

PIANO NAZIONALE DI RIPRESA E RESILIENZA MISSIONE 4: ISTRUZIONE E RICERCA

Componente 1 – Potenziamento dell'offerta dei servizi di istruzione: dagli asili nido alle Università - Investimento 3.3 “Piano di messa in sicurezza e riqualificazione delle scuole”



PROGETTO DI FATTIBILITÀ TECNICA ED ECONOMICA

Messa in sicurezza e riqualificazione funzionale con interventi di Adeguamento Sismico ed Efficiamento energetico dell'asilo nido Acquarola - 14° Circolo Didattico (cod. Ares 0630492230)

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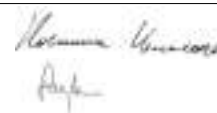
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COMUNE DI NAPOLI

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle dieci municipalità

VII Municipalità

Lotto 7

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Relazione di Calcolo

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1 PREMESSA

Lo scopo del servizio è la valutazione della sicurezza degli edifici scolastici di proprietà del Comune di Napoli che ricadono nella VII Municipalità, ritenuti di "interesse strategico" o "rilevanti" ai sensi dell'OPCM 3274/2003, art. 2, comma 3, nonché l'acquisizione di tutti gli elementi necessari per la redazione di un eventuale progetto di adeguamento strutturale per evitare, ove possibile, ulteriori campagne di indagine.

L'appalto consiste dunque nel Servizio di ingegneria per la valutazione in parola, comprese tutte le attività necessarie al raggiungimento dello scopo stesso, ponendo l'attenzione all'acquisizione anche degli elementi necessari alla progettazione degli interventi di adeguamento. Si specifica che la progettazione degli interventi di adeguamento non è compresa nel presente servizio.

2 INTRODUZIONE

La presente relazione descrive i parametri dei materiali in base alle risultanze delle indagini eseguite in sito ed il livello di conoscenza acquisito con la finalità di stabilire il livello di sicurezza sismica dell'edificio ai sensi dell'OPCM 3274/2003 e ss. mm. e ii. nei confronti delle azioni di progetto previste dalle norme tecniche vigenti (D.M. 17.01.2018) e fornire indicazioni progettuali per il miglioramento o adeguamento sismico delle strutture; a tal fine la Circolare del 17 gennaio 2019 n. 7 fornisce gli strumenti e le regole applicative.

L'edificio in esame è ubicato a Napoli, nella Strada comunale Acquarola, nel quartiere di Secondigliano. (Figura 1) ed è costituito da n. 1 corpo di fabbrica.



Figura 1 – Inquadramento dell'edificio oggetto di indagine e verifica sismica

3 NORMATIVA DI RIFERIMENTO

Le normative cui si è fatto riferimento nelle fasi di calcolo sono quelle previste dalla Legge.

Norme Nazionali

- DPR n.380 del 6 Giugno 2001: "Testo unico delle disposizioni legislative e regolamentari in materia edilizia".
- D.lgs n.301 del 27 dicembre 2002: "Modifiche ed integrazioni al DPR 6 giugno 2001, n. 380, recante testo unico delle disposizioni legislative e regolamentari in materia di edilizia".
- O.P.C.M. n. 3274 del 20 marzo 2003: "Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica".
- Nuove Norme Tecniche per le Costruzioni - D.M. Infrastrutture 17 Gennaio 2018.

Circolari, Linee Guida e Istruzioni

- Circolare Ministeriale 21 Gennaio 2019, n° 7 / C.S.LL.PP.
- CNR-DT 212 del maggio 2014 – Istruzioni per la Valutazione Affidabilistica della Sicurezza Sismica di Edifici Esistenti;

Norme Storiche Nazionali

- Legge n. 1086 del 5/11/1971: "Norme per la disciplina delle opere di conglomerato cementizio armato, normale e precompresso ed a struttura metallica".
- Legge n. 64 del 2/02/1974: "Provvedimenti per le costruzioni con particolari prescrizioni per le zone sismiche"
- DM 16 giugno 1976: "Norme tecniche per l'esecuzione delle opere in cemento armato normale e precompresso e per le strutture metalliche"
- Circolare 23 maggio 1957 n.1472: "Armatura delle strutture in cemento armato"
- DM 03 giugno 1981: "Classificazione a bassa sismicità $s=6$ dei territori dei Comuni delle regioni Basilicata, Campania e Puglia e classificazione $s=9$ del territorio del Comune di S. Maria La Carità"
- DM 19 giugno 1984: "Norme tecniche relative alle costruzioni in zona sismica"

4 VITA NOMINALE, CLASSE D'USO E PERIODO DI RIFERIMENTO

In accordo con la filosofia della sicurezza alla base delle norme nazionali e internazionali vigenti (DM2008, Eurocodici) le opere devono dunque essere dotate di un livello di protezione antisismica differenziato in funzione della loro importanza, e, quindi, delle conseguenze più o meno gravi di un loro danneggiamento per effetto di un evento sismico. La sicurezza (livello di protezione) è determinata dall'associazione di una prestazione attesa (stato limite) con un livello di intensità sismica caratterizzato da una assegnata probabilità di superamento PVR in un assegnato periodo di tempo (vita di riferimento, VR). In accordo al DM2018 (para 2.4), la vita di riferimento si ottiene moltiplicando la vita nominale VN dell'opera, funzione del "tipo di costruzione", per un coefficiente CU che è funzione della "classe d'uso":

I valori di VN e CU sono riportati nella Tabella 2.4.I e Tabella 2.4.II del DM2018.

La probabilità di superamento massima accettabile nella vita di riferimento è data nelle norme in funzione dello stato limite considerato. Il DM2008 definisce quattro stati limite, due di esercizio e due ultimi (la cui definizione è riportata nel seguito). I valori di PVR sono quelli indicati in normativa.

Per le strutture esistenti è generalmente ammesso verificare i soli stati limite ultimi, in alternativa lo stato limite di salvaguardia della vita (SLV) o quello di collasso (SLC) (DM2018, § 8.3), così definiti:

- SLV: "A seguito del terremoto la costruzione subisce rotture e crolli dei componenti non strutturali e impiantistici, e significativi danni dei componenti strutturali cui si associa una perdita significativa di rigidezza nei confronti delle

azioni orizzontali; la costruzione conserva invece una parte della resistenza e rigidità per azioni verticali e un margine di sicurezza nei confronti del collasso per azioni sismiche orizzontali” (DM2018, § 3.2.1).

- SLC: “A seguito del terremoto la costruzione subisce gravi rotture e crolli dei componenti non strutturali e impiantistici, e danni molto gravi dei componenti strutturali; la costruzione conserva ancora un margine di sicurezza per azioni verticali e un esiguo margine di sicurezza nei confronti del collasso per azioni orizzontali” (DM2018, § 3.2.1) Fanno eccezione le opere a carattere strategico, cioè ponti in classe d’uso III e IV, per i quali è necessario verificare che a seguito di un evento sismico intenso sia assicurato l’uso. Lo stato limite associato al mantenimento dell’uso è lo stato limite di danno, cui la norma associa il valore massimo PVR =63%. Tale stato limite è definito nella Norma come segue:

- SLD: “A seguito del terremoto la costruzione nel suo complesso, includendo gli elementi strutturali, quelli non strutturali, le apparecchiature rilevanti alla sua funzione, subisce danni tali da non mettere a rischio gli utenti e da non compromettere significativamente la capacità di resistenza e di rigidità nei confronti delle azioni verticali ed orizzontali, mantenendosi immediatamente utilizzabile pur nell’interruzione d’uso di parte delle apparecchiature.” (DM2018, para 3.2.1)

L’edificio scolastico in oggetto si configura come:

- Tipo di costruzione: **2**

Opere ordinarie, ponti, opere infrastrutturali e dighe di dimensioni contenute o di importanza normale;

- Vita Nominale: **VN =50anni**

La vita nominale 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;

- Classe d’uso: **III**

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 dalla normativa; nel caso in esame la costruzione rientra nella classe (par. 2.4.2.) “Costruzioni con funzioni pubbliche o strategiche importanti, anche con riferimento alla gestione della protezione civile in caso di calamità”

Per tale classe il coefficiente d’uso è pari a **CU=1.5**

- Periodo di riferimento: $VR= CU * VN = 75$ anni

5 SISMICITA' DELL'AREA

Sono stati presi in esame i criteri guida e le norme tecniche riguardanti la verifica sismica delle strutture esistenti, così come definiti e regolamentati dalle disposizioni contenute nelle "Nuove Norme tecniche di Costruzione" di cui al D.M. 17 gennaio 2018, con specifico richiamo alla definizione dell'azione sismica di progetto.

Nelle Norme l'azione sismica è definita a partire dalla "pericolosità sismica di base" del sito della costruzione, specificata in termini di spettro di risposta elastico in accelerazione della componente orizzontale. In particolare le forme spettrali sono definite, per ciascuna delle probabilità di superamento PVR nel periodo di riferimento, a partire dai valori dei parametri locali del sito (riferiti a condizioni di campo libero su suolo rigido con superficie topografica orizzontale).

L'O.P.C.M. n. 3274 del 20 marzo 2003 individua quattro valori di accelerazioni orizzontali (a_g/g) di ancoraggio dello spettro di risposta elastico e le corrispondenti 4 zone in cui viene suddiviso il territorio Nazionale.

Ciascuna zona viene individuata secondo i valori di accelerazione di picco orizzontale del suolo (a_g) con probabilità di superamento del 10% in 50 anni.

a	Accelerazione orizzontale con probabilità superamento pari al 10% in 50 anni (a_g/g)	Accelerazione orizzontale di ancoraggio dello spettro di risposta elastico (Norme Tecniche) (a_g/g)
1	> 0,25	0,35
2	0,15 ÷ 0,25	0,25
3	0,05 ÷ 0,15	0,15
4	< 0,05	0,05

Il Comune di Napoli viene oggi classificato in Zona 2 e, pertanto, il valore dell'accelerazione orizzontale di riferimento risulta compresa tra 0,15 ÷ 0,25 a_g/g .

Le azioni sismiche di progetto, in base alle quali valutare il rispetto dei diversi stati limite considerati, secondo il D.M. 17.01.2008 si definiscono a partire dalla "pericolosità sismica di base" del sito di costruzione.

Questa costituisce l'elemento di conoscenza primario per la determinazione delle azioni sismiche. La pericolosità sismica è definita in termini di accelerazione orizzontale massima attesa a_g in condizioni di campo libero su sito di riferimento rigido con superficie topografica orizzontale (di categoria A), nonché di ordinate dello spettro di risposta elastico in accelerazione ad essa corrispondente, con riferimento a prefissate probabilità di eccedenza PVR e nel periodo di riferimento VR, come definiti di seguito.

Le forme spettrali di interesse sono definite, per ciascuna delle probabilità di superamento nel periodo di riferimento PVR, a partire dai valori dei seguenti parametri su sito di riferimento rigido orizzontale:

- a_g accelerazione orizzontale massima al sito (m/s^2);
- F_0 valore massimo del fattore di amplificazione dello spettro in accelerazione orizzontale (-);
- T_C^* = periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale (sec).

Tali valori sono forniti nell'allegato B alle norme su un reticolo di punti che ricopre il territorio nazionale definiti in termine di latitudine e longitudine e di seguito riassunti:

Sito di costruzione: 7.38 Asilo nido Acquarola LON. 14.2577 LAT. 40.8946

STATO LIMITE	Tr [anni]	a_g [g]	F_0	T_C^* [s]	S_s	C_c
SLO	30	0,045	2,345	0,285	1,500	1,516
SLD	50	0,059	2,345	0,313	1,500	1,505
SLV	475	0,164	2,386	0,345	1,350	1,487
SLC	975	0,208	2,454	0,348	1,276	1,486

6 CARATTERISTICHE DEI MATERIALI

Le caratteristiche dei materiali sono desunte dalle risultanze delle indagini in situ in seguito alla rielaborazione critica come specificata nel § 7 della relazione sulla caratterizzazione dei materiali (elaborato Fase2_RCM_01) cui si rimanda per il dettaglio.

Per definire le resistenze dei materiali da utilizzare nelle formule di capacità degli elementi duttili e fragili, le resistenze medie in situ vengono divise per i fattori di confidenza e per i coefficienti parziali di sicurezza.

$$f_d = \frac{f_m}{FC \times \gamma_m}$$

Resistenza di calcolo del calcestruzzo:

$$f_{cd} = \frac{f_{cm}}{FC \times \gamma_m} = \frac{24.47}{1.2 \times 1.5} = 13.59 \text{ N/mm}^2$$

Resistenza di calcolo dell'acciaio:

$$f_{yd} = \frac{f_{ym}}{FC \times \gamma_m} = \frac{448.40}{1.2 \times 1.15} = 324.93 \text{ N/mm}^2$$

7 DESCRIZIONE DELLA STRUTTURA

L'edificio è in cemento armato con la presenza di 9 telai principali lungo la direzione trasversali collegati da impalcati rigidi e travi di bordo nella direzione ortogonale.

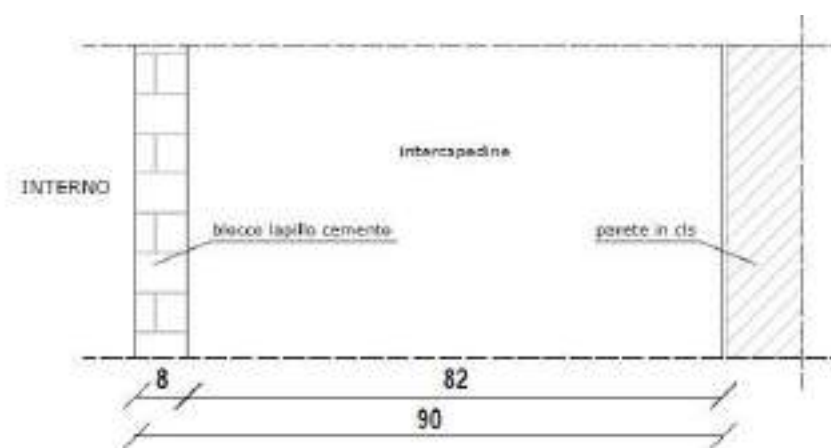


Figura 2 - Prospetto esterno sud-ovest (ingresso)

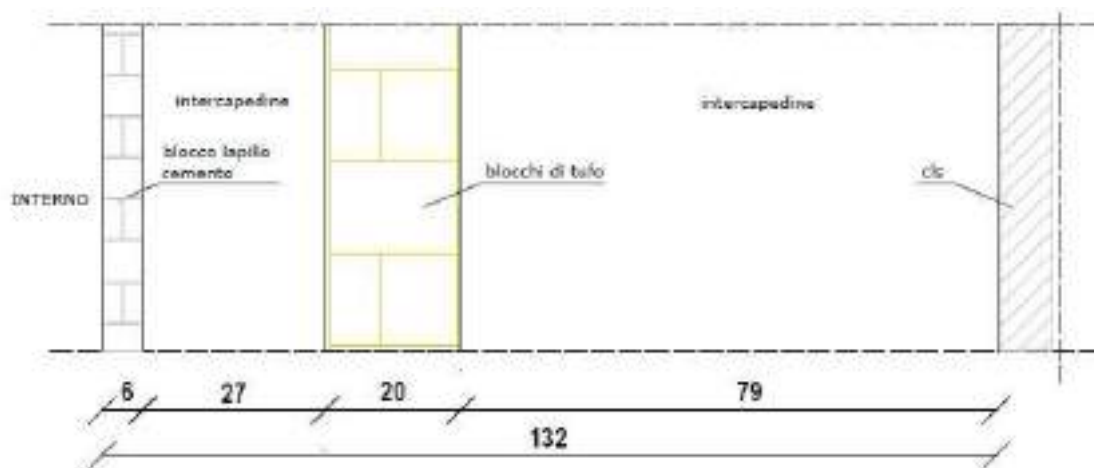
I pilastri sono di quattro tipologie: 30x30 cm, 30x40 cm, 30x50 cm e 30x60 cm. Le travi hanno altezza che varia dai 50 cm ai 90 cm, e base 30 cm, L'altezza di interpiano nel piano cantinato è di 4.10m, al piano superiore è variabile in quanto il piano ha solai sfalsati, l'interpiano in questo caso varia fra 3.50m, 3.80m, 4.30m e 6.50m.

I solai sono di tipo latero cementizio, il primo impalcato ha spessore di 21cm di cui 7 cm di caldana con travetti ad interasse pari a 50 cm, il solaio di copertura ha spessore 41 cm di cui 5 cm di caldana con travetti ad interasse pari a 52 cm.

Le tamponature al piano cantinato presentano le seguenti stratigrafie:



- Figura 3 – Tipologia tamponatura



- Figura 4 - Tipologia tamponatura

METODOLOGIA DI ANALISI E VERIFICA

Le Norme Tecniche per le Costruzioni "NTC2018" con la relativa circolare applicativa CM 7/2919, disciplinano le modalità di verifica delle strutture individuando diverse tipologie di analisi numerica che possono essere utilizzate per la verifica di strutture sia nuove che esistenti.

- Analisi statica lineare con spettro elastico.
- Analisi statica lineare con fattore di struttura q .
- Analisi dinamica modale con spettro di risposta o con fattore di struttura q .
- Analisi statica non lineare (push-over).
- Analisi dinamica non lineare.

Per l'analisi di vulnerabilità sismica, essendo conseguito il livello di conoscenza LC2, è possibile adottare indifferentemente uno dei metodi indicati dalla normativa.

Si è optato di effettuare l'analisi dinamica modale con fattore di struttura q . Con questa metodologia di calcolo tutti gli elementi strutturali duttili devono soddisfare la condizione che la sollecitazione indotta dall'azione sismica ridotta sia inferiore o uguale alla corrispondente resistenza

Il § 8.5.5.2 disciplina per le strutture in c.a. l'utilizzo del fattore di struttura precisando che lo stesso deve essere scelto nel campo tra 1.5 e 3.0 sulla base della regolarità nonché dei tassi di lavoro dei materiali (quando non soggetto alle azioni sismiche). Valori di q superiori a quelli sopra indicati devono essere adeguatamente giustificati con riferimento alla duttilità disponibile a livello locale e globale.

In accordo a quanto riportato nelle norme (§ C8.7.2.2, § C8.7.2.3 CM n. 7/2019), per la verifica di edifici con analisi modale e impiego del fattore q , è possibile utilizzare per le verifiche degli elementi duttili un valore di fattore di comportamento sino a $q_0=3.00$. Si è adottato un fattore di comportamento pari al 60% dell'incremento massimo, rispetto al valore minimo consentito ($q=1.5$), previsto per le costruzioni esistenti ($q=1.5+0.6*(3.00-1.5)=2.40$). Si assume $q=2.40$.

Si ottiene un fattore di comportamento per le verifiche duttili $q=2.4$.

Per le verifiche fragili con analisi modale si adotta $q=1.5$.

7.1 Modellazione strutturale

L'analisi dell'edificio in oggetto è condotta con riferimento allo stato di fatto sulla base delle indagini eseguite ed applicando i carichi desunti da una puntuale analisi che ha tenuto conto della effettiva definizione dei solai e dei carichi gravanti.

Con apposito software di calcolo Enexsys della Winstrand srl con sede a Casalecchio del Reno (BO), (versione 2021-059) è stato realizzato il modello tridimensionale agli elementi finiti con il quale si sono verificati tutti gli elementi in cemento armato (Travi, pilastri) sia nei confronti dei carichi gravitazionali che per l'azione sismica.

Gli elementi monodimensionali (travi e pilastri) sono modellati come elementi "Beam" a 2 nodi a cui vengono assegnate le dimensioni geometriche della sezione e quelle meccaniche così come desunte nel corso della campagna di indagini diagnostiche.

Le travi e i pilastri sono mutuamente incastrati a formare i telai dove si è tenuto conto di una parziale redistribuzione delle sollecitazioni riducendo il momento di continuità all'estremità delle travi.

Come specificato in precedenza la valutazione della sicurezza rispetto alle azioni orizzontali è condotta mediante analisi dinamica modale con fattore di struttura $q=2.40$ per le verifiche duttili e $q=1.50$ per quelle fragili.

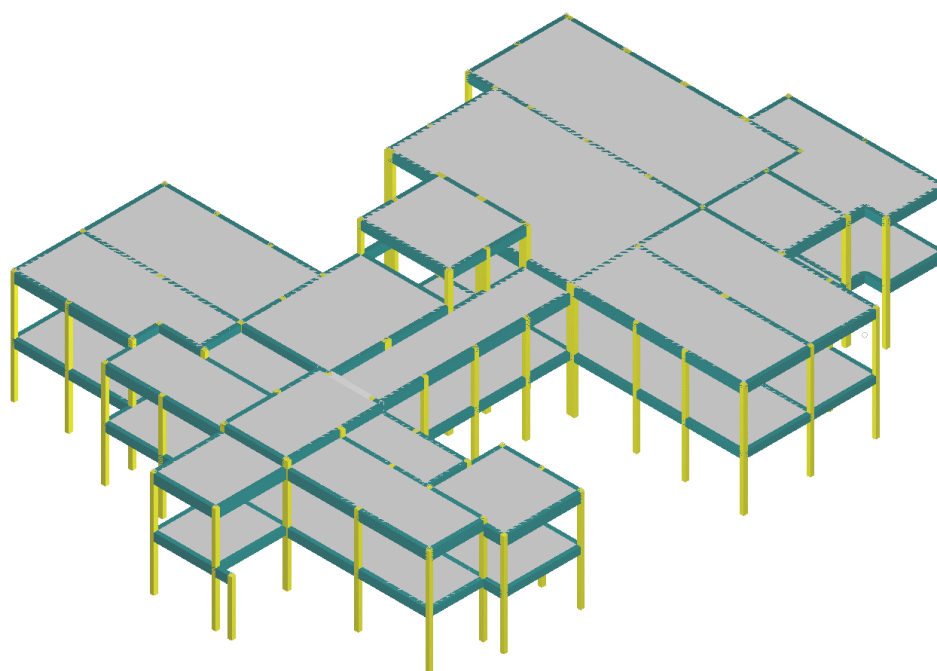


Figura 5 – Modello tridimensionale agli E.F

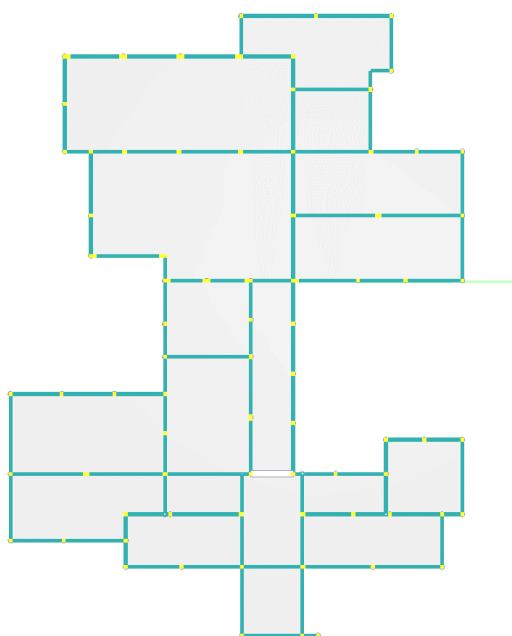


Figura 6 – Pianta modello tridimensionale agli E.F

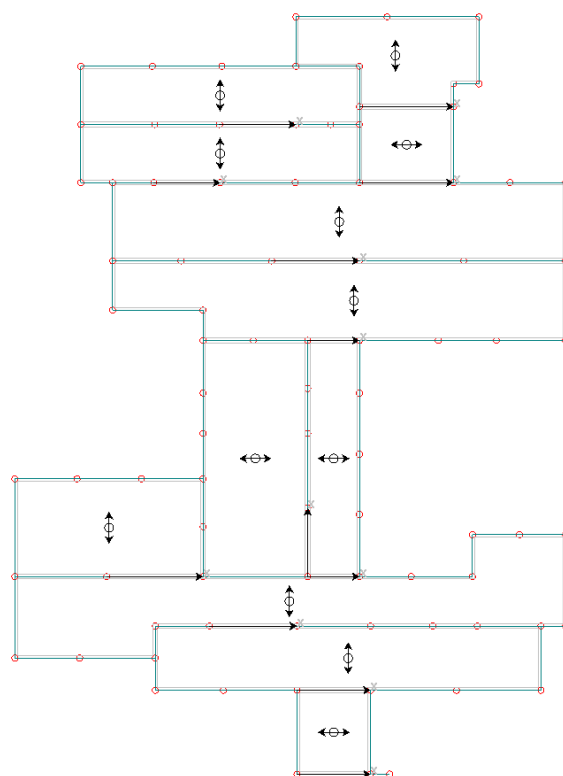


Figura 7 – Pianta con direzione orditura solaio interpiano

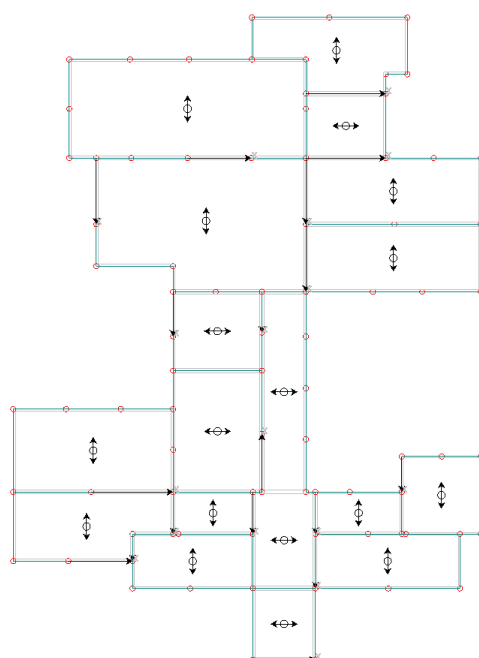


Figura 8 – Pianta con direzione orditura solai copertura

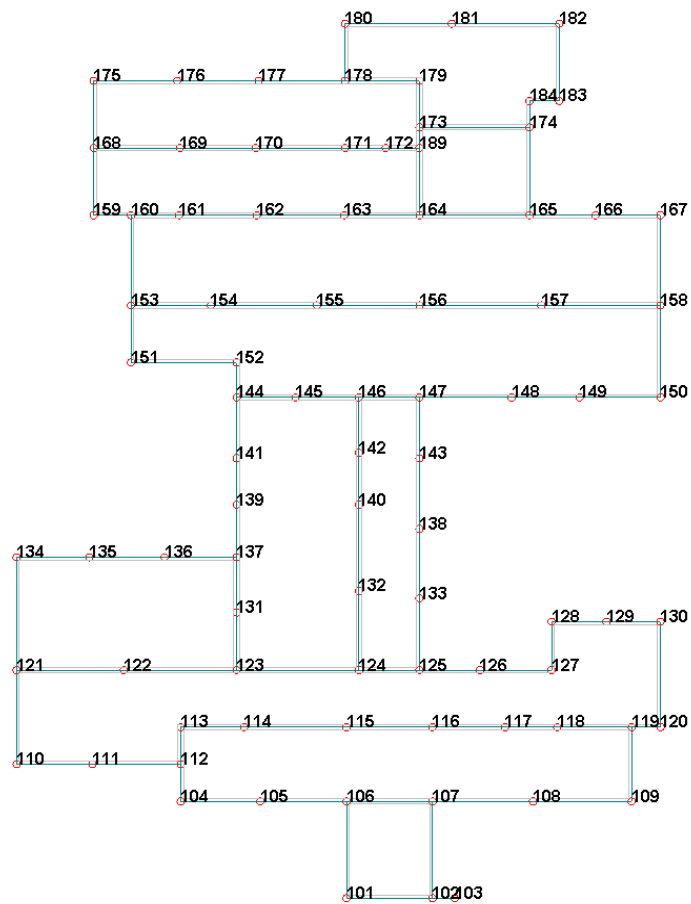


Figura 9 – Pianta con numerazione nodi

L'impalcato è ipotizzato con comportamento a lastra infinitamente rigida nel piano secondo lo schema master-slave. In questo modo viene imposta una relazione matematica che obbliga gli spostamenti X e Y e la rotazione RZ dei nodi appartenenti all'impalcato (detti nodi Slave) ad essere congruenti con quelli di un unico nodo (detto nodo Master). Gli spostamenti dei nodi sono quindi congruenti con lo spostamento rigido di un piano orizzontale con conseguente riduzione dei gradi di libertà dinamica del sistema.

Il nodo Master viene automaticamente creato dal software nel baricentro delle masse dei nodi appartenenti ad ogni impalcato e le eventuali forze o masse sismiche orizzontali e polari intorno all'asse Z globale vengono concentrate su questo nodo, mentre le altre masse o forze restano sui nodi di pertinenza; le masse relative a nodi non appartenenti a nessun impalcato vengono trasferite all'impalcato più vicino.

Per quanto attiene le fondazioni, si richiama quanto riportato nel paragrafo 8.3 delle NTC:

“La verifica del sistema di fondazione (nel caso di costruzioni esistenti) è obbligatoria solo se sussistono condizioni che possano dare luogo a fenomeni di instabilità globale o se si verifica una delle seguenti condizioni:

- *nella costruzione siano presenti importanti dissesti attribuibili a cedimenti delle fondazioni o dissesti della stessa natura;*
- *siano possibili fenomeni di ribaltamento e/o scorrimento della costruzione per effetto: di condizioni morfologiche sfavorevoli, di modificazioni apportate al profilo del terreno in prossimità delle fondazioni, delle azioni sismiche di progetto;*
- *siano possibili fenomeni di liquefazione del terreno di fondazione dovuti alle azioni sismiche di progetto”.*

Nel caso in esame non è stato rilevato alcun quadro fessurativo né traccia di precedenti interventi che inducano a pensare alla presenza di dissesti attribuibili a cedimenti delle fondazioni.

Per tale motivo le fondazioni non sono state prese in considerazione nel modello di analisi e non sono oggetto di verifica.

7.2 Geometria e armature

Le armature sono state definite in accordo con i risultati ottenuti dalle prove effettuate, dando una maggior affidabilità ai saggi diretti ed ai prelievi di barre. In quegli elementi strutturali dove mancava una prova diretta si è proceduto con la tecnica del progetto simulato. Ovvero, una volta rilevate la geometria e le dimensioni degli elementi strutturali, si è effettuato il progetto dell'intera struttura con il metodo delle tensioni ammissibili. Tale metodo prevede di effettuare una progettazione ex-novo utilizzando la normativa dell'epoca per la determinazione delle azioni, mantenendo invariato il dimensionamento geometrico come da rilievo. Questo, ha permesso di determinare il quantitativo di armatura necessario a soddisfare le azioni di calcolo previste dalla normativa dell'epoca.

Le armature estrapolate dal progetto simulato sono state confrontate con quelle desunte dai saggi diretti, per ulteriori approfondimenti si rimanda alla relazione sui risultati delle indagini (Fase2_RRI_01).

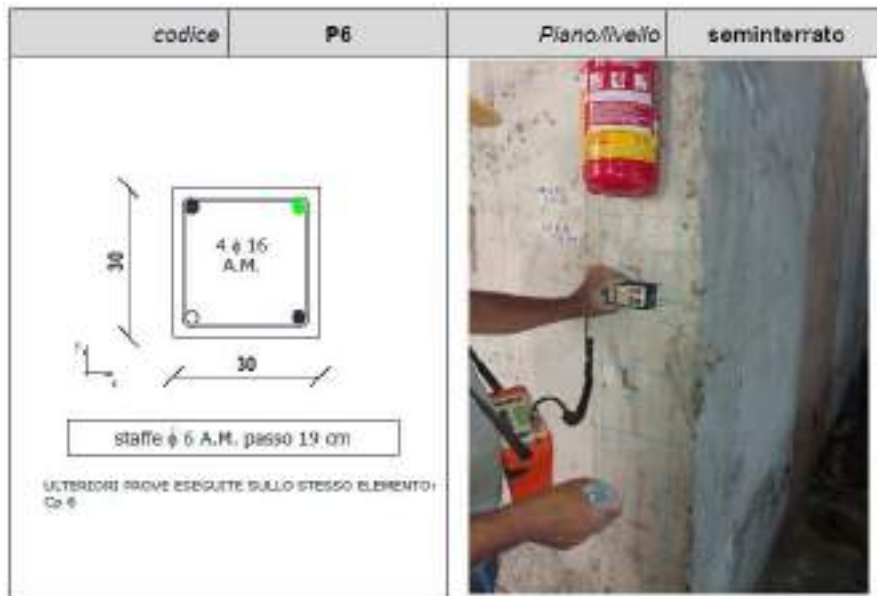


Figura 10 – Saggio diretto pilastro P6

▲Pilastro 6 106

Sezione 1 B 30 H 30 [cm]

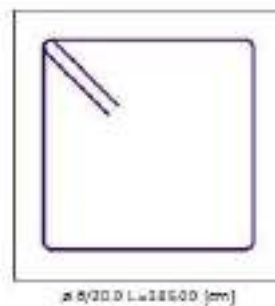
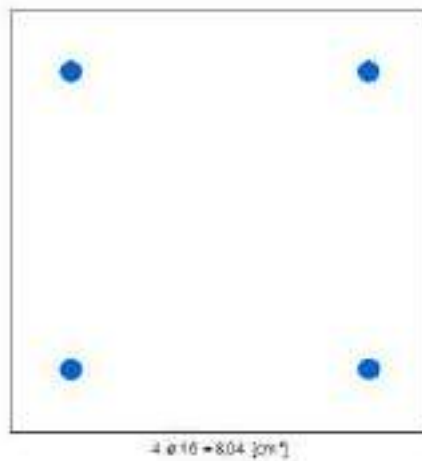


Figura 11 –Armatura pilastro P6 utilizzata nel codice di calcolo

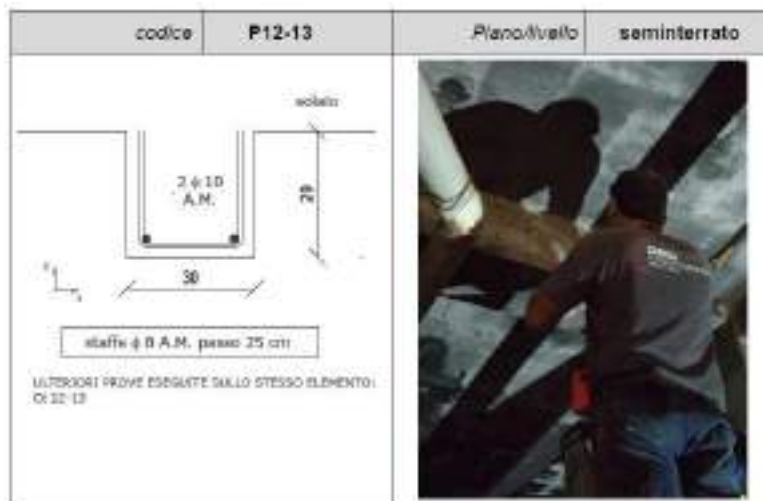


Figura 12 – Saggio diretto trave P12- P13

104 Sez. 2 112 Sez. 1 113

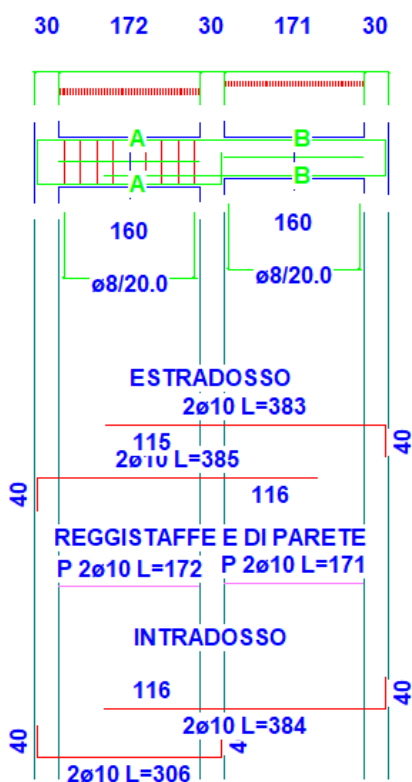


Figura 13 –Armatura trave P2-10 utilizzata nel codice di calcolo

Partendo dai dati validati, per analogia, si è utilizzata armatura simile per elementi strutturali tipologicamente affini controllandone la congruità rispetto al progetto simulato.

7.3 Azioni di calcolo

Azioni statiche

Le azioni di calcolo individuate per la struttura in esame sono le seguenti:

Pesi strutturali

Nei pesi strutturali rientra il peso proprio di travi, pilastri e murature.

Il valore del peso proprio viene calcolato in funzione della geometria delle varie membrature considerando il peso del calcestruzzo esistente pari a 2.5 kN/m³ superiore al valore medio riscontrato dai certificati d'indagine per tenere conto di ulteriori masse dovute ad elementi di finitura (2.035 kN/m³).

Impalcato Interpiano (Sp.21cm)

1	Solaio 14+7		G1		3,12	kN/mq	
			G2		2,74	kN/mq	
	Interpiano		Q		3,00	kN/mq	
CARICHI PERMANENTI STRUTTURALI							
TIPO	Materiale	P _s kN/m ³	Quantità N	H m	B m	Profondità m	G _s KN/m ²
CALDANA	CLS	25,00		0,07	1,00	1,00	1,75
TRAVETTI	CLS	25,00	2	0,14	0,1	1,00	0,7
PIGNATTE	LATERIZIO	6,00	2	0,14	0,4	1,00	0,672
Totale G₁							3,12
CARICHI PERMANENTI NON STRUTTURALI							
TIPO	Materiale	P _s kN/m ³	Quantità N	H m	B m	Profondità m	G _s KN/m ²
Massetto		18,00		0,03			0,54
Pavimento							0,4
Intonaco		20,00				0,03	0,6
Tramezzatura							1,2
Totale G₂							2,74
CARICHI VARIABILI							
TIPO							q _s KN/m ²
Variabili C1							3
Totale qk							3,00

Impalcato Copertura (Sp.41cm)

2	Solaio 36+5		G1		4,65	kN/mq	
			G2		1,30	kN/mq	
	Copertura		Q		0,50	kN/mq	
CARICHI PERMANENTI STRUTTURALI							
TIPO	Materiale	P _s kN/m ³	Quantità N	H m	B m	Profondità m	G _s KN/m ²
CALDANA	CLS	25,00		0,05	1,00	1,00	1,25
TRAVETTI	CLS	25,00	2	0,33	0,14	1,00	2,31
PIGNATTE	LATERIZIO	4,00	2	0,36	0,38	1,00	1,0944
Totale G₁							4,7
CARICHI PERMANENTI NON STRUTTURALI							
TIPO	Materiale	P _s kN/m ³	Quantità N	H m	B m	Profondità m	G _s KN/m ²
Massetto		18,00		0,05			0,90
Rivestimento		12,50		0,01			0,1
Intonaco		20,00				0,015	0,3
Totale G₂							1,30
CARICHI VARIABILI							
TIPO							q _s KN/m ²
Variabili H							0,5
Totale qk							0,50

Si adotta per i carichi permanenti un coefficiente parziale $g = 1.1$ vista la buona attendibilità del rilievo geometrico strutturale eseguito e l'omogeneità delle tipologie strutturali riscontrate

Azione sismica

L'entità e la distribuzione delle spinte trasmesse in occasione di un evento sismico dipendono, oltre che dall'intensità del terremoto stesso, anche dalla risposta locale del terreno di fondazione.

Le forme spettrali previste dalle NTC 2018 sono definite, su sito di riferimento rigido orizzontale, in funzione dei tre parametri a_g , F_0 e T_c^* dipendenti dal tempo di ritorno (espresso in anni) calcolato in funzione di assegnate probabilità di superamento nel periodo di riferimento.

Lo spettro di risposta elastico della componente orizzontale è definito dalle seguenti espressioni (vedi par. 3.2.3.2.1 DM 17/01/2018):

$$0 \leq T < T_B \quad S_e(T) = a_g \cdot S \cdot \eta \cdot F_0 \cdot \left[\frac{T}{T_B} + \frac{1}{\eta \cdot F_0} \cdot \left(1 - \frac{T}{T_B} \right) \right]$$

$$T_B \leq T < T_C \quad S_e(T) = a_g \cdot S \cdot \eta \cdot F_0$$

$$T_C \leq T < T_D \quad S_e(T) = a_g \cdot S \cdot \eta \cdot F_0 \cdot \left[\frac{T_C}{T} \right]$$

$$T_D \leq T \quad S_e(T) = a_g \cdot S \cdot \eta \cdot F_0 \cdot \left[\frac{T_C \cdot T_D}{T^2} \right]$$

dove:

- $S = S_s \times S_T = 1.43 \times 1.0 = 1.43$
- $\eta = 1$ avendo assunto come coefficiente di smorzamento viscoso $\xi = 5\%$
- $T_C = C_c \cdot T_C^* = 1,05 \cdot (T_C^*)^{(1-0,33)}$ periodo corrispondente all'inizio del tratto a velocità costante
- $T_B = T_C / 3$ periodo corrispondente all'inizio del tratto ad accelerazione costante
- $T_D = 4 \cdot (a_g / g) + 1,6$ periodo corrispondente all'inizio del tratto a spostamento costante

Lo spettro di progetto si ottiene applicando il fattore di struttura "q" individuato. Per la struttura in esame, si è adottato $q=2.4$ per costruzioni esistente.

La tipologia del terreno individuata nella relazione geologica è "C".

Gli spettri di progetto per i diversi stati limite sono rappresentati nelle figure seguenti.

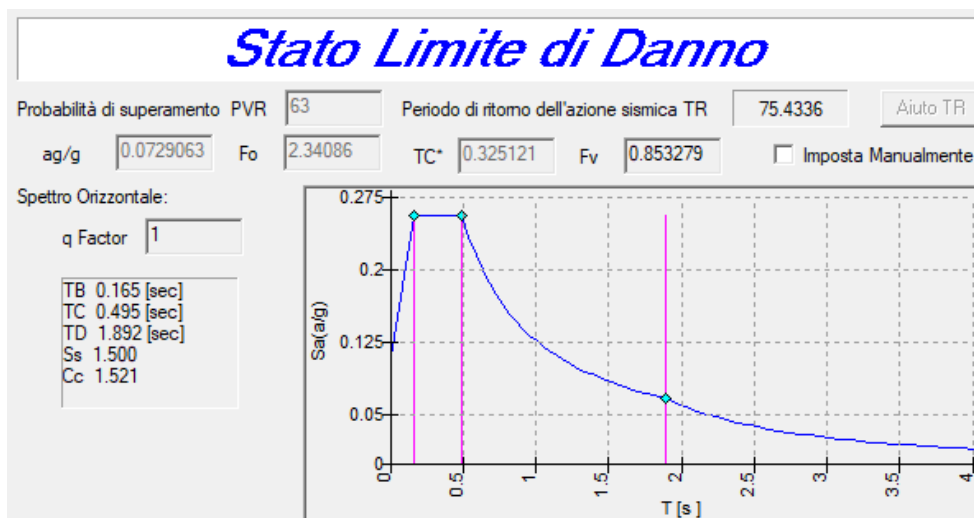


Figura 14 – Spettro SLD

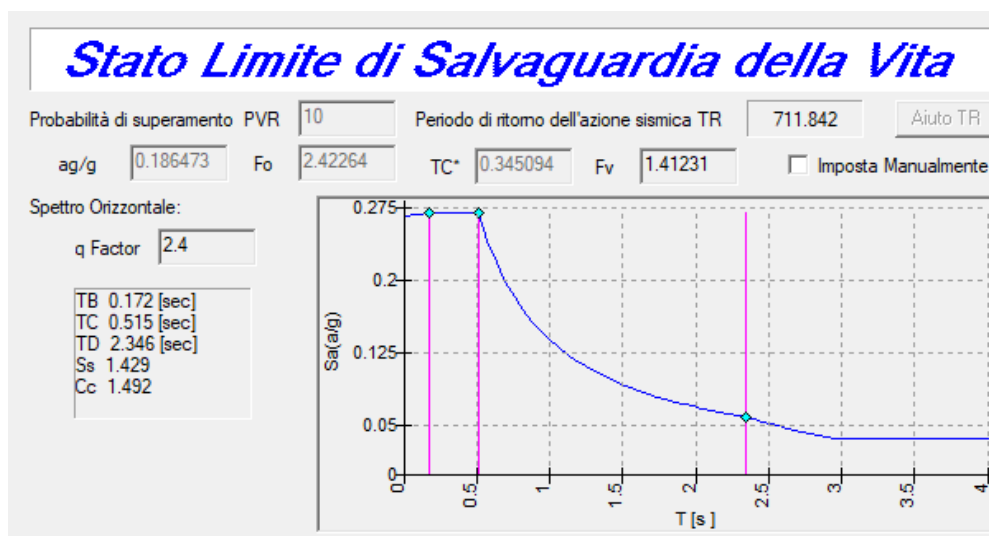


Figura 15 – Spettro SLV

7.4 Condizioni Elementari di carico e combinazioni

Le azioni di calcolo individuate vengono assegnate tramite la definizione dei solai direttamente alle travi/murature di competenza e si vengono a determinare le seguenti condizioni di carico elementari:

Condizione	
1	Peso proprio strutturale
2	Peso proprio solai
3	Permanente solai
4	Variabili cat. C
5	Variabili cat.H
6	Tamponature

Figura 16 – Condizioni di Carico Elementari

Le combinazioni di carico statiche e sismiche vengono generate in automatico.

6 condizioni statiche

16 condizioni dinamiche

Condizione	
1	Peso proprio strutturale
2	Peso proprio solai
3	Permanente solai
4	Variabili cat. C
5	Variabili cat.H
6	Tamponature
7	Sisma 0+SLU
8	Sisma 0-SLU
9	Sisma 90+SLU
10	Sisma 90-SLU
11	Sisma 180+SLU
12	Sisma 180-SLU
13	Sisma 270+SLU
14	Sisma 270-SLU
15	Sisma 0+SLD
16	Sisma 0-SLD
17	Sisma 90+SLD
18	Sisma 90-SLD
19	Sisma 180+SLD
20	Sisma 180-SLD
21	Sisma 270+SLD
22	Sisma 270-SLD

Figura 17 – Condizioni di Carico

7.4.1 Combinazioni agli Stati Limite Ultimi

Combinazione di carico numero	
1	
2	

Comb.\Cond	1	2	3	4	5	6
1	1.1	1.1	1.1	1.5	1.5	1.1
2	1	1	1	0.3	0	1

7.4.2 Combinazioni agli Stati Limite di Salvaguardia della Vita

Combinazione di carico numero	
3	Sisma 0+ / 90+
4	Sisma 0+ / 270+
5	Sisma 0- / 90-
6	Sisma 0- / 270-
7	Sisma 90+ / 0+
8	Sisma 90+ / 180+
9	Sisma 90- / 0-
10	Sisma 90- / 180-
11	Sisma 180+ / 90+

Combinazione di carico numero	
12	Sisma 180+ / 270+
13	Sisma 180- / 90-
14	Sisma 180- / 270-
15	Sisma 270+ / 0+
16	Sisma 270+ / 180+
17	Sisma 270- / 0-
18	Sisma 270- / 180-

Comb.\Cond	1	2	3	4	6	7	8	9	10	11	12	13	14
3	1	1	1	0.6	1	1		0.3					
4	1	1	1	0.6	1	1						0.3	
5	1	1	1	0.6	1		1		0.3				
6	1	1	1	0.6	1		1						0.3
7	1	1	1	0.6	1	0.3		1					
8	1	1	1	0.6	1			1		0.3			
9	1	1	1	0.6	1		0.3		1				
10	1	1	1	0.6	1				1		0.3		
11	1	1	1	0.6	1			0.3		1			
12	1	1	1	0.6	1					1		0.3	
13	1	1	1	0.6	1				0.3		1		
14	1	1	1	0.6	1						1		0.3
15	1	1	1	0.6	1	0.3							1
16	1	1	1	0.6	1					0.3			1
17	1	1	1	0.6	1		0.3						1
18	1	1	1	0.6	1						0.3		1

7.4.3 Combinazioni agli Stati Limite di Danno

Combinazione di carico numero	
19	Sisma 0+ / 90+
20	Sisma 0+ / 270+
21	Sisma 0- / 90-
22	Sisma 0- / 270-
23	Sisma 90+ / 0+
24	Sisma 90+ / 180+
25	Sisma 90- / 0-
26	Sisma 90- / 180-
27	Sisma 180+ / 90+
28	Sisma 180+ / 270+
29	Sisma 180- / 90-
30	Sisma 180- / 270-
31	Sisma 270+ / 0+
32	Sisma 270+ / 180+
33	Sisma 270- / 0-
34	Sisma 270- / 180-

Comb.\Cond	1	2	3	4	6	15	16	17	18	19	20	21	22
19	1	1	1	0.6	1	1		0.3					
20	1	1	1	0.6	1	1						0.3	
21	1	1	1	0.6	1		1		0.3				
22	1	1	1	0.6	1		1						0.3
23	1	1	1	0.6	1	0.3		1					
24	1	1	1	0.6	1			1		0.3			
25	1	1	1	0.6	1		0.3		1				

26	1	1	1	0.6	1				1		0.3		
27	1	1	1	0.6	1			0.3		1			
28	1	1	1	0.6	1					1		0.3	
29	1	1	1	0.6	1				0.3		1		
30	1	1	1	0.6	1						1		0.3
31	1	1	1	0.6	1	0.3						1	
32	1	1	1	0.6	1					0.3		1	
33	1	1	1	0.6	1		0.3						1
34	1	1	1	0.6	1						0.3		1

8 RISULTATI VERIFICA STATICA

Preliminarmente è stata verificata la capacità di resistenza degli elementi strutturali primari rispetto ai carichi gravitazionali cui il corpo di fabbrica è soggetto.

Si rappresentano di seguito le verifiche allo SLU in termini di indici di sicurezza sui diversi elementi strutturali (travi, pilastri).

8.1 Pilastri - Verifiche Presso-Flessione

Pilastro	Comb. Critica	S/R											
Dal nodo													
Al nodo	Sezione												
1 101	1	1	0.53	29 129	1	1	0.21	61 161	3	1	0.26		
2 102	1	1	0.43	30 130	1	1	0.19	62 162	3	1	0.32		
3 103	1	1	0.52	31 131	1	1	0.25	63 163	3	1	0.34		
4 104	1	1	0.16	32 132	3	1	0.29	64 164	3	1	0.40		
5 105	1	1	0.28	33 133	1	1	0.19	65 165	2	1	0.38		
6 106	1	1	0.53	34 134	1	1	0.24	66 166	1	1	0.22		
7 107	2	1	0.48	35 135	1	1	0.30	67 167	1	1	0.18		
8 108	1	1	0.31	36 136	1	1	0.30	68 168	1	1	0.30		
9 109	1	1	0.27	37 137	1	1	0.34	69 169	1	1	0.23		
10 110	1	1	0.21	38 138	1	1	0.17	70 170	1	1	0.21		
11 111	1	1	0.29	39 139	1	1	0.25	71 171	1	1	0.23		
12 112	1	1	0.23	40 140	2	1	0.32	72 172	1	1	0.15		
13 113	1	1	0.16	41 141	1	1	0.25	73 173	2	1	0.35		
14 114	1	1	0.35	42 142	2	1	0.23	74 174	2	1	0.38		
15 115	2	1	0.30	43 143	1	1	0.17	75 175	4	1	0.12		
16 116	2	1	0.23	44 144	4	1	0.18	76 176	4	1	0.15		
17 117	1	1	0.25	45 145	4	1	0.16	77 177	4	1	0.15		
18 118	1	1	0.32	46 146	4	1	0.22	78 178	4	1	0.19		
19 119	1	1	0.30	47 147	4	1	0.23	79 179	1	1	0.18		
20 120	1	1	0.16	48 148	1	1	0.28	80 180	1	1	0.18		
21 121	1	1	0.45	49 149	1	1	0.28	81 181	2	1	0.29		
22 122	3	1	0.39	50 150	1	1	0.29	82 182	1	1	0.26		
23 123	2	1	0.38	51 151	4	1	0.17	83 183	1	1	0.12		
24 124	2	1	0.32	52 152	4	1	0.22	101 201	5	1	0.56		
25 125	1	1	0.24	53 153	1	1	0.17	102 202	5	1	0.61		
26 126	1	1	0.17	54 154	1	1	0.26	104 204	5	1	0.16		
27 127	1	1	0.17	55 155	1	1	0.28	105 205	5	1	0.15		
28 128	1	1	0.15	56 156	2	1	0.33	106 206	5	1	0.35		
				57 157	4	1	0.38	107 307	6	1	0.43		
				58 158	1	1	0.48	108 208	5	1	0.15		
				59 159	1	1	0.11	109 209	5	1	0.47		
				60 160	1	1	0.23	110 210	5	1	0.21		

111 211	5	1	0.14
112 212	5	1	0.15
113 213	5	1	0.10
114 214	5	1	0.30
115 215	6	1	0.29
116 316	6	1	0.40
117 217	5	1	0.15
118 218	5	1	0.15
119 219	5	1	0.20
120 220	5	1	0.18
121 221	5	1	0.50
122 222	7	1	0.20
123 223	6	1	0.21
124 224	5	1	0.21
125 225	5	1	0.17
126 226	5	1	0.09
127 227	5	1	0.14
128 228	5	1	0.13
129 229	5	1	0.10
130 230	5	1	0.17
131 231	5	1	0.15
132 232	7	1	0.14
133 233	5	1	0.09
134 234	5	1	0.22
135 235	5	1	0.14

136 236	5	1	0.13
137 237	5	1	0.20
138 238	5	1	0.07
139 239	5	1	0.16
140 240	6	1	0.17
141 241	5	1	0.13
142 242	5	1	0.16
143 243	5	1	0.07
144 244	8	1	0.12
145 245	8	1	0.11
146 246	8	1	0.16
147 247	8	1	0.13
148 248	5	1	0.16
149 249	5	1	0.15
150 250	5	1	0.47
151 251	8	1	0.75
152 252	8	1	0.33
153 253	5	1	0.14
156 256	6	1	0.36
157 257	7	1	0.21
158 258	5	1	0.47
159 259	5	1	0.09
160 260	5	1	0.13
161 261	6	1	0.20
162 262	6	1	0.25

163 263	6	1	0.29
164 264	5	1	0.35
165 265	6	1	0.31
166 266	5	1	0.10
167 267	5	1	0.19
168 268	5	1	0.51
173 273	5	1	0.39
174 274	6	1	0.44
175 275	8	1	0.26
176 276	8	1	0.09
177 277	8	1	0.08
178 278	8	1	0.10
179 279	5	1	0.20
180 280	5	1	0.27
181 281	1	1	0.17
182 282	1	1	0.51
183 283	5	1	0.37
206 306	5	1	0.61
239 339	5	1	0.08
241 341	5	1	0.13
244 344	8	1	0.15
245 345	8	1	0.03
440 340	6	1	0.09
442 342	5	1	0.12
446 346	8	1	0.07

- Processati 167 pilastri
- Elemento con $\rho_{\max} = S/R$ 151 - 251 = 0.75

Le verifiche a pressoflessione risultano soddisfatte.

Il tasso di sfruttamento massimo è 0.750, corrispondente al coefficiente di sicurezza c.s. = 1.33 > 1

8.2 Pilastri - Verifiche Taglio

Dal nodo Al nodo	Pilastro Sezione	Piano 1/2			Piano 1/3		
		V _{SD} [kN]	V _{RD} [kN]	V _{SD} /V _{RD}	V _{SD} [kN]	V _{RD} [kN]	V _{SD} /V _{RD}
1 101	1	8.60	52.92	0.16	1.64	52.92	0.03
2 102	1	7.18	52.92	0.14	1.55	52.92	0.03
3 103	1	4.88	52.92	0.09	1.63	52.92	0.03
4 104	1	0.08	52.92	0.00	1.79	52.92	0.03
5 105	1	1.25	52.92	0.02	0.43	52.92	0.01
6 106	1	7.48	52.92	0.14	0.34	52.92	0.01
7 107	2	1.67	73.59	0.02	9.10	52.92	0.17
8 108	1	0.86	52.92	0.02	0.50	52.92	0.01
9 109	1	1.21	52.92	0.02	3.86	52.92	0.07
10 110	1	1.62	52.92	0.03	2.55	52.92	0.05
11 111	1	0.25	52.92	0.00	0.62	52.92	0.01
12 112	1	0.04	52.92	0.00	2.71	52.92	0.05

13 113	1	0.18	52.92	0.00	1.32	52.92	0.02
14 114	1	0.06	52.92	0.00	1.75	52.92	0.03
15 115	2	1.85	73.59	0.03	0.06	52.92	0.00
16 116	2	0.49	73.59	0.01	0.07	52.92	0.00
17 117	1	0.05	52.92	0.00	0.53	52.92	0.01
18 118	1	0.08	52.92	0.00	1.53	52.92	0.03
19 119	1	0.28	52.92	0.01	2.01	52.92	0.04
20 120	1	2.25	52.92	0.04	0.98	52.92	0.02
21 121	1	0.57	47.04	0.01	4.91	47.04	0.10
22 122	3	0.47	94.26	0.01	0.24	52.92	0.00
23 123	2	2.94	73.59	0.04	1.49	52.92	0.03
24 124	2	2.39	73.59	0.03	4.39	52.92	0.08
25 125	1	2.12	52.92	0.04	0.11	52.92	0.00
26 126	1	0.50	52.92	0.01	0.79	52.92	0.01
27 127	1	0.46	52.92	0.01	1.88	52.92	0.04

145 245	8	0.77	102.16	0.01	0.84	47.04	0.02	168 268	5	4.13	52.92	0.08	0.15	52.92	0.00
146 246	8	3.19	114.93	0.03	3.85	52.92	0.07	173 273	5	4.15	52.92	0.08	7.68	52.92	0.15
147 247	8	5.20	114.93	0.05	2.46	52.92	0.05	174 274	6	6.57	73.59	0.09	11.32	52.92	0.21
148 248	5	0.13	52.92	0.00	2.32	52.92	0.04	175 275	8	14.11	102.16	0.14	1.82	47.04	0.04
149 249	5	0.54	52.92	0.01	1.71	52.92	0.03	176 276	8	3.13	102.16	0.03	0.19	47.04	0.00
150 250	5	2.94	52.92	0.06	6.49	52.92	0.12	177 277	8	1.00	102.16	0.01	0.01	47.04	0.00
151 251	8	31.31	102.16	0.31	0.40	47.04	0.01	178 278	8	1.25	102.16	0.01	0.43	47.04	0.01
152 252	8	16.46	102.16	0.16	0.38	47.04	0.01	179 279	5	0.53	52.92	0.01	4.06	52.92	0.08
153 253	5	0.87	52.92	0.02	2.16	52.92	0.04	180 280	5	1.10	52.92	0.02	4.15	52.92	0.08
156 256	6	8.64	73.59	0.12	0.20	52.92	0.00	181 281	1	1.02	52.92	0.02	0.26	52.92	0.00
157 257	7	1.08	83.79	0.01	0.08	47.04	0.00	182 282	1	0.60	52.92	0.01	7.93	52.92	0.15
158 258	5	0.04	52.92	0.00	8.78	52.92	0.17	183 283	5	1.83	52.92	0.03	3.90	52.92	0.07
159 259	5	0.68	52.92	0.01	1.83	52.92	0.03	206 306	5	27.81	52.92	0.53	12.54	52.92	0.24
160 260	5	1.07	52.92	0.02	0.79	52.92	0.01	239 339	5	1.66	47.04	0.04	2.99	47.04	0.06
161 261	6	2.19	73.59	0.03	0.22	52.92	0.00	241 341	5	3.26	52.92	0.06	2.03	52.92	0.04
162 262	6	1.10	73.59	0.01	0.21	52.92	0.00	244 344	8	4.46	102.16	0.04	6.39	47.04	0.14
163 263	6	2.87	73.59	0.04	1.00	52.92	0.02	245 345	8	0.99	102.16	0.01	0.37	47.04	0.01
164 264	5	3.45	52.92	0.07	0.48	52.92	0.01	440 340	6	2.07	73.59	0.03	4.95	52.92	0.09
165 265	6	7.45	73.59	0.10	7.78	52.92	0.15	442 342	5	2.01	52.92	0.04	1.77	52.92	0.03
166 266	5	0.75	52.92	0.01	0.14	52.92	0.00	446 346	8	3.75	102.16	0.04	2.24	47.04	0.05
167 267	5	2.39	52.92	0.05	3.59	52.92	0.07								

- Processati 167 pilastri
- Elemento con $\rho_{\max} = S/R \ 206 - 306 = 0.53$

Le verifiche a pressoflessione risultano soddisfatte.

Il tasso di sfruttamento massimo è 0.530, corrispondente al coefficiente di sicurezza c.s. = 1.88 > 1

8.3

Travi - Verifiche Flessionali

Dal nodo Al nodo	Trave Sezione	Nodo Iniziale		Nodo Finale		Max Campata	
		S/R Estradosso	S/R Intradosso	S/R Estradosso	S/R Intradosso	S/R Estradosso	S/R Intradosso
183 184	2	0.07	0.03	0.06	0.01	0.07	0.03
184 174	2	0.16	0.00	0.29	0.00	0.29	0.00
174 165	2	0.36	0.00	0.31	0.19	0.40	0.55
265 274	6	0.16	0.20	0.26	0.01	0.26	0.50
274 284	6	0.22	0.00	0.13	0.00	0.22	0.00

284 283	6	0.09	0.00	0.04	0.00	0.09	0.02
340 342	6	0.00	0.21	0.12	0.04	0.12	0.25
342 346	6	0.13	0.05	0.01	0.22	0.13	0.28
339 341	6	0.00	0.18	0.11	0.04	0.11	0.20
341 344	6	0.12	0.06	0.06	0.23	0.12	0.35
344 345	6	0.01	0.02	0.04	0.00	0.04	0.03
345 346	6	0.04	0.00	0.01	0.03	0.04	0.04
339 340	6	0.05	0.03	0.08	0.02	0.08	0.15
250 258	6	0.07	0.02	0.01	0.04	0.07	0.14
258 267	6	0.01	0.03	0.08	0.01	0.08	0.13
283 282	6	0.06	0.02	0.00	0.06	0.06	0.10
307 316	7	0.00	0.19	0.13	0.02	0.13	0.26
316 269	7	0.10	0.00	0.18	0.00	0.18	0.08
347 256	6	0.14	0.00	0.03	0.01	0.14	0.09
256 264	6	0.04	0.00	0.17	0.00	0.21	0.06
264 289	6	0.17	0.07	0.00	0.27	0.17	0.61
289 273	6	0.07	0.13	0.19	0.04	0.19	0.13
273 279	6	0.20	0.00	0.11	0.00	0.26	0.02
324 332	9	0.09	0.25	0.49	0.05	0.49	0.33
332 440	9	0.53	0.06	0.04	0.33	0.53	0.44
278 280	6	0.00	0.04	0.02	0.03	0.02	0.06
306 315	7	0.00	0.19	0.16	0.00	0.16	0.25
315 255	7	0.14	0.00	0.07	0.05	0.14	0.08
254 323	3	0.12	0.00	0.00	0.02	0.12	0.05
323 231	7	0.00	0.09	0.19	0.00	0.19	0.19
231 237	7	0.19	0.00	0.04	0.03	0.19	0.11
237 239	7	0.04	0.06	0.05	0.06	0.05	0.16
239 241	7	0.07	0.00	0.00	0.02	0.07	0.02
241 244	7	0.00	0.03	0.05	0.01	0.05	0.07
244 252	6	0.01	0.00	0.02	0.00	0.02	0.01
312 313	3	0.00	0.05	0.02	0.04	0.02	0.05
251 253	6	0.01	0.01	0.07	0.00	0.07	0.02
253 260	6	0.07	0.00	0.02	0.04	0.07	0.09
259 268	6	0.01	0.03	0.02	0.01	0.02	0.06
268 275	6	0.02	0.01	0.03	0.02	0.03	0.05
210 221	7	0.03	0.03	0.02	0.02	0.03	0.08
221 234	7	0.02	0.02	0.05	0.03	0.05	0.12
209 319	7	0.03	0.03	0.00	0.06	0.03	0.08
203 327	7	0.00	0.48	0.13	0.03	0.13	0.48
202 207	7	0.05	0.26	0.20	0.17	0.20	0.54
225 233	7	0.05	0.10	0.10	0.01	0.10	0.16
233 238	7	0.10	0.00	0.08	0.00	0.10	0.10
238 243	7	0.09	0.01	0.09	0.01	0.09	0.11
243 247	7	0.09	0.01	0.02	0.08	0.09	0.11
201 206	7	0.03	0.29	0.19	0.18	0.19	0.56
212 204	7	0.00	0.04	0.01	0.03	0.01	0.04
220 230	7	0.06	0.03	0.04	0.05	0.06	0.13
227 228	7	0.01	0.02	0.00	0.03	0.01	0.03
280 281	6	0.11	0.18	0.49	0.00	0.49	0.49
281 282	6	0.50	0.00	0.17	0.17	0.50	0.53
275 276	6	0.30	0.17	0.33	0.00	0.33	0.55
276 277	6	0.29	0.00	0.31	0.00	0.31	0.39

277 278	6	0.30	0.00	0.38	0.00	0.38	0.45
278 279	6	0.34	0.02	0.22	0.25	0.34	0.51
273 274	6	0.43	0.11	0.42	0.12	0.43	0.67
259 260	6	0.02	0.15	0.00	0.15	0.02	0.17
260 261	9	0.00	0.10	0.13	0.10	0.13	0.14
261 262	9	0.13	0.21	0.20	0.11	0.24	0.36
262 263	9	0.20	0.20	0.23	0.15	0.28	0.53
263 264	9	0.23	0.06	0.22	0.16	0.27	0.32
264 265	6	0.34	0.00	0.31	0.00	0.34	0.63
265 266	6	0.26	0.00	0.15	0.00	0.26	0.18
266 267	6	0.13	0.08	0.00	0.24	0.13	0.33
256 257	9	0.04	0.37	0.42	0.00	0.51	0.63
257 258	9	0.42	0.00	0.02	0.38	0.51	0.61
251 252	6	0.49	0.00	0.33	0.08	0.49	0.51
244 245	7	0.15	0.16	0.32	0.08	0.32	0.24
245 446	7	0.34	0.09	0.20	0.08	0.34	0.27
446 347	6	0.22	0.10	0.39	0.01	0.39	0.23
347 248	6	0.50	0.00	0.33	0.00	0.50	0.35
248 249	6	0.31	0.00	0.32	0.00	0.32	0.16
249 250	6	0.33	0.02	0.04	0.22	0.33	0.41
239 440	7	0.11	0.06	0.17	0.02	0.17	0.28
234 235	7	0.00	0.26	0.14	0.04	0.14	0.34
235 236	7	0.15	0.01	0.18	0.00	0.18	0.19
236 237	7	0.17	0.01	0.05	0.18	0.17	0.26
221 222	7	0.08	0.29	0.45	0.00	0.56	0.60
222 323	7	0.44	0.00	0.30	0.00	0.57	0.60
323 255	7	0.21	0.00	0.01	0.03	0.29	0.07
255 324	7	0.00	0.34	0.00	0.92	0.00	0.92
324 325	10	0.04	0.03	0.20	0.00	0.20	0.03
325 269	7	0.19	0.02	0.19	0.02	0.19	0.02
313 254	3	0.20	0.06	0.00	0.13	0.20	0.26
254 314	3	0.00	0.12	0.00	0.14	0.00	0.14
210 211	7	0.00	0.23	0.15	0.02	0.15	0.31
211 312	7	0.16	0.02	0.21	0.11	0.21	0.34
306 307	6	0.01	0.06	0.08	0.01	0.08	0.11
288 226	7	0.00	0.12	0.19	0.00	0.19	0.12
226 327	7	0.19	0.02	0.06	0.11	0.19	0.19
216 217	7	0.12	0.16	0.16	0.03	0.16	0.29
217 318	7	0.16	0.00	0.10	0.04	0.16	0.09
318 319	7	0.10	0.03	0.05	0.14	0.10	0.22
214 215	1	0.36	0.00	0.47	0.00	0.47	0.47
207 208	7	0.16	0.12	0.25	0.00	0.25	0.33
208 209	7	0.25	0.00	0.07	0.18	0.25	0.36
204 205	7	0.03	0.14	0.18	0.00	0.18	0.22
205 206	7	0.19	0.00	0.04	0.16	0.19	0.28
201 202	7	0.01	0.05	0.03	0.04	0.03	0.09
228 229	7	0.01	0.16	0.03	0.07	0.03	0.20
229 230	7	0.03	0.07	0.00	0.17	0.03	0.20
219 220	7	0.00	0.19	0.02	0.16	0.02	0.19
150 158	1	0.18	0.03	0.20	0.00	0.20	0.29
158 167	1	0.20	0.00	0.18	0.03	0.20	0.27
120 130	1	0.37	0.00	0.25	0.03	0.37	0.44

109 119	1	0.13	0.04	0.16	0.02	0.16	0.21
183 182	2	0.10	0.08	0.02	0.14	0.10	0.26
127 128	1	0.01	0.08	0.00	0.09	0.01	0.12
102 107	1	0.42	0.06	0.36	0.08	0.42	0.73
164 189	2	0.32	0.15	0.00	0.24	0.32	0.50
189 173	2	0.14	0.13	0.33	0.01	0.33	0.13
173 179	2	0.27	0.00	0.14	0.00	0.37	0.01
125 133	1	0.11	0.21	0.32	0.00	0.32	0.47
133 138	1	0.30	0.00	0.25	0.00	0.30	0.27
138 143	1	0.25	0.00	0.26	0.00	0.26	0.32
143 147	1	0.27	0.00	0.11	0.15	0.27	0.30
124 132	2	0.09	0.31	0.39	0.00	0.50	0.53
132 140	2	0.40	0.00	0.27	0.04	0.51	0.50
140 142	2	0.27	0.00	0.18	0.00	0.27	0.24
142 146	2	0.17	0.10	0.09	0.33	0.17	0.46
178 180	1	0.04	0.08	0.05	0.07	0.05	0.15
101 106	1	0.25	0.11	0.30	0.08	0.30	0.68
123 131	1	0.00	0.30	0.31	0.00	0.31	0.41
131 137	1	0.30	0.00	0.16	0.02	0.30	0.23
137 139	1	0.16	0.06	0.20	0.04	0.20	0.32
139 141	1	0.18	0.01	0.23	0.00	0.23	0.20
141 144	1	0.23	0.05	0.24	0.04	0.24	0.47
144 152	1	0.17	0.00	0.07	0.00	0.17	0.02
104 112	2	0.04	0.16	0.00	0.10	0.04	0.18
112 113	1	0.00	0.08	0.01	0.06	0.01	0.08
151 153	1	0.01	0.05	0.15	0.00	0.15	0.07
153 160	1	0.18	0.00	0.18	0.03	0.18	0.28
159 168	1	0.10	0.04	0.10	0.00	0.10	0.15
168 175	1	0.09	0.00	0.11	0.04	0.11	0.15
110 121	1	0.16	0.04	0.27	0.00	0.27	0.27
121 134	1	0.30	0.00	0.30	0.00	0.30	0.44
180 181	4	0.05	0.27	0.42	0.00	0.42	0.48
181 182	4	0.43	0.00	0.10	0.29	0.43	0.56
175 176	2	0.27	0.17	0.21	0.04	0.27	0.55
176 177	2	0.21	0.01	0.29	0.00	0.29	0.37
177 178	2	0.27	0.00	0.31	0.00	0.31	0.40
178 179	2	0.29	0.01	0.22	0.23	0.29	0.52
173 174	4	0.19	0.21	0.21	0.20	0.21	0.51
168 169	1	0.26	0.14	0.43	0.00	0.50	0.58
169 170	1	0.47	0.00	0.55	0.00	0.55	0.47
170 171	1	0.51	0.00	0.40	0.00	0.57	0.56
171 172	1	0.44	0.00	0.33	0.00	0.44	0.08
172 189	1	0.34	0.00	0.00	0.08	0.34	0.08
159 160	2	0.00	0.15	0.02	0.07	0.02	0.15
160 161	2	0.02	0.09	0.23	0.01	0.23	0.16
161 162	2	0.28	0.03	0.41	0.00	0.41	0.54
162 163	2	0.39	0.00	0.38	0.00	0.44	0.73
163 164	2	0.35	0.00	0.42	0.00	0.42	0.45
164 165	2	0.45	0.00	0.41	0.00	0.45	0.76
165 166	2	0.29	0.00	0.23	0.00	0.29	0.26
166 167	2	0.21	0.04	0.01	0.32	0.21	0.46
153 154	4	0.00	0.33	0.39	0.00	0.39	0.42

154 155	4	0.39	0.01	0.38	0.00	0.47	0.76
155 156	4	0.38	0.00	0.35	0.00	0.48	0.57
156 157	4	0.38	0.00	0.42	0.00	0.53	0.64
157 158	4	0.45	0.00	0.09	0.37	0.52	0.73
151 152	1	0.55	0.00	0.45	0.00	0.55	0.46
144 145	1	0.14	0.15	0.13	0.05	0.14	0.31
145 146	1	0.19	0.01	0.17	0.02	0.19	0.27
146 147	1	0.11	0.04	0.30	0.00	0.30	0.21
147 148	1	0.45	0.00	0.42	0.00	0.57	0.48
148 149	1	0.42	0.00	0.41	0.00	0.42	0.34
149 150	1	0.42	0.00	0.26	0.16	0.46	0.49
134 135	2	0.05	0.24	0.34	0.00	0.34	0.39
135 136	2	0.34	0.00	0.36	0.00	0.36	0.40
136 137	2	0.36	0.00	0.08	0.21	0.36	0.36
128 129	1	0.15	0.20	0.22	0.03	0.22	0.36
129 130	1	0.22	0.03	0.08	0.24	0.22	0.38
120 119	2	0.14	0.00	0.21	0.00	0.21	0.03
119 118	2	0.20	0.13	0.27	0.08	0.31	0.79
118 117	2	0.31	0.00	0.19	0.00	0.31	0.19
117 116	2	0.18	0.06	0.33	0.00	0.33	0.42
116 115	2	0.33	0.00	0.47	0.00	0.47	0.51
115 114	2	0.50	0.00	0.41	0.00	0.57	0.73
114 113	2	0.41	0.00	0.13	0.19	0.41	0.30
121 122	4	0.07	0.38	0.36	0.00	0.46	0.68
122 123	4	0.36	0.00	0.32	0.01	0.47	0.63
123 124	4	0.37	0.00	0.12	0.05	0.44	0.33
124 125	1	0.17	0.00	0.09	0.01	0.17	0.14
125 126	1	0.09	0.01	0.25	0.00	0.25	0.14
126 127	1	0.25	0.00	0.19	0.16	0.25	0.44
110 111	2	0.05	0.34	0.41	0.00	0.41	0.55
111 112	2	0.43	0.00	0.36	0.12	0.43	0.44
104 105	2	0.23	0.17	0.34	0.00	0.34	0.46
105 106	2	0.36	0.00	0.25	0.01	0.36	0.47
106 107	2	0.24	0.00	0.32	0.00	0.32	0.30
107 108	2	0.36	0.00	0.53	0.00	0.53	0.45
108 109	2	0.54	0.00	0.22	0.18	0.54	0.49
101 102	2	0.06	0.14	0.02	0.09	0.06	0.34
102 103	2	0.00	0.03	0.03	0.03	0.03	0.04
240 242	7	0.00	0.10	0.05	0.02	0.05	0.10
242 246	7	0.04	0.02	0.10	0.03	0.10	0.07

- Processati 402 travi
- Elemento con $\rho_{\max} = S/R$ 255 - 324 = 0.92

Le verifiche a pressoflessione risultano soddisfatte.

Il tasso di sfruttamento massimo è 0.920, corrispondente al coefficiente di sicurezza c.s. = 1.08 > 1

8.4

Travi - Verifiche Taglio

Dal nodo Al nodo	Trave Sezione	Nodo Iniziale			Nodo Finale			Concio Critico		
		V _{SD} [kN]	V _{RD} [kN]	V _{SD} /V _{RD}	V _{SD} [kN]	V _{RD} [kN]	V _{SD} /V _{RD}	V _{SD} [kN]	V _{RD} [kN]	V _{SD} /V _{RD}
183 184	2	28.54	204.32	0.14	28.54	204.32	0.14	28.54	204.32	0.14
184 174	2	44.38	204.32	0.22	44.38	204.32	0.22	44.38	204.32	0.22
174 165	2	91.58	204.32	0.45	91.58	204.32	0.45	91.58	204.32	0.45
265 274	6	75.62	204.32	0.37	75.62	204.32	0.37	75.62	204.32	0.37
274 284	6	30.79	204.32	0.15	30.79	204.32	0.15	30.79	204.32	0.15
284 283	6	24.70	204.32	0.12	24.70	204.32	0.12	24.70	204.32	0.12
340 342	6	50.88	204.32	0.25	50.88	204.32	0.25	50.88	204.32	0.25
342 346	6	53.73	204.32	0.26	53.73	204.32	0.26	53.73	204.32	0.26
339 341	6	46.80	204.32	0.23	46.80	204.32	0.23	46.80	204.32	0.23
341 344	6	56.35	204.32	0.28	56.35	204.32	0.28	56.35	204.32	0.28
344 345	6	8.74	204.32	0.04	8.74	204.32	0.04	8.74	204.32	0.04
345 346	6	9.34	204.32	0.05	9.34	204.32	0.05	9.34	204.32	0.05
339 340	6	15.86	204.32	0.08	15.86	204.32	0.08	15.86	204.32	0.08
250 258	6	12.73	204.32	0.06	12.73	204.32	0.06	12.73	204.32	0.06
258 267	6	12.62	204.32	0.06	12.62	204.32	0.06	12.62	204.32	0.06
283 282	6	11.13	204.32	0.05	11.13	204.32	0.05	11.13	204.32	0.05
307 316	7	57.41	241.07	0.24	57.41	241.07	0.24	57.41	241.07	0.24
316 269	7	37.85	241.07	0.16	37.85	241.07	0.16	37.85	241.07	0.16
347 256	6	13.27	204.32	0.06	13.27	204.32	0.06	13.27	204.32	0.06
256 264	6	16.01	204.32	0.08	16.01	204.32	0.08	16.01	204.32	0.08
264 289	6	68.78	204.32	0.34	68.78	204.32	0.34	68.78	204.32	0.34
289 273	6	71.35	204.32	0.35	71.35	204.32	0.35	71.35	204.32	0.35
273 279	6	17.90	204.32	0.09	17.90	204.32	0.09	17.90	204.32	0.09
324 332	9	84.77	314.57	0.27	84.77	314.57	0.27	84.77	314.57	0.27
332 440	9	92.88	314.57	0.30	92.88	314.57	0.30	92.88	314.57	0.30
278 280	6	7.64	204.32	0.04	7.64	204.32	0.04	7.64	204.32	0.04
306 315	7	59.32	241.07	0.25	59.32	241.07	0.25	59.32	241.07	0.25
315 255	7	45.03	241.07	0.19	45.03	241.07	0.19	45.03	241.07	0.19
254 323	3	15.19	241.07	0.06	15.19	241.07	0.06	15.19	241.07	0.06
323 231	7	68.29	241.07	0.28	68.29	241.07	0.28	68.29	241.07	0.28
231 237	7	60.15	241.07	0.25	60.15	241.07	0.25	60.15	241.07	0.25
237 239	7	45.96	241.07	0.19	45.96	241.07	0.19	45.96	241.07	0.19
239 241	7	20.21	241.07	0.08	20.21	241.07	0.08	20.21	241.07	0.08
241 244	7	19.72	241.07	0.08	19.72	241.07	0.08	19.72	241.07	0.08
244 252	6	4.31	204.32	0.02	4.31	204.32	0.02	4.31	204.32	0.02
312 313	3	6.33	241.07	0.03	6.33	241.07	0.03	6.33	241.07	0.03
251 253	6	10.42	204.32	0.05	10.42	204.32	0.05	10.42	204.32	0.05
253 260	6	13.51	204.32	0.07	13.51	204.32	0.07	13.51	204.32	0.07
259 268	6	8.98	204.32	0.04	8.98	204.32	0.04	8.98	204.32	0.04
268 275	6	8.46	204.32	0.04	8.46	204.32	0.04	8.46	204.32	0.04
210 221	7	14.14	241.07	0.06	14.14	241.07	0.06	14.14	241.07	0.06
221 234	7	17.26	241.07	0.07	17.26	241.07	0.07	17.26	241.07	0.07
209 319	7	12.44	241.07	0.05	12.44	241.07	0.05	12.44	241.07	0.05
203 327	7	24.34	241.07	0.10	24.34	241.07	0.10	24.34	241.07	0.10
202 207	7	68.86	241.07	0.29	68.86	241.07	0.29	68.86	241.07	0.29
225 233	7	41.07	241.07	0.17	41.07	241.07	0.17	41.07	241.07	0.17
233 238	7	36.00	241.07	0.15	36.00	241.07	0.15	36.00	241.07	0.15
238 243	7	35.95	241.07	0.15	35.95	241.07	0.15	35.95	241.07	0.15

243 247	7	36.43	241.07	0.15	36.43	241.07	0.15	36.43	241.07	0.15
201 206	7	69.33	241.07	0.29	69.33	241.07	0.29	69.33	241.07	0.29
212 204	7	8.08	241.07	0.03	8.08	241.07	0.03	8.08	241.07	0.03
220 230	7	16.17	241.07	0.07	16.17	241.07	0.07	16.17	241.07	0.07
227 228	7	7.30	241.07	0.03	7.30	241.07	0.03	7.30	241.07	0.03
280 281	6	78.76	204.32	0.39	78.76	204.32	0.39	78.76	204.32	0.39
281 282	6	92.67	204.32	0.45	92.67	204.32	0.45	92.67	204.32	0.45
275 276	6	83.61	204.32	0.41	83.61	204.32	0.41	83.61	204.32	0.41
276 277	6	75.47	204.32	0.37	75.47	204.32	0.37	75.47	204.32	0.37
277 278	6	82.71	204.32	0.40	82.71	204.32	0.40	82.71	204.32	0.40
278 279	6	103.33	204.32	0.51	103.33	204.32	0.51	103.33	204.32	0.51
273 274	6	84.64	204.32	0.41	84.64	204.32	0.41	84.64	204.32	0.41
259 260	6	32.75	204.32	0.16	32.75	204.32	0.16	32.75	204.32	0.16
260 261	9	110.49	314.57	0.35	110.49	314.57	0.35	110.49	314.57	0.35
261 262	9	132.40	314.57	0.42	132.40	314.57	0.42	132.40	314.57	0.42
262 263	9	105.27	314.57	0.33	105.27	314.57	0.33	105.27	314.57	0.33
263 264	9	165.95	314.57	0.53	165.95	314.57	0.53	165.95	314.57	0.53
264 265	6	78.70	204.32	0.39	78.70	204.32	0.39	78.70	204.32	0.39
265 266	6	48.33	204.32	0.24	48.33	204.32	0.24	48.33	204.32	0.24
266 267	6	49.59	204.32	0.24	49.59	204.32	0.24	49.59	204.32	0.24
256 257	9	138.72	314.57	0.44	138.72	314.57	0.44	138.72	314.57	0.44
257 258	9	141.18	314.57	0.45	141.18	314.57	0.45	141.18	314.57	0.45
251 252	6	111.32	204.32	0.54	111.32	204.32	0.54	111.32	204.32	0.54
244 245	7	82.46	241.07	0.34	82.46	241.07	0.34	82.46	241.07	0.34
245 446	7	86.05	241.07	0.36	86.05	241.07	0.36	86.05	241.07	0.36
446 347	6	75.75	204.32	0.37	75.75	204.32	0.37	75.75	204.32	0.37
347 248	6	66.31	204.32	0.32	66.31	204.32	0.32	66.31	204.32	0.32
248 249	6	46.04	204.32	0.23	46.04	204.32	0.23	46.04	204.32	0.23
249 250	6	62.23	204.32	0.30	62.23	204.32	0.30	62.23	204.32	0.30
239 440	7	32.99	241.07	0.14	32.99	241.07	0.14	32.99	241.07	0.14
234 235	7	70.12	241.07	0.29	70.12	241.07	0.29	70.12	241.07	0.29
235 236	7	63.91	241.07	0.27	63.91	241.07	0.27	63.91	241.07	0.27
236 237	7	68.79	241.07	0.29	68.79	241.07	0.29	68.79	241.07	0.29
221 222	7	137.42	241.07	0.57	137.42	241.07	0.57	137.42	241.07	0.57
222 323	7	96.00	241.07	0.40	96.00	241.07	0.40	96.00	241.07	0.40
323 255	7	24.50	241.07	0.10	24.50	241.07	0.10	24.50	241.07	0.10
255 324	7	85.15	241.07	0.35	85.15	241.07	0.35	85.15	241.07	0.35
324 325	10	12.22	314.57	0.04	12.22	314.57	0.04	12.22	314.57	0.04
325 269	7	54.53	241.07	0.23	54.53	241.07	0.23	54.53	241.07	0.23
313 254	3	46.77	241.07	0.19	46.77	241.07	0.19	46.77	241.07	0.19
254 314	3	60.03	241.07	0.25	60.03	241.07	0.25	60.03	241.07	0.25
210 211	7	64.40	241.07	0.27	64.40	241.07	0.27	64.40	241.07	0.27
211 312	7	66.21	241.07	0.27	66.21	241.07	0.27	66.21	241.07	0.27
306 307	6	11.97	204.32	0.06	11.97	204.32	0.06	11.97	204.32	0.06
288 226	7	35.81	241.07	0.15	35.81	241.07	0.15	35.81	241.07	0.15
226 327	7	38.94	241.07	0.16	38.94	241.07	0.16	38.94	241.07	0.16
216 217	7	73.38	241.07	0.30	73.38	241.07	0.30	73.38	241.07	0.30
217 318	7	60.09	241.07	0.25	60.09	241.07	0.25	60.09	241.07	0.25
318 319	7	48.96	241.07	0.20	48.96	241.07	0.20	48.96	241.07	0.20
214 215	1	57.16	223.43	0.26	57.77	223.43	0.26	48.42	167.57	0.29
207 208	7	67.83	241.07	0.28	67.83	241.07	0.28	67.83	241.07	0.28
208 209	7	69.36	241.07	0.29	69.36	241.07	0.29	69.36	241.07	0.29

204 205	7	56.60	241.07	0.23	56.60	241.07	0.23	56.60	241.07	0.23
205 206	7	60.16	241.07	0.25	60.16	241.07	0.25	60.16	241.07	0.25
201 202	7	12.89	241.07	0.05	12.89	241.07	0.05	12.89	241.07	0.05
228 229	7	42.91	241.07	0.18	42.91	241.07	0.18	42.91	241.07	0.18
229 230	7	42.97	241.07	0.18	42.97	241.07	0.18	42.97	241.07	0.18
219 220	7	40.68	241.07	0.17	40.68	241.07	0.17	40.68	241.07	0.17
150 158	1	30.71	167.57	0.18	30.71	167.57	0.18	30.71	167.57	0.18
158 167	1	30.18	167.57	0.18	30.18	167.57	0.18	30.18	167.57	0.18
120 130	1	33.98	167.57	0.20	33.98	167.57	0.20	33.98	167.57	0.20
109 119	1	22.85	167.57	0.14	22.85	167.57	0.14	22.85	167.57	0.14
183 182	2	26.89	204.32	0.13	26.89	204.32	0.13	26.89	204.32	0.13
127 128	1	14.24	167.57	0.08	14.24	167.57	0.08	14.24	167.57	0.08
102 107	1	60.79	167.57	0.36	60.79	167.57	0.36	60.79	167.57	0.36
164 189	2	78.87	204.32	0.39	78.87	204.32	0.39	78.87	204.32	0.39
189 173	2	102.11	204.32	0.50	102.11	204.32	0.50	102.11	204.32	0.50
173 179	2	22.72	204.32	0.11	22.72	204.32	0.11	22.72	204.32	0.11
125 133	1	61.53	167.57	0.37	61.53	167.57	0.37	61.53	167.57	0.37
133 138	1	53.44	167.57	0.32	53.44	167.57	0.32	53.44	167.57	0.32
138 143	1	52.80	167.57	0.32	52.80	167.57	0.32	52.80	167.57	0.32
143 147	1	53.09	167.57	0.32	53.09	167.57	0.32	53.09	167.57	0.32
124 132	2	101.65	204.32	0.50	101.65	204.32	0.50	101.65	204.32	0.50
132 140	2	97.12	204.32	0.48	97.12	204.32	0.48	97.12	204.32	0.48
140 142	2	79.24	204.32	0.39	79.24	204.32	0.39	79.24	204.32	0.39
142 146	2	85.32	204.32	0.42	85.32	204.32	0.42	85.32	204.32	0.42
178 180	1	17.09	167.57	0.10	17.09	167.57	0.10	17.09	167.57	0.10
101 106	1	63.39	167.57	0.38	63.39	167.57	0.38	63.39	167.57	0.38
123 131	1	69.02	167.57	0.41	69.02	167.57	0.41	69.02	167.57	0.41
131 137	1	59.65	167.57	0.36	59.65	167.57	0.36	59.65	167.57	0.36
137 139	1	62.78	167.57	0.37	62.78	167.57	0.37	62.78	167.57	0.37
139 141	1	55.56	167.57	0.33	55.56	167.57	0.33	55.56	167.57	0.33
141 144	1	72.61	167.57	0.43	72.61	167.57	0.43	72.61	167.57	0.43
144 152	1	20.08	167.57	0.12	20.08	167.57	0.12	20.08	167.57	0.12
104 112	2	12.84	204.32	0.06	12.84	204.32	0.06	12.84	204.32	0.06
112 113	1	4.39	167.57	0.03	4.39	167.57	0.03	4.39	167.57	0.03
151 153	1	22.18	167.57	0.13	22.18	167.57	0.13	22.18	167.57	0.13
153 160	1	29.81	167.57	0.18	29.81	167.57	0.18	29.81	167.57	0.18
159 168	1	21.51	167.57	0.13	21.51	167.57	0.13	21.51	167.57	0.13
168 175	1	21.27	167.57	0.13	21.27	167.57	0.13	21.27	167.57	0.13
110 121	1	33.19	167.57	0.20	33.19	167.57	0.20	33.19	167.57	0.20
121 134	1	37.84	167.57	0.23	37.84	167.57	0.23	37.84	167.57	0.23
180 181	4	125.17	277.82	0.45	125.17	277.82	0.45	125.17	277.82	0.45
181 182	4	142.37	277.82	0.51	142.37	277.82	0.51	142.37	277.82	0.51
175 176	2	69.96	204.32	0.34	69.96	204.32	0.34	69.96	204.32	0.34
176 177	2	68.28	204.32	0.33	68.28	204.32	0.33	68.28	204.32	0.33
177 178	2	71.19	204.32	0.35	71.19	204.32	0.35	71.19	204.32	0.35
178 179	2	84.00	204.32	0.41	84.00	204.32	0.41	84.00	204.32	0.41
173 174	4	105.47	277.82	0.38	105.47	277.82	0.38	105.47	277.82	0.38
168 169	1	84.02	167.57	0.50	84.02	167.57	0.50	84.02	167.57	0.50
169 170	1	83.64	167.57	0.50	83.64	167.57	0.50	83.64	167.57	0.50
170 171	1	80.03	167.57	0.48	80.03	167.57	0.48	80.03	167.57	0.48
171 172	1	47.99	167.57	0.29	47.99	167.57	0.29	47.99	167.57	0.29
172 189	1	61.11	167.57	0.36	61.11	167.57	0.36	61.11	167.57	0.36

159 160	2	31.66	204.32	0.15	31.66	204.32	0.15	31.66	204.32	0.15
160 161	2	72.43	204.32	0.35	72.43	204.32	0.35	72.43	204.32	0.35
161 162	2	102.85	204.32	0.50	102.85	204.32	0.50	102.85	204.32	0.50
162 163	2	80.47	204.32	0.39	80.47	204.32	0.39	80.47	204.32	0.39
163 164	2	97.21	204.32	0.48	97.21	204.32	0.48	97.21	204.32	0.48
164 165	2	88.51	204.32	0.43	88.51	204.32	0.43	88.51	204.32	0.43
165 166	2	66.50	204.32	0.33	66.50	204.32	0.33	66.50	204.32	0.33
166 167	2	73.47	204.32	0.36	73.47	204.32	0.36	73.47	204.32	0.36
153 154	4	128.95	277.82	0.46	128.95	277.82	0.46	128.95	277.82	0.46
154 155	4	148.17	277.82	0.53	148.17	277.82	0.53	148.17	277.82	0.53
155 156	4	110.67	277.82	0.40	110.67	277.82	0.40	110.67	277.82	0.40
156 157	4	129.47	277.82	0.47	129.47	277.82	0.47	129.47	277.82	0.47
157 158	4	105.19	277.82	0.38	105.19	277.82	0.38	105.19	277.82	0.38
151 152	1	79.21	167.57	0.47	79.21	167.57	0.47	79.21	167.57	0.47
144 145	1	45.77	167.57	0.27	45.77	167.57	0.27	45.77	167.57	0.27
145 146	1	47.95	167.57	0.29	47.95	167.57	0.29	47.95	167.57	0.29
146 147	1	52.38	167.57	0.31	52.38	167.57	0.31	52.38	167.57	0.31
147 148	1	73.91	167.57	0.44	73.91	167.57	0.44	73.91	167.57	0.44
148 149	1	66.24	167.57	0.40	66.24	167.57	0.40	66.24	167.57	0.40
149 150	1	71.14	167.57	0.42	71.14	167.57	0.42	71.14	167.57	0.42
134 135	2	97.05	204.32	0.48	97.05	204.32	0.48	97.05	204.32	0.48
135 136	2	87.79	204.32	0.43	87.79	204.32	0.43	87.79	204.32	0.43
136 137	2	96.56	204.32	0.47	96.56	204.32	0.47	96.56	204.32	0.47
128 129	1	63.48	167.57	0.38	63.48	167.57	0.38	63.48	167.57	0.38
129 130	1	63.96	167.57	0.38	63.96	167.57	0.38	63.96	167.57	0.38
120 119	2	47.43	204.32	0.23	47.43	204.32	0.23	47.43	204.32	0.23
119 118	2	77.60	204.32	0.38	77.60	204.32	0.38	77.60	204.32	0.38
118 117	2	65.67	204.32	0.32	65.67	204.32	0.32	65.67	204.32	0.32
117 116	2	84.39	204.32	0.41	84.39	204.32	0.41	84.39	204.32	0.41
116 115	2	97.72	204.32	0.48	97.72	204.32	0.48	97.72	204.32	0.48
115 114	2	92.26	204.32	0.45	92.26	204.32	0.45	92.26	204.32	0.45
114 113	2	85.94	204.32	0.42	85.94	204.32	0.42	85.94	204.32	0.42
121 122	4	162.10	277.82	0.58	162.10	277.82	0.58	162.10	277.82	0.58
122 123	4	139.96	277.82	0.50	139.96	277.82	0.50	139.96	277.82	0.50
123 124	4	88.11	277.82	0.32	88.11	277.82	0.32	88.11	277.82	0.32
124 125	1	35.11	167.57	0.21	35.11	167.57	0.21	35.11	167.57	0.21
125 126	1	37.42	167.57	0.22	37.42	167.57	0.22	37.42	167.57	0.22
126 127	1	56.04	167.57	0.33	56.04	167.57	0.33	56.04	167.57	0.33
110 111	2	92.78	204.32	0.45	92.78	204.32	0.45	92.78	204.32	0.45
111 112	2	99.35	204.32	0.49	99.35	204.32	0.49	99.35	204.32	0.49
104 105	2	78.08	204.32	0.38	78.08	204.32	0.38	78.08	204.32	0.38
105 106	2	79.42	204.32	0.39	79.42	204.32	0.39	79.42	204.32	0.39
106 107	2	60.43	204.32	0.30	60.43	204.32	0.30	60.43	204.32	0.30
107 108	2	93.46	204.32	0.46	93.46	204.32	0.46	93.46	204.32	0.46
108 109	2	100.49	204.32	0.49	100.49	204.32	0.49	100.49	204.32	0.49
101 102	2	28.69	204.32	0.14	28.69	204.32	0.14	28.69	204.32	0.14
102 103	2	11.10	204.32	0.05	11.10	204.32	0.05	11.10	204.32	0.05
240 242	7	31.63	241.07	0.13	31.63	241.07	0.13	31.63	241.07	0.13
242 246	7	28.78	241.07	0.12	28.78	241.07	0.12	28.78	241.07	0.12

- Processati 201 travi
- Elemento con $\rho_{max} = S/R \ 121 - 122 = 0.58$

Le verifiche a pressoflessione risultano soddisfatte.

Il tasso di sfruttamento massimo è 0.580, corrispondente al coefficiente di sicurezza c.s. = 1.72 > 1

8.5 Verifica solai

Dalla campagna indagini sono emerse due tipologie di solai

Solaio in latero-cemento sp. 41 di cui 5 cm di caldana, con travetti sp. 14 cm gettati in opera ad interasse 52 cm, armati con 2 ϕ 16 e 1 ϕ 8 inferiormente (saggio Sol1).

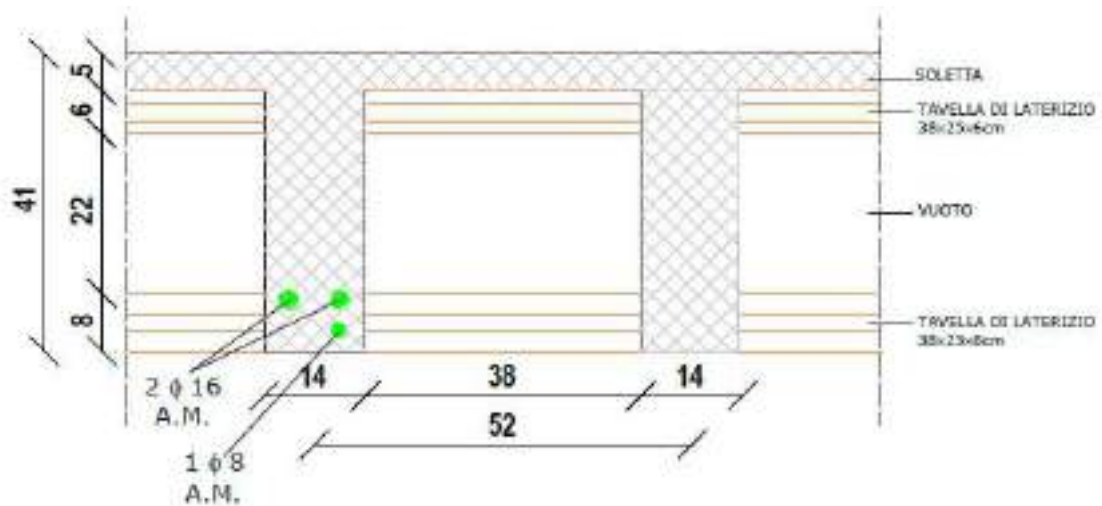
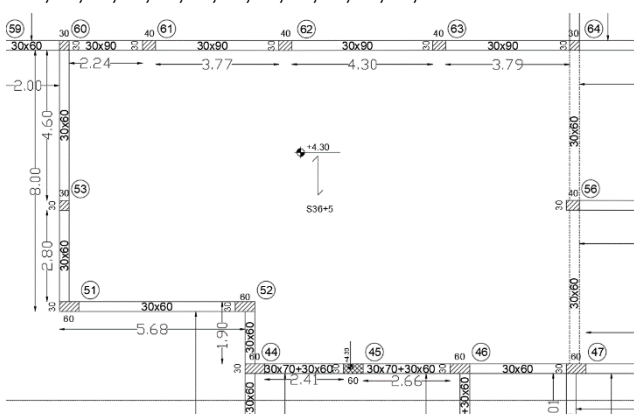


Figura 18 – Tipologia solaio

Il saggio è stato effettuato sul campo di solaio di luce 9.60 m del 1° impalcato individuato dai nodi 44,45,46,47,56,64,63,62,61,60,53,51,52.



