

REGIONE PIEMONTE  
COMUNE DI ASTI

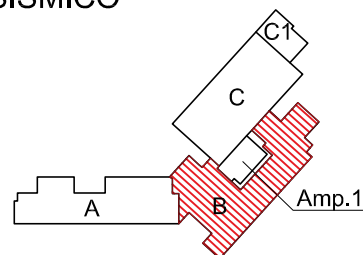
Piano triennale di edilizia scolastica in attuazione dell'art. 10 del D. Lgs.  
104/2013 e del Decreto interministeriale MEF-MIUR-MIT n.47 in data  
03-01-2018  
BANDO TRIENNALE 2018-19-20  
EDILIZIA SCOLASTICA

PROGETTO ESECUTIVO

Progettazione esecutiva strutturale e definitiva architettonica ed impiantistica  
volta ai lavori di adeguamento sismico, riqualificazione energetica, abbattimento  
delle barriere architettoniche e messa in sicurezza edificio della

SCUOLA PRIMARIA - RIO CROSIO  
sito in corso XXV Aprile n° 151, comune di Asti;  
Accordo quadro CIG 7817278DDE  
CIG derivato 8155168188

RELAZIONE DI CALCOLO - **LOTTO B**  
UNITA' STRUTTURALE ESISTENTE - ADEGUAMENTO SISMICO



DATA:	FEBBRAIO 2020	ESECUTIVO STRUTTURALE - DEFINITIVO ARCHITETTONICO
REVISIONE:		
REVISIONE:		

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- "Studio Cometto s.r.l." - Aosta (AO);
- "Studio Energie S.A." - Saint-Christophe (AO);
- "Studio Piessegi Ingegneri ed Architetti Associati" -  
Vinovo (TO);
- "Studio Progetto Ambiente S.r.l." - Torino (TO);
- "Studio Tecnico Associato di Geologia Sutera-Gravina" -  
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RS - B

TIMBRO E FIRMA

## **PRESCRIZIONI GENERALI**

I calcoli sono stati eseguiti in conformità alle vigenti Norme Tecniche emanate dal Ministero dei Lavori Pubblici secondo quanto disposto dalle seguenti normative, tenendo presenti le caratteristiche, le qualità e le dosature dei materiali da impiegarsi nelle opere di rinforzo e in quelle esistenti.

Le presenti specifiche hanno lo scopo di definire i requisiti fondamentali per la realizzazione della riqualificazione e risanamento conservativo del Lotto B appartenente al complesso scolastico in esame, situato in c.so XXV Aprile n. 151 nel Comune di Asti.

Nel dettaglio si andranno a realizzare opportuni rinforzi strutturali sugli elementi costruttivi esistenti atti a garantire un corretto adeguamento sismico richiesto.

## **NORMATIVA DI RIFERIMENTO**

- D.M. 17/01/2018: Nuove Norme tecniche per le costruzioni;
- Circolare n. 7 del /01/2019: Aggiornamento delle Nuove Norme Tecniche per le Costruzioni di cui al Decreto Ministeriale 17 gennaio 2018;
- D.G.R. n. 6-887 del 30/12/2019: Approvazione dell'aggiornamento della classificazione sismica del territorio della Regione Piemonte, di cui alla D.G.R. del 21 maggio 2014, n. 65-7656;
- EUROCODICE 1 - Basi di calcolo ed azioni sulle strutture
- EUROCODICE 2 - Progettazione delle strutture in Calcestruzzo
- EUROCODICE 3 - Progettazione delle strutture in Acciaio
- EUROCODICE 8 - Progettazione delle strutture per la resistenza sismica

## **DESCRIZIONE DELLE STRUTTURE ESISTENTI**

Come già descritto nella relazione tecnica, l'unità strutturale denominata Lotto B è stata realizzata, come per il resto del complesso scolastico, a partire dalla fine del 1972.

L'edificio si presenta con una pianta a forma irregolare, con dimensioni massime pari a circa 51,55x21,70 m e un'altezza massima complessiva dal piano campagna di circa 11,20 m.

In riferimento alla documentazione fornita dalla Committenza è stato possibile desumere che la struttura è costituita da telai di pilastri e travi in spessore in c.a. gettati in opera di dimensioni variabili, collegati tra loro mediante solette in laterocemento non infinitamente rigide dello spessore pari a 24 cm (20+4) e 50 cm per il solo solaio dell'atrio. Le fondazioni sono superficiali, realizzate da travi rovesce lungo i tratti perimetrali dello spessore di circa 60 cm dalle quali nascono delle pareti contro terra in c.a. dello spessore pari a 35 cm, e plinti isolati nella parte centrale con spessore di circa 100 cm.

Il tutto si sviluppa su due piani fuori terra più un sottotetto non accessibile. È presente un piano interrato con altezza minima pari a 3,00 m, attualmente in disuso.

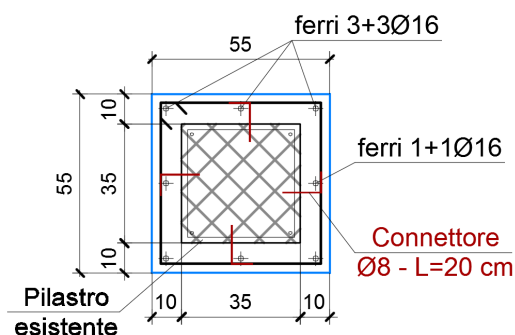
Su tutto il perimetro del fabbricato è presente un piccolo cornicione in soletta piana dello spessore pari allo spessore del solaio del sottotetto (24 cm) e un parapetto in c.a. di spessore pari a circa 10 cm. La copertura a falde si presenta con una struttura leggera in acciaio e presenta un manto di copertura in lamiera coibentata.

## **DESCRIZIONE DELLE OPERE IN PROGETTO - RINFORZO STRUTTURALE**

La struttura a telaio in cemento armato gettato in opera allo stato attuale non è in grado di resistere alle sollecitazioni sismiche di progetto. Tutti gli elementi strutturali risultano essere verificati solo per le condizioni statiche ma sotto l'azione sismica soffrono per presso-flessione.

Le caratteristiche strutturali dei pilastri allo stato attuale non li rendono adatti per essere utilizzati come elementi sismo-resistenti, quindi si è deciso di rinforzare, mediante incamiciature in c.a. per aumentare la sezione resistente, alcuni pilastri del fabbricato ritenuti più significativi in modo da poter affidare loro l'intera capacità portante alle azioni orizzontali.

I restanti pilastri, invece, continueranno a operare, ma solo come elementi portanti secondari, nei confronti delle sole azioni gravitazionali.



- Schema Tipo d'incamiciatura in c.a. dei Pilastri -

Si è deciso di intervenire solo sui pilastri facilmente accessibili e che non recassero interferenze e impedimenti con la futura fruibilità degli ambienti scolastici.

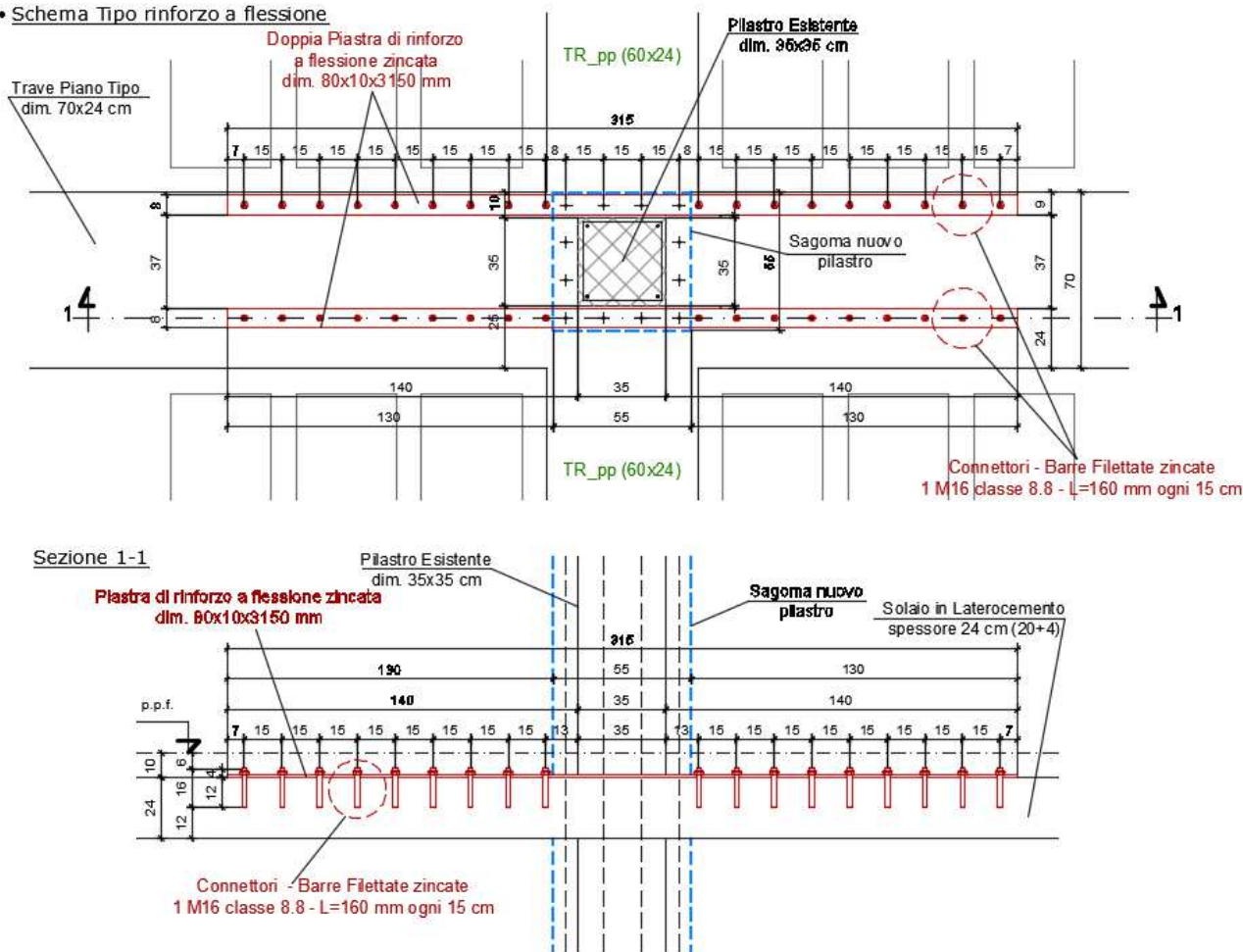
Il loro ingrosso, in generale, non produce rilevanti variazioni superficiali nelle aule e nei corridoi di collegamento, per cui il rispetto dei requisiti necessari ad accogliere il numero previsto di alunni non sarà modificato.

Inoltre, per creare dei telai rigidi nelle due direzioni si è deciso di realizzare delle nuove nervature di collegamento andando ad agire sulle pignatte di alleggerimento dei solai esistenti. Sfruttando la loro facile demolizione si sono realizzate delle nuove travi di collegamento opportunamente dimensionare per ripartire in modo adeguato i carichi sismici presenti.

Infine, l'insufficiente capacità portante di alcuni elementi strutturali orizzontali (travi), scaturita nello schema di progetto a causa dei carichi applicati e delle prescrizioni presenti nella normativa

vigente, ha richiesto l'inserimento di rinforzi a flessione tramite applicazione di piastre metalliche rese solidali per mezzo di idonei connettori metallici.

• Schema Tipo rinforzo a flessione



- Schema tipo Rinforzo a Flessione travi -

Infine, per assegnare alla struttura esistente le prestazioni strutturali richieste, ovvero garantire un corretto adeguamento sismico in funzione della classe d'uso e della tipologia dell'opera stessa, si sono realizzati dei giunti sismici in corrispondenza del Lotto A e del Lotto C, come spiegato nelle rispettive relazioni di calcolo.

Durante le fasi di lavorazione in progetto, oltre a puntellare accuratamente le zone di lavoro per evitare eventuali cedimenti inattesi, occorrerà sempre ispezionare tutti gli elementi strutturali esistenti in c.a. ed eventualmente ripristinare le porzioni deteriorate.

Si rimanda comunque agli elaborati grafici delle rispettive unità strutturali esistenti per una chiara rappresentazione di quanto appena esposto.

## **CARATTERISTICHE DEI MATERIALI ESISTENTI**

Come descritto nella Relazione Tecnica, le caratteristiche dei materiali esistenti sono ricavate considerando i valori MINIMI ottenuti tra le informazioni ricavate dall'analisi documentale e i risultati medi delle prove di laboratorio eseguite, secondo quanto prescritto nelle NTC del 2018 e relative circolari applicative. Nel dettaglio si avrà:

- **STRUTTURA IN C.A. ESISTENTE:**

- CALCESTRUZZO:  $R_{ck} = 19.83 \text{ N/mm}^2 \rightarrow f_{ck} = 0.83 \cdot R_{ck} = 16.46 \text{ N/mm}^2$
- ACCIAIO PER ARMATURA GETTI CLS:  $f_{yk} = 381.75 \text{ N/mm}^2$ ;  $f_{ty} = 489.75 \text{ N/mm}^2$

## **CARATTERIZZAZIONE MECCANICA DEI NUOVI MATERIALI**

Nell'esecuzione delle opere per l'adeguamento sismico dell'unità strutturale in esame è previsto l'impiego dei seguenti materiali:

- **CALCESTRUZZO:**

Classi di resistenza: **C25/30** [ $R_{ck} = 30 \text{ N/mm}^2$ ;  $f_{ck} = 24,9 \text{ N/mm}^2$ ]

Classi di esposizione  $\rightarrow$  **XC2** per gli elementi di fondazione

**XC1** per il resto della struttura

Max rapporto A/C  $\rightarrow 0.45$

Classe di consistenza  $\rightarrow$  S5/SCC

Max dim. dell' aggregato  $\rightarrow < 10 \text{ mm}$

- **ACCIAIO PER ARMATURA GETTI CLS:**

**Acciaio ad aderenza migliorata di Classe B 450C**

Tensione caratteristica di snervamento  $\rightarrow f_{yk} = 450 \text{ N/mm}^2$

Tensione caratteristica di rottura  $\rightarrow f_{tk} = 540 \text{ N/mm}^2$

- **ACCIAIO PER CARPENTERIA METALLICA:**

**Acciaio di Classe S275 (Fe 430)**

Tensione caratteristica di snervamento  $\rightarrow f_{yk} = 275 \text{ N/mm}^2$

Tensione caratteristica di rottura  $\rightarrow f_{tk} = 430 \text{ N/mm}^2$

**Barre Filettate di Classe 8.8 (Dadi classe 8)**

Tensione caratteristica di snervamento  $\rightarrow f_{yb} = 640 \text{ N/mm}^2$

Tensione caratteristica di rottura  $\rightarrow f_{tb} = 800 \text{ N/mm}^2$

## **ANALISI STRUTTURALE – CRITERI E METODI ADOTTATI NEI CALCOLI**

L'intervento in oggetto rientra nella classificazione di **INTERVENTO DI ADEGUAMENTO** in quanto, come riportato nel Cap. 8.4.3 delle NTC del 2018 e nella relativa circolare esplicativa, andremo a realizzare interventi atti ad aumentare la sicurezza strutturale preesistente, conseguendo i livelli di sicurezza fissati nelle normative vigenti per le nuove strutture.

La valutazione della sicurezza e le relative verifiche saranno rivolte all'intera struttura post-intervento, senza il soddisfacimento delle prescrizioni sui dettagli costruttivi previste per le nuove costruzioni. Nelle verifiche rispetto alle azioni sismiche il livello di sicurezza della costruzione è quantificato attraverso il rapporto  $\zeta_E$  tra l'azione sismica massima supportabile dalla struttura e l'azione sismica massima che si utilizzerebbe nel progetto di una nuova costruzione. Generalmente, per gli interventi di adeguamento sismico è richiesto il raggiungimento del valore unitario di tale parametro, ma nel nostro caso, non apportando rilevanti modifiche al sistema strutturale esistente e non modificando gli elementi portanti verticali presenti, tale rapporto  $\zeta_E$  potrà essere assunto pari a:

$$\zeta_E \geq 0.8$$

In conformità alle vigenti disposizioni normative, le strutture sono state calcolate e verificate seguendo i seguenti parametri:

- Tipologia Strutturale: (par. 2.4 delle NTC)
  - Tipo di Costruzione → **2** - *Costruzioni con Livelli di prestazioni Ordinarie*
  - Vita Nominale →  **$V_n \geq 50$  anni**
  - Classe d'Uso → **III** (Affollamenti significativi) →  $C_u = 1.5$
  - Periodo di Riferimento →  $V_R = V_n \cdot C_u \rightarrow$   **$V_R \geq 75$  anni**
- Sito: Comune di Asti (AT)
- Coordinate del sito: Long. 8.1907 ; Lat. 44.907622
- Classificazione Sismica: Zona Sismica 4
- Comportamento strutturale: Comportamento **"NON Dissipativo"**  
[non è richiesta la progettazione in capacità - NO verifiche di duttilità]
- Altezza massima: (par. 7.2.1 delle NTC)  $H_{max} \leq 11.20$  m
- Tipo di analisi strutturale: Analisi Lineare – Dinamica Modale (par. 7.3.3 delle NTC)
- Categoria di Sottosuolo: **C**
- Coefficiente di amplificazione stratigrafica:  **$S_s = 1.50$**
- Categoria Topografica: **T1**
- Coefficiente di amplificazione topografica:  **$S_t = 1.00$**
- Azione Sismica: (par. 3.2 delle NTC)
  - Probabilità di superamento nel periodo di riferimento  $V_R$ :  **$PV_R$  10% (SLV)**
  - Periodo di Ritorno: **711 anni**

- Fattore di Comportamento:

- Fattore di struttura verticale dell'edificio: il valore per la componente verticale dell'azione sismica allo SLV, in mancanza di un'adeguata analisi, secondo quanto prescritto nel par. 7.3.1. delle NTC è pari a:

$$q_{\text{verticale}} = 1.5$$

- Fattore di struttura orizzontale dell'edificio: il valore del fattore di comportamento  $q$  orizzontale per strutture non dissipative è pari a:

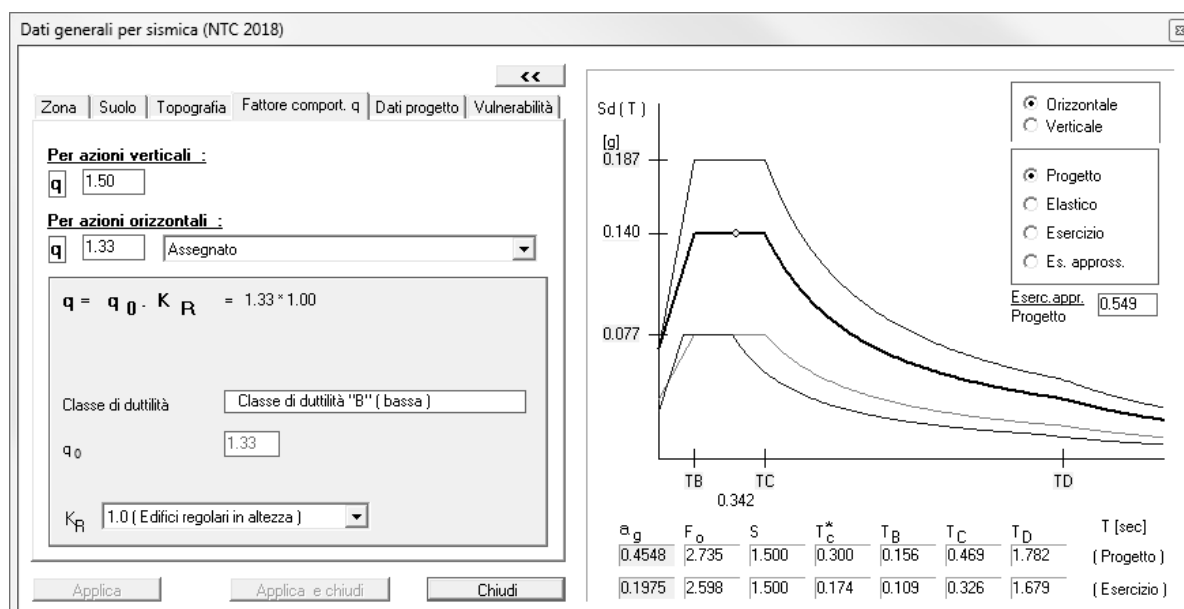
$$1 \leq q_{ND} = \frac{2}{3} q_{CD"B"} \leq 1.5$$

Dove il valore di  $q_{CD"B"}$  è ricavato dalla tab. 7.3.II delle NTC, per strutture in c.a. "deformabili torsionalmente" è pari a  $2 \alpha_U / \alpha_1$ . Per cui nel nostro caso avremo:

$$q_{ND} = 1.33$$

- Spettri di risposta per verifiche sismiche: calcolato allo SLV e SLO (art. 3.2 NTC)

Stato Limite		$a_g$	$F_0$	$T_c^*$	$T_B$	$T_C$	$T_D$
Stato Limite Ultimo	SLV	0.4548	2.735	0.300	0.156	0.469	1.782
Stato Limite Esercizio	SLO	0.1975	2.598	0.174	0.109	0.326	1.679



L'edificio oggetto di verifica, ai sensi delle prescrizioni indicate nella premessa del Cap.7 delle NTC 2018, verrà progettato e verificato applicando le regole valide per le costruzioni soggette ad azione sismica secondo il metodo degli Stati Limite; sarà quindi condotta un'analisi dinamica modale per determinare i modi di vibrare della struttura e gli effetti dell'azione sismica per ciascuno dei modi di vibrare individuati secondo quanto prescritto nel par. 7.3.3 delle NTC del 2018.

Le azioni caratteristiche sono state definite in accordo con quanto indicato nel Capitolo 3 delle presenti norme vigenti ed essendo una struttura esistente, sia per le strutture in c.a. esistenti che per i rinforzi in progetto, non si dovrà rispettare l'osservanza delle percentuali minime e massime di armatura e il rispetto dei dettagli costruttivi nelle zone critiche e nella connessione tra questi e le restanti parti della struttura, nonché dei diversi elementi strutturali tra loro, come previsto dal Cap. 7.4 e 7.5 delle NTC.

Infine, le deformazioni, verticali e laterali, della struttura in esame saranno contenute entro i limiti accettabili per evitare spiacevoli inconvenienti in relazione ai danni che possono essere indotti ai materiali di finitura, ai requisiti estetici ed alla funzionalità dell'opera.

## **AZIONI DI PROGETTO**

In accordo con le sopracitate normative, sono state considerate nei calcoli le seguenti azioni verticali e orizzontali:

- **G<sub>k1</sub>**: pesi propri strutturali dovuti alle caratteristiche dei singoli elementi e dalle loro dimensioni
- **G<sub>k2</sub>**: carichi permanenti non strutturali portati dalla struttura, non rimovibili durante il normale esercizio della costruzione. Essi sono stati valutati sulla base delle dimensioni effettive delle opere e dei pesi dell'unità di volume dei materiali costituenti.
- **q<sub>k</sub>**: carichi variabili d'esercizio riferiti a condizioni di uso corrente e legati alla destinazione d'uso dell'opera. Tali valori sono forniti dalle NTC del 2018 nella tab. 3.1.II.
- **q<sub>sk</sub>**: carico della neve sulle coperture ricavato in funzione delle condizioni locali di clima e di esposizione, considerando la variabilità delle precipitazioni nevose da zona a zona, come previsto nel Cap. 3.4 delle NTC
- **Sisma**: le azioni sismiche agenti sulla struttura considerati nella presente analisi sono ricavate, essendo la struttura non regolare in altezza, tramite un'analisi Lineare Dinamica in funzione della pericolosità sismica di base del sito di costruzione [Punto 7.3.3.1 delle NTC 2018]. Tale analisi consiste nel:
  - Individuare i modi di vibrare della costruzione tramite un'analisi modale
  - Calcolare l'effetto dell'azione sismica, rappresentata dallo spettro di risposta di progetto, per ciascuno dei modi di vibrare individuati
  - Combinazione degli effetti relativi ai singoli modi di vibrare utilizzando una combinazione quadratica completa degli effetti relativi a ciascun modo:

$$E = \sqrt{\sum_j \sum_i \rho_{ij} \cdot E_i \cdot E_j}$$



Nel nostro caso avremo i seguenti carichi agenti:

- Solaio Piano Terra e Solaio Piano Primo

Peso proprio struttura	$G_{k1} = 300 \text{ daN/m}^2$
Carico permanente	$G_{k2} = 330 \text{ daN/m}^2$
Carico accidentale	$q_{k1} = 300 \text{ daN/m}^2$ (Cat. C <sub>1</sub> – Tab. 3.1.II)

- Solaio Sottotetto NON Accessibile

Peso proprio struttura	$G_{k1} = 300 \text{ daN/m}^2$
Carico permanente	$G_{k2} = 50 \text{ daN/m}^2$
Carico accidentale	$q_{k1} = 50 \text{ daN/m}^2$ (Cat. H – Tab. 3.1.II)

- Solaio di Copertura

Peso proprio struttura	$G_{k1} = 50 \text{ daN/m}^2$
Carico permanente	$G_{k2} = 30 \text{ daN/m}^2$
Carico accidentale	$q_{k2} = 50 \text{ daN/m}^2$ (Cat. H – Tab. 3.1.II)
Neve	$q_{sk} = 120 \text{ daN/m}^2$

## **SCHEMATIZZAZIONE e MODELLAZIONE DELLA STRUTTURA E DEI VINCOLI**

La struttura è stata schematizzata escludendo il contributo degli elementi aventi rigidezza e resistenza trascurabili a fronte dei principali. È quindi stata considerata l'orditura a telaio tridimensionale ed i solai ad elevata rigidezza.

La struttura è modellata con il metodo degli elementi finiti, applicato a sistemi tridimensionali. Gli elementi utilizzati sono monodimensionali (trave con eventuali sconnessioni interne) e le travi di fondazione sono schematizzate come poggianti su vincoli elastici distribuiti (suolo alla Winkler).

I vincoli sono considerati puntuali ed inseriti tramite le sei costanti di rigidezza elastica, oppure come elementi asta poggianti su suolo elastico. Le sezioni oggetto di verifica nelle travi sono stampate a passo costante, mentre per i gusci si conoscono le sollecitazioni nel baricentro dell'elemento stesso.

## **VERIFICA SPOSTAMENTI DI INTERPIANO**

Secondo quanto prescritto nel Par. 7.3.6.2 delle NTC per le costruzioni ricadenti in Classe d'Uso III si deve verificare che l'azione sismica di progetto non produca danni agli elementi costruttivi senza funzione strutturale tali da rendere temporaneamente non operativa la costruzione. Questa condizione si può ritenere soddisfatta quando gli spostamenti d'interpiano ottenuti dall'analisi in presenza dell'azione sismica di progetto relativa allo SLO sia inferiore ai 2/3 dei limiti indicati nel Par. 7.3.6.1 delle NTC. Tali limiti avranno lo scopo di:

- Evitare il danneggiamento di elementi non strutturali di chiusura (tamponamenti perimetrali, tramezzature interne) in riferimento a tipologia, caratteristiche e modalità di collegamento (rigida) di tali elementi alla struttura;
- Assicurare il funzionamento degli impianti anche in condizioni di sisma di entità ridotta, senza che gli spostamenti d'interpiano interferiscano con gli elementi meccanici componenti;

Nel dettaglio si avrà:

#### VERIFICA SPOSTAMENTI SISMICI DI ESERCIZIO (NTC 7.3.6.1)

spostamento limite interpiano = 0.333% dell'altezza

CASO n. 6 - SLD con SISMAX:

Zinf [cm]	Zsup [cm]	h [cm]	spost.max [cm]	%h	nodo	sest.	ver.
0.00	330.00	330.00	0.211840	0.064	311	4	SI
330.00	710.00	380.00	0.391173	0.103	473	4	SI
710.00	1090.00	380.00	0.240760	0.063	116	4	SI

CASO n. 7 - SLD con SISMAX:

Zinf [cm]	Zsup [cm]	h [cm]	spost.max [cm]	%h	nodo	sest.	ver.
0.00	330.00	330.00	0.191152	0.058	334	1	SI
330.00	710.00	380.00	0.413540	0.109	286	1	SI
710.00	1090.00	380.00	0.378230	0.100	125	4	SI

#### VERIFICA SPOSTAMENTI SISMICI DI S.L.V. (NTC 7.3.3.3)

Fattore Mud = 1.330

Quota [cm]	DX max [cm]	nodo	DY max [cm]	nodo
330.00	0.482935	311	0.450106	333
710.00	1.394839	473	1.447164	286
1090.00	1.614488	115	2.342417	129

Inoltre, sia i tamponamenti interni che quelli esterni lungo il perimetro della palestra sono considerati degli elementi non strutturali oggetto di progettazione in termini di prestazioni strutturali, appartengono infatti all'insieme degli elementi costruttivi privi di funzione strutturale il cui comportamento meccanico è però rilevante ai fini della sicurezza dei soggetti che fruiscono del fabbricato e dunque potenzialmente esposti alle problematiche indagate.

Occorrerà valutare il comportamento nei confronti dell'espulsione fuori piano del pannello murario considerando le caratteristiche dimensionali e costruttive dell'elemento, nonché la risposta globale dell'edificio e la quota a cui si colloca l'elemento. A favore di sicurezza si analizza il solo elemento ritenuto più significativo, ipotizzandolo come strutturalmente indipendente rispetto a quelli adiacenti, applicando le relazioni previste dalle NTC con riferimento alla valutazione della forza orizzontale prodotta dall'accelerazione sismica agente.

Gli elementi oggetto di analisi sono:

- Parete perimetrale esterna: muratura esistente priva di finestre, realizzata in blocchi di laterizio di spessore pari a circa 35 cm, con intonacatura su entrambi i lati.
- Tramezzatura interna: realizzata in mattoni forati spessore 8 cm, con intonacatura su entrambi i lati, considerati a favore di sicurezza posti all'ultimo livello disponibile.

In dettaglio si avranno le seguenti verifiche:

**ESPULSIONE PANNELLI MURARI**

44.89903 8.205568 ASTI  
 44.89903 8.205568 ASTI  
 44.874175 8.268438 AZZANO D'ASTI  
 44.90433 8.091664 BALDICHIERI D'ASTI

LATITUDINE **44.9076** qa **2**  
 LONGITUDINE **8.1907** suolo **C**  
 VN (anni) **50** St **1.000**  
 Cu **1.5** Ss **1.5**  
 VR (anni) **75** S **1.5**  
 PVR (%) **10** α **0.0455**  
 T1 (sec) **0.8064**

AGGIORNA STAMPA HELP  
 COPIA SALVA

**EC8 - 4.3.5.2**  

$$S_a = \alpha \cdot S \cdot \left[ \frac{3 \cdot (1 + Z/H)}{1 + (1 - T_s/T_1)^2} - 0,5 \right] = [-0.0341]$$
☒ EC8 4.3.5.2  
☐ Circ. C7.2.11

$$F_a = (S_a W_a) / q_a = [-1035873] \text{ [daN]}$$

**EC6 - 6.3.2**  
☒ EC6 - 6.3.2  
☐ Teoria elast.

$d_a = 3.01 \text{ [mm]}$   
 Coeff. di inflessione laterale  $K1 = 0.981$   
 Coeff. di instabilità  $K2 = 1.000$  (Sigma critica di instabilità = 133.11 daN/cm2)

$$q_{lat,d} = f_d \left( \frac{t}{l_a} \right)^2 \quad (l_a = L)$$

$$F_{lat,d} = q_{lat,d} \cdot B \cdot L \cdot K1 \cdot K2 = 7677.54 \text{ [daN]} > F_a : \text{OK}$$

**DATI PANNELLO MURARIO**

Appoggiato

Appoggiato

L [cm] 360 B [cm] 460

Appoggiato

Ripartizione massa verticale / orizzontale = 77.7 / 22.3 [%]

t [cm] 35 Z [cm] 720  
 γ [daN/cm3] 1350 H [cm] 910  
 fd [daN/cm2] 5 Wa tot. [daN] 7824600  
 E [daN/cm2] 13600 Wa eff. [daN] 6079714  
 Ta [sec] 72.4071

- Espulsione Tamponamento Perimetrale\_Mattone Forato -

**ESPULSIONE PANNELLI MURARI**

44.89903 8.205568 ASTI  
 44.89903 8.205568 ASTI  
 44.874175 8.268438 AZZANO D'ASTI  
 44.90433 8.091664 BALDICHIERI D'ASTI

LATITUDINE **44.9076** qa **2**  
 LONGITUDINE **8.1907** suolo **C**  
 VN (anni) **50** St **1.000**  
 Cu **1.5** Ss **1.5**  
 VR (anni) **75** S **1.5**  
 PVR (%) **10** α **0.0455**  
 T1 (sec) **0.8064**

AGGIORNA STAMPA HELP  
 COPIA SALVA

**EC8 - 4.3.5.2**  

$$S_a = \alpha \cdot S \cdot \left[ \frac{3 \cdot (1 + Z/H)}{1 + (1 - T_s/T_1)^2} - 0,5 \right] = [-0.0341]$$
☒ EC8 4.3.5.2  
☐ Circ. C7.2.11

$$F_a = (S_a W_a) / q_a = [-3051240] \text{ [daN]}$$

**EC6 - 6.3.2**  
☒ EC6 - 6.3.2  
☐ Teoria elast.

$d_a = 13.75 \text{ [mm]}$   
 Coeff. di inflessione laterale  $K1 = 0.654$   
 Coeff. di instabilità  $K2 = 1.000$  (Sigma critica di instabilità = 7.24 daN/cm2)

$$q_{lat,d} = f_d \left( \frac{t}{l_a} \right)^2 \quad (l_a = L)$$

$$F_{lat,d} = q_{lat,d} \cdot B \cdot L \cdot K1 \cdot K2 = 267.58 \text{ [daN]} > F_a : \text{OK}$$

**DATI PANNELLO MURARIO**

Appoggiato

Libero

L [cm] 360 B [cm] 460

Libero

Ripartizione massa verticale / orizzontale = 100 / 0 [%]

t [cm] 8 Z [cm] 720  
 γ [daN/cm3] 1350 H [cm] 910  
 fd [daN/cm2] 5 Wa tot. [daN] 1788480  
 E [daN/cm2] 13600 Wa eff. [daN] 1788480  
 Ta [sec] 359.3757

- Espulsione Tamponamento Interno\_Mattone Forato -

## **DISTANZA FRA COSTRUZIONI CONTIGUE – GIUNTO SISMICO**

La verifica della distanza fra costruzioni contigue, secondo quanto descritto nel par. 7.2.1 delle NTC, fa riferimento allo stato limite di salvaguardia della vita SLV ed ha il fine di evitare fenomeni di martellamento tra due tipologie strutturali differenti adiacenti. L'esito della verifica definisce pertanto l'ampiezza del giunto sismico da realizzare al fine di evitare l'insorgenza dei fenomeni precedentemente citati.

Tale distanza comunque non può essere inferiore alla somma degli spostamenti massimi determinati per lo SLV, calcolati per ciascuna costruzione secondo l'analisi utilizzata.

Per la struttura oggetto della presente documentazione, gli spostamenti di riferimento sono quelli forniti dalla modellazione tridimensionale della struttura, si rimanda alla Relazione Tecnica e alle Relazioni di Calcolo del Lotto A e del Lotto B per una corretta definizione di quanto esposto.

## **COLLEGAMENTI ORIZZONTALI TRA ELEMENTI DI FONDAZIONE**

Per poter trascurare gli spostamenti relativi del terreno sul piano di fondazione, come descritto nella Relazione Tecnica, occorrerà fare in modo che le fondazioni siano in grado di assorbire le forze assiali conseguenti.

Per le strutture esistenti si è deciso di realizzare, per ogni singola unità strutturale, degli adeguati collegamenti inserendo nuovi elementi di fondazione atti a sopportare l'azione assiale calcolata secondo quanto previsto nel par. 7.2.5 delle NTC, nel dettaglio la forza risultante sarà stimata secondo la categoria del terreno nel seguente modo:

**Cat. C**  $\rightarrow \pm 0.4 N_{sd} \cdot a_{max}/g$

Dove  $N_{sd}$  è il valore medio delle forze verticali agenti sugli elementi collegati e  $a_{max}$  è l'accelerazione orizzontale massima attesa al sito. Nel nostro caso si avrà:

Accelerazione orizzontale massima  $\rightarrow a_{max} = a_g S = 0.6822 [g/10]$

Sforzo normale medio al piede del pilastro  $\rightarrow N_{sd} = 150584 \text{ daN}$

Sforzo di progetto elemento di collegamento  $\rightarrow N'_{sd} = \pm 0.4 N_{sd} a_{max}/g = 41091 \text{ daN}$

Verifica C.A. S.L.U. - File: \_ □ ×

File Materiali Opzioni Visualizza Progetto Sez. Rett. Sismica Normativa: NTC 2008 ?

Titolo :

N° strati barre  Zoom

N°	b [cm]	h [cm]
1	50	40

N°	As [cm²]	d [cm]
1	6.16	7
2	6.16	33

**Sollecitazioni**  
☒ S.L.U. ☐ Metodo n

N<sub>Ed</sub>   kN  
M<sub>xEd</sub>   kNm  
M<sub>yEd</sub>

**P.to applicazione N**  
☒ Centro ☐ Baricentro cls  
☐ Coord.[cm] xN  yN

Tipo rottura  
**Lato calcestruzzo - Acciaio snervato**

**Materiali**  
☒ B450C ☐ C25/30  
 $\epsilon_{su}$   ‰  $\epsilon_{c2}$   ‰  
 $f_{yd}$   N/mm²  $\epsilon_{cu}$   ‰  
 $E_s$   N/mm²  $f_{cd}$   ‰  
 $E_s/E_c$    $f_{cc}/f_{cd}$   ?  
 $\epsilon_{syd}$   ‰  $\sigma_{c,adm}$    
 $\sigma_{s,adm}$   N/mm²  $\tau_{co}$    
 $\tau_{c1}$

M<sub>xRd</sub>  kN m  
 $\sigma_c$   N/mm²  
 $\sigma_s$   N/mm²  
 $\epsilon_c$   ‰  
 $\epsilon_s$   ‰  
d  cm  
x  x/d   
 $\delta$

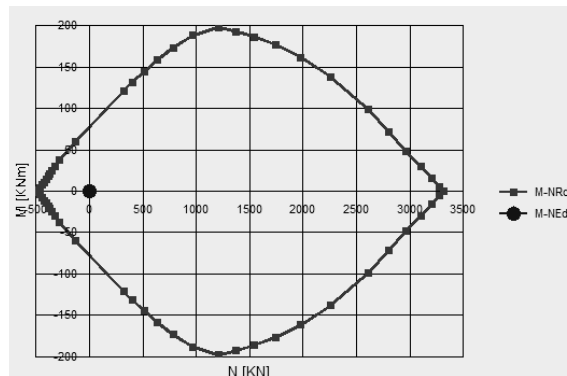
**Tipo Sezione**  
☒ Rettan.re ☐ Trapezi  
☐ a T ☐ Circolare  
☐ Rettangoli ☐ Coord.

**Metodo di calcolo**  
☒ S.L.U.+ ☐ S.L.U.-  
☐ Metodo n

**Tipo flessione**  
☒ Retta ☐ Deviata

N° rett.   
   
L<sub>0</sub>  cm

☐ Precompresso



- Diagramma interazione Pressoflessione Retta\_Compressione e Trazione -

La sezione in esame risulta essere verificata in quanto, in entrambe le situazioni, la sollecitazione agente ricade sempre all'interno del dominio M-N.

## **CLASSIFICAZIONE ELEMENTI STRUTTURALI ESISTENTI COME SECONDARI**

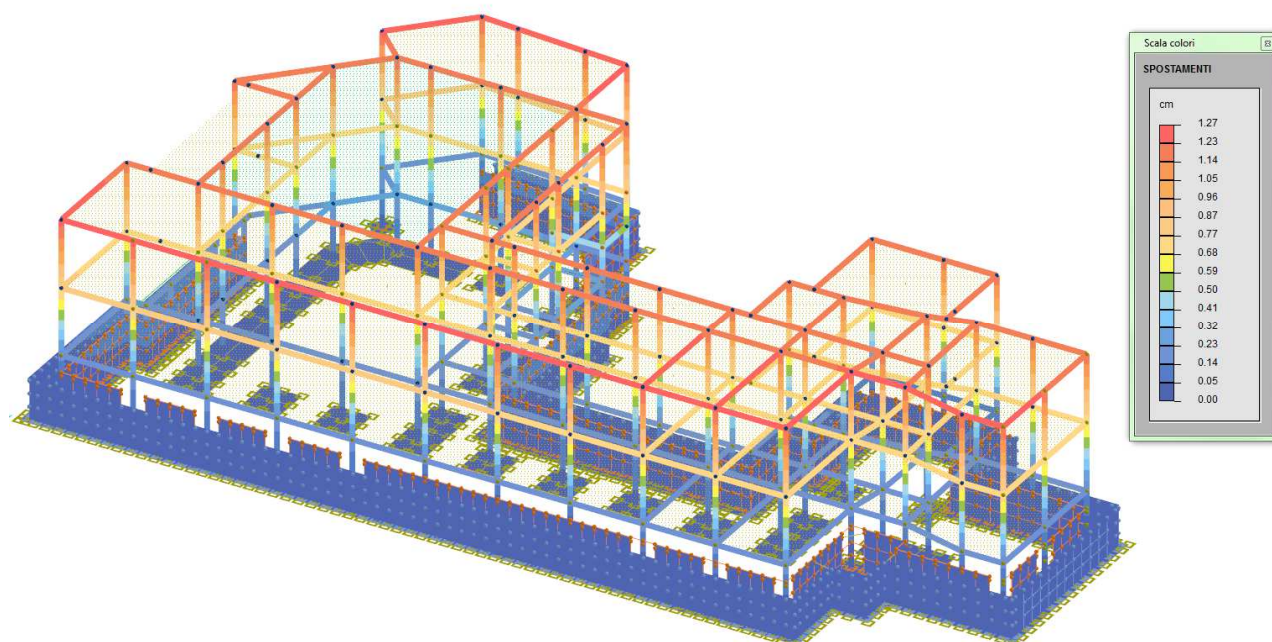
Per l'unità strutturale esistente, come già descritto in precedenza, l'adeguamento sismico in progetto è ottenuto rinforzando mediante incamiciature in c.a., per aumentare la sezione resistente, di alcuni pilastri esistenti ritenuti più significativi.

Nel complesso, questi elementi vengono considerati come "Elementi Strutturali Primari" in grado di sopportare l'intera capacità antisismica richiesta dal sistema, mentre i restanti elementi verticali, non oggetto di rinforzo, vengono considerati "Elementi Strutturali Secondari" ai quali è richiesta la sola resistenza ai carichi verticali gravitazionali.

Secondo quanto prescritto nel par. 7.2.3. delle NTC, la schematizzazione adottata deve garantire che il contributo totale alla rigidezza sotto azioni orizzontali degli elementi secondari non supera il 15% dell'analogo contributo degli elementi primari, mentre il contributo alla resistenza sotto azioni orizzontali è interamente affidato agli elementi primari.

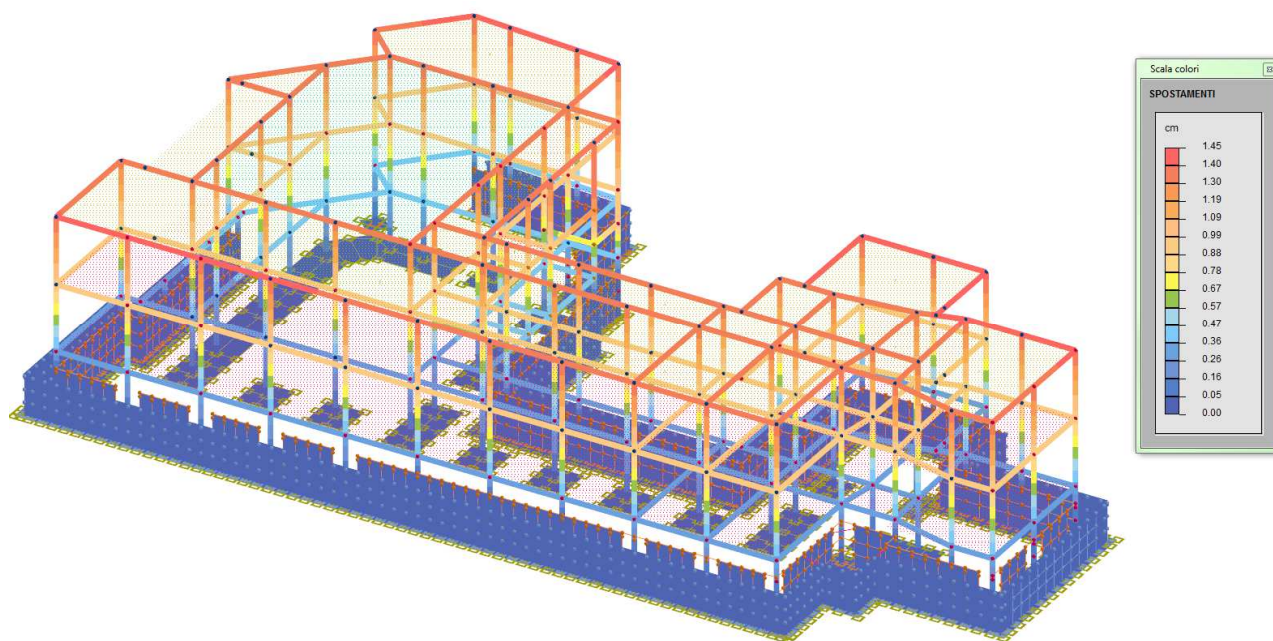
La rigidezza è la capacità che ha un corpo di opporsi alla deformazione elastica provocata da una forza applicata, viene definita come il rapporto fra forza e spostamento. Per controllare se l'assenza del contributo di rigidezza degli elementi classificati come "*Secondari*" è minore del 15% rispetto agli elementi "*Principali*" si fa riferimento alla differenza di spostamenti, riscontrati per le stesse condizioni di carico Sisma X e Sisma Y, considerando la situazione in progetto e la situazione in cui tutti gli elementi si comportano come principali. Nel dettaglio si avrà:

1. Spostamenti massimi in direzione X - [Condizione Sisma X]:



- Tutti Elementi Principali\_  $\delta_{X,max} = 1.27 \text{ cm}$  -



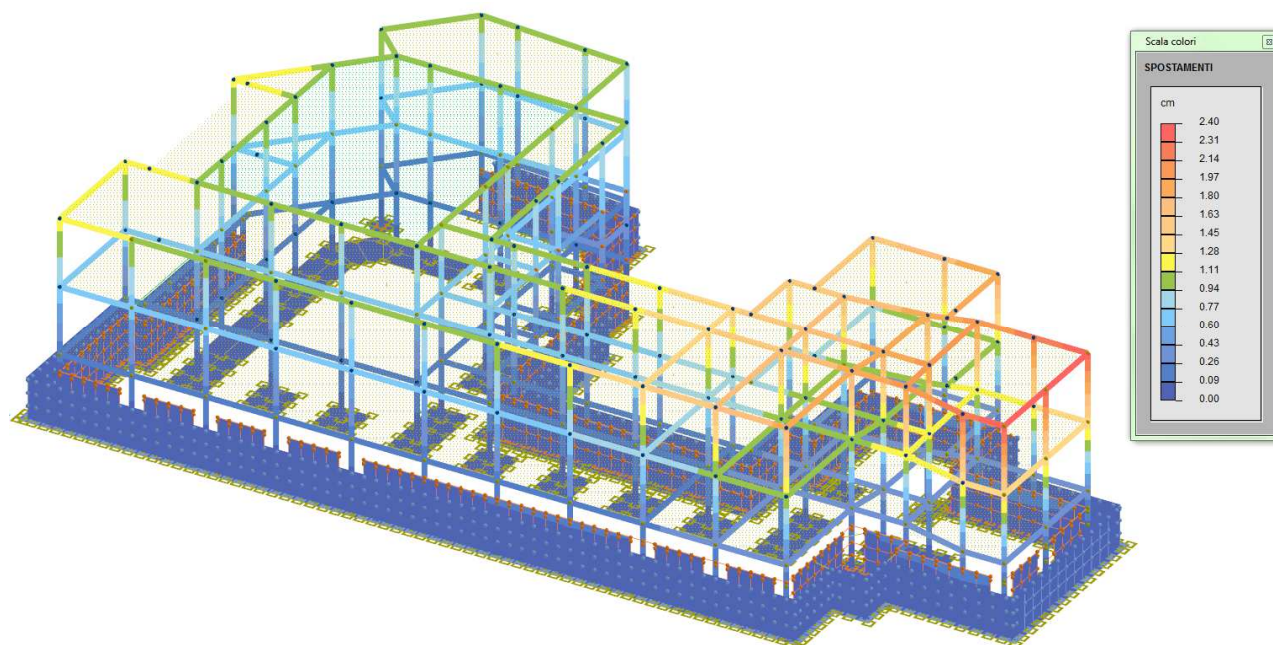


- Situazione in Progetto\_  $\delta_{X,max,prog} = 1.45 \text{ cm}$  -

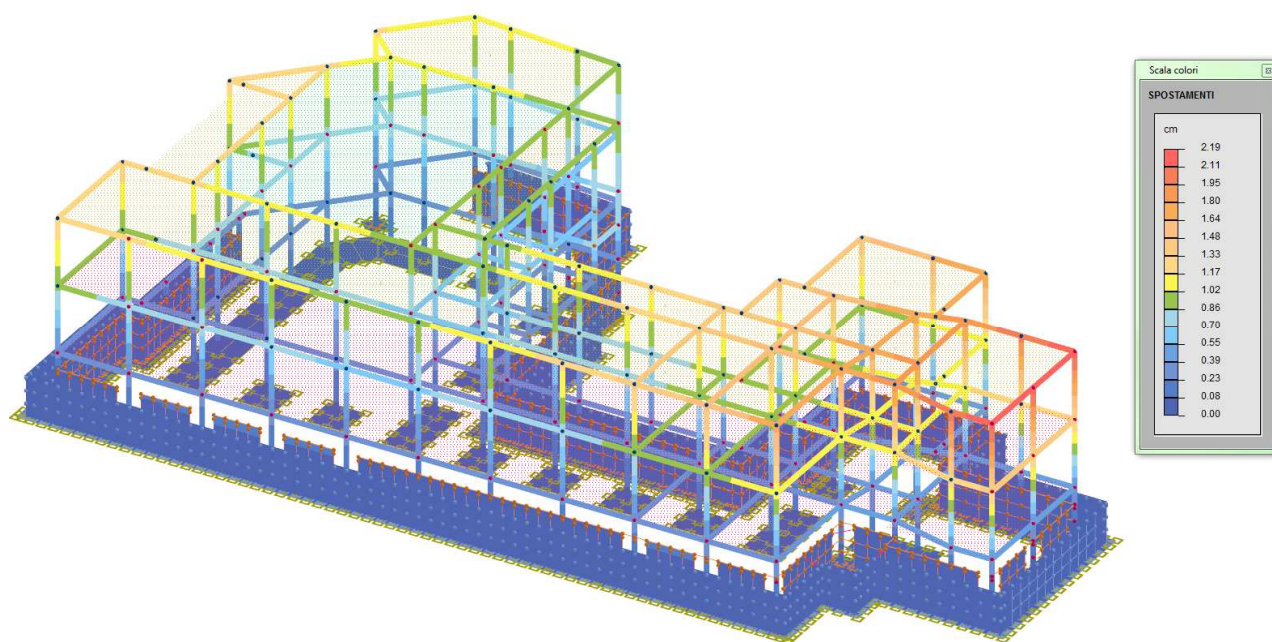
Come si nota dalle immagini riportate, la differenza di spostamento massimo in direzione X, valutato per entrambe le situazioni con la condizione di Sisma X, vale:

$$\Delta\delta_X = \delta_{X,max,prog} / \delta_{X,max} = 1.14 \% \rightarrow - 14\% \rightarrow \text{VERIFICATO}$$

2. Spostamenti massimi in direzione Y - [Condizione Sisma Y]



- Tutti Elementi Principali\_  $\delta_{Y,max} = 2.40 \text{ cm}$  -



- Situazione in Progetto\_  $\delta_{Y,max,prog} = 2.19 \text{ cm}$  -

Come si nota dalle immagini riportate, la differenza di spostamento massimo in direzione Y, valutato per entrambe le situazioni con la condizione di Sisma Y, vale:

$$\Delta\delta_Y = \delta_{Y,max,prog} / \delta_{Y,max} = 0.91 \% \rightarrow + 9\% \rightarrow \text{VERIFICATO}$$

Pertanto è possibile considerare i pilastri perimetrali come "*Elementi Strutturali Secondari*" e trascurare, nell'analisi della risposta sismica, il contributo della loro rigidezza e della loro resistenza alle azioni orizzontali. Come detto in precedenza, dovranno essere in grado di sopportare i soli carichi verticali e seguire gli spostamenti della struttura senza perdere la loro capacità portante.

## **INDIVIDUAZIONE DEL CODICE DI CALCOLO**

Per il calcolo delle sollecitazioni e per la verifica di travi e pilastri in cemento armato si è fatto ricorso all'elaboratore elettronico utilizzando il seguente programma di calcolo:

DOLMEN WIN (R), versione 19.0 del 2019 prodotto, distribuito ed assistito dalla CDM DOLMEN S.r.l., con sede in Torino, Via Drovetti n. 9/F.

Questa procedura è sviluppata in ambiente Windows, ed è stata scritta utilizzando i linguaggi Fortran e C. DOLMEN WIN permette l'analisi elastica lineare di strutture tridimensionali con nodi a sei gradi di libertà utilizzando un solutore ad elementi finiti. Gli elementi considerati sono la trave, con eventuali svincoli interni o rotazione attorno al proprio asse, ed il guscio, sia rettangolare che triangolare, avente comportamento di membrana e di piastra. I carichi possono essere applicati sia ai nodi, come forze o coppie concentrate, sia sulle travi, come forze distribuite, trapezie, concentrate, come coppie e come distorsioni termiche. I vincoli sono forniti tramite le sei costanti di rigidezza elastica.



## **GRADO DI AFFIDABILITA' DEL CODICE**

L'affidabilità del codice di calcolo è garantita dall'esistenza di un'ampia documentazione di supporto, come indicato nel paragrafo precedente. La presenza di un modulo CAD per l'introduzione di dati permette la visualizzazione dettagliata degli elementi introdotti. E' possibile inoltre ottenere rappresentazioni grafiche di deformate e sollecitazioni della struttura. Al termine dell'elaborazione viene inoltre valutata la qualità della soluzione, in base all'uguaglianza del lavoro esterno e dell'energia di deformazione.

## **MOTIVAZIONE DELLA SCELTA DEL CODICE**

DOLMEN WIN permette in campo elastico lineare un'analisi dettagliata del comportamento dell'intera struttura, tenendo conto del comportamento irrigidente di setti anche complessi e solai considerati con la loro effettiva rigidezza. È possibile inoltre scegliere il grado di affinamento dell'analisi di elementi complessi utilizzando mesh via via più dettagliate.

## **ESAME DEI RISULTATI e CONTROLLI**

### **- Valutazione della correttezza del modello**

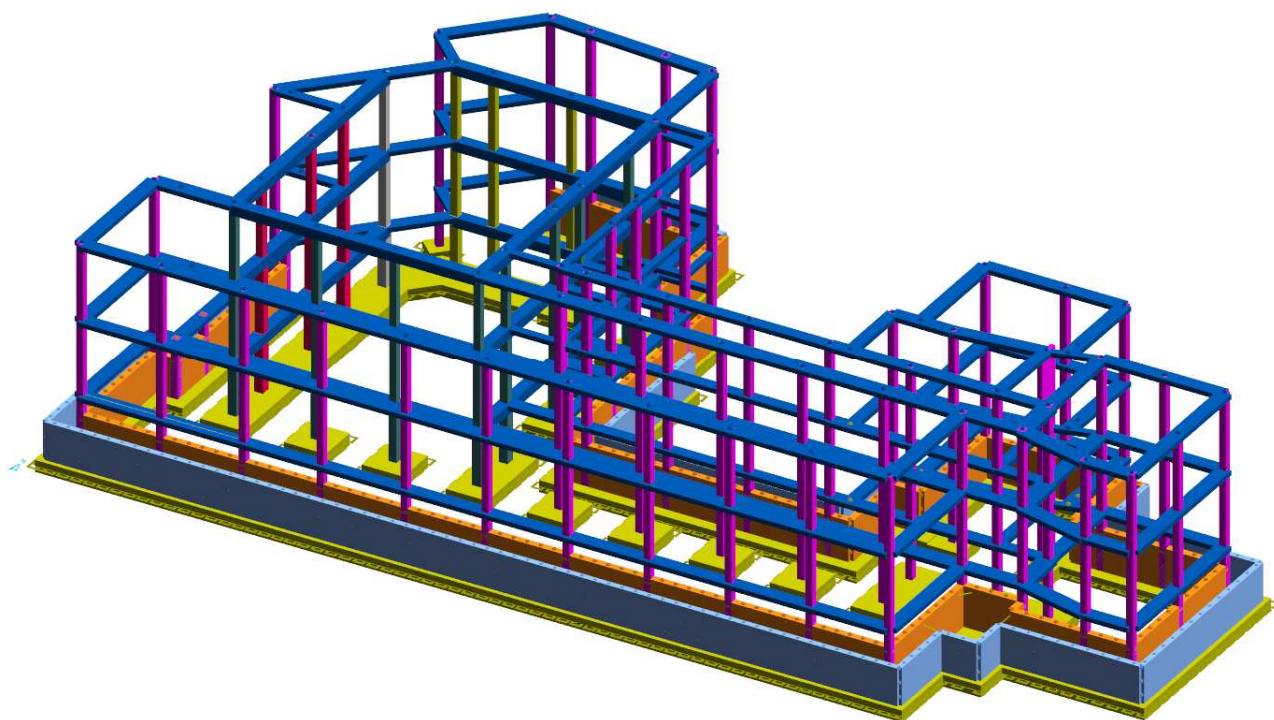
Il modello di calcolo adottato è da ritenersi appropriato in quanto non sono state riscontrate labilità, le reazioni vincolari equilibrano i carichi applicati, la simmetria di carichi e struttura dà origine a sollecitazioni simmetriche.

### **- Giudizio motivato di accettabilità dei risultati**

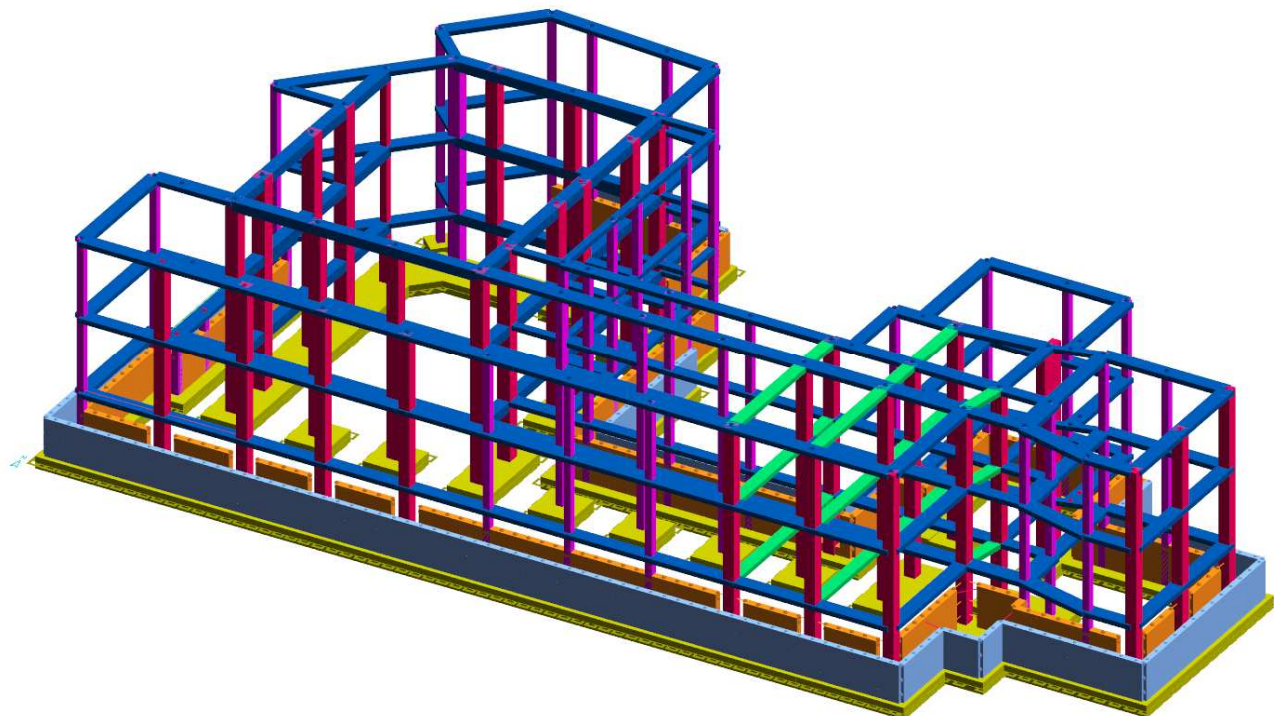
L'analisi critica dei risultati e dei parametri di controllo nonché il confronto con calcolazioni di massima eseguite manualmente porta ad confermare la validità dei risultati.

## **RISULTATI PRINCIPALI DELL'ANALISI STRUTTURALE**

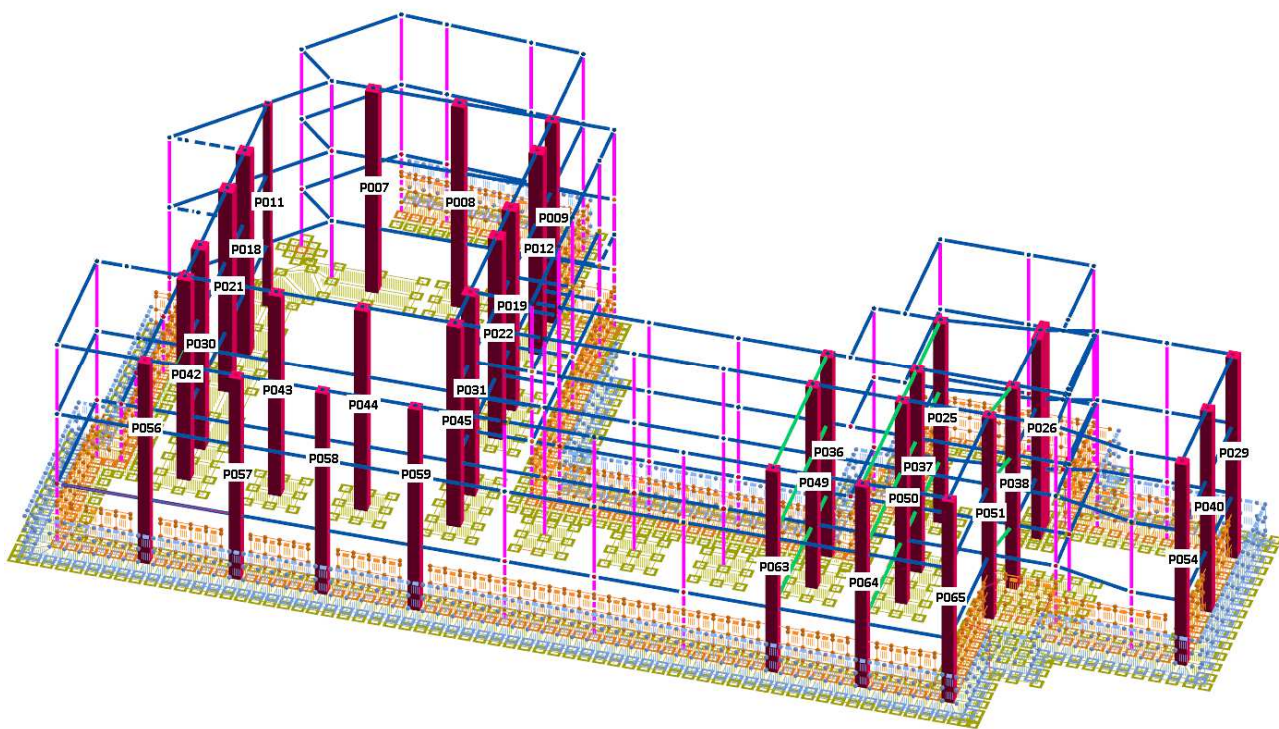
Nel seguito si riportano, per la costruzione oggetto della documentazione, tutte le verifiche degli elementi esistenti e dei relativi rinforzi atti a garantire l'adeguamento sismico richiesto, in riferimento alla sola condizione di progetto.



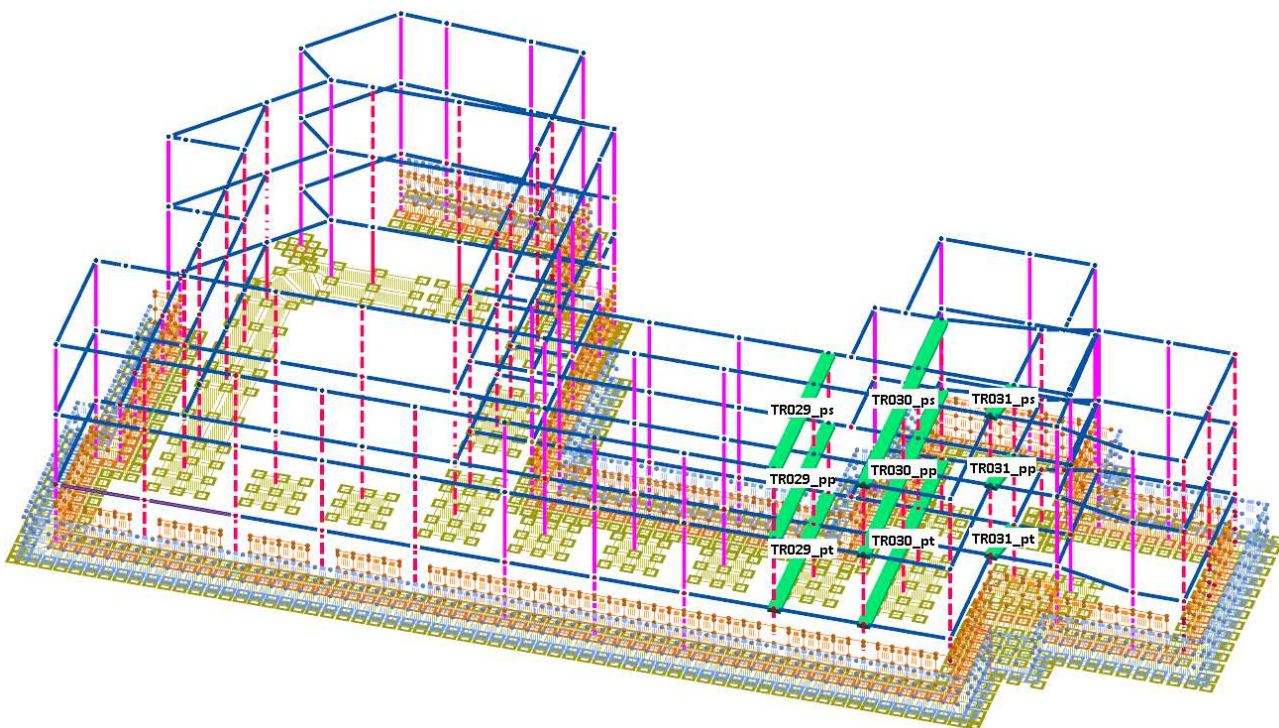
- schema 3D struttura STATO ATTUALE -



- schema 3D struttura IN PROGETTO -

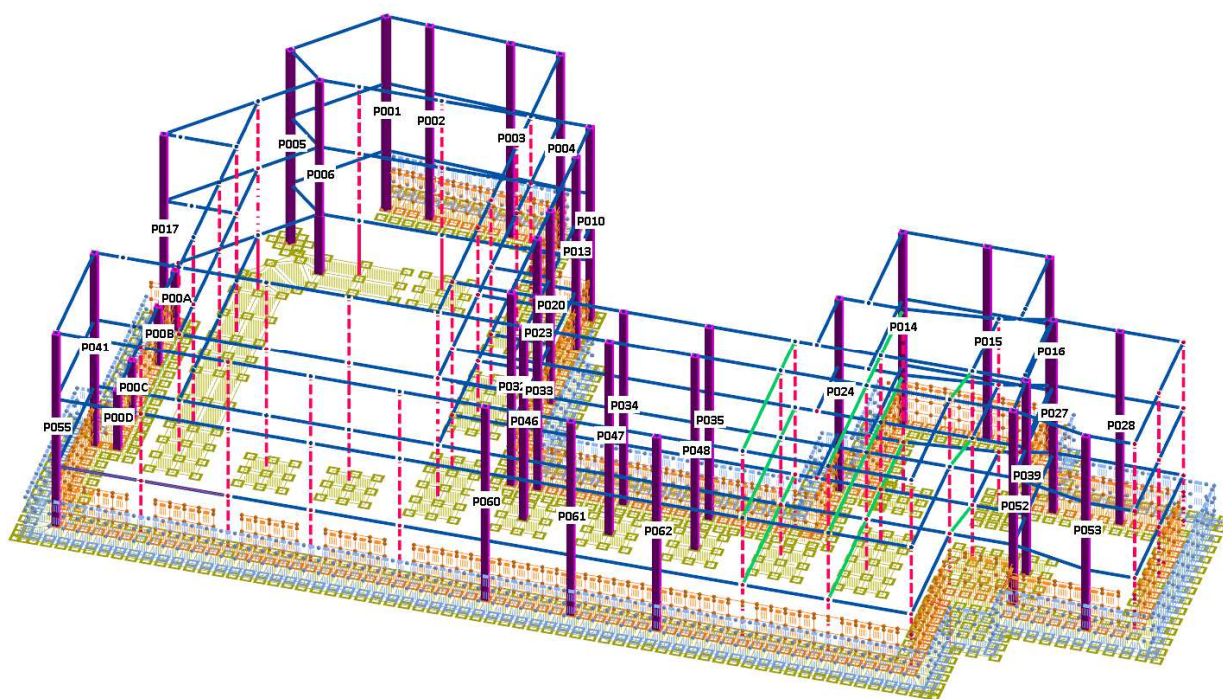


- Individuazione elementi verticali rinforzati\_Incamiciatura in c.a. -

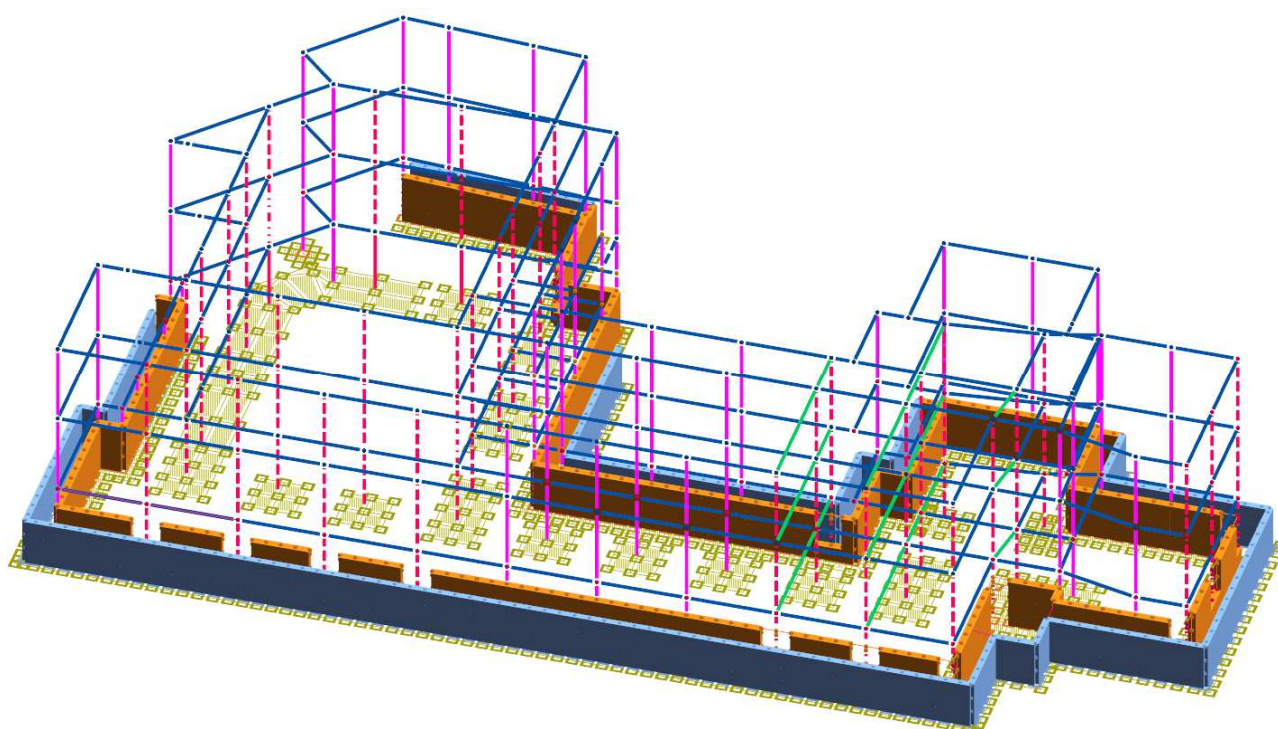


- Individuazione Nuovi elementi in c.a. realizzati -

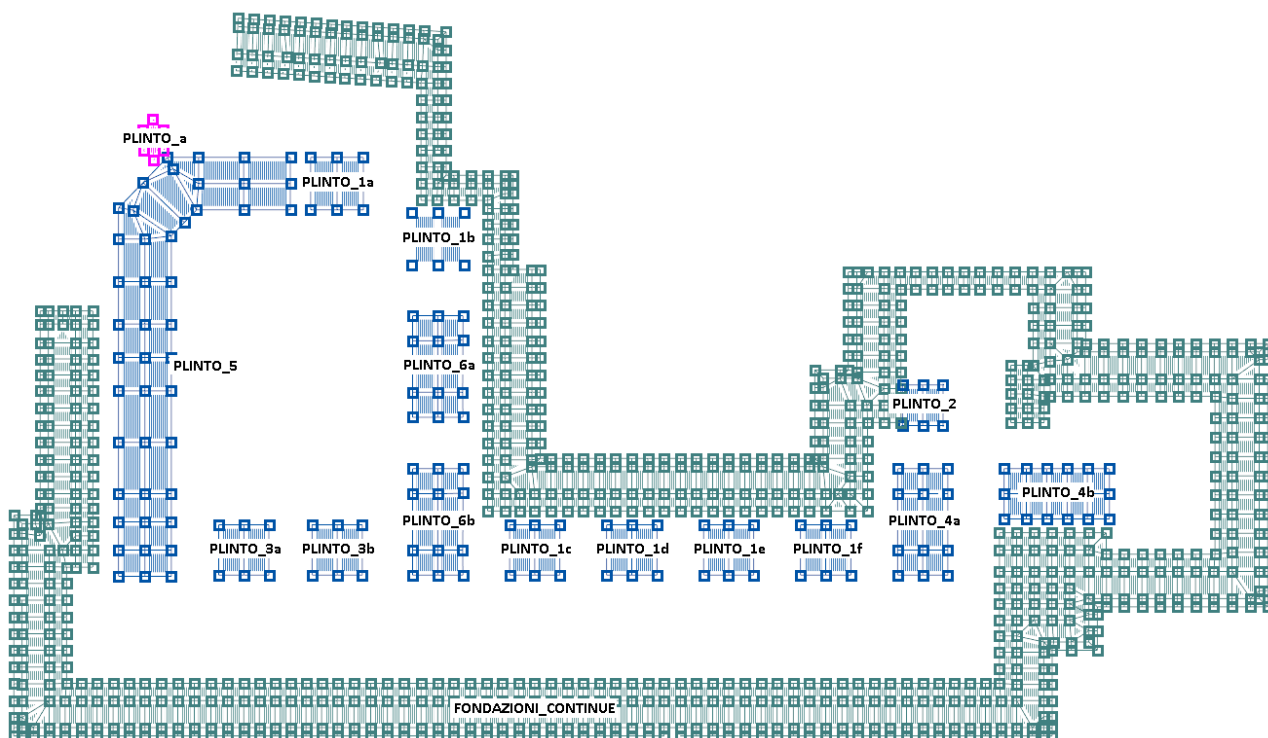




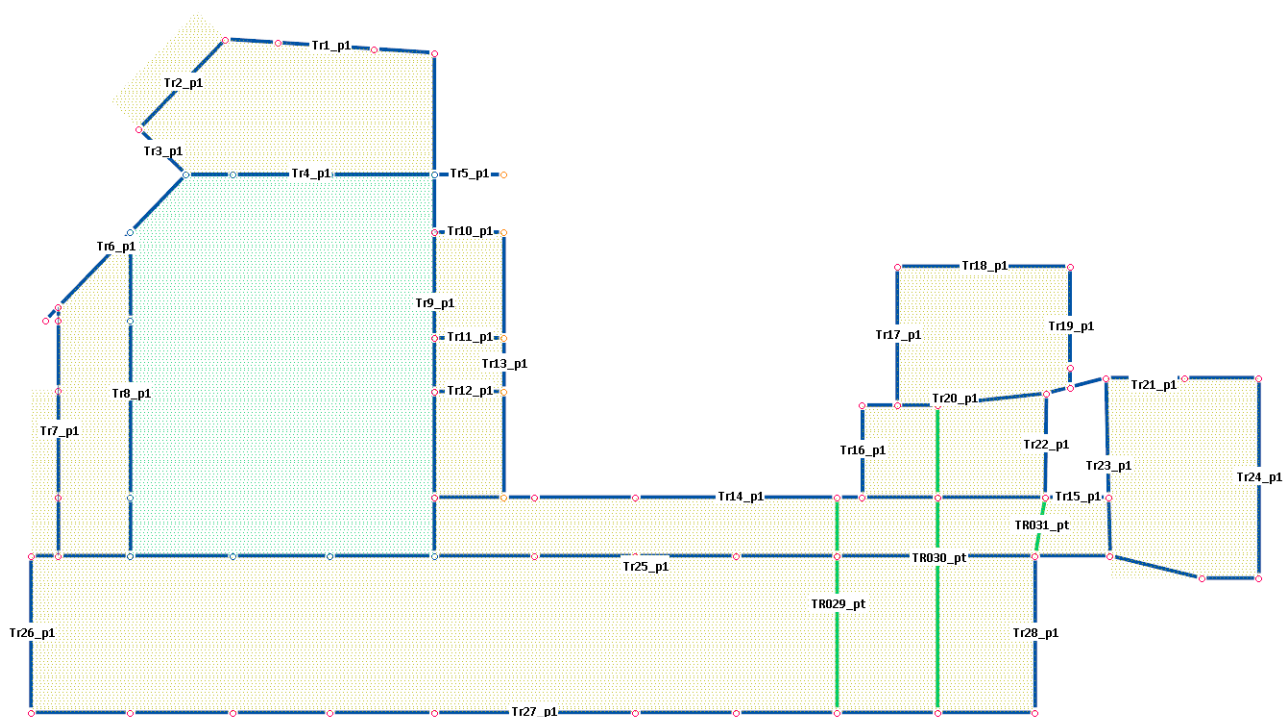
- Individuazione pilastri non rinforzati \_Elementi Strutturali Secondari -



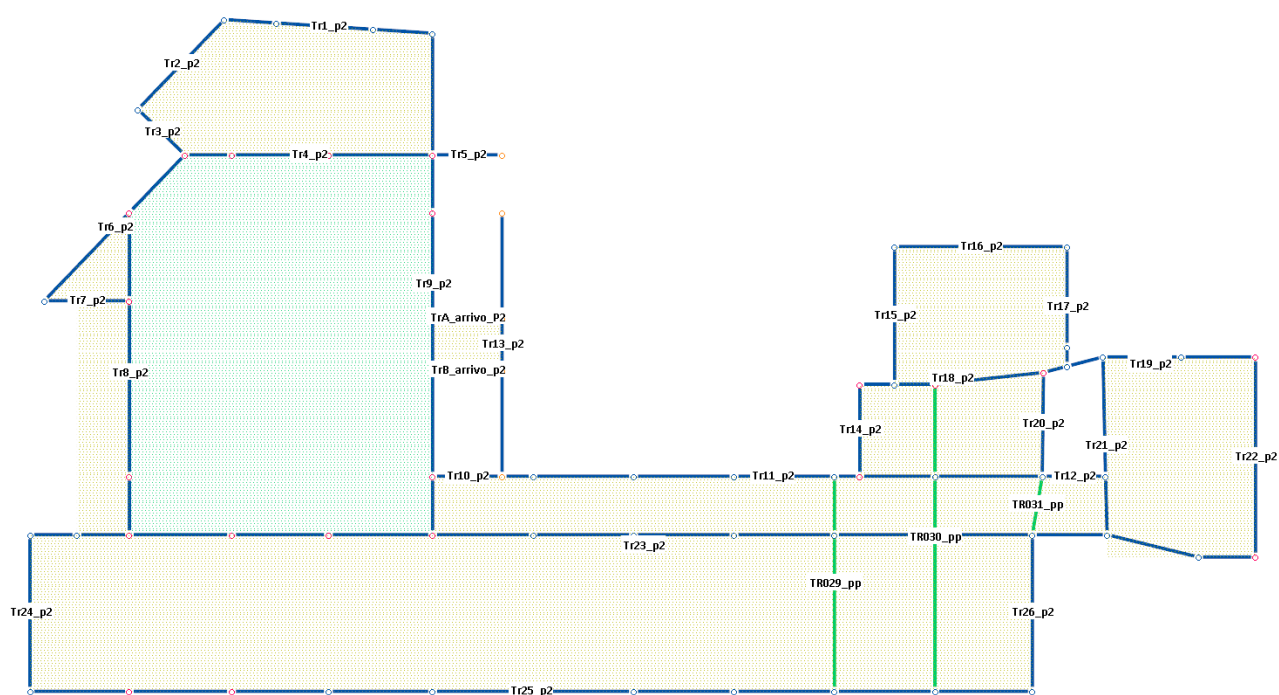
- Individuazione Pareti in c.a. debolmente armate esistenti dell'interrato -



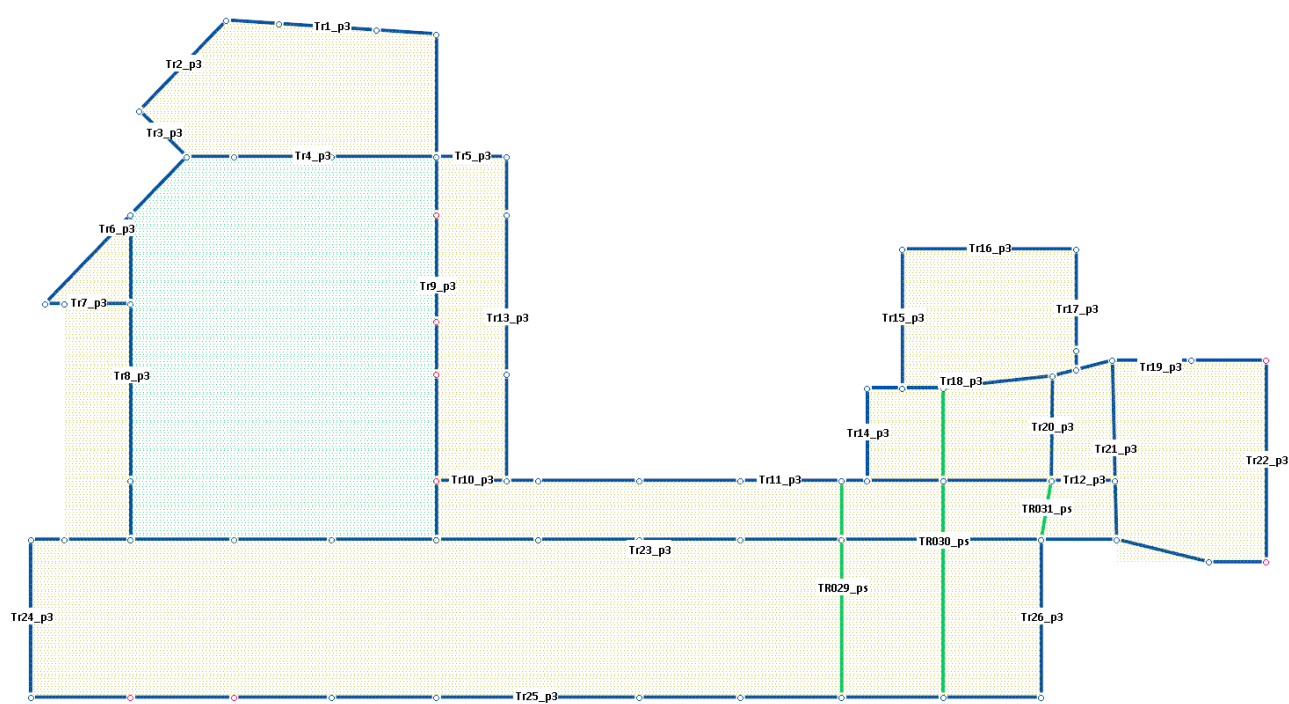
- Individuazione Fondazione esistenti -



- Individuazione Travi Piano Terra -



- Individuazione Travi Piano Primo -



- Individuazione Travi Piano Sottotetto -

## **DATI STRUTTURA**

\*\*\* DATI STRUTTURA

Unita` di misura :  
 LUNGHEZZE : cm  
 SUPERFICI : cm2  
 DATI SEZIONALI : cm  
 ANGOLI : gradi  
 FORZE : daN  
 MOMENTI : daNcm  
 CARICHI LINEARI : daN/cm  
 CARICHI SUPERFIC.: daN/cm2  
 TENSIONI : daN/cm2  
 PESI DI VOLUME : daN/cm3  
 COEFF. DI WINKLER: daN/cm3  
 RIGIDENZE VINCOL.: daN/cm - daNcm/rad

CONDIZIONI DI CARICO-----|-----|-----|-----|num.= 27

Nome		
1	Peso_proprio_____	N. carichi: 860 Lista carichi: 8172-8421, 9818-10427
2	Permanente_NonStr	N. carichi: 362 Lista carichi: 8422-8783
3	C:_Ambienti_affol	N. carichi: 562 Lista carichi: 8784-9345
4	Neve_(<1000m_slm)___	N. carichi: 84 Lista carichi: 9346-9429
5	PP_fondazioni	N. carichi: 3601 Lista carichi: 9430-9817, 10428-13640
6	Autovett_001_(X)	N. carichi: 280 Lista carichi: 1-280
7	Autovett_001_(Y)	N. carichi: 436 Lista carichi: 281-716
8	Autovett_002_(X)	N. carichi: 317 Lista carichi: 717-1033
9	Autovett_002_(Y)	N. carichi: 360 Lista carichi: 1034-1393
10	Autovett_003_(X)	N. carichi: 228 Lista carichi: 1394-1621
11	Autovett_003_(Y)	N. carichi: 427 Lista carichi: 1622-2048
12	Autovett_004_(X)	N. carichi: 120 Lista carichi: 2049-2168
13	Autovett_004_(Y)	N. carichi: 210 Lista carichi: 2169-2378
14	Autovett_005_(X)	N. carichi: 100 Lista carichi: 2379-2478
15	Autovett_005_(Y)	N. carichi: 149 Lista carichi: 2479-2627
16	Autovett_006_(X)	N. carichi: 238 Lista carichi: 2628-2865
17	Autovett_006_(Y)	N. carichi: 237 Lista carichi: 2866-3102
18	Autovett_007_(X)	N. carichi: 399 Lista carichi: 3103-3501
19	Autovett_007_(Y)	N. carichi: 241 Lista carichi: 3502-3742
20	Autovett_008_(X)	N. carichi: 249 Lista carichi: 3743-3991
21	Autovett_008_(Y)	N. carichi: 462 Lista carichi: 3992-4453
22	Autovett_009_(X)	N. carichi: 222 Lista carichi: 4454-4675
23	Autovett_009_(Y)	N. carichi: 468 Lista carichi: 4676-5143
24	Sisma_X	N. carichi: 757 Lista carichi: 5144-5900
25	Sisma_Y	N. carichi: 757 Lista carichi: 5901-6657
26	Torcente_add._X	N. carichi: 757

Lista carichi: 6658-7414

27 Torcente\_add.\_Y N. carichi: 757  
Lista carichi: 7415-8171

RISULTANTI DEI CARICHI (punto di applicazione nell'origine degli assi):

cond.	FX	FY	FZ	MX	MY	MZ
1	0.000000E+00	0.000000E+00	-1.646940E+06	6.707996E+06	1.143829E+08	0.000000E+00
2	0.000000E+00	0.000000E+00	-6.295176E+05	3.012662E+06	4.517740E+07	0.000000E+00
3	0.000000E+00	0.000000E+00	-5.991016E+05	2.651202E+06	4.175287E+07	0.000000E+00
4	0.000000E+00	0.000000E+00	-8.436087E+04	3.961934E+05	5.752061E+06	0.000000E+00
5	3.936240E+03	2.689168E+04	-1.254330E+06	7.128930E+06	9.202842E+07	1.910488E+06
6	6.595606E+04	0.000000E+00	0.000000E+00	0.000000E+00	5.152259E+05	8.404846E+04
7	0.000000E+00	7.828292E+04	0.000000E+00	-6.226764E+05	0.000000E+00	6.450313E+06
8	1.559425E+05	0.000000E+00	0.000000E+00	0.000000E+00	1.223378E+06	8.546734E+05
9	0.000000E+00	3.985249E+04	0.000000E+00	-3.170894E+05	0.000000E+00	3.207758E+06
10	2.862900E+02	0.000000E+00	0.000000E+00	0.000000E+00	2.282724E+03	1.976243E+04
11	0.000000E+00	1.258790E+05	0.000000E+00	-9.582771E+05	0.000000E+00	7.024116E+06
12	3.710000E+00	0.000000E+00	0.000000E+00	0.000000E+00	-3.217900E+01	-2.782842E+02
13	0.000000E+00	7.212000E+01	0.000000E+00	-1.384380E+03	0.000000E+00	5.854177E+03
14	3.570000E+00	0.000000E+00	0.000000E+00	0.000000E+00	2.699000E+00	-1.537143E+02
15	0.000000E+00	3.870000E+00	0.000000E+00	2.562000E+00	0.000000E+00	-2.089636E+02
16	4.749900E+02	0.000000E+00	0.000000E+00	0.000000E+00	2.352424E+03	-3.648866E+04
17	0.000000E+00	1.075400E+02	0.000000E+00	4.334941E+02	0.000000E+00	-3.043705E+03
18	4.751068E+04	0.000000E+00	0.000000E+00	0.000000E+00	1.713433E+04	2.076739E+05
19	0.000000E+00	2.693800E+02	0.000000E+00	3.965678E+02	0.000000E+00	1.269380E+04
20	2.039880E+03	0.000000E+00	0.000000E+00	0.000000E+00	-5.830520E+01	1.171039E+04
21	0.000000E+00	1.586448E+04	0.000000E+00	-2.017457E+03	0.000000E+00	1.173546E+06
22	1.818000E+01	0.000000E+00	0.000000E+00	0.000000E+00	-1.892956E+02	-1.138427E+03
23	0.000000E+00	1.425877E+04	0.000000E+00	-3.711294E+03	0.000000E+00	1.131041E+06
24	2.359686E+05	0.000000E+00	0.000000E+00	0.000000E+00	1.808989E+06	1.006544E+06
25	0.000000E+00	2.359686E+05	0.000000E+00	-1.808989E+06	0.000000E+00	1.655247E+07
26	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	1.674051E+00	-3.180467E+05
27	0.000000E+00	0.000000E+00	0.000000E+00	-1.410567E+00	0.000000E+00	5.783943E+05

## DATI ANALISI SISMICA

lavoro : \AT\_B02

PARAMETRI DI CALCOLO:

Modello generale

Assi di vibrazione: X Y

Combinazione quadratica completa (CQC)

DATI PROGETTO

Edificio sito in località ASTI ( long. 8.191 lat. 44.907600 )

Categoria del suolo di fondazione = C

Coeff. di amplificazione stratigrafica  $S_s = 1.500$

Coeff. di amplificazione topografica  $ST = 1.000$

$S = 1.500$

Vita nominale dell'opera VN = 50 anni

Coefficiente d'uso CU = 1.5

Periodo di riferimento VR = 75.0

PVR : probabilità di superamento in VR = 10 %

Tempo di ritorno = 711

Coeff. di smorzamento viscoso = 5.0

Valori risultanti per :

ag 0.455 [g/10]

Fo 2.735

TC\* 0.300

Fattore di comportamento q = 1.330

Rapporto spettro di esercizio / spettro di progetto = 0.549

## ANALISI DINAMICA MODALE

CONDIZIONI DI RIFERIMENTO	COEFFICIENTE	PESO RISULTANTE [daN]
1.	1.000	1646939.5
2.	1.000	629517.6
3.	0.600	359461.0

\*\*\* TABELLA AUTOVETTORI \*\*\*

n	PERIODO [sec]	MASSA ATTIVATA %X %Y %Z	COEFFICIENTI DI CORRELAZIONE n+1 n+2 n+3 n+4 n+5 n+6 n+7
1	0.614641	23.668 28.091 0.000	0.896 0.197 0.045 0.017 0.012 0.004 0.004 0.004



2	0.594112	54.149	13.841	0.000	0.263	0.052	0.019	0.014	0.005	0.004	0.004
3	0.502766	0.084	36.662	0.000	0.136	0.034	0.023	0.007	0.006	0.005	
4	0.391337	0.000	0.020	0.000	0.122	0.064	0.013	0.010	0.010		
5	0.299789	0.000	0.001	0.000	0.449	0.030	0.021	0.020			
6	0.268383	0.131	0.030	0.000	0.047	0.031	0.030				
7	0.172875	13.060	0.075	0.000	0.506	0.447					
8	0.156650	0.561	4.362	0.000	0.985						
9	0.154722	0.005	3.941	0.000							
<hr/>											
MASSA TOTALE		91.657	87.023	0.000							
<hr/>											

#### ANALISI STATICA LINEARE

Coeff. lambda = 0.8500  
Sd = 0.107 per T1 = 0.615

Numero condizioni generanti carichi sismici : 3

Cond. 001 : Peso\_proprio\_\_\_\_\_ con coeff. 1.000  
Cond. 002 : Permanente\_NonStr con coeff. 1.000  
Cond. 003 : C:\_Ambienti\_affol con coeff. 0.600

Condizioni di carico sismico generate:

Cond. 024 : Sisma X  
Cond. 025 : Sisma Y  
Cond. 026 : Torcente add. X  
Cond. 027 : Torcente add. Y

Carichi sismici :

Piani	Pesi	C. distr.	Forze piano	Torc. piano X	Torc. piano Y	Bar. X	Bar. Y
cm	daN		daN	daNm	daNm	cm	cm
71.0	16347	0.0103	168	228	416	7203.0	-756.2
142.0	11356	0.0206	234	316	578	7759.4	-439.8
213.0	54500	0.0309	1684	2468	4349	7558.2	-592.0
330.0	979137	0.0479	46865	63406	115757	6950.7	-426.4
520.0	26399	0.0754	1991	1291	279	6708.6	92.0
710.0	963169	0.1030	99186	134194	244990	6990.5	-444.8
1090.0	542966	0.1581	85840	116137	212025	7071.5	-413.5

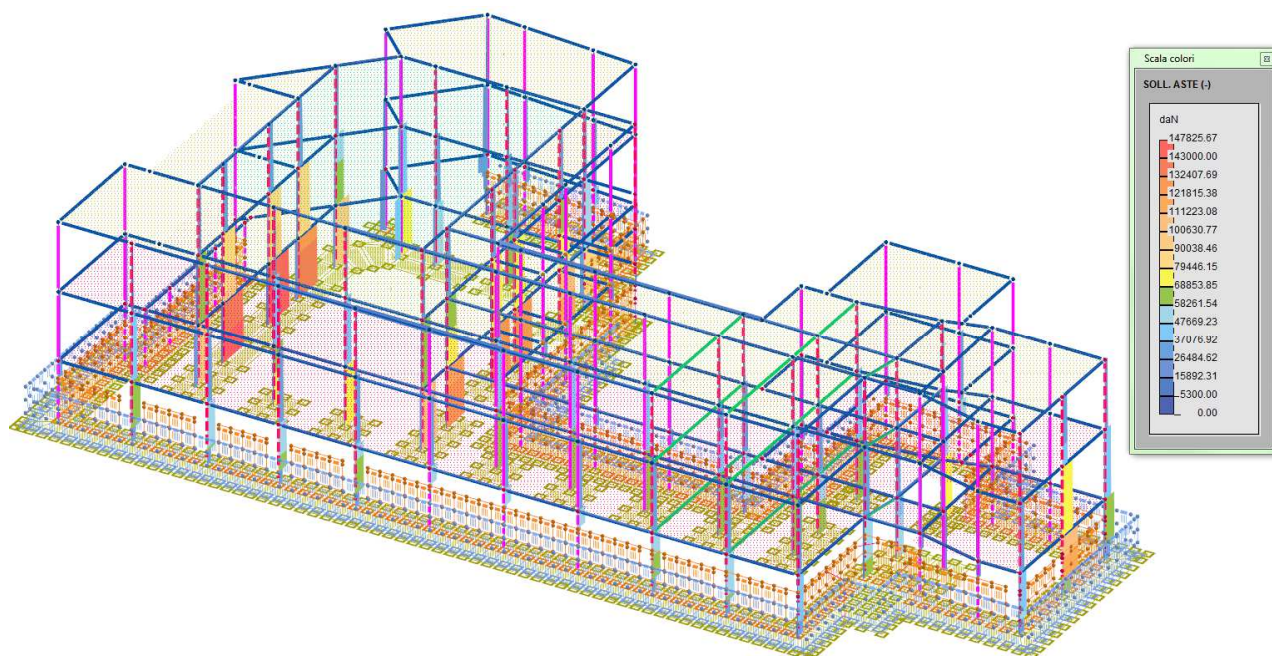
## DESCRIZIONE CASI DI CARICO

NOME	DESCRIZIONE	VERIFICA	TIPO	CONDIZ. INSERITE			CASI INSERITI	
				Num.	Coeff.	Segno	Num.	Coeff.
1	SLU SENZA SISMA 1	S.L.U.	somma	1	1.300	+		
				2	1.300	+		
				3	1.500	+		
				4	0.750	+		
				5	1.300	+		
2	SLU SENZA SISMA 2	S.L.U.	somma	1	1.300	+		
				2	1.300	+		
				3	1.050	+		
				4	1.500	+		
				5	1.300	+		
3	SLU SENZA SISMA 3	S.L.U.	somma	1	1.300	+		
				2	1.300	+		
				3	1.050	+		
				4	0.750	+		
				5	1.300	+		
4	SISMAX SLU	nessuna	somma	6	1.000	quadr.		
				8	1.000	quadr.		
				10	1.000	quadr.		
				12	1.000	quadr.		
				14	1.000	quadr.		
				16	1.000	quadr.		
				20	1.000	±		
5	SISMAY SLU	nessuna	somma	7	1.000	quadr.		
				9	1.000	quadr.		
				11	1.000	quadr.		
				13	1.000	quadr.		
				15	1.000	quadr.		
				17	1.000	quadr.		
				21	1.000	±		
6	SLU con SISMAX PRINC	S.L.U.	somma	1	1.000	+	4	0.800
				2	1.000	+	5	0.240
				3	0.600	+		
				5	1.000	+		
7	SLU con SISMAY PRINC	S.L.U.	somma	1	1.000	+	5	0.800
				2	1.000	+	4	0.240

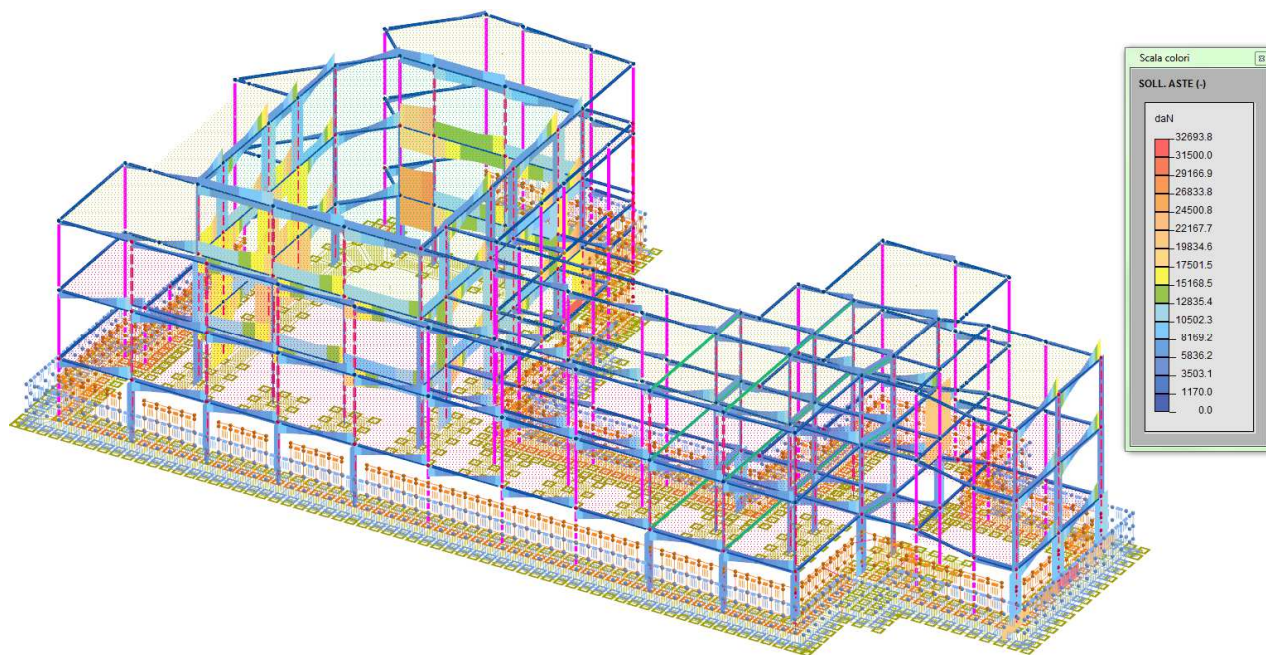
				3	0.600	+		
				5	1.000	+		
8	SLD con SISMAX PRINC	S.L.Danno	somma	1	1.000	+	4	0.439
				2	1.000	+	5	0.132
				3	0.600	+		
				5	1.000	+		
9	SLD con SISMAX PRINC	S.L.Danno	somma	1	1.000	+	5	0.439
				2	1.000	+	4	0.132
				3	0.600	+		
				5	1.000	+		
10	SLU FON con SISMAX P	SLU_FON	somma	1	1.000	+	4	0.880
				2	1.000	+	5	0.264
				3	0.600	+		
				5	1.000	+		
11	SLU FON con SISMAX P	SLU_FON	somma	1	1.000	+	5	0.880
				2	1.000	+	4	0.264
				3	0.600	+		
				5	1.000	+		
12	SLUEqu 1	SLU_EQU	somma	1	0.900	+		
				2	1.500	+		
				3	1.500	+		
				4	0.750	+		
				5	0.900	+		
13	SLUEqu 2	SLU_EQU	somma	1	0.900	+		
				2	1.500	+		
				3	1.050	+		
				4	1.500	+		
				5	0.900	+		
14	SLUEqu 3	SLU_EQU	somma	1	0.900	+		
				2	1.500	+		
				3	1.050	+		
				4	0.750	+		
				5	0.900	+		
15	Rara 1	Rara	somma	1	1.000	+		
				2	1.000	+		
				3	1.000	+		
				4	0.500	+		
				5	1.000	+		
16	Rara 2	Rara	somma	1	1.000	+		
				2	1.000	+		
				3	0.700	+		
				4	1.000	+		
				5	1.000	+		
17	Rara 3	Rara	somma	1	1.000	+		
				2	1.000	+		
				3	0.700	+		
				4	0.500	+		
				5	1.000	+		
18	Frequente 1	Freq.	somma	1	1.000	+		
				2	1.000	+		
				3	0.700	+		
				5	1.000	+		
19	Frequente 2	Freq.	somma	1	1.000	+		
				2	1.000	+		
				3	0.600	+		
				4	0.200	+		
				5	1.000	+		
20	Frequente 3	Freq.	somma	1	1.000	+		
				2	1.000	+		
				3	0.600	+		
				5	1.000	+		
21	Quasi Perm	QuasiPerm.	somma	1	1.000	+		
				2	1.000	+		
				3	0.600	+		
				5	1.000	+		

## SOLLECITAZIONI DI PROGETTO

Al fine di rappresentare graficamente il comportamento derivante dalle analisi strutturali condotte si riportano i diagrammi delle sollecitazioni corrispondenti all'involuppo dei casi di carico riferibili allo stato limite fondamentale considerato (SLV).

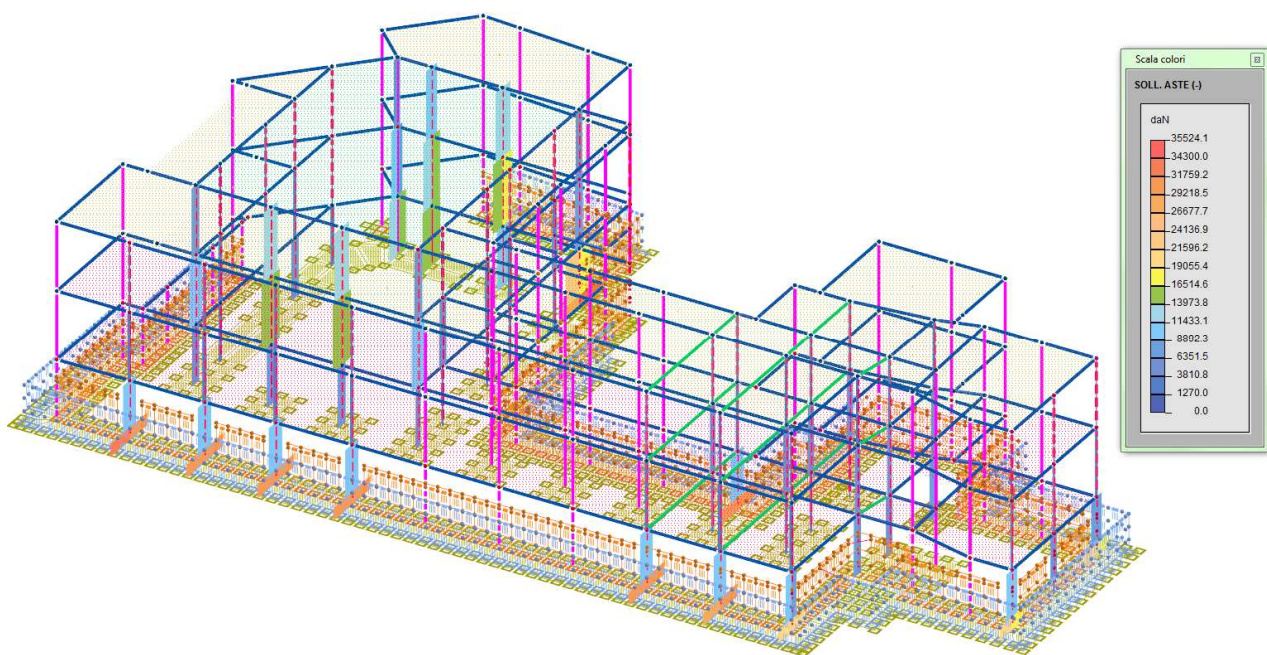


- Sforzo Normale -

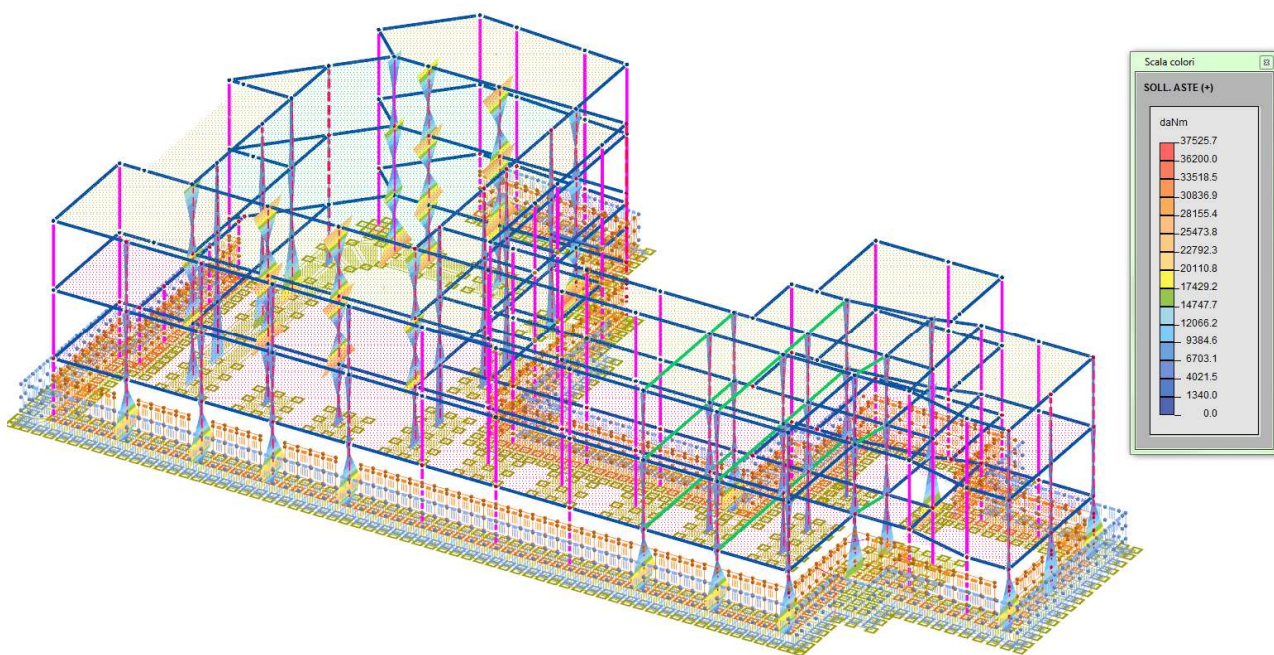


- Sforzo di Taglio in direzione  $T_y$  -



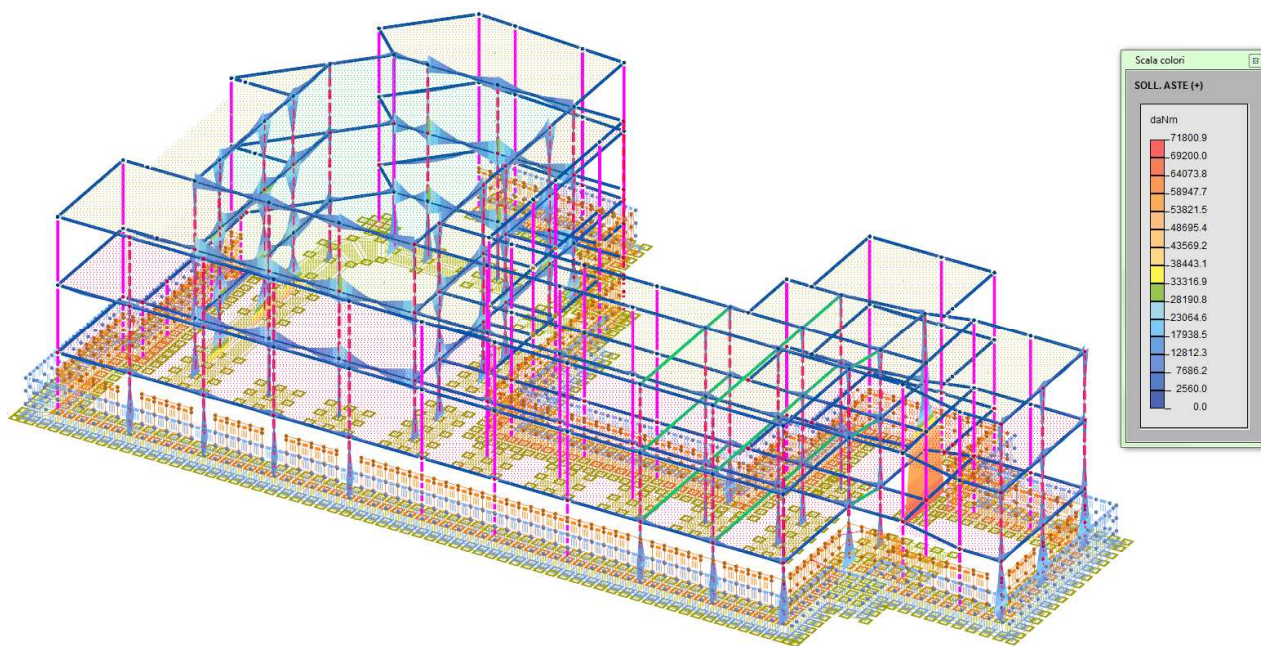


- Sforzo di Taglio in direzione  $T_z$  -

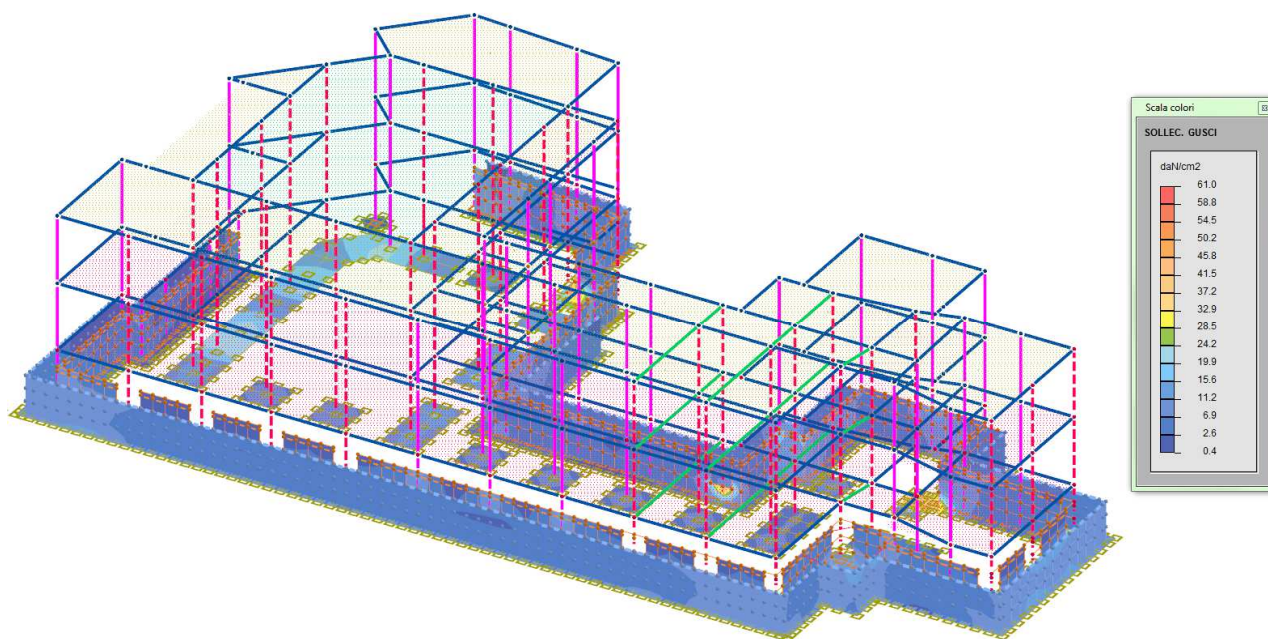


- Sforzo di Momento Flettente nel piano verticale  $M_{yy}$  -





- Sforzo di Momento Flettente nel piano verticale  $M_{zz}$  -



- Tensione massima equivalente di Von Mises agenti -

## VERIFICA PILASTRI ESISTENTI DOPO IL RINFORZO:

**N.B.:** Per i pilastri esistenti, i messaggi di errore che si leggeranno fanno riferimento principalmente ai limiti di armatura previsti nel Cap. 4 delle NTC del 2018. Essendo una struttura esistente tali limitazioni si possono tranquillamente trascurare a patto che gli elementi oggetto di analisi risultino verificati per le rispettive sollecitazioni agenti.

Nel dettaglio il messaggio di errore sarà:

10) Passo staffe insufficiente [4.1.6.1.2].

**N.B.:** I pilastri oggetto di rinforzo saranno considerati come nuovi elementi a tutti gli effetti e verranno verificati con la nuova sezione ingrossata. Considerando la struttura come NON DISSIPATIVA è stato assicurato un comportamento "Sostanzialmente Elastico" limitando le deformazioni nei materiali nella misura del 2‰ per il calcestruzzo e del 1.8‰ per l'acciaio, secondo quanto previsto nelle NTC al par. 7.2.2.

Nome pilastro : **P001** (ID=70)  
Aste : 1179-1180-1181-1182; 1183; 772; 773  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma$  (rara)=98.8;  $\sigma$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma$  (rara)=3054; Coeff.Omogeneizzazione=15

### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

<-

### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14

### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cls	$\sigma$	E acc	$\sigma$ f	VE
> 1	1- 1	-8402.	23384.	23384.	-.013	-11.3	-.002	-45.5	SI
1	1- 1	-11583.	0.	0.	-.009	-8.3	-.009	-185.6	SI
1	1- 1	-20545.	57183.	57183.	-.032	-27.1	-.006	-110.4	SI
> 2	1- 1	-34895.	80839.	80839.	-.052	-41.7	-.013	-251.2	SI
2	1- 1	-34706.	0.	0.	-.029	-24.7	-.029	-581.9	SI
2	1- 1	-34516.	79963.	79963.	-.052	-41.2	-.012	-248.5	SI
> 3	1- 1	-18135.	59242.	59242.	-.032	-26.8	-.003	-61.4	SI
3	1- 1	-17379.	0.	0.	-.015	-12.8	-.015	-290.3	SI

3	1- 1	-16623.	54300.	999.	54300.	999.	-.029	-24.6	-.003	-56.6	SI
> 4	2- 1	-6852.	22384.	999.	22384.	999.	-.012	-10.3	-.001	-24.	SI
4	2- 1	-6096.	0.	999.	0.	999.	-.005	-4.5	-.005	-99.6	SI
4	2- 1	-5339.	17442.	999.	17442.	999.	-.009	-8.1	-.001	-18.8	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L 1im	Lamdb	VE
1	1- 1	-20545.	235.	.183	58.38	23.26	SI
2	1- 1	-34894.7	95.	.312	44.79	9.4	SI
3	1- 1	-18135.4	380.	.162	62.13	37.61	SI
4	2- 1	-6852.3	380.	.061	101.1	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L 1im	Lamdb	VE
1	1- 1	-20545.	235.	.183	58.38	23.26	SI
2	1- 1	-34894.7	95.	.312	44.79	9.4	SI
3	1- 1	-18135.4	380.	.162	62.13	37.61	SI
4	2- 1	-6852.3	380.	.061	101.1	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	16230.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16658.9	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17866.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17542.1	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17440.1	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17338.2	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15950.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15848.4	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15746.5	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	16230.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16658.9	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17866.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17542.1	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17440.1	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17338.2	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15950.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15848.4	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15746.5	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-6283.8	0.	0.	-4.7	-70.5	SI
1 C	15- 1	-8654.7	0.	0.	-6.5	-97.1	SI
1 S	15- 1	-15345.7	0.	0.	-11.5	-172.1	SI
2 I	15- 1	-26064.1	0.	0.	-19.5	-292.3	SI
2 C	15- 1	-25918.6	0.	0.	-19.4	-290.7	SI
2 S	15- 1	-25773.1	0.	0.	-19.3	-289.	SI
3 I	15- 1	-13649.4	0.	0.	-10.4	-156.1	SI
3 C	15- 1	-13067.6	0.	0.	-10.	-149.5	SI
3 S	15- 1	-12485.7	0.	0.	-9.5	-142.8	SI
4 I	16- 1	-5171.8	0.	0.	-3.9	-59.2	SI
4 C	16- 1	-4589.9	0.	0.	-3.5	-52.5	SI
4 S	16- 1	-4008.1	0.	0.	-3.1	-45.9	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-5878.4	0.	0.	-4.4	-65.9	SI
1 C	18- 1	-8081.9	0.	0.	-6.	-90.6	SI
1 S	18- 1	-14317.5	0.	0.	-10.7	-160.6	SI
2 I	18- 1	-24317.4	0.	0.	-18.2	-272.7	SI
2 C	18- 1	-24171.9	0.	0.	-18.1	-271.1	SI
2 S	18- 1	-24026.4	0.	0.	-18.	-269.4	SI
3 I	18- 1	-12829.5	0.	0.	-9.8	-146.8	SI
3 C	18- 1	-12247.6	0.	0.	-9.3	-140.1	SI
3 S	18- 1	-11665.7	0.	0.	-8.9	-133.5	SI
4 I	19- 1	-4635.8	0.	0.	-3.5	-53.	SI
4 C	19- 1	-4053.9	0.	0.	-3.1	-46.4	SI
4 S	19- 1	-3472.	0.	0.	-2.6	-39.7	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	21- 1	-5770.2	0.	0.	-4.3	-64.7	SI
1 C	21- 1	-7926.7	0.	0.	-5.9	-88.9	SI
1 S	21- 1	-14039.	0.	0.	-10.5	-157.4	SI
2 I	21- 1	-23844.5	0.	0.	-17.8	-267.4	SI
2 C	21- 1	-23699.	0.	0.	-17.7	-265.8	SI
2 S	21- 1	-23553.5	0.	0.	-17.6	-264.1	SI
3 I	21- 1	-12667.2	0.	0.	-9.7	-144.9	SI
3 C	21- 1	-12085.3	0.	0.	-9.2	-138.3	SI
3 S	21- 1	-11503.5	0.	0.	-8.8	-131.6	SI
4 I	21- 1	-4500.7	0.	0.	-3.4	-51.5	SI
4 C	21- 1	-3918.8	0.	0.	-3.	-44.8	SI
4 S	21- 1	-3336.9	0.	0.	-2.5	-38.2	SI

MESSAGGI

# 10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : P002 (ID=71)  
 Aste : 1174-1175-1176-1177; 1178; 769; 770  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r  $\hat{=}$  (permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

## MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
 gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.2% (limit.elastico)  
 ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
 gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; Eud=0.14% (limit.elastico)

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
 ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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## SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	ei	ey	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4 $\phi$ 16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4 $\phi$ 16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4 $\phi$ 14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369 4 $\phi$ 12

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-6168.	17168.	17168.	-0.009	-8.3	-0.002	-33.4	SI
1	1- 1	-6931.	0.	0.	-0.006	-5.	-0.006	-110.2	SI
1	1- 1	-14364.	39979.	39979.	-0.022	-19.1	-0.004	-77.5	SI
> 2	1- 1	-36124.	83687.	83687.	-0.055	-43.1	-0.013	-260.	SI
2	1- 1	-35935.	0.	0.	-0.03	-25.5	-0.03	-604.1	SI
2	1- 1	-35746.	82811.	82811.	-0.054	-42.6	-0.013	-257.3	SI
> 3	1- 1	-23184.	75734.	75734.	-0.041	-33.9	-0.004	-77.	SI
3	1- 1	-22427.	0.	0.	-0.019	-16.5	-0.019	-378.5	SI
3	1- 1	-21671.	70792.	70792.	-0.039	-31.8	-0.004	-72.4	SI
> 4	2- 1	-8695.	28404.	28404.	-0.015	-13.5	-0.001	-29.4	SI
4	2- 1	-7939.	0.	0.	-0.007	-6.	-0.007	-133.7	SI
4	2- 1	-7182.	23462.	23462.	-0.013	-11.2	-0.001	-24.4	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-14363.9	235.	.128	69.82	23.26	SI
2	1- 1	-36123.8	95.	.322	44.02	9.4	SI
3	1- 1	-23183.8	380.	.207	54.95	37.61	SI
4	2- 1	-8695.1	380.	.078	89.73	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-14363.9	235.	.128	69.82	23.26	SI
2	1- 1	-36123.8	95.	.322	44.02	9.4	SI
3	1- 1	-23183.8	380.	.207	54.95	37.61	SI
4	2- 1	-8695.1	380.	.078	89.73	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15929.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16031.9	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17033.7	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI



3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
3 S	1- 1	0.	5944.4	5944.4	18018.6	.57	18.	2.5	NO	10
4 I	1- 1	0.	5944.4	5944.4	16168.1	.57	18.	2.5	NO	10
4 C	1- 1	0.	5944.4	5944.4	16066.1	.57	18.	2.5	NO	10
4 S	1- 1	0.	5944.4	5944.4	15964.2	.57	18.	2.5	NO	10

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15929.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16031.9	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17033.7	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	18018.6	.57	18.	2.5	NO
4 I	1- 1	0.	5944.4	5944.4	16168.1	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	16066.1	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	15964.2	.57	18.	2.5	NO

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-4613.4	0.	0.	-3.4	-51.7	SI
1 C	15- 1	-5174.	0.	0.	-3.9	-58.	SI
1 S	15- 1	-10716.	0.	0.	-8.	-120.2	SI
2 I	15- 1	-26946.7	0.	0.	-20.1	-302.2	SI
2 C	15- 1	-26801.2	0.	0.	-20.	-300.6	SI
2 S	15- 1	-26655.8	0.	0.	-19.9	-298.9	SI
3 I	15- 1	-17349.7	0.	0.	-13.2	-198.5	SI
3 C	15- 1	-16767.8	0.	0.	-12.8	-191.8	SI
3 S	15- 1	-16185.9	0.	0.	-12.3	-185.2	SI
4 I	16- 1	-6526.1	0.	0.	-5.1	-76.	SI
4 C	16- 1	-5944.2	0.	0.	-4.6	-69.2	SI
4 S	16- 1	-5362.3	0.	0.	-4.2	-62.4	SI

#### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-4309.9	0.	0.	-3.2	-48.3	SI
1 C	18- 1	-4806.	0.	0.	-3.6	-53.9	SI
1 S	18- 1	-9923.5	0.	0.	-7.4	-111.3	SI
2 I	18- 1	-24941.3	0.	0.	-18.6	-279.7	SI
2 C	18- 1	-24795.9	0.	0.	-18.5	-278.1	SI
2 S	18- 1	-24650.4	0.	0.	-18.4	-276.4	SI
3 I	18- 1	-16042.9	0.	0.	-12.2	-183.5	SI
3 C	18- 1	-15461.	0.	0.	-11.8	-176.9	SI
3 S	18- 1	-14879.1	0.	0.	-11.3	-170.2	SI
4 I	19- 1	-5699.3	0.	0.	-4.4	-66.4	SI
4 C	19- 1	-5117.4	0.	0.	-4.	-59.6	SI
4 S	19- 1	-4535.5	0.	0.	-3.5	-52.8	SI

#### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-4231.3	0.	0.	-3.2	-47.5	SI
1 C	21- 1	-4712.4	0.	0.	-3.5	-52.8	SI
1 S	21- 1	-9727.4	0.	0.	-7.3	-109.1	SI
2 I	21- 1	-24447.1	0.	0.	-18.3	-274.2	SI
2 C	21- 1	-24301.6	0.	0.	-18.2	-272.5	SI
2 S	21- 1	-24156.1	0.	0.	-18.1	-270.9	SI
3 I	21- 1	-15780.1	0.	0.	-12.	-180.5	SI
3 C	21- 1	-15198.2	0.	0.	-11.6	-173.9	SI
3 S	21- 1	-14616.4	0.	0.	-11.1	-167.2	SI
4 I	21- 1	-5493.5	0.	0.	-4.3	-64.	SI
4 C	21- 1	-4911.7	0.	0.	-3.8	-57.2	SI
4 S	21- 1	-4329.8	0.	0.	-3.4	-50.4	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P003** (ID=72)  
Aste : 1169-1170-1171-1172; 1173; 775; 776  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daN/cm<sup>2</sup>; deform.%; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657	4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369	4φ12

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	σc	E acc	σf	VE		
> 1	1- 1	-5096.	14184.	999.	14184.	999.	-0.008	-6.9	-0.001	-27.6	SI
1	1- 1	-6784.	0.	999.	0.	999.	-0.005	-4.9	-0.005	-107.8	SI
1	1- 1	-15604.	43431.	999.	43431.	999.	-0.024	-20.7	-0.004	-84.1	SI
> 2	1- 1	-40141.	92994.	999.	92994.	999.	-0.061	-47.5	-0.014	-288.8	SI
2	1- 1	-39952.	0.	999.	0.	999.	-0.034	-28.4	-0.034	-677.5	SI
2	1- 1	-39763.	92118.	999.	92118.	999.	-0.061	-47.1	-0.014	-286.1	SI
> 3	1- 1	-24656.	80542.	999.	80542.	999.	-0.044	-36.	-0.004	-81.4	SI
3	1- 1	-23899.	0.	999.	0.	999.	-0.02	-17.6	-0.02	-404.6	SI
3	1- 1	-23143.	75600.	999.	75600.	999.	-0.041	-33.9	-0.004	-76.9	SI
> 4	2- 1	-9092.	29701.	999.	29701.	999.	-0.016	-14.1	-0.002	-30.7	SI
4	2- 1	-8336.	0.	999.	0.	999.	-0.007	-6.3	-0.007	-140.5	SI
4	2- 1	-7579.	24759.	999.	24759.	999.	-0.013	-11.8	-0.001	-25.7	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-15603.9	235.	.139	66.98	23.26	SI
2	1- 1	-40141.5	95.	.358	41.76	9.4	SI
3	1- 1	-24655.7	380.	.22	53.29	37.61	SI
4	2- 1	-9092.	380.	.081	87.75	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-15603.9	235.	.139	66.98	23.26	SI
2	1- 1	-40141.5	95.	.358	41.76	9.4	SI
3	1- 1	-24655.7	380.	.22	53.29	37.61	SI
4	2- 1	-9092.	380.	.081	87.75	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15784.6	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16012.1	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17200.9	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16209.2	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	16107.2	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	16005.3	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15784.6	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16012.1	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17200.9	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16209.2	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	16107.2	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	16005.3	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-3820.1	0.	0.	-2.9	-42.8	SI

1	C	15- 1	-5069.7	0.	0.	-3.8	-56.9	SI
1	S	15- 1	-11647.3	0.	0.	-8.7	-130.6	SI
2	I	15- 1	-29955.1	0.	0.	-22.4	-335.9	SI
2	C	15- 1	-29809.6	0.	0.	-22.3	-334.3	SI
2	S	15- 1	-29664.1	0.	0.	-22.2	-332.7	SI
3	I	15- 1	-18469.5	0.	0.	-14.1	-211.3	SI
3	C	15- 1	-17887.6	0.	0.	-13.6	-204.6	SI
3	S	15- 1	-17305.7	0.	0.	-13.2	-198.	SI
4	I	16- 1	-6830.2	0.	0.	-5.3	-79.5	SI
4	C	16- 1	-6248.3	0.	0.	-4.8	-72.7	SI
4	S	16- 1	-5666.5	0.	0.	-4.4	-66.	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	18- 1	-3588.9	0.	0.	-2.7	-40.2	SI
1	C	18- 1	-4724.	0.	0.	-3.5	-53.	SI
1	S	18- 1	-10808.3	0.	0.	-8.1	-121.2	SI
2	I	18- 1	-27776.4	0.	0.	-20.8	-311.5	SI
2	C	18- 1	-27631.	0.	0.	-20.7	-309.9	SI
2	S	18- 1	-27485.5	0.	0.	-20.5	-308.2	SI
3	I	18- 1	-17120.5	0.	0.	-13.1	-195.9	SI
3	C	18- 1	-16538.7	0.	0.	-12.6	-189.2	SI
3	S	18- 1	-15956.8	0.	0.	-12.2	-182.5	SI
4	I	19- 1	-5956.5	0.	0.	-4.6	-69.4	SI
4	C	19- 1	-5374.6	0.	0.	-4.2	-62.6	SI
4	S	19- 1	-4792.7	0.	0.	-3.7	-55.8	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-3529.2	0.	0.	-2.6	-39.6	SI
1 C	21- 1	-4635.6	0.	0.	-3.5	-52.	SI
1 S	21- 1	-10597.9	0.	0.	-7.9	-118.8	SI
2 I	21- 1	-27230.6	0.	0.	-20.4	-305.4	SI
2 C	21- 1	-27085.2	0.	0.	-20.2	-303.7	SI
2 S	21- 1	-26939.7	0.	0.	-20.1	-302.1	SI
3 I	21- 1	-16852.3	0.	0.	-12.9	-192.8	SI
3 C	21- 1	-16270.4	0.	0.	-12.4	-186.1	SI
3 S	21- 1	-15688.5	0.	0.	-12.	-179.5	SI
4 I	21- 1	-5736.8	0.	0.	-4.5	-66.8	SI
4 C	21- 1	-5154.9	0.	0.	-4.	-60.	SI
4 S	21- 1	-4573.	0.	0.	-3.5	-53.2	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P004** (ID=220)  
Aste : 1663-1662-1661-1660; 1161; 778; 779  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daN/cm; daN/cm<sup>2</sup>; deform. %; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4φ16

2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16	
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14	
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14	

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	σc	E acc	σf	VE
> 1	7- 4	-1222.	3402.	999.	3402.	999.	-0.002	-1.7	0.
1	1- 1	-1775.	0.	999.	0.	999.	-0.001	-1.3	-0.001
1	1- 1	-6203.	17264.	999.	17264.	999.	-0.009	-8.3	-0.002
> 2	1- 1	-15546.	36014.	999.	36014.	999.	-0.022	-19.1	-0.006
2	1- 1	-15357.	0.	999.	0.	999.	-0.012	-11.	-0.012
2	1- 1	-15167.	35138.	999.	35138.	999.	-0.022	-18.6	-0.005
> 3	1- 1	-10607.	34648.	999.	34648.	999.	-0.018	-15.9	-0.002
3	1- 1	-9850.	0.	999.	0.	999.	-0.008	-7.3	-0.008
3	1- 1	-9094.	29706.	999.	29706.	999.	-0.016	-13.6	-0.002
> 4	2- 1	-4353.	14218.	999.	14218.	999.	-0.007	-6.6	-0.001
4	2- 1	-3596.	0.	999.	0.	999.	-0.003	-2.7	-0.003
4	2- 1	-2840.	9276.	999.	9276.	999.	-0.005	-4.3	-0.001

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-6202.8	235.	.055	106.2	23.26	SI
2	1- 1	-15545.7	95.	.139	67.11	9.4	SI
3	1- 1	-10606.7	380.	.095	81.25	37.61	SI
4	2- 1	-4352.5	380.	.039	126.8	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-6202.8	235.	.055	106.2	23.26	SI
2	1- 1	-15545.7	95.	.139	67.11	9.4	SI
3	1- 1	-10606.7	380.	.095	81.25	37.61	SI
4	2- 1	-4352.5	380.	.039	126.8	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15261.8	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15337.	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	15933.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17193.	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17167.5	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	17142.	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16527.3	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	16425.4	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	16323.4	.57	18.	2.5	NO
4 I	1- 1	0.	5944.4	5944.4	15667.3	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	15565.3	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	15463.4	.57	18.	2.5	NO

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15261.8	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15337.	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	15933.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17193.	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17167.5	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	17142.	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16527.3	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	16425.4	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	16323.4	.57	18.	2.5	NO
4 I	1- 1	0.	5944.4	5944.4	15667.3	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	15565.3	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	15463.4	.57	18.	2.5	NO

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-921.5	0.	0.	-0.7	-10.3	SI
1 C	15- 1	-1344.6	0.	0.	-1.	-15.1	SI
1 S	15- 1	-4698.1	0.	0.	-3.5	-52.7	SI
2 I	15- 1	-11774.4	0.	0.	-8.8	-132.	SI
2 C	15- 1	-11629.	0.	0.	-8.7	-130.4	SI
2 S	15- 1	-11483.5	0.	0.	-8.6	-128.8	SI
3 I	15- 1	-8048.7	0.	0.	-6.1	-92.1	SI
3 C	15- 1	-7466.8	0.	0.	-5.7	-85.4	SI
3 S	15- 1	-6884.9	0.	0.	-5.3	-78.8	SI
4 I	16- 1	-3309.7	0.	0.	-2.5	-37.9	SI
4 C	16- 1	-2727.8	0.	0.	-2.1	-31.2	SI
4 S	16- 1	-2145.9	0.	0.	-1.6	-24.5	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-889.4	0.	0.	-0.7	-10.	SI
1 C	18- 1	-1297.7	0.	0.	-1.	-14.6	SI
1 S	18- 1	-4523.5	0.	0.	-3.4	-50.7	SI
2 I	18- 1	-11336.2	0.	0.	-8.5	-127.1	SI
2 C	18- 1	-11190.7	0.	0.	-8.4	-125.5	SI
2 S	18- 1	-11045.2	0.	0.	-8.3	-123.9	SI
3 I	18- 1	-7757.1	0.	0.	-5.9	-88.7	SI
3 C	18- 1	-7175.2	0.	0.	-5.5	-82.1	SI
3 S	18- 1	-6593.4	0.	0.	-5.	-75.4	SI
4 I	19- 1	-3138.3	0.	0.	-2.4	-35.9	SI
4 C	19- 1	-2556.4	0.	0.	-1.9	-29.2	SI
4 S	19- 1	-1974.5	0.	0.	-1.5	-22.6	SI

Quasi permanenti:

Asta	Caso	NED	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-880.6	0.	0.	-1.7	-9.9	SI
1 C	21- 1	-1285.4	0.	0.	-1.	-14.4	SI
1 S	21- 1	-4480.4	0.	0.	-3.3	-50.2	SI
2 I	21- 1	-11228.1	0.	0.	-8.4	-125.9	SI
2 C	21- 1	-11082.6	0.	0.	-8.3	-124.3	SI
2 S	21- 1	-10937.2	0.	0.	-8.2	-122.7	SI
3 I	21- 1	-7696.4	0.	0.	-5.9	-88.	SI
3 C	21- 1	-7114.5	0.	0.	-5.4	-81.4	SI
3 S	21- 1	-6532.6	0.	0.	-5.	-74.7	SI
4 I	21- 1	-3097.	0.	0.	-2.4	-35.4	SI
4 C	21- 1	-2515.1	0.	0.	-1.9	-28.8	SI
4 S	21- 1	-1933.2	0.	0.	-1.5	-22.1	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P005** (ID=74)  
 Aste : 780; 781; 782  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r â€°(permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferrri (assi) : longitudinali= 4.6 ; staffe= 3.3  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
 gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
 ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
 gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
 ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	8.04	.657
2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NED	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-21501.	66653.	66653.	999.	-0.036	-29.7	-0.004	-88.8
1	1- 1	-20844.	0.	0.	999.	-0.017	-14.9	-0.017	-339.9
1	1- 1	-20187.	62580.	62580.	999.	-0.033	-27.9	-0.004	-83.6
> 2	1- 1	-10488.	34260.	34260.	999.	-0.018	-15.7	-0.002	-36.4
2	1- 1	-9731.	0.	0.	999.	-0.008	-7.2	-0.008	-160.1
2	1- 1	-8975.	29318.	29318.	999.	-0.015	-13.5	-0.002	-31.3
> 3	2- 1	-4241.	13855.	13855.	999.	-0.007	-6.4	-0.001	-15.
3	2- 1	-3485.	0.	0.	999.	-0.003	-2.6	-0.003	-56.7
3	2- 1	-2728.	8913.	8913.	999.	-0.005	-4.1	0.	-9.7

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NED	10	nu	L lim	Lambd	VE
1	1- 1	-21500.9	330.	.192	57.06	32.66	SI
2	1- 1	-10487.7	380.	.094	81.7	37.61	SI
3	2- 1	-4241.2	380.	.038	128.5	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NED	10	nu	L lim	Lambd	VE
1	1- 1	-21500.9	330.	.192	57.06	32.66	SI

2	1- 1	-10487.7	380.	.094	81.7	37.61	SI
3	2- 1	-4241.2	380.	.038	128.5	37.61	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	17995.6	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	17907.1	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17818.6	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	16511.3	.57	18.	2.5	NO 10
2 C	1- 1	0.	5944.4	5944.4	16409.4	.57	18.	2.5	NO 10
2 S	1- 1	0.	5944.4	5944.4	16307.4	.57	18.	2.5	NO 10
3 I	1- 1	0.	5944.4	5944.4	15643.9	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	15541.9	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	15440.	.57	18.	2.5	NO 10

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	17995.6	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	17907.1	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17818.6	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	16511.3	.57	18.	2.5	NO 10
2 C	1- 1	0.	5944.4	5944.4	16409.4	.57	18.	2.5	NO 10
2 S	1- 1	0.	5944.4	5944.4	16307.4	.57	18.	2.5	NO 10
3 I	1- 1	0.	5944.4	5944.4	15643.9	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	15541.9	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	15440.	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-16152.	0.	0.	-12.1	-181.1	SI
1 C	15- 1	-15646.7	0.	0.	-11.7	-175.5	SI
1 S	15- 1	-15141.4	0.	0.	-11.3	-169.8	SI
2 I	15- 1	-7949.9	0.	0.	-6.1	-90.9	SI
2 C	15- 1	-7368.1	0.	0.	-5.6	-84.3	SI
2 S	15- 1	-6786.2	0.	0.	-5.2	-77.6	SI
3 I	16- 1	-3222.4	0.	0.	-2.5	-36.9	SI
3 C	16- 1	-2640.5	0.	0.	-2.	-30.2	SI
3 S	16- 1	-2058.6	0.	0.	-1.6	-23.6	SI

##### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-15302.2	0.	0.	-11.4	-171.6	SI
1 C	18- 1	-14796.9	0.	0.	-11.1	-165.9	SI
1 S	18- 1	-14291.6	0.	0.	-10.7	-160.3	SI
2 I	18- 1	-7628.7	0.	0.	-5.8	-87.3	SI
2 C	18- 1	-7046.8	0.	0.	-5.4	-80.6	SI
2 S	18- 1	-6465.	0.	0.	-4.9	-74.	SI
3 I	19- 1	-3016.7	0.	0.	-2.3	-34.5	SI
3 C	19- 1	-2434.8	0.	0.	-1.9	-27.9	SI
3 S	19- 1	-1852.9	0.	0.	-1.4	-21.2	SI

##### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-15064.2	0.	0.	-11.3	-168.9	SI
1 C	21- 1	-14558.8	0.	0.	-10.9	-163.3	SI
1 S	21- 1	-14053.5	0.	0.	-10.5	-157.6	SI
2 I	21- 1	-7565.5	0.	0.	-5.8	-86.5	SI
2 C	21- 1	-6983.6	0.	0.	-5.3	-79.9	SI
2 S	21- 1	-6401.8	0.	0.	-4.9	-73.2	SI
3 I	21- 1	-2965.4	0.	0.	-2.3	-33.9	SI
3 C	21- 1	-2383.5	0.	0.	-1.8	-27.3	SI
3 S	21- 1	-1801.6	0.	0.	-1.4	-20.6	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P006** (ID=75)  
 Aste : 626; 627; 629  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform.%; 1/r ‰(permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 3.5 ; staffe= 2.5  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : rigidezza nominale [EC2 5.8.7];  $\lambda_{fief}$ =3

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
 gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
 ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
 gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)=149.4; Scls(quasi permanente)=112; fbd(esercizio)=26.86  
 ACCIAIO: Sacc(rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
5	SLU con SISMAX	SLU (sismico)	4
6	SLU con SISMAX	SLU (sismico)	4
13	Rara 1	RARA	1
14	Rara 2	RARA	1
15	Frequente 1	FREQUENTE	1
16	Frequente 2	FREQUENTE	1
17	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

- 1) Rettangolare: base=40; alt.=40; Acl=1600; iy=11.55; iz=11.55  
3) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	8.04	.503
2	3	2.	2.	1.27	1.27	380.	330.	0.	0.	6.16	.503
3	3	2.	2.	1.27	1.27	380.	330.	0.	0.	4.52	.369

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (inclusi imperfezioni e second'ordine):

Asta	Caso	NEd	MEyd	MEzd	E c/s	Sc/s	E acc	Sacc	VE
> 1	1- 1	-48270.	168655.	999.	-0.043	-53.9	-0.003	-71.2	SI
1	1- 1	-47412.	0.	999.	-0.021	-27.6	-0.021	-433.	SI
1	5- 4	-46642.	162837.	999.	-0.041	-52.2	-0.003	-69.5	SI
> 2	1- 1	-28045.	108719.	999.	-0.037	-46.8	.001	13.4	SI
2	1- 1	-27288.	0.	999.	-0.015	-20.8	-0.015	-321.3	SI
2	1- 1	-26532.	102854.	999.	-0.034	-44.4	.001	12.1	SI
> 3	2- 1	-10824.	38592.	999.	-0.013	-18.1	0.	-6.5	SI
3	2- 1	-10068.	0.	999.	-0.006	-7.8	-0.006	-117.9	SI
3	2- 1	-9311.	33199.	999.	-0.011	-15.6	0.	-5.7	SI

INSTABILITA' - RIGIDEZZA NOMINALE Y [EC2 5.8.7]:

Asta	Caso	NB	10	Jn	Jc/s/Jn	Mca1	M0Ed	MEd	nu
1 I	1- 1	-428084.1	330.	15020.2	14.2031	0.	149638.	168655.	.214
2 I	1- 1	-178241.4	380.	8292.7	15.0798	0.	91613.	108719.	.162
3 I	2- 1	-129204.	380.	6011.2	20.8032	0.	35359.	38592.	.063

INSTABILITA' - RIGIDEZZA NOMINALE Z [EC2 5.8.7]:

Asta	Caso	NB	10	Jn	Jc/s/Jn	Mca1	M0Ed	MEd	nu
1 I	1- 1	-428084.1	330.	15020.2	14.2031	0.	149638.	168655.	.214
2 I	1- 1	-178241.4	380.	8292.7	15.0798	0.	91613.	108719.	.162
3 I	2- 1	-129204.	380.	6011.2	20.8032	0.	35359.	38592.	.063

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	17003.4	17003.4	38359.7	1.01	19.	2.5	SI
1 C	1- 1	0.	17003.4	17003.4	38359.7	1.01	19.	2.5	SI
1 S	1- 1	0.	17003.4	17003.4	38359.7	1.01	19.	2.5	SI
2 I	1- 1	0.	14674.2	14674.2	28055.7	1.01	19.	2.5	NO 10
2 C	1- 1	0.	14674.2	14674.2	27950.	1.01	19.	2.5	NO 10
2 S	1- 1	0.	14674.2	14674.2	27844.4	1.01	19.	2.5	NO 10
3 I	1- 1	0.	14674.2	14674.2	25509.5	1.01	19.	2.5	NO 10
3 C	1- 1	0.	14674.2	14674.2	25403.9	1.01	19.	2.5	NO 10
3 S	1- 1	0.	14674.2	14674.2	25298.2	1.01	19.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	17003.4	17003.4	38359.7	1.01	19.	2.5	SI
1 C	1- 1	0.	17003.4	17003.4	38359.7	1.01	19.	2.5	SI
1 S	1- 1	0.	17003.4	17003.4	38359.7	1.01	19.	2.5	SI
2 I	1- 1	0.	14674.2	14674.2	28055.7	1.01	19.	2.5	NO 10
2 C	1- 1	0.	14674.2	14674.2	27950.	1.01	19.	2.5	NO 10
2 S	1- 1	0.	14674.2	14674.2	27844.4	1.01	19.	2.5	NO 10
3 I	1- 1	0.	14674.2	14674.2	25509.5	1.01	19.	2.5	NO 10
3 C	1- 1	0.	14674.2	14674.2	25403.9	1.01	19.	2.5	NO 10
3 S	1- 1	0.	14674.2	14674.2	25298.2	1.01	19.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	Sc/s	Sacc	VE
1 I	13- 1	-35898.8	0.	0.	-21.	-314.4	SI
1 C	13- 1	-35238.8	0.	0.	-20.6	-308.6	SI
1 S	13- 1	-34578.8	0.	0.	-20.2	-302.9	SI
2 I	13- 1	-20973.1	0.	0.	-16.	-239.9	SI
2 C	13- 1	-20391.2	0.	0.	-15.6	-233.3	SI
2 S	13- 1	-19809.3	0.	0.	-15.1	-226.6	SI
3 I	14- 1	-8211.	0.	0.	-6.4	-95.6	SI
3 C	14- 1	-7629.1	0.	0.	-5.9	-88.8	SI
3 S	14- 1	-7047.3	0.	0.	-5.5	-82.1	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	Sc/s	Sacc	VE
1 I	15- 1	-33145.1	0.	0.	-19.4	-290.3	SI
1 C	15- 1	-32485.1	0.	0.	-19.	-284.5	SI
1 S	15- 1	-31825.1	0.	0.	-18.6	-278.7	SI
2 I	15- 1	-19449.3	0.	0.	-14.8	-222.5	SI
2 C	15- 1	-18867.4	0.	0.	-14.4	-215.8	SI
2 S	15- 1	-18285.5	0.	0.	-13.9	-209.2	SI
3 I	16- 1	-7399.4	0.	0.	-5.7	-86.2	SI
3 C	16- 1	-6817.5	0.	0.	-5.3	-79.4	SI
3 S	16- 1	-6235.7	0.	0.	-4.8	-72.6	SI

QUASI PERMANENTI:								
Asta	Caso	NEd	MEyd	MEzd	ScIs	Sacc	VE	
1 I	17- 1	-32394.4	0.	0.	-18.9	-283.7	SI	
1 C	17- 1	-31734.4	0.	0.	-18.5	-278.	SI	
1 S	17- 1	-31074.4	0.	0.	-18.1	-272.2	SI	
2 I	17- 1	-19109.9	0.	0.	-14.6	-218.6	SI	
2 C	17- 1	-18528.	0.	0.	-14.1	-212.	SI	
2 S	17- 1	-17946.2	0.	0.	-13.7	-205.3	SI	
3 I	17- 1	-7185.	0.	0.	-5.6	-83.7	SI	
3 C	17- 1	-6603.1	0.	0.	-5.1	-76.9	SI	
3 S	17- 1	-6021.3	0.	0.	-4.7	-70.1	SI	

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P007 - RINFORZATO** (ID=76)  
Aste : 625; 628; 630  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=60; alt.=60; AclS=3600; iy=17.32; iz=17.32

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiZ	eiY	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	37.7	1.047	12φ20
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	37.7	1.047	12φ20
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.67	12φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cIs	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	4- 1	-56694.	3271042.	1.02	876735.	1.08	-124.6	.168	3519.
1	5- 2	-47235.	321443.	1.	972634.	1.	-0.35	-45.6	.02
1	4- 4	-19375.	2515750.	1.01	79051.	1.37	-0.74	-85.5	.136
> 2	4- 4	-30675.	-2738969.	1.01	100204.	4.08	-0.83	-92.8	.137
2	5- 2	-28215.	26223.	1.	-185627.	1.	-0.08	-11.6	-0.02
2	4- 4	-27255.	2848438.	1.01	89032.	2.61	-0.86	-95.	.148
> 3	4- 4	-13656.	-1604597.	1.01	51451.	1.51	-0.57	-69.3	.127
3	4- 1	-5882.	-222134.	1.	-28326.	1.	-0.08	-11.2	.011
3	4- 4	-10236.	2046511.	1.01	-33438.	5.65	-0.72	-83.7	.176

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	10	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-58094.9	252776.4	265784.8	330.	.7	1.26	.749	.114	38.98	19.05	SI
2	1- 1	-38050.9	-215127.	228933.2	380.	.7	1.26	2.64	.075	169.8	21.94	SI
3	1- 1	-15803.8	-108367.	122022.8	380.	.7	1.17	2.59	.031	240.6	21.94	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	5- 2	-48720.3	1887789.	82771.9	330.	.7	1.26	1.66	.096	94.13	19.05	SI
2	4- 4	-30674.8	24560.4	34048.	380.	.7	1.26	.979	.06	70.1	21.94	SI
3	4- 3	-13134.4	-8580.9	-14390.1	380.	.7	1.17	1.1	.026	112.5	21.94	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	-5557.6	25854.5	25854.5	79902.8	1.01	19.	2.5	SI
1 C	5- 2	-5557.6	25854.5	25854.5	79689.7	1.01	19.	2.5	SI
1 S	5- 2	-5557.6	25854.5	25854.5	79476.5	1.01	19.	2.5	SI
2 I	5- 3	1752.1	25854.5	25854.5	76031.	1.01	19.	2.5	SI



2	C	5- 3	1752.1	25854.5	25854.5	75785.6	1.01	19.	2.5	SI
2	S	5- 3	1752.1	25854.5	25854.5	75540.1	1.01	19.	2.5	SI
3	I	5- 3	-1037.	25854.5	25854.5	74294.1	1.01	19.	2.5	SI
3	C	5- 3	-1037.	25854.5	25854.5	74048.7	1.01	19.	2.5	SI
3	S	5- 3	-1037.	25854.5	25854.5	73803.2	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE	
1	I	4- 4	-16263.8	25854.5	25854.5	76117.	1.01	19.	2.5	SI
1	C	4- 4	-16263.8	25854.5	25854.5	75903.9	1.01	19.	2.5	SI
1	S	4- 4	-16263.8	25854.5	25854.5	75690.7	1.01	19.	2.5	SI
2	I	4- 4	-14504.3	25854.5	25854.5	77312.7	1.01	19.	2.5	SI
2	C	4- 4	-14504.3	25854.5	25854.5	77067.2	1.01	19.	2.5	SI
2	S	4- 4	-14504.3	25854.5	25854.5	76821.8	1.01	19.	2.5	SI
3	I	4- 4	-9523.6	25854.5	25854.5	74869.9	1.01	19.	2.5	SI
3	C	4- 4	-9523.6	25854.5	25854.5	74624.5	1.01	19.	2.5	SI
3	S	4- 4	-9523.6	25854.5	25854.5	74379.	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE	
1	I	8- 1	-43447.5	187447.6	274021.1	-21.	-24.3	SI
1	C	8- 1	-41962.5	193048.9	110126.5	-17.	-64.7	SI
1	S	8- 1	-40477.5	198650.2	-53768.	-15.5	-74.	SI
2	I	8- 1	-28500.4	-162597.2	-56230.	-11.9	-40.2	SI
2	C	8- 1	-26790.4	4836.6	-31423.8	-7.3	-86.9	SI
2	S	8- 1	-25080.4	172270.5	-6617.6	-10.1	-39.4	SI
3	I	8- 1	-11896.6	-83969.2	6931.7	-5.2	-17.2	SI
3	C	8- 1	-10186.6	5746.6	-9577.7	-3.	-34.1	SI
3	S	8- 1	-8476.6	95462.4	-26087.1	-5.2	6.6	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE	
1	I	9- 1	-40443.	172413.3	245844.9	-19.3	-25.9	SI
1	C	9- 1	-38958.	178397.6	99285.1	-15.7	-61.2	SI
1	S	9- 1	-37473.	184381.9	-47274.6	-14.3	-69.1	SI
2	I	9- 1	-26446.3	-154887.8	-51192.3	-11.1	-36.5	SI
2	C	9- 1	-24736.3	4147.6	-28360.	-6.7	-80.5	SI
2	S	9- 1	-23026.3	163182.9	-5527.6	-9.4	-34.8	SI
3	I	9- 1	-10892.3	-81742.	5134.2	-4.9	-14.6	SI
3	C	9- 1	-9182.3	4384.5	-8752.1	-2.7	-30.9	SI
3	S	9- 1	-7472.3	90511.	-22638.5	-4.7	8.5	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE	
1	I	10- 1	-39519.4	167587.6	236924.1	-18.8	-26.5	SI
1	C	10- 1	-38034.4	173804.	95834.2	-15.3	-60.2	SI
1	S	10- 1	-36549.4	180020.4	-45255.8	-14.	-67.6	SI
2	I	10- 1	-25835.4	-152595.8	-49639.1	-10.8	-35.3	SI
2	C	10- 1	-24125.4	3886.6	-27363.4	-6.6	-78.6	SI
2	S	10- 1	-22415.4	160369.	-5087.8	-9.2	-33.6	SI
3	I	10- 1	-10623.8	-81455.2	4598.4	-4.8	-13.8	SI
3	C	10- 1	-8913.8	4240.5	-8552.9	-2.6	-30.	SI
3	S	10- 1	-7203.8	89936.3	-21704.2	-4.6	9.4	SI

Nome pilastro : **P008 - RINFORZO** (ID=77)  
Aste : 623; 624; 631  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daNcm; daN/cm2; deform.%; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrri (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σc (rara)=149.4; σc (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO: σf (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=60; alt.=60; Acl=3600; iy=17.32; iz=17.32

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	37.7	1.047	12φ20
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	37.7	1.047	12φ20
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	37.7	1.047	12φ20

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c\l	σc	E acc	σf	VE		
> 1	4- 4	-37607.	-1450123.	1.03	116582.	6.45	-.045	-56.1	.049	1022.7	SI
1	5- 2	-46594.	243889.	1.	465702.	1.	-.02	-27.2	.002	45.9	SI
1	4- 4	-34637.	2292065.	1.02	-138102.	1.38	-.071	-82.4	.105	2206.4	SI
> 2	4- 4	-23446.	-3281880.	1.01	-81838.	1.57	-.099	-104.9	.18	3641.1	SI
2	5- 2	-29361.	44257.	1.	-136271.	1.	-.008	-11.2	-.003	-54.2	SI
2	4- 4	-20026.	3242386.	1.01	65417.	30.8	-.096	-103.2	.182	3641.9	SI
> 3	4- 4	-9386.	-2199059.	1.01	54125.	1.28	-.063	-75.	.128	2686.1	SI
3	4- 4	-7676.	422685.	1.	-6087.	1.	-.012	-16.	.017	354.9	SI
3	4- 4	-5966.	3026814.	1.	-65093.	1.13	-.088	-96.7	.186	3644.6	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-63485.6	-161924.	612779.7	330.	.7	1.26	1.96	.125	97.8	19.05	SI
2	1- 1	-40743.2	-474699.	519900.4	380.	.7	1.26	2.61	.08	162.4	21.94	SI
3	1- 1	-16958.1	-547715.	693914.1	380.	.7	1.26	2.49	.033	239.8	21.94	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 1	-48752.1	19835.6	38337.6	330.	.7	1.26	1.18	.096	67.19	19.05	SI
2	1- 1	-40743.2	-26901.2	-31685.7	380.	.7	1.26	.851	.08	52.89	21.94	SI
3	4- 1	-13278.2	-19253.2	-21086.8	380.	.7	1.26	.787	.026	85.68	21.94	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	-1781.5	25854.5	25854.5	79810.7	1.01	19.	2.5	SI
1 C	5- 2	-1781.5	25854.5	25854.5	79597.6	1.01	19.	2.5	SI
1 S	5- 2	-1781.5	25854.5	25854.5	79384.4	1.01	19.	2.5	SI
2 I	5- 3	1914.2	25854.5	25854.5	76381.1	1.01	19.	2.5	SI
2 C	5- 3	1914.2	25854.5	25854.5	76135.7	1.01	19.	2.5	SI
2 S	5- 3	1914.2	25854.5	25854.5	75890.2	1.01	19.	2.5	SI
3 I	5- 3	-1018.	25854.5	25854.5	74306.1	1.01	19.	2.5	SI
3 C	5- 3	-1018.	25854.5	25854.5	74060.6	1.01	19.	2.5	SI
3 S	5- 3	-1018.	25854.5	25854.5	73815.2	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 4	-11094.6	25854.5	25854.5	78307.7	1.01	19.	2.5	SI
1 C	4- 4	-11094.6	25854.5	25854.5	78094.5	1.01	19.	2.5	SI
1 S	4- 4	-11094.6	25854.5	25854.5	77881.4	1.01	19.	2.5	SI
2 I	4- 4	-17018.8	25854.5	25854.5	76275.	1.01	19.	2.5	SI
2 C	4- 4	-17018.8	25854.5	25854.5	76029.6	1.01	19.	2.5	SI
2 S	4- 4	-17018.8	25854.5	25854.5	75784.1	1.01	19.	2.5	SI
3 I	4- 4	-13695.3	25854.5	25854.5	74257.	1.01	19.	2.5	SI
3 C	4- 4	-13695.3	25854.5	25854.5	74011.6	1.01	19.	2.5	SI
3 S	4- 4	-13695.3	25854.5	25854.5	73766.1	1.01	19.	2.5	SI

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-47486.4	-119870.1	19326.1	-14.7	-132.3	SI
1 C	8- 1	-46001.4	167628.3	-8857.3	-15.2	-116.1	SI
1 S	8- 1	-44516.4	455126.7	-37040.6	-22.	-19.3	SI
2 I	8- 1	-30533.	-353896.9	-20539.	-15.9	-1.6	SI
2 C	8- 1	-28823.	16546.1	-21686.3	-7.9	-93.7	SI
2 S	8- 1	-27113.	386989.	-22833.7	-16.2	30.3	SI
3 I	8- 1	-12794.3	-408334.4	15087.7	-16.1	224.4	SI
3 C	8- 1	-11084.3	54550.6	-16688.	-4.3	-19.7	SI
3 S	8- 1	-9374.3	517435.7	-48463.8	-21.8	458.5	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-44189.6	-108671.	19068.7	-13.6	-123.6	SI
1 C	9- 1	-42704.6	154206.4	-6617.1	-14.	-108.6	SI
1 S	9- 1	-41219.6	417083.9	-32302.9	-20.2	-19.7	SI
2 I	9- 1	-28287.3	-326700.3	-19960.9	-14.8	-1.6	SI
2 C	9- 1	-26577.3	14840.3	-19770.3	-7.2	-86.6	SI
2 S	9- 1	-24867.3	356380.9	-19579.6	-14.9	28.	SI
3 I	9- 1	-11630.1	-376204.9	12345.3	-14.8	209.2	SI
3 C	9- 1	-9920.1	49600.9	-14550.1	-3.9	-17.5	SI
3 S	9- 1	-8210.1	475406.7	-41445.6	-19.9	429.5	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-43179.6	-105212.7	18956.8	-13.3	-121.	SI
1 C	10- 1	-41694.6	150019.8	-5937.6	-13.6	-106.4	SI
1 S	10- 1	-40209.6	405252.3	-30832.1	-19.6	-19.9	SI
2 I	10- 1	-27628.1	-318334.3	-19805.1	-14.4	-1.7	SI
2 C	10- 1	-25918.1	14281.	-19166.8	-7.	-84.5	SI
2 S	10- 1	-24208.1	346896.3	-18528.4	-14.5	27.1	SI
3 I	10- 1	-11332.2	-366402.9	11491.3	-14.4	203.3	SI
3 C	10- 1	-9622.2	48174.3	-13910.1	-3.7	-17.	SI
3 S	10- 1	-7912.2	462751.4	-39311.5	-19.3	419.5	SI

Nome pilastro : **P009 - RINFORZATO** (ID=253)  
Aste : 1667; 1666; 1665; 1664; 1166; 1639; 634  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferr (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma$  (rara)=149.4;  $\sigma$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acls=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	ey	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.24	.24	71.	71.	0.	0.	43.98	1.454	14020
2	1	2.	2.	.24	.24	71.	71.	0.	0.	43.98	1.454	14020
3	1	2.	2.	.24	.24	71.	71.	0.	0.	43.98	1.454	14020
4	1	2.	2.	.07	.07	22.	22.	0.	0.	43.98	1.454	14020
5	1	2.	2.	.32	.32	95.	45.	0.	0.	43.98	1.454	14020
6	1	2.	2.	1.27	1.27	380.	330.	0.	0.	16.08	.532	8016
7	1	2.	2.	1.27	1.27	380.	330.	0.	0.	16.08	.532	8016

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma$	E acc	$\sigma$ f	VE		
> 1	4- 1	-31388.	438365.	1.02	-145375.	-0.019	-25.	.005	107.5	SI	
1	5- 2	-34067.	738676.	1.	1284365.	1.	-0.067	-78.8	.07	1460.1	SI
1	5- 2	-33799.	1343754.	1.01	2375427.	1.	-0.13	-123.9	.163	3429.5	SI
> 2	5- 2	-80128.	1710746.	1.01	2988897.	1.01	-0.172	-138.3	.17	3572.2	SI
2	5- 2	-79860.	1360922.	1.	2299335.	1.	-0.128	-123.	.112	2346.9	SI
2	5- 2	-79591.	1050575.	1.02	1647756.	1.01	-0.091	-98.9	.062	1300.7	SI
> 3	5- 2	-79591.	1050575.	1.02	1647756.	1.01	-0.091	-98.9	.062	1300.7	SI
3	5- 2	-79323.	707062.	1.	959203.	1.	-0.055	-66.6	.019	406.5	SI
3	5- 2	-79054.	420041.	1.05	311592.	1.06	-0.031	-40.4	-.003	-61.1	SI
> 4	5- 2	-79054.	407128.	1.01	298679.	1.02	-0.03	-39.7	-.003	-70.7	SI
4	1- 1	-86166.	303393.	1.	-76203.	1.	-0.025	-33.3	-.011	-224.1	SI
4	1- 1	-86057.	237875.	1.03	-194871.	1.03	-0.026	-34.8	-.01	-202.1	SI
> 5	1- 1	-86057.	258815.	1.12	-215812.	1.14	-0.027	-35.8	-.009	-186.3	SI
5	5- 1	-74719.	226954.	1.	-1007183.	1.	-0.043	-53.8	.01	203.4	SI
5	4- 1	-72965.	-1772657.	1.01	-619676.	1.04	-0.079	-89.	.054	1134.2	SI
> 6	4- 4	-26030.	-1004878.	1.03	265413.	1.14	-0.061	-72.8	.089	1863.6	SI
6	5- 2	-44504.	-78389.	1.	-177821.	1.	-0.016	-21.7	-.005	-97.7	SI
6	4- 4	-23156.	1209573.	1.02	-407761.	1.08	-0.082	-92.1	.137	2872.5	SI
> 7	4- 4	-10493.	-703761.	1.02	439012.	1.03	-0.06	-71.7	.104	2193.4	SI
7	4- 4	-9056.	182237.	1.	-34188.	1.	-0.009	-11.9	.006	124.4	SI
7	4- 4	-7619.	1053579.	1.01	-502749.	1.02	-0.084	-93.5	.17	3567.6	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	10	A	B	C	nu	L lim	Lambd	VE
1	5- 4	-22268.2	152075.9	256446.	71.	.7	1.34	1.11	.052	91.19	4.47	SI
2	1- 1	-87669.8	1302479.	838850.9	71.	.7	1.34	1.06	.205	43.84	4.47	SI
3	1- 1	-86971.8	838850.9	375223.	71.	.7	1.34	1.25	.204	52.22	4.47	SI
4	5- 1	-75244.7	354976.6	257962.9	22.	.7	1.34	.973	.176	43.62	1.39	SI
5	5- 1	-75078.4	257962.9	255871.1	95.	.7	1.34	.708	.176	31.77	5.98	SI
6	1- 1	-53773.9	-195671.	94233.1	380.	.7	1.14	2.18	.126	97.92	23.93	SI
7	1- 1	-20832.2	814.6	78362.1	380.	.7	1.14	1.69	.049	121.8	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	5- 4	-22268.2	-356765.	-797958.	71.	.7	1.34	1.25	.052	103.2	4.47	SI
2	1- 1	-87669.8	1486588.	761371.4	71.	.7	1.34	1.19	.205	49.32	4.47	SI
3	5- 2	-79591.1	1628919.	292882.1	71.	.7	1.34	1.52	.186	66.24	4.47	SI
4	1- 1	-86273.7	36154.6	-188561.	22.	.7	1.34	1.89	.202	79.17	1.39	SI
5	1- 1	-86057.5	-188561.	-1158921	95.	.7	1.34	1.54	.202	64.42	5.98	SI
6	4- 1	-45289.	71812.9	-169525.	380.	.7	1.14	2.12	.106	103.9	23.93	SI
7	5- 3	-11673.5	11326.5	76735.8	380.	.7	1.14	1.55	.027	149.6	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	30511.	32559.4	32559.4	67006.	1.01	14.	2.5	SI
1 C	5- 2	30511.	32559.4	32559.4	66967.	1.01	14.	2.5	SI
1 S	5- 2	30511.	32559.4	32559.4	66928.	1.01	14.	2.5	SI
2 I	5- 2	-18896.7	23991.1	23991.1	73659.5	1.01	19.	2.5	SI
2 C	5- 2	-18896.7	23991.1	23991.1	73620.5	1.01	19.	2.5	SI
2 S	5- 2	-18896.7	23991.1	23991.1	73581.5	1.01	19.	2.5	SI
3 I	5- 2	-18891.8	23991.1	23991.1	73581.5	1.01	19.	2.5	SI
3 C	5- 2	-18891.8	23991.1	23991.1	73542.5	1.01	19.	2.5	SI
3 S	5- 2	-18891.8	23991.1	23991.1	73503.5	1.01	19.	2.5	SI
4 I	5- 2	-18884.9	23991.1	23991.1	73503.5	1.01	19.	2.5	SI
4 C	5- 2	-18884.9	23991.1	23991.1	73491.4	1.01	19.	2.5	SI
4 S	5- 2	-18884.9	23991.1	23991.1	73479.3	1.01	19.	2.5	SI
5 I	5- 2	-18874.7	23991.1	23991.1	73479.3	1.01	19.	2.5	SI
5 C	5- 2	-18874.7	23991.1	23991.1	73427.1	1.01	19.	2.5	SI
5 S	5- 2	-18874.7	23991.1	23991.1	73374.9	1.01	19.	2.5	SI
6 I	5- 2	-4481.7	23991.1	23991.1	68692.2	1.01	19.	2.5	SI
6 C	5- 2	-4481.7	23991.1	23991.1	68483.5	1.01	19.	2.5	SI
6 S	5- 2	-4481.7	23991.1	23991.1	68274.7	1.01	19.	2.5	SI
7 I	5- 1	-4122.1	23991.1	23991.1	64248.1	1.01	19.	2.5	SI
7 C	5- 1	-4122.1	23991.1	23991.1	64039.3	1.01	19.	2.5	SI
7 S	5- 1	-4122.1	23991.1	23991.1	63830.6	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 1	-30735.	32559.4	32559.4	66577.8	1.01	14.	2.5	SI
1 C	4- 1	-30735.	32559.4	32559.4	66538.8	1.01	14.	2.5	SI
1 S	4- 1	-30735.	32559.4	32559.4	66499.7	1.01	14.	2.5	SI
2 I	4- 1	19258.	23991.1	23991.1	72903.3	1.01	19.	2.5	SI
2 C	4- 1	19258.	23991.1	23991.1	72864.3	1.01	19.	2.5	SI
2 S	4- 1	19258.	23991.1	23991.1	72825.3	1.01	19.	2.5	SI
3 I	4- 1	19251.1	23991.1	23991.1	72825.3	1.01	19.	2.5	SI
3 C	4- 1	19251.1	23991.1	23991.1	72786.3	1.01	19.	2.5	SI
3 S	4- 1	19251.1	23991.1	23991.1	72747.3	1.01	19.	2.5	SI
4 I	4- 1	19241.9	23991.1	23991.1	72747.3	1.01	19.	2.5	SI
4 C	4- 1	19241.9	23991.1	23991.1	72735.2	1.01	19.	2.5	SI
4 S	4- 1	19241.9	23991.1	23991.1	72723.1	1.01	19.	2.5	SI
5 I	4- 1	19228.7	23991.1	23991.1	72723.1	1.01	19.	2.5	SI
5 C	4- 1	19228.7	23991.1	23991.1	72670.9	1.01	19.	2.5	SI
5 S	4- 1	19228.7	23991.1	23991.1	72618.7	1.01	19.	2.5	SI
6 I	4- 4	-5648.5	23991.1	23991.1	65799.2	1.01	19.	2.5	SI
6 C	4- 4	-5648.5	23991.1	23991.1	65590.4	1.01	19.	2.5	SI
6 S	4- 4	-5648.5	23991.1	23991.1	65381.6	1.01	19.	2.5	SI
7 I	4- 4	-4559.1	23991.1	23991.1	63541.7	1.01	19.	2.5	SI
7 C	4- 4	-4559.1	23991.1	23991.1	63332.9	1.01	19.	2.5	SI
7 S	4- 4	-4559.1	23991.1	23991.1	63124.1	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-31096.5	10558.4	-88383.	-11.3	-92.3	SI
1 C	8- 1	-30828.	370899.3	371975.	-31.5	205.5	SI
1 S	8- 1	-30559.5	731240.1	832332.9	-68.1	951.6	SI
2 I	8- 1	-65146.1	965054.1	1102211.8	-87.9	826.6	SI
2 C	8- 1	-64877.6	793394.	834590.5	-69.	479.2	SI
2 S	8- 1	-64609.2	621734.	566969.1	-52.	200.	SI
3 I	8- 1	-64609.2	621734.	566969.1	-52.	200.	SI
3 C	8- 1	-64340.7	450073.9	299347.8	-38.1	2.	SI
3 S	8- 1	-64072.2	278413.9	31726.4	-25.9	-154.9	SI
4 I	8- 1	-64072.2	278413.9	31726.4	-25.9	-154.9	SI
4 C	8- 1	-63989.	225223.4	-51198.5	-25.	-166.1	SI
4 S	8- 1	-63905.9	172033.	-134123.5	-25.9	-154.3	SI
5 I	8- 1	-63905.9	172033.	-134123.5	-25.9	-154.3	SI
5 C	8- 1	-63546.6	-57653.	-492208.4	-32.7	-62.7	SI
5 S	8- 1	-63187.4	-287339.	-850293.3	-50.9	202.6	SI
6 I	8- 1	-40051.8	-146296.3	208159.5	-23.7	-36.4	SI
6 C	8- 1	-38615.	-37596.5	-68307.	-15.3	-133.9	SI
6 S	8- 1	-37178.1	71103.3	-344773.4	-24.8	3.4	SI
7 I	8- 1	-15633.2	126.7	428900.8	-25.1	428.	SI
7 C	8- 1	-14196.3	28714.2	-27236.4	-6.2	-42.1	SI
7 S	8- 1	-12759.4	57301.7	-483373.7	-33.5	775.8	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-28616.	7879.4	-84048.	-10.4	-84.6	SI
1 C	9- 1	-28347.5	336357.4	337459.5	-28.6	182.5	SI
1 S	9- 1	-28079.1	664835.3	758967.1	-62.	861.6	SI
2 I	9- 1	-59744.2	878135.	1005906.	-80.1	748.2	SI
2 C	9- 1	-59475.7	722041.1	764365.3	-63.	435.	SI
2 S	9- 1	-59207.2	565947.2	522824.5	-47.7	183.1	SI
3 I	9- 1	-59207.2	565947.2	522824.5	-47.7	183.1	SI
3 C	9- 1	-58938.7	409853.2	281283.8	-35.	3.6	SI
3 S	9- 1	-58670.3	253759.3	39743.	-24.	-138.3	SI
4 I	9- 1	-58670.3	253759.3	39743.	-24.	-138.3	SI
4 C	9- 1	-58587.1	205392.2	-35100.6	-22.6	-156.6	SI
4 S	9- 1	-58503.9	157025.1	-109944.2	-23.3	-146.	SI
5 I	9- 1	-58503.9	157025.1	-109944.2	-23.3	-146.	SI
5 C	9- 1	-58144.7	-51833.	-433132.6	-29.4	-64.	SI
5 S	9- 1	-57785.5	-260691.	-756320.9	-45.7	170.6	SI
6 I	9- 1	-36675.9	-133086.8	165675.3	-20.8	-44.2	SI
6 C	9- 1	-35239.1	-34695.3	-62675.	-14.	-121.9	SI
6 S	9- 1	-33802.2	63696.2	-291025.4	-21.8	-7.3	SI
7 I	9- 1	-14171.3	-2776.1	367338.1	-21.5	336.	SI
7 C	9- 1	-12734.4	28477.6	-23266.5	-5.6	-37.1	SI
7 S	9- 1	-11297.6	59731.3	-413871.2	-29.3	655.7	SI

# QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-27846.9	7034.7	-82755.9	-10.1	-82.2	SI
1 C	10- 1	-27578.5	325632.	326669.8	-27.7	175.3	SI
1 S	10- 1	-27310.	644229.3	736095.4	-60.1	833.5	SI
2 I	10- 1	-58067.8	851169.5	975902.3	-77.6	723.8	SI
2 C	10- 1	-57799.3	699920.	742517.8	-61.2	421.3	SI
2 S	10- 1	-57530.9	548670.4	509133.3	-46.3	177.8	SI
3 I	10- 1	-57530.9	548670.4	509133.3	-46.3	177.8	SI
3 C	10- 1	-57262.4	397420.9	275748.8	-34.1	4.2	SI
3 S	10- 1	-56993.9	246171.4	42364.3	-23.4	-133.1	SI
4 I	10- 1	-56993.9	246171.4	42364.3	-23.4	-133.1	SI
4 C	10- 1	-56910.7	199305.4	-29952.1	-21.8	-153.7	SI
4 S	10- 1	-56827.5	152439.3	-102268.4	-22.5	-143.5	SI
5 I	10- 1	-56827.5	152439.3	-102268.4	-22.5	-143.5	SI
5 C	10- 1	-56468.3	-49936.8	-414543.5	-28.4	-64.5	SI
5 S	10- 1	-56109.1	-252312.9	-726818.5	-44.	160.5	SI
6 I	10- 1	-35659.5	-129347.9	152127.4	-20.	-46.7	SI
6 C	10- 1	-34222.6	-33746.4	-60925.	-13.6	-118.3	SI
6 S	10- 1	-32785.7	61855.	-273977.4	-20.8	-10.6	SI
7 I	10- 1	-13777.1	-3486.7	348063.3	-20.3	305.	SI
7 C	10- 1	-12340.2	27978.3	-22201.8	-5.4	-35.9	SI
7 S	10- 1	-10903.4	59443.3	-392467.	-28.	614.6	SI

Nome pilastro : **P00A** (ID=228)  
Aste : 1695-1694-1693-1692; 1648  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

## MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σc (rara)=98.8; σc (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO: σf (rara)=3054; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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## SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	6.16	.503 4φ14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	6.16	.503 4φ14

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

ACE330+EE3310N2 (The Two Te Impeller 2017)											
Asta	Caso	NEd	MEyd	MEzd	E c ls	σc	E acc	σf	VE		
> 1	1- 1	-2469.	6871.	999.	6871.	999.	-0.004	-3.5	-0.001	-13.4	SI
1	1- 1	-3093.	0.	999.	0.	999.	-0.003	-2.3	-0.003	-50.3	SI
1	1- 1	-4289.	11937.	999.	11937.	999.	-0.007	-6.	-0.001	-23.2	SI
> 2	1- 1	-11050.	25599.	999.	25599.	999.	-0.016	-14.1	-0.004	-80.1	SI
2	1- 1	-10861.	0.	999.	0.	999.	-0.009	-8.	-0.009	-179.1	SI
2	1- 1	-10672.	24723.	999.	24723.	999.	-0.016	-13.6	-0.004	-77.3	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-4288.6	235.	.038	127.8	23.26	SI
2	1- 1	-11050.1	95.	.099	79.6	9.4	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-4288.6	235.	.038	127.8	23.26	SI
2	1- 1	-11050.1	95.	.099	79.6	9.4	SI

TAGLIO Y:										
Asta	Caso	VED	VRd	VRsd	VRcd	Asw	s	ctgT	VE	
1 I	1- 1	0.	5944.4	5944.4	15430.5	.57	18.	2.5	NO	10
1 C	1- 1	0.	5944.4	5944.4	15514.7	.57	18.	2.5	NO	10
1 S	1- 1	0.	5944.4	5944.4	15675.8	.57	18.	2.5	NO	10
2 I	1- 1	0.	5944.4	5944.4	16587.1	.57	18.	2.5	NO	10
2 C	1- 1	0.	5944.4	5944.4	16561.6	.57	18.	2.5	NO	10
2 S	1- 1	0.	5944.4	5944.4	16536.1	.57	18.	2.5	NO	10

TAGLIO Z:										
Asta	Caso	VED	VRd	VRsd	VRcd	Asw	s	ctgT	VE	
1 I	1- 1	0.	5944.4	5944.4	15430.5	.57	18.	2.5	NO	10
1 C	1- 1	0.	5944.4	5944.4	15514.7	.57	18.	2.5	NO	10
1 S	1- 1	0.	5944.4	5944.4	15675.8	.57	18.	2.5	NO	10
2 I	1- 1	0.	5944.4	5944.4	16587.1	.57	18.	2.5	NO	10
2 C	1- 1	0.	5944.4	5944.4	16561.6	.57	18.	2.5	NO	10
2 S	1- 1	0.	5944.4	5944.4	16536.1	.57	18.	2.5	NO	10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-1843.6	0.	0.	-1.4	-21.1	SI
1 C	15- 1	-2303.7	0.	0.	-1.8	-26.4	SI
1 S	15- 1	-3169.9	0.	0.	-2.4	-36.3	SI
2 I	15- 1	-8179.7	0.	0.	-6.2	-93.6	SI
2 C	15- 1	-8034.2	0.	0.	-6.1	-91.9	SI
2 S	15- 1	-7888.8	0.	0.	-6.	-90.2	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-1732.4	0.	0.	-1.3	-19.8	SI
1 C	18- 1	-2144.7	0.	0.	-1.6	-24.5	SI
1 S	18- 1	-2898.1	0.	0.	-2.2	-33.2	SI
2 I	18- 1	-7503.	0.	0.	-5.7	-85.8	SI
2 C	18- 1	-7357.5	0.	0.	-5.6	-84.2	SI
2 S	18- 1	-7212.	0.	0.	-5.5	-82.5	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-1696.8	0.	0.	-1.3	-19.4	SI
1 C	21- 1	-2097.	0.	0.	-1.6	-24.	SI
1 S	21- 1	-2817.1	0.	0.	-2.1	-32.2	SI
2 I	21- 1	-7302.2	0.	0.	-5.6	-83.5	SI
2 C	21- 1	-7156.7	0.	0.	-5.5	-81.9	SI
2 S	21- 1	-7011.2	0.	0.	-5.3	-80.2	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P00B** (ID=229)  
Aste : 1127-1128-1129-1130; 1131  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2	2	.78	.78	235	235	0	0	6.16	.503	4φ14
2	1	2	2	.32	.32	95	71	0	0	6.16	.503	4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE
> 1	1- 1	-2419.	6732.	6732.	.999.	-0.004	-3.4	-0.001	-13.1
1	1- 1	-2363.	0.	0.	.999.	-0.002	-1.7	-0.002	-38.4
1	1- 1	-3647.	10150.	10150.	.999.	-0.006	-5.1	-0.001	-19.8
> 2	1- 1	-8876.	20562.	20562.	.999.	-0.013	-11.4	-0.003	-64.3
2	1- 1	-8687.	0.	0.	.999.	-0.007	-6.4	-0.007	-142.7
2	1- 1	-8497.	19686.	19686.	.999.	-0.012	-10.9	-0.003	-61.5

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-3646.9	235.	.033	138.6	23.26	SI
2	1- 1	-8875.7	95.	.079	88.81	9.4	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-3646.9	235.	.033	138.6	23.26	SI
2	1- 1	-8875.7	95.	.079	88.81	9.4	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15423.8	.57	18.	2.5	NO 10
1 C	1- 1	0.	5944.4	5944.4	15416.3	.57	18.	2.5	NO 10
1 S	1- 1	0.	5944.4	5944.4	15589.3	.57	18.	2.5	NO 10
2 I	1- 1	0.	5944.4	5944.4	16294.	.57	18.	2.5	NO 10
2 C	1- 1	0.	5944.4	5944.4	16268.6	.57	18.	2.5	NO 10
2 S	1- 1	0.	5944.4	5944.4	16243.1	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15423.8	.57	18.	2.5	NO 10
1 C	1- 1	0.	5944.4	5944.4	15416.3	.57	18.	2.5	NO 10
1 S	1- 1	0.	5944.4	5944.4	15589.3	.57	18.	2.5	NO 10
2 I	1- 1	0.	5944.4	5944.4	16294.	.57	18.	2.5	NO 10
2 C	1- 1	0.	5944.4	5944.4	16268.6	.57	18.	2.5	NO 10
2 S	1- 1	0.	5944.4	5944.4	16243.1	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-1818.8	0.	0.	-1.4	-20.8	SI
1 C	15- 1	-1766.4	0.	0.	-1.3	-20.2	SI
1 S	15- 1	-2713.2	0.	0.	-2.1	-31.	SI
2 I	15- 1	-6596.	0.	0.	-5.	-75.5	SI
2 C	15- 1	-6450.5	0.	0.	-4.9	-73.8	SI
2 S	15- 1	-6305.	0.	0.	-4.8	-72.1	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-1735.1	0.	0.	-1.3	-19.8	SI
1 C	18- 1	-1664.7	0.	0.	-1.3	-19.	SI
1 S	18- 1	-2534.4	0.	0.	-1.9	-29.	SI
2 I	18- 1	-6153.2	0.	0.	-4.7	-70.4	SI
2 C	18- 1	-6007.8	0.	0.	-4.6	-68.7	SI
2 S	18- 1	-5862.3	0.	0.	-4.5	-67.1	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	21- 1	-1708.4	0.	0.	-1.3	-19.5	SI
1 C	21- 1	-1631.5	0.	0.	-1.2	-18.7	SI
1 S	21- 1	-2474.5	0.	0.	-1.9	-28.3	SI
2 I	21- 1	-6001.5	0.	0.	-4.6	-68.7	SI
2 C	21- 1	-5856.1	0.	0.	-4.5	-67.	SI
2 S	21- 1	-5710.6	0.	0.	-4.4	-65.3	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : P00C (ID=230)  
 Asta : 1137-1138-1139-1140; 1141  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daN/cm2; deform.%; 1/r â€°(permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferr (assi) : longitudinali= 4.6 ; staffe= 3.3  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;



gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.2% (limit.elastico)  
 ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
 gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; Eud=0.14% (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	iez	ieiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	6.16	.503
2	1	2.	2.	.32	.32	95.	71.	0.	0.	6.16	.503

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-2564.	7135. 999.	7135. 999.	-0.004	-3.6	-0.001	-13.9	SI
1	1- 1	-2380.	0. 999.	0. 999.	-0.002	-1.8	-0.002	-38.6	SI
1	1- 1	-3718.	10350. 999.	10350. 999.	-0.006	-5.2	-0.001	-20.2	SI
> 2	1- 1	-8924.	20675. 999.	20675. 999.	-0.013	-11.4	-0.003	-64.6	SI
2	1- 1	-8735.	0. 999.	0. 999.	-0.007	-6.4	-0.007	-143.5	SI
2	1- 1	-8546.	19799. 999.	19799. 999.	-0.012	-11.	-0.003	-61.9	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-3718.5	235.	.033	137.2	23.26	SI
2	1- 1	-8924.5	95.	.08	88.57	9.4	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-3718.5	235.	.033	137.2	23.26	SI
2	1- 1	-8924.5	95.	.08	88.57	9.4	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15443.3	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	15418.6	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	15599.	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	16300.6	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	16275.1	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	16249.6	.57	18.	2.5	NO

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15443.3	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	15418.6	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	15599.	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	16300.6	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	16275.1	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	16249.6	.57	18.	2.5	NO

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-1924.8	0.	0.	-1.5	-22.	SI
1 C	15- 1	-1774.9	0.	0.	-1.4	-20.3	SI
1 S	15- 1	-2752.	0.	0.	-2.1	-31.5	SI
2 I	15- 1	-6596.	0.	0.	-5.	-75.5	SI
2 C	15- 1	-6450.6	0.	0.	-4.9	-73.8	SI
2 S	15- 1	-6305.1	0.	0.	-4.8	-72.1	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-1827.6	0.	0.	-1.4	-20.9	SI
1 C	18- 1	-1661.3	0.	0.	-1.3	-19.	SI
1 S	18- 1	-2537.3	0.	0.	-1.9	-29.	SI
2 I	18- 1	-6068.7	0.	0.	-4.6	-69.4	SI
2 C	18- 1	-5923.3	0.	0.	-4.5	-67.8	SI
2 S	18- 1	-5777.8	0.	0.	-4.4	-66.1	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-1797.6	0.	0.	-1.4	-20.6	SI
1 C	21- 1	-1625.4	0.	0.	-1.2	-18.6	SI
1 S	21- 1	-2467.4	0.	0.	-1.9	-28.2	SI
2 I	21- 1	-5894.3	0.	0.	-4.5	-67.4	SI
2 C	21- 1	-5748.9	0.	0.	-4.4	-65.8	SI
2 S	21- 1	-5603.4	0.	0.	-4.3	-64.1	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P00D** (ID=231)  
Aste : 1142-1143-1144-1145; 1146  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	6.16	.503 4 $\phi$ 14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	6.16	.503 4 $\phi$ 14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c ls	$\sigma_c$	E acc	$\sigma_f$	VE		
> 1	1- 1	-4578.	12741.	999.	12741.	999.	-0.007	-6.4	-0.001	-24.8	SI
1	1- 1	-4824.	0.	999.	0.	999.	-0.004	-3.6	-0.004	-78.6	SI
1	1- 1	-9238.	25711.	999.	25711.	999.	-0.015	-12.8	-0.002	-49.9	SI
> 2	1- 1	-21159.	49018.	999.	49018.	999.	-0.032	-26.7	-0.008	-153.4	SI
2	1- 1	-20970.	0.	999.	0.	999.	-0.018	-15.4	-0.018	-352.9	SI
2	1- 1	-20781.	48142.	999.	48142.	999.	-0.031	-26.3	-0.008	-150.6	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-9237.6	235.	.082	87.06	23.26	SI
2	1- 1	-21158.8	95.	.189	57.52	9.4	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-9237.6	235.	.082	87.06	23.26	SI
2	1- 1	-21158.8	95.	.189	57.52	9.4	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15714.8	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	15748.	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	16342.8	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	17949.5	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	17924.1	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	17898.6	.57	18.	2.5	NO

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15714.8	.57	18.	2.5	NO

1	C	1- 1	0.	5944.4	5944.4	15748.	.57	18.	2.5	NO	10
1	S	1- 1	0.	5944.4	5944.4	16342.8	.57	18.	2.5	NO	10
2	I	1- 1	0.	5944.4	5944.4	17949.5	.57	18.	2.5	NO	10
2	C	1- 1	0.	5944.4	5944.4	17924.1	.57	18.	2.5	NO	10
2	S	1- 1	0.	5944.4	5944.4	17898.6	.57	18.	2.5	NO	10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1	I	15- 1	-3394.5	0.	0.	-2.6	-38.8
1	C	15- 1	-3566.6	0.	0.	-2.7	-40.8
1	S	15- 1	-6850.2	0.	0.	-5.2	-78.4
2	I	15- 1	-15691.	0.	0.	-12.	-179.5
2	C	15- 1	-15545.5	0.	0.	-11.9	-177.8
2	S	15- 1	-15400.1	0.	0.	-11.7	-176.2

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1	I	18- 1	-3144.9	0.	0.	-2.4	-36.
1	C	18- 1	-3276.	0.	0.	-2.5	-37.5
1	S	18- 1	-6316.8	0.	0.	-4.8	-72.3
2	I	18- 1	-14470.4	0.	0.	-11.	-165.5
2	C	18- 1	-14325.	0.	0.	-10.9	-163.9
2	S	18- 1	-14179.5	0.	0.	-10.8	-162.2

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1	I	21- 1	-3062.8	0.	0.	-2.3	-35.
1	C	21- 1	-3183.7	0.	0.	-2.4	-36.4
1	S	21- 1	-6155.6	0.	0.	-4.7	-70.4
2	I	21- 1	-14101.6	0.	0.	-10.8	-161.3
2	C	21- 1	-13956.1	0.	0.	-10.6	-159.7
2	S	21- 1	-13810.6	0.	0.	-10.5	-158.

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P010** (ID=222)  
Aste : 1671-1670-1669-1668; 1623; 1658; 1659; 1627  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daN/cm<sup>2</sup>; deform.%; 1/r °(permille)  
Unita' particolari : fessure [wk];mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	6.16	.503 4φ14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	6.16	.503 4φ14
3	1	2.	2.	.63	.63	190.	166.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	.63	.63	190.	166.	0.	0.	6.16	.503 4φ14
5	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369 4φ12

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	σc	E acc	σf	VE		
> 1	1- 1	-4038.	11240.	999.	11240.	999.	-0.006	-5.6	-0.001	-21.9	SI
1	1- 1	-3223.	0.	999.	0.	999.	-0.003	-2.4	-0.003	-52.4	SI
1	1- 1	-4600.	12804.	999.	12804.	999.	-0.007	-6.4	-0.001	-24.9	SI
> 2	1- 1	-10390.	24071.	999.	24071.	999.	-0.015	-13.3	-0.004	-75.3	SI
2	1- 1	-10390.	0.	999.	0.	999.	-0.009	-7.7	-0.009	-171.2	SI
2	1- 1	-10390.	24071.	999.	24071.	999.	-0.015	-13.3	-0.004	-75.3	SI
> 3	1- 1	-9316.	24531.	999.	24531.	999.	-0.014	-12.6	-0.003	-55.8	SI
3	1- 1	-8937.	0.	999.	0.	999.	-0.007	-6.6	-0.007	-146.8	SI
3	1- 1	-8559.	22539.	999.	22539.	999.	-0.013	-11.6	-0.003	-51.3	SI
> 4	2- 1	-4613.	12147.	999.	12147.	999.	-0.007	-6.3	-0.001	-27.7	SI
4	2- 1	-4235.	0.	999.	0.	999.	-0.003	-3.1	-0.003	-69.	SI
4	2- 1	-3856.	10155.	999.	10155.	999.	-0.006	-5.3	-0.001	-23.2	SI
> 5	2- 1	-2815.	9195.	999.	9195.	999.	-0.005	-4.4	0.	-9.7	SI
5	2- 1	-2058.	0.	999.	0.	999.	-0.002	-1.6	-0.002	-34.3	SI
5	2- 1	-1302.	4253.	999.	4253.	999.	-0.002	-2.	0.	-4.5	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-4600.2	235.	.041	123.4	23.26	SI
2	1- 1	-10390.3	95.	.093	82.09	9.4	SI
3	1- 1	-9315.5	190.	.083	86.69	18.81	SI
4	2- 1	-4612.8	190.	.041	123.2	18.81	SI
5	2- 1	-2814.9	380.	.025	157.7	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-4600.2	235.	.041	123.4	23.26	SI
2	1- 1	-10390.3	95.	.093	82.09	9.4	SI
3	1- 1	-9315.5	190.	.083	86.69	18.81	SI
4	2- 1	-4612.8	190.	.041	123.2	18.81	SI
5	2- 1	-2814.9	380.	.025	157.7	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15642.	.57	18.	2.5	NO 10
1 C	1- 1	0.	5944.4	5944.4	15532.2	.57	18.	2.5	NO 10
1 S	1- 1	0.	5944.4	5944.4	15717.8	.57	18.	2.5	NO 10
2 I	1- 1	0.	5944.4	5944.4	16498.2	.57	18.	2.5	NO 10
2 C	1- 1	0.	5944.4	5944.4	16498.2	.57	18.	2.5	NO 10
2 S	1- 1	0.	5944.4	5944.4	16498.2	.57	18.	2.5	NO 10
3 I	1- 1	0.	5944.4	5944.4	16353.3	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16302.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16251.4	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15714.8	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15663.9	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15612.9	.57	18.	2.5	NO 10
5 I	1- 1	0.	5944.4	5944.4	15470.	.57	18.	2.5	NO 10
5 C	1- 1	0.	5944.4	5944.4	15368.1	.57	18.	2.5	NO 10
5 S	1- 1	0.	5944.4	5944.4	15266.1	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15642.	.57	18.	2.5	NO 10
1 C	1- 1	0.	5944.4	5944.4	15532.2	.57	18.	2.5	NO 10
1 S	1- 1	0.	5944.4	5944.4	15717.8	.57	18.	2.5	NO 10
2 I	1- 1	0.	5944.4	5944.4	16498.2	.57	18.	2.5	NO 10
2 C	1- 1	0.	5944.4	5944.4	16498.2	.57	18.	2.5	NO 10
2 S	1- 1	0.	5944.4	5944.4	16498.2	.57	18.	2.5	NO 10
3 I	1- 1	0.	5944.4	5944.4	16353.3	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16302.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16251.4	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15714.8	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15663.9	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15612.9	.57	18.	2.5	NO 10
5 I	1- 1	0.	5944.4	5944.4	15470.	.57	18.	2.5	NO 10
5 C	1- 1	0.	5944.4	5944.4	15368.1	.57	18.	2.5	NO 10
5 S	1- 1	0.	5944.4	5944.4	15266.1	.57	18.	2.5	NO 10

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-3039.8	0.	0.	-2.3	-34.8	SI
1 C	15- 1	-2429.6	0.	0.	-1.9	-27.8	SI
1 S	15- 1	-3474.3	0.	0.	-2.6	-39.7	SI
2 I	15- 1	-7849.4	0.	0.	-6.	-89.8	SI
2 C	15- 1	-7849.4	0.	0.	-6.	-89.8	SI
2 S	15- 1	-7849.4	0.	0.	-6.	-89.8	SI
3 I	15- 1	-7032.7	0.	0.	-5.4	-80.5	SI
3 C	15- 1	-6741.7	0.	0.	-5.1	-77.1	SI
3 S	15- 1	-6450.8	0.	0.	-4.9	-73.8	SI
4 I	16- 1	-3518.9	0.	0.	-2.7	-40.3	SI
4 C	16- 1	-3227.9	0.	0.	-2.5	-36.9	SI
4 S	16- 1	-2937.	0.	0.	-2.2	-33.6	SI
5 I	16- 1	-2143.5	0.	0.	-1.7	-25.	SI
5 C	16- 1	-1561.7	0.	0.	-1.2	-18.2	SI
5 S	16- 1	-979.8	0.	0.	-0.8	-11.4	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-2887.4	0.	0.	-2.2	-33.	SI
1 C	18- 1	-2317.4	0.	0.	-1.8	-26.5	SI
1 S	18- 1	-3329.8	0.	0.	-2.5	-38.1	SI
2 I	18- 1	-7527.5	0.	0.	-5.7	-86.1	SI

2	C	18-	1	-7527.5	0.	0.	-5.7	-86.1	SI
2	S	18-	1	-7527.5	0.	0.	-5.7	-86.1	SI
3	I	18-	1	-6733.4	0.	0.	-5.1	-77.	SI
3	C	18-	1	-6442.5	0.	0.	-4.9	-73.7	SI
3	S	18-	1	-6151.6	0.	0.	-4.7	-70.4	SI
4	I	19-	1	-3417.1	0.	0.	-2.6	-39.1	SI
4	C	19-	1	-3126.1	0.	0.	-2.4	-35.8	SI
4	S	19-	1	-2835.2	0.	0.	-2.2	-32.4	SI
5	I	19-	1	-2055.5	0.	0.	-1.6	-23.9	SI
5	C	19-	1	-1473.6	0.	0.	-1.1	-17.2	SI
5	S	19-	1	-891.7	0.	0.	-0.7	-10.4	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE	
1	I	21- 1	-2847.5	0.	0.	-2.2	-32.6	SI
1	C	21- 1	-2287.1	0.	0.	-1.7	-26.2	SI
1	S	21- 1	-3290.7	0.	0.	-2.5	-37.6	SI
2	I	21- 1	-7440.6	0.	0.	-5.7	-85.1	SI
2	C	21- 1	-7440.6	0.	0.	-5.7	-85.1	SI
2	S	21- 1	-7440.6	0.	0.	-5.7	-85.1	SI
3	I	21- 1	-6652.6	0.	0.	-5.1	-76.1	SI
3	C	21- 1	-6361.6	0.	0.	-4.9	-72.8	SI
3	S	21- 1	-6070.7	0.	0.	-4.6	-69.4	SI
4	I	21- 1	-3394.4	0.	0.	-2.6	-38.8	SI
4	C	21- 1	-3103.5	0.	0.	-2.4	-35.5	SI
4	S	21- 1	-2812.6	0.	0.	-2.1	-32.2	SI
5	I	21- 1	-2034.8	0.	0.	-1.6	-23.7	SI
5	C	21- 1	-1453.	0.	0.	-1.1	-16.9	SI
5	S	21- 1	-871.1	0.	0.	-0.7	-10.1	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P011 - RINFORZATO** (ID=80)  
Aste : 668; 669; 670  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daN/cm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σc (rara)=149.4; σc (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO: σf (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=65; Acls=4225; iy=18.76; iz=18.76

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	37.7	.892	12φ20
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.571	12φ16
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.571	12φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NED	MEyd	MEzd	E c1s	σc	E acc	σf	VE		
> 1	5- 2	-107783.	1182654.	1.11	4520834.	1.03	-.154	-133.7	.167	3515.8	SI
1	5- 2	-106040.	514759.	1.	1237818.	1.	-.042	-52.8	.005	110.4	SI
1	5- 2	-104297.	-323322.	7.77	-2041572.	1.06	-.055	-67.2	.022	455.3	SI
> 2	5- 2	-66156.	403356.	1.26	2258775.	1.04	-.076	-86.5	.085	1788.7	SI
2	5- 2	-64149.	86653.	1.	-177903.	1.	-.014	-19.1	-.007	-145.5	SI
2	5- 2	-62142.	-396942.	1.25	-2607159.	1.03	-.089	-97.5	.12	2530.4	SI
> 3	5- 2	-25310.	152724.	1.27	1228635.	1.03	-.039	-49.6	.061	1284.5	SI
3	5- 2	-23303.	90511.	1.	-464797.	1.	-.013	-17.9	.006	130.4	SI
3	5- 2	-21296.	-273633.	1.11	-2151367.	1.01	-.073	-84.4	.154	3231.	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 1	-101457.8	569108.6	50022.9	330.	.7	1.22	1.61	.17	66.89	17.59	SI
2	1- 1	-76016.8	5612.1	101426.8	380.	.7	1.15	1.65	.128	73.99	20.25	SI
3	4- 4	-20642.9	404526.3	364993.8	380.	.7	1.15	.798	.035	68.87	20.25	SI

#### SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 2	-107782.9	4402273.	-1926845	330.	.7	1.22	2.14	.181	86.06	17.59	SI
2	1- 1	-76016.8	640597.9	-748628.	380.	.7	1.15	2.56	.128	115.	20.25	SI
3	5- 4	-15824.6	15339.	541246.	380.	.7	1.15	1.67	.027	164.8	20.25	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	-19178.9	28183.8	28183.8	101668.5	1.01	19.	2.5	SI
1 C	5- 2	-19178.9	28183.8	28183.8	101416.7	1.01	19.	2.5	SI
1 S	5- 2	-19178.9	28183.8	28183.8	101165.	1.01	19.	2.5	SI
2 I	5- 2	-12377.	28183.8	28183.8	95656.3	1.01	19.	2.5	SI
2 C	5- 2	-12377.	28183.8	28183.8	95366.5	1.01	19.	2.5	SI
2 S	5- 2	-12377.	28183.8	28183.8	95076.6	1.01	19.	2.5	SI
3 I	5- 2	-8737.6	28183.8	28183.8	89756.9	1.01	19.	2.5	SI
3 C	5- 2	-8737.6	28183.8	28183.8	89467.	1.01	19.	2.5	SI
3 S	5- 2	-8737.6	28183.8	28183.8	89177.2	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 4	-11030.1	28183.8	28183.8	97667.4	1.01	19.	2.5	SI
1 C	4- 4	-11030.1	28183.8	28183.8	97415.7	1.01	19.	2.5	SI
1 S	4- 4	-11030.1	28183.8	28183.8	97164.	1.01	19.	2.5	SI
2 I	4- 4	-3061.6	28183.8	28183.8	93527.6	1.01	19.	2.5	SI
2 C	4- 4	-3061.6	28183.8	28183.8	93237.7	1.01	19.	2.5	SI
2 S	4- 4	-3061.6	28183.8	28183.8	92947.9	1.01	19.	2.5	SI
3 I	5- 3	-1201.7	28183.8	28183.8	88219.4	1.01	19.	2.5	SI
3 C	5- 3	-1201.7	28183.8	28183.8	87929.5	1.01	19.	2.5	SI
3 S	5- 3	-1201.7	28183.8	28183.8	87639.7	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-89646.2	-200747.7	802716.9	-37.2	-46.	SI
1 C	8- 1	-87903.4	14809.9	106513.4	-20.7	-248.8	SI
1 S	8- 1	-86160.6	230367.6	-589690.2	-33.1	-78.3	SI
2 I	8- 1	-56594.6	9239.8	471758.5	-21.7	-65.4	SI
2 C	8- 1	-54587.7	39339.	-39486.7	-13.5	-159.7	SI
2 S	8- 1	-52580.8	69438.2	-550731.8	-23.6	-17.2	SI
3 I	8- 1	-22421.4	-25862.2	586852.3	-21.1	248.9	SI
3 C	8- 1	-20414.5	19216.7	-50752.1	-5.8	-49.6	SI
3 S	8- 1	-18407.6	64295.6	-688356.6	-27.6	539.4	SI

##### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-81879.	-188375.4	727079.2	-34.	-42.3	SI
1 C	9- 1	-80136.2	8462.1	95756.5	-18.8	-228.3	SI
1 S	9- 1	-78393.4	205299.6	-535566.2	-30.	-72.5	SI
2 I	9- 1	-51720.6	18239.1	431013.7	-20.1	-57.3	SI
2 C	9- 1	-49713.7	35923.1	-36115.2	-12.3	-145.4	SI
2 S	9- 1	-47706.8	53607.	-503244.1	-21.3	-17.1	SI
3 I	9- 1	-20477.5	-15667.2	531554.3	-18.8	218.	SI
3 C	9- 1	-18470.6	18325.7	-43562.3	-5.2	-45.2	SI
3 S	9- 1	-16463.7	52318.7	-618678.8	-24.6	484.4	SI

##### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-79453.4	-184718.8	703172.8	-32.9	-41.1	SI
1 C	10- 1	-77710.6	6292.7	92519.2	-18.2	-221.9	SI
1 S	10- 1	-75967.8	197304.2	-518134.5	-29.1	-70.8	SI
2 I	10- 1	-50257.	21318.9	417402.4	-19.5	-55.1	SI
2 C	10- 1	-48250.1	34764.1	-34904.4	-11.9	-141.1	SI
2 S	10- 1	-46243.2	48209.3	-487211.2	-20.5	-17.7	SI
3 I	10- 1	-19986.9	-12477.2	514416.6	-18.1	206.	SI
3 C	10- 1	-17980.1	18415.9	-42402.2	-5.1	-43.8	SI
3 S	10- 1	-15973.2	49309.1	-599221.	-23.8	467.4	SI

Nome pilastro : **P012 - RINFORZATO** (ID=81)  
Aste : 1156; 1644; 1645; 637  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; μ<sub>phi</sub>=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r ‰ (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; R<sub>ck</sub>=300; f<sub>ck</sub>=249; f<sub>ctk</sub>=17.91; f<sub>ctm</sub>=25.58; E<sub>cm</sub>=314472;  
g<sub>c</sub>=1.5; f<sub>cd</sub>=141.1; f<sub>bd</sub>=26.86; f<sub>ctd</sub>=11.94; E<sub>c2</sub>=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; f<sub>tk</sub>=5175; f<sub>yk</sub>=4500; E<sub>s</sub>=2100000;  
g<sub>s</sub>=1.15; f<sub>yd</sub>=3913; f<sub>td</sub>=4500; f<sub>ud</sub>=3640.9; E<sub>yd</sub>=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σ<sub>c</sub> (rara)=149.4; σ<sub>c</sub> (quasi permanente)=112; f<sub>bd</sub>(esercizio)=26.86



ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAL	SLU (sismico)	4
5	SLU con SISMAY	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=65;  $A_{cl}$ s=4225;  $i_y$ =18.76;  $i_z$ =18.76

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.571
2	1	2.	2.	.63	.63	190.	166.	0.	0.	40.21	.952
3	1	2.	2.	.63	.63	190.	140.	0.	0.	24.13	.571
4	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.571

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 1	-73541.	-392703.	1.26	872909.	1.1	-.031	-40.4	.005
1	1- 1	-113048.	28652.	1.	-567894.	1.	-.027	-35.9	-.011
1	5- 2	-70377.	327795.	1.31	-1876899.	1.04	-.059	-70.6	.048
> 2	5- 2	-51467.	325130.	1.11	3008761.	1.01	-.082	-91.7	.113
2	5- 2	-50464.	211302.	1.	1510824.	1.	-.039	-50.2	.032
2	1- 1	-71322.	254599.	1.22	187816.	1.4	-.017	-22.7	-.006
> 3	1- 1	-64779.	-170585.	7.79	170585.	2.33	-.015	-20.7	-.006
3	5- 2	-44023.	43304.	1.	-1319239.	1.	-.036	-46.	.035
3	5- 2	-43020.	-212938.	1.15	-2700475.	1.01	-.087	-96.4	.157
> 4	5- 2	-22186.	-140607.	1.25	1662458.	1.02	-.052	-64.3	.104
4	5- 1	-19809.	103628.	1.	-332413.	1.	-.01	-13.9	.004
4	5- 2	-18173.	83737.	1.38	-2338899.	1.01	-.071	-82.6	.169

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 4	-78945.3	168627.3	16874.9	330.	.7	1.15	1.6	.132	70.63	17.59	SI
2	1- 1	-73931.4	180844.5	209428.5	190.	.7	1.24	.836	.124	41.11	10.13	SI
3	4- 2	-45260.4	-229819.	-478172.	190.	.7	1.15	1.22	.076	71.09	10.13	SI
4	1- 1	-28645.5	10860.4	17474.1	380.	.7	1.15	1.08	.048	79.04	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-115313.3	149976.7	-1285765	330.	.7	1.15	1.82	.193	66.36	17.59	SI
2	1- 1	-73931.4	1520659.	133762.	190.	.7	1.24	1.61	.124	79.22	10.13	SI
3	1- 1	-64779.	73328.4	-1313568	190.	.7	1.15	1.76	.109	85.57	10.13	SI
4	1- 1	-28645.5	1197443.	-1478602	380.	.7	1.15	2.51	.048	183.9	20.25	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	-7973.8	28649.6	28649.6	98368.9	1.01	19.	2.5	SI
1 C	5- 2	-7973.8	28649.6	28649.6	98113.	1.01	19.	2.5	SI
1 S	5- 2	-7973.8	28649.6	28649.6	97857.2	1.01	19.	2.5	SI
2 I	5- 2	-15450.5	28649.6	28649.6	95080.8	1.01	19.	2.5	SI
2 C	5- 2	-15450.5	28649.6	28649.6	94933.5	1.01	19.	2.5	SI
2 S	5- 2	-15450.5	28649.6	28649.6	94786.2	1.01	19.	2.5	SI
3 I	5- 2	-14280.7	28649.6	28649.6	94135.3	1.01	19.	2.5	SI
3 C	5- 2	-14280.7	28649.6	28649.6	93988.	1.01	19.	2.5	SI
3 S	5- 2	-14280.7	28649.6	28649.6	93840.6	1.01	19.	2.5	SI
4 I	5- 2	-10389.3	28649.6	28649.6	90781.9	1.01	19.	2.5	SI
4 C	5- 2	-10389.3	28649.6	28649.6	90487.3	1.01	19.	2.5	SI
4 S	5- 2	-10389.3	28649.6	28649.6	90192.6	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 4	-2683.7	28649.6	28649.6	98268.4	1.01	19.	2.5	SI
1 C	4- 4	-2683.7	28649.6	28649.6	98012.5	1.01	19.	2.5	SI
1 S	4- 4	-2683.7	28649.6	28649.6	97756.6	1.01	19.	2.5	SI
2 I	4- 4	-4014.9	28649.6	28649.6	94405.7	1.01	19.	2.5	SI
2 C	4- 4	-4014.9	28649.6	28649.6	94258.4	1.01	19.	2.5	SI
2 S	4- 4	-4014.9	28649.6	28649.6	94111.1	1.01	19.	2.5	SI
3 I	4- 4	-2964.5	28649.6	28649.6	93366.6	1.01	19.	2.5	SI
3 C	4- 4	-2964.5	28649.6	28649.6	93219.3	1.01	19.	2.5	SI
3 S	4- 4	-2964.5	28649.6	28649.6	93072.	1.01	19.	2.5	SI
4 I	4- 1	-735.4	28649.6	28649.6	90530.	1.01	19.	2.5	SI
4 C	4- 1	-735.4	28649.6	28649.6	90235.3	1.01	19.	2.5	SI
4 S	4- 1	-735.4	28649.6	28649.6	89940.7	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	8- 1	-85645.8	-81633.5	110404.	-22.5	-233.4	SI
1 C	8- 1	-83903.	22024.7	-415123.6	-26.9	-166.1	SI
1 S	8- 1	-82160.2	125682.8	-940651.3	-38.8	-1.1	SI
2 I	8- 1	-55175.6	132388.6	1110309.7	-37.5	223.1	SI
2 C	8- 1	-54172.2	144073.1	604670.7	-25.	7.5	SI
2 S	8- 1	-53168.7	155757.6	99031.6	-15.7	-106.7	SI
3 I	8- 1	-48288.	-17991.7	54142.4	-12.	-140.6	SI

3	C	8- 1	-47284.5	-6307.1	-451496.7	-19.3	-40.6	SI
3	S	8- 1	-46281.1	5377.4	-957135.7	-32.3	213.1	SI
4	I	8- 1	-21772.2	8068.	875555.3	-32.3	700.7	SI
4	C	8- 1	-19765.4	10367.7	-106259.	-6.6	-35.7	SI
4	S	8- 1	-17758.5	12667.3	-1088073.3	-41.5	1223.4	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE	
1	I	9- 1	-78472.5	-73956.2	100088.4	-20.6	-214.3	SI
1	C	9- 1	-76729.7	22260.1	-368391.8	-24.4	-154.2	SI
1	S	9- 1	-74986.9	118476.5	-836872.1	-35.	-6.	SI
2	I	9- 1	-50515.7	117211.7	986196.3	-33.4	183.3	SI
2	C	9- 1	-49512.3	131121.	538086.8	-22.5	2.9	SI
2	S	9- 1	-48508.9	145030.2	89977.4	-14.4	-96.8	SI
3	I	9- 1	-43918.8	-22484.9	48197.	-11.	-126.6	SI
3	C	9- 1	-42915.3	-8575.7	-399912.4	-17.3	-38.6	SI
3	S	9- 1	-41911.9	5333.6	-848021.8	-28.6	176.8	SI
4	I	9- 1	-19753.2	7410.6	770681.8	-28.4	596.5	SI
4	C	9- 1	-17746.3	10379.1	-92585.5	-5.9	-32.5	SI
4	S	9- 1	-15739.5	13347.7	-955852.8	-36.5	1070.6	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE	
1	I	10- 1	-76243.1	-71590.3	96735.	-20.	-208.4	SI
1	C	10- 1	-74500.3	22303.3	-353398.7	-23.6	-150.6	SI
1	S	10- 1	-72757.5	116196.9	-803532.5	-33.8	-7.8	SI
2	I	10- 1	-49143.1	112428.5	945922.4	-32.	169.4	SI
2	C	10- 1	-48139.7	126962.3	516542.4	-21.8	1.	SI
2	S	10- 1	-47136.3	141496.	87162.4	-14.	-93.9	SI
3	I	10- 1	-42644.	-23679.9	46419.3	-10.7	-122.6	SI
3	C	10- 1	-41640.6	-9146.2	-382960.7	-16.7	-38.5	SI
3	S	10- 1	-40637.1	5387.6	-812340.7	-27.4	163.1	SI
4	I	10- 1	-19281.1	7204.8	737862.9	-27.1	558.4	SI
4	C	10- 1	-17274.2	10243.6	-89362.2	-5.7	-31.8	SI
4	S	10- 1	-15267.3	13282.4	-916587.4	-35.	1020.	SI

Nome pilastro : **P013** (ID=82)  
Aste : 1055-1056-1057-1058; 1196; 1646; 1647; 694  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daN/cm2; deform.%; 1/r â€°(permille)  
Unita' particolari : fessure [wk];mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : σc (rara)=98.8; σc (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO: σf (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

<-

#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4φ16
3	1	2.	2.	.63	.63	190.	166.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	.63	.63	190.	166.	0.	0.	6.16	.503 4φ14
5	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369 4φ12

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE
------	------	-----	------	------	-------	----	-------	----	----

> 1	1- 1	-3426.	9536.	999.	9536.	999.	-.005	-4.6	-.001	-18.6	SI
1	1- 1	-4229.	0.	999.	0.	999.	-.003	-3.	-.003	-66.9	SI
1	1- 1	-9439.	26272.	999.	26272.	999.	-.014	-12.6	-.003	-51.1	SI
> 2	1- 1	-24096.	55823.	999.	55823.	999.	-.035	-29.2	-.009	-173.4	SI
2	1- 1	-24096.	0.	999.	0.	999.	-.02	-17.2	-.02	-395.5	SI
2	1- 1	-24096.	55823.	999.	55823.	999.	-.035	-29.2	-.009	-173.4	SI
> 3	1- 1	-17652.	46483.	999.	46483.	999.	-.028	-23.6	-.005	-105.3	SI
3	1- 1	-17274.	0.	999.	0.	999.	-.014	-12.7	-.014	-288.5	SI
3	1- 1	-16895.	44491.	999.	44491.	999.	-.027	-22.7	-.005	-100.8	SI
> 4	2- 1	-8004.	21076.	999.	21076.	999.	-.012	-10.9	-.002	-48.	SI
4	2- 1	-7625.	0.	999.	0.	999.	-.006	-5.6	-.006	-125.	SI
4	2- 1	-7247.	19084.	999.	19084.	999.	-.011	-9.8	-.002	-43.5	SI
> 5	2- 1	-6148.	20085.	999.	20085.	999.	-.011	-9.6	-.001	-21.	SI
5	2- 1	-5392.	0.	999.	0.	999.	-.005	-4.1	-.005	-90.3	SI
5	2- 1	-4636.	15143.	999.	15143.	999.	-.008	-7.2	-.001	-15.9	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L 11m	Lambd	VE
1	1- 1	-9439.2	235.	.084	86.12	23.26	SI
2	1- 1	-24096.5	95.	.215	53.9	9.4	SI
3	1- 1	-17651.7	190.	.158	62.98	18.81	SI
4	2- 1	-8003.5	190.	.071	93.53	18.81	SI
5	2- 1	-6148.4	380.	.055	106.7	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L 11m	Lambd	VE
1	1- 1	-9439.2	235.	.084	86.12	23.26	SI
2	1- 1	-24096.5	95.	.215	53.9	9.4	SI
3	1- 1	-17651.7	190.	.158	62.98	18.81	SI
4	2- 1	-8003.5	190.	.071	93.53	18.81	SI
5	2- 1	-6148.4	380.	.055	106.7	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15559.6	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15667.7	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16370.	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17476.9	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17425.9	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17374.9	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16110.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	16059.4	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	16008.4	.57	18.	2.5	NO 10
5 I	1- 1	0.	5944.4	5944.4	15861.	.57	18.	2.5	NO 10
5 C	1- 1	0.	5944.4	5944.4	15759.	.57	18.	2.5	NO 10
5 S	1- 1	0.	5944.4	5944.4	15657.1	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15559.6	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15667.7	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16370.	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17476.9	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17425.9	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17374.9	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16110.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	16059.4	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	16008.4	.57	18.	2.5	NO 10
5 I	1- 1	0.	5944.4	5944.4	15861.	.57	18.	2.5	NO 10
5 C	1- 1	0.	5944.4	5944.4	15759.	.57	18.	2.5	NO 10
5 S	1- 1	0.	5944.4	5944.4	15657.1	.57	18.	2.5	NO 10

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-2581.1	0.	0.	-1.9	-28.9	SI
1 C	15- 1	-3178.7	0.	0.	-2.4	-35.6	SI
1 S	15- 1	-7093.	0.	0.	-5.3	-79.5	SI
2 I	15- 1	-18103.	0.	0.	-13.5	-203.	SI
2 C	15- 1	-18103.	0.	0.	-13.5	-203.	SI
2 S	15- 1	-18103.	0.	0.	-13.5	-203.	SI
3 I	15- 1	-13283.4	0.	0.	-10.1	-152.	SI
3 C	15- 1	-12992.4	0.	0.	-9.9	-148.6	SI
3 S	15- 1	-12701.5	0.	0.	-9.7	-145.3	SI
4 I	16- 1	-6053.9	0.	0.	-4.6	-69.3	SI
4 C	16- 1	-5763.	0.	0.	-4.4	-65.9	SI
4 S	16- 1	-5472.	0.	0.	-4.2	-62.6	SI
5 I	16- 1	-4625.6	0.	0.	-3.6	-53.9	SI
5 C	16- 1	-4043.8	0.	0.	-3.1	-47.1	SI
5 S	16- 1	-3461.9	0.	0.	-2.7	-40.3	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-2453.9	0.	0.	-1.8	-27.5	SI
1 C	18- 1	-2999.9	0.	0.	-2.2	-33.6	SI
1 S	18- 1	-6672.4	0.	0.	-5.	-74.8	SI
2 I	18- 1	-17017.8	0.	0.	-12.7	-190.8	SI
2 C	18- 1	-17017.8	0.	0.	-12.7	-190.8	SI
2 S	18- 1	-17017.8	0.	0.	-12.7	-190.8	SI
3 I	18- 1	-12472.5	0.	0.	-9.5	-142.7	SI

3	C	18- 1	-12181.5	0.	0.	-9.3	-139.4	SI
3	S	18- 1	-11890.6	0.	0.	-9.1	-136.	SI
4	I	19- 1	-5524.8	0.	0.	-4.2	-63.2	SI
4	C	19- 1	-5233.9	0.	0.	-4.	-59.9	SI
4	S	19- 1	-4943.	0.	0.	-3.8	-56.5	SI
5	I	19- 1	-4095.1	0.	0.	-3.2	-47.7	SI
5	C	19- 1	-3513.2	0.	0.	-2.7	-40.9	SI
5	S	19- 1	-2931.3	0.	0.	-2.3	-34.1	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	21- 1	-2421.6	0.	0.	-1.8	-27.2	SI
1	C	21- 1	-2956.5	0.	0.	-2.2	-33.2	SI
1	S	21- 1	-6576.5	0.	0.	-4.9	-73.8	SI
2	I	21- 1	-16771.	0.	0.	-12.5	-188.1	SI
2	C	21- 1	-16771.	0.	0.	-12.5	-188.1	SI
2	S	21- 1	-16771.	0.	0.	-12.5	-188.1	SI
3	I	21- 1	-12314.5	0.	0.	-9.4	-140.9	SI
3	C	21- 1	-12023.6	0.	0.	-9.2	-137.5	SI
3	S	21- 1	-11732.6	0.	0.	-8.9	-134.2	SI
4	I	21- 1	-5392.8	0.	0.	-4.1	-61.7	SI
4	C	21- 1	-5101.9	0.	0.	-3.9	-58.4	SI
4	S	21- 1	-4810.9	0.	0.	-3.7	-55.	SI
5	I	21- 1	-3963.	0.	0.	-3.1	-46.1	SI
5	C	21- 1	-3381.1	0.	0.	-2.6	-39.4	SI
5	S	21- 1	-2799.2	0.	0.	-2.2	-32.6	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P014** (ID=83)  
Aste : 1010-1011-1012-1013; 1014; 615; 616  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r  $\hat{a}^{\circ}$  (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	ei	ey	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-1514.	4215. 999.	4215. 999.	-0.002	-2.	0.	-8.2	SI
1	1- 1	-3330.	0. 999.	0. 999.	-0.003	-2.4	-0.003	-52.6	SI
1	1- 1	-11025.	30686. 999.	30686. 999.	-0.017	-14.7	-0.003	-59.6	SI
> 2	1- 1	-27511.	63734. 999.	63734. 999.	-0.04	-33.2	-0.01	-198.	SI
2	1- 1	-27322.	0. 999.	0. 999.	-0.023	-19.5	-0.023	-451.3	SI
2	1- 1	-27133.	62857. 999.	62857. 999.	-0.04	-32.8	-0.01	-195.3	SI
> 3	1- 1	-17460.	57036. 999.	57036. 999.	-0.031	-25.8	-0.003	-59.3	SI

3	1- 1	-16704.	0.	999.	0.	999.	-.014	-12.3	-.014	-278.7	SI
3	1- 1	-15947.	52094.	999.	52094.	999.	-.028	-23.7	-.003	-54.4	SI
> 4	2- 1	-6673.	21797.	999.	21797.	999.	-.011	-10.	-.001	-23.4	SI
4	2- 1	-5916.	0.	999.	0.	999.	-.005	-4.4	-.005	-96.7	SI
4	2- 1	-5160.	16855.	999.	16855.	999.	-.009	-7.8	-.001	-18.2	SI

#### SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-11025.1	235.	.098	79.69	23.26	SI
2	1- 1	-27510.9	95.	.246	50.45	9.4	SI
3	1- 1	-17460.	380.	.156	63.32	37.61	SI
4	2- 1	-6672.6	380.	.06	102.4	37.61	SI

#### SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-11025.1	235.	.098	79.69	23.26	SI
2	1- 1	-27510.9	95.	.246	50.45	9.4	SI
3	1- 1	-17460.	380.	.156	63.32	37.61	SI
4	2- 1	-6672.6	380.	.06	102.4	37.61	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15301.9	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15546.6	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16583.7	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17451.	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17349.1	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17247.1	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15938.7	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15836.8	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15734.8	.57	18.	2.5	NO 10

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15301.9	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15546.6	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16583.7	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17451.	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17349.1	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17247.1	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15938.7	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15836.8	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15734.8	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-1141.6	0.	0.	-.9	-12.8	SI
1 C	15- 1	-2502.1	0.	0.	-1.9	-28.1	SI
1 S	15- 1	-8289.6	0.	0.	-6.2	-93.	SI
2 I	15- 1	-20685.7	0.	0.	-15.5	-232.	SI
2 C	15- 1	-20540.2	0.	0.	-15.4	-230.3	SI
2 S	15- 1	-20394.8	0.	0.	-15.2	-228.7	SI
3 I	15- 1	-13170.9	0.	0.	-10.	-150.7	SI
3 C	15- 1	-12589.	0.	0.	-9.6	-144.	SI
3 S	15- 1	-12007.1	0.	0.	-9.2	-137.4	SI
4 I	16- 1	-5045.9	0.	0.	-3.8	-57.7	SI
4 C	16- 1	-4464.1	0.	0.	-3.4	-51.1	SI
4 S	16- 1	-3882.2	0.	0.	-3.	-44.4	SI

##### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-1087.2	0.	0.	-.8	-12.2	SI
1 C	18- 1	-2364.2	0.	0.	-1.8	-26.5	SI
1 S	18- 1	-7837.6	0.	0.	-5.9	-87.9	SI
2 I	18- 1	-19558.6	0.	0.	-14.6	-219.3	SI
2 C	18- 1	-19413.1	0.	0.	-14.5	-217.7	SI
2 S	18- 1	-19267.6	0.	0.	-14.4	-216.1	SI
3 I	18- 1	-12464.7	0.	0.	-9.5	-142.6	SI
3 C	18- 1	-11882.9	0.	0.	-9.1	-135.9	SI
3 S	18- 1	-11301.	0.	0.	-8.6	-129.3	SI
4 I	19- 1	-4589.6	0.	0.	-3.5	-52.5	SI
4 C	19- 1	-4007.8	0.	0.	-3.1	-45.8	SI
4 S	19- 1	-3425.9	0.	0.	-2.6	-39.2	SI

##### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	21- 1	-1073.4	0.	0.	-.8	-12.	SI
1 C	21- 1	-2328.8	0.	0.	-1.7	-26.1	SI
1 S	21- 1	-7724.6	0.	0.	-5.8	-86.6	SI
2 I	21- 1	-19277.1	0.	0.	-14.4	-216.2	SI
2 C	21- 1	-19131.6	0.	0.	-14.3	-214.5	SI
2 S	21- 1	-18986.1	0.	0.	-14.2	-212.9	SI
3 I	21- 1	-12324.3	0.	0.	-9.4	-141.	SI
3 C	21- 1	-11742.4	0.	0.	-9.	-134.3	SI
3 S	21- 1	-11160.5	0.	0.	-8.5	-127.7	SI
4 I	21- 1	-4475.3	0.	0.	-3.4	-51.2	SI
4 C	21- 1	-3893.4	0.	0.	-3.	-44.5	SI
4 S	21- 1	-3311.6	0.	0.	-2.5	-37.9	SI

## MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P015** (ID=84)  
 Aste : 1015-1016-1017-1018; 1019; 618; 619  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r (per mille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

## MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
 gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
 ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
 gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
 ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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## SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	ei	ey	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE		
> 1	1- 1	-3813.	10613.	999.	10613.	999.	-0.006	-5.1	-0.001	-20.7	SI
1	1- 1	-6561.	0.	999.	0.	999.	-0.005	-4.7	-0.005	-104.2	SI
1	1- 1	-17296.	48141.	999.	48141.	999.	-0.027	-22.9	-0.005	-93.1	SI
> 2	1- 1	-49348.	114323.	999.	114323.	999.	-0.078	-57.4	-0.018	-354.3	SI
2	1- 1	-49159.	0.	999.	0.	999.	-0.043	-34.8	-0.043	-851.	SI
2	1- 1	-48970.	113447.	999.	113447.	999.	-0.077	-57.	-0.018	-351.6	SI
> 3	1- 1	-30264.	98864.	999.	98864.	999.	-0.055	-43.7	-0.005	-97.4	SI
3	1- 1	-29508.	0.	999.	0.	999.	-0.025	-21.7	-0.025	-505.6	SI
3	1- 1	-28751.	93921.	999.	93921.	999.	-0.052	-41.6	-0.005	-93.2	SI
> 4	2- 1	-11158.	36450.	999.	36450.	999.	-0.019	-16.7	-0.002	-38.7	SI
4	2- 1	-10402.	0.	999.	0.	999.	-0.009	-7.7	-0.009	-171.4	SI
4	2- 1	-9645.	31508.	999.	31508.	999.	-0.016	-14.5	-0.002	-33.6	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-17296.	235.	.154	63.62	23.26	SI
2	1- 1	-49348.1	95.	.441	37.67	9.4	SI
3	1- 1	-30264.3	380.	.27	48.1	37.61	SI
4	2- 1	-11158.1	380.	.1	79.21	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-17296.	235.	.154	63.62	23.26	SI
2	1- 1	-49348.1	95.	.441	37.67	9.4	SI
3	1- 1	-30264.3	380.	.27	48.1	37.61	SI
4	2- 1	-11158.1	380.	.1	79.21	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15611.7	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15982.	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17428.9	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI



2	S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI	
3	I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
3	C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
3	S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
4	I	1- 1	0.	5944.4	5944.4	16464.5	.57	18.	2.5	NO	10
4	C	1- 1	0.	5944.4	5944.4	16362.6	.57	18.	2.5	NO	10
4	S	1- 1	0.	5944.4	5944.4	16260.6	.57	18.	2.5	NO	10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15611.7	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15982.	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17428.9	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16464.5	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	16362.6	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	16260.6	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-2857.9	0.	0.	-2.1	-32.	SI
1 C	15- 1	-4895.3	0.	0.	-3.7	-54.9	SI
1 S	15- 1	-12892.2	0.	0.	-9.6	-144.6	SI
2 I	15- 1	-36788.7	0.	0.	-27.5	-412.6	SI
2 C	15- 1	-36643.2	0.	0.	-27.4	-410.9	SI
2 S	15- 1	-36497.7	0.	0.	-27.3	-409.3	SI
3 I	15- 1	-22641.9	0.	0.	-17.3	-259.	SI
3 C	15- 1	-22060.	0.	0.	-16.8	-252.4	SI
3 S	15- 1	-21478.1	0.	0.	-16.4	-245.7	SI
4 I	16- 1	-8371.1	0.	0.	-6.4	-95.8	SI
4 C	16- 1	-7789.3	0.	0.	-5.9	-89.1	SI
4 S	16- 1	-7207.4	0.	0.	-5.5	-82.5	SI

Frequenti:

Frequent.		Frequent.						
Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	18- 1	-2684.1	0.	0.	-2.	-30.1	SI
1	C	18- 1	-4542.6	0.	0.	-3.4	-50.9	SI
1	S	18- 1	-11919.9	0.	0.	-8.9	-133.7	SI
2	I	18- 1	-34022.1	0.	0.	-25.4	-381.5	SI
2	C	18- 1	-33876.6	0.	0.	-25.3	-379.9	SI
2	S	18- 1	-33731.1	0.	0.	-25.2	-378.3	SI
3	I	18- 1	-20917.7	0.	0.	-16.	-239.3	SI
3	C	18- 1	-20335.8	0.	0.	-15.5	-232.6	SI
3	S	18- 1	-19753.9	0.	0.	-15.1	-226.	SI
4	I	19- 1	-7276.2	0.	0.	-5.5	-83.2	SI
4	C	19- 1	-6694.3	0.	0.	-5.1	-76.6	SI
4	S	19- 1	-6112.5	0.	0.	-4.7	-69.9	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-2639.2	0.	0.	-2.	-29.6	SI
1 C	21- 1	-4452.5	0.	0.	-3.3	-49.9	SI
1 S	21- 1	-11675.8	0.	0.	-8.7	-130.9	SI
2 I	21- 1	-33329.5	0.	0.	-24.9	-373.8	SI
2 C	21- 1	-33184.1	0.	0.	-24.8	-372.1	SI
2 S	21- 1	-33038.6	0.	0.	-24.7	-370.5	SI
3 I	21- 1	-20571.2	0.	0.	-15.7	-235.3	SI
3 C	21- 1	-19989.3	0.	0.	-15.2	-228.7	SI
3 S	21- 1	-19407.4	0.	0.	-14.8	-222.	SI
4 I	21- 1	-7002.9	0.	0.	-5.3	-80.1	SI
4 C	21- 1	-6421.	0.	0.	-4.9	-73.5	SI
4 S	21- 1	-5839.2	0.	0.	-4.5	-66.8	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P016** (ID=85)  
Aste : 995-996-997-998; 999; 621; 622  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eud=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2	2	.78	.78	235.	235.	0.	0.	8.04	.657	4φ16
2	1	2	2	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16
3	1	2	2	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2	2	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cl	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	7- 4	-669.	1861. 999.	1861. 999.	-.001	-9.0	0.	-3.6	SI
1	1- 1	-2029.	0. 999.	0. 999.	-.002	-1.5	-.002	-32.	SI
1	1- 1	-6876.	19139. 999.	19139. 999.	-.01	-9.2	-.002	-37.3	SI
> 2	1- 1	-18000.	41700. 999.	41700. 999.	-.026	-22.	-.006	-129.4	SI
2	1- 1	-17811.	0. 999.	0. 999.	-.014	-12.7	-.014	-288.8	SI
2	1- 1	-17622.	40824. 999.	40824. 999.	-.025	-21.6	-.006	-126.7	SI
> 3	1- 1	-11813.	38590. 999.	38590. 999.	-.02	-17.6	-.002	-40.8	SI
3	1- 1	-11057.	0. 999.	0. 999.	-.009	-8.1	-.009	-182.4	SI
3	1- 1	-10300.	33648. 999.	33648. 999.	-.018	-15.4	-.002	-35.8	SI
> 4	2- 1	-4659.	15219. 999.	15219. 999.	-.008	-7.	-.001	-16.4	SI
4	2- 1	-3902.	0. 999.	0. 999.	-.003	-2.9	-.003	-63.5	SI
4	2- 1	-3146.	10277. 999.	10277. 999.	-.005	-4.8	-.001	-11.1	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-6876.3	235.	.061	100.9	23.26	SI
2	1- 1	-18000.1	95.	.161	62.37	9.4	SI
3	1- 1	-11813.1	380.	.105	76.98	37.61	SI
4	2- 1	-4658.8	380.	.042	122.6	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-6876.3	235.	.061	100.9	23.26	SI
2	1- 1	-18000.1	95.	.161	62.37	9.4	SI
3	1- 1	-11813.1	380.	.105	76.98	37.61	SI
4	2- 1	-4658.8	380.	.042	122.6	37.61	SI

TAGLIO Y:

Asta	Caso	VED	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15186.	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15371.3	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16024.6	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17523.8	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17498.3	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	17472.8	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16689.9	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16588.	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16486.	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15696.2	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15594.2	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15492.3	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VED	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15186.	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15371.3	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16024.6	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17523.8	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17498.3	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	17472.8	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16689.9	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16588.	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16486.	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15696.2	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15594.2	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15492.3	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
------	------	-----	------	------	------------	------------	----

1	I	15- 1	-496.3	0.	0.	- .4	-5.6	SI
1	C	15- 1	-1531.5	0.	0.	-1.1	-17.2	SI
1	S	15- 1	-5197.	0.	0.	-3.9	-58.3	SI
2	I	15- 1	-13605.2	0.	0.	-10.2	-152.6	SI
2	C	15- 1	-13459.7	0.	0.	-10.1	-150.9	SI
2	S	15- 1	-13314.3	0.	0.	-10.	-149.3	SI
3	I	15- 1	-8955.2	0.	0.	-6.8	-102.4	SI
3	C	15- 1	-8373.4	0.	0.	-6.4	-95.8	SI
3	S	15- 1	-7791.5	0.	0.	-5.9	-89.1	SI
4	I	16- 1	-3539.9	0.	0.	-2.7	-40.5	SI
4	C	16- 1	-2958.	0.	0.	-2.3	-33.8	SI
4	S	16- 1	-2376.1	0.	0.	-1.8	-27.2	SI

#### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	18- 1	-483.7	0.	0.	- .4	-5.4	SI
1	C	18- 1	-1466.	0.	0.	-1.1	-16.4	SI
1	S	18- 1	-4978.9	0.	0.	-3.7	-55.8	SI
2	I	18- 1	-13035.2	0.	0.	-9.7	-146.2	SI
2	C	18- 1	-12889.7	0.	0.	-9.6	-144.5	SI
2	S	18- 1	-12744.2	0.	0.	-9.5	-142.9	SI
3	I	18- 1	-8597.1	0.	0.	-6.6	-98.3	SI
3	C	18- 1	-8015.2	0.	0.	-6.1	-91.7	SI
3	S	18- 1	-7433.4	0.	0.	-5.7	-85.	SI
4	I	19- 1	-3309.3	0.	0.	-2.5	-37.9	SI
4	C	19- 1	-2727.4	0.	0.	-2.1	-31.2	SI
4	S	19- 1	-2145.5	0.	0.	-1.6	-24.5	SI

#### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-478.9	0.	0.	- .4	-5.4	SI
1 C	21- 1	-1447.9	0.	0.	-1.1	-16.2	SI
1 S	21- 1	-4924.2	0.	0.	-3.7	-55.2	SI
2 I	21- 1	-12892.8	0.	0.	-9.6	-144.6	SI
2 C	21- 1	-12747.3	0.	0.	-9.5	-143.	SI
2 S	21- 1	-12601.9	0.	0.	-9.4	-141.3	SI
3 I	21- 1	-8525.9	0.	0.	-6.5	-97.5	SI
3 C	21- 1	-7944.	0.	0.	-6.1	-90.9	SI
3 S	21- 1	-7362.2	0.	0.	-5.6	-84.2	SI
4 I	21- 1	-3251.5	0.	0.	-2.5	-37.2	SI
4 C	21- 1	-2669.6	0.	0.	-2.	-30.5	SI
4 S	21- 1	-2087.8	0.	0.	-1.6	-23.9	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P017** (ID=86)  
Aste : 1132-1133-1134-1135; 1136; 548; 549  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r ° (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As Se|e0z |e0y |eiz |eiy |Lassi Lnet Lcr.I Lcr.S| Af % arm

1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657	4φ16	
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16	
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14	
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14	

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE
> 1	1- 1	-2160.	6012. 999.	6012. 999.	-0.003	-2.9	-0.001	-11.7	SI
1	1- 1	-2745.	0. 999.	0. 999.	-0.002	-2.	-0.002	-43.3	SI
1	2- 1	-3802.	10582. 999.	10582. 999.	-0.006	-5.1	-0.001	-20.6	SI
> 2	2- 1	-9387.	21747. 999.	21747. 999.	-0.013	-11.6	-0.003	-67.4	SI
2	2- 1	-9198.	0. 999.	0. 999.	-0.007	-6.6	-0.007	-146.8	SI
2	2- 1	-9009.	20871. 999.	20871. 999.	-0.013	-11.1	-0.003	-64.6	SI
> 3	1- 1	-11767.	38439. 999.	38439. 999.	-0.02	-17.6	-0.002	-40.7	SI
3	1- 1	-11011.	0. 999.	0. 999.	-0.009	-8.1	-0.009	-181.6	SI
3	1- 1	-10254.	33497. 999.	33497. 999.	-0.018	-15.4	-0.002	-35.6	SI
> 4	2- 1	-4761.	15552. 999.	15552. 999.	-0.008	-7.2	-0.001	-16.8	SI
4	2- 1	-4004.	0. 999.	0. 999.	-0.003	-3.	-0.003	-65.2	SI
4	2- 1	-3248.	10610. 999.	10610. 999.	-0.005	-4.9	-0.001	-11.5	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	l0	nu	L lim	Lambd	VE
1	2- 1	-3801.8	235.	.034	135.7	23.26	SI
2	2- 1	-9387.2	95.	.084	86.36	9.4	SI
3	1- 1	-11767.1	380.	.105	77.14	37.61	SI
4	2- 1	-4760.9	380.	.043	121.3	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	l0	nu	L lim	Lambd	VE
1	2- 1	-3801.8	235.	.034	135.7	23.26	SI
2	2- 1	-9387.2	95.	.084	86.36	9.4	SI
3	1- 1	-11767.1	380.	.105	77.14	37.61	SI
4	2- 1	-4760.9	380.	.043	121.3	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15388.9	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15467.7	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	15606.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	16359.1	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	16333.6	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	16308.1	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16683.7	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16581.8	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16479.8	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15726.7	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15624.8	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15522.8	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15388.9	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15467.7	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	15606.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	16359.1	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	16333.6	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	16308.1	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16683.7	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16581.8	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16479.8	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15726.7	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15624.8	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15522.8	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-1642.4	0.	0.	-1.2	-18.4	SI
1 C	15- 1	-2083.3	0.	0.	-1.6	-23.4	SI
1 S	16- 1	-2909.6	0.	0.	-2.2	-32.6	SI
2 I	16- 1	-7176.4	0.	0.	-5.4	-80.5	SI
2 C	16- 1	-7031.	0.	0.	-5.3	-78.8	SI
2 S	16- 1	-6885.5	0.	0.	-5.1	-77.2	SI
3 I	15- 1	-8912.1	0.	0.	-6.8	-102.	SI
3 C	15- 1	-8330.2	0.	0.	-6.4	-95.3	SI
3 S	15- 1	-7748.3	0.	0.	-5.9	-88.6	SI
4 I	16- 1	-3612.	0.	0.	-2.8	-41.3	SI
4 C	16- 1	-3030.1	0.	0.	-2.3	-34.7	SI
4 S	16- 1	-2448.3	0.	0.	-1.9	-28.	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-1597.5	0.	0.	-1.2	-17.9	SI
1 C	18- 1	-2016.7	0.	0.	-1.5	-22.6	SI
1 S	19- 1	-2854.6	0.	0.	-2.1	-32.	SI
2 I	19- 1	-7033.8	0.	0.	-5.3	-78.9	SI
2 C	19- 1	-6888.3	0.	0.	-5.1	-77.2	SI
2 S	19- 1	-6742.9	0.	0.	-5.	-75.6	SI
3 I	18- 1	-8554.7	0.	0.	-6.5	-97.9	SI
3 C	18- 1	-7972.9	0.	0.	-6.1	-91.2	SI
3 S	18- 1	-7391.	0.	0.	-5.6	-84.6	SI
4 I	19- 1	-3422.	0.	0.	-2.6	-39.1	SI
4 C	19- 1	-2840.1	0.	0.	-2.2	-32.5	SI

4 S| 19- 1| -2258.2| 0. | 0. | -1.7| -25.8|SI|

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-1586.3	0.	0.	-1.2	-17.8	SI
1 C	21- 1	-2000.3	0.	0.	-1.5	-22.4	SI
1 S	21- 1	-2842.1	0.	0.	-2.1	-31.9	SI
2 I	21- 1	-7003.1	0.	0.	-5.2	-78.5	SI
2 C	21- 1	-6857.5	0.	0.	-5.1	-76.9	SI
2 S	21- 1	-6712.1	0.	0.	-5.	-75.3	SI
3 I	21- 1	-8476.2	0.	0.	-6.5	-97.	SI
3 C	21- 1	-7894.4	0.	0.	-6.	-90.3	SI
3 S	21- 1	-7312.5	0.	0.	-5.6	-83.7	SI
4 I	21- 1	-3378.3	0.	0.	-2.6	-38.6	SI
4 C	21- 1	-2796.4	0.	0.	-2.1	-32.	SI
4 S	21- 1	-2214.6	0.	0.	-1.7	-25.3	SI

MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P018 - RINFORZATO** (ID=87)  
 Aste : 665; 666; 667  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN/cm; daNcm; daN/cm2; deform.%; 1/r â€°(permille)  
 Unita' particolari : fessure [wk];mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferr (assi) : longitudinale= 4.5 ; staffe= 3.5  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [EC2 5.8.3.1]

MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
 gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
 ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
 gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
 ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

<-

SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=70; Acls=4550; iy=18.76; iz=20.21

DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1 2.	2.	1.1	1.1	330.	280.	0.	0.	37.7	.829	12ø20	
2	1 2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.53	12ø16	
3	1 2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.53	12ø16	

VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cls	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 2	-92640.	554596.	1.23	4819924.	1.02	-.125	-121.1	.158 3315.8 SI
1	5- 2	-90763.	285267.	1.	1201210.	1.	-.032	-41.1	.003 61.3 SI
1	5- 2	-88886.	275547.	2.05	-2413672.	1.04	-.056	-67.6	.036 764.2 SI
> 2	5- 3	-48559.	158625.	53.8	-3158874.	1.02	-.088	-96.5	.162 3403.5 SI
2	1- 1	-78161.	60410.	1.	-54421.	1.	-.013	-18.	-.01 -217.4 SI
2	5- 3	-44236.	-144505.	2.11	3298621.	1.02	-.091	-99.6	.181 3641.6 SI
> 3	5- 3	-19792.	-75529.	1.5	-1402434.	1.02	-.037	-47.4	.074 1557.1 SI
3	5- 2	-19202.	63250.	1.	-496762.	1.	-.012	-16.4	.008 177.1 SI
3	5- 2	-17041.	94109.	1.3	-2379285.	1.01	-.064	-75.9	.159 3331.7 SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 1	-90756.4	241218.1	123237.9	330.	.7	1.21	1.19	.141	53.49	17.59	SI
2	5- 1	-56852.6	120376.9	126443.5	380.	.7	1.14	.748	.089	40.03	20.25	SI
3	5- 1	-21247.6	98359.7	83182.7	380.	.7	1.14	.854	.033	74.79	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 4	-85706.7	79730.8	138275.5	330.	.7	1.21	1.12	.133	52.	16.33	SI
2	1- 1	-80970.4	-107519.	-1322.1	380.	.7	1.14	1.69	.126	75.69	18.81	SI
3	1- 1	-30926.7	-6019.1	-53698.3	380.	.7	1.14	1.59	.048	115.2	18.81	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
------	------	-----	-----	------	------	-----	---	------	----

1 I	5- 2	-21314.6	30513.	30513.	106668.3	1.01	19.	2.5	SI
1 C	5- 2	-21314.6	30513.	30513.	106395.7	1.01	19.	2.5	SI
1 S	5- 2	-21314.6	30513.	30513.	106123.2	1.01	19.	2.5	SI
2 I	5- 3	16683.8	30513.	30513.	100267.8	1.01	19.	2.5	SI
2 C	5- 3	16683.8	30513.	30513.	99954.	1.01	19.	2.5	SI
2 S	5- 3	16683.8	30513.	30513.	99640.2	1.01	19.	2.5	SI
3 I	5- 2	-9795.1	30513.	30513.	96319.2	1.01	19.	2.5	SI
3 C	5- 2	-9795.1	30513.	30513.	96005.3	1.01	19.	2.5	SI
3 S	5- 2	-9795.1	30513.	30513.	95691.5	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 4	-5854.1	28183.8	28183.8	105103.2	1.01	19.	2.5	SI
1 C	4- 4	-5854.1	28183.8	28183.8	104832.1	1.01	19.	2.5	SI
1 S	4- 4	-5854.1	28183.8	28183.8	104561.	1.01	19.	2.5	SI
2 I	4- 1	2704.7	28183.8	28183.8	100234.1	1.01	19.	2.5	SI
2 C	4- 1	2704.7	28183.8	28183.8	99922.	1.01	19.	2.5	SI
2 S	4- 1	2704.7	28183.8	28183.8	99609.9	1.01	19.	2.5	SI
3 I	4- 1	-1135.1	28183.8	28183.8	95623.	1.01	19.	2.5	SI
3 C	4- 1	-1135.1	28183.8	28183.8	95310.8	1.01	19.	2.5	SI
3 S	4- 1	-1135.1	28183.8	28183.8	94998.7	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-94299.9	-76766.9	543229.9	-28.5	-148.7	SI
1 C	8- 1	-92423.	5911.9	198099.1	-21.4	-230.6	SI
1 S	8- 1	-90546.1	88590.8	-147031.6	-21.7	-217.3	SI
2 I	8- 1	-60239.6	75538.2	-77009.9	-15.	-150.2	SI
2 C	8- 1	-58078.4	44128.2	-40743.1	-13.4	-158.9	SI
2 S	8- 1	-55917.1	12718.2	-4476.2	-11.7	-167.6	SI
3 I	8- 1	-23393.3	-3216.8	-4998.3	-4.9	-69.9	SI
3 C	8- 1	-21232.	30409.2	-20022.5	-5.2	-53.6	SI
3 S	8- 1	-19070.8	64035.2	-35046.7	-5.7	-35.8	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-85791.9	-72440.5	491685.	-25.9	-135.3	SI
1 C	9- 1	-83915.	4817.2	179505.3	-19.5	-209.5	SI
1 S	9- 1	-82038.1	82074.9	-132674.5	-19.7	-196.6	SI
2 I	9- 1	-54786.6	71103.1	-69332.1	-13.7	-136.2	SI
2 C	9- 1	-52625.4	38985.	-36844.5	-12.1	-144.2	SI
2 S	9- 1	-50464.1	6866.9	-4356.9	-10.5	-152.3	SI
3 I	9- 1	-21133.1	2992.3	-6104.2	-4.5	-62.8	SI
3 C	9- 1	-18971.8	27940.2	-18002.6	-4.7	-47.7	SI
3 S	9- 1	-16810.6	52888.1	-29901.1	-4.9	-32.6	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-83147.	-71201.9	475892.	-25.2	-131.	SI
1 C	10- 1	-81270.1	4391.5	173657.4	-18.8	-203.	SI
1 S	10- 1	-79393.2	79984.9	-128577.2	-19.1	-190.1	SI
2 I	10- 1	-53164.3	69673.9	-66315.2	-13.3	-132.2	SI
2 C	10- 1	-51003.	37347.6	-35773.8	-11.7	-139.9	SI
2 S	10- 1	-48841.8	5021.4	-5232.4	-10.2	-147.6	SI
3 I	10- 1	-20578.	4857.7	-6421.1	-4.4	-60.6	SI
3 C	10- 1	-18416.7	27173.1	-16832.8	-4.5	-46.4	SI
3 S	10- 1	-16255.5	49488.4	-27244.5	-4.7	-32.3	SI

Nome pilastro : **P019 - RINFORZATO** (ID=88)

Aste : 638; 639; 640

Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->

Duttilita' : non prevista (struttura non dissipativa).

Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform.%; 1/r â€°(permille)

Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.

Copriferri (assi) : longitudinali= 3.5 ; staffe= 2.5

Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei

Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;

gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**

ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;

gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σc (rara)=149.4; σc (quasi permanente)=112; fbd(esercizio)=26.86

ACCIAIO: σf (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=65; Acl=4225; iy=18.76; iz=18.76

DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.571	12φ16
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.571	12φ16
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.571	12φ16

VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE
> 1	5- 2	-81230.	-264526.	1.51	1.05	-0.057	-68.5	.037	776.9 SI
1	1- 1	-126595.	-22743.	1.	1.	-0.025	-32.8	-.017	-360.4 SI
1	5- 3	-83601.	259162.	9.95	1.07	-.041	-51.7	.012	248.3 SI
> 2	5- 3	-54773.	-178926.	104.	1.03	-.068	-80.1	.093	1954.9 SI
2	1- 1	-74393.	91325.	1.	1.	-.015	-20.3	-.009	-194.9 SI
2	5- 3	-50759.	199539.	1.48	1.03	-.067	-79.1	.095	1993.1 SI
> 3	5- 3	-23747.	-92483.	1.48	1.03	-.035	-45.2	.057	1193.6 SI
3	5- 3	-21740.	-32544.	1.	1.	-.007	-10.1	0.	-2.1 SI
3	5- 3	-19733.	-64460.	106.	1.02	-.049	-60.3	.104	2174.2 SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 3	-87086.3	38650.2	26058.1	330.	.7	1.15	1.03	.146	43.12	17.59	SI
2	1- 1	-77001.9	138112.6	44536.5	380.	.7	1.15	1.38	.129	61.58	20.25	SI
3	1- 1	-28988.4	-19268.8	-6149.9	380.	.7	1.15	1.38	.049	100.6	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-128860.7	307459.8	184600.7	330.	.7	1.15	1.1	.216	38.	17.59	SI
2	1- 1	-77001.9	-663155.	428955.4	380.	.7	1.15	2.35	.129	104.9	20.25	SI
3	1- 1	-28988.4	-384249.	435967.5	380.	.7	1.15	2.58	.049	188.1	20.25	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	-8752.7	28649.6	28649.6	99450.5	1.01	19.	2.5	SI
1 C	5- 2	-8752.7	28649.6	28649.6	99194.6	1.01	19.	2.5	SI
1 S	5- 2	-8752.7	28649.6	28649.6	98938.7	1.01	19.	2.5	SI
2 I	5- 3	11140.	28649.6	28649.6	95566.2	1.01	19.	2.5	SI
2 C	5- 3	11140.	28649.6	28649.6	95271.6	1.01	19.	2.5	SI
2 S	5- 3	11140.	28649.6	28649.6	94976.9	1.01	19.	2.5	SI
3 I	5- 3	7211.8	28649.6	28649.6	91011.	1.01	19.	2.5	SI
3 C	5- 3	7211.8	28649.6	28649.6	90716.3	1.01	19.	2.5	SI
3 S	5- 3	7211.8	28649.6	28649.6	90421.7	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 4	-2154.7	28649.6	28649.6	99910.6	1.01	19.	2.5	SI
1 C	4- 4	-2154.7	28649.6	28649.6	99654.8	1.01	19.	2.5	SI
1 S	4- 4	-2154.7	28649.6	28649.6	99398.9	1.01	19.	2.5	SI
2 I	4- 1	2981.3	28649.6	28649.6	95055.2	1.01	19.	2.5	SI
2 C	4- 1	2981.3	28649.6	28649.6	94760.5	1.01	19.	2.5	SI
2 S	4- 1	2981.3	28649.6	28649.6	94465.9	1.01	19.	2.5	SI
3 I	4- 1	-1114.5	28649.6	28649.6	90435.3	1.01	19.	2.5	SI
3 C	4- 1	-1114.5	28649.6	28649.6	90140.7	1.01	19.	2.5	SI
3 S	4- 1	-1114.5	28649.6	28649.6	89846.	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-95414.2	-77594.1	229073.7	-26.9	-236.7	SI
1 C	8- 1	-93671.4	-15852.8	181117.9	-24.4	-258.5	SI
1 S	8- 1	-91928.6	45888.5	133162.	-23.6	-257.3	SI
2 I	8- 1	-57270.9	100431.4	-484695.4	-23.9	-41.5	SI
2 C	8- 1	-55264.	67346.3	-86750.3	-15.1	-143.	SI
2 S	8- 1	-53257.1	34261.1	311194.7	-18.4	-88.4	SI
3 I	8- 1	-21934.9	-15261.8	-283835.6	-10.7	4.6	SI
3 C	8- 1	-19928.1	-9866.5	22900.1	-5.	-57.3	SI
3 S	8- 1	-17921.2	-4471.2	329635.9	-11.2	50.6	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-86837.7	-70473.4	210171.5	-24.5	-215.1	SI
1 C	9- 1	-85094.9	-11215.5	164455.6	-22.1	-235.7	SI
1 S	9- 1	-83352.1	48042.3	118739.7	-21.5	-232.2	SI
2 I	9- 1	-52067.2	85690.9	-435536.5	-21.5	-40.4	SI
2 C	9- 1	-50060.3	61055.8	-77694.4	-13.7	-129.8	SI
2 S	9- 1	-48053.5	36420.6	280147.6	-16.7	-78.5	SI
3 I	9- 1	-19806.6	-17134.9	-251079.1	-9.6	3.4	SI
3 C	9- 1	-17799.8	-10418.3	18341.2	-4.5	-51.3	SI
3 S	9- 1	-15792.9	-3701.7	287761.6	-9.8	42.6	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-84158.	-68261.6	204458.3	-23.7	-208.2	SI
1 C	10- 1	-82415.2	-9861.2	159007.7	-21.3	-228.6	SI
1 S	10- 1	-80672.4	48539.2	113557.2	-20.8	-224.5	SI
2 I	10- 1	-50516.5	81232.4	-419094.5	-20.8	-40.5	SI
2 C	10- 1	-48509.7	59042.8	-75018.4	-13.2	-125.8	SI
2 S	10- 1	-46502.8	36853.1	269057.7	-16.1	-76.1	SI
3 I	10- 1	-19286.4	-17623.9	-241475.3	-9.3	2.6	SI

3 C| 10- 1| -17279.5| -10552.1| 18211.6| -4.3| -49.6|SI|  
 3 S| 10- 1| -15272.6| -3480.3| 277898.6| -9.4| 40.9|SI|

Nome pilastro : P020 (ID=89)  
 Aste : 1050-1051-1052-1053; 1054; 690; 691  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r  $\hat{=}$  (permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
 gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.2% (limit.elastico)  
 ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
 gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; Eud=0.14% (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
 ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	ei	ey	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4 $\phi$ 16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4 $\phi$ 16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4 $\phi$ 14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369 4 $\phi$ 12

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cl	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-4588.	12769.	12769.	-0.007	-6.2	-0.001	-24.9	SI
1	1- 1	-5635.	0.	0.	-0.004	-4.	-0.004	-89.4	SI
1	1- 1	-11549.	32146.	32146.	-0.018	-15.4	-0.003	-62.4	SI
> 2	1- 1	-31242.	72377.	72377.	-0.046	-37.5	-0.011	-224.9	SI
2	1- 1	-31053.	0.	0.	-0.026	-22.1	-0.026	-516.8	SI
2	1- 1	-30864.	71501.	71501.	-0.046	-37.1	-0.011	-222.2	SI
> 3	1- 1	-15674.	51201.	51201.	-0.027	-23.3	-0.003	-53.5	SI
3	1- 1	-14917.	0.	0.	-0.012	-11.	-0.012	-248.	SI
3	1- 1	-14161.	46259.	46259.	-0.025	-21.1	-0.002	-48.6	SI
> 4	2- 1	-5094.	16642.	16642.	-0.009	-7.9	-0.001	-17.4	SI
4	2- 1	-4338.	0.	0.	-0.004	-3.3	-0.004	-72.5	SI
4	2- 1	-3581.	11699.	11699.	-0.006	-5.6	-0.001	-12.3	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-11549.4	235.	.103	77.86	23.26	SI
2	1- 1	-31241.9	95.	.279	47.34	9.4	SI
3	1- 1	-15673.7	380.	.14	66.83	37.61	SI
4	2- 1	-5094.4	380.	.045	117.2	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-11549.4	235.	.103	77.86	23.26	SI
2	1- 1	-31241.9	95.	.279	47.34	9.4	SI
3	1- 1	-15673.7	380.	.14	66.83	37.61	SI
4	2- 1	-5094.4	380.	.045	117.2	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15716.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15857.2	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16654.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI

3 I	1- 1	0.	5944.4	5944.4	17210.3	.57	18.	2.5	NO	10
3 C	1- 1	0.	5944.4	5944.4	17108.3	.57	18.	2.5	NO	10
3 S	1- 1	0.	5944.4	5944.4	17006.4	.57	18.	2.5	NO	10
4 I	1- 1	0.	5944.4	5944.4	15733.3	.57	18.	2.5	NO	10
4 C	1- 1	0.	5944.4	5944.4	15631.3	.57	18.	2.5	NO	10
4 S	1- 1	0.	5944.4	5944.4	15529.4	.57	18.	2.5	NO	10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15716.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15857.2	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16654.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17210.3	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	17108.3	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	17006.4	.57	18.	2.5	NO
4 I	1- 1	0.	5944.4	5944.4	15733.3	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	15631.3	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	15529.4	.57	18.	2.5	NO

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-3446.3	0.	0.	-2.6	-38.6	SI
1 C	15- 1	-4222.7	0.	0.	-3.2	-47.4	SI
1 S	15- 1	-8650.4	0.	0.	-6.5	-97.	SI
2 I	15- 1	-23394.7	0.	0.	-17.5	-262.4	SI
2 C	15- 1	-23249.3	0.	0.	-17.4	-260.7	SI
2 S	15- 1	-23103.8	0.	0.	-17.3	-259.1	SI
3 I	15- 1	-11807.2	0.	0.	-9.	-135.1	SI
3 C	15- 1	-11225.3	0.	0.	-8.6	-128.4	SI
3 S	15- 1	-10643.4	0.	0.	-8.1	-121.8	SI
4 I	16- 1	-3838.6	0.	0.	-3.	-44.7	SI
4 C	16- 1	-3256.7	0.	0.	-2.5	-37.9	SI
4 S	16- 1	-2674.8	0.	0.	-2.1	-31.1	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-3260.3	0.	0.	-2.4	-36.6	SI
1 C	18- 1	-3971.4	0.	0.	-3.	-44.5	SI
1 S	18- 1	-8118.9	0.	0.	-6.1	-91.	SI
2 I	18- 1	-21948.7	0.	0.	-16.4	-246.1	SI
2 C	18- 1	-21803.2	0.	0.	-16.3	-244.5	SI
2 S	18- 1	-21657.8	0.	0.	-16.2	-242.9	SI
3 I	18- 1	-11132.3	0.	0.	-8.5	-127.4	SI
3 C	18- 1	-10550.4	0.	0.	-8.	-120.7	SI
3 S	18- 1	-9968.5	0.	0.	-7.6	-114.	SI
4 I	19- 1	-3427.1	0.	0.	-2.7	-39.9	SI
4 C	19- 1	-2845.2	0.	0.	-2.2	-33.1	SI
4 S	19- 1	-2263.3	0.	0.	-1.8	-26.4	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-3210.1	0.	0.	-2.4	-36.	SI
1 C	21- 1	-3903.6	0.	0.	-2.9	-43.8	SI
1 S	21- 1	-7977.7	0.	0.	-6.	-89.5	SI
2 I	21- 1	-21563.3	0.	0.	-16.1	-241.8	SI
2 C	21- 1	-21417.8	0.	0.	-16.	-240.2	SI
2 S	21- 1	-21272.3	0.	0.	-15.9	-238.6	SI
3 I	21- 1	-10997.	0.	0.	-8.4	-125.8	SI
3 C	21- 1	-10415.1	0.	0.	-7.9	-119.1	SI
3 S	21- 1	-9833.2	0.	0.	-7.5	-112.5	SI
4 I	21- 1	-3324.5	0.	0.	-2.6	-38.7	SI
4 C	21- 1	-2742.6	0.	0.	-2.1	-31.9	SI
4 S	21- 1	-2160.7	0.	0.	-1.7	-25.2	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P021** (ID=90)  
Aste : 662; 663; 664  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daN/cm<sup>2</sup>; deform.%; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86

ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=70;  $A_{cl}$ s=4550;  $i_y$ =18.76;  $i_z$ =20.21

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	37.7	.829
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	37.7	.829
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	37.7	.829

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cl	s	E acc	$\sigma_f$	VE
> 1	5- 3	-114472.	354862.	5.35	-5212887.	1.02	-129.	-123.6	.15
1	5- 3	-112595.	-119068.	1.	-1489204.	1.	-.036	-46.6	.001
1	5- 2	-78647.	243806.	2.38	-2523240.	1.04	-.058	-70.	.048
> 2	5- 2	-54727.	178774.	1.94	3434667.	1.02	-.079	-89.1	.117
2	1- 1	-93378.	48295.	1.	47423.	1.	-.015	-19.9	-.012
2	5- 2	-50404.	164654.	3.89	-3647826.	1.02	-.083	-92.9	.133
> 3	5- 2	-23123.	75536.	1.8	1779413.	1.02	-.038	-49.1	.066
3	5- 2	-20962.	24343.	1.	-533757.	1.	-.011	-14.9	.006
3	5- 2	-18801.	61416.	6.77	-2841234.	1.01	-.061	-72.5	.127

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 3	-114471.8	66315.1	15902.5	330.	.7	1.21	1.46	.178	58.49	17.59	SI
2	5- 1	-56505.5	85523.2	61751.	380.	.7	1.21	.978	.088	55.76	20.25	SI
3	1- 1	-37350.2	20353.2	7560.3	380.	.7	1.21	1.33	.058	93.16	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-151663.4	-632137.	-252789.	330.	.7	1.21	1.3	.236	45.24	16.33	SI
2	4- 2	-62506.8	71892.1	-3227.5	380.	.7	1.21	1.75	.097	94.58	18.81	SI
3	4- 2	-24280.5	80672.6	19606.6	380.	.7	1.21	1.46	.038	126.7	18.81	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 3	21805.9	30513.	30513.	109838.2	1.01	19.	2.5	SI
1 C	5- 3	21805.9	30513.	30513.	109565.7	1.01	19.	2.5	SI
1 S	5- 3	21805.9	30513.	30513.	109293.2	1.01	19.	2.5	SI
2 I	5- 2	-18287.3	30513.	30513.	101163.4	1.01	19.	2.5	SI
2 C	5- 2	-18287.3	30513.	30513.	100849.6	1.01	19.	2.5	SI
2 S	5- 2	-18287.3	30513.	30513.	100535.8	1.01	19.	2.5	SI
3 I	5- 2	-12019.7	30513.	30513.	96574.7	1.01	19.	2.5	SI
3 C	5- 2	-12019.7	30513.	30513.	96260.9	1.01	19.	2.5	SI
3 S	5- 2	-12019.7	30513.	30513.	95947.1	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 4	-4740.4	28183.8	28183.8	107239.6	1.01	19.	2.5	SI
1 C	4- 4	-4740.4	28183.8	28183.8	106968.5	1.01	19.	2.5	SI
1 S	4- 4	-4740.4	28183.8	28183.8	106697.4	1.01	19.	2.5	SI
2 I	4- 1	2480.7	28183.8	28183.8	101602.6	1.01	19.	2.5	SI
2 C	4- 1	2480.7	28183.8	28183.8	101290.4	1.01	19.	2.5	SI
2 S	4- 1	2480.7	28183.8	28183.8	100978.3	1.01	19.	2.5	SI
3 I	4- 4	1594.3	28183.8	28183.8	96308.3	1.01	19.	2.5	SI
3 C	4- 4	1594.3	28183.8	28183.8	95996.2	1.01	19.	2.5	SI
3 S	4- 4	1594.3	28183.8	28183.8	95684.	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	8- 1	-112217.2	-66589.7	-465781.4	-30.6	-220.	SI
1 C	8- 1	-110340.4	-314.8	-325745.7	-26.9	-258.2	SI
1 S	8- 1	-108463.5	65960.	-185710.	-25.4	-267.2	SI
2 I	8- 1	-71441.8	58168.	556580.8	-23.9	-82.6	SI
2 C	8- 1	-69280.5	35709.5	35549.9	-14.8	-189.4	SI
2 S	8- 1	-67119.3	13251.	-485481.1	-21.2	-94.5	SI
3 I	8- 1	-28177.7	14963.2	392307.2	-12.1	2.8	SI
3 C	8- 1	-26016.5	10242.5	-23593.2	-5.7	-69.7	SI
3 S	8- 1	-23855.2	5521.9	-439493.7	-12.3	37.5	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-101696.6	-61123.1	-417301.6	-27.7	-200.2	SI
1 C	9- 1	-99819.7	-135.8	-293304.8	-24.3	-233.9	SI
1 S	9- 1	-97942.8	60851.5	-169307.9	-23.	-240.7	SI
2 I	9- 1	-64607.8	53858.2	505158.1	-21.7	-74.	SI
2 C	9- 1	-62446.6	32801.8	31493.8	-13.4	-170.7	SI
2 S	9- 1	-60285.3	11745.4	-442170.5	-19.1	-83.7	SI
3 I	9- 1	-25206.4	13849.8	351709.2	-10.8	2.8	SI

3 C	9- 1	-23045.1	9346.	-18540.3	-5.	-62.2	SI
3 S	9- 1	-20883.9	4842.1	-388789.8	-10.8	34.6	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-98436.3	-59476.	-402281.4	-26.8	-194.1	SI
1 C	10- 1	-96559.4	-131.9	-283017.9	-23.5	-226.4	SI
1 S	10- 1	-94682.5	59212.2	-163754.4	-22.3	-232.6	SI
2 I	10- 1	-62578.3	52466.	488041.9	-21.	-71.9	SI
2 C	10- 1	-60417.	31845.7	30440.9	-12.9	-165.1	SI
2 S	10- 1	-58255.8	11225.3	-427160.	-18.5	-80.9	SI
3 I	10- 1	-24468.3	13447.	339374.6	-10.5	2.2	SI
3 C	10- 1	-22307.	9038.4	-18310.2	-4.8	-60.1	SI
3 S	10- 1	-20145.8	4629.8	-375995.	-10.5	33.8	SI

Nome pilastro : P022 (ID=91)  
Aste : 641; 642; 643  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; Ecu=0.2%  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; Eud=0.18%

TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : σc (rara)=149.4; σc (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO: σf (rara)=3600; Coeff.Omogeneizzazione=15

CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=65; Acls=4225; iy=18.76; iz=18.76

DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiZ	eiY	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.571   12φ16
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.571   12φ16
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.571   12φ16

VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cls	σc	E acc	σf	VE
> 1	5- 2	-90421.	-280306.	3.81	2128213.	1.05	-.063	-75.3	.041   869.7   SI
1	1- 1	-129838.	-33622.	1.	-273608.	1.	-.026	-34.2	-.017   -361.4   SI
1	5- 2	-86936.	269500.	4.1	-1974499.	1.05	-.058	-70.2	.036   746.5   SI
> 2	5- 2	-58215.	190170.	5.2	2317059.	1.03	-.072	-83.1	.096   2012.3   SI
2	1- 1	-77841.	74524.	1.	33973.	1.	-.014	-19.1	-.011   -233.   SI
2	5- 2	-54202.	177059.	2.47	-2404057.	1.03	-.075	-85.9	.11   2300.7   SI
> 3	5- 2	-25863.	84487.	28.3	1136937.	1.03	-.034	-43.5	.05   1056.4   SI
3	5- 2	-23856.	-4097.	1.	-276513.	1.	-.008	-10.6	0.   -7.6   SI
3	5- 2	-21850.	71375.	176.	-1678543.	1.02	-.05	-62.	.104   2177.4   SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 4	-81845.2	-21137.9	-38274.9	330.	.7	1.15	1.15	.137	49.76	17.59	SI
2	1- 1	-80449.6	111917.2	37131.7	380.	.7	1.15	1.37	.135	59.83	20.25	SI
3	5- 3	-14557.3	-20960.6	-18931.6	380.	.7	1.15	.797	.024	81.92	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 1	-84572.4	-128444.	-245655.	330.	.7	1.15	1.18	.142	50.21	17.59	SI
2	1- 1	-80449.6	377875.	-309930.	380.	.7	1.15	2.52	.135	110.2	20.25	SI
3	4- 3	-19783.	808.2	12875.5	380.	.7	1.15	1.64	.033	144.4	20.25	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	-11840.4	28183.8	28183.8	99160.9	1.01	19.	2.5	SI
1 C	5- 2	-11840.4	28183.8	28183.8	98909.2	1.01	19.	2.5	SI
1 S	5- 2	-11840.4	28183.8	28183.8	98657.5	1.01	19.	2.5	SI
2 I	5- 2	-12047.1	28183.8	28183.8	94509.4	1.01	19.	2.5	SI
2 C	5- 2	-12047.1	28183.8	28183.8	94219.6	1.01	19.	2.5	SI
2 S	5- 2	-12047.1	28183.8	28183.8	93929.7	1.01	19.	2.5	SI

3 I	5- 2	-7246.6	28183.8	28183.8	89836.8	1.01	19.	2.5	SI
3 C	5- 2	-7246.6	28183.8	28183.8	89547.	1.01	19.	2.5	SI
3 S	5- 2	-7246.6	28183.8	28183.8	89257.1	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	-2757.	28183.8	28183.8	98714.1	1.01	19.	2.5	SI
1 C	4- 3	-2757.	28183.8	28183.8	98462.4	1.01	19.	2.5	SI
1 S	4- 3	-2757.	28183.8	28183.8	98210.7	1.01	19.	2.5	SI
2 I	4- 1	3537.	28183.8	28183.8	93572.8	1.01	19.	2.5	SI
2 C	4- 1	3537.	28183.8	28183.8	93283.	1.01	19.	2.5	SI
2 S	4- 1	3537.	28183.8	28183.8	92993.1	1.01	19.	2.5	SI
3 I	4- 4	1309.9	28183.8	28183.8	89004.9	1.01	19.	2.5	SI
3 C	4- 4	1309.9	28183.8	28183.8	88715.	1.01	19.	2.5	SI
3 S	4- 4	1309.9	28183.8	28183.8	88425.2	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-97788.	-49482.2	-2245.6	-22.4	-308.5	SI
1 C	8- 1	-96045.2	-23947.7	-201061.2	-25.4	-259.3	SI
1 S	8- 1	-94302.4	1586.7	-399876.7	-28.5	-209.3	SI
2 I	8- 1	-59801.9	80977.9	275533.	-20.	-107.1	SI
2 C	8- 1	-57795.	54881.6	25542.4	-14.2	-169.8	SI
2 S	8- 1	-55788.2	28785.3	-224448.2	-17.1	-119.9	SI
3 I	8- 1	-23016.2	-5414.7	134802.	-7.8	-40.5	SI
3 C	8- 1	-21009.3	-8011.8	-12811.3	-5.	-63.8	SI
3 S	8- 1	-19002.4	-10608.8	-160424.6	-7.5	-19.6	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-88920.2	-45097.4	-480.8	-20.4	-280.9	SI
1 C	9- 1	-87177.4	-18698.2	-181245.7	-23.	-236.4	SI
1 S	9- 1	-85434.6	7700.9	-362010.5	-25.9	-188.1	SI
2 I	9- 1	-54306.6	67872.5	251926.6	-18.1	-98.3	SI
2 C	9- 1	-52299.7	49793.	23096.	-12.9	-153.6	SI
2 S	9- 1	-50292.9	31713.5	-205734.6	-15.6	-105.8	SI
3 I	9- 1	-20767.4	-8196.9	122820.6	-7.1	-35.4	SI
3 C	9- 1	-18760.6	-8902.7	-9712.5	-4.5	-57.	SI
3 S	9- 1	-16753.7	-9608.4	-142245.6	-6.6	-17.	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-86150.8	-43715.3	-146.4	-19.7	-272.2	SI
1 C	10- 1	-84408.	-17150.4	-174836.8	-22.2	-229.3	SI
1 S	10- 1	-82665.2	9414.5	-349527.2	-25.1	-181.7	SI
2 I	10- 1	-52666.1	63922.2	243268.8	-17.5	-96.1	SI
2 C	10- 1	-50659.2	48139.6	22453.2	-12.5	-148.8	SI
2 S	10- 1	-48652.4	32356.9	-198362.4	-15.1	-102.1	SI
3 I	10- 1	-20210.3	-8985.6	119452.3	-6.9	-34.2	SI
3 C	10- 1	-18203.4	-9124.3	-10032.5	-4.4	-55.	SI
3 S	10- 1	-16196.5	-9263.1	-139517.3	-6.4	-15.9	SI

Nome pilastro : **P023** (ID=92)  
Aste : 1060-1061-1062-1063; 1064; 687; 688  
Metodo di verifica : stati limite - NTC18 (q=1.33; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σc (rara)=98.8; σc (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO: σf (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657	4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369	4φ12

VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE
> 1	1- 1	-4569.	12716.	999.	12716.	999.	-0.007	-6.2	-24.8
1	1- 1	-5647.	0.	999.	0.	999.	-0.004	-4.	-89.5
1	1- 1	-11762.	32738.	999.	32738.	999.	-0.018	-15.7	-63.6
> 2	1- 1	-31343.	72610.	999.	72610.	999.	-0.047	-37.6	-225.6
2	1- 1	-31154.	0.	999.	0.	999.	-0.026	-22.2	-518.6
2	1- 1	-30964.	71734.	999.	71734.	999.	-0.046	-37.2	-222.9
> 3	1- 1	-15950.	52102.	999.	52102.	999.	-0.028	-23.7	-54.4
3	1- 1	-15193.	0.	999.	0.	999.	-0.013	-11.2	-252.7
3	1- 1	-14437.	47160.	999.	47160.	999.	-0.025	-21.5	-49.5
> 4	2- 1	-5478.	17896.	999.	17896.	999.	-0.01	-8.5	-18.7
4	2- 1	-4722.	0.	999.	0.	999.	-0.004	-3.6	-79.
4	2- 1	-3966.	12954.	999.	12954.	999.	-0.007	-6.2	-13.6

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-11762.1	235.	.105	77.15	23.26	SI
2	1- 1	-31342.6	95.	.28	47.26	9.4	SI
3	1- 1	-15949.7	380.	.142	66.25	37.61	SI
4	2- 1	-5478.4	380.	.049	113.1	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-11762.1	235.	.105	77.15	23.26	SI
2	1- 1	-31342.6	95.	.28	47.26	9.4	SI
3	1- 1	-15949.7	380.	.142	66.25	37.61	SI
4	2- 1	-5478.4	380.	.049	113.1	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15713.5	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15858.9	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16683.1	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17247.5	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17145.5	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17043.6	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15779.2	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15677.2	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15575.3	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15713.5	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15858.9	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16683.1	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17247.5	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17145.5	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17043.6	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15779.2	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15677.2	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15575.3	.57	18.	2.5	NO 10

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-3431.4	0.	0.	-2.6	-38.5	SI
1 C	15- 1	-4230.8	0.	0.	-3.2	-47.4	SI
1 S	15- 1	-8807.2	0.	0.	-6.6	-98.8	SI
2 I	15- 1	-23464.9	0.	0.	-17.5	-263.1	SI
2 C	15- 1	-23319.5	0.	0.	-17.4	-261.5	SI
2 S	15- 1	-23174.	0.	0.	-17.3	-259.9	SI
3 I	15- 1	-12007.5	0.	0.	-9.2	-137.4	SI
3 C	15- 1	-11425.6	0.	0.	-8.7	-130.7	SI
3 S	15- 1	-10843.7	0.	0.	-8.3	-124.1	SI
4 I	16- 1	-4126.2	0.	0.	-3.2	-48.	SI
4 C	16- 1	-3544.3	0.	0.	-2.8	-41.3	SI
4 S	16- 1	-2962.4	0.	0.	-2.3	-34.5	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-3243.9	0.	0.	-2.4	-36.4	SI
1 C	18- 1	-3974.4	0.	0.	-3.	-44.6	SI
1 S	18- 1	-8253.6	0.	0.	-6.2	-92.6	SI
2 I	18- 1	-21984.4	0.	0.	-16.4	-246.5	SI

2	C	18- 1	-21839.	0.	0.	-16.3	-244.9	SI
2	S	18- 1	-21693.5	0.	0.	-16.2	-243.3	SI
3	I	18- 1	-11289.8	0.	0.	-8.6	-129.2	SI
3	C	18- 1	-10707.9	0.	0.	-8.2	-122.5	SI
3	S	18- 1	-10126.	0.	0.	-7.7	-115.8	SI
4	I	19- 1	-3671.5	0.	0.	-2.8	-42.7	SI
4	C	19- 1	-3089.6	0.	0.	-2.4	-36.	SI
4	S	19- 1	-2507.7	0.	0.	-1.9	-29.2	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-3193.7	0.	0.	-2.4	-35.8	SI
1 C	21- 1	-3906.2	0.	0.	-2.9	-43.8	SI
1 S	21- 1	-8109.3	0.	0.	-6.1	-90.9	SI
2 I	21- 1	-21597.2	0.	0.	-16.1	-242.2	SI
2 C	21- 1	-21451.7	0.	0.	-16.	-240.6	SI
2 S	21- 1	-21306.3	0.	0.	-15.9	-238.9	SI
3 I	21- 1	-11149.4	0.	0.	-8.5	-127.5	SI
3 C	21- 1	-10567.6	0.	0.	-8.1	-120.9	SI
3 S	21- 1	-9985.7	0.	0.	-7.6	-114.2	SI
4 I	21- 1	-3558.	0.	0.	-2.8	-41.4	SI
4 C	21- 1	-2976.1	0.	0.	-2.3	-34.7	SI
4 S	21- 1	-2394.2	0.	0.	-1.9	-27.9	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P024** (ID=93)  
Aste : 1020-1021-1022-1023; 1024; 911; 912  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE		
> 1	7- 4	-6199.	17253.	999.	17253.	999.	-0.009	-8.3	-0.002	-33.6	SI
1	1- 1	-6829.	0.	999.	0.	999.	-0.005	-4.9	-0.005	-108.5	SI
1	1- 1	-10248.	28523.	999.	28523.	999.	-0.016	-13.7	-0.003	-55.4	SI
> 2	1- 1	-25990.	60211.	999.	60211.	999.	-0.038	-31.5	-0.009	-187.1	SI
2	1- 1	-25801.	0.	999.	0.	999.	-0.021	-18.4	-0.021	-424.9	SI
2	1- 1	-25612.	59335.	999.	59335.	999.	-0.037	-31.	-0.009	-184.3	SI
> 3	1- 1	-16941.	55341.	999.	55341.	999.	-0.03	-25.1	-0.003	-57.6	SI
3	1- 1	-16185.	0.	999.	0.	999.	-0.013	-11.9	-0.013	-269.7	SI
3	1- 1	-15428.	50399.	999.	50399.	999.	-0.027	-22.9	-0.003	-52.7	SI
> 4	2- 1	-6841.	22347.	999.	22347.	999.	-0.012	-10.3	-0.001	-24.	SI



4	2- 1	-6084.	0.	999.	0.	999.	-0.005	-4.5	-0.005	-99.4	SI
4	2- 1	-5328.	17405.	999.	17405.	999.	-0.009	-8.	-0.001	-18.8	SI

#### SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-10247.7	235.	.091	82.66	23.26	SI
2	1- 1	-25990.3	95.	.232	51.9	9.4	SI
3	1- 1	-16941.1	380.	.151	64.29	37.61	SI
4	2- 1	-6840.9	380.	.061	101.2	37.61	SI

#### SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-10247.7	235.	.091	82.66	23.26	SI
2	1- 1	-25990.3	95.	.232	51.9	9.4	SI
3	1- 1	-16941.1	380.	.151	64.29	37.61	SI
4	2- 1	-6840.9	380.	.061	101.2	37.61	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15922.9	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16018.3	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16479.	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17381.1	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17279.1	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17177.2	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16000.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15898.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15796.5	.57	18.	2.5	NO 10

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15922.9	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16018.3	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16479.	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17381.1	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17279.1	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17177.2	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16000.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15898.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15796.5	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-4637.9	0.	0.	-3.5	-52.	SI
1 C	15- 1	-5158.9	0.	0.	-3.9	-57.9	SI
1 S	15- 1	-7737.	0.	0.	-5.8	-86.8	SI
2 I	15- 1	-19623.7	0.	0.	-14.7	-220.1	SI
2 C	15- 1	-19478.2	0.	0.	-14.6	-218.4	SI
2 S	15- 1	-19332.8	0.	0.	-14.5	-216.8	SI
3 I	15- 1	-12815.9	0.	0.	-9.8	-146.6	SI
3 C	15- 1	-12234.	0.	0.	-9.3	-140.	SI
3 S	15- 1	-11652.1	0.	0.	-8.9	-133.3	SI
4 I	16- 1	-5184.7	0.	0.	-4.	-59.3	SI
4 C	16- 1	-4602.8	0.	0.	-3.5	-52.7	SI
4 S	16- 1	-4020.9	0.	0.	-3.1	-46.	SI

##### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-4473.2	0.	0.	-3.3	-50.2	SI
1 C	18- 1	-4938.6	0.	0.	-3.7	-55.4	SI
1 S	18- 1	-7390.7	0.	0.	-5.5	-82.9	SI
2 I	18- 1	-18748.	0.	0.	-14.	-210.2	SI
2 C	18- 1	-18602.6	0.	0.	-13.9	-208.6	SI
2 S	18- 1	-18457.1	0.	0.	-13.8	-207.	SI
3 I	18- 1	-12257.1	0.	0.	-9.3	-140.2	SI
3 C	18- 1	-11675.2	0.	0.	-8.9	-133.6	SI
3 S	18- 1	-11093.4	0.	0.	-8.5	-126.9	SI
4 I	19- 1	-4891.9	0.	0.	-3.7	-56.	SI
4 C	19- 1	-4310.	0.	0.	-3.3	-49.3	SI
4 S	19- 1	-3728.1	0.	0.	-2.8	-42.6	SI

##### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	21- 1	-4430.4	0.	0.	-3.3	-49.7	SI
1 C	21- 1	-4882.3	0.	0.	-3.7	-54.8	SI
1 S	21- 1	-7304.8	0.	0.	-5.5	-81.9	SI
2 I	21- 1	-18530.7	0.	0.	-13.9	-207.8	SI
2 C	21- 1	-18385.2	0.	0.	-13.7	-206.2	SI
2 S	21- 1	-18239.7	0.	0.	-13.6	-204.5	SI
3 I	21- 1	-12136.6	0.	0.	-9.3	-138.8	SI
3 C	21- 1	-11554.8	0.	0.	-8.8	-132.2	SI
3 S	21- 1	-10972.9	0.	0.	-8.4	-125.5	SI
4 I	21- 1	-4824.7	0.	0.	-3.7	-55.2	SI
4 C	21- 1	-4242.8	0.	0.	-3.2	-48.5	SI
4 S	21- 1	-3660.9	0.	0.	-2.8	-41.9	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P025 - RINFORZATO** (ID=94)  
 Aste : 901; 902; 903  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 4.5 ; staffe= 3.5  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
 gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
 ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
 gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
 ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acls=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	16.08	.532 8ø16
2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cls	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 1	-52600.	163061.	45.2	1.14	-.027	-36.1	.001	25. SI
1	5- 1	-51353.	-18376.	1.	375317.	1.	-.021	-28.2	-.004 -76.2 SI
1	1- 1	-66438.	263476.	1.38	205959.	3.09	-.027	-35.	-.005 -114.2 SI
> 2	5- 4	-24225.	79136.	2.47	-1168001.	1.03	-.061	-73.2	.108 2273.3 SI
2	5- 2	-29763.	-57753.	1.	-190577.	1.	-.012	-17.	-.002 -36. SI
2	5- 4	-21352.	187521.	1.17	914610.	1.03	-.054	-66.3	.085 1785.5 SI
> 3	4- 1	-8899.	-389409.	1.03	-130604.	1.09	-.025	-33.6	.039 828.6 SI
3	5- 4	-6334.	33965.	1.	293022.	1.	-.015	-20.9	.027 561.3 SI
3	4- 3	-6926.	740856.	1.01	259920.	1.03	-.053	-65.1	.108 2258.4 SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 1	-52600.4	3609.6	2363.4	330.	.7	1.14	1.05	.123	47.44	20.78	SI
2	5- 4	-24225.3	32090.4	160475.3	380.	.7	1.14	1.5	.057	100.3	23.93	SI
3	4- 2	-9133.4	-386610.	-402200.	380.	.7	1.14	.739	.021	80.46	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 2	-50813.4	302639.6	280483.7	330.	.7	1.14	.773	.119	35.7	20.78	SI
2	1- 1	-42794.5	-261393.	166824.7	380.	.7	1.14	2.34	.1	117.6	23.93	SI
3	5- 1	-11161.7	-342099.	-366689.	380.	.7	1.14	.767	.026	75.57	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 4	809.5	23525.3	23525.3	66542.	1.01	19.	2.5	SI
1 C	5- 4	809.5	23525.3	23525.3	66364.2	1.01	19.	2.5	SI
1 S	5- 4	809.5	23525.3	23525.3	66186.4	1.01	19.	2.5	SI
2 I	5- 4	5275.7	23525.3	23525.3	64264.4	1.01	19.	2.5	SI
2 C	5- 4	5275.7	23525.3	23525.3	64059.7	1.01	19.	2.5	SI
2 S	5- 4	5275.7	23525.3	23525.3	63855.	1.01	19.	2.5	SI
3 I	5- 4	2385.	23525.3	23525.3	61920.1	1.01	19.	2.5	SI
3 C	5- 4	2385.	23525.3	23525.3	61715.3	1.01	19.	2.5	SI
3 S	5- 4	2385.	23525.3	23525.3	61510.6	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	-1590.7	23525.3	23525.3	67627.1	1.01	19.	2.5	SI
1 C	4- 3	-1590.7	23525.3	23525.3	67449.3	1.01	19.	2.5	SI
1 S	4- 3	-1590.7	23525.3	23525.3	67271.5	1.01	19.	2.5	SI
2 I	4- 3	-5147.9	23525.3	23525.3	64958.1	1.01	19.	2.5	SI
2 C	4- 3	-5147.9	23525.3	23525.3	64753.3	1.01	19.	2.5	SI
2 S	4- 3	-5147.9	23525.3	23525.3	64548.6	1.01	19.	2.5	SI
3 I	4- 4	-2559.8	23525.3	23525.3	62242.4	1.01	19.	2.5	SI
3 C	4- 4	-2559.8	23525.3	23525.3	62037.7	1.01	19.	2.5	SI
3 S	4- 4	-2559.8	23525.3	23525.3	61833.	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## RARE:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	8- 1	-51910.7	-28604.1	8538.5	-17.2	-224.5	SI
1 C	8- 1	-50662.9	55109.2	29588.	-18.3	-199.5	SI
1 S	8- 1	-49415.1	138822.5	50637.4	-21.3	-151.3	SI
2 I	8- 1	-31959.2	-157498.8	-195488.9	-21.2	-4.1	SI
2 C	8- 1	-30522.3	-17093.4	-35105.7	-11.1	-119.7	SI
2 S	8- 1	-29085.5	123312.1	125277.5	-17.	-33.6	SI
3 I	8- 1	-11313.	-170866.3	-153178.2	-17.8	176.8	SI
3 C	8- 1	-9876.2	22881.2	18019.8	-4.4	-29.	SI
3 S	8- 1	-8439.3	216628.7	189217.9	-26.1	452.5	SI

## FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-47689.7	-25423.7	8555.4	-15.8	-206.3	SI
1 C	9- 1	-46441.9	47784.3	29052.4	-16.8	-183.2	SI
1 S	9- 1	-45194.	120992.4	49549.4	-19.4	-139.5	SI
2 I	9- 1	-29111.7	-136559.4	-182844.1	-19.3	-4.7	SI
2 C	9- 1	-27674.9	-13754.7	-31777.8	-10.	-109.3	SI
2 S	9- 1	-26238.	109050.	119288.5	-15.4	-28.6	SI
3 I	9- 1	-9824.5	-143039.2	-142345.7	-15.7	159.	SI
3 C	9- 1	-8387.6	16355.3	15925.2	-3.6	-25.6	SI
3 S	9- 1	-6950.8	175749.8	174196.2	-22.8	406.2	SI

## QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	10- 1	-46405.7	-24441.	8567.2	-15.3	-200.8	SI
1 C	10- 1	-45157.9	45500.2	28874.9	-16.3	-178.3	SI
1 S	10- 1	-43910.1	115441.4	49182.6	-18.8	-136.	SI
2 I	10- 1	-28292.7	-129557.5	-178863.6	-18.7	-5.4	SI
2 C	10- 1	-26855.9	-12928.9	-30782.9	-9.7	-106.2	SI
2 S	10- 1	-25419.	103699.7	117297.9	-15.	-27.8	SI
3 I	10- 1	-9466.4	-134968.2	-139073.5	-15.1	151.8	SI
3 C	10- 1	-8029.5	14986.9	15408.3	-3.5	-24.7	SI
3 S	10- 1	-6592.6	164942.	169890.2	-21.8	392.1	SI

Nome pilastro : **P026 - RINFORZATO** (ID=95)

Aste : 922; 923; 924

Metodo di verifica : stati limite - NTC18 ( $q=1.33$  ;  $\mu_{phi}=1.99$ ) ->

Duttilita' : non prevista (struttura non dissipativa).

Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r ‰ (permille)

Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.

Copriferri (assi) : longitudinali= 3.5 ; staffe= 2.5

Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei

Instabilita' : snellezza limite [EC2 5.8.3.1]

## MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;

gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**

ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;

gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86

ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

<-

## SEZIONI UTILIZZATE

1) Rettangolare: base=45; alt.=140; Acls=6300; iy=12.99; iz=40.41

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	le0z	le0y	leiz	leiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	36.69	.582
2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	32.17	.511
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	32.17	.511

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 1	-59603.	824691.	1.09	6412789.	1.01	-0.085	-94.4	.129
1	5- 4	-44489.	272357.	1.	-4590583.	1.	-0.049	-60.2	.077
1	5- 4	-41890.	-354941.	1.15	-4610628.	1.01	-0.052	-63.6	.084
> 2	5- 4	-30116.	263281.	1.17	-5077985.	1.01	-0.06	-72.2	.131
2	5- 4	-27123.	42150.	1.	-2065449.	1.	-0.019	-26.1	.028
2	4- 2	-29841.	-1039738.	1.04	-97481.	1.94	-0.029	-38.1	.048
> 3	5- 4	-12598.	432074.	1.04	1083067.	1.01	-0.024	-32.	.037
3	5- 1	-13597.	-51194.	1.	-862888.	1.	-0.009	-11.9	.01
3	4- 2	-9237.	-771020.	1.02	-185866.	1.07	-0.023	-31.2	.055

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 4	-52137.2	-1057342	-169989.	330.	.7	1.15	1.54	.059	102.4	25.4	SI
2	1- 1	-50390.5	416838.1	-489886.	380.	.7	1.13	2.55	.057	169.9	29.25	SI
3	4- 4	-14267.4	600745.5	44547.2	380.	.7	1.13	1.63	.016	203.5	29.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 4	-47087.9	-4684726	-4564548	330.	.7	1.15	.726	.053	50.77	8.17	SI
2	1- 1	-50390.5	-415461.	-171081.	380.	.7	1.13	1.29	.057	85.81	9.4	SI
3	1- 1	-21910.2	-141630.	-170790.	380.	.7	1.13	.871	.025	87.96	9.4	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 1	-8493.5	63588.1	63588.1	143506.5	1.01	19.	2.5	SI
1 C	5- 1	-8493.5	63588.1	63588.1	143113.3	1.01	19.	2.5	SI
1 S	5- 1	-8493.5	63588.1	63588.1	142720.1	1.01	19.	2.5	SI
2 I	5- 4	16299.2	63588.1	63588.1	139045.2	1.01	19.	2.5	SI
2 C	5- 4	16299.2	63588.1	63588.1	138592.5	1.01	19.	2.5	SI
2 S	5- 4	16299.2	63588.1	63588.1	138139.8	1.01	19.	2.5	SI
3 I	5- 4	-2480.8	63588.1	63588.1	136395.	1.01	19.	2.5	SI
3 C	5- 4	-2480.8	63588.1	63588.1	135942.3	1.01	19.	2.5	SI
3 S	5- 4	-2480.8	63588.1	63588.1	135489.5	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 2	7762.9	19332.7	19332.7	135151.2	1.01	19.	2.5	SI
1 C	4- 2	7762.9	19332.7	19332.7	134779.3	1.01	19.	2.5	SI
1 S	4- 2	7762.9	19332.7	19332.7	134407.4	1.01	19.	2.5	SI
2 I	4- 2	4964.9	19332.7	19332.7	132335.8	1.01	19.	2.5	SI
2 C	4- 2	4964.9	19332.7	19332.7	131907.6	1.01	19.	2.5	SI
2 S	4- 2	4964.9	19332.7	19332.7	131479.3	1.01	19.	2.5	SI
3 I	4- 3	3005.3	19332.7	19332.7	129207.4	1.01	19.	2.5	SI
3 C	4- 3	3005.3	19332.7	19332.7	128779.2	1.01	19.	2.5	SI
3 S	4- 3	3005.3	19332.7	19332.7	128350.9	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-58419.8	648639.6	914643.6	-28.6	151.6	SI
1 C	8- 1	-55821.1	97926.2	288431.2	-11.8	-76.5	SI
1 S	8- 1	-53222.3	-452787.3	-337781.2	-18.5	16.3	SI
2 I	8- 1	-37852.3	304065.7	-306325.7	-13.4	14.4	SI
2 C	8- 1	-34859.8	-27271.4	-215229.3	-7.	-52.5	SI
2 S	8- 1	-31867.3	-358608.5	-124132.9	-12.9	37.4	SI
3 I	8- 1	-16541.1	387260.4	-104466.9	-15.	254.5	SI
3 C	8- 1	-13548.6	-26873.6	-115424.1	-3.2	-14.	SI
3 S	8- 1	-10556.1	-441007.6	-126381.3	-18.4	506.7	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-54518.3	597252.3	849935.5	-26.4	136.4	SI
1 C	9- 1	-51919.6	94086.4	276039.5	-11.	-69.9	SI
1 S	9- 1	-49320.8	-409079.5	-297856.5	-16.8	10.5	SI
2 I	9- 1	-35128.9	273848.9	-273761.	-12.2	9.8	SI
2 C	9- 1	-32136.4	-26839.5	-191124.7	-6.5	-48.7	SI
2 S	9- 1	-29143.9	-327527.9	-108488.4	-11.7	33.4	SI
3 I	9- 1	-14986.	344320.9	-94978.5	-13.3	220.5	SI
3 C	9- 1	-11993.5	-13409.9	-98120.1	-2.6	-15.1	SI
3 S	9- 1	-9001.	-371140.8	-101261.6	-15.4	421.7	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-53345.4	582009.1	831250.	-25.8	132.1	SI
1 C	10- 1	-50746.6	93361.7	272866.6	-10.8	-67.7	SI
1 S	10- 1	-48147.9	-395285.7	-285516.8	-16.2	8.6	SI
2 I	10- 1	-34347.7	263495.	-263800.6	-11.8	8.	SI
2 C	10- 1	-31355.2	-26538.9	-183609.3	-6.3	-47.7	SI
2 S	10- 1	-28362.7	-316572.8	-103418.	-11.3	31.1	SI
3 I	10- 1	-14593.7	331135.4	-91916.2	-12.8	208.2	SI
3 C	10- 1	-11601.2	-10817.8	-93427.6	-2.5	-15.2	SI
3 S	10- 1	-8608.7	-352770.9	-94938.9	-14.6	399.	SI

Nome pilastro : **P027** (ID=96)  
Aste : 1005-1006-1007-1008; 1009; 611; 612  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€° (permille)  
Unita' particolari : fessure [Wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferr (assi) : longitudinale= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657	4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-7340.	20431. 999.	20431. 999.	-.011	-9.9	-.002	-39.8	SI
1	1- 1	-6331.	0. 999.	0. 999.	-.005	-4.5	-.005	-100.5	SI
1	2- 1	-6718.	18699. 999.	18699. 999.	-.01	-9.	-.002	-36.4	SI
> 2	2- 1	-17432.	40383. 999.	40383. 999.	-.025	-21.3	-.006	-125.3	SI
2	2- 1	-17243.	0. 999.	0. 999.	-.014	-12.3	-.014	-279.3	SI
2	2- 1	-17053.	39507. 999.	39507. 999.	-.024	-20.9	-.006	-122.6	SI
> 3	2- 1	-12143.	39668. 999.	39668. 999.	-.021	-18.1	-.002	-41.9	SI
3	2- 1	-11387.	0. 999.	0. 999.	-.009	-8.4	-.009	-188.	SI
3	2- 1	-10630.	34726. 999.	34726. 999.	-.018	-15.9	-.002	-36.9	SI
> 4	2- 1	-5874.	19189. 999.	19189. 999.	-.01	-8.9	-.001	-20.7	SI
4	2- 1	-5118.	0. 999.	0. 999.	-.004	-3.8	-.004	-83.5	SI
4	2- 1	-4361.	14247. 999.	14247. 999.	-.007	-6.6	-.001	-15.4	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-7340.4	235.	.066	97.66	23.26	SI
2	2- 1	-17431.7	95.	.156	63.37	9.4	SI
3	2- 1	-12143.3	380.	.108	75.93	37.61	SI
4	2- 1	-5874.2	380.	.052	109.2	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-7340.4	235.	.066	97.66	23.26	SI
2	2- 1	-17431.7	95.	.156	63.37	9.4	SI
3	2- 1	-12143.3	380.	.108	75.93	37.61	SI
4	2- 1	-5874.2	380.	.052	109.2	37.61	SI

TAGLIO Y:

Asta	Caso	VED	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	16087.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15951.1	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	15998.5	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17418.5	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17393.1	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	17367.6	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16705.7	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16603.8	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16501.8	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15861.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15759.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15657.5	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VED	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	16087.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15951.1	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	15998.5	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17418.5	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17393.1	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	17367.6	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16705.7	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16603.8	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16501.8	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15861.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15759.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15657.5	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-5525.3	0.	0.	-4.1	-62.	SI
1 C	15- 1	-4781.	0.	0.	-3.6	-53.6	SI
1 S	16- 1	-5136.3	0.	0.	-3.8	-57.6	SI
2 I	16- 1	-13357.2	0.	0.	-10.	-149.8	SI
2 C	16- 1	-13211.7	0.	0.	-9.9	-148.2	SI
2 S	16- 1	-13066.2	0.	0.	-9.8	-146.5	SI
3 I	16- 1	-9295.8	0.	0.	-7.1	-106.3	SI
3 C	16- 1	-8713.9	0.	0.	-6.6	-99.7	SI
3 S	16- 1	-8132.	0.	0.	-6.2	-93.	SI
4 I	16- 1	-4478.5	0.	0.	-3.4	-51.2	SI
4 C	16- 1	-3896.7	0.	0.	-3.	-44.6	SI
4 S	16- 1	-3314.8	0.	0.	-2.5	-37.9	SI

#### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-5245.6	0.	0.	-3.9	-58.8	SI
1 C	18- 1	-4568.4	0.	0.	-3.4	-51.2	SI
1 S	19- 1	-5028.2	0.	0.	-3.8	-56.4	SI
2 I	19- 1	-13106.7	0.	0.	-9.8	-147.	SI
2 C	19- 1	-12961.2	0.	0.	-9.7	-145.3	SI
2 S	19- 1	-12815.7	0.	0.	-9.6	-143.7	SI
3 I	19- 1	-9064.1	0.	0.	-6.9	-103.7	SI
3 C	19- 1	-8482.2	0.	0.	-6.5	-97.	SI
3 S	19- 1	-7900.4	0.	0.	-6.	-90.4	SI
4 I	19- 1	-4264.1	0.	0.	-3.3	-48.8	SI
4 C	19- 1	-3682.3	0.	0.	-2.8	-42.1	SI
4 S	19- 1	-3100.4	0.	0.	-2.4	-35.5	SI

#### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-5173.	0.	0.	-3.9	-58.	SI
1 C	21- 1	-4515.9	0.	0.	-3.4	-50.6	SI
1 S	21- 1	-5004.2	0.	0.	-3.7	-56.1	SI
2 I	21- 1	-13045.	0.	0.	-9.8	-146.3	SI
2 C	21- 1	-12899.6	0.	0.	-9.6	-144.7	SI
2 S	21- 1	-12754.1	0.	0.	-9.5	-143.	SI
3 I	21- 1	-9006.4	0.	0.	-6.9	-103.	SI
3 C	21- 1	-8424.5	0.	0.	-6.4	-96.4	SI
3 S	21- 1	-7842.6	0.	0.	-6.	-89.7	SI
4 I	21- 1	-4210.2	0.	0.	-3.2	-48.2	SI
4 C	21- 1	-3628.3	0.	0.	-2.8	-41.5	SI
4 S	21- 1	-3046.4	0.	0.	-2.3	-34.9	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P028** (ID=97)  
Aste : 1000-1001-1002-1003; 1004; 608; 609  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daN/cm; daN/cm<sup>2</sup>; deform.%; 1/r (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657	4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369	4φ12

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cl	σc	E acc	σf	VE
> 1	1- 1	-3634.	10115.	10115.	999.	-0.005	-4.9	-0.001	-19.7
1	1- 1	-3443.	0.	0.	999.	-0.003	-2.5	-0.003	-54.4
1	6-13	-5114.	14234.	14234.	999.	-0.008	-6.9	-0.001	-27.7
> 2	6-13	-13933.	32278.	32278.	999.	-0.02	-17.1	-0.005	-100.1
2	6-13	-13788.	0.	0.	999.	-0.011	-9.9	-0.011	-221.9
2	6-13	-13642.	31604.	31604.	999.	-0.019	-16.8	-0.005	-98.
> 3	6-13	-9455.	30887.	30887.	999.	-0.016	-14.2	-0.002	-32.9
3	6-13	-8873.	0.	0.	999.	-0.007	-6.5	-0.007	-145.8
3	6-13	-8291.	27085.	27085.	999.	-0.014	-12.5	-0.001	-29.
> 4	6-13	-4109.	13424.	13424.	999.	-0.007	-6.4	-0.001	-14.1
4	6-13	-3528.	0.	0.	999.	-0.003	-2.7	-0.003	-58.9
4	6-13	-2946.	9623.	9623.	999.	-0.005	-4.6	-0.001	-10.2

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	6-13	-5114.1	235.	.046	117.	23.26	SI
2	6-13	-13933.1	95.	.124	70.89	9.4	SI
3	6-13	-9455.1	380.	.084	86.05	37.61	SI
4	6-13	-4109.5	380.	.037	130.5	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	6-13	-5114.1	235.	.046	117.	23.26	SI
2	6-13	-13933.1	95.	.124	70.89	9.4	SI
3	6-13	-9455.1	380.	.084	86.05	37.61	SI
4	6-13	-4109.5	380.	.037	130.5	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15587.6	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15561.9	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	15706.1	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	16621.	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	16595.5	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	16570.1	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16187.8	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16085.8	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	15983.8	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15576.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15474.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15372.5	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15587.6	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15561.9	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	15706.1	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	16621.	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	16595.5	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	16570.1	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16187.8	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16085.8	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	15983.8	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15576.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15474.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15372.5	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-2739.7	0.	0.	-2.	-30.7	SI
1 C	15- 1	-2601.6	0.	0.	-1.9	-29.2	SI
1 S	15- 1	-3444.9	0.	0.	-2.6	-38.6	SI
2 I	15- 1	-8664.7	0.	0.	-6.5	-97.2	SI
2 C	15- 1	-8519.2	0.	0.	-6.4	-95.5	SI
2 S	15- 1	-8373.7	0.	0.	-6.3	-93.9	SI
3 I	15- 1	-6197.5	0.	0.	-4.7	-70.9	SI
3 C	15- 1	-5615.6	0.	0.	-4.3	-64.2	SI
3 S	15- 1	-5033.7	0.	0.	-3.8	-57.6	SI
4 I	15- 1	-2718.3	0.	0.	-2.1	-31.6	SI
4 C	15- 1	-2136.4	0.	0.	-1.7	-24.9	SI
4 S	15- 1	-1554.5	0.	0.	-1.2	-18.1	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-2623.8	0.	0.	-2.	-29.4	SI
1 C	18- 1	-2503.	0.	0.	-1.9	-28.1	SI
1 S	18- 1	-3389.3	0.	0.	-2.5	-38.	SI
2 I	18- 1	-8609.4	0.	0.	-6.4	-96.5	SI
2 C	18- 1	-8464.	0.	0.	-6.3	-94.9	SI
2 S	18- 1	-8318.5	0.	0.	-6.2	-93.3	SI
3 I	18- 1	-6150.	0.	0.	-4.7	-70.4	SI
3 C	18- 1	-5568.1	0.	0.	-4.2	-63.7	SI
3 S	18- 1	-4986.3	0.	0.	-3.8	-57.	SI
4 I	18- 1	-2688.7	0.	0.	-2.1	-31.3	SI

4 C	18- 1	-2106.8	0.	0.	-1.6	-24.5	SI
4 S	18- 1	-1524.9	0.	0.	-1.2	-17.8	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-2588.5	0.	0.	-1.9	-29.	SI
1 C	21- 1	-2473.2	0.	0.	-1.8	-27.7	SI
1 S	21- 1	-3372.4	0.	0.	-2.5	-37.8	SI
2 I	21- 1	-8590.4	0.	0.	-6.4	-96.3	SI
2 C	21- 1	-8444.9	0.	0.	-6.3	-94.7	SI
2 S	21- 1	-8299.4	0.	0.	-6.2	-93.1	SI
3 I	21- 1	-6135.1	0.	0.	-4.7	-70.2	SI
3 C	21- 1	-5553.3	0.	0.	-4.2	-63.5	SI
3 S	21- 1	-4971.4	0.	0.	-3.8	-56.9	SI
4 I	21- 1	-2680.4	0.	0.	-2.1	-31.2	SI
4 C	21- 1	-2098.6	0.	0.	-1.6	-24.4	SI
4 S	21- 1	-1516.7	0.	0.	-1.2	-17.7	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P029** (ID=223)  
Aste : 1675; 1674; 1673; 1672; 972; 605; 606  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : rigidezza nominale [EC2 5.8.7];  $\lambda_{fief}$ =3

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86

ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl<sub>s</sub>=3025; i<sub>y</sub>=15.88; i<sub>z</sub>=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e <sub>0z</sub>	e <sub>0y</sub>	e <sub>iz</sub>	e <sub>iy</sub>	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246
2	1	2.	2.	.24	.24	71.	71.	0.	0.	25.13	.831
3	1	2.	2.	.24	.24	71.	71.	0.	0.	16.08	.532
4	1	2.	2.	.07	.07	22.	22.	0.	0.	16.08	.532
5	1	2.	2.	.32	.32	95.	71.	0.	0.	16.08	.532
6	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532
7	1	2.	2.	1.27	1.27	380.	356.	0.	0.	32.17	1.063

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (inclusi imperfezioni e second'ordine):

Asta	Caso	NEd	MEyd	MEzd	E c <sub>l</sub> s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 1	-32591.	202910.	1.04	595890.	1.01	-0.027	-35.5	.013
1	5- 1	-32322.	122487.	1.	1270225.	1.	-0.049	-60.8	.053
1	5- 1	-32054.	76707.	1.11	1959869.	1.	-0.072	-83.7	.1
> 2	5- 1	-52223.	116953.	2.09	2366817.	1.01	-0.107	-110.8	.145
2	5- 1	-51954.	50619.	1.	1992044.	1.	-0.086	-95.1	.106
2	5- 4	-36840.	-202497.	1.05	-1423268.	1.01	-0.067	-78.9	.082
> 3	5- 4	-36840.	-202597.	1.05	-1423968.	1.01	-0.081	-91.3	.119
3	5- 4	-36571.	-155249.	1.	-1276487.	1.	-0.07	-81.1	.095
3	5- 4	-36303.	-131521.	1.07	-1146547.	1.01	-0.061	-72.6	.076
> 4	5- 4	-36303.	-125423.	1.02	-1139162.	1.	-0.06	-71.8	.075
4	5- 4	-36220.	123219.	1.	-1093768.	1.	-0.057	-69.1	.069
4	5- 4	-36136.	127592.	1.02	-1053733.	1.	-0.055	-66.9	.064
> 5	5- 4	-36136.	136704.	1.09	-1065005.	1.01	-0.056	-68.1	.066
5	5- 4	-35777.	145181.	1.	-870237.	1.	-0.045	-56.5	.042
5	1- 1	-63597.	147982.	2.56	-761868.	1.03	-0.038	-48.7	.006
> 6	5- 1	-35131.	-206886.	1.34	1247108.	1.08	-0.071	-82.6	.098
6	5- 1	-33694.	-70178.	1.04	139391.	1.04	-0.012	-17.	-.003
6	5- 1	-32257.	-122408.	1.59	-996566.	1.09	-0.052	-64.2	.065



> 7	1- 1	-21844.	-72296.	2.68	793606.	1.05	-.032	-41.8	.036	753.2	SI
7	5- 1	-15463.	-18415.	1.01	-361691.	1.01	-.014	-18.6	.009	196.6	SI
7	5- 1	-14026.	120535.	1.19	-1359645.	1.02	-.056	-68.2	.095	2001.7	SI

INSTABILITA' - RIGIDEZZA NOMINALE Y [EC2 5.8.7]:

Asta	Caso	NB	l0	Jn	JcIs/Jn	McaI	MOEd	MEd	nu
1 S	5- 1	-57749700	71.	93796.2	8.1299	69077.	76664.	76707.	.076
2 I	5- 1	-41076209	71.	66715.4	11.4299	55991.	116804.	116953.	.122
3 I	5- 4	-26293914	71.	42706.2	17.8558	-193594.	-202313.	-202597.	.086
4 I	5- 4	-27346E9	22.	42643.7	17.882	-122745.	-125407.	-125423.	.085
5 I	5- 4	-14696388	95.	42734.3	17.844	124925.	136368.	136704.	.085
6 I	5- 1	-925857.6	380.	43075.5	17.7027	-154537.	-199036.	-206886.	.082
7 S	5- 1	-1684056.	380.	78350.6	9.7326	101560.	119326.	120535.	.04

INSTABILITA' - RIGIDEZZA NOMINALE Z [EC2 5.8.7]:

Asta	Caso	NB	l0	Jn	JcIs/Jn	McaI	MOEd	MEd	nu
1 S	5- 1	-57749700	71.	93796.2	8.1299	1951177.	1958763.	1959869.	.076
2 I	5- 1	-41076209	71.	66715.4	11.4299	2351448.	2363808.	2366817.	.122
3 I	5- 4	-26293914	71.	42706.2	17.8558	-1413254.	-1421973.	-1423968.	.086
4 I	5- 4	-27346E9	22.	42643.7	17.882	-1136349.	-1139011.	-1139162.	.085
5 I	5- 4	-14696388	95.	42734.3	17.844	-1050943.	-1062387.	-1065005.	.085
6 I	5- 1	-925857.6	380.	43075.5	17.7027	1155289.	1199788.	1247108.	.082
7 S	5- 1	-1684056.	380.	78350.6	9.7326	-1328235.	-1346001.	-1359645.	.04

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 1	19201.9	23991.1	23991.1	66752.5	1.01	19.	2.5	SI
1 C	5- 1	19201.9	23991.1	23991.1	66713.5	1.01	19.	2.5	SI
1 S	5- 1	19201.9	23991.1	23991.1	66674.5	1.01	19.	2.5	SI
2 I	5- 1	-10201.9	23991.1	23991.1	69604.9	1.01	19.	2.5	SI
2 C	5- 1	-10201.9	23991.1	23991.1	69565.9	1.01	19.	2.5	SI
2 S	5- 1	-10201.9	23991.1	23991.1	69526.9	1.01	19.	2.5	SI
3 I	5- 1	-10196.7	23991.1	23991.1	69526.9	1.01	19.	2.5	SI
3 C	5- 1	-10196.7	23991.1	23991.1	69487.9	1.01	19.	2.5	SI
3 S	5- 1	-10196.7	23991.1	23991.1	69448.9	1.01	19.	2.5	SI
4 I	5- 1	-10189.4	23991.1	23991.1	69448.9	1.01	19.	2.5	SI
4 C	5- 1	-10189.4	23991.1	23991.1	69436.8	1.01	19.	2.5	SI
4 S	5- 1	-10189.4	23991.1	23991.1	69424.7	1.01	19.	2.5	SI
5 I	5- 1	-10178.8	23991.1	23991.1	69424.7	1.01	19.	2.5	SI
5 C	5- 1	-10178.8	23991.1	23991.1	69372.5	1.01	19.	2.5	SI
5 S	5- 1	-10178.8	23991.1	23991.1	69320.3	1.01	19.	2.5	SI
6 I	5- 1	-5440.5	23991.1	23991.1	67121.5	1.01	19.	2.5	SI
6 C	5- 1	-5440.5	23991.1	23991.1	66912.7	1.01	19.	2.5	SI
6 S	5- 1	-5440.5	23991.1	23991.1	66704.	1.01	19.	2.5	SI
7 I	5- 1	-5147.9	23991.1	23991.1	64472.6	1.01	19.	2.5	SI
7 C	5- 1	-5147.9	23991.1	23991.1	64263.8	1.01	19.	2.5	SI
7 S	5- 1	-5147.9	23991.1	23991.1	64055.	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	17883.4	23991.1	23991.1	64708.3	1.01	19.	2.5	SI
1 C	4- 3	17883.4	23991.1	23991.1	64669.3	1.01	19.	2.5	SI
1 S	4- 3	17883.4	23991.1	23991.1	64630.3	1.01	19.	2.5	SI
2 I	4- 3	-7666.4	23991.1	23991.1	68005.1	1.01	19.	2.5	SI
2 C	4- 3	-7666.4	23991.1	23991.1	67966.	1.01	19.	2.5	SI
2 S	4- 3	-7666.4	23991.1	23991.1	67927.	1.01	19.	2.5	SI
3 I	4- 3	-7662.6	23991.1	23991.1	67927.	1.01	19.	2.5	SI
3 C	4- 3	-7662.6	23991.1	23991.1	67888.	1.01	19.	2.5	SI
3 S	4- 3	-7662.6	23991.1	23991.1	67849.	1.01	19.	2.5	SI
4 I	4- 3	-7656.9	23991.1	23991.1	67849.	1.01	19.	2.5	SI
4 C	4- 3	-7656.9	23991.1	23991.1	67836.9	1.01	19.	2.5	SI
4 S	4- 3	-7656.9	23991.1	23991.1	67824.8	1.01	19.	2.5	SI
5 I	4- 3	-7648.	23991.1	23991.1	67824.8	1.01	19.	2.5	SI
5 C	4- 3	-7648.	23991.1	23991.1	67772.7	1.01	19.	2.5	SI
5 S	4- 3	-7648.	23991.1	23991.1	67720.5	1.01	19.	2.5	SI
6 I	4- 1	1979.9	23991.1	23991.1	66614.7	1.01	19.	2.5	SI
6 C	4- 1	1979.9	23991.1	23991.1	66406.	1.01	19.	2.5	SI
6 S	4- 1	1979.9	23991.1	23991.1	66197.2	1.01	19.	2.5	SI
7 I	4- 2	-778.7	23991.1	23991.1	64299.9	1.01	19.	2.5	SI
7 C	4- 2	-778.7	23991.1	23991.1	64091.1	1.01	19.	2.5	SI
7 S	4- 2	-778.7	23991.1	23991.1	63882.3	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-26504.9	148612.5	175370.4	-16.8	5.5	SI
1 C	8- 1	-26236.4	33138.5	246118.5	-15.4	-10.2	SI
1 S	8- 1	-25968.	-82335.5	316866.7	-19.3	45.	SI
2 I	8- 1	-49190.	-135915.5	364337.2	-29.8	-27.2	SI
2 C	8- 1	-48921.6	-111693.7	239742.	-25.2	-82.9	SI
2 S	8- 1	-48653.1	-87471.9	115146.8	-20.6	-138.6	SI
3 I	8- 1	-48653.1	-87471.9	115146.8	-21.5	-142.5	SI
3 C	8- 1	-48384.6	-63250.2	-9448.4	-17.2	-193.9	SI
3 S	8- 1	-48116.2	-39028.4	-134043.6	-20.4	-152.	SI
4 I	8- 1	-48116.2	-39028.4	-134043.6	-20.4	-152.	SI
4 C	8- 1	-48033.	-31523.	-172650.5	-21.4	-139.	SI
4 S	8- 1	-47949.8	-24017.7	-211257.5	-22.3	-126.	SI
5 I	8- 1	-47949.8	-24017.7	-211257.5	-22.3	-126.	SI
5 C	8- 1	-47590.6	8391.7	-377969.4	-27.1	-63.2	SI
5 S	8- 1	-47231.3	40801.1	-544681.2	-33.9	29.8	SI
6 I	8- 1	-33171.	55800.3	352057.1	-23.6	16.4	SI
6 C	8- 1	-31734.2	10979.1	1543.7	-10.2	-141.4	SI
6 S	8- 1	-30297.3	-33842.1	-348969.7	-22.	22.5	SI
7 I	8- 1	-16246.3	-18688.7	557339.6	-28.9	473.3	SI
7 C	8- 1	-14809.4	-1367.7	-152667.5	-8.8	-6.3	SI
7 S	8- 1	-13372.5	15953.2	-862674.6	-43.9	1061.7	SI

## FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-24810.	142123.1	165891.	-15.9	7.	SI
1 C	9- 1	-24541.5	36029.1	230375.3	-14.6	-7.6	SI
1 S	9- 1	-24273.1	-70064.9	294859.6	-17.7	38.	SI
2 I	9- 1	-45897.5	-118627.4	338710.	-27.5	-29.	SI
2 C	9- 1	-45629.	-97714.3	223947.2	-23.3	-79.7	SI
2 S	9- 1	-45360.5	-76801.2	109184.4	-19.1	-130.4	SI
3 I	9- 1	-45360.5	-76801.2	109184.4	-20.	-134.	SI
3 C	9- 1	-45092.1	-55888.1	-5578.3	-15.9	-183.2	SI
3 S	9- 1	-44823.6	-34975.	-120341.1	-18.8	-144.	SI
4 I	9- 1	-44823.6	-34975.	-120341.1	-18.8	-144.	SI
4 C	9- 1	-44740.4	-28494.9	-155901.4	-19.7	-131.8	SI
4 S	9- 1	-44657.2	-22014.8	-191461.7	-20.6	-119.6	SI
5 I	9- 1	-44657.2	-22014.8	-191461.7	-20.6	-119.6	SI
5 C	9- 1	-44298.	5967.5	-345017.5	-25.	-62.3	SI
5 S	9- 1	-43938.8	33949.8	-498573.3	-31.	21.	SI
6 I	9- 1	-30984.9	52804.1	323246.1	-21.8	12.7	SI
6 C	9- 1	-29548.	10428.9	1417.8	-9.5	-131.6	SI
6 S	9- 1	-28111.1	-31946.3	-320410.5	-20.3	19.1	SI
7 I	9- 1	-15164.2	-12575.7	510122.	-26.2	422.3	SI
7 C	9- 1	-13727.4	-919.7	-139235.8	-8.1	-6.9	SI
7 S	9- 1	-12290.5	10736.3	-788593.5	-39.9	965.4	SI

## QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	10- 1	-24244.3	139884.3	162713.2	-15.6	7.5	SI
1 C	10- 1	-23975.9	37082.6	225129.	-14.3	-6.7	SI
1 S	10- 1	-23707.4	-65719.2	287544.9	-17.2	35.6	SI
2 I	10- 1	-44799.6	-112531.3	330201.6	-26.8	-29.7	SI
2 C	10- 1	-44531.2	-92770.	218699.8	-22.7	-78.7	SI
2 S	10- 1	-44262.7	-73008.6	107197.9	-18.6	-127.7	SI
3 I	10- 1	-44262.7	-73008.6	107197.9	-19.4	-131.3	SI
3 C	10- 1	-43994.2	-53247.2	-4303.9	-15.4	-179.7	SI
3 S	10- 1	-43725.8	-33485.9	-115805.8	-18.3	-141.3	SI
4 I	10- 1	-43725.8	-33485.9	-115805.8	-18.3	-141.3	SI
4 C	10- 1	-43642.6	-27362.6	-150355.6	-19.2	-129.4	SI
4 S	10- 1	-43559.4	-21239.4	-184905.5	-20.1	-117.5	SI
5 I	10- 1	-43559.4	-21239.4	-184905.5	-20.1	-117.5	SI
5 C	10- 1	-43200.2	5201.9	-334098.1	-24.2	-62.	SI
5 S	10- 1	-42841.	31643.1	-483290.7	-30.1	18.1	SI
6 I	10- 1	-30255.5	51859.3	313556.6	-21.3	11.4	SI
6 C	10- 1	-28818.6	10125.8	1371.	-9.2	-128.3	SI
6 S	10- 1	-27381.8	-31607.6	-310814.7	-19.7	18.1	SI
7 I	10- 1	-14803.	-10816.9	494456.5	-25.3	405.6	SI
7 C	10- 1	-13366.1	-882.4	-134861.8	-7.9	-7.1	SI
7 S	10- 1	-11929.2	9052.1	-764180.1	-38.6	933.9	SI

Nome pilastro : **P030** (ID=99)  
Aste : 659; 660; 661  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : snellezza limite [EC2 5.8.3.1]

## MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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## SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=70; Acl=4550; iy=18.76; iz=20.21

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.53   12 $\phi$ 16
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.53   12 $\phi$ 16
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.53   12 $\phi$ 16

VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NED	MEyd		MEzd		E c/s	σc	E acc	σf	VE
> 1	5- 2	-106255.	329391.	9.91	4353381.	1.03	-.127	-122.4	.162	3409.5	SI
1	4- 3	-102212.	-841382.	1.	518983.	1.	-.034	-43.8	0.	7.9	SI
> 2	5- 3	-81545.	252790.	15.4	2050441.	1.05	-.052	-64.1	.035	725.6	SI
2	5- 3	-56993.	-186176.	8.56	-3332535.	1.02	-.093	-100.9	.161	3386.7	SI
2	1- 1	-90038.	15826.	1.	-62193.	1.	-.014	-19.7	-.013	-264.8	SI
2	5- 3	-52670.	-172056.	2.46	3453111.	1.02	-.097	-103.5	.179	3749.8	SI
> 3	5- 3	-25204.	82333.	1.95	-1531026.	1.02	-.04	-51.1	.074	1557.6	SI
3	4- 2	-19864.	-381263.	1.	107976.	1.	-.011	-14.5	.005	103.7	SI
3	5- 3	-20882.	-97354.	1.37	2445653.	1.01	-.066	-77.7	.156	3283.1	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 1	-103600.9	77328.7	83056.4	330.	.7	1.14	.769	.161	30.49	17.59	SI
2	5- 2	-64133.4	66492.1	68935.2	380.	.7	1.14	.735	.1	37.06	20.25	SI
3	4- 3	-25608.6	637925.1	167344.3	380.	.7	1.14	1.44	.04	114.6	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-147092.3	652925.8	276701.	330.	.7	1.14	1.28	.229	42.46	16.33	SI
2	4- 3	-65641.7	9211.8	-123103.	380.	.7	1.14	1.78	.102	88.4	18.81	SI
3	4- 3	-25608.6	-44469.	-110695.	380.	.7	1.14	1.3	.04	103.5	18.81	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	-17907.	30513.	30513.	108645.2	1.01	19.	2.5	SI
1 C	5- 2	-17907.	30513.	30513.	108372.7	1.01	19.	2.5	SI
1 S	5- 2	-17907.	30513.	30513.	108100.2	1.01	19.	2.5	SI
2 I	5- 3	17491.	30513.	30513.	101492.4	1.01	19.	2.5	SI
2 C	5- 3	17491.	30513.	30513.	101178.6	1.01	19.	2.5	SI
2 S	5- 3	17491.	30513.	30513.	100864.8	1.01	19.	2.5	SI
3 I	5- 3	10311.1	30513.	30513.	96876.8	1.01	19.	2.5	SI
3 C	5- 3	10311.1	30513.	30513.	96563.	1.01	19.	2.5	SI
3 S	5- 3	10311.1	30513.	30513.	96249.2	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	-3851.6	28183.8	28183.8	107758.1	1.01	19.	2.5	SI
1 C	4- 3	-3851.6	28183.8	28183.8	107487.	1.01	19.	2.5	SI
1 S	4- 3	-3851.6	28183.8	28183.8	107216.	1.01	19.	2.5	SI
2 I	4- 2	3199.6	28183.8	28183.8	100738.2	1.01	19.	2.5	SI
2 C	4- 2	3199.6	28183.8	28183.8	100426.	1.01	19.	2.5	SI
2 S	4- 2	3199.6	28183.8	28183.8	100113.9	1.01	19.	2.5	SI
3 I	4- 3	1352.6	28183.8	28183.8	96423.2	1.01	19.	2.5	SI
3 C	4- 3	1352.6	28183.8	28183.8	96111.1	1.01	19.	2.5	SI
3 S	4- 3	1352.6	28183.8	28183.8	95798.9	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-108931.2	-39043.2	497113.6	-31.4	-215.7	SI
1 C	8- 1	-107054.4	4106.8	345110.8	-27.8	-251.6	SI
1 S	8- 1	-105177.5	47256.7	193108.	-25.6	-269.2	SI
2 I	8- 1	-69016.2	24162.8	-643166.2	-25.4	-64.6	SI
2 C	8- 1	-66855.	11740.1	-46895.	-14.7	-192.1	SI
2 S	8- 1	-64693.7	-682.6	549376.2	-22.5	-77.5	SI
3 I	8- 1	-27394.7	25862.9	-539240.2	-16.4	78.7	SI
3 C	8- 1	-25233.4	3694.5	23002.9	-5.6	-71.5	SI
3 S	8- 1	-23072.2	-18473.8	585246.	-17.8	173.1	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-98883.1	-35075.7	478265.2	-28.9	-190.	SI
1 C	9- 1	-97006.3	4604.	317271.6	-25.3	-226.8	SI
1 S	9- 1	-95129.4	44283.7	156278.	-22.9	-247.2	SI
2 I	9- 1	-62493.	22828.2	-570373.	-22.8	-60.9	SI
2 C	9- 1	-60331.7	11164.8	-42626.6	-13.3	-173.1	SI
2 S	9- 1	-58170.5	-498.6	485119.7	-20.1	-71.6	SI
3 I	9- 1	-24523.1	23557.9	-471345.3	-14.3	63.7	SI
3 C	9- 1	-22361.9	4238.8	15701.	-4.9	-64.2	SI
3 S	9- 1	-20200.6	-15080.4	502747.3	-15.3	141.4	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-95777.2	-33862.8	473159.9	-28.2	-181.9	SI
1 C	10- 1	-93900.3	4727.7	308469.9	-24.5	-219.2	SI
1 S	10- 1	-92023.4	43318.2	143779.9	-22.	-240.6	SI
2 I	10- 1	-60563.	22377.5	-546471.2	-22.	-60.4	SI
2 C	10- 1	-58401.8	10936.9	-41527.	-12.8	-167.5	SI
2 S	10- 1	-56240.5	-503.7	463417.2	-19.3	-70.5	SI
3 I	10- 1	-23816.9	22730.8	-450191.8	-13.7	57.3	SI
3 C	10- 1	-21655.6	4314.4	14773.	-4.8	-62.2	SI
3 S	10- 1	-19494.4	-14102.	479737.9	-14.5	131.	SI

Nome pilastro : P031 (ID=100)  
Aste : 644; 1637; 1638; 646  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferr (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; Ecu=0.2%  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; Eud=0.18%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma$  (rara)=149.4;  $\sigma$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=65; Acls=4225; iy=18.76; iz=18.76

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.571 12φ16
2	1	2.	2.	.63	.63	190.	166.	0.	0.	24.13	.571 12φ16
3	1	2.	2.	.63	.63	190.	140.	0.	0.	24.13	.571 12φ16
4	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.571 12φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma$ c	E acc	$\sigma$ f	VE
> 1	5- 3	-89108.	276236.	5.6	-2207207.	1.05	-0.066	-77.9	.047 996.2 SI
1	4- 2	-84110.	536771.	1.	165420.	1.	-0.024	-31.6	-.005 -98.4 SI
1	5- 3	-85623.	265431.	26.4	1999029.	1.05	-0.059	-71.1	.038 798.9 SI
> 2	5- 3	-58904.	155115.	4.51	-2824921.	1.01	-0.088	-97.	.136 2865.6 SI
2	5- 3	-57901.	56923.	1.	-1386116.	1.	-0.037	-47.1	.024 504.9 SI
2	1- 1	-76785.	202199.	1.7	-202199.	1.92	-0.018	-24.5	-.007 -151.7 SI
> 3	1- 1	-71044.	-187084.	18.8	-187084.	1.78	-0.017	-22.7	-.007 -140.2 SI
3	5- 3	-51985.	-36139.	1.	1355717.	1.	-0.036	-46.1	.028 583.7 SI
3	5- 3	-50981.	-134251.	1.69	2724817.	1.01	-0.085	-94.1	.141 2969.7 SI
> 4	5- 4	-25221.	82390.	5.26	-1630764.	1.02	-0.049	-60.7	.093 1960.7 SI
4	4- 3	-16799.	393948.	1.	120754.	1.	-0.012	-17.1	.009 184.9 SI
4	5- 3	-21428.	-71338.	1.61	2315779.	1.01	-0.07	-81.4	.16 3365.5 SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	10	A	B	C	nu	L lim	Lambd	VE
1	5- 1	-76921.8	-85600.8	-108926.	330.	.7	1.15	.914	.129	40.88	17.59	SI
2	1- 1	-79393.5	143337.3	118782.9	190.	.7	1.15	.871	.133	38.36	10.13	SI
3	5- 4	-52615.8	-39973.7	-54992.9	190.	.7	1.15	.973	.088	52.62	10.13	SI
4	4- 1	-21613.8	-453582.	-405862.	380.	.7	1.15	.805	.036	67.94	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	4- 2	-85853.	40981.6	288416.	330.	.7	1.15	1.56	.144	65.95	17.59	SI
2	1- 1	-79393.5	-1270174	-105092.	190.	.7	1.15	1.62	.133	71.19	10.13	SI
3	1- 1	-71044.4	-105092.	1059990.	190.	.7	1.15	1.8	.119	83.73	10.13	SI
4	1- 1	-30193.	-1111624	1347386.	380.	.7	1.15	2.53	.051	180.3	20.25	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 3	12163.2	28183.8	28183.8	98971.3	1.01	19.	2.5	SI
1 C	5- 3	12163.2	28183.8	28183.8	98719.6	1.01	19.	2.5	SI
1 S	5- 3	12163.2	28183.8	28183.8	98467.9	1.01	19.	2.5	SI
2 I	5- 3	14761.9	28183.8	28183.8	94609.	1.01	19.	2.5	SI
2 C	5- 3	14761.9	28183.8	28183.8	94464.	1.01	19.	2.5	SI
2 S	5- 3	14761.9	28183.8	28183.8	94319.1	1.01	19.	2.5	SI
3 I	5- 3	14080.	28183.8	28183.8	93754.5	1.01	19.	2.5	SI
3 C	5- 3	14080.	28183.8	28183.8	93609.6	1.01	19.	2.5	SI
3 S	5- 3	14080.	28183.8	28183.8	93464.6	1.01	19.	2.5	SI
4 I	5- 3	10223.1	28183.8	28183.8	89775.9	1.01	19.	2.5	SI
4 C	5- 3	10223.1	28183.8	28183.8	89486.1	1.01	19.	2.5	SI
4 S	5- 3	10223.1	28183.8	28183.8	89196.2	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 1	2344.9	28183.8	28183.8	98523.6	1.01	19.	2.5	SI
1 C	4- 1	2344.9	28183.8	28183.8	98271.9	1.01	19.	2.5	SI
1 S	4- 1	2344.9	28183.8	28183.8	98020.1	1.01	19.	2.5	SI

2	I	4- 2	5842.5	28183.8	28183.8	93967.8	1.01	19.	2.5	SI
2	C	4- 2	5842.5	28183.8	28183.8	93822.9	1.01	19.	2.5	SI
2	S	4- 2	5842.5	28183.8	28183.8	93677.9	1.01	19.	2.5	SI
3	I	4- 2	5041.3	28183.8	28183.8	93262.3	1.01	19.	2.5	SI
3	C	4- 2	5041.3	28183.8	28183.8	93117.3	1.01	19.	2.5	SI
3	S	4- 2	5041.3	28183.8	28183.8	92972.4	1.01	19.	2.5	SI
4	I	4- 3	1267.2	28183.8	28183.8	88817.5	1.01	19.	2.5	SI
4	C	4- 3	1267.2	28183.8	28183.8	88527.6	1.01	19.	2.5	SI
4	S	4- 3	1267.2	28183.8	28183.8	88237.8	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### RARE:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	8- 1	-93954.6	-669.	-433955.2	-29.	-199.8	SI
1	C	8- 1	-92211.7	-38837.7	95049.4	-22.8	-269.5	SI
1	S	8- 1	-90468.9	-77006.3	624053.9	-33.4	-121.5	SI
2	I	8- 1	-59085.3	105638.6	-930046.1	-34.5	102.1	SI
2	C	8- 1	-58081.9	97177.3	-503966.1	-24.4	-40.1	SI
2	S	8- 1	-57078.4	88715.9	-77886.1	-15.7	-145.8	SI
3	I	8- 1	-52807.1	-8493.9	-77886.1	-13.3	-151.9	SI
3	C	8- 1	-51803.6	-16955.2	348193.9	-18.4	-78.7	SI
3	S	8- 1	-50800.2	-25416.6	774273.9	-27.4	54.4	SI
4	I	8- 1	-22891.3	54035.8	-816152.	-31.6	590.6	SI
4	C	8- 1	-20884.5	-16423.2	89722.5	-6.6	-42.	SI
4	S	8- 1	-18877.6	-86882.1	995596.9	-41.2	1063.9	SI

##### FREQUENTI:

REQURIENT.								
Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	9- 1	-85462.	-1999.9	-380993.	-26.2	-184.9	SI
1	C	9- 1	-83719.2	-34097.5	86990.7	-20.7	-244.8	SI
1	S	9- 1	-81976.4	-66195.1	554974.4	-30.	-113.6	SI
2	I	9- 1	-53739.7	93394.3	-832568.6	-30.9	85.2	SI
2	C	9- 1	-52736.3	89360.3	-451226.9	-22.1	-37.7	SI
2	S	9- 1	-51732.8	85326.4	-69885.2	-14.4	-131.1	SI
3	I	9- 1	-47731.7	-11345.8	-69885.2	-12.	-136.5	SI
3	C	9- 1	-46728.3	-15379.7	311456.4	-16.6	-71.6	SI
3	S	9- 1	-45724.9	-19413.7	692798.1	-24.5	46.	SI
4	I	9- 1	-20660.2	49526.2	-724213.9	-28.	513.5	SI
4	C	9- 1	-18653.3	-16120.5	77458.5	-5.9	-37.8	SI
4	S	9- 1	-16646.5	-81767.3	879130.9	-36.6	943.7	SI

##### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	10- 1	-82817.8	-2421.3	-363752.7	-25.3	-180.4	SI
1	C	10- 1	-81075.	-32664.9	84262.7	-20.	-237.2	SI
1	S	10- 1	-79332.2	-62908.4	532278.	-28.9	-111.5	SI
2	I	10- 1	-52154.	89744.	-800850.2	-29.8	78.8	SI
2	C	10- 1	-51150.6	86851.	-434183.6	-21.3	-37.4	SI
2	S	10- 1	-50147.2	83958.1	-67517.	-13.9	-126.9	SI
3	I	10- 1	-46237.6	-12133.1	-67517.	-11.7	-132.	SI
3	C	10- 1	-45234.2	-15026.1	299149.6	-16.	-69.9	SI
3	S	10- 1	-44230.7	-17919.	665816.2	-23.5	42.2	SI
4	I	10- 1	-20127.1	47927.4	-695701.	-26.9	484.3	SI
4	C	10- 1	-18120.2	-15868.9	74757.4	-5.7	-36.8	SI
4	S	10- 1	-16113.4	-79665.2	845215.7	-35.2	903.7	SI

Nome pilastro : **P032** (ID=101)  
Aste : 1030-1031-1032-1033; 1034; 1635; 1636; 683  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk]:mm e ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1

20|Frequente 3 |FREQUENTE | 1|  
 21|Quasi Perm |QUASI PERMAN. | 1|

<-

# SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657	4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16
3	1	2.	2.	.63	.63	190.	166.	0.	0.	6.16	.503	4φ14
4	1	2.	2.	.63	.63	190.	166.	0.	0.	6.16	.503	4φ14
5	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369	4φ12

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE
> 1	1- 1	-2975.	8282. 999.	8282. 999.	-.004	-4.	-.001	-16.2	SI
1	1- 1	-6701.	0. 999.	0. 999.	-.005	-4.8	-.005	-106.5	SI
1	1- 1	-15364.	42764. 999.	42764. 999.	-.024	-20.4	-.004	-82.9	SI
> 2	1- 1	-37867.	87724. 999.	87724. 999.	-.057	-45.	-.014	-272.5	SI
2	1- 1	-37678.	0. 999.	0. 999.	-.032	-26.8	-.032	-635.8	SI
2	1- 1	-37488.	86848. 999.	86848. 999.	-.057	-44.6	-.013	-269.8	SI
> 3	1- 1	-22906.	60320. 999.	60320. 999.	-.037	-30.4	-.007	-136.1	SI
3	1- 1	-22528.	0. 999.	0. 999.	-.019	-16.6	-.019	-380.3	SI
3	1- 1	-22150.	58328. 999.	58328. 999.	-.035	-29.5	-.007	-131.7	SI
> 4	1- 1	-17346.	45677. 999.	45677. 999.	-.027	-23.2	-.005	-103.5	SI
4	1- 1	-16967.	0. 999.	0. 999.	-.014	-12.5	-.014	-283.2	SI
4	1- 1	-16589.	43685. 999.	43685. 999.	-.026	-22.2	-.005	-99.	SI
> 5	2- 1	-8892.	29047. 999.	29047. 999.	-.016	-13.8	-.002	-30.	SI
5	2- 1	-8135.	0. 999.	0. 999.	-.007	-6.2	-.007	-137.	SI
5	2- 1	-7379.	24105. 999.	24105. 999.	-.013	-11.5	-.001	-25.1	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-15364.4	235.	.137	67.5	23.26	SI
2	1- 1	-37866.7	95.	.338	43.	9.4	SI
3	1- 1	-22906.3	190.	.204	55.29	18.81	SI
4	1- 1	-17345.6	190.	.155	63.53	18.81	SI
5	2- 1	-8891.9	380.	.079	88.73	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-15364.4	235.	.137	67.5	23.26	SI
2	1- 1	-37866.7	95.	.338	43.	9.4	SI
3	1- 1	-22906.3	190.	.204	55.29	18.81	SI
4	1- 1	-17345.6	190.	.155	63.53	18.81	SI
5	2- 1	-8891.9	380.	.079	88.73	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15498.8	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16001.	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17168.6	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	18083.1	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	17435.6	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	17384.6	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	17333.6	.57	18.	2.5	NO 10
5 I	1- 1	0.	5944.4	5944.4	16276.1	.57	18.	2.5	NO 10
5 C	1- 1	0.	5944.4	5944.4	16174.2	.57	18.	2.5	NO 10
5 S	1- 1	0.	5944.4	5944.4	16072.2	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15498.8	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16001.	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	17168.6	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	18083.1	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	17435.6	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	17384.6	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	17333.6	.57	18.	2.5	NO 10
5 I	1- 1	0.	5944.4	5944.4	16276.1	.57	18.	2.5	NO 10
5 C	1- 1	0.	5944.4	5944.4	16174.2	.57	18.	2.5	NO 10
5 S	1- 1	0.	5944.4	5944.4	16072.2	.57	18.	2.5	NO 10

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-2223.	0.	0.	-1.7	-24.9	SI
1 C	15- 1	-4995.	0.	0.	-3.7	-56.	SI
1 S	15- 1	-11450.5	0.	0.	-8.6	-128.4	SI
2 I	15- 1	-28218.5	0.	0.	-21.1	-316.4	SI

2	C	15- 1	-28073.1	0.	0.	-21.	-314.8	SI
2	S	15- 1	-27927.6	0.	0.	-20.9	-313.2	SI
3	I	15- 1	-17123.2	0.	0.	-13.1	-195.9	SI
3	C	15- 1	-16832.3	0.	0.	-12.8	-192.6	SI
3	S	15- 1	-16541.3	0.	0.	-12.6	-189.2	SI
4	I	15- 1	-12975.1	0.	0.	-9.9	-148.4	SI
4	C	15- 1	-12684.2	0.	0.	-9.7	-145.1	SI
4	S	15- 1	-12393.2	0.	0.	-9.5	-141.8	SI
5	I	16- 1	-6663.7	0.	0.	-5.2	-77.6	SI
5	C	16- 1	-6081.8	0.	0.	-4.7	-70.8	SI
5	S	16- 1	-5499.9	0.	0.	-4.3	-64.	SI

#### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	18- 1	-2080.5	0.	0.	-1.6	-23.3	SI
1	C	18- 1	-4631.1	0.	0.	-3.5	-51.9	SI
1	S	18- 1	-10598.7	0.	0.	-7.9	-118.9	SI
2	I	18- 1	-26114.7	0.	0.	-19.5	-292.9	SI
2	C	18- 1	-25969.2	0.	0.	-19.4	-291.2	SI
2	S	18- 1	-25823.7	0.	0.	-19.3	-289.6	SI
3	I	18- 1	-15887.2	0.	0.	-12.1	-181.7	SI
3	C	18- 1	-15596.3	0.	0.	-11.9	-178.4	SI
3	S	18- 1	-15305.4	0.	0.	-11.7	-175.1	SI
4	I	18- 1	-11999.	0.	0.	-9.2	-137.3	SI
4	C	18- 1	-11708.1	0.	0.	-8.9	-133.9	SI
4	S	18- 1	-11417.1	0.	0.	-8.7	-130.6	SI
5	I	19- 1	-6082.2	0.	0.	-4.7	-70.8	SI
5	C	19- 1	-5500.3	0.	0.	-4.3	-64.	SI
5	S	19- 1	-4918.4	0.	0.	-3.8	-57.3	SI

#### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	21- 1	-2039.7	0.	0.	-1.5	-22.9	SI
1	C	21- 1	-4534.8	0.	0.	-3.4	-50.9	SI
1	S	21- 1	-10378.5	0.	0.	-7.8	-116.4	SI
2	I	21- 1	-25570.5	0.	0.	-19.1	-286.8	SI
2	C	21- 1	-25425.1	0.	0.	-19.	-285.1	SI
2	S	21- 1	-25279.6	0.	0.	-18.9	-283.5	SI
3	I	21- 1	-15602.2	0.	0.	-11.9	-178.5	SI
3	C	21- 1	-15311.3	0.	0.	-11.7	-175.2	SI
3	S	21- 1	-15020.4	0.	0.	-11.5	-171.8	SI
4	I	21- 1	-11797.1	0.	0.	-9.	-135.	SI
4	C	21- 1	-11506.1	0.	0.	-8.8	-131.6	SI
4	S	21- 1	-11215.2	0.	0.	-8.6	-128.3	SI
5	I	21- 1	-5955.	0.	0.	-4.6	-69.3	SI
5	C	21- 1	-5373.2	0.	0.	-4.2	-62.6	SI
5	S	21- 1	-4791.3	0.	0.	-3.7	-55.8	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P033** (ID=102)  
Aste : 1035-1036-1037-1038; 1039; 681; 682  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r ‰ (permille)  
Unita' particolari : fessure [Wk];mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2	2	.78	.78	235.	235.	0.	0.	6.16	.503	4φ14
2	1	2	2	.32	.32	95.	71.	0.	0.	6.16	.503	4φ14
3	1	2	2	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2	2	1.27	1.27	380.	356.	0.	0.	4.52	.369	4φ12

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE		
> 1	1- 1	-5136.	14296.	999.	14296.	999.	-0.008	-7.2	-0.001	-27.8	SI
1	1- 1	-4304.	0.	999.	0.	999.	-0.004	-3.2	-0.004	-70.1	SI
1	1- 1	-6061.	16869.	999.	16869.	999.	-0.009	-8.4	-0.002	-32.8	SI
> 2	1- 1	-14096.	32655.	999.	32655.	999.	-0.021	-18.	-0.005	-102.2	SI
2	1- 1	-13907.	0.	999.	0.	999.	-0.012	-10.2	-0.012	-230.7	SI
2	1- 1	-13718.	31779.	999.	31779.	999.	-0.02	-17.5	-0.005	-99.4	SI
> 3	2- 1	-10054.	32844.	999.	32844.	999.	-0.017	-15.1	-0.002	-35.	SI
3	2- 1	-9298.	0.	999.	0.	999.	-0.008	-6.9	-0.008	-152.9	SI
3	2- 1	-8541.	27902.	999.	27902.	999.	-0.015	-12.8	-0.001	-29.8	SI
> 4	2- 1	-3708.	12114.	999.	12114.	999.	-0.006	-5.8	-0.001	-12.7	SI
4	2- 1	-2952.	0.	999.	0.	999.	-0.002	-2.2	-0.002	-49.2	SI
4	2- 1	-2195.	7172.	999.	7172.	999.	-0.004	-3.4	0.	-7.6	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-6060.8	235.	.054	107.5	23.26	SI
2	1- 1	-14095.7	95.	.126	70.48	9.4	SI
3	2- 1	-10054.3	380.	.09	83.45	37.61	SI
4	2- 1	-3708.3	380.	.033	137.4	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-6060.8	235.	.054	107.5	23.26	SI
2	1- 1	-14095.7	95.	.126	70.48	9.4	SI
3	2- 1	-10054.3	380.	.09	83.45	37.61	SI
4	2- 1	-3708.3	380.	.033	137.4	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE	
1 I	1- 1	0.	5944.4	5944.4	15790.	.57	18.	2.5	NO	10
1 C	1- 1	0.	5944.4	5944.4	15677.9	.57	18.	2.5	NO	10
1 S	1- 1	0.	5944.4	5944.4	15914.7	.57	18.	2.5	NO	10
2 I	1- 1	0.	5944.4	5944.4	16997.6	.57	18.	2.5	NO	10
2 C	1- 1	0.	5944.4	5944.4	16972.1	.57	18.	2.5	NO	10
2 S	1- 1	0.	5944.4	5944.4	16946.6	.57	18.	2.5	NO	10
3 I	1- 1	0.	5944.4	5944.4	16436.1	.57	18.	2.5	NO	10
3 C	1- 1	0.	5944.4	5944.4	16334.1	.57	18.	2.5	NO	10
3 S	1- 1	0.	5944.4	5944.4	16232.2	.57	18.	2.5	NO	10
4 I	1- 1	0.	5944.4	5944.4	15537.1	.57	18.	2.5	NO	10
4 C	1- 1	0.	5944.4	5944.4	15435.2	.57	18.	2.5	NO	10
4 S	1- 1	0.	5944.4	5944.4	15333.2	.57	18.	2.5	NO	10

TAGLIO Z:

AGLLO 2:										
Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE	
1 I	1- 1	0.	5944.4	5944.4	15790.	.57	18.	2.5	NO	10
1 C	1- 1	0.	5944.4	5944.4	15677.9	.57	18.	2.5	NO	10
1 S	1- 1	0.	5944.4	5944.4	15914.7	.57	18.	2.5	NO	10
2 I	1- 1	0.	5944.4	5944.4	16997.6	.57	18.	2.5	NO	10
2 C	1- 1	0.	5944.4	5944.4	16972.1	.57	18.	2.5	NO	10
2 S	1- 1	0.	5944.4	5944.4	16946.6	.57	18.	2.5	NO	10
3 I	1- 1	0.	5944.4	5944.4	16436.1	.57	18.	2.5	NO	10
3 C	1- 1	0.	5944.4	5944.4	16334.1	.57	18.	2.5	NO	10
3 S	1- 1	0.	5944.4	5944.4	16232.2	.57	18.	2.5	NO	10
4 I	1- 1	0.	5944.4	5944.4	15537.1	.57	18.	2.5	NO	10
4 C	1- 1	0.	5944.4	5944.4	15435.2	.57	18.	2.5	NO	10
4 S	1- 1	0.	5944.4	5944.4	15333.2	.57	18.	2.5	NO	10

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-3868.6	0.	0.	-3.	-44.3	SI
1 C	15- 1	-3246.8	0.	0.	-2.5	-37.1	SI
1 S	15- 1	-4597.2	0.	0.	-3.5	-52.6	SI
2 I	15- 1	-10715.8	0.	0.	-8.2	-122.6	SI
2 C	15- 1	-10570.4	0.	0.	-8.1	-120.9	SI
2 S	15- 1	-10424.9	0.	0.	-8.	-119.3	SI
3 I	16- 1	-7646.3	0.	0.	-5.8	-87.5	SI
3 C	16- 1	-7064.4	0.	0.	-5.4	-80.8	SI
3 S	16- 1	-6482.5	0.	0.	-4.9	-74.2	SI
4 I	16- 1	-2826.4	0.	0.	-2.2	-32.9	SI
4 C	16- 1	-2244.5	0.	0.	-1.7	-26.1	SI
4 S	16- 1	-1662.6	0.	0.	-1.3	-19.4	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-3676.4	0.	0.	-2.8	-42.1	SI
1 C	18- 1	-3095.1	0.	0.	-2.4	-35.4	SI
1 S	18- 1	-4430.3	0.	0.	-3.4	-50.7	SI
2 I	18- 1	-10377.9	0.	0.	-7.9	-118.7	SI
2 C	18- 1	-10232.4	0.	0.	-7.8	-117.1	SI
2 S	18- 1	-10087.	0.	0.	-7.7	-115.4	SI
3 I	19- 1	-7332.7	0.	0.	-5.6	-83.9	SI



3	C	19- 1	-6750.8	0.	0.	-5.1	-77.2	SI
3	S	19- 1	-6169.	0.	0.	-4.7	-70.6	SI
4	I	19- 1	-2538.9	0.	0.	-2.	-29.6	SI
4	C	19- 1	-1957.	0.	0.	-1.5	-22.8	SI
4	S	19- 1	-1375.1	0.	0.	-1.1	-16.	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	21- 1	-3627.4	0.	0.	-2.8	-41.5	SI
1	C	21- 1	-3057.3	0.	0.	-2.3	-35.	SI
1	S	21- 1	-4393.9	0.	0.	-3.4	-50.3	SI
2	I	21- 1	-10308.2	0.	0.	-7.9	-117.9	SI
2	C	21- 1	-10162.7	0.	0.	-7.8	-116.3	SI
2	S	21- 1	-10017.3	0.	0.	-7.6	-114.6	SI
3	I	21- 1	-7262.1	0.	0.	-5.5	-83.1	SI
3	C	21- 1	-6680.2	0.	0.	-5.1	-76.4	SI
3	S	21- 1	-6098.3	0.	0.	-4.7	-69.8	SI
4	I	21- 1	-2458.8	0.	0.	-1.9	-28.6	SI
4	C	21- 1	-1876.9	0.	0.	-1.5	-21.9	SI
4	S	21- 1	-1295.	0.	0.	-1.	-15.1	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P034** (ID=103)  
Aste : 1025-1026-1027-1028; 1029; 920; 921  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daN/cm<sup>2</sup>; deform.%; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk];mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	6.16	.503 4φ14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	6.16	.503 4φ14
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369 4φ12

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cls	$\sigma_c$	E acc	$\sigma_f$	VE		
> 1	1- 1	-4034.	11228.	999.	11228.	999.	-0.006	-5.6	-0.001	-21.9	SI
1	1- 1	-5120.	0.	999.	0.	999.	-0.004	-3.8	-0.004	-83.5	SI
1	1- 1	-10951.	30480.	999.	30480.	999.	-0.017	-15.2	-0.003	-59.	SI
> 2	1- 1	-28158.	65233.	999.	65233.	999.	-0.043	-35.2	-0.01	-204.	SI
2	1- 1	-27969.	0.	999.	0.	999.	-0.024	-20.5	-0.024	-477.6	SI
2	1- 1	-27780.	64357.	999.	64357.	999.	-0.043	-34.8	-0.01	-201.3	SI
> 3	1- 1	-17719.	57883.	999.	57883.	999.	-0.031	-26.2	-0.003	-60.1	SI
3	1- 1	-16963.	0.	999.	0.	999.	-0.014	-12.5	-0.014	-283.1	SI
3	1- 1	-16206.	52940.	999.	52940.	999.	-0.028	-24.	-0.003	-55.3	SI
> 4	2- 1	-6693.	21863.	999.	21863.	999.	-0.012	-10.4	-0.001	-22.8	SI
4	2- 1	-5936.	0.	999.	0.	999.	-0.005	-4.5	-0.005	-99.5	SI
4	2- 1	-5180.	16921.	999.	16921.	999.	-0.009	-8.1	-0.001	-17.7	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L <sub>lim</sub>	Lambda	VE
1	1- 1	-10951.	235.	.098	79.96	23.26	SI
2	1- 1	-28158.1	95.	.251	49.86	9.4	SI
3	1- 1	-17719.1	380.	.158	62.86	37.61	SI
4	2- 1	-6692.8	380.	.06	102.3	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L <sub>lim</sub>	Lambda	VE
1	1- 1	-10951.	235.	.098	79.96	23.26	SI
2	1- 1	-28158.1	95.	.251	49.86	9.4	SI
3	1- 1	-17719.1	380.	.158	62.86	37.61	SI
4	2- 1	-6692.8	380.	.06	102.3	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15641.5	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	15787.8	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	16573.8	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 I	1- 1	0.	5944.4	5944.4	17485.9	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	17384.	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	17282.	.57	18.	2.5	NO
4 I	1- 1	0.	5944.4	5944.4	15939.9	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	15837.9	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	15736.	.57	18.	2.5	NO

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15641.5	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	15787.8	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	16573.8	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 I	1- 1	0.	5944.4	5944.4	17485.9	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	17384.	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	17282.	.57	18.	2.5	NO
4 I	1- 1	0.	5944.4	5944.4	15939.9	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	15837.9	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	15736.	.57	18.	2.5	NO

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEYd	MEZd	σc	σf	VE
1 I	15- 1	-3035.8	0.	0.	-2.3	-34.7	SI
1 C	15- 1	-3843.2	0.	0.	-2.9	-44.	SI
1 S	15- 1	-8220.7	0.	0.	-6.3	-94.	SI
2 I	15- 1	-21146.9	0.	0.	-16.1	-241.9	SI
2 C	15- 1	-21001.4	0.	0.	-16.	-240.3	SI
2 S	15- 1	-20855.9	0.	0.	-15.9	-238.6	SI
3 I	15- 1	-13351.5	0.	0.	-10.2	-152.7	SI
3 C	15- 1	-12769.6	0.	0.	-9.7	-146.1	SI
3 S	15- 1	-12187.7	0.	0.	-9.3	-139.4	SI
4 I	16- 1	-5055.	0.	0.	-3.9	-58.9	SI
4 C	16- 1	-4473.1	0.	0.	-3.5	-52.1	SI
4 S	16- 1	-3891.2	0.	0.	-3.	-45.3	SI

Frequenti:

Asta	Caso	NEd	MEYd	MEZd	σc	σf	VE
1 I	18- 1	-2881.5	0.	0.	-2.2	-33.	SI
1 C	18- 1	-3623.1	0.	0.	-2.8	-41.4	SI
1 S	18- 1	-7740.6	0.	0.	-5.9	-88.6	SI
2 I	18- 1	-19932.8	0.	0.	-15.2	-228.	SI
2 C	18- 1	-19787.3	0.	0.	-15.1	-226.4	SI
2 S	18- 1	-19641.9	0.	0.	-15.	-224.7	SI
3 I	18- 1	-12597.3	0.	0.	-9.6	-144.1	SI
3 C	18- 1	-12015.4	0.	0.	-9.2	-137.5	SI
3 S	18- 1	-11433.6	0.	0.	-8.7	-130.8	SI
4 I	19- 1	-4574.2	0.	0.	-3.6	-53.3	SI
4 C	19- 1	-3992.3	0.	0.	-3.1	-46.5	SI
4 S	19- 1	-3410.5	0.	0.	-2.6	-39.7	SI

Quasi permanenti:

Asta	Caso	NEd	MEYd	MEZd	σc	σf	VE
1 I	21- 1	-2841.2	0.	0.	-2.2	-32.5	SI
1 C	21- 1	-3566.3	0.	0.	-2.7	-40.8	SI
1 S	21- 1	-7620.5	0.	0.	-5.8	-87.2	SI
2 I	21- 1	-19629.6	0.	0.	-15.	-224.6	SI
2 C	21- 1	-19484.2	0.	0.	-14.9	-222.9	SI
2 S	21- 1	-19338.7	0.	0.	-14.7	-221.2	SI
3 I	21- 1	-12446.3	0.	0.	-9.5	-142.4	SI
3 C	21- 1	-11864.4	0.	0.	-9.	-135.7	SI
3 S	21- 1	-11282.6	0.	0.	-8.6	-129.1	SI
4 I	21- 1	-4454.3	0.	0.	-3.5	-51.9	SI
4 C	21- 1	-3872.4	0.	0.	-3.	-45.1	SI
4 S	21- 1	-3290.5	0.	0.	-2.6	-38.3	SI

MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P035** (ID=104)  
Aste : 1040-1041-1042-1043; 1044; 917; 918  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

**MATERIALI**

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

**TENSIONI MASSIME IN ESERCIZIO**

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

**CASI DI CARICO**

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	6.16	.503	4φ14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	6.16	.503	4φ14
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	4.52	.369	4φ12

**VERIFICHE ALLO STATO LIMITE ULTIMO**

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-3833.	10668.	10668.	.999.	-5.4	-.001	-20.8	SI
1	1- 1	-4811.	0.	0.	.999.	-3.6	-.004	-78.4	SI
1	1- 1	-10276.	28601.	28601.	.999.	-14.2	-.003	-55.4	SI
> 2	1- 1	-26969.	62478.	62478.	.999.	-33.8	-.01	-195.4	SI
2	1- 1	-26780.	0.	0.	.999.	-19.7	-.023	-456.1	SI
2	1- 1	-26591.	61601.	61601.	.999.	-33.3	-.01	-192.7	SI
> 3	1- 1	-17085.	55812.	55812.	.999.	-25.3	-.003	-58.1	SI
3	1- 1	-16329.	0.	0.	.999.	-12.	-.014	-272.2	SI
3	1- 1	-15573.	50870.	50870.	.999.	-23.1	-.003	-53.2	SI
> 4	2- 1	-6466.	21121.	21121.	.999.	-10.1	-.001	-22.	SI
4	2- 1	-5709.	0.	0.	.999.	-4.3	-.005	-95.7	SI
4	2- 1	-4953.	16179.	16179.	.999.	-7.7	-.001	-17.	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-10275.9	235.	.092	82.54	23.26	SI
2	1- 1	-26968.8	95.	.241	50.95	9.4	SI
3	1- 1	-17085.4	380.	.153	64.01	37.61	SI
4	2- 1	-6465.6	380.	.058	104.1	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-10275.9	235.	.092	82.54	23.26	SI
2	1- 1	-26968.8	95.	.241	50.95	9.4	SI
3	1- 1	-17085.4	380.	.153	64.01	37.61	SI
4	2- 1	-6465.6	380.	.058	104.1	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15614.4	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	15746.2	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	16482.8	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 I	1- 1	0.	5944.4	5944.4	17400.5	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	17298.6	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	17196.6	.57	18.	2.5	NO
4 I	1- 1	0.	5944.4	5944.4	15913.1	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	15811.2	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	15709.2	.57	18.	2.5	NO

## TAGLIO Z:

Asta	Caso	VED	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15614.4	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	15746.2	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	16482.8	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 I	1- 1	0.	5944.4	5944.4	17400.5	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	17298.6	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	17196.6	.57	18.	2.5	NO
4 I	1- 1	0.	5944.4	5944.4	15913.1	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	15811.2	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	15709.2	.57	18.	2.5	NO

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-2886.	0.	0.	-2.2	-33.	SI
1 C	15- 1	-3612.9	0.	0.	-2.8	-41.3	SI
1 S	15- 1	-7716.3	0.	0.	-5.9	-88.3	SI
2 I	15- 1	-20257.	0.	0.	-15.4	-231.7	SI
2 C	15- 1	-20111.5	0.	0.	-15.3	-230.1	SI
2 S	15- 1	-19966.1	0.	0.	-15.2	-228.4	SI
3 I	15- 1	-12874.7	0.	0.	-9.8	-147.3	SI
3 C	15- 1	-12292.8	0.	0.	-9.4	-140.6	SI
3 S	15- 1	-11710.9	0.	0.	-8.9	-134.	SI
4 I	16- 1	-4883.6	0.	0.	-3.8	-56.9	SI
4 C	16- 1	-4301.7	0.	0.	-3.3	-50.1	SI
4 S	16- 1	-3719.9	0.	0.	-2.9	-43.3	SI

## Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-2742.5	0.	0.	-2.1	-31.4	SI
1 C	18- 1	-3409.3	0.	0.	-2.6	-39.	SI
1 S	18- 1	-7271.1	0.	0.	-5.5	-83.2	SI
2 I	18- 1	-19102.1	0.	0.	-14.6	-218.5	SI
2 C	18- 1	-18956.7	0.	0.	-14.5	-216.9	SI
2 S	18- 1	-18811.2	0.	0.	-14.3	-215.2	SI
3 I	18- 1	-12150.5	0.	0.	-9.3	-139.	SI
3 C	18- 1	-11568.7	0.	0.	-8.8	-132.3	SI
3 S	18- 1	-10986.8	0.	0.	-8.4	-125.7	SI
4 I	19- 1	-4426.5	0.	0.	-3.4	-51.5	SI
4 C	19- 1	-3844.6	0.	0.	-3.	-44.8	SI
4 S	19- 1	-3262.8	0.	0.	-2.5	-38.	SI

## Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-2705.2	0.	0.	-2.1	-30.9	SI
1 C	21- 1	-3356.9	0.	0.	-2.6	-38.4	SI
1 S	21- 1	-7159.9	0.	0.	-5.5	-81.9	SI
2 I	21- 1	-18813.8	0.	0.	-14.3	-215.2	SI
2 C	21- 1	-18668.3	0.	0.	-14.2	-213.6	SI
2 S	21- 1	-18522.9	0.	0.	-14.1	-211.9	SI
3 I	21- 1	-12005.2	0.	0.	-9.2	-137.3	SI
3 C	21- 1	-11423.3	0.	0.	-8.7	-130.7	SI
3 S	21- 1	-10841.4	0.	0.	-8.3	-124.	SI
4 I	21- 1	-4312.8	0.	0.	-3.3	-50.2	SI
4 C	21- 1	-3730.9	0.	0.	-2.9	-43.4	SI
4 S	21- 1	-3149.1	0.	0.	-2.4	-36.7	SI

## MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P036** (ID=250)  
 Aste : 1045; 1046; 1047; 1048; 1049; 914; 915  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unità di misura : cm; daN; daN/cm; daN/cm<sup>2</sup>; deform.%; 1/r ‰ (permille)  
 Unità particolari : fessure [Wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 3.5 ; staffe= 2.5  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilità : snellezza limite [EC2 5.8.3.1]

## MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
 gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
 ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
 gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
 ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
------	-------------	------	-----

1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAL	SLU (sismico)	4
5	SLU con SISMAY	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246	12φ20
2	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246	12φ20
3	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246	12φ20
4	1	2.	2.	.07	.07	22.	22.	0.	0.	37.7	1.246	12φ20
5	1	2.	2.	.32	.32	95.	95.	0.	0.	37.7	1.246	12φ20
6	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532	8φ16
7	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532	8φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE		
> 1	5- 1	-22418.	-50143.	2.77	972072.	1.01	-.034	-44.	.041	853.4	SI
1	5- 1	-22150.	-8003.	1.	1187848.	1.	-.04	-50.3	.054	1132.3	SI
1	4- 4	-19029.	-1819637.	1.	308022.	1.01	-.073	-84.3	.113	2362.7	SI
> 2	4- 2	-32591.	1811886.	1.	179983.	1.04	-.068	-80.1	.09	1898.4	SI
2	4- 2	-32322.	1525064.	1.	127624.	1.	-.056	-68.3	.069	1453.9	SI
2	4- 2	-32054.	1253872.	1.01	90429.	1.09	-.046	-57.	.05	1051.6	SI
> 3	4- 2	-32054.	1253872.	1.01	90429.	1.09	-.046	-57.	.05	1051.6	SI
3	4- 2	-31785.	968290.	1.	37607.	1.	-.034	-43.8	.03	634.	SI
3	4- 2	-31517.	699307.	1.01	-70492.	6.19	-.026	-34.1	.015	325.	SI
> 4	4- 2	-31517.	694159.	1.	-65345.	5.74	-.026	-33.7	.015	316.1	SI
4	4- 1	-30440.	585789.	1.	-66518.	1.	-.022	-29.2	.01	215.3	SI
4	4- 2	-31350.	525065.	1.	-65000.	2.27	-.02	-26.7	.007	145.5	SI
> 5	4- 2	-31350.	532694.	1.02	-72628.	2.54	-.02	-27.3	.007	156.4	SI
5	1- 1	-50557.	154674.	1.	-213154.	1.	-.018	-24.3	-.004	-76.9	SI
5	4- 4	-38255.	521038.	1.02	-312130.	1.04	-.027	-35.8	.011	221.7	SI
> 6	4- 3	-24992.	-493429.	1.07	-82367.	1.62	-.023	-31.	.015	321.4	SI
6	4- 4	-24214.	141467.	1.	-55378.	1.	-.01	-13.7	-.001	-28.7	SI
6	4- 3	-22119.	661547.	1.04	-72254.	1.73	-.032	-42.1	.04	832.4	SI
> 7	4- 2	-8404.	-340712.	1.03	142893.	1.08	-.023	-30.4	.034	717.4	SI
7	4- 3	-8621.	189352.	1.	-14563.	1.	-.008	-11.4	.006	136.2	SI
7	4- 4	-7474.	592197.	1.02	-239786.	1.04	-.042	-53.2	.081	1693.8	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-25991.6	-22002.5	-67744.4	71.	.7	1.3	1.38	.061	101.5	4.47	SI
2	4- 4	-40213.3	-1815133	-1184327	71.	.7	1.3	1.05	.094	62.13	4.47	SI
3	5- 1	-43958.1	30323.1	46096.2	71.	.7	1.3	1.04	.103	59.13	4.47	SI
4	1- 1	-51240.2	81586.3	104722.1	22.	.7	1.3	.921	.12	48.39	1.39	SI
5	1- 1	-51023.9	104722.1	204626.4	95.	.7	1.3	1.19	.12	62.57	5.98	SI
6	5- 1	-28323.	-153555.	86945.4	380.	.7	1.14	2.27	.066	140.2	23.93	SI
7	4- 2	-8404.1	-330067.	-233034.	380.	.7	1.14	.994	.02	112.9	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-25991.6	217893.1	210436.	71.	.7	1.3	.734	.061	54.17	4.47	SI
2	5- 1	-44495.1	1782843.	1143463.	71.	.7	1.3	1.06	.104	59.7	4.47	SI
3	5- 1	-43958.1	1143463.	507103.7	71.	.7	1.3	1.26	.103	71.29	4.47	SI
4	4- 1	-30523.2	-76691.2	-74066.	22.	.7	1.3	.734	.072	49.99	1.39	SI
5	4- 1	-30356.8	-74066.	-111067.	95.	.7	1.3	1.03	.071	70.53	5.98	SI
6	4- 3	-24992.4	-50710.3	-41747.1	380.	.7	1.14	.877	.059	57.72	23.93	SI
7	5- 3	-7579.9	-11203.1	128237.5	380.	.7	1.14	1.79	.018	213.7	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 4	-6322.7	25324.	25324.	63929.6	1.01	18.	2.5	SI
1 C	5- 4	-6322.7	25324.	25324.	63890.6	1.01	18.	2.5	SI
1 S	5- 4	-6322.7	25324.	25324.	63851.6	1.01	18.	2.5	SI
2 I	5- 1	-9024.7	23991.1	23991.1	68482.1	1.01	19.	2.5	SI
2 C	5- 1	-9024.7	23991.1	23991.1	68443.1	1.01	19.	2.5	SI
2 S	5- 1	-9024.7	23991.1	23991.1	68404.1	1.01	19.	2.5	SI
3 I	5- 1	-9019.8	23991.1	23991.1	68404.1	1.01	19.	2.5	SI
3 C	5- 1	-9019.8	23991.1	23991.1	68365.1	1.01	19.	2.5	SI
3 S	5- 1	-9019.8	23991.1	23991.1	68326.1	1.01	19.	2.5	SI
4 I	5- 1	-9013.1	23991.1	23991.1	68326.1	1.01	19.	2.5	SI
4 C	5- 1	-9013.1	23991.1	23991.1	68314.	1.01	19.	2.5	SI
4 S	5- 1	-9013.1	23991.1	23991.1	68301.9	1.01	19.	2.5	SI
5 I	5- 1	-9003.4	23991.1	23991.1	68301.9	1.01	19.	2.5	SI
5 C	5- 1	-9003.4	23991.1	23991.1	68249.7	1.01	19.	2.5	SI
5 S	5- 1	-9003.4	23991.1	23991.1	68197.5	1.01	19.	2.5	SI
6 I	5- 1	-2128.1	23991.1	23991.1	66132.4	1.01	19.	2.5	SI
6 C	5- 1	-2128.1	23991.1	23991.1	65923.6	1.01	19.	2.5	SI
6 S	5- 1	-2128.1	23991.1	23991.1	65714.8	1.01	19.	2.5	SI
7 I	5- 1	-2373.1	23991.1	23991.1	63672.3	1.01	19.	2.5	SI
7 C	5- 1	-2373.1	23991.1	23991.1	63463.6	1.01	19.	2.5	SI
7 S	5- 1	-2373.1	23991.1	23991.1	63254.8	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	24318.7	25324.	25324.	64779.5	1.01	18.	2.5	SI
1 C	4- 3	24318.7	25324.	25324.	64740.5	1.01	18.	2.5	SI

1	S	4- 3	24318.7	25324.	25324.	64701.5	1.01	18.	2.5	SI
2	I	4- 3	-9200.7	23991.1	23991.1	67715.6	1.01	19.	2.5	SI
2	C	4- 3	-9200.7	23991.1	23991.1	67676.6	1.01	19.	2.5	SI
2	S	4- 3	-9200.7	23991.1	23991.1	67637.6	1.01	19.	2.5	SI
3	I	4- 3	-9196.3	23991.1	23991.1	67637.6	1.01	19.	2.5	SI
3	C	4- 3	-9196.3	23991.1	23991.1	67598.6	1.01	19.	2.5	SI
3	S	4- 3	-9196.3	23991.1	23991.1	67559.6	1.01	19.	2.5	SI
4	I	4- 3	-9190.	23991.1	23991.1	67559.6	1.01	19.	2.5	SI
4	C	4- 3	-9190.	23991.1	23991.1	67547.5	1.01	19.	2.5	SI
4	S	4- 3	-9190.	23991.1	23991.1	67535.4	1.01	19.	2.5	SI
5	I	4- 3	-9180.5	23991.1	23991.1	67535.4	1.01	19.	2.5	SI
5	C	4- 3	-9180.5	23991.1	23991.1	67483.2	1.01	19.	2.5	SI
5	S	4- 3	-9180.5	23991.1	23991.1	67431.	1.01	19.	2.5	SI
6	I	4- 3	-2783.2	23991.1	23991.1	65648.4	1.01	19.	2.5	SI
6	C	4- 3	-2783.2	23991.1	23991.1	65439.7	1.01	19.	2.5	SI
6	S	4- 3	-2783.2	23991.1	23991.1	65230.9	1.01	19.	2.5	SI
7	I	4- 4	-2259.4	23991.1	23991.1	63520.7	1.01	19.	2.5	SI
7	C	4- 4	-2259.4	23991.1	23991.1	63311.9	1.01	19.	2.5	SI
7	S	4- 4	-2259.4	23991.1	23991.1	63103.1	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	8- 1	-19478.	-16202.3	163371.6	-10.5	-16.	SI
1	C	8- 1	-19209.5	-32546.7	160794.	-10.9	-9.8	SI
1	S	8- 1	-18941.1	-48891.1	158216.5	-11.2	-3.6	SI
2	I	8- 1	-39416.1	-48891.1	191602.4	-17.9	-77.8	SI
2	C	8- 1	-39147.6	-21447.7	133043.8	-15.4	-108.3	SI
2	S	8- 1	-38879.1	5995.6	74485.2	-13.2	-134.5	SI
3	I	8- 1	-38879.1	5995.6	74485.2	-13.2	-134.5	SI
3	C	8- 1	-38610.7	33439.	15926.7	-12.3	-144.8	SI
3	S	8- 1	-38342.2	60882.4	-42631.9	-13.7	-123.7	SI
4	I	8- 1	-38342.2	60882.4	-42631.9	-13.7	-123.7	SI
4	C	8- 1	-38259.	69386.	-60776.8	-14.4	-113.5	SI
4	S	8- 1	-38175.8	77889.6	-78921.7	-15.2	-103.4	SI
5	I	8- 1	-38175.8	77889.6	-78921.7	-15.2	-103.4	SI
5	C	8- 1	-37816.6	114609.6	-157274.7	-18.3	-59.4	SI
5	S	8- 1	-37457.4	151329.6	-235627.8	-21.4	-15.5	SI
6	I	8- 1	-25311.6	-149874.1	30772.4	-13.6	-41.2	SI
6	C	8- 1	-23874.7	-6317.3	-31660.	-8.6	-94.3	SI
6	S	8- 1	-22437.8	137239.5	-94092.3	-14.3	-6.7	SI
7	I	8- 1	-10377.4	-173281.5	159021.6	-18.5	218.1	SI
7	C	8- 1	-8940.5	19598.1	-29740.8	-4.3	-20.6	SI
7	S	8- 1	-7503.7	212477.7	-218503.2	-28.1	556.5	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	9- 1	-18183.5	-14396.4	152307.5	-9.8	-15.3	SI
1	C	9- 1	-17915.	-27626.9	150439.8	-10.1	-10.	SI
1	S	9- 1	-17646.5	-40857.4	148572.2	-10.3	-4.6	SI
2	I	9- 1	-36722.9	-40857.4	180115.6	-16.6	-73.6	SI
2	C	9- 1	-36454.4	-16489.7	126295.7	-14.3	-101.3	SI
2	S	9- 1	-36186.	7878.	72475.7	-12.4	-123.2	SI
3	I	9- 1	-36186.	7878.	72475.7	-12.4	-123.2	SI
3	C	9- 1	-35917.5	32245.7	18655.8	-11.5	-132.9	SI
3	S	9- 1	-35649.	56613.4	-35164.1	-12.6	-116.7	SI
4	I	9- 1	-35649.	56613.4	-35164.1	-12.6	-116.7	SI
4	C	9- 1	-35565.8	64164.	-51840.7	-13.3	-107.4	SI
4	S	9- 1	-35482.6	71714.5	-68517.3	-13.9	-98.1	SI
5	I	9- 1	-35482.6	71714.5	-68517.3	-13.9	-98.1	SI
5	C	9- 1	-35123.4	104319.2	-140529.9	-16.8	-58.	SI
5	S	9- 1	-34764.2	136923.9	-212542.4	-19.6	-17.9	SI
6	I	9- 1	-23512.5	-136756.	22477.9	-12.3	-41.8	SI
6	C	9- 1	-22075.6	-4942.1	-29087.8	-7.9	-87.6	SI
6	S	9- 1	-20638.7	126871.7	-80653.4	-13.	-8.4	SI
7	I	9- 1	-9471.5	-154290.6	141058.	-16.3	186.2	SI
7	C	9- 1	-8034.6	15768.1	-25930.8	-3.8	-19.6	SI
7	S	9- 1	-6597.8	185826.7	-192919.7	-24.7	489.	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	10- 1	-17790.5	-13847.3	148992.6	-9.6	-15.1	SI
1	C	10- 1	-17522.	-26130.4	147342.5	-9.8	-10.	SI
1	S	10- 1	-17253.6	-38413.5	145692.4	-10.	-4.9	SI
2	I	10- 1	-35905.2	-38413.5	176688.1	-16.2	-72.3	SI
2	C	10- 1	-35636.7	-14992.1	124297.5	-14.	-99.1	SI
2	S	10- 1	-35368.3	8429.2	71907.	-12.2	-119.7	SI
3	I	10- 1	-35368.3	8429.2	71907.	-12.2	-119.7	SI
3	C	10- 1	-35099.8	31850.5	19516.4	-11.3	-129.3	SI
3	S	10- 1	-34831.3	55271.8	-32874.2	-12.3	-114.6	SI
4	I	10- 1	-34831.3	55271.8	-32874.2	-12.3	-114.6	SI
4	C	10- 1	-34748.1	62529.1	-49107.9	-12.9	-105.6	SI
4	S	10- 1	-34664.9	69786.4	-65341.5	-13.6	-96.5	SI
5	I	10- 1	-34664.9	69786.4	-65341.5	-13.6	-96.5	SI
5	C	10- 1	-34305.7	101124.8	-135441.6	-16.3	-57.6	SI
5	S	10- 1	-33946.5	132463.2	-205541.7	-19.1	-18.7	SI
6	I	10- 1	-22983.8	-132420.4	19965.9	-11.9	-42.3	SI
6	C	10- 1	-21546.9	-4628.5	-28301.5	-7.7	-85.7	SI
6	S	10- 1	-20110.	123163.3	-76568.8	-12.6	-9.2	SI
7	I	10- 1	-9231.1	-148751.5	135618.1	-15.6	175.9	SI
7	C	10- 1	-7794.3	14874.9	-24795.2	-3.7	-19.4	SI
7	S	10- 1	-6357.4	178501.3	-185208.5	-23.7	468.2	SI

Nome pilastro : **P037** (ID=106)  
 Aste : 898; 899; 900  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferr (assi) : longitudinali= 3.5 ; staffe= 2.5  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
 gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
 ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
 gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS :  $\sigma$  (rara)=149.4;  $\sigma$  (quasi permanente)=112; fbd(esercizio)=26.86  
 ACCIAIO:  $\sigma$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

<-

#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acls=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	iez	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2	2	1.1	1.1	330.	306.	0.	0.	25.13	.831 8ø20
2	1	2	2	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16
3	1	2	2	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma$ c	E acc	$\sigma$ f	VE
> 1	5- 1	-43436.	-134650.	7.01	1258681.	1.04	-.056	-68.	.054 1129.1 SI
1	5- 1	-42188.	10640.	1.	524085.	1.	-.022	-28.8	.002 33.4 SI
1	1- 1	-57907.	179513.	1.96	-179513.	2.32	-.021	-27.7	-.006 -119.4 SI
> 2	4- 3	-25246.	-860349.	1.04	-225044.	1.17	-.052	-64.	.069 1445.9 SI
2	1- 1	-36462.	-3042.	1.	-48714.	1.	-.009	-12.9	-.007 -148.7 SI
2	4- 3	-22372.	750453.	1.04	128202.	1.28	-.041	-52.2	.055 1153.6 SI
> 3	5- 4	-9186.	-30007.	2.01	-396537.	1.03	-.02	-26.6	.034 707.2 SI
3	4- 3	-8320.	225059.	1.	21489.	1.	-.011	-14.7	.012 243.1 SI
3	5- 4	-6312.	46150.	1.21	722891.	1.01	-.038	-48.	.092 1927.6 SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 2	-41184.8	501563.4	-76363.3	330.	.7	1.21	1.85	.096	100.9	20.78	SI
2	5- 1	-27151.1	-64487.1	12836.1	380.	.7	1.14	1.9	.064	120.	23.93	SI
3	4- 2	-9758.8	-272729.	-432206.	380.	.7	1.14	1.07	.023	112.6	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 1	-40803.8	15345.4	4115.2	330.	.7	1.21	1.43	.096	78.36	20.78	SI
2	1- 1	-38329.8	-178186.	80757.6	380.	.7	1.14	2.15	.09	114.5	23.93	SI
3	1- 1	-15085.4	-87164.7	133156.1	380.	.7	1.14	2.36	.035	199.5	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 1	-4192.2	23991.1	23991.1	68328.2	1.01	19.	2.5	SI
1 C	5- 1	-4192.2	23991.1	23991.1	68146.9	1.01	19.	2.5	SI
1 S	5- 1	-4192.2	23991.1	23991.1	67965.6	1.01	19.	2.5	SI
2 I	5- 4	3682.7	23991.1	23991.1	65470.2	1.01	19.	2.5	SI
2 C	5- 4	3682.7	23991.1	23991.1	65261.4	1.01	19.	2.5	SI
2 S	5- 4	3682.7	23991.1	23991.1	65052.7	1.01	19.	2.5	SI
3 I	5- 4	2873.7	23991.1	23991.1	63351.8	1.01	19.	2.5	SI
3 C	5- 4	2873.7	23991.1	23991.1	63143.	1.01	19.	2.5	SI
3 S	5- 4	2873.7	23991.1	23991.1	62934.2	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	-1845.8	23991.1	23991.1	67895.	1.01	19.	2.5	SI
1 C	4- 3	-1845.8	23991.1	23991.1	67713.7	1.01	19.	2.5	SI
1 S	4- 3	-1845.8	23991.1	23991.1	67532.4	1.01	19.	2.5	SI
2 I	4- 3	-4045.4	23991.1	23991.1	65685.3	1.01	19.	2.5	SI
2 C	4- 3	-4045.4	23991.1	23991.1	65476.5	1.01	19.	2.5	SI
2 S	4- 3	-4045.4	23991.1	23991.1	65267.8	1.01	19.	2.5	SI
3 I	4- 4	-2036.4	23991.1	23991.1	63446.8	1.01	19.	2.5	SI
3 C	4- 4	-2036.4	23991.1	23991.1	63238.	1.01	19.	2.5	SI
3 S	4- 4	-2036.4	23991.1	23991.1	63029.3	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## RARE:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	8- 1	-45578.2	-52826.	196864.5	-21.1	-107.	SI
1 C	8- 1	-44330.3	7357.2	70123.3	-15.5	-167.3	SI
1 S	8- 1	-43082.5	67540.4	-56618.	-16.5	-143.9	SI
2 I	8- 1	-28629.2	-49152.2	-132226.6	-14.7	-58.7	SI
2 C	8- 1	-27192.3	-2163.1	-35927.	-9.6	-110.1	SI
2 S	8- 1	-25755.5	44826.1	60372.6	-11.3	-76.3	SI
3 I	8- 1	-11352.3	-79917.8	-64682.	-8.2	7.2	SI
3 C	8- 1	-9915.4	6253.5	17142.4	-3.8	-36.3	SI
3 S	8- 1	-8478.6	92424.8	98966.7	-10.	67.3	SI

## FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-41929.2	-47259.9	177188.2	-19.3	-100.4	SI
1 C	9- 1	-40681.4	6599.3	63670.1	-14.2	-153.8	SI
1 S	9- 1	-39433.6	60458.5	-49847.9	-15.	-133.	SI
2 I	9- 1	-26172.2	-42381.7	-120262.1	-13.3	-54.9	SI
2 C	9- 1	-24735.3	-841.2	-32149.1	-8.7	-100.8	SI
2 S	9- 1	-23298.5	40699.4	55963.9	-10.3	-68.4	SI
3 I	9- 1	-10078.1	-68544.3	-58826.	-7.3	5.9	SI
3 C	9- 1	-8641.2	4387.7	15835.5	-3.3	-31.7	SI
3 S	9- 1	-7204.3	77319.6	90497.	-8.8	62.9	SI

## QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	10- 1	-40819.4	-45555.8	171159.2	-18.7	-98.4	SI
1 C	10- 1	-39571.6	6384.2	61701.7	-13.8	-149.7	SI
1 S	10- 1	-38323.8	58324.1	-47755.9	-14.6	-129.7	SI
2 I	10- 1	-25458.5	-40105.2	-116610.8	-12.9	-54.	SI
2 C	10- 1	-24021.6	-530.7	-30991.7	-8.4	-98.1	SI
2 S	10- 1	-22584.7	39043.7	54627.5	-10.	-66.3	SI
3 I	10- 1	-9757.8	-65349.3	-57039.2	-7.	5.3	SI
3 C	10- 1	-8320.9	3962.1	15432.	-3.2	-30.5	SI
3 S	10- 1	-6884.	73273.5	87903.2	-8.5	61.1	SI

Nome pilastro : **P038** (ID=107)  
 Aste : 904; 905; 906  
 Metodo di verifica : stati limite - NTC18 ( $q=1.33$  ;  $\mu_{phi}=1.99$ ) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r â€°(permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 3.5 ; staffe= 2.5  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [EC2 5.8.3.1]

## MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
 gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
 ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
 gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
 ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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## SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acls=3025; iy=15.88; iz=15.88

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	25.13	.831 8ø20
2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE	
> 1	4- 2	-38088.	1651381.	1.03	118074.	4.65	-.074	-84.7	.099 2071.3	SI
1	4- 2	-36840.	692206.	1.	18339.	1.	-.027	-35.7	.012 261.3	SI
1	1- 1	-47474.	-344592.	1.18	147170.	13.	-.021	-28.6	-.001 -20.1	SI
> 2	5- 4	-16020.	76475.	1.36	-984435.	1.02	-.052	-64.1	.104 2184.3	SI
2	5- 1	-22791.	-62454.	1.	108191.	1.	-.009	-12.5	-.002 -35.6	SI
2	5- 4	-13147.	-118183.	1.16	698804.	1.02	-.04	-51.	.072 1514.4	SI
> 3	5- 4	-7058.	184353.	1.05	-610434.	1.01	-.041	-52.1	.082 1718.	SI
3	5- 4	-5621.	19077.	1.	230633.	1.	-.011	-15.7	.019 395.7	SI
3	5- 4	-4184.	-143816.	1.04	1056443.	1.01	-.062	-73.6	.156 3266.5	SI



SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 4	-31950.	-744776.	-59259.1	330.	.7	1.21	1.62	.075	100.2	20.78	SI
2	1- 1	-29690.1	154513.7	-274608.	380.	.7	1.14	2.26	.07	136.7	23.93	SI
3	4- 3	-7649.4	408755.8	210515.3	380.	.7	1.14	1.19	.018	141.	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-50718.4	21559.4	11318.2	330.	.7	1.21	1.18	.119	57.68	20.78	SI
2	1- 1	-29690.1	-106112.	30017.6	380.	.7	1.14	1.98	.07	119.8	23.93	SI
3	1- 1	-13016.4	-118303.	236377.2	380.	.7	1.14	2.2	.03	200.8	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 1	-3373.	23991.1	23991.1	67970.9	1.01	19.	2.5	SI
1 C	5- 1	-3373.	23991.1	23991.1	67789.6	1.01	19.	2.5	SI
1 S	5- 1	-3373.	23991.1	23991.1	67608.3	1.01	19.	2.5	SI
2 I	5- 4	4319.4	23991.1	23991.1	64344.8	1.01	19.	2.5	SI
2 C	5- 4	4319.4	23991.1	23991.1	64136.1	1.01	19.	2.5	SI
2 S	5- 4	4319.4	23991.1	23991.1	63927.3	1.01	19.	2.5	SI
3 I	5- 4	4340.9	23991.1	23991.1	63042.6	1.01	19.	2.5	SI
3 C	5- 4	4340.9	23991.1	23991.1	62833.8	1.01	19.	2.5	SI
3 S	5- 4	4340.9	23991.1	23991.1	62625.1	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 2	5602.	23991.1	23991.1	67551.2	1.01	19.	2.5	SI
1 C	4- 2	5602.	23991.1	23991.1	67369.9	1.01	19.	2.5	SI
1 S	4- 2	5602.	23991.1	23991.1	67188.6	1.01	19.	2.5	SI
2 I	4- 2	3824.3	23991.1	23991.1	65278.6	1.01	19.	2.5	SI
2 C	4- 2	3824.3	23991.1	23991.1	65069.9	1.01	19.	2.5	SI
2 S	4- 2	3824.3	23991.1	23991.1	64861.1	1.01	19.	2.5	SI
3 I	4- 2	2574.2	23991.1	23991.1	63398.7	1.01	19.	2.5	SI
3 C	4- 2	2574.2	23991.1	23991.1	63189.9	1.01	19.	2.5	SI
3 S	4- 2	2574.2	23991.1	23991.1	62981.1	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-37968.	451222.6	16780.6	-25.8	17.9	SI
1 C	8- 1	-36720.2	117942.7	12967.1	-14.9	-113.	SI
1 S	8- 1	-35472.4	-215337.2	9153.5	-17.3	-71.7	SI
2 I	8- 1	-22298.7	113214.3	-79365.3	-13.1	-24.9	SI
2 C	8- 1	-20861.8	-44359.4	-28183.	-8.8	-66.9	SI
2 S	8- 1	-19425.	-201933.	22999.3	-13.3	2.9	SI
3 I	8- 1	-9835.6	254394.2	-88176.5	-20.8	320.9	SI
3 C	8- 1	-8398.7	-7605.4	43992.2	-4.2	-17.9	SI
3 S	8- 1	-6961.8	-269605.	176160.9	-30.5	655.8	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-35304.	411837.5	17651.9	-23.8	13.3	SI
1 C	9- 1	-34056.2	108971.7	13368.4	-13.8	-104.5	SI
1 S	9- 1	-32808.4	-193894.2	9084.8	-15.9	-68.1	SI
2 I	9- 1	-20603.3	103546.3	-73845.4	-12.1	-23.2	SI
2 C	9- 1	-19166.5	-41357.9	-24832.7	-8.	-61.6	SI
2 S	9- 1	-17729.6	-186262.	24180.	-12.3	5.1	SI
3 I	9- 1	-8826.8	229177.6	-78029.4	-18.6	288.9	SI
3 C	9- 1	-7389.9	-870.9	37095.1	-3.5	-18.7	SI
3 S	9- 1	-5953.	-230919.4	152219.6	-26.2	564.8	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-34499.2	399702.2	17877.2	-23.2	11.8	SI
1 C	10- 1	-33251.4	106291.5	13532.3	-13.5	-101.9	SI
1 S	10- 1	-32003.6	-187119.1	9187.4	-15.5	-67.1	SI
2 I	10- 1	-20123.9	100145.7	-72154.1	-11.8	-23.1	SI
2 C	10- 1	-18687.	-40281.6	-23880.8	-7.8	-60.3	SI
2 S	10- 1	-17250.2	-180708.9	24392.4	-12.	5.1	SI
3 I	10- 1	-8579.	221308.2	-75265.3	-18.	276.4	SI
3 C	10- 1	-7142.1	333.6	35346.2	-3.3	-18.5	SI
3 S	10- 1	-5705.2	-220640.9	145957.7	-25.1	539.5	SI

Nome pilastro : **P039** (ID=108)  
Aste : 907; 908; 909  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€° (permille)  
Unita' particolari : fessure [Wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrri (assi) : longitudinale= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	10.18	.831
2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	8.04	.657
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-25624.	79435.	79435.	999.	-0.041	-33.7	-0.005	-107.3
1	1- 1	-24967.	0.	0.	999.	-0.02	-17.2	-0.02	-396.5
1	1- 1	-24310.	75362.	75362.	999.	-0.039	-32.1	-0.005	-102.
> 2	2- 1	-15321.	50049.	50049.	999.	-0.026	-21.9	-0.003	-54.2
2	2- 1	-14565.	0.	0.	999.	-0.012	-10.4	-0.012	-234.7
2	2- 1	-13808.	45107.	45107.	999.	-0.023	-19.8	-0.002	-49.
> 3	2- 1	-8719.	28484.	28484.	999.	-0.015	-13.1	-0.002	-30.4
3	2- 1	-7963.	0.	0.	999.	-0.007	-5.9	-0.007	-130.6
3	2- 1	-7207.	23542.	23542.	999.	-0.012	-10.8	-0.001	-25.3

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-25624.1	330.	.229	52.27	32.66	SI
2	2- 1	-15321.1	380.	.137	67.6	37.61	SI
3	2- 1	-8719.5	380.	.078	89.61	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-25624.1	330.	.229	52.27	32.66	SI
2	2- 1	-15321.1	380.	.137	67.6	37.61	SI
3	2- 1	-8719.5	380.	.078	89.61	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17143.8	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17041.9	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	16939.9	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16224.3	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16122.3	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16020.4	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17143.8	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17041.9	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	16939.9	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16224.3	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16122.3	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16020.4	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-19375.9	0.	0.	-14.2	-212.5	SI
1 C	15- 1	-18870.6	0.	0.	-13.8	-207.	SI
1 S	15- 1	-18365.3	0.	0.	-13.4	-201.4	SI
2 I	16- 1	-11621.1	0.	0.	-8.7	-130.3	SI
2 C	16- 1	-11039.2	0.	0.	-8.3	-123.8	SI
2 S	16- 1	-10457.4	0.	0.	-7.8	-117.3	SI
3 I	16- 1	-6594.3	0.	0.	-5.	-75.4	SI
3 C	16- 1	-6012.5	0.	0.	-4.6	-68.8	SI
3 S	16- 1	-5430.6	0.	0.	-4.1	-62.1	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-18515.7	0.	0.	-13.5	-203.1	SI
1 C	18- 1	-18010.4	0.	0.	-13.2	-197.6	SI
1 S	18- 1	-17505.1	0.	0.	-12.8	-192.	SI
2 I	19- 1	-11078.3	0.	0.	-8.3	-124.2	SI
2 C	19- 1	-10496.5	0.	0.	-7.8	-117.7	SI
2 S	19- 1	-9914.6	0.	0.	-7.4	-111.2	SI
3 I	19- 1	-6096.3	0.	0.	-4.6	-69.7	SI
3 C	19- 1	-5514.5	0.	0.	-4.2	-63.1	SI
3 S	19- 1	-4932.6	0.	0.	-3.8	-56.4	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-18327.6	0.	0.	-13.4	-201.	SI
1 C	21- 1	-17822.3	0.	0.	-13.	-195.5	SI
1 S	21- 1	-17316.9	0.	0.	-12.7	-189.9	SI
2 I	21- 1	-10959.6	0.	0.	-8.2	-122.9	SI
2 C	21- 1	-10377.7	0.	0.	-7.8	-116.4	SI
2 S	21- 1	-9795.8	0.	0.	-7.3	-109.9	SI
3 I	21- 1	-5976.7	0.	0.	-4.6	-68.4	SI
3 C	21- 1	-5394.8	0.	0.	-4.1	-61.7	SI
3 S	21- 1	-4813.	0.	0.	-3.7	-55.1	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P040** (ID=252)  
Aste : 1679; 1678; 1677; 1676; 967; 602; 603  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86

ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	ei	ey	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246
2	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246
3	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246
4	1	2.	2.	.07	.07	22.	22.	0.	0.	37.7	1.246
5	1	2.	2.	.32	.32	95.	71.	0.	0.	37.7	1.246
6	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532
7	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cl	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	4- 2	-43037.	1126754.	1.01	404768.	1.03	-.052	-64.1	.042
1	5- 1	-48607.	311715.	1.	1363705.	1.	-.058	-69.7	.048
1	5- 4	-36513.	206112.	1.04	-2156360.	1.	-.082	-92.1	.11
> 2	5- 4	-74470.	284948.	1.07	-2165343.	1.01	-.088	-96.8	.073
2	5- 4	-74202.	225084.	1.	-1842685.	1.	-.073	-84.5	.051
2	5- 4	-73933.	200296.	1.1	-1555225.	1.01	-.062	-73.6	.034
> 3	5- 4	-73933.	200296.	1.1	-1555225.	1.01	-.062	-73.6	.034
3	5- 4	-73665.	140342.	1.	-1233089.	1.	-.049	-60.1	.017
3	5- 4	-73396.	164163.	1.71	-946064.	1.02	-.04	-51.	.007
> 4	5- 4	-73396.	152175.	1.59	-934076.	1.01	-.04	-50.2	.006
4	5- 4	-73313.	87786.	1.	-834540.	1.	-.035	-45.4	.002
4	5- 4	-73230.	151830.	2.06	-745823.	1.01	-.035	-44.5	.002
> 5	5- 4	-73230.	169649.	2.3	-763642.	1.03	-.035	-45.5	.002

5	4- 4	-72682.	-389864.	1.	75866.	1.	-.025	-33.	-.006	-134.8	SI
5	1- 1	-110027.	-254895.	2.06	254895.	2.51	-.034	-44.3	-.013	-281.1	SI
> 6	5- 4	-50279.	-164245.	5.	-1201721.	1.06	-.06	-72.4	.054	1143.3	SI
6	1- 1	-74005.	-52365.	1.	922.	1.	-.018	-24.4	-.016	-328.9	SI
6	5- 4	-47405.	154857.	5.45	935965.	1.07	-.046	-57.1	.03	629.1	SI
> 7	5- 4	-25310.	82680.	3.41	-544404.	1.06	-.026	-34.2	.02	417.2	SI
7	5- 4	-23873.	13720.	1.	283112.	1.	-.012	-16.9	.001	21.6	SI
7	5- 4	-22436.	73292.	28.6	1091528.	1.03	-.055	-66.9	.099	2088.5	SI

# SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 2	-43037.	1116569.	1134112.	71.	.7	1.3	.715	.101	41.02	4.47	SI
2	1- 1	-112573.1	472787.2	309205.8	71.	.7	1.3	1.05	.264	37.08	4.47	SI
3	4- 4	-73744.8	-665761.	-521240.	71.	.7	1.3	.917	.173	40.17	4.47	SI
4	4- 4	-73207.9	-521240.	-477954.	22.	.7	1.3	.783	.172	34.42	1.39	SI
5	4- 4	-73041.5	-477954.	-320577.	95.	.7	1.3	1.03	.171	45.3	5.98	SI
6	1- 1	-75872.5	-110793.	6062.5	380.	.7	1.14	1.76	.178	66.3	23.93	SI
7	1- 1	-38177.4	64.	5095.4	380.	.7	1.14	1.69	.089	89.89	23.93	SI

# SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 2	-46702.8	745417.8	1082237.	71.	.7	1.3	1.01	.109	55.66	4.47	SI
2	4- 4	-74281.7	78138.3	73796.6	71.	.7	1.3	.756	.174	32.98	4.47	SI
3	4- 4	-73744.8	73796.6	71234.2	71.	.7	1.3	.735	.173	32.18	4.47	SI
4	4- 4	-73207.9	71234.2	71373.3	22.	.7	1.3	.702	.172	30.86	1.39	SI
5	4- 4	-73041.5	71373.3	35853.8	95.	.7	1.3	1.2	.171	52.71	5.98	SI
6	1- 1	-75872.5	-37808.6	39653.3	380.	.7	1.14	2.65	.178	100.3	23.93	SI
7	4- 4	-25238.5	-100318.	-51363.8	380.	.7	1.14	1.19	.059	77.83	23.93	SI

# TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 4	-29877.2	30388.8	30388.8	67400.3	1.01	15.	2.5	SI
1 C	5- 4	-29877.2	30388.8	30388.8	67361.3	1.01	15.	2.5	SI
1 S	5- 4	-29877.2	30388.8	30388.8	67322.3	1.01	15.	2.5	SI
2 I	5- 4	8598.2	23991.1	23991.1	72837.5	1.01	19.	2.5	SI
2 C	5- 4	8598.2	23991.1	23991.1	72798.4	1.01	19.	2.5	SI
2 S	5- 4	8598.2	23991.1	23991.1	72759.4	1.01	19.	2.5	SI
3 I	5- 4	8592.7	23991.1	23991.1	72759.4	1.01	19.	2.5	SI
3 C	5- 4	8592.7	23991.1	23991.1	72720.4	1.01	19.	2.5	SI
3 S	5- 4	8592.7	23991.1	23991.1	72681.4	1.01	19.	2.5	SI
4 I	5- 4	8585.3	23991.1	23991.1	72681.4	1.01	19.	2.5	SI
4 C	5- 4	8585.3	23991.1	23991.1	72669.3	1.01	19.	2.5	SI
4 S	5- 4	8585.3	23991.1	23991.1	72657.2	1.01	19.	2.5	SI
5 I	5- 4	8574.5	23991.1	23991.1	72657.2	1.01	19.	2.5	SI
5 C	5- 4	8574.5	23991.1	23991.1	72605.1	1.01	19.	2.5	SI
5 S	5- 4	8574.5	23991.1	23991.1	72552.9	1.01	19.	2.5	SI
6 I	5- 4	5289.9	23991.1	23991.1	69322.5	1.01	19.	2.5	SI
6 C	5- 4	5289.9	23991.1	23991.1	69113.8	1.01	19.	2.5	SI
6 S	5- 4	5289.9	23991.1	23991.1	68905.	1.01	19.	2.5	SI
7 I	5- 4	4131.1	23991.1	23991.1	65694.6	1.01	19.	2.5	SI
7 C	5- 4	4131.1	23991.1	23991.1	65485.8	1.01	19.	2.5	SI
7 S	5- 4	4131.1	23991.1	23991.1	65277.1	1.01	19.	2.5	SI

# TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	2013.4	30388.8	30388.8	68248.7	1.01	15.	2.5	SI
1 C	4- 3	2013.4	30388.8	30388.8	68209.7	1.01	15.	2.5	SI
1 S	4- 3	2013.4	30388.8	30388.8	68170.7	1.01	15.	2.5	SI
2 I	4- 2	5429.5	23991.1	23991.1	72917.4	1.01	19.	2.5	SI
2 C	4- 2	5429.5	23991.1	23991.1	72878.3	1.01	19.	2.5	SI
2 S	4- 2	5429.5	23991.1	23991.1	72839.3	1.01	19.	2.5	SI
3 I	4- 2	5423.5	23991.1	23991.1	72839.3	1.01	19.	2.5	SI
3 C	4- 2	5423.5	23991.1	23991.1	72800.3	1.01	19.	2.5	SI
3 S	4- 2	5423.5	23991.1	23991.1	72761.3	1.01	19.	2.5	SI
4 I	4- 2	5416.2	23991.1	23991.1	72761.3	1.01	19.	2.5	SI
4 C	4- 2	5416.2	23991.1	23991.1	72749.2	1.01	19.	2.5	SI
4 S	4- 2	5416.2	23991.1	23991.1	72737.1	1.01	19.	2.5	SI
5 I	4- 2	5405.6	23991.1	23991.1	72737.1	1.01	19.	2.5	SI
5 C	4- 2	5405.6	23991.1	23991.1	72685.	1.01	19.	2.5	SI
5 S	4- 2	5405.6	23991.1	23991.1	72632.8	1.01	19.	2.5	SI
6 I	4- 3	-1540.2	23991.1	23991.1	69301.9	1.01	19.	2.5	SI
6 C	4- 3	-1540.2	23991.1	23991.1	69093.1	1.01	19.	2.5	SI
6 S	4- 3	-1540.2	23991.1	23991.1	68884.3	1.01	19.	2.5	SI
7 I	4- 2	-786.8	23991.1	23991.1	65718.3	1.01	19.	2.5	SI
7 C	4- 2	-786.8	23991.1	23991.1	65509.5	1.01	19.	2.5	SI
7 S	4- 2	-786.8	23991.1	23991.1	65300.7	1.01	19.	2.5	SI

# VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

# RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-47844.6	331251.8	498135.6	-38.	130.5	SI
1 C	8- 1	-47576.1	296868.	150045.4	-26.	-36.1	SI
1 S	8- 1	-47307.7	262484.3	-198044.8	-26.3	-30.	SI
2 I	8- 1	-83271.6	352032.1	-198044.8	-38.9	-148.8	SI
2 C	8- 1	-83003.1	291216.7	-160685.3	-36.1	-183.8	SI
2 S	8- 1	-82734.7	230401.3	-123325.8	-33.2	-218.9	SI
3 I	8- 1	-82734.7	230401.3	-123325.8	-33.2	-218.9	SI
3 C	8- 1	-82466.2	169585.8	-85966.3	-30.4	-254.	SI
3 S	8- 1	-82197.7	108770.4	-48606.8	-27.6	-289.	SI
4 I	8- 1	-82197.7	108770.4	-48606.8	-27.6	-289.	SI
4 C	8- 1	-82114.5	89926.2	-37030.6	-26.7	-299.9	SI
4 S	8- 1	-82031.4	71082.	-25454.4	-25.8	-310.7	SI
5 I	8- 1	-82031.4	71082.	-25454.4	-25.8	-310.7	SI
5 C	8- 1	-81672.1	-10290.8	24533.6	-24.	-332.	SI
5 S	8- 1	-81312.9	-91663.6	74521.7	-27.6	-282.	SI
6 I	8- 1	-56147.6	-81886.3	-26895.5	-20.8	-213.6	SI

6 C	8- 1	-54710.7	-38850.8	779.9	-18.1	-235.9	SI
6 S	8- 1	-53273.9	4184.8	28455.3	-17.4	-232.2	SI
7 I	8- 1	-28251.7	-186.7	-80483.4	-11.3	-96.6	SI
7 C	8- 1	-26814.8	1746.1	14882.9	-8.8	-116.8	SI
7 S	8- 1	-25378.	3678.9	110249.3	-11.5	-69.4	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-44183.1	308237.7	459667.7	-35.2	121.5	SI
1 C	9- 1	-43914.6	276584.6	141256.7	-24.1	-31.4	SI
1 S	9- 1	-43646.1	244931.6	-177154.3	-24.2	-28.7	SI
2 I	9- 1	-76792.5	328411.2	-177154.3	-35.9	-137.8	SI
2 C	9- 1	-76524.	271752.6	-143627.8	-33.2	-169.9	SI
2 S	9- 1	-76255.6	215093.9	-110101.3	-30.6	-202.1	SI
3 I	9- 1	-76255.6	215093.9	-110101.3	-30.6	-202.1	SI
3 C	9- 1	-75987.1	158435.3	-76574.8	-28.	-234.2	SI
3 S	9- 1	-75718.6	101776.6	-43048.3	-25.4	-266.3	SI
4 I	9- 1	-75718.6	101776.6	-43048.3	-25.4	-266.3	SI
4 C	9- 1	-75635.4	84220.4	-32659.8	-24.6	-276.2	SI
4 S	9- 1	-75552.2	66664.2	-22271.3	-23.8	-286.2	SI
5 I	9- 1	-75552.2	66664.2	-22271.3	-23.8	-286.2	SI
5 C	9- 1	-75193.	-9146.7	22588.1	-22.1	-305.8	SI
5 S	9- 1	-74833.8	-84957.6	67447.5	-25.4	-259.8	SI
6 I	9- 1	-51826.9	-75837.3	-22158.7	-19.1	-198.2	SI
6 C	9- 1	-50390.	-35365.3	1081.5	-16.7	-217.3	SI
6 S	9- 1	-48953.1	5106.6	24321.6	-16.	-213.6	SI
7 I	9- 1	-26075.9	1193.6	-71796.8	-10.4	-89.8	SI
7 C	9- 1	-24639.1	2181.6	13094.3	-8.1	-107.3	SI
7 S	9- 1	-23202.2	3169.5	97985.5	-10.4	-64.7	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	10- 1	-42962.7	300661.7	446878.9	-34.3	118.6	SI
1 C	10- 1	-42694.2	269915.4	138312.6	-23.5	-29.8	SI
1 S	10- 1	-42425.8	239169.2	-170253.7	-23.5	-28.2	SI
2 I	10- 1	-74632.7	320658.	-170253.7	-34.8	-134.1	SI
2 C	10- 1	-74364.2	265376.8	-137999.5	-32.3	-165.3	SI
2 S	10- 1	-74095.7	210095.6	-105745.2	-29.8	-196.4	SI
3 I	10- 1	-74095.7	210095.6	-105745.2	-29.8	-196.4	SI
3 C	10- 1	-73827.3	154814.4	-73491.	-27.2	-227.5	SI
3 S	10- 1	-73558.8	99533.2	-41236.7	-24.7	-258.7	SI
4 I	10- 1	-73558.8	99533.2	-41236.7	-24.7	-258.7	SI
4 C	10- 1	-73475.6	82403.9	-31242.5	-23.9	-268.3	SI
4 S	10- 1	-73392.4	65274.5	-21248.2	-23.1	-278.	SI
5 I	10- 1	-73392.4	65274.5	-21248.2	-23.1	-278.	SI
5 C	10- 1	-73033.2	-8693.3	21908.9	-21.4	-297.1	SI
5 S	10- 1	-72674.	-82661.1	65066.	-24.6	-252.4	SI
6 I	10- 1	-50386.6	-73759.3	-20642.4	-18.5	-193.	SI
6 C	10- 1	-48949.7	-34296.4	1160.1	-16.2	-211.1	SI
6 S	10- 1	-47512.8	5166.5	22962.6	-15.5	-207.5	SI
7 I	10- 1	-25350.7	1408.4	-68942.7	-10.	-87.5	SI
7 C	10- 1	-23913.9	2206.7	12514.7	-7.8	-104.2	SI
7 S	10- 1	-22477.	3005.1	93972.1	-10.	-63.1	SI

Nome pilastro : **P041** (ID=110)  
Aste : 1122-1123-1124-1125; 1126; 675; 676  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform.%; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

<-

#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	6.16	.503	4φ14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	6.16	.503	4φ14
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	σc	E acc	σf	VE
> 1	1- 1	-5510.	15336.999	15336.999	-.009	-7.7	-.001	-29.8	SI
1	1- 1	-5131.	0.999	0.999	-.004	-3.8	-.004	-83.7	SI
1	1- 1	-8313.	23137.999	23137.999	-.013	-11.6	-.002	-44.9	SI
> 2	1- 1	-19895.	46091.999	46091.999	-.03	-25.2	-.007	-144.2	SI
2	1- 1	-19706.	0.999	0.999	-.017	-14.5	-.017	-330.7	SI
2	1- 1	-19517.	45215.999	45215.999	-.029	-24.7	-.007	-141.5	SI
> 3	1- 1	-19970.	65234.999	65234.999	-.035	-29.4	-.003	-67.2	SI
3	1- 1	-19213.	0.999	0.999	-.016	-14.1	-.016	-322.1	SI
3	1- 1	-18457.	60292.999	60292.999	-.032	-27.3	-.003	-62.4	SI
> 4	2- 1	-7749.	25313.999	25313.999	-.013	-11.6	-.001	-27.1	SI
4	2- 1	-6992.	0.999	0.999	-.006	-5.2	-.006	-114.5	SI
4	2- 1	-6236.	20371.999	20371.999	-.011	-9.4	-.001	-21.9	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L 1im	Lambd	VE
1	1- 1	-8312.8	235.	.074	91.77	23.26	SI
2	1- 1	-19895.5	95.	.178	59.32	9.4	SI
3	1- 1	-19969.6	380.	.178	59.21	37.61	SI
4	2- 1	-7748.9	380.	.069	95.05	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L 1im	Lambd	VE
1	1- 1	-8312.8	235.	.074	91.77	23.26	SI
2	1- 1	-19895.5	95.	.178	59.32	9.4	SI
3	1- 1	-19969.6	380.	.178	59.21	37.61	SI
4	2- 1	-7748.9	380.	.069	95.05	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15840.4	.57	18.	2.5	NO 10
1 C	1- 1	0.	5944.4	5944.4	15789.3	.57	18.	2.5	NO 10
1 S	1- 1	0.	5944.4	5944.4	16218.2	.57	18.	2.5	NO 10
2 I	1- 1	0.	5944.4	5944.4	17779.3	.57	18.	2.5	NO 10
2 C	1- 1	0.	5944.4	5944.4	17753.8	.57	18.	2.5	NO 10
2 S	1- 1	0.	5944.4	5944.4	17728.3	.57	18.	2.5	NO 10
3 I	1- 1	0.	5944.4	5944.4	17789.3	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17687.3	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17585.4	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16089.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15987.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15885.5	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15840.4	.57	18.	2.5	NO 10
1 C	1- 1	0.	5944.4	5944.4	15789.3	.57	18.	2.5	NO 10
1 S	1- 1	0.	5944.4	5944.4	16218.2	.57	18.	2.5	NO 10
2 I	1- 1	0.	5944.4	5944.4	17779.3	.57	18.	2.5	NO 10
2 C	1- 1	0.	5944.4	5944.4	17753.8	.57	18.	2.5	NO 10
2 S	1- 1	0.	5944.4	5944.4	17728.3	.57	18.	2.5	NO 10
3 I	1- 1	0.	5944.4	5944.4	17789.3	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17687.3	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17585.4	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	16089.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15987.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15885.5	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-4199.2	0.	0.	-3.2	-48.	SI
1 C	15- 1	-3907.1	0.	0.	-3.	-44.7	SI
1 S	15- 1	-6316.	0.	0.	-4.8	-72.3	SI
2 I	15- 1	-15115.5	0.	0.	-11.5	-172.9	SI
2 C	15- 1	-14970.	0.	0.	-11.4	-171.3	SI
2 S	15- 1	-14824.6	0.	0.	-11.3	-169.6	SI
3 I	15- 1	-15062.8	0.	0.	-11.5	-172.3	SI
3 C	15- 1	-14480.9	0.	0.	-11.	-165.7	SI
3 S	15- 1	-13899.	0.	0.	-10.6	-159.	SI
4 I	16- 1	-5858.4	0.	0.	-4.5	-67.	SI
4 C	16- 1	-5276.6	0.	0.	-4.	-60.4	SI
4 S	16- 1	-4694.7	0.	0.	-3.6	-53.7	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-4088.1	0.	0.	-3.1	-46.8	SI
1 C	19- 1	-3792.5	0.	0.	-2.9	-43.4	SI
1 S	18- 1	-6092.8	0.	0.	-4.6	-69.7	SI
2 I	18- 1	-14579.4	0.	0.	-11.1	-166.8	SI
2 C	18- 1	-14433.9	0.	0.	-11.	-165.1	SI

2	S	18- 1	-14288.4	0.	0.	-10.9	-163.5	SI
3	I	18- 1	-14268.2	0.	0.	-10.9	-163.2	SI
3	C	18- 1	-13686.3	0.	0.	-10.4	-156.6	SI
3	S	18- 1	-13104.4	0.	0.	-10.	-149.9	SI
4	I	19- 1	-5377.2	0.	0.	-4.1	-61.5	SI
4	C	19- 1	-4795.3	0.	0.	-3.7	-54.9	SI
4	S	19- 1	-4213.4	0.	0.	-3.2	-48.2	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	21- 1	-4067.5	0.	0.	-3.1	-46.5	SI
1	C	21- 1	-3770.3	0.	0.	-2.9	-43.1	SI
1	S	21- 1	-6051.8	0.	0.	-4.6	-69.2	SI
2	I	21- 1	-14480.7	0.	0.	-11.	-165.7	SI
2	C	21- 1	-14335.3	0.	0.	-10.9	-164.	SI
2	S	21- 1	-14189.8	0.	0.	-10.8	-162.3	SI
3	I	21- 1	-14104.5	0.	0.	-10.8	-161.4	SI
3	C	21- 1	-13522.7	0.	0.	-10.3	-154.7	SI
3	S	21- 1	-12940.8	0.	0.	-9.9	-148.	SI
4	I	21- 1	-5259.6	0.	0.	-4.	-60.2	SI
4	C	21- 1	-4677.7	0.	0.	-3.6	-53.5	SI
4	S	21- 1	-4095.9	0.	0.	-3.1	-46.9	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P042** (ID=111)  
Aste : 656; 657; 658  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; μ<sub>phi</sub>=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; R<sub>ck</sub>=300; f<sub>ck</sub>=249; f<sub>ctk</sub>=17.91; f<sub>ctm</sub>=25.58; E<sub>cm</sub>=314472;  
g<sub>c</sub>=1.5; f<sub>cd</sub>=141.1; f<sub>bd</sub>=26.86; f<sub>ctd</sub>=11.94; E<sub>c</sub>=0.2%; **E<sub>cu</sub>=0.2%**  
ACCIAIO: B450C; f<sub>tk</sub>=5175; f<sub>yk</sub>=4500; E<sub>s</sub>=2100000;  
g<sub>s</sub>=1.15; f<sub>yd</sub>=3913; f<sub>td</sub>=4500; f<sub>ud</sub>=3640.9; E<sub>y</sub>=0.18%; **E<sub>ud</sub>=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σ<sub>c</sub> (rara)=149.4; σ<sub>c</sub> (quasi permanente)=112; f<sub>bd</sub>(esercizio)=26.86

ACCIAIO: σ<sub>f</sub> (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=60; A<sub>cl</sub>s=3900; i<sub>y</sub>=18.76; i<sub>z</sub>=17.32

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	leiz	leiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.619 12φ16
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.619 12φ16
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.619 12φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NED	MEyd	MEzd	E c l s	σc	E acc	σf	VE	
> 1	5- 2	-37470.	220599.	1.23	1573213.	1.03	-.059	-70.5	.083 1752.5	SI
1	5- 3	-90489.	-27088.	1.	-497314.	1.	-.025	-32.8	-.008 -170.1	SI
1	4- 3	-75424.	1152773.	1.08	-233813.	1.64	-.037	-47.6	.009 179.8	SI
> 2	4- 2	-34123.	1999889.	1.02	-518390.	1.09	-.082	-92.1	.128 2694.7	SI
2	1- 1	-64158.	-95967.	1.	4319.	1.	-.013	-17.2	-.01 -203.1	SI
2	4- 2	-30418.	-2141179.	1.02	525349.	1.08	-.088	-97.	.149 3119.7	SI
> 3	4- 2	-12421.	1032441.	1.02	-382237.	1.04	-.047	-58.	.081 1706.9	SI
3	4- 2	-10569.	-399600.	1.	58195.	1.	-.013	-17.8	.016 341.6	SI
3	4- 2	-8716.	-1754156.	1.01	492843.	1.02	-.076	-86.8	.158 3322.	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NED	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 1	-43005.9	334253.8	272228.2	330.	.7	1.16	.886	.078	51.4	17.59	SI
2	1- 1	-66566.	-41267.9	-150667.	380.	.7	1.16	1.43	.121	66.53	20.25	SI
3	4- 4	-19544.5	-572537.	1304384.	380.	.7	1.16	2.14	.036	184.2	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NED	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
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1	5- 3	-92097.8	-1845401	851031.	330.	.7	1.16	2.16	.167	85.71	19.05	SI
2	1- 1	-66566.	-199940.	208577.7	380.	.7	1.16	2.66	.121	124.	21.94	SI
3	5- 1	-14025.1	77871.8	-419564.	380.	.7	1.16	1.89	.025	191.6	21.94	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 3	8170.7	25854.5	25854.5	92204.8	1.01	19.	2.5	SI
1 C	5- 3	8170.7	25854.5	25854.5	91973.9	1.01	19.	2.5	SI
1 S	5- 3	8170.7	25854.5	25854.5	91743.	1.01	19.	2.5	SI
2 I	5- 3	8786.1	25854.5	25854.5	87209.4	1.01	19.	2.5	SI
2 C	5- 3	8786.1	25854.5	25854.5	86943.5	1.01	19.	2.5	SI
2 S	5- 3	8786.1	25854.5	25854.5	86677.6	1.01	19.	2.5	SI
3 I	5- 3	3392.4	25854.5	25854.5	81586.4	1.01	19.	2.5	SI
3 C	5- 3	3392.4	25854.5	25854.5	81320.5	1.01	19.	2.5	SI
3 S	5- 3	3392.4	25854.5	25854.5	81054.6	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	-8100.4	28183.8	28183.8	90836.3	1.01	19.	2.5	SI
1 C	4- 3	-8100.4	28183.8	28183.8	90604.	1.01	19.	2.5	SI
1 S	4- 3	-8100.4	28183.8	28183.8	90371.6	1.01	19.	2.5	SI
2 I	4- 2	10646.	28183.8	28183.8	84406.6	1.01	19.	2.5	SI
2 C	4- 2	10646.	28183.8	28183.8	84139.	1.01	19.	2.5	SI
2 S	4- 2	10646.	28183.8	28183.8	83871.5	1.01	19.	2.5	SI
3 I	4- 2	7199.1	28183.8	28183.8	81272.2	1.01	19.	2.5	SI
3 C	4- 2	7199.1	28183.8	28183.8	81004.7	1.01	19.	2.5	SI
3 S	4- 2	7199.1	28183.8	28183.8	80737.1	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-73061.	-52744.9	-205049.2	-23.	-185.2	SI
1 C	8- 1	-71452.2	44478.3	-27062.	-18.4	-233.1	SI
1 S	8- 1	-69843.5	141701.5	150925.3	-22.9	-165.5	SI
2 I	8- 1	-49566.8	-32070.6	-141825.6	-15.6	-125.9	SI
2 C	8- 1	-47714.3	-71006.1	2592.5	-12.8	-149.	SI
2 S	8- 1	-45861.8	-109941.6	147010.6	-16.4	-90.3	SI
3 I	8- 1	-18519.3	233271.	-167290.1	-14.	66.6	SI
3 C	8- 1	-16666.8	12807.7	5163.7	-4.3	-54.1	SI
3 S	8- 1	-14814.3	-207655.7	177617.5	-13.5	94.	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-66727.1	-48790.3	-168424.3	-20.6	-174.4	SI
1 C	9- 1	-65118.4	42511.9	-22216.7	-16.8	-212.6	SI
1 S	9- 1	-63509.6	133814.	123990.8	-20.6	-153.	SI
2 I	9- 1	-45039.2	-32095.8	-117389.7	-14.	-116.9	SI
2 C	9- 1	-43186.7	-64874.3	1198.3	-11.6	-135.	SI
2 S	9- 1	-41334.2	-97652.9	119786.4	-14.5	-85.4	SI
3 I	9- 1	-16409.8	207089.2	-136284.5	-12.	52.8	SI
3 C	9- 1	-14557.3	15388.8	3120.3	-3.8	-46.5	SI
3 S	9- 1	-12704.8	-176311.6	142525.1	-11.1	72.5	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-64783.7	-47546.3	-156702.2	-19.8	-171.3	SI
1 C	10- 1	-63175.	41860.	-20783.1	-16.3	-206.3	SI
1 S	10- 1	-61566.2	131266.3	115136.	-19.9	-149.3	SI
2 I	10- 1	-43707.9	-32185.6	-109389.2	-13.5	-114.5	SI
2 C	10- 1	-41855.4	-62916.1	729.7	-11.2	-131.	SI
2 S	10- 1	-40002.9	-93646.7	110848.7	-13.9	-84.4	SI
3 I	10- 1	-15883.1	198741.	-126548.5	-11.4	47.5	SI
3 C	10- 1	-14030.6	15882.4	2839.4	-3.7	-44.6	SI
3 S	10- 1	-12178.1	-166976.2	132227.4	-10.4	65.2	SI

Nome pilastro : **P043** (ID=112)  
Aste : 653; 654; 655  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : σc (rara)=149.4; σc (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO: σf (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1



4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=60; alt.=60; Acl=3600; iy=17.32; iz=17.32

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.67	12φ16
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	48.25	1.34	24φ16
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	48.25	1.34	24φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NED	MEyd	MEzd	E c/s	σc	E acc	σf	VE		
> 1	4- 3	-49198.	-1161040.	1.05	152513.	3.34	-.042	-52.7	.03	630.5	SI
1	5- 3	-53620.	-137270.	1.	-463054.	1.	-.021	-27.8	-.001	-15.5	SI
1	4- 2	-44925.	-1709375.	1.03	-139266.	2.21	-.064	-75.6	.082	1722.4	SI
> 2	4- 2	-29999.	3178590.	1.01	-127962.	1.42	-.088	-96.8	.137	2872.2	SI
2	1- 1	-43525.	24558.	1.	-24933.	1.	-.008	-11.2	-.007	-140.	SI
2	4- 2	-26579.	-3050447.	1.01	95266.	1.55	-.083	-92.7	.132	2781.6	SI
> 3	4- 2	-12211.	2061717.	1.01	42661.	1.57	-.053	-65.	.094	1973.1	SI
3	4- 2	-10501.	-374848.	1.	30999.	1.	-.01	-14.2	.01	205.5	SI
3	4- 2	-8791.	-2788887.	1.	48172.	1.3	-.072	-83.4	.135	2837.7	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-72474.6	-24524.	-114319.	330.	.7	1.17	1.49	.143	64.48	19.05	SI
2	1- 1	-45747.8	198700.6	-149584.	380.	.7	1.32	2.45	.09	151.1	21.94	SI
3	1- 1	-18661.4	202180.6	-270855.	380.	.7	1.32	2.45	.037	236.	21.94	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 2	-47894.5	-44622.	-62974.8	330.	.7	1.17	.991	.094	52.94	19.05	SI
2	4- 3	-31087.8	-5219.3	-32040.8	380.	.7	1.32	1.54	.061	114.9	21.94	SI
3	4- 2	-12210.9	27194.1	37036.4	380.	.7	1.32	.966	.024	115.1	21.94	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 2	-1300.1	25854.5	25854.5	78936.3	1.01	19.	2.5	SI
1 C	5- 2	-1300.1	25854.5	25854.5	78723.2	1.01	19.	2.5	SI
1 S	5- 2	-1300.1	25854.5	25854.5	78510.	1.01	19.	2.5	SI
2 I	5- 3	2363.6	25854.5	25854.5	77912.4	1.01	19.	2.5	SI
2 C	5- 3	2363.6	25854.5	25854.5	77666.9	1.01	19.	2.5	SI
2 S	5- 3	2363.6	25854.5	25854.5	77421.5	1.01	19.	2.5	SI
3 I	5- 2	989.4	25854.5	25854.5	74383.2	1.01	19.	2.5	SI
3 C	5- 2	989.4	25854.5	25854.5	74137.7	1.01	19.	2.5	SI
3 S	5- 2	989.4	25854.5	25854.5	73892.3	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 2	8280.3	25854.5	25854.5	79784.3	1.01	19.	2.5	SI
1 C	4- 2	8280.3	25854.5	25854.5	79571.1	1.01	19.	2.5	SI
1 S	4- 2	8280.3	25854.5	25854.5	79358.	1.01	19.	2.5	SI
2 I	4- 2	16196.5	25854.5	25854.5	77215.6	1.01	19.	2.5	SI
2 C	4- 2	16196.5	25854.5	25854.5	76970.2	1.01	19.	2.5	SI
2 S	4- 2	16196.5	25854.5	25854.5	76724.7	1.01	19.	2.5	SI
3 I	4- 2	12687.4	25854.5	25854.5	74662.5	1.01	19.	2.5	SI
3 C	4- 2	12687.4	25854.5	25854.5	74417.	1.01	19.	2.5	SI
3 S	4- 2	12687.4	25854.5	25854.5	74171.6	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-54038.6	-18186.6	-1948.3	-14.2	-199.6	SI
1 C	8- 1	-52553.6	-50454.1	-23120.6	-15.1	-177.4	SI
1 S	8- 1	-51068.6	-82721.5	-44292.9	-16.1	-155.2	SI
2 I	8- 1	-34175.9	145065.4	-54533.8	-12.3	-64.5	SI
2 C	8- 1	-32465.9	18077.8	-18552.5	-8.4	-103.7	SI
2 S	8- 1	-30755.9	-108909.7	17428.8	-9.9	-72.8	SI
3 I	8- 1	-14031.8	147243.6	2194.8	-6.5	-7.7	SI
3 C	8- 1	-12321.8	-25200.1	9097.5	-3.6	-33.7	SI
3 S	8- 1	-10611.8	-197643.7	16000.3	-7.7	39.4	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-49832.3	-16557.	-56.6	-13.1	-184.7	SI
1 C	9- 1	-48347.3	-43660.3	-20339.4	-13.8	-164.3	SI
1 S	9- 1	-46862.3	-70763.6	-40622.2	-14.6	-144.	SI
2 I	9- 1	-31368.5	127671.6	-49218.2	-11.2	-60.9	SI
2 C	9- 1	-29658.5	16545.7	-16899.4	-7.7	-94.8	SI
2 S	9- 1	-27948.5	-94580.1	15419.5	-8.9	-67.5	SI
3 I	9- 1	-12619.1	129867.2	2686.9	-5.8	-7.4	SI
3 C	9- 1	-10909.1	-21974.5	7888.2	-3.2	-30.	SI
3 S	9- 1	-9199.1	-173816.2	13089.5	-6.7	35.5	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-48546.2	-16054.7	518.5	-12.7	-179.8	SI

1	C	10-	1	-47061.2	-41535.3	-19510.1	-13.4	-160.4	SI
1	S	10-	1	-45576.2	-67015.8	-39538.8	-14.2	-140.6	SI
2	I	10-	1	-30543.2	122169.7	-47591.3	-10.8	-60.	SI
2	C	10-	1	-28833.2	16027.9	-16405.9	-7.5	-92.1	SI
2	S	10-	1	-27123.2	-90114.	14779.5	-8.6	-66.	SI
3	I	10-	1	-12252.6	124239.1	2862.8	-5.6	-7.7	SI
3	C	10-	1	-10542.6	-21014.	7563.1	-3.1	-29.	SI
3	S	10-	1	-8832.6	-166267.1	12263.4	-6.4	33.6	SI

Nome pilastro : **P044** (ID=113)  
Aste : 650; 651; 652  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma$  (rara)=149.4;  $\sigma$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=60; alt.=60; Acl=3600; iy=17.32; iz=17.32

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	ei	ey	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.67
2	1	2.	2.	1.27	1.27	380.	330.	0.	0.	48.25	1.34
3	1	2.	2.	1.27	1.27	380.	330.	0.	0.	48.25	1.34

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma$	E acc	$\sigma$ f	VE
> 1	4- 3	-48250.	-1070760.	1.05	149574.	4.46	-0.038	-48.8	.025
1	5- 3	-54415.	160298.	1.	-449317.	1.	-0.021	-28.2	-0.001
1	4- 3	-45280.	1595957.	1.03	-140367.	2.03	-0.059	-71.2	.071
> 2	4- 3	-30545.	-3347616.	1.01	-132608.	1.41	-0.093	-100.7	.145
2	1- 1	-45281.	-21071.	1.	-34797.	1.	-0.009	-11.8	-0.007
2	4- 3	-27125.	3176124.	1.01	88608.	2.4	-0.086	-95.4	.138
> 3	4- 3	-12545.	-2221221.	1.01	40980.	4.85	-0.057	-69.2	.102
3	4- 3	-10835.	387894.	1.	18375.	1.	-0.01	-14.2	.01
3	4- 3	-9125.	2971789.	1.	59939.	1.24	-0.077	-88.1	.145

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	10	A	B	C	nu	L lim	Lambd	VE
1	5- 1	-44722.7	35621.9	75440.3	330.	.7	1.17	1.23	.088	67.85	19.05	SI
2	1- 1	-47504.5	-529843.	487700.9	380.	.7	1.32	2.62	.094	158.4	21.94	SI
3	1- 1	-19468.9	-535311.	678240.4	380.	.7	1.32	2.49	.038	235.	21.94	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	5- 3	-55900.2	-612306.	-301592.	330.	.7	1.17	1.21	.11	59.68	19.05	SI
2	1- 1	-47504.5	-116026.	46431.8	380.	.7	1.32	2.1	.094	127.	21.94	SI
3	4- 4	-12584.3	24153.4	49670.4	380.	.7	1.32	1.21	.025	142.6	21.94	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1	I	5- 2	-1582.	25854.5	25854.5	79238.2	1.01	19.	2.5
1	C	5- 2	-1582.	25854.5	25854.5	79025.1	1.01	19.	2.5
1	S	5- 2	-1582.	25854.5	25854.5	78811.9	1.01	19.	2.5
2	I	5- 3	2212.1	25854.5	25854.5	78019.5	1.01	19.	2.5
2	C	5- 3	2212.1	25854.5	25854.5	77774.1	1.01	19.	2.5
2	S	5- 3	2212.1	25854.5	25854.5	77528.6	1.01	19.	2.5
3	I	5- 2	1059.4	25854.5	25854.5	74498.7	1.01	19.	2.5
3	C	5- 2	1059.4	25854.5	25854.5	74253.3	1.01	19.	2.5
3	S	5- 2	1059.4	25854.5	25854.5	74007.9	1.01	19.	2.5

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
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1 I	4- 3	-7759.9	25854.5	25854.5	79835.2	1.01	19.	2.5	SI
1 C	4- 3	-7759.9	25854.5	25854.5	79622.1	1.01	19.	2.5	SI
1 S	4- 3	-7759.9	25854.5	25854.5	79409.	1.01	19.	2.5	SI
2 I	4- 3	-16967.9	25854.5	25854.5	77294.	1.01	19.	2.5	SI
2 C	4- 3	-16967.9	25854.5	25854.5	77048.6	1.01	19.	2.5	SI
2 S	4- 3	-16967.9	25854.5	25854.5	76803.1	1.01	19.	2.5	SI
3 I	4- 3	-13585.2	25854.5	25854.5	74710.4	1.01	19.	2.5	SI
3 C	4- 3	-13585.2	25854.5	25854.5	74464.9	1.01	19.	2.5	SI
3 S	4- 3	-13585.2	25854.5	25854.5	74219.5	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### RARE:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	8- 1	-55656.1	-62584.1	29691.1	-16.4	-183.4	SI
1 C	8- 1	-54171.1	111784.9	-19873.7	-17.	-165.6	SI
1 S	8- 1	-52686.1	286154.	-69438.4	-22.	-90.5	SI
2 I	8- 1	-35476.9	-387977.1	-86083.	-18.7	8.8	SI
2 C	8- 1	-33766.9	-15395.4	-25801.4	-8.8	-107.	SI
2 S	8- 1	-32056.9	357186.3	34480.2	-16.1	-3.1	SI
3 I	8- 1	-14630.1	-392470.6	2919.6	-14.1	142.6	SI
3 C	8- 1	-12920.1	52459.7	16680.1	-4.5	-26.1	SI
3 S	8- 1	-11210.1	497389.9	30440.6	-18.6	315.5	SI

##### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-51322.8	-55863.1	28662.9	-15.1	-169.3	SI
1 C	9- 1	-49837.8	99969.7	-17449.9	-15.5	-153.5	SI
1 S	9- 1	-48352.8	255802.5	-63562.8	-20.	-85.2	SI
2 I	9- 1	-32561.4	-343428.2	-78248.1	-16.8	3.8	SI
2 C	9- 1	-30851.4	-13188.8	-23487.3	-8.	-98.	SI
2 S	9- 1	-29141.4	317050.6	31273.5	-14.4	-5.2	SI
3 I	9- 1	-13161.4	-345364.7	3177.9	-12.4	121.7	SI
3 C	9- 1	-11451.4	46181.7	15086.	-4.	-23.2	SI
3 S	9- 1	-9741.4	437728.1	26994.1	-16.4	280.1	SI

##### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	10- 1	-49995.2	-53756.6	28330.6	-14.7	-165.	SI
1 C	10- 1	-48510.2	96227.3	-16739.4	-15.1	-149.8	SI
1 S	10- 1	-47025.2	246211.2	-61809.4	-19.4	-83.7	SI
2 I	10- 1	-31701.4	-329423.9	-75857.6	-16.3	2.1	SI
2 C	10- 1	-29991.4	-12536.1	-22773.5	-7.8	-95.4	SI
2 S	10- 1	-28281.4	304351.7	30310.6	-13.9	-6.1	SI
3 I	10- 1	-12777.7	-330923.6	3325.	-11.9	114.4	SI
3 C	10- 1	-11067.7	44272.7	14641.9	-3.9	-22.5	SI
3 S	10- 1	-9357.7	419469.	25958.9	-15.7	268.	SI

Nome pilastro : **P045** (ID=114)  
Aste : 647; 648; 649  
Metodo di verifica : stati limite - NTC18 ( $q=1.33$  ;  $\mu_{phi}=1.99$ ) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daN/cm<sup>2</sup>; deform. %; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=65; alt.=60; Acl=3900; iy=18.76; iz=17.32

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1 2.	2.	1.1	1.1	330.	280.	0.	0.	24.13	.619 12 $\phi$ 16
2	1 2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.619 12 $\phi$ 16
3	1 2.	2.	1.27	1.27	380.	330.	0.	0.	24.13	.619 12 $\phi$ 16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	σc	E acc	σf	VE
> 1	5- 4	-83175.	-432710.	-1793109.	1.05	-0.067	-78.4	.044	915.9
1	5- 3	-82958.	155785.	-466784.	1.	-.025	-32.9	-.005	-115.3
1	4- 3	-50386.	984391.	466912.	1.13	-.039	-49.4	.022	471.5
> 2	4- 3	-34280.	-2322507.	-623914.	1.07	-.099	-105.	.162	3396.1
2	4- 2	-51404.	-168918.	-24458.	1.	-.012	-16.1	-.006	-130.2
2	4- 3	-30575.	2320384.	597705.	1.07	-.098	-104.4	.168	3522.7
> 3	4- 3	-13112.	-1086799.	-611738.	1.03	-.058	-70.2	.097	2046.4
3	4- 3	-11259.	462284.	56727.	1.	-.015	-20.2	.02	422.6
3	4- 3	-9407.	1924997.	719019.	1.02	-.093	-100.5	.184	3643.6

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 2	-54756.7	67657.3	75829.3	330.	.7	1.16	.808	.1	41.55	17.59	SI
2	5- 2	-37651.8	4402.7	17329.	380.	.7	1.16	1.45	.068	89.69	20.25	SI
3	5- 1	-17238.4	-25239.7	-38272.1	380.	.7	1.16	1.04	.031	95.39	20.25	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-105958.6	-643711.	371442.9	330.	.7	1.16	2.28	.193	84.19	19.05	SI
2	1- 1	-66650.3	-521192.	503163.2	380.	.7	1.16	2.67	.121	124.3	21.94	SI
3	5- 1	-17238.4	-475861.	29365.2	380.	.7	1.16	1.76	.031	161.5	21.94	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 3	7571.4	25854.5	25854.5	91123.8	1.01	19.	2.5	SI
1 C	5- 3	7571.4	25854.5	25854.5	90892.9	1.01	19.	2.5	SI
1 S	5- 3	7571.4	25854.5	25854.5	90662.	1.01	19.	2.5	SI
2 I	5- 3	6446.9	25854.5	25854.5	86145.8	1.01	19.	2.5	SI
2 C	5- 3	6446.9	25854.5	25854.5	85879.9	1.01	19.	2.5	SI
2 S	5- 3	6446.9	25854.5	25854.5	85614.	1.01	19.	2.5	SI
3 I	4- 3	3426.5	25854.5	25854.5	80867.6	1.01	19.	2.5	SI
3 C	4- 3	3426.5	25854.5	25854.5	80601.7	1.01	19.	2.5	SI
3 S	4- 3	3426.5	25854.5	25854.5	80335.8	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	-6540.7	28183.8	28183.8	87220.2	1.01	19.	2.5	SI
1 C	4- 3	-6540.7	28183.8	28183.8	86987.8	1.01	19.	2.5	SI
1 S	4- 3	-6540.7	28183.8	28183.8	86755.5	1.01	19.	2.5	SI
2 I	4- 3	-11964.7	28183.8	28183.8	84429.2	1.01	19.	2.5	SI
2 C	4- 3	-11964.7	28183.8	28183.8	84161.7	1.01	19.	2.5	SI
2 S	4- 3	-11964.7	28183.8	28183.8	83894.1	1.01	19.	2.5	SI
3 I	4- 3	-7777.8	28183.8	28183.8	81371.9	1.01	19.	2.5	SI
3 C	4- 3	-7777.8	28183.8	28183.8	81104.4	1.01	19.	2.5	SI
3 S	4- 3	-7777.8	28183.8	28183.8	80836.8	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-78638.1	-101178.5	-470317.	-31.3	-115.3	SI
1 C	8- 1	-77029.3	72288.	-100101.6	-22.	-224.3	SI
1 S	8- 1	-75420.6	245754.4	270113.9	-29.	-122.8	SI
2 I	8- 1	-49607.4	-295949.5	-381709.1	-26.6	16.3	SI
2 C	8- 1	-47754.9	-624.5	-6833.4	-11.4	-166.9	SI
2 S	8- 1	-45902.4	294700.6	368042.2	-25.5	26.5	SI
3 I	8- 1	-18754.1	-321530.6	-403638.8	-28.	354.3	SI
3 C	8- 1	-16901.6	41260.8	23127.7	-5.4	-42.	SI
3 S	8- 1	-15049.1	404052.3	449894.2	-36.2	634.8	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-71779.3	-89229.3	-416547.8	-28.2	-109.7	SI
1 C	9- 1	-70170.5	63501.	-89143.8	-19.9	-205.5	SI
1 S	9- 1	-68561.8	216231.2	238260.2	-26.1	-115.6	SI
2 I	9- 1	-45101.6	-257479.4	-340004.3	-23.8	9.1	SI
2 C	9- 1	-43249.1	793.8	-6296.8	-10.4	-151.1	SI
2 S	9- 1	-41396.6	259067.1	327410.7	-22.7	20.2	SI
3 I	9- 1	-16723.5	-277647.	-358876.	-24.5	306.	SI
3 C	9- 1	-14871.	34178.8	21130.1	-4.7	-37.3	SI
3 S	9- 1	-13018.5	346004.7	401136.2	-31.8	564.4	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-69661.7	-85485.9	-399334.2	-27.3	-108.2	SI
1 C	10- 1	-68052.9	60704.5	-85751.9	-19.3	-199.8	SI
1 S	10- 1	-66444.2	206894.9	227830.5	-25.2	-113.7	SI
2 I	10- 1	-43768.3	-245301.5	-326669.3	-22.9	6.4	SI
2 C	10- 1	-41915.8	1150.3	-6163.3	-10.1	-146.3	SI
2 S	10- 1	-40063.3	247602.1	314342.7	-21.8	17.8	SI
3 I	10- 1	-16210.3	-264254.7	-344768.9	-23.4	288.	SI
3 C	10- 1	-14357.8	32154.3	20692.4	-4.5	-36.2	SI
3 S	10- 1	-12505.3	328563.4	386153.8	-30.4	539.1	SI

Nome pilastro : **P046** (ID=115)  
Aste : 677; 678; 679  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : rigidezza nominale [EC2 5.8.7]; fief=3

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	10.18	.831
2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	8.04	.657
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (inclusi imperfezioni e second'ordine):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-66819.	261204.	999.	261204.	999.	-144.	-84.2	0.
1	1- 1	-66162.	0.	999.	0.	999.	-0.057	-44.9	-0.057
1	1- 1	-65505.	256068.	999.	256068.	999.	-14.	-83.2	0.
> 2	1- 1	-40399.	167312.	999.	167312.	999.	-0.085	-61.2	.002
2	1- 1	-39642.	0.	999.	0.	999.	-0.034	-28.1	-0.034
2	1- 1	-38886.	161046.	999.	161046.	999.	-0.081	-59.2	.001
> 3	2- 1	-15369.	56240.	999.	56240.	999.	-0.028	-24.2	-0.001
3	2- 1	-14612.	0.	999.	0.	999.	-0.012	-10.8	-0.012
3	2- 1	-13856.	50704.	999.	50704.	999.	-0.026	-21.9	-0.001

INSTABILITA' - RIGIDEZZA NOMINALE Y [EC2 5.8.7]:

Asta	Caso	NB	10	Jn	Jc1s/Jn	Mca1	M0Ed	MEd	nu
1 I	1- 1	-322819.5	330.	12380.2	10.101	0.	207138.	261204.	.596
2 I	1- 1	-191241.7	380.	9725.	12.8588	0.	131968.	167312.	.361
3 I	2- 1	-143225.4	380.	7283.3	17.1697	0.	50205.	56240.	.137

INSTABILITA' - RIGIDEZZA NOMINALE Z [EC2 5.8.7]:

Asta	Caso	NB	10	Jn	Jc1s/Jn	Mca1	M0Ed	MEd	nu
1 I	1- 1	-322819.5	330.	12380.2	10.101	0.	207138.	261204.	.596
2 I	1- 1	-191241.7	380.	9725.	12.8588	0.	131968.	167312.	.361
3 I	2- 1	-143225.4	380.	7283.3	17.1697	0.	50205.	56240.	.137

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16962.8	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	16860.9	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	16758.9	.57	18.	2.5	NO

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI

3 I	1- 1	0.	5944.4	5944.4	16962.8	.57	18.	2.5	NO	10
3 C	1- 1	0.	5944.4	5944.4	16860.9	.57	18.	2.5	NO	10
3 S	1- 1	0.	5944.4	5944.4	16758.9	.57	18.	2.5	NO	10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-49599.9	0.	0.	-36.3	-544.1	SI
1 C	15- 1	-49094.6	0.	0.	-35.9	-538.5	SI
1 S	15- 1	-48589.3	0.	0.	-35.5	-533.	SI
2 I	15- 1	-30092.4	0.	0.	-22.5	-337.5	SI
2 C	15- 1	-29510.5	0.	0.	-22.1	-330.9	SI
2 S	15- 1	-28928.7	0.	0.	-21.6	-324.4	SI
3 I	16- 1	-11497.	0.	0.	-8.8	-131.5	SI
3 C	16- 1	-10915.1	0.	0.	-8.3	-124.9	SI
3 S	16- 1	-10333.3	0.	0.	-7.9	-118.2	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-45370.5	0.	0.	-33.2	-497.7	SI
1 C	18- 1	-44865.2	0.	0.	-32.8	-492.1	SI
1 S	18- 1	-44359.9	0.	0.	-32.4	-486.6	SI
2 I	18- 1	-27452.9	0.	0.	-20.5	-307.9	SI
2 C	18- 1	-26871.	0.	0.	-20.1	-301.3	SI
2 S	18- 1	-26289.1	0.	0.	-19.7	-294.8	SI
3 I	19- 1	-9831.6	0.	0.	-7.5	-112.5	SI
3 C	19- 1	-9249.7	0.	0.	-7.1	-105.8	SI
3 S	19- 1	-8667.9	0.	0.	-6.6	-99.2	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-44304.	0.	0.	-32.4	-486.	SI
1 C	21- 1	-43798.7	0.	0.	-32.	-480.4	SI
1 S	21- 1	-43293.4	0.	0.	-31.7	-474.9	SI
2 I	21- 1	-26916.8	0.	0.	-20.1	-301.8	SI
2 C	21- 1	-26334.9	0.	0.	-19.7	-295.3	SI
2 S	21- 1	-25753.1	0.	0.	-19.3	-288.8	SI
3 I	21- 1	-9416.6	0.	0.	-7.2	-107.7	SI
3 C	21- 1	-8834.8	0.	0.	-6.7	-101.1	SI
3 S	21- 1	-8252.9	0.	0.	-6.3	-94.4	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P047** (ID=116)  
Aste : 886; 887; 888  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r ‰ (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99

ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	10.18	.831 4φ18

2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	8.04	.657	4φ16	
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14	

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cl s	σc	E acc	σf	VE
> 1	1- 1	-65271.	202341.	202341.	999.	-.12	-76.9	-.012	-246.
1	1- 1	-64614.	0.	0.	999.	-.056	-43.9	-.056	-1114.
1	1- 1	-63957.	198268.	198268.	999.	-.117	-75.8	-.012	-242.5
> 2	1- 1	-39492.	129007.	129007.	999.	-.071	-53.7	-.006	-128.7
2	1- 1	-38736.	0.	0.	999.	-.033	-27.5	-.033	-655.1
2	1- 1	-37979.	124065.	124065.	999.	-.068	-51.8	-.006	-124.6
> 3	2- 1	-14994.	48982.	48982.	999.	-.026	-22.3	-.003	-51.3
3	2- 1	-14238.	0.	0.	999.	-.012	-10.5	-.012	-236.4
3	2- 1	-13482.	44040.	44040.	999.	-.023	-20.1	-.002	-46.4

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-65271.2	330.	.583	32.75	32.66	SI
2	1- 1	-39492.	380.	.353	42.1	37.61	SI
3	2- 1	-14994.4	380.	.134	68.33	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-65271.2	330.	.583	32.75	32.66	SI
2	1- 1	-39492.	380.	.353	42.1	37.61	SI
3	2- 1	-14994.4	380.	.134	68.33	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16904.6	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16802.6	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16700.7	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16904.6	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16802.6	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16700.7	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-48444.4	0.	0.	-35.4	-531.4	SI
1 C	15- 1	-47939.1	0.	0.	-35.1	-525.8	SI
1 S	15- 1	-47433.8	0.	0.	-34.7	-520.3	SI
2 I	15- 1	-29415.9	0.	0.	-22.	-329.1	SI
2 C	15- 1	-28834.1	0.	0.	-21.6	-323.3	SI
2 S	15- 1	-28252.2	0.	0.	-21.1	-316.8	SI
3 I	16- 1	-11213.6	0.	0.	-8.6	-128.3	SI
3 C	16- 1	-10631.7	0.	0.	-8.1	-121.6	SI
3 S	16- 1	-10049.8	0.	0.	-7.7	-115.	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-44268.6	0.	0.	-32.4	-485.6	SI
1 C	18- 1	-43763.3	0.	0.	-32.	-480.	SI
1 S	18- 1	-43257.9	0.	0.	-31.6	-474.5	SI
2 I	18- 1	-26802.5	0.	0.	-20.	-300.6	SI
2 C	18- 1	-26220.6	0.	0.	-19.6	-294.	SI
2 S	18- 1	-25638.8	0.	0.	-19.2	-287.5	SI
3 I	19- 1	-9534.2	0.	0.	-7.3	-109.1	SI
3 C	19- 1	-8952.4	0.	0.	-6.8	-102.4	SI
3 S	19- 1	-8370.5	0.	0.	-6.4	-95.8	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	21- 1	-43226.9	0.	0.	-31.6	-474.2	SI
1 C	21- 1	-42721.6	0.	0.	-31.2	-468.6	SI
1 S	21- 1	-42216.3	0.	0.	-30.9	-463.1	SI
2 I	21- 1	-26282.1	0.	0.	-19.6	-294.7	SI
2 C	21- 1	-25700.2	0.	0.	-19.2	-288.2	SI
2 S	21- 1	-25118.4	0.	0.	-18.8	-281.7	SI
3 I	21- 1	-9113.7	0.	0.	-7.	-104.3	SI
3 C	21- 1	-8531.9	0.	0.	-6.5	-97.6	SI
3 S	21- 1	-7950.	0.	0.	-6.1	-90.9	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P048** (ID=117)  
Aste : 889; 890; 891  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : CLS in Opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; **Ecu=0.2%** (limit.elastico)  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; **Eud=0.14%** (limit.elastico)

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	10.18	.831
2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	8.04	.657
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-65095.	201796.	999.	201796.	999.	-12	-76.8	-0.012
1	1- 1	-64439.	0.	999.	0.	999.	-0.056	-43.7	-0.056
1	1- 1	-63782.	197723.	999.	197723.	999.	-117	-75.6	-0.012
> 2	1- 1	-39213.	128097.	999.	128097.	999.	-0.071	-53.4	-0.006
2	1- 1	-38457.	0.	999.	0.	999.	-0.033	-27.3	-0.033
2	1- 1	-37701.	123155.	999.	123155.	999.	-0.068	-51.5	-0.006
> 3	2- 1	-14837.	48467.	999.	48467.	999.	-0.026	-22.1	-0.003
3	2- 1	-14081.	0.	999.	0.	999.	-0.012	-10.4	-0.012
3	2- 1	-13324.	43525.	999.	43525.	999.	-0.023	-19.9	-0.002

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-65095.5	330.	.581	32.8	32.66	SI
2	1- 1	-39213.4	380.	.35	42.25	37.61	SI
3	2- 1	-14837.	380.	.132	68.69	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-65095.5	330.	.581	32.8	32.66	SI
2	1- 1	-39213.4	380.	.35	42.25	37.61	SI
3	2- 1	-14837.	380.	.132	68.69	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16883.4	.57	18.	2.5	NO
3 C	1- 1	0.	5944.4	5944.4	16781.4	.57	18.	2.5	NO
3 S	1- 1	0.	5944.4	5944.4	16679.5	.57	18.	2.5	NO

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI



3 I	1- 1	0.	5944.4	5944.4	16883.4	.57	18.	2.5	NO	10
3 C	1- 1	0.	5944.4	5944.4	16781.4	.57	18.	2.5	NO	10
3 S	1- 1	0.	5944.4	5944.4	16679.5	.57	18.	2.5	NO	10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-48328.1	0.	0.	-35.3	-530.1	SI
1 C	15- 1	-47822.8	0.	0.	-35.	-524.6	SI
1 S	15- 1	-47317.5	0.	0.	-34.6	-519.	SI
2 I	15- 1	-29218.3	0.	0.	-21.8	-327.7	SI
2 C	15- 1	-28636.4	0.	0.	-21.4	-321.1	SI
2 S	15- 1	-28054.5	0.	0.	-21.	-314.6	SI
3 I	16- 1	-11100.8	0.	0.	-8.5	-127.	SI
3 C	16- 1	-10518.9	0.	0.	-8.	-120.3	SI
3 S	16- 1	-9937.	0.	0.	-7.6	-113.7	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-44207.7	0.	0.	-32.3	-484.9	SI
1 C	18- 1	-43702.4	0.	0.	-32.	-479.4	SI
1 S	18- 1	-43197.1	0.	0.	-31.6	-473.8	SI
2 I	18- 1	-26652.7	0.	0.	-19.9	-298.9	SI
2 C	18- 1	-26070.8	0.	0.	-19.5	-292.4	SI
2 S	18- 1	-25489.	0.	0.	-19.1	-285.8	SI
3 I	19- 1	-9445.6	0.	0.	-7.2	-108.1	SI
3 C	19- 1	-8863.7	0.	0.	-6.8	-101.4	SI
3 S	19- 1	-8281.9	0.	0.	-6.3	-94.7	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-43175.7	0.	0.	-31.6	-473.6	SI
1 C	21- 1	-42670.4	0.	0.	-31.2	-468.	SI
1 S	21- 1	-42165.1	0.	0.	-30.8	-462.5	SI
2 I	21- 1	-26140.9	0.	0.	-19.5	-293.1	SI
2 C	21- 1	-25559.	0.	0.	-19.1	-286.6	SI
2 S	21- 1	-24977.2	0.	0.	-18.7	-280.1	SI
3 I	21- 1	-9030.1	0.	0.	-6.9	-103.3	SI
3 C	21- 1	-8448.2	0.	0.	-6.4	-96.6	SI
3 S	21- 1	-7866.4	0.	0.	-6.	-90.	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P049** (ID=118)  
Aste : 892; 893; 894  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferr (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; R<sub>ck</sub>=300; f<sub>ck</sub>=249; f<sub>ctk</sub>=17.91; f<sub>ctm</sub>=25.58; E<sub>cm</sub>=314472;  
gc=1.5; f<sub>cd</sub>=141.1; f<sub>bd</sub>=26.86; f<sub>ctd</sub>=11.94; E<sub>c</sub>=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; f<sub>tk</sub>=5175; f<sub>yk</sub>=4500; E<sub>s</sub>=2100000;  
gs=1.15; f<sub>yd</sub>=3913; f<sub>td</sub>=4500; f<sub>ud</sub>=3640.9; E<sub>y</sub>=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; f<sub>bd</sub>(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; A<sub>cl</sub>=3025; i<sub>y</sub>=15.88; i<sub>z</sub>=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e <sub>0z</sub>	e <sub>0y</sub>	e <sub>iz</sub>	e <sub>iy</sub>	L <sub>assi</sub>	L <sub>net</sub>	L <sub>cr.I</sub>	L <sub>cr.S</sub>	A <sub>f</sub>	% arm
1	1	2.	2.	1.1	1.1	330.	306.	0.	0.	16.08	.532 8φ16
2	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE
> 1	4- 3	-46463.	-609101.	144034.	2.98	-0.03	-39.6	.007	151.6
1	4- 3	-45215.	-326197.	-80957.	1.	-0.02	-26.7	-.002	-41.7
1	1- 1	-61875.	191814.	-299105.	1.29	-0.026	-34.3	-.004	-83.7
> 2	5- 1	-21413.	156727.	766321.	1.04	-0.044	-55.3	.061	1287.5
2	4- 3	-27314.	101130.	-33739.	1.	-0.009	-12.7	-.003	-71.3
2	5- 1	-18539.	-124080.	-666656.	1.04	-0.037	-47.9	.053	1106.4
> 3	5- 1	-7288.	30609.	316709.	1.03	-0.016	-21.9	.027	574.1
3	5- 1	-5852.	-32349.	-199036.	1.	-0.011	-14.4	.014	303.1
3	5- 1	-4415.	-87878.	-658158.	1.01	-0.037	-47.8	.091	1903.

#### SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 3	-49100.9	19115.4	51422.7	330.	.7	1.14	1.33	.115	62.39	20.78	SI
2	1- 1	-40325.3	12226.9	-10742.9	380.	.7	1.14	2.58	.094	133.7	23.93	SI
3	1- 1	-14762.2	-3390.9	-3779.5	380.	.7	1.14	.803	.035	68.77	23.93	SI

#### SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 1	-40761.7	-28548.8	-92881.8	330.	.7	1.14	1.39	.095	71.79	20.78	SI
2	4- 3	-28750.6	-1670.7	-77018.9	380.	.7	1.14	1.68	.067	103.	23.93	SI
3	5- 3	-10763.5	-28300.9	192868.5	380.	.7	1.14	1.85	.025	185.3	23.93	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 1	-2254.1	23991.1	23991.1	67087.1	1.01	19.	2.5	SI
1 C	5- 1	-2254.1	23991.1	23991.1	66905.8	1.01	19.	2.5	SI
1 S	5- 1	-2254.1	23991.1	23991.1	66724.5	1.01	19.	2.5	SI
2 I	5- 1	-3615.	23991.1	23991.1	65128.3	1.01	19.	2.5	SI
2 C	5- 1	-3615.	23991.1	23991.1	64919.5	1.01	19.	2.5	SI
2 S	5- 1	-3615.	23991.1	23991.1	64710.8	1.01	19.	2.5	SI
3 I	5- 1	-2458.5	23991.1	23991.1	63076.1	1.01	19.	2.5	SI
3 C	5- 1	-2458.5	23991.1	23991.1	62867.3	1.01	19.	2.5	SI
3 S	5- 1	-2458.5	23991.1	23991.1	62658.5	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	-1492.8	23991.1	23991.1	68768.	1.01	19.	2.5	SI
1 C	4- 3	-1492.8	23991.1	23991.1	68586.7	1.01	19.	2.5	SI
1 S	4- 3	-1492.8	23991.1	23991.1	68405.4	1.01	19.	2.5	SI
2 I	4- 2	3645.3	23991.1	23991.1	65522.1	1.01	19.	2.5	SI
2 C	4- 2	3645.3	23991.1	23991.1	65313.3	1.01	19.	2.5	SI
2 S	4- 2	3645.3	23991.1	23991.1	65104.5	1.01	19.	2.5	SI
3 I	4- 3	-1445.5	23991.1	23991.1	63498.9	1.01	19.	2.5	SI
3 C	4- 3	-1445.5	23991.1	23991.1	63290.1	1.01	19.	2.5	SI
3 S	4- 3	-1445.5	23991.1	23991.1	63081.3	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-48426.	-32201.8	46107.2	-17.4	-191.8	SI
1 C	8- 1	-47178.2	-6129.8	-62369.9	-16.7	-190.	SI
1 S	8- 1	-45930.3	19942.1	-170847.	-20.3	-134.7	SI
2 I	8- 1	-30062.9	9374.7	76323.7	-12.	-104.	SI
2 C	8- 1	-28626.	615.1	-11808.	-9.2	-127.1	SI
2 S	8- 1	-27189.1	-8144.6	-99939.8	-11.9	-81.7	SI
3 I	8- 1	-11114.7	-2991.7	139365.1	-8.2	11.3	SI
3 C	8- 1	-9677.8	-2707.5	-30783.7	-4.1	-31.1	SI
3 S	8- 1	-8240.9	-2423.3	-200932.5	-11.9	167.5	SI

##### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-44285.6	-29114.7	43321.5	-16.	-175.	SI
1 C	9- 1	-43037.7	-4862.5	-55222.8	-15.2	-174.3	SI
1 S	9- 1	-41789.9	19389.6	-153767.	-18.4	-122.7	SI
2 I	9- 1	-27248.3	8576.8	67294.3	-10.8	-95.	SI
2 C	9- 1	-25811.5	1200.6	-10557.7	-8.3	-114.4	SI
2 S	9- 1	-24374.6	-6175.7	-88409.8	-10.6	-74.2	SI
3 I	9- 1	-9641.1	-2338.1	125184.4	-7.3	12.9	SI
3 C	9- 1	-8204.3	-2153.	-27076.	-3.5	-26.	SI
3 S	9- 1	-6767.4	-1967.9	-179336.4	-10.8	173.4	SI

##### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-43024.3	-28175.8	42464.1	-15.5	-170.	SI
1 C	10- 1	-41776.5	-4454.2	-53049.4	-14.7	-169.5	SI
1 S	10- 1	-40528.6	19267.5	-148562.9	-17.9	-119.1	SI
2 I	10- 1	-26436.7	8409.2	64581.	-10.5	-92.4	SI
2 C	10- 1	-24999.9	1329.2	-10172.5	-8.1	-110.7	SI
2 S	10- 1	-23563.	-5750.9	-84926.	-10.2	-72.	SI
3 I	10- 1	-9283.8	-2307.	120912.	-7.	12.7	SI
3 C	10- 1	-7846.9	-2029.	-25968.8	-3.3	-24.9	SI
3 S	10- 1	-6410.1	-1750.9	-172849.6	-10.4	171.9	SI

Nome pilastro : **P050** (ID=119)  
Aste : 895; 896; 897  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferr (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma$  (rara)=149.4;  $\sigma$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acls=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2	2	1.1	1.1	330.	306.	0.	0.	25.13	.831 8ø20
2	1	2	2	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16
3	1	2	2	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	l0	A	B	C	nu	L lim	Lambd	VE
> 1	5- 1	-40212.	-124659.	1176017.	1.04	-0.052	-63.9	.051	1062.1	SI		
1	5- 4	-50770.	18318.	-460893.	1.	-0.022	-29.2	-.002	-40.5	SI		
1	1- 1	-66644.	-206596.	-206596.	1.72	-0.024	-31.8	-.007	-137.4	SI		
> 2	4- 2	-27765.	927032.	90699.	6.25	-0.048	-59.4	.064	1350.7	SI		
2	1- 1	-41559.	5093.	-35376.	1.	-0.01	-14.1	-.008	-177.6	SI		
2	4- 2	-24891.	-821620.	-81312.	11.4	-0.042	-53.1	.056	1179.2	SI		
> 3	4- 3	-10522.	273980.	-34373.	7.94	-0.013	-18.2	.014	286.8	SI		
3	4- 2	-8499.	-228930.	-5497.	1.	-0.01	-13.9	.011	231.3	SI		
3	4- 2	-7062.	-625688.	-35487.	1.01	-0.032	-41.5	.074	1558.7	SI		

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-69888.1	-22241.4	-24112.7	330.	.7	1.21	.778	.164	32.52	20.78	SI
2	1- 1	-43427.	72398.1	-62212.7	380.	.7	1.14	2.56	.102	127.8	23.93	SI
3	4- 3	-10522.2	260651.8	541607.2	380.	.7	1.14	1.22	.025	123.7	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 1	-45963.8	-33171.3	-26949.4	330.	.7	1.21	.888	.108	45.77	20.78	SI
2	4- 4	-28551.4	-41515.8	-29694.1	380.	.7	1.14	.985	.067	60.66	23.93	SI
3	4- 3	-10522.2	-4326.7	18163.9	380.	.7	1.14	1.94	.025	196.7	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 1	-3828.8	23991.1	23991.1	67859.9	1.01	19.	2.5	SI
1 C	5- 1	-3828.8	23991.1	23991.1	67678.6	1.01	19.	2.5	SI
1 S	5- 1	-3828.8	23991.1	23991.1	67497.3	1.01	19.	2.5	SI
2 I	5- 4	3008.6	23991.1	23991.1	66713.9	1.01	19.	2.5	SI
2 C	5- 4	3008.6	23991.1	23991.1	66505.2	1.01	19.	2.5	SI
2 S	5- 4	3008.6	23991.1	23991.1	66296.4	1.01	19.	2.5	SI
3 I	5- 1	-1925.2	23991.1	23991.1	63292.1	1.01	19.	2.5	SI
3 C	5- 1	-1925.2	23991.1	23991.1	63083.3	1.01	19.	2.5	SI
3 S	5- 1	-1925.2	23991.1	23991.1	62874.6	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	-1704.9	23991.1	23991.1	68864.3	1.01	19.	2.5	SI
1 C	4- 3	-1704.9	23991.1	23991.1	68683.	1.01	19.	2.5	SI
1 S	4- 3	-1704.9	23991.1	23991.1	68501.7	1.01	19.	2.5	SI
2 I	4- 2	4398.1	23991.1	23991.1	66051.3	1.01	19.	2.5	SI
2 C	4- 2	4398.1	23991.1	23991.1	65842.5	1.01	19.	2.5	SI
2 S	4- 2	4398.1	23991.1	23991.1	65633.8	1.01	19.	2.5	SI
3 I	4- 2	2163.6	23991.1	23991.1	63460.8	1.01	19.	2.5	SI
3 C	4- 2	2163.6	23991.1	23991.1	63252.	1.01	19.	2.5	SI
3 S	4- 2	2163.6	23991.1	23991.1	63043.2	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## RARE:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	8- 1	-51960.7	-16677.1	141230.9	-20.2	-170.4	SI
1 C	8- 1	-50712.9	-16762.6	26078.8	-16.3	-208.9	SI
1 S	8- 1	-49465.1	-16848.1	-89073.3	-17.9	-179.2	SI
2 I	8- 1	-32360.9	53729.	-62919.5	-13.7	-102.1	SI
2 C	8- 1	-30924.1	3839.9	-25981.1	-10.5	-130.6	SI
2 S	8- 1	-29487.2	-46049.1	10957.3	-10.9	-113.	SI
3 I	8- 1	-12188.	29887.5	1961.9	-4.8	-43.4	SI
3 C	8- 1	-10751.1	-7520.6	-244.7	-3.6	-46.5	SI
3 S	8- 1	-9314.3	-44928.7	-2451.3	-4.4	-23.8	SI

## FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-47479.1	-15404.1	127083.1	-18.4	-156.4	SI
1 C	9- 1	-46231.3	-14463.4	23211.6	-14.8	-191.	SI
1 S	9- 1	-44983.5	-13522.8	-80660.	-16.2	-163.8	SI
2 I	9- 1	-29326.9	48280.5	-55801.9	-12.4	-93.2	SI
2 C	9- 1	-27890.	4131.8	-22980.5	-9.5	-117.7	SI
2 S	9- 1	-26453.1	-40017.	9841.	-9.7	-101.9	SI
3 I	9- 1	-10616.6	26857.7	3291.6	-4.2	-36.8	SI
3 C	9- 1	-9179.7	-6245.3	-241.7	-3.	-39.7	SI
3 S	9- 1	-7742.8	-39348.2	-3774.9	-3.8	-18.3	SI

## QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	10- 1	-46115.	-15037.3	122737.6	-17.9	-152.2	SI
1 C	10- 1	-44867.2	-13726.5	22333.8	-14.4	-185.5	SI
1 S	10- 1	-43619.4	-12415.7	-78070.	-15.7	-159.2	SI
2 I	10- 1	-28448.5	46680.7	-53623.	-12.	-90.7	SI
2 C	10- 1	-27011.6	4170.	-22060.2	-9.2	-114.	SI
2 S	10- 1	-25574.8	-38340.8	9502.6	-9.4	-98.7	SI
3 I	10- 1	-10229.	25723.4	3700.6	-4.1	-35.3	SI
3 C	10- 1	-8792.2	-5922.1	-244.1	-2.9	-38.1	SI
3 S	10- 1	-7355.3	-37567.6	-4188.9	-3.6	-17.	SI

Nome pilastro : **P051** (ID=120)  
Aste : 1147; 1148; 1149; 1150; 1151; 590; 591  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform.%; 1/r  $\hat{=}$  (permille)  
Unita' particolari : fessure [wk];mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
Instabilita' : snellezza limite [EC2 5.8.3.1]

## MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

<-

## SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12 $\phi$ 20
2	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12 $\phi$ 20
3	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12 $\phi$ 20
4	1	2.	2.	.07	.07	22.	22.	0.	0.	37.7	1.246 12 $\phi$ 20
5	1	2.	2.	.32	.32	95.	71.	0.	0.	37.7	1.246 12 $\phi$ 20
6	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8 $\phi$ 16
7	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8 $\phi$ 16

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 4	-51740.	285078.	1.04	-2138844.	1.01	-.089	-98.	.097 2044.5 SI
1	5- 4	-51471.	222582.	1.	-1868105.	1.	-.076	-87.	.077 1607.4 SI
1	5- 4	-51203.	184530.	1.07	-1621803.	1.01	-.065	-76.9	.059 1235.2 SI
> 2	5- 4	-51203.	184530.	1.07	-1621803.	1.01	-.065	-76.9	.059 1235.2 SI

2	5-4	-50934.	122351.	1.	-1351470.	1.	-.052	-64.3	.04	829.5	SI
2	5-4	-50666.	113322.	1.56	-1105450.	1.01	-.043	-54.1	.025	519.3	SI
> 3	5-4	-50666.	113322.	1.56	-1105450.	1.01	-.043	-54.1	.025	519.3	SI
3	5-4	-50397.	22724.	1.	-836059.	1.	-.031	-40.1	.009	189.6	SI
3	5-4	-50129.	-112121.	4.2	-591509.	1.02	-.026	-34.	.003	59.3	SI
> 4	5-4	-50129.	-103934.	3.89	-583321.	1.01	-.025	-33.5	.002	51.1	SI
4	5-4	-50046.	-41938.	1.	-500731.	1.	-.022	-29.1	-.001	-13.3	SI
4	5-4	-49962.	-103589.	1.81	-425944.	1.01	-.021	-28.7	-.001	-18.	SI
> 5	5-4	-49962.	-115746.	2.03	-438102.	1.04	-.022	-29.4	0.	-8.7	SI
5	1-1	-57350.	-229186.	1.	-73469.	1.	-.018	-24.5	-.006	-133.6	SI
5	5-4	-49244.	-252080.	1.07	300242.	1.05	-.022	-29.1	0.	-5.9	SI
> 6	5-1	-18199.	373448.	1.07	835713.	1.03	-.062	-74.2	.095	2004.3	SI
6	5-4	-30943.	-20180.	1.	87538.	1.	-.009	-13.	-.005	-99.5	SI
6	5-1	-15326.	-353844.	1.06	-693846.	1.03	-.054	-65.7	.082	1715.7	SI
> 7	5-1	-6564.	207705.	1.04	509745.	1.02	-.037	-47.9	.07	1472.2	SI
7	5-1	-5127.	-37377.	1.	-174306.	1.	-.01	-13.3	.013	275.4	SI
7	5-1	-3690.	-316348.	1.01	-840544.	1.01	-.063	-75.1	.138	2890.8	SI

# SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	10	A	B	C	nu	L lim	Lambd	VE
1	4-3	-39765.9	-1181704	-936400.	71.	.7	1.3	.908	.093	54.14	4.47	SI
2	4-3	-39228.9	-936400.	-692483.	71.	.7	1.3	.96	.092	57.68	4.47	SI
3	4-3	-38692.	-692483.	-453319.	71.	.7	1.3	1.05	.091	63.21	4.47	SI
4	1-1	-58032.9	-89694.1	-133850.	22.	.7	1.3	1.03	.136	50.85	1.39	SI
5	1-1	-57816.6	-133850.	-324523.	95.	.7	1.3	1.29	.135	63.69	5.98	SI
6	5-4	-32380.1	57448.7	-96433.8	380.	.7	1.14	2.3	.076	132.8	23.93	SI
7	4-3	-9082.9	408740.3	246871.	380.	.7	1.14	1.1	.021	119.7	23.93	SI

# SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	1-1	-60126.9	-510693.	-400807.	71.	.7	1.3	.915	.141	44.39	4.47	SI
2	1-1	-59428.9	-400807.	-290921.	71.	.7	1.3	.974	.139	47.53	4.47	SI
3	1-1	-58730.9	-290921.	-181034.	71.	.7	1.3	1.08	.138	52.9	4.47	SI
4	1-1	-58032.9	-181034.	-146985.	22.	.7	1.3	.888	.136	43.85	1.39	SI
5	4-4	-36496.5	-69429.8	-52264.2	95.	.7	1.3	.947	.086	58.98	5.98	SI
6	1-1	-37341.8	190644.1	-138365.	380.	.7	1.14	2.43	.087	130.7	23.93	SI
7	5-4	-12488.7	-367219.	665462.	380.	.7	1.14	2.25	.029	209.7	23.93	SI

# TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5-4	7287.7	23991.1	23991.1	69534.7	1.01	19.	2.5	SI
1 C	5-4	7287.7	23991.1	23991.1	69495.7	1.01	19.	2.5	SI
1 S	5-4	7287.7	23991.1	23991.1	69456.7	1.01	19.	2.5	SI
2 I	5-4	7285.2	23991.1	23991.1	69456.7	1.01	19.	2.5	SI
2 C	5-4	7285.2	23991.1	23991.1	69417.7	1.01	19.	2.5	SI
2 S	5-4	7285.2	23991.1	23991.1	69378.7	1.01	19.	2.5	SI
3 I	5-4	7278.8	23991.1	23991.1	69378.7	1.01	19.	2.5	SI
3 C	5-4	7278.8	23991.1	23991.1	69339.7	1.01	19.	2.5	SI
3 S	5-4	7278.8	23991.1	23991.1	69300.7	1.01	19.	2.5	SI
4 I	5-4	7271.	23991.1	23991.1	69300.7	1.01	19.	2.5	SI
4 C	5-4	7271.	23991.1	23991.1	69288.6	1.01	19.	2.5	SI
4 S	5-4	7271.	23991.1	23991.1	69276.5	1.01	19.	2.5	SI
5 I	5-4	7260.	23991.1	23991.1	69276.5	1.01	19.	2.5	SI
5 C	5-4	7260.	23991.1	23991.1	69224.3	1.01	19.	2.5	SI
5 S	5-4	7260.	23991.1	23991.1	69172.1	1.01	19.	2.5	SI
6 I	5-1	-3894.3	23991.1	23991.1	64661.4	1.01	19.	2.5	SI
6 C	5-1	-3894.3	23991.1	23991.1	64452.6	1.01	19.	2.5	SI
6 S	5-1	-3894.3	23991.1	23991.1	64243.9	1.01	19.	2.5	SI
7 I	5-1	-3509.1	23991.1	23991.1	62970.8	1.01	19.	2.5	SI
7 C	5-1	-3509.1	23991.1	23991.1	62762.	1.01	19.	2.5	SI
7 S	5-1	-3509.1	23991.1	23991.1	62553.3	1.01	19.	2.5	SI

# TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4-2	6061.9	23991.1	23991.1	68135.9	1.01	19.	2.5	SI
1 C	4-2	6061.9	23991.1	23991.1	68096.9	1.01	19.	2.5	SI
1 S	4-2	6061.9	23991.1	23991.1	68057.9	1.01	19.	2.5	SI
2 I	4-2	6059.7	23991.1	23991.1	68057.9	1.01	19.	2.5	SI
2 C	4-2	6059.7	23991.1	23991.1	68018.9	1.01	19.	2.5	SI
2 S	4-2	6059.7	23991.1	23991.1	67979.9	1.01	19.	2.5	SI
3 I	4-2	6052.8	23991.1	23991.1	67979.9	1.01	19.	2.5	SI
3 C	4-2	6052.8	23991.1	23991.1	67940.8	1.01	19.	2.5	SI
3 S	4-2	6052.8	23991.1	23991.1	67901.8	1.01	19.	2.5	SI
4 I	4-2	6045.	23991.1	23991.1	67901.8	1.01	19.	2.5	SI
4 C	4-2	6045.	23991.1	23991.1	67889.8	1.01	19.	2.5	SI
4 S	4-2	6045.	23991.1	23991.1	67877.7	1.01	19.	2.5	SI
5 I	4-2	6033.9	23991.1	23991.1	67877.7	1.01	19.	2.5	SI
5 C	4-2	6033.9	23991.1	23991.1	67825.5	1.01	19.	2.5	SI
5 S	4-2	6033.9	23991.1	23991.1	67773.3	1.01	19.	2.5	SI
6 I	4-2	4418.7	23991.1	23991.1	65834.1	1.01	19.	2.5	SI
6 C	4-2	4418.7	23991.1	23991.1	65625.4	1.01	19.	2.5	SI
6 S	4-2	4418.7	23991.1	23991.1	65416.6	1.01	19.	2.5	SI
7 I	4-2	2766.8	23991.1	23991.1	63465.7	1.01	19.	2.5	SI
7 C	4-2	2766.8	23991.1	23991.1	63256.9	1.01	19.	2.5	SI
7 S	4-2	2766.8	23991.1	23991.1	63048.1	1.01	19.	2.5	SI

# VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

# RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8-1	-45003.6	251296.4	-379985.7	-31.1	43.5	SI
1 C	8-1	-44735.1	198623.8	-339436.1	-28.1	5.9	SI
1 S	8-1	-44466.6	145951.1	-298886.4	-25.3	-27.7	SI
2 I	8-1	-44466.6	145951.1	-298886.4	-25.3	-27.7	SI
2 C	8-1	-44198.2	93278.5	-258336.7	-22.5	-60.1	SI
2 S	8-1	-43929.7	40605.8	-217787.1	-19.8	-92.5	SI
3 I	8-1	-43929.7	40605.8	-217787.1	-19.8	-92.5	SI

3 C	8- 1	-43661.2	-12066.9	-177237.4	-17.7	-116.2	SI
3 S	8- 1	-43392.8	-64739.5	-136687.7	-18.	-110.7	SI
4 I	8- 1	-43392.8	-64739.5	-136687.7	-18.	-110.7	SI
4 C	8- 1	-43309.6	-81060.6	-124123.	-18.1	-109.	SI
4 S	8- 1	-43226.4	-97381.7	-111558.4	-18.2	-107.3	SI
5 I	8- 1	-43226.4	-97381.7	-111558.4	-18.2	-107.3	SI
5 C	8- 1	-42867.2	-167859.3	-57301.8	-18.5	-100.	SI
5 S	8- 1	-42507.9	-238336.8	-3045.2	-18.9	-92.6	SI
6 I	8- 1	-27990.9	232975.1	147445.6	-21.1	29.9	SI
6 C	8- 1	-26554.	-5298.8	20025.1	-9.	-112.3	SI
6 S	8- 1	-25117.2	-243572.6	-107395.3	-19.4	32.7	SI
7 I	8- 1	-10863.6	253440.7	56259.1	-18.1	239.5	SI
7 C	8- 1	-9426.7	-17134.9	-8696.3	-3.7	-33.	SI
7 S	8- 1	-7989.8	-287710.5	-73651.7	-23.3	493.4	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-41886.8	228480.8	-347310.	-28.6	35.3	SI
1 C	9- 1	-41618.3	180959.1	-311178.2	-25.9	2.2	SI
1 S	9- 1	-41349.8	133437.5	-275046.4	-23.4	-27.6	SI
2 I	9- 1	-41349.8	133437.5	-275046.4	-23.4	-27.6	SI
2 C	9- 1	-41081.4	85915.8	-238914.6	-20.9	-56.6	SI
2 S	9- 1	-40812.9	38394.2	-202782.8	-18.4	-85.6	SI
3 I	9- 1	-40812.9	38394.2	-202782.8	-18.4	-85.6	SI
3 C	9- 1	-40544.4	-9127.5	-166651.	-16.5	-107.9	SI
3 S	9- 1	-40276.	-56649.2	-130519.3	-16.7	-102.7	SI
4 I	9- 1	-40276.	-56649.2	-130519.3	-16.7	-102.7	SI
4 C	9- 1	-40192.8	-71374.2	-119323.5	-16.8	-101.1	SI
4 S	9- 1	-40109.6	-86099.2	-108127.7	-16.9	-99.5	SI
5 I	9- 1	-40109.6	-86099.2	-108127.7	-16.9	-99.5	SI
5 C	9- 1	-39750.4	-149684.5	-59782.4	-17.2	-92.5	SI
5 S	9- 1	-39391.2	-213269.9	-11437.	-17.5	-85.5	SI
6 I	9- 1	-25898.8	211233.9	149685.9	-19.9	32.3	SI
6 C	9- 1	-24461.9	-5735.6	19763.6	-8.3	-102.6	SI
6 S	9- 1	-23025.1	-222705.	-110158.8	-18.2	36.	SI
7 I	9- 1	-9796.9	225157.4	64614.1	-17.	222.	SI
7 C	9- 1	-8360.1	-8821.5	-8982.4	-3.1	-31.4	SI
7 S	9- 1	-6923.2	-242800.4	-82578.8	-21.1	432.2	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-40939.	221691.8	-337432.5	-27.8	32.9	SI
1 C	10- 1	-40670.5	175755.7	-302630.	-25.2	1.2	SI
1 S	10- 1	-40402.	129819.7	-267827.5	-22.8	-27.5	SI
2 I	10- 1	-40402.	129819.7	-267827.5	-22.8	-27.5	SI
2 C	10- 1	-40133.6	83883.6	-233025.	-20.4	-55.4	SI
2 S	10- 1	-39865.1	37947.6	-198222.5	-18.	-83.4	SI
3 I	10- 1	-39865.1	37947.6	-198222.5	-18.	-83.4	SI
3 C	10- 1	-39596.6	-7988.5	-163420.	-16.1	-105.5	SI
3 S	10- 1	-39328.1	-53924.6	-128617.5	-16.3	-100.4	SI
4 I	10- 1	-39328.1	-53924.6	-128617.5	-16.3	-100.4	SI
4 C	10- 1	-39245.	-68158.3	-117833.6	-16.4	-98.8	SI
4 S	10- 1	-39161.8	-82392.	-107049.8	-16.5	-97.2	SI
5 I	10- 1	-39161.8	-82392.	-107049.8	-16.5	-97.2	SI
5 C	10- 1	-38802.6	-143855.7	-60483.	-16.8	-90.3	SI
5 S	10- 1	-38443.3	-205319.5	-13916.3	-17.1	-83.4	SI
6 I	10- 1	-25289.7	203922.1	150341.	-19.5	32.5	SI
6 C	10- 1	-23852.8	-5755.4	19689.9	-8.2	-99.8	SI
6 S	10- 1	-22415.9	-215432.9	-110961.2	-17.8	36.3	SI
7 I	10- 1	-9526.3	216493.8	67105.7	-16.6	214.6	SI
7 C	10- 1	-8089.4	-7239.8	-9049.	-3.	-30.7	SI
7 S	10- 1	-6652.6	-230973.5	-85203.8	-20.5	416.3	SI

Nome pilastro : **P052** (ID=227)  
Aste : 1691-1690-1689-1688; 989; 593; 594  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daN/cm2; deform.%; 1/r â€“(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : cls in opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.35%  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; Eud=20.997%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : σc (rara)=98.8; σc (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO: σf (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16

15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657	4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657	4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

RESUME - LESSONS (Phase 10 Imperfection)											
Asta	Caso	NEd	MEyd		MEzd		E c/s	σc	E acc	σf	VE
> 1	1- 1	-6783.	18880.	999.	18880.	999.	-.01	-9.1	-.002	-36.8	SI
1	1- 1	-7708.	0.	999.	0.	999.	-.006	-5.5	-.006	-122.7	SI
1	1- 1	-9482.	26392.	999.	26392.	999.	-.014	-12.7	-.003	-51.3	SI
> 2	1- 1	-26341.	61024.	999.	61024.	999.	-.039	-31.9	-.009	-189.6	SI
2	1- 1	-26152.	0.	999.	0.	999.	-.022	-18.6	-.022	-430.9	SI
2	1- 1	-25963.	60147.	999.	60147.	999.	-.038	-31.4	-.009	-186.9	SI
> 3	1- 1	-16805.	54897.	999.	54897.	999.	-.029	-24.9	-.003	-57.2	SI
3	1- 1	-16049.	0.	999.	0.	999.	-.013	-11.8	-.013	-267.4	SI
3	1- 1	-15292.	49955.	999.	49955.	999.	-.027	-22.7	-.003	-52.3	SI
> 4	2- 1	-6390.	20873.	999.	20873.	999.	-.011	-9.6	-.001	-22.4	SI
4	2- 1	-5633.	0.	999.	0.	999.	-.005	-4.2	-.005	-92.	SI
4	2- 1	-4877.	15931.	999.	15931.	999.	-.008	-7.4	-.001	-17.2	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	l0	nu	L lim	Lambd	VE
1	1- 1	-9482.2	235.	.085	85.93	23.26	SI
2	1- 1	-26341.1	95.	.235	51.55	9.4	SI
3	1- 1	-16805.3	380.	.15	64.55	37.61	SI
4	2- 1	-6389.8	380.	.057	104.7	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	l0	nu	L lim	Lambd	VE
1	1- 1	-9482.2	235.	.085	85.93	23.26	SI
2	1- 1	-26341.1	95.	.235	51.55	9.4	SI
3	1- 1	-16805.3	380.	.15	64.55	37.61	SI
4	2- 1	-6389.8	380.	.057	104.7	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	16012.	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16136.7	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16375.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17362.8	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17260.8	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17158.9	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15952.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15850.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15748.5	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	16012.	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16136.7	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16375.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17362.8	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17260.8	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17158.9	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15952.4	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15850.5	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15748.5	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-5111.5	0.	0.	-3.8	-57.3	SI
1 C	15- 1	-5798.1	0.	0.	-4.3	-65.	SI
1 S	15- 1	-7136.6	0.	0.	-5.3	-80.	SI
2 I	15- 1	-19828.6	0.	0.	-14.8	-222.4	SI
2 C	15- 1	-19683.1	0.	0.	-14.7	-220.7	SI
2 S	15- 1	-19537.6	0.	0.	-14.6	-219.1	SI
3 I	15- 1	-12676.7	0.	0.	-9.7	-145.	SI
3 C	15- 1	-12094.8	0.	0.	-9.2	-138.4	SI
3 S	15- 1	-11512.9	0.	0.	-8.8	-131.7	SI
4 I	16- 1	-4844.6	0.	0.	-3.7	-55.4	SI
4 C	16- 1	-4262.7	0.	0.	-3.3	-48.8	SI

4 S| 16- 1| -3680.8| 0. | 0. | -2.8| -42.1|SI|

#### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	18- 1	-4882.	0.	0.	-3.6	-54.7	SI
1 C	18- 1	-5512.7	0.	0.	-4.1	-61.8	SI
1 S	18- 1	-6791.6	0.	0.	-5.1	-76.2	SI
2 I	18- 1	-18878.7	0.	0.	-14.1	-211.7	SI
2 C	18- 1	-18733.3	0.	0.	-14.	-210.1	SI
2 S	18- 1	-18587.8	0.	0.	-13.9	-208.4	SI
3 I	18- 1	-12092.1	0.	0.	-9.2	-138.3	SI
3 C	18- 1	-11510.2	0.	0.	-8.8	-131.7	SI
3 S	18- 1	-10928.4	0.	0.	-8.3	-125.	SI
4 I	19- 1	-4616.8	0.	0.	-3.5	-52.8	SI
4 C	19- 1	-4034.9	0.	0.	-3.1	-46.2	SI
4 S	19- 1	-3453.	0.	0.	-2.6	-39.5	SI

#### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-4815.9	0.	0.	-3.6	-54.	SI
1 C	21- 1	-5431.5	0.	0.	-4.1	-60.9	SI
1 S	21- 1	-6694.7	0.	0.	-5.	-75.1	SI
2 I	21- 1	-18611.6	0.	0.	-13.9	-208.7	SI
2 C	21- 1	-18466.1	0.	0.	-13.8	-207.1	SI
2 S	21- 1	-18320.6	0.	0.	-13.7	-205.5	SI
3 I	21- 1	-11943.1	0.	0.	-9.1	-136.6	SI
3 C	21- 1	-11361.2	0.	0.	-8.7	-130.	SI
3 S	21- 1	-10779.3	0.	0.	-8.2	-123.3	SI
4 I	21- 1	-4567.4	0.	0.	-3.5	-52.3	SI
4 C	21- 1	-3985.5	0.	0.	-3.	-45.6	SI
4 S	21- 1	-3403.6	0.	0.	-2.6	-38.9	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P053** (ID=226)  
 Aste : 1687-1686-1685-1684; 994; 596; 597  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daN/cm<sup>2</sup>; deform.%; 1/r â€°(permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 4.6 ; staffe= 3.3  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : Cls in opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
 gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.35%  
 ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
 gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; Eud=20.997%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
 ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cls	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-3274.	9114.	9114.	999.	-4.4	-.001	-17.8	SI
1	1- 1	-3575.	0.	0.	999.	-2.6	-.003	-56.5	SI



1	6-12	-7399.	20594.	999.	20594.	999.	-.011	-9.9	-.002	-40.1	SI
> 2	6-12	-21012.	48678.	999.	48678.	999.	-.03	-25.6	-.008	-151.1	SI
2	6-12	-20867.	0.	999.	0.	999.	-.017	-14.9	-.017	-340.3	SI
2	6-12	-20721.	48004.	999.	48004.	999.	-.03	-25.3	-.007	-149.	SI
> 3	6-12	-13726.	44838.	999.	44838.	999.	-.024	-20.4	-.002	-47.2	SI
3	6-12	-13144.	0.	999.	0.	999.	-.011	-9.7	-.011	-217.7	SI
3	6-12	-12562.	41037.	999.	41037.	999.	-.022	-18.7	-.002	-43.3	SI
> 4	6-12	-5881.	19210.	999.	19210.	999.	-.01	-8.9	-.001	-20.7	SI
4	6-12	-5299.	0.	999.	0.	999.	-.004	-3.9	-.004	-86.5	SI
4	6-12	-4717.	15408.	999.	15408.	999.	-.008	-7.1	-.001	-16.6	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	6-12	-7399.1	235.	.066	97.27	23.26	SI
2	6-12	-21012.2	95.	.188	57.72	9.4	SI
3	6-12	-13726.	380.	.123	71.42	37.61	SI
4	6-12	-5880.6	380.	.052	109.1	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	6-12	-7399.1	235.	.066	97.27	23.26	SI
2	6-12	-21012.2	95.	.188	57.72	9.4	SI
3	6-12	-13726.	380.	.123	71.42	37.61	SI
4	6-12	-5880.6	380.	.052	109.1	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15539.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15579.6	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16010.1	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17620.7	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17595.2	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	17569.7	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16823.9	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16721.9	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16620.	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15854.1	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15752.1	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15650.2	.57	18.	2.5	NO 10

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15539.1	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	15579.6	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16010.1	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	17620.7	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	17595.2	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	17569.7	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	16823.9	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	16721.9	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	16620.	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15854.1	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15752.1	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15650.2	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-2467.	0.	0.	-1.8	-27.7	SI
1 C	15- 1	-2694.3	0.	0.	-2.	-30.2	SI
1 S	15- 1	-5116.5	0.	0.	-3.8	-57.4	SI
2 I	15- 1	-14159.6	0.	0.	-10.6	-158.8	SI
2 C	15- 1	-14014.1	0.	0.	-10.5	-157.2	SI
2 S	15- 1	-13868.6	0.	0.	-10.4	-155.5	SI
3 I	15- 1	-9695.3	0.	0.	-7.4	-110.9	SI
3 C	15- 1	-9113.4	0.	0.	-7.	-104.3	SI
3 S	15- 1	-8531.6	0.	0.	-6.5	-97.6	SI
4 I	15- 1	-4248.9	0.	0.	-3.2	-48.6	SI
4 C	15- 1	-3667.	0.	0.	-2.8	-42.	SI
4 S	15- 1	-3085.2	0.	0.	-2.4	-35.3	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-2361.4	0.	0.	-1.8	-26.5	SI
1 C	18- 1	-2580.	0.	0.	-1.9	-28.9	SI
1 S	18- 1	-4930.6	0.	0.	-3.7	-55.3	SI
2 I	18- 1	-13669.2	0.	0.	-10.2	-153.3	SI
2 C	18- 1	-13523.7	0.	0.	-10.1	-151.7	SI
2 S	18- 1	-13378.2	0.	0.	-10.	-150.	SI
3 I	18- 1	-9365.2	0.	0.	-7.1	-107.1	SI
3 C	18- 1	-8783.3	0.	0.	-6.7	-100.5	SI
3 S	18- 1	-8201.4	0.	0.	-6.3	-93.8	SI
4 I	18- 1	-4089.7	0.	0.	-3.1	-46.8	SI
4 C	18- 1	-3507.8	0.	0.	-2.7	-40.1	SI
4 S	18- 1	-2925.9	0.	0.	-2.2	-33.5	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	21- 1	-2328.3	0.	0.	-1.7	-26.1	SI
1 C	21- 1	-2544.8	0.	0.	-1.9	-28.5	SI
1 S	21- 1	-4873.1	0.	0.	-3.6	-54.6	SI
2 I	21- 1	-13516.8	0.	0.	-10.1	-151.6	SI
2 C	21- 1	-13371.3	0.	0.	-10.	-149.9	SI
2 S	21- 1	-13225.9	0.	0.	-9.9	-148.3	SI
3 I	21- 1	-9267.4	0.	0.	-7.1	-106.	SI
3 C	21- 1	-8685.5	0.	0.	-6.6	-99.4	SI

3	S	21-	1	-8103.6	0.	0.	-6.2	-92.7	SI
4	I	21-	1	-4049.7	0.	0.	-3.1	-46.3	SI
4	C	21-	1	-3467.8	0.	0.	-2.6	-39.7	SI
4	S	21-	1	-2886.	0.	0.	-2.2	-33.	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P054** (ID=225)  
Aste : 1683; 1682; 1681; 1680; 962; 599; 600  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}=1.99$ ) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

<-

#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12ø20
2	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12ø20
3	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12ø20
4	1	2.	2.	.07	.07	22.	22.	0.	0.	37.7	1.246 12ø20
5	1	2.	2.	.32	.32	95.	71.	0.	0.	37.7	1.246 12ø20
6	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16
7	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 4	-26359.	147164.	1.04	-612011.	1.01	-.026	-34.2	.017 365.3
1	5- 4	-26091.	51380.	1.	-1249821.	1.	-.045	-56.7	.056 1186.4
1	4- 3	-11198.	-1516067.	1.	-296035.	1.01	-.064	-76.3	.103 2168.6
> 2	5- 4	-39810.	-89042.	1.9	-2273573.	1.	-.085	-94.8	.113 2377.8
2	5- 1	-25934.	-238913.	1.	1594112.	1.	-.066	-77.4	.088 1841.5
2	5- 1	-25666.	-199862.	1.03	1430344.	1.	-.058	-69.9	.075 1574.9
> 3	5- 1	-25666.	-199862.	1.03	1430344.	1.	-.058	-69.9	.075 1574.9
3	5- 1	-25397.	-149283.	1.	1254731.	1.	-.049	-61.2	.061 1284.6
3	5- 1	-25129.	107595.	1.06	1091347.	1.01	-.042	-52.9	.049 1022.8
> 4	5- 1	-25129.	103491.	1.02	1087243.	1.	-.042	-52.6	.048 1013.8
4	5- 1	-25046.	106373.	1.	1033075.	1.	-.04	-50.5	.045 940.2
4	5- 1	-24962.	113071.	1.02	982628.	1.	-.038	-48.8	.042 875.
> 5	5- 1	-24962.	119145.	1.07	988702.	1.01	-.039	-49.3	.042 888.2
5	5- 1	-24603.	134429.	1.	756517.	1.	-.031	-40.2	.028 581.8
5	5- 1	-24244.	170538.	1.05	546888.	1.01	-.024	-32.3	.016 340.4
> 6	5- 4	-27044.	-189537.	1.22	-1192672.	1.03	-.069	-80.6	.111 2322.6
6	5- 4	-25607.	-9921.	1.	-154206.	1.	-.01	-13.1	-.002 -51.4
6	5- 4	-24171.	168143.	1.22	911076.	1.03	-.052	-64.1	.076 1587.6
> 7	1- 1	-16014.	-89714.	1.29	-627478.	1.03	-.034	-43.9	.052 1088.6
7	5- 4	-11547.	50698.	1.	324600.	1.	-.017	-22.4	.019 392.3
7	5- 4	-10110.	145122.	1.1	1185092.	1.01	-.068	-79.8	.157 3290.3

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 3	-23519.6	141099.2	63884.7	71.	.7	1.3	1.25	.055	96.74	4.47	SI
2	4- 1	-39077.	1476079.	1045254.	71.	.7	1.3	.992	.092	59.68	4.47	SI
3	4- 1	-38540.1	1045254.	617367.	71.	.7	1.3	1.11	.09	67.22	4.47	SI
4	5- 4	-38736.4	-162799.	-130518.	22.	.7	1.3	.898	.091	54.29	1.39	SI
5	5- 1	-24962.4	111240.3	162860.6	95.	.7	1.3	1.02	.058	76.56	5.98	SI
6	1- 1	-32742.2	32152.5	7318.8	380.	.7	1.14	1.47	.077	84.69	23.93	SI
7	4- 2	-12288.5	-213387.	-205396.	380.	.7	1.14	.737	.029	69.24	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	I	4- 2	-24421.3	-160918.	-168936.	71.	.7	1.3	.747	.057	56.89	4.47 SI
2	I	5- 4	-39810.3	-2264151	-1605838	71.	.7	1.3	.991	.093	59.06	4.47 SI
3	I	5- 2	-27919.	873131.5	721876.8	71.	.7	1.3	.873	.065	62.16	4.47 SI
4	I	5- 2	-27382.1	721876.8	675321.1	22.	.7	1.3	.764	.064	54.95	1.39 SI
5	I	5- 2	-27215.7	675321.1	483916.1	95.	.7	1.3	.983	.064	70.91	5.98 SI
6	I	1- 1	-32742.2	-466761.	400819.7	380.	.7	1.14	2.56	.077	147.2	23.93 SI
7	I	1- 1	-16013.6	-607194.	914384.4	380.	.7	1.14	2.36	.038	194.4	23.93 SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1	I	5- 4	-18142.3	23991.1	23991.1	65847.1	1.01	19.	2.5 SI
1	C	5- 4	-18142.3	23991.1	23991.1	65808.1	1.01	19.	2.5 SI
1	S	5- 4	-18142.3	23991.1	23991.1	65769.1	1.01	19.	2.5 SI
2	I	5- 4	9279.7	23991.1	23991.1	67801.4	1.01	19.	2.5 SI
2	C	5- 4	9279.7	23991.1	23991.1	67762.4	1.01	19.	2.5 SI
2	S	5- 4	9279.7	23991.1	23991.1	67723.4	1.01	19.	2.5 SI
3	I	5- 4	9274.5	23991.1	23991.1	67723.4	1.01	19.	2.5 SI
3	C	5- 4	9274.5	23991.1	23991.1	67684.4	1.01	19.	2.5 SI
3	S	5- 4	9274.5	23991.1	23991.1	67645.4	1.01	19.	2.5 SI
4	I	5- 4	9267.2	23991.1	23991.1	67645.4	1.01	19.	2.5 SI
4	C	5- 4	9267.2	23991.1	23991.1	67633.3	1.01	19.	2.5 SI
4	S	5- 4	9267.2	23991.1	23991.1	67621.2	1.01	19.	2.5 SI
5	I	5- 4	9256.6	23991.1	23991.1	67621.2	1.01	19.	2.5 SI
5	C	5- 4	9256.6	23991.1	23991.1	67569.	1.01	19.	2.5 SI
5	S	5- 4	9256.6	23991.1	23991.1	67516.8	1.01	19.	2.5 SI
6	I	5- 4	5350.6	23991.1	23991.1	65946.6	1.01	19.	2.5 SI
6	C	5- 4	5350.6	23991.1	23991.1	65737.8	1.01	19.	2.5 SI
6	S	5- 4	5350.6	23991.1	23991.1	65529.	1.01	19.	2.5 SI
7	I	5- 4	4502.4	23991.1	23991.1	63903.6	1.01	19.	2.5 SI
7	C	5- 4	4502.4	23991.1	23991.1	63694.8	1.01	19.	2.5 SI
7	S	5- 4	4502.4	23991.1	23991.1	63486.1	1.01	19.	2.5 SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1	I	4- 3	18034.4	23991.1	23991.1	63722.1	1.01	19.	2.5 SI
1	C	4- 3	18034.4	23991.1	23991.1	63683.1	1.01	19.	2.5 SI
1	S	4- 3	18034.4	23991.1	23991.1	63644.1	1.01	19.	2.5 SI
2	I	4- 3	-8330.1	23991.1	23991.1	66051.7	1.01	19.	2.5 SI
2	C	4- 3	-8330.1	23991.1	23991.1	66012.6	1.01	19.	2.5 SI
2	S	4- 3	-8330.1	23991.1	23991.1	65973.6	1.01	19.	2.5 SI
3	I	4- 3	-8325.2	23991.1	23991.1	65973.6	1.01	19.	2.5 SI
3	C	4- 3	-8325.2	23991.1	23991.1	65934.6	1.01	19.	2.5 SI
3	S	4- 3	-8325.2	23991.1	23991.1	65895.6	1.01	19.	2.5 SI
4	I	4- 3	-8318.6	23991.1	23991.1	65895.6	1.01	19.	2.5 SI
4	C	4- 3	-8318.6	23991.1	23991.1	65883.5	1.01	19.	2.5 SI
4	S	4- 3	-8318.6	23991.1	23991.1	65871.5	1.01	19.	2.5 SI
5	I	4- 3	-8308.8	23991.1	23991.1	65871.5	1.01	19.	2.5 SI
5	C	4- 3	-8308.8	23991.1	23991.1	65819.3	1.01	19.	2.5 SI
5	S	4- 3	-8308.8	23991.1	23991.1	65767.1	1.01	19.	2.5 SI
6	I	4- 2	1903.8	23991.1	23991.1	65738.	1.01	19.	2.5 SI
6	C	4- 2	1903.8	23991.1	23991.1	65529.2	1.01	19.	2.5 SI
6	S	4- 2	1903.8	23991.1	23991.1	65320.5	1.01	19.	2.5 SI
7	I	4- 1	-930.3	23991.1	23991.1	63841.3	1.01	19.	2.5 SI
7	C	4- 1	-930.3	23991.1	23991.1	63632.6	1.01	19.	2.5 SI
7	S	4- 1	-930.3	23991.1	23991.1	63423.8	1.01	19.	2.5 SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1	I	8- 1	-19608.8	111380.	-152525.4	-13.2	14. SI
1	C	8- 1	-19340.4	-4318.7	-207982.2	-11.6	-4.7 SI
1	S	8- 1	-19071.9	-120017.4	-263439.	-17.6	85.5 SI
2	I	8- 1	-35930.2	-189027.8	-287031.3	-23.9	22.6 SI
2	C	8- 1	-35661.7	-150629.7	-196749.8	-20.	-25.6 SI
2	S	8- 1	-35393.2	-112231.5	-106468.3	-16.2	-70.8 SI
3	I	8- 1	-35393.2	-112231.5	-106468.3	-16.2	-70.8 SI
3	C	8- 1	-35124.8	-73833.4	-16186.8	-12.5	-115.9 SI
3	S	8- 1	-34856.3	-35435.2	74094.7	-13.	-107.8 SI
4	I	8- 1	-34856.3	-35435.2	74094.7	-13.	-107.8 SI
4	C	8- 1	-34773.1	-23537.2	102069.3	-13.4	-101.6 SI
4	S	8- 1	-34689.9	-11639.2	130043.8	-13.8	-95.5 SI
5	I	8- 1	-34689.9	-11639.2	130043.8	-13.8	-95.5 SI
5	C	8- 1	-34330.7	39738.6	250843.	-18.	-40.4 SI
5	S	8- 1	-33971.5	91116.4	371642.2	-23.1	28.7 SI
6	I	8- 1	-24434.	24799.5	-343883.9	-20.5	65.4 SI
6	C	8- 1	-22997.1	14601.7	-24177.4	-8.3	-90.4 SI
6	S	8- 1	-21560.3	4404.	295529.1	-17.	41.3 SI
7	I	8- 1	-11943.8	-51016.5	-447762.3	-31.7	722.5 SI
7	C	8- 1	-10506.9	3291.7	113057.4	-7.	-6 SI
7	S	8- 1	-9070.	57600.	673877.1	-48.5	1598.6 SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1	I	9- 1	-18461.2	107277.7	-143969.1	-12.5	14.4 SI
1	C	9- 1	-18192.8	-263.3	-191553.4	-10.6	-7.5 SI
1	S	9- 1	-17924.3	-107804.3	-239137.7	-16.	71.3 SI
2	I	9- 1	-33738.1	-171574.6	-259205.	-21.9	14.4 SI
2	C	9- 1	-33469.6	-136639.4	-176918.9	-18.4	-28.5 SI
2	S	9- 1	-33201.1	-101704.2	-94632.8	-15.	-69.5 SI
3	I	9- 1	-33201.1	-101704.2	-94632.8	-15.	-69.5 SI
3	C	9- 1	-32932.6	-66769.	-12346.7	-11.5	-110.6 SI
3	S	9- 1	-32664.2	-31833.8	69939.3	-12.1	-101.3 SI
4	I	9- 1	-32664.2	-31833.8	69939.3	-12.1	-101.3 SI

4	C	9- 1	-32581.	-21008.8	95436.4	-12.5	-95.7	SI
4	S	9- 1	-32497.8	-10183.9	120933.5	-12.9	-90.	SI
5	I	9- 1	-32497.8	-10183.9	120933.5	-12.9	-90.	SI
5	C	9- 1	-32138.6	36560.4	231034.7	-16.7	-39.4	SI
5	S	9- 1	-31779.4	83304.7	341135.8	-21.3	22.9	SI
6	I	9- 1	-22976.5	24146.9	-313949.3	-18.8	53.2	SI
6	C	9- 1	-21539.7	14084.4	-21793.2	-7.8	-84.9	SI
6	S	9- 1	-20102.8	4021.9	270363.	-15.6	34.	SI
7	I	9- 1	-11225.4	-44342.9	-409878.9	-28.8	642.7	SI
7	C	9- 1	-9788.5	2951.2	103157.4	-6.5	-1.7	SI
7	S	9- 1	-8351.7	50245.4	616193.7	-44.1	1455.2	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE	
1	I	10- 1	-18078.	105838.	-141151.6	-12.3	14.5	SI
1	C	10- 1	-17809.6	1072.	-186156.	-10.4	-7.6	SI
1	S	10- 1	-17541.1	-103694.	-231160.3	-15.4	66.7	SI
2	I	10- 1	-33006.5	-165713.9	-250059.9	-21.3	11.8	SI
2	C	10- 1	-32738.	-131929.3	-170421.8	-17.9	-29.5	SI
2	S	10- 1	-32469.5	-98144.7	-90783.8	-14.6	-69.1	SI
3	I	10- 1	-32469.5	-98144.7	-90783.8	-14.6	-69.1	SI
3	C	10- 1	-32201.	-64360.2	-11145.8	-11.2	-108.8	SI
3	S	10- 1	-31932.6	-30575.6	68492.3	-11.8	-99.2	SI
4	I	10- 1	-31932.6	-30575.6	68492.3	-11.8	-99.2	SI
4	C	10- 1	-31849.4	-20107.1	93168.8	-12.2	-93.7	SI
4	S	10- 1	-31766.2	-9638.7	117845.4	-12.6	-88.3	SI
5	I	10- 1	-31766.2	-9638.7	117845.4	-12.6	-88.3	SI
5	C	10- 1	-31407.	35566.	224403.4	-16.3	-39.1	SI
5	S	10- 1	-31047.8	80770.7	330961.3	-20.7	21.	SI
6	I	10- 1	-22489.4	24033.8	-304020.	-18.3	49.4	SI
6	C	10- 1	-21052.6	13830.3	-21008.3	-7.6	-83.1	SI
6	S	10- 1	-19615.7	3626.8	262003.4	-15.1	31.5	SI
7	I	10- 1	-10984.4	-42386.5	-397281.6	-27.8	616.6	SI
7	C	10- 1	-9547.5	2775.5	99853.3	-6.3	-2.1	SI
7	S	10- 1	-8110.7	47937.4	596988.2	-42.7	1407.7	SI

Nome pilastro : **P055** (ID=124)  
Aste : 1067-1068-1069-1070; 1071; 557; 558  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : Cls in opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.2%  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3457.7; Eyd=0.1383%; Eud=1.8%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : σc (rara)=98.8; σc (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO: σf (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	8.04	.657 4φ16
2	1	2.	2.	.32	.32	95.	71.	0.	0.	8.04	.657 4φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E cls	σc	E acc	σf	VE		
> 1	1- 1	-7117.	19810.	999.	19810.	999.	-0.011	-9.6	-0.002	-38.6	SI
1	1- 1	-7342.	0.	999.	0.	999.	-0.006	-5.3	-0.006	-116.8	SI

1	1- 1	-11775.	32774.	999.	32774.	999.	-.018	-15.7	-.003	-63.6	SI
> 2	1- 1	-29521.	68390.	999.	68390.	999.	-.044	-35.6	-.011	-212.5	SI
2	1- 1	-29332.	0.	999.	0.	999.	-.024	-20.9	-.024	-486.4	SI
2	1- 1	-29143.	67514.	999.	67514.	999.	-.043	-35.1	-.01	-209.8	SI
> 3	1- 1	-18397.	60098.	999.	60098.	999.	-.032	-27.2	-.003	-62.2	SI
3	1- 1	-17641.	0.	999.	0.	999.	-.015	-13.	-.015	-294.8	SI
3	1- 1	-16884.	55156.	999.	55156.	999.	-.03	-25.	-.003	-57.4	SI
> 4	2- 1	-7006.	22888.	999.	22888.	999.	-.012	-10.5	-.001	-24.6	SI
4	2- 1	-6250.	0.	999.	0.	999.	-.005	-4.6	-.005	-102.2	SI
4	2- 1	-5494.	17946.	999.	17946.	999.	-.009	-8.3	-.001	-19.3	SI

#### SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-11775.2	235.	.105	77.11	23.26	SI
2	1- 1	-29520.7	95.	.264	48.7	9.4	SI
3	1- 1	-18397.3	380.	.164	61.69	37.61	SI
4	2- 1	-7006.5	380.	.063	99.96	37.61	SI

#### SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-11775.2	235.	.105	77.11	23.26	SI
2	1- 1	-29520.7	95.	.264	48.7	9.4	SI
3	1- 1	-18397.3	380.	.164	61.69	37.61	SI
4	2- 1	-7006.5	380.	.063	99.96	37.61	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	16057.	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16087.3	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16684.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17577.4	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17475.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17373.5	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15983.3	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15881.3	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15779.4	.57	18.	2.5	NO 10

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	16057.	.57	18.	2.5	SI
1 C	1- 1	0.	5944.4	5944.4	16087.3	.57	18.	2.5	SI
1 S	1- 1	0.	5944.4	5944.4	16684.8	.57	18.	2.5	SI
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 I	1- 1	0.	5944.4	5944.4	17577.4	.57	18.	2.5	NO 10
3 C	1- 1	0.	5944.4	5944.4	17475.4	.57	18.	2.5	NO 10
3 S	1- 1	0.	5944.4	5944.4	17373.5	.57	18.	2.5	NO 10
4 I	1- 1	0.	5944.4	5944.4	15983.3	.57	18.	2.5	NO 10
4 C	1- 1	0.	5944.4	5944.4	15881.3	.57	18.	2.5	NO 10
4 S	1- 1	0.	5944.4	5944.4	15779.4	.57	18.	2.5	NO 10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-5379.4	0.	0.	-4.	-60.3	SI
1 C	15- 1	-5532.5	0.	0.	-4.1	-62.	SI
1 S	15- 1	-8860.6	0.	0.	-6.6	-99.4	SI
2 I	15- 1	-22212.9	0.	0.	-16.6	-249.1	SI
2 C	15- 1	-22067.4	0.	0.	-16.5	-247.5	SI
2 S	15- 1	-21922.	0.	0.	-16.4	-245.8	SI
3 I	15- 1	-13891.4	0.	0.	-10.6	-158.9	SI
3 C	15- 1	-13309.6	0.	0.	-10.2	-152.3	SI
3 S	15- 1	-12727.7	0.	0.	-9.7	-145.6	SI
4 I	16- 1	-5302.9	0.	0.	-4.	-60.7	SI
4 C	16- 1	-4721.	0.	0.	-3.6	-54.	SI
4 S	16- 1	-4139.1	0.	0.	-3.2	-47.4	SI

#### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-5154.9	0.	0.	-3.9	-57.8	SI
1 C	18- 1	-5263.	0.	0.	-3.9	-59.	SI
1 S	18- 1	-8395.1	0.	0.	-6.3	-94.1	SI
2 I	18- 1	-21044.4	0.	0.	-15.7	-236.	SI
2 C	18- 1	-20898.9	0.	0.	-15.6	-234.4	SI
2 S	18- 1	-20753.4	0.	0.	-15.5	-232.7	SI
3 I	18- 1	-13183.5	0.	0.	-10.1	-150.8	SI
3 C	18- 1	-12601.6	0.	0.	-9.6	-144.2	SI
3 S	18- 1	-12019.7	0.	0.	-9.2	-137.5	SI
4 I	19- 1	-4845.5	0.	0.	-3.7	-55.4	SI
4 C	19- 1	-4263.6	0.	0.	-3.3	-48.8	SI
4 S	19- 1	-3681.7	0.	0.	-2.8	-42.1	SI

#### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	21- 1	-5098.4	0.	0.	-3.8	-57.2	SI
1 C	21- 1	-5194.7	0.	0.	-3.9	-58.3	SI
1 S	21- 1	-8278.5	0.	0.	-6.2	-92.8	SI
2 I	21- 1	-20751.3	0.	0.	-15.5	-232.7	SI
2 C	21- 1	-20605.8	0.	0.	-15.4	-231.1	SI
2 S	21- 1	-20460.4	0.	0.	-15.3	-229.4	SI
3 I	21- 1	-13042.8	0.	0.	-9.9	-149.2	SI
3 C	21- 1	-12461.	0.	0.	-9.5	-142.6	SI

3	S	21-	1	-11879.1	0.	0.	-9.1	-135.9	SI
4	I	21-	1	-4730.8	0.	0.	-3.6	-54.1	SI
4	C	21-	1	-4148.9	0.	0.	-3.2	-47.5	SI
4	S	21-	1	-3567.1	0.	0.	-2.7	-40.8	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P056** (ID=246)  
Aste : 1714; 1715; 560; 559  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinale= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; Ecu=0.2%  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.1863%; Eud=0.18%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogoeizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acls=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246
2	1	2.	2.	.86	.86	259.	235.	0.	0.	37.7	1.246
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	24.13	.798
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	24.13	.798

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 3	-22274.	49820.	-935248.	1.01	-0.033	-42.5	.038	805.3
1	4- 3	-23241.	-1129924.	-351492.	1.	-0.051	-62.7	.062	1293.6
1	4- 3	-22973.	-2100039.	-365642.	1.02	-0.086	-95.1	.129	2718.4
> 2	4- 3	-48108.	-2136136.	-494896.	1.09	-0.094	-101.5	.107	2246.9
2	4- 3	-47129.	-881826.	-105887.	1.	-0.034	-43.6	.015	314.8
2	4- 3	-46149.	398841.	300552.	1.15	-0.024	-32.3	.004	78.7
> 3	4- 2	-25712.	484356.	-83992.	1.67	-0.021	-28.3	.012	242.1
3	4- 3	-28639.	157431.	71059.	1.	-0.011	-15.4	-.002	-35.6
3	4- 2	-22838.	-657288.	126333.	1.3	-0.031	-40.1	.031	654.9
> 4	5- 2	-9808.	51963.	-314703.	1.04	-0.014	-19.4	.016	340.1
4	4- 3	-9425.	201449.	-26014.	1.	-0.008	-11.7	.006	119.4
4	4- 2	-6209.	-457499.	89120.	1.1	-0.022	-29.7	.039	822.9

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	10	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-32604.7	-19983.1	-289348.	71.	.7	1.3	1.63	.076	107.4	4.47	SI
2	5- 4	-45608.2	141570.9	69363.6	259.	.7	1.3	1.21	.107	67.4	16.31	SI
3	5- 1	-27264.6	-6492.3	39492.1	380.	.7	1.2	1.86	.064	124.	23.93	SI
4	5- 1	-9719.1	41426.2	33305.8	380.	.7	1.2	.896	.023	99.84	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-32604.7	-465394.	-509321.	71.	.7	1.3	.786	.076	51.79	4.47	SI
2	5- 1	-43554.3	395030.1	122466.9	259.	.7	1.3	1.39	.102	79.22	16.31	SI
3	1- 1	-42031.5	87233.9	54024.4	380.	.7	1.2	1.08	.098	57.9	23.93	SI
4	5- 4	-10225.6	100851.4	116177.5	380.	.7	1.2	.832	.024	90.37	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 3	-3984.1	28489.5	28489.5	65253.5	1.01	16.	2.5	SI
1 C	5- 3	-3984.1	28489.5	28489.5	65214.5	1.01	16.	2.5	SI
1 S	5- 3	-3984.1	28489.5	28489.5	65175.4	1.01	16.	2.5	SI
2 I	5- 3	6610.7	23991.1	23991.1	68582.4	1.01	19.	2.5	SI
2 C	5- 3	6610.7	23991.1	23991.1	68440.1	1.01	19.	2.5	SI
2 S	5- 3	6610.7	23991.1	23991.1	68297.8	1.01	19.	2.5	SI

3 I	5- 2	-1032.8	23991.1	23991.1	66014.6	1.01	19.	2.5	SI
3 C	5- 2	-1032.8	23991.1	23991.1	65805.8	1.01	19.	2.5	SI
3 S	5- 2	-1032.8	23991.1	23991.1	65597.1	1.01	19.	2.5	SI
4 I	5- 2	834.1	23991.1	23991.1	63442.2	1.01	19.	2.5	SI
4 C	5- 2	834.1	23991.1	23991.1	63233.4	1.01	19.	2.5	SI
4 S	5- 2	834.1	23991.1	23991.1	63024.7	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	27174.1	28489.5	28489.5	65433.	1.01	16.	2.5	SI
1 C	4- 3	27174.1	28489.5	28489.5	65394.	1.01	16.	2.5	SI
1 S	4- 3	27174.1	28489.5	28489.5	65355.	1.01	16.	2.5	SI
2 I	4- 3	-9398.7	23991.1	23991.1	69007.1	1.01	19.	2.5	SI
2 C	4- 3	-9398.7	23991.1	23991.1	68864.8	1.01	19.	2.5	SI
2 S	4- 3	-9398.7	23991.1	23991.1	68722.5	1.01	19.	2.5	SI
3 I	4- 2	2764.8	23991.1	23991.1	65753.	1.01	19.	2.5	SI
3 C	4- 2	2764.8	23991.1	23991.1	65544.2	1.01	19.	2.5	SI
3 S	4- 2	2764.8	23991.1	23991.1	65335.4	1.01	19.	2.5	SI
4 I	4- 2	1532.8	23991.1	23991.1	63336.8	1.01	19.	2.5	SI
4 C	4- 2	1532.8	23991.1	23991.1	63128.	1.01	19.	2.5	SI
4 S	4- 2	1532.8	23991.1	23991.1	62919.2	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-24318.9	-14813.2	-347745.7	-17.6	46.8	SI
1 C	8- 1	-24050.4	-114646.1	-364119.9	-21.7	111.9	SI
1 S	8- 1	-23782.	-214479.	-380494.1	-26.4	193.1	SI
2 I	8- 1	-49778.6	-214479.	-481186.8	-33.9	53.	SI
2 C	8- 1	-48799.2	-109443.6	-150233.1	-21.	-110.3	SI
2 S	8- 1	-47819.9	-4408.3	180720.5	-18.7	-133.6	SI
3 I	8- 1	-31389.6	89650.7	63235.	-14.	-78.8	SI
3 C	8- 1	-29952.7	7331.	52636.3	-10.7	-109.6	SI
3 S	8- 1	-28515.8	-74988.7	42037.6	-12.1	-80.4	SI
4 I	8- 1	-11722.3	73682.3	-73531.5	-8.	7.3	SI
4 C	8- 1	-10285.4	6163.6	261.2	-3.3	-43.3	SI
4 S	8- 1	-8848.6	-61355.	74053.8	-6.9	17.8	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-22419.1	-13317.3	-321593.4	-16.2	43.7	SI
1 C	9- 1	-22150.6	-103666.3	-336567.7	-20.	102.9	SI
1 S	9- 1	-21882.1	-194015.3	-351542.1	-24.2	176.6	SI
2 I	9- 1	-45793.4	-194015.3	-444460.	-31.2	48.1	SI
2 C	9- 1	-44814.	-99223.5	-136946.7	-19.3	-102.1	SI
2 S	9- 1	-43834.7	-4431.7	170566.7	-17.3	-120.6	SI
3 I	9- 1	-28680.5	84222.2	53920.1	-12.8	-72.6	SI
3 C	9- 1	-27243.6	6833.7	48191.5	-9.8	-99.5	SI
3 S	9- 1	-25806.7	-70554.7	42462.9	-11.1	-69.9	SI
4 I	9- 1	-10323.1	67929.8	-73153.7	-7.5	11.9	SI
4 C	9- 1	-8886.2	8374.4	197.	-2.9	-36.2	SI
4 S	9- 1	-7449.3	-51180.9	73547.6	-6.2	21.4	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-21841.1	-12873.	-313698.1	-15.8	42.8	SI
1 C	10- 1	-21572.6	-100345.3	-328257.	-19.5	100.3	SI
1 S	10- 1	-21304.1	-187817.6	-342816.	-23.5	171.7	SI
2 I	10- 1	-44581.3	-187817.6	-433392.	-30.3	46.7	SI
2 C	10- 1	-43601.9	-96055.2	-132975.6	-18.7	-99.7	SI
2 S	10- 1	-42622.6	-4292.7	167440.9	-16.8	-116.6	SI
3 I	10- 1	-27893.7	82350.	51051.4	-12.4	-71.	SI
3 C	10- 1	-26456.8	6723.4	46862.1	-9.5	-96.6	SI
3 S	10- 1	-25019.9	-68903.3	42672.9	-10.9	-66.9	SI
4 I	10- 1	-9972.4	66067.9	-72962.8	-7.3	12.8	SI
4 C	10- 1	-8535.5	8646.9	218.7	-2.8	-34.5	SI
4 S	10- 1	-7098.6	-48774.1	73400.3	-6.1	22.6	SI

Nome pilastro : **P057** (ID=245)  
 Aste : 1720; 1721; 563; 564  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ; μ<sub>phi</sub>=1.99) ->  
 Duttilità : non prevista (struttura non dissipativa).  
 Unità di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r ‰ (permille)  
 Unità particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 3.5 ; staffe= 2.5  
 Imperfezioni : M minimo = N \* e<sub>0</sub> ; M aggiunto = N \* e<sub>i</sub>  
 Instabilità : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; R<sub>ck</sub>=300; f<sub>ck</sub>=249; f<sub>ctk</sub>=17.91; f<sub>ctm</sub>=25.58; E<sub>cm</sub>=314472;  
 g<sub>c</sub>=1.5; f<sub>cd</sub>=141.1; f<sub>bd</sub>=26.86; f<sub>ctd</sub>=11.94; E<sub>c2</sub>=0.2%; E<sub>cu</sub>=0.2%  
 ACCIAIO: B450C; f<sub>tk</sub>=5175; f<sub>yk</sub>=4500; E<sub>s</sub>=2100000;  
 g<sub>s</sub>=1.15; f<sub>yd</sub>=3913; f<sub>td</sub>=4500; f<sub>ud</sub>=3640.9; E<sub>yd</sub>=0.1863%; E<sub>ud</sub>=0.18%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σ (rara)=149.4; σ (quasi permanente)=112; f<sub>bd</sub>(esercizio)=26.86  
 ACCIAIO: σ<sub>f</sub> (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246	12φ20
2	1	2.	2.	.86	.86	259.	235.	0.	0.	32.17	1.063	16φ16
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532	8φ16
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532	8φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE		
> 1	5- 3	-20244.	49515.	1.11	-849181.	1.01	-.031	-40.3	.036	751.2	SI
1	4- 3	-19940.	-1085327.	1.	-400787.	1.	-.054	-65.4	.066	1387.3	SI
1	4- 3	-19671.	-2009258.	1.	-446219.	1.01	-.09	-98.4	.134	2808.6	SI
> 2	4- 3	-40372.	-2039456.	1.02	-593330.	1.06	-.108	-111.1	.135	2835.9	SI
2	4- 3	-39392.	-788739.	1.	-205198.	1.	-.036	-46.3	.021	440.	SI
2	4- 3	-38413.	483009.	1.07	191904.	1.21	-.024	-31.9	.006	127.2	SI
> 3	4- 3	-25163.	-495582.	1.07	187111.	1.21	-.028	-37.2	.02	423.	SI
3	4- 3	-23726.	143911.	1.	62966.	1.	-.01	-13.9	-.001	-25.1	SI
3	4- 2	-21715.	-670171.	1.04	70937.	11.9	-.034	-43.7	.042	889.8	SI
> 4	5- 2	-8905.	51008.	1.28	-262013.	1.04	-.014	-19.	.017	346.7	SI
4	4- 3	-7603.	209177.	1.	-15263.	1.	-.01	-13.4	.011	227.4	SI
4	4- 3	-6166.	539885.	1.01	20142.	10.3	-.027	-35.2	.063	1325.8	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-29704.1	-4221.6	-140057.	71.	.7	1.3	1.67	.07	115.3	4.47	SI
2	5- 4	-40047.9	232105.7	97065.1	259.	.7	1.26	1.28	.094	73.87	16.31	SI
3	1- 1	-37321.	-1786.2	2032.9	380.	.7	1.14	2.58	.087	138.9	23.93	SI
4	5- 4	-8971.5	-47311.8	-86793.2	380.	.7	1.14	1.16	.021	126.9	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-29704.1	-538929.	-668237.	71.	.7	1.3	.894	.07	61.67	4.47	SI
2	5- 2	-39782.2	274080.4	200396.9	259.	.7	1.26	.969	.093	56.02	16.31	SI
3	5- 4	-24976.1	70137.3	181966.	380.	.7	1.14	1.32	.059	86.58	23.93	SI
4	4- 2	-8824.5	4222.9	3203.	380.	.7	1.14	.942	.021	104.3	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 3	-3862.8	35064.	35064.	64958.5	1.01	13.	2.5	SI
1 C	5- 3	-3862.8	35064.	35064.	64919.5	1.01	13.	2.5	SI
1 S	5- 3	-3862.8	35064.	35064.	64880.5	1.01	13.	2.5	SI
2 I	5- 3	5806.1	23991.1	23991.1	67828.4	1.01	19.	2.5	SI
2 C	5- 3	5806.1	23991.1	23991.1	67686.1	1.01	19.	2.5	SI
2 S	5- 3	5806.1	23991.1	23991.1	67543.8	1.01	19.	2.5	SI
3 I	5- 2	-1141.2	23991.1	23991.1	65621.8	1.01	19.	2.5	SI
3 C	5- 2	-1141.2	23991.1	23991.1	65413.	1.01	19.	2.5	SI
3 S	5- 2	-1141.2	23991.1	23991.1	65204.2	1.01	19.	2.5	SI
4 I	5- 2	652.1	23991.1	23991.1	63310.9	1.01	19.	2.5	SI
4 C	5- 2	652.1	23991.1	23991.1	63102.2	1.01	19.	2.5	SI
4 S	5- 2	652.1	23991.1	23991.1	62893.4	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	25895.2	35064.	35064.	64953.3	1.01	13.	2.5	SI
1 C	4- 3	25895.2	35064.	35064.	64914.3	1.01	13.	2.5	SI
1 S	4- 3	25895.2	35064.	35064.	64875.3	1.01	13.	2.5	SI
2 I	4- 3	-9421.7	23991.1	23991.1	67883.	1.01	19.	2.5	SI
2 C	4- 3	-9421.7	23991.1	23991.1	67740.7	1.01	19.	2.5	SI
2 S	4- 3	-9421.7	23991.1	23991.1	67598.4	1.01	19.	2.5	SI
3 I	4- 2	2856.6	23991.1	23991.1	65589.9	1.01	19.	2.5	SI
3 C	4- 2	2856.6	23991.1	23991.1	65381.1	1.01	19.	2.5	SI
3 S	4- 2	2856.6	23991.1	23991.1	65172.3	1.01	19.	2.5	SI
4 I	4- 3	-1804.4	23991.1	23991.1	63330.5	1.01	19.	2.5	SI
4 C	4- 3	-1804.4	23991.1	23991.1	63121.7	1.01	19.	2.5	SI
4 S	4- 3	-1804.4	23991.1	23991.1	62913.	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-22170.4	-3087.2	-403130.6	-19.5	107.8	SI
1 C	8- 1	-21901.9	-53169.6	-451500.9	-23.6	187.9	SI
1 S	8- 1	-21633.4	-103251.9	-499871.2	-28.1	279.2	SI
2 I	8- 1	-44416.8	-103251.9	-633060.3	-36.5	129.6	SI
2 C	8- 1	-43437.5	-50897.2	-245040.6	-21.3	-77.3	SI
2 S	8- 1	-42458.2	1457.5	142979.2	-16.5	-129.5	SI
3 I	8- 1	-27895.3	-931.	139236.3	-13.1	-72.	SI
3 C	8- 1	-26458.4	181.9	63189.2	-10.2	-96.4	SI
3 S	8- 1	-25021.5	1294.8	-12858.	-8.2	-109.7	SI
4 I	8- 1	-10438.5	1043.7	-14864.6	-3.7	-41.7	SI



4 C	8- 1	-9001.6	8535.4	-6078.8	-3.2	-35.6	SI
4 S	8- 1	-7564.8	16027.1	2707.	-2.9	-27.3	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-20480.6	-2692.9	-373698.1	-18.	100.7	SI
1 C	9- 1	-20212.1	-47455.6	-418517.1	-21.8	174.6	SI
1 S	9- 1	-19943.7	-92218.2	-463336.1	-25.9	258.5	SI
2 I	9- 1	-40945.6	-92218.2	-586772.5	-33.7	120.5	SI
2 C	9- 1	-39966.2	-45544.3	-226814.7	-19.6	-71.1	SI
2 S	9- 1	-38986.9	1129.6	133143.	-15.2	-118.3	SI
3 I	9- 1	-25555.6	468.3	129601.3	-12.1	-65.3	SI
3 C	9- 1	-24118.7	665.7	58590.	-9.3	-87.3	SI
3 S	9- 1	-22681.8	863.2	-12421.4	-7.4	-99.3	SI
4 I	9- 1	-9233.3	2719.5	-14335.1	-3.4	-35.7	SI
4 C	9- 1	-7796.5	8457.	-5864.6	-2.9	-30.2	SI
4 S	9- 1	-6359.6	14194.5	2606.	-2.5	-22.5	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	10- 1	-19966.1	-2572.4	-364839.7	-17.6	98.7	SI
1 C	10- 1	-19697.7	-45709.	-408593.9	-21.3	170.6	SI
1 S	10- 1	-19429.2	-88845.6	-452348.2	-25.3	252.4	SI
2 I	10- 1	-39888.9	-88845.6	-572851.9	-32.8	117.8	SI
2 C	10- 1	-38909.6	-43878.4	-221348.8	-19.1	-69.2	SI
2 S	10- 1	-37930.2	1088.7	130154.3	-14.8	-114.8	SI
3 I	10- 1	-24876.2	863.4	126673.5	-11.8	-63.2	SI
3 C	10- 1	-23439.3	785.1	57216.5	-9.1	-84.7	SI
3 S	10- 1	-22002.4	706.9	-12240.5	-7.2	-96.3	SI
4 I	10- 1	-8932.	3087.5	-14126.3	-3.3	-34.3	SI
4 C	10- 1	-7495.1	8315.7	-5775.5	-2.8	-28.9	SI
4 S	10- 1	-6058.3	13544.	2575.2	-2.4	-21.4	SI

Nome pilastro : **P058** (ID=247)  
Aste : 1716; 1717; 566; 567  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daN/cm<sup>2</sup>; deform.%; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrri (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; Ecu=0.2%  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.1863%; Eud=0.18%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12φ20
2	1	2.	2.	.86	.86	259.	235.	0.	0.	37.7	1.246 12φ20
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8φ16
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

PR330-FL3510NE (increase in imperfection):											
Asta	Caso	NED	MEyd		MEzd		E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 3	-20554.	51976.	1.1	-847813.	1.01	-.03	-39.1	.035	725.5	SI
1	4- 3	-19640.	-1074333.	1.	-415579.	1.	-.052	-63.3	.065	1363.7	SI
1	4- 3	-19371.	-1989480.	1.	-468874.	1.01	-.086	-95.3	.131	2744.1	SI
> 2	4- 3	-39653.	-2019128.	1.02	-622562.	1.06	-.094	-101.8	.114	2397.1	SI
2	4- 2	-40015.	731333.	1.	-272401.	1.	-.033	-43.	.017	362.9	SI
2	4- 3	-37694.	523310.	1.07	139488.	1.3	-.022	-29.9	.006	123.3	SI
> 3	4- 3	-24730.	-539671.	1.06	137403.	1.3	-.028	-36.9	.023	479.	SI
3	4- 2	-24093.	-145246.	1.	69216.	1.	-.01	-14.2	-.001	-20.7	SI
3	4- 3	-21857.	713228.	1.04	-71398.	8.02	-.035	-45.3	.047	989.8	SI
> 4	4- 1	-9162.	-251242.	1.05	-38209.	1.44	-.012	-16.9	.014	287.2	SI
4	4- 3	-7440.	203485.	1.	-4654.	1.	-.009	-12.1	.01	206.9	SI

4| 4- 3| -6003.| 574543.|1.01| 19611.|29.4|-.027| -35.9| .067|1416. |SI|

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-30145.3	-1290.	-107473.	71.	.7	1.3	1.69	.071	115.6	4.47	SI
2	5- 4	-40451.4	254122.9	135148.8	259.	.7	1.3	1.17	.095	69.09	16.31	SI
3	1- 1	-37712.8	-82524.	75626.7	380.	.7	1.14	2.62	.088	140.2	23.93	SI
4	4- 1	-9162.1	-239637.	-418483.	380.	.7	1.14	1.13	.021	122.6	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-30145.3	-589370.	-746809.	71.	.7	1.3	.911	.071	62.4	4.47	SI
2	5- 2	-40102.5	132029.9	73945.3	259.	.7	1.3	1.14	.094	67.71	16.31	SI
3	5- 4	-25207.5	195650.9	177432.3	380.	.7	1.14	.793	.059	51.99	23.93	SI
4	1- 1	-14026.4	-20361.2	1498.	380.	.7	1.14	1.77	.033	155.9	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 3	-3855.2	26813.6	26813.6	65003.6	1.01	17.	2.5	SI
1 C	5- 3	-3855.2	26813.6	26813.6	64964.6	1.01	17.	2.5	SI
1 S	5- 3	-3855.2	26813.6	26813.6	64925.6	1.01	17.	2.5	SI
2 I	5- 3	5885.8	23991.1	23991.1	67908.1	1.01	19.	2.5	SI
2 C	5- 3	5885.8	23991.1	23991.1	67765.8	1.01	19.	2.5	SI
2 S	5- 3	5885.8	23991.1	23991.1	67623.5	1.01	19.	2.5	SI
3 I	5- 2	-1033.3	23991.1	23991.1	65649.3	1.01	19.	2.5	SI
3 C	5- 2	-1033.3	23991.1	23991.1	65440.5	1.01	19.	2.5	SI
3 S	5- 2	-1033.3	23991.1	23991.1	65231.8	1.01	19.	2.5	SI
4 I	5- 2	597.8	23991.1	23991.1	63321.8	1.01	19.	2.5	SI
4 C	5- 2	597.8	23991.1	23991.1	63113.	1.01	19.	2.5	SI
4 S	5- 2	597.8	23991.1	23991.1	62904.2	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	25649.7	26813.6	26813.6	64909.7	1.01	17.	2.5	SI
1 C	4- 3	25649.7	26813.6	26813.6	64870.7	1.01	17.	2.5	SI
1 S	4- 3	25649.7	26813.6	26813.6	64831.7	1.01	17.	2.5	SI
2 I	4- 3	-9503.8	23991.1	23991.1	67778.5	1.01	19.	2.5	SI
2 C	4- 3	-9503.8	23991.1	23991.1	67636.2	1.01	19.	2.5	SI
2 S	4- 3	-9503.8	23991.1	23991.1	67493.9	1.01	19.	2.5	SI
3 I	4- 3	-3080.4	23991.1	23991.1	65610.4	1.01	19.	2.5	SI
3 C	4- 3	-3080.4	23991.1	23991.1	65401.6	1.01	19.	2.5	SI
3 S	4- 3	-3080.4	23991.1	23991.1	65192.8	1.01	19.	2.5	SI
4 I	4- 3	-2018.2	23991.1	23991.1	63306.9	1.01	19.	2.5	SI
4 C	4- 3	-2018.2	23991.1	23991.1	63098.1	1.01	19.	2.5	SI
4 S	4- 3	-2018.2	23991.1	23991.1	62889.4	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-22498.4	-850.1	-441258.3	-20.6	138.2	SI
1 C	8- 1	-22230.	-39773.2	-500185.7	-24.7	226.2	SI
1 S	8- 1	-21961.5	-78696.4	-559113.1	-29.1	324.2	SI
2 I	8- 1	-44909.2	-78696.4	-707920.4	-36.8	158.7	SI
2 C	8- 1	-43929.9	-17037.5	-282996.7	-20.8	-74.9	SI
2 S	8- 1	-42950.5	44621.3	141927.	-17.3	-112.6	SI
3 I	8- 1	-28186.9	-60637.1	140784.6	-15.1	-45.8	SI
3 C	8- 1	-26750.1	-2526.5	63473.7	-10.3	-95.8	SI
3 S	8- 1	-25313.2	55584.2	-13837.3	-10.	-87.8	SI
4 I	8- 1	-10554.6	-51368.2	-15243.4	-5.4	-20.8	SI
4 C	8- 1	-9117.8	6380.5	-7069.9	-3.2	-36.4	SI
4 S	8- 1	-7680.9	64129.2	1103.5	-4.4	-8.1	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-20779.3	-548.8	-409968.7	-19.1	130.	SI
1 C	9- 1	-20510.9	-34938.9	-464668.7	-22.9	211.3	SI
1 S	9- 1	-20242.4	-69329.	-519368.6	-26.8	301.8	SI
2 I	9- 1	-41393.4	-69329.	-657563.5	-34.	148.7	SI
2 C	9- 1	-40414.1	-14362.2	-262341.	-19.2	-68.6	SI
2 S	9- 1	-39434.8	40604.6	132881.4	-16.	-102.5	SI
3 I	9- 1	-25817.9	-54904.1	131839.6	-13.9	-41.	SI
3 C	9- 1	-24381.	-1538.	59314.5	-9.4	-87.	SI
3 S	9- 1	-22944.2	51828.1	-13210.6	-9.1	-78.7	SI
4 I	9- 1	-9331.5	-44426.	-14467.1	-4.8	-18.4	SI
4 C	9- 1	-7894.7	4900.6	-6741.3	-2.8	-31.6	SI
4 S	9- 1	-6457.8	54227.2	984.4	-3.8	-6.7	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-20256.	-451.5	-400564.	-18.7	127.6	SI
1 C	10- 1	-19987.6	-33436.7	-453995.7	-22.3	206.9	SI
1 S	10- 1	-19719.1	-66422.	-507427.4	-26.2	295.1	SI
2 I	10- 1	-40323.4	-66422.	-642433.6	-33.1	145.8	SI
2 C	10- 1	-39344.	-13541.7	-256137.8	-18.7	-66.7	SI
2 S	10- 1	-38364.7	39338.6	130158.1	-15.6	-99.5	SI
3 I	10- 1	-25130.1	-53018.3	129146.9	-13.6	-39.7	SI
3 C	10- 1	-23693.3	-1307.4	58077.4	-9.2	-84.5	SI
3 S	10- 1	-22256.4	50403.4	-12992.	-8.9	-76.2	SI
4 I	10- 1	-9025.8	-42478.6	-14202.9	-4.6	-17.9	SI
4 C	10- 1	-7589.	4542.	-6627.5	-2.7	-30.3	SI
4 S	10- 1	-6152.1	51562.6	947.9	-3.6	-6.4	SI

Nome pilastro : P059 (ID=248)  
Aste : 1718; 1719; 569; 570  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferr (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; Ecu=0.2%  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.1863%; Eud=0.18%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma$  (rara)=149.4;  $\sigma$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acls=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12ø20
2	1	2.	2.	.86	.86	259.	235.	0.	0.	37.7	1.246 12ø20
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8ø16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma$	E acc	$\sigma$ f	VE
> 1	5- 3	-21120.	-47239.	1.34	-927503.	1.01	-0.032	-42.	.039 819.6 SI
1	4- 3	-18930.	-1073714.	1.	-441377.	1.	-0.053	-64.4	.067 1405.1 SI
1	4- 3	-18661.	-1992847.	1.	-505807.	1.01	-0.088	-96.6	.133 2801.9 SI
> 2	4- 3	-38034.	-2021266.	1.02	-669566.	1.05	-0.096	-103.3	.118 2484.
2	4- 3	-37054.	-813897.	1.	-282346.	1.	-0.037	-46.9	.024 508.1 SI
2	4- 2	-41951.	-419246.	1.09	265235.	1.16	-0.023	-31.	.005 96.7 SI
> 3	4- 2	-27302.	401407.	1.09	255821.	1.16	-0.025	-33.6	.014 286.9 SI
3	4- 2	-25865.	-151043.	1.	91468.	1.	-0.011	-15.6	-.001 -16.9 SI
3	4- 3	-20915.	569792.	1.05	68321.	20.5	-0.028	-36.3	.03 635.
> 4	5- 2	-8930.	41283.	1.38	-232267.	1.05	-0.012	-15.8	.012 251.1 SI
4	4- 3	-7016.	191912.	1.	1570.	1.	-0.008	-11.2	.009 192.7 SI
4	4- 3	-5579.	432171.	1.02	18224.	5.73	-0.021	-27.6	.048 1001.9 SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-30645.6	-16719.	-104473.	71.	.7	1.3	1.54	.072	104.6	4.47	SI
2	5- 4	-41524.4	263056.7	78266.6	259.	.7	1.3	1.4	.097	81.87	16.31	SI
3	1- 1	-38353.5	17689.7	-9322.1	380.	.7	1.14	2.23	.09	118.4	23.93	SI
4	4- 1	-9832.5	-153986.	-366644.	380.	.7	1.14	1.28	.023	134.4	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	10	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-30645.6	-671230.	-860408.	71.	.7	1.3	.92	.072	62.5	4.47	SI
2	5- 2	-39996.3	72998.4	76136.1	259.	.7	1.3	.741	.094	44.08	16.31	SI
3	5- 3	-26142.6	218087.5	186720.5	380.	.7	1.14	.844	.061	54.32	23.93	SI
4	1- 1	-14268.4	-33630.6	5928.8	380.	.7	1.14	1.88	.033	163.5	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 3	-4253.2	26813.6	26813.6	65085.8	1.01	17.	2.5	SI
1 C	5- 3	-4253.2	26813.6	26813.6	65046.8	1.01	17.	2.5	SI
1 S	5- 3	-4253.2	26813.6	26813.6	65007.8	1.01	17.	2.5	SI
2 I	5- 3	6663.	23991.1	23991.1	68111.9	1.01	19.	2.5	SI
2 C	5- 3	6663.	23991.1	23991.1	67969.6	1.01	19.	2.5	SI
2 S	5- 3	6663.	23991.1	23991.1	67827.3	1.01	19.	2.5	SI
3 I	5- 2	-972.6	23991.1	23991.1	65641.9	1.01	19.	2.5	SI
3 C	5- 2	-972.6	23991.1	23991.1	65433.1	1.01	19.	2.5	SI
3 S	5- 2	-972.6	23991.1	23991.1	65224.4	1.01	19.	2.5	SI
4 I	5- 2	574.1	23991.1	23991.1	63314.5	1.01	19.	2.5	SI
4 C	5- 2	574.1	23991.1	23991.1	63105.8	1.01	19.	2.5	SI
4 S	5- 2	574.1	23991.1	23991.1	62897.	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	25766.8	26813.6	26813.6	64806.6	1.01	17.	2.5	SI
1 C	4- 3	25766.8	26813.6	26813.6	64767.5	1.01	17.	2.5	SI
1 S	4- 3	25766.8	26813.6	26813.6	64728.5	1.01	17.	2.5	SI

2 I	4- 3	-9103.7	23991.1	23991.1	67543.3	1.01	19.	2.5	SI
2 C	4- 3	-9103.7	23991.1	23991.1	67401.	1.01	19.	2.5	SI
2 S	4- 3	-9103.7	23991.1	23991.1	67258.7	1.01	19.	2.5	SI
3 I	4- 2	2346.4	23991.1	23991.1	65984.	1.01	19.	2.5	SI
3 C	4- 2	2346.4	23991.1	23991.1	65775.2	1.01	19.	2.5	SI
3 S	4- 2	2346.4	23991.1	23991.1	65566.4	1.01	19.	2.5	SI
4 I	4- 3	-1354.7	23991.1	23991.1	63245.2	1.01	19.	2.5	SI
4 C	4- 3	-1354.7	23991.1	23991.1	63036.5	1.01	19.	2.5	SI
4 S	4- 3	-1354.7	23991.1	23991.1	62827.7	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-22870.1	-12256.7	-502461.	-23.7	203.2	SI
1 C	8- 1	-22601.7	-44326.	-573261.7	-28.2	308.4	SI
1 S	8- 1	-22333.2	-76395.3	-644062.4	-32.9	422.3	SI
2 I	8- 1	-45644.	-76395.3	-816224.	-41.3	242.7	SI
2 C	8- 1	-44664.6	-36641.4	-326137.7	-22.8	-54.8	SI
2 S	8- 1	-43685.3	3112.5	163948.7	-17.	-122.9	SI
3 I	8- 1	-28663.5	13484.8	158371.5	-14.3	-60.3	SI
3 C	8- 1	-27226.7	3157.5	68429.4	-10.7	-95.7	SI
3 S	8- 1	-25789.8	-7169.8	-21512.6	-8.9	-107.	SI
4 I	8- 1	-10735.6	-4114.1	-25100.9	-4.2	-37.3	SI
4 C	8- 1	-9298.7	4630.2	-10378.	-3.3	-36.6	SI
4 S	8- 1	-7861.8	13374.5	4344.9	-3.	-28.9	SI

##### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-21117.2	-10795.4	-466618.6	-22.	190.3	SI
1 C	9- 1	-20848.7	-38830.	-532336.	-26.1	287.5	SI
1 S	9- 1	-20580.2	-66864.6	-598053.3	-30.3	392.7	SI
2 I	9- 1	-42061.8	-66864.6	-757868.6	-38.2	227.1	SI
2 C	9- 1	-41082.5	-32213.7	-302143.4	-21.	-50.2	SI
2 S	9- 1	-40103.1	2437.2	153581.8	-15.7	-111.8	SI
3 I	9- 1	-26246.6	13411.2	148565.1	-13.3	-53.3	SI
3 C	9- 1	-24809.7	3290.7	64205.8	-9.8	-86.2	SI
3 S	9- 1	-23372.8	-6829.8	-20153.5	-8.1	-96.6	SI
4 I	9- 1	-9486.2	-1925.9	-23278.5	-3.7	-33.2	SI
4 C	9- 1	-8049.3	4752.3	-9741.	-2.9	-31.1	SI
4 S	9- 1	-6612.4	11430.5	3796.6	-2.5	-24.1	SI

##### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-20583.7	-10346.1	-455844.	-21.5	186.5	SI
1 C	10- 1	-20315.2	-37136.4	-520035.	-25.5	281.4	SI
1 S	10- 1	-20046.8	-63926.7	-584226.1	-29.6	383.9	SI
2 I	10- 1	-40971.7	-63926.7	-740330.	-37.2	222.6	SI
2 C	10- 1	-39992.4	-30829.1	-294924.6	-20.4	-48.8	SI
2 S	10- 1	-39013.	2268.6	150480.8	-15.3	-108.4	SI
3 I	10- 1	-25545.	13364.6	145634.4	-12.9	-51.3	SI
3 C	10- 1	-24108.2	3301.5	62951.9	-9.5	-83.5	SI
3 S	10- 1	-22671.3	-6761.5	-19730.7	-7.8	-93.5	SI
4 I	10- 1	-9173.9	-1404.8	-22714.2	-3.6	-32.2	SI
4 C	10- 1	-7737.	4687.1	-9541.7	-2.8	-29.7	SI
4 S	10- 1	-6300.1	10778.9	3630.8	-2.4	-23.	SI

Nome pilastro : **P060** (ID=129)  
Aste : 1082-1083-1084-1085; 1086; 572; 573  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€”(permille)  
Unita' particolari : fessure [wk]:mm e ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : Cls in opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.35%  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; Eud=20.997%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σc (rara)=98.8; σc (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO: σf (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1

20|Frequente 3 |FREQUENTE | 1|  
 21|Quasi Perm |QUASI PERMAN. | 1|

<-

#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiZ	eiY	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm	
1	1	2.	2.	.78	.78	235.	235.	0.	0.	9.24	.754	6φ14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	9.24	.754	6φ14
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	8.04	.657	4φ16
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503	4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE		
> 1	1- 1	-6396.	17802.	999.	17802.	999.	-0.01	-8.6	-0.002	-32.2	SI
1	1- 1	-8587.	0.	999.	0.	999.	-0.007	-6.	-0.007	-134.4	SI
1	1- 1	-19631.	54640.	999.	54640.	999.	-0.03	-25.8	-0.005	-97.6	SI
> 2	1- 1	-52236.	121014.	999.	121014.	999.	-0.083	-60.	-0.018	-350.8	SI
2	1- 1	-52047.	0.	999.	0.	999.	-0.044	-36.1	-0.044	-887.3	SI
2	1- 1	-51858.	120138.	999.	120138.	999.	-0.082	-59.6	-0.017	-348.4	SI
> 3	1- 1	-31924.	104287.	999.	104287.	999.	-0.056	-44.2	-0.005	-107.3	SI
3	1- 1	-31168.	0.	999.	0.	999.	-0.026	-22.2	-0.026	-518.8	SI
3	1- 1	-30412.	99345.	999.	99345.	999.	-0.053	-42.3	-0.005	-102.8	SI
> 4	2- 1	-11695.	38204.	999.	38204.	999.	-0.02	-17.5	-0.002	-40.5	SI
4	2- 1	-10939.	0.	999.	0.	999.	-0.009	-8.1	-0.009	-180.4	SI
4	2- 1	-10182.	33262.	999.	33262.	999.	-0.017	-15.2	-0.002	-35.4	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L 1im	Lambd	VE
1	1- 1	-19631.	235.	.175	59.72	23.26	SI
2	1- 1	-52236.4	95.	.466	36.61	9.4	SI
3	1- 1	-31924.5	380.	.285	46.83	37.61	SI
4	2- 1	-11695.	380.	.104	77.37	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L 1im	Lambd	VE
1	1- 1	-19631.	235.	.175	59.72	23.26	SI
2	1- 1	-52236.4	95.	.466	36.61	9.4	SI
3	1- 1	-31924.5	380.	.285	46.83	37.61	SI
4	2- 1	-11695.	380.	.104	77.37	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15959.8	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	16255.2	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	17743.6	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
4 I	1- 1	0.	5944.4	5944.4	16519.5	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	16417.6	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	16315.6	.57	18.	2.5	NO

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15959.8	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	16255.2	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	17743.6	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
4 I	1- 1	0.	5944.4	5944.4	16519.5	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	16417.6	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	16315.6	.57	18.	2.5	NO

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-4779.2	0.	0.	-3.5	-52.9	SI
1 C	15- 1	-6400.9	0.	0.	-4.7	-70.9	SI
1 S	15- 1	-14618.6	0.	0.	-10.8	-161.9	SI
2 I	15- 1	-38895.6	0.	0.	-28.7	-430.8	SI
2 C	15- 1	-38750.1	0.	0.	-28.6	-429.2	SI
2 S	15- 1	-38604.7	0.	0.	-28.5	-427.6	SI
3 I	15- 1	-23857.8	0.	0.	-17.8	-267.5	SI
3 C	15- 1	-23275.9	0.	0.	-17.4	-261.	SI
3 S	15- 1	-22694.1	0.	0.	-17.	-254.5	SI
4 I	16- 1	-8764.2	0.	0.	-6.7	-100.3	SI
4 C	16- 1	-8182.3	0.	0.	-6.2	-93.6	SI
4 S	16- 1	-7600.4	0.	0.	-5.8	-86.9	SI

Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-4451.	0.	0.	-3.3	-49.3	SI

1	C	18- 1	-5921.5	0.	0.	-4.4	-65.6	SI
1	S	18- 1	-13480.1	0.	0.	-10.	-149.3	SI
2	I	18- 1	-35858.4	0.	0.	-26.5	-397.2	SI
2	C	18- 1	-35712.9	0.	0.	-26.4	-395.5	SI
2	S	18- 1	-35567.4	0.	0.	-26.3	-393.9	SI
3	I	18- 1	-21964.3	0.	0.	-16.4	-246.3	SI
3	C	18- 1	-21382.4	0.	0.	-16.	-239.8	SI
3	S	18- 1	-20800.6	0.	0.	-15.6	-233.3	SI
4	I	19- 1	-7550.6	0.	0.	-5.8	-86.4	SI
4	C	19- 1	-6968.7	0.	0.	-5.3	-79.7	SI
4	S	19- 1	-6386.8	0.	0.	-4.9	-73.1	SI

Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE	
1	I	21- 1	-4367.3	0.	0.	-3.2	-48.4	SI
1	C	21- 1	-5799.9	0.	0.	-4.3	-64.2	SI
1	S	21- 1	-13195.1	0.	0.	-9.7	-146.1	SI
2	I	21- 1	-35097.9	0.	0.	-25.9	-388.7	SI
2	C	21- 1	-34952.4	0.	0.	-25.8	-387.1	SI
2	S	21- 1	-34807.	0.	0.	-25.7	-385.5	SI
3	I	21- 1	-21585.3	0.	0.	-16.1	-242.1	SI
3	C	21- 1	-21003.4	0.	0.	-15.7	-235.5	SI
3	S	21- 1	-20421.6	0.	0.	-15.3	-229.	SI
4	I	21- 1	-7246.8	0.	0.	-5.5	-82.9	SI
4	C	21- 1	-6664.9	0.	0.	-5.1	-76.2	SI
4	S	21- 1	-6083.	0.	0.	-4.6	-69.6	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P061** (ID=130)  
Aste : 1087-1088-1089-1090; 1091; 575; 576  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm<sup>2</sup>; deform. %; 1/r (per mille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

#### MATERIALI

CLS : Cls in opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.35%  
ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; Eud=20.997%

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99  
ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acl=1225; iy=10.1; iz=10.1

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	iez	ieiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	9.24	.754 6φ14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	9.24	.754 6φ14
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	8.04	.657 4φ16
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	1- 1	-6385.	17771. 999.	17771. 999.	-0.01	-8.5	-0.002	-32.2	SI
1	1- 1	-8547.	0. 999.	0. 999.	-0.007	-6.	-0.007	-133.8	SI
1	1- 1	-19730.	54916. 999.	54916. 999.	-0.031	-25.9	-0.005	-98.1	SI
> 2	1- 1	-52682.	122047. 999.	122047. 999.	-0.083	-60.4	-0.018	-353.7	SI
2	1- 1	-52493.	0. 999.	0. 999.	-0.045	-36.4	-0.045	-895.8	SI
2	1- 1	-52304.	121171. 999.	121171. 999.	-0.083	-60.	-0.018	-351.3	SI
> 3	1- 1	-32314.	105559. 999.	105559. 999.	-0.057	-44.7	-0.005	-108.5	SI

3	1- 1	-31558.	0.	999.	0.	999.	-.026	-22.5	-.026	-525.7	SI
3	1- 1	-30801.	100617.	999.	100617.	999.	-.054	-42.8	-.005	-104.	SI
> 4	2- 1	-11904.	38887.	999.	38887.	999.	-.02	-17.8	-.002	-41.2	SI
4	2- 1	-11148.	0.	999.	0.	999.	-.009	-8.2	-.009	-183.9	SI
4	2- 1	-10391.	33945.	999.	33945.	999.	-.018	-15.6	-.002	-36.1	SI

#### SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-19730.4	235.	.176	59.57	23.26	SI
2	1- 1	-52682.3	95.	.47	36.45	9.4	SI
3	1- 1	-32314.1	380.	.288	46.55	37.61	SI
4	2- 1	-11904.1	380.	.106	76.69	37.61	SI

#### SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-19730.4	235.	.176	59.57	23.26	SI
2	1- 1	-52682.3	95.	.47	36.45	9.4	SI
3	1- 1	-32314.1	380.	.288	46.55	37.61	SI
4	2- 1	-11904.1	380.	.106	76.69	37.61	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15958.3	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	16249.8	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	17757.	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
4 I	1- 1	0.	5944.4	5944.4	16547.4	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	16445.4	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	16343.5	.57	18.	2.5	NO

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15958.3	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	16249.8	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	17757.	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
3 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI
4 I	1- 1	0.	5944.4	5944.4	16547.4	.57	18.	2.5	NO
4 C	1- 1	0.	5944.4	5944.4	16445.4	.57	18.	2.5	NO
4 S	1- 1	0.	5944.4	5944.4	16343.5	.57	18.	2.5	NO

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### Rare:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	15- 1	-4770.6	0.	0.	-3.5	-52.8	SI
1 C	15- 1	-6370.9	0.	0.	-4.7	-70.6	SI
1 S	15- 1	-14692.2	0.	0.	-10.8	-162.7	SI
2 I	15- 1	-39225.	0.	0.	-29.	-434.4	SI
2 C	15- 1	-39079.6	0.	0.	-28.9	-432.8	SI
2 S	15- 1	-38934.1	0.	0.	-28.7	-431.2	SI
3 I	15- 1	-24146.6	0.	0.	-18.1	-270.8	SI
3 C	15- 1	-23564.7	0.	0.	-17.6	-264.3	SI
3 S	15- 1	-22982.8	0.	0.	-17.2	-257.7	SI
4 I	16- 1	-8919.4	0.	0.	-6.8	-102.	SI
4 C	16- 1	-8337.5	0.	0.	-6.4	-95.4	SI
4 S	16- 1	-7755.7	0.	0.	-5.9	-88.7	SI

##### Frequenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	18- 1	-4441.7	0.	0.	-3.3	-49.2	SI
1 C	18- 1	-5892.4	0.	0.	-4.4	-65.3	SI
1 S	18- 1	-13544.9	0.	0.	-10.	-150.	SI
2 I	18- 1	-36150.9	0.	0.	-26.7	-400.4	SI
2 C	18- 1	-36005.4	0.	0.	-26.6	-398.8	SI
2 S	18- 1	-35860.	0.	0.	-26.5	-397.2	SI
3 I	18- 1	-22221.9	0.	0.	-16.6	-249.2	SI
3 C	18- 1	-21640.	0.	0.	-16.2	-242.7	SI
3 S	18- 1	-21058.2	0.	0.	-15.7	-236.1	SI
4 I	19- 1	-7688.5	0.	0.	-5.9	-88.	SI
4 C	19- 1	-7106.6	0.	0.	-5.4	-81.3	SI
4 S	19- 1	-6524.8	0.	0.	-5.	-74.6	SI

##### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	21- 1	-4358.	0.	0.	-3.2	-48.3	SI
1 C	21- 1	-5771.3	0.	0.	-4.3	-63.9	SI
1 S	21- 1	-13258.5	0.	0.	-9.8	-146.8	SI
2 I	21- 1	-35383.1	0.	0.	-26.1	-391.9	SI
2 C	21- 1	-35237.6	0.	0.	-26.	-390.3	SI
2 S	21- 1	-35092.2	0.	0.	-25.9	-388.7	SI
3 I	21- 1	-21837.2	0.	0.	-16.3	-244.9	SI
3 C	21- 1	-21255.3	0.	0.	-15.9	-238.4	SI
3 S	21- 1	-20673.4	0.	0.	-15.5	-231.8	SI
4 I	21- 1	-7381.	0.	0.	-5.6	-84.4	SI
4 C	21- 1	-6799.1	0.	0.	-5.2	-77.8	SI
4 S	21- 1	-6217.3	0.	0.	-4.7	-71.1	SI

## MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P062** (ID=131)  
 Aste : 1092-1093-1094-1095; 1096; 578; 579  
 Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 4.6 ; staffe= 3.3  
 Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
 Instabilita' : snellezza limite [NTC18 4.1.2.3.9.2]

## MATERIALI

CLS : Cls in opera; Rck=198.3; fck=164.6; fctk=13.59; fctm=19.41; Ecm=287713;  
 gc=1.8; fcd=91.4; fbd=16.99; fctd=7.55; Ec2=0.2%; Ecu=0.35%  
 ACCIAIO: Acciaio Aq 50-60; ftk=4886.4; fyk=3817.5; Es=2000000;  
 gs=1.38; fyd=2766.3; ftd=3540.9; fud=3463; Eyd=0.1383%; Eud=20.997%

## TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=98.8;  $\sigma_c$  (quasi permanente)=74.1; fbd(esercizio)=16.99ACCIAIO:  $\sigma_f$  (rara)=3054; Coeff.Omogeneizzazione=15

## CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA 1	SLU (statico)	1
2	SLU SENZA SISMA 2	SLU (statico)	1
3	SLU SENZA SISMA 3	SLU (statico)	1
6	SLU con SISMAX PRINC	SLU (sismico)	16
7	SLU con SISMAX PRINC	SLU (sismico)	16
15	Rara 1	RARA	1
16	Rara 2	RARA	1
17	Rara 3	RARA	1
18	Frequente 1	FREQUENTE	1
19	Frequente 2	FREQUENTE	1
20	Frequente 3	FREQUENTE	1
21	Quasi Perm	QUASI PERMAN.	1

&lt;-

## SEZIONI UTILIZZATE

1) Rettangolare: base=35; alt.=35; Acls=1225; iy=10.1; iz=10.1

## DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.78	.78	235.	235.	0.	0.	9.24	.754 6φ14
2	1	2.	2.	.32	.32	95.	71.	0.	0.	9.24	.754 6φ14
3	1	2.	2.	1.27	1.27	380.	356.	0.	0.	8.04	.657 4φ16
4	1	2.	2.	1.27	1.27	380.	356.	0.	0.	6.16	.503 4φ14

## VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c1s	$\sigma_c$	E acc	$\sigma_f$	VE		
> 1	1- 1	-6296.	17524.	999.	17524.	999.	-0.009	-8.4	-0.002	-31.7	SI
1	1- 1	-8501.	0.	999.	0.	999.	-0.007	-6.	-0.007	-133.	SI
1	1- 1	-19625.	54622.	999.	54622.	999.	-0.03	-25.8	-0.005	-97.6	SI
> 2	1- 1	-52452.	121515.	999.	121515.	999.	-0.083	-60.2	-0.018	-352.2	SI
2	1- 1	-52263.	0.	999.	0.	999.	-0.045	-36.2	-0.045	-891.4	SI
2	1- 1	-52074.	120638.	999.	120638.	999.	-0.082	-59.8	-0.017	-349.8	SI
> 3	1- 1	-32058.	104721.	999.	104721.	999.	-0.057	-44.4	-0.005	-107.7	SI
3	1- 1	-31301.	0.	999.	0.	999.	-0.026	-22.3	-0.026	-521.2	SI
3	1- 1	-30545.	99779.	999.	99779.	999.	-0.054	-42.4	-0.005	-103.2	SI
> 4	2- 1	-11762.	38423.	999.	38423.	999.	-0.02	-17.6	-0.002	-40.7	SI
4	2- 1	-11006.	0.	999.	0.	999.	-0.009	-8.1	-0.009	-181.5	SI
4	2- 1	-10249.	33481.	999.	33481.	999.	-0.018	-15.3	-0.002	-35.6	SI

SNELLEZZA LIMITE Y [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-19624.7	235.	.175	59.73	23.26	SI
2	1- 1	-52452.3	95.	.468	36.53	9.4	SI
3	1- 1	-32057.6	380.	.286	46.73	37.61	SI
4	2- 1	-11762.	380.	.105	77.15	37.61	SI

SNELLEZZA LIMITE Z [NTC18 4.1.2.3.9.2]:

Asta	Caso	NEd	10	nu	L lim	Lambd	VE
1	1- 1	-19624.7	235.	.175	59.73	23.26	SI
2	1- 1	-52452.3	95.	.468	36.53	9.4	SI
3	1- 1	-32057.6	380.	.286	46.73	37.61	SI
4	2- 1	-11762.	380.	.105	77.15	37.61	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	1- 1	0.	5944.4	5944.4	15946.3	.57	18.	2.5	NO
1 C	1- 1	0.	5944.4	5944.4	16243.5	.57	18.	2.5	NO
1 S	1- 1	0.	5944.4	5944.4	17742.8	.57	18.	2.5	NO
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO



2	S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
3	I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI	
3	C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI	
3	S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI	
4	I	1- 1	0.	5944.4	5944.4	16528.4	.57	18.	2.5	NO	10
4	C	1- 1	0.	5944.4	5944.4	16426.5	.57	18.	2.5	NO	10
4	S	1- 1	0.	5944.4	5944.4	16324.5	.57	18.	2.5	NO	10

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE	
1 I	1- 1	0.	5944.4	5944.4	15946.3	.57	18.	2.5	NO	10
1 C	1- 1	0.	5944.4	5944.4	16243.5	.57	18.	2.5	NO	10
1 S	1- 1	0.	5944.4	5944.4	17742.8	.57	18.	2.5	NO	10
2 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
2 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
2 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	NO	10
3 I	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI	
3 C	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI	
3 S	1- 1	0.	5944.4	5944.4	18117.4	.57	18.	2.5	SI	
4 I	1- 1	0.	5944.4	5944.4	16528.4	.57	18.	2.5	NO	10
4 C	1- 1	0.	5944.4	5944.4	16426.5	.57	18.	2.5	NO	10
4 S	1- 1	0.	5944.4	5944.4	16324.5	.57	18.	2.5	NO	10

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### Rare:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	15- 1	-4704.7	0.	0.	-3.5	-52.1	SI
1 C	15- 1	-6336.3	0.	0.	-4.7	-70.2	SI
1 S	15- 1	-14613.1	0.	0.	-10.8	-161.9	SI
2 I	15- 1	-39053.7	0.	0.	-28.8	-432.6	SI
2 C	15- 1	-38908.3	0.	0.	-28.7	-430.9	SI
2 S	15- 1	-38762.8	0.	0.	-28.6	-429.3	SI
3 I	15- 1	-23955.3	0.	0.	-17.9	-268.6	SI
3 C	15- 1	-23373.4	0.	0.	-17.5	-262.1	SI
3 S	15- 1	-22791.6	0.	0.	-17.	-255.6	SI
4 I	16- 1	-8813.5	0.	0.	-6.7	-100.8	SI
4 C	16- 1	-8231.6	0.	0.	-6.3	-94.2	SI
4 S	16- 1	-7649.7	0.	0.	-5.8	-87.5	SI

#### Frequenti:

Frequent		Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1	I	18	-1	-4382.	0.	0.	-3.2	-48.5	SI
1	C	18	-1	-5861.1	0.	0.	-4.3	-64.9	SI
1	S	18	-1	-13472.2	0.	0.	-9.9	-149.2	SI
2	I	18	-1	-35996.2	0.	0.	-26.6	-398.7	SI
2	C	18	-1	-35850.7	0.	0.	-26.5	-397.1	SI
2	S	18	-1	-35705.3	0.	0.	-26.4	-395.5	SI
3	I	18	-1	-22048.3	0.	0.	-16.5	-247.3	SI
3	C	18	-1	-21466.4	0.	0.	-16.	-240.7	SI
3	S	18	-1	-20884.5	0.	0.	-15.6	-234.2	SI
4	I	19	-1	-7592.9	0.	0.	-5.8	-86.9	SI
4	C	19	-1	-7011.	0.	0.	-5.3	-80.2	SI
4	S	19	-1	-6429.1	0.	0.	-4.9	-73.5	SI

#### Quasi permanenti:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	21- 1	-4299.7	0.	0.	-3.2	-47.6	SI
1 C	21- 1	-5740.6	0.	0.	-4.2	-63.6	SI
1 S	21- 1	-13186.8	0.	0.	-9.7	-146.1	SI
2 I	21- 1	-35231.2	0.	0.	-26.	-390.2	SI
2 C	21- 1	-35085.7	0.	0.	-25.9	-388.6	SI
2 S	21- 1	-34940.3	0.	0.	-25.8	-387.	SI
3 I	21- 1	-21666.7	0.	0.	-16.2	-243.	SI
3 C	21- 1	-21084.8	0.	0.	-15.8	-236.4	SI
3 S	21- 1	-20502.9	0.	0.	-15.3	-229.9	SI
4 I	21- 1	-7287.6	0.	0.	-5.6	-83.4	SI
4 C	21- 1	-6705.7	0.	0.	-5.1	-76.7	SI
4 S	21- 1	-6123.8	0.	0.	-4.7	-70.1	SI

#### MESSAGGI

10) Passo staffe insufficiente [4.1.6.1.2].

Nome pilastro : **P063 - RINFORZATO** (ID=249)  
Aste : 1097; 1098; 1099; 1100; 1101; 581; 582  
Metodo di verifica : stati limite - NTC18 (q=1.33 ;  $\mu_{phi}$ =1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daN/cm<sup>2</sup>; deform. %; 1/r ‰ (permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
 ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

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#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12φ20
2	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12φ20
3	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12φ20
4	1	2.	2.	.07	.07	22.	22.	0.	0.	37.7	1.246 12φ20
5	1	2.	2.	.32	.32	95.	95.	0.	0.	37.7	1.246 12φ20
6	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8φ16
7	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 4	-22061.	49343.	2.12	-1057086.	1.	-.037	-47.2	.047 980.3 SI
1	4- 3	-21536.	-1025357.	1.	-565586.	1.	-.056	-67.5	.066 1386.5 SI
1	4- 3	-21267.	-1908604.	1.	-634896.	1.01	-.09	-98.7	.13 2728.3 SI
> 2	4- 3	-43919.	-1913965.	1.01	-808515.	1.01	-.098	-104.4	.11 2309.3 SI
2	4- 3	-43651.	-1592432.	1.	-668427.	1.	-.08	-90.2	.082 1727.4 SI
2	4- 3	-43383.	-1291828.	1.01	-549272.	1.02	-.064	-75.6	.058 1211.9 SI
> 3	4- 3	-43383.	-1291828.	1.01	-549272.	1.02	-.064	-75.6	.058 1211.9 SI
3	4- 3	-43114.	-971392.	1.	-409937.	1.	-.047	-58.	.033 686.9 SI
3	4- 3	-42846.	-672593.	1.02	-291467.	1.04	-.032	-41.4	.014 283.9 SI
> 4	4- 3	-42846.	-665595.	1.	-284469.	1.01	-.031	-40.9	.013 273.1 SI
4	4- 3	-42762.	-567353.	1.	-241589.	1.	-.027	-35.6	.008 169.6 SI
4	4- 3	-42679.	-475914.	1.01	-205040.	1.02	-.023	-31.1	.004 92.1 SI
> 5	4- 3	-42679.	-486299.	1.03	-215426.	1.07	-.024	-31.8	.005 103.4 SI
5	5- 4	-42006.	-45674.	1.	-204212.	1.	-.014	-18.7	-.004 -85. SI
5	1- 1	-58159.	134734.	3.88	259800.	1.08	-.02	-27.1	-.005 -99.3 SI
> 6	5- 1	-23373.	226991.	1.15	412641.	1.08	-.025	-33.7	.017 362.3 SI
6	4- 3	-25912.	149256.	1.	33177.	1.	-.01	-13.7	-.002 -42.7 SI
6	4- 2	-20458.	-599058.	1.05	-75178.	1.53	-.03	-38.7	.035 741.8 SI
> 7	5- 1	-8278.	92299.	1.13	-170068.	1.07	-.011	-14.6	.009 187.2 SI
7	4- 2	-6888.	-194813.	1.	-19511.	1.	-.009	-12.6	.011 222.1 SI
7	4- 2	-5451.	-428149.	1.02	17806.	1.87	-.02	-27.3	.047 997. SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-30208.5	-1947.4	-50581.3	71.	.7	1.3	1.66	.071	113.7	4.47	SI
2	1- 1	-60704.9	-50581.3	-27190.4	71.	.7	1.3	1.16	.142	56.12	4.47	SI
3	5- 4	-43068.4	214359.6	128048.8	71.	.7	1.3	1.1	.101	63.2	4.47	SI
4	5- 4	-42531.5	128048.8	101923.7	22.	.7	1.3	.904	.1	52.14	1.39	SI
5	1- 1	-59092.6	3448.5	34746.3	95.	.7	1.3	1.6	.138	78.33	5.98	SI
6	5- 2	-24019.2	126561.3	161387.4	380.	.7	1.14	.916	.056	61.5	23.93	SI
7	1- 1	-14236.1	-5313.1	-10324.7	380.	.7	1.14	1.19	.033	103.4	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-30208.5	-639429.	-800699.	71.	.7	1.3	.901	.071	61.69	4.47	SI
2	5- 2	-38609.9	146402.7	147804.4	71.	.7	1.3	.709	.09	42.95	4.47	SI
3	5- 2	-38072.9	147804.4	152081.4	71.	.7	1.3	.728	.089	44.39	4.47	SI
4	5- 2	-37536.	152081.4	154905.4	22.	.7	1.3	.718	.088	44.1	1.39	SI
5	5- 2	-37369.6	154905.4	60081.1	95.	.7	1.3	1.31	.088	80.74	5.98	SI
6	1- 1	-38079.4	180690.3	-36798.6	380.	.7	1.14	1.9	.089	101.5	23.93	SI
7	5- 1	-8277.6	-159583.	-156450.	380.	.7	1.14	.72	.019	82.33	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 4	-4848.1	25324.	25324.	65222.5	1.01	18.	2.5	SI
1 C	5- 4	-4848.1	25324.	25324.	65183.5	1.01	18.	2.5	SI
1 S	5- 4	-4848.1	25324.	25324.	65144.5	1.01	18.	2.5	SI
2 I	5- 4	7522.7	23991.1	23991.1	68352.9	1.01	19.	2.5	SI
2 C	5- 4	7522.7	23991.1	23991.1	68313.9	1.01	19.	2.5	SI
2 S	5- 4	7522.7	23991.1	23991.1	68274.8	1.01	19.	2.5	SI
3 I	5- 4	7516.6	23991.1	23991.1	68274.8	1.01	19.	2.5	SI
3 C	5- 4	7516.6	23991.1	23991.1	68235.8	1.01	19.	2.5	SI
3 S	5- 4	7516.6	23991.1	23991.1	68196.8	1.01	19.	2.5	SI
4 I	5- 4	7509.3	23991.1	23991.1	68196.8	1.01	19.	2.5	SI
4 C	5- 4	7509.3	23991.1	23991.1	68184.7	1.01	19.	2.5	SI
4 S	5- 4	7509.3	23991.1	23991.1	68172.7	1.01	19.	2.5	SI
5 I	5- 4	7498.7	23991.1	23991.1	68172.7	1.01	19.	2.5	SI
5 C	5- 4	7498.7	23991.1	23991.1	68120.5	1.01	19.	2.5	SI
5 S	5- 4	7498.7	23991.1	23991.1	68068.3	1.01	19.	2.5	SI
6 I	5- 1	-1799.8	23991.1	23991.1	65413.1	1.01	19.	2.5	SI
6 C	5- 1	-1799.8	23991.1	23991.1	65204.3	1.01	19.	2.5	SI
6 S	5- 1	-1799.8	23991.1	23991.1	64995.5	1.01	19.	2.5	SI
7 I	5- 4	679.4	23991.1	23991.1	63472.6	1.01	19.	2.5	SI

7 C	5- 4	679.4	23991.1	23991.1	63263.8	1.01	19.	2.5	SI
7 S	5- 4	679.4	23991.1	23991.1	63055.	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 3	24738.5	25324.	25324.	65185.2	1.01	18.	2.5	SI
1 C	4- 3	24738.5	25324.	25324.	65146.2	1.01	18.	2.5	SI
1 S	4- 3	24738.5	25324.	25324.	65107.2	1.01	18.	2.5	SI
2 I	4- 3	-8780.1	23991.1	23991.1	68398.5	1.01	19.	2.5	SI
2 C	4- 3	-8780.1	23991.1	23991.1	68359.5	1.01	19.	2.5	SI
2 S	4- 3	-8780.1	23991.1	23991.1	68320.5	1.01	19.	2.5	SI
3 I	4- 3	-8774.6	23991.1	23991.1	68320.5	1.01	19.	2.5	SI
3 C	4- 3	-8774.6	23991.1	23991.1	68281.5	1.01	19.	2.5	SI
3 S	4- 3	-8774.6	23991.1	23991.1	68242.5	1.01	19.	2.5	SI
4 I	4- 3	-8767.2	23991.1	23991.1	68242.5	1.01	19.	2.5	SI
4 C	4- 3	-8767.2	23991.1	23991.1	68230.4	1.01	19.	2.5	SI
4 S	4- 3	-8767.2	23991.1	23991.1	68218.3	1.01	19.	2.5	SI
5 I	4- 3	-8756.4	23991.1	23991.1	68218.3	1.01	19.	2.5	SI
5 C	4- 3	-8756.4	23991.1	23991.1	68166.1	1.01	19.	2.5	SI
5 S	4- 3	-8756.4	23991.1	23991.1	68113.9	1.01	19.	2.5	SI
6 I	4- 2	2488.3	23991.1	23991.1	65407.2	1.01	19.	2.5	SI
6 C	4- 2	2488.3	23991.1	23991.1	65198.4	1.01	19.	2.5	SI
6 S	4- 2	2488.3	23991.1	23991.1	64989.6	1.01	19.	2.5	SI
7 I	4- 2	1320.1	23991.1	23991.1	63226.7	1.01	19.	2.5	SI
7 C	4- 2	1320.1	23991.1	23991.1	63017.9	1.01	19.	2.5	SI
7 S	4- 2	1320.1	23991.1	23991.1	62809.1	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-22541.3	-1531.1	-477952.4	-22.2	175.9	SI
1 C	8- 1	-22272.8	-19389.5	-538246.4	-25.6	257.8	SI
1 S	8- 1	-22004.4	-37247.9	-598540.3	-29.	346.5	SI
2 I	8- 1	-45264.	-37247.9	-757294.	-37.3	175.	SI
2 C	8- 1	-44995.6	-28554.9	-628722.2	-32.	77.4	SI
2 S	8- 1	-44727.1	-19862.	-500150.4	-27.3	5.3	SI
3 I	8- 1	-44727.1	-19862.	-500150.4	-27.3	5.3	SI
3 C	8- 1	-44458.6	-11169.	-371578.7	-23.3	-46.6	SI
3 S	8- 1	-44190.2	-2476.	-243006.9	-19.4	-96.1	SI
4 I	8- 1	-44190.2	-2476.	-243006.9	-19.4	-96.1	SI
4 C	8- 1	-44107.	217.6	-203167.7	-18.1	-111.2	SI
4 S	8- 1	-44023.8	2911.2	-163328.6	-17.1	-124.6	SI
5 I	8- 1	-44023.8	2911.2	-163328.6	-17.1	-124.6	SI
5 C	8- 1	-43664.6	14542.6	8704.1	-12.9	-175.8	SI
5 S	8- 1	-43305.4	26174.	180736.7	-18.	-106.6	SI
6 I	8- 1	-28453.5	24517.1	136098.3	-13.9	-64.1	SI
6 C	8- 1	-27016.7	4959.5	54231.6	-10.2	-99.9	SI
6 S	8- 1	-25579.8	-14598.2	-27635.1	-9.2	-100.4	SI
7 I	8- 1	-10707.7	-4032.8	-58335.5	-5.3	-23.3	SI
7 C	8- 1	-9270.8	-5945.7	-10429.7	-3.4	-35.9	SI
7 S	8- 1	-7833.9	-7858.5	37476.	-3.9	-17.2	SI

FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-20805.3	-1577.9	-442006.6	-20.5	163.3	SI
1 C	9- 1	-20536.9	-17387.1	-497802.5	-23.6	239.2	SI
1 S	9- 1	-20268.4	-33196.3	-553598.4	-26.8	321.3	SI
2 I	9- 1	-41691.2	-33196.3	-700411.8	-34.5	163.1	SI
2 C	9- 1	-41422.7	-25317.3	-581435.3	-29.5	72.5	SI
2 S	9- 1	-41154.3	-17438.4	-462458.8	-25.2	5.6	SI
3 I	9- 1	-41154.3	-17438.4	-462458.8	-25.2	5.6	SI
3 C	9- 1	-40885.8	-9559.5	-343482.3	-21.5	-42.5	SI
3 S	9- 1	-40617.3	-1680.6	-224505.8	-17.8	-88.1	SI
4 I	9- 1	-40617.3	-1680.6	-224505.8	-17.8	-88.1	SI
4 C	9- 1	-40534.2	760.8	-187639.9	-16.7	-101.7	SI
4 S	9- 1	-40451.	3202.2	-150773.9	-15.7	-114.	SI
5 I	9- 1	-40451.	3202.2	-150773.9	-15.7	-114.	SI
5 C	9- 1	-40091.7	13744.4	8420.	-11.9	-161.1	SI
5 S	9- 1	-39732.5	24286.6	167613.8	-16.6	-97.	SI
6 I	9- 1	-26041.	23159.8	128210.4	-12.9	-56.8	SI
6 C	9- 1	-24604.1	5214.4	51204.8	-9.4	-89.9	SI
6 S	9- 1	-23167.2	-12731.	-25800.8	-8.4	-90.8	SI
7 I	9- 1	-9460.2	-2216.2	-51943.7	-4.6	-21.	SI
7 C	9- 1	-8023.3	-5146.6	-9833.7	-2.9	-30.8	SI
7 S	9- 1	-6586.5	-8076.9	32276.3	-3.3	-13.5	SI

QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-20277.2	-1595.9	-431199.2	-20.	159.7	SI
1 C	10- 1	-20008.7	-16775.	-485644.9	-23.	233.7	SI
1 S	10- 1	-19740.2	-31954.1	-540090.6	-26.1	313.9	SI
2 I	10- 1	-40604.3	-31954.1	-683313.7	-33.6	159.7	SI
2 C	10- 1	-40335.8	-24316.9	-567216.7	-28.8	71.2	SI
2 S	10- 1	-40067.4	-16679.7	-451119.7	-24.5	5.7	SI
3 I	10- 1	-40067.4	-16679.7	-451119.7	-24.5	5.7	SI
3 C	10- 1	-39798.9	-9042.5	-335022.6	-20.9	-41.2	SI
3 S	10- 1	-39530.4	-1405.3	-218925.6	-17.3	-85.7	SI
4 I	10- 1	-39530.4	-1405.3	-218925.6	-17.3	-85.7	SI
4 C	10- 1	-39447.3	961.1	-182951.8	-16.3	-98.7	SI
4 S	10- 1	-39364.1	3327.6	-146978.1	-15.3	-110.8	SI
5 I	10- 1	-39364.1	3327.6	-146978.1	-15.3	-110.8	SI
5 C	10- 1	-39004.8	13546.4	8363.	-11.6	-156.6	SI
5 S	10- 1	-38645.6	23765.1	163704.1	-16.2	-94.	SI
6 I	10- 1	-25340.5	22822.1	125880.3	-12.6	-54.7	SI
6 C	10- 1	-23903.6	5246.1	50310.5	-9.1	-87.1	SI
6 S	10- 1	-22466.7	-12329.8	-25259.3	-8.1	-87.9	SI

7 I	10- 1	-9147.5	-1838.8	-50024.3	-4.5	-20.5	SI
7 C	10- 1	-7710.6	-4968.9	-9656.6	-2.8	-29.5	SI
7 S	10- 1	-6273.7	-8098.9	30711.1	-3.2	-12.7	SI

Nome pilastro : **P064 - RINFORZATO** (ID=251)  
Aste : 1102; 1103; 1104; 1105; 1106; 584; 585  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/cm; daNcm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinale= 3.5 ; staffe= 2.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS :  $\sigma_c$  (rara)=149.4;  $\sigma_c$  (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO:  $\sigma_f$  (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

<-

#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12φ20
2	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12φ20
3	1	2.	2.	.24	.24	71.	71.	0.	0.	37.7	1.246 12φ20
4	1	2.	2.	.07	.07	22.	22.	0.	0.	37.7	1.246 12φ20
5	1	2.	2.	.32	.32	95.	95.	0.	0.	37.7	1.246 12φ20
6	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8φ16
7	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532 8φ16

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	$\sigma_c$	E acc	$\sigma_f$	VE
> 1	5- 4	-21444.	47964.	1.27	-997437.	1.01	-0.035	-44.8	.043 910.3 SI
1	5- 4	-21176.	232333.	1.	-1153778.	1.	-0.047	-58.7	.061 1280.4 SI
1	4- 2	-19003.	1908146.	1.	-306082.	1.01	-0.076	-86.9	.119 2490.7 SI
> 2	4- 2	-39533.	1913004.	1.	-391121.	1.02	-0.081	-91.2	.097 2045.1 SI
2	4- 2	-39264.	1585246.	1.	-265741.	1.	-0.064	-76.	.071 1481.2 SI
2	4- 2	-38996.	1276330.	1.01	-215344.	1.04	-0.051	-62.9	.049 1018.7 SI
> 3	4- 2	-38996.	1276330.	1.01	-215344.	1.04	-0.051	-62.9	.049 1018.7 SI
3	5- 4	-41696.	215981.	1.	-943657.	1.	-0.039	-49.8	.025 534.8 SI
3	5- 4	-41428.	155780.	1.07	-713098.	1.01	-0.029	-38.2	.012 251.5 SI
> 4	5- 4	-41428.	149013.	1.02	-706331.	1.	-0.029	-37.7	.011 241.2 SI
4	5- 4	-41344.	124382.	1.	-629149.	1.	-0.026	-33.8	.008 161.8 SI
4	5- 4	-41261.	-156225.	1.02	-558228.	1.01	-0.024	-32.2	.006 127.2 SI
> 5	5- 4	-41261.	-166265.	1.09	-568268.	1.02	-0.025	-32.9	.007 139.7 SI
5	5- 4	-40902.	-52833.	1.	-241420.	1.	-0.014	-19.6	-.003 -63.6 SI
5	4- 2	-37574.	-445859.	1.03	139063.	1.09	-0.02	-27.1	.004 74.5 SI
> 6	4- 2	-24633.	544706.	1.06	133199.	1.31	-0.028	-37.1	.023 489.5 SI
6	4- 2	-23196.	-132252.	1.	39969.	1.	-0.009	-12.6	-.002 -34.5 SI
6	4- 2	-21759.	-703682.	1.04	-71081.	4.12	-0.035	-44.7	.046 967.1 SI
> 7	5- 1	-8192.	160516.	1.07	-136970.	1.08	-0.012	-16.9	.011 237.8 SI
7	4- 2	-7405.	-208165.	1.	-6933.	1.	-0.009	-12.5	.011 222.6 SI
7	4- 2	-5968.	-552347.	1.01	29458.	1.35	-0.027	-35.5	.065 1362.1 SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-29360.	12734.8	127345.7	71.	.7	1.3	1.6	.069	111.1	4.47	SI
2	1- 1	-59668.2	127345.7	77977.1	71.	.7	1.3	1.09	.14	52.96	4.47	SI
3	1- 1	-58970.2	77977.1	28608.6	71.	.7	1.3	1.33	.138	65.3	4.47	SI
4	4- 3	-39274.3	-593241.	-419777.	22.	.7	1.3	.992	.092	59.56	1.39	SI
5	5- 2	-36879.6	102879.4	67792.9	95.	.7	1.3	1.04	.086	64.48	5.98	SI
6	5- 2	-23713.	144445.6	174824.9	380.	.7	1.14	.874	.056	59.06	23.93	SI
7	4- 4	-8976.5	215330.	426289.9	380.	.7	1.14	1.2	.021	131.3	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	1- 1	-29360.	-434203.	-514310.	71.	.7	1.3	.856	.069	59.41	4.47	SI
2	1- 1	-59668.2	-651262.	-431593.	71.	.7	1.3	1.04	.14	50.51	4.47	SI

3	5- 2	-37582.9	351097.1	260279.9	71.	.7	1.3	.959	.088	58.82	4.47	SI
4	5- 2	-37045.9	260279.9	233202.7	22.	.7	1.3	.804	.087	49.69	1.39	SI
5	5- 2	-36879.6	233202.7	10373.	95.	.7	1.3	1.66	.086	102.5	5.98	SI
6	1- 1	-37400.2	94018.4	-16185.3	380.	.7	1.14	1.87	.088	100.8	23.93	SI
7	5- 2	-8415.2	-125879.	-128341.	380.	.7	1.14	.719	.02	81.6	23.93	SI

#### TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 4	-4550.6	25324.	25324.	65132.9	1.01	18.	2.5	SI
1 C	5- 4	-4550.6	25324.	25324.	65093.9	1.01	18.	2.5	SI
1 S	5- 4	-4550.6	25324.	25324.	65054.9	1.01	18.	2.5	SI
2 I	5- 4	6833.9	23991.1	23991.1	68192.5	1.01	19.	2.5	SI
2 C	5- 4	6833.9	23991.1	23991.1	68153.5	1.01	19.	2.5	SI
2 S	5- 4	6833.9	23991.1	23991.1	68114.4	1.01	19.	2.5	SI
3 I	5- 4	6827.9	23991.1	23991.1	68114.4	1.01	19.	2.5	SI
3 C	5- 4	6827.9	23991.1	23991.1	68075.4	1.01	19.	2.5	SI
3 S	5- 4	6827.9	23991.1	23991.1	68036.4	1.01	19.	2.5	SI
4 I	5- 4	6820.5	23991.1	23991.1	68036.4	1.01	19.	2.5	SI
4 C	5- 4	6820.5	23991.1	23991.1	68024.3	1.01	19.	2.5	SI
4 S	5- 4	6820.5	23991.1	23991.1	68012.3	1.01	19.	2.5	SI
5 I	5- 4	6810.	23991.1	23991.1	68012.3	1.01	19.	2.5	SI
5 C	5- 4	6810.	23991.1	23991.1	67960.1	1.01	19.	2.5	SI
5 S	5- 4	6810.	23991.1	23991.1	67907.9	1.01	19.	2.5	SI
6 I	5- 1	-1638.1	23991.1	23991.1	65391.7	1.01	19.	2.5	SI
6 C	5- 1	-1638.1	23991.1	23991.1	65183.	1.01	19.	2.5	SI
6 S	5- 1	-1638.1	23991.1	23991.1	64974.2	1.01	19.	2.5	SI
7 I	5- 4	817.	23991.1	23991.1	63432.2	1.01	19.	2.5	SI
7 C	5- 4	817.	23991.1	23991.1	63223.4	1.01	19.	2.5	SI
7 S	5- 4	817.	23991.1	23991.1	63014.6	1.01	19.	2.5	SI

#### TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 2	-24463.2	25324.	25324.	64856.3	1.01	18.	2.5	SI
1 C	4- 2	-24463.2	25324.	25324.	64817.3	1.01	18.	2.5	SI
1 S	4- 2	-24463.2	25324.	25324.	64778.3	1.01	18.	2.5	SI
2 I	4- 2	8983.6	23991.1	23991.1	67761.1	1.01	19.	2.5	SI
2 C	4- 2	8983.6	23991.1	23991.1	67722.1	1.01	19.	2.5	SI
2 S	4- 2	8983.6	23991.1	23991.1	67683.1	1.01	19.	2.5	SI
3 I	4- 2	8978.	23991.1	23991.1	67683.1	1.01	19.	2.5	SI
3 C	4- 2	8978.	23991.1	23991.1	67644.1	1.01	19.	2.5	SI
3 S	4- 2	8978.	23991.1	23991.1	67605.1	1.01	19.	2.5	SI
4 I	4- 2	8970.6	23991.1	23991.1	67605.1	1.01	19.	2.5	SI
4 C	4- 2	8970.6	23991.1	23991.1	67593.	1.01	19.	2.5	SI
4 S	4- 2	8970.6	23991.1	23991.1	67580.9	1.01	19.	2.5	SI
5 I	4- 2	8959.9	23991.1	23991.1	67580.9	1.01	19.	2.5	SI
5 C	4- 2	8959.9	23991.1	23991.1	67528.7	1.01	19.	2.5	SI
5 S	4- 2	8959.9	23991.1	23991.1	67476.5	1.01	19.	2.5	SI
6 I	4- 2	3080.6	23991.1	23991.1	65596.2	1.01	19.	2.5	SI
6 C	4- 2	3080.6	23991.1	23991.1	65387.5	1.01	19.	2.5	SI
6 S	4- 2	3080.6	23991.1	23991.1	65178.7	1.01	19.	2.5	SI
7 I	4- 2	1880.3	23991.1	23991.1	63301.8	1.01	19.	2.5	SI
7 C	4- 2	1880.3	23991.1	23991.1	63093.1	1.01	19.	2.5	SI
7 S	4- 2	1880.3	23991.1	23991.1	62884.3	1.01	19.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-21911.7	9501.7	-324419.1	-16.1	48.1	SI
1 C	8- 1	-21643.2	52386.8	-354336.3	-18.8	94.6	SI
1 S	8- 1	-21374.8	95271.8	-384253.4	-21.7	148.8	SI
2 I	8- 1	-44497.7	95271.8	-486562.7	-29.1	31.3	SI
2 C	8- 1	-44229.2	76879.1	-404463.7	-26.	-9.1	SI
2 S	8- 1	-43960.8	58486.3	-322364.7	-23.1	-45.2	SI
3 I	8- 1	-43960.8	58486.3	-322364.7	-23.1	-45.2	SI
3 C	8- 1	-43692.3	40093.6	-240265.7	-20.2	-81.1	SI
3 S	8- 1	-43423.8	21700.8	-158166.8	-17.3	-117.	SI
4 I	8- 1	-43423.8	21700.8	-158166.8	-17.3	-117.	SI
4 C	8- 1	-43340.7	16001.7	-132727.6	-16.4	-128.2	SI
4 S	8- 1	-43257.5	10302.5	-107288.5	-15.5	-139.3	SI
5 I	8- 1	-43257.5	10302.5	-107288.5	-15.5	-139.3	SI
5 C	8- 1	-42898.2	-14307.5	2562.3	-12.5	-174.9	SI
5 S	8- 1	-42539.	-38917.5	112413.	-16.2	-123.8	SI
6 I	8- 1	-27951.6	22465.3	71117.7	-11.6	-89.8	SI
6 C	8- 1	-26514.7	-5527.6	29465.5	-9.3	-107.7	SI
6 S	8- 1	-25077.8	-33520.5	-12186.7	-9.2	-96.6	SI
7 I	8- 1	-10491.9	26293.5	-47288.1	-5.6	-17.6	SI
7 C	8- 1	-9055.1	-6014.9	-4739.5	-3.1	-37.3	SI
7 S	8- 1	-7618.2	-38323.3	37809.1	-4.8	-3.3	SI

#### FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	9- 1	-20234.	8819.8	-299352.	-14.9	44.2	SI
1 C	9- 1	-19965.5	48663.5	-326894.1	-17.3	87.5	SI
1 S	9- 1	-19697.1	88507.2	-354436.2	-20.	137.9	SI
2 I	9- 1	-41003.6	88507.2	-448794.8	-26.9	29.3	SI
2 C	9- 1	-40735.1	71490.2	-373007.2	-24.	-7.9	SI
2 S	9- 1	-40466.6	54473.3	-297219.5	-21.3	-41.2	SI
3 I	9- 1	-40466.6	54473.3	-297219.5	-21.3	-41.2	SI
3 C	9- 1	-40198.2	37456.4	-221431.9	-18.6	-74.3	SI
3 S	9- 1	-39929.7	20439.4	-145644.3	-15.9	-107.4	SI
4 I	9- 1	-39929.7	20439.4	-145644.3	-15.9	-107.4	SI
4 C	9- 1	-39846.5	15166.6	-122160.8	-15.1	-117.6	SI
4 S	9- 1	-39763.3	9893.7	-98677.4	-14.2	-127.9	SI
5 I	9- 1	-39763.3	9893.7	-98677.4	-14.2	-127.9	SI
5 C	9- 1	-39404.1	-12875.4	2728.6	-11.5	-160.6	SI
5 S	9- 1	-39044.9	-35644.6	104134.6	-14.9	-113.3	SI

6 I	9- 1	-25595.1	21198.8	67501.4	-10.7	-81.	SI
6 C	9- 1	-24158.2	-4370.5	28039.2	-8.5	-97.9	SI
6 S	9- 1	-22721.4	-29939.9	-11423.1	-8.3	-87.5	SI
7 I	9- 1	-9270.8	25780.7	-41936.4	-5.	-14.4	SI
7 C	9- 1	-7834.	-5208.2	-4436.	-2.7	-32.1	SI
7 S	9- 1	-6397.1	-36197.1	33064.3	-4.2	-5	SI

#### QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	10- 1	-19723.5	8607.	-291846.9	-14.5	43.2	SI
1 C	10- 1	-19455.1	47531.4	-318681.8	-16.9	85.4	SI
1 S	10- 1	-19186.6	86455.8	-345516.6	-19.5	134.7	SI
2 I	10- 1	-39940.5	86455.8	-437495.2	-26.2	28.8	SI
2 C	10- 1	-39672.	69868.7	-363591.	-23.4	-7.5	SI
2 S	10- 1	-39403.6	53281.7	-289686.7	-20.7	-39.9	SI
3 I	10- 1	-39403.6	53281.7	-289686.7	-20.7	-39.9	SI
3 C	10- 1	-39135.1	36694.7	-215782.5	-18.1	-72.1	SI
3 S	10- 1	-38866.6	20107.6	-141878.3	-15.5	-104.4	SI
4 I	10- 1	-38866.6	20107.6	-141878.3	-15.5	-104.4	SI
4 C	10- 1	-38783.4	14968.	-118978.4	-14.7	-114.4	SI
4 S	10- 1	-38700.2	9828.4	-96078.5	-13.9	-124.3	SI
5 I	10- 1	-38700.2	9828.4	-96078.5	-13.9	-124.3	SI
5 C	10- 1	-38341.	-12365.6	2807.4	-11.2	-156.3	SI
5 S	10- 1	-37981.8	-34559.5	101693.3	-14.5	-110.1	SI
6 I	10- 1	-24911.2	20888.8	66465.1	-10.5	-78.4	SI
6 C	10- 1	-23474.3	-4070.6	27631.6	-8.2	-95.1	SI
6 S	10- 1	-22037.4	-29030.	-11201.8	-8.1	-84.9	SI
7 I	10- 1	-8965.7	25414.	-40326.6	-4.9	-13.9	SI
7 C	10- 1	-7528.8	-5030.6	-4346.1	-2.6	-30.8	SI
7 S	10- 1	-6091.9	-35475.3	31634.5	-4.	0.	SI

Nome pilastro : **P065 - RINFORZATO** (ID=134)  
Aste : 1107; 1108; 1109; 1110; 1111; 587; 588  
Metodo di verifica : stati limite - NTC18 (q=1.33 ; muphi=1.99) ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN/cm; daN/cm; daN/cm2; deform. %; 1/r â€°(permille)  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 4.5 ; staffe= 3.5  
Imperfezioni : M minimo = N \* e0 ; M aggiunto = N \* ei  
Instabilita' : snellezza limite [EC2 5.8.3.1]

#### MATERIALI

CLS : C25/30; Rck=300; fck=249; fctk=17.91; fctm=25.58; Ecm=314472;  
gc=1.5; fcd=141.1; fbd=26.86; fctd=11.94; Ec2=0.2%; **Ecu=0.2%**  
ACCIAIO: B450C; ftk=5175; fyk=4500; Es=2100000;  
gs=1.15; fyd=3913; ftd=4500; fud=3640.9; Eyd=0.18%; **Eud=0.18%**

#### TENSIONI MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : σc (rara)=149.4; σc (quasi permanente)=112; fbd(esercizio)=26.86  
ACCIAIO: σf (rara)=3600; Coeff.Omogeneizzazione=15

#### CASI DI CARICO

Nome	Descrizione	Tipo	Ses
1	SLU SENZA SISMA	SLU (statico)	1
4	SLU con SISMAX	SLU (sismico)	4
5	SLU con SISMAX	SLU (sismico)	4
8	Rara	RARA	1
9	Frequente	FREQUENTE	1
10	Quasi Perm	QUASI PERMAN.	1

<-

#### SEZIONI UTILIZZATE

1) Rettangolare: base=55; alt.=55; Acl=3025; iy=15.88; iz=15.88

#### DESCRIZIONE ASTE E ARMATURA LONGITUDINALE

As	Se	e0z	e0y	eiz	eiy	Lassi	Lnet	Lcr.I	Lcr.S	Af	% arm
1	1	2.	2.	.24	.24	71.	71.	0.	0.	48.25	1.595
2	1	2.	2.	.24	.24	71.	71.	0.	0.	32.17	1.063
3	1	2.	2.	.24	.24	71.	71.	0.	0.	16.08	.532
4	1	2.	2.	.07	.07	22.	22.	0.	0.	16.08	.532
5	1	2.	2.	.32	.32	95.	71.	0.	0.	16.08	.532
6	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532
7	1	2.	2.	1.27	1.27	380.	356.	0.	0.	16.08	.532

#### VERIFICHE ALLO STATO LIMITE ULTIMO

PRESSO-FLESSIONE (incluse le imperfezioni):

Asta	Caso	NEd	MEyd	MEzd	E c/s	σc	E acc	σf	VE
> 1	5- 1	-28798.	1038318.	1.01	2235316.	1.	-.112	-114.	.137
1	5- 1	-28530.	896047.	1.	2003319.	1.	-.098	-104.7	.118
1	5- 1	-28262.	767370.	1.01	1785111.	1.	-.086	-95.	.101
> 2	5- 1	-28262.	767370.	1.01	1785111.	1.	-.106	-109.6	.141
2	5- 1	-27993.	625450.	1.	1554035.	1.	-.088	-97.1	.114
2	5- 1	-27725.	496991.	1.01	1336840.	1.	-.073	-84.1	.09
> 3	5- 1	-27725.	496991.	1.01	1336840.	1.	-.097	-104.	.152
3	5- 1	-27456.	355775.	1.	1107807.	1.	-.074	-85.2	.108
3	5- 1	-27188.	228264.	1.03	893625.	1.01	-.054	-65.6	.069

> 4	5- 1	-27188.	223824.	1.01	889184.	1.	-.053	-65.	.068	1425.3	SI
4	5- 1	-27104.	180585.	1.	819549.	1.	-.047	-58.2	.056	1171.4	SI
4	5- 1	-27021.	141519.	1.01	754338.	1.	-.041	-51.7	.045	945.	SI
> 5	5- 1	-27021.	148094.	1.06	760914.	1.01	-.042	-52.5	.046	970.7	SI
5	5- 4	-30089.	-263204.	1.	-365952.	1.	-.024	-32.1	.01	200.3	SI
5	4- 2	-34714.	-484613.	1.02	116220.	1.1	-.024	-31.7	.007	145.4	SI
> 6	5- 4	-20174.	-65902.	17.4	-752142.	1.04	-.038	-49.	.057	1207.4	SI
6	4- 2	-21694.	-177100.	1.	-14561.	1.	-.009	-12.8	-.001	-22.	SI
6	4- 2	-20257.	-886035.	1.03	95865.	1.37	-.047	-59.1	.078	1646.6	SI
> 7	4- 3	-5751.	421711.	1.02	-151527.	1.05	-.029	-38.5	.055	1161.6	SI
7	5- 4	-6377.	86495.	1.	255233.	1.	-.016	-22.1	.024	509.4	SI
7	4- 2	-6132.	-571238.	1.01	128667.	1.06	-.036	-45.8	.075	1572.6	SI

SNELLEZZA LIMITE Y [EC2 5.8.3.1]:

Asta	Caso	NEd	MEyd inf	MEyd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	5- 3	-32292.6	-266848.	-252572.	71.	.7	1.37	.753	.076	52.65	4.47	SI
2	5- 3	-31755.7	-252572.	-238866.	71.	.7	1.26	.754	.074	48.81	4.47	SI
3	5- 3	-31218.7	-238866.	-226812.	71.	.7	1.14	.75	.073	44.21	4.47	SI
4	5- 3	-30681.8	-226812.	-224012.	22.	.7	1.14	.712	.072	42.33	1.39	SI
5	5- 4	-30448.6	-312093.	-265242.	95.	.7	1.14	.85	.071	50.71	5.98	SI
6	5- 4	-20174.2	-3798.	9416.	380.	.7	1.14	2.1	.047	154.1	23.93	SI
7	4- 2	-9005.8	10130.3	-563470.	380.	.7	1.14	1.72	.021	188.4	23.93	SI

SNELLEZZA LIMITE Z [EC2 5.8.3.1]:

Asta	Caso	NEd	MEzd inf	MEzd sup	l0	A	B	C	nu	L lim	Lambd	VE
1	4- 3	-23814.5	-184228.	-186517.	71.	.7	1.37	.712	.056	57.96	4.47	SI
2	4- 2	-36672.8	128487.	118173.5	71.	.7	1.26	.78	.086	46.99	4.47	SI
3	4- 2	-36135.9	118173.5	110585.6	71.	.7	1.14	.764	.085	41.84	4.47	SI
4	4- 2	-35598.9	110585.6	108921.6	22.	.7	1.14	.715	.083	39.45	1.39	SI
5	4- 2	-35432.6	108921.6	105227.5	95.	.7	1.14	.734	.083	40.58	5.98	SI
6	1- 1	-27415.6	-234931.	159535.	380.	.7	1.14	2.38	.064	149.6	23.93	SI
7	5- 1	-6942.4	-379119.	-189383.	380.	.7	1.14	1.2	.016	150.	23.93	SI

TAGLIO Y:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	5- 4	7154.3	23525.3	23525.3	65404.3	1.01	19.	2.5	SI
1 C	5- 4	7154.3	23525.3	23525.3	65366.	1.01	19.	2.5	SI
1 S	5- 4	7154.3	23525.3	23525.3	65327.8	1.01	19.	2.5	SI
2 I	5- 4	7151.2	23525.3	23525.3	65327.8	1.01	19.	2.5	SI
2 C	5- 4	7151.2	23525.3	23525.3	65289.5	1.01	19.	2.5	SI
2 S	5- 4	7151.2	23525.3	23525.3	65251.3	1.01	19.	2.5	SI
3 I	5- 4	7142.4	23525.3	23525.3	65251.3	1.01	19.	2.5	SI
3 C	5- 4	7142.4	23525.3	23525.3	65213.	1.01	19.	2.5	SI
3 S	5- 4	7142.4	23525.3	23525.3	65174.8	1.01	19.	2.5	SI
4 I	5- 4	7131.6	23525.3	23525.3	65174.8	1.01	19.	2.5	SI
4 C	5- 4	7131.6	23525.3	23525.3	65162.9	1.01	19.	2.5	SI
4 S	5- 4	7131.6	23525.3	23525.3	65151.1	1.01	19.	2.5	SI
5 I	5- 4	7116.2	23525.3	23525.3	65151.1	1.01	19.	2.5	SI
5 C	5- 4	7116.2	23525.3	23525.3	65099.9	1.01	19.	2.5	SI
5 S	5- 4	7116.2	23525.3	23525.3	65048.7	1.01	19.	2.5	SI
6 I	5- 4	3667.6	23525.3	23525.3	63687.2	1.01	19.	2.5	SI
6 C	5- 4	3667.6	23525.3	23525.3	63482.5	1.01	19.	2.5	SI
6 S	5- 4	3667.6	23525.3	23525.3	63277.8	1.01	19.	2.5	SI
7 I	5- 2	1648.9	23525.3	23525.3	61801.1	1.01	19.	2.5	SI
7 C	5- 2	1648.9	23525.3	23525.3	61596.4	1.01	19.	2.5	SI
7 S	5- 2	1648.9	23525.3	23525.3	61391.7	1.01	19.	2.5	SI

TAGLIO Z:

Asta	Caso	VEd	VRd	VRsd	VRcd	Asw	s	ctgT	VE
1 I	4- 2	8861.5	23525.3	23525.3	66114.4	1.01	19.	2.5	SI
1 C	4- 2	8861.5	23525.3	23525.3	66076.1	1.01	19.	2.5	SI
1 S	4- 2	8861.5	23525.3	23525.3	66037.9	1.01	19.	2.5	SI
2 I	4- 2	8858.1	23525.3	23525.3	66037.9	1.01	19.	2.5	SI
2 C	4- 2	8858.1	23525.3	23525.3	65999.6	1.01	19.	2.5	SI
2 S	4- 2	8858.1	23525.3	23525.3	65961.4	1.01	19.	2.5	SI
3 I	4- 2	8848.8	23525.3	23525.3	65961.4	1.01	19.	2.5	SI
3 C	4- 2	8848.8	23525.3	23525.3	65923.1	1.01	19.	2.5	SI
3 S	4- 2	8848.8	23525.3	23525.3	65884.9	1.01	19.	2.5	SI
4 I	4- 2	8838.1	23525.3	23525.3	65884.9	1.01	19.	2.5	SI
4 C	4- 2	8838.1	23525.3	23525.3	65873.	1.01	19.	2.5	SI
4 S	4- 2	8838.1	23525.3	23525.3	65861.2	1.01	19.	2.5	SI
5 I	4- 2	8822.8	23525.3	23525.3	65861.2	1.01	19.	2.5	SI
5 C	4- 2	8822.8	23525.3	23525.3	65810.	1.01	19.	2.5	SI
5 S	4- 2	8822.8	23525.3	23525.3	65758.8	1.01	19.	2.5	SI
6 I	4- 2	3801.8	23525.3	23525.3	64108.4	1.01	19.	2.5	SI
6 C	4- 2	3801.8	23525.3	23525.3	63903.7	1.01	19.	2.5	SI
6 S	4- 2	3801.8	23525.3	23525.3	63699.	1.01	19.	2.5	SI
7 I	4- 2	1926.6	23525.3	23525.3	62096.	1.01	19.	2.5	SI
7 C	4- 2	1926.6	23525.3	23525.3	61891.3	1.01	19.	2.5	SI
7 S	4- 2	1926.6	23525.3	23525.3	61686.6	1.01	19.	2.5	SI

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

RARE:

Asta	Caso	NEd	MEyd	MEzd	σc	σf	VE
1 I	8- 1	-32806.2	239856.	-63155.6	-17.2	-28.9	SI
1 C	8- 1	-32537.7	188850.8	-48977.1	-15.3	-50.2	SI
1 S	8- 1	-32269.2	137845.6	-34798.6	-13.4	-71.5	SI
2 I	8- 1	-32269.2	137845.6	-34798.6	-14.4	-75.	SI
2 C	8- 1	-32000.8	86840.5	-20620.1	-12.4	-98.1	SI
2 S	8- 1	-31732.3	35835.3	-6441.7	-10.4	-121.2	SI
3 I	8- 1	-31732.3	35835.3	-6441.7	-11.1	-129.3	SI
3 C	8- 1	-31463.8	-15169.9	7736.8	-10.4	-135.9	SI
3 S	8- 1	-31195.4	-66175.1	21915.3	-12.4	-108.3	SI
4 I	8- 1	-31195.4	-66175.1	21915.3	-12.4	-108.3	SI
4 C	8- 1	-31112.2	-81979.6	26308.6	-13.1	-99.7	SI
4 S	8- 1	-31029.	-97784.	30702.	-13.7	-91.2	SI

5 I	8- 1	-31029.1	-97784.1	30702.1	-13.7	-91.2	SI
5 C	8- 1	-30669.8	-166030.4	49673.2	-16.4	-54.2	SI
5 S	8- 1	-30310.5	-234276.8	68644.4	-19.1	-17.2	SI
6 I	8- 1	-20673.3	257245.5	-178713.7	-22.8	135.5	SI
6 C	8- 1	-19236.4	1781.8	-28085.3	-6.9	-76.7	SI
6 S	8- 1	-17799.5	-253681.9	122543.1	-19.9	123.9	SI
7 I	8- 1	-8134.8	241411.1	-138119.4	-24.4	441.2	SI
7 C	8- 1	-6697.9	-11981.7	10057.6	-2.8	-22.	SI
7 S	8- 1	-5261.1	-265374.5	158234.6	-29.9	720.7	SI

# FREQUENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	9- 1	-31047.7	222920.3	-58144.1	-16.1	-29.3	SI
1 C	9- 1	-30779.2	175778.1	-44221.4	-14.3	-49.2	SI
1 S	9- 1	-30510.8	128635.9	-30298.9	-12.6	-69.1	SI
2 I	9- 1	-30510.8	128635.9	-30298.9	-13.5	-72.5	SI
2 C	9- 1	-30242.3	81493.8	-16376.4	-11.6	-94.1	SI
2 S	9- 1	-29973.8	34351.6	-2453.9	-9.7	-115.7	SI
3 I	9- 1	-29973.8	34351.6	-2453.9	-10.4	-123.4	SI
3 C	9- 1	-29705.4	-12790.5	11468.7	-9.9	-127.3	SI
3 S	9- 1	-29436.9	-59932.7	25391.2	-11.8	-101.3	SI
4 I	9- 1	-29436.9	-59932.7	25391.2	-11.8	-101.3	SI
4 C	9- 1	-29353.7	-74540.1	29705.2	-12.4	-93.3	SI
4 S	9- 1	-29270.5	-89147.5	34019.3	-13.	-85.2	SI
5 I	9- 1	-29270.5	-89147.5	34019.3	-13.	-85.2	SI
5 C	9- 1	-28911.3	-152225.	52648.	-15.5	-50.5	SI
5 S	9- 1	-28552.1	-215302.6	71276.7	-18.	-15.7	SI
6 I	9- 1	-19489.6	237930.4	-174121.4	-21.6	128.1	SI
6 C	9- 1	-18052.7	554.4	-25957.7	-6.4	-72.6	SI
6 S	9- 1	-16615.8	-236821.6	122206.	-19.	122.6	SI
7 I	9- 1	-7530.9	219126.	-135374.4	-22.8	408.7	SI
7 C	9- 1	-6094.	-3959.3	9931.5	-2.3	-22.5	SI
7 S	9- 1	-4657.1	-227044.6	155237.4	-27.1	644.1	SI

# QUASI PERMANENTI:

Asta	Caso	NEd	MEyd	MEzd	$\sigma_c$	$\sigma_f$	VE
1 I	10- 1	-30512.1	217702.8	-56741.1	-15.8	-29.4	SI
1 C	10- 1	-30243.6	171782.3	-42878.1	-14.1	-48.8	SI
1 S	10- 1	-29975.2	125861.9	-29015.1	-12.3	-68.3	SI
2 I	10- 1	-29975.2	125861.9	-29015.1	-13.2	-71.7	SI
2 C	10- 1	-29706.7	79941.4	-15152.1	-11.4	-92.8	SI
2 S	10- 1	-29438.2	34020.9	-1289.2	-9.5	-113.9	SI
3 I	10- 1	-29438.2	34020.9	-1289.2	-10.2	-121.6	SI
3 C	10- 1	-29169.8	-11899.6	12573.8	-9.8	-124.7	SI
3 S	10- 1	-28901.3	-57820.	26436.7	-11.6	-99.3	SI
4 I	10- 1	-28901.3	-57820.	26436.7	-11.6	-99.3	SI
4 C	10- 1	-28818.1	-72048.9	30732.3	-12.2	-91.4	SI
4 S	10- 1	-28734.9	-86277.8	35027.9	-12.8	-83.5	SI
5 I	10- 1	-28734.9	-86277.8	35027.9	-12.8	-83.5	SI
5 C	10- 1	-28375.7	-147720.7	53576.9	-15.2	-49.4	SI
5 S	10- 1	-28016.5	-209163.6	72125.9	-17.7	-15.4	SI
6 I	10- 1	-19144.7	231418.3	-172682.3	-21.1	125.	SI
6 C	10- 1	-17707.9	305.9	-25294.8	-6.3	-71.4	SI
6 S	10- 1	-16271.	-230806.5	122092.8	-18.7	120.9	SI
7 I	10- 1	-7378.2	212278.8	-134554.5	-22.3	397.1	SI
7 C	10- 1	-5941.4	-2462.9	9887.8	-2.2	-22.4	SI
7 S	10- 1	-4504.5	-217204.6	154330.1	-26.4	624.7	SI



## VERIFICA COLLEGAMENTO ARMATURE RINFORZI - ELEMENTI IN C.A. ESISTENTI

Durante le lavorazioni di rinforzo di incamiciatura dei pilastri esistenti, descritti nei paragrafi precedenti, si andrà a collegare le nuove strutture con quelle esistenti mediante la tassellatura di ferri di ripresa utilizzando ancorante chimico tipo "Fisher FIS EM" per una profondità minima definita negli elaborati grafici in allegato.

Tali armature, vengono progettate tenendo conto di tutte le modalità di rottura caratteristiche dell'elemento, in particolare dovranno garantire un'adeguata resistenza allo sforzo tagliante agente generato dalle azioni orizzontali.

La verifica consiste nel valutare il massimo tagliante applicato all'elemento in esame, suddividendolo in parti uguali su ogni ferro di armatura di collegamento presente, e paragonarlo al valore della resistenza offerta dal singolo connettore dell'unione, ricavato utilizzando i valori tabellari forniti direttamente dal produttore dell'ancorante chimico e opportunamente diminuiti per un coefficiente di riduzione che tiene conto della distanza dal bordo e dell'interasse tra le armature stesse.

### CARICHI BARRE ADERENZA MIGLIORATA SU CALCESTRUZZO

Sistema a iniezione FIS EM con barre ad adesione migliorata (classe B450C)

Carichi ammissibili per un ancorante singolo<sup>1) 6)</sup> in calcestruzzo C20/25<sup>5)</sup> non fessurato<sup>7)</sup> e in foro a rotopercolazione

Per la progettazione deve essere consultata la Valutazione Tecnica Europea ETA - 10/0012

				Calcestruzzo non fessurato																		
Tipo	Diametro foro  d <sub>0</sub> [mm]	Interasse minimo  s <sub>min</sub> <sup>2)</sup> [mm]	Distanza bordo minima  c <sub>min</sub> <sup>2)</sup> [mm]	Carico ammissibile a trazione N <sub>amm</sub> <sup>3)</sup> [kN]																Carico amm. taglio  V <sub>amm</sub> <sup>3)4)</sup> [kN]		
				Profondità di ancoraggio efficace h <sub>ef</sub>																		
				60 [mm]	70 [mm]	80 [mm]	90 [mm]	100 [mm]	120 [mm]	160 [mm]	200 [mm]	220 [mm]	240 [mm]	260 [mm]	300 [mm]	400 [mm]	500 [mm]	600 [mm]	800 [mm]			
Ø 8 mm	12	40	40	11,2	13,4	13,4	13,4	13,4	13,4	13,4	-	-	-	-	-	-	-	-	-	7,7		
Ø 10 mm	14	45	45	11,2	14,1	17,2	20,5	21,2	21,2	21,2	-	-	-	-	-	-	-	-	-	12,2		
Ø 12 mm	16	55	55	-	14,1	17,2	20,5	24,0	30,3	30,3	30,3	30,3	30,3	-	-	-	-	-	-	17,4		
Ø 14 mm	18	60	60	-	-	17,2	20,5	24,0	31,6	41,3	41,3	41,3	41,3	41,3	-	-	-	-	-	23,8		
Ø 16 mm	20	65	65	-	-	17,2	20,5	24,0	31,6	48,7	53,8	53,8	53,8	53,8	53,8	-	-	-	-	31,0		
Ø 18 mm	25	75	75	-	-	-	20,5	24,0	31,6	48,7	68,0	68,0	68,0	68,0	68,0	-	-	-	-	37,7		
Ø 20 mm	25	85	85	-	-	-	20,5	24,0	31,6	48,7	68,0	78,5	84,1	84,1	84,1	84,1	-	-	-	41,1		
Ø 22 mm	30	95	95	-	-	-	-	20,0	26,3	40,6	56,7	65,4	74,5	84,0	101,8	101,8	-	-	-	43,8		
Ø 24 mm	30	105	105	-	-	-	-	20,0	26,3	40,6	56,7	65,4	74,5	84,0	104,1	121,1	-	-	-	46,7		
Ø 25 mm	30	110	110	-	-	-	-	20,0	26,3	40,6	56,7	65,4	74,5	84,0	104,1	131,5	131,5	-	-	49,9		
Ø 26 mm	35	120	120	-	-	-	-	-	26,3	40,6	56,7	65,4	74,5	84,0	104,1	142,2	142,2	-	-	51,0		
Ø 28 mm	35	130	130	-	-	-	-	-	26,3	40,6	56,7	65,4	74,5	84,0	104,1	160,3	165,0	-	-	57,0		
Ø 30 mm	40	140	140	-	-	-	-	-	26,3	40,6	56,7	65,4	74,5	84,0	104,1	160,3	189,4	189,4	-	63,2		
Ø 32 mm	40	160	160	-	-	-	-	-	-	40,6	56,7	65,4	74,5	84,0	104,1	160,3	215,4	215,4	-	69,6		
Ø 34 mm	40	170	170	-	-	-	-	-	-	40,6	56,7	65,4	74,5	84,0	104,1	160,3	224,1	243,2	-	76,3		
Ø 36 mm	45	180	180	-	-	-	-	-	-	40,6	56,7	65,4	74,5	84,0	104,1	160,3	224,1	272,7	-	83,1		
Ø 40 mm	55	200	200	-	-	-	-	-	-	40,6	56,7	65,4	74,5	84,0	104,1	160,3	224,1	294,5	336,7	97,3		

<sup>1)</sup> Nel calcolo del carico ammissibile sono stati considerati i coefficienti parziali di sicurezza per la resistenza dei materiali, come indicato nella Valutazione, e il coefficiente parziale di sicurezza per le azioni di carico  $\gamma_L = 1,4$ . Un ancorante è considerato singolo quando l'interasse  $s \geq 3 \times h_{ef}$  e la distanza dal bordo  $c \geq 1,5 \times h_{ef}$ . Per maggiori dettagli consultare la Valutazione.

<sup>2)</sup> È possibile utilizzare interassi e distanze dal bordo minimi solo riducendo il carico ammissibile.

<sup>3)</sup> Per combinazioni di azioni di trazione, di taglio e momenti flettenti, così come per interassi e/o distanze dal bordo ridotti (ancoranti in gruppo) consultare la Valutazione.

<sup>4)</sup> Il carico ammissibile a taglio è riferito alla profondità minima riportata nella Valutazione.

<sup>5)</sup> Per calcestruzzi di classe superiore (fino a C50/60) è possibile incrementare i carichi ammissibili.

<sup>6)</sup> I valori di carico riportati sono validi per fissaggi su calcestruzzo asciutto e umido con temperatura fino a +35° (nel breve termine fino a +60°C) e con la migliore pulizia del foro secondo la Valutazione.

<sup>7)</sup> Per i carichi ammissibili su calcestruzzo fessurato consultare la Valutazione.

**Il dato evidenziato in grassetto si riferisce alla profondità di posa standard.**

- Tabella carichi ammissibili fornita dal produttore dell'ancorante chimico utilizzato -

Le verifiche verranno condotte su tutte le zone di contatto tra la vecchia e la nuova struttura, in particolare verrà analizzato l'ancoraggio dei pilastri P9-P13-P16-P19 alle fondazioni esistenti, dei pilastri P8-P10-P12-P14-P15-P17-P18-P20 sulle travi/pareti in c.a. del piano terra e di tutti i pilastri oggetto di rinforzo nel loro collegamento di sommità con le travi del piano sottotetto.

Nel dettaglio si avrà:

▪ **Ancoraggio su elemento di Fondazione – Pilastri (8 ferri di armatura)**

Ferri di Ripresa  $\rightarrow 8\phi 16$  (min)

Massimo tagliante agente  $\rightarrow V_{Sd,max} = \max |T_z=8851 \text{ daN}; T_y=21011 \text{ daN}| \rightarrow V_{Sd,max} = 228.00 \text{ kN}$

Tagliante agente su singolo ferro d'armatura  $\rightarrow V_{Sd,max,1} = V_{Sd,max}/n_{ferri} \approx 28.50 \text{ kN}$

Valore di Taglio raccomandato  $\rightarrow V_{amm} = 31 \text{ kN}$  [Tab. fornita dal produttore]

Fattore moltiplicativo di riduzione del carico  $\rightarrow F_{riduttivo} = 0.94$

Resistenz a Taglio  $\rightarrow V_{Rd} = V_{amm} \cdot F_{riduttivo} = 29.14 \text{ kN} > V_{Sd,max,1} \rightarrow \underline{\text{VERIFICATO}}$

▪ **Ancoraggio su elemento di Fondazione – Pilastri (12 ferri di armatura)**

Ferri di Ripresa  $\rightarrow 12\phi 16$

Massimo tagliante agente  $\rightarrow V_{Sd,max} = \max |T_z=8851 \text{ daN}; T_y=21011 \text{ daN}| \rightarrow V_{Sd,max} = 228.00 \text{ kN}$

Tagliante agente su singolo ferro d'armatura  $\rightarrow V_{Sd,max,1} = V_{Sd,max}/n_{ferri} \approx 19.0 \text{ kN}$

Valore di Taglio raccomandato  $\rightarrow V_{amm} = 31 \text{ kN}$  [Tab. fornita dal produttore]

Fattore moltiplicativo di riduzione del carico  $\rightarrow F_{riduttivo} = 0.94$

Resistenz a Taglio  $\rightarrow V_{Rd} = V_{amm} \cdot F_{riduttivo} = 29.14 \text{ kN} > V_{Sd,max,1} \rightarrow \underline{\text{VERIFICATO}}$

▪ **Ancoraggio su travi impalcate esistenti – Pilastri (8 ferri di armatura)**

Ferri di Ripresa  $\rightarrow 8\phi 16$  (min)

Massimo tagliante agente  $\rightarrow V_{Sd,max} = \max |T_z=4830 \text{ daN}; T_y=19011 \text{ daN}| \rightarrow V_{Sd,max} = 215.60 \text{ kN}$

Tagliante agente su singolo ferro d'armatura  $\rightarrow V_{Sd,max,1} = V_{Sd,max}/n_{ferri} \approx 26.95 \text{ kN}$

Valore di Taglio raccomandato  $\rightarrow V_{amm} = 31 \text{ kN}$  [Tab. fornita dal produttore]

Fattore moltiplicativo di riduzione del carico  $\rightarrow F_{riduttivo} = 0.94$

Resistenz a Taglio  $\rightarrow V_{Rd} = V_{amm} \cdot F_{riduttivo} = 29.14 \text{ kN} > V_{Sd,max,1} \rightarrow \underline{\text{VERIFICATO}}$

▪ **Ancoraggio su travi impalcate esistenti – Pilastri (12 ferri di armatura)**

Ferri di Ripresa  $\rightarrow 12\phi 16$

Massimo tagliante agente  $\rightarrow V_{Sd,max} = \max |T_z=4830 \text{ daN}; T_y=19011 \text{ daN}| \rightarrow V_{Sd,max} = 215.60 \text{ kN}$

Tagliante agente su singolo ferro d'armatura  $\rightarrow V_{Sd,max,1} = V_{Sd,max}/n_{ferri} \approx 17.97 \text{ kN}$

Valore di Taglio raccomandato  $\rightarrow V_{amm} = 31 \text{ kN}$  [Tab. fornita dal produttore]

Fattore moltiplicativo di riduzione del carico  $\rightarrow F_{riduttivo} = 0.94$

Resistenz a Taglio  $\rightarrow V_{Rd} = V_{amm} \cdot F_{riduttivo} = 29.14 \text{ kN} > V_{Sd,max,1} \rightarrow \underline{\text{VERIFICATO}}$

## VERIFICHE NUOVE TRAVI DI INTERPIANO

**N.B.:** Nel seguito si riportano le verifiche delle nuove travi di interpiano inserite. In quanto elementi nuovi soddisferanno completamente i requisiti progettuali previsti nel Cap. 4 delle NTC del 2018.

Nome travata : 241 - **Travata TR\_29pt** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

### MATERIALI

CLS : Rck =300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
gc =1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecu=.2% (limit.elastico)  
ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
gs =1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4439.8; Eud=.19% (limit.elastico)

### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)=149.4; ScIs(quasi permanente)=112. ; fbd(esercizio)= 26.9  
ACCIAIO : Sacc(rara)=3600. ; Coeff.Omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

### SEZIONI UTILIZZATE

3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=314471.6

### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1702	3	3	3	0	630.	575.	26.25	1.3	4.209	102.268
2	A1704	3	3	3	0	235.	180.	9.792	1.3	1.571	51.387

### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	Se	Ar	Msd	EpscI	EpscI	Mrd	EpscI	EpscI	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-2396.17	-.031	.063	-6998.99	-.095	.186	2.	.338	2.921
0.	0.	3.	1.	1845.13	-.023	.049	6998.99	-.095	.186	2.	.338	3.793
117.	117.	3.	3.	-1672.44	-.021	.03	-10034.21	-.147	.186	2.	.441	6.
117.	117.	3.	3.	1227.33	-.019	.065	3518.99	-.055	.186	2.	.227	2.867
315.	315.	3.	4.	98.83	-.002	.005	3511.24	-.067	.186	2.	.265	35.53
513.	513.	3.	3.	1521.38	-.023	.08	3518.99	-.055	.186	2.	.227	2.313
546.	546.	3.	5.	-1339.9	-.013	.024	-10383.32	-.104	.186	2.	.358	7.749
546.	546.	3.	5.	1775.1	-.017	.025	13197.27	-.139	.186	2.	.427	7.435
620.	620.	3.	6.	2351.02	-.027	.044	9894.43	-.124	.186	2.	.399	4.209
630.	630.	3.	6.	-1689.89	-.02	.045	-7035.91	-.086	.186	2.	.317	4.164
630.	630.	3.	6.	2351.02	-.027	.044	9894.43	-.124	.186	2.	.399	4.209
> 630.	0.	3.	6.	-1490.32	-.017	.039	-7035.91	-.086	.186	2.	.317	4.721
630.	0.	3.	6.	6298.47	-.075	.118	9894.43	-.124	.186	2.	.399	1.571
708.	78.	3.	7.	2536.77	-.027	.036	13013.57	-.157	.186	2.	.457	5.13
734.	104.	3.	8.	-487.84	-.005	.006	-14183.71	-.2	.168	3.	.543	29.08
734.	104.	3.	8.	1191.68	-.016	.063	3515.61	-.048	.186	2.	.204	2.95
865.	235.	3.	10	-5900.56	-.07	.11	-9894.43	-.124	.186	2.	.399	1.677
865.	235.	3.	10	1979.26	-.023	.052	7035.91	-.086	.186	2.	.317	3.555

#### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	7998.	28244.	17300.	1.01	11.	2.5
0.	0.	3.	1.	7998.	28244.	17300.	1.01	11.	2.5
630.	630.	3.	1.	7998.	28244.	17300.	1.01	11.	2.5
630.	630.	3.	1.	7998.	28244.	17300.	1.01	11.	2.5
> 630.	0.	3.	1.	7998.	28244.	17300.	1.01	11.	2.5
630.	0.	3.	1.	7998.	28244.	17300.	1.01	11.	2.5
865.	235.	3.	1.	7998.	28244.	17300.	1.01	11.	2.5
865.	235.	3.	1.	7998.	28244.	17300.	1.01	11.	2.5

### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-369.66	-6.6	205.1	9.42	5.67	.0059	22.13	.013

10.	10.	3.	1.	-368.57	-6.6	204.5	9.42	5.67	.0058	22.13	.013	SI
28.	28.	3.	1.	-360.78	-6.4	200.2	9.42	5.67	.0057	22.13	.013	SI
150.	150.	3.	4.	-281.47	-7.2	311.8	4.62	6.16	.0089	24.03	.021	SI
630.	630.	3.	6.	339.55	-5.4	132.7	13.57	5.29	.0038	20.64	.008	SI
> 630.	0.	3.	6.	2607.75	-41.3	1019.4	13.57	5.29	.0339	20.64	.07	SI
865.	235.	3.	10	-2478.82	-39.2	969.	13.57	5.29	.0315	20.64	.065	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-330.53	-5.9	183.4	9.42	5.67	.0052	22.13	.012	SI
10.	10.	3.	1.	-329.58	-5.9	182.9	9.42	5.67	.0052	22.13	.012	SI
28.	28.	3.	1.	-322.83	-5.7	179.1	9.42	5.67	.0051	22.13	.011	SI
150.	150.	3.	4.	-253.98	-6.5	281.4	4.62	6.16	.008	24.03	.019	SI
630.	630.	3.	6.	300.6	-4.8	117.5	13.57	5.29	.0034	20.64	.007	SI
> 630.	0.	3.	6.	2357.71	-37.3	921.7	13.57	5.29	.0292	20.64	.06	SI
865.	235.	3.	10	-2247.64	-35.6	878.7	13.57	5.29	.0272	20.64	.056	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-321.1	-5.7	178.2	9.42	5.67	.0051	22.13	.011	SI
10.	10.	3.	1.	-320.19	-5.7	177.7	9.42	5.67	.0051	22.13	.011	SI
28.	28.	3.	1.	-313.72	-5.6	174.1	9.42	5.67	.005	22.13	.011	SI
150.	150.	3.	4.	-247.84	-6.3	274.6	4.62	6.16	.0078	24.03	.019	SI
630.	630.	3.	6.	291.13	-4.6	113.8	13.57	5.29	.0033	20.64	.007	SI
> 630.	0.	3.	6.	2296.26	-36.4	897.7	13.57	5.29	.0281	20.64	.058	SI
865.	235.	3.	10	-2191.65	-34.7	856.8	13.57	5.29	.0261	20.64	.054	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/Acl - Acl=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.85	1.309	9.42	.654	3d20	9.42	.654	3d20
2	28.09	1.95	14.04	.975	3d14 +3d20	14.04	.975	3d14 +3d20
3	18.66	1.296	14.04	.975	3d14 +3d20	4.62	.321	3d14
4	9.24	.641	4.62	.321	3d14	4.62	.321	3d14
5	32.23	2.238	14.04	.975	3d14 +3d20	18.19	1.263	3d14 +3d24
6	23.	1.597	9.42	.654	3d20	13.57	.942	3d24
7	27.61	1.918	9.42	.654	3d20	18.19	1.263	3d14 +3d24
8	27.61	1.918	23.	1.597	3d20 +3d24	4.62	.321	3d14
9	27.61	1.918	13.57	.942	3d24	14.04	.975	3d14 +3d20
10	23.	1.597	13.57	.942	3d24	9.42	.654	3d20

Nome travata : 238 - **Travata TR\_30pt** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
gc=1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecu=2.2% (limit.elastico)  
ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
gs=1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4439.8; Eud=.19% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)=149.4; ScIs(quasi permanente)=112. ; fbd(esercizio)= 26.9  
ACCIAIO : Sacc(rara)=3600. ; Coeff.Omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	SLU	Sest
1.	SLU SENZA SISMA	1.	
4.	SLU con SISMAX	4.	
5.	SLU con SISMAX	4.	

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
8.	Rara	1.	9.	Frequente	1.	10.	Quasi Perm	1.

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=314471.6

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1706	3	3	3	0	630.	575.	26.25	1.3	2.992	66.808
2	A1708	3	3	3	0	235.	180.	9.792	1.5	1.982	42.891
3	A1710	3	3	3	0	370.	315.	15.417	1.3	1.776	39.647

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-3344.92	-.035	.062	-9983.45	-.112	.186	2.	.375	2.985	SI
0.	0.	3.	1.	2904.16	-.03	.054	9983.45	-.112	.186	2.	.375	3.438	SI

84.	84.	3.	2.	-2683.4	-.022	.035	-14324.8	-.13	.186	2.	.412	5.338	SI
84.	84.	3.	2.	2223.08	-.019	.029	14324.8	-.13	.186	2.	.412	6.444	SI
117.	117.	3.	3.	-2326.28	-.026	.031	-13701.57	-.187	.186	2.	.5	5.89	SI
117.	117.	3.	3.	1923.02	-.024	.078	4569.78	-.058	.186	2.	.238	2.376	SI
315.	315.	3.	4.	125.56	-.002	.005	4543.74	-.077	.186	2.	.292	36.19	SI
513.	513.	3.	3.	2168.99	-.027	.088	4569.78	-.058	.186	2.	.238	2.107	SI
620.	620.	3.	1.	3336.71	-.035	.062	9983.45	-.112	.186	2.	.375	2.992	SI
630.	630.	3.	1.	-2709.85	-.028	.05	-9983.45	-.112	.186	2.	.375	3.684	SI
630.	630.	3.	1.	3336.71	-.035	.062	9983.45	-.112	.186	2.	.375	2.992	SI
> 630.	0.	3.	1.	-3779.47	-.04	.07	-9983.45	-.112	.186	2.	.375	2.641	SI
630.	0.	3.	1.	5036.06	-.054	.094	9983.45	-.112	.186	2.	.375	1.982	SI
761.	131.	3.	1.	791.66	-.008	.015	9983.45	-.112	.186	2.	.375	12.61	SI
865.	235.	3.	1.	-4432.31	-.047	.082	-9983.45	-.112	.186	2.	.375	2.252	SI
865.	235.	3.	1.	4171.94	-.044	.077	9983.45	-.112	.186	2.	.375	2.393	SI
> 865.	0.	3.	1.	-5264.65	-.056	.098	-9983.45	-.112	.186	2.	.375	1.896	SI
865.	0.	3.	1.	3440.41	-.036	.064	9983.45	-.112	.186	2.	.375	2.902	SI
950.	85.	3.	2.	-3386.7	-.028	.044	-14324.8	-.13	.186	2.	.412	4.23	SI
950.	85.	3.	2.	2048.35	-.017	.026	14324.8	-.13	.186	2.	.412	6.993	SI
983.	118.	3.	3.	-2366.74	-.026	.031	-13701.57	-.187	.186	2.	.5	5.789	SI
983.	118.	3.	3.	1430.54	-.018	.058	4569.78	-.058	.186	2.	.238	3.194	SI
1050.	185.	3.	4.	302.17	-.005	.012	4543.74	-.077	.186	2.	.292	15.04	SI
1225.	360.	3.	1.	5622.59	-.06	.104	9983.45	-.112	.186	2.	.375	1.776	SI
1235.	370.	3.	1.	-3154.31	-.033	.058	-9983.45	-.112	.186	2.	.375	3.165	SI
1235.	370.	3.	1.	5622.59	-.06	.104	9983.45	-.112	.186	2.	.375	1.776	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	3.	-911.	6203.	28244.	17300.	1.01	11.	2.5	SI
0.	0.	3.	1084.	6203.	28244.	17300.	1.01	11.	2.5	SI
117.	117.	3.	-911.	6892.	28244.	17300.	1.01	11.	2.5	SI
630.	630.	3.	-911.	6203.	28244.	17300.	1.01	11.	2.5	SI
630.	630.	3.	1084.	6203.	28244.	17300.	1.01	11.	2.5	SI
> 630.	0.	3.	-4279.	9032.	28244.	17300.	1.01	11.	2.5	SI
630.	0.	3.	3594.	9032.	28244.	17300.	1.01	11.	2.5	SI
865.	235.	3.	-4279.	9032.	28244.	17300.	1.01	11.	2.5	SI
865.	235.	3.	3594.	9032.	28244.	17300.	1.01	11.	2.5	SI
> 865.	0.	3.	-1851.	6203.	28244.	17300.	1.01	11.	2.5	SI
865.	0.	3.	3056.	6203.	28244.	17300.	1.01	11.	2.5	SI
983.	118.	3.	-1851.	6892.	28244.	17300.	1.01	11.	2.5	SI
1235.	370.	3.	-1851.	6203.	28244.	17300.	1.01	11.	2.5	SI
1235.	370.	3.	3056.	6203.	28244.	17300.	1.01	11.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-345.1	-5.	134.2	13.57	5.42	.0038	21.13	.008	SI
28.	28.	3.	-337.18	-4.9	131.1	13.57	5.42	.0037	21.13	.008	SI
150.	150.	3.	-266.39	-5.9	227.9	6.03	5.98	.0065	23.33	.015	SI
630.	630.	3.	303.78	-4.4	118.1	13.57	5.42	.0034	21.13	.007	SI
> 630.	0.	3.	440.64	-6.4	171.4	13.57	5.42	.0049	21.13	.01	SI
865.	235.	3.	-457.49	-6.7	177.9	13.57	5.42	.0051	21.13	.011	SI
> 865.	0.	3.	-1219.76	-17.8	474.4	13.57	5.42	.0136	21.13	.029	SI
1017.	152.	3.	-722.15	-16.1	617.8	6.03	5.98	.0177	23.33	.041	SI
1235.	370.	3.	1254.67	-18.3	487.9	13.57	5.42	.0139	21.13	.029	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-301.47	-4.4	117.2	13.57	5.42	.0033	21.13	.007	SI
28.	28.	3.	-294.55	-4.3	114.5	13.57	5.42	.0033	21.13	.007	SI
150.	150.	3.	-232.72	-5.2	199.1	6.03	5.98	.0057	23.33	.013	SI
630.	630.	3.	263.09	-3.8	102.3	13.57	5.42	.0029	21.13	.006	SI
> 630.	0.	3.	395.11	-5.8	153.7	13.57	5.42	.0044	21.13	.009	SI
865.	235.	3.	-411.62	-6.	160.1	13.57	5.42	.0046	21.13	.01	SI
> 865.	0.	3.	-1111.33	-16.2	432.2	13.57	5.42	.0123	21.13	.026	SI
1017.	152.	3.	-657.97	-14.7	562.9	6.03	5.98	.0161	23.33	.038	SI
1235.	370.	3.	1141.33	-16.7	443.9	13.57	5.42	.0127	21.13	.027	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-288.3	-4.2	112.1	13.57	5.42	.0032	21.13	.007	SI
28.	28.	3.	-281.68	-4.1	109.5	13.57	5.42	.0031	21.13	.007	SI
150.	150.	3.	-222.56	-5.	190.4	6.03	5.98	.0054	23.33	.013	SI
630.	630.	3.	250.8	-3.7	97.5	13.57	5.42	.0028	21.13	.006	SI
> 630.	0.	3.	381.22	-5.6	148.3	13.57	5.42	.0042	21.13	.009	SI
865.	235.	3.	-397.63	-5.8	154.6	13.57	5.42	.0044	21.13	.009	SI
> 865.	0.	3.	-1078.35	-15.8	419.4	13.57	5.42	.012	21.13	.025	SI
1017.	152.	3.	-638.45	-14.3	546.2	6.03	5.98	.0156	23.33	.036	SI
1235.	370.	3.	1106.88	-16.2	430.5	13.57	5.42	.0123	21.13	.026	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	27.14	1.885	13.57	.942	3d24	13.57	.942	3d24
2	39.21	2.723	19.6	1.361	3d16 +3d24	19.6	1.361	3d16 +3d24
3	25.64	1.78	19.6	1.361	3d16 +3d24	6.03	.419	3d16
4	12.06	.838	6.03	.419	3d16	6.03	.419	3d16

Nome travata : 244 - **Travata TR\_31pt** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
 gc =1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecu=.2% (limit.elastico)  
 ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
 gs =1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4435.3; Eud=.19% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)=149.4; ScIs(quasi permanente)=112. ; fbd(esercizio)= 26.9  
 ACCIAIO : Sacc(rara)=3600. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=314471.6

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1713	3	3	3	0	235.	180.	9.792	1.	1.386	29.15

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-4907.18	-.065	.13	-6998.99	-.095	.186	2.	.338	1.426
0.	0.	3.	1.	4481.44	-.059	.119	6998.99	-.095	.186	2.	.338	1.562
78.	78.	3.	2.	-2382.11	-.026	.047	-9441.22	-.109	.186	2.	.369	3.963
78.	78.	3.	2.	1928.03	-.021	.038	9441.22	-.109	.186	2.	.369	4.897
104.	104.	3.	3.	-1175.65	-.016	.023	-9169.31	-.142	.186	2.	.433	7.799
104.	104.	3.	3.	920.35	-.016	.066	2604.	-.047	.186	2.	.201	2.829
131.	131.	3.	3.	-915.26	-.012	.018	-9169.31	-.142	.186	2.	.433	10.02
225.	225.	3.	1.	5049.06	-.067	.134	6998.99	-.095	.186	2.	.338	1.386
235.	235.	3.	1.	-4068.96	-.053	.108	-6998.99	-.095	.186	2.	.338	1.72
235.	235.	3.	1.	5049.06	-.067	.134	6998.99	-.095	.186	2.	.338	1.386

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	-3674.	7998.	28244.	17300.	1.01	11.
0.	0.	3.	1.	4637.	7998.	28244.	17300.	1.01	11.
235.	235.	3.	1.	-3966.	7998.	28244.	17300.	1.01	11.
235.	235.	3.	1.	4256.	7998.	28244.	17300.	1.01	11.

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-564.14	-10.	313.	9.42	5.67	.0089	22.13	.02
28.	28.	3.	1.	-502.69	-8.9	278.9	9.42	5.67	.008	22.13	.018
235.	235.	3.	1.	-45.23	-.8	25.1	9.42	5.67	.0007	22.13	.002
235.	235.	3.	1.	273.56	-4.9	151.8	9.42	5.67	.0043	22.13	.01

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-498.24	-8.9	276.4	9.42	5.67	.0079	22.13	.017
28.	28.	3.	1.	-444.08	-7.9	246.4	9.42	5.67	.007	22.13	.016
235.	235.	3.	1.	-42.19	-.8	23.4	9.42	5.67	.0007	22.13	.001
235.	235.	3.	1.	223.14	-4.	123.8	9.42	5.67	.0035	22.13	.008

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-482.51	-8.6	267.7	9.42	5.67	.0076	22.13	.017
28.	28.	3.	1.	-430.37	-7.7	238.8	9.42	5.67	.0068	22.13	.015
235.	235.	3.	1.	-40.77	-.7	22.6	9.42	5.67	.0006	22.13	.001
235.	235.	3.	1.	212.45	-3.8	117.9	9.42	5.67	.0034	22.13	.007

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
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1	18.85	1.309	9.42	.654	3d20	9.42	.654	3d20	
2	25.64	1.78	12.82	.89	3d12 +3d20	12.82	.89	3d12 +3d20	
3	16.21	1.126	12.82	.89	3d12 +3d20	3.39	.236	3d12	

Nome travata : 240 - **Travata TR\_29pp** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
gc =1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecud=.2% (limit.elastico)  
ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
gs =1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4439.8; Eud=.19% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scs(rara)=149.4; Scs(quasi permanente)=112. ; fbd(esercizio)= 26.9  
ACCIAIO : Sacc(rara)=3600.; Coeff.omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
14.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=314471.6

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1701	3	3	3	0	630.	575.	26.25	1.3	4.796	116.541
2	A1703	3	3	3	0	235.	180.	9.792	1.3	1.87	45.441

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-2310.31	-.03	.061	-6998.99	-.095	.186	2.	.338	3.029	SI
0.	0.	3.	1.	1939.8	-.025	.051	6998.99	-.095	.186	2.	.338	3.608	SI
315.	315.	3.	4.	-70.33	-.001	.004	-3511.24	-.067	.186	2.	.265	49.93	SI
480.	480.	3.	5.	-1035.85	-.012	.015	-12690.13	-.184	.186	2.	.496	12.25	SI
480.	480.	3.	5.	1343.68	-.019	.071	3517.84	-.051	.186	2.	.215	2.618	SI
513.	513.	3.	5.	1596.73	-.023	.084	3517.84	-.051	.186	2.	.215	2.203	SI
546.	546.	3.	6.	-1436.41	-.012	.02	-13353.01	-.121	.186	2.	.393	9.296	SI
546.	546.	3.	6.	1849.78	-.016	.023	14943.31	-.139	.186	2.	.428	8.078	SI
620.	620.	3.	7.	2424.15	-.024	.039	11625.99	-.126	.186	2.	.404	4.796	SI
630.	630.	3.	7.	-1807.4	-.018	.033	-10019.71	-.106	.186	2.	.363	5.544	SI
630.	630.	3.	7.	2424.15	-.024	.039	11625.99	-.126	.186	2.	.404	4.796	SI
> 630.	0.	3.	7.	-1652.42	-.016	.031	-10019.71	-.106	.186	2.	.363	6.064	SI
630.	0.	3.	7.	6217.14	-.064	.099	11625.99	-.126	.186	2.	.404	1.87	SI
708.	78.	3.	6.	2623.4	-.022	.032	14943.31	-.139	.186	2.	.428	5.696	SI
734.	104.	3.	8.	-397.29	-.004	.003	-15313.54	-.2	-.162	3.	.614	38.55	SI
734.	104.	3.	8.	1233.04	-.015	.065	3509.84	-.043	.186	2.	.186	2.846	SI
865.	235.	3.	10	-5437.22	-.061	.087	-11499.37	-.14	.186	2.	.43	2.115	SI
865.	235.	3.	10	1833.43	-.02	.048	7050.11	-.082	.186	2.	.306	3.845	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	3.	-608.	7998.	28244.	17300.	1.01	11.	2.5	SI
0.	0.	3.	768.	7998.	28244.	17300.	1.01	11.	2.5	SI
630.	630.	3.	-608.	6203.	28244.	17300.	1.01	11.	2.5	SI
630.	630.	3.	768.	6203.	28244.	17300.	1.01	11.	2.5	SI
> 630.	0.	3.	-5268.	6203.	28244.	17300.	1.01	11.	2.5	SI
630.	0.	3.	1576.	6203.	28244.	17300.	1.01	11.	2.5	SI
865.	235.	3.	-5268.	7998.	28244.	17300.	1.01	11.	2.5	SI
865.	235.	3.	1576.	7998.	28244.	17300.	1.01	11.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Scs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-277.46	-4.9	153.9	9.42	5.67	.0044	22.13	.01	SI
10.	10.	3.	1.	-276.61	-4.9	153.5	9.42	5.67	.0044	22.13	.01	SI
37.	37.	3.	1.	-265.87	-4.7	147.5	9.42	5.67	.0042	22.13	.009	SI
150.	150.	3.	4.	-209.89	-5.3	232.5	4.62	6.16	.0066	24.03	.016	SI

513.	513.	3.	5.	204.13	-4.1	226.4	4.62	6.25	.0065	25.22	.016	SI
630.	630.	3.	7.	315.96	-4.4	105.3	15.93	5.24	.003	20.43	.006	SI
> 630.	0.	3.	7.	2475.72	-34.5	825.5	15.93	5.24	.0264	20.43	.054	SI
865.	235.	3.	10	-2301.49	-34.8	772.1	15.93	5.11	.0241	19.93	.048	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-241.51	-4.3	134.	9.42	5.67	.0038	22.13	.008	SI
10.	10.	3.	1.	-240.8	-4.3	133.6	9.42	5.67	.0038	22.13	.008	SI
37.	37.	3.	1.	-231.81	-4.1	128.6	9.42	5.67	.0037	22.13	.008	SI
150.	150.	3.	4.	-185.01	-4.7	205.	4.62	6.16	.0059	24.03	.014	SI
513.	513.	3.	5.	178.77	-3.6	198.3	4.62	6.25	.0057	25.22	.014	SI
630.	630.	3.	7.	276.31	-3.8	92.1	15.93	5.24	.0026	20.43	.005	SI
> 630.	0.	3.	7.	2232.86	-31.1	744.5	15.93	5.24	.0226	20.43	.046	SI
865.	235.	3.	10	-2079.87	-31.4	697.8	15.93	5.11	.0206	19.93	.041	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-232.71	-4.1	129.1	9.42	5.67	.0037	22.13	.008	SI
10.	10.	3.	1.	-232.05	-4.1	128.7	9.42	5.67	.0037	22.13	.008	SI
37.	37.	3.	1.	-223.57	-4.	124.	9.42	5.67	.0035	22.13	.008	SI
150.	150.	3.	4.	-179.43	-4.6	198.8	4.62	6.16	.0057	24.03	.014	SI
513.	513.	3.	5.	172.55	-3.5	191.4	4.62	6.25	.0055	25.22	.014	SI
630.	630.	3.	7.	266.57	-3.7	88.9	15.93	5.24	.0025	20.43	.005	SI
> 630.	0.	3.	7.	2174.05	-30.3	724.9	15.93	5.24	.0216	20.43	.044	SI
865.	235.	3.	10	-2026.97	-30.6	680.	15.93	5.11	.0197	19.93	.039	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/Acl - Acl=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.85	1.309	9.42	.654	3d20	9.42	.654	3d20
2	28.09	1.95	14.04	.975	3d14 +3d20	14.04	.975	3d14 +3d20
3	18.66	1.296	14.04	.975	3d14 +3d20	4.62	.321	3d14
4	9.24	.641	4.62	.321	3d14	4.62	.321	3d14
5	22.81	1.584	18.19	1.263	3d14 +3d24	4.62	.321	3d14
6	38.74	2.69	18.19	1.263	3d14 +3d24	20.55	1.427	3d14 +3d26
7	29.5	2.049	13.57	.942	3d24	15.93	1.106	3d26
8	38.74	2.69	34.12	2.369	3d14 +3d24 +3d26	4.62	.321	3d14
9	34.59	2.402	20.55	1.427	3d14 +3d26	14.04	.975	3d14 +3d20
10	25.35	1.761	15.93	1.106	3d26	9.42	.654	3d20

Nome travata : 237 - **Travata TR\_30pp** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
gc=1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecd=.2% (limit.elastico)  
ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
gs=1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4435.3; Eud=.19% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)=149.4; ScIs(quasi permanente)=112. ; fbd(esercizio)= 26.9  
ACCIAIO : Sacc(rara)=3600. ; Coeff.Omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=314471.6

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1705	3	3	3	0	630.	575.	26.25	1.3	2.564	62.309
2	A1707	3	3	3	0	235.	180.	9.792	1.5	1.703	39.329
3	A1709	3	3	3	0	370.	315.	15.417	1.3	1.356	32.954

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
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>	0.	0.	3.	1.	-2625.77	-.034	.07	-6998.99	-.095	.186	2.	.338	2.666	SI
	0.	0.	3.	1.	2195.44	-.028	.058	6998.99	-.095	.186	2.	.338	3.188	SI
	84.	84.	3.	2.	-2095.56	-.021	.038	-10322.35	-.114	.186	2.	.379	4.926	SI
	84.	84.	3.	2.	1678.63	-.017	.03	10322.35	-.114	.186	2.	.379	6.149	SI
	117.	117.	3.	3.	-1809.33	-.023	.033	-10034.21	-.147	.186	2.	.441	5.546	SI
	117.	117.	3.	3.	1450.94	-.022	.077	3518.99	-.055	.186	2.	.227	12.425	SI
	315.	315.	3.	4.	-91.96	-.002	.005	-3511.24	-.067	.186	2.	.265	38.18	SI
	513.	513.	3.	3.	1793.62	-.027	.095	3518.99	-.055	.186	2.	.227	1.962	SI
	620.	620.	3.	1.	2729.55	-.035	.072	6998.99	-.095	.186	2.	.338	2.564	SI
	630.	630.	3.	1.	-2064.52	-.026	.055	-6998.99	-.095	.186	2.	.338	3.39	SI
	630.	630.	3.	1.	2729.55	-.035	.072	6998.99	-.095	.186	2.	.338	2.564	SI
>	630.	0.	3.	1.	-3324.27	-.043	.088	-6998.99	-.095	.186	2.	.338	2.105	SI
	630.	0.	3.	1.	4108.94	-.054	.109	6998.99	-.095	.186	2.	.338	1.703	SI
	761.	131.	3.	1.	710.86	-.009	.019	6998.99	-.095	.186	2.	.338	9.846	SI
	865.	235.	3.	1.	-3603.12	-.047	.095	-6998.99	-.095	.186	2.	.338	1.942	SI
	865.	235.	3.	1.	3699.42	-.048	.098	6998.99	-.095	.186	2.	.338	1.892	SI
>	865.	0.	3.	1.	-4743.72	-.062	.126	-6998.99	-.095	.186	2.	.338	1.475	SI
	865.	0.	3.	1.	2501.63	-.032	.066	6998.99	-.095	.186	2.	.338	2.798	SI
	950.	85.	3.	2.	-3035.24	-.031	.054	-10322.35	-.114	.186	2.	.379	3.401	SI
	950.	85.	3.	2.	1467.26	-.015	.026	10322.35	-.114	.186	2.	.379	7.035	SI
	983.	118.	3.	3.	-2107.31	-.027	.038	-10034.21	-.147	.186	2.	.441	4.762	SI
	983.	118.	3.	3.	1008.19	-.015	.053	3518.99	-.055	.186	2.	.227	13.49	SI
	1050.	185.	3.	4.	286.53	-.005	.015	3511.24	-.067	.186	2.	.265	12.25	SI
	1225.	360.	3.	1.	5161.06	-.068	.137	6998.99	-.095	.186	2.	.338	1.356	SI
	1235.	370.	3.	1.	-2398.54	-.031	.063	-6998.99	-.095	.186	2.	.338	2.918	SI
	1235.	370.	3.	1.	5161.06	-.068	.137	6998.99	-.095	.186	2.	.338	1.356	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	3.	-691.	7998.	28244.	17300.	1.01	11.	2.5	SI
0.	0.	3.	869.	7998.	28244.	17300.	1.01	11.	2.5	SI
630.	630.	3.	-691.	7998.	28244.	17300.	1.01	11.	2.5	SI
630.	630.	3.	869.	7998.	28244.	17300.	1.01	11.	2.5	SI
> 630.	0.	3.	-3486.	7998.	28244.	17300.	1.01	11.	2.5	SI
630.	0.	3.	3175.	7998.	28244.	17300.	1.01	11.	2.5	SI
865.	235.	3.	-3486.	7998.	28244.	17300.	1.01	11.	2.5	SI
865.	235.	3.	3175.	7998.	28244.	17300.	1.01	11.	2.5	SI
> 865.	0.	3.	-1375.	7998.	28244.	17300.	1.01	11.	2.5	SI
865.	0.	3.	2780.	7998.	28244.	17300.	1.01	11.	2.5	SI
1235.	370.	3.	-1375.	7998.	28244.	17300.	1.01	11.	2.5	SI
1235.	370.	3.	2780.	7998.	28244.	17300.	1.01	11.	2.5	SI

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc/s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-317.66!	-5.6!	176.2	9.42	5.67	.005	22.13	.011	SI
28.	28.	3.	1.	-309.92!	-5.5!	172.	9.42	5.67	.0049	22.13	.011	SI
150.	150.	3.	4.	-240.78!	-6.1!	266.8!	4.62	6.16	.0076	24.03	.018!	SI
630.	630.	3.	1.	336.41!	-6.	186.7	9.42	5.67	.0053	22.13	.012	SI
> 630.	0.	3.	1.	195.3!	-3.5!	108.4	9.42	5.67	.0031	22.13	.007	SI
865.	235.	3.	1.	-200.16!	-3.6!	111.1!	9.42	5.67	.0032	22.13	.007!	SI
> 865.	0.	3.	1.	-1400.01!	-24.9	776.8	9.42	5.67	.0222	22.13	.049	SI
1017.	152.	3.	4.	-808.39!	-20.6	895.6!	4.62	6.16	.0256	24.03	.061!	SI
1235.	370.	3.	1.	1431.81!	-25.5!	794.4	9.42	5.67	.0227	22.13	.05	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc/s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-278.35!	-4.9	154.4	9.42	5.67	.0044	22.13	.01	SI
28.	28.	3.	1.	-271.82!	-4.8	150.8	9.42	5.67	.0043	22.13	.01	SI
150.	150.	3.	4.	-213.44!	-5.4	236.5	4.62	6.16	.0068	24.03	.016!	SI
630.	630.	3.	1.	295.15!	-5.2	163.8	9.42	5.67	.0047	22.13	.01	SI
> 630.	0.	3.	1.	177.95!	-3.2	98.7	9.42	5.67	.0028	22.13	.006	SI
865.	235.	3.	1.	-183.17!	-3.3	101.6	9.42	5.67	.0029	22.13	.006!	SI
> 865.	0.	3.	1.	-1288.42!	-22.9	714.9	9.42	5.67	.0204	22.13	.045!	SI
1017.	152.	3.	4.	-756.78!	-19.3	838.4	4.62	6.16	.024	24.03	.058!	SI
1235.	370.	3.	1.	1315.43!	-23.4	729.8	9.42	5.67	.0209	22.13	.046!	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc/s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-268.72!	-4.8	149.1	9.42	5.67	.0043	22.13	.009 SI
28.	28.	3.	1.	-262.53!	-4.7	145.7	9.42	5.67	.0042	22.13	.009 SI
150.	150.	3.	4.	-207.26!	-5.3	229.6	4.62	6.16	.0066	24.03	.016! SI
630.	630.	3.	1.	284.99!	-5.1	158.1	9.42	5.67	.0045	22.13	.01 SI
> 630.	0.	3.	1.	174.09!	-3.1	96.6	9.42	5.67	.0028	22.13	.006 SI
865.	235.	3.	1.	-179.41!	-3.2	99.5	9.42	5.67	.0028	22.13	.006! SI
> 865.	0.	3.	1.	-1260.9!	-22.4	699.6	9.42	5.67	.02	22.13	.044 SI
1017.	152.	3.	4.	-746.61!	-19.	827.2	4.62	6.16	.0236	24.03	.057! SI
1235.	370.	3.	1.	1286.69!	-22.9	713.9	9.42	5.67	.0204	22.13	.045 SI

#### ARMATURE LONGITUDINALI (%=100\*Af/Ac/s - Ac/s=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.85	1.309	9.42	.654	3d20	9.42	.654	3d20
2	28.09	1.95	14.04	.975	3d14 +3d20	14.04	.975	3d14 +3d20
3	18.66	1.296	14.04	.975	3d14 +3d20	4.62	.321	3d14
4	9.24	.641	4.62	.321	3d14	4.62	.321	3d14

Nome travata : 243 - **Travata TR\_31pp** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
 gc =1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecu=.2% (limit.elastico)  
 ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
 gs =1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4435.3; Eud=.19% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)=149.4; ScIs(quasi permanente)=112. ; fbd(esercizio)= 26.9  
 ACCIAIO : Sacc(rara)=3600. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=314471.6

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1712	3	3	3	0	235.	180.	9.792	1.	1.729	32.325

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-5250.68	-.056	.098	-9983.45	-.112	.186	2.	.375	1.901
0.	0.	3.	1.	5010.42	-.053	.093	9983.45	-.112	.186	2.	.375	1.993
78.	78.	3.	2.	2140.56	-.019	.03	13306.27	-.127	.186	2.	.404	6.216
104.	104.	3.	3.	-1129.01	-.011	.01	-15117.85	-.2	-.161	3.	.601	13.39
104.	104.	3.	3.	1016.35	-.012	.054	3511.02	-.043	.186	2.	.189	3.455
131.	131.	3.	3.	-977.3	-.01	.008	-15117.85	-.2	-.161	3.	.601	15.47
225.	225.	3.	1.	5773.02	-.062	.107	9983.45	-.112	.186	2.	.375	1.729
235.	235.	3.	1.	-4566.12	-.048	.085	-9983.45	-.112	.186	2.	.375	2.186
235.	235.	3.	1.	5773.02	-.062	.107	9983.45	-.112	.186	2.	.375	1.729

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	-4131.	9032.	28244.	17300.	1.01	11.
0.	0.	3.	1.	5113.	9032.	28244.	17300.	1.01	11.
235.	235.	3.	1.	-4423.	9032.	28244.	17300.	1.01	11.
235.	235.	3.	1.	4732.	9032.	28244.	17300.	1.01	11.

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-513.54	-7.5	199.7	13.57	5.42	.0057	21.13	.012
28.	28.	3.	1.	-454.92	-6.6	176.9	13.57	5.42	.0051	21.13	.011
235.	235.	3.	1.	-43.58	-6	16.9	13.57	5.42	.0005	21.13	.001
235.	235.	3.	1.	372.75	-5.4	145.	13.57	5.42	.0041	21.13	.009

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-443.13	-6.5	172.3	13.57	5.42	.0049	21.13	.01
28.	28.	3.	1.	-392.28	-5.7	152.6	13.57	5.42	.0044	21.13	.009
235.	235.	3.	1.	-41.17	-6	16.	13.57	5.42	.0005	21.13	.001
235.	235.	3.	1.	307.72	-4.5	119.7	13.57	5.42	.0034	21.13	.007

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-426.38	-6.2	165.8	13.57	5.42	.0047	21.13	.01
28.	28.	3.	1.	-377.67	-5.5	146.9	13.57	5.42	.0042	21.13	.009
235.	235.	3.	1.	-39.87	-6	15.5	13.57	5.42	.0004	21.13	.001
235.	235.	3.	1.	294.01	-4.3	114.3	13.57	5.42	.0033	21.13	.007

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	% Super.	% Infer.	Barre
1	27.14	1.885	13.57	.942 3d24

2 36.38 2.526 18.19 1.263 3d14 +3d24	18.19 1.263 3d14 +3d24
3 36.38 2.526 31.76 2.206 3d14 +3d24 +3d24	4.62 .321 3d14

Nome travata : 239 - **Travata TR\_29ps** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
 gc =1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecud=.2% (limit.elastico)  
 ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
 gs =1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4439.8; Eud=.19% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)=149.4; Scls(quasi permanente)=112. ; fbd(esercizio)= 26.9  
 ACCIAIO : Sacc(rara)=3600. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

RARE

Nome	Descrizione	Sest
13.	Rara 1	1.
14.	Rara 2	1.

#### SEZIONI UTILIZZATE

3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=314471.6

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1697	3	3	3	0	630.	575.	26.25	1.3	5.	121.5
2	A1696	3	3	3	0	235.	180.	9.792	1.3	2.483	60.334

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1950.85	-.025	.052	-6998.99	-.095	.186	2.	.338	3.588	SI
0.	0.	3.	1.	1462.6	-.019	.039	6998.99	-.095	.186	2.	.338	4.785	SI
315.	315.	3.	4.	-75.98	-.001	.004	-3511.24	-.067	.186	2.	.265	46.21	SI
480.	480.	3.	5.	-716.72	-.008	.01	-12690.13	-.184	.186	2.	.496	17.71	SI
480.	480.	3.	5.	1107.46	-.016	.059	3517.84	-.051	.186	2.	.215	13.176	SI
513.	513.	3.	5.	1319.25	-.019	.07	3517.84	-.051	.186	2.	.215	2.667	SI
546.	546.	3.	6.	-1010.09	-.008	.014	-13353.01	-.121	.186	2.	.393	13.22	SI
546.	546.	3.	6.	1531.05	-.013	.019	14943.31	-.139	.186	2.	.428	9.76	SI
620.	620.	3.	7.	2011.79	-.02	.032	11625.99	-.126	.186	2.	.404	5.779	SI
630.	630.	3.	7.	-1281.8	-.013	.024	-10019.71	-.106	.186	2.	.363	7.817	SI
630.	630.	3.	7.	2011.79	-.02	.032	11625.99	-.126	.186	2.	.404	5.779	SI
> 630.	0.	3.	7.	-676.97	-.007	.013	-10019.71	-.106	.186	2.	.363	14.8	SI
630.	0.	3.	7.	4682.46	-.047	.075	11625.99	-.126	.186	2.	.404	2.483	SI
708.	78.	3.	6.	1945.56	-.016	.024	14943.31	-.139	.186	2.	.428	7.681	SI
734.	104.	3.	8.	-263.39	-.003	.002	-15313.54	-.2	.162	3.	.614	58.14	SI
734.	104.	3.	8.	910.71	-.011	.048	3509.84	-.043	.186	2.	.186	13.854	SI
865.	235.	3.	10	-4193.2	-.046	.067	-11499.37	-.14	.186	2.	.43	2.742	SI
865.	235.	3.	10	847.51	-.009	.022	7050.11	-.082	.186	2.	.306	8.319	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	-445.	7998.	28244.	17300.	1.01	11.
0.	0.	3.	1.	643.	7998.	28244.	17300.	1.01	11.
630.	630.	3.	1.	-445.	6203.	28244.	17300.	1.01	11.
630.	630.	3.	1.	643.	6203.	28244.	17300.	1.01	11.
> 630.	0.	3.	1.	-4012.	6203.	28244.	17300.	1.01	11.
630.	0.	3.	1.	689.	6203.	28244.	17300.	1.01	11.
865.	235.	3.	1.	-4012.	7998.	28244.	17300.	1.01	11.
865.	235.	3.	1.	689.	7998.	28244.	17300.	1.01	11.

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Scls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-332.03	-5.9	184.2	9.42	5.67	.0053	22.13	.012	SI
10.	10.	3.	1.	-331.03	-5.9	183.7	9.42	5.67	.0052	22.13	.012	SI
37.	37.	3.	1.	-318.21	-5.7	176.6	9.42	5.67	.005	22.13	.011	SI
150.	150.	3.	4.	-251.43	-6.4	278.6	4.62	6.16	.008	24.03	.019	SI
513.	513.	3.	5.	256.33	-5.2	284.3	4.62	6.25	.0081	25.22	.02	SI

630.	630.	3.	7.	392.9	-5.5	131.	15.93	5.24	.0037	20.43	.008	SI
> 630.	0.	3.	7.	2225.26	-31.	742.	15.93	5.24	.0225	20.43	.046	SI
865.	235.	3.	10	-2070.65	-31.3	694.7	15.93	5.11	.0204	19.93	.041	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-291.56	-5.2	161.8	9.42	5.67	.0046	22.13	.01	SI
10.	10.	3.	1.	-290.71	-5.2	161.3	9.42	5.67	.0046	22.13	.01	SI
37.	37.	3.	1.	-279.88	-5.	155.3	9.42	5.67	.0044	22.13	.01	SI
150.	150.	3.	4.	-223.44	-5.7	247.5	4.62	6.16	.0071	24.03	.017	SI
513.	513.	3.	5.	225.73	-4.5	250.4	4.62	6.25	.0072	25.22	.018	SI
630.	630.	3.	7.	345.74	-4.8	115.3	15.93	5.24	.0033	20.43	.007	SI
> 630.	0.	3.	7.	2007.11	-28.	669.2	15.93	5.24	.0191	20.43	.039	SI
865.	235.	3.	10	-1871.77	-28.3	627.9	15.93	5.11	.0179	19.93	.036	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-281.83	-5.	156.4	9.42	5.67	.0045	22.13	.01	SI
10.	10.	3.	1.	-281.03	-5.	155.9	9.42	5.67	.0045	22.13	.01	SI
37.	37.	3.	1.	-270.75	-4.8	150.2	9.42	5.67	.0043	22.13	.009	SI
150.	150.	3.	4.	-217.26	-5.5	240.7	4.62	6.16	.0069	24.03	.017	SI
513.	513.	3.	5.	218.36	-4.4	242.2	4.62	6.25	.0069	25.22	.017	SI
630.	630.	3.	7.	334.38	-4.7	111.5	15.93	5.24	.0032	20.43	.007	SI
> 630.	0.	3.	7.	1955.37	-27.2	652.	15.93	5.24	.0186	20.43	.038	SI
865.	235.	3.	10	-1825.22	-27.6	612.3	15.93	5.11	.0175	19.93	.035	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.85	1.309	9.42	.654	3d20	9.42	.654	3d20
2	28.09	1.95	14.04	.975	3d14 +3d20	14.04	.975	3d14 +3d20
3	18.66	1.296	14.04	.975	3d14 +3d20	4.62	.321	3d14
4	9.24	.641	4.62	.321	3d14	4.62	.321	3d14
5	22.81	1.584	18.19	1.263	3d14 +3d24	4.62	.321	3d14
6	38.74	2.69	18.19	1.263	3d14 +3d24	20.55	1.427	3d14 +3d26
7	29.5	2.049	13.57	.942	3d24	15.93	1.106	3d26
8	38.74	2.69	34.12	2.369	3d14 +3d24 +3d26	4.62	.321	3d14
9	34.59	2.402	20.55	1.427	3d14 +3d26	14.04	.975	3d14 +3d20
10	25.35	1.761	15.93	1.106	3d26	9.42	.654	3d20

Nome travata : 236 - **Travata TR\_30ps** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
 gc =1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecu=0.2% (limit.elastico)  
 ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
 gs =1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4435.3; Eud=.19% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)=149.4; ScIs(quasi permanente)=112. ; fbd(esercizio)= 26.9  
 ACCIAIO : Sacc(rara)=3600. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	14.	Rara 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.									
6.	SLU con SISMAX	4.									

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=314471.6

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1700	3	3	3	0	630.	575.	26.25	1.3	3.04	73.88
2	A1699	3	3	3	0	235.	180.	9.792	1.5	2.408	55.606
3	A1698	3	3	3	0	370.	315.	15.417	1.3	1.653	40.158

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-2260.86	-.029	.06	-6998.99	-.095	.186	2.	.338	3.096	SI

0.	0.	3.	1.	1789.11	-.023	.047	6998.99	-.095	.186	2.	.338	3.912	SI
84.	84.	3.	2.	-1809.1	-.018	.032	-10322.35	-.114	.186	2.	.379	5.706	SI
84.	84.	3.	2.	1372.92	-.014	.025	10322.35	-.114	.186	2.	.379	7.519	SI
117.	117.	3.	3.	-1565.23	-.02	.028	-10034.21	-.147	.186	2.	.441	6.411	SI
117.	117.	3.	3.	1189.57	-.018	.063	3518.99	-.055	.186	2.	.227	2.958	SI
315.	315.	3.	4.	99.4	-.002	.005	3511.24	-.067	.186	2.	.265	35.32	SI
513.	513.	3.	3.	1504.61	-.023	.08	3518.99	-.055	.186	2.	.227	2.339	SI
620.	620.	3.	1.	2302.05	-.029	.061	6998.99	-.095	.186	2.	.338	3.04	SI
630.	630.	3.	1.	-1641.42	-.021	.043	-6998.99	-.095	.186	2.	.338	4.264	SI
630.	630.	3.	1.	2302.05	-.029	.061	6998.99	-.095	.186	2.	.338	3.04	SI
> 630.	0.	3.	1.	-2182.98	-.028	.058	-6998.99	-.095	.186	2.	.338	3.206	SI
630.	0.	3.	1.	2906.16	-.037	.077	6998.99	-.095	.186	2.	.338	2.408	SI
761.	131.	3.	1.	425.28	-.005	.011	6998.99	-.095	.186	2.	.338	16.46	SI
865.	235.	3.	1.	-2563.71	-.033	.068	-6998.99	-.095	.186	2.	.338	2.73	SI
865.	235.	3.	1.	2334.07	-.03	.062	6998.99	-.095	.186	2.	.338	2.999	SI
> 865.	0.	3.	1.	-3882.42	-.051	.103	-6998.99	-.095	.186	2.	.338	1.803	SI
865.	0.	3.	1.	1751.76	-.022	.046	6998.99	-.095	.186	2.	.338	3.995	SI
950.	85.	3.	2.	-2482.22	-.025	.044	-10322.35	-.114	.186	2.	.379	4.159	SI
950.	85.	3.	2.	1020.	-.01	.018	10322.35	-.114	.186	2.	.379	10.12	SI
983.	118.	3.	3.	-1721.74	-.022	.031	-10034.21	-.147	.186	2.	.441	5.828	SI
983.	118.	3.	3.	695.24	-.01	.037	3518.99	-.055	.186	2.	.227	5.062	SI
1050.	185.	3.	4.	241.03	-.004	.013	3511.24	-.067	.186	2.	.265	14.57	SI
1225.	360.	3.	1.	4235.18	-.055	.112	6998.99	-.095	.186	2.	.338	1.653	SI
1235.	370.	3.	1.	-1714.92	-.022	.045	-6998.99	-.095	.186	2.	.338	4.081	SI
1235.	370.	3.	1.	4235.18	-.055	.112	6998.99	-.095	.186	2.	.338	1.653	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	-557.	7998.	28244.	17300.	1.01	11.
0.	0.	3.	1.	740.	7998.	28244.	17300.	1.01	11.
630.	630.	3.	1.	-557.	7998.	28244.	17300.	1.01	11.
630.	630.	3.	1.	740.	7998.	28244.	17300.	1.01	11.
> 630.	0.	3.	1.	-2472.	7998.	28244.	17300.	1.01	11.
630.	0.	3.	1.	2042.	7998.	28244.	17300.	1.01	11.
865.	235.	3.	1.	-2472.	7998.	28244.	17300.	1.01	11.
865.	235.	3.	1.	2042.	7998.	28244.	17300.	1.01	11.
> 865.	0.	3.	1.	-973.	7998.	28244.	17300.	1.01	11.
865.	0.	3.	1.	2279.	7998.	28244.	17300.	1.01	11.
1235.	370.	3.	1.	-973.	7998.	28244.	17300.	1.01	11.
1235.	370.	3.	1.	2279.	7998.	28244.	17300.	1.01	11.

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-330.14!	-5.9	183.2	9.42	5.67	.0052	22.13	.012	SI
28.	28.	3.	1.	-322.13	-5.7	178.7	9.42	5.67	.0051	22.13	.011	SI
150.	150.	3.	4.	-250.55	-6.4	277.6	4.62	6.16	.0079	24.03	.019	SI
630.	630.	3.	1.	343.93!	-6.1	190.8	9.42	5.67	.0055	22.13	.012	SI
> 630.	0.	3.	1.	248.16!	-4.4	137.7	9.42	5.67	.0039	22.13	.009	SI
865.	235.	3.	1.	-297.04!	-5.3	164.8	9.42	5.67	.0047	22.13	.01	SI
> 865.	0.	3.	1.	-1305.47!	-23.2	724.3	9.42	5.67	.0207	22.13	.046	SI
1017.	152.	3.	4.	-751.68!	-19.2	832.8	4.62	6.16	.0238	24.03	.057	SI
1235.	370.	3.	1.	1330.57!	-23.7	738.2	9.42	5.67	.0211	22.13	.047	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-290.04!	-5.2	160.9	9.42	5.67	.0046	22.13	.01	SI
28.	28.	3.	1.	-283.24!	-5.	157.2	9.42	5.67	.0045	22.13	.01	SI
150.	150.	3.	4.	-222.52!	-5.7!	246.5	4.62	6.16	.007	24.03	.017!	SI
630.	630.	3.	1.	302.19!	-5.4	167.7	9.42	5.67	.0048	22.13	.011	SI
> 630.	0.	3.	1.	225.85!	-4.	125.3	9.42	5.67	.0036	22.13	.008	SI
865.	235.	3.	1.	-272.22!	-4.8!	151.	9.42	5.67	.0043	22.13	.01	SI
> 865.	0.	3.	1.	-1200.39!	-21.3	666.	9.42	5.67	.019	22.13	.042	SI
1017.	152.	3.	4.	-704.34!	-17.9	780.3	4.62	6.16	.0223	24.03	.054!	SI
1235.	370.	3.	1.	1221.27!	-21.7!	677.6	9.42	5.67	.0194	22.13	.043	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-280.33!	-5.	155.5	9.42	5.67	.0044	22.13	.01	SI
28.	28.	3.	1.	-273.87!	-4.9	152.	9.42	5.67	.0043	22.13	.01	SI
150.	150.	3.	4.	-216.24!	-5.5	239.6!	4.62	6.16	.0068	24.03	.016!	SI
630.	630.	3.	1.	292.04!	-5.2	162.	9.42	5.67	.0046	22.13	.01	SI
> 630.	0.	3.	1.	221.23!	-3.9	122.7	9.42	5.67	.0035	22.13	.008	SI
865.	235.	3.	1.	-266.91!	-4.7	148.1	9.42	5.67	.0042	22.13	.009	SI
> 865.	0.	3.	1.	-1174.22!	-20.9	651.5	9.42	5.67	.0186	22.13	.041	SI
1017.	152.	3.	4.	-695.34!	-17.7	770.3!	4.62	6.16	.022	24.03	.053!	SI
1235.	370.	3.	1.	1193.23!	-21.2	662.	9.42	5.67	.0189	22.13	.042	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.85	1.309	9.42	.654	3d20	9.42	.654	3d20
2	28.09	1.95	14.04	.975	3d14 +3d20	14.04	.975	3d14 +3d20
3	18.66	1.296	14.04	.975	3d14 +3d20	4.62	.321	3d14
4	9.24	.641	4.62	.321	3d14	4.62	.321	3d14

Nome travata : 242 - **Travata TR\_31ps** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.

Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=300. ; fck=249. ; fctk= 17.9; fctm= 25.6; Ec= 314472. ;  
 gc =1.5 ; fcd=141.1; fbd= 26.9; fctd= 11.9; Ecud=.2% (limit.elastico)  
 ACCIAIO : B450C; ftk=5175. ; fyk=4500. ; Es=2100000. ;  
 gs =1.15; fyd=3913. ; ftd(k\*fyd)=4500. ; fud=4439.8; Eud=.19% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)=149.4; Scls(quasi permanente)=112. ; fbd(esercizio)= 26.9  
 ACCIAIO : Sacc(rara)=3600. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	14.	Rara 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.									
6.	SLU con SISMAX	4.									

#### SEZIONI UTILIZZATE

3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=314471.6

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1711	3	3	3	0	235.	180.	9.792	1.	2.4	71.618

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-3923.43	-.041	.073	-9983.45	-.112	.186	2.	.375	2.545
0.	0.	3.	1.	3669.26	-.039	.068	9983.45	-.112	.186	2.	.375	2.721
78.	78.	3.	2.	1537.12	-.015	.023	12341.69	-.133	.186	2.	.416	8.029
104.	104.	3.	3.	-942.48	-.009	-.008	-14821.76	-.2	-.163	3.	.634	15.73
104.	104.	3.	3.	703.63	-.01	.051	2589.43	-.037	.186	2.	.164	3.68
131.	131.	3.	3.	-782.67	-.008	-.006	-14821.76	-.2	-.163	3.	.634	18.94
225.	225.	3.	5.	4121.91	-.048	.077	9894.43	-.124	.186	2.	.399	2.4
235.	235.	3.	5.	-3361.37	-.04	.089	-7035.91	-.086	.186	2.	.317	2.093
235.	235.	3.	5.	4121.91	-.048	.077	9894.43	-.124	.186	2.	.399	2.4

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	-3074.	6203.	28244.	17300.	1.01	11.
0.	0.	3.	1.	3672.	6203.	28244.	17300.	1.01	11.
235.	235.	3.	1.	-3200.	6203.	28244.	17300.	1.01	11.
235.	235.	3.	1.	3507.	6203.	28244.	17300.	1.01	11.

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Scls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-420.73	-6.1	163.6	13.57	5.42	.0047	21.13	.01
235.	235.	3.	5.	-15.51	-.3	8.6	9.42	5.79	.0002	22.58	.001
235.	235.	3.	5.	214.67	-3.4	83.9	13.57	5.29	.0024	20.64	.005

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Scls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-362.02	-5.3	140.8	13.57	5.42	.004	21.13	.008
235.	235.	3.	5.	-10.3	-.2	5.7	9.42	5.79	.0002	22.58	0.
235.	235.	3.	5.	169.65	-2.7	66.3	13.57	5.29	.0019	20.64	.004

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Scls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-350.55	-5.1	136.3	13.57	5.42	.0039	21.13	.008
235.	235.	3.	5.	-8.73	-.1	4.8	9.42	5.79	.0001	22.58	0.
235.	235.	3.	5.	156.82	-2.5	61.3	13.57	5.29	.0018	20.64	.004

#### ARMATURE LONGITUDINALI (%=100\*Af/Acls - Acls=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	27.14	1.885	13.57	.942	3d24	13.57	.942	3d24
2	30.54	2.121	13.57	.942	3d24	16.96	1.178	3d12 +3d24
3	39.96	2.775	36.57	2.539	3d24 +3d24 +3d20	3.39	.236	3d12
4	26.39	1.833	9.42	.654	3d20	16.96	1.178	3d12 +3d24
5	23.	1.597	9.42	.654	3d20	13.57	.942	3d24

## **VERIFICA TRAVI DI INTERPIANO ESISTENTI e RINFORZATE**

**N.B.:** Nel seguito si riportano le verifiche sulle travi di interpiano esistenti, i messaggi di errore che si leggeranno fanno riferimento principalmente ai limiti di armatura previsti nel Cap. 4 delle NTC del 2018. Essendo una struttura esistente tali limitazioni si possono tranquillamente trascurare a patto che gli elementi oggetto di analisi risultino verificati per le rispettive sollecitazioni agenti.

Nel dettaglio i messaggi di errore potranno essere, in generale:

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a  $1.5 \cdot b$  mm<sup>2</sup>/m [NTC18 4.1.6.1.1].
- 7) Passo staffe superiore a 33 cm [NTC18 4.1.6.1.1].
- 8) Armatura inferiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].
- 25) Ampiezza fessura non verificata [NTC18 4.1.2.2.4].

Per gli errori riguardando la verifica di resistenza a taglio, ovvero:

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2]

Il programma tiene conto del contributo resistente fornito dalle sole staffe verticali, mentre in prossimità delle sezioni di continuità delle travi in opera sono presenti ferri piegati. Tali armature, collocate ad un interasse coerente con il comportamento a traliccio resistente ipotizzato per l'elemento analizzato, forniscono un ulteriore contributo operando in parallelo alle staffe, sufficiente a fornire la resistenza a taglio richiesta, quindi si può trascurare anche questo tipo di errore.

Analizzando un caso tipico Nel caso più sfavorevole (massime sollecitazioni agenti, minima armatura resistente) risulta:

### ***Singolo piegato all'appoggio (trave 70 x 24)***

Taglio sollecitante (caso più sfavorevole, vedi tabulati)  $\rightarrow V_{Sd} = 12713$  daN

Taglio resistente staffe ( $\phi 6$  / 20 cm, vedi tabulati)  $\rightarrow V_{Rd} = \min(V_{Rdc}, V_{Rds}) = V_{Rds} = 7284$  daN

Taglio sollecitante residuo  $\rightarrow \Delta V_{Sd} = 12713$  daN  $- 7284$  daN  $= 5429$  daN

Taglio resistente ferri piegati ( $1\phi 14$ , vedi tabulati): Area ferro piegato  $\rightarrow A_{sw} = 1\phi 14 = 1.54$  cm<sup>2</sup>

Interasse  $\rightarrow s = 20$  cm, coerente con l'indicazione  $s = 0.9d = 21.6$  cm

Inclinazione bielle compresse  $\rightarrow \cot\theta = 2.5$

$V_{Rsd} = 0.9 d A_{sw} / s f_{yd} (\cot\alpha + \cot\theta) \sin\alpha = 11383$  daN

$V_{Rcd} = 0.9 d b_w v f_{cd} (\cot\alpha + \cot\theta) / (1 + \cot^2\theta) = 28357$  daN

$V_{Rd} = \min[V_{Rsd}, V_{Rcd}] = 11383$  daN

Esito Verifica  $\rightarrow V'_{Rd} = 11383$  daN  $> 5429$  daN  $= \Delta V_{Sd}$

Contributo piegati  $\rightarrow \Delta V_{Sd} = 5429 < 0.5 V_{Sd} = (0.5) 12713$  daN  $= 6356$  daN

### ***Doppio piegato all'appoggio (trave 70 x 24)***

Taglio sollecitante (caso più sfavorevole, vedi tabulati)  $\rightarrow V_{Sd} = 12713$  daN

Taglio resistente staffe ( $\phi 6$  / 20 cm, vedi tabulati)  $\rightarrow V_{Rd} = \min(V_{Rdc}, V_{Rds}) = V_{Rds} = 7284$  daN

Taglio sollecitante residuo  $\rightarrow \Delta V_{Sd} = 12713$  daN  $- 7284$  daN  $= 5429$  daN

Taglio resistente ferri piegati ( $2\phi 14$ , vedi tabulati): Area ferro piegato  $\rightarrow A_{sw} = 2\phi 14 = 3.08$  cm<sup>2</sup>

Interasse  $\rightarrow s = 20$  cm, coerente con l'indicazione  $s = 0.9d = 21.6$  cm

Inclinazione bielle compresse  $\rightarrow \cot\theta = 2.5$

$$V_{Rsd} = 0.9 d A_{sw}/s f_{yd} (\cot\alpha + \cot\theta) \sin\alpha = 22766 \text{ daN}$$

$$V_{Rcd} = 0.9 d b_w v f_{cd} (\cot\alpha + \cot\theta)/(1 + \cot^2\theta) = 28357 \text{ daN}$$

$$V_{Rd} = \min [V_{Rsd}; V_{Rcd}] = 11383 \text{ daN}$$

$$\text{Esito Verifica} \rightarrow V'_{Rd} = 22766 \text{ daN} > 5429 \text{ daN} = \Delta V_{Sd}$$

$$\text{Contributo piegati} \rightarrow \Delta V_{Sd} = 5429 < 0.5 V_{Sd} = (0.5) 12713 \text{ daN} = 6356 \text{ daN}$$

Per eventuali errori riguardanti le verifiche alle tensioni di esercizio, invece si avrà:

19-21) Combinazione Rara e Quasi Permanente: superata la tensione massima nel cls  
[NTC 2018 - par. 4.1.2.2.5]

Per le verifiche alle condizioni di esercizio SLE, la massima tensione di compressione del cls vale:

$$\sigma_{c,max} \leq 0.60 \cdot f_{ck} \rightarrow \text{Combinazione Caratteristica (RARA)}$$

$$\sigma_{c,max} \leq 0.45 \cdot f_{ck} \rightarrow \text{Combinazione Quasi Permanente}$$

Essendo una struttura esistente, considerando le molteplici incognite e gli alti fattori di sicurezza presenti, non avendo riscontrato nessun tipo di dissesto strutturale significativo e trattandosi di verifica statiche in condizioni di esercizio, si è deciso di considerare verificata la struttura con errori massimi del 15% . Ovvero:

$$\text{- Combinazione Caratteristica} \rightarrow \sigma_{c,Rara} \leq \sigma_{c,max} + 15\% \rightarrow \sigma_{c,Rara} = 113.5 \text{ daN/cm}^2$$

$$\text{- Combinazione Quasi Permanente} \rightarrow \sigma_{c,QPerm} \leq \sigma_{c,max} + 15\% \rightarrow \sigma_{c,QPerm} = 85.1 \text{ daN/cm}^2$$

Nome travata : **Tr4\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			
Nome	Descrizione	Sest	
1.	SLU SENZA SISMA 1	1.	
2.	SLU SENZA SISMA 2	1.	
5.	SLU con SISMAX	4.	
6.	SLU con SISMAX	4.	

RARE		FREQUENTI		QUASI PERMANENTI	
Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.
14.	Rara 2	1.	16.	Frequente 2	1.

#### SEZIONI UTILIZZATE

3) Rettangolare: 60X50; A=3000.; Jg=625000.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A14	3	3	3	0	188.	148.	3.757	1.3	1.862	40.562
2	A15	3	3	3	0	390.	350.	7.8	1.5	1.534	38.694
3	A16	3	3	3	0	421.	383.	8.412	1.3	1.028	24.591

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive|SE|Ar| Msd | Epscl | Epsac| Mrd | Epscl | Epsac | Cam x/d | Mr/Ms|VE|  
> 0.| 0.| 3.| 1.| -4255.13| -.013| .024| -24908.97| -.078| .138| 2.| .361| 5.854| SI|



	0.	0.	3.	1.	638.18	-.002	.004	23182.95	-.072	.138	2.	.341	36.33	SI
	94.	94.	3.	2.	9435.57	-.028	.056	23228.05	-.07	.138	2.	.337	12.462	SI
	132.	132.	3.	3.	12337.51	-.034	.063	27232.25	-.077	.138	2.	.357	2.207	SI
	166.	166.	3.	3.	14622.7	-.04	.074	27232.25	-.077	.138	2.	.357	1.862	SI
	188.	188.	3.	3.	-18597.02	-.052	.089	-28952.46	-.083	.138	2.	.375	1.557	SI
	188.	188.	3.	3.	14622.7	-.04	.074	27232.25	-.077	.138	2.	.357	1.862	SI
>	188.	0.	3.	3.	-23492.1	-.066	.112	-28952.46	-.083	.138	2.	.375	1.232	SI
	188.	0.	3.	3.	13547.34	-.037	.069	27232.25	-.077	.138	2.	.357	2.01	SI
	229.	41.	3.	3.	-23492.1	-.069	.121	-26756.4	-.079	.138	2.	.363	1.139	SI
	258.	70.	3.	5.	11739.92	-.033	.054	29839.96	-.088	.138	2.	.389	2.542	SI
	300.	112.	3.	6.	-12677.89	-.038	.083	-21139.11	-.065	.138	2.	.318	1.667	SI
	383.	195.	3.	6.	-1603.77	-.005	.01	-21139.11	-.065	.138	2.	.318	13.18	SI
	556.	369.	3.	3.	17725.55	-.049	.09	27184.77	-.077	.138	2.	.357	1.534	SI
	578.	390.	3.	3.	-17199.44	-.048	.082	-28952.46	-.083	.138	2.	.375	1.683	SI
	578.	390.	3.	3.	17725.55	-.049	.09	27232.25	-.077	.138	2.	.357	1.536	SI
>	578.	0.	3.	3.	-24143.57	-.068	.115	-28952.46	-.083	.138	2.	.375	1.199	SI
	578.	0.	3.	3.	11061.8	-.03	.056	27232.25	-.077	.138	2.	.357	2.462	SI
	634.	56.	3.	3.	10090.03	-.029	.051	27330.07	-.081	.138	2.	.369	2.709	SI
	769.	191.	3.	8.	-2462.16	-.01	.017	-20289.26	-.088	.138	2.	.389	8.24	SI
	769.	191.	3.	8.	5029.53	-.022	.083	8368.62	-.036	.138	2.	.208	1.664	SI
	977.	399.	3.	10	22552.63	-.07	.135	23182.95	-.072	.138	2.	.341	1.028	SI
	998.	421.	3.	10	-20239.44	-.063	.112	-24908.97	-.078	.138	2.	.361	1.231	SI
	998.	421.	3.	10	22552.63	-.07	.135	23182.95	-.072	.138	2.	.341	1.028	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	-7469.	9847.	40441.	11889.	1.01	25.	2.5	NO	6
0.	0.	3.	10242.	9847.	40441.	11889.	1.01	25.	2.5	NO	6
20.	20.	3.	-7933.	9847.	40441.	11889.	1.01	25.	2.5	NO	6
20.	20.	3.	10242.	9847.	40441.	11889.	1.01	25.	2.5	NO	6
21.	21.	3.	-7965.	9847.	40441.	11889.	1.01	25.	2.5	NO	6
21.	21.	3.	10242.	9847.	40441.	11889.	1.01	25.	2.5	NO	6
41.	41.	3.	-8446.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
41.	41.	3.	10071.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
56.	56.	3.	-8799.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
56.	56.	3.	9718.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	-9158.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	9359.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	-9158.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	9359.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
94.	94.	3.	-9780.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
94.	94.	3.	8737.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
118.	118.	3.	-10425.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
118.	118.	3.	8092.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
118.	118.	3.	-10425.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
118.	118.	3.	8092.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
132.	132.	3.	-10823.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
132.	132.	3.	7693.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
146.	146.	3.	-11228.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
146.	146.	3.	7289.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
166.	166.	3.	-11434.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
166.	166.	3.	6711.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
168.	168.	3.	-11434.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
168.	168.	3.	6670.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
188.	188.	3.	-11434.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
188.	188.	3.	6075.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
> 188.	0.	3.	-3485.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
188.	0.	3.	16080.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
208.	20.	3.	-3485.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
208.	20.	3.	16080.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
209.	21.	3.	-3525.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
209.	21.	3.	16080.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
229.	41.	3.	-4113.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
229.	41.	3.	15871.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
244.	56.	3.	-4533.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
244.	56.	3.	15451.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
258.	70.	3.	-4952.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
258.	70.	3.	15032.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
258.	70.	3.	-4952.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
258.	70.	3.	15032.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
300.	112.	3.	-6170.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
300.	112.	3.	13814.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
341.	153.	3.	-7384.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
341.	153.	3.	12600.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
383.	195.	3.	-8593.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
383.	195.	3.	11391.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
425.	237.	3.	-9796.	10160.	40441.	11889.	1.01	25.	2.5	NO	6
425.	237.	3.	10188.	10160.	40441.	11889.	1.01	25.	2.5	NO	6
466.	278.	3.	-10995.	10160.	40441.	11889.	1.01	25.	2.5	NO	6
466.	278.	3.	8988.	10160.	40441.	11889.	1.01	25.	2.5	NO	6
508.	320.	3.	-12190.	10160.	40441.	11889.	1.01	25.	2.5	NO	4 6
508.	320.	3.	7794.	10160.	40441.	11889.	1.01	25.	2.5	NO	6
508.	320.	3.	-12190.	10160.	40441.	11889.	1.01	25.	2.5	NO	4 6
508.	320.	3.	7794.	10160.	40441.	11889.	1.01	25.	2.5	NO	6
522.	334.	3.	-12600.	10374.	40441.	11889.	1.01	25.	2.5	NO	4 6
522.	334.	3.	7384.	10374.	40441.	11889.	1.01	25.	2.5	NO	6
536.	349.	3.	-13008.	10501.	40441.	11889.	1.01	25.	2.5	NO	4 6
536.	349.	3.	6975.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
556.	369.	3.	-13211.	10501.	40441.	11889.	1.01	25.	2.5	NO	4 6
556.	369.	3.	6405.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
558.	370.	3.	-13211.	10501.	40441.	11889.	1.01	25.	2.5	NO	4 6
558.	370.	3.	6366.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
578.	390.	3.	-13211.	10501.	40441.	11889.	1.01	25.	2.5	NO	4 6
578.	390.	3.	5796.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
> 578.	0.	3.	-2653.	10501.	40441.	11889.	1.01	25.	2.5	NO	6
578.	0.	3.	16843.	10501.	40441.	11889.	1.01	25.	2.5	NO	4 6
598.	20.	3.	-2653.	10501.	40441.	11889.	1.01	25.	2.5	NO	6

598.	20.	3.	16843.	10501.	40441.	11889.	1.01	25.	2.5	NO	4	6
599.	21.	3.	-2692.	10501.	40441.	11889.	1.01	25.	2.5	NO	6	
599.	21.	3.	16843.	10501.	40441.	11889.	1.01	25.	2.5	NO	4	6
619.	41.	3.	-3259.	10501.	40441.	11889.	1.01	25.	2.5	NO	6	
619.	41.	3.	16641.	10501.	40441.	11889.	1.01	25.	2.5	NO	4	6
634.	56.	3.	-3665.	10501.	40441.	11889.	1.01	25.	2.5	NO	6	
634.	56.	3.	16236.	10501.	40441.	11889.	1.01	25.	2.5	NO	4	6
648.	70.	3.	-4069.	10374.	40441.	11889.	1.01	25.	2.5	NO	6	
648.	70.	3.	15832.	10374.	40441.	11889.	1.01	25.	2.5	NO	4	6
648.	70.	3.	-4069.	10374.	40441.	11889.	1.01	25.	2.5	NO	6	
648.	70.	3.	15832.	10374.	40441.	11889.	1.01	25.	2.5	NO	4	6
688.	110.	3.	-5209.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
688.	110.	3.	14691.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6
729.	151.	3.	-6345.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
729.	151.	3.	13555.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6
769.	191.	3.	-7476.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
769.	191.	3.	12424.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6
810.	232.	3.	-8603.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
810.	232.	3.	11297.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
850.	272.	3.	-9726.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
850.	272.	3.	10174.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
890.	313.	3.	-10845.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
890.	313.	3.	9056.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
931.	353.	3.	-11958.	10374.	40441.	11889.	1.01	25.	2.5	NO	4	6
931.	353.	3.	7942.	10374.	40441.	11889.	1.01	25.	2.5	NO	6	
931.	353.	3.	-11958.	10374.	40441.	11889.	1.01	25.	2.5	NO	4	6
931.	353.	3.	7942.	10374.	40441.	11889.	1.01	25.	2.5	NO	6	
945.	367.	3.	-12352.	10374.	40441.	11889.	1.01	25.	2.5	NO	4	6
945.	367.	3.	7548.	10374.	40441.	11889.	1.01	25.	2.5	NO	6	
960.	382.	3.	-12744.	9847.	40441.	11889.	1.01	25.	2.5	NO	4	6
960.	382.	3.	7156.	9847.	40441.	11889.	1.01	25.	2.5	NO	6	
977.	399.	3.	-12939.	9847.	40441.	11889.	1.01	25.	2.5	NO	4	6
977.	399.	3.	6677.	9847.	40441.	11889.	1.01	25.	2.5	NO	6	
981.	403.	3.	-12939.	9847.	40441.	11889.	1.01	25.	2.5	NO	4	6
981.	403.	3.	6571.	9847.	40441.	11889.	1.01	25.	2.5	NO	6	
998.	421.	3.	-12939.	9847.	40441.	11889.	1.01	25.	2.5	NO	4	6
998.	421.	3.	6092.	9847.	40441.	11889.	1.01	25.	2.5	NO	6	

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-2092.51	-7.1	231.2	20.89	6.25	.0069	10.14	.007	SI
20.	20.	3.	1.	-2092.51	-7.1	231.2	20.89	6.25	.0069	10.14	.007	SI
21.	21.	3.	1.	-2069.93	-7.1	228.7	20.89	6.25	.0069	10.14	.007	SI
70.	70.	3.	1.	-1703.18	-5.8	188.2	20.89	6.25	.0056	10.14	.006	SI
94.	94.	3.	2.	-1764.89	-5.9	185.4	22.02	6.25	.0056	9.64	.005	SI
188.	188.	3.	3.	-3058.3	-9.6	291.1	24.28	6.25	.0087	8.85	.008	SI
> 188.	0.	3.	3.	-5843.	-18.3	556.2	24.28	6.25	.0191	8.85	.017	SI
425.	237.	3.	6.	2137.19	-7.3	218.5	22.71	6.25	.0066	9.49	.006	SI
578.	390.	3.	3.	-511.04	-1.6	48.6	24.28	6.25	.0015	8.85	.001	SI
> 578.	0.	3.	3.	-7561.39	-23.7	719.8	24.28	6.25	.0273	8.85	.024	SI
769.	191.	3.	8.	1699.23	-8.6	559.9	6.79	6.25	.0168	17.73	.03	SI
850.	272.	3.	6.	2940.12	-10.	300.6	22.71	6.25	.009	9.49	.009	SI
998.	421.	3.	10	92.39	-.3	11.	19.32	6.25	.0003	11.2	0.	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1874.78	-6.4	207.1	20.89	6.25	.0062	10.14	.006	SI
20.	20.	3.	1.	-1874.78	-6.4	207.1	20.89	6.25	.0062	10.14	.006	SI
21.	21.	3.	1.	-1853.44	-6.3	204.8	20.89	6.25	.0061	10.14	.006	SI
70.	70.	3.	1.	-1500.41	-5.1	165.8	20.89	6.25	.005	10.14	.005	SI
94.	94.	3.	2.	-1551.77	-5.2	163.	22.02	6.25	.0049	9.64	.005	SI
188.	188.	3.	3.	-2733.1	-8.6	260.2	24.28	6.25	.0078	8.85	.007	SI
> 188.	0.	3.	3.	-5446.05	-17.1	518.4	24.28	6.25	.0172	8.85	.015	SI
425.	237.	3.	6.	1991.21	-6.8	203.6	22.71	6.25	.0061	9.49	.006	SI
578.	390.	3.	3.	-430.6	-1.3	41.	24.28	6.25	.0012	8.85	.001	SI
> 578.	0.	3.	3.	-6996.13	-21.9	666.	24.28	6.25	.0246	8.85	.022	SI
769.	191.	3.	8.	1579.44	-8.	520.4	6.79	6.25	.0156	17.73	.028	SI
850.	272.	3.	6.	2726.72	-9.3	278.8	22.71	6.25	.0084	9.49	.008	SI
998.	421.	3.	10	-3.41	0.	4	20.89	6.25	0.	10.14	0.	SI
998.	421.	3.	10	30.41	-.1	3.6	19.32	6.25	.0001	11.2	0.	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1803.25	-6.2	199.2	20.89	6.25	.006	10.14	.006	SI
20.	20.	3.	1.	-1803.25	-6.2	199.2	20.89	6.25	.006	10.14	.006	SI
21.	21.	3.	1.	-1782.36	-6.1	196.9	20.89	6.25	.0059	10.14	.006	SI
70.	70.	3.	1.	-1435.29	-4.9	158.6	20.89	6.25	.0048	10.14	.005	SI
94.	94.	3.	2.	-1483.88	-5.	155.9	22.02	6.25	.0047	9.64	.005	SI
188.	188.	3.	3.	-2629.96	-8.2	250.4	24.28	6.25	.0075	8.85	.007	SI
> 188.	0.	3.	3.	-5333.75	-16.7	507.7	24.28	6.25	.0167	8.85	.015	SI
425.	237.	3.	6.	1945.95	-6.6	198.9	22.71	6.25	.006	9.49	.006	SI
578.	390.	3.	3.	-385.98	-1.2	36.7	24.28	6.25	.0011	8.85	.001	SI
> 578.	0.	3.	3.	-6824.1	-21.4	649.6	24.28	6.25	.0238	8.85	.021	SI
769.	191.	3.	8.	1536.97	-7.8	506.4	6.79	6.25	.0152	17.73	.027	SI
850.	272.	3.	6.	2659.57	-9.1	271.9	22.71	6.25	.0082	9.49	.008	SI
998.	421.	3.	10	11.25	0.	1.3	19.32	6.25	0.	11.2	0.	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	40.21	1.34	20.89	.696	2d10 +3d12 +3d26	19.32	.644	3d12 +3d26
2	41.34	1.378	22.02	.734	2d10 +1d12 +3d1 ...	19.32	.644	3d12 +3d26
3	47.	1.567	24.28	.809	2d10 +1d12 +2d1 ...	22.71	.757	3d12 +3d12 +3d26

4	47.	1.567	22.02	.734	2d10	+1d12	+3d1	...	24.98	.833	2d12	+3d12	+3d1	...
5	47.	1.567	20.89	.696	2d10	+3d12	+3d26		26.11	.87	1d12	+2d12	+3d1	...
6	40.21	1.34	17.5	.583	2d10	+3d26			22.71	.757	1d12	+2d12	+3d1	...
7	41.34	1.378	19.76	.659	2d10	+1d12	+1d1	...	21.58	.719	2d12	+3d12	+3d26	
8	24.28	.809	17.5	.583	2d10	+3d26			6.79	.226	1d12	+2d12	+3d12	
9	40.21	1.34	18.63	.621	2d10	+1d12	+3d26		21.58	.719	2d12	+3d12	+3d26	
10	40.21	1.34	20.89	.696	2d10	+1d12	+2d1	...	19.32	.644	3d12	+3d26		

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
6) Sezione staffe inferiore a  $1.5 \cdot b$  mm<sup>2</sup>/m [NTC18 4.1.6.1.1].

