	0.20	0.88	0.20	1.9	0.0	2d8/5 L=50	0.0	0.0	34,31
135	ok,ok	0.0	1.12	12.6	12.6	0.20	0.89	0.20	2.0	0.0	2d8/5 L=50	0.0	0.0	29,25
	s=7,m=4	275.0	1.12	12.6	12.6	0.20	0.09	0.18	1.6	0.0	2d8/15 L=450	0.0	0.0	29,25
		550.0	1.24	12.6	13.9	0.21	0.94	0.20	2.0	0.0	2d8/5 L=50	0.0	0.0	26,34
137	ok,ok	0.0	1.29	12.8	14.5	0.22	0.95	0.22	2.0	0.0	2d8/5 L=50	0.0	0.0	26,37
	s=7,m=4	275.0	1.12	12.6	12.6	0.20	0.11	0.20	1.7	0.0	2d8/15 L=450	0.0	0.0	26,22
		550.0	1.12	12.6	12.6	0.20	0.95	0.22	2.1	0.0	2d8/5 L=50	0.0	0.0	26,22
139	ok,ok	0.0	0.52	15.7	15.7	0.09	0.36	0.45	4.2	0.0	2d12/12 L=62	0.0	0.0	43,27
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.22	0.36	2.8	0.0	2d12/30 L=425	0.0	0.0	4,27
		550.0	0.52	15.7	15.7	0.09	0.46	0.44	4.0	0.0	2d12/12 L=62	0.0	0.0	44,27
141	ok,ok	0.0	0.52	15.7	15.7	0.09	0.60	0.41	4.0	0.0	2d12/12 L=62	0.0	0.0	43,34
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.25	0.33	2.7	0.0	2d12/30 L=425	0.0	0.0	32,34
		550.0	0.52	15.7	15.7	0.09	0.56	0.42	4.2	0.0	2d12/12 L=62	0.0	0.0	42,34
143	ok,ok	0.0	0.52	15.7	15.7	0.09	0.65	0.65	5.4	0.0	2d12/12 L=62	0.0	0.0	3,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.39	0.50	2.9	0.0	2d12/30 L=425	0.0	0.0	4,28
		550.0	0.52	15.7	15.7	0.09	0.43	0.61	4.9	0.0	2d12/12 L=62	0.0	0.0	38,28
145	ok,ok	0.0	0.52	15.7	15.7	0.09	0.54	0.60	4.9	0.0	2d12/12 L=62	0.0	0.0	39,34
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.41	0.48	2.9	0.0	2d12/30 L=425	0.0	0.0	4,34
		550.0	0.52	15.7	15.7	0.09	0.70	0.63	5.4	0.0	2d12/12 L=62	0.0	0.0	40,34
147	ok,ok	0.0	0.52	15.7	15.7	0.09	0.31	0.45	4.1	0.0	2d12/12 L=62	0.0	0.0	51,28
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.23	0.36	2.7	0.0	2d12/30 L=425	0.0	0.0	4,28
		550.0	0.52	15.7	15.7	0.09	0.51	0.45	4.1	0.0	2d12/12 L=62	0.0	0.0	50,28
149	ok,ok	0.0	0.52	15.7	15.7	0.09	0.59	0.42	4.1	0.0	2d12/12 L=62	0.0	0.0	53,37
	s=2,m=4	275.0	0.52	15.7	15.7	0.09	0.26	0.33	2.6	0.0	2d12/30 L=425	0.0	0.0	4,37
		550.0	0.52	15.7	15.7	0.09	0.49	0.42	4.1	0.0	2d12/12 L=62	0.0	0.0	50,37
150	ok,ok	0.0	0.52	15.7	15.7	0.09	0.30	0.90	7.5	0.0	2d12/12 L=62	0.0	0.0	48,34
	s=2,m=4	100.0	0.52	15.7	15.7	0.09	0.63	0.89	7.3	0.0	2d12/30 L=62	0.0	0.0	50,34
		200.0	0.63	15.7	18.8	0.10	0.94	0.94	8.2	0.0	2d12/12 L=75	0.0	0.0	50,34
151	ok,ok	0.0	1.12	6.3	9.4	0.22	0.82	0.35	2.1	0.0	2d8/5 L=50	0.0	0.0	32,50
	s=3,m=4	190.0	0.75	6.3	6.3	0.18	0.34	0.33	1.9	0.0	2d8/15 L=280	0.0	0.0	37,50
		380.0	0.75	6.3	6.3	0.18	0.44	0.31	1.7	0.0	2d8/5 L=50	0.0	0.0	36,50
152	ok,ok	0.0	0.52	15.7	15.7	0.09	1.65e-03	0.48	7.6	0.0	2d12/12 L=62	0.0	0.0	53,49
	s=2,m=4	95.0	0.52	15.7	15.7	0.09	0.01	0.49	7.7	0.0	2d12/25 L=65	0.0	0.0	3,49
		190.0	0.52	15.7	15.7	0.09	0.05	0.50	7.8	0.0	2d12/12 L=62	0.0	0.0	3,49
153	ok,ok	0.0	0.52	15.7	15.7	0.09	2.32e-03	0.44	7.1	0.0	2d12/12 L=62	0.0	0.0	50,47
	s=2,m=4	95.0	0.52	15.7	15.7	0.09	0.01	0.43	7.0	0.0	2d12/30 L=65	0.0	0.0	1,47
		190.0	0.52	15.7	15.7	0.09	0.05	0.44	7.1	0.0	2d12/12 L=62	0.0	0.0	1,47
154	ok,ok	0.0	0.52	15.7	15.7	0.09	3.28e-03	0.47	7.6	0.0	2d12/12 L=62	0.0	0.0	42,49
	s=2,m=4	95.0	0.52	15.7	15.7	0.09	0.02	0.48	7.7	0.0	2d12/25 L=65	0.0	0.0	30,49
		190.0	0.52	15.7	15.7	0.09	0.05	0.49	7.8	0.0	2d12/12 L=62	0.0	0.0	9,49
155	ok,ok	0.0	0.52	15.7	15.7	0.09	0.29	0.65	10.5	0.0	2d12/12 L=62	0.0	0.0	3,28
	s=2,m=4	85.0	0.52	15.7	15.7	0.09	0.07	0.61	9.8	0.0	2d12/20 L=45	0.0	0.0	4,28
		170.0	0.52	15.7	15.7	0.09	6.77e-03	0.57	9.1	0.0	2d12/12 L=62	0.0	0.0	22,28
156	ok,ok	0.0	0.52	15.7	15.7	0.09	0.39	0.51	4.2	0.0	2d12/12 L=62	0.0	0.0	50,34
	s=2,m=4	227.5	0.52	15.7	15.7	0.09	0.27	0.48	3.7	0.0	2d12/30 L=330	0.0	0.0	48,34
		455.0	0.52	15.7	15.7	0.09	0.82	0.58	5.4	0.0	2d12/12 L=62	0.0	0.0	50,34
157	ok,ok	0.0	0.52	15.7	15.7	0.09	1.83e-03	0.46	7.6	0.0	2d12/12 L=62	0.0	0.0	37,29
	s=2,m=4	95.0	0.52	15.7	15.7	0.09	0.01	0.47	7.7	0.0	2d12/25 L=65	0.0	0.0	4,29
		190.0	0.52	15.7	15.7	0.09	0.05	0.48	7.8	0.0	2d12/12 L=62	0.0	0.0	4,29

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
158	ok,ok	0.0	0.52	15.7	15.7	0.09	1.54e-03	0.47	7.6	0.0	2d12/12 L=62	0.0	0.0	37,49
	s=2,m=4	95.0	0.52	15.7	15.7	0.09	0.01	0.48	7.7	0.0	2d12/25 L=65	0.0	0.0	4,49
		190.0	0.52	15.7	15.7	0.09	0.05	0.49	7.8	0.0	2d12/12 L=62	0.0	0.0	11,49
159	ok,ok	0.0	0.75	6.3	6.3	0.18	0.43	0.52	3.6	0.0	2d8/5 L=50	0.0	0.0	36,50
	s=3,m=4	85.0	0.75	6.3	6.3	0.18	0.70	0.52	3.7	0.0	2d8/15 L=70	0.0	0.0	36,50
		170.0	1.12	6.3	9.4	0.22	0.94	0.53	3.8	0.0	2d8/5 L=50	0.0	0.0	36,50
Trave			**%Af**	**Af inf.**	**Af. sup**	**x/d**	**verif.**	**ver. V/T**	**Af V**	**Af T**		**Scorr. P**	**Af long.**	
			2.06	15.69	23.06	0.31	0.98	1.00	11.89	0.0		0.0	0.0	