Per la verifica si procede al calcolo del momento ultimo per il singolo travetto (int. 52 cm) con i seguenti carichi:

Permanenti strutturali:	(4.65 x 0.52 x 1.1)	2.66 kN/m
Permanenti non strutturali:	(1.30 x 0.52 x 1.1)	0.74 kN/m
<u>Variabili:</u>	<u>(0.50 x 0.52 x 1.5)</u>	<u>0.39 kN/m</u>
Totale		3.79 kN/m

Il momento flettente sollecitante di progetto in mezzeria si calcola considerando il parziale incastro agli estremi:

$$M_{sd} = \frac{3.79 \times 9.60^2}{14} = 24.97 \text{ kNm}$$

Armatura Travetto: 2φ16 e 2φ8 Inferiori

$M_{rd} = 43.62 \text{ kNm}$

c.s. = $M_{rd} / M_{sd} = 1.75 > 1$

Solaio in latero-cemento sp. 21 di cui 7 cm di caldana, con travetti sp. 10 cm gettati in opera ad interasse 50 cm, armati con 1φ16 e 1φ10 inferiormente (saggio Sol2).

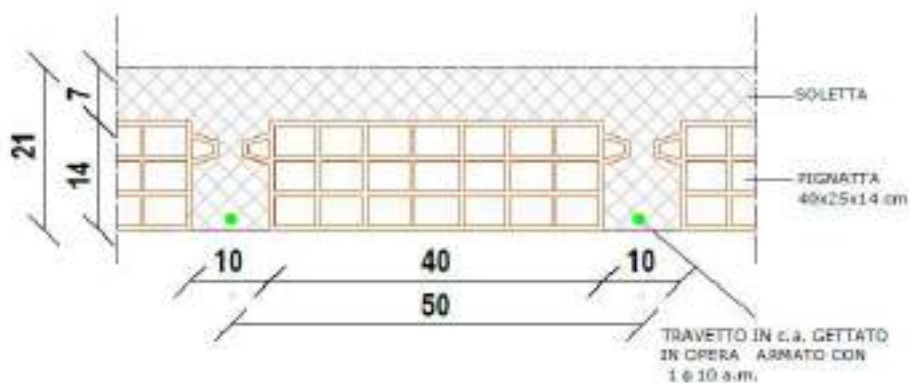
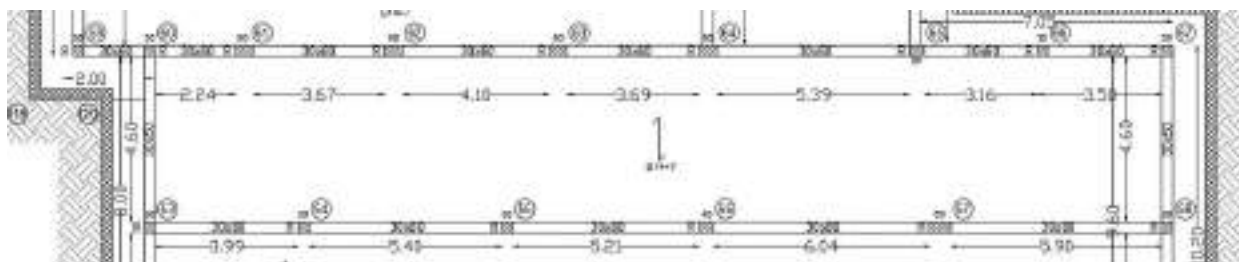


Figura 19 – Tipologia solaio

Il saggio è stato effettuato sul campo di solaio 1° impalcato individuato dai nodi: 60-67-58-53



Per la verifica si procede al calcolo del momento ultimo per il singolo travetto (int. 50 cm) con i seguenti carichi:

Permanenti strutturali:	(3.12 x 0.50 x 1.1)	1.72 kN/m
Permanenti non strutturali:	(2.74 x 0.50 x 1.1)	1.51 kN/m
<u>Variabili:</u>	<u>(3.00 x 0.50 x 1.5)</u>	<u>2.25 kN/m</u>

Totale 5.47 kN/m

La luce maggiore del campo di solaio di questa tipologia è 6.30m, del solaio individuato dai nodi 23-24-46-44.

Il momento flettente sollecitante di progetto in mezzeria si calcola considerando il parziale incastro agli estremi:

$$M_{sd} = \frac{5.47 \times 6.30^2}{14} = 15.52 \text{ kNm}$$

Armatura Travetto: 2 ϕ 16 e 1 ϕ 10 Inferiori

$M_{rd} = 16.37 \text{ kNm}$

c.s. = $M_{rd} / M_{sd} = 1.06 > 1$

9 CONCLUSIONI

Per quanto attiene alle verifiche di sicurezza nei confronti delle azioni statiche, dalle analisi effettuate con i carichi permanenti ricavati dai saggi e dalle indagini visive e con i variabili ricavati dalle NTC2018, è risultato che la struttura non necessita di interventi di rinforzo, in quanto il livello di sicurezza è adeguato e pari a quello di una costruzione nuova.

Per quanto attiene ai risultati delle verifiche sismiche si rimanda all'elaborato 7.32.203 - Fase3_RSVV_01 "Relazione di sintesi delle verifiche di vulnerabilità".



COMUNE DI NAPOLI

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle dieci municipalità

VII Municipalità

Lotto 7

CIG: B65117000050001

CUP: 7882655CAD



▶ ELABORATO: Fase3_RCTA_02 ▶ OGGETTO: TABULATO DI ANALISI

▶ SCALA: ▶ DATA: 02/12/21 ▶ REV: [0]

▶ RTP

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Codice di calcolo adottato

En.Ex.Sys.

Ditta produttrice:

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

Sigla:

WinStrand

Piattaforma software:

Microsoft Windows XP Home, Microsoft Windows XP Home Professional

Documentazione in uso:

Manuale teorico - Manuale d'uso

Campo di applicazione:

Analisi statica e dinamica di strutture in campo elastico lineare.

Elementi finiti implementati

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

Schemi di Carico

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

Tipo di Risoluzione

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

- Via statica equivalente.
- Modale con il metodo dello spettro di risposta.

Normativa di riferimento

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

- D.M. del 17 Gennaio 2018 "*Aggiornamento delle «Norme tecniche per le costruzioni»*"
- Circolare del 2 Febbraio 2009, n. 617 "*Istruzioni per l'applicazione delle "Norme tecniche per le costruzioni" di cui al D.M. 14 gennaio 2008*"
- D.M. del 14 Gennaio 2008 "*Approvazione delle nuove norme tecniche per le costruzioni*"
- Ordinanza n. 3274 del 20 Marzo 2003. "*Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica*"
- Ordinanza n. 3316. "*Modifiche ed integrazioni all'ordinanza del Presidente del Consiglio dei Ministri n. 3274 del 20 Marzo 2003*"
- D.M. del 16 Gennaio 1996. "*Norme tecniche relative ai «Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi»*".
- D.M del 16 Gennaio 1996. "*Norme tecniche per le costruzioni in zone sismiche*"
- D.M. del 9 Gennaio 1996. "*Norme Tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche*".
- D.M. del 14 Febbraio 1992. "*Norme Tecniche per l'esecuzione delle opere in C.A. normale e precompresso e per le strutture metalliche*".
- D.M. del 3 Ottobre 1978. "*Criteri generali per la verifica della sicurezza delle costruzioni e dei carichi e sovraccarichi*".
- D.M. del 3 Marzo 1975. "*Disposizioni concernenti l'applicazione delle norme tecniche per le costruzioni in zone sismiche*".
- D.M. del 3 Marzo 1975. "*Approvazione delle norme tecniche per le costruzioni in zone sismiche*".
- Legge n. 64 del 2 Febbraio 1974. "*Provvedimenti per le costruzioni con particolari prescrizioni per le zone sismiche*".
- Legge n. 1086 del 5 Novembre 1971. "*Norme per la disciplina delle opere di conglomerato cementizio armato, normale e precompresso, ed a struttura metallica*".
- *Istruzioni per la valutazione delle: Azioni sulle Costruzioni. (C.N.R. 10012/85)*

Struttura

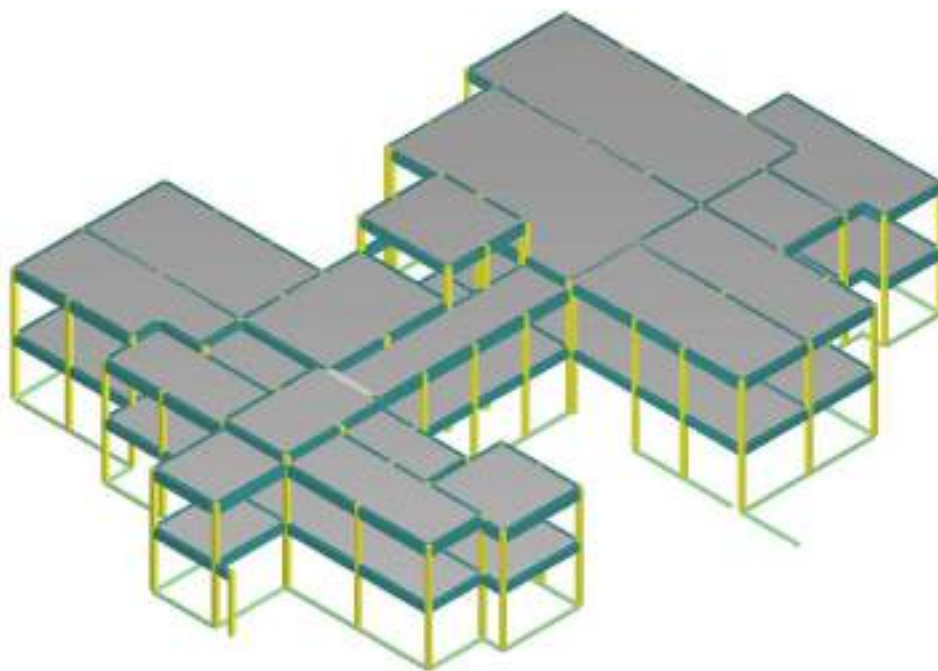


Figura 1 – Modello tridimensionale agli E.F

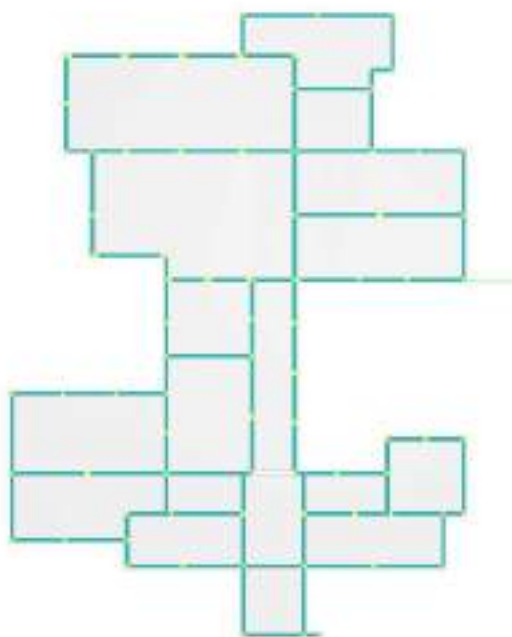


Figura 2 – Pianta modello tridimensionale agli E.F

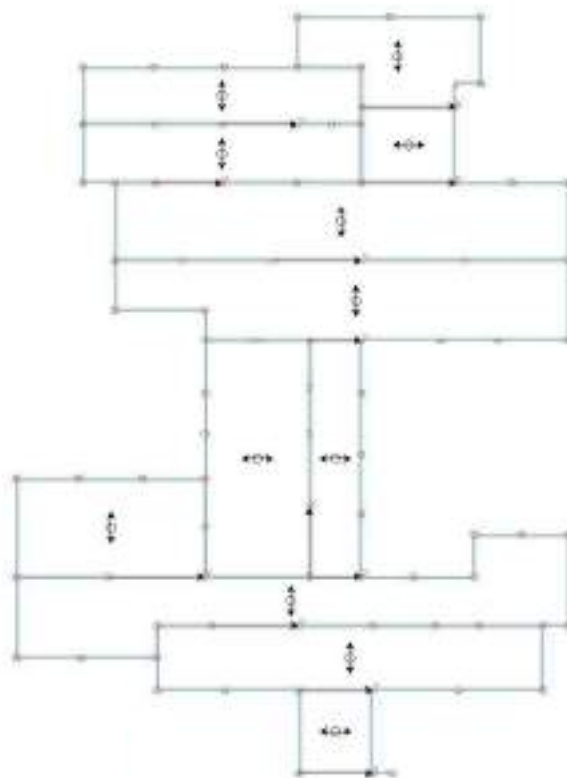


Figura 3 – Pianta con direzione orditura solaio interpiano

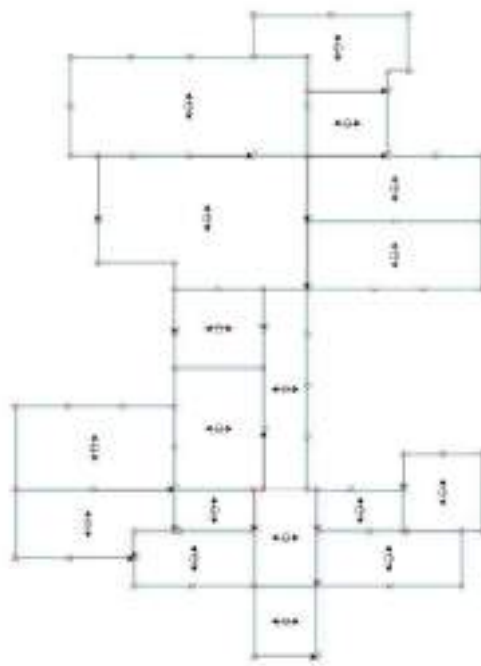


Figura 4 – Pianta con direzione orditura solai copertura

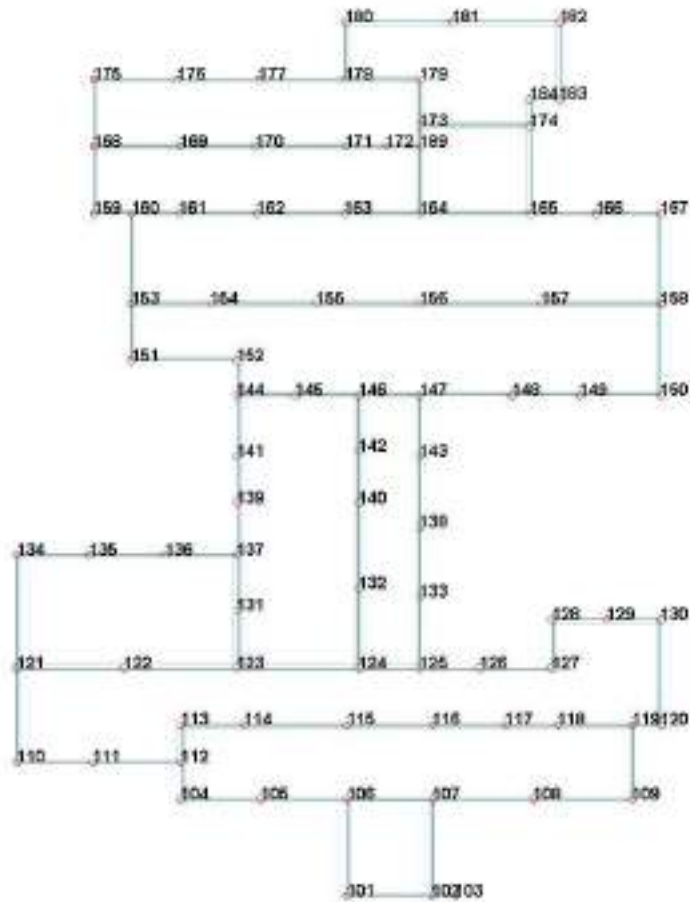


Figura 5 – Pianta con numerazione nodi

Dati relativi ai nodi della struttura

Convenzioni adottate

La terna di riferimento generale è destrorsa.

I nodi vengono numerati, con riferimento a una sezione orizzontale, da sinistra a destra, dal basso verso l'alto e per quote crescenti.

L'impalcato di appartenenza di un nodo è definito, in generale, dalla prima delle tre cifre che ne definiscono il numero, possono tuttavia presentarsi casi in cui si hanno più di 100 nodi per solaio nel qual caso il solaio di appartenenza è specificato dall'ultimo valore stampato nella riga dei dati relativi al nodo.

La maschera dei vincoli è costituita dai valori 0 e 1. Il valore 1 indica che per il nodo in riferimento il grado di libertà correlativo è soppresso mentre il valore 0 indica che è libero.

Nel caso di edifici civili multipiano l'asse z generale coincide con l'asse verticale rivolto verso l'alto.

Nodi

Nodo	x [m]	y [m]	z [m]	Ux	Uy	Uz	Rx	Ry	Rz	Solaio
1	17.72	0.00	-4.10	1	1	1	1	1	1	0
2	22.34	0.00	-4.10	1	1	1	1	1	1	0
3	23.54	0.00	-4.10	1	1	1	1	1	1	0
4	8.82	5.26	-4.10	1	1	1	1	1	1	0
5	13.09	5.26	-4.10	1	1	1	1	1	1	0

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Nodo	x [m]	y [m]	z [m]	Ux	Uy	Uz	Rx	Ry	Rz	Solaio
6	17.72	5.26	-4.10	1	1	1	1	1	1	0
7	22.34	5.26	-4.10	1	1	1	1	1	1	0
8	27.74	5.26	-4.10	1	1	1	1	1	1	0
9	33.04	5.26	-4.10	1	1	1	1	1	1	0
10	0.00	7.28	-4.10	1	1	1	1	1	1	0
11	4.07	7.28	-4.10	1	1	1	1	1	1	0
12	8.82	7.28	-4.10	1	1	1	1	1	1	0
13	8.82	9.29	-4.10	1	1	1	1	1	1	0
14	12.22	9.29	-4.10	1	1	1	1	1	1	0
15	17.72	9.29	-4.10	1	1	1	1	1	1	0
16	22.34	9.29	-4.10	1	1	1	1	1	1	0
17	26.24	9.29	-4.10	1	1	1	1	1	1	0
18	29.04	9.29	-4.10	1	1	1	1	1	1	0
19	33.04	9.29	-4.10	1	1	1	1	1	1	0
20	34.59	9.29	-4.10	1	1	1	1	1	1	0
21	0.00	12.39	-4.10	1	1	1	1	1	1	0
22	5.76	12.39	-4.10	1	1	1	1	1	1	0
23	11.82	12.39	-4.10	1	1	1	1	1	1	0
24	18.39	12.39	-4.10	1	1	1	1	1	1	0
25	21.64	12.39	-4.10	1	1	1	1	1	1	0
26	24.89	12.39	-4.10	1	1	1	1	1	1	0
27	28.74	12.39	-4.10	1	1	1	1	1	1	0
28	28.74	15.02	-4.10	1	1	1	1	1	1	0
29	31.69	15.02	-4.10	1	1	1	1	1	1	0
30	34.59	15.02	-4.10	1	1	1	1	1	1	0
31	11.82	15.52	-4.10	1	1	1	1	1	1	0
32	18.39	16.69	-4.10	1	1	1	1	1	1	0
33	21.64	16.29	-4.10	1	1	1	1	1	1	0
34	0.00	18.52	-4.10	1	1	1	1	1	1	0
35	3.90	18.52	-4.10	1	1	1	1	1	1	0
36	7.95	18.52	-4.10	1	1	1	1	1	1	0
37	11.82	18.52	-4.10	1	1	1	1	1	1	0
38	21.64	20.06	-4.10	1	1	1	1	1	1	0
39	11.82	21.37	-4.10	1	1	1	1	1	1	0
40	18.39	21.37	-4.10	1	1	1	1	1	1	0
41	11.82	23.90	-4.10	1	1	1	1	1	1	0
42	18.39	24.19	-4.10	1	1	1	1	1	1	0
43	21.64	23.89	-4.10	1	1	1	1	1	1	0
44	11.82	27.20	-4.10	1	1	1	1	1	1	0
45	14.98	27.20	-4.10	1	1	1	1	1	1	0
46	18.39	27.20	-4.10	1	1	1	1	1	1	0
47	21.64	27.20	-4.10	1	1	1	1	1	1	0
48	26.59	27.20	-4.10	1	1	1	1	1	1	0
49	30.24	27.20	-4.10	1	1	1	1	1	1	0
50	34.59	27.20	-4.10	1	1	1	1	1	1	0
51	6.14	29.10	-4.10	1	1	1	1	1	1	0
52	11.82	29.10	-4.10	1	1	1	1	1	1	0
53	6.14	32.19	-4.10	1	1	1	1	1	1	0
54	10.43	32.19	-4.10	1	1	1	1	1	1	0
55	16.13	32.19	-4.10	1	1	1	1	1	1	0
56	21.64	32.19	-4.10	1	1	1	1	1	1	0
57	28.19	32.19	-4.10	1	1	1	1	1	1	0
58	34.59	32.19	-4.10	1	1	1	1	1	1	0
59	4.14	37.10	-4.10	1	1	1	1	1	1	0

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Nodo	x [m]	y [m]	z [m]	Ux	Uy	Uz	Rx	Ry	Rz	Solaio
60	6.14	37.10	-4.10	1	1	1	1	1	1	0
61	8.73	37.10	-4.10	1	1	1	1	1	1	0
62	12.90	37.10	-4.10	1	1	1	1	1	1	0
63	17.60	37.10	-4.10	1	1	1	1	1	1	0
64	21.64	37.10	-4.10	1	1	1	1	1	1	0
65	27.55	37.10	-4.10	1	1	1	1	1	1	0
66	31.09	37.10	-4.10	1	1	1	1	1	1	0
67	34.59	37.10	-4.10	1	1	1	1	1	1	0
68	4.14	40.75	-4.10	1	1	1	1	1	1	0
69	8.78	40.75	-4.10	1	1	1	1	1	1	0
70	12.85	40.75	-4.10	1	1	1	1	1	1	0
71	17.65	40.75	-4.10	1	1	1	1	1	1	0
72	19.83	40.75	-4.10	1	1	1	1	1	1	0
73	21.64	41.87	-4.10	1	1	1	1	1	1	0
74	27.55	41.87	-4.10	1	1	1	1	1	1	0
75	4.14	44.40	-4.10	1	1	1	1	1	1	0
76	8.63	44.40	-4.10	1	1	1	1	1	1	0
77	13.00	44.40	-4.10	1	1	1	1	1	1	0
78	17.65	44.40	-4.10	1	1	1	1	1	1	0
79	21.64	44.40	-4.10	1	1	1	1	1	1	0
80	17.65	47.50	-4.10	1	1	1	1	1	1	0
81	23.38	47.50	-4.10	1	1	1	1	1	1	0
82	29.15	47.50	-4.10	1	1	1	1	1	1	0
83	29.15	43.30	-4.10	1	1	1	1	1	1	0
84	27.55	43.30	-4.10	0	0	0	0	0	0	0
101	17.72	0.00	0.00	0	0	0	0	0	0	1
102	22.34	0.00	0.00	0	0	0	0	0	0	1
103	23.54	0.00	0.00	0	0	0	0	0	0	1
104	8.82	5.26	0.00	0	0	0	0	0	0	1
105	13.09	5.26	0.00	0	0	0	0	0	0	1
106	17.72	5.26	0.00	0	0	0	0	0	0	1
107	22.34	5.26	0.00	0	0	0	0	0	0	1
108	27.74	5.26	0.00	0	0	0	0	0	0	1
109	33.04	5.26	0.00	0	0	0	0	0	0	1
110	0.00	7.28	0.00	0	0	0	0	0	0	1
111	4.07	7.28	0.00	0	0	0	0	0	0	1
112	8.82	7.28	0.00	0	0	0	0	0	0	1
113	8.82	9.29	0.00	0	0	0	0	0	0	1
114	12.22	9.29	0.00	0	0	0	0	0	0	1
115	17.72	9.29	0.00	0	0	0	0	0	0	1
116	22.34	9.29	0.00	0	0	0	0	0	0	1
117	26.24	9.29	0.00	0	0	0	0	0	0	1
118	29.04	9.29	0.00	0	0	0	0	0	0	1
119	33.04	9.29	0.00	0	0	0	0	0	0	1
120	34.59	9.29	0.00	0	0	0	0	0	0	1
121	0.00	12.39	0.00	0	0	0	0	0	0	1
122	5.76	12.39	0.00	0	0	0	0	0	0	1
123	11.82	12.39	0.00	0	0	0	0	0	0	1
124	18.39	12.39	0.00	0	0	0	0	0	0	1
125	21.64	12.39	0.00	0	0	0	0	0	0	1
126	24.89	12.39	0.00	0	0	0	0	0	0	1
127	28.74	12.39	0.00	0	0	0	0	0	0	1
128	28.74	15.02	0.00	0	0	0	0	0	0	1
129	31.69	15.02	0.00	0	0	0	0	0	0	1

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Nodo	x [m]	y [m]	z [m]	Ux	Uy	Uz	Rx	Ry	Rz	Solaio
130	34.59	15.02	0.00	0	0	0	0	0	0	1
131	11.82	15.52	0.00	0	0	0	0	0	0	1
132	18.39	16.69	0.00	0	0	0	0	0	0	1
133	21.64	16.29	0.00	0	0	0	0	0	0	1
134	0.00	18.52	0.00	0	0	0	0	0	0	1
135	3.90	18.52	0.00	0	0	0	0	0	0	1
136	7.95	18.52	0.00	0	0	0	0	0	0	1
137	11.82	18.52	0.00	0	0	0	0	0	0	1
138	21.64	20.06	0.00	0	0	0	0	0	0	1
139	11.82	21.37	0.00	0	0	0	0	0	0	1
140	18.39	21.37	0.00	0	0	0	0	0	0	1
141	11.82	23.90	0.00	0	0	0	0	0	0	1
142	18.39	24.19	0.00	0	0	0	0	0	0	1
143	21.64	23.89	0.00	0	0	0	0	0	0	1
144	11.82	27.20	0.00	0	0	0	0	0	0	1
145	14.98	27.20	0.00	0	0	0	0	0	0	1
146	18.39	27.20	0.00	0	0	0	0	0	0	1
147	21.64	27.20	0.00	0	0	0	0	0	0	1
148	26.59	27.20	0.00	0	0	0	0	0	0	1
149	30.24	27.20	0.00	0	0	0	0	0	0	1
150	34.59	27.20	0.00	0	0	0	0	0	0	1
151	6.14	29.10	0.00	0	0	0	0	0	0	1
152	11.82	29.10	0.00	0	0	0	0	0	0	1
153	6.14	32.19	0.00	0	0	0	0	0	0	1
154	10.43	32.19	0.00	0	0	0	0	0	0	1
155	16.13	32.19	0.00	0	0	0	0	0	0	1
156	21.64	32.19	0.00	0	0	0	0	0	0	1
157	28.19	32.19	0.00	0	0	0	0	0	0	1
158	34.59	32.19	0.00	0	0	0	0	0	0	1
159	4.14	37.10	0.00	0	0	0	0	0	0	1
160	6.14	37.10	0.00	0	0	0	0	0	0	1
161	8.73	37.10	0.00	0	0	0	0	0	0	1
162	12.90	37.10	0.00	0	0	0	0	0	0	1
163	17.60	37.10	0.00	0	0	0	0	0	0	1
164	21.64	37.10	0.00	0	0	0	0	0	0	1
165	27.55	37.10	0.00	0	0	0	0	0	0	1
166	31.09	37.10	0.00	0	0	0	0	0	0	1
167	34.59	37.10	0.00	0	0	0	0	0	0	1
168	4.14	40.75	0.00	0	0	0	0	0	0	1
169	8.78	40.75	0.00	0	0	0	0	0	0	1
170	12.85	40.75	0.00	0	0	0	0	0	0	1
171	17.65	40.75	0.00	0	0	0	0	0	0	1
172	19.83	40.75	0.00	0	0	0	0	0	0	1
173	21.64	41.87	0.00	0	0	0	0	0	0	1
174	27.55	41.87	0.00	0	0	0	0	0	0	1
175	4.14	44.40	0.00	0	0	0	0	0	0	1
176	8.63	44.40	0.00	0	0	0	0	0	0	1
177	13.00	44.40	0.00	0	0	0	0	0	0	1
178	17.65	44.40	0.00	0	0	0	0	0	0	1
179	21.64	44.40	0.00	0	0	0	0	0	0	1
180	17.65	47.50	0.00	0	0	0	0	0	0	1
181	23.38	47.50	0.00	0	0	0	0	0	0	1
182	29.15	47.50	0.00	0	0	0	0	0	0	1
183	29.15	43.30	0.00	0	0	0	0	0	0	1

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Nodo	x [m]	y [m]	z [m]	Ux	Uy	Uz	Rx	Ry	Rz	Solaio
184	27.55	43.30	0.00	0	0	0	0	0	0	1
189	21.64	40.75	0.00	0	0	0	0	0	0	1
201	17.72	0.00	3.80	0	0	0	0	0	0	2
202	22.34	0.00	3.80	0	0	0	0	0	0	2
203	28.74	9.29	3.80	0	0	0	0	0	0	2
204	8.82	5.26	3.80	0	0	0	0	0	0	2
205	13.09	5.26	3.80	0	0	0	0	0	0	2
206	17.72	5.26	3.80	0	0	0	0	0	0	2
207	22.34	5.26	3.80	0	0	0	0	0	0	2
208	27.74	5.26	3.80	0	0	0	0	0	0	2
209	33.04	5.26	3.80	0	0	0	0	0	0	2
210	0.00	7.28	4.30	0	0	0	0	0	0	2
211	4.07	7.28	4.30	0	0	0	0	0	0	2
212	8.82	7.28	3.80	0	0	0	0	0	0	2
213	8.82	9.29	3.80	0	0	0	0	0	0	2
214	12.22	9.29	3.80	0	0	0	0	0	0	2
215	17.72	9.29	3.80	0	0	0	0	0	0	2
216	22.34	9.29	3.80	0	0	0	0	0	0	2
217	26.24	9.29	3.80	0	0	0	0	0	0	2
218	29.04	9.29	3.50	0	0	0	0	0	0	2
219	33.04	9.29	3.50	0	0	0	0	0	0	2
220	34.59	9.29	3.50	0	0	0	0	0	0	2
221	0.00	12.39	4.30	0	0	0	0	0	0	2
222	5.76	12.39	4.30	0	0	0	0	0	0	2
223	11.82	12.39	3.80	0	0	0	0	0	0	2
224	18.39	12.39	3.80	0	0	0	0	0	0	2
225	21.64	12.39	3.80	0	0	0	0	0	0	2
226	24.89	12.39	3.80	0	0	0	0	0	0	2
227	28.74	12.39	3.50	0	0	0	0	0	0	2
228	28.74	15.02	3.50	0	0	0	0	0	0	2
229	31.69	15.02	3.50	0	0	0	0	0	0	2
230	34.59	15.02	3.50	0	0	0	0	0	0	2
231	11.82	15.52	4.30	0	0	0	0	0	0	2
232	18.39	16.69	3.80	0	0	0	0	0	0	2
233	21.64	16.29	3.80	0	0	0	0	0	0	2
234	0.00	18.52	4.30	0	0	0	0	0	0	2
235	3.90	18.52	4.30	0	0	0	0	0	0	2
236	7.95	18.52	4.30	0	0	0	0	0	0	2
237	11.82	18.52	4.30	0	0	0	0	0	0	2
238	21.64	20.06	3.80	0	0	0	0	0	0	2
239	11.82	21.37	4.30	0	0	0	0	0	0	2
240	18.39	21.37	3.80	0	0	0	0	0	0	2
241	11.82	23.90	4.30	0	0	0	0	0	0	2
242	18.39	24.19	3.80	0	0	0	0	0	0	2
243	21.64	23.89	3.80	0	0	0	0	0	0	2
244	11.82	27.20	4.30	0	0	0	0	0	0	2
245	14.98	27.20	4.30	0	0	0	0	0	0	2
246	18.39	27.20	3.80	0	0	0	0	0	0	2
247	21.64	27.20	3.80	0	0	0	0	0	0	2
248	26.59	27.20	4.30	0	0	0	0	0	0	2
249	30.24	27.20	4.30	0	0	0	0	0	0	2
250	34.59	27.20	4.30	0	0	0	0	0	0	2
251	6.14	29.10	4.30	0	0	0	0	0	0	2
252	11.82	29.10	4.30	0	0	0	0	0	0	2

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Nodo	x [m]	y [m]	z [m]	Ux	Uy	Uz	Rx	Ry	Rz	Solaio
253	6.14	32.19	4.30	0	0	0	0	0	0	2
254	11.82	9.29	4.30	0	0	0	0	0	0	2
255	17.72	12.39	4.30	0	0	0	0	0	0	2
256	21.64	32.19	4.30	0	0	0	0	0	0	2
257	28.19	32.19	4.30	0	0	0	0	0	0	2
258	34.59	32.19	4.30	0	0	0	0	0	0	2
259	4.14	37.10	4.30	0	0	0	0	0	0	2
260	6.14	37.10	4.30	0	0	0	0	0	0	2
261	8.73	37.10	4.30	0	0	0	0	0	0	2
262	12.90	37.10	4.30	0	0	0	0	0	0	2
263	17.60	37.10	4.30	0	0	0	0	0	0	2
264	21.64	37.10	4.30	0	0	0	0	0	0	2
265	27.55	37.10	4.30	0	0	0	0	0	0	2
266	31.09	37.10	4.30	0	0	0	0	0	0	2
267	34.59	37.10	4.30	0	0	0	0	0	0	2
268	4.14	40.75	4.30	0	0	0	0	0	0	2
269	22.34	12.39	4.30	0	0	0	0	0	0	2
273	21.64	41.87	4.30	0	0	0	0	0	0	2
274	27.55	41.87	4.30	0	0	0	0	0	0	2
275	4.14	44.40	4.30	0	0	0	0	0	0	2
276	8.63	44.40	4.30	0	0	0	0	0	0	2
277	13.00	44.40	4.30	0	0	0	0	0	0	2
278	17.65	44.40	4.30	0	0	0	0	0	0	2
279	21.64	44.40	4.30	0	0	0	0	0	0	2
280	17.65	47.50	4.30	0	0	0	0	0	0	2
281	23.38	47.50	4.30	0	0	0	0	0	0	2
282	29.15	47.50	4.30	0	0	0	0	0	0	2
283	29.15	43.30	4.30	0	0	0	0	0	0	2
284	27.55	43.30	4.30	0	0	0	0	0	0	2
285	11.82	9.29	3.80	0	0	0	0	0	0	2
286	28.74	9.29	3.50	0	0	0	0	0	0	2
287	17.72	12.39	3.80	0	0	0	0	0	0	2
288	22.34	12.39	3.80	0	0	0	0	0	0	2
289	21.64	40.75	4.30	0	0	0	0	0	0	2
306	17.72	5.26	4.30	0	0	0	0	0	0	2
307	22.34	5.26	4.30	0	0	0	0	0	0	2
312	8.82	7.28	4.30	0	0	0	0	0	0	2
313	8.82	9.29	4.30	0	0	0	0	0	0	2
314	12.22	9.29	4.30	0	0	0	0	0	0	2
315	17.72	9.29	4.30	0	0	0	0	0	0	2
316	22.34	9.29	4.30	0	0	0	0	0	0	2
318	29.04	9.29	3.80	0	0	0	0	0	0	2
319	33.04	9.29	3.80	0	0	0	0	0	0	2
323	11.82	12.39	4.30	0	0	0	0	0	0	2
324	18.39	12.39	4.30	0	0	0	0	0	0	2
325	21.64	12.39	4.30	0	0	0	0	0	0	2
327	28.74	12.39	3.80	0	0	0	0	0	0	2
332	18.39	16.69	4.30	0	0	0	0	0	0	2
339	11.82	21.37	6.50	0	0	0	0	0	0	3
340	18.39	21.37	6.50	0	0	0	0	0	0	3
341	11.82	23.90	6.50	0	0	0	0	0	0	3
342	18.39	24.19	6.50	0	0	0	0	0	0	3
344	11.82	27.20	6.50	0	0	0	0	0	0	3
345	14.98	27.20	6.50	0	0	0	0	0	0	3

Nodo	x [m]	y [m]	z [m]	Ux	Uy	Uz	Rx	Ry	Rz	Solaio
346	18.39	27.20	6.50	0	0	0	0	0	0	3
347	21.64	27.20	4.30	0	0	0	0	0	0	2
440	18.39	21.37	4.30	0	0	0	0	0	0	2
442	18.39	24.19	4.30	0	0	0	0	0	0	2
446	18.39	27.20	4.30	0	0	0	0	0	0	2

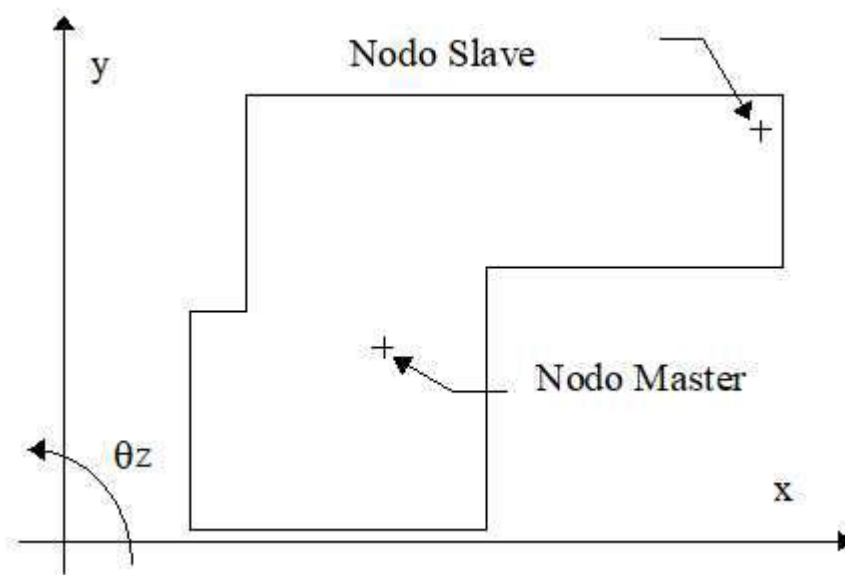
Dati relativi ai solai della struttura

Convenzioni adottate

Nel seguito con la dizione *solai non* sono individuati i solai che effettivamente verranno realizzati nella struttura bensì gli orizzontamenti ai quali appartengono nodi per i quali vale l'ipotesi di impalcato infinitamente rigido.

Seguendo tale ipotesi di calcolo, le componenti di spostamento del singolo nodo di impalcato vengono in parte riferite a quelle di un nodo *master*, solitamente coincidente con il centro di massa dell'impalcato. In particolare le componenti di spostamento nodale sono così definite:

Componente di spostamento	espressa da
U_x	$U_{xMaster} - \theta_{zMaster} \times (Y_{Master} - Y_{Nodo})$
U_y	$U_{yMaster} + \theta_{zMaster} \times (X_{Master} - X_{Nodo})$
U_z	U_{zNodo}
θ_x	θ_{xNodo}
θ_y	θ_{yNodo}
θ_z	$\theta_{zMaster}$



Solaio	x [m]	y [m]	z [m]	Massa [kg]	Jpolare [kg m ²]
1	17.90	24.59	0.00	1167696.2	30378872.0
2	17.96	24.28	4.16	978795.5	24450524.0
3	15.11	24.34	6.50	44204.0	38052.0

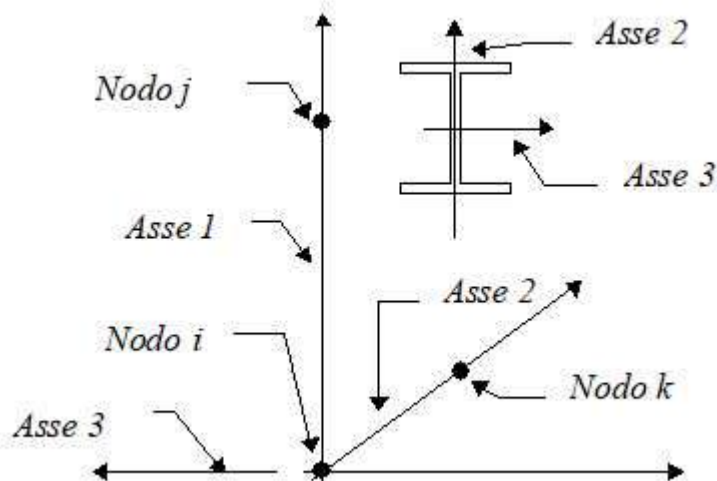
Elementi tipo pilastro

Convenzioni adottate

Ogni elemento tipo pilastro viene identificato da:

- Il nodo iniziale **i**;
- Il nodo finale **j**;
- Il nodo **k** che definisce l'orientamento nello spazio della terna riferimento locale dell'elemento.

La terna di riferimento locale del pilastro risulta quindi essere così disposta:



Sistema di riferimento locale

Vengono riportati i valori di efficacia dei vincoli flessionali alle estremità dell'elemento (variabili fra lo **0%** e il **100%**), nei due piani **1-2** e **1-3** del pilastro in corrispondenza dei nodi, dando quindi la possibilità di considerare aste non perfettamente incastrate alle estremità (coefficienti $V_{i12} - V_{j12} - V_{i13} - V_{j13}$).

In generale, se non diversamente disposto, l'asse 2 coincide, per i pilastri, con l'asse **y** globale e pertanto la disposizione della sezione coincide con quella che si avrebbe in una vista in pianta.

Caratteristiche dei Materiali:

Tipo	Modulo Elastico [MPa]	ν	alfa [1/°C]	Peso Specifico [kg/mc]	Commento
1	28775.00	0.120	0.000012	2200.0	Calcestruzzo
2	210000.00	0.330	0.000012	7850.0	Acciaio
3	210000003.13	0.120	0.000010	25.0	Link rigido

Sezioni Impiegate:

Sezione	Materiale	Tipo di Sezione	Parametri Dimensionali Commenti
1	1	Rett.	B= 30 H= 30 [cm] 30x30 PC
2	1	Rett.	B= 30 H= 40 [cm] 30x40 PC
3	1	Rett.	B= 30 H= 50 [cm] 30x50 PC
4	1	Rett.	B= 30 H= 60 [cm] 30x60 PC
5	1	Rett.	B= 30 H= 30 [cm] 30x30 PT
6	1	Rett.	B= 30 H= 40 [cm] 30x40 PT
7	1	Rett.	B= 30 H= 50 [cm] 30x50 PT
8	1	Rett.	B= 30 H= 60 [cm] 30x60 PT
101	3	Rett.	B= 10 H= 10 [cm] LINK RIGIDO

Caratteristiche Inerziali:

Sezione	Materiale	Area [cm ²]	Jt [cm ⁴]	J2 [cm ⁴]	J3 [cm ⁴]	J23 [cm ⁴]	Xx	Xy
1	1	900.00	113866	67500	67500	-0	1.2	1.2
2	1	1200.00	186385	160000	90000	-0	1.2	1.2
3	1	1500.00	273656	312500	112500	0	1.2	1.2
4	1	1800.00	370716	540000	135000	-0	1.2	1.2
5	1	900.00	113866	67500	67500	-0	1.2	1.2
6	1	1200.00	186385	160000	90000	-0	1.2	1.2
7	1	1500.00	273656	312500	112500	0	1.2	1.2
8	1	1800.00	370716	540000	135000	-0	1.2	1.2
101	3	100.00	1406	833	833	0	1.2	1.2

Dal Nodo	Al Nodo	Nodo k	Luca [m]	Materiale	Sezione	Fixity factors								Rigid-end [m]		
						V ₁₂	V ₁₃	V ₂₁	V ₂₃	N _i	N _j	T _i	T _j	d _i	d _j	
1	101	10040	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
101	201	10040	3.80	1	5	70	70	70	70	100	100	100	100	100	0.00	0.00
2	102	10041	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
102	202	10041	3.80	1	5	90	90	90	90	100	100	100	100	100	0.00	0.00
3	103	10016	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
4	104	10038	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
104	204	10015	3.80	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
5	105	10050	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
105	205	10050	3.80	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
6	106	10040	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
106	206	10040	3.80	1	5	80	80	80	80	100	100	100	100	100	0.00	0.00
306	206	10040	0.50	1	5	70	70	70	70	100	100	100	100	100	0.00	0.00
7	107	10052	4.10	1	2	100	100	100	100	100	100	100	100	100	0.00	0.00
107	207	10052	3.80	1	6	70	70	70	70	100	100	100	100	100	0.00	0.00
307	207	10001	0.50	1	6	50	50	50	50	100	100	100	100	100	0.00	0.00
8	108	10049	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
108	208	10049	3.80	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
9	109	10046	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
109	209	10046	3.80	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
10	110	10036	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
110	210	10012	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
11	111	10037	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
111	211	10037	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
12	112	10038	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
112	212	10015	3.80	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
212	312	10015	0.50	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
13	113	10038	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
113	213	10038	3.80	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
213	313	10038	0.50	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
14	114	10039	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
114	214	10039	3.80	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
314	214	10039	0.50	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
15	115	10015	4.10	1	2	100	100	100	100	100	100	100	100	100	0.00	0.00
115	215	10015	3.80	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
315	215	10002	0.50	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
16	116	10015	4.10	1	2	100	100	100	100	100	100	100	100	100	0.00	0.00
116	216	10015	3.80	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
216	316	10015	0.50	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
17	117	10043	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
117	217	10043	3.80	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00

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18	118	10045	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
118	218	10045	3.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
218	318	10045	0.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
19	119	10046	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
119	219	10046	3.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
219	319	10046	0.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
20	120	10047	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
120	220	10047	3.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
21	121	10036	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
121	221	10012	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
22	122	10014	4.10	1	3	70	70	70	70	100	100	100	100	0.00	0.00
122	222	10014	4.30	1	7	100	100	100	100	100	100	100	100	0.00	0.00
23	123	10014	4.10	1	2	100	100	100	100	100	100	100	100	0.00	0.00
123	223	10014	3.80	1	6	100	100	100	100	100	100	100	100	0.00	0.00
223	323	10014	0.50	1	6	100	100	100	100	100	100	100	100	0.00	0.00
24	124	10014	4.10	1	2	100	100	100	100	100	100	100	100	0.00	0.00
124	224	10030	3.80	1	5	100	100	100	100	100	100	100	100	0.00	0.00
224	324	10030	0.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
25	125	10031	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
125	225	10031	3.80	1	5	100	100	100	100	100	100	100	100	0.00	0.00
225	325	10031	0.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
26	126	10042	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
126	226	10042	3.80	1	5	100	100	100	100	100	100	100	100	0.00	0.00
27	127	10044	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
127	227	10013	3.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
227	327	10013	0.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
28	128	10044	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
128	228	10044	3.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
29	129	10048	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
129	229	10048	3.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
30	130	10047	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
130	230	10047	3.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
31	131	10017	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
131	231	10011	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
32	132	10030	4.10	1	3	100	100	100	100	100	100	100	100	0.00	0.00
132	232	10030	3.80	1	7	100	100	100	100	100	100	100	100	0.00	0.00
232	332	10030	0.50	1	7	100	100	100	100	100	100	100	100	0.00	0.00
33	133	10031	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
133	233	10031	3.80	1	5	100	100	100	100	100	100	100	100	0.00	0.00
34	134	10036	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
134	234	10036	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
35	135	10035	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
135	235	10035	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
36	136	10034	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
136	236	10034	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
37	137	10017	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
137	237	10060	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
38	138	10031	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
138	238	10031	3.80	1	5	100	100	100	100	100	100	100	100	0.00	0.00
39	139	10017	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
139	239	10011	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
239	339	10017	2.20	1	5	50	50	50	50	100	100	100	100	0.00	0.00
40	140	10030	4.10	1	2	100	100	100	100	100	100	100	100	0.00	0.00
140	240	10030	3.80	1	6	70	70	70	70	100	100	100	100	0.00	0.00
240	440	10030	0.50	1	6	70	70	70	70	100	100	100	100	0.00	0.00
440	340	10030	2.20	1	6	50	50	50	50	100	100	100	100	0.00	0.00

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41	141	10017	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
141	241	10017	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
241	341	10017	2.20	1	5	100	100	100	100	100	100	100	100	0.00	0.00
42	142	10030	4.10	1	2	100	100	100	100	100	100	100	100	0.00	0.00
142	242	10030	3.80	1	5	100	100	100	100	100	100	100	100	0.00	0.00
242	442	10030	0.50	1	5	100	100	100	100	100	100	100	100	0.00	0.00
442	342	10030	2.20	1	5	100	100	100	100	100	100	100	100	0.00	0.00
43	143	10031	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
143	243	10031	3.80	1	5	100	100	100	100	100	100	100	100	0.00	0.00
44	144	10061	4.10	1	4	100	100	100	100	100	100	100	100	0.00	0.00
144	244	10061	4.30	1	8	100	100	100	100	100	100	100	100	0.00	0.00
244	344	10061	2.20	1	8	100	100	100	100	100	100	100	100	0.00	0.00
45	145	10061	4.10	1	4	100	100	100	100	100	100	100	100	0.00	0.00
145	245	10061	4.30	1	8	100	100	100	100	100	100	100	100	0.00	0.00
245	345	10061	2.20	1	8	100	100	100	100	100	100	100	100	0.00	0.00
46	146	10056	4.10	1	4	100	100	100	100	100	100	100	100	0.00	0.00
146	246	10061	3.80	1	8	100	100	100	100	100	100	100	100	0.00	0.00
246	446	10061	0.50	1	8	100	100	100	100	100	100	100	100	0.00	0.00
446	346	10061	2.20	1	8	100	100	100	100	100	100	100	100	0.00	0.00
47	147	10061	4.10	1	4	100	100	100	100	100	100	100	100	0.00	0.00
147	247	10061	3.80	1	8	100	100	100	100	100	100	100	100	0.00	0.00
247	347	10061	0.50	1	8	100	100	100	100	100	100	100	100	0.00	0.00
48	148	10032	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
148	248	10032	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
49	149	10033	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
149	249	10033	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
50	150	10029	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
150	250	10029	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
51	151	10063	4.10	1	4	100	100	100	100	100	100	100	100	0.00	0.00
151	251	10063	4.30	1	8	100	100	100	100	100	100	100	100	0.00	0.00
52	152	10063	4.10	1	4	100	100	100	100	100	100	100	100	0.00	0.00
152	252	10063	4.30	1	8	50	50	50	50	100	100	100	100	0.00	0.00
53	153	10027	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
153	253	10027	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
54	154	10019	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
55	155	10018	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
56	156	10009	4.10	1	2	100	100	100	100	100	100	100	100	0.00	0.00
156	256	10009	4.30	1	6	100	100	100	100	100	100	100	100	0.00	0.00
57	157	10009	4.10	1	4	100	100	100	100	100	100	100	100	0.00	0.00
157	257	10009	4.30	1	7	100	100	100	100	100	100	100	100	0.00	0.00
58	158	10029	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
158	258	10029	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
59	159	10025	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
159	259	10005	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
60	160	10027	4.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
160	260	10027	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
61	161	10008	4.10	1	3	100	100	100	100	100	100	100	100	0.00	0.00
161	261	10008	4.30	1	6	100	100	100	100	100	100	100	100	0.00	0.00
62	162	10008	4.10	1	3	100	100	100	100	100	100	100	100	0.00	0.00
162	262	10008	4.30	1	6	100	100	100	100	100	100	100	100	0.00	0.00
63	163	10008	4.10	1	3	100	100	100	100	100	100	100	100	0.00	0.00
163	263	10008	4.30	1	6	100	100	100	100	100	100	100	100	0.00	0.00
64	164	10064	4.10	1	3	100	100	100	100	100	100	100	100	0.00	0.00
164	264	10064	4.30	1	5	100	100	100	100	100	100	100	100	0.00	0.00
65	165	10008	4.10	1	2	100	100	100	100	100	100	100	100	0.00	0.00
165	265	10008	4.30	1	6	100	100	100	100	100	100	100	100	0.00	0.00

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66	166	10028	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
166	266	10028	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
67	167	10029	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
167	267	10029	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
68	168	10062	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
168	268	10062	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
69	169	10023	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
70	170	10022	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
71	171	10021	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
72	172	10020	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
73	173	10064	4.10	1	2	100	100	100	100	100	100	100	100	100	0.00	0.00
173	273	10064	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
74	174	10026	4.10	1	2	100	100	100	100	100	100	100	100	100	0.00	0.00
174	274	10026	4.30	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
75	175	10000	4.10	1	4	100	100	100	100	100	100	100	100	100	0.00	0.00
175	275	10000	4.30	1	8	100	100	100	100	100	100	100	100	100	0.00	0.00
76	176	10000	4.10	1	4	100	100	100	100	100	100	100	100	100	0.00	0.00
176	276	10000	4.30	1	8	100	100	100	100	100	100	100	100	100	0.00	0.00
77	177	10000	4.10	1	4	100	100	100	100	100	100	100	100	100	0.00	0.00
177	277	10000	4.30	1	8	100	100	100	100	100	100	100	100	100	0.00	0.00
78	178	10000	4.10	1	4	100	100	100	100	100	100	100	100	100	0.00	0.00
178	278	10000	4.30	1	8	100	100	100	100	100	100	100	100	100	0.00	0.00
79	179	10064	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
179	279	10064	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
80	180	10021	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
180	280	10021	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
81	181	10004	4.10	1	2	100	100	100	100	100	100	100	100	100	0.00	0.00
181	281	10004	4.30	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
82	182	10024	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
182	282	10024	4.30	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
83	183	10024	4.10	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
183	283	10024	4.30	1	5	100	100	100	100	100	100	100	100	100	0.00	0.00
254	285	10060	0.50	3	101	100	100	100	100	100	100	100	100	100	0.00	0.00
203	286	10044	0.30	3	101	100	100	100	100	100	100	100	100	100	0.00	0.00
255	287	10040	0.50	3	101	100	100	100	100	100	100	100	100	100	0.00	0.00
269	288	10041	0.50	3	101	100	100	100	100	100	100	100	100	100	0.00	0.00

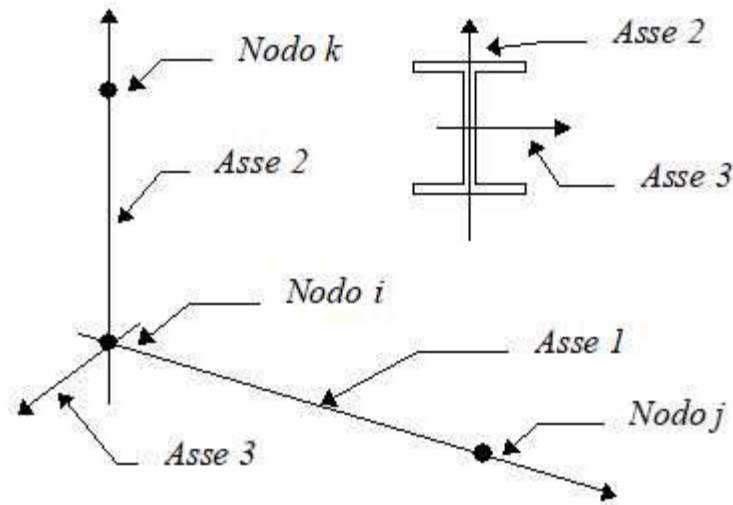
Elementi tipo trave

Convenzioni adottate

Ogni elemento tipo trave viene identificato da:

- Il nodo iniziale **i**;
- Il nodo finale **j**;
- Il nodo **k** che definisce l'orientamento nello spazio della terna riferimento locale dell'elemento.

La terna di riferimento locale della trave risulta essere così disposta:



Vengono riportati i valori di efficacia dei vincoli alle estremità dello elemento (variabili fra 0 e 100%), nei due piani 1-2 e 1-3 della trave in corrispondenza dei nodi, dando quindi la possibilità di considerare aste non perfettamente incastrate (coefficienti **Vi12**, **Vj12**, **Vi13**, **Vj13**).

Caratteristiche dei Materiali:

Tipo	Modulo Elastico [MPa]	ν	alfa [1/°C]	Peso Specifico [kg/mc]	Commento
1	28775.00	0.120	0.000012	2200.0	Calcestruzzo
2	210000.00	0.330	0.000012	7850.0	Acciaio
3	210000003.13	0.120	0.000010	25.0	Link rigido

Sezioni Impiegate:

Sezione	Materiale	Tipo di Sezione	Parametri Dimensionali Commenti
1	1	Rett.	B= 30 H= 50 [cm] 30x50 PC
2	1	Rett.	B= 30 H= 60 [cm] 30x60 PC
3	1	Rett.	B= 30 H= 70 [cm] 30x70 PC
4	1	Rett.	B= 30 H= 80 [cm] 30x80 PC
5	1	Rett.	B= 30 H= 90 [cm] 30x90 PC
6	1	Rett.	B= 30 H= 60 [cm] 30x60 PT
7	1	Rett.	B= 30 H= 70 [cm] 30x70 PT
8	1	Rett.	B= 30 H= 80 [cm] 30x80 PT
9	1	Rett.	B= 30 H= 90 [cm] 30x90 PT
10	1	Rett.	B= 50 H= 90 [cm] 50x90 PT
101	1	Rett.	B= 20 H= 20 [cm] AUSILIARIA

Caratteristiche Inerziali:

Sezione	Materiale	Area [cm ²]	Jt [cm ⁴]	J2 [cm ⁴]	J3 [cm ⁴]	J23 [cm ⁴]	Xx	Xy
1	1	1500.00	273656	312500	112500	0	1.2	1.2
2	1	1800.00	370716	540000	135000	-0	1.2	1.2
3	1	2100.00	473286	857500	157500	-0	1.2	1.2
4	1	2400.00	578360	1280000	180000	-0	1.2	1.2
5	1	2700.00	684075	1822500	202500	0	1.2	1.2
6	1	1800.00	370716	540000	135000	-0	1.2	1.2
7	1	2100.00	473286	857500	157500	-0	1.2	1.2
8	1	2400.00	578360	1280000	180000	-0	1.2	1.2

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Sezione	Materiale	Area [cm ²]	Jt [cm ⁴]	J2 [cm ⁴]	J3 [cm ⁴]	J23 [cm ⁴]	Xx	Xy
9	1	2700.00	684075	1822500	202500	0	1.2	1.2
10	1	4500.00	2404102	3037500	937500	0	1.2	1.2
101	1	400.00	22492	13333	13333	0	1.2	1.2

Dal Nodo	Al Nodo	Nodo k	Luce [m]	Materiale	Sezione	Fixity factors								Rigid-end [m]		
						V _{i12}	V _{j12}	V _{i13}	V _{j13}	N _i	N _j	T _i	T _j	d _i	d _j	
113	114	10015	3.40	1	2	100	100	100	100	100	100	100	100	100	0.00	0.00
125	126	10014	3.25	1	1	100	100	100	100	100	100	100	100	100	0.00	0.00
123	124	10067	6.57	1	4	100	100	100	100	100	100	100	100	100	0.00	0.00
117	118	10015	2.80	1	2	100	100	100	100	100	100	100	100	100	0.00	0.00
2	1	10051	4.62	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
5	4	10052	4.27	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
6	5	10052	4.63	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
8	7	10052	5.40	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
9	8	10052	5.30	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
11	10	10053	4.07	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
12	11	10053	4.75	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
20	19	10015	1.55	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
25	26	10067	3.25	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
26	27	10067	3.85	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
28	29	10013	2.95	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
29	30	10013	2.90	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
34	35	10012	3.90	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
35	36	10012	4.05	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
36	37	10012	3.87	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
48	47	10061	4.95	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
49	48	10061	3.65	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
50	49	10061	4.35	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
52	51	10010	5.68	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
60	59	10008	2.00	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
65	66	10065	3.54	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
66	67	10065	3.50	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
83	84	10059	1.60	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
75	76	10005	4.49	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
76	77	10005	4.37	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
77	78	10005	4.65	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
80	81	10004	5.73	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
81	82	10004	5.77	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
10	21	10012	5.11	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
21	34	10012	6.13	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
59	68	10005	3.65	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
68	75	10005	3.65	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
51	53	10009	3.09	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
53	60	10009	4.90	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
4	12	10052	2.02	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
37	39	10011	2.85	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
39	41	10011	2.53	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
41	44	10011	3.30	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
44	52	10011	1.90	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
1	6	10051	5.26	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
78	80	10004	3.10	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
33	25	10068	3.90	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
38	33	10055	3.77	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00
43	38	10068	3.83	1	101	100	100	100	100	100	100	100	100	100	0.00	0.00

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47	43	10068	3.31	1	101	100	100	100	100	100	100	100	100	0.00	0.00
7	2	10003	5.26	1	101	100	100	100	100	100	100	100	100	0.00	0.00
74	65	10058	4.77	1	101	100	100	100	100	100	100	100	100	0.00	0.00
84	74	10058	1.43	1	101	100	100	100	100	100	100	100	100	0.00	0.00
27	28	10013	2.63	1	101	100	100	100	100	100	100	100	100	0.00	0.00
82	83	10059	4.20	1	101	100	100	100	100	100	100	100	100	0.00	0.00
19	9	10001	4.03	1	101	100	100	100	100	100	100	100	100	0.00	0.00
30	20	10002	5.73	1	101	100	100	100	100	100	100	100	100	0.00	0.00
58	50	10056	4.99	1	101	100	100	100	100	100	100	100	100	0.00	0.00
67	58	10056	4.90	1	101	100	100	100	100	100	100	100	100	0.00	0.00
101	102	10051	4.62	1	2	100	100	100	100	100	100	100	100	0.00	0.00
102	103	10051	1.20	1	2	100	100	100	100	100	100	100	100	0.00	0.00
104	105	10052	4.27	1	2	100	100	100	100	100	100	100	100	0.00	0.00
105	106	10052	4.63	1	2	100	100	100	100	100	100	100	100	0.00	0.00
106	107	10052	4.62	1	2	100	100	100	100	100	100	100	100	0.00	0.00
107	108	10052	5.40	1	2	100	100	100	100	100	100	100	100	0.00	0.00
108	109	10052	5.30	1	2	100	100	100	100	100	100	100	100	0.00	0.00
110	111	10053	4.07	1	2	100	100	100	100	100	100	100	100	0.00	0.00
111	112	10053	4.75	1	2	100	100	100	100	100	100	100	100	0.00	0.00
114	115	10015	5.50	1	2	100	100	100	100	100	100	100	100	0.00	0.00
115	116	10015	4.62	1	2	100	100	100	100	100	100	100	100	0.00	0.00
116	117	10015	3.90	1	2	100	100	100	100	100	100	100	100	0.00	0.00
118	119	10015	4.00	1	2	100	100	100	100	100	100	100	100	0.00	0.00
119	120	10015	1.55	1	2	100	100	100	100	100	100	100	100	0.00	0.00
121	122	10014	5.76	1	4	80	80	80	80	100	100	100	100	0.00	0.00
122	123	10014	6.06	1	4	100	100	100	100	100	100	100	100	0.00	0.00
124	125	10014	3.25	1	1	100	100	100	100	100	100	100	100	0.00	0.00
126	127	10014	3.85	1	1	100	100	100	100	100	100	100	100	0.00	0.00
128	129	10013	2.95	1	1	100	100	100	100	100	100	100	100	0.00	0.00
129	130	10013	2.90	1	1	100	100	100	100	100	100	100	100	0.00	0.00
134	135	10012	3.90	1	2	100	100	100	100	100	100	100	100	0.00	0.00
135	136	10012	4.05	1	2	100	100	100	100	100	100	100	100	0.00	0.00
136	137	10012	3.87	1	2	100	100	100	100	100	100	100	100	0.00	0.00
144	145	10011	3.16	1	1	70	70	70	70	100	100	100	100	0.00	0.00
145	146	10011	3.41	1	1	100	100	100	100	100	100	100	100	0.00	0.00
146	147	10011	3.25	1	1	100	100	100	100	100	100	100	100	0.00	0.00
147	148	10011	4.95	1	1	100	100	100	100	100	100	100	100	0.00	0.00
148	149	10011	3.65	1	1	100	100	100	100	100	100	100	100	0.00	0.00
149	150	10011	4.35	1	1	100	100	100	100	100	100	100	100	0.00	0.00
151	152	10010	5.68	1	1	100	100	100	100	100	100	100	100	0.00	0.00
153	154	10009	4.29	1	4	100	100	100	100	100	100	100	100	0.00	0.00
154	155	10009	5.70	1	4	100	100	100	100	100	100	100	100	0.00	0.00
155	156	10009	5.51	1	4	100	100	100	100	100	100	100	100	0.00	0.00
156	157	10009	6.55	1	4	100	100	100	100	100	100	100	100	0.00	0.00
157	158	10009	6.40	1	4	100	100	100	100	100	100	100	100	0.00	0.00
159	160	10008	2.00	1	2	100	100	100	100	100	100	100	100	0.00	0.00
160	161	10008	2.59	1	2	100	100	100	100	100	100	100	100	0.00	0.00
161	162	10008	4.17	1	2	100	100	100	100	100	100	100	100	0.00	0.00
162	163	10008	4.70	1	2	100	100	100	100	100	100	100	100	0.00	0.00
163	164	10008	4.04	1	2	100	100	100	100	100	100	100	100	0.00	0.00
164	165	10008	5.91	1	2	100	100	100	100	100	100	100	100	0.00	0.00
165	166	10008	3.54	1	2	100	100	100	100	100	100	100	100	0.00	0.00
166	167	10008	3.50	1	2	100	100	100	100	100	100	100	100	0.00	0.00
168	169	10007	4.64	1	1	100	100	100	100	100	100	100	100	0.00	0.00
169	170	10007	4.07	1	1	100	100	100	100	100	100	100	100	0.00	0.00
170	171	10007	4.80	1	1	100	100	100	100	100	100	100	100	0.00	0.00

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171	172	10007	2.18	1	1	100	100	100	100	100	100	100	100	0.00	0.00
172	189	10007	1.81	1	1	100	100	100	100	100	100	100	100	0.00	0.00
173	174	10006	5.91	1	4	100	100	100	100	100	100	100	100	0.00	0.00
184	183	10059	1.60	1	2	100	100	100	100	100	100	100	100	0.00	0.00
175	176	10005	4.49	1	2	70	70	70	70	100	100	100	100	0.00	0.00
176	177	10005	4.37	1	2	100	100	100	100	100	100	100	100	0.00	0.00
177	178	10005	4.65	1	2	100	100	100	100	100	100	100	100	0.00	0.00
178	179	10005	3.99	1	2	100	100	100	100	100	100	100	100	0.00	0.00
180	181	10004	5.73	1	4	100	100	100	100	100	100	100	100	0.00	0.00
181	182	10004	5.77	1	4	100	100	100	100	100	100	100	100	0.00	0.00
110	121	10012	5.11	1	1	100	100	100	100	100	100	100	100	0.00	0.00
121	134	10012	6.13	1	1	100	100	100	100	100	100	100	100	0.00	0.00
159	168	10008	3.65	1	1	100	100	100	100	100	100	100	100	0.00	0.00
168	175	10008	3.65	1	1	100	100	100	100	100	100	100	100	0.00	0.00
151	153	10010	3.09	1	1	100	100	100	100	100	100	100	100	0.00	0.00
153	160	10010	4.90	1	1	100	100	100	100	100	100	100	100	0.00	0.00
104	112	10015	2.02	1	2	30	30	30	30	100	100	100	100	0.00	0.00
112	113	10015	2.01	1	1	30	30	30	30	100	100	100	100	0.00	0.00
123	131	10011	3.13	1	1	100	100	100	100	100	100	100	100	0.00	0.00
131	137	10011	3.00	1	1	100	100	100	100	100	100	100	100	0.00	0.00
137	139	10011	2.85	1	1	100	100	100	100	100	100	100	100	0.00	0.00
139	141	10011	2.53	1	1	100	100	100	100	100	100	100	100	0.00	0.00
141	144	10011	3.30	1	1	100	100	100	100	100	100	100	100	0.00	0.00
144	152	10011	1.90	1	1	100	100	100	100	100	100	100	100	0.00	0.00
101	106	10051	5.26	1	1	100	100	100	100	100	100	100	100	0.00	0.00
178	180	10004	3.10	1	1	100	100	100	100	100	100	100	100	0.00	0.00
124	132	10054	4.30	1	2	100	100	100	100	100	100	100	100	0.00	0.00
132	140	10054	4.68	1	2	100	100	100	100	100	100	100	100	0.00	0.00
140	142	10054	2.82	1	2	100	100	100	100	100	100	100	100	0.00	0.00
142	146	10054	3.01	1	2	100	100	100	100	100	100	100	100	0.00	0.00
125	133	10055	3.90	1	1	100	100	100	100	100	100	100	100	0.00	0.00
133	138	10055	3.77	1	1	100	100	100	100	100	100	100	100	0.00	0.00
138	143	10055	3.83	1	1	100	100	100	100	100	100	100	100	0.00	0.00
143	147	10066	3.31	1	1	100	100	100	100	100	100	100	100	0.00	0.00
164	189	10065	3.65	1	2	70	70	70	70	100	100	100	100	0.00	0.00
189	173	10065	1.12	1	2	100	100	100	100	100	100	100	100	0.00	0.00
173	179	10065	2.53	1	2	100	100	100	100	100	100	100	100	0.00	0.00
102	107	10003	5.26	1	1	100	100	100	100	100	100	100	100	0.00	0.00
165	174	10057	4.77	1	2	100	100	100	100	100	100	100	100	0.00	0.00
174	184	10058	1.43	1	2	100	100	100	100	100	100	100	100	0.00	0.00
127	128	10013	2.63	1	1	100	100	100	100	100	100	100	100	0.00	0.00
183	182	10059	4.20	1	2	100	100	100	100	100	100	100	100	0.00	0.00
109	119	10001	4.03	1	1	100	100	100	100	100	100	100	100	0.00	0.00
120	130	10002	5.73	1	1	100	100	100	100	100	100	100	100	0.00	0.00
150	158	10056	4.99	1	1	100	100	100	100	100	100	100	100	0.00	0.00
158	167	10056	4.90	1	1	100	100	100	100	100	100	100	100	0.00	0.00
219	220	10015	1.55	1	7	100	100	100	100	100	100	100	100	0.00	0.00
228	229	10013	2.95	1	7	100	100	100	100	100	100	100	100	0.00	0.00
229	230	10013	2.90	1	7	100	100	100	100	100	100	100	100	0.00	0.00
201	202	10003	4.62	1	7	100	100	100	100	100	100	100	100	0.00	0.00
204	205	10052	4.27	1	7	100	100	100	100	100	100	100	100	0.00	0.00
205	206	10052	4.63	1	7	100	100	100	100	100	100	100	100	0.00	0.00
207	208	10052	5.40	1	7	100	100	100	100	100	100	100	100	0.00	0.00
208	209	10052	5.30	1	7	100	100	100	100	100	100	100	100	0.00	0.00
214	215	10015	5.50	1	1	100	100	100	100	100	100	100	100	0.00	0.00
216	217	10015	3.90	1	7	100	100	100	100	100	100	100	100	0.00	0.00

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217	203	10015	2.50	1	7	100	100	100	100	100	100	100	100	0.00	0.00
203	318	10015	0.30	1	7	100	100	100	100	100	100	100	100	0.00	0.00
318	319	10015	4.00	1	7	100	100	100	100	100	100	100	100	0.00	0.00
288	226	10055	2.55	1	7	100	100	100	100	100	100	100	100	0.00	0.00
226	327	10055	3.85	1	7	100	100	100	100	100	100	100	100	0.00	0.00
306	307	10052	4.62	1	6	100	100	100	100	100	100	100	100	0.00	0.00
210	211	10053	4.07	1	7	100	100	100	100	100	100	100	100	0.00	0.00
211	312	10053	4.75	1	7	100	100	100	100	100	100	100	100	0.00	0.00
313	254	10002	3.00	1	3	100	100	100	100	100	100	100	100	0.00	0.00
254	314	10002	0.40	1	3	100	100	100	100	100	100	100	100	0.00	0.00
221	222	10014	5.76	1	7	100	100	100	100	100	100	100	100	0.00	0.00
222	323	10014	6.06	1	7	100	100	100	100	100	100	100	100	0.00	0.00
323	255	10014	5.90	1	7	100	100	100	100	100	100	100	100	0.00	0.00
255	324	10055	0.67	1	7	100	100	100	100	100	100	100	100	0.00	0.00
324	325	10055	3.25	1	10	100	100	100	100	100	100	100	100	0.00	0.00
325	269	10055	0.70	1	7	100	100	100	100	100	100	100	100	0.00	0.00
234	235	10012	3.90	1	7	100	100	100	100	100	100	100	100	0.00	0.00
235	236	10012	4.05	1	7	100	100	100	100	100	100	100	100	0.00	0.00
236	237	10012	3.87	1	7	100	100	100	100	100	100	100	100	0.00	0.00
239	440	10060	6.57	1	7	100	100	100	100	100	100	100	100	0.00	0.00
244	245	10056	3.16	1	7	100	100	100	100	100	100	100	100	0.00	0.00
245	446	10056	3.41	1	7	100	100	100	100	100	100	100	100	0.00	0.00
446	347	10056	3.25	1	6	100	100	100	100	100	100	100	100	0.00	0.00
347	248	10056	4.95	1	6	100	100	100	100	100	100	100	100	0.00	0.00
248	249	10056	3.65	1	6	100	100	100	100	100	100	100	100	0.00	0.00
249	250	10056	4.35	1	6	100	100	100	100	100	100	100	100	0.00	0.00
251	252	10010	5.68	1	6	100	100	100	100	100	100	100	100	0.00	0.00
256	257	10009	6.55	1	9	100	100	100	100	100	100	100	100	0.00	0.00
257	258	10009	6.40	1	9	100	100	100	100	100	100	100	100	0.00	0.00
259	260	10057	2.00	1	6	100	100	100	100	100	100	100	100	0.00	0.00
260	261	10057	2.59	1	9	100	100	100	100	100	100	100	100	0.00	0.00
261	262	10057	4.17	1	9	100	100	100	100	100	100	100	100	0.00	0.00
262	263	10057	4.70	1	9	100	100	100	100	100	100	100	100	0.00	0.00
263	264	10057	4.04	1	9	100	100	100	100	100	100	100	100	0.00	0.00
264	265	10057	5.91	1	6	100	100	100	100	100	100	100	100	0.00	0.00
265	266	10057	3.54	1	6	100	100	100	100	100	100	100	100	0.00	0.00
266	267	10057	3.50	1	6	100	100	100	100	100	100	100	100	0.00	0.00
273	274	10058	5.91	1	6	100	100	100	100	100	100	100	100	0.00	0.00
284	283	10059	1.60	1	6	100	100	100	100	100	100	100	100	0.00	0.00
275	276	10005	4.49	1	6	100	100	100	100	100	100	100	100	0.00	0.00
276	277	10005	4.37	1	6	100	100	100	100	100	100	100	100	0.00	0.00
277	278	10005	4.65	1	6	100	100	100	100	100	100	100	100	0.00	0.00
278	279	10005	3.99	1	6	100	100	100	100	100	100	100	100	0.00	0.00
280	281	10004	5.73	1	6	100	100	100	100	100	100	100	100	0.00	0.00
281	282	10004	5.77	1	6	100	100	100	100	100	100	100	100	0.00	0.00
227	228	10013	2.63	1	7	100	100	100	100	100	100	100	100	0.00	0.00
220	230	10002	5.73	1	7	100	100	100	100	100	100	100	100	0.00	0.00
212	204	10052	2.02	1	7	100	100	100	100	100	100	100	100	0.00	0.00
201	206	10051	5.26	1	7	100	100	100	100	100	100	100	100	0.00	0.00
242	240	10054	2.82	1	7	100	100	100	100	100	100	100	100	0.00	0.00
246	242	10054	3.01	1	7	100	100	100	100	100	100	100	100	0.00	0.00
225	233	10055	3.90	1	7	100	100	100	100	100	100	100	100	0.00	0.00
233	238	10055	3.77	1	7	100	100	100	100	100	100	100	100	0.00	0.00
238	243	10055	3.83	1	7	100	100	100	100	100	100	100	100	0.00	0.00
243	247	10067	3.31	1	7	100	100	100	100	100	100	100	100	0.00	0.00
202	207	10003	5.26	1	7	100	100	100	100	100	100	100	100	0.00	0.00

203	327	10013	3.10	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
209	319	10001	4.03	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
210	221	10012	5.11	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
221	234	10012	6.13	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
259	268	10008	3.65	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
268	275	10008	3.65	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
251	253	10010	3.09	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
253	260	10010	4.90	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
312	313	10015	2.01	1	3	100	100	100	100	100	100	100	100	100	0.00	0.00
254	323	10011	3.10	1	3	100	100	100	100	100	100	100	100	100	0.00	0.00
323	231	10011	3.13	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
231	237	10011	3.00	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
237	239	10011	2.85	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
241	239	10060	2.53	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
244	241	10060	3.30	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
244	252	10011	1.90	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
306	315	10051	4.03	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
315	255	10051	3.10	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
278	280	10004	3.10	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
324	332	10054	4.30	1	9	100	100	100	100	100	100	100	100	100	0.00	0.00
332	440	10054	4.68	1	9	100	100	100	100	100	100	100	100	100	0.00	0.00
256	347	10067	4.99	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
264	256	10067	4.90	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
264	289	10065	3.65	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
289	273	10065	1.12	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
273	279	10065	2.53	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
307	316	10003	4.03	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
316	269	10003	3.10	1	7	100	100	100	100	100	100	100	100	100	0.00	0.00
265	274	10058	4.77	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
274	284	10058	1.43	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
283	282	10059	4.20	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
250	258	10056	4.99	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
258	267	10056	4.90	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
339	340	10060	6.57	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
344	345	10011	3.16	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
345	346	10011	3.41	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
339	341	10011	2.53	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
341	344	10011	3.30	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
340	342	10054	2.82	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00
342	346	10054	3.01	1	6	100	100	100	100	100	100	100	100	100	0.00	0.00

Condizioni e combinazioni di carico

Convenzioni adottate

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

- Per quanto riguarda le condizioni di carico dinamiche, il programma assimila ogni direzione di ingresso del sisma, definita dal progettista, ad una condizione di carico. Pertanto qualora agiscano sulla struttura **n** condizioni di carico statiche e il progettista abbia supposto che la struttura venga sollecitata da un sisma entrante in **m** direzioni, la struttura stessa viene considerata del programma come soggetta ad **n + m** condizioni di carico.
- Le combinazioni di carico, definite dal progettista, combinano fra loro le **n + m** condizioni di carico ognuna partecipante alla combinazione **i-esima** secondo i fattori di partecipazione nel seguito

riportati. N.B.: se la condizione **j-esima** ha fattore di partecipazione unitario, allora partecipa per intero alla combinazione **i-esima**.

- Le prime **n** condizioni sono sempre statiche mentre sono di origine dinamica le (eventuali) condizioni da **n + 1** a **n + m**.

Condizioni di carico definite:

Condizione	
1	Peso proprio strutturale
2	Peso proprio solai
3	Permanente solai
4	Variabili cat.C1
5	Variabili Cat.H
6	Tamponature
7	Sisma 0+SLU
8	Sisma 0-SLU
9	Sisma 90+SLU
10	Sisma 90-SLU
11	Sisma 180+SLU
12	Sisma 180-SLU
13	Sisma 270+SLU
14	Sisma 270-SLU
15	Sisma 0+SLD
16	Sisma 0-SLD
17	Sisma 90+SLD
18	Sisma 90-SLD
19	Sisma 180+SLD
20	Sisma 180-SLD
21	Sisma 270+SLD
22	Sisma 270-SLD

Combinazioni agli Stati Limite Ultimi

Combinazione di carico numero						
	1					
	2					
Comb.\Cond	1	2	3	4	5	6
1	1.1	1.1	1.1	1.5	1.5	1.1
2	1	1	1	0.3		1

Combinazioni agli Stati Limite di Salvaguardia della Vita

Combinazione di carico numero	
3	Sisma 0+ / 90+
4	Sisma 0+ / 270+
5	Sisma 0- / 90-
6	Sisma 0- / 270-
7	Sisma 90+ / 0+
8	Sisma 90+ / 180+
9	Sisma 90- / 0-
10	Sisma 90- / 180-
11	Sisma 180+ / 90+
12	Sisma 180+ / 270+
13	Sisma 180- / 90-
14	Sisma 180- / 270-
15	Sisma 270+ / 0+
16	Sisma 270+ / 180+

Combinazione di carico numero

17	Sisma 270- / 0-
18	Sisma 270- / 180-

Comb.\Cond	1	2	3	4	6	7	8	9	10	11	12	13	14
3	1	1	1	0.6	1	1		0.3					
4	1	1	1	0.6	1	1						0.3	
5	1	1	1	0.6	1		1		0.3				
6	1	1	1	0.6	1		1						0.3
7	1	1	1	0.6	1	0.3		1					
8	1	1	1	0.6	1			1		0.3			
9	1	1	1	0.6	1		0.3		1				
10	1	1	1	0.6	1				1		0.3		
11	1	1	1	0.6	1			0.3		1			
12	1	1	1	0.6	1					1		0.3	
13	1	1	1	0.6	1				0.3		1		
14	1	1	1	0.6	1						1		0.3
15	1	1	1	0.6	1	0.3							1
16	1	1	1	0.6	1					0.3			1
17	1	1	1	0.6	1		0.3						1
18	1	1	1	0.6	1						0.3		1

Combinazioni agli Stati Limite di Danno

Combinazione di carico numero

19	Sisma 0+ / 90+
20	Sisma 0+ / 270+
21	Sisma 0- / 90-
22	Sisma 0- / 270-
23	Sisma 90+ / 0+
24	Sisma 90+ / 180+
25	Sisma 90- / 0-
26	Sisma 90- / 180-
27	Sisma 180+ / 90+
28	Sisma 180+ / 270+
29	Sisma 180- / 90-
30	Sisma 180- / 270-
31	Sisma 270+ / 0+
32	Sisma 270+ / 180+
33	Sisma 270- / 0-
34	Sisma 270- / 180-

Comb.\Cond	1	2	3	4	6	15	16	17	18	19	20	21	22
19	1	1	1	0.6	1	1		0.3					
20	1	1	1	0.6	1	1						0.3	
21	1	1	1	0.6	1		1		0.3				
22	1	1	1	0.6	1		1						0.3
23	1	1	1	0.6	1	0.3		1					
24	1	1	1	0.6	1			1		0.3			
25	1	1	1	0.6	1		0.3		1				
26	1	1	1	0.6	1				1		0.3		
27	1	1	1	0.6	1			0.3		1			
28	1	1	1	0.6	1					1		0.3	
29	1	1	1	0.6	1				0.3		1		
30	1	1	1	0.6	1						1		0.3
31	1	1	1	0.6	1	0.3							1
32	1	1	1	0.6	1					0.3			1
33	1	1	1	0.6	1		0.3						1
34	1	1	1	0.6	1						0.3		1

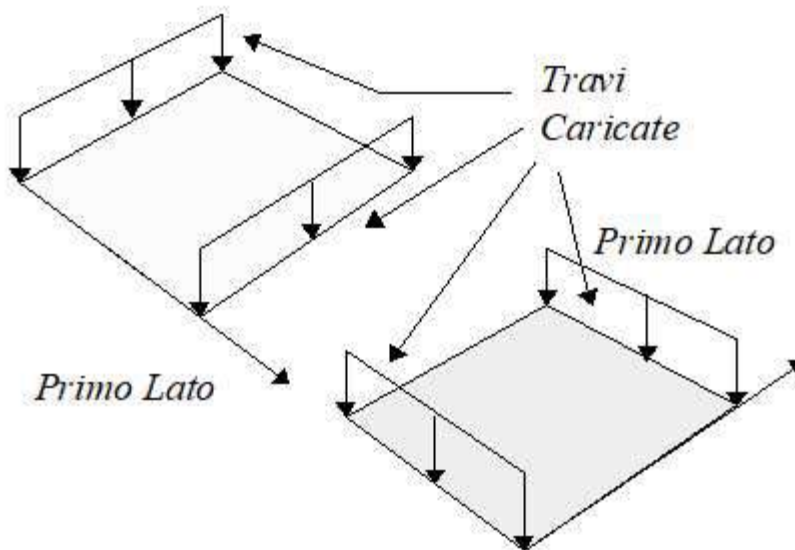
Dati relativi alle aree di carico

Convenzioni adottate

Nel seguito sono riportate le *aree di carico* definite nel progetto.

Un'*area di carico* è definita da una superficie contornata da travi di bordo ed i carichi superficiali su essa agenti vengono riportati dal programma sulle travi perimetrali in ragione dell'area di influenza relativa ad ogni trave e della direzione di orditura della superficie.

È importante rilevare che **la direzione di orditura viene assunta dal programma con riferimento al primo lato della superficie di carico e non con riferimento all'asse x globale della struttura.**



Esempio: *direzione* di orditura 0 gradi.

In particolare ricordiamo che le *aree di carico* fungono esclusivamente da supporto per il calcolo dei carichi di tipo superficiale in quanto i carichi definiti tramite tali *aree di carico* in effetti vengono trasferiti (sotto forma di carichi lineari o carichi nodali concentrati nei nodi) sulle travi perimetrali che contornano l'area di carico stessa.

A seguire vengono riportati per ogni tipologia definita i carichi agenti nelle varie condizioni di carico. La dizione:

Globale

indica che il carico è definito nel sistema di riferimento globale della struttura.

Globale Proiettato

indica che il carico è definito nel sistema di riferimento globale della struttura ma il valore viene computato in proiezione.

Locale

indica che il carico è definito nel sistema di riferimento locale della superficie di carico.

Area di Carico	Numero	Commento
	1	S14+7 Interpiano
	2	S36+5 Copertura

Tipo	Alfa	Condizione	Carico Trasmesso	Riferimento	qx [KN/m ²] Qx [kN]	qy [KN/m ²] Qy [kN]	qz [KN/m ²] Qz [kN]
1	0.00	2	Alle Travi	Globale	0.00	0.00	3.12
					0.00	0.00	2992.56
1	0.00	3	Alle Travi	Globale	0.00	0.00	2.74
					0.00	0.00	2628.08
1	0.00	4	Alle Travi	Globale	0.00	0.00	3.00
					0.00	0.00	2877.46

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

VII Municipalità

14° C.D. Asilo nido Acquarola

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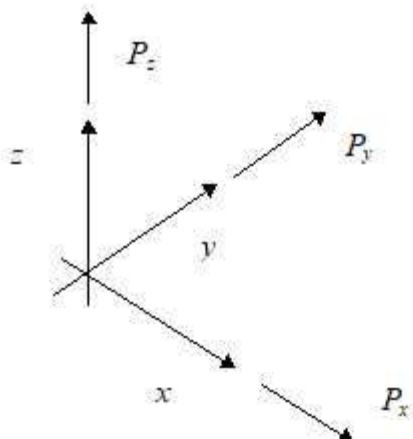
Tipo	Alfa	Condizione	Carico Trasmesso	Riferimento	qx [KN/m ²] Qx [kN]	qy [KN/m ²] Qy [kN]	qz [KN/m ²] Qz [kN]
2	0.00	2	Alle Travi	Globale	0.00	0.00	4.70
					-0.00	0.00	4508.03
2	0.00	3	Alle Travi	Globale	0.00	0.00	2.74
					-0.00	0.00	2628.08
2	0.00	4	Alle Travi	Globale	0.00	0.00	0.50
					-0.00	0.00	479.58

Tipologia	Nodi
1	101 102 107 106 101
1	114 115 116 117 118 119 120 130 129 128 127
	126 125 124 123 122 121 110 111 112 113 114
1	106 107 108 109 119 118 117 116 115 114 113
	112 104 105 106
1	124 125 133 138 143 147 146 142 140 132 124
1	122 123 131 137 136 135 134 121 122
1	124 132 140 142 146 145 144 141 139 137 131
	123 124
1	146 147 148 149 150 158 157 156 155 154 153
	151 152 144 145 146
1	155 156 157 158 167 166 165 164 163 162 161
	160 153 154 155
1	164 165 174 173 189 164
1	161 162 163 164 189 172 171 170 169 168 159
	160 161
1	170 171 172 189 173 179 178 177 176 175 168
	169 170
1	173 174 184 183 182 181 180 178 179 173
2	216 207 208 209 319 318 203 217 216
2	223 285 214 215 287 223
2	288 216 217 203 327 226 288
2	213 212 204 205 206 215 214 285 213
2	201 202 207 206 201
2	228 227 286 218 219 220 230 229 228
2	246 242 240 232 224 225 233 238 243 247 246
2	264 256 257 258 267 266 265 264
2	264 265 274 273 289 264
2	273 274 284 283 282 281 280 278 279 273
2	262 263 264 289 273 279 278 277 276 275 268
	259 260 261 262
2	222 323 231 237 236 235 234 221 222
2	211 312 313 254 323 222 221 210 211
2	255 315 306 307 316 269 325 324 255
2	344 341 339 340 342 346 345 344
2	260 253 251 252 244 245 446 347 256 264 263
	262 261 260
2	324 332 440 239 237 231 323 255 324
2	256 347 248 249 250 258 257 256

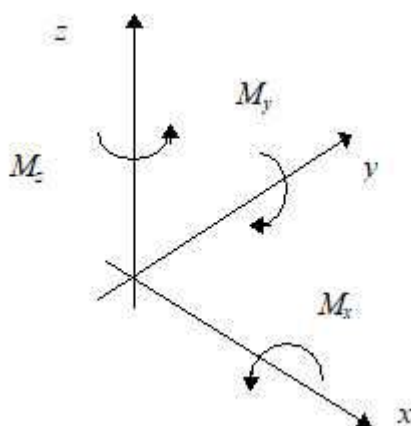
Carichi e coppie applicati ai nodi

Convenzioni adottate

La terna di riferimento generale è destrorsa per cui si hanno i seguenti segni positivi per i carichi o per le coppie direttamente applicati ai nodi:



Versi positivi delle forze concentrate applicate ai nodi.



Versi positivi delle coppie concentrate applicate ai nodi.

Nel seguito vengono riportati per ogni nodo, su cui agiscono carichi concentrati, le componenti del carico (P_x , P_y , P_z , M_x , M_y , M_z) e la condizione di carico cui esse fanno riferimento.

Nodo	Cond.	P_x [kN]	P_y [kN]	P_z [kN]	M_x [kNm]	M_y [kNm]	M_z [kNm]
213	2	0.00	0.00	-14.21	0.00	0.00	0.00
	3	0.00	0.00	-8.28	0.00	0.00	0.00
	4	0.00	0.00	-1.51	0.00	0.00	0.00
214	2	0.00	0.00	-3.35	0.00	0.00	0.00
	3	0.00	0.00	-1.95	0.00	0.00	0.00
	4	0.00	0.00	-0.36	0.00	0.00	0.00
218	2	0.00	0.00	-28.95	0.00	0.00	0.00
	3	0.00	0.00	-16.88	0.00	0.00	0.00
	4	0.00	0.00	-3.08	0.00	0.00	0.00
219	2	0.00	0.00	-26.93	0.00	0.00	0.00
	3	0.00	0.00	-15.70	0.00	0.00	0.00
	4	0.00	0.00	-2.87	0.00	0.00	0.00

Nodo	Cond.	Px [kN]	Py [kN]	Pz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]
223	2	0.00	0.00	-21.49	0.00	0.00	0.00
	3	0.00	0.00	-12.53	0.00	0.00	0.00
	4	0.00	0.00	-2.29	0.00	0.00	0.00
224	2	0.00	0.00	-16.42	0.00	0.00	0.00
	3	0.00	0.00	-9.57	0.00	0.00	0.00
	4	0.00	0.00	-1.75	0.00	0.00	0.00
232	2	0.00	0.00	-34.29	0.00	0.00	0.00
	3	0.00	0.00	-19.99	0.00	0.00	0.00
	4	0.00	0.00	-3.65	0.00	0.00	0.00
240	2	0.00	0.00	-17.87	0.00	0.00	0.00
	3	0.00	0.00	-10.42	0.00	0.00	0.00
	4	0.00	0.00	-1.90	0.00	0.00	0.00
285	2	0.00	0.00	-17.56	0.00	0.00	0.00
	3	0.00	0.00	-10.24	0.00	0.00	0.00
	4	0.00	0.00	-1.87	0.00	0.00	0.00
286	2	0.00	0.00	-2.02	0.00	0.00	0.00
	3	0.00	0.00	-1.18	0.00	0.00	0.00
	4	0.00	0.00	-0.21	0.00	0.00	0.00
287	2	0.00	0.00	-21.49	0.00	0.00	0.00
	3	0.00	0.00	-12.53	0.00	0.00	0.00
	4	0.00	0.00	-2.29	0.00	0.00	0.00

Carichi e coppie applicati ai solai

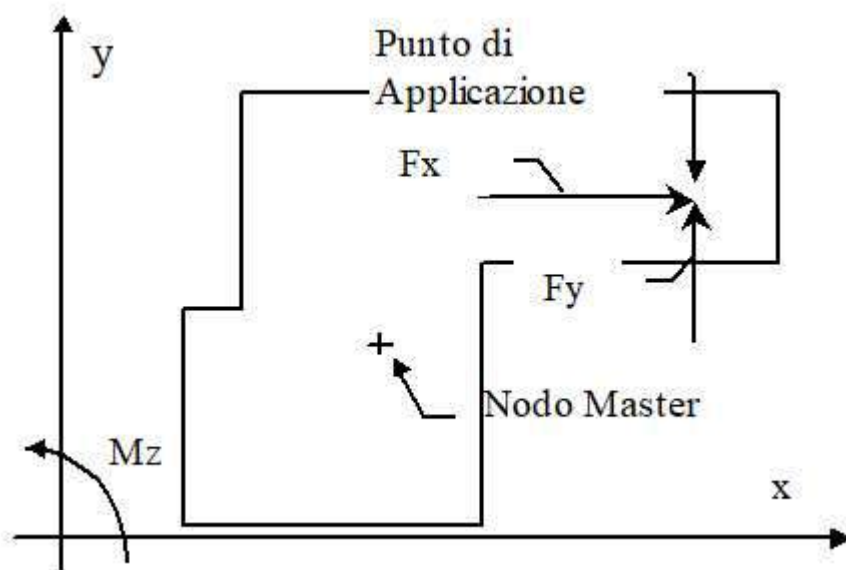
Convenzioni adottate

Seguendo l'ipotesi di piano infinitamente rigido le azioni agenti nel piano del solaio vengono trasformate dal codice di calcolo in azioni agenti nel cosiddetto nodo *master di solaio* secondo le trasformazioni seguenti:

$$F_{xMaster} = F_{xNodo}$$

$$F_{yMaster} = F_{yNodo}$$

$$M_{zMaster} = M_{zNodo} - F_{xNodo} (y_{App} - y_{Master}) + F_{yNodo} (x_{App} - x_{Master})$$



Nel seguito vengono riportati per ogni solaio, su cui agiscono carichi concentrati, le componenti del carico (F_x , F_y , M_z), le coordinate del punto di applicazione nel piano orizzontale (x , y) e la condizione di carico cui esse fanno riferimento.

Solaio	Condizione	F_x [kN]	F_y [kN]	M_z [kNm]	x Punto di applicazione [m]	y Punto di Applicazione [m]
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Carichi applicati agli elementi

Convenzioni adottate

I carichi applicati vengono raccolti nella tabella riportata alla fine del paragrafo e si intendono applicati nel sistema di riferimento locale dell'elemento.

Per la lettura della tabella si definiscono:

NodoI, NodoJ

I nodi iniziale/finale dell'asta o lato dell'elemento cui afferisce il carico

L

La distanza fra i suddetti nodi.

qxi, ..., qzj

Le componenti di un carico distribuito costante o variabile linearmente iniziali (indice i) e finale (indice j).

xi, xj

Le distanze, misurate a partire dal NodoI, dei punti di applicazione dei carichi qxi..qzj relativi a carichi distribuiti applicati su porzioni di un'asta.

Px, ..., Pz xApp

Le componenti di un Carico Concentrato applicato a distanza xApp dal NodoI.

Mx, ..., Mz xApp

Le componenti di una Coppia Concentrata applicata a distanza xApp dal NodoI.