Nome travata : **Tr9\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm<sup>2</sup>; deform.%.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=370. ; fck=307.1; fctk= 20.6; fctm= 29.4; Ec= 330194. ;  
gc =1.5 ; fcd=174. ; fbd= 30.9; fctd= 13.7; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)=184.3; Scls(quasi permanente)=138.2; fbd(esercizio)= 30.9  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 60x50; A=3000. ; Jg=625000. ; E=330194.3  
6) Rettangolare: 70x24; A=1680. ; Jg=80640. ; E=330194.3

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A13	3	3	3	0	235.	195.	4.7	1.3	2.478	65.778
2	A12	3	3	3	0	425.	385.	8.5	1.5	1.565	57.206
3	A11	3	3	3	0	215.	175.	4.3	1.5	3.492	103.448
4	A937	3	3	3	0	425.	388.	8.5	1.5	1.851	67.684
5	A9	3	3	3	0	232.	197.	4.64	1.5	1.508	55.549
6	A347	6	6	6	0	489.	454.	20.363	1.3	2.018	62.416

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-13716.68	-.03	.066	-28595.85	-.064	.138	2.	.317	2.085	SI
0.	0.	3.	1.	6002.24	-.013	.035	23874.78	-.054	.138	2.	.279	3.978	SI
41.	41.	3.	1.	-13716.68	-.031	.071	-26590.38	-.062	.138	2.	.309	1.939	SI
70.	70.	3.	2.	5609.46	-.012	.029	26432.75	-.059	.138	2.	.3	4.712	SI
133.	133.	3.	3.	-1626.71	-.004	.009	-25512.36	-.069	.138	2.	.332	15.68	SI
179.	179.	3.	4.	-6840.23	-.016	.027	-34081.64	-.088	.138	2.	.388	4.983	SI
179.	179.	3.	4.	5973.22	-.018	.091	9075.1	-.027	.138	2.	.164	1.519	SI
214.	214.	3.	5.	7047.87	-.016	.056	17462.57	-.039	.138	2.	.221	2.478	SI
235.	235.	3.	5.	-8868.42	-.019	.033	-37276.25	-.084	.138	2.	.378	4.203	SI
235.	235.	3.	5.	7047.87	-.016	.056	17462.57	-.039	.138	2.	.221	2.478	SI
> 235.	0.	3.	5.	-27359.63	-.06	.101	-37276.25	-.084	.138	2.	.378	1.362	SI
235.	0.	3.	5.	5618.49	-.012	.044	17462.57	-.039	.138	2.	.221	3.108	SI
276.	41.	3.	5.	-27359.63	-.062	.107	-35235.62	-.082	.138	2.	.372	1.288	SI
509.	274.	3.	8.	-2109.9	-.005	.015	-18926.65	-.05	.138	2.	.266	8.97	SI
549.	314.	3.	8.	12416.88	-.032	.088	19427.46	-.051	.138	2.	.271	1.565	SI
660.	425.	3.	12	-23499.87	-.049	.087	-37287.26	-.08	.138	2.	.366	1.587	SI
660.	425.	3.	12	9378.31	-.019	.058	22256.48	-.047	.138	2.	.252	2.373	SI
> 660.	0.	3.	12	-11492.62	-.023	.042	-37287.26	-.08	.138	2.	.366	3.244	SI
660.	0.	3.	12	6374.32	-.013	.04	22256.48	-.047	.138	2.	.252	3.492	SI
680.	20.	3.	12	6374.32	-.013	.04	22256.48	-.047	.138	2.	.252	3.492	SI
716.	56.	3.	13	-9136.26	-.02	.034	-36666.82	-.088	.138	2.	.389	4.013	SI
716.	56.	3.	13	5459.78	-.014	.06	12604.15	-.032	.138	2.	.186	2.309	SI
768.	108.	3.	14	-2169.21	-.005	.011	-27849.09	-.071	.138	2.	.341	12.84	SI
875.	215.	3.	12	-11850.97	-.024	.044	-37287.26	-.08	.138	2.	.366	3.146	SI
875.	215.	3.	12	6057.28	-.012	.038	22256.48	-.047	.138	2.	.252	3.674	SI

>	875.	0.	3.	12	-22385.45	-.046	.083	-37287.26	-.08	.138	2.	.366	1.666	SI
	875.	0.	3.	12	10000.24	-.021	.062	22256.48	-.047	.138	2.	.252	2.226	SI
	986.	111.	3.	17	12998.2	-.031	.075	24061.82	-.06	.138	2.	.302	1.851	SI
	1027.	152.	3.	8.	-1526.17	-.004	.011	-18926.65	-.05	.138	2.	.266	12.4	SI
	1261.	386.	3.	11	-27513.43	-.063	.111	-34262.81	-.08	.138	2.	.367	1.245	SI
	1279.	404.	3.	11	-27513.43	-.061	.103	-37000.56	-.084	.138	2.	.377	1.345	SI
	1279.	404.	3.	11	6494.66	-.014	.051	17460.13	-.039	.138	2.	.222	2.688	SI
	1300.	425.	3.	12	-27513.43	-.058	.102	-37287.26	-.08	.138	2.	.366	1.355	SI
	1300.	425.	3.	12	4537.84	-.009	.028	22256.48	-.047	.138	2.	.252	4.905	SI
>	1300.	0.	3.	12	-8412.45	-.017	.031	-37287.26	-.08	.138	2.	.366	4.432	SI
	1300.	0.	3.	12	14754.79	-.031	.092	22256.48	-.047	.138	2.	.252	1.508	SI
	1400.	100.	3.	21	-3293.68	-.008	.019	-23415.48	-.063	.138	2.	.313	7.109	SI
	1432.	132.	3.	22	4142.37	-.014	.075	7662.98	-.026	.138	2.	.158	1.85	SI
	1532.	232.	3.	23	-22969.17	-.065	.122	-26095.1	-.074	.138	2.	.349	1.136	SI
	1532.	232.	3.	23	5587.26	-.02	.092	8436.71	-.03	.138	2.	.177	1.51	SI
>	1532.	0.	6.	24	-2874.12	-.008	-.039	-15555.71	-.085	-.33	4.	.382	5.412	SI
	1559.	27.	6.	25	19.05	0.	0.	8451.9	-.029	.138	2.	.172	443.7	SI
	1844.	312.	6.	28	2421.87	-.031	.068	4888.47	-.065	.138	2.	.32	2.018	SI
	1912.	380.	6.	28	2327.05	-.031	.072	4465.9	-.062	.138	2.	.311	1.919	SI
	1979.	447.	6.	30	1845.97	-.028	.101	2521.42	-.039	.138	2.	.22	1.366	SI
	2021.	489.	6.	30	1364.94	-.021	.075	2521.42	-.039	.138	2.	.22	1.847	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	-278.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
0.	0.	3.	16651.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
20.	20.	3.	-278.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
20.	20.	3.	16651.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
21.	21.	3.	-382.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
21.	21.	3.	16651.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
41.	41.	3.	-1889.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
41.	41.	3.	16114.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
56.	56.	3.	-2967.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
56.	56.	3.	15036.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
70.	70.	3.	-4046.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	13957.	11761.	76960.	11889.	1.01	25.	2.5	NO	4
70.	70.	3.	-4046.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	13957.	11761.	76960.	11889.	1.01	25.	2.5	NO	4
102.	102.	3.	-6432.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
102.	102.	3.	11571.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
133.	133.	3.	-8818.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
133.	133.	3.	9185.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
165.	165.	3.	-11204.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
165.	165.	3.	6799.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
165.	165.	3.	-11204.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
165.	165.	3.	6799.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
179.	179.	3.	-12282.	11761.	76960.	11889.	1.01	25.	2.5	NO	4
179.	179.	3.	5721.	11761.	76960.	11889.	1.01	25.	2.5	NO	6
194.	194.	3.	-13361.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
194.	194.	3.	4642.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
214.	214.	3.	-13898.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
214.	214.	3.	3135.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
215.	215.	3.	-13898.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
215.	215.	3.	3032.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
235.	235.	3.	-13898.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
235.	235.	3.	1525.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
> 235.	0.	3.	26140.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
255.	20.	3.	26140.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
256.	21.	3.	26140.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
276.	41.	3.	25159.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
291.	56.	3.	23309.	13259.	76960.	11889.	1.01	25.	2.5	NO	4
305.	70.	3.	22013.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
305.	70.	3.	22013.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
346.	111.	3.	18342.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
386.	151.	3.	-2238.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
386.	151.	3.	14813.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
427.	192.	3.	-5768.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
427.	192.	3.	11283.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
468.	233.	3.	-9297.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
468.	233.	3.	7754.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
509.	274.	3.	-12827.	14460.	76960.	11889.	1.01	25.	2.5	NO	4
509.	274.	3.	4225.	14460.	76960.	11889.	1.01	25.	2.5	NO	6
549.	314.	3.	-16356.	14460.	76960.	11889.	1.01	25.	2.5	NO	4
549.	314.	3.	695.	14460.	76960.	11889.	1.01	25.	2.5	NO	6
590.	355.	3.	-19886.	14460.	76960.	11889.	1.01	25.	2.5	NO	4
590.	355.	3.	-19886.	14460.	76960.	11889.	1.01	25.	2.5	NO	4
604.	369.	3.	-21126.	13259.	76960.	11889.	1.01	25.	2.5	NO	4
619.	384.	3.	-22748.	13259.	76960.	11889.	1.01	25.	2.5	NO	4
639.	404.	3.	-23596.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
640.	405.	3.	-23596.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
660.	425.	3.	-23596.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
> 660.	0.	3.	-2597.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
660.	0.	3.	16186.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
680.	20.	3.	-2597.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
680.	20.	3.	16186.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
681.	21.	3.	-2717.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
681.	21.	3.	16186.	11704.	76960.	11889.	1.01	25.	2.5	NO	4
701.	41.	3.	-4450.	12529.	76960.	11889.	1.01	25.	2.5	NO	6
701.	41.	3.	15569.	12529.	76960.	11889.	1.01	25.	2.5	NO	4
716.	56.	3.	-5691.	12529.	76960.	11889.	1.01	25.	2.5	NO	6
716.	56.	3.	14328.	12529.	76960.	11889.	1.01	25.	2.5	NO	4
730.	70.	3.	-6932.	12529.	76960.	11889.	1.01	25.	2.5	NO	6
730.	70.	3.	13087.	12529.	76960.	11889.	1.01	25.	2.5	NO	4
730.	70.	3.	-6932.	12529.	76960.	11889.	1.01	25.	2.5	NO	6
730.	70.	3.	13087.	12529.	76960.	11889.	1.01	25.	2.5	NO	4
768.	108.	3.	-10183.	12529.	76960.	11889.	1.01	25.	2.5	NO	6
768.	108.	3.	9836.	12529.	76960.	11889.	1.01	25.	2.5	NO	6

	805.	145.	3.	-13433.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	805.	145.	3.	6585.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	805.	145.	3.	-13433.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	805.	145.	3.	6585.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	819.	159.	3.	-14674.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	819.	159.	3.	5345.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	834.	174.	3.	-15915.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	834.	174.	3.	4104.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	854.	194.	3.	-16533.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	854.	194.	3.	2370.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	855.	195.	3.	-16533.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	855.	195.	3.	2251.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	875.	215.	3.	-16533.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	875.	215.	3.	517.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
>	875.	0.	3.	23073.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	895.	20.	3.	23073.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	896.	21.	3.	23073.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	916.	41.	3.	22206.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	931.	56.	3.	20554.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	945.	70.	3.	19313.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	945.	70.	3.	19313.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	986.	111.	3.	-761.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	986.	111.	3.	15753.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1027.	152.	3.	-4321.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1027.	152.	3.	12193.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1068.	193.	3.	-7882.	14594.	76960.	11889.	1.01	25.	2.5	NO	6	
	1068.	193.	3.	8632.	14594.	76960.	11889.	1.01	25.	2.5	NO	6	
	1109.	234.	3.	-11442.	14594.	76960.	11889.	1.01	25.	2.5	NO	6	
	1109.	234.	3.	5072.	14594.	76960.	11889.	1.01	25.	2.5	NO	6	
	1150.	275.	3.	-15003.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1150.	275.	3.	1511.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1191.	316.	3.	-18563.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1232.	358.	3.	-22566.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1232.	358.	3.	-22566.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1247.	372.	3.	-23970.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1261.	386.	3.	-25939.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1279.	404.	3.	-26920.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1282.	408.	3.	-26920.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1300.	425.	3.	-26920.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
>	1300.	0.	3.	-10910.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1300.	0.	3.	13286.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1318.	18.	3.	-10910.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1318.	18.	3.	13286.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1321.	21.	3.	-11210.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1321.	21.	3.	13286.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1339.	39.	3.	-12553.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1339.	39.	3.	12740.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1353.	53.	3.	-13641.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1353.	53.	3.	11651.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1368.	68.	3.	-14715.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1368.	68.	3.	10578.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1368.	68.	3.	-14715.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1368.	68.	3.	10578.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1400.	100.	3.	-17104.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1400.	100.	3.	8189.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1432.	132.	3.	-19438.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1432.	132.	3.	5855.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1465.	165.	3.	-21716.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1465.	165.	3.	3577.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1465.	165.	3.	-21716.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1465.	165.	3.	3577.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1479.	179.	3.	-22707.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1479.	179.	3.	2585.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1493.	193.	3.	-23685.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1493.	193.	3.	1608.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1511.	211.	3.	-24166.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1511.	211.	3.	425.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1515.	215.	3.	-24166.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1515.	215.	3.	167.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1532.	232.	3.	-24166.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
>	1532.	0.	6.	2849.	12075.	40640.	3784.	.57	20.	2.5	NO	5	6
	1542.	10.	6.	2849.	12075.	40640.	3784.	.57	20.	2.5	NO	5	6
	1550.	18.	6.	2849.	12075.	40640.	3784.	.57	20.	2.5	NO	5	6
	1559.	27.	6.	2819.	9939.	40640.	3784.	.57	20.	2.5	NO	5	6
	1574.	42.	6.	2685.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	1574.	42.	6.	2685.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	1607.	75.	6.	2368.	8885.	40640.	3784.	.57	20.	2.5	NO	5	6
	1641.	109.	6.	2052.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	1675.	143.	6.	1735.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	1709.	177.	6.	1419.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1743.	211.	6.	1132.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1776.	244.	6.	853.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1810.	278.	6.	610.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1844.	312.	6.	-206.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1844.	312.	6.	366.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1878.	346.	6.	-449.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1878.	346.	6.	123.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1912.	380.	6.	-693.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
	1945.	413.	6.	-936.	8885.	40640.	3784.	.57	20.	2.5	NO	5	6
	1979.	447.	6.	-1199.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	1979.	447.	6.	-1199.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	1994.	462.	6.	-1316.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	2003.	471.	6.	-1342.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	2011.	479.	6.	-1342.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
	2021.	489.	6.	-1342.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.1.	-4491.48!	-14.7!	435.2!	23.94	6.25	.0131	9.14	.012	SI
20.	20.	3.1.	-4491.48	-14.7	435.2	23.94	6.25	.0131	9.14	.012	SI
21.	21.	3.1.	-4345.44	-14.2	421.1	23.94	6.25	.0126	9.14	.012	SI
102.	102.	3.3.	870.66	-3.8	231.7	8.42	6.25	.007	16.27	.011	SI
133.	133.	3.3.	1382.97!	-6.1	368.	8.42	6.25	.011	16.27	.018	SI
179.	179.	3.4.	634.43	-2.8	193.9	6.16	6.25	.0058	54.14	.031	SI
235.	235.	3.5.	-1336.77	-4.3	99.2	31.98	6.25	.003	7.86	.002	SI
> 235.	0.	3.5.	-12710.1!	-41.!	943.4	31.98	6.25	.0367	7.86	.029	SI
468.	233.	3.8.	8191.27!	-31.8!	1169.4!	16.08	6.25	.0412	12.12	.05	SI
660.	425.	3.12	-8235.4	-25.3	611.3	31.73	6.25	.02	7.98	.016	SI
> 660.	0.	3.12	-3208.41	-9.9	238.2	31.73	6.25	.0071	7.98	.006	SI
768.	108.	3.14	555.49!	-2.2	122.6	10.18	6.25	.0037	15.	.006	SI
875.	215.	3.12	-3520.64!	-10.8!	261.3	31.73	6.25	.0078	7.98	.006	SI
> 875.	0.	3.12	-7273.08	-22.4	539.9	31.73	6.25	.0165	7.98	.013	SI
1068.	193.	3.8.	8605.29!	-33.4!	1228.6!	16.08	6.25	.0441	12.12	.054	SI
1282.	408.	3.11	-13507.22!	-43.7!	1010.1	31.73	6.25	.04	7.98	.032	SI
1300.	425.	3.12	-13507.22!	-41.5!	1002.6	31.73	6.25	.0396	7.98	.032	SI
>1300.	0.	3.12	2336.9	-7.2	290.9	18.22	6.25	.0087	11.12	.01	SI
1339.	39.	3.20	2939.09!	-10.4	370.2	18.22	6.25	.0111	11.12	.012	SI
1532.	232.	3.23	-10027.43!	-41.3!	1066.9!	21.39	6.25	.0395	9.71	.038	SI
>1532.	0.	6.24	-1614.01!	-6.8!	218.4	21.39	5.73	.0066	10.01	.007	SI
1844.	312.	6.28	1837.06!	-35.7!	1043.3	9.24	5.57	.0313	21.72	.068	SI
1979.	447.	6.30	1306.82!	-29.9!	1440.7!	4.62	6.25	.0432	24.57	.106	SI
2021.	489.	6.30	914.39	-20.9	1008.1	4.62	6.25	.0302	24.57	.074	SI

## TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.1.	-4003.64!	-13.1!	388.	23.94	6.25	.0116	9.14	.011	SI
20.	20.	3.1.	-4003.64	-13.1	388.	23.94	6.25	.0116	9.14	.011	SI
21.	21.	3.1.	-3873.21	-12.6	375.3	23.94	6.25	.0113	9.14	.01	SI
102.	102.	3.3.	777.99	-3.4	207.	8.42	6.25	.0062	16.27	.01	SI
133.	133.	3.3.	1229.24!	-5.4	327.1	8.42	6.25	.0098	16.27	.016	SI
179.	179.	3.4.	541.7	-2.4	165.6	6.16	6.25	.005	54.14	.027	SI
235.	235.	3.5.	-1224.85	-4.	90.9	31.98	6.25	.0027	7.86	.002	SI
> 235.	0.	3.5.	-11368.53!	-36.7!	843.8	31.98	6.25	.0317	7.86	.025	SI
468.	233.	3.8.	7344.55!	-28.5!	1048.6!	16.08	6.25	.0351	12.12	.043	SI
660.	425.	3.12	-7396.43	-22.7	549.	31.73	6.25	.0169	7.98	.014	SI
> 660.	0.	3.12	-2872.47	-8.8	213.2	31.73	6.25	.0064	7.98	.005	SI
768.	108.	3.14	487.86!	-2.	107.7	10.18	6.25	.0032	15.	.005	SI
875.	215.	3.12	-3179.05!	-9.8!	236.	31.73	6.25	.0071	7.98	.006	SI
> 875.	0.	3.12	-6505.1	-20.	482.9	31.73	6.25	.0145	7.98	.012	SI
1068.	193.	3.8.	7714.18!	-29.9!	1101.3!	16.08	6.25	.0378	12.12	.046	SI
1282.	408.	3.11	-12121.91!	-39.2!	906.5	31.73	6.25	.0348	7.98	.028	SI
1300.	425.	3.12	-12121.91!	-37.3	899.8	31.73	6.25	.0345	7.98	.028	SI
>1300.	0.	3.12	1962.63	-6.	244.3	18.22	6.25	.0073	11.12	.008	SI
1339.	39.	3.20	2535.75!	-9.	319.4	18.22	6.25	.0096	11.12	.011	SI
1532.	232.	3.23	-8987.52!	-37.	956.3	21.39	6.25	.0339	9.71	.033	SI
>1532.	0.	6.24	-1608.51!	-6.7!	217.7	21.39	5.73	.0065	10.01	.007	SI
1844.	312.	6.28	1785.74!	-34.7!	1014.1	9.24	5.57	.0304	21.72	.066	SI
1979.	447.	6.30	1229.41	-28.1	1355.4!	4.62	6.25	.0407	24.57	.1	SI
2021.	489.	6.30	828.97	-19.	913.9	4.62	6.25	.0274	24.57	.067	SI

## TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.1.	-3858.06!	-12.6!	373.9!	23.94	6.25	.0112	9.14	.01	SI
20.	20.	3.1.	-3858.06	-12.6	373.9	23.94	6.25	.0112	9.14	.01	SI
21.	21.	3.1.	-3732.61	-12.2	361.7	23.94	6.25	.0109	9.14	.01	SI
102.	102.	3.3.	743.12	-3.3	197.8	8.42	6.25	.0059	16.27	.01	SI
133.	133.	3.3.	1179.09!	-5.2	313.8	8.42	6.25	.0094	16.27	.015	SI
179.	179.	3.4.	517.51	-2.3	158.2	6.16	6.25	.0047	54.14	.026	SI
235.	235.	3.5.	-1173.41	-3.8	87.1	31.98	6.25	.0026	7.86	.002	SI
> 235.	0.	3.5.	-10929.6!	-35.3!	811.2	31.98	6.25	.0301	7.86	.024	SI
468.	233.	3.8.	7064.5!	-27.4!	1008.6!	16.08	6.25	.0331	12.12	.04	SI
660.	425.	3.12	-7106.15	-21.8	527.5	31.73	6.25	.0159	7.98	.013	SI
> 660.	0.	3.12	-2761.99	-8.5	205.	31.73	6.25	.0062	7.98	.005	SI
768.	108.	3.14	464.63!	-1.9	102.6	10.18	6.25	.0031	15.	.005	SI
875.	215.	3.12	-3065.06!	-9.4!	227.5!	31.73	6.25	.0068	7.98	.005	SI
> 875.	0.	3.12	-6237.74	-19.2	463.	31.73	6.25	.0139	7.98	.011	SI
1068.	193.	3.8.	7421.15!	-28.8!	1059.5!	16.08	6.25	.0357	12.12	.043	SI
1282.	408.	3.11	-11665.24!	-37.8!	872.3	31.73	6.25	.0331	7.98	.026	SI
1300.	425.	3.12	-11665.24!	-35.9!	865.9	31.73	6.25	.0328	7.98	.026	SI
>1300.	0.	3.12	1892.31	-5.8	235.6	18.22	6.25	.0071	11.12	.008	SI
1339.	39.	3.20	2436.65!	-8.6	306.9	18.22	6.25	.0092	11.12	.01	SI
1532.	232.	3.23	-8691.69!	-35.8!	924.8!	21.39	6.25	.0324	9.71	.031	SI
>1532.	0.	6.24	-1603.65!	-6.7!	217.	21.39	5.73	.0065	10.01	.007	SI
1844.	312.	6.28	1769.!	-34.4!	1004.6	9.24	5.57	.0301	21.72	.065	SI
1979.	447.	6.30	1202.76	-27.5	1326.	4.62	6.25	.0398	24.57	.098	SI
2021.	489.	6.30	799.28	-18.3	881.2	4.62	6.25	.0264	24.57	.065	SI

## ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	43.67	1.456	23.94	.798	2d10 +1d8 +2d12 ...	19.73	.658	4d14 +3d24
2	43.67	1.456	21.68	.723	2d10 +1d8 +3d16 ...	21.99	.733	2d12 +4d14 +3d24
3	30.1	1.003	21.68	.723	2d10 +1d8 +3d16 ...	8.42	.281	2d12 +4d14
4	38.14	1.271	29.72	.991	2d10 +1d8 +3d16 ...	8.42	.281	2d12 +4d14
5	46.18	1.539	31.98	1.066	2d10 +1d8 +2d12 ...	14.2	.473	4d14 +4d16
6	46.18	1.539	27.96	.932	2d10 +1d8 +2d12 ...	18.22	.607	2d16 +4d14 +4d16
7	37.76	1.259	21.68	.723	2d10 +1d8 +3d16 ...	16.08	.536	2d16 +2d16 +4d16
8	31.73	1.058	15.65	.522	2d10 +1d8 +3d24	16.08	.536	2d16 +2d16 +4d16
9	39.77	1.326	23.69	.79	2d10 +1d8 +4d16 ...	16.08	.536	2d16 +2d16 +4d16
10	45.93	1.531	27.71	.924	2d10 +1d8 +4d16 ...	18.22	.607	2d16 +4d14 +4d16
11	45.93	1.531	31.73	1.058	2d10 +1d8 +4d16 ...	14.2	.473	4d14 +4d16

12	49.95	1.665	31.73	1.058	2d10	+1d8	+4d16	...	18.22	.607	4d14	+4d16	+2d16	
13	41.91	1.397	31.73	1.058	2d10	+1d8	+4d16	...	10.18	.339	4d14	+2d16		
14	33.87	1.129	23.69	.79	2d10	+1d8	+4d16	...	10.18	.339	4d14	+2d16		
15	49.95	1.665	27.71	.924	2d10	+1d8	+4d16	...	22.24	.741	2d16	+4d14	+4d1	...
16	43.79	1.46	27.71	.924	2d10	+1d8	+4d16	...	16.08	.536	2d16	+4d16	+2d16	
17	35.75	1.192	15.65	.522	2d10	+1d8	+3d24		20.11	.67	2d16	+2d16	+4d1	...
18	18.16	.605	2.07	.069	2d10	+1d8			16.08	.536	2d16	+2d16	+4d16	
19	39.77	1.326	27.71	.924	2d10	+1d8	+4d16	...	12.06	.402	2d16	+4d16		
20	37.95	1.265	19.73	.658	2d10	+2d10	+1d8	...	18.22	.607	4d14	+4d16	+2d16	
21	29.91	.997	19.73	.658	2d10	+2d10	+1d8	...	10.18	.339	4d14	+2d16		
22	27.55	.918	21.39	.713	2d10	+2d10	+1d8	...	6.16	.205	4d14			
23	32.17	1.072	26.01	.867	2d10	+2d10	+1d8	...	6.16	.205	4d14			
24	32.17	1.915	21.39	1.273	2d10	+2d10	+1d8	...	10.78	.641	4d14	+3d14		
25	30.1	1.791	19.32	1.15	2d10	+4d16	+1d1	...	10.78	.641	4d14	+3d14		
26	23.94	1.425	16.24	.967	2d10	+4d16	+1d1	...	7.7	.458	2d14	+3d14		
27	18.85	1.122	9.61	.572	2d10	+4d16			9.24	.55	1d14	+2d14	+3d14	
28	10.81	.643	1.57	.093	2d10				9.24	.55	1d14	+2d14	+3d14	
29	10.81	.643	3.11	.185	2d10	+1d14			7.7	.458	2d14	+3d14		
30	10.81	.643	6.19	.368	2d10	+1d14	+2d14		4.62	.275	3d14			

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a  $1.5 \cdot b$  mm<sup>2</sup>/m [NTC18 4.1.6.1.1].

Nome travata : **Tr25\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm<sup>2</sup>; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=370. ; fck=307.1; fctk= 20.6; fctm= 29.4; Ec= 330194. ;  
gc =1.5 ; fcd=174. ; fbd= 30.9; fctd= 13.7; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)=184.3; ScIs(quasi permanente)=138.2; fbd(esercizio)= 30.9  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	SLU	Sest
1.	SLU SENZA SISMA 1	1.	1.
2.	SLU SENZA SISMA 2	1.	1.
5.	SLU con SISMAX	4.	4.
6.	SLU con SISMAX	4.	4.

Nome	Descrizione	RARE	Sest	Nome	Descrizione	FREQUENTI	Sest	Nome	Descrizione	QUASI PERMANENTI	Sest
13.	Rara 1	1.	1.	15.	Frequente 1	1.	1.	17.	Quasi Perm	1.	1.
14.	Rara 2	1.	1.	16.	Frequente 2	1.	1.				

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#### SEZIONI UTILIZZATE

- 1) Rettangolare: 80x24; A=1920. ; Jg=92160. ; E=330194.3  
5) Rettangolare: 60x50; A=3000. ; Jg=625000. ; E=330194.3  
7) Rettangolare: 70x24; A=1680. ; Jg=80640. ; E=330194.3

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A38	1	1	1	0	110.	75.	4.583	1.3	2.289	75.035
2	A37	1	1	1	0	290.	250.	12.083	1.5	1.612	60.992
3	A17	5	5	5	0	412.	370.	8.25	1.5	1.406	46.871
4	A18	5	5	5	0	390.	348.	7.8	1.5	1.77	53.172
5	A19	5	5	5	0	420.	375.	8.4	1.5	1.273	42.438
6	A56	1	1	1	0	405.	365.	16.875	1.5	1.49	50.843
7	A55	1	1	1	0	405.	370.	16.875	1.5	1.641	56.005
8	A54	1	1	1	0	405.	370.	16.875	1.5	1.509	51.488
9	A53	1	1	1	0	405.	370.	16.875	1.5	1.554	53.024
10	A52	1	1	1	0	405.	370.	16.875	1.5	1.541	52.596
11	A51	1	1	1	0	392.	358.	16.354	1.5	1.635	55.797
12	A385	1	1	1	0	302.	267.	12.574	1.5	2.658	83.973
13	A373	1	1	1	0	379.	344.	15.795	1.5	3.611	136.085
14	A372	7	7	7	0	230.	195.	9.583	1.3	1.354	42.667

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	1.	1107.19	-.016	.06	2533.89	-.038	.138	2.	.215	2.289	SI
10.	10.	1.	-24.2	0.	.002	-2114.78	-.034	.138	2.	.196	187.39	SI
110.	110.	1.	-4212.6	!-.046	.108	-5382.49	!-.06	.138	2.	.303	1.278	SI

>	110.	0.	1.	3.	-4263.49	-.047	.109	-5382.49	-.06	.138	2.	.303	1.262	SI	
	137.	27.	1.	3.	-4263.49	-.048	.113	-5228.41	-.06	.138	2.	.301	1.226	SI	
	209.	99.	1.	5.	-98.92	-.001	.004	-3046.86	-.039	.138	2.	.221	30.8	SI	
	325.	215.	1.	7.	4119.09	-.04	.116	4908.97	-.048	.138	2.	.259	1.192	SI	
	354.	244.	1.	8.	-1703.39	-.006	-.027	-13916.74	-.081	-.322	4.	.371	8.17	SI	
	354.	244.	1.	8.	4164.85	-.015	.086	6714.72	-.025	.138	2.	.151	1.612	SI	
	368.	258.	1.	9.	4154.41	-.008	.025	22737.53	-.046	.138	2.	.251	5.473	SI	
	400.	290.	1.	9.	-2325.31	-.001	-.014	-26152.9	-.045	-.246	4.	.247	11.25	SI	
	400.	290.	1.	9.	3887.74	-.008	.024	22737.53	-.046	.138	2.	.251	5.849	SI	
>	400.	0.	5.	10	-16641.09	-.037	.075	-30427.17	-.07	.138	2.	.336	1.828	SI	
	400.	0.	5.	10	16075.68	-.037	.098	22601.88	-.052	.138	2.	.275	1.406	SI	
	518.	118.	5.	12	11829.28	-.028	.063	25726.21	-.063	.138	2.	.313	2.175	SI	
	608.	208.	5.	12	-62.6	0.	0.	-18448.37	-.046	.138	2.	.249	294.7	SI	
	652.	252.	5.	13	5415.81	-.018	.076	9883.92	-.033	.138	2.	.193	1.825	SI	
	771.	371.	5.	16	-19835.49	-.047	.11	-24908.63	-.06	.138	2.	.302	1.256	SI	
	812.	412.	5.	16	-19835.49	-.046	.104	-26242.82	-.061	.138	2.	.308	1.323	SI	
	812.	412.	5.	16	8619.5	-.02	.054	22140.37	-.052	.138	2.	.273	2.569	SI	
>	812.	0.	5.	16	-18945.98	-.044	.1	-26242.82	-.061	.138	2.	.308	1.385	SI	
	812.	0.	5.	16	10952.35	-.025	.068	22140.37	-.052	.138	2.	.273	2.022	SI	
	854.	41.	5.	17	-18945.98	-.046	.109	-24026.54	-.058	.138	2.	.297	1.268	SI	
	854.	41.	5.	17	10475.66	-.025	.064	22504.96	-.055	.138	2.	.284	2.148	SI	
	868.	56.	5.	18	10134.53	-.026	.076	18336.13	-.048	.138	2.	.259	1.809	SI	
	1006.	194.	5.	20	-784.74	-.002	.006	-18361.85	-.048	.138	2.	.26	23.4	SI	
	1181.	369.	5.	16	12507.52	-.029	.078	22136.95	-.052	.138	2.	.273	1.77	SI	
	1202.	390.	5.	16	-17241.39	-.04	.091	-26242.82	-.061	.138	2.	.308	1.522	SI	
	1202.	390.	5.	16	12507.52	-.029	.078	22140.37	-.052	.138	2.	.273	1.77	SI	
>	1202.	0.	5.	16	-21661.27	-.05	.114	-26242.82	-.061	.138	2.	.308	1.212	SI	
	1202.	0.	5.	16	6155.71	-.014	.038	22140.37	-.052	.138	2.	.273	3.597	SI	
	1246.	44.	5.	16	-21661.27	-.052	.119	-25111.57	-.06	.138	2.	.303	1.159	SI	
	1367.	164.	5.	13	4596.9	-.015	.064	9883.92	-.033	.138	2.	.193	2.15	SI	
	1458.	256.	5.	12	-3085.09	-.007	.023	-18448.37	-.046	.138	2.	.249	5.98	SI	
	1458.	256.	5.	12	9612.33	-.023	.052	25726.21	-.063	.138	2.	.313	2.676	SI	
	1601.	399.	5.	23	17919.62	-.041	.109	22811.79	-.052	.138	2.	.274	1.273	SI	
	1622.	420.	5.	23	-14836.28	-.032	.063	-32586.58	-.074	.138	2.	.349	2.196	SI	
	1622.	420.	5.	23	17919.62	-.041	.109	22811.79	-.052	.138	2.	.274	1.273	SI	
>	1622.	0.	1.	24	-5444.61	-.003	-.033	-27004.9	-.051	-.258	4.	.269	4.96	SI	
	1669.	46.	1.	26	693.55	-.003	.014	6849.73	-.027	.138	2.	.164	9.876	SI	
	1732.	110.	1.	28	-552.37	-.013	.086	-885.67	-.021	.138	2.	.129	1.603	NO	9
	1732.	110.	1.	28	3031.89	-.032	.065	6459.44	-.072	.138	2.	.343	2.13	SI	
	1828.	205.	1.	28	4335.39	-.047	.092	6459.44	-.072	.138	2.	.343	1.49	SI	
	1923.	300.	1.	28	-138.97	-.003	.022	-885.67	-.021	.138	2.	.129	6.373	NO	9
	2028.	405.	1.	30	-7030.2	-.063	.133	-7333.43	-.066	.138	2.	.322	1.043	SI	
>	2028.	0.	1.	30	-7016.37	-.063	.132	-7333.43	-.066	.138	2.	.322	1.045	SI	
	2133.	106.	1.	28	-468.78	-.011	.073	-885.67	-.021	.138	2.	.129	1.889	NO	9
	2133.	106.	1.	28	1462.76	-.015	.031	6459.44	-.072	.138	2.	.343	4.416	SI	
	2230.	202.	1.	28	3935.85	-.042	.084	6459.44	-.072	.138	2.	.343	1.641	SI	
	2432.	405.	1.	32	-6386.04	-.055	.109	-8124.47	-.07	.138	2.	.337	1.272	SI	
>	2432.	0.	1.	32	-6365.79	-.054	.108	-8124.47	-.07	.138	2.	.337	1.276	SI	
	2506.	74.	1.	33	112.23	-.001	.003	4944.96	-.054	.138	2.	.281	44.06	SI	
	2538.	106.	1.	28	1808.3	-.019	.038	6459.44	-.072	.138	2.	.343	3.572	SI	
	2635.	202.	1.	28	4281.11	-.046	.091	6459.44	-.072	.138	2.	.343	1.509	SI	
	2732.	299.	1.	28	-58.87	-.001	.009	-885.67	-.021	.138	2.	.129	15.04	NO	9
	2837.	405.	1.	34	-6346.1	-.056	.12	-7333.43	-.066	.138	2.	.322	1.156	SI	
>	2837.	0.	1.	34	-6349.07	-.056	.12	-7333.43	-.066	.138	2.	.322	1.155	SI	
	2911.	74.	1.	33	118.18	-.001	.003	4944.96	-.054	.138	2.	.281	41.84	SI	
	3040.	203.	1.	28	4157.12	-.045	.089	6459.44	-.072	.138	2.	.343	1.554	SI	
	3072.	235.	1.	35	3811.06	-.039	.081	6489.12	-.068	.138	2.	.331	1.703	SI	
	3137.	299.	1.	35	-1264.05	-.017	.069	-2544.51	-.034	.138	2.	.197	2.013	SI	
	3243.	405.	1.	37	-6896.2	-.056	.098	-9658.04	-.08	.138	2.	.366	1.4	SI	
>	3243.	0.	1.	37	-7700.41	-.063	.11	-9658.04	-.08	.138	2.	.366	1.254	SI	
	3270.	27.	1.	37	93.18	-.001	.002	6557.13	-.056	.138	2.	.287	70.37	SI	
	3348.	106.	1.	35	-1650.9	-.022	.09	-2544.51	-.034	.138	2.	.197	1.541	SI	
	3445.	202.	1.	28	4190.88	-.045	.089	6459.44	-.072	.138	2.	.343	1.541	SI	
	3574.	331.	1.	38	1980.08	-.017	.034	8080.35	-.072	.138	2.	.342	4.081	SI	
	3648.	405.	1.	39	-7417.06	-.062	.115	-8878.32	-.075	.138	2.	.352	1.197	SI	
>	3648.	0.	1.	39	-7189.56	-.06	.112	-8878.32	-.075	.138	2.	.352	1.235	SI	
	3720.	72.	1.	38	2428.95	-.021	.041	8080.35	-.072	.138	2.	.342	3.327	SI	
	3751.	103.	1.	35	-1483.32	-.02	.081	-2544.51	-.034	.138	2.	.197	1.715	SI	
	3844.	196.	1.	35	3968.64	-.04	.084	6489.12	-.068	.138	2.	.331	1.635	SI	
	4022.	375.	1.	42	25.59	0.	.001	5124.85	-.048	.138	2.	.256	200.2	SI	
	4040.	392.	1.	42	-8081.9	-.069	.115	-9682.61	-.084	.138	2.	.377	1.198	SI	
>	4040.	0.	1.	42	-3718.79	-.03	.053	-9682.61	-.084	.138	2.	.377	2.604	SI	
	4040.	0.	1.	42	1864.09	-.017	.05	5124.85	-.048	.138	2.	.256	2.749	SI	
	4113.	73.	1.	43	2207.52	-.021	.052	5867.21	-.058	.138	2.	.295	2.658	SI	
	4144.	104.	1.	44	2151.63	-.027	.097	3080.24	-.04	.138	2.	.223	1.432	SI	
	4175.	135.	1.	45	1966.1	-.024	.088	3078.95	-.038	.138	2.	.216	1.566	SI	
	4300.	260.	1.	48	35.79	0.	.001	4318.46	-.045	.138	2.	.245	120.7	SI	
	4342.	302.	1.	48	-1458.84	-.013	.026	-7662.8	-.072	.138	2.	.344	5.253	SI	
>	4342.	0.	1.	48	-2522.86	-.023	.045	-7662.8	-.072	.138	2.	.344	3.037	SI	
	4449.	107.	1.	50	-231.92	-.003	.013	-2546.83	-.035	.138	2.	.203	10.98	SI	
	4548.	206.	1.	51	1363.01	-.016	.038	4921.39	-.06	.138	2.	.302	3.611	SI	
	4646.	305.	1.	52	766.29	-.008	.018	5986.25	-.063	.138	2.	.313	7.812	SI	
	4703.	362.	1.	53	64.08	-.001	.002	4316.68	-.047	.138	2.	.253	67.36	SI	
	4721.	379.	1.	53	-1796.89	-.017	.04	-6116.48	-.062	.138	2.	.309	3.404	SI	
>	4721.	0.	7.	54	-1655.81	-.017	.037	-6085.93	-.066	.138	2.	.324	3.675	SI	
	4792.	71.	7.	55	517.64	-.006	.013	5440.68	-.064	.138	2.	.315	10.51	SI	
	4821.	100.	7.	56	-1384.23	-.021	.075	-2538.25	-.039	.138	2.	.222	1.834	SI	
	4851.	130.	7.	57	2261.19	-.021	.043	7210.15	-.069	.138	2.	.332	3.189	SI	
	4941.	220.	7.	58	4485.65	-.043	.102	6072.53	-.059	.138	2.	.299	1.354	SI	
	4951.	230.	7.	58	-3117.29	-.028	.055	-7829.81	-.075	.138	2.	.35	2.512	SI	
	4951.	230.	7.	58	4485.65	-.043	.102	6072.53	-.059	.138	2.	.299	1.354	SI	

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve					
>	0.	0.	1.	-3859.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	10.	10.	1.	-4182.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	18.	18.	1.	-4449.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6



	27.	27.	1.	-4790.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	42.	42.	1.	-5503.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	42.	42.	1.	-5503.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	55.	55.	1.	-6179.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	68.	68.	1.	-6856.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	68.	68.	1.	-6856.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	83.	83.	1.	-7574.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	92.	92.	1.	-7843.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	100.	100.	1.	-7843.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	110.	110.	1.	-7843.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
>	110.	0.	1.	8302.	10638.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	120.	10.	1.	8302.	10638.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	128.	18.	1.	8302.	10638.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	137.	27.	1.	8033.	10638.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	152.	42.	1.	7315.	9778.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	152.	42.	1.	7315.	9778.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	180.	70.	1.	5869.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	209.	99.	1.	4718.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	238.	128.	1.	3702.	10285.	46446.	3784.	.57	20.	2.5	NO	5	6	
	267.	157.	1.	-793.	10285.	46446.	3784.	.57	20.	2.5	NO	5	6	
	267.	157.	1.	2741.	10285.	46446.	3784.	.57	20.	2.5	NO	5	6	
	296.	186.	1.	-1754.	10285.	46446.	3784.	.57	20.	2.5	NO	5	6	
	296.	186.	1.	1779.	10285.	46446.	3784.	.57	20.	2.5	NO	5	6	
	325.	215.	1.	-2715.	10285.	46446.	3784.	.57	20.	2.5	NO	5	6	
	325.	215.	1.	818.	10285.	46446.	3784.	.57	20.	2.5	NO	5	6	
	354.	244.	1.	-3677.	11102.	46446.	3784.	.57	20.	2.5	NO	5	6	
	354.	244.	1.	-3677.	11102.	46446.	3784.	.57	20.	2.5	NO	5	6	
	368.	258.	1.	-4154.	10321.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	378.	268.	1.	-4333.	10321.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	390.	280.	1.	-4333.	10321.	46446.	3784.	.57	20.	2.5	NO	4	5	6
	400.	290.	1.	-4333.	10321.	46446.	3784.	.57	20.	2.5	NO	4	5	6
>	400.	0.	5.	-3386.	11704.	76960.	11889.	1.01	25.	2.5	NO	6		
	400.	0.	5.	12574.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6	
	421.	21.	5.	-3386.	11704.	76960.	11889.	1.01	25.	2.5	NO	6		
	421.	21.	5.	12574.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6	
	422.	22.	5.	-3386.	11704.	76960.	11889.	1.01	25.	2.5	NO	6		
	422.	22.	5.	12574.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6	
	444.	44.	5.	-4092.	15204.	76960.	11889.	1.01	25.	2.5	NO	6		
	444.	44.	5.	12182.	15204.	76960.	11889.	1.01	25.	2.5	NO	4	6	
	458.	58.	5.	-4565.	14651.	76960.	11889.	1.01	25.	2.5	NO	6		
	458.	58.	5.	11709.	14651.	76960.	11889.	1.01	25.	2.5	NO	6		
	472.	72.	5.	-5037.	14651.	76960.	11889.	1.01	25.	2.5	NO	6		
	472.	72.	5.	11237.	14651.	76960.	11889.	1.01	25.	2.5	NO	6		
	472.	72.	5.	-5037.	14651.	76960.	11889.	1.01	25.	2.5	NO	6		
	472.	72.	5.	11237.	14651.	76960.	11889.	1.01	25.	2.5	NO	6		
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2796.	364.	1.	-9836.	10875.	46446.	3784.	.57	20.	2.5	NO	4	5	6
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3008.	170.	1.	2158.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3040.	203.	1.	-720.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
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3201.	364.	1.	-9912.	11823.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3215.	378.	1.	-10787.	11823.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3225.	388.	1.	-11116.	13018.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3233.	395.	1.	-11116.	13018.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3243.	405.	1.	-11116.	13018.	46446.	3784.	.57	20.	2.5	NO	4	5	6
>3243.	0.	1.	11145.	12253.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3252.	10.	1.	11145.	12253.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3260.	17.	1.	11145.	12253.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3270.	27.	1.	10816.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3284.	41.	1.	9940.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3284.	41.	1.	9940.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3316.	74.	1.	7972.	9725.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3348.	106.	1.	6068.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3381.	138.	1.	4546.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3413.	170.	1.	-470.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3413.	170.	1.	3160.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3445.	202.	1.	-1752.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3445.	202.	1.	1878.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3477.	235.	1.	-3035.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3477.	235.	1.	595.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3509.	267.	1.	-4400.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3542.	299.	1.	-5876.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3574.	331.	1.	-7773.	9725.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3606.	363.	1.	-9742.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3606.	363.	1.	-9742.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3620.	378.	1.	-10617.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3630.	387.	1.	-10946.	12639.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3638.	395.	1.	-10946.	12639.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3648.	405.	1.	-10946.	12639.	46446.	3784.	.57	20.	2.5	NO	4	5	6
>3648.	0.	1.	10316.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3657.	10.	1.	10316.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3665.	17.	1.	10316.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3675.	27.	1.	9987.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3689.	41.	1.	9112.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3689.	41.	1.	9112.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3720.	72.	1.	7288.	9725.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3751.	103.	1.	5583.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3782.	134.	1.	4350.	11359.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3813.	165.	1.	-1076.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3813.	165.	1.	3117.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3844.	196.	1.	-2309.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3844.	196.	1.	1884.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3875.	227.	1.	-3541.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3875.	227.	1.	651.	11359.	46446.	3784.	.57	20.	2.5	NO	5	6	
3906.	258.	1.	-4808.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3937.	289.	1.	-6121.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3968.	320.	1.	-7914.	10106.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3998.	351.	1.	-9806.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
3998.	351.	1.	-9806.	9186.	46446.	3784.	.57	20.	2.5	NO	4	5	6
4013.	365.	1.	-10682.	10436.	46446.	3784.	.57	20.	2.5	NO	4	5	6
4022.	375.	1.	-11010.	10436.	46446.	3784.	.57	20.	2.5	NO	4	5	6
4030.	383.	1.	-11010.	10436.	46446.	3784.	.57	20.	2.5	NO	4	5	6
4040.	392.	1.	-11010.	10436.	46446.	3784.	.57	20.	2.5	NO	4	5	6
>4040.	0.	1.	3358.	10436.	46446.	3784.	.57	20.	2.5	NO	5	6	
4050.	10.	1.	3358.	10436.	46446.	3784.	.57	20.	2.5	NO	5	6	
4058.	17.	1.	3358.	10436.	46446.	3784.	.57	20.	2.5	NO	5	6	
4067.	27.	1.	3277.	10436.	46446.	3784.	.57	20.	2.5	NO	5	6	
4082.	41.	1.	3058.	10436.	46446.	3784.	.57	20.	2.5	NO	5	6	
4082.	41.	1.	3058.	10436.	46446.	3784.	.57	20.	2.5	NO	5	6	
4113.	73.	1.	2570.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4144.	104.	1.	-467.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4144.	104.	1.	2070.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4175.	135.	1.	-978.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4175.	135.	1.	1559.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4207.	167.	1.	-1500.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4207.	167.	1.	1038.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4238.	198.	1.	-2032.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4238.	198.	1.	506.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	
4269.	229.	1.	-2574.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6	

4300.	260.	1.	-3129.	9843.	46446.	3784.	.57	20.	2.5	NO	5	6
4300.	260.	1.	-3129.	9843.	46446.	3784.	.57	20.	2.5	NO	5	6
4315.	275.	1.	-3388.	12025.	46446.	3784.	.57	20.	2.5	NO	5	6
4324.	284.	1.	-3486.	12025.	46446.	3784.	.57	20.	2.5	NO	5	6
4332.	292.	1.	-3486.	12025.	46446.	3784.	.57	20.	2.5	NO	5	6
4342.	302.	1.	-3486.	12025.	46446.	3784.	.57	20.	2.5	NO	5	6
>4342.	0.	1.	4387.	12025.	46446.	3784.	.57	20.	2.5	NO	4	5 6
4351.	10.	1.	4387.	12025.	46446.	3784.	.57	20.	2.5	NO	4	5 6
4359.	17.	1.	4387.	12025.	46446.	3784.	.57	20.	2.5	NO	4	5 6
4369.	27.	1.	4230.	12025.	46446.	3784.	.57	20.	2.5	NO	4	5 6
4383.	41.	1.	3811.	12025.	46446.	3784.	.57	20.	2.5	NO	4	5 6
4383.	41.	1.	3811.	12025.	46446.	3784.	.57	20.	2.5	NO	4	5 6
4416.	74.	1.	2907.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6
4449.	107.	1.	2077.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6
4482.	140.	1.	1351.	10321.	46446.	3784.	.57	20.	2.5	NO	5	6
4515.	173.	1.	-166.	10321.	46446.	3784.	.57	20.	2.5	NO	5	6
4515.	173.	1.	813.	10321.	46446.	3784.	.57	20.	2.5	NO	5	6
4548.	206.	1.	-670.	10321.	46446.	3784.	.57	20.	2.5	NO	5	6
4548.	206.	1.	309.	10321.	46446.	3784.	.57	20.	2.5	NO	5	6
4581.	239.	1.	-1151.	10321.	46446.	3784.	.57	20.	2.5	NO	5	6
4614.	272.	1.	-1623.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6
4646.	305.	1.	-2143.	9186.	46446.	3784.	.57	20.	2.5	NO	5	6
4679.	338.	1.	-2681.	9843.	46446.	3784.	.57	20.	2.5	NO	5	6
4679.	338.	1.	-2681.	9843.	46446.	3784.	.57	20.	2.5	NO	5	6
4694.	352.	1.	-2891.	9843.	46446.	3784.	.57	20.	2.5	NO	5	6
4703.	362.	1.	-2970.	9843.	46446.	3784.	.57	20.	2.5	NO	5	6
4711.	369.	1.	-2970.	9843.	46446.	3784.	.57	20.	2.5	NO	5	6
4721.	379.	1.	-2970.	9843.	46446.	3784.	.57	20.	2.5	NO	5	6
>4721.	0.	7.	-663.	10166.	40640.	3784.	.57	20.	2.5	NO	5	6
4721.	0.	7.	3612.	10166.	40640.	3784.	.57	20.	2.5	NO	5	6
4731.	10.	7.	-663.	10166.	40640.	3784.	.57	20.	2.5	NO	5	6
4731.	10.	7.	3612.	10166.	40640.	3784.	.57	20.	2.5	NO	5	6
4738.	18.	7.	-663.	10166.	40640.	3784.	.57	20.	2.5	NO	5	6
4738.	18.	7.	3612.	10166.	40640.	3784.	.57	20.	2.5	NO	5	6
4748.	27.	7.	-732.	10166.	40640.	3784.	.57	20.	2.5	NO	5	6
4748.	27.	7.	3573.	10166.	40640.	3784.	.57	20.	2.5	NO	5	6
4762.	42.	7.	-835.	9166.	40640.	3784.	.57	20.	2.5	NO	5	6
4762.	42.	7.	3470.	9166.	40640.	3784.	.57	20.	2.5	NO	5	6
4762.	42.	7.	-835.	9166.	40640.	3784.	.57	20.	2.5	NO	5	6
4762.	42.	7.	3470.	9166.	40640.	3784.	.57	20.	2.5	NO	5	6
4792.	71.	7.	-1047.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
4792.	71.	7.	3258.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
4821.	100.	7.	-1259.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
4821.	100.	7.	3046.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
4851.	130.	7.	-1470.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
4851.	130.	7.	2835.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
4880.	159.	7.	-1682.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
4880.	159.	7.	2623.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
4909.	189.	7.	-1894.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4909.	189.	7.	2411.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4909.	189.	7.	-1894.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4909.	189.	7.	2411.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4924.	203.	7.	-1997.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4924.	203.	7.	2308.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4933.	213.	7.	-2036.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4933.	213.	7.	2239.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4941.	220.	7.	-2036.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4941.	220.	7.	2182.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4951.	230.	7.	-2036.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6
4951.	230.	7.	2113.	10138.	40640.	3784.	.57	20.	2.5	NO	5	6

# VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Vel
> 0.	0.	1.	817.59	-18.2	897.3	4.62	6.25	.0269	24.68	.066	SI
10.	10.	1.	548.45	-12.2	601.9	4.62	6.25	.0181	24.68	.045	SI
18.	18.	1.	311.65	-6.7	342.2	4.62	6.25	.0103	24.87	.026	SI
42.	42.	1.	-551.09	-10.9	462.6	6.09	6.13	.0139	23.92	.033	SI
55.	55.	1.	-1133.21	-22.3	951.2	6.09	6.13	.0285	23.92	.068	SI
83.	83.	1.	-2548.39	-41.7	1314.5	10.12	5.69	.0394	15.63	.062	SI
110.	110.	1.	-3113.62	-51.1	1606.1	10.12	5.69	.0503	15.63	.079	SI
> 110.	0.	1.	-3152.58	-51.6	1626.2	10.12	5.69	.0513	15.63	.08	SI
296.	186.	1.	2233.44	-32.1	1262.9	9.14	6.02	.0379	23.49	.089	SI
400.	290.	1.	379.94	-1.1	46.4	***	***	*****	*****	****	SI
> 400.	0.	5.	-624.97	-2.1	57.	24.63	6.25	.0017	8.56	.001	SI
562.	162.	5.	3151.51	-11.3	339.6	21.58	6.25	.0102	9.83	.01	SI
652.	252.	5.	1731.22	-8.5	485.9	8.01	6.25	.0146	16.53	.024	SI
812.	412.	5.	-6500.53	-22.2	686.6	21.93	6.25	.0207	9.37	.019	SI
> 812.	0.	5.	-4760.05	-16.2	502.7	21.93	6.25	.0151	9.37	.014	SI
832.	20.	5.	-4760.05	-16.3	506.2	21.93	6.58	.0152	9.63	.015	SI
834.	21.	5.	-4667.54	-16.	500.	21.93	6.94	.015	9.91	.015	SI
1006.	194.	5.	1750.25	-6.7	236.3	17.06	6.25	.0071	10.86	.008	SI
1202.	390.	5.	-3040.12	-10.4	321.1	21.93	6.25	.0096	9.37	.009	SI
> 1202.	0.	5.	-8829.55	-30.1	932.6	21.93	6.25	.033	9.37	.031	SI
1412.	210.	5.	2866.45	-14.1	804.5	8.01	6.25	.0241	16.53	.04	SI
1504.	302.	5.	3719.73	-13.3	400.8	21.58	6.25	.012	9.83	.012	SI
1622.	420.	5.	469.56	-1.6	57.2	18.19	6.25	.0017	11.54	.002	SI
> 1622.	0.	1.	-3642.97	-2.9	315.	26.26	6.25	.0094	9.73	.009	SI
1828.	205.	1.	3194.33	-51.8	1371.5	12.32	5.41	.0443	14.48	.064	SI
2028.	405.	1.	-5182.47	-67.1	1959.3	13.89	5.57	.0755	13.42	.101	SI
> 2028.	0.	1.	-5172.35	-67.	1955.5	13.89	5.57	.0753	13.42	.101	SI
2230.	202.	1.	2897.51	-47.	1244.1	12.32	5.41	.038	14.48	.055	SI
2432.	405.	1.	-4702.57	-58.9	1604.	15.46	5.46	.06	12.34	.074	SI
> 2432.	0.	1.	-4687.63	-58.7	1598.9	15.46	5.46	.0598	12.34	.074	SI
2635.	202.	1.	3152.59	-51.1	1353.6	12.32	5.41	.0434	14.48	.063	SI
2837.	405.	1.	-4677.13	-60.6	1768.3	13.89	5.57	.066	13.42	.089	SI

>2837.	0.	1.	34	-4679.21	-60.6	1769.1	13.89	5.57	.066	13.42	.089	SI
3040.	203.	1.	28	3062.81	-49.7	1315.1	12.32	5.41	.0415	14.48	.06	SI
3243.	405.	1.	37	-4865.11	-57.6	1394.4	18.54	5.26	.0528	11.18	.059	SI
>3243.	0.	1.	37	-4883.12	-57.8	1399.6	18.54	5.26	.0531	11.18	.059	SI
3445.	202.	1.	28	3086.9	-50.1	1325.4	12.32	5.41	.042	14.48	.061	SI
3648.	405.	1.	39	-4613.01	-56.1	1439.1	16.96	5.36	.0535	11.92	.064	SI
>3648.	0.	1.	39	-3940.91	-47.9	1229.4	16.96	5.36	.043	11.92	.051	SI
3844.	196.	1.	35	2922.85	-44.7	1249.4	12.32	5.5	.0379	14.62	.055	SI
4040.	392.	1.	42	-4847.46	-59.8	1385.3	18.66	5.18	.0526	10.77	.057	SI
>4040.	0.	1.	42	-983.95	-12.1	281.2	18.66	5.18	.0084	10.77	.009	SI
4207.	167.	1.	45	617.09	-11.2	556.9	5.65	6.25	.0167	24.72	.041	SI
4342.	302.	1.	48	-956.19	-13.1	345.8	14.61	5.41	.0104	12.72	.013	SI
>4342.	0.	1.	48	-1792.07	-24.5	648.1	14.61	5.41	.0194	12.72	.025	SI
4548.	206.	1.	51	1023.95	-18.3	578.	9.24	5.69	.0173	22.19	.038	SI
4721.	379.	1.	53	-1008.34	-14.9	457.4	11.53	5.65	.0137	14.7	.02	SI
>4721.	0.	7.	54	-1119.86	-17.7	510.3	11.53	5.54	.0153	13.49	.021	SI
4792.	71.	7.	55	-385.97	-7.3	320.2	6.19	6.17	.0096	24.06	.023	SI
4951.	230.	7.	58	591.82	-8.3	270.3	11.44	5.73	.0081	14.47	.012	SI

# TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	1.	1.	748.72	-16.7	821.7	4.62	6.25	.0247	24.68	.061	SI
10.	10.	1.	1.	505.81	-11.3	555.1	4.62	6.25	.0167	24.68	.041	SI
18.	18.	1.	2.	291.69	-6.3	320.3	4.62	6.25	.0096	24.87	.024	SI
27.	27.	1.	2.	3.21	-1	3.5	4.62	6.25	.0001	24.87	0.	SI
42.	42.	1.	2.	-491.05	-9.7	412.2	6.09	6.13	.0124	23.92	.03	SI
68.	68.	1.	3.	-1614.09	-26.4	832.6	10.12	5.69	.025	15.63	.039	SI
110.	110.	1.	3.	-2827.86	-46.3	1458.7	10.12	5.69	.0438	15.63	.068	SI
> 110.	0.	1.	3.	-2866.12	-46.9	1478.4	10.12	5.69	.0444	15.63	.069	SI
296.	186.	1.	7.	2036.05	-29.2	1151.3	9.14	6.02	.0345	23.49	.081	SI
400.	290.	1.	9.	242.11	-7	29.6	***	***	*****	*****	****	SI
> 400.	0.	5.	10	-678.87	-2.3	61.9	24.63	6.25	.0019	8.56	.002	SI
562.	162.	5.	12	2876.93	-10.3	310.	21.58	6.25	.0093	9.83	.009	SI
652.	252.	5.	13	1624.27	-8.	455.9	8.01	6.25	.0137	16.53	.023	SI
812.	412.	5.	16	-5882.71	-20.1	621.3	21.93	6.25	.0186	9.37	.017	SI
> 812.	0.	5.	16	-4359.96	-14.9	460.5	21.93	6.25	.0138	9.37	.013	SI
832.	20.	5.	16	-4359.96	-14.9	463.7	21.93	6.58	.0139	9.63	.013	SI
834.	21.	5.	16	-4274.7	-14.7	457.9	21.93	6.94	.0137	9.91	.014	SI
1006.	194.	5.	20	1632.62	-6.3	220.4	17.06	6.25	.0066	10.86	.007	SI
1202.	390.	5.	16	-2804.77	-9.6	296.2	21.93	6.25	.0089	9.37	.008	SI
>1202.	0.	5.	16	-7998.34	-27.3	844.8	21.93	6.25	.0286	9.37	.027	SI
1412.	210.	5.	13	2645.4	-13.	742.5	8.01	6.25	.0223	16.53	.037	SI
1504.	302.	5.	12	3359.08	-12.	362.	21.58	6.25	.0109	9.83	.011	SI
1622.	420.	5.	23	269.86	-9	32.9	18.19	6.25	.001	11.54	.001	SI
>1622.	0.	1.	24	-3316.95	-2.7	286.8	26.26	6.25	.0086	9.73	.008	SI
1828.	205.	1.	28	2920.03	-47.4	1253.8	12.32	5.41	.0385	14.48	.056	SI
2028.	405.	1.	30	-4741.71	-61.4	1792.7	13.89	5.57	.0672	13.42	.09	SI
>2028.	0.	1.	30	-4732.87	-61.3	1789.3	13.89	5.57	.067	13.42	.09	SI
2230.	202.	1.	28	2644.4	-42.9	1135.4	12.32	5.41	.0341	14.48	.049	SI
2432.	405.	1.	32	-4293.49	-53.7	1464.5	15.46	5.46	.053	12.34	.065	SI
>2432.	0.	1.	32	-4279.89	-53.6	1459.8	15.46	5.46	.0528	12.34	.065	SI
2635.	202.	1.	28	2877.03	-46.7	1235.3	12.32	5.41	.0375	14.48	.054	SI
2837.	405.	1.	34	-4281.22	-55.5	1618.6	13.89	5.57	.0585	13.42	.079	SI
>2837.	0.	1.	34	-4282.77	-55.5	1619.2	13.89	5.57	.0585	13.42	.079	SI
3040.	203.	1.	28	2800.37	-45.4	1202.4	12.32	5.41	.0361	14.48	.052	SI
3243.	405.	1.	37	-4431.66	-52.4	1270.2	18.54	5.26	.0466	11.18	.052	SI
>3243.	0.	1.	37	-4457.65	-52.8	1277.6	18.54	5.26	.047	11.18	.052	SI
3445.	202.	1.	28	2819.94	-45.7	1210.8	12.32	5.41	.0363	14.48	.053	SI
3648.	405.	1.	39	-4217.63	-51.3	1315.7	16.96	5.36	.0474	11.92	.056	SI
>3648.	0.	1.	39	-3621.87	-44.	1129.9	16.96	5.36	.0381	11.92	.045	SI
3844.	196.	1.	35	2669.45	-40.9	1141.1	12.32	5.5	.0342	14.62	.05	SI
4040.	392.	1.	42	-4408.09	-54.4	1259.7	18.66	5.18	.0463	10.77	.05	SI
>4040.	0.	1.	42	-917.92	-11.3	262.3	18.66	5.18	.0079	10.77	.008	SI
4207.	167.	1.	45	582.53	-10.6	525.7	5.65	6.25	.0158	24.72	.039	SI
4342.	302.	1.	48	-914.12	-12.5	330.6	14.61	5.41	.0099	12.72	.013	SI
>4342.	0.	1.	48	-1687.1	-23.	610.2	14.61	5.41	.0183	12.72	.023	SI
4548.	206.	1.	51	977.57	-17.5	551.8	9.24	5.69	.0166	22.19	.037	SI
4721.	379.	1.	53	-960.23	-14.2	435.6	11.53	5.65	.0131	14.7	.019	SI
>4721.	0.	7.	54	-1064.98	-16.9	485.3	11.53	5.54	.0146	13.49	.02	SI
4792.	71.	7.	55	-361.77	-6.9	300.1	6.19	6.17	.009	24.06	.022	SI
4951.	230.	7.	58	524.62	-7.4	239.6	11.44	5.73	.0072	14.47	.01	SI

# TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	1.	1.	726.9 !	-16.2	797.8	4.62	6.25	.0239	24.68	.059	SI
10.	10.	1.	1.	490.71	-10.9	538.6	4.62	6.25	.0162	24.68	.04	SI
18.	18.	1.	2.	282.5	-6.1	310.2	4.62	6.25	.0093	24.87	.023	SI
42.	42.	1.	2.	-478.61	-9.4	401.8	6.09	6.13	.0121	23.92	.029	SI
55.	55.	1.	2.	-993.7	-19.6	834.1	6.09	6.13	.025	23.92	.06	SI
83.	83.	1.	3.	-2248.79	-36.8	1160.	10.12	5.69	.0348	15.63	.054	SI
110.	110.	1.	3.	-2750.9 !	-45.	1419.	10.12	5.69	.0426	15.63	.067	SI
> 110.	0.	1.	3.	-2789.08 !	-45.7	1438.7	10.12	5.69	.0432	15.63	.067	SI
296.	186.	1.	7.	1980.45 !	-28.4	1119.9	9.14	6.02	.0336	23.49	.079	SI
400.	290.	1.	9.	208.57	-6	25.5	***	***	*****	*****	****	SI
> 400.	0.	5.	10	-675.87	-2.3	61.6	24.63	6.25	.0018	8.56	.002	SI
562.	162.	5.	12	2790.81	-10.	300.7	21.58	6.25	.009	9.83	.009	SI
652.	252.	5.	13	1585.07	-7.8	444.9	8.01	6.25	.0133	16.53	.022	SI
812.	412.	5.	16	-5694.25 !	-19.4	601.4	21.93	6.25	.018	9.37	.017	SI
> 812.	0.	5.	16	-4235.16 !	-14.4	447.3	21.93	6.25	.0134	9.37	.013	SI
832.	20.	5.	16	-4235.16 !	-14.5	450.4	21.93	6.58	.0135	9.63	.013	SI
834.	21.	5.	16	-4152.28 !	-14.3	444.8	21.93	6.94	.0133	9.91	.013	SI
1006.	194.	5.	20	1590.38 !	-6.1	214.7	17.06	6.25	.0064	10.86	.007	SI
1202.	390.	5.	16	-2723.81	-9.3	287.7	21.93	6.25	.0086	9.37	.008	SI
>1202.	0.	5.	16	-7750.15 !	-26.4	818.6	21.93	6.25	.0273	9.37	.026	SI
1412.	210.	5.	13	2572.42 !	-12.7	722.	8.01	6.25	.0217	16.53	.036	SI
1504.	302.	5.	12	3254.02 !	-11.6	350.6	21.58	6.25	.0105	9.83	.01	SI

1622.	420.	5.	23	229.27	- .8	27.9	18.19	6.25	.0008	11.54	.001	SI
>1622.	0.	1.	24	-3207.53	-2.6	277.3	26.26	6.25	.0083	9.73	.008	SI
1828.	205.	1.	28	2828.67	-45.9	1214.5	12.32	5.41	.0365	14.48	.053	SI
2028.	405.	1.	30	-4595.4	-59.5	1737.4	13.89	5.57	.0644	13.42	.086	SI
>2028.	0.	1.	30	-4586.86	-59.4	1734.1	13.89	5.57	.0643	13.42	.086	SI
2230.	202.	1.	28	2559.79	-41.5	1099.1	12.32	5.41	.033	14.48	.048	SI
2432.	405.	1.	32	-4157.15	-52.	1417.9	15.46	5.46	.0507	12.34	.063	SI
>2432.	0.	1.	32	-4143.94	-51.9	1413.4	15.46	5.46	.0505	12.34	.062	SI
2635.	202.	1.	28	2785.87	-45.2	1196.2	12.32	5.41	.0359	14.48	.052	SI
2837.	405.	1.	34	-4147.9	-53.7	1568.2	13.89	5.57	.056	13.42	.075	SI
>2837.	0.	1.	34	-4149.33	-53.7	1568.7	13.89	5.57	.056	13.42	.075	SI
3040.	203.	1.	28	2712.53	-44.	1164.7	12.32	5.41	.0349	14.48	.051	SI
3243.	405.	1.	37	-4289.18	-50.8	1229.3	18.54	5.26	.0445	11.18	.05	SI
>3243.	0.	1.	37	-4316.92	-51.1	1237.3	18.54	5.26	.0449	11.18	.05	SI
3445.	202.	1.	28	2731.	-44.3	1172.6	12.32	5.41	.0352	14.48	.051	SI
3648.	405.	1.	39	-4084.65	-49.7	1274.3	16.96	5.36	.0453	11.92	.054	SI
>3648.	0.	1.	39	-3509.26	-42.7	1094.8	16.96	5.36	.0363	11.92	.043	SI
3844.	196.	1.	35	2584.98	-39.6	1105.	12.32	5.5	.0331	14.62	.048	SI
4040.	392.	1.	42	-4267.89	-52.7	1219.6	18.66	5.18	.0443	10.77	.048	SI
>4040.	0.	1.	42	-893.44	-11.	255.3	18.66	5.18	.0077	10.77	.008	SI
4207.	167.	1.	45	571.73	-10.4	516.	5.65	6.25	.0155	24.72	.038	SI
4342.	302.	1.	48	-900.75	-12.3	325.8	14.61	5.41	.0098	12.72	.012	SI
>4342.	0.	1.	48	-1653.9	-22.6	598.2	14.61	5.41	.0179	12.72	.023	SI
4548.	206.	1.	51	961.42	-17.2	542.7	9.24	5.69	.0163	22.19	.036	SI
4721.	379.	1.	53	-943.98	-13.9	428.2	11.53	5.65	.0128	14.7	.019	SI
>4721.	0.	7.	54	-1046.35	-16.6	476.8	11.53	5.54	.0143	13.49	.019	SI
4792.	71.	7.	55	-353.66	-6.7	293.4	6.19	6.17	.0088	24.06	.021	SI
4951.	230.	7.	58	501.39	-7.1	229.	11.44	5.73	.0069	14.47	.01	SI

# ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	8.45	.44	3.83	.2	2d10	4.62	.241	3d14
2	10.71	.558	6.09	.317	2d10	4.62	.241	3d14
3	14.73	.767	10.12	.527	2d10	4.62	.241	3d14
4	14.73	.767	7.85	.409	2d10	6.88	.358	3d14 +2d12
5	14.73	.767	5.59	.291	2d10	9.14	.476	2d12 +3d14 +2d12
6	10.71	.558	1.57	.082	2d10	9.14	.476	2d12 +3d14 +2d12
7	24.28	1.265	15.14	.789	2d10	9.14	.476	2d12 +3d14 +2d12
8	31.6	1.646	20.11	1.047	2d10	11.5	.599	3d14 +2d12 +3d14
9	47.44	2.471	24.63	1.283	2d10	22.81	1.188	3d14 +3d14 +3d24
10	47.44	1.581	29.25	.975	2d10	18.19	.606	3d14 +3d24
11	45.18	1.506	24.72	.824	2d10	20.45	.682	2d12 +3d14 +3d24
12	36.73	1.224	15.14	.505	2d10	21.58	.719	1d12 +2d12 +3d1 ...
13	23.15	.772	15.14	.505	2d10	8.01	.267	1d12 +2d12 +3d14
14	37.95	1.265	17.4	.58	2d10	20.55	.685	2d12 +3d14 +3d1 ...
15	40.21	1.34	19.67	.656	2d10	20.55	.685	2d12 +3d14 +3d1 ...
16	40.21	1.34	21.93	.731	2d10	18.28	.609	3d14 +3d14 +2d24
17	40.21	1.34	19.67	.656	2d10	20.55	.685	2d12 +3d14 +3d1 ...
18	35.59	1.186	19.67	.656	2d10	15.93	.531	2d12 +3d14 +2d24
19	33.33	1.111	16.27	.542	2d10	17.06	.569	1d12 +2d12 +3d1 ...
20	32.2	1.073	15.14	.505	2d10	17.06	.569	1d12 +2d12 +3d1 ...
21	33.33	1.111	17.4	.58	2d10	15.93	.531	2d12 +3d14 +2d24
22	45.96	1.532	25.51	.85	2d10	20.45	.682	2d12 +3d14 +3d24
23	50.61	1.687	32.42	1.081	2d10	18.19	.606	3d14 +3d24
24	50.61	2.636	26.26	1.368	2d10	24.35	1.268	3d14 +4d14 +3d24
25	37.04	1.929	12.69	.661	2d10	24.35	1.268	3d14 +4d14 +3d24
26	23.47	1.222	12.69	.661	2d10	10.78	.561	3d14 +4d14
27	13.89	.723	4.65	.242	2d10	9.24	.481	2d14 +4d14
28	13.89	.723	1.57	.082	2d10	12.32	.641	2d14 +2d14 +4d14
29	16.96	.884	7.73	.403	2d10	9.24	.481	2d14 +4d14
30	26.2	1.365	13.89	.723	2d10	12.32	.641	4d14 +4d14
31	20.04	1.044	10.81	.563	2d10	9.24	.481	2d14 +4d14
32	27.77	1.446	15.46	.805	2d10	12.32	.641	4d14 +4d14
33	16.96	.884	7.73	.403	2d14	9.24	.481	2d14 +4d14
34	26.2	1.365	13.89	.723	2d14	12.32	.641	4d14 +4d14
35	16.96	.884	4.65	.242	2d10	12.32	.641	2d14 +2d14 +4d14
36	20.04	1.044	10.81	.563	2d14	9.24	.481	2d14 +4d14
37	30.85	1.607	18.54	.965	2d14	12.32	.641	4d14 +4d14
38	26.2	1.365	10.81	.563	2d14	15.39	.802	2d14 +4d14 +4d14
39	29.28	1.525	16.96	.884	2d14	12.32	.641	4d14 +4d14
40	17.91	.933	5.59	.291	2d10	12.32	.641	2d14 +2d14 +4d14
41	23.25	1.211	14.01	.73	2d14	9.24	.481	2d14 +4d14
42	28.21	1.469	18.66	.972	2d14	9.55	.497	3d12 +4d14
43	23.56	1.227	11.75	.612	2d14	11.81	.615	2d12 +3d12 +4d14
44	14.33	.746	8.67	.452	2d10	5.65	.295	2d12 +3d12
45	17.4	.906	11.75	.612	2d10	5.65	.295	2d12 +3d12
46	13.38	.697	7.73	.403	2d10	5.65	.295	2d12 +3d12
47	19.54	1.018	9.27	.483	2d10	10.27	.535	2d12 +3d12 +3d14
48	22.62	1.178	14.61	.761	2d10	8.01	.417	3d12 +3d14
49	16.96	.884	9.27	.483	2d10	7.7	.401	2d14 +3d14
50	13.89	.723	4.65	.242	2d10	9.24	.481	1d14 +2d14 +3d14
51	10.81	.563	1.57	.082	2d10	9.24	.481	1d14 +2d14 +3d14
52	19.54	1.018	8.45	.44	2d10	11.09	.578	2d14 +3d14 +3d12
53	19.54	1.018	11.53	.601	2d10	8.01	.417	3d14 +3d12
54	19.54	1.163	11.53	.686	2d10	8.01	.477	3d14 +3d12
55	16.46	.98	6.19	.368	2d10	10.27	.611	2d12 +3d14 +3d12
56	10.3	.613	4.65	.277	2d10	5.65	.337	2d12 +3d12
57	26.39	1.571	12.69	.755	2d10	13.7	.815	2d12 +3d12 +4d16
58	26.39	1.571	14.95	.89	2d10	11.44	.681	3d12 +4d16

## MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : Tr8\_p1 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =370. ; fck=307.1; fctk= 20.6; fctm= 29.4; Ec= 330194. ;  
 gc =1.5 ; fcd=174. ; fbd= 30.9; fctd= 13.7; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)=184.3; Scls(quasi permanente)=138.2; fbd(esercizio)= 30.9  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 60x50; A=3000.; Jg=625000.; E=330194.3

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1	3	3	3	0	235.	190.	4.7	1.3	1.518	40.777
2	A2	3	3	3	0	430.	380.	8.6	1.5	1.396	53.455
3	A3	3	3	3	0	280.	230.	5.6	1.5	1.334	39.83
4	A4	3	3	3	0	355.	308.	7.1	1.3	1.303	43.251

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-16191.66	-.036	.082	-27231.35	-.062	.138	2.	.309	1.682	SI
0.	0.	3.	1.	15712.65	-.035	.091	23844.49	-.054	.138	2.	.282	1.518	SI
70.	70.	3.	2.	11401.2	-.025	.058	27300.95	-.062	.138	2.	.31	2.395	SI
130.	130.	3.	3.	-4704.41	-.012	.028	-23302.29	-.064	.138	2.	.316	4.953	SI
174.	174.	3.	3.	9056.46	-.029	.125	9988.18	-.032	.138	2.	.19	1.103	SI
189.	189.	3.	4.	-17843.56	-.044	.09	-27440.2	-.069	.138	2.	.332	1.538	SI
235.	235.	3.	5.	-17843.56	-.04	.071	-34859.03	-.081	.138	2.	.369	1.954	SI
235.	235.	3.	5.	11032.98	-.026	.094	16310.9	-.038	.138	2.	.217	1.478	SI
> 235.	0.	3.	5.	-26498.71	-.06	.105	-34859.03	-.081	.138	2.	.369	1.315	SI
235.	0.	3.	5.	8697.74	-.02	.074	16310.9	-.038	.138	2.	.217	1.875	SI
281.	46.	3.	5.	-26498.71	-.063	.115	-31773.1	-.077	.138	2.	.358	1.199	SI
310.	75.	3.	7.	12069.62	-.034	.12	13918.44	-.039	.138	2.	.219	1.153	SI
350.	115.	3.	8.	12396.72	-.032	.099	17304.44	-.045	.138	2.	.246	1.396	SI
390.	155.	3.	9.	-3243.32	-.008	.024	-18880.58	-.051	.138	2.	.271	5.821	SI
550.	315.	3.	11	12063.99	-.03	.076	21898.1	-.056	.138	2.	.288	1.815	SI
665.	430.	3.	13	-26910.15	-.058	.106	-35129.72	-.077	.138	2.	.358	1.305	SI
665.	430.	3.	13	8124.76	-.017	.053	21109.42	-.046	.138	2.	.249	2.598	SI
> 665.	0.	3.	13	-21862.17	-.047	.086	-35129.72	-.077	.138	2.	.358	1.607	SI
665.	0.	3.	13	15823.91	-.034	.104	21109.42	-.046	.138	2.	.249	1.334	SI
711.	46.	3.	14	-21862.17	-.051	.107	-28165.77	-.067	.138	2.	.325	1.288	SI
726.	61.	3.	15	13624.78	-.039	.134	14022.26	-.04	.138	2.	.226	1.029	SI
805.	140.	3.	15	-1535.43	-.004	.009	-23471.1	-.061	.138	2.	.305	15.29	SI
870.	205.	3.	16	12411.18	-.028	.07	24469.05	-.057	.138	2.	.293	1.972	SI
945.	280.	3.	17	-22266.76	-.048	.087	-35129.72	-.077	.138	2.	.358	1.578	SI
945.	280.	3.	17	15522.08	-.033	.102	21109.42	-.046	.138	2.	.249	1.36	SI
> 945.	0.	3.	17	-18964.63	-.04	.074	-35129.72	-.077	.138	2.	.358	1.852	SI
945.	0.	3.	17	12281.79	-.026	.08	21109.42	-.046	.138	2.	.249	1.719	SI
991.	46.	3.	17	-18964.63	-.042	.08	-32656.57	-.074	.138	2.	.35	1.722	SI
1006.	61.	3.	18	13528.24	-.037	.125	14933.39	-.041	.138	2.	.227	1.104	SI
1020.	75.	3.	18	13647.63	-.035	.106	17785.14	-.046	.138	2.	.25	1.303	SI
1103.	158.	3.	9.	-1138.25	-.003	.008	-18880.58	-.051	.138	2.	.271	16.59	SI
1186.	241.	3.	10	-1592.17	-.009	.084	-2614.72	-.015	.138	2.	.1	1.642	NO
1300.	355.	3.	20	-14581.86	-.038	.075	-26619.4	-.072	.138	2.	.344	1.826	SI
1300.	355.	3.	20	4809.55	-.015	.075	8818.6	-.028	.138	2.	.167	1.834	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	-8298.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
0.	0.	3.	22308.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
20.	20.	3.	-8298.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	6
20.	20.	3.	22308.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
21.	21.	3.	-8422.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	6
21.	21.	3.	22185.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
41.	41.	3.	-10223.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	6

	41.	41.	3.	20383.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	56.	56.	3.	-11513.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	56.	56.	3.	19093.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	70.	70.	3.	-12802.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	70.	70.	3.	17804.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	70.	70.	3.	-12802.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	70.	70.	3.	17804.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	100.	100.	3.	-15505.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	100.	100.	3.	15101.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	130.	130.	3.	-18208.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	130.	130.	3.	12398.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	160.	160.	3.	-20911.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	160.	160.	3.	9695.	12130.	76960.	11889.	1.01	25.	2.5	NO	6	
	160.	160.	3.	-20911.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	160.	160.	3.	9695.	12130.	76960.	11889.	1.01	25.	2.5	NO	6	
	174.	174.	3.	-22200.	12130.	76960.	11889.	1.01	25.	2.5	NO	4	6
	174.	174.	3.	8406.	12130.	76960.	11889.	1.01	25.	2.5	NO	6	
	189.	189.	3.	-23490.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	189.	189.	3.	7116.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	210.	210.	3.	-25415.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	210.	210.	3.	5191.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	214.	214.	3.	-25415.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	214.	214.	3.	4864.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	235.	235.	3.	-25415.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	235.	235.	3.	2938.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
>	235.	0.	3.	27326.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	256.	21.	3.	27326.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	260.	25.	3.	27326.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	281.	46.	3.	24640.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	296.	61.	3.	23088.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	310.	75.	3.	21799.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	310.	75.	3.	21799.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	350.	115.	3.	-433.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	350.	115.	3.	18195.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	390.	155.	3.	-4036.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	390.	155.	3.	14591.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	430.	195.	3.	-7640.	14000.	76960.	11889.	1.01	25.	2.5	NO	6	
	430.	195.	3.	10987.	14000.	76960.	11889.	1.01	25.	2.5	NO	6	
	470.	235.	3.	-11244.	14000.	76960.	11889.	1.01	25.	2.5	NO	6	
	470.	235.	3.	7384.	14000.	76960.	11889.	1.01	25.	2.5	NO	6	
	510.	275.	3.	-14848.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	510.	275.	3.	3780.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	550.	315.	3.	-18451.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	550.	315.	3.	176.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	590.	355.	3.	-22055.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	590.	355.	3.	-22055.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	604.	369.	3.	-23345.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	619.	384.	3.	-24894.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	640.	405.	3.	-27571.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	644.	409.	3.	-27571.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	665.	430.	3.	-27571.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
>	665.	0.	3.	-5659.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	665.	0.	3.	26103.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	686.	21.	3.	-5659.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	686.	21.	3.	26103.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	690.	25.	3.	-5659.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	690.	25.	3.	26103.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	711.	46.	3.	-7584.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	711.	46.	3.	24178.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	726.	61.	3.	-8874.	13683.	76960.	11889.	1.01	25.	2.5	NO	6	
	726.	61.	3.	22888.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	740.	75.	3.	-10163.	13683.	76960.	11889.	1.01	25.	2.5	NO	6	
	740.	75.	3.	21599.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	740.	75.	3.	-10163.	13683.	76960.	11889.	1.01	25.	2.5	NO	6	
	740.	75.	3.	21599.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	772.	108.	3.	-13091.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	772.	108.	3.	18671.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	805.	140.	3.	-16020.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	805.	140.	3.	15742.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	838.	172.	3.	-18948.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	838.	172.	3.	12814.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	870.	205.	3.	-21876.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	870.	205.	3.	9886.	13683.	76960.	11889.	1.01	25.	2.5	NO	6	
	870.	205.	3.	-21876.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	870.	205.	3.	9886.	13683.	76960.	11889.	1.01	25.	2.5	NO	6	
	884.	219.	3.	-23165.	13683.	76960.	11889.	1.01	25.	2.5	NO	4	6
	884.	219.	3.	8597.	13683.	76960.	11889.	1.01	25.	2.5	NO	6	
	899.	234.	3.	-24455.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	899.	234.	3.	7307.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	920.	255.	3.	-26380.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	920.	255.	3.	5382.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	924.	259.	3.	-26380.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	924.	259.	3.	5055.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
	945.	280.	3.	-26380.	12529.	76960.	11889.	1.01	25.	2.5	NO	4	6
	945.	280.	3.	3129.	12529.	76960.	11889.	1.01	25.	2.5	NO	6	
>	945.	0.	3.	21380.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	966.	21.	3.	21380.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	970.	25.	3.	21380.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	991.	46.	3.	19182.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1006.	61.	3.	17906.	12905.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1020.	75.	3.	16629.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1020.	75.	3.	16629.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1062.	116.	3.	-3569.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1062.	116.	3.	12973.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
	1103.	158.	3.	-7163.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1103.	158.	3.	9380.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
	1144.	200.	3.	-10693.	14000.	76960.	11889.	1.01	25.	2.5	NO	6	
	1144.	200.	3.	5849.	14000.	76960.	11889.	1.01	25.	2.5	NO	6	



1186.	241.	3.	-14161.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1186.	241.	3.	2381.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1228.	282.	3.	-17566.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1228.	282.	3.	-17566.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1242.	297.	3.	-18727.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1256.	311.	3.	-19890.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1278.	332.	3.	-21773.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1279.	334.	3.	-21773.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1300.	355.	3.	-21773.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
41.	41.	3.	1.	237.68	-8.	27.3	19.73	6.25	.0008	10.76	.001	SI
70.	70.	3.	2.	1471.13	-4.9	149.3	22.81	6.25	.0045	9.62	.004	SI
100.	100.	3.	3.	1930.65	-8.5	469.9	9.24	6.25	.0141	15.78	.022	SI
130.	130.	3.	3.	1454.05	-6.4	353.9	9.24	6.25	.0106	15.78	.017	SI
160.	160.	3.	3.	46.71	-2.	11.4	9.24	6.25	.0003	15.78	.001	SI
210.	210.	3.	5.	-4338.28	-14.5	345.8	29.85	6.42	.0104	8.21	.009	SI
235.	235.	3.	5.	-4338.28	-14.5	344.5	29.85	6.25	.0103	8.11	.008	SI
> 235.	0.	3.	5.	-10218.18	-34.1	811.3	29.85	6.25	.0296	8.11	.024	SI
430.	195.	3.	10	8208.23	-41.	1354.3	14.2	6.25	.0486	12.54	.061	SI
665.	430.	3.	13	-10600.08	-33.5	835.4	29.85	6.25	.0308	8.11	.025	SI
> 665.	0.	3.	13	-4224.04	-13.4	332.9	29.85	6.25	.01	8.11	.008	SI
805.	140.	3.	15	2630.47	-10.3	450.5	13.26	6.25	.0135	12.78	.017	SI
945.	280.	3.	17	-4536.93	-14.4	357.6	29.85	6.25	.0107	8.11	.009	SI
> 945.	0.	3.	17	-3898.6	-12.3	307.3	29.85	6.25	.0092	8.11	.007	SI
1103.	158.	3.	9.	6812.82	-27.5	1096.8	14.2	6.25	.0357	12.54	.045	SI
1144.	200.	3.	10	6514.49	-32.5	1074.9	14.2	6.25	.0346	12.54	.043	SI
1300.	355.	3.	20	-5588.07	-22.	581.9	22.75	6.25	.0175	9.49	.017	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
41.	41.	3.	1.	264.65	-9.	30.4	19.73	6.25	.0009	10.76	.001	SI
70.	70.	3.	2.	1381.22	-4.6	140.2	22.81	6.25	.0042	9.62	.004	SI
100.	100.	3.	3.	1752.57	-7.7	426.6	9.24	6.25	.0128	15.78	.02	SI
130.	130.	3.	3.	1282.01	-5.6	312.1	9.24	6.25	.0094	15.78	.015	SI
160.	160.	3.	3.	-56.95	-2.	6.8	19.67	6.25	.0002	10.57	0.	SI
210.	210.	3.	5.	-4039.12	-13.5	322.	29.85	6.42	.0097	8.21	.008	SI
235.	235.	3.	5.	-4039.12	-13.5	320.7	29.85	6.25	.0096	8.11	.008	SI
> 235.	0.	3.	5.	-9127.61	-30.4	724.8	29.85	6.25	.0253	8.11	.021	SI
430.	195.	3.	10	7390.08	-36.9	1219.3	14.2	6.25	.0419	12.54	.053	SI
665.	430.	3.	13	-9591.9	-30.3	755.9	29.85	6.25	.0268	8.11	.022	SI
> 665.	0.	3.	13	-3787.41	-12.	298.5	29.85	6.25	.009	8.11	.007	SI
805.	140.	3.	15	2360.26	-9.2	404.2	13.26	6.25	.0121	12.78	.015	SI
945.	280.	3.	17	-4102.66	-13.	323.3	29.85	6.25	.0097	8.11	.008	SI
> 945.	0.	3.	17	-3430.2	-10.9	270.3	29.85	6.25	.0081	8.11	.007	SI
1103.	158.	3.	9.	6166.62	-24.9	992.8	14.2	6.25	.0305	12.54	.038	SI
1144.	200.	3.	10	5887.44	-29.4	971.4	14.2	6.25	.0295	12.54	.037	SI
1300.	355.	3.	20	-5028.25	-19.8	523.6	22.75	6.25	.0157	9.49	.015	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
41.	41.	3.	1.	260.71	-9.	29.9	19.73	6.25	.0009	10.76	.001	SI
70.	70.	3.	2.	1347.71	-4.5	136.8	22.81	6.25	.0041	9.62	.004	SI
100.	100.	3.	3.	1690.72	-7.4	411.5	9.24	6.25	.0123	15.78	.019	SI
130.	130.	3.	3.	1223.25	-5.4	297.8	9.24	6.25	.0089	15.78	.014	SI
160.	160.	3.	3.	-54.72	-2.	6.5	19.67	6.25	.0002	10.57	0.	SI
210.	210.	3.	5.	-3937.97	-13.2	313.9	29.85	6.42	.0094	8.21	.008	SI
235.	235.	3.	5.	-3937.97	-13.1	312.7	29.85	6.25	.0094	8.11	.008	SI
> 235.	0.	3.	5.	-8764.42	-29.2	695.9	29.85	6.25	.0238	8.11	.019	SI
430.	195.	3.	10	7118.91	-35.6	1174.6	14.2	6.25	.0396	12.54	.05	SI
665.	430.	3.	13	-9251.99	-29.3	729.2	29.85	6.25	.0255	8.11	.021	SI
> 665.	0.	3.	13	-3642.01	-11.5	287.	29.85	6.25	.0086	8.11	.007	SI
805.	140.	3.	15	2268.76	-8.9	388.6	13.26	6.25	.0117	12.78	.015	SI
945.	280.	3.	17	-3960.59	-12.5	312.1	29.85	6.25	.0094	8.11	.008	SI
> 945.	0.	3.	17	-3253.92	-10.3	256.4	29.85	6.25	.0077	8.11	.006	SI
1103.	158.	3.	9.	5955.74	-24.	958.8	14.2	6.25	.0288	12.54	.036	SI
1144.	200.	3.	10	5678.08	-28.4	936.9	14.2	6.25	.0281	12.54	.035	SI
1300.	355.	3.	20	-4857.61	-19.1	505.8	22.75	6.25	.0152	9.49	.014	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	42.47	1.416	22.75	.758	2d16 +1d8 +2d14 ...	19.73	.658	4d14 +3d24
2	42.47	1.416	19.67	.656	2d16 +1d8 +2d10 ...	22.81	.76	2d14 +4d14 +3d24
3	28.9	.963	19.67	.656	2d16 +1d8 +2d10 ...	9.24	.308	2d14 +4d14
4	39.08	1.303	25.82	.861	2d14 +2d16 +1d8 ...	13.26	.442	4d14 +2d14 +2d16
5	43.1	1.437	29.85	.995	2d14 +2d16 +1d8 ...	13.26	.442	4d14 +2d14 +2d16
6	43.1	1.437	25.82	.861	2d14 +2d16 +1d8 ...	17.28	.576	2d16 +4d14 +2d1 ...
7	36.95	1.232	25.82	.861	2d14 +2d16 +1d8 ...	11.12	.371	2d16 +2d14 +2d16
8	33.87	1.129	19.67	.656	2d16 +1d8 +2d10 ...	14.2	.473	2d14 +2d16 +2d1 ...
9	29.85	.995	15.65	.522	1d8 +2d10 +3d24	14.2	.473	2d14 +2d16 +2d1 ...
10	16.27	.542	2.07	.069	1d8 +2d10	14.2	.473	2d14 +2d16 +2d1 ...
11	33.87	1.129	15.65	.522	1d8 +2d10 +3d24	18.22	.607	2d14 +2d16 +2d1 ...
12	40.97	1.366	25.82	.861	2d14 +2d16 +1d8 ...	15.14	.505	2d16 +2d14 +2d1 ...
13	47.12	1.571	29.85	.995	2d14 +2d16 +1d8 ...	17.28	.576	4d14 +2d14 +2d1 ...
14	43.1	1.437	25.82	.861	2d14 +2d16 +1d8 ...	17.28	.576	4d14 +2d14 +2d1 ...
15	32.92	1.097	19.67	.656	2d16 +1d8 +2d10 ...	13.26	.442	2d14 +4d14 +2d16
16	40.02	1.334	19.67	.656	2d16 +1d8 +2d10 ...	20.36	.679	2d14 +4d14 +2d1 ...
17	47.12	1.571	29.85	.995	2d16 +1d8 +2d14 ...	17.28	.576	4d14 +2d14 +2d1 ...
18	40.97	1.366	25.82	.861	2d16 +1d8 +2d14 ...	15.14	.505	2d16 +2d14 +2d1 ...
19	29.85	.995	18.72	.624	1d8 +2d14 +2d10 ...	11.12	.371	2d16 +2d14 +2d16
20	29.85	.995	22.75	.758	1d8 +2d14 +2d16 ...	7.1	.237	2d14 +2d16

## MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
 6) Sezione staffe inferiore a  $1.5 \cdot b \text{ mm}^2/\text{m}$  [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t$ ) oppure  $A_f < 0.0013 \cdot b \cdot t$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr27\_p1** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

&lt;-

## SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A40	3	3	3	0	400.	365.	16.667	1.3	1.385	32.134
2	A41	3	3	3	0	412.	377.	17.175	1.5	1.754	48.307
3	A42	3	3	3	0	390.	355.	16.263	1.5	1.954	53.804
4	A43	3	3	3	0	420.	385.	17.5	1.5	1.67	45.985
5	A44	3	3	3	0	405.	370.	16.875	1.5	1.833	50.456
6	A45	3	3	3	0	405.	370.	16.875	1.5	1.796	49.437
7	A46	3	3	3	0	405.	370.	16.875	1.5	1.808	49.772
8	A47	3	3	3	0	405.	370.	16.875	1.5	1.785	49.154
9	A48	3	3	3	0	405.	370.	16.875	1.5	1.808	49.774
10	A49	3	3	3	0	392.	358.	16.354	1.3	2.17	50.364

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-432.5	-.007	.015	-4065.9	-.069	.138	2.	.334	9.401	SI
105.	105.	3.	3.	4491.01	-.081	.088	6988.39	-.136	.138	2.	.496	1.556	SI
168.	168.	3.	3.	5047.21	-.092	.099	6988.39	-.136	.138	2.	.496	1.385	SI
232.	232.	3.	4.	4264.37	-.061	.081	7244.19	-.108	.138	2.	.439	1.699	SI
263.	263.	3.	4.	-77.83	-.001	.003	-4158.59	-.06	.138	2.	.303	53.43	SI
400.	400.	3.	6.	-7091.63	-.08	.095	-10285.81	-.12	.138	2.	.464	1.45	SI
> 400.	0.	3.	6.	-7523.07	-.085	.101	-10285.81	-.12	.138	2.	.464	1.367	SI
418.	18.	3.	6.	110.79	-.001	.002	7361.74	-.079	.138	2.	.364	66.45	SI
507.	107.	3.	8.	-1970.2	-.029	.065	-4151.62	-.063	.138	2.	.312	2.107	SI
606.	206.	3.	9.	3467.25	-.063	.078	6083.22	-.121	.138	2.	.466	1.754	SI
672.	272.	3.	8.	-46.44	-.001	.002	-4151.62	-.063	.138	2.	.312	89.39	SI
812.	412.	3.	10	-6904.19	-.082	.093	-10224.71	-.126	.138	2.	.477	1.481	SI
> 812.	0.	3.	10	-7049.18	-.084	.095	-10224.71	-.126	.138	2.	.477	1.45	SI
812.	0.	3.	10	112.84	-.001	.002	6339.17	-.071	.138	2.	.339	56.18	SI
915.	103.	3.	8.	-1937.13	-.029	.064	-4151.62	-.063	.138	2.	.312	2.143	SI
1007.	195.	3.	9.	3112.99	-.056	.07	6083.22	-.121	.138	2.	.466	1.954	SI
1175.	363.	3.	11	1335.4	-.014	.029	6346.52	-.069	.138	2.	.332	4.753	SI
1202.	390.	3.	11	-6768.78	-.078	.085	-10971.4	-.134	.138	2.	.493	1.621	SI
1202.	390.	3.	11	408.12	-.004	.009	6346.52	-.069	.138	2.	.332	15.55	SI
> 1202.	0.	3.	11	-7385.36	-.086	.093	-10971.4	-.134	.138	2.	.493	1.486	SI
1220.	18.	3.	11	79.83	-.001	.002	6346.52	-.069	.138	2.	.332	79.5	SI
1311.	109.	3.	8.	-1769.96	-.026	.059	-4151.62	-.063	.138	2.	.312	2.346	SI
1412.	210.	3.	9.	3642.27	-.067	.082	6083.22	-.121	.138	2.	.466	1.67	SI
1613.	410.	3.	10	6.16	0.	0.	6339.17	-.071	.138	2.	.339	1029.	SI
1622.	420.	3.	10	-7201.08	-.085	.097	-10224.71	-.126	.138	2.	.477	1.42	SI
> 1622.	0.	3.	10	-5790.19	-.068	.078	-10224.71	-.126	.138	2.	.477	1.766	SI
1664.	42.	3.	10	316.92	-.003	.007	6339.17	-.071	.138	2.	.339	20.	SI
1728.	106.	3.	8.	-1439.33	-.021	.048	-4151.62	-.063	.138	2.	.312	2.884	SI

1825.	202.	3.	9.	3319.55	-.061	.075	6083.22	-.121	.138	2.	.466	1.833	SI
1954.	331.	3.	12	65.73	-.001	.002	4756.14	-.078	.138	2.	.362	72.36	SI
2028.	405.	3.	13	-5189.69	-.067	.1	-7178.3	-.094	.138	2.	.405	1.383	SI
>2028.	0.	3.	13	-5182.29	-.066	.1	-7178.3	-.094	.138	2.	.405	1.385	SI
2133.	106.	3.	9.	-172.88	-.005	.028	-862.09	-.026	.138	2.	.158	4.987	NO
2133.	106.	3.	9.	1503.77	-.026	.034	6083.22	-.121	.138	2.	.466	4.045	SI
2230.	202.	3.	9.	3387.94	-.062	.076	6083.22	-.121	.138	2.	.466	1.796	SI
2359.	331.	3.	12	21.85	0.	.001	4756.14	-.078	.138	2.	.362	217.6	SI
2432.	405.	3.	14	-5212.2	-.065	.09	-7949.31	-.102	.138	2.	.425	1.525	SI
>2432.	0.	3.	14	-5213.35	-.065	.09	-7949.31	-.102	.138	2.	.425	1.525	SI
2506.	74.	3.	15	14.79	0.	0.	4756.14	-.078	.138	2.	.362	321.7	SI
2538.	106.	3.	9.	1376.23	-.024	.031	6083.22	-.121	.138	2.	.466	4.42	SI
2635.	202.	3.	9.	3365.17	-.061	.076	6083.22	-.121	.138	2.	.466	1.808	SI
2732.	299.	3.	9.	-192.26	-.006	.031	-862.09	-.026	.138	2.	.158	4.484	NO
2838.	405.	3.	16	-5226.68	-.067	.1	-7178.3	-.094	.138	2.	.405	1.373	SI
>2838.	0.	3.	16	-5224.87	-.067	.1	-7178.3	-.094	.138	2.	.405	1.374	SI
2911.	74.	3.	15	74.62	-.001	.002	4756.14	-.078	.138	2.	.362	63.74	SI
3040.	202.	3.	9.	3407.44	-.062	.077	6083.22	-.121	.138	2.	.466	1.785	SI
3104.	267.	3.	8.	-152.33	-.002	.005	-4151.62	-.063	.138	2.	.312	27.25	SI
3201.	364.	3.	18	408.01	-.004	.009	6346.52	-.069	.138	2.	.332	15.56	SI
3242.	405.	3.	18	-5626.04	-.064	.07	-10971.4	-.134	.138	2.	.493	1.95	SI
>3242.	0.	3.	18	-7001.75	-.081	.088	-10971.4	-.134	.138	2.	.493	1.567	SI
3445.	202.	3.	9.	3365.04	-.061	.076	6083.22	-.121	.138	2.	.466	1.808	SI
3509.	267.	3.	9.	-196.25	-.006	.031	-862.09	-.026	.138	2.	.158	4.393	NO
3606.	364.	3.	19	1227.64	-.013	.023	7361.74	-.079	.138	2.	.364	5.997	SI
3638.	395.	3.	19	102.53	-.001	.002	7361.74	-.079	.138	2.	.364	71.8	SI
3648.	405.	3.	19	-7058.41	-.079	.095	-10285.81	-.12	.138	2.	.464	1.457	SI
>3648.	0.	3.	19	-6606.56	-.074	.089	-10285.81	-.12	.138	2.	.464	1.557	SI
3648.	0.	3.	19	298.08	-.003	.006	7361.74	-.079	.138	2.	.364	24.7	SI
3689.	42.	3.	20	1634.02	-.018	.029	7836.32	-.091	.138	2.	.397	4.796	SI
3813.	165.	3.	23	3016.86	-.052	.059	6988.39	-.136	.138	2.	.496	2.316	SI
3844.	196.	3.	23	3220.29	-.056	.063	6988.39	-.136	.138	2.	.496	2.17	SI
3998.	351.	3.	26	1424.49	-.019	.046	4263.35	-.057	.138	2.	.293	2.993	SI
4040.	393.	3.	26	-6992.16	-.098	.111	-8652.78	-.125	.138	2.	.474	1.237	SI
4040.	393.	3.	26	12.28	0.	0.	4263.35	-.057	.138	2.	.293	347.2	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	3.	6861.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
10.	10.	3.	6861.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
18.	18.	3.	6861.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
27.	27.	3.	6702.	6023.	21355.	3784.	.57	20.	2.5	NO	4	5	6
42.	42.	3.	5995.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
42.	42.	3.	5995.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
73.	73.	3.	4431.	6799.	21355.	3784.	.57	20.	2.5	NO	4	5	6
105.	105.	3.	2906.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
137.	137.	3.	1597.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
168.	168.	3.	-787.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
168.	168.	3.	445.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
200.	200.	3.	-1825.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
232.	232.	3.	-3388.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
263.	263.	3.	-4952.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
295.	295.	3.	-6516.	6055.	21355.	3784.	.57	20.	2.5	NO	4	5	6
327.	327.	3.	-8080.	6761.	21355.	3784.	.57	20.	2.5	NO	4	5	6
358.	358.	3.	-9644.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
358.	358.	3.	-9644.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
373.	373.	3.	-10351.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
382.	382.	3.	-10510.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
390.	390.	3.	-10510.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
400.	400.	3.	-10510.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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410.	10.	3.	9220.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
418.	18.	3.	9220.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
427.	27.	3.	9061.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
442.	42.	3.	8355.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
442.	42.	3.	8355.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
474.	74.	3.	6781.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
507.	107.	3.	5292.	6055.	21355.	3784.	.57	20.	2.5	NO	4	5	6
540.	140.	3.	4215.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
573.	173.	3.	-676.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
573.	173.	3.	3138.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
606.	206.	3.	-1753.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
606.	206.	3.	2061.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
639.	239.	3.	-2830.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
639.	239.	3.	984.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
672.	272.	3.	-3907.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
705.	305.	3.	-4984.	6055.	21355.	3784.	.57	20.	2.5	NO	4	5	6
738.	338.	3.	-6384.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
771.	371.	3.	-7886.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
771.	371.	3.	-7886.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
785.	385.	3.	-8593.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
795.	395.	3.	-8752.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
803.	403.	3.	-8752.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
812.	412.	3.	-8752.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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822.	10.	3.	8571.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
830.	18.	3.	8571.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
839.	27.	3.	8412.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
854.	42.	3.	7705.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
854.	42.	3.	7705.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
884.	72.	3.	6395.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
915.	103.	3.	5190.	6055.	21355.	3784.	.57	20.	2.5	NO	4	5	6
946.	134.	3.	-5.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
946.	134.	3.	4185.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
977.	164.	3.	-1010.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
977.	164.	3.	3179.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1007.	195.	3.	-2015.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	

1007.	195.	3.	2174.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1038.	226.	3.	-3021.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1038.	226.	3.	1169.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1069.	257.	3.	-4026.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1069.	257.	3.	163.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
1100.	287.	3.	-5031.	6055.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1130.	318.	3.	-6188.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1161.	349.	3.	-7455.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1161.	349.	3.	-7455.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1175.	363.	3.	-8162.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1185.	373.	3.	-8321.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1193.	381.	3.	-8321.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1202.	390.	3.	-8321.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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1212.	10.	3.	9271.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1220.	18.	3.	9271.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1230.	27.	3.	9112.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1244.	42.	3.	8406.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1244.	42.	3.	8406.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1278.	75.	3.	6770.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1311.	109.	3.	5208.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1345.	143.	3.	4105.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1379.	176.	3.	-682.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1379.	176.	3.	3003.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1412.	210.	3.	-1785.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1412.	210.	3.	1900.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1446.	244.	3.	-2887.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1446.	244.	3.	798.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1480.	277.	3.	-3990.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1514.	311.	3.	-5092.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1547.	345.	3.	-6615.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1581.	378.	3.	-8220.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1581.	378.	3.	-8220.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1595.	393.	3.	-8926.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1605.	402.	3.	-9086.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1613.	410.	3.	-9086.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1622.	420.	3.	-9086.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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1632.	10.	3.	8850.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1640.	18.	3.	8850.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1650.	27.	3.	8690.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1664.	42.	3.	7984.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1664.	42.	3.	7984.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1696.	74.	3.	6395.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1728.	106.	3.	4807.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1761.	138.	3.	3218.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
1793.	170.	3.	1890.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1825.	202.	3.	-708.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1825.	202.	3.	758.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1857.	235.	3.	-1820.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1889.	267.	3.	-3136.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1922.	299.	3.	-4725.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1954.	331.	3.	-6313.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1986.	364.	3.	-7902.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1986.	364.	3.	-7902.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2000.	378.	3.	-8608.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2010.	388.	3.	-8767.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2018.	395.	3.	-8767.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2028.	405.	3.	-8767.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>2028.	0.	3.	8800.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2037.	10.	3.	8800.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2045.	18.	3.	8800.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2055.	27.	3.	8641.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2069.	42.	3.	7935.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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2101.	74.	3.	6346.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2133.	106.	3.	4758.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2166.	138.	3.	3169.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2198.	170.	3.	1634.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2230.	202.	3.	-149.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2230.	202.	3.	140.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2262.	235.	3.	-1648.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2294.	267.	3.	-3185.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2327.	299.	3.	-4774.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2359.	331.	3.	-6362.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2391.	364.	3.	-7951.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2391.	364.	3.	-7951.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2405.	378.	3.	-8657.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2415.	388.	3.	-8817.	7588.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2423.	395.	3.	-8817.	7588.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2432.	405.	3.	-8817.	7588.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>2432.	0.	3.	8805.	7046.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2442.	10.	3.	8805.	7046.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2450.	18.	3.	8805.	7046.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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2474.	42.	3.	7939.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2506.	74.	3.	6351.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2538.	106.	3.	4762.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2571.	138.	3.	3173.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2603.	170.	3.	1637.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2635.	202.	3.	-143.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2635.	202.	3.	138.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2667.	235.	3.	-1643.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2699.	267.	3.	-3181.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2732.	299.	3.	-4769.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2764.	331.	3.	-6358.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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2796.	364.	3.	-7946.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2810.	378.	3.	-8653.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2820.	388.	3.	-8812.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2828.	395.	3.	-8812.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2838.	405.	3.	-8812.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>2838.	0.	3.	8834.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2847.	10.	3.	8834.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2855.	18.	3.	8834.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2865.	27.	3.	8675.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2879.	42.	3.	7968.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2879.	42.	3.	7968.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2911.	74.	3.	6380.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2943.	106.	3.	4791.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2976.	138.	3.	3203.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3008.	170.	3.	1874.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3040.	202.	3.	-705.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3040.	202.	3.	739.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3072.	235.	3.	-1829.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3104.	267.	3.	-3152.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
3137.	299.	3.	-4740.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3169.	331.	3.	-6329.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3201.	364.	3.	-7917.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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3215.	378.	3.	-8624.	7846.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3225.	388.	3.	-8783.	8502.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3233.	395.	3.	-8783.	8502.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3242.	405.	3.	-8783.	8502.	21355.	3784.	.57	20.	2.5	NO	4	5	6
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3260.	18.	3.	8771.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3270.	27.	3.	8612.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3284.	42.	3.	7905.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3284.	42.	3.	7905.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3316.	74.	3.	6433.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3348.	106.	3.	5061.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3381.	138.	3.	4007.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3413.	170.	3.	-904.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3413.	170.	3.	2954.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3445.	202.	3.	-1957.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3445.	202.	3.	1901.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3477.	235.	3.	-3010.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3477.	235.	3.	847.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3509.	267.	3.	-4064.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3542.	299.	3.	-5117.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3574.	331.	3.	-6500.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3606.	364.	3.	-7980.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3606.	364.	3.	-7980.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3620.	378.	3.	-8687.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3630.	388.	3.	-8846.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3638.	395.	3.	-8846.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3648.	405.	3.	-8846.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>3648.	0.	3.	8370.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3657.	10.	3.	8370.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3665.	18.	3.	8370.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3675.	27.	3.	8211.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3689.	42.	3.	7504.	6799.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3689.	42.	3.	7504.	6799.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3720.	72.	3.	6183.	6761.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3751.	103.	3.	4970.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3782.	134.	3.	-91.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
3782.	134.	3.	3957.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3813.	165.	3.	-1103.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3813.	165.	3.	2945.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3844.	196.	3.	-2116.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3844.	196.	3.	1932.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3875.	227.	3.	-3128.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3875.	227.	3.	920.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3906.	258.	3.	-4141.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3937.	289.	3.	-5153.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3968.	320.	3.	-6407.	6799.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3998.	351.	3.	-7765.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3998.	351.	3.	-7765.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
4013.	365.	3.	-8471.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
4022.	375.	3.	-8631.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
4030.	383.	3.	-8631.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
4040.	393.	3.	-8631.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-167.	37.	-3.	112.1	7.73	5.93	.0034	23.12	.008	SI
73.	73.	3.	2.	2258.	16.	-39.3	1099.	11.12	5.5	.0388	21.44	.083	SI
168.	168.	3.	3.	3733.	61.	-63.	1410.4	14.2	5.12	.058	12.25	.071	SI
400.	400.	3.	6.	-5047.	54.	-60.6	1336.4	20.17	5.1	.0573	9.59	.055	SI
> 400.	0.	3.	6.	-4361.	48.	-52.3	1154.8	20.17	5.1	.0482	9.59	.046	SI
606.	206.	3.	9.	2564.	83.	-45.5	1119.4	12.19	5.29	.0415	13.48	.056	SI
812.	412.	3.	10	-3707.	41.	-46.	984.4	20.17	5.05	.0397	9.54	.038	SI
> 812.	0.	3.	10	-3719.	08.	-46.2	987.5	20.17	5.05	.0399	9.54	.038	SI
1007.	195.	3.	9.	2302.	83.	-40.8	1005.	12.19	5.29	.0358	13.48	.048	SI
1202.	390.	3.	11	-3392.	73.	-41.2	838.7	21.74	4.96	.033	9.01	.03	SI
>1202.	0.	3.	11	-4309.	91.	-52.4	1065.4	21.74	4.96	.0444	9.01	.04	SI
1412.	210.	3.	9.	2694.	42.	-47.8	1175.9	12.19	5.29	.0443	13.48	.06	SI
1622.	420.	3.	10	-4048.	46.	-50.3	1074.9	20.17	5.05	.0442	9.54	.042	SI
>1622.	0.	3.	10	-3950.	15.	-49.	1048.8	20.17	5.05	.0429	9.54	.041	SI
1825.	202.	3.	9.	2456.1	1.	-43.5	1071.9	12.19	5.29	.0391	13.48	.053	SI
2028.	405.	3.	13	-3839.62	53.3	1457.4	13.89	5.46	.0595	12.39	.074	SI	

>2028.	0.	3.	13	-3834.2	-53.2	1455.3	13.89	5.46	.0594	12.39	.074	SI
2230.	202.	3.	9.	2506.03	-44.4	1093.7	12.19	5.29	.0402	13.48	.054	SI
2432.	405.	3.	14	-3855.71	-51.7	1320.4	15.46	5.35	.0539	11.45	.062	SI
>2432.	0.	3.	14	-3856.55	-51.8	1320.7	15.46	5.35	.0539	11.45	.062	SI
2635.	202.	3.	9.	2489.38	-44.1	1086.4	12.19	5.29	.0398	13.48	.054	SI
2838.	405.	3.	16	-3866.65	-53.6	1467.6	13.89	5.46	.06	12.39	.074	SI
>2838.	0.	3.	16	-3865.31	-53.6	1467.1	13.89	5.46	.06	12.39	.074	SI
3040.	202.	3.	9.	2520.58	-44.7	1100.1	12.19	5.29	.0405	13.48	.055	SI
3242.	405.	3.	18	-3795.5	-46.1	938.2	21.74	4.96	.038	9.01	.034	SI
>3242.	0.	3.	18	-3808.35	-46.3	941.4	21.74	4.96	.0382	9.01	.034	SI
3445.	202.	3.	9.	2489.26	-44.1	1086.4	12.19	5.29	.0398	13.48	.054	SI
3648.	405.	3.	19	-3915.11	-47.	1036.6	20.17	5.1	.0423	9.59	.041	SI
>3648.	0.	3.	19	-3372.89	-40.5	893.	20.17	5.1	.0351	9.59	.034	SI
3844.	196.	3.	23	2382.24	-40.2	899.9	14.2	5.12	.0325	12.25	.04	SI
4040.	393.	3.	26	-3724.94	-52.1	1161.4	17.15	5.12	.0473	10.8	.051	SI

# TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-130.61	-2.4	87.4	7.73	5.93	.0026	23.12	.006	SI
73.	73.	3.	2.	2081.29	-36.2	1012.9	11.12	5.5	.0345	21.44	.074	SI
168.	168.	3.	3.	3442.02	-58.1	1300.3	14.2	5.12	.0525	12.25	.064	SI
400.	400.	3.	6.	-4657.23	-55.9	1233.1	20.17	5.1	.0521	9.59	.05	SI
> 400.	0.	3.	6.	-4018.83	-48.2	1064.1	20.17	5.1	.0436	9.59	.042	SI
606.	206.	3.	9.	2365.56	-41.9	1032.4	12.19	5.29	.0371	13.48	.05	SI
812.	412.	3.	10	-3423.32	-42.5	908.9	20.17	5.05	.0359	9.54	.034	SI
> 812.	0.	3.	10	-3425.15	-42.5	909.4	20.17	5.05	.036	9.54	.034	SI
1007.	195.	3.	9.	2123.93	-37.6	926.9	12.19	5.29	.0319	13.48	.043	SI
1202.	390.	3.	11	-3134.22	-38.1	774.8	21.74	4.96	.0298	9.01	.027	SI
>1202.	0.	3.	11	-3969.6	-48.3	981.3	21.74	4.96	.0402	9.01	.036	SI
1412.	210.	3.	9.	2485.06	-44.	1084.6	12.19	5.29	.0397	13.48	.054	SI
1622.	420.	3.	10	-3739.58	-46.4	992.9	20.17	5.05	.0401	9.54	.038	SI
>1622.	0.	3.	10	-3639.05	-45.2	966.2	20.17	5.05	.0388	9.54	.037	SI
1825.	202.	3.	9.	2266.77	-40.2	989.3	12.19	5.29	.035	13.48	.047	SI
2028.	405.	3.	13	-3542.67	-49.1	1344.7	13.89	5.46	.0538	12.39	.067	SI
>2028.	0.	3.	13	-3537.89	-49.1	1342.8	13.89	5.46	.0538	12.39	.067	SI
2230.	202.	3.	9.	2310.65	-41.	1008.4	12.19	5.29	.0359	13.48	.048	SI
2432.	405.	3.	14	-3556.06	-47.7	1217.8	15.46	5.35	.0488	11.45	.056	SI
>2432.	0.	3.	14	-3556.78	-47.7	1218.1	15.46	5.35	.0488	11.45	.056	SI
2635.	202.	3.	9.	2295.96	-40.7	1002.	12.19	5.29	.0356	13.48	.048	SI
2838.	405.	3.	16	-3566.56	-49.5	1353.7	13.89	5.46	.0543	12.39	.067	SI
>2838.	0.	3.	16	-3565.33	-49.5	1353.3	13.89	5.46	.0543	12.39	.067	SI
3040.	202.	3.	9.	2324.19	-41.2	1014.3	12.19	5.29	.0362	13.48	.049	SI
3242.	405.	3.	18	-3501.54	-42.6	865.6	21.74	4.96	.0344	9.01	.031	SI
>3242.	0.	3.	18	-3509.62	-42.7	867.6	21.74	4.96	.0345	9.01	.031	SI
3445.	202.	3.	9.	2295.87	-40.7	1002.	12.19	5.29	.0356	13.48	.048	SI
3648.	405.	3.	19	-3613.91	-43.4	956.9	20.17	5.1	.0383	9.59	.037	SI
>3648.	0.	3.	19	-3107.63	-37.3	822.8	20.17	5.1	.0316	9.59	.03	SI
3844.	196.	3.	23	2197.02	-37.1	830.	14.2	5.12	.029	12.25	.036	SI
4040.	393.	3.	26	-3439.15	-48.1	1072.3	17.15	5.12	.0428	10.8	.046	SI

# TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-114.42!	-2.1	76.6	7.73	5.93	.0023	23.12	.005	SI
73.	73.	3.	2.	2022.01	-35.2	984.1	11.12	5.5	.0331	21.44	.071	SI
168.	168.	3.	3.	3345.45!	-56.5!	1263.8!	14.2	5.12	.0507	12.25	.062	SI
400.	400.	3.	6.	-4524.37!	-54.3!	1197.9!	20.17	5.1	.0503	9.59	.048	SI
> 400.	0.	3.	6.	-3906.72!	-46.9!	1034.4!	20.17	5.1	.0421	9.59	.04	SI
606.	206.	3.	9.	2299.05!	-40.8!	1003.4!	12.19	5.29	.0357	13.48	.048	SI
812.	412.	3.	10	-3326.68!	-41.3!	883.3	20.17	5.05	.0347	9.54	.033	SI
> 812.	0.	3.	10	-3328.47!	-41.3!	883.8	20.17	5.05	.0347	9.54	.033	SI
1007.	195.	3.	9.	2064.27!	-36.6!	900.9!	12.19	5.29	.0306	13.48	.041	SI
1202.	390.	3.	11	-3046.83!	-37.	753.2!	21.74	4.96	.0288	9.01	.026	SI
>1202.	0.	3.	11	-3857.22!	-46.9!	953.5!	21.74	4.96	.0388	9.01	.035	SI
1412.	210.	3.	9.	2415.31!	-42.8!	1054.1!	12.19	5.29	.0382	13.48	.052	SI
1622.	420.	3.	10	-3635.49!	-45.1!	965.3!	20.17	5.05	.0388	9.54	.037	SI
>1622.	0.	3.	10	-3536.08!	-43.9!	938.9!	20.17	5.05	.0374	9.54	.036	SI
1825.	202.	3.	9.	2203.37!	-39.1!	961.6!	12.19	5.29	.0336	13.48	.045	SI
2028.	405.	3.	13	-3443.53!	-47.8!	1307.	13.89	5.46	.052	12.39	.064	SI
>2028.	0.	3.	13	-3438.92!	-47.7!	1305.3!	13.89	5.46	.0519	12.39	.064	SI
2230.	202.	3.	9.	2245.63!	-39.8!	980.1!	12.19	5.29	.0345	13.48	.047	SI
2432.	405.	3.	14	-3456.17!	-46.4!	1183.6!	15.46	5.35	.0471	11.45	.054	SI
>2432.	0.	3.	14	-3456.87!	-46.4!	1183.8!	15.46	5.35	.0471	11.45	.054	SI
2635.	202.	3.	9.	2231.47!	-39.6!	973.9!	12.19	5.29	.0342	13.48	.046	SI
2838.	405.	3.	16	-3466.55!	-48.1!	1315.8!	13.89	5.46	.0524	12.39	.065	SI
>2838.	0.	3.	16	-3465.36!	-48.1!	1315.3!	13.89	5.46	.0524	12.39	.065	SI
3040.	202.	3.	9.	2258.89!	-40.	985.8!	12.19	5.29	.0348	13.48	.047	SI
3242.	405.	3.	18	-3403.21!	-41.4!	841.3!	21.74	4.96	.0332	9.01	.03	SI
>3242.	0.	3.	18	-3409.67!	-41.4!	842.9!	21.74	4.96	.0332	9.01	.03	SI
3445.	202.	3.	9.	2231.35!	-39.6!	973.8!	12.19	5.29	.0342	13.48	.046	SI
3648.	405.	3.	19	-3513.98!	-42.2!	930.4!	20.17	5.1	.0369	9.59	.035	SI
>3648.	0.	3.	19	-3017.23!	-36.2!	798.9!	20.17	5.1	.0304	9.59	.029	SI
3844.	196.	3.	23	2135.35!	-36.1!	806.7!	14.2	5.12	.0278	12.25	.034	SI
4040.	393.	3.	26	-3345.74!	-46.8!	1043.2!	17.15	5.12	.0413	10.8	.045	SI

# ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.77	.939	7.73	.46	2d10 +2d14 +2d14	8.04	.479	4d16
2	15.77	.939	4.65	.277	2d10 +2d14	11.12	.662	4d16 +2d14
3	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +4d16 +2d14
4	22.05	1.313	7.85	.467	2d10 +2d20	14.2	.845	2d14 +4d16 +2d14
5	25.13	1.496	14.01	.834	2d10 +2d14 +2d1 ...	11.12	.662	4d16 +2d14
6	34.24	2.038	20.17	1.201	2d10 +2d14 +2d1 ...	14.07	.838	4d16 +3d16
7	23.12	1.376	14.01	.834	2d10 +2d14 +2d1 ...	9.11	.542	2d14 +3d16
8	20.04	1.193	7.85	.467	2d10 +2d20	12.19	.726	2d14 +2d14 +3d16
9	13.76	.819	1.57	.093	2d10	12.19	.726	2d14 +2d14 +3d16

10	32.23	1.919	20.17	1.201	2d10	+2d14	+2d1	...	12.06	.718	3d16	+3d16	
11	33.8	2.012	21.74	1.294	2d10	+2d10	+2d1	...	12.06	.718	3d16	+3d16	
12	16.84	1.002	7.73	.46	2d10	+2d14	+2d14		9.11	.542	2d14	+3d16	
13	25.95	1.545	13.89	.827	2d10	+2d14	+2d1	...	12.06	.718	3d16	+3d16	
14	27.52	1.638	15.46	.92	2d10	+2d14	+2d1	...	12.06	.718	3d16	+3d16	
15	16.84	1.002	7.73	.46	2d14	+2d14	+2d10		9.11	.542	2d14	+3d16	
16	25.95	1.545	13.89	.827	2d14	+2d14	+2d1	...	12.06	.718	3d16	+3d16	
17	23.12	1.376	14.01	.834	2d14	+2d14	+2d1	...	9.11	.542	2d14	+3d16	
18	33.8	2.012	21.74	1.294	2d14	+2d14	+2d1	...	12.06	.718	3d16	+3d16	
19	34.24	2.038	20.17	1.201	2d14	+2d14	+2d1	...	14.07	.838	4d16	+3d16	
20	34.24	2.038	17.09	1.017	2d14	+2d14	+2d1	...	17.15	1.021	2d14	+4d16	+3d16
21	25.13	1.496	14.01	.834	2d14	+2d14	+2d1	...	11.12	.662	2d14	+4d16	
22	22.05	1.313	7.85	.467	2d10	+2d20			14.2	.845	2d14	+2d14	+4d16
23	15.77	.939	1.57	.093	2d10				14.2	.845	2d14	+2d14	+4d16
24	25.2	1.5	11.	.654	2d10	+3d20			14.2	.845	2d14	+2d14	+4d16
25	25.2	1.5	14.07	.838	2d14	+2d10	+3d20		11.12	.662	2d14	+4d16	
26	25.2	1.5	17.15	1.021	2d14	+2d14	+2d1	...	8.04	.479	4d16		

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a  $1.5 \cdot b \text{ mm}^2/\text{m}$  [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr14\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713.;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd( $k \cdot f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1  
6) Rettangolare: 60X24; A=1440.; Jg=69120.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A939	3	3	3	0	280.	242.	11.667	1.3	1.625	40.2
2	A940	3	3	3	0	125.	90.	5.208	1.5	1.	28.547
3	A354	6	6	6	0	405.	370.	16.875	1.5	1.754	52.556
4	A356	6	6	6	0	405.	370.	16.875	1.5	2.339	70.1
5	A357	6	6	6	0	405.	370.	16.875	1.5	1.871	56.07
6	A380	3	3	3	0	405.	370.	16.875	1.5	1.665	47.046
7	A359	3	3	3	0	432.	398.	18.021	1.3	1.841	43.854

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-961.04	-.012	.03	-4425.14	-.059	.138	2.	.299	4.605	SI
0.	0.	3.	1.	5277.6	!.071	.085	8575.35	!.123	.138	2.	.47	1.625	SI
30.	30.	3.	1.	4968.97	!.072	.08	8458.84	!.131	.138	2.	.486	1.702	SI
76.	76.	3.	3.	-380.34	!.006	.02	-2658.74	!.04	.138	2.	.225	6.99	SI
76.	76.	3.	3.	4073.68	!.058	.056	9949.37	!.161	.138	2.	.539	2.442	SI
141.	141.	3.	3.	-65.13	!.001	.003	-2658.74	!.04	.138	2.	.225	40.82	SI
280.	280.	3.	5.	-3125.48	!.053	.072	-5949.84	!.109	.138	2.	.441	1.904	SI
> 280.	0.	3.	5.	-4417.58	!.078	.102	-5949.84	!.109	.138	2.	.441	1.347	SI
322.	42.	3.	5.	-3967.1	!.069	.092	-5949.84	!.109	.138	2.	.441	1.5	SI
405.	125.	3.	6.	-2279.34	!.038	.072	-4370.71	!.076	.138	2.	.355	1.918	SI
> 405.	0.	6.	7.	-1481.61	!.026	.047	-4350.63	!.082	.138	2.	.372	2.936	SI
511.	106.	6.	9.	1345.38	!.031	.053	3502.7	!.087	.138	2.	.385	2.604	SI

608.	202.	6.	9.	1997.4	-.047	.078	3502.7	-.087	.138	2.	.385	1.754	SI
672.	267.	6.	9.	1370.72	-.032	.054	3502.7	-.087	.138	2.	.385	2.555	SI
736.	331.	6.	8.	-891.84	-.022	.061	-2015.68	-.05	.138	2.	.267	2.26	SI
736.	331.	6.	8.	35.77	-.001	.002	2968.53	-.07	.138	2.	.336	82.98	SI
810.	405.	6.	7.	-2721.64	-.05	.086	-4350.63	-.082	.138	2.	.372	1.599	SI
> 810.	0.	6.	7.	-2754.93	-.05	.087	-4350.63	-.082	.138	2.	.372	1.579	SI
828.	18.	6.	7.	-2754.93	-.05	.087	-4350.63	-.082	.138	2.	.372	1.579	SI
916.	106.	6.	11	-72.27	-.002	.005	-2055.07	-.049	.138	2.	.261	28.44	SI
916.	106.	6.	11	471.66	-.01	.018	3537.25	-.079	.138	2.	.363	7.5	SI
948.	138.	6.	9.	1008.84	-.023	.039	3502.7	-.087	.138	2.	.385	3.472	SI
1012.	202.	6.	9.	1497.49	-.035	.059	3502.7	-.087	.138	2.	.385	2.339	SI
1109.	299.	6.	9.	-229.68	-.008	.037	-861.5	-.03	.138	2.	.177	3.751	NO
1215.	405.	6.	7.	-2463.35	-.045	.078	-4350.63	-.082	.138	2.	.372	1.766	SI
> 1215.	0.	6.	7.	-2424.14	-.044	.077	-4350.63	-.082	.138	2.	.372	1.795	SI
1242.	27.	6.	7.	-2424.14	-.044	.077	-4350.63	-.082	.138	2.	.372	1.795	SI
1450.	235.	6.	12	1917.92	-.033	.074	3588.22	-.062	.138	2.	.31	1.871	SI
1546.	331.	6.	13	-2155.52	-.033	.036	-8261.91	-.146	.138	2.	.513	3.833	SI
1546.	331.	6.	13	1380.69	-.022	.063	3013.17	-.048	.138	2.	.259	2.182	SI
1579.	364.	6.	14	880.82	-.011	.024	5035.54	-.065	.138	2.	.319	5.717	SI
1620.	405.	6.	14	-3656.59	-.049	.053	-9502.84	-.14	.138	2.	.503	2.599	SI
1620.	405.	6.	14	6.97	0.	0.	5035.54	-.065	.138	2.	.319	723.	SI
> 1620.	0.	3.	15	-7564.21	-.099	.109	-9538.62	-.129	.138	2.	.483	1.261	SI
1647.	27.	3.	15	-7564.21	-.099	.109	-9538.62	-.129	.138	2.	.483	1.261	SI
1694.	74.	3.	16	-4432.37	-.064	.073	-8341.12	-.13	.138	2.	.484	1.882	SI
1694.	74.	3.	16	1633.24	-.024	.069	3283.84	-.049	.138	2.	.261	2.011	SI
1758.	138.	3.	17	-88.12	-.001	.002	-5727.4	-.082	.138	2.	.374	65.	SI
1823.	202.	3.	18	3237.41	-.061	.082	5389.09	-.109	.138	2.	.441	1.665	SI
1984.	363.	3.	21	1686.3	-.019	.036	6456.4	-.075	.138	2.	.351	3.829	SI
2025.	405.	3.	21	-5573.78	-.066	.082	-9327.93	-.116	.138	2.	.456	1.674	SI
2025.	405.	3.	21	431.7	-.005	.009	6456.4	-.075	.138	2.	.351	14.96	SI
> 2025.	0.	3.	21	-6345.35	-.076	.094	-9327.93	-.116	.138	2.	.456	1.47	SI
2052.	27.	3.	21	367.99	-.004	.008	6456.4	-.075	.138	2.	.351	17.55	SI
2162.	137.	3.	24	-191.36	-.006	.031	-862.03	-.026	.138	2.	.157	4.505	NO
2225.	200.	3.	24	3334.67	-.061	.074	6140.47	-.122	.138	2.	.468	1.841	SI
2430.	405.	3.	27	89.46	-.001	.004	3284.2	-.048	.138	2.	.259	36.71	SI
2458.	433.	3.	27	-6867.48	-.103	.11	-8573.63	-.133	.138	2.	.49	1.248	SI

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## TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	3.	-1577.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
0.	0.	3.	1492.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
10.	10.	3.	-1577.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
10.	10.	3.	1492.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
20.	20.	3.	-1577.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
20.	20.	3.	1492.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
30.	30.	3.	-1710.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
30.	30.	3.	1448.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
44.	44.	3.	-1907.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
44.	44.	3.	1251.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
44.	44.	3.	-1907.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
44.	44.	3.	1251.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
76.	76.	3.	-2351.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
76.	76.	3.	806.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
109.	109.	3.	-2796.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
109.	109.	3.	362.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
141.	141.	3.	-3241.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
174.	174.	3.	-3685.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
206.	206.	3.	-4130.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
238.	238.	3.	-4600.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
238.	238.	3.	-4600.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
253.	253.	3.	-4855.	6449.	21355.	3784.	.57	20.	2.5	NO	4	5	6
262.	262.	3.	-4921.	6925.	21355.	3784.	.57	20.	2.5	NO	4	5	6
270.	270.	3.	-4921.	6925.	21355.	3784.	.57	20.	2.5	NO	4	5	6
280.	280.	3.	-4921.	6925.	21355.	3784.	.57	20.	2.5	NO	4	5	6
> 280.	0.	3.	3228.	6925.	21355.	3784.	.57	20.	2.5	NO	5	6	
290.	10.	3.	3228.	6925.	21355.	3784.	.57	20.	2.5	NO	5	6	
298.	18.	3.	3228.	6925.	21355.	3784.	.57	20.	2.5	NO	5	6	
307.	27.	3.	3153.	6925.	21355.	3784.	.57	20.	2.5	NO	5	6	
322.	42.	3.	2886.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
322.	42.	3.	2886.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
342.	62.	3.	2535.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
364.	84.	3.	-56.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
364.	84.	3.	2184.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
364.	84.	3.	-56.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
364.	84.	3.	2184.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
378.	98.	3.	-295.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
378.	98.	3.	1944.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
388.	108.	3.	-349.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
388.	108.	3.	1783.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
395.	115.	3.	-349.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
395.	115.	3.	1652.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
405.	125.	3.	-349.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
405.	125.	3.	1490.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6	
> 405.	0.	6.	3853.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5	6
415.	10.	6.	3853.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5	6
422.	18.	6.	3853.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5	6
432.	27.	6.	3777.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
446.	42.	6.	3441.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
446.	42.	6.	3441.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
479.	74.	6.	2684.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
511.	106.	6.	1928.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
543.	138.	6.	1172.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
575.	170.	6.	485.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
608.	202.	6.	-341.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
640.	235.	6.	-1098.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
672.	267.	6.	-1854.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
704.	299.	6.	-2610.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	



736.	331.	6.	-3367.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
768.	364.	6.	-4123.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5
768.	364.	6.	-4123.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5
783.	378.	6.	-4460.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
792.	388.	6.	-4535.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
800.	395.	6.	-4535.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
810.	405.	6.	-4535.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
> 810.	0.	6.	4283.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
820.	10.	6.	4283.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
828.	18.	6.	4283.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
837.	27.	6.	4207.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
852.	42.	6.	3871.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
852.	42.	6.	3871.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
884.	74.	6.	3115.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
916.	106.	6.	2358.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
948.	138.	6.	1602.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
980.	170.	6.	898.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1012.	202.	6.	-113.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1012.	202.	6.	233.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1045.	235.	6.	-741.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1077.	267.	6.	-1424.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1109.	299.	6.	-2180.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1141.	331.	6.	-2937.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1174.	364.	6.	-3693.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1174.	364.	6.	-3693.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1188.	378.	6.	-4030.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
1198.	388.	6.	-4105.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
1205.	395.	6.	-4105.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
1215.	405.	6.	-4105.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
>1215.	0.	6.	4166.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
1225.	10.	6.	4166.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
1232.	18.	6.	4166.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
1242.	27.	6.	4090.	5578.	18305.	3784.	.57	20.	2.5	NO	4	5
1256.	42.	6.	3753.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1256.	42.	6.	3753.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1289.	74.	6.	2997.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1321.	106.	6.	2265.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1353.	138.	6.	1680.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1385.	170.	6.	-135.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1385.	170.	6.	1133.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1418.	203.	6.	-654.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1418.	203.	6.	614.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1450.	235.	6.	-1173.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1450.	235.	6.	95.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1482.	267.	6.	-1725.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1514.	299.	6.	-2321.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
1546.	331.	6.	-3054.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1579.	364.	6.	-3811.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5
1579.	364.	6.	-3811.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5
1593.	378.	6.	-4147.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5
1603.	388.	6.	-4223.	5832.	18305.	3784.	.57	20.	2.5	NO	4	5
1610.	395.	6.	-4223.	5832.	18305.	3784.	.57	20.	2.5	NO	4	5
1620.	405.	6.	-4223.	5832.	18305.	3784.	.57	20.	2.5	NO	4	5
>1620.	0.	3.	7709.	8116.	21355.	3784.	.57	20.	2.5	NO	4	5
1630.	10.	3.	7709.	8116.	21355.	3784.	.57	20.	2.5	NO	4	5
1638.	18.	3.	7709.	8116.	21355.	3784.	.57	20.	2.5	NO	4	5
1647.	27.	3.	7630.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1662.	42.	3.	7283.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1662.	42.	3.	7283.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1694.	74.	3.	6501.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1726.	106.	3.	4670.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1758.	138.	3.	3745.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
1790.	170.	3.	-621.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
1790.	170.	3.	2821.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
1823.	202.	3.	-1546.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
1823.	202.	3.	1897.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
1855.	235.	3.	-2470.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
1855.	235.	3.	973.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
1887.	267.	3.	-3394.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
1887.	267.	3.	49.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
1919.	299.	3.	-4327.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1951.	331.	3.	-5315.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1984.	363.	3.	-6727.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1984.	363.	3.	-6727.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
1998.	378.	3.	-7355.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5
2008.	387.	3.	-7496.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5
2015.	395.	3.	-7496.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5
2025.	405.	3.	-7496.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5
>2025.	0.	3.	8444.	8025.	21355.	3784.	.57	20.	2.5	NO	4	5
2035.	10.	3.	8444.	8025.	21355.	3784.	.57	20.	2.5	NO	4	5
2042.	18.	3.	8444.	8025.	21355.	3784.	.57	20.	2.5	NO	4	5
2052.	27.	3.	8299.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
2066.	42.	3.	7653.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
2066.	42.	3.	7653.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
2098.	73.	3.	6225.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
2130.	105.	3.	4797.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
2162.	137.	3.	3774.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
2194.	169.	3.	-245.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
2194.	169.	3.	2804.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
2225.	200.	3.	-1174.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
2225.	200.	3.	1875.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
2257.	232.	3.	-2102.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
2257.	232.	3.	947.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
2289.	264.	3.	-3030.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
2289.	264.	3.	20.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
2321.	296.	3.	-4052.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
2352.	327.	3.	-5133.	6774.	21355.	3784.	.57	20.	2.5	NO	4	5
2384.	359.	3.	-6543.	6391.	21355.	3784.	.57	20.	2.5	NO	4	5

2416.	391.	3.	-7951.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2416.	391.	3.	-7951.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2430.	405.	3.	-8585.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2440.	415.	3.	-8727.	6774.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2448.	423.	3.	-8727.	6774.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2458.	433.	3.	-8727.	6774.	21355.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.1.	2314.57!	-32.3!	728.9!	16.96!	5.14!	.0255!	20.05!	.051!	SI
30.	30.	3.1.	2305.49!	-33.7!	727.3!	16.96!	5.06!	.0256!	19.75!	.05!	SI
44.	44.	3.2.	2253.46!	-31.8!	634.3!	19.23!	4.92!	.0221!	10.07!	.022!	SI
280.	280.	3.5.	-2305.86!	-39.8!	1038.5!	11.75!	5.39!	.0368!	12.83!	.047!	SI
> 280.	0.	3.5.	-3261.95!	-56.2!	1469.1!	11.75!	5.39!	.0583!	12.83!	.075!	SI
298.	18.	3.5.	-3261.95!	-56.2!	1469.1!	11.75!	5.39!	.0583!	12.83!	.075!	SI
405.	125.	3.6.	-1634.54!	-29.5!	1015.7!	8.36!	5.82!	.0305!	16.05!	.049!	SI
> 405.	0.	6.7.	-1092.32!	-21.4!	682.2!	8.36!	5.71!	.0205!	14.52!	.03!	SI
608.	202.	6.9.	1489.06!	-35.4!	1142.3!	6.79!	5.72!	.0348!	16.79!	.058!	SI
810.	405.	6.7.	-2029.94!	-39.7!	1267.7!	8.36!	5.71!	.0448!	14.52!	.065!	SI
> 810.	0.	6.7.	-2054.69!	-40.2!	1283.2!	8.36!	5.71!	.0455!	14.52!	.066!	SI
1012.	202.	6.9.	1117.72!	-26.6!	857.4!	6.79!	5.72!	.0257!	16.79!	.043!	SI
1215.	405.	6.7.	-1810.27!	-35.4!	1130.5!	8.36!	5.71!	.0379!	14.52!	.055!	SI
>1215.	0.	6.7.	-1808.84!	-35.4!	1129.7!	8.36!	5.71!	.0379!	14.52!	.055!	SI
1232.	18.	6.7.	-1808.84!	-35.4!	1129.7!	8.36!	5.71!	.0379!	14.52!	.055!	SI
1418.	203.	6.9.	1201.82!	-28.6!	922.	6.79!	5.72!	.0277!	16.79!	.046!	SI
1620.	405.	6.14	-1887.9!	-27.1!	537.6!	18.91!	4.91!	.0181!	8.99!	.016!	SI
>1620.	0.	3.15	-4416.04!	-58.4!	1251.5!	18.91!	5.05!	.0526!	9.77!	.051!	SI
1823.	202.	3.18	2396.79!	-44.4!	1185.5!	10.68!	5.42!	.0428!	14.02!	.06!	SI
2025.	405.	3.21	-2705.44!	-34.4!	788.6!	18.28!	5.17!	.0291!	10.33!	.03!	SI
>2025.	0.	3.21	-3785.37!	-48.1!	1103.4!	18.28!	5.17!	.0448!	10.33!	.046!	SI
2225.	200.	3.24	2458.19!	-43.4!	1062.5!	12.32!	5.28!	.0388!	13.26!	.051!	SI
2458.	433.	3.27	-4271.62!	-61.9!	1336.4!	17.15!	5.06!	.0561!	10.74!	.06!	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
20.	20.	3.1.	2066.11!	-28.8!	650.7!	16.96!	5.14!	.0216!	20.05!	.043!	SI
30.	30.	3.1.	2068.92!	-30.2!	652.6!	16.96!	5.06!	.0218!	19.75!	.043!	SI
44.	44.	3.2.	2028.75!	-28.7!	571.	19.23!	4.92!	.0189!	10.07!	.019!	SI
280.	280.	3.5.	-2086.25!	-36.1!	939.6!	11.75!	5.39!	.0318!	12.83!	.041!	SI
> 280.	0.	3.5.	-2962.82!	-51.1!	1334.4!	11.75!	5.39!	.0516!	12.83!	.066!	SI
405.	125.	3.6.	-1544.24!	-27.9!	959.6!	8.36!	5.82!	.0288!	16.05!	.046!	SI
> 405.	0.	6.7.	-1036.13!	-20.3!	647.1!	8.36!	5.71!	.0194!	14.52!	.028!	SI
608.	202.	6.9.	1395.5!	-33.2!	1070.5!	6.79!	5.72!	.0321!	16.79!	.054!	SI
810.	405.	6.7.	-1905.19!	-37.3!	1189.8!	8.36!	5.71!	.0409!	14.52!	.059!	SI
> 810.	0.	6.7.	-1928.18!	-37.7!	1204.2!	8.36!	5.71!	.0416!	14.52!	.06!	SI
820.	10.	6.7.	-1928.18!	-37.7!	1204.2!	8.36!	5.71!	.0416!	14.52!	.06!	SI
1012.	202.	6.9.	1051.49!	-25.1!	806.6!	6.79!	5.72!	.0242!	16.79!	.041!	SI
1215.	405.	6.7.	-1701.18!	-33.3!	1062.4!	8.36!	5.71!	.0345!	14.52!	.05!	SI
>1215.	0.	6.7.	-1699.72!	-33.3!	1061.5!	8.36!	5.71!	.0345!	14.52!	.05!	SI
1232.	18.	6.7.	-1699.72!	-33.3!	1061.5!	8.36!	5.71!	.0345!	14.52!	.05!	SI
1418.	203.	6.9.	1128.79!	-26.9!	865.9!	6.79!	5.72!	.026!	16.79!	.044!	SI
1620.	405.	6.14	-1775.03!	-25.5!	505.5!	18.91!	4.91!	.0165!	8.99!	.015!	SI
>1620.	0.	3.15	-4079.16!	-53.9!	1156.1!	18.91!	5.05!	.0478!	9.77!	.047!	SI
1823.	202.	3.18	2212.11!	-40.9!	1094.2!	10.68!	5.42!	.0382!	14.02!	.054!	SI
2025.	405.	3.21	-2510.91!	-31.9!	731.9!	18.28!	5.17!	.0262!	10.33!	.027!	SI
>2025.	0.	3.21	-3473.36!	-44.2!	1012.5!	18.28!	5.17!	.0402!	10.33!	.042!	SI
2225.	200.	3.24	2249.22!	-39.7!	972.1!	12.32!	5.28!	.0343!	13.26!	.045!	SI
2458.	433.	3.27	-3905.17!	-56.6!	1221.7!	17.15!	5.06!	.0504!	10.74!	.054!	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
20.	20.	3.1.	2003.97!	-27.9!	631.1!	16.96!	5.14!	.0206!	20.05!	.041!	SI
30.	30.	3.1.	2007.43!	-29.3!	633.2!	16.96!	5.06!	.0209!	19.75!	.041!	SI
44.	44.	3.2.	1969.34!	-27.8!	554.3!	19.23!	4.92!	.0181!	10.07!	.018!	SI
280.	280.	3.5.	-2026.29!	-34.9!	912.6!	11.75!	5.39!	.0305!	12.83!	.039!	SI
> 280.	0.	3.5.	-2879.09!	-49.6!	1296.7!	11.75!	5.39!	.0497!	12.83!	.064!	SI
298.	18.	3.5.	-2879.09!	-49.6!	1296.7!	11.75!	5.39!	.0497!	12.83!	.064!	SI
405.	125.	3.6.	-1512.99!	-27.4!	940.2!	8.36!	5.82!	.0282!	16.05!	.045!	SI
> 405.	0.	6.7.	-1015.99!	-19.9!	634.5!	8.36!	5.71!	.019!	14.52!	.028!	SI
608.	202.	6.9.	1364.86!	-32.5!	1047.	6.79!	5.72!	.0314!	16.79!	.053!	SI
810.	405.	6.7.	-1863.94!	-36.5!	1164.1!	8.36!	5.71!	.0396!	14.52!	.057!	SI
> 810.	0.	6.7.	-1886.37!	-36.9!	1178.1!	8.36!	5.71!	.0403!	14.52!	.058!	SI
820.	10.	6.7.	-1886.37!	-36.9!	1178.1!	8.36!	5.71!	.0403!	14.52!	.058!	SI
1012.	202.	6.9.	1029.19!	-24.5!	789.5!	6.79!	5.72!	.0237!	16.79!	.04!	SI
1215.	405.	6.7.	-1664.89!	-32.6!	1039.8!	8.36!	5.71!	.0334!	14.52!	.048!	SI
>1215.	0.	6.7.	-1663.42!	-32.6!	1038.8!	8.36!	5.71!	.0333!	14.52!	.048!	SI
1232.	18.	6.7.	-1663.42!	-32.6!	1038.8!	8.36!	5.71!	.0333!	14.52!	.048!	SI
1418.	203.	6.9.	1104.56!	-26.3!	847.3!	6.79!	5.72!	.0254!	16.79!	.043!	SI
1620.	405.	6.14	-1737.1!	-24.9!	494.7!	18.91!	4.91!	.016!	8.99!	.014!	SI
>1620.	0.	3.15	-3975.98!	-52.5!	1126.8!	18.91!	5.05!	.0464!	9.77!	.045!	SI
1823.	202.	3.18	2151.65!	-39.8!	1064.3!	10.68!	5.42!	.0367!	14.02!	.051!	SI
2025.	405.	3.21	-2439.09!	-31.1!	711.	18.28!	5.17!	.0252!	10.33!	.026!	SI
>2025.	0.	3.21	-3367.24!	-42.8!	981.5!	18.28!	5.17!	.0387!	10.33!	.04!	SI
2225.	200.	3.24	2179.77!	-38.5!	942.1!	12.32!	5.28!	.0328!	13.26!	.043!	SI
2458.	433.	3.27	-3785.04!	-54.9!	1184.1!	17.15!	5.06!	.0485!	10.74!	.052!	SI

##### ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	25.32	1.507	8.36	.497	2d10 +1d12 +2d1 ...	16.96	1.01	3d12 +3d24
2	25.32	1.507	6.09	.363	2d10 +1d12 +3d12	19.23	1.144	2d12 +3d12 +3d24
3	25.32	1.507	4.96	.295	2d10 +3d12	20.36	1.212	1d12 +2d12 +3d1 ...
4	11.75	.699	4.96	.295	2d10 +3d12	6.79	.404	1d12 +2d12 +3d12

5	15.14	.901	11.75	.699	2d10	+1d12	+1d1	...	3.39	.202	3d12	
6	15.14	.901	8.36	.497	2d10	+1d12	+1d1	...	6.79	.404	3d12	+3d12
7	15.14	1.052	8.36	.58	2d10	+1d12	+1d1	...	6.79	.471	3d12	+3d12
8	9.49	.659	3.83	.266	2d10	+1d12	+1d12		5.65	.393	2d12	+3d12
9	8.36	.58	1.57	.109	2d10				6.79	.471	1d12	+2d12 +3d12
10	11.75	.816	6.09	.423	2d10	+1d12	+1d1	...	5.65	.393	2d12	+3d12
11	10.62	.737	3.83	.266	2d10	+2d12			6.79	.471	1d12	+2d12 +3d12
12	17.78	1.235	11.	.764	2d10	+3d20			6.79	.471	1d12	+2d12 +3d12
13	22.31	1.549	16.65	1.156	2d10	+2d12	+1d1	...	5.65	.393	2d12	+3d12
14	28.46	1.977	18.91	1.313	2d10	+2d12	+1d1	...	9.55	.663	3d12	+4d14
15	28.46	1.694	18.91	1.126	2d10	+2d12	+1d1	...	9.55	.568	3d12	+4d14
16	22.81	1.358	16.65	.991	2d10	+2d12	+1d1	...	6.16	.367	4d14	
17	21.68	1.29	11.	.654	2d10	+3d20			10.68	.636	2d12	+2d12 +4d14
18	12.25	.729	1.57	.093	2d10				10.68	.636	2d12	+2d12 +4d14
19	18.28	1.088	7.6	.453	2d10	+3d16			10.68	.636	2d12	+2d12 +4d14
20	21.36	1.272	15.21	.905	2d10	+2d12	+2d1	...	6.16	.367	4d14	
21	30.6	1.821	18.28	1.088	2d10	+2d12	+2d1	...	12.32	.733	4d14	+4d14
22	24.44	1.455	15.21	.905	2d10	+2d12	+2d1	...	9.24	.55	2d14	+4d14
23	19.92	1.186	7.6	.453	2d10	+3d16			12.32	.733	2d14	+2d14 +4d14
24	13.89	.827	1.57	.093	2d10				12.32	.733	2d14	+2d14 +4d14
25	23.31	1.388	11.	.654	2d10	+3d20			12.32	.733	2d14	+2d14 +4d14
26	23.31	1.388	14.07	.838	2d10	+2d14	+3d20		9.24	.55	2d14	+4d14
27	23.31	1.388	17.15	1.021	2d10	+2d14	+2d1	...	6.16	.367	4d14	

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a  $1.5 \cdot b \cdot mm^2/m$  [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr18\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs=1.38; fyd=2766.3; ftd( $k \cdot f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680. ; Jg=80640. ; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A364	3	3	3	0	400.	365.	16.667	1.3	1.28	29.695
2	A365	3	3	3	0	340.	305.	14.167	1.3	2.432	61.736

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-737.67	-.012	.025	-4065.9	-.069	.138	2.	.334	5.512	SI
0.	0.	3.	1.	141.52	-.002	.005	4221.79	-.072	.138	2.	.342	29.83	SI
105.	105.	3.	3.	4820.57	-.087	.094	6988.39	-.136	.138	2.	.496	1.45	SI
168.	168.	3.	3.	5461.63	-.101	.107	6988.39	-.136	.138	2.	.496	1.28	SI
327.	327.	3.	4.	-745.67	-.014	.038	-2728.06	-.052	.138	2.	.275	3.659	SI
400.	400.	3.	6.	-4383.38	-.055	.084	-7155.02	-.093	.138	2.	.402	1.632	SI
> 400.	0.	3.	6.	-4743.55	-.06	.091	-7155.02	-.093	.138	2.	.402	1.508	SI
483.	83.	3.	8.	-1532.67	-.034	.103	-2063.69	-.046	.138	2.	.249	1.346	SI
518.	118.	3.	9.	-88.56	-.003	.014	-863.9	-.027	.138	2.	.164	9.755	NO
518.	118.	3.	9.	489.57	-.009	.014	4622.06	-.096	.138	2.	.411	9.441	SI
622.	222.	3.	9.	1900.2	-.037	.056	4622.06	-.096	.138	2.	.411	2.432	SI
720.	320.	3.	10	-61.28	-.001	.003	-3218.31	-.066	.138	2.	.323	52.51	SI

740. | 340. | 3. | 10 | -1873.15 | -.037 | .08 | -3218.31 | -.066 | .138 | 2. | .323 | 1.718 | SI |

# TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	7561.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
10.	10.	3.	7125.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
18.	18.	3.	6772.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
27.	27.	3.	6337.	6103.	21355.	3784.	.57	20.	2.5	NO	4 5 6
42.	42.	3.	5691.	6103.	21355.	3784.	.57	20.	2.5	NO	4 5 6
42.	42.	3.	5691.	6103.	21355.	3784.	.57	20.	2.5	NO	4 5 6
73.	73.	3.	4268.	6799.	21355.	3784.	.57	20.	2.5	NO	4 5 6
105.	105.	3.	2849.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
137.	137.	3.	1435.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
168.	168.	3.	-106.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
168.	168.	3.	218.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
200.	200.	3.	-1335.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
232.	232.	3.	-2735.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
263.	263.	3.	-4132.	7376.	21355.	3784.	.57	20.	2.5	NO	4 5 6
295.	295.	3.	-5525.	7376.	21355.	3784.	.57	20.	2.5	NO	4 5 6
327.	327.	3.	-6913.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
358.	358.	3.	-8297.	6561.	21355.	3784.	.57	20.	2.5	NO	4 5 6
358.	358.	3.	-8297.	6561.	21355.	3784.	.57	20.	2.5	NO	4 5 6
373.	373.	3.	-8920.	6561.	21355.	3784.	.57	20.	2.5	NO	4 5 6
382.	382.	3.	-9341.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
390.	390.	3.	-9341.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
400.	400.	3.	-9341.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
> 400.	0.	3.	7649.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
411.	11.	3.	7649.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
420.	20.	3.	7548.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
431.	31.	3.	7123.	6377.	21355.	3784.	.57	20.	2.5	NO	4 5 6
448.	48.	3.	6495.	6377.	21355.	3784.	.57	20.	2.5	NO	4 5 6
448.	48.	3.	6495.	6377.	21355.	3784.	.57	20.	2.5	NO	4 5 6
483.	83.	3.	5176.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
518.	118.	3.	3866.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
553.	153.	3.	2565.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
587.	187.	3.	1272.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
622.	222.	3.	-223.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
622.	222.	3.	103.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
657.	257.	3.	-1353.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
692.	292.	3.	-2620.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
692.	292.	3.	-2620.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
709.	309.	3.	-3214.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
720.	320.	3.	-3616.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
729.	329.	3.	-3941.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
740.	340.	3.	-5829.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
10.	10.	3.	1.	-103.92	-1.9	69.6	7.73	5.93	.0021	23.12	.005	SI
73.	73.	3.	2.	2569.67	-44.	1217.1	11.12	5.48	.0448	21.38	.096	SI
168.	168.	3.	3.	4111.54	-69.4	1553.2	14.2	5.12	.0652	12.25	.08	SI
400.	400.	3.	6.	-3247.05	-44.7	1237.2	13.82	5.48	.0484	11.89	.058	SI
> 400.	0.	3.	6.	-3513.35	-48.4	1338.7	13.82	5.48	.0535	11.89	.064	SI
622.	222.	3.	9.	1447.54	-28.3	838.4	9.05	5.59	.0252	15.28	.038	SI
740.	340.	3.	10	-1308.42	-27.7	1103.4	6.09	6.04	.0331	23.55	.078	SI

### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
10.	10.	3.	1.	-86.53	-1.6	57.9	7.73	5.93	.0017	23.12	.004	SI
73.	73.	3.	2.	2378.49	-40.7	1126.5	11.12	5.48	.0402	21.38	.086	SI
168.	168.	3.	3.	3809.04	-64.3	1438.9	14.2	5.12	.0594	12.25	.073	SI
400.	400.	3.	6.	-3003.32	-41.4	1144.4	13.82	5.48	.0437	11.89	.052	SI
> 400.	0.	3.	6.	-3247.35	-44.7	1237.3	13.82	5.48	.0484	11.89	.058	SI
622.	222.	3.	9.	1349.05	-26.4	781.3	9.05	5.59	.0234	15.28	.036	SI
740.	340.	3.	10	-1215.71	-25.8	1025.2	6.09	6.04	.0308	23.55	.072	SI

### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
10.	10.	3.	1.	-75.41	-1.4	50.5	7.73	5.93	.0015	23.12	.004	SI
73.	73.	3.	2.	2318.52	-39.7	1098.1	11.12	5.48	.0388	21.38	.083	SI
168.	168.	3.	3.	3711.95	-62.7	1402.2	14.2	5.12	.0576	12.25	.071	SI
400.	400.	3.	6.	-2922.27	-40.3	1113.5	13.82	5.48	.0422	11.89	.05	SI
> 400.	0.	3.	6.	-3159.06	-43.5	1203.7	13.82	5.48	.0467	11.89	.056	SI
622.	222.	3.	9.	1317.85	-25.8	763.2	9.05	5.59	.0229	15.28	.035	SI
740.	340.	3.	10	-1183.97	-25.1	998.4	6.09	6.04	.03	23.55	.071	SI

## ARMATURE LONGITUDINALI (%=100\*Af/Ac|s - Ac|s=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.77	.939	7.73	.46	2d10 +2d14 +2d14	8.04	.479	4d16
2	15.77	.939	4.65	.277	2d10 +2d14	11.12	.662	4d16 +2d14
3	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +4d16 +2d14
4	18.03	1.073	6.91	.411	2d10 +2d14 +2d12	11.12	.662	4d16 +2d14
5	24.82	1.477	12.25	.729	2d10 +2d14 +2d1 ...	12.57	.748	4d16 +4d12
6	26.39	1.571	13.82	.823	2d10 +2d14 +2d1 ...	12.57	.748	4d16 +4d12
7	24.82	1.477	12.25	.729	2d14 +2d12 +2d1 ...	12.57	.748	4d16 +4d12
8	10.62	.632	3.83	.228	2d12 +2d10	6.79	.404	4d12 +2d12
9	10.62	.632	1.57	.093	2d10	9.05	.539	2d12 +4d12 +2d12
10	10.62	.632	6.09	.363	2d12 +2d12 +2d10	4.52	.269	4d12

## MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a  $1.5 \cdot b$  mm<sup>2</sup>/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr24\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm<sup>2</sup>; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=200000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	14.	Rara 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.									
6.	SLU con SISMAX	4.									

#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A371	3	3	3	0	400.	365.	16.667	1.3	1.29	30.351
2	A370	3	3	3	0	405.	370.	16.875	1.3	1.082	25.456

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsc1	Mrd	Epsc1	Epsc1	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-9828.26	-.109	.101	-13315.08	-.158	.138	2.	.532	1.355
18.	18.	3.	1.	381.19	-.003	.014	3731.08	-.025	.138	2.	.153	9.788
137.	137.	3.	4.	-421.43	-.012	.068	-861.62	-.026	.138	2.	.156	2.045
200.	200.	3.	4.	5047.97	-.094	.106	6510.41	-.128	.138	2.	.48	1.29
327.	327.	3.	6.	3166.79	-.023	.047	9375.72	-.07	.138	2.	.337	2.961
382.	382.	3.	7.	474.51	-.003	.009	7059.77	-.049	.138	2.	.261	14.88
400.	400.	3.	7.	-9696.02	-.092	.098	-13534.74	-.134	.138	2.	.492	1.396
> 400.	0.	3.	7.	-10499.28	-.1	.107	-13534.74	-.134	.138	2.	.492	1.289
474.	74.	3.	6.	2888.71	-.021	.043	9375.72	-.07	.138	2.	.337	3.246
602.	203.	3.	9.	6018.59	-.116	.128	6510.41	-.128	.138	2.	.48	1.082
764.	364.	3.	11	1087.14	-.007	.04	3731.08	-.025	.138	2.	.153	3.432
778.	378.	3.	11	204.67	-.001	.008	3731.08	-.025	.138	2.	.153	18.23
805.	405.	3.	11	-10998.85	-.124	.113	-13315.08	-.158	.138	2.	.532	1.211

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	11781.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	11781.	5884.	21355.	3784.	.57	20.	2.5
18.	18.	3.	11781.	5884.	21355.	3784.	.57	20.	2.5
27.	27.	3.	11617.	5884.	21355.	3784.	.57	20.	2.5
42.	42.	3.	10890.	5884.	21355.	3784.	.57	20.	2.5
42.	42.	3.	10890.	5884.	21355.	3784.	.57	20.	2.5
73.	73.	3.	9128.	5884.	21355.	3784.	.57	20.	2.5
105.	105.	3.	7385.	5884.	21355.	3784.	.57	20.	2.5
137.	137.	3.	6044.	5884.	21355.	3784.	.57	20.	2.5
168.	168.	3.	-646.	7187.	21355.	3784.	.57	20.	2.5
168.	168.	3.	4625.	7187.	21355.	3784.	.57	20.	2.5
200.	200.	3.	-2123.	7187.	21355.	3784.	.57	20.	2.5
200.	200.	3.	3148.	7187.	21355.	3784.	.57	20.	2.5
232.	232.	3.	-3737.	7187.	21355.	3784.	.57	20.	2.5
232.	232.	3.	1534.	7187.	21355.	3784.	.57	20.	2.5
263.	263.	3.	-5409.	7187.	21355.	3784.	.57	20.	2.5
295.	295.	3.	-7160.	5884.	21355.	3784.	.57	20.	2.5
327.	327.	3.	-9816.	5884.	21355.	3784.	.57	20.	2.5
358.	358.	3.	-12715.	6986.	21355.	3784.	.57	20.	2.5
358.	358.	3.	-12715.	6986.	21355.	3784.	.57	20.	2.5
373.	373.	3.	-14121.	6986.	21355.	3784.	.57	20.	2.5

382.	382.	3.	-14438.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
390.	390.	3.	-14438.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
400.	400.	3.	-14438.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
> 400.	0.	3.	15319.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
410.	10.	3.	15319.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
417.	18.	3.	15319.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
427.	27.	3.	15041.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
441.	42.	3.	13805.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
441.	42.	3.	13805.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
474.	74.	3.	11024.	6574.	21355.	3784.	.57	20.	2.5	NO	4	5	6
506.	106.	3.	8342.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
538.	138.	3.	6263.	7187.	21355.	3784.	.57	20.	2.5	NO	4	5	6
570.	170.	3.	-880.	7187.	21355.	3784.	.57	20.	2.5	NO	5	6	
570.	170.	3.	4331.	7187.	21355.	3784.	.57	20.	2.5	NO	4	5	6
602.	203.	3.	-2702.	7187.	21355.	3784.	.57	20.	2.5	NO	5	6	
602.	203.	3.	2509.	7187.	21355.	3784.	.57	20.	2.5	NO	5	6	
635.	235.	3.	-4527.	7187.	21355.	3784.	.57	20.	2.5	NO	4	5	6
635.	235.	3.	684.	7187.	21355.	3784.	.57	20.	2.5	NO	5	6	
667.	267.	3.	-6486.	7187.	21355.	3784.	.57	20.	2.5	NO	4	5	6
699.	299.	3.	-8626.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
731.	331.	3.	-11336.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
764.	364.	3.	-14145.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
764.	364.	3.	-14145.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
778.	378.	3.	-15396.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
788.	388.	3.	-15677.	8222.	21355.	3784.	.57	20.	2.5	NO	4	5	6
795.	395.	3.	-15677.	8222.	21355.	3784.	.57	20.	2.5	NO	4	5	6
805.	405.	3.	-15677.	8222.	21355.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-5606.29!	-58.3	1102.8	***	***	*****	****	SI	
18.	18.	3.	1.	-5606.29!	-58.3	1102.8	***	***	*****	****	SI	
200.	200.	3.	4.	3722.64!	-64.4	1514.1!	13.13	5.21	.0622	13.09	.081	SI
400.	400.	3.	7.	-5549.89!	-53.6	1089.5	***	***	*****	****	SI	
> 400.	0.	3.	7.	-6487.31!	-62.7	1273.5	***	***	*****	****	SI	
602.	203.	3.	9.	4434.24!	-76.7	1803.6!	13.13	5.21	.0767	13.09	.1	SI
805.	405.	3.	11	-6902.93!	-71.8	1357.9	***	***	*****	****	SI	

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-5127.92!	-53.3	1008.7	***	***	*****	****	SI	
18.	18.	3.	1.	-5127.92!	-53.3	1008.7	***	***	*****	****	SI	
200.	200.	3.	4.	3409.87!	-59.	1386.9!	13.13	5.21	.0559	13.09	.073	SI
400.	400.	3.	7.	-5089.7!	-49.2	999.2	***	***	*****	****	SI	
> 400.	0.	3.	7.	-5918.97!	-57.2	1161.9	***	***	*****	****	SI	
602.	203.	3.	9.	4053.13!	-70.1	1648.5!	13.13	5.21	.069	13.09	.09	SI
805.	405.	3.	11	-6321.95!	-65.7	1243.6	***	***	*****	****	SI	

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-4969.15!	-51.7	977.5	***	***	*****	****	SI	
18.	18.	3.	1.	-4969.15!	-51.7	977.5	***	***	*****	****	SI	
200.	200.	3.	4.	3305.59!	-57.2	1344.5	13.13	5.21	.0537	13.09	.07	SI
400.	400.	3.	7.	-4935.65!	-47.7	968.9	***	***	*****	****	SI	
> 400.	0.	3.	7.	-5729.77!	-55.3	1124.8	***	***	*****	****	SI	
602.	203.	3.	9.	3926.09!	-68.	1596.9	13.13	5.21	.0664	13.09	.087	SI
805.	405.	3.	11	-6128.04!	-63.7	1205.4	***	***	*****	****	SI	

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	32.8	1.952	26.77	1.593	2d10 +2d16 +2d1 ...	6.03	.359	3d16
2	32.8	1.952	22.75	1.354	2d10 +2d14 +4d24	10.05	.598	3d16 +2d16
3	32.8	1.952	19.67	1.171	2d10 +4d24	13.13	.782	3d16 +2d16 +2d14
4	14.7	.875	1.57	.093	2d10	13.13	.782	3d16 +2d16 +2d14
5	28.27	1.683	15.14	.901	2d10 +3d24	13.13	.782	3d16 +2d16 +2d14
6	37.38	2.225	21.3	1.268	2d10 +2d14 +2d1 ...	16.08	.957	3d16 +3d16 +2d16
7	41.41	2.465	29.34	1.747	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
8	28.27	1.683	15.14	.901	2d10 +3d24	13.13	.782	2d14 +3d16 +2d16
9	14.7	.875	1.57	.093	2d10	13.13	.782	2d14 +3d16 +2d16
10	32.8	1.952	19.67	1.171	2d10 +4d24	13.13	.782	2d14 +3d16 +2d16
11	32.8	1.952	26.77	1.593	2d10 +2d14 +2d1 ...	6.03	.359	3d16

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr20\_p1** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAY	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680. ; Jg=80640. ; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A384	3	3	3	0	302.	268.	12.604	1.3	1.613	36.3
2	A362	3	3	3	0	438.	408.	18.229	1.3	1.447	33.206

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-32.61	0.	.001	-5538.07	-.087	.138	2.	.386	169.8
104.	104.	3.	3.	4342.28	-.074	.071	8274.9	-.161	.138	2.	.537	1.906
167.	167.	3.	3.	5129.42	-.089	.084	8274.9	-.161	.138	2.	.537	1.613
230.	230.	3.	4.	-869.73	-.014	.048	-2493.74	-.041	.138	2.	.228	2.867
261.	261.	3.	5.	2348.99	-.024	.025	12671.95	-.145	.138	2.	.513	5.395
302.	302.	3.	7.	-3935.56	-.039	.041	-13181.3	-.142	.138	2.	.506	3.349
302.	302.	3.	7.	164.92	-.001	.003	8375.58	-.078	.138	2.	.362	50.79
> 302.	0.	3.	7.	-7078.71	-.072	.074	-13181.3	-.142	.138	2.	.506	1.862
312.	10.	3.	7.	-7078.71	-.071	.072	-13545.93	-.144	.138	2.	.51	1.914
377.	74.	3.	8.	2088.46	-.02	.031	9318.56	-.092	.138	2.	.4	4.462
409.	107.	3.	9.	-885.41	-.015	.049	-2493.83	-.042	.138	2.	.235	2.817
507.	205.	3.	10	5118.78	-.092	.094	7404.65	-.144	.138	2.	.51	1.447
605.	303.	3.	11	-614.21	-.007	.009	-9009.45	-.104	.138	2.	.429	14.67
740.	438.	3.	13	-10596.6	-.145	.121	-12070.59	-.171	.138	2.	.552	1.139

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	6055.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	6055.	5884.	21355.	3784.	.57	20.	2.5
18.	18.	3.	6055.	5884.	21355.	3784.	.57	20.	2.5
27.	27.	3.	5738.	6103.	21355.	3784.	.57	20.	2.5
42.	42.	3.	5267.	6103.	21355.	3784.	.57	20.	2.5
42.	42.	3.	5267.	6103.	21355.	3784.	.57	20.	2.5
73.	73.	3.	4237.	7355.	21355.	3784.	.57	20.	2.5
104.	104.	3.	3208.	7856.	21355.	3784.	.57	20.	2.5
136.	136.	3.	2443.	7856.	21355.	3784.	.57	20.	2.5
167.	167.	3.	-2847.	7856.	21355.	3784.	.57	20.	2.5
198.	198.	3.	-4570.	7856.	21355.	3784.	.57	20.	2.5
230.	230.	3.	-6588.	5884.	21355.	3784.	.57	20.	2.5
261.	261.	3.	-8605.	5884.	21355.	3784.	.57	20.	2.5
261.	261.	3.	-8605.	5884.	21355.	3784.	.57	20.	2.5
275.	275.	3.	-9527.	6023.	21355.	3784.	.57	20.	2.5
285.	285.	3.	-10149.	6023.	21355.	3784.	.57	20.	2.5
293.	293.	3.	-10149.	6023.	21355.	3784.	.57	20.	2.5
302.	302.	3.	-10149.	6023.	21355.	3784.	.57	20.	2.5
> 302.	0.	3.	12130.	7951.	21355.	3784.	.57	20.	2.5
312.	10.	3.	12130.	7951.	21355.	3784.	.57	20.	2.5
320.	18.	3.	12130.	7951.	21355.	3784.	.57	20.	2.5
330.	27.	3.	11507.	7951.	21355.	3784.	.57	20.	2.5
344.	42.	3.	10585.	7689.	21355.	3784.	.57	20.	2.5
344.	42.	3.	10585.	7689.	21355.	3784.	.57	20.	2.5
377.	74.	3.	8481.	6023.	21355.	3784.	.57	20.	2.5
409.	107.	3.	6377.	5884.	21355.	3784.	.57	20.	2.5
442.	140.	3.	4568.	7536.	21355.	3784.	.57	20.	2.5
475.	172.	3.	-77.	7536.	21355.	3784.	.57	20.	2.5
475.	172.	3.	2888.	7536.	21355.	3784.	.57	20.	2.5
507.	205.	3.	-1443.	7536.	21355.	3784.	.57	20.	2.5
507.	205.	3.	1522.	7536.	21355.	3784.	.57	20.	2.5
540.	238.	3.	-2822.	7536.	21355.	3784.	.57	20.	2.5
540.	238.	3.	156.	7536.	21355.	3784.	.57	20.	2.5
573.	270.	3.	-4211.	7536.	21355.	3784.	.57	20.	2.5
605.	303.	3.	-6245.	5884.	21355.	3784.	.57	20.	2.5
638.	336.	3.	-8349.	5884.	21355.	3784.	.57	20.	2.5
671.	368.	3.	-10453.	5884.	21355.	3784.	.57	20.	2.5
704.	401.	3.	-12556.	8859.	21355.	3784.	.57	20.	2.5

704.	401.	3.	-12556.	8859.	21355.	3784.	.57	20.	2.5	NO	4	5	6
718.	415.	3.	-13478.	7908.	21355.	3784.	.57	20.	2.5	NO	4	5	6
728.	425.	3.	-14101.	7664.	21355.	3784.	.57	20.	2.5	NO	4	5	6
730.	428.	3.	-14101.	7664.	21355.	3784.	.57	20.	2.5	NO	4	5	6
740.	438.	3.	-14101.	7664.	21355.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	49.46	-8.	31.8	8.04	5.96	.001	23.24	.002	SI
73.	73.	3.	2.	2175.4	-37.1	819.6	14.07	5.1	.0284	12.68	.036	SI
167.	167.	3.	3.	3823.73	-61.	1208.8	17.15	4.91	.05	11.1	.055	SI
302.	302.	3.	7.	-1757.01	-19.2	362.3	26.83	4.83	.0109	8.01	.009	SI
> 302.	0.	3.	7.	-4708.02	-51.4	970.9	26.83	4.83	.041	8.01	.033	SI
507.	205.	3.	10	3766.87	-62.4	1339.3	15.14	5.05	.0552	11.95	.066	SI
740.	438.	3.	13	-7664.41	-96.9	1697.7	24.6	4.7	.077	8.58	.066	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	46.23	-8.	29.7	8.04	5.96	.0009	23.24	.002	SI
73.	73.	3.	2.	2044.92	-34.9	770.5	14.07	5.1	.026	12.68	.033	SI
167.	167.	3.	3.	3571.99	-56.9	1129.2	17.15	4.91	.046	11.1	.051	SI
302.	302.	3.	7.	-1684.43	-18.4	347.4	26.83	4.83	.0104	8.01	.008	SI
> 302.	0.	3.	7.	-4300.47	-46.9	886.9	26.83	4.83	.0368	8.01	.029	SI
507.	205.	3.	10	3432.43	-56.8	1220.4	15.14	5.05	.0493	11.95	.059	SI
740.	438.	3.	13	-6985.34	-88.3	1547.3	24.6	4.7	.0695	8.58	.06	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	42.64	-7.	27.4	8.04	5.96	.0008	23.24	.002	SI
73.	73.	3.	2.	2003.59	-34.2	754.9	14.07	5.1	.0252	12.68	.032	SI
167.	167.	3.	3.	3494.69	-55.7	1104.8	17.15	4.91	.0448	11.1	.05	SI
302.	302.	3.	7.	-1643.34	-17.9	338.9	26.83	4.83	.0102	8.01	.008	SI
> 302.	0.	3.	7.	-4155.6	-45.3	857.	26.83	4.83	.0353	8.01	.028	SI
507.	205.	3.	10	3321.74	-55.	1181.	15.14	5.05	.0473	11.95	.057	SI
718.	415.	3.	13	-5936.88	-75.	1315.1	24.6	4.7	.0579	8.58	.05	NO 21
728.	425.	3.	13	-6767.86	-85.5	1499.2	24.6	4.7	.0671	8.58	.058	NO 21
730.	428.	3.	13	-6767.86	-85.5	1499.2	24.6	4.7	.0671	8.58	.058	NO 21
740.	438.	3.	13	-6767.86	-85.5	1499.2	24.6	4.7	.0671	8.58	.058	NO 21

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.72	1.115	10.68	.636	2d10 +2d14 +3d16	8.04	.479	4d16
2	18.72	1.115	4.65	.277	2d10 +2d14	14.07	.838	4d16 +3d16
3	18.72	1.115	1.57	.093	2d10	17.15	1.021	2d14 +4d16 +3d16
4	21.8	1.298	4.65	.277	2d10 +2d14	17.15	1.021	2d14 +4d16 +3d16
5	38.89	2.315	13.7	.815	2d10 +2d14 +2d24	25.2	1.5	2d14 +4d16 +4d1 ...
6	42.91	2.554	20.8	1.238	2d10 +2d14 +2d1 ...	22.12	1.316	4d16 +4d16 +3d16
7	42.91	2.554	26.83	1.597	2d10 +2d14 +2d1 ...	16.08	.957	4d16 +4d16
8	42.91	2.554	22.81	1.358	2d10 +2d14 +2d1 ...	20.11	1.197	4d16 +4d16 +2d16
9	19.79	1.178	4.65	.277	2d10 +2d14	15.14	.901	2d14 +4d16 +2d16
10	16.71	.995	1.57	.093	2d10	15.14	.901	2d14 +4d16 +2d16
11	32.64	1.943	17.5	1.042	2d10 +3d26	15.14	.901	2d14 +4d16 +2d16
12	32.64	1.943	20.58	1.225	2d10 +2d14 +3d26	12.06	.718	4d16 +2d16
13	32.64	1.943	24.6	1.464	2d10 +2d14 +2d1 ...	8.04	.479	4d16

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
21) Combinazione quasi permanente: superata la tensione massima nel CLS (74.1) [NTC18 4.1.2.2.5].

Nome travata : **Tr21\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =370. ; fck=307.1; fctk= 20.6; fctm= 29.4; Ec= 330194. ;  
gc =1.5 ; fcd=174. ; fbd= 30.9; fctd= 13.7; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)=184.3; ScIs(quasi permanente)=138.2; fbd(esercizio)= 30.9  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	SLU	Sest
------	-------------	-----	------



1. | SLU SENZA SISMA 1 | 1. |  
 2. | SLU SENZA SISMA 2 | 1. |  
 5. | SLU con SISMAX | 4. |  
 6. | SLU con SISMAX | 4. |

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.   Rara 1		1.	15.   Frequente 1		1.	17.   Quasi Perm		1.
14.   Rara 2		1.	16.   Frequente 2		1.			

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 35X24; A=840.; Jg=40320.; E=330194.3  
 6) Rettangolare: 70X24; A=1680.; Jg=80640.; E=330194.3

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A382	3	3	3	0	248.	218.	10.334	1.3	2.582	66.126
2	A368	6	6	6	0	315.	280.	13.125	1.5	5.	229.046
3	A369	6	6	6	0	300.	265.	12.5	1.3	1.506	59.796

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE		
> 0.	0.	3.	1.	-2561.9	-.046	.076	-4644.23	-.088	.138	2.	.389	1.813	SI	
0.	0.	3.	1.	582.55	-.011	.033	2471.92	-.049	.138	2.	.263	4.243	SI	
65.	65.	3.	2.	1478.52	-.026	.049	4179.19	-.079	.138	2.	.362	2.827	SI	
93.	93.	3.	3.	-381.99	-.012	.061	-863.29	-.028	.138	2.	.169	2.26	SI	
93.	93.	3.	3.	1593.32	-.033	.053	4114.73	-.091	.138	2.	.397	2.582	SI	
221.	221.	3.	4.	9.24	0.	0.	3674.99	-.068	.138	2.	.328	397.6	SI	
248.	248.	3.	4.	-923.28	-.016	.033	-3846.92	-.071	.138	2.	.338	4.167	SI	
> 248.	0.	6.	5.	-1449.21	-.018	.051	-3934.46	-.051	.138	2.	.268	2.715	SI	
323.	75.	6.	6.	-740.98	-.019	.114	-895.7	-.023	.138	2.	.145	1.209	NO	9
356.	108.	6.	6.	-348.15	-.009	.054	-884.78	-.023	.138	2.	.14	2.541	NO	9
356.	108.	6.	6.	43.45	-.001	.002	2571.99	-.043	.138	2.	.237	59.19	SI	
389.	141.	6.	6.	-135.26	-.003	.021	-884.78	-.023	.138	2.	.14	6.541	NO	9
422.	174.	6.	6.	-198.51	-.005	.031	-884.78	-.023	.138	2.	.14	4.457	NO	9
455.	207.	6.	6.	-408.12	-.01	.064	-884.78	-.023	.138	2.	.14	2.168	NO	9
488.	240.	6.	6.	-695.8	-.018	.108	-892.7	-.023	.138	2.	.144	1.283	NO	9
488.	240.	6.	6.	476.23	-.008	.027	2463.34	-.042	.138	2.	.234	5.173	SI	
522.	274.	6.	7.	462.04	-.007	.025	2575.89	-.041	.138	2.	.227	5.575	SI	
563.	315.	6.	7.	-1253.33	-.017	.051	-3393.83	-.048	.138	2.	.258	2.708	SI	
> 563.	315.	6.	7.	352.74	-.005	.019	2571.21	-.039	.138	2.	.222	7.289	SI	
563.	0.	6.	7.	-1067.37	-.015	.043	-3393.83	-.048	.138	2.	.258	3.18	SI	
563.	0.	6.	7.	325.21	-.005	.017	2571.21	-.039	.138	2.	.222	7.906	SI	
605.	42.	6.	7.	221.93	-.003	.012	2583.26	-.041	.138	2.	.229	11.64	SI	
636.	72.	6.	8.	-210.47	-.005	.032	-904.61	-.024	.138	2.	.146	4.298	NO	9
667.	104.	6.	8.	-388.24	-.01	.061	-884.78	-.023	.138	2.	.14	2.279	NO	9
698.	134.	6.	8.	-741.83	-.019	.116	-884.78	-.023	.138	2.	.14	1.193	NO	9
760.	196.	6.	9.	2264.16	-.034	.122	2570.64	-.039	.138	2.	.218	1.135	SI	
791.	228.	6.	10	2570.4	-.028	.063	5637.98	-.064	.138	2.	.315	2.193	SI	
853.	290.	6.	11	2982.51	-.034	.092	4492.07	-.052	.138	2.	.275	1.506	SI	
863.	300.	6.	11	-3146.34	-.035	.082	-5292.69	-.06	.138	2.	.302	1.682	SI	
863.	300.	6.	11	2982.51	-.034	.092	4492.07	-.052	.138	2.	.275	1.506	SI	

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	3.	4047.	4721.	20320.	3784.	.57	20.	2.5	NO	4	5	6
10.	10.	3.	4047.	4721.	20320.	3784.	.57	20.	2.5	NO	4	5	6
12.	12.	3.	4047.	4721.	20320.	3784.	.57	20.	2.5	NO	4	5	6
22.	22.	3.	3938.	4721.	20320.	3784.	.57	20.	2.5	NO	4	5	6
36.	36.	3.	3456.	4721.	20320.	3784.	.57	20.	2.5	NO	5	6	
36.	36.	3.	3456.	4721.	20320.	3784.	.57	20.	2.5	NO	5	6	
65.	65.	3.	2737.	4019.	20320.	3784.	.57	20.	2.5	NO	5	6	
93.	93.	3.	2133.	4019.	20320.	3784.	.57	20.	2.5	NO	5	6	
122.	122.	3.	-1881.	5672.	20320.	3784.	.57	20.	2.5	NO	5	6	
122.	122.	3.	10.	5672.	20320.	3784.	.57	20.	2.5	NO	5	6	
150.	150.	3.	-2026.	5672.	20320.	3784.	.57	20.	2.5	NO	5	6	
178.	178.	3.	-2170.	4019.	20320.	3784.	.57	20.	2.5	NO	5	6	
207.	207.	3.	-2315.	4721.	20320.	3784.	.57	20.	2.5	NO	5	6	
207.	207.	3.	-2315.	4721.	20320.	3784.	.57	20.	2.5	NO	5	6	
221.	221.	3.	-2388.	4721.	20320.	3784.	.57	20.	2.5	NO	5	6	
231.	231.	3.	-2404.	5504.	20320.	3784.	.57	20.	2.5	NO	5	6	
238.	238.	3.	-2404.	5504.	20320.	3784.	.57	20.	2.5	NO	5	6	
248.	248.	3.	-2404.	5504.	20320.	3784.	.57	20.	2.5	NO	5	6	
> 248.	0.	6.	1614.	8737.	40640.	3784.	.57	20.	2.5	NO	5	6	
258.	10.	6.	1614.	8737.	40640.	3784.	.57	20.	2.5	NO	5	6	
266.	18.	6.	1614.	8737.	40640.	3784.	.57	20.	2.5	NO	5	6	
275.	27.	6.	1591.	8737.	40640.	3784.	.57	20.	2.5	NO	5	6	
290.	42.	6.	1488.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
290.	42.	6.	1488.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
323.	75.	6.	1249.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
356.	108.	6.	1011.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
389.	141.	6.	-220.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
389.	141.	6.	772.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
422.	174.	6.	-459.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
422.	174.	6.	533.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
455.	207.	6.	-698.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
455.	207.	6.	295.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
488.	240.	6.	-936.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
488.	240.	6.	56.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
522.	274.	6.	-1175.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
522.	274.	6.	-1175.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	
536.	288.	6.	-1278.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6	

546.	298.	6.	-1301.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
553.	305.	6.	-1301.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
563.	315.	6.	-1301.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
> 563.	0.	6.	-333.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
563.	0.	6.	2400.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
573.	10.	6.	-333.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
573.	10.	6.	2400.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
581.	18.	6.	-333.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
581.	18.	6.	2400.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
590.	27.	6.	-403.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
590.	27.	6.	2376.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	-506.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	2273.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	-506.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	2273.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
636.	72.	6.	-729.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
636.	72.	6.	2050.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
667.	104.	6.	-953.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
667.	104.	6.	1827.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
698.	134.	6.	-1176.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
698.	134.	6.	1604.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
729.	166.	6.	-1399.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
729.	166.	6.	1381.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
760.	196.	6.	-1622.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
760.	196.	6.	1157.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
791.	228.	6.	-1845.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
791.	228.	6.	934.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	-2069.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	711.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	-2069.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	711.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
836.	273.	6.	-2172.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
836.	273.	6.	608.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
846.	282.	6.	-2195.	9143.	40640.	3784.	.57	20.	2.5	NO	5	6
846.	282.	6.	538.	9143.	40640.	3784.	.57	20.	2.5	NO	5	6
853.	290.	6.	-2195.	9143.	40640.	3784.	.57	20.	2.5	NO	5	6
853.	290.	6.	482.	9143.	40640.	3784.	.57	20.	2.5	NO	5	6
863.	300.	6.	-2195.	9143.	40640.	3784.	.57	20.	2.5	NO	5	6
863.	300.	6.	412.	9143.	40640.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1014.41	-27.4	604.	8.98	5.1	.0181	10.17	.018	SI
22.	22.	3.	1.	-719.74	-19.4	428.5	8.98	5.1	.0129	10.17	.013	SI
36.	36.	3.	1.	-319.83	-8.6	190.4	8.98	5.1	.0057	10.17	.006	SI
65.	65.	3.	2.	314.33	-8.5	208.2	8.01	5.28	.0062	11.25	.007	SI
122.	122.	3.	3.	832.21	-26.2	559.	8.01	5.04	.0168	11.02	.018	SI
248.	248.	3.	4.	-512.46	-13.6	369.1	7.32	5.45	.0111	11.26	.012	SI
> 248.	0.	6.	5.	-913.1	-17.2	644.6	7.32	5.95	.0193	16.94	.033	SI
323.	75.	6.	6.	-351.35	-13.6	1093.2	1.57	6.25	.0328	26.79	.088	SI
422.	174.	6.	6.	57.75	-1.4	62.4	4.71	6.16	.0019	24.03	.005	SI
563.	315.	6.	7.	-448.88	-9.4	367.5	6.28	6.02	.011	18.2	.02	SI
> 563.	0.	6.	7.	-408.17	-8.5	334.2	6.28	6.02	.01	18.2	.018	SI
698.	134.	6.	8.	358.33	-8.9	387.5	4.71	6.16	.0116	24.03	.028	SI
729.	166.	6.	9.	396.16	-8.8	428.3	4.71	6.25	.0128	24.64	.032	SI
863.	300.	6.	11	-127.5	-2.1	66.8	9.96	5.7	.002	14.59	.003	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-974.74!	-26.3!	580.4!	8.98	5.1	.0174	10.17	.018	SI
22.	22.	3.	1.	-695.12!	-18.8	413.9	8.98	5.1	.0124	10.17	.013	SI
36.	36.	3.	1.	-314.27!	-8.5	187.1	8.98	5.1	.0056	10.17	.006	SI
65.	65.	3.	2.	296.09	-8.	196.1	8.01	5.28	.0059	11.25	.007	SI
122.	122.	3.	3.	820.51!	-25.8	551.1	8.01	5.04	.0165	11.02	.018	SI
248.	248.	3.	4.	-505.54!	-13.4	364.1	7.32	5.45	.0109	11.26	.012	SI
> 248.	0.	6.	5.	-883.48!	-16.7!	623.7	7.32	5.95	.0187	16.94	.032	SI
323.	75.	6.	6.	-326.	-12.7!	1014.4!	1.57	6.25	.0304	26.79	.082!	SI
422.	174.	6.	6.	65.31!	-1.6	70.6	4.71	6.16	.0021	24.03	.005	SI
563.	315.	6.	7.	-440.23!	-9.2	360.5	6.28	6.02	.0108	18.2	.02	SI
> 563.	0.	6.	7.	-403.2!	-8.4	330.1	6.28	6.02	.0099	18.2	.018	SI
698.	134.	6.	8.	346.75!	-8.6!	375.	4.71	6.16	.0112	24.03	.027	SI
729.	166.	6.	9.	380.2!	-8.4	411.1!	4.71	6.25	.0123	24.64	.03	SI
863.	300.	6.	11	-131.84!	-2.2	69.1	9.96	5.7	.0021	14.59	.003	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-958.94!	-25.9!	570.9!	8.98	5.1	.0171	10.17	.017	SI
22.	22.	3.	1.	-684.52	-18.5	407.6	8.98	5.1	.0122	10.17	.012	SI
36.	36.	3.	1.	-310.3	-8.4	184.8	8.98	5.1	.0055	10.17	.006	SI
65.	65.	3.	2.	291.56	-7.9	193.1	8.01	5.28	.0058	11.25	.007	SI
122.	122.	3.	3.	817.7	-25.7	549.2	8.01	5.04	.0165	11.02	.018	SI
248.	248.	3.	4.	-504.	-13.3	363.	7.32	5.45	.0109	11.26	.012	SI
> 248.	0.	6.	5.	-875.2 !	-16.5	617.8	7.32	5.95	.0185	16.94	.031	SI
323.	75.	6.	6.	-318.72	-12.4	991.7	1.57	6.25	.0298	26.79	.08	SI
422.	174.	6.	6.	65.82!	-1.6	71.2	4.71	6.16	.0021	24.03	.005	SI
563.	315.	6.	7.	-436.84	-9.1	357.7	6.28	6.02	.0107	18.2	.02	SI
> 563.	0.	6.	7.	-401.04!	-8.4	328.4	6.28	6.02	.0099	18.2	.018	SI
698.	134.	6.	8.	342.42	-8.5	370.3	4.71	6.16	.0111	24.03	.027	SI
729.	166.	6.	9.	374.15!	-8.3	404.5	4.71	6.25	.0121	24.64	.03	SI
863.	300.	6.	11	-129.79	-2.1	68.	9.96	5.7	.002	14.59	.003	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	13.6	1.619	8.98	1.07	2d10 +3d12 +2d16	4.62	.55	3d14
2	13.6	1.619	5.59	.666	2d10 +2d16	8.01	.954	3d12 +3d14
3	9.58	1.141	1.57	.187	2d10	8.01	.954	3d12 +3d14
4	14.29	1.702	7.32	.871	2d10 +3d12 +1d1 ...	6.97	.83	3d14 +3d10
5	14.29	.851	7.32	.436	2d10 +3d12 +1d1 ...	6.97	.415	3d14 +3d10
6	6.28	.374	1.57	.093	2d10	4.71	.28	1d10 +3d10 +2d10
7	11.	.654	6.28	.374	2d10 +1d10 +2d1 ...	4.71	.28	3d10 +3d10
8	6.28	.374	1.57	.093	2d10	4.71	.28	2d10 +1d10 +3d10
9	12.32	.733	7.6	.453	2d10 +3d16	4.71	.28	2d10 +1d10 +3d10
10	18.35	1.092	7.6	.453	2d10 +3d16	10.74	.64	2d10 +1d10 +3d1 ...
11	18.35	1.092	9.96	.593	2d10 +2d10 +1d1 ...	8.39	.499	3d10 +3d16

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * t * d$  oppure  $Af < 0.0013 * b * t * d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr23\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd( $k * f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 90x24; A=2160.; Jg=103680.; E=287713.1  
5) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A375	3	3	3	0	235.	200.	9.792	1.3	1.407	37.717
2	A374	5	5	5	0	480.	445.	20.	1.3	5.	113.649

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1563.18	-.025	.052	-4127.95	-.071	.138	2.	.338	2.641	SI
0.	0.	3.	1.	1311.98	-.027	.098	1846.17	-.038	.138	2.	.214	1.407	SI
72.	72.	3.	2.	833.58	-.014	.038	3026.06	-.054	.138	2.	.28	3.63	SI
133.	133.	3.	2.	175.73	-.003	.008	3026.06	-.054	.138	2.	.28	17.22	SI
235.	235.	3.	3.	-1397.07	-.015	.023	-8199.85	-.094	.138	2.	.406	5.869	SI
> 235.	0.	5.	4.	-1350.54	-.016	.023	-8150.43	-.106	.138	2.	.435	6.035	SI
310.	75.	5.	5.	157.64	-.002	.003	6273.19	-.085	.138	2.	.382	39.79	SI
376.	141.	5.	7.	-43.53	-.001	.007	-860.33	-.025	.138	2.	.152	19.76	NO
376.	141.	5.	7.	461.19	-.007	.008	7815.66	-.152	.138	2.	.523	16.95	SI
541.	306.	5.	7.	900.47	-.014	.015	7815.66	-.152	.138	2.	.523	8.68	SI
574.	339.	5.	7.	-39.17	-.001	.006	-860.33	-.025	.138	2.	.152	21.97	NO
607.	372.	5.	7.	-255.7	-.007	.041	-860.33	-.025	.138	2.	.152	3.365	NO
715.	480.	5.	9.	-1068.97	-.016	.029	-5009.64	-.081	.138	2.	.368	4.686	SI
715.	480.	5.	9.	488.62	-.008	.016	4234.88	-.068	.138	2.	.33	8.667	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	-677.	7565.	27457.	3784.	.57	20.	2.5	NO	5 6
0.	0.	3.	1175.	7565.	27457.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	-677.	7565.	27457.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	1122.	7565.	27457.	3784.	.57	20.	2.5	NO	5 6

18.	18.	3.	-677.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	1080.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	-730.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	1028.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-807.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	950.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-807.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	950.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
72.	72.	3.	-971.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
72.	72.	3.	786.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
102.	102.	3.	-1136.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
102.	102.	3.	622.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
133.	133.	3.	-1300.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
133.	133.	3.	458.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
163.	163.	3.	-1464.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
163.	163.	3.	294.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	-1628.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	129.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	-1628.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	129.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
208.	208.	3.	-1706.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
208.	208.	3.	52.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
217.	217.	3.	-1758.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
225.	225.	3.	-1758.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
235.	235.	3.	-1758.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
> 235.	0.	5.	1387.	7659.	21355.	3784.	.57	20.	2.5	NO	5	6
245.	10.	5.	1387.	7659.	21355.	3784.	.57	20.	2.5	NO	5	6
252.	18.	5.	1387.	7659.	21355.	3784.	.57	20.	2.5	NO	5	6
262.	27.	5.	1334.	7659.	21355.	3784.	.57	20.	2.5	NO	5	6
276.	42.	5.	1256.	7659.	21355.	3784.	.57	20.	2.5	NO	5	6
276.	42.	5.	1256.	7659.	21355.	3784.	.57	20.	2.5	NO	5	6
310.	75.	5.	1091.	6055.	21355.	3784.	.57	20.	2.5	NO	5	6
343.	108.	5.	946.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
376.	141.	5.	805.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
409.	174.	5.	666.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
442.	207.	5.	-11.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
442.	207.	5.	527.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
475.	240.	5.	-150.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
475.	240.	5.	388.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
508.	273.	5.	-289.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
508.	273.	5.	249.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
541.	306.	5.	-428.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
541.	306.	5.	110.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
574.	339.	5.	-567.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
607.	372.	5.	-706.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
640.	405.	5.	-845.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
673.	438.	5.	-984.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
673.	438.	5.	-984.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
688.	453.	5.	-1045.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
697.	462.	5.	-1086.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
705.	470.	5.	-1086.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
715.	480.	5.	-1086.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc <sub>ls</sub>	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-150.44	-2.6	98.5	7.85	5.98	.003	23.33	.007	SI
102.	102.	3.	2.	210.51	-4.	189.2	5.65	6.25	.0057	24.53	.014	SI
163.	163.	3.	2.	-432.05	-8.1	392.6	5.59	6.25	.0118	24.57	.029	SI
235.	235.	3.	3.	-909.51	-10.8	301.2	15.9	5.5	.009	13.43	.012	SI
> 235.	0.	5.	4.	-909.3	-12.2	303.4	15.9	5.3	.0091	11.52	.01	SI
475.	240.	5.	7.	690.16	-11.2	231.8	16.08	4.99	.007	11.68	.008	SI
715.	480.	5.	9.	-605.07	-10.2	328.3	9.61	5.73	.0098	22.33	.022	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc <sub>ls</sub>	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-142.24	-2.4	93.2	7.85	5.98	.0028	23.33	.007	SI
102.	102.	3.	2.	207.18	-3.9	186.2	5.65	6.25	.0056	24.53	.014	SI
163.	163.	3.	2.	-421.48	-7.9	383.	5.59	6.25	.0115	24.57	.028	SI
235.	235.	3.	3.	-897.95	-10.6	297.3	15.9	5.5	.0089	13.43	.012	SI
> 235.	0.	5.	4.	-901.86	-12.1	300.9	15.9	5.3	.009	11.52	.01	SI
475.	240.	5.	7.	694.22	-11.3	233.2	16.08	4.99	.007	11.68	.008	SI
715.	480.	5.	9.	-605.07	-10.2	328.3	9.61	5.73	.0098	22.33	.022	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc <sub>ls</sub>	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-142.08	-2.4	93.1	7.85	5.98	.0028	23.33	.007	SI
102.	102.	3.	2.	210.11	-3.9	188.9	5.65	6.25	.0057	24.53	.014	SI
163.	163.	3.	2.	-417.48	-7.9	379.3	5.59	6.25	.0114	24.57	.028	SI
235.	235.	3.	3.	-892.2	-10.6	295.4	15.9	5.5	.0089	13.43	.012	SI
> 235.	0.	5.	4.	-898.02	-12.1	299.6	15.9	5.3	.009	11.52	.01	SI
475.	240.	5.	7.	693.2	-11.3	232.8	16.08	4.99	.007	11.68	.008	SI
715.	480.	5.	9.	-605.06	-10.2	328.3	9.61	5.73	.0098	22.33	.022	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/Ac<sub>ls</sub> - Ac<sub>ls</sub>=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	11.25	.521	7.85	.364	2d10 +2d12 +2d16	3.39	.157	3d12
2	11.25	.521	5.59	.259	2d10 +2d16	5.65	.262	3d12 +2d12
3	27.33	1.265	15.9	.736	2d10 +2d16 +2d1	11.44	.529	3d12 +4d16
4	27.33	1.267	15.9	.946	2d10 +2d16 +2d1	11.44	.681	3d12 +4d16
5	23.94	1.425	11.88	.707	2d10 +2d16 +2d1	12.06	.718	4d16 +2d16
6	19.92	1.186	3.83	.228	2d10 +2d12	16.08	.957	2d16 +4d16 +2d16
7	17.66	1.051	1.57	.093	2d10	16.08	.957	2d16 +4d16 +2d16

8	17.66	1.051	5.59	.333	2d10	+2d16	12.06	.718	4d16	+2d16	
9	17.66	1.051	9.61	.572	2d10	+2d16	8.04	.479	4d16		

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * d$  oppure  $Af < 0.0013 * b * d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr22\_p1** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=200000. ;  
 gs =1.38; fyd=2766.3; ftd( $k * f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A376		3	3	0	417.	342.	17.396	1.	1.046	18.228

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-3776.64	-.069	.112	-4656.78	-.087	.138	2.	.386	1.233	SI
0.	0.	3.	1.	3105.81	-.058	.126	3419.34	-.064	.138	2.	.316	1.101	SI
107.	107.	3.	3.	-1912.37	-.036	.089	-2971.2	-.057	.138	2.	.29	1.554	SI
107.	107.	3.	3.	1948.33	-.035	.053	5070.9	-.096	.138	2.	.41	12.603	SI
205.	205.	3.	3.	-4.55	0.	0.	-2971.2	-.057	.138	2.	.29	652.4	SI
408.	408.	3.	1.	3267.77	-.061	.132	3419.34	-.064	.138	2.	.316	1.046	SI
417.	417.	3.	1.	-2851.37	-.052	.084	-4656.78	-.087	.138	2.	.386	1.633	SI
417.	417.	3.	1.	3267.77	-.061	.132	3419.34	-.064	.138	2.	.316	1.046	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	1.	-1068.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
0.	0.	3.	1.	2478.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	1.	-1068.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	1.	2478.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
18.	18.	3.	1.	-1068.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
18.	18.	3.	1.	2478.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
27.	27.	3.	1.	-1103.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
27.	27.	3.	1.	2443.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1.	-1155.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1.	2392.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1.	-1155.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1.	2392.	5122.	18305.	3784.	.57	20.	2.5	NO	5 6
74.	74.	3.	1.	-1273.	5188.	18305.	3784.	.57	20.	2.5	NO	5 6
74.	74.	3.	1.	2274.	5188.	18305.	3784.	.57	20.	2.5	NO	5 6
107.	107.	3.	1.	-1390.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
107.	107.	3.	1.	2156.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
140.	140.	3.	1.	-1508.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
140.	140.	3.	1.	2038.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
172.	172.	3.	1.	-1626.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
172.	172.	3.	1.	1921.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
205.	205.	3.	1.	-1744.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
205.	205.	3.	1.	1803.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
238.	238.	3.	1.	-1862.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
238.	238.	3.	1.	1685.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6

271.	271.	3.	-1979.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
271.	271.	3.	1567.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
303.	303.	3.	-2097.	5188.	18305.	3784.	.57	20.	2.5	NO	5	6
303.	303.	3.	1449.	5188.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	-2215.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	1332.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	-2215.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	1332.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
350.	350.	3.	-2267.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
350.	350.	3.	1280.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
360.	360.	3.	-2301.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
360.	360.	3.	1245.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
384.	384.	3.	-2301.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
384.	384.	3.	1159.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
408.	408.	3.	-2301.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
408.	408.	3.	1073.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
417.	417.	3.	-2301.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
417.	417.	3.	1038.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-428.99!	-8.2!	250.	8.98	5.63	.0075	14.08	.011	SI
18.	18.	3.	1.	-428.99	-8.2	250.	8.98	5.63	.0075	14.08	.011	SI
42.	42.	3.	1.	-267.47	-5.7	185.	6.72	5.74	.0056	22.4	.012	SI
74.	74.	3.	2.	-88.66	-1.9	78.2	5.59	6.06	.0023	23.62	.006	SI
205.	205.	3.	3.	265.87!	-5.1	141.8	9.86	5.5	.0043	13.27	.006	SI
417.	417.	3.	1.	-127.53	-2.5	74.3	8.98	5.63	.0022	14.08	.003	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-431.46!	-8.3!	251.4!	8.98	5.63	.0075	14.08	.011	SI
18.	18.	3.	1.	-431.46	-8.3	251.4	8.98	5.63	.0075	14.08	.011	SI
42.	42.	3.	1.	-269.69	-5.7	186.5	6.72	5.74	.0056	22.4	.013	SI
74.	74.	3.	2.	-90.53	-2.	79.9	5.59	6.06	.0024	23.62	.006	SI
205.	205.	3.	3.	265.3!	-5.	141.5	9.86	5.5	.0042	13.27	.006	SI
417.	417.	3.	1.	-123.64	-2.4	72.	8.98	5.63	.0022	14.08	.003	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-431.61!	-8.3!	251.5!	8.98	5.63	.0075	14.08	.011	SI
18.	18.	3.	1.	-431.61	-8.3	251.5	8.98	5.63	.0075	14.08	.011	SI
42.	42.	3.	1.	-269.84	-5.7	186.6	6.72	5.74	.0056	22.4	.013	SI
74.	74.	3.	2.	-90.67	-2.	80.	5.59	6.06	.0024	23.62	.006	SI
205.	205.	3.	3.	265.17!	-5.	141.5	9.86	5.5	.0042	13.27	.006	SI
417.	417.	3.	1.	-122.3	-2.4	71.3	8.98	5.63	.0021	14.08	.003	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.46	1.073	8.98	.624	2d16 +1d12 +2d1 ...	6.47	.449	2d14 +1d12 +2d12
2	15.46	1.073	6.72	.467	2d16 +1d12 +2d10	8.73	.607	2d14 +2d12 +1d1 ...
3	15.46	1.073	5.59	.388	2d16 +2d10	9.86	.685	1d12 +2d14 +2d1 ...
4	13.19	.916	5.59	.388	2d16 +2d10	7.6	.528	1d12 +2d14 +2d1 ...

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr6\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A60	3	3	3	0	493.	453.	20.558	1.3	2.663	67.286
2	A5	3	3	3	0	323.	280.	13.44	1.3	1.612	39.974

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-269.03	-.005	.011	-3266.44	-.066	.138	2.	.324	12.14	SI
75.	75.	3.	1.	-2093.37	-.042	.089	-3246.72	-.066	.138	2.	.324	1.551	SI
143.	143.	3.	3.	-299.23	-.009	.048	-863.78	-.027	.138	2.	.163	2.887	NO
143.	143.	3.	3.	975.43	-.018	.028	4711.38	-.098	.138	2.	.414	4.83	SI
278.	278.	3.	3.	1769.04	-.034	.051	4711.38	-.098	.138	2.	.414	2.663	SI
379.	379.	3.	3.	-205.01	-.006	.033	-863.78	-.027	.138	2.	.163	4.213	NO
379.	379.	3.	3.	1448.53	-.028	.042	4711.38	-.098	.138	2.	.414	3.253	SI
493.	493.	3.	5.	-1210.55	-.019	.034	-4825.56	-.081	.138	2.	.37	3.986	SI
493.	493.	3.	5.	303.06	-.005	.011	3689.99	-.063	.138	2.	.312	12.18	SI
> 493.	0.	3.	5.	-4561.54	-.076	.131	-4825.56	-.081	.138	2.	.37	1.058	SI
639.	146.	3.	7.	3162.25	-.061	.085	5095.96	-.104	.138	2.	.429	1.612	SI
706.	212.	3.	7.	-20.68	-.001	.003	-863.27	-.027	.138	2.	.162	41.74	NO
739.	245.	3.	8.	1582.94	-.024	.042	5208.08	-.084	.138	2.	.379	3.29	SI
772.	279.	3.	9.	-4009.99	-.064	.1	-5521.8	-.091	.138	2.	.396	1.377	SI
816.	323.	3.	9.	-5290.96	-.087	.134	-5468.79	-.09	.138	2.	.395	1.034	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	3.	-2780.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
10.	10.	3.	-2780.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
18.	18.	3.	-2780.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
27.	27.	3.	-2780.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
42.	42.	3.	-2780.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
42.	42.	3.	-2780.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
75.	75.	3.	-2780.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
109.	109.	3.	2431.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
143.	143.	3.	1851.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
177.	177.	3.	1304.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6	
210.	210.	3.	806.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6	
244.	244.	3.	368.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6	
278.	278.	3.	-172.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6	
278.	278.	3.	33.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6	
312.	312.	3.	-514.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6	
346.	346.	3.	-860.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6	
379.	379.	3.	-1184.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
413.	413.	3.	-1468.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
447.	447.	3.	-1727.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
447.	447.	3.	-1727.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
461.	461.	3.	-1817.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
471.	471.	3.	-1878.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
484.	484.	3.	-1878.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
493.	493.	3.	-1878.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
> 493.	0.	3.	10758.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
503.	10.	3.	10758.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
516.	22.	3.	10758.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
526.	32.	3.	9947.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
540.	46.	3.	8758.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
540.	46.	3.	8758.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
573.	80.	3.	6039.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
606.	113.	3.	3583.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
639.	146.	3.	-813.	6574.	21355.	3784.	.57	20.	2.5	NO	5	6	
639.	146.	3.	1754.	6574.	21355.	3784.	.57	20.	2.5	NO	5	6	
673.	179.	3.	-2431.	6574.	21355.	3784.	.57	20.	2.5	NO	5	6	
673.	179.	3.	146.	6574.	21355.	3784.	.57	20.	2.5	NO	5	6	
706.	212.	3.	-4320.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
739.	245.	3.	-6791.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
772.	279.	3.	-9209.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
772.	279.	3.	-9209.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
786.	293.	3.	-10235.	6761.	21355.	3784.	.57	20.	2.5	NO	4	5	6
796.	303.	3.	-10923.	6761.	21355.	3784.	.57	20.	2.5	NO	4	5	6
806.	313.	3.	-10923.	6761.	21355.	3784.	.57	20.	2.5	NO	4	5	6
816.	323.	3.	-10923.	6761.	21355.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-357.16	-7.5	296.8	6.19	6.03	.0089	23.51	.021	SI
27.	27.	3.	1.	-554.61	-11.7	460.8	6.19	6.03	.0138	23.51	.032	SI
75.	75.	3.	1.	-1536.46	-32.4	1284.	6.19	6.03	.0385	23.52	.091	SI
278.	278.	3.	3.	1231.46	-23.9	699.4	9.24	5.57	.021	21.72	.046	SI
493.	493.	3.	5.	-362.52	-6.3	203.9	9.27	5.73	.0061	15.77	.01	SI
> 493.	0.	3.	5.	-2839.29	-49.3	1597.	9.27	5.73	.0603	15.77	.095	SI
639.	146.	3.	7.	2299.08	-43.4	1204.6	10.05	5.48	.0427	14.43	.062	SI
816.	323.	3.	9.	-3621.08	-60.6	1791.	10.93	5.59	.073	21.79	.159	SI

## TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-318.18	-6.7	264.4	6.19	6.03	.0079	23.51	.019
27.	27.	3.	1.	-494.09	-10.4	410.5	6.19	6.03	.0123	23.51	.029
75.	75.	3.	1.	-1368.78	-28.9	1143.9	6.19	6.03	.0343	23.52	.081
278.	278.	3.	3.	1149.36	-22.3	652.7	9.24	5.57	.0196	21.72	.043
493.	493.	3.	5.	-374.8	-6.5	210.8	9.27	5.73	.0063	15.77	.01
> 493.	0.	3.	5.	-2550.89	-44.3	1434.8	9.27	5.73	.0522	15.77	.082
639.	146.	3.	7.	2038.05	-38.5	1067.8	10.05	5.48	.0359	14.43	.052
816.	323.	3.	9.	-3260.4	-54.6	1612.6	10.93	5.59	.064	21.79	.14

## TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-307.81	-6.5	255.8	6.19	6.03	.0077	23.51	.018
27.	27.	3.	1.	-477.99	-10.1	397.1	6.19	6.03	.0119	23.51	.028
75.	75.	3.	1.	-1324.18	-28.	1106.6	6.19	6.03	.0332	23.52	.078
278.	278.	3.	3.	1124.57	-21.9	638.6	9.24	5.57	.0192	21.72	.042
493.	493.	3.	5.	-374.73	-6.5	210.8	9.27	5.73	.0063	15.77	.01
> 493.	0.	3.	5.	-2451.81	-42.6	1379.1	9.27	5.73	.0494	15.77	.078
639.	146.	3.	7.	1951.45	-36.9	1022.4	10.05	5.48	.0336	14.43	.052
816.	323.	3.	9.	-3142.99	-52.6	1554.6	10.93	5.59	.0611	21.79	.133

## ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	10.81	.643	6.19	.368	2d10 +1d14 +2d14	4.62	.275	3d14
2	10.81	.643	3.11	.185	2d10 +1d14	7.7	.458	2d14 +3d14
3	10.81	.643	1.57	.093	2d10	9.24	.55	1d14 +2d14 +3d14
4	13.89	.827	9.27	.552	2d10 +1d14 +2d1 ...	4.62	.275	3d14
5	16.24	.967	9.27	.552	2d10 +1d14 +2d1 ...	6.97	.415	3d14 +3d10
6	11.62	.692	4.65	.277	2d10 +2d14	6.97	.415	3d14 +3d10
7	11.62	.692	1.57	.093	2d10	10.05	.598	2d14 +3d14 +3d10
8	17.91	1.066	7.85	.467	2d10 +2d20	10.05	.598	2d14 +3d14 +3d10
9	17.91	1.066	10.93	.651	2d10 +2d14 +2d20	6.97	.415	3d14 +3d10

## MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr17\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck=198.3; fck=164.6; fctk=13.6; fctm=19.4; Ec=287713.;  
gc=1.8; fcd=91.4; fbd=17.; fctd=7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000.;  
gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463.; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)=98.8; ScIs(quasi permanente)=74.1; fbd(esercizio)=17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione=15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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## SEZIONI UTILIZZATE

3) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A363	3	3	3	0	558.	540.	23.247	.4	5.	36.64

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
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>	10.	10.	3.	1.	-2381.69	-.042	.081	-4051.02	-.073	.138	2.	.347	1.701	SI
	122.	122.	3.	2.	-161.82	-.003	.009	-2491.55	-.048	.138	2.	.259	15.4	SI
	155.	155.	3.	3.	1311.2	-.023	.029	6140.47	-.122	.138	2.	.468	4.683	SI
	319.	319.	3.	3.	2300.78	-.041	.051	6140.47	-.122	.138	2.	.468	2.669	SI
	531.	531.	3.	1.	-77.88	-.001	.003	-4051.02	-.073	.138	2.	.347	52.02	SI
	558.	558.	3.	1.	-213.38	-.004	.007	-4051.02	-.073	.138	2.	.347	18.99	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve					
>	0.	0.	3.	1.	2978.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	10.	10.	3.	2.	2887.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	10.	10.	3.	3.	2887.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	24.	24.	3.	1.	2753.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	24.	24.	3.	2.	2753.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	57.	57.	3.	1.	2446.	6023.	21355.	3784.	.57	20.	2.5	NO	5	6
	90.	90.	3.	1.	2139.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	122.	122.	3.	1.	1831.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	155.	155.	3.	1.	1524.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	188.	188.	3.	1.	1217.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	221.	221.	3.	1.	912.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	254.	254.	3.	1.	612.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	287.	287.	3.	1.	327.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	319.	319.	3.	1.	-100.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	319.	319.	3.	2.	90.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	352.	352.	3.	1.	-343.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	385.	385.	3.	1.	-641.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	418.	418.	3.	1.	-940.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
	451.	451.	3.	1.	-1247.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
	484.	484.	3.	1.	-1554.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	516.	516.	3.	1.	-1862.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	516.	516.	3.	2.	-1862.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	531.	531.	3.	1.	-1996.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	540.	540.	3.	1.	-2086.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	548.	548.	3.	1.	-2086.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
	558.	558.	3.	1.	-2086.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve		
>	10.	10.	3.	1.	-1641.26	-30.9	1100.1	7.73	5.88	.033	22.92	.076	SI
	24.	24.	3.	1.	-1348.81	-25.4	904.1	7.73	5.88	.0271	22.92	.062	SI
	319.	319.	3.	3.	1768.9	-31.3	764.5	12.32	5.28	.0239	13.26	.032	SI
	558.	558.	3.	1.	-134.31	-2.5	90.	7.73	5.88	.0027	22.92	.006	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve		
>	10.	10.	3.	1.	-1652.4	-31.1	1107.5	7.73	5.88	.0332	22.92	.076	SI
	24.	24.	3.	1.	-1359.52	-25.6	911.2	7.73	5.88	.0273	22.92	.063	SI
	319.	319.	3.	3.	1766.31	-31.2	763.4	12.32	5.28	.0238	13.26	.032	SI
	558.	558.	3.	1.	-253.4	-4.8	169.8	7.73	5.88	.0051	22.92	.012	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve		
>	10.	10.	3.	1.	-1653.95	-31.1	1108.6	7.73	5.88	.0333	22.92	.076	SI
	24.	24.	3.	1.	-1361.01	-25.6	912.2	7.73	5.88	.0274	22.92	.063	SI
	319.	319.	3.	3.	1765.7	-31.2	763.2	12.32	5.28	.0238	13.26	.032	SI
	558.	558.	3.	1.	-250.42	-4.7	167.8	7.73	5.88	.005	22.92	.012	SI

ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	13.89	.827	7.73	.46	2d10 +2d14 +2d14	6.16	.367	4d14
2	13.89	.827	4.65	.277	2d10 +2d14	9.24	.55	4d14 +2d14
3	13.89	.827	1.57	.093	2d10	12.32	.733	2d14 +4d14 +2d14

MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr16\_p1** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];

kt=.4 [EN 1992-1 7.3.4].

CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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SEZIONI UTILIZZATE

3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=287713.1

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A378	3	3	3	0	370.	352.	15.417	.4	1.547	12.36

VERIFICHE ALLO STATO LIMITE ULTIMO

FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
58.	58.	3.1.	1435.72	-.038	.109	1824.36	-.048	.138	2.	.258	1.271	SI
126.	126.	3.2.	-320.78	-.012	.049	-910.67	-.033	.138	2.	.194	2.839	NO
159.	159.	3.2.	-94.29	-.003	.015	-861.5	-.03	.138	2.	.177	9.136	NO
159.	159.	3.2.	1104.77	-.025	.043	3502.7	-.087	.138	2.	.385	3.171	SI
261.	261.	3.2.	-217.2	-.007	.035	-861.5	-.03	.138	2.	.177	3.966	NO
295.	295.	3.3.	102.56	-.002	.005	2964.55	-.073	.138	2.	.345	28.91	SI
370.	370.	3.1.	-1738.98	-.042	.091	-2624.17	-.065	.138	2.	.32	1.509	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1563.	5044.	18305.	3784.	.57	20.	2.5
10.	10.	3.	1500.	5044.	18305.	3784.	.57	20.	2.5
10.	10.	3.	1500.	5044.	18305.	3784.	.57	20.	2.5
24.	24.	3.	1405.	5044.	18305.	3784.	.57	20.	2.5
24.	24.	3.	1405.	5044.	18305.	3784.	.57	20.	2.5
58.	58.	3.	-46.	5044.	18305.	3784.	.57	20.	2.5
58.	58.	3.	1182.	5044.	18305.	3784.	.57	20.	2.5
92.	92.	3.	-269.	5044.	18305.	3784.	.57	20.	2.5
92.	92.	3.	958.	5044.	18305.	3784.	.57	20.	2.5
126.	126.	3.	-492.	5044.	18305.	3784.	.57	20.	2.5
126.	126.	3.	735.	5044.	18305.	3784.	.57	20.	2.5
159.	159.	3.	-716.	5044.	18305.	3784.	.57	20.	2.5
159.	159.	3.	512.	5044.	18305.	3784.	.57	20.	2.5
193.	193.	3.	-939.	5204.	18305.	3784.	.57	20.	2.5
193.	193.	3.	288.	5204.	18305.	3784.	.57	20.	2.5
227.	227.	3.	-1162.	5204.	18305.	3784.	.57	20.	2.5
227.	227.	3.	65.	5204.	18305.	3784.	.57	20.	2.5
261.	261.	3.	-1385.	5044.	18305.	3784.	.57	20.	2.5
295.	295.	3.	-1609.	5044.	18305.	3784.	.57	20.	2.5
328.	328.	3.	-1832.	5044.	18305.	3784.	.57	20.	2.5
328.	328.	3.	-1832.	5044.	18305.	3784.	.57	20.	2.5
343.	343.	3.	-1927.	5044.	18305.	3784.	.57	20.	2.5
352.	352.	3.	-1990.	5044.	18305.	3784.	.57	20.	2.5
360.	360.	3.	-1990.	5044.	18305.	3784.	.57	20.	2.5
370.	370.	3.	-1990.	5044.	18305.	3784.	.57	20.	2.5

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
24.	24.	3.1.	62.71	-1.8	93.7	3.39	6.25	.0028	24.96	.007	SI	
126.	126.	3.2.	518.31	-13.1	439.2	5.65	5.79	.0132	22.57	.03	SI	
370.	370.	3.1.	-1051.	-26.8	1086.5	4.96	6.06	.0326	23.65	.077	SI	

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
24.	24.	3.1.	44.24	-1.3	66.1	3.39	6.25	.002	24.96	.005	SI	
126.	126.	3.2.	508.12	-12.8	430.6	5.65	5.79	.0129	22.57	.029	SI	
370.	370.	3.1.	-1041.99	-26.6	1077.1	4.96	6.06	.0323	23.65	.076	SI	

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
24.	24.	3.1.	38.6	-1.1	57.7	3.39	6.25	.0017	24.96	.004	SI	
159.	159.	3.2.	505.32	-12.	387.6	6.79	5.72	.0116	16.79	.02	SI	
370.	370.	3.1.	-1039.19	-26.5	1074.2	4.96	6.06	.0322	23.65	.076	SI	

ARMATURE LONGITUDINALI (%=100\*Af/Ac<sub>ls</sub> - Ac<sub>ls</sub>=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	8.36	.58	4.96	.345	2d10 +1d12 +2d12	3.39	.236	3d12
2	8.36	.58	1.57	.109	2d10	6.79	.471	1d12 +3d12 +2d12
3	8.36	.58	2.7	.188	2d10 +1d12	5.65	.393	3d12 +2d12

MESSAGGI

5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a  $1.5 \cdot b \text{ mm}^2/\text{m}$  [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].  
 23) Rapporti di snellezza limite per mensole non soddisfatti : occorre la verifica allo stato limite di deformazione [C08 4.1.2.2.2].

Nome travata : **Tr19\_p1** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A366	3	3	3	0	486.	468.	20.237	.4	1.	7.791

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 10.	10.	3.	1.	-1833.69	-.036	.079	-3218.92	-.066	.138	2.	.322	1.755
121.	121.	3.	3.	-50.64	-.002	.008	-863.76	-.027	.138	2.	.164	17.06
153.	153.	3.	3.	1489.85	-.028	.044	4666.75	-.097	.138	2.	.412	3.132
283.	283.	3.	3.	2079.61	-.04	.061	4666.75	-.097	.138	2.	.412	2.244
486.	486.	3.	1.	377.87	-.008	.021	2470.87	-.053	.138	2.	.275	6.539

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	2546.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	2455.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	2455.	5884.	21355.	3784.	.57	20.	2.5
24.	24.	3.	2321.	5884.	21355.	3784.	.57	20.	2.5
24.	24.	3.	2321.	5884.	21355.	3784.	.57	20.	2.5
56.	56.	3.	2018.	5884.	21355.	3784.	.57	20.	2.5
89.	89.	3.	1850.	5884.	21355.	3784.	.57	20.	2.5
121.	121.	3.	1547.	5884.	21355.	3784.	.57	20.	2.5
153.	153.	3.	1245.	6369.	21355.	3784.	.57	20.	2.5
186.	186.	3.	943.	6369.	21355.	3784.	.57	20.	2.5
218.	218.	3.	648.	6369.	21355.	3784.	.57	20.	2.5
250.	250.	3.	387.	6369.	21355.	3784.	.57	20.	2.5
283.	283.	3.	-110.	6369.	21355.	3784.	.57	20.	2.5
283.	283.	3.	154.	6369.	21355.	3784.	.57	20.	2.5
315.	315.	3.	-343.	6369.	21355.	3784.	.57	20.	2.5
347.	347.	3.	-596.	6369.	21355.	3784.	.57	20.	2.5
380.	380.	3.	-879.	6369.	21355.	3784.	.57	20.	2.5
412.	412.	3.	-1179.	5884.	21355.	3784.	.57	20.	2.5
444.	444.	3.	-1481.	5884.	21355.	3784.	.57	20.	2.5
444.	444.	3.	-1481.	5884.	21355.	3784.	.57	20.	2.5
459.	459.	3.	-1615.	5884.	21355.	3784.	.57	20.	2.5
468.	468.	3.	-1706.	5884.	21355.	3784.	.57	20.	2.5
476.	476.	3.	-1779.	5884.	21355.	3784.	.57	20.	2.5
486.	486.	3.	-1870.	5884.	21355.	3784.	.57	20.	2.5

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.	1.	-1031.07	-21.8	869.4	6.09	6.04	.0261	23.56	.061
10.	10.	3.	1.	-1031.07	-21.8	869.4	6.09	6.04	.0261	23.56	.061
24.	24.	3.	1.	-768.7	-16.3	648.2	6.09	6.04	.0194	23.56	.046
283.	283.	3.	3.	1597.92	-31.2	916.4	9.14	5.58	.0275	15.51	.043
486.	486.	3.	1.	165.05	-3.8	182.	4.62	6.25	.0055	24.56	.013

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.	1.	-1029.93	-21.8	868.5	6.09	6.04	.0261	23.56	.061
10.	10.	3.	1.	-1029.93	-21.8	868.5	6.09	6.04	.0261	23.56	.061
24.	24.	3.	1.	-767.7	-16.2	647.4	6.09	6.04	.0194	23.56	.046
283.	283.	3.	3.	1593.98	-31.1	914.1	9.14	5.58	.0274	15.51	.043
486.	486.	3.	1.	155.67	-3.6	171.6	4.62	6.25	.0051	24.56	.013

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.	1.	-1029.7	-21.8	868.3	6.09	6.04	.026	23.56	.061
10.	10.	3.	1.	-1029.7	-21.8	868.3	6.09	6.04	.026	23.56	.061
24.	24.	3.	1.	-767.5	-16.2	647.2	6.09	6.04	.0194	23.56	.046
283.	283.	3.	3.	1592.88	-31.1	913.5	9.14	5.58	.0274	15.51	.043
486.	486.	3.	1.	153.	-3.5	168.7	4.62	6.25	.0051	24.56	.012

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	10.71	.638	6.09	.363	2d10 +2d12 +2d12	4.62	.275	3d14
2	10.71	.638	3.83	.228	2d10 +2d12	6.88	.41	3d14 +2d12
3	10.71	.638	1.57	.093	2d10	9.14	.544	2d12 +3d14 +2d12

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * t * d$  oppure  $Af < 0.0013 * b * t * d$ ) [NTC18 4.1.6.1.1].  
23) Rapporti di snellezza limite per mensole non soddisfatti : occorre la verifica allo stato limite di deformazione [C08 4.1.2.2.2].