Verifiche SLE

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	cm					mm	mm	mm		cm	cm	cm	
73	0.0	0.22	0.46	0.27	122,122,131	0.11	0.12	0.12	122,129,131	0.20	0.15	0.15	122,129,131
	275.0	0.15	0.32	0.19	124,124,131	0.07	0.0	0.0	124,0,0				
	550.0	0.13	0.28	0.16	121,121,131	0.0	0.0	0.0	0,0,0				
74	0.0	0.23	0.47	0.28	121,124,131	0.11	0.12	0.12	124,129,131	0.29	0.27	0.26	122,129,131
	275.0	0.12	0.25	0.15	122,122,131	0.0	0.0	0.0	0,0,0				
	550.0	0.20	0.41	0.24	122,122,131	0.09	0.10	0.10	122,129,131				
75	0.0	0.20	0.41	0.23	121,121,131	0.09	0.09	0.09	121,128,131	0.41	0.38	0.37	122,129,131
	312.5	0.09	0.18	0.10	120,120,130	0.0	0.0	0.0	0,0,0				
	625.0	0.14	0.28	0.16	121,121,131	0.0	0.0	0.0	0,0,0				
76	0.0	0.20	0.41	0.23	121,121,131	0.09	0.10	0.09	121,128,131	0.26	0.26	0.25	124,129,131
	312.5	0.08	0.15	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
	625.0	0.17	0.35	0.19	121,121,131	0.08	0.0	0.0	121,0,0				
77	0.0	0.05	0.08	0.04	120,120,130	0.0	0.0	0.0	0,0,0	0.05	0.05	0.05	120,127,130
	275.0	0.08	0.14	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.22	0.43	0.25	121,121,131	0.10	0.10	0.10	121,128,131				
78	0.0	0.06	0.11	0.06	120,120,130	0.0	0.0	0.0	0,0,0	0.04	0.04	0.03	121,128,131
	100.0	0.03	0.04	0.03	121,121,131	0.0	0.0	0.0	0,0,0				
	200.0	0.05	0.09	0.06	121,121,131	0.0	0.0	0.0	0,0,0				
79	0.0	0.09	0.17	0.10	120,120,130	0.0	0.0	0.0	0,0,0	0.36	0.32	0.31	121,128,131
	275.0	0.13	0.24	0.14	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.07	0.13	0.07	121,121,131	0.0	0.0	0.0	0,0,0				
80	0.0	0.26	0.54	0.31	122,122,131	0.14	0.15	0.14	122,129,131	0.23	0.24	0.19	121,129,131
	275.0	0.18	0.38	0.21	124,124,131	0.09	0.09	0.08	124,129,131				
	550.0	0.17	0.36	0.20	124,124,131	0.08	0.08	0.0	124,129,0				
81	0.0	0.29	0.60	0.34	121,121,131	0.16	0.16	0.16	121,129,131	0.23	0.21	0.20	122,129,131
	275.0	0.14	0.28	0.16	122,122,131	0.0	0.0	0.0	0,0,0				
	550.0	0.25	0.50	0.28	122,122,131	0.13	0.13	0.12	122,129,131				
82	0.0	0.34	0.67	0.38	121,121,131	0.19	0.18	0.17	121,128,131	0.41	0.37	0.36	122,129,131
	312.5	0.18	0.34	0.18	120,120,130	0.08	0.0	0.0	120,0,0				
	625.0	0.24	0.48	0.26	121,121,131	0.12	0.11	0.10	121,128,131				
83	0.0	0.34	0.69	0.37	121,121,131	0.20	0.18	0.17	121,128,131	0.27	0.24	0.24	121,129,131
	312.5	0.14	0.27	0.15	120,120,130	0.0	0.0	0.0	0,0,0				
	625.0	0.31	0.61	0.33	120,121,130	0.17	0.16	0.15	121,128,131				
84	0.0	0.11	0.20	0.11	120,120,130	0.0	0.0	0.0	0,0,0	0.10	0.08	0.08	120,127,130
	275.0	0.13	0.25	0.14	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.36	0.71	0.39	121,121,131	0.21	0.19	0.18	121,128,131				
85	0.0	0.13	0.24	0.13	120,120,130	0.0	0.0	0.0	0,0,0	0.04	0.03	0.02	121,128,131
	100.0	0.07	0.12	0.08	121,121,131	0.0	0.0	0.0	0,0,0				
	200.0	0.11	0.20	0.12	121,121,131	0.0	0.0	0.0	0,0,0				
86	0.0	0.13	0.25	0.13	120,120,130	0.0	0.0	0.0	0,0,0	0.72	0.59	0.52	121,128,131
	275.0	0.22	0.42	0.24	121,121,131	0.10	0.09	0.09	121,128,131				
	550.0	0.16	0.30	0.18	121,121,131	0.0	0.0	0.0	0,0,0				
87	0.0	0.26	0.53	0.33	124,124,131	0.14	0.15	0.15	124,129,131	0.50	0.45	0.43	121,128,131
	275.0	0.22	0.44	0.26	121,121,131	0.10	0.11	0.11	121,129,131				
	550.0	0.23	0.42	0.27	121,121,131	0.09	0.09	0.09	121,128,131				
88	0.0	0.35	0.68	0.40	121,121,131	0.20	0.19	0.18	121,128,131	0.28	0.20	0.20	122,129,131
	275.0	0.17	0.33	0.20	124,124,131	0.07	0.0	0.0	124,0,0				
	550.0	0.26	0.46	0.32	121,121,131	0.11	0.12	0.11	121,129,131				
89	0.0	0.26	0.49	0.28	121,121,131	0.12	0.12	0.11	121,128,131	0.25	0.24	0.23	124,129,131
	212.5	0.10	0.17	0.11	120,120,130	0.0	0.0	0.0	0,0,0				
	425.0	0.10	0.16	0.10	120,120,130	0.0	0.0	0.0	0,0,0				
90	0.0	0.31	0.59	0.34	121,121,131	0.16	0.15	0.14	121,128,131	0.19	0.17	0.17	121,128,131
	85.0	0.10	0.17	0.12	121,121,131	0.0	0.0	0.0	0,0,0				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	170.0	0.04	0.05	0.04	120,120,130	0.0	0.0	0.0	0,0,0				
91	0.0	0.13	0.23	0.14	120,120,130	0.0	0.0	0.0	0,0,0	0.13	0.11	0.11	121,128,131
	275.0	0.14	0.26	0.15	120,121,130	0.0	0.0	0.0	0,0,0				
	550.0	0.32	0.62	0.34	121,121,131	0.17	0.16	0.15	121,128,131				
92	0.0	0.15	0.27	0.16	120,120,130	0.0	0.0	0.0	0,0,0	0.06	0.05	0.05	121,128,131
	100.0	0.08	0.14	0.09	120,121,130	0.0	0.0	0.0	0,0,0				
	200.0	0.12	0.21	0.13	121,121,131	0.0	0.0	0.0	0,0,0				
93	0.0	0.13	0.23	0.13	120,120,130	0.0	0.0	0.0	0,0,0	0.69	0.55	0.52	121,128,131
	275.0	0.22	0.41	0.23	121,121,131	0.09	0.09	0.08	121,128,131				
	550.0	0.17	0.32	0.19	121,121,131	0.07	0.0	0.0	121,0,0				
94	0.0	0.12	0.21	0.12	120,120,130	0.0	0.0	0.0	0,0,0	0.18	0.13	0.13	121,128,131
	275.0	0.16	0.30	0.17	120,120,130	0.07	0.0	0.0	120,0,0				
	550.0	0.20	0.38	0.22	121,121,131	0.09	0.08	0.08	121,128,131				
95	0.0	0.12	0.22	0.12	120,120,130	0.0	0.0	0.0	0,0,0	0.09	0.08	0.08	121,128,131
	100.0	0.07	0.12	0.07	120,120,130	0.0	0.0	0.0	0,0,0				
	200.0	0.10	0.18	0.11	121,121,131	0.0	0.0	0.0	0,0,0				
96	0.0	0.13	0.24	0.14	120,120,130	0.0	0.0	0.0	0,0,0	0.76	0.53	0.45	121,128,131
	275.0	0.19	0.36	0.20	121,121,131	0.08	0.07	0.0	121,128,0				
	550.0	0.13	0.24	0.13	121,121,131	0.0	0.0	0.0	0,0,0				
97	0.0	0.11	0.15	0.15	118,118,130	0.0	0.0	0.0	0,0,0	0.09	0.09	0.09	118,125,130
	275.0	0.04	0.07	0.06	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.01	0.02	0.01	124,121,131	0.0	0.0	0.0	0,0,0				
98	0.0	0.08	0.13	0.10	120,120,130	0.0	0.0	0.0	0,0,0	0.09	0.08	0.08	121,128,131
	275.0	0.03	0.07	0.04	122,120,131	0.0	0.0	0.0	0,0,0				
	550.0	0.06	0.10	0.08	122,122,131	0.0	0.0	0.0	0,0,0				
99	0.0	0.05	0.08	0.06	120,120,130	0.0	0.0	0.0	0,0,0	0.28	0.27	0.27	120,127,130
	275.0	0.03	0.06	0.04	122,120,131	0.0	0.0	0.0	0,0,0				
	550.0	0.09	0.14	0.12	122,122,131	0.0	0.0	0.0	0,0,0				
100	0.0	0.38	0.33	0.51	118,118,130	0.06	0.06	0.06	118,125,130	0.57	0.64	0.64	118,125,130
	275.0	0.22	0.29	0.29	122,120,131	0.05	0.06	0.06	120,127,130				
	550.0	0.25	0.23	0.33	124,124,131	0.04	0.04	0.04	124,129,131				
101	0.0	0.31	0.29	0.41	122,124,131	0.05	0.06	0.05	124,129,131	0.57	0.63	0.63	122,129,131
	275.0	0.21	0.28	0.28	122,120,131	0.05	0.06	0.06	120,127,130				
	550.0	0.34	0.31	0.45	118,120,130	0.05	0.06	0.06	120,127,130				
102	0.0	0.12	0.14	0.15	122,122,131	0.0	0.0	0.0	0,0,0	0.30	0.26	0.24	122,129,131
	275.0	5.41e-03	0.01	6.82e-03	121,120,131	0.0	0.0	0.0	0,0,0				
	550.0	0.05	0.06	0.07	120,120,130	0.0	0.0	0.0	0,0,0				
103	0.0	0.10	0.21	0.12	121,121,131	0.0	0.0	0.0	0,0,0	0.17	0.13	0.12	120,127,130
	215.0	0.12	0.25	0.13	120,120,130	0.0	0.0	0.0	0,0,0				
	430.0	0.03	0.06	0.03	121,121,131	0.0	0.0	0.0	0,0,0				
104	0.0	0.14	0.28	0.16	120,120,130	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	121,128,131
	220.0	0.07	0.14	0.07	120,120,130	0.0	0.0	0.0	0,0,0				
	440.0	0.12	0.23	0.13	121,121,131	0.0	0.0	0.0	0,0,0				
105	0.0	0.01	0.03	0.01	120,120,130	0.0	0.0	0.0	0,0,0	0.16	0.14	0.13	121,128,131
	100.0	0.11	0.22	0.12	121,121,131	0.0	0.0	0.0	0,0,0				
	200.0	0.15	0.31	0.17	121,121,131	0.0	0.0	0.0	0,0,0				
106	0.0	0.15	0.30	0.17	121,121,131	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	120,127,130
	115.0	0.06	0.11	0.06	121,121,131	0.0	0.0	0.0	0,0,0				
	230.0	0.15	0.29	0.16	121,121,131	0.0	0.0	0.0	0,0,0				
107	0.0	0.12	0.17	0.15	124,122,131	0.0	0.0	0.0	0,0,0	0.17	0.14	0.13	122,129,131
	275.0	8.91e-03	9.83e-03	0.01	121,118,131	0.0	0.0	0.0	0,0,0				
	550.0	0.07	0.09	0.09	118,118,130	0.0	0.0	0.0	0,0,0				
108	0.0	0.30	0.31	0.40	124,124,131	0.06	0.06	0.06	124,129,131	0.47	0.52	0.52	120,127,130
	275.0	0.21	0.27	0.28	121,118,131	0.05	0.05	0.05	118,125,130				
	550.0	0.37	0.35	0.49	118,118,130	0.06	0.07	0.07	118,125,130				
109	0.0	0.37	0.34	0.49	118,118,130	0.06	0.07	0.07	118,125,130	0.50	0.54	0.54	121,125,130
	275.0	0.21	0.28	0.28	122,118,131	0.05	0.06	0.06	118,125,130				
	550.0	0.29	0.27	0.37	121,121,131	0.05	0.05	0.05	121,128,131				
110	0.0	0.02	0.03	0.01	120,120,130	0.0	0.0	0.0	0,0,0	0.39	0.39	0.39	121,128,131
	275.0	0.03	0.05	0.04	120,122,130	0.0	0.0	0.0	0,0,0				
	550.0	0.13	0.17	0.17	122,122,131	0.0	0.0	0.0	0,0,0				
111	0.0	0.04	0.07	0.05	120,120,130	0.0	0.0	0.0	0,0,0	0.21	0.20	0.20	120,127,130
	275.0	0.03	0.06	0.04	120,122,130	0.0	0.0	0.0	0,0,0				
	550.0	0.10	0.14	0.13	122,122,131	0.0	0.0	0.0	0,0,0				
112	0.0	0.11	0.15	0.15	118,118,130	0.0	0.0	0.0	0,0,0	0.11	0.11	0.11	118,125,130
	275.0	0.04	0.07	0.06	120,118,130	0.0	0.0	0.0	0,0,0				
	550.0	0.02	0.03	4.24e-03	121,121,131	0.0	0.0	0.0	0,0,0				
121	0.0	0.07	0.09	0.10	118,118,130	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	118,125,130
	275.0	0.03	0.03	0.04	124,124,131	0.0	0.0	0.0	0,0,0				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	550.0	0.05	0.06	0.06	124,124,131	0.0	0.0	0.0	0,0,0				
133	0.0	0.09	0.10	0.11	124,124,131	0.0	0.0	0.0	0,0,0	0.18	0.16	0.15	122,129,131
	275.0	0.03	0.03	0.04	124,124,131	0.0	0.0	0.0	0,0,0				
	550.0	0.03	0.04	0.04	118,118,130	0.0	0.0	0.0	0,0,0				
135	0.0	0.05	0.07	0.07	118,118,130	0.0	0.0	0.0	0,0,0	0.07	0.04	0.04	121,125,130
	275.0	0.03	0.03	0.04	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.07	0.08	0.09	121,121,131	0.0	0.0	0.0	0,0,0				
137	0.0	0.05	0.05	0.06	121,121,131	0.0	0.0	0.0	0,0,0	0.07	0.06	0.06	120,127,130
	275.0	0.03	0.04	0.04	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.07	0.09	0.09	118,118,130	0.0	0.0	0.0	0,0,0				
139	0.0	0.14	0.28	0.15	120,120,130	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	122,129,131
	275.0	0.10	0.19	0.11	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.07	0.12	0.08	121,121,131	0.0	0.0	0.0	0,0,0				
141	0.0	0.08	0.14	0.09	121,121,131	0.0	0.0	0.0	0,0,0	0.31	0.29	0.28	122,129,131
	275.0	0.11	0.20	0.12	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.13	0.25	0.13	120,120,130	0.0	0.0	0.0	0,0,0				
143	0.0	0.28	0.55	0.29	120,120,130	0.14	0.13	0.12	120,127,130	0.23	0.13	0.12	121,128,131
	275.0	0.17	0.33	0.19	121,121,131	0.08	0.0	0.0	121,0,0				
	550.0	0.11	0.20	0.12	121,121,131	0.0	0.0	0.0	0,0,0				
145	0.0	0.11	0.20	0.12	121,121,131	0.0	0.0	0.0	0,0,0	0.28	0.26	0.25	122,129,131
	275.0	0.18	0.35	0.19	121,121,131	0.08	0.0	0.0	121,0,0				
	550.0	0.27	0.52	0.27	120,120,130	0.14	0.12	0.11	120,127,130				
147	0.0	0.11	0.20	0.11	120,120,130	0.0	0.0	0.0	0,0,0	0.24	0.18	0.17	121,128,131
	275.0	0.11	0.20	0.12	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.10	0.18	0.12	121,121,131	0.0	0.0	0.0	0,0,0				
149	0.0	0.09	0.16	0.10	121,121,131	0.0	0.0	0.0	0,0,0	0.23	0.22	0.21	122,129,131
	275.0	0.12	0.22	0.13	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.10	0.18	0.10	120,120,130	0.0	0.0	0.0	0,0,0				
150	0.0	0.10	0.17	0.10	120,120,130	0.0	0.0	0.0	0,0,0	0.06	0.02	0.01	120,127,130
	100.0	0.05	0.07	0.06	121,122,131	0.0	0.0	0.0	0,0,0				
	200.0	0.27	0.45	0.30	121,121,131	0.11	0.10	0.10	121,128,131				
151	0.0	0.16	0.20	0.20	121,121,131	0.03	0.03	0.03	121,128,131	0.24	0.20	0.19	121,128,131
	190.0	0.03	0.04	0.03	121,121,131	0.0	0.0	0.0	0,0,0				
	380.0	0.03	0.05	0.03	121,121,131	0.0	0.0	0.0	0,0,0				
152	0.0	0.0	1.70e-04	0.0	0,120,0	0.0	0.0	0.0	0,0,0	0.11	0.10	0.09	120,127,130
	95.0	5.78e-03	0.01	7.70e-03	122,120,131	0.0	0.0	0.0	0,0,0				
	190.0	0.02	0.05	0.03	122,120,131	0.0	0.0	0.0	0,0,0				
153	0.0	3.32e-05	2.75e-05	3.01e-05	121,121,131	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	120,127,130
	95.0	5.83e-03	0.01	7.75e-03	121,118,131	0.0	0.0	0.0	0,0,0				
	190.0	0.02	0.05	0.03	121,118,131	0.0	0.0	0.0	0,0,0				
154	0.0	2.12e-05	1.76e-05	1.23e-05	120,120,130	0.0	0.0	0.0	0,0,0	0.09	0.09	0.08	120,127,130
	95.0	5.81e-03	0.01	7.73e-03	120,122,130	0.0	0.0	0.0	0,0,0				
	190.0	0.02	0.05	0.03	120,122,130	0.0	0.0	0.0	0,0,0				
155	0.0	0.12	0.24	0.13	120,121,130	0.0	0.0	0.0	0,0,0	0.02	0.01	0.01	120,127,130
	85.0	0.03	0.06	0.03	120,121,130	0.0	0.0	0.0	0,0,0				
	170.0	0.0	7.02e-04	0.0	0,121,0	0.0	0.0	0.0	0,0,0				
156	0.0	0.04	0.05	0.04	120,120,130	0.0	0.0	0.0	0,0,0	0.15	0.14	0.14	122,129,131
	227.5	0.10	0.17	0.11	120,120,130	0.0	0.0	0.0	0,0,0				
	455.0	0.25	0.48	0.27	121,121,131	0.12	0.11	0.10	121,128,131				
157	0.0	0.0	1.34e-04	0.0	0,121,0	0.0	0.0	0.0	0,0,0	0.10	0.10	0.10	120,127,130
	95.0	5.77e-03	0.01	7.70e-03	118,121,130	0.0	0.0	0.0	0,0,0				
	190.0	0.02	0.05	0.03	118,121,130	0.0	0.0	0.0	0,0,0				
158	0.0	0.0	1.05e-04	0.0	0,121,0	0.0	0.0	0.0	0,0,0	0.09	0.09	0.08	120,127,130
	95.0	5.78e-03	0.01	7.71e-03	118,121,130	0.0	0.0	0.0	0,0,0				
	190.0	0.02	0.05	0.03	118,121,130	0.0	0.0	0.0	0,0,0				
159	0.0	0.03	0.05	0.03	121,121,131	0.0	0.0	0.0	0,0,0	0.09	0.08	0.08	121,129,131
	85.0	0.03	0.04	0.02	121,121,131	0.0	0.0	0.0	0,0,0				
	170.0	0.02	0.02	0.02	118,118,130	0.0	0.0	0.0	0,0,0				
Trave		**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**		**dR**	**dF**	**dP**	
		0.38	0.71	0.51		0.21	0.19	0.18		0.76	0.64	0.64	