Var Termica Assiale, ..., Var Termica Farfalla 13

Le variazioni termiche (Assiali ed a Farfalla) misurate in gradi Celsius.

mxi, ..., mzj

Le componenti di coppie distribuite costanti o variabili linearmente iniziali (indice i) e finale (indice j).

qS_x, qS_y, qS_z

carichi, per unità di superficie, applicati su elementi superficiali o facce di elementi solidi

Peso Proprio

Il valore del carico derivante dal peso proprio dell'elemento

Carichi distribuiti

Nodo I	Nodo J	L [m]	Condizione di carico	xi [m]	qxi [KN/m]	qyi [KN/m]	qzi [KN/m]	xj [m]	qxj [KN/m]	qyj [KN/m]	qzj [KN/m]
1	101	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
113	114	3.40	1	0.00	0.00	4.50	0.00	3.40	0.00	4.50	0.00
			2	0.00	0.00	6.29	0.00	3.40	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	3.40	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	3.40	0.00	6.05	0.00
			2	0.00	0.00	4.84	0.00	3.00	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	3.00	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	3.00	0.00	4.65	0.00
			2	3.00	0.00	4.84	0.00	3.40	0.00	4.84	0.00
			3	3.00	0.00	4.25	0.00	3.40	0.00	4.25	0.00
			4	3.00	0.00	4.65	0.00	3.40	0.00	4.65	0.00
101	201	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
125	126	3.25	1	0.00	0.00	3.75	0.00	3.25	0.00	3.75	0.00
			2	0.70	0.00	4.84	0.00	3.25	0.00	4.84	0.00
			3	0.70	0.00	4.25	0.00	3.25	0.00	4.25	0.00
			4	0.70	0.00	4.65	0.00	3.25	0.00	4.65	0.00
			2	0.00	0.00	4.84	0.00	0.70	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	0.70	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	0.70	0.00	4.65	0.00

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2	102	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
123	124	6.57	1	0.00	0.00	6.00	0.00	6.57	0.00	6.00	0.00
			2	5.90	0.00	4.84	0.00	6.57	0.00	4.84	0.00
			3	5.90	0.00	4.25	0.00	6.57	0.00	4.25	0.00
			4	5.90	0.00	4.65	0.00	6.57	0.00	4.65	0.00
			2	0.40	0.00	4.84	0.00	5.90	0.00	4.84	0.00
			3	0.40	0.00	4.25	0.00	5.90	0.00	4.25	0.00
			4	0.40	0.00	4.65	0.00	5.90	0.00	4.65	0.00
			2	0.00	0.00	4.84	0.00	0.40	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	0.40	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	0.40	0.00	4.65	0.00
102	202	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
117	118	2.80	1	0.00	0.00	4.50	0.00	2.80	0.00	4.50	0.00
			2	1.50	0.00	6.29	0.00	2.80	0.00	6.29	0.00
			3	1.50	0.00	5.52	0.00	2.80	0.00	5.52	0.00
			4	1.50	0.00	6.05	0.00	2.80	0.00	6.05	0.00
			2	0.00	0.00	6.29	0.00	1.50	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	1.50	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	1.50	0.00	6.05	0.00
			2	0.00	0.00	4.84	0.00	2.50	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	2.50	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	2.50	0.00	4.65	0.00
			2	2.50	0.00	8.94	0.00	2.80	0.00	8.94	0.00
			3	2.50	0.00	7.85	0.00	2.80	0.00	7.85	0.00
			4	2.50	0.00	8.59	0.00	2.80	0.00	8.59	0.00
3	103	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
2	1	4.62	6	0.00	0.00	16.90	0.00	4.62	0.00	16.90	0.00
4	104	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
5	4	4.27	6	0.00	0.00	16.90	0.00	4.27	0.00	16.90	0.00
104	204	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
6	5	4.63	6	0.00	0.00	16.90	0.00	4.63	0.00	16.90	0.00
5	105	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
8	7	5.40	6	0.00	0.00	2.96	0.00	5.40	0.00	2.96	0.00
105	205	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
9	8	5.30	6	0.00	0.00	2.96	0.00	5.30	0.00	2.96	0.00
6	106	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
11	10	4.07	6	0.00	0.00	16.90	0.00	4.07	0.00	16.90	0.00
106	206	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
12	11	4.75	6	0.00	0.00	16.90	0.00	4.75	0.00	16.90	0.00
306	206	0.50	1	0.00	-2.25	0.00	0.00	0.50	-2.25	0.00	0.00
7	107	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
25	26	3.25	6	0.00	0.00	16.90	0.00	3.25	0.00	16.90	0.00
107	207	3.80	1	0.00	3.00	0.00	0.00	3.80	3.00	0.00	0.00
26	27	3.85	6	0.00	0.00	16.90	0.00	3.85	0.00	16.90	0.00
307	207	0.50	1	0.00	-3.00	0.00	0.00	0.50	-3.00	0.00	0.00
28	29	2.95	6	0.00	0.00	16.90	0.00	2.95	0.00	16.90	0.00
8	108	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
29	30	2.90	6	0.00	0.00	16.90	0.00	2.90	0.00	16.90	0.00
108	208	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
34	35	3.90	6	0.00	0.00	16.90	0.00	3.90	0.00	16.90	0.00
9	109	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
35	36	4.05	6	0.00	0.00	16.90	0.00	4.05	0.00	16.90	0.00
109	209	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
36	37	3.87	6	0.00	0.00	16.90	0.00	3.87	0.00	16.90	0.00
10	110	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
48	47	4.95	6	0.00	0.00	16.90	0.00	4.95	0.00	16.90	0.00

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110	210	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
49	48	3.65	6	0.00	0.00	16.90	0.00	3.65	0.00	16.90	0.00
11	111	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
50	49	4.35	6	0.00	0.00	16.90	0.00	4.35	0.00	16.90	0.00
111	211	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
52	51	5.68	6	0.00	0.00	16.90	0.00	5.68	0.00	16.90	0.00
12	112	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
60	59	2.00	6	0.00	0.00	16.90	0.00	2.00	0.00	16.90	0.00
112	212	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
65	66	3.54	6	0.00	0.00	16.90	0.00	3.54	0.00	16.90	0.00
212	312	0.50	1	0.00	2.25	0.00	0.00	0.50	2.25	0.00	0.00
66	67	3.50	6	0.00	0.00	16.90	0.00	3.50	0.00	16.90	0.00
13	113	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
83	84	1.60	6	0.00	0.00	16.90	0.00	1.60	0.00	16.90	0.00
113	213	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
75	76	4.49	6	0.00	0.00	16.90	0.00	4.49	0.00	16.90	0.00
213	313	0.50	1	0.00	2.25	0.00	0.00	0.50	2.25	0.00	0.00
76	77	4.37	6	0.00	0.00	16.90	0.00	4.37	0.00	16.90	0.00
14	114	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
77	78	4.65	6	0.00	0.00	16.90	0.00	4.65	0.00	16.90	0.00
114	214	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
80	81	5.73	6	0.00	0.00	16.90	0.00	5.73	0.00	16.90	0.00
314	214	0.50	1	0.00	-2.25	0.00	0.00	0.50	-2.25	0.00	0.00
81	82	5.77	6	0.00	0.00	16.90	0.00	5.77	0.00	16.90	0.00
15	115	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
10	21	5.11	6	0.00	0.00	16.90	0.00	5.11	0.00	16.90	0.00
115	215	3.80	1	0.00	3.00	0.00	0.00	3.80	3.00	0.00	0.00
21	34	6.13	6	0.00	0.00	16.90	0.00	6.13	0.00	16.90	0.00
315	215	0.50	1	0.00	-3.00	0.00	0.00	0.50	-3.00	0.00	0.00
59	68	3.65	6	0.00	0.00	16.90	0.00	3.65	0.00	16.90	0.00
16	116	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
68	75	3.65	6	0.00	0.00	16.90	0.00	3.65	0.00	16.90	0.00
116	216	3.80	1	0.00	3.00	0.00	0.00	3.80	3.00	0.00	0.00
51	53	3.09	6	0.00	0.00	16.90	0.00	3.09	0.00	16.90	0.00
216	316	0.50	1	0.00	3.00	0.00	0.00	0.50	3.00	0.00	0.00
53	60	4.90	6	0.00	0.00	16.90	0.00	4.90	0.00	16.90	0.00
17	117	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
4	12	2.02	6	0.00	0.00	16.90	0.00	2.02	0.00	16.90	0.00
117	217	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
37	39	2.85	6	0.00	0.00	16.90	0.00	2.85	0.00	16.90	0.00
18	118	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
39	41	2.53	6	0.00	0.00	16.90	0.00	2.53	0.00	16.90	0.00
118	218	3.50	1	0.00	2.25	0.00	0.00	3.50	2.25	0.00	0.00
41	44	3.30	6	0.00	0.00	16.90	0.00	3.30	0.00	16.90	0.00
218	318	0.30	1	0.00	2.25	0.00	0.00	0.30	2.25	0.00	0.00
44	52	1.90	6	0.00	0.00	16.90	0.00	1.90	0.00	16.90	0.00
19	119	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
1	6	5.26	6	0.00	0.00	16.90	0.00	5.26	0.00	16.90	0.00
119	219	3.50	1	0.00	2.25	0.00	0.00	3.50	2.25	0.00	0.00
78	80	3.10	6	0.00	0.00	16.90	0.00	3.10	0.00	16.90	0.00
219	319	0.30	1	0.00	2.25	0.00	0.00	0.30	2.25	0.00	0.00
33	25	3.90	6	0.00	0.00	16.90	-0.00	3.90	0.00	16.90	-0.00
20	120	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
38	33	3.77	6	0.00	0.00	16.90	0.00	3.77	0.00	16.90	0.00
120	220	3.50	1	0.00	2.25	0.00	0.00	3.50	2.25	0.00	0.00
43	38	3.83	6	0.00	0.00	16.90	-0.00	3.83	0.00	16.90	-0.00

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21	121	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
47	43	3.31	6	0.00	0.00	16.90	0.00	3.31	0.00	16.90	0.00
121	221	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
22	122	4.10	1	0.00	3.75	0.00	0.00	4.10	3.75	0.00	0.00
74	65	4.77	6	0.00	0.00	16.90	0.00	4.77	0.00	16.90	0.00
122	222	4.30	1	0.00	3.75	0.00	0.00	4.30	3.75	0.00	0.00
84	74	1.43	6	0.00	0.00	16.90	0.00	1.43	0.00	16.90	0.00
23	123	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
27	28	2.63	6	0.00	0.00	16.90	0.00	2.63	0.00	16.90	0.00
123	223	3.80	1	0.00	3.00	0.00	0.00	3.80	3.00	0.00	0.00
82	83	4.20	6	0.00	0.00	16.90	0.00	4.20	0.00	16.90	0.00
223	323	0.50	1	0.00	3.00	0.00	0.00	0.50	3.00	0.00	0.00
24	124	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
30	20	5.73	6	0.00	0.00	16.90	0.00	5.73	0.00	16.90	0.00
124	224	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
58	50	4.99	6	0.00	0.00	16.90	0.00	4.99	0.00	16.90	0.00
224	324	0.50	1	0.00	2.25	0.00	0.00	0.50	2.25	0.00	0.00
67	58	4.90	6	0.00	0.00	16.90	0.00	4.90	0.00	16.90	0.00
25	125	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
101	102	4.62	1	0.00	0.00	4.50	0.00	4.62	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.62	0.00	7.20	0.00
125	225	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
102	103	1.20	1	0.00	0.00	4.50	0.00	1.20	0.00	4.50	0.00
225	325	0.50	1	0.00	2.25	0.00	0.00	0.50	2.25	0.00	0.00
104	105	4.27	1	0.00	0.00	4.50	0.00	4.27	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.27	0.00	7.20	0.00
			2	0.00	0.00	6.29	0.00	3.40	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	3.40	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	3.40	0.00	6.05	0.00
			2	3.40	0.00	6.29	0.00	4.27	0.00	6.29	0.00
			3	3.40	0.00	5.52	0.00	4.27	0.00	5.52	0.00
			4	3.40	0.00	6.05	0.00	4.27	0.00	6.05	0.00
26	126	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
105	106	4.63	1	0.00	0.00	4.50	0.00	4.63	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.63	0.00	7.20	0.00
			2	0.00	0.00	6.29	0.00	4.63	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	4.63	0.00	5.52	0.00
			4	0.00	0.00	6.04	0.00	4.63	0.00	6.04	0.00
126	226	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
106	107	4.62	1	0.00	0.00	4.50	0.00	4.62	0.00	4.50	0.00
			2	0.00	0.00	6.29	0.00	4.62	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	4.62	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	4.62	0.00	6.05	0.00
27	127	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
107	108	5.40	1	0.00	0.00	4.50	0.00	5.40	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	5.40	0.00	7.20	0.00
			2	0.00	0.00	6.29	0.00	3.90	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	3.90	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	3.90	0.00	6.05	0.00
			2	3.90	0.00	6.29	0.00	5.40	0.00	6.29	0.00
			3	3.90	0.00	5.52	0.00	5.40	0.00	5.52	0.00
			4	3.90	0.00	6.05	0.00	5.40	0.00	6.05	0.00
127	227	3.50	1	0.00	2.25	0.00	0.00	3.50	2.25	0.00	0.00
108	109	5.30	1	0.00	0.00	4.50	0.00	5.30	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	5.30	0.00	7.20	0.00
			2	0.00	0.00	6.29	0.00	1.30	0.00	6.29	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			3	0.00	0.00	5.52	0.00	1.30	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	1.30	0.00	6.05	0.00
			2	1.30	0.00	6.29	0.00	5.30	0.00	6.29	0.00
			3	1.30	0.00	5.52	0.00	5.30	0.00	5.52	0.00
			4	1.30	0.00	6.05	0.00	5.30	0.00	6.05	0.00
227	327	0.30	1	0.00	2.25	0.00	0.00	0.30	2.25	0.00	0.00
110	111	4.07	1	0.00	0.00	4.50	0.00	4.07	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.07	0.00	7.20	0.00
			2	0.00	0.00	7.97	0.00	4.07	0.00	7.97	0.00
			3	0.00	0.00	7.00	0.00	4.07	0.00	7.00	0.00
			4	0.00	0.00	7.66	0.00	4.07	0.00	7.66	0.00
28	128	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
111	112	4.75	1	0.00	0.00	4.50	0.00	4.75	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.75	0.00	7.20	0.00
			2	0.00	0.00	7.97	0.00	1.69	0.00	7.97	0.00
			3	0.00	0.00	7.00	0.00	1.69	0.00	7.00	0.00
			4	0.00	0.00	7.66	0.00	1.69	0.00	7.66	0.00
			2	1.69	0.00	7.97	0.00	4.75	0.00	7.97	0.00
			3	1.69	0.00	7.00	0.00	4.75	0.00	7.00	0.00
			4	1.69	0.00	7.66	0.00	4.75	0.00	7.66	0.00
128	228	3.50	1	0.00	2.25	0.00	0.00	3.50	2.25	0.00	0.00
114	115	5.50	1	0.00	0.00	4.50	0.00	5.50	0.00	4.50	0.00
			2	0.87	0.00	6.29	0.00	5.50	0.00	6.29	0.00
			3	0.87	0.00	5.52	0.00	5.50	0.00	5.52	0.00
			4	0.87	0.00	6.04	0.00	5.50	0.00	6.04	0.00
			2	0.00	0.00	6.29	0.00	0.87	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	0.87	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	0.87	0.00	6.05	0.00
			2	0.00	0.00	4.84	0.00	5.50	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	5.50	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	5.50	0.00	4.65	0.00
29	129	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
115	116	4.62	1	0.00	0.00	4.50	0.00	4.62	0.00	4.50	0.00
			2	0.00	0.00	6.29	0.00	4.62	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	4.62	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	4.62	0.00	6.05	0.00
			2	0.00	0.00	4.84	0.00	0.67	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	0.67	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	0.67	0.00	4.65	0.00
			2	0.67	0.00	4.84	0.00	3.92	0.00	4.84	0.00
			3	0.67	0.00	4.25	0.00	3.92	0.00	4.25	0.00
			4	0.67	0.00	4.65	0.00	3.92	0.00	4.65	0.00
			2	3.92	0.00	4.84	0.00	4.62	0.00	4.84	0.00
			3	3.92	0.00	4.25	0.00	4.62	0.00	4.25	0.00
			4	3.92	0.00	4.65	0.00	4.62	0.00	4.65	0.00
129	229	3.50	1	0.00	2.25	0.00	0.00	3.50	2.25	0.00	0.00
116	117	3.90	1	0.00	0.00	4.50	0.00	3.90	0.00	4.50	0.00
			2	0.00	0.00	6.29	0.00	3.90	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	3.90	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	3.90	0.00	6.05	0.00
			2	0.00	0.00	4.84	0.00	2.55	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	2.55	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	2.55	0.00	4.65	0.00
			2	2.55	0.00	4.84	0.00	3.90	0.00	4.84	0.00
			3	2.55	0.00	4.25	0.00	3.90	0.00	4.25	0.00
			4	2.55	0.00	4.65	0.00	3.90	0.00	4.65	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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30	130	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
118	119	4.00	1	0.00	0.00	4.50	0.00	4.00	0.00	4.50	0.00
			2	0.00	0.00	6.29	0.00	4.00	0.00	6.29	0.00
			3	0.00	0.00	5.52	0.00	4.00	0.00	5.52	0.00
			4	0.00	0.00	6.05	0.00	4.00	0.00	6.05	0.00
			2	0.00	0.00	8.94	0.00	2.65	0.00	8.94	0.00
			3	0.00	0.00	7.85	0.00	2.65	0.00	7.85	0.00
			4	0.00	0.00	8.60	0.00	2.65	0.00	8.60	0.00
			2	2.65	0.00	8.94	0.00	4.00	0.00	8.94	0.00
			3	2.65	0.00	7.85	0.00	4.00	0.00	7.85	0.00
			4	2.65	0.00	8.60	0.00	4.00	0.00	8.60	0.00
130	230	3.50	1	0.00	2.25	0.00	0.00	3.50	2.25	0.00	0.00
119	120	1.55	1	0.00	0.00	4.50	0.00	1.55	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	1.55	0.00	7.20	0.00
			2	0.00	0.00	8.94	0.00	1.55	0.00	8.94	0.00
			3	0.00	0.00	7.85	0.00	1.55	0.00	7.85	0.00
			4	0.00	0.00	8.60	0.00	1.55	0.00	8.60	0.00
31	131	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
121	122	5.76	1	0.00	0.00	6.00	0.00	5.76	0.00	6.00	0.00
			2	0.00	0.00	9.56	0.00	3.90	0.00	9.56	0.00
			3	0.00	0.00	8.40	0.00	3.90	0.00	8.40	0.00
			4	0.00	0.00	9.19	0.00	3.90	0.00	9.19	0.00
			2	3.90	0.00	9.56	0.00	5.76	0.00	9.56	0.00
			3	3.90	0.00	8.40	0.00	5.76	0.00	8.40	0.00
			4	3.90	0.00	9.20	0.00	5.76	0.00	9.20	0.00
			2	4.07	0.00	7.97	0.00	5.76	0.00	7.97	0.00
			3	4.07	0.00	7.00	0.00	5.76	0.00	7.00	0.00
			4	4.07	0.00	7.66	0.00	5.76	0.00	7.66	0.00
			2	0.00	0.00	7.97	0.00	4.07	0.00	7.97	0.00
			3	0.00	0.00	7.00	0.00	4.07	0.00	7.00	0.00
			4	0.00	0.00	7.66	0.00	4.07	0.00	7.66	0.00
131	231	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
122	123	6.06	1	0.00	0.00	6.00	0.00	6.06	0.00	6.00	0.00
			2	0.00	0.00	9.56	0.00	2.19	0.00	9.56	0.00
			3	0.00	0.00	8.40	0.00	2.19	0.00	8.40	0.00
			4	0.00	0.00	9.19	0.00	2.19	0.00	9.19	0.00
			2	2.19	0.00	9.56	0.00	6.06	0.00	9.56	0.00
			3	2.19	0.00	8.40	0.00	6.06	0.00	8.40	0.00
			4	2.19	0.00	9.19	0.00	6.06	0.00	9.19	0.00
			2	3.06	0.00	4.84	0.00	6.06	0.00	4.84	0.00
			3	3.06	0.00	4.25	0.00	6.06	0.00	4.25	0.00
			4	3.06	0.00	4.65	0.00	6.06	0.00	4.65	0.00
			2	0.00	0.00	7.97	0.00	3.06	0.00	7.97	0.00
			3	0.00	0.00	7.00	0.00	3.06	0.00	7.00	0.00
			4	0.00	0.00	7.66	0.00	3.06	0.00	7.66	0.00
32	132	4.10	1	0.00	3.75	0.00	0.00	4.10	3.75	0.00	0.00
124	125	3.25	1	0.00	0.00	3.75	0.00	3.25	0.00	3.75	0.00
			2	0.00	0.00	4.84	0.00	3.25	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	3.25	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	3.25	0.00	4.65	0.00
132	232	3.80	1	0.00	3.75	0.00	0.00	3.80	3.75	0.00	0.00
126	127	3.85	1	0.00	0.00	3.75	0.00	3.85	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.85	0.00	7.20	0.00
			2	1.35	0.00	4.84	0.00	3.85	0.00	4.84	0.00
			3	1.35	0.00	4.25	0.00	3.85	0.00	4.25	0.00
			4	1.35	0.00	4.65	0.00	3.85	0.00	4.65	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			2	0.00	0.00	4.84	0.00	1.35	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	1.35	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	1.35	0.00	4.65	0.00
232	332	0.50	1	0.00	3.75	0.00	0.00	0.50	3.75	0.00	0.00
128	129	2.95	1	0.00	0.00	3.75	0.00	2.95	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	2.95	0.00	7.20	0.00
			2	0.30	0.00	8.94	0.00	2.95	0.00	8.94	0.00
			3	0.30	0.00	7.85	0.00	2.95	0.00	7.85	0.00
			4	0.30	0.00	8.60	0.00	2.95	0.00	8.60	0.00
			2	0.00	0.00	8.94	0.00	0.30	0.00	8.94	0.00
			3	0.00	0.00	7.85	0.00	0.30	0.00	7.85	0.00
			4	0.00	0.00	8.59	0.00	0.30	0.00	8.59	0.00
33	133	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
129	130	2.90	1	0.00	0.00	3.75	0.00	2.90	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	2.90	0.00	7.20	0.00
			2	1.35	0.00	8.94	0.00	2.90	0.00	8.94	0.00
			3	1.35	0.00	7.85	0.00	2.90	0.00	7.85	0.00
			4	1.35	0.00	8.60	0.00	2.90	0.00	8.60	0.00
			2	0.00	0.00	8.94	0.00	1.35	0.00	8.94	0.00
			3	0.00	0.00	7.85	0.00	1.35	0.00	7.85	0.00
			4	0.00	0.00	8.60	0.00	1.35	0.00	8.60	0.00
133	233	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
134	135	3.90	1	0.00	0.00	4.50	0.00	3.90	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	3.90	0.00	7.20	0.00
			2	0.00	0.00	9.56	0.00	3.90	0.00	9.56	0.00
			3	0.00	0.00	8.40	0.00	3.90	0.00	8.40	0.00
			4	0.00	0.00	9.19	0.00	3.90	0.00	9.19	0.00
34	134	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
135	136	4.05	1	0.00	0.00	4.50	0.00	4.05	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.05	0.00	7.20	0.00
			2	1.86	0.00	9.56	0.00	4.05	0.00	9.56	0.00
			3	1.86	0.00	8.40	0.00	4.05	0.00	8.40	0.00
			4	1.86	0.00	9.20	0.00	4.05	0.00	9.20	0.00
			2	0.00	0.00	9.56	0.00	1.86	0.00	9.56	0.00
			3	0.00	0.00	8.40	0.00	1.86	0.00	8.40	0.00
			4	0.00	0.00	9.20	0.00	1.86	0.00	9.20	0.00
134	234	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
136	137	3.87	1	0.00	0.00	4.50	0.00	3.87	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	3.87	0.00	7.20	0.00
			2	0.00	0.00	9.56	0.00	3.87	0.00	9.56	0.00
			3	0.00	0.00	8.40	0.00	3.87	0.00	8.40	0.00
			4	0.00	0.00	9.19	0.00	3.87	0.00	9.19	0.00
35	135	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
144	145	3.16	1	0.00	0.00	3.75	0.00	3.16	0.00	3.75	0.00
			2	0.00	0.00	7.79	0.00	3.16	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	3.16	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	3.16	0.00	7.49	0.00
135	235	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
145	146	3.41	1	0.00	0.00	3.75	0.00	3.41	0.00	3.75	0.00
			2	0.00	0.00	7.79	0.00	1.15	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	1.15	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	1.15	0.00	7.49	0.00
			2	1.15	0.00	7.79	0.00	3.41	0.00	7.79	0.00
			3	1.15	0.00	6.84	0.00	3.41	0.00	6.84	0.00
			4	1.15	0.00	7.49	0.00	3.41	0.00	7.49	0.00
36	136	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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146	147	3.25	1	0.00	0.00	3.75	0.00	3.25	0.00	3.75	0.00
			2	0.00	0.00	7.79	0.00	3.25	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	3.25	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	3.25	0.00	7.49	0.00
136	236	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
147	148	4.95	1	0.00	0.00	3.75	0.00	4.95	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	4.95	0.00	7.20	0.00
			2	0.00	0.00	7.79	0.00	4.95	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	4.95	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	4.95	0.00	7.49	0.00
37	137	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
148	149	3.65	1	0.00	0.00	3.75	0.00	3.65	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.65	0.00	7.20	0.00
			2	0.00	0.00	7.79	0.00	1.60	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	1.60	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	1.60	0.00	7.49	0.00
			2	1.60	0.00	7.79	0.00	3.65	0.00	7.79	0.00
			3	1.60	0.00	6.84	0.00	3.65	0.00	6.84	0.00
			4	1.60	0.00	7.49	0.00	3.65	0.00	7.49	0.00
137	237	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
149	150	4.35	1	0.00	0.00	3.75	0.00	4.35	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	4.35	0.00	7.20	0.00
			2	0.00	0.00	7.79	0.00	4.35	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	4.35	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	4.35	0.00	7.49	0.00
38	138	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
151	152	5.68	1	0.00	0.00	3.75	0.00	5.68	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	5.68	0.00	7.20	0.00
			2	0.00	0.00	4.83	0.00	4.29	0.00	4.83	0.00
			3	0.00	0.00	4.24	0.00	4.29	0.00	4.24	0.00
			4	0.00	0.00	4.64	0.00	4.29	0.00	4.64	0.00
			2	4.29	0.00	4.83	0.00	5.68	0.00	4.83	0.00
			3	4.29	0.00	4.24	0.00	5.68	0.00	4.24	0.00
			4	4.29	0.00	4.64	0.00	5.68	0.00	4.64	0.00
138	238	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
153	154	4.29	1	0.00	0.00	6.00	0.00	4.29	0.00	6.00	0.00
			2	0.00	0.00	7.64	0.00	2.59	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	2.59	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	2.59	0.00	7.35	0.00
			2	2.59	0.00	7.64	0.00	4.29	0.00	7.64	0.00
			3	2.59	0.00	6.71	0.00	4.29	0.00	6.71	0.00
			4	2.59	0.00	7.35	0.00	4.29	0.00	7.35	0.00
			2	0.00	0.00	4.83	0.00	4.29	0.00	4.83	0.00
			3	0.00	0.00	4.24	0.00	4.29	0.00	4.24	0.00
			4	0.00	0.00	4.64	0.00	4.29	0.00	4.64	0.00
39	139	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
154	155	5.70	1	0.00	0.00	6.00	0.00	5.70	0.00	6.00	0.00
			2	0.00	0.00	7.64	0.00	2.47	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	2.47	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	2.47	0.00	7.35	0.00
			2	2.47	0.00	7.64	0.00	5.70	0.00	7.64	0.00
			3	2.47	0.00	6.71	0.00	5.70	0.00	6.71	0.00
			4	2.47	0.00	7.35	0.00	5.70	0.00	7.35	0.00
			2	4.55	0.00	7.79	0.00	5.70	0.00	7.79	0.00
			3	4.55	0.00	6.84	0.00	5.70	0.00	6.84	0.00
			4	4.55	0.00	7.49	0.00	5.70	0.00	7.49	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

VII Municipalità

14° C.D. Asilo nido Acquarola

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			2	1.39	0.00	7.79	0.00	4.55	0.00	7.79	0.00
			3	1.39	0.00	6.84	0.00	4.55	0.00	6.84	0.00
			4	1.39	0.00	7.49	0.00	4.55	0.00	7.49	0.00
			2	0.00	0.00	4.83	0.00	1.39	0.00	4.83	0.00
			3	0.00	0.00	4.24	0.00	1.39	0.00	4.24	0.00
			4	0.00	0.00	4.64	0.00	1.39	0.00	4.64	0.00
139	239	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
155	156	5.51	1	0.00	0.00	6.00	0.00	5.51	0.00	6.00	0.00
			2	0.00	0.00	7.64	0.00	1.47	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	1.47	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	1.47	0.00	7.35	0.00
			2	1.47	0.00	7.64	0.00	5.51	0.00	7.64	0.00
			3	1.47	0.00	6.71	0.00	5.51	0.00	6.71	0.00
			4	1.47	0.00	7.35	0.00	5.51	0.00	7.35	0.00
			2	2.26	0.00	7.79	0.00	5.51	0.00	7.79	0.00
			3	2.26	0.00	6.84	0.00	5.51	0.00	6.84	0.00
			4	2.26	0.00	7.49	0.00	5.51	0.00	7.49	0.00
			2	0.00	0.00	7.79	0.00	2.26	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	2.26	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	2.26	0.00	7.49	0.00
239	339	2.20	1	0.00	2.25	0.00	0.00	2.20	2.25	0.00	0.00
156	157	6.55	1	0.00	0.00	6.00	0.00	6.55	0.00	6.00	0.00
			2	0.00	0.00	7.64	0.00	5.91	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	5.91	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	5.91	0.00	7.35	0.00
			2	5.91	0.00	7.64	0.00	6.55	0.00	7.64	0.00
			3	5.91	0.00	6.71	0.00	6.55	0.00	6.71	0.00
			4	5.91	0.00	7.35	0.00	6.55	0.00	7.35	0.00
			2	4.95	0.00	7.79	0.00	6.55	0.00	7.79	0.00
			3	4.95	0.00	6.84	0.00	6.55	0.00	6.84	0.00
			4	4.95	0.00	7.49	0.00	6.55	0.00	7.49	0.00
			2	0.00	0.00	7.79	0.00	4.95	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	4.95	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	4.95	0.00	7.49	0.00
40	140	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
157	158	6.40	1	0.00	0.00	6.00	0.00	6.40	0.00	6.00	0.00
			2	0.00	0.00	7.64	0.00	2.91	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	2.91	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	2.91	0.00	7.35	0.00
			2	2.91	0.00	7.64	0.00	6.40	0.00	7.64	0.00
			3	2.91	0.00	6.71	0.00	6.40	0.00	6.71	0.00
			4	2.91	0.00	7.35	0.00	6.40	0.00	7.35	0.00
			2	2.05	0.00	7.79	0.00	6.40	0.00	7.79	0.00
			3	2.05	0.00	6.84	0.00	6.40	0.00	6.84	0.00
			4	2.05	0.00	7.49	0.00	6.40	0.00	7.49	0.00
			2	0.00	0.00	7.79	0.00	2.05	0.00	7.79	0.00
			3	0.00	0.00	6.84	0.00	2.05	0.00	6.84	0.00
			4	0.00	0.00	7.49	0.00	2.05	0.00	7.49	0.00
140	240	3.80	1	0.00	3.00	0.00	0.00	3.80	3.00	0.00	0.00
159	160	2.00	1	0.00	0.00	4.50	0.00	2.00	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	2.00	0.00	7.20	0.00
			2	0.00	0.00	5.69	0.00	2.00	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	2.00	0.00	5.00	0.00
			4	0.00	0.00	5.48	0.00	2.00	0.00	5.48	0.00
240	440	0.50	1	0.00	3.00	0.00	0.00	0.50	3.00	0.00	0.00
160	161	2.59	1	0.00	0.00	4.50	0.00	2.59	0.00	4.50	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

VII Municipalità

14° C.D. Asilo nido Acquarola

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			2	0.00	0.00	5.69	0.00	2.59	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	2.59	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	2.59	0.00	5.47	0.00
			2	0.00	0.00	7.64	0.00	2.59	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	2.59	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	2.59	0.00	7.35	0.00
440	340	2.20	1	0.00	3.00	0.00	0.00	2.20	3.00	0.00	0.00
161	162	4.17	1	0.00	0.00	4.50	0.00	4.17	0.00	4.50	0.00
			2	0.00	0.00	5.69	0.00	0.05	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	0.05	0.00	5.00	0.00
			4	0.00	0.00	5.48	0.00	0.05	0.00	5.48	0.00
			2	0.05	0.00	5.69	0.00	4.12	0.00	5.69	0.00
			3	0.05	0.00	5.00	0.00	4.12	0.00	5.00	0.00
			4	0.05	0.00	5.48	0.00	4.12	0.00	5.48	0.00
			2	4.12	0.00	5.69	0.00	4.17	0.00	5.69	0.00
			3	4.12	0.00	5.00	0.00	4.17	0.00	5.00	0.00
			4	4.12	0.00	5.47	0.00	4.17	0.00	5.47	0.00
			2	1.70	0.00	7.64	0.00	4.17	0.00	7.64	0.00
			3	1.70	0.00	6.71	0.00	4.17	0.00	6.71	0.00
			4	1.70	0.00	7.35	0.00	4.17	0.00	7.35	0.00
			2	0.00	0.00	7.64	0.00	1.70	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	1.70	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	1.70	0.00	7.35	0.00
41	141	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
162	163	4.70	1	0.00	0.00	4.50	0.00	4.70	0.00	4.50	0.00
			2	0.00	0.00	5.69	0.00	4.70	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	4.70	0.00	5.00	0.00
			4	0.00	0.00	5.48	0.00	4.70	0.00	5.48	0.00
			2	3.23	0.00	7.64	0.00	4.70	0.00	7.64	0.00
			3	3.23	0.00	6.71	0.00	4.70	0.00	6.71	0.00
			4	3.23	0.00	7.35	0.00	4.70	0.00	7.35	0.00
			2	0.00	0.00	7.64	0.00	3.23	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	3.23	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	3.23	0.00	7.35	0.00
141	241	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
163	164	4.04	1	0.00	0.00	4.50	0.00	4.04	0.00	4.50	0.00
			2	0.00	0.00	5.69	0.00	0.05	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	0.05	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	0.05	0.00	5.47	0.00
			2	0.05	0.00	5.69	0.00	2.23	0.00	5.69	0.00
			3	0.05	0.00	5.00	0.00	2.23	0.00	5.00	0.00
			4	0.05	0.00	5.47	0.00	2.23	0.00	5.47	0.00
			2	2.23	0.00	5.69	0.00	4.04	0.00	5.69	0.00
			3	2.23	0.00	5.00	0.00	4.04	0.00	5.00	0.00
			4	2.23	0.00	5.48	0.00	4.04	0.00	5.48	0.00
			2	0.00	0.00	7.64	0.00	4.04	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	4.04	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	4.04	0.00	7.35	0.00
241	341	2.20	1	0.00	2.25	0.00	0.00	2.20	2.25	0.00	0.00
164	165	5.91	1	0.00	0.00	4.50	0.00	5.91	0.00	4.50	0.00
			2	0.00	0.00	7.64	0.00	5.91	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	5.91	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	5.91	0.00	7.35	0.00
42	142	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
165	166	3.54	1	0.00	0.00	4.50	0.00	3.54	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	3.54	0.00	7.20	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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14° C.D. Asilo nido Acquarola

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			2	0.63	0.00	7.64	0.00	3.54	0.00	7.64	0.00
			3	0.63	0.00	6.71	0.00	3.54	0.00	6.71	0.00
			4	0.63	0.00	7.35	0.00	3.54	0.00	7.35	0.00
			2	0.00	0.00	7.64	0.00	0.63	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	0.63	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	0.63	0.00	7.35	0.00
142	242	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
166	167	3.50	1	0.00	0.00	4.50	0.00	3.50	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	3.50	0.00	7.20	0.00
			2	0.00	0.00	7.64	0.00	3.50	0.00	7.64	0.00
			3	0.00	0.00	6.71	0.00	3.50	0.00	6.71	0.00
			4	0.00	0.00	7.35	0.00	3.50	0.00	7.35	0.00
242	442	0.50	1	0.00	2.25	0.00	0.00	0.50	2.25	0.00	0.00
168	169	4.64	1	0.00	0.00	3.75	0.00	4.64	0.00	3.75	0.00
			2	0.00	0.00	5.69	0.00	4.49	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	4.49	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	4.49	0.00	5.47	0.00
			2	4.49	0.00	5.69	0.00	4.64	0.00	5.69	0.00
			3	4.49	0.00	5.00	0.00	4.64	0.00	5.00	0.00
			4	4.49	0.00	5.48	0.00	4.64	0.00	5.48	0.00
			2	4.59	0.00	5.69	0.00	4.64	0.00	5.69	0.00
			3	4.59	0.00	5.00	0.00	4.64	0.00	5.00	0.00
			4	4.59	0.00	5.48	0.00	4.64	0.00	5.48	0.00
			2	2.00	0.00	5.69	0.00	4.59	0.00	5.69	0.00
			3	2.00	0.00	5.00	0.00	4.59	0.00	5.00	0.00
			4	2.00	0.00	5.47	0.00	4.59	0.00	5.47	0.00
			2	0.00	0.00	5.69	0.00	2.00	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	2.00	0.00	5.00	0.00
			4	0.00	0.00	5.48	0.00	2.00	0.00	5.48	0.00
442	342	2.20	1	0.00	2.25	0.00	0.00	2.20	2.25	0.00	0.00
169	170	4.07	1	0.00	0.00	3.75	0.00	4.07	0.00	3.75	0.00
			2	0.00	0.00	5.69	0.00	4.07	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	4.07	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	4.07	0.00	5.47	0.00
			2	0.00	0.00	5.69	0.00	4.07	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	4.07	0.00	5.00	0.00
			4	0.00	0.00	5.48	0.00	4.07	0.00	5.48	0.00
43	143	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
170	171	4.80	1	0.00	0.00	3.75	0.00	4.80	0.00	3.75	0.00
			2	0.00	0.00	5.69	0.00	0.15	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	0.15	0.00	5.00	0.00
			4	0.00	0.00	5.48	0.00	0.15	0.00	5.48	0.00
			2	0.15	0.00	5.69	0.00	4.80	0.00	5.69	0.00
			3	0.15	0.00	5.00	0.00	4.80	0.00	5.00	0.00
			4	0.15	0.00	5.47	0.00	4.80	0.00	5.47	0.00
			2	4.75	0.00	5.69	0.00	4.80	0.00	5.69	0.00
			3	4.75	0.00	5.00	0.00	4.80	0.00	5.00	0.00
			4	4.75	0.00	5.47	0.00	4.80	0.00	5.47	0.00
			2	0.05	0.00	5.69	0.00	4.75	0.00	5.69	0.00
			3	0.05	0.00	5.00	0.00	4.75	0.00	5.00	0.00
			4	0.05	0.00	5.48	0.00	4.75	0.00	5.48	0.00
			2	0.00	0.00	5.69	0.00	0.05	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	0.05	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	0.05	0.00	5.47	0.00
143	243	3.80	1	0.00	2.25	0.00	0.00	3.80	2.25	0.00	0.00
171	172	2.18	1	0.00	0.00	3.75	0.00	2.18	0.00	3.75	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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14° C.D. Asilo nido Acquarola

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			2	0.00	0.00	5.69	0.00	2.18	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	2.18	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	2.18	0.00	5.47	0.00
			2	0.00	0.00	5.69	0.00	2.18	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	2.18	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	2.18	0.00	5.47	0.00
44	144	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
172	189	1.81	1	0.00	0.00	3.75	0.00	1.81	0.00	3.75	0.00
			2	0.00	0.00	5.69	0.00	1.81	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	1.81	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	1.81	0.00	5.47	0.00
			2	0.00	0.00	5.69	0.00	1.81	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	1.81	0.00	5.00	0.00
			4	0.00	0.00	5.48	0.00	1.81	0.00	5.48	0.00
144	244	4.30	1	0.00	4.50	0.00	0.00	4.30	4.50	0.00	0.00
173	174	5.91	1	0.00	0.00	6.00	0.00	5.91	0.00	6.00	0.00
			2	0.00	0.00	8.78	0.00	1.74	0.00	8.78	0.00
			3	0.00	0.00	7.71	0.00	1.74	0.00	7.71	0.00
			4	0.00	0.00	8.44	0.00	1.74	0.00	8.44	0.00
			2	1.74	0.00	8.78	0.00	5.91	0.00	8.78	0.00
			3	1.74	0.00	7.71	0.00	5.91	0.00	7.71	0.00
			4	1.74	0.00	8.45	0.00	5.91	0.00	8.45	0.00
			2	5.91	0.00	2.29	0.00	5.91	0.00	0.00	0.00
			3	5.91	0.00	2.01	0.00	5.91	0.00	0.00	0.00
			4	5.91	0.00	2.20	0.00	5.91	0.00	0.00	0.00
244	344	2.20	1	0.00	4.50	0.00	0.00	2.20	4.50	0.00	0.00
184	183	1.60	1	0.00	0.00	4.50	0.00	1.60	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	1.60	0.00	7.20	0.00
			2	0.00	0.00	6.67	0.00	0.00	0.00	6.67	0.00
			3	0.00	0.00	5.86	0.00	0.00	0.00	5.86	0.00
			4	0.00	0.00	6.41	0.00	0.00	0.00	6.41	0.00
			2	0.00	0.00	6.55	0.00	1.60	0.00	6.55	0.00
			3	0.00	0.00	5.75	0.00	1.60	0.00	5.75	0.00
			4	0.00	0.00	6.30	0.00	1.60	0.00	6.30	0.00
45	145	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
175	176	4.49	1	0.00	0.00	4.50	0.00	4.49	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.49	0.00	7.20	0.00
			2	0.00	0.00	5.69	0.00	4.49	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	4.49	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	4.49	0.00	5.47	0.00
145	245	4.30	1	0.00	4.50	0.00	0.00	4.30	4.50	0.00	0.00
176	177	4.37	1	0.00	0.00	4.50	0.00	4.37	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.37	0.00	7.20	0.00
			2	4.22	0.00	5.69	0.00	4.37	0.00	5.69	0.00
			3	4.22	0.00	5.00	0.00	4.37	0.00	5.00	0.00
			4	4.22	0.00	5.48	0.00	4.37	0.00	5.48	0.00
			2	0.15	0.00	5.69	0.00	4.22	0.00	5.69	0.00
			3	0.15	0.00	5.00	0.00	4.22	0.00	5.00	0.00
			4	0.15	0.00	5.47	0.00	4.22	0.00	5.47	0.00
			2	0.00	0.00	5.69	0.00	0.15	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	0.15	0.00	5.00	0.00
			4	0.00	0.00	5.48	0.00	0.15	0.00	5.48	0.00
245	345	2.20	1	0.00	4.50	0.00	0.00	2.20	4.50	0.00	0.00
177	178	4.65	1	0.00	0.00	4.50	0.00	4.65	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.65	0.00	7.20	0.00
			2	0.00	0.00	5.69	0.00	4.65	0.00	5.69	0.00

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			3	0.00	0.00	5.00	0.00	4.65	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	4.65	0.00	5.47	0.00
46	146	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
178	179	3.99	1	0.00	0.00	4.50	0.00	3.99	0.00	4.50	0.00
			2	0.00	0.00	4.84	0.00	3.99	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	3.99	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	3.99	0.00	4.65	0.00
			2	2.18	0.00	5.69	0.00	3.99	0.00	5.69	0.00
			3	2.18	0.00	5.00	0.00	3.99	0.00	5.00	0.00
			4	2.18	0.00	5.47	0.00	3.99	0.00	5.47	0.00
			2	0.00	0.00	5.69	0.00	2.18	0.00	5.69	0.00
			3	0.00	0.00	5.00	0.00	2.18	0.00	5.00	0.00
			4	0.00	0.00	5.47	0.00	2.18	0.00	5.47	0.00
146	246	3.80	1	0.00	4.50	0.00	0.00	3.80	4.50	0.00	0.00
180	181	5.73	1	0.00	0.00	6.00	0.00	5.73	0.00	6.00	0.00
			6	0.00	0.00	7.20	0.00	5.73	0.00	7.20	0.00
			2	3.99	0.00	8.78	0.00	5.73	0.00	8.78	0.00
			3	3.99	0.00	7.71	0.00	5.73	0.00	7.71	0.00
			4	3.99	0.00	8.44	0.00	5.73	0.00	8.44	0.00
			2	0.00	0.00	4.84	0.00	3.99	0.00	4.84	0.00
			3	0.00	0.00	4.25	0.00	3.99	0.00	4.25	0.00
			4	0.00	0.00	4.65	0.00	3.99	0.00	4.65	0.00
246	446	0.50	1	0.00	4.50	0.00	0.00	0.50	4.50	0.00	0.00
181	182	5.77	1	0.00	0.00	6.00	0.00	5.77	0.00	6.00	0.00
			6	0.00	0.00	7.20	0.00	5.77	0.00	7.20	0.00
			2	4.17	0.00	6.55	0.00	5.77	0.00	6.55	0.00
			3	4.17	0.00	5.75	0.00	5.77	0.00	5.75	0.00
			4	4.17	0.00	6.30	0.00	5.77	0.00	6.30	0.00
			2	4.17	0.00	6.67	0.00	4.17	0.00	6.67	0.00
			3	4.17	0.00	5.86	0.00	4.17	0.00	5.86	0.00
			4	4.17	0.00	6.41	0.00	4.17	0.00	6.41	0.00
			2	0.00	0.00	8.78	0.00	4.17	0.00	8.78	0.00
			3	0.00	0.00	7.71	0.00	4.17	0.00	7.71	0.00
			4	0.00	0.00	8.45	0.00	4.17	0.00	8.45	0.00
446	346	2.20	1	0.00	4.50	0.00	0.00	2.20	4.50	0.00	0.00
110	121	5.11	1	0.00	0.00	3.75	0.00	5.11	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	5.11	0.00	7.20	0.00
47	147	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
121	134	6.13	1	0.00	0.00	3.75	0.00	6.13	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	6.13	0.00	7.20	0.00
147	247	3.80	1	0.00	4.50	0.00	0.00	3.80	4.50	0.00	0.00
159	168	3.65	1	0.00	0.00	3.75	0.00	3.65	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.65	0.00	7.20	0.00
247	347	0.50	1	0.00	4.50	0.00	0.00	0.50	4.50	0.00	0.00
168	175	3.65	1	0.00	0.00	3.75	0.00	3.65	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.65	0.00	7.20	0.00
48	148	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
151	153	3.09	1	0.00	0.00	3.75	0.00	3.09	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.09	0.00	7.20	0.00
148	248	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
153	160	4.90	1	0.00	0.00	3.75	0.00	4.90	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	4.90	0.00	7.20	0.00
49	149	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
104	112	2.02	1	0.00	0.00	4.50	0.00	2.02	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	2.02	0.00	7.20	0.00
149	249	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00

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112	113	2.01	1	0.00	0.00	3.75	0.00	2.01	0.00	3.75	0.00
50	150	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
123	131	3.13	1	0.00	0.00	3.75	0.00	3.13	0.00	3.75	0.00
			2	0.00	0.00	10.25	0.00	3.13	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	3.13	0.00	9.00	0.00
			4	0.00	0.00	9.86	0.00	3.13	0.00	9.86	0.00
150	250	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
131	137	3.00	1	0.00	0.00	3.75	0.00	3.00	0.00	3.75	0.00
			2	1.17	0.00	10.25	0.00	3.00	0.00	10.25	0.00
			3	1.17	0.00	9.00	0.00	3.00	0.00	9.00	0.00
			4	1.17	0.00	9.85	0.00	3.00	0.00	9.85	0.00
			2	0.00	0.00	10.25	0.00	1.17	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	1.17	0.00	9.00	0.00
			4	0.00	0.00	9.85	0.00	1.17	0.00	9.85	0.00
51	151	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
137	139	2.85	1	0.00	0.00	3.75	0.00	2.85	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	2.85	0.00	7.20	0.00
			2	0.00	0.00	10.25	0.00	2.85	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	2.85	0.00	9.00	0.00
			4	0.00	0.00	9.86	0.00	2.85	0.00	9.86	0.00
151	251	4.30	1	0.00	4.50	0.00	0.00	4.30	4.50	0.00	0.00
139	141	2.53	1	0.00	0.00	3.75	0.00	2.53	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	2.53	0.00	7.20	0.00
			2	0.00	0.00	10.25	0.00	2.53	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	2.53	0.00	9.00	0.00
			4	0.00	0.00	9.85	0.00	2.53	0.00	9.85	0.00
52	152	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
141	144	3.30	1	0.00	0.00	3.75	0.00	3.30	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.30	0.00	7.20	0.00
			2	0.29	0.00	10.25	0.00	3.30	0.00	10.25	0.00
			3	0.29	0.00	9.00	0.00	3.30	0.00	9.00	0.00
			4	0.29	0.00	9.85	0.00	3.30	0.00	9.85	0.00
			2	0.00	0.00	10.25	0.00	0.29	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	0.29	0.00	9.00	0.00
			4	0.00	0.00	9.86	0.00	0.29	0.00	9.86	0.00
152	252	4.30	1	0.00	4.50	0.00	0.00	4.30	4.50	0.00	0.00
144	152	1.90	1	0.00	0.00	3.75	0.00	1.90	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	1.90	0.00	7.20	0.00
53	153	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
101	106	5.26	1	0.00	0.00	3.75	0.00	5.26	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	5.26	0.00	7.20	0.00
			2	0.00	0.00	7.21	0.00	5.26	0.00	7.21	0.00
			3	0.00	0.00	6.33	0.00	5.26	0.00	6.33	0.00
			4	0.00	0.00	6.93	0.00	5.26	0.00	6.93	0.00
153	253	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
178	180	3.10	1	0.00	0.00	3.75	0.00	3.10	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.10	0.00	7.20	0.00
54	154	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
124	132	4.30	1	0.00	0.00	4.50	0.00	4.30	0.00	4.50	0.00
			2	0.00	0.00	10.25	0.00	3.13	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	3.13	0.00	9.00	0.00
			4	0.00	0.00	9.86	0.00	3.13	0.00	9.86	0.00
			2	3.13	0.00	10.25	0.00	4.30	0.00	10.25	0.00
			3	3.13	0.00	9.00	0.00	4.30	0.00	9.00	0.00
			4	3.13	0.00	9.85	0.00	4.30	0.00	9.85	0.00
			2	3.90	0.00	5.07	0.00	4.30	0.00	5.07	0.00

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			3	3.90	0.00	4.45	0.00	4.30	0.00	4.45	0.00
			4	3.90	0.00	4.87	0.00	4.30	0.00	4.87	0.00
			2	0.00	0.00	5.07	0.00	3.90	0.00	5.07	0.00
			3	0.00	0.00	4.45	0.00	3.90	0.00	4.45	0.00
			4	0.00	0.00	4.88	0.00	3.90	0.00	4.88	0.00
55	155	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
132	140	4.68	1	0.00	0.00	4.50	0.00	4.68	0.00	4.50	0.00
			2	0.00	0.00	10.25	0.00	1.83	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	1.83	0.00	9.00	0.00
			4	0.00	0.00	9.85	0.00	1.83	0.00	9.85	0.00
			2	1.83	0.00	10.25	0.00	4.68	0.00	10.25	0.00
			3	1.83	0.00	9.00	0.00	4.68	0.00	9.00	0.00
			4	1.83	0.00	9.86	0.00	4.68	0.00	9.86	0.00
			2	3.37	0.00	5.07	0.00	4.68	0.00	5.07	0.00
			3	3.37	0.00	4.45	0.00	4.68	0.00	4.45	0.00
			4	3.37	0.00	4.87	0.00	4.68	0.00	4.87	0.00
			2	0.00	0.00	5.07	0.00	3.37	0.00	5.07	0.00
			3	0.00	0.00	4.45	0.00	3.37	0.00	4.45	0.00
			4	0.00	0.00	4.88	0.00	3.37	0.00	4.88	0.00
56	156	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
140	142	2.82	1	0.00	0.00	4.50	0.00	2.82	0.00	4.50	0.00
			2	0.00	0.00	10.25	0.00	2.53	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	2.53	0.00	9.00	0.00
			4	0.00	0.00	9.85	0.00	2.53	0.00	9.85	0.00
			2	2.53	0.00	10.25	0.00	2.82	0.00	10.25	0.00
			3	2.53	0.00	9.00	0.00	2.82	0.00	9.00	0.00
			4	2.53	0.00	9.86	0.00	2.82	0.00	9.86	0.00
			2	2.52	0.00	5.07	0.00	2.82	0.00	5.07	0.00
			3	2.52	0.00	4.45	0.00	2.82	0.00	4.45	0.00
			4	2.52	0.00	4.87	0.00	2.82	0.00	4.87	0.00
			2	0.00	0.00	5.07	0.00	2.52	0.00	5.07	0.00
			3	0.00	0.00	4.45	0.00	2.52	0.00	4.45	0.00
			4	0.00	0.00	4.88	0.00	2.52	0.00	4.88	0.00
156	256	4.30	1	0.00	3.00	0.00	0.00	4.30	3.00	0.00	0.00
142	146	3.01	1	0.00	0.00	4.50	0.00	3.01	0.00	4.50	0.00
			2	0.00	0.00	10.25	0.00	3.01	0.00	10.25	0.00
			3	0.00	0.00	9.00	0.00	3.01	0.00	9.00	0.00
			4	0.00	0.00	9.85	0.00	3.01	0.00	9.85	0.00
			2	0.00	0.00	5.07	0.00	3.01	0.00	5.07	0.00
			3	0.00	0.00	4.45	0.00	3.01	0.00	4.45	0.00
			4	0.00	0.00	4.87	0.00	3.01	0.00	4.87	0.00
57	157	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
125	133	3.90	1	0.00	0.00	3.75	0.00	3.90	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.90	0.00	7.20	0.00
			2	0.00	0.00	5.07	0.00	3.90	0.00	5.07	0.00
			3	0.00	0.00	4.45	0.00	3.90	0.00	4.45	0.00
			4	0.00	0.00	4.88	0.00	3.90	0.00	4.88	0.00
157	257	4.30	1	0.00	3.75	0.00	0.00	4.30	3.75	0.00	0.00
133	138	3.77	1	0.00	0.00	3.75	0.00	3.77	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.77	0.00	7.20	0.00
			2	0.00	0.00	5.07	0.00	0.40	0.00	5.07	0.00
			3	0.00	0.00	4.45	0.00	0.40	0.00	4.45	0.00
			4	0.00	0.00	4.87	0.00	0.40	0.00	4.87	0.00
			2	0.40	0.00	5.07	0.00	3.77	0.00	5.07	0.00
			3	0.40	0.00	4.45	0.00	3.77	0.00	4.45	0.00
			4	0.40	0.00	4.88	0.00	3.77	0.00	4.88	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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58	158	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
138	143	3.83	1	0.00	0.00	3.75	0.00	3.83	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.83	0.00	7.20	0.00
			2	0.00	0.00	5.07	0.00	1.31	0.00	5.07	0.00
			3	0.00	0.00	4.45	0.00	1.31	0.00	4.45	0.00
			4	0.00	0.00	4.87	0.00	1.31	0.00	4.87	0.00
			2	1.31	0.00	5.07	0.00	3.83	0.00	5.07	0.00
			3	1.31	0.00	4.45	0.00	3.83	0.00	4.45	0.00
			4	1.31	0.00	4.88	0.00	3.83	0.00	4.88	0.00
158	258	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
143	147	3.31	1	0.00	0.00	3.75	0.00	3.31	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	3.31	0.00	7.20	0.00
			2	0.00	0.00	5.07	0.00	0.30	0.00	5.07	0.00
			3	0.00	0.00	4.45	0.00	0.30	0.00	4.45	0.00
			4	0.00	0.00	4.87	0.00	0.30	0.00	4.87	0.00
			2	0.30	0.00	5.07	0.00	3.31	0.00	5.07	0.00
			3	0.30	0.00	4.45	0.00	3.31	0.00	4.45	0.00
			4	0.30	0.00	4.87	0.00	3.31	0.00	4.87	0.00
59	159	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
164	189	3.65	1	0.00	0.00	4.50	0.00	3.65	0.00	4.50	0.00
			2	0.00	0.00	9.22	0.00	3.65	0.00	9.22	0.00
			3	0.00	0.00	8.10	0.00	3.65	0.00	8.10	0.00
			4	0.00	0.00	8.86	0.00	3.65	0.00	8.86	0.00
159	259	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
189	173	1.12	1	0.00	0.00	4.50	0.00	1.12	0.00	4.50	0.00
			2	0.00	0.00	9.22	0.00	1.12	0.00	9.22	0.00
			3	0.00	0.00	8.10	0.00	1.12	0.00	8.10	0.00
			4	0.00	0.00	8.87	0.00	1.12	0.00	8.87	0.00
60	160	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
173	179	2.53	1	0.00	0.00	4.50	0.00	2.53	0.00	4.50	0.00
160	260	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
102	107	5.26	1	0.00	0.00	3.75	0.00	5.26	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	5.26	0.00	7.20	0.00
			2	0.00	0.00	7.21	0.00	5.26	0.00	7.21	0.00
			3	0.00	0.00	6.33	0.00	5.26	0.00	6.33	0.00
			4	0.00	0.00	6.93	0.00	5.26	0.00	6.93	0.00
61	161	4.10	1	0.00	3.75	0.00	0.00	4.10	3.75	0.00	0.00
165	174	4.77	1	0.00	0.00	4.50	0.00	4.77	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	4.77	0.00	7.20	0.00
			2	0.00	0.00	9.22	0.00	3.65	0.00	9.22	0.00
			3	0.00	0.00	8.10	0.00	3.65	0.00	8.10	0.00
			4	0.00	0.00	8.86	0.00	3.65	0.00	8.86	0.00
			2	3.65	0.00	9.22	0.00	4.77	0.00	9.22	0.00
			3	3.65	0.00	8.10	0.00	4.77	0.00	8.10	0.00
			4	3.65	0.00	8.87	0.00	4.77	0.00	8.87	0.00
161	261	4.30	1	0.00	3.00	0.00	0.00	4.30	3.00	0.00	0.00
174	184	1.43	1	0.00	0.00	4.50	0.00	1.43	0.00	4.50	0.00
			6	0.00	0.00	7.20	0.00	1.43	0.00	7.20	0.00
			2	0.00	0.00	0.00	0.00	1.43	0.00	0.00	0.00
			3	0.00	0.00	0.00	0.00	1.43	0.00	0.00	0.00
			4	0.00	0.00	0.00	0.00	1.43	0.00	0.00	0.00
62	162	4.10	1	0.00	3.75	0.00	0.00	4.10	3.75	0.00	0.00
127	128	2.63	1	0.00	0.00	3.75	0.00	2.63	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	2.63	0.00	7.20	0.00
162	262	4.30	1	0.00	3.00	0.00	0.00	4.30	3.00	0.00	0.00
183	182	4.20	1	0.00	0.00	4.50	0.00	4.20	0.00	4.50	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			6	0.00	0.00	7.20	0.00	4.20	0.00	7.20	0.00
63	163	4.10	1	0.00	3.75	0.00	0.00	4.10	3.75	0.00	0.00
109	119	4.03	1	0.00	0.00	3.75	0.00	4.03	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	4.03	0.00	7.20	0.00
163	263	4.30	1	0.00	3.00	0.00	0.00	4.30	3.00	0.00	0.00
120	130	5.73	1	0.00	0.00	3.75	0.00	5.73	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	5.73	0.00	7.20	0.00
64	164	4.10	1	0.00	3.75	0.00	0.00	4.10	3.75	0.00	0.00
150	158	4.99	1	0.00	0.00	3.75	0.00	4.99	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	4.99	0.00	7.20	0.00
164	264	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
158	167	4.90	1	0.00	0.00	3.75	0.00	4.90	0.00	3.75	0.00
			6	0.00	0.00	7.20	0.00	4.90	0.00	7.20	0.00
65	165	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
219	220	1.55	1	0.00	0.00	5.25	0.00	1.55	0.00	5.25	0.00
			2	0.00	0.00	13.47	0.00	1.55	0.00	13.47	0.00
			3	0.00	0.00	7.85	0.00	1.55	0.00	7.85	0.00
			4	0.00	0.00	1.43	0.00	1.55	0.00	1.43	0.00
165	265	4.30	1	0.00	3.00	0.00	0.00	4.30	3.00	0.00	0.00
228	229	2.95	1	0.00	0.00	5.25	0.00	2.95	0.00	5.25	0.00
			2	0.30	0.00	13.47	0.00	2.95	0.00	13.47	0.00
			3	0.30	0.00	7.85	0.00	2.95	0.00	7.85	0.00
			4	0.30	0.00	1.43	0.00	2.95	0.00	1.43	0.00
			2	0.00	0.00	13.47	0.00	0.30	0.00	13.47	0.00
			3	0.00	0.00	7.85	0.00	0.30	0.00	7.85	0.00
			4	0.00	0.00	1.43	0.00	0.30	0.00	1.43	0.00
66	166	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
229	230	2.90	1	0.00	0.00	5.25	0.00	2.90	0.00	5.25	0.00
			2	1.35	0.00	13.47	0.00	2.90	0.00	13.47	0.00
			3	1.35	0.00	7.85	0.00	2.90	0.00	7.85	0.00
			4	1.35	0.00	1.43	0.00	2.90	0.00	1.43	0.00
			2	0.00	0.00	13.47	0.00	1.35	0.00	13.47	0.00
			3	0.00	0.00	7.85	0.00	1.35	0.00	7.85	0.00
			4	0.00	0.00	1.43	0.00	1.35	0.00	1.43	0.00
166	266	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
201	202	4.62	1	0.00	0.00	5.25	0.00	4.62	0.00	5.25	0.00
67	167	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
204	205	4.27	1	0.00	0.00	5.25	0.00	4.27	0.00	5.25	0.00
			2	0.00	-0.00	9.47	0.00	3.00	-0.00	9.47	0.00
			3	0.00	0.00	5.52	0.00	3.00	0.00	5.52	0.00
			4	0.00	-0.00	1.01	0.00	3.00	-0.00	1.01	0.00
			2	3.00	-0.00	9.47	0.00	3.40	-0.00	9.47	0.00
			3	3.00	0.00	5.52	0.00	3.40	0.00	5.52	0.00
			4	3.00	0.00	1.01	0.00	3.40	0.00	1.01	0.00
			2	3.40	0.00	9.47	0.00	4.27	0.00	9.47	0.00
			3	3.40	0.00	5.52	0.00	4.27	0.00	5.52	0.00
			4	3.40	0.00	1.01	0.00	4.27	0.00	1.01	0.00
167	267	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
205	206	4.63	1	0.00	0.00	5.25	0.00	4.63	0.00	5.25	0.00
			2	0.00	-0.00	9.47	0.00	4.63	-0.00	9.47	0.00
			3	0.00	0.00	5.52	0.00	4.63	0.00	5.52	0.00
			4	0.00	0.00	1.01	0.00	4.63	0.00	1.01	0.00
68	168	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
207	208	5.40	1	0.00	0.00	5.25	0.00	5.40	0.00	5.25	0.00
			2	0.00	0.00	9.47	0.00	3.90	0.00	9.47	0.00
			3	0.00	0.00	5.52	0.00	3.90	0.00	5.52	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			4	0.00	0.00	1.01	0.00	3.90	0.00	1.01	0.00
			2	3.90	0.00	9.47	0.00	5.40	0.00	9.47	0.00
			3	3.90	0.00	5.52	0.00	5.40	0.00	5.52	0.00
			4	3.90	0.00	1.01	0.00	5.40	0.00	1.01	0.00
168	268	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
208	209	5.30	1	0.00	0.00	5.25	0.00	5.30	0.00	5.25	0.00
			2	0.00	0.00	9.47	0.00	1.00	0.00	9.47	0.00
			3	0.00	0.00	5.52	0.00	1.00	0.00	5.52	0.00
			4	0.00	0.00	1.01	0.00	1.00	0.00	1.01	0.00
			2	1.00	0.00	9.47	0.00	1.30	0.00	9.47	0.00
			3	1.00	0.00	5.52	0.00	1.30	0.00	5.52	0.00
			4	1.00	0.00	1.01	0.00	1.30	0.00	1.01	0.00
			2	1.30	0.00	9.47	0.00	5.30	0.00	9.47	0.00
			3	1.30	0.00	5.52	0.00	5.30	0.00	5.52	0.00
			4	1.30	0.00	1.01	0.00	5.30	0.00	1.01	0.00
69	169	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
214	215	5.50	1	0.00	-0.00	3.75	0.00	5.50	-0.00	3.75	0.00
			2	0.87	-0.00	9.47	0.00	5.50	-0.00	9.47	0.00
			3	0.87	-0.00	5.52	0.00	5.50	-0.00	5.52	0.00
			4	0.87	-0.00	1.01	0.00	5.50	-0.00	1.01	0.00
			2	0.00	-0.00	9.47	0.00	0.87	-0.00	9.47	0.00
			3	0.00	-0.00	5.52	0.00	0.87	-0.00	5.52	0.00
			4	0.00	-0.00	1.01	0.00	0.87	-0.00	1.01	0.00
			2	0.00	-0.00	7.29	0.00	5.50	-0.00	7.29	0.00
			3	0.00	-0.00	4.25	0.00	5.50	-0.00	4.25	0.00
			4	0.00	-0.00	0.78	0.00	5.50	-0.00	0.78	0.00
70	170	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
216	217	3.90	1	0.00	0.00	5.25	0.00	3.90	0.00	5.25	0.00
			2	0.00	0.00	7.28	0.00	2.55	0.00	7.28	0.00
			3	0.00	0.00	4.25	0.00	2.55	0.00	4.25	0.00
			4	0.00	0.00	0.77	0.00	2.55	0.00	0.77	0.00
			2	2.55	0.00	7.29	0.00	3.90	0.00	7.29	0.00
			3	2.55	0.00	4.25	0.00	3.90	0.00	4.25	0.00
			4	2.55	0.00	0.78	0.00	3.90	0.00	0.78	0.00
			2	0.00	0.00	9.47	0.00	3.90	0.00	9.47	0.00
			3	0.00	0.00	5.52	0.00	3.90	0.00	5.52	0.00
			4	0.00	0.00	1.01	0.00	3.90	0.00	1.01	0.00
71	171	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
217	203	2.50	1	0.00	0.00	5.25	0.00	2.50	0.00	5.25	0.00
			2	0.00	0.00	7.28	0.00	2.50	0.00	7.28	0.00
			3	0.00	0.00	4.25	0.00	2.50	0.00	4.25	0.00
			4	0.00	0.00	0.77	0.00	2.50	0.00	0.77	0.00
			2	1.50	0.00	9.47	0.00	2.50	0.00	9.47	0.00
			3	1.50	0.00	5.52	0.00	2.50	0.00	5.52	0.00
			4	1.50	0.00	1.01	0.00	2.50	0.00	1.01	0.00
			2	0.00	0.00	9.47	0.00	1.50	0.00	9.47	0.00
			3	0.00	0.00	5.52	0.00	1.50	0.00	5.52	0.00
			4	0.00	0.00	1.01	0.00	1.50	0.00	1.01	0.00
72	172	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
203	318	0.30	1	0.00	0.00	5.25	0.00	0.30	0.00	5.25	0.00
			2	0.00	0.00	9.47	0.00	0.30	0.00	9.47	0.00
			3	0.00	0.00	5.52	0.00	0.30	0.00	5.52	0.00
			4	0.00	0.00	1.01	0.00	0.30	0.00	1.01	0.00
73	173	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
318	319	4.00	1	0.00	0.00	5.25	0.00	4.00	0.00	5.25	0.00
			2	0.00	0.00	9.47	0.00	4.00	0.00	9.47	0.00

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			3	0.00	0.00	5.52	0.00	4.00	0.00	5.52	0.00
			4	0.00	0.00	1.01	0.00	4.00	0.00	1.01	0.00
173	273	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
288	226	2.55	1	0.00	0.00	5.25	0.00	2.55	0.00	5.25	0.00
			2	0.00	0.00	7.28	0.00	2.55	0.00	7.28	0.00
			3	0.00	0.00	4.25	0.00	2.55	0.00	4.25	0.00
			4	0.00	0.00	0.77	0.00	2.55	0.00	0.77	0.00
74	174	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
226	327	3.85	1	0.00	0.00	5.25	0.00	3.85	0.00	5.25	0.00
			2	1.35	0.00	7.28	0.00	3.85	0.00	7.28	0.00
			3	1.35	0.00	4.25	0.00	3.85	0.00	4.25	0.00
			4	1.35	0.00	0.77	0.00	3.85	0.00	0.77	0.00
			2	0.00	0.00	7.29	0.00	1.35	0.00	7.29	0.00
			3	0.00	0.00	4.25	0.00	1.35	0.00	4.25	0.00
			4	0.00	0.00	0.78	0.00	1.35	0.00	0.78	0.00
174	274	4.30	1	0.00	3.00	0.00	0.00	4.30	3.00	0.00	0.00
306	307	4.62	1	0.00	0.00	4.50	0.00	4.62	0.00	4.50	0.00
75	175	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
210	211	4.07	1	0.00	0.00	5.25	0.00	4.07	0.00	5.25	0.00
			2	0.00	0.00	12.01	0.00	4.07	0.00	12.01	0.00
			3	0.00	0.00	7.00	0.00	4.07	0.00	7.00	0.00
			4	0.00	0.00	1.28	0.00	4.07	0.00	1.28	0.00
175	275	4.30	1	0.00	4.50	0.00	0.00	4.30	4.50	0.00	0.00
211	312	4.75	1	0.00	0.00	5.25	0.00	4.75	0.00	5.25	0.00
			2	0.00	0.00	12.01	0.00	1.69	0.00	12.01	0.00
			3	0.00	0.00	7.00	0.00	1.69	0.00	7.00	0.00
			4	0.00	0.00	1.28	0.00	1.69	0.00	1.28	0.00
			2	1.69	0.00	12.01	0.00	4.75	0.00	12.01	0.00
			3	1.69	0.00	7.00	0.00	4.75	0.00	7.00	0.00
			4	1.69	0.00	1.28	0.00	4.75	0.00	1.28	0.00
76	176	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
313	254	3.00	1	0.00	0.00	5.25	0.00	3.00	0.00	5.25	0.00
			2	0.00	0.00	7.29	0.00	3.00	0.00	7.29	0.00
			3	0.00	0.00	4.25	0.00	3.00	0.00	4.25	0.00
			4	0.00	0.00	0.78	0.00	3.00	0.00	0.78	0.00
176	276	4.30	1	0.00	4.50	0.00	0.00	4.30	4.50	0.00	0.00
254	314	0.40	1	0.00	0.00	5.25	0.00	0.40	0.00	5.25	0.00
77	177	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
221	222	5.76	1	0.00	0.00	5.25	0.00	5.76	0.00	5.25	0.00
			2	4.07	0.00	12.01	0.00	5.76	0.00	12.01	0.00
			3	4.07	0.00	7.00	0.00	5.76	0.00	7.00	0.00
			4	4.07	0.00	1.28	0.00	5.76	0.00	1.28	0.00
			2	0.00	0.00	12.01	0.00	4.07	0.00	12.01	0.00
			3	0.00	0.00	7.00	0.00	4.07	0.00	7.00	0.00
			4	0.00	0.00	1.28	0.00	4.07	0.00	1.28	0.00
			2	0.00	0.00	14.41	0.00	3.90	0.00	14.41	0.00
			3	0.00	0.00	8.40	0.00	3.90	0.00	8.40	0.00
			4	0.00	0.00	1.53	0.00	3.90	0.00	1.53	0.00
			2	3.90	0.00	14.41	0.00	5.76	0.00	14.41	0.00
			3	3.90	0.00	8.40	0.00	5.76	0.00	8.40	0.00
			4	3.90	0.00	1.53	0.00	5.76	0.00	1.53	0.00
177	277	4.30	1	0.00	4.50	0.00	0.00	4.30	4.50	0.00	0.00
222	323	6.06	1	0.00	0.00	5.25	0.00	6.06	0.00	5.25	0.00
			2	3.06	0.00	7.29	0.00	6.06	0.00	7.29	0.00
			3	3.06	0.00	4.25	0.00	6.06	0.00	4.25	0.00
			4	3.06	0.00	0.78	0.00	6.06	0.00	0.78	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			2	0.00	0.00	12.01	0.00	3.06	0.00	12.01	0.00
			3	0.00	0.00	7.00	0.00	3.06	0.00	7.00	0.00
			4	0.00	0.00	1.28	0.00	3.06	0.00	1.28	0.00
			2	0.00	0.00	14.41	0.00	2.19	0.00	14.41	0.00
			3	0.00	0.00	8.40	0.00	2.19	0.00	8.40	0.00
			4	0.00	0.00	1.53	0.00	2.19	0.00	1.53	0.00
			2	2.19	0.00	14.41	0.00	6.06	0.00	14.41	0.00
			3	2.19	0.00	8.40	0.00	6.06	0.00	8.40	0.00
			4	2.19	0.00	1.53	0.00	6.06	0.00	1.53	0.00
78	178	4.10	1	0.00	4.50	0.00	0.00	4.10	4.50	0.00	0.00
323	255	5.90	1	0.00	0.00	5.25	0.00	5.90	0.00	5.25	0.00
178	278	4.30	1	0.00	4.50	0.00	0.00	4.30	4.50	0.00	0.00
255	324	0.67	1	0.00	0.00	5.25	0.00	0.67	0.00	5.25	0.00
79	179	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
179	279	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
325	269	0.70	1	0.00	0.00	5.25	0.00	0.70	0.00	5.25	0.00
80	180	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
234	235	3.90	1	0.00	0.00	5.25	0.00	3.90	0.00	5.25	0.00
			2	0.00	0.00	14.41	0.00	3.90	0.00	14.41	0.00
			3	0.00	0.00	8.40	0.00	3.90	0.00	8.40	0.00
			4	0.00	0.00	1.53	0.00	3.90	0.00	1.53	0.00
180	280	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
235	236	4.05	1	0.00	0.00	5.25	0.00	4.05	0.00	5.25	0.00
			2	1.86	0.00	14.41	0.00	4.05	0.00	14.41	0.00
			3	1.86	0.00	8.40	0.00	4.05	0.00	8.40	0.00
			4	1.86	0.00	1.53	0.00	4.05	0.00	1.53	0.00
			2	0.00	0.00	14.41	0.00	1.86	0.00	14.41	0.00
			3	0.00	0.00	8.40	0.00	1.86	0.00	8.40	0.00
			4	0.00	0.00	1.53	0.00	1.86	0.00	1.53	0.00
81	181	4.10	1	0.00	3.00	0.00	0.00	4.10	3.00	0.00	0.00
236	237	3.87	1	0.00	0.00	5.25	0.00	3.87	0.00	5.25	0.00
			2	0.00	0.00	14.41	0.00	3.87	0.00	14.41	0.00
			3	0.00	0.00	8.40	0.00	3.87	0.00	8.40	0.00
			4	0.00	0.00	1.53	0.00	3.87	0.00	1.53	0.00
181	281	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
239	440	6.57	1	0.00	0.00	5.25	0.00	6.57	0.00	5.25	0.00
			6	0.00	0.00	4.00	0.00	6.57	0.00	4.00	0.00
82	182	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00
244	245	3.16	1	0.00	0.00	5.25	0.00	3.16	0.00	5.25	0.00
			6	0.00	0.00	4.00	0.00	3.16	0.00	4.00	0.00
			2	0.00	0.00	23.25	0.00	1.08	0.00	23.25	0.00
			3	0.00	0.00	13.56	0.00	1.08	0.00	13.56	0.00
			4	0.00	0.00	2.47	0.00	1.08	0.00	2.47	0.00
			2	1.08	0.00	23.25	0.00	3.16	0.00	23.25	0.00
			3	1.08	0.00	13.56	0.00	3.16	0.00	13.56	0.00
			4	1.08	0.00	2.47	0.00	3.16	0.00	2.47	0.00
182	282	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
245	446	3.41	1	0.00	0.00	5.25	0.00	3.41	0.00	5.25	0.00
			6	0.00	0.00	4.00	0.00	3.41	0.00	4.00	0.00
			2	0.00	0.00	23.25	0.00	2.62	0.00	23.25	0.00
			3	0.00	0.00	13.56	0.00	2.62	0.00	13.56	0.00
			4	0.00	0.00	2.47	0.00	2.62	0.00	2.47	0.00
			2	2.62	0.00	23.25	0.00	3.41	0.00	23.25	0.00
			3	2.62	0.00	13.56	0.00	3.41	0.00	13.56	0.00
			4	2.62	0.00	2.47	0.00	3.41	0.00	2.47	0.00
83	183	4.10	1	0.00	2.25	0.00	0.00	4.10	2.25	0.00	0.00

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446	347	3.25	1	0.00	0.00	4.50	0.00	3.25	0.00	4.50	0.00
			2	0.00	0.00	23.25	0.00	3.25	0.00	23.25	0.00
			3	0.00	0.00	13.56	0.00	3.25	0.00	13.56	0.00
			4	0.00	0.00	2.47	0.00	3.25	0.00	2.47	0.00
183	283	4.30	1	0.00	2.25	0.00	0.00	4.30	2.25	0.00	0.00
347	248	4.95	1	0.00	0.00	4.50	0.00	4.95	0.00	4.50	0.00
			2	0.00	0.00	11.74	0.00	4.95	0.00	11.74	0.00
			3	0.00	0.00	6.84	0.00	4.95	0.00	6.84	0.00
			4	0.00	0.00	1.25	0.00	4.95	0.00	1.25	0.00
248	249	3.65	1	0.00	0.00	4.50	0.00	3.65	0.00	4.50	0.00
			2	0.00	0.00	11.74	0.00	1.60	0.00	11.74	0.00
			3	0.00	0.00	6.84	0.00	1.60	0.00	6.84	0.00
			4	0.00	0.00	1.25	0.00	1.60	0.00	1.25	0.00
			2	1.60	0.00	11.74	0.00	3.65	0.00	11.74	0.00
			3	1.60	0.00	6.84	0.00	3.65	0.00	6.84	0.00
			4	1.60	0.00	1.25	0.00	3.65	0.00	1.25	0.00
249	250	4.35	1	0.00	0.00	4.50	0.00	4.35	0.00	4.50	0.00
			2	0.00	0.00	11.74	0.00	4.35	0.00	11.74	0.00
			3	0.00	0.00	6.84	0.00	4.35	0.00	6.84	0.00
			4	0.00	0.00	1.25	0.00	4.35	0.00	1.25	0.00
251	252	5.68	1	0.00	0.00	4.50	0.00	5.68	0.00	4.50	0.00
			2	0.00	0.00	18.79	0.00	2.59	0.00	18.79	0.00
			3	0.00	0.00	10.95	0.00	2.59	0.00	10.95	0.00
			4	0.00	0.00	2.00	0.00	2.59	0.00	2.00	0.00
			2	2.59	0.00	18.79	0.00	5.68	0.00	18.79	0.00
			3	2.59	0.00	10.95	0.00	5.68	0.00	10.95	0.00
			4	2.59	0.00	2.00	0.00	5.68	0.00	2.00	0.00
256	257	6.55	1	0.00	0.00	6.75	0.00	6.55	0.00	6.75	0.00
			2	4.95	0.00	11.74	0.00	6.55	0.00	11.74	0.00
			3	4.95	0.00	6.84	0.00	6.55	0.00	6.84	0.00
			4	4.95	0.00	1.25	0.00	6.55	0.00	1.25	0.00
			2	0.00	0.00	11.74	0.00	4.95	0.00	11.74	0.00
			3	0.00	0.00	6.84	0.00	4.95	0.00	6.84	0.00
			4	0.00	0.00	1.25	0.00	4.95	0.00	1.25	0.00
			2	0.00	0.00	11.52	0.00	5.91	0.00	11.52	0.00
			3	0.00	0.00	6.71	0.00	5.91	0.00	6.71	0.00
			4	0.00	0.00	1.23	0.00	5.91	0.00	1.23	0.00
			2	5.91	0.00	11.52	0.00	6.55	0.00	11.52	0.00
			3	5.91	0.00	6.71	0.00	6.55	0.00	6.71	0.00
			4	5.91	0.00	1.23	0.00	6.55	0.00	1.23	0.00
257	258	6.40	1	0.00	0.00	6.75	0.00	6.40	0.00	6.75	0.00
			2	2.05	0.00	11.74	0.00	6.40	0.00	11.74	0.00
			3	2.05	0.00	6.84	0.00	6.40	0.00	6.84	0.00
			4	2.05	0.00	1.25	0.00	6.40	0.00	1.25	0.00
			2	0.00	0.00	11.74	0.00	2.05	0.00	11.74	0.00
			3	0.00	0.00	6.84	0.00	2.05	0.00	6.84	0.00
			4	0.00	0.00	1.25	0.00	2.05	0.00	1.25	0.00
			2	0.00	0.00	11.51	0.00	2.91	0.00	11.51	0.00
			3	0.00	0.00	6.71	0.00	2.91	0.00	6.71	0.00
			4	0.00	0.00	1.22	0.00	2.91	0.00	1.22	0.00
			2	2.91	0.00	11.52	0.00	6.40	0.00	11.52	0.00
			3	2.91	0.00	6.71	0.00	6.40	0.00	6.71	0.00
			4	2.91	0.00	1.23	0.00	6.40	0.00	1.23	0.00
259	260	2.00	1	0.00	0.00	4.50	0.00	2.00	0.00	4.50	0.00
			2	0.00	0.00	17.16	0.00	2.00	0.00	17.16	0.00
			3	0.00	0.00	10.00	0.00	2.00	0.00	10.00	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			4	0.00	0.00	1.83	0.00	2.00	0.00	1.83	0.00
260	261	2.59	1	0.00	0.00	6.75	0.00	2.59	0.00	6.75	0.00
			2	0.00	0.00	18.79	0.00	2.59	0.00	18.79	0.00
			3	0.00	0.00	10.95	0.00	2.59	0.00	10.95	0.00
			4	0.00	0.00	2.00	0.00	2.59	0.00	2.00	0.00
			2	0.00	0.00	17.15	0.00	2.49	0.00	17.15	0.00
			3	0.00	0.00	10.00	0.00	2.49	0.00	10.00	0.00
			4	0.00	0.00	1.82	0.00	2.49	0.00	1.82	0.00
			2	2.49	0.00	17.15	0.00	2.59	0.00	17.15	0.00
			3	2.49	0.00	10.00	0.00	2.59	0.00	10.00	0.00
			4	2.49	0.00	1.82	0.00	2.59	0.00	1.82	0.00
261	262	4.17	1	0.00	0.00	6.75	0.00	4.17	0.00	6.75	0.00
			2	3.09	0.00	23.25	0.00	4.17	0.00	23.25	0.00
			3	3.09	0.00	13.56	0.00	4.17	0.00	13.56	0.00
			4	3.09	0.00	2.47	0.00	4.17	0.00	2.47	0.00
			2	0.00	0.00	18.79	0.00	3.09	0.00	18.79	0.00
			3	0.00	0.00	10.95	0.00	3.09	0.00	10.95	0.00
			4	0.00	0.00	2.00	0.00	3.09	0.00	2.00	0.00
			2	0.00	0.00	17.16	0.00	4.17	0.00	17.16	0.00
			3	0.00	0.00	10.00	0.00	4.17	0.00	10.00	0.00
			4	0.00	0.00	1.83	0.00	4.17	0.00	1.83	0.00
262	263	4.70	1	0.00	0.00	6.75	0.00	4.70	0.00	6.75	0.00
			2	2.08	0.00	23.25	0.00	4.70	0.00	23.25	0.00
			3	2.08	0.00	13.56	0.00	4.70	0.00	13.56	0.00
			4	2.08	0.00	2.47	0.00	4.70	0.00	2.47	0.00
			2	0.00	0.00	23.25	0.00	2.08	0.00	23.25	0.00
			3	0.00	0.00	13.56	0.00	2.08	0.00	13.56	0.00
			4	0.00	0.00	2.47	0.00	2.08	0.00	2.47	0.00
			2	0.00	0.00	17.16	0.00	0.10	0.00	17.16	0.00
			3	0.00	0.00	10.00	0.00	0.10	0.00	10.00	0.00
			4	0.00	0.00	1.83	0.00	0.10	0.00	1.83	0.00
			2	0.10	0.00	17.16	0.00	4.70	0.00	17.16	0.00
			3	0.10	0.00	10.00	0.00	4.70	0.00	10.00	0.00
			4	0.10	0.00	1.83	0.00	4.70	0.00	1.83	0.00
263	264	4.04	1	0.00	0.00	6.75	0.00	4.04	0.00	6.75	0.00
			2	0.79	0.00	23.25	0.00	4.04	0.00	23.25	0.00
			3	0.79	0.00	13.56	0.00	4.04	0.00	13.56	0.00
			4	0.79	0.00	2.47	0.00	4.04	0.00	2.47	0.00
			2	0.00	0.00	23.25	0.00	0.79	0.00	23.25	0.00
			3	0.00	0.00	13.56	0.00	0.79	0.00	13.56	0.00
			4	0.00	0.00	2.47	0.00	0.79	0.00	2.47	0.00
			2	0.00	0.00	17.15	0.00	0.05	0.00	17.15	0.00
			3	0.00	0.00	10.00	0.00	0.05	0.00	10.00	0.00
			4	0.00	0.00	1.82	0.00	0.05	0.00	1.82	0.00
			2	0.05	0.00	17.15	0.00	4.04	0.00	17.15	0.00
			3	0.05	0.00	10.00	0.00	4.04	0.00	10.00	0.00
			4	0.05	0.00	1.82	0.00	4.04	0.00	1.82	0.00
264	265	5.91	1	0.00	0.00	4.50	0.00	5.91	0.00	4.50	0.00
			2	0.00	0.00	11.52	0.00	5.91	0.00	11.52	0.00
			3	0.00	0.00	6.71	0.00	5.91	0.00	6.71	0.00
			4	0.00	0.00	1.23	0.00	5.91	0.00	1.23	0.00
265	266	3.54	1	0.00	0.00	4.50	0.00	3.54	0.00	4.50	0.00
			2	0.64	0.00	11.51	0.00	3.54	0.00	11.51	0.00
			3	0.64	0.00	6.71	0.00	3.54	0.00	6.71	0.00
			4	0.64	0.00	1.22	0.00	3.54	0.00	1.22	0.00
			2	0.00	0.00	11.52	0.00	0.64	0.00	11.52	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			3	0.00	0.00	6.71	0.00	0.64	0.00	6.71	0.00
			4	0.00	0.00	1.23	0.00	0.64	0.00	1.23	0.00
266	267	3.50	1	0.00	0.00	4.50	0.00	3.50	0.00	4.50	0.00
			2	0.00	0.00	11.52	0.00	3.50	0.00	11.52	0.00
			3	0.00	0.00	6.71	0.00	3.50	0.00	6.71	0.00
			4	0.00	0.00	1.23	0.00	3.50	0.00	1.23	0.00
273	274	5.91	1	0.00	0.00	4.50	0.00	5.91	0.00	4.50	0.00
			2	0.00	0.00	13.23	0.00	1.74	0.00	13.23	0.00
			3	0.00	0.00	7.71	0.00	1.74	0.00	7.71	0.00
			4	0.00	0.00	1.41	0.00	1.74	0.00	1.41	0.00
			2	1.74	0.00	13.23	0.00	5.91	0.00	13.23	0.00
			3	1.74	0.00	7.71	0.00	5.91	0.00	7.71	0.00
			4	1.74	0.00	1.41	0.00	5.91	0.00	1.41	0.00
			2	5.91	0.00	3.44	0.00	5.91	0.00	0.00	0.00
			3	5.91	0.00	2.01	0.00	5.91	0.00	0.00	0.00
			4	5.91	0.00	0.37	0.00	5.91	0.00	0.00	0.00
284	283	1.60	1	0.00	0.00	4.50	0.00	1.60	0.00	4.50	0.00
			2	0.00	0.00	10.05	0.00	0.00	0.00	10.05	0.00
			3	0.00	0.00	5.86	0.00	0.00	0.00	5.86	0.00
			4	0.00	0.00	1.07	0.00	0.00	0.00	1.07	0.00
			2	0.00	0.00	9.87	0.00	1.60	0.00	9.87	0.00
			3	0.00	0.00	5.75	0.00	1.60	0.00	5.75	0.00
			4	0.00	0.00	1.05	0.00	1.60	0.00	1.05	0.00
275	276	4.49	1	0.00	0.00	4.50	0.00	4.49	0.00	4.50	0.00
			2	2.00	0.00	17.15	0.00	4.49	0.00	17.15	0.00
			3	2.00	0.00	10.00	0.00	4.49	0.00	10.00	0.00
			4	2.00	0.00	1.82	0.00	4.49	0.00	1.82	0.00
			2	0.00	0.00	17.16	0.00	2.00	0.00	17.16	0.00
			3	0.00	0.00	10.00	0.00	2.00	0.00	10.00	0.00
			4	0.00	0.00	1.83	0.00	2.00	0.00	1.83	0.00
276	277	4.37	1	0.00	0.00	4.50	0.00	4.37	0.00	4.50	0.00
			2	4.27	0.00	17.16	0.00	4.37	0.00	17.16	0.00
			3	4.27	0.00	10.00	0.00	4.37	0.00	10.00	0.00
			4	4.27	0.00	1.83	0.00	4.37	0.00	1.83	0.00
			2	0.10	0.00	17.16	0.00	4.27	0.00	17.16	0.00
			3	0.10	0.00	10.00	0.00	4.27	0.00	10.00	0.00
			4	0.10	0.00	1.83	0.00	4.27	0.00	1.83	0.00
			2	0.00	0.00	17.15	0.00	0.10	0.00	17.15	0.00
			3	0.00	0.00	10.00	0.00	0.10	0.00	10.00	0.00
			4	0.00	0.00	1.82	0.00	0.10	0.00	1.82	0.00
277	278	4.65	1	0.00	0.00	4.50	0.00	4.65	0.00	4.50	0.00
			2	4.60	0.00	17.15	0.00	4.65	0.00	17.15	0.00
			3	4.60	0.00	10.00	0.00	4.65	0.00	10.00	0.00
			4	4.60	0.00	1.82	0.00	4.65	0.00	1.82	0.00
			2	0.00	0.00	17.16	0.00	4.60	0.00	17.16	0.00
			3	0.00	0.00	10.00	0.00	4.60	0.00	10.00	0.00
			4	0.00	0.00	1.83	0.00	4.60	0.00	1.83	0.00
278	279	3.99	1	0.00	0.00	4.50	0.00	3.99	0.00	4.50	0.00
			2	0.00	0.00	17.15	0.00	3.99	0.00	17.15	0.00
			3	0.00	0.00	10.00	0.00	3.99	0.00	10.00	0.00
			4	0.00	0.00	1.82	0.00	3.99	0.00	1.82	0.00
			2	0.00	0.00	7.29	0.00	3.99	0.00	7.29	0.00
			3	0.00	0.00	4.25	0.00	3.99	0.00	4.25	0.00
			4	0.00	0.00	0.78	0.00	3.99	0.00	0.78	0.00
280	281	5.73	1	0.00	0.00	4.50	0.00	5.73	0.00	4.50	0.00
			2	3.99	0.00	13.23	0.00	5.73	0.00	13.23	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			3	3.99	0.00	7.71	0.00	5.73	0.00	7.71	0.00
			4	3.99	0.00	1.41	0.00	5.73	0.00	1.41	0.00
			2	0.00	0.00	7.29	0.00	3.99	0.00	7.29	0.00
			3	0.00	0.00	4.25	0.00	3.99	0.00	4.25	0.00
			4	0.00	0.00	0.78	0.00	3.99	0.00	0.78	0.00
281	282	5.77	1	0.00	0.00	4.50	0.00	5.77	0.00	4.50	0.00
			2	4.17	0.00	9.87	0.00	5.77	0.00	9.87	0.00
			3	4.17	0.00	5.75	0.00	5.77	0.00	5.75	0.00
			4	4.17	0.00	1.05	0.00	5.77	0.00	1.05	0.00
			2	4.17	0.00	10.05	0.00	4.17	0.00	10.05	0.00
			3	4.17	0.00	5.86	0.00	4.17	0.00	5.86	0.00
			4	4.17	0.00	1.07	0.00	4.17	0.00	1.07	0.00
			2	0.00	0.00	13.23	0.00	4.17	0.00	13.23	0.00
			3	0.00	0.00	7.71	0.00	4.17	0.00	7.71	0.00
			4	0.00	0.00	1.41	0.00	4.17	0.00	1.41	0.00
227	228	2.63	1	0.00	0.00	5.25	0.00	2.63	0.00	5.25	0.00
220	230	5.73	1	0.00	0.00	5.25	0.00	5.73	0.00	5.25	0.00
212	204	2.02	1	0.00	-0.00	5.25	0.00	2.02	-0.00	5.25	0.00
201	206	5.26	1	0.00	0.00	5.25	0.00	5.26	0.00	5.25	0.00
			2	0.00	0.00	10.86	0.00	5.26	0.00	10.86	0.00
			3	0.00	0.00	6.33	0.00	5.26	0.00	6.33	0.00
			4	0.00	0.00	1.15	0.00	5.26	0.00	1.15	0.00
242	240	2.82	1	0.00	0.00	5.25	0.00	2.82	0.00	5.25	0.00
			2	0.00	0.00	7.64	0.00	0.30	0.00	7.64	0.00
			3	0.00	0.00	4.45	0.00	0.30	0.00	4.45	0.00
			4	0.00	0.00	0.81	-0.00	0.30	0.00	0.81	-0.00
			2	0.30	0.00	7.64	0.00	2.82	0.00	7.64	0.00
			3	0.30	0.00	4.45	0.00	2.82	0.00	4.45	0.00
			4	0.30	0.00	0.81	-0.00	2.82	0.00	0.81	-0.00
246	242	3.01	1	0.00	0.00	5.25	0.00	3.01	0.00	5.25	0.00
			2	0.00	0.00	7.64	0.00	3.01	0.00	7.64	0.00
			3	0.00	0.00	4.45	0.00	3.01	0.00	4.45	0.00
			4	0.00	0.00	0.81	-0.00	3.01	0.00	0.81	0.00
225	233	3.90	1	0.00	0.00	5.25	0.00	3.90	0.00	5.25	0.00
			2	0.00	0.00	7.64	-0.00	3.90	0.00	7.64	-0.00
			3	0.00	0.00	4.45	-0.00	3.90	0.00	4.45	-0.00
			4	0.00	0.00	0.81	0.00	3.90	0.00	0.81	0.00
233	238	3.77	1	0.00	0.00	5.25	0.00	3.77	0.00	5.25	0.00
			2	0.00	0.00	7.64	-0.00	0.40	0.00	7.64	-0.00
			3	0.00	0.00	4.45	-0.00	0.40	0.00	4.45	-0.00
			4	0.00	0.00	0.81	-0.00	0.40	0.00	0.81	-0.00
			2	0.40	0.00	7.64	-0.00	3.77	0.00	7.64	-0.00
			3	0.40	0.00	4.45	-0.00	3.77	0.00	4.45	-0.00
			4	0.40	0.00	0.81	0.00	3.77	0.00	0.81	0.00
238	243	3.83	1	0.00	0.00	5.25	0.00	3.83	0.00	5.25	0.00
			2	0.00	0.00	7.64	-0.00	1.31	0.00	7.64	-0.00
			3	0.00	0.00	4.45	-0.00	1.31	0.00	4.45	-0.00
			4	0.00	0.00	0.81	-0.00	1.31	0.00	0.81	-0.00
			2	1.31	0.00	7.64	-0.00	3.83	0.00	7.64	-0.00
			3	1.31	0.00	4.45	-0.00	3.83	0.00	4.45	-0.00
			4	1.31	0.00	0.81	0.00	3.83	0.00	0.81	0.00
243	247	3.31	1	0.00	0.00	5.25	0.00	3.31	0.00	5.25	0.00
			2	0.00	0.00	7.64	0.00	0.30	0.00	7.64	0.00
			3	0.00	0.00	4.45	0.00	0.30	0.00	4.45	0.00
			4	0.00	-0.00	0.81	0.00	0.30	-0.00	0.81	0.00
			2	0.30	0.00	7.64	0.00	3.31	0.00	7.64	0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			3	0.30	0.00	4.45	0.00	3.31	0.00	4.45	0.00
			4	0.30	0.00	0.81	0.00	3.31	-0.00	0.81	0.00
202	207	5.26	1	0.00	0.00	5.25	0.00	5.26	0.00	5.25	0.00
			2	0.00	0.00	10.86	0.00	5.26	0.00	10.86	0.00
			3	0.00	0.00	6.33	0.00	5.26	0.00	6.33	0.00
			4	0.00	0.00	1.15	0.00	5.26	0.00	1.15	0.00
203	327	3.10	1	0.00	0.00	5.25	0.00	3.10	0.00	5.25	0.00
209	319	4.03	1	0.00	0.00	5.25	0.00	4.03	0.00	5.25	0.00
210	221	5.11	1	0.00	0.00	5.25	0.00	5.11	0.00	5.25	0.00
221	234	6.13	1	0.00	0.00	5.25	0.00	6.13	0.00	5.25	0.00
259	268	3.65	1	0.00	0.00	4.50	0.00	3.65	0.00	4.50	0.00
268	275	3.65	1	0.00	0.00	4.50	0.00	3.65	0.00	4.50	0.00
251	253	3.09	1	0.00	0.00	4.50	0.00	3.09	0.00	4.50	0.00
253	260	4.90	1	0.00	0.00	4.50	0.00	4.90	0.00	4.50	0.00
312	313	2.01	1	0.00	0.00	5.25	0.00	2.01	0.00	5.25	0.00
254	323	3.10	1	0.00	0.00	5.25	0.00	3.10	0.00	5.25	0.00
323	231	3.13	1	0.00	0.00	5.25	0.00	3.13	0.00	5.25	0.00
			2	0.00	0.00	15.44	-0.00	3.13	0.00	15.44	-0.00
			3	0.00	0.00	9.00	-0.00	3.13	0.00	9.00	-0.00
			4	0.00	0.00	1.64	-0.00	3.13	0.00	1.64	-0.00
231	237	3.00	1	0.00	0.00	5.25	0.00	3.00	0.00	5.25	0.00
			2	1.17	0.00	15.44	0.00	3.00	0.00	15.44	0.00
			3	1.17	0.00	9.00	-0.00	3.00	0.00	9.00	-0.00
			4	1.17	0.00	1.64	-0.00	3.00	0.00	1.64	-0.00
			2	0.00	0.00	15.44	0.00	1.17	0.00	15.44	0.00
			3	0.00	0.00	9.00	-0.00	1.17	0.00	9.00	-0.00
			4	0.00	0.00	1.64	-0.00	1.17	0.00	1.64	-0.00
237	239	2.85	1	0.00	0.00	5.25	0.00	2.85	0.00	5.25	0.00
			2	0.00	0.00	15.44	-0.00	2.85	0.00	15.44	-0.00
			3	0.00	0.00	9.00	-0.00	2.85	0.00	9.00	-0.00
			4	0.00	0.00	1.64	-0.00	2.85	0.00	1.64	-0.00
241	239	2.53	1	0.00	0.00	5.25	0.00	2.53	0.00	5.25	0.00
			6	0.00	0.00	4.00	0.00	2.53	0.00	4.00	0.00
244	241	3.30	1	0.00	0.00	5.25	0.00	3.30	0.00	5.25	0.00
			6	0.00	0.00	4.00	0.00	3.30	0.00	4.00	0.00
244	252	1.90	1	0.00	0.00	4.50	0.00	1.90	0.00	4.50	0.00
306	315	4.03	1	0.00	0.00	5.25	0.00	4.03	0.00	5.25	0.00
			2	0.00	0.00	10.86	0.00	4.03	0.00	10.86	0.00
			3	0.00	0.00	6.33	0.00	4.03	0.00	6.33	0.00
			4	0.00	0.00	1.15	0.00	4.03	0.00	1.15	0.00
315	255	3.10	1	0.00	0.00	5.25	0.00	3.10	0.00	5.25	0.00
			2	0.00	0.00	10.86	0.00	3.10	0.00	10.86	0.00
			3	0.00	0.00	6.33	0.00	3.10	0.00	6.33	0.00
			4	0.00	0.00	1.15	0.00	3.10	0.00	1.15	0.00
278	280	3.10	1	0.00	0.00	4.50	0.00	3.10	0.00	4.50	0.00
324	332	4.30	1	0.00	0.00	6.75	0.00	4.30	0.00	6.75	0.00
			2	0.00	0.00	15.44	-0.00	3.13	0.00	15.44	-0.00
			3	0.00	0.00	9.00	-0.00	3.13	0.00	9.00	-0.00
			4	0.00	0.00	1.64	-0.00	3.13	0.00	1.64	-0.00
			2	3.13	0.00	15.44	0.00	4.30	0.00	15.44	0.00
			3	3.13	0.00	9.00	-0.00	4.30	0.00	9.00	-0.00
			4	3.13	0.00	1.64	-0.00	4.30	0.00	1.64	-0.00
332	440	4.68	1	0.00	0.00	6.75	0.00	4.68	0.00	6.75	0.00
			2	0.00	0.00	15.44	0.00	1.83	0.00	15.44	0.00
			3	0.00	0.00	9.00	-0.00	1.83	0.00	9.00	-0.00
			4	0.00	0.00	1.64	-0.00	1.83	0.00	1.64	-0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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			2	1.83	0.00	15.44	-0.00	4.68	0.00	15.44	-0.00
			3	1.83	0.00	9.00	-0.00	4.68	0.00	9.00	-0.00
			4	1.83	0.00	1.64	-0.00	4.68	0.00	1.64	-0.00
256	347	4.99	1	0.00	0.00	4.50	0.00	4.99	0.00	4.50	0.00
264	256	4.90	1	0.00	0.00	4.50	0.00	4.90	0.00	4.50	0.00
264	289	3.65	1	0.00	0.00	4.50	0.00	3.65	0.00	4.50	0.00
			2	0.00	0.00	13.89	0.00	3.65	0.00	13.89	0.00
			3	0.00	0.00	8.10	0.00	3.65	0.00	8.10	0.00
			4	0.00	0.00	1.48	0.00	3.65	0.00	1.48	0.00
289	273	1.12	1	0.00	0.00	4.50	0.00	1.12	0.00	4.50	0.00
			2	0.00	0.00	13.89	0.00	1.12	0.00	13.89	0.00
			3	0.00	0.00	8.10	0.00	1.12	0.00	8.10	0.00
			4	0.00	0.00	1.48	0.00	1.12	0.00	1.48	0.00
273	279	2.53	1	0.00	0.00	4.50	0.00	2.53	0.00	4.50	0.00
307	316	4.03	1	0.00	0.00	5.25	0.00	4.03	0.00	5.25	0.00
			2	0.00	0.00	10.86	0.00	4.03	0.00	10.86	0.00
			3	0.00	0.00	6.33	0.00	4.03	0.00	6.33	0.00
			4	0.00	0.00	1.15	0.00	4.03	0.00	1.15	0.00
316	269	3.10	1	0.00	0.00	5.25	0.00	3.10	0.00	5.25	0.00
			2	0.00	0.00	10.86	0.00	3.10	0.00	10.86	0.00
			3	0.00	0.00	6.33	0.00	3.10	0.00	6.33	0.00
			4	0.00	0.00	1.15	0.00	3.10	0.00	1.15	0.00
265	274	4.77	1	0.00	0.00	4.50	0.00	4.77	0.00	4.50	0.00
			2	0.00	0.00	13.89	0.00	3.65	0.00	13.89	0.00
			3	0.00	0.00	8.10	0.00	3.65	0.00	8.10	0.00
			4	0.00	0.00	1.48	0.00	3.65	0.00	1.48	0.00
			2	3.65	0.00	13.89	0.00	4.77	0.00	13.89	0.00
			3	3.65	0.00	8.10	0.00	4.77	0.00	8.10	0.00
			4	3.65	0.00	1.48	0.00	4.77	0.00	1.48	0.00
274	284	1.43	1	0.00	0.00	4.50	0.00	1.43	0.00	4.50	0.00
			2	0.00	0.00	0.00	0.00	1.43	0.00	0.00	0.00
			3	0.00	0.00	0.00	0.00	1.43	0.00	0.00	0.00
			4	0.00	0.00	0.00	0.00	1.43	0.00	0.00	0.00
283	282	4.20	1	0.00	0.00	4.50	0.00	4.20	0.00	4.50	0.00
250	258	4.99	1	0.00	0.00	4.50	0.00	4.99	0.00	4.50	0.00
258	267	4.90	1	0.00	0.00	4.50	0.00	4.90	0.00	4.50	0.00
339	340	6.57	1	0.00	0.00	4.50	0.00	6.57	0.00	4.50	0.00
344	345	3.16	1	0.00	0.00	4.50	0.00	3.16	0.00	4.50	0.00
345	346	3.41	1	0.00	0.00	4.50	0.00	3.41	0.00	4.50	0.00
339	341	2.53	1	0.00	0.00	4.50	0.00	2.53	0.00	4.50	0.00
			2	0.00	0.00	15.44	-0.00	2.53	0.00	15.44	-0.00
			3	0.00	0.00	9.00	-0.00	2.53	0.00	9.00	-0.00
			4	0.00	0.00	1.64	-0.00	2.53	0.00	1.64	-0.00
341	344	3.30	1	0.00	0.00	4.50	0.00	3.30	0.00	4.50	0.00
			2	0.29	0.00	15.44	-0.00	3.30	0.00	15.44	-0.00
			3	0.29	0.00	9.00	-0.00	3.30	0.00	9.00	-0.00
			4	0.29	0.00	1.64	-0.00	3.30	0.00	1.64	-0.00
			2	0.00	0.00	15.44	-0.00	0.29	0.00	15.44	-0.00
			3	0.00	0.00	9.00	-0.00	0.29	0.00	9.00	-0.00
			4	0.00	0.00	1.64	0.00	0.29	0.00	1.64	0.00
340	342	2.82	1	0.00	0.00	4.50	0.00	2.82	0.00	4.50	0.00
			2	0.00	0.00	15.44	-0.00	2.53	0.00	15.44	-0.00
			3	0.00	0.00	9.00	-0.00	2.53	0.00	9.00	-0.00
			4	0.00	0.00	1.64	-0.00	2.53	0.00	1.64	-0.00
			2	2.53	0.00	15.44	-0.00	2.82	0.00	15.44	-0.00
			3	2.53	0.00	9.00	-0.00	2.82	0.00	9.00	-0.00

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalit 

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			4	2.53	0.00	1.64	0.00	2.82	0.00	1.64	0.00
342	346	3.01	1	0.00	0.00	4.50	0.00	3.01	0.00	4.50	0.00
			2	0.00	0.00	15.44	-0.00	3.01	0.00	15.44	-0.00
			3	0.00	0.00	9.00	-0.00	3.01	0.00	9.00	-0.00
			4	0.00	0.00	1.64	-0.00	3.01	0.00	1.64	-0.00

RISULTATI DELL'ANALISI DINAMICA

I_s	raggio d'inerzia polare di piano $I_s = \sqrt{J_p / m}$
X_{gr}, Y_{gr}, Z_g	coordinate centro di massa Modale
D_x, D_y	eccentricità centro di massa-centro delle rigidezze
$K_{rzz}, K_{tmin}, K_{tmax}$	rigidezze traslanti e torcenti
r_1, r_2	raggi giratori d'inerzia ($r_1 = (K_{rzz}/K_{tmin})^{1/2}, r_2 = (K_{rzz}/K_{tmax})^{1/2}$)
$\Delta K_x, \Delta K_y, \Delta K_{\theta z}$	incrementi percentuali di rigidezze ($\Delta K = (K_i - K_{i-1}) / K_{i-1}$)
$K_{x0}, K_{y0}, K_{\theta z0}$	rigidezze traslanti e torsionali del piano i-esimo rispetto agli assi globali
R	ordinata dello spettro
Coeff.di Part.	coefficienti di partecipazione (in letteratura g_j)
$ L_j / L_1 $	rapporto percentuale fra i fattori di partecipazione del modo i-esimo e del primo modo
Mmi/Mmtot	percentuale massa modale efficace dell'i-esimo modo
Sum Mmi/Mmtot	percentuale cumulativa delle masse modali efficaci
$\varphi_{iLx}, \varphi_{iLy}, \varphi_{i\theta z}$	spostamenti modali del nodo master

Modalità di valutazione della risposta modale

Analisi spettrale via Subspace iterator

Valutazione dei modi di vibrare eccentrici

Smorzamento strutturale 5.0 %

risposta $S = CQC(S_i)$

segno risposta = $\text{sign}(\sum S_i)$

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

Masse, Coordinate baricentriche, Eccentricità

Solaio	Massa [kg]	Variatione Massa %	J_p [kg m ²]	I_s [m]	X_g [m]	Y_g [m]	Z_g [m]	D_x [m]	D_y [m]
1	1167696.2	0.0	30378872.0	16.13	17.90	24.59	0.00	0.56	2.87
2	978795.5	-16.2	24450524.0	15.81	17.96	24.28	4.16	-0.41	1.77
3	44204.0	-95.5	38052.0	2.93	15.11	24.34	6.50	0.04	2.39

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

- Spostamento Percentuale del centro di massa rispetto alla dimensione dell'impalcato e 1 5.0 %

Sub-Matrici di rigidezze 3x3

Solaio	U_x	U_y	R_z	r_1 [m]	r_2 [m]	r_{min} / I_s	$e / 0.3 r$	$\Delta K_x \%$	$\Delta K_y \%$	$\Delta K_{\theta z} \%$
1	1.0384877325e+08	4.2499672657e+04	3.4617207281e+07	19.44	15.03	0.932	0.643			
	4.2499672657e+04	6.2080792572e+07	-2.9755992289e+08							
	3.4617207281e+07	-2.9755992289e+08	2.3458009091e+10							
2	6.8415516474e+07	1.5950137640e+05	-1.4913054419e+07	16.25	11.79	0.746	0.508	-34.12		
	1.5950137640e+05	3.6039144530e+07	-1.2139879794e+08						-41.95	
	-1.4913054419e+07	-1.2139879794e+08	9.5163512849e+09							-59.43
3	2.6673841990e+07	3.4605795051e+04	4.5962671273e+05	5.35	3.63	1.237	2.198	-61.01		
	3.4605795051e+04	1.2306444416e+07	-6.3840809761e+07						-65.85	
	4.5962671273e+05	-6.3840809761e+07	3.5161885851e+08							-96.31

N.B. Eccentricità solai valutata con $U_i=1$ $U_j=0$.