Nome travata : **Tr28\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=370. ; fck=307.1; fctk= 20.6; fctm= 29.4; Ec= 330194. ;  
gc=1.5 ; fcd=174. ; fbd= 30.9; fctd= 13.7; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)=184.3; ScIs(quasi permanente)=138.2; fbd(esercizio)= 30.9  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680. ; Jg=80640. ; E=330194.3

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A50	3	3	3	0	630.	595.	26.25	1.	4.526	91.702

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	EpscI	EpsacI	Mrd	EpscI	EpsacI	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-4947.01	-.051	.098	-6967.14	-.073	.138	2.	.345	1.408
0.	0.	3.	1.	444.	-.005	.014	4317.87	-.048	.138	2.	.259	9.725
144.	144.	3.	3.	1644.56	-.016	.028	8140.64	-.086	.138	2.	.383	4.95
212.	212.	3.	4.	-422.43	-.01	.066	-880.1	-.021	.138	2.	.132	2.083
212.	212.	3.	4.	1709.52	-.018	.029	8058.52	-.093	.138	2.	.402	4.714

9

418.	418.	3.	4.	-161.82	-.004	.025	-880.1	-.021	.138	2.	.132	5.439	NO	9
452.	452.	3.	3.	1798.79	-.018	.03	8140.64	-.086	.138	2.	.383	4.526	SI	
630.	630.	3.	1.	-4421.6	-.045	.087	-6967.14	-.073	.138	2.	.345	1.576	SI	
630.	630.	3.	1.	780.23	-.008	.025	4317.87	-.048	.138	2.	.259	5.534	SI	

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	3118.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
10.	10.	3.	3118.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
18.	18.	3.	3118.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
27.	27.	3.	3048.	9016.	40640.	3784.	.57	20.	2.5 NO 5 6
42.	42.	3.	2945.	9016.	40640.	3784.	.57	20.	2.5 NO 5 6
42.	42.	3.	2945.	9016.	40640.	3784.	.57	20.	2.5 NO 5 6
76.	76.	3.	2699.	9016.	40640.	3784.	.57	20.	2.5 NO 5 6
110.	110.	3.	2453.	9245.	40640.	3784.	.57	20.	2.5 NO 5 6
144.	144.	3.	2207.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
178.	178.	3.	1960.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
212.	212.	3.	-94.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
212.	212.	3.	1714.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
247.	247.	3.	-341.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
247.	247.	3.	1468.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
281.	281.	3.	-587.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
281.	281.	3.	1222.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
315.	315.	3.	-833.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
315.	315.	3.	976.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
349.	349.	3.	-1079.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
349.	349.	3.	730.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
383.	383.	3.	-1325.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
383.	383.	3.	484.	11277.	40640.	3784.	.57	20.	2.5 NO 5 6
418.	418.	3.	-1571.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
418.	418.	3.	237.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
452.	452.	3.	-1817.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
486.	486.	3.	-2064.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
520.	520.	3.	-2310.	9245.	40640.	3784.	.57	20.	2.5 NO 5 6
554.	554.	3.	-2556.	9016.	40640.	3784.	.57	20.	2.5 NO 5 6
588.	588.	3.	-2802.	9016.	40640.	3784.	.57	20.	2.5 NO 5 6
588.	588.	3.	-2802.	9016.	40640.	3784.	.57	20.	2.5 NO 5 6
603.	603.	3.	-2905.	9016.	40640.	3784.	.57	20.	2.5 NO 5 6
612.	612.	3.	-2975.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
620.	620.	3.	-2975.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6
630.	630.	3.	-2975.	8037.	40640.	3784.	.57	20.	2.5 NO 5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-2232.38	-33.7	887.9	13.29	5.4	.0266	12.48	.033 SI
18.	18.	3.	1.	-2232.38	-33.7	887.9	13.29	5.4	.0266	12.48	.033 SI
315.	315.	3.	4.	1231.44	-20.1	422.1	15.74	5.01	.0127	11.44	.014 SI
630.	630.	3.	1.	-1764.05	-26.7	701.6	13.29	5.4	.021	12.48	.026 SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-2211.43	-33.4	879.5	13.29	5.4	.0264	12.48	.033 SI
18.	18.	3.	1.	-2211.43	-33.4	879.5	13.29	5.4	.0264	12.48	.033 SI
315.	315.	3.	4.	1231.1	-20.1	422.	15.74	5.01	.0127	11.44	.014 SI
630.	630.	3.	1.	-1778.83	-26.9	707.5	13.29	5.4	.0212	12.48	.026 SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-2206.45	-33.3	877.6	13.29	5.4	.0263	12.48	.033 SI
18.	18.	3.	1.	-2206.45	-33.3	877.6	13.29	5.4	.0263	12.48	.033 SI
315.	315.	3.	4.	1230.98	-20.1	422.	15.74	5.01	.0127	11.44	.014 SI
630.	630.	3.	1.	-1781.22	-26.9	708.4	13.29	5.4	.0213	12.48	.027 SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	21.33	1.27	13.29	.791	2d10	+2d14	+3d1	...
2	21.33	1.27	8.67	.516	2d10	+2d14	+2d16	
3	21.33	1.27	5.59	.333	2d10	+2d16		
4	17.31	1.03	1.57	.093	2d10			

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr13\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd= .2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;

gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	14.	Rara 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.									
6.	SLU con SISMAX	4.									

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A698	3	3	3	0	425.	390.	17.708	1.3	1.144	28.987
2	A699	3	3	3	0	215.	180.	8.958	1.5	1.658	45.7
3	A700	3	3	3	0	425.	390.	17.708	1.3	1.145	29.005

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	-2974.22	-.07	.129	-3186.67	-.075	.138	2.	.353	1.071	SI
18.	18.	3.	57.02	-.001	.005	1660.95	-.044	.138	2.	.24	29.13	SI
76.	76.	3.	-616.7	-.017	.059	-1454.53	-.042	.138	2.	.232	2.359	SI
110.	110.	3.	2488.52	-.057	.088	3894.68	-.094	.138	2.	.405	1.565	SI
213.	213.	3.	3403.16	-.081	.121	3894.68	-.094	.138	2.	.405	1.144	SI
425.	425.	3.	-3210.39	-.06	.091	-4883.06	-.094	.138	2.	.406	1.521	SI
> 425.	0.	3.	-2405.51	-.044	.068	-4883.06	-.094	.138	2.	.406	2.03	SI
425.	0.	3.	198.41	-.004	.01	2840.66	-.056	.138	2.	.286	14.32	SI
519.	94.	3.	-1274.28	-.026	.036	-4805.15	-.107	.138	2.	.437	3.771	SI
519.	94.	3.	734.99	-.02	.083	1228.35	-.034	.138	2.	.196	1.671	SI
546.	121.	3.	740.66	-.02	.083	1228.35	-.034	.138	2.	.196	1.658	SI
599.	174.	3.	612.43	-.012	.03	2840.66	-.056	.138	2.	.286	4.638	SI
640.	215.	3.	-2562.3	-.047	.072	-4883.06	-.094	.138	2.	.406	1.906	SI
640.	215.	3.	203.81	-.004	.01	2840.66	-.056	.138	2.	.286	13.94	SI
> 640.	0.	3.	-3493.33	-.066	.099	-4883.06	-.094	.138	2.	.406	1.398	SI
750.	110.	3.	1670.03	-.038	.059	3894.68	-.094	.138	2.	.405	2.332	SI
853.	212.	3.	3400.98	-.081	.121	3894.68	-.094	.138	2.	.405	1.145	SI
989.	349.	3.	-769.32	-.021	.073	-1462.73	-.04	.138	2.	.225	1.901	SI
1048.	408.	3.	220.44	-.006	.018	1660.95	-.044	.138	2.	.24	7.535	SI
1065.	425.	3.	-2974.22	-.07	.129	-3186.67	-.075	.138	2.	.353	1.071	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	5482.	5044.	18305.	3784.	.57	20.	2.5
10.	10.	3.	5227.	5044.	18305.	3784.	.57	20.	2.5
18.	18.	3.	5021.	5044.	18305.	3784.	.57	20.	2.5
27.	27.	3.	4766.	5044.	18305.	3784.	.57	20.	2.5
42.	42.	3.	4388.	5044.	18305.	3784.	.57	20.	2.5
42.	42.	3.	4388.	5044.	18305.	3784.	.57	20.	2.5
76.	76.	3.	3487.	5044.	18305.	3784.	.57	20.	2.5
110.	110.	3.	2586.	5405.	18305.	3784.	.57	20.	2.5
144.	144.	3.	1685.	5405.	18305.	3784.	.57	20.	2.5
178.	178.	3.	889.	5405.	18305.	3784.	.57	20.	2.5
213.	213.	3.	-427.	5405.	18305.	3784.	.57	20.	2.5
213.	213.	3.	178.	5405.	18305.	3784.	.57	20.	2.5
247.	247.	3.	-1284.	5405.	18305.	3784.	.57	20.	2.5
281.	281.	3.	-2160.	5405.	18305.	3784.	.57	20.	2.5
315.	315.	3.	-3061.	5405.	18305.	3784.	.57	20.	2.5
349.	349.	3.	-3962.	5044.	18305.	3784.	.57	20.	2.5
384.	384.	3.	-4863.	5819.	18305.	3784.	.57	20.	2.5
384.	384.	3.	-4863.	5819.	18305.	3784.	.57	20.	2.5
398.	398.	3.	-5241.	5819.	18305.	3784.	.57	20.	2.5
408.	408.	3.	-5495.	5819.	18305.	3784.	.57	20.	2.5
415.	415.	3.	-5495.	5819.	18305.	3784.	.57	20.	2.5
425.	425.	3.	-5495.	5819.	18305.	3784.	.57	20.	2.5
> 425.	0.	3.	2797.	5044.	18305.	3784.	.57	20.	2.5
435.	10.	3.	2542.	5044.	18305.	3784.	.57	20.	2.5
443.	18.	3.	2336.	5044.	18305.	3784.	.57	20.	2.5
452.	27.	3.	2081.	5044.	18305.	3784.	.57	20.	2.5
467.	42.	3.	1704.	5044.	18305.	3784.	.57	20.	2.5
467.	42.	3.	1704.	5044.	18305.	3784.	.57	20.	2.5
493.	68.	3.	1098.	5044.	18305.	3784.	.57	20.	2.5
519.	94.	3.	-186.	5044.	18305.	3784.	.57	20.	2.5
519.	94.	3.	597.	5044.	18305.	3784.	.57	20.	2.5
546.	121.	3.	-660.	5044.	18305.	3784.	.57	20.	2.5
546.	121.	3.	124.	5044.	18305.	3784.	.57	20.	2.5
572.	147.	3.	-1185.	5044.	18305.	3784.	.57	20.	2.5

599.	174.	3.	-1818.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
599.	174.	3.	-1818.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
613.	188.	3.	-2196.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
623.	198.	3.	-2451.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
630.	205.	3.	-2451.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
640.	215.	3.	-2451.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
> 640.	0.	3.	5731.	5819.	18305.	3784.	.57	20.	2.5	NO	4	5 6
650.	10.	3.	5731.	5819.	18305.	3784.	.57	20.	2.5	NO	4	5 6
658.	18.	3.	5731.	5819.	18305.	3784.	.57	20.	2.5	NO	4	5 6
667.	27.	3.	5476.	5819.	18305.	3784.	.57	20.	2.5	NO	4	5 6
682.	42.	3.	5098.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6
682.	42.	3.	5098.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6
716.	76.	3.	4197.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6
750.	110.	3.	3296.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
784.	144.	3.	2395.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
818.	178.	3.	1494.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
853.	212.	3.	-147.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
853.	212.	3.	593.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
887.	247.	3.	-826.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
921.	281.	3.	-1604.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
955.	315.	3.	-2505.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
989.	349.	3.	-3406.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
1024.	384.	3.	-4307.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6
1024.	384.	3.	-4307.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6
1038.	398.	3.	-4685.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6
1048.	408.	3.	-4939.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6
1055.	415.	3.	-5146.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6
1065.	425.	3.	-5400.	5044.	18305.	3784.	.57	20.	2.5	NO	4	5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-2214.92	-52.7	1879.9	6.09	5.88	.0688	17.68	.122	SI
27.	27.	3.	-1263.95	-30.1	1072.8	6.09	5.88	.0322	17.68	.057	SI
42.	42.	3.	41.63	-1.2	68.4	3.08	6.25	.0021	25.33	.005	SI
213.	213.	3.	2534.15	-58.	1744.3	7.6	5.62	.0673	15.72	.106	SI
425.	425.	3.	-2391.65	-46.3	1324.8	9.49	5.53	.05	13.37	.067	SI
> 425.	0.	3.	-1790.7	-34.7	991.9	9.49	5.53	.0333	13.37	.045	SI
519.	94.	3.	557.48	-17.7	1239.4	2.26	6.25	.0372	26.28	.098	SI
640.	215.	3.	-1907.18	-36.9	1056.4	9.49	5.53	.0365	13.37	.049	SI
> 640.	0.	3.	-2601.34	-50.4	1440.9	9.49	5.53	.0558	13.37	.075	SI
853.	212.	3.	2531.74	-57.9	1742.7	7.6	5.62	.0672	15.72	.106	SI
1065.	425.	3.	-2214.92	-52.7	1879.9	6.09	5.88	.0688	17.68	.122	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-2072.67	-49.4	1759.2	6.09	5.88	.0628	17.68	.111	SI
27.	27.	3.	-1178.17	-28.1	1000.	6.09	5.88	.03	17.68	.053	SI
42.	42.	3.	27.72	-8.	45.5	3.08	6.25	.0014	25.33	.003	SI
213.	213.	3.	2371.5	-54.2	1632.4	7.6	5.62	.0617	15.72	.097	SI
425.	425.	3.	-2240.47	-43.4	1241.	9.49	5.53	.0458	13.37	.061	SI
> 425.	0.	3.	-1674.21	-32.4	927.4	9.49	5.53	.0301	13.37	.04	SI
519.	94.	3.	523.86	-16.6	1164.6	2.26	6.25	.0349	26.28	.092	SI
640.	215.	3.	-1782.51	-34.5	987.4	9.49	5.53	.0331	13.37	.044	SI
> 640.	0.	3.	-2433.15	-47.1	1347.8	9.49	5.53	.0511	13.37	.068	SI
853.	212.	3.	2366.88	-54.1	1629.2	7.6	5.62	.0616	15.72	.097	SI
1065.	425.	3.	-2072.67	-49.4	1759.2	6.09	5.88	.0628	17.68	.111	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-2025.26	-48.2	1718.9	6.09	5.88	.0608	17.68	.107	SI
27.	27.	3.	-1148.57	-27.4	974.8	6.09	5.88	.0292	17.68	.052	SI
42.	42.	3.	20.06	-6.	32.9	3.08	6.25	.001	25.33	.003	SI
213.	213.	3.	2317.05	-53.	1594.9	7.6	5.62	.0598	15.72	.094	SI
425.	425.	3.	-2189.75	-42.4	1212.9	9.49	5.53	.0444	13.37	.059	SI
> 425.	0.	3.	-1635.42	-31.7	905.9	9.49	5.53	.029	13.37	.039	SI
519.	94.	3.	510.99	-16.2	1136.	2.26	6.25	.0341	26.28	.09	SI
640.	215.	3.	-1741.06	-33.7	964.4	9.49	5.53	.0319	13.37	.043	SI
> 640.	0.	3.	-2377.48	-46.	1316.9	9.49	5.53	.0496	13.37	.066	SI
853.	212.	3.	2312.06	-52.9	1591.5	7.6	5.62	.0597	15.72	.094	SI
1065.	425.	3.	-2025.26	-48.2	1718.9	6.09	5.88	.0608	17.68	.107	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	9.17	.637	6.09	.423	2d10 +1d12 +3d12	3.08	.214	2d14
2	9.17	.637	2.7	.188	2d10 +1d12	6.47	.449	3d12 +2d14
3	9.17	.637	1.57	.109	2d10	7.6	.528	1d12 +3d12 +2d14
4	12.57	.873	6.09	.423	2d10 +1d12 +3d12	6.47	.449	3d12 +2d14
5	14.83	1.03	9.49	.659	2d10 +1d12 +3d1 ...	5.34	.371	2d14 +2d12
6	11.75	.816	9.49	.659	2d10 +1d12 +3d1 ...	2.26	.157	2d12
7	14.83	1.03	6.09	.423	2d10 +1d12 +3d12	8.73	.607	3d12 +2d14 +2d12
8	12.57	.873	4.96	.345	2d10 +3d12	7.6	.528	1d12 +3d12 +2d14

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr12\_p1** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)=184.3; ScIs(quasi permanente)=138.2; fbd(esercizio)= 30.9  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

#### SEZIONI UTILIZZATE

1) Rettangolare: 80x24; A=1920.; Jg=92160.; E=330194.3

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A934	1	1	1	0	280.	242.	11.667	1.	1.519	34.793

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	1.	-1676.44	-.018	.056	-4102.6	-.046	.138	2.	.251	2.447	SI
0.	0.	1.	3635.88	-.038	.094	5363.21	-.057	.138	2.	.292	1.475	SI
44.	44.	1.	4250.56	-.045	.109	5363.21	-.057	.138	2.	.292	1.262	SI
76.	76.	1.	-135.39	-.003	.017	-1094.12	-.027	.138	2.	.165	8.081	NO
76.	76.	1.	4409.78	-.05	.09	6698.94	-.078	.138	2.	.361	1.519	SI
280.	280.	1.	-294.29	-.003	.01	-4098.41	-.049	.138	2.	.262	13.93	SI
280.	280.	1.	62.36	-.001	.003	3279.15	-.042	.138	2.	.232	52.58	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	1.	4142.	9186.	46446.	3784.	.57	20.	2.5
10.	10.	1.	4142.	9186.	46446.	3784.	.57	20.	2.5
20.	20.	1.	4142.	9186.	46446.	3784.	.57	20.	2.5
30.	30.	1.	3767.	9186.	46446.	3784.	.57	20.	2.5
44.	44.	1.	3314.	9186.	46446.	3784.	.57	20.	2.5
44.	44.	1.	3314.	9186.	46446.	3784.	.57	20.	2.5
76.	76.	1.	2430.	9186.	46446.	3784.	.57	20.	2.5
109.	109.	1.	-647.	11282.	46446.	3784.	.57	20.	2.5
109.	109.	1.	1546.	11282.	46446.	3784.	.57	20.	2.5
141.	141.	1.	-1531.	11282.	46446.	3784.	.57	20.	2.5
141.	141.	1.	662.	11282.	46446.	3784.	.57	20.	2.5
174.	174.	1.	-2416.	11282.	46446.	3784.	.57	20.	2.5
206.	206.	1.	-3376.	11282.	46446.	3784.	.57	20.	2.5
238.	238.	1.	-4634.	9186.	46446.	3784.	.57	20.	2.5
238.	238.	1.	-4634.	9186.	46446.	3784.	.57	20.	2.5
253.	253.	1.	-5208.	9186.	46446.	3784.	.57	20.	2.5
262.	262.	1.	-5596.	9186.	46446.	3784.	.57	20.	2.5
270.	270.	1.	-5596.	9186.	46446.	3784.	.57	20.	2.5
280.	280.	1.	-5596.	9186.	46446.	3784.	.57	20.	2.5

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
20.	20.	1.	1306.98	-20.4	676.5	10.05	5.77	.0203	22.51	.046	SI
109.	109.	1.	2894.71	-47.3	1267.4	12.06	5.43	.0386	21.17	.082	SI
280.	280.	1.	-14.19	-.3	9.6	7.6	5.98	.0003	23.34	.001	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
20.	20.	1.	1120.31	-17.4	579.9	10.05	5.77	.0174	22.51	.039	SI
141.	141.	1.	2657.44	-43.4	1163.6	12.06	5.43	.0349	21.17	.074	SI
280.	280.	1.	-653.66	-11.6	443.1	7.6	5.98	.0133	23.34	.031	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:



Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
20.	20.	1.	1074.9	-16.7	556.4	10.05	5.77	.0167	22.51	.038	SI
141.	141.	1.	2587.78	-42.3	1133.	12.06	5.43	.034	21.17	.072	SI
280.	280.	1.	-635.02	-11.2	430.5	7.6	5.98	.0129	23.34	.03	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	17.66	.92	7.6	.396	2d10 +3d16	10.05	.524	3d16 +2d16
2	17.66	.92	1.57	.082	2d10	16.08	.838	3d16 +3d16 +2d16
3	13.63	.71	1.57	.082	2d10	12.06	.628	3d16 +3d16
4	13.63	.71	7.6	.396	2d10 +3d16	6.03	.314	3d16

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr11\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	14.	Rara 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.									
6.	SLU con SISMAX	4.									

#### SEZIONI UTILIZZATE

- 1) Rettangolare: 80X24; A=1920.; Jg=92160.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A935	1	1	1	0	280.	240.	11.667	1.	1.756	33.291

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	EpscI	EpsacI	Mrd	EpscI	EpsacI	Cam	x/d	Mr/Ms	VE
> 0.	0.	1.	-2194.76	-.033	.075	-4026.95	-.061	.138	2.	.308	1.835	SI
0.	0.	1.	3469.79	-.051	.091	5243.57	-.079	.138	2.	.364	1.511	SI
46.	46.	1.	4185.91	-.062	.11	5243.57	-.079	.138	2.	.364	1.253	SI
79.	79.	1.	-441.21	-.013	.07	-864.81	-.025	.138	2.	.154	1.96	NO
79.	79.	1.	4368.83	-.069	.078	7670.7	-.134	.138	2.	.493	1.756	SI
111.	111.	1.	4358.62	-.074	.098	6084.31	-.109	.138	2.	.44	1.396	SI
280.	280.	1.	-1954.03	-.032	.067	-4004.93	-.068	.138	2.	.33	2.05	SI
280.	280.	1.	316.25	-.005	.014	3213.81	-.056	.138	2.	.289	10.16	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	1.	5126.	6725.	24406.	3784.	.57	20.	2.5 NO 4 5 6
10.	10.	1.	4738.	6725.	24406.	3784.	.57	20.	2.5 NO 4 5 6
22.	22.	1.	4225.	6725.	24406.	3784.	.57	20.	2.5 NO 4 5 6
32.	32.	1.	3837.	6725.	24406.	3784.	.57	20.	2.5 NO 4 5 6
46.	46.	1.	3386.	6725.	24406.	3784.	.57	20.	2.5 NO 5 6
46.	46.	1.	3386.	6725.	24406.	3784.	.57	20.	2.5 NO 5 6
79.	79.	1.	-59.	6725.	24406.	3784.	.57	20.	2.5 NO 5 6
79.	79.	1.	2464.	6725.	24406.	3784.	.57	20.	2.5 NO 5 6
111.	111.	1.	-932.	7637.	24406.	3784.	.57	20.	2.5 NO 5 6
111.	111.	1.	1591.	7637.	24406.	3784.	.57	20.	2.5 NO 5 6
143.	143.	1.	-1804.	7637.	24406.	3784.	.57	20.	2.5 NO 5 6

143.	143.	1.	718.	7637.	24406.	3784.	.57	20.	2.5	NO	5	6	
175.	175.	1.	-2677.	7637.	24406.	3784.	.57	20.	2.5	NO	5	6	
207.	207.	1.	-3607.	7637.	24406.	3784.	.57	20.	2.5	NO	5	6	
239.	239.	1.	-4850.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
239.	239.	1.	-4850.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
253.	253.	1.	-5424.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
263.	263.	1.	-5812.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
270.	270.	1.	-6125.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
280.	280.	1.	-6513.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
10.	10.	1.	1.	-1123.09	-18.6	760.4	7.6	6.08	.0228	23.7	.054	SI
143.	143.	1.	3.	2920.75	-47.7	1278.8	12.06	5.43	.0473	21.17	.1	SI
280.	280.	1.	4.	-1455.14	-25.7	986.5	7.6	5.98	.0296	23.34	.069	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
10.	10.	1.	1.	-1037.98	-17.2	702.7	7.6	6.08	.0211	23.7	.05	SI
143.	143.	1.	3.	2686.61	-43.9	1176.3	12.06	5.43	.0421	21.17	.089	SI
280.	280.	1.	4.	-1361.63	-24.1	923.1	7.6	5.98	.0277	23.34	.065	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve	
10.	10.	1.	1.	-1007.21	-16.7	681.9	7.6	6.08	.0205	23.7	.048	SI
143.	143.	1.	3.	2616.34	-42.7	1145.6	12.06	5.43	.0406	21.17	.086	SI
280.	280.	1.	4.	-1330.46	-23.5	902.	7.6	5.98	.0271	23.34	.063	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	17.66	.92	7.6	.396	2d10 +3d16	10.05	.524	3d16 +2d16
2	17.66	.92	1.57	.082	2d10	16.08	.838	3d16 +3d16 +2d16
3	13.63	.71	1.57	.082	2d10	12.06	.628	3d16 +3d16
4	13.63	.71	7.6	.396	2d10 +3d16	6.03	.314	3d16

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr10\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			
Nome	Descrizione	Sest	
1.	SLU SENZA SISMA 1	1.	
2.	SLU SENZA SISMA 2	1.	
5.	SLU con SISMAX	4.	
6.	SLU con SISMAX	4.	
RARE			
Nome	Descrizione	Sest	
13.	Rara 1	1.	15.
14.	Rara 2	1.	16.
FREQUENTI			
Nome	Descrizione	Sest	
1.	17.	1.	17.
QUASI PERMANENTI			
Nome	Descrizione	Sest	
1.	17.	1.	17.

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A936	3	3	3	0	280.	245.	11.667	1.	1.259	26.257

#### VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	Se	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.1.	-1402.93	-.032	.094	-2055.67	-.048	.138	2.	.257	1.465	SI
0.	0.	3.1.	3054.49	-.065	.11	3846.26	-.084	.138	2.	.377	1.259	SI
74.	74.	3.1.	2861.22	-.068	.101	3893.07	-.096	.138	2.	.411	1.361	SI
107.	107.	3.2.	-400.28	-.013	.064	-859.57	-.028	.138	2.	.169	2.147	NO
107.	107.	3.2.	2665.63	-.057	.075	4868.86	-.112	.138	2.	.448	1.827	SI
140.	140.	3.3.	-108.63	-.004	.017	-862.36	-.031	.138	2.	.181	7.938	NO
140.	140.	3.3.	2399.2	-.061	.112	2951.74	-.077	.138	2.	.356	1.23	SI
280.	280.	3.4.	597.59	-.016	.045	1822.92	-.05	.138	2.	.266	3.05	SI

## TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	5044.	18305.	3784.	.57	20.	2.5	NO
0.	0.	3.	1518.	5044.	18305.	.57	20.	2.5	NO
10.	10.	3.	-182.	5044.	18305.	.57	20.	2.5	NO
10.	10.	3.	1518.	5044.	18305.	.57	20.	2.5	NO
18.	18.	3.	-182.	5044.	18305.	.57	20.	2.5	NO
18.	18.	3.	1518.	5044.	18305.	.57	20.	2.5	NO
27.	27.	3.	-246.	5044.	18305.	.57	20.	2.5	NO
27.	27.	3.	1454.	5044.	18305.	.57	20.	2.5	NO
42.	42.	3.	-340.	5044.	18305.	.57	20.	2.5	NO
42.	42.	3.	1359.	5044.	18305.	.57	20.	2.5	NO
42.	42.	3.	-340.	5044.	18305.	.57	20.	2.5	NO
42.	42.	3.	1359.	5044.	18305.	.57	20.	2.5	NO
74.	74.	3.	-557.	5044.	18305.	.57	20.	2.5	NO
74.	74.	3.	1143.	5044.	18305.	.57	20.	2.5	NO
107.	107.	3.	-774.	5044.	18305.	.57	20.	2.5	NO
107.	107.	3.	926.	5044.	18305.	.57	20.	2.5	NO
140.	140.	3.	-991.	5044.	18305.	.57	20.	2.5	NO
140.	140.	3.	709.	5044.	18305.	.57	20.	2.5	NO
173.	173.	3.	-1207.	5044.	18305.	.57	20.	2.5	NO
173.	173.	3.	493.	5044.	18305.	.57	20.	2.5	NO
206.	206.	3.	-1424.	5044.	18305.	.57	20.	2.5	NO
206.	206.	3.	276.	5044.	18305.	.57	20.	2.5	NO
239.	239.	3.	-1641.	5044.	18305.	.57	20.	2.5	NO
239.	239.	3.	59.	5044.	18305.	.57	20.	2.5	NO
239.	239.	3.	-1641.	5044.	18305.	.57	20.	2.5	NO
239.	239.	3.	59.	5044.	18305.	.57	20.	2.5	NO
253.	253.	3.	-1735.	5044.	18305.	.57	20.	2.5	NO
263.	263.	3.	-1799.	5044.	18305.	.57	20.	2.5	NO
270.	270.	3.	-1799.	5044.	18305.	.57	20.	2.5	NO
280.	280.	3.	-1799.	5044.	18305.	.57	20.	2.5	NO

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.1.	872.66	-19.	613.3	7.41	5.72	.0184	22.32	.041	SI	
10.	10.	3.1.	932.64	-20.3	655.4	7.41	5.72	.0197	22.32	.044	SI	
107.	107.	3.2.	1279.48	-27.	700.3	9.68	5.38	.021	13.37	.028	SI	
140.	140.	3.3.	1255.5	-31.9	1146.6	5.65	5.89	.0344	22.97	.079	SI	
239.	239.	3.4.	743.5	-21.8	1110.2	3.39	6.25	.0333	24.84	.083	SI	
280.	280.	3.4.	344.74	-10.1	514.8	3.39	6.25	.0154	24.84	.038	SI	

## TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.1.	731.3	-16.	513.9	7.41	5.72	.0154	22.32	.034	SI	
10.	10.	3.1.	794.95	-17.3	558.7	7.41	5.72	.0168	22.32	.037	SI	
107.	107.	3.2.	1178.85	-24.9	645.2	9.68	5.38	.0194	13.37	.026	SI	
140.	140.	3.3.	1167.35	-29.7	1066.1	5.65	5.89	.032	22.97	.073	SI	
239.	239.	3.4.	692.79	-20.3	1034.5	3.39	6.25	.031	24.84	.077	SI	
280.	280.	3.4.	309.8	-9.1	462.6	3.39	6.25	.0139	24.84	.034	SI	

## TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.1.	692.98	-15.1	487.	7.41	5.72	.0146	22.32	.033	SI	
10.	10.	3.1.	757.6	-16.5	532.4	7.41	5.72	.016	22.32	.036	SI	
107.	107.	3.2.	1151.11	-24.3	630.	9.68	5.38	.0189	13.37	.025	SI	
140.	140.	3.3.	1142.85	-29.	1043.7	5.65	5.89	.0313	22.97	.072	SI	
239.	239.	3.4.	678.01	-19.9	1012.4	3.39	6.25	.0304	24.84	.075	SI	
280.	280.	3.4.	299.12	-8.8	446.6	3.39	6.25	.0134	24.84	.033	SI	

## ARMATURE LONGITUDINALI (%=100\*Af/Acl - Acl=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	11.25	.781	3.83	.266	2d10 +2d12	7.41	.515	3d12 +2d16
2	11.25	.781	1.57	.109	2d10	9.68	.672	2d12 +3d12 +2d16
3	7.23	.502	1.57	.109	2d10	5.65	.393	2d12 +3d12
4	7.23	.502	3.83	.266	2d10 +2d12	3.39	.236	3d12

## MESSAGGI

5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].

6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : Tr3\_p1 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 50x24; A=1200.; Jg=57600.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A352	3	3	3	0	272.	235.	11.354	1.	1.11	19.795

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1638.45	-.042	.125	1818.13	-.047	.138	2.	.253	1.11	SI
135.	135.	3.	-180.1	-.005	.02	-1223.06	-.036	.138	2.	.206	6.791	SI
135.	135.	3.	1010.64	-.023	.03	4549.97	-.117	.138	2.	.457	14.502	SI
196.	196.	3.	-1193.16	-.044	.13	-1269.75	-.047	.138	2.	.254	1.064	SI
242.	242.	3.	41.68	-.001	.003	1813.92	-.053	.138	2.	.277	43.52	SI
262.	262.	3.	-2204.94	-.062	.128	-2385.8	-.067	.138	2.	.327	1.082	SI
272.	272.	3.	-2193.8	-.061	.127	-2385.8	-.067	.138	2.	.327	1.088	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	-588.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
0.	0.	3.	151.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
10.	10.	3.	-623.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
10.	10.	3.	151.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
18.	18.	3.	-652.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
18.	18.	3.	149.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
28.	28.	3.	-688.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
28.	28.	3.	114.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
43.	43.	3.	-752.	4336.	15254.	3784.	.57	20.	2.5 NO 5 6
43.	43.	3.	50.	4336.	15254.	3784.	.57	20.	2.5 NO 5 6
43.	43.	3.	-752.	4336.	15254.	3784.	.57	20.	2.5 NO 5 6
43.	43.	3.	50.	4336.	15254.	3784.	.57	20.	2.5 NO 5 6
74.	74.	3.	-908.	4336.	15254.	3784.	.57	20.	2.5 NO 5 6
104.	104.	3.	-1099.	4336.	15254.	3784.	.57	20.	2.5 NO 5 6
135.	135.	3.	-1331.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
166.	166.	3.	-1721.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
196.	196.	3.	-2171.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
227.	227.	3.	-2676.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
227.	227.	3.	-2676.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
242.	242.	3.	-2936.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
252.	252.	3.	-3126.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
262.	262.	3.	-3127.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6
272.	272.	3.	-2939.	4203.	15254.	3784.	.57	20.	2.5 NO 5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1220.41	-35.6	1834.	3.39	6.25	.055	24.9	.137	SI
18.	18.	3.	1174.74	-34.3	1765.3	3.39	6.25	.053	24.9	.132	SI
272.	272.	3.	-1326.52	-38.6	1509.	4.52	6.01	.047	23.45	.11	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1143.77	-33.4	1718.8	3.39	6.25	.0516	24.9	.128	SI

18.	18.	3.	1.	1100.25	-32.1	1653.4	3.39	6.25	.0496	24.9	.124	SI
272.	272.	3.	5.	-1263.59	-36.8	1437.4	4.52	6.01	.0434	23.45	.102	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	1117.64	-32.6	1679.5	3.39	6.25	.0504	24.9	.125	SI
18.	18.	3.	1.	1074.94	-31.3	1615.4	3.39	6.25	.0485	24.9	.121	SI
272.	272.	3.	5.	-1241.79	-36.2	1412.6	4.52	6.01	.0424	23.45	.099	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	11.31	.942	7.92	.66	2d12 +2d12 +3d12	3.39	.283	3d12
2	11.31	.942	5.65	.471	2d12 +3d12	5.65	.471	2d12 +3d12
3	11.31	.942	2.26	.188	2d12	9.05	.754	2d12 +3d12 +3d12
4	7.92	.66	2.26	.188	2d12	5.65	.471	2d12 +3d12
5	7.92	.66	4.52	.377	2d12 +2d12	3.39	.283	3d12

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr5\_p1** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 35X24; A=840.; Jg=40320.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1624	3	3	3	0	280.	245.	11.667	1.	1.809	34.129

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	EpscI	EpsacI	Mrd	EpscI	EpsacI	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-993.34	-.031	.068	-2024.45	-.064	.138	2.	.317	2.038	SI
0.	0.	3.	1.	1512.73	-.046	.075	2766.24	-.088	.138	2.	.389	1.829	SI
42.	42.	3.	1.	1528.98	-.047	.076	2766.24	-.088	.138	2.	.389	1.809	SI
74.	74.	3.	2.	-553.4	-.022	.09	-848.87	-.034	.138	2.	.198	1.534	SI
74.	74.	3.	2.	1502.45	-.048	.054	3765.14	-.135	.138	2.	.494	2.506	SI
107.	107.	3.	3.	1426.23	-.053	.084	2328.83	-.091	.138	2.	.396	1.633	SI
280.	280.	3.	4.	-324.87	-.012	.022	-2001.57	-.077	.138	2.	.358	6.161	SI
280.	280.	3.	4.	112.42	-.004	.013	1212.26	-.05	.138	2.	.264	10.78	SI

#### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	-29.	2942.	10678.	3784.	.57	20.	5 6
0.	0.	3.	1097.	2942.	10678.	3784.	.57	20.	5 6
10.	10.	3.	-29.	2942.	10678.	3784.	.57	20.	5 6
10.	10.	3.	1047.	2942.	10678.	3784.	.57	20.	5 6
18.	18.	3.	-29.	2942.	10678.	3784.	.57	20.	5 6
18.	18.	3.	1007.	2942.	10678.	3784.	.57	20.	5 6
27.	27.	3.	-78.	2942.	10678.	3784.	.57	20.	5 6
27.	27.	3.	958.	2942.	10678.	3784.	.57	20.	5 6
42.	42.	3.	-151.	2942.	10678.	3784.	.57	20.	5 6

42.	42.	3.	885.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-151.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	885.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
74.	74.	3.	-318.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
74.	74.	3.	718.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
107.	107.	3.	-486.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
107.	107.	3.	550.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
140.	140.	3.	-653.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
140.	140.	3.	383.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
173.	173.	3.	-821.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
173.	173.	3.	215.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
206.	206.	3.	-988.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
206.	206.	3.	48.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
239.	239.	3.	-1156.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
239.	239.	3.	-1156.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
253.	253.	3.	-1229.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
263.	263.	3.	-1278.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
270.	270.	3.	-1318.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
280.	280.	3.	-1367.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve	
10.	10.	3.	1.	-189.46	-6.6	255.4	3.83	6.	.0077	16.79	.013	SI
107.	107.	3.	3.	655.05	-24.8	757.1	4.52	5.64	.0227	15.36	.035	SI
239.	239.	3.	4.	291.98	-13.1	656.9	2.26	6.25	.0197	24.76	.049	SI
280.	280.	3.	4.	-249.9	-9.7	338.	3.83	5.84	.0101	16.51	.017	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve	
10.	10.	3.	1.	-189.46	-6.6	255.4	3.83	6.	.0077	16.79	.013	SI
140.	140.	3.	3.	616.73	-23.3	712.8	4.52	5.64	.0214	15.36	.033	SI
239.	239.	3.	4.	282.33	-12.7	635.2	2.26	6.25	.0191	24.76	.047	SI
280.	280.	3.	4.	-249.9	-9.7	338.	3.83	5.84	.0101	16.51	.017	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
10.	10.	3.	1.	-189.46	-6.6	255.4	3.83	6.	.0077	16.79	.013	SI
140.	140.	3.	3.	608.03	-23.	702.8	4.52	5.64	.0211	15.36	.032	SI
239.	239.	3.	4.	279.75	-12.6	629.4	2.26	6.25	.0189	24.76	.047	SI
280.	280.	3.	4.	-249.9	-9.7	338.	3.83	5.84	.0101	16.51	.017	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	9.17	1.092	3.83	.456	2d10 +2d12	5.34	.636	2d12 +2d14
2	9.17	1.092	1.57	.187	2d10	7.6	.905	2d12 +2d12 +2d14
3	6.09	.726	1.57	.187	2d10	4.52	.539	2d12 +2d12
4	6.09	.726	3.83	.456	2d10 +2d12	2.26	.269	2d12

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr26\_p1** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc= 1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs= 1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			
Nome	Descrizione	Sest	
1.	SLU SENZA SISMA 1	1.	
2.	SLU SENZA SISMA 2	1.	
5.	SLU con SISMAX	4.	
6.	SLU con SISMAX	4.	
RARE			
Nome	Descrizione	Sest	
13.	Rara 1	1.	
14.	Rara 2	1.	
FREQUENTI			
Nome	Descrizione	Sest	
15.	Frequente 1	1.	
16.	Frequente 2	1.	
QUASI PERMANENTI			
Nome	Descrizione	Sest	
17.	Quasi Perm	1.	

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## SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A39	3	3	3	0	630.	595.	26.25	1.	2.89	50.702

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsc	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-2321.87	-.036	.066	-4837.71	-.079	.138	2.	.362	2.084
110.	110.	3.	2.	-340.23	-.006	.019	-2493.48	-.045	.138	2.	.244	7.329
144.	144.	3.	3.	1676.86	-.027	.029	7665.57	-.149	.138	2.	.518	4.571
315.	315.	3.	3.	2652.75	-.044	.047	7665.57	-.149	.138	2.	.518	2.89
554.	554.	3.	1.	87.64	-.001	.003	4232.74	-.069	.138	2.	.332	48.3
630.	630.	3.	1.	-2282.97	-.036	.065	-4837.71	-.079	.138	2.	.362	2.119

## TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	2880.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	2789.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	2716.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	2626.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	2491.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	2491.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
76.	76.	3.	2171.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
110.	110.	3.	1851.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
144.	144.	3.	1531.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
178.	178.	3.	1217.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
212.	212.	3.	905.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
247.	247.	3.	613.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
281.	281.	3.	-29.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
281.	281.	3.	367.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
315.	315.	3.	-275.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
315.	315.	3.	121.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
349.	349.	3.	-543.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
383.	383.	3.	-810.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
418.	418.	3.	-1114.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
452.	452.	3.	-1434.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
486.	486.	3.	-1754.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
520.	520.	3.	-2074.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
554.	554.	3.	-2394.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
588.	588.	3.	-2714.	6398.	21355.	3784.	.57	20.	2.5	NO	5	6
588.	588.	3.	-2714.	6398.	21355.	3784.	.57	20.	2.5	NO	5	6
603.	603.	3.	-2848.	6398.	21355.	3784.	.57	20.	2.5	NO	5	6
612.	612.	3.	-2939.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
620.	620.	3.	-2939.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
630.	630.	3.	-2939.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1786.05	-30.4	1003.7	9.27	5.76	.0306	15.82	.048
18.	18.	3.	1.	-1442.53	-24.6	810.7	9.27	5.76	.0243	15.82	.038
315.	315.	3.	3.	2041.14	-33.4	699.7	15.74	5.01	.0236	11.44	.027
630.	630.	3.	1.	-1746.26	-29.7	981.4	9.27	5.76	.0295	15.82	.047

## TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1786.05	-30.4	1003.7	9.27	5.76	.0306	15.82	.048
18.	18.	3.	1.	-1442.56	-24.6	810.7	9.27	5.76	.0243	15.82	.038
315.	315.	3.	3.	2041.86	-33.4	700.	15.74	5.01	.0236	11.44	.027
630.	630.	3.	1.	-1747.23	-29.8	982.	9.27	5.76	.0295	15.82	.047

## TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1786.05	-30.4	1003.7	9.27	5.76	.0306	15.82	.048
18.	18.	3.	1.	-1442.56	-24.6	810.7	9.27	5.76	.0243	15.82	.038
315.	315.	3.	3.	2041.91	-33.4	700.	15.74	5.01	.0236	11.44	.027
630.	630.	3.	1.	-1747.36	-29.8	982.	9.27	5.76	.0295	15.82	.047

## ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	17.31	1.03	9.27	.552	2d10	8.04	.479	4d16
2	17.31	1.03	4.65	.277	2d10	12.66	.754	4d16
3	17.31	1.03	1.57	.093	2d10	15.74	.937	2d14

## MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : Tr25\_p2 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A296	3	3	3	0	400.	365.	16.667	1.3	1.256	29.153
2	A295	3	3	3	0	412.	377.	17.175	1.5	1.75	48.195
3	A293	3	3	3	0	390.	355.	16.263	1.5	2.028	55.841
4	A294	3	3	3	0	420.	385.	17.5	1.5	1.673	46.075
5	A292	3	3	3	0	405.	370.	16.875	1.5	1.839	50.632
6	A291	3	3	3	0	405.	370.	16.875	1.5	1.787	49.199
7	A290	3	3	3	0	405.	370.	16.875	1.5	1.795	49.419
8	A289	3	3	3	0	405.	370.	16.875	1.5	1.803	49.635
9	A288	3	3	3	0	405.	370.	16.875	1.5	1.8	49.573
10	A287	3	3	3	0	392.	358.	16.354	1.3	2.17	50.371

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-209.63	-.003	.007	-4065.9	-.069	.138	2.	.334	19.4	SI
0.	0.	3.	1.	780.2	-.013	.025	4221.79	-.072	.138	2.	.342	5.411	SI
105.	105.	3.	3.	5265.44	-.097	.103	6988.39	-.136	.138	2.	.496	1.327	SI
137.	137.	3.	3.	5563.15	-.103	.109	6988.39	-.136	.138	2.	.496	1.256	SI
232.	232.	3.	4.	4397.92	-.058	.083	7307.05	-.1	.138	2.	.419	1.661	SI
400.	400.	3.	6.	-7554.35	-.083	.09	-11613.35	-.133	.138	2.	.49	1.537	SI
> 400.	0.	3.	6.	-7009.6	-.076	.083	-11613.35	-.133	.138	2.	.49	1.657	SI
427.	27.	3.	6.	120.24	-.001	.002	7379.83	-.075	.138	2.	.352	61.38	SI
474.	74.	3.	7.	1619.15	-.021	.046	4812.74	-.063	.138	2.	.312	2.972	SI
606.	206.	3.	9.	3475.3	-.064	.078	6083.22	-.121	.138	2.	.466	1.75	SI
812.	412.	3.	10	-6469.1	-.074	.077	-11535.12	-.141	.138	2.	.504	1.783	SI
> 812.	0.	3.	10	-6573.84	-.075	.078	-11535.12	-.141	.138	2.	.504	1.755	SI
1007.	195.	3.	8.	3115.74	-.042	.068	6319.17	-.089	.138	2.	.392	2.028	SI
1069.	257.	3.	8.	-102.67	-.001	.003	-5553.57	-.077	.138	2.	.359	54.09	SI
1130.	318.	3.	7.	2015.55	-.026	.058	4795.77	-.063	.138	2.	.314	2.379	SI
1175.	363.	3.	11	913.46	-.009	.02	6357.03	-.065	.138	2.	.321	6.959	SI
1202.	390.	3.	11	-6294.48	-.071	.07	-12272.01	-.149	.138	2.	.518	1.95	SI
>1202.	0.	3.	11	-6915.16	-.078	.077	-12272.01	-.149	.138	2.	.518	1.775	SI
1230.	27.	3.	11	74.	-.001	.002	6357.03	-.065	.138	2.	.321	85.9	SI
1278.	75.	3.	7.	1648.29	-.021	.047	4812.74	-.063	.138	2.	.312	2.92	SI
1412.	210.	3.	9.	3635.21	-.067	.082	6083.22	-.121	.138	2.	.466	1.673	SI
1622.	420.	3.	10	-6727.69	-.077	.08	-11535.12	-.141	.138	2.	.504	1.715	SI
>1622.	0.	3.	10	-5732.56	-.065	.068	-11535.12	-.141	.138	2.	.504	2.012	SI
1696.	74.	3.	7.	1220.04	-.015	.035	4812.74	-.063	.138	2.	.312	3.945	SI
1728.	106.	3.	8.	2153.27	-.029	.047	6319.17	-.089	.138	2.	.392	2.935	SI
1761.	138.	3.	8.	-86.34	-.001	.002	-5553.57	-.077	.138	2.	.359	64.33	SI
1825.	202.	3.	9.	3308.	-.06	.074	6083.22	-.121	.138	2.	.466	1.839	SI
2028.	405.	3.	13	-5126.65	-.066	.099	-7178.3	-.094	.138	2.	.405	1.4	SI
>2028.	0.	3.	13	-5117.15	-.066	.098	-7178.3	-.094	.138	2.	.405	1.403	SI
2133.	106.	3.	9.	-87.06	-.003	.014	-862.09	-.026	.138	2.	.158	9.902	NO
2133.	106.	3.	9.	1486.38	-.026	.033	6083.22	-.121	.138	2.	.466	4.093	SI
2230.	202.	3.	9.	3404.35	-.062	.076	6083.22	-.121	.138	2.	.466	1.787	SI
2359.	331.	3.	12	6.36	0.	0.	4756.14	-.078	.138	2.	.362	747.6	SI
2432.	405.	3.	14	-5244.52	-.065	.091	-7949.31	-.102	.138	2.	.425	1.516	SI
>2432.	0.	3.	14	-5244.95	-.065	.091	-7949.31	-.102	.138	2.	.425	1.516	SI
2506.	74.	3.	15	1.41	0.	0.	4756.14	-.078	.138	2.	.362	3382.	SI
2538.	106.	3.	9.	1374.12	-.024	.031	6083.22	-.121	.138	2.	.466	4.427	SI
2635.	202.	3.	9.	3389.2	-.062	.076	6083.22	-.121	.138	2.	.466	1.795	SI
2732.	299.	3.	9.	-101.14	-.003	.016	-862.09	-.026	.138	2.	.158	8.524	NO

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2838.	405.	3.	16	-5147.02	-.066	.099	-7178.3	-.094	.138	2.	.405	1.395	SI
>2838.	0.	3.	16	-5149.76	-.066	.099	-7178.3	-.094	.138	2.	.405	1.394	SI
3040.	202.	3.	9.	3374.43	-.062	.076	6083.22	-.121	.138	2.	.466	1.803	SI
3104.	267.	3.	9.	-19.	-.001	.003	-862.09	-.026	.138	2.	.158	45.38	NO
3201.	364.	3.	18	66.04	-.001	.001	6357.03	-.065	.138	2.	.321	96.26	SI
3242.	405.	3.	18	-5593.07	-.062	.062	-12272.01	-.149	.138	2.	.518	12.194	SI
>3242.	0.	3.	18	-6517.05	-.073	.073	-12272.01	-.149	.138	2.	.518	1.883	SI
3260.	18.	3.	18	142.73	-.001	.003	6357.03	-.065	.138	2.	.321	44.54	SI
3445.	202.	3.	9.	3378.69	-.062	.076	6083.22	-.121	.138	2.	.466	1.8	SI
3509.	267.	3.	9.	-32.79	-.001	.005	-862.09	-.026	.138	2.	.158	26.29	NO
3606.	364.	3.	19	878.01	-.009	.016	7379.83	-.075	.138	2.	.352	8.405	SI
3648.	405.	3.	19	-6639.37	-.072	.079	-11613.35	-.133	.138	2.	.49	1.749	SI
>3648.	0.	3.	19	-6181.58	-.067	.073	-11613.35	-.133	.138	2.	.49	1.879	SI
3689.	42.	3.	20	1306.68	-.014	.023	7877.75	-.086	.138	2.	.384	6.029	SI
3844.	196.	3.	23	3219.85	-.056	.063	6988.39	-.136	.138	2.	.496	2.17	SI
3906.	258.	3.	24	-182.09	-.002	.003	-7832.09	-.095	.138	2.	.408	43.01	SI
3998.	351.	3.	26	1078.44	-.013	.035	4270.21	-.053	.138	2.	.277	3.96	SI
4040.	393.	3.	26	-6589.12	-.087	.085	-10577.45	-.15	.138	2.	.52	1.605	SI

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TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	3.	6337.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
10.	10.	3.	6337.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
18.	18.	3.	6337.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
27.	27.	3.	6178.	6103.	21355.	3784.	.57	20.	2.5	NO 4 5 6
42.	42.	3.	5471.	6103.	21355.	3784.	.57	20.	2.5	NO 4 5 6
42.	42.	3.	5471.	6103.	21355.	3784.	.57	20.	2.5	NO 4 5 6
73.	73.	3.	3907.	6799.	21355.	3784.	.57	20.	2.5	NO 4 5 6
105.	105.	3.	2383.	7376.	21355.	3784.	.57	20.	2.5	NO 5 6
137.	137.	3.	1079.	7376.	21355.	3784.	.57	20.	2.5	NO 5 6
168.	168.	3.	-1090.	7376.	21355.	3784.	.57	20.	2.5	NO 5 6
200.	200.	3.	-2348.	7376.	21355.	3784.	.57	20.	2.5	NO 5 6
232.	232.	3.	-3912.	7376.	21355.	3784.	.57	20.	2.5	NO 4 5 6
263.	263.	3.	-5476.	7376.	21355.	3784.	.57	20.	2.5	NO 4 5 6
295.	295.	3.	-7040.	6695.	21355.	3784.	.57	20.	2.5	NO 4 5 6
327.	327.	3.	-8604.	6799.	21355.	3784.	.57	20.	2.5	NO 4 5 6
358.	358.	3.	-10168.	8248.	21355.	3784.	.57	20.	2.5	NO 4 5 6
358.	358.	3.	-10168.	8248.	21355.	3784.	.57	20.	2.5	NO 4 5 6
373.	373.	3.	-10874.	8248.	21355.	3784.	.57	20.	2.5	NO 4 5 6
382.	382.	3.	-11033.	8248.	21355.	3784.	.57	20.	2.5	NO 4 5 6
390.	390.	3.	-11033.	8248.	21355.	3784.	.57	20.	2.5	NO 4 5 6
400.	400.	3.	-11033.	8248.	21355.	3784.	.57	20.	2.5	NO 4 5 6
> 400.	0.	3.	9197.	8654.	21355.	3784.	.57	20.	2.5	NO 4 5 6
410.	10.	3.	9197.	8654.	21355.	3784.	.57	20.	2.5	NO 4 5 6
418.	18.	3.	9197.	8654.	21355.	3784.	.57	20.	2.5	NO 4 5 6
427.	27.	3.	9038.	7355.	21355.	3784.	.57	20.	2.5	NO 4 5 6
442.	42.	3.	8331.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
442.	42.	3.	8331.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
474.	74.	3.	6707.	6362.	21355.	3784.	.57	20.	2.5	NO 4 5 6
507.	107.	3.	5143.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
540.	140.	3.	3985.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
573.	173.	3.	-445.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
573.	173.	3.	2872.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
606.	206.	3.	-1522.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
606.	206.	3.	1795.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
639.	239.	3.	-2599.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
639.	239.	3.	718.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
672.	272.	3.	-3676.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
705.	305.	3.	-4753.	6695.	21355.	3784.	.57	20.	2.5	NO 4 5 6
738.	338.	3.	-6295.	6362.	21355.	3784.	.57	20.	2.5	NO 4 5 6
771.	371.	3.	-7910.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
771.	371.	3.	-7910.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
785.	385.	3.	-8616.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
795.	395.	3.	-8776.	6986.	21355.	3784.	.57	20.	2.5	NO 4 5 6
803.	403.	3.	-8776.	6986.	21355.	3784.	.57	20.	2.5	NO 4 5 6
812.	412.	3.	-8776.	6986.	21355.	3784.	.57	20.	2.5	NO 4 5 6
> 812.	0.	3.	8571.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
822.	10.	3.	8571.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
830.	18.	3.	8571.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
839.	27.	3.	8412.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
854.	42.	3.	7705.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
854.	42.	3.	7705.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
884.	72.	3.	6266.	6362.	21355.	3784.	.57	20.	2.5	NO 4 5 6
915.	103.	3.	4923.	6695.	21355.	3784.	.57	20.	2.5	NO 4 5 6
946.	134.	3.	3918.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
977.	164.	3.	-745.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
977.	164.	3.	2912.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
1007.	195.	3.	-1750.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
1007.	195.	3.	1907.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
1038.	226.	3.	-2756.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
1038.	226.	3.	902.	7010.	21355.	3784.	.57	20.	2.5	NO 5 6
1069.	257.	3.	-3761.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
1100.	287.	3.	-4766.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1130.	318.	3.	-6061.	6362.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1161.	349.	3.	-7455.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1161.	349.	3.	-7455.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1175.	363.	3.	-8162.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1185.	373.	3.	-8321.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1193.	381.	3.	-8321.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1202.	390.	3.	-8321.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
>1202.	0.	3.	9265.	8848.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1212.	10.	3.	9265.	8848.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1220.	18.	3.	9265.	8848.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1230.	27.	3.	9106.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1244.	42.	3.	8400.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1244.	42.	3.	8400.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
1278.	75.	3.	6737.	6362.	21355.	3784.	.57	20.	2.5	NO 4 5 6

1311.	109.	3.	5126.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1345.	143.	3.	3905.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1379.	176.	3.	-440.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1379.	176.	3.	2750.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1412.	210.	3.	-1542.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1412.	210.	3.	1648.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1446.	244.	3.	-2645.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1446.	244.	3.	545.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1480.	277.	3.	-3780.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1514.	311.	3.	-4957.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1547.	345.	3.	-6563.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1581.	378.	3.	-8226.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1581.	378.	3.	-8226.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1595.	393.	3.	-8932.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1605.	402.	3.	-9092.	8248.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1613.	410.	3.	-9092.	8248.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1622.	420.	3.	-9092.	8248.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>1622.	0.	3.	8890.	8248.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1632.	10.	3.	8890.	8248.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1640.	18.	3.	8890.	8248.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1650.	27.	3.	8731.	8248.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1664.	42.	3.	8024.	7798.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1664.	42.	3.	8024.	7798.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1696.	74.	3.	6436.	6362.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1728.	106.	3.	4847.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1761.	138.	3.	3258.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
1793.	170.	3.	1888.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1825.	202.	3.	-577.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1825.	202.	3.	681.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1857.	235.	3.	-1747.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1889.	267.	3.	-3096.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
1922.	299.	3.	-4684.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1954.	331.	3.	-6273.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1986.	364.	3.	-7861.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
1986.	364.	3.	-7861.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2000.	378.	3.	-8568.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2010.	388.	3.	-8727.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2018.	395.	3.	-8727.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2028.	405.	3.	-8727.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>2028.	0.	3.	8774.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2037.	10.	3.	8774.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2045.	18.	3.	8774.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2055.	27.	3.	8615.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2069.	42.	3.	7908.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2069.	42.	3.	7908.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2101.	74.	3.	6320.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2133.	106.	3.	4731.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2166.	138.	3.	3143.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2198.	170.	3.	1603.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2230.	202.	3.	-145.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2230.	202.	3.	100.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2262.	235.	3.	-1663.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2294.	267.	3.	-3212.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2327.	299.	3.	-4800.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2359.	331.	3.	-6389.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2391.	364.	3.	-7977.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2391.	364.	3.	-7977.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2405.	378.	3.	-8684.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2415.	388.	3.	-8843.	7588.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2423.	395.	3.	-8843.	7588.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2432.	405.	3.	-8843.	7588.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>2432.	0.	3.	8835.	7046.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2442.	10.	3.	8835.	7046.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2450.	18.	3.	8835.	7046.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2460.	27.	3.	8676.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2474.	42.	3.	7969.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2474.	42.	3.	7969.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2506.	74.	3.	6381.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2538.	106.	3.	4792.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2571.	138.	3.	3204.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2603.	170.	3.	1656.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2635.	202.	3.	-104.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2635.	202.	3.	139.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2667.	235.	3.	-1609.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2699.	267.	3.	-3151.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
2732.	299.	3.	-4739.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2764.	331.	3.	-6328.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2796.	364.	3.	-7916.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2796.	364.	3.	-7916.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2810.	378.	3.	-8623.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2820.	388.	3.	-8782.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2828.	395.	3.	-8782.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2838.	405.	3.	-8782.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>2838.	0.	3.	8776.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2847.	10.	3.	8776.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2855.	18.	3.	8776.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2865.	27.	3.	8616.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2879.	42.	3.	7910.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2879.	42.	3.	7910.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2911.	74.	3.	6321.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2943.	106.	3.	4733.	7010.	21355.	3784.	.57	20.	2.5	NO	4	5	6
2976.	138.	3.	3144.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3008.	170.	3.	1787.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3040.	202.	3.	-649.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3040.	202.	3.	603.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3072.	235.	3.	-1846.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3104.	267.	3.	-3210.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
3137.	299.	3.	-4799.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6

3169.	331.	3.	-6387.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3201.	364.	3.	-7976.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3201.	364.	3.	-7976.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3215.	378.	3.	-8682.	8248.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3225.	388.	3.	-8841.	8848.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3233.	395.	3.	-8841.	8848.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3242.	405.	3.	-8841.	8848.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>3242.	0.	3.	8759.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3252.	10.	3.	8759.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3260.	18.	3.	8759.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3270.	27.	3.	8600.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3284.	42.	3.	7894.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3284.	42.	3.	7894.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3316.	74.	3.	6314.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3348.	106.	3.	4813.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3381.	138.	3.	3759.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3413.	170.	3.	-673.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3413.	170.	3.	2706.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3445.	202.	3.	-1727.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3445.	202.	3.	1653.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3477.	235.	3.	-2780.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3477.	235.	3.	599.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
3509.	267.	3.	-3835.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3542.	299.	3.	-4892.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3574.	331.	3.	-6403.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3606.	364.	3.	-7992.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3606.	364.	3.	-7992.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3620.	378.	3.	-8699.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3630.	388.	3.	-8858.	8654.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3638.	395.	3.	-8858.	8654.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3648.	405.	3.	-8858.	8654.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>3648.	0.	3.	8361.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3657.	10.	3.	8361.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3665.	18.	3.	8361.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3675.	27.	3.	8201.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3689.	42.	3.	7495.	6799.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3689.	42.	3.	7495.	6799.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3720.	72.	3.	6065.	6799.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3751.	103.	3.	4732.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3782.	134.	3.	3719.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3813.	165.	3.	-878.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3813.	165.	3.	2707.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3844.	196.	3.	-1890.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3844.	196.	3.	1694.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3875.	227.	3.	-2903.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3875.	227.	3.	681.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
3906.	258.	3.	-3915.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3937.	289.	3.	-4928.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3968.	320.	3.	-6304.	6799.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3998.	351.	3.	-7774.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
3998.	351.	3.	-7774.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
4013.	365.	3.	-8481.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
4022.	375.	3.	-8640.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
4030.	383.	3.	-8640.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
4040.	393.	3.	-8640.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	825.56	-14.9	532.	8.04	5.88	.016	22.95	.037	SI
73.	73.	3.	2.	2990.83	-52.	1455.6	11.12	5.5	.0566	21.44	.121	SI
137.	137.	3.	3.	4114.3	-69.5	1554.2	14.2	5.12	.0652	12.25	.08	SI
400.	400.	3.	6.	-5513.98	-63.9	1291.4	22.93	4.95	.056	8.58	.048	SI
> 400.	0.	3.	6.	-4321.18	-50.	1012.	22.93	4.95	.042	8.58	.036	SI
606.	206.	3.	9.	2571.01	-45.6	1122.1	12.19	5.29	.0416	13.48	.056	SI
812.	412.	3.	10	-3735.36	-44.8	877.5	22.93	4.89	.0354	8.54	.03	SI
> 812.	0.	3.	10	-3717.05	-44.5	873.2	22.93	4.89	.0352	8.54	.03	SI
1007.	195.	3.	8.	2304.98	-34.2	993.	12.19	5.56	.0346	13.88	.048	SI
1202.	390.	3.	11	-3390.46	-39.9	747.9	24.5	4.81	.0294	8.07	.024	SI
>1202.	0.	3.	11	-4306.8	-50.7	950.	24.5	4.81	.0395	8.07	.032	SI
1412.	210.	3.	9.	2689.11	-47.7	1173.6	12.19	5.29	.0442	13.48	.06	SI
1622.	420.	3.	10	-4062.2	-48.7	954.3	22.93	4.89	.0392	8.54	.033	SI
>1622.	0.	3.	10	-4014.31	-48.1	943.1	22.93	4.89	.0387	8.54	.033	SI
1825.	202.	3.	9.	2447.51	-43.4	1068.2	12.19	5.29	.0389	13.48	.052	SI
2028.	405.	3.	13	-3792.65	-52.6	1439.5	13.89	5.46	.0586	12.39	.073	SI
>2028.	0.	3.	13	-3785.67	-52.5	1436.9	13.89	5.46	.0585	12.39	.072	SI
2230.	202.	3.	9.	2518.25	-44.6	1099.	12.19	5.29	.0405	13.48	.055	SI
2432.	405.	3.	14	-3879.81	-52.1	1328.7	15.46	5.35	.0543	11.45	.062	SI
>2432.	0.	3.	14	-3880.11	-52.1	1328.8	15.46	5.35	.0543	11.45	.062	SI
2635.	202.	3.	9.	2507.3	-44.4	1094.3	12.19	5.29	.0402	13.48	.054	SI
2838.	405.	3.	16	-3807.27	-52.8	1445.1	13.89	5.46	.0589	12.39	.073	SI
>2838.	0.	3.	16	-3809.33	-52.8	1445.9	13.89	5.46	.0589	12.39	.073	SI
3040.	202.	3.	9.	2495.93	-44.2	1089.3	12.19	5.29	.04	13.48	.054	SI
3242.	405.	3.	18	-3900.78	-45.9	860.5	24.5	4.81	.035	8.07	.028	SI
>3242.	0.	3.	18	-3782.22	-44.5	834.3	24.5	4.81	.0337	8.07	.027	SI
3445.	202.	3.	9.	2499.46	-44.3	1090.8	12.19	5.29	.0401	13.48	.054	SI
3648.	405.	3.	19	-3920.82	-45.4	918.3	22.93	4.95	.0374	8.58	.032	SI
>3648.	0.	3.	19	-3360.76	-38.9	787.1	22.93	4.95	.0308	8.58	.026	SI
3844.	196.	3.	23	2381.58	-40.2	899.7	14.2	5.12	.0325	12.25	.04	SI
4040.	393.	3.	26	-3738.37	-49.1	949.	21.3	4.87	.0385	9.4	.036	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	SaCC	As	hc,ef	Eps%	Sr,max	Wd	Ve
18.	18.	3.1.	752.7	-13.6	485.	8.04	5.88	.0146	22.95	.033	SI
73.	73.	3.2.	2751.52	-47.9	1339.1	11.12	5.5	.0508	21.44	.109	SI

137.	137.	3.	3.	3788.96!	-64.	1431.3!	14.2	5.12	.0591	12.25	.072	SI
400.	400.	3.	6.	-5086.53!	-58.9	1191.3!	22.93	4.95	.051	8.58	.044	SI
> 400.	0.	3.	6.	-3980.21!	-46.1	932.2	22.93	4.95	.038	8.58	.033	SI
606.	206.	3.	9.	2371.21!	-42.	1034.9!	12.19	5.29	.0373	13.48	.05	SI
812.	412.	3.	10	-3450.65!	-41.3	810.7	22.93	4.89	.032	8.54	.027	SI
> 812.	0.	3.	10	-3421.31!	-41.	803.8	22.93	4.89	.0317	8.54	.027	SI
1007.	195.	3.	8.	2125.84!	-31.5	915.8!	12.19	5.56	.0307	13.88	.043	SI
1202.	390.	3.	11	-3134.25!	-36.9	691.4	24.5	4.81	.0265	8.07	.021	SI
>1202.	0.	3.	11	-3964.89!	-46.7	874.6	24.5	4.81	.0357	8.07	.029	SI
1412.	210.	3.	9.	2480.31!	-44.	1082.5!	12.19	5.29	.0396	13.48	.053	SI
1622.	420.	3.	10	-3753.79!	-45.	881.9	22.93	4.89	.0356	8.54	.03	SI
>1622.	0.	3.	10	-3696.65!	-44.3	868.5	22.93	4.89	.0349	8.54	.03	SI
1825.	202.	3.	9.	2259.31!	-40.	986.	12.19	5.29	.0348	13.48	.047	SI
2028.	405.	3.	13	-3499.99!	-48.6	1328.5!	13.89	5.46	.053	12.39	.066	SI
>2028.	0.	3.	13	-3493.83!	-48.5	1326.1!	13.89	5.46	.0529	12.39	.066	SI
2230.	202.	3.	9.	2321.65!	-41.2	1013.2	12.19	5.29	.0362	13.48	.049	SI
2432.	405.	3.	14	-3578.12!	-48.	1225.4	15.46	5.35	.0492	11.45	.056	SI
>2432.	0.	3.	14	-3578.33!	-48.	1225.4	15.46	5.35	.0492	11.45	.056	SI
2635.	202.	3.	9.	2312.49!	-41.	1009.2	12.19	5.29	.036	13.48	.049	SI
2838.	405.	3.	16	-3511.95!	-48.7	1333.	13.89	5.46	.0533	12.39	.066	SI
>2838.	0.	3.	16	-3513.9	-48.7	1333.7	13.89	5.46	.0533	12.39	.066	SI
3040.	202.	3.	9.	2301.06!	-40.8	1004.3	12.19	5.29	.0357	13.48	.048	SI
3242.	405.	3.	18	-3599.23!	-42.4	793.9	24.5	4.81	.0317	8.07	.026	SI
>3242.	0.	3.	18	-3483.28!	-41.	768.4	24.5	4.81	.0304	8.07	.025	SI
3445.	202.	3.	9.	2305.32!	-40.9	1006.1	12.19	5.29	.0358	13.48	.048	SI
3648.	405.	3.	19	-3621.34!	-41.9	848.1	22.93	4.95	.0338	8.58	.029	SI
>3648.	0.	3.	19	-3096.74!	-35.9	725.3	22.93	4.95	.0277	8.58	.024	SI
3844.	196.	3.	23	2197.02!	-37.1	830.	14.2	5.12	.029	12.25	.036	SI
4040.	393.	3.	26	-3450.04!	-45.3	875.8!	21.3	4.87	.0349	9.4	.033	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	729.8	-13.1	470.3	8.04	5.88	.0141	22.95	.032	SI
73.	73.	3.	2.	2673.54	-46.5	1301.2	11.12	5.5	.0489	21.44	.105	SI
137.	137.	3.	3.	3682.18	-62.2	1391.	14.2	5.12	.057	12.25	.07	SI
400.	400.	3.	6.	-4942.88	-57.3	1157.6	22.93	4.95	.0493	8.58	.042	SI
> 400.	0.	3.	6.	-3868.19	-44.8	905.9	22.93	4.95	.0367	8.58	.032	SI
606.	206.	3.	9.	2304.77	-40.9	1005.9	12.19	5.29	.0358	13.48	.048	SI
812.	412.	3.	10	-3353.78	-40.2	787.9	22.93	4.89	.0309	8.54	.026	SI
> 812.	0.	3.	10	-3324.85	-39.8	781.1	22.93	4.89	.0306	8.54	.026	SI
1007.	195.	3.	8.	2066.24	-30.6	890.1	12.19	5.56	.0294	13.88	.041	SI
1202.	390.	3.	11	-3046.49	-35.9	672.	24.5	4.81	.0256	8.07	.021	SI
>1202.	0.	3.	11	-3852.99	-45.3	849.9	24.5	4.81	.0345	8.07	.028	SI
1412.	210.	3.	9.	2410.59	-42.7	1052.1	12.19	5.29	.0381	13.48	.051	SI
1622.	420.	3.	10	-3649.17	-43.7	857.3	22.93	4.89	.0344	8.54	.029	SI
>1622.	0.	3.	10	-3592.66	-43.	844.	22.93	4.89	.0337	8.54	.029	SI
1825.	202.	3.	9.	2196.02	-38.9	958.4	12.19	5.29	.0334	13.48	.045	SI
2028.	405.	3.	13	-3401.65	-47.2	1291.1	13.89	5.46	.0512	12.39	.063	SI
>2028.	0.	3.	13	-3395.68	-47.1	1288.9	13.89	5.46	.0511	12.39	.063	SI
2230.	202.	3.	9.	2256.43	-40.	984.8	12.19	5.29	.0348	13.48	.047	SI
2432.	405.	3.	14	-3477.8	-46.7	1191.	15.46	5.35	.0475	11.45	.054	SI
>2432.	0.	3.	14	-3478.	-46.7	1191.1	15.46	5.35	.0475	11.45	.054	SI
2635.	202.	3.	9.	2247.67	-39.8	981.	12.19	5.29	.0346	13.48	.047	SI
2838.	405.	3.	16	-3413.02	-47.3	1295.4	13.89	5.46	.0514	12.39	.064	SI
>2838.	0.	3.	16	-3414.94	-47.4	1296.2	13.89	5.46	.0514	12.39	.064	SI
3040.	202.	3.	9.	2236.25	-39.6	976.	12.19	5.29	.0343	13.48	.046	SI
3242.	405.	3.	18	-3498.91	-41.2	771.8	24.5	4.81	.0306	8.07	.025	SI
>3242.	0.	3.	18	-3384.05	-39.8	746.5	24.5	4.81	.0293	8.07	.024	SI
3445.	202.	3.	9.	2240.63	-39.7	977.9	12.19	5.29	.0344	13.48	.046	SI
3648.	405.	3.	19	-3521.04	-40.8	824.6	22.93	4.95	.0327	8.58	.028	SI
>3648.	0.	3.	19	-3006.39	-34.8	704.1	22.93	4.95	.0266	8.58	.023	SI
3844.	196.	3.	23	2134.96	-36.1	806.5	14.2	5.12	.0278	12.25	.034	SI
4040.	393.	3.	26	-3357.33	-44.1	852.3	21.3	4.87	.0337	9.4	.032	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.77	.939	7.73	.46	2d10 +2d14 +2d14	8.04	.479	4d16
2	15.77	.939	4.65	.277	2d10 +2d14	11.12	.662	4d16 +2d14
3	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +4d16 +2d14
4	24.82	1.477	10.62	.632	2d10 +2d24	14.2	.845	2d14 +4d16 +2d14
5	27.9	1.661	16.78	.999	2d10 +2d14 +2d1 ...	11.12	.662	4d16 +2d14
6	37.01	2.203	22.93	1.365	2d10 +2d14 +2d1 ...	14.07	.838	4d16 +3d16
7	25.89	1.541	16.78	.999	2d10 +2d14 +2d1 ...	9.11	.542	2d14 +3d16
8	22.81	1.358	10.62	.632	2d10 +2d24	12.19	.726	2d14 +2d14 +3d16
9	13.76	.819	1.57	.093	2d10	12.19	.726	2d14 +2d14 +3d16
10	35.	2.083	22.93	1.365	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
11	36.57	2.177	24.5	1.459	2d10 +2d10 +2d1 ...	12.06	.718	3d16 +3d16
12	16.84	1.002	7.73	.46	2d10 +2d14 +2d14	9.11	.542	2d14 +3d16
13	25.95	1.545	13.89	.827	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
14	27.52	1.638	15.46	.92	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
15	16.84	1.002	7.73	.46	2d14 +2d14 +2d10	9.11	.542	2d14 +3d16
16	25.95	1.545	13.89	.827	2d14 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
17	25.89	1.541	16.78	.999	2d14 +2d14 +2d1 ...	9.11	.542	2d14 +3d16
18	36.57	2.177	24.5	1.459	2d14 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
19	37.01	2.203	22.93	1.365	2d14 +2d14 +2d1 ...	14.07	.838	4d16 +3d16
20	37.01	2.203	19.85	1.182	2d14 +2d14 +2d1 ...	17.15	1.021	2d14 +4d16 +3d16
21	27.9	1.661	16.78	.999	2d14 +2d14 +2d1 ...	11.12	.662	2d14 +4d16
22	24.82	1.477	10.62	.632	2d10 +2d24	14.2	.845	2d14 +2d14 +4d16
23	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +2d14 +4d16
24	29.34	1.747	15.14	.901	2d10 +3d24	14.2	.845	2d14 +2d14 +4d16
25	29.34	1.747	18.22	1.085	2d14 +2d10 +3d24	11.12	.662	2d14 +4d16
26	29.34	1.747	21.3	1.268	2d14 +2d14 +2d1 ...	8.04	.479	4d16

MESSAGGI

4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18

## 4.1.2.3.5.2].

5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].

6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * t * d$  oppure  $Af < 0.0013 * b * t * d$ ) [NTC18 4.1.6.1.1].

Nome travata : Tr11\_p2 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd( $k * f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

&lt;-

## SEZIONI UTILIZZATE

3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=287713.1  
 5) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A944	3	3	3	0	125.	90.	5.208	1.3	1.	23.429
2	A302	3	3	3	0	405.	370.	16.875	1.5	2.088	60.493
3	A303	3	3	3	0	405.	370.	16.875	1.5	2.297	68.845
4	A304	3	3	3	0	405.	370.	16.875	1.5	1.954	58.548
5	A344	5	5	5	0	405.	370.	16.875	1.5	1.777	49.488
6	A306	5	5	5	0	432.	398.	18.021	1.3	1.817	43.264

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-3105.52	-.063	.088	-4838.35	-.102	.138	2.	.425	1.558	SI
125.	125.	3.	1.	-2292.03	-.045	.065	-4838.35	-.102	.138	2.	.425	1.111	SI
> 125.	0.	3.	1.	-1634.39	-.032	.046	-4838.35	-.102	.138	2.	.425	1.296	SI
328.	202.	3.	3.	1936.97	-.043	.066	4044.18	-.097	.138	2.	.412	2.088	SI
424.	299.	3.	3.	745.69	-.016	.025	4044.18	-.097	.138	2.	.412	5.423	SI
456.	331.	3.	4.	-862.61	-.019	.045	-2635.53	-.06	.138	2.	.302	3.055	SI
456.	331.	3.	4.	32.15	-.001	.001	2982.96	-.067	.138	2.	.325	92.78	SI
530.	405.	3.	5.	-2667.56	-.047	.075	-4908.6	-.09	.138	2.	.393	1.84	SI
> 530.	0.	3.	5.	-2692.19	-.047	.076	-4908.6	-.09	.138	2.	.393	1.823	SI
636.	106.	3.	6.	-52.85	-.002	.008	-861.5	-.03	.138	2.	.177	16.3	NO
636.	106.	3.	6.	515.61	-.012	.02	3502.7	-.087	.138	2.	.385	6.793	SI
732.	202.	3.	6.	1524.8	-.035	.06	3502.7	-.087	.138	2.	.385	2.297	SI
829.	299.	3.	6.	-173.98	-.006	.028	-861.5	-.03	.138	2.	.177	4.952	NO
935.	405.	3.	8.	-2448.23	-.044	.078	-4350.63	-.082	.138	2.	.372	1.777	SI
> 935.	0.	3.	8.	-2433.83	-.044	.077	-4350.63	-.082	.138	2.	.372	1.788	SI
962.	27.	3.	8.	-2433.83	-.044	.077	-4350.63	-.082	.138	2.	.372	1.788	SI
1009.	74.	3.	7.	78.95	-.002	.004	2974.77	-.07	.138	2.	.335	37.68	SI
1170.	235.	3.	6.	1792.96	-.042	.07	3502.7	-.087	.138	2.	.385	1.954	SI
1202.	267.	3.	6.	-461.98	-.016	.074	-861.5	-.03	.138	2.	.177	1.865	NO
1299.	364.	3.	11	651.74	-.009	.018	5026.52	-.068	.138	2.	.33	7.712	SI
1340.	405.	3.	11	-3398.12	-.047	.056	-8403.74	-.125	.138	2.	.475	2.473	SI
> 1340.	0.	5.	12	-7354.57	-.099	.12	-8434.92	-.116	.138	2.	.456	1.147	SI
1367.	27.	5.	12	-7354.57	-.099	.12	-8434.92	-.116	.138	2.	.456	1.147	SI
1446.	106.	5.	14	-1670.03	-.025	.056	-4148.74	-.064	.138	2.	.316	2.484	SI
1543.	202.	5.	15	3244.87	-.06	.077	5766.71	-.115	.138	2.	.454	1.777	SI
1704.	363.	5.	17	1759.08	-.019	.038	6462.9	-.073	.138	2.	.346	3.674	SI
1745.	405.	5.	17	-5630.29	-.066	.079	-9841.83	-.121	.138	2.	.467	1.748	SI
1745.	405.	5.	17	482.81	-.005	.01	6462.9	-.073	.138	2.	.346	13.39	SI
> 1745.	0.	5.	17	-6588.97	-.078	.092	-9841.83	-.121	.138	2.	.467	1.494	SI
1762.	18.	5.	17	143.96	-.002	.003	6462.9	-.073	.138	2.	.346	44.89	SI
1882.	137.	5.	19	-308.81	-.009	.049	-862.03	-.026	.138	2.	.157	2.791	NO
1882.	137.	5.	19	2809.23	-.05	.062	6140.47	-.122	.138	2.	.468	2.186	SI
1945.	200.	5.	19	3380.18	-.062	.075	6140.47	-.122	.138	2.	.468	1.817	SI
2150.	405.	5.	21	-6847.57	-.108	.133	-7105.15	-.113	.138	2.	.45	1.038	SI

2178. |433. |5. |22| -6847.57!-.088| .131| -7246.21|-.094| .138|2. | .405|1.058|SI|

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	1827.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	1827.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
18.	18.	3.	1827.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
27.	27.	3.	1758.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1505.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1505.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
62.	62.	3.	-131.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
62.	62.	3.	1167.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
84.	84.	3.	-470.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
84.	84.	3.	828.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
84.	84.	3.	-470.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
84.	84.	3.	828.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
98.	98.	3.	-701.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
98.	98.	3.	598.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
108.	108.	3.	-753.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
108.	108.	3.	442.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
115.	115.	3.	-753.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
115.	115.	3.	442.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
125.	125.	3.	-753.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
125.	125.	3.	442.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
> 125.	0.	3.	3915.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
135.	10.	3.	3915.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
142.	18.	3.	3915.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
152.	27.	3.	3839.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
166.	42.	3.	3503.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
166.	42.	3.	3503.	5819.	18305.	3784.	.57	20.	2.5	NO	5 6
199.	74.	3.	2746.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
231.	106.	3.	1990.	5478.	18305.	3784.	.57	20.	2.5	NO	5 6
263.	138.	3.	1234.	5478.	18305.	3784.	.57	20.	2.5	NO	5 6
295.	170.	3.	524.	5478.	18305.	3784.	.57	20.	2.5	NO	5 6
328.	202.	3.	-279.	5478.	18305.	3784.	.57	20.	2.5	NO	5 6
360.	235.	3.	-1036.	5478.	18305.	3784.	.57	20.	2.5	NO	5 6
392.	267.	3.	-1792.	5478.	18305.	3784.	.57	20.	2.5	NO	5 6
424.	299.	3.	-2548.	5478.	18305.	3784.	.57	20.	2.5	NO	5 6
456.	331.	3.	-3305.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
488.	364.	3.	-4061.	5314.	18305.	3784.	.57	20.	2.5	NO	4 5 6
488.	364.	3.	-4061.	5314.	18305.	3784.	.57	20.	2.5	NO	4 5 6
503.	378.	3.	-4398.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
512.	388.	3.	-4474.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
520.	395.	3.	-4474.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
530.	405.	3.	-4474.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
> 530.	0.	3.	4264.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
540.	10.	3.	4264.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
548.	18.	3.	4264.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
557.	27.	3.	4188.	5819.	18305.	3784.	.57	20.	2.5	NO	4 5 6
572.	42.	3.	3852.	5314.	18305.	3784.	.57	20.	2.5	NO	4 5 6
572.	42.	3.	3852.	5314.	18305.	3784.	.57	20.	2.5	NO	4 5 6
604.	74.	3.	3095.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
636.	106.	3.	2339.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
668.	138.	3.	1583.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
700.	170.	3.	869.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
732.	202.	3.	-92.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
732.	202.	3.	187.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
765.	235.	3.	-745.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
797.	267.	3.	-1443.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
829.	299.	3.	-2199.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
861.	331.	3.	-2956.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
894.	364.	3.	-3712.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
894.	364.	3.	-3712.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
908.	378.	3.	-4049.	5578.	18305.	3784.	.57	20.	2.5	NO	4 5 6
918.	388.	3.	-4125.	5578.	18305.	3784.	.57	20.	2.5	NO	4 5 6
925.	395.	3.	-4125.	5578.	18305.	3784.	.57	20.	2.5	NO	4 5 6
935.	405.	3.	-4125.	5578.	18305.	3784.	.57	20.	2.5	NO	4 5 6
> 935.	0.	3.	4169.	5578.	18305.	3784.	.57	20.	2.5	NO	4 5 6
945.	10.	3.	4169.	5578.	18305.	3784.	.57	20.	2.5	NO	4 5 6
952.	18.	3.	4169.	5578.	18305.	3784.	.57	20.	2.5	NO	4 5 6
962.	27.	3.	4093.	5578.	18305.	3784.	.57	20.	2.5	NO	4 5 6
976.	42.	3.	3756.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
976.	42.	3.	3756.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
1009.	74.	3.	3000.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
1041.	106.	3.	2260.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
1073.	138.	3.	1617.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
1105.	170.	3.	-44.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
1105.	170.	3.	1045.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
1138.	203.	3.	-563.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
1138.	203.	3.	526.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
1170.	235.	3.	-1082.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
1170.	235.	3.	7.	5204.	18305.	3784.	.57	20.	2.5	NO	5 6
1202.	267.	3.	-1658.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
1234.	299.	3.	-2310.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
1266.	331.	3.	-3051.	5044.	18305.	3784.	.57	20.	2.5	NO	5 6
1299.	364.	3.	-3808.	5044.	18305.	3784.	.57	20.	2.5	NO	4 5 6
1299.	364.	3.	-3808.	5044.	18305.	3784.	.57	20.	2.5	NO	4 5 6
1313.	378.	3.	-4144.	5044.	18305.	3784.	.57	20.	2.5	NO	4 5 6
1323.	388.	3.	-4220.	5832.	18305.	3784.	.57	20.	2.5	NO	4 5 6
1330.	395.	3.	-4220.	5832.	18305.	3784.	.57	20.	2.5	NO	4 5 6
1340.	405.	3.	-4220.	5832.	18305.	3784.	.57	20.	2.5	NO	4 5 6
> 1340.	0.	5.	7759.	7769.	21355.	1892.	.57	40.	2.5	NO	4 7 5 6
1350.	10.	5.	7759.	7769.	21355.	1892.	.57	40.	2.5	NO	4 7 5 6
1358.	18.	5.	7759.	7769.	21355.	1892.	.57	40.	2.5	NO	4 7 5 6
1367.	27.	5.	7681.	7769.	21355.	1892.	.57	40.	2.5	NO	4 7 5 6
1382.	42.	5.	7333.	5884.	21355.	1892.	.57	40.	2.5	NO	4 7 5 6
1382.	42.	5.	7333.	5884.	21355.	1892.	.57	40.	2.5	NO	4 7 5 6

1414.	74.	5.	6552.	6391.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1446.	106.	5.	4618.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1478.	138.	5.	3693.	6875.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1510.	170.	5.	-575.	6875.	21355.	1892.	.57	40.	2.5	NO	7	5	6	
1510.	170.	5.	2769.	6875.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1543.	202.	5.	-1499.	6875.	21355.	1892.	.57	40.	2.5	NO	7	5	6	
1543.	202.	5.	1845.	6875.	21355.	1892.	.57	40.	2.5	NO	7	5	6	
1575.	235.	5.	-2423.	6875.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1575.	235.	5.	921.	6875.	21355.	1892.	.57	40.	2.5	NO	7	5	6	
1607.	267.	5.	-3348.	6875.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1639.	299.	5.	-4290.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1671.	331.	5.	-5317.	6391.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1704.	363.	5.	-6729.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1704.	363.	5.	-6729.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1718.	378.	5.	-7357.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1728.	387.	5.	-7498.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1735.	395.	5.	-7498.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1745.	405.	5.	-7498.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
>1745.	0.	5.	8505.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1755.	10.	5.	8505.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1762.	18.	5.	8505.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1772.	27.	5.	8360.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1786.	42.	5.	7715.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1786.	42.	5.	7715.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1818.	73.	5.	6286.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1850.	105.	5.	4858.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1882.	137.	5.	3864.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1914.	169.	5.	-280.	7034.	21355.	1892.	.57	40.	2.5	NO	7	5	6	
1914.	169.	5.	2919.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1945.	200.	5.	-1209.	7034.	21355.	1892.	.57	40.	2.5	NO	7	5	6	
1945.	200.	5.	1990.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1977.	232.	5.	-2137.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
1977.	232.	5.	1062.	7034.	21355.	1892.	.57	40.	2.5	NO	7	5	6	
2009.	264.	5.	-3064.	7034.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2009.	264.	5.	135.	7034.	21355.	1892.	.57	40.	2.5	NO	7	5	6	
2041.	296.	5.	-4041.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2072.	327.	5.	-5072.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2104.	359.	5.	-6481.	6391.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2136.	391.	5.	-7890.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2136.	391.	5.	-7890.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2150.	405.	5.	-8524.	5884.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2160.	415.	5.	-8666.	6055.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2168.	423.	5.	-8666.	6055.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6
2178.	433.	5.	-8666.	6055.	21355.	1892.	.57	40.	2.5	NO	4	7	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-2292.34!	-46.5	1273.7	9.49	5.47	.0476	13.28	.063	SI
27.	27.	3.	1.	-2163.19!	-43.9	1201.9	9.49	5.47	.044	13.28	.058	SI
42.	42.	3.	1.	-2000.02!	-40.5	1111.3	9.49	5.47	.0394	13.28	.052	SI
62.	62.	3.	1.	-1819.98!	-36.9	1011.2	9.49	5.47	.0344	13.28	.046	SI
98.	98.	3.	1.	-1703.74!	-34.5	946.7	9.49	5.47	.0312	13.28	.041	SI
125.	125.	3.	1.	-1707.07!	-34.6	948.5	9.49	5.47	.0313	13.28	.042	SI
> 125.	0.	3.	1.	-1220.7	-24.7	678.3	9.49	5.47	.0203	13.28	.027	SI
328.	202.	3.	3.	1444.79!	-32.6	956.9	7.92	5.58	.0287	15.08	.043	SI
530.	405.	3.	5.	-1990.11!	-37.3	1100.2	9.49	5.58	.0386	13.43	.052	SI
> 530.	0.	3.	5.	-2008.53!	-37.7	1110.4	9.49	5.58	.0391	13.43	.053	SI
732.	202.	3.	6.	1137.87!	-27.1	872.9	6.79	5.72	.0262	16.79	.044	SI
935.	405.	3.	8.	-1816.13!	-35.5	1134.2	8.36	5.71	.0381	14.52	.055	SI
> 935.	0.	3.	8.	-1815.89!	-35.5	1134.1	8.36	5.71	.0381	14.52	.055	SI
952.	18.	3.	8.	-1815.89!	-35.5	1134.1	8.36	5.71	.0381	14.52	.055	SI
1138.	203.	3.	6.	1198.96!	-28.5	919.8	6.79	5.72	.0276	16.79	.046	SI
1340.	405.	3.	11	-1886.58!	-28.1	608.7	16.59	5.07	.0206	9.55	.02	SI
>1340.	0.	5.	12	-4459.58!	-61.2	1432.2	16.59	5.2	.0604	10.42	.063	SI
1358.	18.	5.	12	-4459.58!	-61.2	1432.2	16.59	5.2	.0604	10.42	.063	SI
1543.	202.	5.	15	2402.29!	-43.4	1108.	11.5	5.35	.0401	13.62	.055	SI
1745.	405.	5.	17	-2702.6	-33.8	746.2	19.35	5.1	.0274	9.7	.027	SI
>1745.	0.	5.	17	-3834.5	-48.	1058.7	19.35	5.1	.0431	9.7	.042	SI
1945.	200.	5.	19	2491.73!	-44.	1077.	12.32	5.28	.0395	13.26	.052	SI
2160.	415.	5.	21	-4141.05!	-63.8	1570.2	14.01	5.29	.0656	12.	.079	SI
2178.	433.	5.	22	-4141.05!	-56.9	1557.6	14.01	5.46	.0646	12.23	.079	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-2083.63!	-42.2	1157.7	9.49	5.47	.0418	13.28	.055	SI
27.	27.	3.	1.	-1968.72!	-39.9	1093.9	9.49	5.47	.0386	13.28	.051	SI
42.	42.	3.	1.	-1824.95!	-37.	1014.	9.49	5.47	.0346	13.28	.046	SI
62.	62.	3.	1.	-1669.77!	-33.9	927.8	9.49	5.47	.0303	13.28	.04	SI
98.	98.	3.	1.	-1584.09!	-32.1	880.2	9.49	5.47	.0279	13.28	.037	SI
125.	125.	3.	1.	-1593.66!	-32.3	885.5	9.49	5.47	.0282	13.28	.037	SI
> 125.	0.	3.	1.	-1149.42!	-23.3	638.7	9.49	5.47	.0192	13.28	.025	SI
328.	202.	3.	3.	1356.56!	-30.6	898.4	7.92	5.58	.027	15.08	.041	SI
530.	405.	3.	5.	-1869.79!	-35.1	1033.7	9.49	5.58	.0353	13.43	.047	SI
> 530.	0.	3.	5.	-1887.16!	-35.4	1043.3	9.49	5.58	.0358	13.43	.048	SI
732.	202.	3.	6.	1069.76!	-25.5	820.6	6.79	5.72	.0246	16.79	.041	SI
935.	405.	3.	8.	-1705.66!	-33.4	1065.2	8.36	5.71	.0346	14.52	.05	SI
> 935.	0.	3.	8.	-1705.34!	-33.4	1065.	8.36	5.71	.0346	14.52	.05	SI
952.	18.	3.	8.	-1705.34!	-33.4	1065.	8.36	5.71	.0346	14.52	.05	SI
1138.	203.	3.	6.	1125.79!	-26.8	863.6	6.79	5.72	.0259	16.79	.043	SI
1340.	405.	3.	11	-1775.41!	-26.4	572.9	16.59	5.07	.0188	9.55	.018	SI
>1340.	0.	5.	12	-4116.28!	-56.5	1321.9	16.59	5.2	.0549	10.42	.057	SI
1543.	202.	5.	15	2216.93!	-40.1	1022.5	11.5	5.35	.0358	13.62	.049	SI
1745.	405.	5.	17	-2512.12!	-31.4	693.6	19.35	5.1	.0248	9.7	.024	SI
>1745.	0.	5.	17	-3517.3!	-44.	971.1	19.35	5.1	.0387	9.7	.038	SI

1945.	200.	5.	19	2280.93!	-40.3!	985.8!	12.32!	5.28!	.035!	13.26!	.046!	SI
2160.	415.	5.	21	-3784.66!	-58.3!	1435.!	14.01!	5.29!	.0588!	12.!	.071!	SI
2178.	433.	5.	22	-3784.66!	-52.!	1423.6!	14.01!	5.46!	.0579!	12.23!	.071!	SI

# TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-2023.83!	-41.!	1124.5!	9.49!	5.47!	.0401!	13.28!	.053!	SI
> 27.	27.	3.	1.	-1912.82!	-38.8!	1062.8!	9.49!	5.47!	.037!	13.28!	.049!	SI
> 42.	42.	3.	1.	-1774.27!	-36.!	985.9!	9.49!	5.47!	.0332!	13.28!	.044!	SI
> 62.	62.	3.	1.	-1625.56!	-33.!	903.2!	9.49!	5.47!	.029!	13.28!	.039!	SI
> 98.	98.	3.	1.	-1547.01!	-31.4!	859.6!	9.49!	5.47!	.0269!	13.28!	.036!	SI
> 125.	125.	3.	1.	-1557.83!	-31.6!	865.6!	9.49!	5.47!	.0272!	13.28!	.036!	SI
> 125.	0.	3.	1.	-1125.69!	-22.8!	625.5!	9.49!	5.47!	.0188!	13.28!	.025!	SI
> 328.	202.	3.	3.	1327.21!	-29.9!	879.!	7.92!	5.58!	.0264!	15.08!	.04!	SI
> 530.	405.	3.	5.	-1829.54!	-34.3!	1011.5!	9.49!	5.58!	.0342!	13.43!	.046!	SI
> 530.	0.	3.	5.	-1846.56!	-34.6!	1020.9!	9.49!	5.58!	.0346!	13.43!	.047!	SI
> 732.	202.	3.	6.	1046.94!	-24.9!	803.1!	6.79!	5.72!	.0241!	16.79!	.04!	SI
> 935.	405.	3.	8.	-1669.21!	-32.7!	1042.4!	8.36!	5.71!	.0335!	14.52!	.049!	SI
> 935.	0.	3.	8.	-1668.86!	-32.7!	1042.2!	8.36!	5.71!	.0335!	14.52!	.049!	SI
> 952.	18.	3.	8.	-1668.86!	-32.7!	1042.2!	8.36!	5.71!	.0335!	14.52!	.049!	SI
> 1138.	203.	3.	6.	1101.83!	-26.2!	845.3!	6.79!	5.72!	.0254!	16.79!	.043!	SI
> 1340.	405.	3.	11.	-1737.11!	-25.9!	560.5!	16.59!	5.07!	.0182!	9.55!	.017!	SI
> 1340.	0.	5.	12.	-4013.32!	-55.1!	1288.8!	16.59!	5.2!	.0532!	10.42!	.055!	SI
> 1543.	202.	5.	15.	2156.34!	-39.!	994.6!	11.5!	5.35!	.0344!	13.62!	.047!	SI
> 1745.	405.	5.	17.	-2439.74!	-30.5!	673.6!	19.35!	5.1!	.0238!	9.7!	.023!	SI
> 1745.	0.	5.	17.	-3410.1!	-42.6!	941.5!	19.35!	5.1!	.0372!	9.7!	.036!	SI
> 1945.	200.	5.	19.	2210.38!	-39.1!	955.4!	12.32!	5.28!	.0334!	13.26!	.044!	SI
> 2160.	415.	5.	21.	-3668.19!	-56.5!	1390.9!	14.01!	5.29!	.0566!	12.!	.068!	SI
> 2178.	433.	5.	22.	-3668.19!	-50.4!	1379.8!	14.01!	5.46!	.0557!	12.23!	.068!	SI

## ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	12.88	.894	9.49	.659	2d10 +2d12 +2d1 ...	3.39	.236	3d12
2	12.88	.894	7.23	.502	2d10 +2d12 +3d12	5.65	.393	2d12 +3d12
3	9.49	.659	1.57	.109	2d10	7.92	.55	2d12 +2d12 +3d12
4	10.62	.737	4.96	.345	2d10 +1d12 +2d12	5.65	.393	2d12 +3d12
5	16.27	1.13	9.49	.659	2d10 +1d12 +2d1 ...	6.79	.471	3d12 +3d12
6	8.36	.58	1.57	.109	2d10	6.79	.471	1d12 +2d12 +3d12
7	9.49	.659	3.83	.266	2d10 +1d12 +1d12	5.65	.393	2d12 +3d12
8	15.14	1.052	8.36	.58	2d10 +1d12 +1d1 ...	6.79	.471	3d12 +3d12
9	14.64	1.017	7.85	.545	2d10 +2d20	6.79	.471	1d12 +2d12 +3d12
10	16.9	1.174	11.25	.781	2d10 +2d12 +1d1 ...	5.65	.393	2d12 +3d12
11	26.14	1.815	16.59	1.152	2d10 +2d12 +1d1 ...	9.55	.663	3d12 +4d14
12	26.14	1.556	16.59	.987	2d10 +2d12 +1d1 ...	9.55	.568	3d12 +4d14
13	20.48	1.219	11.25	.669	2d10 +2d12 +1d1 ...	9.24	.55	2d14 +4d14
14	19.35	1.152	7.85	.467	2d10 +2d20	11.5	.684	2d12 +2d14 +4d14
15	13.07	.778	1.57	.093	2d10	11.5	.684	2d12 +2d14 +4d14
16	22.43	1.335	13.19	.785	2d10 +2d12 +2d1 ...	9.24	.55	2d14 +4d14
17	31.67	1.885	19.35	1.152	2d10 +2d12 +2d1 ...	12.32	.733	4d14 +4d14
18	20.17	1.201	7.85	.467	2d10 +2d20	12.32	.733	2d14 +2d14 +4d14
19	13.89	.827	1.57	.093	2d10	12.32	.733	2d14 +2d14 +4d14
20	20.17	1.201	10.93	.651	2d10 +2d14 +2d20	9.24	.55	2d14 +4d14
21	20.17	1.201	14.01	.834	2d10 +2d14 +2d1 ...	6.16	.367	4d14
22	26.45	1.575	14.01	.834	2d10 +2d14 +2d1 ...	12.44	.741	4d14 +2d20

## MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 7) Passo staffe superiore a 33 cm [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr23\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.



## 6. | SLU con SISMAY 4. |

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.   Rara 1		1.	15.   Frequente 1		1.	17.   Quasi Perm		1.
14.   Rara 2		1.	16.   Frequente 2		1.			

&lt;-

## SEZIONI UTILIZZATE

- 1) Rettangolare: 80X24; A=1920.; Jg=92160.; E=287713.1  
 5) Rettangolare: 60X50; A=3000.; Jg=625000.; E=287713.1  
 7) Rettangolare: 60X24; A=1440.; Jg=69120.; E=287713.1  
 8) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1653	1	1	1	0	400.	360.	16.667	1.3	1.144	27.276
2	A33	5	5	5	0	412.	370.	8.25	1.5	1.51	41.242
3	A32	5	5	5	0	390.	348.	7.8	1.5	1.533	41.875
4	A30	5	5	5	0	420.	375.	8.4	1.5	1.285	35.107
5	A321	1	1	1	0	405.	365.	16.875	1.5	1.437	40.686
6	A322	1	1	1	0	405.	370.	16.875	1.5	1.566	44.358
7	A323	1	1	1	0	405.	370.	16.875	1.5	1.437	40.703
8	A324	1	1	1	0	405.	370.	16.875	1.5	1.505	42.622
9	A325	1	1	1	0	405.	370.	16.875	1.5	1.481	41.947
10	A326	1	1	1	0	392.	358.	16.354	1.5	1.556	44.056
11	A320	7	7	7	0	302.	267.	12.574	1.5	1.556	44.18
12	A317	1	1	1	0	379.	344.	15.795	1.5	3.243	98.047
13	A316	8	8	8	0	230.	195.	9.583	1.3	1.009	25.816

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	1. 1.	-381.68	-.006	.013	-4081.23	-.065	.138	2.	.321	10.69	SI
0.	0.	1. 1.	568.01	-.009	.018	4238.24	-.068	.138	2.	.328	7.462	SI
104.	104.	1. 3.	5537.45	-.092	.108	7064.08	-.123	.138	2.	.472	1.276	SI
166.	166.	1. 3.	6176.2	-.105	.12	7064.08	-.123	.138	2.	.472	1.144	SI
354.	354.	1. 6.	-4573.45	-.002	-.025	-28504.24	-.055	-.267	4.	.285	6.233	SI
354.	354.	1. 6.	372.18	-.001	.002	25437.34	-.065	.138	2.	.321	68.35	SI
400.	400.	1. 7.	-5704.2	-.003	-.031	-29860.67	-.067	-.291	4.	.326	5.235	SI
> 400.	0.	5. 8.	-18460.87	-.052	.072	-35105.84	-.104	.138	2.	.43	1.902	SI
400.	0.	5. 8.	16897.37	-.046	.092	25512.56	-.07	.138	2.	.336	1.51	SI
518.	118.	5. 11	12057.	-.037	.059	28238.35	-.09	.138	2.	.393	2.342	SI
608.	208.	5. 12	-476.92	-.002	.003	-20390.9	-.086	.138	2.	.382	42.76	SI
608.	208.	5. 12	5225.52	-.021	.073	9841.92	-.041	.138	2.	.227	1.883	SI
771.	371.	5. 16	-21439.05	-.067	.108	-27305.59	-.086	.138	2.	.384	1.274	SI
812.	412.	5. 16	-21439.05	-.065	.103	-28706.16	-.089	.138	2.	.391	1.339	SI
812.	412.	5. 16	10179.44	-.029	.062	22542.57	-.066	.138	2.	.323	2.215	SI
> 812.	0.	5. 16	-20610.12	-.062	.099	-28706.16	-.089	.138	2.	.391	1.393	SI
812.	0.	5. 16	13284.36	-.038	.081	22542.57	-.066	.138	2.	.323	1.697	SI
854.	41.	5. 17	-20610.12	-.064	.108	-26423.28	-.084	.138	2.	.377	1.282	SI
854.	41.	5. 17	12583.54	-.038	.076	22818.66	-.07	.138	2.	.337	1.813	SI
1006.	194.	5. 12	-804.22	-.003	.005	-20390.9	-.086	.138	2.	.382	25.36	SI
1006.	194.	5. 12	4175.12	-.017	.059	9841.92	-.041	.138	2.	.227	2.357	SI
1181.	369.	5. 16	14701.88	-.042	.09	22538.2	-.066	.138	2.	.323	1.533	SI
1202.	390.	5. 16	-19027.76	-.057	.092	-28706.16	-.089	.138	2.	.391	1.509	SI
1202.	390.	5. 16	14701.88	-.042	.09	22542.57	-.066	.138	2.	.323	1.533	SI
> 1202.	0.	5. 16	-23559.37	-.072	.113	-28706.16	-.089	.138	2.	.391	1.218	SI
1202.	0.	5. 16	7432.28	-.021	.046	22542.57	-.066	.138	2.	.323	3.033	SI
1246.	44.	5. 16	-23559.37	-.073	.118	-27515.4	-.087	.138	2.	.385	1.168	SI
1367.	164.	5. 12	5035.37	-.021	.071	9841.92	-.041	.138	2.	.227	1.955	SI
1412.	210.	5. 12	-253.22	-.001	.002	-20390.9	-.086	.138	2.	.382	80.53	SI
1458.	256.	5. 11	10100.83	-.03	.049	28238.35	-.09	.138	2.	.393	2.796	SI
1601.	399.	5. 23	19741.61	-.053	.108	25372.68	-.069	.138	2.	.333	1.285	SI
1622.	420.	5. 23	-16050.36	-.045	.064	-34792.53	-.103	.138	2.	.426	2.168	SI
1622.	420.	5. 23	19741.61	-.053	.108	25372.68	-.069	.138	2.	.333	1.285	SI
> 1622.	0.	1. 24	-5621.29	-.003	-.03	-29848.55	-.071	-.299	4.	.338	5.31	SI
1655.	32.	1. 25	38.67	0.	0.	24594.81	-.078	.138	2.	.36	636.	SI
1732.	110.	1. 27	-711.78	-.02	.114	-865.65	-.025	.138	2.	.153	1.216	NO
1732.	110.	1. 27	3041.67	-.05	.067	6200.8	-.111	.138	2.	.444	2.039	SI
1828.	205.	1. 27	4315.86	-.073	.096	6200.8	-.111	.138	2.	.444	1.437	SI
1923.	300.	1. 27	-104.49	-.003	.017	-865.65	-.025	.138	2.	.153	8.285	NO
2028.	405.	1. 29	-6928.61	-.085	.133	-7202.21	-.088	.138	2.	.39	1.039	SI
> 2028.	0.	1. 29	-6920.89	-.085	.133	-7202.21	-.088	.138	2.	.39	1.041	SI
2133.	106.	1. 27	-443.42	-.013	.071	-865.65	-.025	.138	2.	.153	1.952	NO
2133.	106.	1. 27	1522.58	-.024	.033	6200.8	-.111	.138	2.	.444	4.073	SI
2230.	202.	1. 27	3958.54	-.066	.088	6200.8	-.111	.138	2.	.444	1.566	SI
2432.	405.	1. 31	-6436.14	-.076	.111	-7976.31	-.096	.138	2.	.409	1.239	SI
> 2432.	0.	1. 31	-6416.95	-.076	.111	-7976.31	-.096	.138	2.	.409	1.243	SI
2538.	106.	1. 27	1801.7	-.029	.04	6200.8	-.111	.138	2.	.444	3.442	SI
2635.	202.	1. 27	4314.	-.073	.096	6200.8	-.111	.138	2.	.444	1.437	SI
2732.	299.	1. 27	-17.18	0.	.003	-865.65	-.025	.138	2.	.153	50.38	NO
2837.	405.	1. 33	-6229.14	-.076	.119	-7202.21	-.088	.138	2.	.39	1.156	SI
> 2837.	0.	1. 33	-6239.49	-.076	.12	-7202.21	-.088	.138	2.	.39	1.154	SI
3040.	203.	1. 27	4119.84	-.069	.091	6200.8	-.111	.138	2.	.444	1.505	SI
3104.	267.	1. 34	-43.92	-.001	.002	-2994.	-.048	.138	2.	.258	68.17	SI
3104.	267.	1. 34	3253.63	-.047	.071	6316.81	-.097	.138	2.	.412	1.941	SI
3243.	405.	1. 36	-7104.34	-.079	.099	-9929.54	-.114	.138	2.	.453	1.398	SI
> 3243.	0.	1. 36	-7940.31	-.089	.11	-9929.54	-.114	.138	2.	.453	1.251	SI
3270.	27.	1. 36	336.78	-.003	.007	6475.37	-.07	.138	2.	.336	19.23	SI
3348.	106.	1. 34	-1783.69	-.028	.082	-2994.	-.048	.138	2.	.258	1.679	SI
3445.	202.	1. 27	4186.15	-.071	.093	6200.8	-.111	.138	2.	.444	1.481	SI
3648.	405.	1. 37	-7727.44	-.089	.116	-9171.26	-.107	.138	2.	.436	1.187	SI
> 3648.	0.	1. 37	-7372.6	-.084	.111	-9171.26	-.107	.138	2.	.436	1.244	SI
3648.	0.	1. 37	67.84	-.001	.001	6466.55	-.072	.138	2.	.342	95.33	SI

3844.	196.	1.	27	3985.68	-.067	.088	6200.8	-.111	.138	2.	.444	1.556	SI	9
3906.	258.	1.	27	-269.01	-.008	.043	-865.65	-.025	.138	2.	.153	3.218	NO	
4040.	392.	1.	39	-8179.85	-.101	.119	-9456.18	-.119	.138	2.	.462	1.156	SI	
>4040.	0.	7.	40	-2874.77	-.038	.042	-9384.76	-.138	.138	2.	.5	3.265	SI	
4040.	0.	7.	40	1269.89	-.016	.035	5034.68	-.065	.138	2.	.32	3.965	SI	
4113.	73.	7.	41	1671.12	-.033	.089	2600.6	-.051	.138	2.	.27	1.556	SI	
4238.	198.	7.	43	-150.02	-.003	.008	-2474.72	-.057	.138	2.	.293	16.5	SI	
4342.	302.	7.	45	-1461.6	-.023	.034	-5928.72	-.099	.138	2.	.418	4.056	SI	
>4342.	0.	1.	46	-2198.24	-.03	.051	-5978.43	-.086	.138	2.	.384	2.72	SI	
4416.	74.	1.	47	-740.22	-.022	.095	-1077.77	-.032	.138	2.	.188	1.456	SI	
4449.	107.	1.	48	-11.24	0.	.002	-867.38	-.026	.138	2.	.158	77.17	NO	9
4449.	107.	1.	48	1017.3	-.018	.029	4750.57	-.09	.138	2.	.393	4.67	SI	
4515.	173.	1.	48	1464.65	-.026	.042	4750.57	-.09	.138	2.	.393	3.243	SI	
4694.	352.	1.	50	7.78	0.	0.	4241.61	-.061	.138	2.	.308	544.9	SI	
4721.	379.	1.	50	-1658.03	-.022	.038	-5978.43	-.086	.138	2.	.384	3.606	SI	
>4721.	0.	8.	51	-1656.57	-.024	.038	-5954.09	-.092	.138	2.	.4	3.594	SI	
4792.	71.	8.	52	395.45	-.007	.018	3003.64	-.06	.138	2.	.301	7.596	SI	
4851.	130.	8.	54	-1599.45	-.03	.089	-2491.93	-.048	.138	2.	.257	1.558	SI	
4851.	130.	8.	54	1942.65	-.033	.053	4990.75	-.09	.138	2.	.395	2.569	SI	
4941.	220.	8.	55	3864.41	-.069	.137	3899.55	-.07	.138	2.	.335	1.009	SI	
4951.	230.	8.	55	-2658.36	-.047	.101	-3648.85	-.066	.138	2.	.322	1.373	SI	
4951.	230.	8.	55	3864.41	-.069	.137	3899.55	-.07	.138	2.	.335	1.009	SI	

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	1.	6878.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
10.	10.	1.	6878.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
18.	18.	1.	6878.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
27.	27.	1.	6717.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
42.	42.	1.	5999.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
42.	42.	1.	5999.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
73.	73.	1.	4436.	7432.	24406.	3784.	.57	20.	2.5	NO	4	5	6
104.	104.	1.	2873.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6	
135.	135.	1.	1465.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6	
166.	166.	1.	-729.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6	
166.	166.	1.	377.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6	
198.	198.	1.	-1804.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6	
229.	229.	1.	-3281.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6	
260.	260.	1.	-4845.	8063.	24406.	3784.	.57	20.	2.5	NO	4	5	6
291.	291.	1.	-6409.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
322.	322.	1.	-7973.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
354.	354.	1.	-9537.	7432.	24406.	3784.	.57	20.	2.5	NO	4	5	6
354.	354.	1.	-9537.	7432.	24406.	3784.	.57	20.	2.5	NO	4	5	6
368.	368.	1.	-10255.	9559.	24406.	3784.	.57	20.	2.5	NO	4	5	6
378.	378.	1.	-10417.	10049.	24406.	3784.	.57	20.	2.5	NO	4	5	6
390.	390.	1.	-10417.	10049.	24406.	3784.	.57	20.	2.5	NO	4	5	6
400.	400.	1.	-10417.	10049.	24406.	3784.	.57	20.	2.5	NO	4	5	6
> 400.	0.	5.	-4004.	10719.	40441.	11889.	1.01	25.	2.5	NO	6		
400.	0.	5.	13283.	10719.	40441.	11889.	1.01	25.	2.5	NO	4	6	
421.	21.	5.	-4004.	10719.	40441.	11889.	1.01	25.	2.5	NO	6		
421.	21.	5.	13283.	10719.	40441.	11889.	1.01	25.	2.5	NO	4	6	
422.	22.	5.	-4004.	10719.	40441.	11889.	1.01	25.	2.5	NO	6		
422.	22.	5.	13283.	10719.	40441.	11889.	1.01	25.	2.5	NO	4	6	
444.	44.	5.	-4710.	10719.	40441.	11889.	1.01	25.	2.5	NO	6		
444.	44.	5.	13048.	10719.	40441.	11889.	1.01	25.	2.5	NO	4	6	
458.	58.	5.	-5183.	10374.	40441.	11889.	1.01	25.	2.5	NO	6		
458.	58.	5.	12576.	10374.	40441.	11889.	1.01	25.	2.5	NO	4	6	
472.	72.	5.	-5655.	10374.	40441.	11889.	1.01	25.	2.5	NO	6		
472.	72.	5.	12103.	10374.	40441.	11889.	1.01	25.	2.5	NO	4	6	
472.	72.	5.	-5655.	10374.	40441.	11889.	1.01	25.	2.5	NO	6		
472.	72.	5.	12103.	10374.	40441.	11889.	1.01	25.	2.5	NO	4	6	
518.	118.	5.	-7141.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
518.	118.	5.	10617.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
562.	162.	5.	-8626.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
562.	162.	5.	9132.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
608.	208.	5.	-10112.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
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652.	252.	5.	-11598.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
652.	252.	5.	6160.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
698.	298.	5.	-13083.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6	
698.	298.	5.	4675.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
742.	342.	5.	-14569.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6	
742.	342.	5.	3189.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
742.	342.	5.	-14569.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6	
742.	342.	5.	3189.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
757.	357.	5.	-15042.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6	
757.	357.	5.	2717.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
771.	371.	5.	-15514.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6	
771.	371.	5.	2244.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
791.	391.	5.	-15749.	9442.	40441.	11889.	1.01	25.	2.5	NO	4	6	
791.	391.	5.	1584.	9442.	40441.	11889.	1.01	25.	2.5	NO	6		
792.	392.	5.	-15749.	9442.	40441.	11889.	1.01	25.	2.5	NO	4	6	
792.	392.	5.	1538.	9442.	40441.	11889.	1.01	25.	2.5	NO	6		
812.	412.	5.	-15749.	9442.	40441.	11889.	1.01	25.	2.5	NO	4	6	
812.	412.	5.	878.	9442.	40441.	11889.	1.01	25.	2.5	NO	6		
> 812.	0.	5.	-3360.	9442.	40441.	11889.	1.01	25.	2.5	NO	6		
812.	0.	5.	15155.	9442.	40441.	11889.	1.01	25.	2.5	NO	4	6	
832.	20.	5.	-3360.	9442.	40441.	11889.	1.01	25.	2.5	NO	6		
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834.	21.	5.	-3405.	9442.	40441.	11889.	1.01	25.	2.5	NO	6		
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854.	41.	5.	-4065.	9924.	40441.	11889.	1.01	25.	2.5	NO	6		
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868.	56.	5.	-4538.	9924.	40441.	11889.	1.01	25.	2.5	NO	6		
868.	56.	5.	14448.	9924.	40441.	11889.	1.01	25.	2.5	NO	4	6	
882.	70.	5.	-5010.	8569.	40441.	11889.	1.01	25.	2.5	NO	6		
882.	70.	5.	13975.	8569.	40441.	11889.	1.01	25.	2.5	NO	4	6	

882.	70.	5.	-5010.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
882.	70.	5.	13975.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
924.	111.	5.	-6372.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
924.	111.	5.	12613.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
965.	152.	5.	-7734.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
965.	152.	5.	11251.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1006.	194.	5.	-9096.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1006.	194.	5.	9890.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1048.	235.	5.	-10458.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1048.	235.	5.	8528.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1089.	276.	5.	-11820.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1089.	276.	5.	7166.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1130.	318.	5.	-13182.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1130.	318.	5.	5804.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1130.	318.	5.	-13182.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1130.	318.	5.	5804.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1144.	332.	5.	-13654.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1144.	332.	5.	5331.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1159.	346.	5.	-14127.	9924.	40441.	11889.	1.01	25.	2.5	NO	4 6
1159.	346.	5.	4859.	9924.	40441.	11889.	1.01	25.	2.5	NO	6
1180.	368.	5.	-14362.	9442.	40441.	11889.	1.01	25.	2.5	NO	4 6
1180.	368.	5.	4153.	9442.	40441.	11889.	1.01	25.	2.5	NO	6
1181.	369.	5.	-14362.	9442.	40441.	11889.	1.01	25.	2.5	NO	4 6
1181.	369.	5.	4116.	9442.	40441.	11889.	1.01	25.	2.5	NO	6
1202.	390.	5.	-14362.	9442.	40441.	11889.	1.01	25.	2.5	NO	4 6
1202.	390.	5.	3410.	9442.	40441.	11889.	1.01	25.	2.5	NO	6
>1202.	0.	5.	-61.	9442.	40441.	11889.	1.01	25.	2.5	NO	6
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1246.	44.	5.	-766.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1246.	44.	5.	16721.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1261.	58.	5.	-1239.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1261.	58.	5.	16249.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1275.	72.	5.	-1711.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1275.	72.	5.	15776.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1275.	72.	5.	-1711.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1275.	72.	5.	15776.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1321.	118.	5.	-3225.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1321.	118.	5.	14263.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1367.	164.	5.	-4738.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1367.	164.	5.	12750.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
1412.	210.	5.	-6251.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1412.	210.	5.	11237.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1458.	256.	5.	-7764.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1458.	256.	5.	9724.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1504.	302.	5.	-9277.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
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1550.	348.	5.	-10791.	10374.	40441.	11889.	1.01	25.	2.5	NO	6
1550.	348.	5.	6697.	10374.	40441.	11889.	1.01	25.	2.5	NO	6
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1564.	362.	5.	-11263.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1564.	362.	5.	6225.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1579.	376.	5.	-11736.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1579.	376.	5.	5752.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1600.	398.	5.	-11971.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
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1601.	399.	5.	-11971.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
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1622.	420.	5.	-11971.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
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>1622.	0.	1.	10254.	7767.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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1655.	32.	1.	10057.	6725.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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1764.	142.	1.	3368.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1796.	173.	1.	1787.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1828.	205.	1.	-1092.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1828.	205.	1.	388.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1859.	237.	1.	-2644.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1891.	268.	1.	-4382.	7689.	24406.	3784.	.57	20.	2.5	NO	4 5 6
1923.	300.	1.	-6320.	6725.	24406.	3784.	.57	20.	2.5	NO	4 5 6
1954.	332.	1.	-8257.	6725.	24406.	3784.	.57	20.	2.5	NO	4 5 6
1986.	364.	1.	-10195.	7362.	24406.	3784.	.57	20.	2.5	NO	4 5 6
1986.	364.	1.	-10195.	7362.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2000.	378.	1.	-11071.	7362.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2010.	388.	1.	-11268.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2018.	395.	1.	-11268.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2028.	405.	1.	-11268.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2045.	18.	1.	11045.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2055.	27.	1.	10848.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2069.	42.	1.	9972.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2069.	42.	1.	9972.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2101.	74.	1.	8004.	6725.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2133.	106.	1.	6036.	6725.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2166.	138.	1.	4067.	7689.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2198.	170.	1.	2141.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
2230.	202.	1.	-64.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
2230.	202.	1.	245.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6

2262.	235.	1.	-1908.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
2294.	267.	1.	-3805.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2327.	299.	1.	-5774.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2359.	331.	1.	-7742.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2391.	363.	1.	-9710.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2391.	363.	1.	-9710.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2405.	378.	1.	-10586.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2415.	387.	1.	-10783.	8294.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2423.	395.	1.	-10783.	8294.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2432.	405.	1.	-10783.	8294.	24406.	3784.	.57	20.	2.5	NO	4	5	6
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2450.	18.	1.	10964.	7702.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2460.	27.	1.	10767.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2474.	42.	1.	9892.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2474.	42.	1.	9892.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2506.	74.	1.	7924.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2538.	106.	1.	5955.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2571.	138.	1.	3987.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2603.	170.	1.	2060.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
2635.	202.	1.	-106.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
2635.	202.	1.	164.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
2667.	235.	1.	-1975.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
2699.	267.	1.	-3886.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2732.	299.	1.	-5854.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2764.	331.	1.	-7822.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2796.	364.	1.	-9790.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2796.	364.	1.	-9790.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2810.	378.	1.	-10666.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2820.	388.	1.	-10863.	8003.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2828.	395.	1.	-10863.	8003.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2837.	405.	1.	-10863.	8003.	24406.	3784.	.57	20.	2.5	NO	4	5	6
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2847.	10.	1.	10764.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2855.	18.	1.	10764.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2865.	27.	1.	10566.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2879.	42.	1.	9691.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2879.	42.	1.	9691.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2911.	74.	1.	7723.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2943.	106.	1.	5754.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2976.	138.	1.	3786.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3008.	170.	1.	2104.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3040.	203.	1.	-816.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3040.	203.	1.	635.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3072.	235.	1.	-2361.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3104.	267.	1.	-4087.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3137.	299.	1.	-6055.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3169.	331.	1.	-8023.	6841.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3201.	364.	1.	-9991.	8180.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3201.	364.	1.	-9991.	8180.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3215.	378.	1.	-10867.	8180.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3225.	388.	1.	-11064.	8959.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3233.	395.	1.	-11064.	8959.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3243.	405.	1.	-11064.	8959.	24406.	3784.	.57	20.	2.5	NO	4	5	6
>3243.	0.	1.	10998.	8460.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3252.	10.	1.	10998.	8460.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3260.	17.	1.	10998.	8460.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3270.	27.	1.	10801.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3284.	41.	1.	9926.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3284.	41.	1.	9926.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3316.	74.	1.	7957.	6841.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3348.	106.	1.	6067.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3381.	138.	1.	4641.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3413.	170.	1.	-628.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3413.	170.	1.	3297.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3445.	202.	1.	-1910.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3445.	202.	1.	2014.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3477.	235.	1.	-3193.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3477.	235.	1.	731.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3509.	267.	1.	-4519.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3542.	299.	1.	-5904.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3574.	331.	1.	-7788.	6841.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3606.	363.	1.	-9756.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3606.	363.	1.	-9756.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3620.	378.	1.	-10632.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3630.	387.	1.	-10829.	8711.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3638.	395.	1.	-10829.	8711.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3648.	405.	1.	-10829.	8711.	24406.	3784.	.57	20.	2.5	NO	4	5	6
>3648.	0.	1.	10168.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3657.	10.	1.	10168.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3665.	17.	1.	10168.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3675.	27.	1.	9971.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3689.	41.	1.	9095.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3689.	41.	1.	9095.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3720.	72.	1.	7315.	6841.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3751.	103.	1.	5657.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3782.	134.	1.	4424.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3813.	165.	1.	-1171.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3813.	165.	1.	3192.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3844.	196.	1.	-2404.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3844.	196.	1.	1959.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3875.	227.	1.	-3637.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3875.	227.	1.	726.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3906.	258.	1.	-4883.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3937.	289.	1.	-6146.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3968.	320.	1.	-7931.	6841.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3998.	351.	1.	-9823.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3998.	351.	1.	-9823.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6

4013.	365.	1.	-10699.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
4022.	375.	1.	-10896.	7065.	24406.	3784.	.57	20.	2.5	NO	4	5	6
4030.	383.	1.	-10896.	7065.	24406.	3784.	.57	20.	2.5	NO	4	5	6
4040.	392.	1.	-10896.	7065.	24406.	3784.	.57	20.	2.5	NO	4	5	6
>4040.	0.	7.	2773.	5832.	18305.	3784.	.57	20.	2.5	NO	5	6	
4050.	10.	7.	2773.	5832.	18305.	3784.	.57	20.	2.5	NO	5	6	
4058.	17.	7.	2773.	5832.	18305.	3784.	.57	20.	2.5	NO	5	6	
4067.	27.	7.	2725.	5832.	18305.	3784.	.57	20.	2.5	NO	5	6	
4082.	41.	7.	2515.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4082.	41.	7.	2515.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4113.	73.	7.	2065.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4144.	104.	7.	-299.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4144.	104.	7.	1602.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4175.	135.	7.	-772.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4175.	135.	7.	1129.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4207.	167.	7.	-1256.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4207.	167.	7.	645.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4238.	198.	7.	-1750.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4238.	198.	7.	151.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4269.	229.	7.	-2256.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
4300.	260.	7.	-2773.	5599.	18305.	3784.	.57	20.	2.5	NO	5	6	
4300.	260.	7.	-2773.	5599.	18305.	3784.	.57	20.	2.5	NO	5	6	
4315.	275.	7.	-3067.	6210.	18305.	3784.	.57	20.	2.5	NO	5	6	
4324.	284.	7.	-3138.	6210.	18305.	3784.	.57	20.	2.5	NO	5	6	
4332.	292.	7.	-3138.	6210.	18305.	3784.	.57	20.	2.5	NO	5	6	
4342.	302.	7.	-3138.	6210.	18305.	3784.	.57	20.	2.5	NO	5	6	
>4342.	0.	1.	4209.	7522.	24406.	3784.	.57	20.	2.5	NO	4	5	6
4351.	10.	1.	4209.	7522.	24406.	3784.	.57	20.	2.5	NO	4	5	6
4359.	17.	1.	4209.	7522.	24406.	3784.	.57	20.	2.5	NO	4	5	6
4369.	27.	1.	4114.	7522.	24406.	3784.	.57	20.	2.5	NO	4	5	6
4383.	41.	1.	3696.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
4383.	41.	1.	3696.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
4416.	74.	1.	2791.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
4449.	107.	1.	1946.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
4482.	140.	1.	1177.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6	
4515.	173.	1.	-144.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6	
4515.	173.	1.	636.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6	
4548.	206.	1.	-648.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6	
4548.	206.	1.	132.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6	
4581.	239.	1.	-1136.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6	
4614.	272.	1.	-1702.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6	
4646.	305.	1.	-2259.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
4679.	338.	1.	-2797.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
4679.	338.	1.	-2797.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
4694.	352.	1.	-3006.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
4703.	362.	1.	-3054.	7522.	24406.	3784.	.57	20.	2.5	NO	5	6	
4711.	369.	1.	-3054.	7522.	24406.	3784.	.57	20.	2.5	NO	5	6	
4721.	379.	1.	-3054.	7522.	24406.	3784.	.57	20.	2.5	NO	5	6	
>4721.	0.	8.	-317.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6	
4721.	0.	8.	3262.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6	
4731.	10.	8.	-317.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6	
4731.	10.	8.	3262.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6	
4738.	18.	8.	-317.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6	
4738.	18.	8.	3262.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6	
4748.	27.	8.	-387.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6	
4748.	27.	8.	3239.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6	
4762.	42.	8.	-490.	6205.	21355.	3784.	.57	20.	2.5	NO	5	6	
4762.	42.	8.	3136.	6205.	21355.	3784.	.57	20.	2.5	NO	5	6	
4762.	42.	8.	-490.	6205.	21355.	3784.	.57	20.	2.5	NO	5	6	
4762.	42.	8.	3136.	6205.	21355.	3784.	.57	20.	2.5	NO	5	6	
4792.	71.	8.	-702.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4792.	71.	8.	2924.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4821.	100.	8.	-913.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4821.	100.	8.	2712.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4851.	130.	8.	-1125.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4851.	130.	8.	2501.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4880.	159.	8.	-1337.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4880.	159.	8.	2289.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4909.	189.	8.	-1548.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4909.	189.	8.	2077.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4909.	189.	8.	-1548.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4909.	189.	8.	2077.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4924.	203.	8.	-1652.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4924.	203.	8.	1974.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4933.	213.	8.	-1675.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4933.	213.	8.	1905.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4941.	220.	8.	-1675.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4941.	220.	8.	1848.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4951.	230.	8.	-1675.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
4951.	230.	8.	1779.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	1.	-237.72	-4.	158.5	7.73	6.02	.0048	23.47	.011	SI
10.	10.	1.	303.77	-5.1	194.9	8.04	5.98	.0058	23.31	.014	SI
18.	18.	1.	734.2	-12.4	471.1	8.04	5.98	.0141	23.31	.033	SI
42.	42.	1.	1904.76	-32.1	1222.3	8.04	5.98	.0367	23.31	.085	SI
73.	73.	1.	3119.73	-51.2	1554.6	11.12	5.63	.0593	21.96	.13	SI
104.	104.	1.	3946.44	-61.1	1480.6	14.2	5.26	.0598	13.37	.08	SI
166.	166.	1.	4570.13	-70.8	1714.6	14.2	5.26	.0715	13.37	.096	SI
400.	400.	1.	-4009.46	-2.6	315.8	28.62	6.25	.0095	9.23	.009	SI
> 400.	0.	5.	-1241.51	-3.9	96.4	28.62	6.25	.0029	7.95	.002	SI
562.	162.	5.	2709.56	-9.1	263.4	23.94	6.25	.0079	9.28	.007	SI
608.	208.	5.	2476.37	-11.8	693.7	8.01	6.25	.0208	16.53	.034	SI
812.	412.	5.	-6625.95	-21.8	634.3	24.28	6.25	.023	8.85	.02	SI

> 812.	0.	5.	16	-4517.12	-14.9	432.4	24.28	6.25	.013	8.85	.011	SI
832.	20.	5.	16	-4517.12	-14.9	435.2	24.28	6.55	.0131	9.08	.012	SI
1006.	194.	5.	12	1927.49	-9.2	540.	8.01	6.25	.0162	16.53	.027	SI
1202.	390.	5.	16	-2928.57	-9.6	280.4	24.28	6.25	.0084	8.85	.007	SI
>1202.	0.	5.	16	-9230.64	-30.4	883.7	24.28	6.25	.0355	8.85	.031	SI
1412.	210.	5.	12	2791.83	-13.3	782.1	8.01	6.25	.0235	16.53	.039	SI
1504.	302.	5.	11	3804.72	-12.8	369.9	23.94	6.25	.0111	9.28	.01	SI
1622.	420.	5.	23	760.6	-2.4	82.5	20.55	6.25	.0025	10.84	.003	SI
>1622.	0.	1.	24	-3747.05	-2.5	295.2	28.62	6.25	.0089	9.23	.008	SI
1828.	205.	1.	27	3179.96	-51.6	1365.4	12.32	5.41	.0519	14.48	.075	SI
2028.	405.	1.	29	-5107.12	-66.2	1930.8	13.89	5.57	.0814	13.42	.109	SI
>2028.	0.	1.	29	-5101.41	-66.1	1928.7	13.89	5.57	.0813	13.42	.109	SI
2230.	202.	1.	27	2914.34	-47.3	1251.3	12.32	5.41	.0462	14.48	.067	SI
2432.	405.	1.	31	-4739.85	-59.3	1616.7	15.46	5.46	.0672	12.34	.083	SI
>2432.	0.	1.	31	-4725.65	-59.1	1611.9	15.46	5.46	.0669	12.34	.083	SI
2635.	202.	1.	27	3177.03	-51.5	1364.1	12.32	5.41	.0519	14.48	.075	SI
2837.	405.	1.	33	-4590.23	-59.5	1735.4	13.89	5.57	.0716	13.42	.096	SI
>2837.	0.	1.	33	-4597.74	-59.6	1738.3	13.89	5.57	.0718	13.42	.096	SI
3040.	203.	1.	27	3035.14	-49.2	1303.2	12.32	5.41	.0488	14.48	.071	SI
3243.	405.	1.	36	-5001.92	-58.3	1367.3	19.48	5.2	.0574	10.68	.061	SI
>3243.	0.	1.	36	-4866.27	-56.7	1330.2	19.48	5.2	.0555	10.68	.059	SI
3445.	202.	1.	27	3083.39	-50.	1323.9	12.32	5.41	.0499	14.48	.072	SI
3648.	405.	1.	37	-4636.9	-55.4	1373.6	17.91	5.3	.0568	11.37	.065	SI
>3648.	0.	1.	37	-3906.12	-46.7	1157.1	17.91	5.3	.046	11.37	.052	SI
3844.	196.	1.	27	2935.31	-47.6	1260.3	12.32	5.41	.0467	14.48	.068	SI
4040.	392.	1.	39	-4857.34	-59.9	1388.1	18.66	5.18	.0581	10.77	.063	SI
>4040.	0.	7.	40	-844.19	-12.2	243.5	18.66	4.93	.0073	9.34	.007	SI
4175.	135.	7.	43	512.92	-12.1	467.3	5.65	6.	.014	23.38	.033	SI
4342.	302.	7.	45	-1096.24	-18.8	502.	11.53	5.42	.0151	12.3	.019	SI
>4342.	0.	1.	46	-1559.09	-23.	707.3	11.53	5.65	.0212	14.7	.031	SI
4515.	173.	1.	48	1099.67	-19.7	620.7	9.24	5.69	.0186	22.19	.041	SI
4721.	379.	1.	50	-1070.13	-15.8	485.5	11.53	5.65	.0146	14.7	.021	SI
>4721.	0.	8.	51	-1191.48	-18.9	542.9	11.53	5.54	.0163	13.49	.022	SI
4792.	71.	8.	52	-451.94	-9.3	375.3	6.19	6.06	.0113	23.62	.027	SI
4951.	230.	8.	55	542.69	-10.2	378.4	7.41	5.93	.0114	23.14	.026	SI

# TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	1.	1.	-216.8	-3.7	144.6	7.73	6.02	.0043	23.47	.01	SI
10.	10.	1.	1.	279.07	-4.7	179.1	8.04	5.98	.0054	23.31	.013	SI
18.	18.	1.	1.	677.93	-11.4	435.	8.04	5.98	.0131	23.31	.03	SI
42.	42.	1.	1.	1758.62	-29.6	1128.5	8.04	5.98	.0339	23.31	.079	SI
73.	73.	1.	2.	2878.23	-47.2	1434.2	11.12	5.63	.0533	21.96	.117	SI
104.	104.	1.	3.	3639.27	-56.3	1365.4	14.2	5.26	.0541	13.37	.072	SI
166.	166.	1.	3.	4210.29	-65.2	1579.6	14.2	5.26	.0648	13.37	.087	SI
400.	400.	1.	7.	-3730.09	-2.5	293.8	28.62	6.25	.0088	9.23	.008	SI
> 400.	0.	5.	8.	-1257.22	-3.9	97.6	28.62	6.25	.0029	7.95	.002	SI
562.	162.	5.	11	2471.21	-8.3	240.3	23.94	6.25	.0072	9.28	.007	SI
608.	208.	5.	12	2285.33	-10.9	640.2	8.01	6.25	.0192	16.53	.032	SI
812.	412.	5.	16	-5995.05	-19.7	573.9	24.28	6.25	.02	8.85	.018	SI
> 812.	0.	5.	16	-4131.	-13.6	395.5	24.28	6.25	.0119	8.85	.011	SI
832.	20.	5.	16	-4131.	-13.7	398.	24.28	6.55	.0119	9.08	.011	SI
1006.	194.	5.	12	1791.96	-8.5	502.	8.01	6.25	.0151	16.53	.025	SI
1202.	390.	5.	16	-2715.05	-8.9	259.9	24.28	6.25	.0078	8.85	.007	SI
>1202.	0.	5.	16	-8343.47	-27.5	798.7	24.28	6.25	.0312	8.85	.028	SI
1412.	210.	5.	12	2575.76	-12.3	721.6	8.01	6.25	.0216	16.53	.036	SI
1504.	302.	5.	11	3424.12	-11.5	332.9	23.94	6.25	.01	9.28	.009	SI
1622.	420.	5.	23	511.42	-1.6	55.5	20.55	6.25	.0017	10.84	.002	SI
>1622.	0.	1.	24	-3408.64	-2.2	268.5	28.62	6.25	.0081	9.23	.007	SI
1828.	205.	1.	27	2907.99	-47.2	1248.6	12.32	5.41	.0461	14.48	.067	SI
2028.	405.	1.	29	-4674.11	-60.5	1767.1	13.89	5.57	.0732	13.42	.098	SI
>2028.	0.	1.	29	-4669.22	-60.5	1765.3	13.89	5.57	.0731	13.42	.098	SI
2230.	202.	1.	27	2659.26	-43.1	1141.8	12.32	5.41	.0408	14.48	.059	SI
2432.	405.	1.	31	-4327.43	-54.2	1476.	15.46	5.46	.0601	12.34	.074	SI
>2432.	0.	1.	31	-4314.42	-54.	1471.6	15.46	5.46	.0599	12.34	.074	SI
2635.	202.	1.	27	2899.32	-47.	1244.9	12.32	5.41	.0459	14.48	.066	SI
2837.	405.	1.	33	-4202.1	-54.4	1588.7	13.89	5.57	.0643	13.42	.086	SI
>2837.	0.	1.	33	-4208.58	-54.5	1591.1	13.89	5.57	.0644	13.42	.086	SI
3040.	203.	1.	27	2774.75	-45.	1191.4	12.32	5.41	.0432	14.48	.063	SI
3243.	405.	1.	36	-4557.08	-53.1	1245.7	19.48	5.2	.0513	10.68	.055	SI
>3243.	0.	1.	36	-4439.83	-51.8	1213.6	19.48	5.2	.0497	10.68	.053	SI
3445.	202.	1.	27	2816.72	-45.7	1209.4	12.32	5.41	.0441	14.48	.064	SI
3648.	405.	1.	37	-4241.89	-50.7	1256.6	17.91	5.3	.0509	11.37	.058	SI
>3648.	0.	1.	37	-3590.71	-42.9	1063.7	17.91	5.3	.0413	11.37	.047	SI
3844.	196.	1.	27	2681.76	-43.5	1151.5	12.32	5.41	.0412	14.48	.06	SI
4040.	392.	1.	39	-4414.62	-54.5	1261.6	18.66	5.18	.0518	10.77	.056	SI
>4040.	0.	7.	40	-788.09	-11.4	227.3	18.66	4.93	.0068	9.34	.006	SI
4175.	135.	7.	43	483.32	-11.4	440.4	5.65	6.	.0132	23.38	.031	SI
4342.	302.	7.	45	-1039.33	-17.8	475.9	11.53	5.42	.0143	12.3	.018	SI
>4342.	0.	1.	46	-1467.31	-21.7	665.6	11.53	5.65	.02	14.7	.029	SI
4515.	173.	1.	48	1049.43	-18.8	592.4	9.24	5.69	.0178	22.19	.039	SI
4721.	379.	1.	50	-1015.7	-15.	460.8	11.53	5.65	.0138	14.7	.02	SI
>4721.	0.	8.	51	-1130.13	-17.9	514.9	11.53	5.54	.0154	13.49	.021	SI
4792.	71.	8.	52	-423.39	-8.7	351.6	6.19	6.06	.0105	23.62	.025	SI
4951.	230.	8.	55	473.5	-8.9	330.2	7.41	5.93	.0099	23.14	.023	SI

# TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	1.	1.	-211.76	-3.6	141.2	7.73	6.02	.0042	23.47	.01	SI
10.	10.	1.	1.	268.91	-4.5	172.6	8.04	5.98	.0052	23.31	.012	SI
18.	18.	1.	1.	657.67	-11.1	422.	8.04	5.98	.0127	23.31	.03	SI
42.	42.	1.	1.	1709.32	-28.8	1096.8	8.04	5.98	.0329	23.31	.077	SI
73.	73.	1.	2.	2798.16	-45.9	1394.3	11.12	5.63	.0513	21.96	.113	SI
104.	104.	1.	3.	3538.32	-54.8	1327.5	14.2	5.26	.0522	13.37	.07	SI
166.	166.	1.	3.	4093.81	-63.4	1535.9	14.2	5.26	.0626	13.37	.084	SI
400.	400.	1.	7.	-3626.69	-2.4	285.7	28.62	6.25	.0086	9.23	.008	SI

> 400.	0.	5.	8.	-1244.42	-3.9	96.6	28.62	6.25	.0029	7.95	.002	SI
562.	162.	5.	11	2396.33	-8.	233.	23.94	6.25	.007	9.28	.006	SI
608.	208.	5.	12	2221.81	-10.6	622.4	8.01	6.25	.0187	16.53	.031	SI
812.	412.	5.	16	-5802.73	-19.1	555.5	24.28	6.25	.0191	8.85	.017	SI
> 812.	0.	5.	16	-4013.29	-13.2	384.2	24.28	6.25	.0115	8.85	.01	SI
832.	20.	5.	16	-4013.29	-13.3	386.6	24.28	6.55	.0116	9.08	.011	SI
1006.	194.	5.	12	1744.65	-8.3	488.7	8.01	6.25	.0147	16.53	.024	SI
1202.	390.	5.	16	-2637.14	-8.7	252.5	24.28	6.25	.0076	8.85	.007	SI
>1202.	0.	5.	16	-8084.3	-26.6	773.9	24.28	6.25	.03	8.85	.027	SI
1412.	210.	5.	12	2504.68	-11.9	701.7	8.01	6.25	.021	16.53	.035	SI
1504.	302.	5.	11	3316.52	-11.1	322.4	23.94	6.25	.0097	9.28	.009	SI
1622.	420.	5.	23	459.91	-1.4	49.9	20.55	6.25	.0015	10.84	.002	SI
>1622.	0.	1.	24	-3297.18	-2.2	259.8	28.62	6.25	.0078	9.23	.007	SI
1828.	205.	1.	27	2816.9	-45.7	1209.5	12.32	5.41	.0441	14.48	.064	SI
2028.	405.	1.	29	-4529.29	-58.7	1712.4	13.89	5.57	.0705	13.42	.095	SI
>2028.	0.	1.	29	-4524.49	-58.6	1710.6	13.89	5.57	.0704	13.42	.094	SI
2230.	202.	1.	27	2574.35	-41.8	1105.3	12.32	5.41	.0389	14.48	.056	SI
2432.	405.	1.	31	-4190.39	-52.4	1429.3	15.46	5.46	.0578	12.34	.071	SI
>2432.	0.	1.	31	-4177.73	-52.3	1425.	15.46	5.46	.0576	12.34	.071	SI
2635.	202.	1.	27	2807.67	-45.5	1205.5	12.32	5.41	.0439	14.48	.064	SI
2837.	405.	1.	33	-4070.52	-52.7	1538.9	13.89	5.57	.0618	13.42	.083	SI
>2837.	0.	1.	33	-4076.73	-52.8	1541.3	13.89	5.57	.0619	13.42	.083	SI
3040.	203.	1.	27	2687.55	-43.6	1153.9	12.32	5.41	.0414	14.48	.06	SI
3243.	405.	1.	36	-4411.76	-51.4	1205.9	19.48	5.2	.0493	10.68	.053	SI
>3243.	0.	1.	36	-4299.79	-50.1	1175.3	19.48	5.2	.0478	10.68	.051	SI
3445.	202.	1.	27	2727.86	-44.2	1171.2	12.32	5.41	.0422	14.48	.061	SI
3648.	405.	1.	37	-4108.08	-49.1	1216.9	17.91	5.3	.049	11.37	.056	SI
>3648.	0.	1.	37	-3478.83	-41.6	1030.5	17.91	5.3	.0396	11.37	.045	SI
3844.	196.	1.	27	2596.71	-42.1	1114.9	12.32	5.41	.0394	14.48	.057	SI
4040.	392.	1.	39	-4274.87	-52.7	1221.6	18.66	5.18	.0498	10.77	.054	SI
>4040.	0.	7.	40	-765.92	-11.	220.9	18.66	4.93	.0066	9.34	.006	SI
4175.	135.	7.	43	474.92	-11.2	432.7	5.65	6.	.013	23.38	.03	SI
4342.	302.	7.	45	-1021.4	-17.5	467.7	11.53	5.42	.014	12.3	.017	SI
>4342.	0.	1.	46	-1438.89	-21.2	652.7	11.53	5.65	.0196	14.7	.029	SI
4515.	173.	1.	48	1031.55	-18.5	582.3	9.24	5.69	.0175	22.19	.039	SI
4721.	379.	1.	50	-997.43	-14.7	452.5	11.53	5.65	.0136	14.7	.02	SI
>4721.	0.	8.	51	-1109.31	-17.6	505.5	11.53	5.54	.0152	13.49	.02	SI
4792.	71.	8.	52	-413.59	-8.5	343.5	6.19	6.06	.0103	23.62	.024	SI
4951.	230.	8.	55	-450.45	-8.5	314.1	7.41	5.93	.0094	23.14	.022	SI

ARMATURE LONGITUDINALI (%=100\*Af/Acl's - Acl's=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.77	.821	7.73	.403	2d10 +2d14	8.04	.419	4d16
2	15.77	.821	4.65	.242	2d10 +2d14	11.12	.579	4d16 +2d14
3	15.77	.821	1.57	.082	2d10	14.2	.74	2d14 +4d16 +2d14
4	31.7	1.651	17.5	.911	2d10 +3d26	14.2	.74	2d14 +4d16 +2d14
5	31.7	1.651	20.58	1.072	2d10 +2d14 +3d26	11.12	.579	4d16 +2d14
6	57.21	2.98	25.54	1.33	2d10 +2d14 +2d1 ...	31.67	1.649	4d16 +2d14 +3d1 ...
7	57.21	2.98	28.62	1.491	2d10 +2d14 +2d1 ...	28.59	1.489	4d16 +3d14 +3d26
8	57.21	1.907	36.66	1.222	2d10 +2d14 +4d1 ...	20.55	.685	3d14 +3d26
9	55.64	1.855	32.83	1.094	2d14 +4d16 +2d1 ...	22.81	.76	2d12 +3d14 +3d26
10	44.52	1.484	21.71	.724	2d14 +2d10 +1d1 ...	22.81	.76	2d12 +3d14 +3d26
11	41.44	1.381	17.5	.583	2d10 +3d26	23.94	.798	1d12 +2d12 +3d1 ...
12	25.51	.85	17.5	.583	2d10 +3d26	8.01	.267	1d12 +2d12 +3d14
13	34.93	1.164	17.5	.583	2d10 +3d26	17.44	.581	1d12 +2d12 +3d1 ...
14	38.33	1.278	22.02	.734	2d10 +1d12 +1d1 ...	16.3	.543	2d12 +3d14 +3d20
15	42.95	1.432	22.02	.734	2d10 +1d12 +1d1 ...	20.92	.697	2d12 +3d14 +3d1 ...
16	42.95	1.432	24.28	.809	2d10 +1d12 +2d1 ...	18.66	.622	3d14 +3d14 +3d20
17	42.95	1.432	22.02	.734	2d10 +1d12 +2d1 ...	20.92	.697	2d12 +3d14 +3d1 ...
18	38.33	1.278	22.02	.734	2d10 +1d12 +2d1 ...	16.3	.543	2d12 +3d14 +3d20
19	36.07	1.202	18.63	.621	2d10 +1d12 +3d26	17.44	.581	1d12 +2d12 +3d1 ...
20	36.07	1.202	19.76	.659	2d10 +1d12 +1d1 ...	16.3	.543	2d12 +3d14 +3d20
21	44.52	1.484	21.71	.724	2d10 +1d12 +2d1 ...	22.81	.76	2d12 +3d14 +3d26
22	50.67	1.689	27.87	.929	2d10 +1d12 +2d1 ...	22.81	.76	2d12 +3d14 +3d26
23	55.32	1.844	34.78	1.159	2d10 +1d12 +2d1 ...	20.55	.685	3d14 +3d26
24	55.32	2.881	28.62	1.491	2d10 +1d12 +2d1 ...	26.7	1.391	3d14 +4d14 +3d26
25	39.4	2.052	12.69	.661	2d10 +1d12 +2d1 ...	26.7	1.391	3d14 +4d14 +3d26
26	13.89	.723	4.65	.242	2d10 +2d14	9.24	.481	2d14 +4d14
27	13.89	.723	1.57	.082	2d10	12.32	.641	2d14 +2d14 +4d14
28	16.96	.884	7.73	.403	2d10 +2d14 +2d14	9.24	.481	2d14 +4d14
29	26.2	1.365	13.89	.723	2d10 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
30	20.04	1.044	10.81	.563	2d10 +2d14 +2d1 ...	9.24	.481	2d14 +4d14
31	27.77	1.446	15.46	.805	2d10 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
32	16.96	.884	7.73	.403	2d14 +2d14 +2d10	9.24	.481	2d14 +4d14
33	26.2	1.365	13.89	.723	2d14 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
34	17.91	.933	5.59	.291	2d10 +2d16	12.32	.641	2d14 +2d14 +4d14
35	20.99	1.093	11.75	.612	2d14 +2d14 +2d1 ...	9.24	.481	2d14 +4d14
36	31.79	1.656	19.48	1.014	2d14 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
37	30.22	1.574	17.91	.933	2d14 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
38	23.25	1.211	14.01	.73	2d14 +2d10 +2d1 ...	9.24	.481	2d14 +4d14
39	28.21	1.469	18.66	.972	2d14 +2d14 +2d1 ...	9.55	.497	3d12 +4d14
40	28.21	1.959	18.66	1.296	2d14 +2d14 +2d1 ...	9.55	.663	3d12 +4d14
41	17.4	1.209	11.75	.816	2d14 +2d10 +2d1 ...	5.65	.393	2d12 +3d12
42	14.33	.995	8.67	.602	2d10 +2d14 +2d16	5.65	.393	2d12 +3d12
43	10.3	.716	4.65	.323	2d10 +2d14	5.65	.393	2d12 +3d12
44	11.84	.822	6.19	.43	2d10 +2d14 +1d14	5.65	.393	2d12 +3d12
45	19.54	1.357	11.53	.801	2d10 +2d14 +1d1 ...	8.01	.556	3d12 +3d14
46	19.54	1.018	11.53	.601	2d10 +2d14 +1d1 ...	8.01	.417	3d12 +3d14
47	10.81	.563	3.11	.162	2d10 +1d14	7.7	.401	2d14 +3d14
48	10.81	.563	1.57	.082	2d10	9.24	.481	1d14 +2d14 +3d14
49	16.15	.841	8.45	.44	2d10 +2d14 +1d1 ...	7.7	.401	2d14 +3d14
50	19.54	1.018	11.53	.601	2d10 +2d14 +1d1 ...	8.01	.417	3d14 +3d12
51	19.54	1.163	11.53	.686	2d10 +2d14 +1d1 ...	8.01	.477	3d14 +3d12
52	11.84	.705	6.19	.368	2d10 +2d14 +1d14	5.65	.337	2d12 +3d12
53	10.3	.613	4.65	.277	2d10 +2d14	5.65	.337	2d12 +3d12
54	14.33	.853	4.65	.277	2d10 +2d14	9.68	.576	2d12 +3d12 +2d16
55	14.33	.853	6.91	.411	2d10 +2d14 +2d12	7.41	.441	3d12 +2d16

## MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a  $1.5 \cdot b \text{ mm}^2/\text{m}$  [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr8\_p2** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=200000. ;  
 gs =1.38; fyd=2766.3; ftd( $k \cdot f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

&lt;-

## SEZIONI UTILIZZATE

3) Rettangolare: 60X50; A=3000.; Jg=625000.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A20	3	3	3	0	235.	190.	4.7	1.3	1.908	48.513
2	A21	3	3	3	0	430.	380.	8.6	1.5	1.808	46.99
3	A22	3	3	3	0	280.	230.	5.6	1.5	1.479	37.877
4	A346	3	3	3	0	355.	308.	7.1	1.3	1.818	46.287

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-14515.66	-.042	.065	-31000.77	-.093	.138	2.	.401	2.136	SI
0.	0.	3.	1.	12497.58	-.034	.072	23850.67	-.067	.138	2.	.326	1.908	SI
70.	70.	3.	3.	9819.9	-.035	.051	26309.92	-.101	.138	2.	.422	2.679	SI
130.	130.	3.	4.	-3301.03	-.012	.017	-26674.55	-.103	.138	2.	.427	8.081	SI
174.	174.	3.	4.	7688.13	-.029	.107	9942.89	-.038	.138	2.	.217	1.293	SI
189.	189.	3.	5.	-14896.23	-.045	.064	-32043.16	-.103	.138	2.	.427	2.151	SI
235.	235.	3.	6.	-14896.23	-.043	.052	-39477.41	-.122	.138	2.	.47	2.65	SI
235.	235.	3.	6.	8763.73	-.022	.061	19868.82	-.051	.138	2.	.27	2.267	SI
> 235.	0.	3.	6.	-25921.26	-.077	.09	-39477.41	-.122	.138	2.	.47	1.523	SI
235.	0.	3.	6.	6865.79	-.017	.048	19868.82	-.051	.138	2.	.27	2.894	SI
350.	115.	3.	9.	11824.51	-.035	.075	21848.89	-.066	.138	2.	.322	1.848	SI
390.	155.	3.	10	-2702.44	-.009	.02	-18254.21	-.063	.138	2.	.313	6.755	SI
430.	195.	3.	10	11900.56	-.041	.076	21516.91	-.076	.138	2.	.354	1.808	SI
604.	369.	3.	8.	10001.15	-.031	.096	14440.9	-.045	.138	2.	.247	1.444	SI
619.	384.	3.	6.	-26617.01	-.082	.102	-35980.2	-.115	.138	2.	.453	1.352	SI
665.	430.	3.	6.	-26617.01	-.079	.093	-39477.41	-.122	.138	2.	.47	1.483	SI
665.	430.	3.	6.	5731.31	-.015	.04	19868.82	-.051	.138	2.	.27	3.467	SI
> 665.	0.	3.	6.	-18702.97	-.054	.065	-39477.41	-.122	.138	2.	.47	2.111	SI
665.	0.	3.	6.	13430.87	-.034	.093	19868.82	-.051	.138	2.	.27	1.479	SI
690.	25.	3.	11	-18702.97	-.05	.064	-39959.24	-.114	.138	2.	.451	2.137	SI
726.	61.	3.	13	12109.39	-.042	.12	13957.34	-.049	.138	2.	.26	1.153	SI
805.	140.	3.	13	-824.51	-.003	.004	-27070.	-.095	.138	2.	.407	32.83	SI
870.	205.	3.	14	10478.46	-.029	.052	27848.3	-.08	.138	2.	.365	2.658	SI
899.	234.	3.	15	-20392.17	-.057	.077	-36319.97	-.106	.138	2.	.434	1.781	SI
945.	280.	3.	15	-20392.17	-.055	.072	-38924.03	-.111	.138	2.	.446	1.909	SI
945.	280.	3.	15	11873.55	-.029	.067	24633.5	-.061	.138	2.	.307	2.075	SI
> 945.	0.	3.	15	-18623.23	-.05	.066	-38924.03	-.111	.138	2.	.446	2.09	SI
945.	0.	3.	15	7934.08	-.019	.045	24633.5	-.061	.138	2.	.307	3.105	SI
1006.	61.	3.	16	-15706.79	-.054	.067	-32237.87	-.12	.138	2.	.464	2.052	SI
1062.	116.	3.	17	11249.16	-.039	.076	20446.89	-.073	.138	2.	.345	1.818	SI
1103.	158.	3.	17	-1325.53	-.004	.01	-18222.86	-.064	.138	2.	.316	13.75	SI
1228.	282.	3.	19	-4268.97	-.022	.078	-7583.31	-.039	.138	2.	.22	1.776	SI
1256.	311.	3.	20	-9188.18	-.045	.118	-10741.6	-.053	.138	2.	.275	1.169	SI



1300.	355.	3.	21	-9188.18	-.039	.084	-15141.99	-.065	.138	2.	.32	1.648	SI
1300.	355.	3.	21	4524.69	-.019	.051	12181.64	-.052	.138	2.	.274	2.692	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	-4904.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
0.	0.	3.	19690.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
20.	20.	3.	-4904.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
20.	20.	3.	19690.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
21.	21.	3.	-5035.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
21.	21.	3.	19690.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
41.	41.	3.	-6945.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
41.	41.	3.	19009.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
56.	56.	3.	-8311.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
56.	56.	3.	17643.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
70.	70.	3.	-9678.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
70.	70.	3.	16276.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
70.	70.	3.	-9678.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
70.	70.	3.	16276.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
100.	100.	3.	-12542.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
100.	100.	3.	13412.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
130.	130.	3.	-15407.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
130.	130.	3.	10547.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
160.	160.	3.	-18271.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
160.	160.	3.	7683.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
160.	160.	3.	-18271.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
160.	160.	3.	7683.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
174.	174.	3.	-19638.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
174.	174.	3.	6316.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
189.	189.	3.	-21005.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
189.	189.	3.	4950.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
210.	210.	3.	-21685.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
210.	210.	3.	2909.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
214.	214.	3.	-21685.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
214.	214.	3.	2562.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
235.	235.	3.	-21685.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
235.	235.	3.	522.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
> 235.	0.	3.	26198.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
256.	21.	3.	26198.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
260.	25.	3.	26198.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
281.	46.	3.	25125.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
296.	61.	3.	23325.	9449.	40441.	14861.	1.01	20.	2.5	NO	4 6
310.	75.	3.	21907.	9449.	40441.	14861.	1.01	20.	2.5	NO	4 6
310.	75.	3.	21907.	9449.	40441.	14861.	1.01	20.	2.5	NO	4 6
350.	115.	3.	17969.	9682.	40441.	14861.	1.01	20.	2.5	NO	4 6
390.	155.	3.	-3169.	9682.	40441.	14861.	1.01	20.	2.5	NO	6
390.	155.	3.	14150.	9682.	40441.	14861.	1.01	20.	2.5	NO	6
430.	195.	3.	-6988.	10274.	40441.	14861.	1.01	20.	2.5	NO	6
430.	195.	3.	10330.	10274.	40441.	14861.	1.01	20.	2.5	NO	6
470.	235.	3.	-10807.	10274.	40441.	14861.	1.01	20.	2.5	NO	6
470.	235.	3.	6511.	10274.	40441.	14861.	1.01	20.	2.5	NO	6
510.	275.	3.	-14627.	9682.	40441.	14861.	1.01	20.	2.5	NO	6
510.	275.	3.	2692.	9682.	40441.	14861.	1.01	20.	2.5	NO	6
550.	315.	3.	-18446.	9682.	40441.	14861.	1.01	20.	2.5	NO	4 6
590.	355.	3.	-22443.	9449.	40441.	14861.	1.01	20.	2.5	NO	4 6
590.	355.	3.	22443.	9449.	40441.	14861.	1.01	20.	2.5	NO	4 6
604.	369.	3.	-23888.	9449.	40441.	14861.	1.01	20.	2.5	NO	4 6
619.	384.	3.	-25700.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
640.	405.	3.	-26773.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
644.	409.	3.	-26773.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
665.	430.	3.	-26773.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
> 665.	0.	3.	-3430.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
665.	0.	3.	22757.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
686.	21.	3.	-3430.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
686.	21.	3.	22757.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
690.	25.	3.	-3430.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
690.	25.	3.	22757.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
711.	46.	3.	-5471.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
711.	46.	3.	22077.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
726.	61.	3.	-6838.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
726.	61.	3.	20711.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
740.	75.	3.	-8204.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
740.	75.	3.	19344.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
740.	75.	3.	-8204.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
740.	75.	3.	19344.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
772.	108.	3.	-11307.	9262.	40441.	14861.	1.01	20.	2.5	NO	6
772.	108.	3.	16241.	9262.	40441.	14861.	1.01	20.	2.5	NO	4 6
805.	140.	3.	-14411.	9262.	40441.	14861.	1.01	20.	2.5	NO	6
805.	140.	3.	13138.	9262.	40441.	14861.	1.01	20.	2.5	NO	6
838.	172.	3.	-17514.	9262.	40441.	14861.	1.01	20.	2.5	NO	4 6
838.	172.	3.	10034.	9262.	40441.	14861.	1.01	20.	2.5	NO	6
870.	205.	3.	-20617.	9262.	40441.	14861.	1.01	20.	2.5	NO	4 6
870.	205.	3.	6931.	9262.	40441.	14861.	1.01	20.	2.5	NO	6
870.	205.	3.	-20617.	9262.	40441.	14861.	1.01	20.	2.5	NO	4 6
870.	205.	3.	6931.	9262.	40441.	14861.	1.01	20.	2.5	NO	6
884.	219.	3.	-21984.	9262.	40441.	14861.	1.01	20.	2.5	NO	4 6
884.	219.	3.	5565.	9262.	40441.	14861.	1.01	20.	2.5	NO	6
899.	234.	3.	-23350.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
899.	234.	3.	4198.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
920.	255.	3.	-24031.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
920.	255.	3.	2157.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
924.	259.	3.	-24031.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
924.	259.	3.	1811.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
945.	280.	3.	-24031.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
> 945.	0.	3.	20138.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
966.	21.	3.	20138.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
970.	25.	3.	20138.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6

991.	46.	3.	19165.	8569.	40441.	14861.	1.01	20.	2.5	NO	4	6
1006.	61.	3.	17739.	9449.	40441.	14861.	1.01	20.	2.5	NO	4	6
1020.	75.	3.	16313.	9449.	40441.	14861.	1.01	20.	2.5	NO	4	6
1020.	75.	3.	16313.	9449.	40441.	14861.	1.01	20.	2.5	NO	4	6
1062.	116.	3.	-615.	8569.	40441.	14861.	1.01	20.	2.5	NO	6	
1062.	116.	3.	12587.	8569.	40441.	14861.	1.01	20.	2.5	NO	6	
1103.	158.	3.	-4095.	8569.	40441.	14861.	1.01	20.	2.5	NO	6	
1103.	158.	3.	9107.	8569.	40441.	14861.	1.01	20.	2.5	NO	6	
1144.	200.	3.	-7508.	10093.	40441.	14861.	1.01	20.	2.5	NO	6	
1144.	200.	3.	5694.	10093.	40441.	14861.	1.01	20.	2.5	NO	6	
1186.	241.	3.	-10854.	10093.	40441.	14861.	1.01	20.	2.5	NO	6	
1186.	241.	3.	2348.	10093.	40441.	14861.	1.01	20.	2.5	NO	6	
1228.	282.	3.	-14132.	8569.	40441.	14861.	1.01	20.	2.5	NO	6	
1228.	282.	3.	-14132.	8569.	40441.	14861.	1.01	20.	2.5	NO	6	
1242.	297.	3.	-15248.	8569.	40441.	14861.	1.01	20.	2.5	NO	4	6
1256.	311.	3.	-16376.	8569.	40441.	14861.	1.01	20.	2.5	NO	4	6
1278.	332.	3.	-17103.	8569.	40441.	14861.	1.01	20.	2.5	NO	4	6
1279.	334.	3.	-17103.	8569.	40441.	14861.	1.01	20.	2.5	NO	4	6
1300.	355.	3.	-17103.	8569.	40441.	14861.	1.01	20.	2.5	NO	4	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
21.	21.	3.	1.	-1663.01	-5.3	148.5	26.26	6.58	.0045	9.06	.004	SI
56.	56.	3.	2.	945.29	-3.1	101.5	19.73	6.25	.003	10.76	.003	SI
70.	70.	3.	3.	1544.06	-5.9	159.5	22.81	6.25	.0048	9.62	.005	SI
100.	100.	3.	3.	2231.53	-8.5	230.5	22.81	6.25	.0069	9.62	.007	SI
130.	130.	3.	4.	1927.21	-8.1	468.	9.24	6.25	.014	15.78	.022	SI
210.	210.	3.	6.	-3674.57	-11.4	255.1	34.31	6.4	.0077	7.77	.006	SI
235.	235.	3.	6.	-3674.57	-11.3	254.2	34.31	6.25	.0076	7.69	.006	SI
> 235.	0.	3.	6.	-10892.22	-33.6	753.5	34.31	6.25	.0307	7.69	.024	SI
430.	195.	3.	10	8426.11	-31.7	1075.	18.1	6.25	.043	11.42	.049	SI
665.	430.	3.	6.	-11752.32	-36.3	813.	34.31	6.25	.0337	7.69	.026	SI
> 665.	0.	3.	6.	-3481.23	-10.7	240.8	34.31	6.25	.0072	7.69	.006	SI
805.	140.	3.	13	3136.56	-11.7	535.4	13.26	6.25	.0161	12.78	.021	SI
945.	280.	3.	15	-5101.35	-15.1	359.8	33.36	6.25	.0109	7.75	.008	SI
> 945.	0.	3.	15	-6100.01	-18.1	430.2	33.36	6.25	.0144	7.75	.011	SI
1144.	200.	3.	18	6847.91	-32.3	945.2	17.15	6.25	.0361	11.58	.042	SI
1300.	355.	3.	21	-2747.05	-12.5	496.7	12.69	6.25	.0149	13.03	.019	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
21.	21.	3.	1.	-1406.24	-4.5	125.6	26.26	6.58	.0038	9.06	.003	SI
70.	70.	3.	3.	1428.75	-5.4	147.6	22.81	6.25	.0044	9.62	.004	SI
70.	70.	3.	3.	1428.75	-5.4	147.6	22.81	6.25	.0044	9.62	.004	SI
100.	100.	3.	3.	2016.34	-7.6	208.2	22.81	6.25	.0062	9.62	.006	SI
130.	130.	3.	4.	1711.75	-7.2	415.7	9.24	6.25	.0125	15.78	.02	SI
210.	210.	3.	6.	-3409.64	-10.5	236.7	34.31	6.4	.0071	7.77	.006	SI
235.	235.	3.	6.	-3409.64	-10.5	235.9	34.31	6.25	.0071	7.69	.005	SI
> 235.	0.	3.	6.	-9744.23	-30.1	674.1	34.31	6.25	.0268	7.69	.021	SI
430.	195.	3.	10	7580.5	-28.5	967.1	18.1	6.25	.0376	11.42	.043	SI
665.	430.	3.	6.	-10637.25	-32.8	735.8	34.31	6.25	.0298	7.69	.023	SI
> 665.	0.	3.	6.	-3113.59	-9.6	215.4	34.31	6.25	.0065	7.69	.005	SI
805.	140.	3.	13	2824.92	-10.5	482.2	13.26	6.25	.0145	12.78	.018	SI
945.	280.	3.	15	-4600.24	-13.6	324.5	33.36	6.25	.0097	7.75	.008	SI
> 945.	0.	3.	15	-5433.88	-16.1	383.2	33.36	6.25	.0121	7.75	.009	SI
1144.	200.	3.	18	6176.35	-29.1	852.5	17.15	6.25	.0314	11.58	.036	SI
1300.	355.	3.	21	-2410.79	-11.	435.9	12.69	6.25	.0131	13.03	.017	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
21.	21.	3.	1.	-1330.7	-4.2	118.8	26.26	6.58	.0036	9.06	.003	SI
70.	70.	3.	3.	1386.62	-5.3	143.2	22.81	6.25	.0043	9.62	.004	SI
70.	70.	3.	3.	1386.62	-5.3	143.2	22.81	6.25	.0043	9.62	.004	SI
100.	100.	3.	3.	1944.83	-7.4	200.9	22.81	6.25	.006	9.62	.006	SI
130.	130.	3.	4.	1644.08	-6.9	399.2	9.24	6.25	.012	15.78	.019	SI
210.	210.	3.	6.	-3306.74	-10.2	229.5	34.31	6.4	.0069	7.77	.005	SI
235.	235.	3.	6.	-3306.74	-10.2	228.7	34.31	6.25	.0069	7.69	.005	SI
> 235.	0.	3.	6.	-9363.43	-28.9	647.7	34.31	6.25	.0254	7.69	.02	SI
430.	195.	3.	10	7295.65	-27.5	930.8	18.1	6.25	.0358	11.42	.041	SI
665.	430.	3.	6.	-10269.9	-31.7	710.4	34.31	6.25	.0286	7.69	.022	SI
> 665.	0.	3.	6.	-2975.3	-9.2	205.8	34.31	6.25	.0062	7.69	.005	SI
805.	140.	3.	13	2725.81	-10.2	465.3	13.26	6.25	.014	12.78	.018	SI
945.	280.	3.	15	-4439.42	-13.1	313.1	33.36	6.25	.0094	7.75	.007	SI
> 945.	0.	3.	15	-5207.94	-15.4	367.3	33.36	6.25	.0113	7.75	.009	SI
1144.	200.	3.	18	5950.03	-28.1	821.2	17.15	6.25	.0299	11.58	.035	SI
1300.	355.	3.	21	-2304.63	-10.5	416.7	12.69	6.25	.0125	13.03	.016	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	45.99	1.533	26.26	.875	4d16 +2d14 +2d1 ...	19.73	.658	4d14 +3d24
2	45.99	1.533	23.18	.773	4d16 +2d10 +3d24	22.81	.76	2d14 +4d14 +3d24
3	32.42	1.081	9.61	.32	4d16 +2d10	22.81	.76	2d14 +4d14 +3d24
4	32.42	1.081	23.18	.773	4d16 +2d10 +3d24	9.24	.308	2d14 +4d14
5	46.5	1.55	30.28	1.009	2d16 +4d16 +2d1 ...	16.21	.54	4d14 +5d16
6	50.52	1.684	34.31	1.144	2d16 +4d16 +2d1 ...	16.21	.54	4d14 +5d16
7	50.52	1.684	30.28	1.009	2d16 +4d16 +2d1 ...	20.23	.674	2d16 +4d14 +5d16
8	44.36	1.479	30.28	1.009	2d16 +4d16 +2d1 ...	14.07	.469	2d16 +5d16
9	41.28	1.376	23.18	.773	4d16 +2d10 +3d24	18.1	.603	2d16 +2d16 +5d16
10	33.24	1.108	15.14	.505	2d10 +3d24	18.1	.603	2d16 +2d16 +5d16
11	54.54	1.818	34.31	1.144	2d16 +4d16 +2d1 ...	20.23	.674	4d14 +5d16 +2d16
12	50.52	1.684	30.28	1.009	2d16 +4d16 +2d1 ...	20.23	.674	4d14 +5d16 +2d16
13	36.44	1.215	23.18	.773	4d16 +2d10 +3d24	13.26	.442	2d14 +4d14 +2d16

14	46.5	1.55	23.18	.773	4d16	+2d10	+3d24	23.31	.777	2d14	+4d14	+5d1	...
15	53.6	1.787	33.36	1.112	4d16	+2d14	+2d1	20.23	.674	4d14	+5d16	+2d16	
16	43.42	1.447	29.34	.978	4d16	+2d14	+2d1	14.07	.469	2d16	+5d16		
17	32.3	1.077	15.14	.505	2d10	+3d24		17.15	.572	2d14	+2d16	+5d16	
18	18.72	.624	1.57	.052	2d10			17.15	.572	2d14	+2d16	+5d16	
19	22.75	.758	5.59	.186	2d10	+2d16		17.15	.572	2d14	+2d16	+5d16	
20	22.75	.758	8.67	.289	2d14	+2d10	+2d16	14.07	.469	2d16	+5d16		
21	22.75	.758	12.69	.423	2d14	+2d16	+2d1	10.05	.335	5d16			

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr4\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk];mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre)=.4 ; wdmax(q.p)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 60X50; A=3000.; Jg=625000.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A34	3	3	3	0	188.	148.	3.757	1.3	2.595	57.542
2	A35	3	3	3	0	390.	350.	7.8	1.5	1.416	40.002
3	A36	3	3	3	0	421.	383.	8.412	1.3	1.048	35.452

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-4773.8	-.021	.031	-21049.75	-.1	.138	2.	.419	4.409	SI
20.	20.	3.	1.	1432.39	-.008	.047	4233.1	-.023	.138	2.	.142	2.955	NO
21.	21.	3.	1.	1530.84	-.008	.05	4233.1	-.023	.138	2.	.142	2.765	NO
41.	41.	3.	2.	2947.01	-.009	.02	20375.97	-.068	.138	2.	.329	6.914	SI
132	132.	3.	4.	8053.74	-.023	.046	24419.28	-.073	.138	2.	.346	3.032	SI
166.	166.	3.	4.	9409.41	-.027	.053	24419.28	-.073	.138	2.	.346	2.595	SI
188.	188.	3.	4.	-17624.8	-.053	.093	-26143.19	-.08	.138	2.	.365	1.483	SI
188.	188.	3.	4.	9409.41	-.027	.053	24419.28	-.073	.138	2.	.346	2.595	SI
> 188.	0.	3.	4.	-21917.18	-.066	.116	-26143.19	-.08	.138	2.	.365	1.193	SI
188.	0.	3.	4.	13057.41	-.038	.074	24419.28	-.073	.138	2.	.346	1.87	SI
229.	41.	3.	4.	-21917.18	-.069	.126	-23960.74	-.075	.138	2.	.353	1.093	SI
258.	70.	3.	6.	11192.62	-.034	.057	27039.15	-.085	.138	2.	.381	2.416	SI
300.	112.	3.	7.	-11499.67	-.037	.087	-18322.26	-.06	.138	2.	.304	1.593	SI
383.	195.	3.	8.	-966.51	-.003	.004	-33787.37	-.098	.138	2.	.415	34.96	SI
556.	369.	3.	4.	17211.61	-.051	.098	24373.97	-.074	.138	2.	.347	1.416	SI
578.	390.	3.	4.	-18125.35	-.054	.096	-26143.19	-.08	.138	2.	.365	1.442	SI
578.	390.	3.	4.	17211.61	-.051	.097	24419.28	-.073	.138	2.	.346	1.419	SI
> 578.	0.	3.	4.	-23219.12	-.07	.123	-26143.19	-.08	.138	2.	.365	1.126	SI
578.	0.	3.	4.	9699.26	-.028	.055	24419.28	-.073	.138	2.	.346	2.518	SI
619.	41.	3.	4.	-23219.12	-.072	.127	-25274.21	-.078	.138	2.	.362	1.089	SI
634.	56.	3.	4.	9220.33	-.028	.052	24535.3	-.077	.138	2.	.359	2.661	SI
729.	151.	3.	7.	-7136.37	-.023	.054	-18322.26	-.06	.138	2.	.304	2.567	SI
729.	151.	3.	7.	6386.75	-.021	.037	24067.73	-.083	.138	2.	.374	3.768	SI
810.	232.	3.	7.	-1114.3	-.004	.008	-18322.26	-.06	.138	2.	.304	16.44	SI
977.	399.	3.	11	19439.06	-.065	.132	20375.97	-.068	.138	2.	.329	1.048	SI
998.	421.	3.	11	-15811.94	-.052	.099	-22108.15	-.075	.138	2.	.35	1.398	SI
998.	421.	3.	11	19439.06	-.065	.132	20375.97	-.068	.138	2.	.329	1.048	SI

## TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	-6449.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
0.	0.	3.	7534.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
20.	20.	3.	-6913.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
20.	20.	3.	7534.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
21.	21.	3.	-6945.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
21.	21.	3.	7534.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
41.	41.	3.	-7426.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
41.	41.	3.	7363.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
56.	56.	3.	-7779.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
56.	56.	3.	7010.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	-8138.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	6651.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	-8138.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
70.	70.	3.	6651.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
94.	94.	3.	-8760.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
94.	94.	3.	6029.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
118.	118.	3.	-9405.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
118.	118.	3.	5384.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
118.	118.	3.	-9405.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
118.	118.	3.	5384.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
132.	132.	3.	-9804.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
132.	132.	3.	4985.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
146.	146.	3.	-10208.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
146.	146.	3.	4581.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
166.	166.	3.	-10414.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
166.	166.	3.	4003.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
168.	168.	3.	-10414.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
168.	168.	3.	3962.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
188.	188.	3.	-10414.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
188.	188.	3.	3367.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
> 188.	0.	3.	-3602.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
188.	0.	3.	15516.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
208.	20.	3.	-3602.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
208.	20.	3.	15516.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
209.	21.	3.	-3643.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
209.	21.	3.	15516.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
229.	41.	3.	-4231.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
229.	41.	3.	15306.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
244.	56.	3.	-4651.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
244.	56.	3.	14886.	9917.	40441.	11889.	1.01	25.	2.5	NO	4 6
258.	70.	3.	-5070.	9682.	40441.	11889.	1.01	25.	2.5	NO	6
258.	70.	3.	14467.	9682.	40441.	11889.	1.01	25.	2.5	NO	4 6
258.	70.	3.	-5070.	9682.	40441.	11889.	1.01	25.	2.5	NO	6
258.	70.	3.	14467.	9682.	40441.	11889.	1.01	25.	2.5	NO	4 6
300.	112.	3.	-6288.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
300.	112.	3.	13249.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
341.	153.	3.	-7501.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
341.	153.	3.	12036.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
383.	195.	3.	-8710.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
383.	195.	3.	10827.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
425.	237.	3.	-9914.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
425.	237.	3.	9623.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
466.	278.	3.	-11113.	9682.	40441.	11889.	1.01	25.	2.5	NO	6
466.	278.	3.	8424.	9682.	40441.	11889.	1.01	25.	2.5	NO	6
508.	320.	3.	-12308.	9682.	40441.	11889.	1.01	25.	2.5	NO	4 6
508.	320.	3.	7229.	9682.	40441.	11889.	1.01	25.	2.5	NO	6
508.	320.	3.	-12308.	9682.	40441.	11889.	1.01	25.	2.5	NO	4 6
508.	320.	3.	7229.	9682.	40441.	11889.	1.01	25.	2.5	NO	6
522.	334.	3.	-12717.	9917.	40441.	11889.	1.01	25.	2.5	NO	4 6
522.	334.	3.	6820.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
536.	349.	3.	-13126.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
536.	349.	3.	6411.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
556.	369.	3.	-13329.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
556.	369.	3.	5841.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
558.	370.	3.	-13329.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
558.	370.	3.	5802.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
578.	390.	3.	-13329.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
578.	390.	3.	5232.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
> 578.	0.	3.	-1217.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
578.	0.	3.	15835.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
598.	20.	3.	-1217.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
598.	20.	3.	15835.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
599.	21.	3.	-1256.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
599.	21.	3.	15835.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
619.	41.	3.	-1823.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
619.	41.	3.	15633.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
634.	56.	3.	-2229.	10056.	40441.	11889.	1.01	25.	2.5	NO	6
634.	56.	3.	15228.	10056.	40441.	11889.	1.01	25.	2.5	NO	4 6
648.	70.	3.	-2633.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
648.	70.	3.	14824.	9917.	40441.	11889.	1.01	25.	2.5	NO	4 6
648.	70.	3.	-2633.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
648.	70.	3.	14824.	9917.	40441.	11889.	1.01	25.	2.5	NO	4 6
688.	110.	3.	-3773.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
688.	110.	3.	13683.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
729.	151.	3.	-4909.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
729.	151.	3.	12547.	8569.	40441.	11889.	1.01	25.	2.5	NO	4 6
769.	191.	3.	-6040.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
769.	191.	3.	11416.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
810.	232.	3.	-7167.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
810.	232.	3.	10289.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
850.	272.	3.	-8290.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
850.	272.	3.	9166.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
890.	313.	3.	-9409.	9682.	40441.	11889.	1.01	25.	2.5	NO	6
890.	313.	3.	8048.	9682.	40441.	11889.	1.01	25.	2.5	NO	6
931.	353.	3.	-10522.	9917.	40441.	11889.	1.01	25.	2.5	NO	6

931.	353.	3.	6934.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
931.	353.	3.	-10522.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
931.	353.	3.	6934.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
945.	367.	3.	-10916.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
945.	367.	3.	6540.	9917.	40441.	11889.	1.01	25.	2.5	NO	6
960.	382.	3.	-11308.	9335.	40441.	11889.	1.01	25.	2.5	NO	6
960.	382.	3.	6148.	9335.	40441.	11889.	1.01	25.	2.5	NO	6
977.	399.	3.	-11503.	9335.	40441.	11889.	1.01	25.	2.5	NO	6
977.	399.	3.	5669.	9335.	40441.	11889.	1.01	25.	2.5	NO	6
981.	403.	3.	-11503.	9335.	40441.	11889.	1.01	25.	2.5	NO	6
981.	403.	3.	5563.	9335.	40441.	11889.	1.01	25.	2.5	NO	6
998.	421.	3.	-11503.	9335.	40441.	11889.	1.01	25.	2.5	NO	6
998.	421.	3.	5084.	9335.	40441.	11889.	1.01	25.	2.5	NO	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-2782.06	-12.4	355.	18.54	6.25	.0107	10.76	.011 SI
20.	20.	3.	1.	-2782.06	-12.4	355.	18.54	6.25	.0107	10.76	.011 SI
21.	21.	3.	1.	-2772.25	-12.4	353.8	18.54	6.25	.0106	10.76	.011 SI
41.	41.	3.	2.	-2739.17	-10.	340.6	18.54	6.25	.0102	10.76	.011 SI
56.	56.	3.	2.	-2780.34	-10.1	345.7	18.54	6.25	.0104	10.76	.011 SI
70.	70.	3.	2.	-2857.11	-10.4	355.3	18.54	6.25	.0107	10.76	.011 SI
118.	118.	3.	3.	-3595.53	-12.9	422.4	19.67	6.25	.0127	10.22	.013 SI
188.	188.	3.	4.	-5121.	-17.	539.3	21.93	6.25	.0176	9.37	.017 SI
> 188.	0.	3.	4.	-5239.18	-17.4	551.8	21.93	6.25	.0182	9.37	.017 SI
425.	237.	3.	7.	1899.45	-6.9	216.5	20.36	6.25	.0065	10.06	.007 SI
578.	390.	3.	4.	-1266.66	-4.2	133.4	21.93	6.25	.004	9.37	.004 SI
> 578.	0.	3.	4.	-7639.47	-25.4	804.5	21.93	6.25	.0309	9.37	.029 SI
688.	110.	3.	7.	-1343.09	-5.	202.2	15.14	6.25	.0061	48.32	.029 SI
850.	272.	3.	7.	3460.61	-12.6	394.4	20.36	6.25	.0118	10.06	.012 SI
998.	421.	3.	11	902.78	-3.3	122.	16.96	6.25	.0037	11.94	.004 SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-2497.51	-11.1	318.7	18.54	6.25	.0096	10.76	.01 SI
20.	20.	3.	1.	-2497.51	-11.1	318.7	18.54	6.25	.0096	10.76	.01 SI
21.	21.	3.	1.	-2487.98	-11.1	317.5	18.54	6.25	.0095	10.76	.01 SI
41.	41.	3.	2.	-2451.32	-8.9	304.8	18.54	6.25	.0091	10.76	.01 SI
56.	56.	3.	2.	-2485.41	-9.1	309.	18.54	6.25	.0093	10.76	.01 SI
70.	70.	3.	2.	-2552.6	-9.3	317.4	18.54	6.25	.0095	10.76	.01 SI
118.	118.	3.	3.	-3224.62	-11.6	378.8	19.67	6.25	.0114	10.22	.012 SI
188.	188.	3.	4.	-4625.72	-15.4	487.2	21.93	6.25	.015	9.37	.014 SI
> 188.	0.	3.	4.	-4896.77	-16.3	515.7	21.93	6.25	.0164	9.37	.015 SI
425.	237.	3.	7.	1776.02	-6.5	202.4	20.36	6.25	.0061	10.06	.006 SI
578.	390.	3.	4.	-1116.23	-3.7	117.6	21.93	6.25	.0035	9.37	.003 SI
> 578.	0.	3.	4.	-7072.26	-23.5	744.8	21.93	6.25	.0279	9.37	.026 SI
688.	110.	3.	7.	-1235.37	-4.6	186.	15.14	6.25	.0056	48.32	.027 SI
850.	272.	3.	7.	3204.96	-11.6	365.2	20.36	6.25	.011	10.06	.011 SI
998.	421.	3.	11	814.25	-3.	110.	16.96	6.25	.0033	11.94	.004 SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-2404.55	-10.7	306.8	18.54	6.25	.0092	10.76	.01 SI
20.	20.	3.	1.	-2404.55	-10.7	306.8	18.54	6.25	.0092	10.76	.01 SI
21.	21.	3.	1.	-2395.27	-10.7	305.7	18.54	6.25	.0092	10.76	.01 SI
41.	41.	3.	2.	-2359.73	-8.6	293.4	18.54	6.25	.0088	10.76	.009 SI
56.	56.	3.	2.	-2393.11	-8.7	297.6	18.54	6.25	.0089	10.76	.01 SI
70.	70.	3.	2.	-2458.76	-9.	305.7	18.54	6.25	.0092	10.76	.01 SI
118.	118.	3.	3.	-3114.17	-11.2	365.8	19.67	6.25	.011	10.22	.011 SI
188.	188.	3.	4.	-4479.6	-14.9	471.8	21.93	6.25	.0143	9.37	.013 SI
> 188.	0.	3.	4.	-4803.05	-15.9	505.8	21.93	6.25	.016	9.37	.015 SI
425.	237.	3.	7.	1737.39	-6.3	198.	20.36	6.25	.0059	10.06	.006 SI
578.	390.	3.	4.	-1049.47	-3.5	110.5	21.93	6.25	.0033	9.37	.003 SI
> 578.	0.	3.	4.	-6899.51	-22.9	726.6	21.93	6.25	.027	9.37	.025 SI
688.	110.	3.	7.	-1207.05	-4.5	181.7	15.14	6.25	.0055	48.32	.026 SI
850.	272.	3.	7.	3124.38	-11.4	356.	20.36	6.25	.0107	10.06	.011 SI
998.	421.	3.	11	793.89	-2.9	107.3	16.96	6.25	.0032	11.94	.004 SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	21.93	.731	18.54	.618	2d10 +3d12 +3d24	3.39	.113	3d12
2	35.5	1.183	18.54	.618	2d10 +3d12 +3d24	16.96	.565	3d12 +3d24
3	36.63	1.221	19.67	.656	2d10 +1d12 +3d1 ...	16.96	.565	3d12 +3d24
4	42.29	1.41	21.93	.731	2d10 +1d12 +2d1 ...	20.36	.679	3d12 +3d12 +3d24
5	42.29	1.41	19.67	.656	2d10 +1d12 +3d1 ...	22.62	.754	2d12 +3d12 +3d1 ...
6	42.29	1.41	18.54	.618	2d10 +3d12 +3d24	23.75	.792	1d12 +2d12 +3d1 ...
7	35.5	1.183	15.14	.505	2d10 +3d24	20.36	.679	1d12 +2d12 +3d1 ...
8	49.07	1.636	28.71	.957	2d10 +3d24 +3d24	20.36	.679	1d12 +2d12 +3d1 ...
9	36.63	1.221	17.4	.58	2d10 +1d12 +1d1 ...	19.23	.641	2d12 +3d12 +3d24
10	35.5	1.183	16.27	.542	2d10 +1d12 +3d24	19.23	.641	2d12 +3d12 +3d24
11	35.5	1.183	18.54	.618	2d10 +1d12 +2d1 ...	16.96	.565	3d12 +3d24

#### MESSAGGI

4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].

6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

8) Armatura inferiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : Tr9\_p2 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =370. ; fck=307.1; fctk= 20.6; fctm= 29.4; Ec= 330194. ;  
 gc =1.5 ; fcd=174. ; fbd= 30.9; fctd= 13.7; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)=184.3; Scls(quasi permanente)=138.2; fbd(esercizio)= 30.9  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMA	4.						

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60x50; A=3000. ; Jg=625000. ; E=330194.3  
 6) Rettangolare: 70x24; A=1680. ; Jg=80640. ; E=330194.3

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A29	3	3	3	0	235.	195.	4.7	1.3	2.385	79.706
2	A28	3	3	3	0	425.	385.	8.5	1.5	1.683	51.006
3	A27	3	3	3	0	215.	175.	4.3	1.5	2.728	84.182
4	A941	3	3	3	0	425.	388.	8.5	1.5	1.658	50.247
5	A25	3	3	3	0	232.	197.	4.64	1.5	1.425	43.317
6	A332	6	6	6	0	489.	454.	20.363	1.3	2.482	76.751

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-12517.99	-.039	.104	-16626.69	-.053	.138	2.	.277	1.328	SI
0.	0.	3.	1.	3253.12	-.012	.059	7637.02	-.029	.138	2.	.171	2.348	SI
41.	41.	3.	1.	-12517.99	-.042	.118	-14663.45	-.05	.138	2.	.265	1.171	SI
133.	133.	3.	3.	-424.56	-.002	.006	-9337.56	-.035	.138	2.	.203	21.99	SI
194.	194.	3.	5.	6809.2	-.018	.054	17472.7	-.049	.138	2.	.26	2.566	SI
214.	214.	3.	5.	7241.8	-.019	.058	17273.69	-.046	.138	2.	.25	2.385	SI
235.	235.	3.	6.	-5964.56	-.013	.022	-36724.66	-.083	.138	2.	.376	6.157	SI
235.	235.	3.	6.	7241.8	-.016	.057	17457.67	-.039	.138	2.	.222	2.411	SI
> 235.	0.	3.	6.	-26009.52	-.057	.098	-36724.66	-.083	.138	2.	.376	1.412	SI
235.	0.	3.	6.	5283.09	-.012	.042	17457.67	-.039	.138	2.	.222	3.304	SI
276.	41.	3.	6.	-26009.52	-.06	.106	-33826.62	-.08	.138	2.	.365	1.301	SI
305.	70.	3.	7.	8670.76	-.02	.055	21924.62	-.052	.138	2.	.274	2.529	SI
509.	274.	3.	9.	-2260.89	-.006	.017	-18340.76	-.049	.138	2.	.262	8.112	SI
549.	314.	3.	9.	11535.33	-.03	.082	19414.74	-.052	.138	2.	.272	1.683	SI
590.	355.	3.	10	11480.21	-.031	.108	14675.79	-.04	.138	2.	.226	1.278	SI
660.	425.	3.	12	-21185.29	-.046	.08	-36448.55	-.083	.138	2.	.374	1.72	SI
660.	425.	3.	12	9796.36	-.022	.078	17455.18	-.04	.138	2.	.223	1.782	SI
> 660.	0.	3.	12	-10466.47	-.022	.039	-36448.55	-.083	.138	2.	.374	3.482	SI
660.	0.	3.	12	5036.27	-.011	.04	17455.18	-.04	.138	2.	.223	3.466	SI
716.	56.	3.	13	-8160.3	-.019	.031	-35740.75	-.092	.138	2.	.398	4.38	SI
716.	56.	3.	13	4805.87	-.014	.087	7681.64	-.023	.138	2.	.143	1.598	SI
768.	108.	3.	14	-1244.23	-.003	.006	-27042.75	-.074	.138	2.	.349	21.73	SI
805.	145.	3.	13	5222.65	-.016	.094	7681.64	-.023	.138	2.	.143	1.471	SI
854.	194.	3.	12	6399.65	-.014	.051	17455.18	-.04	.138	2.	.223	2.728	SI
875.	215.	3.	12	-9301.05	-.02	.035	-36448.55	-.083	.138	2.	.374	3.919	SI
875.	215.	3.	12	6399.65	-.014	.051	17455.18	-.04	.138	2.	.223	2.728	SI
> 875.	0.	3.	12	-21092.99	-.046	.08	-36448.55	-.083	.138	2.	.374	1.728	SI
875.	0.	3.	12	10039.32	-.023	.08	17455.18	-.04	.138	2.	.223	1.739	SI
945.	70.	3.	10	11672.13	-.032	.111	14529.03	-.041	.138	2.	.227	1.245	SI
986.	111.	3.	9.	11709.67	-.031	.083	19414.74	-.052	.138	2.	.272	1.658	SI
1027.	152.	3.	9.	-2101.1	-.005	.016	-18340.76	-.049	.138	2.	.262	8.729	SI
1261.	386.	3.	12	-26594.15	-.061	.109	-33713.56	-.079	.138	2.	.365	1.268	SI
1300.	425.	3.	12	-26594.15	-.059	.101	-36448.55	-.083	.138	2.	.374	1.371	SI
1300.	425.	3.	12	5291.51	-.012	.042	17455.18	-.04	.138	2.	.223	3.299	SI
> 1300.	0.	3.	12	-6238.7	-.013	.024	-36448.55	-.083	.138	2.	.374	5.842	SI
1300.	0.	3.	12	12247.68	-.028	.097	17455.18	-.04	.138	2.	.223	1.425	SI
1339.	39.	3.	16	-6238.7	-.012	.022	-38623.45	-.08	.138	2.	.366	6.191	SI
1353.	53.	3.	16	10234.71	-.02	.057	24950.79	-.05	.138	2.	.266	2.438	SI
1400.	100.	3.	18	-621.12	-.001	.002	-37409.99	-.095	.138	2.	.407	60.23	SI
1400.	100.	3.	18	6121.86	-.018	.11	7683.61	-.023	.138	2.	.141	1.255	SI
1532.	232.	3.	20	-15245.08	-.038	.06	-34606.13	-.091	.138	2.	.397	2.27	SI
1532.	232.	3.	20	2619.97	-.008	.043	8488.48	-.027	.138	2.	.164	3.24	SI

>1532.	0.	6.	21	-2497.42	-.008	-.031	-19335.26	-.116	-.395	4.	.457	17.742	SI	
1574.	42.	6.	22	73.38	0.	.001	8381.73	-.032	.138	2.	.186	114.2	SI	
1641.	109.	6.	24	-865.81	-.021	.136	-882.44	-.022	.138	2.	.136	1.019	NO	9
1675.	143.	6.	24	-336.86	-.008	.053	-882.44	-.022	.138	2.	.136	2.62	NO	9
1844.	312.	6.	24	1969.53	-.025	.055	4888.47	-.065	.138	2.	.32	2.482	SI	
2021.	489.	6.	26	553.96	-.008	.03	2521.42	-.039	.138	2.	.22	4.552	SI	

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	3.	16183.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
20.	20.	3.	16183.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
21.	21.	3.	16183.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
41.	41.	3.	15647.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
56.	56.	3.	-47.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
56.	56.	3.	14568.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
70.	70.	3.	-1126.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
70.	70.	3.	13490.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
70.	70.	3.	-1126.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
70.	70.	3.	13490.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
102.	102.	3.	-3512.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
102.	102.	3.	11104.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
133.	133.	3.	-5898.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
133.	133.	3.	8718.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
165.	165.	3.	-8284.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
165.	165.	3.	6332.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
165.	165.	3.	-8284.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
165.	165.	3.	6332.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
179.	179.	3.	-9362.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
179.	179.	3.	5253.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
194.	194.	3.	-10441.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
194.	194.	3.	4175.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
214.	214.	3.	-10978.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
214.	214.	3.	2668.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
215.	215.	3.	-10978.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
215.	215.	3.	2564.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
235.	235.	3.	-10978.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
235.	235.	3.	1057.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
> 235.	0.	3.	23473.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
255.	20.	3.	23473.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
256.	21.	3.	23473.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
276.	41.	3.	22650.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
291.	56.	3.	21099.	13096.	76960.	11889.	1.01	25.	2.5	NO 4 6
305.	70.	3.	20021.	13259.	76960.	11889.	1.01	25.	2.5	NO 4 6
305.	70.	3.	20021.	13259.	76960.	11889.	1.01	25.	2.5	NO 4 6
346.	111.	3.	16953.	14303.	76960.	11889.	1.01	25.	2.5	NO 4 6
386.	151.	3.	-2248.	14303.	76960.	11889.	1.01	25.	2.5	NO 6
386.	151.	3.	13885.	14303.	76960.	11889.	1.01	25.	2.5	NO 4 6
427.	192.	3.	-5315.	14594.	76960.	11889.	1.01	25.	2.5	NO 6
427.	192.	3.	10817.	14594.	76960.	11889.	1.01	25.	2.5	NO 6
468.	233.	3.	-8383.	14594.	76960.	11889.	1.01	25.	2.5	NO 6
468.	233.	3.	7749.	14594.	76960.	11889.	1.01	25.	2.5	NO 6
509.	274.	3.	-11451.	14303.	76960.	11889.	1.01	25.	2.5	NO 6
509.	274.	3.	4682.	14303.	76960.	11889.	1.01	25.	2.5	NO 6
549.	314.	3.	-14519.	14303.	76960.	11889.	1.01	25.	2.5	NO 4 6
549.	314.	3.	1614.	14303.	76960.	11889.	1.01	25.	2.5	NO 6
590.	355.	3.	-17587.	13259.	76960.	11889.	1.01	25.	2.5	NO 4 6
590.	355.	3.	-17587.	13259.	76960.	11889.	1.01	25.	2.5	NO 4 6
604.	369.	3.	-18665.	13259.	76960.	11889.	1.01	25.	2.5	NO 4 6
619.	384.	3.	-19896.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
639.	404.	3.	-20525.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
640.	405.	3.	-20525.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
660.	425.	3.	-20525.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
> 660.	0.	3.	-604.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
660.	0.	3.	15836.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
680.	20.	3.	-604.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
680.	20.	3.	15836.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
681.	21.	3.	-723.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
681.	21.	3.	15836.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
701.	41.	3.	-2456.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
701.	41.	3.	15218.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
716.	56.	3.	-3697.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
716.	56.	3.	13977.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
730.	70.	3.	-4938.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
730.	70.	3.	12736.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
730.	70.	3.	-4938.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
730.	70.	3.	12736.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
768.	108.	3.	-8189.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
768.	108.	3.	9486.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
805.	145.	3.	-11440.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
805.	145.	3.	6235.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
805.	145.	3.	-11440.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
805.	145.	3.	6235.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
819.	159.	3.	-12680.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
819.	159.	3.	4994.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
834.	174.	3.	-13921.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
834.	174.	3.	3753.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
854.	194.	3.	-14539.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
854.	194.	3.	2020.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
855.	195.	3.	-14539.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
855.	195.	3.	1900.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
875.	215.	3.	-14539.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
875.	215.	3.	167.	11704.	76960.	11889.	1.01	25.	2.5	NO 6
> 875.	0.	3.	20497.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
895.	20.	3.	20497.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
896.	21.	3.	20497.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
916.	41.	3.	19870.	11704.	76960.	11889.	1.01	25.	2.5	NO 4 6
931.	56.	3.	18643.	13259.	76960.	11889.	1.01	25.	2.5	NO 4 6

945.	70.	3.	17565.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
945.	70.	3.	17565.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
986.	111.	3.	-1704.	14303.	76960.	11889.	1.01	25.	2.5	NO	6	
986.	111.	3.	14470.	14303.	76960.	11889.	1.01	25.	2.5	NO	4	6
1027.	152.	3.	-4799.	14303.	76960.	11889.	1.01	25.	2.5	NO	6	
1027.	152.	3.	11375.	14303.	76960.	11889.	1.01	25.	2.5	NO	6	
1068.	193.	3.	-7894.	14594.	76960.	11889.	1.01	25.	2.5	NO	6	
1068.	193.	3.	8281.	14594.	76960.	11889.	1.01	25.	2.5	NO	6	
1109.	234.	3.	-10988.	14594.	76960.	11889.	1.01	25.	2.5	NO	6	
1109.	234.	3.	5186.	14594.	76960.	11889.	1.01	25.	2.5	NO	6	
1150.	275.	3.	-14083.	14303.	76960.	11889.	1.01	25.	2.5	NO	4	6
1150.	275.	3.	2091.	14303.	76960.	11889.	1.01	25.	2.5	NO	6	
1191.	316.	3.	-17178.	14303.	76960.	11889.	1.01	25.	2.5	NO	4	6
1232.	358.	3.	-20272.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
1232.	358.	3.	-20272.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
1247.	372.	3.	-21351.	13259.	76960.	11889.	1.01	25.	2.5	NO	4	6
1261.	386.	3.	-22996.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1279.	404.	3.	-23816.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1282.	408.	3.	-23816.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1300.	425.	3.	-23816.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
>1300.	0.	3.	-6142.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1300.	0.	3.	10626.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1318.	18.	3.	-6142.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1318.	18.	3.	10626.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1321.	21.	3.	-6443.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1321.	21.	3.	10626.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1339.	39.	3.	-7786.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1339.	39.	3.	10079.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1353.	53.	3.	-8874.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1353.	53.	3.	8991.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1368.	68.	3.	-9948.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1368.	68.	3.	7918.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1368.	68.	3.	-9948.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1368.	68.	3.	7918.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1400.	100.	3.	-12337.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1400.	100.	3.	5529.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1432.	132.	3.	-14670.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1432.	132.	3.	3195.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1465.	165.	3.	-16948.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1465.	165.	3.	917.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1465.	165.	3.	-16948.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1465.	165.	3.	917.	11704.	76960.	11889.	1.01	25.	2.5	NO	6	
1479.	179.	3.	-17940.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1493.	193.	3.	-18917.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1511.	211.	3.	-19399.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1515.	215.	3.	-19399.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
1532.	232.	3.	-19399.	11704.	76960.	11889.	1.01	25.	2.5	NO	4	6
>1532.	0.	6.	2634.	10905.	40640.	3784.	.57	20.	2.5	NO	5	6
1542.	10.	6.	2634.	10905.	40640.	3784.	.57	20.	2.5	NO	5	6
1550.	18.	6.	2634.	10905.	40640.	3784.	.57	20.	2.5	NO	5	6
1559.	27.	6.	2604.	10905.	40640.	3784.	.57	20.	2.5	NO	5	6
1574.	42.	6.	2470.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
1574.	42.	6.	2470.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
1607.	75.	6.	2154.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
1641.	109.	6.	1837.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
1675.	143.	6.	1521.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
1709.	177.	6.	1204.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1743.	211.	6.	926.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1776.	244.	6.	658.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1810.	278.	6.	-37.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1810.	278.	6.	414.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1844.	312.	6.	-281.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1844.	312.	6.	171.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1878.	346.	6.	-524.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1912.	380.	6.	-777.	9442.	40640.	3784.	.57	20.	2.5	NO	5	6
1945.	413.	6.	-1044.	8885.	40640.	3784.	.57	20.	2.5	NO	5	6
1979.	447.	6.	-1339.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
1979.	447.	6.	-1339.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
1994.	462.	6.	-1473.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
2003.	471.	6.	-1503.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
2011.	479.	6.	-1503.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6
2021.	489.	6.	-1503.	8037.	40640.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-5371.65!	-25.2	897.2	13.89	6.25	.0269	12.33	.033	SI
20.	20.	3.	1.	-5371.65!	-25.2	897.2	13.89	6.25	.0269	12.33	.033	SI
21.	21.	3.	1.	-5206.83	-24.5	869.6	13.89	6.25	.0261	12.33	.032	SI
56.	56.	3.	2.	-1770.5	-8.9	350.3	11.62	6.25	.0105	13.9	.015	SI
70.	70.	3.	2.	-748.02	-3.6	147.6	11.62	6.25	.0044	13.9	.006	SI
70.	70.	3.	2.	-748.02	-3.6	147.6	11.62	6.25	.0044	13.9	.006	SI
165.	165.	3.	3.	2122.24!	-11.6	572.3	8.42	6.25	.0172	16.27	.028	SI
179.	179.	3.	4.	1925.83	-10.1	594.7	6.16	6.25	.0178	52.45	.094	SI
235.	235.	3.	6.	-757.19	-2.5	57.1	31.48	6.25	.0017	7.98	.001	SI
> 235.	0.	3.	6.	-12103.14!	-39.3	911.9	31.48	6.25	.035	7.98	.028	SI
468.	233.	3.	9.	6959.98!	-27.2	994.4	16.08	6.25	.0324	12.12	.039	SI
660.	425.	3.	12	-6639.35	-21.6	504.1	31.23	6.25	.0151	8.11	.012	SI
> 660.	0.	3.	12	-3179.04!	-10.3	241.4	31.23	6.25	.0072	8.11	.006	SI
768.	108.	3.	14	1403.53!	-6.8	507.4	6.16	6.25	.0152	54.68	.083	SI
875.	215.	3.	12	-1853.92	-6.	140.8	31.23	6.25	.0042	8.11	.003	SI
> 875.	0.	3.	12	-6469.52	-21.	491.2	31.23	6.25	.0147	8.11	.012	SI
1068.	193.	3.	9.	7083.86!	-27.7	1012.1	16.08	6.25	.0333	12.12	.04	SI
1300.	425.	3.	12	-12500.41!	-40.6	949.1	31.23	6.25	.0368	8.11	.03	SI
>1300.	0.	3.	12	2427.22	-8.	385.3	14.2	6.25	.0116	12.54	.014	SI
1353.	53.	3.	16	3592.12!	-10.5	398.8	20.48	6.25	.012	10.17	.012	SI



1400.	100.	3.	18	2586.76	-11.1	932.7	6.16	6.25	.028	55.63	.156	SI
1532.	232.	3.	20	-7452.6	-27.8	596.	29.37	6.25	.0187	8.14	.015	SI
>1532.	0.	6.	21	-1484.76	-6.7	157.4	29.37	5.21	.0047	8.04	.004	SI
1844.	312.	6.	24	1504.73	-29.3	854.5	9.24	5.57	.0256	21.72	.056	SI
1979.	447.	6.	26	762.51	-17.4	840.6	4.62	6.25	.0252	24.57	.062	SI
2021.	489.	6.	26	305.03	-7.	336.3	4.62	6.25	.0101	24.57	.025	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-4812.98!	-22.6!	803.9!	13.89	6.25	.0241	12.33	.03	SI
20.	20.	3.	1.	-4812.98!	-22.6!	803.9!	13.89	6.25	.0241	12.33	.03	SI
21.	21.	3.	1.	-4665.35	-21.9	779.2	13.89	6.25	.0234	12.33	.029	SI
56.	56.	3.	2.	-1587.35	-7.9	314.1	11.62	6.25	.0094	13.9	.013	SI
70.	70.	3.	2.	-651.76	-3.1	128.6	11.62	6.25	.0039	13.9	.005	SI
70.	70.	3.	2.	-651.76	-3.1	128.6	11.62	6.25	.0039	13.9	.005	SI
165.	165.	3.	3.	1902.44!	-10.4	513.	8.42	6.25	.0154	16.27	.025	SI
179.	179.	3.	4.	1723.53!	-9.1	532.2	6.16	6.25	.016	52.45	.084!	SI
235.	235.	3.	6.	-672.58	-2.2	50.7	31.48	6.25	.0015	7.98	.001	SI
> 235.	0.	3.	6.	-10824.2!	-35.1!	815.6	31.48	6.25	.0302	7.98	.024	SI
468.	233.	3.	9.	6227.2!	-24.3!	889.7!	16.08	6.25	.0272	12.12	.033!	SI
660.	425.	3.	12	-5961.15!	-19.4!	452.6	31.23	6.25	.0136	8.11	.011	SI
> 660.	0.	3.	12	-2836.1!	-9.2!	215.3	31.23	6.25	.0065	8.11	.005	SI
768.	108.	3.	14	1264.11!	-6.1	457.	6.16	6.25	.0137	54.68	.075!	SI
875.	215.	3.	12	-1662.9	-5.4	126.3	31.23	6.25	.0038	8.11	.003	SI
> 875.	0.	3.	12	-5788.56!	-18.8!	439.5	31.23	6.25	.0132	8.11	.011	SI
1068.	193.	3.	9.	6334.67!	-24.8!	905.	16.08	6.25	.028	12.12	.034!	SI
1300.	425.	3.	12	-11212.97!	-36.5!	851.3	31.23	6.25	.0319	8.11	.026	SI
>1300.	0.	3.	12	2034.89!	-6.7	323.	14.2	6.25	.0097	12.54	.012	SI
1353.	53.	3.	16	3139.57!	-9.2	348.6	20.48	6.25	.0105	10.17	.011	SI
1400.	100.	3.	18	2291.78!	-9.9	826.3!	6.16	6.25	.0248	55.63	.138!	SI
1532.	232.	3.	20	-6603.59!	-24.6!	528.1	29.37	6.25	.0158	8.14	.013	SI
>1532.	0.	6.	21	-1495.78!	-6.7!	158.6	29.37	5.21	.0048	8.04	.004	SI
1844.	312.	6.	24	1484.31!	-28.9!	842.9!	9.24	5.57	.0253	21.72	.055	SI
1979.	447.	6.	26	737.78!	-16.9	813.4	4.62	6.25	.0244	24.57	.06	SI
2021.	489.	6.	26	278.98!	-6.4	307.6	4.62	6.25	.0092	24.57	.023	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-4653.35!	-21.9	777.2!	13.89	6.25	.0233	12.33	.029	SI
20.	20.	3.	1.	-4653.35!	-21.9	777.2!	13.89	6.25	.0233	12.33	.029	SI
21.	21.	3.	1.	-4511.04!	-21.2	753.4!	13.89	6.25	.0226	12.33	.028	SI
56.	56.	3.	2.	-1542.19!	-7.7	305.1!	11.62	6.25	.0092	13.9	.013	SI
70.	70.	3.	2.	-626.68!	-3.	123.6!	11.62	6.25	.0037	13.9	.005	SI
70.	70.	3.	2.	-626.68!	-3.	123.6!	11.62	6.25	.0037	13.9	.005	SI
165.	165.	3.	3.	1846.08!	-10.1	497.8!	8.42	6.25	.0149	16.27	.024	SI
179.	179.	3.	4.	1675.65!	-8.8	517.4!	6.16	6.25	.0155	52.45	.081	SI
235.	235.	3.	6.	-606.46!	-2.	45.7!	31.48	6.25	.0014	7.98	.001	SI
> 235.	0.	3.	6.	-10412.44!	-33.8!	784.5!	31.48	6.25	.0287	7.98	.023	SI
468.	233.	3.	9.	5980.92!	-23.4!	854.5!	16.08	6.25	.0256	12.12	.031	SI
660.	425.	3.	12	-5726.96!	-18.6!	434.8!	31.23	6.25	.013	8.11	.011	SI
> 660.	0.	3.	12	-2718.56!	-8.8!	206.4!	31.23	6.25	.0062	8.11	.005	SI
768.	108.	3.	14	1226.95!	-5.9!	443.5!	6.16	6.25	.0133	54.68	.073	SI
875.	215.	3.	12	-1583.84!	-5.1!	120.2!	31.23	6.25	.0036	8.11	.003	SI
> 875.	0.	3.	12	-5558.89!	-18.1!	422.	31.23	6.25	.0127	8.11	.01	SI
1068.	193.	3.	9.	6083.45!	-23.8!	869.1!	16.08	6.25	.0262	12.12	.032	SI
1300.	425.	3.	12	-10790.48!	-35.1!	819.2!	31.23	6.25	.0303	8.11	.025	SI
>1300.	0.	3.	12	1958.4!	-6.5!	310.9!	14.2!	6.25	.0093	12.54	.012	SI
1353.	53.	3.	16	3025.69!	-8.9!	335.9!	20.48	6.25	.0101	10.17	.01	SI
1400.	100.	3.	18	2206.94!	-9.5!	795.8!	6.16	6.25	.0239	55.63	.133	SI
1532.	232.	3.	20	-6364.84!	-23.7!	509.	29.37	6.25	.0153	8.14	.012	SI
>1532.	0.	6.	21	-1496.99!	-6.8!	158.7!	29.37	5.21	.0048	8.04	.004	SI
1844.	312.	6.	24	1477.67!	-28.7!	839.2!	9.24	5.57	.0252	21.72	.055	SI
1979.	447.	6.	26	728.64!	-16.7!	803.3!	4.62	6.25	.0241	24.57	.059	SI
2021.	489.	6.	26	269.07!	-6.2!	296.6!	4.62	6.25	.0089	24.57	.022	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	20.04	.668	13.89	.463	2d10 +2d12 +3d1 ...	6.16	.205	4d14
2	20.04	.668	11.62	.387	2d10 +3d16 +2d16	8.42	.281	2d12 +4d14
3	16.02	.534	7.6	.253	2d10 +3d16	8.42	.281	2d12 +4d14
4	24.06	.802	15.65	.522	2d10 +3d16 +2d1 ...	8.42	.281	2d12 +4d14
5	32.11	1.07	17.91	.597	2d10 +2d12 +3d1 ...	14.2	.473	4d14 +4d16
6	45.68	1.523	31.48	1.049	2d10 +2d12 +3d1 ...	14.2	.473	4d14 +4d16
7	45.68	1.523	27.46	.915	2d10 +2d12 +3d1 ...	18.22	.607	2d16 +4d14 +4d16
8	37.26	1.242	21.17	.706	2d10 +3d16 +3d24	16.08	.536	2d16 +2d16 +4d16
9	31.23	1.041	15.14	.505	2d10 +3d24	16.08	.536	2d16 +2d16 +4d16
10	39.27	1.309	27.21	.907	2d10 +4d16 +2d1 ...	12.06	.402	2d16 +4d16
11	45.43	1.514	27.21	.907	2d10 +4d16 +2d1 ...	18.22	.607	2d16 +4d14 +4d16
12	45.43	1.514	31.23	1.041	2d10 +4d16 +2d1 ...	14.2	.473	4d14 +4d16
13	37.38	1.246	31.23	1.041	2d10 +4d16 +2d1 ...	6.16	.205	4d14
14	29.34	.978	23.18	.773	2d10 +4d16 +3d24	6.16	.205	4d14
15	47.	1.567	32.8	1.093	2d10 +2d10 +4d1 ...	14.2	.473	4d14 +4d16
16	53.28	1.776	32.8	1.093	2d10 +2d10 +4d1 ...	20.48	.683	4d14 +4d16 +2d20
17	45.24	1.508	32.8	1.093	2d10 +2d10 +4d1 ...	12.44	.415	4d14 +2d20
18	38.96	1.299	32.8	1.093	2d10 +2d10 +4d1 ...	6.16	.205	4d14
19	35.53	1.184	29.37	.979	2d10 +2d10 +4d1 ...	6.16	.205	4d14
20	40.15	1.338	33.99	1.133	2d10 +2d10 +4d1 ...	6.16	.205	4d14
21	40.15	1.338	29.37	1.133	2d10 +2d10 +4d1 ...	10.78	.641	4d14 +3d14
22	25.01	1.489	14.23	.847	2d10 +4d16 +1d1 ...	10.78	.641	4d14 +3d14
23	18.85	1.122	11.15	.664	2d10 +4d16 +1d14	7.7	.458	2d14 +3d14
24	10.81	.643	1.57	.093	2d10	9.24	.55	1d14 +2d14 +3d14
25	10.81	.643	3.11	.185	2d10 +1d14	7.7	.458	2d14 +3d14
26	10.81	.643	6.19	.368	2d10 +1d14 +2d14	4.62	.275	3d14

MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a  $1.5 \cdot b \text{ mm}^2/\text{m}$  [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr16\_p2** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm<sup>2</sup>; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A308	3	3	3	0	400.	365.	16.667	1.3	1.322	30.677
2	A309	3	3	3	0	340.	305.	14.167	1.3	2.846	72.243

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-32.16	-.001	.001	-4065.9	-.069	.138	2.	.334	126.4
0.	0.	3.	1.	79.19	-.001	.003	4221.79	-.072	.138	2.	.342	53.32
105.	105.	3.	3.	4679.34	-.084	.092	6988.39	-.136	.138	2.	.496	1.493
168.	168.	3.	3.	5286.86	-.097	.104	6988.39	-.136	.138	2.	.496	1.322
327.	327.	3.	4.	-1230.37	-.023	.082	-2063.85	-.039	.138	2.	.219	1.677
327.	327.	3.	4.	558.75	-.008	.011	7106.1	-.124	.138	2.	.473	12.72
373.	373.	3.	6.	-4908.95	-.065	.109	-6236.59	-.084	.138	2.	.378	1.27
400.	400.	3.	6.	-4908.95	-.064	.106	-6375.2	-.085	.138	2.	.38	1.299
> 400.	0.	3.	6.	-5265.	-.069	.114	-6375.2	-.085	.138	2.	.38	1.211
518.	118.	3.	9.	-548.77	-.017	.088	-863.9	-.027	.138	2.	.164	1.574
518.	118.	3.	9.	193.71	-.004	.006	4622.06	-.096	.138	2.	.411	23.86
622.	222.	3.	9.	1623.84	-.031	.048	4622.06	-.096	.138	2.	.411	2.846
740.	340.	3.	10	-84.2	-.002	.004	-3218.31	-.066	.138	2.	.323	38.22

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#### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	6419.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	6419.	5884.	21355.	3784.	.57	20.	2.5
18.	18.	3.	6419.	5884.	21355.	3784.	.57	20.	2.5
27.	27.	3.	6274.	6023.	21355.	3784.	.57	20.	2.5
42.	42.	3.	5629.	6103.	21355.	3784.	.57	20.	2.5
42.	42.	3.	5629.	6103.	21355.	3784.	.57	20.	2.5
73.	73.	3.	4206.	6799.	21355.	3784.	.57	20.	2.5
105.	105.	3.	2786.	7376.	21355.	3784.	.57	20.	2.5
137.	137.	3.	1372.	7376.	21355.	3784.	.57	20.	2.5
168.	168.	3.	-226.	7376.	21355.	3784.	.57	20.	2.5
168.	168.	3.	153.	7376.	21355.	3784.	.57	20.	2.5
200.	200.	3.	-1445.	7376.	21355.	3784.	.57	20.	2.5
232.	232.	3.	-2845.	7376.	21355.	3784.	.57	20.	2.5
263.	263.	3.	-4242.	7376.	21355.	3784.	.57	20.	2.5
295.	295.	3.	-5635.	7376.	21355.	3784.	.57	20.	2.5
327.	327.	3.	-7022.	5884.	21355.	3784.	.57	20.	2.5
358.	358.	3.	-8406.	5884.	21355.	3784.	.57	20.	2.5
358.	358.	3.	-8406.	5884.	21355.	3784.	.57	20.	2.5
373.	373.	3.	-9030.	7022.	21355.	3784.	.57	20.	2.5
382.	382.	3.	-9170.	7022.	21355.	3784.	.57	20.	2.5

390.	390.	3.	-9170.	7022.	21355.	3784.	.57	20.	2.5	NO	4	5	6
400.	400.	3.	-9170.	7022.	21355.	3784.	.57	20.	2.5	NO	4	5	6
> 400.	0.	3.	7414.	7022.	21355.	3784.	.57	20.	2.5	NO	4	5	6
411.	11.	3.	7414.	7022.	21355.	3784.	.57	20.	2.5	NO	4	5	6
420.	20.	3.	7414.	7022.	21355.	3784.	.57	20.	2.5	NO	4	5	6
431.	31.	3.	7133.	7022.	21355.	3784.	.57	20.	2.5	NO	4	5	6
448.	48.	3.	6506.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
448.	48.	3.	6506.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
483.	83.	3.	5186.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
518.	118.	3.	3876.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
553.	153.	3.	2575.	6347.	21355.	3784.	.57	20.	2.5	NO	5	6	
587.	187.	3.	1283.	6347.	21355.	3784.	.57	20.	2.5	NO	5	6	
622.	222.	3.	-141.	6347.	21355.	3784.	.57	20.	2.5	NO	5	6	
622.	222.	3.	122.	6347.	21355.	3784.	.57	20.	2.5	NO	5	6	
657.	257.	3.	-1277.	6347.	21355.	3784.	.57	20.	2.5	NO	5	6	
692.	292.	3.	-2544.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
692.	292.	3.	-2544.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
709.	309.	3.	-3139.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
720.	320.	3.	-3404.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
729.	329.	3.	-3404.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
740.	340.	3.	-3404.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.1.	242.04	-4.4	156.	8.04	5.88	.0047	22.95	.011	SI
42.	42.	3.1.	1344.46	-24.2	866.3	8.04	5.88	.026	22.95	.06	SI
73.	73.	3.2.	2443.38	-45.2	1137.5	11.12	5.32	.0412	20.76	.085	SI
168.	168.	3.3.	3915.3	-66.1	1479.1	14.2	5.12	.0614	12.25	.075	SI
400.	400.	3.6.	-3636.18	-52.1	1556.1	12.25	5.61	.0627	12.97	.081	SI
> 400.	0.	3.6.	-3898.95	-55.8	1668.5	12.25	5.61	.0683	12.97	.089	SI
483.	83.	3.8.	-1110.21	-24.1	1216.4	4.65	6.25	.0365	24.8	.09	SI
622.	222.	3.9.	1204.01	-23.6	697.3	9.05	5.59	.0209	15.28	.032	SI
740.	340.	3.10	-1.99	0.	1.7	6.09	6.04	.0001	23.55	0.	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.1.	195.57	-3.5	126.	8.04	5.88	.0038	22.95	.009	SI
42.	42.	3.1.	1231.93	-22.2	793.8	8.04	5.88	.0238	22.95	.055	SI
73.	73.	3.2.	2253.99	-41.7	1049.3	11.12	5.32	.0368	20.76	.076	SI
168.	168.	3.3.	3615.2	-61.	1365.7	14.2	5.12	.0558	12.25	.068	SI
400.	400.	3.6.	-3365.1	-48.2	1440.1	12.25	5.61	.0569	12.97	.074	SI
> 400.	0.	3.6.	-3605.73	-51.6	1543.	12.25	5.61	.062	12.97	.08	SI
622.	222.	3.9.	1115.26	-21.8	645.9	9.05	5.59	.0194	15.28	.03	SI
740.	340.	3.10	-1547.31	-32.8	1304.8	6.09	6.04	.0391	23.55	.092	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.1.	178.19	-3.2	114.8	8.04	5.88	.0034	22.95	.008	SI
42.	42.	3.1.	1196.1	-21.5	770.7	8.04	5.88	.0231	22.95	.053	SI
73.	73.	3.2.	2193.66	-40.6	1021.3	11.12	5.32	.0354	20.76	.073	SI
168.	168.	3.3.	3517.37	-59.4	1328.7	14.2	5.12	.0539	12.25	.066	SI
400.	400.	3.6.	-3273.89	-46.9	1401.	12.25	5.61	.0549	12.97	.071	SI
> 400.	0.	3.6.	-3507.35	-50.2	1500.9	12.25	5.61	.0599	12.97	.078	SI
622.	222.	3.9.	1086.07	-21.3	629.	9.05	5.59	.0189	15.28	.029	SI
740.	340.	3.10	-1503.99	-31.9	1268.3	6.09	6.04	.038	23.55	.09	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.77	.939	7.73	.46	2d10 +2d14 +2d14	8.04	.479	4d16
2	15.77	.939	4.65	.277	2d10 +2d14	11.12	.662	4d16 +2d14
3	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +4d16 +2d14
4	18.03	1.073	3.83	.228	2d10 +2d12	14.2	.845	2d14 +4d16 +2d14
5	24.82	1.477	9.17	.546	2d10 +2d14 +2d1 ...	15.65	.931	4d16 +4d12 +2d14
6	24.82	1.477	12.25	.729	2d10 +2d14 +2d1 ...	12.57	.748	4d16 +4d12
7	24.82	1.477	9.99	.595	2d10 +2d14 +2d1 ...	14.83	.883	4d16 +4d12 +2d12
8	13.7	.815	4.65	.277	2d10 +2d14	9.05	.539	2d12 +4d12 +2d12
9	10.62	.632	1.57	.093	2d10	9.05	.539	2d12 +4d12 +2d12
10	10.62	.632	6.09	.363	2d10 +2d12 +2d12	4.52	.269	4d12

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr22\_p2** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;

gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A315	3	3	3	0	400.	365.	16.667	1.3	1.298	30.557
2	A314	3	3	3	0	405.	370.	16.875	1.3	1.082	25.461

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-10635.67	-.159	-.126	-11845.56	-.189	-.151	4.	.577	1.114	SI
10.	10.	3.	1.	437.27	-.006	.019	3220.37	-.042	.138	2.	.233	7.365	SI
105.	105.	3.	3.	3566.49	-.04	.072	6864.38	-.08	.138	2.	.365	1.925	SI
200.	200.	3.	4.	5013.85	-.094	.106	6510.41	-.128	.138	2.	.48	1.298	SI
400.	400.	3.	7.	-10225.15	-.12	.114	-12418.74	-.151	.138	2.	.521	1.215	SI
400.	400.	3.	7.	122.62	-.001	.003	6358.06	-.065	.138	2.	.32	51.85	SI
> 400.	0.	3.	7.	-11077.88	-.132	.123	-12418.74	-.151	.138	2.	.521	1.121	SI
417.	18.	3.	7.	430.94	-.004	.009	6358.06	-.065	.138	2.	.32	14.75	SI
602.	203.	3.	9.	6017.47	-.116	.127	6510.41	-.128	.138	2.	.48	1.082	SI
667.	267.	3.	9.	-131.95	-.004	.021	-861.62	-.026	.138	2.	.156	6.53	NO
699.	299.	3.	10	4161.56	-.045	.084	6882.62	-.075	.138	2.	.353	1.654	SI
805.	405.	3.	13	-11693.75	-.426	.548	-9380.37	-.2	.123	3.	.619	----	--

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##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	11912.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
10.	10.	3.	11912.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
18.	18.	3.	11912.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
27.	27.	3.	11748.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
42.	42.	3.	11021.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
42.	42.	3.	11021.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
73.	73.	3.	9401.	6574.	21355.	3784.	.57	20.	2.5	NO	4 5 6
105.	105.	3.	7822.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
137.	137.	3.	6482.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
168.	168.	3.	-916.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
168.	168.	3.	5063.	7187.	21355.	3784.	.57	20.	2.5	NO	4 5 6
200.	200.	3.	-2393.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
200.	200.	3.	3586.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
232.	232.	3.	-4007.	7187.	21355.	3784.	.57	20.	2.5	NO	4 5 6
232.	232.	3.	1972.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
263.	263.	3.	-5679.	7187.	21355.	3784.	.57	20.	2.5	NO	4 5 6
263.	263.	3.	300.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
295.	295.	3.	-7430.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
327.	327.	3.	-9871.	6574.	21355.	3784.	.57	20.	2.5	NO	4 5 6
358.	358.	3.	-12584.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
358.	358.	3.	-12584.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
373.	373.	3.	-13991.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
382.	382.	3.	-14307.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
390.	390.	3.	-14307.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
400.	400.	3.	-14307.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
> 400.	0.	3.	15260.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
410.	10.	3.	15260.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
417.	18.	3.	15260.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
427.	27.	3.	14982.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
441.	42.	3.	13746.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
441.	42.	3.	13746.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
474.	74.	3.	10964.	6574.	21355.	3784.	.57	20.	2.5	NO	4 5 6
506.	106.	3.	8317.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
538.	138.	3.	6469.	7187.	21355.	3784.	.57	20.	2.5	NO	4 5 6
570.	170.	3.	-1263.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
570.	170.	3.	4636.	7187.	21355.	3784.	.57	20.	2.5	NO	4 5 6
602.	203.	3.	-3085.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
602.	203.	3.	2814.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
635.	235.	3.	-4910.	7187.	21355.	3784.	.57	20.	2.5	NO	4 5 6
635.	235.	3.	989.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
667.	267.	3.	-6781.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
699.	299.	3.	-8715.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
731.	331.	3.	-11396.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6

764.	364.	3.	-14204.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
764.	364.	3.	-14204.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
778.	378.	3.	-15455.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
788.	388.	3.	-15737.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
795.	395.	3.	-15737.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
805.	405.	3.	-15737.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-5806.28!	-76.3!	1292.2	24.6	4.63	.0568	8.52	.048	SI
18.	18.	3.	1.	-5806.28!	-76.3!	1292.2	24.6	4.63	.0568	8.52	.048	SI
200.	200.	3.	4.	3697.53!	-64.	1503.9!	13.13	5.21	.0617	13.09	.081	SI
400.	400.	3.	7.	-5400.13!	-63.3!	1176.9	24.82	4.8	.0509	8.29	.042	SI
> 400.	0.	3.	7.	-6407.18!	-75.2!	1396.3	24.82	4.8	.0619	8.29	.051	SI
602.	203.	3.	9.	4433.52!	-76.7!	1803.3!	13.13	5.21	.0767	13.09	.1	SI
805.	405.	3.	12	-6984.51!	-89.4!	1416.8	27.14	4.52	.0636	7.91	.05	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-5308.66!	-69.7!	1181.4	24.6	4.63	.0513	8.52	.044	SI
18.	18.	3.	1.	-5308.66!	-69.7!	1181.4	24.6	4.63	.0513	8.52	.044	SI
200.	200.	3.	4.	3386.89!	-58.6!	1377.6!	13.13	5.21	.0554	13.09	.072	SI
400.	400.	3.	7.	-4954.91!	-58.1!	1079.8	24.82	4.8	.046	8.29	.038	SI
> 400.	0.	3.	7.	-5845.1!	-68.6!	1273.8	24.82	4.8	.0557	8.29	.046	SI
602.	203.	3.	9.	4052.76!	-70.1!	1648.4!	13.13	5.21	.0689	13.09	.09	SI
805.	405.	3.	12	-6396.54!	-81.9!	1297.5	27.14	4.52	.0577	7.91	.046	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-5143.66!	-67.5!	1144.7	24.6	4.63	.0494	8.52	.042	SI
18.	18.	3.	1.	-5143.66!	-67.5!	1144.7	24.6	4.63	.0494	8.52	.042	SI
200.	200.	3.	4.	3283.36!	-56.8!	1335.5!	13.13	5.21	.0533	13.09	.07	SI
400.	400.	3.	7.	-4805.6!	-56.4!	1047.3	24.82	4.8	.0444	8.29	.037	SI
> 400.	0.	3.	7.	-5658.2!	-66.4!	1233.1	24.82	4.8	.0537	8.29	.045	SI
602.	203.	3.	9.	3925.8!	-67.9!	1596.8!	13.13	5.21	.0664	13.09	.087	SI
788.	388.	3.	12	-6200.17!	-79.4!	1257.7	27.14	4.52	.0557	7.91	.044	NO
795.	395.	3.	12	-6200.17!	-79.4!	1257.7	27.14	4.52	.0557	7.91	.044	NO
805.	405.	3.	12	-6200.17!	-79.4!	1257.7	27.14	4.52	.0557	7.91	.044	NO

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	30.63	1.823	24.6	1.464	2d10 +2d16 +2d1 ...	6.03	.359	3d16
2	30.63	1.823	20.58	1.225	2d10 +2d14 +3d26	10.05	.598	3d16 +2d16
3	30.63	1.823	17.5	1.042	2d10 +3d26	13.13	.782	3d16 +2d16 +2d14
4	14.7	.875	1.57	.093	2d10	13.13	.782	3d16 +2d16 +2d14
5	23.75	1.414	10.62	.632	2d10 +2d24	13.13	.782	3d16 +2d16 +2d14
6	26.83	1.597	16.78	.999	2d10 +2d14 +2d1 ...	10.05	.598	3d16 +2d16
7	36.88	2.195	24.82	1.477	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
8	23.75	1.414	10.62	.632	2d10 +2d24	13.13	.782	2d14 +3d16 +2d16
9	14.7	.875	1.57	.093	2d10	13.13	.782	2d14 +3d16 +2d16
10	33.18	1.975	20.04	1.193	2d10 +3d28	13.13	.782	2d14 +3d16 +2d16
11	33.18	1.975	23.12	1.376	2d10 +2d14 +3d28	10.05	.598	3d16 +2d16
12	33.18	1.975	27.14	1.616	2d10 +2d14 +2d1 ...	6.03	.359	3d16
13	23.12	1.376	23.12	1.376	2d10 +2d14 +3d28	0.	0.	

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].
- 21) Combinazione quasi permanente: superata la tensione massima nel CLS (74.1) [NTC18 4.1.2.2.5].

Nome travata : **Tr24\_p2** (trave)

Metodo di verifica : stati limite (NTC18). ->

Duttilita' : non prevista (struttura non dissipativa).

Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.

Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.

Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc=1.8 ; fcd= 91.4; fctd= 7.5; Ecd=.2% (limit.elastico)

ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=200000. ;  
gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.

ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15

FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A297	3	3	3	0	630.	595.	26.25	1.	2.636	46.243

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-2321.87	-.036	.066	-4837.71	-.079	.138	2.	.362	2.084	SI
42.	42.	3.	1.	58.99	-.001	.002	4232.74	-.069	.138	2.	.332	71.75	SI
110.	110.	3.	2.	-310.45	-.005	.017	-2493.48	-.045	.138	2.	.244	8.032	SI
144.	144.	3.	3.	1654.78	-.027	.029	7665.57	-.149	.138	2.	.518	14.632	SI
315.	315.	3.	3.	2908.55	-.049	.051	7665.57	-.149	.138	2.	.518	2.636	SI
630.	630.	3.	1.	-2321.87	-.036	.066	-4837.71	-.079	.138	2.	.362	2.084	SI

##### TAGLIO:

Progressive	Se	vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	2960.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	2870.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	2796.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	2706.	6398.	21355.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	2572.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	2572.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
76.	76.	3.	2252.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
110.	110.	3.	1932.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
144.	144.	3.	1612.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
178.	178.	3.	1292.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
212.	212.	3.	972.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
247.	247.	3.	671.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
281.	281.	3.	414.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
315.	315.	3.	-150.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
315.	315.	3.	157.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
349.	349.	3.	-404.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
383.	383.	3.	-657.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
418.	418.	3.	-957.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
452.	452.	3.	-1277.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
486.	486.	3.	-1597.	7634.	21355.	3784.	.57	20.	2.5	NO	5	6
520.	520.	3.	-1917.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
554.	554.	3.	-2237.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
588.	588.	3.	-2557.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
588.	588.	3.	-2557.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
603.	603.	3.	-2691.	6398.	21355.	3784.	.57	20.	2.5	NO	5	6
612.	612.	3.	-2782.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
620.	620.	3.	-2855.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
630.	630.	3.	-2946.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-1438.75	-24.5	808.6	9.27	5.76	.0243	15.82	.038	SI
315.	315.	3.	1.	2238.43	-36.6	767.4	15.74	5.01	.027	11.44	.031	SI
630.	630.	3.	1.	-1786.05	-30.4	1003.7	9.27	5.76	.0306	15.82	.048	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-1438.76	-24.5	808.6	9.27	5.76	.0243	15.82	.038	SI
315.	315.	3.	1.	2239.37	-36.6	767.7	15.74	5.01	.027	11.44	.031	SI
630.	630.	3.	1.	-1786.05	-30.4	1003.7	9.27	5.76	.0306	15.82	.048	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-1438.76	-24.5	808.6	9.27	5.76	.0243	15.82	.038	SI
315.	315.	3.	1.	2239.34	-36.6	767.7	15.74	5.01	.027	11.44	.031	SI
630.	630.	3.	1.	-1786.05	-30.4	1003.7	9.27	5.76	.0306	15.82	.048	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/Acl - Acl=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	17.31	1.03	9.27	.552	2d10 +2d14 +3d14	8.04	.479	4d16
2	17.31	1.03	4.65	.277	2d10 +2d14	12.66	.754	4d16 +3d14
3	17.31	1.03	1.57	.093	2d10	15.74	.937	2d14 +4d16 +3d14

#### MESSAGGI

5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].