13.11. VERIFICHE SLU ED SLE PILASTRI

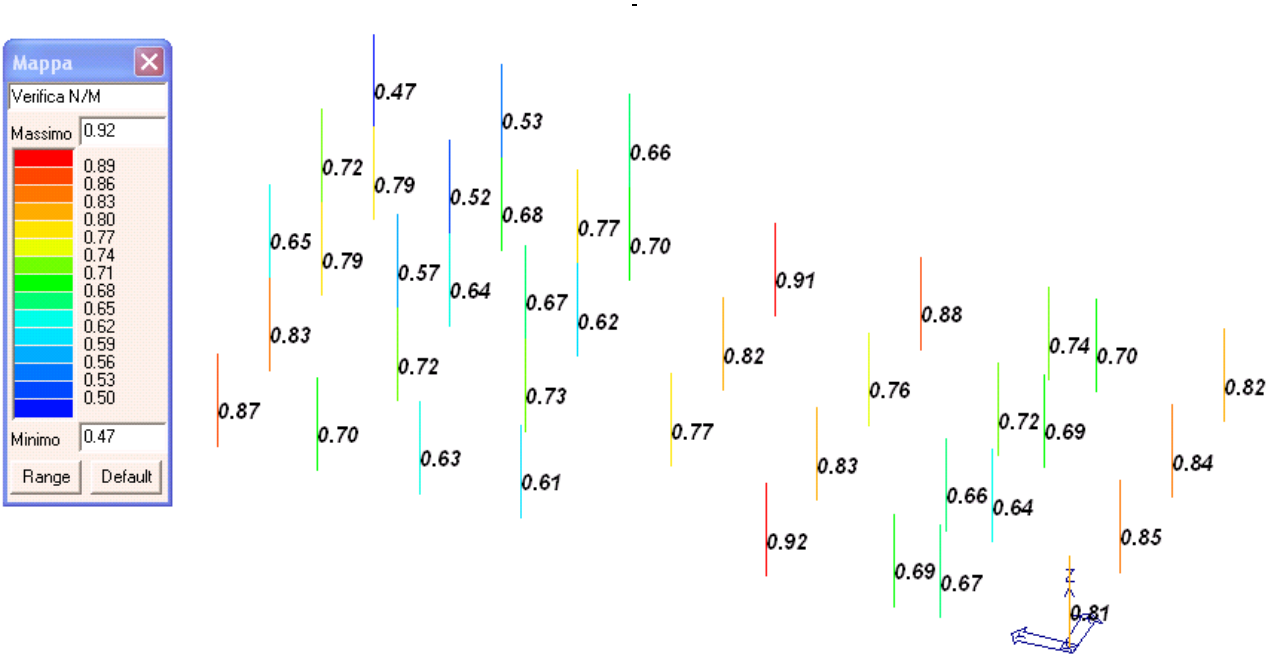


Figura 12.11 – 1 – Verifica N-M Pilastri

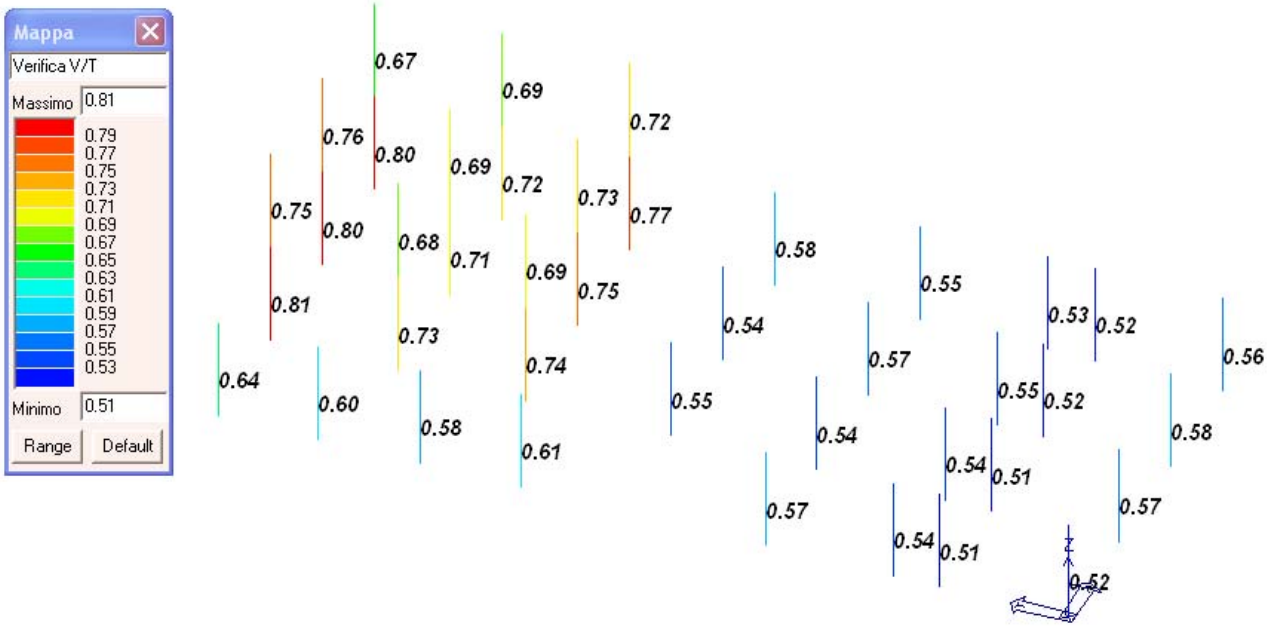


Figura 12.11 – 2 – Verifica V-T Pilastri

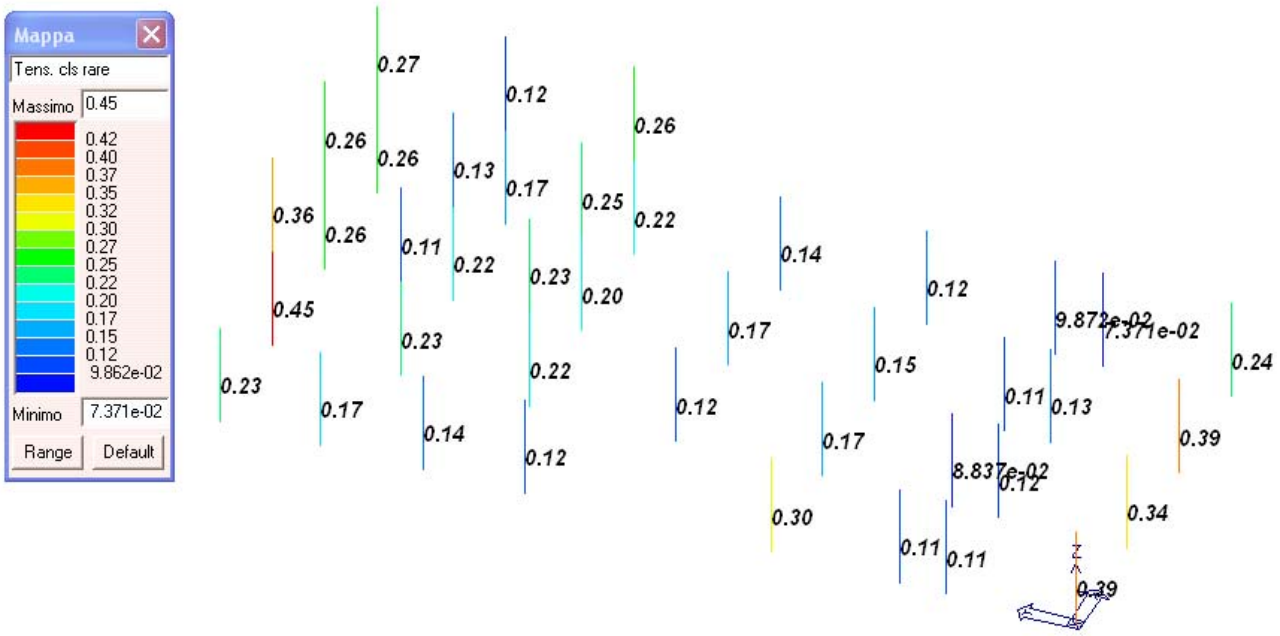


Figura 12.11 – 3 – S.L.E. Pilastri: tensioni cls comb. Rare

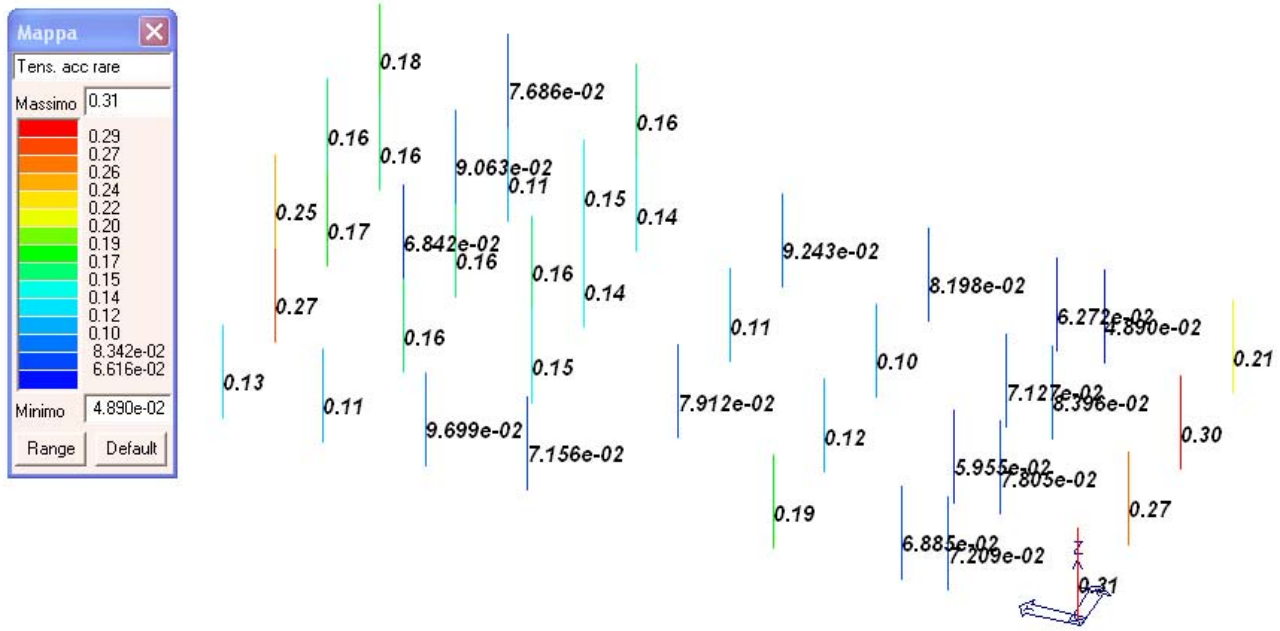


Figura 12.11 – 4 – S.L.E. Pilastri: tensioni acciaio comb. rare

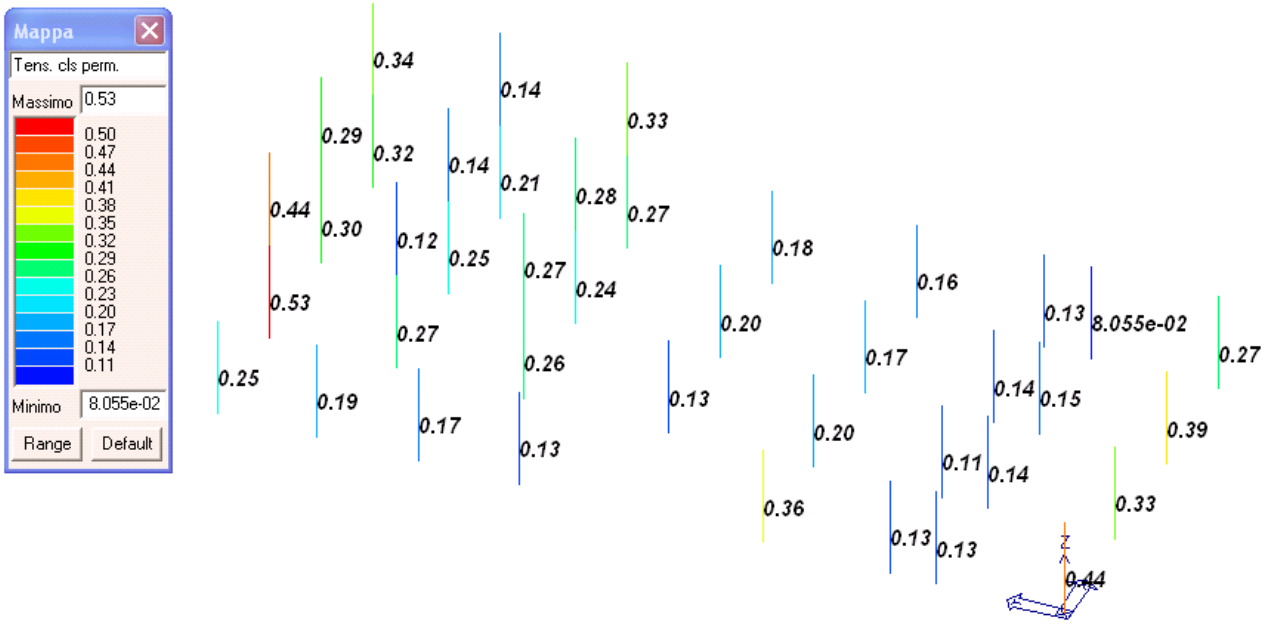


Figura 12.11 – 5 – S.L.E. Pilastri: tensioni cls comb. Permanenti

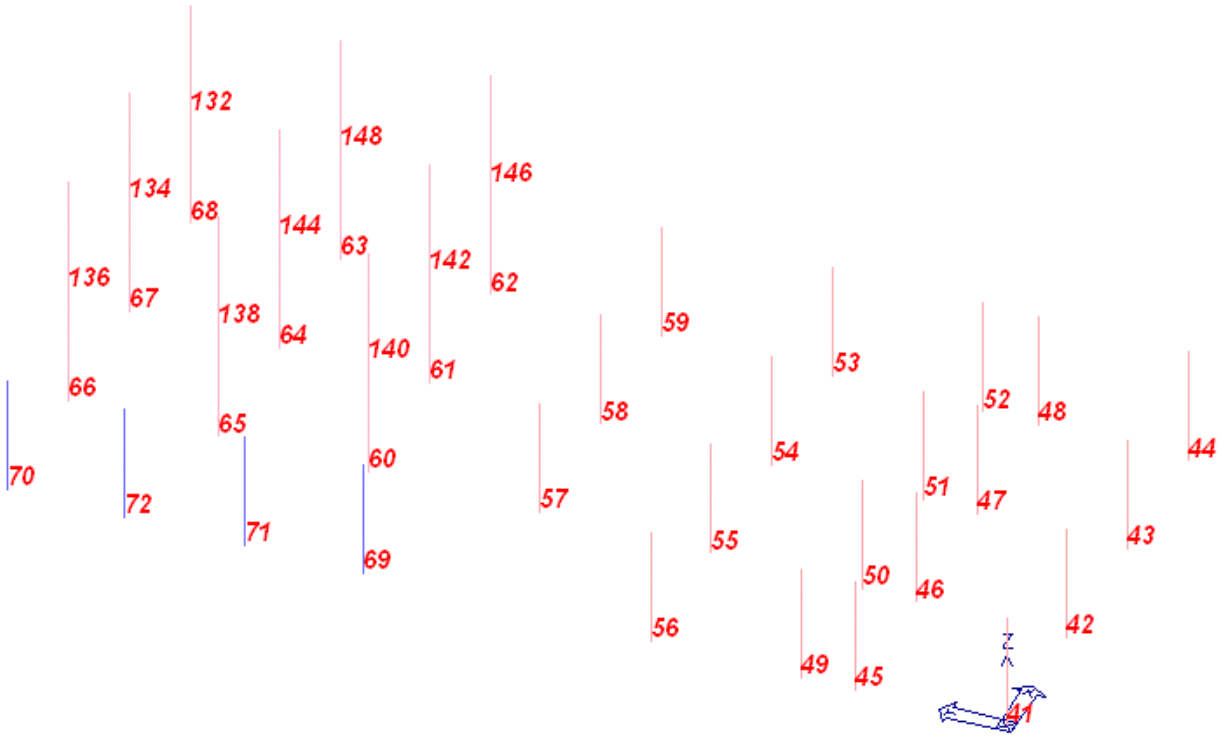


Figura 12.11 – 6 – Numerazione delle sezioni

Verifiche SLU

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
			cm						L=cm		
41	s=1,m=3	ok,ok	0.0	2.04	0.50	4d18 4+4 d18	0.81	0.12	2+2d8/5 L=80	0.52	25,53,37
			230.0	2.04	0.50	4d18 4+4 d18	0.16	0.11	2+2d8/20 L=300	0.52	22,53,37
	[b=1.0;1.0]		460.0	2.04	0.50	4d18 4+4 d18	0.63	0.11	2+2d8/5 L=80	0.52	53,53,37
42	s=1,m=3	ok,ok	0.0	2.04	1.02	4d18 4+4 d18	0.85	0.12	2+2d8/5 L=80	0.56	25,45,48
			230.0	2.04	1.02	4d18 4+4 d18	0.13	0.11	2+2d8/20 L=300	0.56	22,45,48
	[b=1.0;1.0]		460.0	2.04	1.02	4d18 4+4 d18	0.67	0.11	2+2d8/5 L=80	0.57	25,45,48
43	s=1,m=3	ok,ok	0.0	2.04	0.65	4d18 4+4 d18	0.84	0.12	2+2d8/5 L=80	0.58	25,41,48
			230.0	2.04	0.65	4d18 4+4 d18	0.14	0.11	2+2d8/20 L=300	0.58	22,41,48
	[b=1.0;1.0]		460.0	2.04	0.65	4d18 4+4 d18	0.66	0.11	2+2d8/5 L=80	0.58	47,41,48
44	s=1,m=3	ok,ok	0.0	2.04	0.93	4d18 4+4 d18	0.82	0.09	2+2d8/5 L=80	0.56	27,43,48
			230.0	2.04	0.93	4d18 4+4 d18	0.18	0.08	2+2d8/20 L=300	0.56	28,43,48
	[b=1.0;1.0]		460.0	2.04	0.93	4d18 4+4 d18	0.64	0.08	2+2d8/5 L=80	0.56	51,43,48
45	s=1,m=3	ok,ok	0.0	2.04	0.96	4d18 4+4 d18	0.67	0.12	2+2d8/5 L=80	0.51	22,53,50
			230.0	2.04	0.96	4d18 4+4 d18	0.14	0.12	2+2d8/20 L=300	0.51	27,53,50
	[b=1.0;1.0]		460.0	2.04	0.96	4d18 4+4 d18	0.55	0.11	2+2d8/5 L=80	0.51	50,53,50
46	s=1,m=3	ok,ok	0.0	2.04	0.89	4d18 4+4 d18	0.64	0.14	2+2d8/5 L=80	0.51	38,45,50
			230.0	2.04	0.89	4d18 4+4 d18	0.14	0.14	2+2d8/20 L=300	0.51	27,45,50
	[b=1.0;1.0]		460.0	2.04	0.89	4d18 4+4 d18	0.62	0.13	2+2d8/5 L=80	0.51	42,45,50
47	s=1,m=3	ok,ok	0.0	2.04	0.58	4d18 4+4 d18	0.69	0.15	2+2d8/5 L=80	0.52	48,43,50
			230.0	2.04	0.58	4d18 4+4 d18	0.14	0.14	2+2d8/20 L=300	0.52	27,43,50
	[b=1.0;1.0]		460.0	2.04	0.58	4d18 4+4 d18	0.63	0.13	2+2d8/5 L=80	0.52	48,43,50
48	s=1,m=3	ok,ok	0.0	2.04	0.90	4d18 4+4 d18	0.70	0.11	2+2d8/5 L=80	0.52	48,43,50
			230.0	2.04	0.90	4d18 4+4 d18	0.15	0.10	2+2d8/20 L=300	0.52	28,43,50
	[b=1.0;1.0]		460.0	2.04	0.90	4d18 4+4 d18	0.65	0.09	2+2d8/5 L=80	0.52	44,43,50
49	s=1,m=3	ok,ok	0.0	2.04	1.06	4d18 4+4 d18	0.69	0.12	2+2d8/5 L=80	0.53	22,42,34
			230.0	2.04	1.06	4d18 4+4 d18	0.16	0.11	2+2d8/20 L=300	0.54	27,42,34
	[b=1.0;1.0]		460.0	2.04	1.06	4d18 4+4 d18	0.59	0.10	2+2d8/5 L=80	0.54	53,42,34
50	s=1,m=3	ok,ok	0.0	2.04	0.86	4d18 4+4 d18	0.66	0.13	2+2d8/5 L=80	0.54	38,42,53
			230.0	2.04	0.86	4d18 4+4 d18	0.13	0.12	2+2d8/20 L=300	0.54	27,42,53
	[b=1.0;1.0]		460.0	2.04	0.86	4d18 4+4 d18	0.61	0.12	2+2d8/5 L=80	0.54	45,42,53
51	s=1,m=3	ok,ok	0.0	2.04	0.53	4d18 4+4 d18	0.72	0.12	2+2d8/5 L=80	0.55	48,44,53
			230.0	2.04	0.53	4d18 4+4 d18	0.13	0.12	2+2d8/20 L=300	0.55	28,44,53
	[b=1.0;1.0]		460.0	2.04	0.53	4d18 4+4 d18	0.58	0.11	2+2d8/5 L=80	0.55	48,44,53
52	s=1,m=3	ok,ok	0.0	2.04	0.70	4d18 4+4 d18	0.74	0.10	2+2d8/5 L=80	0.52	52,44,32
			230.0	2.04	0.70	4d18 4+4 d18	0.15	0.09	2+2d8/20 L=300	0.53	25,44,32
	[b=1.0;1.0]		460.0	2.04	0.70	4d18 4+4 d18	0.66	0.08	2+2d8/5 L=80	0.53	44,44,32
53	s=1,m=3	ok,ok	0.0	2.04	0.90	4d18 4+4 d18	0.88	0.13	2+2d8/5 L=80	0.55	36,26,32
			230.0	2.04	0.90	4d18 4+4 d18	0.16	0.13	2+2d8/20 L=300	0.55	28,26,32
	[b=1.0;1.0]		460.0	2.04	0.90	4d18 4+4 d18	0.76	0.12	2+2d8/5 L=80	0.55	44,26,32
54	s=1,m=3	ok,ok	0.0	2.04	1.18	4d18 4+4 d18	0.76	0.20	2+2d8/5 L=80	0.57	48,40,46
			230.0	2.04	1.18	4d18 4+4 d18	0.18	0.20	2+2d8/15 L=300	0.57	8,40,46
	[b=1.0;1.0]		460.0	2.04	1.18	4d18 4+4 d18	0.65	0.19	2+2d8/5 L=80	0.57	40,40,46
55	s=1,m=3	ok,ok	0.0	2.04	1.24	4d18 4+4 d18	0.83	0.20	2+2d8/5 L=80	0.53	22,38,46
			230.0	2.04	1.24	4d18 4+4 d18	0.16	0.19	2+2d8/20 L=300	0.54	4,38,46
	[b=1.0;1.0]		460.0	2.04	1.24	4d18 4+4 d18	0.68	0.18	2+2d8/5 L=80	0.54	42,38,46
56	s=1,m=3	ok,ok	0.0	2.04	1.17	4d18 4+4 d18	0.92	0.18	2+2d8/5 L=80	0.57	34,44,50
			230.0	2.04	1.17	4d18 4+4 d18	0.15	0.17	2+2d8/20 L=300	0.57	26,44,50
	[b=1.0;1.0]		460.0	2.04	1.17	4d18 4+4 d18	0.65	0.16	2+2d8/5 L=80	0.57	34,44,50
57	s=1,m=3	ok,ok	0.0	2.04	0.91	4d18 4+4 d18	0.77	0.17	2+2d8/5 L=80	0.54	45,47,37
			230.0	2.04	0.91	4d18 4+4 d18	0.15	0.16	2+2d8/20 L=300	0.55	27,47,37
	[b=1.0;1.0]		460.0	2.04	0.91	4d18 4+4 d18	0.73	0.15	2+2d8/5 L=80	0.55	45,47,37
58	s=1,m=3	ok,ok	0.0	2.04	2.07	4d18 4+4 d18	0.82	0.20	2+2d8/5 L=80	0.53	43,39,43
			230.0	2.04	2.07	4d18 4+4 d18	0.22	0.19	2+2d8/20 L=300	0.53	3,39,43
	[b=1.0;1.0]		460.0	2.04	2.07	4d18 4+4 d18	0.74	0.19	2+2d8/5 L=80	0.54	43,39,43
59	s=1,m=3	ok,ok	0.0	2.04	1.49	4d18 4+4 d18	0.91	0.13	2+2d8/5 L=80	0.58	43,43,31
			230.0	2.04	1.49	4d18 4+4 d18	0.16	0.12	2+2d8/20 L=300	0.58	28,43,31
	[b=1.0;1.0]		460.0	2.04	1.49	4d18 4+4 d18	0.86	0.11	2+2d8/5 L=80	0.58	43,43,31
60	s=8,m=3	ok,ok	0.0	3.04	1.36	4d22 4+4 d22	0.73	0.36	2+2d8/5 L=80	0.74	37,45,50
			230.0	3.04	1.36	4d22 4+4 d22	0.21	0.35	2+2d8/12 L=300	0.74	4,45,50
	[b=1.0;1.0]		460.0	3.04	1.36	4d22 4+4 d22	0.55	0.34	2+2d8/5 L=80	0.74	53,45,50
61	s=8,m=3	ok,ok	0.0	3.04	2.04	4d22 4+4 d22	0.62	0.40	2+2d8/5 L=80	0.75	31,41,50
			230.0	3.04	2.04	4d22 4+4 d22	0.34	0.39	2+2d8/12 L=300	0.75	4,41,50
	[b=1.0;1.0]		460.0	3.04	2.04	4d22 4+4 d22	0.47	0.38	2+2d8/5 L=80	0.75	43,41,50
62	s=8,m=3	ok,ok	0.0	3.04	1.77	4d22 4+4 d22	0.70	0.28	2+2d8/5 L=80	0.77	31,31,50
			230.0	3.04	1.77	4d22 4+4 d22	0.18	0.28	2+2d8/12 L=300	0.77	41,31,50

Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	verif.	ver. rid	Staffe	ver. V/T	Rif. cmb
	[b=1.0;1.0]		460.0	3.04	1.77	4d22 4+4 d22	0.54	0.27	2+2d8/5 L=80	0.77	43,31,50
63	s=8,m=3	ok,ok	0.0	3.04	1.70	4d22 4+4 d22	0.68	0.31	2+2d8/5 L=80	0.72	32,38,53
			230.0	3.04	1.70	4d22 4+4 d22	0.25	0.30	2+2d8/15 L=300	0.72	4,38,53
	[b=1.0;1.0]		460.0	3.04	1.70	4d22 4+4 d22	0.44	0.30	2+2d8/5 L=80	0.72	43,38,53
64	s=8,m=3	ok,ok	0.0	3.04	2.23	4d22 4+4 d22	0.64	0.41	2+2d8/5 L=80	0.70	32,38,53
			230.0	3.04	2.23	4d22 4+4 d22	0.27	0.40	2+2d8/15 L=300	0.70	4,38,53
	[b=1.0;1.0]		460.0	3.04	2.23	4d22 4+4 d22	0.42	0.39	2+2d8/5 L=80	0.71	44,38,53
65	s=8,m=3	ok,ok	0.0	3.04	1.70	4d22 4+4 d22	0.72	0.36	2+2d8/5 L=80	0.72	34,50,53
			230.0	3.04	1.70	4d22 4+4 d22	0.31	0.35	2+2d8/15 L=300	0.72	4,50,53
	[b=1.0;1.0]		460.0	3.04	1.70	4d22 4+4 d22	0.48	0.34	2+2d8/5 L=80	0.73	50,50,53
66	s=8,m=3	ok,ok	0.0	3.04	1.01	4d22 4+4 d22	0.83	0.31	2+2d8/5 L=80	0.80	34,48,53
			230.0	3.04	1.01	4d22 4+4 d22	0.18	0.30	2+2d8/15 L=300	0.80	42,48,53
	[b=1.0;1.0]		460.0	3.04	1.01	4d22 4+4 d22	0.58	0.29	2+2d8/5 L=80	0.81	34,48,53
67	s=8,m=3	ok,ok	0.0	3.04	1.98	4d22 4+4 d22	0.79	0.34	2+2d8/5 L=80	0.80	32,40,53
			230.0	3.04	1.98	4d22 4+4 d22	0.20	0.33	2+2d8/15 L=300	0.80	42,40,53
	[b=1.0;1.0]		460.0	3.04	1.98	4d22 4+4 d22	0.55	0.32	2+2d8/5 L=80	0.80	32,40,53
68	s=8,m=3	ok,ok	0.0	3.04	1.35	4d22 4+4 d22	0.79	0.26	2+2d8/5 L=80	0.79	32,38,53
			230.0	3.04	1.35	4d22 4+4 d22	0.18	0.25	2+2d8/15 L=300	0.80	32,38,53
	[b=1.0;1.0]		460.0	3.04	1.35	4d22 4+4 d22	0.46	0.24	2+2d8/5 L=80	0.80	32,38,53
69	s=6,m=3	ok,ok	0.0	3.38	1.63	4d22 2+2 d22	0.61	0.17	2+2d8/10 L=80	0.60	37,37,34
			230.0	3.38	1.63	4d22 2+2 d22	0.11	0.16	2+2d8/20 L=300	0.60	32,37,34
	[b=1.0;1.0]		460.0	3.38	1.63	4d22 2+2 d22	0.48	0.14	2+2d8/10 L=80	0.61	37,37,34
70	s=6,m=3	ok,ok	0.0	3.38	1.91	4d22 2+2 d22	0.87	0.22	2+2d8/10 L=80	0.61	34,48,34
			230.0	3.38	1.91	4d22 2+2 d22	0.15	0.17	2+2d8/20 L=300	0.63	32,48,34
	[b=1.0;1.0]		460.0	3.38	1.91	4d22 2+2 d22	0.71	0.13	2+2d8/10 L=80	0.64	34,48,34
71	s=6,m=3	ok,ok	0.0	3.38	2.22	4d22 2+2 d22	0.63	0.23	2+2d8/10 L=80	0.58	34,28,34
			230.0	3.38	2.22	4d22 2+2 d22	0.20	0.23	2+2d8/20 L=300	0.58	4,28,34
	[b=1.0;1.0]		460.0	3.38	2.22	4d22 2+2 d22	0.49	0.22	2+2d8/10 L=80	0.58	34,28,34
72	s=6,m=3	ok,ok	0.0	3.38	2.03	4d22 2+2 d22	0.70	0.20	2+2d8/10 L=80	0.60	34,37,34
			230.0	3.38	2.03	4d22 2+2 d22	0.18	0.19	2+2d8/20 L=300	0.60	4,37,34
	[b=1.0;1.0]		460.0	3.38	2.03	4d22 2+2 d22	0.52	0.19	2+2d8/10 L=80	0.60	34,37,34
132	s=8,m=3	ok,ok	460.0	3.04	0.73	4d22 4+4 d22	0.44	0.09	2+2d8/5 L=80	0.66	44,38,50
			690.0	3.04	0.73	4d22 4+4 d22	0.16	0.08	2+2d8/15 L=300	0.67	53,38,50
	[b=1.0;1.0]		920.0	3.04	0.73	4d22 4+4 d22	0.47	0.08	2+2d8/5 L=80	0.67	32,38,50
134	s=8,m=3	ok,ok	460.0	3.04	0.82	4d22 4+4 d22	0.63	0.11	2+2d8/5 L=80	0.75	32,38,53
			690.0	3.04	0.82	4d22 4+4 d22	0.06	0.11	2+2d8/15 L=300	0.76	36,38,53
	[b=1.0;1.0]		920.0	3.04	0.82	4d22 4+4 d22	0.72	0.10	2+2d8/5 L=80	0.76	32,38,53
136	s=8,m=3	ok,ok	460.0	3.04	1.12	4d22 4+4 d22	0.65	0.10	2+2d8/5 L=80	0.75	36,48,53
			690.0	3.04	1.12	4d22 4+4 d22	0.16	0.09	2+2d8/15 L=300	0.75	50,48,53
	[b=1.0;1.0]		920.0	3.04	1.12	4d22 4+4 d22	0.52	0.08	2+2d8/5 L=80	0.75	24,48,53
138	s=8,m=3	ok,ok	460.0	3.04	1.22	4d22 4+4 d22	0.57	0.11	2+2d8/5 L=80	0.68	47,50,44
			690.0	3.04	1.22	4d22 4+4 d22	0.16	0.11	2+2d8/15 L=300	0.68	50,50,44
	[b=1.0;1.0]		920.0	3.04	1.22	4d22 4+4 d22	0.54	0.10	2+2d8/5 L=80	0.68	53,50,44
140	s=8,m=3	ok,ok	460.0	3.04	0.70	4d22 4+4 d22	0.67	0.09	2+2d8/5 L=80	0.69	25,45,48
			690.0	3.04	0.70	4d22 4+4 d22	0.09	0.09	2+2d8/15 L=300	0.69	25,45,48
	[b=1.0;1.0]		920.0	3.04	0.70	4d22 4+4 d22	0.63	0.08	2+2d8/5 L=80	0.69	47,45,48
142	s=8,m=3	ok,ok	460.0	3.04	0.66	4d22 4+4 d22	0.71	0.12	2+2d8/5 L=80	0.72	27,39,38
			690.0	3.04	0.66	4d22 4+4 d22	0.08	0.11	2+2d8/15 L=300	0.73	3,39,38
	[b=1.0;1.0]		920.0	3.04	0.66	4d22 4+4 d22	0.77	0.11	2+2d8/5 L=80	0.73	27,39,38
144	s=8,m=3	ok,ok	460.0	3.04	1.03	4d22 4+4 d22	0.52	0.19	2+2d8/5 L=80	0.69	47,40,53
			690.0	3.04	1.03	4d22 4+4 d22	0.22	0.19	2+2d8/15 L=300	0.69	46,40,53
	[b=1.0;1.0]		920.0	3.04	1.03	4d22 4+4 d22	0.50	0.18	2+2d8/5 L=80	0.69	49,40,53
146	s=8,m=3	ok,ok	460.0	3.04	0.62	4d22 4+4 d22	0.66	0.09	2+2d8/5 L=80	0.71	51,43,38
			690.0	3.04	0.62	4d22 4+4 d22	0.08	0.09	2+2d8/15 L=300	0.72	47,43,38
	[b=1.0;1.0]		920.0	3.04	0.62	4d22 4+4 d22	0.60	0.08	2+2d8/5 L=80	0.72	41,43,38
148	s=8,m=3	ok,ok	460.0	3.04	1.32	4d22 4+4 d22	0.53	0.12	2+2d8/5 L=80	0.68	43,38,47
			690.0	3.04	1.32	4d22 4+4 d22	0.24	0.12	2+2d8/15 L=300	0.68	29,38,47
	[b=1.0;1.0]		920.0	3.04	1.32	4d22 4+4 d22	0.53	0.11	2+2d8/5 L=80	0.69	43,38,47
Pilas.				**%Af**	**r. snell.**		**verif.**	**ver. rid**		**ver. V/T**	
				3.38	2.23		0.92	0.41		0.81	

Verifiche SLE

Pilas.	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	Pos.	rRfck	rRfyk	rPfck	Rif. cmb
	cm					cm				
41	0.0	0.31	0.19	0.36	120,120,130	230.0	0.08	0.06	0.09	121,121,131
	460.0	0.39	0.31	0.44	120,120,130					
42	0.0	0.23	0.14	0.22	120,120,130	230.0	0.09	0.06	0.10	121,121,131
	460.0	0.34	0.27	0.33	120,120,130					
43	0.0	0.29	0.18	0.29	120,120,130	230.0	0.09	0.06	0.10	120,120,130
	460.0	0.39	0.30	0.39	120,120,130					
44	0.0	0.24	0.16	0.27	120,120,130	230.0	0.06	0.04	0.08	120,120,130
	460.0	0.24	0.21	0.26	120,120,130					
45	0.0	0.11	0.07	0.13	120,120,130	230.0	0.09	0.06	0.09	121,121,131
	460.0	0.09	0.06	0.10	121,121,131					
46	0.0	0.08	0.06	0.11	122,122,131	230.0	0.09	0.07	0.10	121,121,131
	460.0	0.12	0.08	0.14	121,121,131					
47	0.0	0.09	0.06	0.12	122,124,131	230.0	0.09	0.07	0.10	120,120,130
	460.0	0.13	0.08	0.15	121,121,131					
48	0.0	0.07	0.05	0.08	120,120,131	230.0	0.07	0.04	0.08	120,120,130
	460.0	0.06	0.04	0.08	121,121,131					
49	0.0	0.11	0.07	0.13	121,121,131	230.0	0.08	0.06	0.09	121,121,131
	460.0	0.09	0.06	0.10	120,120,130					
50	0.0	0.09	0.06	0.11	124,121,131	230.0	0.08	0.05	0.09	121,121,131
	460.0	0.08	0.05	0.07	120,120,130					
51	0.0	0.11	0.07	0.14	121,121,131	230.0	0.07	0.05	0.08	120,120,130
	460.0	0.06	0.04	0.08	122,122,131					
52	0.0	0.10	0.06	0.13	122,122,131	230.0	0.06	0.04	0.07	120,120,130
	460.0	0.05	0.03	0.07	122,122,131					
53	0.0	0.12	0.08	0.16	120,120,130	230.0	0.09	0.06	0.10	120,120,130
	460.0	0.09	0.06	0.10	121,121,131					
54	0.0	0.15	0.10	0.17	120,120,130	230.0	0.12	0.08	0.13	121,121,130
	460.0	0.13	0.09	0.15	120,120,130					
55	0.0	0.17	0.12	0.20	121,121,131	230.0	0.12	0.08	0.13	121,121,131
	460.0	0.14	0.10	0.16	121,121,131					
56	0.0	0.28	0.18	0.35	121,121,131	230.0	0.10	0.07	0.12	121,121,131
	460.0	0.30	0.19	0.36	121,121,131					
57	0.0	0.10	0.07	0.12	121,121,131	230.0	0.10	0.07	0.11	120,120,130
	460.0	0.12	0.08	0.13	121,121,131					
58	0.0	0.17	0.11	0.20	121,121,131	230.0	0.11	0.08	0.12	120,120,130
	460.0	0.16	0.11	0.20	121,121,131					
59	0.0	0.14	0.09	0.18	122,124,131	230.0	0.08	0.06	0.10	120,120,130
	460.0	0.14	0.09	0.17	121,121,131					
60	0.0	0.20	0.14	0.24	124,120,131	230.0	0.16	0.11	0.19	121,121,131
	460.0	0.22	0.15	0.26	120,120,131					
61	0.0	0.20	0.14	0.24	122,122,131	230.0	0.18	0.13	0.21	121,121,131
	460.0	0.18	0.13	0.22	122,122,131					
62	0.0	0.17	0.11	0.20	122,124,131	230.0	0.13	0.09	0.16	121,121,131
	460.0	0.22	0.14	0.27	122,122,131					
63	0.0	0.14	0.10	0.18	120,121,131	230.0	0.15	0.11	0.19	121,121,131
	460.0	0.17	0.11	0.21	122,124,131					
64	0.0	0.22	0.16	0.25	121,121,131	230.0	0.19	0.14	0.22	121,121,131
	460.0	0.20	0.14	0.22	121,121,131					
65	0.0	0.23	0.16	0.26	121,121,131	230.0	0.18	0.13	0.21	121,121,131
	460.0	0.23	0.16	0.27	121,121,131					
66	0.0	0.35	0.22	0.41	121,121,131	230.0	0.14	0.09	0.17	121,121,131
	460.0	0.45	0.27	0.53	121,121,131					
67	0.0	0.22	0.15	0.25	121,121,131	230.0	0.15	0.10	0.18	124,121,131
	460.0	0.26	0.17	0.30	121,121,131					
68	0.0	0.15	0.10	0.17	121,121,131	230.0	0.13	0.09	0.17	124,121,131
	460.0	0.26	0.16	0.32	121,121,131					
69	0.0	0.10	0.06	0.10	121,121,131	230.0	0.09	0.06	0.11	121,121,131
	460.0	0.12	0.07	0.13	120,120,130					
70	0.0	0.22	0.13	0.24	121,121,131	230.0	0.09	0.06	0.11	121,121,131
	460.0	0.23	0.13	0.25	120,120,130					
71	0.0	0.14	0.10	0.16	121,121,131	230.0	0.12	0.09	0.14	121,121,131
	460.0	0.14	0.09	0.17	120,120,130					
72	0.0	0.17	0.11	0.19	121,121,131	230.0	0.11	0.08	0.12	121,121,131
	460.0	0.16	0.10	0.17	120,120,130					