Spettro in accordo con TU 2018

- Strada comunale Acquarola n.20 Secondigliano Longitudine 14.2577 Latitudine 40.8946
- Tipo di Terreno C

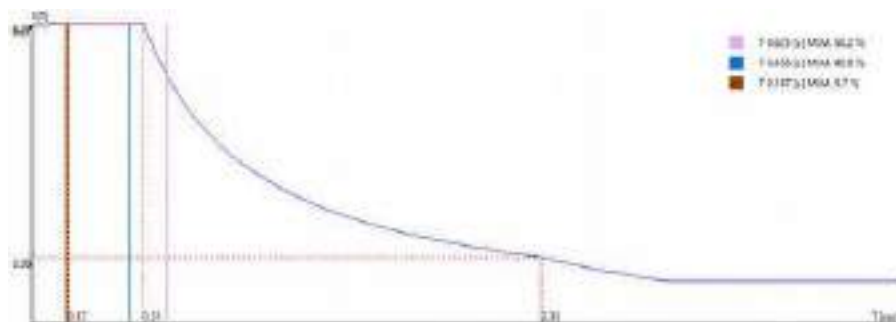
- Coefficiente di amplificazione topografica (S_T) 1.0000
- Vita nominale della costruzione (V_N) 50.0 anni
- Classe d'uso III coefficiente C_U 1.5
- Classe di duttilità impostata Bassa
- Fattore di duttilità α_u/α_1 per sisma orizzontale 1.00
- Fattore riduttivo regolarità in altezza K_R 1.00
- Fattore riduttivo per la presenza di setti K_W 1.00

Stato Limite	C $q_0 = C \alpha_u/\alpha_1$	q_H
SLV	2.40	2.40/1.50
SLD	1.00	1.00

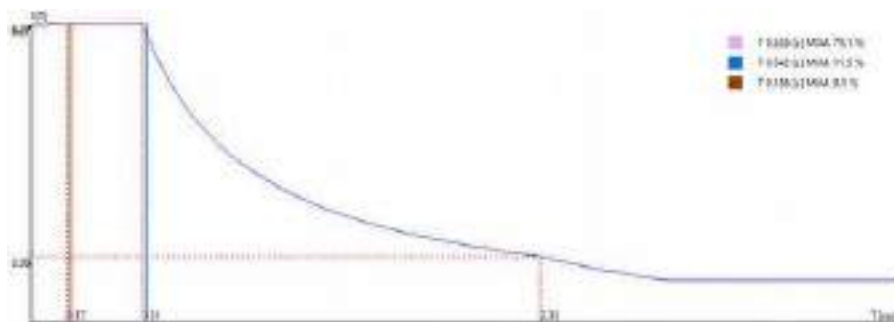
- Smorzamento Viscoso ($0.05 = 5\%$) 0.05

TU 2018 SLV H

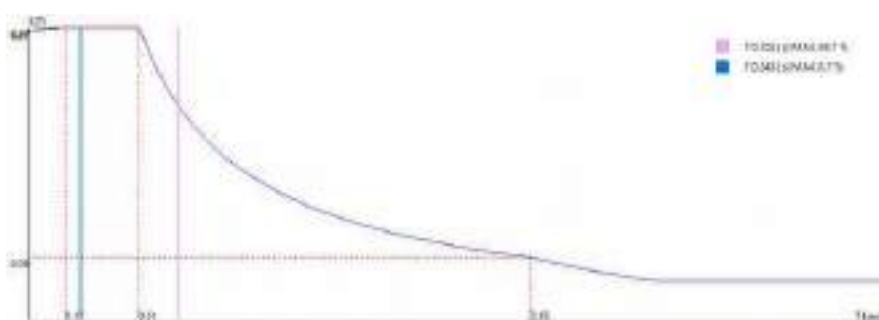
- Probabilità di superamento (P_{VR}) 10.0 e periodo di ritorno (T_R) 712 (anni)
- S_s 1.429
- T_B 0.172 [s]
- T_C 0.515 [s]
- T_D 2.346 [s]
- a_g/g 0.1865
- F_o 2.4226
- T_C^* 0.3451



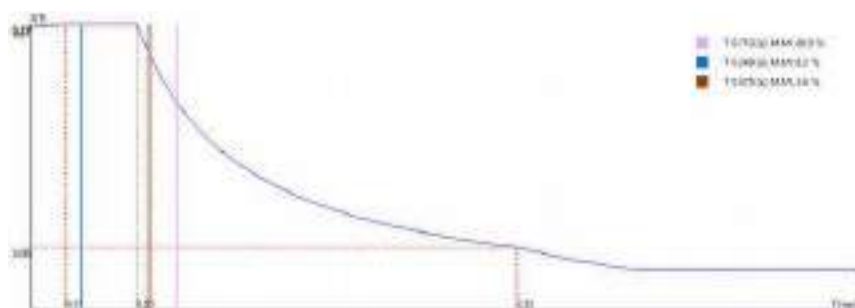
0.00 [°] + SLV



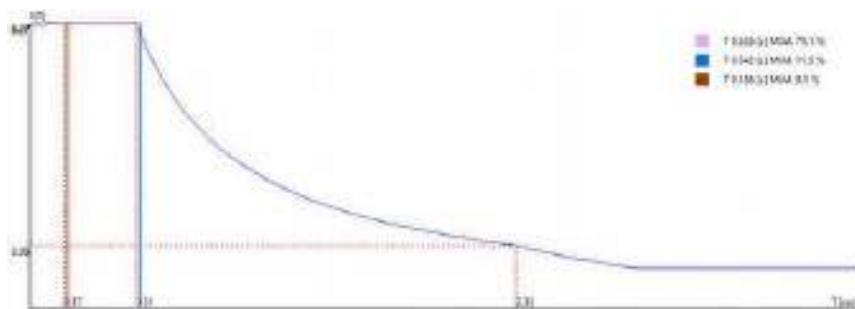
0.00 [°] - SLV



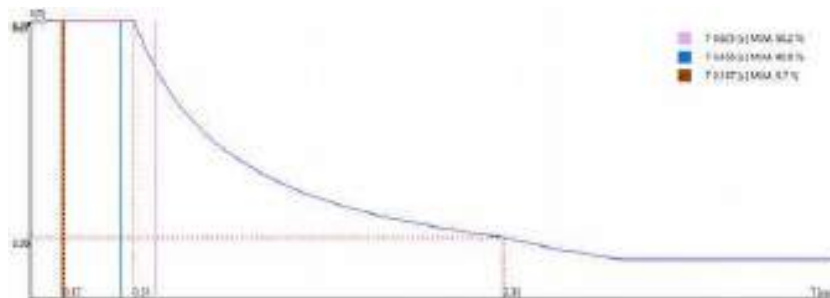
90.00 [°] + SLV



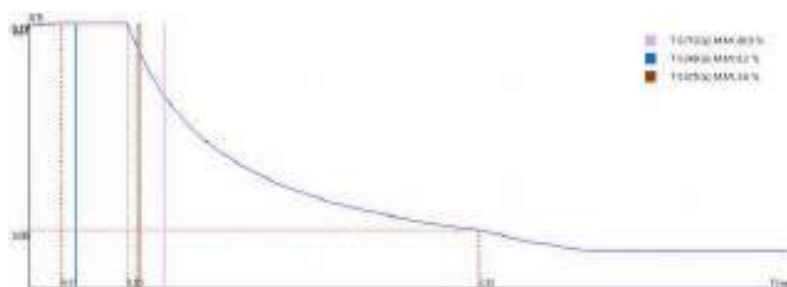
90.00 [°] - SLV



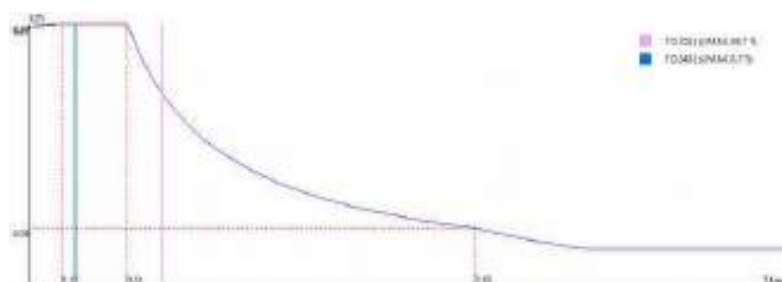
180.00 [°] + SLV



180.00 [°] - SLV



270.00 [°] + SLV



270.00 [°] - SLV

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

Direzione d'ingresso	Modo Principale	Periodo [s]	% Massa Modale Modo Principale	% Massa Modale Totale
0.00 [°] + SLV	1	0.625	50.2	99.9
0.00 [°] - SLV	7	0.526	79.1	100.0
90.00 [°] + SLV	13	0.702	89.7	100.0
90.00 [°] - SLV	19	0.710	86.5	100.0
180.00 [°] + SLV	25	0.526	79.1	100.0
180.00 [°] - SLV	31	0.625	50.2	99.9
270.00 [°] + SLV	37	0.710	86.5	100.0
270.00 [°] - SLV	43	0.702	89.7	100.0

Autovalori, Periodi Masse Modali efficaci

Risultati angolo di ingresso del sisma: 0.00 [°] + SLV

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	%	% Σ	Massa Modale	%	% Σ
1	0.625	0.221	3.3148605347e+02		1.0988300000e+05	50.2	50.2	1.6010358106e+07	28.5	28.5
2	0.456	0.269	2.9908703613e+02	90.2	8.9453054688e+04	40.8	91.0	1.0424619640e+07	18.6	47.1
3	0.167	0.269	1.1192503357e+02	33.8	1.2527212891e+04	5.7	96.7	9.7555280054e+06	17.4	64.5
4	0.226	0.269	7.9520629883e+01	24.0	6.3235307617e+03	2.9	99.6	1.8284737981e+07	32.6	97.1
5	0.700	0.198	2.3444356918e+01	7.1	5.4963787842e+02	0.3	99.8	1.7126419383e+05	0.3	97.4
6	0.243	0.269	1.4538745880e+01	4.4	2.1137513733e+02	0.1	99.9	1.2876900948e+06	2.3	99.7

Risultati angolo di ingresso del sisma: 0.00 [°] - SLV

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	%	% Σ	Massa Modale	%	% Σ
7	0.526	0.263	4.1622628784e+02		1.7324432813e+05	79.1	79.1	6.0627119753e+06	10.8	10.8
8	0.542	0.255	1.5841377258e+02	38.1	2.5094923828e+04	11.5	90.5	2.0452944514e+07	36.5	47.3
9	0.188	0.269	1.4274047852e+02	34.3	2.0374843750e+04	9.3	99.8	7.5332907754e+05	1.3	48.6
10	0.201	0.269	1.7781734467e+01	4.3	3.1619009399e+02	0.1	100.0	2.8285685304e+07	50.4	99.1
11	0.118	0.268	5.5122900009e+00	1.3	3.0385341644e+01	0.0	100.0	3.9707951814e+04	0.1	99.1
12	0.243	0.269	2.5869894028e+00	0.6	6.6925139427e+00	0.0	100.0	3.2399850052e+05	0.6	99.7

Risultati angolo di ingresso del sisma: 90.00 [°] + SLV

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	%	% Σ	Massa Modale	%	% Σ
13	0.702	0.197	4.4328359985e+02		1.9650034375e+05	89.7	89.7	1.3083284875e+06	2.4	2.4
14	0.243	0.269	1.3813340759e+02	31.2	1.9080837891e+04	8.7	98.4	1.7346275001e+06	3.1	5.5
15	0.580	0.239	5.0102565765e+01	11.3	2.5102670898e+03	1.1	99.6	1.2915522094e+07	23.3	28.7
16	0.211	0.269	2.2768690109e+01	5.1	5.1841326904e+02	0.2	99.8	1.7487255274e+07	31.5	60.3
17	0.490	0.269	1.9946268082e+01	4.5	3.9785360718e+02	0.2	100.0	1.2103118362e+07	21.8	82.1
18	0.179	0.269	7.3412480354e+00	1.7	5.3893920898e+01	0.0	100.0	9.8281835955e+06	17.7	99.8

Risultati angolo di ingresso del sisma: 90.00 [°] - SLV

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	%	% Σ	Massa Modale	%	% Σ
19	0.710	0.195	4.3519458008e+02		1.8939432813e+05	86.5	86.5	2.5042135315e+06	4.5	4.5
20	0.249	0.269	1.3425303650e+02	30.8	1.8023876953e+04	8.2	94.7	4.7876458110e+06	8.6	13.1
21	0.575	0.241	8.8550682068e+01	20.3	7.8412231445e+03	3.6	98.3	1.1269054498e+07	20.3	33.4
22	0.488	0.269	4.4584651947e+01	10.2	1.9877911377e+03	0.9	99.2	1.2537625751e+07	22.6	56.0
23	0.207	0.269	4.0165149689e+01	9.2	1.6132392578e+03	0.7	99.9	1.3600851007e+07	24.5	80.5
24	0.178	0.269	1.4187262535e+01	3.3	2.0127841187e+02	0.1	100.0	1.0684802015e+07	19.2	99.8

Risultati angolo di ingresso del sisma: 180.00 [°] + SLV

Modo	R	% L _i / L ₁	Massa Modale Traslante	Massa Modale Rotazionale
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Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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Periodo [s]	Coefficiente di Partecipazione		-	-	-	Massa Modale		-	Massa Modale		
						M _{ni} /M _{mtot}	% Σ		M _{ni} /M _{mtot}	% Σ	
25	0.526	0.263	4.1622628784e+02			1.7324432813e+05	79.1	79.1	6.0627097047e+06	10.8	10.8
26	0.542	0.255	1.5841371155e+02	38.1		2.5094904297e+04	11.5	90.5	2.0452946777e+07	36.5	47.3
27	0.188	0.269	1.4274047852e+02	34.3		2.0374843750e+04	9.3	99.8	7.5332845269e+05	1.3	48.6
28	0.201	0.269	1.7781749725e+01	4.3		3.1619061279e+02	0.1	100.0	2.8285685773e+07	50.4	99.1
29	0.118	0.268	5.5122900009e+00	1.3		3.0385341644e+01	0.0	100.0	3.9707961473e+04	0.1	99.1
30	0.243	0.269	2.5869271755e+00	0.6		6.6921920776e+00	0.0	100.0	3.2399873674e+05	0.6	99.7

Risultati angolo di ingresso del sisma: 180.00 [°] - SLV

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L _{-i}	Massa Modale Traslante			Massa Modale Rotazionale			
					Massa Modale	%	% Σ	Massa Modale	%	% Σ	
											M _{ni} /M _{mtot}
31	0.625	0.221	3.3148605347e+02			1.0988300000e+05	50.2	50.2	1.6010358476e+07	28.5	28.5
32	0.456	0.269	2.9908703613e+02	90.2		8.9453054688e+04	40.8	91.0	1.0424619512e+07	18.6	47.1
33	0.167	0.269	1.1192503357e+02	33.8		1.2527212891e+04	5.7	96.7	9.7555279102e+06	17.4	64.5
34	0.226	0.269	7.9520622253e+01	24.0		6.3235292969e+03	2.9	99.6	1.8284738692e+07	32.6	97.1
35	0.700	0.198	2.3444549561e+01	7.1		5.4964691162e+02	0.3	99.8	1.7126402661e+05	0.3	97.4
36	0.243	0.269	1.4538805962e+01	4.4		2.1137687683e+02	0.1	99.9	1.2876895512e+06	2.3	99.7

Risultati angolo di ingresso del sisma: 270.00 [°] + SLV

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L _{-i}	Massa Modale Traslante			Massa Modale Rotazionale			
					Massa Modale	%	% Σ	Massa Modale	%	% Σ	
											M _{ni} /M _{mtot}
37	0.710	0.195	4.3519458008e+02			1.8939432813e+05	86.5	86.5	2.5042140060e+06	4.5	4.5
38	0.249	0.269	1.3425302124e+02	30.8		1.8023873047e+04	8.2	94.7	4.7876465292e+06	8.6	13.1
39	0.575	0.241	8.8550834656e+01	20.3		7.8412504883e+03	3.6	98.3	1.1269054165e+07	20.3	33.4
40	0.488	0.269	4.4584514618e+01	10.2		1.9877789307e+03	0.9	99.2	1.2537625683e+07	22.6	56.0
41	0.207	0.269	4.0165187836e+01	9.2		1.6132423096e+03	0.7	99.9	1.3600850207e+07	24.5	80.5
42	0.178	0.269	1.4187209129e+01	3.3		2.0127690125e+02	0.1	100.0	1.0684802176e+07	19.2	99.8

Risultati angolo di ingresso del sisma: 270.00 [°] - SLV

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L _{-i}	Massa Modale Traslante			Massa Modale Rotazionale			
					Massa Modale	%	% Σ	Massa Modale	%	% Σ	
											M _{ni} /M _{mtot}
43	0.702	0.197	4.4328363037e+02			1.9650037500e+05	89.7	89.7	1.3083288327e+06	2.4	2.4
44	0.243	0.269	1.3813340759e+02	31.2		1.9080837891e+04	8.7	98.4	1.7346280299e+06	3.1	5.5
45	0.580	0.239	5.0102432251e+01	11.3		2.5102536621e+03	1.1	99.6	1.2915521728e+07	23.3	28.7
46	0.211	0.269	2.2768663406e+01	5.1		5.1841204834e+02	0.2	99.8	1.7487254917e+07	31.5	60.3
47	0.490	0.269	1.9946416855e+01	4.5		3.9785955811e+02	0.2	100.0	1.2103118457e+07	21.8	82.1
48	0.179	0.269	7.3413052559e+00	1.7		5.3894763947e+01	0.0	100.0	9.8281835007e+06	17.7	99.8

Matrici delle masse dei solai

Direzione d'ingresso 0.00 [°] + SLV

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	277298.6
				0.0	1167696.2	0.0
				2772986.5	0.0	31037387.0
2	17.96	24.28	4.16	978795.5	0.0	232439.5
				0.0	978795.5	0.0
				2324394.5	0.0	25002509.6
3	15.11	24.34	6.50	44204.0	0.0	1288.5
				0.0	44204.0	0.0
				12885.5	0.0	38427.6

Direzione d'ingresso 0.00 [°] - SLV

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	-277298.6
				0.0	1167696.2	-0.0
				-2772986.5	-0.0	31037387.0
2	17.96	24.28	4.16	978795.5	0.0	-232439.5
				0.0	978795.5	-0.0
				-2324394.5	-0.0	25002509.6
3	15.11	24.34	6.50	44204.0	0.0	-1288.5
				0.0	44204.0	-0.0
				-12885.5	-0.0	38427.6

Direzione d'ingresso 90.00 [°] + SLV

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	-0.0
				0.0	1167696.2	201953.1
				-0.1	2019530.5	30728149.8
2	17.96	24.28	4.16	978795.5	0.0	-0.0
				0.0	978795.5	169282.7
				-0.1	1692826.8	24743298.4
3	15.11	24.34	6.50	44204.0	0.0	-0.0
				0.0	44204.0	1452.1
				-0.0	14521.0	38529.0

Direzione d'ingresso 90.00 [°] - SLV

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	0.0
				0.0	1167696.2	-201953.1
				0.1	-2019530.5	30728149.8
2	17.96	24.28	4.16	978795.5	0.0	0.0
				0.0	978795.5	-169282.7
				0.1	-1692826.8	24743298.4
3	15.11	24.34	6.50	44204.0	0.0	0.0
				0.0	44204.0	-1452.1
				0.0	-14521.0	38529.0

Direzione d'ingresso 180.00 [°] + SLV

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	-277298.7
				0.0	1167696.2	-0.0
				-2772986.7	-0.2	31037387.0
2	17.96	24.28	4.16	978795.5	0.0	-232439.5
				0.0	978795.5	-0.0
				-2324394.7	-0.2	25002509.7
3	15.11	24.34	6.50	44204.0	0.0	-1288.5
				0.0	44204.0	-0.0
				-12885.5	-0.0	38427.6

Direzione d'ingresso 180.00 [°] - SLV

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	277298.7
				0.0	1167696.2	0.0
				2772986.7	0.2	31037387.0
2	17.96	24.28	4.16	978795.5	0.0	232439.5
				0.0	978795.5	0.0
				2324394.7	0.2	25002509.7
3	15.11	24.34	6.50	44204.0	0.0	1288.5
				0.0	44204.0	0.0
				12885.5	0.0	38427.6

Direzione d'ingresso 270.00 [°] + SLV

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	0.0
				0.0	1167696.2	-201953.1
				0.3	-2019530.8	30728149.9
2	17.96	24.28	4.16	978795.5	0.0	0.0
				0.0	978795.5	-169282.7
				0.2	-1692827.0	24743298.5
3	15.11	24.34	6.50	44204.0	0.0	0.0
				0.0	44204.0	-1452.1
				0.0	-14521.0	38529.0

Direzione d'ingresso 270.00 [°] - SLV

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	-0.0
				0.0	1167696.2	201953.1
				-0.3	2019530.8	30728149.9
2	17.96	24.28	4.16	978795.5	0.0	-0.0
				0.0	978795.5	169282.7
				-0.2	1692827.0	24743298.5
3	15.11	24.34	6.50	44204.0	0.0	-0.0
				0.0	44204.0	1452.1
				-0.0	14521.0	38529.0

Variazioni Matrice delle Masse Solai Direzione d'ingresso 0.00 [°] + SLV

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	47.50	2.37	0.00	-2.37	2772986.5	0.0	658515.0
2	34.59	47.50	47.50	2.37	0.00	-2.37	2324394.5	0.0	551985.6
3	6.57	5.83	5.83	0.29	0.00	-0.29	12885.5	0.0	375.6

Variazioni Matrice delle Masse Solai Direzione d'ingresso 0.00 [°] - SLV

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	47.50	2.37	-0.00	2.37	-2772986.5	-0.0	658515.0
2	34.59	47.50	47.50	2.37	-0.00	2.37	-2324394.5	-0.0	551985.6
3	6.57	5.83	5.83	0.29	-0.00	0.29	-12885.5	-0.0	375.6

Variazioni Matrice delle Masse Solai Direzione d'ingresso 90.00 [°] + SLV

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	34.59	1.73	1.73	0.00	-0.1	2019530.5	349277.8
2	34.59	47.50	34.59	1.73	1.73	0.00	-0.1	1692826.8	292774.4
3	6.57	5.83	6.57	0.33	0.33	0.00	-0.0	14521.0	477.0

Variazioni Matrice delle Masse Solai Direzione d'ingresso 90.00 [°] - SLV

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	34.59	1.73	-1.73	-0.00	0.1	-2019530.5	349277.8
2	34.59	47.50	34.59	1.73	-1.73	-0.00	0.1	-1692826.8	292774.4
3	6.57	5.83	6.57	0.33	-0.33	-0.00	0.0	-14521.0	477.0

Variazioni Matrice delle Masse Solai Direzione d'ingresso 180.00 [°] + SLV

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	47.50	2.37	-0.00	2.37	-2772986.7	-0.2	658515.0
2	34.59	47.50	47.50	2.37	-0.00	2.37	-2324394.7	-0.2	551985.7
3	6.57	5.83	5.83	0.29	-0.00	0.29	-12885.5	-0.0	375.6

Variazioni Matrice delle Masse Solai Direzione d'ingresso 180.00 [°] - SLV

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	47.50	2.37	0.00	-2.37	2772986.7	0.2	658515.0
2	34.59	47.50	47.50	2.37	0.00	-2.37	2324394.7	0.2	551985.7
3	6.57	5.83	5.83	0.29	0.00	-0.29	12885.5	0.0	375.6

Variazioni Matrice delle Masse Solai Direzione d'ingresso 270.00 [°] + SLV

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	34.59	1.73	-1.73	-0.00	0.3	-2019530.8	349277.9
2	34.59	47.50	34.59	1.73	-1.73	-0.00	0.2	-1692827.0	292774.5
3	6.57	5.83	6.57	0.33	-0.33	-0.00	0.0	-14521.0	477.0

Variazioni Matrice delle Masse Solai Direzione d'ingresso 270.00 [°] - SLV

Solaio	Ingombro in Pianta		Larghezza Apparente	Eccentricità	dxG	dyG	Sx	Sy	dJp
	B [m]	H [m]	[m]	[m]	[m]	[m]	[kg]x[m]	[kg]x[m]	[kg m ²]
1	34.59	47.50	34.59	1.73	1.73	0.00	-0.3	2019530.8	349277.9
2	34.59	47.50	34.59	1.73	1.73	0.00	-0.2	1692827.0	292774.5
3	6.57	5.83	6.57	0.33	0.33	0.00	-0.0	14521.0	477.0

Azioni solai analisi modale

Risultati angolo di ingresso del sisma: 0.00 [°] + SLV

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	φ_{Lx}	φ_{Ly}	φ_{Lz}
1	1	951.68	122.49	17043.62	9.7114181068e-04	1.4565178828e-04	6.7567681025e-05
	2	844.51	-55.45	-13345.03	1.0684839054e-03	-6.0177243765e-05	-6.4028864798e-05
	3	642.97	-23.90	-8255.32	2.1239225648e-03	-6.9308290621e-05	-1.0906022851e-04
	4	407.30	144.95	7750.94	1.4096153218e-03	5.9158294001e-04	1.0642360535e-04
	5	4.08	-75.94	93.88	-6.2263899935e-05	1.4298172609e-03	-6.0932533534e-06
	6	15.43	-110.92	391.62	-2.7201032075e-04	2.4760327527e-03	-3.0460607975e-05
	Per via statica	0.00	0.00	-0.00			
	Σ	1561.49	166.07	23404.74			
	Δ	1561.49	166.07	23404.74			
2	1	1378.42	171.98	23238.21	1.6860961422e-03	2.4396525111e-04	1.1337237167e-04
	2	1434.71	-38.72	-21706.23	2.1664332025e-03	-5.0128050430e-05	-1.3014870727e-04
	3	-276.81	19.35	4110.18	-1.1146791320e-03	6.6953592966e-05	6.6040071886e-05
	4	-226.51	-79.67	-4519.32	-9.1858830036e-04	-3.8791310807e-04	-7.7605536010e-05
	5	6.35	-120.50	163.16	-1.1099018837e-04	2.7065908512e-03	-1.3314912215e-05
	6	-9.28	54.64	-190.10	2.0450005989e-04	-1.4552458836e-03	1.7918420289e-05
	Per via statica	4446.18	0.00	-54940.28			
	Σ	2106.04	175.01	30991.77			
	Δ	-2340.14	175.01	85932.05			
3	1	57.35	-2.71	51.41	1.7645725741e-03	-8.5030177541e-05	1.2659701186e-04
	2	81.11	12.15	-9.42	2.3572003818e-03	3.4816900361e-04	-1.1010944292e-04
	3	-35.69	-3.19	-34.76	-2.6714903485e-03	-2.4466185829e-04	-2.1677369653e-04
	4	-13.93	-2.18	-17.77	-1.4523492398e-03	-2.3511545337e-04	-1.7164801693e-04
	5	0.24	-5.74	0.36	-1.1406637505e-04	2.8551793644e-03	-1.6588155751e-05
	6	-0.57	3.64	-0.84	3.2350985498e-04	-2.1479068169e-03	4.5879501306e-05
	Per via statica	313.60	0.00	-4069.46			
	Σ	110.31	14.38	-65.65			
	Δ	-203.29	14.38	4003.81			

Risultati angolo di ingresso del sisma: 0.00 [°] - SLV

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	φ_{Lx}	φ_{Ly}	φ_{Lz}
1	7	1646.91	-51.62	-12668.61	1.2476590855e-03	-4.1100431852e-05	-2.6802691677e-05
	8	259.21	45.03	10401.10	7.7609059500e-04	9.7129146392e-05	9.1346783875e-05
	9	1121.10	1.68	-3109.41	2.5398241170e-03	3.8249019067e-06	-3.9074476048e-06
	10	2.27	-14.17	-2191.06	3.2276782518e-04	2.5860256658e-04	1.5334238997e-04
	11	2.90	-0.34	4.40	1.7751957519e-04	-2.0237536841e-05	2.5626960330e-06
	12	0.02	20.19	-36.28	-3.8667216328e-05	2.5335652802e-03	-1.7469506689e-05
	Per via statica	0.00	0.00	-0.00			
	Σ	2202.96	30.06	-7238.00			
	Δ	2202.96	30.06	-7238.00			
2	7	2706.64	-46.62	-23256.36	2.4190350884e-03	-4.4286584034e-05	-6.3992464108e-05
	8	347.20	51.05	14634.40	1.2717211084e-03	1.3138065392e-04	1.5925961433e-04

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

VII Municipalità

14° C.D. Asilo nido Acquarola

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	9	-541.13	-1.52	1008.94	-1.4749817157e-03	-4.1151233445e-06	-2.9982926837e-06
	10	4.97	9.13	1194.21	-3.5776531252e-04	-1.9874154741e-04	-1.0512511951e-04
	11	-9.21	1.95	-24.14	-6.7927561933e-04	1.3723800661e-04	-1.2971366093e-05
	12	0.13	-9.98	13.91	4.0244352183e-05	-1.4943894812e-03	8.5240111843e-06
	Per via statica	5287.96	0.00	3179.45			
	Σ	3070.64	23.74	-11692.63			
	Δ	-2217.32	23.74	-14872.08			
3	7	123.23	6.98	-56.35	2.5772612262e-03	1.4681727088e-04	-4.9905577491e-05
	8	22.48	-6.05	19.49	1.3313720908e-03	-3.4492352582e-04	1.7240671559e-04
	9	-42.35	0.42	-11.54	-2.5921852150e-03	2.5311823716e-05	-1.6667935972e-04
	10	1.11	-0.38	2.61	-5.8337711493e-04	1.8385424095e-04	-1.6442422981e-04
	11	7.10	-1.70	15.27	1.1993443150e-02	-2.6459349745e-03	3.1427818586e-03
	12	0.02	-0.65	0.05	7.4403411859e-05	-2.1665757277e-03	2.2350895250e-05
	Per via statica	372.97	0.00	-6.97			
	Σ	149.74	-3.40	-43.20			
	Δ	-223.23	-3.40	-36.23			

Risultati angolo di ingresso del sisma: 90.00 [°] + SLV

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,bz}$
1	13	78.83	1435.22	5710.30	7.8740717134e-05	1.4121189817e-03	1.2393604388e-05
	14	48.25	1070.78	4062.36	1.1336686981e-04	2.4813831087e-03	1.9963141659e-05
	15	-144.39	18.02	-2516.15	1.0532930474e-03	-2.5499905374e-04	7.1426782233e-05
	16	-101.03	26.06	-2183.88	1.4401351440e-03	-5.8275985360e-04	1.2212781691e-04
	17	60.38	2.67	-954.58	9.8245708225e-04	1.4720481570e-04	-5.9992567999e-05
	18	47.18	2.49	-545.70	2.0860388401e-03	2.7179112943e-04	-9.3464969210e-05
	Per via statica	-0.00	0.00	-0.00			
	Σ	-177.25	1805.64	7086.48			
	Δ	-177.25	1805.64	7086.48			
2	13	98.64	2262.41	7972.89	1.1754070002e-04	2.6624095758e-03	1.9367246934e-05
	14	-34.61	-534.67	-2557.57	-9.7020067313e-05	-1.4670052410e-03	-1.8322562963e-05
	15	-211.04	36.28	-3386.54	1.8366089139e-03	-5.2360777135e-04	1.2016889303e-04
	16	56.63	-10.20	1241.96	-9.6301308759e-04	3.2169776286e-04	-8.5748297537e-05
	17	102.55	6.22	-1562.48	1.9907851556e-03	3.3208436914e-04	-1.2225400838e-04
	18	-21.28	-0.54	266.45	-1.1225034132e-03	-1.2634899219e-04	5.6455394788e-05
	Per via statica	-0.00	3958.00	40941.37			
	Σ	-221.74	2329.92	8555.76			
	Δ	-221.74	-1628.08	-32385.62			
3	13	4.74	103.01	40.22	1.2510711458e-04	2.7114538887e-03	1.9558522345e-05
	14	-2.49	-32.65	-14.87	-1.5469283341e-04	-2.0164379740e-03	-2.9893010530e-05
	15	-10.00	4.51	-4.55	1.9268476491e-03	-9.1384662936e-04	1.3510995755e-04
	16	4.13	-2.19	3.64	-1.5569309287e-03	8.8692434606e-04	-1.9050601012e-04
	17	5.00	1.61	-1.64	2.1471769163e-03	7.2882929539e-04	-1.0857969539e-04
	18	-1.89	-0.52	-1.00	-2.2100481991e-03	-5.7614474654e-04	-1.1248538847e-04
	Per via statica	-0.00	279.17	-2786.65			
	Σ	-11.02	109.19	41.88			
	Δ	-11.02	-169.97	2828.53			

Risultati angolo di ingresso del sisma: 90.00 [°] - SLV

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,bz}$
1	19	-118.77	1358.42	-7114.00	-1.2215666312e-04	1.3645595360e-03	-1.8836199800e-05
	20	-101.92	997.86	-6897.37	-2.4639248250e-04	2.3292179928e-03	-4.8056138229e-05
	21	263.78	69.90	4236.15	1.0802340760e-03	4.0487949518e-04	6.8585289419e-05
	22	-130.26	23.31	2181.80	9.4826419593e-04	-2.7723301426e-04	-6.2177153860e-05

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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	23	189.53	95.42	3369.46	1.5314892516e-03	9.6088411010e-04	1.0978091426e-04
	24	-87.78	12.18	1094.85	2.0081493888e-03	-4.4843298202e-04	-9.8126092594e-05
	Per via statica	-0.00	0.00	0.00			
	Σ	330.35	1721.98	-10744.33			
	Δ	330.35	1721.98	-10744.33			
2	19	-160.90	2161.69	-11090.91	-1.9742404330e-04	2.5899278922e-03	-3.6113539018e-05
	20	75.23	-489.87	3536.30	2.1697938645e-04	-1.3591228708e-03	3.1046413324e-05
	21	386.93	111.62	5597.72	1.8904000768e-03	7.4118844232e-04	1.1325511516e-04
	22	-222.60	28.73	3548.45	1.9331681820e-03	-4.6589259259e-04	-1.2509113700e-04
	23	-103.50	-50.37	-1980.68	-9.9770896525e-04	-6.2353633299e-04	-7.9797580371e-05
	24	39.39	-6.41	-546.48	-1.0749087732e-03	2.8030687291e-04	6.0916473418e-05
	Per via statica	-0.00	3915.28	-5182.06			
	Σ	415.99	2240.55	-12806.45			
	Δ	415.99	-1674.72	-7624.39			
3	19	-7.56	103.56	-47.23	-2.0526696631e-04	2.7998743909e-03	-4.1702591130e-05
	20	5.59	-32.41	20.11	3.5726326048e-04	-2.0464250118e-03	7.0232378035e-05
	21	18.37	3.66	8.97	1.9867768284e-03	4.3762897216e-04	1.2778820506e-04
	22	-10.84	0.40	4.88	2.0845364252e-03	-1.1449816513e-04	-1.1192341746e-04
	23	-7.66	-2.48	-6.74	-1.6343145884e-03	-5.9168249893e-04	-1.8747537107e-04
	24	3.52	-0.46	1.60	-2.1254639124e-03	2.4607826645e-04	-1.0138712019e-04
	Per via statica	-0.00	276.15	465.43			
	Σ	20.83	109.20	-50.59			
	Δ	20.83	-166.96	-516.02			

Risultati angolo di ingresso del sisma: 180.00 [°] + SLV

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	φ_{Lx}	φ_{Ly}	φ_{Lz}
1	25	-1646.91	51.62	12668.61	1.2476591677e-03	-4.1100437106e-05	-2.6802681453e-05
	26	-259.21	-45.03	-10401.10	7.7609046763e-04	9.7129192457e-05	9.1346786895e-05
	27	-1121.10	-1.68	3109.41	2.5398241425e-03	3.8249147672e-06	-3.9074355724e-06
	28	-2.27	14.17	2191.06	3.2276764896e-04	2.5860266417e-04	1.5334238977e-04
	29	-2.90	0.34	-4.40	1.7751956997e-04	-2.0237550664e-05	2.5626963194e-06
	30	-0.02	-20.19	36.28	-3.8667219625e-05	2.5335652700e-03	-1.7469510660e-05
	Per via statica	-0.00	-0.00	0.00			
	Σ	-2202.96	-30.06	7238.00			
	Δ	-2202.96	-30.06	7238.00			
	2	25	-2706.64	46.62	23256.35	2.4190352220e-03	-4.4286599476e-05
26		-347.20	-51.05	-14634.39	1.2717208610e-03	1.3138073842e-04	1.5925962129e-04
27		541.13	1.52	-1008.94	-1.4749817434e-03	-4.1151358006e-06	-2.9983007991e-06
28		-4.97	-9.13	-1194.21	-3.5776521105e-04	-1.9874160630e-04	-1.0512511913e-04
29		9.21	-1.95	24.14	-6.7927560342e-04	1.3723811644e-04	-1.2971367388e-05
30		-0.13	9.98	-13.91	4.0244360950e-05	-1.4943894742e-03	8.5240140739e-06
Per via statica		-5287.96	-0.00	65341.97			
Σ	-3070.64	-23.74	11692.63				
Δ	2217.32	-23.74	-53649.35				
3	25	-123.23	-6.98	56.35	2.5772613652e-03	1.4681719992e-04	-4.9905558415e-05
	26	-22.48	6.05	-19.49	1.3313718279e-03	-3.4492345747e-04	1.7240672112e-04
	27	42.35	-0.42	11.54	-2.5921852538e-03	2.5311847002e-05	-1.6667937024e-04
	28	-1.11	0.38	-2.61	-5.8337694432e-04	1.8385414234e-04	-1.6442421941e-04
	29	-7.10	1.70	-15.27	1.1993442865e-02	-2.6459370977e-03	3.1427817829e-03
	30	-0.02	0.65	-0.05	7.4403425857e-05	-2.1665757281e-03	2.2350899982e-05
	Per via statica	-372.97	-0.00	4839.92			
Σ	-149.74	3.40	43.20				
Δ	223.23	3.40	-4796.72				

Risultati angolo di ingresso del sisma: 180.00 [°] - SLV

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,uz}$
1	31	-951.68	-122.49	-17043.62	9.7114180551e-04	1.4565173425e-04	6.7567681021e-05
	32	-844.51	55.45	13345.03	1.0684839128e-03	-6.0177220195e-05	-6.4028864909e-05
	33	-642.97	23.90	8255.32	2.1239225737e-03	-6.9308247788e-05	-1.0906022901e-04
	34	-407.30	-144.95	-7750.94	1.4096153198e-03	5.9158282928e-04	1.0642360622e-04
	35	-4.08	75.95	-93.88	-6.2263878420e-05	1.4298172669e-03	-6.0932509018e-06
	36	-15.43	110.92	-391.62	-2.7201028539e-04	2.4760327806e-03	-3.0460603236e-05
	Per via statica	-0.00	-0.00	0.00			
	Σ	-1561.49	-166.07	-23404.74			
	Δ	-1561.49	-166.07	-23404.74			
	2	31	-1378.42	-171.98	-23238.21	1.6860961326e-03	2.4396514826e-04
32		-1434.71	38.72	21706.23	2.1664332169e-03	-5.0128005656e-05	-1.3014870760e-04
33		276.81	-19.35	-4110.18	-1.1146791336e-03	6.6953569507e-05	6.6040072023e-05
34		226.51	79.67	4519.32	-9.1858830040e-04	-3.8791304086e-04	-7.7605536474e-05
35		-6.35	120.51	-163.17	-1.1099015293e-04	2.7065908613e-03	-1.3314907934e-05
36		9.28	-54.64	190.10	2.0450003364e-04	-1.4552459017e-03	1.7918416812e-05
Per via statica		-4446.18	-0.00	-2673.32			
Σ		-2106.04	-175.01	-30991.77			
Δ		2340.14	-175.01	-28318.45			
3		31	-57.35	2.71	-51.41	1.7645725637e-03	-8.5030285700e-05
	32	-81.11	-12.15	9.42	2.3572003993e-03	3.4816905315e-04	-1.1010944262e-04
	33	35.69	3.19	34.76	-2.6714904073e-03	-2.4466191735e-04	-2.1677371091e-04
	34	13.93	2.18	17.77	-1.4523492376e-03	-2.3511535131e-04	-1.7164801766e-04
	35	-0.24	5.74	-0.36	-1.1406633816e-04	2.8551793623e-03	-1.6588151085e-05
	36	0.57	-3.64	0.84	3.2350981455e-04	-2.1479068305e-03	4.5879494774e-05
	Per via statica	-313.60	-0.00	5.86			
	Σ	-110.31	-14.38	65.65			
	Δ	203.29	-14.38	59.79			

Risultati angolo di ingresso del sisma: 270.00 [°] + SLV

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,uz}$
1	37	118.77	-1358.42	7114.00	-1.2215667615e-04	1.3645595229e-03	-1.8836201438e-05
	38	101.92	-997.86	6897.37	-2.4639250352e-04	2.3292179598e-03	-4.8056141011e-05
	39	-263.78	-69.90	-4236.16	1.0802340755e-03	4.0487953045e-04	6.8585288325e-05
	40	130.26	-23.31	-2181.79	9.4826419367e-04	-2.7723303916e-04	-6.2177154509e-05
	41	-189.53	-95.42	-3369.47	1.5314892716e-03	9.6088417665e-04	1.0978091111e-04
	42	87.78	-12.18	-1094.84	2.0081493710e-03	-4.4843302923e-04	-9.8126094785e-05
	Per via statica	0.00	-0.00	0.00			
	Σ	-330.35	-1721.98	10744.33			
	Δ	-330.35	-1721.98	10744.33			
	2	37	160.90	-2161.69	11090.91	-1.9742406451e-04	2.5899278683e-03
38		-75.23	489.87	-3536.30	2.1697940359e-04	-1.3591228492e-03	3.1046415426e-05
39		-386.93	-111.62	-5597.73	1.8904000777e-03	7.4118851065e-04	1.1325511307e-04
40		222.60	-28.73	-3548.44	1.9331681796e-03	-4.6589263893e-04	-1.2509113811e-04
41		103.50	50.37	1980.68	-9.9770897187e-04	-6.2353637371e-04	-7.9797578388e-05
42		-39.39	6.41	546.48	-1.0749087607e-03	2.8030690022e-04	6.0916474898e-05
Per via statica		0.00	-3915.28	-40499.46			
Σ		-415.99	-2240.55	12806.45			
Δ		-415.99	1674.72	53305.91			
3		37	7.56	-103.56	47.23	-2.0526698840e-04	2.7998743741e-03
	38	-5.59	32.41	-20.11	3.5726328649e-04	-2.0464249862e-03	7.0232382059e-05
	39	-18.37	-3.66	-8.97	1.9867768294e-03	4.3762905038e-04	1.2778820284e-04

	40	10.84	-0.40	-4.88	2.0845364243e-03	-1.1449821136e-04	-1.1192341816e-04
	41	7.66	2.48	6.74	-1.6343145999e-03	-5.9168257125e-04	-1.8747536912e-04
	42	-3.52	0.46	-1.60	-2.1254639195e-03	2.4607831755e-04	-1.0138712469e-04
	Per via statica	0.00	-276.15	2756.57			
	Σ	-20.83	-109.20	50.59			
	Δ	-20.83	166.96	-2705.99			

Risultati angolo di ingresso del sisma: 270.00 [°] - SLV

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,bz}$
1	43	-78.83	-1435.22	-5710.30	7.8740725907e-05	1.4121189741e-03	1.2393606073e-05
	44	-48.25	-1070.78	-4062.36	1.1336688568e-04	2.4813830872e-03	1.9963145624e-05
	45	144.39	-18.02	2516.14	1.0532930538e-03	-2.5499908881e-04	7.1426782185e-05
	46	101.03	-26.06	2183.88	1.4401351406e-03	-5.8275994266e-04	1.2212781728e-04
	47	-60.38	-2.67	954.59	9.8245707587e-04	1.4720484126e-04	-5.9992567768e-05
	48	-47.18	-2.49	545.70	2.0860388414e-03	2.7179116918e-04	-9.3464967842e-05
	Per via statica	0.00	-0.00	-0.00			
	Σ	177.25	-1805.64	-7086.48			
	Δ	177.25	-1805.64	-7086.48			
	2	43	-98.64	-2262.41	-7972.89	1.1754071321e-04	2.6624095604e-03
44		34.61	534.67	2557.57	-9.7020083724e-05	-1.4670052280e-03	-1.8322565784e-05
45		211.04	-36.28	3386.53	1.8366089263e-03	-5.2360783865e-04	1.2016889291e-04
46		-56.63	10.20	-1241.96	-9.6301308612e-04	3.2169781696e-04	-8.5748297544e-05
47		-102.56	-6.22	1562.49	1.9907851428e-03	3.3208441684e-04	-1.2225400794e-04
48		21.28	0.54	-266.45	-1.1225034157e-03	-1.2634901489e-04	5.6455393858e-05
Per via statica		0.00	-3958.00	5238.60			
Σ		221.74	-2329.92	-8555.76			
Δ		221.74	1628.08	-13794.36			
3		43	-4.74	-103.01	-40.22	1.2510712823e-04	2.7114538634e-03
	44	2.49	32.65	14.87	-1.5469285833e-04	-2.0164379423e-03	-2.9893015514e-05
	45	10.00	-4.51	4.55	1.9268476623e-03	-9.1384670028e-04	1.3510995744e-04
	46	-4.13	2.19	-3.64	-1.5569309260e-03	8.8692443429e-04	-1.9050600926e-04
	47	-5.00	-1.61	1.64	2.1471769015e-03	7.2882934473e-04	-1.0857969532e-04
	48	1.89	0.52	1.00	-2.2100481830e-03	-5.7614478318e-04	-1.1248538480e-04
	Per via statica	0.00	-279.17	-470.51			
	Σ	11.02	-109.19	-41.88			
	Δ	11.02	169.97	428.63			

Spettro in accordo con TU 2018

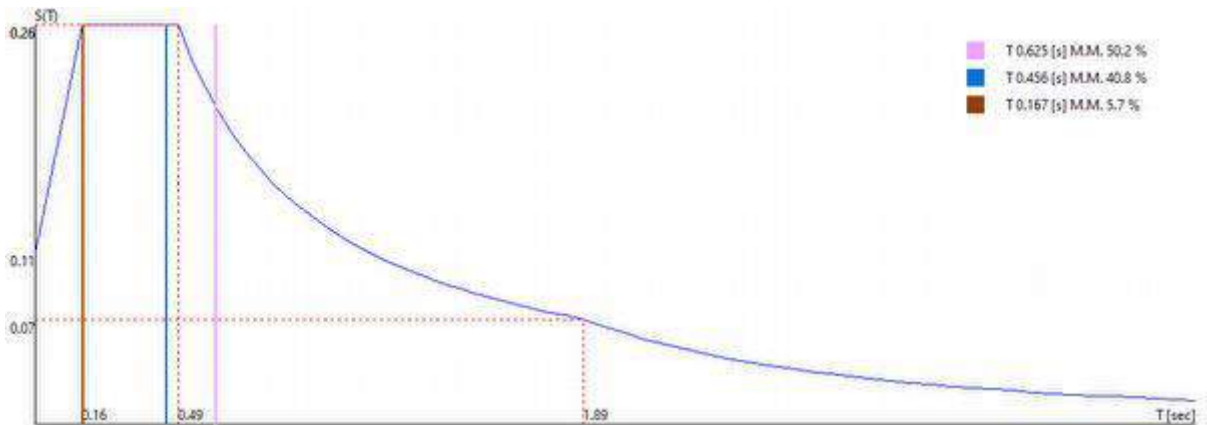
- Strada comunale Acquarola n.20 Secondigliano Longitudine 14.2577 Latitudine 40.8946
- Tipo di Terreno C
- Coefficiente di amplificazione topografica (S_T) 1.0000
- Vita nominale della costruzione (V_N) 50.0 anni
- Classe d'uso III coefficiente C_u 1.5
- Classe di duttilità impostata Bassa
- Fattore di duttilità α_u/α_1 per sisma orizzontale 1.00
- Fattore riduttivo regolarità in altezza K_R 1.00
- Fattore riduttivo per la presenza di setti K_w 1.00

Stato Limite	C	$q_0 = C \alpha_w / \alpha_1$	q_H
SLD		1.00	1.00

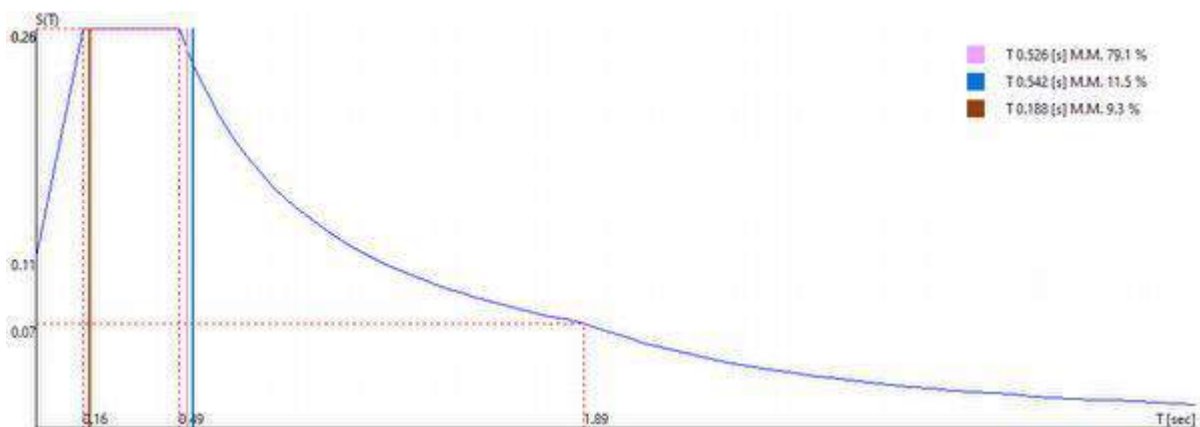
- Smorzamento Viscoso (0.05 = 5%) 0.05

TU 2018 SLD H

- Probabilità di superamento (P_{VR}) 63.0 e periodo di ritorno (T_R) 75 (anni)
- S_s 1.500
- T_B 0.165 [s]
- T_C 0.495 [s]
- T_D 1.892 [s]
- a_g/g 0.0729
- F_o 2.3409
- T_C^* 0.3251



0.00 [°] + SLD



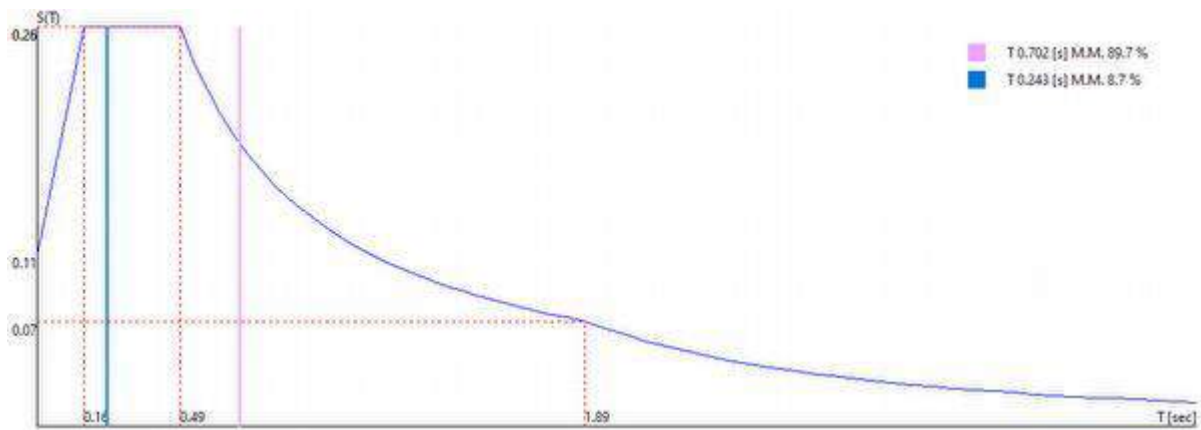
0.00 [°] - SLD

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

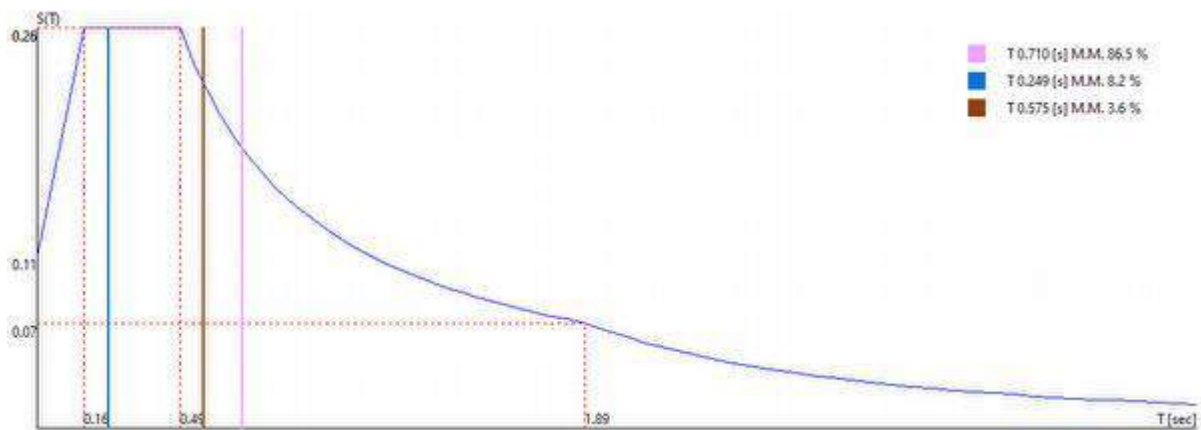
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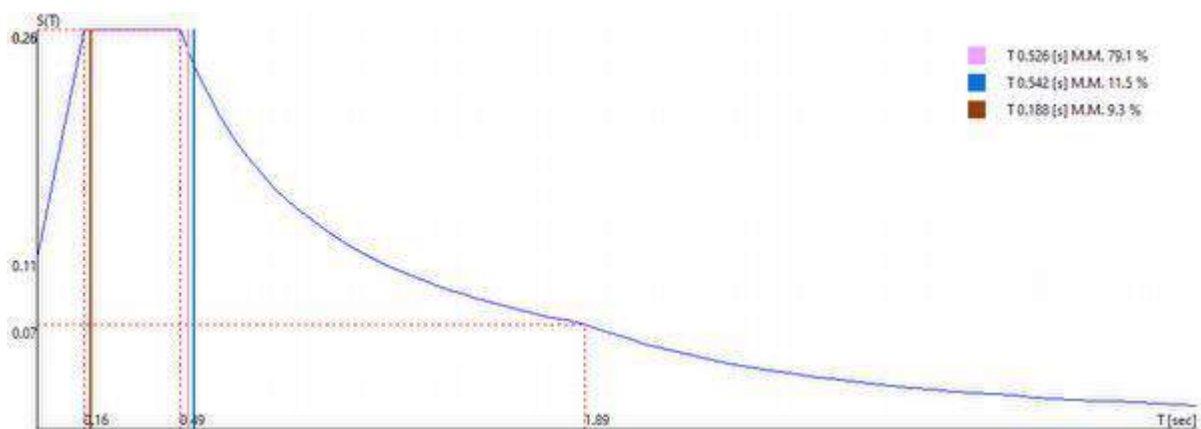
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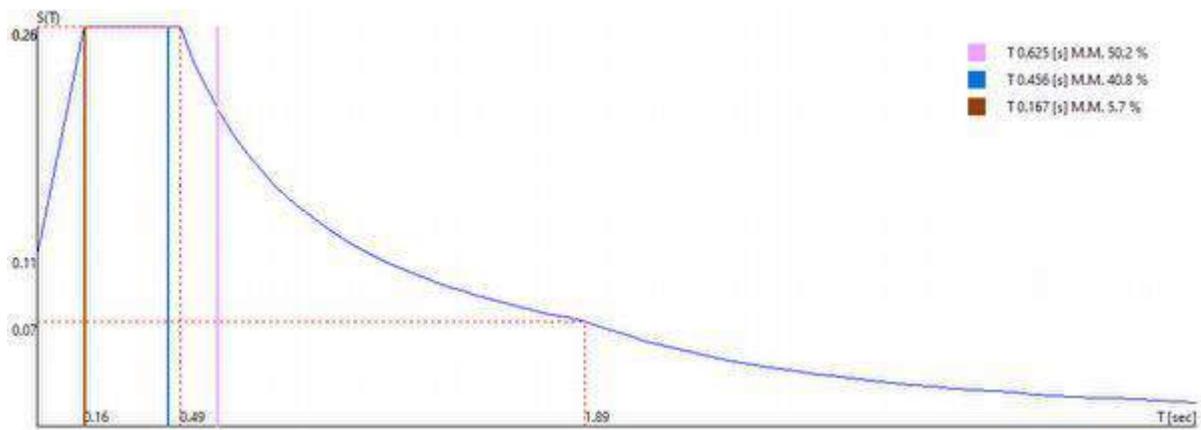
90.00 [°] + SLD



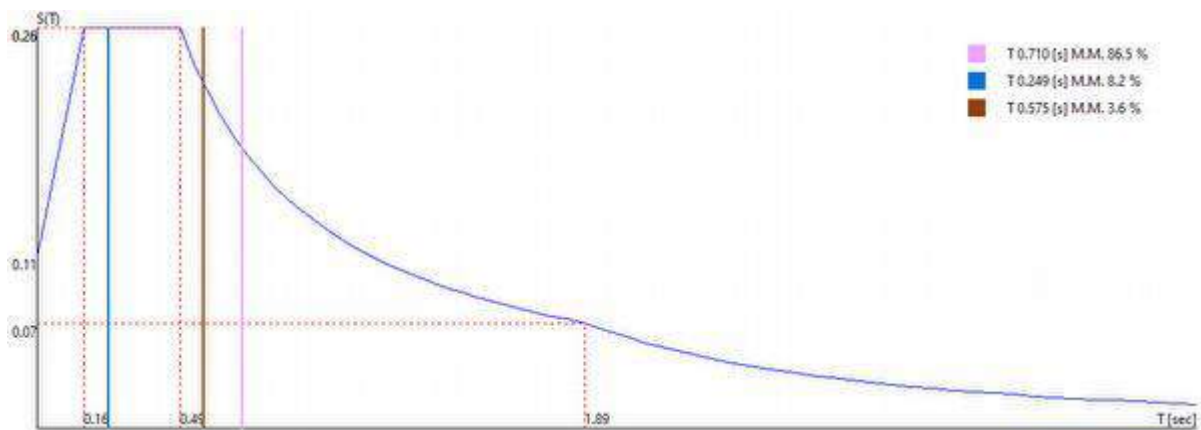
90.00 [°] - SLD



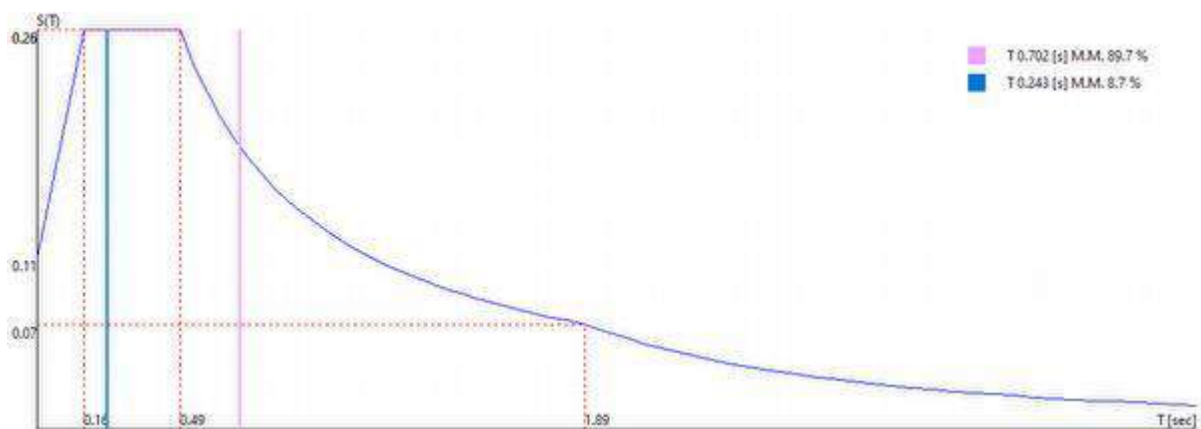
180.00 [°] + SLD



180.00 [°] - SLD



270.00 [°] + SLD



270.00 [°] - SLD

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

Direzione d'ingresso	Modo Principale	Periodo [s]	% Massa Modale Modo Principale	% Massa Modale Totale
0.00 [°] + SLD	49	0.625	50.2	99.9
0.00 [°] - SLD	55	0.526	79.1	100.0

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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90.00 [°] + SLD	61	0.702	89.7	100.0
90.00 [°] - SLD	67	0.710	86.5	100.0
180.00 [°] + SLD	73	0.526	79.1	100.0
180.00 [°] - SLD	79	0.625	50.2	99.9
270.00 [°] + SLD	85	0.710	86.5	100.0
270.00 [°] - SLD	91	0.702	89.7	100.0

Autovalori, Periodi Masse Modali efficaci

Risultati angolo di ingresso del sisma: 0.00 [°] + SLD

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	% M _{ni} /M _{mtot}	% Σ M _{ni} /M _{mtot}	Massa Modale	% M _{ni} /M _{mtot}	% Σ M _{ni} /M _{mtot}
49	0.625	0.203	3.3148605347e+02		1.0988300000e+05	50.2	50.2	1.6010358106e+07	28.5	28.5
50	0.456	0.256	2.9908703613e+02	90.2	8.9453054688e+04	40.8	91.0	1.0424619640e+07	18.6	47.1
51	0.167	0.256	1.1192503357e+02	33.8	1.2527212891e+04	5.7	96.7	9.7555280054e+06	17.4	64.5
52	0.226	0.256	7.9520629883e+01	24.0	6.3235307617e+03	2.9	99.6	1.8284737981e+07	32.6	97.1
53	0.700	0.181	2.3444356918e+01	7.1	5.4963787842e+02	0.3	99.8	1.7126419383e+05	0.3	97.4
54	0.243	0.256	1.4538745880e+01	4.4	2.1137513733e+02	0.1	99.9	1.2876900948e+06	2.3	99.7

Risultati angolo di ingresso del sisma: 0.00 [°] - SLD

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	% M _{ni} /M _{mtot}	% Σ M _{ni} /M _{mtot}	Massa Modale	% M _{ni} /M _{mtot}	% Σ M _{ni} /M _{mtot}
55	0.526	0.241	4.1622628784e+02		1.7324432813e+05	79.1	79.1	6.0627119753e+06	10.8	10.8
56	0.542	0.234	1.5841377258e+02	38.1	2.5094923828e+04	11.5	90.5	2.0452944514e+07	36.5	47.3
57	0.188	0.256	1.4274047852e+02	34.3	2.0374843750e+04	9.3	99.8	7.5332907754e+05	1.3	48.6
58	0.201	0.256	1.7781734467e+01	4.3	3.1619009399e+02	0.1	100.0	2.8285685304e+07	50.4	99.1
59	0.118	0.215	5.5122900009e+00	1.3	3.0385341644e+01	0.0	100.0	3.9707951814e+04	0.1	99.1
60	0.243	0.256	2.5869894028e+00	0.6	6.6925139427e+00	0.0	100.0	3.2399850052e+05	0.6	99.7

Risultati angolo di ingresso del sisma: 90.00 [°] + SLD

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	% M _{ni} /M _{mtot}	% Σ M _{ni} /M _{mtot}	Massa Modale	% M _{ni} /M _{mtot}	% Σ M _{ni} /M _{mtot}
61	0.702	0.180	4.4328359985e+02		1.9650034375e+05	89.7	89.7	1.3083284875e+06	2.4	2.4
62	0.243	0.256	1.3813340759e+02	31.2	1.9080837891e+04	8.7	98.4	1.7346275001e+06	3.1	5.5
63	0.580	0.218	5.0102565765e+01	11.3	2.5102670898e+03	1.1	99.6	1.2915522094e+07	23.3	28.7
64	0.211	0.256	2.2768690109e+01	5.1	5.1841326904e+02	0.2	99.8	1.7487255274e+07	31.5	60.3
65	0.490	0.256	1.9946268082e+01	4.5	3.9785360718e+02	0.2	100.0	1.2103118362e+07	21.8	82.1
66	0.179	0.256	7.3412480354e+00	1.7	5.3893920898e+01	0.0	100.0	9.8281835955e+06	17.7	99.8

Risultati angolo di ingresso del sisma: 90.00 [°] - SLD

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	% M _{ni} /M _{mtot}	% Σ M _{ni} /M _{mtot}	Massa Modale	% M _{ni} /M _{mtot}	% Σ M _{ni} /M _{mtot}
67	0.710	0.178	4.3519458008e+02		1.8939432813e+05	86.5	86.5	2.5042135315e+06	4.5	4.5
68	0.249	0.256	1.3425303650e+02	30.8	1.8023876953e+04	8.2	94.7	4.7876458110e+06	8.6	13.1
69	0.575	0.220	8.8550682068e+01	20.3	7.8412231445e+03	3.6	98.3	1.1269054498e+07	20.3	33.4
70	0.488	0.256	4.4584651947e+01	10.2	1.9877911377e+03	0.9	99.2	1.2537625751e+07	22.6	56.0

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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71	0.207	0.256	4.0165149689e+01	9.2	1.6132392578e+03	0.7	99.9	1.3600851007e+07	24.5	80.5
72	0.178	0.256	1.4187262535e+01	3.3	2.0127841187e+02	0.1	100.0	1.0684802015e+07	19.2	99.8

Risultati angolo di ingresso del sisma: 180.00 [°] + SLD

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	%	% Σ	Massa Modale	%	% Σ
						M _{mi} /M _{mtot}	M _{mi} /M _{mtot}		M _{mi} /M _{mtot}	M _{mi} /M _{mtot}
73	0.526	0.241	4.1622628784e+02		1.7324432813e+05	79.1	79.1	6.0627097047e+06	10.8	10.8
74	0.542	0.234	1.5841371155e+02	38.1	2.5094904297e+04	11.5	90.5	2.0452946777e+07	36.5	47.3
75	0.188	0.256	1.4274047852e+02	34.3	2.0374843750e+04	9.3	99.8	7.5332845269e+05	1.3	48.6
76	0.201	0.256	1.7781749725e+01	4.3	3.1619061279e+02	0.1	100.0	2.8285685773e+07	50.4	99.1
77	0.118	0.215	5.5122900009e+00	1.3	3.0385341644e+01	0.0	100.0	3.9707961473e+04	0.1	99.1
78	0.243	0.256	2.5869271755e+00	0.6	6.6921920776e+00	0.0	100.0	3.2399873674e+05	0.6	99.7

Risultati angolo di ingresso del sisma: 180.00 [°] - SLD

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	%	% Σ	Massa Modale	%	% Σ
						M _{mi} /M _{mtot}	M _{mi} /M _{mtot}		M _{mi} /M _{mtot}	M _{mi} /M _{mtot}
79	0.625	0.203	3.3148605347e+02		1.0988300000e+05	50.2	50.2	1.6010358476e+07	28.5	28.5
80	0.456	0.256	2.9908703613e+02	90.2	8.9453054688e+04	40.8	91.0	1.0424619512e+07	18.6	47.1
81	0.167	0.256	1.1192503357e+02	33.8	1.2527212891e+04	5.7	96.7	9.7555279102e+06	17.4	64.5
82	0.226	0.256	7.9520622253e+01	24.0	6.3235292969e+03	2.9	99.6	1.8284738692e+07	32.6	97.1
83	0.700	0.181	2.3444549561e+01	7.1	5.4964691162e+02	0.3	99.8	1.7126402661e+05	0.3	97.4
84	0.243	0.256	1.4538805962e+01	4.4	2.1137687683e+02	0.1	99.9	1.2876895512e+06	2.3	99.7

Risultati angolo di ingresso del sisma: 270.00 [°] + SLD

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	%	% Σ	Massa Modale	%	% Σ
						M _{mi} /M _{mtot}	M _{mi} /M _{mtot}		M _{mi} /M _{mtot}	M _{mi} /M _{mtot}
85	0.710	0.178	4.3519458008e+02		1.8939432813e+05	86.5	86.5	2.5042140060e+06	4.5	4.5
86	0.249	0.256	1.3425302124e+02	30.8	1.8023873047e+04	8.2	94.7	4.7876465292e+06	8.6	13.1
87	0.575	0.220	8.8550834656e+01	20.3	7.8412504883e+03	3.6	98.3	1.1269054165e+07	20.3	33.4
88	0.488	0.256	4.4584514618e+01	10.2	1.9877789307e+03	0.9	99.2	1.2537625683e+07	22.6	56.0
89	0.207	0.256	4.0165187836e+01	9.2	1.6132423096e+03	0.7	99.9	1.3600850207e+07	24.5	80.5
90	0.178	0.256	1.4187209129e+01	3.3	2.0127690125e+02	0.1	100.0	1.0684802176e+07	19.2	99.8

Risultati angolo di ingresso del sisma: 270.00 [°] - SLD

Modo	Periodo [s]	R	Coefficiente di Partecipazione	% L _i / L ₁	Massa Modale Traslante			Massa Modale Rotazionale		
					Massa Modale	%	% Σ	Massa Modale	%	% Σ
						M _{mi} /M _{mtot}	M _{mi} /M _{mtot}		M _{mi} /M _{mtot}	M _{mi} /M _{mtot}
91	0.702	0.180	4.4328363037e+02		1.9650037500e+05	89.7	89.7	1.3083288327e+06	2.4	2.4
92	0.243	0.256	1.3813340759e+02	31.2	1.9080837891e+04	8.7	98.4	1.7346280299e+06	3.1	5.5
93	0.580	0.218	5.0102432251e+01	11.3	2.5102536621e+03	1.1	99.6	1.2915521728e+07	23.3	28.7

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94	0.211	0.256	2.2768663406e+01	5.1	5.1841204834e+02	0.2	99.8	1.7487254917e+07	31.5	60.3
95	0.490	0.256	1.9946416855e+01	4.5	3.9785955811e+02	0.2	100.0	1.2103118457e+07	21.8	82.1
96	0.179	0.256	7.3413052559e+00	1.7	5.3894763947e+01	0.0	100.0	9.8281835007e+06	17.7	99.8

Matrici delle masse dei solai

Direzione d'ingresso 0.00 [°] + SLD

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	277298.6
				0.0	1167696.2	0.0
				2772986.5	0.0	31037387.0
2	17.96	24.28	4.16	978795.5	0.0	232439.5
				0.0	978795.5	0.0
				2324394.5	0.0	25002509.6
3	15.11	24.34	6.50	44204.0	0.0	1288.5
				0.0	44204.0	0.0
				12885.5	0.0	38427.6

Direzione d'ingresso 0.00 [°] - SLD

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	-277298.6
				0.0	1167696.2	-0.0
				-2772986.5	-0.0	31037387.0
2	17.96	24.28	4.16	978795.5	0.0	-232439.5
				0.0	978795.5	-0.0
				-2324394.5	-0.0	25002509.6
3	15.11	24.34	6.50	44204.0	0.0	-1288.5
				0.0	44204.0	-0.0
				-12885.5	-0.0	38427.6

Direzione d'ingresso 90.00 [°] + SLD

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	-0.0
				0.0	1167696.2	201953.1
				-0.1	2019530.5	30728149.8
2	17.96	24.28	4.16	978795.5	0.0	-0.0
				0.0	978795.5	169282.7
				-0.1	1692826.8	24743298.4
3	15.11	24.34	6.50	44204.0	0.0	-0.0
				0.0	44204.0	1452.1
				-0.0	14521.0	38529.0

Direzione d'ingresso 90.00 [°] - SLD

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	0.0
				0.0	1167696.2	-201953.1
				0.1	-2019530.5	30728149.8
2	17.96	24.28	4.16	978795.5	0.0	0.0

				0.0	978795.5	-169282.7
				0.1	-1692826.8	24743298.4
3	15.11	24.34	6.50	44204.0	0.0	0.0
				0.0	44204.0	-1452.1
				0.0	-14521.0	38529.0

Direzione d'ingresso 180.00 [°] + SLD

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	-277298.7
				0.0	1167696.2	-0.0
				-2772986.7	-0.2	31037387.0
2	17.96	24.28	4.16	978795.5	0.0	-232439.5
				0.0	978795.5	-0.0
				-2324394.7	-0.2	25002509.7
3	15.11	24.34	6.50	44204.0	0.0	-1288.5
				0.0	44204.0	-0.0
				-12885.5	-0.0	38427.6

Direzione d'ingresso 180.00 [°] - SLD

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	277298.7
				0.0	1167696.2	0.0
				2772986.7	0.2	31037387.0
2	17.96	24.28	4.16	978795.5	0.0	232439.5
				0.0	978795.5	0.0
				2324394.7	0.2	25002509.7
3	15.11	24.34	6.50	44204.0	0.0	1288.5
				0.0	44204.0	0.0
				12885.5	0.0	38427.6

Direzione d'ingresso 270.00 [°] + SLD

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	0.0
				0.0	1167696.2	-201953.1
				0.3	-2019530.8	30728149.9
2	17.96	24.28	4.16	978795.5	0.0	0.0
				0.0	978795.5	-169282.7
				0.2	-1692827.0	24743298.5
3	15.11	24.34	6.50	44204.0	0.0	0.0
				0.0	44204.0	-1452.1
				0.0	-14521.0	38529.0

Direzione d'ingresso 270.00 [°] - SLD

Solaio	x _G [m]	y _G [m]	z _G [m]	Massa [kg]	Massa [kg]	Jp [kg m ²]
1	17.90	24.59	0.00	1167696.2	0.0	-0.0
				0.0	1167696.2	201953.1
				-0.3	2019530.8	30728149.9
2	17.96	24.28	4.16	978795.5	0.0	-0.0
				0.0	978795.5	169282.7
				-0.2	1692827.0	24743298.5
3	15.11	24.34	6.50	44204.0	0.0	-0.0

	0.0	44204.0	1452.1
	-0.0	14521.0	38529.0

Variazioni Matrice delle Masse Solai Direzione d'ingresso 0.00 [°] + SLD

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	47.50	2.37	0.00	-2.37	2772986.5	0.0	658515.0
2	34.59	47.50	47.50	2.37	0.00	-2.37	2324394.5	0.0	551985.6
3	6.57	5.83	5.83	0.29	0.00	-0.29	12885.5	0.0	375.6

Variazioni Matrice delle Masse Solai Direzione d'ingresso 0.00 [°] - SLD

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	47.50	2.37	-0.00	2.37	-2772986.5	-0.0	658515.0
2	34.59	47.50	47.50	2.37	-0.00	2.37	-2324394.5	-0.0	551985.6
3	6.57	5.83	5.83	0.29	-0.00	0.29	-12885.5	-0.0	375.6

Variazioni Matrice delle Masse Solai Direzione d'ingresso 90.00 [°] + SLD

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	34.59	1.73	1.73	0.00	-0.1	2019530.5	349277.8
2	34.59	47.50	34.59	1.73	1.73	0.00	-0.1	1692826.8	292774.4
3	6.57	5.83	6.57	0.33	0.33	0.00	-0.0	14521.0	477.0

Variazioni Matrice delle Masse Solai Direzione d'ingresso 90.00 [°] - SLD

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	34.59	1.73	-1.73	-0.00	0.1	-2019530.5	349277.8
2	34.59	47.50	34.59	1.73	-1.73	-0.00	0.1	-1692826.8	292774.4
3	6.57	5.83	6.57	0.33	-0.33	-0.00	0.0	-14521.0	477.0

Variazioni Matrice delle Masse Solai Direzione d'ingresso 180.00 [°] + SLD

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	47.50	2.37	-0.00	2.37	-2772986.7	-0.2	658515.0
2	34.59	47.50	47.50	2.37	-0.00	2.37	-2324394.7	-0.2	551985.7
3	6.57	5.83	5.83	0.29	-0.00	0.29	-12885.5	-0.0	375.6

Variazioni Matrice delle Masse Solai Direzione d'ingresso 180.00 [°] - SLD

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	47.50	2.37	0.00	-2.37	2772986.7	0.2	658515.0
2	34.59	47.50	47.50	2.37	0.00	-2.37	2324394.7	0.2	551985.7
3	6.57	5.83	5.83	0.29	0.00	-0.29	12885.5	0.0	375.6

Variazioni Matrice delle Masse Solai Direzione d'ingresso 270.00 [°] + SLD

Solaio	Ingombro in Pianta		Larghezza Apparente [m]	Eccentricità [m]	dxG [m]	dyG [m]	Sx [kg]x[m]	Sy [kg]x[m]	dJp [kg m ²]
	B [m]	H [m]							
1	34.59	47.50	34.59	1.73	-1.73	-0.00	0.3	-2019530.8	349277.9
2	34.59	47.50	34.59	1.73	-1.73	-0.00	0.2	-1692827.0	292774.5
3	6.57	5.83	6.57	0.33	-0.33	-0.00	0.0	-14521.0	477.0

Variazioni Matrice delle Masse Solai Direzione d'ingresso 270.00 [°] - SLD

Solaio	Ingombro in Pianta		Larghezza Apparente	Eccentricità	dxG	dyG	Sx	Sy	dJp
	B [m]	H [m]	[m]	[m]	[m]	[m]	[kg]x[m]	[kg]x[m]	[kg m ²]
1	34.59	47.50	34.59	1.73	1.73	0.00	-0.3	2019530.8	349277.9
2	34.59	47.50	34.59	1.73	1.73	0.00	-0.2	1692827.0	292774.5
3	6.57	5.83	6.57	0.33	0.33	0.00	-0.0	14521.0	477.0

Azioni solai analisi modale

Risultati angolo di ingresso del sisma: 0.00 [°] + SLD

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	φ_{Lx}	φ_{Ly}	φ_{Lz}
1	49	870.29	112.02	15586.04	9.7114181068e-04	1.4565178828e-04	6.7567681025e-05
	50	803.76	-52.78	-12701.11	1.0684839054e-03	-6.0177243765e-05	-6.4028864798e-05
	51	612.10	-22.75	-7858.92	2.1239225648e-03	-6.9308290621e-05	-1.0906022851e-04
	52	387.64	137.95	7376.95	1.4096153218e-03	5.9158294001e-04	1.0642360535e-04
	53	3.73	-69.45	85.85	-6.2263899935e-05	1.4298172609e-03	-6.0932533534e-06
	54	14.68	-105.56	372.72	-2.7201032075e-04	2.4760327527e-03	-3.0460607975e-05
	Per via statica	0.00	0.00	-0.00			
	Σ	1462.91	-155.34	21847.76			
	Δ	1462.91	-155.34	21847.76			
	2	49	1260.54	157.28	21250.87	1.6860961422e-03	2.4396525111e-04
50		1365.49	-36.85	-20658.88	2.1664332025e-03	-5.0128050430e-05	-1.3014870727e-04
51		-263.52	18.42	3912.82	-1.1146791320e-03	6.6953592966e-05	6.6040071886e-05
52		-215.58	-75.82	-4301.26	-9.1858830036e-04	-3.8791310807e-04	-7.7605536010e-05
53		5.81	-110.20	149.21	-1.1099018837e-04	2.7065908512e-03	-1.3314912215e-05
54		-8.83	52.01	-180.93	2.0450005989e-04	-1.4552458836e-03	1.7918420289e-05
Per via statica		4065.94	0.00	-50241.76			
Σ		1967.95	161.13	28904.74			
Δ		-2097.99	161.13	79146.49			
3		49	52.45	-2.48	47.02	1.7645725741e-03	-8.5030177541e-05
	50	77.20	11.56	-8.97	2.3572003818e-03	3.4816900361e-04	-1.1010944292e-04
	51	-33.98	-3.04	-33.09	-2.6714903485e-03	-2.4466185829e-04	-2.1677369653e-04
	52	-13.26	-2.08	-16.91	-1.4523492398e-03	-2.3511545337e-04	-1.7164801693e-04
	53	0.22	-5.25	0.33	-1.1406637505e-04	2.8551793644e-03	-1.6588155751e-05
	54	-0.54	3.47	-0.80	3.2350985498e-04	-2.1479068169e-03	4.5879501306e-05
	Per via statica	286.78	0.00	-3721.44			
	Σ	103.76	13.57	-61.02			
	Δ	-183.02	13.57	3660.41			

Risultati angolo di ingresso del sisma: 0.00 [°] - SLD

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	φ_{Lx}	φ_{Ly}	φ_{Lz}
1	55	1506.07	-47.20	-11585.19	1.2476590855e-03	-4.1100431852e-05	-2.6802691677e-05
	56	237.04	41.18	9511.59	7.7609059500e-04	9.7129146392e-05	9.1346783875e-05
	57	1067.00	1.60	-2959.38	2.5398241170e-03	3.8249019067e-06	-3.9074476048e-06
	58	2.16	-13.48	-2085.34	3.2276782518e-04	2.5860256658e-04	1.5334238997e-04
	59	2.32	-0.27	3.52	1.7751957519e-04	-2.0237536841e-05	2.5626960330e-06
	60	0.02	19.22	-34.53	-3.8667216328e-05	2.5335652802e-03	-1.7469506689e-05
	Per via statica	0.00	0.00	-0.00			
	Σ	2036.47	28.07	-6746.23			
	Δ	2036.47	28.07	-6746.23			
	2	55	2475.16	-42.64	-21267.46	2.4190350884e-03	-4.4286584034e-05
56		317.51	46.69	13382.86	1.2717211084e-03	1.3138065392e-04	1.5925961433e-04

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	57	-515.02	-1.44	960.26	-1.4749817157e-03	-4.1151233445e-06	-2.9982926837e-06
	58	4.73	8.69	1136.59	-3.5776531252e-04	-1.9874154741e-04	-1.0512511951e-04
	59	-7.37	1.56	-19.32	-6.7927561933e-04	1.3723800661e-04	-1.2971366093e-05
	60	0.13	-9.50	13.24	4.0244352183e-05	-1.4943894812e-03	8.5240111843e-06
	Per via statica	4835.73	0.00	2907.55			
	Σ	2811.46	21.90	-10705.71			
	Δ	-2024.27	21.90	-13613.25			
3	55	112.69	6.38	-51.53	2.5772612262e-03	1.4681727088e-04	-4.9905577491e-05
	56	20.56	-5.54	17.82	1.3313720908e-03	-3.4492352582e-04	1.7240671559e-04
	57	-40.30	0.40	-10.99	-2.5921852150e-03	2.5311823716e-05	-1.6667935972e-04
	58	1.06	-0.36	2.49	-5.8337711493e-04	1.8385424095e-04	-1.6442422981e-04
	59	5.69	-1.36	12.23	1.1993443150e-02	-2.6459349745e-03	3.1427818586e-03
	60	0.02	-0.62	0.05	7.4403411859e-05	-2.1665757277e-03	2.2350895250e-05
	Per via statica	341.07	0.00	-6.38			
	Σ	137.33	-3.02	-39.03			
	Δ	-203.74	-3.02	-32.65			

Risultati angolo di ingresso del sisma: 90.00 [°] + SLD

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,bz}$
1	61	72.09	1312.48	5221.95	7.8740717134e-05	1.4121189817e-03	1.2393604388e-05
	62	45.92	1019.12	3866.34	1.1336686981e-04	2.4813831087e-03	1.9963141659e-05
	63	-132.04	16.48	-2300.96	1.0532930474e-03	-2.5499905374e-04	7.1426782233e-05
	64	-96.16	24.81	-2078.51	1.4401351440e-03	-5.8275985360e-04	1.2212781691e-04
	65	57.47	2.54	-908.52	9.8245708225e-04	1.4720481570e-04	-5.9992567999e-05
	66	44.91	2.37	-519.37	2.0860388401e-03	2.7179112943e-04	-9.3464969210e-05
	Per via statica	-0.00	0.00	-0.00			
	Σ	-164.47	1675.83	6571.60			
	Δ	-164.47	1675.83	6571.60			
2	61	90.20	2068.93	7291.04	1.1754070002e-04	2.6624095758e-03	1.9367246934e-05
	62	-32.94	-508.87	-2434.17	-9.7020067313e-05	-1.4670052410e-03	-1.8322562963e-05
	63	-192.99	33.18	-3096.92	1.8366089139e-03	-5.2360777135e-04	1.2016889303e-04
	64	53.90	-9.70	1182.03	-9.6301308759e-04	3.2169776286e-04	-8.5748297537e-05
	65	97.61	5.92	-1487.09	1.9907851556e-03	3.3208436914e-04	-1.2225400838e-04
	66	-20.26	-0.52	253.59	-1.1225034132e-03	-1.2634899219e-04	5.6455394788e-05
	Per via statica	-0.00	3619.51	37440.05			
	Σ	-204.27	2135.26	7864.57			
	Δ	-204.27	-1484.25	-29575.47			
3	61	4.34	94.20	36.78	1.2510711458e-04	2.7114538887e-03	1.9558522345e-05
	62	-2.37	-31.07	-14.15	-1.5469283341e-04	-2.0164379740e-03	-2.9893010530e-05
	63	-9.14	4.13	-4.16	1.9268476491e-03	-9.1384662936e-04	1.3510995755e-04
	64	3.94	-2.08	3.46	-1.5569309287e-03	8.8692434606e-04	-1.9050601012e-04
	65	4.75	1.53	-1.57	2.1471769163e-03	7.2882929539e-04	-1.0857969539e-04
	66	-1.80	-0.50	-0.95	-2.2100481991e-03	-5.7614474654e-04	-1.1248538847e-04
	Per via statica	-0.00	255.29	-2548.34			
	Σ	-10.18	100.24	38.48			
	Δ	-10.18	-155.05	2586.81			

Risultati angolo di ingresso del sisma: 90.00 [°] - SLD

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,bz}$
1	67	-108.61	1242.24	-6505.61	-1.2215666312e-04	1.3645595360e-03	-1.8836199800e-05
	68	-97.00	949.71	-6564.57	-2.4639248250e-04	2.3292179928e-03	-4.8056138229e-05
	69	241.22	63.92	3873.87	1.0802340760e-03	4.0487949518e-04	6.8585289419e-05
	70	-123.98	22.19	2076.52	9.4826419593e-04	-2.7723301426e-04	-6.2177153860e-05

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	71	180.38	90.81	3206.88	1.5314892516e-03	9.6088411010e-04	1.0978091426e-04
	72	-83.55	11.60	1042.02	2.0081493888e-03	-4.4843298202e-04	-9.8126092594e-05
	Per via statica	-0.00	0.00	0.00			
	Σ	307.28	1598.09	-10023.07			
	Δ	307.28	1598.09	-10023.07			
2	67	-147.14	1976.82	-10142.41	-1.9742404330e-04	2.5899278922e-03	-3.6113539018e-05
	68	71.60	-466.23	3365.67	2.1697938645e-04	-1.3591228708e-03	3.1046413324e-05
	69	353.84	102.07	5119.00	1.8904000768e-03	7.4118844232e-04	1.1325511516e-04
	70	-211.86	27.35	3377.23	1.9331681820e-03	-4.6589259259e-04	-1.2509113700e-04
	71	-98.50	-47.94	-1885.11	-9.9770896525e-04	-6.2353633299e-04	-7.9797580371e-05
	72	37.49	-6.10	-520.12	-1.0749087732e-03	2.8030687291e-04	6.0916473418e-05
	Per via statica	-0.00	3580.44	-4738.89			
	Σ	384.18	2053.19	-11798.50			
	Δ	384.18	-1527.25	-7059.62			
3	67	-6.91	94.70	-43.19	-2.0526696631e-04	2.7998743909e-03	-4.1702591130e-05
	68	5.32	-30.84	19.14	3.5726326048e-04	-2.0464250118e-03	7.0232378035e-05
	69	16.79	3.34	8.20	1.9867768284e-03	4.3762897216e-04	1.2778820506e-04
	70	-10.32	0.38	4.64	2.0845364252e-03	-1.1449816513e-04	-1.1192341746e-04
	71	-7.29	-2.36	-6.42	-1.6343145884e-03	-5.9168249893e-04	-1.8747537107e-04
	72	3.35	-0.44	1.52	-2.1254639124e-03	2.4607826645e-04	-1.0138712019e-04
	Per via statica	-0.00	252.54	425.63			
	Σ	19.30	100.23	-46.57			
	Δ	19.30	-152.30	-472.20			