6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : Tr13\_p2 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unità di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unità particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

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#### SEZIONI UTILIZZATE

3) Rettangolare: 35x24; A=840.; Jg=40320.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A696	3	3	3	0	425.	390.	17.708	1.3	3.793	87.689
2	A697	3	3	3	0	215.	180.	8.958	1.5	1.748	46.302
3	A695	3	3	3	0	425.	390.	17.708	1.3	3.676	84.986

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-748.46	-.017	.024	-4290.48	-.106	.138	2.	.434	5.732	SI
178.	178.	3.	5.	834.86	-.024	.024	4760.41	-.17	.138	2.	.551	5.702	SI
213.	213.	3.	6.	856.51	-.028	.036	3248.5	-.119	.138	2.	.462	3.793	SI
315.	315.	3.	6.	-8.02	0.	.001	-849.42	-.036	.138	2.	.205	105.9	SI
425.	425.	3.	7.	-985.65	-.024	.032	-4263.54	-.113	.138	2.	.449	4.326	SI
> 425.	0.	3.	7.	-885.02	-.022	.028	-4263.54	-.113	.138	2.	.449	4.817	SI
493.	68.	3.	8.	-150.25	-.004	.005	-4144.59	-.138	.138	2.	.5	127.58	SI
493.	68.	3.	8.	609.61	-.02	.069	1213.82	-.041	.138	2.	.227	1.991	SI
519.	94.	3.	9.	694.33	-.025	.079	1213.75	-.044	.138	2.	.243	1.748	SI
546.	121.	3.	8.	-15.13	0.	0.	-4144.59	-.138	.138	2.	.5	273.9	SI
599.	174.	3.	7.	434.87	-.01	.021	2808.09	-.07	.138	2.	.336	6.457	SI
640.	215.	3.	7.	-1006.1	-.025	.032	-4263.54	-.113	.138	2.	.449	4.238	SI
> 640.	0.	3.	7.	-1217.5	-.03	.039	-4263.54	-.113	.138	2.	.449	3.502	SI
750.	110.	3.	6.	-199.29	-.008	.032	-849.42	-.036	.138	2.	.205	4.262	SI
750.	110.	3.	6.	274.24	-.009	.011	3248.5	-.119	.138	2.	.462	11.85	SI
887.	247.	3.	6.	883.75	-.029	.037	3248.5	-.119	.138	2.	.462	3.676	SI
955.	315.	3.	6.	-11.36	0.	.002	-849.42	-.036	.138	2.	.205	74.77	SI
1065.	425.	3.	11	-748.46	-.024	.04	-2569.56	-.087	.138	2.	.387	3.433	SI
1065.	425.	3.	11	89.27	-.003	.008	1636.77	-.057	.138	2.	.291	18.34	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	3.	1341.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
10.	10.	3.	1277.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
18.	18.	3.	1225.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
27.	27.	3.	1161.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
42.	42.	3.	1066.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
42.	42.	3.	1066.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
76.	76.	3.	839.	3354.	10678.	3784.	.57	20.	2.5	NO 5 6
110.	110.	3.	615.	3576.	10678.	3784.	.57	20.	2.5	NO 5 6
144.	144.	3.	409.	3576.	10678.	3784.	.57	20.	2.5	NO 5 6
178.	178.	3.	-4.	3576.	10678.	3784.	.57	20.	2.5	NO 5 6
178.	178.	3.	221.	3576.	10678.	3784.	.57	20.	2.5	NO 5 6
213.	213.	3.	-178.	3576.	10678.	3784.	.57	20.	2.5	NO 5 6
213.	213.	3.	46.	3576.	10678.	3784.	.57	20.	2.5	NO 5 6
247.	247.	3.	-368.	3576.	10678.	3784.	.57	20.	2.5	NO 5 6
281.	281.	3.	-575.	3576.	10678.	3784.	.57	20.	2.5	NO 5 6
315.	315.	3.	-802.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
349.	349.	3.	-1028.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
384.	384.	3.	-1255.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
384.	384.	3.	-1255.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
398.	398.	3.	-1350.	3894.	10678.	3784.	.57	20.	2.5	NO 5 6
408.	408.	3.	-1414.	3894.	10678.	3784.	.57	20.	2.5	NO 5 6
415.	415.	3.	-1414.	3894.	10678.	3784.	.57	20.	2.5	NO 5 6
425.	425.	3.	-1414.	3894.	10678.	3784.	.57	20.	2.5	NO 5 6

>	425.	0.	3.	2588.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	435.	10.	3.	2352.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	443.	18.	3.	2162.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	452.	27.	3.	1926.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	467.	42.	3.	1576.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	467.	42.	3.	1576.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	493.	68.	3.	937.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	519.	94.	3.	-43.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	519.	94.	3.	406.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	546.	121.	3.	-482.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	572.	147.	3.	-1023.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	599.	174.	3.	-1667.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	599.	174.	3.	-1667.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	613.	188.	3.	-2016.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	623.	198.	3.	-2252.	3354.	10678.	3784.	.57	20.	2.5	NO	5	6
	630.	205.	3.	-2252.	3354.	10678.	3784.	.57	20.	2.5	NO	5	6
	640.	215.	3.	-2252.	3354.	10678.	3784.	.57	20.	2.5	NO	5	6
>	640.	0.	3.	1608.	3894.	10678.	3784.	.57	20.	2.5	NO	5	6
	650.	10.	3.	1608.	3894.	10678.	3784.	.57	20.	2.5	NO	5	6
	658.	18.	3.	1608.	3894.	10678.	3784.	.57	20.	2.5	NO	5	6
	667.	27.	3.	1543.	3894.	10678.	3784.	.57	20.	2.5	NO	5	6
	682.	42.	3.	1448.	3894.	10678.	3784.	.57	20.	2.5	NO	5	6
	682.	42.	3.	1448.	3894.	10678.	3784.	.57	20.	2.5	NO	5	6
	716.	76.	3.	1222.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	750.	110.	3.	995.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	784.	144.	3.	768.	3576.	10678.	3784.	.57	20.	2.5	NO	5	6
	818.	178.	3.	541.	3576.	10678.	3784.	.57	20.	2.5	NO	5	6
	853.	212.	3.	315.	3576.	10678.	3784.	.57	20.	2.5	NO	5	6
	887.	247.	3.	-134.	3576.	10678.	3784.	.57	20.	2.5	NO	5	6
	887.	247.	3.	102.	3576.	10678.	3784.	.57	20.	2.5	NO	5	6
	921.	281.	3.	-328.	3576.	10678.	3784.	.57	20.	2.5	NO	5	6
	955.	315.	3.	-547.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
	989.	349.	3.	-773.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
1024.	384.	3.	11	-1000.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
1024.	384.	3.	11	-1000.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
1038.	398.	3.	11	-1095.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
1048.	408.	3.	11	-1159.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
1055.	415.	3.	11	-1211.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
1065.	425.	3.	11	-1275.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
27.	27.	3.	2.	-334.35	-9.8	214.4	8.36	5.09	.0064	10.65	.007	SI
42.	42.	3.	2.	-207.1	-6.	132.8	8.36	5.09	.004	10.65	.004	SI
42.	42.	3.	2.	18.46	-6.	30.8	3.08	6.25	.0009	24.58	.002	SI
213.	213.	3.	6.	661.13	-22.2	543.5	6.47	5.28	.0163	12.36	.02	SI
425.	425.	3.	7.	-752.72	-20.2	479.2	8.36	5.22	.0144	10.76	.015	SI
> 425.	0.	3.	7.	-658.86	-17.7	419.5	8.36	5.22	.0126	10.76	.014	SI
519.	94.	3.	9.	515.67	-21.6	1161.3	2.26	6.25	.0348	25.11	.087	SI
640.	215.	3.	7.	-747.52	-20.1	475.9	8.36	5.22	.0143	10.76	.015	SI
> 640.	0.	3.	7.	-929.39	-25.	591.7	8.36	5.22	.0184	10.76	.02	SI
887.	247.	3.	6.	682.03	-22.9	560.7	6.47	5.28	.0168	12.36	.021	SI
1024.	384.	3.	11	295.05	-11.3	492.	3.08	6.17	.0148	24.05	.035	SI
1065.	425.	3.	11	-575.74	-19.9	606.8	4.96	5.64	.0182	14.09	.026	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
27.	27.	3.	2.	-333.9	-9.8	214.1	8.36	5.09	.0064	10.65	.007	SI
42.	42.	3.	2.	-206.42	-6.	132.4	8.36	5.09	.004	10.65	.004	SI
42.	42.	3.	2.	18.35	-.6	30.6	3.08	6.25	.0009	24.58	.002	SI
213.	213.	3.	6.	657.49	-22.1	540.5	6.47	5.28	.0162	12.36	.02	SI
425.	425.	3.	7.	-740.4	-19.9	471.4	8.36	5.22	.0141	10.76	.015	SI
> 425.	0.	3.	7.	-638.22	-17.1	406.3	8.36	5.22	.0122	10.76	.013	SI
519.	94.	3.	9.	478.97	-20.	1078.6	2.26	6.25	.0324	25.11	.081	SI
640.	215.	3.	7.	-729.33	-19.6	464.3	8.36	5.22	.0139	10.76	.015	SI
> 640.	0.	3.	7.	-914.77	-24.6	582.4	8.36	5.22	.0179	10.76	.019	SI
887.	247.	3.	6.	684.64	-23.	562.8	6.47	5.28	.0169	12.36	.021	SI
1024.	384.	3.	11	295.66	-11.3	493.	3.08	6.17	.0148	24.05	.036	SI
1065.	425.	3.	11	-575.74	-19.9	606.8	4.96	5.64	.0182	14.09	.026	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
27.	27.	3.	2.	-333.92	-9.8	214.1	8.36	5.09	.0064	10.65	.007	SI
42.	42.	3.	2.	-206.45	-6.	132.4	8.36	5.09	.004	10.65	.004	SI
42.	42.	3.	2.	19.22	-7.	32.	3.08	6.25	.001	24.58	.002	SI
213.	213.	3.	6.	657.46	-22.1	540.5	6.47	5.28	.0162	12.36	.02	SI
425.	425.	3.	7.	-735.99	-19.8	468.6	8.36	5.22	.0141	10.76	.015	SI
> 425.	0.	3.	7.	-631.05	-16.9	401.8	8.36	5.22	.0121	10.76	.013	SI
519.	94.	3.	9.	461.23	-19.3	1038.7	2.26	6.25	.0312	25.11	.078	SI
640.	215.	3.	7.	-723.01	-19.4	460.3	8.36	5.22	.0138	10.76	.015	SI
> 640.	0.	3.	7.	-910.22	-24.4	579.5	8.36	5.22	.0178	10.76	.019	SI
887.	247.	3.	6.	684.8	-23.	562.9	6.47	5.28	.0169	12.36	.021	SI
1024.	384.	3.	11	295.7	-11.3	493.1	3.08	6.17	.0148	24.05	.036	SI
1065.	425.	3.	11	-575.74	-19.9	606.8	4.96	5.64	.0182	14.09	.026	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	14.83	1.765	8.36	.995	2d10 +1d12 +2d1 ...	6.47	.77	2d14 +3d12
2	11.44	1.361	8.36	.995	2d10 +1d12 +2d1 ...	3.08	.367	2d14
3	11.44	1.361	6.09	.726	2d10 +1d12 +3d12	5.34	.636	2d12 +2d14
4	11.44	1.361	4.96	.591	2d10 +3d12	6.47	.77	1d12 +2d12 +2d14
5	11.44	1.361	1.57	.187	2d10	9.86	1.174	1d12 +2d12 +2d1 ...



6	8.04	.957	1.57	.187	2d10		6.47	.77	1d12	+2d12	+2d14	
7	13.7	1.631	8.36	.995	2d10	+1d12	5.34	.636	2d14	+2d12		
8	10.62	1.264	8.36	.995	2d10	+1d12	2.26	.269	2d12			
9	8.36	.995	6.09	.726	2d10	+1d12	2.26	.269	2d12			
10	8.04	.957	2.7	.322	2d10	+1d12	5.34	.636	2d12	+2d14		
11	8.04	.957	4.96	.591	2d10	+1d12	3.08	.367	2d14			

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr1\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A329	3	3	3	0	210.	175.	8.731	1.3	1.	28.504
2	A330	3	3	3	0	389.	354.	16.215	1.5	1.202	35.111
3	A331	3	3	3	0	241.	206.	10.027	1.3	3.227	91.976

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1218.7	-.03	.082	-2059.9	-.051	.138	2.	.269	1.69	SI
42.	42.	3.	1.	-850.1	-.02	.057	-2059.9	-.051	.138	2.	.269	2.423	SI
67.	67.	3.	2.	-477.16	-.016	.076	-866.38	-.029	.138	2.	.173	1.816	NO
92.	92.	3.	2.	-423.01	-.014	.067	-866.38	-.029	.138	2.	.173	2.048	NO
117.	117.	3.	2.	-777.3	-.026	.124	-866.38	-.029	.138	2.	.173	1.115	NO
210.	210.	3.	4.	-2920.43	-.045	.078	-5165.13	-.083	.138	2.	.374	1.769	SI
> 210.	0.	3.	4.	-2568.38	-.039	.068	-5165.13	-.083	.138	2.	.374	2.011	SI
282.	72.	3.	6.	1255.51	-.02	.027	6332.89	-.113	.138	2.	.449	5.044	SI
404.	195.	3.	7.	3883.46	-.079	.115	4666.75	-.097	.138	2.	.412	1.202	SI
496.	286.	3.	8.	2266.73	-.04	.049	6240.44	-.123	.138	2.	.471	2.753	SI
527.	317.	3.	6.	-102.99	-.002	.007	-2064.26	-.04	.138	2.	.224	20.04	SI
599.	389.	3.	9.	-2847.96	-.044	.076	-5165.13	-.083	.138	2.	.374	1.814	SI
> 599.	0.	3.	9.	-3057.64	-.047	.082	-5165.13	-.083	.138	2.	.374	1.689	SI
616.	18.	3.	9.	-3057.64	-.047	.082	-5165.13	-.083	.138	2.	.374	1.689	SI
672.	73.	3.	2.	-897.73	-.033	.138	-899.97	-.033	.138	2.	.194	1.003	NO
703.	105.	3.	2.	-2.78	0.	0.	-866.38	-.029	.138	2.	.173	311.7	NO
703.	105.	3.	2.	528.36	-.012	.024	2974.89	-.07	.138	2.	.335	5.63	SI
766.	168.	3.	2.	921.94	-.02	.043	2974.89	-.07	.138	2.	.335	3.227	SI
839.	241.	3.	10	-268.14	-.006	.018	-2059.9	-.051	.138	2.	.269	7.682	SI
839.	241.	3.	10	329.11	-.008	.025	1832.19	-.047	.138	2.	.252	5.567	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	2510.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	2510.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
18.	18.	3.	2510.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
27.	27.	3.	2369.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1743.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1743.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
67.	67.	3.	679.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6

	92.	92.	3.	-450.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	117.	117.	3.	-1527.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	143.	143.	3.	-2623.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	168.	168.	3.	-3717.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	168.	168.	3.	-3717.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	182.	182.	3.	-4334.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	192.	192.	3.	-4473.	6547.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	200.	200.	3.	-4473.	6547.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	210.	210.	3.	-4473.	6547.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>	210.	0.	3.	7153.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	219.	10.	3.	7153.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	227.	18.	3.	7153.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	237.	27.	3.	7015.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	251.	42.	3.	6400.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	251.	42.	3.	6400.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	282.	72.	3.	5092.	6369.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	312.	103.	3.	3786.	6369.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	343.	133.	3.	2486.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6	
	374.	164.	3.	1210.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6	
	404.	195.	3.	-102.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6	
	435.	225.	3.	-1390.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6	
	465.	256.	3.	-2676.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6	
	496.	286.	3.	-3958.	6369.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	527.	317.	3.	-5234.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	557.	348.	3.	-6509.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	557.	348.	3.	-6509.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	572.	362.	3.	-7103.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	581.	372.	3.	-7237.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	589.	379.	3.	-7237.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	599.	389.	3.	-7237.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>	599.	0.	3.	5545.	6547.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	608.	10.	3.	5545.	6547.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	616.	18.	3.	5545.	6547.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	626.	27.	3.	5412.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	640.	42.	3.	4821.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	640.	42.	3.	4821.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	672.	73.	3.	3524.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	703.	105.	3.	2231.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	735.	136.	3.	968.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	766.	168.	3.	-536.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	798.	199.	3.	-1658.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	798.	199.	3.	-1658.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	812.	213.	3.	-2239.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	822.	223.	3.	-2369.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	830.	231.	3.	-2369.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	839.	241.	3.	-2369.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-915.87	-23.8	1209.1	3.83	6.25	.0363	24.83	.09	SI
42.	42.	3.	1.	-506.58	-13.2	668.8	3.83	6.25	.0201	24.83	.05	SI
42.	42.	3.	1.	-506.58	-13.2	668.8	3.83	6.25	.0201	24.83	.05	SI
92.	92.	3.	2.	-250.67	-9.4	789.2	1.57	6.25	.0237	26.97	.064	SI
117.	117.	3.	2.	-432.5	-16.2	1361.8	1.57	6.25	.0409	26.97	.11	SI
210.	210.	3.	4.	-2163.31	-36.	1138.	9.93	5.69	.0386	14.16	.055	SI
> 210.	0.	3.	4.	-1901.06	-31.6	1000.	9.93	5.69	.0317	14.16	.045	SI
404.	195.	3.	7.	2965.73	-57.9	1700.8	9.14	5.58	.0658	15.51	.102	SI
599.	389.	3.	9.	-2110.79	-35.1	1110.3	9.93	5.69	.0372	14.16	.053	SI
> 599.	0.	3.	9.	-2267.91	-37.7	1193.	9.93	5.69	.0414	14.16	.059	SI
672.	73.	3.	2.	-363.21	-14.7	1090.	1.57	6.25	.0327	26.5	.087	SI
766.	168.	3.	2.	709.25	-16.4	643.7	5.65	6.01	.0193	23.45	.045	SI
839.	241.	3.	10	-264.91	-6.9	349.7	3.83	6.25	.0105	24.83	.026	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-877.14	-22.8	1158.	3.83	6.25	.0347	24.83	.086	SI
42.	42.	3.	1.	-494.43	-12.8	652.7	3.83	6.25	.0196	24.83	.049	SI
42.	42.	3.	1.	-494.43	-12.8	652.7	3.83	6.25	.0196	24.83	.049	SI
92.	92.	3.	2.	-248.93	-9.3	783.8	1.57	6.25	.0235	26.97	.063	SI
117.	117.	3.	2.	-412.71	-15.4	1299.4	1.57	6.25	.039	26.97	.105	SI
210.	210.	3.	4.	-2000.66	-33.3	1052.4	9.93	5.69	.0343	14.16	.049	SI
> 210.	0.	3.	4.	-1754.96	-29.2	923.2	9.93	5.69	.0279	14.16	.039	SI
404.	195.	3.	7.	2760.05	-53.9	1582.8	9.14	5.58	.0599	15.51	.093	SI
599.	389.	3.	9.	-1957.39	-32.6	1029.6	9.93	5.69	.0332	14.16	.047	SI
> 599.	0.	3.	9.	-2102.81	-35.	1106.1	9.93	5.69	.037	14.16	.052	SI
672.	73.	3.	2.	-338.04	-13.7	1014.4	1.57	6.25	.0304	26.5	.081	SI
766.	168.	3.	2.	661.48	-15.3	600.4	5.65	6.01	.018	23.45	.042	SI
839.	241.	3.	10	-245.39	-6.4	324.	3.83	6.25	.0097	24.83	.024	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-862.62	-22.4	1138.8	3.83	6.25	.0342	24.83	.085	SI
42.	42.	3.	1.	-489.02	-12.7	645.6	3.83	6.25	.0194	24.83	.048	SI
42.	42.	3.	1.	-489.02	-12.7	645.6	3.83	6.25	.0194	24.83	.048	SI
92.	92.	3.	2.	-247.53	-9.3	779.4	1.57	6.25	.0234	26.97	.063	SI
117.	117.	3.	2.	-405.55	-15.2	1276.9	1.57	6.25	.0383	26.97	.103	SI
210.	210.	3.	4.	-1946.66	-32.4	1024.	9.93	5.69	.0329	14.16	.047	SI
> 210.	0.	3.	4.	-1706.55	-28.4	897.7	9.93	5.69	.0269	14.16	.038	SI
404.	195.	3.	7.	2694.69	-52.6	1545.3	9.14	5.58	.058	15.51	.09	SI
599.	389.	3.	9.	-1905.07	-31.7	1002.1	9.93	5.69	.0318	14.16	.045	SI
> 599.	0.	3.	9.	-2046.67	-34.1	1076.6	9.93	5.69	.0355	14.16	.05	SI
616.	18.	3.	9.	-2046.67	-34.1	1076.6	9.93	5.69	.0355	14.16	.05	SI
672.	73.	3.	2.	-329.15	-13.3	987.8	1.57	6.25	.0296	26.5	.079	SI

766.	168.	3.	2.	645.97!	-15.	586.3	5.65	6.01	.0176	23.45	.041	SI
839.	241.	3.	10	-240.21	-6.2	317.1	3.83	6.25	.0095	24.83	.024	SI

ARMATURE LONGITUDINALI (%=100\*Af/Acl<sub>s</sub> - Acl<sub>s</sub>=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	7.23	.43	3.83	.228	2d12 +2d10	3.39	.202	3d12
2	7.23	.43	1.57	.093	2d10	5.65	.337	2d12 +3d12
3	11.75	.699	6.09	.363	2d12 +2d12 +2d10	5.65	.337	2d12 +3d12
4	17.94	1.068	9.93	.591	2d12 +2d12 +2d1 ...	8.01	.477	3d12 +3d14
5	16.37	.974	6.09	.363	2d12 +2d12 +2d10	10.27	.611	2d12 +3d12 +3d14
6	16.37	.974	3.83	.228	2d12 +2d10	12.53	.746	2d12 +2d12 +3d1 ...
7	10.71	.638	1.57	.093	2d10	9.14	.544	2d12 +2d12 +3d14
8	14.11	.84	1.57	.093	2d10	12.53	.746	2d12 +2d12 +3d1 ...
9	17.94	1.068	9.93	.591	2d10 +2d12 +2d1 ...	8.01	.477	3d12 +3d14
10	7.23	.43	3.83	.228	2d10 +2d12	3.39	.202	3d12

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr2\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713.;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A328	3	3	3	0	502.	467.	20.905	1.	1.044	19.672

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1718.42!	-.032	.073	-3227.6	-.063	.138	2.	.312	1.878	SI
106.	106.	3.	3.	2342.88!	-.043	.059	5389.09!	-.109	.138	2.	.441	2.3	SI
267.	267.	3.	3.	5161.66!	-.104!	.132!	5389.09!	-.109	.138	2.	.441	1.044	SI
484.	484.	3.	1.	19.39	0.	.001	3259.21	-.063	.138	2.	.313	168.1	SI
502.	502.	3.	1.	-1111.78	-.021	.047	-3227.6	-.063	.138	2.	.312	2.903	SI

#### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	3.	4655.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
10.	10.	3.	4655.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
18.	18.	3.	4655.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
27.	27.	3.	4614.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
42.	42.	3.	4432.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
42.	42.	3.	4432.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
74.	74.	3.	3988.	6197.	21355.	3784.	.57	20.	2.5	NO	4	5	6
106.	106.	3.	3480.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6	
138.	138.	3.	2933.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6	
170.	170.	3.	2326.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6	
203.	203.	3.	1675.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6	

235.	235.	3.	969.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
267.	267.	3.	286.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
299.	299.	3.	-645.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
331.	331.	3.	-1450.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
364.	364.	3.	-2354.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
396.	396.	3.	-3317.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
428.	428.	3.	-4319.	6197.	21355.	3784.	.57	20.	2.5	NO	4	5 6
460.	460.	3.	-5387.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
460.	460.	3.	-5387.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
475.	475.	3.	-5876.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
484.	484.	3.	-5987.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
492.	492.	3.	-5987.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
502.	502.	3.	-5987.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1224.81	-25.1	1032.3	6.09	6.08	.031	23.72	.073	SI
10.	10.	3.	1.	-1224.81	-25.1	1032.3	6.09	6.08	.031	23.72	.073	SI
267.	267.	3.	3.	3860.37	-71.5	1909.5	10.68	5.42	.079	14.02	.111	SI
502.	502.	3.	1.	-717.34	-14.7	604.6	6.09	6.08	.0181	23.72	.043	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1136.69	-23.3	958.	6.09	6.08	.0287	23.72	.068	SI
10.	10.	3.	1.	-1136.69	-23.3	958.	6.09	6.08	.0287	23.72	.068	SI
267.	267.	3.	3.	3644.82	-67.5	1802.8	10.68	5.42	.0736	14.02	.103	SI
502.	502.	3.	1.	-667.76	-13.7	562.8	6.09	6.08	.0169	23.72	.04	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1108.69!	-22.8	934.4	6.09	6.08	.028	23.72	.066	SI
10.	10.	3.	1.	-1108.69!	-22.8	934.4	6.09	6.08	.028	23.72	.066	SI
267.	267.	3.	3.	3573.33!	-66.1	1767.5!	10.68	5.42	.0719	14.02	.101!	SI
502.	502.	3.	1.	-647.24	-13.3	545.5	6.09	6.08	.0164	23.72	.039	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	12.25	.729	6.09	.363	2d10 +2d12	6.16	.367	4d14
2	12.25	.729	3.83	.228	2d10 +2d12	8.42	.501	4d14 +2d12
3	12.25	.729	1.57	.093	2d10	10.68	.636	4d14 +2d12 +2d12

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr5\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

#### SEZIONI UTILIZZATE

- 3) Rettangolare: 35X24; A=840.; Jg=40320.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1626	3	3	3	0	280.	245.	11.667	1.	1.844	34.791

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-640.95	-.02	.044	-2020.23	-.067	.138	2.	.327	3.152
0.	0.	3.	1.	1231.38	-.039	.072	2362.09	-.078	.138	2.	.361	1.918
42.	42.	3.	1.	1280.75	-.041	.075	2362.09	-.078	.138	2.	.361	1.844
74.	74.	3.	2.	-269.94	-.012	.044	-850.27	-.039	.138	2.	.218	3.15
74.	74.	3.	2.	1278.33	-.047	.075	2328.83	-.091	.138	2.	.396	1.822
280.	280.	3.	3.	0.	0.	0.	-2001.57	-.077	.138	2.	.358	***
280.	280.	3.	3.	102.35	-.004	.012	1212.26	-.05	.138	2.	.264	11.84

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	878.	2942.	10678.	3784.	.57	20.	2.5
10.	10.	3.	878.	2942.	10678.	3784.	.57	20.	2.5
18.	18.	3.	878.	2942.	10678.	3784.	.57	20.	2.5
27.	27.	3.	861.	2942.	10678.	3784.	.57	20.	2.5
42.	42.	3.	788.	2942.	10678.	3784.	.57	20.	2.5
42.	42.	3.	788.	2942.	10678.	3784.	.57	20.	2.5
74.	74.	3.	-98.	2942.	10678.	3784.	.57	20.	2.5
74.	74.	3.	621.	2942.	10678.	3784.	.57	20.	2.5
107.	107.	3.	-266.	2942.	10678.	3784.	.57	20.	2.5
107.	107.	3.	453.	2942.	10678.	3784.	.57	20.	2.5
140.	140.	3.	-433.	3174.	10678.	3784.	.57	20.	2.5
140.	140.	3.	286.	3174.	10678.	3784.	.57	20.	2.5
173.	173.	3.	-601.	3174.	10678.	3784.	.57	20.	2.5
173.	173.	3.	118.	3174.	10678.	3784.	.57	20.	2.5
206.	206.	3.	-768.	3174.	10678.	3784.	.57	20.	2.5
239.	239.	3.	-936.	2942.	10678.	3784.	.57	20.	2.5
239.	239.	3.	-936.	2942.	10678.	3784.	.57	20.	2.5
253.	253.	3.	-1009.	2942.	10678.	3784.	.57	20.	2.5
263.	263.	3.	-1025.	2942.	10678.	3784.	.57	20.	2.5
270.	270.	3.	-1025.	2942.	10678.	3784.	.57	20.	2.5
280.	280.	3.	-1025.	2942.	10678.	3784.	.57	20.	2.5

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	288.45	-10.	331.9	4.52	5.77	.01	15.57	.016	SI
10.	10.	3.	1.	338.93	-11.7	390.	4.52	5.77	.0117	15.57	.018	SI
107.	107.	3.	2.	648.54	-24.5	749.6	4.52	5.64	.0225	15.36	.035	SI
239.	239.	3.	3.	290.42	-13.	653.4	2.26	6.25	.0196	24.76	.049	SI
280.	280.	3.	3.	0.	0.	0.	0.	0.	0.	0.	0.	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	223.25	-7.7	256.9	4.52	5.77	.0077	15.57	.012	SI
10.	10.	3.	1.	275.98	-9.5	317.5	4.52	5.77	.0095	15.57	.015	SI
140.	140.	3.	2.	611.42	-23.1	706.7	4.52	5.64	.0212	15.36	.033	SI
239.	239.	3.	3.	280.76	-12.6	631.7	2.26	6.25	.019	24.76	.047	SI
280.	280.	3.	3.	0.	0.	0.	0.	0.	0.	0.	0.	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	206.27	-7.1	237.3	4.52	5.77	.0071	15.57	.011	SI
10.	10.	3.	1.	259.59	-9.	298.7	4.52	5.77	.009	15.57	.014	SI
140.	140.	3.	2.	602.93	-22.8	696.9	4.52	5.64	.0209	15.36	.032	SI
239.	239.	3.	3.	278.24	-12.5	626.	2.26	6.25	.0188	24.76	.046	SI
280.	280.	3.	3.	0.	0.	0.	0.	0.	0.	0.	0.	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/Acl - Acl=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	8.36	.995	3.83	.456	2d10 +2d12	4.52	.539	2d12 +2d12
2	6.09	.726	1.57	.187	2d10	4.52	.539	2d12 +2d12
3	6.09	.726	3.83	.456	2d10 +2d12	2.26	.269	2d12

##### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm/m [NTC18 4.1.6.1.1].

Nome travata : **TrA\_arrivo\_P2** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinale= 2.5 ; staffe= 1.5

##### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;

gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 50X24; A=1200.; Jg=57600.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A929	3	3	3	0	280.	240.	11.667	1.	1.323	24.085

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	EpscI	Epscac	Mrd	EpscI	Epscac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1483.62	-.033	.069	-2947.62	-.067	.138	2.	.326	1.987	SI
0.	0.	3.	1.	1491.28	-.032	.057	3583.21	-.081	.138	2.	.37	2.403	SI
79.	79.	3.	2.	-11.66	0.	.002	-855.85	-.03	.138	2.	.179	73.41	SI
79.	79.	3.	2.	2934.83	-.075	.093	4333.65	-.117	.138	2.	.458	1.477	SI
143.	143.	3.	2.	3276.18	-.084	.104	4333.65	-.117	.138	2.	.458	1.323	SI
239.	239.	3.	3.	1921.41	-.048	.109	2445.78	-.062	.138	2.	.309	1.273	SI
280.	280.	3.	3.	-210.43	-.005	.01	-2931.47	-.073	.138	2.	.347	13.93	SI
280.	280.	3.	3.	450.71	-.011	.025	2445.78	-.062	.138	2.	.309	5.427	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	3.	4650.	4320.	15254.	3784.	.57	20.	2.5	NO	4	5	6
10.	10.	3.	4650.	4320.	15254.	3784.	.57	20.	2.5	NO	4	5	6
22.	22.	3.	4650.	4320.	15254.	3784.	.57	20.	2.5	NO	4	5	6
32.	32.	3.	4285.	4320.	15254.	3784.	.57	20.	2.5	NO	4	5	6
46.	46.	3.	3744.	4203.	15254.	3784.	.57	20.	2.5	NO	5	6	
46.	46.	3.	3744.	4203.	15254.	3784.	.57	20.	2.5	NO	5	6	
79.	79.	3.	2580.	4203.	15254.	3784.	.57	20.	2.5	NO	5	6	
111.	111.	3.	1574.	4994.	15254.	3784.	.57	20.	2.5	NO	5	6	
143.	143.	3.	-529.	4994.	15254.	3784.	.57	20.	2.5	NO	5	6	
143.	143.	3.	758.	4994.	15254.	3784.	.57	20.	2.5	NO	5	6	
175.	175.	3.	-1344.	4994.	15254.	3784.	.57	20.	2.5	NO	5	6	
207.	207.	3.	-2316.	4994.	15254.	3784.	.57	20.	2.5	NO	5	6	
239.	239.	3.	-3497.	4203.	15254.	3784.	.57	20.	2.5	NO	5	6	
239.	239.	3.	-3497.	4203.	15254.	3784.	.57	20.	2.5	NO	5	6	
253.	253.	3.	-4038.	4203.	15254.	3784.	.57	20.	2.5	NO	4	5	6
263.	263.	3.	-4403.	4203.	15254.	3784.	.57	20.	2.5	NO	4	5	6
270.	270.	3.	-4403.	4203.	15254.	3784.	.57	20.	2.5	NO	4	5	6
280.	280.	3.	-4403.	4203.	15254.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-548.91	-13.5	507.7	5.59	5.96	.0152	23.23	.035	SI
22.	22.	3.	1.	277.32	-6.6	210.3	6.88	5.72	.0063	15.5	.01	SI
143.	143.	3.	2.	2426.	-59.5	1491.4	8.64	5.32	.0599	13.55	.081	SI
239.	239.	3.	3.	1214.38	-33.1	1352.6	4.62	6.08	.0406	23.7	.096	SI
280.	280.	3.	3.	-76.86	-2.	71.2	5.59	5.87	.0021	22.91	.005	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-571.71	-14.1	528.8	5.59	5.96	.0159	23.23	.037	SI
22.	22.	3.	1.	194.36	-4.6	147.4	6.88	5.72	.0044	15.5	.007	SI
143.	143.	3.	2.	2231.15	-54.7	1371.6	8.64	5.32	.0539	13.55	.073	SI
239.	239.	3.	3.	1123.54	-30.6	1251.5	4.62	6.08	.0375	23.7	.089	SI
280.	280.	3.	3.	-70.24	-1.8	65.1	5.59	5.87	.002	22.91	.004	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-568.18	-14.	525.6	5.59	5.96	.0158	23.23	.037	SI
22.	22.	3.	1.	174.12	-4.1	132.	6.88	5.72	.004	15.5	.006	SI
143.	143.	3.	2.	2171.57	-53.3	1334.9	8.64	5.32	.0521	13.55	.071	SI
239.	239.	3.	3.	1094.76	-29.8	1219.4	4.62	6.08	.0366	23.7	.087	SI
280.	280.	3.	3.	-68.22	-1.8	63.2	5.59	5.87	.0019	22.91	.004	SI

ARMATURE LONGITUDINALI (%=100\*Af/Acl<sub>s</sub> - Acl<sub>s</sub>=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	12.47	1.039	5.59	.466	2d10 +2d16	6.88	.573	3d14 +2d12
2	10.21	.851	1.57	.131	2d10	8.64	.72	2d16 +3d14
3	10.21	.851	5.59	.466	2d10 +2d16	4.62	.385	3d14

MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm<sup>2</sup>/m [NTC18 4.1.6.1.1].

Nome travata : TrB\_arrivo\_p2 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm<sup>2</sup>; deform.%.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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SEZIONI UTILIZZATE

- 3) Rettangolare: 50X24; A=1200.; Jg=57600.; E=287713.1

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A928	3	3	3	0	280.	242.	11.667	1.	1.363	24.816

VERIFICHE ALLO STATO LIMITE ULTIMO

FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsc	Mrd	Epsc	Epsc	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-1936.96	-.043	.091	-2947.62	-.067	.138	2.	.326	1.522
0.	0.	3.	1.	1673.33	-.036	.064	3583.21	-.081	.138	2.	.37	2.141
44.	44.	3.	1.	2573.82	-.066	.102	3471.22	-.092	.138	2.	.4	1.349
76.	76.	3.	2.	-353.92	-.012	.057	-855.85	-.03	.138	2.	.179	2.418
76.	76.	3.	2.	2952.64	-.075	.093	4333.65	-.117	.138	2.	.458	1.468
141.	141.	3.	2.	3179.71	-.082	.101	4333.65	-.117	.138	2.	.458	1.363
206.	206.	3.	2.	-38.1	-.001	.006	-855.85	-.03	.138	2.	.179	22.46
280.	280.	3.	3.	-1844.01	-.045	.087	-2931.47	-.073	.138	2.	.347	1.59
280.	280.	3.	3.	179.07	-.004	.01	2445.78	-.062	.138	2.	.309	13.66

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	5265.	4203.	15254.	3784.	.57	20.
10.	10.	3.	1.	4900.	4203.	15254.	3784.	.57	20.
20.	20.	3.	1.	4511.	4203.	15254.	3784.	.57	20.
30.	30.	3.	1.	4146.	4203.	15254.	3784.	.57	20.
44.	44.	3.	1.	3605.	4203.	15254.	3784.	.57	20.
44.	44.	3.	1.	3605.	4203.	15254.	3784.	.57	20.
76.	76.	3.	1.	2437.	4203.	15254.	3784.	.57	20.
109.	109.	3.	1.	-332.	4994.	15254.	3784.	.57	20.
109.	109.	3.	1.	1502.	4994.	15254.	3784.	.57	20.
141.	141.	3.	1.	-1158.	4994.	15254.	3784.	.57	20.
141.	141.	3.	1.	676.	4994.	15254.	3784.	.57	20.
174.	174.	3.	1.	-1984.	4994.	15254.	3784.	.57	20.
206.	206.	3.	1.	-3001.	4203.	15254.	3784.	.57	20.
238.	238.	3.	1.	-4200.	4203.	15254.	3784.	.57	20.
238.	238.	3.	1.	-4200.	4203.	15254.	3784.	.57	20.
253.	253.	3.	1.	-4740.	4203.	15254.	3784.	.57	20.
262.	262.	3.	1.	-5105.	4203.	15254.	3784.	.57	20.
270.	270.	3.	1.	-5400.	4203.	15254.	3784.	.57	20.

280. | 280. | 3. | -5765. ! 4203. | 15254. ! 3784. ! .57 | 20. | 2.5 | NO | 4 5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1370.4	-33.7	1267.6	5.59	5.96	.04	23.23	.093
20.	20.	3.	1.	-712.11	-17.5	658.7	5.59	5.96	.0198	23.23	.046
141.	141.	3.	2.	2354.71	-57.8	1447.5	8.64	5.32	.0577	13.55	.078
280.	280.	3.	3.	-1370.4	-35.7	1269.8	5.59	5.87	.0404	22.91	.093

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1276.68	-31.4	1180.9	5.59	5.96	.0357	23.23	.083
20.	20.	3.	1.	-645.23	-15.9	596.8	5.59	5.96	.0179	23.23	.042
141.	141.	3.	2.	2165.96	-53.1	1331.5	8.64	5.32	.0519	13.55	.07
280.	280.	3.	3.	-1276.68	-33.3	1182.9	5.59	5.87	.0361	22.91	.083

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1245.44	-30.6	1152.	5.59	5.96	.0346	23.23	.08
20.	20.	3.	1.	-621.33	-15.3	574.7	5.59	5.96	.0172	23.23	.04
141.	141.	3.	2.	2108.22	-51.7	1296.	8.64	5.32	.0502	13.55	.068
280.	280.	3.	3.	-1245.44	-32.5	1154.	5.59	5.87	.0346	22.91	.079

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	12.47	1.039	5.59	.466	2d10 +2d16	6.88	.573	3d14 +2d12
2	10.21	.851	1.57	.131	2d10	8.64	.72	2d16 +3d14
3	10.21	.851	5.59	.466	2d10 +2d16	4.62	.385	3d14

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr10\_p2** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 40X24; A=960.; Jg=46080.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A943	3	3	3	0	280.	242.	11.667	1.	1.137	20.772

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	EpscI	EpsacI	Mrd	EpscI	EpsacI	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-702.38	-.018	.039	-2452.65	-.066	.138	2.	.322	3.492
0.	0.	3.	1.	2942.86	-.079	.121	3346.36	-.091	.138	2.	.396	1.137
76.	76.	3.	2.	-199.71	-.007	.032	-850.52	-.031	.138	2.	.184	4.259



76.	76.	3.	2.	2452.01	-.07	.071	4673.28	-.149	.138	2.	.518	1.906	SI
206.	206.	3.	3.	86.12	-.003	.004	3183.51	-.107	.138	2.	.437	36.97	SI
280.	280.	3.	4.	-2205.36	-.069	.125	-2430.01	-.077	.138	2.	.356	1.102	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	3.	-539.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
0.	0.	3.	1369.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
10.	10.	3.	-539.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
10.	10.	3.	1369.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
20.	20.	3.	-539.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
20.	20.	3.	1369.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
30.	30.	3.	-654.	3501.	12203.	3784.	.57	20.	2.5	NO	5	6	
30.	30.	3.	1254.	3501.	12203.	3784.	.57	20.	2.5	NO	5	6	
44.	44.	3.	-825.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
44.	44.	3.	1083.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
44.	44.	3.	-825.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
44.	44.	3.	1083.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
76.	76.	3.	-1211.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
76.	76.	3.	697.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
109.	109.	3.	-1597.	3909.	12203.	3784.	.57	20.	2.5	NO	5	6	
109.	109.	3.	310.	3909.	12203.	3784.	.57	20.	2.5	NO	5	6	
141.	141.	3.	-1984.	3909.	12203.	3784.	.57	20.	2.5	NO	5	6	
174.	174.	3.	-2370.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
206.	206.	3.	-2787.	3362.	12203.	3784.	.57	20.	2.5	NO	5	6	
238.	238.	3.	-3351.	3501.	12203.	3784.	.57	20.	2.5	NO	5	6	
238.	238.	3.	-3351.	3501.	12203.	3784.	.57	20.	2.5	NO	5	6	
253.	253.	3.	-3610.	3501.	12203.	3784.	.57	20.	2.5	NO	5	6	
262.	262.	3.	-3784.	3362.	12203.	3784.	.57	20.	2.5	NO	4	5	6
270.	270.	3.	-3784.	3362.	12203.	3784.	.57	20.	2.5	NO	4	5	6
280.	280.	3.	-3784.	3362.	12203.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve	
20.	20.	3.	1.	1230.17	-34.2	997.7	6.47	5.57	.0338	13.65	.046	SI
44.	44.	3.	1.	1301.37	-36.2	1055.5	6.47	5.57	.0367	13.65	.05	SI
280.	280.	3.	4.	-1626.08	-52.8	1815.4	4.65	5.82	.0686	16.62	.114	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve	
20.	20.	3.	1.	1101.37	-30.6	893.3	6.47	5.57	.0286	13.65	.039	SI
44.	44.	3.	1.	1172.53	-32.6	951.	6.47	5.57	.0315	13.65	.043	SI
280.	280.	3.	4.	-1471.65	-47.8	1643.	4.65	5.82	.06	16.62	.1	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve	
20.	20.	3.	1.	1069.35	-29.7	867.3	6.47	5.57	.0273	13.65	.037	SI
44.	44.	3.	1.	1138.6	-31.7	923.5	6.47	5.57	.0301	13.65	.041	SI
280.	280.	3.	4.	-1428.38	-46.4	1594.7	4.65	5.82	.0576	16.62	.096	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	11.12	1.158	4.65	.484	2d10 +2d14	6.47	.674	3d12 +2d14
2	11.12	1.158	1.57	.164	2d10	9.55	.995	2d14 +3d12 +2d14
3	8.04	.838	1.57	.164	2d10	6.47	.674	2d14 +3d12
4	8.04	.838	4.65	.484	2d10 +2d14	3.39	.353	3d12

#### MESSAGGI

4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].

5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].

6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr21\_p2** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu= .2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 90X24; A=2160.; Jg=103680.; E=287713.1  
 5) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A318	3	3	3	0	235.	200.	9.792	1.3	3.464	91.444
2	A319	5	5	5	0	480.	445.	20.	1.3	5.	113.649

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsc1	Mrd	Epsc1	Epsc1	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1439.64	-.02	.044	-4462.08	-.066	.138	2.	.322	3.099	SI
0.	0.	3.	1.	1224.32	-.017	.04	4241.37	-.063	.138	2.	.312	3.464	SI
72.	72.	3.	2.	-929.96	-.014	.039	-3311.12	-.051	.138	2.	.27	3.561	SI
72.	72.	3.	2.	767.83	-.011	.02	5357.79	-.078	.138	2.	.362	6.978	SI
133.	133.	3.	3.	131.79	-.002	.006	3027.46	-.053	.138	2.	.277	22.97	SI
235.	235.	3.	4.	-1404.8	-.015	.023	-8491.36	-.097	.138	2.	.412	6.045	SI
> 235.	0.	5.	5.	-1471.83	-.018	.024	-8439.99	-.109	.138	2.	.442	5.734	SI
310.	75.	5.	6.	147.81	-.002	.003	6280.11	-.084	.138	2.	.378	42.49	SI
376.	141.	5.	8.	-95.13	-.003	.015	-860.33	-.025	.138	2.	.152	9.044	NO
376.	141.	5.	8.	410.49	-.006	.007	7815.66	-.152	.138	2.	.523	19.04	SI
574.	339.	5.	8.	-98.35	-.003	.016	-860.33	-.025	.138	2.	.152	8.748	NO
574.	339.	5.	8.	899.32	-.014	.015	7815.66	-.152	.138	2.	.523	8.691	SI
607.	372.	5.	8.	-329.68	-.009	.053	-860.33	-.025	.138	2.	.152	2.61	NO
715.	480.	5.	10	-1182.87	-.018	.032	-5009.64	-.081	.138	2.	.368	4.235	SI
715.	480.	5.	10	567.55	-.009	.018	4234.88	-.068	.138	2.	.33	7.462	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	-642.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
0.	0.	3.	1157.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	-642.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	1104.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	-642.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	1062.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	-695.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	1010.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-772.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	932.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-772.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	932.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
72.	72.	3.	-936.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
72.	72.	3.	768.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
102.	102.	3.	-1100.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
102.	102.	3.	604.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
133.	133.	3.	-1265.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
133.	133.	3.	440.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
163.	163.	3.	-1429.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
163.	163.	3.	275.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	-1593.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	111.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	-1593.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	111.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
208.	208.	3.	-1670.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
208.	208.	3.	34.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
217.	217.	3.	-1723.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
225.	225.	3.	-1723.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
235.	235.	3.	-1723.	7565.	27457.	3784.	.57	20.	2.5	NO	5	6
> 235.	0.	5.	1401.	7754.	21355.	3784.	.57	20.	2.5	NO	5	6
245.	10.	5.	1401.	7754.	21355.	3784.	.57	20.	2.5	NO	5	6
252.	18.	5.	1401.	7754.	21355.	3784.	.57	20.	2.5	NO	5	6
262.	27.	5.	1354.	7754.	21355.	3784.	.57	20.	2.5	NO	5	6
276.	42.	5.	1284.	6950.	21355.	3784.	.57	20.	2.5	NO	5	6
276.	42.	5.	1284.	6950.	21355.	3784.	.57	20.	2.5	NO	5	6
310.	75.	5.	1133.	6055.	21355.	3784.	.57	20.	2.5	NO	5	6
343.	108.	5.	994.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
376.	141.	5.	855.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
409.	174.	5.	716.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
442.	207.	5.	-46.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
442.	207.	5.	577.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
475.	240.	5.	-185.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
475.	240.	5.	438.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
508.	273.	5.	-324.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
508.	273.	5.	299.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
541.	306.	5.	-463.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
541.	306.	5.	160.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
574.	339.	5.	-602.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
574.	339.	5.	21.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
607.	372.	5.	-741.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
640.	405.	5.	-880.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

673.	438.	5.	-1019.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
673.	438.	5.	-1019.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
688.	453.	5.	-1079.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
697.	462.	5.	-1119.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
705.	470.	5.	-1119.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
715.	480.	5.	-1119.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-139.68	-2.2	85.1	8.45	6.02	.0026	23.48	.006	SI
102.	102.	3.	3.	209.49	-3.9	188.3	5.65	6.25	.0056	24.58	.014	SI
163.	163.	3.	3.	-399.11	-7.2	328.7	6.19	6.22	.0099	24.27	.024	SI
235.	235.	3.	4.	-867.04	-10.1	277.1	16.49	5.46	.0083	12.87	.011	SI
> 235.	0.	5.	5.	-924.96	-12.3	297.9	16.49	5.26	.0089	11.09	.01	SI
475.	240.	5.	8.	690.96	-11.2	232.1	16.08	4.99	.007	11.68	.008	SI
715.	480.	5.	10	-605.07	-10.2	328.3	9.61	5.73	.0098	22.33	.022	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-139.21	-2.2	84.8	8.45	6.02	.0025	23.48	.006	SI
102.	102.	3.	3.	210.68	-3.9	189.4	5.65	6.25	.0057	24.58	.014	SI
163.	163.	3.	3.	-394.09	-7.1	324.6	6.19	6.22	.0097	24.27	.024	SI
235.	235.	3.	4.	-860.03	-10.1	274.9	16.49	5.46	.0082	12.87	.011	SI
> 235.	0.	5.	5.	-916.54	-12.2	295.2	16.49	5.26	.0089	11.09	.01	SI
475.	240.	5.	8.	694.86	-11.3	233.4	16.08	4.99	.007	11.68	.008	SI
715.	480.	5.	10	-605.07	-10.2	328.3	9.61	5.73	.0098	22.33	.022	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-139.18	-2.2	84.8	8.45	6.02	.0025	23.48	.006	SI
102.	102.	3.	3.	208.22	-3.9	187.2	5.65	6.25	.0056	24.58	.014	SI
163.	163.	3.	3.	-390.53	-7.1	321.7	6.19	6.22	.0097	24.27	.023	SI
235.	235.	3.	4.	-854.81	-10.	273.2	16.49	5.46	.0082	12.87	.011	SI
> 235.	0.	5.	5.	-912.17	-12.1	293.8	16.49	5.26	.0088	11.09	.01	SI
475.	240.	5.	8.	693.7	-11.3	233.	16.08	4.99	.007	11.68	.008	SI
715.	480.	5.	10	-605.07	-10.2	328.3	9.61	5.73	.0098	22.33	.022	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	16.46	.762	8.45	.391	2d10 +2d12 +3d14	8.01	.371	3d12 +3d14
2	16.46	.762	6.19	.287	2d10 +3d14	10.27	.476	3d12 +2d12 +3d14
3	11.84	.548	6.19	.287	2d10 +3d14	5.65	.262	3d12 +2d12
4	27.93	1.293	16.49	.764	2d10 +2d16 +2d1	11.44	.529	3d12 +4d16
5	27.93	1.662	16.49	.982	2d10 +2d16 +2d1	11.44	.681	3d12 +4d16
6	24.54	1.46	12.47	.742	2d10 +2d16 +2d1	12.06	.718	4d16 +2d16
7	19.92	1.186	3.83	.228	2d10 +2d12	16.08	.957	2d16 +4d16 +2d16
8	17.66	1.051	1.57	.093	2d10	16.08	.957	2d16 +4d16 +2d16
9	17.66	1.051	5.59	.333	2d10 +2d16	12.06	.718	4d16 +2d16
10	17.66	1.051	9.61	.572	2d10 +2d16 +2d16	8.04	.479	4d16

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr15\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest

13. | Rara 1                      1. | 15. | Frequente 1                      1. | 17. | Quasi Perm                      1. |  
 14. | Rara 2                      1. | 16. | Frequente 2                      1. |  
 <-

#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A307	3	3	3	0	558.	540.	23.247	.4	5.	36.64

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epscl	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 10.	10.	3.	1.	-2486.54	-.044	.085	-4051.02	-.073	.138	2.	.347	1.629	SI
57.	57.	3.	1.	16.39	0.	.001	3266.48	-.06	.138	2.	.303	199.2	SI
122.	122.	3.	2.	-263.53	-.005	.015	-2491.55	-.048	.138	2.	.259	9.455	SI
155.	155.	3.	3.	1355.97	-.024	.03	6140.47	-.122	.138	2.	.468	14.528	SI
319.	319.	3.	3.	2290.05	-.041	.051	6140.47	-.122	.138	2.	.468	2.681	SI
558.	558.	3.	1.	-221.78	-.004	.008	-4051.02	-.073	.138	2.	.347	18.27	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	1.	2979.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	1.	2889.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	1.	2889.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
24.	24.	3.	1.	2755.	6023.	21355.	3784.	.57	20.	2.5	NO	5 6
24.	24.	3.	1.	2755.	6023.	21355.	3784.	.57	20.	2.5	NO	5 6
57.	57.	3.	1.	2447.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
90.	90.	3.	1.	2140.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
122.	122.	3.	1.	1833.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
155.	155.	3.	1.	1525.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
188.	188.	3.	1.	1218.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
221.	221.	3.	1.	917.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
254.	254.	3.	1.	627.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
287.	287.	3.	1.	349.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
319.	319.	3.	1.	-120.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
319.	319.	3.	1.	113.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
352.	352.	3.	1.	-362.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
385.	385.	3.	1.	-650.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
418.	418.	3.	1.	-938.	7034.	21355.	3784.	.57	20.	2.5	NO	5 6
451.	451.	3.	1.	-1245.	6391.	21355.	3784.	.57	20.	2.5	NO	5 6
484.	484.	3.	1.	-1553.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
516.	516.	3.	1.	-1860.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
516.	516.	3.	1.	-1860.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
531.	531.	3.	1.	-1994.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
540.	540.	3.	1.	-2085.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
548.	548.	3.	1.	-2085.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
558.	558.	3.	1.	-2085.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 10.	10.	3.	1.	-1652.18	-31.1	1107.4	7.73	5.88	.0332	22.92	.076	SI
24.	24.	3.	1.	-1359.57	-25.6	911.3	7.73	5.88	.0273	22.92	.063	SI
319.	319.	3.	3.	1760.99	-31.1	761.1	12.32	5.28	.0237	13.26	.031	SI
558.	558.	3.	1.	-139.69	-2.6	93.6	7.73	5.88	.0028	22.92	.006	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 10.	10.	3.	1.	-1662.52	-31.3	1115.3	7.73	5.88	.0334	22.92	.077	SI
24.	24.	3.	1.	-1369.5	-25.8	917.9	7.73	5.88	.0275	22.92	.063	SI
319.	319.	3.	3.	1759.07	-31.1	760.3	12.32	5.28	.0237	13.26	.031	SI
558.	558.	3.	1.	-129.59	-2.4	86.9	7.73	5.88	.0026	22.92	.006	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 10.	10.	3.	1.	-1663.97	-31.3	1115.3	7.73	5.88	.0335	22.92	.077	SI
24.	24.	3.	1.	-1370.9	-25.8	918.9	7.73	5.88	.0276	22.92	.063	SI
319.	319.	3.	3.	1758.61	-31.1	760.1	12.32	5.28	.0237	13.26	.031	SI
558.	558.	3.	1.	-255.26	-4.8	171.1	7.73	5.88	.0051	22.92	.012	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	13.89	.827	7.73	.46	2d10	6.16	.367	4d14
2	13.89	.827	4.65	.277	2d10	9.24	.55	4d14
3	13.89	.827	1.57	.093	2d10	12.32	.733	2d14

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : Tr19\_p2 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 35X24; A=840.; Jg=40320.; E=287713.1  
 6) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A342	3	3	3	0	248.	218.	10.334	1.3	2.58	57.831
2	A312	6	6	6	0	315.	280.	13.125	1.5	5.	172.904
3	A313	6	6	6	0	300.	265.	12.5	1.3	1.655	49.607

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-2603.57	-.072	.097	-3699.83	-.105	.138	2.	.432	1.421	SI
0.	0.	3.	1.	505.76	-.013	.029	2433.92	-.067	.138	2.	.325	4.812	SI
65.	65.	3.	2.	1443.95	-.039	.049	4052.94	-.12	.138	2.	.464	2.807	SI
93.	93.	3.	2.	1570.9	-.043	.053	4052.94	-.12	.138	2.	.464	2.58	SI
122.	122.	3.	3.	1450.37	-.046	.05	3948.65	-.141	.138	2.	.505	2.723	SI
178.	178.	3.	3.	-72.69	-.003	.012	-848.67	-.034	.138	2.	.196	11.68	SI
207.	207.	3.	4.	86.27	-.002	.003	3622.75	-.089	.138	2.	.391	41.99	SI
248.	248.	3.	4.	-888.46	-.021	.032	-3789.78	-.094	.138	2.	.403	4.266	SI
> 248.	0.	6.	5.	-1260.88	-.022	.045	-3852.53	-.069	.138	2.	.333	13.055	SI
323.	75.	6.	6.	-617.83	-.022	.098	-874.34	-.031	.138	2.	.182	1.415	NO
323.	75.	6.	6.	62.2	-.001	.004	2372.71	-.061	.138	2.	.305	38.14	SI
356.	108.	6.	6.	-270.6	-.009	.043	-867.18	-.03	.138	2.	.176	3.205	NO
389.	141.	6.	6.	-75.96	-.003	.012	-867.18	-.03	.138	2.	.176	11.42	NO
422.	174.	6.	6.	-141.02	-.005	.022	-867.18	-.03	.138	2.	.176	6.149	NO
455.	207.	6.	6.	-357.08	-.012	.057	-867.18	-.03	.138	2.	.176	2.429	NO
488.	240.	6.	6.	-651.31	-.023	.103	-871.89	-.031	.138	2.	.181	1.339	NO
488.	240.	6.	6.	370.12	-.009	.021	2391.14	-.061	.138	2.	.305	6.461	SI
536.	288.	6.	7.	286.61	-.006	.016	2519.93	-.053	.138	2.	.277	8.792	SI
563.	315.	6.	7.	-1218.24	-.024	.051	-3314.55	-.067	.138	2.	.326	2.721	SI
563.	315.	6.	7.	161.67	-.003	.009	2519.93	-.053	.138	2.	.277	15.59	SI
> 563.	0.	6.	7.	-1051.54	-.02	.044	-3314.55	-.067	.138	2.	.326	3.152	SI
563.	0.	6.	7.	121.19	-.002	.007	2519.93	-.053	.138	2.	.277	20.79	SI
590.	27.	6.	7.	92.89	-.002	.005	2519.93	-.053	.138	2.	.277	27.13	SI
636.	72.	6.	8.	-257.63	-.009	.04	-882.05	-.031	.138	2.	.184	3.424	NO
667.	104.	6.	8.	-387.97	-.013	.062	-867.18	-.03	.138	2.	.176	2.235	NO
698.	134.	6.	8.	-685.57	-.023	.109	-867.18	-.03	.138	2.	.176	1.265	NO
729.	166.	6.	9.	1761.9	-.026	.043	5689.73	-.089	.138	2.	.392	3.229	SI
853.	290.	6.	10	2743.29	-.042	.083	4540.77	-.071	.138	2.	.338	1.655	SI
863.	300.	6.	10	-2840.29	-.043	.074	-5313.03	-.083	.138	2.	.374	1.871	SI
863.	300.	6.	10	2743.29	-.042	.083	4540.77	-.071	.138	2.	.338	1.655	SI

#### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	4310.	3196.	10678.	3784.	.57	20.	2.5	NO	4 5 6
10.	10.	3.	4310.	3196.	10678.	3784.	.57	20.	2.5	NO	4 5 6
12.	12.	3.	4310.	3196.	10678.	3784.	.57	20.	2.5	NO	4 5 6
22.	22.	3.	3983.	3196.	10678.	3784.	.57	20.	2.5	NO	4 5 6
36.	36.	3.	3501.	3196.	10678.	3784.	.57	20.	2.5	NO	5 6
36.	36.	3.	3501.	3196.	10678.	3784.	.57	20.	2.5	NO	5 6
65.	65.	3.	2744.	2942.	10678.	3784.	.57	20.	2.5	NO	5 6
93.	93.	3.	2140.	2942.	10678.	3784.	.57	20.	2.5	NO	5 6
122.	122.	3.	-1812.	3840.	10678.	3784.	.57	20.	2.5	NO	5 6
122.	122.	3.	10.	3840.	10678.	3784.	.57	20.	2.5	NO	5 6
150.	150.	3.	-1956.	3840.	10678.	3784.	.57	20.	2.5	NO	5 6

178.	178.	3.	-2101.	2942.	10678.	3784.	.57	20.	2.5	NO	5	6
207.	207.	3.	-2245.	3196.	10678.	3784.	.57	20.	2.5	NO	5	6
207.	207.	3.	-2245.	3196.	10678.	3784.	.57	20.	2.5	NO	5	6
221.	221.	3.	-2318.	3273.	10678.	3784.	.57	20.	2.5	NO	5	6
231.	231.	3.	-2367.	3726.	10678.	3784.	.57	20.	2.5	NO	5	6
238.	238.	3.	-2367.	3726.	10678.	3784.	.57	20.	2.5	NO	5	6
248.	248.	3.	-2367.	3726.	10678.	3784.	.57	20.	2.5	NO	5	6
> 248.	0.	6.	1526.	5915.	21355.	3784.	.57	20.	2.5	NO	5	6
258.	10.	6.	1526.	5915.	21355.	3784.	.57	20.	2.5	NO	5	6
266.	18.	6.	1526.	5915.	21355.	3784.	.57	20.	2.5	NO	5	6
275.	27.	6.	1456.	5915.	21355.	3784.	.57	20.	2.5	NO	5	6
290.	42.	6.	1353.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
290.	42.	6.	1353.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
323.	75.	6.	1114.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
356.	108.	6.	876.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
389.	141.	6.	-236.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
389.	141.	6.	637.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
422.	174.	6.	-474.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
422.	174.	6.	398.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
455.	207.	6.	-713.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
455.	207.	6.	160.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
488.	240.	6.	-952.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
522.	274.	6.	-1190.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
522.	274.	6.	-1190.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
536.	288.	6.	-1293.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
546.	298.	6.	-1363.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
553.	305.	6.	-1363.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
> 563.	315.	6.	-1363.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
> 563.	0.	6.	-153.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
563.	0.	6.	2356.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
573.	10.	6.	-153.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
573.	10.	6.	2356.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
581.	18.	6.	-153.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
581.	18.	6.	2356.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
590.	27.	6.	-223.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
590.	27.	6.	2286.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	-326.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	2183.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	-326.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	2183.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
636.	72.	6.	-549.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
636.	72.	6.	1960.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
667.	104.	6.	-772.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
667.	104.	6.	1737.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
698.	134.	6.	-995.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
698.	134.	6.	1513.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
729.	166.	6.	-1218.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
729.	166.	6.	1290.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
760.	196.	6.	-1442.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
760.	196.	6.	1067.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
791.	228.	6.	-1665.	6055.	21355.	3784.	.57	20.	2.5	NO	5	6
791.	228.	6.	844.	6055.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	-1888.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	621.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	-1888.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	621.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
836.	273.	6.	-1991.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
836.	273.	6.	517.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
846.	282.	6.	-2061.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
846.	282.	6.	448.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
853.	290.	6.	-2061.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
853.	290.	6.	391.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
863.	300.	6.	-2061.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6
863.	300.	6.	322.	6250.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1072.43!	-30.9!	786.1!	7.23	5.34	.0266	11.52	.031	SI
22.	22.	3.	1.	-774.4	-22.3	567.6	7.23	5.34	.017	11.52	.02	SI
36.	36.	3.	1.	-369.51	-10.6	270.9	7.23	5.34	.0081	11.52	.009	SI
65.	65.	3.	2.	274.48	-7.9	182.8	8.01	5.18	.0055	11.15	.006	SI
122.	122.	3.	3.	781.96!	-24.6	525.2	8.01	5.04	.0158	11.02	.017	SI
248.	248.	3.	4.	-524.71!	-13.9	377.9	7.32	5.45	.0113	11.26	.013	SI
> 248.	0.	6.	5.	-764.92!	-14.4	540.	7.32	5.95	.0162	16.94	.027	SI
323.	75.	6.	6.	-249.95!	-9.7	777.7!	1.57	6.25	.0233	26.79	.063	SI
422.	174.	6.	6.	76.43!	-1.9	82.6	4.71	6.16	.0025	24.03	.006	SI
563.	315.	6.	7.	-529.94!	-11.1	433.9	6.28	6.02	.013	18.2	.024	SI
> 563.	0.	6.	7.	-494.91!	-10.3	405.2!	6.28	6.02	.0122	18.2	.022	SI
698.	134.	6.	8.	330.6	-8.2	357.5	4.71	6.16	.0107	24.03	.026	SI
729.	166.	6.	9.	384.08!	-6.2	183.2	11.	5.59	.0055	13.57	.007	SI
863.	300.	6.	10	-77.82	-1.3	39.8	10.21	5.68	.0012	14.67	.002	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1033.47!	-29.8!	757.5!	7.23	5.34	.0251	11.52	.029!	SI
22.	22.	3.	1.	-750.39!	-21.6!	550.	7.23	5.34	.0165	11.52	.019!	SI
36.	36.	3.	1.	-364.41!	-10.5!	267.1	7.23	5.34	.008	11.52	.009!	SI
65.	65.	3.	2.	256.07!	-7.4!	170.5	8.01	5.18	.0051	11.15	.006!	SI
122.	122.	3.	3.	772.58!	-24.3!	518.9	8.01	5.04	.0156	11.02	.017!	SI
248.	248.	3.	4.	-514.72!	-13.6!	370.7	7.32	5.45	.0111	11.26	.013!	SI
> 248.	0.	6.	5.	-743.07!	-14.	524.5	7.32	5.95	.0157	16.94	.027!	SI
323.	75.	6.	6.	-229.46!	-8.9!	714.	1.57	6.25	.0214	26.79	.057!	SI
422.	174.	6.	6.	85.04!	-2.1!	92.	4.71	6.16	.0028	24.03	.007!	SI
563.	315.	6.	7.	-514.76!	-10.7!	421.5	6.28	6.02	.0126	18.2	.023!	SI

> 563.	0.	6.	7.	-483.27	-10.1	395.7	6.28	6.02	.0119	18.2	.022	SI
698.	134.	6.	8.	320.46	-8.	346.5	4.71	6.16	.0104	24.03	.025	SI
729.	166.	6.	9.	368.15	-5.9	175.6	11.	5.59	.0053	13.57	.007	SI
863.	300.	6.	10	-88.93	-1.4	45.5	10.21	5.68	.0014	14.67	.002	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1017.25!	-29.3!	745.7	7.23	5.34	.0245	11.52	.028!SI
22.	22.	3.	1.	-739.35!	-21.3!	541.9	7.23	5.34	.0163	11.52	.019!SI
36.	36.	3.	1.	-359.97!	-10.4!	263.9	7.23	5.34	.0079	11.52	.009!SI
65.	65.	3.	2.	252.1!	-7.2!	167.9	8.01	5.18	.005	11.15	.006!SI
122.	122.	3.	3.	770.72!	-24.2!	517.7	8.01	5.04	.0155	11.02	.017!SI
248.	248.	3.	4.	-512.61!	-13.6!	369.2	7.32	5.45	.0111	11.26	.012!SI
> 248.	0.	6.	5.	-737.3!	-13.9!	520.5	7.32	5.95	.0156	16.94	.026!SI
323.	75.	6.	6.	-223.84!	-8.7!	696.5!	1.57	6.25	.0209	26.79	.056!SI
422.	174.	6.	6.	85.85!	-2.1!	92.8	4.71	6.16	.0028	24.03	.007!SI
563.	315.	6.	7.	-509.71!	-10.6!	417.4	6.28	6.02	.0125	18.2	.023!SI
> 563.	0.	6.	7.	-479.33!	-10.	392.5!	6.28	6.02	.0118	18.2	.021!SI
698.	134.	6.	8.	316.94!	-7.9!	342.7	4.71	6.16	.0103	24.03	.025!SI
729.	166.	6.	9.	362.66!	-5.8!	173.	11.	5.59	.0052	13.57	.007!SI
863.	300.	6.	10	-88.47!	-1.4!	45.3	10.21	5.68	.0014	14.67	.002!SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	11.84	1.41	7.23	.86	2d10 +3d12 +2d12	4.62	.55	3d14
2	11.84	1.41	3.83	.456	2d10 +2d12	8.01	.954	3d12 +3d14
3	9.58	1.141	1.57	.187	2d10	8.01	.954	3d12 +3d14
4	14.29	1.702	7.32	.871	2d10 +3d12 +1d1 ...	6.97	.83	3d14 +3d10
5	14.29	.851	7.32	.436	2d10 +3d12 +1d1 ...	6.97	.415	3d14 +3d10
6	6.28	.374	1.57	.093	2d10	4.71	.28	1d10 +3d10 +2d10
7	11.	.654	6.28	.374	2d10 +1d10 +2d1 ...	4.71	.28	3d10 +3d10
8	6.28	.374	1.57	.093	2d10	4.71	.28	2d10 +1d10 +3d10
9	18.85	1.122	7.85	.467	2d10 +2d20	11.	.654	2d10 +1d10 +3d1 ...
10	18.85	1.122	10.21	.608	2d10 +2d10 +1d1 ...	8.64	.514	3d10 +2d20

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr18\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A946	3	3	3	0	302.	268.	12.604	1.3	1.564	35.185
2	A337	3	3	3	0	438.	408.	18.229	1.3	1.447	33.224

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	EpscI	Epsac	Mrd	EpscI	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.1.	-24.47	0.	.001	-5538.07	-.087	.138	2.	.386	226.4	SI
10.	10.	3.1.	211.93	-.003	.007	4240.9	-.066	.138	2.	.324	20.01	SI
104.	104.	3.3.	4443.43	-.075	.073	8274.9	-.161	.138	2.	.537	1.862	SI
167.	167.	3.3.	5291.92	-.092	.087	8274.9	-.161	.138	2.	.537	1.564	SI
275.	275.	3.6.	1967.66	-.019	.024	11339.1	-.118	.138	2.	.461	5.763	SI
302.	302.	3.7.	-4344.	-.043	.045	-13181.3	-.142	.138	2.	.506	3.034	SI
302.	302.	3.7.	373.49	-.003	.006	8375.58	-.078	.138	2.	.362	22.43	SI
> 302.	0.	3.7.	-7407.32	-.075	.077	-13181.3	-.142	.138	2.	.506	1.779	SI
312.	10.	3.7.	-7407.32	-.074	.075	-13545.93	-.144	.138	2.	.51	1.829	SI
330.	27.	3.7.	140.53	-.001	.002	8427.71	-.077	.138	2.	.358	59.97	SI
507.	205.	3.10	5116.02	-.092	.094	7404.65	-.144	.138	2.	.51	1.447	SI
671.	368.	3.12	654.23	-.008	.014	6286.07	-.075	.138	2.	.353	19.608	SI
704.	401.	3.13	-8900.39	-.128	.132	-9286.49	-.135	.138	2.	.494	1.043	SI
740.	438.	3.13	-10536.68	-.147	.132	-11007.49	-.156	.138	2.	.529	1.045	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.1.	6163.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.1.	6163.	5884.	21355.	3784.	.57	20.	2.5
18.	18.	3.1.	6163.	5884.	21355.	3784.	.57	20.	2.5
27.	27.	3.1.	5845.	6103.	21355.	3784.	.57	20.	2.5
42.	42.	3.1.	5375.	6103.	21355.	3784.	.57	20.	2.5
42.	42.	3.1.	5375.	6103.	21355.	3784.	.57	20.	2.5
73.	73.	3.1.	4345.	7355.	21355.	3784.	.57	20.	2.5
104.	104.	3.1.	3341.	7856.	21355.	3784.	.57	20.	2.5
136.	136.	3.1.	2638.	7856.	21355.	3784.	.57	20.	2.5
167.	167.	3.1.	-2958.	7856.	21355.	3784.	.57	20.	2.5
198.	198.	3.1.	-4697.	7856.	21355.	3784.	.57	20.	2.5
230.	230.	3.1.	-6824.	5884.	21355.	3784.	.57	20.	2.5
261.	261.	3.1.	-8964.	6695.	21355.	3784.	.57	20.	2.5
261.	261.	3.1.	-8964.	6695.	21355.	3784.	.57	20.	2.5
275.	275.	3.1.	-9942.	7355.	21355.	3784.	.57	20.	2.5
285.	285.	3.1.	-10602.	7355.	21355.	3784.	.57	20.	2.5
293.	293.	3.1.	-10602.	7355.	21355.	3784.	.57	20.	2.5
302.	302.	3.1.	-10602.	7355.	21355.	3784.	.57	20.	2.5
> 302.	0.	3.1.	12171.	9119.	21355.	3784.	.57	20.	2.5
312.	10.	3.1.	12171.	9119.	21355.	3784.	.57	20.	2.5
320.	18.	3.1.	12171.	9119.	21355.	3784.	.57	20.	2.5
330.	27.	3.1.	11548.	7689.	21355.	3784.	.57	20.	2.5
344.	42.	3.1.	10626.	7689.	21355.	3784.	.57	20.	2.5
344.	42.	3.1.	10626.	7689.	21355.	3784.	.57	20.	2.5
377.	74.	3.1.	8522.	6103.	21355.	3784.	.57	20.	2.5
409.	107.	3.1.	6418.	5884.	21355.	3784.	.57	20.	2.5
442.	140.	3.1.	4657.	7536.	21355.	3784.	.57	20.	2.5
475.	172.	3.1.	-151.	7536.	21355.	3784.	.57	20.	2.5
475.	172.	3.1.	3017.	7536.	21355.	3784.	.57	20.	2.5
507.	205.	3.1.	-1517.	7536.	21355.	3784.	.57	20.	2.5
507.	205.	3.1.	1651.	7536.	21355.	3784.	.57	20.	2.5
540.	238.	3.1.	-2884.	7536.	21355.	3784.	.57	20.	2.5
540.	238.	3.1.	284.	7536.	21355.	3784.	.57	20.	2.5
573.	270.	3.1.	-4250.	7536.	21355.	3784.	.57	20.	2.5
605.	303.	3.1.	-6241.	5884.	21355.	3784.	.57	20.	2.5
638.	336.	3.1.	-8309.	7536.	21355.	3784.	.57	20.	2.5
671.	368.	3.1.	-10412.	6986.	21355.	3784.	.57	20.	2.5
704.	401.	3.1.	-12516.	8567.	21355.	3784.	.57	20.	2.5
704.	401.	3.1.	-12516.	8567.	21355.	3784.	.57	20.	2.5
718.	415.	3.1.	-13438.	8567.	21355.	3784.	.57	20.	2.5
728.	425.	3.1.	-14060.	7778.	21355.	3784.	.57	20.	2.5
730.	428.	3.1.	-14060.	7778.	21355.	3784.	.57	20.	2.5
740.	438.	3.1.	-14060.	7778.	21355.	3784.	.57	20.	2.5

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.1.	47.66	-.8	30.7	8.04	5.96	.0009	23.24	.002	SI
42.	42.	3.1.	1074.37	-18.4	691.3	8.04	5.96	.0207	23.24	.048	SI
167.	167.	3.3.	3947.37	-62.9	1247.9	17.15	4.91	.0519	11.1	.058	SI
302.	302.	3.7.	-1835.4	-20.	378.5	26.83	4.83	.0114	8.01	.009	SI
> 302.	0.	3.7.	-4767.35	-52.	983.2	26.83	4.83	.0416	8.01	.033	SI
507.	205.	3.10	3764.58	-62.3	1338.4	15.14	5.05	.0552	11.95	.066	SI
740.	438.	3.13	-7599.71	-98.7	1851.7	22.24	4.82	.084	9.22	.077	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.1.	45.05	-.8	29.	8.04	5.96	.0009	23.24	.002	SI
42.	42.	3.1.	1009.79	-17.3	649.7	8.04	5.96	.0195	23.24	.045	SI
167.	167.	3.3.	3689.17	-58.8	1166.3	17.15	4.91	.0478	11.1	.053	SI
302.	302.	3.7.	-1774.01	-19.4	365.8	26.83	4.83	.011	8.01	.009	SI
> 302.	0.	3.7.	-4353.57	-47.5	897.8	26.83	4.83	.0373	8.01	.03	SI
507.	205.	3.10	3431.88	-56.8	1220.2	15.14	5.05	.0492	11.95	.059	SI
740.	438.	3.13	-6924.2	-89.9	1687.1	22.24	4.82	.0758	9.22	.07	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.1.	41.5	-.7	26.7	8.04	5.96	.0008	23.24	.002	SI
42.	42.	3.1.	987.92	-16.9	635.7	8.04	5.96	.0191	23.24	.044	SI
167.	167.	3.3.	3611.53	-57.6	1141.7	17.15	4.91	.0466	11.1	.052	SI
302.	302.	3.7.	-1733.3	-18.9	357.5	26.83	4.83	.0107	8.01	.009	SI
> 302.	0.	3.7.	-4208.23	-45.9	867.9	26.83	4.83	.0358	8.01	.029	SI
507.	205.	3.10	3320.79	-55.	1180.7	15.14	5.05	.0473	11.95	.057	SI
718.	415.	3.13	-5879.81	-76.3	1432.6	22.24	4.82	.063	9.22	.058	NO
728.	425.	3.13	-6708.13	-87.1	1634.4	22.24	4.82	.0731	9.22	.067	NO



730.	428.	3.	13	-6708.13	-87.1	1634.4	22.24	4.82	.0731	9.22	.067	NO	21
740.	438.	3.	13	-6708.13	-87.1	1634.4	22.24	4.82	.0731	9.22	.067	NO	21

#### ARMATURE LONGITUDINALI (%=100\*Af/Acl - Acl=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.72	1.115	10.68	.636	2d10 +2d14 +3d16	8.04	.479	4d16
2	18.72	1.115	4.65	.277	2d10 +2d14	14.07	.838	4d16 +3d16
3	18.72	1.115	1.57	.093	2d10	17.15	1.021	2d14 +4d16 +3d16
4	27.77	1.653	10.62	.632	2d10 +2d24	17.15	1.021	2d14 +4d16 +3d16
5	30.85	1.836	13.7	.815	2d10 +2d14 +2d24	17.15	1.021	2d14 +4d16 +3d16
6	42.91	2.554	20.8	1.238	2d10 +2d14 +2d1 ...	22.12	1.316	4d16 +4d16 +3d16
7	42.91	2.554	26.83	1.597	2d10 +2d14 +2d1 ...	16.08	.957	4d16 +4d16
8	28.84	1.717	13.7	.815	2d10 +2d14 +2d24	15.14	.901	2d14 +4d16 +2d16
9	19.79	1.178	4.65	.277	2d10 +2d14	15.14	.901	2d14 +4d16 +2d16
10	16.71	.995	1.57	.093	2d10	15.14	.901	2d14 +4d16 +2d16
11	30.28	1.803	15.14	.901	2d10 +3d24	15.14	.901	2d14 +4d16 +2d16
12	30.28	1.803	18.22	1.085	2d10 +2d14 +3d24	12.06	.718	4d16 +2d16
13	30.28	1.803	22.24	1.324	2d10 +2d14 +2d1 ...	8.04	.479	4d16

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
21) Combinazione quasi permanente: superata la tensione massima nel CLS (74.1) [NTC18 4.1.2.2.5].

Nome travata : **Tr26\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A300	3	3	3	0	630.	595.	26.25	1.	3.869	69.078

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-5061.72	-.077	.115	-6062.19	-.093	.138	2.	.403	1.198
0.	0.	3.	1.	512.93	-.007	.017	4246.09	-.065	.138	2.	.318	8.278
144.	144.	3.	3.	1659.76	-.024	.032	7175.22	-.117	.138	2.	.457	4.323
247.	247.	3.	4.	1687.51	-.028	.033	6988.39	-.136	.138	2.	.496	4.141
418.	418.	3.	4.	-248.61	-.007	.04	-861.13	-.025	.138	2.	.154	3.464
452.	452.	3.	3.	1854.34	-.027	.035	7175.22	-.117	.138	2.	.457	3.869
630.	630.	3.	1.	-4577.48	-.069	.104	-6062.19	-.093	.138	2.	.403	1.324
630.	630.	3.	1.	901.88	-.013	.029	4246.09	-.065	.138	2.	.318	4.708

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##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	3157.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	3157.	5884.	21355.	3784.	.57	20.	2.5
18.	18.	3.	3157.	5884.	21355.	3784.	.57	20.	2.5
27.	27.	3.	3087.	6103.	21355.	3784.	.57	20.	2.5
42.	42.	3.	2984.	6103.	21355.	3784.	.57	20.	2.5

42.	42.	3.	2984.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
76.	76.	3.	2738.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
110.	110.	3.	2492.	6258.	21355.	3784.	.57	20.	2.5	NO	5	6
144.	144.	3.	2246.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
178.	178.	3.	2000.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
212.	212.	3.	-132.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
212.	212.	3.	1753.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
247.	247.	3.	-378.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
247.	247.	3.	1507.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
281.	281.	3.	-624.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
281.	281.	3.	1261.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
315.	315.	3.	-870.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
315.	315.	3.	1015.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
349.	349.	3.	-1116.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
349.	349.	3.	769.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
383.	383.	3.	-1362.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
383.	383.	3.	523.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
418.	418.	3.	-1609.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
418.	418.	3.	277.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
452.	452.	3.	-1855.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
452.	452.	3.	30.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
486.	486.	3.	-2101.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
520.	520.	3.	-2347.	6258.	21355.	3784.	.57	20.	2.5	NO	5	6
554.	554.	3.	-2593.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
588.	588.	3.	-2839.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
588.	588.	3.	2839.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
603.	603.	3.	-2943.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
612.	612.	3.	-3012.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
620.	620.	3.	-3012.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
630.	630.	3.	-3012.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-2262.17	-35.6	1012.2	11.75	5.53	.0351	13.53	.048	SI
18.	18.	3.	1.	-2262.17	-35.6	1012.2	11.75	5.53	.0351	13.53	.048	SI
315.	315.	3.	4.	1209.04	-20.4	456.7	14.2	5.12	.0137	12.25	.017	SI
630.	630.	3.	1.	-1781.29	-28.	797.1	11.75	5.53	.0244	13.53	.033	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-2236.98!	-35.2!	1001.	11.75!	5.53!	.0346!	13.53!	.047!	SI
18.	18.	3.	1.	-2236.98!	-35.2!	1001.	11.75!	5.53!	.0346!	13.53!	.047!	SI
315.	315.	3.	4.	1209.42!	-20.4!	456.9!	14.2!	5.12!	.0137!	12.25!	.017!	SI
630.	630.	3.	1.	-1797.34!	-28.3!	804.2!	11.75!	5.53!	.0247!	13.53!	.033!	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-2230.8	-35.1	998.2	11.75	5.53	.0344	13.53	.047	SI
18.	18.	3.	1.	-2230.8	-35.1	998.2	11.75	5.53	.0344	13.53	.047	SI
315.	315.	3.	4.	1209.48	-20.4	456.9	14.2	5.12	.0137	12.25	.017	SI
630.	630.	3.	1.	-1799.87	-28.3	805.4	11.75	5.53	.0248	13.53	.034	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	19.79	1.178	11.75	.699	2d10 +2d14 +2d1	8.04	.479	4d16
2	19.79	1.178	8.67	.516	2d10 +2d14 +2d16	11.12	.662	4d16 +2d14
3	19.79	1.178	5.59	.333	2d10 +2d16	14.2	.845	2d14 +4d16 +2d14
4	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +4d16 +2d14

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * d$  oppure  $Af < 0.0013 * b * d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr17\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max	
1	A310	3	3	3	0	486.	468.	20.237	.4	1.	7.791	23

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epscl	Epsac	Mrd	Epscl	Epsac	Cam	x/d	Mr/Ms	VE
> 10.	10.	3.	1.	-1961.81	-.039	.084	-3218.92	-.066	.138	2.	.322	1.641
24.	24.	3.	1.	83.03	-.002	.005	2470.87	-.053	.138	2.	.275	29.76
121.	121.	3.	3.	-159.26	-.005	.025	-863.76	-.027	.138	2.	.164	5.423
153.	153.	3.	3.	1564.78	-.03	.046	4666.75	-.097	.138	2.	.412	2.982
283.	283.	3.	3.	2071.83	-.04	.061	4666.75	-.097	.138	2.	.412	2.252
486.	486.	3.	1.	381.03	-.008	.021	2470.87	-.053	.138	2.	.275	6.485

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##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	2549.	5884.	21355.	3784.	.57	20.
10.	10.	3.	1.	2458.	5884.	21355.	3784.	.57	20.
10.	10.	3.	1.	2458.	5884.	21355.	3784.	.57	20.
24.	24.	3.	1.	2324.	5884.	21355.	3784.	.57	20.
24.	24.	3.	1.	2324.	5884.	21355.	3784.	.57	20.
56.	56.	3.	1.	2021.	5884.	21355.	3784.	.57	20.
89.	89.	3.	1.	1855.	5884.	21355.	3784.	.57	20.
121.	121.	3.	1.	1553.	5884.	21355.	3784.	.57	20.
153.	153.	3.	1.	1250.	6369.	21355.	3784.	.57	20.
186.	186.	3.	1.	950.	6369.	21355.	3784.	.57	20.
218.	218.	3.	1.	670.	6369.	21355.	3784.	.57	20.
250.	250.	3.	1.	415.	6369.	21355.	3784.	.57	20.
283.	283.	3.	1.	-132.	6369.	21355.	3784.	.57	20.
283.	283.	3.	1.	182.	6369.	21355.	3784.	.57	20.
315.	315.	3.	1.	-365.	6369.	21355.	3784.	.57	20.
347.	347.	3.	1.	-611.	6369.	21355.	3784.	.57	20.
380.	380.	3.	1.	-877.	6369.	21355.	3784.	.57	20.
412.	412.	3.	1.	-1174.	5884.	21355.	3784.	.57	20.
444.	444.	3.	1.	-1476.	5884.	21355.	3784.	.57	20.
444.	444.	3.	1.	-1476.	5884.	21355.	3784.	.57	20.
459.	459.	3.	1.	-1610.	5884.	21355.	3784.	.57	20.
468.	468.	3.	1.	-1701.	5884.	21355.	3784.	.57	20.
476.	476.	3.	1.	-1774.	5884.	21355.	3784.	.57	20.
486.	486.	3.	1.	-1865.	5884.	21355.	3784.	.57	20.

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.	1.	-1046.56	-22.1	882.5	6.09	6.04	.0265	23.56	.062
10.	10.	3.	1.	-1046.56	-22.1	882.5	6.09	6.04	.0265	23.56	.062
24.	24.	3.	1.	-783.87	-16.6	661.	6.09	6.04	.0198	23.56	.047
283.	283.	3.	3.	1592.32	-31.1	913.2	9.14	5.58	.0274	15.51	.042
486.	486.	3.	1.	167.84	-3.8	185.	4.62	6.25	.0056	24.56	.014

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.	1.	-1043.34	-22.1	879.8	6.09	6.04	.0264	23.56	.062
10.	10.	3.	1.	-1043.34	-22.1	879.8	6.09	6.04	.0264	23.56	.062
24.	24.	3.	1.	-780.84	-16.5	658.4	6.09	6.04	.0198	23.56	.047
283.	283.	3.	3.	1589.22	-31.1	911.4	9.14	5.58	.0273	15.51	.042
486.	486.	3.	1.	158.32	-3.6	174.5	4.62	6.25	.0052	24.56	.013

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.	1.	-1042.51	-22.1	879.1	6.09	6.04	.0264	23.56	.062
10.	10.	3.	1.	-1042.51	-22.1	879.1	6.09	6.04	.0264	23.56	.062
24.	24.	3.	1.	-780.05	-16.5	657.8	6.09	6.04	.0197	23.56	.046
283.	283.	3.	3.	1588.37	-31.1	910.9	9.14	5.58	.0273	15.51	.042
486.	486.	3.	1.	155.61	-3.6	171.6	4.62	6.25	.0051	24.56	.013

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	10.71	.638	6.09	.363	2d10 +2d12 +2d12	4.62	.275	3d14
2	10.71	.638	3.83	.228	2d10 +2d12	6.88	.41	3d14 +2d12
3	10.71	.638	1.57	.093	2d10	9.14	.544	2d12 +3d14 +2d12

#### MESSAGGI

5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * d$ ) oppure  $Af < 0.0013 * b * t * d$  [NTC18 4.1.6.1.1].  
 23) Rapporti di snellezza limite per mensole non soddisfatti : occorre la verifica allo stato limite di deformazione [C08 4.1.2.2.2].

Nome travata : Tr12\_p2 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A333	3	3	3	0	255.	220.	10.625	1.	1.279	24.647

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-2424.15	-.05	.089	-3764.22	-.08	.138	2.	.366	1.553
0.	0.	3.	1.	1823.6	-.04	.102	2462.7	-.054	.138	2.	.281	1.35
42.	42.	3.	1.	1925.18	-.042	.108	2462.7	-.054	.138	2.	.281	1.279
70.	70.	3.	2.	1912.64	-.039	.064	4137.64	-.089	.138	2.	.39	2.163
127.	127.	3.	3.	-680.06	-.023	.109	-860.63	-.029	.138	2.	.173	1.266
127.	127.	3.	3.	1627.35	-.036	.054	4088.89	-.098	.138	2.	.414	2.513
156.	156.	3.	3.	-426.98	-.014	.069	-860.63	-.029	.138	2.	.173	2.016
185.	185.	3.	3.	-288.77	-.01	.046	-860.63	-.029	.138	2.	.173	2.98
228.	228.	3.	4.	130.22	-.003	.007	2456.27	-.058	.138	2.	.297	18.86
255.	255.	3.	4.	-587.28	-.013	.031	-2630.99	-.062	.138	2.	.31	4.48

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	2394.	5044.	18305.	3784.	.57	20.	2.5
10.	10.	3.	2394.	5044.	18305.	3784.	.57	20.	2.5
18.	18.	3.	2394.	5044.	18305.	3784.	.57	20.	2.5
27.	27.	3.	2267.	5044.	18305.	3784.	.57	20.	2.5
42.	42.	3.	2079.	5044.	18305.	3784.	.57	20.	2.5
42.	42.	3.	2079.	5044.	18305.	3784.	.57	20.	2.5
70.	70.	3.	-266.	5044.	18305.	3784.	.57	20.	2.5
70.	70.	3.	1703.	5044.	18305.	3784.	.57	20.	2.5
99.	99.	3.	-642.	5044.	18305.	3784.	.57	20.	2.5
99.	99.	3.	1327.	5044.	18305.	3784.	.57	20.	2.5
127.	127.	3.	-1018.	5044.	18305.	3784.	.57	20.	2.5
127.	127.	3.	951.	5044.	18305.	3784.	.57	20.	2.5
156.	156.	3.	-1394.	5044.	18305.	3784.	.57	20.	2.5
156.	156.	3.	575.	5044.	18305.	3784.	.57	20.	2.5
185.	185.	3.	-1770.	5044.	18305.	3784.	.57	20.	2.5
185.	185.	3.	199.	5044.	18305.	3784.	.57	20.	2.5
213.	213.	3.	-2146.	5044.	18305.	3784.	.57	20.	2.5
213.	213.	3.	-2146.	5044.	18305.	3784.	.57	20.	2.5
228.	228.	3.	-2334.	5044.	18305.	3784.	.57	20.	2.5
237.	237.	3.	-2461.	5044.	18305.	3784.	.57	20.	2.5
245.	245.	3.	-2461.	5044.	18305.	3784.	.57	20.	2.5
255.	255.	3.	-2461.	5044.	18305.	3784.	.57	20.	2.5

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-309.87	-6.7	223.	7.23	5.77	.0067	15.83	.011	SI
27.	27.	3.	1.	-156.91	-3.4	112.9	7.23	5.77	.0034	15.83	.005	SI
127.	127.	3.	3.	543.61	-12.2	356.	8.01	5.57	.0107	15.39	.016	SI
255.	255.	3.	4.	-397.28	-9.8	410.5	4.96	6.1	.0123	23.8	.029	SI

## TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Vel	
18.	18.	3.	1.	-292.39	-6.3	210.4	7.23	5.77	.0063	15.83	.01	SI
27.	27.	3.	1.	-150.24	-3.2	108.1	7.23	5.77	.0032	15.83	.005	SI
127.	127.	3.	3.	502.65	-11.3	329.2	8.01	5.57	.0099	15.39	.015	SI
255.	255.	3.	4.	-366.08	-9.1	378.2	4.96	6.1	.0113	23.8	.027	SI

## TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-282.84	-6.1	203.6	7.23	5.77	.0061	15.83	.01	SI
27.	27.	3.	1.	-144.48	-3.1	104.	7.23	5.77	.0031	15.83	.005	SI
127.	127.	3.	3.	490.65	-11.	321.3	8.01	5.57	.0096	15.39	.015	SI
255.	255.	3.	4.	-356.08	-8.8	367.9	4.96	6.1	.011	23.8	.026	SI

## ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	11.84	.822	7.23	.502	2d10 +3d12 +2d12	4.62	.321	3d14
2	11.84	.822	3.83	.266	2d10 +2d12	8.01	.556	3d12 +3d14
3	9.58	.665	1.57	.109	2d10	8.01	.556	3d12 +3d14
4	9.58	.665	4.96	.345	2d10 +3d12	4.62	.321	3d14

## MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * t * d$  oppure  $Af < 0.0013 * b * t * d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr20\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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## SEZIONI UTILIZZATE

- 3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A334	3	3	3	0	417.	342.	17.396	1.	1.097	21.367

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-3901.14	-.068	.115	-4679.72	-.082	.138	2.	.372	1.2	SI
0.	0.	3.	1.	3577.85	-.062	.115	4310.09	-.075	.138	2.	.353	1.205	SI
172.	172.	3.	4.	-250.52	-.008	.04	-860.91	-.029	.138	2.	.174	3.437	NO
205.	205.	3.	4.	557.28	-.012	.02	3894.68	-.094	.138	2.	.405	6.989	SI
238.	238.	3.	4.	-127.02	-.004	.02	-860.91	-.029	.138	2.	.174	6.778	NO
303.	303.	3.	5.	2302.15	-.04	.059	5360.15	-.099	.138	2.	.417	2.328	SI

408.	408.	3.	1.	3930.1	!-.068!	.126!	4310.09	!-.075!	.138	2.	.353	1.097	SI
417.	417.	3.	1.	-2744.41	!-.047!	.081!	-4679.72	!-.082!	.138	2.	.372	1.705	SI
417.	417.	3.	1.	3930.1	!-.068!	.126!	4310.09	!-.075!	.138	2.	.353	1.097	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	-1305.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
0.	0.	3.	2773.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	-1305.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	2773.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	-1305.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	2773.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	-1340.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	2762.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-1391.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	2710.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-1391.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	2710.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
74.	74.	3.	-1509.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
74.	74.	3.	2592.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
107.	107.	3.	-1627.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
107.	107.	3.	2475.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
140.	140.	3.	-1745.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
140.	140.	3.	2357.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
172.	172.	3.	-1863.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
172.	172.	3.	2239.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
205.	205.	3.	-1981.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
205.	205.	3.	2121.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
238.	238.	3.	-2098.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
238.	238.	3.	2003.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
271.	271.	3.	-2216.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
271.	271.	3.	1886.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
303.	303.	3.	-2334.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
303.	303.	3.	1768.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	-2452.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	1650.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	-2452.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	1650.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
350.	350.	3.	-2503.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
350.	350.	3.	1598.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
360.	360.	3.	-2515.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
360.	360.	3.	1564.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
384.	384.	3.	-2515.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
384.	384.	3.	1477.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
408.	408.	3.	-2515.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
408.	408.	3.	1391.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
417.	417.	3.	-2515.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
417.	417.	3.	1357.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-464.19!	-8.6!	270.	8.98	5.68	.0081	14.17	.011	SI
18.	18.	3.	1.	-464.19	-8.6	270.	8.98	5.68	.0081	14.17	.011	SI
42.	42.	3.	1.	-292.95	-5.4	170.4	8.98	5.68	.0051	14.17	.007	SI
74.	74.	3.	2.	-100.88	-2.3	84.8	5.59	5.95	.0025	23.22	.006	SI
205.	205.	3.	4.	307.1!	-7.	211.4	7.6	5.62	.0063	15.72	.01	SI
417.	417.	3.	1.	-20.46	-.4	11.9	8.98	5.68	.0004	14.17	.001	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-459.09!	-8.5!	267.	8.98	5.68	.008	14.17	.011	SI
18.	18.	3.	1.	-459.09!	-8.5!	267.	8.98	5.68	.008	14.17	.011	SI
42.	42.	3.	1.	-288.4	-5.3	167.7	8.98	5.68	.005	14.17	.007	SI
74.	74.	3.	2.	-97.09	-2.2	81.6	5.59	5.95	.0024	23.22	.006	SI
205.	205.	3.	4.	307.54!	-7.	211.7	7.6	5.62	.0064	15.72	.01	SI
417.	417.	3.	1.	-22.94	-.4	13.3	8.98	5.68	.0004	14.17	.001	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-457.89!	-8.5!	266.3!	8.98	5.68	.008	14.17	.011	SI
18.	18.	3.	1.	-457.89!	-8.5!	266.3!	8.98	5.68	.008	14.17	.011	SI
42.	42.	3.	1.	-287.33	-5.3	167.1	8.98	5.68	.005	14.17	.007	SI
74.	74.	3.	2.	-96.19	-2.2	80.9	5.59	5.95	.0024	23.22	.006	SI
205.	205.	3.	4.	307.53!	-7.	211.7	7.6	5.62	.0064	15.72	.01	SI
417.	417.	3.	1.	-23.27	-.4	13.5	8.98	5.68	.0004	14.17	.001	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	17.22	1.196	8.98	.624	2d10 +1d12 +2d1 ...	8.23	.572	2d14 +1d12 +2d16
2	13.19	.916	6.72	.467	2d10 +1d12 +2d16	6.47	.449	2d14 +2d12 +1d12
3	13.19	.916	5.59	.388	2d10 +2d16	7.6	.528	1d12 +2d14 +2d1 ...
4	9.17	.637	1.57	.109	2d10	7.6	.528	1d12 +2d14 +2d1 ...
5	17.22	1.196	6.72	.467	2d10 +1d12 +2d16	10.49	.729	2d14 +2d12 +1d1 ...

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : Tr14\_p2 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A335	3	3	3	0	370.	352.	15.417	.4	1.528	12.214

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
58.	58.	3.	1318.69	-.034	.1	1824.36	-.048	.138	2.	.258	1.383	SI
126.	126.	3.	-309.63	-.011	.047	-910.67	-.033	.138	2.	.194	2.941	NO
159.	159.	3.	-70.34	-.002	.011	-861.5	-.03	.138	2.	.177	12.25	NO
159.	159.	3.	1017.17	-.023	.04	3502.7	-.087	.138	2.	.385	3.444	SI
261.	261.	3.	-236.27	-.008	.038	-861.5	-.03	.138	2.	.177	3.646	NO
328.	328.	3.	31.31	-.001	.002	1824.36	-.048	.138	2.	.258	58.27	SI
370.	370.	3.	-1758.61	-.043	.092	-2624.17	-.065	.138	2.	.32	1.492	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1601.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
10.	10.	3.	1537.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
10.	10.	3.	1537.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
24.	24.	3.	1443.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
24.	24.	3.	1443.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
58.	58.	3.	-14.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
58.	58.	3.	1220.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
92.	92.	3.	-237.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
92.	92.	3.	996.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
126.	126.	3.	-460.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
126.	126.	3.	773.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
159.	159.	3.	-683.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
159.	159.	3.	550.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
193.	193.	3.	-907.	5204.	18305.	3784.	.57	20.	2.5 NO 5 6
193.	193.	3.	326.	5204.	18305.	3784.	.57	20.	2.5 NO 5 6
227.	227.	3.	-1130.	5204.	18305.	3784.	.57	20.	2.5 NO 5 6
227.	227.	3.	103.	5204.	18305.	3784.	.57	20.	2.5 NO 5 6
261.	261.	3.	-1353.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
295.	295.	3.	-1577.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
328.	328.	3.	-1800.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
328.	328.	3.	-1800.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
343.	343.	3.	-1895.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
352.	352.	3.	-1958.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
360.	360.	3.	-1958.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6
370.	370.	3.	-1958.	5044.	18305.	3784.	.57	20.	2.5 NO 5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Scls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
24.	24.	3.	-32.72	-.8	33.8	4.96	6.06	.001	23.65	.002	SI
159.	159.	3.	483.96	-11.5	371.3	6.79	5.72	.0111	16.79	.019	SI
370.	370.	3.	-1005.1	-25.6	1039.	4.96	6.06	.0312	23.65	.074	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve
24.	24.	3.	1.	-37.13	-9	38.4	4.96	6.06	.0012	23.65	.003
159.	159.	3.	2.	478.6	-11.4	367.2	6.79	5.72	.011	16.79	.018
370.	370.	3.	1.	-999.14	-25.5	1032.9	4.96	6.06	.031	23.65	.073

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve
24.	24.	3.	1.	-37.15	-9	38.4	4.96	6.06	.0012	23.65	.003
159.	159.	3.	2.	476.89	-11.3	365.8	6.79	5.72	.011	16.79	.018
370.	370.	3.	1.	-997.02	-25.4	1030.7	4.96	6.06	.0309	23.65	.073

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	8.36	.58	4.96	.345	2d10 +1d12 +2d12	3.39	.236	3d12
2	8.36	.58	1.57	.109	2d10	6.79	.471	1d12 +3d12 +2d12
3	8.36	.58	2.7	.188	2d10 +1d12	5.65	.393	3d12 +2d12

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr6\_p2** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713.;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wmax(fre.)=.4 ; wmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	RARE	FREQUENTI	QUASI PERMANENTI
13.	Rara 1	1.	15.	Frequente 1	17.
14.	Rara 2	1.	16.	Frequente 2	1.

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A339	3	3	3	0	493.	453.	20.558	1.3	1.52	38.395
2	A24	3	3	3	0	323.	280.	13.44	1.3	1.227	32.079

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	EpscI	EpsacI	Mrd	EpscI	EpsacI	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-655.47	-.013	.028	-3266.44	-.066	.138	2.	.324	4.983
18.	18.	3.	1.	193.3	-.004	.011	2471.05	-.052	.138	2.	.275	12.78
143.	143.	3.	3.	2834.94	-.056	.083	4711.38	-.098	.138	2.	.414	1.662
210.	210.	3.	3.	3100.22	-.061	.09	4711.38	-.098	.138	2.	.414	1.52
379.	379.	3.	3.	-457.29	-.014	.073	-863.78	-.027	.138	2.	.163	1.889
379.	379.	3.	3.	1197.2	-.023	.035	4711.38	-.098	.138	2.	.414	3.935
413.	413.	3.	2.	-1261.91	-.03	.104	-1684.39	-.04	.138	2.	.223	1.335
493.	493.	3.	6.	-2601.87	-.04	.064	-5598.34	-.091	.138	2.	.396	2.152
> 493.	0.	3.	6.	-4438.67	-.071	.109	-5598.34	-.091	.138	2.	.396	1.261
516.	22.	3.	7.	89.1	-.001	.002	5729.14	-.082	.138	2.	.373	64.3
573.	80.	3.	7.	2271.33	-.031	.055	5729.14	-.082	.138	2.	.373	2.522
639.	146.	3.	9.	3339.35	-.07	.112	4096.6	-.088	.138	2.	.389	1.227
772.	279.	3.	11	472.97	-.011	.051	1279.39	-.029	.138	2.	.174	2.705
816.	323.	3.	11	-4929.48	-.083	.082	-8149.57	-.151	.138	2.	.522	1.653

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#### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	3512.	5884.	21355.	3784.	.57	20.	2.5



10.	10.	3.	3512.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	3512.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	3512.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	3452.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	3452.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
75.	75.	3.	2667.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
109.	109.	3.	1922.	6014.	21355.	3784.	.57	20.	2.5	NO	5	6
143.	143.	3.	1221.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
177.	177.	3.	554.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
210.	210.	3.	-233.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
210.	210.	3.	63.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
244.	244.	3.	-718.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
278.	278.	3.	-1261.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
312.	312.	3.	-1802.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
346.	346.	3.	-2284.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
379.	379.	3.	-2747.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
413.	413.	3.	-3162.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
447.	447.	3.	-3548.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
447.	447.	3.	-3548.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
461.	461.	3.	-3574.	6031.	21355.	3784.	.57	20.	2.5	NO	5	6
471.	471.	3.	-3574.	6031.	21355.	3784.	.57	20.	2.5	NO	5	6
484.	484.	3.	-3574.	6031.	21355.	3784.	.57	20.	2.5	NO	5	6
493.	493.	3.	-3574.	6031.	21355.	3784.	.57	20.	2.5	NO	5	6
> 493.	0.	3.	9065.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
503.	10.	3.	9065.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
516.	22.	3.	9065.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
526.	32.	3.	9065.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
540.	46.	3.	8857.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
540.	46.	3.	8857.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
573.	80.	3.	6138.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
606.	113.	3.	3535.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
639.	146.	3.	-593.	6079.	21355.	3784.	.57	20.	2.5	NO	5	6
639.	146.	3.	1669.	6079.	21355.	3784.	.57	20.	2.5	NO	5	6
673.	179.	3.	-2264.	6079.	21355.	3784.	.57	20.	2.5	NO	5	6
673.	179.	3.	61.	6079.	21355.	3784.	.57	20.	2.5	NO	5	6
706.	212.	3.	-4220.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
739.	245.	3.	-6692.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
772.	279.	3.	-9110.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
772.	279.	3.	-9110.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
786.	293.	3.	-9289.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
796.	303.	3.	-9289.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
806.	313.	3.	-9289.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5
816.	323.	3.	-9289.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-377.56	-7.9	313.7	6.19	6.03	.0094	23.51	.022	SI
75.	75.	3.	1.	1090.39	-25.	1202.7	4.62	6.25	.0361	24.56	.089	SI
210.	210.	3.	3.	2325.22	-45.2	1320.5	9.24	5.57	.0469	21.72	.102	SI
493.	493.	3.	6.	-1847.7	-30.4	894.3	10.84	5.58	.028	13.8	.039	SI
> 493.	0.	3.	6.	-2800.57	-46.1	1355.5	10.84	5.58	.0511	13.8	.071	SI
639.	146.	3.	9.	2428.58	-49.8	1591.4	7.95	5.71	.0573	16.33	.094	SI
816.	323.	3.	11	-3376.41	-53.3	1091.6	16.71	4.97	.0438	11.14	.049	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-354.09	-7.4	294.2	6.19	6.03	.0088	23.51	.021	SI
75.	75.	3.	1.	1029.86	-23.6	1136.	4.62	6.25	.0341	24.56	.084	SI
210.	210.	3.	3.	2203.65	-42.8	1251.5	9.24	5.57	.0435	21.72	.094	SI
493.	493.	3.	6.	-1809.87	-29.8	876.	10.84	5.58	.0271	13.8	.037	SI
> 493.	0.	3.	6.	-2521.86	-41.6	1220.6	10.84	5.58	.0443	13.8	.061	SI
639.	146.	3.	9.	2153.16	-44.1	1410.9	7.95	5.71	.0483	16.33	.079	SI
816.	323.	3.	11	-3036.1	-48.	981.6	16.71	4.97	.0383	11.14	.043	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-344.02	-7.2	285.8	6.19	6.03	.0086	23.51	.02	SI
75.	75.	3.	1.	1011.21	-23.2	1115.4	4.62	6.25	.0335	24.56	.082	SI
210.	210.	3.	3.	2165.71	-42.1	1229.9	9.24	5.57	.0424	21.72	.092	SI
493.	493.	3.	6.	-1792.65	-29.5	867.7	10.84	5.58	.0267	13.8	.037	SI
> 493.	0.	3.	6.	-2424.37	-39.9	1173.4	10.84	5.58	.042	13.8	.058	SI
639.	146.	3.	9.	2062.37	-42.3	1351.4	7.95	5.71	.0453	16.33	.074	SI
816.	323.	3.	11	-2926.17	-46.2	946.1	16.71	4.97	.0365	11.14	.041	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	10.81	.643	6.19	.368	2d10 +1d14 +2d14	4.62	.275	3d14
2	10.81	.643	3.11	.185	2d10 +1d14	7.7	.458	2d14 +3d14
3	10.81	.643	1.57	.093	2d10	9.24	.55	1d14 +2d14 +3d14
4	12.38	.737	7.76	.462	2d10 +1d14 +2d1 ...	4.62	.275	3d14
5	14.73	.877	7.76	.462	2d10 +1d14 +2d1 ...	6.97	.415	3d14 +3d10
6	17.81	1.06	10.84	.645	2d10 +1d14 +2d1 ...	6.97	.415	3d14 +3d10
7	21.83	1.3	10.84	.645	2d10 +1d14 +2d1 ...	11.	.654	3d14 +3d10 +2d16
8	14.14	.841	3.14	.187	2d10 +2d10	11.	.654	3d14 +3d10 +2d16
9	9.52	.567	1.57	.093	2d10	7.95	.473	2d10 +3d10 +2d16
10	19.07	1.135	15.14	.901	2d10 +3d24	3.93	.234	2d10 +3d10
11	19.07	1.135	16.71	.995	2d10 +2d10 +3d24	2.36	.14	3d10

#### MESSAGGI

4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * t * d$  oppure  $Af < 0.0013 * b * t * d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr25\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054.; Coeff.omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
14.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A159	3	3	3	0	400.	365.	16.667	1.3	2.32	53.844
2	A158	3	3	3	0	412.	377.	17.175	1.5	3.412	93.953
3	A157	3	3	3	0	390.	355.	16.263	1.5	3.793	104.447
4	A156	3	3	3	0	420.	385.	17.5	1.5	3.231	88.959
5	A155	3	3	3	0	405.	370.	16.875	1.5	3.676	101.215
6	A154	3	3	3	0	405.	370.	16.875	1.5	3.422	94.227
7	A153	3	3	3	0	405.	370.	16.875	1.5	3.452	95.055
8	A152	3	3	3	0	405.	370.	16.875	1.5	3.485	95.943
9	A151	3	3	3	0	405.	370.	16.875	1.5	3.482	95.866
10	A150	3	3	3	0	392.	358.	16.354	1.3	4.13	95.852

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-56.12	-.001	.002	-4065.9	-.069	.138	2.	.334	72.45	SI
0.	0.	3.	1.	593.33	-.01	.019	4221.79	-.072	.138	2.	.342	7.115	SI
105.	105.	3.	3.	2861.36	-.049	.056	6988.39	-.136	.138	2.	.496	2.442	SI
137.	137.	3.	3.	3012.14	-.052	.059	6988.39	-.136	.138	2.	.496	2.32	SI
263.	263.	3.	4.	-193.5	-.004	.013	-2063.85	-.039	.138	2.	.219	10.67	SI
358.	358.	3.	6.	5.79	0.	0.	7251.18	-.091	.138	2.	.397	1252.	SI
400.	400.	3.	6.	-3868.09	-.045	.064	-8325.87	-.1	.138	2.	.421	2.152	SI
> 400.	0.	3.	6.	-4114.22	-.048	.068	-8325.87	-.1	.138	2.	.421	2.024	SI
400.	0.	3.	6.	192.14	-.002	.004	7325.66	-.086	.138	2.	.384	38.13	SI
507.	107.	3.	8.	-1276.23	-.025	.085	-2064.32	-.04	.138	2.	.226	1.618	SI
606.	206.	3.	9.	1782.7	-.031	.04	6083.22	-.121	.138	2.	.466	3.412	SI
812.	412.	3.	10	-3652.36	-.044	.061	-8286.5	-.106	.138	2.	.433	2.269	SI
812.	412.	3.	10	582.72	-.007	.013	6314.16	-.077	.138	2.	.358	10.84	SI
> 812.	0.	3.	10	-3838.68	-.047	.064	-8286.5	-.106	.138	2.	.433	2.159	SI
812.	0.	3.	10	553.43	-.006	.012	6314.16	-.077	.138	2.	.358	11.41	SI
915.	103.	3.	8.	-1221.36	-.024	.082	-2064.32	-.04	.138	2.	.226	1.69	SI
1007.	195.	3.	9.	1603.6	-.028	.036	6083.22	-.121	.138	2.	.466	3.793	SI
1175.	363.	3.	11	1119.53	-.013	.024	6325.15	-.075	.138	2.	.35	5.65	SI
1202.	390.	3.	11	-3633.2	-.043	.055	-9048.31	-.114	.138	2.	.451	2.49	SI
1202.	390.	3.	11	773.42	-.009	.017	6325.15	-.075	.138	2.	.35	8.178	SI
> 1202.	0.	3.	11	-3973.49	-.047	.06	-9048.31	-.114	.138	2.	.451	2.277	SI
1202.	0.	3.	11	197.24	-.002	.004	6325.15	-.075	.138	2.	.35	32.07	SI
1311.	109.	3.	8.	-1127.26	-.022	.075	-2064.32	-.04	.138	2.	.226	1.831	SI
1412.	210.	3.	9.	1882.79	-.033	.042	6083.22	-.121	.138	2.	.466	3.231	SI
1622.	420.	3.	10	-3856.38	-.047	.064	-8286.5	-.106	.138	2.	.433	2.149	SI
1622.	420.	3.	10	400.85	-.005	.009	6314.16	-.077	.138	2.	.358	15.75	SI
> 1622.	0.	3.	10	-3159.05	-.038	.052	-8286.5	-.106	.138	2.	.433	2.623	SI
1650.	27.	3.	10	99.61	-.001	.002	6314.16	-.077	.138	2.	.358	63.39	SI
1728.	106.	3.	8.	-1007.82	-.019	.067	-2064.32	-.04	.138	2.	.226	2.048	SI
1825.	202.	3.	8.	1678.63	-.027	.037	6170.8	-.11	.138	2.	.444	3.676	SI
1857.	235.	3.	9.	1553.43	-.027	.035	6083.22	-.121	.138	2.	.466	3.916	SI
1922.	299.	3.	9.	-17.44	-.001	.003	-862.09	-.026	.138	2.	.158	49.44	NO

2028.	405.	3.	13	-2588.35	-.032	.05	-7178.3	-.094	.138	2.	.405	2.773	SI
>2028.	0.	3.	13	-2578.22	-.032	.049	-7178.3	-.094	.138	2.	.405	2.784	SI
2133.	106.	3.	9.	-101.2	-.003	.016	-862.09	-.026	.138	2.	.158	8.519	NO
2133.	106.	3.	9.	828.25	-.014	.018	6083.22	-.121	.138	2.	.466	7.345	SI
2230.	202.	3.	9.	1777.53	-.031	.04	6083.22	-.121	.138	2.	.466	3.422	SI
2327.	299.	3.	9.	-21.44	-.001	.003	-862.09	-.026	.138	2.	.158	40.21	NO
2359.	331.	3.	12	32.31	0.	.001	4756.14	-.078	.138	2.	.362	147.2	SI
2432.	405.	3.	14	-2728.86	-.033	.047	-7949.31	-.102	.138	2.	.425	2.913	SI
>2432.	0.	3.	14	-2729.25	-.033	.047	-7949.31	-.102	.138	2.	.425	2.913	SI
2506.	74.	3.	15	27.58	0.	.001	4756.14	-.078	.138	2.	.362	172.4	SI
2538.	106.	3.	9.	-25.69	-.001	.004	-862.09	-.026	.138	2.	.158	33.56	NO
2538.	106.	3.	9.	705.58	-.012	.016	6083.22	-.121	.138	2.	.466	8.622	SI
2635.	202.	3.	9.	1762.04	-.031	.039	6083.22	-.121	.138	2.	.466	3.452	SI
2732.	299.	3.	9.	-114.17	-.003	.018	-862.09	-.026	.138	2.	.158	7.551	NO
2838.	405.	3.	16	-2608.81	-.033	.05	-7178.3	-.094	.138	2.	.405	2.752	SI
>2838.	0.	3.	16	-2611.6	-.033	.05	-7178.3	-.094	.138	2.	.405	2.749	SI
2943.	106.	3.	9.	-7.48	0.	.001	-862.09	-.026	.138	2.	.158	115.3	NO
2943.	106.	3.	9.	752.21	-.013	.017	6083.22	-.121	.138	2.	.466	8.087	SI
3040.	202.	3.	9.	1745.74	-.031	.039	6083.22	-.121	.138	2.	.466	3.485	SI
3137.	299.	3.	8.	-923.21	-.018	.062	-2064.32	-.04	.138	2.	.226	2.236	SI
3201.	364.	3.	18	444.12	-.005	.01	6325.15	-.075	.138	2.	.35	14.24	SI
3242.	405.	3.	18	-3044.8	-.036	.046	-9048.31	-.114	.138	2.	.451	2.972	SI
>3242.	0.	3.	18	-3761.67	-.044	.057	-9048.31	-.114	.138	2.	.451	2.405	SI
3242.	0.	3.	18	520.71	-.006	.011	6325.15	-.075	.138	2.	.35	12.15	SI
3413.	170.	3.	9.	1628.07	-.029	.036	6083.22	-.121	.138	2.	.466	3.736	SI
3445.	202.	3.	9.	1747.13	-.031	.039	6083.22	-.121	.138	2.	.466	3.482	SI
3509.	267.	3.	9.	-288.19	-.009	.046	-862.09	-.026	.138	2.	.158	2.991	NO
3542.	299.	3.	8.	-1110.73	-.021	.074	-2064.32	-.04	.138	2.	.226	1.859	SI
3606.	364.	3.	19	976.41	-.011	.018	7325.66	-.086	.138	2.	.384	7.503	SI
3648.	405.	3.	19	-3802.78	-.044	.063	-8325.87	-.1	.138	2.	.421	2.189	SI
3648.	405.	3.	19	389.45	-.004	.007	7325.66	-.086	.138	2.	.384	18.81	SI
>3648.	0.	3.	19	-3494.73	-.04	.058	-8325.87	-.1	.138	2.	.421	2.382	SI
3648.	0.	3.	19	794.46	-.009	.015	7325.66	-.086	.138	2.	.384	9.221	SI
3689.	42.	3.	20	1265.66	-.015	.022	7756.9	-.1	.138	2.	.42	6.129	SI
3782.	134.	3.	22	-211.28	-.004	.014	-2063.85	-.039	.138	2.	.219	9.768	SI
3844.	196.	3.	23	1692.04	-.028	.033	6988.39	-.136	.138	2.	.496	4.13	SI
3937.	289.	3.	22	-1264.17	-.023	.085	-2066.51	-.038	.138	2.	.217	1.635	SI
4040.	393.	3.	25	-3923.37	-.061	.106	-5096.64	-.081	.138	2.	.368	1.299	SI
4040.	393.	3.	25	543.05	-.008	.018	4247.76	-.067	.138	2.	.327	7.822	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve				
> 0.	0.	3.	3422.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
10.	10.	3.	3422.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
18.	18.	3.	3422.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
27.	27.	3.	3175.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6	
42.	42.	3.	2811.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6	
42.	42.	3.	2811.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6	
73.	73.	3.	2004.	6799.	21355.	3784.	.57	20.	2.5	NO	5	6	
105.	105.	3.	1225.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
137.	137.	3.	-87.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
137.	137.	3.	603.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
168.	168.	3.	-633.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
168.	168.	3.	62.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
200.	200.	3.	-1225.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
232.	232.	3.	-2032.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6	
263.	263.	3.	-2839.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
295.	295.	3.	-3647.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
327.	327.	3.	-4454.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
358.	358.	3.	-5261.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
358.	358.	3.	-5261.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5	6
373.	373.	3.	-5626.	7175.	21355.	3784.	.57	20.	2.5	NO	4	5	6
382.	382.	3.	-5872.	7175.	21355.	3784.	.57	20.	2.5	NO	4	5	6
390.	390.	3.	-5872.	7175.	21355.	3784.	.57	20.	2.5	NO	4	5	6
400.	400.	3.	-5872.	7175.	21355.	3784.	.57	20.	2.5	NO	4	5	6
> 400.	0.	3.	4977.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
410.	10.	3.	4977.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
418.	18.	3.	4977.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
427.	27.	3.	4731.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5	6
442.	42.	3.	4366.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
442.	42.	3.	4366.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
474.	74.	3.	3548.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
507.	107.	3.	2779.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
540.	140.	3.	-52.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
540.	140.	3.	2278.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
573.	173.	3.	-553.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
573.	173.	3.	1777.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
606.	206.	3.	-1054.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
606.	206.	3.	1276.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
639.	239.	3.	-1556.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
639.	239.	3.	774.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6	
672.	272.	3.	-2057.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
672.	272.	3.	273.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
705.	305.	3.	-2558.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
738.	338.	3.	-3255.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
771.	371.	3.	-4016.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
771.	371.	3.	-4016.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
785.	385.	3.	-4381.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
795.	395.	3.	-4627.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
803.	403.	3.	-4627.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
812.	412.	3.	-4627.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5	6
> 812.	0.	3.	4615.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
822.	10.	3.	4615.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
830.	18.	3.	4615.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
839.	27.	3.	4369.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
854.	42.	3.	4004.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
854.	42.	3.	4004.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6

884.	72.	3.	3335.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
915.	103.	3.	2730.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
946.	134.	3.	-273.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
946.	134.	3.	2262.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
977.	164.	3.	-741.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
977.	164.	3.	1794.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1007.	195.	3.	-1209.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1007.	195.	3.	1326.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1038.	226.	3.	-1677.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1038.	226.	3.	858.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1069.	257.	3.	-2145.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1069.	257.	3.	390.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1100.	287.	3.	-2613.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1130.	318.	3.	-3183.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1161.	349.	3.	-3821.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1161.	349.	3.	-3821.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1175.	363.	3.	-4185.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1185.	373.	3.	-4432.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1193.	381.	3.	-4432.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1202.	390.	3.	-4432.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
>1202.	0.	3.	4967.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1212.	10.	3.	4967.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1220.	18.	3.	4967.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1230.	27.	3.	4720.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1244.	42.	3.	4356.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1244.	42.	3.	4356.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1278.	75.	3.	3510.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1311.	109.	3.	2709.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1345.	143.	3.	-61.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1345.	143.	3.	2195.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1379.	176.	3.	-575.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1379.	176.	3.	1682.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1412.	210.	3.	-1088.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1412.	210.	3.	1169.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1446.	244.	3.	-1601.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1446.	244.	3.	656.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1480.	277.	3.	-2114.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1480.	277.	3.	143.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1514.	311.	3.	-2627.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1547.	345.	3.	-3401.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1581.	378.	3.	-4225.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1581.	378.	3.	-4225.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1595.	393.	3.	-4590.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1605.	402.	3.	-4836.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1613.	410.	3.	-4836.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1622.	420.	3.	-4836.	6986.	21355.	3784.	.57	20.	2.5	NO	4 5 6
>1622.	0.	3.	4799.	7175.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1632.	10.	3.	4799.	7175.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1640.	18.	3.	4799.	7175.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1650.	27.	3.	4553.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1664.	42.	3.	4188.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1664.	42.	3.	4188.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1696.	74.	3.	3368.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1728.	106.	3.	2548.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1761.	138.	3.	1728.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1793.	170.	3.	1062.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1825.	202.	3.	-398.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1825.	202.	3.	511.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1857.	235.	3.	-908.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1857.	235.	3.	20.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1889.	267.	3.	-1551.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
1922.	299.	3.	-2371.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1954.	331.	3.	-3191.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
1986.	364.	3.	-4011.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
1986.	364.	3.	-4011.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2000.	378.	3.	-4376.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2010.	388.	3.	-4622.	7322.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2018.	395.	3.	-4622.	7322.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2028.	405.	3.	-4622.	7322.	21355.	3784.	.57	20.	2.5	NO	4 5 6
>2028.	0.	3.	4670.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2037.	10.	3.	4670.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2045.	18.	3.	4670.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2055.	27.	3.	4423.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2069.	42.	3.	4059.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2069.	42.	3.	4059.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2101.	74.	3.	3239.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
2133.	106.	3.	2419.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
2166.	138.	3.	1599.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
2198.	170.	3.	816.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
2230.	202.	3.	-114.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
2230.	202.	3.	61.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
2262.	235.	3.	-887.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
2294.	267.	3.	-1680.	7010.	21355.	3784.	.57	20.	2.5	NO	5 6
2327.	299.	3.	-2500.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
2359.	331.	3.	-3320.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
2391.	364.	3.	-4140.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2391.	364.	3.	-4140.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2405.	378.	3.	-4505.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2415.	388.	3.	-4751.	7588.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2423.	395.	3.	-4751.	7588.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2432.	405.	3.	-4751.	7588.	21355.	3784.	.57	20.	2.5	NO	4 5 6
>2432.	0.	3.	4743.	7046.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2442.	10.	3.	4743.	7046.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2450.	18.	3.	4743.	7046.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2460.	27.	3.	4497.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2474.	42.	3.	4132.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2474.	42.	3.	4132.	6735.	21355.	3784.	.57	20.	2.5	NO	4 5 6
2506.	74.	3.	3312.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6

2538.	106.	3.	2492.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
2571.	138.	3.	1672.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
2603.	170.	3.	880.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
2635.	202.	3.	-64.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
2635.	202.	3.	107.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
2667.	235.	3.	-823.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
2699.	267.	3.	-1607.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
2732.	299.	3.	-2427.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
2764.	331.	3.	-3247.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
2796.	364.	3.	-4067.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2796.	364.	3.	-4067.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2810.	378.	3.	-4432.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2820.	388.	3.	-4678.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2828.	395.	3.	-4678.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2838.	405.	3.	-4678.	7322.	21355.	3784.	.57	20.	2.5	NO	4	5 6
>2838.	0.	3.	4671.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2847.	10.	3.	4671.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2855.	18.	3.	4671.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2865.	27.	3.	4424.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2879.	42.	3.	4060.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2879.	42.	3.	4060.	6735.	21355.	3784.	.57	20.	2.5	NO	4	5 6
2911.	74.	3.	3240.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
2943.	106.	3.	2420.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
2976.	138.	3.	1600.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3008.	170.	3.	948.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3040.	202.	3.	-476.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3040.	202.	3.	421.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3072.	235.	3.	-1018.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3104.	267.	3.	-1680.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3137.	299.	3.	-2500.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3169.	331.	3.	-3319.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3201.	364.	3.	-4139.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3201.	364.	3.	-4139.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3215.	378.	3.	-4504.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3225.	388.	3.	-4750.	7941.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3233.	395.	3.	-4750.	7941.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3242.	405.	3.	-4750.	7941.	21355.	3784.	.57	20.	2.5	NO	4	5 6
>3242.	0.	3.	4687.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3252.	10.	3.	4687.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3260.	18.	3.	4687.	6986.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3270.	27.	3.	4441.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3284.	42.	3.	4076.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3284.	42.	3.	4076.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3316.	74.	3.	3321.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3348.	106.	3.	2625.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3381.	138.	3.	-220.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3381.	138.	3.	2135.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3413.	170.	3.	-710.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3413.	170.	3.	1645.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3445.	202.	3.	-1200.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3445.	202.	3.	1155.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3477.	235.	3.	-1690.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3477.	235.	3.	664.	7010.	21355.	3784.	.57	20.	2.5	NO	5	6
3509.	267.	3.	-2181.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3509.	267.	3.	174.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3542.	299.	3.	-2671.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3574.	331.	3.	-3367.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3606.	364.	3.	-4123.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3606.	364.	3.	-4123.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3620.	378.	3.	-4487.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3630.	388.	3.	-4734.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3638.	395.	3.	-4734.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3648.	405.	3.	-4734.	7355.	21355.	3784.	.57	20.	2.5	NO	4	5 6
>3648.	0.	3.	4447.	7175.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3657.	10.	3.	4447.	7175.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3665.	18.	3.	4447.	7175.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3675.	27.	3.	4200.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3689.	42.	3.	3836.	6561.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3689.	42.	3.	3836.	6561.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3720.	72.	3.	3172.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3751.	103.	3.	2575.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3782.	134.	3.	-405.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3782.	134.	3.	2104.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3813.	165.	3.	-876.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
3813.	165.	3.	1632.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
3844.	196.	3.	-1347.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
3844.	196.	3.	1161.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
3875.	227.	3.	-1819.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
3875.	227.	3.	690.	7376.	21355.	3784.	.57	20.	2.5	NO	5	6
3906.	258.	3.	-2290.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3906.	258.	3.	219.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3937.	289.	3.	-2761.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3968.	320.	3.	-3370.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
3998.	351.	3.	-4045.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5 6
3998.	351.	3.	-4045.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5 6
4013.	365.	3.	-4410.	6103.	21355.	3784.	.57	20.	2.5	NO	4	5 6
4022.	375.	3.	-4656.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
4030.	383.	3.	-4656.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6
4040.	393.	3.	-4656.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5 6

# VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	560.81	-10.1	361.4	8.04	5.88	.0108	22.95	.025	SI
73.	73.	3.	2.	1668.18	-29.	811.9	11.12	5.5	.0245	21.44	.052	SI
137.	137.	3.	3.	2247.05	-37.9	848.9	14.2	5.12	.0299	12.25	.037	SI

400.	400.	3.	6.	-2790.93!	-35.7!	914.5!	16.15	5.35	.034	11.32	.039	SI
> 400.	0.	3.	6.	-2351.22!	-30.1!	770.4!	16.15	5.35	.0268	11.32	.03	SI
606.	206.	3.	9.	1330.6	-23.6	580.7	12.19	5.29	.0174	13.48	.023	SI
812.	412.	3.	10	-1860.81	-24.6	611.1	16.15	5.3	.0189	11.27	.021	SI
> 812.	0.	3.	10	-1973.93!	-26.1!	648.2!	16.15	5.3	.0208	11.27	.023	SI
1007.	195.	3.	9.	1196.94!	-21.2!	522.4	12.19	5.29	.0157	13.48	.021	SI
1202.	390.	3.	11	-1734.14	-22.3	521.1	17.72	5.19	.0156	10.59	.017	SI
>1202.	0.	3.	11	-2266.18!	-29.2!	680.9	17.72	5.19	.0234	10.59	.025	SI
1412.	210.	3.	9.	1405.29!	-24.9	613.3	12.19	5.29	.0184	13.48	.025	SI
1622.	420.	3.	10	-2082.18!	-27.6	683.8!	16.15	5.3	.0226	11.27	.025	SI
>1622.	0.	3.	10	-2175.54!	-28.8!	714.4	16.15	5.3	.0241	11.27	.027	SI
1825.	202.	3.	8.	1253.37!	-21.2	544.7	12.19	5.36	.0163	13.59	.022	SI
2028.	405.	3.	13	-1932.34!	-26.8	733.4!	13.89	5.46	.0233	12.39	.029	SI
>2028.	0.	3.	13	-1924.85!	-26.7	730.6!	13.89	5.46	.0231	12.39	.029	SI
2230.	202.	3.	9.	1326.5	-23.5	578.9	12.19	5.29	.0174	13.48	.023	SI
2432.	405.	3.	14	-2036.77!	-27.3!	697.5	15.46	5.35	.0228	11.45	.026	SI
>2432.	0.	3.	14	-2037.05!	-27.3!	697.6	15.46	5.35	.0228	11.45	.026	SI
2635.	202.	3.	9.	1315.17!	-23.3	574.	12.19	5.29	.0172	13.48	.023	SI
2838.	405.	3.	16	-1947.24	-27.	739.1!	13.89	5.46	.0236	12.39	.029	SI
>2838.	0.	3.	16	-1949.33	-27.	739.9!	13.89	5.46	.0236	12.39	.029	SI
3040.	202.	3.	9.	1302.78!	-23.1	568.6	12.19	5.29	.0171	13.48	.023	SI
3242.	405.	3.	18	-2059.75!	-26.5	618.9	17.72	5.19	.0203	10.59	.021	SI
>3242.	0.	3.	18	-1969.77!	-25.4	591.9	17.72	5.19	.0189	10.59	.02	SI
3445.	202.	3.	9.	1304.07!	-23.1	569.1	12.19	5.29	.0171	13.48	.023	SI
3648.	405.	3.	19	-2036.73!	-26.1!	667.4!	16.15	5.35	.0217	11.32	.025	SI
>3648.	0.	3.	19	-1684.63!	-21.6!	552.	16.15	5.35	.0166	11.32	.019	SI
3844.	196.	3.	23	1262.88!	-21.3	477.1	14.2	5.12	.0143	12.25	.018	SI
4022.	375.	3.	25	-1966.98!	-32.4!	1045.5	9.99	5.68	.0341	13.7	.047	SI
4040.	393.	3.	25	-1966.98!	-32.4!	1046.9!	9.99	5.68	.0342	13.58	.046	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	483.84	-8.7	311.8	8.04	5.88	.0094	22.95	.021	SI
73.	73.	3.	2.	1421.01	-24.7	691.6	11.12	5.5	.0207	21.44	.044	SI
137.	137.	3.	3.	1905.82	-32.2	720.	14.2	5.12	.0235	12.25	.029	SI
400.	400.	3.	6.	-2338.1	-29.9	766.1	16.15	5.35	.0266	11.32	.03	SI
> 400.	0.	3.	6.	-1985.51	-25.4	650.6	16.15	5.35	.0208	11.32	.024	SI
606.	206.	3.	9.	1119.69	-19.8	488.7	12.19	5.29	.0147	13.48	.02	SI
812.	412.	3.	10	-1554.7	-20.6	510.6	16.15	5.3	.0153	11.27	.017	SI
> 812.	0.	3.	10	-1664.76	-22.	546.7	16.15	5.3	.0164	11.27	.018	SI
1007.	195.	3.	9.	1007.37	-17.9	439.6	12.19	5.29	.0132	13.48	.018	SI
1202.	390.	3.	11	-1451.53	-18.7	436.2	17.72	5.19	.0131	10.59	.014	SI
>1202.	0.	3.	11	-1909.63	-24.6	573.8	17.72	5.19	.018	10.59	.019	SI
1412.	210.	3.	9.	1181.	-20.9	515.4	12.19	5.29	.0155	13.48	.021	SI
1622.	420.	3.	10	-1748.21	-23.2	574.1	16.15	5.3	.0172	11.27	.019	SI
>1622.	0.	3.	10	-1835.45	-24.3	602.8	16.15	5.3	.0185	11.27	.021	SI
1825.	202.	3.	8.	1052.64	-17.8	457.5	12.19	5.36	.0137	13.59	.019	SI
2028.	405.	3.	13	-1621.42	-22.5	615.4	13.89	5.46	.0185	12.39	.023	SI
>2028.	0.	3.	13	-1614.84	-22.4	612.9	13.89	5.46	.0184	12.39	.023	SI
2230.	202.	3.	9.	1116.51	-19.8	487.3	12.19	5.29	.0146	13.48	.02	SI
2432.	405.	3.	14	-1714.29	-23.	587.1	15.46	5.35	.0176	11.45	.02	SI
>2432.	0.	3.	14	-1714.41	-23.	587.1	15.46	5.35	.0176	11.45	.02	SI
2635.	202.	3.	9.	1107.26	-19.6	483.2	12.19	5.29	.0145	13.48	.02	SI
2838.	405.	3.	16	-1633.22	-22.7	619.9	13.89	5.46	.0186	12.39	.023	SI
>2838.	0.	3.	16	-1635.19	-22.7	620.7	13.89	5.46	.0186	12.39	.023	SI
3040.	202.	3.	9.	1094.8	-19.4	477.8	12.19	5.29	.0143	13.48	.019	SI
3242.	405.	3.	18	-1737.35	-22.4	522.	17.72	5.19	.0157	10.59	.017	SI
>3242.	0.	3.	18	-1643.69	-21.2	493.9	17.72	5.19	.0148	10.59	.016	SI
3445.	202.	3.	9.	1097.13	-19.4	478.8	12.19	5.29	.0144	13.48	.019	SI
3648.	405.	3.	19	-1724.19	-22.1	565.	16.15	5.35	.0169	11.32	.019	SI
>3648.	0.	3.	19	-1378.69	-17.7	451.7	16.15	5.35	.0136	11.32	.015	SI
3844.	196.	3.	23	1058.65	-17.9	399.9	14.2	5.12	.012	12.25	.015	SI
4022.	375.	3.	25	-1698.46	-28.	902.7	9.99	5.68	.0271	13.7	.037	SI
4040.	393.	3.	25	-1698.46	-28.	904.	9.99	5.68	.0271	13.58	.037	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	463.32	-8.3	298.6	8.04	5.88	.009	22.95	.021	SI
73.	73.	3.	2.	1360.62	-23.7	662.2	11.12	5.5	.0199	21.44	.043	SI
137.	137.	3.	3.	1821.74	-30.8	688.2	14.2	5.12	.0219	12.25	.027	SI
400.	400.	3.	6.	-2224.35!	-28.5	728.8	16.15	5.35	.0247	11.32	.028	SI
> 400.	0.	3.	6.	-1894.87!	-24.3	620.9	16.15	5.35	.0193	11.32	.022	SI
606.	206.	3.	9.	1067.	-18.9	465.7	12.19	5.29	.014	13.48	.019	SI
812.	412.	3.	10	-1477.31!	-19.6	485.1	16.15	5.3	.0146	11.27	.016	SI
> 812.	0.	3.	10	-1588.21!	-21.	521.6	16.15	5.3	.0156	11.27	.018	SI
1007.	195.	3.	9.	960.02!	-17.	419.	12.19	5.29	.0126	13.48	.017	SI
1202.	390.	3.	11	-1380.06!	-17.8	414.7	17.72	5.19	.0124	10.59	.013	SI
>1202.	0.	3.	11	-1821.22!	-23.5	547.2	17.72	5.19	.0167	10.59	.018	SI
1412.	210.	3.	9.	1124.89!	-19.9	490.9	12.19	5.29	.0147	13.48	.02	SI
1622.	420.	3.	10	-1664.06!	-22.	546.5	16.15	5.3	.0164	11.27	.018	SI
>1622.	0.	3.	10	-1751.15!	-23.2	575.1	16.15	5.3	.0173	11.27	.019	SI
1825.	202.	3.	8.	1002.25!	-16.9	435.6	12.19	5.36	.0131	13.59	.018	SI
2028.	405.	3.	13	-1543.37!	-21.4	585.8	13.89	5.46	.0176	12.39	.022	SI
>2028.	0.	3.	13	-1536.99!	-21.3	583.4	13.89	5.46	.0175	12.39	.022	SI
2230.	202.	3.	9.	1064.13!	-18.9	464.4	12.19	5.29	.0139	13.48	.019	SI
2432.	405.	3.	14	-1633.76!	-21.9	559.5	15.46	5.35	.0168	11.45	.019	SI
>2432.	0.	3.	14	-1633.84!	-21.9	559.5	15.46	5.35	.0168	11.45	.019	SI
2635.	202.	3.	9.	1055.35!	-18.7	460.6	12.19	5.29	.0138	13.48	.019	SI
2838.	405.	3.	16	-1554.47!	-21.6	590.	13.89	5.46	.0177	12.39	.022	SI
>2838.	0.	3.	16	-1556.43!	-21.6	590.8	13.89	5.46	.0177	12.39	.022	SI
3040.	202.	3.	9.	1042.83!	-18.5	455.1	12.19	5.29	.0137	13.48	.018	SI
3242.	405.	3.	18	-1656.92!	-21.3	497.9	17.72	5.19	.0149	10.59	.016	SI
>3242.	0.	3.	18	-1561.89!	-20.1	469.3	17.72	5.19	.0141	10.59	.015	SI
3445.	202.	3.	9.	1045.42!	-18.5	456.3	12.19	5.29	.0137	13.48	.018	SI
3648.	405.	3.	19	-1646.29!	-21.1	539.4	16.15	5.35	.0162	11.32	.018	SI
>3648.	0.	3.	19	-1300.56!	-16.7	426.1	16.15	5.35	.0128	11.32	.014	SI

3844.	196.	3.	23	1007.43	-17.	380.6	14.2	5.12	.0114	12.25	.014	SI
4022.	375.	3.	25	-1633.3	-26.9	868.1	9.99	5.68	.026	13.7	.036	SI
4040.	393.	3.	25	-1633.3	-26.9	869.3	9.99	5.68	.0261	13.58	.035	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.77	.939	7.73	.46	2d10 +2d14 +2d14	8.04	.479	4d16
2	15.77	.939	4.65	.277	2d10 +2d14	11.12	.662	4d16 +2d14
3	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +4d16 +2d14
4	18.03	1.073	3.83	.228	2d10 +2d12	14.2	.845	2d14 +4d16 +2d14
5	21.11	1.257	9.99	.595	2d10 +2d14 +2d1 ...	11.12	.662	4d16 +2d14
6	30.22	1.799	16.15	.961	2d10 +2d14 +2d1 ...	14.07	.838	4d16 +3d16
7	19.1	1.137	9.99	.595	2d10 +2d14 +2d1 ...	9.11	.542	2d14 +3d16
8	16.02	.954	3.83	.228	2d10 +2d12	12.19	.726	2d14 +2d14 +3d16
9	13.76	.819	1.57	.093	2d10	12.19	.726	2d14 +2d14 +3d16
10	28.21	1.679	16.15	.961	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
11	29.78	1.773	17.72	1.055	2d10 +2d10 +2d1 ...	12.06	.718	3d16 +3d16
12	16.84	1.002	7.73	.46	2d10 +2d14 +2d14	9.11	.542	2d14 +3d16
13	25.95	1.545	13.89	.827	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
14	27.52	1.638	15.46	.92	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
15	16.84	1.002	7.73	.46	2d14 +2d14 +2d10	9.11	.542	2d14 +3d16
16	25.95	1.545	13.89	.827	2d14 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
17	19.1	1.137	9.99	.595	2d14 +2d14 +2d1 ...	9.11	.542	2d14 +3d16
18	29.78	1.773	17.72	1.055	2d14 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
19	30.22	1.799	16.15	.961	2d14 +2d14 +2d1 ...	14.07	.838	4d16 +3d16
20	30.22	1.799	13.07	.778	2d14 +2d14 +2d1 ...	17.15	1.021	2d14 +4d16 +3d16
21	21.11	1.257	9.99	.595	2d14 +2d14 +2d1 ...	11.12	.662	2d14 +4d16
22	18.03	1.073	3.83	.228	2d10 +2d12	14.2	.845	2d14 +2d14 +4d16
23	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +2d14 +4d16
24	18.03	1.073	6.91	.411	2d14 +2d10 +2d12	11.12	.662	2d14 +4d16
25	18.03	1.073	9.99	.595	2d14 +2d14 +2d1 ...	8.04	.479	4d16

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr11\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	1.	15. Frequente 1	1.	1.	17. Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	1.	16. Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

<-

#### SEZIONI UTILIZZATE

- 3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=287713.1  
5) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1168	3	3	3	0	125.	90.	5.208	1.3	1.	23.429
2	A135	3	3	3	0	405.	370.	16.875	1.5	4.128	119.593
3	A134	3	3	3	0	405.	370.	16.875	1.5	4.344	130.182
4	A132	3	3	3	0	405.	370.	16.875	1.5	3.318	99.453
5	A142	5	5	5	0	405.	370.	16.875	1.5	3.008	83.774
6	A129	5	5	5	0	432.	398.	18.021	1.3	3.15	75.014

#### VERIFICHE ALLO STATO LIMITE ULTIMO

FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.1.	-2448.84!	-.049!	.069!	-4838.35!	-.102!	.138!	2.	.425!	1.976!	SI
125.	125.	3.1.	-1370.77!	-.027!	.039!	-4838.35!	-.102!	.138!	2.	.425!	3.53!	SI
> 125.	0.	3.1.	-908.86!	-.017!	.026!	-4838.35!	-.102!	.138!	2.	.425!	5.324!	SI
328.	202.	3.3.	979.77!	-.021!	.033!	4044.18!	-.097!	.138!	2.	.412!	4.128!	SI
424.	299.	3.3.	384.14!	-.008!	.013!	4044.18!	-.097!	.138!	2.	.412!	10.53!	SI
456.	331.	3.4.	-443.67!	-.01!	.023!	-2635.53!	-.06!	.138!	2.	.302!	5.94!	SI
456.	331.	3.4.	37.28!	-.001!	.002!	2982.96!	-.067!	.138!	2.	.325!	80.02!	SI
530.	405.	3.5.	-1357.34!	-.023!	.038!	-4908.6!	-.09!	.138!	2.	.393!	3.616!	SI
> 530.	0.	3.5.	-1368.98!	-.023!	.038!	-4908.6!	-.09!	.138!	2.	.393!	3.586!	SI
540.	10.	3.5.	-1368.98!	-.023!	.038!	-4908.6!	-.09!	.138!	2.	.393!	3.586!	SI
636.	106.	3.6.	-34.74!	-.001!	.006!	-861.5!	-.03!	.138!	2.	.177!	24.8!	NO 9
636.	106.	3.6.	286.74!	-.006!	.011!	3502.7!	-.087!	.138!	2.	.385!	12.22!	SI
732.	202.	3.6.	806.37!	-.018!	.032!	3502.7!	-.087!	.138!	2.	.385!	4.344!	SI
829.	299.	3.6.	-153.55!	-.005!	.025!	-861.5!	-.03!	.138!	2.	.177!	5.611!	NO 9
935.	405.	3.8.	-1270.91!	-.023!	.04!	-4350.63!	-.082!	.138!	2.	.372!	3.423!	SI
> 935.	0.	3.8.	-1252.37!	-.022!	.04!	-4350.63!	-.082!	.138!	2.	.372!	3.474!	SI
1009.	74.	3.7.	58.61!	-.001!	.003!	2974.77!	-.07!	.138!	2.	.335!	50.76!	SI
1041.	106.	3.6.	-43.04!	-.001!	.007!	-861.5!	-.03!	.138!	2.	.177!	20.02!	NO 9
1138.	203.	3.6.	-43.79!	-.001!	.007!	-861.5!	-.03!	.138!	2.	.177!	19.68!	NO 9
1170.	235.	3.6.	-259.35!	-.009!	.042!	-861.5!	-.03!	.138!	2.	.177!	3.322!	NO 9
1202.	267.	3.6.	-534.14!	-.018!	.086!	-861.5!	-.03!	.138!	2.	.177!	1.613!	NO 9
1202.	267.	3.6.	1055.52!	-.024!	.041!	3502.7!	-.087!	.138!	2.	.385!	3.318!	SI
1299.	364.	3.11	654.8!	-.009!	.018!	5003.35!	-.075!	.138!	2.	.353!	7.641!	SI
1340.	405.	3.11	-2110.49!	-.031!	.045!	-6464.83!	-.101!	.138!	2.	.421!	3.063!	SI
1340.	405.	3.11	271.73!	-.004!	.007!	5003.35!	-.075!	.138!	2.	.353!	18.41!	SI
> 1340.	0.	5.12	-4856.35!	-.069!	.103!	-6488.22!	-.094!	.138!	2.	.404!	1.336!	SI
1350.	10.	5.12	-4856.35!	-.069!	.103!	-6488.22!	-.094!	.138!	2.	.404!	1.336!	SI
1358.	18.	5.12	105.62!	-.001!	.003!	5017.31!	-.071!	.138!	2.	.34!	47.5!	SI
1414.	74.	5.13	-3036.63!	-.05!	.11!	-3817.97!	-.064!	.138!	2.	.317!	1.257!	SI
1478.	138.	5.15	-210.5!	-.006!	.034!	-862.45!	-.026!	.138!	2.	.159!	4.097!	NO 9
1478.	138.	5.15	1583.89!	-.028!	.037!	5766.71!	-.115!	.138!	2.	.454!	3.641!	SI
1543.	202.	5.15	1916.86!	-.034!	.045!	5766.71!	-.115!	.138!	2.	.454!	3.008!	SI
1704.	363.	5.17	1622.67!	-.019!	.035!	6434.33!	-.08!	.138!	2.	.366!	3.965!	SI
1745.	405.	5.17	-3191.02!	-.039!	.056!	-7892.7!	-.101!	.138!	2.	.422!	2.473!	SI
1745.	405.	5.17	1145.5!	-.014!	.025!	6434.33!	-.08!	.138!	2.	.366!	5.617!	SI
> 1745.	0.	5.17	-3847.72!	-.047!	.067!	-7892.7!	-.101!	.138!	2.	.422!	2.051!	SI
1745.	0.	5.17	425.3!	-.005!	.009!	6434.33!	-.08!	.138!	2.	.366!	15.13!	SI
1882.	137.	5.19	-339.63!	-.01!	.054!	-862.03!	-.026!	.138!	2.	.157!	2.538!	NO 9
1882.	137.	5.19	1701.87!	-.03!	.038!	6140.47!	-.122!	.138!	2.	.468!	3.608!	SI
1945.	200.	5.19	1949.5!	-.034!	.043!	6140.47!	-.122!	.138!	2.	.468!	3.15!	SI
2178.	433.	5.21	-4184.17!	-.07!	.112!	-5169.89!	-.088!	.138!	2.	.389!	1.236!	SI
2178.	433.	5.21	169.36!	-.003!	.007!	3273.7!	-.057!	.138!	2.	.29!	19.33!	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.1730.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
10.	10.	3.1730.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
18.	18.	3.1730.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
27.	27.	3.1623.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
42.	42.	3.1464.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
42.	42.	3.1464.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
62.	62.	3.1231.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
84.	84.	3.1028.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
84.	84.	3.1028.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
98.	98.	3.918.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
108.	108.	3.843.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
115.	115.	3.-60.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
115.	115.	3.843.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
125.	125.	3.-135.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
125.	125.	3.843.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
> 125.	0.	3.2125.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
135.	10.	3.2125.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
142.	18.	3.2125.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
152.	27.	3.2007.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
166.	42.	3.1834.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
166.	42.	3.1834.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
199.	74.	3.1443.	5044.	18305.	3784.	.57	20.	2.5	NO 5 6
231.	106.	3.1052.	5478.	18305.	3784.	.57	20.	2.5	NO 5 6
263.	138.	3.661.	5478.	18305.	3784.	.57	20.	2.5	NO 5 6
295.	170.	3.291.	5478.	18305.	3784.	.57	20.	2.5	NO 5 6
328.	202.	3.-121.	5478.	18305.	3784.	.57	20.	2.5	NO 5 6
360.	235.	3.-512.	5478.	18305.	3784.	.57	20.	2.5	NO 5 6
392.	267.	3.-903.	5478.	18305.	3784.	.57	20.	2.5	NO 5 6
424.	299.	3.-1294.	5478.	18305.	3784.	.57	20.	2.5	NO 5 6
456.	331.	3.-1685.	5044.	18305.	3784.	.57	20.	2.5	NO 5 6
488.	364.	3.-2076.	5314.	18305.	3784.	.57	20.	2.5	NO 5 6
488.	364.	3.-2076.	5314.	18305.	3784.	.57	20.	2.5	NO 5 6
503.	378.	3.-2250.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
512.	388.	3.-2367.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
520.	395.	3.-2367.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
530.	405.	3.-2367.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
> 530.	0.	3.2280.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
540.	10.	3.2280.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
548.	18.	3.2280.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
557.	27.	3.2162.	5819.	18305.	3784.	.57	20.	2.5	NO 5 6
572.	42.	3.1989.	5314.	18305.	3784.	.57	20.	2.5	NO 5 6
572.	42.	3.1989.	5314.	18305.	3784.	.57	20.	2.5	NO 5 6
604.	74.	3.1598.	5044.	18305.	3784.	.57	20.	2.5	NO 5 6
636.	106.	3.1207.	5044.	18305.	3784.	.57	20.	2.5	NO 5 6
668.	138.	3.816.	5204.	18305.	3784.	.57	20.	2.5	NO 5 6
700.	170.	3.455.	5204.	18305.	3784.	.57	20.	2.5	NO 5 6
732.	202.	3.-76.	5204.	18305.	3784.	.57	20.	2.5	NO 5 6
732.	202.	3.117.	5204.	18305.	3784.	.57	20.	2.5	NO 5 6
765.	235.	3.-397.	5204.	18305.	3784.	.57	20.	2.5	NO 5 6
797.	267.	3.-748.	5204.	18305.	3784.	.57	20.	2.5	NO 5 6



>	829.	299.	3.	-1139.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	861.	331.	3.	-1530.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	894.	364.	3.	-1921.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	894.	364.	3.	-1921.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	908.	378.	3.	-2095.	5578.	18305.	3784.	.57	20.	2.5	NO	5	6	
	918.	388.	3.	-2212.	5578.	18305.	3784.	.57	20.	2.5	NO	5	6	
	925.	395.	3.	-2212.	5578.	18305.	3784.	.57	20.	2.5	NO	5	6	
	935.	405.	3.	-2212.	5578.	18305.	3784.	.57	20.	2.5	NO	5	6	
	935.	0.	3.	2211.	5578.	18305.	3784.	.57	20.	2.5	NO	5	6	
	945.	10.	3.	2211.	5578.	18305.	3784.	.57	20.	2.5	NO	5	6	
	952.	18.	3.	2211.	5578.	18305.	3784.	.57	20.	2.5	NO	5	6	
	962.	27.	3.	2093.	5578.	18305.	3784.	.57	20.	2.5	NO	5	6	
	976.	42.	3.	1919.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	976.	42.	3.	1919.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1009.	74.	3.	1528.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1041.	106.	3.	1155.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1073.	138.	3.	884.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1105.	170.	3.	-176.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1105.	170.	3.	627.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1138.	203.	3.	-424.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1138.	203.	3.	378.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1170.	235.	3.	-672.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1170.	235.	3.	130.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1202.	267.	3.	-937.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1234.	299.	3.	-1224.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1266.	331.	3.	-1599.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1299.	364.	3.	-1990.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1299.	364.	3.	-1990.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1313.	378.	3.	-2164.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1323.	388.	3.	-2282.	5832.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1330.	395.	3.	-2282.	5832.	18305.	3784.	.57	20.	2.5	NO	5	6	
	1340.	405.	3.	-2282.	5832.	18305.	3784.	.57	20.	2.5	NO	5	6	
>	1340.	0.	5.	4513.	6463.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1350.	10.	5.	4513.	6463.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1358.	18.	5.	4513.	6463.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1367.	27.	5.	4388.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1382.	42.	5.	4203.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1382.	42.	5.	4203.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1414.	74.	5.	3787.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1446.	106.	5.	2814.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1478.	138.	5.	-35.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1478.	138.	5.	2337.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1510.	170.	5.	-511.	6875.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1510.	170.	5.	1861.	6875.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1543.	202.	5.	-987.	6875.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1543.	202.	5.	1385.	6875.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1575.	235.	5.	-1463.	6875.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1575.	235.	5.	909.	6875.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1607.	267.	5.	-1939.	6875.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1607.	267.	5.	433.	6875.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1639.	299.	5.	-2415.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1671.	331.	5.	-2907.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1704.	363.	5.	-3648.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1704.	363.	5.	-3648.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1718.	378.	5.	-3996.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1728.	387.	5.	-4234.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1735.	395.	5.	-4234.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1745.	405.	5.	-4234.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5	6
>	1745.	0.	5.	4904.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1755.	10.	5.	4904.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1762.	18.	5.	4904.	7034.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1772.	27.	5.	4660.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1786.	42.	5.	4298.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1786.	42.	5.	4298.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	1818.	73.	5.	3514.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1850.	105.	5.	2743.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1882.	137.	5.	-2.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1882.	137.	5.	2236.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1914.	169.	5.	-480.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1914.	169.	5.	1758.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1945.	200.	5.	-957.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1945.	200.	5.	1280.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1977.	232.	5.	-1434.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6	
	1977.	232.	5.	804.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6	
	2009.	264.	5.	-1911.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6	
	2009.	264.	5.	327.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6	
	2041.	296.	5.	-2386.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	2072.	327.	5.	-2892.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	2104.	359.	5.	-3677.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6	
	2136.	391.	5.	-4464.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	2136.	391.	5.	-4464.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	2150.	405.	5.	-4820.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	2160.	415.	5.	-5061.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	2168.	423.	5.	-5061.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
	2178.	433.	5.	-5061.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-1814.68!	-36.8!	1008.3!	9.49	5.47	.0343	13.28	.046!	SI
27.	27.	3.	-1696.25!	-34.4!	942.5!	9.49	5.47	.031	13.28	.041!	SI
62.	62.	3.	-1325.51!	-26.9!	736.5!	9.49	5.47	.0221	13.28	.029!	SI
125.	125.	3.	-1000.53!	-20.3!	555.9!	9.49	5.47	.0167	13.28	.022!	SI
> 125.	0.	3.	-682.46!	-13.8!	379.2!	9.49	5.47	.0114	13.28	.015!	SI
328.	202.	3.	736.27!	-16.6!	487.6!	7.92	5.58	.0146	15.08	.022!	SI
530.	405.	3.	-1020.05!	-19.1!	563.9!	9.49	5.58	.0169	13.43	.023!	SI

> 530.	0.	3.	5.	-1028.81	-19.3	568.8	9.49	5.58	.0171	13.43	.023	SI
732.	202.	3.	6.	605.89	-14.4	464.8	6.79	5.72	.0139	16.79	.023	SI
935.	405.	3.	8.	-934.47	-18.3	583.6	8.36	5.71	.0175	14.52	.025	SI
> 935.	0.	3.	8.	-940.65	-18.4	587.5	8.36	5.71	.0176	14.52	.026	SI
952.	18.	3.	8.	-940.65	-18.4	587.5	8.36	5.71	.0176	14.52	.026	SI
1138.	203.	3.	6.	597.	-14.2	458.	6.79	5.72	.0137	16.79	.023	SI
1340.	405.	3.	11	-1040.41	-16.8	437.8	12.57	5.38	.0131	11.41	.015	SI
>1340.	0.	5.	12	-2837.62	-42.5	1188.5	12.57	5.5	.0448	12.43	.056	SI
1358.	18.	5.	12	-2837.62	-42.5	1188.5	12.57	5.5	.0448	12.43	.056	SI
1543.	202.	5.	15	1434.25	-25.9	661.5	11.5	5.35	.0198	13.62	.027	SI
1745.	405.	5.	17	-1276.83	-17.1	440.6	15.33	5.36	.0132	11.47	.015	SI
>1745.	0.	5.	17	-2098.39	-28.1	724.1	15.33	5.36	.024	11.47	.028	SI
1945.	200.	5.	19	1454.84	-25.7	628.8	12.32	5.28	.0189	13.26	.025	SI
2178.	433.	5.	21	-2366.19	-40.7	1239.4	9.99	5.63	.0439	14.66	.064	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1642.64!	-33.3!	912.7!	9.49	5.47	.0295	13.28	.039!	SI
27.	27.	3.	1.	-1535.7	-31.1!	853.3	9.49	5.47	.0265	13.28	.035!	SI
62.	62.	3.	1.	-1201.73	-24.4	667.7	9.49	5.47	.02	13.28	.027!	SI
125.	125.	3.	1.	-878.22!	-17.8	488.	9.49	5.47	.0146	13.28	.019!	SI
> 125.	0.	3.	1.	-598.82!	-12.1	332.7	9.49	5.47	.01	13.28	.013!	SI
328.	202.	3.	3.	645.22!	-14.6	427.3	7.92	5.58	.0128	15.08	.019!	SI
530.	405.	3.	5.	-893.19!	-16.7!	493.8	9.49	5.58	.0148	13.43	.02!	SI
> 530.	0.	3.	5.	-900.51!	-16.9	497.8	9.49	5.58	.0149	13.43	.02!	SI
732.	202.	3.	6.	531.27!	-12.6	407.6	6.79	5.72	.0122	16.79	.021!	SI
935.	405.	3.	8.	-819.42!	-16.	511.7!	8.36	5.71	.0154	14.52	.022!	SI
> 935.	0.	3.	8.	-824.87!	-16.1!	515.1!	8.36	5.71	.0155	14.52	.022!	SI
952.	18.	3.	8.	-824.87!	-16.1!	515.1!	8.36	5.71	.0155	14.52	.022!	SI
1138.	203.	3.	6.	522.44!	-12.4	400.8	6.79	5.72	.012	16.79	.02!	SI
1340.	405.	3.	11	-912.71!	-14.8	384.	12.57	5.38	.0115	11.41	.013!	SI
>1340.	0.	5.	12	-2524.25!	-37.8!	1057.3	12.57	5.5	.0383	12.43	.048!	SI
1358.	18.	5.	12	-2524.25!	-37.8!	1057.3	12.57	5.5	.0383	12.43	.048!	SI
1543.	202.	5.	15	1241.02!	-22.4	572.4	11.5	5.35	.0172	13.62	.023!	SI
1745.	405.	5.	17	-1035.69!	-13.9	357.4	15.33	5.36	.0107	11.47	.012!	SI
>1745.	0.	5.	17	-1738.72!	-23.3	600.	15.33	5.36	.018	11.47	.021!	SI
1945.	200.	5.	19	1225.26!	-21.6	529.6	12.32	5.28	.0159	13.26	.021!	SI
2178.	433.	5.	21	-2021.35!	-34.8!	1058.8!	9.99	5.63	.0349	14.66	.051!	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-1603.11!	-32.5	890.7!	9.49	5.47	.0284	13.28	.038!	SI
27.	27.	3.	1.	-1499.57!	-30.4	833.2!	9.49	5.47	.0255	13.28	.034!	SI
62.	62.	3.	1.	-1178.01!	-23.9	654.5	9.49	5.47	.0196	13.28	.026	SI
125.	125.	3.	1.	-848.08!	-17.2	471.2	9.49	5.47	.0141	13.28	.019	SI
> 125.	0.	3.	1.	-578.08!	-11.7	321.2	9.49	5.47	.0096	13.28	.013	SI
328.	202.	3.	3.	622.43!	-14.	412.2	7.92	5.58	.0124	15.08	.019	SI
530.	405.	3.	5.	-861.38!	-16.2!	476.2!	9.49	5.58	.0143	13.43	.019	SI
> 530.	0.	3.	5.	-868.31!	-16.3!	480.	9.49	5.58	.0144	13.43	.019	SI
732.	202.	3.	6.	512.62!	-12.2	393.3	6.79	5.72	.0118	16.79	.02	SI
935.	405.	3.	8.	-790.75!	-15.5	493.8!	8.36	5.71	.0148	14.52	.022!	SI
> 935.	0.	3.	8.	-796.05!	-15.6!	497.1!	8.36	5.71	.0149	14.52	.022!	SI
952.	18.	3.	8.	-796.05!	-15.6!	497.1!	8.36	5.71	.0149	14.52	.022!	SI
1138.	203.	3.	6.	503.77!	-12.	386.5	6.79	5.72	.0116	16.79	.019	SI
1340.	405.	3.	11	-880.71!	-14.2	370.6	12.57	5.38	.0111	11.41	.013	SI
>1340.	0.	5.	12	-2452.15!	-36.7!	1027.1!	12.57	5.5	.0368	12.43	.046	SI
1358.	18.	5.	12	-2452.15!	-36.7!	1027.1!	12.57	5.5	.0368	12.43	.046!	SI
1543.	202.	5.	15	1193.58!	-21.6	550.5	11.5	5.35	.0165	13.62	.022	SI
1745.	405.	5.	17	-970.73!	-13.	335.	15.33	5.36	.01	11.47	.012	SI
>1745.	0.	5.	17	-1646.49!	-22.1!	568.1!	15.33	5.36	.017	11.47	.02	SI
1945.	200.	5.	19	1168.04!	-20.6	504.8	12.32	5.28	.0151	13.26	.02	SI
2178.	433.	5.	21	-1937.46!	-33.3!	1014.8!	9.99	5.63	.0327	14.66	.048!	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	12.88	.894	9.49	.659	2d10 +2d12 +2d1 ...	3.39	.236	3d12
2	12.88	.894	7.23	.502	2d10 +2d12 +3d12	5.65	.393	2d12 +3d12
3	9.49	.659	1.57	.109	2d10	7.92	.55	2d12 +2d12 +3d12
4	10.62	.737	4.96	.345	2d10 +1d12 +2d12	5.65	.393	2d12 +3d12
5	16.27	1.13	9.49	.659	2d10 +1d12 +2d1 ...	6.79	.471	3d12 +3d12
6	8.36	.58	1.57	.109	2d10	6.79	.471	1d12 +2d12 +3d12
7	9.49	.659	3.83	.266	2d10 +1d12 +1d12	5.65	.393	2d12 +3d12
8	15.14	1.052	8.36	.58	2d10 +1d12 +1d1 ...	6.79	.471	3d12 +3d12
9	10.62	.737	3.83	.266	2d10 +2d12	6.79	.471	1d12 +2d12 +3d12
10	12.88	.894	7.23	.502	2d10 +2d12 +1d1 ...	5.65	.393	2d12 +3d12
11	22.12	1.536	12.57	.873	2d10 +2d12 +1d1 ...	9.55	.663	3d12 +4d14
12	22.12	1.316	12.57	.748	2d10 +2d12 +1d1 ...	9.55	.568	3d12 +4d14
13	16.46	.98	7.23	.43	2d10 +2d12 +1d1 ...	9.24	.55	2d14 +4d14
14	15.33	.913	3.83	.228	2d10 +2d12	11.5	.684	2d12 +2d14 +4d14
15	13.07	.778	1.57	.093	2d10	11.5	.684	2d12 +2d14 +4d14
16	18.41	1.096	9.17	.546	2d10 +2d12 +2d1 ...	9.24	.55	2d14 +4d14
17	27.65	1.646	15.33	.913	2d10 +2d12 +2d1 ...	12.32	.733	4d14 +4d14
18	16.15	.961	3.83	.228	2d10 +2d12	12.32	.733	2d14 +2d14 +4d14
19	13.89	.827	1.57	.093	2d10	12.32	.733	2d14 +2d14 +4d14
20	16.15	.961	6.91	.411	2d10 +2d14 +2d12	9.24	.55	2d14 +4d14
21	16.15	.961	9.99	.595	2d10 +2d14 +2d1 ...	6.16	.367	4d14

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : Tr24\_p3 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

#### SEZIONI UTILIZZATE

3) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A160	3	3	3	0	630.	595.	26.25	1.	4.51	79.134

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-1354.42	-.021	.039	-4837.71	-.079	.138	2.	.362	3.572
27.	27.	3.	1.	75.79	-.001	.002	4232.74	-.069	.138	2.	.332	55.85
110.	110.	3.	2.	-148.33	-.003	.008	-2493.48	-.045	.138	2.	.244	16.81
144.	144.	3.	3.	1031.1	-.017	.018	7665.57	-.149	.138	2.	.518	17.434
315.	315.	3.	3.	1699.64	-.028	.03	7665.57	-.149	.138	2.	.518	4.51
630.	630.	3.	1.	-1354.42	-.021	.039	-4837.71	-.079	.138	2.	.362	3.572

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1707.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	1655.	5884.	21355.	3784.	.57	20.	2.5
18.	18.	3.	1612.	5884.	21355.	3784.	.57	20.	2.5
27.	27.	3.	1559.	6103.	21355.	3784.	.57	20.	2.5
42.	42.	3.	1481.	6103.	21355.	3784.	.57	20.	2.5
42.	42.	3.	1481.	6103.	21355.	3784.	.57	20.	2.5
76.	76.	3.	1294.	6103.	21355.	3784.	.57	20.	2.5
110.	110.	3.	1108.	5884.	21355.	3784.	.57	20.	2.5
144.	144.	3.	921.	7634.	21355.	3784.	.57	20.	2.5
178.	178.	3.	743.	7634.	21355.	3784.	.57	20.	2.5
212.	212.	3.	571.	7634.	21355.	3784.	.57	20.	2.5
247.	247.	3.	407.	7634.	21355.	3784.	.57	20.	2.5
281.	281.	3.	-1.	7634.	21355.	3784.	.57	20.	2.5
281.	281.	3.	263.	7634.	21355.	3784.	.57	20.	2.5
315.	315.	3.	-145.	7634.	21355.	3784.	.57	20.	2.5
315.	315.	3.	120.	7634.	21355.	3784.	.57	20.	2.5
349.	349.	3.	-289.	7634.	21355.	3784.	.57	20.	2.5
383.	383.	3.	-432.	7634.	21355.	3784.	.57	20.	2.5
418.	418.	3.	-600.	7634.	21355.	3784.	.57	20.	2.5
452.	452.	3.	-778.	7634.	21355.	3784.	.57	20.	2.5
486.	486.	3.	-960.	7634.	21355.	3784.	.57	20.	2.5
520.	520.	3.	-1146.	5884.	21355.	3784.	.57	20.	2.5
554.	554.	3.	-1333.	6103.	21355.	3784.	.57	20.	2.5
588.	588.	3.	-1520.	6103.	21355.	3784.	.57	20.	2.5
588.	588.	3.	-1520.	6103.	21355.	3784.	.57	20.	2.5
603.	603.	3.	-1598.	6398.	21355.	3784.	.57	20.	2.5
612.	612.	3.	-1651.	5884.	21355.	3784.	.57	20.	2.5
620.	620.	3.	-1693.	5884.	21355.	3784.	.57	20.	2.5
630.	630.	3.	-1746.	5884.	21355.	3784.	.57	20.	2.5

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	-839.27	-14.3	471.7	9.27	5.76	.0141	15.82	.022
315.	315.	3.	3.	1308.03	-21.4	448.4	15.74	5.01	.0135	11.44	.015
630.	630.	3.	1.	-1041.86	-17.7	585.5	9.27	5.76	.0176	15.82	.028

## TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-839.28	-14.3	471.7	9.27	5.76	.0141	15.82	.022	SI
315.	315.	3.	3.	1310.29	-21.4	449.2	15.74	5.01	.0135	11.44	.015	SI
630.	630.	3.	1.	-1041.86	-17.7	585.5	9.27	5.76	.0176	15.82	.028	SI

## TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-839.28	-14.3	471.7	9.27	5.76	.0141	15.82	.022	SI
315.	315.	3.	3.	1310.53	-21.4	449.3	15.74	5.01	.0135	11.44	.015	SI
630.	630.	3.	1.	-1041.86	-17.7	585.5	9.27	5.76	.0176	15.82	.028	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	17.31	1.03	9.27	.552	2d10 +2d14 +3d14	8.04	.479	4d16
2	17.31	1.03	4.65	.277	2d10 +2d14	12.66	.754	4d16 +3d14
3	17.31	1.03	1.57	.093	2d10	15.74	.937	2d14 +4d16 +3d14

## MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr23\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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## SEZIONI UTILIZZATE

- 1) Rettangolare: 80x24; A=1920.; Jg=92160.; E=287713.1  
 5) Rettangolare: 60x50; A=3000.; Jg=625000.; E=287713.1  
 7) Rettangolare: 60x24; A=1440.; Jg=69120.; E=287713.1  
 8) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1655	1	1	1	0	400.	360.	16.667	1.3	2.046	48.788
2	A163	5	5	5	0	412.	370.	8.25	1.5	1.533	44.859
3	A162	5	5	5	0	390.	348.	7.8	1.5	2.48	68.02
4	A161	5	5	5	0	420.	375.	8.4	1.5	1.318	38.565
5	A144	1	1	1	0	405.	365.	16.875	1.5	2.506	70.966
6	A145	1	1	1	0	405.	370.	16.875	1.5	2.952	83.6
7	A146	1	1	1	0	405.	370.	16.875	1.5	2.537	71.838
8	A147	1	1	1	0	405.	370.	16.875	1.5	2.763	78.244
9	A148	1	1	1	0	405.	370.	16.875	1.5	2.674	75.731
10	A149	1	1	1	0	392.	358.	16.354	1.5	2.815	79.702
11	A184	7	7	7	0	302.	267.	12.574	1.5	4.516	120.623
12	A185	1	1	1	0	379.	344.	15.795	1.5	4.36	131.811
13	A186	8	8	8	0	230.	195.	9.583	1.3	1.67	42.725

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE		
>	0.	0.	1.	1.	-447.	-.007	.015	-4081.23	-.065	.138	2.	.321	9.13	SI
	0.	0.	1.	1.	195.09	-.003	.006	4238.24	-.068	.138	2.	.328	21.73	SI
104.	104.	1.	3.	3.	3020.48	-.047	.058	7064.08	-.123	.138	2.	.472	2.339	SI

166.	166.	1.	3.	3452.95	-.055	.067	7064.08	-.123	.138	2.	.472	2.046	SI	9
291.	291.	1.	3.	-342.86	-.01	.055	-864.75	-.024	.138	2.	.15	2.522	NO	
322.	322.	1.	2.	-1172.79	-.021	.068	-2385.17	-.043	.138	2.	.239	2.034	SI	
390.	390.	1.	6.	286.09	-.001	.002	17968.51	-.055	.138	2.	.283	62.81	SI	
400.	400.	1.	6.	-2640.12	-.002	-.02	-21756.5	-.067	-.292	4.	.327	8.241	SI	
400.	400.	1.	6.	7.16	0.	0.	17968.51	-.055	.138	2.	.283	2510.	SI	
> 400.	0.	5.	7.	-10242.77	-.034	.051	-27427.15	-.098	.138	2.	.414	2.678	SI	
400.	0.	5.	7.	11650.93	-.039	.09	17857.81	-.06	.138	2.	.304	1.533	SI	
518.	118.	5.	10	-5308.06	-.02	.055	-13388.78	-.051	.138	2.	.268	2.522	SI	9
518.	118.	5.	10	8236.8	-.031	.055	20534.9	-.08	.138	2.	.367	2.493	SI	
608.	208.	5.	11	-596.3	-.002	.006	-13314.91	-.054	.138	2.	.281	22.33	SI	
771.	371.	5.	14	-12710.78	-.045	.089	-19800.74	-.072	.138	2.	.343	1.558	SI	
812.	412.	5.	14	-12710.78	-.044	.083	-21167.06	-.075	.138	2.	.35	1.665	SI	
812.	412.	5.	14	4743.01	-.016	.036	18389.49	-.064	.138	2.	.315	3.877	SI	
> 812.	0.	5.	14	-11778.97	-.04	.077	-21167.06	-.075	.138	2.	.35	1.797	SI	
812.	0.	5.	14	6767.35	-.023	.051	18389.49	-.064	.138	2.	.315	2.717	SI	
854.	41.	5.	15	-11778.97	-.042	.086	-18918.64	-.07	.138	2.	.335	1.606	SI	9
854.	41.	5.	15	6393.29	-.023	.047	18663.14	-.069	.138	2.	.331	2.919	SI	
924.	111.	5.	11	-6257.92	-.025	.065	-13314.91	-.054	.138	2.	.281	2.128	SI	
1006.	194.	5.	11	-1156.79	-.005	.012	-13314.91	-.054	.138	2.	.281	11.51	SI	
1144.	332.	5.	18	-9838.52	-.041	.09	-15047.9	-.064	.138	2.	.315	1.529	SI	
1181.	369.	5.	14	7412.2	-.025	.056	18385.21	-.064	.138	2.	.315	2.48	SI	
1202.	390.	5.	14	-11011.	-.038	.072	-21167.06	-.075	.138	2.	.35	1.922	SI	
1202.	390.	5.	14	7412.2	-.025	.056	18389.49	-.064	.138	2.	.315	2.481	SI	
> 1202.	0.	5.	14	-14131.08	-.049	.092	-21167.06	-.075	.138	2.	.35	1.498	SI	9
1202.	0.	5.	14	3001.5	-.01	.023	18389.49	-.064	.138	2.	.315	6.127	SI	
1246.	44.	5.	14	-14131.08	-.05	.098	-20006.88	-.073	.138	2.	.344	1.416	SI	
1367.	164.	5.	19	2242.28	-.01	.032	9751.78	-.047	.138	2.	.252	4.349	SI	
1412.	210.	5.	10	-279.37	-.001	.003	-13388.78	-.051	.138	2.	.268	47.92	SI	
1412.	210.	5.	10	3965.56	-.015	.027	20534.9	-.08	.138	2.	.367	5.178	SI	
1601.	399.	5.	22	13423.25	-.045	.105	17687.66	-.059	.138	2.	.3	1.318	SI	
1622.	420.	5.	22	-8593.66	-.029	.044	-27102.36	-.096	.138	2.	.41	3.154	SI	
1622.	420.	5.	22	13423.25	-.045	.105	17687.66	-.059	.138	2.	.3	1.318	SI	9
> 1622.	0.	1.	23	-2873.95	-.003	-.022	-21743.9	-.071	-.299	4.	.338	7.566	SI	
1632.	10.	1.	23	113.27	0.	.001	17778.01	-.054	.138	2.	.279	157.	SI	
1732.	110.	1.	26	-477.1	-.014	.076	-865.65	-.025	.138	2.	.153	1.814	NO	
1732.	110.	1.	26	2001.45	-.032	.044	6200.8	-.111	.138	2.	.444	3.098	SI	
1828.	205.	1.	26	2474.33	-.04	.054	6200.8	-.111	.138	2.	.444	2.506	SI	
1923.	300.	1.	26	-178.96	-.005	.029	-865.65	-.025	.138	2.	.153	4.837	NO	
2028.	405.	1.	28	-3982.77	-.047	.076	-7202.21	-.088	.138	2.	.39	1.808	SI	
> 2028.	0.	1.	28	-3973.43	-.047	.076	-7202.21	-.088	.138	2.	.39	1.813	SI	9
2133.	106.	1.	26	-455.38	-.013	.073	-865.65	-.025	.138	2.	.153	1.901	NO	
2133.	106.	1.	26	768.21	-.012	.017	6200.8	-.111	.138	2.	.444	8.072	SI	
2230.	202.	1.	26	2100.41	-.034	.046	6200.8	-.111	.138	2.	.444	2.952	SI	
2327.	299.	1.	26	-71.51	-.002	.011	-865.65	-.025	.138	2.	.153	12.11	NO	
2432.	405.	1.	30	-3556.22	-.041	.061	-7976.31	-.096	.138	2.	.409	2.243	SI	
> 2432.	0.	1.	30	-3530.09	-.04	.061	-7976.31	-.096	.138	2.	.409	2.26	SI	
2538.	106.	1.	26	1032.08	-.016	.023	6200.8	-.111	.138	2.	.444	6.008	SI	
2635.	202.	1.	26	2444.33	-.04	.054	6200.8	-.111	.138	2.	.444	2.537	SI	9
2732.	299.	1.	26	-12.42	0.	.002	-865.65	-.025	.138	2.	.153	69.72	NO	
2837.	405.	1.	32	-3311.74	-.039	.063	-7202.21	-.088	.138	2.	.39	2.175	SI	
> 2837.	0.	1.	32	-3321.36	-.039	.064	-7202.21	-.088	.138	2.	.39	2.168	SI	
3040.	203.	1.	26	2244.2	-.036	.049	6200.8	-.111	.138	2.	.444	2.763	SI	
3104.	267.	1.	33	-368.44	-.006	.019	-2665.67	-.045	.138	2.	.244	7.235	SI	
3201.	364.	1.	35	205.95	-.002	.004	6472.	-.071	.138	2.	.338	31.43	SI	
3243.	405.	1.	35	-4141.03	-.045	.059	-9626.94	-.111	.138	2.	.446	2.325	SI	
> 3243.	0.	1.	35	-4677.34	-.051	.067	-9626.94	-.111	.138	2.	.446	2.058	SI	9
3243.	0.	1.	35	54.14	-.001	.001	6472.	-.071	.138	2.	.338	119.5	SI	
3348.	106.	1.	33	-1302.71	-.022	.067	-2665.67	-.045	.138	2.	.244	2.046	SI	
3445.	202.	1.	26	2318.65	-.037	.051	6200.8	-.111	.138	2.	.444	2.674	SI	
3648.	405.	1.	36	-4372.87	-.049	.068	-8866.29	-.104	.138	2.	.43	2.028	SI	
3648.	405.	1.	36	261.22	-.003	.006	6462.63	-.073	.138	2.	.345	24.74	SI	
> 3648.	0.	1.	36	-4209.68	-.047	.065	-8866.29	-.104	.138	2.	.43	2.106	SI	
3648.	0.	1.	36	952.21	-.01	.02	6462.63	-.073	.138	2.	.345	6.787	SI	
3751.	103.	1.	33	-1082.52	-.018	.056	-2665.67	-.045	.138	2.	.244	2.462	SI	9
3844.	196.	1.	33	2239.21	-.033	.049	6302.29	-.099	.138	2.	.416	2.815	SI	
3937.	289.	1.	33	-1554.72	-.026	.081	-2665.67	-.045	.138	2.	.244	1.715	SI	
4040.	392.	1.	38	-4987.2	-.059	.075	-9157.54	-.116	.138	2.	.455	1.836	SI	
4040.	392.	1.	38	266.44	-.003	.007	5053.6	-.06	.138	2.	.304	18.97	SI	
> 4040.	0.	7.	39	-1801.42	-.024	.027	-9088.77	-.134	.138	2.	.493	5.045	SI	
4040.	0.	7.	39	1053.1	-.013	.029	5032.42	-.066	.138	2.	.323	4.779	SI	
4082.	41.	7.	39	1114.37	-.014	.031	5032.42	-.066	.138	2.	.323	4.516	SI	
4113.	73.	7.	40	1106.56	-.022	.059	2598.88	-.052	.138	2.	.274	2.349	SI	9
4269.	229.	7.	42	115.	-.003	.006	2579.1	-.06	.138	2.	.303	22.43	SI	
4342.	302.	7.	43	-897.7	-.014	.021	-5928.72	-.099	.138	2.	.418	6.604	SI	
> 4342.	0.	1.	44	-1330.56	-.018	.031	-5978.43	-.086	.138	2.	.384	4.493	SI	
4383.	41.	1.	44	78.98	-.001	.003	4299.49	-.069	.138	2.	.332	54.44	SI	
4416.	74.	1.	45	-369.26	-.011	.047	-1077.77	-.032	.138	2.	.188	2.919	SI	
4449.	107.	1.	46	776.49	-.013	.022	4750.57	-.09	.138	2.	.393	6.118	SI	
4515.	173.	1.	46	1089.47	-.019	.031	4750.57	-.09	.138	2.	.393	4.36	SI	
4614.	272.	1.	46	-26.52	-.001	.004	-867.38	-.026	.138	2.	.158	32.7	NO	9
4721.	379.	1.	48	-1184.66	-.016	.027	-5978.43	-.086	.138	2.	.384	5.047	SI	
> 4721.	0.	8.	49	-1234.67	-.018	.028	-5954.09	-.092	.138	2.	.4	4.822	SI	
4792.	71.	8.	50	308.69	-.006	.014	3003.64	-.06	.138	2.	.301	9.73	SI	
4821.	100.	8.	51	-990.96	-.021	.055	-2486.16	-.053	.138	2.	.279	2.509	SI	
4880.	159.	8.	52	1983.95	-.027	.045	6071.06	-.086	.138	2.	.384	3.06	SI	
4941.	220.	8.	53	2967.58	-.041	.083	4955.89	-.07	.138	2.	.336	1.67	SI	
4951.	230.	8.	53	-1839.07	-.025	.038	-6670.57	-.096	.138	2.	.41	3.627	SI	
4951.	230.	8.	53	2967.58	-.041	.083	4955.89	-.07	.138	2.	.336	1.67	SI	

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	1.	4037.	6725.	24406.	3784.	.57	20.	2.5 NO
10.	10.	1.	4037.	6725.	24406.	3784.	.57	20.	2.5 NO
18.	18.	1.	4037.	6725.	24406.	3784.	.57	20.	2.5 NO
27.	27.	1.	3783.	6725.	24406.	3784.	.57	20.	2.5 NO
42.	42.	1.	3407.	6725.	24406.	3784.	.57	20.	2.5 NO

42.	42.	1.	3407.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6
73.	73.	1.	2588.	7432.	24406.	3784.	.57	20.	2.5	NO	5	6
104.	104.	1.	1769.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6
135.	135.	1.	1047.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6
166.	166.	1.	-280.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6
166.	166.	1.	553.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6
198.	198.	1.	-774.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6
198.	198.	1.	60.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6
229.	229.	1.	-1497.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6
260.	260.	1.	-2305.	8063.	24406.	3784.	.57	20.	2.5	NO	5	6
291.	291.	1.	-3123.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6
322.	322.	1.	-3942.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5 6
354.	354.	1.	-4761.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5 6
354.	354.	1.	-4761.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5 6
368.	368.	1.	-5137.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5 6
378.	378.	1.	-5391.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5 6
390.	390.	1.	-5391.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5 6
400.	400.	1.	-5391.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5 6
> 400.	0.	5.	-2973.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
400.	0.	5.	7439.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
421.	21.	5.	-2973.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
421.	21.	5.	7439.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
422.	22.	5.	-2973.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
422.	22.	5.	7439.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
444.	44.	5.	-3369.	9442.	40441.	11889.	1.01	25.	2.5	NO	6	
444.	44.	5.	7043.	9442.	40441.	11889.	1.01	25.	2.5	NO	6	
458.	58.	5.	-3634.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
458.	58.	5.	6778.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
472.	72.	5.	-3899.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
472.	72.	5.	6513.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
472.	72.	5.	-3899.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
472.	72.	5.	6513.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
518.	118.	5.	-4733.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
518.	118.	5.	5679.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
562.	162.	5.	-5567.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
562.	162.	5.	4846.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
608.	208.	5.	-6400.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
608.	208.	5.	4012.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
652.	252.	5.	-7234.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
652.	252.	5.	3179.	8569.	40441.	11889.	1.01	25.	2.5	NO	6	
698.	298.	5.	-8068.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
698.	298.	5.	2345.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
742.	342.	5.	-8901.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
742.	342.	5.	1511.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
742.	342.	5.	-8901.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
742.	342.	5.	1511.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
757.	357.	5.	-9166.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
757.	357.	5.	1246.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
771.	371.	5.	-9431.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
771.	371.	5.	981.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
791.	391.	5.	-9802.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
791.	391.	5.	611.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
792.	392.	5.	-9827.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
792.	392.	5.	585.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
812.	412.	5.	-9827.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
812.	412.	5.	215.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
> 812.	0.	5.	-1789.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
812.	0.	5.	8600.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
832.	20.	5.	-1789.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
832.	20.	5.	8600.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
834.	21.	5.	-1815.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
834.	21.	5.	8574.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
854.	41.	5.	-2185.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
854.	41.	5.	8204.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
868.	56.	5.	-2450.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
868.	56.	5.	7938.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
882.	70.	5.	-2716.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
882.	70.	5.	7673.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
882.	70.	5.	-2716.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
882.	70.	5.	7673.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
924.	111.	5.	-3480.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
924.	111.	5.	6909.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
965.	152.	5.	-4244.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
965.	152.	5.	6145.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1006.	194.	5.	-5008.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1006.	194.	5.	5381.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1048.	235.	5.	-5772.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1048.	235.	5.	4617.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1089.	276.	5.	-6536.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1089.	276.	5.	3852.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1130.	318.	5.	-7300.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1130.	318.	5.	3088.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1130.	318.	5.	-7300.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1130.	318.	5.	3088.	8702.	40441.	11889.	1.01	25.	2.5	NO	6	
1144.	332.	5.	-7566.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
1144.	332.	5.	2823.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
1159.	346.	5.	-7831.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
1159.	346.	5.	2558.	8991.	40441.	11889.	1.01	25.	2.5	NO	6	
1180.	368.	5.	-8227.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
1180.	368.	5.	2162.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
1181.	369.	5.	-8227.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
1181.	369.	5.	2141.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
1202.	390.	5.	-8227.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
1202.	390.	5.	1745.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
> 1202.	0.	5.	10598.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
1224.	21.	5.	10598.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
1225.	22.	5.	10598.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	
1246.	44.	5.	-15.	8610.	40441.	11889.	1.01	25.	2.5	NO	6	

1246.	44.	5.	10202.	8610.	40441.	11889.	1.01	25.	2.5	NO	6
1261.	58.	5.	-281.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1261.	58.	5.	9937.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1275.	72.	5.	-546.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1275.	72.	5.	9672.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1275.	72.	5.	-546.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1275.	72.	5.	9672.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1321.	118.	5.	-1395.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1321.	118.	5.	8823.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1367.	164.	5.	-2244.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1367.	164.	5.	7974.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1412.	210.	5.	-3093.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1412.	210.	5.	7125.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1458.	256.	5.	-3942.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1458.	256.	5.	6276.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1504.	302.	5.	-4791.	8702.	40441.	11889.	1.01	25.	2.5	NO	6
1504.	302.	5.	5426.	8702.	40441.	11889.	1.01	25.	2.5	NO	6
1550.	348.	5.	-5640.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1550.	348.	5.	4577.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1550.	348.	5.	-5640.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1550.	348.	5.	4577.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1564.	362.	5.	-5905.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1564.	362.	5.	4312.	8991.	40441.	11889.	1.01	25.	2.5	NO	6
1579.	376.	5.	-6170.	9442.	40441.	11889.	1.01	25.	2.5	NO	6
1579.	376.	5.	4047.	9442.	40441.	11889.	1.01	25.	2.5	NO	6
1600.	398.	5.	-6566.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1600.	398.	5.	3651.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
1601.	399.	5.	-6566.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
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1669.	46.	1.	4922.	6725.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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1701.	78.	1.	3853.	6725.	24406.	3784.	.57	20.	2.5	NO	4 5 6
1732.	110.	1.	2785.	6725.	24406.	3784.	.57	20.	2.5	NO	5 6
1764.	142.	1.	1717.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1796.	173.	1.	-188.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1796.	173.	1.	906.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
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1859.	237.	1.	-1630.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1891.	268.	1.	-2557.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
1923.	300.	1.	-3625.	6725.	24406.	3784.	.57	20.	2.5	NO	5 6
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1986.	364.	1.	-5762.	7362.	24406.	3784.	.57	20.	2.5	NO	4 5 6
1986.	364.	1.	-5762.	7362.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2010.	388.	1.	-6571.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2018.	395.	1.	-6571.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2055.	27.	1.	6022.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2101.	74.	1.	4454.	6725.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2166.	138.	1.	2283.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
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2230.	202.	1.	201.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
2262.	235.	1.	-1024.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
2294.	267.	1.	-2058.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
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2391.	363.	1.	-5314.	7362.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2432.	405.	1.	-6122.	8294.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2538.	106.	1.	3315.	7689.	24406.	3784.	.57	20.	2.5	NO	5 6
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2732.	299.	1.	-3197.	6725.	24406.	3784.	.57	20.	2.5	NO	5 6
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2796.	364.	1.	-5367.	7362.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2810.	378.	1.	-5850.	7362.	24406.	3784.	.57	20.	2.5	NO	4 5 6
2820.	388.	1.	-6176.	8003.	24406.	3784.	.57	20.	2.5	NO	4 5 6
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2879.	42.	1.	5264.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2879.	42.	1.	5264.	7362.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2911.	74.	1.	4179.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
2943.	106.	1.	3094.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
2976.	138.	1.	2009.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3008.	170.	1.	1126.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3040.	203.	1.	-603.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
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3072.	235.	1.	-1408.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
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3137.	299.	1.	-3418.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
3169.	331.	1.	-4503.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3201.	364.	1.	-5588.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
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3225.	388.	1.	-6397.	8862.	24406.	3784.	.57	20.	2.5	NO	4	5	6
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3243.	405.	1.	-6397.	8862.	24406.	3784.	.57	20.	2.5	NO	4	5	6
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3284.	41.	1.	5535.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3316.	74.	1.	4450.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3348.	106.	1.	3418.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
3381.	138.	1.	2698.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
3413.	170.	1.	-603.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
3413.	170.	1.	2022.	7689.	24406.	3784.	.57	20.	2.5	NO	5	6	
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3509.	267.	1.	-2540.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
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3542.	299.	1.	-3207.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
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3606.	363.	1.	-5317.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
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3620.	378.	1.	-5800.	7689.	24406.	3784.	.57	20.	2.5	NO	4	5	6
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3720.	72.	1.	4002.	6725.	24406.	3784.	.57	20.	2.5	NO	4	5	6
3751.	103.	1.	3150.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6	
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4482.	140.	1.	740.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6
4515.	173.	1.	-114.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6
4515.	173.	1.	368.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6
4548.	206.	1.	-462.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6
4548.	206.	1.	21.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6
4581.	239.	1.	-802.	6986.	24406.	3784.	.57	20.	2.5	NO	5	6
4614.	272.	1.	-1236.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6
4646.	305.	1.	-1643.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6
4679.	338.	1.	-2026.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6
4679.	338.	1.	-2026.	6725.	24406.	3784.	.57	20.	2.5	NO	5	6
4694.	352.	1.	-2177.	7522.	24406.	3784.	.57	20.	2.5	NO	5	6
4703.	362.	1.	-2279.	7522.	24406.	3784.	.57	20.	2.5	NO	5	6
4711.	369.	1.	-2279.	7522.	24406.	3784.	.57	20.	2.5	NO	5	6
4721.	379.	1.	-2279.	7522.	24406.	3784.	.57	20.	2.5	NO	5	6
>4721.	0.	8.	-228.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6
4721.	0.	8.	2357.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6
4731.	10.	8.	-228.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6
4731.	10.	8.	2357.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6
4738.	18.	8.	-228.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6
4738.	18.	8.	2357.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6
4748.	27.	8.	-268.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6
4748.	27.	8.	2316.	6882.	21355.	3784.	.57	20.	2.5	NO	5	6
4762.	42.	8.	-329.	6205.	21355.	3784.	.57	20.	2.5	NO	5	6
4762.	42.	8.	2256.	6205.	21355.	3784.	.57	20.	2.5	NO	5	6
4762.	42.	8.	-329.	6205.	21355.	3784.	.57	20.	2.5	NO	5	6
4762.	42.	8.	2256.	6205.	21355.	3784.	.57	20.	2.5	NO	5	6
4792.	71.	8.	-452.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4792.	71.	8.	2133.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4821.	100.	8.	-576.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4821.	100.	8.	2009.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4851.	130.	8.	-699.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4851.	130.	8.	1886.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4880.	159.	8.	-823.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4880.	159.	8.	1762.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4909.	189.	8.	-946.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4909.	189.	8.	1639.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4909.	189.	8.	-946.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4909.	189.	8.	1639.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4924.	203.	8.	-1006.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4924.	203.	8.	1579.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
4933.	213.	8.	-1047.	6434.	21355.	3784.	.57	20.	2.5	NO	5	6
4933.	213.	8.	1538.	6434.	21355.	3784.	.57	20.	2.5	NO	5	6
4941.	220.	8.	-1047.	6434.	21355.	3784.	.57	20.	2.5	NO	5	6
4941.	220.	8.	1505.	6434.	21355.	3784.	.57	20.	2.5	NO	5	6
4951.	230.	8.	-1047.	6434.	21355.	3784.	.57	20.	2.5	NO	5	6
4951.	230.	8.	1465.	6434.	21355.	3784.	.57	20.	2.5	NO	5	6

# VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	1.	-276.13	-4.7	184.1	7.73	6.02	.0055	23.47	.013	SI
10.	10.	1.	49.22	-8	31.6	8.04	5.98	.0009	23.31	.002	SI
18.	18.	1.	296.88	-5.	190.5	8.04	5.98	.0057	23.31	.013	SI
42.	42.	1.	957.77	-16.1	614.6	8.04	5.98	.0184	23.31	.043	SI
73.	73.	1.	1656.81	-27.2	825.6	11.12	5.63	.0248	21.96	.054	SI
104.	104.	1.	2166.28	-33.5	812.7	14.2	5.26	.0264	13.37	.035	SI
166.	166.	1.	2576.42	-39.9	966.6	14.2	5.26	.0341	13.37	.046	SI
400.	400.	1.	-1579.59	-1.9	165.8	22.12	6.25	.005	10.74	.005	SI
> 400.	0.	5.	-523.23	-1.9	51.6	22.12	6.25	.0015	9.33	.001	SI
400.	0.	5.	25.72	-1.	3.9	14.04	6.25	.0001	13.06	0.	SI
562.	162.	5.	1950.09	-7.9	259.5	17.44	6.25	.0078	10.98	.009	SI
812.	412.	5.	-4630.57	-17.5	600.7	17.78	6.25	.0191	10.44	.02	SI
> 812.	0.	5.	-3147.18	-11.9	408.2	17.78	6.25	.0122	10.44	.013	SI
832.	20.	5.	-3147.18	-12.	411.7	17.78	6.66	.0124	10.79	.013	SI
1006.	194.	5.	653.07	-2.8	107.	14.04	6.25	.0032	12.22	.004	SI
1130.	318.	5.	-884.43	-4.1	181.2	11.	6.25	.0054	49.44	.027	SI
1202.	390.	5.	-2397.11	-9.1	310.9	17.78	6.25	.0093	10.44	.01	SI
>1202.	0.	5.	-6344.64	-24.	823.	17.78	6.25	.0303	10.44	.032	SI
1321.	118.	5.	-1360.11	-6.1	280.9	11.	6.25	.0084	49.8	.042	SI
1504.	302.	5.	2923.79	-11.8	389.1	17.44	6.25	.0117	10.98	.013	SI
1622.	420.	5.	2094.47	-8.	325.	14.04	6.25	.0097	13.06	.013	SI
>1622.	0.	1.	-1829.71	-2.2	191.8	22.12	6.25	.0058	10.74	.006	SI
1828.	205.	1.	1845.	-29.9	792.2	12.32	5.41	.0238	14.48	.034	SI
2028.	405.	1.	-2971.43	-38.5	1123.4	13.89	5.57	.041	13.42	.055	SI
>2028.	0.	1.	-2964.6	-38.4	1120.8	13.89	5.57	.0409	13.42	.055	SI
2230.	202.	1.	1565.19	-25.4	672.	12.32	5.41	.0202	14.48	.029	SI
2432.	405.	1.	-2650.56	-33.2	904.1	15.46	5.46	.0315	12.34	.039	SI
>2432.	0.	1.	-2631.12	-32.9	897.4	15.46	5.46	.0312	12.34	.038	SI
2635.	202.	1.	1821.28	-29.5	782.	12.32	5.41	.0235	14.48	.034	SI
2837.	405.	1.	-2471.87	-32.	934.5	13.89	5.57	.0316	13.42	.042	SI
>2837.	0.	1.	-2478.95	-32.1	937.2	13.89	5.57	.0317	13.42	.043	SI
3040.	203.	1.	1673.86	-27.2	718.7	12.32	5.41	.0216	14.48	.031	SI
3243.	405.	1.	-2918.88	-34.4	823.3	18.85	5.24	.0298	10.95	.033	SI
>3243.	0.	1.	-2792.9	-32.9	787.7	18.85	5.24	.0281	10.95	.031	SI
3445.	202.	1.	1728.58	-28.	742.2	12.32	5.41	.0223	14.48	.032	SI
3648.	405.	1.	-2495.49	-30.2	764.9	17.28	5.34	.026	11.62	.03	SI
>3648.	0.	1.	-2050.73	-24.8	628.6	17.28	5.34	.0191	11.62	.022	SI
3844.	196.	1.	1669.41	-25.4	713.3	12.32	5.5	.0214	14.63	.031	SI
4040.	392.	1.	-2777.87	-34.6	820.2	18.03	5.22	.0293	11.03	.032	SI
>4040.	0.	7.	-478.69	-7.	142.6	18.03	4.97	.0043	9.63	.004	SI

4175.	135.	7.	41	201.47!	-4.4!	183.3!	5.65!	6.1!	.0055!	23.78!	.013!	SI
4342.	302.	7.	43	-675.69!	-11.6!	309.4!	11.53!	5.42!	.0093!	12.3!	.011!	SI
>4342.	0.	1.	44	-941.19!	-13.9!	427.	11.53!	5.65!	.0128!	14.7!	.019!	SI
4515.	173.	1.	46	819.6!	-14.7!	462.6!	9.24!	5.69!	.0139!	22.19!	.031!	SI
4721.	379.	1.	48	-788.81!	-11.6!	357.8!	11.53!	5.65!	.0107!	14.7!	.016!	SI
>4721.	0.	8.	49	-920.22!	-14.6!	419.3!	11.53!	5.54!	.0126!	13.49!	.017!	SI
4792.	71.	8.	50	-371.92!	-7.7!	308.9!	6.19!	6.06!	.0093!	23.62!	.022!	SI
4951.	230.	8.	53	556.55!	-8.7!	306.8!	9.42!	5.87!	.0092!	22.89!	.021!	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	1.	1.	-252.25!	-4.3!	168.2!	7.73!	6.02!	.005!	23.47!	.012!	SI
10.	10.	1.	1.	17.82!	-3!	11.4!	8.04!	5.98!	.0003!	23.31!	.001!	SI
18.	18.	1.	1.	230.23!	-3.9!	147.7!	8.04!	5.98!	.0044!	23.31!	.01!	SI
42.	42.	1.	1.	798.24!	-13.4!	512.2!	8.04!	5.98!	.0154!	23.31!	.036!	SI
73.	73.	1.	2.	1401.22!	-23.	698.2!	11.12!	5.63!	.0209!	21.96!	.046!	SI
104.	104.	1.	3.	1843.88!	-28.5!	691.8!	14.2!	5.26!	.0208!	13.37!	.028!	SI
166.	166.	1.	3.	2211.82!	-34.2!	829.8!	14.2!	5.26!	.0273!	13.37!	.036!	SI
400.	400.	1.	6.	-1227.86!	-1.5!	128.9!	22.12!	6.25!	.0039!	10.74!	.004!	SI
> 400.	0.	5.	7.	-225.47!	-8!	22.2!	22.12!	6.25!	.0007!	9.33!	.001!	SI
562.	162.	5.	10	1747.28!	-7.1!	232.6!	17.44!	6.25!	.007!	10.98!	.008!	SI
812.	412.	5.	14	-4153.41!	-15.7!	538.8!	17.78!	6.25!	.0162!	10.44!	.017!	SI
> 812.	0.	5.	14	-2777.58!	-10.5!	360.3!	17.78!	6.25!	.0108!	10.44!	.011!	SI
832.	20.	5.	14	-2777.58!	-10.6!	363.3!	17.78!	6.66!	.0109!	10.79!	.012!	SI
1006.	194.	5.	11	515.25!	-2.2!	84.4!	14.04!	6.25!	.0025!	12.22!	.003!	SI
1130.	318.	5.	11	-788.9!	-3.6!	161.7!	11.	6.25!	.0048!	49.44!	.024!	SI
1202.	390.	5.	14	-2113.59!	-8.	274.2!	17.78!	6.25!	.0082!	10.44!	.009!	SI
>1202.	0.	5.	14	-5690.78!	-21.5!	738.2!	17.78!	6.25!	.026!	10.44!	.027!	SI
1321.	118.	5.	11	-1198.95!	-5.4!	247.6!	11.	6.25!	.0074!	49.8!	.037!	SI
1504.	302.	5.	10	2628.36!	-10.6!	349.8!	17.44!	6.25!	.0105!	10.98!	.012!	SI
1622.	420.	5.	22	1835.62!	-7.	284.8!	14.04!	6.25!	.0085!	13.06!	.011!	SI
>1622.	0.	1.	23	-1438.64!	-1.7!	150.8!	22.12!	6.25!	.0045!	10.74!	.005!	SI
1828.	205.	1.	26	1560.27!	-25.3!	669.9!	12.32!	5.41!	.0201!	14.48!	.029!	SI
2028.	405.	1.	28	-2528.9!	-32.8!	956.1!	13.89!	5.57!	.0327!	13.42!	.044!	SI
>2028.	0.	1.	28	-2524.31!	-32.7!	954.4!	13.89!	5.57!	.0326!	13.42!	.044!	SI
2230.	202.	1.	26	1284.04!	-20.8!	551.3!	12.32!	5.41!	.0165!	14.48!	.024!	SI
2432.	405.	1.	30	-2208.07!	-27.6!	753.1!	15.46!	5.46!	.024!	12.34!	.03!	SI
>2432.	0.	1.	30	-2189.7!	-27.4!	746.9!	15.46!	5.46!	.0237!	12.34!	.029!	SI
2635.	202.	1.	26	1528.87!	-24.8!	656.4!	12.32!	5.41!	.0197!	14.48!	.029!	SI
2837.	405.	1.	32	-2053.02!	-26.6!	776.2!	13.89!	5.57!	.0237!	13.42!	.032!	SI
>2837.	0.	1.	32	-2059.78!	-26.7!	778.7!	13.89!	5.57!	.0238!	13.42!	.032!	SI
3040.	203.	1.	26	1393.93!	-22.6!	598.5!	12.32!	5.41!	.018!	14.48!	.026!	SI
3243.	405.	1.	35	-2452.82!	-28.9!	691.8!	18.85!	5.24!	.0233!	10.95!	.025!	SI
>3243.	0.	1.	35	-2335.67!	-27.5!	658.8!	18.85!	5.24!	.0216!	10.95!	.024!	SI
3445.	202.	1.	26	1443.85!	-23.4!	619.9!	12.32!	5.41!	.0186!	14.48!	.027!	SI
3648.	405.	1.	36	-2077.08!	-25.1!	636.7!	17.28!	5.34!	.0195!	11.62!	.023!	SI
>3648.	0.	1.	36	-1663.02!	-20.1!	509.8!	17.28!	5.34!	.0153!	11.62!	.018!	SI
3844.	196.	1.	33	1390.79!	-21.2!	594.3!	12.32!	5.5!	.0178!	14.63!	.026!	SI
4040.	392.	1.	38	-2373.26!	-29.6!	700.7!	18.03!	5.22!	.0233!	11.03!	.026!	SI
>4040.	0.	7.	39	-388.85!	-5.7!	115.9!	18.03!	4.97!	.0035!	9.63!	.003!	SI
4175.	135.	7.	41	179.49!	-3.9!	163.3!	5.65!	6.1!	.0049!	23.78!	.012!	SI
4342.	302.	7.	43	-628.2!	-10.8!	287.7!	11.53!	5.42!	.0086!	12.3!	.011!	SI
>4342.	0.	1.	44	-876.39!	-12.9!	397.6!	11.53!	5.65!	.0119!	14.7!	.018!	SI
4515.	173.	1.	46	772.13!	-13.8!	435.8!	9.24!	5.69!	.0131!	22.19!	.029!	SI
4721.	379.	1.	48	-739.29!	-10.9!	335.4!	11.53!	5.65!	.0101!	14.7!	.015!	SI
>4721.	0.	8.	49	-861.04!	-13.6!	392.3!	11.53!	5.54!	.0118!	13.49!	.016!	SI
4792.	71.	8.	50	-344.35!	-7.1!	286.	6.19!	6.06!	.0086!	23.62!	.02!	SI
4951.	230.	8.	53	489.97!	-7.6!	270.1!	9.42!	5.87!	.0081!	22.89!	.019!	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	1.	1.	-245.51!	-4.2!	163.7!	7.73!	6.02!	.0049!	23.47!	.012!	SI
10.	10.	1.	1.	8.54!	-1!	5.5!	8.04!	5.98!	.0002!	23.31!	0.	SI
18.	18.	1.	1.	212.35!	-3.6!	136.3!	8.04!	5.98!	.0041!	23.31!	.01!	SI
42.	42.	1.	1.	757.77!	-12.8!	486.2!	8.04!	5.98!	.0146!	23.31!	.034!	SI
73.	73.	1.	2.	1337.56!	-21.9!	666.5!	11.12!	5.63!	.02!	21.96!	.044!	SI
104.	104.	1.	3.	1764.34!	-27.3!	661.9!	14.2!	5.26!	.0199!	13.37!	.027!	SI
166.	166.	1.	3.	2123.38!	-32.9!	796.6!	14.2!	5.26!	.0256!	13.37!	.034!	SI
400.	400.	1.	6.	-1131.61!	-1.4!	118.8!	22.12!	6.25!	.0036!	10.74!	.004!	SI
> 400.	0.	5.	7.	-126.01!	-5!	12.4!	22.12!	6.25!	.0004!	9.33!	0.	SI
562.	162.	5.	10	1702.53!	-6.9!	226.6!	17.44!	6.25!	.0068!	10.98!	.007!	SI
812.	412.	5.	14	-4053.1!	-15.3!	525.8!	17.78!	6.25!	.0158!	10.44!	.016!	SI
> 812.	0.	5.	14	-2692.84!	-10.2!	349.3!	17.78!	6.25!	.0105!	10.44!	.011!	SI
832.	20.	5.	14	-2692.84!	-10.2!	352.2!	17.78!	6.66!	.0106!	10.79!	.011!	SI
1006.	194.	5.	11	475.05!	-2.1!	77.8!	14.04!	6.25!	.0023!	12.22!	.003!	SI
1130.	318.	5.	11	-762.24!	-3.5!	156.2!	11.	6.25!	.0047!	49.44!	.023!	SI
1202.	390.	5.	14	-2046.54!	-7.7!	265.5!	17.78!	6.25!	.008!	10.44!	.008!	SI
>1202.	0.	5.	14	-5563.04!	-21.	721.6!	17.78!	6.25!	.0252!	10.44!	.026!	SI
1321.	118.	5.	11	-1139.03!	-5.1!	235.3!	11.	6.25!	.0071!	49.8!	.035!	SI
1504.	302.	5.	10	2556.61!	-10.3!	340.3!	17.44!	6.25!	.0102!	10.98!	.011!	SI
1622.	420.	5.	22	1683.89!	-6.4!	261.3!	14.04!	6.25!	.0078!	13.06!	.01!	SI
>1622.	0.	1.	23	-1336.83!	-1.6!	140.2!	22.12!	6.25!	.0042!	10.74!	.005!	SI
1828.	205.	1.	26	1490.1!	-24.2!	639.8!	12.32!	5.41!	.0192!	14.48!	.028!	SI
2028.	405.	1.	28	-2420.28!	-31.4!	915.	13.89!	5.57!	.0306!	13.42!	.041!	SI
>2028.	0.	1.	28	-2416.28!	-31.3!	913.5!	13.89!	5.57!	.0305!	13.42!	.041!	SI
2230.	202.	1.	26	1212.74!	-19.7!	520.7!	12.32!	5.41!	.0156!	14.48!	.023!	SI
2432.	405.	1.	30	-2097.42!	-26.3!	715.4!	15.46!	5.46!	.0221!	12.34!	.027!	SI
>2432.	0.	1.	30	-2079.2!	-26.	709.2!	15.46!	5.46!	.0218!	12.34!	.027!	SI
2635.	202.	1.	26	1456.53!	-23.6!	625.4!	12.32!	5.41!	.0188!	14.48!	.027!	SI
2837.	405.	1.	32	-1946.92!	-25.2!	736.1!	13.89!	5.57!	.0221!	13.42!	.03!	SI
>2837.	0.	1.	32	-1953.67!	-25.3!	738.6!	13.89!	5.57!	.0222!	13.42!	.03!	SI
3040.	203.	1.	26	1323.55!	-21.5!	568.3!	12.32!	5.41!	.017!	14.48!	.025!	SI
3243.	405.	1.	35	-2338.4!	-27.5!	659.5!	18.85!	5.24!	.0216!	10.95!	.024!	SI
>3243.	0.	1.	35	-2222.09!	-26.2!	626.7!	18.85!	5.24!	.02!	10.95!	.022!	SI
3445.	202.	1.	26	1372.74!	-22.3!	589.4!	12.32!	5.41!	.0177!	14.48!	.026!	SI
3648.	405.	1.	36	-1971.61!	-23.8!	604.4!	17.28!	5.34!	.0181!	11.62!	.021!	SI

>3648.	0.	1.	36	-1561.26	-18.9	478.6	17.28	5.34	.0144	11.62	.017	SI
3844.	196.	1.	33	1320.99	-20.1	564.4	12.32	5.5	.0169	14.63	.025	SI
4040.	392.	1.	38	-2277.23	-28.4	672.4	18.03	5.22	.0219	11.03	.024	SI
>4040.	0.	7.	39	-365.42	-5.3	108.9	18.03	4.97	.0033	9.63	.003	SI
4175.	135.	7.	41	173.83	-3.8	158.2	5.65	6.1	.0047	23.78	.011	SI
4342.	302.	7.	43	-617.54	-10.6	282.8	11.53	5.42	.0085	12.3	.01	SI
>4342.	0.	1.	44	-863.62	-12.7	391.8	11.53	5.65	.0118	14.7	.017	SI
4515.	173.	1.	46	761.77	-13.6	430.	9.24	5.69	.0129	22.19	.029	SI
4721.	379.	1.	48	-726.97	-10.7	329.8	11.53	5.65	.0099	14.7	.015	SI
>4721.	0.	8.	49	-846.6	-13.4	385.8	11.53	5.54	.0116	13.49	.016	SI
4792.	71.	8.	50	-338.17	-7.	280.9	6.19	6.06	.0084	23.62	.02	SI
4951.	230.	8.	53	471.52	-7.3	259.9	9.42	5.87	.0078	22.89	.018	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.77	.821	7.73	.403	2d10 +2d14	8.04	.419	4d16
2	15.77	.821	4.65	.242	2d10 +2d14	11.12	.579	4d16 +2d14
3	15.77	.821	1.57	.082	2d10	14.2	.74	2d14 +4d16 +2d14
4	23.09	1.203	7.35	.383	2d10 +2d14 +2d1 ...	15.74	.82	4d16 +2d14 +3d14
5	25.35	1.32	12.69	.661	2d10 +2d14 +2d1 ...	12.66	.659	4d16 +3d14
6	44.2	2.302	22.12	1.152	2d10 +2d14 +2d1 ...	22.09	1.15	4d16 +3d14 +3d20
7	44.2	1.473	30.16	1.005	2d10 +2d14 +4d1 ...	14.04	.468	3d14 +3d20
8	42.63	1.421	26.33	.878	2d14 +4d16 +2d1 ...	16.3	.543	2d12 +3d14 +3d20
9	31.51	1.05	15.21	.507	2d14 +2d10 +1d1 ...	16.3	.543	2d12 +3d14 +3d20
10	28.43	.948	11.	.367	2d10 +3d20	17.44	.581	1d12 +2d12 +3d1 ...
11	25.04	.835	11.	.367	2d10 +3d20	14.04	.468	1d12 +2d12 +3d1 ...
12	28.43	.948	15.52	.517	2d10 +1d12 +1d1 ...	12.91	.43	2d12 +3d14 +3d16
13	33.05	1.102	15.52	.517	2d10 +1d12 +1d1 ...	17.53	.584	2d12 +3d14 +3d1 ...
14	33.05	1.102	17.78	.593	2d10 +1d12 +2d1 ...	15.27	.509	3d14 +3d14 +3d16
15	33.05	1.102	15.52	.517	2d10 +1d12 +2d1 ...	17.53	.584	2d12 +3d14 +3d1 ...
16	28.43	.948	15.52	.517	2d10 +1d12 +2d1 ...	12.91	.43	2d12 +3d14 +3d16
17	26.17	.872	12.13	.404	2d10 +1d12 +3d20	14.04	.468	1d12 +2d12 +3d1 ...
18	26.17	.872	13.26	.442	2d10 +1d12 +1d1 ...	12.91	.43	2d12 +3d14 +3d16
19	19.01	.634	11.	.367	2d10 +3d20	8.01	.267	1d12 +2d12 +3d14
20	31.51	1.05	15.21	.507	2d10 +1d12 +2d1 ...	16.3	.543	2d12 +3d14 +3d20
21	37.67	1.256	21.36	.712	2d10 +1d12 +2d1 ...	16.3	.543	2d12 +3d14 +3d20
22	42.32	1.411	28.27	.942	2d10 +1d12 +2d1 ...	14.04	.468	3d14 +3d20
23	42.32	2.204	22.12	1.152	2d10 +1d12 +2d1 ...	20.2	1.052	3d14 +4d14 +3d20
24	23.47	1.222	12.69	.661	2d10 +1d12 +2d1 ...	10.78	.561	3d14 +4d14
25	13.89	.723	4.65	.242	2d10 +2d14	9.24	.481	2d14 +4d14
26	13.89	.723	1.57	.082	2d10	12.32	.641	2d14 +2d14 +4d14
27	16.96	.884	7.73	.403	2d10 +2d14 +2d14	9.24	.481	2d14 +4d14
28	26.2	1.365	13.89	.723	2d10 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
29	20.04	1.044	10.81	.563	2d10 +2d14 +2d1 ...	9.24	.481	2d14 +4d14
30	27.77	1.446	15.46	.805	2d10 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
31	16.96	.884	7.73	.403	2d14 +2d14 +2d10	9.24	.481	2d14 +4d14
32	26.2	1.365	13.89	.723	2d14 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
33	17.28	.9	4.96	.259	2d10 +3d12	12.32	.641	2d14 +2d14 +4d14
34	20.36	1.06	11.12	.579	2d14 +2d14 +2d1 ...	9.24	.481	2d14 +4d14
35	31.16	1.623	18.85	.982	2d14 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
36	29.59	1.541	17.28	.9	2d14 +2d14 +2d1 ...	12.32	.641	4d14 +4d14
37	22.62	1.178	13.38	.697	2d14 +2d10 +2d1 ...	9.24	.481	2d14 +4d14
38	27.58	1.437	18.03	.939	2d14 +2d14 +2d1 ...	9.55	.497	3d12 +4d14
39	27.58	1.915	18.03	1.252	2d14 +2d14 +2d1 ...	9.55	.663	3d12 +4d14
40	16.78	1.165	11.12	.772	2d14 +2d10 +2d1 ...	5.65	.393	2d12 +3d12
41	13.7	.951	8.04	.559	2d10 +2d14 +3d12	5.65	.393	2d12 +3d12
42	11.84	.822	6.19	.43	2d10 +2d14 +1d14	5.65	.393	2d12 +3d12
43	19.54	1.357	11.53	.801	2d10 +2d14 +1d1 ...	8.01	.556	3d12 +3d14
44	19.54	1.018	11.53	.601	2d10 +2d14 +1d1 ...	8.01	.417	3d12 +3d14
45	10.81	.563	3.11	.162	2d10 +1d14	7.7	.401	2d14 +3d14
46	10.81	.563	1.57	.082	2d10	9.24	.481	1d14 +2d14 +3d14
47	16.15	.841	8.45	.44	2d10 +2d14 +1d1 ...	7.7	.401	2d14 +3d14
48	19.54	1.018	11.53	.601	2d10 +2d14 +1d1 ...	8.01	.417	3d14 +3d12
49	19.54	1.163	11.53	.686	2d10 +2d14 +1d1 ...	8.01	.477	3d14 +3d12
50	11.84	.705	6.19	.368	2d10 +2d14 +1d14	5.65	.337	2d12 +3d12
51	10.3	.613	4.65	.277	2d10 +2d14	5.65	.337	2d12 +3d12
52	22.37	1.331	10.68	.636	2d10 +2d14 +3d16	11.69	.696	2d12 +3d12 +3d16
53	22.37	1.331	12.94	.77	2d10 +2d14 +2d1 ...	9.42	.561	3d12 +3d16

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr8\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=200000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.

CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAY	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 60X50; A=3000.; Jg=625000.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A172	3	3	3	0	235.	190.	4.7	1.3	1.692	43.015
2	A173	3	3	3	0	430.	380.	8.6	1.5	2.747	79.686
3	A175	3	3	3	0	280.	230.	5.6	1.5	4.01	117.618
4	A180	3	3	3	0	355.	308.	7.1	1.3	2.826	71.976

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-5748.78	-.026	.053	-14952.83	-.071	.138	2.	.339	2.601	SI
0.	0.	3.	1.	4474.96	-.022	.082	7572.37	-.038	.138	2.	.214	1.692	SI
21.	21.	3.	1.	4474.96	-.022	.082	7551.	-.038	.138	2.	.216	1.687	SI
41.	41.	3.	1.	-5748.78	-.029	.066	-12078.64	-.063	.138	2.	.314	2.101	SI
189.	189.	3.	3.	1209.56	-.004	.008	19697.33	-.075	.138	2.	.35	16.29	SI
235.	235.	3.	4.	-5774.21	-.018	.027	-29051.23	-.094	.138	2.	.405	5.031	SI
235.	235.	3.	4.	825.88	-.002	.006	19688.54	-.059	.138	2.	.299	23.84	SI
> 235.	0.	3.	4.	-15807.67	-.049	.075	-29051.23	-.094	.138	2.	.405	1.838	SI
235.	0.	3.	4.	5186.03	-.015	.036	19688.54	-.059	.138	2.	.299	3.796	SI
281.	46.	3.	4.	-15807.67	-.052	.084	-25875.02	-.088	.138	2.	.388	1.637	SI
350.	115.	3.	7.	7803.39	-.027	.05	21434.44	-.078	.138	2.	.361	2.747	SI
390.	155.	3.	8.	-1758.13	-.008	.035	-6925.8	-.032	.138	2.	.186	3.939	SI
510.	275.	3.	10	-1513.11	-.006	.019	-11275.86	-.044	.138	2.	.242	7.452	SI
665.	430.	3.	12	-15928.53	-.048	.066	-33034.02	-.105	.138	2.	.431	2.074	SI
665.	430.	3.	12	4014.73	-.011	.028	19768.05	-.056	.138	2.	.288	4.924	SI
> 665.	0.	3.	12	-8884.55	-.026	.037	-33034.02	-.105	.138	2.	.431	3.718	SI
665.	0.	3.	12	4919.38	-.014	.034	19768.05	-.056	.138	2.	.288	4.018	SI
690.	25.	3.	12	4929.68	-.014	.034	19768.05	-.056	.138	2.	.288	4.01	SI
726.	61.	3.	2.	-7218.42	-.037	.086	-11549.05	-.06	.138	2.	.302	1.6	SI
805.	140.	3.	2.	-527.52	-.002	.006	-11581.28	-.055	.138	2.	.283	21.95	SI
870.	205.	3.	14	-6824.55	-.026	.08	-11776.47	-.045	.138	2.	.244	1.726	SI
870.	205.	3.	14	4351.07	-.016	.027	22467.02	-.089	.138	2.	.391	5.164	SI
945.	280.	3.	17	-10337.74	-.032	.051	-28003.95	-.091	.138	2.	.398	2.709	SI
945.	280.	3.	17	4348.39	-.013	.031	19664.96	-.06	.138	2.	.302	4.522	SI
> 945.	0.	3.	17	-10707.63	-.033	.053	-28003.95	-.091	.138	2.	.398	2.615	SI
945.	0.	3.	17	4177.	-.012	.029	19664.96	-.06	.138	2.	.302	4.708	SI
991.	46.	3.	18	-10707.63	-.035	.062	-23671.33	-.081	.138	2.	.369	2.211	SI
991.	46.	3.	18	6142.16	-.02	.041	20644.2	-.069	.138	2.	.333	3.361	SI
1062.	116.	3.	20	7008.14	-.03	.049	19808.2	-.089	.138	2.	.392	2.826	SI
1103.	158.	3.	20	-678.13	-.003	.014	-6921.22	-.032	.138	2.	.189	10.21	SI
1144.	200.	3.	21	6523.3	-.03	.046	19376.3	-.099	.138	2.	.416	2.97	SI
1228.	282.	3.	21	-823.58	-.007	.041	-2800.71	-.023	.138	2.	.142	3.401	NO
1228.	282.	3.	21	-823.58	-.007	.041	-2800.71	-.023	.138	2.	.142	3.401	NO
1256.	311.	3.	22	-3589.92	-.022	.081	-6103.66	-.037	.138	2.	.213	1.7	SI
1300.	355.	3.	23	-3589.92	-.017	.047	-10506.48	-.05	.138	2.	.266	2.927	SI
1300.	355.	3.	23	1989.04	-.009	.023	12071.56	-.057	.138	2.	.292	6.069	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	-35.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
0.	0.	3.	8057.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
20.	20.	3.	-35.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
20.	20.	3.	8057.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
21.	21.	3.	-112.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
21.	21.	3.	8057.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
41.	41.	3.	-1242.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
41.	41.	3.	7655.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
56.	56.	3.	-2051.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
56.	56.	3.	6846.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
70.	70.	3.	-2860.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
70.	70.	3.	6037.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
70.	70.	3.	-2860.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
70.	70.	3.	6037.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
100.	100.	3.	-4555.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
100.	100.	3.	4342.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
130.	130.	3.	-6250.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
130.	130.	3.	2647.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
160.	160.	3.	-7945.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
160.	160.	3.	951.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
160.	160.	3.	-7945.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
160.	160.	3.	951.	8569.	40441.	14861.	1.01	20.	2.5	NO	6

174.	174.	3.	-8754.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
174.	174.	3.	143.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
189.	189.	3.	-9563.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
210.	210.	3.	-9968.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
214.	214.	3.	-9968.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
235.	235.	3.	-9968.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
> 235.	0.	3.	15616.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
256.	21.	3.	15616.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
260.	25.	3.	15616.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
281.	46.	3.	15008.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
296.	61.	3.	13987.	9449.	40441.	14861.	1.01	20.	2.5	NO	6
310.	75.	3.	13178.	9449.	40441.	14861.	1.01	20.	2.5	NO	6
310.	75.	3.	13178.	9449.	40441.	14861.	1.01	20.	2.5	NO	6
350.	115.	3.	10918.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
390.	155.	3.	-2214.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
390.	155.	3.	8658.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
430.	195.	3.	-4474.	10274.	40441.	14861.	1.01	20.	2.5	NO	6
430.	195.	3.	6398.	10274.	40441.	14861.	1.01	20.	2.5	NO	6
470.	235.	3.	-6735.	10274.	40441.	14861.	1.01	20.	2.5	NO	6
470.	235.	3.	4137.	10274.	40441.	14861.	1.01	20.	2.5	NO	6
510.	275.	3.	-8995.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
510.	275.	3.	1877.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
550.	315.	3.	-11255.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
590.	355.	3.	-13515.	9255.	40441.	14861.	1.01	20.	2.5	NO	6
590.	355.	3.	-13515.	9255.	40441.	14861.	1.01	20.	2.5	NO	6
604.	369.	3.	-14324.	9255.	40441.	14861.	1.01	20.	2.5	NO	6
619.	384.	3.	-15359.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
640.	405.	3.	-15981.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
644.	409.	3.	-15981.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
> 665.	430.	3.	-15981.	8569.	40441.	14861.	1.01	20.	2.5	NO	4 6
665.	0.	3.	-140.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
665.	0.	3.	11465.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
686.	21.	3.	-140.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
686.	21.	3.	11465.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
690.	25.	3.	-140.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
690.	25.	3.	11465.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
711.	46.	3.	-1348.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
711.	46.	3.	11062.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
726.	61.	3.	-2156.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
726.	61.	3.	10253.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
740.	75.	3.	-2965.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
740.	75.	3.	9444.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
740.	75.	3.	-2965.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
740.	75.	3.	9444.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
772.	108.	3.	-4802.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
772.	108.	3.	7608.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
805.	140.	3.	-6638.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
805.	140.	3.	5772.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
838.	172.	3.	-8474.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
838.	172.	3.	3935.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
870.	205.	3.	-10311.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
870.	205.	3.	2099.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
870.	205.	3.	-10311.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
870.	205.	3.	2099.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
884.	219.	3.	-11120.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
884.	219.	3.	1290.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
899.	234.	3.	-11928.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
899.	234.	3.	481.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
920.	255.	3.	-12331.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
924.	259.	3.	-12331.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
> 945.	280.	3.	-12331.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
945.	0.	3.	12309.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
966.	21.	3.	12309.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
970.	25.	3.	12309.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
991.	46.	3.	11727.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1006.	61.	3.	10690.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1020.	75.	3.	9654.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1020.	75.	3.	9654.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1062.	116.	3.	7232.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1103.	158.	3.	-1609.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1103.	158.	3.	5120.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1144.	200.	3.	-3692.	10093.	40441.	14861.	1.01	20.	2.5	NO	6
1144.	200.	3.	3036.	10093.	40441.	14861.	1.01	20.	2.5	NO	6
1186.	241.	3.	-5747.	10093.	40441.	14861.	1.01	20.	2.5	NO	6
1186.	241.	3.	982.	10093.	40441.	14861.	1.01	20.	2.5	NO	6
1228.	282.	3.	-7773.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1228.	282.	3.	-7773.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1242.	297.	3.	-8465.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1256.	311.	3.	-9166.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1278.	332.	3.	-9642.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1279.	334.	3.	-9642.	8569.	40441.	14861.	1.01	20.	2.5	NO	6
1300.	355.	3.	-9642.	8569.	40441.	14861.	1.01	20.	2.5	NO	6

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
21.	21.	3.	1.	-746.7	-3.7	137.8	12.69	6.93	.0041	13.82	.006
56.	56.	3.	2.	745.67	-4.2	212.6	9.24	13.06	.0064	26.31	.017
70.	70.	3.	2.	1036.3	-5.3	254.8	9.24	6.25	.0076	15.78	.012
70.	70.	3.	2.	1036.3	-5.3	254.8	9.24	6.25	.0076	15.78	.012
100.	100.	3.	2.	1285.32	-6.6	316.	9.24	6.25	.0095	15.78	.015
210.	210.	3.	4.	-2924.49	-9.9	277.2	24.76	6.46	.0083	9.81	.008
235.	235.	3.	4.	-2924.49	-9.9	275.9	24.76	6.25	.0083	9.68	.008
> 235.	0.	3.	4.	-6224.83	-21.	587.3	24.76	6.25	.0208	9.68	.02
430.	195.	3.	9.	5459.51	-25.3	716.2	18.1	6.25	.0251	11.42	.029
665.	430.	3.	12	-6881.15	-22.4	570.2	28.37	6.25	.0207	8.97	.019

> 665.	0.	3.	12	-2452.18	-8.	203.2	28.37	6.25	.0061	8.97	.005	SI
805.	140.	3.	2.	1553.22	-7.9	381.9	9.24	6.25	.0115	15.78	.018	SI
945.	280.	3.	17	-3472.49	-11.9	340.	23.81	6.25	.0102	9.76	.01	SI
> 945.	0.	3.	17	-3826.67	-13.1	374.7	23.81	6.25	.0112	9.76	.011	SI
1144.	200.	3.	21	4622.12	-21.8	638.	17.15	6.25	.0207	11.58	.024	SI
1300.	355.	3.	23	-935.53	-4.9	244.4	8.67	6.25	.0073	15.93	.012	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
21.	21.	3.	1.	-613.91	-3.	113.3	12.69	6.93	.0034	13.82	.005	SI
56.	56.	3.	2.	639.46	-3.6	182.4	9.24	13.06	.0055	26.31	.014	SI
70.	70.	3.	2.	896.59	-4.6	220.5	9.24	6.25	.0066	15.78	.01	SI
70.	70.	3.	2.	896.59	-4.6	220.5	9.24	6.25	.0066	15.78	.01	SI
100.	100.	3.	2.	1120.6	-5.7	275.5	9.24	6.25	.0083	15.78	.013	SI
210.	210.	3.	4.	-2537.92	-8.6	240.6	24.76	6.46	.0072	9.81	.007	SI
235.	235.	3.	4.	-2537.92	-8.6	239.5	24.76	6.25	.0072	9.68	.007	SI
> 235.	0.	3.	4.	-5418.93	-18.3	511.3	24.76	6.25	.017	9.68	.016	SI
430.	195.	3.	9.	4766.63	-22.1	625.3	18.1	6.25	.0205	11.42	.023	SI
665.	430.	3.	12	-6064.96	-19.7	502.6	28.37	6.25	.0173	8.97	.016	SI
> 665.	0.	3.	12	-2078.24	-6.8	172.2	28.37	6.25	.0052	8.97	.005	SI
805.	140.	3.	2.	1373.67	-7.	337.8	9.24	6.25	.0101	15.78	.016	SI
945.	280.	3.	17	-3072.02	-10.5	300.8	23.81	6.25	.009	9.76	.009	SI
> 945.	0.	3.	17	-3303.49	-11.3	323.5	23.81	6.25	.0097	9.76	.009	SI
1144.	200.	3.	21	4123.28	-19.5	569.1	17.15	6.25	.0173	11.58	.02	SI
1278.	332.	3.	23	-818.72	-4.7	253.	8.67	13.19	.0076	27.54	.021	SI
1300.	355.	3.	23	-818.72	-4.3	213.9	8.67	6.25	.0064	15.93	.01	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
21.	21.	3.	1.	-573.92	-2.8	105.9	12.69	6.93	.0032	13.82	.004	SI
56.	56.	3.	2.	606.85	-3.4	173.1	9.24	13.06	.0052	26.31	.014	SI
70.	70.	3.	2.	857.25	-4.4	210.8	9.24	6.25	.0063	15.78	.01	SI
70.	70.	3.	2.	857.25	-4.4	210.8	9.24	6.25	.0063	15.78	.01	SI
100.	100.	3.	2.	1078.45	-5.5	265.2	9.24	6.25	.008	15.78	.013	SI
210.	210.	3.	4.	-2429.61	-8.2	230.3	24.76	6.46	.0069	9.81	.007	SI
235.	235.	3.	4.	-2429.61	-8.2	229.2	24.76	6.25	.0069	9.68	.007	SI
> 235.	0.	3.	4.	-5219.73	-17.6	492.5	24.76	6.25	.016	9.68	.016	SI
430.	195.	3.	9.	4592.7	-21.3	602.5	18.1	6.25	.0194	11.42	.022	SI
665.	430.	3.	12	-5859.7	-19.1	485.6	28.37	6.25	.0164	8.97	.015	SI
> 665.	0.	3.	12	-1977.43	-6.4	163.9	28.37	6.25	.0049	8.97	.004	SI
805.	140.	3.	2.	1331.48	-6.8	327.4	9.24	6.25	.0098	15.78	.016	SI
945.	280.	3.	17	-2973.82	-10.2	291.2	23.81	6.25	.0087	9.76	.009	SI
> 945.	0.	3.	17	-3167.24	-10.8	310.1	23.81	6.25	.0093	9.76	.009	SI
1144.	200.	3.	21	3998.82	-18.9	551.9	17.15	6.25	.0166	11.58	.019	SI
1278.	332.	3.	23	-780.94	-4.5	241.4	8.67	13.19	.0072	27.54	.02	SI
1300.	355.	3.	23	-780.94	-4.1	204.	8.67	6.25	.0061	15.93	.01	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.85	.628	12.69	.423	4d16 +2d14 +2d10	6.16	.205	4d14
2	18.85	.628	9.61	.32	4d16 +2d10	9.24	.308	2d14 +4d14
3	32.92	1.097	16.71	.557	2d16 +4d16 +2d1 ...	16.21	.54	4d14 +5d16
4	40.97	1.366	24.76	.825	2d16 +4d16 +2d1 ...	16.21	.54	4d14 +5d16
5	40.97	1.366	20.73	.691	2d16 +4d16 +2d1 ...	20.23	.674	2d16 +4d14 +5d16
6	34.81	1.16	20.73	.691	2d16 +4d16 +2d1 ...	14.07	.469	2d16 +5d16
7	31.73	1.058	13.63	.454	4d16 +2d10 +2d16	18.1	.603	2d16 +2d16 +5d16
8	23.69	.79	5.59	.186	2d10 +2d16	18.1	.603	2d16 +2d16 +5d16
9	19.67	.656	1.57	.052	2d10	18.1	.603	2d16 +2d16 +5d16
10	27.3	.91	9.2	.307	2d10 +3d18	18.1	.603	2d16 +2d16 +5d16
11	38.42	1.281	24.35	.812	2d16 +4d16 +2d1 ...	14.07	.469	2d16 +5d16
12	44.58	1.486	28.37	.946	2d16 +4d16 +2d1 ...	16.21	.54	4d14 +5d16
13	40.56	1.352	24.35	.812	2d16 +4d16 +2d1 ...	16.21	.54	4d14 +5d16
14	28.9	.963	9.61	.32	4d16 +2d10	19.29	.643	2d14 +4d14 +5d16
15	32.92	1.097	13.63	.454	4d16 +2d16 +2d10	19.29	.643	2d14 +4d14 +5d16
16	36.	1.2	19.79	.66	4d16 +2d14 +2d1 ...	16.21	.54	4d14 +5d16
17	40.02	1.334	23.81	.794	4d16 +2d14 +2d1 ...	16.21	.54	4d14 +5d16
18	40.02	1.334	19.79	.66	4d16 +2d14 +2d1 ...	20.23	.674	2d16 +4d14 +5d16
19	33.87	1.129	19.79	.66	4d16 +2d14 +2d1 ...	14.07	.469	2d16 +5d16
20	22.75	.758	5.59	.186	2d10 +2d16	17.15	.572	2d14 +2d16 +5d16
21	18.72	.624	1.57	.052	2d10	17.15	.572	2d14 +2d16 +5d16
22	18.72	.624	4.65	.155	2d14 +2d10	14.07	.469	2d16 +5d16
23	18.72	.624	8.67	.289	2d14 +2d16 +2d10	10.05	.335	5d16

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr9\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=370.; fck=307.1; fctk= 20.6; fctm= 29.4; Ec= 330194. ;  
gc =1.5 ; fcd=174. ; fbd= 30.9; fctd= 13.7; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;

gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)=184.3; Scls(quasi permanente)=138.2; fbd(esercizio)= 30.9  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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SEZIONI UTILIZZATE

3) Rettangolare: 60x50; A=3000.; Jg=625000.; E=330194.3  
6) Rettangolare: 70x24; A=1680.; Jg=80640.; E=330194.3

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A164	3	3	3	0	235.	195.	4.7	1.3	5.	167.078
2	A165	3	3	3	0	425.	385.	8.5	1.5	2.233	82.614
3	A166	3	3	3	0	215.	175.	4.3	1.5	5.	194.133
4	A200	3	3	3	0	425.	388.	8.5	1.5	2.186	80.846
5	A168	3	3	3	0	232.	197.	4.64	1.5	5.	186.336
6	A192	6	6	6	0	489.	454.	20.363	1.3	3.982	123.145

VERIFICHE ALLO STATO LIMITE ULTIMO

FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.1.	-5737.68	-.02	.066	-11976.63	-.043	.138	2.	.236	2.087	SI
20.	20.	3.1.	708.39	-.003	.013	7616.19	-.03	.138	2.	.18	10.75	SI
41.	41.	3.1.	-5737.68	-.022	.079	-10025.57	-.04	.138	2.	.222	1.747	SI
179.	179.	3.3.	-1957.14	-.006	.014	-18642.93	-.057	.138	2.	.293	9.526	SI
194.	194.	3.4.	1796.87	-.005	.014	17472.7	-.049	.138	2.	.26	9.724	SI
235.	235.	3.4.	-2695.34	-.007	.017	-21491.53	-.056	.138	2.	.289	7.974	SI
235.	235.	3.4.	1693.96	-.004	.014	17273.69	-.046	.138	2.	.25	10.2	SI
> 235.	0.	3.4.	-17763.9	-.046	.114	-21491.53	-.056	.138	2.	.289	1.21	SI
235.	0.	3.4.	4028.99	-.01	.032	17273.69	-.046	.138	2.	.25	4.287	SI
255.	20.	3.5.	-17763.9	-.042	.09	-27285.65	-.067	.138	2.	.325	1.536	SI
305.	70.	3.6.	6404.99	-.016	.041	21643.99	-.057	.138	2.	.293	3.379	SI
386.	151.	3.8.	-2682.31	-.009	.045	-8256.98	-.029	.138	2.	.174	3.078	SI
509.	274.	3.8.	-1064.64	-.004	.018	-8256.98	-.029	.138	2.	.174	7.756	SI
549.	314.	3.8.	8573.45	-.025	.062	19148.75	-.058	.138	2.	.295	2.233	SI
660.	425.	3.13	-14107.17	-.036	.092	-21202.57	-.056	.138	2.	.287	1.503	SI
660.	425.	3.13	7480.02	-.02	.06	17269.09	-.046	.138	2.	.25	2.309	SI
> 660.	0.	3.13	-3571.21	-.009	.023	-21202.57	-.056	.138	2.	.287	5.937	SI
701.	41.	3.13	224.09	-.001	.002	17269.09	-.046	.138	2.	.25	77.06	SI
716.	56.	3.14	-2666.01	-.007	.018	-20901.2	-.062	.138	2.	.309	7.84	SI
716.	56.	3.14	356.12	-.001	.006	7651.77	-.027	.138	2.	.164	21.49	SI
805.	145.	3.14	682.1	-.002	.012	7651.77	-.027	.138	2.	.164	11.22	SI
875.	215.	3.13	-2612.22	-.007	.017	-21202.57	-.056	.138	2.	.287	8.117	SI
875.	215.	3.13	132.19	0.	.001	17269.09	-.046	.138	2.	.25	130.6	SI
> 875.	0.	3.13	-13981.91	-.036	.091	-21202.57	-.056	.138	2.	.287	1.516	SI
875.	0.	3.13	7578.04	-.02	.061	17269.09	-.046	.138	2.	.25	2.279	SI
895.	20.	3.12	-13981.91	-.033	.071	-27001.98	-.066	.138	2.	.323	1.931	SI
986.	111.	3.8.	-5065.64	-.018	.085	-8256.98	-.029	.138	2.	.174	1.63	SI
986.	111.	3.8.	8760.97	-.026	.063	19148.75	-.058	.138	2.	.295	2.186	SI
1027.	152.	3.8.	-929.28	-.003	.016	-8256.98	-.029	.138	2.	.174	8.885	SI
1068.	193.	3.16	7728.23	-.021	.055	19320.82	-.054	.138	2.	.281	2.5	SI
1191.	316.	3.8.	-7383.16	-.026	.124	-8256.98	-.029	.138	2.	.174	1.118	SI
1279.	404.	3.12	-17650.41	-.042	.09	-27001.98	-.066	.138	2.	.323	1.53	SI
1300.	425.	3.13	-17650.41	-.046	.115	-21202.57	-.056	.138	2.	.287	1.201	SI
1300.	425.	3.13	3971.1	-.01	.032	17269.09	-.046	.138	2.	.25	4.349	SI
> 1300.	0.	3.13	-1299.91	-.003	.008	-21202.57	-.056	.138	2.	.287	16.31	SI
1300.	0.	3.13	2863.1	-.007	.023	17269.09	-.046	.138	2.	.25	6.032	SI
1339.	39.	3.17	2828.56	-.007	.023	17296.99	-.045	.138	2.	.247	6.115	SI
1353.	53.	3.17	-614.08	-.001	.004	-23004.06	-.059	.138	2.	.299	37.46	SI
1368.	68.	3.18	-11.06	0.	0.	-22660.6	-.065	.138	2.	.321	2049.	SI
1368.	68.	3.18	2628.6	-.009	.047	7656.84	-.027	.138	2.	.161	2.913	SI
1532.	232.	3.20	-7585.46	-.023	.052	-19979.88	-.062	.138	2.	.31	2.634	SI
> 1532.	0.	6.21	-1507.88	-.004	-.022	-12787.15	-.063	-.283	4.	.312	8.48	SI
1532.	0.	6.21	88.43	0.	.001	8424.39	-.03	.138	2.	.178	95.27	SI
1607.	75.	6.23	-924.63	-.01	.022	-5878.34	-.065	.138	2.	.321	6.357	SI
1641.	109.	6.24	-569.03	-.014	.089	-882.44	-.022	.138	2.	.136	1.551	NO
1675.	143.	6.24	-265.81	-.007	.042	-882.44	-.022	.138	2.	.136	3.32	NO
1709.	177.	6.24	-1.75	0.	0.	-882.44	-.022	.138	2.	.136	504.6	NO
1776.	244.	6.24	1227.53	-.015	.035	4888.47	-.065	.138	2.	.32	3.982	SI
2021.	489.	6.26	-69.69	-.001	.003	-3344.75	-.048	.138	2.	.256	48.	SI
2021.	489.	6.26	170.33	-.003	.009	2521.42	-.039	.138	2.	.22	14.8	SI

TAGLIO:

Progressive|Se| vsd | VRd | VRcd | VRsd Asw s ctgT|Ve|

>	0.	0.	3.	7788.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	20.	20.	3.	7788.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	21.	21.	3.	7788.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	41.	41.	3.	7332.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	56.	56.	3.	6469.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	70.	70.	3.	5752.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	70.	70.	3.	5752.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	102.	102.	3.	-306.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	102.	102.	3.	4257.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	133.	133.	3.	-1802.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	133.	133.	3.	2761.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	165.	165.	3.	-3298.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	165.	165.	3.	1265.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	165.	165.	3.	-3298.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	165.	165.	3.	1265.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	179.	179.	3.	-3974.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	179.	179.	3.	590.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	194.	194.	3.	-4650.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	214.	214.	3.	-5017.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	215.	215.	3.	-5017.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	235.	235.	3.	-5017.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
>	235.	0.	3.	16191.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	255.	20.	3.	16191.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	256.	21.	3.	16191.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	276.	41.	3.	15686.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	291.	56.	3.	14720.	13096.	76960.	11889.	1.01	25.	2.5	NO	4 6
	305.	70.	3.	13974.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	305.	70.	3.	13974.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	346.	111.	3.	11852.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	386.	151.	3.	-1509.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	386.	151.	3.	9729.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	427.	192.	3.	-3632.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
	427.	192.	3.	7607.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
	468.	233.	3.	-5754.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
	468.	233.	3.	5484.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
	509.	274.	3.	-7877.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	509.	274.	3.	3362.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	549.	314.	3.	-9999.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	549.	314.	3.	1239.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	590.	355.	3.	-12122.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	590.	355.	3.	-12122.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	604.	369.	3.	-12868.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	619.	384.	3.	-13650.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	639.	404.	3.	-14043.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	640.	405.	3.	-14043.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	660.	425.	3.	-14043.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
>	660.	0.	3.	6715.	15054.	76960.	11889.	1.01	25.	2.5	NO	6
	680.	20.	3.	6715.	15054.	76960.	11889.	1.01	25.	2.5	NO	6
	681.	21.	3.	6715.	15054.	76960.	11889.	1.01	25.	2.5	NO	6
	701.	41.	3.	6136.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	716.	56.	3.	5010.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	730.	70.	3.	4122.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	730.	70.	3.	4122.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	768.	108.	3.	-1034.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	768.	108.	3.	2062.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	805.	145.	3.	-2989.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	805.	145.	3.	107.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	805.	145.	3.	-2989.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	805.	145.	3.	107.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	819.	159.	3.	-3735.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	834.	174.	3.	-4738.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	854.	194.	3.	-5273.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	855.	195.	3.	-5273.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	875.	215.	3.	-5273.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
>	875.	0.	3.	14037.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	895.	20.	3.	14037.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	896.	21.	3.	14037.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	916.	41.	3.	13628.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	931.	56.	3.	12820.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	945.	70.	3.	12074.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	945.	70.	3.	12074.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	986.	111.	3.	-1149.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	986.	111.	3.	9933.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1027.	152.	3.	-3290.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1027.	152.	3.	7792.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1068.	193.	3.	-5431.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
	1068.	193.	3.	5650.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
	1109.	234.	3.	-7572.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
	1109.	234.	3.	3509.	14594.	76960.	11889.	1.01	25.	2.5	NO	6
	1150.	275.	3.	-9713.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1150.	275.	3.	1368.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1191.	316.	3.	-11854.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1232.	358.	3.	-13995.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	1232.	358.	3.	-13995.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	1247.	372.	3.	-14742.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	1261.	386.	3.	-15764.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	1279.	404.	3.	-16274.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	1282.	408.	3.	-16274.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
	1300.	425.	3.	-16274.	11704.	76960.	11889.	1.01	25.	2.5	NO	4 6
>	1300.	0.	3.	-383.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1300.	0.	3.	4576.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1318.	18.	3.	-383.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1318.	18.	3.	4576.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1321.	21.	3.	-583.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1321.	21.	3.	4576.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1339.	39.	3.	-1479.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1339.	39.	3.	4211.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
	1353.	53.	3.	-2206.	11704.	76960.	11889.	1.01	25.	2.5	NO	6



1353.	53.	3.	3485.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1368.	68.	3.	-2924.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1368.	68.	3.	2766.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1368.	68.	3.	-2924.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1368.	68.	3.	2766.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1400.	100.	3.	-4525.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1400.	100.	3.	1165.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1432.	132.	3.	-6094.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1465.	165.	3.	-7738.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1465.	165.	3.	-7738.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1479.	179.	3.	-8557.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1493.	193.	3.	-9502.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1511.	211.	3.	-9969.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1515.	215.	3.	-9969.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
1532.	232.	3.	-9969.	11704.	76960.	11889.	1.01	25.	2.5	NO	6
>1532.	0.	6.	1451.	9939.	40640.	3784.	.57	20.	2.5	NO	5 6
1542.	10.	6.	1451.	9939.	40640.	3784.	.57	20.	2.5	NO	5 6
1550.	18.	6.	1451.	9939.	40640.	3784.	.57	20.	2.5	NO	5 6
1559.	27.	6.	1433.	9939.	40640.	3784.	.57	20.	2.5	NO	5 6
1574.	42.	6.	1355.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
1574.	42.	6.	1355.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
1607.	75.	6.	1171.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
1641.	109.	6.	986.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
1675.	143.	6.	816.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
1709.	177.	6.	655.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
1743.	211.	6.	510.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1776.	244.	6.	-12.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1776.	244.	6.	368.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1810.	278.	6.	-154.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1810.	278.	6.	226.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1844.	312.	6.	-296.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1844.	312.	6.	84.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1878.	346.	6.	-438.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1912.	380.	6.	-580.	9442.	40640.	3784.	.57	20.	2.5	NO	5 6
1945.	413.	6.	-722.	8885.	40640.	3784.	.57	20.	2.5	NO	5 6
1979.	447.	6.	-887.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
1979.	447.	6.	-887.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
1994.	462.	6.	-964.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
2003.	471.	6.	-981.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
2011.	479.	6.	-981.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6
2021.	489.	6.	-981.	8037.	40640.	3784.	.57	20.	2.5	NO	5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-3345.22	-17.7	775.9	9.86	6.25	.0233	14.6	.034	SI
20.	20.	3.	1.	-3345.22	-17.7	775.9	9.86	6.25	.0233	14.6	.034	SI
21.	21.	3.	1.	-3252.29	-17.2	754.4	9.86	6.25	.0226	14.6	.033	SI
41.	41.	3.	1.	-2079.92	-12.2	577.5	7.6	6.25	.0173	50.14	.087	SI
56.	56.	3.	2.	-1326.54	-7.8	393.6	7.6	6.25	.0118	50.84	.06	SI
70.	70.	3.	2.	-741.36	-4.2	220.5	7.6	6.25	.0066	51.4	.034	SI
70.	70.	3.	2.	-741.36	-4.2	220.5	7.6	6.25	.0066	51.4	.034	SI
133.	133.	3.	2.	753.42	-4.1	203.2	8.42	6.25	.0061	16.27	.01	SI
235.	235.	3.	4.	-878.98	-3.4	113.4	17.91	6.25	.0034	10.98	.004	SI
> 235.	0.	3.	4.	-7911.31	-30.3	1021.	17.91	6.25	.0352	10.98	.039	SI
468.	233.	3.	8.	5399.29	-23.9	782.7	16.08	6.25	.0235	12.12	.028	SI
660.	425.	3.	13	-4095.91	-15.7	535.8	17.66	6.25	.0161	11.26	.018	SI
> 660.	0.	3.	13	-2597.01	-10.	339.7	17.66	6.25	.0102	11.26	.011	SI
768.	108.	3.	15	410.53	-2.4	149.7	6.16	6.25	.0045	52.88	.024	SI
875.	215.	3.	13	-1613.78	-6.2	211.1	17.66	6.25	.0063	11.26	.007	SI
> 875.	0.	3.	13	-4003.99	-15.4	523.8	17.66	6.25	.0157	11.26	.018	SI
1068.	193.	3.	16	5581.78	-22.9	801.6	16.08	6.25	.024	12.12	.029	SI
1300.	425.	3.	13	-7940.96	-30.5	1038.8	17.66	6.25	.0359	11.26	.04	SI
>1300.	0.	3.	13	-30.43	-.1	4.	17.66	6.25	.0001	11.26	0.	SI
1300.	0.	3.	13	815.7	-3.2	131.	14.2	6.25	.0039	12.54	.005	SI
1353.	53.	3.	17	1733.77	-6.7	278.	14.2	6.25	.0083	12.54	.01	SI
1368.	68.	3.	18	1704.2	-8.7	617.1	6.16	6.25	.0185	54.22	.1	SI
1532.	232.	3.	20	-4679.7	-21.3	651.6	15.8	6.25	.0195	11.34	.022	SI
>1532.	0.	6.	21	-687.84	-2.6	116.9	15.8	6.23	.0035	12.24	.004	SI
1844.	312.	6.	24	867.34	-16.9	492.6	9.24	5.57	.0148	21.72	.032	SI
2021.	489.	6.	26	54.27	-1.2	59.8	4.62	6.25	.0018	24.57	.004	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-3001.25!	-15.9!	696.1!	9.86	6.25	.0209	14.6	.03	SI
20.	20.	3.	1.	-3001.25!	-15.9	696.1	9.86	6.25	.0209	14.6	.03	SI
21.	21.	3.	1.	-2916.26	-15.4	676.4	9.86	6.25	.0203	14.6	.03	SI
41.	41.	3.	1.	-1846.52	-10.8	512.7	7.6	6.25	.0154	50.14	.077!	SI
56.	56.	3.	2.	-1160.42	-6.8	344.3	7.6	6.25	.0103	50.84	.053	SI
70.	70.	3.	2.	-630.4	-3.5	187.5	7.6	6.25	.0056	51.4	.029	SI
70.	70.	3.	2.	-630.4	-3.5	187.5	7.6	6.25	.0056	51.4	.029	SI
133.	133.	3.	2.	688.04!	-3.8	185.5	8.42	6.25	.0056	16.27	.009	SI
235.	235.	3.	4.	-602.31	-2.3	77.7	17.91	6.25	.0023	10.98	.003	SI
> 235.	0.	3.	4.	-7091.13!	-27.1	915.1	17.91	6.25	.0299	10.98	.033!	SI
468.	233.	3.	8.	4774.04!	-21.2	692.1	16.08	6.25	.0208	12.12	.025	SI
660.	425.	3.	13	-3500.55!	-13.5	457.9	17.66	6.25	.0137	11.26	.015	SI
> 660.	0.	3.	13	-2249.95!	-8.7	294.3	17.66	6.25	.0088	11.26	.01	SI
768.	108.	3.	15	353.84!	-2.1	129.	6.16	6.25	.0039	52.88	.02	SI
875.	215.	3.	13	-1339.71	-5.2	175.3	17.66	6.25	.0053	11.26	.006	SI
> 875.	0.	3.	13	-3393.79	-13.	444.	17.66	6.25	.0133	11.26	.015	SI
1068.	193.	3.	16	4944.25!	-20.3	710.	16.08	6.25	.0213	12.12	.026	SI
1300.	425.	3.	13	-7128.42!	-27.4	932.5	17.66	6.25	.0306	11.26	.034!	SI
>1300.	0.	3.	13	500.18	-2.	80.3	14.2	6.25	.0024	12.54	.003	SI
1368.	68.	3.	18	1448.31!	-7.4	524.4	6.16	6.25	.0157	54.22	.085!	SI
1532.	232.	3.	20	-4146.14!	-18.9	577.3	15.8	6.25	.0173	11.34	.02	SI

>1532.	0.	6.	21	-679.04!	-2.5!	115.4!	15.8!	6.23!	.0035!	12.24!	.004!	SI
1844.	312.	6.	24	847.32!	-16.5!	481.2!	9.24!	5.57!	.0144!	21.72!	.031!	SI
2021.	489.	6.	26	16.96!	-.4!	18.7!	4.62!	6.25!	.0006!	24.57!	.001!	SI

# TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-2903.37!	-15.4!	673.4!	9.86!	6.25!	.0202!	14.6!	.03!	SI
20.	20.	3.	1.	-2903.37!	-15.4!	673.4!	9.86!	6.25!	.0202!	14.6!	.03!	SI
21.	21.	3.	1.	-2819.72!	-14.9!	654.	9.86!	6.25!	.0196!	14.6!	.029!	SI
41.	41.	3.	1.	-1769.54!	-10.4!	491.4!	7.6!	6.25!	.0147!	50.14!	.074!	SI
56.	56.	3.	2.	-1097.43!	-6.5!	325.6!	7.6!	6.25!	.0098!	50.84!	.05!	SI
70.	70.	3.	2.	-581.41!	-3.3!	172.9!	7.6!	6.25!	.0052!	51.4!	.027!	SI
70.	70.	3.	2.	-581.41!	-3.3!	172.9!	7.6!	6.25!	.0052!	51.4!	.027!	SI
133.	133.	3.	2.	667.08!	-3.7!	179.9!	8.42!	6.25!	.0054!	16.27!	.009!	SI
235.	235.	3.	4.	-509.95!	-2.	65.8!	17.91!	6.25!	.002!	10.98!	.002!	SI
> 235.	0.	3.	4.	-6901.83!	-26.4!	890.7!	17.91!	6.25!	.0286!	10.98!	.031!	SI
468.	233.	3.	8.	4619.8!	-20.5!	669.7!	16.08!	6.25!	.0201!	12.12!	.024!	SI
660.	425.	3.	13	-3335.22!	-12.8!	436.3!	17.66!	6.25!	.0131!	11.26!	.015!	SI
> 660.	0.	3.	13	-2159.01!	-8.3!	282.4!	17.66!	6.25!	.0085!	11.26!	.01!	SI
680.	20.	3.	13	-2159.01!	-8.3!	282.4!	17.66!	6.25!	.0085!	11.26!	.01!	SI
768.	108.	3.	15	322.21!	-1.9!	117.5!	6.16!	6.25!	.0035!	52.88!	.019!	SI
875.	215.	3.	13	-1259.55!	-4.8!	164.8!	17.66!	6.25!	.0049!	11.26!	.006!	SI
> 875.	0.	3.	13	-3224.32!	-12.4!	421.8!	17.66!	6.25!	.0127!	11.26!	.014!	SI
1068.	193.	3.	16	4788.78!	-19.6!	687.7!	16.08!	6.25!	.0206!	12.12!	.025!	SI
1300.	425.	3.	13	-6937.46!	-26.7!	907.5!	17.66!	6.25!	.0293!	11.26!	.033!	SI
>1300.	0.	3.	13	306.57!	-1.2!	49.2!	14.2!	6.25!	.0015!	12.54!	.002!	SI
1368.	68.	3.	18	1361.32!	-6.9!	492.9!	6.16!	6.25!	.0148!	54.22!	.08!	SI
1532.	232.	3.	20	-4000.88!	-18.2!	557.1!	15.8!	6.25!	.0167!	11.34!	.019!	SI
>1532.	0.	6.	21	-675.06!	-2.5!	114.7!	15.8!	6.23!	.0034!	12.24!	.004!	SI
1844.	312.	6.	24	842.26!	-16.4!	478.3!	9.24!	5.57!	.0143!	21.72!	.031!	SI
2021.	489.	6.	26	6.47!	-.1!	7.1!	4.62!	6.25!	.0002!	24.57!	.001!	SI

## ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	16.02	.534	9.86	.329	2d10 +2d12 +3d16	6.16	.205	4d14
2	16.02	.534	7.6	.253	2d10 +3d16	8.42	.281	2d12 +4d14
3	24.06	.802	15.65	.522	2d10 +3d16 +2d1 ...	8.42	.281	2d12 +4d14
4	32.11	1.07	17.91	.597	2d10 +2d12 +3d1 ...	14.2	.473	4d14 +4d16
5	37.2	1.24	23.	.767	2d10 +2d12 +3d1 ...	14.2	.473	4d14 +4d16
6	37.2	1.24	18.98	.633	2d10 +2d12 +3d1 ...	18.22	.607	2d16 +4d14 +4d16
7	28.78	.959	12.69	.423	2d10 +3d16 +2d18	16.08	.536	2d16 +2d16 +4d16
8	22.75	.758	6.66	.222	2d10 +2d18	16.08	.536	2d16 +2d16 +4d16
9	17.66	.589	1.57	.052	2d10	16.08	.536	2d16 +2d16 +4d16
10	30.79	1.026	18.72	.624	2d10 +4d16 +2d1 ...	12.06	.402	2d16 +4d16
11	36.95	1.232	18.72	.624	2d10 +4d16 +2d1 ...	18.22	.607	2d16 +4d14 +4d16
12	36.95	1.232	22.75	.758	2d10 +4d16 +2d1 ...	14.2	.473	4d14 +4d16
13	31.86	1.062	17.66	.589	2d10 +4d16 +2d1 ...	14.2	.473	4d14 +4d16
14	23.81	.794	17.66	.589	2d10 +4d16 +2d1 ...	6.16	.205	4d14
15	15.77	.526	9.61	.32	2d10 +4d16	6.16	.205	4d14
16	27.83	.928	11.75	.392	2d10 +2d18 +2d18	16.08	.536	2d16 +2d16 +4d16
17	33.43	1.114	19.23	.641	2d10 +2d10 +4d1 ...	14.2	.473	4d14 +4d16
18	25.38	.846	19.23	.641	2d10 +2d10 +4d1 ...	6.16	.205	4d14
19	21.96	.732	15.8	.527	2d10 +2d10 +4d1 ...	6.16	.205	4d14
20	26.58	.886	20.42	.681	2d10 +2d10 +4d1 ...	6.16	.205	4d14
21	26.58	1.582	15.8	.941	2d10 +2d10 +4d1 ...	10.78	.641	4d14 +3d14
22	25.01	1.489	14.23	.847	2d10 +4d16 +1d1 ...	10.78	.641	4d14 +3d14
23	18.85	1.122	11.15	.664	2d10 +4d16 +1d14	7.7	.458	2d14 +3d14
24	10.81	.643	1.57	.093	2d10	9.24	.55	1d14 +2d14 +3d14
25	10.81	.643	3.11	.185	2d10 +1d14	7.7	.458	2d14 +3d14
26	10.81	.643	6.19	.368	2d10 +1d14 +2d14	4.62	.275	3d14

## MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr4\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 60X50; A=3000.; Jg=625000.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A171	3	3	3	0	188.	148.	3.757	1.3	4.983	123.408
2	A170	3	3	3	0	390.	350.	7.8	1.5	1.769	51.263
3	A169	3	3	3	0	421.	383.	8.412	1.3	1.242	31.186

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.1.	-3566.32	-0.016	.026	-18752.63	-0.091	.138	2.	.397	5.258	SI
20.	20.	3.1.	227.79	-0.001	.007	4230.18	-0.024	.138	2.	.147	18.57	NO 8
21.	21.	3.1.	255.11	-0.001	.008	4230.18	-0.024	.138	2.	.147	16.58	NO 8
41.	41.	3.1.	643.48	-0.004	.021	4230.18	-0.024	.138	2.	.147	6.574	NO 8
56.	56.	3.1.	885.43	-0.005	.029	4230.18	-0.024	.138	2.	.147	4.778	NO 8
70.	70.	3.1.	1102.55	-0.006	.036	4230.18	-0.024	.138	2.	.147	3.837	NO 8
70.	70.	3.1.	1102.55	-0.006	.036	4230.18	-0.024	.138	2.	.147	3.837	NO 8
94.	94.	3.2.	1384.96	-0.008	.045	4231.8	-0.023	.138	2.	.144	3.056	NO 8
118.	118.	3.2.	1568.47	-0.009	.051	4231.8	-0.023	.138	2.	.144	2.698	NO 8
118.	118.	3.2.	1568.47	-0.009	.051	4231.8	-0.023	.138	2.	.144	2.698	NO 8
132.	132.	3.3.	1637.93	-0.007	.027	8384.03	-0.035	.138	2.	.201	5.119	SI
166.	166.	3.3.	1682.57	-0.007	.028	8384.03	-0.035	.138	2.	.201	4.983	SI
188.	188.	3.3.	-11036.8	-0.044	.067	-22733.43	-0.096	.138	2.	.411	2.06	SI
188.	188.	3.3.	1682.57	-0.007	.028	8384.03	-0.035	.138	2.	.201	4.983	SI
> 188.	0.	3.3.	-14266.06	-0.058	.086	-22733.43	-0.096	.138	2.	.411	1.594	SI
188.	0.	3.3.	6409.97	-0.027	.106	8384.03	-0.035	.138	2.	.201	1.308	SI
209.	21.	3.3.	-14266.06	-0.058	.087	-22581.48	-0.096	.138	2.	.41	1.583	SI
209.	21.	3.3.	6409.97	-0.027	.106	8371.6	-0.035	.138	2.	.202	1.306	SI
383.	195.	3.6.	-1332.85	-0.006	.012	-15303.54	-0.071	.138	2.	.34	11.48	SI
536.	349.	3.9.	8290.3	-0.03	.071	16161.19	-0.059	.138	2.	.3	1.949	SI
556.	369.	3.9.	8957.29	-0.031	.078	15847.13	-0.055	.138	2.	.285	1.769	SI
578.	390.	3.9.	-10450.09	-0.036	.062	-23264.18	-0.084	.138	2.	.378	2.226	SI
578.	390.	3.9.	8957.29	-0.03	.078	15878.56	-0.055	.138	2.	.284	1.773	SI
> 578.	0.	3.9.	-14261.06	-0.05	.085	-23264.18	-0.084	.138	2.	.378	1.631	SI
578.	0.	3.9.	4345.75	-0.015	.038	15878.56	-0.055	.138	2.	.284	3.654	SI
688.	110.	3.6.	3714.63	-0.018	.062	8274.78	-0.04	.138	2.	.223	2.228	SI
810.	232.	3.10	-734.35	-0.003	.006	-15679.17	-0.058	.138	2.	.297	21.35	SI
810.	232.	3.10	4896.86	-0.018	.035	19270.88	-0.073	.138	2.	.345	3.935	SI
977.	399.	3.12	12481.37	-0.046	.111	15500.55	-0.058	.138	2.	.294	1.242	SI
981.	403.	3.12	12481.37	-0.046	.111	15500.55	-0.058	.138	2.	.294	1.242	SI
998.	421.	3.12	-9149.78	-0.033	.065	-19440.61	-0.074	.138	2.	.347	2.125	SI
998.	421.	3.12	12481.37	-0.046	.111	15500.55	-0.058	.138	2.	.294	1.242	SI

#### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	-3283.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
0.	0.	3.	2458.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
20.	20.	3.	-3568.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
20.	20.	3.	2458.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
21.	21.	3.	-3588.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
21.	21.	3.	2438.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
41.	41.	3.	-3881.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
41.	41.	3.	2145.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
56.	56.	3.	-4095.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
56.	56.	3.	1931.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
70.	70.	3.	-4311.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
70.	70.	3.	1715.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
70.	70.	3.	-4311.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
70.	70.	3.	1715.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
94.	94.	3.	-4681.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
94.	94.	3.	1345.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
118.	118.	3.	-5062.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
118.	118.	3.	964.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
118.	118.	3.	-5062.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
118.	118.	3.	964.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
132.	132.	3.	-5295.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
132.	132.	3.	731.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
146.	146.	3.	-5531.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
146.	146.	3.	495.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
166.	166.	3.	-5866.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
166.	166.	3.	160.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
168.	168.	3.	-5889.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
168.	168.	3.	137.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
188.	188.	3.	-5889.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
> 188.	0.	3.	-1566.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
188.	0.	3.	9471.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
208.	20.	3.	-1566.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
208.	20.	3.	9132.	8569.	40441.	11889.	1.01	25.	2.5 NO 6
209.	21.	3.	-1590.	8569.	40441.	11889.	1.01	25.	2.5 NO 6

209.	21.	3.	9109.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
229.	41.	3.	-1929.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
229.	41.	3.	8769.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
244.	56.	3.	-2172.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
244.	56.	3.	8527.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
258.	70.	3.	-2414.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
258.	70.	3.	8285.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
258.	70.	3.	-2414.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
258.	70.	3.	8285.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
300.	112.	3.	-3117.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
300.	112.	3.	7581.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
341.	153.	3.	-3819.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
341.	153.	3.	6879.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
383.	195.	3.	-4519.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
383.	195.	3.	6179.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
425.	237.	3.	-5217.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
425.	237.	3.	5482.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
466.	278.	3.	-5912.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
466.	278.	3.	4786.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
508.	320.	3.	-6606.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
508.	320.	3.	4093.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
508.	320.	3.	-6606.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
508.	320.	3.	4093.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
522.	334.	3.	-6844.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
522.	334.	3.	3855.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
536.	349.	3.	-7081.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
536.	349.	3.	3617.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
556.	369.	3.	-7413.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
556.	369.	3.	3286.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
558.	370.	3.	-7436.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
558.	370.	3.	3263.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
578.	390.	3.	-7436.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
578.	390.	3.	2931.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
> 578.	0.	3.	-225.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
578.	0.	3.	10032.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
598.	20.	3.	-225.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
598.	20.	3.	9701.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
599.	21.	3.	-248.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
599.	21.	3.	9679.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
619.	41.	3.	-578.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
619.	41.	3.	9348.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
634.	56.	3.	-814.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
634.	56.	3.	9112.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
648.	70.	3.	-1050.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
648.	70.	3.	8877.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
648.	70.	3.	-1050.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
648.	70.	3.	8877.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
688.	110.	3.	-1715.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
688.	110.	3.	8212.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
729.	151.	3.	-2378.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
729.	151.	3.	7549.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
769.	191.	3.	-3039.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
769.	191.	3.	6888.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
810.	232.	3.	-3698.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
810.	232.	3.	6228.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
850.	272.	3.	-4356.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
850.	272.	3.	5571.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
890.	313.	3.	-5011.	9196.	40441.	11889.	1.01	25.	2.5	NO	6
890.	313.	3.	4915.	9196.	40441.	11889.	1.01	25.	2.5	NO	6
931.	353.	3.	-5665.	9456.	40441.	11889.	1.01	25.	2.5	NO	6
931.	353.	3.	4262.	9456.	40441.	11889.	1.01	25.	2.5	NO	6
931.	353.	3.	-5665.	9456.	40441.	11889.	1.01	25.	2.5	NO	6
931.	353.	3.	4262.	9456.	40441.	11889.	1.01	25.	2.5	NO	6
945.	367.	3.	-5896.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
945.	367.	3.	4031.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
960.	382.	3.	-6126.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
960.	382.	3.	3800.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
977.	399.	3.	-6408.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
977.	399.	3.	3519.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
981.	403.	3.	-6470.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
981.	403.	3.	3456.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
998.	421.	3.	-6470.	8569.	40441.	11889.	1.01	25.	2.5	NO	6
998.	421.	3.	3175.	8569.	40441.	11889.	1.01	25.	2.5	NO	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-2005.29	-9.3	288.	16.37	6.25	.0086	11.41	.01	SI
20.	20.	3.	-2079.32	-9.7	298.7	16.37	6.25	.009	11.41	.01	SI
20.	20.	3.	121.49	-.8	79.2	3.39	6.25	.0024	56.74	.013	SI
21.	21.	3.	136.22	-.9	88.8	3.39	6.25	.0027	56.74	.015	SI
41.	41.	3.	298.39	-2.	194.5	3.39	6.25	.0058	56.74	.033	SI
56.	56.	3.	386.04	-2.6	251.6	3.39	6.25	.0075	56.74	.043	SI
94.	94.	3.	480.03	-3.2	312.8	3.39	6.25	.0094	56.86	.053	SI
188.	188.	3.	-5288.74	-21.9	629.9	19.76	6.25	.0214	9.9	.021	SI
> 188.	0.	3.	-4455.5	-18.4	530.7	19.76	6.25	.0165	9.9	.016	SI
425.	237.	3.	1920.98	-10.4	635.	6.79	6.25	.0191	17.73	.034	SI
578.	390.	3.	-1896.2	-7.2	223.1	19.76	6.25	.0067	9.9	.007	SI
> 578.	0.	3.	-5635.18	-21.3	663.	19.76	6.25	.0231	9.9	.023	SI
688.	110.	3.	-1851.99	-8.8	329.9	12.97	6.25	.0099	47.31	.047	SI
890.	313.	3.	2618.99	-10.5	372.6	16.21	6.25	.0112	11.25	.013	SI
998.	421.	3.	-2089.02	-8.4	294.5	16.37	6.25	.0088	11.41	.01	SI
998.	421.	3.	1558.86	-6.4	276.8	12.82	6.25	.0083	13.56	.011	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1838.01	-8.5	264.	16.37	6.25	.0079	11.41	.009 SI
20.	20.	3.	1.	-1920.31	-8.9	275.8	16.37	6.25	.0083	11.41	.009 SI
20.	20.	3.	1.	105.03	-7	68.5	3.39	6.25	.0021	56.74	.012 SI
21.	21.	3.	1.	119.88	-8	78.1	3.39	6.25	.0023	56.74	.013 SI
41.	41.	3.	1.	275.65	-1.8	179.7	3.39	6.25	.0054	56.74	.031 SI
56.	56.	3.	1.	356.54	-2.4	232.4	3.39	6.25	.007	56.74	.04 SI
94.	94.	3.	2.	441.71	-2.9	287.8	3.39	6.25	.0086	56.86	.049 SI
188.	188.	3.	3.	-4787.07	-19.8	570.2	19.76	6.25	.0184	9.9	.018 SI
> 188.	0.	3.	3.	-4099.93	-17.	488.3	19.76	6.25	.0146	9.9	.014 SI
425.	237.	3.	6.	1665.53	-9.	550.6	6.79	6.25	.0165	17.73	.029 SI
578.	390.	3.	9.	-1654.52	-6.2	194.6	19.76	6.25	.0058	9.9	.006 SI
> 578.	0.	3.	9.	-5152.74	-19.4	606.2	19.76	6.25	.0202	9.9	.02 SI
688.	110.	3.	6.	-1732.49	-8.3	308.6	12.97	6.25	.0093	47.31	.044 SI
890.	313.	3.	10	2413.38	-9.7	343.3	16.21	6.25	.0103	11.25	.012 SI
998.	421.	3.	12	-1827.88	-7.3	257.7	16.37	6.25	.0077	11.41	.009 SI
998.	421.	3.	12	1454.88	-6.	258.4	12.82	6.25	.0078	13.56	.011 SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1797.35	-8.4	258.2	16.37	6.25	.0077	11.41	.009 SI
20.	20.	3.	1.	-1884.67	-8.8	270.7	16.37	6.25	.0081	11.41	.009 SI
20.	20.	3.	1.	80.58	-5	52.5	3.39	6.25	.0016	56.74	.009 SI
21.	21.	3.	1.	96.01	-6	62.6	3.39	6.25	.0019	56.74	.011 SI
41.	41.	3.	1.	259.49	-1.7	169.1	3.39	6.25	.0051	56.74	.029 SI
56.	56.	3.	1.	340.83	-2.3	222.1	3.39	6.25	.0067	56.74	.038 SI
94.	94.	3.	2.	421.58	-2.8	274.7	3.39	6.25	.0082	56.86	.047 SI
188.	188.	3.	3.	-4677.63	-19.4	557.1	19.76	6.25	.0178	9.9	.018 SI
> 188.	0.	3.	3.	-4022.38	-16.6	479.1	19.76	6.25	.0144	9.9	.014 SI
425.	237.	3.	6.	1599.77	-8.7	528.9	6.79	6.25	.0159	17.73	.028 SI
578.	390.	3.	9.	-1594.1	-6.	187.5	19.76	6.25	.0056	9.9	.006 SI
> 578.	0.	3.	9.	-5049.05	-19.	594.	19.76	6.25	.0196	9.9	.019 SI
688.	110.	3.	6.	-1694.31	-8.1	301.8	12.97	6.25	.0091	47.31	.043 SI
890.	313.	3.	10	2370.04	-9.5	337.2	16.21	6.25	.0101	11.25	.011 SI
998.	421.	3.	12	-1762.6	-7.1	248.5	16.37	6.25	.0075	11.41	.009 SI
998.	421.	3.	12	1388.89	-5.7	246.6	12.82	6.25	.0074	13.56	.01 SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	19.76	.659	16.37	.546	2d10 +3d12 +3d22	3.39	.113	3d12
2	20.89	.696	17.5	.583	2d10 +1d12 +3d1 ...	3.39	.113	3d12
3	26.55	.885	19.76	.659	2d10 +1d12 +2d1 ...	6.79	.226	3d12 +3d12
4	26.55	.885	17.5	.583	2d10 +1d12 +3d1 ...	9.05	.302	2d12 +3d12 +3d12
5	26.55	.885	16.37	.546	2d10 +3d12 +3d22	10.18	.339	1d12 +2d12 +3d1 ...
6	19.76	.659	12.97	.432	2d10 +3d22	6.79	.226	1d12 +2d12 +3d12
7	26.04	.868	12.97	.432	2d10 +3d22	13.07	.436	1d12 +2d12 +3d1 ...
8	27.17	.906	15.24	.508	2d10 +1d12 +1d1 ...	11.94	.398	2d12 +3d12 +2d20
9	32.83	1.094	19.76	.659	2d10 +1d12 +2d1 ...	13.07	.436	3d12 +3d12 +2d20
10	29.19	.973	12.97	.432	2d10 +3d22	16.21	.54	1d12 +2d12 +3d1 ...
11	29.19	.973	14.11	.47	2d10 +1d12 +3d22	15.08	.503	2d12 +3d12 +3d20
12	29.19	.973	16.37	.546	2d10 +1d12 +2d1 ...	12.82	.427	3d12 +3d20

#### MESSAGGI

- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
8) Armatura inferiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * t * d$  oppure  $Af < 0.0013 * b * t * d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr26\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinale= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMA	4.						
6.	SLU con SISMA	4.						

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## SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A183	3	3	3	0	630.	595.	26.25	1.	2.778	49.591

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-3770.63	-.059	.1	-5196.65	-.083	.138	2.	.375	1.378
0.	0.	3.	1.	990.89	-.015	.032	4237.11	-.068	.138	2.	.328	4.276
144.	144.	3.	3.	-1597.04	-.03	.107	-2063.85	-.039	.138	2.	.219	1.292
144.	144.	3.	3.	1371.47	-.021	.026	7106.1	-.124	.138	2.	.473	5.181
247.	247.	3.	4.	-154.98	-.005	.025	-861.13	-.025	.138	2.	.154	5.556
247.	247.	3.	4.	1204.17	-.02	.023	6988.39	-.136	.138	2.	.496	5.803
315.	315.	3.	4.	975.4	-.016	.019	6988.39	-.136	.138	2.	.496	7.165
418.	418.	3.	4.	-313.84	-.009	.05	-861.13	-.025	.138	2.	.154	2.744
554.	554.	3.	1.	1516.15	-.024	.05	4211.66	-.069	.138	2.	.332	2.778
630.	630.	3.	1.	-3220.8	-.05	.085	-5196.65	-.083	.138	2.	.375	1.613
630.	630.	3.	1.	1319.26	-.02	.043	4237.11	-.068	.138	2.	.328	3.212

## TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	2109.	5884.	21355.	3784.	.57	20.
10.	10.	3.	1.	2109.	5884.	21355.	3784.	.57	20.
18.	18.	3.	1.	2109.	5884.	21355.	3784.	.57	20.
27.	27.	3.	1.	2068.	6103.	21355.	3784.	.57	20.
42.	42.	3.	1.	2008.	6103.	21355.	3784.	.57	20.
42.	42.	3.	1.	2008.	6103.	21355.	3784.	.57	20.
76.	76.	3.	1.	1864.	6103.	21355.	3784.	.57	20.
110.	110.	3.	1.	1721.	5884.	21355.	3784.	.57	20.
144.	144.	3.	1.	1577.	5884.	21355.	3784.	.57	20.
178.	178.	3.	1.	-139.	5884.	21355.	3784.	.57	20.
178.	178.	3.	1.	1434.	5884.	21355.	3784.	.57	20.
212.	212.	3.	1.	-283.	5884.	21355.	3784.	.57	20.
212.	212.	3.	1.	1290.	5884.	21355.	3784.	.57	20.
247.	247.	3.	1.	-427.	5884.	21355.	3784.	.57	20.
247.	247.	3.	1.	1147.	5884.	21355.	3784.	.57	20.
281.	281.	3.	1.	-570.	7376.	21355.	3784.	.57	20.
281.	281.	3.	1.	1003.	7376.	21355.	3784.	.57	20.
315.	315.	3.	1.	-714.	7376.	21355.	3784.	.57	20.
315.	315.	3.	1.	859.	7376.	21355.	3784.	.57	20.
349.	349.	3.	1.	-857.	7376.	21355.	3784.	.57	20.
349.	349.	3.	1.	716.	7376.	21355.	3784.	.57	20.
383.	383.	3.	1.	-1001.	7376.	21355.	3784.	.57	20.
383.	383.	3.	1.	572.	7376.	21355.	3784.	.57	20.
418.	418.	3.	1.	-1144.	5884.	21355.	3784.	.57	20.
418.	418.	3.	1.	429.	5884.	21355.	3784.	.57	20.
452.	452.	3.	1.	-1288.	5884.	21355.	3784.	.57	20.
452.	452.	3.	1.	285.	5884.	21355.	3784.	.57	20.
486.	486.	3.	1.	-1432.	5884.	21355.	3784.	.57	20.
486.	486.	3.	1.	141.	5884.	21355.	3784.	.57	20.
520.	520.	3.	1.	-1575.	5884.	21355.	3784.	.57	20.
554.	554.	3.	1.	-1719.	6103.	21355.	3784.	.57	20.
588.	588.	3.	1.	-1862.	6103.	21355.	3784.	.57	20.
588.	588.	3.	1.	-1862.	6103.	21355.	3784.	.57	20.
603.	603.	3.	1.	-1923.	6103.	21355.	3784.	.57	20.
612.	612.	3.	1.	-1963.	5884.	21355.	3784.	.57	20.
620.	620.	3.	1.	-1963.	5884.	21355.	3784.	.57	20.
630.	630.	3.	1.	-1963.	5884.	21355.	3784.	.57	20.

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1403.76	-23.3	733.9	9.99	5.69	.022	14.74	.032
18.	18.	3.	1.	-1403.76	-23.3	733.9	9.99	5.69	.022	14.74	.032
315.	315.	3.	4.	724.66	-12.2	273.8	14.2	5.12	.0082	12.25	.01
630.	630.	3.	1.	-920.78	-15.3	481.4	9.99	5.69	.0144	14.74	.021

## TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1378.62	-22.9	720.8	9.99	5.69	.0216	14.74	.032
18.	18.	3.	1.	-1378.62	-22.9	720.8	9.99	5.69	.0216	14.74	.032
315.	315.	3.	4.	725.23	-12.2	274.	14.2	5.12	.0082	12.25	.01
630.	630.	3.	1.	-936.62	-15.5	489.7	9.99	5.69	.0147	14.74	.022

## TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-1372.5	-22.8	717.6	9.99	5.69	.0215	14.74	.032
18.	18.	3.	1.	-1372.5	-22.8	717.6	9.99	5.69	.0215	14.74	.032
315.	315.	3.	4.	725.34	-12.2	274.	14.2	5.12	.0082	12.25	.01
630.	630.	3.	1.	-939.1	-15.6	491.	9.99	5.69	.0147	14.74	.022

## ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.03	1.073	9.99	.595	2d10	+2d14	+2d1	...
2	18.03	1.073	6.91	.411	2d10	+2d14	+2d12	...

3	18.03	1.073	3.83	.228	2d10	+2d12	14.2	.845	2d14	+4d16	+2d14	
4	15.77	.939	1.57	.093	2d10		14.2	.845	2d14	+4d16	+2d14	

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $Af < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $Af < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr22\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unità di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unità particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd( $k \cdot f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.						
6.	SLU con SISMAX	4.						

RARE

Nome	Descrizione	Sest
13.	Rara 1	1.
14.	Rara 2	1.

#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A127	3	3	3	0	400.	365.	16.667	1.3	1.274	29.983
2	A128	3	3	3	0	405.	370.	16.875	1.3	1.042	24.527

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-9013.17	-.132	.114	-10865.84	-.168	.138	2.	.548	1.206	SI
18.	18.	3.	1.	52.64	-.001	.002	3220.25	-.044	.138	2.	.24	61.18	SI
105.	105.	3.	3.	3235.99	-.038	.065	6842.92	-.084	.138	2.	.378	2.115	SI
137.	137.	3.	4.	-127.32	-.004	.02	-861.62	-.026	.138	2.	.156	6.767	NO
200.	200.	3.	4.	5109.84	-.096	.108	6510.41	-.128	.138	2.	.48	1.274	SI
400.	400.	3.	6.	-9069.11	-.101	.086	-14503.2	-.176	-.139	4.	.559	1.599	SI
> 400.	0.	3.	6.	-9939.82	-.112	.094	-14503.2	-.176	-.139	4.	.559	1.459	SI
506.	106.	3.	7.	3866.58	-.046	.078	6842.92	-.084	.138	2.	.378	1.77	SI
602.	203.	3.	8.	6246.58	-.122	.133	6510.41	-.128	.138	2.	.48	1.042	SI
764.	364.	3.	9.	948.38	-.013	.041	3220.25	-.044	.138	2.	.24	3.396	SI
778.	378.	3.	9.	34.81	0.	.001	3220.25	-.044	.138	2.	.24	92.51	SI
805.	405.	3.	9.	-10070.15	-.152	.128	-10865.84	-.168	.138	2.	.548	1.079	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	11508.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
10.	10.	3.	11508.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
18.	18.	3.	11508.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
27.	27.	3.	11350.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
42.	42.	3.	10649.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
42.	42.	3.	10649.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
73.	73.	3.	8930.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
105.	105.	3.	7196.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
137.	137.	3.	5706.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
168.	168.	3.	-367.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
168.	168.	3.	4234.	7187.	21355.	3784.	.57	20.	2.5	NO	4 5 6
200.	200.	3.	-1826.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
200.	200.	3.	2775.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
232.	232.	3.	-3431.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
232.	232.	3.	1171.	7187.	21355.	3784.	.57	20.	2.5	NO	5 6
263.	263.	3.	-5160.	7187.	21355.	3784.	.57	20.	2.5	NO	4 5 6
295.	295.	3.	-7059.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
327.	327.	3.	-9810.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
358.	358.	3.	-12777.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6

358.	358.	3.	-12777.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
373.	373.	3.	-14193.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
382.	382.	3.	-14511.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
390.	390.	3.	-14511.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
400.	400.	3.	-14511.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
> 400.	0.	3.	15506.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
410.	10.	3.	15506.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
417.	18.	3.	15506.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
427.	27.	3.	15228.	9395.	21355.	3784.	.57	20.	2.5	NO	4	5	6
441.	42.	3.	13992.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
441.	42.	3.	13992.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
474.	74.	3.	11209.	6574.	21355.	3784.	.57	20.	2.5	NO	4	5	6
506.	106.	3.	8490.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
538.	138.	3.	6164.	7187.	21355.	3784.	.57	20.	2.5	NO	4	5	6
570.	170.	3.	-434.	7187.	21355.	3784.	.57	20.	2.5	NO	5	6	
570.	170.	3.	4125.	7187.	21355.	3784.	.57	20.	2.5	NO	4	5	6
602.	203.	3.	-2257.	7187.	21355.	3784.	.57	20.	2.5	NO	5	6	
602.	203.	3.	2301.	7187.	21355.	3784.	.57	20.	2.5	NO	5	6	
635.	235.	3.	-4084.	7187.	21355.	3784.	.57	20.	2.5	NO	4	5	6
635.	235.	3.	475.	7187.	21355.	3784.	.57	20.	2.5	NO	5	6	
667.	267.	3.	-6118.	7187.	21355.	3784.	.57	20.	2.5	NO	4	5	6
699.	299.	3.	-8430.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
731.	331.	3.	-11168.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
764.	364.	3.	-13980.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
764.	364.	3.	-13980.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
778.	378.	3.	-15232.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
788.	388.	3.	-15514.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
795.	395.	3.	-15514.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6
805.	405.	3.	-15514.	5884.	21355.	3784.	.57	20.	2.5	NO	4	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-5347.81	-72.2	1308.7	22.24	4.76	.0569	9.16	.052 SI
18.	18.	3.	1.	-5347.81	-72.2	1308.7	22.24	4.76	.0569	9.16	.052 SI
200.	200.	3.	4.	3767.09	-65.2	1532.2	13.13	5.21	.0631	13.09	.083 SI
400.	400.	3.	6.	-5572.18	-62.6	1036.	29.34	4.59	.0448	7.7	.035 SI
> 400.	0.	3.	6.	-6570.54	-73.8	1221.6	29.34	4.59	.0541	7.7	.042 SI
602.	203.	3.	8.	4602.59	-79.7	1872.	13.13	5.21	.0801	13.09	.105 SI
805.	405.	3.	9.	-6500.84	-87.7	1590.9	22.24	4.76	.071	9.16	.065 SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-4885.74	-65.9	1195.6	22.24	4.76	.0513	9.16	.047 SI
18.	18.	3.	1.	-4885.74	-65.9	1195.6	22.24	4.76	.0513	9.16	.047 SI
200.	200.	3.	4.	3448.24	-59.7	1402.5	13.13	5.21	.0566	13.09	.074 SI
400.	400.	3.	6.	-5107.83	-57.4	949.6	29.34	4.59	.0405	7.7	.031 SI
> 400.	0.	3.	6.	-5997.03	-67.4	1115.	29.34	4.59	.0488	7.7	.038 SI
602.	203.	3.	8.	4207.25	-72.8	1711.2	13.13	5.21	.0721	13.09	.094 SI
805.	405.	3.	9.	-5953.49	-80.3	1456.9	22.24	4.76	.0643	9.16	.059 SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-4732.57	-63.9	1158.2	22.24	4.76	.0494	9.16	.045	SI
18.	18.	3.	1.	-4732.57	-63.9	1158.2	22.24	4.76	.0494	9.16	.045	SI
200.	200.	3.	4.	3341.92	-57.8	1359.3	13.13	5.21	.0545	13.09	.071	SI
400.	400.	3.	6.	-4952.28	-55.7	920.7	29.34	4.59	.0391	7.7	.03	SI
> 400.	0.	3.	6.	-5806.6	-65.3	1079.6	29.34	4.59	.047	7.7	.036	SI
602.	203.	3.	8.	4075.72	-70.5	1657.7	13.13	5.21	.0694	13.09	.091	SI
788.	388.	3.	9.	-5769.78	-77.9	1412.	22.24	4.76	.0621	9.16	.057	NO
795.	395.	3.	9.	-5769.78	-77.9	1412.	22.24	4.76	.0621	9.16	.057	NO
805.	405.	3.	9.	-5769.78	-77.9	1412.	22.24	4.76	.0621	9.16	.057	NO

##### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	28.27	1.683	22.24	1.324	2d10 +2d16 +2d1 ...	6.03	.359	3d16
2	28.27	1.683	18.22	1.085	2d10 +2d14 +3d24	10.05	.598	3d16 +2d16
3	28.27	1.683	15.14	.901	2d10 +3d24	13.13	.782	3d16 +2d16 +2d14
4	14.7	.875	1.57	.093	2d10	13.13	.782	3d16 +2d16 +2d14
5	31.35	1.866	21.3	1.268	2d10 +2d14 +2d1 ...	10.05	.598	3d16 +2d16
6	41.41	2.465	29.34	1.747	2d10 +2d14 +2d1 ...	12.06	.718	3d16 +3d16
7	28.27	1.683	15.14	.901	2d10 +3d24	13.13	.782	2d14 +3d16 +2d16
8	14.7	.875	1.57	.093	2d10	13.13	.782	2d14 +3d16 +2d16
9	28.27	1.683	22.24	1.324	2d10 +2d14 +2d1 ...	6.03	.359	3d16

##### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].
- 21) Combinazione quasi permanente: superata la tensione massima nel CLS (74.1) [NTC18 4.1.2.2.5].

Nome travata : **Tr21\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5



## MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

&lt;-

## SEZIONI UTILIZZATE

3) Rettangolare: 90x24; A=2160.; Jg=103680.; E=287713.1  
5) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

## DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A125	3	3	3	0	235.	200.	9.792	1.3	3.626	95.718
2	A126	5	5	5	0	480.	445.	20.	1.3	3.709	84.306

## VERIFICHE ALLO STATO LIMITE ULTIMO

## FLESSIONE:

Progressive	SE	Ar	Msd	EpscI	EpsacI	Mrd	EpscI	EpsacI	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-932.98	-.013	.029	-4462.08	-.066	.138	2.	.322	4.783
0.	0.	3.	1.	1169.65	-.017	.038	4241.37	-.063	.138	2.	.312	3.626
72.	72.	3.	2.	-773.59	-.012	.032	-3311.12	-.051	.138	2.	.27	4.28
72.	72.	3.	2.	609.56	-.008	.016	5357.79	-.078	.138	2.	.362	8.79
102.	102.	3.	3.	265.29	-.004	.012	3027.46	-.053	.138	2.	.277	11.41
163.	163.	3.	3.	-1398.31	-.023	.058	-3300.37	-.057	.138	2.	.291	2.36
235.	235.	3.	4.	-2288.53	-.024	.037	-8491.36	-.097	.138	2.	.412	3.71
> 235.	0.	5.	5.	-2511.28	-.03	.041	-8439.99	-.109	.138	2.	.442	3.361
310.	75.	5.	6.	406.69	-.005	.009	6280.11	-.084	.138	2.	.378	15.44
376.	141.	5.	8.	1294.36	-.021	.022	7815.66	-.152	.138	2.	.523	6.038
475.	240.	5.	8.	2107.17	-.034	.036	7815.66	-.152	.138	2.	.523	3.709
607.	372.	5.	8.	-264.01	-.008	.042	-860.33	-.025	.138	2.	.152	3.259
715.	480.	5.	10	-1845.46	-.028	.051	-5009.64	-.081	.138	2.	.368	2.715
715.	480.	5.	10	399.44	-.006	.013	4234.88	-.068	.138	2.	.33	10.6

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## TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	-809.	7565.	27457.	3784.	.57	20.	2.5
0.	0.	3.	502.	7565.	27457.	3784.	.57	20.	2.5
10.	10.	3.	-809.	7565.	27457.	3784.	.57	20.	2.5
10.	10.	3.	449.	7565.	27457.	3784.	.57	20.	2.5
18.	18.	3.	-809.	7565.	27457.	3784.	.57	20.	2.5
18.	18.	3.	407.	7565.	27457.	3784.	.57	20.	2.5
27.	27.	3.	-861.	7565.	27457.	3784.	.57	20.	2.5
27.	27.	3.	355.	7565.	27457.	3784.	.57	20.	2.5
42.	42.	3.	-938.	7565.	27457.	3784.	.57	20.	2.5
42.	42.	3.	277.	7565.	27457.	3784.	.57	20.	2.5
42.	42.	3.	-938.	7565.	27457.	3784.	.57	20.	2.5
42.	42.	3.	277.	7565.	27457.	3784.	.57	20.	2.5
72.	72.	3.	-1102.	7565.	27457.	3784.	.57	20.	2.5
72.	72.	3.	113.	7565.	27457.	3784.	.57	20.	2.5
102.	102.	3.	-1267.	7565.	27457.	3784.	.57	20.	2.5
133.	133.	3.	-1431.	7565.	27457.	3784.	.57	20.	2.5
163.	163.	3.	-1595.	7565.	27457.	3784.	.57	20.	2.5
193.	193.	3.	-1759.	7565.	27457.	3784.	.57	20.	2.5
193.	193.	3.	-1759.	7565.	27457.	3784.	.57	20.	2.5
208.	208.	3.	-1837.	7565.	27457.	3784.	.57	20.	2.5
217.	217.	3.	-1889.	7565.	27457.	3784.	.57	20.	2.5
225.	225.	3.	-1889.	7565.	27457.	3784.	.57	20.	2.5
> 235.	0.	5.	-1889.	7565.	27457.	3784.	.57	20.	2.5
235.	235.	3.	-1889.	7565.	27457.	3784.	.57	20.	2.5
245.	10.	5.	3333.	7754.	21355.	3784.	.57	20.	2.5
252.	18.	5.	3333.	7754.	21355.	3784.	.57	20.	2.5
262.	27.	5.	3195.	7754.	21355.	3784.	.57	20.	2.5
276.	42.	5.	2991.	6950.	21355.	3784.	.57	20.	2.5
276.	42.	5.	2991.	6950.	21355.	3784.	.57	20.	2.5
310.	75.	5.	2527.	6055.	21355.	3784.	.57	20.	2.5
343.	108.	5.	2070.	5884.	21355.	3784.	.57	20.	2.5
376.	141.	5.	1621.	7689.	21355.	3784.	.57	20.	2.5
409.	174.	5.	1177.	7689.	21355.	3784.	.57	20.	2.5
442.	207.	5.	816.	7689.	21355.	3784.	.57	20.	2.5

475.	240.	5.	-196.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
475.	240.	5.	473.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
508.	273.	5.	-465.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
508.	273.	5.	204.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
541.	306.	5.	-751.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
574.	339.	5.	-1110.	7689.	21355.	3784.	.57	20.	2.5	NO	5	6
607.	372.	5.	-1481.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
640.	405.	5.	-1872.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
673.	438.	5.	-2255.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
673.	438.	5.	-2255.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
688.	453.	5.	-2419.	6103.	21355.	3784.	.57	20.	2.5	NO	5	6
697.	462.	5.	-2529.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
705.	470.	5.	-2619.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
715.	480.	5.	-2729.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
10.	10.	3.	1.	-169.76	-2.6	103.4	8.45	6.02	.0031	23.48	.007 SI
72.	72.	3.	2.	208.9	-3.1	105.6	10.27	5.81	.0032	17.21	.005 SI
163.	163.	3.	3.	-1016.42	-18.4	837.2	6.19	6.22	.0251	24.27	.061 SI
235.	235.	3.	4.	-1733.33	-20.3	554.	16.49	5.46	.0166	12.87	.021 SI
> 235.	0.	5.	5.	-1890.44	-25.1	608.8	16.49	5.26	.0191	11.09	.021 SI
475.	240.	5.	8.	1584.21	-25.7	532.1	16.08	4.99	.016	11.68	.019 SI
715.	480.	5.	10	-1388.8	-23.4	753.5	9.61	5.73	.0226	22.33	.05 SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
10.	10.	3.	1.	-169.74	-2.6	103.4	8.45	6.02	.0031	23.48	.007	SI
72.	72.	3.	2.	206.66	-3.1	104.4	10.27	5.81	.0031	17.21	.005	SI
163.	163.	3.	3.	-904.86	-16.4	745.3	6.19	6.22	.0224	24.27	.054	SI
235.	235.	3.	4.	-1575.86	-18.4	503.7	16.49	5.46	.0151	12.87	.019	SI
> 235.	0.	5.	5.	-1704.11	-22.7	548.8	16.49	5.26	.0165	11.09	.018	SI
475.	240.	5.	8.	1404.32	-22.8	471.7	16.08	4.99	.0141	11.68	.017	SI
715.	480.	5.	10	-1228.71	-20.7	666.6	9.61	5.73	.02	22.33	.045	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
10.	10.	3.	1.	-169.7	-2.6	103.4	8.45	6.02	.0031	23.48	.007	SI
72.	72.	3.	2.	209.61	-3.1	105.9	10.27	5.81	.0032	17.21	.005	SI
163.	163.	3.	3.	-878.28	-15.9	723.4	6.19	6.22	.0217	24.27	.053	SI
235.	235.	3.	4.	-1538.36	-18.	491.7	16.49	5.46	.0148	12.87	.019	SI
> 235.	0.	5.	5.	-1658.95	-22.1	534.3	16.49	5.26	.016	11.09	.018	SI
475.	240.	5.	8.	1355.75	-22.	455.3	16.08	4.99	.0137	11.68	.016	SI
715.	480.	5.	10	-1188.7	-20.	644.9	9.61	5.73	.0193	22.33	.043	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	16.46	.762	8.45	.391	2d10 +2d12 +3d14	8.01	.371	3d12 +3d14
2	16.46	.762	6.19	.287	2d10 +3d14	10.27	.476	3d12 +2d12 +3d14
3	11.84	.548	6.19	.287	2d10 +3d14	5.65	.262	3d12 +2d12
4	27.93	1.293	16.49	.764	2d10 +2d16 +2d1 ...	11.44	.529	3d12 +4d16
5	27.93	1.662	16.49	.982	2d10 +2d16 +2d1 ...	11.44	.681	3d12 +4d16
6	24.54	1.46	12.47	.742	2d10 +2d16 +2d1 ...	12.06	.718	4d16 +2d16
7	19.92	1.186	3.83	.228	2d10 +2d12	16.08	.957	2d16 +4d16 +2d16
8	17.66	1.051	1.57	.093	2d10	16.08	.957	2d16 +4d16 +2d16
9	17.66	1.051	5.59	.333	2d10 +2d16	12.06	.718	4d16 +2d16
10	17.66	1.051	9.61	.572	2d10 +2d16 +2d16	8.04	.479	4d16

#### MESSAGGI

5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].

6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr19\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU |

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 35X24; A=840.; Jg=40320.; E=287713.1  
6) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A138	3	3	3	0	248.	218.	10.334	1.3	3.8	85.179
2	A187	6	6	6	0	315.	280.	13.125	1.5	5.	172.904
3	A124	6	6	6	0	300.	265.	12.5	1.3	1.433	42.961

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1804.7	-.049	.067	-3699.83	-.105	.138	2.	.432	2.05	SI
0.	0.	3.	1.	481.63	-.013	.027	2433.92	-.067	.138	2.	.325	5.054	SI
65.	65.	3.	2.	972.88	-.026	.033	4052.94	-.12	.138	2.	.464	4.166	SI
93.	93.	3.	3.	-423.78	-.017	.069	-848.67	-.034	.138	2.	.196	2.003	SI
93.	93.	3.	3.	1039.09	-.032	.036	3948.65	-.141	.138	2.	.505	3.8	SI
248.	248.	3.	4.	-418.47	-.01	.015	-3789.78	-.094	.138	2.	.403	9.056	SI
248.	248.	3.	4.	79.11	-.002	.003	3622.75	-.089	.138	2.	.391	45.79	SI
> 248.	0.	6.	5.	-706.44	-.012	.025	-3852.53	-.069	.138	2.	.333	5.453	SI
266.	18.	6.	5.	6.18	0.	0.	3680.15	-.066	.138	2.	.323	595.5	SI
323.	75.	6.	6.	-342.44	-.012	.054	-874.34	-.031	.138	2.	.182	2.553	NO
356.	108.	6.	6.	-149.18	-.005	.024	-867.18	-.03	.138	2.	.176	5.813	NO
389.	141.	6.	6.	-70.45	-.002	.011	-867.18	-.03	.138	2.	.176	12.31	NO
422.	174.	6.	6.	-165.08	-.006	.026	-867.18	-.03	.138	2.	.176	5.253	NO
455.	207.	6.	6.	-329.19	-.011	.052	-867.18	-.03	.138	2.	.176	2.634	NO
488.	240.	6.	6.	-539.15	-.019	.085	-871.89	-.031	.138	2.	.181	1.617	NO
488.	240.	6.	6.	198.11	-.005	.011	2391.14	-.061	.138	2.	.305	12.07	SI
563.	315.	6.	7.	-924.87	-.018	.038	-3314.55	-.067	.138	2.	.326	3.584	SI
563.	315.	6.	7.	64.15	-.001	.004	2519.93	-.053	.138	2.	.277	39.28	SI
> 563.	0.	6.	7.	-792.59	-.015	.033	-3314.55	-.067	.138	2.	.326	4.182	SI
563.	0.	6.	7.	39.1	-.001	.002	2519.93	-.053	.138	2.	.277	64.44	SI
590.	27.	6.	7.	4.06	0.	0.	2519.93	-.053	.138	2.	.277	620.4	SI
636.	72.	6.	8.	-263.84	-.009	.041	-882.05	-.031	.138	2.	.184	3.343	NO
667.	104.	6.	8.	-380.31	-.013	.061	-867.18	-.03	.138	2.	.176	2.28	NO
698.	134.	6.	8.	-586.98	-.02	.094	-867.18	-.03	.138	2.	.176	1.477	NO
791.	228.	6.	10	1942.31	-.033	.059	4493.42	-.081	.138	2.	.369	2.313	SI
853.	290.	6.	11	2357.73	-.042	.096	3379.71	-.061	.138	2.	.307	1.433	SI
863.	300.	6.	11	-1992.35	-.034	.066	-4162.93	-.074	.138	2.	.35	2.089	SI
863.	300.	6.	11	2357.73	-.042	.096	3379.71	-.061	.138	2.	.307	1.433	SI

##### TAGLIO:

Progressive	Se	vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	3.	2573.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
10.	10.	3.	2573.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
12.	12.	3.	2573.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
22.	22.	3.	2508.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
36.	36.	3.	2223.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
36.	36.	3.	2223.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
65.	65.	3.	1769.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
93.	93.	3.	1454.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
122.	122.	3.	-1105.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
122.	122.	3.	206.	2942.	10678.	3784.	.57	20.	2.5	NO 5 6
150.	150.	3.	-1178.	3840.	10678.	3784.	.57	20.	2.5	NO 5 6
150.	150.	3.	133.	3840.	10678.	3784.	.57	20.	2.5	NO 5 6
178.	178.	3.	-1248.	3840.	10678.	3784.	.57	20.	2.5	NO 5 6
178.	178.	3.	63.	3840.	10678.	3784.	.57	20.	2.5	NO 5 6
207.	207.	3.	-1314.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
207.	207.	3.	-1314.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
221.	221.	3.	-1346.	3196.	10678.	3784.	.57	20.	2.5	NO 5 6
231.	231.	3.	-1353.	3666.	10678.	3784.	.57	20.	2.5	NO 5 6
238.	238.	3.	-1353.	3666.	10678.	3784.	.57	20.	2.5	NO 5 6
248.	248.	3.	-1353.	3666.	10678.	3784.	.57	20.	2.5	NO 5 6
> 248.	0.	6.	844.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
258.	10.	6.	844.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
266.	18.	6.	844.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
275.	27.	6.	830.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
290.	42.	6.	770.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
290.	42.	6.	770.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
323.	75.	6.	631.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
356.	108.	6.	-114.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
356.	108.	6.	492.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
389.	141.	6.	-254.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
389.	141.	6.	353.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
422.	174.	6.	-393.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
422.	174.	6.	213.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
455.	207.	6.	-532.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
455.	207.	6.	74.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
488.	240.	6.	-671.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
522.	274.	6.	-810.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
522.	274.	6.	-810.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6

536.	288.	6.	-871.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
546.	298.	6.	-884.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
553.	305.	6.	-884.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
563.	315.	6.	-884.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
> 563.	0.	6.	-197.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
563.	0.	6.	1678.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
573.	10.	6.	-197.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
573.	10.	6.	1678.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
581.	18.	6.	-197.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
581.	18.	6.	1678.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
590.	27.	6.	-237.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
590.	27.	6.	1665.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	-297.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	1605.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	-297.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
605.	42.	6.	1605.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
636.	72.	6.	-428.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
636.	72.	6.	1475.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
667.	104.	6.	-558.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
667.	104.	6.	1344.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
698.	134.	6.	-688.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
698.	134.	6.	1214.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
729.	166.	6.	-818.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
729.	166.	6.	1084.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
760.	196.	6.	-948.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
760.	196.	6.	954.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
791.	228.	6.	-1079.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
791.	228.	6.	824.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	-1209.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	693.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	-1209.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	258.	6.	693.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
836.	273.	6.	-1269.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
836.	273.	6.	633.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
846.	282.	6.	-1283.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
846.	282.	6.	593.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
853.	290.	6.	-1283.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
853.	290.	6.	560.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
863.	300.	6.	-1283.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
863.	300.	6.	519.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3. 1.	-750.68!	-21.6!	550.3!	7.23	5.34	.0165	11.52	.019!	SI
10.	10.	3. 1.	-750.68!	-21.6!	550.3!	7.23	5.34	.0165	11.52	.019!	SI
12.	12.	3. 1.	-750.68!	-21.6!	550.3!	7.23	5.34	.0165	11.52	.019!	SI
36.	36.	3. 1.	-305.21!	-8.8!	223.7!	7.23	5.34	.0067	11.52	.008!	SI
65.	65.	3. 2.	113.54!	-3.3!	75.6!	8.01	5.18	.0023	11.15	.003!	SI
122.	122.	3. 3.	485.95!	-15.3!	326.4!	8.01	5.04	.0098	11.02	.011!	SI
248.	248.	3. 4.	-159.37!	-4.2!	114.8!	7.32	5.45	.0034	11.26	.004!	SI
> 248.	0.	6. 5.	-374.17!	-7.1!	264.1!	7.32	5.95	.0079	16.94	.013!	SI
389.	141.	6. 6.	15.16!	-4!	16.4!	4.71	6.16	.0005	24.03	.001!	SI
488.	240.	6. 6.	-159.29!	-6.2!	497.2!	1.57	6.25	.0149	26.81	.04!	SI
563.	315.	6. 7.	-446.47!	-9.3!	365.6!	6.28	6.02	.011	18.2	.02!	SI
> 563.	0.	6. 7.	-417.8!	-8.7!	342.1!	6.28	6.02	.0103	18.2	.019!	SI
760.	196.	6. 9.	316.59!	-7.3!	342.2!	4.71	6.25	.0103	24.45	.025!	SI
863.	300.	6. 11	131.45!	-2.6!	106.	6.38	6.09	.0032	23.75	.008!	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3. 1.	-666.43!	-19.2!	488.5!	7.23	5.34	.0147	11.52	.017!	SI
10.	10.	3. 1.	-666.43!	-19.2!	488.5!	7.23	5.34	.0147	11.52	.017!	SI
12.	12.	3. 1.	-666.43!	-19.2!	488.5!	7.23	5.34	.0147	11.52	.017!	SI
36.	36.	3. 1.	-269.58!	-7.8!	197.6!	7.23	5.34	.0059	11.52	.007!	SI
65.	65.	3. 2.	108.78!	-3.1!	72.4!	8.01	5.18	.0022	11.15	.002!	SI
122.	122.	3. 3.	473.31!	-14.9!	317.9!	8.01	5.04	.0095	11.02	.011!	SI
248.	248.	3. 4.	-168.25!	-4.4!	121.2!	7.32	5.45	.0036	11.26	.004!	SI
> 248.	0.	6. 5.	-366.54!	-6.9!	258.8!	7.32	5.95	.0078	16.94	.013!	SI
389.	141.	6. 6.	18.83!	-5!	20.4!	4.71	6.16	.0006	24.03	.001!	SI
488.	240.	6. 6.	-140.52!	-5.4!	438.6!	1.57	6.25	.0132	26.81	.035!	SI
563.	315.	6. 7.	-424.85!	-8.9!	347.9!	6.28	6.02	.0104	18.2	.019!	SI
> 563.	0.	6. 7.	-399.32!	-8.3!	327.!	6.28	6.02	.0098	18.2	.018!	SI
760.	196.	6. 9.	292.83!	-6.7!	316.6!	4.71	6.25	.0095	24.45	.023!	SI
863.	300.	6. 11	83.27!	-1.6!	67.1!	6.38	6.09	.002	23.75	.005!	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3. 1.	-644.9!	-18.6!	472.7!	7.23	5.34	.0142	11.52	.016!	SI
10.	10.	3. 1.	-644.9!	-18.6!	472.7!	7.23	5.34	.0142	11.52	.016!	SI
12.	12.	3. 1.	-644.9!	-18.6!	472.7!	7.23	5.34	.0142	11.52	.016!	SI
36.	36.	3. 1.	-260.27!	-7.5!	190.8!	7.23	5.34	.0057	11.52	.007!	SI
65.	65.	3. 2.	107.2!	-3.1!	71.4!	8.01	5.18	.0021	11.15	.002!	SI
122.	122.	3. 3.	470.34!	-14.8!	315.9!	8.01	5.04	.0095	11.02	.01!	SI
248.	248.	3. 4.	-166.74!	-4.4!	120.1!	7.32	5.45	.0036	11.26	.004!	SI
> 248.	0.	6. 5.	-362.66!	-6.9!	256.	7.32	5.95	.0077	16.94	.013!	SI
389.	141.	6. 6.	18.54!	-5!	20.	4.71	6.16	.0006	24.03	.001!	SI
488.	240.	6. 6.	-134.9!	-5.2!	421.1!	1.57	6.25	.0126	26.81	.034!	SI
563.	315.	6. 7.	-418.78!	-8.7!	342.9!	6.28	6.02	.0103	18.2	.019!	SI
> 563.	0.	6. 7.	-394.26!	-8.2!	322.8!	6.28	6.02	.0097	18.2	.018!	SI
760.	196.	6. 9.	285.36!	-6.5!	308.5!	4.71	6.25	.0093	24.45	.023!	SI
863.	300.	6. 11	68.56!	-1.3!	55.3!	6.38	6.09	.0017	23.75	.004!	SI

ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	11.84	1.41	7.23	.86	2d10 +3d12 +2d12	4.62	.55	3d14
2	11.84	1.41	3.83	.456	2d10 +2d12	8.01	.954	3d12 +3d14
3	9.58	1.141	1.57	.187	2d10	8.01	.954	3d12 +3d14
4	14.29	1.702	7.32	.871	2d10 +3d12 +1d1 ...	6.97	.83	3d14 +3d10
5	14.29	.851	7.32	.436	2d10 +3d12 +1d1 ...	6.97	.415	3d14 +3d10
6	6.28	.374	1.57	.093	2d10	4.71	.28	1d10 +3d10 +2d10
7	11.	.654	6.28	.374	2d10 +1d10 +2d1 ...	4.71	.28	3d10 +3d10
8	6.28	.374	1.57	.093	2d10	4.71	.28	2d10 +1d10 +3d10
9	10.3	.613	5.59	.333	2d10 +2d16	4.71	.28	2d10 +1d10 +3d10
10	14.33	.853	5.59	.333	2d10 +2d16	8.73	.52	2d10 +1d10 +3d1 ...
11	14.33	.853	7.95	.473	2d10 +2d10 +1d1 ...	6.38	.38	3d10 +2d16

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a  $1.5 \cdot b \cdot \text{mm}^2/\text{m}$  [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr20\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm<sup>2</sup>; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm<sup>2</sup> - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 60X24; A=1440.; Jg=69120.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A143	3	3	3	0	417.	342.	17.396	1.	1.527	29.743

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-4151.09	-.072	.123	-4679.72	-.082	.138	2.	.372	1.127	SI
0.	0.	3.	1.	2378.99	-.04	.076	4310.09	-.075	.138	2.	.353	1.812	SI
172.	172.	3.	4.	-237.74	-.008	.038	-860.91	-.029	.138	2.	.174	3.621	NO
238.	238.	3.	4.	-333.36	-.011	.053	-860.91	-.029	.138	2.	.174	2.583	NO
303.	303.	3.	5.	2201.92	-.038	.056	5360.15	-.099	.138	2.	.417	2.434	SI
408.	408.	3.	1.	2823.4	-.048	.09	4310.09	-.075	.138	2.	.353	1.527	SI
417.	417.	3.	1.	-3137.96	-.054	.093	-4679.72	-.082	.138	2.	.372	1.491	SI
417.	417.	3.	1.	2823.4	-.048	.09	4310.09	-.075	.138	2.	.353	1.527	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	-232.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
0.	0.	3.	3281.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	-232.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	3281.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	-232.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	3281.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	-309.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	3255.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-425.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	3140.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	-425.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	3140.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
74.	74.	3.	-687.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6

74.	74.	3.	2877.	5122.	18305.	3784.	.57	20.	2.5	NO	5	6
107.	107.	3.	-950.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
107.	107.	3.	2615.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
140.	140.	3.	-1211.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
140.	140.	3.	2353.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
172.	172.	3.	-1472.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
172.	172.	3.	2092.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
205.	205.	3.	-1732.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
205.	205.	3.	1832.	5405.	18305.	3784.	.57	20.	2.5	NO	5	6
238.	238.	3.	-1992.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
238.	238.	3.	1572.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
271.	271.	3.	-2251.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
271.	271.	3.	1313.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
303.	303.	3.	-2509.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
303.	303.	3.	1055.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	-2767.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	797.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	-2767.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
336.	336.	3.	797.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
350.	350.	3.	-2880.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
350.	350.	3.	684.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
360.	360.	3.	-2905.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
360.	360.	3.	608.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
384.	384.	3.	-2905.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
384.	384.	3.	421.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
408.	408.	3.	-2905.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
408.	408.	3.	233.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
417.	417.	3.	-2905.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6
417.	417.	3.	157.	5550.	18305.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-1064.78	-19.7	619.3	8.98	5.68	.0186	14.17	.026	SI
18.	18.	3.	-1064.78	-19.7	619.3	8.98	5.68	.0186	14.17	.026	SI
42.	42.	3.	-644.64	-11.9	374.9	8.98	5.68	.0112	14.17	.016	SI
74.	74.	3.	-190.04	-4.3	159.8	5.59	5.95	.0048	23.22	.011	SI
205.	205.	3.	716.98	-16.4	493.5	7.6	5.62	.0148	15.72	.023	SI
417.	417.	3.	-338.59	-6.3	196.9	8.98	5.68	.0059	14.17	.008	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-942.84	-17.5	548.4	8.98	5.68	.0165	14.17	.023	SI
18.	18.	3.	-942.84	-17.5	548.4	8.98	5.68	.0165	14.17	.023	SI
42.	42.	3.	-574.39	-10.6	334.1	8.98	5.68	.01	14.17	.014	SI
74.	74.	3.	-171.26	-3.8	144.	5.59	5.95	.0043	23.22	.01	SI
205.	205.	3.	625.77	-14.3	430.7	7.6	5.62	.0129	15.72	.02	SI
417.	417.	3.	-285.85	-5.3	166.3	8.98	5.68	.005	14.17	.007	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	-912.38	-16.9	530.7	8.98	5.68	.0159	14.17	.023	SI
18.	18.	3.	-912.38	-16.9	530.7	8.98	5.68	.0159	14.17	.023	SI
42.	42.	3.	-556.84	-10.3	323.9	8.98	5.68	.0097	14.17	.014	SI
74.	74.	3.	-164.47	-3.7	138.3	5.59	5.95	.0041	23.22	.01	SI
205.	205.	3.	603.03	-13.8	415.1	7.6	5.62	.0125	15.72	.02	SI
417.	417.	3.	-272.21	-5.	158.3	8.98	5.68	.0047	14.17	.007	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	17.22	1.196	8.98	.624	2d10 +1d12 +2d1 ...	8.23	.572	2d14 +1d12 +2d16
2	13.19	.916	6.72	.467	2d10 +1d12 +2d16	6.47	.449	2d14 +2d12 +1d12
3	13.19	.916	5.59	.388	2d10 +2d16	7.6	.528	1d12 +2d14 +2d1 ...
4	9.17	.637	1.57	.109	2d10	7.6	.528	1d12 +2d14 +2d1 ...
5	17.22	1.196	6.72	.467	2d10 +1d12 +2d16	10.49	.729	2d14 +2d12 +1d1 ...

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr18\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.

ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAY	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A140	3	3	3	0	302.	268.	12.604	1.3	2.509	56.46
2	A120	3	3	3	0	438.	408.	18.229	1.3	2.543	58.37

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-213.18	-.003	.005	-5538.07	-.087	.138	2.	.386	25.98	SI
104.	104.	3.	3.	2791.93	-.045	.045	8274.9	-.161	.138	2.	.537	2.964	SI
167.	167.	3.	3.	3297.85	-.054	.054	8274.9	-.161	.138	2.	.537	2.509	SI
230.	230.	3.	4.	-248.04	-.004	.017	-2062.87	-.037	.138	2.	.21	8.317	SI
275.	275.	3.	6.	2401.25	-.027	.03	11074.38	-.14	.138	2.	.503	4.612	SI
302.	302.	3.	7.	-1696.26	-.018	.023	-9929.36	-.111	.138	2.	.446	5.854	SI
302.	302.	3.	7.	1846.36	-.019	.031	8310.43	-.089	.138	2.	.392	4.501	SI
> 302.	0.	3.	7.	-3732.48	-.039	.052	-9929.36	-.111	.138	2.	.446	2.66	SI
302.	0.	3.	7.	643.45	-.007	.011	8310.43	-.089	.138	2.	.392	12.92	SI
312.	10.	3.	7.	-3732.48	-.039	.05	-10275.12	-.113	.138	2.	.45	2.753	SI
312.	10.	3.	7.	862.29	-.009	.014	8375.25	-.088	.138	2.	.388	9.713	SI
475.	172.	3.	10	2863.27	-.048	.052	7404.65	-.144	.138	2.	.51	2.586	SI
507.	205.	3.	10	2912.04	-.049	.053	7404.65	-.144	.138	2.	.51	2.543	SI
605.	303.	3.	11	-891.52	-.012	.031	-4031.61	-.058	.138	2.	.294	4.522	SI
704.	401.	3.	13	-5508.56	-.088	.131	-5807.33	-.094	.138	2.	.404	1.054	SI
740.	438.	3.	13	-6363.75	-.092	.117	-7490.06	-.111	.138	2.	.444	1.177	SI

#### TAGLIO:

Progressive	Se	vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	3914.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
10.	10.	3.	3914.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
18.	18.	3.	3914.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
27.	27.	3.	3747.	6103.	21355.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	3501.	6103.	21355.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	3501.	6103.	21355.	3784.	.57	20.	2.5	NO	5 6
73.	73.	3.	2963.	7355.	21355.	3784.	.57	20.	2.5	NO	5 6
104.	104.	3.	2461.	7856.	21355.	3784.	.57	20.	2.5	NO	5 6
136.	136.	3.	2096.	7856.	21355.	3784.	.57	20.	2.5	NO	5 6
167.	167.	3.	-1276.	7856.	21355.	3784.	.57	20.	2.5	NO	5 6
167.	167.	3.	260.	7856.	21355.	3784.	.57	20.	2.5	NO	5 6
198.	198.	3.	-1917.	7856.	21355.	3784.	.57	20.	2.5	NO	5 6
230.	230.	3.	-2969.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
261.	261.	3.	-4064.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
261.	261.	3.	-4064.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
275.	275.	3.	-4565.	6561.	21355.	3784.	.57	20.	2.5	NO	4 5 6
285.	285.	3.	-4902.	6561.	21355.	3784.	.57	20.	2.5	NO	4 5 6
293.	293.	3.	-4902.	6561.	21355.	3784.	.57	20.	2.5	NO	4 5 6
302.	302.	3.	-4902.	6561.	21355.	3784.	.57	20.	2.5	NO	4 5 6
> 302.	0.	3.	6290.	7689.	21355.	3784.	.57	20.	2.5	NO	4 5 6
312.	10.	3.	6290.	7689.	21355.	3784.	.57	20.	2.5	NO	4 5 6
320.	18.	3.	6290.	7689.	21355.	3784.	.57	20.	2.5	NO	4 5 6
330.	27.	3.	5951.	7689.	21355.	3784.	.57	20.	2.5	NO	4 5 6
344.	42.	3.	5451.	7689.	21355.	3784.	.57	20.	2.5	NO	4 5 6
344.	42.	3.	5451.	7689.	21355.	3784.	.57	20.	2.5	NO	4 5 6
377.	74.	3.	4308.	6103.	21355.	3784.	.57	20.	2.5	NO	4 5 6
409.	107.	3.	3166.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
442.	140.	3.	-48.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
442.	140.	3.	2340.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
475.	172.	3.	-716.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
475.	172.	3.	1572.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
507.	205.	3.	-1385.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
507.	205.	3.	904.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
540.	238.	3.	-2054.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
540.	238.	3.	235.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
573.	270.	3.	-2723.	7536.	21355.	3784.	.57	20.	2.5	NO	5 6
605.	303.	3.	-3749.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
638.	336.	3.	-4831.	5990.	21355.	3784.	.57	20.	2.5	NO	4 5 6
671.	368.	3.	-5973.	6709.	21355.	3784.	.57	20.	2.5	NO	4 5 6
704.	401.	3.	-7116.	7462.	21355.	3784.	.57	20.	2.5	NO	4 5 6
704.	401.	3.	-7116.	7462.	21355.	3784.	.57	20.	2.5	NO	4 5 6
718.	415.	3.	-7616.	7462.	21355.	3784.	.57	20.	2.5	NO	4 5 6
728.	425.	3.	-7954.	6362.	21355.	3784.	.57	20.	2.5	NO	4 5 6
730.	428.	3.	-7954.	6362.	21355.	3784.	.57	20.	2.5	NO	4 5 6
740.	438.	3.	-7954.	6362.	21355.	3784.	.57	20.	2.5	NO	4 5 6

# VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

## TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-155.2	-2.5	76.1	10.68	5.62	.0023	14.65	.003	SI
18.	18.	3.	1.	-155.2	-2.5	76.1	10.68	5.62	.0023	14.65	.003	SI
42.	42.	3.	1.	543.74	-9.3	349.9	8.04	5.96	.0105	23.24	.024	SI
73.	73.	3.	2.	1307.3	-22.3	492.6	14.07	5.1	.0148	12.68	.019	SI
104.	104.	3.	3.	1944.01	-31.	614.6	17.15	4.91	.0202	11.1	.022	SI
167.	167.	3.	3.	2474.19	-39.4	782.2	17.15	4.91	.0286	11.1	.032	SI
302.	302.	3.	7.	-50.14	-.6	13.8	20.04	5.18	.0004	10.14	0.	SI
> 302.	0.	3.	7.	-2075.42	-24.6	569.6	20.04	5.18	.0188	10.14	.019	SI
507.	205.	3.	10	2168.32	-35.9	770.9	15.14	5.05	.0268	11.95	.032	SI
740.	438.	3.	13	-4598.11	-67.3	1660.4	14.7	5.29	.0705	12.04	.085	SI

## TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-147.66	-2.4	72.4	10.68	5.62	.0022	14.65	.003	SI
42.	42.	3.	1.	474.04	-8.1	305.	8.04	5.96	.0092	23.24	.021	SI
73.	73.	3.	2.	1180.24	-20.2	444.7	14.07	5.1	.0133	12.68	.017	SI
104.	104.	3.	3.	1777.06	-28.3	561.8	17.15	4.91	.0176	11.1	.02	SI
136.	136.	3.	3.	2260.46	-36.	714.6	17.15	4.91	.0252	11.1	.028	SI
302.	302.	3.	7.	-454.08	-5.4	124.6	20.04	5.18	.0037	10.14	.004	SI
> 302.	0.	3.	7.	-1586.05	-18.8	435.3	20.04	5.18	.0131	10.14	.013	SI
507.	205.	3.	10	1804.41	-29.9	641.5	15.14	5.05	.0203	11.95	.024	SI
740.	438.	3.	13	-3953.57	-57.9	1427.7	14.7	5.29	.0589	12.04	.071	SI

## TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-140.58	-2.3	68.9	10.68	5.62	.0021	14.65	.003	SI
42.	42.	3.	1.	456.29	-7.8	293.6	8.04	5.96	.0088	23.24	.02	SI
73.	73.	3.	2.	1150.05	-19.6	433.3	14.07	5.1	.013	12.68	.016	SI
104.	104.	3.	3.	1738.79	-27.7	549.7	17.15	4.91	.017	11.1	.019	SI
136.	136.	3.	3.	2218.65	-35.4	701.4	17.15	4.91	.0246	11.1	.027	SI
302.	302.	3.	7.	-372.37	-4.4	102.2	20.04	5.18	.0031	10.14	.003	SI
> 302.	0.	3.	7.	-1456.02	-17.3	399.6	20.04	5.18	.012	10.14	.012	SI
507.	205.	3.	10	1713.91	-28.4	609.4	15.14	5.05	.0187	11.95	.022	SI
740.	438.	3.	13	-3800.41	-55.7	1372.4	14.7	5.29	.0561	12.04	.068	SI

## ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	18.72	1.115	10.68	.636	2d10 +2d14 +3d16	8.04	.479	4d16
2	18.72	1.115	4.65	.277	2d10 +2d14	14.07	.838	4d16 +3d16
3	18.72	1.115	1.57	.093	2d10	17.15	1.021	2d14 +4d16 +3d16
4	20.99	1.249	3.83	.228	2d10 +2d12	17.15	1.021	2d14 +4d16 +3d16
5	24.06	1.432	6.91	.411	2d10 +2d14 +2d12	17.15	1.021	2d14 +4d16 +3d16
6	36.13	2.15	14.01	.834	2d10 +2d14 +2d1 ...	22.12	1.316	4d16 +4d16 +3d16
7	36.13	2.15	20.04	1.193	2d10 +2d14 +2d1 ...	16.08	.957	4d16 +4d16
8	22.05	1.313	6.91	.411	2d10 +2d14 +2d12	15.14	.901	2d14 +4d16 +2d16
9	19.79	1.178	4.65	.277	2d10 +2d14	15.14	.901	2d14 +4d16 +2d16
10	16.71	.995	1.57	.093	2d10	15.14	.901	2d14 +4d16 +2d16
11	22.75	1.354	7.6	.453	2d10 +3d16	15.14	.901	2d14 +4d16 +2d16
12	22.75	1.354	10.68	.636	2d10 +2d14 +3d16	12.06	.718	4d16 +2d16
13	22.75	1.354	14.7	.875	2d10 +2d14 +2d1 ...	8.04	.479	4d16

## MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr16\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferrri (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.



5. | SLU con SISMAX      4. |  
 6. | SLU con SISMAX      4. |

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.   Rara 1		1.	15.   Frequente 1		1.	17.   Quasi Perm		1.
14.   Rara 2		1.	16.   Frequente 2		1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A116	3	3	3	0	400.	365.	16.667	1.3	2.401	55.724
2	A117	3	3	3	0	340.	305.	14.167	1.3	5.	126.904

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Ms	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-198.12	-.003	.007	-4065.9	-.069	.138	2.	.334	20.52	SI
0.	0.	3.	1.	279.98	-.005	.009	4221.79	-.072	.138	2.	.342	15.08	SI
18.	18.	3.	1.	-34.59	-.001	.001	-4065.9	-.069	.138	2.	.334	117.5	SI
105.	105.	3.	3.	2616.85	-.045	.051	6988.39	-.136	.138	2.	.496	2.671	SI
168.	168.	3.	3.	2910.49	-.05	.057	6988.39	-.136	.138	2.	.496	2.401	SI
327.	327.	3.	4.	-559.17	-.011	.037	-2079.3	-.042	.138	2.	.234	3.719	SI
400.	400.	3.	6.	-2454.5	-.031	.053	-6375.2	-.085	.138	2.	.38	2.597	SI
> 400.	0.	3.	6.	-2660.67	-.034	.058	-6375.2	-.085	.138	2.	.38	2.396	SI
518.	118.	3.	9.	-258.54	-.008	.041	-863.9	-.027	.138	2.	.164	3.342	NO
518.	118.	3.	9.	135.24	-.003	.004	4622.06	-.096	.138	2.	.411	34.18	SI
622.	222.	3.	9.	836.75	-.016	.025	4622.06	-.096	.138	2.	.411	5.524	SI
709.	309.	3.	10	-56.43	-.001	.002	-3218.31	-.066	.138	2.	.323	57.04	SI
740.	340.	3.	10	-98.35	-.002	.004	-3218.31	-.066	.138	2.	.323	32.72	SI

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##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	3435.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	3435.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
18.	18.	3.	3435.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
27.	27.	3.	3209.	6103.	21355.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	2875.	6103.	21355.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	2875.	6103.	21355.	3784.	.57	20.	2.5	NO	5 6
73.	73.	3.	2139.	6799.	21355.	3784.	.57	20.	2.5	NO	5 6
105.	105.	3.	1404.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
137.	137.	3.	672.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
168.	168.	3.	-175.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
168.	168.	3.	62.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
200.	200.	3.	-787.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
232.	232.	3.	-1512.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
263.	263.	3.	-2236.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
295.	295.	3.	-2958.	7376.	21355.	3784.	.57	20.	2.5	NO	5 6
327.	327.	3.	-3677.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
358.	358.	3.	-4394.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
358.	358.	3.	-4394.	5884.	21355.	3784.	.57	20.	2.5	NO	4 5 6
373.	373.	3.	-4717.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
382.	382.	3.	-4935.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
390.	390.	3.	-4935.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
400.	400.	3.	-4935.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
> 400.	0.	3.	3894.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
411.	11.	3.	3894.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
420.	20.	3.	3878.	7022.	21355.	3784.	.57	20.	2.5	NO	4 5 6
431.	31.	3.	3658.	7022.	21355.	3784.	.57	20.	2.5	NO	5 6
448.	48.	3.	3333.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
448.	48.	3.	3333.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
483.	83.	3.	2648.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
518.	118.	3.	1969.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
553.	153.	3.	1294.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
587.	187.	3.	623.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
622.	222.	3.	-127.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
622.	222.	3.	42.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
657.	257.	3.	-705.	6347.	21355.	3784.	.57	20.	2.5	NO	5 6
692.	292.	3.	-1364.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
692.	292.	3.	-1364.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
709.	309.	3.	-1672.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
720.	320.	3.	-1881.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
729.	329.	3.	-1896.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
740.	340.	3.	-1896.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	1.	323.18	-5.8	208.3	8.04	5.88	.0062	22.95	.014 SI
42.	42.	3.	1.	873.98	-15.7	563.2	8.04	5.88	.0169	22.95	.039 SI
73.	73.	3.	2.	1432.4	-26.5	666.9	11.12	5.32	.02	20.76	.042 SI
168.	168.	3.	3.	2173.67	-36.7	821.1	14.2	5.12	.0286	12.25	.035 SI
400.	400.	3.	6.	-1834.71	-26.3	785.1	12.25	5.61	.0241	12.97	.031 SI
> 400.	0.	3.	6.	-1988.24	-28.5	850.9	12.25	5.61	.0274	12.97	.036 SI
483.	83.	3.	8.	-546.94	-11.9	599.2	4.65	6.25	.018	24.8	.045 SI
622.	222.	3.	9.	625.75	-12.3	362.4	9.05	5.59	.0109	15.28	.017 SI
740.	340.	3.	10	-35.15	-.7	29.6	6.09	6.04	.0009	23.55	.002 SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	288.34	-5.2	185.8	8.04	5.88	.0056	22.95	.013	SI
42.	42.	3.	1.	767.55	-13.8	494.6	8.04	5.88	.0148	22.95	.034	SI
73.	73.	3.	2.	1242.33	-23.	578.4	11.12	5.32	.0174	20.76	.036	SI
168.	168.	3.	3.	1860.36	-31.4	702.8	14.2	5.12	.0226	12.25	.028	SI
400.	400.	3.	6.	-1550.35	-22.2	663.5	12.25	5.61	.0199	12.97	.026	SI
> 400.	0.	3.	6.	-1680.66	-24.1	719.2	12.25	5.61	.0216	12.97	.028	SI
483.	83.	3.	8.	-459.39	-10.	503.3	4.65	6.25	.0151	24.8	.037	SI
622.	222.	3.	9.	533.27	-10.4	308.8	9.05	5.59	.0093	15.28	.014	SI
740.	340.	3.	10	-26.	-6	21.9	6.09	6.04	.0007	23.55	.002	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	271.8	-4.9	175.1	8.04	5.88	.0053	22.95	.012	SI
42.	42.	3.	1.	740.33	-13.3	477.1	8.04	5.88	.0143	22.95	.033	SI
73.	73.	3.	2.	1196.66	-22.1	557.1	11.12	5.32	.0167	20.76	.035	SI
168.	168.	3.	3.	1783.43	-30.1	673.7	14.2	5.12	.0212	12.25	.026	SI
400.	400.	3.	6.	-1478.89	-21.2	632.9	12.25	5.61	.019	12.97	.025	SI
> 400.	0.	3.	6.	-1603.56	-23.	686.2	12.25	5.61	.0206	12.97	.027	SI
483.	83.	3.	8.	-437.35	-9.5	479.2	4.65	6.25	.0144	24.8	.036	SI
622.	222.	3.	9.	510.18	-10.	295.5	9.05	5.59	.0089	15.28	.014	SI
740.	340.	3.	10	-21.66	-5	18.3	6.09	6.04	.0005	23.55	.001	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	15.77	.939	7.73	.46	2d10 +2d14 +2d14	8.04	.479	4d16
2	15.77	.939	4.65	.277	2d10 +2d14	11.12	.662	4d16 +2d14
3	15.77	.939	1.57	.093	2d10	14.2	.845	2d14 +4d16 +2d14
4	18.03	1.073	3.83	.228	2d10 +2d12	14.2	.845	2d14 +4d16 +2d14
5	24.82	1.477	9.17	.546	2d10 +2d14 +2d1 ...	15.65	.931	4d16 +4d12 +2d14
6	24.82	1.477	12.25	.729	2d10 +2d14 +2d1 ...	12.57	.748	4d16 +4d12
7	24.82	1.477	9.99	.595	2d10 +2d14 +2d1 ...	14.83	.883	4d16 +4d12 +2d12
8	13.7	.815	4.65	.277	2d10 +2d14	9.05	.539	2d12 +4d12 +2d12
9	10.62	.632	1.57	.093	2d10	9.05	.539	2d12 +4d12 +2d12
10	10.62	.632	6.09	.363	2d10 +2d12 +2d12	4.52	.269	4d12

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta - Vsd > VRsd [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr15\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc=1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs=1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A118		3	3	0	558.	540.	23.247	.4	5.	36.64

#### VERIFICHE ALLO STATO LIMITE ULTIMO

#### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsac	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE	
> 10.	10.	3.	1.	-1517.17	-.026	.052	-4051.02	-.073	.138	2.	.347	2.67	SI
122.	122.	3.	2.	-212.63	-.004	.012	-2491.55	-.048	.138	2.	.259	11.72	SI
155.	155.	3.	3.	922.01	-.016	.02	6140.47	-.122	.138	2.	.468	6.66	SI
287.	287.	3.	3.	1354.92	-.024	.03	6140.47	-.122	.138	2.	.468	4.532	SI
548.	548.	3.	1.	53.34	-.001	.002	3266.48	-.06	.138	2.	.303	61.23	SI
558.	558.	3.	1.	-180.89	-.003	.006	-4051.02	-.073	.138	2.	.347	22.4	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	1706.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	1654.	6023.	21355.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	1654.	6023.	21355.	3784.	.57	20.	2.5	NO	5	6
24.	24.	3.	1575.	6023.	21355.	3784.	.57	20.	2.5	NO	5	6
24.	24.	3.	1575.	6023.	21355.	3784.	.57	20.	2.5	NO	5	6
57.	57.	3.	1396.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
90.	90.	3.	1217.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
122.	122.	3.	1038.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
155.	155.	3.	858.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
188.	188.	3.	679.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
221.	221.	3.	510.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
254.	254.	3.	359.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
287.	287.	3.	211.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
319.	319.	3.	-117.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
319.	319.	3.	73.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
352.	352.	3.	-257.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
385.	385.	3.	-417.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
418.	418.	3.	-577.	7034.	21355.	3784.	.57	20.	2.5	NO	5	6
451.	451.	3.	-756.	6391.	21355.	3784.	.57	20.	2.5	NO	5	6
484.	484.	3.	-935.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
516.	516.	3.	-1115.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
516.	516.	3.	-1115.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
531.	531.	3.	-1193.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
540.	540.	3.	-1246.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
548.	548.	3.	-1246.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
558.	558.	3.	-1246.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 10.	10.	3.	1.	-879.	-16.5	589.2	7.73	5.88	.0177	22.92	.041	SI
24.	24.	3.	1.	-711.68	-13.4	477.	7.73	5.88	.0143	22.92	.033	SI
287.	287.	3.	3.	1041.04	-18.4	450.	12.32	5.28	.0135	13.26	.018	SI
558.	558.	3.	1.	-120.17	-2.3	80.5	7.73	5.88	.0024	22.92	.006	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 10.	10.	3.	1.	-894.14!	-16.8!	599.3!	7.73!	5.88!	.018!	22.92!	.041!	SI
24.	24.	3.	1.	-726.16!	-13.7!	486.7!	7.73!	5.88!	.0146!	22.92!	.033!	SI
319.	319.	3.	3.	1038.05!	-18.3!	448.7!	12.32!	5.28!	.0135!	13.26!	.018!	SI
558.	558.	3.	1.	-109.73!	-2.1!	73.5!	7.73!	5.88!	.0022!	22.92!	.005!	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 10.	10.	3.	1.	-897.07!	-16.9!	601.3!	7.73	5.88	.018	22.92	.041!	SI
24.	24.	3.	1.	-728.96!	-13.7!	488.6!	7.73	5.88	.0147	22.92	.034!	SI
319.	319.	3.	3.	1037.71!	-18.3!	448.5!	12.32	5.28	.0135	13.26	.018!	SI
558.	558.	3.	1.	-107.8	-2.	72.3	7.73	5.88	.0022	22.92	.005!	SI

ARMATURE LONGITUDINALI (%=100\*Af/Ac1s - Ac1s=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	13.89	.827	7.73	.46	2d10 +2d14 +2d14	6.16	.367	4d14
2	13.89	.827	4.65	.277	2d10 +2d14	9.24	.55	4d14 +2d14
3	13.89	.827	1.57	.093	2d10	12.32	.733	2d14 +4d14 +2d14

MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr17\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Sc1s(rara)= 98.8; Sc1s(quasi permanente)= 74.1; fbd(esercizio)= 17.

ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAY	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A122	3	3	3	0	486.	468.	20.237	.4	1.	-----

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 10.	10.	3.1.	-1543.69	-.03	.066	-3218.92	-.066	.138	2.	.322	2.085	SI
24.	24.	3.1.	126.4	-.003	.007	2470.87	-.053	.138	2.	.275	19.55	SI
121.	121.	3.3.	-406.57	-.013	.065	-863.76	-.027	.138	2.	.164	2.125	NO
153.	153.	3.3.	-135.71	-.004	.022	-863.84	-.027	.138	2.	.164	6.365	NO
153.	153.	3.3.	1001.29	-.019	.029	4666.75	-.097	.138	2.	.412	4.661	SI
283.	283.	3.3.	1210.06	-.023	.035	4666.75	-.097	.138	2.	.412	3.857	SI
486.	486.	3.1.	276.16	-.006	.015	2470.87	-.053	.138	2.	.275	8.947	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1560.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	1507.	5884.	21355.	3784.	.57	20.	2.5
10.	10.	3.	1507.	5884.	21355.	3784.	.57	20.	2.5
24.	24.	3.	1429.	5884.	21355.	3784.	.57	20.	2.5
24.	24.	3.	1429.	5884.	21355.	3784.	.57	20.	2.5
56.	56.	3.	1253.	5884.	21355.	3784.	.57	20.	2.5
89.	89.	3.	1143.	5884.	21355.	3784.	.57	20.	2.5
121.	121.	3.	967.	5884.	21355.	3784.	.57	20.	2.5
153.	153.	3.	790.	5884.	21355.	3784.	.57	20.	2.5
186.	186.	3.	617.	6369.	21355.	3784.	.57	20.	2.5
218.	218.	3.	473.	6369.	21355.	3784.	.57	20.	2.5
250.	250.	3.	333.	6369.	21355.	3784.	.57	20.	2.5
283.	283.	3.	-89.	6369.	21355.	3784.	.57	20.	2.5
283.	283.	3.	198.	6369.	21355.	3784.	.57	20.	2.5
315.	315.	3.	-224.	6369.	21355.	3784.	.57	20.	2.5
315.	315.	3.	62.	6369.	21355.	3784.	.57	20.	2.5
347.	347.	3.	-360.	6369.	21355.	3784.	.57	20.	2.5
380.	380.	3.	-496.	6369.	21355.	3784.	.57	20.	2.5
412.	412.	3.	-643.	5884.	21355.	3784.	.57	20.	2.5
444.	444.	3.	-799.	5884.	21355.	3784.	.57	20.	2.5
444.	444.	3.	-799.	5884.	21355.	3784.	.57	20.	2.5
459.	459.	3.	-878.	5884.	21355.	3784.	.57	20.	2.5
468.	468.	3.	-930.	5884.	21355.	3784.	.57	20.	2.5
476.	476.	3.	-973.	5884.	21355.	3784.	.57	20.	2.5
486.	486.	3.	-1026.	5884.	21355.	3784.	.57	20.	2.5

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.1.	-794.6	-16.8	670.	6.09	6.04	.0201	23.56	.047	SI
10.	10.	3.1.	-794.6	-16.8	670.	6.09	6.04	.0201	23.56	.047	SI
24.	24.	3.1.	-633.5	-13.4	534.2	6.09	6.04	.016	23.56	.038	SI
283.	283.	3.3.	882.54	-17.2	506.1	9.14	5.58	.0152	15.51	.024	SI
486.	486.	3.1.	142.54	-3.3	157.1	4.62	6.25	.0047	24.56	.012	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.1.	-772.63	-16.3	651.5	6.09	6.04	.0195	23.56	.046	SI
10.	10.	3.1.	-772.63	-16.3	651.5	6.09	6.04	.0195	23.56	.046	SI
24.	24.	3.1.	-612.4	-13.	516.4	6.09	6.04	.0155	23.56	.036	SI
283.	283.	3.3.	885.29	-17.3	507.7	9.14	5.58	.0152	15.51	.024	SI
486.	486.	3.1.	132.18	-3.	143.4	4.62	6.25	.0044	24.56	.011	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 10.	10.	3.1.	-767.74	-16.2	647.4	6.09	6.04	.0194	23.56	.046	SI
10.	10.	3.1.	-767.74	-16.2	647.4	6.09	6.04	.0194	23.56	.046	SI
24.	24.	3.1.	-607.7	-12.9	512.4	6.09	6.04	.0154	23.56	.036	SI
283.	283.	3.3.	885.17	-17.3	507.6	9.14	5.58	.0152	15.51	.024	SI
486.	486.	3.1.	130.11	-3.	143.4	4.62	6.25	.0043	24.56	.011	SI

ARMATURE LONGITUDINALI (%=100\*Af/Acl<sub>s</sub> - Acl<sub>s</sub>=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	10.71	.638	6.09	.363	2d10 +2d12 +2d12	4.62	.275	3d14
2	10.71	.638	3.83	.228	2d10 +2d12	6.88	.41	3d14 +2d12
3	10.71	.638	1.57	.093	2d10	9.14	.544	2d12 +3d14 +2d12

MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * t * d$  oppure  $Af < 0.0013 * b * t * d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr13\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd( $k * f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

CASI DI CARICO DA MODELLO 3D

SLU			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	13.	Rara 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	15.	Frequente 1	1.			
5.	SLU con SISMAX	4.	16.	Frequente 2	1.			
6.	SLU con SISMAX	4.						

SEZIONI UTILIZZATE

- 3) Rettangolare: 35X24; A=840.; Jg=40320.; E=287713.1

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A199	3	3	3	0	425.	390.	17.708	1.3	2.165	50.053
2	A197	3	3	3	0	215.	180.	8.958	1.5	3.651	99.501
3	A196	3	3	3	0	425.	390.	17.708	1.5	2.471	65.93
4	A1629	3	3	3	0	232.	197.	9.668	1.3	5.	116.872

VERIFICHE ALLO STATO LIMITE ULTIMO

FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1311.79	-.03	.042	-4290.48	-.106	.138	2.	.434	3.271	SI
27.	27.	3.	2.	49.49	-.001	.004	1641.94	-.049	.138	2.	.26	33.18	SI
178.	178.	3.	5.	1444.8	-.043	.041	4760.41	-.17	.138	2.	.551	3.295	SI
213.	213.	3.	6.	1500.55	-.05	.063	3248.5	-.119	.138	2.	.462	2.165	SI
425.	425.	3.	7.	-1248.15	-.031	.04	-4263.54	-.113	.138	2.	.449	3.416	SI
> 425.	0.	3.	7.	-1317.72	-.032	.042	-4263.54	-.113	.138	2.	.449	3.236	SI
425.	0.	3.	7.	19.66	0.	.001	2808.09	-.07	.138	2.	.336	142.9	SI
493.	68.	3.	8.	-852.72	-.025	.028	-4144.59	-.138	.138	2.	.5	4.86	SI
493.	68.	3.	8.	304.59	-.01	.035	1213.82	-.041	.138	2.	.227	3.985	SI
519.	94.	3.	9.	332.41	-.012	.038	1213.75	-.044	.138	2.	.243	3.651	SI
599.	174.	3.	7.	211.66	-.005	.01	2808.09	-.07	.138	2.	.336	13.27	SI
640.	215.	3.	7.	-1117.61	-.027	.036	-4263.54	-.113	.138	2.	.449	3.815	SI
> 640.	0.	3.	7.	-1311.79	-.032	.042	-4263.54	-.113	.138	2.	.449	3.25	SI
716.	76.	3.	3.	-106.88	-.003	.005	-3145.81	-.104	.138	2.	.429	29.43	SI
784.	144.	3.	6.	1110.3	-.037	.047	3248.5	-.119	.138	2.	.462	2.926	SI
853.	212.	3.	6.	1314.44	-.044	.055	3248.5	-.119	.138	2.	.462	2.471	SI
989.	349.	3.	6.	-262.39	-.011	.043	-849.42	-.036	.138	2.	.205	3.237	SI
1065.	425.	3.	12	-1370.65	-.031	.039	-4830.38	-.119	.138	2.	.463	3.524	SI
>1065.	0.	3.	12	-1399.8	-.032	.04	-4830.38	-.119	.138	2.	.463	3.451	SI
1075.	10.	3.	12	-1399.8	-.032	.04	-4830.38	-.119	.138	2.	.463	3.451	SI
1092.	27.	3.	12	26.05	-.001	.001	3211.28	-.081	.138	2.	.37	123.3	SI
1107.	42.	3.	13	118.7	-.003	.004	4336.22	-.103	.138	2.	.426	36.53	SI
1136.	71.	3.	14	-610.23	-.023	.069	-1213.48	-.046	.138	2.	.249	1.989	SI
1226.	161.	3.	14	433.69	-.015	.025	2344.62	-.09	.138	2.	.395	5.406	SI
1297.	232.	3.	15	-378.67	-.012	.022	-2353.27	-.082	.138	2.	.372	6.215	SI
1297.	232.	3.	15	240.13	-.008	.02	1635.51	-.058	.138	2.	.296	6.811	SI

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	2448.	3894.	10678.	3784.	.57	20.	2.5	NO
10.	10.	2336.	3894.	10678.	3784.	.57	20.	2.5	NO
18.	18.	2245.	3894.	10678.	3784.	.57	20.	2.5	NO
27.	27.	2132.	2942.	10678.	3784.	.57	20.	2.5	NO
42.	42.	1966.	2942.	10678.	3784.	.57	20.	2.5	NO
42.	42.	1966.	2942.	10678.	3784.	.57	20.	2.5	NO
76.	76.	1569.	3354.	10678.	3784.	.57	20.	2.5	NO
110.	110.	1171.	3576.	10678.	3784.	.57	20.	2.5	NO
144.	144.	774.	3576.	10678.	3784.	.57	20.	2.5	NO
178.	178.	405.	3576.	10678.	3784.	.57	20.	2.5	NO
213.	213.	-98.	3576.	10678.	3784.	.57	20.	2.5	NO
213.	213.	60.	3576.	10678.	3784.	.57	20.	2.5	NO
247.	247.	-490.	3576.	10678.	3784.	.57	20.	2.5	NO
281.	281.	-885.	3576.	10678.	3784.	.57	20.	2.5	NO
315.	315.	-1283.	3576.	10678.	3784.	.57	20.	2.5	NO
349.	349.	-1680.	2942.	10678.	3784.	.57	20.	2.5	NO
384.	384.	-2077.	3894.	10678.	3784.	.57	20.	2.5	NO
384.	384.	-2077.	3894.	10678.	3784.	.57	20.	2.5	NO
398.	398.	-2244.	3894.	10678.	3784.	.57	20.	2.5	NO
408.	408.	-2356.	3894.	10678.	3784.	.57	20.	2.5	NO
415.	415.	-2356.	3894.	10678.	3784.	.57	20.	2.5	NO
425.	425.	-2356.	3894.	10678.	3784.	.57	20.	2.5	NO
> 425.	0.	1350.	2942.	10678.	3784.	.57	20.	2.5	NO
435.	10.	1238.	2942.	10678.	3784.	.57	20.	2.5	NO
443.	18.	1147.	2942.	10678.	3784.	.57	20.	2.5	NO
452.	27.	1035.	2942.	10678.	3784.	.57	20.	2.5	NO
467.	42.	868.	2942.	10678.	3784.	.57	20.	2.5	NO
467.	42.	868.	2942.	10678.	3784.	.57	20.	2.5	NO
493.	68.	561.	2942.	10678.	3784.	.57	20.	2.5	NO
519.	94.	255.	2942.	10678.	3784.	.57	20.	2.5	NO
546.	121.	-140.	2942.	10678.	3784.	.57	20.	2.5	NO
546.	121.	2.	2942.	10678.	3784.	.57	20.	2.5	NO
572.	147.	-414.	2942.	10678.	3784.	.57	20.	2.5	NO
599.	174.	-720.	2942.	10678.	3784.	.57	20.	2.5	NO
599.	174.	-720.	2942.	10678.	3784.	.57	20.	2.5	NO
613.	188.	-887.	2942.	10678.	3784.	.57	20.	2.5	NO
623.	198.	-999.	3354.	10678.	3784.	.57	20.	2.5	NO
630.	205.	-999.	3354.	10678.	3784.	.57	20.	2.5	NO
640.	215.	-999.	3354.	10678.	3784.	.57	20.	2.5	NO
> 640.	0.	2415.	3894.	10678.	3784.	.57	20.	2.5	NO
650.	10.	2302.	3894.	10678.	3784.	.57	20.	2.5	NO
658.	18.	2211.	3894.	10678.	3784.	.57	20.	2.5	NO
667.	27.	2099.	3894.	10678.	3784.	.57	20.	2.5	NO
682.	42.	1932.	3894.	10678.	3784.	.57	20.	2.5	NO
682.	42.	1932.	3894.	10678.	3784.	.57	20.	2.5	NO
716.	76.	1535.	2942.	10678.	3784.	.57	20.	2.5	NO
750.	110.	1138.	3576.	10678.	3784.	.57	20.	2.5	NO
784.	144.	740.	3576.	10678.	3784.	.57	20.	2.5	NO
818.	178.	355.	3576.	10678.	3784.	.57	20.	2.5	NO
853.	212.	-81.	3576.	10678.	3784.	.57	20.	2.5	NO
887.	247.	-478.	3576.	10678.	3784.	.57	20.	2.5	NO
921.	281.	-876.	3576.	10678.	3784.	.57	20.	2.5	NO
955.	315.	-1273.	3576.	10678.	3784.	.57	20.	2.5	NO
989.	349.	-1671.	2942.	10678.	3784.	.57	20.	2.5	NO
1024.	384.	-2068.	2942.	10678.	3784.	.57	20.	2.5	NO
1024.	384.	-2068.	2942.	10678.	3784.	.57	20.	2.5	NO
1038.	398.	-2235.	3273.	10678.	3784.	.57	20.	2.5	NO
1048.	408.	-2347.	3273.	10678.	3784.	.57	20.	2.5	NO
1055.	415.	-2347.	3273.	10678.	3784.	.57	20.	2.5	NO
1065.	425.	-2347.	3273.	10678.	3784.	.57	20.	2.5	NO
> 1065.	0.	1844.	3505.	10678.	3784.	.57	20.	2.5	NO
1075.	10.	1844.	3505.	10678.	3784.	.57	20.	2.5	NO
1083.	18.	1844.	3505.	10678.	3784.	.57	20.	2.5	NO
1092.	27.	1732.	2942.	10678.	3784.	.57	20.	2.5	NO
1107.	42.	1565.	2942.	10678.	3784.	.57	20.	2.5	NO
1107.	42.	1565.	2942.	10678.	3784.	.57	20.	2.5	NO
1136.	71.	1219.	2942.	10678.	3784.	.57	20.	2.5	NO
1166.	101.	872.	2942.	10678.	3784.	.57	20.	2.5	NO
1196.	131.	-152.	2942.	10678.	3784.	.57	20.	2.5	NO
1196.	131.	526.	2942.	10678.	3784.	.57	20.	2.5	NO
1226.	161.	-361.	2942.	10678.	3784.	.57	20.	2.5	NO
1226.	161.	214.	2942.	10678.	3784.	.57	20.	2.5	NO
1256.	191.	-602.	2942.	10678.	3784.	.57	20.	2.5	NO
1256.	191.	-602.	2942.	10678.	3784.	.57	20.	2.5	NO
1270.	205.	-736.	2942.	10678.	3784.	.57	20.	2.5	NO
1280.	215.	-848.	2942.	10678.	3784.	.57	20.	2.5	NO
1287.	222.	-939.	2942.	10678.	3784.	.57	20.	2.5	NO
1297.	232.	-1052.	2942.	10678.	3784.	.57	20.	2.5	NO

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	-979.89	-25.3	622.1	8.36	5.28	.0198	10.81	.021
10.	10.	3.	2.	-828.15	-24.2	531.1	8.36	5.09	.0159	10.65	.017
27.	27.	3.	2.	-553.69	-16.2	355.1	8.36	5.09	.0107	10.65	.011
42.	42.	3.	2.	-329.02	-9.6	211.	8.36	5.09	.0063	10.65	.007
76.	76.	3.	3.	362.68	-10.9	354.4	5.34	5.73	.0106	14.47	.015
213.	213.	3.	6.	1121.24	-37.7	921.7	6.47	5.28	.0323	12.36	.04
425.	425.	3.	7.	-932.76	-25.	593.8	8.36	5.22	.0185	10.76	.02
> 425.	0.	3.	7.	-984.62	-26.4	626.9	8.36	5.22	.0202	10.76	.022
546.	121.	3.	10	251.	-10.9	565.	2.26	6.25	.0169	24.94	.042
640.	215.	3.	7.	-834.8	-22.4	531.5	8.36	5.22	.0159	10.76	.017
> 640.	0.	3.	7.	-979.89	-26.3	623.8	8.36	5.22	.02	10.76	.022
853.	212.	3.	6.	981.88	-33.	807.1	6.47	5.28	.0266	12.36	.033
1065.	425.	3.	12	-1023.79	-25.8	576.1	9.49	5.12	.0188	10.19	.019

>1065.	0.	3.	12	-1050.13	-26.4	590.9	9.49	5.12	.0195	10.19	.02	SI
1136.	71.	3.	14	-402.08	-17.2	905.2	2.26	6.25	.0272	25.	.068	SI
1226.	161.	3.	14	324.12	-12.3	369.5	5.34	5.61	.0111	14.29	.016	SI
1297.	232.	3.	15	-282.86	-10.1	325.9	4.52	5.73	.0098	15.5	.015	SI
1297.	232.	3.	15	56.68	-2.2	94.5	3.08	6.15	.0028	23.97	.007	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-828.16!	-21.4	525.7	8.36	5.28	.0158	10.81	.017	SI
10.	10.	3.	2.	-698.86!	-20.4	448.2	8.36	5.09	.0134	10.65	.014	SI
27.	27.	3.	2.	-464.98	-13.6	298.2	8.36	5.09	.0089	10.65	.01	SI
42.	42.	3.	2.	-273.53	-8.	175.4	8.36	5.09	.0053	10.65	.006	SI
76.	76.	3.	3.	303.68	-9.2	296.8	5.34	5.73	.0089	14.47	.013	SI
213.	213.	3.	6.	945.93!	-31.8!	777.6	6.47	5.28	.0251	12.36	.031	SI
425.	425.	3.	7.	-788.23!	-21.2!	501.8	8.36	5.22	.0151	10.76	.016	SI
> 425.	0.	3.	7.	-833.42!	-22.4	530.6!	8.36	5.22	.0159	10.76	.017	SI
546.	121.	3.	10	207.69!	-9.	467.5	2.26	6.25	.014	24.94	.035!	SI
640.	215.	3.	7.	-705.7	-18.9	449.3	8.36	5.22	.0135	10.76	.015	SI
> 640.	0.	3.	7.	-828.16	-22.2	527.3	8.36	5.22	.0158	10.76	.017	SI
853.	212.	3.	6.	829.93!	-27.9!	682.2!	6.47	5.28	.0205	12.36	.025!	SI
1065.	425.	3.	12	-866.14!	-21.8!	487.4	9.49	5.12	.0146	10.19	.015	SI
>1065.	0.	3.	12	-889.41!	-22.4!	500.4	9.49	5.12	.015	10.19	.015	SI
1136.	71.	3.	14	-341.17!	-14.6!	768.	2.26	6.25	.023	25.	.058	SI
1226.	161.	3.	14	273.85!	-10.4	312.2	5.34	5.61	.0094	14.29	.013	SI
1297.	232.	3.	15	-239.06!	-8.5	275.4	4.52	5.73	.0083	15.5	.013	SI
1297.	232.	3.	15	49.58!	-1.9	82.7	3.08	6.15	.0025	23.97	.006	SI

#### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
> 0.	0.	3.	1.	-790.24!	-20.4	501.7	8.36	5.28	.015	10.81	.016	SI
10.	10.	3.	2.	-666.07!	-19.5	427.2	8.36	5.09	.0128	10.65	.014	SI
27.	27.	3.	2.	-441.47!	-12.9	283.1	8.36	5.09	.0085	10.65	.009	SI
42.	42.	3.	2.	-257.63!	-7.5	165.2	8.36	5.09	.005	10.65	.005	SI
76.	76.	3.	3.	288.54!	-8.7	282.	5.34	5.73	.0085	14.47	.012	SI
213.	213.	3.	6.	901.92!	-30.3	741.4!	6.47	5.28	.0233	12.36	.029	SI
425.	425.	3.	7.	-751.97!	-20.2	478.7	8.36	5.22	.0144	10.76	.015	SI
> 425.	0.	3.	7.	-795.61!	-21.4	506.5!	8.36	5.22	.0152	10.76	.016	SI
546.	121.	3.	10	196.06!	-8.5	441.3	2.26	6.25	.0132	24.94	.033	SI
640.	215.	3.	7.	-673.44!	-18.1	428.7	8.36	5.22	.0129	10.76	.014	SI
> 640.	0.	3.	7.	-790.24!	-21.2	503.1	8.36	5.22	.0151	10.76	.016	SI
853.	212.	3.	6.	791.94!	-26.6	651.	6.47	5.28	.0195	12.36	.024	SI
1065.	425.	3.	12	-826.79!	-20.8	465.2	9.49	5.12	.014	10.19	.014	SI
>1065.	0.	3.	12	-849.38!	-21.4	477.9	9.49	5.12	.0143	10.19	.015	SI
1136.	71.	3.	14	-326.05!	-13.9	734.	2.26	6.25	.022	25.	.055	SI
1226.	161.	3.	14	262.52!	-10.	299.2	5.34	5.61	.009	14.29	.013	SI
1297.	232.	3.	15	-228.12!	-8.1	262.8	4.52	5.73	.0079	15.5	.012	SI
1297.	232.	3.	15	47.42!	-1.8	79.1	3.08	6.15	.0024	23.97	.006	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/AclS - AclS=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	14.83	1.765	8.36	.995	2d10 +1d12 +2d1 ...	6.47	.77	2d14 +3d12
2	11.44	1.361	8.36	.995	2d10 +1d12 +2d1 ...	3.08	.367	2d14
3	11.44	1.361	6.09	.726	2d10 +1d12 +3d12	5.34	.636	2d12 +2d14
4	11.44	1.361	4.96	.591	2d10 +3d12	6.47	.77	1d12 +2d12 +2d14
5	11.44	1.361	1.57	.187	2d10	9.86	1.174	1d12 +2d12 +2d1 ...
6	8.04	.957	1.57	.187	2d10	6.47	.77	1d12 +2d12 +2d14
7	13.7	1.631	8.36	.995	2d10 +1d12 +2d1 ...	5.34	.636	2d14 +2d12
8	10.62	1.264	8.36	.995	2d10 +1d12 +2d1 ...	2.26	.269	2d12
9	8.36	.995	6.09	.726	2d10 +1d12 +3d12	2.26	.269	2d12
10	7.23	.86	4.96	.591	2d10 +3d12	2.26	.269	2d12
11	15.65	1.863	7.23	.86	2d10 +1d12 +2d1 ...	8.42	1.002	2d12 +2d14 +2d14
12	15.65	1.863	9.49	1.129	2d10 +1d12 +2d1 ...	6.16	.733	2d14 +2d14
13	15.65	1.863	7.23	.86	2d10 +1d12 +2d1 ...	8.42	1.002	2d14 +2d12 +2d14
14	7.6	.905	2.26	.269	2d12	5.34	.636	2d12 +2d14
15	7.6	.905	4.52	.539	2d12 +2d12	3.08	.367	2d14

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr14\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecu=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAY	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

<-

SEZIONI UTILIZZATE

3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=287713.1

DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A133	3	3	3	0	370.	352.	15.417	.4	2.27	18.143

VERIFICHE ALLO STATO LIMITE ULTIMO

FLESSIONE:

Progressive	SE	Ar	Ms	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 10.	10.	3.	1.	-1293.26	-.031	.068	-2624.17	-.065	.138	2.	.32	2.029	SI
10.	10.	3.	1.	1022.65	-.027	.077	1824.36	-.048	.138	2.	.258	1.784	SI
126.	126.	3.	2.	-370.64	-.013	.056	-910.67	-.033	.138	2.	.194	2.457	NO
159.	159.	3.	2.	-192.66	-.007	.031	-861.5	-.03	.138	2.	.177	4.472	NO
159.	159.	3.	2.	668.89	-.015	.026	3502.7	-.087	.138	2.	.385	5.237	SI
193.	193.	3.	2.	-50.74	-.002	.008	-861.5	-.03	.138	2.	.177	16.98	NO
261.	261.	3.	2.	-213.79	-.007	.034	-861.5	-.03	.138	2.	.177	4.03	NO
370.	370.	3.	1.	-1182.02	-.028	.062	-2624.17	-.065	.138	2.	.32	2.22	SI
370.	370.	3.	1.	16.72	0.	.001	1824.36	-.048	.138	2.	.258	109.1	SI

TAGLIO:

Progressive	Se	vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	1014.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	979.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	979.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
24.	24.	3.	-45.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
24.	24.	3.	927.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
24.	24.	3.	-45.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
24.	24.	3.	927.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
58.	58.	3.	-167.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
58.	58.	3.	806.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
92.	92.	3.	-288.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
92.	92.	3.	684.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
126.	126.	3.	-410.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
126.	126.	3.	562.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
159.	159.	3.	-532.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
159.	159.	3.	440.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	-654.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
193.	193.	3.	318.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
227.	227.	3.	-776.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
227.	227.	3.	197.	5204.	18305.	3784.	.57	20.	2.5	NO	5	6
261.	261.	3.	-897.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
261.	261.	3.	75.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
295.	295.	3.	-1019.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
328.	328.	3.	-1141.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
328.	328.	3.	-1141.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
343.	343.	3.	-1192.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
352.	352.	3.	-1227.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
360.	360.	3.	-1227.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
370.	370.	3.	-1227.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6

VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
24.	24.	3.	1.	-24.83	-.6	25.7	4.96	6.06	.0008	23.65	.002	SI
159.	159.	3.	2.	244.87	-5.8	187.8	6.79	5.72	.0056	16.79	.009	SI
370.	370.	3.	1.	-595.24	-15.2	615.3	4.96	6.06	.0185	23.65	.044	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
24.	24.	3.	1.	-30.01!	-.8	31.	4.96	6.06	.0009	23.65	.002	SI
159.	159.	3.	2.	240.38!	-5.7	184.4	6.79	5.72	.0055	16.79	.009	SI
370.	370.	3.	1.	-586.15!	-14.9	605.9!	4.96	6.06	.0182	23.65	.043!	SI

TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
24.	24.	3.	1.	-28.62	-.7	29.6	4.96	6.06	.0009	23.65	.002	SI
159.	159.	3.	2.	239.1	-5.7	183.4	6.79	5.72	.0055	16.79	.009	SI
370.	370.	3.	1.	-583.74	-14.9	603.4	4.96	6.06	.0181	23.65	.043	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	8.36	.58	4.96	.345	2d10 +1d12 +2d12	3.39	.236	3d12



2	8.36	.58	1.57	.109	2d10	6.79	.471	1d12 +3d12 +2d12
3	8.36	.58	2.7	.188	2d10 +1d12	5.65	.393	3d12 +2d12

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
 9) Armatura superiore tesa insufficiente ( $Af < 0.26 * f_{ctm} / f_{yk} * b * d$  oppure  $Af < 0.0013 * b * d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr12\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferr (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd( $k * f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU			RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.	13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
2.	SLU SENZA SISMA 2	1.	14.	Rara 2	1.	16.	Frequente 2	1.			
5.	SLU con SISMAX	4.									
6.	SLU con SISMAX	4.									

#### SEZIONI UTILIZZATE

- 3) Rettangolare: 60x24; A=1440.; Jg=69120.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A131	3	3	3	0	255.	220.	10.625	1.	1.738	33.487

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1626.22	-.037	.085	-2630.99	-.062	.138	2.	.31	1.618	SI
0.	0.	3.	1.	1398.64	-.033	.079	2456.27	-.058	.138	2.	.297	1.756	SI
18.	18.	3.	1.	1413.25	-.033	.079	2456.27	-.058	.138	2.	.297	1.738	SI
99.	99.	3.	2.	-721.14	-.024	.116	-860.63	-.029	.138	2.	.173	1.193	NO
99.	99.	3.	2.	1256.64	-.028	.042	4088.89	-.098	.138	2.	.414	3.254	SI
127.	127.	3.	2.	-514.58	-.017	.083	-860.63	-.029	.138	2.	.173	1.673	NO
156.	156.	3.	2.	-378.21	-.013	.061	-860.63	-.029	.138	2.	.173	2.276	NO
185.	185.	3.	2.	-311.22	-.01	.05	-860.63	-.029	.138	2.	.173	2.765	NO
228.	228.	3.	1.	42.12	-.001	.002	2456.27	-.058	.138	2.	.297	58.32	SI
255.	255.	3.	1.	-636.83	-.014	.033	-2630.99	-.062	.138	2.	.31	4.131	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1509.	5044.	18305.	3784.	.57	20.	2.5
10.	10.	3.	1434.	5044.	18305.	3784.	.57	20.	2.5
18.	18.	3.	1374.	5044.	18305.	3784.	.57	20.	2.5
27.	27.	3.	-4.	5044.	18305.	3784.	.57	20.	2.5
27.	27.	3.	1299.	5044.	18305.	3784.	.57	20.	2.5
42.	42.	3.	-114.	5044.	18305.	3784.	.57	20.	2.5
42.	42.	3.	1188.	5044.	18305.	3784.	.57	20.	2.5
42.	42.	3.	-114.	5044.	18305.	3784.	.57	20.	2.5
42.	42.	3.	1188.	5044.	18305.	3784.	.57	20.	2.5
70.	70.	3.	-335.	5044.	18305.	3784.	.57	20.	2.5
70.	70.	3.	967.	5044.	18305.	3784.	.57	20.	2.5
99.	99.	3.	-556.	5044.	18305.	3784.	.57	20.	2.5
99.	99.	3.	746.	5044.	18305.	3784.	.57	20.	2.5
127.	127.	3.	-777.	5044.	18305.	3784.	.57	20.	2.5
127.	127.	3.	525.	5044.	18305.	3784.	.57	20.	2.5
156.	156.	3.	-998.	5044.	18305.	3784.	.57	20.	2.5
156.	156.	3.	304.	5044.	18305.	3784.	.57	20.	2.5
185.	185.	3.	-1220.	5044.	18305.	3784.	.57	20.	2.5
185.	185.	3.	83.	5044.	18305.	3784.	.57	20.	2.5
213.	213.	3.	-1441.	5044.	18305.	3784.	.57	20.	2.5
213.	213.	3.	-1441.	5044.	18305.	3784.	.57	20.	2.5
228.	228.	3.	-1551.	5044.	18305.	3784.	.57	20.	2.5

237.	237.	3.	-1626.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
245.	245.	3.	-1626.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6
255.	255.	3.	-1626.	5044.	18305.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve
18.	18.	3.	-203.73	-5.	210.5	4.96	6.1	.0063	23.8	.015	SI	
127.	127.	3.	422.71	-9.5	276.8	8.01	5.57	.0083	15.39	.013	SI	
255.	255.	3.	-463.81	-11.5	479.2	4.96	6.1	.0144	23.8	.034	SI	

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve
18.	18.	3.	-181.12	-4.5	187.1	4.96	6.1	.0056	23.8	.013	SI	
127.	127.	3.	372.28	-8.4	243.8	8.01	5.57	.0073	15.39	.011	SI	
255.	255.	3.	-428.31	-10.6	442.6	4.96	6.1	.0133	23.8	.032	SI	

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve
18.	18.	3.	-175.67	-4.4	181.5	4.96	6.1	.0054	23.8	.013	SI	
127.	127.	3.	358.89	-8.1	235.	8.01	5.57	.0071	15.39	.011	SI	
255.	255.	3.	-418.34	-10.4	432.3	4.96	6.1	.013	23.8	.031	SI	

#### ARMATURE LONGITUDINALI (%=100\*Af/Acl - Acl=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	9.58	.665	4.96	.345	2d10 +3d12	4.62	.321	3d14
2	9.58	.665	1.57	.109	2d10	8.01	.556	3d12 +3d14

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr10\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferrì (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scs(rara)= 98.8; Scs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

- 3) Rettangolare: 40X24; A=960.; Jg=46080.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A1167	3	3	3	0	280.	242.	11.667	1.	1.009	18.498

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	-18.37	0.	.001	-2384.46	-.067	.138	2.	.326	129.8	SI
0.	0.	3.	2914.95	-.082	.137	2941.94	-.083	.138	2.	.374	1.009	SI
76.	76.	3.	2141.37	-.061	.074	3972.52	-.121	.138	2.	.467	1.855	SI
141.	141.	3.	-56.39	-.002	.006	-1217.43	-.043	.138	2.	.238	21.59	SI
280.	280.	3.	-2092.17	-.066	.122	-2367.44	-.075	.138	2.	.352	1.132	SI

# TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	-1052.	3362.	12203.	3784.	.57	20.	2.5
0.	0.	3.	396.	3362.	12203.	3784.	.57	20.	2.5
10.	10.	3.	-1052.	3362.	12203.	3784.	.57	20.	2.5
10.	10.	3.	396.	3362.	12203.	3784.	.57	20.	2.5
20.	20.	3.	-1052.	3362.	12203.	3784.	.57	20.	2.5
20.	20.	3.	396.	3362.	12203.	3784.	.57	20.	2.5
30.	30.	3.	-1115.	3469.	12203.	3784.	.57	20.	2.5
30.	30.	3.	333.	3469.	12203.	3784.	.57	20.	2.5
44.	44.	3.	-1208.	3737.	12203.	3784.	.57	20.	2.5
44.	44.	3.	240.	3737.	12203.	3784.	.57	20.	2.5
44.	44.	3.	-1208.	3737.	12203.	3784.	.57	20.	2.5
44.	44.	3.	240.	3737.	12203.	3784.	.57	20.	2.5
76.	76.	3.	-1419.	3737.	12203.	3784.	.57	20.	2.5
76.	76.	3.	29.	3737.	12203.	3784.	.57	20.	2.5
109.	109.	3.	-1630.	3737.	12203.	3784.	.57	20.	2.5
141.	141.	3.	-1841.	3362.	12203.	3784.	.57	20.	2.5
174.	174.	3.	-2052.	3362.	12203.	3784.	.57	20.	2.5
206.	206.	3.	-2346.	3362.	12203.	3784.	.57	20.	2.5
238.	238.	3.	-2653.	3469.	12203.	3784.	.57	20.	2.5
238.	238.	3.	-2653.	3469.	12203.	3784.	.57	20.	2.5
253.	253.	3.	-2793.	3469.	12203.	3784.	.57	20.	2.5
262.	262.	3.	-2889.	3469.	12203.	3784.	.57	20.	2.5
270.	270.	3.	-2889.	3469.	12203.	3784.	.57	20.	2.5
280.	280.	3.	-2889.	3469.	12203.	3784.	.57	20.	2.5

## VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	1613.82	-47.1	1490.3	5.65	5.69	.0562	14.68	.082	SI
20.	20.	3.	1.	1537.96	-44.9	1420.2	5.65	5.69	.0527	14.68	.077	SI
280.	280.	3.	4.	-1548.04	-50.7	1774.4	4.52	5.85	.0659	17.01	.112	SI

### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	1462.46	-42.7	1350.5	5.65	5.69	.0492	14.68	.072	SI
20.	20.	3.	1.	1393.24	-40.7	1286.6	5.65	5.69	.046	14.68	.068	SI
280.	280.	3.	4.	-1400.62	-45.9	1605.5	4.52	5.85	.0575	17.01	.098	SI

### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
> 0.	0.	3.	1.	1407.02	-41.1	1299.3	5.65	5.69	.0466	14.68	.068	SI
20.	20.	3.	1.	1344.76	-39.3	1241.8	5.65	5.69	.0438	14.68	.064	SI
280.	280.	3.	4.	-1364.74	-44.7	1564.3	4.52	5.85	.0554	17.01	.094	SI

## ARMATURE LONGITUDINALI (%=100\*Af/Acl - Acl=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	10.18	1.06	4.52	.471	2d12	5.65	.589	3d12
2	10.18	1.06	2.26	.236	2d12	7.92	.825	2d12
3	7.92	.825	2.26	.236	2d12	5.65	.589	2d12
4	7.92	.825	4.52	.471	2d12	3.39	.353	3d12

## MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : **Tr5\_p3** (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

## MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

## TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : ScIs(rara)= 98.8; ScIs(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054.; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

## CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	SLU	Sest
1.	SLU SENZA SISMA 1	1.	1.
2.	SLU SENZA SISMA 2	1.	1.
5.	SLU con SISMAX	4.	4.
6.	SLU con SISMAX	4.	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 35X24; A=840.; Jg=40320.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A194	3	3	3	0	280.	245.	11.667	1.	1.89	35.657

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsc1	Mrd	Epsc1	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-55.37	-.002	.004	-2020.23	-.067	.138	2.	.327	36.49
0.	0.	3.	1.	1249.65	-.04	.073	2362.09	-.078	.138	2.	.361	1.89
42.	42.	3.	1.	-14.58	0.	.001	-2020.23	-.067	.138	2.	.327	138.5
74.	74.	3.	2.	1103.61	-.036	.044	3393.26	-.123	.138	2.	.471	3.075
239.	239.	3.	4.	348.19	-.014	.04	1212.26	-.05	.138	2.	.264	3.482
280.	280.	3.	4.	-41.74	-.001	.003	-2001.57	-.077	.138	2.	.358	47.95
280.	280.	3.	4.	99.39	-.004	.011	1212.26	-.05	.138	2.	.264	12.2

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve
> 0.	0.	3.	1.	-189.	2942.	10678.	3784.	.57	20.
0.	0.	3.	1.	296.	2942.	10678.	3784.	.57	20.
10.	10.	3.	1.	-189.	2942.	10678.	3784.	.57	20.
10.	10.	3.	1.	296.	2942.	10678.	3784.	.57	20.
18.	18.	3.	1.	-189.	2942.	10678.	3784.	.57	20.
18.	18.	3.	1.	296.	2942.	10678.	3784.	.57	20.
27.	27.	3.	1.	-209.	3003.	10678.	3784.	.57	20.
27.	27.	3.	1.	275.	3003.	10678.	3784.	.57	20.
42.	42.	3.	1.	-239.	3003.	10678.	3784.	.57	20.
42.	42.	3.	1.	245.	3003.	10678.	3784.	.57	20.
42.	42.	3.	1.	-239.	3003.	10678.	3784.	.57	20.
42.	42.	3.	1.	245.	3003.	10678.	3784.	.57	20.
74.	74.	3.	1.	-308.	3174.	10678.	3784.	.57	20.
74.	74.	3.	1.	176.	3174.	10678.	3784.	.57	20.
107.	107.	3.	1.	-377.	3174.	10678.	3784.	.57	20.
107.	107.	3.	1.	107.	3174.	10678.	3784.	.57	20.
140.	140.	3.	1.	-446.	3174.	10678.	3784.	.57	20.
140.	140.	3.	1.	38.	3174.	10678.	3784.	.57	20.
173.	173.	3.	1.	-515.	3174.	10678.	3784.	.57	20.
206.	206.	3.	1.	-584.	3174.	10678.	3784.	.57	20.
239.	239.	3.	1.	-653.	2942.	10678.	3784.	.57	20.
239.	239.	3.	1.	-653.	2942.	10678.	3784.	.57	20.
253.	253.	3.	1.	-683.	2942.	10678.	3784.	.57	20.
263.	263.	3.	1.	-703.	2942.	10678.	3784.	.57	20.
270.	270.	3.	1.	-703.	2942.	10678.	3784.	.57	20.
280.	280.	3.	1.	-703.	2942.	10678.	3784.	.57	20.

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 0.	0.	3.	1.	660.97	-22.9	760.5	4.52	5.77	.0228	15.57	.036
10.	10.	3.	1.	663.18	-22.9	763.	4.52	5.77	.0229	15.57	.036
27.	27.	3.	1.	667.17	-23.1	767.6	4.52	5.77	.023	15.57	.036
280.	280.	3.	4.	4.54	-.2	10.2	2.26	6.25	.0003	24.76	.001

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 0.	0.	3.	1.	591.6	-20.5	680.7	4.52	5.77	.0204	15.57	.032
10.	10.	3.	1.	596.1	-20.6	685.9	4.52	5.77	.0206	15.57	.032
42.	42.	3.	1.	606.11	-21.	697.4	4.52	5.77	.0209	15.57	.033
107.	107.	3.	3.	559.46	-21.2	646.6	4.52	5.64	.0194	15.36	.03
280.	280.	3.	4.	1.43	-.1	3.2	2.26	6.25	.0001	24.76	0.

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc1s	Sacc	As	hc,ef	Eps%	Sr,max	Wd	Ve
> 0.	0.	3.	1.	571.28	-19.8	657.3	4.52	5.77	.0197	15.57	.031
10.	10.	3.	1.	576.45	-19.9	663.3	4.52	5.77	.0199	15.57	.031
42.	42.	3.	1.	588.68	-20.4	677.3	4.52	5.77	.0203	15.57	.032
107.	107.	3.	3.	546.58	-20.7	631.7	4.52	5.64	.019	15.36	.029
280.	280.	3.	4.	.57	0.	1.3	2.26	6.25	0.	24.76	0.

#### ARMATURE LONGITUDINALI (%=100\*Af/Ac1s - Ac1s=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	8.36	.995	3.83	.456	2d10 +2d12	4.52	.539	2d12 +2d12
2	8.36	.995	1.57	.187	2d10	6.79	.808	2d12 +2d12 +2d12
3	6.09	.726	1.57	.187	2d10	4.52	.539	2d12 +2d12
4	6.09	.726	3.83	.456	2d10 +2d12	2.26	.269	2d12

#### MESSAGGI

5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].

6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].

Nome travata : Tr1\_p3 (trave)  
 Metodo di verifica : stati limite (NTC18). ->  
 Duttilita' : non prevista (struttura non dissipativa).  
 Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
 Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
 Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
 gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
 ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
 gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
 CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
 ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
 FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
 kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A189	3	3	3	0	210.	175.	8.731	1.3	4.318	123.075
2	A190	3	3	3	0	389.	354.	16.215	1.5	2.242	65.518
3	A191	3	3	3	0	241.	206.	10.027	1.3	3.463	98.71

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-829.36	-.02	.056	-2059.9	-.051	.138	2.	.269	2.484	SI
0.	0.	3.	1.	158.69	-.004	.012	1832.19	-.047	.138	2.	.252	11.55	SI
67.	67.	3.	2.	-357.12	-.012	.057	-866.38	-.029	.138	2.	.173	2.426	NO 9
92.	92.	3.	2.	-374.46	-.012	.06	-866.38	-.029	.138	2.	.173	2.314	NO 9
92.	92.	3.	2.	688.98	-.015	.032	2974.89	-.07	.138	2.	.335	4.318	SI
117.	117.	3.	2.	-583.83	-.019	.093	-866.38	-.029	.138	2.	.173	1.484	NO 9
143.	143.	3.	2.	-937.13	-.033	.118	-1093.26	-.039	.138	2.	.221	1.167	NO 9
168.	168.	3.	3.	433.89	-.007	.014	4210.71	-.07	.138	2.	.337	9.705	SI
210.	210.	3.	3.	-1994.14	-.032	.063	-4381.87	-.073	.138	2.	.346	2.197	SI
210.	210.	3.	3.	5.29	0.	0.	4210.71	-.07	.138	2.	.337	796.5	SI
> 210.	0.	3.	3.	-1917.51	-.031	.06	-4381.87	-.073	.138	2.	.346	2.285	SI
404.	195.	3.	5.	2081.14	-.04	.061	4666.75	-.097	.138	2.	.412	2.242	SI
496.	286.	3.	6.	1274.39	-.022	.028	6240.44	-.123	.138	2.	.471	4.897	SI
527.	317.	3.	4.	-221.48	-.004	.01	-3013.54	-.054	.138	2.	.282	13.61	SI
557.	348.	3.	3.	11.57	0.	0.	4188.5	-.072	.138	2.	.341	362.2	SI
599.	389.	3.	3.	-1931.08	-.031	.061	-4381.87	-.073	.138	2.	.346	2.269	SI
> 599.	0.	3.	3.	-1981.47	-.032	.062	-4381.87	-.073	.138	2.	.346	2.211	SI
616.	18.	3.	3.	70.85	-.001	.002	4210.71	-.07	.138	2.	.337	59.43	SI
640.	42.	3.	4.	350.54	-.006	.01	4678.3	-.084	.138	2.	.379	13.35	SI
672.	73.	3.	2.	-661.78	-.022	.106	-866.38	-.029	.138	2.	.173	1.309	NO 9
703.	105.	3.	2.	-254.18	-.008	.041	-866.38	-.029	.138	2.	.173	3.409	NO 9
735.	136.	3.	2.	-107.32	-.004	.017	-866.38	-.029	.138	2.	.173	8.073	NO 9
735.	136.	3.	2.	859.04	-.019	.04	2974.89	-.07	.138	2.	.335	3.463	SI
766.	168.	3.	2.	-196.38	-.006	.031	-866.38	-.029	.138	2.	.173	4.412	NO 9
839.	241.	3.	1.	-745.38	-.018	.05	-2059.9	-.051	.138	2.	.269	2.764	SI
839.	241.	3.	1.	314.23	-.008	.024	1832.19	-.047	.138	2.	.252	5.831	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve		
> 0.	0.	3.	2093.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
10.	10.	3.	1874.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
18.	18.	3.	1696.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
27.	27.	3.	1477.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1153.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
42.	42.	3.	1153.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
67.	67.	3.	632.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
92.	92.	3.	-347.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
92.	92.	3.	225.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
117.	117.	3.	-893.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
143.	143.	3.	-1461.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
168.	168.	3.	-2028.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
168.	168.	3.	-2028.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
182.	182.	3.	-2348.	5884.	21355.	3784.	.57	20.	2.5	NO	5 6
192.	192.	3.	-2564.	6095.	21355.	3784.	.57	20.	2.5	NO	5 6
200.	200.	3.	-2564.	6095.	21355.	3784.	.57	20.	2.5	NO	5 6

210.	210.	3.	-2564.	6095.	21355.	3784.	.57	20.	2.5	NO	5	6
> 210.	0.	3.	3893.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5
219.	10.	3.	3893.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5
227.	18.	3.	3893.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5
237.	27.	3.	3677.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6
251.	42.	3.	3359.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6
251.	42.	3.	3359.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6
282.	72.	3.	2680.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
312.	103.	3.	2003.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6
343.	133.	3.	1329.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6
374.	164.	3.	663.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6
404.	195.	3.	-16.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6
404.	195.	3.	5.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6
435.	225.	3.	-684.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6
465.	256.	3.	-1352.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6
496.	286.	3.	-2017.	6369.	21355.	3784.	.57	20.	2.5	NO	5	6
527.	317.	3.	-2680.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
557.	348.	3.	-3341.	6095.	21355.	3784.	.57	20.	2.5	NO	5	6
557.	348.	3.	-3341.	6095.	21355.	3784.	.57	20.	2.5	NO	5	6
572.	362.	3.	-3650.	6181.	21355.	3784.	.57	20.	2.5	NO	5	6
581.	372.	3.	-3858.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5
589.	379.	3.	-3858.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5
599.	389.	3.	-3858.	6181.	21355.	3784.	.57	20.	2.5	NO	4	5
> 599.	0.	3.	2968.	6095.	21355.	3784.	.57	20.	2.5	NO	5	6
608.	10.	3.	2968.	6095.	21355.	3784.	.57	20.	2.5	NO	5	6
616.	18.	3.	2968.	6095.	21355.	3784.	.57	20.	2.5	NO	5	6
626.	27.	3.	2761.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
640.	42.	3.	2454.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
640.	42.	3.	2454.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
672.	73.	3.	1780.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
703.	105.	3.	1109.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
735.	136.	3.	-325.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
735.	136.	3.	473.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
766.	168.	3.	-752.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
798.	199.	3.	-1327.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
798.	199.	3.	-1327.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
812.	213.	3.	-1628.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
822.	223.	3.	-1831.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
830.	231.	3.	-1996.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
839.	241.	3.	-2199.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	-532.49	-13.8	703.	3.83	6.25	.0211	24.83	.052	SI
27.	27.	3.	-430.44	-11.2	568.3	3.83	6.25	.017	24.83	.042	SI
27.	27.	3.	162.6	-4.4	241.6	3.39	6.25	.0072	25.2	.018	SI
92.	92.	3.	519.06	-12.	471.1	5.65	6.01	.0141	23.45	.033	SI
143.	143.	3.	-576.57	-22.1	1415.5	1.57	6.25	.0425	25.9	.11	SI
210.	210.	3.	-1489.91	-26.3	925.1	8.36	5.86	.0278	16.1	.045	SI
> 210.	0.	3.	-1432.18	-25.3	889.2	8.36	5.86	.0267	16.1	.043	SI
404.	195.	3.	1555.49	-30.4	892.	9.14	5.58	.0268	15.51	.042	SI
599.	389.	3.	-1444.38	-25.5	896.8	8.36	5.86	.0269	16.1	.043	SI
> 599.	0.	3.	-1486.74	-26.3	923.1	8.36	5.86	.0277	16.1	.045	SI
672.	73.	3.	-374.84	-14.	1180.2	1.57	6.25	.0354	26.97	.095	SI
735.	136.	3.	638.27	-14.8	579.3	5.65	6.01	.0174	23.45	.041	SI
839.	241.	3.	-557.28	-14.5	735.7	3.83	6.25	.0221	24.83	.055	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	-475.12	-12.3	627.2	3.83	6.25	.0188	24.83	.047	SI
27.	27.	3.	-387.78	-10.1	511.9	3.83	6.25	.0154	24.83	.038	SI
27.	27.	3.	116.99	-3.2	173.8	3.39	6.25	.0052	25.2	.013	SI
92.	92.	3.	433.93	-10.1	393.8	5.65	6.01	.0118	23.45	.028	SI
143.	143.	3.	-500.29	-19.2	1228.2	1.57	6.25	.0368	25.9	.095	SI
210.	210.	3.	-1268.19	-22.4	787.4	8.36	5.86	.0236	16.1	.038	SI
> 210.	0.	3.	-1217.42	-21.5	755.9	8.36	5.86	.0227	16.1	.037	SI
404.	195.	3.	1322.63	-25.8	758.5	9.14	5.58	.0228	15.51	.035	SI
599.	389.	3.	-1216.1	-21.5	755.1	8.36	5.86	.0227	16.1	.036	SI
> 599.	0.	3.	-1251.83	-22.1	777.3	8.36	5.86	.0233	16.1	.038	SI
672.	73.	3.	-311.73	-11.7	981.5	1.57	6.25	.0294	26.97	.079	SI
735.	136.	3.	545.35	-12.6	495.	5.65	6.01	.0148	23.45	.035	SI
839.	241.	3.	-473.64	-12.3	625.3	3.83	6.25	.0188	24.83	.047	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
18.	18.	3.	-459.59	-11.9	606.7	3.83	6.25	.0182	24.83	.045	SI
27.	27.	3.	101.4	-2.7	150.7	3.39	6.25	.0045	25.2	.011	SI
42.	42.	3.	-298.49	-7.8	394.1	3.83	6.25	.0118	24.83	.029	SI
92.	92.	3.	414.86	-9.6	376.5	5.65	6.01	.0113	23.45	.026	SI
143.	143.	3.	-481.11	-18.4	1181.1	1.57	6.25	.0354	25.9	.092	SI
210.	210.	3.	-1213.16	-21.4	753.2	8.36	5.86	.0226	16.1	.036	SI
> 210.	0.	3.	-1164.15	-20.6	722.8	8.36	5.86	.0217	16.1	.035	SI
404.	195.	3.	1264.59	-24.7	725.2	9.14	5.58	.0218	15.51	.034	SI
599.	389.	3.	-1158.22	-20.5	719.1	8.36	5.86	.0216	16.1	.035	SI
> 599.	0.	3.	-1192.32	-21.1	740.3	8.36	5.86	.0222	16.1	.036	SI
672.	73.	3.	-295.73	-11.1	931.1	1.57	6.25	.0279	26.97	.075	SI
735.	136.	3.	519.71	-12.1	471.7	5.65	6.01	.0142	23.45	.033	SI
839.	241.	3.	-452.72	-11.8	597.7	3.83	6.25	.0179	24.83	.045	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	7.23	.43	3.83	.228	2d10 +2d12	3.39	.202	3d12

2	7.23	.43	1.57	.093	2d10		5.65	.337	2d12	+3d12	
3	16.37	.974	8.36	.497	2d10	+2d12 +2d1 ...	8.01	.477	3d12	+3d14	
4	16.37	.974	6.09	.363	2d10	+2d12 +2d12	10.27	.611	2d12	+3d12 +3d14	
5	10.71	.638	1.57	.093	2d10		9.14	.544	2d12	+2d12 +3d14	
6	14.11	.84	1.57	.093	2d10		12.53	.746	2d12	+2d12 +3d1 ...	

#### MESSAGGI

- 4) Verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].  
5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a  $1.5 \cdot b \text{ mm}^2/\text{m}$  [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm}/f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].

Nome travata : **Tr2\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform.%.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck=198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecd=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd( $k \cdot f_{yd}$ )=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmx(fre.)=.4 ; wdmx(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU		
Nome	Descrizione	Sest
1.	SLU SENZA SISMA 1	1.
2.	SLU SENZA SISMA 2	1.
5.	SLU con SISMAX	4.
6.	SLU con SISMAX	4.

RARE			FREQUENTI			QUASI PERMANENTI		
Nome	Descrizione	Sest	Nome	Descrizione	Sest	Nome	Descrizione	Sest
13.	Rara 1	1.	15.	Frequente 1	1.	17.	Quasi Perm	1.
14.	Rara 2	1.	16.	Frequente 2	1.			

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#### SEZIONI UTILIZZATE

3) Rettangolare: 70X24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A188	3	3	3	0	502.	467.	20.905	1.	1.948	36.706

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc1	Epsc1	Mrd	Epsc1	Epsc1	Cam	x/d	Mr/Ms	VE	
> 0.	0.	3.	1.	-1955.84	-.037	.084	-3227.6	-.063	.138	2.	.312	1.65	SI
106.	106.	3.	3.	-189.53	-.006	.03	-862.91	-.026	.138	2.	.16	4.553	NO
106.	106.	3.	3.	1208.2	-.022	.031	5389.09	-.109	.138	2.	.441	4.46	SI
267.	267.	3.	3.	2766.29	-.052	.07	5389.09	-.109	.138	2.	.441	1.948	SI
396.	396.	3.	3.	-7.02	0.	.001	-862.91	-.026	.138	2.	.16	122.9	NO
502.	502.	3.	1.	-1955.84	-.037	.084	-3227.6	-.063	.138	2.	.312	1.65	SI

##### TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve			
> 0.	0.	3.	2733.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
10.	10.	3.	2664.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
18.	18.	3.	2608.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
27.	27.	3.	2539.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	2437.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
42.	42.	3.	2437.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
74.	74.	3.	2190.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
106.	106.	3.	1911.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
138.	138.	3.	1612.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
170.	170.	3.	1283.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
203.	203.	3.	932.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
235.	235.	3.	554.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
267.	267.	3.	-74.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
267.	267.	3.	193.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
299.	299.	3.	-421.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
331.	331.	3.	-840.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
364.	364.	3.	-1317.	6709.	21355.	3784.	.57	20.	2.5	NO	5	6
396.	396.	3.	-1824.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
428.	428.	3.	-2350.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
460.	460.	3.	-2910.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
460.	460.	3.	-2910.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

475.	475.	3.	-3166.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
484.	484.	3.	-3339.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
492.	492.	3.	-3479.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6
502.	502.	3.	-3652.	5884.	21355.	3784.	.57	20.	2.5	NO	5	6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
10.	10.	3.	1.	-1298.87	-26.7	1094.7	6.09	6.08	.0328	23.72	.078	SI
267.	267.	3.	3.	2082.82	-38.6	1030.2	10.68	5.42	.035	14.02	.049	SI
502.	502.	3.	1.	-1472.2	-30.2	1240.7	6.09	6.08	.0372	23.72	.088	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
10.	10.	3.	1.	-1147.01	-23.6	966.7	6.09	6.08	.029	23.72	.069	SI
267.	267.	3.	3.	1852.13	-34.3	916.1	10.68	5.42	.0293	14.02	.041	SI
502.	502.	3.	1.	-1304.29	-26.8	1099.2	6.09	6.08	.033	23.72	.078	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	Sc	ls	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve
10.	10.	3.	1.	-1108.57	-22.8	934.3	6.09	6.08	.028	23.72	.066	SI
267.	267.	3.	3.	1794.66	-33.2	887.7	10.68	5.42	.0279	14.02	.039	SI
502.	502.	3.	1.	-1262.3	-25.9	1063.9	6.09	6.08	.0319	23.72	.076	SI

#### ARMATURE LONGITUDINALI (%=100\*Af/Acls - Acls=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	12.25	.729	6.09	.363	2d10 +2d12 +2d12	6.16	.367	4d14
2	12.25	.729	3.83	.228	2d10 +2d12	8.42	.501	4d14 +2d12
3	12.25	.729	1.57	.093	2d10	10.68	.636	4d14 +2d12 +2d12

#### MESSAGGI

- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].  
6) Sezione staffe inferiore a 1.5\*b mm2/m [NTC18 4.1.6.1.1].  
9) Armatura superiore tesa insufficiente (Af<0.26\*fctm/fyk\*bt\*d oppure Af<0.0013\*bt\*d) [NTC18 4.1.6.1.1].

Nome travata : **Tr6\_p3** (trave)  
Metodo di verifica : stati limite (NTC18). ->  
Duttilita' : non prevista (struttura non dissipativa).  
Unita' di misura : cm; daN; daN/m; daNm; daN/cm2; deform. %.  
Unita' particolari : fessure [wk]:mm - ferri:mm e cm2 - sezioni:cm e derivate.  
Copriferri (assi) : longitudinali= 2.5 ; staffe= 1.5

#### MATERIALI

CLS : Rck =198.3; fck=164.6; fctk= 13.6; fctm= 19.4; Ec= 287713. ;  
gc =1.8 ; fcd= 91.4; fbd= 17. ; fctd= 7.5; Ecud=.2% (limit.elastico)  
ACCIAIO : Acciaio Aq50-60; ftk=4886.4; fyk=3817.5; Es=2000000. ;  
gs =1.38; fyd=2766.3; ftd(k\*fyd)=3540.9; fud=3463. ; Eud=.14% (limit.elastico)

#### TENSIONI E FESSURE MASSIME IN ESERCIZIO

GRUPPO : ordinario.  
CLS : Scls(rara)= 98.8; Scls(quasi permanente)= 74.1; fbd(esercizio)= 17.  
ACCIAIO : Sacc(rara)=3054. ; Coeff.Omogeneizzazione= 15  
FESSURE : wdmax(fre.)=.4 ; wdmax(q.p.)=.3 [4.1.2.2.4.5];  
kt=.4 [EN 1992-1 7.3.4].

#### CASI DI CARICO DA MODELLO 3D

SLU				RARE				FREQUENTI				QUASI PERMANENTI			
Nome	Descrizione	Sest		Nome	Descrizione	Sest		Nome	Descrizione	Sest		Nome	Descrizione	Sest	
1.	SLU SENZA SISMA	1	1.	13.	Rara 1	1	15.	17.	Quasi Perm	1	1.				
2.	SLU SENZA SISMA	2	1.	14.	Rara 2	1	16.								
5.	SLU con SISMAX	4													
6.	SLU con SISMAX	4													

#### SEZIONI UTILIZZATE

- 3) Rettangolare: 70x24; A=1680.; Jg=80640.; E=287713.1

#### DESCRIZIONE CAMPATE

Cam.	Descriz.	S.ini	Sez.	S.fin	Incl.	L.assi	L.net.	lambda	K	r.Ar.	lam.max
1	A177	3	3	3	0	493.	453.	20.558	1.3	2.605	65.823
2	A176	3	3	3	0	323.	280.	13.44	1.3	2.05	64.731

#### VERIFICHE ALLO STATO LIMITE ULTIMO

##### FLESSIONE:

Progressive	SE	Ar	Msd	Epsc	Epsac	Mrd	Epsc	Epsac	Cam	x/d	Mr/Ms	VE
> 0.	0.	3.	1.	-557.61	-.011	.023	-3266.44	-.066	.138	2.	.324	5.858
143.	143.	3.	3.	1552.58	-.03	.045	4711.38	-.098	.138	2.	.414	3.035
244.	244.	3.	3.	1808.35	-.035	.053	4711.38	-.098	.138	2.	.414	2.605



379.	379.	3.	3.	-20.35	-.001	.003	-863.78	-.027	.138	2.	.163	42.45	NO	9
379.	379.	3.	3.	977.82	-.018	.028	4711.38	-.098	.138	2.	.414	4.818	SI	
471.	471.	3.	5.	22.29	0.	.001	3682.64	-.065	.138	2.	.321	165.2	SI	
493.	493.	3.	5.	-1031.57	-.017	.035	-4073.75	-.072	.138	2.	.342	3.949	SI	
> 493.	0.	3.	5.	-2666.17	-.046	.09	-4073.75	-.072	.138	2.	.342	1.528	SI	
573.	80.	3.	5.	-675.	-.011	.023	-4073.75	-.072	.138	2.	.342	6.035	SI	
639.	146.	3.	7.	2137.92	-.042	.067	4382.79	-.092	.138	2.	.401	2.05	SI	
673.	179.	3.	8.	2009.12	-.053	.132	2103.77	-.055	.138	2.	.285	1.047	SI	
772.	279.	3.	10	392.34	-.01	.042	1285.17	-.034	.138	2.	.199	3.276	SI	
786.	293.	3.	10	5.34	0.	.001	1285.17	-.034	.138	2.	.199	240.6	SI	
816.	323.	3.	10	-3420.62	-.072	.127	-3728.18	-.079	.138	2.	.365	1.09	SI	

TAGLIO:

Progressive	Se	Vsd	VRd	VRcd	VRsd	Asw	s	ctgT	Ve	
> 0.	0.	3.	2325.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
10.	10.	3.	2325.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
18.	18.	3.	2325.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
27.	27.	3.	2201.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
42.	42.	3.	2018.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
42.	42.	3.	2018.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
75.	75.	3.	1599.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
109.	109.	3.	1199.	6014.	21355.	3784.	.57	20.	2.5	NO 5 6
143.	143.	3.	819.	6391.	21355.	3784.	.57	20.	2.5	NO 5 6
177.	177.	3.	453.	6391.	21355.	3784.	.57	20.	2.5	NO 5 6
210.	210.	3.	178.	6391.	21355.	3784.	.57	20.	2.5	NO 5 6
244.	244.	3.	-229.	6391.	21355.	3784.	.57	20.	2.5	NO 5 6
278.	278.	3.	-524.	6391.	21355.	3784.	.57	20.	2.5	NO 5 6
312.	312.	3.	-821.	6391.	21355.	3784.	.57	20.	2.5	NO 5 6
346.	346.	3.	-1088.	6391.	21355.	3784.	.57	20.	2.5	NO 5 6
379.	379.	3.	-1346.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
413.	413.	3.	-1581.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
447.	447.	3.	-1800.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
447.	447.	3.	-1800.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
461.	461.	3.	-1885.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
471.	471.	3.	-1943.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
484.	484.	3.	-1943.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
493.	493.	3.	-1943.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
> 493.	0.	3.	6206.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
503.	10.	3.	6206.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
516.	22.	3.	6206.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
526.	32.	3.	5722.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
540.	46.	3.	5012.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
540.	46.	3.	5012.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
573.	80.	3.	3388.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
606.	113.	3.	2123.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
639.	146.	3.	-799.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
639.	146.	3.	1052.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
673.	179.	3.	-1798.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
673.	179.	3.	53.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
706.	212.	3.	-2911.	5884.	21355.	3784.	.57	20.	2.5	NO 5 6
739.	245.	3.	-4296.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
772.	279.	3.	-5749.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
772.	279.	3.	-5749.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
786.	293.	3.	-6366.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
796.	303.	3.	-6780.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
806.	313.	3.	-6780.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6
816.	323.	3.	-6780.	5884.	21355.	3784.	.57	20.	2.5	NO 4 5 6

#### VERIFICHE ALLO STATO LIMITE DI ESERCIZIO

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - RARE:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-347.79	-7.3	289.	6.19	6.03	.0087	23.51	.02	SI
244.	244.	3.	3.	1360.6	-26.5	772.7	9.24	5.57	.0232	21.72	.05	SI
493.	493.	3.	5.	-640.31	-11.8	427.3	7.76	5.9	.0128	17.01	.022	SI
> 493.	0.	3.	5.	-1372.39	-25.4	915.8	7.76	5.9	.0275	17.01	.047	SI
639.	146.	3.	7.	1606.06	-32.1	982.2	8.55	5.64	.0295	15.41	.045	SI
673.	179.	3.	8.	1472.02	-39.3	1897.6	3.93	6.25	.0569	24.57	.14	SI
816.	323.	3.	10	-2306.82	-48.2	1668.2	7.16	5.83	.0586	22.75	.133	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - FREQUENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-307.73	-6.5	255.7	6.19	6.03	.0077	23.51	.018	SI
244.	244.	3.	3.	1253.53	-24.4	711.9	9.24	5.57	.0214	21.72	.046	SI
493.	493.	3.	5.	-583.63	-10.8	389.5	7.76	5.9	.0117	17.01	.02	SI
> 493.	0.	3.	5.	-1188.06	-22.	792.8	7.76	5.9	.0238	17.01	.04	SI
639.	146.	3.	7.	1433.45	-28.6	876.6	8.55	5.64	.0263	15.41	.041	SI
673.	179.	3.	8.	1306.33	-34.9	1684.	3.93	6.25	.0505	24.57	.124	SI
816.	323.	3.	10	-2088.29	-43.6	1510.2	7.16	5.83	.0507	22.75	.115	SI

##### TENSIONI DI ESERCIZIO E FESSURAZIONE - QUASI PERMANENTI:

Progressive	Se	Ar	Momento	ScIs	Sacc	As	hc,ef	Eps%	Sr,max	wd	Ve	
18.	18.	3.	1.	-296.35	-6.2	246.2	6.19	6.03	.0074	23.51	.017	SI
244.	244.	3.	3.	1229.54	-23.9	698.3	9.24	5.57	.0209	21.72	.045	SI
493.	493.	3.	5.	-565.26	-10.5	377.2	7.76	5.9	.0113	17.01	.019	SI
> 493.	0.	3.	5.	-1135.7	-21.	757.9	7.76	5.9	.0227	17.01	.039	SI
639.	146.	3.	7.	1391.79	-27.8	851.2	8.55	5.64	.0255	15.41	.039	SI
673.	179.	3.	8.	1265.12	-33.8	1630.9	3.93	6.25	.0489	24.57	.12	SI
816.	323.	3.	10	-2038.22	-42.6	1474.	7.16	5.83	.0489	22.75	.111	SI

ARMATURE LONGITUDINALI (%=100\*Af/AcIs - AcIs=area intera sezione)

Nro	Totale	%	Super.	%	Barre	Infer.	%	Barre
1	10.81	.643	6.19	.368	2d10 +1d14 +2d14	4.62	.275	3d14

2	10.81	.643	3.11	.185	2d10	+1d14	7.7	.458	2d14	+3d14	
3	10.81	.643	1.57	.093	2d10		9.24	.55	1d14	+2d14	+3d14
4	12.38	.737	7.76	.462	2d10	+1d14 +2d1 ...	4.62	.275	3d14		
5	14.73	.877	7.76	.462	2d10	+1d14 +2d1 ...	6.97	.415	3d14	+3d10	
6	10.12	.602	3.14	.187	2d10	+2d10	6.97	.415	3d14	+3d10	
7	10.12	.602	1.57	.093	2d10		8.55	.509	2d10	+3d14 +3d10	
8	5.5	.327	1.57	.093	2d10		3.93	.234	2d10	+3d10	
9	9.52	.567	5.59	.333	2d10	+2d16	3.93	.234	2d10	+3d10	
10	9.52	.567	7.16	.426	2d10	+2d10 +2d16	2.36	.14	3d10		

#### MESSAGGI

- 4) verifica dell'armatura trasversale d'anima per sforzo tagliante non soddisfatta -  $V_{sd} > V_{Rsd}$  [NTC18 4.1.2.3.5.2].
- 5) Passo staffe superiore a .8 volte l'altezza utile [NTC18 4.1.6.1.1].
- 6) Sezione staffe inferiore a  $1.5 \cdot b$  mm<sup>2</sup>/m [NTC18 4.1.6.1.1].
- 9) Armatura superiore tesa insufficiente ( $A_f < 0.26 \cdot f_{ctm} / f_{yk} \cdot b \cdot t \cdot d$  oppure  $A_f < 0.0013 \cdot b \cdot t \cdot d$ ) [NTC18 4.1.6.1.1].

## **RINFORZO A FLESSIONE DELLE TRAVI ESISTENTI**

Come già descritto in precedenza, l'insufficiente capacità portante a flessione manifestata allo Stato Limite Ultimo di riferimento su alcune travi esistenti, sui vari livelli, dovuta principalmente allo schema statico di progetto, ai carichi applicati e delle prescrizioni presenti nella normative vigente, ha richiesto l'inserimento di rinforzi a flessione tramite applicazione di piastre metalliche rese solidali per mezzo di idonei connettori metallici.

Per valutare l'entità di tali rinforzi di "armatura" si è operato nel seguente modo:

- a) Durante le verifiche degli elementi strutturali orizzontali, la configurazione di armature esistente, ricavata dalle tavole progettuali disponibili, ha evidenziato alcune carenze in termini di resistenza a flessione, sulle trave che operano come telai tridimensionali nel nuovo schema;
- b) Per coprire tali carenze, sono state valutate le quantità di armatura e le rispettive lunghezze necessarie per garantire un corretto ancoraggio, in modo da definire l'area di armatura necessaria per rendere verificata la trave in esame (vedi tabulati Verifica Travi di Interpiano);
- c) L'area di acciaio così definita è stata trasformata in area equivalente di acciaio da carpenteria, tenendo conto di un fattore di conversione tra le resistenze dei due differenti materiali. In questo modo è stato possibile definire dimensioni, posizione e numero delle piastre di rinforzo da applicare su ogni singolo elemento in esame;
- d) Per rendere collaborante il rinforzo e trasmettere in modo adeguato gli sforzi tra i due differenti elementi resistenti presenti, si sono progettati e dimensionati in modo opportuno i relativi connettori di unione;

I rinforzi sono stati classificati in funzione della loro tipologia strutturale di riferimento, considerando la relativa posizione in pianta sui vari livelli di impalcato e, a favore di sicurezza, esaminando la condizione più sfavorevole di sforzi sollecitanti.

Nel seguito vengono riportate, per ogni tipologia definita, le verifiche svolte per la definizione dei rinforzi a flessione in esame.

▪ **Piano: Terra | Primo | Sottotetto**

**Pilastri: P56(x) – P57(x) – P58(x) – P59(x) – P63(x) – P64(x) – P25(x) – P36(x) – P37(x) – P49(x) – P50(x) – P51(x) – P40(y)**

2 Piastre di rinforzo di dim. Min 80x8x3150 mm

Barre filettate M16

**Sezione elemento**

Base	b	70	cm	Braccio coppia interna,	a/H	0.52	-
Altezza	h	24	cm	equivalente	a	12.59	cm

**Sollecitazioni unione**

<u>Esistente</u>			
Momento sollecitante	$M_{sd}$	kNm	86.2
Momento resistente:	$M_{Rd}$	kNm	71.5
<u>Con rinforzo</u>			
Momento resistente:	$M'_{Rd}$	kNm	102.0
Incremento	$\Delta M_{Rd}$	kNm	30.5
Sforzo rinforzi	$F_{Ed}$	kN	242.2
Margine resistenza (resistente/sollecitante):			
$M'_{Rd}/M_{sd}$	118.3%		> 100%

**Barre di armatura**

Materiale:	Acciaio per calcestruzzo armato, in opera		
Denominazione:	Aq50-60		
Tensione rottura:	$f_{uk}$	488	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yk}$	381	N/mm <sup>2</sup>
Fattori parziali e di confidenza:	$\gamma_M$	1.15	-
	FC	1.20	-
Tensione rottura:	$f_{ud}$	353.6	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yd}$	276.1	N/mm <sup>2</sup>

**Piastre di rinforzo**

Materiale:	Acciaio per carpenteria, nuovo			Numero piastre	$n_p$	2	-
Denominazione:	S275			Area richiesta, singola piastra	$A'$	3.1	cm <sup>2</sup>
Tensione rottura:	$f_{uk}$	430	N/mm <sup>2</sup>	Larghezza:	B	80	mm
Tensione snervamento:	$f_{yk}$	275	N/mm <sup>2</sup>	Spessore:	t	8	mm
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Area resistente, 1 piastra:	A	6.4	cm <sup>2</sup>
	FC	1.00	-	Area netta, 1 piastra:	$A_{net}$	3.5	cm <sup>2</sup>
Tensione rottura:	$f_{ud}$	344.0	N/mm <sup>2</sup>	Sforzo rottura, 1 piastra:	$N_{uRd}$	121.1	kN
Tensione snervamento:	$f_{yd}$	220.0	N/mm <sup>2</sup>	Sforzo snervamento, 1 piastra:	$N_{Rd}$	140.8	kN
Area rinforzo richiesta, totale:	A	6.3	cm <sup>2</sup>	Sforzo resistente complessivo	$F_{Rd}$	242.2	kN
				Margine resistenza (piastra minima)		162.4%	-

**Connettori**

Materiale:	Barre filettate in acciaio, nuove			Diametro foro piastra:	$d_0$	18	mm
Denominazione:	8	.	8	File connettori, ogni piastra:	n	2	-
Tensione rottura:	$f_{uk}$	800	N/mm <sup>2</sup>	Resistenza a taglio connesso	$R_{1d}$	48.3	kN
Tensione snervamento:	$f_{yk}$	640	N/mm <sup>2</sup>	Resistenza a rifollamento:	$R_{2d}$	123.8	kN
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Resistenza taglio:	$R_{3d}$	32.5	kN
	FC	1.00	-	Resistenza unione:	$R_d$	32.5	kN
Tensione rottura:	$f_{ud}$	640.0	N/mm <sup>2</sup>	Connettori effettivi, 1 piastra	N	11	-
Tensione snervamento:	$f_{yd}$	512.0	N/mm <sup>2</sup>	Connettori totali:	$n_p N$	22	-
Diametro nominale:	d	16	mm	Resistenza effettiva totale:	$V_{Rd}$	715.0	kN
Area resistente:	$A_s$	151	mm <sup>2</sup>	Margine resistenza (connettori):		295.2%	-

Il numero di connettori adottato sarà tale da soddisfare la lunghezza di ancoraggio necessaria al ricoprimento dei diagrammi di sollecitazione risultanti.

▪ **Piano: Terra | Primo | Sottotetto**

**Pilastri: P65(y) – P26(y) – P38(y) – P29(x) – P42(x) – P45(x)**

2 Piastre di rinforzo di dim. Min 80x8x2150 mm

Barre filettate M16

**Sezione elemento**

Base	b	70	cm	Braccio coppia interna,	a/H	0.52	-
Altezza	h	24	cm	equivalente	a	12.59	cm

**Sollecitazioni unione**

<u>Esistente</u>			
Momento sollecitante	$M_{sd}$	kNm	86.2
Momento resistente:	$M_{Rd}$	kNm	71.5
<u>Con rinforzo</u>			
Momento resistente:	$M'_{Rd}$	kNm	102.0
Incremento	$\Delta M_{Rd}$	kNm	30.5
Sforzo rinforzi	$F_{Ed}$	kN	242.2
Margine resistenza (resistente/sollecitante):			
$M'_{Rd}/M_{sd}$	118.3%	> 100%	

**Barre di armatura**

Materiale:	Acciaio per calcestruzzo armato, in opera		
Denominazione:	Aq50-60		
Tensione rottura:	$f_{uk}$	488	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yk}$	381	N/mm <sup>2</sup>
Fattori parziali e di confidenza:	$\gamma_M$	1.15	-
	FC	1.20	-
Tensione rottura:	$f_{ud}$	353.6	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yd}$	276.1	N/mm <sup>2</sup>

**Piastre di rinforzo**

Materiale:	Acciaio per carpenteria, nuovo			Numero piastre	$n_p$	2	-
Denominazione:	S275			Area richiesta, singola piastra	$A'$	3.1	cm <sup>2</sup>
Tensione rottura:	$f_{uk}$	430	N/mm <sup>2</sup>	Larghezza:	B	80	mm
Tensione snervamento:	$f_{yk}$	275	N/mm <sup>2</sup>	Spessore:	t	8	mm
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Area resistente, 1 piastra:	A	6.4	cm <sup>2</sup>
	FC	1.00	-	Area netta, 1 piastra:	$A_{net}$	3.5	cm <sup>2</sup>
Tensione rottura:	$f_{ud}$	344.0	N/mm <sup>2</sup>	Sforzo rottura, 1 piastra:	$N_{uRd}$	121.1	kN
Tensione snervamento:	$f_{yd}$	220.0	N/mm <sup>2</sup>	Sforzo snervamento, 1 piastra:	$N_{Rd}$	140.8	kN
Area rinforzo richiesta, totale:	A	6.3	cm <sup>2</sup>	Sforzo resistente complessivo	$F_{Rd}$	242.2	kN
				Margine resistenza (piastra minima)		162.4%	-

**Connettori**

Materiale:	Barre filettate in acciaio, nuove			Diametro foro piastra:	$d_0$	18	mm
				File connettori, ogni piastra:	n	2	-
Denominazione:	8	.	8	Resistenza a taglio connetto	$R_{1d}$	48.3	kN
Tensione rottura:	$f_{uk}$	800	N/mm <sup>2</sup>	Resistenza a rifollamento:	$R_{2d}$	123.8	kN
Tensione snervamento:	$f_{yk}$	640	N/mm <sup>2</sup>	Resistenza taglio:	$R_{3d}$	32.5	kN
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Resistenza unione:	$R_d$	32.5	kN
	FC	1.00	-	Connettori effettivi, 1 piastra	N	11	-
Tensione rottura:	$f_{ud}$	640.0	N/mm <sup>2</sup>	Connettori totali:	$n_p N$	22	-
Tensione snervamento:	$f_{yd}$	512.0	N/mm <sup>2</sup>	Resistenza effettiva totale:	$V_{Rd}$	715.0	kN
Diametro nominale:	d	16	mm	Margine resistenza (connettori):		295.2%	-
Area resistente:	$A_s$	151	mm <sup>2</sup>				

Il numero di connettori adottato sarà tale da soddisfare la lunghezza di ancoraggio necessaria al ricoprimento dei diagrammi di sollecitazione risultanti.

▪ **Piano: Terra | Primo | Sottotetto**

**Pilastri: P65(x) – P38(x) – P26(x) – P29(y) – P54(x) – P54(y) – P9(x) – P12(x) – P12(x) – P19(x) – P22(x) – P31(x)**

2 Piastre di rinforzo di dim. Min 80x8x1400 mm

Barre filettate M16

**Sezione elemento**

Base	b	70	cm	Braccio coppia interna,	a/H	0.52	-
Altezza	h	24	cm	equivalente	a	12.59	cm

**Sollecitazioni unione**

<u>Esistente</u>			
Momento sollecitante	$M_{sd}$	kNm	86.2
Momento resistente:	$M_{Rd}$	kNm	71.5
<u>Con rinforzo</u>			
Momento resistente:	$M'_{Rd}$	kNm	102.0
Incremento	$\Delta M_{Rd}$	kNm	30.5
Sforzo rinforzi	$F_{Ed}$	kN	242.2
Margine resistenza (resistente/sollecitante):			
$M'_{Rd}/M_{sd}$		118.3%	> 100%

**Barre di armatura**

Materiale:	Acciaio per calcestruzzo armato, in opera		
Denominazione:	Aq50-60		
Tensione rottura:	$f_{uk}$	488	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yk}$	381	N/mm <sup>2</sup>
Fattori parziali e di confidenza:	$\gamma_M$	1.15	-
	FC	1.20	-
Tensione rottura:	$f_{ud}$	353.6	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yd}$	276.1	N/mm <sup>2</sup>

**Piastre di rinforzo**

Materiale:	Acciaio per carpenteria, nuovo		Numero piastre	$n_p$	2	-
Denominazione:	S275		Area richiesta, singola piastra	$A'$	3.1	cm <sup>2</sup>
Tensione rottura:	$f_{uk}$	430	N/mm <sup>2</sup>	Larghezza:	B	80
Tensione snervamento:	$f_{yk}$	275	N/mm <sup>2</sup>	Spessore:	t	8
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Area resistente, 1 piastra:	A	6.4
	FC	1.00	-	Area netta, 1 piastra:	$A_{net}$	3.5
Tensione rottura:	$f_{ud}$	344.0	N/mm <sup>2</sup>	Sforzo rottura, 1 piastra:	$N_{uRd}$	121.1
Tensione snervamento:	$f_{yd}$	220.0	N/mm <sup>2</sup>	Sforzo snervamento, 1 piastra:	$N_{Rd}$	140.8
Area rinforzo richiesta, totale:	A	6.3	cm <sup>2</sup>	Sforzo resistente complessivo	$F_{Rd}$	242.2
				Margine resistenza (piastra minima)	162.4%	-

**Connettori**

Materiale:	Barre filettate in acciaio, nuove		Diametro foro piastra:	$d_0$	18	mm
Denominazione:	8	.	8	File connettori, ogni piastra:	n	2
Tensione rottura:	$f_{uk}$	800	N/mm <sup>2</sup>	Resistenza a taglio connetto	$R_{1d}$	48.3
Tensione snervamento:	$f_{yk}$	640	N/mm <sup>2</sup>	Resistenza a rifollamento:	$R_{2d}$	123.8
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Resistenza taglio:	$R_{3d}$	32.5
	FC	1.00	-	Resistenza unione:	$R_d$	32.5
Tensione rottura:	$f_{ud}$	640.0	N/mm <sup>2</sup>	Connettori effettivi, 1 piastra	N	11
Tensione snervamento:	$f_{yd}$	512.0	N/mm <sup>2</sup>	Connettori totali:	$n_p N$	22
Diametro nominale:	d	16	mm	Resistenza effettiva totale:	$V_{Rd}$	715.0
Area resistente:	$A_s$	151	mm <sup>2</sup>	Margine resistenza (connettori):	295.2%	-

Il numero di connettori adottato sarà tale da soddisfare la lunghezza di ancoraggio necessaria al ricoprimento dei diagrammi di sollecitazione risultanti.

▪ **Piano: Terra | Primo | Sottotetto**

**Pilastri:** P42(x) – P43(x) – P44(x) – P45(x)

P6(x) – P7(x) – P8(x) – P9(x)

P42(y) – P30(y) – P21(y) – P18(y) – P11(y)

P45(y) – P31(y) – P22(y) – P19(y) – P12(y) – P9(y)

2 Piastre di rinforzo di dim. Min 80 x 12 x var mm

Barre filettate M16

**Sezione elemento**

Base	b	60	cm	Braccio coppia interna,	a/H	0.76	-
Altezza	h	50	cm	equivalente	a	37.93	cm

**Sollecitazioni unione**

<u>Esistente</u>			
Momento sollecitante:	$M_{sd}$	kNm	254.6
Momento resistente:	$M_{Rd}$	kNm	102
<u>Con rinforzo</u>			
Momento resistente:	$M'_{Rd}$	kNm	262.2
Incremento	$\Delta M_{Rd}$	kNm	160.2
Sforzo rinforzi	$F_{Ed}$	kN	422.4
Margine resistenza (resistente/sollecitante):			
	$M'_{Rd}/M_{sd}$	103.0%	> 100%

**Barre di armatura**

Materiale:	Acciaio per calcestruzzo armato, in opera		
Denominazione:	Aq50-60		
Tensione rottura:	$f_{uk}$	488	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yk}$	381	N/mm <sup>2</sup>
Fattori parziali e di confidenza:	$\gamma_M$	1.15	-
	FC	1.20	-
Tensione rottura:	$f_{ud}$	353.6	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yd}$	276.1	N/mm <sup>2</sup>

**Piastre di rinforzo**

Materiale:	Acciaio per carpenteria, nuovo			Numero piastre	$n_p$	2	-
Denominazione:	S275			Area richiesta, singola piastra:	$A'$	6.8	cm <sup>2</sup>
Tensione rottura:	$f_{uk}$	430	N/mm <sup>2</sup>	Larghezza:	B	80	mm
Tensione snervamento:	$f_{yk}$	275	N/mm <sup>2</sup>	Spessore:	t	12	mm
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Area resistente, 1 piastra:	A	9.6	cm <sup>2</sup>
	FC	1.00	-	Area netta, 1 piastra:	$A_{net}$	7.4	cm <sup>2</sup>
Tensione rottura:	$f_{ud}$	344.0	N/mm <sup>2</sup>	Sforzo rottura, 1 piastra:	$N_{uRd}$	255.9	kN
Tensione snervamento:	$f_{yd}$	220.0	N/mm <sup>2</sup>	Sforzo snervamento, 1 piastra:	$N_{Rd}$	211.2	kN
Area rinforzo richiesta, totale:	A	13.6	cm <sup>2</sup>	Sforzo resistente complessivo	$F_{Rd}$	422.4	kN
				Margine resistenza (piastra minima)		112.7%	-

**Connettori**

Materiale:	Barre filettate in acciaio, nuove			Diametro foro piastra:	$d_0$	18	mm
Denominazione:	8	.	8	File connettori, ogni piastra:	n	1	-
Tensione rottura:	$f_{uk}$	800	N/mm <sup>2</sup>	Resistenza a taglio connettori:	$R_{1d}$	48.3	kN
Tensione snervamento:	$f_{yk}$	640	N/mm <sup>2</sup>	Resistenza a rifollamento:	$R_{2d}$	185.8	kN
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Resistenza taglio:	$R_{3d}$	32.5	kN
	FC	1.00	-	Resistenza unione:	$R_d$	32.5	kN
Tensione rottura:	$f_{ud}$	640.0	N/mm <sup>2</sup>	Connettori effettivi, 1 piastra:	N	8	-
Tensione snervamento:	$f_{yd}$	512.0	N/mm <sup>2</sup>	Connettori totali:	$n_p N$	16	-
Diametro nominale:	d	16	mm	Resistenza effettiva totale:	$V_{Rd}$	520.0	kN
Area resistente:	$A_s$	151	mm <sup>2</sup>	Margine resistenza (connettori):		123.1%	-

2 Piastre di rinforzo di dim. Min 80 x 10 x var mm

Barre filettate M16

### Sezione elemento

Base	b	60	cm	Braccio coppia interna,	a/H	0.24	-
Altezza	h	50	cm	equivalente	a	11.90	cm

### Sollecitazioni unione

<u>Esistente</u>			
Momento sollecitante	$M_{sd}$	kNm	55.6
Momento resistente:	$M_{Rd}$	kNm	18.9
<u>Con rinforzo</u>			
Momento resistente:	$M'_{Rd}$	kNm	60.8
Incremento	$\Delta M_{Rd}$	kNm	41.9
Sforzo rinforzi	$F_{Ed}$	kN	352.0
Margine resistenza (resistente/sollecitante):			
$M'_{Rd}/M_{sd}$		109.4%	> 100%

### Barre di armatura

Materiale:	Acciaio per calcestruzzo armato, in opera		
Denominazione:	Aq50-60		
Tensione rottura:	$f_{uk}$	488	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yk}$	381	N/mm <sup>2</sup>
Fattori parziali e di confidenza:	$\gamma_M$	1.15	-
	FC	1.20	-
Tensione rottura:	$f_{ud}$	353.6	N/mm <sup>2</sup>
Tensione snervamento:	$f_{yd}$	276.1	N/mm <sup>2</sup>

### Piastre di rinforzo

Materiale:	Acciaio per carpenteria, nuovo			Numero piastre	$n_p$	2	-
Denominazione:	S275			Area richiesta, singola piastra:	$A'$	4.0	cm <sup>2</sup>
Tensione rottura:	$f_{uk}$	430	N/mm <sup>2</sup>	Larghezza:	B	80	mm
Tensione snervamento:	$f_{yk}$	275	N/mm <sup>2</sup>	Spessore:	t	10	mm
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Area resistente, 1 piastra:	A	8.0	cm <sup>2</sup>
	FC	1.00	-	Area netta, 1 piastra:	$A_{net}$	6.2	cm <sup>2</sup>
Tensione rottura:	$f_{ud}$	344.0	N/mm <sup>2</sup>	Sforzo rottura, 1 piastra:	$N_{uRd}$	213.3	kN
Tensione snervamento:	$f_{yd}$	220.0	N/mm <sup>2</sup>	Sforzo snervamento, 1 piastra	$N_{Rd}$	176.0	kN
Area rinforzo richiesta, totale:	A	8.0	cm <sup>2</sup>	Sforzo resistente complessivo	$F_{Rd}$	352.0	kN
				Margine resistenza (piastra minima)		158.6%	-

### Connettori

Materiale:	Barre filettate in acciaio, nuove			Diametro foro piastra:	$d_0$	18	mm
Denominazione:	8	.	8	File connettori, ogni piastra:	n	1	-
Tensione rottura:	$f_{uk}$	800	N/mm <sup>2</sup>	Resistenza a taglio connettori	$R_{1d}$	48.3	kN
Tensione snervamento:	$f_{yk}$	640	N/mm <sup>2</sup>	Resistenza a rifollamento:	$R_{2d}$	154.8	kN
Fattori parziali e di confidenza:	$\gamma_M$	1.25	-	Resistenza taglio:	$R_{3d}$	32.5	kN
	FC	1.00	-	Resistenza unione:	$R_d$	32.5	kN
Tensione rottura:	$f_{ud}$	640.0	N/mm <sup>2</sup>	Connettori effettivi, 1 piastra:	N	7	-
Tensione snervamento:	$f_{yd}$	512.0	N/mm <sup>2</sup>	Connettori totali:	$n_p N$	14	-
Diametro nominale:	d	16	mm	Resistenza effettiva totale:	$V_{Rd}$	455.0	kN
Area resistente:	$A_s$	151	mm <sup>2</sup>	Margine resistenza (connettori):		129.3%	-

Il numero di connettori adottato sarà tale da soddisfare la lunghezza di ancoraggio necessaria al ricoprimento dei diagrammi di sollecitazione risultanti.

## PARETI IN CALCESTRUZZO ARMATO ESISTENTI

### Parete Esterna

La parete perimetrale esterna, opera da elemento di contenimento della spinta del terrapieno circostante. Le verifiche strutturali di competenza sono riepilogate in seguito:

#### MACROGUSCIO **Esterno\_1**

#### VERIFICA ARMATURE EFFETTIVE (EFFETTO MEMBRANA + PIASTRA)

##### CASI DI CARICO: ->

Nome	Descrizione
1	SLU SENZA SISMA 1
2	SLU SENZA SISMA 2
5	SLU con SISMAX
6	SLU con SISMAX
11	SLUEqu 1
12	SLUEqu 2

##### DATI:

tensione di snervamento acciaio (fyk):	3817.5	daN/cm2
coefficiente sicurezza acciaio	: 1.38	
deformazione ultima acciaio	: 1.38	per mille
deformazione ultima cls	: 3.5	per mille
rapporto rottura/snervamento (k):	1	
resistenza cilindrica cls (fck):	164.6	daN/cm2
coefficiente sicurezza cls	: 1.8	
coefficiente riduttivo (alfa):	0.85	
copriferro inferiore (asse armatura):	2	cm
copriferro superiore (asse armatura):	2	cm
moltiplicatore sollecitazioni	: 1	

##### LEGENDA:

spess	= spessore guscio. Verifica effettuata su sezione BxH, con B=1 cm e H="spess" cm
Af	= area disposta al lembo teso, in cm2 al metro
Afc	= area disposta al lembo compresso, in cm2 al metro
Mom	= momento flettente [daNcm/cm]
Nor	= sforzo normale [daN]
epsC	= deformazione cls [per mille]
epsF	= deformazione acciaio [per mille]

<-

L'armatura è sufficiente se le deformazioni dei materiali sono ovunque minori delle corrispondenti deformazioni ultime.

Per gli elementi non dissipativi la permanenza in campo elastico è ottenuta limitando la deformazione dell'acciaio alla deformazione di snervamento (1.38 per mille) e quella del calcestruzzo al 2 per mille.

GUSCI	spess	INFERIORE ORIZZONTALE						INFERIORE VERTICALE					
		Af	Afc	Mom	Nor	epsC	epsF	Af	Afc	Mom	Nor	epsC	epsF
2529	60	1.47	1.47	574.	-18.	0.04	0.28	1.98	1.98	1311.	-20.	0.08	0.50
2530	60	1.47	1.47	556.	-23.	0.04	0.30	1.98	1.98	1207.	-18.	0.07	0.47
2531	60	1.47	1.47	483.	-22.	0.03	0.23	1.98	1.98	873.	-13.	0.05	0.35
2532	60	1.47	1.47	553.	-24.	0.04	0.26	1.98	1.98	830.	-11.	0.05	0.34
2533	60	1.47	1.47	435.	-27.	0.03	0.23	1.98	1.98	585.	-8.	0.03	0.25
2534	60	1.47	1.47	552.	-34.	0.04	0.26	1.98	1.98	580.	-7.	0.03	0.25
2535	60	1.47	1.47	445.	-27.	0.03	0.23	1.98	1.98	1372.	-21.	0.08	0.52
2536	60	1.47	1.47	444.	-28.	0.03	0.20	1.98	1.98	869.	-12.	0.05	0.35
2537	60	1.47	1.47	439.	-28.	0.03	0.20	1.98	1.98	585.	-8.	0.03	0.25
2538	60	1.47	1.47	383.	-30.	0.03	0.19	1.98	1.98	1423.	-17.	0.08	0.56
2539	60	1.47	1.47	383.	-31.	0.03	0.17	1.98	1.98	874.	-11.	0.05	0.36
2540	60	1.47	1.47	376.	-32.	0.03	0.16	1.98	1.98	578.	-9.	0.03	0.24
2541	60	1.47	1.47	318.	-27.	0.02	0.16	1.98	1.98	1595.	-10.	0.09	0.66
2542	60	1.47	1.47	313.	-32.	0.03	0.14	1.98	1.98	898.	-9.	0.05	0.37
2543	60	1.47	1.47	267.	-41.	0.03	0.14	1.98	1.98	562.	-9.	0.03	0.23
2544	60	1.47	1.47	374.	-30.	0.03	0.19	1.98	1.98	1718.	-7.	0.10	0.73
2545	60	1.47	1.47	337.	-38.	0.03	0.16	1.98	1.98	943.	-10.	0.05	0.39
2546	60	1.47	1.47	296.	-48.	0.03	0.16	1.98	1.98	540.	-10.	0.03	0.22
2547	60	1.47	1.47	490.	-48.	0.04	0.23	1.98	1.98	1770.	-11.	0.10	0.73
2548	60	1.47	1.47	483.	-57.	0.04	0.18	1.98	1.98	981.	-15.	0.06	0.39
2549	60	1.47	1.47	450.	-64.	0.04	0.18	1.98	1.98	512.	-9.	0.03	0.21
2550	60	1.47	1.47	423.	-45.	0.03	0.19	1.98	1.98	1789.	-14.	0.10	0.72
2551	60	1.47	1.47	376.	-53.	0.03	0.16	1.98	1.98	1009.	-15.	0.06	0.40
2552	60	1.47	1.47	488.	-65.	0.04	0.16	1.98	1.98	474.	-7.	0.03	0.20
2553	60	1.47	1.47	238.	-35.	0.02	0.11	1.98	1.98	1702.	-13.	0.10	0.70
2554	60	1.47	1.47	242.	-37.	0.02	0.10	1.98	1.98	975.	-11.	0.06	0.40
2555	60	1.47	1.47	309.	-53.	0.03	0.11	1.98	1.98	431.	-6.	0.03	0.18
2556	60	1.47	1.47	116.	-33.	0.01	0.06	1.98	1.98	1554.	-19.	0.09	0.61
2557	60	1.47	1.47	142.	-34.	0.01	0.06	1.98	1.98	923.	-12.	0.05	0.38
2558	60	1.47	1.47	151.	-48.	0.02	0.05	1.98	1.98	369.	-6.	0.02	0.16
2559	60	1.47	1.47	113.	-38.	0.01	0.06	1.98	1.98	1518.	-25.	0.09	0.56
2560	60	1.47	1.47	112.	-39.	0.01	0.04	1.98	1.98	861.	-14.	0.05	0.34
2561	60	1.47	1.47	42.	-51.	0.01	0.04	1.98	1.98	319.	-7.	0.02	0.13
2562	60	1.47	1.47	111.	-43.	0.01	0.05	1.98	1.98	1445.	-21.	0.08	0.55
2563	60	1.47	1.47	109.	-44.	0.01	0.04	1.98	1.98	824.	-15.	0.05	0.33
2564	60	1.47	1.47	67.	-57.	0.01	0.03	1.98	1.98	280.	-8.	0.02	0.12
2565	60	1.47	1.47	156.	-45.	0.02	0.07	1.98	1.98	1332.	-16.	0.08	0.53
2566	60	1.47	1.47	154.	-46.	0.02	0.05	1.98	1.98	801.	-15.	0.05	0.32
2567	60	1.47	1.47	113.	-55.	0.02	0.05	1.98	1.98	251.	-8.	0.02	0.10
2568	60	1.47	1.47	142.	-23.	0.01	0.09	1.98	1.98	1217.	-16.	0.07	0.48



2569	60	1.47	1.47	140.	-24.	0.01	0.06	1.98	1.98	756.	-15.	0.04	0.30
2570	60	1.47	1.47	107.	-39.	0.01	0.06	1.98	1.98	185.	-7.	0.01	0.08
2571	60	1.47	1.47	65.	-18.	0.01	0.05	1.98	1.98	1079.	-19.	0.06	0.41
2572	60	1.47	1.47	92.	-18.	0.01	0.04	1.98	1.98	681.	-17.	0.04	0.27
2573	60	1.47	1.47	88.	-30.	0.01	0.03	1.98	1.98	116.	-8.	0.01	0.05
2574	60	1.47	1.47	4.	-22.	0.00	0.01	1.98	1.98	1064.	-26.	0.06	0.39
2575	60	1.47	1.47	3.	-23.	0.00	0.00	1.98	1.98	666.	-20.	0.04	0.25
2576	60	1.47	1.47	0.	-28.	0.01	-0.01	1.98	1.98	84.	-9.	0.01	0.03
2577	60	1.47	1.47	36.	-24.	0.01	0.01	1.98	1.98	1239.	-33.	0.07	0.43
2578	60	1.47	1.47	24.	-27.	0.01	0.01	1.98	1.98	667.	-22.	0.04	0.25
2579	60	1.47	1.47	0.	-32.	0.01	-0.01	1.98	1.98	63.	-9.	0.01	0.02
2580	60	1.47	1.47	91.	-25.	0.01	0.06	1.98	1.98	1396.	-28.	0.08	0.51
2581	60	1.47	1.47	89.	-26.	0.01	0.04	1.98	1.98	706.	-21.	0.04	0.27
2582	60	1.47	1.47	50.	-33.	0.01	0.03	1.98	1.98	87.	-9.	0.01	0.03
2583	60	1.47	1.47	278.	-25.	0.02	0.13	1.98	1.98	1519.	-20.	0.09	0.58
2584	60	1.47	1.47	226.	-30.	0.02	0.10	1.98	1.98	764.	-17.	0.05	0.30
2585	60	1.47	1.47	185.	-36.	0.02	0.09	1.98	1.98	117.	-9.	0.01	0.05
2586	60	1.47	1.47	236.	-10.	0.02	0.14	1.98	1.98	1475.	-17.	0.09	0.58
2587	60	1.47	1.47	217.	-13.	0.02	0.11	1.98	1.98	755.	-14.	0.04	0.30
2588	60	1.47	1.47	185.	-17.	0.01	0.10	1.98	1.98	182.	-8.	0.01	0.08
2589	60	1.47	1.47	156.	-1.	0.01	0.09	1.98	1.98	1439.	-18.	0.08	0.56
2590	60	1.47	1.47	121.	-4.	0.01	0.07	1.98	1.98	561.	-15.	0.03	0.22
2591	60	1.47	1.47	56.	-11.	0.01	0.07	1.98	1.98	138.	-7.	0.01	0.06
2592	60	1.47	1.47	53.	-4.	0.00	0.03	1.98	1.98	1358.	-25.	0.08	0.50
2593	60	1.47	1.47	32.	-1.	0.00	0.02	1.98	1.98	457.	-17.	0.03	0.18
2594	60	1.47	1.47	0.	-4.	0.00	0.02	1.98	1.98	112.	-8.	0.01	0.05
2595	60	1.47	1.47	33.	-2.	0.00	0.02	1.98	1.98	1366.	-32.	0.08	0.48
2596	60	1.47	1.47	40.	-2.	0.00	0.02	1.98	1.98	451.	-20.	0.03	0.17
2597	60	1.47	1.47	50.	-2.	0.00	0.03	1.98	1.98	55.	-8.	0.00	0.02
2598	60	1.47	1.47	124.	-1.	0.01	0.07	1.98	1.98	1398.	-29.	0.08	0.50
2599	60	1.47	1.47	92.	-2.	0.01	0.05	1.98	1.98	462.	-19.	0.03	0.18
2600	60	1.47	1.47	114.	-2.	0.01	0.07	1.98	1.98	46.	-9.	0.00	0.02
2601	60	1.47	1.47	180.	-4.	0.01	0.10	1.98	1.98	1347.	-22.	0.08	0.51
2602	60	1.47	1.47	116.	-8.	0.01	0.08	1.98	1.98	546.	-17.	0.03	0.21
2603	60	1.47	1.47	159.	-6.	0.01	0.09	1.98	1.98	70.	-8.	0.01	0.03
2604	60	1.47	1.47	169.	8.	0.00	0.24	1.98	1.98	1284.	-21.	0.07	0.49
2605	60	1.47	1.47	161.	6.	0.00	0.21	1.98	1.98	726.	-15.	0.04	0.29
2606	60	1.47	1.47	158.	6.	0.00	0.20	1.98	1.98	121.	-7.	0.01	0.05
2607	60	1.47	1.47	153.	12.	0.00	0.30	1.98	1.98	1204.	-22.	0.07	0.46
2608	60	1.47	1.47	146.	12.	0.00	0.29	1.98	1.98	536.	-17.	0.03	0.21
2609	60	1.47	1.47	141.	11.	0.00	0.27	1.98	1.98	140.	-8.	0.01	0.06
2610	60	1.47	1.47	106.	6.	0.00	0.16	1.98	1.98	1110.	-29.	0.07	0.40
2611	60	1.47	1.47	105.	6.	0.00	0.17	1.98	1.98	418.	-21.	0.03	0.16
2612	60	1.47	1.47	102.	6.	0.00	0.19	1.98	1.98	144.	-9.	0.01	0.06
2613	60	1.47	1.47	0.	5.	0.00	0.08	1.98	1.98	1086.	-35.	0.07	0.37
2614	60	1.47	1.47	17.	5.	0.00	0.10	1.98	1.98	451.	-23.	0.03	0.17
2615	60	1.47	1.47	33.	9.	0.00	0.17	1.98	1.98	110.	-10.	0.01	0.04
2616	60	1.47	1.47	127.	5.	0.00	0.16	1.98	1.98	1273.	-30.	0.08	0.45
2617	60	1.47	1.47	114.	6.	0.00	0.17	1.98	1.98	523.	-21.	0.03	0.20
2618	60	1.47	1.47	95.	6.	0.00	0.16	1.98	1.98	162.	-9.	0.01	0.07
2619	60	1.47	1.47	140.	2.	0.01	0.12	1.98	1.98	1415.	-29.	0.08	0.51
2620	60	1.47	1.47	128.	3.	0.00	0.12	1.98	1.98	631.	-19.	0.04	0.24
2621	60	1.47	1.47	114.	2.	0.00	0.11	1.98	1.98	187.	-9.	0.01	0.08
2622	60	1.47	1.47	133.	3.	0.00	0.14	1.98	1.98	1469.	-28.	0.09	0.53
2623	60	1.47	1.47	130.	4.	0.00	0.14	1.98	1.98	739.	-19.	0.04	0.28
2624	60	1.47	1.47	130.	3.	0.00	0.14	1.98	1.98	165.	-9.	0.01	0.07
2625	60	1.47	1.47	138.	8.	0.00	0.21	1.98	1.98	1357.	-29.	0.08	0.49
2626	60	1.47	1.47	137.	8.	0.00	0.22	1.98	1.98	665.	-20.	0.04	0.25
2627	60	1.47	1.47	144.	9.	0.00	0.24	1.98	1.98	150.	-9.	0.01	0.06
2628	60	1.47	1.47	27.	5.	0.00	0.11	1.98	1.98	1311.	-33.	0.08	0.46
2629	60	1.47	1.47	42.	5.	0.00	0.12	1.98	1.98	656.	-22.	0.04	0.25
2630	60	1.47	1.47	59.	9.	0.00	0.19	1.98	1.98	141.	-10.	0.01	0.06
2631	60	1.47	1.47	87.	4.	0.00	0.14	1.98	1.98	1251.	-31.	0.07	0.44
2632	60	1.47	1.47	85.	6.	0.00	0.15	1.98	1.98	665.	-21.	0.04	0.25
2633	60	1.47	1.47	67.	7.	0.00	0.17	1.98	1.98	160.	-10.	0.01	0.06
2634	60	1.47	1.47	162.	8.	0.00	0.23	1.98	1.98	1317.	-25.	0.08	0.48
2635	60	1.47	1.47	157.	8.	0.00	0.23	1.98	1.98	712.	-18.	0.04	0.28
2636	60	1.47	1.47	140.	8.	0.00	0.22	1.98	1.98	189.	-9.	0.01	0.08
2637	60	1.47	1.47	274.	5.	0.00	0.25	1.98	1.98	1433.	-24.	0.08	0.53
2638	60	1.47	1.47	254.	5.	0.00	0.24	1.98	1.98	787.	-17.	0.05	0.31
2639	60	1.47	1.47	236.	4.	0.00	0.20	1.98	1.98	241.	-9.	0.02	0.10
2640	60	1.47	1.47	263.	0.	0.02	0.16	1.98	1.98	1480.	-21.	0.09	0.56
2641	60	1.47	1.47	215.	1.	0.01	0.15	1.98	1.98	785.	-15.	0.05	0.31
2642	60	1.47	1.47	212.	1.	0.01	0.14	1.98	1.98	246.	-8.	0.02	0.10
2643	60	1.47	1.47	632.	-3.	0.04	0.37	1.98	1.98	957.	-28.	0.06	0.34
2644	60	1.47	1.47	553.	-3.	0.04	0.32	1.98	1.98	991.	-30.	0.06	0.35
2645	60	1.47	1.47	615.	-4.	0.04	0.36	1.98	1.98	624.	-13.	0.04	0.25
2646	60	1.47	1.47	526.	-3.	0.03	0.31	1.98	1.98	607.	-14.	0.04	0.24
2647	60	1.47	1.47	615.	-6.	0.04	0.36	1.98	1.98	474.	-5.	0.03	0.21
2648	60	1.47	1.47	509.	-3.	0.03	0.30	1.98	1.98	445.	-5.	0.03	0.19
2649	60	1.47	1.47	646.	-4.	0.04	0.37	1.98	1.98	909.	-21.	0.05	0.35
2650	60	1.47	1.47	595.	-5.	0.04	0.34	1.98	1.98	686.	-10.	0.04	0.28
2651	60	1.47	1.47	587.	-7.	0.04	0.34	1.98	1.98	531.	-5.	0.03	0.23
2652	60	1.47	1.47	611.	-3.	0.04	0.36	1.98	1.98	915.	-19.	0.05	0.35
2653	60	1.47	1.47	554.	-4.	0.04	0.32	1.98	1.98	716.	-10.	0.04	0.30
2654	60	1.47	1.47	552.	-5.	0.04	0.32	1.98	1.98	555.	-5.	0.03	0.24
2655	60	1.47	1.47	532.	-5.	0.04	0.32	1.98	1.98	989.	-18.	0.06	0.38
2656	60	1.47	1.47	508.	-6.	0.03	0.30	1.98	1.98	742.	-10.	0.04	0.31
2657	60	1.47	1.47	490.	-7.	0.03	0.29	1.98	1.98	563.	-5.	0.03	0.24
2658	60	1.47	1.47	531.	-10.	0.04	0.32	1.98	1.98	1096.	-17.	0.06	0.43
2659	60	1.47	1.47	519.	-15.	0.04	0.28	1.98	1.98	779.	-10.	0.05	0.32
2660	60	1.47	1.47	500.	-18.	0.04	0.28	1.98	1.98	573.	-6.	0.03	0.25
2661	60	1.47	1.47	197.	4.	0.00	0.19	1.98	1.98	1462.	-21.	0.08	0.56
2662	60	1.47	1.47	152.	6.	0.00	0.19	1.98	1.98	739.	-15.	0.04	0.29
2663	60	1.47	1.47	146.	6.	0.00	0.19	1.98	1.98	240.	-8.	0.01	0.10
2664	60	1.47	1.47	107.	5.	0.00	0.17	1.98	1.98	1377.	-25.	0.08	0.51
2665	60	1.47	1.47	71.	7.	0.00	0.17	1.98	1.98	667.	-18.	0.04	0.26
2666	60	1.47	1.47	65.	8.	0.00	0.18	1.98	1.98	229.	-9.	0.01	0.09

2667	60	1.47	1.47	32.	5.	0.00	0.13	1.98	1.98	1297.	-30.	0.08	0.46
2668	60	1.47	1.47	22.	7.	0.00	0.14	1.98	1.98	655.	-20.	0.04	0.25
2669	60	1.47	1.47	0.	12.	0.00	0.20	1.98	1.98	219.	-9.	0.01	0.09
2670	60	1.47	1.47	132.	9.	0.00	0.24	1.98	1.98	1379.	-27.	0.08	0.50
2671	60	1.47	1.47	112.	10.	0.00	0.24	1.98	1.98	626.	-19.	0.04	0.24
2672	60	1.47	1.47	97.	10.	0.00	0.23	1.98	1.98	178.	-9.	0.01	0.07
2673	60	1.47	1.47	198.	3.	0.00	0.18	1.98	1.98	1471.	-25.	0.09	0.55
2674	60	1.47	1.47	156.	5.	0.00	0.18	1.98	1.98	646.	-17.	0.04	0.25
2675	60	1.47	1.47	156.	5.	0.00	0.18	1.98	1.98	142.	-8.	0.01	0.06
2676	60	1.47	1.47	275.	7.	0.00	0.29	1.98	1.98	1532.	-24.	0.09	0.57
2677	60	1.47	1.47	258.	7.	0.00	0.29	1.98	1.98	745.	-15.	0.04	0.29
2678	60	1.47	1.47	249.	8.	0.00	0.29	1.98	1.98	196.	-7.	0.01	0.08
2679	60	1.47	1.47	183.	11.	0.00	0.30	1.98	1.98	1640.	-23.	0.09	0.62
2680	60	1.47	1.47	182.	11.	0.00	0.30	1.98	1.98	826.	-15.	0.05	0.33
2681	60	1.47	1.47	202.	12.	0.00	0.33	1.98	1.98	249.	-7.	0.02	0.10
2682	60	1.47	1.47	198.	9.	0.00	0.28	1.98	1.98	1646.	-26.	0.10	0.60
2683	60	1.47	1.47	196.	10.	0.00	0.28	1.98	1.98	888.	-16.	0.05	0.35
2684	60	1.47	1.47	158.	14.	0.00	0.33	1.98	1.98	284.	-7.	0.02	0.12
2685	60	1.47	1.47	260.	7.	0.00	0.31	1.98	1.98	1735.	-28.	0.10	0.63
2686	60	1.47	1.47	222.	10.	0.00	0.31	1.98	1.98	905.	-17.	0.05	0.35
2687	60	1.47	1.47	217.	11.	0.00	0.34	1.98	1.98	274.	-8.	0.02	0.11
2688	60	1.47	1.47	327.	7.	0.00	0.35	1.98	1.98	1707.	-21.	0.10	0.65
2689	60	1.47	1.47	281.	11.	0.00	0.36	1.98	1.98	912.	-15.	0.05	0.36
2690	60	1.47	1.47	276.	11.	0.00	0.38	1.98	1.98	268.	-7.	0.02	0.11
2691	60	1.47	1.47	352.	8.	0.00	0.39	1.98	1.98	1762.	-16.	0.10	0.70
2692	60	1.47	1.47	312.	12.	0.00	0.39	1.98	1.98	944.	-12.	0.05	0.38
2693	60	1.47	1.47	282.	16.	0.00	0.44	1.98	1.98	264.	-6.	0.02	0.11
2694	60	1.47	1.47	301.	25.	0.00	0.60	1.98	1.98	1773.	-13.	0.10	0.72
2695	60	1.47	1.47	199.	26.	0.00	0.57	1.98	1.98	965.	-10.	0.06	0.40
2696	60	1.47	1.47	193.	26.	0.00	0.56	1.98	1.98	284.	-4.	0.02	0.12
2697	60	1.47	1.47	184.	30.	0.00	0.62	1.98	1.98	1749.	-12.	0.10	0.71
2698	60	1.47	1.47	101.	31.	0.00	0.59	1.98	1.98	977.	-9.	0.06	0.41
2699	60	1.47	1.47	94.	31.	0.00	0.59	1.98	1.98	323.	-4.	0.02	0.14
2700	60	1.47	1.47	114.	25.	0.00	0.52	1.98	1.98	1732.	-23.	0.10	0.70
2701	60	1.47	1.47	83.	30.	0.00	0.57	1.98	1.98	1009.	-11.	0.06	0.41
2702	60	1.47	1.47	72.	35.	0.00	0.64	1.98	1.98	348.	-4.	0.02	0.15
2703	60	1.47	1.47	186.	21.	0.00	0.54	1.98	1.98	1954.	-24.	0.11	0.73
2704	60	1.47	1.47	99.	29.	0.00	0.55	1.98	1.98	1025.	-13.	0.06	0.41
2705	60	1.47	1.47	17.	37.	0.00	0.64	1.98	1.98	370.	-5.	0.02	0.16
2706	60	1.47	1.47	170.	30.	0.00	0.61	1.98	1.98	2084.	-24.	0.12	0.78
2707	60	1.47	1.47	165.	30.	0.00	0.62	1.98	1.98	1057.	-13.	0.06	0.43
2708	60	1.47	1.47	157.	31.	0.00	0.70	1.98	1.98	373.	-5.	0.02	0.16
2709	60	1.47	1.47	160.	31.	0.00	0.63	1.98	1.98	2178.	-24.	0.12	0.81
2710	60	1.47	1.47	164.	32.	0.00	0.64	1.98	1.98	1091.	-14.	0.06	0.44
2711	60	1.47	1.47	84.	43.	0.00	0.78	1.98	1.98	378.	-5.	0.02	0.16
2712	60	1.47	1.47	203.	38.	0.00	0.77	1.98	1.98	2203.	-28.	0.13	0.80
2713	60	1.47	1.47	197.	39.	0.00	0.79	1.98	1.98	1114.	-16.	0.06	0.44
2714	60	1.47	1.47	191.	40.	0.00	0.89	1.98	1.98	382.	-6.	0.02	0.16
2715	60	1.47	1.47	194.	31.	0.00	0.73	1.98	1.98	2203.	-30.	0.13	0.79
2716	60	1.47	1.47	151.	38.	0.00	0.75	1.98	1.98	1122.	-18.	0.07	0.43
2717	60	1.47	1.47	133.	43.	0.00	0.90	1.98	1.98	383.	-7.	0.02	0.16
2718	60	1.47	1.47	123.	39.	0.00	0.73	1.98	1.98	2166.	-36.	0.12	0.74
2719	60	1.47	1.47	119.	39.	0.00	0.75	1.98	1.98	1112.	-20.	0.07	0.42
2720	60	1.47	1.47	22.	51.	0.00	0.89	1.98	1.98	370.	-8.	0.02	0.16
2721	60	1.47	1.47	179.	37.	0.00	0.75	1.98	1.98	2150.	-32.	0.12	0.76
2722	60	1.47	1.47	175.	38.	0.00	0.76	1.98	1.98	1096.	-17.	0.06	0.43
2723	60	1.47	1.47	77.	50.	0.00	0.90	1.98	1.98	338.	-6.	0.02	0.14
2724	60	1.47	1.47	148.	40.	0.00	0.77	1.98	1.98	2192.	-26.	0.13	0.81
2725	60	1.47	1.47	146.	41.	0.00	0.80	1.98	1.98	1092.	-13.	0.06	0.44
2726	60	1.47	1.47	92.	49.	0.00	0.90	1.98	1.98	319.	-4.	0.02	0.14
2727	60	1.47	1.47	192.	35.	0.00	0.71	1.98	1.98	2233.	-22.	0.13	0.85
2728	60	1.47	1.47	177.	38.	0.00	0.75	1.98	1.98	1098.	-11.	0.06	0.45
2729	60	1.47	1.47	159.	43.	0.00	0.82	1.98	1.98	306.	-3.	0.02	0.13
2730	60	1.47	1.47	261.	27.	0.00	0.63	1.98	1.98	2247.	-20.	0.13	0.87
2731	60	1.47	1.47	258.	28.	0.00	0.63	1.98	1.98	1104.	-9.	0.06	0.46
2732	60	1.47	1.47	197.	34.	0.00	0.71	1.98	1.98	301.	-2.	0.02	0.13
2733	60	1.47	1.47	261.	23.	0.00	0.54	1.98	1.98	2254.	-18.	0.13	0.88
2734	60	1.47	1.47	259.	23.	0.00	0.55	1.98	1.98	1121.	-8.	0.06	0.47
2735	60	1.47	1.47	207.	29.	0.00	0.62	1.98	1.98	320.	-2.	0.02	0.14
2736	60	1.47	1.47	282.	17.	0.00	0.50	1.98	1.98	2297.	-14.	0.13	0.92
2737	60	1.47	1.47	242.	21.	0.00	0.50	1.98	1.98	1135.	-6.	0.06	0.48
2738	60	1.47	1.47	238.	21.	0.00	0.54	1.98	1.98	324.	-2.	0.02	0.14
2739	60	1.47	1.47	290.	16.	0.00	0.45	1.98	1.98	2348.	-11.	0.13	0.97
2740	60	1.47	1.47	261.	17.	0.00	0.45	1.98	1.98	1151.	-5.	0.07	0.50
2741	60	1.47	1.47	257.	17.	0.00	0.46	1.98	1.98	323.	-3.	0.02	0.14
2742	60	1.47	1.47	303.	13.	0.00	0.40	1.98	1.98	2377.	-8.	0.13	1.01
2743	60	1.47	1.47	266.	12.	0.00	0.37	1.98	1.98	1154.	-4.	0.07	0.50
2744	60	1.47	1.47	262.	12.	0.00	0.37	1.98	1.98	317.	-3.	0.02	0.14
2745	60	1.47	1.47	210.	8.	0.00	0.26	1.98	1.98	2428.	-5.	0.14	1.05
2746	60	1.47	1.47	181.	6.	0.00	0.21	1.98	1.98	1167.	-3.	0.07	0.51
2747	60	1.47	1.47	178.	6.	0.00	0.21	1.98	1.98	315.	-3.	0.02	0.14
2748	60	1.47	1.47	171.	-5.	0.01	0.10	1.98	1.98	1042.	-33.	0.06	0.36
2749	60	1.47	1.47	134.	-3.	0.01	0.08	1.98	1.98	575.	-15.	0.03	0.23
2750	60	1.47	1.47	87.	-3.	0.01	0.05	1.98	1.98	421.	-5.	0.02	0.18

		SUPERIORE ORIZZONTALE						SUPERIORE VERTICALE					
GUSCI	spess	Af	Afc	Mom	Nor	epsC	epsF	Af	Afc	Mom	Nor	epsC	epsF
2529	60	1.47	1.47	209.	-22.	0.02	0.11	1.98	1.98	0.	-20.	0.00	0.00
2530	60	1.47	1.47	294.	-23.	0.02	0.16	1.98	1.98	0.	-18.	0.00	0.00
2531	60	1.47	1.47	218.	-23.	0.02	0.11	1.98	1.98	183.	-5.	0.01	0.08
2532	60	1.47	1.47	294.	-24.	0.02	0.14	1.98	1.98	261.	-6.	0.02	0.11
2533	60	1.47	1.47	199.	-27.	0.02	0.09	1.98	1.98	450.	-4.	0.03	0.20
2534	60	1.47	1.47	262.	-34.	0.02	0.13	1.98	1.98	471.	-3.	0.03	0.21
2535	60	1.47	1.47	189.	-27.	0.02	0.11	1.98	1.98	0.	-21.	0.00	0.00
2536	60	1.47	1.47	227.	-28.	0.02	0.11	1.98	1.98	62.	-10.	0.01	0.05
2537	60	1.47	1.47	180.	-35.	0.02	0.09	1.98	1.98	409.	-4.	0.02	0.18
2538	60	1.47	1.47	287.	-30.	0.02	0.14	1.98	1.98	0.	-19.	0.00	0.00
2539	60	1.47	1.47	285.	-31.	0.02	0.12	1.98	1.98	0.	-11.	0.00	0.02

2540	60	1.47	1.47	272.	-39.	0.02	0.12	1.98	1.98	361.	-4.	0.02	0.16
2541	60	1.47	1.47	227.	-25.	0.02	0.10	1.98	1.98	0.	-13.	0.00	0.00
2542	60	1.47	1.47	234.	-32.	0.02	0.10	1.98	1.98	0.	-9.	0.00	0.00
2543	60	1.47	1.47	238.	-38.	0.02	0.09	1.98	1.98	315.	-4.	0.02	0.14
2544	60	1.47	1.47	63.	-30.	0.01	0.03	1.98	1.98	0.	-8.	0.00	0.00
2545	60	1.47	1.47	58.	-38.	0.01	0.02	1.98	1.98	0.	-11.	0.00	0.00
2546	60	1.47	1.47	43.	-48.	0.01	0.02	1.98	1.98	263.	-5.	0.02	0.11
2547	60	1.47	1.47	0.	-48.	0.01	-0.01	1.98	1.98	0.	-12.	0.00	0.00
2548	60	1.47	1.47	0.	-57.	0.01	-0.01	1.98	1.98	0.	-15.	0.00	0.00
2549	60	1.47	1.47	0.	-64.	0.01	-0.01	1.98	1.98	222.	-4.	0.01	0.10
2550	60	1.47	1.47	0.	-45.	0.01	-0.01	1.98	1.98	0.	-14.	0.00	0.00
2551	60	1.47	1.47	0.	-53.	0.01	-0.01	1.98	1.98	0.	-15.	0.00	0.00
2552	60	1.47	1.47	0.	-65.	0.01	-0.01	1.98	1.98	185.	-3.	0.01	0.08
2553	60	1.47	1.47	0.	-35.	0.01	-0.01	1.98	1.98	0.	-13.	0.00	0.00
2554	60	1.47	1.47	0.	-40.	0.01	-0.01	1.98	1.98	0.	-11.	0.00	0.00
2555	60	1.47	1.47	0.	-53.	0.01	-0.01	1.98	1.98	118.	-2.	0.01	0.05
2556	60	1.47	1.47	3.	-33.	0.01	0.01	1.98	1.98	0.	-21.	0.00	0.00
2557	60	1.47	1.47	2.	-38.	0.01	-0.01	1.98	1.98	0.	-12.	0.00	0.00
2558	60	1.47	1.47	0.	-48.	0.01	-0.01	1.98	1.98	58.	-2.	0.00	0.03
2559	60	1.47	1.47	0.	-38.	0.01	-0.01	1.98	1.98	0.	-25.	0.00	0.00
2560	60	1.47	1.47	0.	-41.	0.01	-0.01	1.98	1.98	0.	-14.	0.00	0.00
2561	60	1.47	1.47	0.	-51.	0.01	-0.01	1.98	1.98	0.	-8.	0.00	0.00
2562	60	1.47	1.47	0.	-43.	0.01	-0.01	1.98	1.98	0.	-21.	0.00	0.00
2563	60	1.47	1.47	0.	-44.	0.01	-0.01	1.98	1.98	0.	-15.	0.00	0.00
2564	60	1.47	1.47	0.	-57.	0.01	-0.01	1.98	1.98	0.	-8.	0.00	0.00
2565	60	1.47	1.47	0.	-45.	0.01	-0.01	1.98	1.98	0.	-16.	0.00	0.00
2566	60	1.47	1.47	0.	-46.	0.01	-0.01	1.98	1.98	0.	-15.	0.00	0.00
2567	60	1.47	1.47	0.	-55.	0.01	-0.01	1.98	1.98	0.	-8.	0.00	0.01
2568	60	1.47	1.47	0.	-23.	0.00	0.00	1.98	1.98	0.	-16.	0.00	0.00
2569	60	1.47	1.47	0.	-26.	0.00	0.00	1.98	1.98	0.	-15.	0.00	0.00
2570	60	1.47	1.47	0.	-39.	0.01	-0.01	1.98	1.98	33.	-5.	0.00	0.01
2571	60	1.47	1.47	5.	-18.	0.00	0.01	1.98	1.98	0.	-20.	0.00	0.00
2572	60	1.47	1.47	24.	-19.	0.01	0.01	1.98	1.98	0.	-17.	0.00	0.00
2573	60	1.47	1.47	0.	-30.	0.01	-0.01	1.98	1.98	0.	-8.	0.00	0.00
2574	60	1.47	1.47	137.	-22.	0.01	0.08	1.98	1.98	0.	-29.	0.01	-0.01
2575	60	1.47	1.47	136.	-23.	0.01	0.06	1.98	1.98	0.	-20.	0.00	0.00
2576	60	1.47	1.47	80.	-28.	0.01	0.06	1.98	1.98	0.	-9.	0.00	0.00
2577	60	1.47	1.47	59.	-27.	0.01	0.04	1.98	1.98	0.	-33.	0.01	-0.01
2578	60	1.47	1.47	92.	-25.	0.01	0.04	1.98	1.98	0.	-22.	0.00	0.00
2579	60	1.47	1.47	48.	-32.	0.01	0.03	1.98	1.98	0.	-9.	0.00	0.00
2580	60	1.47	1.47	0.	-25.	0.00	0.00	1.98	1.98	0.	-28.	0.00	0.00
2581	60	1.47	1.47	0.	-26.	0.00	0.00	1.98	1.98	0.	-21.	0.00	0.00
2582	60	1.47	1.47	0.	-33.	0.01	-0.01	1.98	1.98	0.	-10.	0.00	0.00
2583	60	1.47	1.47	0.	-29.	0.01	-0.01	1.98	1.98	0.	-20.	0.00	0.00
2584	60	1.47	1.47	0.	-30.	0.01	-0.01	1.98	1.98	0.	-17.	0.00	0.00
2585	60	1.47	1.47	0.	-36.	0.01	-0.01	1.98	1.98	0.	-9.	0.00	0.01
2586	60	1.47	1.47	0.	-10.	0.00	0.00	1.98	1.98	0.	-17.	0.00	0.00
2587	60	1.47	1.47	0.	-13.	0.00	0.00	1.98	1.98	0.	-14.	0.00	0.00
2588	60	1.47	1.47	0.	-19.	0.00	0.00	1.98	1.98	0.	-8.	0.00	0.01
2589	60	1.47	1.47	150.	0.	0.01	0.09	1.98	1.98	0.	-18.	0.00	0.00
2590	60	1.47	1.47	131.	-3.	0.01	0.08	1.98	1.98	0.	-15.	0.00	0.00
2591	60	1.47	1.47	106.	-7.	0.01	0.06	1.98	1.98	0.	-7.	0.00	0.01
2592	60	1.47	1.47	192.	-4.	0.01	0.12	1.98	1.98	0.	-28.	0.01	-0.01
2593	60	1.47	1.47	176.	-2.	0.01	0.10	1.98	1.98	0.	-18.	0.00	0.00
2594	60	1.47	1.47	161.	-4.	0.01	0.09	1.98	1.98	22.	-6.	0.00	0.01
2595	60	1.47	1.47	180.	-2.	0.01	0.11	1.98	1.98	0.	-32.	0.01	-0.01
2596	60	1.47	1.47	180.	-2.	0.01	0.11	1.98	1.98	0.	-20.	0.00	0.00
2597	60	1.47	1.47	192.	-3.	0.01	0.11	1.98	1.98	0.	-9.	0.00	0.00
2598	60	1.47	1.47	109.	-1.	0.01	0.06	1.98	1.98	0.	-29.	0.01	-0.01
2599	60	1.47	1.47	115.	-2.	0.01	0.07	1.98	1.98	0.	-19.	0.00	0.00
2600	60	1.47	1.47	136.	-2.	0.01	0.08	1.98	1.98	14.	-8.	0.00	0.00
2601	60	1.47	1.47	0.	-9.	0.00	0.00	1.98	1.98	0.	-22.	0.00	0.00
2602	60	1.47	1.47	0.	-8.	0.00	0.00	1.98	1.98	0.	-18.	0.00	0.00
2603	60	1.47	1.47	0.	-9.	0.00	0.00	1.98	1.98	29.	-7.	0.00	0.01
2604	60	1.47	1.47	97.	6.	0.00	0.17	1.98	1.98	0.	-21.	0.00	0.00
2605	60	1.47	1.47	98.	6.	0.00	0.16	1.98	1.98	0.	-16.	0.00	0.00
2606	60	1.47	1.47	99.	5.	0.00	0.15	1.98	1.98	23.	-6.	0.00	0.01
2607	60	1.47	1.47	160.	10.	0.00	0.28	1.98	1.98	0.	-25.	0.00	0.00
2608	60	1.47	1.47	156.	10.	0.00	0.28	1.98	1.98	0.	-18.	0.00	0.00
2609	60	1.47	1.47	148.	10.	0.00	0.27	1.98	1.98	17.	-7.	0.00	0.01
2610	60	1.47	1.47	182.	6.	0.00	0.21	1.98	1.98	0.	-35.	0.01	-0.01
2611	60	1.47	1.47	182.	6.	0.00	0.21	1.98	1.98	0.	-22.	0.00	0.00
2612	60	1.47	1.47	166.	9.	0.00	0.25	1.98	1.98	0.	-10.	0.00	0.00
2613	60	1.47	1.47	211.	4.	0.00	0.20	1.98	1.98	0.	-39.	0.01	-0.01
2614	60	1.47	1.47	207.	6.	0.00	0.22	1.98	1.98	0.	-23.	0.00	0.00
2615	60	1.47	1.47	209.	9.	0.00	0.27	1.98	1.98	0.	-10.	0.00	0.00
2616	60	1.47	1.47	154.	5.	0.00	0.19	1.98	1.98	0.	-34.	0.01	-0.01
2617	60	1.47	1.47	152.	6.	0.00	0.19	1.98	1.98	0.	-22.	0.00	0.00
2618	60	1.47	1.47	150.	6.	0.00	0.20	1.98	1.98	0.	-10.	0.00	0.00
2619	60	1.47	1.47	104.	2.	0.01	0.09	1.98	1.98	0.	-30.	0.01	-0.01
2620	60	1.47	1.47	101.	3.	0.00	0.11	1.98	1.98	0.	-20.	0.00	0.00
2621	60	1.47	1.47	110.	2.	0.00	0.11	1.98	1.98	0.	-10.	0.00	0.00
2622	60	1.47	1.47	108.	3.	0.00	0.12	1.98	1.98	0.	-29.	0.01	-0.01
2623	60	1.47	1.47	106.	4.	0.00	0.13	1.98	1.98	0.	-20.	0.00	0.00
2624	60	1.47	1.47	106.	3.	0.00	0.12	1.98	1.98	16.	-9.	0.00	0.01
2625	60	1.47	1.47	141.	8.	0.00	0.22	1.98	1.98	0.	-33.	0.01	-0.01
2626	60	1.47	1.47	144.	9.	0.00	0.24	1.98	1.98	0.	-21.	0.00	0.00
2627	60	1.47	1.47	167.	9.	0.00	0.26	1.98	1.98	20.	-9.	0.00	0.01
2628	60	1.47	1.47	219.	5.	0.00	0.21	1.98	1.98	0.	-38.	0.01	-0.01
2629	60	1.47	1.47	216.	6.	0.00	0.24	1.98	1.98	0.	-24.	0.00	0.00
2630	60	1.47	1.47	223.	9.	0.00	0.29	1.98	1.98	34.	-10.	0.00	0.01
2631	60	1.47	1.47	252.	6.	0.00	0.25	1.98	1.98	0.	-36.	0.01	-0.01
2632	60	1.47	1.47	251.	6.	0.00	0.25	1.98	1.98	0.	-23.	0.00	0.00
2633	60	1.47	1.47	229.	9.	0.00	0.29	1.98	1.98	27.	-10.	0.00	0.01
2634	60	1.47	1.47	221.	7.	0.00	0.26	1.98	1.98	0.	-28.	0.00	0.00
2635	60	1.47	1.47	210.	8.	0.00	0.26	1.98	1.98	0.	-20.	0.00	0.00
2636	60	1.47	1.47	196.	8.	0.00	0.26	1.98	1.98	0.	-10.	0.00	0.00
2637	60	1.47	1.47	72.	4.	0.00	0.11	1.98	1.98	0.	-24.	0.00	0.00