Pilas.	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	Pos.	rRfck	rRfyk	rPfck	Rif. cmb
132	0.0	0.27	0.18	0.34	124,122,131	230.0	0.05	0.03	0.07	122,122,131
	460.0	0.19	0.13	0.23	121,121,131					
134	0.0	0.24	0.15	0.28	124,121,131	230.0	0.05	0.04	0.05	120,120,130
	460.0	0.26	0.16	0.29	121,121,131					
136	0.0	0.36	0.25	0.44	121,124,131	230.0	0.05	0.03	0.07	121,121,131
	460.0	0.29	0.21	0.34	121,121,131					
138	0.0	0.11	0.07	0.12	120,120,130	230.0	0.07	0.04	0.07	120,120,130
	460.0	0.07	0.05	0.07	120,120,130					
140	0.0	0.22	0.13	0.27	121,121,131	230.0	0.06	0.04	0.06	120,120,130
	460.0	0.23	0.16	0.26	121,121,131					
142	0.0	0.17	0.11	0.20	124,124,131	230.0	0.08	0.05	0.08	120,120,130
	460.0	0.25	0.15	0.28	121,121,131					
144	0.0	0.13	0.09	0.14	121,120,131	230.0	0.10	0.07	0.11	120,120,130
	460.0	0.11	0.08	0.13	120,120,130					
146	0.0	0.26	0.16	0.33	124,122,131	230.0	0.06	0.04	0.08	120,120,130
	460.0	0.23	0.16	0.28	121,121,131					
148	0.0	0.12	0.08	0.14	121,121,131	230.0	0.07	0.05	0.08	120,120,130
	460.0	0.08	0.05	0.09	121,121,131					
Pilas.		**rRfck**	**rRfyk**	**rPfck**			**rRfck**	**rRfyk**	**rPfck**	
		0.45	0.31	0.53						

13.12. VERIFICHE SLU ED SLE TRAVI DI FONDAZIONE

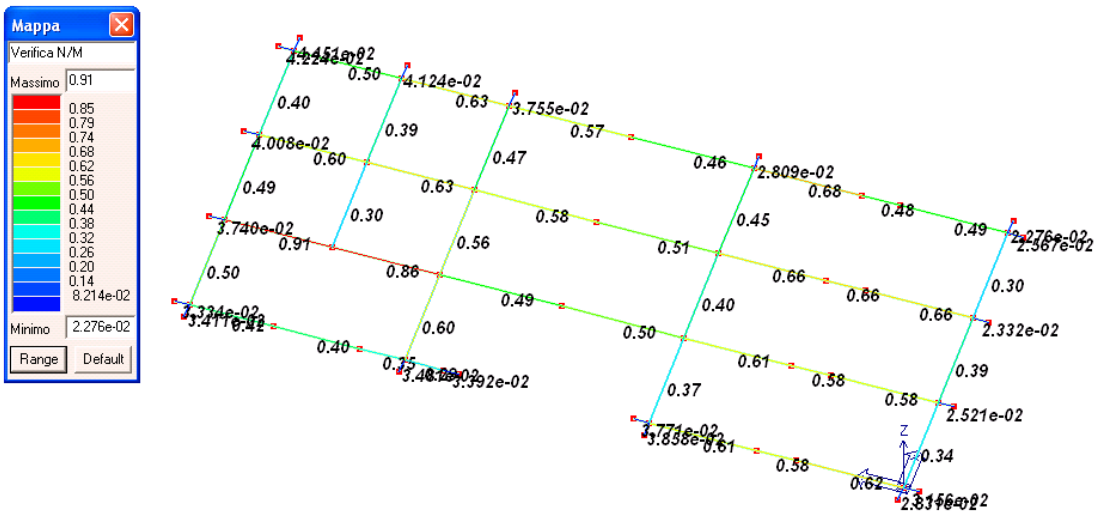


Figura 12.12 – 1 – Verifica N-M Travi fondazione

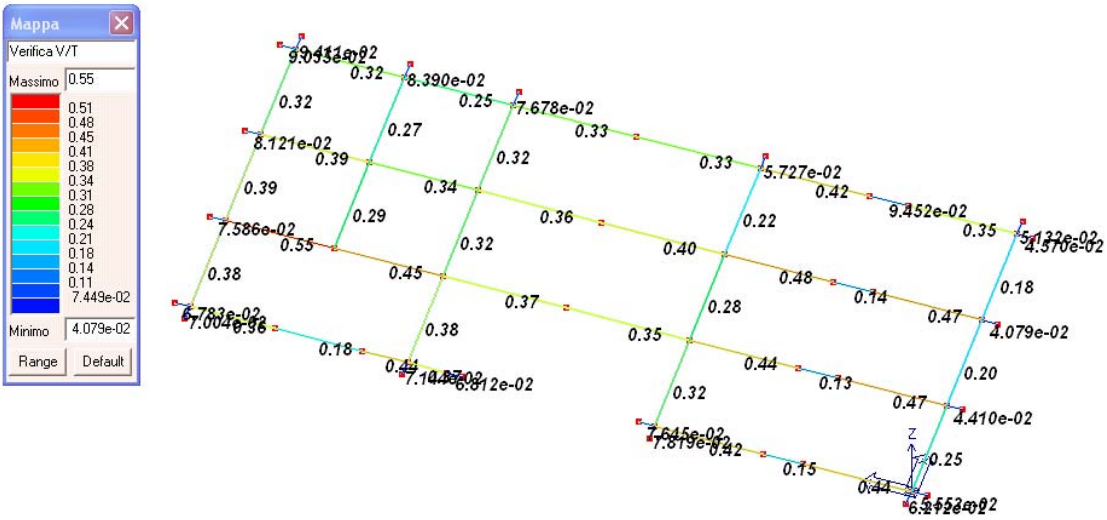


Figura 12.12 – 2 – Verifica V-T Travi fondazione

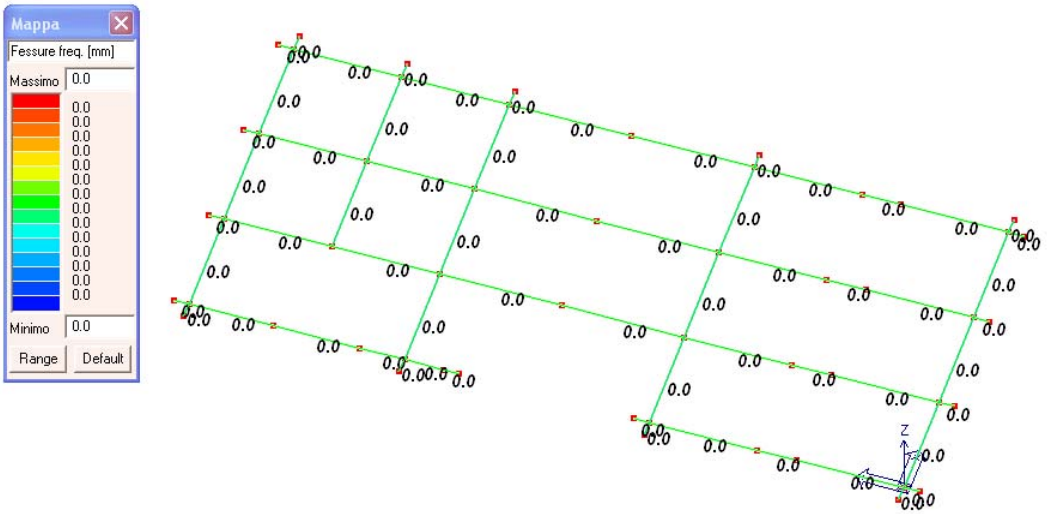


Figura 12.12 – 3 – S.L.E. Travi fondazione: fessure comb. frequenti

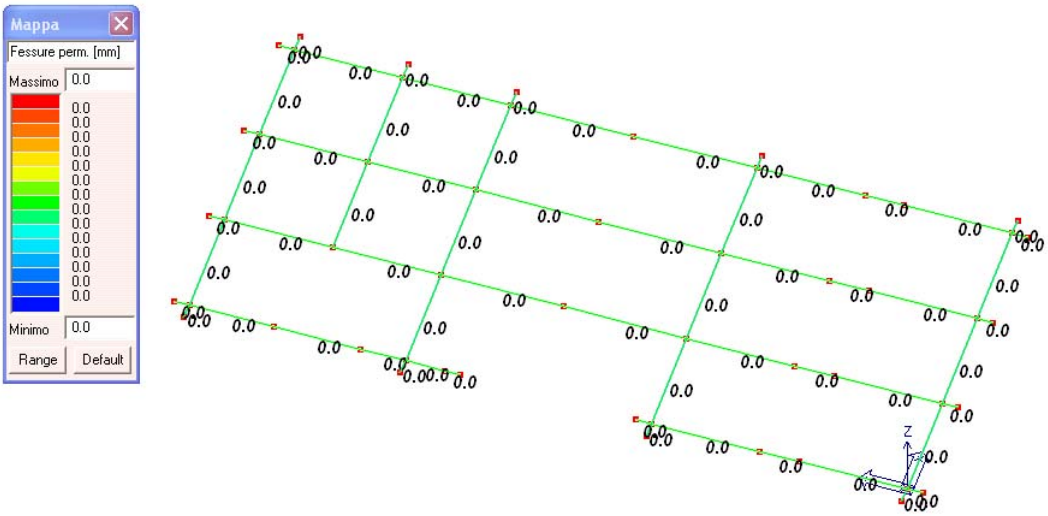


Figura 12.12 – 4 – S.L.E. Travi fondazione: fessure comb. quasi perm.

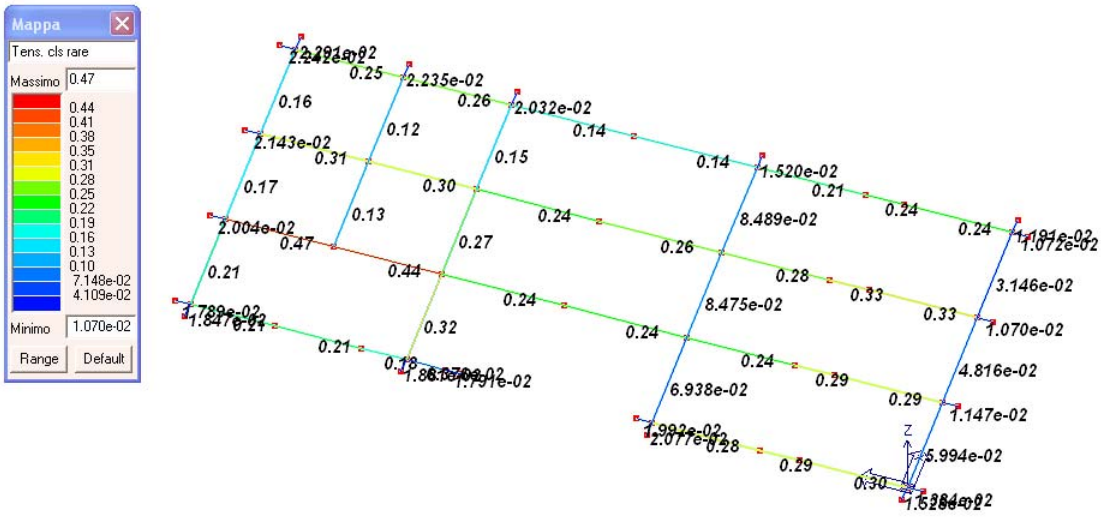


Figura 12.12 – 5 – S.L.E. Travi fondazione: tensioni cls comb. rare

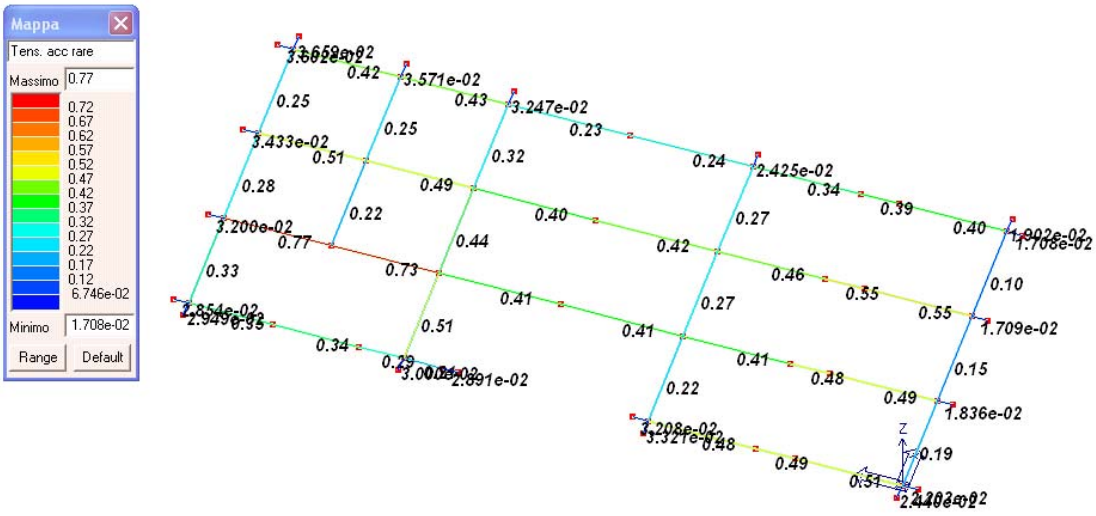


Figura 12.12 – 6 – S.L.E. Travi fondazione: tensioni acciaio comb. rare

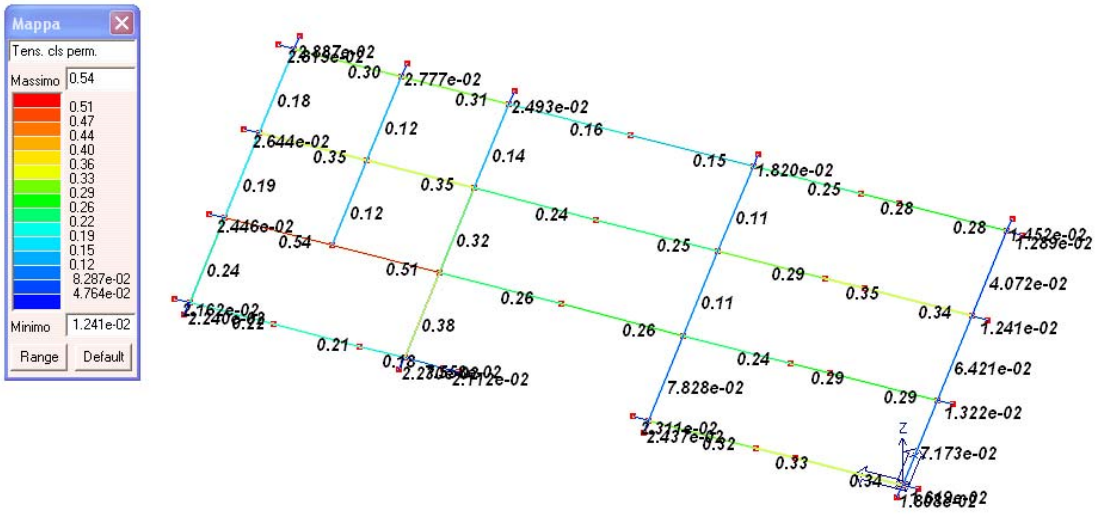


Figura 12.12 – 7 – S.L.E. Travi fondazione: tensioni cls comb. perm.

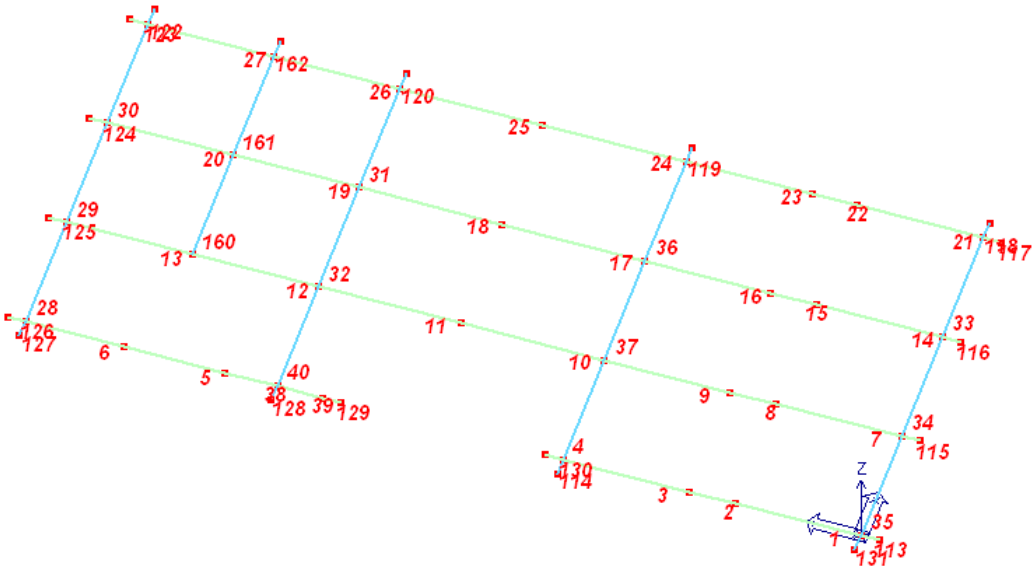


Figura 12.12 – 8 – Numerazione delle sezioni

Verifiche SLU

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
		cm									L=cm			
1	ok,ok	0.0	0.21	18.8	17.6	0.09	0.28	0.28	0.7	0.0	2d10/15 L=105	0.0	0.0	53,29
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.11	0.32	1.2	0.0	2d10/25 L=340	0.0	0.0	46,26
		550.0	0.21	18.8	17.6	0.09	0.62	0.44	2.5	0.0	2d10/15 L=105	0.0	0.0	46,26
2	ok,ok	0.0	0.21	18.8	17.6	0.09	0.58	0.13	0.8	0.0	2d10/25 L=200	0.0	0.0	4,53
	s=4,m=1	200.0	0.21	18.8	17.6	0.09	0.55	0.15	0.7	0.0	2d10/25 L=200	0.0	0.0	3,50
3	ok,ok	0.0	0.21	18.8	17.6	0.09	0.61	0.42	2.7	0.0	2d10/15 L=105	0.0	0.0	50,29
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.12	0.28	1.2	0.0	2d10/25 L=340	0.0	0.0	29,29
		550.0	0.21	18.8	17.6	0.09	0.22	0.36	1.1	0.0	2d10/15 L=105	0.0	0.0	53,26
4	ok,ok	0.0	0.26	18.8	14.4	0.07	0.31	0.32	2.0	0.0	2d8/15 L=96	0.0	0.0	26,53
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.36	0.22	0.6	0.0	2d8/15 L=357	0.0	0.0	29,50
		550.0	0.26	18.8	14.4	0.07	0.22	0.31	1.6	0.0	2d8/15 L=96	0.0	0.0	53,50
5	ok,ok	0.0	0.21	18.8	17.6	0.09	0.35	0.16	1.3	0.0	2d10/15 L=105	0.0	0.0	4,53
	s=4,m=1	220.0	0.21	18.8	17.6	0.09	0.21	0.08	0.4	0.0	2d10/25 L=230	0.0	0.0	30,50