Risultati angolo di ingresso del sisma: 180.00 [°] + SLD

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	φ_{Lx}	φ_{Ly}	φ_{Lz}
1	73	-1506.07	47.20	11585.18	1.2476591677e-03	-4.1100437106e-05	-2.6802681453e-05
	74	-237.04	-41.18	-9511.59	7.7609046763e-04	9.7129192457e-05	9.1346786895e-05
	75	-1067.00	-1.60	2959.37	2.5398241425e-03	3.8249147672e-06	-3.9074355724e-06
	76	-2.16	13.48	2085.34	3.2276764896e-04	2.5860266417e-04	1.5334238977e-04
	77	-2.32	0.27	-3.52	1.7751956997e-04	-2.0237550664e-05	2.5626963194e-06
	78	-0.02	-19.22	34.53	-3.8667219625e-05	2.5335652700e-03	-1.7469510660e-05
	Per via statica	-0.00	-0.00	0.00			
	Σ	-2036.47	-28.07	6746.23			
Δ	-2036.47	-28.07	6746.23				
2	73	-2475.16	42.64	21267.46	2.4190352220e-03	-4.4286599476e-05	-6.3992446223e-05
	74	-317.51	-46.69	-13382.85	1.2717208610e-03	1.3138073842e-04	1.5925962129e-04
	75	515.02	1.44	-960.25	-1.4749817434e-03	-4.1151358006e-06	-2.9983007991e-06
	76	-4.73	-8.69	-1136.59	-3.5776521105e-04	-1.9874160630e-04	-1.0512511913e-04
	77	7.37	-1.56	19.32	-6.7927560342e-04	1.3723811644e-04	-1.2971367388e-05
	78	-0.13	9.50	-13.24	4.0244360950e-05	-1.4943894742e-03	8.5240140739e-06
Per via statica	-4835.73	-0.00	59753.90				
Σ	-2811.46	-21.90	10705.71				
Δ	2024.27	-21.90	-49048.19				
3	73	-112.69	-6.38	51.53	2.5772613652e-03	1.4681719992e-04	-4.9905558415e-05
	74	-20.56	5.54	-17.82	1.3313718279e-03	-3.4492345747e-04	1.7240672112e-04
	75	40.30	-0.40	10.99	-2.5921852538e-03	2.5311847002e-05	-1.6667937024e-04
	76	-1.06	0.36	-2.49	-5.8337694432e-04	1.8385414234e-04	-1.6442421941e-04
	77	-5.69	1.36	-12.23	1.1993442865e-02	-2.6459370977e-03	3.1427817829e-03
	78	-0.02	0.62	-0.05	7.4403425857e-05	-2.1665757281e-03	2.2350899982e-05
Per via statica	-341.07	-0.00	4426.01				
Σ	-137.33	3.02	39.03				
Δ	203.74	3.02	-4386.98				

Risultati angolo di ingresso del sisma: 180.00 [°] - SLD

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,uz}$
1	79	-870.29	-112.02	-15586.04	9.7114180551e-04	1.4565173425e-04	6.7567681021e-05
	80	-803.76	52.78	12701.11	1.0684839128e-03	-6.0177220195e-05	-6.4028864909e-05
	81	-612.10	22.75	7858.92	2.1239225737e-03	-6.9308247788e-05	-1.0906022901e-04
	82	-387.64	-137.95	-7376.95	1.4096153198e-03	5.9158282928e-04	1.0642360622e-04
	83	-3.73	69.45	-85.85	-6.2263878420e-05	1.4298172669e-03	-6.0932509018e-06
	84	-14.68	105.56	-372.73	-2.7201028539e-04	2.4760327806e-03	-3.0460603236e-05
	Per via statica	-0.00	-0.00	0.00			
	Σ	-1462.91	155.34	-21847.76			
	Δ	-1462.91	155.34	-21847.76			
	2	79	-1260.54	-157.28	-21250.87	1.6860961326e-03	2.4396514826e-04
80		-1365.49	36.85	20658.88	2.1664332169e-03	-5.0128005656e-05	-1.3014870760e-04
81		263.52	-18.42	-3912.82	-1.1146791336e-03	6.6953569507e-05	6.6040072023e-05
82		215.58	75.82	4301.26	-9.1858830040e-04	-3.8791304086e-04	-7.7605536474e-05
83		-5.81	110.20	-149.21	-1.1099015293e-04	2.7065908613e-03	-1.3314907934e-05
84		8.83	-52.01	180.93	2.0450003364e-04	-1.4552459017e-03	1.7918416812e-05
Per via statica		-4065.94	-0.00	-2444.70			
Σ		-1967.95	-161.13	-28904.74			
Δ		2097.99	-161.13	-26460.04			
3		79	-52.45	2.48	-47.02	1.7645725637e-03	-8.5030285700e-05
	80	-77.20	-11.56	8.97	2.3572003993e-03	3.4816905315e-04	-1.1010944262e-04
	81	33.98	3.04	33.09	-2.6714904073e-03	-2.4466191735e-04	-2.1677371091e-04
	82	13.26	2.08	16.91	-1.4523492376e-03	-2.3511535131e-04	-1.7164801766e-04
	83	-0.22	5.25	-0.33	-1.1406633816e-04	2.8551793623e-03	-1.6588151085e-05
	84	0.54	-3.47	0.80	3.2350981455e-04	-2.1479068305e-03	4.5879494774e-05
	Per via statica	-286.78	-0.00	5.36			
	Σ	-103.76	-13.57	61.02			
	Δ	183.02	-13.57	55.66			

Risultati angolo di ingresso del sisma: 270.00 [°] + SLD

Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,uz}$
1	85	108.61	-1242.24	6505.61	-1.2215667615e-04	1.3645595229e-03	-1.8836201438e-05
	86	97.00	-949.71	6564.57	-2.4639250352e-04	2.3292179598e-03	-4.8056141011e-05
	87	-241.22	-63.92	-3873.88	1.0802340755e-03	4.0487953045e-04	6.8585288325e-05
	88	123.98	-22.19	-2076.52	9.4826419367e-04	-2.7723303916e-04	-6.2177154509e-05
	89	-180.38	-90.81	-3206.89	1.5314892716e-03	9.6088417665e-04	1.0978091111e-04
	90	83.55	-11.60	-1042.02	2.0081493710e-03	-4.4843302923e-04	-9.8126094785e-05
	Per via statica	0.00	-0.00	0.00			
	Σ	-307.28	-1598.09	10023.07			
	Δ	-307.28	-1598.09	10023.07			
	2	85	147.14	-1976.82	10142.41	-1.9742406451e-04	2.5899278683e-03
86		-71.60	466.23	-3365.67	2.1697940359e-04	-1.3591228492e-03	3.1046415426e-05
87		-353.84	-102.07	-5119.01	1.8904000777e-03	7.4118851065e-04	1.1325511307e-04
88		211.86	-27.35	-3377.22	1.9331681796e-03	-4.6589263893e-04	-1.2509113811e-04
89		98.50	47.94	1885.11	-9.9770897187e-04	-6.2353637371e-04	-7.9797578388e-05
90		-37.49	6.10	520.11	-1.0749087607e-03	2.8030690022e-04	6.0916474898e-05
Per via statica		0.00	-3580.44	-37035.93			
Σ		-384.18	-2053.19	11798.50			
Δ		-384.18	1527.25	48834.43			
3		85	6.91	-94.70	43.19	-2.0526698840e-04	2.7998743741e-03
	86	-5.32	30.84	-19.14	3.5726328649e-04	-2.0464249862e-03	7.0232382059e-05
	87	-16.79	-3.34	-8.20	1.9867768294e-03	4.3762905038e-04	1.2778820284e-04

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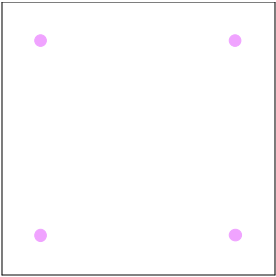
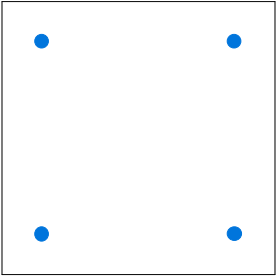
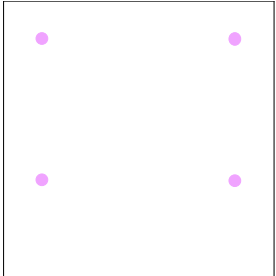
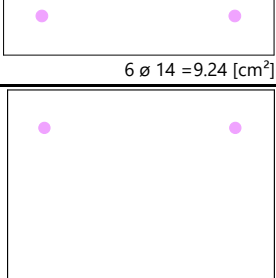
	88	10.32	-0.38	-4.64	2.0845364243e-03	-1.1449821136e-04	-1.1192341816e-04
	89	7.29	2.36	6.42	-1.6343145999e-03	-5.9168257125e-04	-1.8747536912e-04
	90	-3.35	0.44	-1.52	-2.1254639195e-03	2.4607831755e-04	-1.0138712469e-04
	Per via statica	0.00	-252.54	2520.83			
	Σ	-19.30	-100.23	46.57			
	Δ	-19.30	152.30	-2474.26			

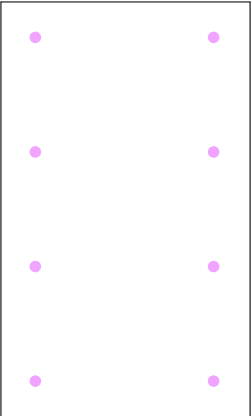
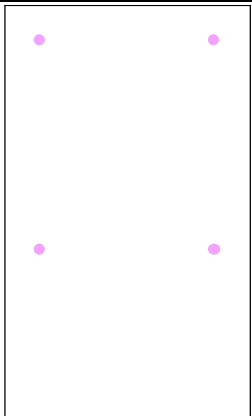
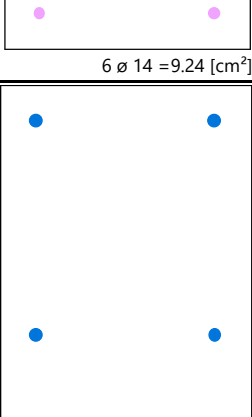
Risultati angolo di ingresso del sisma: 270.00 [°] - SLD

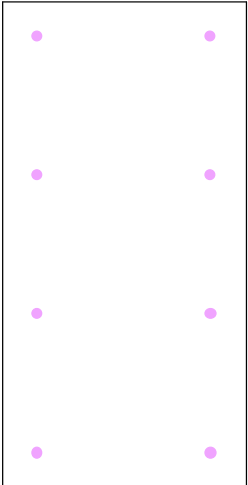
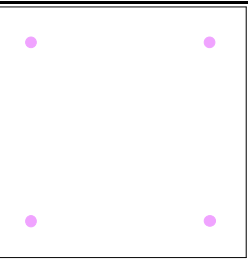
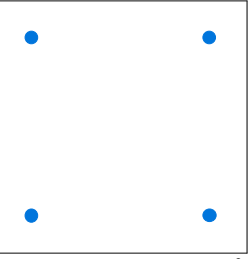
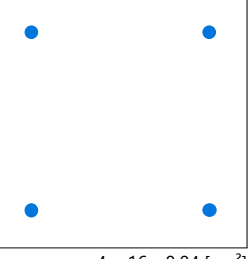
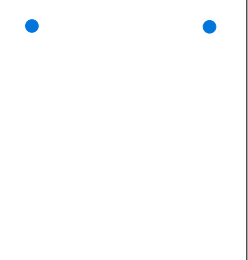
Solaio	Modo	Fx [kN]	Fy [kN]	Mt [kNm]	$\varphi_{i,ux}$	$\varphi_{i,uy}$	$\varphi_{i,oz}$
1	91	-72.09	-1312.48	-5221.95	7.8740725907e-05	1.4121189741e-03	1.2393606073e-05
	92	-45.92	-1019.12	-3866.34	1.1336688568e-04	2.4813830872e-03	1.9963145624e-05
	93	132.04	-16.48	2300.96	1.0532930538e-03	-2.5499908881e-04	7.1426782185e-05
	94	96.15	-24.81	2078.51	1.4401351406e-03	-5.8275994266e-04	1.2212781728e-04
	95	-57.47	-2.54	908.53	9.8245707587e-04	1.4720484126e-04	-5.9992567768e-05
	96	-44.91	-2.37	519.37	2.0860388414e-03	2.7179116918e-04	-9.3464967842e-05
	Per via statica	0.00	-0.00	-0.00			
	Σ	164.47	-1675.83	-6571.60			
	Δ	164.47	-1675.83	-6571.60			
	2	91	-90.20	-2068.93	-7291.05	1.1754071321e-04	2.6624095604e-03
92		32.94	508.87	2434.17	-9.7020083724e-05	-1.4670052280e-03	-1.8322565784e-05
93		192.99	-33.18	3096.91	1.8366089263e-03	-5.2360783865e-04	1.2016889291e-04
94		-53.90	9.70	-1182.03	-9.6301308612e-04	3.2169781696e-04	-8.5748297544e-05
95		-97.61	-5.92	1487.10	1.9907851428e-03	3.3208441684e-04	-1.2225400794e-04
96		20.26	0.52	-253.59	-1.1225034157e-03	-1.2634901489e-04	5.6455393858e-05
Per via statica		0.00	-3619.51	4790.59			
Σ		204.27	-2135.26	-7864.58			
Δ		204.27	1484.25	-12655.17			
3		91	-4.34	-94.20	-36.78	1.2510712823e-04	2.7114538634e-03
	92	2.37	31.07	14.15	-1.5469285833e-04	-2.0164379423e-03	-2.9893015514e-05
	93	9.14	-4.13	4.16	1.9268476623e-03	-9.1384670028e-04	1.3510995744e-04
	94	-3.94	2.08	-3.46	-1.5569309260e-03	8.8692443429e-04	-1.9050600926e-04
	95	-4.75	-1.53	1.57	2.1471769015e-03	7.2882934473e-04	-1.0857969532e-04
	96	1.80	0.50	0.95	-2.2100481830e-03	-5.7614478318e-04	-1.1248538480e-04
	Per via statica	0.00	-255.29	-430.27			
	Σ	10.18	-100.24	-38.48			
	Δ	10.18	155.05	391.80			

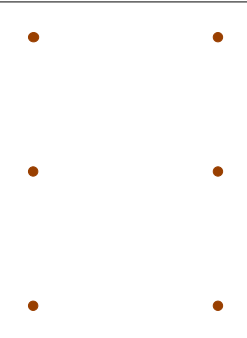
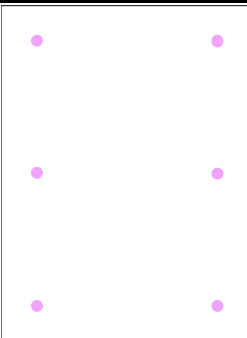
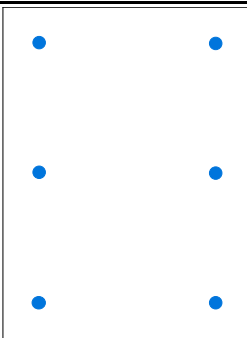
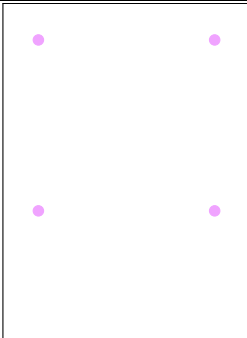
Pilastri

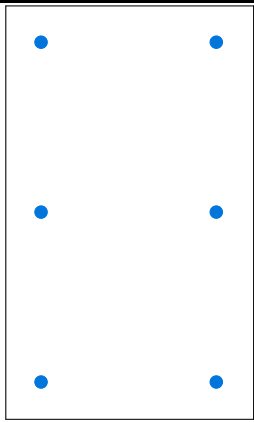
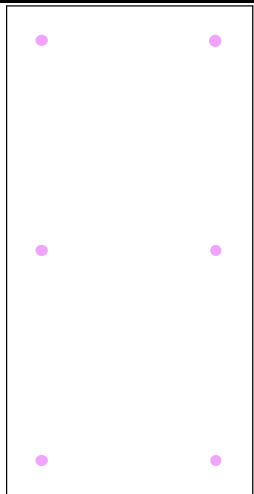
Armature

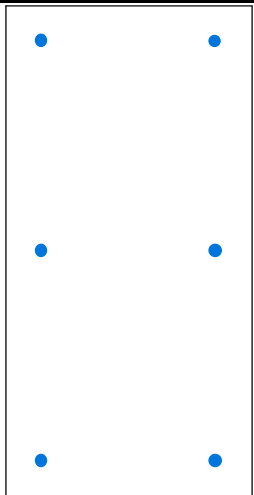
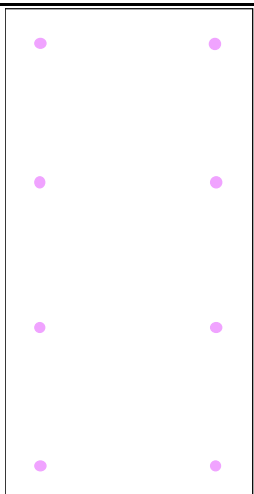
Sezione	Dimensioni [cm]	Armature
1	B 30 H 30 [cm]	 <p>4 \varnothing 14 = 6.16 [cm²]</p>
1	B 30 H 30 [cm]	 <p>4 \varnothing 16 = 8.04 [cm²]</p>
2	B 30 H 40 [cm]	 <p>6 \varnothing 14 = 9.24 [cm²]</p>
3	B 30 H 50 [cm]	 <p>6 \varnothing 14 = 9.24 [cm²]</p>

3	B 30 H 50 [cm]	 <p>8 \varnothing 14 = 12.32 [cm²]</p>
4	B 30 H 60 [cm]	 <p>6 \varnothing 14 = 9.24 [cm²]</p>
4	B 30 H 60 [cm]	 <p>6 \varnothing 16 Af = 12.06 [cm²]</p>

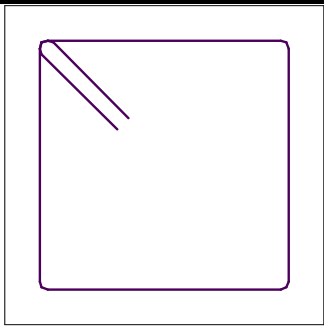
4	B 30 H 60 [cm]	 <p>8 \varnothing 14 = 12.32 [cm²]</p>
5	B 30 H 30 [cm]	 <p>4 \varnothing 14 = 6.16 [cm²]</p>
5	B 30 H 30 [cm]	 <p>4 \varnothing 16 = 8.04 [cm²]</p>
5	B 30 H 30 [cm]	 <p>4 \varnothing 16 = 8.04 [cm²]</p>
6	B 30 H 40 [cm]	 <p>4 \varnothing 16 = 8.04 [cm²]</p>

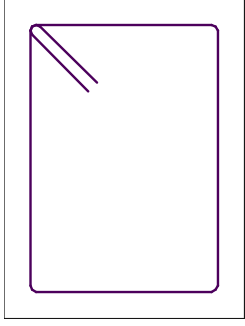
6	B 30 H 40 [cm]	 <p>6 \varnothing 12 = 6.79 [cm²]</p>
6	B 30 H 40 [cm]	 <p>6 \varnothing 14 = 9.24 [cm²]</p>
6	B 30 H 40 [cm]	 <p>6 \varnothing 16 = 12.06 [cm²]</p>
7	B 30 H 50 [cm]	 <p>6 \varnothing 14 Af = 9.24 [cm²]</p>

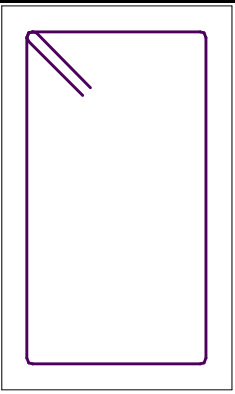
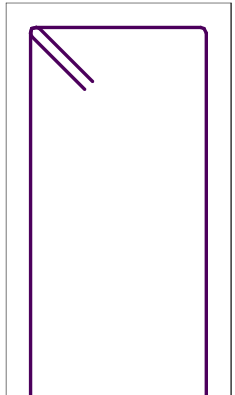
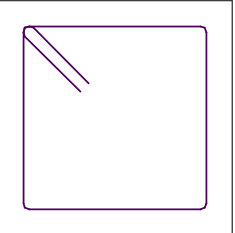
7	B 30 H 50 [cm]	 <p>6 \varnothing 16 = 12.06 [cm²]</p>
8	B 30 H 60 [cm]	 <p>6 \varnothing 14 Af=9.24 [cm²]</p>

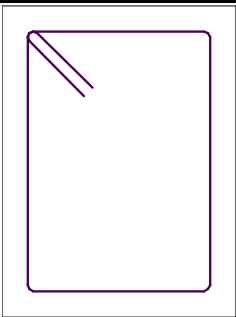
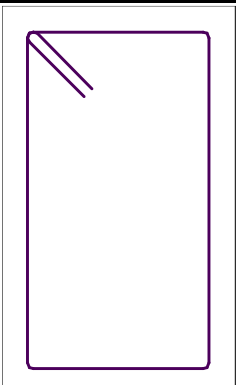
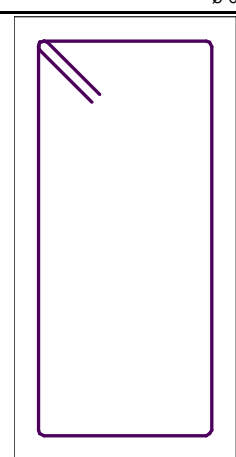
8	B 30 H 60 [cm]	 <p>6 \varnothing 16 = 12.06 [cm²]</p>
8	B 30 H 60 [cm]	 <p>8 \varnothing 14 Af=12.32 [cm²]</p>

Staffe

Sezione	Dimensioni [cm]	Staffe
1	B 30 H 30 [cm]	 <p>\varnothing 6</p>

2	B 30 H 40 [cm]	 <p>\varnothing 6</p>
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3	B 30 H 50 [cm]	 ø 6
4	B 30 H 60 [cm]	 ø 6
5	B 30 H 30 [cm]	 ø 6

6	B 30 H 40 [cm]	 ø 6
7	B 30 H 50 [cm]	 ø 6
8	B 30 H 60 [cm]	 ø 6

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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Pilastro		Armature	Staffe		
Da	A		Inferiore	Centro	Superiore
1	101	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
101	201	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=355.00 [cm]
2	102	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
102	202	4 ø 16 = 8.04 [cm ²]			ø 6/22.5L=355.00 [cm]
3	103	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=385.00 [cm]
4	104	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
104	204	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=355.00 [cm]
5	105	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
105	205	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=355.00 [cm]
6	106	*4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=385.00 [cm]
106	206	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=355.00 [cm]
306	206	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=25.00 [cm]
7	107	6 ø 14 = 9.24 [cm ²]			ø 6/20.0L=350.00 [cm]
307	107	6 ø 16 = 12.06 [cm ²]			ø 6/20.0L=360.00 [cm]
8	108	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
108	208	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=355.00 [cm]
9	109	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
109	209	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=355.00 [cm]
10	110	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
110	210	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=405.00 [cm]
11	111	*4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=385.00 [cm]
111	211	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=405.00 [cm]
12	112	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
112	212	4 ø 16 = 8.04 [cm ²]	ø 6/20.0L=59.17 [cm]	ø 6/20.0L=236.67 [cm]	ø 6/20.0L=59.17 [cm]
212	312	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=25.00 [cm]
13	113	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
113	213	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=355.00 [cm]
213	313	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=25.00 [cm]
14	114	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
114	214	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=355.00 [cm]
314	214	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=25.00 [cm]
15	115	6 ø 14 = 9.24 [cm ²]			ø 6/20.0L=350.00 [cm]
115	215	6 ø 12 = 6.79 [cm ²]			ø 6/20.0L=330.00 [cm]
315	215	6 ø 12 = 6.79 [cm ²]			ø 6/20.0L=20.00 [cm]
16	116	6 ø 14 = 9.24 [cm ²]			ø 6/20.0L=350.00 [cm]
316	116	6 ø 12 = 6.79 [cm ²]			ø 6/20.0L=360.00 [cm]
17	117	*4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
117	217	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=355.00 [cm]
18	118	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
118	218	4 ø 16 = 8.04 [cm ²]	ø 6/20.0L=54.17 [cm]	ø 6/20.0L=216.67 [cm]	ø 6/20.0L=54.17 [cm]
218	318	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=5.00 [cm]
19	119	*4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=385.00 [cm]
119	219	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=54.17 [cm]	ø 6/20.0L=216.67 [cm]	ø 6/20.0L=54.17 [cm]
219	319	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=5.00 [cm]
20	120	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=385.00 [cm]
120	220	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=325.00 [cm]
21	121	4 ø 16 = 8.04 [cm ²]			ø 6/22.5L=385.00 [cm]
121	221	4 ø 14 = 6.16 [cm ²]			ø 6/20.0L=405.00 [cm]
22	122	8 ø 14 = 12.32 [cm ²]			ø 6/20.0L=385.00 [cm]
122	222	6 ø 16 = 12.06 [cm ²]			ø 6/22.5L=405.00 [cm]
23	123	6 ø 14 = 9.24 [cm ²]			ø 6/20.0L=385.00 [cm]
123	223	6 ø 12 = 6.79 [cm ²]			ø 6/20.0L=355.00 [cm]
223	323	4 ø 16 = 8.04 [cm ²]			ø 6/20.0L=25.00 [cm]
24	124	6 ø 14 = 9.24 [cm ²]			ø 6/20.0L=385.00 [cm]

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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124	224	4 \varnothing 16 = 8.04 [cm ²]	\varnothing 6/20.0L=59.17 [cm]	\varnothing 6/20.0L=236.67 [cm]	\varnothing 6/20.0L=59.17 [cm]
224	324	4 \varnothing 16 = 8.04 [cm ²]			\varnothing 6/20.0L=25.00 [cm]
25	125	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
125	225	*4 \varnothing 14 = 6.16 [cm ²]	\varnothing 6/20.0L=59.17 [cm]	\varnothing 6/20.0L=236.67 [cm]	\varnothing 6/20.0L=59.17 [cm]
225	325	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=25.00 [cm]
26	126	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
126	226	*4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=355.00 [cm]
27	127	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
127	227	4 \varnothing 14 = 6.16 [cm ²]	\varnothing 6/20.0L=54.17 [cm]	\varnothing 6/20.0L=216.67 [cm]	\varnothing 6/20.0L=54.17 [cm]
227	327	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=5.00 [cm]
28	128	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
128	228	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=325.00 [cm]
29	129	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
129	229	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=325.00 [cm]
30	130	4 \varnothing 16 = 8.04 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
130	230	4 \varnothing 16 = 8.04 [cm ²]			\varnothing 6/20.0L=325.00 [cm]
31	131	*4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
131	231	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=405.00 [cm]
32	132	6 \varnothing 14 = 9.24 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
132	232	6 \varnothing 14 = 9.24 [cm ²]	\varnothing 6/20.0L=59.17 [cm]	\varnothing 6/20.0L=236.67 [cm]	\varnothing 6/20.0L=59.17 [cm]
232	332	6 \varnothing 14 = 9.24 [cm ²]			\varnothing 6/20.0L=25.00 [cm]
33	133	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
133	233	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=355.00 [cm]
34	134	*4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
134	234	*4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=405.00 [cm]
35	135	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
135	235	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=405.00 [cm]
36	136	*4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
136	236	*4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=405.00 [cm]
37	137	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
137	237	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=405.00 [cm]
38	138	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
138	238	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=355.00 [cm]
39	139	4 \varnothing 16 = 8.04 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
139	239	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=405.00 [cm]
239	339	4 \varnothing 16 = 8.04 [cm ²]			\varnothing 6/22.5L=195.00 [cm]
40	140	6 \varnothing 14 = 9.24 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
140	240	6 \varnothing 14 = 9.24 [cm ²]	\varnothing 6/20.0L=59.17 [cm]	\varnothing 6/20.0L=236.67 [cm]	\varnothing 6/20.0L=59.17 [cm]
240	440	6 \varnothing 14 = 9.24 [cm ²]			\varnothing 6/20.0L=25.00 [cm]
440	340	6 \varnothing 14 = 9.24 [cm ²]			\varnothing 6/20.0L=195.00 [cm]
41	141	*4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
141	241	*4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=405.00 [cm]
241	341	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=195.00 [cm]
42	142	6 \varnothing 14 = 9.24 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
142	242	4 \varnothing 16 = 8.04 [cm ²]	\varnothing 6/20.0L=59.17 [cm]	\varnothing 6/20.0L=236.67 [cm]	\varnothing 6/20.0L=59.17 [cm]
242	442	4 \varnothing 16 = 8.04 [cm ²]			\varnothing 6/20.0L=25.00 [cm]
442	342	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=195.00 [cm]
43	143	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
143	243	4 \varnothing 14 = 6.16 [cm ²]			\varnothing 6/20.0L=355.00 [cm]
44	144	6 \varnothing 14 = 9.24 [cm ²]			\varnothing 6/20.0L=360.00 [cm]
144	244	6 \varnothing 16 = 12.06 [cm ²]			\varnothing 6/22.5L=360.00 [cm]
244	344	6 \varnothing 16 = 12.06 [cm ²]			\varnothing 6/22.5L=160.00 [cm]
45	145	6 \varnothing 14 = 9.24 [cm ²]			\varnothing 6/20.0L=385.00 [cm]
145	245	6 \varnothing 16 = 12.06 [cm ²]			\varnothing 6/22.5L=405.00 [cm]
245	345	6 \varnothing 16 = 12.06 [cm ²]			\varnothing 6/22.5L=195.00 [cm]

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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46	146	*8 ø 14 = 12.32 [cm ²]	ø 6/20.0L=350.00 [cm]		
146	246	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=60.00 [cm]	ø 6/20.0L=190.00 [cm]	ø 6/20.0L=60.00 [cm]
246	446	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=20.00 [cm]		
446	346	6 ø 16 = 12.06 [cm ²]	ø 6/22.5L=160.00 [cm]		
47	147	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=360.00 [cm]		
147	247	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=60.00 [cm]	ø 6/20.0L=190.00 [cm]	ø 6/20.0L=60.00 [cm]
247	347	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=10.00 [cm]		
48	148	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
148	248	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
49	149	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
149	249	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
50	150	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
150	250	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
51	151	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=360.00 [cm]		
151	251	8 ø 14 = 12.32 [cm ²]	ø 6/22.5L=370.00 [cm]		
52	152	*8 ø 14 = 12.32 [cm ²]	ø 6/20.0L=360.00 [cm]		
152	252	*6 ø 16 = 12.06 [cm ²]	ø 6/22.5L=370.00 [cm]		
53	153	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
153	253	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
54	154	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
55	155	*4 ø 16 = 8.04 [cm ²]	ø 6/20.0L=385.00 [cm]		
56	156	*6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=385.00 [cm]		
156	256	6 ø 12 = 6.79 [cm ²]	ø 6/20.0L=405.00 [cm]		
57	157	*8 ø 14 = 12.32 [cm ²]	ø 6/20.0L=385.00 [cm]		
157	257	6 ø 16 = 12.06 [cm ²]	ø 6/22.5L=405.00 [cm]		
58	158	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
158	258	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
59	159	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
159	259	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
60	160	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
160	260	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
61	161	*6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=385.00 [cm]		
161	261	*6 ø 12 = 6.79 [cm ²]	ø 6/20.0L=405.00 [cm]		
62	162	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=385.00 [cm]		
162	262	6 ø 12 = 6.79 [cm ²]	ø 6/20.0L=405.00 [cm]		
63	163	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=385.00 [cm]		
163	263	6 ø 12 = 6.79 [cm ²]	ø 6/20.0L=405.00 [cm]		
64	164	*6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=385.00 [cm]		
164	264	*4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
65	165	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=350.00 [cm]		
165	265	6 ø 12 = 6.79 [cm ²]	ø 6/20.0L=370.00 [cm]		
66	166	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
166	266	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
67	167	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
167	267	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
68	168	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
168	268	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=405.00 [cm]		
69	169	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
70	170	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
71	171	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
72	172	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=385.00 [cm]		
73	173	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=330.00 [cm]		
173	273	4 ø 14 = 6.16 [cm ²]	ø 6/20.0L=370.00 [cm]		
74	174	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=330.00 [cm]		
174	274	6 ø 14 = 9.24 [cm ²]	ø 6/20.0L=370.00 [cm]		

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

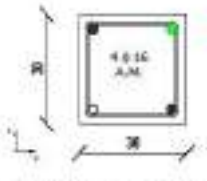

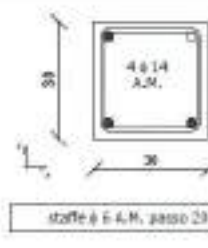

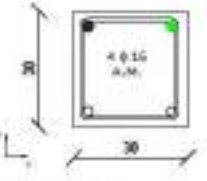
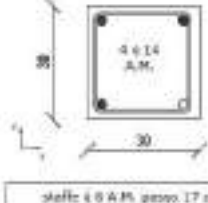

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75	175	$6 \phi 14 = 9.24 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=350.00 \text{ [cm]}$
175	275	$6 \phi 16 = 12.06 \text{ [cm}^2\text{]}$	$\phi 6/22.5L=370.00 \text{ [cm]}$
76	176	$8 \phi 14 = 12.32 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=385.00 \text{ [cm]}$
176	276	* $6 \phi 16 = 12.06 \text{ [cm}^2\text{]}$	$\phi 6/22.5L=405.00 \text{ [cm]}$
77	177	$6 \phi 14 = 9.24 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=385.00 \text{ [cm]}$
177	277	$6 \phi 16 = 12.06 \text{ [cm}^2\text{]}$	$\phi 6/22.5L=405.00 \text{ [cm]}$
78	178	$6 \phi 14 = 9.24 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=350.00 \text{ [cm]}$
178	278	$6 \phi 16 = 12.06 \text{ [cm}^2\text{]}$	$\phi 6/22.5L=370.00 \text{ [cm]}$
79	179	$4 \phi 14 = 6.16 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=385.00 \text{ [cm]}$
179	279	$4 \phi 14 = 6.16 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=405.00 \text{ [cm]}$
80	180	$4 \phi 14 = 6.16 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=385.00 \text{ [cm]}$
180	280	$4 \phi 14 = 6.16 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=405.00 \text{ [cm]}$
81	181	$6 \phi 14 = 9.24 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=385.00 \text{ [cm]}$
181	281	$4 \phi 14 = 6.16 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=405.00 \text{ [cm]}$
82	182	$4 \phi 16 = 8.04 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=385.00 \text{ [cm]}$
182	282	$4 \phi 16 = 8.04 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=405.00 \text{ [cm]}$
83	183	$4 \phi 14 = 6.16 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=385.00 \text{ [cm]}$
183	283	$4 \phi 14 = 6.16 \text{ [cm}^2\text{]}$	$\phi 6/20.0L=405.00 \text{ [cm]}$

(*) Pilastrì con armatura confermata dagli esiti delle indagini in sito

codice	P5	Piano/vello	seminterrato	codice	P17	Piano/vello	seminterrato
							
			N.D.				

codice	P31	Piano/vello	seminterrato
<p>staffe ϕ 6 A.M. passo 10 cm</p>			
<p>NOTA: Armatura esternamente curva</p>			

codice	P56	Piano/vello	seminterrato
<p>staffe ϕ 6 A.M. passo 10 cm</p> <p>IL TRONCO POTE' ESSERE QUELLO STESSO ELEMENTO IN 15 IN 15</p>			

codice	P66	Piano/vello	seminterrato
<p>staffe ϕ 6 A.M. passo 20 cm</p>			

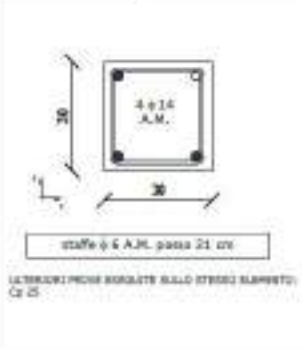

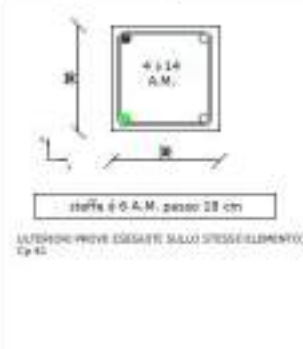

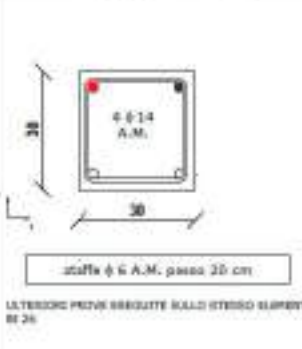

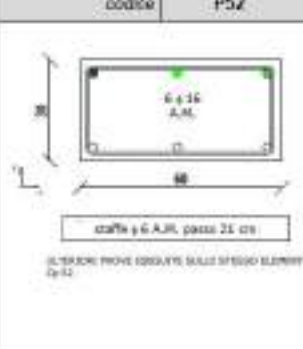

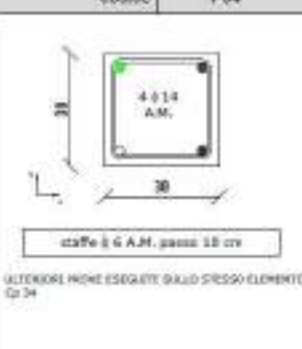

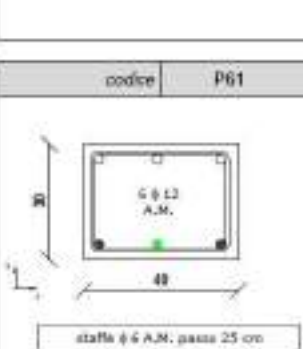

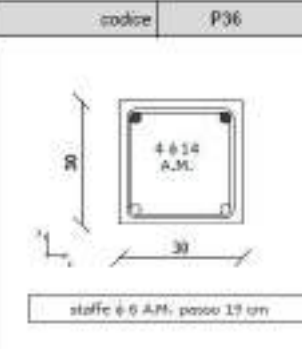

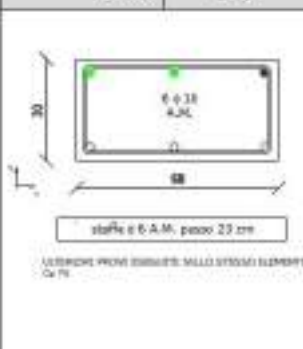

codice	P57	Piano/vello	seminterrato
<p>staffe ϕ 6 A.M. passo 10 cm</p>			

codice	P52	Piano/vello	seminterrato
<p>staffe ϕ 6 A.M. passo 20 cm</p> <p>IL TRONCO POTRE' ESSERE QUELLO STESSO ELEMENTO IN 15 IN 15</p>			

codice	P61	Piano/vello	seminterrato
<p>staffe ϕ 6 A.M. passo 20 cm</p>			

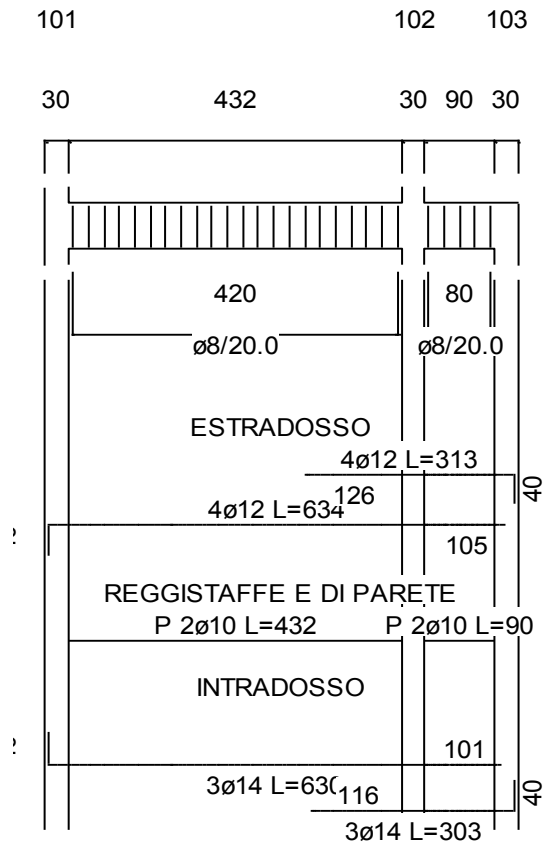
codice	P55	Piano/vello	seminterrato
<p>staffe ϕ 6 A.M. passo 20 cm</p>			

codice	P64	Piano/vello	seminterrato
<p>staffe ϕ 6 A.M. passo 20 cm</p>			

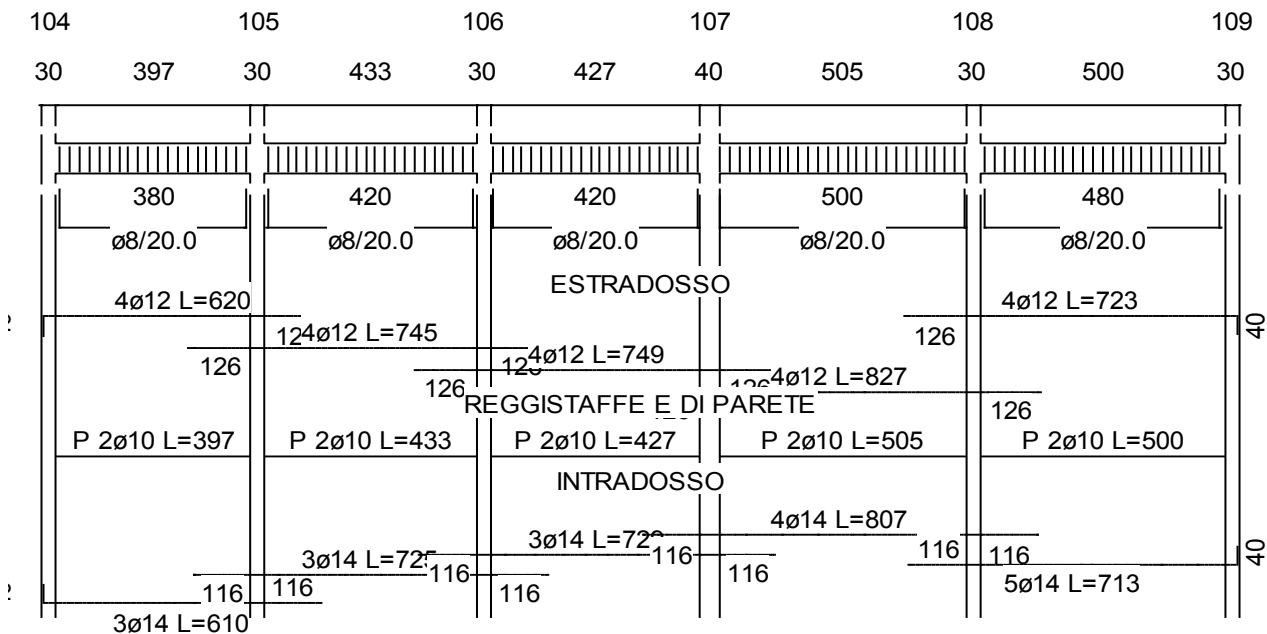
codice	P25	Piano/vello	terza			codice	P41	Piano/vello	terza		
codice	P26	Piano/vello	terza			codice	P52	Piano/vello	terza		
codice	P34	Piano/vello	terza			codice	P61	Piano/vello	terza		
codice	P36	Piano/vello	terza			codice	P76	Piano/vello	terza		

Travate

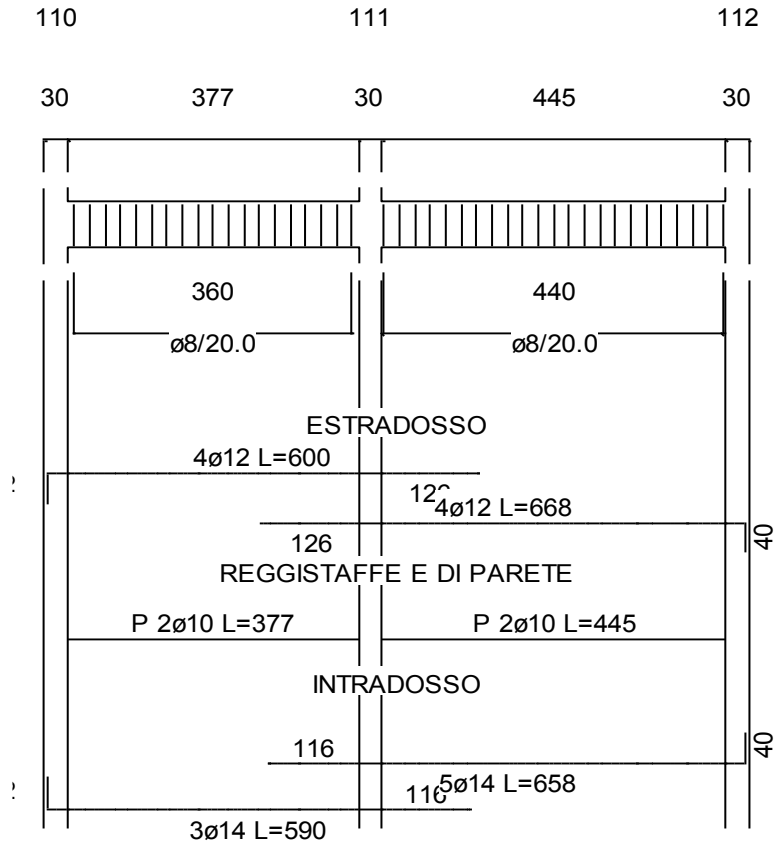
Travata 101 Nodi 101 102 103



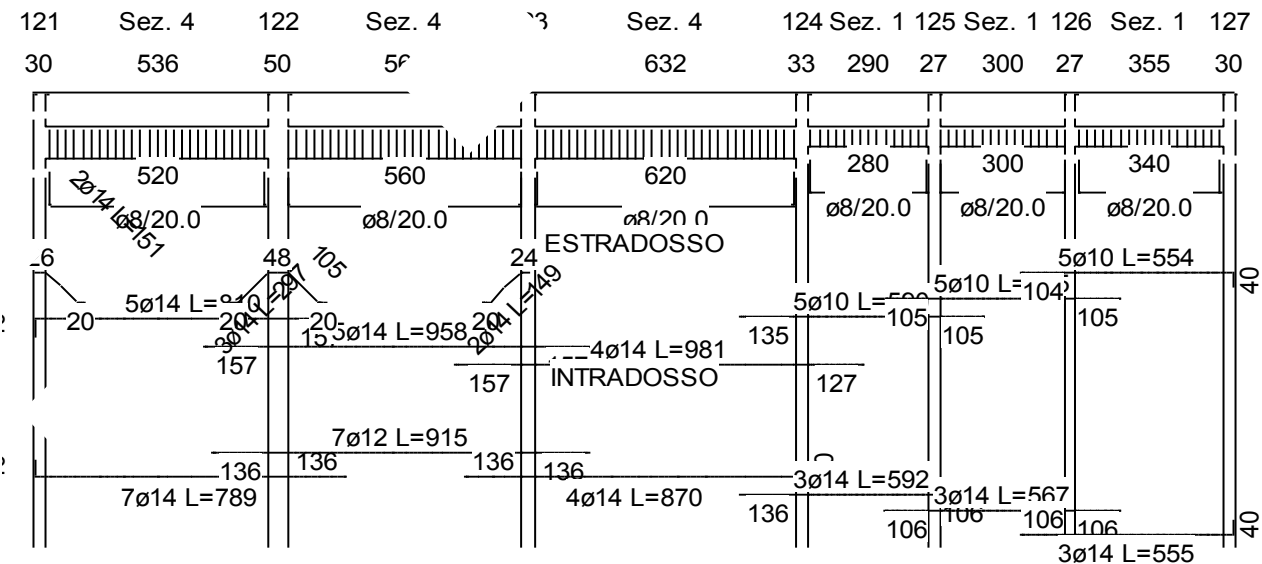
Travata 102 Nodi 104 105 106 107 108 109



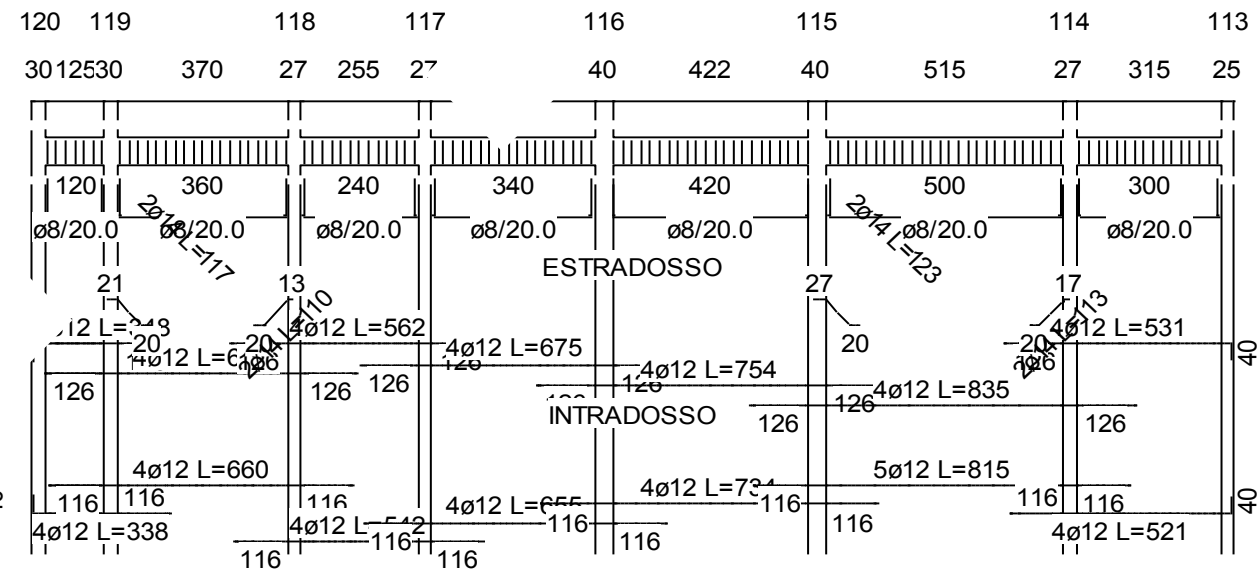
Travata 103 Nodi 110 111 112



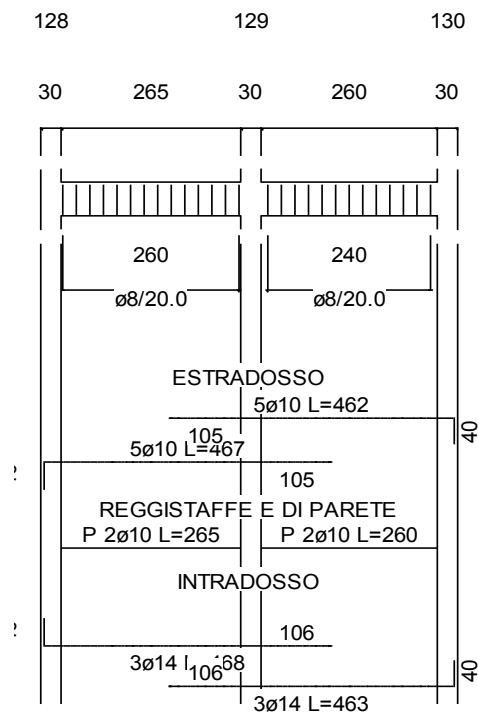
Travata 104 Nodi 121 122 123 124 125 126 127



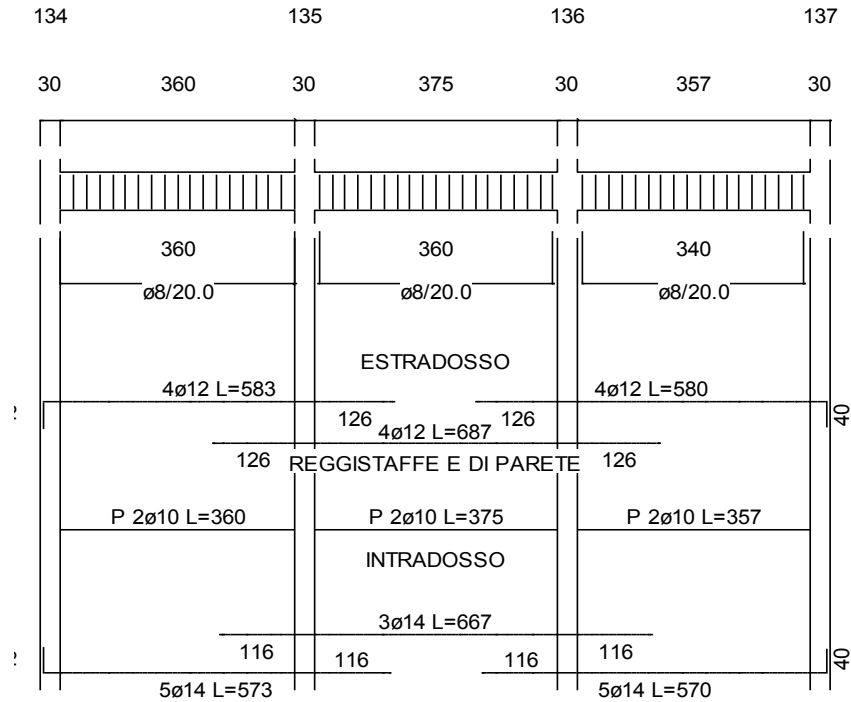
Travata 105 Nodi 120 119 118 117 116 115 114 113



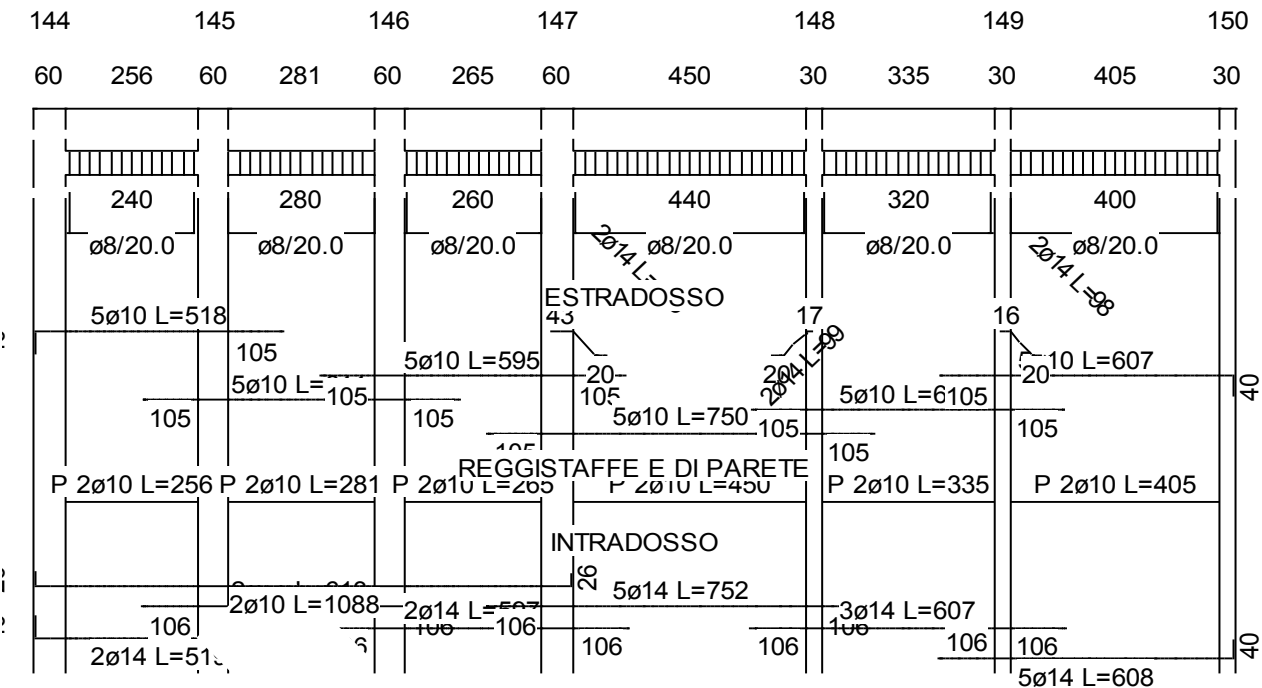
Travata 106 Nodi 128 129 130



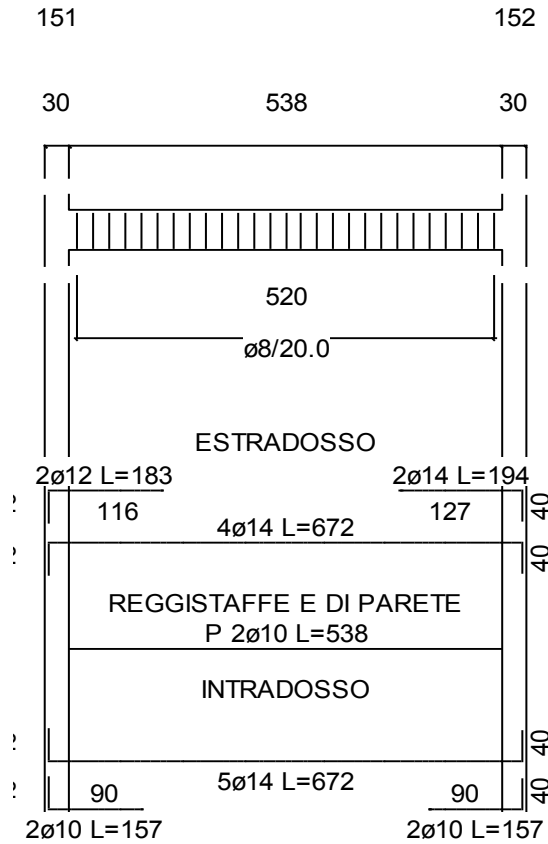
Travata 107 Nodi 134 135 136 137



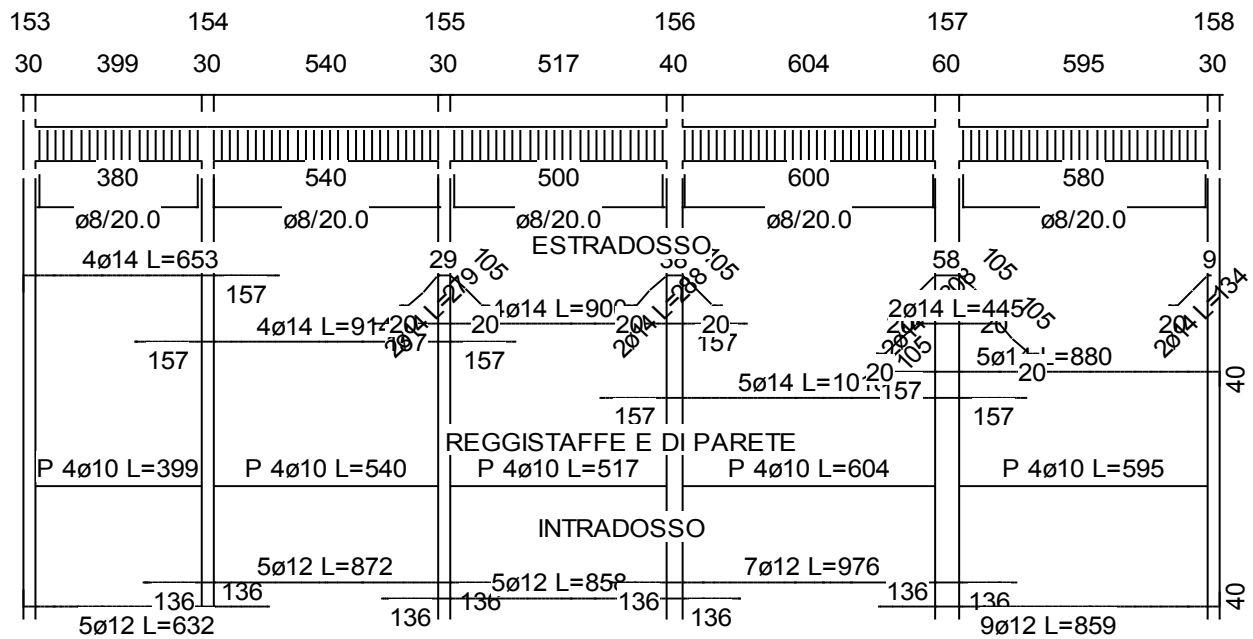
Travata 108 Nodi 144 145 146 147 148 149 150



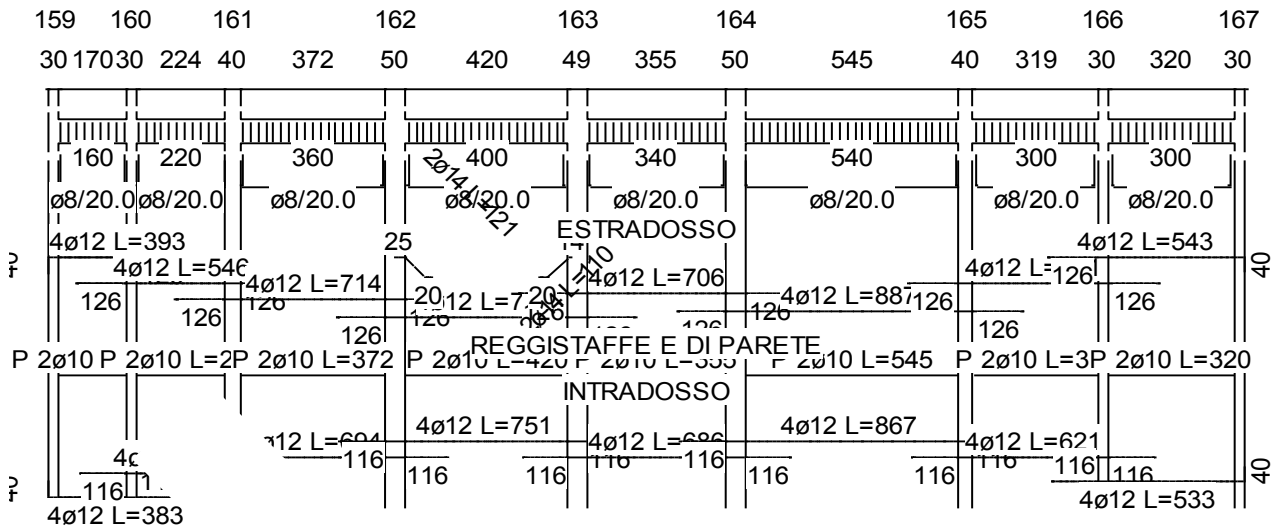
Travata 109 Nodi 151 152



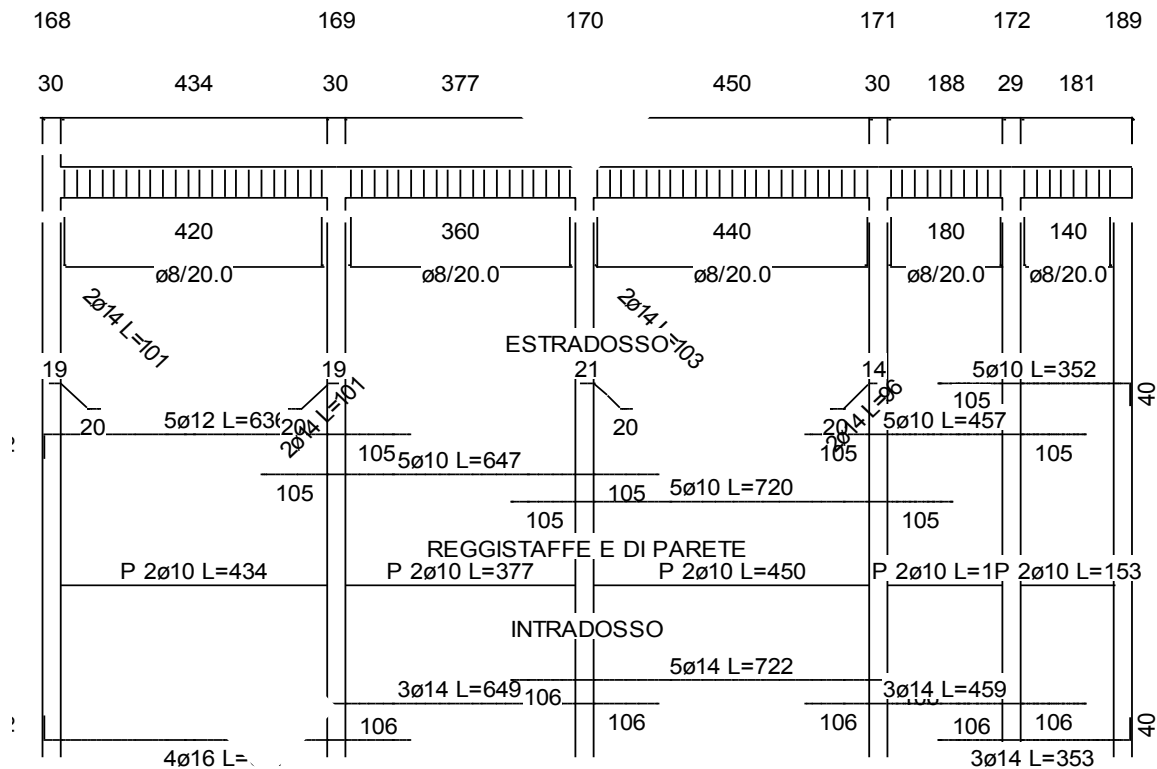
Travata 110 Nodi 153 154 155 156 157 158



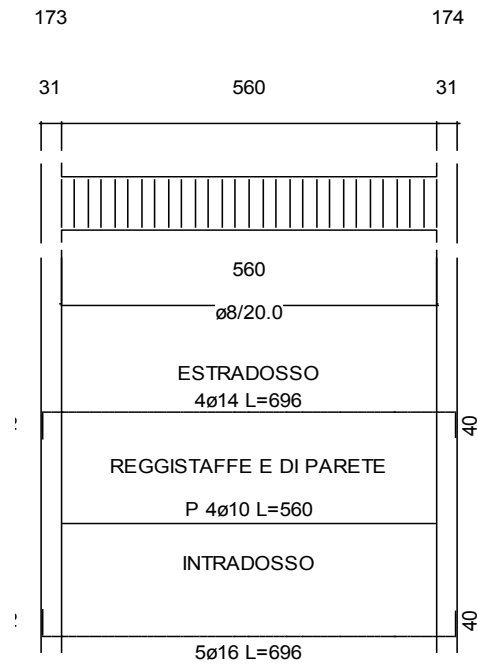
Travata 111 Nodi 159 160 161 162 163 164 165 166 167



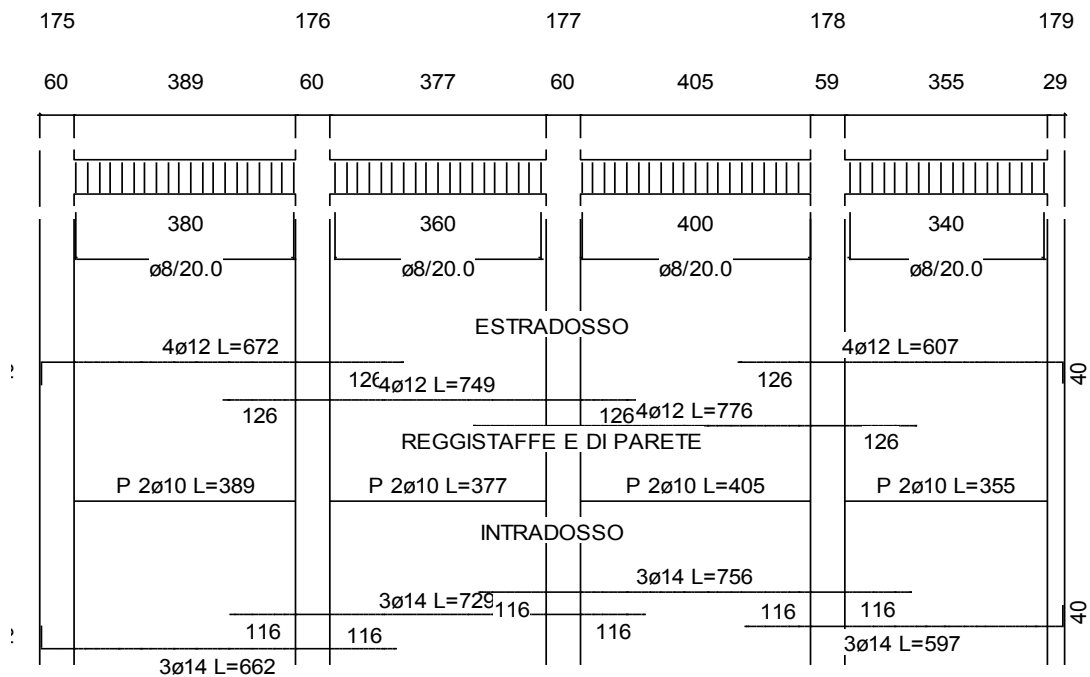
Travata 112 Nodi 168 169 170 171 172 189



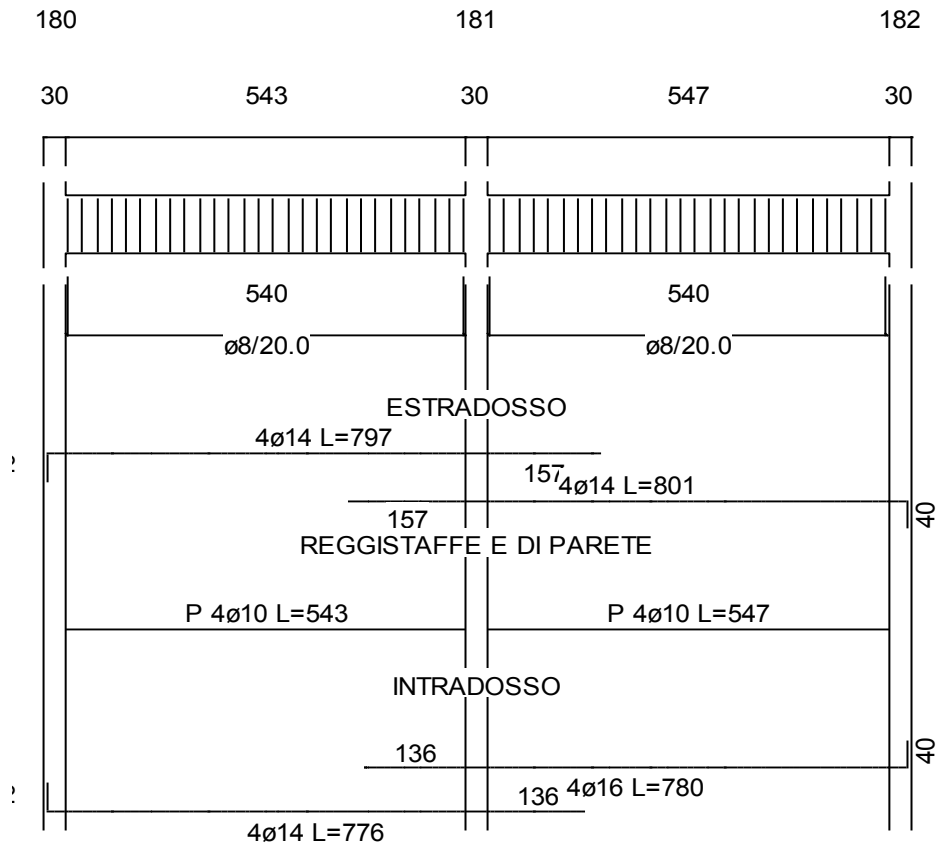
Travata 113 Nodi 173 174



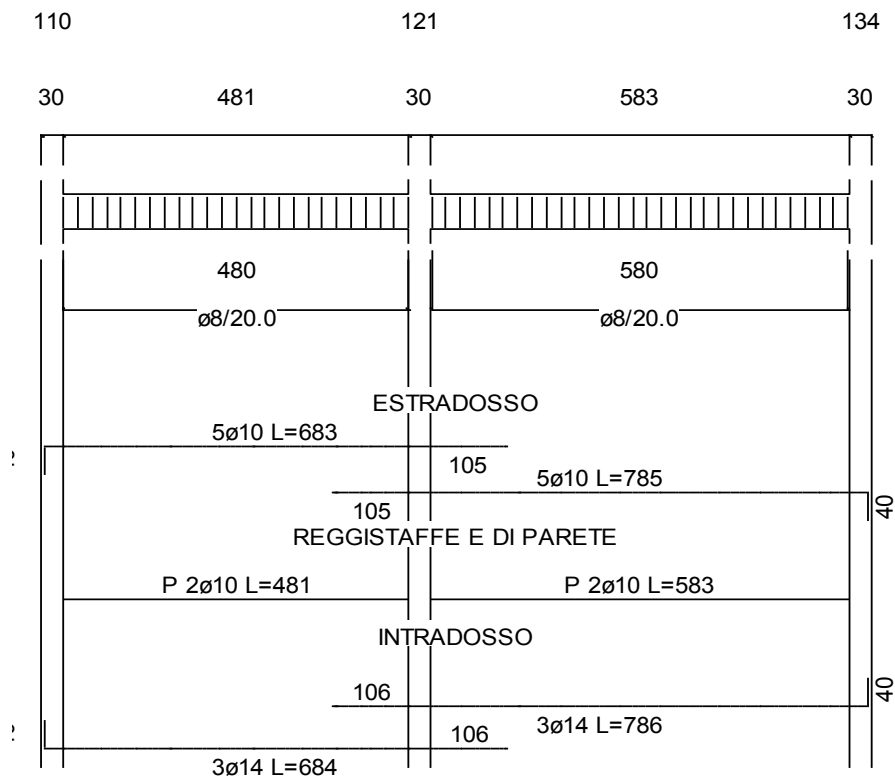
Travata 115 Nodi 175 176 177 178 179



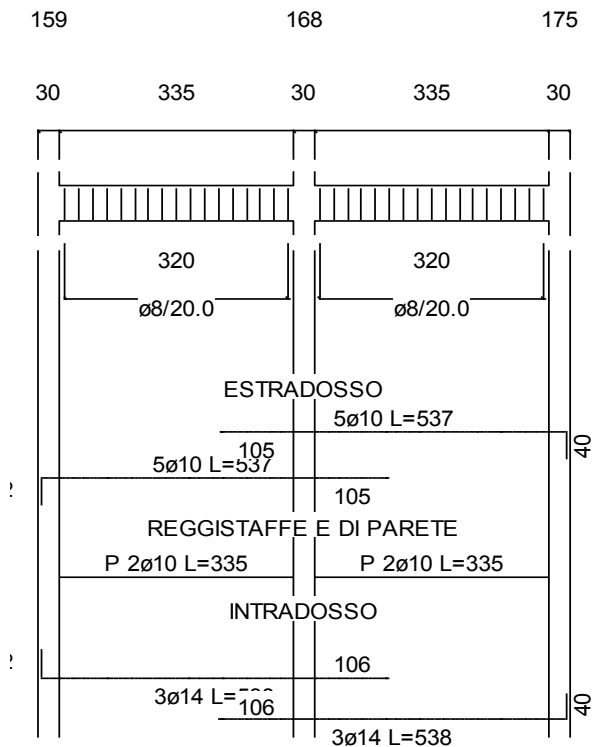
Travata 116 Nodi 180 181 182



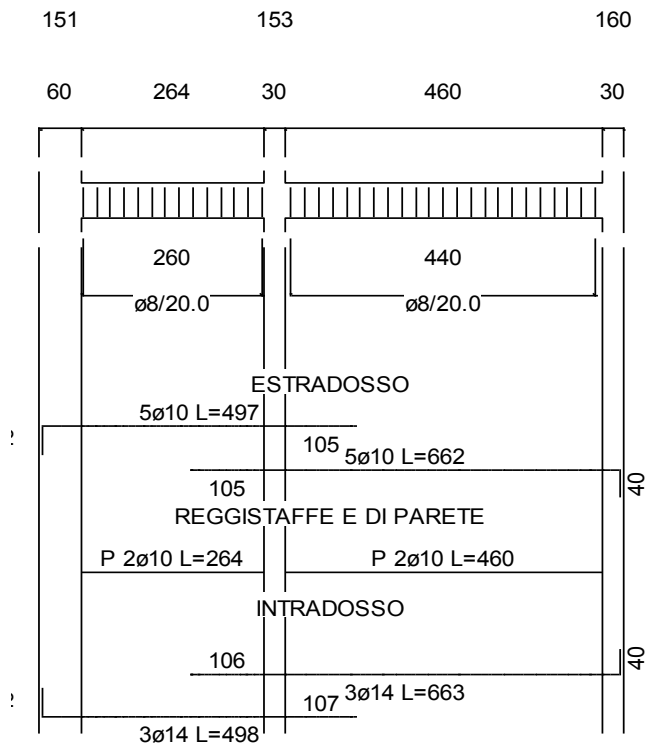
Travata 117 Nodi 110 121 134



Travata 118 Nodi 159 168 175



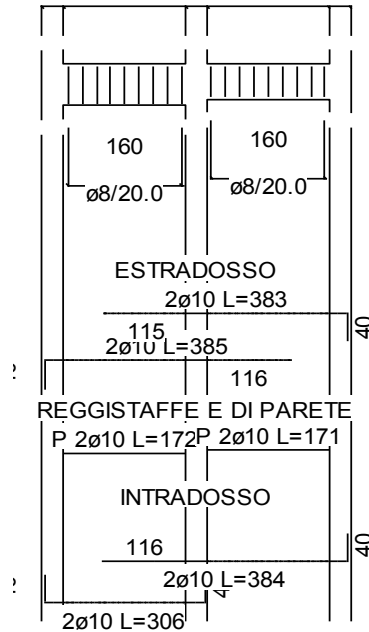
Travata 119 Nodi 151 153 160



Travata 120 Nodi 104 112 113

104 Sez. 2 112 Sez. 1 113

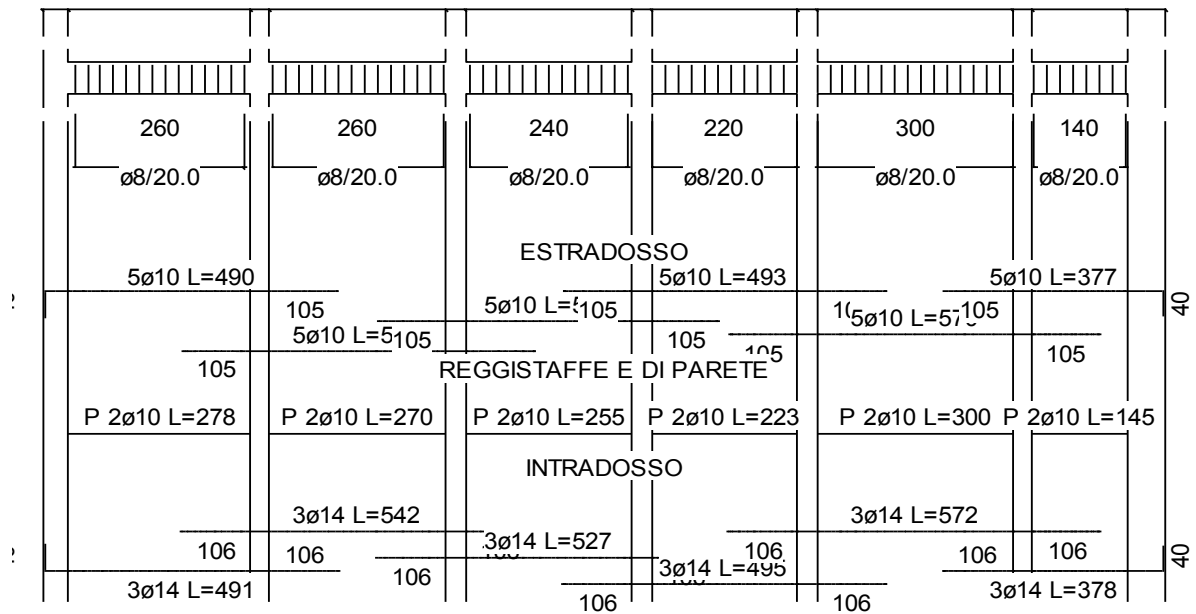
30 172 30 171 30



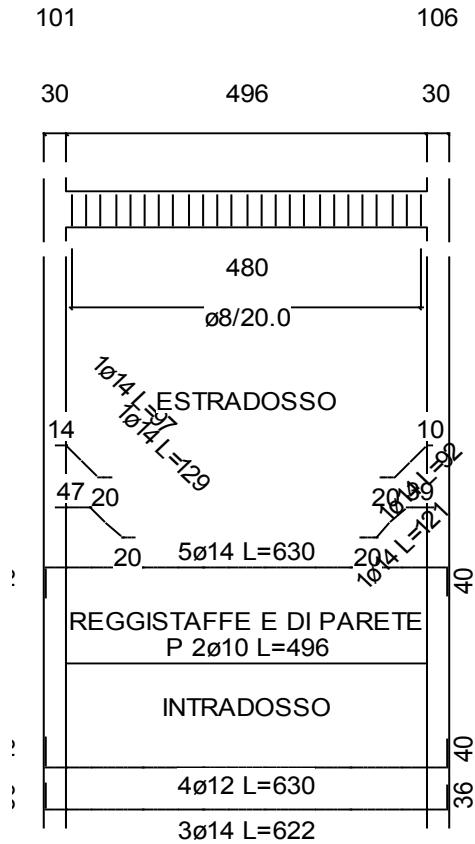
Travata 121 Nodi 123 131 137 139 141 144 152

123 131 137 139 141 144 152

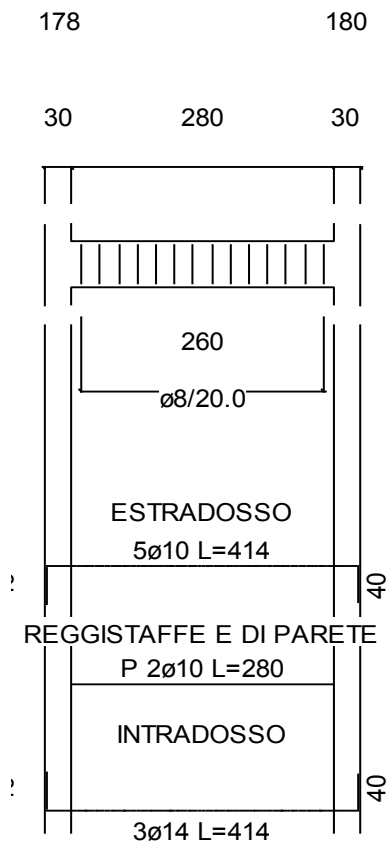
40 278 30 270 30 255 30 223 30 300 30 145 60