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
		440.0	0.21	18.8	17.6	0.09	0.40	0.18	1.5	0.0	2d10/15 L=105	0.0	0.0	3,50
6	ok,ok	0.0	0.21	18.8	17.6	0.09	0.42	0.36	2.1	0.0	2d10/15 L=105	0.0	0.0	3,33
	s=4,m=1	215.0	0.21	18.8	17.6	0.09	0.09	0.28	0.8	0.0	2d10/25 L=220	0.0	0.0	46,33
		430.0	0.21	18.8	17.6	0.09	0.12	0.28	0.9	0.0	2d10/15 L=105	0.0	0.0	53,30
7	ok,ok	0.0	0.21	18.8	17.6	0.09	0.23	0.30	0.9	0.0	2d10/15 L=105	0.0	0.0	53,29
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.13	0.33	1.0	0.0	2d10/25 L=340	0.0	0.0	53,26
		550.0	0.21	18.8	17.6	0.09	0.58	0.47	2.7	0.0	2d10/15 L=105	0.0	0.0	3,26
8	ok,ok	0.0	0.21	18.8	17.6	0.09	0.58	0.13	1.1	0.0	2d10/25 L=200	0.0	0.0	3,4
	s=4,m=1	200.0	0.21	18.8	17.6	0.09	0.48	0.09	0.4	0.0	2d10/25 L=200	0.0	0.0	3,50
9	ok,ok	0.0	0.21	18.8	17.6	0.09	0.61	0.44	2.8	0.0	2d10/15 L=105	0.0	0.0	50,29
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.32	0.28	1.1	0.0	2d10/25 L=340	0.0	0.0	53,29
		550.0	0.21	18.8	17.6	0.05	0.14	0.38	1.4	0.0	2d10/15 L=105	0.0	0.0	53,26
10	ok,ok	0.0	0.21	18.8	17.6	0.09	0.46	0.31	1.4	0.0	2d10/15 L=105	0.0	0.0	53,37
	s=4,m=1	312.5	0.21	18.8	17.6	0.05	0.19	0.22	1.2	0.0	2d10/25 L=415	0.0	0.0	53,28
		625.0	0.21	18.8	17.6	0.09	0.50	0.35	2.5	0.0	2d10/15 L=105	0.0	0.0	50,28
11	ok,ok	0.0	0.21	18.8	17.6	0.09	0.49	0.37	2.4	0.0	2d10/15 L=105	0.0	0.0	3,25
	s=4,m=1	312.5	0.21	18.8	17.6	0.09	0.24	0.24	0.9	0.0	2d10/25 L=415	0.0	0.0	53,37
		625.0	0.21	18.8	17.6	0.09	0.40	0.26	2.0	0.0	2d10/15 L=105	0.0	0.0	50,28
12	ok,ok	0.0	0.21	18.8	17.6	0.09	0.16	0.24	1.6	0.0	2d10/15 L=105	0.0	0.0	42,4
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.20	0.17	1.1	0.0	2d10/25 L=340	0.0	0.0	53,4
		550.0	0.21	18.8	17.6	0.09	0.86	0.45	3.8	0.0	2d10/15 L=105	0.0	0.0	4,4
13	ok,ok	0.0	0.21	18.8	17.6	0.09	0.91	0.55	4.2	0.0	2d10/15 L=105	0.0	0.0	4,4
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.22	0.29	1.4	0.0	2d10/25 L=340	0.0	0.0	53,45
		550.0	0.21	18.8	17.6	0.09	0.26	0.25	1.2	0.0	2d10/15 L=105	0.0	0.0	53,4
14	ok,ok	0.0	0.21	18.8	17.6	0.09	0.26	0.29	0.7	0.0	2d10/15 L=105	0.0	0.0	53,29
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.10	0.34	1.1	0.0	2d10/25 L=340	0.0	0.0	53,26
		550.0	0.21	18.8	17.6	0.09	0.66	0.47	2.8	0.0	2d10/15 L=105	0.0	0.0	3,26
15	ok,ok	0.0	0.21	18.8	17.6	0.09	0.66	0.14	1.2	0.0	2d10/25 L=200	0.0	0.0	3,4
	s=4,m=1	200.0	0.21	18.8	17.6	0.09	0.53	0.04	0.3	0.0	2d10/25 L=200	0.0	0.0	3,50
16	ok,ok	0.0	0.21	18.8	17.6	0.09	0.66	0.48	3.0	0.0	2d10/15 L=105	0.0	0.0	50,29
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.29	0.34	1.3	0.0	2d10/25 L=340	0.0	0.0	53,29
		550.0	0.21	18.8	17.6	0.05	0.26	0.33	1.2	0.0	2d10/15 L=105	0.0	0.0	53,26
17	ok,ok	0.0	0.21	18.8	17.6	0.09	0.38	0.28	1.6	0.0	2d10/15 L=105	0.0	0.0	53,33
	s=4,m=1	312.5	0.21	18.8	17.6	0.05	0.31	0.22	1.0	0.0	2d10/25 L=415	0.0	0.0	4,30
		625.0	0.21	18.8	17.6	0.09	0.51	0.40	3.2	0.0	2d10/15 L=105	0.0	0.0	3,30
18	ok,ok	0.0	0.21	18.8	17.6	0.09	0.49	0.34	2.8	0.0	2d10/15 L=105	0.0	0.0	3,33
	s=4,m=1	312.5	0.21	18.8	17.6	0.05	0.24	0.15	0.6	0.0	2d10/25 L=415	0.0	0.0	53,33
		625.0	0.21	18.8	17.6	0.09	0.58	0.36	2.8	0.0	2d10/15 L=105	0.0	0.0	50,30
19	ok,ok	0.0	0.21	18.8	17.6	0.09	0.35	0.26	2.3	0.0	2d10/15 L=105	0.0	0.0	4,4
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.19	0.07	0.5	0.0	2d10/25 L=340	0.0	0.0	53,50
		550.0	0.21	18.8	17.6	0.09	0.63	0.34	3.0	0.0	2d10/15 L=105	0.0	0.0	50,4
20	ok,ok	0.0	0.21	18.8	17.6	0.09	0.60	0.39	3.6	0.0	2d10/15 L=105	0.0	0.0	4,4
	s=4,m=1	275.0	0.21	18.8	17.6	0.05	0.30	0.16	0.8	0.0	2d10/25 L=340	0.0	0.0	53,41
		550.0	0.21	18.8	17.6	0.09	0.16	0.23	1.9	0.0	2d10/15 L=105	0.0	0.0	50,4
21	ok,ok	0.0	0.21	18.8	17.6	0.09	0.28	0.23	0.5	0.0	2d10/15 L=105	0.0	0.0	45,29
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.15	0.27	1.1	0.0	2d10/25 L=340	0.0	0.0	38,26
		550.0	0.21	18.8	17.6	0.09	0.49	0.35	1.9	0.0	2d10/15 L=105	0.0	0.0	42,26
22	ok,ok	0.0	0.21	18.8	17.6	0.09	0.48	0.09	0.7	0.0	2d10/25 L=200	0.0	0.0	42,49
	s=4,m=1	200.0	0.21	18.8	17.6	0.09	0.39	0.04	0.3	0.0	2d10/25 L=200	0.0	0.0	3,53
23	ok,ok	0.0	0.21	18.8	17.6	0.09	0.68	0.42	2.2	0.0	2d10/15 L=105	0.0	0.0	42,29
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.26	0.33	1.4	0.0	2d10/25 L=340	0.0	0.0	41,29
		550.0	0.21	18.8	17.6	0.05	0.31	0.26	0.9	0.0	2d10/15 L=105	0.0	0.0	41,29
24	ok,ok	0.0	0.21	18.8	17.6	0.09	0.46	0.22	1.2	0.0	2d10/15 L=105	0.0	0.0	53,33
	s=4,m=1	312.5	0.21	18.8	17.6	0.05	0.24	0.22	1.0	0.0	2d10/25 L=415	0.0	0.0	4,30
		625.0	0.21	18.8	17.6	0.09	0.37	0.33	2.2	0.0	2d10/15 L=105	0.0	0.0	42,30
25	ok,ok	0.0	0.21	18.8	17.6	0.09	0.29	0.27	1.7	0.0	2d10/15 L=105	0.0	0.0	34,37
	s=4,m=1	312.5	0.21	18.8	17.6	0.09	0.24	0.17	0.7	0.0	2d10/25 L=415	0.0	0.0	41,37
		625.0	0.21	18.8	17.6	0.09	0.57	0.33	2.4	0.0	2d10/15 L=105	0.0	0.0	42,30
26	ok,ok	0.0	0.21	18.8	17.6	0.09	0.26	0.18	1.5	0.0	2d10/15 L=105	0.0	0.0	42,41
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.22	0.09	0.6	0.0	2d10/25 L=340	0.0	0.0	45,38
		550.0	0.21	18.8	17.6	0.09	0.63	0.25	2.4	0.0	2d10/15 L=105	0.0	0.0	42,4
27	ok,ok	0.0	0.21	18.8	17.6	0.09	0.50	0.32	2.8	0.0	2d10/15 L=105	0.0	0.0	4,41
	s=4,m=1	275.0	0.21	18.8	17.6	0.09	0.29	0.14	0.8	0.0	2d10/25 L=340	0.0	0.0	45,41
		550.0	0.21	18.8	17.6	0.09	0.19	0.23	1.8	0.0	2d10/15 L=105	0.0	0.0	53,38
28	ok,ok	0.0	0.26	18.8	14.4	0.07	0.30	0.19	1.3	0.0	2d8/15 L=96	0.0	0.0	33,53
	s=5,m=1	275.0	0.26	18.8	14.4	0.07	0.21	0.20	1.0	0.0	2d8/15 L=357	0.0	0.0	33,50
		550.0	0.26	18.8	14.4	0.07	0.50	0.38	2.6	0.0	2d8/15 L=96	0.0	0.0	46,50
29	ok,ok	0.0	0.26	18.8	14.4	0.07	0.44	0.28	2.2	0.0	2d8/15 L=96	0.0	0.0	50,4
	s=5,m=1	275.0	0.26	18.8	14.4	0.07	0.14	0.19	0.6	0.0	2d8/15 L=357	0.0	0.0	41,42

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
		550.0	0.26	18.8	14.4	0.07	0.49	0.39	2.4	0.0	2d8/15 L=96	0.0	0.0	30,42
30	ok,ok	0.0	0.26	18.8	14.4	0.07	0.31	0.30	2.7	0.0	2d8/15 L=96	0.0	0.0	50,49
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.36	0.13	0.7	0.0	2d8/15 L=357	0.0	0.0	37,41
		550.0	0.26	18.8	14.4	0.07	0.29	0.32	2.4	0.0	2d8/15 L=96	0.0	0.0	30,42
31	ok,ok	0.0	0.26	18.8	14.4	0.07	0.30	0.32	3.0	0.0	2d8/15 L=96	0.0	0.0	4,4
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.43	0.08	0.6	0.0	2d8/15 L=357	0.0	0.0	33,25
		550.0	0.26	18.8	14.4	0.07	0.25	0.25	2.2	0.0	2d8/15 L=96	0.0	0.0	33,26
32	ok,ok	0.0	0.26	18.8	14.4	0.07	0.56	0.32	3.0	0.0	2d8/15 L=96	0.0	0.0	30,4
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.13	0.11	0.9	0.0	2d8/15 L=357	0.0	0.0	45,33
		550.0	0.26	18.8	14.4	0.07	0.34	0.28	2.3	0.0	2d8/15 L=96	0.0	0.0	34,34
33	ok,ok	0.0	0.26	18.8	14.4	0.07	0.09	0.15	1.1	0.0	2d8/15 L=96	0.0	0.0	29,25
	s=5,m=1	275.0	0.26	18.8	14.4	0.07	0.24	0.12	0.5	0.0	2d8/15 L=357	0.0	0.0	29,30
		550.0	0.26	18.8	14.4	0.07	0.30	0.18	1.1	0.0	2d8/15 L=96	0.0	0.0	29,30
34	ok,ok	0.0	0.26	18.8	14.4	0.07	0.39	0.17	1.2	0.0	2d8/15 L=96	0.0	0.0	29,29
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.20	0.14	0.8	0.0	2d8/15 L=357	0.0	0.0	49,26
		550.0	0.26	18.8	14.4	0.07	0.27	0.20	1.4	0.0	2d8/15 L=96	0.0	0.0	29,26
35	ok,ok	0.0	0.26	18.8	14.4	0.07	0.30	0.25	1.4	0.0	2d8/15 L=96	0.0	0.0	26,37
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.31	0.17	0.6	0.0	2d8/15 L=357	0.0	0.0	29,29
		550.0	0.26	18.8	14.4	0.07	0.17	0.14	1.1	0.0	2d8/15 L=96	0.0	0.0	29,3
36	ok,ok	0.0	0.26	18.8	14.4	0.07	0.17	0.22	2.0	0.0	2d8/15 L=96	0.0	0.0	29,29
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.41	0.09	0.7	0.0	2d8/15 L=357	0.0	0.0	29,34
		550.0	0.26	18.8	14.4	0.07	0.33	0.22	2.0	0.0	2d8/15 L=96	0.0	0.0	26,34
37	ok,ok	0.0	0.26	18.8	14.4	0.07	0.36	0.28	2.4	0.0	2d8/15 L=96	0.0	0.0	26,29
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.38	0.13	0.9	0.0	2d8/15 L=357	0.0	0.0	53,29
		550.0	0.26	18.8	14.4	0.07	0.34	0.24	2.1	0.0	2d8/15 L=96	0.0	0.0	29,26
38	ok,ok	0.0	0.21	18.8	17.6	0.05	0.25	0.34	1.3	0.0	2d10/15 L=105	0.0	0.0	3,30
	s=4,m=1	115.0	0.21	18.8	17.6	0.09	0.08	0.39	2.0	0.0	2d10/25 L=20	0.0	0.0	37,30
		230.0	0.21	18.8	17.6	0.09	0.35	0.44	2.7	0.0	2d10/15 L=105	0.0	0.0	4,34
39	ok,ok	0.0	0.21	18.8	17.6	0.09	0.09	0.37	1.6	0.0	2d10/25 L=200	0.0	0.0	50,25
	s=4,m=1	200.0	0.21	18.8	17.6	0.05	0.29	0.26	0.5	0.0	2d10/25 L=200	0.0	0.0	37,25
40	ok,ok	0.0	0.26	18.8	14.4	0.07	0.28	0.17	1.0	0.0	2d8/15 L=96	0.0	0.0	33,37
	s=5,m=1	275.0	0.26	18.8	14.4	0.07	0.13	0.22	1.1	0.0	2d8/15 L=357	0.0	0.0	37,34
		550.0	0.26	18.8	14.4	0.07	0.60	0.38	2.8	0.0	2d8/15 L=96	0.0	0.0	4,34
113	ok,ok	0.0	0.21	18.8	17.6	0.05	4.58e-03	1.99e-03	2.05e-04	0.0	2d10/25 L=80	0.0	0.0	50,27
	s=4,m=1	80.0	0.21	18.8	17.6	0.09	0.03	0.06	0.5	0.0	2d10/25 L=80	0.0	0.0	50,50
114	ok,ok	0.0	0.26	18.8	14.4	0.07	1.27e-03	3.87e-03	1.65e-04	0.0	2d8/15 L=80	0.0	0.0	26,53
	s=5,m=1	80.0	0.26	18.8	14.4	0.07	0.04	0.08	0.8	0.0	2d8/15 L=80	0.0	0.0	4,4
115	ok,ok	0.0	0.21	18.8	17.6	0.05	3.90e-03	1.98e-03	1.24e-04	0.0	2d10/25 L=80	0.0	0.0	42,27
	s=4,m=1	80.0	0.21	18.8	17.6	0.09	0.03	0.04	0.4	0.0	2d10/25 L=80	0.0	0.0	50,3
116	ok,ok	0.0	0.21	18.8	17.6	0.09	3.76e-03	1.96e-03	1.18e-04	0.0	2d10/25 L=80	0.0	0.0	44,28
	s=4,m=1	80.0	0.21	18.8	17.6	0.09	0.02	0.04	0.4	0.0	2d10/25 L=80	0.0	0.0	50,3
117	ok,ok	0.0	0.21	18.8	17.6	0.09	4.35e-03	1.97e-03	8.45e-05	0.0	2d10/25 L=80	0.0	0.0	44,28
	s=4,m=1	80.0	0.21	18.8	17.6	0.09	0.03	0.05	0.4	0.0	2d10/25 L=80	0.0	0.0	38,38
118	ok,ok	0.0	0.26	18.8	14.4	0.07	0.02	0.05	0.5	0.0	2d8/15 L=80	0.0	0.0	42,41
	s=5,m=1	80.0	0.26	18.8	14.4	0.04	1.66e-03	3.75e-03	2.44e-04	0.0	2d8/15 L=80	0.0	0.0	28,43
119	ok,ok	0.0	0.26	18.8	14.4	0.07	0.03	0.06	0.6	0.0	2d8/15 L=80	0.0	0.0	4,4
	s=5,m=1	80.0	0.26	18.8	14.4	0.07	1.18e-03	3.65e-03	1.87e-04	0.0	2d8/15 L=80	0.0	0.0	28,43
120	ok,ok	0.0	0.26	18.8	14.4	0.07	0.04	0.08	0.8	0.0	2d8/15 L=80	0.0	0.0	4,4
	s=5,m=1	80.0	0.26	18.8	14.4	0.07	1.27e-03	3.51e-03	1.76e-04	0.0	2d8/15 L=80	0.0	0.0	37,43
122	ok,ok	0.0	0.26	18.8	14.4	0.07	0.04	0.09	0.9	0.0	2d8/15 L=80	0.0	0.0	38,41
	s=5,m=1	80.0	0.26	18.8	14.4	0.07	2.14e-03	3.45e-03	3.19e-04	0.0	2d8/15 L=80	0.0	0.0	37,43
123	ok,ok	0.0	0.21	18.8	17.6	0.09	0.04	0.09	0.9	0.0	2d10/25 L=80	0.0	0.0	42,45
	s=4,m=1	80.0	0.21	18.8	17.6	0.09	4.25e-03	2.54e-03	1.10e-04	0.0	2d10/25 L=80	0.0	0.0	43,37
124	ok,ok	0.0	0.21	18.8	17.6	0.09	0.04	0.08	0.8	0.0	2d10/25 L=80	0.0	0.0	4,53
	s=4,m=1	80.0	0.21	18.8	17.6	0.09	3.50e-03	2.56e-03	3.90e-04	0.0	2d10/25 L=80	0.0	0.0	43,37
125	ok,ok	0.0	0.21	18.8	17.6	0.09	0.04	0.08	0.7	0.0	2d10/25 L=80	0.0	0.0	4,4
	s=4,m=1	80.0	0.21	18.8	17.6	0.05	3.43e-03	2.52e-03	3.42e-04	0.0	2d10/25 L=80	0.0	0.0	45,37
126	ok,ok	0.0	0.21	18.8	17.6	0.09	0.03	0.07	0.7	0.0	2d10/25 L=80	0.0	0.0	4,4
	s=4,m=1	80.0	0.21	18.8	17.6	0.05	2.32e-03	2.48e-03	2.49e-04	0.0	2d10/25 L=80	0.0	0.0	53,37
127	ok,ok	0.0	0.26	18.8	14.4	0.07	2.08e-03	2.06e-03	1.38e-04	0.0	2d8/15 L=80	0.0	0.0	34,50
	s=5,m=1	80.0	0.26	18.8	14.4	0.07	0.03	0.07	0.7	0.0	2d8/15 L=80	0.0	0.0	4,4
128	ok,ok	0.0	0.26	18.8	14.4	0.04	1.24e-03	2.04e-03	1.47e-04	0.0	2d8/15 L=80	0.0	0.0	34,50
	s=5,m=1	80.0	0.26	18.8	14.4	0.07	0.03	0.07	0.7	0.0	2d8/15 L=80	0.0	0.0	3,4
129	ok,ok	0.0	0.21	18.8	17.6	0.09	2.61e-03	1.62e-03	1.63e-04	0.0	2d10/25 L=80	0.0	0.0	50,37
	s=4,m=1	80.0	0.21	18.8	17.6	0.09	0.03	0.07	0.7	0.0	2d10/25 L=80	0.0	0.0	4,4
130	ok,ok	0.0	0.21	18.8	17.6	0.09	0.04	0.08	0.7	0.0	2d10/25 L=80	0.0	0.0	3,4
	s=4,m=1	80.0	0.21	18.8	17.6	0.05	4.77e-03	1.43e-03	1.35e-04	0.0	2d10/25 L=80	0.0	0.0	53,26
131	ok,ok	0.0	0.26	18.8	14.4	0.04	1.68e-03	3.89e-03	1.20e-04	0.0	2d8/15 L=80	0.0	0.0	27,53
	s=5,m=1	80.0	0.26	18.8	14.4	0.07	0.03	0.06	0.6	0.0	2d8/15 L=80	0.0	0.0	3,50