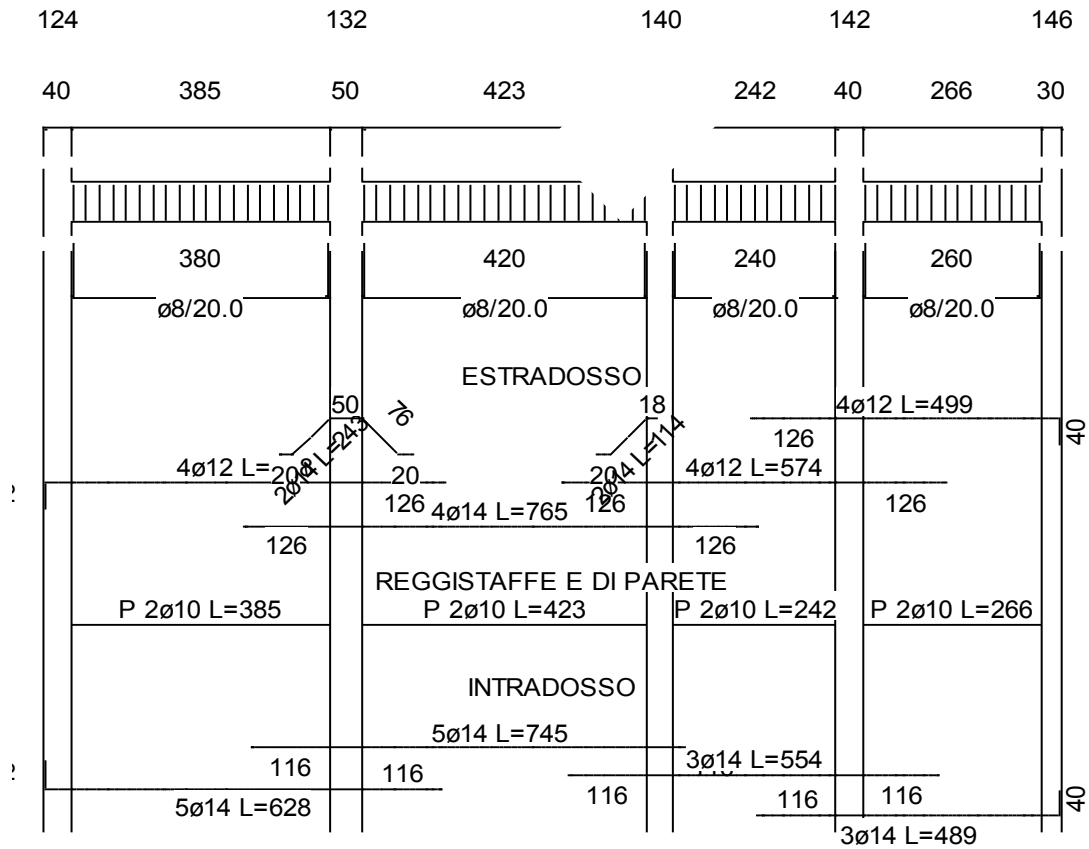
Travata 122 Nodi 101 106



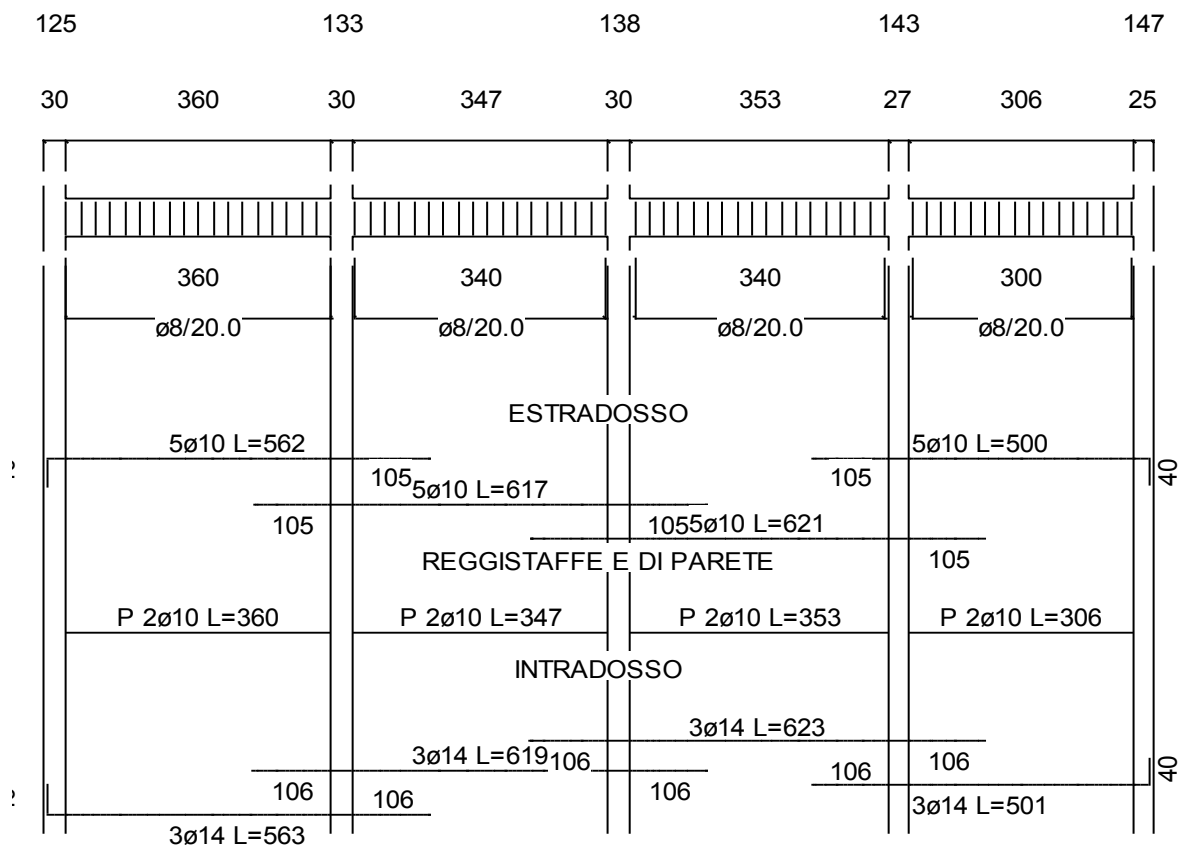
Travata 123 Nodi 178 180



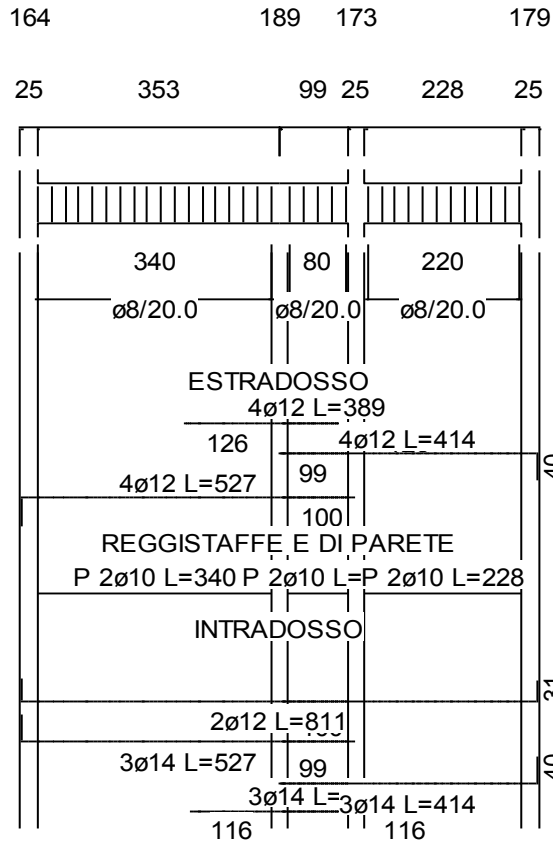
Travata 124 Nodi 124 132 140 142 146



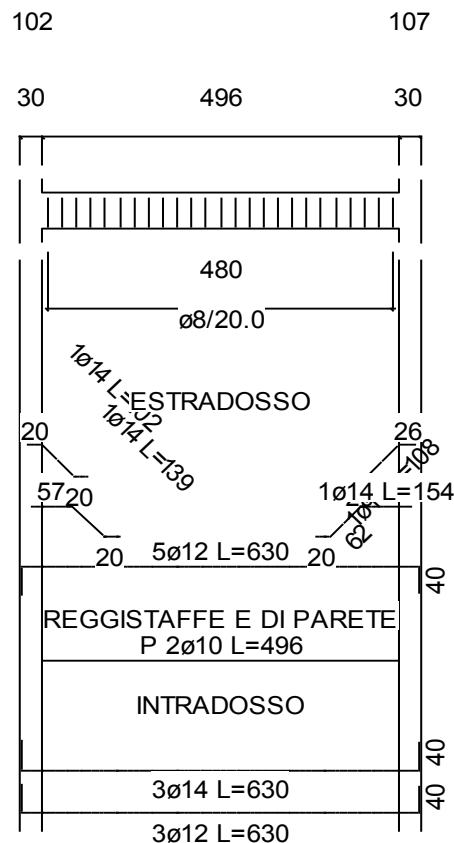
Travata 125 Nodi 125 133 138 143 147



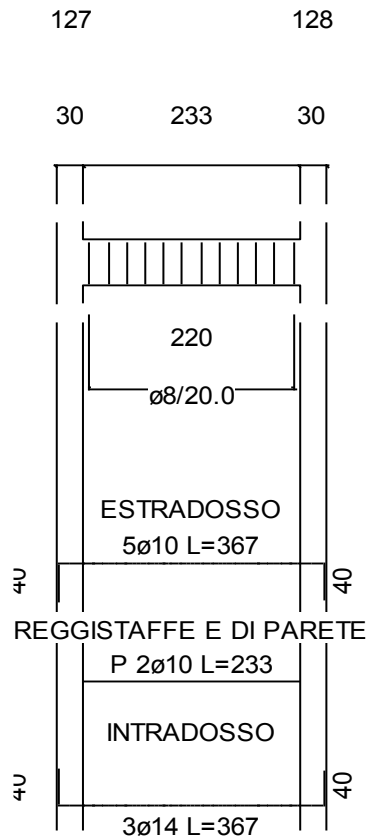
Travata 126 Nodi 164 189 173 179



Travata 127 Nodi 102 107



Travata 129 Nodi 127 128



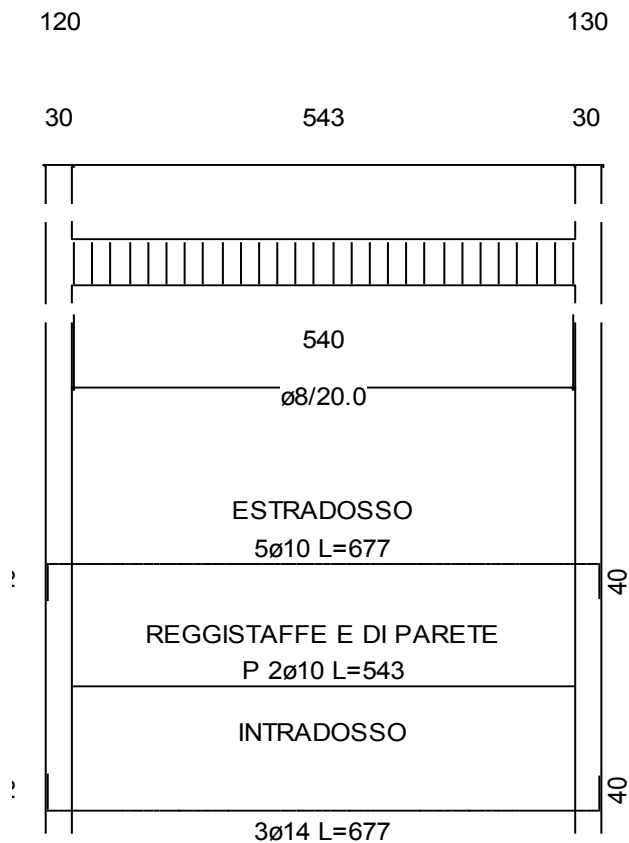
Travata 130 Nodi 183 182



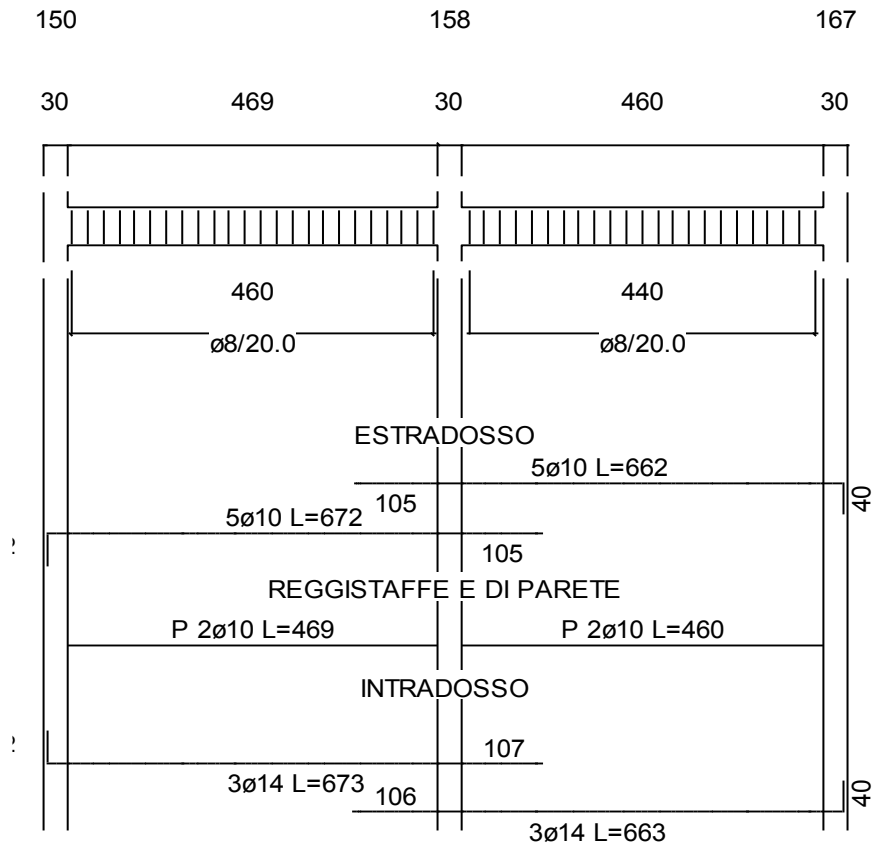
Travata 131 Nodi 109 119



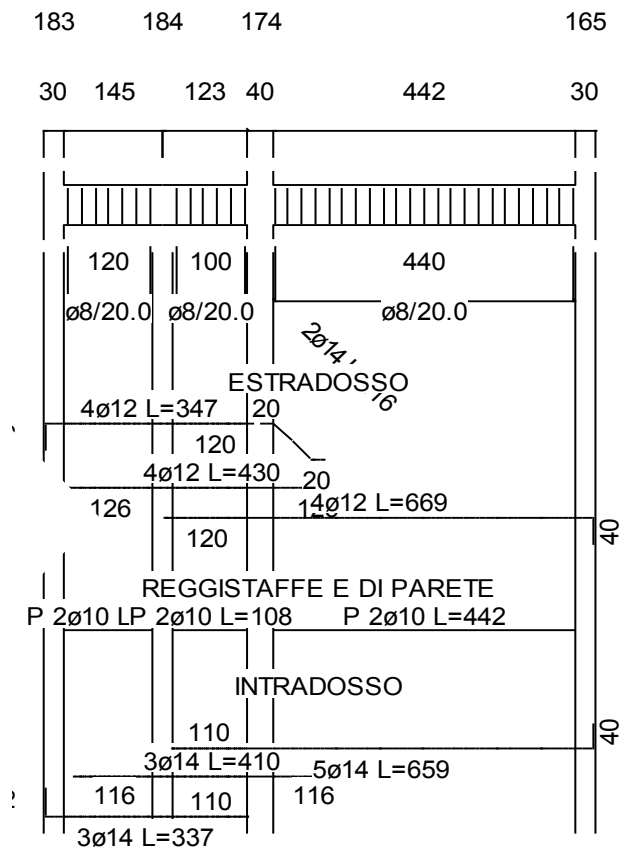
Travata 132 Nodi 120 130



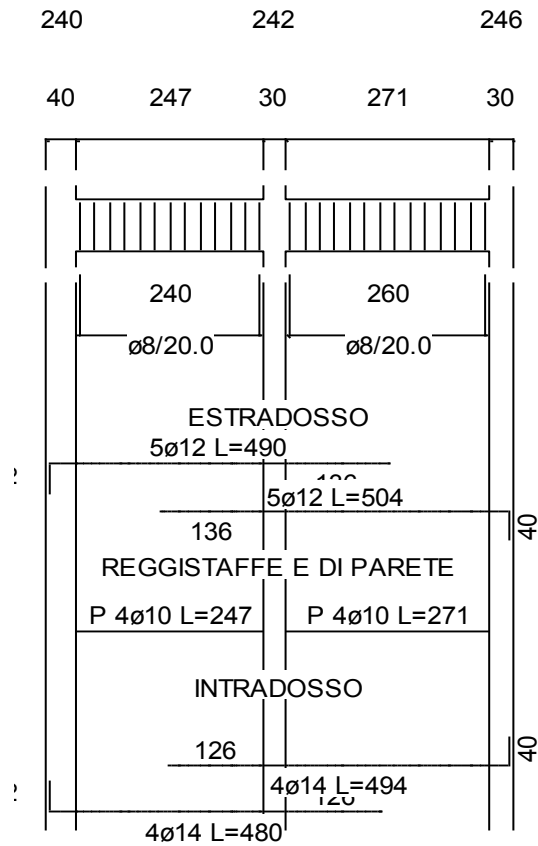
Travata 133 Nodi 150 158 167



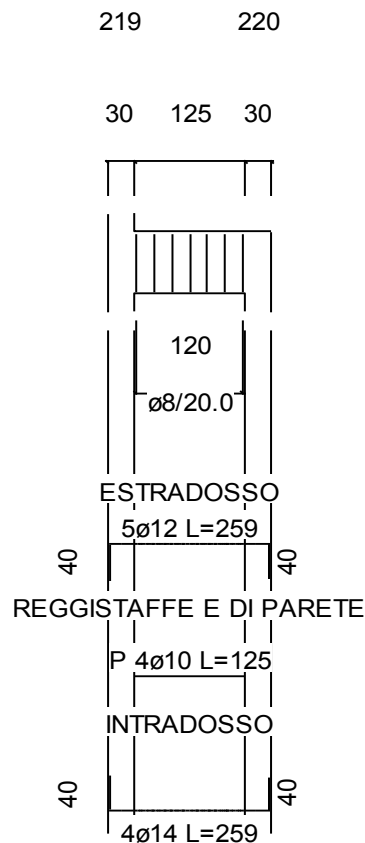
Travata 90 Nodi 183 184 174 165



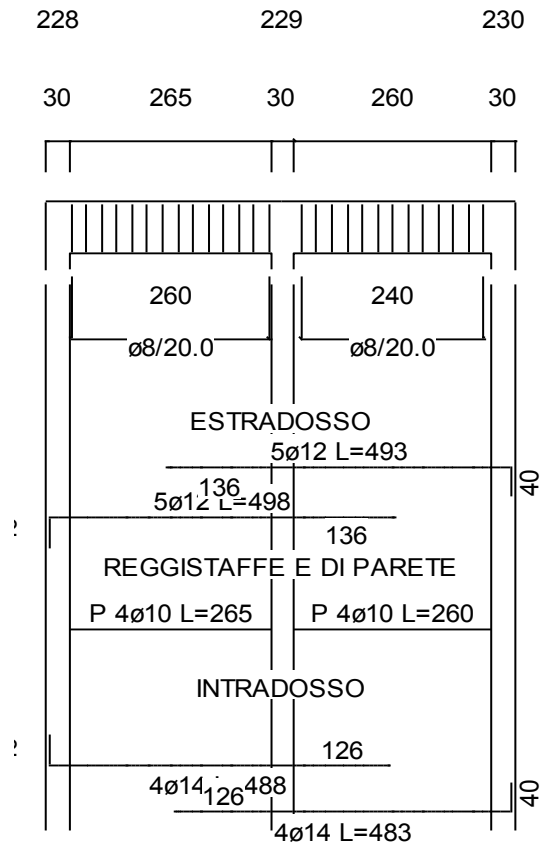
Travata 0 Nodi 240 242 246



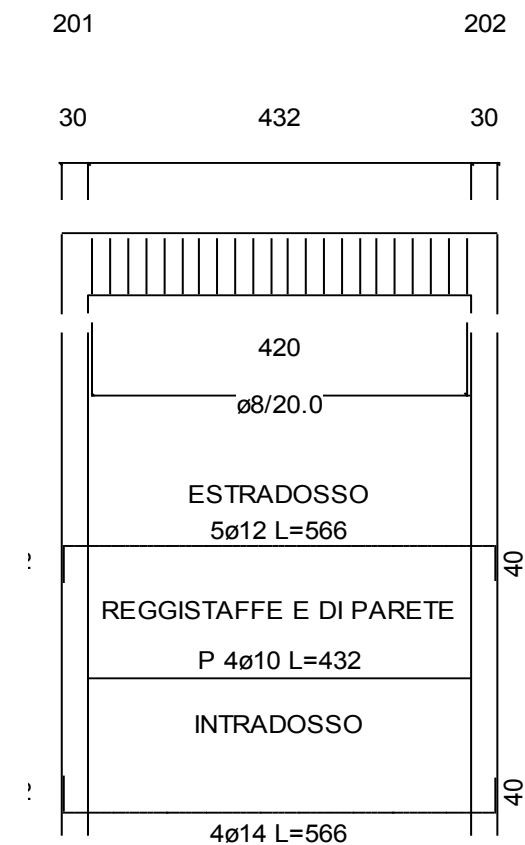
Travata 201 Nodi 219 220



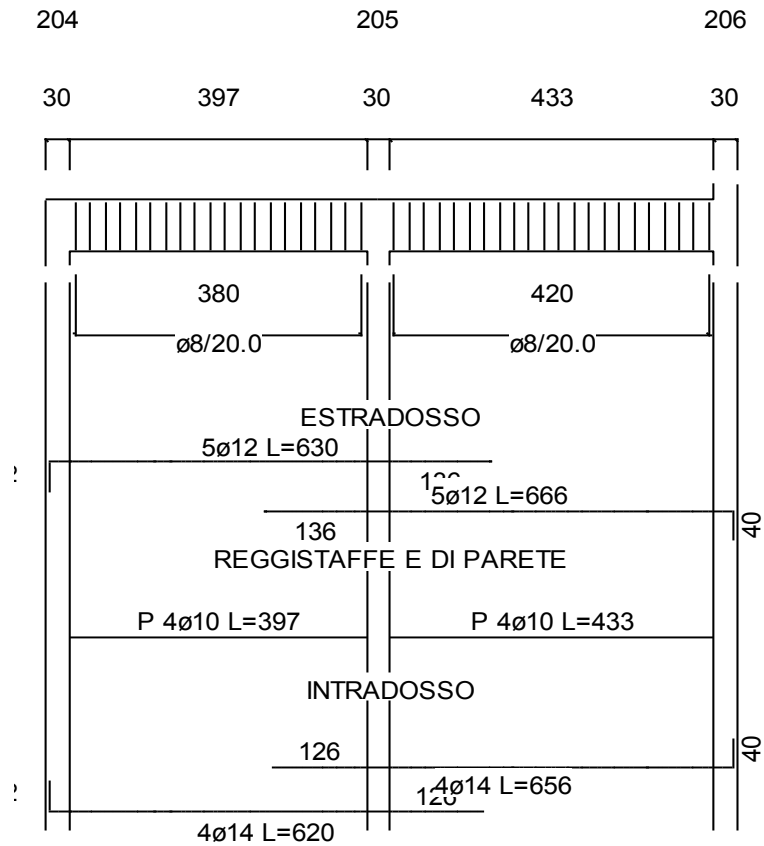
Travata 202 Nodi 228 229 230



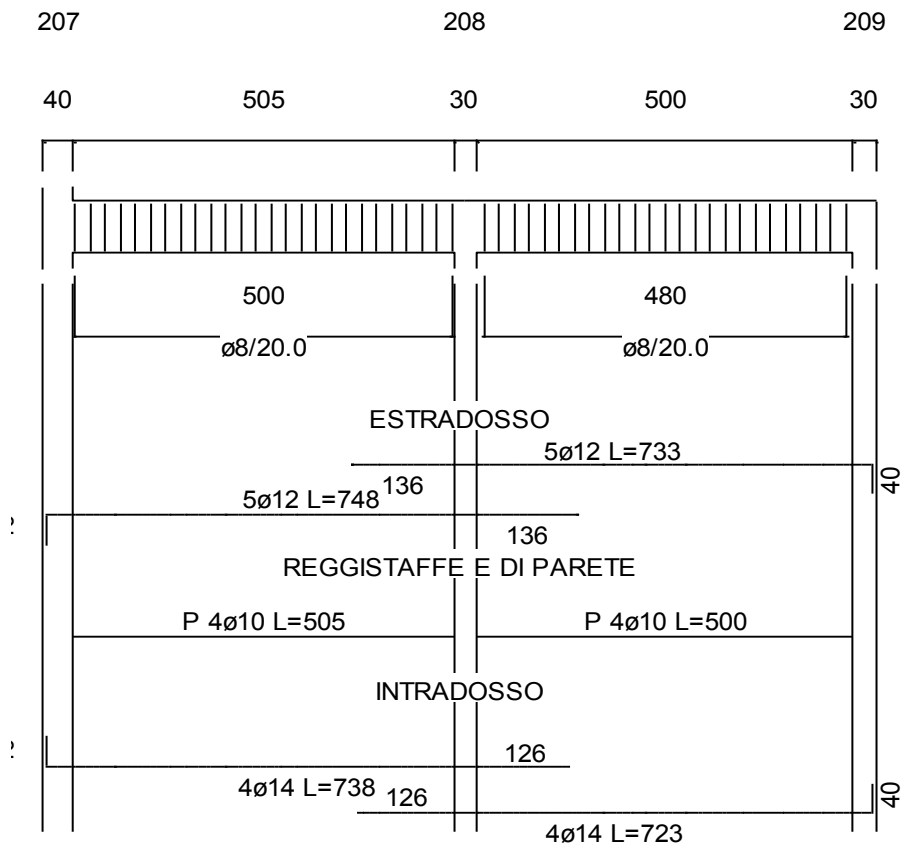
Travata 203 Nodi 201 202



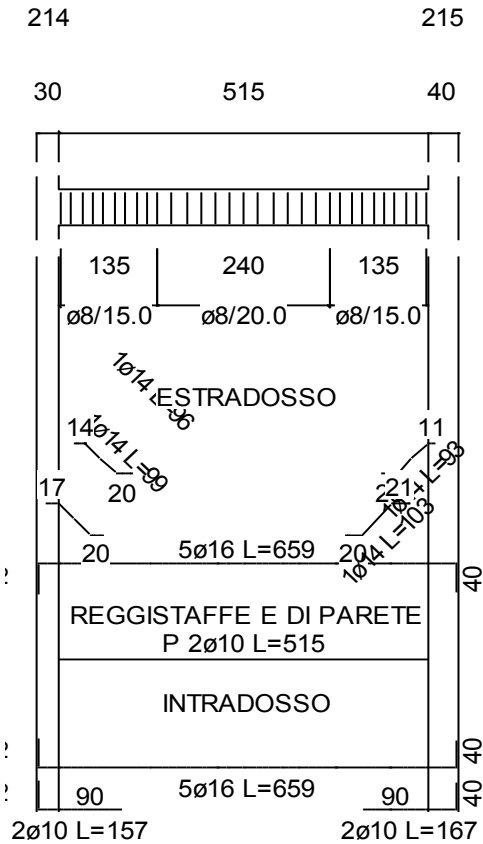
Travata 204 Nodi 204 205 206



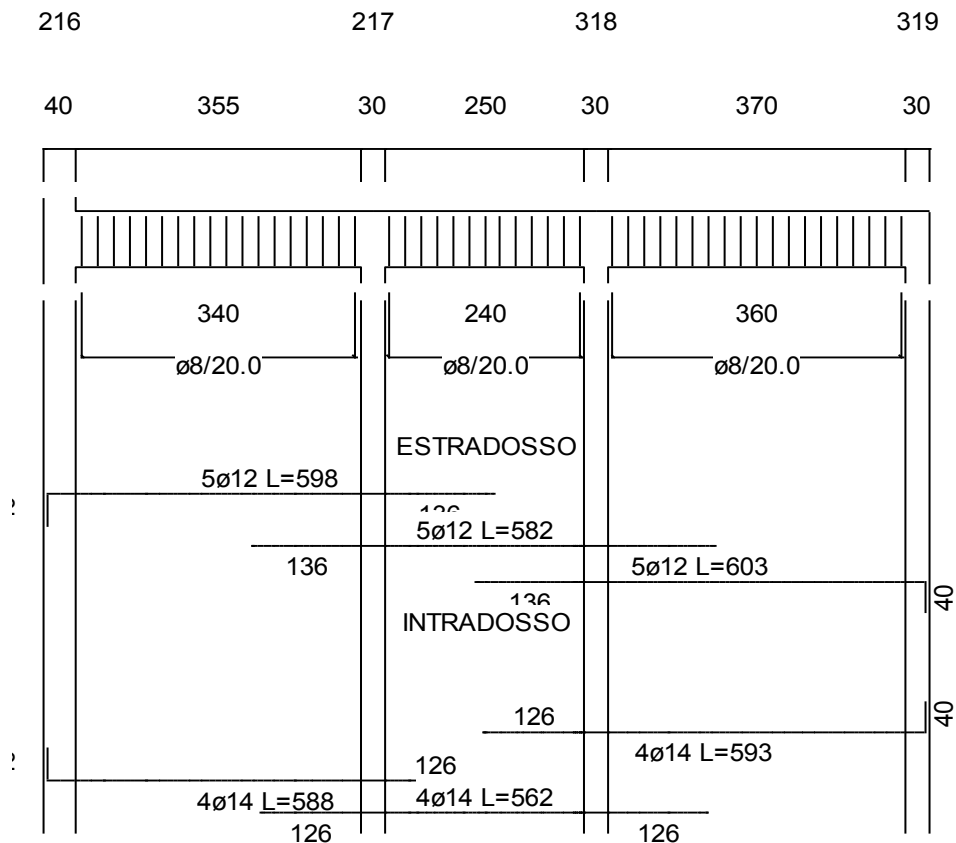
Travata 205 Nodi 207 208 209



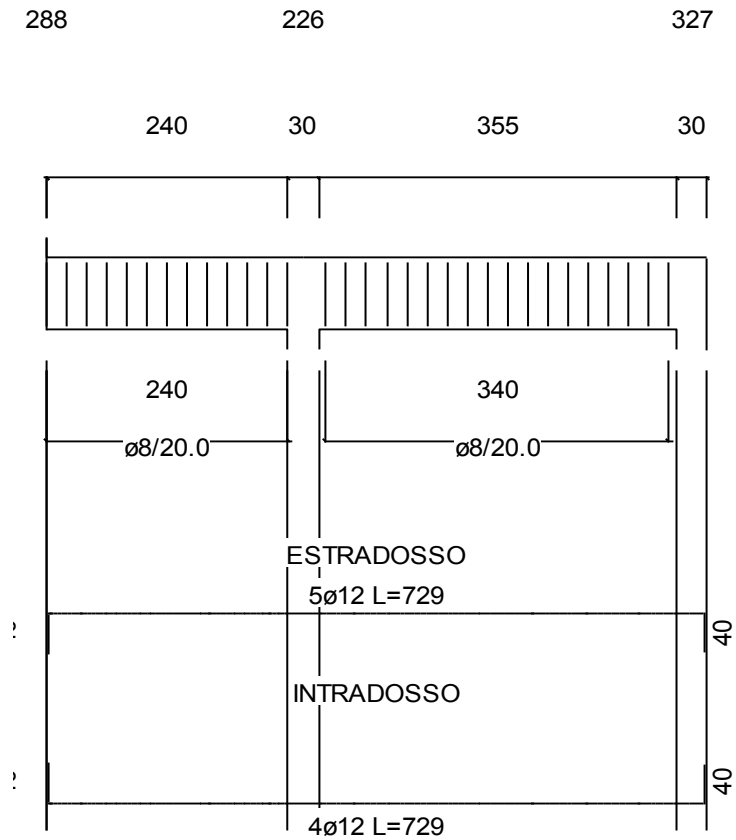
Travata 206 Nodi 214 215



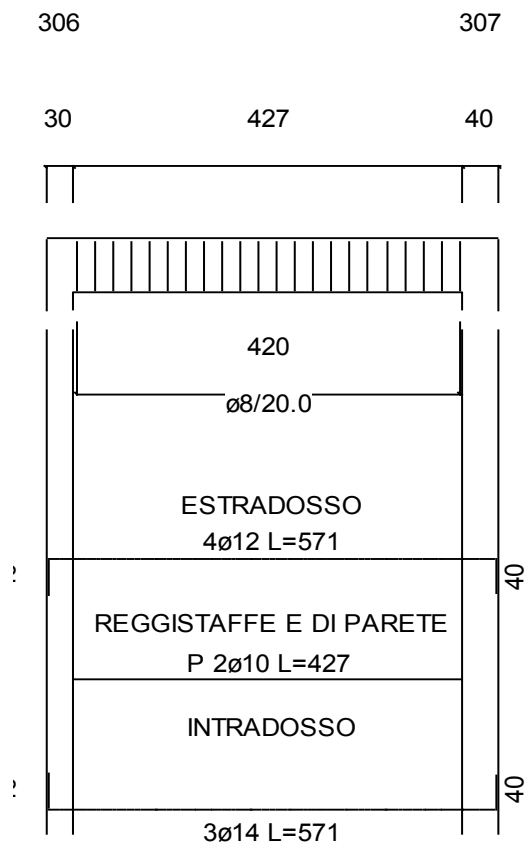
Travata 207 Nodi 216 217 318 319



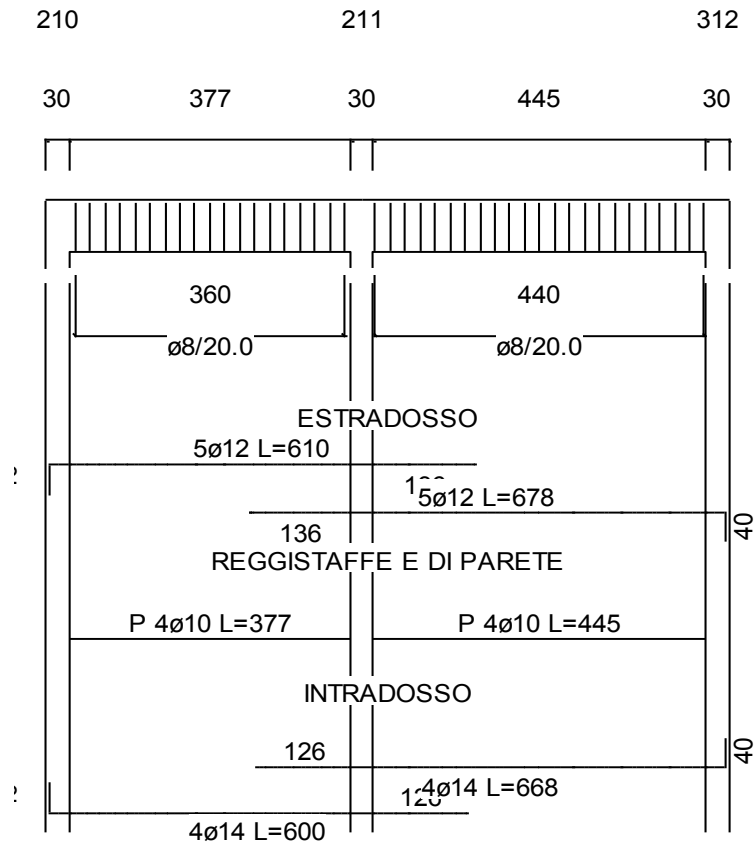
Travata 208 Nodi 288 226 327



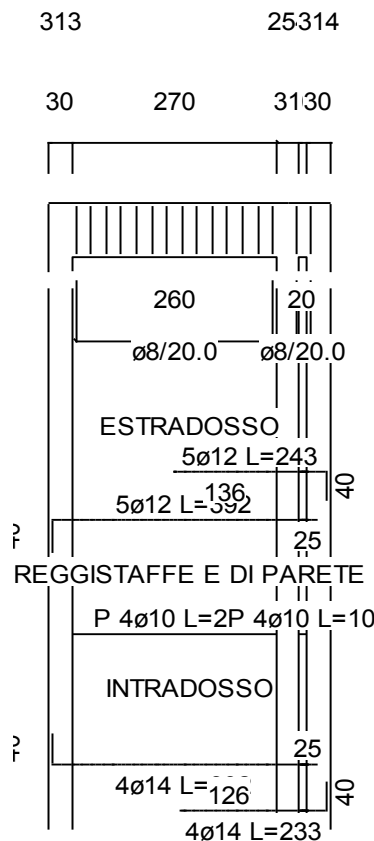
Travata 209 Nodi 306 307



Travata 210 Nodi 210 211 312

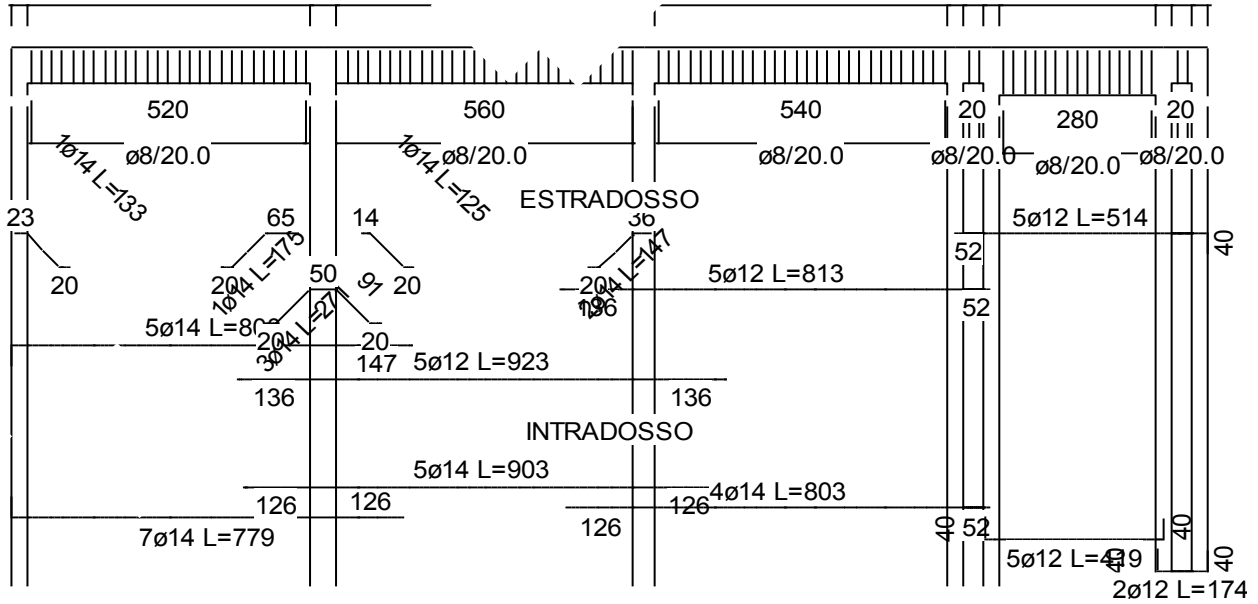


Travata 211 Nodi 313 254 314



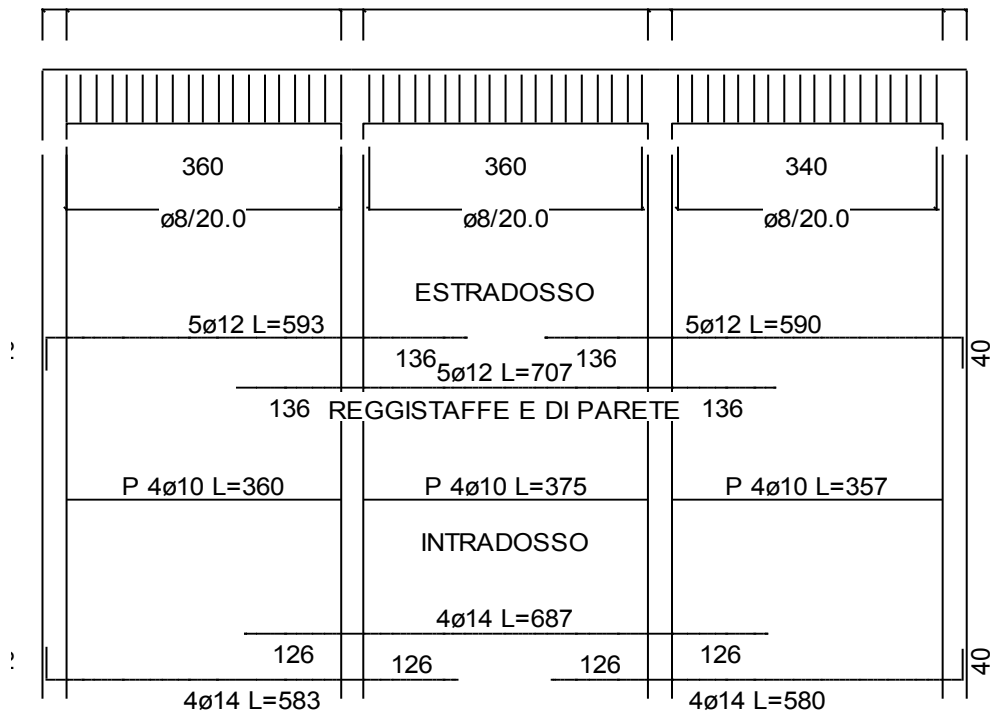
Travata 212 Nodi 221 222 323 255 324 325 269

221	Sez. 7	222	Sez. 7	323	Sez. 7	Sez. 7	Sez. 10	Sez. 7
30	536	50			555	313'30	295	314'30

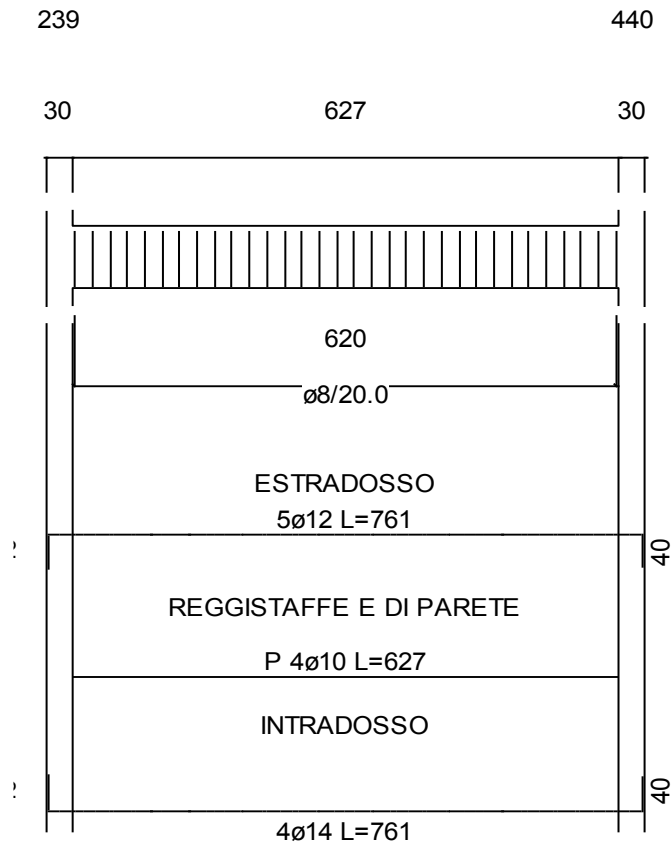


Travata 213 Nodi 234 235 236 237

234	235	236	237
30	360	30	375
		30	357
			30

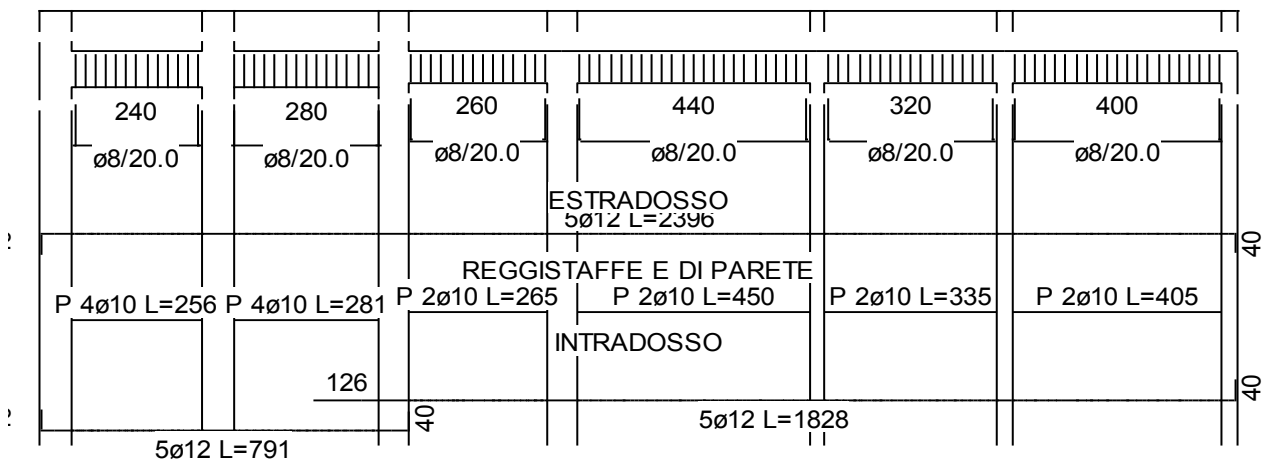


Travata 214 Nodi 239 440

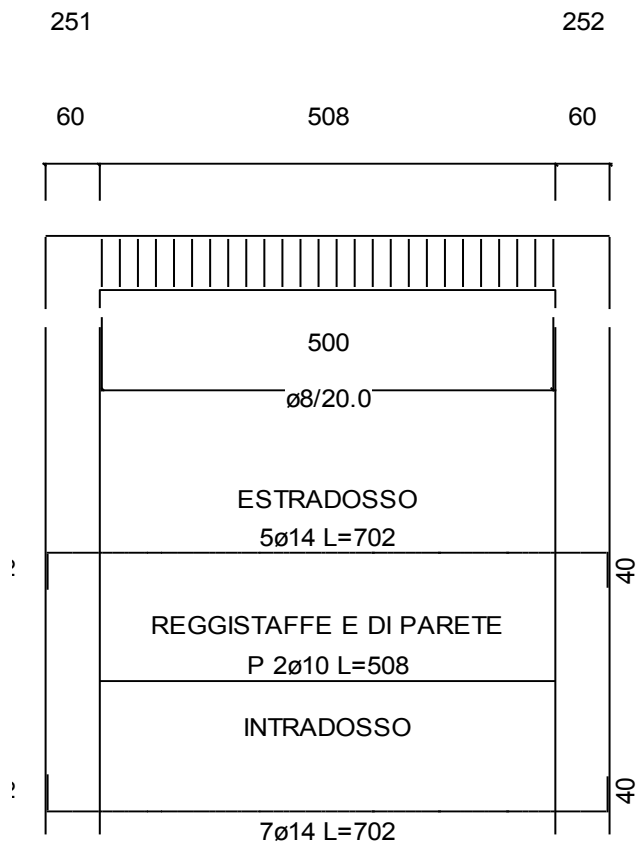


Travata 215 Nodi 244 245 446 347 248 249 250

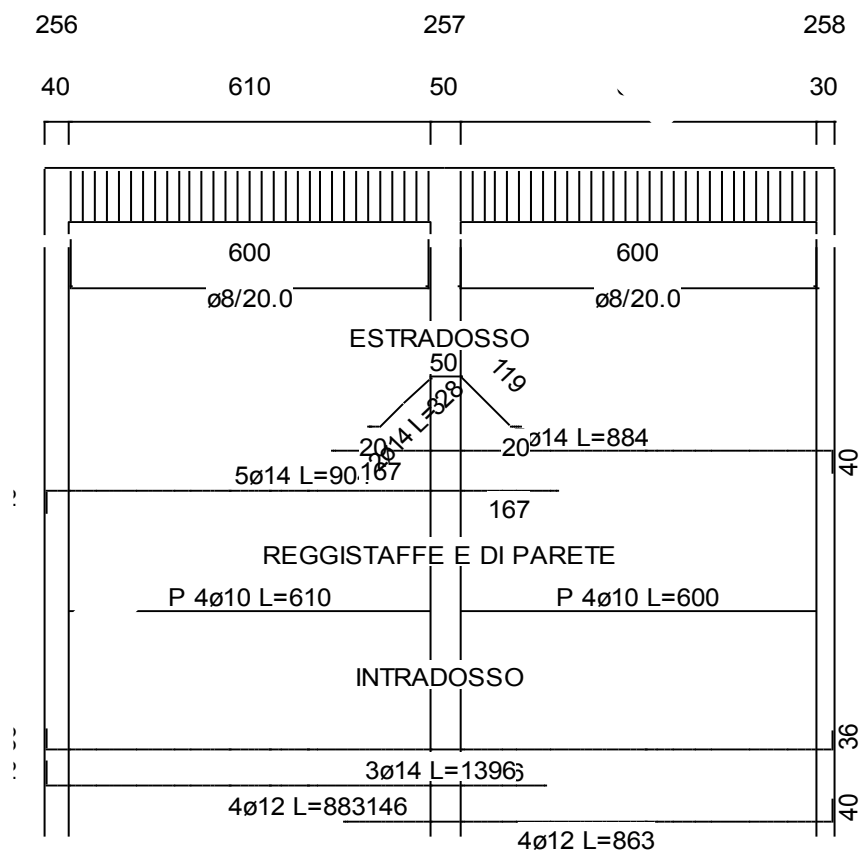
244	Sez. 7	245	Sez. 7	446	Sez. 6	347	Sez. 6	248	Sez. 6	249	Sez. 6	250
60	256	60	281	60	265	60	450	30	335	30	405	30



Travata 216 Nodi 251 252

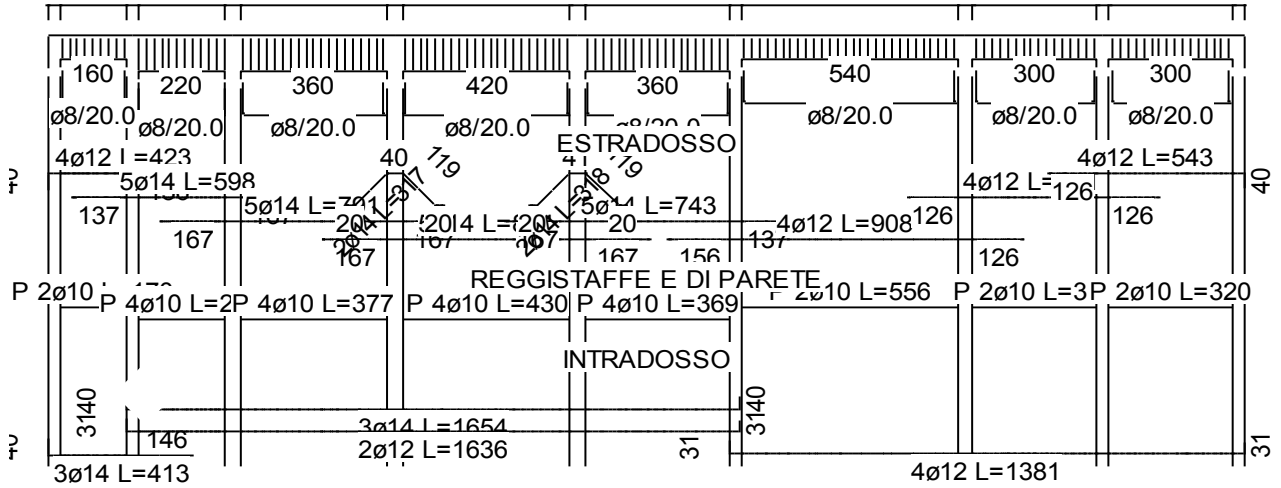


Travata 217 Nodi 256 257 258



Travata 218 Nodi 259 260 261 262 263 264 265 266 267

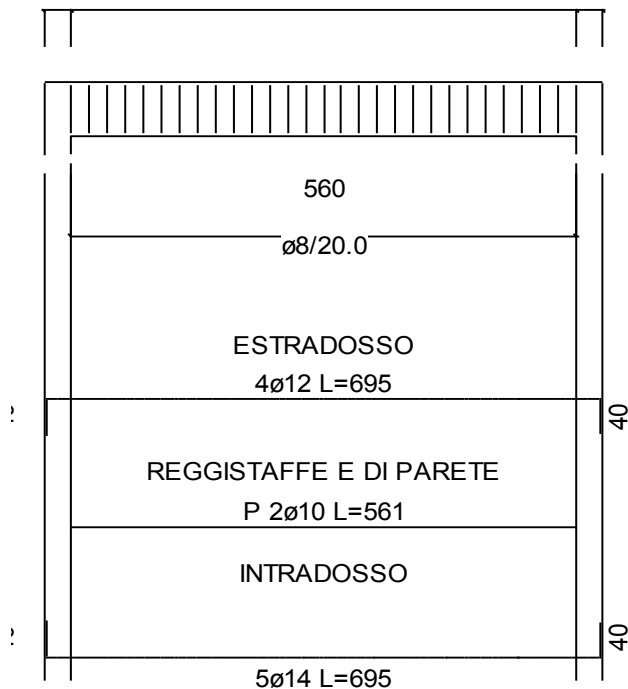
2/Sez. 63 Sez. 9 261 Sez. 9 262 Sez. 3 Sez. 9 264 Sez. 6 265 Sez. 6 266 Sez. 6 267
 30 170 30 224 40 377 40 430 40 369 30 556 40 319 30 320 30



Travata 219 Nodi 273 274

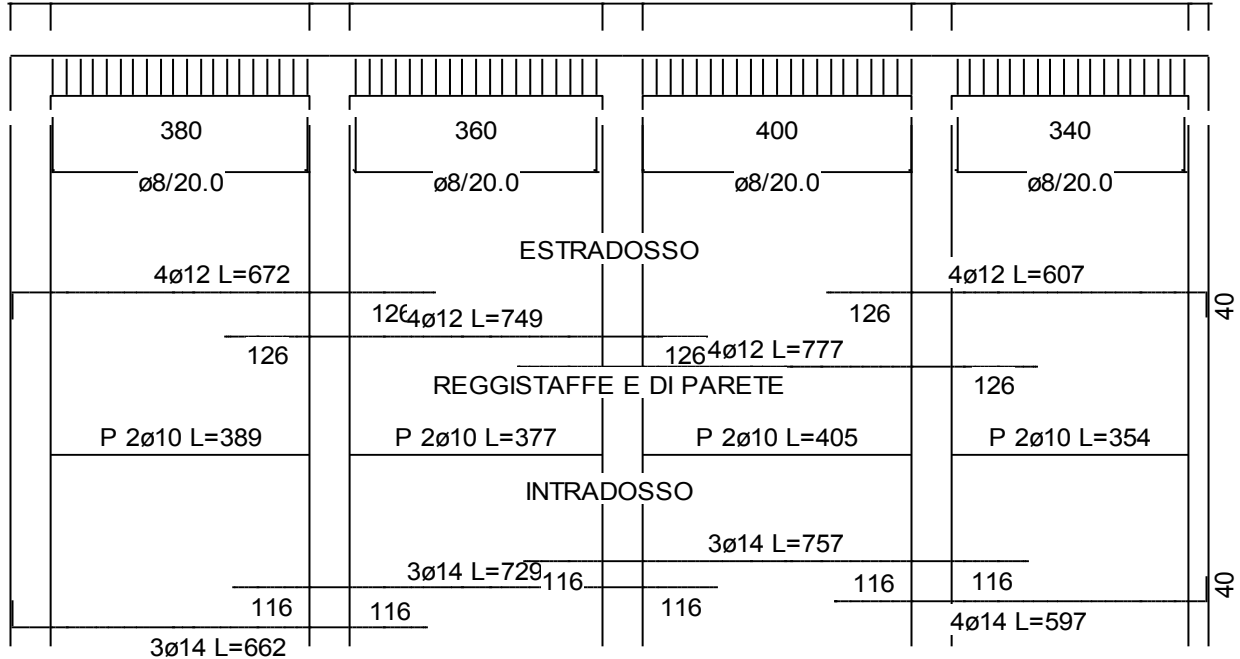
273 274

30 561 30



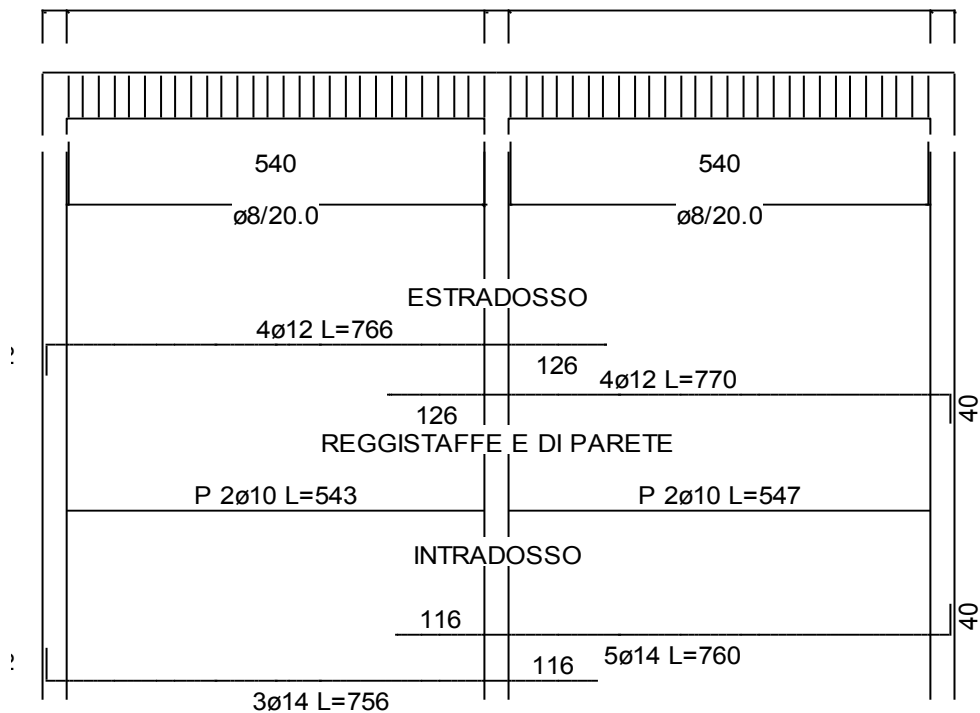
Travata 221 Nodi 275 276 277 278 279

275		276		277		278		279
60	389	60	377	60	405	60	354	30

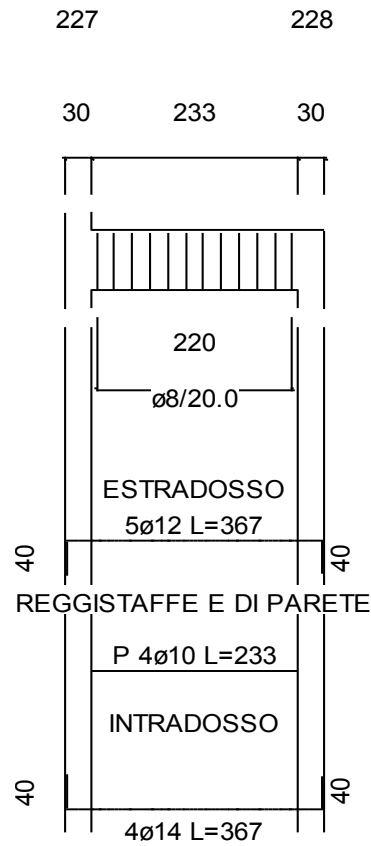


Travata 222 Nodi 280 281 282

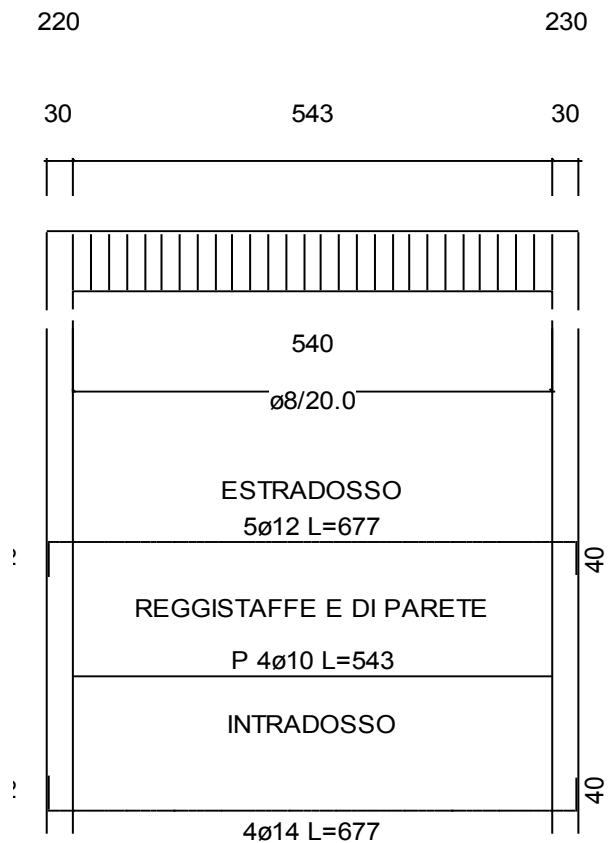
280		281		282
30	543	30	547	30



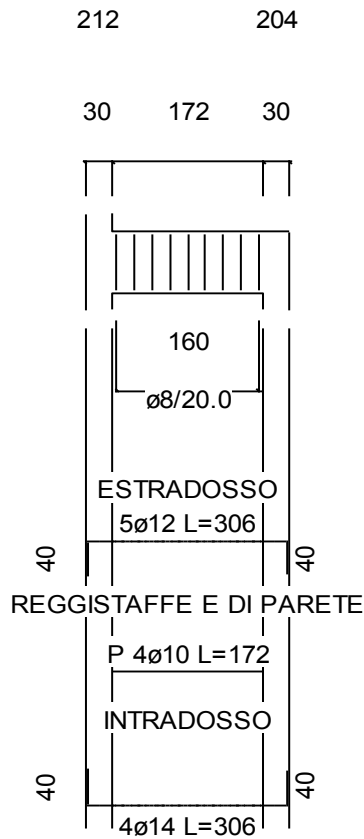
Travata 223 Nodi 227 228



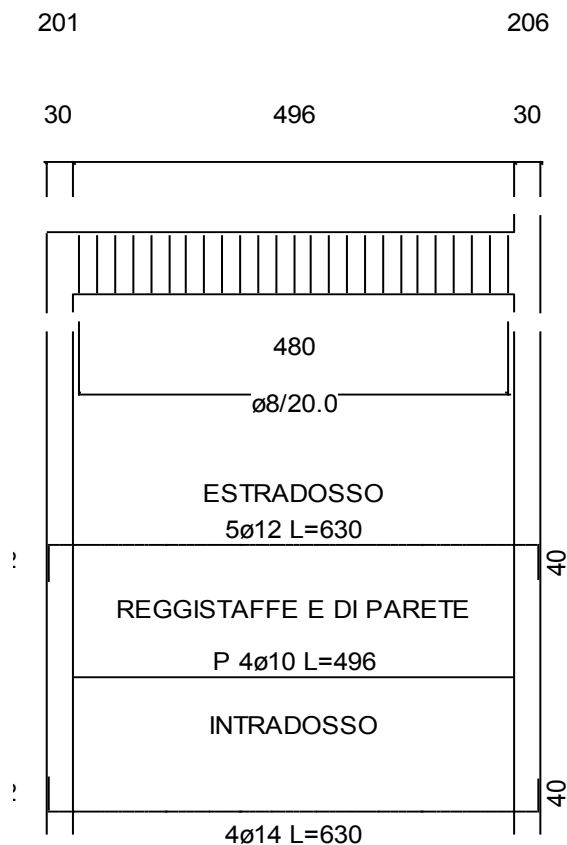
Travata 224 Nodi 220 230



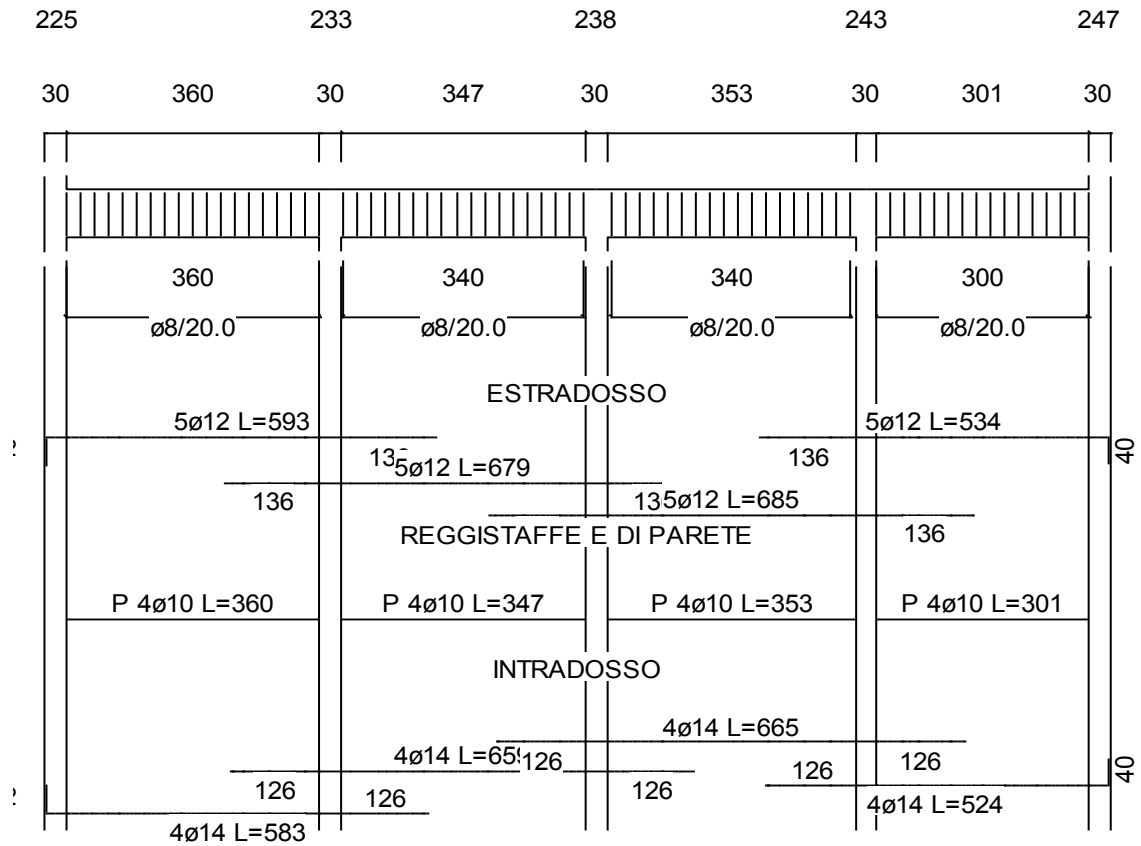
Travata 225 Nodi 212 204



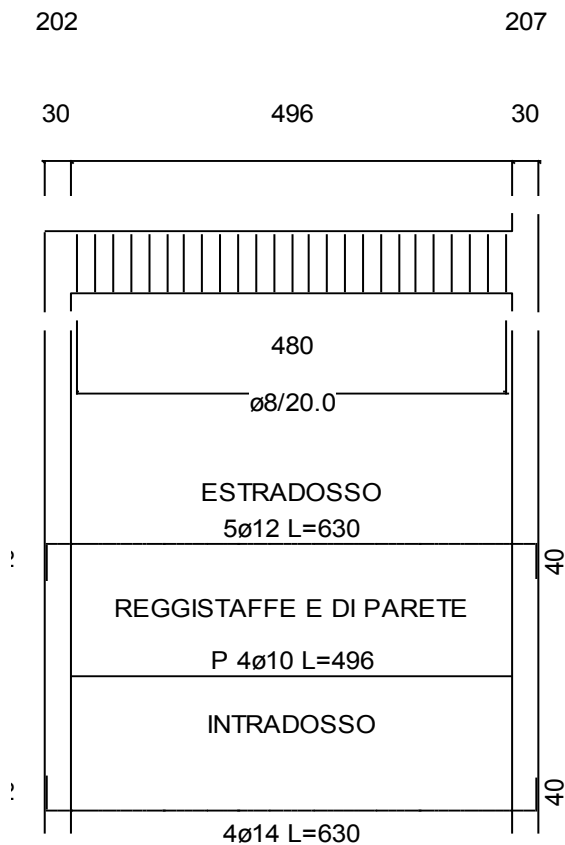
Travata 226 Nodi 201 206



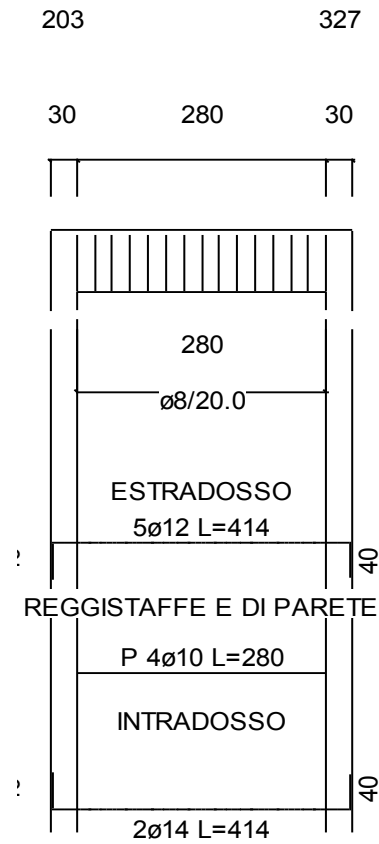
Travata 227 Nodi 225 233 238 243 247



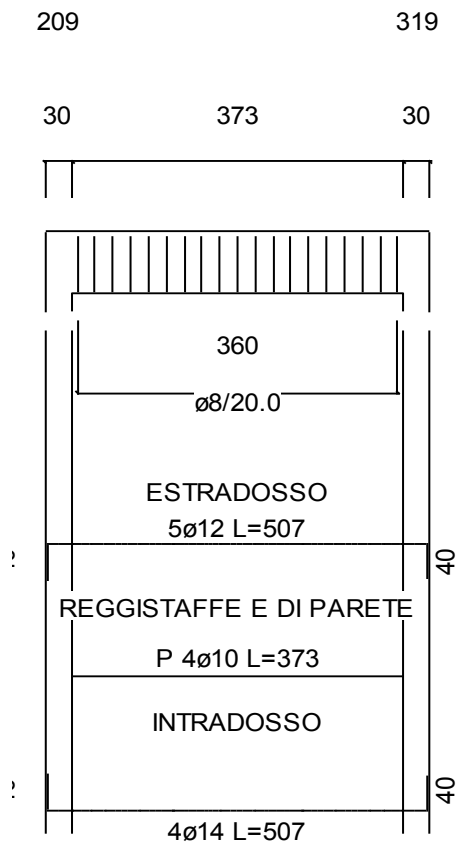
Travata 228 Nodi 202 207



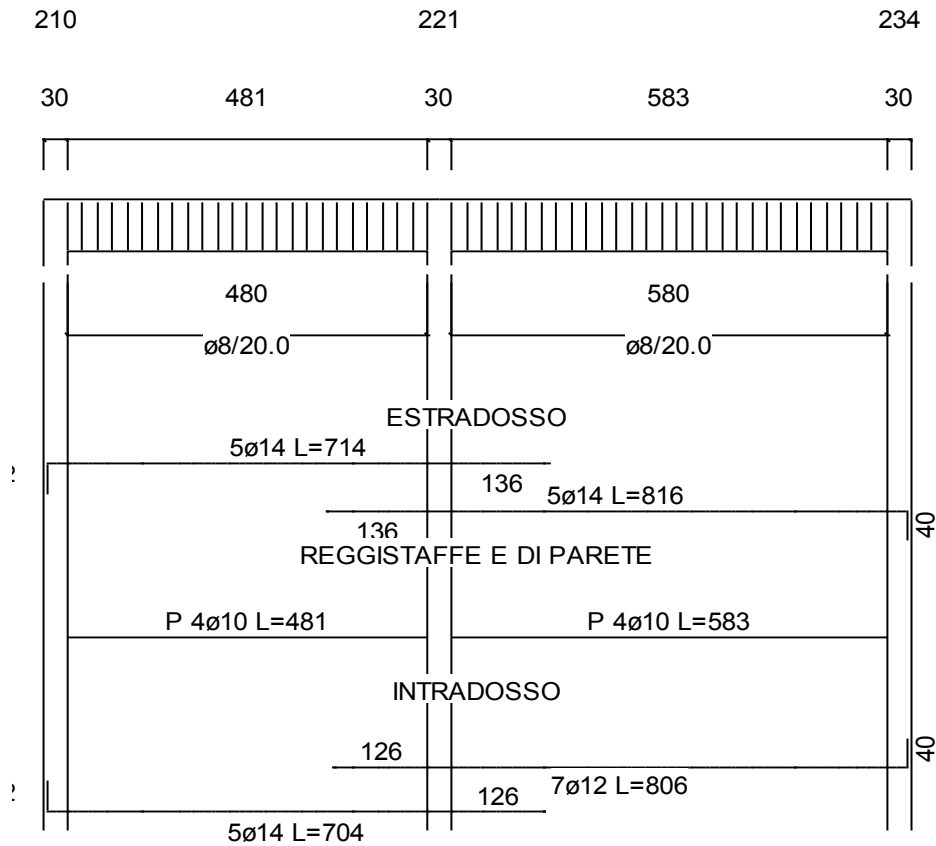
Travata 229 Nodi 203 327



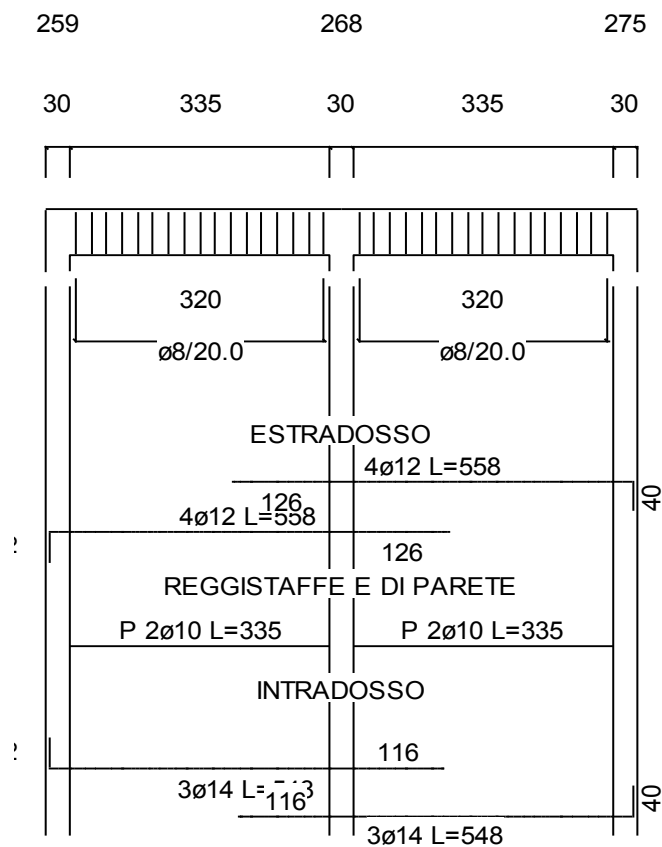
Travata 230 Nodi 209 319



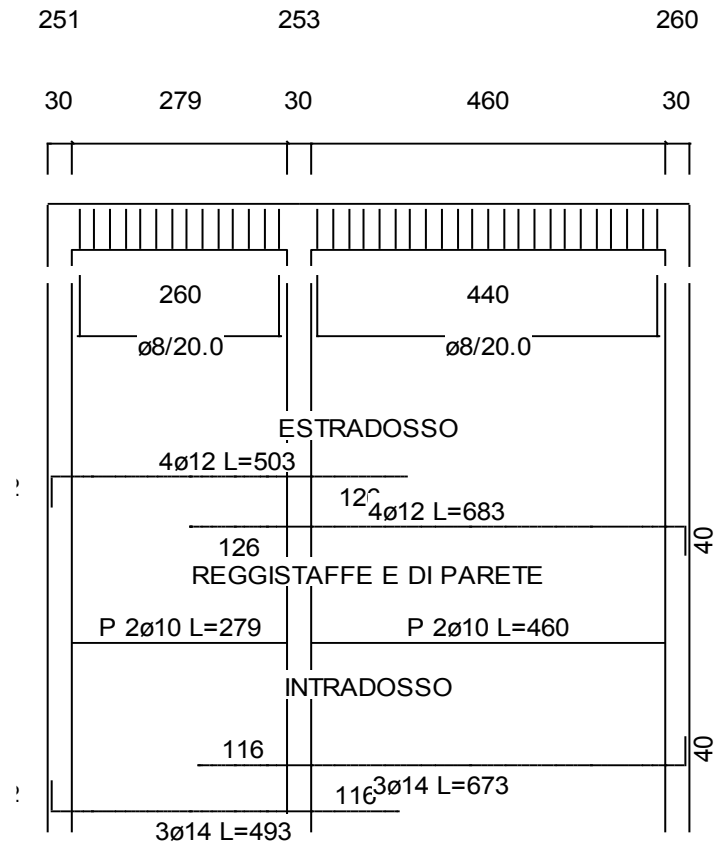
Travata 231 Nodi 210 221 234



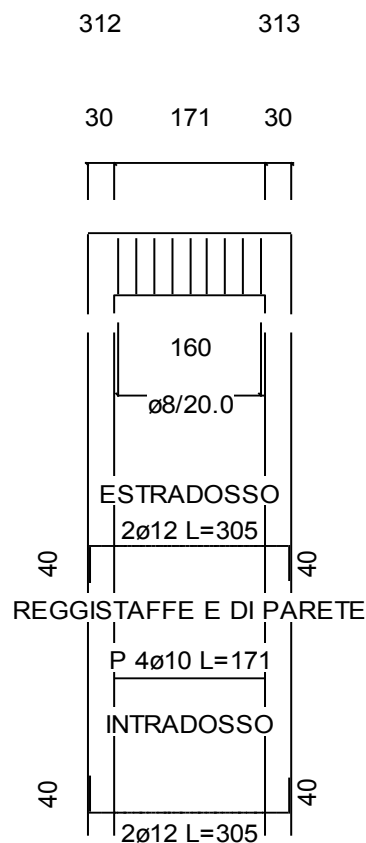
Travata 232 Nodi 259 268 275



Travata 233 Nodi 251 253 260

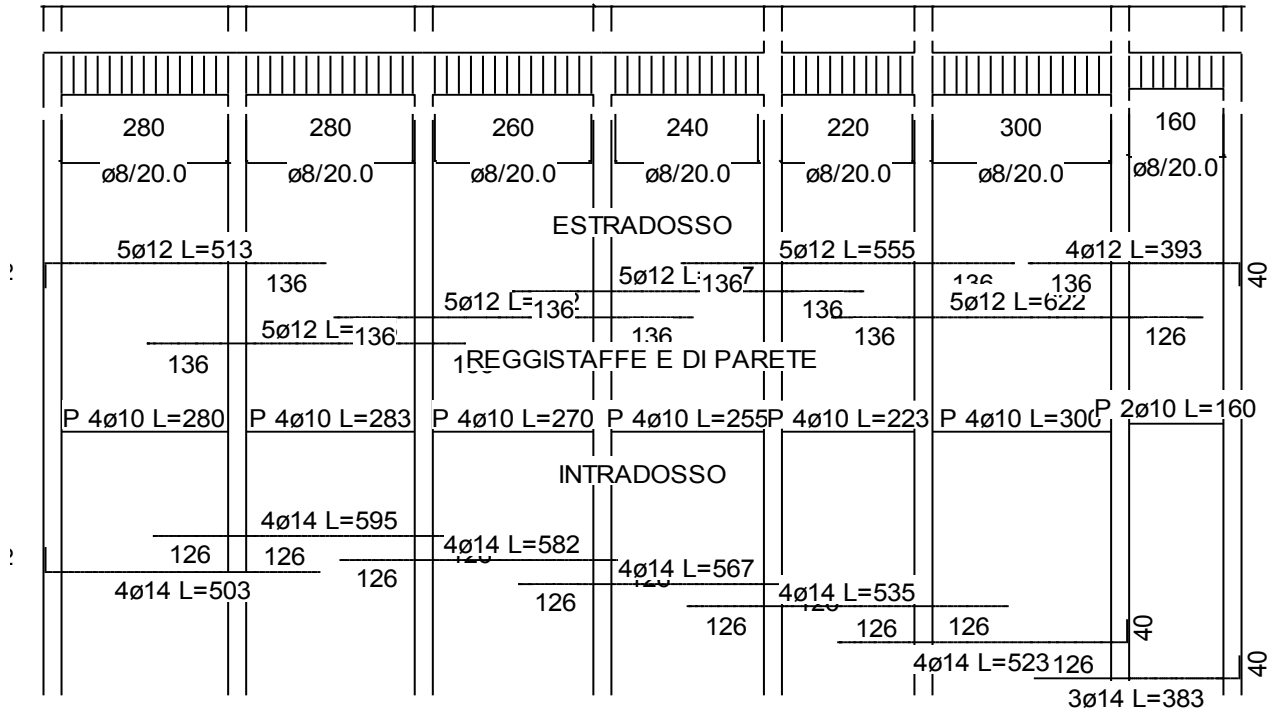


Travata 234 Nodi 312 313



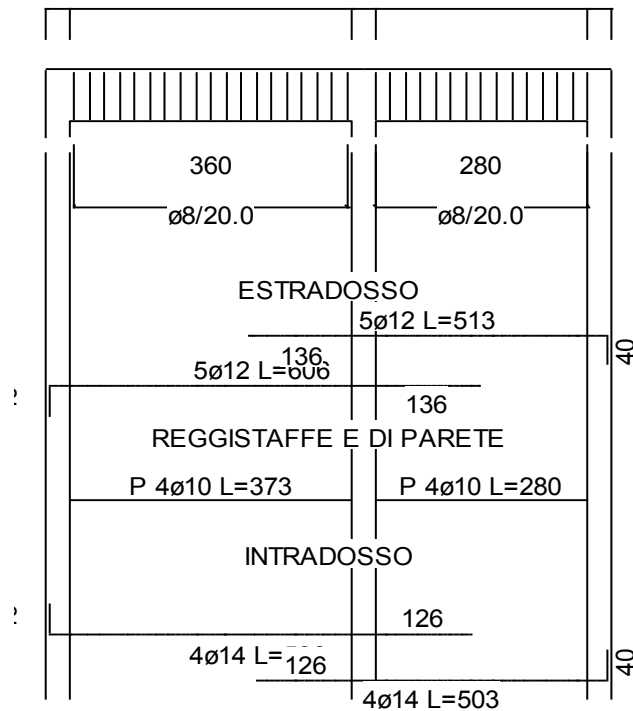
Travata 235 Nodi 254 323 231 237 239 241 244 252

254 Sez. 3 323 Sez. 7 231 Sez. 7 237 Sez. 7 239 Sez. 7 241 Sez. 7 244Sez. 6252
 30 280 30 283 30 270 30 255 30 223 30 300 30 160 30

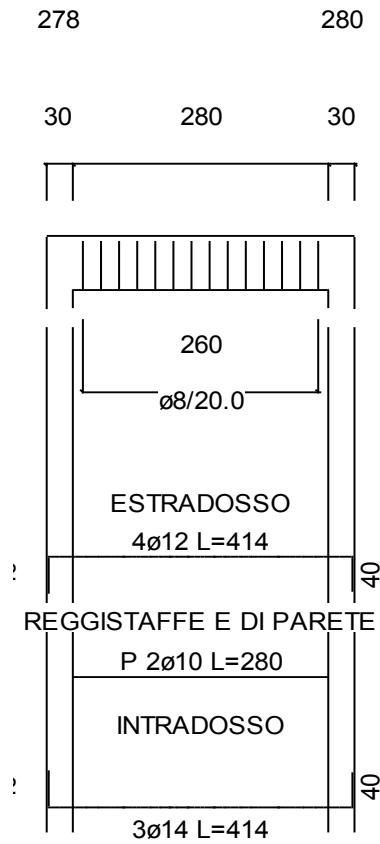


Travata 236 Nodi 306 315 255

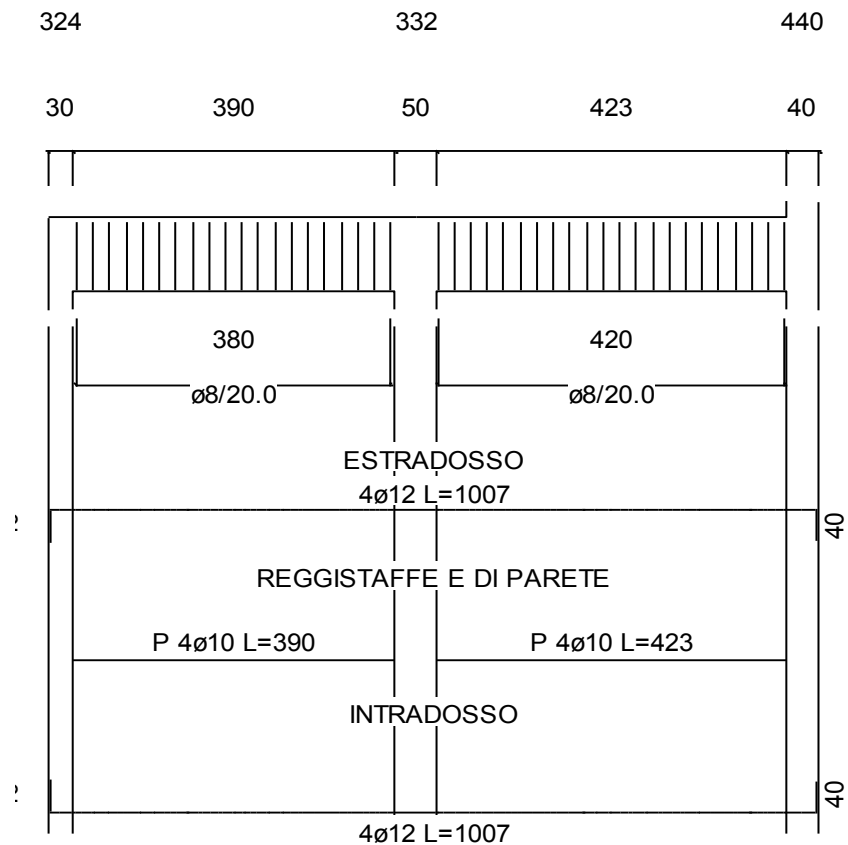
306 315 255
 30 373 30 280 30



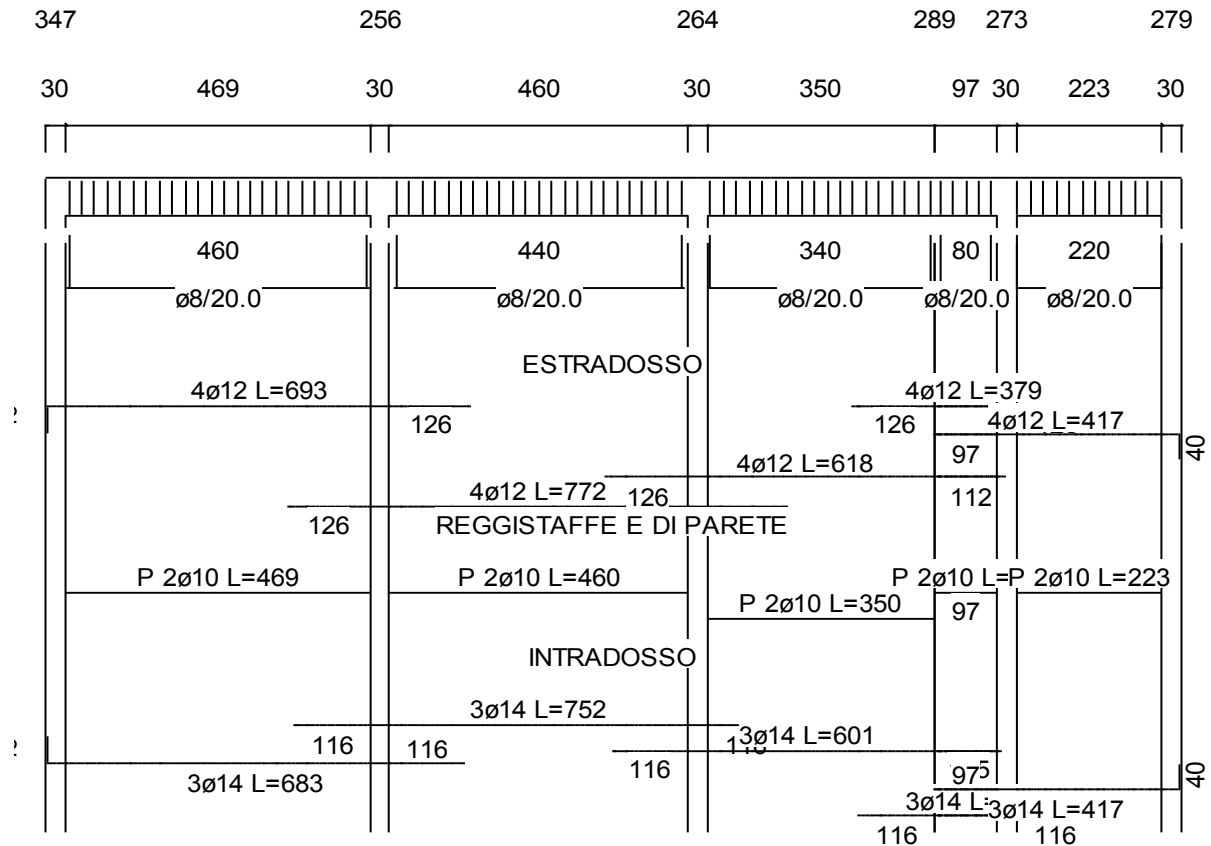
Travata 237 Nodi 278 280



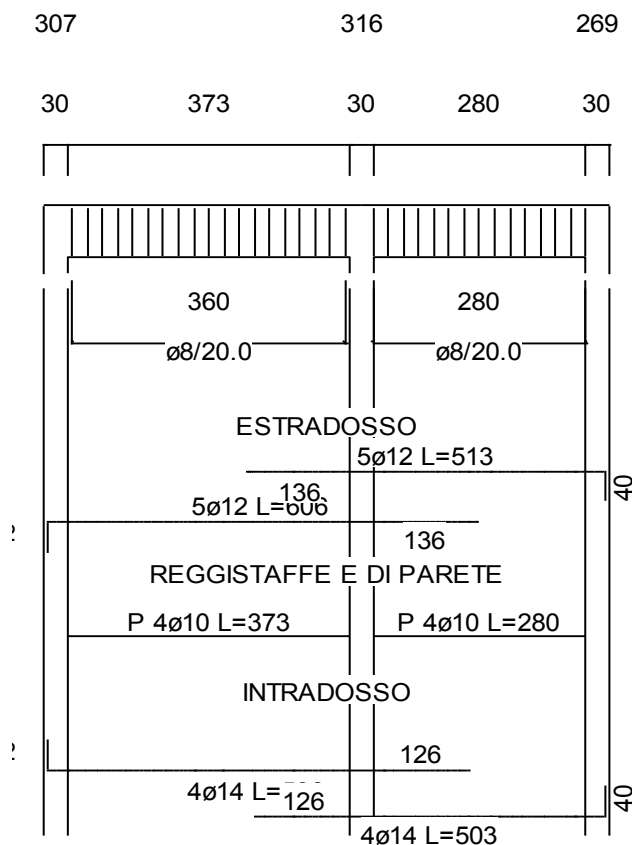
Travata 238 Nodi 324 332 440



Travata 239 Nodi 347 256 264 289 273 279



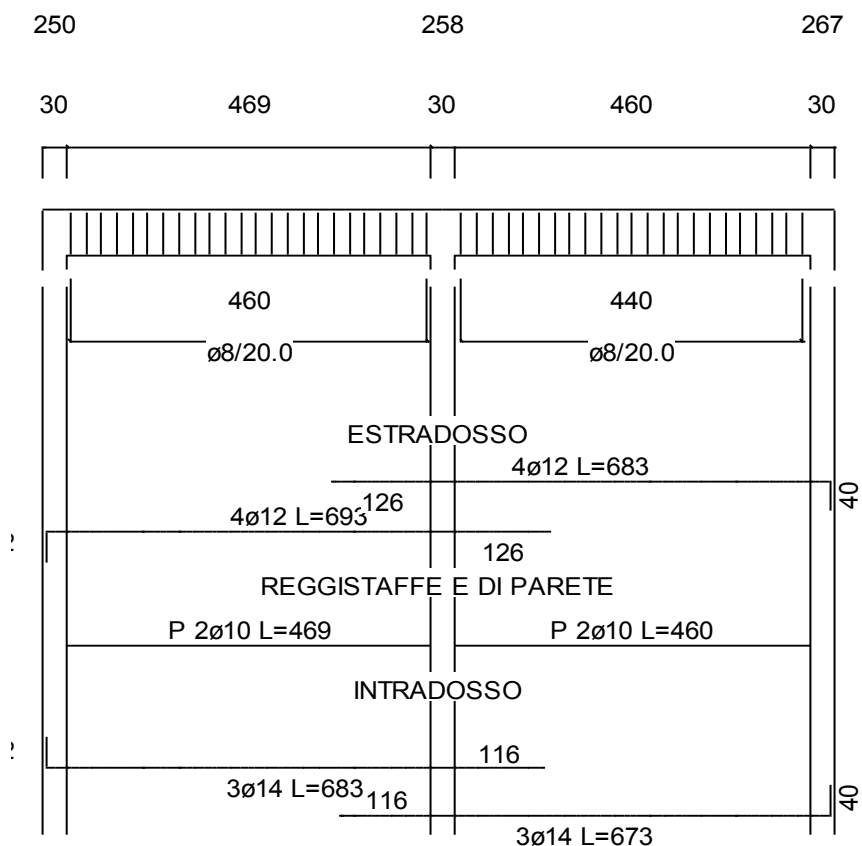
Travata 240 Nodi 307 316 269



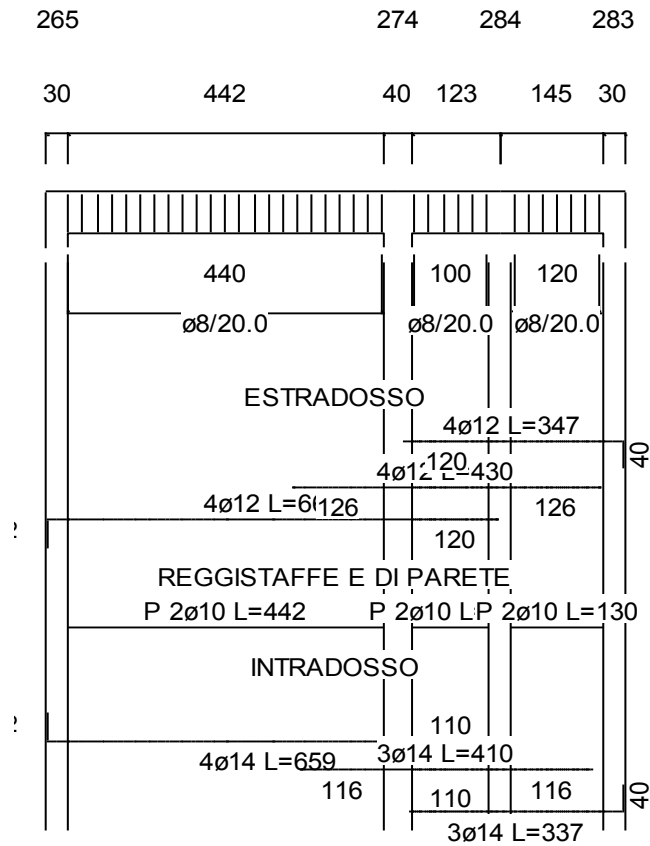
Travata 242 Nodi 283 282



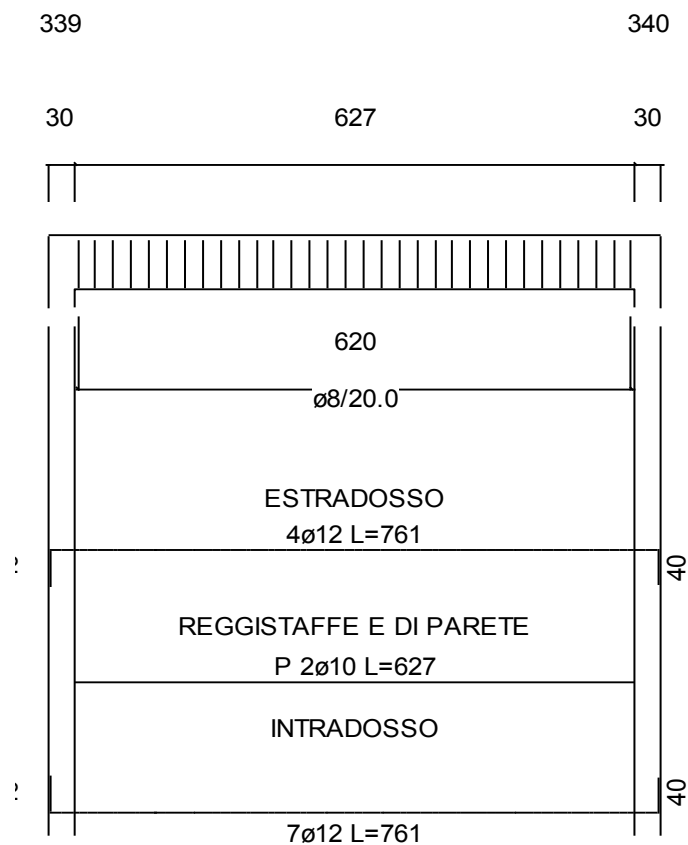
Travata 243 Nodi 250 258 267



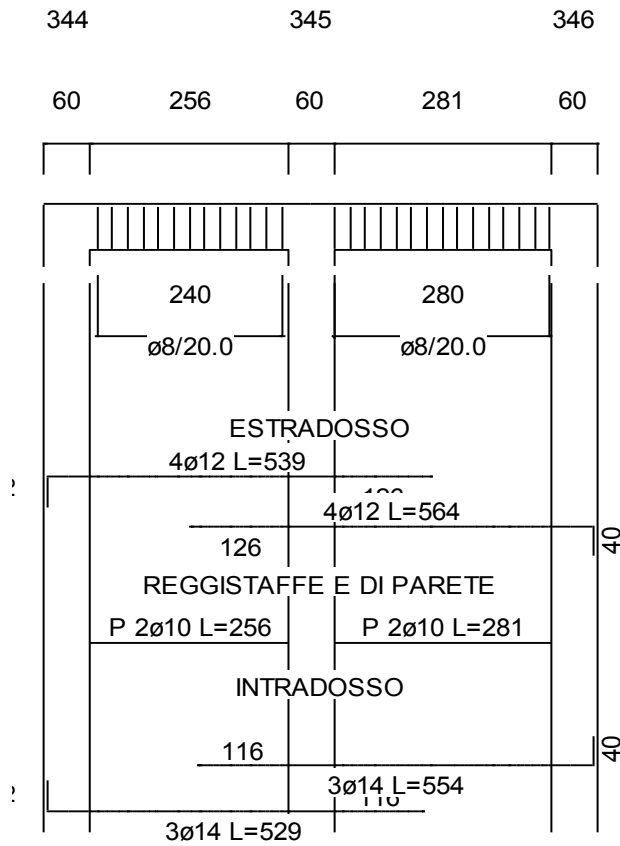
Travata 84 Nodi 265 274 284 283



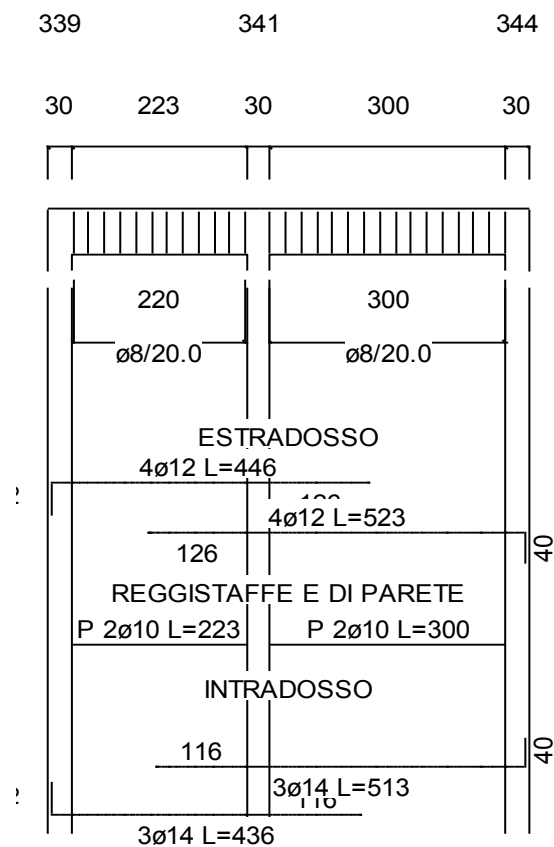
Travata 301 Nodi 339 340



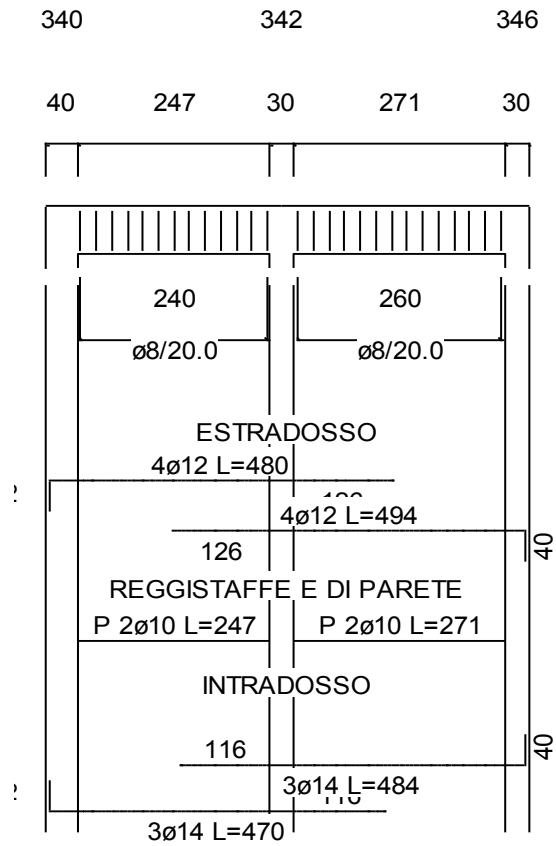
Travata 302 Nodi 344 345 346



Travata 303 Nodi 339 341 344



Travata 304 Nodi 340 342 346



Valutazione moltiplicatori meccanismi duttili (resistenza)

Per quanto attiene alle verifiche di sicurezza nei confronti delle azioni sismiche, si è proceduto al calcolo di verifica mediante analisi dinamica modale con fattore di comportamento $q=2.40$ (pari al 60% dell'incremento massimo, rispetto al valore minimo consentito ($q=1.50$), previsto per le costruzioni esistenti) utilizzando lo spettro di progetto valutato secondo quanto indicato dalla normativa vigente.

Dati di verifica

- γ_{EL} 1.50
- ϵ_u travi 4.00%
- ϵ_u pilastri 4.00%

Combinazione di riferimento gravitazionale

Peso proprio strutturale	1.000
Peso proprio solai	1.000
Permanente solai	1.000
Variabili cat.C1	0.300
Variabili Cat.H	0.000
Tamponature	1.000

Coefficienti γ_{Rd} degli elementi impiegati

γ_{Rd} Nuovo					γ_{Rd} Esistente				
Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchiere)	Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchiere)
1.10	1.10	1.10	1.20	1.20	0.00	0.00	0.00	0.00	0.00

γ Materiali sezioni Pilastro

Sezione	Duttile Fless.	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_{cc} Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Q. Permanenti Calcestruzzo	γ Rare Acciaio
1 Rett. 30x30 [cm] 30x30 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
2 Rett. 30x40 [cm] 30x40 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
3 Rett. 30x50 [cm] 30x50 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
4 Rett. 30x60 [cm] 30x60 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
5 Rett. 30x30 [cm] 30x30 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
6 Rett. 30x40 [cm] 30x40 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
7 Rett. 30x50 [cm] 30x50 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
8 Rett. 30x60 [cm] 30x60 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

y Materiali sezioni Trave

Sezione	Duttile Fless.	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_{cc} Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Q.Permanenti Calcestruzzo	γ Rare Acciaio
1 Rett. 30x50 [cm] 30x50 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
2 Rett. 30x60 [cm] 30x60 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
3 Rett. 30x70 [cm] 30x70 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
4 Rett. 30x80 [cm] 30x80 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
6 Rett. 30x60 [cm] 30x60 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
7 Rett. 30x70 [cm] 30x70 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
9 Rett. 30x90 [cm] 30x90 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
10 Rett. 50x90 [cm] 50x90 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
101 Rett. 20x20 [cm] AUSILIARIA		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

Spettro in accordo con TU 2018

- Strada comunale Acquarola n.20 Secondigliano Longitudine 14.2577 Latitudine 40.8946
- Tipo di Terreno C
- Coefficiente di amplificazione topografica (S_T) 1.0000
- Vita nominale della costruzione (V_N) 50.0 anni
- Classe d'uso III coefficiente C_U 1.5
- Classe di duttilità impostata Bassa
- Fattore di duttilità α_u/α_1 per sisma orizzontale 1.00
- Fattore riduttivo regolarità in altezza K_R 1.00
- Fattore riduttivo per la presenza di setti K_W 1.00

Stato Limite	C	$q_0 = C \alpha_u/\alpha_1$	q_H
SLV		2.40	2.40

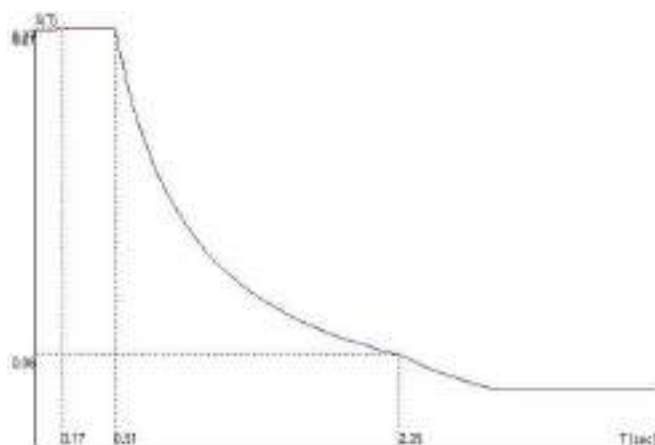
- Smorzamento Viscoso (0.05 = 5%) 0.05

TU 2018 SLV H

- Probabilità di superamento (P_{VR}) 10.0 e periodo di ritorno (T_R) 712 (anni)
- S_s 1.429
- T_B 0.172 [s]
- T_C 0.515 [s]
- T_D 2.346 [s]

- a_g/g 0.1865
- F_o 2.4226
- T_c^* 0.3451

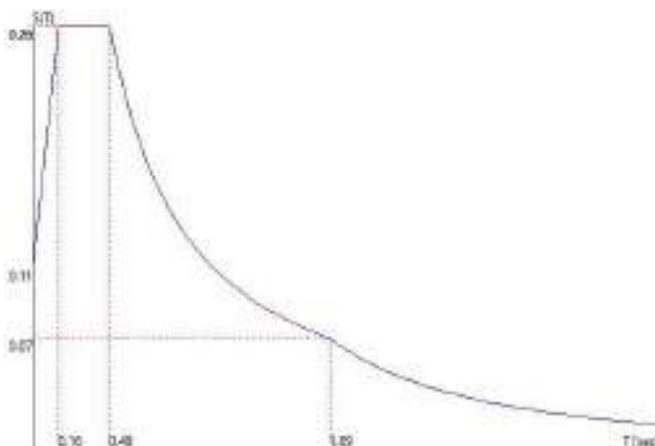
TU 2018 SLV H



TU 2018 SLD H

- Probabilità di superamento (P_{VR}) 63.0 e periodo di ritorno (T_R) 75 (anni)
- S_s 1.500
- T_B 0.165 [s]
- T_C 0.495 [s]
- T_D 1.892 [s]
- a_g/g 0.0729
- F_o 2.3409
- T_c^* 0.3251

TU 2018 SLD H



Legenda

M_G	Momento da carichi gravitazionali
M_E	Momento da carichi sismici
M_R	Momento resistente ultimo
α	$(M_R - M_G) / M_E$

Danno Severo

Pilastri

N.B. I momenti resistenti nei due piani sono valutati indipendentemente assumendo per N il **valore medio dell'azione assiale** nelle combinazioni di carico analizzate.