Trave	Note	Pos.	%Af	Af inf.	Af. sup	x/d	verif.	ver. V/T	Af V	Af T	Staffe	Scorr. P	Af long.	Rif. cmb
160	ok,ok	0.0	0.26	18.8	14.4	0.07	0.27	0.23	1.9	0.0	2d8/15 L=96	0.0	0.0	30,4
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.25	0.13	0.6	0.0	2d8/15 L=357	0.0	0.0	3,30
		550.0	0.26	18.8	14.4	0.07	0.30	0.29	2.3	0.0	2d8/15 L=96	0.0	0.0	30,30
161	ok,ok	0.0	0.26	18.8	14.4	0.07	0.24	0.27	2.4	0.0	2d8/15 L=96	0.0	0.0	11,4
	s=5,m=1	275.0	0.26	18.8	14.4	0.04	0.36	0.08	0.6	0.0	2d8/15 L=357	0.0	0.0	37,30
		550.0	0.26	18.8	14.4	0.07	0.24	0.25	1.8	0.0	2d8/15 L=96	0.0	0.0	30,42
162	ok,ok	0.0	0.26	18.8	14.4	0.07	0.04	0.08	0.8	0.0	2d8/15 L=80	0.0	0.0	4,4
	s=5,m=1	80.0	0.26	18.8	14.4	0.07	1.59e-03	3.50e-03	6.05e-04	0.0	2d8/15 L=80	0.0	0.0	37,43
Trave			**%Af**	**Af inf.**	**Af. sup**	**x/d**	**verif.**	**ver. V/T**	**Af V**	**Af T**		**Scorr. P**	**Af long.**	
			0.26	18.85	17.60	0.09	0.91	0.55	4.17	0.0		0.0	0.0	

Verifiche SLE

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	cm					mm	mm	mm		cm	cm	cm	
1	0.0	0.03	0.10	0.03	120,120,130	0.0	0.0	0.0	0,0,0	0.55	0.49	0.47	121,128,131
	275.0	0.0	0.02	0.0	0,120,0	0.0	0.0	0.0	0,0,0				
	550.0	0.30	0.51	0.34	120,120,130	0.0	0.0	0.0	0,0,0				
2	0.0	0.29	0.49	0.33	121,121,131	0.0	0.0	0.0	0,0,0	0.10	0.09	0.08	121,128,131
	200.0	0.28	0.47	0.32	120,120,130	0.0	0.0	0.0	0,0,0				
3	0.0	0.28	0.48	0.32	121,121,131	0.0	0.0	0.0	0,0,0	0.03	0.03	0.02	121,128,131
	275.0	0.02	0.07	0.01	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	9.31e-03	0.05	0.01	122,124,131	0.0	0.0	0.0	0,0,0				
4	0.0	0.05	0.08	0.07	121,121,131	0.0	0.0	0.0	0,0,0	0.43	0.42	0.42	121,128,131
	275.0	0.07	0.22	0.08	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.03	0.05	0.02	120,120,130	0.0	0.0	0.0	0,0,0				
5	0.0	0.18	0.29	0.19	121,121,131	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	122,129,131
	220.0	0.09	0.15	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
	440.0	0.21	0.34	0.21	120,120,130	0.0	0.0	0.0	0,0,0				
6	0.0	0.21	0.35	0.22	120,120,130	0.0	0.0	0.0	0,0,0	0.16	0.11	0.10	120,127,130
	215.0	0.01	0.02	3.08e-04	120,120,130	0.0	0.0	0.0	0,0,0				
	430.0	2.13e-03	0.01	0.0	120,120,0	0.0	0.0	0.0	0,0,0				
7	0.0	8.61e-03	0.06	0.0	120,120,0	0.0	0.0	0.0	0,0,0	0.43	0.34	0.32	121,128,131
	275.0	0.01	0.07	0.02	118,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.29	0.49	0.29	120,120,130	0.0	0.0	0.0	0,0,0				
8	0.0	0.29	0.48	0.29	121,120,131	0.0	0.0	0.0	0,0,0	0.07	0.06	0.06	121,128,131
	200.0	0.23	0.40	0.23	120,120,130	0.0	0.0	0.0	0,0,0				
9	0.0	0.24	0.41	0.24	121,120,131	0.0	0.0	0.0	0,0,0	0.06	0.06	0.06	122,129,131
	275.0	0.04	0.16	0.06	122,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.02	0.07	0.02	122,124,131	0.0	0.0	0.0	0,0,0				
10	0.0	0.02	0.09	0.03	122,122,131	0.0	0.0	0.0	0,0,0	0.30	0.29	0.29	122,129,131
	312.5	0.04	0.15	0.04	121,121,131	0.0	0.0	0.0	0,0,0				
	625.0	0.24	0.41	0.26	120,120,130	0.0	0.0	0.0	0,0,0				
11	0.0	0.24	0.41	0.26	120,120,130	0.0	0.0	0.0	0,0,0	0.23	0.21	0.20	122,129,131
	312.5	0.03	0.12	0.03	121,121,131	0.0	0.0	0.0	0,0,0				
	625.0	0.05	0.11	0.06	124,121,131	0.0	0.0	0.0	0,0,0				
12	0.0	0.05	0.12	0.06	121,121,131	0.0	0.0	0.0	0,0,0	0.22	0.20	0.20	122,129,131
	275.0	0.0	0.03	0.0	0,120,0	0.0	0.0	0.0	0,0,0				
	550.0	0.44	0.73	0.51	121,121,131	0.45	0.0	0.0	121,0,0				
13	0.0	0.47	0.77	0.54	121,121,131	0.48	0.0	0.0	121,0,0	0.21	0.14	0.13	121,128,131
	275.0	0.02	0.09	0.03	118,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.03	0.11	0.03	121,121,131	0.0	0.0	0.0	0,0,0				
14	0.0	0.02	0.09	0.01	120,120,130	0.0	0.0	0.0	0,0,0	0.42	0.34	0.32	121,128,131
	275.0	2.03e-03	0.03	2.59e-03	122,118,131	0.0	0.0	0.0	0,0,0				
	550.0	0.33	0.55	0.34	120,120,130	0.0	0.0	0.0	0,0,0				
15	0.0	0.33	0.55	0.35	120,120,130	0.0	0.0	0.0	0,0,0	0.05	0.03	0.03	121,128,131
	200.0	0.26	0.44	0.27	120,120,130	0.0	0.0	0.0	0,0,0				
16	0.0	0.28	0.46	0.29	120,120,130	0.0	0.0	0.0	0,0,0	0.06	0.05	0.05	120,127,130
	275.0	0.04	0.15	0.05	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.05	0.19	0.06	121,121,131	0.0	0.0	0.0	0,0,0				
17	0.0	0.05	0.16	0.05	121,121,131	0.0	0.0	0.0	0,0,0	0.33	0.31	0.30	121,129,131
	312.5	0.08	0.26	0.10	124,121,131	0.0	0.0	0.0	0,0,0				
	625.0	0.26	0.42	0.25	120,120,130	0.0	0.0	0.0	0,0,0				
18	0.0	0.24	0.40	0.22	120,120,130	0.0	0.0	0.0	0,0,0	0.40	0.37	0.35	122,129,131
	312.5	0.04	0.13	0.05	122,124,131	0.0	0.0	0.0	0,0,0				
	625.0	0.19	0.32	0.24	122,122,131	0.0	0.0	0.0	0,0,0				
19	0.0	0.18	0.30	0.22	121,121,131	0.0	0.0	0.0	0,0,0	0.25	0.23	0.22	122,129,131

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	275.0	4.34e-03	0.03	0.0	120,120,0	0.0	0.0	0.0	0,0,0				
	550.0	0.30	0.49	0.35	124,124,131	0.0	0.0	0.0	0,0,0				
20	0.0	0.31	0.51	0.35	121,121,131	0.0	0.0	0.0	0,0,0	0.06	0.06	0.06	118,125,130
	275.0	0.05	0.17	0.06	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.01	0.04	0.02	118,118,130	0.0	0.0	0.0	0,0,0				
21	0.0	0.01	0.06	0.02	120,120,130	0.0	0.0	0.0	0,0,0	0.38	0.34	0.33	121,128,131
	275.0	0.02	0.05	0.03	122,120,131	0.0	0.0	0.0	0,0,0				
	550.0	0.24	0.40	0.28	120,120,130	0.0	0.0	0.0	0,0,0				
22	0.0	0.24	0.39	0.28	120,120,130	0.0	0.0	0.0	0,0,0	0.05	0.04	0.04	121,128,131
	200.0	0.20	0.33	0.23	120,120,130	0.0	0.0	0.0	0,0,0				
23	0.0	0.21	0.34	0.25	120,120,130	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	118,125,130
	275.0	0.02	0.08	0.03	124,121,131	0.0	0.0	0.0	0,0,0				
	550.0	0.06	0.19	0.07	122,122,131	0.0	0.0	0.0	0,0,0				
24	0.0	0.05	0.16	0.06	122,122,131	0.0	0.0	0.0	0,0,0	0.29	0.27	0.27	124,129,131
	312.5	0.06	0.21	0.08	124,121,131	0.0	0.0	0.0	0,0,0				
	625.0	0.14	0.23	0.15	120,120,130	0.0	0.0	0.0	0,0,0				
25	0.0	0.12	0.21	0.12	120,120,130	0.0	0.0	0.0	0,0,0	0.40	0.37	0.36	122,129,131
	312.5	0.03	0.11	0.04	124,121,131	0.0	0.0	0.0	0,0,0				
	625.0	0.14	0.23	0.16	121,121,131	0.0	0.0	0.0	0,0,0				
26	0.0	0.11	0.20	0.13	121,121,131	0.0	0.0	0.0	0,0,0	0.30	0.28	0.27	122,129,131
	275.0	9.58e-03	0.03	5.92e-03	122,122,131	0.0	0.0	0.0	0,0,0				
	550.0	0.26	0.43	0.31	124,124,131	0.0	0.0	0.0	0,0,0				
27	0.0	0.25	0.42	0.30	121,121,131	0.0	0.0	0.0	0,0,0	0.11	0.10	0.10	122,129,131
	275.0	0.03	0.11	0.04	121,121,131	0.0	0.0	0.0	0,0,0				
	550.0	5.24e-03	0.02	6.62e-03	122,122,131	0.0	0.0	0.0	0,0,0				
28	0.0	0.02	0.03	0.02	120,120,130	0.0	0.0	0.0	0,0,0	0.31	0.27	0.25	122,129,131
	275.0	0.04	0.12	0.04	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.21	0.33	0.24	121,121,131	0.0	0.0	0.0	0,0,0				
29	0.0	0.15	0.25	0.18	121,121,131	0.0	0.0	0.0	0,0,0	0.19	0.17	0.16	122,129,131
	275.0	0.02	0.07	0.02	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.17	0.28	0.19	124,124,131	0.0	0.0	0.0	0,0,0				
30	0.0	0.16	0.25	0.18	124,124,131	0.0	0.0	0.0	0,0,0	0.15	0.15	0.15	122,129,131
	275.0	0.07	0.22	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.03	0.05	0.03	121,121,131	0.0	0.0	0.0	0,0,0				
31	0.0	0.15	0.25	0.14	121,121,131	0.0	0.0	0.0	0,0,0	0.06	0.06	0.06	118,125,130
	275.0	0.09	0.31	0.12	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.02	0.04	0.03	118,118,130	0.0	0.0	0.0	0,0,0				
32	0.0	0.27	0.44	0.32	121,121,131	0.0	0.0	0.0	0,0,0	0.07	0.06	0.05	120,127,130
	275.0	0.03	0.10	0.04	118,118,130	0.0	0.0	0.0	0,0,0				
	550.0	0.14	0.23	0.13	121,121,131	0.0	0.0	0.0	0,0,0				
33	0.0	0.03	0.05	7.60e-03	121,121,131	0.0	0.0	0.0	0,0,0	0.05	0.05	0.05	122,129,131
	275.0	0.03	0.10	0.04	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.02	0.03	0.02	120,120,130	0.0	0.0	0.0	0,0,0				
34	0.0	0.03	0.08	0.04	118,118,130	0.0	0.0	0.0	0,0,0	0.09	0.08	0.07	121,128,131
	275.0	0.05	0.14	0.06	118,118,130	0.0	0.0	0.0	0,0,0				
	550.0	0.04	0.06	0.02	120,120,130	0.0	0.0	0.0	0,0,0				
35	0.0	0.03	0.04	0.03	121,121,131	0.0	0.0	0.0	0,0,0	0.30	0.29	0.28	120,127,130
	275.0	0.06	0.19	0.07	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.02	0.07	0.03	122,122,131	0.0	0.0	0.0	0,0,0				
36	0.0	0.05	0.08	3.47e-03	121,121,130	0.0	0.0	0.0	0,0,0	0.08	0.08	0.08	122,129,131
	275.0	0.08	0.27	0.11	122,122,131	0.0	0.0	0.0	0,0,0				
	550.0	0.04	0.05	0.05	118,118,130	0.0	0.0	0.0	0,0,0				
37	0.0	0.07	0.11	0.07	121,121,131	0.0	0.0	0.0	0,0,0	0.23	0.22	0.21	120,127,130
	275.0	0.08	0.27	0.11	118,118,130	0.0	0.0	0.0	0,0,0				
	550.0	0.05	0.07	5.23e-03	120,120,131	0.0	0.0	0.0	0,0,0				
38	0.0	0.06	0.21	0.07	120,120,130	0.0	0.0	0.0	0,0,0	0.09	0.07	0.07	121,128,131
	115.0	2.95e-03	0.01	3.93e-03	118,118,130	0.0	0.0	0.0	0,0,0				
	230.0	0.18	0.29	0.18	121,121,131	0.0	0.0	0.0	0,0,0				
39	0.0	0.02	0.03	0.02	121,121,131	0.0	0.0	0.0	0,0,0	0.05	0.04	0.04	121,128,131
	200.0	0.06	0.21	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
40	0.0	0.01	0.02	0.02	118,118,130	0.0	0.0	0.0	0,0,0	0.24	0.20	0.19	124,129,131
	275.0	5.99e-03	0.02	3.95e-03	122,120,131	0.0	0.0	0.0	0,0,0				
	550.0	0.32	0.51	0.38	121,121,131	0.0	0.0	0.0	0,0,0				
113	0.0	1.62e-05	9.89e-06	1.44e-05	120,120,130	0.0	0.0	0.0	0,0,0	0.08	0.07	0.06	121,128,131
	80.0	0.01	0.02	0.02	120,120,130	0.0	0.0	0.0	0,0,0				
114	0.0	0.0	4.73e-05	0.0	0,124,0	0.0	0.0	0.0	0,0,0	0.08	0.07	0.07	121,128,131
	80.0	0.02	0.03	0.02	121,121,131	0.0	0.0	0.0	0,0,0				
115	0.0	4.94e-06	2.96e-06	3.57e-06	120,120,130	0.0	0.0	0.0	0,0,0	0.06	0.05	0.04	121,128,131
	80.0	0.01	0.02	0.01	120,120,130	0.0	0.0	0.0	0,0,0				