Pilastro Nodi	Sezione	Mx						My					
		Comb. Critica	N _{Medio} [kN]	M _G [kNm]	M _E [kNm]	M _R [kNm]	α	Comb. Critica	N _{Medio} [kN]	M _G [kNm]	M _E [kNm]	M _R [kNm]	α
1 101	1	17	-179.89	-16.76	-83.11	-43.40	0.32	13	-189.11	2.00	133.70	44.30	0.32
2 102	1	18	-177.40	-13.91	-79.53	-43.15	0.37	4	-177.40	3.70	133.86	43.15	0.29
3 103	1	18	-18.35	4.70	86.32	32.84	0.33	4	-9.13	3.74	130.85	31.85	0.21
4 104	1	15	-126.29	0.07	98.21	37.96	0.39	13	-126.29	1.81	113.70	37.96	0.32
5 105	1	10	-257.15	-1.18	-72.58	-50.16	0.67	13	-257.15	0.50	119.87	50.16	0.41
6 106	1	8	-349.64	-7.15	-90.13	-62.00	0.61	4	-349.64	-0.39	-120.86	-62.00	0.51
7 107	2	13	-383.39	-1.93	-264.60	-90.93	0.34	7	-383.39	-8.69	-130.71	-73.25	0.49
8 108	1	7	-303.40	-0.72	-83.01	-53.25	0.63	13	-303.40	0.50	120.69	53.25	0.44
9 109	1	18	-159.25	1.49	119.45	41.34	0.33	4	-150.03	7.67	100.46	40.40	0.33
10 110	1	15	-149.37	1.91	119.16	40.34	0.32	13	-140.14	-4.90	-98.67	-39.39	0.35
11 111	1	15	-297.64	0.28	89.21	59.19	0.66	13	-288.42	-1.19	-113.10	-58.61	0.51
12 112	1	10	-163.64	-0.06	-104.89	-41.78	0.40	4	-163.64	-2.60	-106.17	-41.78	0.37
13 113	1	10	-138.03	-0.22	-90.77	-39.18	0.43	13	-138.03	1.26	100.98	39.18	0.38
14 114	1	10	-311.75	-0.08	-66.14	-53.75	0.81	13	-302.53	-3.10	-105.34	-53.20	0.48
15 115	2	4	-381.11	1.44	231.90	90.83	0.39	8	-381.11	-0.06	-75.63	-73.10	0.97
16 116	2	4	-313.04	0.43	234.74	87.86	0.37	7	-313.04	-0.05	-83.35	-68.15	0.82
17 117	1	7	-239.56	-0.02	-68.80	-48.82	0.71	4	-230.33	0.92	104.76	48.07	0.45
18 118	1	7	-280.74	-0.06	-75.89	-51.82	0.68	13	-271.51	-2.70	-103.05	-51.19	0.47
19 119	1	7	-256.81	-0.32	-115.70	-50.13	0.43	4	-247.58	3.66	101.01	49.44	0.45
20 120	1	18	-115.37	2.79	118.34	43.11	0.34	4	-115.37	-0.92	-101.21	-43.11	0.42
21 121	1	15	-351.26	0.68	133.04	62.08	0.46	13	-342.03	-8.54	-89.27	-61.64	0.59
22 122	3	13	-662.74	-0.39	-230.17	-151.67	0.66	15	-662.74	0.14	89.99	103.13	1.14
23 123	2	4	-466.54	2.34	220.25	94.13	0.42	15	-466.54	1.23	128.34	77.87	0.60
24 124	2	4	-325.07	2.36	216.91	88.40	0.40	18	-312.77	-7.80	-124.63	-68.12	0.48
25 125	1	18	-189.61	2.11	97.06	44.35	0.44	4	-189.61	-0.09	-93.24	-44.35	0.47
26 126	1	18	-165.92	0.54	79.11	42.01	0.52	13	-156.69	-1.70	-90.94	-41.08	0.43
27 127	1	18	-130.58	0.58	112.77	38.41	0.34	4	-130.58	-1.88	-86.68	-38.41	0.42
28 128	1	7	-120.65	-0.49	-112.04	-37.37	0.33	13	-120.65	1.41	79.82	37.37	0.45
29 129	1	7	-207.77	-0.60	-88.20	-46.10	0.52	13	-207.77	0.09	87.00	46.10	0.53
30 130	1	7	-141.40	-2.97	-114.76	-45.79	0.37	4	-141.40	-1.47	-79.93	-45.79	0.55
31 131	1	10	-231.73	0.97	108.46	48.19	0.44	4	-240.95	-0.36	-64.09	-48.93	0.76
32 132	3	18	-467.64	0.11	405.78	132.88	0.33	4	-467.64	-0.09	-88.82	-82.78	0.93
33 133	1	7	-187.89	-0.50	-108.09	-44.18	0.40	13	-187.89	0.05	57.34	44.18	0.77
34 134	1	10	-171.67	-3.62	-116.23	-42.58	0.34	13	-162.44	-5.19	-67.13	-41.66	0.54
35 135	1	10	-291.45	-0.74	-85.39	-52.52	0.61	4	-291.45	-0.26	-76.59	-52.52	0.68
36 136	1	10	-293.64	-0.12	-80.87	-52.65	0.65	13	-293.64	0.34	77.24	52.65	0.68
37 137	1	15	-292.54	0.25	106.22	52.58	0.49	4	-292.54	-1.89	-70.75	-52.58	0.72
38 138	1	18	-172.23	0.16	105.46	42.64	0.40	11	-172.23	0.09	46.26	42.64	0.92
39 139	1	10	-257.74	-0.50	-109.08	-56.49	0.51	6	-257.74	-0.63	-48.98	-56.49	1.14
40 140	2	7	-383.10	-2.96	-239.43	-90.91	0.37	11	-383.10	0.02	57.99	73.23	1.26
41 141	1	15	-245.38	0.40	109.44	49.27	0.45	6	-245.38	-0.17	-46.05	-49.27	1.07
42 142	2	18	-307.11	0.66	242.69	87.59	0.36	11	-307.11	0.03	59.87	67.67	1.13

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43 143	1	7	-176.07	-0.04	-110.06	-43.02	0.39	11	-176.07	0.22	46.35	43.02	0.92
44 144	4	11	-303.70	-1.31	-409.02	-148.32	0.36	10	-303.70	-2.36	-207.11	-70.56	0.33
45 145	4	11	-308.80	-1.11	-470.82	-149.23	0.31	10	-308.80	-0.47	-136.45	-71.08	0.52
46 146	4	6	-389.33	-0.92	-475.79	-173.41	0.36	7	-389.33	2.32	184.31	89.68	0.47
47 147	4	12	-364.29	-6.64	-463.01	-158.70	0.33	7	-364.29	-1.84	-180.64	-76.61	0.41
48 148	1	7	-244.62	-0.10	-76.44	-49.21	0.64	5	-235.39	3.20	78.07	48.48	0.58
49 149	1	18	-247.43	0.29	82.64	49.43	0.59	12	-247.43	1.39	77.31	49.43	0.62
50 150	1	18	-160.31	2.33	117.45	41.45	0.33	5	-151.08	8.25	62.54	40.51	0.52
51 151	4	12	-223.44	-6.40	-429.13	-132.89	0.29	15	-223.44	0.48	210.12	62.21	0.29
52 152	4	5	-204.96	13.12	430.25	148.54	0.31	10	-204.96	-0.39	-204.69	-70.92	0.34
53 153	1	15	-141.20	-1.60	-117.91	-39.50	0.32	12	-150.43	1.05	74.95	40.45	0.53
54 154	1	15	-221.39	0.26	81.56	47.33	0.58	12	-212.17	-1.40	-78.84	-46.51	0.57
55 155	1	15	-256.83	0.07	60.68	56.42	0.93	5	-247.60	0.66	78.37	55.73	0.70
56 156	2	12	-420.12	-1.12	-177.75	-92.41	0.51	7	-420.12	-0.01	-86.15	-75.48	0.88
57 157	4	12	-701.72	-3.95	-515.97	-205.68	0.39	18	-701.72	0.05	157.58	111.54	0.71
58 158	1	18	-327.22	0.04	130.12	54.60	0.42	5	-317.99	9.99	78.47	54.10	0.56
59 159	1	15	-101.57	0.52	114.96	35.37	0.30	12	-101.57	0.89	72.80	35.37	0.47
60 160	1	10	-210.88	-1.45	-106.07	-46.39	0.42	12	-201.65	-0.79	-76.97	-45.51	0.58
61 161	3	12	-400.15	-1.84	-316.26	-128.78	0.40	10	-400.15	-0.62	-127.22	-77.87	0.61
62 162	3	12	-521.13	-1.05	-314.15	-135.90	0.43	10	-521.13	-0.16	-108.74	-86.10	0.79
63 163	3	5	-522.36	3.25	309.17	135.97	0.43	17	-522.36	0.25	104.88	86.17	0.82
64 164	3	18	-520.92	8.10	388.79	135.89	0.33	12	-520.92	1.18	127.13	86.09	0.67
65 165	2	5	-396.92	3.09	164.65	91.48	0.54	18	-396.92	4.41	148.53	74.11	0.47
66 166	1	18	-214.11	0.24	92.90	46.69	0.50	12	-204.89	-0.18	-76.64	-45.82	0.60
67 167	1	7	-135.92	-1.87	-117.40	-38.96	0.32	5	-135.92	-1.94	-72.21	-38.96	0.51
68 168	1	12	-145.73	-4.07	-67.36	-39.97	0.53	10	-136.51	0.13	125.19	39.02	0.31
69 169	1	10	-154.80	-0.09	-75.54	-40.89	0.54	5	-145.57	4.05	77.47	39.95	0.46
70 170	1	10	-151.49	-0.13	-61.50	-40.55	0.66	12	-142.27	-3.26	-72.45	-39.61	0.50
71 171	1	7	-121.86	-0.45	-63.10	-37.50	0.59	5	-112.64	5.63	75.09	36.53	0.41
72 172	1	7	-89.42	-1.12	-78.51	-34.07	0.42	12	-80.20	-3.76	-75.53	-33.09	0.39
73 173	2	7	-346.36	9.54	239.00	89.34	0.33	12	-346.36	-8.45	-97.44	-70.70	0.64
74 174	2	7	-411.70	-3.40	-256.63	-92.08	0.35	5	-399.40	8.41	92.59	74.26	0.71
75 175	4	12	-187.38	-3.64	-408.50	-125.33	0.30	10	-187.38	-1.73	-210.70	-58.37	0.27
76 176	4	5	-301.60	-0.02	474.36	162.09	0.34	10	-301.60	-0.25	-149.67	-80.97	0.54
77 177	4	5	-301.16	0.75	494.31	147.86	0.30	15	-301.16	0.04	136.97	70.30	0.51
78 178	4	5	-366.17	1.15	482.46	159.00	0.33	17	-366.17	0.93	174.05	76.79	0.44
79 179	1	7	-140.83	-0.09	-106.35	-39.46	0.37	5	-131.61	3.07	75.44	38.51	0.47
80 180	1	8	-140.02	-0.86	-94.98	-39.38	0.41	12	-130.79	-4.37	-71.28	-38.43	0.48
81 181	2	12	-397.14	-0.44	-181.76	-91.49	0.50	7	-397.14	-0.42	-109.10	-74.12	0.68
82 182	1	7	-185.24	-0.91	-116.54	-50.16	0.42	5	-176.02	6.53	71.85	49.26	0.59
83 183	1	18	-80.98	-2.95	-109.76	-33.17	0.28	5	-90.20	-1.86	-70.94	-34.16	0.46
101 201	5	15	-69.14	-9.39	-51.36	-31.90	0.44	13	-69.14	-1.42	-57.84	-31.90	0.53
102 202	5	18	-70.22	-12.90	-74.89	-38.38	0.34	4	-78.77	-3.97	-84.92	-39.29	0.42
104 204	5	15	-44.12	-1.00	-91.56	-29.19	0.31	13	-44.12	-5.10	-82.25	-29.19	0.29
105 205	5	10	-108.66	1.85	38.83	36.11	0.88	13	-108.66	-1.67	-95.23	-36.11	0.36
106 206	5	10	-152.90	8.05	59.34	46.95	0.66	4	-152.90	1.89	63.52	46.95	0.71
307 107	6	13	-177.74	-3.47	-92.45	-88.30	0.92	8	-177.74	-12.84	-52.59	-64.53	0.98
108 208	5	7	-126.80	1.29	36.81	38.01	1.00	4	-126.80	0.10	95.50	38.01	0.40
109 209	5	18	-58.24	-3.47	-101.96	-30.72	0.27	4	-58.24	9.98	81.00	30.72	0.26
110 210	5	15	-54.73	-4.31	-85.21	-30.34	0.31	13	-54.73	-6.56	-61.82	-30.34	0.38
111 211	5	16	-122.54	-0.93	-36.39	-37.57	1.01	13	-122.54	-0.84	-70.58	-37.57	0.52
112 212	5	15	-64.53	-0.48	-102.43	-37.78	0.36	4	-73.08	-5.29	-66.41	-38.69	0.50
113 213	5	10	-73.33	0.16	78.50	38.71	0.49	13	-73.33	-0.30	-66.80	-38.71	0.58
114 214	5	9	-144.05	0.05	55.54	39.79	0.72	13	-144.05	-10.79	-79.75	-39.79	0.36
115 215	6	4	-189.83	-16.55	-157.04	-65.58	0.31	15	-189.83	-0.26	-62.95	-48.12	0.76
316 116	6	13	-163.19	-0.32	-153.65	-62.23	0.40	7	-163.19	0.16	19.99	45.33	2.26

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117 217	5	17	-125.77	-0.15	-38.22	-37.91	0.99	4	-125.77	1.57	85.23	37.91	0.43
118 218	5	17	-124.68	-0.17	-69.90	-44.08	0.63	13	-132.55	2.64	90.08	44.88	0.47
119 219	5	18	-96.35	-0.39	-113.87	-34.81	0.30	4	-104.23	-5.98	-90.30	-35.65	0.33
120 220	5	18	-53.10	-5.51	-122.84	-36.57	0.25	4	-53.10	5.60	82.26	36.57	0.38
121 221	5	15	-144.41	-1.20	-105.52	-39.83	0.37	13	-144.41	-16.43	-57.86	-39.83	0.40
122 222	7	4	-319.20	-7.09	-203.73	-136.24	0.63	15	-319.20	-0.40	-47.55	-80.03	1.67
123 223	6	4	-224.75	5.71	149.83	69.66	0.43	15	-213.35	-1.06	-111.77	-50.53	0.44
124 224	5	18	-159.39	6.00	86.98	67.30	0.70	4	-159.39	-2.44	-62.16	-67.30	1.04
125 225	5	18	-90.29	-3.53	-91.83	-34.17	0.33	4	-98.84	-0.58	-62.58	-35.08	0.55
126 226	5	8	-70.58	0.09	48.85	32.06	0.65	13	-70.58	-0.39	-73.84	-32.06	0.43
127 227	5	18	-58.50	-0.85	-122.88	-30.75	0.24	4	-58.50	2.02	69.82	30.75	0.41
128 228	5	7	-45.17	0.82	114.58	29.30	0.25	12	-45.17	-3.96	-76.31	-29.30	0.33
129 229	5	7	-84.45	1.01	56.45	33.54	0.58	4	-84.45	0.27	82.44	33.54	0.40
130 230	5	7	-51.95	4.89	116.05	36.44	0.27	6	-51.95	4.89	73.70	36.44	0.43
131 231	5	10	-120.17	1.16	88.72	37.32	0.41	6	-120.17	2.51	25.04	37.32	1.39
132 232	7	18	-227.16	-0.56	-322.04	-107.09	0.33	6	-227.16	0.61	59.19	61.19	1.02
133 233	5	7	-73.06	0.92	105.99	32.32	0.30	6	-73.06	0.09	12.15	32.32	2.65
134 234	5	10	-63.33	6.52	81.13	31.27	0.31	11	-63.33	-6.51	-48.56	-31.27	0.51
135 235	5	9	-123.23	1.43	24.91	37.64	1.45	6	-123.23	0.69	59.32	37.64	0.62
136 236	5	9	-124.49	0.13	25.66	37.77	1.47	11	-124.49	-0.30	-60.07	-37.77	0.62
137 237	5	15	-126.49	-0.76	-84.55	-37.98	0.44	6	-126.49	4.17	48.81	37.98	0.69
138 238	5	18	-66.92	-0.32	-104.29	-31.66	0.30	13	-75.47	-0.12	-13.73	-32.58	2.36
139 239	5	10	-141.91	1.26	88.13	39.57	0.43	11	-141.91	-2.73	-28.97	-39.57	1.27
140 240	6	7	-202.18	0.84	127.86	78.28	0.61	6	-202.18	0.03	31.65	57.63	1.82
141 241	5	10	-120.35	0.20	88.89	37.34	0.42	12	-120.35	-0.71	-19.01	-37.34	1.93
142 242	5	8	-162.78	0.24	103.02	47.94	0.46	5	-162.78	0.43	39.44	47.94	1.20
143 243	5	18	-68.88	-0.19	-108.62	-31.87	0.29	5	-68.88	0.10	14.35	31.87	2.21
144 244	8	11	-152.94	4.34	229.66	139.97	0.59	10	-152.94	4.65	153.62	64.25	0.39
145 245	8	11	-193.69	0.72	307.17	148.53	0.48	9	-193.69	1.38	61.83	68.57	1.09
146 246	8	5	-226.94	-4.38	-386.99	-133.40	0.33	8	-226.94	4.17	169.66	62.36	0.34
147 247	8	12	-175.98	2.57	364.41	122.67	0.33	8	-175.98	2.72	160.00	56.95	0.34
148 248	5	17	-98.37	-0.44	-16.71	-35.03	2.07	5	-98.37	3.40	63.37	35.03	0.50
149 249	5	17	-102.04	-1.05	-16.91	-35.42	2.03	12	-102.04	-2.45	-61.90	-35.42	0.53
150 250	5	18	-57.49	-5.01	-73.55	-30.64	0.35	5	-57.49	10.08	52.38	30.64	0.39
151 251	8	11	-107.78	68.93	156.64	129.45	0.39	15	-107.78	-0.33	-136.18	-60.39	0.44
152 252	8	6	-100.95	-38.46	-115.82	-128.34	0.78	10	-100.95	0.93	53.98	58.67	1.07
153 253	5	15	-23.13	-1.43	-99.75	-26.90	0.26	12	-32.80	3.26	44.77	27.96	0.55
156 256	6	12	-136.60	19.82	145.25	58.66	0.27	17	-136.60	-0.40	-53.03	-42.51	0.79
157 257	7	5	-350.53	-0.32	-243.62	-139.75	0.57	17	-350.53	-0.14	-37.99	-83.02	2.18
158 258	5	18	-134.22	-0.05	-94.55	-38.78	0.41	5	-134.22	13.52	68.74	38.78	0.37
159 259	5	15	-40.37	-1.02	-82.27	-28.78	0.34	11	-40.37	-3.35	-60.27	-28.78	0.42
160 260	5	10	-102.93	1.48	70.70	35.51	0.48	12	-102.93	-1.45	-72.58	-35.51	0.47
161 261	6	12	-237.88	3.72	152.99	71.10	0.44	9	-237.88	0.20	30.92	52.99	1.71
162 262	6	12	-323.61	1.95	151.81	79.00	0.51	10	-336.51	0.17	25.83	61.68	2.38
163 263	6	5	-334.24	-4.41	-148.29	-79.55	0.51	17	-334.24	-2.06	-23.52	-61.51	2.53
164 264	5	17	-288.31	-5.59	-58.42	-52.31	0.80	12	-288.31	-0.17	-72.34	-52.31	0.72
165 265	6	5	-172.34	-13.21	-136.71	-63.40	0.37	17	-172.34	-12.93	-93.19	-46.29	0.36
166 266	5	17	-82.88	-1.38	-30.26	-33.38	1.06	5	-82.88	0.24	73.10	33.38	0.45
167 267	5	7	-47.03	4.13	73.58	29.51	0.34	5	-47.03	6.01	62.43	29.51	0.38
168 268	5	12	-27.32	-7.86	-37.73	-27.36	0.52	10	-17.64	0.25	104.72	26.30	0.25
173 273	5	7	-161.54	6.95	81.16	41.57	0.43	12	-161.54	-14.55	-71.07	-41.57	0.38
174 274	6	7	-177.97	10.61	160.90	75.52	0.40	5	-177.97	21.30	86.28	55.15	0.39
175 275	8	12	-75.25	29.76	236.12	122.18	0.39	10	-75.25	2.77	131.06	55.90	0.41
176 276	8	5	-150.50	-7.52	-383.14	-139.45	0.34	15	-169.85	-0.36	-33.70	-66.05	1.95
177 277	8	5	-145.80	-1.16	-385.07	-138.42	0.36	10	-165.15	0.13	31.25	65.55	2.09
178 278	8	12	-184.10	3.21	360.30	146.56	0.40	18	-184.10	-0.29	-110.91	-67.56	0.61

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179 279	5	8	-73.93	1.15	73.26	32.42	0.43	5	-73.93	7.32	77.53	32.42	0.32
180 280	5	7	-46.11	1.88	70.62	29.41	0.39	12	-46.11	-7.78	-69.06	-29.41	0.31
181 281	1	12	-158.05	2.11	81.34	41.22	0.48	8	-158.05	0.39	23.82	41.22	1.71
182 282	1	7	-66.00	0.81	78.67	37.94	0.47	5	-66.00	14.83	69.76	37.94	0.33
183 283	5	18	-21.56	-3.15	-81.61	-26.73	0.29	5	-21.56	7.16	61.56	26.73	0.32
306 206	5	18	-47.90	-17.11	-20.94	-36.01	0.90	14	-47.90	6.71	11.74	36.01	2.50
239 339	5	15	-44.76	-2.11	-11.58	-35.68	2.90	11	-44.76	-3.02	-11.78	-35.68	2.77
241 341	5	15	-99.15	-3.26	-33.11	-35.11	0.96	11	-99.15	-1.99	-6.79	-35.11	4.87
244 344	8	12	-50.56	2.27	30.36	116.08	3.75	10	-50.56	8.55	40.60	53.22	1.10
245 345	8	11	-17.89	0.49	68.47	107.93	1.57	9	-27.79	1.23	30.55	50.74	1.62
440 340	6	7	-57.19	-0.25	-23.67	-58.98	2.48	6	-57.19	-4.77	-18.87	-42.33	1.99
442 342	5	18	-100.32	-1.76	-25.26	-35.23	1.32	6	-105.27	-1.39	-18.71	-35.76	1.84
446 346	8	5	-54.70	5.27	91.80	117.11	1.22	7	-44.80	5.10	35.17	52.59	1.35

Pilastro più sollecitato

Pilastro 3 103 $\alpha_{\min} 0.215$

Travi

Trave Nodi	Sezione	M						α
		Comb. Critica	x [m]	M_c [kNm]	M_t [kNm]	M_r [kNm]		
101 102	2	13	0.15	4.19	158.40	78.40	0.47	
102 103	2	4	1.05	2.52	102.78	100.24	0.95	
104 105	2	13	0.15	13.07	167.32	78.40	0.39	
105 106	2	13	0.15	40.25	76.45	153.50	1.48	
106 107	2	4	4.42	34.05	162.47	153.51	0.74	
107 108	2	13	0.20	39.16	144.56	153.51	0.79	
108 109	2	4	5.15	12.75	155.61	78.39	0.42	
110 111	2	13	0.15	3.36	140.31	78.40	0.53	
111 112	2	4	4.60	20.13	148.82	78.39	0.39	
121 122	4	13	0.15	9.82	136.30	211.60	1.48	
122 123	4	4	5.86	78.36	193.07	364.76	1.48	
123 124	4	13	6.45	24.64	-186.20	-209.19	1.26	
124 125	1	4	0.20	16.48	-84.29	-64.83	0.96	
125 126	1	4	3.13	19.42	66.17	108.46	1.35	
126 127	1	4	3.70	7.88	139.45	55.85	0.34	
119 120	2	3	0.15	4.85	141.93	80.23	0.53	
118 119	2	4	0.15	21.75	102.73	171.07	1.45	
117 118	2	4	0.13	30.60	88.80	153.64	1.39	
116 117	2	13	3.70	33.35	153.98	153.64	0.78	
115 116	2	13	4.42	46.12	195.91	153.65	0.55	
114 115	2	4	0.20	57.97	136.12	176.22	0.87	
113 114	2	13	3.28	7.20	150.51	78.41	0.47	
128 129	1	13	0.15	6.05	123.34	55.85	0.40	
129 130	1	6	2.75	3.17	118.80	55.85	0.44	
134 135	2	11	0.15	3.29	100.78	78.39	0.75	
135 136	2	11	0.15	36.31	55.08	153.51	2.13	
136 137	2	6	3.72	4.86	134.13	78.39	0.55	
144 145	1	11	0.30	2.49	196.08	55.84	0.27	
145 146	1	11	0.30	10.21	250.96	108.51	0.39	
146 147	1	5	2.95	19.44	286.10	108.49	0.31	
147 148	1	12	0.30	37.11	162.52	137.60	0.62	
148 149	1	6	3.50	31.19	52.77	108.45	1.46	
149 150	1	5	4.20	10.97	94.32	55.84	0.48	
151 152	1	11	0.15	47.27	234.89	115.60	0.29	
153 154	4	5	0.15	-0.97	-130.10	-133.92	1.02	

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154 155	4	11	0.15	73.83	24.84	287.45	8.60
155 156	4	5	5.31	86.87	106.03	393.83	2.90
156 157	4	5	6.24	121.90	307.03	499.61	1.23
157 158	4	5	6.25	12.59	146.17	196.36	1.26
159 160	2	5	0.15	-1.55	-119.49	-78.41	0.64
160 161	2	5	2.39	23.24	183.42	153.64	0.71
161 162	2	5	3.92	37.16	185.89	153.64	0.63
162 163	2	5	4.45	38.79	186.67	173.44	0.72
163 164	2	12	0.24	31.71	166.73	153.64	0.73
164 165	2	5	5.71	42.41	108.04	153.64	1.03
165 166	2	12	0.20	29.62	144.25	153.64	0.86
166 167	2	5	3.35	1.16	111.22	78.41	0.69
168 169	1	12	0.15	14.93	96.31	91.54	0.80
169 170	1	5	3.92	38.74	38.33	108.45	1.82
170 171	1	12	0.15	40.02	38.52	122.59	2.14
171 172	1	12	0.15	30.75	41.60	108.45	1.87
172 189	1	12	0.14	25.94	33.62	108.46	2.45
173 174	4	6	5.76	21.25	173.15	145.26	0.72
175 176	2	12	0.30	11.47	255.42	78.40	0.26
176 177	2	5	4.07	27.80	309.51	153.50	0.41
177 178	2	5	4.35	28.67	303.38	153.50	0.41
178 179	2	5	3.84	11.80	137.81	78.40	0.48
180 181	4	12	0.15	6.02	148.35	145.33	0.94
181 182	4	5	5.62	10.42	158.10	145.27	0.85
110 121	1	15	0.15	7.81	179.15	55.85	0.27
121 134	1	10	5.98	14.86	171.62	55.85	0.24
159 168	1	15	0.15	5.08	166.66	55.85	0.30
168 175	1	10	3.50	5.03	256.43	55.85	0.20
151 153	1	15	0.30	-0.48	223.71	55.85	0.25
153 160	1	10	4.75	9.24	168.16	55.85	0.28
104 112	2	15	0.15	0.66	143.95	28.88	0.20
112 113	1	10	1.86	0.25	121.05	23.78	0.19
123 131	1	15	0.20	-2.17	189.80	55.85	0.31
131 137	1	10	2.85	11.33	97.95	108.46	0.99
137 139	1	15	0.15	11.63	105.98	108.46	0.91
139 141	1	15	0.15	13.74	81.31	108.46	1.16
141 144	1	7	3.15	18.63	129.29	108.46	0.69
144 152	1	10	1.60	1.00	160.53	55.85	0.34
101 106	1	8	5.11	24.28	137.34	114.91	0.66
178 180	1	18	0.15	2.26	216.21	55.85	0.25
124 132	2	18	0.20	4.46	202.80	78.39	0.36
132 140	2	18	0.25	55.32	263.44	231.35	0.67
140 142	2	18	0.20	30.31	135.79	180.40	1.11
142 146	2	7	2.86	4.62	310.09	78.40	0.24
125 133	1	18	0.15	5.09	161.65	55.85	0.31
133 138	1	7	3.62	19.70	93.81	108.46	0.95
138 143	1	18	0.15	20.19	87.88	108.46	1.00
143 147	1	7	3.18	4.83	244.74	55.85	0.21
164 189	2	18	0.13	16.22	284.31	78.40	0.22
189 173	2	7	0.99	36.37	140.49	172.43	0.97
173 179	2	8	2.40	2.32	161.55	78.40	0.47
102 107	1	18	0.15	27.68	174.75	90.64	0.36
127 128	1	7	2.48	0.19	211.55	55.85	0.26
183 182	2	7	4.05	1.31	195.73	78.40	0.39
109 119	1	7	3.88	8.60	220.37	55.85	0.21
120 130	1	18	0.15	18.74	189.60	55.85	0.20

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150 158	1	18	0.15	8.56	168.85	55.85	0.28
158 167	1	7	4.75	8.45	171.67	55.85	0.28
183 184	2	5	0.15	4.85	102.34	78.40	0.72
184 174	2	16	1.23	35.61	89.58	170.79	1.51
165 174	2	18	4.62	17.51	249.26	78.39	0.24
242 240	7	18	0.20	-2.95	77.37	115.56	1.53
246 242	7	8	2.86	9.13	82.90	115.56	1.28
219 220	7	3	1.40	1.16	65.44	115.56	1.75
228 229	7	12	0.15	0.96	74.58	115.56	1.54
229 230	7	6	2.75	-0.95	67.61	115.56	1.72
201 202	7	4	4.47	3.02	80.89	115.56	1.39
204 205	7	13	0.15	2.78	84.93	115.56	1.33
205 206	7	15	4.48	4.66	57.62	115.56	1.92
207 208	7	13	0.20	15.61	64.84	115.56	1.54
208 209	7	4	5.15	6.01	70.99	115.56	1.54
214 215	1	4	5.30	57.23	45.94	142.09	1.85
216 217	7	13	0.20	12.07	84.54	115.56	1.22
217 318	7	13	0.15	31.84	30.55	227.73	6.41
318 319	7	4	3.85	4.48	16.39	115.56	6.78
288 226	7	4	2.40	18.63	39.18	115.61	2.48
226 327	7	14	0.15	18.55	36.85	115.61	2.63
306 307	6	13	0.15	0.45	-1.14	-79.83	70.22
210 211	7	13	0.15	-4.66	55.87	115.56	2.15
211 312	7	13	0.15	32.16	24.26	227.73	8.06
313 254	3	4	0.15	18.00	16.46	115.56	5.93
254 314	3	4	0.25	-14.77	-6.46	-168.82	23.86
221 222	7	4	5.51	131.80	103.50	359.34	2.20
222 323	7	13	0.25	127.71	91.52	359.34	2.53
323 255	7	10	5.75	1.03	7.95	115.56	14.41
255 324	7	3	0.52	-8.68	-7.97	-46.52	4.75
324 325	10	11	3.10	25.28	10.69	154.30	12.06
325 269	7	13	0.55	-0.75	-13.59	-48.02	3.48
234 235	7	11	0.15	-4.62	44.05	115.56	2.73
235 236	7	6	3.90	34.50	29.59	227.73	6.53
236 237	7	6	3.72	4.55	57.84	115.56	1.92
239 440	7	11	0.15	11.63	45.43	115.56	2.29
244 245	7	5	2.86	24.98	150.11	115.60	0.60
245 446	7	11	0.30	26.09	122.34	115.60	0.73
446 347	6	12	0.30	13.43	26.56	97.24	3.16
347 248	6	5	4.80	27.99	26.88	97.24	2.58
248 249	6	11	0.15	26.31	32.70	97.24	2.17
249 250	6	5	4.20	2.37	47.05	97.24	2.02
251 252	6	11	0.30	44.54	151.53	130.84	0.57
256 257	9	12	0.20	6.72	131.27	205.86	1.52
257 258	9	5	6.25	1.69	69.15	205.86	2.95
259 260	6	12	0.15	0.59	74.49	78.40	1.04
260 261	9	12	2.39	46.89	-61.84	-184.37	3.74
261 262	9	5	0.20	46.90	-70.78	-184.37	3.27
262 263	9	12	4.50	95.72	-69.92	-184.36	4.01
263 264	9	5	0.20	94.50	-62.44	-184.36	4.47
264 265	6	5	5.71	40.31	55.14	153.46	2.05
265 266	6	6	0.20	35.47	-72.66	-78.39	1.57
266 267	6	12	3.35	-1.40	-55.54	-78.41	1.39
273 274	6	6	5.76	27.81	77.16	78.39	0.66
275 276	6	12	0.30	13.88	214.56	78.40	0.30
276 277	6	5	4.07	34.57	165.17	153.50	0.72

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277 278	6	5	4.35	43.40	176.73	153.51	0.62
278 279	6	11	0.30	36.69	135.55	153.51	0.86
280 281	6	12	0.15	6.98	72.21	78.40	0.99
281 282	6	6	5.62	10.63	66.39	78.39	1.02
227 228	7	7	2.48	-0.21	129.42	115.56	0.89
220 230	7	7	5.58	3.91	137.57	115.56	0.81
212 204	7	15	1.87	0.98	96.64	115.56	1.19
201 206	7	10	5.11	19.02	56.06	115.56	1.72
225 233	7	17	0.15	5.13	59.37	115.56	1.86
233 238	7	18	0.15	19.00	51.70	227.73	4.04
238 243	7	7	3.68	17.13	55.49	227.73	3.80
243 247	7	8	3.16	2.08	80.69	115.56	1.41
202 207	7	10	5.11	19.65	64.33	115.56	1.49
203 327	7	8	0.15	-22.49	-38.23	-64.20	1.09
209 319	7	18	0.15	3.10	113.09	115.56	0.99
210 221	7	15	0.15	3.95	97.26	155.84	1.56
221 234	7	10	5.98	6.21	100.67	155.94	1.49
259 268	6	15	0.15	0.81	82.18	78.40	0.94
268 275	6	9	3.50	1.95	131.88	78.40	0.58
251 253	6	15	0.15	0.31	123.14	78.40	0.63
253 260	6	10	4.75	1.55	98.00	78.40	0.78
312 313	3	9	0.15	-1.33	-12.70	-47.92	3.67
254 323	3	15	0.15	11.44	15.66	115.56	6.65
323 231	7	9	2.98	35.52	27.76	227.73	6.92
231 237	7	15	0.15	35.38	58.39	227.73	3.29
237 239	7	16	0.15	8.01	49.74	227.73	4.42
241 239	7	15	0.15	11.82	46.90	227.73	4.60
244 241	7	9	3.15	8.84	118.69	214.72	1.73
244 252	6	10	0.15	2.04	-67.50	-79.81	1.21
306 315	7	15	3.88	31.80	4.96	227.73	39.52
315 255	7	10	2.95	6.49	6.19	115.56	17.61
278 280	6	18	0.15	-0.25	112.94	78.40	0.70
324 332	9	7	0.15	9.44	16.45	122.47	6.87
332 440	9	18	0.25	53.27	25.95	122.47	2.67
256 347	6	18	0.15	8.47	13.35	78.40	5.24
264 256	6	8	4.75	21.93	45.69	153.50	2.88
264 289	6	18	0.15	22.31	43.20	153.50	3.04
289 273	6	9	0.97	28.74	41.18	175.28	3.56
273 279	6	8	2.38	2.60	69.94	78.40	1.08
307 316	7	17	3.88	26.93	5.36	227.73	37.48
316 269	7	7	2.95	16.31	9.50	115.56	10.45
283 282	6	17	0.15	4.14	75.44	78.40	0.98
250 258	6	18	0.15	4.51	84.84	78.40	0.87
258 267	6	7	4.75	5.11	84.69	78.40	0.87
265 274	6	17	0.15	9.95	99.02	78.40	0.69
274 284	6	16	0.20	33.33	45.27	170.79	3.04
284 283	6	5	1.45	1.92	54.86	78.40	1.39
339 340	6	6	6.42	5.63	20.98	78.40	3.47
344 345	6	12	0.30	0.04	27.03	78.40	2.90
345 346	6	6	3.11	0.18	54.17	78.40	1.44
339 341	6	10	0.15	-2.10	-10.51	-79.83	7.39
341 344	6	10	3.15	3.64	37.98	78.40	1.97
340 342	6	7	0.20	-2.01	-18.04	-79.83	4.31
342 346	6	7	2.86	0.37	32.24	78.40	2.42

Trave più sollecitata

Trave 112 113 α_{Min} 0.194

Indicatori di rischio

Oggetto	Nodi	Spettro	$a_{g,c}$ [m/sec ²]	$T_{r,c}$ anni	$S(a_{g,c}, T_{r,c})=S_r S_s$	$a_{g,c}/a_{g,D}$	$PGA_c=a_{g,c}S(a_{g,c})$ [m/sec ²]	PGA_c/PGA_D	$(T_{r,c}/T_{r,D})^{0.410}$
Pilastro (duttile/resistenza)	3 103	TU 2018 SLV H	0.39	30.00	1.500	0.21	0.59	0.21	0.27
Trave (duttile/resistenza)	112 113	TU 2018 SLV H	0.36	30.00	1.500	0.19	0.53	0.19	0.27

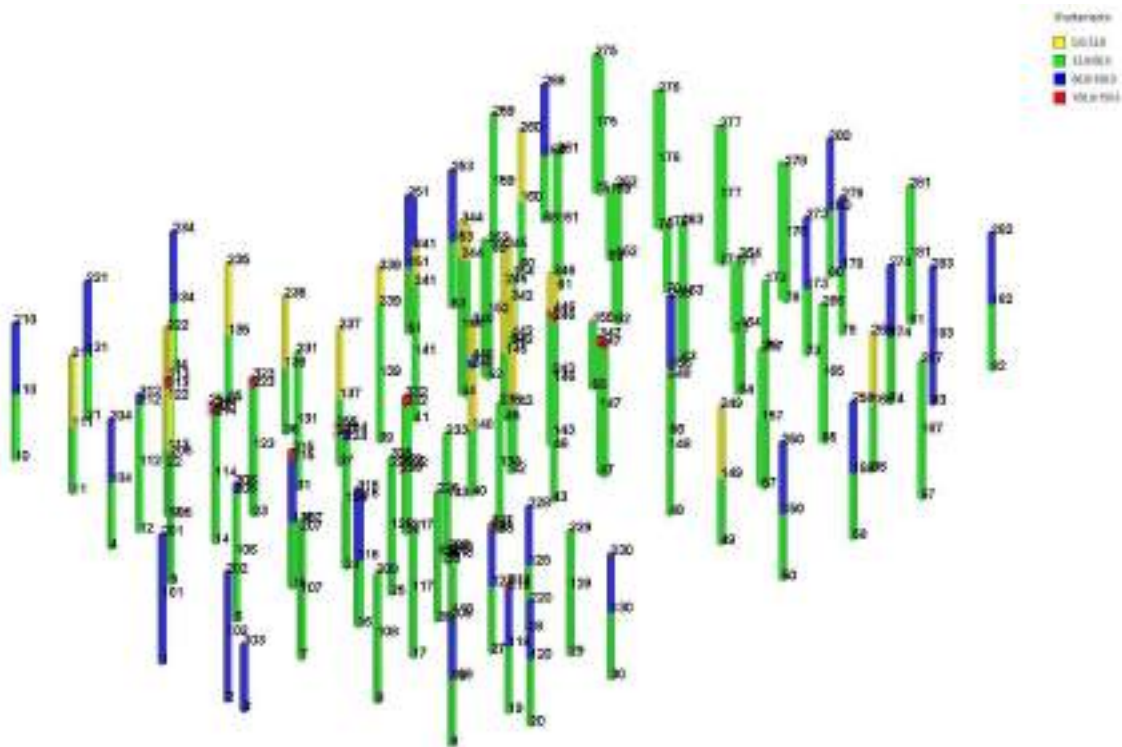


Figura 6 – Verifiche duttili pilastri: Indici di sfruttamento % per $a_{gD}=0.24gSlu = Capacita/Domanda\%$

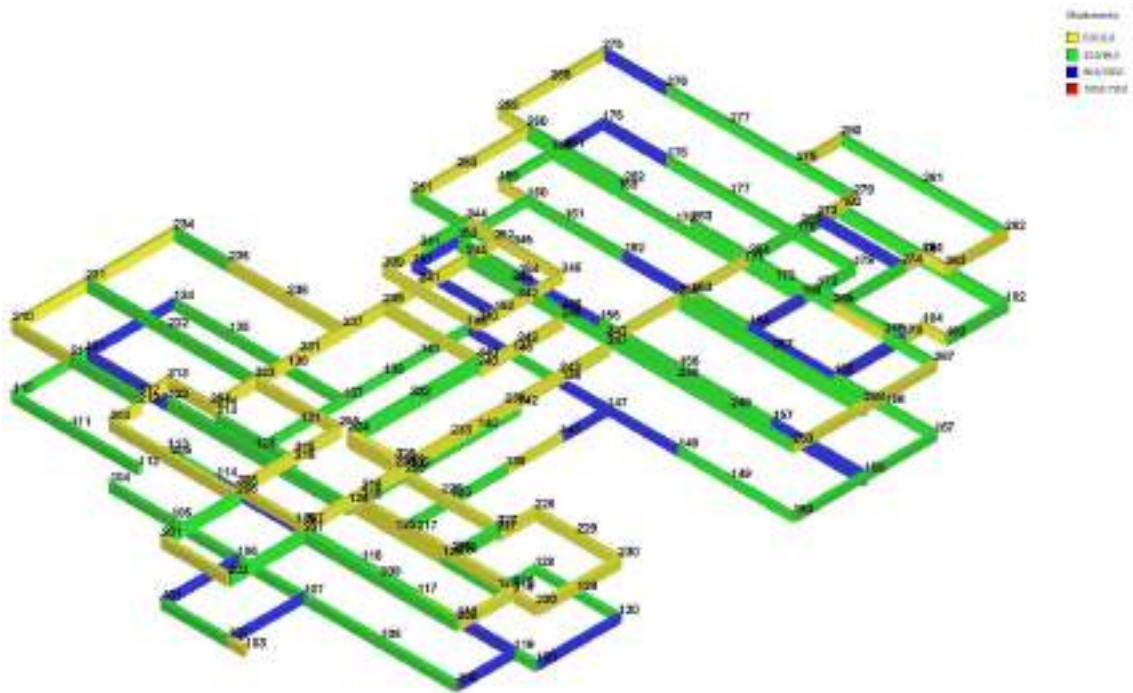


Figura 7 – Verifiche duttili travi: Indici di sfruttamento % per $ag_D=0.22ag_{Slu}$ = Capacita/Domanda%

Valutazione moltiplicatori meccanismi fragili (taglio)

Per le verifiche degli elementi fragili (verifiche a taglio) si è utilizzato il fattore di comportamento $q = 1.50$.

Dati di verifica

- γ_{EL} 1.50
- ϵ_u travi 4.00%
- ϵ_u pilastri 4.00%

Combinazione di riferimento gravitazionale

Peso proprio strutturale	1.000
Peso proprio solai	1.000
Permanente solai	1.000
Variabili cat.C1	0.300
Variabili Cat.H	0.000
Tamponature	1.000

Coefficienti γ_{Rd} degli elementi impiegati

γ_{Rd} Nuovo					γ_{Rd} Esistente				
Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchieri)	Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchieri)
1.10	1.10	1.10	1.20	1.20	0.00	0.00	0.00	0.00	0.00

γ Materiali sezioni Pilastro

Sezione	Duttile Fless.	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_c Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Q. Permanenti Calcestruzzo	γ Rare Acciaio
1 Rett. 30x30 [cm] 30x30 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
2 Rett. 30x40 [cm] 30x40 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
3 Rett. 30x50 [cm] 30x50 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
4 Rett. 30x60 [cm] 30x60 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
5 Rett. 30x30 [cm] 30x30 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
6 Rett. 30x40 [cm] 30x40 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
7 Rett. 30x50 [cm] 30x50 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
8 Rett. 30x60 [cm] 30x60 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

γ Materiali sezioni Trave

Sezione	Duttile Fless.	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_c Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Q. Permanenti Calcestruzzo	γ Rare Acciaio
1 Rett. 30x50 [cm]		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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30x50 PC										
2 Rett. 30x60 [cm] 30x60 PC	1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80	
3 Rett. 30x70 [cm] 30x70 PC	1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80	
4 Rett. 30x80 [cm] 30x80 PC	1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80	
6 Rett. 30x60 [cm] 30x60 PT	1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80	
7 Rett. 30x70 [cm] 30x70 PT	1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80	
9 Rett. 30x90 [cm] 30x90 PT	1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80	
10 Rett. 50x90 [cm] 50x90 PT	1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80	
101 Rett. 20x20 [cm] AUSILIARIA	1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80	

Spettro in accordo con TU 2018

- Strada comunale Acquarola n.20 Secondigliano Longitudine 14.2577 Latitudine 40.8946
- Tipo di Terreno C
- Coefficiente di amplificazione topografica (S_T) 1.0000
- Vita nominale della costruzione (V_N) 50.0 anni
- Classe d'uso III coefficiente C_U 1.5
- Classe di duttilità impostata Bassa
- Fattore di duttilità α_w/α_1 per sisma orizzontale 1.00
- Fattore riduttivo regolarità in altezza K_R 1.00
- Fattore riduttivo per la presenza di setti K_W 1.00

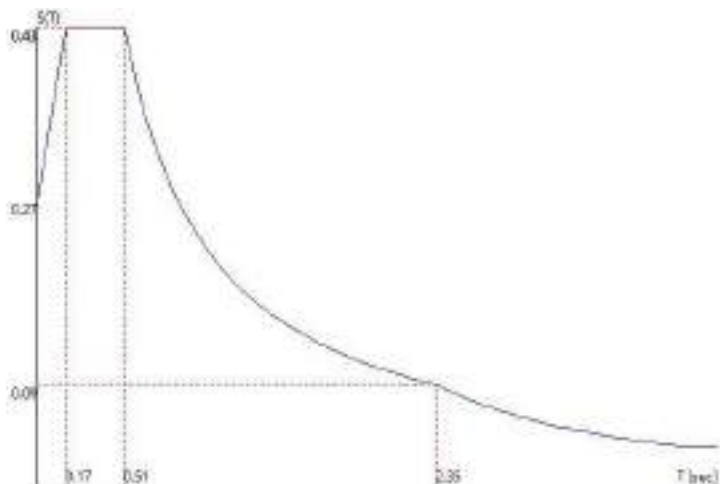
Stato Limite	C	$q_w = C \alpha_w/\alpha_1$	q_w
SLV	1.5	1.5	

- Smorzamento Viscoso (0.05 = 5%) 0.05

TU 2018 SLV H

- Probabilità di superamento (P_{VR}) 10.0 e periodo di ritorno (T_R) 712 (anni)
- S_s 1.429
- T_B 0.172 [s]
- T_C 0.515 [s]
- T_D 2.346 [s]
- a_g/g 0.1865
- F_o 2.4226
- T_C^* 0.3451

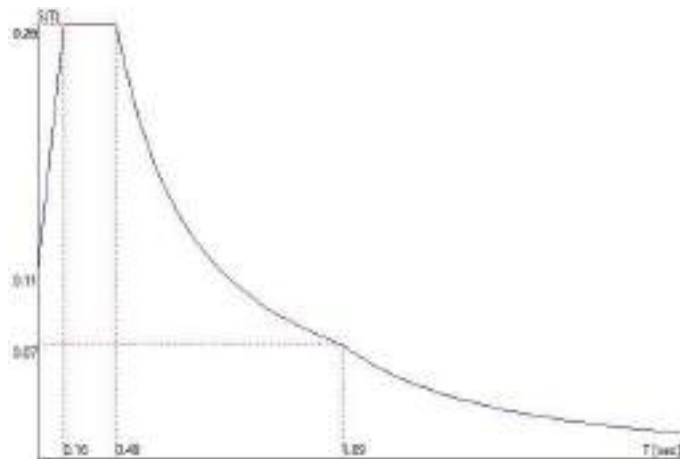
TU 2018 SLV H



TU 2018 SLD H

- Probabilità di superamento (P_{VR}) 63.0 e periodo di ritorno (T_R) 75 (anni)
- S_s 1.500
- T_B 0.165 [s]
- T_C 0.495 [s]
- T_D 1.892 [s]
- a_g/g 0.0729
- F_o 2.3409
- T_C^* 0.3251

TU 2018 SLD H



- Rotazioni valutate nel riferimento '**convected**'

Legenda

V_G	Taglio da carichi gravitazionali
V_E	Taglio da carichi sismici
V_R	Taglio resistente ultimo
α	$(V_R - V_G) / V_E$

Danno Severo

Pilastri

Nodi	Sezione	Luce [m]	Piano 1-2 Base				Piano 1-3 Base				Piano 1-2 Sommità				Piano 1-3 Sommità			
			V_G [kN]	V_E [kN]	V_R [kN]	α	V_G [kN]	V_E [kN]	V_R [kN]	α	V_G [kN]	V_E [kN]	V_R [kN]	α	V_G [kN]	V_E [kN]	V_R [kN]	α
101	1	4.10	6.11	68.75	52.92	0.681	1.43	100.50	52.92	0.512	6.11	68.75	52.92	0.681	1.43	100.50	52.92	0.512
102	1	4.10	5.08	68.66	52.92	0.697	1.33	106.32	52.92	0.485	5.08	68.66	52.92	0.697	1.33	106.32	52.92	0.485
103	1	4.10	3.45	55.19	52.92	0.896	1.34	104.56	52.92	0.493	3.45	55.19	52.92	0.896	1.34	104.56	52.92	0.493
104	1	4.10	0.08	67.93	52.92	0.778	1.30	84.70	52.92	0.609	0.08	67.93	52.92	0.778	1.30	84.70	52.92	0.609
105	1	4.10	0.86	41.65	52.92	1.250	0.34	92.02	52.92	0.571	0.86	41.65	52.92	1.250	0.34	92.02	52.92	0.571
106	1	4.10	5.27	64.42	52.92	0.740	0.32	93.21	52.92	0.564	5.27	64.42	52.92	0.740	0.32	93.21	52.92	0.564
107	2	4.10	1.36	196.18	73.59	0.368	6.42	93.10	52.92	0.499	1.36	196.18	73.59	0.368	6.42	93.10	52.92	0.499
108	1	4.10	0.55	48.40	52.92	1.082	0.34	92.97	52.92	0.566	0.55	48.40	52.92	1.082	0.34	92.97	52.92	0.566
109	1	4.10	1.06	87.25	52.92	0.594	2.78	82.86	52.92	0.605	1.06	87.25	52.92	0.594	2.78	82.86	52.92	0.605
110	1	4.10	1.46	84.36	52.92	0.610	1.80	80.41	52.92	0.636	1.46	84.36	52.92	0.610	1.80	80.41	52.92	0.636
111	1	4.10	0.24	53.01	52.92	0.994	0.45	88.89	52.92	0.590	0.24	53.01	52.92	0.994	0.45	88.89	52.92	0.590
112	1	4.10	0.02	75.76	52.92	0.698	1.94	78.73	52.92	0.648	0.02	75.76	52.92	0.698	1.94	78.73	52.92	0.648
113	1	4.10	0.14	59.17	52.92	0.892	0.91	75.50	52.92	0.689	0.14	59.17	52.92	0.892	0.91	75.50	52.92	0.689
114	1	4.10	0.04	33.57	52.92	1.575	1.14	82.89	52.92	0.625	0.04	33.57	52.92	1.575	1.14	82.89	52.92	0.625
115	2	4.10	1.12	171.18	73.59	0.423	0.04	34.49	52.92	1.533	1.12	171.18	73.59	0.423	0.04	34.49	52.92	1.533
116	2	4.10	0.36	174.63	73.59	0.419	0.05	38.36	52.92	1.378	0.36	174.63	73.59	0.419	0.05	38.36	52.92	1.378
117	1	4.10	0.04	33.18	52.92	1.594	0.33	82.60	52.92	0.637	0.04	33.18	52.92	1.594	0.33	82.60	52.92	0.637
118	1	4.10	0.07	39.38	52.92	1.342	0.99	81.57	52.92	0.637	0.07	39.38	52.92	1.342	0.99	81.57	52.92	0.637
119	1	4.10	0.28	82.86	52.92	0.635	1.32	80.35	52.92	0.642	0.28	82.86	52.92	0.635	1.32	80.35	52.92	0.642
120	1	4.10	2.01	84.77	52.92	0.600	0.70	75.81	52.92	0.689	2.01	84.77	52.92	0.600	0.70	75.81	52.92	0.689
121	1	4.10	0.54	100.73	47.04	0.462	3.12	71.24	47.04	0.617	0.54	100.73	47.04	0.462	3.12	71.24	47.04	0.617
122	3	4.10	0.32	169.56	94.26	0.554	0.18	52.01	52.92	1.014	0.32	169.56	94.26	0.554	0.18	52.01	52.92	1.014
123	2	4.10	1.76	167.54	73.59	0.429	0.92	91.04	52.92	0.571	1.76	167.54	73.59	0.429	0.92	91.04	52.92	0.571
124	2	4.10	1.78	163.67	73.59	0.439	2.84	100.67	52.92	0.497	1.78	163.67	73.59	0.439	2.84	100.67	52.92	0.497
125	1	4.10	1.54	69.38	52.92	0.740	0.08	70.72	52.92	0.747	1.54	69.38	52.92	0.740	0.08	70.72	52.92	0.747
126	1	4.10	0.38	46.00	52.92	1.142	0.63	72.43	52.92	0.722	0.38	46.00	52.92	1.142	0.63	72.43	52.92	0.722

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126									2									2	
27 127	1	4.10	0.40	82.64	52.92	0.636	1.40	62.96	52.9 2	0.818	0.40	82.64	52.92	0.636	1.40	62.96	52.9 2	0.818	
28 128	1	4.10	0.39	81.79	52.92	0.642	1.03	58.35	52.9 2	0.889	0.39	81.79	52.92	0.642	1.03	58.35	52.9 2	0.889	
29 129	1	4.10	0.48	51.63	52.92	1.016	0.06	66.87	52.9 2	0.790	0.48	51.63	52.92	1.016	0.06	66.87	52.9 2	0.790	
30 130	1	4.10	2.23	80.58	52.92	0.629	1.09	58.48	52.9 2	0.886	2.23	80.58	52.92	0.629	1.09	58.48	52.9 2	0.886	
31 131	1	4.10	0.36	85.59	52.92	0.614	0.27	40.51	52.9 2	1.300	0.36	85.59	52.92	0.614	0.27	40.51	52.9 2	1.300	
32 132	3	4.10	0.08	284.5 2	94.26	0.331	0.07	48.99	52.9 2	1.079	0.08	284.5 2	94.26	0.331	0.07	48.99	52.9 2	1.079	
33 133	1	4.10	0.38	82.41	52.92	0.637	0.04	33.59	52.9 2	1.574	0.38	82.41	52.92	0.637	0.04	33.59	52.9 2	1.574	
34 134	1	4.10	2.63	80.89	52.92	0.622	1.89	54.57	52.9 2	0.935	2.63	80.89	52.92	0.622	1.89	54.57	52.9 2	0.935	
35 135	1	4.10	0.51	48.35	52.92	1.084	0.19	58.93	52.9 2	0.895	0.51	48.35	52.92	1.084	0.19	58.93	52.9 2	0.895	
36 136	1	4.10	0.06	46.75	52.92	1.130	0.26	59.70	52.9 2	0.882	0.06	46.75	52.92	1.130	0.26	59.70	52.9 2	0.882	
37 137	1	4.10	0.20	80.08	52.92	0.658	1.39	51.98	52.9 2	0.991	0.20	80.08	52.92	0.658	1.39	51.98	52.9 2	0.991	
38 138	1	4.10	0.11	79.33	52.92	0.666	0.08	24.79	52.9 2	2.132	0.11	79.33	52.92	0.666	0.08	24.79	52.9 2	2.132	
39 139	1	4.10	0.35	83.41	52.92	0.630	0.46	27.13	52.9 2	1.934	0.35	83.41	52.92	0.630	0.46	27.13	52.9 2	1.934	
40 140	2	4.10	2.19	181.9 5	73.59	0.392	0.03	27.64	52.9 2	1.914	2.19	181.9 5	73.59	0.392	0.03	27.64	52.9 2	1.914	
41 141	1	4.10	0.31	83.85	52.92	0.627	0.11	23.83	52.9 2	2.216	0.31	83.85	52.92	0.627	0.11	23.83	52.9 2	2.216	
42 142	2	4.10	0.48	185.9 4	73.59	0.393	0.04	30.04	52.9 2	1.760	0.48	185.9 4	73.59	0.393	0.04	30.04	52.9 2	1.760	
43 143	1	4.10	0.04	84.75	52.92	0.624	0.18	24.19	52.9 2	2.180	0.04	84.75	52.92	0.624	0.18	24.19	52.9 2	2.180	
44 144	4	4.10	1.19	232.8 5	114.9 3	0.488	1.71	153.7 4	52.9 2	0.333	1.19	232.8 5	114.9 3	0.488	1.71	153.7 4	52.9 2	0.333	
45 145	4	4.10	1.05	307.0 3	114.9 3	0.371	0.33	76.28	52.9 2	0.689	1.05	307.0 3	114.9 3	0.371	0.33	76.28	52.9 2	0.689	
46 146	4	4.10	0.48	312.9 7	114.9 3	0.366	1.71	131.8 1	52.9 2	0.388	0.48	312.9 7	114.9 3	0.366	1.71	131.8 1	52.9 2	0.388	
47 147	4	4.10	5.21	292.6 6	114.9 3	0.375	1.38	122.9 6	52.9 2	0.419	5.21	292.6 6	114.9 3	0.375	1.38	122.9 6	52.9 2	0.419	
48 148	1	4.10	0.09	41.57	52.92	1.271	1.18	61.54	52.9 2	0.841	0.09	41.57	52.92	1.271	1.18	61.54	52.9 2	0.841	
49 149	1	4.10	0.18	46.11	52.92	1.144	1.05	58.63	52.9 2	0.885	0.18	46.11	52.92	1.144	1.05	58.63	52.9 2	0.885	
50 150	1	4.10	1.68	83.71	52.92	0.612	3.02	52.39	52.9 2	0.953	1.68	83.71	52.92	0.612	3.02	52.39	52.9 2	0.953	
51 151	4	4.10	5.07	255.4 6	114.9 3	0.430	0.41	147.0 3	52.9 2	0.357	5.07	255.4 6	114.9 3	0.430	0.41	147.0 3	52.9 2	0.357	
52 152	4	4.10	9.64	256.3 1	114.9 3	0.411	0.26	150.9 8	52.9 2	0.349	9.64	256.3 1	114.9 3	0.411	0.26	150.9 8	52.9 2	0.349	
53 153	1	4.10	0.57	93.70	52.92	0.559	0.81	56.81	52.9 2	0.917	0.57	93.70	52.92	0.559	0.81	56.81	52.9 2	0.917	
54 154	1	4.10	0.21	49.74	52.92	1.060	0.49	61.52	52.9 2	0.852	0.21	49.74	52.92	1.060	0.49	61.52	52.9 2	0.852	
55 155	1	4.10	0.06	30.02	52.92	1.761	0.26	61.27	52.9 2	0.859	0.06	30.02	52.92	1.761	0.26	61.27	52.9 2	0.859	
56 156	2	4.10	0.92	135.6 4	73.59	0.536	0.02	41.90	52.9 2	1.263	0.92	135.6 4	73.59	0.536	0.02	41.90	52.9 2	1.263	
57 157	4	4.10	3.29	364.1 7	114.9 3	0.307	0.02	86.24	52.9 2	0.613	3.29	364.1 7	114.9 3	0.307	0.02	86.24	52.9 2	0.613	
58 158	1	4.10	0.02	98.64	52.92	0.536	3.66	61.10	52.9 2	0.806	0.02	98.64	52.92	0.536	3.66	61.10	52.9 2	0.806	

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59 159	1	4.10	0.42	83.30	52.92	0.630	0.71	54.53	52.9 2	0.957	0.42	83.30	52.92	0.630	0.71	54.53	52.9 2	0.957
60 160	1	4.10	1.04	74.68	52.92	0.695	0.26	60.36	52.9 2	0.872	1.04	74.68	52.92	0.695	0.26	60.36	52.9 2	0.872
61 161	3	4.10	1.61	230.9 1	94.26	0.401	0.42	70.20	52.9 2	0.748	1.61	230.9 1	94.26	0.401	0.42	70.20	52.9 2	0.748
62 162	3	4.10	1.02	228.4 4	94.26	0.408	0.10	54.76	52.9 2	0.965	1.02	228.4 4	94.26	0.408	0.10	54.76	52.9 2	0.965
63 163	3	4.10	2.19	222.3 1	94.26	0.414	0.18	54.58	52.9 2	0.966	2.19	222.3 1	94.26	0.414	0.18	54.58	52.9 2	0.966
64 164	3	4.10	6.01	252.8 7	94.26	0.349	0.95	97.69	52.9 2	0.532	6.01	252.8 7	94.26	0.349	0.95	97.69	52.9 2	0.532
65 165	2	4.10	2.17	120.4 4	73.59	0.593	3.22	109.0 4	52.9 2	0.456	2.17	120.4 4	73.59	0.593	3.22	109.0 4	52.9 2	0.456
66 166	1	4.10	0.14	57.47	52.92	0.918	0.04	60.18	52.9 2	0.879	0.14	57.47	52.92	0.918	0.04	60.18	52.9 2	0.879
67 167	1	4.10	1.42	83.67	52.92	0.616	1.38	53.76	52.9 2	0.959	1.42	83.67	52.92	0.616	1.38	53.76	52.9 2	0.959
68 168	1	4.10	3.06	47.78	52.92	1.044	0.06	98.87	52.9 2	0.535	3.06	47.78	52.92	1.044	0.06	98.87	52.9 2	0.535
69 169	1	4.10	0.04	41.10	52.92	1.286	1.50	60.65	52.9 2	0.848	0.04	41.10	52.92	1.286	1.50	60.65	52.9 2	0.848
70 170	1	4.10	0.08	28.23	52.92	1.871	1.16	57.73	52.9 2	0.897	0.08	28.23	52.92	1.871	1.16	57.73	52.9 2	0.897
71 171	1	4.10	0.33	32.15	52.92	1.636	2.08	59.22	52.9 2	0.858	0.33	32.15	52.92	1.636	2.08	59.22	52.9 2	0.858
72 172	1	4.10	0.83	48.81	52.92	1.067	1.34	59.54	52.9 2	0.866	0.83	48.81	52.92	1.067	1.34	59.54	52.9 2	0.866
73 173	2	4.10	3.46	191.4 2	73.59	0.366	3.04	77.43	52.9 2	0.644	3.46	191.4 2	73.59	0.366	3.04	77.43	52.9 2	0.644
74 174	2	4.10	2.58	186.3 5	73.59	0.381	3.11	74.60	52.9 2	0.668	2.58	186.3 5	73.59	0.381	3.11	74.60	52.9 2	0.668
75 175	4	4.10	3.31	233.7 0	114.9 3	0.478	1.21	143.9 4	52.9 2	0.359	3.31	233.7 0	114.9 3	0.478	1.21	143.9 4	52.9 2	0.359
76 176	4	4.10	0.58	312.5 2	114.9 3	0.366	0.14	80.58	52.9 2	0.655	0.58	312.5 2	114.9 3	0.366	0.14	80.58	52.9 2	0.655
77 177	4	4.10	0.00	336.5 1	114.9 3	0.342	0.06	73.53	52.9 2	0.719	0.00	336.5 1	114.9 3	0.342	0.06	73.53	52.9 2	0.719
78 178	4	4.10	0.30	322.4 2	114.9 3	0.356	0.69	121.5 0	52.9 2	0.430	0.30	322.4 2	114.9 3	0.356	0.69	121.5 0	52.9 2	0.430
79 179	1	4.10	0.08	80.39	52.92	0.657	1.16	59.61	52.9 2	0.868	0.08	80.39	52.92	0.657	1.16	59.61	52.9 2	0.868
80 180	1	4.10	0.63	70.58	52.92	0.741	1.56	57.34	52.9 2	0.896	0.63	70.58	52.92	0.741	1.56	57.34	52.9 2	0.896
81 181	2	4.10	0.51	139.2 7	73.59	0.525	0.33	66.96	52.9 2	0.785	0.51	139.2 7	73.59	0.525	0.33	66.96	52.9 2	0.785
82 182	1	4.10	0.70	86.78	52.92	0.602	2.42	57.62	52.9 2	0.876	0.70	86.78	52.92	0.602	2.42	57.62	52.9 2	0.876
83 183	1	4.10	1.09	89.07	52.92	0.582	1.30	52.06	52.9 2	0.991	1.09	89.07	52.92	0.582	1.30	52.06	52.9 2	0.991
101 201	5	3.80	5.85	40.16	52.92	1.172	1.05	45.70	52.9 2	1.135	5.85	40.16	52.92	1.172	1.05	45.70	52.9 2	1.135
102 202	5	3.80	7.60	55.34	47.04	0.713	1.69	71.95	47.0 4	0.630	7.60	55.34	47.04	0.713	1.69	71.95	47.0 4	0.630
104 204	5	3.80	0.45	69.32	52.92	0.757	2.71	66.29	52.9 2	0.757	0.45	69.32	52.92	0.757	2.71	66.29	52.9 2	0.757
105 205	5	3.80	1.22	23.05	52.92	2.243	0.80	78.75	52.9 2	0.662	1.22	23.05	52.92	2.243	0.80	78.75	52.9 2	0.662
106 206	5	3.80	5.43	45.21	52.92	1.050	0.89	53.00	52.9 2	0.982	5.43	45.21	52.92	1.050	0.89	53.00	52.9 2	0.982
307 107	6	4.30	21.6 7	64.81	73.59	0.801	25.0 0	30.58	52.9 2	0.913	2.22	84.25	73.59	0.847	5.53	50.05	52.9 2	0.947
108 208	5	3.80	0.82	20.96	52.92	2.486	0.10	79.50	52.9 2	0.664	0.82	20.96	52.92	2.486	0.10	79.50	52.9 2	0.664
109	5	3.80	2.00	81.74	52.92	0.623	5.62	64.38	52.9	0.735	2.00	81.74	52.92	0.623	5.62	64.38	52.9	0.735

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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209									2								2	
110 210	5	4.30	2.18	57.45	52.92	0.883	3.06	43.58	52.9 2	1.144	2.18	57.45	52.92	0.883	3.06	43.58	52.9 2	1.144
111 211	5	4.30	0.44	19.18	52.92	2.736	0.45	52.38	52.9 2	1.002	0.44	19.18	52.92	2.736	0.45	52.38	52.9 2	1.002
112 212	5	3.80	0.18	80.78	52.92	0.653	1.78	57.65	52.9 2	0.887	0.18	80.78	52.92	0.653	1.78	57.65	52.9 2	0.887
113 213	5	3.80	0.14	53.86	52.92	0.980	0.59	55.36	52.9 2	0.945	0.14	53.86	52.92	0.980	0.59	55.36	52.9 2	0.945
114 214	5	3.80	0.04	29.12	52.92	1.816	4.85	67.77	52.9 2	0.709	0.04	29.12	52.92	1.816	4.85	67.77	52.9 2	0.709
115 215	6	3.80	7.29	126.5 1	73.59	0.524	0.09	28.19	52.9 2	1.874	7.29	126.5 1	73.59	0.524	0.09	28.19	52.9 2	1.874
316 116	6	4.30	37.8 3	98.51	73.59	0.363	18.4 3	8.95	52.9 2	3.851	0.99	135.3 4	73.59	0.536	0.15	27.24	52.9 2	1.937
117 217	5	3.80	0.05	16.04	52.92	3.296	0.87	71.11	52.9 2	0.732	0.05	16.04	52.92	3.296	0.87	71.11	52.9 2	0.732
118 218	5	3.50	0.04	41.87	52.92	1.263	1.05	80.23	52.9 2	0.647	0.04	41.87	52.92	1.263	1.05	80.23	52.9 2	0.647
119 219	5	3.50	0.00	98.19	52.92	0.539	3.16	82.22	52.9 2	0.605	0.00	98.19	52.92	0.539	3.16	82.22	52.9 2	0.605
120 220	5	3.50	3.77	104.6 6	52.92	0.470	2.95	73.86	52.9 2	0.677	3.77	104.6 6	52.92	0.470	2.95	73.86	52.9 2	0.677
121 221	5	4.30	0.68	76.17	52.92	0.686	7.10	41.46	52.9 2	1.105	0.68	76.17	52.92	0.686	7.10	41.46	52.9 2	1.105
122 222	7	4.30	2.38	150.0 3	83.79	0.543	0.31	26.58	47.0 4	1.758	2.38	150.0 3	83.79	0.543	0.31	26.58	47.0 4	1.758
123 223	6	3.80	2.13	123.2 8	73.59	0.580	0.97	88.47	52.9 2	0.587	2.13	123.2 8	73.59	0.580	0.97	88.47	52.9 2	0.587
124 224	5	3.80	2.21	72.43	52.92	0.700	0.91	52.25	52.9 2	0.995	2.21	72.43	52.92	0.700	0.91	52.25	52.9 2	0.995
125 225	5	3.80	2.31	71.11	52.92	0.712	0.24	51.90	52.9 2	1.015	2.31	71.11	52.92	0.712	0.24	51.90	52.9 2	1.015
126 226	5	3.80	0.20	29.38	52.92	1.794	0.46	61.17	52.9 2	0.858	0.20	29.38	52.92	1.794	0.46	61.17	52.9 2	0.858
127 227	5	3.50	0.66	106.8 2	52.92	0.489	1.91	60.15	52.9 2	0.848	0.66	106.8 2	52.92	0.489	1.91	60.15	52.9 2	0.848
128 228	5	3.50	0.60	100.5 8	52.92	0.520	2.32	65.71	52.9 2	0.770	0.60	100.5 8	52.92	0.520	2.32	65.71	52.9 2	0.770
129 229	5	3.50	0.74	36.47	52.92	1.431	0.15	74.49	52.9 2	0.708	0.74	36.47	52.92	1.431	0.15	74.49	52.9 2	0.708
130 230	5	3.50	3.60	97.17	52.92	0.507	2.92	63.58	52.9 2	0.786	3.60	97.17	52.92	0.507	2.92	63.58	52.9 2	0.786
131 231	5	4.30	0.56	65.63	52.92	0.798	1.04	12.56	52.9 2	4.130	0.56	65.63	52.92	0.798	1.04	12.56	52.9 2	4.130
132 232	7	3.80	0.32	248.5 5	94.26	0.378	0.39	27.64	52.9 2	1.900	0.32	248.5 5	94.26	0.378	0.39	27.64	52.9 2	1.900
133 233	5	3.80	0.57	87.67	52.92	0.597	0.08	5.57	52.9 2	9.481	0.57	87.67	52.92	0.597	0.08	5.57	52.9 2	9.481
134 234	5	4.30	3.46	49.79	52.92	0.993	3.09	34.71	52.9 2	1.436	3.46	49.79	52.92	0.993	3.09	34.71	52.9 2	1.436
135 235	5	4.30	0.72	11.54	52.92	4.523	0.37	43.53	52.9 2	1.207	0.72	11.54	52.92	4.523	0.37	43.53	52.9 2	1.207
136 236	5	4.30	0.07	12.55	52.92	4.210	0.18	44.31	52.9 2	1.190	0.07	12.55	52.92	4.210	0.18	44.31	52.9 2	1.190
137 237	5	4.30	0.36	60.82	52.92	0.864	2.13	34.00	52.9 2	1.494	0.36	60.82	52.92	0.864	2.13	34.00	52.9 2	1.494
138 238	5	3.80	0.20	84.81	52.92	0.622	0.06	4.80	52.9 2	11.00 4	0.20	84.81	52.92	0.622	0.06	4.80	52.9 2	11.00 4
139 239	5	4.30	0.59	64.31	52.92	0.814	0.70	12.76	52.9 2	4.093	0.59	64.31	52.92	0.814	0.70	12.76	52.9 2	4.093
140 240	6	3.80	1.19	105.4 6	73.59	0.687	0.06	12.24	52.9 2	4.317	1.19	105.4 6	73.59	0.687	0.06	12.24	52.9 2	4.317
141 241	5	4.30	0.08	64.99	52.92	0.813	0.16	6.30	52.9 2	8.369	0.08	64.99	52.92	0.813	0.16	6.30	52.9 2	8.369

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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142 242	5	3.80	0.04	85.19	52.92	0.621	0.22	19.88	52.9 2	2.651	0.04	85.19	52.92	0.621	0.22	19.88	52.9 2	2.651
143 243	5	3.80	0.07	90.71	52.92	0.583	0.00	5.33	52.9 2	9.932	0.07	90.71	52.92	0.583	0.00	5.33	52.9 2	9.932
144 244	8	4.30	1.72	111.5 9	102.1 6	0.900	2.39	109.9 4	47.0 4	0.406	1.72	111.5 9	102.1 6	0.900	2.39	109.9 4	47.0 4	0.406
145 245	8	4.30	0.40	187.7 5	102.1 6	0.542	0.62	27.98	47.0 4	1.659	0.40	187.7 5	102.1 6	0.542	0.62	27.98	47.0 4	1.659
146 246	8	3.80	2.52	284.1 4	114.9 3	0.396	2.62	132.3 7	52.9 2	0.380	2.52	284.1 4	114.9 3	0.396	2.62	132.3 7	52.9 2	0.380
147 247	8	3.80	3.63	254.3 3	114.9 3	0.438	1.86	117.9 8	52.9 2	0.433	3.63	254.3 3	114.9 3	0.438	1.86	117.9 8	52.9 2	0.433
148 248	5	4.30	0.12	6.43	52.92	8.218	1.77	47.01	52.9 2	1.088	0.12	6.43	52.92	8.218	1.77	47.01	52.9 2	1.088
149 249	5	4.30	0.46	6.81	52.92	7.702	1.29	44.87	52.9 2	1.151	0.46	6.81	52.92	7.702	1.29	44.87	52.9 2	1.151
150 250	5	4.30	2.52	49.90	52.92	1.010	4.94	36.66	52.9 2	1.309	2.52	49.90	52.92	1.010	4.94	36.66	52.9 2	1.309
151 251	8	4.30	25.8 0	83.66	102.1 6	0.913	0.32	91.97	47.0 4	0.508	25.8 0	83.66	102.1 6	0.913	0.32	91.97	47.0 4	0.508
152 252	8	4.30	13.5 8	53.22	102.1 6	1.664	0.32	36.85	47.0 4	1.268	13.5 8	53.22	102.1 6	1.664	0.32	36.85	47.0 4	1.268
153 253	5	4.30	0.77	72.80	52.92	0.716	1.63	27.73	52.9 2	1.850	0.77	72.80	52.92	0.716	1.63	27.73	52.9 2	1.850
156 256	6	4.30	7.20	107.8 4	73.59	0.616	0.14	20.30	52.9 2	2.600	7.20	107.8 4	73.59	0.616	0.14	20.30	52.9 2	2.600
157 257	7	4.30	0.60	166.4 5	83.79	0.500	0.05	15.17	47.0 4	3.098	0.60	166.4 5	83.79	0.500	0.05	15.17	47.0 4	3.098
158 258	5	4.30	0.02	68.36	52.92	0.774	6.43	51.13	52.9 2	0.909	0.02	68.36	52.92	0.774	6.43	51.13	52.9 2	0.909
159 259	5	4.30	0.56	57.33	52.92	0.913	1.45	44.79	52.9 2	1.149	0.56	57.33	52.92	0.913	1.45	44.79	52.9 2	1.149
160 260	5	4.30	0.99	47.98	52.92	1.082	0.58	54.05	52.9 2	0.968	0.99	47.98	52.92	1.082	0.58	54.05	52.9 2	0.968
161 261	6	4.30	1.58	107.3 6	73.59	0.671	0.21	13.75	52.9 2	3.833	1.58	107.3 6	73.59	0.671	0.21	13.75	52.9 2	3.833
162 262	6	4.30	0.82	106.1 2	73.59	0.686	0.17	7.85	52.9 2	6.719	0.82	106.1 2	73.59	0.686	0.17	7.85	52.9 2	6.719
163 263	6	4.30	2.15	102.6 8	73.59	0.696	0.79	8.56	52.9 2	6.088	2.15	102.6 8	73.59	0.696	0.79	8.56	52.9 2	6.088
164 264	5	4.30	2.56	35.31	52.92	1.426	0.28	53.15	52.9 2	0.990	2.56	35.31	52.92	1.426	0.28	53.15	52.9 2	0.990
165 265	6	4.30	5.69	98.39	73.59	0.690	5.98	66.20	52.9 2	0.709	5.69	98.39	73.59	0.690	5.98	66.20	52.9 2	0.709
166 266	5	4.30	0.55	16.61	52.92	3.153	0.11	54.25	52.9 2	0.973	0.55	16.61	52.92	3.153	0.11	54.25	52.9 2	0.973
167 267	5	4.30	2.08	49.90	52.92	1.019	2.76	45.35	52.9 2	1.106	2.08	49.90	52.92	1.019	2.76	45.35	52.9 2	1.106
168 268	5	4.30	2.77	24.91	52.92	2.013	0.11	76.94	52.9 2	0.686	2.77	24.91	52.92	2.013	0.11	76.94	52.9 2	0.686
173 273	5	4.30	3.09	59.00	52.92	0.845	6.07	52.77	52.9 2	0.888	3.09	59.00	52.92	0.845	6.07	52.77	52.9 2	0.888
174 274	6	4.30	4.86	113.3 4	73.59	0.606	8.89	64.30	52.9 2	0.685	4.86	113.3 4	73.59	0.606	8.89	64.30	52.9 2	0.685
175 275	8	4.30	11.4 9	138.4 9	102.1 6	0.655	1.50	81.23	47.0 4	0.561	11.4 9	138.4 9	102.1 6	0.655	1.50	81.23	47.0 4	0.561
176 276	8	4.30	2.64	255.9 2	102.1 6	0.389	0.16	10.69	47.0 4	4.384	2.64	255.9 2	102.1 6	0.389	0.16	10.69	47.0 4	4.384
177 277	8	4.30	0.72	268.3 4	102.1 6	0.378	0.00	9.70	47.0 4	4.851	0.72	268.3 4	102.1 6	0.378	0.00	9.70	47.0 4	4.851
178 278	8	4.30	0.64	248.2 2	102.1 6	0.409	0.43	75.25	47.0 4	0.619	0.64	248.2 2	102.1 6	0.409	0.43	75.25	47.0 4	0.619
179 279	5	4.30	0.43	53.71	52.92	0.977	3.12	57.36	52.9 2	0.868	0.43	53.71	52.92	0.977	3.12	57.36	52.9 2	0.868
180	5	4.30	0.94	50.56	52.92	1.028	3.38	51.97	52.9	0.953	0.94	50.56	52.92	1.028	3.38	51.97	52.9	0.953

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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181 281	1	4.30	0.79	59.82	52.92	0.871	0.24	13.12	52.9 2	4.015	0.79	59.82	52.92	0.871	0.24	13.12	52.9 2	4.015	
182 282	1	4.30	0.60	56.62	52.92	0.924	6.31	52.42	52.9 2	0.889	0.60	56.62	52.92	0.924	6.31	52.42	52.9 2	0.889	
183 283	5	4.30	1.60	59.24	52.92	0.866	3.13	45.01	52.9 2	1.106	1.60	59.24	52.92	0.866	3.13	45.01	52.9 2	1.106	
306 206	5	0.50	25.8 3	69.09	52.92	0.392	10.5 7	41.84	52.9 2	1.012	25.8 3	69.09	52.92	0.392	10.5 7	41.84	52.9 2	1.012	
239 339	5	2.20	1.41	16.22	47.04	2.813	2.73	15.16	47.0 4	2.922	1.41	16.22	47.04	2.813	2.73	15.16	47.0 4	2.922	
241 341	5	2.20	2.77	47.42	52.92	1.058	1.86	5.28	52.9 2	9.675	2.77	47.42	52.92	1.058	1.86	5.28	52.9 2	9.675	
244 344	8	2.20	4.20	5.97	102.1 6	16.40 3	5.43	54.73	47.0 4	0.760	4.20	5.97	102.1 6	16.40 3	5.43	54.73	47.0 4	0.760	
245 345	8	2.20	0.78	63.87	102.1 6	1.587	0.36	21.49	47.0 4	2.172	0.78	63.87	102.1 6	1.587	0.36	21.49	47.0 4	2.172	
440 340	6	2.20	1.80	32.71	73.59	2.195	4.47	24.96	52.9 2	1.941	1.80	32.71	73.59	2.195	4.47	24.96	52.9 2	1.941	
442 342	5	2.20	1.72	34.73	52.92	1.474	1.57	21.15	52.9 2	2.427	1.72	34.73	52.92	1.474	1.57	21.15	52.9 2	2.427	
446 346	8	2.20	3.53	110.8 1	102.1 6	0.890	1.90	53.85	47.0 4	0.838	3.53	110.8 1	102.1 6	0.890	1.90	53.85	47.0 4	0.838	

Pilastro più sollecitato

Pilastro 57 157 α_{min} 0.307

Travi

Nodi	Sezione	Luce [m]	Nodo Iniziale				Nodo Finale			
			V _G [kN]	V _E [kN]	V _R [kN]	α	V _G [kN]	V _E [kN]	V _R [kN]	α
101 102	2	4.62	25.65	104.12	204.32	1.716	24.89	103.88	204.32	1.727
102 103	2	1.20	3.76	293.57	204.32	0.683	7.81	293.57	204.32	0.669
104 105	2	4.27	43.94	117.36	204.32	1.367	56.59	118.28	204.32	1.249
105 106	2	4.63	57.89	55.68	204.32	2.630	51.75	55.46	204.32	2.751
106 107	2	4.62	36.59	102.46	204.32	1.637	40.79	102.70	204.32	1.592
107 108	2	5.40	59.98	79.28	204.32	1.821	67.89	79.76	204.32	1.711
108 109	2	5.30	72.72	86.66	204.32	1.519	53.89	85.22	204.32	1.765
110 111	2	4.07	43.67	96.80	204.32	1.660	65.56	98.73	204.32	1.405
111 112	2	4.75	70.34	89.31	204.32	1.500	58.59	88.28	204.32	1.651
121 122	4	5.76	100.89	98.11	476.82	3.832	134.90	104.55	517.26	3.657
122 123	4	6.06	122.80	130.51	531.13	3.129	104.97	125.36	505.46	3.195
123 124	4	6.57	60.93	96.54	277.82	2.247	43.21	94.54	277.82	2.482
124 125	1	3.25	24.14	95.62	167.57	1.500	17.12	95.28	167.57	1.579
125 126	1	3.25	16.80	75.55	167.57	1.996	25.88	75.96	167.57	1.865
126 127	1	3.85	41.28	95.07	167.57	1.328	34.79	94.57	167.57	1.404
119 120	2	1.55	31.02	272.91	204.32	0.635	7.81	269.31	204.32	0.730
118 119	2	4.00	71.71	90.62	366.66	3.255	67.00	90.25	361.57	3.264
117 118	2	2.80	31.89	103.57	204.32	1.665	42.59	104.83	204.32	1.543
116 117	2	3.90	54.98	116.56	204.32	1.281	46.55	115.69	204.32	1.364
115 116	2	4.62	63.30	148.01	204.32	0.953	57.39	147.14	204.32	0.999
114 115	2	5.50	71.39	73.54	349.25	3.778	75.90	73.92	354.14	3.764
113 114	2	3.40	34.82	124.67	204.32	1.360	55.27	127.46	204.32	1.169
128 129	1	2.95	36.18	123.70	167.57	1.062	44.16	124.51	167.57	0.991
129 130	1	2.90	44.52	120.20	167.57	1.024	34.30	119.21	167.57	1.118
134 135	2	3.90	49.10	78.74	204.32	1.971	67.61	80.44	204.32	1.700
135 136	2	4.05	60.20	47.05	204.32	3.063	61.37	47.11	204.32	3.035
136 137	2	3.87	67.36	98.67	204.32	1.388	48.37	97.01	204.32	1.608
144 145	1	3.16	24.87	225.01	167.57	0.634	27.95	225.35	167.57	0.620

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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145 146	1	3.41	29.39	287.98	167.57	0.480	28.58	287.90	167.57	0.483
146 147	1	3.25	21.76	337.53	167.57	0.432	32.92	338.26	167.57	0.398
147 148	1	4.95	62.59	96.59	326.76	2.735	62.65	93.53	323.76	2.792
148 149	1	3.65	46.87	45.53	167.57	2.651	46.34	45.53	167.57	2.663
149 150	1	4.35	62.27	69.44	299.28	3.413	50.46	68.36	167.57	1.713
151 152	1	5.68	58.66	141.56	167.57	0.769	56.54	141.52	167.57	0.785
153 154	4	4.29	47.09	79.46	277.82	2.904	84.67	83.47	277.82	2.314
154 155	4	5.70	96.57	21.27	277.82	8.521	108.47	22.74	409.03	13.215
155 156	4	5.51	102.48	57.93	438.23	5.796	101.30	58.20	437.32	5.773
156 157	4	6.55	114.93	142.18	505.46	2.747	123.20	147.70	505.46	2.588
157 158	4	6.40	137.34	132.57	505.46	2.777	97.52	123.57	498.90	3.248
159 160	2	2.00	19.04	148.25	204.32	1.250	21.83	149.38	204.32	1.222
160 161	2	2.59	27.56	193.90	204.32	0.912	47.25	195.77	204.32	0.802
161 162	2	4.17	59.82	163.39	204.32	0.884	64.42	166.01	204.32	0.843
162 163	2	4.70	70.52	145.60	408.64	2.322	69.76	145.48	408.64	2.329
163 164	2	4.04	56.94	125.24	204.32	1.177	61.69	125.46	204.32	1.137
164 165	2	5.91	57.26	57.50	204.32	2.558	57.57	56.13	204.32	2.614
165 166	2	3.54	46.46	111.01	204.32	1.422	43.72	110.15	204.32	1.458
166 167	2	3.50	52.29	88.79	204.32	1.712	38.09	87.66	204.32	1.896
168 169	1	4.64	55.34	58.86	281.77	3.847	68.02	60.22	295.82	3.783
169 170	1	4.07	54.01	30.03	167.57	3.782	53.14	29.99	167.57	3.816
170 171	1	4.80	65.84	30.00	263.42	6.585	62.07	29.59	259.23	6.664
171 172	1	2.18	30.04	65.95	167.57	2.085	23.40	64.46	167.57	2.237
172 189	1	1.81	41.12	51.12	167.57	2.473	2.24	50.92	167.57	3.247
173 174	4	5.91	69.71	95.67	277.82	2.175	70.57	95.75	277.82	2.165
175 176	2	4.49	44.92	194.05	204.32	0.821	48.58	194.45	204.32	0.801
176 177	2	4.37	42.93	275.44	204.32	0.586	47.69	275.68	204.32	0.568
177 178	2	4.65	48.13	239.04	204.32	0.653	49.22	239.44	204.32	0.648
178 179	2	3.99	52.16	181.18	204.32	0.840	44.84	177.50	204.32	0.899
180 181	4	5.73	51.34	82.73	277.82	2.738	90.83	86.30	277.82	2.167
181 182	4	5.77	101.50	82.41	277.82	2.140	67.78	79.57	277.82	2.639
110 121	1	5.11	22.32	101.50	167.57	1.431	30.35	101.40	167.57	1.353
121 134	1	6.13	34.60	79.31	167.57	1.677	29.24	79.43	167.57	1.742
159 168	1	3.65	16.87	125.38	167.57	1.202	19.81	125.23	167.57	1.180
168 175	1	3.65	19.73	186.22	167.57	0.794	16.95	186.44	167.57	0.808
151 153	1	3.09	8.71	218.47	167.57	0.727	20.26	217.33	167.57	0.678
153 160	1	4.90	27.14	94.53	167.57	1.486	23.23	94.56	167.57	1.527
104 112	2	2.02	11.42	226.98	204.32	0.850	8.71	226.83	204.32	0.862
112 113	1	2.01	2.53	176.06	167.57	0.937	3.88	176.13	167.57	0.929
123 131	1	3.13	27.09	171.74	167.57	0.818	45.07	173.50	167.57	0.706
131 137	1	3.00	38.80	101.06	167.57	1.274	31.28	100.34	167.57	1.358
137 139	1	2.85	41.04	123.17	167.57	1.027	43.51	123.29	167.57	1.006
139 141	1	2.53	35.59	115.93	167.57	1.138	38.34	116.20	167.57	1.112
141 144	1	3.30	49.05	117.69	167.57	1.007	50.42	117.61	167.57	0.996
144 152	1	1.90	16.01	382.73	167.57	0.396	0.13	382.30	167.57	0.438
101 106	1	5.26	65.28	88.10	281.47	2.454	66.49	88.23	283.04	2.454
178 180	1	3.10	15.37	217.22	167.57	0.701	15.29	217.36	167.57	0.701
124 132	2	4.30	59.64	206.62	204.32	0.700	85.47	211.73	408.64	1.526
132 140	2	4.68	84.49	174.59	408.64	1.857	74.94	171.52	408.64	1.946
140 142	2	2.82	50.49	168.68	204.32	0.912	40.73	167.21	204.32	0.978
142 146	2	3.01	54.91	286.02	204.32	0.522	45.35	284.99	204.32	0.558
125 133	1	3.90	33.87	120.89	167.57	1.106	45.09	121.75	167.57	1.006
133 138	1	3.77	39.25	81.76	167.57	1.570	36.87	81.56	167.57	1.602
138 143	1	3.83	38.64	70.40	167.57	1.831	38.79	70.44	167.57	1.828
143 147	1	3.31	38.97	197.03	167.57	0.653	28.15	196.26	167.57	0.710
164 189	2	3.65	51.46	177.83	204.32	0.860	31.76	178.85	204.32	0.965

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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189 173	2	1.12	44.16	182.73	204.32	0.877	65.45	188.44	204.32	0.737
173 179	2	2.53	15.63	220.86	204.32	0.854	5.37	220.86	204.32	0.901
102 107	1	5.26	66.35	115.43	283.04	1.877	65.41	115.38	283.04	1.886
127 128	1	2.63	12.88	286.97	167.57	0.539	12.63	286.93	167.57	0.540
183 182	2	4.20	24.19	154.57	204.32	1.165	21.44	154.42	204.32	1.184
109 119	1	4.03	19.73	181.47	167.57	0.815	21.11	181.27	167.57	0.808
120 130	1	5.73	30.84	115.31	167.57	1.186	28.62	115.28	167.57	1.205
150 158	1	4.99	23.22	98.17	167.57	1.470	28.19	98.02	167.57	1.422
158 167	1	4.90	27.73	101.61	167.57	1.376	22.64	101.77	167.57	1.424
183 184	2	1.60	18.85	124.46	204.32	1.490	14.84	129.68	204.32	1.461
184 174	2	1.43	20.48	124.04	204.32	1.482	33.12	125.79	204.32	1.361
165 174	2	4.77	64.09	188.16	204.32	0.745	75.91	189.10	408.64	1.759
242 240	7	2.82	27.19	81.72	241.07	2.617	16.24	81.44	241.07	2.761
246 242	7	3.01	24.42	68.54	241.07	3.161	23.23	68.22	241.07	3.193
219 220	7	1.55	1.54	118.81	241.07	2.016	32.21	120.97	241.07	1.727
228 229	7	2.95	33.78	69.51	241.07	2.982	37.75	69.08	241.07	2.943
229 230	7	2.90	37.74	66.94	241.07	3.037	32.44	67.31	241.07	3.099
201 202	7	4.62	10.99	49.80	241.07	4.620	11.69	49.81	241.07	4.605
204 205	7	4.27	32.52	54.09	241.07	3.855	49.04	54.26	241.07	3.539
205 206	7	4.63	51.90	32.95	241.07	5.741	37.06	32.69	241.07	6.241
207 208	7	5.40	45.01	35.10	241.07	5.586	58.74	35.22	241.07	5.176
208 209	7	5.30	60.17	37.78	241.07	4.788	42.55	37.66	241.07	5.271
214 215	1	5.50	76.86	27.65	327.94	9.081	81.81	27.75	332.98	9.053
216 217	7	3.90	51.84	60.19	241.07	3.144	62.86	60.47	241.07	2.947
217 318	7	2.80	50.94	30.92	241.07	6.149	27.46	41.35	241.07	5.166
318 319	7	4.00	42.50	16.14	241.07	12.303	33.51	16.13	241.07	12.871
288 226	7	2.55	10.21	33.90	241.07	6.810	30.63	34.43	241.07	6.113
226 327	7	3.85	33.78	21.98	241.07	9.429	26.62	21.90	241.07	9.793
306 307	6	4.62	8.45	1.27	204.32	154.772	10.76	0.66	204.32	293.680
210 211	7	4.07	36.86	42.11	241.07	4.850	56.04	42.08	241.07	4.397
211 312	7	4.75	57.53	9.23	241.07	19.878	52.13	9.44	241.07	20.020
313 254	3	3.00	38.44	20.54	241.07	9.865	7.50	18.87	241.07	12.380
254 314	3	0.40	52.88	7.56	241.07	24.905	53.40	7.56	241.07	24.836
221 222	7	5.76	105.71	49.01	355.27	5.092	151.06	51.97	444.10	5.639
222 323	7	6.06	138.86	39.02	418.95	7.178	108.53	36.12	385.72	7.674
323 255	7	5.90	21.92	3.85	241.07	56.947	7.22	7.48	241.07	31.271
255 324	7	0.67	71.31	7.56	241.07	22.464	73.25	7.56	241.07	22.207
324 325	10	3.25	9.55	8.01	314.57	38.093	9.55	8.01	314.57	38.093
325 269	7	0.70	46.85	37.26	241.07	5.213	44.75	37.26	241.07	5.270
234 235	7	3.90	41.94	33.24	241.07	5.991	60.71	33.30	241.07	5.417
235 236	7	4.05	52.20	25.94	241.07	7.282	54.73	26.11	241.07	7.136
236 237	7	3.87	59.18	37.19	241.07	4.891	42.61	36.94	241.07	5.372
239 440	7	6.57	27.95	17.06	241.07	12.493	30.04	17.03	241.07	12.391
244 245	7	3.16	53.66	206.01	241.07	0.910	66.15	206.29	241.07	0.848
245 446	7	3.41	68.89	114.63	241.07	1.502	62.62	114.24	241.07	1.562
446 347	6	3.25	50.99	34.24	204.32	4.479	60.45	34.49	204.32	4.171
347 248	6	4.95	54.64	20.11	204.32	7.444	50.91	17.62	204.32	8.704
248 249	6	3.65	38.88	29.52	204.32	5.604	39.68	29.50	204.32	5.582
249 250	6	4.35	53.83	30.39	204.32	4.952	41.17	30.36	204.32	5.373
251 252	6	5.68	91.79	85.16	204.32	1.321	85.20	84.99	204.32	1.402
256 257	9	6.55	108.24	69.42	314.57	2.972	161.77	72.47	541.63	5.242
257 258	9	6.40	160.98	49.75	525.30	7.323	105.00	46.77	314.57	4.481
259 260	6	2.00	27.39	88.79	204.32	1.993	27.36	88.38	204.32	2.002
260 261	9	2.59	50.47	91.83	314.57	2.876	94.67	92.51	314.57	2.377
261 262	9	4.17	113.18	62.72	314.57	3.211	137.44	63.12	515.13	5.984
262 263	9	4.70	151.79	53.99	520.35	6.827	157.83	54.27	526.66	6.797

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263 264	9	4.04	141.55	48.20	314.57	3.590	124.15	47.70	314.57	3.992
264 265	6	5.91	67.77	25.56	204.32	5.342	60.64	25.48	204.32	5.640
265 266	6	3.54	41.90	55.14	204.32	2.945	31.79	55.17	204.32	3.127
266 267	6	3.50	42.81	42.46	204.32	3.804	31.05	42.36	204.32	4.091
273 274	6	5.91	72.71	39.83	204.32	3.304	72.39	39.81	204.32	3.314
275 276	6	4.49	56.59	163.14	204.32	0.906	68.68	163.22	204.32	0.831
276 277	6	4.37	60.10	140.13	204.32	1.029	61.31	140.26	204.32	1.020
277 278	6	4.65	62.66	140.85	204.32	1.006	67.76	140.89	204.32	0.969
278 279	6	3.99	84.08	98.77	204.32	1.217	71.57	94.13	204.32	1.410
280 281	6	5.73	35.53	33.50	204.32	5.039	68.05	33.94	204.32	4.015
281 282	6	5.77	79.88	31.34	204.32	3.971	53.73	31.03	204.32	4.853
227 228	7	2.63	6.49	134.26	241.07	1.747	5.74	134.18	241.07	1.754
220 230	7	5.73	14.63	78.10	241.07	2.900	13.88	78.06	241.07	2.911
212 204	7	2.02	1.94	138.47	241.07	1.727	7.09	138.62	241.07	1.688
201 206	7	5.26	53.05	34.65	241.07	5.427	59.95	34.66	241.07	5.225
225 233	7	3.90	27.72	46.77	241.07	4.561	35.58	46.88	241.07	4.383
233 238	7	3.77	31.21	44.54	241.07	4.711	29.81	44.53	241.07	4.744
238 243	7	3.83	30.92	48.74	241.07	4.312	31.15	48.74	241.07	4.307
243 247	7	3.31	31.50	66.05	241.07	3.173	21.43	65.87	241.07	3.335
202 207	7	5.26	53.39	42.39	241.07	4.427	59.62	42.35	241.07	4.284
203 327	7	3.10	4.66	37.57	241.07	6.292	19.36	37.57	241.07	5.901
209 319	7	4.03	10.99	56.75	241.07	4.054	8.60	56.57	241.07	4.109
210 221	7	5.11	12.48	51.70	241.07	4.421	12.77	51.49	241.07	4.434
221 234	7	6.13	15.24	44.51	241.07	5.073	15.37	44.70	241.07	5.050
259 268	6	3.65	6.64	56.10	204.32	3.524	8.43	55.95	204.32	3.501
268 275	6	3.65	8.03	88.31	204.32	2.223	7.04	88.50	204.32	2.229
251 253	6	3.09	3.06	91.62	204.32	2.197	9.52	91.60	204.32	2.127
253 260	6	4.90	12.27	51.27	204.32	3.746	8.43	51.26	204.32	3.821
312 313	3	2.01	3.09	8.66	241.07	27.470	5.88	8.59	241.07	27.379
254 323	3	3.10	12.90	14.66	241.07	15.568	1.80	14.14	241.07	16.919
323 231	7	3.13	27.62	15.78	241.07	13.525	57.79	14.24	241.07	12.867
231 237	7	3.00	50.90	67.63	241.07	2.812	30.59	66.83	241.07	3.149
237 239	7	2.85	38.43	57.09	241.07	3.550	38.53	57.66	241.07	3.513
241 239	7	2.53	3.61	63.59	241.07	3.734	17.02	64.35	241.07	3.482
244 241	7	3.30	17.34	96.92	241.07	2.308	10.41	96.59	241.07	2.388
244 252	6	1.90	4.30	113.81	204.32	1.758	2.90	114.03	204.32	1.766
306 315	7	4.03	33.65	9.48	241.07	21.876	51.33	3.06	241.07	62.027
315 255	7	3.10	39.40	4.81	241.07	41.941	24.39	7.99	241.07	27.117
278 280	6	3.10	5.77	106.16	204.32	1.870	6.83	106.23	204.32	1.859
324 332	9	4.30	51.69	12.66	314.57	20.765	71.87	11.11	314.57	21.835
332 440	9	4.68	78.72	19.73	314.57	11.955	55.30	17.92	314.57	14.466
256 347	6	4.99	9.71	13.91	204.32	13.995	11.41	14.27	204.32	13.516
264 256	6	4.90	13.91	30.66	204.32	6.209	6.79	30.30	204.32	6.519
264 289	6	3.65	58.74	30.88	204.32	4.715	35.51	30.29	204.32	5.573
289 273	6	1.12	35.51	30.29	204.32	5.573	61.63	30.72	204.32	4.645
273 279	6	2.53	16.40	78.13	204.32	2.405	6.36	78.13	204.32	2.534
307 316	7	4.03	35.28	7.86	241.07	26.188	49.70	3.11	241.07	61.556
316 269	7	3.10	33.46	4.20	241.07	49.462	30.34	4.63	241.07	45.530
283 282	6	4.20	9.94	63.30	204.32	3.071	7.61	63.19	204.32	3.113
250 258	6	4.99	11.24	47.07	204.32	4.102	9.89	46.88	204.32	4.148
258 267	6	4.90	9.54	47.69	204.32	4.085	11.16	47.86	204.32	4.036
265 274	6	4.77	53.78	76.71	204.32	1.962	65.25	76.73	204.32	1.813
274 284	6	1.43	27.82	68.45	204.32	2.579	22.96	67.77	204.32	2.676
284 283	6	1.60	19.22	71.51	204.32	2.588	7.37	68.80	204.32	2.862
339 340	6	6.57	13.80	9.41	204.32	20.257	14.42	9.41	204.32	20.185
344 345	6	3.16	4.24	28.17	204.32	7.104	7.28	28.29	204.32	6.965

345 346	6	3.41	7.78	52.40	204.32	3.751	4.87	52.25	204.32	3.817
339 341	6	2.53	25.34	16.12	204.32	11.106	40.30	16.29	204.32	10.071
341 344	6	3.30	48.46	30.33	204.32	5.139	39.84	30.25	204.32	5.438
340 342	6	2.82	29.02	20.98	204.32	8.356	43.68	21.21	204.32	7.572
342 346	6	3.01	46.18	24.26	204.32	6.519	33.58	24.09	204.32	7.087

Trave più sollecitata

Trave 144 152 $\alpha_{min}0.396$

Indicatori di rischio

Oggetto	Nodi	Spettro	$a_{g,c}$ [m/sec ²]	$T_{R,c}$ anni	$S(a_{g,c}, T_{R,c})=S_s$	$a_{g,c}/a_{g,D}$	$PGA_c=a_{g,c}S(a_{g,c})$ [m/sec ²]	PGA_c/PGA_D	$(T_{R,c}/T_{R,D})^{0.410}$
Pilastro (fragile)	57 157	TU 2018 SLV H	0.56	47.31	1.500	0.31	0.84	0.31	0.33
Trave (fragile)	144 152	TU 2018 SLV H	0.72	77.44	1.500	0.40	1.09	0.40	0.40

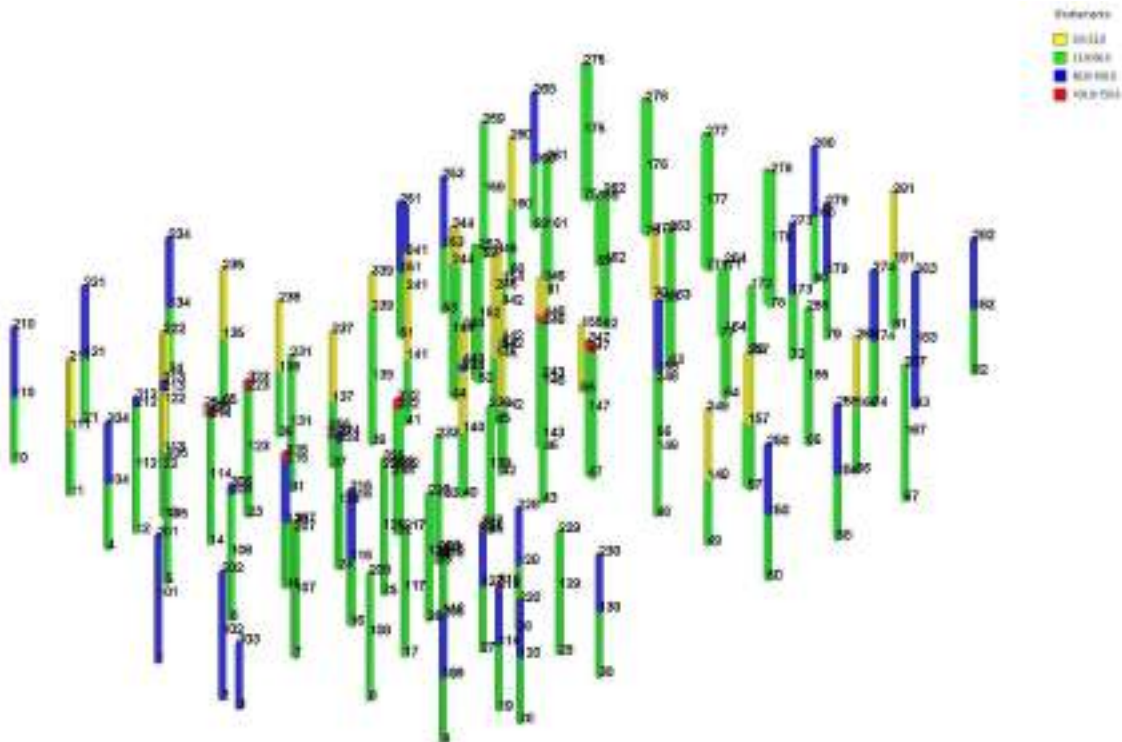


Figura 8 – Verifiche fragili pilastri: Indici di sfruttamento % per $ag_D=0.35 g_{Slu} = Capacita/Domanda\%$

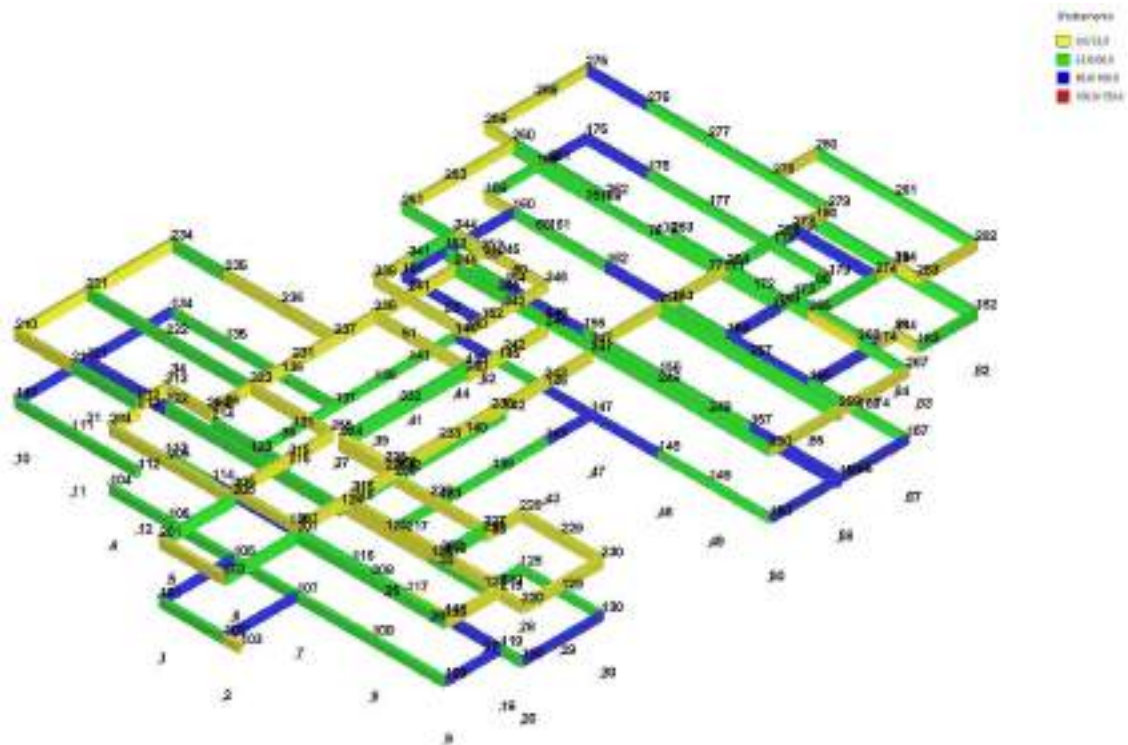


Figura 9 – Verifiche fragili travii: Indici di sfruttamento % per $ag_0=0.45 gSlu = Capacita/Domanda\%$

γ Materiali sezioni Pilastro

Sezione	Duttile Flessionalmente	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_{cc} Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Q.Permanenti Calcestruzzo	γ Rare Acciaio
1 Rett. 30x30 [cm] 30x30 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
2 Rett. 30x40 [cm] 30x40 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
3 Rett. 30x50 [cm] 30x50 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
4 Rett. 30x60 [cm] 30x60 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
5 Rett. 30x30 [cm] 30x30 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
6 Rett. 30x40 [cm] 30x40 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
7 Rett. 30x50 [cm] 30x50 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
8 Rett. 30x60 [cm] 30x60 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

Verifiche a compressione e fessurazione diagonale

N.B.I tagli nelle travi sono calcolati in base alle azioni di progetto.

Legenda

A_g	Area nodo
$f_{cd, Pilastro}$	Tensione di calcolo calcestruzzo pilastro
$f_{yd, Travi}$	Tensione di calcolo acciaio travi
$A_{f, Travi}$	Area barre estradosso travi
N_d	Azione assiale agente sul nodo
V_d	Azione tagliante sul nodo
$V_{d, travi}$	Reazione massima barre di armatura nel nodo
$\sigma_{nt}/0.3 \sqrt{f_c}$	Rapporto S/R a trazione nel cls
$\sigma_{nc}/0.5 f_c$	Rapporto S/R a compressione nel cls

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179	5	30	30	115.6	30	21	900.00	3249.3	4.52	6	9191.0	1164.3	-10983.0	0.91	0.34	30	21	900.00	3249.3	4.52	8	8915.4	849.7	-8666.1	0.66	0.29
180	5	30	30	115.6	30	21	900.00	3249.3	6.16	12	5542.2	1126.8	7469.9	0.45	0.19	30	21	900.00	3249.3	3.93	7	7038.1	853.7	-11554.9	1.02	0.32
181	1	30	40	115.6												30	31	1050.00	3249.3	12.32	12	16724.0	979.7	-8592.4	0.41	0.35
182	1	30	30	115.6	30	21	900.00	3249.3	6.16	5	8118.9	1438.7	-8877.4	0.77	0.29	30	21	900.00	3249.3	4.52	7	8454.7	906.7	-10718.1	0.89	0.32
183	5	30	30	115.6	30	21	900.00	3249.3	4.52	5	4008.5	998.1	-6905.8	0.67	0.20	30	21	900.00	3249.3	4.52	18	3265.3	1050.3	11199.5	0.94	0.23
201	5	30	30	115.6	30	21	900.00	3249.3	5.65	13	-0.0	0.0	2849.9	0.31	0.05	30	21	900.00	3249.3	5.65	15	-0.0	0.0	3798.6	0.41	0.07
202	5	30	30	115.6	30	21	900.00	3249.3	5.65	4	-0.0	0.0	-4208.5	0.46	0.08	30	21	900.00	3249.3	5.65	18	-0.0	0.0	5036.3	0.55	0.10
204	5	30	30	115.6	30	21	900.00	3249.3	5.65	13	-0.0	0.0	4904.6	0.53	0.09	30	21	900.00	3249.3	5.65	15	-0.0	0.0	4712.4	0.51	0.09
205	5	30	30	115.6	30	21	900.00	3249.3	11.31	13	-0.0	0.0	3774.6	0.41	0.07											
206	5	30	30	115.6	30	21	900.00	3249.3	5.65	15	4761.8	697.1	-4096.3	0.32	0.15	30	21	900.00	3249.3	5.65	10	4818.9	1595.5	-7081.5	0.72	0.22
207	6	30	40	115.6	40	21	1200.00	3249.3	5.65	13	5275.0	2429.6	-6803.3	0.57	0.18	30	31	1200.00	3249.3	5.65	18	5221.6	2003.8	-5464.2	0.43	0.15
208	5	30	30	115.6	30	21	900.00	3249.3	11.31	4	-0.0	0.0	-3814.8	0.42	0.07											
209	5	30	30	115.6	30	21	900.00	3249.3	5.65	4	-0.0	0.0	-5084.1	0.55	0.10	30	21	900.00	3249.3	5.65	18	-0.0	0.0	5521.5	0.60	0.11
210	5	30	30	115.6	30	21	900.00	3249.3	5.65	13	-0.0	0.0	2590.6	0.28	0.05	30	21	900.00	3249.3	7.70	15	-0.0	0.0	5048.2	0.55	0.10
211	5	30	30	115.6	30	21	900.00	3249.3	11.31	13	-0.0	0.0	2957.1	0.32	0.06											
212	5	30	30	115.6												30	21	900.00	3249.3	5.65	10	6069.9	2495.5	-2060.0	0.27	0.16
214	5	30	30	115.6	30	21	900.00	3249.3	10.49	13	5673.0	8467.1	15920.0	0.56	0.21											
215	6	30	40	115.6												30	32	1200.00	3249.3	10.45	4	10093.8	6458.0	20554.9	0.81	0.29
216	6	30	40	115.6												30	32	1200.00	3249.3	5.65	9	9169.6	3392.4	-4340.0	0.36	0.20
217	5	30	30	115.6	30	21	900.00	3249.3	11.31	4	-0.0	0.0	-3660.3	0.40	0.07											
219	5	30	30	115.6	30	21	900.00	3249.3	5.65	10	4983.6	11362.9	-3187.8	1.34	0.33											
220	5	30	30	115.6	30	21	900.00	3249.3	5.65	3	-0.0	0.0	-4152.6	0.45	0.08	30	21	900.00	3249.3	5.65	18	-0.0	0.0	6721.0	0.73	0.13
221	5	30	30	115.6	30	21	900.00	3249.3	8.28	13	-0.0	0.0	6936.6	0.76	0.13	30	21	900.00	3249.3	15.39	15	-0.0	0.0	5387.4	0.59	0.10
222	7	30	50	115.6												30	41	1500.00	3249.3	17.97	4	-0.0	0.0	9283.4	0.61	0.11
225	5	30	30	115.6												30	21	900.00	3249.3	5.65	7	6155.8	3237.3	-811.0	0.22	0.16
226	5	30	30	115.6	30	21	900.00	3249.3	5.65	13	-0.0	0.0	2891.6	0.32	0.06											
227	5	30	30	115.6												30	21	900.00	3249.3	5.65	4	5331.4	5539.1	-264.8	0.41	0.17
228	5	30	30	115.6	30	21	900.00	3249.3	5.65	12	-0.0	0.0	4304.8	0.47	0.08	30	21	900.00	3249.3	5.65	7	-0.0	0.0	-5764.7	0.63	0.11
229	5	30	30	115.6	30	21	900.00	3249.3	11.31	4	-0.0	0.0	-3279.9	0.36	0.06											
230	5	30	30	115.6	30	21	900.00	3249.3	5.65	6	-0.0	0.0	-3662.4	0.40	0.07	30	21	900.00	3249.3	5.65	7	-0.0	0.0	-6756.6	0.74	0.13
231	5	30	30	115.6												30	21	900.00	3249.3	11.31	10	-0.0	0.0	-3695.5	0.40	0.07
233	5	30	30	115.6												30	21	900.00	3249.3	11.31	7	-0.0	0.0	-4240.8	0.46	0.08
234	5	30	30	115.6	30	21	900.00	3249.3	5.65	11	-0.0	0.0	2218.1	0.24	0.04	30	21	900.00	3249.3	7.70	10	-0.0	0.0	-5603.1	0.61	0.11
235	5	30	30	115.6	30	21	900.00	3249.3	11.31	5	-0.0	0.0	-2585.2	0.28	0.05											
236	5	30	30	115.6	30	21	900.00	3249.3	11.31	11	-0.0	0.0	2361.0	0.26	0.05											
237	5	30	30	115.6	30	21	900.00	3249.3	5.65	6	-0.0	0.0	-4331.1	0.47	0.08	30	21	900.00	3249.3	11.31	16	-0.0	0.0	4543.3	0.50	0.09
238	5	30	30	115.6												30	21	900.00	3249.3	11.31	18	-0.0	0.0	4205.5	0.46	0.08
239	5	30	30	115.6	30	21	900.00	3249.3	5.65	11	4983.9	500.3	4494.7	0.24	0.14	30	21	900.00	3249.3	11.31	10	4789.7	98.9	-3698.6	0.23	0.13
240	6	30	40	115.6												30	31	1200.00	3249.3	5.65	9	15430.6	800.6	-3265.4	0.08	0.24
241	5	30	30	115.6												30	21	900.00	3249.3	11.31	16	10589.7	876.9	4953.5	0.15	0.23
242	5	30	30	115.6												30	21	900.00	3249.3	11.31	7	10694.2	545.0	-4263.4	0.20	0.24
243	5	30	30	115.6												30	21	900.00	3249.3	11.31	18	-0.0	0.0	4215.6	0.46	0.08
244	8	30	60	115.6	45	21	1800.00	3249.3	10.18	10	6570.9	1373.2	-9571.4	0.44	0.14	30	51	1800.00	3249.3	5.65	12	6440.4	494.9	-12873.9	0.57	0.16

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324	5	30	30	115.6	45	21	900.00	3249.3	5.65	13	-0.0	0.0	-1385.2	0.15	0.03	30	21	900.00	3249.3	4.52	7	-0.0	0.0	2804.2	0.31	0.05
325	5	30	30	115.6	45	21	900.00	3249.3	5.65	3	-0.0	0.0	1088.4	0.12	0.02											
327	5	30	30	115.6	30	21	900.00	3249.3	5.65	7	-0.0	0.0	-2231.5	0.24	0.04	30	21	900.00	3249.3	5.65	8	-0.0	0.0	-3700.7	0.40	0.07
332	7	30	50	115.6												30	41	1500.00	3249.3	4.52	18	-0.0	0.0	1494.1	0.10	0.02
339	5	30	30	115.6	30	21	900.00	3249.3	4.52	11	-0.0	0.0	1908.3	0.21	0.04	30	21	900.00	3249.3	4.52	15	-0.0	0.0	955.5	0.10	0.02
340	6	30	40	115.6	40	21	1200.00	3249.3	4.52	6	-0.0	0.0	-2541.9	0.21	0.04	30	31	1200.00	3249.3	4.52	18	-0.0	0.0	1815.0	0.15	0.03
341	5	30	30	115.6												30	21	900.00	3249.3	9.05	15	-0.0	0.0	2196.3	0.24	0.04
342	5	30	30	115.6												30	21	900.00	3249.3	9.05	18	-0.0	0.0	1534.6	0.17	0.03
344	8	30	60	115.6	45	21	1800.00	3249.3	4.52	10	-0.0	0.0	-3879.2	0.21	0.04	30	51	1800.00	3249.3	4.52	12	-0.0	0.0	-1790.9	0.10	0.02
345	8	30	60	115.6												30	51	1800.00	3249.3	9.05	11	-0.0	0.0	-3322.2	0.18	0.03
346	8	30	60	115.6	45	21	1800.00	3249.3	4.52	7	-0.0	0.0	-2748.9	0.15	0.03	30	51	1800.00	3249.3	4.52	6	-0.0	0.0	3331.1	0.18	0.03
347	8	30	60	115.6	45	21	1800.00	3249.3	4.52	18	-0.0	0.0	2741.7	0.15	0.03	30	51	1800.00	3249.3	5.65	12	-0.0	0.0	-3921.8	0.21	0.04
440	6	30	40	115.6	40	21	1200.00	3249.3	5.65	5	5667.0	810.2	-4719.2	0.28	0.13	30	31	1200.00	3249.3	4.52	7	5464.4	308.3	-2668.7	0.11	0.10
446	8	30	60	115.6												30	51	1800.00	3249.3	5.65	12	4519.6	1313.3	-4404.0	0.21	0.08

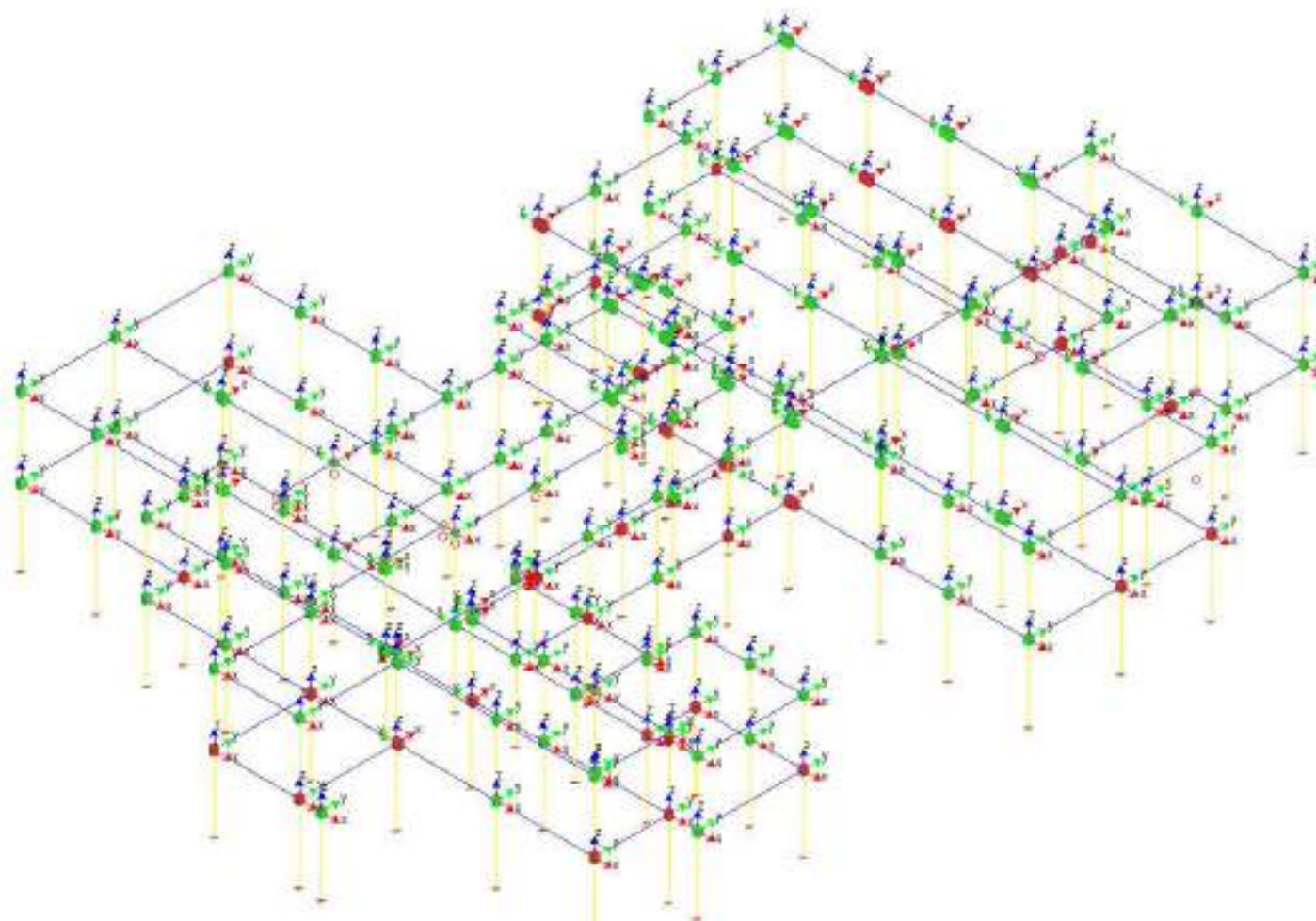


Figura 10 – Verifiche fragili nodi: Verifiche nodi per $agp=0.15$ $gSlu = Capacita/Domanda\%$

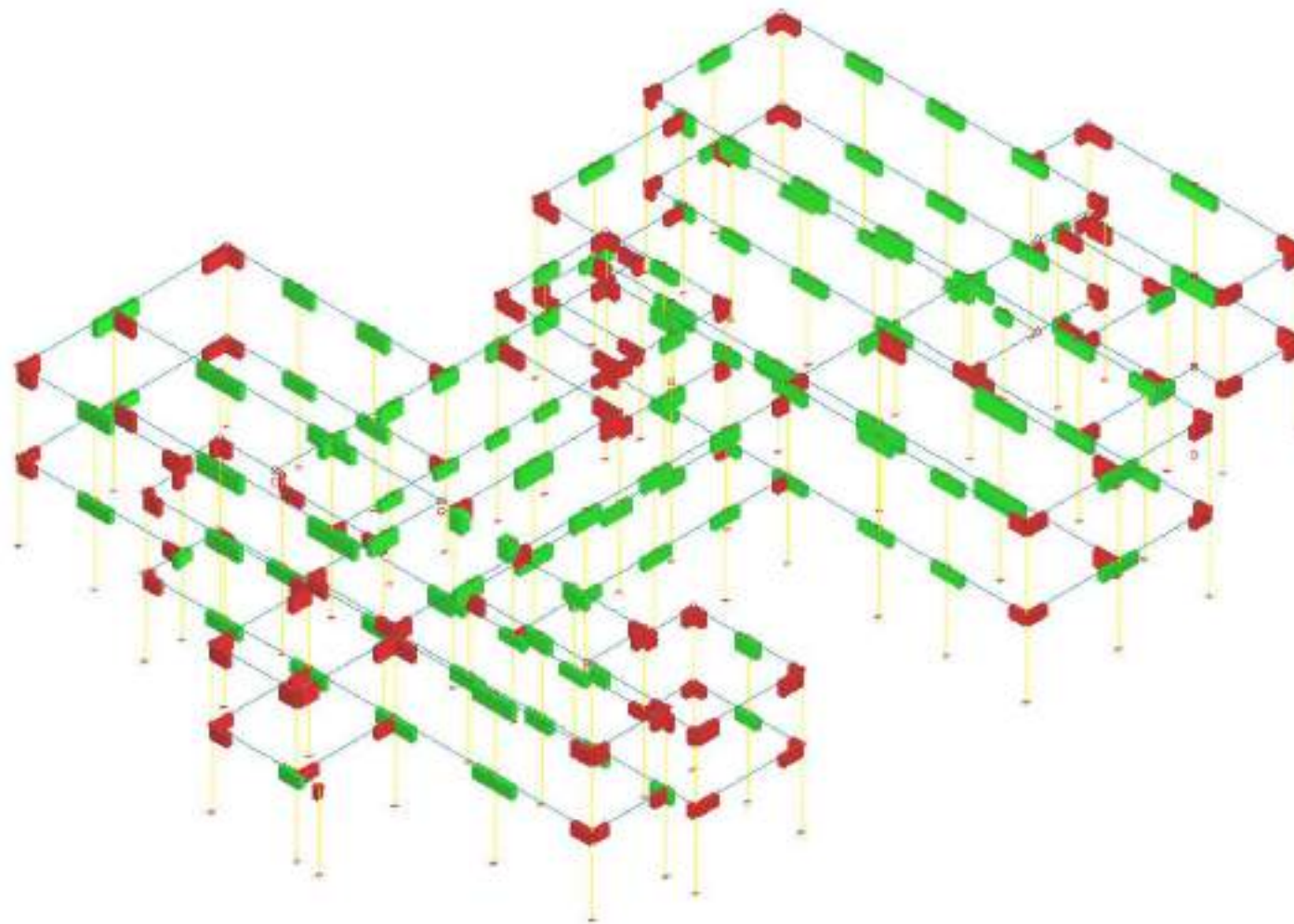


Figura 11 – Confinamento nodi

Spostamenti massimi: Verifica SLD

Combinazioni agli Stati Limite di Danno

Massimi spostamenti differenziali orizzontali

Fattore moltiplicativo spostamenti dovuti al sisma b 1

- c 1
- Controllo degli spostamenti di interpiano dU inferiore a 0.005 H

N.B. Nelle combinazioni SLD b è moltiplicato per $q_{SLD}=1.00$

U_x

U_y

Comb.

Nodi U_x Nodi U_y
[cm] [cm]

		U_x		U_y
	Nodi	[cm]	Nodi	[cm]
19	1-101	1.84	20-120	1.36
20	1-101	1.92	10-110	-1.31
21	180-280	1.26	110-210	0.66
22	180-280	1.19	120-220	-0.59
23	1-101	0.93	20-120	1.84
24	80-180	-0.50	20-120	1.52
25	180-280	0.71	10-110	1.59
26	1-101	-1.18	10-110	1.89
27	180-280	-1.19	120-220	0.59
28	180-280	-1.26	110-210	-0.66
29	1-101	-1.92	10-110	1.31
30	1-101	-1.84	20-120	-1.36
31	1-101	1.18	10-110	-1.89
32	180-280	-0.71	10-110	-1.59
33	80-180	0.50	20-120	-1.52
34	1-101	-0.93	20-120	-1.84

Spostamenti Max in direzione U_x [cm]

Nodi	Comb.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1 101	19	<u>1.84</u>	1.92	1.00	1.08	0.93	0.05	-0.30	-1.18	-1.08	-1.00	-1.92	-1.84	1.18	0.30	-0.05	-0.93
1 101	20	1.84	<u>1.92</u>	1.00	1.08	0.93	0.05	-0.30	-1.18	-1.08	-1.00	-1.92	-1.84	1.18	0.30	-0.05	-0.93
180 280	21	1.02	0.96	<u>1.26</u>	1.19	0.17	-0.49	0.71	0.04	-1.19	-1.26	-0.96	-1.02	-0.04	-0.71	0.49	-0.17
180 280	22	1.02	0.96	1.26	<u>1.19</u>	0.17	-0.49	0.71	0.04	-1.19	-1.26	-0.96	-1.02	-0.04	-0.71	0.49	-0.17
1 101	23	1.84	1.92	1.00	1.08	<u>0.93</u>	0.05	-0.30	-1.18	-1.08	-1.00	-1.92	-1.84	1.18	0.30	-0.05	-0.93
80 180	24	0.98	0.94	1.07	1.04	0.10	<u>-0.50</u>	0.63	0.03	-1.04	-1.07	-0.94	-0.98	-0.03	-0.63	0.50	-0.10
180 280	25	1.02	0.96	1.26	1.19	0.17	-0.49	<u>0.71</u>	0.04	-1.19	-1.26	-0.96	-1.02	-0.04	-0.71	0.49	-0.17
1 101	26	1.84	1.92	1.00	1.08	0.93	0.05	-0.30	<u>-1.18</u>	-1.08	-1.00	-1.92	-1.84	1.18	0.30	-0.05	-0.93
180 280	27	1.02	0.96	1.26	1.19	0.17	-0.49	0.71	0.04	<u>-1.19</u>	-1.26	-0.96	-1.02	-0.04	-0.71	0.49	-0.17
180 280	28	1.02	0.96	1.26	1.19	0.17	-0.49	0.71	0.04	-1.19	<u>-1.26</u>	-0.96	-1.02	-0.04	-0.71	0.49	-0.17
1 101	29	1.84	1.92	1.00	1.08	0.93	0.05	-0.30	-1.18	-1.08	-1.00	<u>-1.92</u>	-1.84	1.18	0.30	-0.05	-0.93
1 101	30	1.84	1.92	1.00	1.08	0.93	0.05	-0.30	-1.18	-1.08	-1.00	-1.92	<u>-1.84</u>	1.18	0.30	-0.05	-0.93
1 101	31	1.84	1.92	1.00	1.08	0.93	0.05	-0.30	-1.18	-1.08	-1.00	-1.92	-1.84	<u>1.18</u>	0.30	-0.05	-0.93
180 280	32	1.02	0.96	1.26	1.19	0.17	-0.49	0.71	0.04	-1.19	-1.26	-0.96	-1.02	-0.04	<u>-0.71</u>	0.49	-0.17
80 180	33	0.98	0.94	1.07	1.04	0.10	-0.50	0.63	0.03	-1.04	-1.07	-0.94	-0.98	-0.03	-0.63	<u>0.50</u>	-0.10
1 101	34	1.84	1.92	1.00	1.08	0.93	0.05	-0.30	-1.18	-1.08	-1.00	-1.92	-1.84	1.18	0.30	-0.05	<u>-0.93</u>

Spostamenti Max in direzione U_y [cm]

Nodi	Comb.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
20 120	19	<u>1.36</u>	0.55	0.52	-0.28	1.84	1.52	1.17	0.85	0.28	-0.52	-0.55	-1.36	-0.85	-1.17	-1.52	-1.84
10 110	20	-0.45	<u>-1.31</u>	0.31	-0.55	0.97	1.27	1.59	1.89	0.55	-0.31	1.31	0.45	-1.89	-1.59	-1.27	-0.97
110 210	21	-0.33	-1.12	<u>0.66</u>	-0.13	0.94	1.08	1.57	1.70	0.13	-0.66	1.12	0.33	-1.70	-1.57	-1.08	-0.94
120 220	22	1.07	0.37	0.10	<u>-0.59</u>	1.55	1.40	0.92	0.78	0.59	-0.10	-0.37	-1.07	-0.78	-0.92	-1.40	-1.55
20 120	23	1.36	0.55	0.52	-0.28	<u>1.84</u>	1.52	1.17	0.85	0.28	-0.52	-0.55	-1.36	-0.85	-1.17	-1.52	-1.84
20 120	24	1.36	0.55	0.52	-0.28	1.84	<u>1.52</u>	1.17	0.85	0.28	-0.52	-0.55	-1.36	-0.85	-1.17	-1.52	-1.84

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10 110	25	-0.45	-1.31	0.31	-0.55	0.97	1.27	<u>1.59</u>	1.89	0.55	-0.31	1.31	0.45	-1.89	-1.59	-1.27	-0.97
10 110	26	-0.45	-1.31	0.31	-0.55	0.97	1.27	1.59	<u>1.89</u>	0.55	-0.31	1.31	0.45	-1.89	-1.59	-1.27	-0.97
120 220	27	1.07	0.37	0.10	-0.59	1.55	1.40	0.92	0.78	<u>0.59</u>	-0.10	-0.37	-1.07	-0.78	-0.92	-1.40	-1.55
110 210	28	-0.33	-1.12	0.66	-0.13	0.94	1.08	1.57	1.70	0.13	<u>-0.66</u>	1.12	0.33	-1.70	-1.57	-1.08	-0.94
10 110	29	-0.45	-1.31	0.31	-0.55	0.97	1.27	1.59	1.89	0.55	-0.31	<u>1.31</u>	0.45	-1.89	-1.59	-1.27	-0.97
20 120	30	1.36	0.55	0.52	-0.28	1.84	1.52	1.17	0.85	0.28	-0.52	-0.55	<u>-1.36</u>	-0.85	-1.17	-1.52	-1.84
10 110	31	-0.45	-1.31	0.31	-0.55	0.97	1.27	1.59	1.89	0.55	-0.31	1.31	0.45	<u>-1.89</u>	-1.59	-1.27	-0.97
10 110	32	-0.45	-1.31	0.31	-0.55	0.97	1.27	1.59	1.89	0.55	-0.31	1.31	0.45	-1.89	<u>-1.59</u>	-1.27	-0.97
20 120	33	1.36	0.55	0.52	-0.28	1.84	1.52	1.17	0.85	0.28	-0.52	-0.55	-1.36	-0.85	-1.17	<u>-1.52</u>	-1.84
20 120	34	1.36	0.55	0.52	-0.28	1.84	1.52	1.17	0.85	0.28	-0.52	-0.55	-1.36	-0.85	-1.17	-1.52	<u>-1.84</u>

Spostamenti Massimi :

Combinazione di Carico 20 Fra i nodi 1 101 U_x Spostamento 1.92 [cm]

SI SONO RILEVATI 1 ELEMENTI AVENTI SPOSTAMENTI DI INTERPIANO SUPERIORI A 0.005000 H

Dal Nodo Al Nodo H Interpiano U dU/H %
[m] [cm]

10	110	4.10	2.11	0.514301
----	-----	------	------	----------

du/H x 1000 Max in direzione U_x

Nodi	dx [cm]	dy [cm]	dz [cm]	L [cm]	Comb.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1 101	0.00	0.00	410.00	410.00	19	<u>4.493</u>	4.679	2.441	2.627	2.259	0.123	-0.743	-2.879	-2.627	-2.441	-4.679	-4.493	2.879	0.743	-0.123	-2.259
1 101	0.00	0.00	410.00	410.00	20	4.493	<u>4.679</u>	2.441	2.627	2.259	0.123	-0.743	-2.879	-2.627	-2.441	-4.679	-4.493	2.879	0.743	-0.123	-2.259
180 280	0.00	0.00	430.00	430.00	21	2.372	2.223	<u>2.920</u>	2.771	0.400	-1.143	1.641	0.098	-2.771	-2.920	-2.223	-2.372	-0.098	-1.641	1.143	-0.400
180 280	0.00	0.00	430.00	430.00	22	2.372	2.223	2.920	<u>2.771</u>	0.400	-1.143	1.641	0.098	-2.771	-2.920	-2.223	-2.372	-0.098	-1.641	1.143	-0.400
1 101	0.00	0.00	410.00	410.00	23	4.493	4.679	2.441	2.627	<u>2.259</u>	0.123	-0.743	-2.879	-2.627	-2.441	-4.679	-4.493	2.879	0.743	-0.123	-2.259
80 180	0.00	0.00	410.00	410.00	24	2.389	2.293	2.622	2.526	0.250	<u>-1.224</u>	1.543	0.068	-2.526	-2.622	-2.293	-2.389	-0.068	-1.543	1.224	-0.250
180 280	0.00	0.00	430.00	430.00	25	2.372	2.223	2.920	2.771	0.400	-1.143	<u>1.641</u>	0.098	-2.771	-2.920	-2.223	-2.372	-0.098	-1.641	1.143	-0.400
1 101	0.00	0.00	410.00	410.00	26	4.493	4.679	2.441	2.627	2.259	0.123	-0.743	<u>-2.879</u>	-2.627	-2.441	-4.679	-4.493	2.879	0.743	-0.123	-2.259
180 280	0.00	0.00	430.00	430.00	27	2.372	2.223	2.920	2.771	0.400	-1.143	1.641	0.098	<u>-2.771</u>	-2.920	-2.223	-2.372	-0.098	-1.641	1.143	-0.400

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180 280	0.00	0.00	430.00	430.00	28	2.372	2.223	2.920	2.771	0.400	-1.143	1.641	0.098	-2.771	-2.920	-2.223	-2.372	-0.098	-1.641	1.143	-0.400
1 101	0.00	0.00	410.00	410.00	29	4.493	4.679	2.441	2.627	2.259	0.123	-0.743	-2.879	-2.627	-2.441	-4.679	-4.493	2.879	0.743	-0.123	-2.259
1 101	0.00	0.00	410.00	410.00	30	4.493	4.679	2.441	2.627	2.259	0.123	-0.743	-2.879	-2.627	-2.441	-4.679	-4.493	2.879	0.743	-0.123	-2.259
1 101	0.00	0.00	410.00	410.00	31	4.493	4.679	2.441	2.627	2.259	0.123	-0.743	-2.879	-2.627	-2.441	-4.679	-4.493	2.879	0.743	-0.123	-2.259
180 280	0.00	0.00	430.00	430.00	32	2.372	2.223	2.920	2.771	0.400	-1.143	1.641	0.098	-2.771	-2.920	-2.223	-2.372	-0.098	-1.641	1.143	-0.400
80 180	0.00	0.00	410.00	410.00	33	2.389	2.293	2.622	2.526	0.250	-1.224	1.543	0.068	-2.526	-2.622	-2.293	-2.389	-0.068	-1.543	1.224	-0.250
1 101	0.00	0.00	410.00	410.00	34	4.493	4.679	2.441	2.627	2.259	0.123	-0.743	-2.879	-2.627	-2.441	-4.679	-4.493	2.879	0.743	-0.123	-2.259

du/H x 1000 Max in direzione U_y

Nodi	dx [cm]	dy [cm]	dz [cm]	L [cm]	Comb.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
20 120	0.00	0.00	410.00	410.00	19	3.312	1.345	1.277	-0.691	4.491	3.705	2.854	2.067	0.691	-1.277	-1.345	-3.312	-2.067	-2.854	-3.705	-4.491
10 110	0.00	0.00	410.00	410.00	20	-1.103	-3.194	0.748	-1.343	2.364	3.098	3.871	4.605	1.343	-0.748	3.194	1.103	-4.605	-3.871	-3.098	-2.364
110 210	0.00	0.00	430.00	430.00	21	-0.764	-2.611	1.538	-0.309	2.195	2.517	3.640	3.962	0.309	-1.538	2.611	0.764	-3.962	-3.640	-2.517	-2.195
120 220	0.00	0.00	350.00	350.00	22	3.054	1.059	0.296	-1.699	4.415	4.008	2.641	2.234	1.699	-0.296	-1.059	-3.054	-2.234	-2.641	-4.008	-4.415
20 120	0.00	0.00	410.00	410.00	23	3.312	1.345	1.277	-0.691	4.491	3.705	2.854	2.067	0.691	-1.277	-1.345	-3.312	-2.067	-2.854	-3.705	-4.491
20 120	0.00	0.00	410.00	410.00	24	3.312	1.345	1.277	-0.691	4.491	3.705	2.854	2.067	0.691	-1.277	-1.345	-3.312	-2.067	-2.854	-3.705	-4.491
10 110	0.00	0.00	410.00	410.00	25	-1.103	-3.194	0.748	-1.343	2.364	3.098	3.871	4.605	1.343	-0.748	3.194	1.103	-4.605	-3.871	-3.098	-2.364
10 110	0.00	0.00	410.00	410.00	26	-1.103	-3.194	0.748	-1.343	2.364	3.098	3.871	4.605	1.343	-0.748	3.194	1.103	-4.605	-3.871	-3.098	-2.364
120 220	0.00	0.00	350.00	350.00	27	3.054	1.059	0.296	-1.699	4.415	4.008	2.641	2.234	1.699	-0.296	-1.059	-3.054	-2.234	-2.641	-4.008	-4.415
110 210	0.00	0.00	430.00	430.00	28	-0.764	-2.611	1.538	-0.309	2.195	2.517	3.640	3.962	0.309	-1.538	2.611	0.764	-3.962	-3.640	-2.517	-2.195
10 110	0.00	0.00	410.00	410.00	29	-1.103	-3.194	0.748	-1.343	2.364	3.098	3.871	4.605	1.343	-0.748	3.194	1.103	-4.605	-3.871	-3.098	-2.364
20 120	0.00	0.00	410.00	410.00	30	3.312	1.345	1.277	-0.691	4.491	3.705	2.854	2.067	0.691	-1.277	-1.345	-3.312	-2.067	-2.854	-3.705	-4.491
10 110	0.00	0.00	410.00	410.00	31	-1.103	-3.194	0.748	-1.343	2.364	3.098	3.871	4.605	1.343	-0.748	3.194	1.103	-4.605	-3.871	-3.098	-2.364
10 110	0.00	0.00	410.00	410.00	32	-1.103	-3.194	0.748	-1.343	2.364	3.098	3.871	4.605	1.343	-0.748	3.194	1.103	-4.605	-3.871	-3.098	-2.364
20 120	0.00	0.00	410.00	410.00	33	3.312	1.345	1.277	-0.691	4.491	3.705	2.854	2.067	0.691	-1.277	-1.345	-3.312	-2.067	-2.854	-3.705	-4.491
20 120	0.00	0.00	410.00	410.00	34	3.312	1.345	1.277	-0.691	4.491	3.705	2.854	2.067	0.691	-1.277	-1.345	-3.312	-2.067	-2.854	-3.705	-4.491

Controllo vulnerabilità via spostamenti d'interpiano

Spostamento limite $\Delta U_{limite} = 0.005000 H$

Combinazione	Spettro Associato	$T_{R,D}$	Dal Nodo (soffitto)	Al Nodo (soffitto)	Δ_z [m]	Tipo Spostamento	$\Delta_{Statico}$ [cm]	$\Delta_{Dinamico}$ [cm]	Δ_{Limite} [cm]	$\alpha = (\Delta_{Limite} - \Delta_{Statico}) / \Delta_{Dinamico}$	PGA_c	$T_{R,c}$	PGA_c / PGA_D	$(T_{R,c} / T_{R,D})^{0.410}$
26	TU 2018 SLD H	75.4	10 (0)	110 (1)	4.10	$ U_{xyz} $	0.02	2.11	2.05	0.9612	0.6875	69.7	0.96	0.97

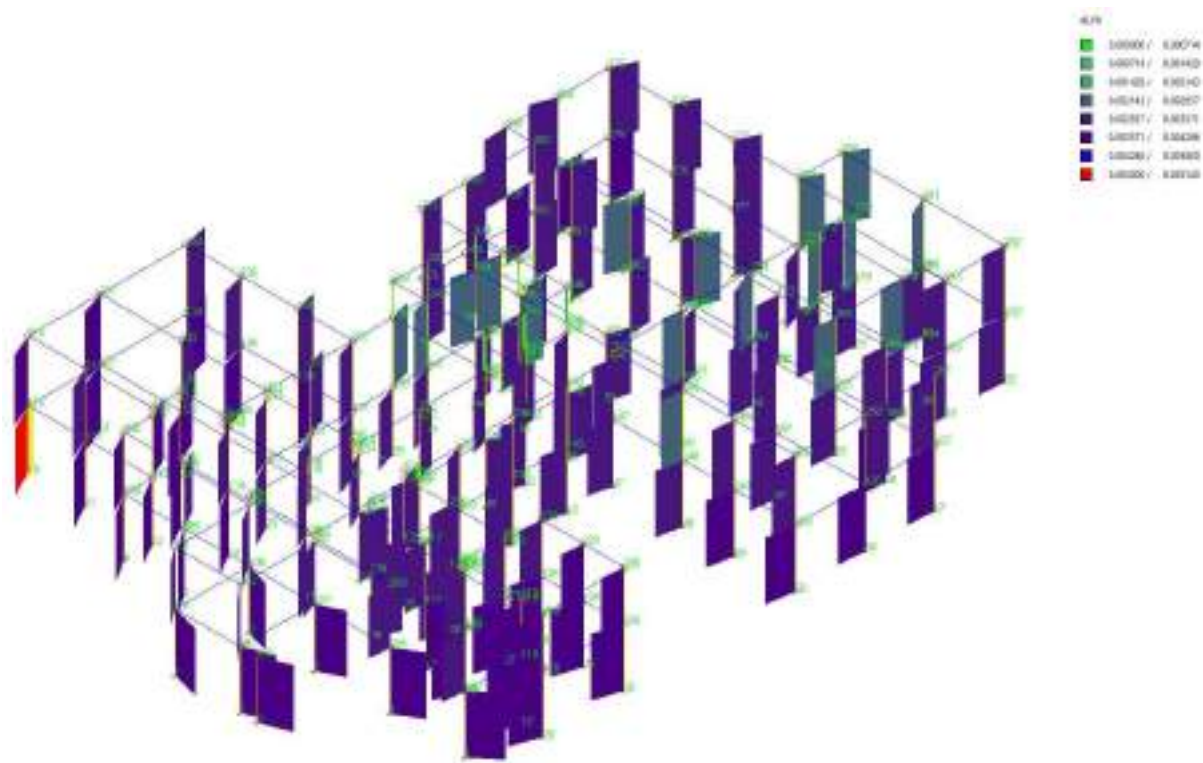


Figura 12 – Spostamento nodi struttura

Verifica statica

Travi - Verifiche Flessionali

Combinazioni di carico analizzate: SLU

Coefficienti γ_{Rd} degli elementi impiegati

γ_{Rd} Nuovo					γ_{Rd} Esistente				
Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchiere)	Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchiere)
1.10	1.10	1.10	1.20	1.20	0.00	0.00	0.00	0.00	0.00

γ Materiali sezioni Trave

Sezione	Duttile Fless.	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_{cc} Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Q. Permanenti Calcestruzzo	γ Rare Acciaio
1 Rett. 30x50 [cm] 30x50 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
2 Rett. 30x60 [cm] 30x60 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
3 Rett. 30x70 [cm] 30x70 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
4 Rett. 30x80 [cm] 30x80 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
6 Rett. 30x60 [cm] 30x60 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
7 Rett. 30x70 [cm] 30x70 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
9 Rett. 30x90 [cm] 30x90 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
10 Rett. 50x90 [cm] 50x90 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
101 Rett. 20x20 [cm] AUSILIARIA		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

Verifiche

Dal nodo Al nodo	Trave Sezione	Nodo Iniziale		Nodo Finale		Max Campata	
		S/R	S/R	S/R	S/R	S/R	S/R
		Estradosso	Intradosso	Estradosso	Intradosso	Estradosso	Intradosso
183 184	2	0.07	0.03	0.06	0.01	0.07	0.03
184 174	2	0.16	0.00	0.29	0.00	0.29	0.00
174 165	2	0.36	0.00	0.31	0.19	0.40	0.55
265 274	6	0.16	0.20	0.26	0.01	0.26	0.50
274 284	6	0.22	0.00	0.13	0.00	0.22	0.00
284 283	6	0.09	0.00	0.04	0.00	0.09	0.02
340 342	6	0.00	0.21	0.12	0.04	0.12	0.25
342 346	6	0.13	0.05	0.01	0.22	0.13	0.28
339 341	6	0.00	0.18	0.11	0.04	0.11	0.20
341 344	6	0.12	0.06	0.06	0.23	0.12	0.35
344 345	6	0.01	0.02	0.04	0.00	0.04	0.03
345 346	6	0.04	0.00	0.01	0.03	0.04	0.04
339 340	6	0.05	0.03	0.08	0.02	0.08	0.15
250 258	6	0.07	0.02	0.01	0.04	0.07	0.14
258 267	6	0.01	0.03	0.08	0.01	0.08	0.13
283 282	6	0.06	0.02	0.00	0.06	0.06	0.10

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307 316	7	0.00	0.19	0.13	0.02	0.13	0.26
316 269	7	0.10	0.00	0.18	0.00	0.18	0.08
347 256	6	0.14	0.00	0.03	0.01	0.14	0.09
256 264	6	0.04	0.00	0.17	0.00	0.21	0.06
264 289	6	0.17	0.07	0.00	0.27	0.17	0.61
289 273	6	0.07	0.13	0.19	0.04	0.19	0.13
273 279	6	0.20	0.00	0.11	0.00	0.26	0.02
324 332	9	0.09	0.25	0.49	0.05	0.49	0.33
332 440	9	0.53	0.06	0.04	0.33	0.53	0.44
278 280	6	0.00	0.04	0.02	0.03	0.02	0.06
306 315	7	0.00	0.19	0.16	0.00	0.16	0.25
315 255	7	0.14	0.00	0.07	0.05	0.14	0.08
254 323	3	0.12	0.00	0.00	0.02	0.12	0.05
323 231	7	0.00	0.09	0.19	0.00	0.19	0.19
231 237	7	0.19	0.00	0.04	0.03	0.19	0.11
237 239	7	0.04	0.06	0.05	0.06	0.05	0.16
239 241	7	0.07	0.00	0.00	0.02	0.07	0.02
241 244	7	0.00	0.03	0.05	0.01	0.05	0.07
244 252	6	0.01	0.00	0.02	0.00	0.02	0.01
312 313	3	0.00	0.05	0.02	0.04	0.02	0.05
251 253	6	0.01	0.01	0.07	0.00	0.07	0.02
253 260	6	0.07	0.00	0.02	0.04	0.07	0.09
259 268	6	0.01	0.03	0.02	0.01	0.02	0.06
268 275	6	0.02	0.01	0.03	0.02	0.03	0.05
210 221	7	0.03	0.03	0.02	0.02	0.03	0.08
221 234	7	0.02	0.02	0.05	0.03	0.05	0.12
209 319	7	0.03	0.03	0.00	0.06	0.03	0.08
203 327	7	0.00	0.48	0.13	0.03	0.13	0.48
202 207	7	0.05	0.26	0.20	0.17	0.20	0.54
225 233	7	0.05	0.10	0.10	0.01	0.10	0.16
233 238	7	0.10	0.00	0.08	0.00	0.10	0.10
238 243	7	0.09	0.01	0.09	0.01	0.09	0.11
243 247	7	0.09	0.01	0.02	0.08	0.09	0.11
201 206	7	0.03	0.29	0.19	0.18	0.19	0.56
212 204	7	0.00	0.04	0.01	0.03	0.01	0.04
220 230	7	0.06	0.03	0.04	0.05	0.06	0.13
227 228	7	0.01	0.02	0.00	0.03	0.01	0.03
280 281	6	0.11	0.18	0.49	0.00	0.49	0.49
281 282	6	0.50	0.00	0.17	0.17	0.50	0.53
275 276	6	0.30	0.17	0.33	0.00	0.33	0.55
276 277	6	0.29	0.00	0.31	0.00	0.31	0.39
277 278	6	0.30	0.00	0.38	0.00	0.38	0.45
278 279	6	0.34	0.02	0.22	0.25	0.34	0.51
273 274	6	0.43	0.11	0.42	0.12	0.43	0.67
259 260	6	0.02	0.15	0.00	0.15	0.02	0.17
260 261	9	0.00	0.10	0.13	0.10	0.13	0.14
261 262	9	0.13	0.21	0.20	0.11	0.24	0.36
262 263	9	0.20	0.20	0.23	0.15	0.28	0.53
263 264	9	0.23	0.06	0.22	0.16	0.27	0.32
264 265	6	0.34	0.00	0.31	0.00	0.34	0.63
265 266	6	0.26	0.00	0.15	0.00	0.26	0.18
266 267	6	0.13	0.08	0.00	0.24	0.13	0.33
256 257	9	0.04	0.37	0.42	0.00	0.51	0.63
257 258	9	0.42	0.00	0.02	0.38	0.51	0.61
251 252	6	0.49	0.00	0.33	0.08	0.49	0.51
244 245	7	0.15	0.16	0.32	0.08	0.32	0.24

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245 446	7	0.34	0.09	0.20	0.08	0.34	0.27
446 347	6	0.22	0.10	0.39	0.01	0.39	0.23
347 248	6	0.50	0.00	0.33	0.00	0.50	0.35
248 249	6	0.31	0.00	0.32	0.00	0.32	0.16
249 250	6	0.33	0.02	0.04	0.22	0.33	0.41
239 440	7	0.11	0.06	0.17	0.02	0.17	0.28
234 235	7	0.00	0.26	0.14	0.04	0.14	0.34
235 236	7	0.15	0.01	0.18	0.00	0.18	0.19
236 237	7	0.17	0.01	0.05	0.18	0.17	0.26
221 222	7	0.08	0.29	0.45	0.00	0.56	0.60
222 323	7	0.44	0.00	0.30	0.00	0.57	0.60
323 255	7	0.21	0.00	0.01	0.03	0.29	0.07
255 324	7	0.00	0.34	0.00	0.92	0.00	0.92
324 325	10	0.04	0.03	0.20	0.00	0.20	0.03
325 269	7	0.19	0.02	0.19	0.02	0.19	0.02
313 254	3	0.20	0.06	0.00	0.13	0.20	0.26
254 314	3	0.00	0.12	0.00	0.14	0.00	0.14
210 211	7	0.00	0.23	0.15	0.02	0.15	0.31
211 312	7	0.16	0.02	0.21	0.11	0.21	0.34
306 307	6	0.01	0.06	0.08	0.01	0.08	0.11
288 226	7	0.00	0.12	0.19	0.00	0.19	0.12
226 327	7	0.19	0.02	0.06	0.11	0.19	0.19
216 217	7	0.12	0.16	0.16	0.03	0.16	0.29
217 318	7	0.16	0.00	0.10	0.04	0.16	0.09
318 319	7	0.10	0.03	0.05	0.14	0.10	0.22
214 215	1	0.36	0.00	0.47	0.00	0.47	0.47
207 208	7	0.16	0.12	0.25	0.00	0.25	0.33
208 209	7	0.25	0.00	0.07	0.18	0.25	0.36
204 205	7	0.03	0.14	0.18	0.00	0.18	0.22
205 206	7	0.19	0.00	0.04	0.16	0.19	0.28
201 202	7	0.01	0.05	0.03	0.04	0.03	0.09
228 229	7	0.01	0.16	0.03	0.07	0.03	0.20
229 230	7	0.03	0.07	0.00	0.17	0.03	0.20
219 220	7	0.00	0.19	0.02	0.16	0.02	0.19
150 158	1	0.18	0.03	0.20	0.00	0.20	0.29
158 167	1	0.20	0.00	0.18	0.03	0.20	0.27
120 130	1	0.37	0.00	0.25	0.03	0.37	0.44
109 119	1	0.13	0.04	0.16	0.02	0.16	0.21
183 182	2	0.10	0.08	0.02	0.14	0.10	0.26
127 128	1	0.01	0.08	0.00	0.09	0.01	0.12
102 107	1	0.42	0.06	0.36	0.08	0.42	0.73
164 189	2	0.32	0.15	0.00	0.24	0.32	0.50
189 173	2	0.14	0.13	0.33	0.01	0.33	0.13
173 179	2	0.27	0.00	0.14	0.00	0.37	0.01
125 133	1	0.11	0.21	0.32	0.00	0.32	0.47
133 138	1	0.30	0.00	0.25	0.00	0.30	0.27
138 143	1	0.25	0.00	0.26	0.00	0.26	0.32
143 147	1	0.27	0.00	0.11	0.15	0.27	0.30
124 132	2	0.09	0.31	0.39	0.00	0.50	0.53
132 140	2	0.40	0.00	0.27	0.04	0.51	0.50
140 142	2	0.27	0.00	0.18	0.00	0.27	0.24
142 146	2	0.17	0.10	0.09	0.33	0.17	0.46
178 180	1	0.04	0.08	0.05	0.07	0.05	0.15
101 106	1	0.25	0.11	0.30	0.08	0.30	0.68
123 131	1	0.00	0.30	0.31	0.00	0.31	0.41
131 137	1	0.30	0.00	0.16	0.02	0.30	0.23

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137 139	1	0.16	0.06	0.20	0.04	0.20	0.32
139 141	1	0.18	0.01	0.23	0.00	0.23	0.20
141 144	1	0.23	0.05	0.24	0.04	0.24	0.47
144 152	1	0.17	0.00	0.07	0.00	0.17	0.02
104 112	2	0.04	0.16	0.00	0.10	0.04	0.18
112 113	1	0.00	0.08	0.01	0.06	0.01	0.08
151 153	1	0.01	0.05	0.15	0.00	0.15	0.07
153 160	1	0.18	0.00	0.18	0.03	0.18	0.28
159 168	1	0.10	0.04	0.10	0.00	0.10	0.15
168 175	1	0.09	0.00	0.11	0.04	0.11	0.15
110 121	1	0.16	0.04	0.27	0.00	0.27	0.27
121 134	1	0.30	0.00	0.30	0.00	0.30	0.44
180 181	4	0.05	0.27	0.42	0.00	0.42	0.48
181 182	4	0.43	0.00	0.10	0.29	0.43	0.56
175 176	2	0.27	0.17	0.21	0.04	0.27	0.55
176 177	2	0.21	0.01	0.29	0.00	0.29	0.37
177 178	2	0.27	0.00	0.31	0.00	0.31	0.40
178 179	2	0.29	0.01	0.22	0.23	0.29	0.52
173 174	4	0.19	0.21	0.21	0.20	0.21	0.51
168 169	1	0.26	0.14	0.43	0.00	0.50	0.58
169 170	1	0.47	0.00	0.55	0.00	0.55	0.47
170 171	1	0.51	0.00	0.40	0.00	0.57	0.56
171 172	1	0.44	0.00	0.33	0.00	0.44	0.08
172 189	1	0.34	0.00	0.00	0.08	0.34	0.08
159 160	2	0.00	0.15	0.02	0.07	0.02	0.15
160 161	2	0.02	0.09	0.23	0.01	0.23	0.16
161 162	2	0.28	0.03	0.41	0.00	0.41	0.54
162 163	2	0.39	0.00	0.38	0.00	0.44	0.73
163 164	2	0.35	0.00	0.42	0.00	0.42	0.45
164 165	2	0.45	0.00	0.41	0.00	0.45	0.76
165 166	2	0.29	0.00	0.23	0.00	0.29	0.26
166 167	2	0.21	0.04	0.01	0.32	0.21	0.46
153 154	4	0.00	0.33	0.39	0.00	0.39	0.42
154 155	4	0.39	0.01	0.38	0.00	0.47	0.76
155 156	4	0.38	0.00	0.35	0.00	0.48	0.57
156 157	4	0.38	0.00	0.42	0.00	0.53	0.64
157 158	4	0.45	0.00	0.09	0.37	0.52	0.73
151 152	1	0.55	0.00	0.45	0.00	0.55	0.46
144 145	1	0.14	0.15	0.13	0.05	0.14	0.31
145 146	1	0.19	0.01	0.17	0.02	0.19	0.27
146 147	1	0.11	0.04	0.30	0.00	0.30	0.21
147 148	1	0.45	0.00	0.42	0.00	0.57	0.48
148 149	1	0.42	0.00	0.41	0.00	0.42	0.34
149 150	1	0.42	0.00	0.26	0.16	0.46	0.49
134 135	2	0.05	0.24	0.34	0.00	0.34	0.39
135 136	2	0.34	0.00	0.36	0.00	0.36	0.40
136 137	2	0.36	0.00	0.08	0.21	0.36	0.36
128 129	1	0.15	0.20	0.22	0.03	0.22	0.36
129 130	1	0.22	0.03	0.08	0.24	0.22	0.38
120 119	2	0.14	0.00	0.21	0.00	0.21	0.03
119 118	2	0.20	0.13	0.27	0.08	0.31	0.79
118 117	2	0.31	0.00	0.19	0.00	0.31	0.19
117 116	2	0.18	0.06	0.33	0.00	0.33	0.42
116 115	2	0.33	0.00	0.47	0.00	0.47	0.51
115 114	2	0.50	0.00	0.41	0.00	0.57	0.73
114 113	2	0.41	0.00	0.13	0.19	0.41	0.30

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121 122	4	0.07	0.38	0.36	0.00	0.46	0.68
122 123	4	0.36	0.00	0.32	0.01	0.47	0.63
123 124	4	0.37	0.00	0.12	0.05	0.44	0.33
124 125	1	0.17	0.00	0.09	0.01	0.17	0.14
125 126	1	0.09	0.01	0.25	0.00	0.25	0.14
126 127	1	0.25	0.00	0.19	0.16	0.25	0.44
110 111	2	0.05	0.34	0.41	0.00	0.41	0.55
111 112	2	0.43	0.00	0.36	0.12	0.43	0.44
104 105	2	0.23	0.17	0.34	0.00	0.34	0.46
105 106	2	0.36	0.00	0.25	0.01	0.36	0.47
106 107	2	0.24	0.00	0.32	0.00	0.32	0.30
107 108	2	0.36	0.00	0.53	0.00	0.53	0.45
108 109	2	0.54	0.00	0.22	0.18	0.54	0.49
101 102	2	0.06	0.14	0.02	0.09	0.06	0.34
102 103	2	0.00	0.03	0.03	0.03	0.03	0.04
240 242	7	0.00	0.10	0.05	0.02	0.05	0.10
242 246	7	0.04	0.02	0.10	0.03	0.10	0.07

Controllo generale

- Processati 402 travi
- Elemento con $\rho_{\max} = S/R \ 255 - 324 = 0.92$

Pilastri - Verifiche Presso-Flessione

Combinazioni di carico analizzate: SLU

Coefficienti γ_{Rd} degli elementi impiegati

γ_{Rd} Nuovo					γ_{Rd} Esistente				
Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchieri)	Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchieri)
1.10	1.10	1.10	1.20	1.20	0.00	0.00	0.00	0.00	0.00

γ Materiali sezioni Pilastro

Sezione	Duttile Fless.	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_{cc} Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Q. Permanenti Calcestruzzo	γ Rare Acciaio
1 Rett. 30x30 [cm] 30x30 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
2 Rett. 30x40 [cm] 30x40 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
3 Rett. 30x50 [cm] 30x50 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
4 Rett. 30x60 [cm] 30x60 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
5 Rett. 30x30 [cm] 30x30 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
6 Rett. 30x40 [cm] 30x40 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
7 Rett. 30x50 [cm] 30x50 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
8 Rett. 30x60 [cm] 30x60 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

Verifiche

Pilastro	Comb. Critica	S/R
1 101	1	0.53
2 102	1	0.43
3 103	1	0.52
4 104	1	0.16
5 105	1	0.28
6 106	1	0.53
7 107	2	0.48
8 108	1	0.31
9 109	1	0.27
10 110	1	0.21
11 111	1	0.29
12 112	1	0.23
13 113	1	0.16
14 114	1	0.35
15 115	2	0.30
16 116	2	0.23
17 117	1	0.25
18 118	1	0.32
19 119	1	0.30
20 120	1	0.16
21 121	1	0.45
22 122	3	0.39

23 123	2	1	0.38
24 124	2	1	0.32
25 125	1	1	0.24
26 126	1	1	0.17
27 127	1	1	0.17
28 128	1	1	0.15
29 129	1	1	0.21
30 130	1	1	0.19
31 131	1	1	0.25
32 132	3	1	0.29
33 133	1	1	0.19
34 134	1	1	0.24
35 135	1	1	0.30
36 136	1	1	0.30
37 137	1	1	0.34
38 138	1	1	0.17
39 139	1	1	0.25
40 140	2	1	0.32
41 141	1	1	0.25
42 142	2	1	0.23
43 143	1	1	0.17
44 144	4	1	0.18
45 145	4	1	0.16
46 146	4	1	0.22
47 147	4	1	0.23

48 148	1	1	0.28
49 149	1	1	0.28
50 150	1	1	0.29
51 151	4	1	0.17
52 152	4	1	0.22
53 153	1	1	0.17
54 154	1	1	0.26
55 155	1	1	0.28
56 156	2	1	0.33
57 157	4	1	0.38
58 158	1	1	0.48
59 159	1	1	0.11
60 160	1	1	0.23
61 161	3	1	0.26
62 162	3	1	0.32
63 163	3	1	0.34
64 164	3	1	0.40
65 165	2	1	0.38
66 166	1	1	0.22
67 167	1	1	0.18
68 168	1	1	0.30
69 169	1	1	0.23
70 170	1	1	0.21
71 171	1	1	0.23
72 172	1	1	0.15

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73 173	2	1	0.35
74 174	2	1	0.38
75 175	4	1	0.12
76 176	4	1	0.15
77 177	4	1	0.15
78 178	4	1	0.19
79 179	1	1	0.18
80 180	1	1	0.18
81 181	2	1	0.29
82 182	1	1	0.26
83 183	1	1	0.12
101 201	5	1	0.56
102 202	5	1	0.61
104 204	5	1	0.16
105 205	5	1	0.15
106 206	5	1	0.35
107 307	6	1	0.43
108 208	5	1	0.15
109 209	5	1	0.47
110 210	5	1	0.21
111 211	5	1	0.14
112 212	5	1	0.15
113 213	5	1	0.10
114 214	5	1	0.30
115 215	6	1	0.29
116 316	6	1	0.40
117 217	5	1	0.15
118 218	5	1	0.15
119 219	5	1	0.20
120 220	5	1	0.18
121 221	5	1	0.50
122 222	7	1	0.20

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123 223	6	1	0.21
124 224	5	1	0.21
125 225	5	1	0.17
126 226	5	1	0.09
127 227	5	1	0.14
128 228	5	1	0.13
129 229	5	1	0.10
130 230	5	1	0.17
131 231	5	1	0.15
132 232	7	1	0.14
133 233	5	1	0.09
134 234	5	1	0.22
135 235	5	1	0.14
136 236	5	1	0.13
137 237	5	1	0.20
138 238	5	1	0.07
139 239	5	1	0.16
140 240	6	1	0.17
141 241	5	1	0.13
142 242	5	1	0.16
143 243	5	1	0.07
144 244	8	1	0.12
145 245	8	1	0.11
146 246	8	1	0.16
147 247	8	1	0.13
148 248	5	1	0.16
149 249	5	1	0.15
150 250	5	1	0.47
151 251	8	1	0.75
152 252	8	1	0.33
153 253	5	1	0.14
156 256	6	1	0.36

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157 257	7	1	0.21
158 258	5	1	0.47
159 259	5	1	0.09
160 260	5	1	0.13
161 261	6	1	0.20
162 262	6	1	0.25
163 263	6	1	0.29
164 264	5	1	0.35
165 265	6	1	0.31
166 266	5	1	0.10
167 267	5	1	0.19
168 268	5	1	0.51
173 273	5	1	0.39
174 274	6	1	0.44
175 275	8	1	0.26
176 276	8	1	0.09
177 277	8	1	0.08
178 278	8	1	0.10
179 279	5	1	0.20
180 280	5	1	0.27
181 281	1	1	0.17
182 282	1	1	0.51
183 283	5	1	0.37
206 306	5	1	0.61
239 339	5	1	0.08
241 341	5	1	0.13
244 344	8	1	0.15
245 345	8	1	0.03
440 340	6	1	0.09
442 342	5	1	0.12
446 346	8	1	0.07

Controllo generale

- Processati 167 pilastri
- Elemento con $\rho_{max}=S/R$ 151 - 251 = 0.75

Y:\lgare\interna_verifiche vuln scuole napoli\7.38.209_Asilo nido Acquarola [14° Circolo]\FASE3\Enexsys\1_Verifica fragile\REV2\7.38_Verifiche fragili_REV2.dt - 03 December 2021 - WinStrand (Service Pack 060)

Travi - Verifiche a Taglio

Combinazioni di carico analizzate: SLU

Coefficienti γ_{Rd} degli elementi impiegati

γ_{Rd} Nuovo					γ_{Rd} Esistente				
Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchiere)	Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchiere)
1.10	1.10	1.10	1.20	1.20	0.00	0.00	0.00	0.00	0.00

γ Materiali sezioni Trave

Sezione	Duttile Fless.	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_c Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Permanenti Calcestruzzo	γ Rare Acciaio
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Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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1 Rett. 30x50 [cm] 30x50 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
2 Rett. 30x60 [cm] 30x60 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
3 Rett. 30x70 [cm] 30x70 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
4 Rett. 30x80 [cm] 30x80 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
6 Rett. 30x60 [cm] 30x60 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
7 Rett. 30x70 [cm] 30x70 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
9 Rett. 30x90 [cm] 30x90 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
10 Rett. 50x90 [cm] 50x90 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
101 Rett. 20x20 [cm] AUSILIARIA		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

Verifiche

Trave		Nodo Iniziale			Nodo Finale			Concio Critico			
Dal nodo	Al nodo	Sezione	V _{SD} [kN]	V _{RD} [kN]	V _{SD} /V _{RD}	V _{SD} [kN]	V _{RD} [kN]	V _{SD} /V _{RD}	V _{SD} [kN]	V _{RD} [kN]	V _{SD} /V _{RD}
183	184	2	28.54	204.14	0.14	28.54	204.14	0.14	28.54	204.14	0.14
184	174	2	44.38	204.14	0.22	44.38	204.14	0.22	44.38	204.14	0.22
174	165	2	91.58	204.14	0.45	91.58	204.14	0.45	91.58	204.14	0.45
265	274	6	75.62	204.14	0.37	75.62	204.14	0.37	75.62	204.14	0.37
274	284	6	30.79	204.14	0.15	30.79	204.14	0.15	30.79	204.14	0.15
284	283	6	24.70	204.14	0.12	24.70	204.14	0.12	24.70	204.14	0.12
340	342	6	50.88	204.14	0.25	50.88	204.14	0.25	50.88	204.14	0.25
342	346	6	53.73	204.14	0.26	53.73	204.14	0.26	53.73	204.14	0.26
339	341	6	46.80	204.14	0.23	46.80	204.14	0.23	46.80	204.14	0.23
341	344	6	56.35	204.14	0.28	56.35	204.14	0.28	56.35	204.14	0.28
344	345	6	8.74	204.14	0.04	8.74	204.14	0.04	8.74	204.14	0.04
345	346	6	9.34	204.14	0.05	9.34	204.14	0.05	9.34	204.14	0.05
339	340	6	15.86	204.14	0.08	15.86	204.14	0.08	15.86	204.14	0.08
250	258	6	12.73	204.14	0.06	12.73	204.14	0.06	12.73	204.14	0.06
258	267	6	12.62	204.14	0.06	12.62	204.14	0.06	12.62	204.14	0.06
283	282	6	11.13	204.14	0.05	11.13	204.14	0.05	11.13	204.14	0.05
307	316	7	57.41	240.85	0.24	57.41	240.85	0.24	57.41	240.85	0.24
316	269	7	37.85	240.85	0.16	37.85	240.85	0.16	37.85	240.85	0.16
347	256	6	13.27	204.14	0.07	13.27	204.14	0.07	13.27	204.14	0.07
256	264	6	16.01	204.14	0.08	16.01	204.14	0.08	16.01	204.14	0.08
264	289	6	68.78	204.14	0.34	68.78	204.14	0.34	68.78	204.14	0.34
289	273	6	71.35	204.14	0.35	71.35	204.14	0.35	71.35	204.14	0.35
273	279	6	17.90	204.14	0.09	17.90	204.14	0.09	17.90	204.14	0.09
324	332	9	84.77	314.29	0.27	84.77	314.29	0.27	84.77	314.29	0.27
332	440	9	92.88	314.29	0.30	92.88	314.29	0.30	92.88	314.29	0.30
278	280	6	7.64	204.14	0.04	7.64	204.14	0.04	7.64	204.14	0.04
306	315	7	59.32	240.85	0.25	59.32	240.85	0.25	59.32	240.85	0.25
315	255	7	45.03	240.85	0.19	45.03	240.85	0.19	45.03	240.85	0.19
254	323	3	15.19	240.85	0.06	15.19	240.85	0.06	15.19	240.85	0.06
323	231	7	68.29	240.85	0.28	68.29	240.85	0.28	68.29	240.85	0.28
231	237	7	60.15	240.85	0.25	60.15	240.85	0.25	60.15	240.85	0.25
237	239	7	45.96	240.85	0.19	45.96	240.85	0.19	45.96	240.85	0.19
239	241	7	20.21	240.85	0.08	20.21	240.85	0.08	20.21	240.85	0.08
241	244	7	19.72	240.85	0.08	19.72	240.85	0.08	19.72	240.85	0.08
244	252	6	4.31	204.14	0.02	4.31	204.14	0.02	4.31	204.14	0.02
312	313	3	6.33	240.85	0.03	6.33	240.85	0.03	6.33	240.85	0.03

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251 253	6	10.42	204.14	0.05	10.42	204.14	0.05	10.42	204.14	0.05
253 260	6	13.51	204.14	0.07	13.51	204.14	0.07	13.51	204.14	0.07
259 268	6	8.98	204.14	0.04	8.98	204.14	0.04	8.98	204.14	0.04
268 275	6	8.46	204.14	0.04	8.46	204.14	0.04	8.46	204.14	0.04
210 221	7	14.14	240.85	0.06	14.14	240.85	0.06	14.14	240.85	0.06
221 234	7	17.26	240.85	0.07	17.26	240.85	0.07	17.26	240.85	0.07
209 319	7	12.44	240.85	0.05	12.44	240.85	0.05	12.44	240.85	0.05
203 327	7	24.34	240.85	0.10	24.34	240.85	0.10	24.34	240.85	0.10
202 207	7	68.86	240.85	0.29	68.86	240.85	0.29	68.86	240.85	0.29
225 233	7	41.07	240.85	0.17	41.07	240.85	0.17	41.07	240.85	0.17
233 238	7	36.00	240.85	0.15	36.00	240.85	0.15	36.00	240.85	0.15
238 243	7	35.95	240.85	0.15	35.95	240.85	0.15	35.95	240.85	0.15
243 247	7	36.43	240.85	0.15	36.43	240.85	0.15	36.43	240.85	0.15
201 206	7	69.33	240.85	0.29	69.33	240.85	0.29	69.33	240.85	0.29
212 204	7	8.08	240.85	0.03	8.08	240.85	0.03	8.08	240.85	0.03
220 230	7	16.17	240.85	0.07	16.17	240.85	0.07	16.17	240.85	0.07
227 228	7	7.30	240.85	0.03	7.30	240.85	0.03	7.30	240.85	0.03
280 281	6	78.76	204.14	0.39	78.76	204.14	0.39	78.76	204.14	0.39
281 282	6	92.67	204.14	0.45	92.67	204.14	0.45	92.67	204.14	0.45
275 276	6	83.61	204.14	0.41	83.61	204.14	0.41	83.61	204.14	0.41
276 277	6	75.47	204.14	0.37	75.47	204.14	0.37	75.47	204.14	0.37
277 278	6	82.71	204.14	0.41	82.71	204.14	0.41	82.71	204.14	0.41
278 279	6	103.33	204.14	0.51	103.33	204.14	0.51	103.33	204.14	0.51
273 274	6	84.64	204.14	0.41	84.64	204.14	0.41	84.64	204.14	0.41
259 260	6	32.75	204.14	0.16	32.75	204.14	0.16	32.75	204.14	0.16
260 261	9	110.49	314.29	0.35	110.49	314.29	0.35	110.49	314.29	0.35
261 262	9	132.40	314.29	0.42	132.40	314.29	0.42	132.40	314.29	0.42
262 263	9	105.27	314.29	0.33	105.27	314.29	0.33	105.27	314.29	0.33
263 264	9	165.95	314.29	0.53	165.95	314.29	0.53	165.95	314.29	0.53
264 265	6	78.70	204.14	0.39	78.70	204.14	0.39	78.70	204.14	0.39
265 266	6	48.33	204.14	0.24	48.33	204.14	0.24	48.33	204.14	0.24
266 267	6	49.59	204.14	0.24	49.59	204.14	0.24	49.59	204.14	0.24
256 257	9	138.72	314.29	0.44	138.72	314.29	0.44	138.72	314.29	0.44
257 258	9	141.18	314.29	0.45	141.18	314.29	0.45	141.18	314.29	0.45
251 252	6	111.32	204.14	0.55	111.32	204.14	0.55	111.32	204.14	0.55
244 245	7	82.46	240.85	0.34	82.46	240.85	0.34	82.46	240.85	0.34
245 446	7	86.05	240.85	0.36	86.05	240.85	0.36	86.05	240.85	0.36
446 347	6	75.75	204.14	0.37	75.75	204.14	0.37	75.75	204.14	0.37
347 248	6	66.31	204.14	0.32	66.31	204.14	0.32	66.31	204.14	0.32
248 249	6	46.04	204.14	0.23	46.04	204.14	0.23	46.04	204.14	0.23
249 250	6	62.23	204.14	0.30	62.23	204.14	0.30	62.23	204.14	0.30
239 440	7	32.99	240.85	0.14	32.99	240.85	0.14	32.99	240.85	0.14
234 235	7	70.12	240.85	0.29	70.12	240.85	0.29	70.12	240.85	0.29
235 236	7	63.91	240.85	0.27	63.91	240.85	0.27	63.91	240.85	0.27
236 237	7	68.79	240.85	0.29	68.79	240.85	0.29	68.79	240.85	0.29
221 222	7	137.42	240.85	0.57	137.42	240.85	0.57	137.42	240.85	0.57
222 323	7	96.00	240.85	0.40	96.00	240.85	0.40	96.00	240.85	0.40
323 255	7	24.50	240.85	0.10	24.50	240.85	0.10	24.50	240.85	0.10
255 324	7	85.15	240.85	0.35	85.15	240.85	0.35	85.15	240.85	0.35
324 325	10	12.22	314.29	0.04	12.22	314.29	0.04	12.22	314.29	0.04
325 269	7	54.53	240.85	0.23	54.53	240.85	0.23	54.53	240.85	0.23
313 254	3	46.77	240.85	0.19	46.77	240.85	0.19	46.77	240.85	0.19
254 314	3	60.03	240.85	0.25	60.03	240.85	0.25	60.03	240.85	0.25
210 211	7	64.40	240.85	0.27	64.40	240.85	0.27	64.40	240.85	0.27
211 312	7	66.21	240.85	0.27	66.21	240.85	0.27	66.21	240.85	0.27
306 307	6	11.97	204.14	0.06	11.97	204.14	0.06	11.97	204.14	0.06

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288 226	7	35.81	240.85	0.15	35.81	240.85	0.15	35.81	240.85	0.15
226 327	7	38.94	240.85	0.16	38.94	240.85	0.16	38.94	240.85	0.16
216 217	7	73.38	240.85	0.30	73.38	240.85	0.30	73.38	240.85	0.30
217 318	7	60.09	240.85	0.25	60.09	240.85	0.25	60.09	240.85	0.25
318 319	7	48.96	240.85	0.20	48.96	240.85	0.20	48.96	240.85	0.20
214 215	1	57.16	223.23	0.26	57.77	223.23	0.26	48.42	167.42	0.29
207 208	7	67.83	240.85	0.28	67.83	240.85	0.28	67.83	240.85	0.28
208 209	7	69.36	240.85	0.29	69.36	240.85	0.29	69.36	240.85	0.29
204 205	7	56.60	240.85	0.24	56.60	240.85	0.24	56.60	240.85	0.24
205 206	7	60.16	240.85	0.25	60.16	240.85	0.25	60.16	240.85	0.25
201 202	7	12.89	240.85	0.05	12.89	240.85	0.05	12.89	240.85	0.05
228 229	7	42.91	240.85	0.18	42.91	240.85	0.18	42.91	240.85	0.18
229 230	7	42.97	240.85	0.18	42.97	240.85	0.18	42.97	240.85	0.18
219 220	7	40.68	240.85	0.17	40.68	240.85	0.17	40.68	240.85	0.17
150 158	1	30.71	167.42	0.18	30.71	167.42	0.18	30.71	167.42	0.18
158 167	1	30.18	167.42	0.18	30.18	167.42	0.18	30.18	167.42	0.18
120 130	1	33.98	167.42	0.20	33.98	167.42	0.20	33.98	167.42	0.20
109 119	1	22.85	167.42	0.14	22.85	167.42	0.14	22.85	167.42	0.14
183 182	2	26.89	204.14	0.13	26.89	204.14	0.13	26.89	204.14	0.13
127 128	1	14.24	167.42	0.09	14.24	167.42	0.09	14.24	167.42	0.09
102 107	1	60.79	167.42	0.36	60.79	167.42	0.36	60.79	167.42	0.36
164 189	2	78.87	204.14	0.39	78.87	204.14	0.39	78.87	204.14	0.39
189 173	2	102.11	204.14	0.50	102.11	204.14	0.50	102.11	204.14	0.50
173 179	2	22.72	204.14	0.11	22.72	204.14	0.11	22.72	204.14	0.11
125 133	1	61.53	167.42	0.37	61.53	167.42	0.37	61.53	167.42	0.37
133 138	1	53.44	167.42	0.32	53.44	167.42	0.32	53.44	167.42	0.32
138 143	1	52.80	167.42	0.32	52.80	167.42	0.32	52.80	167.42	0.32
143 147	1	53.09	167.42	0.32	53.09	167.42	0.32	53.09	167.42	0.32
124 132	2	101.65	204.14	0.50	101.65	204.14	0.50	101.65	204.14	0.50
132 140	2	97.12	204.14	0.48	97.12	204.14	0.48	97.12	204.14	0.48
140 142	2	79.24	204.14	0.39	79.24	204.14	0.39	79.24	204.14	0.39
142 146	2	85.32	204.14	0.42	85.32	204.14	0.42	85.32	204.14	0.42
178 180	1	17.09	167.42	0.10	17.09	167.42	0.10	17.09	167.42	0.10
101 106	1	63.39	167.42	0.38	63.39	167.42	0.38	63.39	167.42	0.38
123 131	1	69.02	167.42	0.41	69.02	167.42	0.41	69.02	167.42	0.41
131 137	1	59.65	167.42	0.36	59.65	167.42	0.36	59.65	167.42	0.36
137 139	1	62.78	167.42	0.38	62.78	167.42	0.38	62.78	167.42	0.38
139 141	1	55.56	167.42	0.33	55.56	167.42	0.33	55.56	167.42	0.33
141 144	1	72.61	167.42	0.43	72.61	167.42	0.43	72.61	167.42	0.43
144 152	1	20.08	167.42	0.12	20.08	167.42	0.12	20.08	167.42	0.12
104 112	2	12.84	204.14	0.06	12.84	204.14	0.06	12.84	204.14	0.06
112 113	1	4.39	167.42	0.03	4.39	167.42	0.03	4.39	167.42	0.03
151 153	1	22.18	167.42	0.13	22.18	167.42	0.13	22.18	167.42	0.13
153 160	1	29.81	167.42	0.18	29.81	167.42	0.18	29.81	167.42	0.18
159 168	1	21.51	167.42	0.13	21.51	167.42	0.13	21.51	167.42	0.13
168 175	1	21.27	167.42	0.13	21.27	167.42	0.13	21.27	167.42	0.13
110 121	1	33.19	167.42	0.20	33.19	167.42	0.20	33.19	167.42	0.20
121 134	1	37.84	167.42	0.23	37.84	167.42	0.23	37.84	167.42	0.23
180 181	4	125.17	277.57	0.45	125.17	277.57	0.45	125.17	277.57	0.45
181 182	4	142.37	277.57	0.51	142.37	277.57	0.51	142.37	277.57	0.51
175 176	2	69.96	204.14	0.34	69.96	204.14	0.34	69.96	204.14	0.34
176 177	2	68.28	204.14	0.33	68.28	204.14	0.33	68.28	204.14	0.33
177 178	2	71.19	204.14	0.35	71.19	204.14	0.35	71.19	204.14	0.35
178 179	2	84.00	204.14	0.41	84.00	204.14	0.41	84.00	204.14	0.41
173 174	4	105.47	277.57	0.38	105.47	277.57	0.38	105.47	277.57	0.38
168 169	1	84.02	167.42	0.50	84.02	167.42	0.50	84.02	167.42	0.50

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169 170	1	83.64	167.42	0.50	83.64	167.42	0.50	83.64	167.42	0.50
170 171	1	80.03	167.42	0.48	80.03	167.42	0.48	80.03	167.42	0.48
171 172	1	47.99	167.42	0.29	47.99	167.42	0.29	47.99	167.42	0.29
172 189	1	61.11	167.42	0.37	61.11	167.42	0.37	61.11	167.42	0.37
159 160	2	31.66	204.14	0.16	31.66	204.14	0.16	31.66	204.14	0.16
160 161	2	72.43	204.14	0.35	72.43	204.14	0.35	72.43	204.14	0.35
161 162	2	102.85	204.14	0.50	102.85	204.14	0.50	102.85	204.14	0.50
162 163	2	80.47	204.14	0.39	80.47	204.14	0.39	80.47	204.14	0.39
163 164	2	97.21	204.14	0.48	97.21	204.14	0.48	97.21	204.14	0.48
164 165	2	88.51	204.14	0.43	88.51	204.14	0.43	88.51	204.14	0.43
165 166	2	66.50	204.14	0.33	66.50	204.14	0.33	66.50	204.14	0.33
166 167	2	73.47	204.14	0.36	73.47	204.14	0.36	73.47	204.14	0.36
153 154	4	128.95	277.57	0.46	128.95	277.57	0.46	128.95	277.57	0.46
154 155	4	148.17	277.57	0.53	148.17	277.57	0.53	148.17	277.57	0.53
155 156	4	110.67	277.57	0.40	110.67	277.57	0.40	110.67	277.57	0.40
156 157	4	129.47	277.57	0.47	129.47	277.57	0.47	129.47	277.57	0.47
157 158	4	105.19	277.57	0.38	105.19	277.57	0.38	105.19	277.57	0.38
151 152	1	79.21	167.42	0.47	79.21	167.42	0.47	79.21	167.42	0.47
144 145	1	45.77	167.42	0.27	45.77	167.42	0.27	45.77	167.42	0.27
145 146	1	47.95	167.42	0.29	47.95	167.42	0.29	47.95	167.42	0.29
146 147	1	52.38	167.42	0.31	52.38	167.42	0.31	52.38	167.42	0.31
147 148	1	73.91	167.42	0.44	73.91	167.42	0.44	73.91	167.42	0.44
148 149	1	66.24	167.42	0.40	66.24	167.42	0.40	66.24	167.42	0.40
149 150	1	71.14	167.42	0.42	71.14	167.42	0.42	71.14	167.42	0.42
134 135	2	97.05	204.14	0.48	97.05	204.14	0.48	97.05	204.14	0.48
135 136	2	87.79	204.14	0.43	87.79	204.14	0.43	87.79	204.14	0.43
136 137	2	96.56	204.14	0.47	96.56	204.14	0.47	96.56	204.14	0.47
128 129	1	63.48	167.42	0.38	63.48	167.42	0.38	63.48	167.42	0.38
129 130	1	63.96	167.42	0.38	63.96	167.42	0.38	63.96	167.42	0.38
120 119	2	47.43	204.14	0.23	47.43	204.14	0.23	47.43	204.14	0.23
119 118	2	77.60	204.14	0.38	77.60	204.14	0.38	77.60	204.14	0.38
118 117	2	65.67	204.14	0.32	65.67	204.14	0.32	65.67	204.14	0.32
117 116	2	84.39	204.14	0.41	84.39	204.14	0.41	84.39	204.14	0.41
116 115	2	97.72	204.14	0.48	97.72	204.14	0.48	97.72	204.14	0.48
115 114	2	92.26	204.14	0.45	92.26	204.14	0.45	92.26	204.14	0.45
114 113	2	85.94	204.14	0.42	85.94	204.14	0.42	85.94	204.14	0.42
121 122	4	162.10	277.57	0.58	162.10	277.57	0.58	162.10	277.57	0.58
122 123	4	139.96	277.57	0.50	139.96	277.57	0.50	139.96	277.57	0.50
123 124	4	88.11	277.57	0.32	88.11	277.57	0.32	88.11	277.57	0.32
124 125	1	35.11	167.42	0.21	35.11	167.42	0.21	35.11	167.42	0.21
125 126	1	37.42	167.42	0.22	37.42	167.42	0.22	37.42	167.42	0.22
126 127	1	56.04	167.42	0.33	56.04	167.42	0.33	56.04	167.42	0.33
110 111	2	92.78	204.14	0.45	92.78	204.14	0.45	92.78	204.14	0.45
111 112	2	99.35	204.14	0.49	99.35	204.14	0.49	99.35	204.14	0.49
104 105	2	78.08	204.14	0.38	78.08	204.14	0.38	78.08	204.14	0.38
105 106	2	79.42	204.14	0.39	79.42	204.14	0.39	79.42	204.14	0.39
106 107	2	60.43	204.14	0.30	60.43	204.14	0.30	60.43	204.14	0.30
107 108	2	93.46	204.14	0.46	93.46	204.14	0.46	93.46	204.14	0.46
108 109	2	100.49	204.14	0.49	100.49	204.14	0.49	100.49	204.14	0.49
101 102	2	28.69	204.14	0.14	28.69	204.14	0.14	28.69	204.14	0.14
102 103	2	11.10	204.14	0.05	11.10	204.14	0.05	11.10	204.14	0.05
240 242	7	31.63	240.85	0.13	31.63	240.85	0.13	31.63	240.85	0.13
242 246	7	28.78	240.85	0.12	28.78	240.85	0.12	28.78	240.85	0.12

Controllo generale

- Processati 201 travi
- Elemento con $\rho_{\max} = S/R$ 121 - 122 = 0.58

Pilastri - Verifiche a Taglio

Combinazioni di carico analizzate: SLU

Coefficienti γ_{Rd} degli elementi impiegati

γ_{Rd} Nuovo					γ_{Rd} Esistente				
Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchiere)	Pilastri	Travi	Travi di fondazione	Setti	Plinti (Bicchiere)
1.10	1.10	1.10	1.20	1.20	0.00	0.00	0.00	0.00	0.00

γ Materiali sezioni Pilastro

Sezione	Duttile Fless.	γ Acciaio	F.C. Acciaio	γ Calcestruzzo	F.C. Calcestruzzo	α_{cc} Calcestruzzo	γ Rare Calcestruzzo	γ Frequenti Calcestruzzo	γ Q. Permanenti Calcestruzzo	γ Rare Acciaio
1 Rett. 30x30 [cm] 30x30 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
2 Rett. 30x40 [cm] 30x40 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
3 Rett. 30x50 [cm] 30x50 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
4 Rett. 30x60 [cm] 30x60 PC		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
5 Rett. 30x30 [cm] 30x30 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
6 Rett. 30x40 [cm] 30x40 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
7 Rett. 30x50 [cm] 30x50 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80
8 Rett. 30x60 [cm] 30x60 PT		1.15	1.20	1.50	1.20	0.85	0.60	1.00	0.45	0.80

Verifiche

Pilastro		Piano 1/2			Piano 1/3		
Dal nodo Al nodo	Sezione	V_{SD} [kN]	V_{RD} [kN]	V_{SD}/V_{RD}	V_{SD} [kN]	V_{RD} [kN]	V_{SD}/V_{RD}
1 101	1	8.60	52.87	0.16	1.64	52.87	0.03
2 102	1	7.18	52.87	0.14	1.55	52.87	0.03
3 103	1	4.88	52.87	0.09	1.63	52.87	0.03
4 104	1	0.08	52.87	0.00	1.79	52.87	0.03
5 105	1	1.25	52.87	0.02	0.43	52.87	0.01
6 106	1	7.48	52.87	0.14	0.34	52.87	0.01
7 107	2	1.67	73.52	0.02	9.10	52.87	0.17
8 108	1	0.86	52.87	0.02	0.50	52.87	0.01
9 109	1	1.21	52.87	0.02	3.86	52.87	0.07
10 110	1	1.62	52.87	0.03	2.55	52.87	0.05
11 111	1	0.25	52.87	0.00	0.62	52.87	0.01
12 112	1	0.04	52.87	0.00	2.71	52.87	0.05
13 113	1	0.18	52.87	0.00	1.32	52.87	0.02
14 114	1	0.06	52.87	0.00	1.75	52.87	0.03
15 115	2	1.85	73.52	0.03	0.06	52.87	0.00
16 116	2	0.49	73.52	0.01	0.07	52.87	0.00
17 117	1	0.05	52.87	0.00	0.53	52.87	0.01
18 118	1	0.08	52.87	0.00	1.53	52.87	0.03
19 119	1	0.28	52.87	0.01	2.01	52.87	0.04
20 120	1	2.25	52.87	0.04	0.98	52.87	0.02
21 121	1	0.57	47.00	0.01	4.91	47.00	0.10
22 122	3	0.47	94.18	0.01	0.24	52.87	0.00
23 123	2	2.94	73.52	0.04	1.49	52.87	0.03

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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24 124	2	2.39	73.52	0.03	4.39	52.87	0.08
25 125	1	2.12	52.87	0.04	0.11	52.87	0.00
26 126	1	0.50	52.87	0.01	0.79	52.87	0.01
27 127	1	0.46	52.87	0.01	1.88	52.87	0.04
28 128	1	0.42	52.87	0.01	1.47	52.87	0.03
29 129	1	0.53	52.87	0.01	0.07	52.87	0.00
30 130	1	2.44	52.87	0.05	1.57	52.87	0.03
31 131	1	0.56	52.87	0.01	0.46	52.87	0.01
32 132	3	0.08	94.18	0.00	0.12	52.87	0.00
33 133	1	0.54	52.87	0.01	0.04	52.87	0.00
34 134	1	2.97	52.87	0.06	2.72	52.87	0.05
35 135	1	0.58	52.87	0.01	0.29	52.87	0.01
36 136	1	0.09	52.87	0.00	0.37	52.87	0.01
37 137	1	0.20	52.87	0.00	2.00	52.87	0.04
38 138	1	0.14	52.87	0.00	0.09	52.87	0.00
39 139	1	0.53	52.87	0.01	0.60	52.87	0.01
40 140	2	3.39	73.52	0.05	0.03	52.87	0.00
41 141	1	0.47	52.87	0.01	0.13	52.87	0.00
42 142	2	0.80	73.52	0.01	0.04	52.87	0.00
43 143	1	0.06	52.87	0.00	0.23	52.87	0.00
44 144	4	1.85	114.83	0.02	2.52	52.87	0.05
45 145	4	1.44	114.83	0.01	0.54	52.87	0.01
46 146	4	0.83	114.83	0.01	2.70	52.87	0.05
47 147	4	7.02	114.83	0.06	1.91	52.87	0.04
48 148	1	0.14	52.87	0.00	1.69	52.87	0.03
49 149	1	0.20	52.87	0.00	1.50	52.87	0.03
50 150	1	1.91	52.87	0.04	4.35	52.87	0.08
51 151	4	7.79	114.83	0.07	0.44	52.87	0.01
52 152	4	13.53	114.83	0.12	0.27	52.87	0.01
53 153	1	0.61	52.87	0.01	1.32	52.87	0.02
54 154	1	0.22	52.87	0.00	0.83	52.87	0.02
55 155	1	0.06	52.87	0.00	0.47	52.87	0.01
56 156	2	1.36	73.52	0.02	0.04	52.87	0.00
57 157	4	4.84	114.83	0.04	0.03	52.87	0.00
58 158	1	0.02	52.87	0.00	5.69	52.87	0.11
59 159	1	0.48	52.87	0.01	0.93	52.87	0.02
60 160	1	1.16	52.87	0.02	0.37	52.87	0.01
61 161	3	2.46	94.18	0.03	0.48	52.87	0.01
62 162	3	1.45	94.18	0.02	0.11	52.87	0.00
63 163	3	3.35	94.18	0.04	0.35	52.87	0.01
64 164	3	9.38	94.18	0.10	1.39	52.87	0.03
65 165	2	3.46	73.52	0.05	4.70	52.87	0.09
66 166	1	0.34	52.87	0.01	0.10	52.87	0.00
67 167	1	1.59	52.87	0.03	2.00	52.87	0.04
68 168	1	4.79	52.87	0.09	0.11	52.87	0.00
69 169	1	0.07	52.87	0.00	2.29	52.87	0.04
70 170	1	0.13	52.87	0.00	1.78	52.87	0.03
71 171	1	0.52	52.87	0.01	3.20	52.87	0.06
72 172	1	1.28	52.87	0.02	1.90	52.87	0.04
73 173	2	5.38	73.52	0.07	4.54	52.87	0.09
74 174	2	4.01	73.52	0.05	4.74	52.87	0.09
75 175	4	4.87	114.83	0.04	1.46	52.87	0.03
76 176	4	0.58	114.83	0.01	0.19	52.87	0.00
77 177	4	0.27	114.83	0.00	0.06	52.87	0.00
78 178	4	0.30	114.83	0.00	0.70	52.87	0.01
79 179	1	0.08	52.87	0.00	1.82	52.87	0.03

Procedura aperta per l'affidamento di servizi professionali finalizzati alle verifiche di vulnerabilità sismica di n. 333 edifici scolastici di proprietà comunale ubicati nel territorio delle 10 municipalità

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80 180	1	0.75	52.87	0.01	2.03	52.87	0.04
81 181	2	0.83	73.52	0.01	0.37	52.87	0.01
82 182	1	0.72	52.87	0.01	3.44	52.87	0.07
83 183	1	1.22	52.87	0.02	1.63	52.87	0.03
101 201	5	7.75	52.87	0.15	1.20	52.87	0.02
102 202	5	10.04	47.00	0.21	1.94	47.00	0.04
104 204	5	0.51	52.87	0.01	3.50	52.87	0.07
105 205	5	1.61	52.87	0.03	1.03	52.87	0.02
106 206	5	7.28	52.87	0.14	0.98	52.87	0.02
107 307	6	2.66	73.52	0.04	7.37	52.87	0.14
108 208	5	1.09	52.87	0.02	0.21	52.87	0.00
109 209	5	2.39	52.87	0.05	7.25	52.87	0.14
110 210	5	2.51	52.87	0.05	4.03	52.87	0.08
111 211	5	0.52	52.87	0.01	0.63	52.87	0.01
112 212	5	0.23	52.87	0.00	2.54	52.87	0.05
113 213	5	0.17	52.87	0.00	0.95	52.87	0.02
114 214	5	0.04	52.87	0.00	6.12	52.87	0.12
115 215	6	9.08	73.52	0.12	0.12	52.87	0.00
116 316	6	1.10	73.52	0.01	0.19	52.87	0.00
117 217	5	0.07	52.87	0.00	1.14	52.87	0.02
118 218	5	0.09	52.87	0.00	1.70	52.87	0.03
119 219	5	0.13	52.87	0.00	4.51	52.87	0.09
120 220	5	4.25	52.87	0.08	3.94	52.87	0.07
121 221	5	0.73	52.87	0.01	9.47	52.87	0.18
122 222	7	2.51	83.71	0.03	0.41	47.00	0.01
123 223	6	3.39	73.52	0.05	1.60	52.87	0.03
124 224	5	3.45	52.87	0.07	1.19	52.87	0.02
125 225	5	3.05	52.87	0.06	0.28	52.87	0.01
126 226	5	0.28	52.87	0.01	0.58	52.87	0.01
127 227	5	0.79	52.87	0.01	2.53	52.87	0.05
128 228	5	0.60	52.87	0.01	3.15	52.87	0.06
129 229	5	0.78	52.87	0.01	0.18	52.87	0.00
130 230	5	3.88	52.87	0.07	3.89	52.87	0.07
131 231	5	0.78	52.87	0.01	1.33	52.87	0.03
132 232	7	0.36	94.18	0.00	0.48	52.87	0.01
133 233	5	0.77	52.87	0.01	0.09	52.87	0.00
134 234	5	3.96	52.87	0.07	4.11	52.87	0.08
135 235	5	0.83	52.87	0.02	0.45	52.87	0.01
136 236	5	0.09	52.87	0.00	0.27	52.87	0.01
137 237	5	0.37	52.87	0.01	2.82	52.87	0.05
138 238	5	0.26	52.87	0.01	0.06	52.87	0.00
139 239	5	0.81	52.87	0.02	0.70	52.87	0.01
140 240	6	1.91	73.52	0.03	0.08	52.87	0.00
141 241	5	0.19	52.87	0.00	0.17	52.87	0.00
142 242	5	0.13	52.87	0.00	0.26	52.87	0.00
143 243	5	0.09	52.87	0.00	0.02	52.87	0.00
144 244	8	2.42	102.07	0.02	3.28	47.00	0.07
145 245	8	0.77	102.07	0.01	0.84	47.00	0.02
146 246	8	3.19	114.83	0.03	3.85	52.87	0.07
147 247	8	5.20	114.83	0.05	2.46	52.87	0.05
148 248	5	0.13	52.87	0.00	2.32	52.87	0.04
149 249	5	0.54	52.87	0.01	1.71	52.87	0.03
150 250	5	2.94	52.87	0.06	6.49	52.87	0.12
151 251	8	31.31	102.07	0.31	0.40	47.00	0.01
152 252	8	16.46	102.07	0.16	0.38	47.00	0.01
153 253	5	0.87	52.87	0.02	2.16	52.87	0.04

156 256	6	8.64	73.52	0.12	0.20	52.87	0.00
157 257	7	1.08	83.71	0.01	0.08	47.00	0.00
158 258	5	0.04	52.87	0.00	8.78	52.87	0.17
159 259	5	0.68	52.87	0.01	1.83	52.87	0.03
160 260	5	1.07	52.87	0.02	0.79	52.87	0.01
161 261	6	2.19	73.52	0.03	0.22	52.87	0.00
162 262	6	1.10	73.52	0.01	0.21	52.87	0.00
163 263	6	2.87	73.52	0.04	1.00	52.87	0.02
164 264	5	3.45	52.87	0.07	0.48	52.87	0.01
165 265	6	7.45	73.52	0.10	7.78	52.87	0.15
166 266	5	0.75	52.87	0.01	0.14	52.87	0.00
167 267	5	2.39	52.87	0.05	3.59	52.87	0.07
168 268	5	4.13	52.87	0.08	0.15	52.87	0.00
173 273	5	4.15	52.87	0.08	7.68	52.87	0.15
174 274	6	6.57	73.52	0.09	11.32	52.87	0.21
175 275	8	14.11	102.07	0.14	1.82	47.00	0.04
176 276	8	3.13	102.07	0.03	0.19	47.00	0.00
177 277	8	1.00	102.07	0.01	0.01	47.00	0.00
178 278	8	1.25	102.07	0.01	0.43	47.00	0.01
179 279	5	0.53	52.87	0.01	4.06	52.87	0.08
180 280	5	1.10	52.87	0.02	4.15	52.87	0.08
181 281	1	1.02	52.87	0.02	0.26	52.87	0.00
182 282	1	0.60	52.87	0.01	7.93	52.87	0.15
183 283	5	1.83	52.87	0.03	3.90	52.87	0.07
206 306	5	27.81	52.87	0.53	12.54	52.87	0.24
239 339	5	1.66	47.00	0.04	2.99	47.00	0.06
241 341	5	3.26	52.87	0.06	2.03	52.87	0.04
244 344	8	4.46	102.07	0.04	6.39	47.00	0.14
245 345	8	0.99	102.07	0.01	0.37	47.00	0.01
440 340	6	2.07	73.52	0.03	4.95	52.87	0.09
442 342	5	2.01	52.87	0.04	1.77	52.87	0.03
446 346	8	3.75	102.07	0.04	2.24	47.00	0.05

Controllo generale

- Processati 167 pilastri
- Elemento con $\rho_{\max} = S/R$ 206 - 306 = 0.53