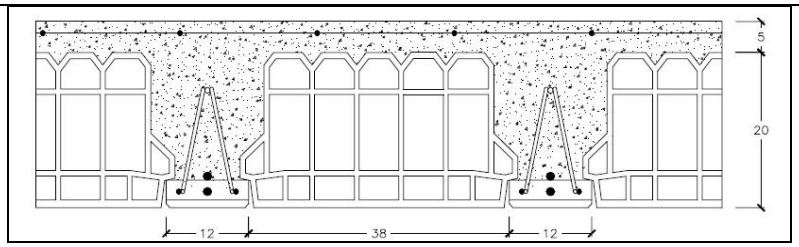
Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
116	0.0	7.12e-06	4.38e-06	6.85e-06	121,121,131	0.0	0.0	0.0	0,0,0	0.06	0.05	0.04	121,128,131
	80.0	0.01	0.02	0.01	120,120,130	0.0	0.0	0.0	0,0,0				
117	0.0	9.51e-06	5.91e-06	1.12e-05	121,121,131	0.0	0.0	0.0	0,0,0	0.06	0.05	0.05	121,128,131
	80.0	0.01	0.02	0.01	120,120,130	0.0	0.0	0.0	0,0,0				
118	0.0	0.01	0.02	0.01	120,120,130	0.0	0.0	0.0	0,0,0	0.01	0.01	0.01	122,129,131
	80.0	4.60e-06	1.71e-05	5.71e-06	122,120,131	0.0	0.0	0.0	0,0,0				
119	0.0	0.02	0.02	0.02	121,121,131	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	122,129,131
	80.0	5.24e-06	3.16e-06	6.22e-06	121,121,131	0.0	0.0	0.0	0,0,0				
120	0.0	0.02	0.03	0.02	121,121,131	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	118,125,130
	80.0	0.0	2.83e-05	0.0	0,122,0	0.0	0.0	0.0	0,0,0				
122	0.0	0.02	0.04	0.03	121,121,131	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	118,125,130
	80.0	7.53e-06	2.09e-05	9.36e-06	120,122,130	0.0	0.0	0.0	0,0,0				
123	0.0	0.02	0.04	0.03	121,121,131	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	122,129,131
	80.0	0.0	4.71e-05	0.0	0,122,0	0.0	0.0	0.0	0,0,0				
124	0.0	0.02	0.03	0.03	121,121,131	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	118,125,130
	80.0	9.13e-06	5.42e-06	9.19e-06	121,121,131	0.0	0.0	0.0	0,0,0				
125	0.0	0.02	0.03	0.02	121,121,131	0.0	0.0	0.0	0,0,0	0.02	0.01	9.60e-03	121,128,131
	80.0	1.57e-05	9.44e-06	1.78e-05	121,121,131	0.0	0.0	0.0	0,0,0				
126	0.0	0.02	0.03	0.02	121,121,131	0.0	0.0	0.0	0,0,0	0.03	0.02	0.02	120,127,130
	80.0	1.58e-05	9.59e-06	1.80e-05	121,121,131	0.0	0.0	0.0	0,0,0				
127	0.0	2.68e-06	1.64e-06	3.21e-06	122,122,131	0.0	0.0	0.0	0,0,0	0.04	0.03	0.03	122,129,131
	80.0	0.02	0.03	0.02	121,121,131	0.0	0.0	0.0	0,0,0				
128	0.0	4.48e-06	2.68e-06	5.00e-06	121,121,131	0.0	0.0	0.0	0,0,0	0.04	0.03	0.03	122,129,131
	80.0	0.02	0.03	0.02	120,120,130	0.0	0.0	0.0	0,0,0				
129	0.0	0.0	1.79e-04	0.0	0,121,0	0.0	0.0	0.0	0,0,0	0.02	0.01	0.01	121,128,131
	80.0	0.02	0.03	0.02	121,121,131	0.0	0.0	0.0	0,0,0				
130	0.0	0.02	0.03	0.02	121,120,131	0.0	0.0	0.0	0,0,0	0.01	8.93e-03	8.60e-03	121,128,131
	80.0	0.0	1.32e-04	0.0	0,120,0	0.0	0.0	0.0	0,0,0				
131	0.0	0.0	1.57e-05	0.0	0,122,0	0.0	0.0	0.0	0,0,0	0.06	0.05	0.05	120,127,130
	80.0	0.02	0.02	0.02	120,120,130	0.0	0.0	0.0	0,0,0				
160	0.0	0.06	0.09	0.07	121,121,131	0.0	0.0	0.0	0,0,0	0.08	0.04	0.04	120,127,130
	275.0	0.07	0.22	0.08	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.13	0.20	0.12	124,124,131	0.0	0.0	0.0	0,0,0				
161	0.0	0.12	0.20	0.12	121,124,131	0.0	0.0	0.0	0,0,0	0.11	0.11	0.11	118,125,130
	275.0	0.08	0.25	0.10	120,120,130	0.0	0.0	0.0	0,0,0				
	550.0	0.02	0.04	0.03	120,120,130	0.0	0.0	0.0	0,0,0				
162	0.0	0.02	0.04	0.03	121,121,131	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	118,125,130
	80.0	1.35e-05	4.49e-05	1.79e-05	123,122,130	0.0	0.0	0.0	0,0,0				
Trave		**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**		**dR**	**dF**	**dP**	
		0.47	0.77	0.54		0.48	0.0	0.0		0.55	0.49	0.47	

13.13. VERIFICA SOLAI

Si riporta di seguito la verifica del solaio in latero-cemento tipo “Bausta” impiegato per l’impalcato interno a quota piano primo (si veda § 9.1 azioni statiche).
Complessivamente la somma dei carichi permanenti con i variabili risulta essere pari a:

Q_{max} = 6.70kN/mq + 1.20kN/mq + 2.00kN/mq = ***9.90kN/mq***

La luce massima coperta dal solaio risulta essere di 5.30m. La verifica agli S.L.U. del solaio in latero-cemento viene eseguita mediante un foglio di calcolo Excel.



Tipo di solaio scelto	latero-cemento 4+20+4		
Luce solaio [m]	5,3	h solaio [cm]	28
h soletta [cm]	4	l.sol. coll. [cm]	50
f_{ck} [N/mm^2]	25	Altezza utile [cm]	22
F_{cd} [N/mm^2]	14,17	F_{cm} [N/mm^2]	28,75
F_{yk} [N/mm^2]	450	F_{yd} [N/mm^2]	391

Analisi Carichi	**l [m]**	**kN/m^2**	**kN/m**
Tramezzi	0,50	1,20	0,60
Totale Permanenti non Strutturali G_2			**0,60**
Pavimentazione	0,50	1,00	0,50
Sottofondo in cls cm 8	0,50	1,20	0,60
Peso proprio solaio	0,50	3,70	1,85
Intonaco in calce cm.1	0,50	0,20	0,10
Isolante+imperm.	0,50	0,10	0,05
Controsoff+impianti	0,50	0,50	0,25
Totale Permanenti Strutturali G_1			**3,35**
Carichi Accidentali Q	0,50	2,00	**1,00**

Combinazioni di carico SLU $\gamma_{G1} \cdot G_1 + \gamma_{G2} \cdot G_2 + \gamma_P \cdot P + \gamma_{Q1} \cdot Q_{k1}$

γ_{G1}	1,3	γ_{G2}	1,5			γ_Q	1,5
$M^+_{ed.max}$ [KN*m]	18,97	Grado di vincolo:		Semi-incastro		V_{ed} [KN]	**17,90**
$M^-_{ed.max}$ [KN*m]	-18,97						
VERIFICA APPROSSIMATA A MOMENTO							
Area minima ferri superiori			2,45	Area minima ferri inferiori			2,45
Ferri Superiori			ρ'	0,79%	A. ferri sup [cm^2]		**3,83**
$\varphi_{1\,sup}$	10	$n._{1\,sup}$	2	$\varphi_{2\,sup}$	12	$n._{2\,sup}$	2
Ferri Inferiori			ρ	0,79%	A. ferri Inf [cm^2]		**3,83**

$\varphi_{1\,inf}$	10	$n_{\cdot 1\,inf}$	2	$\varphi_{2\,inf}$	12	$n_{\cdot 2\,inf}$	2
M^{+}_{rd} [KN*m^2]		29,70	OK	M^{-}_{rd} [KN*m^2]		-29,70	OK

VERIFICA A TAGLIO		f_{ck} [N/mm^2]	25,00	Larghezza travetto [mm]		120
K	1,95	v_{min}	0,48	ρ_1	0,0200	
V_{rd} [KN]	22,80	OK				

14. VERIFICA DELLE PRESSIONI SUL TERRENO

Verifiche agli SLU

La verifica è condotta, come descritto in precedenza, seguendo l'*approccio 1 - Combinazione (GEO) 2 (A2+M2+R2).*

Si rende utile effettuare una precisazione relativamente alla realizzazione del piano di posa delle fondazioni superficiali.

Nella realizzazione dei piazzali delle autostazioni è prevista la costruzione di un rilevato messo in opera con le stesse modalità adottate per la costruzione della massicciata stradale.

Lo sviluppo in altezza del suddetto si attesta tra 1÷2.5m dal piano campagna.

I valori di portanza del terreno sono stati ricavati ad una profondità pari a -1.00m od anche superiori dal piano di di campagna.

In opera sono però previste fondazioni il cui piano di posa giace sullo strato compattato del rilevato dei caselli, quindi la portanza del del terreno risulta essere sicuramente più elevata di quella in sito pertanto possono essere ancora ritenuti validi i valori di portanza rilevati alle quote di -1.00m od anche superiori.

E' infatti prevista, per la realizzazione dei rilevati una prima fase in cui si esegue uno scotico per uno strato di 20cm per la rimozione dello strato vegetale ed una seconda fase in cui si prevede la realizzazione di una bonifica per una profondità variabile a seconda dei siti.

In generale quindi si prevede che il piano di posa delle opere di fondazione venga impostato al più in strati di terreno compattati e mai direttamente sul terreno vergine sottostante.

Sempre con riferimento alla *RELAZIONE GEOTECNICA SVINCOLO – AUTOSTAZIONE DI SAN FELICE SUL PANARO E FINALE EMILIA* per le verifiche sia in *Condizione Statica Drenata* che per *Sismica non Drenata* relativamente alle travi rovesce di fondazione del fabbricato in esame, si è proceduto come segue:

- si sono confrontati i valori delle tabelle delle pressioni di contatto limite di progetto relativi alla fondazione di larghezza B=1.20m e approfondimento D=1.00m con quelli della fondazione di larghezza B=1.80m ed approfondimento D=1.00m;
- si sono assunti i valori di tabella più cautelativi emersi dal confronto tra le due tipologie di fondazione: nello specifico, tali valori sono stati garantiti dalla fondazione di larghezza B=1.80m ed approfondimento D=1.00m;

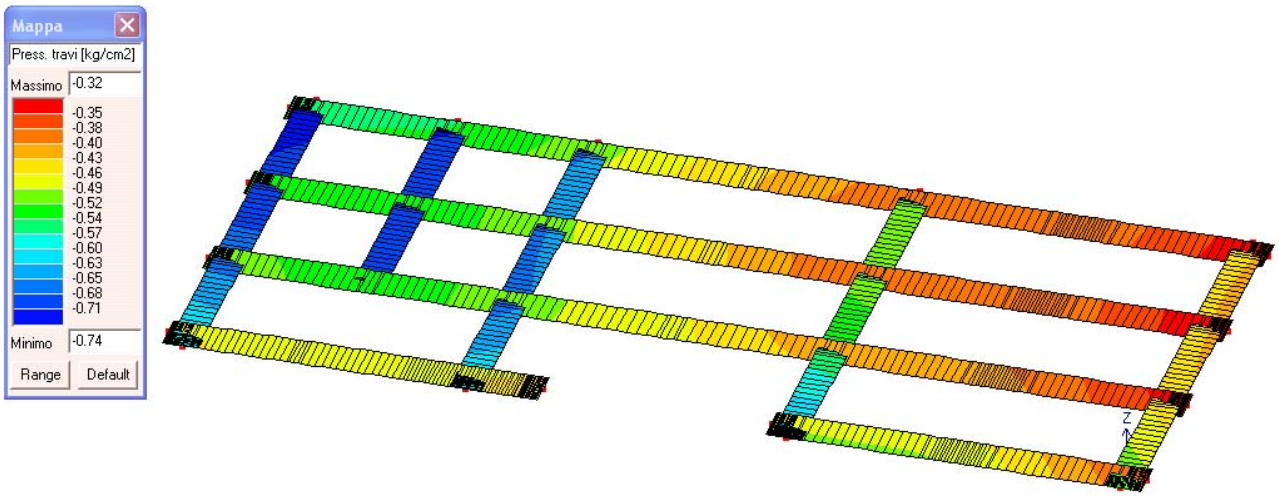


Figura 13 – 1 - Combinazione SLU A2: pressioni massime indotte dalle travi di fondazione nel terreno

Statica drenata		
H/V [%]	$q_{Rd\text{-}A1\text{-}C1\text{-}drenata}$ [kPa]	$q_{Rd\text{-}A1\text{-}C2\text{-}drenata}$ [kPa]
0	292	100
10	231	78
20	181	61

TABELLA 12-1: PRESSIONE DI CONTATTO LIMITE DI PROGETTO – B=1.80M – D=1.00M – CONDIZIONE STATICA DRENATA

Per il rapporto H/V = 10% si ha il valore di $q_{Rd\text{-}A1\text{-}C2\text{-}drenata}$ = 78 kPa = 0.78Kg/cmq.

La verifica risulterà essere perciò:

Ed = 0.74 kg/cmq < 0.99 kg/cmq = Rd **Verificato**

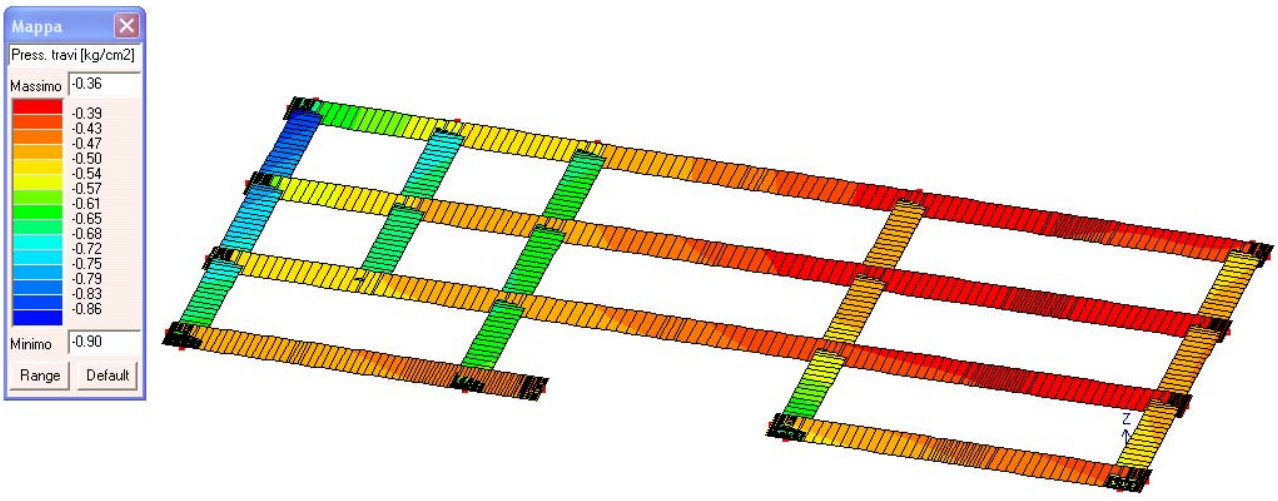


Figura 13 – 2 - Combinazione SLU A2 sismica: pressioni massime indotte dalle travi di fondazione nel terreno

Sismica non drenata		
H/V [%]	$q_{Rd\text{-}A1\text{-}C1\text{-}non\ drenata}$ [kPa]	$q_{Rd\text{-}A1\text{-}C2\text{-}non\ drenata}$ [kPa]
10	326	131
20	318	127
30	310	121

TABELLA 12-2: PRESSIONE DI CONTATTO LIMITE DI PROGETTO – B=1.80M – D=1.00M – CONDIZIONE SISMICA

Per il rapporto H/V = 30% si ha il valore di $q_{Rd\text{-}A1\text{-}C2\text{-}\ non\ drenata}$ = 121 kPa = 1.21Kg/cmq.

La verifica risulterà essere perciò:

Ed = 0.90 kg/cmq < 1.21 kg/cmq = Rd **Verificato**