2638	60	1.47	1.47	54.	4.	0.00	0.10	1.98	1.98	0.	-17.	0.00	0.00
2639	60	1.47	1.47	24.	4.	0.00	0.08	1.98	1.98	42.	-9.	0.00	0.02
2640	60	1.47	1.47	0.	-1.	0.00	0.01	1.98	1.98	0.	-21.	0.00	0.00
2641	60	1.47	1.47	0.	1.	0.00	0.02	1.98	1.98	0.	-17.	0.00	0.00
2642	60	1.47	1.47	0.	1.	0.00	0.01	1.98	1.98	42.	-8.	0.00	0.02
2643	60	1.47	1.47	610.	-4.	0.04	0.35	1.98	1.98	145.	-29.	0.01	0.05
2644	60	1.47	1.47	669.	-2.	0.04	0.40	1.98	1.98	147.	-32.	0.01	0.05
2645	60	1.47	1.47	613.	-5.	0.04	0.35	1.98	1.98	529.	-13.	0.03	0.21
2646	60	1.47	1.47	692.	-1.	0.05	0.41	1.98	1.98	546.	-13.	0.03	0.22
2647	60	1.47	1.47	624.	-5.	0.04	0.36	1.98	1.98	509.	-4.	0.03	0.22
2648	60	1.47	1.47	715.	-3.	0.05	0.43	1.98	1.98	512.	-4.	0.03	0.22
2649	60	1.47	1.47	565.	-4.	0.04	0.33	1.98	1.98	134.	-21.	0.01	0.05
2650	60	1.47	1.47	541.	-3.	0.04	0.32	1.98	1.98	479.	-11.	0.03	0.20
2651	60	1.47	1.47	537.	-4.	0.04	0.31	1.98	1.98	506.	-5.	0.03	0.22
2652	60	1.47	1.47	519.	-3.	0.03	0.30	1.98	1.98	109.	-19.	0.01	0.04
2653	60	1.47	1.47	445.	-5.	0.03	0.25	1.98	1.98	458.	-8.	0.03	0.19
2654	60	1.47	1.47	424.	-6.	0.03	0.24	1.98	1.98	500.	-4.	0.03	0.22
2655	60	1.47	1.47	407.	-5.	0.03	0.23	1.98	1.98	89.	-17.	0.01	0.03
2656	60	1.47	1.47	364.	-6.	0.02	0.21	1.98	1.98	398.	-8.	0.02	0.17
2657	60	1.47	1.47	330.	-7.	0.02	0.18	1.98	1.98	499.	-3.	0.03	0.22
2658	60	1.47	1.47	318.	-10.	0.02	0.19	1.98	1.98	55.	-15.	0.01	0.02
2659	60	1.47	1.47	290.	-15.	0.02	0.16	1.98	1.98	331.	-7.	0.02	0.14
2660	60	1.47	1.47	257.	-18.	0.02	0.15	1.98	1.98	487.	-3.	0.03	0.21
2661	60	1.47	1.47	110.	7.	0.00	0.18	1.98	1.98	0.	-24.	0.00	0.00
2662	60	1.47	1.47	96.	7.	0.00	0.19	1.98	1.98	0.	-19.	0.00	0.00
2663	60	1.47	1.47	111.	8.	0.00	0.20	1.98	1.98	0.	-9.	0.00	0.00
2664	60	1.47	1.47	134.	7.	0.00	0.21	1.98	1.98	0.	-30.	0.01	-0.01
2665	60	1.47	1.47	132.	7.	0.00	0.21	1.98	1.98	0.	-22.	0.00	0.00
2666	60	1.47	1.47	111.	11.	0.00	0.25	1.98	1.98	0.	-11.	0.00	0.00
2667	60	1.47	1.47	182.	6.	0.00	0.21	1.98	1.98	0.	-31.	0.01	-0.01
2668	60	1.47	1.47	166.	7.	0.00	0.23	1.98	1.98	0.	-21.	0.00	0.00
2669	60	1.47	1.47	149.	9.	0.00	0.26	1.98	1.98	0.	-11.	0.00	0.00
2670	60	1.47	1.47	91.	10.	0.00	0.23	1.98	1.98	0.	-27.	0.00	0.00
2671	60	1.47	1.47	84.	11.	0.00	0.24	1.98	1.98	0.	-19.	0.00	0.00
2672	60	1.47	1.47	65.	12.	0.00	0.24	1.98	1.98	0.	-9.	0.00	0.00
2673	60	1.47	1.47	0.	6.	0.00	0.11	1.98	1.98	0.	-25.	0.00	0.00
2674	60	1.47	1.47	0.	7.	0.00	0.12	1.98	1.98	0.	-18.	0.00	0.00
2675	60	1.47	1.47	0.	7.	0.00	0.12	1.98	1.98	0.	-8.	0.00	0.00
2676	60	1.47	1.47	0.	8.	0.00	0.14	1.98	1.98	7.	-24.	0.00	0.00
2677	60	1.47	1.47	0.	8.	0.00	0.14	1.98	1.98	0.	-18.	0.00	0.00
2678	60	1.47	1.47	0.	8.	0.00	0.13	1.98	1.98	0.	-8.	0.00	0.00
2679	60	1.47	1.47	0.	11.	0.00	0.19	1.98	1.98	0.	-24.	0.00	0.00
2680	60	1.47	1.47	0.	11.	0.00	0.19	1.98	1.98	0.	-17.	0.00	0.00
2681	60	1.47	1.47	8.	12.	0.00	0.21	1.98	1.98	20.	-8.	0.00	0.01
2682	60	1.47	1.47	144.	6.	0.00	0.22	1.98	1.98	0.	-29.	0.01	-0.01
2683	60	1.47	1.47	85.	10.	0.00	0.22	1.98	1.98	0.	-21.	0.00	0.00
2684	60	1.47	1.47	66.	14.	0.00	0.27	1.98	1.98	56.	-9.	0.00	0.02
2685	60	1.47	1.47	145.	7.	0.00	0.23	1.98	1.98	0.	-29.	0.01	-0.01
2686	60	1.47	1.47	87.	10.	0.00	0.23	1.98	1.98	0.	-20.	0.00	0.00
2687	60	1.47	1.47	68.	14.	0.00	0.29	1.98	1.98	86.	-9.	0.01	0.03
2688	60	1.47	1.47	71.	10.	0.00	0.21	1.98	1.98	0.	-24.	0.00	0.00
2689	60	1.47	1.47	46.	11.	0.00	0.22	1.98	1.98	54.	-15.	0.01	0.02
2690	60	1.47	1.47	33.	13.	0.00	0.25	1.98	1.98	128.	-9.	0.01	0.05
2691	60	1.47	1.47	0.	11.	0.00	0.20	1.98	1.98	271.	-15.	0.02	0.11
2692	60	1.47	1.47	0.	12.	0.00	0.20	1.98	1.98	242.	-12.	0.02	0.10
2693	60	1.47	1.47	0.	16.	0.00	0.27	1.98	1.98	197.	-6.	0.01	0.08
2694	60	1.47	1.47	63.	27.	0.00	0.50	1.98	1.98	666.	-13.	0.04	0.27
2695	60	1.47	1.47	8.	28.	0.00	0.48	1.98	1.98	440.	-10.	0.03	0.18
2696	60	1.47	1.47	0.	28.	0.00	0.47	1.98	1.98	275.	-4.	0.02	0.12
2697	60	1.47	1.47	331.	30.	0.00	0.70	1.98	1.98	589.	-13.	0.04	0.24
2698	60	1.47	1.47	229.	31.	0.00	0.67	1.98	1.98	330.	-9.	0.02	0.14
2699	60	1.47	1.47	221.	31.	0.00	0.66	1.98	1.98	282.	-4.	0.02	0.12
2700	60	1.47	1.47	322.	28.	0.00	0.66	1.98	1.98	646.	-18.	0.04	0.25
2701	60	1.47	1.47	301.	30.	0.00	0.70	1.98	1.98	356.	-11.	0.02	0.14
2702	60	1.47	1.47	260.	34.	0.00	0.73	1.98	1.98	301.	-4.	0.02	0.13
2703	60	1.47	1.47	288.	28.	0.00	0.66	1.98	1.98	749.	-24.	0.05	0.28
2704	60	1.47	1.47	286.	29.	0.00	0.67	1.98	1.98	420.	-13.	0.03	0.17
2705	60	1.47	1.47	220.	37.	0.00	0.76	1.98	1.98	317.	-5.	0.02	0.14
2706	60	1.47	1.47	208.	30.	0.00	0.63	1.98	1.98	768.	-24.	0.05	0.28
2707	60	1.47	1.47	228.	29.	0.00	0.64	1.98	1.98	452.	-13.	0.03	0.18
2708	60	1.47	1.47	165.	40.	0.00	0.78	1.98	1.98	321.	-5.	0.02	0.14
2709	60	1.47	1.47	185.	28.	0.00	0.62	1.98	1.98	860.	-24.	0.05	0.32
2710	60	1.47	1.47	180.	33.	0.00	0.67	1.98	1.98	537.	-16.	0.03	0.22
2711	60	1.47	1.47	145.	39.	0.00	0.79	1.98	1.98	322.	-5.	0.02	0.14
2712	60	1.47	1.47	182.	38.	0.00	0.76	1.98	1.98	1191.	-28.	0.07	0.43
2713	60	1.47	1.47	149.	42.	0.00	0.81	1.98	1.98	531.	-17.	0.03	0.21
2714	60	1.47	1.47	132.	49.	0.00	0.91	1.98	1.98	233.	-6.	0.01	0.10
2715	60	1.47	1.47	180.	40.	0.00	0.79	1.98	1.98	1276.	-30.	0.08	0.45
2716	60	1.47	1.47	178.	43.	0.00	0.84	1.98	1.98	430.	-18.	0.03	0.16
2717	60	1.47	1.47	164.	52.	0.00	0.98	1.98	1.98	123.	-9.	0.01	0.06
2718	60	1.47	1.47	185.	39.	0.00	0.77	1.98	1.98	1247.	-36.	0.07	0.43
2719	60	1.47	1.47	180.	41.	0.00	0.81	1.98	1.98	368.	-20.	0.02	0.14
2720	60	1.47	1.47	213.	51.	0.00	1.01	1.98	1.98	67.	-8.	0.01	0.03
2721	60	1.47	1.47	204.	37.	0.00	0.76	1.98	1.98	1177.	-32.	0.07	0.41
2722	60	1.47	1.47	205.	41.	0.00	0.82	1.98	1.98	354.	-17.	0.02	0.14
2723	60	1.47	1.47	200.	50.	0.00	0.97	1.98	1.98	99.	-6.	0.01	0.04
2724	60	1.47	1.47	168.	40.	0.00	0.78	1.98	1.98	1265.	-26.	0.07	0.46
2725	60	1.47	1.47	179.	43.	0.00	0.84	1.98	1.98	434.	-13.	0.03	0.17
2726	60	1.47	1.47	162.	49.	0.00	0.94	1.98	1.98	121.	-4.	0.01	0.05
2727	60	1.47	1.47	175.	35.	0.00	0.70	1.98	1.98	1208.	-22.	0.07	0.46
2728	60	1.47	1.47	163.	38.	0.00	0.74	1.98	1.98	556.	-11.	0.03	0.23
2729	60	1.47	1.47	145.	43.	0.00	0.81	1.98	1.98	121.	-3.	0.01	0.05
2730	60	1.47	1.47	157.	27.	0.00	0.56	1.98	1.98	1065.	-20.	0.06	0.41
2731	60	1.47	1.47	157.	30.	0.00	0.61	1.98	1.98	393.	-9.	0.02	0.16
2732	60	1.47	1.47	112.	34.	0.00	0.65	1.98	1.98	49.	-7.	0.01	0.04
2733	60	1.47	1.47	157.	20.	0.00	0.46	1.98	1.98	649.	-18.	0.04	0.25
2734	60	1.47	1.47	145.	22.	0.00	0.47	1.98	1.98	164.	-8.	0.01	0.07
2735	60	1.47	1.47	125.	25.	0.00	0.52	1.98	1.98	38.	-7.	0.00	0.02

2736	60	1.47	1.47	0.	21.	0.00	0.35	1.98	1.98	193.	-14.	0.01	0.08
2737	60	1.47	1.47	0.	22.	0.00	0.37	1.98	1.98	0.	-9.	0.00	0.00
2738	60	1.47	1.47	0.	25.	0.00	0.43	1.98	1.98	27.	-6.	0.00	0.01
2739	60	1.47	1.47	0.	17.	0.00	0.29	1.98	1.98	0.	-14.	0.00	0.00
2740	60	1.47	1.47	0.	18.	0.00	0.30	1.98	1.98	0.	-7.	0.00	0.00
2741	60	1.47	1.47	0.	20.	0.00	0.33	1.98	1.98	16.	-6.	0.00	0.01
2742	60	1.47	1.47	0.	13.	0.00	0.22	1.98	1.98	0.	-11.	0.00	0.00
2743	60	1.47	1.47	0.	13.	0.00	0.21	1.98	1.98	0.	-6.	0.00	0.00
2744	60	1.47	1.47	0.	13.	0.00	0.23	1.98	1.98	6.	-5.	0.00	0.00
2745	60	1.47	1.47	57.	6.	0.00	0.14	1.98	1.98	0.	-8.	0.00	0.00
2746	60	1.47	1.47	46.	6.	0.00	0.13	1.98	1.98	0.	-5.	0.00	0.00
2747	60	1.47	1.47	0.	6.	0.00	0.10	1.98	1.98	0.	-4.	0.00	0.00
2748	60	1.47	1.47	940.	-4.	0.06	0.54	1.98	1.98	146.	-36.	0.01	0.04
2749	60	1.47	1.47	978.	-3.	0.06	0.58	1.98	1.98	562.	-15.	0.03	0.22
2750	60	1.47	1.47	1033.	-2.	0.07	0.61	1.98	1.98	513.	-4.	0.03	0.22

L'ARMATURA È OVUNQUE > DELLA QUANTITÀ RICHIESTA: IL PUNTO 2.3 DELLE NTC È VERIFICATO ( $R_d > E_d$ )

\*\*\* VERIFICHE A TAGLIO SECONDO NTC2018 (cap. 7.4.4.5.1) \*\*\*

Vr<sub>cd</sub> = compressione cls d'anima  
Vr<sub>sd</sub> = trazione armatura trasversale  
Vr<sub>d,s</sub> = scorrimento in zona dissipativa

Quota	Sezione	Af long.	Af trasv.	Taglio	Vr <sub>cd</sub>	Vr <sub>sd</sub>	alfas	Vr <sub>d,s</sub>
[cm]	[cm2]	[cm2]	[cm2]	[daN]	[daN]	[daN]		[daN]
20.0	298680	197.05	145.96	91550	5488634	323021	-	-
60.0	298680	197.05	145.96	80966	5483845	323021	-	-
100.0	298680	197.05	145.96	80966	5483845	323021	-	-
140.0	298680	197.05	145.96	52351	5474289	323021	-	-
180.0	298680	197.05	145.96	46148	5472700	323021	-	-
206.5	298680	197.05	145.96	45775	5469239	323021	-	-

#### VERIFICHE A FESSURAZIONE (EFFETTO MEMBRANA + PIASTRA)

CASI DI CARICO: ->

Nome	Descrizione
13	Rara 1 (RARA)
14	Rara 2 (RARA)
15	Frequente 1 (FREQUENTE)
16	Frequente 2 (FREQUENTE)
17	Quasi Perm (QUASI PERMANENTE)

DATI:

copriferro inferiore (asse armatura): 2 cm  
copriferro superiore (asse armatura): 2 cm

Af = area effettiva tesa (cm2 al metro)  
Afc = area effettiva compressa (cm2 al metro)  
Mom = momento flettente [daNcm/cm]  
Nor = sforzo normale [daN]

sigC = tensione calcestruzzo [daN/cm2]  
valore max per combinazione rara = 149.4 daN/cm2  
quasi permanente = 112 daN/cm2

sigF = tensione acciaio [daN/cm2]  
valore max per combinazione rara = 3600 daN/cm2

wkF = apertura caratteristica per combinazione frequente (mm) - valore max = 0.4 mm  
wkP = apertura caratteristica per combinazione quasi permanente (mm) - valore max = 0.3 mm

<-

#### ARMATURA INFERIORE ORIZZONTALE

	COMBINAZIONE RARA						COMB. FREQUENTE				COMB. QUASI PERMANENTE			
GUSCI	Af	Afc	Mom	Nor	sigC	sigF	Mom	Nor	wkF	sigC	Mom	Nor	sigC	wkP
2529	1.47	1.47	419	-19	1.44	27.	366	-16	0.004	353	-16	1.20	0.004	
2530	1.47	1.47	447	-14	2.28	115.	391	-12	0.017	377	-12	1.90	0.016	
2531	1.47	1.47	416	-23	1.23	10.	364	-21	0.002	351	-20	1.04	0.001	
2532	1.47	1.47	444	-18	1.69	42.	389	-16	0.006	375	-15	1.41	0.006	
2533	1.47	1.47	412	-28	1.20	4.	360	-25	0.001	347	-24	1.01	0.001	
2534	1.47	1.47	438	-22	1.35	16.	383	-20	0.002	369	-19	1.14	0.002	
2535	1.47	1.47	384	-22	1.13	8.	336	-20	0.001	324	-19	0.95	0.001	
2536	1.47	1.47	382	-28	1.12	3.	334	-24	0.000	322	-23	0.94	0.000	
2537	1.47	1.47	377	-33	1.16	1.	330	-29	0.000	318	-28	0.98	0.000	
2538	1.47	1.47	363	-24	1.05	5.	318	-21	0.001	306	-20	0.89	0.001	
2539	1.47	1.47	361	-30	1.10	1.	316	-26	0.000	305	-26	0.93	0.000	
2540	1.47	1.47	350	-36	1.16	-1.	307	-31	0.000	296	-30	0.98	0.000	
2541	1.47	1.47	374	-24	1.08	5.	329	-21	0.001	318	-21	0.92	0.001	
2542	1.47	1.47	372	-32	1.14	1.	327	-28	0.000	316	-27	0.97	0.000	
2543	1.47	1.47	353	-39	1.22	-2.	310	-34	0.000	299	-33	1.03	0.000	
2544	1.47	1.47	418	-28	1.21	5.	371	-24	0.001	359	-24	1.04	0.001	
2545	1.47	1.47	414	-37	1.29	0.	367	-32	0.000	355	-31	1.10	0.000	
2546	1.47	1.47	390	-46	1.40	-2.	345	-40	0.000	334	-39	1.19	0.000	
2547	1.47	1.47	478	-41	1.47	1.	427	-37	0.000	415	-35	1.27	0.000	
2548	1.47	1.47	469	-50	1.60	-2.	419	-45	0.000	406	-43	1.38	0.000	
2549	1.47	1.47	448	-60	1.72	-5.	400	-53	0.000	388	-51	1.48	0.000	
2550	1.47	1.47	351	-40	1.24	-2.	314	-36	0.000	305	-35	1.08	0.000	
2551	1.47	1.47	352	-49	1.39	-4.	315	-44	0.000	306	-43	1.20	0.000	
2552	1.47	1.47	383	-59	1.60	-6.	343	-52	0.000	333	-50	1.38	0.000	
2553	1.47	1.47	145	-29	0.72	-4.	128	-26	0.000	124	-25	0.62	0.000	
2554	1.47	1.47	157	-38	0.88	-6.	138	-33	0.000	133	-32	0.75	0.000	
2555	1.47	1.47	187	-46	1.07	-7.	166	-41	0.000	160	-40	0.92	0.000	
2556	1.47	1.47	26	-28	0.51	-6.	20	-25	0.000	19	-24	0.43	0.000	
2557	1.47	1.47	35	-36	0.65	-8.	29	-32	0.000	27	-31	0.55	0.000	
2558	1.47	1.47	46	-42	0.78	-9.	39	-38	0.000	37	-36	0.66	0.000	
2559	1.47	1.47	31	-33	0.59	-7.	26	-29	0.000	25	-29	0.51	0.000	
2560	1.47	1.47	31	-39	0.70	-9.	26	-35	0.000	25	-34	0.60	0.000	
2561	1.47	1.47	14	-45	0.76	-11.	10	-40	0.000	9	-39	0.66	0.000	

2562	1.47	1.47	102	-35	0.75	-6.	92	-31	0.000	90	-30	0.65	0.000
2563	1.47	1.47	94	-41	0.84	-8.	84	-37	0.000	82	-35	0.72	0.000
2564	1.47	1.47	69	-48	0.90	-10.	62	-42	0.000	60	-41	0.78	0.000
2565	1.47	1.47	131	-37	0.82	-6.	120	-33	0.000	117	-33	0.73	0.000
2566	1.47	1.47	121	-42	0.90	-8.	111	-38	0.000	108	-37	0.79	0.000
2567	1.47	1.47	109	-48	0.97	-9.	100	-43	0.000	97	-42	0.85	0.000
2568	1.47	1.47	137	-22	0.58	-2.	121	-19	0.000	117	-19	0.51	0.000
2569	1.47	1.47	124	-28	0.66	-4.	110	-25	0.000	107	-24	0.58	0.000
2570	1.47	1.47	109	-35	0.76	-6.	96	-31	0.000	93	-31	0.66	0.000
2571	1.47	1.47	92	-13	0.37	-1.	80	-12	0.000	77	-12	0.32	0.000
2572	1.47	1.47	79	-19	0.44	-3.	69	-17	0.000	66	-16	0.38	0.000
2573	1.47	1.47	50	-25	0.49	-5.	42	-22	0.000	40	-22	0.42	0.000
2574	1.47	1.47	0.	-16	0.27	-4.	0.	-15	0.000	0.	-15	0.24	0.000
2575	1.47	1.47	0.	-20	0.34	-5.	0.	-19	0.000	0.	-18	0.30	0.000
2576	1.47	1.47	0.	-24	0.40	-6.	0.	-22	0.000	0.	-21	0.35	0.000
2577	1.47	1.47	0.	-22	0.37	-5.	0.	-20	0.000	0.	-20	0.33	0.000
2578	1.47	1.47	0.	-25	0.42	-6.	0.	-23	0.000	0.	-23	0.38	0.000
2579	1.47	1.47	0.	-28	0.47	-7.	0.	-26	0.000	0.	-25	0.42	0.000
2580	1.47	1.47	65	-21	0.45	-4.	60	-18	0.000	59	-18	0.39	0.000
2581	1.47	1.47	55	-24	0.49	-5.	51	-22	0.000	50	-21	0.43	0.000
2582	1.47	1.47	41	-28	0.53	-6.	37	-25	0.000	36	-25	0.47	0.000
2583	1.47	1.47	188	-23	0.69	-1.	173	-22	0.000	170	-21	0.63	0.000
2584	1.47	1.47	171	-27	0.72	-3.	158	-25	0.000	154	-24	0.65	0.000
2585	1.47	1.47	157	-30	0.75	-4.	144	-28	0.000	140	-27	0.68	0.000
2586	1.47	1.47	207	-10	0.66	9.	190	-9	0.001	185	-9	0.58	0.001
2587	1.47	1.47	190	-14	0.56	1.	174	-13	0.000	170	-13	0.50	0.000
2588	1.47	1.47	160	-18	0.57	-1.	146	-17	0.000	143	-17	0.51	0.000
2589	1.47	1.47	96	-1	0.67	80.	88	-1	0.011	85	-1	0.58	0.011
2590	1.47	1.47	86	-4	0.26	3.	78	-4	0.000	76	-4	0.23	0.000
2591	1.47	1.47	56	-8	0.22	-1.	51	-8	0.000	50	-7	0.20	0.000
2592	1.47	1.47	12	-1	0.04	0.	10	-1	0.000	9	-1	0.04	0.000
2593	1.47	1.47	7	-3	0.07	-1.	5	-3	0.000	5	-3	0.06	0.000
2594	1.47	1.47	0.	-5	0.09	-1.	0.	-5	0.000	0.	-5	0.08	0.000
2595	1.47	1.47	0.	-6	0.10	-1.	0.	-6	0.000	0.	-6	0.09	0.000
2596	1.47	1.47	0.	-7	0.12	-2.	0.	-7	0.000	0.	-7	0.11	0.000
2597	1.47	1.47	0.	-8	0.13	-2.	0.	-8	0.000	0.	-7	0.12	0.000
2598	1.47	1.47	65	-6	0.21	0.	57	-6	0.000	55	-6	0.18	0.000
2599	1.47	1.47	53	-7	0.21	-1.	46	-7	0.000	45	-7	0.18	0.000
2600	1.47	1.47	55	-9	0.24	-1.	50	-8	0.000	48	-8	0.21	0.000
2601	1.47	1.47	116	-10	0.35	0.	105	-9	0.000	102	-9	0.32	0.000
2602	1.47	1.47	107	-11	0.35	0.	97	-10	0.000	95	-10	0.32	0.000
2603	1.47	1.47	104	-13	0.39	-1.	95	-12	0.000	92	-12	0.35	0.000
2604	1.47	1.47	131	1	0.92	178.	119	-1	0.022	116	-1	0.82	0.020
2605	1.47	1.47	118	-1	0.83	106.	108	-2	0.012	105	0.	0.75	0.022
2606	1.47	1.47	103	-2	0.66	56.	94	-2	0.008	92	-2	0.55	0.007
2607	1.47	1.47	91	3	0.17	222.	82	2	0.039	80	2	0.37	0.036
2608	1.47	1.47	78	3	0.19	187.	70	2	0.032	68	2	0.34	0.030
2609	1.47	1.47	50	2	0.10	122.	45	1	0.019	44	1	0.24	0.018
2610	1.47	1.47	0.	0.	0.00	0.	0.	0.	0.000	0.	0.	0.01	0.000
2611	1.47	1.47	0.	1	0.00	23.	0.	0.	0.004	0.	0.	0.00	0.003
2612	1.47	1.47	0.	2	0.00	56.	0.	1	0.014	0.	1	0.00	0.013
2613	1.47	1.47	0.	0.	0.01	0.	0.	0.	0.000	0.	0.	0.00	0.000
2614	1.47	1.47	0.	1	0.00	17.	0.	0.	0.002	0.	0.	0.00	0.002
2615	1.47	1.47	0.	2	0.00	57.	0.	1	0.015	0.	1	0.00	0.014
2616	1.47	1.47	82	1	0.55	128.	73	0.	0.019	71	0.	0.50	0.017
2617	1.47	1.47	69	1	0.42	127.	61	1	0.020	59	1	0.39	0.019
2618	1.47	1.47	41	1	0.09	100.	36	1	0.017	34	1	0.17	0.015
2619	1.47	1.47	126	-2	0.85	90.	113	-2	0.012	110	-2	0.70	0.011
2620	1.47	1.47	113	-2	0.76	78.	102	-2	0.010	99	-2	0.62	0.009
2621	1.47	1.47	98	0.	0.70	115.	88	0.	0.017	86	0.	0.61	0.016
2622	1.47	1.47	116	0.	0.83	130.	104	-1	0.017	101	-1	0.71	0.015
2623	1.47	1.47	106	0.	0.76	117.	96	-1	0.015	93	-1	0.65	0.014
2624	1.47	1.47	102	-1	0.70	75.	92	-2	0.009	90	-2	0.57	0.008
2625	1.47	1.47	59	3	0.00	170.	52	2	0.031	50	2	0.00	0.029
2626	1.47	1.47	54	3	0.00	176.	47	2	0.034	46	2	0.00	0.032
2627	1.47	1.47	60	3	0.00	189.	53	3	0.036	51	2	0.00	0.034
2628	1.47	1.47	0.	1	0.00	41.	0.	1	0.009	0.	1	0.00	0.008
2629	1.47	1.47	0.	2	0.00	76.	0.	2	0.020	0.	2	0.00	0.019
2630	1.47	1.47	0.	4	0.00	124.	0.	3	0.036	0.	3	0.00	0.034
2631	1.47	1.47	12	1	0.00	61.	10	1	0.011	10	1	0.00	0.010
2632	1.47	1.47	7	2	0.00	86.	5	2	0.020	5	2	0.00	0.019
2633	1.47	1.47	0.	3	0.00	118.	0.	3	0.033	0.	3	0.00	0.031
2634	1.47	1.47	97	2	0.49	201.	88	2	0.034	86	2	0.52	0.032
2635	1.47	1.47	86	3	0.35	192.	79	2	0.033	77	2	0.43	0.031
2636	1.47	1.47	56	2	0.00	153.	51	2	0.027	50	2	0.17	0.025
2637	1.47	1.47	207	-2	1.46	193.	189	-2	0.028	185	-2	1.28	0.027
2638	1.47	1.47	190	-2	1.33	164.	174	-2	0.023	170	-2	1.16	0.022
2639	1.47	1.47	159	0.	1.13	190.	146	0.	0.028	142	-1	1.02	0.027
2640	1.47	1.47	168	-3	1.14	117.	153	-3	0.016	149	0.	1.06	0.031
2641	1.47	1.47	152	0.	1.09	182.	139	0.	0.027	135	0.	0.97	0.026
2642	1.47	1.47	162	-1	1.16	159.	149	-1	0.024	146	-1	1.02	0.023
2643	1.47	1.47	464	-3	3.30	460.	411	-3	0.070	397	-3	2.82	0.067
2644	1.47	1.47	374	-2	2.67	375.	334	-2	0.057	323	-2	2.30	0.055
2645	1.47	1.47	456	-3	3.24	442.	403	-3	0.067	390	-3	2.76	0.065
2646	1.47	1.47	348	-2	2.49	370.	311	-2	0.057	301	-2	2.15	0.055
2647	1.47	1.47	456	-4	3.22	413.	404	-4	0.063	391	-4	2.75	0.061
2648	1.47	1.47	324	-2	2.31	317.	290	-2	0.049	281	-2	1.99	0.047
2649	1.47	1.47	480	-4	3.39	439.	422	-4	0.066	408	-4	2.87	0.063
2650	1.47	1.47	480	-5	3.35	401.	423	-5	0.061	408	-5	2.83	0.058
2651	1.47	1.47	481	-7	3.29	358.	424	-6	0.055	409	-6	2.79	0.053
2652	1.47	1.47	474	-5	3.31	397.	415	-5	0.060	400	-5	2.78	0.057
2653	1.47	1.47	476	-7	3.22	335.	417	-7	0.051	402	-6	2.70	0.049
2654	1.47	1.47	474	-9	3.06	272.	416	-8	0.042	401	-8	2.57	0.040
2655	1.47	1.47	466	-7	3.18	340.	408	-6	0.052	393	-6	2.66	0.049
2656	1.47	1.47	466	-10	2.97	254.	408	-9	0.039	393	-8	2.49	0.037
2657	1.47	1.47	461	-12	2.62	169.	403	-11	0.026	389	-10	2.20	0.025
2658	1.47	1.47	460	-10	2.91	246.	402	-9	0.037	387	-8	2.44	0.036
2659	1.47	1.47	458	-13	2.49	145.	401	-12	0.022	386	-11	2.09	0.021

2660	1.47	1.47	451	-17	1.92	64.	395	-15	0.010	380	-14	1.61	0.009
2661	1.47	1.47	62	2	0.32	127.	55	1	0.020	54	1	0.34	0.019
2662	1.47	1.47	53	2	0.21	117.	47	1	0.019	46	1	0.27	0.017
2663	1.47	1.47	56	1	0.27	118.	51	1	0.019	49	1	0.31	0.017
2664	1.47	1.47	0.	1	0.00	28.	0.	0.	0.005	0.	0.	0.00	0.005
2665	1.47	1.47	0.	2	0.00	54.	0.	1	0.014	0.	1	0.00	0.012
2666	1.47	1.47	0.	3	0.00	89.	0.	2	0.025	0.	2	0.00	0.024
2667	1.47	1.47	23	1	0.06	56.	19	0.	0.008	18	0.	0.10	0.007
2668	1.47	1.47	17	2	0.00	76.	13	1	0.015	13	1	0.00	0.014
2669	1.47	1.47	0.	3	0.00	101.	0.	2	0.029	0.	2	0.00	0.028
2670	1.47	1.47	100	3	0.49	209.	89	2	0.036	87	2	0.50	0.034
2671	1.47	1.47	88	3	0.33	200.	79	2	0.035	77	2	0.38	0.034
2672	1.47	1.47	63	3	0.00	171.	56	2	0.032	54	2	0.04	0.030
2673	1.47	1.47	134	-1	0.95	131.	122	-1	0.018	118	-2	0.82	0.017
2674	1.47	1.47	123	-1	0.87	111.	111	-2	0.015	109	-2	0.74	0.014
2675	1.47	1.47	108	-2	0.69	58.	99	0.	0.021	96	0.	0.69	0.020
2676	1.47	1.47	134	2	0.80	245.	122	2	0.042	120	2	0.76	0.041
2677	1.47	1.47	123	2	0.78	215.	113	2	0.037	111	1	0.72	0.036
2678	1.47	1.47	111	0.	0.79	143.	102	0.	0.023	100	0.	0.71	0.022
2679	1.47	1.47	107	6	0.00	343.	98	6	0.075	95	6	0.00	0.073
2680	1.47	1.47	96	6	0.00	334.	88	6	0.075	86	6	0.00	0.074
2681	1.47	1.47	73	6	0.00	306.	67	6	0.073	66	6	0.00	0.071
2682	1.47	1.47	39	4	0.00	174.	35	4	0.043	34	3	0.00	0.042
2683	1.47	1.47	34	5	0.00	205.	31	5	0.054	30	5	0.00	0.053
2684	1.47	1.47	11	7	0.00	237.	11	6	0.073	11	6	0.00	0.072
2685	1.47	1.47	7	4	0.00	130.	7	3	0.040	7	3	0.00	0.039
2686	1.47	1.47	8	5	0.00	175.	8	5	0.054	8	5	0.00	0.054
2687	1.47	1.47	7	6	0.00	230.	8	6	0.073	8	6	0.00	0.072
2688	1.47	1.47	71	4	0.00	218.	66	4	0.048	65	4	0.00	0.047
2689	1.47	1.47	72	5	0.00	251.	68	5	0.058	67	4	0.00	0.058
2690	1.47	1.47	87	6	0.00	300.	81	6	0.071	80	5	0.00	0.070
2691	1.47	1.47	198	2	1.35	300.	184	2	0.056	181	2	1.20	0.056
2692	1.47	1.47	190	3	1.22	322.	177	3	0.063	174	3	1.06	0.063
2693	1.47	1.47	204	3	1.27	362.	191	4	0.073	187	4	1.08	0.073
2694	1.47	1.47	254	14	0.00	788.	236	13	0.177	232	13	0.00	0.175
2695	1.47	1.47	237	14	0.00	767.	220	14	0.177	216	13	0.00	0.175
2696	1.47	1.47	205	13	0.00	701.	191	13	0.167	188	13	0.00	0.166
2697	1.47	1.47	142	19	0.00	831.	133	19	0.220	131	18	0.00	0.218
2698	1.47	1.47	130	20	0.00	854.	122	20	0.233	120	20	0.00	0.231
2699	1.47	1.47	98	21	0.00	845.	92	21	0.243	91	21	0.00	0.241
2700	1.47	1.47	48	17	0.00	624.	46	16	0.191	46	16	0.00	0.190
2701	1.47	1.47	40	19	0.00	707.	39	19	0.222	39	19	0.00	0.221
2702	1.47	1.47	15	22	0.00	778.	16	22	0.259	16	22	0.00	0.258
2703	1.47	1.47	6	15	0.00	530.	6	15	0.180	6	15	0.00	0.180
2704	1.47	1.47	1	19	0.00	643.	1	19	0.222	1	19	0.00	0.221
2705	1.47	1.47	0.	23	0.00	768.	0.	22	0.265	0.	22	0.00	0.264
2706	1.47	1.47	44	15	0.00	576.	38	15	0.176	36	15	0.00	0.176
2707	1.47	1.47	37	19	0.00	688.	31	19	0.219	30	19	0.00	0.218
2708	1.47	1.47	37	22	0.00	805.	32	22	0.259	30	22	0.00	0.258
2709	1.47	1.47	82	14	0.00	569.	70	14	0.162	68	14	0.00	0.162
2710	1.47	1.47	70	17	0.00	676.	60	17	0.204	57	17	0.00	0.204
2711	1.47	1.47	61	20	0.00	758.	52	20	0.237	49	20	0.00	0.237
2712	1.47	1.47	73	18	0.00	693.	60	18	0.205	57	17	0.00	0.204
2713	1.47	1.47	59	21	0.00	788.	47	21	0.245	44	21	0.00	0.244
2714	1.47	1.47	42	23	0.00	843.	31	23	0.274	29	23	0.00	0.274
2715	1.47	1.47	19	19	0.00	687.	7	19	0.227	5	19	0.00	0.226
2716	1.47	1.47	5	23	0.00	799.	0.	23	0.274	0.	23	0.00	0.273
2717	1.47	1.47	4	27	0.00	---	0.	27	0.317	0.	27	0.00	0.316
2718	1.47	1.47	0.	18	0.00	623.	0.	18	0.216	0.	18	0.00	0.216
2719	1.47	1.47	0.	23	0.00	769.	0.	22	0.267	0.	22	0.00	0.266
2720	1.47	1.47	0.	27	0.00	---	0.	27	0.318	0.	27	0.00	0.317
2721	1.47	1.47	26	18	0.00	651.	25	18	0.212	24	18	0.00	0.211
2722	1.47	1.47	15	22	0.00	777.	15	22	0.261	15	22	0.00	0.260
2723	1.47	1.47	0.	26	0.00	---	0.	26	0.308	0.	26	0.00	0.308
2724	1.47	1.47	108	18	0.00	733.	101	17	0.205	100	17	0.00	0.205
2725	1.47	1.47	93	21	0.00	831.	87	21	0.244	86	21	0.00	0.243
2726	1.47	1.47	65	24	0.00	903.	62	24	0.280	61	24	0.00	0.280
2727	1.47	1.47	138	15	0.00	674.	131	15	0.178	129	15	0.00	0.178
2728	1.47	1.47	125	18	0.00	754.	119	18	0.209	117	18	0.00	0.209
2729	1.47	1.47	110	20	0.00	824.	105	20	0.238	103	20	0.00	0.237
2730	1.47	1.47	169	11	0.00	588.	160	11	0.144	158	11	0.00	0.144
2731	1.47	1.47	156	14	0.00	657.	148	14	0.169	146	14	0.00	0.169
2732	1.47	1.47	135	16	0.00	713.	129	16	0.193	127	16	0.00	0.193
2733	1.47	1.47	174	9	0.00	521.	165	9	0.123	163	9	0.00	0.123
2734	1.47	1.47	163	11	0.00	581.	155	11	0.143	154	11	0.00	0.143
2735	1.47	1.47	151	14	0.00	645.	145	14	0.166	143	14	0.00	0.166
2736	1.47	1.47	165	8	0.00	481.	159	8	0.112	158	8	0.00	0.112
2737	1.47	1.47	157	10	0.00	527.	151	10	0.128	150	10	0.00	0.127
2738	1.47	1.47	141	12	0.00	575.	137	12	0.146	136	12	0.00	0.146
2739	1.47	1.47	180	7	0.00	467.	173	7	0.104	172	7	0.00	0.104
2740	1.47	1.47	170	8	0.00	488.	164	8	0.112	162	8	0.00	0.112
2741	1.47	1.47	148	10	0.00	515.	144	10	0.125	143	10	0.00	0.125
2742	1.47	1.47	197	6	0.76	446.	189	6	0.094	187	6	0.66	0.094
2743	1.47	1.47	184	6	0.53	437.	177	6	0.094	175	6	0.41	0.094
2744	1.47	1.47	157	7	0.00	439.	152	7	0.100	151	7	0.00	0.099
2745	1.47	1.47	157	3	0.87	308.	151	3	0.062	149	3	0.81	0.061
2746	1.47	1.47	145	3	0.82	278.	139	3	0.056	137	3	0.77	0.055
2747	1.47	1.47	122	3	0.66	244.	118	3	0.050	117	3	0.62	0.049
2748	1.47	1.47	41	-5	0.15	0.	37	-5	0.000	36	-5	0.14	0.000
2749	1.47	1.47	5	-3	0.06	-1.	6	-3	0.000	6	-3	0.06	0.000
2750	1.47	1.47	0.	-4	0.06	-1.	0.	-3	0.000	0.	-3	0.06	0.000

ARMATURA INFERIORE VERTICALE

			COMBINAZIONE RARA				COMB. FREQUENTE			COMB. QUASI PERMANENTE			
GUSCI	Af	AfC	Mom	Nor	sigC	sigF	Mom	Nor	wkF	Mom	Nor	sigC	wkP
2529	1.98	1.98	797	-18	4.31	286.	695	-19	0.024	670	-20	3.24	0.021
2530	1.98	1.98	772	-18	4.18	279.	673	-19	0.023	649	-19	3.14	0.020

2531	1.98	1.98	543	-10	3.10	242.	475	-11	0.022	458	-11	2.44	0.020
2532	1.98	1.98	539	-10	3.08	244.	471	-11	0.023	454	-11	2.43	0.020
2533	1.98	1.98	372	-5	2.21	203.	326	-5	0.022	315	-5	1.84	0.021
2534	1.98	1.98	389	-5	2.32	218.	341	-5	0.023	329	-5	1.94	0.022
2535	1.98	1.98	825	-20	4.41	284.	720	-20	0.024	694	-21	3.32	0.021
2536	1.98	1.98	550	-10	3.14	247.	481	-11	0.023	464	-11	2.49	0.021
2537	1.98	1.98	353	-5	2.10	193.	310	-5	0.021	300	-5	1.75	0.020
2538	1.98	1.98	888	-18	4.97	366.	776	-19	0.033	748	-19	3.87	0.030
2539	1.98	1.98	559	-9	3.28	285.	490	-10	0.028	473	-10	2.65	0.025
2540	1.98	1.98	330	-4	1.98	189.	291	-4	0.020	281	-4	1.66	0.020
2541	1.98	1.98	1003	-13	6.04	595.	881	-14	0.060	851	-14	4.97	0.055
2542	1.98	1.98	570	-7	3.45	350.	502	-8	0.035	485	-8	2.86	0.033
2543	1.98	1.98	304	-4	1.83	177.	268	-4	0.019	259	-4	1.54	0.018
2544	1.98	1.98	1137	-8	7.00	816.	1004	-10	0.086	972	-10	5.92	0.081
2545	1.98	1.98	581	-6	3.54	370.	512	-7	0.038	495	-7	2.95	0.036
2546	1.98	1.98	275	-5	1.61	137.	243	-4	0.015	235	-4	1.35	0.014
2547	1.98	1.98	1142	-12	6.98	747.	1011	-13	0.079	979	-13	5.88	0.074
2548	1.98	1.98	572	-10	3.31	272.	505	-10	0.027	489	-10	2.71	0.025
2549	1.98	1.98	246	-7	1.21	62.	218	-7	0.006	211	-6	0.99	0.006
2550	1.98	1.98	1039	-14	6.24	605.	919	-15	0.061	890	-15	5.18	0.057
2551	1.98	1.98	531	-11	2.95	211.	469	-12	0.020	454	-12	2.35	0.018
2552	1.98	1.98	214	-7	0.94	36.	190	-7	0.003	184	-7	0.75	0.003
2553	1.98	1.98	868	-15	5.03	419.	766	-16	0.040	741	-17	4.06	0.036
2554	1.98	1.98	466	-10	2.55	175.	412	-11	0.016	399	-11	1.99	0.014
2555	1.98	1.98	179	-6	0.78	30.	159	-6	0.003	154	-6	0.61	0.002
2556	1.98	1.98	695	-24	2.91	100.	610	-25	0.007	590	-25	2.07	0.006
2557	1.98	1.98	395	-14	1.65	57.	349	-14	0.004	338	-14	1.19	0.003
2558	1.98	1.98	142	-7	0.45	7.	126	-6	0.001	122	-6	0.37	0.001
2559	1.98	1.98	639	-30	2.05	31.	560	-30	0.002	541	-30	1.60	0.002
2560	1.98	1.98	338	-17	1.04	13.	298	-17	0.001	288	-17	0.84	0.001
2561	1.98	1.98	106	-8	0.31	1.	95	-7	0.000	92	-7	0.27	0.000
2562	1.98	1.98	672	-25	2.69	82.	593	-25	0.006	574	-25	1.94	0.005
2563	1.98	1.98	308	-16	0.94	11.	272	-16	0.001	264	-16	0.76	0.001
2564	1.98	1.98	80	-8	0.26	0.	72	-7	0.000	69	-7	0.23	0.000
2565	1.98	1.98	721	-19	3.71	214.	636	-20	0.017	616	-20	2.78	0.015
2566	1.98	1.98	303	-12	1.09	25.	266	-13	0.001	257	-13	0.79	0.001
2567	1.98	1.98	66	-7	0.22	0.	59	-7	0.000	57	-6	0.20	0.000
2568	1.98	1.98	723	-17	3.92	263.	637	-18	0.022	616	-18	3.00	0.020
2569	1.98	1.98	295	-11	1.21	40.	261	-11	0.002	253	-11	0.85	0.002
2570	1.98	1.98	61	-6	0.20	0.	55	-6	0.000	54	-6	0.18	0.000
2571	1.98	1.98	646	-19	3.09	149.	567	-20	0.011	548	-20	2.20	0.009
2572	1.98	1.98	281	-12	0.98	20.	249	-12	0.001	242	-12	0.73	0.001
2573	1.98	1.98	58	-6	0.20	0.	53	-6	0.000	52	-6	0.18	0.000
2574	1.98	1.98	567	-28	1.75	21.	496	-28	0.001	479	-28	1.39	0.001
2575	1.98	1.98	264	-16	0.76	4.	234	-16	0.000	227	-16	0.66	0.000
2576	1.98	1.98	54	-8	0.21	-1.	48	-7	0.000	46	-7	0.19	0.000
2577	1.98	1.98	578	-33	1.69	13.	512	-32	0.001	496	-32	1.42	0.001
2578	1.98	1.98	275	-19	0.79	3.	242	-19	0.000	234	-19	0.70	0.000
2579	1.98	1.98	61	-9	0.25	-1.	53	-8	0.000	51	-8	0.22	0.000
2580	1.98	1.98	680	-27	2.56	66.	607	-27	0.005	589	-27	1.94	0.004
2581	1.98	1.98	295	-17	0.85	6.	261	-17	0.000	253	-17	0.73	0.000
2582	1.98	1.98	65	-9	0.25	-1.	57	-8	0.000	55	-8	0.22	0.000
2583	1.98	1.98	734	-19	3.81	225.	656	-19	0.020	637	-19	2.99	0.018
2584	1.98	1.98	308	-13	1.07	22.	273	-13	0.002	265	-13	0.82	0.001
2585	1.98	1.98	65	-7	0.23	0.	58	-7	0.000	56	-7	0.20	0.000
2586	1.98	1.98	754	-15	4.25	321.	673	-16	0.031	653	-16	3.46	0.028
2587	1.98	1.98	306	-10	1.35	53.	272	-10	0.004	264	-10	0.98	0.003
2588	1.98	1.98	63	-6	0.20	0.	56	-6	0.000	54	-6	0.18	0.000
2589	1.98	1.98	707	-18	3.72	227.	630	-18	0.020	612	-18	2.92	0.018
2590	1.98	1.98	291	-11	1.13	32.	258	-11	0.002	251	-11	0.83	0.002
2591	1.98	1.98	61	-6	0.20	0.	54	-6	0.000	53	-6	0.18	0.000
2592	1.98	1.98	605	-27	1.99	33.	536	-27	0.002	519	-27	1.56	0.002
2593	1.98	1.98	277	-15	0.81	7.	246	-15	0.000	238	-15	0.68	0.000
2594	1.98	1.98	63	-7	0.22	0.	56	-7	0.000	55	-7	0.20	0.000
2595	1.98	1.98	570	-33	1.66	12.	503	-32	0.001	487	-32	1.40	0.001
2596	1.98	1.98	276	-19	0.80	3.	245	-18	0.000	237	-18	0.70	0.000
2597	1.98	1.98	66	-9	0.25	-1.	60	-8	0.000	58	-8	0.22	0.000
2598	1.98	1.98	608	-28	1.98	32.	538	-27	0.002	521	-27	1.56	0.002
2599	1.98	1.98	283	-18	0.81	4.	251	-17	0.000	243	-17	0.71	0.000
2600	1.98	1.98	66	-9	0.25	-1.	59	-8	0.000	58	-8	0.23	0.000
2601	1.98	1.98	676	-22	2.99	118.	600	-22	0.009	581	-22	2.22	0.008
2602	1.98	1.98	284	-15	0.85	9.	252	-15	0.001	244	-15	0.71	0.001
2603	1.98	1.98	61	-8	0.23	-1.	55	-7	0.000	53	-7	0.21	0.000
2604	1.98	1.98	682	-20	3.28	159.	605	-20	0.013	586	-20	2.47	0.011
2605	1.98	1.98	272	-13	0.85	11.	241	-13	0.001	233	-13	0.68	0.001
2606	1.98	1.98	53	-7	0.20	-1.	47	-7	0.000	46	-7	0.18	0.000
2607	1.98	1.98	612	-23	2.42	72.	540	-23	0.005	522	-23	1.77	0.004
2608	1.98	1.98	255	-15	0.74	5.	224	-14	0.000	217	-14	0.62	0.000
2609	1.98	1.98	47	-7	0.20	-1.	42	-7	0.000	40	-7	0.18	0.000
2610	1.98	1.98	550	-33	1.59	10.	482	-32	0.001	466	-32	1.34	0.001
2611	1.98	1.98	243	-20	0.73	1.	213	-19	0.000	206	-19	0.65	0.000
2612	1.98	1.98	46	-9	0.22	-1.	41	-8	0.000	39	-8	0.20	0.000
2613	1.98	1.98	543	-39	1.58	4.	475	-38	0.000	459	-37	1.38	0.000
2614	1.98	1.98	242	-23	0.78	0.	212	-22	0.000	205	-22	0.70	0.000
2615	1.98	1.98	46	-11	0.25	-2.	40	-10	0.000	39	-10	0.22	0.000
2616	1.98	1.98	602	-31	1.82	19.	529	-30	0.001	512	-30	1.48	0.001
2617	1.98	1.98	251	-21	0.76	1.	220	-20	0.000	213	-20	0.68	0.000
2618	1.98	1.98	46	-10	0.24	-1.	40	-10	0.000	39	-9	0.22	0.000
2619	1.98	1.98	673	-28	2.40	53.	595	-28	0.004	576	-27	1.82	0.003
2620	1.98	1.98	268	-19	0.78	2.	236	-19	0.000	228	-18	0.68	0.000
2621	1.98	1.98	53	-10	0.25	-1.	46	-9	0.000	45	-9	0.22	0.000
2622	1.98	1.98	671	-26	2.54	67.	593	-26	0.005	574	-26	1.90	0.004
2623	1.98	1.98	281	-18	0.81	4.	248	-17	0.000	240	-17	0.70	0.000
2624	1.98	1.98	61	-9	0.25	-1.	54	-9	0.000	52	-9	0.23	0.000
2625	1.98	1.98	605	-29	1.93	28.	532	-28	0.002	515	-28	1.52	0.002
2626	1.98	1.98	281	-19	0.81	3.	248	-19	0.000	241	-18	0.71	0.000
2627	1.98	1.98	67	-10	0.27	-1.	60	-9	0.000	59	-9	0.24	0.000
2628	1.98	1.98	567	-37	1.63	7.	498	-36	0.001	481	-36	1.41	0.000



2629	1.98	1.98	276	-23	0.84	1.	244	-22	0.000	236	-22	0.75	0.000
2630	1.98	1.98	69	-11	0.29	-1.	62	-10	0.000	60	-10	0.26	0.000
2631	1.98	1.98	600	-35	1.74	12.	529	-34	0.001	512	-34	1.47	0.001
2632	1.98	1.98	278	-22	0.82	1.	246	-21	0.000	238	-21	0.73	0.000
2633	1.98	1.98	67	-10	0.28	-1.	60	-9	0.000	59	-9	0.25	0.000
2634	1.98	1.98	701	-26	2.79	85.	623	-26	0.007	605	-25	2.12	0.006
2635	1.98	1.98	294	-17	0.85	5.	261	-17	0.000	253	-17	0.73	0.000
2636	1.98	1.98	67	-9	0.25	-1.	60	-8	0.000	58	-8	0.23	0.000
2637	1.98	1.98	758	-23	3.54	161.	676	-23	0.014	656	-23	2.74	0.012
2638	1.98	1.98	312	-16	0.93	9.	278	-16	0.001	270	-16	0.78	0.001
2639	1.98	1.98	69	-9	0.26	-1.	62	-8	0.000	61	-8	0.23	0.000
2640	1.98	1.98	745	-24	3.37	141.	664	-24	0.012	645	-24	2.59	0.011
2641	1.98	1.98	318	-17	0.94	9.	284	-17	0.001	275	-16	0.80	0.001
2642	1.98	1.98	73	-9	0.27	-1.	65	-9	0.000	64	-8	0.24	0.000
2643	1.98	1.98	683	-28	2.45	55.	607	-28	0.004	588	-28	1.87	0.003
2644	1.98	1.98	696	-29	2.44	51.	621	-29	0.004	602	-29	1.90	0.003
2645	1.98	1.98	458	-15	2.08	88.	404	-15	0.007	390	-15	1.52	0.006
2646	1.98	1.98	437	-15	1.86	67.	386	-15	0.005	373	-15	1.36	0.004
2647	1.98	1.98	379	-6	2.24	198.	334	-6	0.021	322	-6	1.86	0.020
2648	1.98	1.98	362	-6	2.13	185.	319	-6	0.020	308	-6	1.77	0.019
2649	1.98	1.98	680	-24	2.85	98.	600	-24	0.007	580	-24	2.05	0.006
2650	1.98	1.98	514	-13	2.71	168.	452	-13	0.014	437	-13	2.08	0.013
2651	1.98	1.98	420	-6	2.51	237.	369	-6	0.026	356	-6	2.10	0.024
2652	1.98	1.98	671	-22	2.98	119.	588	-23	0.008	568	-23	2.09	0.007
2653	1.98	1.98	533	-12	2.91	200.	468	-12	0.018	452	-12	2.26	0.016
2654	1.98	1.98	430	-6	2.58	248.	378	-6	0.027	365	-6	2.16	0.025
2655	1.98	1.98	697	-20	3.38	168.	608	-21	0.012	587	-21	2.39	0.010
2656	1.98	1.98	535	-11	2.99	218.	469	-12	0.020	452	-12	2.33	0.018
2657	1.98	1.98	422	-6	2.53	243.	370	-6	0.026	357	-5	2.11	0.025
2658	1.98	1.98	737	-19	3.86	234.	643	-20	0.018	619	-20	2.82	0.016
2659	1.98	1.98	536	-10	3.04	235.	469	-11	0.021	452	-11	2.39	0.019
2660	1.98	1.98	406	-6	2.43	232.	356	-5	0.025	343	-5	2.03	0.024
2661	1.98	1.98	685	-26	2.67	76.	608	-25	0.006	590	-25	2.03	0.005
2662	1.98	1.98	310	-18	0.90	7.	276	-17	0.001	268	-17	0.77	0.000
2663	1.98	1.98	73	-9	0.27	-1.	66	-8	0.000	64	-8	0.24	0.000
2664	1.98	1.98	603	-35	1.75	13.	533	-34	0.001	516	-33	1.48	0.001
2665	1.98	1.98	294	-22	0.86	2.	261	-21	0.000	253	-20	0.76	0.000
2666	1.98	1.98	69	-10	0.28	-1.	62	-9	0.000	60	-9	0.25	0.000
2667	1.98	1.98	608	-36	1.76	11.	537	-35	0.001	520	-35	1.50	0.001
2668	1.98	1.98	282	-23	0.84	1.	250	-22	0.000	242	-22	0.76	0.000
2669	1.98	1.98	62	-11	0.28	-1.	55	-10	0.000	54	-10	0.25	0.000
2670	1.98	1.98	677	-28	2.41	53.	600	-28	0.004	582	-28	1.85	0.003
2671	1.98	1.98	291	-19	0.84	3.	259	-19	0.000	251	-19	0.73	0.000
2672	1.98	1.98	58	-10	0.25	-1.	52	-9	0.000	50	-9	0.23	0.000
2673	1.98	1.98	739	-26	3.10	107.	658	-25	0.009	638	-25	2.38	0.008
2674	1.98	1.98	303	-18	0.87	5.	270	-18	0.000	262	-18	0.75	0.000
2675	1.98	1.98	59	-10	0.26	-1.	53	-9	0.000	52	-9	0.23	0.000
2676	1.98	1.98	740	-23	3.43	152.	659	-23	0.013	640	-23	2.67	0.012
2677	1.98	1.98	304	-16	0.91	9.	270	-15	0.001	262	-15	0.76	0.001
2678	1.98	1.98	60	-9	0.24	-1.	54	-8	0.000	53	-8	0.21	0.000
2679	1.98	1.98	692	-24	2.94	106.	616	-23	0.009	597	-23	2.26	0.008
2680	1.98	1.98	298	-16	0.88	8.	266	-16	0.001	258	-15	0.75	0.001
2681	1.98	1.98	64	-8	0.24	-1.	58	-8	0.000	57	-8	0.22	0.000
2682	1.98	1.98	636	-31	1.97	25.	565	-30	0.002	548	-30	1.62	0.002
2683	1.98	1.98	302	-19	0.87	4.	270	-19	0.000	262	-18	0.76	0.000
2684	1.98	1.98	74	-9	0.27	-1.	68	-9	0.000	66	-8	0.25	0.000
2685	1.98	1.98	643	-35	1.90	17.	572	-33	0.001	554	-33	1.60	0.001
2686	1.98	1.98	320	-21	0.92	4.	287	-20	0.000	280	-20	0.81	0.000
2687	1.98	1.98	86	-10	0.31	-1.	79	-9	0.000	77	-9	0.27	0.000
2688	1.98	1.98	730	-28	2.84	81.	652	-27	0.007	634	-26	2.25	0.006
2689	1.98	1.98	342	-19	1.01	9.	308	-18	0.001	299	-17	0.87	0.001
2690	1.98	1.98	93	-10	0.31	0.	86	-9	0.000	84	-9	0.28	0.000
2691	1.98	1.98	802	-19	4.29	277.	719	-19	0.028	699	-19	3.56	0.026
2692	1.98	1.98	352	-14	1.33	35.	317	-13	0.003	309	-13	1.09	0.003
2693	1.98	1.98	95	-8	0.29	0.	88	-7	0.000	86	-7	0.26	0.000
2694	1.98	1.98	813	-15	4.66	371.	729	-15	0.039	709	-15	3.94	0.037
2695	1.98	1.98	343	-10	1.62	75.	309	-10	0.007	300	-10	1.33	0.007
2696	1.98	1.98	92	-6	0.27	1.	85	-6	0.000	84	-5	0.24	0.000
2697	1.98	1.98	744	-18	4.00	261.	665	-17	0.026	646	-17	3.30	0.024
2698	1.98	1.98	315	-11	1.33	47.	282	-11	0.004	274	-10	1.07	0.004
2699	1.98	1.98	86	-6	0.25	1.	80	-5	0.000	78	-5	0.22	0.000
2700	1.98	1.98	611	-27	2.04	35.	540	-26	0.003	523	-26	1.61	0.003
2701	1.98	1.98	284	-15	0.84	8.	252	-14	0.001	245	-14	0.71	0.001
2702	1.98	1.98	81	-7	0.25	0.	75	-6	0.000	73	-6	0.22	0.000
2703	1.98	1.98	538	-34	1.55	8.	470	-32	0.001	453	-32	1.31	0.001
2704	1.98	1.98	263	-19	0.77	2.	231	-18	0.000	224	-18	0.67	0.000
2705	1.98	1.98	74	-9	0.26	0.	67	-8	0.000	65	-8	0.23	0.000
2706	1.98	1.98	532	-31	1.54	10.	460	-30	0.001	443	-30	1.28	0.001
2707	1.98	1.98	249	-20	0.74	1.	216	-19	0.000	208	-18	0.64	0.000
2708	1.98	1.98	58	-9	0.25	-1.	50	-9	0.000	48	-8	0.22	0.000
2709	1.98	1.98	560	-29	1.70	19.	481	-28	0.001	462	-28	1.33	0.001
2710	1.98	1.98	232	-19	0.69	1.	198	-18	0.000	190	-18	0.60	0.000
2711	1.98	1.98	40	-9	0.22	-1.	33	-9	0.000	31	-8	0.19	0.000
2712	1.98	1.98	548	-29	1.64	16.	466	-28	0.001	446	-28	1.28	0.001
2713	1.98	1.98	206	-19	0.64	0.	172	-18	0.000	164	-18	0.56	0.000
2714	1.98	1.98	29	-9	0.20	-2.	23	-9	0.000	22	-8	0.17	0.000
2715	1.98	1.98	484	-31	1.39	6.	410	-31	0.000	393	-31	1.17	0.000
2716	1.98	1.98	214	-20	0.68	0.	181	-20	0.000	173	-20	0.61	0.000
2717	1.98	1.98	35	-10	0.22	-2.	29	-9	0.000	28	-9	0.19	0.000
2718	1.98	1.98	470	-39	1.42	1.	402	-38	0.000	385	-38	1.25	0.000
2719	1.98	1.98	222	-24	0.76	-1.	192	-23	0.000	185	-23	0.68	0.000
2720	1.98	1.98	47	-11	0.26	-2.	41	-10	0.000	40	-10	0.23	0.000
2721	1.98	1.98	507	-35	1.46	5.	440	-34	0.000	424	-33	1.26	0.000
2722	1.98	1.98	242	-21	0.74	0.	212	-20	0.000	205	-20	0.66	0.000
2723	1.98	1.98	64	-10	0.26	-1.	60	-9	0.000	59	-9	0.24	0.000
2724	1.98	1.98	579	-27	1.87	29.	511	-26	0.002	494	-26	1.48	0.002
2725	1.98	1.98	273	-17	0.79	5.	243	-16	0.000	236	-16	0.68	0.000
2726	1.98	1.98	92	-8	0.28	0.	87	-7	0.000	85	-7	0.26	0.000

2727	1.98	1.98	687	-23	3.01	116.	613	-22	0.010	595	-22	2.34	0.009
2728	1.98	1.98	314	-14	1.04	18.	283	-14	0.002	276	-13	0.86	0.001
2729	1.98	1.98	109	-7	0.31	1.	103	-6	0.000	102	-6	0.29	0.000
2730	1.98	1.98	759	-23	3.61	171.	683	-22	0.016	665	-22	2.93	0.015
2731	1.98	1.98	356	-14	1.34	34.	324	-13	0.003	316	-13	1.12	0.003
2732	1.98	1.98	125	-7	0.36	3.	118	-6	0.000	117	-6	0.35	0.000
2733	1.98	1.98	805	-24	3.84	182.	730	-23	0.018	712	-23	3.19	0.017
2734	1.98	1.98	389	-15	1.52	44.	356	-14	0.005	348	-14	1.31	0.004
2735	1.98	1.98	135	-7	0.40	4.	129	-7	0.001	127	-6	0.39	0.001
2736	1.98	1.98	870	-25	4.25	215.	794	-24	0.023	776	-24	3.62	0.021
2737	1.98	1.98	417	-15	1.74	59.	384	-14	0.006	376	-14	1.52	0.006
2738	1.98	1.98	140	-7	0.42	5.	133	-6	0.001	131	-6	0.42	0.001
2739	1.98	1.98	946	-23	5.04	320.	869	-22	0.036	851	-22	4.43	0.035
2740	1.98	1.98	445	-14	2.09	96.	411	-13	0.011	403	-13	1.87	0.011
2741	1.98	1.98	139	-7	0.42	5.	132	-6	0.001	130	-6	0.42	0.001
2742	1.98	1.98	1001	-20	5.68	437.	923	-19	0.050	904	-19	5.07	0.049
2743	1.98	1.98	461	-12	2.36	135.	427	-11	0.016	419	-11	2.13	0.016
2744	1.98	1.98	136	-7	0.42	5.	129	-6	0.001	128	-6	0.42	0.001
2745	1.98	1.98	1059	-17	6.25	556.	980	-16	0.065	960	-16	5.62	0.064
2746	1.98	1.98	475	-11	2.60	179.	441	-10	0.021	433	-10	2.36	0.021
2747	1.98	1.98	133	-6	0.42	6.	126	-6	0.001	124	-5	0.42	0.001
2748	1.98	1.98	715	-31	2.45	47.	641	-30	0.004	622	-30	1.95	0.003
2749	1.98	1.98	405	-16	1.54	41.	358	-16	0.003	346	-16	1.14	0.002
2750	1.98	1.98	336	-6	1.95	163.	295	-6	0.017	285	-6	1.62	0.016

ARMATURA SUPERIORE ORIZZONTALE

GUSCI	COMBINAZIONE RARA						COMB. FREQUENTE			COMB. QUASI PERMANENTE			
	Af	Afc	Mom	Nor	sigC	sigF	Mom	Nor	wkF	Mom	Nor	sigC	wkP
2529	1.47	1.47	262	-19	0.77	2.	232	-16	0.000	225	-16	0.66	0.000
2530	1.47	1.47	282	-14	0.89	12.	249	-12	0.002	240	-12	0.76	0.002
2531	1.47	1.47	260	-23	0.81	0.	230	-21	0.000	223	-20	0.69	0.000
2532	1.47	1.47	278	-18	0.81	4.	246	-16	0.001	237	-15	0.69	0.001
2533	1.47	1.47	257	-28	0.04	-13.	228	-25	0.000	221	-24	0.03	0.000
2534	1.47	1.47	271	-22	0.82	1.	240	-20	0.000	232	-19	0.70	0.000
2535	1.47	1.47	258	-22	0.79	1.	230	-20	0.000	223	-19	0.68	0.000
2536	1.47	1.47	254	-28	0.04	-13.	226	-24	0.000	219	-23	0.03	0.000
2537	1.47	1.47	253	-33	0.13	-14.	226	-29	0.000	219	-28	0.10	0.000
2538	1.47	1.47	249	-24	0.01	-12.	223	-21	0.000	217	-20	0.02	0.000
2539	1.47	1.47	240	-30	0.11	-13.	216	-26	0.000	210	-26	0.08	0.000
2540	1.47	1.47	234	-36	0.21	-14.	211	-31	0.000	205	-30	0.17	0.000
2541	1.47	1.47	139	-24	0.17	-9.	132	-21	0.000	130	-21	0.13	0.000
2542	1.47	1.47	151	-32	0.28	-11.	142	-28	0.000	140	-27	0.22	0.000
2543	1.47	1.47	155	-39	0.39	-13.	145	-34	0.000	142	-33	0.31	0.000
2544	1.47	1.47	0.	-28	0.46	-7.	0.	-24	0.000	0.	-24	0.39	0.000
2545	1.47	1.47	0.	-37	0.61	-9.	0.	-32	0.000	0.	-31	0.52	0.000
2546	1.47	1.47	0.	-46	0.76	-11.	0.	-40	0.000	0.	-39	0.64	0.000
2547	1.47	1.47	0.	-41	0.68	-10.	0.	-37	0.000	0.	-35	0.58	0.000
2548	1.47	1.47	0.	-50	0.83	-13.	0.	-45	0.000	0.	-43	0.71	0.000
2549	1.47	1.47	0.	-60	0.99	-15.	0.	-53	0.000	0.	-51	0.84	0.000
2550	1.47	1.47	0.	-40	0.67	-10.	0.	-36	0.000	0.	-35	0.58	0.000
2551	1.47	1.47	0.	-49	0.82	-12.	0.	-44	0.000	0.	-43	0.70	0.000
2552	1.47	1.47	0.	-59	0.97	-15.	0.	-52	0.000	0.	-50	0.84	0.000
2553	1.47	1.47	0.	-29	0.48	-7.	0.	-26	0.000	0.	-25	0.41	0.000
2554	1.47	1.47	0.	-38	0.62	-9.	0.	-33	0.000	0.	-32	0.54	0.000
2555	1.47	1.47	0.	-46	0.77	-12.	0.	-41	0.000	0.	-40	0.66	0.000
2556	1.47	1.47	0.	-28	0.47	-7.	0.	-25	0.000	0.	-24	0.40	0.000
2557	1.47	1.47	0.	-36	0.59	-9.	0.	-32	0.000	0.	-31	0.51	0.000
2558	1.47	1.47	0.	-42	0.70	-11.	0.	-38	0.000	0.	-36	0.60	0.000
2559	1.47	1.47	0.	-33	0.54	-8.	0.	-29	0.000	0.	-29	0.47	0.000
2560	1.47	1.47	0.	-39	0.65	-10.	0.	-35	0.000	0.	-34	0.56	0.000
2561	1.47	1.47	0.	-45	0.74	-11.	3	-40	0.000	4	-39	0.63	0.000
2562	1.47	1.47	0.	-35	0.58	-9.	0.	-31	0.000	0.	-30	0.50	0.000
2563	1.47	1.47	0.	-41	0.68	-10.	0.	-37	0.000	0.	-35	0.59	0.000
2564	1.47	1.47	0.	-48	0.79	-12.	0.	-42	0.000	0.	-41	0.68	0.000
2565	1.47	1.47	0.	-37	0.61	-9.	0.	-33	0.000	0.	-33	0.54	0.000
2566	1.47	1.47	0.	-42	0.70	-11.	0.	-38	0.000	0.	-37	0.62	0.000
2567	1.47	1.47	0.	-48	0.79	-12.	0.	-43	0.000	0.	-42	0.69	0.000
2568	1.47	1.47	0.	-22	0.36	-5.	0.	-19	0.000	0.	-19	0.31	0.000
2569	1.47	1.47	0.	-28	0.46	-7.	0.	-25	0.000	0.	-24	0.40	0.000
2570	1.47	1.47	0.	-35	0.58	-9.	0.	-31	0.000	0.	-31	0.51	0.000
2571	1.47	1.47	0.	-13	0.22	-3.	0.	-12	0.000	0.	-12	0.19	0.000
2572	1.47	1.47	0.	-19	0.31	-5.	0.	-17	0.000	0.	-16	0.27	0.000
2573	1.47	1.47	0.	-25	0.41	-6.	0.	-22	0.000	0.	-22	0.36	0.000
2574	1.47	1.47	19	-16	0.24	-4.	19	-15	0.000	19	-15	0.21	0.000
2575	1.47	1.47	22	-20	0.30	-6.	22	-19	0.000	22	-18	0.27	0.000
2576	1.47	1.47	32	-24	0.35	-7.	31	-22	0.000	31	-21	0.30	0.000
2577	1.47	1.47	30	-22	0.32	-6.	29	-20	0.000	29	-20	0.28	0.000
2578	1.47	1.47	32	-25	0.37	-7.	30	-23	0.000	30	-23	0.33	0.000
2579	1.47	1.47	42	-28	0.40	-8.	39	-26	0.000	39	-25	0.36	0.000
2580	1.47	1.47	0.	-21	0.34	-5.	0.	-18	0.000	0.	-18	0.30	0.000
2581	1.47	1.47	0.	-24	0.40	-6.	0.	-22	0.000	0.	-21	0.35	0.000
2582	1.47	1.47	0.	-28	0.47	-7.	0.	-25	0.000	0.	-25	0.41	0.000
2583	1.47	1.47	0.	-23	0.39	-6.	0.	-22	0.000	0.	-21	0.35	0.000
2584	1.47	1.47	0.	-27	0.44	-7.	0.	-25	0.000	0.	-24	0.40	0.000
2585	1.47	1.47	0.	-30	0.50	-7.	0.	-28	0.000	0.	-27	0.45	0.000
2586	1.47	1.47	0.	-10	0.17	-2.	0.	-9	0.000	0.	-9	0.15	0.000
2587	1.47	1.47	0.	-14	0.23	-3.	0.	-13	0.000	0.	-13	0.21	0.000
2588	1.47	1.47	0.	-18	0.31	-5.	0.	-17	0.000	0.	-17	0.28	0.000
2589	1.47	1.47	0.	-1	0.02	0.	0.	-1	0.000	0.	-1	0.02	0.000
2590	1.47	1.47	0.	-4	0.07	-1.	0.	-4	0.000	0.	-4	0.07	0.000
2591	1.47	1.47	0.	-8	0.13	-2.	0.	-8	0.000	0.	-7	0.12	0.000
2592	1.47	1.47	26	-1	0.08	1.	25	-1	0.000	25	-1	0.07	0.000
2593	1.47	1.47	27	-3	0.01	-1.	26	-3	0.000	26	-3	0.01	0.000
2594	1.47	1.47	36	-5	0.03	-2.	34	-5	0.000	33	-5	0.03	0.000
2595	1.47	1.47	13	-6	0.08	-2.	14	-6	0.000	14	-6	0.07	0.000
2596	1.47	1.47	17	-7	0.09	-2.	17	-7	0.000	17	-7	0.08	0.000
2597	1.47	1.47	30	-8	0.08	-3.	29	-8	0.000	28	-7	0.08	0.000

2598	1.47	1.47	0.	-6	0.10	-1.	0.	-6	0.000	0.	-6	0.09	0.000
2599	1.47	1.47	0.	-7	0.12	-2.	0.	-7	0.000	0.	-7	0.11	0.000
2600	1.47	1.47	0.	-9	0.15	-2.	0.	-8	0.000	0.	-8	0.14	0.000
2601	1.47	1.47	0.	-10	0.16	-2.	0.	-9	0.000	0.	-9	0.15	0.000
2602	1.47	1.47	0.	-11	0.18	-3.	0.	-10	0.000	0.	-10	0.17	0.000
2603	1.47	1.47	0.	-13	0.22	-3.	0.	-12	0.000	0.	-12	0.20	0.000
2604	1.47	1.47	0.	1	0.00	20.	0.	-1	0.000	0.	-1	0.01	0.000
2605	1.47	1.47	0.	-1	0.02	0.	0.	-2	0.000	0.	0.	0.00	0.000
2606	1.47	1.47	0.	-2	0.04	-1.	0.	-2	0.000	0.	-2	0.04	0.000
2607	1.47	1.47	0.	3	0.00	112.	0.	2	0.028	0.	2	0.00	0.026
2608	1.47	1.47	0.	3	0.00	92.	0.	2	0.023	0.	2	0.00	0.021
2609	1.47	1.47	0.	2	0.00	61.	0.	1	0.013	0.	1	0.00	0.012
2610	1.47	1.47	25	0.	0.18	29.	25	0.	0.003	25	0.	0.17	0.003
2611	1.47	1.47	28	1	0.15	57.	28	0.	0.008	28	0.	0.19	0.008
2612	1.47	1.47	37	2	0.00	102.	36	1	0.019	36	1	0.14	0.018
2613	1.47	1.47	28	0.	0.19	19.	28	0.	0.006	28	0.	0.20	0.006
2614	1.47	1.47	31	1	0.19	55.	31	0.	0.008	31	0.	0.22	0.008
2615	1.47	1.47	41	2	0.00	107.	39	1	0.020	39	1	0.15	0.019
2616	1.47	1.47	0.	1	0.00	29.	0.	0.	0.005	0.	0.	0.00	0.004
2617	1.47	1.47	0.	1	0.00	43.	0.	1	0.010	0.	1	0.00	0.008
2618	1.47	1.47	0.	1	0.00	50.	0.	1	0.012	0.	1	0.00	0.011
2619	1.47	1.47	0.	-2	0.03	0.	0.	-2	0.000	0.	-2	0.04	0.000
2620	1.47	1.47	0.	-2	0.03	0.	0.	-2	0.000	0.	-2	0.04	0.000
2621	1.47	1.47	0.	0.	0.00	0.	0.	0.	0.000	0.	0.	0.01	0.000
2622	1.47	1.47	0.	0.	0.00	0.	0.	-1	0.000	0.	-1	0.02	0.000
2623	1.47	1.47	0.	0.	0.01	0.	0.	-1	0.000	0.	-1	0.02	0.000
2624	1.47	1.47	0.	-1	0.02	0.	0.	-2	0.000	0.	-2	0.03	0.000
2625	1.47	1.47	0.	3	0.00	98.	0.	2	0.025	0.	2	0.00	0.023
2626	1.47	1.47	0.	3	0.00	110.	0.	2	0.030	0.	2	0.00	0.028
2627	1.47	1.47	0.	3	0.00	116.	0.	3	0.032	0.	2	0.00	0.030
2628	1.47	1.47	16	1	0.00	60.	17	1	0.011	18	1	0.03	0.010
2629	1.47	1.47	20	2	0.00	101.	21	2	0.021	21	2	0.00	0.020
2630	1.47	1.47	34	4	0.00	165.	33	3	0.037	33	3	0.00	0.035
2631	1.47	1.47	32	1	0.00	85.	32	1	0.015	32	1	0.16	0.014
2632	1.47	1.47	34	2	0.00	120.	34	2	0.023	34	2	0.00	0.022
2633	1.47	1.47	43	3	0.00	170.	41	3	0.036	41	3	0.00	0.034
2634	1.47	1.47	0.	2	0.00	83.	0.	2	0.020	0.	2	0.00	0.018
2635	1.47	1.47	0.	3	0.00	87.	0.	2	0.022	0.	2	0.00	0.020
2636	1.47	1.47	0.	2	0.00	85.	0.	2	0.021	0.	2	0.00	0.019
2637	1.47	1.47	0.	-2	0.03	0.	0.	-2	0.000	0.	-2	0.04	0.000
2638	1.47	1.47	0.	-2	0.03	0.	0.	-2	0.000	0.	-2	0.04	0.000
2639	1.47	1.47	0.	0.	0.00	0.	0.	0.	0.000	0.	-1	0.01	0.000
2640	1.47	1.47	0.	-3	0.04	-1.	0.	-3	0.000	0.	0.	0.00	0.000
2641	1.47	1.47	0.	0.	0.00	0.	0.	0.	0.000	0.	0.	0.01	0.000
2642	1.47	1.47	0.	-1	0.02	0.	0.	-1	0.000	0.	-1	0.02	0.000
2643	1.47	1.47	437	-3	3.11	428.	381	-3	0.063	367	-3	2.60	0.060
2644	1.47	1.47	480	-2	3.43	503.	419	-2	0.075	403	-2	2.87	0.072
2645	1.47	1.47	440	-3	3.13	424.	384	-3	0.063	369	-3	2.61	0.060
2646	1.47	1.47	498	-2	3.56	551.	435	-2	0.083	419	-2	2.99	0.080
2647	1.47	1.47	448	-4	3.16	404.	391	-4	0.061	377	-4	2.64	0.058
2648	1.47	1.47	524	-2	3.74	558.	457	-2	0.084	440	-2	3.15	0.081
2649	1.47	1.47	414	-4	2.90	359.	362	-4	0.053	348	-4	2.43	0.051
2650	1.47	1.47	409	-5	2.82	316.	358	-5	0.047	344	-5	2.35	0.045
2651	1.47	1.47	406	-7	2.71	269.	355	-6	0.040	342	-6	2.27	0.039
2652	1.47	1.47	386	-5	2.65	292.	339	-5	0.044	326	-5	2.22	0.042
2653	1.47	1.47	379	-7	2.46	221.	332	-7	0.033	320	-6	2.06	0.032
2654	1.47	1.47	372	-9	2.20	155.	326	-8	0.023	314	-8	1.84	0.022
2655	1.47	1.47	356	-7	2.31	210.	312	-6	0.032	301	-6	1.94	0.030
2656	1.47	1.47	348	-10	1.95	120.	306	-9	0.018	295	-8	1.64	0.017
2657	1.47	1.47	338	-12	1.46	50.	297	-11	0.008	286	-10	1.24	0.007
2658	1.47	1.47	318	-10	1.66	88.	280	-9	0.013	270	-8	1.40	0.013
2659	1.47	1.47	312	-13	1.14	25.	274	-12	0.004	265	-11	0.96	0.004
2660	1.47	1.47	301	-17	0.89	8.	265	-15	0.001	256	-14	0.76	0.001
2661	1.47	1.47	0.	2	0.00	52.	0.	1	0.011	0.	1	0.00	0.010
2662	1.47	1.47	0.	2	0.00	54.	0.	1	0.012	0.	1	0.00	0.010
2663	1.47	1.47	0.	1	0.00	50.	0.	1	0.011	0.	1	0.00	0.010
2664	1.47	1.47	14	1	0.00	45.	15	0.	0.007	15	0.	0.07	0.007
2665	1.47	1.47	16	2	0.00	73.	16	1	0.015	16	1	0.00	0.013
2666	1.47	1.47	27	3	0.00	121.	25	2	0.026	25	2	0.00	0.025
2667	1.47	1.47	0.	1	0.00	28.	2	0.	0.006	2	0.	0.00	0.005
2668	1.47	1.47	3	2	0.00	60.	5	1	0.014	5	1	0.00	0.013
2669	1.47	1.47	13	3	0.00	117.	13	2	0.029	13	2	0.00	0.027
2670	1.47	1.47	0.	3	0.00	88.	0.	2	0.023	0.	2	0.00	0.021
2671	1.47	1.47	0.	3	0.00	93.	0.	2	0.025	0.	2	0.00	0.023
2672	1.47	1.47	0.	3	0.00	95.	0.	2	0.026	0.	2	0.00	0.024
2673	1.47	1.47	0.	-1	0.02	0.	0.	-1	0.000	0.	-2	0.02	0.000
2674	1.47	1.47	0.	-1	0.02	0.	0.	-2	0.000	0.	-2	0.03	0.000
2675	1.47	1.47	0.	-2	0.04	-1.	0.	0.	0.000	0.	0.	0.00	0.000
2676	1.47	1.47	0.	2	0.00	84.	0.	2	0.023	0.	2	0.00	0.022
2677	1.47	1.47	0.	2	0.00	66.	0.	2	0.018	0.	1	0.00	0.017
2678	1.47	1.47	0.	0.	0.00	9.	0.	0.	0.002	0.	0.	0.00	0.001
2679	1.47	1.47	0.	6	0.00	213.	0.	6	0.068	0.	6	0.00	0.066
2680	1.47	1.47	0.	6	0.00	217.	0.	6	0.070	0.	6	0.00	0.068
2681	1.47	1.47	0.	6	0.00	217.	0.	6	0.070	0.	6	0.00	0.069
2682	1.47	1.47	0.	4	0.00	127.	0.	4	0.042	0.	3	0.00	0.041
2683	1.47	1.47	0.	5	0.00	164.	0.	5	0.055	0.	5	0.00	0.054
2684	1.47	1.47	0.	7	0.00	223.	0.	6	0.074	1	6	0.00	0.073
2685	1.47	1.47	0.	4	0.00	122.	1	3	0.040	1	3	0.00	0.040
2686	1.47	1.47	1	5	0.00	166.	1	5	0.055	1	5	0.00	0.054
2687	1.47	1.47	10	6	0.00	234.	10	6	0.073	10	6	0.00	0.072
2688	1.47	1.47	0.	4	0.00	131.	0.	4	0.043	0.	4	0.00	0.042
2689	1.47	1.47	0.	5	0.00	162.	0.	5	0.054	0.	4	0.00	0.053
2690	1.47	1.47	0.	6	0.00	195.	0.	6	0.066	0.	5	0.00	0.065
2691	1.47	1.47	0.	2	0.00	61.	0.	2	0.024	0.	2	0.00	0.025
2692	1.47	1.47	0.	3	0.00	92.	0.	3	0.035	0.	3	0.00	0.036
2693	1.47	1.47	0.	3	0.00	115.	0.	4	0.044	0.	4	0.00	0.045
2694	1.47	1.47	0.	14	0.00	478.	0.	13	0.159	0.	13	0.00	0.158
2695	1.47	1.47	0.	14	0.00	478.	0.	14	0.162	0.	13	0.00	0.161

2696	1.47	1.47	0.	13	0.00	452.	0.	13	0.156	0.	13	0.00	0.155
2697	1.47	1.47	0.	19	0.00	658.	0.	19	0.221	0.	18	0.00	0.219
2698	1.47	1.47	0.	20	0.00	695.	0.	20	0.235	0.	20	0.00	0.233
2699	1.47	1.47	0.	21	0.00	726.	0.	21	0.247	0.	21	0.00	0.246
2700	1.47	1.47	51	17	0.00	627.	53	16	0.191	53	16	0.00	0.190
2701	1.47	1.47	54	19	0.00	723.	55	19	0.222	56	19	0.00	0.221
2702	1.47	1.47	58	22	0.00	831.	58	22	0.256	58	22	0.00	0.255
2703	1.47	1.47	44	15	0.00	577.	47	15	0.178	47	15	0.00	0.177
2704	1.47	1.47	50	19	0.00	702.	52	19	0.218	53	19	0.00	0.217
2705	1.47	1.47	67	23	0.00	850.	68	22	0.260	68	22	0.00	0.259
2706	1.47	1.47	0.	15	0.00	522.	0.	15	0.180	0.	15	0.00	0.179
2707	1.47	1.47	0.	19	0.00	644.	0.	19	0.222	0.	19	0.00	0.221
2708	1.47	1.47	6	22	0.00	766.	11	22	0.261	13	22	0.00	0.260
2709	1.47	1.47	0.	14	0.00	470.	0.	14	0.165	0.	14	0.00	0.165
2710	1.47	1.47	0.	17	0.00	591.	0.	17	0.208	0.	17	0.00	0.208
2711	1.47	1.47	0.	20	0.00	684.	0.	20	0.242	0.	20	0.00	0.242
2712	1.47	1.47	0.	18	0.00	605.	0.	18	0.209	0.	17	0.00	0.208
2713	1.47	1.47	0.	21	0.00	717.	0.	21	0.249	0.	21	0.00	0.249
2714	1.47	1.47	0.	23	0.00	792.	0.	23	0.278	0.	23	0.00	0.278
2715	1.47	1.47	0.	19	0.00	664.	0.	19	0.228	0.	19	0.00	0.227
2716	1.47	1.47	0.	23	0.00	793.	4	23	0.273	5	23	0.00	0.272
2717	1.47	1.47	10	27	0.00	---	17	27	0.315	18	27	0.00	0.314
2718	1.47	1.47	44	18	0.00	677.	48	18	0.212	49	18	0.00	0.212
2719	1.47	1.47	52	23	0.00	832.	56	22	0.262	57	22	0.00	0.261
2720	1.47	1.47	69	27	0.00	---	72	27	0.312	73	27	0.00	0.311
2721	1.47	1.47	57	18	0.00	689.	63	18	0.211	64	18	0.00	0.210
2722	1.47	1.47	66	22	0.00	839.	71	22	0.258	73	22	0.00	0.257
2723	1.47	1.47	77	26	0.00	---	81	26	0.302	82	26	0.00	0.301
2724	1.47	1.47	14	18	0.00	618.	24	17	0.205	27	17	0.00	0.204
2725	1.47	1.47	27	21	0.00	751.	36	21	0.245	38	21	0.00	0.244
2726	1.47	1.47	39	24	0.00	872.	48	24	0.281	50	24	0.00	0.280
2727	1.47	1.47	0.	15	0.00	505.	4	15	0.176	7	15	0.00	0.176
2728	1.47	1.47	5	18	0.00	608.	15	18	0.208	18	18	0.00	0.208
2729	1.47	1.47	24	20	0.00	719.	34	20	0.238	36	20	0.00	0.237
2730	1.47	1.47	0.	11	0.00	382.	0.	11	0.135	0.	11	0.00	0.135
2731	1.47	1.47	0.	14	0.00	467.	3	14	0.164	6	14	0.00	0.164
2732	1.47	1.47	5	16	0.00	555.	16	16	0.191	18	16	0.00	0.191
2733	1.47	1.47	0.	9	0.00	309.	0.	9	0.110	0.	9	0.00	0.110
2734	1.47	1.47	0.	11	0.00	382.	0.	11	0.135	0.	11	0.00	0.135
2735	1.47	1.47	0.	14	0.00	460.	4	14	0.162	6	14	0.00	0.161
2736	1.47	1.47	0.	8	0.00	280.	0.	8	0.099	0.	8	0.00	0.099
2737	1.47	1.47	0.	10	0.00	336.	0.	10	0.118	0.	10	0.00	0.118
2738	1.47	1.47	0.	12	0.00	403.	0.	12	0.141	2	12	0.00	0.141
2739	1.47	1.47	0.	7	0.00	248.	0.	7	0.087	0.	7	0.00	0.087
2740	1.47	1.47	0.	8	0.00	281.	0.	8	0.098	0.	8	0.00	0.098
2741	1.47	1.47	0.	10	0.00	334.	0.	10	0.116	0.	10	0.00	0.116
2742	1.47	1.47	0.	6	0.00	206.	0.	6	0.071	0.	6	0.00	0.071
2743	1.47	1.47	0.	6	0.00	213.	0.	6	0.074	0.	6	0.00	0.074
2744	1.47	1.47	0.	7	0.00	248.	0.	7	0.086	0.	7	0.00	0.085
2745	1.47	1.47	0.	3	0.00	118.	0.	3	0.040	0.	3	0.00	0.040
2746	1.47	1.47	0.	3	0.00	103.	0.	3	0.036	0.	3	0.00	0.036
2747	1.47	1.47	0.	3	0.00	96.	0.	3	0.033	0.	3	0.00	0.033
2748	1.47	1.47	651	-5	4.61	610.	574	-5	0.093	554	-5	3.92	0.090
2749	1.47	1.47	686	-3	4.90	718.	604	-3	0.110	583	-3	4.16	0.106
2750	1.47	1.47	735	-4	5.25	766.	647	-3	0.118	625	-3	4.46	0.113

ARMATURA SUPERIORE VERTICALE

GUSCI	COMBINAZIONE RARA		COMB. FREQUENTE				COMB. QUASI PERMANENTE			
	Af	Afc	Mom	Nor	sigC	sigF	Mom	Nor	sigC	wkF
2529	1.98	1.98	0.	-18	0.30	-5.	0.	-19	0.000	0.
2530	1.98	1.98	0.	-18	0.29	-4.	5	-19	0.000	5
2531	1.98	1.98	122	-10	0.37	0.	111	-11	0.000	107
2532	1.98	1.98	167	-10	0.48	3.	149	-11	0.000	144
2533	1.98	1.98	264	-5	1.48	108.	233	-5	0.011	225
2534	1.98	1.98	293	-5	1.68	133.	259	-5	0.014	250
2535	1.98	1.98	0.	-20	0.32	-5.	0.	-20	0.000	0.
2536	1.98	1.98	67	-10	0.06	-4.	63	-11	0.000	61
2537	1.98	1.98	227	-5	1.24	83.	201	-5	0.008	195
2538	1.98	1.98	0.	-18	0.30	-5.	0.	-19	0.000	0.
2539	1.98	1.98	0.	-9	0.15	-2.	0.	-10	0.000	0.
2540	1.98	1.98	183	-4	0.97	60.	162	-4	0.006	157
2541	1.98	1.98	0.	-13	0.21	-3.	0.	-14	0.000	0.
2542	1.98	1.98	0.	-7	0.11	-2.	0.	-8	0.000	0.
2543	1.98	1.98	135	-4	0.65	31.	120	-4	0.003	116
2544	1.98	1.98	0.	-8	0.14	-2.	0.	-10	0.000	0.
2545	1.98	1.98	0.	-6	0.10	-2.	0.	-7	0.000	0.
2546	1.98	1.98	92	-5	0.28	3.	82	-4	0.000	79
2547	1.98	1.98	0.	-12	0.19	-3.	0.	-13	0.000	0.
2548	1.98	1.98	0.	-10	0.17	-3.	0.	-10	0.000	0.
2549	1.98	1.98	30	-7	0.07	-2.	28	-7	0.000	27
2550	1.98	1.98	0.	-14	0.23	-3.	0.	-15	0.000	0.
2551	1.98	1.98	0.	-11	0.19	-3.	0.	-12	0.000	0.
2552	1.98	1.98	0.	-7	0.12	-2.	0.	-7	0.000	0.
2553	1.98	1.98	0.	-15	0.25	-4.	0.	-16	0.000	0.
2554	1.98	1.98	0.	-10	0.17	-3.	0.	-11	0.000	0.
2555	1.98	1.98	0.	-6	0.10	-1.	0.	-6	0.000	0.
2556	1.98	1.98	0.	-24	0.40	-6.	0.	-25	0.000	0.
2557	1.98	1.98	0.	-14	0.23	-3.	0.	-14	0.000	0.
2558	1.98	1.98	0.	-7	0.11	-2.	0.	-6	0.000	0.
2559	1.98	1.98	0.	-30	0.49	-7.	0.	-30	0.000	0.
2560	1.98	1.98	0.	-17	0.28	-4.	0.	-17	0.000	0.
2561	1.98	1.98	0.	-8	0.13	-2.	0.	-7	0.000	0.
2562	1.98	1.98	0.	-25	0.41	-6.	0.	-25	0.000	0.
2563	1.98	1.98	0.	-16	0.26	-4.	0.	-16	0.000	0.
2564	1.98	1.98	0.	-8	0.13	-2.	0.	-7	0.000	0.
2565	1.98	1.98	0.	-19	0.31	-5.	0.	-20	0.000	0.
2566	1.98	1.98	0.	-12	0.20	-3.	0.	-13	0.000	0.

2567	1.98	1.98	0.	-7	0.11	-2.	0.	-7	0.000	0.	-6	0.11	0.000
2568	1.98	1.98	0.	-17	0.27	-4.	0.	-18	0.000	0.	-18	0.29	0.000
2569	1.98	1.98	0.	-11	0.17	-3.	0.	-11	0.000	0.	-11	0.18	0.000
2570	1.98	1.98	0.	-6	0.10	-1.	0.	-6	0.000	0.	-6	0.09	0.000
2571	1.98	1.98	0.	-19	0.32	-5.	0.	-20	0.000	0.	-20	0.33	0.000
2572	1.98	1.98	0.	-12	0.20	-3.	0.	-12	0.000	0.	-12	0.20	0.000
2573	1.98	1.98	0.	-6	0.10	-2.	0.	-6	0.000	0.	-6	0.10	0.000
2574	1.98	1.98	0.	-28	0.46	-7.	0.	-28	0.000	0.	-28	0.46	0.000
2575	1.98	1.98	0.	-16	0.27	-4.	0.	-16	0.000	0.	-16	0.27	0.000
2576	1.98	1.98	0.	-8	0.13	-2.	0.	-7	0.000	0.	-7	0.12	0.000
2577	1.98	1.98	0.	-33	0.54	-8.	0.	-32	0.000	0.	-32	0.53	0.000
2578	1.98	1.98	0.	-19	0.31	-5.	0.	-19	0.000	0.	-19	0.31	0.000
2579	1.98	1.98	0.	-9	0.15	-2.	0.	-8	0.000	0.	-8	0.14	0.000
2580	1.98	1.98	0.	-27	0.44	-7.	0.	-27	0.000	0.	-27	0.44	0.000
2581	1.98	1.98	0.	-17	0.29	-4.	0.	-17	0.000	0.	-17	0.28	0.000
2582	1.98	1.98	0.	-9	0.15	-2.	0.	-8	0.000	0.	-8	0.13	0.000
2583	1.98	1.98	0.	-19	0.31	-5.	0.	-19	0.000	0.	-19	0.32	0.000
2584	1.98	1.98	0.	-13	0.22	-3.	0.	-13	0.000	0.	-13	0.22	0.000
2585	1.98	1.98	0.	-7	0.12	-2.	0.	-7	0.000	0.	-7	0.11	0.000
2586	1.98	1.98	0.	-15	0.25	-4.	0.	-16	0.000	0.	-16	0.26	0.000
2587	1.98	1.98	0.	-10	0.17	-3.	0.	-10	0.000	0.	-10	0.17	0.000
2588	1.98	1.98	0.	-6	0.10	-2.	0.	-6	0.000	0.	-6	0.09	0.000
2589	1.98	1.98	0.	-18	0.29	-4.	0.	-18	0.000	0.	-18	0.30	0.000
2590	1.98	1.98	0.	-11	0.18	-3.	0.	-11	0.000	0.	-11	0.19	0.000
2591	1.98	1.98	0.	-6	0.10	-1.	0.	-6	0.000	0.	-6	0.09	0.000
2592	1.98	1.98	0.	-27	0.45	-7.	0.	-27	0.000	0.	-27	0.44	0.000
2593	1.98	1.98	0.	-15	0.25	-4.	0.	-15	0.000	0.	-15	0.25	0.000
2594	1.98	1.98	0.	-7	0.12	-2.	0.	-7	0.000	0.	-7	0.11	0.000
2595	1.98	1.98	0.	-33	0.54	-8.	0.	-32	0.000	0.	-32	0.52	0.000
2596	1.98	1.98	0.	-19	0.31	-5.	0.	-18	0.000	0.	-18	0.30	0.000
2597	1.98	1.98	0.	-9	0.14	-2.	0.	-8	0.000	0.	-8	0.13	0.000
2598	1.98	1.98	0.	-28	0.46	-7.	0.	-27	0.000	0.	-27	0.45	0.000
2599	1.98	1.98	0.	-18	0.29	-4.	0.	-17	0.000	0.	-17	0.28	0.000
2600	1.98	1.98	0.	-9	0.15	-2.	0.	-8	0.000	0.	-8	0.13	0.000
2601	1.98	1.98	0.	-22	0.37	-6.	0.	-22	0.000	0.	-22	0.37	0.000
2602	1.98	1.98	0.	-15	0.25	-4.	0.	-15	0.000	0.	-15	0.24	0.000
2603	1.98	1.98	0.	-8	0.13	-2.	0.	-7	0.000	0.	-7	0.12	0.000
2604	1.98	1.98	0.	-20	0.33	-5.	0.	-20	0.000	0.	-20	0.34	0.000
2605	1.98	1.98	0.	-13	0.22	-3.	0.	-13	0.000	0.	-13	0.22	0.000
2606	1.98	1.98	0.	-7	0.12	-2.	0.	-7	0.000	0.	-7	0.11	0.000
2607	1.98	1.98	0.	-23	0.38	-6.	0.	-23	0.000	0.	-23	0.38	0.000
2608	1.98	1.98	0.	-15	0.24	-4.	0.	-14	0.000	0.	-14	0.24	0.000
2609	1.98	1.98	0.	-7	0.12	-2.	0.	-7	0.000	0.	-7	0.11	0.000
2610	1.98	1.98	0.	-33	0.55	-8.	0.	-32	0.000	0.	-32	0.53	0.000
2611	1.98	1.98	0.	-20	0.32	-5.	0.	-19	0.000	0.	-19	0.31	0.000
2612	1.98	1.98	0.	-9	0.15	-2.	0.	-8	0.000	0.	-8	0.14	0.000
2613	1.98	1.98	0.	-39	0.65	-10.	0.	-38	0.000	0.	-37	0.62	0.000
2614	1.98	1.98	0.	-23	0.39	-6.	0.	-22	0.000	0.	-22	0.37	0.000
2615	1.98	1.98	0.	-11	0.18	-3.	0.	-10	0.000	0.	-10	0.16	0.000
2616	1.98	1.98	0.	-31	0.51	-8.	0.	-30	0.000	0.	-30	0.50	0.000
2617	1.98	1.98	0.	-21	0.35	-5.	0.	-20	0.000	0.	-20	0.33	0.000
2618	1.98	1.98	0.	-10	0.17	-3.	0.	-10	0.000	0.	-9	0.15	0.000
2619	1.98	1.98	0.	-28	0.46	-7.	0.	-28	0.000	0.	-27	0.45	0.000
2620	1.98	1.98	0.	-19	0.32	-5.	0.	-19	0.000	0.	-18	0.30	0.000
2621	1.98	1.98	0.	-10	0.16	-2.	0.	-9	0.000	0.	-9	0.15	0.000
2622	1.98	1.98	0.	-26	0.43	-6.	0.	-26	0.000	0.	-26	0.43	0.000
2623	1.98	1.98	0.	-18	0.29	-4.	0.	-17	0.000	0.	-17	0.29	0.000
2624	1.98	1.98	0.	-9	0.15	-2.	0.	-9	0.000	0.	-9	0.14	0.000
2625	1.98	1.98	0.	-29	0.47	-7.	0.	-28	0.000	0.	-28	0.46	0.000
2626	1.98	1.98	0.	-19	0.32	-5.	0.	-19	0.000	0.	-18	0.30	0.000
2627	1.98	1.98	0.	-10	0.16	-2.	0.	-9	0.000	0.	-9	0.14	0.000
2628	1.98	1.98	0.	-37	0.61	-9.	0.	-36	0.000	0.	-36	0.59	0.000
2629	1.98	1.98	0.	-23	0.38	-6.	0.	-22	0.000	0.	-22	0.37	0.000
2630	1.98	1.98	0.	-11	0.18	-3.	0.	-10	0.000	0.	-10	0.16	0.000
2631	1.98	1.98	0.	-35	0.58	-9.	0.	-34	0.000	0.	-34	0.56	0.000
2632	1.98	1.98	0.	-22	0.36	-5.	0.	-21	0.000	0.	-21	0.34	0.000
2633	1.98	1.98	0.	-10	0.17	-2.	0.	-9	0.000	0.	-9	0.15	0.000
2634	1.98	1.98	0.	-26	0.43	-6.	0.	-26	0.000	0.	-25	0.42	0.000
2635	1.98	1.98	0.	-17	0.29	-4.	0.	-17	0.000	0.	-17	0.28	0.000
2636	1.98	1.98	0.	-9	0.15	-2.	0.	-8	0.000	0.	-8	0.13	0.000
2637	1.98	1.98	0.	-23	0.38	-6.	0.	-23	0.000	0.	-23	0.38	0.000
2638	1.98	1.98	0.	-16	0.27	-4.	0.	-16	0.000	0.	-16	0.26	0.000
2639	1.98	1.98	0.	-9	0.15	-2.	0.	-8	0.000	0.	-8	0.13	0.000
2640	1.98	1.98	0.	-24	0.39	-6.	0.	-24	0.000	0.	-24	0.39	0.000
2641	1.98	1.98	0.	-17	0.28	-4.	0.	-17	0.000	0.	-16	0.27	0.000
2642	1.98	1.98	0.	-9	0.15	-2.	0.	-9	0.000	0.	-8	0.14	0.000
2643	1.98	1.98	192	-28	0.15	-11.	162	-28	0.000	153	-28	0.21	0.000
2644	1.98	1.98	173	-29	0.20	-11.	144	-29	0.000	136	-29	0.25	0.000
2645	1.98	1.98	385	-15	1.50	42.	338	-15	0.003	326	-15	1.07	0.002
2646	1.98	1.98	402	-15	1.59	47.	353	-15	0.003	340	-15	1.14	0.003
2647	1.98	1.98	408	-6	2.43	223.	359	-6	0.024	346	-6	2.02	0.023
2648	1.98	1.98	415	-6	2.47	231.	365	-6	0.025	352	-6	2.07	0.024
2649	1.98	1.98	226	-24	0.03	-11.	194	-24	0.000	186	-24	0.10	0.000
2650	1.98	1.98	353	-13	1.44	47.	309	-13	0.003	298	-13	1.00	0.002
2651	1.98	1.98	398	-6	2.37	218.	350	-6	0.023	338	-6	1.97	0.022
2652	1.98	1.98	215	-22	0.01	-10.	187	-23	0.000	180	-23	0.08	0.000
2653	1.98	1.98	307	-12	1.17	31.	270	-12	0.002	260	-12	0.82	0.001
2654	1.98	1.98	375	-6	2.22	199.	329	-6	0.021	318	-6	1.84	0.020
2655	1.98	1.98	157	-20	0.08	-9.	139	-21	0.000	134	-21	0.13	0.000
2656	1.98	1.98	258	-11	0.89	17.	228	-12	0.001	219	-12	0.65	0.001
2657	1.98	1.98	347	-6	2.04	177.	305	-6	0.019	295	-5	1.69	0.018
2658	1.98	1.98	78	-19	0.18	-6.	71	-20	0.000	69	-20	0.21	0.000
2659	1.98	1.98	211	-10	0.66	8.	187	-11	0.000	181	-11	0.52	0.000
2660	1.98	1.98	320	-6	1.86	156.	282	-5	0.016	272	-5	1.54	0.015
2661	1.98	1.98	0.	-26	0.43	-6.	0.	-25	0.000	0.	-25	0.42	0.000
2662	1.98	1.98	0.	-18	0.29	-4.	0.	-17	0.000	0.	-17	0.28	0.000
2663	1.98	1.98	0.	-9	0.15	-2.	0.	-8	0.000	0.	-8	0.14	0.000
2664	1.98	1.98	0.	-35	0.57	-9.	0.	-34	0.000	0.	-33	0.55	0.000

2665	1.98	1.98	0.	-22	0.36	-5.	0.	-21	0.000	0.	-20	0.34	0.000
2666	1.98	1.98	0.	-10	0.17	-3.	0.	-9	0.000	0.	-9	0.15	0.000
2667	1.98	1.98	0.	-36	0.60	-9.	0.	-35	0.000	0.	-35	0.57	0.000
2668	1.98	1.98	0.	-23	0.38	-6.	0.	-22	0.000	0.	-22	0.36	0.000
2669	1.98	1.98	0.	-11	0.18	-3.	0.	-10	0.000	0.	-10	0.16	0.000
2670	1.98	1.98	0.	-28	0.46	-7.	0.	-28	0.000	0.	-28	0.46	0.000
2671	1.98	1.98	0.	-19	0.32	-5.	0.	-19	0.000	0.	-19	0.31	0.000
2672	1.98	1.98	0.	-10	0.16	-2.	0.	-9	0.000	0.	-9	0.15	0.000
2673	1.98	1.98	0.	-26	0.43	-6.	0.	-25	0.000	0.	-25	0.42	0.000
2674	1.98	1.98	0.	-18	0.30	-5.	0.	-18	0.000	0.	-18	0.29	0.000
2675	1.98	1.98	0.	-10	0.16	-2.	0.	-9	0.000	0.	-9	0.15	0.000
2676	1.98	1.98	0.	-23	0.38	-6.	0.	-23	0.000	0.	-23	0.37	0.000
2677	1.98	1.98	0.	-16	0.26	-4.	0.	-15	0.000	0.	-15	0.25	0.000
2678	1.98	1.98	0.	-9	0.14	-2.	0.	-8	0.000	0.	-8	0.13	0.000
2679	1.98	1.98	0.	-24	0.39	-6.	0.	-23	0.000	0.	-23	0.38	0.000
2680	1.98	1.98	0.	-16	0.27	-4.	0.	-16	0.000	0.	-15	0.26	0.000
2681	1.98	1.98	0.	-8	0.14	-2.	0.	-8	0.000	0.	-8	0.13	0.000
2682	1.98	1.98	0.	-31	0.52	-8.	0.	-30	0.000	0.	-30	0.49	0.000
2683	1.98	1.98	0.	-19	0.32	-5.	0.	-19	0.000	0.	-18	0.30	0.000
2684	1.98	1.98	0.	-9	0.15	-2.	0.	-9	0.000	0.	-8	0.14	0.000
2685	1.98	1.98	0.	-35	0.57	-9.	0.	-33	0.000	0.	-33	0.54	0.000
2686	1.98	1.98	0.	-21	0.35	-5.	0.	-20	0.000	0.	-20	0.33	0.000
2687	1.98	1.98	0.	-10	0.17	-3.	0.	-9	0.000	0.	-9	0.15	0.000
2688	1.98	1.98	0.	-28	0.46	-7.	0.	-27	0.000	0.	-26	0.44	0.000
2689	1.98	1.98	0.	-19	0.31	-5.	0.	-18	0.000	0.	-17	0.29	0.000
2690	1.98	1.98	0.	-10	0.16	-2.	0.	-9	0.000	0.	-9	0.14	0.000
2691	1.98	1.98	0.	-19	0.32	-5.	0.	-19	0.000	0.	-19	0.31	0.000
2692	1.98	1.98	0.	-14	0.23	-3.	0.	-13	0.000	0.	-13	0.21	0.000
2693	1.98	1.98	0.	-8	0.13	-2.	0.	-7	0.000	0.	-7	0.11	0.000
2694	1.98	1.98	0.	-15	0.25	-4.	0.	-15	0.000	0.	-15	0.25	0.000
2695	1.98	1.98	0.	-10	0.17	-3.	0.	-10	0.000	0.	-10	0.16	0.000
2696	1.98	1.98	0.	-6	0.10	-2.	0.	-6	0.000	0.	-5	0.09	0.000
2697	1.98	1.98	0.	-18	0.29	-4.	0.	-17	0.000	0.	-17	0.28	0.000
2698	1.98	1.98	0.	-11	0.18	-3.	0.	-11	0.000	0.	-10	0.17	0.000
2699	1.98	1.98	0.	-6	0.10	-1.	0.	-5	0.000	0.	-5	0.08	0.000
2700	1.98	1.98	0.	-27	0.45	-7.	0.	-26	0.000	0.	-26	0.43	0.000
2701	1.98	1.98	0.	-15	0.25	-4.	0.	-14	0.000	0.	-14	0.24	0.000
2702	1.98	1.98	0.	-7	0.12	-2.	0.	-6	0.000	0.	-6	0.10	0.000
2703	1.98	1.98	0.	-34	0.56	-8.	0.	-32	0.000	0.	-32	0.53	0.000
2704	1.98	1.98	0.	-19	0.32	-5.	0.	-18	0.000	0.	-18	0.29	0.000
2705	1.98	1.98	0.	-9	0.14	-2.	0.	-8	0.000	0.	-8	0.13	0.000
2706	1.98	1.98	0.	-31	0.51	-8.	0.	-30	0.000	0.	-30	0.49	0.000
2707	1.98	1.98	0.	-20	0.33	-5.	0.	-19	0.000	0.	-18	0.30	0.000
2708	1.98	1.98	0.	-9	0.16	-2.	0.	-9	0.000	0.	-8	0.14	0.000
2709	1.98	1.98	0.	-29	0.47	-7.	0.	-28	0.000	0.	-28	0.46	0.000
2710	1.98	1.98	0.	-19	0.31	-5.	0.	-18	0.000	0.	-18	0.29	0.000
2711	1.98	1.98	0.	-9	0.15	-2.	0.	-9	0.000	0.	-8	0.14	0.000
2712	1.98	1.98	0.	-29	0.47	-7.	0.	-28	0.000	0.	-28	0.47	0.000
2713	1.98	1.98	0.	-19	0.31	-5.	0.	-18	0.000	0.	-18	0.30	0.000
2714	1.98	1.98	0.	-9	0.15	-2.	0.	-9	0.000	0.	-8	0.14	0.000
2715	1.98	1.98	0.	-31	0.52	-8.	0.	-31	0.000	0.	-31	0.51	0.000
2716	1.98	1.98	0.	-20	0.34	-5.	0.	-20	0.000	0.	-20	0.33	0.000
2717	1.98	1.98	0.	-10	0.16	-2.	0.	-9	0.000	0.	-9	0.15	0.000
2718	1.98	1.98	0.	-39	0.65	-10.	0.	-38	0.000	0.	-38	0.62	0.000
2719	1.98	1.98	0.	-24	0.40	-6.	0.	-23	0.000	0.	-23	0.38	0.000
2720	1.98	1.98	5	-11	0.17	-3.	11	-10	0.000	13	-10	0.14	0.000
2721	1.98	1.98	0.	-35	0.58	-9.	0.	-34	0.000	0.	-33	0.55	0.000
2722	1.98	1.98	0.	-21	0.34	-5.	0.	-20	0.000	0.	-20	0.33	0.000
2723	1.98	1.98	17	-10	0.13	-3.	23	-9	0.000	24	-9	0.10	0.000
2724	1.98	1.98	0.	-27	0.44	-7.	0.	-26	0.000	0.	-26	0.43	0.000
2725	1.98	1.98	0.	-17	0.27	-4.	0.	-16	0.000	0.	-16	0.26	0.000
2726	1.98	1.98	25	-8	0.09	-3.	31	-7	0.000	32	-7	0.06	0.000
2727	1.98	1.98	0.	-23	0.38	-6.	0.	-22	0.000	0.	-22	0.37	0.000
2728	1.98	1.98	0.	-14	0.23	-3.	0.	-14	0.000	0.	-13	0.22	0.000
2729	1.98	1.98	30	-7	0.07	-2.	35	-6	0.000	36	-6	0.04	0.000
2730	1.98	1.98	0.	-23	0.37	-6.	0.	-22	0.000	0.	-22	0.36	0.000
2731	1.98	1.98	0.	-14	0.23	-3.	0.	-13	0.000	0.	-13	0.22	0.000
2732	1.98	1.98	29	-7	0.07	-2.	34	-6	0.000	35	-6	0.04	0.000
2733	1.98	1.98	0.	-24	0.40	-6.	0.	-23	0.000	0.	-23	0.38	0.000
2734	1.98	1.98	0.	-15	0.24	-4.	0.	-14	0.000	0.	-14	0.23	0.000
2735	1.98	1.98	21	-7	0.09	-2.	26	-7	0.000	27	-6	0.06	0.000
2736	1.98	1.98	0.	-25	0.41	-6.	0.	-24	0.000	0.	-24	0.39	0.000
2737	1.98	1.98	0.	-15	0.24	-4.	0.	-14	0.000	0.	-14	0.23	0.000
2738	1.98	1.98	6	-7	0.11	-2.	11	-6	0.000	13	-6	0.08	0.000
2739	1.98	1.98	0.	-23	0.38	-6.	0.	-22	0.000	0.	-22	0.36	0.000
2740	1.98	1.98	0.	-14	0.22	-3.	0.	-13	0.000	0.	-13	0.21	0.000
2741	1.98	1.98	0.	-7	0.12	-2.	0.	-6	0.000	0.	-6	0.10	0.000
2742	1.98	1.98	0.	-20	0.32	-5.	0.	-19	0.000	0.	-19	0.31	0.000
2743	1.98	1.98	0.	-12	0.20	-3.	0.	-11	0.000	0.	-11	0.19	0.000
2744	1.98	1.98	0.	-7	0.11	-2.	0.	-6	0.000	0.	-6	0.09	0.000
2745	1.98	1.98	0.	-17	0.27	-4.	0.	-16	0.000	0.	-16	0.26	0.000
2746	1.98	1.98	0.	-11	0.17	-3.	0.	-10	0.000	0.	-10	0.16	0.000
2747	1.98	1.98	0.	-6	0.10	-2.	0.	-6	0.000	0.	-5	0.09	0.000
2748	1.98	1.98	140	-31	0.28	-11.	114	-30	0.000	107	-30	0.32	0.000
2749	1.98	1.98	415	-16	1.61	46.	364	-16	0.003	351	-16	1.17	0.003
2750	1.98	1.98	416	-6	2.49	235.	366	-6	0.025	353	-6	2.08	0.024

## Parete Interna

La parete interna verrà adeguata al fine di estendere fino alla quota dell'estradosso delle fondazioni i pilastri ringrossati e renderla strutturalmente indipendente rispetto a questi ultimi.

Sarà inoltre oggetto di rinforzo con ringrosso per inserimento nuove barre di armatura longitudinale alla base, al fine di rendere adeguata la trasmissione delle sollecitazioni all'elemento di fondazione. Il riferimento è lo schema riportato sulle tavole grafiche, mentre le verifiche di resistenza dell'elemento sono riportate in seguito:

### MACROGUSCIO PareteInterna\_1

#### VERIFICA ARMATURE EFFETTIVE (EFFETTO MEMBRANA + PIASTRA)

##### CASI DI CARICO: ->

Nome	Descrizione
1	SLU SENZA SISMA 1
2	SLU SENZA SISMA 2
5	SLU con SISMAX
6	SLU con SISMAX
11	SLUEqu 1
12	SLUEqu 2

##### DATI:

tensione di snervamento acciaio (fyk): 3817.5 daN/cm2  
 coefficiente sicurezza acciaio : 1.38  
 deformazione ultima acciaio : 1.38 per mille  
 deformazione ultima cls : 3.5 per mille  
 rapporto rottura/snervamento (k): 1  
 resistenza cilindrica cls (fck): 164.6 daN/cm2  
 coefficiente sicurezza cls : 1.8  
 coefficiente riduttivo (alfa): 0.85  
 copriferro inferiore (asse armatura): 2 cm  
 copriferro superiore (asse armatura): 2 cm  
 moltiplicatore sollecitazioni : 1

##### LEGENDA:

spess = spessore guscio. Verifica effettuata su sezione BxH, con B=1 cm e H="spess" cm  
 Af = area disposta al lembo teso, in cm2 al metro  
 Afc = area disposta al lembo compresso, in cm2 al metro  
 Mom = momento flettente [daNcm/cm]  
 Nor = sforzo normale [daN]  
 epsC = deformazione cls [per mille]  
 epsF = deformazione acciaio [per mille]

<-

L'armatura è sufficiente se le deformazioni dei materiali sono ovunque minori delle corrispondenti deformazioni ultime.

Per gli elementi non dissipativi la permanenza in campo elastico è ottenuta limitando la deformazione dell'acciaio alla deformazione di snervamento (1.38 per mille) e quella del calcestruzzo al 2 per mille.

GUSCI	spess	INFERIORE ORIZZONTALE						INFERIORE VERTICALE					
		Af	Afc	Mom	Nor	epsC	epsF	Af	Afc	Mom	Nor	epsC	epsF
525	35	9.45	9.45	749.	38.	0.00	0.25	4.84	4.84	1899.	35.	0.07	0.92
526	35	9.45	1.47	461.	43.	0.00	1.01	1.98	1.98	796.	-6.	0.11	0.61
527	35	1.47	1.47	421.	12.	0.00	0.66	1.98	1.98	210.	-2.	0.03	0.17
528	35	9.45	9.45	413.	75.	0.00	0.27	4.84	4.84	855.	59.	0.00	0.60
529	35	9.45	1.47	463.	51.	0.00	1.20	1.98	1.98	613.	-9.	0.08	0.46
530	35	1.47	1.47	472.	12.	0.00	0.72	1.98	1.98	148.	-10.	0.02	0.11
531	35	9.45	9.45	401.	112.	0.00	0.36	4.84	4.84	1389.	10.	0.09	0.52
532	35	9.45	1.47	396.	67.	0.00	1.36	1.98	1.98	162.	-21.	0.03	0.10
533	35	1.47	1.47	359.	30.	0.00	0.90	1.98	1.98	44.	-7.	0.01	0.03
534	35	9.45	9.45	369.	201.	0.00	0.59	4.84	4.84	3139.	-48.	0.28	0.90
535	35	10.96	1.47	236.	122.	0.00	0.99	1.98	1.98	0.	21.	0.00	0.26
536	35	2.97	1.47	130.	66.	0.00	0.63	1.98	1.98	0.	6.	0.00	0.08
541	35	2.97	1.47	276.	7.	0.00	0.21	1.98	1.98	26.	0.	0.00	0.02
542	35	1.47	1.47	383.	12.	0.00	0.64	1.98	1.98	44.	0.	0.01	0.04
543	35	1.47	1.47	452.	9.	0.00	0.65	1.98	1.98	71.	-1.	0.01	0.06
544	35	1.47	1.47	297.	8.	0.00	0.46	1.98	1.98	90.	0.	0.01	0.07
552	35	9.45	9.45	626.	60.	0.00	0.27	4.84	4.84	2652.	-7.	0.23	0.87
553	35	9.45	1.47	459.	42.	0.00	0.96	1.98	1.98	357.	-1.	0.05	0.32
554	35	1.47	1.47	424.	13.	0.00	0.70	1.98	1.98	158.	0.	0.02	0.14
555	35	9.45	9.45	365.	36.	0.00	0.16	4.84	4.84	1077.	-26.	0.10	0.34
556	35	9.45	1.47	430.	22.	0.00	0.78	1.98	1.98	373.	-18.	0.05	0.25
557	35	1.47	1.47	459.	11.	0.00	0.69	1.98	1.98	112.	-7.	0.02	0.08
558	35	9.45	9.45	488.	29.	0.00	0.16	4.84	4.84	1166.	-13.	0.10	0.46
559	35	9.45	1.47	508.	14.	0.00	0.79	1.98	1.98	162.	-12.	0.03	0.11
560	35	1.47	1.47	491.	10.	0.00	0.70	1.98	1.98	33.	-11.	0.01	0.02
561	35	9.45	9.45	833.	49.	0.00	0.30	4.84	4.84	2607.	-4.	0.23	0.99
562	35	9.45	1.47	366.	54.	0.00	1.09	1.98	1.98	52.	6.	0.00	0.14
563	35	1.47	1.47	192.	29.	0.00	0.70	1.98	1.98	4.	-4.	0.00	0.03
565	35	1.47	1.47	259.	9.	0.00	0.43	1.98	1.98	14.	1.	0.00	0.03
566	35	1.47	1.47	409.	10.	0.00	0.60	1.98	1.98	32.	0.	0.00	0.03
567	35	1.47	1.47	439.	10.	0.00	0.65	1.98	1.98	64.	-1.	0.01	0.05
568	35	1.47	1.47	323.	8.	0.00	0.48	1.98	1.98	82.	1.	0.00	0.07
570	35	9.45	9.45	265.	17.	0.00	0.09	4.84	4.84	270.	-122.	0.06	0.04
571	35	9.45	9.45	245.	4.	0.02	0.05	4.84	4.84	263.	-134.	0.06	0.03
572	35	9.45	1.47	242.	27.	0.00	0.72	1.98	1.98	212.	-147.	0.07	0.07

573	35	9.45	1.47	232.	15.	0.00	0.50	1.98	1.98	208.	-153.	0.07	0.04
574	35	1.47	1.47	177.	-18.	0.03	0.19	1.98	1.98	213.	-173.	0.08	0.06
575	35	1.47	1.47	171.	-25.	0.03	0.18	1.98	1.98	178.	-162.	0.07	0.02
576	35	9.45	9.45	285.	23.	0.00	0.11	4.84	4.84	232.	-85.	0.05	0.07
577	35	9.45	1.47	277.	25.	0.00	0.74	1.98	1.98	219.	-78.	0.05	0.14
578	35	1.47	1.47	213.	41.	0.00	0.93	1.98	1.98	242.	-60.	0.05	0.20
579	35	9.45	9.45	330.	22.	0.00	0.12	4.84	4.84	420.	-66.	0.06	0.10
580	35	9.45	1.47	299.	20.	0.00	0.67	1.98	1.98	249.	-37.	0.05	0.18
581	35	1.47	1.47	225.	22.	0.00	0.62	1.98	1.98	190.	-12.	0.03	0.16
582	35	9.45	9.45	402.	29.	0.00	0.15	4.84	4.84	1236.	-28.	0.11	0.37
583	35	9.45	1.47	335.	32.	0.00	0.92	1.98	1.98	122.	-34.	0.03	0.09
584	35	1.47	1.47	241.	35.	0.00	0.87	1.98	1.98	89.	-11.	0.02	0.06
585	35	9.45	9.45	578.	107.	0.00	0.38	4.84	4.84	3028.	-43.	0.27	0.88
587	35	1.47	1.47	128.	55.	0.00	1.08	1.98	1.98	0.	14.	0.00	0.18
589	35	1.47	1.47	72.	15.	0.00	0.33	1.98	1.98	50.	5.	0.00	0.10
590	35	1.47	1.47	161.	35.	0.00	0.78	1.98	1.98	103.	4.	0.01	0.13
591	35	1.47	1.47	173.	23.	0.00	0.58	1.98	1.98	166.	17.	0.02	0.35
592	35	1.47	1.47	184.	46.	0.00	0.99	1.98	1.98	178.	-65.	0.04	0.42
593	35	1.47	1.47	165.	-26.	0.03	0.16	1.98	1.98	153.	-173.	0.07	0.01
594	35	9.45	9.45	137.	-4.	0.01	0.03	4.84	4.84	183.	-135.	0.05	0.02
595	35	9.45	9.45	112.	9.	0.01	0.04	4.84	4.84	175.	-127.	0.05	0.01
596	35	9.45	1.47	126.	17.	0.00	0.42	1.98	1.98	115.	-154.	0.06	0.01
597	35	9.45	1.47	115.	23.	0.00	0.51	1.98	1.98	109.	-148.	0.06	0.01
598	35	1.47	1.47	121.	12.	0.00	0.34	1.98	1.98	78.	-175.	0.06	-0.03
599	35	1.47	1.47	115.	19.	0.00	0.45	1.98	1.98	72.	-162.	0.06	-0.03
600	35	9.45	9.45	150.	-2.	0.01	0.03	4.84	4.84	193.	-99.	0.05	0.03
601	35	9.45	1.47	149.	8.	0.01	0.29	1.98	1.98	111.	-86.	0.04	0.05
602	35	1.47	1.47	144.	23.	0.00	0.56	1.98	1.98	82.	-64.	0.03	0.07
603	35	9.45	9.45	148.	-5.	0.01	0.02	4.84	4.84	158.	-83.	0.04	0.02
604	35	9.45	1.47	145.	-8.	0.03	0.17	1.98	1.98	94.	-45.	0.03	0.04
605	35	1.47	1.47	169.	5.	0.03	0.26	1.98	1.98	72.	-2.	0.01	0.06
606	35	9.45	9.45	98.	-6.	0.01	0.02	4.84	4.84	177.	-81.	0.04	0.02
607	35	9.45	1.47	99.	-6.	0.02	0.10	1.98	1.98	116.	-44.	0.03	0.06
608	35	1.47	1.47	87.	0.	0.01	0.09	1.98	1.98	121.	-3.	0.02	0.09
609	35	9.45	9.45	235.	-12.	0.02	0.04	4.84	4.84	236.	-97.	0.05	0.03
610	35	9.45	1.47	230.	-10.	0.03	0.23	1.98	1.98	165.	-82.	0.05	0.07
611	35	1.47	1.47	177.	21.	0.00	0.55	1.98	1.98	121.	-60.	0.04	0.12
612	35	1.47	1.47	155.	-21.	0.03	0.16	1.98	1.98	139.	-173.	0.07	0.01
613	35	1.47	1.47	152.	35.	0.00	0.76	1.98	1.98	141.	-67.	0.04	0.41
614	35	1.47	1.47	122.	7.	0.00	0.25	1.98	1.98	127.	19.	0.02	0.34
615	35	1.47	1.47	172.	17.	0.00	0.48	1.98	1.98	96.	19.	0.01	0.31
616	35	1.47	1.47	143.	27.	0.00	0.61	1.98	1.98	70.	-66.	0.03	0.41
617	35	1.47	1.47	126.	14.	0.00	0.37	1.98	1.98	38.	-173.	0.06	-0.04
618	35	9.45	9.45	237.	5.	0.01	0.05	4.84	4.84	259.	-132.	0.06	0.02
619	35	9.45	9.45	235.	23.	0.00	0.10	4.84	4.84	268.	-121.	0.06	0.04
620	35	9.45	1.47	225.	20.	0.00	0.58	1.98	1.98	195.	-158.	0.07	0.03
621	35	9.45	1.47	211.	34.	0.00	0.83	1.98	1.98	201.	-146.	0.07	0.08
622	35	1.47	1.47	190.	23.	0.00	0.60	1.98	1.98	161.	-164.	0.07	0.02
623	35	1.47	1.47	216.	36.	0.00	0.86	1.98	1.98	140.	-173.	0.07	0.03
624	35	9.45	9.45	54.	-7.	0.01	0.01	4.84	4.84	224.	-104.	0.05	0.03
625	35	9.45	1.47	65.	15.	0.00	0.32	1.98	1.98	135.	-88.	0.04	0.06
626	35	1.47	1.47	60.	36.	0.00	0.67	1.98	1.98	104.	-64.	0.04	0.09
627	35	9.45	9.45	127.	-18.	0.01	0.02	4.84	4.84	175.	-100.	0.04	0.02
628	35	9.45	1.47	63.	-11.	0.01	0.03	1.98	1.98	132.	-60.	0.03	0.05
629	35	1.47	1.47	64.	18.	0.00	0.38	1.98	1.98	192.	-12.	0.03	0.14
630	35	9.45	9.45	55.	-1.	0.00	0.01	4.84	4.84	164.	-91.	0.04	0.02
631	35	9.45	1.47	60.	-4.	0.01	0.08	1.98	1.98	125.	-49.	0.03	0.06
632	35	1.47	1.47	78.	19.	0.00	0.41	1.98	1.98	153.	-6.	0.02	0.12
633	35	9.45	9.45	79.	7.	0.00	0.03	4.84	4.84	153.	-92.	0.04	0.02
634	35	9.45	1.47	78.	19.	0.00	0.41	1.98	1.98	98.	-78.	0.04	0.05
635	35	1.47	1.47	100.	33.	0.00	0.67	1.98	1.98	47.	-59.	0.02	0.08
636	35	1.47	1.47	107.	27.	0.00	0.57	1.98	1.98	14.	-174.	0.05	-0.05
637	35	1.47	1.47	96.	39.	0.00	0.77	1.98	1.98	14.	-66.	0.02	0.36
638	35	1.47	1.47	76.	35.	0.00	0.68	1.98	1.98	86.	15.	0.01	0.27
639	35	1.47	1.47	69.	31.	0.00	0.60	1.98	1.98	113.	15.	0.01	0.32
640	35	1.47	1.47	57.	42.	0.00	0.78	1.98	1.98	103.	-67.	0.03	0.39
641	35	1.47	1.47	182.	24.	0.00	0.60	1.98	1.98	106.	-171.	0.06	-0.02
648	35	9.45	9.45	530.	137.	0.00	0.45	4.84	4.84	2368.	-40.	0.22	0.69
651	35	9.45	9.45	446.	46.	0.00	0.20	4.84	4.84	963.	-61.	0.10	0.25
652	35	9.45	1.47	359.	44.	0.00	1.18	1.98	1.98	178.	-42.	0.04	0.17
653	35	1.47	1.47	227.	58.	0.00	1.24	1.98	1.98	72.	5.	0.01	0.12
654	35	9.45	9.45	299.	28.	0.00	0.13	4.84	4.84	369.	-70.	0.05	0.09
655	35	9.45	1.47	268.	28.	0.00	0.80	1.98	1.98	278.	-43.	0.05	0.15
656	35	1.47	1.47	215.	34.	0.00	0.80	1.98	1.98	180.	-17.	0.03	0.12
657	35	9.45	9.45	243.	29.	0.00	0.12	4.84	4.84	227.	-85.	0.05	0.06
658	35	9.45	1.47	220.	35.	0.00	0.84	1.98	1.98	252.	-79.	0.06	0.15
659	35	1.47	1.47	212.	47.	0.00	1.03	1.98	1.98	176.	-64.	0.04	0.12
660	35	1.47	1.47	187.	42.	0.00	0.92	1.98	1.98	124.	-171.	0.07	-0.01
661	35	1.47	1.47	215.	49.	0.00	1.07	1.98	1.98	138.	-67.	0.04	0.40
662	35	1.47	1.47	206.	38.	0.00	0.88	1.98	1.98	154.	17.	0.02	0.35
663	35	1.47	1.47	185.	56.	0.00	1.16	1.98	1.98	100.	4.	0.00	0.14
664	35	1.47	1.47	82.	24.	0.00	0.49	1.98	1.98	53.	4.	0.00	0.10
672	35	9.45	9.45	408.	119.	0.00	0.38	4.84	4.84	2057.	19.	0.14	0.79
674	35	1.47	1.47	127.	61.	0.00	1.18	1.98	1.98	10.	10.	0.00	0.13
675	35	9.45	9.45	342.	40.	0.00	0.17	4.84	4.84	885.	-28.	0.08	0.29
676	35	9.45	1.47	368.	34.	0.00	1.01	1.98	1.98	131.	-34.	0.03	0.07
677	35	1.47	1.47	350.	33.	0.00	0.95	1.98	1.98	17.	-12.	0.01	0.01
678	35	9.45	9.45	236.	35.	0.00	0.14	4.84	4.84	743.	-33.	0.07	0.22
679	35	9.45	1.47	289.	36.	0.00	0.94	1.98	1.98	169.	-35.	0.03	0.19
680	35	1.47	1.47	290.	36.	0.00	0.93	1.98	1.98	39.	-13.	0.01	0.06
681	35	9.45	9.45	296.	104.	0.00	0.33	4.84	4.84	2026.	17.	0.13	0.77
683	35	1.47	1.47	226.	54.	0.00	1.18	1.98	1.98	110.	8.	0.00	0.19
685	35	1.47	1.47	219.	20.	0.00	0.59	1.98	1.98	67.	0.	0.01	0.06
686	35	1.47	1.47	301.	29.	0.00	0.86	1.98	1.98	45.	-1.	0.01	0.04
687	35	1.47	1.47	251.	31.	0.00	0.80	1.98	1.98	14.	-1.	0.00	0.01
688	35	1.47	1.47	149.	20.	0.00	0.50	1.98	1.98	28.	0.	0.00	0.03
696	35	9.45	9.45	428.	95.	0.00	0.33	4.84	4.84	2403.	-1.	0.21	0.83
697	35	9.45	1.47	284.	68.	0.00	1.05	1.98	1.98	0.	22.	0.00	0.28



698	35	1.47	1.47	198.	39.	0.00	0.88	1.98	1.98	15.	5.	0.00	0.08
699	35	9.45	9.45	360.	39.	0.00	0.17	4.84	4.84	1010.	-24.	0.09	0.36
700	35	9.45	1.47	404.	17.	0.00	0.79	1.98	1.98	94.	-26.	0.02	0.06
701	35	1.47	1.47	400.	16.	0.00	0.70	1.98	1.98	19.	-9.	0.01	0.01
702	35	9.45	9.45	253.	33.	0.00	0.13	4.84	4.84	848.	-30.	0.08	0.28
703	35	9.45	1.47	374.	19.	0.00	0.74	1.98	1.98	195.	-12.	0.03	0.14
704	35	1.47	1.47	391.	17.	0.00	0.72	1.98	1.98	45.	-9.	0.01	0.05
705	35	9.45	9.45	262.	96.	0.00	0.30	4.84	4.84	1938.	6.	0.15	0.73
706	35	9.45	1.47	231.	70.	0.00	1.05	1.98	1.98	207.	14.	0.00	0.39
707	35	1.47	1.47	233.	42.	0.00	0.97	1.98	1.98	90.	5.	0.01	0.14
709	35	1.47	1.47	266.	9.	0.00	0.44	1.98	1.98	57.	0.	0.01	0.05
710	35	1.47	1.47	395.	14.	0.00	0.66	1.98	1.98	44.	-1.	0.01	0.03
711	35	1.47	1.47	364.	13.	0.00	0.61	1.98	1.98	14.	-1.	0.00	0.01
712	35	1.47	1.47	261.	8.	0.00	0.42	1.98	1.98	38.	0.	0.00	0.03
720	35	9.45	9.45	716.	36.	0.00	0.24	4.84	4.84	2400.	2.	0.20	0.90
721	35	9.45	1.47	346.	41.	0.00	0.83	1.98	1.98	0.	11.	0.00	0.13
722	35	1.47	1.47	280.	14.	0.00	0.55	1.98	1.98	25.	-5.	0.00	0.03
723	35	9.45	9.45	347.	41.	0.00	0.17	4.84	4.84	936.	16.	0.08	0.40
724	35	9.45	1.47	383.	30.	0.00	0.77	1.98	1.98	99.	-17.	0.02	0.07
725	35	1.47	1.47	394.	9.	0.00	0.58	1.98	1.98	19.	-12.	0.01	0.01
726	35	9.45	9.45	307.	11.	0.00	0.09	4.84	4.84	773.	-27.	0.07	0.25
727	35	9.45	1.47	355.	12.	0.00	0.59	1.98	1.98	279.	-15.	0.04	0.19
728	35	1.47	1.47	374.	11.	0.00	0.60	1.98	1.98	66.	-7.	0.01	0.06
729	35	9.45	9.45	547.	47.	0.00	0.24	4.84	4.84	1853.	3.	0.15	0.71
730	35	9.45	1.47	248.	54.	0.00	0.89	1.98	1.98	358.	-5.	0.05	0.34
731	35	1.47	1.47	364.	14.	0.00	0.78	1.98	1.98	102.	4.	0.01	0.13
733	35	1.47	1.47	281.	8.	0.00	0.44	1.98	1.98	63.	0.	0.00	0.06
734	35	1.47	1.47	367.	11.	0.00	0.59	1.98	1.98	57.	0.	0.01	0.05
735	35	1.47	1.47	376.	9.	0.00	0.56	1.98	1.98	38.	-1.	0.01	0.03
736	35	1.47	1.47	282.	9.	0.00	0.46	1.98	1.98	32.	1.	0.00	0.03
738	35	9.45	9.45	437.	-15.	0.03	0.07	4.84	4.84	1852.	-99.	0.19	0.45
739	35	9.45	1.47	135.	-7.	0.02	0.13	1.98	1.98	617.	-87.	0.10	0.26
740	35	1.47	3.14	0.	24.	0.00	0.41	1.98	1.98	354.	-65.	0.06	0.17
741	35	9.45	9.45	959.	-2.	0.06	0.17	4.84	4.84	2045.	-94.	0.20	0.50
742	35	9.45	1.47	673.	-13.	0.10	0.63	1.98	1.98	988.	-69.	0.14	0.50
743	35	1.47	3.14	405.	16.	0.00	0.71	1.98	1.98	647.	-42.	0.10	0.41
744	35	9.45	9.45	1073.	-6.	0.07	0.18	4.84	4.84	2022.	-49.	0.19	0.64
745	35	9.45	1.47	905.	-1.	0.13	0.85	1.98	1.98	1595.	-26.	0.22	1.11
746	35	1.47	1.47	641.	19.	0.00	1.11	1.98	1.98	934.	-1.	0.13	0.74
747	35	9.45	9.45	796.	33.	0.00	0.22	4.84	4.84	2261.	41.	0.19	0.96
749	35	1.47	1.47	513.	36.	0.00	1.18	1.98	1.98	1071.	12.	0.09	1.01
750	35	9.45	9.45	868.	78.	0.00	0.36	7.78	7.78	2949.	-14.	0.20	0.62
752	35	1.47	1.47	413.	39.	0.00	1.12	4.93	4.93	1118.	16.	0.03	0.45
754	35	1.47	1.47	419.	22.	0.00	0.83	4.93	4.93	431.	4.	0.02	0.16
755	35	1.47	1.47	513.	36.	0.00	1.21	1.98	1.98	512.	3.	0.04	0.45
756	35	1.47	1.47	529.	41.	0.00	1.29	1.98	1.98	531.	17.	0.07	0.64
757	35	1.47	3.14	286.	32.	0.00	0.85	1.98	1.98	492.	-22.	0.07	0.58
758	35	1.47	3.14	0.	43.	0.00	0.73	1.98	1.98	247.	-50.	0.05	0.17
3314	35	9.45	9.45	365.	127.	0.00	0.40	7.78	7.78	3464.	-93.	0.32	0.87
3315	35	9.45	9.45	1595.	67.	0.00	0.45	4.84	4.84	3422.	-104.	0.32	0.91
3316	35	9.45	9.45	431.	154.	0.00	0.48	4.84	4.84	2950.	-80.	0.27	0.77
3317	35	9.45	9.45	932.	187.	0.00	0.65	4.84	4.84	3346.	-70.	0.31	0.90
3318	35	9.45	9.45	707.	195.	0.00	0.64	4.84	4.84	2791.	-65.	0.26	0.76
3319	35	9.45	9.45	927.	237.	0.00	0.78	4.84	4.84	3081.	-66.	0.28	0.84
3320	35	9.45	9.45	752.	207.	0.00	0.68	4.84	4.84	3237.	-72.	0.30	0.86
3321	35	9.45	9.45	1092.	261.	0.00	0.88	4.84	4.84	3530.	-96.	0.33	0.88
3322	35	9.45	9.45	1720.	167.	0.00	0.73	4.84	4.84	4125.	-119.	0.38	0.98
3323	35	9.45	9.45	1173.	94.	0.00	0.45	4.84	4.84	3736.	-80.	0.34	0.98
3324	35	9.45	9.45	1046.	141.	0.00	0.55	4.84	4.84	3799.	-104.	0.35	0.93
3325	35	9.45	9.45	1003.	112.	0.00	0.47	4.84	4.84	3223.	-45.	0.29	0.93

		SUPERIORE ORIZZONTALE						SUPERIORE VERTICALE					
GUSCI	spess	Af	Afc	Mom	Nor	epsC	epsF	Af	Afc	Mom	Nor	epsC	epsF
525	35	9.45	9.45	840.	59.	0.00	0.30	4.84	4.84	1619.	55.	0.00	0.82
526	35	9.45	1.47	508.	43.	0.00	0.90	1.98	1.98	264.	-6.	0.04	0.20
527	35	1.47	1.47	58.	15.	0.00	0.32	1.98	1.98	63.	-2.	0.01	0.05
528	35	9.45	9.45	876.	75.	0.00	0.35	4.84	4.84	1643.	59.	0.00	0.85
529	35	9.45	1.47	713.	51.	0.00	1.30	1.98	1.98	349.	-9.	0.05	0.26
530	35	1.47	1.47	451.	14.	0.00	0.73	1.98	1.98	60.	-10.	0.01	0.04
531	35	9.45	9.45	312.	112.	0.00	0.35	4.84	4.84	2043.	15.	0.14	0.76
532	35	9.45	1.47	399.	67.	0.00	1.33	1.98	1.98	696.	-21.	0.10	0.47
533	35	1.47	1.47	387.	30.	0.00	0.93	1.98	1.98	168.	-4.	0.02	0.13
534	35	9.45	9.45	404.	201.	0.00	0.60	4.84	4.84	2733.	-27.	0.24	0.83
541	35	1.47	2.97	335.	7.	0.01	0.48	1.98	1.98	107.	0.	0.01	0.09
542	35	1.47	1.47	419.	18.	0.00	0.75	1.98	1.98	82.	-1.	0.01	0.07
543	35	1.47	1.47	332.	9.	0.00	0.52	1.98	1.98	69.	0.	0.01	0.06
544	35	1.47	1.47	67.	8.	0.00	0.24	1.98	1.98	61.	0.	0.01	0.05
552	35	9.45	9.45	0.	60.	0.00	0.16	4.84	4.84	0.	39.	0.00	0.20
553	35	9.45	1.47	0.	42.	0.00	0.50	1.98	1.98	151.	12.	0.01	0.27
554	35	1.47	1.47	0.	16.	0.00	0.27	1.98	1.98	41.	2.	0.01	0.05
555	35	9.45	9.45	0.	36.	0.00	0.09	4.84	4.84	0.	-42.	0.01	-0.01
556	35	9.45	1.47	0.	22.	0.00	0.34	1.98	1.98	32.	-17.	0.01	0.05
557	35	1.47	1.47	0.	11.	0.00	0.19	1.98	1.98	17.	-10.	0.01	0.01
558	35	9.45	9.45	105.	29.	0.00	0.09	4.84	4.84	400.	-13.	0.04	0.15
559	35	9.45	1.47	0.	18.	0.00	0.30	1.98	1.98	235.	-12.	0.03	0.17
560	35	1.47	1.47	0.	10.	0.00	0.18	1.98	1.98	51.	-7.	0.01	0.04
561	35	9.45	9.45	133.	77.	0.00	0.23	4.84	4.84	523.	63.	0.05	0.50
562	35	9.45	1.47	48.	54.	0.00	0.62	1.98	1.98	428.	6.	0.00	0.42
563	35	1.47	1.47	0.	29.	0.00	0.49	1.98	1.98	85.	-2.	0.01	0.07
565	35	1.47	1.47	79.	9.	0.00	0.23	1.98	1.98	45.	1.	0.00	0.05
566	35	1.47	1.47	19.	10.	0.00	0.18	1.98	1.98	42.	0.	0.01	0.03
567	35	1.47	1.47	0.	10.	0.00	0.18	1.98	1.98	42.	-1.	0.01	0.03
568	35	1.47	1.47	12.	8.	0.00	0.15	1.98	1.98	21.	0.	0.00	0.02
570	35	9.45	9.45	186.	13.	0.00	0.07	4.84	4.84	51.	-122.	0.04	-0.02
571	35	9.45	9.45	163.	4.	0.01	0.04	4.84	4.84	40.	-134.	0.04	-0.03
572	35	9.45	1.47	145.	27.	0.00	0.61	1.98	1.98	91.	-147.	0.06	0.03
573	35	9.45	1.47	143.	15.	0.00	0.41	1.98	1.98	82.	-153.	0.06	-0.02
574	35	1.47	1.47	57.	-18.	0.02	0.08	1.98	1.98	107.	-173.	0.06	0.02

575	35	1.47	1.47	52.	-25.	0.02	0.07	1.98	1.98	112.	-162.	0.06	-0.02
576	35	9.45	9.45	213.	23.	0.00	0.10	4.84	4.84	97.	-85.	0.03	0.02
577	35	9.45	1.47	174.	25.	0.00	0.62	1.98	1.98	150.	-78.	0.04	0.12
578	35	1.47	1.47	72.	41.	0.00	0.78	1.98	1.98	150.	-60.	0.04	0.17
579	35	9.45	9.45	233.	21.	0.00	0.10	4.84	4.84	144.	-66.	0.03	0.02
580	35	9.45	1.47	189.	19.	0.00	0.53	1.98	1.98	355.	-28.	0.06	0.22
581	35	1.47	1.47	94.	22.	0.00	0.48	1.98	1.98	294.	-12.	0.04	0.21
582	35	9.45	9.45	201.	32.	0.00	0.12	4.84	4.84	109.	-66.	0.03	0.08
583	35	9.45	1.47	151.	33.	0.00	0.73	1.98	1.98	565.	-16.	0.08	0.39
584	35	1.47	1.47	47.	40.	0.00	0.74	1.98	1.98	304.	-2.	0.04	0.24
585	35	9.45	9.45	187.	107.	0.00	0.32	4.84	4.84	754.	-8.	0.07	0.24
586	35	9.45	1.47	120.	81.	0.00	1.21	1.98	1.98	808.	27.	0.00	0.99
587	35	1.47	1.47	36.	55.	0.00	0.98	1.98	1.98	279.	11.	0.00	0.36
589	35	1.47	1.47	2.	16.	0.00	0.28	1.98	1.98	117.	5.	0.00	0.16
590	35	1.47	1.47	21.	35.	0.00	0.63	1.98	1.98	143.	4.	0.02	0.16
591	35	1.47	1.47	48.	23.	0.00	0.45	1.98	1.98	179.	15.	0.02	0.35
592	35	1.47	1.47	36.	46.	0.00	0.82	1.98	1.98	160.	-65.	0.04	0.41
593	35	1.47	1.47	47.	-26.	0.02	0.04	1.98	1.98	148.	-173.	0.07	0.01
594	35	9.45	9.45	98.	-4.	0.01	0.03	4.84	4.84	0.	-135.	0.04	-0.04
595	35	9.45	9.45	71.	9.	0.00	0.04	4.84	4.84	0.	-127.	0.04	-0.04
596	35	9.45	1.47	88.	17.	0.00	0.38	1.98	1.98	0.	-154.	0.05	-0.05
597	35	9.45	1.47	81.	23.	0.00	0.48	1.98	1.98	0.	-148.	0.05	-0.05
598	35	1.47	1.47	67.	12.	0.00	0.28	1.98	1.98	14.	-175.	0.05	-0.05
599	35	1.47	1.47	60.	19.	0.00	0.39	1.98	1.98	4.	-162.	0.05	-0.05
600	35	9.45	9.45	87.	-2.	0.01	0.01	4.84	4.84	0.	-99.	0.03	-0.03
601	35	9.45	1.47	88.	5.	0.00	0.20	1.98	1.98	0.	-86.	0.03	-0.03
602	35	1.47	1.47	92.	23.	0.00	0.50	1.98	1.98	10.	-64.	0.02	0.03
603	35	9.45	9.45	68.	-8.	0.01	0.01	4.84	4.84	0.	-86.	0.03	-0.03
604	35	9.45	1.47	67.	-6.	0.01	0.07	1.98	1.98	0.	-45.	0.01	-0.01
605	35	1.47	1.47	62.	-1.	0.01	0.12	1.98	1.98	42.	-2.	0.01	0.03
606	35	9.45	9.45	74.	-12.	0.01	0.01	4.84	4.84	0.	-84.	0.02	-0.02
607	35	9.45	1.47	72.	-9.	0.01	0.06	1.98	1.98	0.	-44.	0.01	-0.01
608	35	1.47	1.47	51.	0.	0.00	0.06	1.98	1.98	3.	-6.	0.00	0.01
609	35	9.45	9.45	94.	-6.	0.01	0.01	4.84	4.84	17.	-97.	0.03	-0.03
610	35	9.45	1.47	54.	-10.	0.01	0.06	1.98	1.98	56.	-82.	0.03	0.02
611	35	1.47	1.47	0.	21.	0.00	0.36	1.98	1.98	93.	-60.	0.03	0.07
612	35	1.47	1.47	38.	-21.	0.01	0.04	1.98	1.98	133.	-173.	0.07	-0.01
613	35	1.47	1.47	11.	35.	0.00	0.61	1.98	1.98	125.	-67.	0.04	0.39
614	35	1.47	1.47	46.	7.	0.00	0.17	1.98	1.98	109.	19.	0.01	0.33
615	35	1.47	1.47	31.	17.	0.00	0.32	1.98	1.98	109.	15.	0.00	0.30
616	35	1.47	1.47	104.	27.	0.00	0.57	1.98	1.98	40.	-66.	0.03	0.40
617	35	1.47	1.47	66.	14.	0.00	0.31	1.98	1.98	10.	-173.	0.05	-0.05
618	35	9.45	9.45	117.	5.	0.01	0.03	4.84	4.84	0.	-132.	0.04	-0.04
619	35	9.45	9.45	132.	23.	0.00	0.08	4.84	4.84	0.	-121.	0.04	-0.04
620	35	9.45	1.47	45.	20.	0.00	0.38	1.98	1.98	34.	-158.	0.05	-0.04
621	35	9.45	1.47	87.	36.	0.00	0.70	1.98	1.98	44.	-146.	0.05	-0.03
622	35	1.47	1.47	0.	24.	0.00	0.41	1.98	1.98	94.	-164.	0.06	-0.02
623	35	1.47	1.47	79.	36.	0.00	0.70	1.98	1.98	101.	-173.	0.06	0.03
624	35	9.45	9.45	0.	-7.	0.00	0.00	4.84	4.84	0.	-104.	0.03	-0.03
625	35	9.45	1.47	46.	15.	0.00	0.30	1.98	1.98	7.	-88.	0.03	-0.02
626	35	1.47	1.47	41.	36.	0.00	0.65	1.98	1.98	50.	-64.	0.03	0.05
627	35	9.45	9.45	0.	-21.	0.01	-0.01	4.84	4.84	0.	-101.	0.03	-0.03
628	35	9.45	1.47	0.	-11.	0.00	0.00	1.98	1.98	0.	-60.	0.02	-0.02
629	35	1.47	1.47	12.	18.	0.00	0.32	1.98	1.98	53.	-16.	0.01	0.03
630	35	9.45	9.45	0.	-3.	0.00	0.00	4.84	4.84	0.	-91.	0.03	-0.03
631	35	9.45	1.47	0.	-7.	0.00	0.01	1.98	1.98	0.	-49.	0.02	-0.02
632	35	1.47	1.47	25.	19.	0.00	0.36	1.98	1.98	12.	-9.	0.00	0.01
633	35	9.45	9.45	29.	8.	0.00	0.03	4.84	4.84	0.	-92.	0.03	-0.03
634	35	9.45	1.47	71.	19.	0.00	0.41	1.98	1.98	0.	-78.	0.02	-0.02
635	35	1.47	1.47	65.	34.	0.00	0.65	1.98	1.98	0.	-59.	0.02	0.03
636	35	1.47	1.47	44.	27.	0.00	0.50	1.98	1.98	0.	-174.	0.05	-0.05
637	35	1.47	1.47	61.	39.	0.00	0.73	1.98	1.98	0.	-66.	0.02	0.33
638	35	1.47	1.47	52.	35.	0.00	0.66	1.98	1.98	52.	15.	0.00	0.24
639	35	1.47	1.47	46.	31.	0.00	0.57	1.98	1.98	110.	15.	0.00	0.30
640	35	1.47	1.47	37.	42.	0.00	0.75	1.98	1.98	101.	-67.	0.03	0.38
641	35	1.47	1.47	0.	24.	0.00	0.41	1.98	1.98	99.	-171.	0.06	-0.02
648	35	9.45	9.45	156.	137.	0.00	0.39	4.84	4.84	571.	-26.	0.06	0.17
650	35	1.47	1.47	19.	78.	0.00	1.35	1.98	1.98	210.	20.	0.00	0.41
651	35	9.45	9.45	172.	47.	0.00	0.15	4.84	4.84	267.	-47.	0.04	0.06
652	35	9.45	1.47	114.	49.	0.00	1.00	1.98	1.98	318.	-42.	0.07	0.50
653	35	1.47	1.47	66.	58.	0.00	1.08	1.98	1.98	256.	5.	0.03	0.27
654	35	9.45	9.45	174.	31.	0.00	0.11	4.84	4.84	145.	-69.	0.03	0.02
655	35	9.45	1.47	130.	31.	0.00	0.68	1.98	1.98	286.	-47.	0.05	0.18
656	35	1.47	1.47	95.	34.	0.00	0.67	1.98	1.98	267.	-17.	0.04	0.18
657	35	9.45	9.45	155.	30.	0.00	0.11	4.84	4.84	38.	-85.	0.03	-0.02
658	35	9.45	1.47	124.	35.	0.00	0.74	1.98	1.98	113.	-79.	0.04	0.10
659	35	1.47	1.47	91.	47.	0.00	0.90	1.98	1.98	178.	-64.	0.04	0.18
660	35	1.47	1.47	67.	42.	0.00	0.79	1.98	1.98	119.	-171.	0.07	-0.01
661	35	1.47	1.47	77.	49.	0.00	0.92	1.98	1.98	130.	-67.	0.04	0.41
662	35	1.47	1.47	71.	39.	0.00	0.74	1.98	1.98	169.	19.	0.02	0.37
663	35	1.47	1.47	35.	56.	0.00	0.99	1.98	1.98	148.	4.	0.00	0.17
664	35	1.47	1.47	0.	24.	0.00	0.41	1.98	1.98	132.	4.	0.00	0.16
672	35	9.45	9.45	0.	119.	0.00	0.31	4.84	4.84	239.	44.	0.00	0.31
673	35	9.45	1.47	0.	92.	0.00	1.29	1.98	1.98	155.	45.	0.00	0.69
674	35	1.47	1.47	0.	61.	0.00	1.04	1.98	1.98	42.	10.	0.00	0.16
675	35	9.45	9.45	0.	40.	0.00	0.11	4.84	4.84	0.	-43.	0.01	0.07
676	35	9.45	1.47	0.	39.	0.00	0.67	1.98	1.98	0.	-34.	0.01	0.09
677	35	1.47	1.47	0.	37.	0.00	0.64	1.98	1.98	3.	-12.	0.00	0.01
678	35	9.45	9.45	0.	41.	0.00	0.11	4.84	4.84	0.	-58.	0.02	-0.02
679	35	9.45	1.47	0.	40.	0.00	0.69	1.98	1.98	0.	-35.	0.01	0.04
680	35	1.47	1.47	0.	37.	0.00	0.63	1.98	1.98	2.	-13.	0.00	0.01
681	35	9.45	9.45	0.	104.	0.00	0.28	4.84	4.84	0.	35.	0.00	0.18
682	35	9.45	1.47	0.	82.	0.00	1.18	1.98	1.98	31.	43.	0.00	0.56
683	35	1.47	1.47	0.	54.	0.00	0.93	1.98	1.98	19.	8.	0.00	0.12
685	35	1.47	1.47	14.	19.	0.00	0.37	1.98	1.98	19.	1.	0.00	0.03
686	35	1.47	1.47	0.	33.	0.00	0.57	1.98	1.98	12.	0.	0.00	0.01
687	35	1.47	1.47	0.	34.	0.00	0.59	1.98	1.98	5.	-1.	0.00	0.00
688	35	1.47	1.47	0.	21.	0.00	0.36	1.98	1.98	7.	1.	0.00	0.01

696	35	9.45	9.45	0.	95.	0.00	0.25	4.84	4.84	193.	45.	0.00	0.30
697	35	9.45	1.47	0.	68.	0.00	0.77	1.98	1.98	158.	22.	0.00	0.41
698	35	1.47	1.47	0.	39.	0.00	0.66	1.98	1.98	26.	5.	0.00	0.09
699	35	9.45	9.45	0.	39.	0.00	0.10	4.84	4.84	0.	-37.	0.01	0.03
700	35	9.45	1.47	0.	24.	0.00	0.40	1.98	1.98	0.	-26.	0.01	0.03
701	35	1.47	1.47	0.	16.	0.00	0.27	1.98	1.98	13.	-9.	0.00	0.01
702	35	9.45	9.45	0.	33.	0.00	0.09	4.84	4.84	0.	-41.	0.01	0.06
703	35	9.45	1.47	0.	23.	0.00	0.39	1.98	1.98	0.	-25.	0.01	0.02
704	35	1.47	1.47	0.	17.	0.00	0.29	1.98	1.98	0.	-11.	0.00	0.00
705	35	9.45	9.45	0.	96.	0.00	0.25	4.84	4.84	0.	40.	0.00	0.20
706	35	9.45	1.47	0.	70.	0.00	0.80	1.98	1.98	130.	23.	0.00	0.39
707	35	1.47	1.47	0.	42.	0.00	0.72	1.98	1.98	0.	5.	0.00	0.06
709	35	1.47	1.47	12.	12.	0.00	0.22	1.98	1.98	15.	0.	0.00	0.02
710	35	1.47	1.47	0.	14.	0.00	0.24	1.98	1.98	18.	-1.	0.00	0.01
711	35	1.47	1.47	0.	13.	0.00	0.23	1.98	1.98	18.	-1.	0.00	0.02
712	35	1.47	1.47	0.	10.	0.00	0.17	1.98	1.98	21.	0.	0.00	0.02
720	35	9.45	9.45	64.	58.	0.00	0.16	4.84	4.84	718.	2.	0.05	0.41
721	35	9.45	1.47	62.	41.	0.00	0.46	1.98	1.98	415.	9.	0.02	0.44
722	35	1.47	1.47	43.	19.	0.00	0.37	1.98	1.98	90.	-3.	0.01	0.07
723	35	9.45	9.45	134.	36.	0.00	0.12	4.84	4.84	113.	-13.	0.01	0.08
724	35	9.45	1.47	107.	30.	0.00	0.48	1.98	1.98	245.	-7.	0.03	0.18
725	35	1.47	1.47	182.	10.	0.00	0.36	1.98	1.98	48.	-9.	0.01	0.03
726	35	9.45	9.45	0.	15.	0.00	0.04	4.84	4.84	0.	-36.	0.01	0.07
727	35	9.45	1.47	0.	13.	0.00	0.22	1.98	1.98	0.	-20.	0.01	0.05
728	35	1.47	1.47	24.	12.	0.00	0.24	1.98	1.98	13.	-9.	0.00	0.01
729	35	9.45	9.45	207.	47.	0.00	0.20	4.84	4.84	0.	42.	0.00	0.22
730	35	9.45	1.47	137.	32.	0.00	0.69	1.98	1.98	170.	14.	0.01	0.31
731	35	1.47	1.47	0.	30.	0.00	0.51	1.98	1.98	5.	4.	0.00	0.05
733	35	1.47	1.47	21.	8.	0.00	0.17	1.98	1.98	32.	1.	0.00	0.04
734	35	1.47	1.47	78.	12.	0.00	0.29	1.98	1.98	42.	-1.	0.01	0.03
735	35	1.47	1.47	173.	9.	0.00	0.34	1.98	1.98	47.	-1.	0.01	0.04
736	35	1.47	1.47	109.	9.	0.00	0.27	1.98	1.98	51.	1.	0.00	0.05
738	35	9.45	9.45	1190.	-7.	0.07	0.20	4.84	4.84	0.	-99.	0.03	-0.03
740	35	3.14	1.47	1551.	21.	0.08	0.96	1.98	1.98	264.	-65.	0.05	0.16
741	35	9.45	9.45	922.	-12.	0.06	0.15	4.84	4.84	0.	-94.	0.03	-0.03
742	35	9.45	1.47	986.	-6.	0.15	1.06	1.98	1.98	92.	-70.	0.03	0.04
743	35	3.14	1.47	985.	22.	0.00	0.67	1.98	1.98	329.	-49.	0.06	0.25
744	35	9.45	9.45	941.	-4.	0.06	0.17	4.84	4.84	0.	-74.	0.02	-0.02
745	35	9.45	1.47	895.	-1.	0.14	0.96	1.98	1.98	21.	-39.	0.01	-0.01
746	35	1.47	1.47	808.	26.	0.08	1.32	1.98	1.98	400.	-11.	0.06	0.29
747	35	9.45	9.45	977.	25.	0.00	0.23	4.84	4.84	18.	41.	0.00	0.22
748	35	9.45	1.47	835.	27.	0.10	1.36	1.98	1.98	0.	-4.	0.00	0.04
749	35	1.47	1.47	643.	37.	0.01	1.32	1.98	1.98	171.	5.	0.00	0.20
750	35	9.45	9.45	930.	58.	0.00	0.31	7.78	7.78	1019.	-14.	0.07	0.27
751	35	9.45	1.47	522.	44.	0.00	1.32	4.93	4.93	0.	16.	0.00	0.08
752	35	1.47	1.47	100.	35.	0.00	0.71	4.93	4.93	0.	16.	0.00	0.08
754	35	1.47	1.47	113.	22.	0.00	0.50	4.93	4.93	244.	4.	0.00	0.10
755	35	1.47	1.47	494.	36.	0.00	1.17	1.98	1.98	392.	3.	0.02	0.35
757	35	3.14	1.47	1008.	33.	0.00	0.78	1.98	1.98	369.	-34.	0.06	0.56
758	35	3.14	1.47	1602.	29.	0.02	1.05	1.98	1.98	329.	-50.	0.06	0.20
3314	35	9.45	9.45	1554.	127.	0.00	0.60	7.78	7.78	1497.	-91.	0.15	0.38
3315	35	9.45	9.45	1076.	67.	0.00	0.36	4.84	4.84	1383.	-104.	0.15	0.38
3316	35	9.45	9.45	32.	154.	0.00	0.41	4.84	4.84	0.	-81.	0.02	-0.02
3317	35	9.45	9.45	664.	187.	0.00	0.61	4.84	4.84	321.	-45.	0.04	0.08
3318	35	9.45	9.45	338.	195.	0.00	0.57	4.84	4.84	0.	-65.	0.02	-0.02
3319	35	9.45	9.45	569.	237.	0.00	0.72	4.84	4.84	0.	-80.	0.02	-0.02
3320	35	9.45	9.45	390.	207.	0.00	0.61	4.84	4.84	0.	-72.	0.02	-0.02
3321	35	9.45	9.45	927.	261.	0.00	0.85	4.84	4.84	298.	-70.	0.05	0.06
3322	35	9.45	9.45	951.	177.	0.00	0.63	4.84	4.84	0.	-119.	0.03	-0.03
3323	35	9.45	9.45	1246.	94.	0.00	0.46	4.84	4.84	0.	-82.	0.02	-0.02
3324	35	9.45	9.45	1106.	141.	0.00	0.56	4.84	4.84	1458.	-104.	0.15	0.35
3325	35	9.45	9.45	1330.	112.	0.00	0.52	4.84	4.84	1552.	-45.	0.15	0.44

\*\*\* VERIFICHE A TAGLIO SECONDO NTC2018 (cap. 7.4.4.5.1) \*\*\*

Vr<sub>cd</sub> = compressione cls d'anima  
Vr<sub>sd</sub> = trazione armatura trasversale  
Vr<sub>d,s</sub> = scorrimento in zona dissipativa

Quota	Sezione	Af long.	Af trasv.	Taglio	Vr <sub>cd</sub>	Vr <sub>sd</sub>	alfas	Vr <sub>d,s</sub>
[cm]	[cm2]	[cm2]	[cm2]	[daN]	[daN]	[daN]		[daN]
20.0	141400	394.91	763.51	340512	2645785	1689685	-	-
60.0	141400	294.04	480.74	221374	2635478	1063899	-	-
100.0	110771	129.48	93.82	173423	2064610	207617	-	-
140.0	110771	129.48	94.94	170256	2051054	210114	-	-
180.0	110771	129.48	96.07	170256	2047490	212610	-	-
217.5	110771	129.48	96.07	170256	2042462	212610	-	-

#### VERIFICHE A FESSURAZIONE (EFFETTO MEMBRANA + PIASTRA)

CASI DI CARICO: ->

Nome	Descrizione
13	Rara 1 (RARA)
14	Rara 2 (RARA)
15	Frequente 1 (FREQUENTE)
16	Frequente 2 (FREQUENTE)
17	Quasi Perm (QUASI PERMANENTE)

DATI:

copriferro inferiore (asse armatura): 2 cm  
copriferro superiore (asse armatura): 2 cm

Af = area effettiva tesa (cm2 al metro)  
Afc = area effettiva compressa (cm2 al metro)  
Mom = momento flettente [daNcm/cm]  
Nor = sforzo normale [daN]

sigC = tensione calcestruzzo [daN/cm2]  
valore max per combinazione rara = 149.4 daN/cm2  
quasi permanente = 112 daN/cm2

sigF = tensione acciaio [daN/cm2]  
valore max per combinazione rara = 3600 daN/cm2

wkF = apertura caratteristica per combinazione frequente (mm) - valore max = 0.4 mm  
wkP = apertura caratteristica per combinazione quasi permanente (mm) - valore max = 0.3 mm

<-

# ARMATURA INFERIORE ORIZZONTALE

			COMBINAZIONE RARA					COMB. FREQUENTE				COMB. QUASI PERMANENTE				
GUSCI	Af	Afc	Mom	Nor	sigC	sigF		Mom	Nor	wkF		Mom	Nor	sigC	wkP	
525	9.45	9.45	463	11	2.71	214.		434	10	0.007		427	10	2.52	0.007	
526	3.46	3.46	333	5	3.54	377.		313	4	0.030		308	4	3.28	0.029	
527	1.47	1.47	173	2	2.87	438.		162	2	0.078		159	2	2.66	0.076	
528	9.45	9.45	412	27	0.78	282.		387	24	0.011		381	23	0.92	0.011	
529	3.46	3.46	301	16	2.00	505.		282	14	0.047		278	14	1.96	0.046	
530	1.47	1.47	171	8	2.00	655.		160	8	0.141		158	7	1.90	0.138	
531	9.45	9.45	385	22	1.16	247.		362	20	0.010		357	20	1.17	0.009	
532	3.46	3.46	268	19	0.39	523.		252	17	0.051		248	17	0.61	0.050	
533	1.47	1.47	130	13	0.00	716.		122	12	0.174		121	11	0.00	0.170	
534	9.45	9.45	356	39	0.00	330.		335	36	0.014		330	35	0.00	0.014	
535	4.97	3.46	216	30	0.00	442.		203	28	0.034		200	27	0.00	0.033	
536	2.97	1.47	28	18	0.00	331.		26	17	0.050		26	16	0.00	0.048	
541	2.97	1.47	8	3	0.00	56.		8	3	0.008		8	3	0.00	0.008	
542	1.47	1.47	86	10	0.00	522.		81	9	0.130		79	9	0.00	0.128	
543	1.47	1.47	128	7	1.15	533.		120	7	0.119		118	7	1.11	0.117	
544	1.47	1.47	113	7	0.86	488.		106	7	0.110		105	6	0.84	0.108	
552	9.45	9.45	341	8	1.97	160.		319	8	0.006		314	8	1.82	0.005	
553	3.46	3.46	287	5	3.03	331.		269	4	0.027		265	4	2.79	0.026	
554	1.47	1.47	184	3	3.02	491.		173	3	0.090		170	2	2.79	0.089	
555	9.45	9.45	317	-4	2.25	89.		297	-4	0.003		292	-4	2.08	0.003	
556	3.46	3.46	285	-1	3.22	250.		267	-1	0.018		263	-1	2.96	0.017	
557	1.47	1.47	224	4	3.65	612.		210	4	0.115		207	3	3.36	0.113	
558	9.45	9.45	377	-3	2.63	116.		353	-3	0.003		347	-3	2.43	0.003	
559	3.46	3.46	314	-1	3.54	276.		294	-1	0.019		289	-1	3.26	0.019	
560	1.47	1.47	214	3	3.50	570.		200	3	0.106		196	3	3.22	0.104	
561	9.45	9.45	495	4	3.24	191.		463	4	0.006		456	4	2.98	0.006	
562	3.46	3.46	321	1	3.57	310.		301	1	0.022		296	1	3.29	0.022	
563	1.47	1.47	80	0.	1.36	190.		75	0.	0.032		74	0.	1.25	0.032	
565	1.47	1.47	50	6	0.00	329.		47	6	0.083		46	6	0.00	0.082	
566	1.47	1.47	174	6	2.56	565.		163	5	0.115		160	5	2.36	0.113	
567	1.47	1.47	198	6	2.97	627.		185	5	0.126		182	5	2.74	0.124	
568	1.47	1.47	136	6	1.67	512.		128	6	0.110		126	6	1.55	0.108	
570	9.45	9.45	190	2	1.24	75.		178	2	0.002		175	2	1.14	0.002	
571	9.45	9.45	163	-3	1.17	41.		153	-3	0.001		150	-3	1.08	0.001	
572	3.46	3.46	196	7	1.78	279.		184	6	0.025		181	6	1.62	0.025	
573	3.46	3.46	172	2	1.86	187.		162	2	0.016		159	2	1.68	0.016	
574	1.47	1.47	163	-29	1.60	-2.		153	-26	0.000		150	-26	1.44	0.000	
575	1.47	1.47	146	-32	1.59	-4.		137	-28	0.000		134	-27	1.41	0.000	
576	9.45	9.45	217	3	1.36	92.		204	3	0.003		200	3	1.27	0.003	
577	3.46	3.46	224	3	2.37	255.		210	3	0.020		206	3	2.19	0.020	
578	1.47	1.47	184	14	0.00	882.		172	13	0.207		170	13	0.00	0.204	
579	9.45	9.45	271	-9	1.97	52.		254	-9	0.002		250	-9	1.82	0.001	
580	3.46	3.46	272	-9	2.96	128.		255	-9	0.009		250	-8	2.74	0.009	
581	1.47	1.47	213	-2	3.62	387.		199	-2	0.066		196	-2	3.34	0.065	
582	9.45	9.45	394	-15	2.86	70.		369	-13	0.002		363	-12	2.63	0.002	
583	3.46	3.46	349	-11	3.85	180.		326	-9	0.014		321	-9	3.58	0.014	
584	1.47	1.47	227	-1	3.87	464.		212	-1	0.073		209	-1	3.56	0.073	
585	9.45	9.45	574	-4	4.02	177.		537	-3	0.005		529	-3	3.67	0.005	
586	3.46	3.46	392	-4	4.45	305.		367	-3	0.022		361	-3	4.09	0.022	
587	1.47	1.47	84	0.	1.42	191.		79	1	0.039		77	1	1.27	0.040	
589	1.47	1.47	36	8	0.00	369.		34	8	0.105		33	8	0.00	0.103	
590	1.47	1.47	169	4	2.63	506.		158	4	0.104		156	4	2.37	0.104	
591	1.47	1.47	179	2	2.98	451.		167	2	0.085		165	2	2.71	0.085	
592	1.47	1.47	162	17	0.00	946.		152	17	0.240		149	16	0.00	0.237	
593	1.47	1.47	146	-16	1.23	5.		136	-14	0.001		134	-13	1.14	0.001	
594	9.45	9.45	80	-4	0.57	11.		75	-3	0.000		73	-3	0.53	0.000	
595	9.45	9.45	54	0.	0.37	18.		51	0.	0.001		50	0.	0.34	0.001	
596	3.46	3.46	87	2	0.89	106.		81	2	0.010		80	2	0.76	0.010	
597	3.46	3.46	67	7	0.00	156.		63	7	0.017		62	7	0.00	0.017	
598	1.47	1.47	96	-2	1.59	134.		90	-1	0.028		89	-1	1.51	0.029	
599	1.47	1.47	80	3	1.09	278.		75	4	0.069		73	4	0.74	0.071	
600	9.45	9.45	92	-10	0.66	2.		86	-9	0.000		84	-9	0.61	0.000	
601	3.46	3.46	98	-9	0.80	6.		92	-8	0.001		90	-7	0.75	0.001	
602	1.47	1.47	108	1	1.81	263.		101	2	0.056		99	2	1.59	0.058	
603	9.45	9.45	101	-15	0.81	0.		95	-13	0.000		93	-13	0.73	0.000	
604	3.46	3.46	109	-16	0.95	0.		102	-14	0.000		101	-14	0.85	0.000	
605	1.47	1.47	121	-6	1.70	84.		113	-4	0.019		111	-4	1.73	0.021	
606	9.45	9.45	115	-13	0.83	2.		108	-11	0.000		106	-11	0.75	0.000	
607	3.46	3.46	125	-14	1.01	3.		117	-12	0.000		115	-12	0.93	0.000	
608	1.47	1.47	112	-4	1.67	98.		105	-3	0.022		104	-3	1.69	0.024	
609	9.45	9.45	136	-9	0.96	12.		127	-8	0.000		125	-8	0.89	0.000	
610	3.46	3.46	147	-8	1.47	42.		138	-6	0.003		135	-6	1.40	0.004	
611	1.47	1.47	128	8	0.98	552.		120	8	0.134		118	8	0.33	0.135	
612	1.47	1.47	132	-18	1.14	1.		123	-15	0.000		121	-14	1.03	0.001	
613	1.47	1.47	118	15	0.00	756.		110	15	0.204		108	15	0.00	0.204	
614	1.47	1.47	105	-2	1.74	150.		98	-1	0.032		97	-1	1.65	0.033	
615	1.47	1.47	125	-3	2.07	179.		118	-1	0.036		116	-1	1.97	0.038	
616	1.47	1.47	112	9	0.00	544.		105	9	0.139		103	9	0.00	0.141	
617	1.47	1.47	100	-5	1.37	63.		94	-3	0.017		92	-3	1.46	0.018	
618	9.45	9.45	139	-1	0.96	45.		129	0.	0.001		127	0.	0.87	0.001	
619	9.45	9.45	171	9	0.65	103.		159	8	0.004		157	8	0.62	0.004	
620	3.46	3.46	151	8	1.04	251.		141	8	0.024		139	8	0.85	0.024	
621	3.46	3.46	180	17	0.00	419.		168	16	0.044		165	16	0.00	0.043	
622	1.47	1.47	163	7	2.02	608.		152	8	0.139		150	8	1.62	0.140	
623	1.47	1.47	188	15	0.00	935.		176	15	0.225		173	14	0.00	0.223	
624	9.45	9.45	106	-9	0.74	5.		99	-8	0.000		97	-8	0.68	0.000	

625	3.46	3.46	121	-5	1.27	46.	112	-4	0.004	110	-4	1.20	0.004
626	1.47	1.47	136	8	1.16	575.	127	8	0.139	125	9	0.55	0.139
627	9.45	9.45	81	-15	0.74	-2.	75	-14	0.000	74	-13	0.66	0.000
628	3.46	3.46	94	-13	0.81	0.	88	-12	0.000	86	-11	0.72	0.000
629	1.47	1.47	110	-5	1.63	92.	103	-3	0.020	101	-3	1.62	0.022
630	9.45	9.45	64	-6	0.45	2.	60	-6	0.000	59	-5	0.41	0.000
631	3.46	3.46	75	-6	0.61	5.	70	-5	0.001	68	-5	0.58	0.001
632	1.47	1.47	89	-2	1.43	109.	83	-1	0.023	81	-1	1.37	0.024
633	9.45	9.45	52	-4	0.37	4.	48	-3	0.000	47	-3	0.33	0.000
634	3.46	3.46	61	0.	0.69	49.	56	0.	0.004	55	0.	0.61	0.004
635	1.47	1.47	73	11	0.00	533.	67	11	0.147	66	11	0.00	0.147
636	1.47	1.47	84	0.	1.42	182.	78	1	0.042	77	2	1.24	0.045
637	1.47	1.47	78	17	0.00	753.	72	17	0.219	71	17	0.00	0.219
638	1.47	1.47	95	7	0.00	462.	88	8	0.120	86	8	0.00	0.121
639	1.47	1.47	116	6	1.25	460.	108	7	0.113	106	7	0.64	0.115
640	1.47	1.47	141	17	0.00	901.	131	17	0.239	129	17	0.00	0.238
641	1.47	1.47	167	6	2.28	582.	156	7	0.132	153	7	1.85	0.133
648	9.45	9.45	555	36	1.08	378.	520	34	0.015	512	33	0.97	0.015
649	3.46	3.46	379	29	0.00	768.	355	27	0.078	349	27	0.00	0.076
650	1.47	1.47	88	20	0.00	888.	83	19	0.248	81	19	0.00	0.245
651	9.45	9.45	378	3	2.49	143.	354	3	0.004	348	3	2.29	0.004
652	3.46	3.46	336	8	3.36	428.	315	8	0.037	310	8	3.07	0.036
653	1.47	1.47	246	18	0.00	1166.	230	17	0.277	227	17	0.00	0.274
654	9.45	9.45	257	2	1.69	98.	241	1	0.003	237	1	1.57	0.003
655	3.46	3.46	260	3	2.79	286.	243	3	0.022	239	3	2.57	0.022
656	1.47	1.47	243	10	3.16	876.	227	10	0.189	224	10	2.87	0.187
657	9.45	9.45	202	11	0.62	129.	189	10	0.005	185	10	0.63	0.005
658	3.46	3.46	211	14	0.61	401.	197	13	0.039	194	13	0.68	0.038
659	1.47	1.47	214	20	0.00	1165.	201	19	0.283	197	19	0.00	0.278
660	1.47	1.47	190	12	1.27	834.	178	12	0.196	175	12	0.82	0.195
662	1.47	1.47	228	15	1.46	1005.	214	14	0.233	210	14	1.16	0.231
664	1.47	1.47	42	15	0.00	605.	40	14	0.177	39	14	0.00	0.174
672	9.45	9.45	411	60	0.00	455.	386	55	0.020	380	54	0.00	0.020
673	3.46	3.46	273	46	0.00	913.	256	42	0.103	252	41	0.00	0.101
675	9.45	9.45	271	24	0.00	217.	255	22	0.009	251	21	0.00	0.009
676	3.46	3.46	247	29	0.00	645.	232	27	0.069	229	26	0.00	0.068
678	9.45	9.45	201	23	0.00	193.	189	22	0.008	186	21	0.00	0.008
679	3.46	3.46	208	29	0.00	606.	195	26	0.066	192	26	0.00	0.065
681	9.45	9.45	253	59	0.00	398.	238	55	0.019	234	53	0.00	0.019
682	3.46	3.46	204	45	0.00	838.	191	42	0.098	188	41	0.00	0.096
685	1.47	1.47	133	15	0.00	807.	125	14	0.202	123	14	0.00	0.198
687	1.47	1.47	169	24	0.00	1174.	159	22	0.302	156	21	0.00	0.296
688	1.47	1.47	86	15	0.00	695.	82	14	0.185	81	14	0.00	0.182
696	9.45	9.45	402	33	0.00	310.	378	30	0.013	372	30	0.00	0.013
697	3.46	3.46	263	23	0.00	582.	247	22	0.060	243	21	0.00	0.058
698	1.47	1.47	93	14	0.00	672.	88	13	0.174	86	12	0.00	0.171
699	9.45	9.45	280	11	1.35	153.	264	10	0.006	260	10	1.28	0.005
700	3.46	3.46	252	14	1.49	437.	237	13	0.041	233	13	1.45	0.041
701	1.47	1.47	190	14	0.00	902.	179	13	0.210	176	13	0.01	0.206
702	9.45	9.45	207	10	0.79	125.	195	9	0.005	193	9	0.77	0.005
703	3.46	3.46	214	14	0.74	403.	202	13	0.039	199	13	0.79	0.039
704	1.47	1.47	201	14	0.39	932.	189	13	0.215	186	13	0.63	0.211
705	9.45	9.45	246	35	0.00	268.	230	32	0.012	227	32	0.00	0.012
706	3.46	3.46	197	25	0.00	549.	186	23	0.060	183	23	0.00	0.058
707	1.47	1.47	157	15	0.00	845.	148	14	0.204	145	13	0.00	0.201
709	1.47	1.47	128	10	0.00	623.	120	9	0.147	119	9	0.00	0.144
710	1.47	1.47	190	13	0.76	865.	179	12	0.199	176	12	0.86	0.195
711	1.47	1.47	161	13	0.00	795.	151	12	0.188	149	12	0.00	0.184
712	1.47	1.47	92	10	0.00	549.	87	9	0.137	85	9	0.00	0.135
720	9.45	9.45	438	5	2.78	179.	411	5	0.006	405	5	2.58	0.006
721	3.46	3.46	287	2	3.16	289.	270	2	0.022	265	2	2.92	0.021
722	1.47	1.47	79	2	1.23	235.	74	2	0.046	73	2	1.13	0.045
723	9.45	9.45	310	0.	2.12	106.	292	0.	0.003	287	0.	1.97	0.003
724	3.46	3.46	268	1	2.98	259.	252	1	0.019	249	1	2.76	0.019
725	1.47	1.47	197	5	3.07	587.	185	4	0.116	182	4	2.85	0.114
726	9.45	9.45	242	-3	1.71	70.	228	-3	0.002	225	-3	1.59	0.002
727	3.46	3.46	230	1	2.55	224.	217	1	0.017	213	1	2.37	0.016
728	1.47	1.47	203	6	3.09	631.	191	5	0.127	188	5	2.86	0.125
729	9.45	9.45	235	13	0.78	147.	222	12	0.006	218	12	0.74	0.006
730	3.46	3.46	210	8	1.78	314.	198	8	0.029	195	8	1.66	0.028
731	1.47	1.47	157	6	2.10	559.	148	6	0.119	146	6	1.95	0.117
733	1.47	1.47	132	8	1.02	569.	124	8	0.129	122	8	0.97	0.127
734	1.47	1.47	189	8	2.54	670.	178	7	0.142	175	7	2.36	0.140
735	1.47	1.47	167	7	2.20	599.	157	7	0.128	154	6	2.04	0.125
736	1.47	1.47	56	9	0.00	415.	52	8	0.109	51	8	0.00	0.107
738	9.45	9.45	40	-17	0.62	-5.	36	-1	0.000	36	-1	0.26	0.000
739	3.46	3.46	0.	-10	0.27	-4.	0.	-10	0.000	0.	-10	0.26	0.000
740	1.47	3.14	0.	9	0.00	294.	0.	8	0.093	0.	8	0.00	0.092
741	9.45	9.45	483	-6	3.42	140.	455	-6	0.004	448	-6	3.18	0.004
742	3.46	3.46	315	-4	3.57	231.	296	-4	0.016	292	-4	3.32	0.016
743	1.47	3.14	144	5	2.01	499.	135	5	0.102	133	5	1.89	0.100
744	9.45	9.45	577	-12	4.15	143.	543	-12	0.004	535	-12	3.85	0.004
745	3.46	3.46	484	-4	5.48	397.	456	-4	0.028	449	-4	5.09	0.027
746	1.47	1.47	388	12	5.75	1248.	365	11	0.253	360	11	5.37	0.249
747	9.45	9.45	601	7	3.84	243.	564	6	0.008	555	5	3.61	0.007
748	3.46	3.46	516	7	5.49	581.	485	7	0.046	477	7	5.09	0.045
750	9.45	9.45	645	-5	4.51	201.	605	-4	0.006	595	-4	4.16	0.006
751	3.46	3.46	516	-5	5.85	408.	484	-5	0.029	476	-4	5.40	0.029
752	1.47	1.47	356	3	5.98	856.	334	3	0.152	329	3	5.53	0.150
754	1.47	1.47	290	14	3.34	1118.	272	13	0.244	268	13	3.12	0.240
757	1.47	3.14	94	18	0.00	811.	88	16	0.218	87	16	0.00	0.215
758	1.47	3.14	0.	18	0.00	614.	0.	17	0.201	0.	17	0.00	0.198
3314	9.45	9.45	300	-69	3.04	-11.	282	-63	0.000	277	-62	2.77	0.000
3315	9.45	9.45	1067	-40	7.74	188.	1000	-37	0.006	984	-36	7.14	0.006
3316	9.45	9.45	451	-7	3.22	122.	422	-6	0.004	415	-6	2.96	0.004
3317	9.45	9.45	964	10	6.24	381.	905	8	0.012	892	8	5.81	0.012
3318	9.45	9.45	729	20	4.09	354.	685	18	0.012	674	17	3.85	0.012
3319	9.45	9.45	1000	74	0.00	731.	939	68	0.030	925	66	0.34	0.029

3320	9.45	9.45	718	70	0.00	615.	679	65	0.026	671	64	0.00	0.026
3321	9.45	9.45	1194	36	6.50	595.	1119	34	0.021	1101	33	5.98	0.021
3322	9.45	9.45	1235	-31	8.93	281.	1154	-28	0.008	1135	-27	8.20	0.008
3323	9.45	9.45	541	-17	3.93	108.	505	-16	0.003	496	-16	3.60	0.003
3324	9.45	9.45	1091	-35	7.92	217.	1020	-33	0.006	1003	-32	7.28	0.006
3325	9.45	9.45	149	-42	1.71	-8.	142	-39	0.000	140	-38	1.59	0.000
3326	9.45	9.45	507	75	0.00	571.	475	69	0.026	469	67	0.00	0.025

# ARMATURA INFERIORE VERTICALE

GUSCI	COMBINAZIONE RARA						COMB. FREQUENTE			COMB. QUASI PERMANENTE			
	Af	Afc	Mom	Nor	sigC	sigF	Mom	Nor	wkF	Mom	Nor	sigC	wkP
525	4.84	4.84	993	20	8.61	857.	930	17	0.055	915	17	8.00	0.054
526	1.98	1.98	420	-3	6.20	599.	395	-3	0.072	388	-3	5.73	0.070
527	1.98	1.98	136	-6	1.72	73.	128	-6	0.009	126	-6	1.60	0.009
528	4.84	4.84	700	5	6.50	513.	657	3	0.030	647	3	6.05	0.029
529	1.98	1.98	304	-14	3.83	166.	285	-13	0.020	281	-13	3.51	0.019
530	1.98	1.98	95	-11	0.79	2.	89	-10	0.000	88	-10	0.73	0.000
531	4.84	4.84	476	-16	4.54	166.	448	-16	0.009	441	-16	4.19	0.009
532	1.98	1.98	66	-22	0.92	-5.	62	-21	0.000	61	-20	0.85	0.000
533	1.98	1.98	20	-9	0.36	-3.	18	-9	0.000	18	-9	0.32	0.000
534	4.84	4.84	357	-57	3.16	-2.	335	-54	0.000	331	-54	2.95	0.000
535	1.98	1.98	0.	-4	0.12	-2.	0.	-4	0.000	0.	-4	0.12	0.000
536	1.98	1.98	0.	-5	0.14	-2.	0.	-5	0.000	0.	-5	0.13	0.000
541	1.98	1.98	21	0.	0.31	28.	20	0.	0.003	19	0.	0.28	0.003
542	1.98	1.98	33	-1	0.47	35.	31	-1	0.004	30	-1	0.44	0.004
543	1.98	1.98	47	-1	0.68	51.	44	-1	0.006	44	-1	0.63	0.006
544	1.98	1.98	54	0.	0.80	81.	51	0.	0.010	50	0.	0.74	0.010
552	4.84	4.84	872	-8	8.44	507.	816	-8	0.028	803	-8	7.78	0.027
553	1.98	1.98	272	-9	3.74	219.	255	-9	0.026	250	-9	3.41	0.025
554	1.98	1.98	113	-5	1.44	65.	106	-5	0.008	104	-4	1.34	0.008
555	4.84	4.84	648	-36	5.73	127.	607	-34	0.007	597	-34	5.24	0.007
556	1.98	1.98	230	-20	1.99	19.	216	-19	0.002	212	-19	1.82	0.002
557	1.98	1.98	73	-10	0.64	0.	69	-10	0.000	67	-9	0.58	0.000
558	4.84	4.84	695	-26	6.56	222.	650	-25	0.012	639	-25	6.01	0.012
559	1.98	1.98	65	-19	0.84	-4.	61	-18	0.000	60	-18	0.78	0.000
560	1.98	1.98	2	-10	0.30	-4.	2	-10	0.000	2	-9	0.27	0.000
561	4.84	4.84	985	0.	9.37	652.	921	-1	0.036	905	-1	8.64	0.035
562	1.98	1.98	0.	-9	0.24	-4.	0.	-9	0.000	0.	-8	0.24	0.000
563	1.98	1.98	0.	-5	0.14	-2.	0.	-5	0.000	0.	-5	0.13	0.000
565	1.98	1.98	4	0.	0.00	18.	4	0.	0.003	4	0.	0.00	0.003
566	1.98	1.98	15	-1	0.18	7.	14	-1	0.001	14	-1	0.16	0.001
567	1.98	1.98	34	-1	0.49	36.	32	-1	0.004	31	-1	0.45	0.004
568	1.98	1.98	47	0.	0.67	85.	44	0.	0.011	43	0.	0.62	0.011
570	4.84	4.84	248	-100	3.86	-27.	232	-94	0.000	228	-92	3.55	0.000
571	4.84	4.84	228	-110	4.02	-32.	213	-102	0.000	210	-100	3.68	0.000
572	1.98	1.98	193	-114	4.10	-36.	181	-106	0.000	178	-103	3.74	0.000
573	1.98	1.98	182	-118	4.16	-38.	170	-109	0.000	167	-107	3.78	0.000
574	1.98	1.98	147	-130	4.35	-46.	138	-120	0.000	136	-118	3.94	0.000
575	1.98	1.98	142	-130	4.32	-46.	133	-120	0.000	131	-117	3.91	0.000
576	4.84	4.84	274	-69	3.13	-12.	256	-65	0.000	252	-64	2.89	0.000
577	1.98	1.98	197	-52	2.40	-10.	185	-49	0.000	182	-48	2.22	0.000
578	1.98	1.98	138	-23	1.29	-1.	129	-21	0.000	127	-21	1.18	0.000
579	4.84	4.84	356	-62	3.29	-4.	334	-59	0.000	328	-58	3.05	0.000
580	1.98	1.98	171	-31	1.69	-3.	160	-30	0.000	157	-30	1.57	0.000
581	1.98	1.98	95	-10	0.79	4.	89	-9	0.000	88	-9	0.73	0.000
582	4.84	4.84	582	-57	4.53	25.	545	-53	0.001	536	-52	4.17	0.001
583	1.98	1.98	5	-25	0.72	-10.	4	-24	0.000	4	-23	0.68	0.000
584	1.98	1.98	7	-12	0.37	-5.	7	-11	0.000	7	-10	0.32	0.000
585	4.84	4.84	1142	-17	11.11	597.	1067	-16	0.034	1050	-15	10.21	0.033
586	1.98	1.98	0.	-15	0.43	-7.	0.	-14	0.000	0.	-14	0.38	0.000
587	1.98	1.98	0.	-2	0.07	-1.	0.	-2	0.000	0.	-2	0.05	0.000
589	1.98	1.98	35	2	0.28	107.	33	2	0.017	32	2	0.28	0.017
590	1.98	1.98	63	1	0.90	115.	59	1	0.015	58	1	0.83	0.015
591	1.98	1.98	104	6	0.73	324.	97	6	0.054	95	6	0.72	0.052
592	1.98	1.98	125	-9	1.17	19.	117	-9	0.002	115	-9	1.09	0.002
593	1.98	1.98	127	-148	4.75	-54.	119	-136	0.000	117	-133	4.30	0.000
594	4.84	4.84	168	-111	3.81	-36.	157	-104	0.000	154	-102	3.48	0.000
595	4.84	4.84	146	-105	3.52	-34.	136	-97	0.000	134	-96	3.22	0.000
596	1.98	1.98	108	-119	3.87	-44.	102	-111	0.000	100	-108	3.52	0.000
597	1.98	1.98	92	-114	3.62	-42.	86	-105	0.000	84	-103	3.30	0.000
598	1.98	1.98	64	-132	4.01	-52.	60	-122	0.000	59	-119	3.62	0.000
599	1.98	1.98	46	-128	3.83	-51.	44	-118	0.000	43	-116	3.46	0.000
600	4.84	4.84	172	-84	3.07	-24.	161	-79	0.000	158	-77	2.83	0.000
601	1.98	1.98	122	-60	2.25	-17.	115	-55	0.000	113	-54	2.06	0.000
602	1.98	1.98	81	-23	1.04	-5.	76	-22	0.000	75	-21	0.95	0.000
603	4.84	4.84	118	-76	2.62	-24.	110	-71	0.000	109	-70	2.41	0.000
604	1.98	1.98	84	-38	1.47	-11.	79	-36	0.000	77	-35	1.35	0.000
605	1.98	1.98	48	-6	0.40	1.	45	-5	0.000	44	-5	0.37	0.000
606	4.84	4.84	134	-75	2.66	-23.	126	-70	0.000	124	-69	2.44	0.000
607	1.98	1.98	109	-37	1.56	-9.	102	-35	0.000	101	-34	1.44	0.000
608	1.98	1.98	74	-5	0.75	15.	70	-5	0.002	69	-5	0.70	0.002
609	4.84	4.84	202	-81	3.13	-21.	189	-76	0.000	186	-74	2.87	0.000
610	1.98	1.98	167	-57	2.40	-14.	157	-53	0.000	154	-52	2.19	0.000
611	1.98	1.98	130	-22	1.23	-1.	122	-20	0.000	120	-20	1.12	0.000
612	1.98	1.98	118	-148	4.71	-55.	111	-136	0.000	109	-134	4.27	0.000
613	1.98	1.98	105	-8	0.95	12.	99	-8	0.002	97	-8	0.88	0.002
614	1.98	1.98	89	5	0.84	258.	84	4	0.041	82	4	0.82	0.040
615	1.98	1.98	72	5	0.27	240.	67	4	0.040	66	4	0.34	0.039
616	1.98	1.98	53	-9	0.50	0.	50	-8	0.000	50	-8	0.46	0.000
617	1.98	1.98	35	-148	4.33	-60.	33	-137	0.000	33	-134	3.91	0.000
618	4.84	4.84	220	-116	4.16	-35.	205	-108	0.000	201	-106	3.80	0.000
619	4.84	4.84	247	-99	3.83	-26.	231	-93	0.000	227	-91	3.52	0.000
620	1.98	1.98	167	-122	4.21	-41.	155	-113	0.000	153	-111	3.83	0.000
621	1.98	1.98	183	-113	4.05	-36.	171	-105	0.000	168	-103	3.69	0.000
622	1.98	1.98	120	-132	4.27	-48.	112	-122	0.000	110	-119	3.86	0.000
623	1.98	1.98	129	-130	4.26	-47.	121	-120	0.000	119	-117	3.86	0.000
624	4.84	4.84	186	-88	3.24	-25.	173	-82	0.000	170	-80	2.97	0.000

625	1.98	1.98	147	-62	2.44	-17.	137	-58	0.000	134	-57	2.23	0.000
626	1.98	1.98	104	-25	1.18	-4.	97	-23	0.000	95	-22	1.07	0.000
627	4.84	4.84	157	-90	3.17	-28.	146	-84	0.000	144	-82	2.90	0.000
628	1.98	1.98	125	-52	2.05	-14.	117	-48	0.000	115	-48	1.88	0.000
629	1.98	1.98	85	-14	0.79	0.	79	-13	0.000	78	-12	0.72	0.000
630	4.84	4.84	142	-79	2.81	-24.	132	-74	0.000	130	-73	2.59	0.000
631	1.98	1.98	105	-43	1.72	-12.	98	-41	0.000	96	-40	1.58	0.000
632	1.98	1.98	65	-9	0.56	1.	61	-8	0.000	59	-8	0.51	0.000
633	4.84	4.84	137	-78	2.74	-24.	127	-73	0.000	125	-71	2.52	0.000
634	1.98	1.98	88	-54	1.93	-17.	82	-50	0.000	80	-49	1.76	0.000
635	1.98	1.98	45	-20	0.77	-6.	42	-18	0.000	41	-18	0.70	0.000
636	1.98	1.98	17	-149	4.26	-62.	16	-137	0.000	16	-134	3.85	0.000
637	1.98	1.98	16	-8	0.31	-2.	15	-8	0.000	15	-7	0.28	0.000
638	1.98	1.98	36	4	0.00	167.	33	4	0.030	33	4	0.00	0.030
639	1.98	1.98	56	5	0.00	219.	52	5	0.038	51	4	0.00	0.037
640	1.98	1.98	75	-9	0.63	2.	69	-8	0.000	68	-8	0.57	0.000
641	1.98	1.98	91	-147	4.55	-56.	85	-135	0.000	83	-132	4.11	0.000
648	4.84	4.84	1158	-16	11.26	618.	1087	-15	0.035	1070	-14	10.40	0.034
649	1.98	1.98	0.	9	0.00	219.	0.	8	0.054	0.	8	0.00	0.053
650	1.98	1.98	0.	7	0.00	171.	0.	6	0.042	0.	6	0.00	0.042
651	4.84	4.84	589	-61	4.59	19.	553	-58	0.001	544	-57	4.24	0.001
652	1.98	1.98	13	-28	0.83	-11.	12	-25	0.000	12	-25	0.76	0.000
653	1.98	1.98	6	-5	0.16	-2.	6	-4	0.000	6	-4	0.14	0.000
654	4.84	4.84	362	-65	3.39	-5.	340	-61	0.000	335	-60	3.14	0.000
655	1.98	1.98	171	-41	1.96	-7.	161	-39	0.000	158	-38	1.82	0.000
656	1.98	1.98	88	-16	0.88	-1.	82	-16	0.000	81	-15	0.81	0.000
657	4.84	4.84	278	-71	3.18	-13.	261	-67	0.000	256	-66	2.94	0.000
658	1.98	1.98	193	-57	2.50	-12.	180	-53	0.000	177	-52	2.30	0.000
659	1.98	1.98	124	-26	1.33	-3.	116	-25	0.000	114	-24	1.22	0.000
660	1.98	1.98	103	-147	4.61	-55.	96	-136	0.000	95	-133	4.17	0.000
661	1.98	1.98	105	-10	0.89	7.	98	-9	0.001	97	-9	0.82	0.001
662	1.98	1.98	89	7	0.00	330.	83	7	0.058	82	7	0.00	0.056
663	1.98	1.98	54	2	0.66	132.	50	2	0.020	49	2	0.61	0.020
664	1.98	1.98	29	3	0.00	123.	27	3	0.022	27	3	0.00	0.022
672	4.84	4.84	1012	4	9.50	713.	951	3	0.041	937	3	8.82	0.040
673	1.98	1.98	0.	15	0.00	386.	0.	14	0.089	0.	13	0.00	0.087
674	1.98	1.98	2	1	0.00	36.	2	1	0.008	2	1	0.00	0.008
675	4.84	4.84	594	-53	4.65	35.	559	-50	0.002	551	-49	4.31	0.002
676	1.98	1.98	57	-21	0.87	-5.	53	-20	0.000	53	-20	0.81	0.000
677	1.98	1.98	0.	-10	0.29	-4.	0.	-9	0.000	0.	-9	0.26	0.000
678	4.84	4.84	469	-51	3.66	13.	440	-48	0.001	433	-47	3.39	0.001
679	1.98	1.98	142	-21	1.27	0.	133	-20	0.000	130	-20	1.17	0.000
680	1.98	1.98	45	-10	0.50	-2.	42	-10	0.000	42	-9	0.46	0.000
681	4.84	4.84	938	7	8.70	691.	881	5	0.040	868	5	8.10	0.040
682	1.98	1.98	134	15	0.00	602.	126	14	0.108	123	13	0.00	0.105
683	1.98	1.98	72	1	1.01	146.	68	1	0.020	67	1	0.93	0.020
685	1.98	1.98	31	1	0.41	70.	29	1	0.010	29	1	0.39	0.010
686	1.98	1.98	18	-1	0.24	11.	17	-1	0.001	17	-1	0.21	0.001
687	1.98	1.98	3	-1	0.03	0.	2	-1	0.000	2	-1	0.03	0.000
688	1.98	1.98	2	1	0.00	23.	2	1	0.005	2	1	0.00	0.004
696	4.84	4.84	1039	-4	9.98	648.	976	-5	0.036	961	-5	9.24	0.036
697	1.98	1.98	0.	1	0.00	36.	0.	1	0.006	0.	1	0.00	0.005
698	1.98	1.98	11	-3	0.14	-1.	10	-3	0.000	10	-3	0.13	0.000
699	4.84	4.84	640	-38	5.54	108.	602	-36	0.006	593	-35	5.12	0.006
700	1.98	1.98	34	-18	0.68	-6.	32	-17	0.000	32	-17	0.63	0.000
701	1.98	1.98	0.	-10	0.28	-4.	0.	-9	0.000	0.	-9	0.26	0.000
702	4.84	4.84	496	-43	3.89	31.	466	-41	0.002	459	-40	3.60	0.002
703	1.98	1.98	130	-19	1.15	0.	122	-18	0.000	121	-18	1.07	0.000
704	1.98	1.98	41	-10	0.47	-2.	38	-9	0.000	38	-9	0.43	0.000
705	4.84	4.84	926	-8	8.97	534.	870	-9	0.030	856	-9	8.30	0.029
706	1.98	1.98	130	1	1.87	238.	122	1	0.029	121	1	1.76	0.028
707	1.98	1.98	67	-3	0.84	35.	64	-3	0.004	63	-3	0.79	0.004
709	1.98	1.98	28	0.	0.40	52.	26	0.	0.007	26	0.	0.37	0.006
710	1.98	1.98	16	-1	0.19	7.	15	-1	0.001	15	-1	0.17	0.001
711	1.98	1.98	0.	-1	0.03	0.	0.	-1	0.000	0.	-1	0.03	0.000
712	1.98	1.98	5	0.	0.04	16.	5	0.	0.002	5	0.	0.06	0.002
720	4.84	4.84	938	1	8.89	635.	880	0.	0.035	866	0.	8.22	0.035
721	1.98	1.98	0.	-7	0.19	-3.	0.	-7	0.000	0.	-7	0.19	0.000
722	1.98	1.98	0.	-4	0.13	-2.	0.	-4	0.000	0.	-4	0.11	0.000
723	4.84	4.84	605	-24	5.68	184.	568	-23	0.010	559	-23	5.23	0.010
724	1.98	1.98	59	-19	0.80	-4.	56	-18	0.000	55	-17	0.75	0.000
725	1.98	1.98	1	-10	0.30	-4.	1	-10	0.000	1	-9	0.27	0.000
726	4.84	4.84	518	-41	4.14	43.	488	-39	0.002	480	-38	3.83	0.002
727	1.98	1.98	182	-21	1.52	5.	172	-20	0.001	170	-20	1.42	0.001
728	1.98	1.98	59	-10	0.57	-1.	56	-10	0.000	55	-9	0.52	0.000
729	4.84	4.84	744	-7	7.21	427.	697	-7	0.024	686	-7	6.65	0.023
730	1.98	1.98	203	-7	2.75	150.	192	-7	0.018	189	-7	2.53	0.017
731	1.98	1.98	91	-4	1.13	47.	86	-4	0.006	85	-4	1.07	0.006
733	1.98	1.98	38	1	0.54	74.	36	0.	0.010	36	0.	0.51	0.009
734	1.98	1.98	27	-1	0.38	26.	26	-1	0.003	25	-1	0.35	0.003
735	1.98	1.98	11	-1	0.10	1.	10	-1	0.000	10	-1	0.09	0.000
736	1.98	1.98	1	1	0.00	15.	1	0.	0.003	1	0.	0.00	0.003
738	4.84	4.84	1066	-89	8.43	76.	1009	-84	0.004	995	-83	7.86	0.004
739	1.98	1.98	341	-75	3.72	-10.	318	-72	0.000	314	-71	3.46	0.000
740	1.98	1.98	175	-54	2.35	-12.	164	-52	0.000	162	-51	2.19	0.000
741	4.84	4.84	1178	-76	9.94	164.	1114	-72	0.009	1098	-71	9.27	0.009
742	1.98	1.98	545	-57	4.53	23.	513	-54	0.003	505	-53	4.20	0.003
743	1.98	1.98	334	-35	2.78	14.	314	-33	0.002	310	-33	2.58	0.002
744	4.84	4.84	1333	-55	12.45	390.	1257	-52	0.022	1238	-52	11.54	0.021
745	1.98	1.98	775	-31	10.25	515.	730	-29	0.063	719	-29	9.49	0.062
746	1.98	1.98	412	-7	6.02	490.	387	-6	0.061	382	-6	5.59	0.060
747	4.84	4.84	1420	-2	13.55	927.	1336	-3	0.052	1315	-3	12.58	0.051
748	1.98	1.98	944	-3	13.91	1432.	888	-3	0.175	875	-3	12.90	0.172
749	1.98	1.98	454	5	6.51	839.	427	4	0.113	421	4	6.03	0.112
750	7.78	7.78	1499	12	10.84	702.	1407	10	0.025	1385	10	10.07	0.025
751	4.93	4.93	1045	2	9.80	698.	983	1	0.035	968	1	9.09	0.035
752	4.93	4.93	473	8	4.13	388.	445	8	0.022	438	8	3.82	0.022
754	4.93	4.93	214	3	1.90	170.	202	3	0.010	198	3	1.77	0.009

755	1.98	1.98	243	3	3.47	456.	228	3	0.061	225	2	3.22	0.060
756	1.98	1.98	283	9	3.62	667.	267	8	0.101	263	8	3.36	0.099
757	1.98	1.98	270	-15	3.13	103.	253	-14	0.012	250	-14	2.86	0.012
758	1.98	1.98	163	-41	1.91	-7.	152	-39	0.000	150	-38	1.78	0.000
3314	5.57	5.57	1615	-85	13.77	302.	1514	-80	0.014	1489	-78	12.70	0.014
3315	4.84	4.84	1410	-106	11.42	137.	1320	-98	0.008	1299	-97	10.54	0.008
3316	4.84	4.84	1235	-87	10.16	139.	1159	-82	0.008	1141	-81	9.40	0.008
3317	4.84	4.84	1416	-87	12.13	221.	1329	-82	0.013	1308	-80	11.21	0.012
3318	4.84	4.84	1297	-86	10.87	171.	1218	-81	0.010	1200	-80	10.06	0.010
3319	4.84	4.84	1520	-73	13.82	365.	1428	-69	0.021	1406	-68	12.80	0.020
3320	4.84	4.84	1473	-68	13.49	373.	1381	-64	0.021	1359	-63	12.44	0.021
3321	4.84	4.84	1752	-94	15.57	357.	1644	-87	0.020	1618	-86	14.43	0.020
3322	4.84	4.84	1706	-98	14.89	306.	1595	-91	0.017	1569	-89	13.73	0.017
3323	4.84	4.84	1534	-96	13.10	234.	1435	-90	0.013	1411	-88	12.04	0.013
3324	4.84	4.84	1351	-94	11.19	161.	1262	-88	0.009	1241	-86	10.27	0.009
3325	4.84	4.84	1356	-78	11.84	243.	1268	-73	0.014	1247	-72	10.87	0.013
3326	4.84	4.84	341	-59	3.15	-4.	320	-57	0.000	316	-56	2.96	0.000

# ARMATURA SUPERIORE ORIZZONTALE

GUSCI	COMBINAZIONE RARA						COMB. FREQUENTE				COMB. QUASI PERMANENTE			
	Af	Afc	Mom	Nor	sigC	sigF	Mom	Nor	wkF	Mom	Nor	sigC	wkP	
525	9.45	9.45	15	11	0.00	62.	16	10	0.003	15	10	0.00	0.003	
526	3.46	3.46	7	5	0.00	77.	8	4	0.010	7	4	0.00	0.009	
527	1.47	1.47	0.	2	0.00	68.	0.	2	0.020	0.	2	0.00	0.019	
528	9.45	9.45	228	27	0.00	219.	214	24	0.009	211	23	0.00	0.009	
529	3.46	3.46	117	16	0.00	336.	110	14	0.036	108	14	0.00	0.035	
530	1.47	1.47	4	8	0.00	294.	4	8	0.092	4	7	0.00	0.090	
531	9.45	9.45	312	22	0.23	223.	293	20	0.009	288	20	0.36	0.009	
532	3.46	3.46	178	19	0.00	440.	167	17	0.046	164	17	0.00	0.045	
533	1.47	1.47	44	13	0.00	527.	41	12	0.148	41	11	0.00	0.145	
534	9.45	9.45	398	39	0.00	344.	373	36	0.015	367	35	0.00	0.014	
535	3.46	4.97	243	30	0.00	659.	228	28	0.071	224	27	0.00	0.069	
536	1.47	2.97	86	18	0.00	801.	81	17	0.217	79	16	0.00	0.211	
541	1.47	2.97	42	3	0.33	189.	40	3	0.043	39	3	0.31	0.042	
542	1.47	1.47	5	10	0.00	346.	5	9	0.109	5	9	0.00	0.107	
543	1.47	1.47	0.	7	0.00	254.	0.	7	0.082	0.	7	0.00	0.081	
544	1.47	1.47	0.	7	0.00	240.	0.	7	0.078	0.	6	0.00	0.076	
552	9.45	9.45	0.	8	0.00	44.	0.	8	0.002	0.	8	0.00	0.002	
553	3.46	3.46	0.	5	0.00	68.	0.	4	0.009	0.	4	0.00	0.009	
554	1.47	1.47	0.	3	0.00	95.	0.	3	0.030	0.	2	0.00	0.029	
555	9.45	9.45	0.	-4	0.12	-2.	0.	-4	0.000	0.	-4	0.11	0.000	
556	3.46	3.46	0.	-1	0.03	0.	0.	-1	0.000	0.	-1	0.03	0.000	
557	1.47	1.47	0.	4	0.00	131.	0.	4	0.042	0.	3	0.00	0.042	
558	9.45	9.45	73	-3	0.53	12.	68	-3	0.000	67	-3	0.49	0.000	
559	3.46	3.46	0.	-1	0.03	0.	0.	-1	0.000	0.	-1	0.03	0.000	
560	1.47	1.47	0.	3	0.00	112.	0.	3	0.036	0.	3	0.00	0.036	
561	9.45	9.45	115	4	0.58	60.	108	4	0.002	106	4	0.55	0.002	
562	3.46	3.46	16	1	0.09	29.	15	1	0.003	15	1	0.10	0.003	
563	1.47	1.47	0.	0.	0.00	17.	0.	0.	0.005	0.	0.	0.00	0.004	
565	1.47	1.47	0.	6	0.00	218.	0.	6	0.071	0.	6	0.00	0.070	
566	1.47	1.47	0.	6	0.00	190.	0.	5	0.062	0.	5	0.00	0.061	
567	1.47	1.47	0.	6	0.00	201.	0.	5	0.065	0.	5	0.00	0.064	
568	1.47	1.47	0.	6	0.00	216.	0.	6	0.070	0.	6	0.00	0.069	
570	9.45	9.45	107	2	0.66	46.	101	2	0.002	99	2	0.61	0.001	
571	9.45	9.45	84	-3	0.61	15.	79	-3	0.000	78	-3	0.56	0.000	
572	3.46	3.46	86	7	0.00	179.	81	6	0.018	80	6	0.00	0.018	
573	3.46	3.46	71	2	0.69	94.	67	2	0.009	66	2	0.57	0.009	
574	1.47	1.47	27	-29	0.70	-14.	25	-26	0.000	25	-26	0.61	0.000	
575	1.47	1.47	21	-32	0.79	-15.	20	-28	0.000	20	-27	0.68	0.000	
576	9.45	9.45	133	3	0.77	63.	125	3	0.002	123	3	0.73	0.002	
577	3.46	3.46	102	3	0.94	144.	96	3	0.012	94	3	0.88	0.012	
578	1.47	1.47	31	14	0.00	545.	29	13	0.162	28	13	0.00	0.159	
579	9.45	9.45	147	-9	1.04	14.	138	-9	0.000	136	-9	0.96	0.000	
580	3.46	3.46	104	-9	0.85	7.	98	-9	0.000	96	-8	0.79	0.001	
581	1.47	1.47	24	-2	0.22	2.	23	-2	0.001	23	-2	0.24	0.001	
582	9.45	9.45	133	-15	0.96	2.	125	-13	0.000	123	-12	0.88	0.000	
583	3.46	3.46	73	-11	0.63	0.	69	-9	0.000	68	-9	0.56	0.000	
584	1.47	1.47	0.	-1	0.02	0.	0.	-1	0.000	0.	-1	0.03	0.000	
585	9.45	9.45	126	-4	0.91	24.	118	-3	0.001	116	-3	0.84	0.001	
586	3.46	3.46	50	-4	0.42	4.	47	-3	0.001	47	-3	0.43	0.001	
587	1.47	1.47	0.	0.	0.00	11.	0.	1	0.011	0.	1	0.00	0.013	
589	1.47	1.47	0.	8	0.00	290.	0.	8	0.097	0.	8	0.00	0.095	
590	1.47	1.47	0.	4	0.00	142.	0.	4	0.051	0.	4	0.00	0.052	
591	1.47	1.47	0.	2	0.00	67.	0.	2	0.026	0.	2	0.00	0.027	
592	1.47	1.47	1	17	0.00	591.	1	17	0.198	1	16	0.00	0.196	
593	1.47	1.47	1	-16	0.44	-7.	1	-14	0.000	1	-13	0.37	0.000	
594	9.45	9.45	0.	-4	0.10	-1.	0.	-3	0.000	0.	-3	0.08	0.000	
595	9.45	9.45	0.	0.	0.00	0.	0.	0.	0.000	0.	0.	0.00	0.000	
596	3.46	3.46	0.	2	0.00	27.	0.	2	0.005	0.	2	0.00	0.005	
597	3.46	3.46	0.	7	0.00	94.	0.	7	0.014	0.	7	0.00	0.014	
598	1.47	1.47	0.	-2	0.06	-1.	0.	-1	0.000	0.	-1	0.02	0.000	
599	1.47	1.47	0.	3	0.00	106.	0.	4	0.045	0.	4	0.00	0.048	
600	9.45	9.45	0.	-10	0.27	-4.	0.	-9	0.000	0.	-9	0.24	0.000	
601	3.46	3.46	0.	-9	0.25	-4.	0.	-8	0.000	0.	-7	0.21	0.000	
602	1.47	1.47	0.	1	0.00	32.	0.	2	0.021	0.	2	0.00	0.024	
603	9.45	9.45	38	-15	0.23	-8.	36	-13	0.000	35	-13	0.20	0.000	
604	3.46	3.46	28	-16	0.31	-8.	27	-14	0.000	26	-14	0.26	0.000	
605	1.47	1.47	11	-6	0.11	-3.	10	-4	0.000	10	-4	0.06	0.000	
606	9.45	9.45	60	-13	0.08	-8.	57	-11	0.000	56	-11	0.06	0.000	
607	3.46	3.46	48	-14	0.17	-9.	45	-12	0.000	44	-12	0.13	0.000	
608	1.47	1.47	6	-4	0.10	-2.	6	-3	0.000	6	-3	0.05	0.000	
609	9.45	9.45	72	-9	0.54	1.	68	-8	0.000	66	-8	0.49	0.000	
610	3.46	3.46	61	-8	0.50	1.	57	-6	0.000	56	-6	0.45	0.000	
611	1.47	1.47	16	8	0.00	306.	15	8	0.101	15	8	0.00	0.103	
612	1.47	1.47	0.	-18	0.49	-7.	0.	-15	0.000	0.	-14	0.41	0.000	
613	1.47	1.47	0.	15	0.00	498.	0.	15	0.174	0.	15	0.00	0.175	
614	1.47	1.47	0.	-2	0.06	-1.	0.	-1	0.000	0.	-1	0.02	0.000	



615	1.47	1.47	5	-3	0.06	-1.	5	-1	0.000	5	-1	0.01	0.000
616	1.47	1.47	0.	9	0.00	297.	0.	9	0.109	0.	9	0.00	0.111
617	1.47	1.47	0.	-5	0.14	-2.	0.	-3	0.000	0.	-3	0.08	0.000
618	9.45	9.45	38	-1	0.27	10.	34	0.	0.000	34	0.	0.24	0.000
619	9.45	9.45	71	9	0.00	69.	66	8	0.003	65	8	0.00	0.003
620	3.46	3.46	31	8	0.00	140.	29	8	0.018	28	8	0.00	0.018
621	3.46	3.46	49	17	0.00	297.	46	16	0.037	45	16	0.00	0.036
622	1.47	1.47	16	7	0.00	289.	14	8	0.095	14	8	0.00	0.096
623	1.47	1.47	27	15	0.00	581.	25	15	0.179	24	14	0.00	0.177
624	9.45	9.45	13	-9	0.18	-4.	11	-8	0.000	11	-8	0.16	0.000
625	3.46	3.46	19	-5	0.05	-3.	17	-4	0.000	17	-4	0.03	0.000
626	1.47	1.47	4	8	0.00	287.	3	8	0.101	3	9	0.00	0.103
627	9.45	9.45	0.	-15	0.40	-6.	0.	-14	0.000	0.	-13	0.35	0.000
628	3.46	3.46	0.	-13	0.37	-6.	0.	-12	0.000	0.	-11	0.31	0.000
629	1.47	1.47	0.	-5	0.13	-2.	0.	-3	0.000	0.	-3	0.08	0.000
630	9.45	9.45	0.	-6	0.16	-2.	0.	-6	0.000	0.	-5	0.14	0.000
631	3.46	3.46	0.	-6	0.18	-3.	0.	-5	0.000	0.	-5	0.14	0.000
632	1.47	1.47	0.	-2	0.07	-1.	0.	-1	0.000	0.	-1	0.03	0.000
633	9.45	9.45	0.	-4	0.10	-1.	0.	-3	0.000	0.	-3	0.08	0.000
634	3.46	3.46	0.	0.	0.01	0.	0.	0.	0.000	0.	0.	0.00	0.000
635	1.47	1.47	0.	11	0.00	373.	0.	11	0.130	0.	11	0.00	0.130
636	1.47	1.47	0.	0.	0.00	3.	0.	1	0.015	0.	2	0.00	0.019
637	1.47	1.47	0.	17	0.00	582.	0.	17	0.202	0.	17	0.00	0.202
638	1.47	1.47	0.	7	0.00	253.	0.	8	0.095	0.	8	0.00	0.097
639	1.47	1.47	0.	6	0.00	208.	0.	7	0.081	0.	7	0.00	0.083
640	1.47	1.47	0.	17	0.00	591.	0.	17	0.204	0.	17	0.00	0.204
641	1.47	1.47	10	6	0.00	243.	8	7	0.085	8	7	0.00	0.087
648	9.45	9.45	103	36	0.00	224.	96	34	0.011	94	33	0.00	0.011
649	3.46	3.46	33	29	0.00	445.	30	27	0.059	29	27	0.00	0.059
650	1.47	1.47	0.	20	0.00	694.	0.	19	0.228	0.	19	0.00	0.225
651	9.45	9.45	112	3	0.66	51.	104	3	0.002	102	3	0.59	0.002
652	3.46	3.46	53	8	0.00	168.	48	8	0.019	47	8	0.00	0.019
653	1.47	1.47	4	18	0.00	636.	3	17	0.209	3	17	0.00	0.207
654	9.45	9.45	121	2	0.76	51.	112	1	0.002	110	1	0.70	0.002
655	3.46	3.46	77	3	0.62	118.	71	3	0.011	70	3	0.56	0.011
656	1.47	1.47	34	10	0.00	426.	31	10	0.124	30	10	0.00	0.123
657	9.45	9.45	101	11	0.00	95.	94	10	0.004	92	10	0.00	0.004
658	3.46	3.46	69	14	0.00	270.	64	13	0.031	63	13	0.00	0.030
659	1.47	1.47	37	20	0.00	775.	34	19	0.233	33	19	0.00	0.229
660	1.47	1.47	19	12	0.00	460.	18	12	0.146	17	12	0.00	0.146
661	1.47	1.47	26	24	0.00	875.	23	22	0.273	23	22	0.00	0.269
662	1.47	1.47	18	15	0.00	546.	16	14	0.172	16	14	0.00	0.170
664	1.47	1.47	0.	15	0.00	512.	0.	14	0.168	0.	14	0.00	0.165
672	9.45	9.45	0.	60	0.00	315.	0.	55	0.018	0.	54	0.00	0.017
673	3.46	3.46	0.	46	0.00	659.	0.	42	0.091	0.	41	0.00	0.089
674	1.47	1.47	0.	27	0.00	909.	0.	25	0.294	0.	24	0.00	0.288
675	9.45	9.45	0.	24	0.00	124.	0.	22	0.007	0.	21	0.00	0.007
676	3.46	3.46	0.	29	0.00	415.	0.	27	0.057	0.	26	0.00	0.056
677	1.47	1.47	0.	27	0.00	915.	0.	25	0.296	0.	24	0.00	0.290
678	9.45	9.45	0.	23	0.00	124.	0.	22	0.007	0.	21	0.00	0.007
679	3.46	3.46	0.	29	0.00	413.	0.	26	0.057	0.	26	0.00	0.056
680	1.47	1.47	0.	27	0.00	909.	0.	25	0.294	0.	24	0.00	0.288
681	9.45	9.45	0.	59	0.00	312.	0.	55	0.017	0.	53	0.00	0.017
682	3.46	3.46	0.	45	0.00	648.	0.	42	0.090	0.	41	0.00	0.088
683	1.47	1.47	0.	26	0.00	895.	0.	24	0.290	0.	24	0.00	0.285
685	1.47	1.47	0.	15	0.00	515.	0.	14	0.167	0.	14	0.00	0.164
686	1.47	1.47	0.	23	0.00	796.	0.	22	0.258	0.	21	0.00	0.253
687	1.47	1.47	0.	24	0.00	802.	0.	22	0.260	0.	21	0.00	0.255
688	1.47	1.47	0.	15	0.00	506.	0.	14	0.164	0.	14	0.00	0.161
696	9.45	9.45	0.	33	0.00	173.	0.	30	0.010	0.	30	0.00	0.009
697	3.46	3.46	0.	23	0.00	337.	0.	22	0.047	0.	21	0.00	0.046
698	1.47	1.47	0.	14	0.00	467.	0.	13	0.151	0.	12	0.00	0.148
699	9.45	9.45	0.	11	0.00	58.	0.	10	0.003	0.	10	0.00	0.003
700	3.46	3.46	0.	14	0.00	204.	0.	13	0.028	0.	13	0.00	0.027
701	1.47	1.47	0.	14	0.00	483.	0.	13	0.156	0.	13	0.00	0.153
702	9.45	9.45	0.	10	0.00	55.	0.	9	0.003	0.	9	0.00	0.003
703	3.46	3.46	0.	14	0.00	204.	0.	13	0.028	0.	13	0.00	0.027
704	1.47	1.47	0.	14	0.00	490.	0.	13	0.159	0.	13	0.00	0.155
705	9.45	9.45	0.	35	0.00	184.	0.	32	0.010	0.	32	0.00	0.010
706	3.46	3.46	0.	25	0.00	365.	0.	23	0.050	0.	23	0.00	0.049
707	1.47	1.47	0.	15	0.00	500.	0.	14	0.162	0.	13	0.00	0.159
709	1.47	1.47	0.	10	0.00	341.	0.	9	0.111	0.	9	0.00	0.109
710	1.47	1.47	0.	13	0.00	447.	0.	12	0.145	0.	12	0.00	0.142
711	1.47	1.47	0.	13	0.00	441.	0.	12	0.143	0.	12	0.00	0.140
712	1.47	1.47	0.	10	0.00	347.	0.	9	0.113	0.	9	0.00	0.111
720	9.45	9.45	50	5	0.00	46.	48	5	0.002	48	5	0.00	0.002
721	3.46	3.46	0.	2	0.00	24.	0.	2	0.004	0.	2	0.00	0.004
722	1.47	1.47	0.	2	0.00	65.	0.	2	0.021	0.	2	0.00	0.021
723	9.45	9.45	6	0.	0.04	1.	8	0.	0.000	8	0.	0.06	0.000
724	3.46	3.46	0.	1	0.00	12.	0.	1	0.002	0.	1	0.00	0.002
725	1.47	1.47	0.	5	0.00	163.	0.	4	0.053	0.	4	0.00	0.053
726	9.45	9.45	0.	-3	0.08	-1.	0.	-3	0.000	0.	-3	0.07	0.000
727	3.46	3.46	0.	1	0.00	12.	0.	1	0.002	0.	1	0.00	0.002
728	1.47	1.47	0.	6	0.00	194.	0.	5	0.063	0.	5	0.00	0.062
729	9.45	9.45	0.	13	0.00	68.	0.	12	0.004	0.	12	0.00	0.004
730	3.46	3.46	0.	8	0.00	121.	0.	8	0.017	0.	8	0.00	0.017
731	1.47	1.47	0.	6	0.00	218.	0.	6	0.072	0.	6	0.00	0.070
733	1.47	1.47	0.	8	0.00	280.	0.	8	0.091	0.	8	0.00	0.090
734	1.47	1.47	0.	8	0.00	261.	0.	7	0.085	0.	7	0.00	0.084
735	1.47	1.47	0.	7	0.00	238.	0.	7	0.078	0.	6	0.00	0.076
736	1.47	1.47	0.	9	0.00	293.	0.	8	0.095	0.	8	0.00	0.094
738	9.45	9.45	515	-17	3.74	100.	481	-1	0.005	473	-1	3.24	0.005
739	3.46	3.46	671	-10	7.61	487.	632	-10	0.034	622	-10	7.06	0.034
740	3.14	1.47	809	9	9.50	956.	764	8	0.081	752	8	8.84	0.080
741	9.45	9.45	342	-6	2.45	91.	317	-6	0.003	311	-6	2.23	0.003
742	3.46	3.46	424	-4	4.81	332.	398	-4	0.023	392	-4	4.44	0.023
743	3.14	1.47	462	5	5.39	554.	434	5	0.047	427	5	5.01	0.046
744	9.45	9.45	207	-12	1.47	22.	191	-12	0.001	187	-12	1.33	0.001

745	3.46	3.46	254	-4	2.89	185.	236	-4	0.013	232	-4	2.63	0.012
746	1.47	1.47	245	12	2.83	943.	230	11	0.205	226	11	2.65	0.202
747	9.45	9.45	64	7	0.00	59.	58	6	0.002	57	5	0.00	0.002
748	3.46	3.46	63	7	0.00	166.	58	7	0.017	57	7	0.00	0.017
749	1.47	1.47	99	16	0.00	770.	93	15	0.204	92	15	0.00	0.201
750	9.45	9.45	0.	-5	0.12	-2.	0.	-4	0.000	0.	-4	0.11	0.000
751	3.46	3.46	0.	-5	0.14	-2.	0.	-5	0.000	0.	-4	0.12	0.000
752	1.47	1.47	0.	3	0.00	93.	0.	3	0.031	0.	3	0.00	0.031
754	1.47	1.47	24	14	0.00	541.	22	13	0.164	22	13	0.00	0.161
755	1.47	1.47	81	23	0.00	958.	76	21	0.273	75	21	0.00	0.268
757	3.14	1.47	479	18	4.55	767.	451	16	0.075	444	16	4.24	0.074
758	3.14	1.47	872	18	9.69	1167.	823	17	0.107	810	17	9.02	0.105
3314	9.45	9.45	0.	-69	1.81	-27.	0.	-63	0.000	0.	-62	1.63	0.000
3315	9.45	9.45	871	-40	6.28	126.	820	-37	0.004	808	-36	5.83	0.004
3316	9.45	9.45	76	-7	0.54	3.	70	-6	0.000	69	-6	0.49	0.000
3317	9.45	9.45	661	10	4.15	277.	624	8	0.009	615	8	3.91	0.009
3318	9.45	9.45	330	20	0.83	218.	310	18	0.008	305	17	0.91	0.008
3319	9.45	9.45	718	74	0.00	635.	675	68	0.027	665	66	0.00	0.026
3320	9.45	9.45	270	70	0.00	462.	258	65	0.022	256	64	0.00	0.022
3321	9.45	9.45	1065	36	5.54	551.	997	34	0.020	981	33	5.08	0.020
3322	9.45	9.45	1143	-31	8.28	250.	1071	-28	0.008	1054	-27	7.63	0.007
3323	9.45	9.45	72	-17	0.16	-11.	67	-16	0.000	65	-16	0.14	0.000
3324	9.45	9.45	1012	-35	7.35	191.	947	-33	0.006	931	-32	6.76	0.005
3325	9.45	9.45	0.	-42	1.10	-17.	0.	-39	0.000	0.	-38	1.02	0.000
3326	9.45	9.45	739	75	0.00	651.	695	69	0.028	685	67	0.00	0.027

# ARMATURA SUPERIORE VERTICALE

GUSCI	COMBINAZIONE RARA						COMB. FREQUENTE				COMB. QUASI PERMANENTE			
	Af	Afc	Mom	Nor	sigC	sigF	Mom	Nor	wkF	Mom	Nor	sigC	wkP	
525	4.84	4.84	0.	20	0.00	202.	0.	17	0.021	0.	17	0.00	0.021	
526	1.98	1.98	0.	-3	0.08	-1.	0.	-3	0.000	0.	-3	0.09	0.000	
527	1.98	1.98	0.	-6	0.18	-3.	0.	-6	0.000	0.	-6	0.16	0.000	
528	4.84	4.84	57	5	0.00	87.	54	3	0.006	53	3	0.21	0.006	
529	1.98	1.98	49	-14	0.16	-9.	46	-13	0.000	45	-13	0.16	0.000	
530	1.98	1.98	30	-11	0.17	-7.	28	-10	0.000	28	-10	0.15	0.000	
531	4.84	4.84	417	-16	3.92	129.	391	-16	0.007	384	-16	3.59	0.007	
532	1.98	1.98	256	-22	2.24	24.	240	-21	0.003	236	-20	2.06	0.003	
533	1.98	1.98	80	-9	0.67	2.	75	-9	0.000	74	-9	0.62	0.000	
534	4.84	4.84	595	-57	4.63	26.	559	-54	0.001	550	-54	4.28	0.001	
535	1.98	1.98	394	-4	5.80	527.	370	-4	0.063	364	-4	5.36	0.062	
536	1.98	1.98	107	-5	1.34	56.	101	-5	0.007	99	-5	1.25	0.007	
541	1.98	1.98	42	0.	0.62	62.	39	0.	0.007	39	0.	0.57	0.007	
542	1.98	1.98	43	-1	0.63	51.	41	-1	0.006	40	-1	0.58	0.006	
543	1.98	1.98	31	-1	0.43	26.	29	-1	0.003	29	-1	0.39	0.003	
544	1.98	1.98	19	0.	0.28	26.	18	0.	0.003	18	0.	0.26	0.003	
552	4.84	4.84	0.	-8	0.21	-3.	0.	-8	0.000	0.	-8	0.22	0.000	
553	1.98	1.98	0.	-9	0.26	-4.	0.	-9	0.000	0.	-9	0.25	0.000	
554	1.98	1.98	0.	-5	0.14	-2.	0.	-5	0.000	0.	-4	0.13	0.000	
555	4.84	4.84	0.	-36	0.98	-15.	0.	-34	0.000	0.	-34	0.92	0.000	
556	1.98	1.98	0.	-20	0.57	-9.	0.	-19	0.000	0.	-19	0.53	0.000	
557	1.98	1.98	0.	-10	0.29	-4.	0.	-10	0.000	0.	-9	0.26	0.000	
558	4.84	4.84	0.	-26	0.72	-11.	0.	-25	0.000	0.	-25	0.68	0.000	
559	1.98	1.98	58	-19	0.26	-12.	54	-18	0.000	53	-18	0.25	0.000	
560	1.98	1.98	19	-10	0.20	-6.	18	-10	0.000	17	-9	0.18	0.000	
561	4.84	4.84	27	0.	0.26	15.	27	-1	0.000	26	-1	0.24	0.000	
562	1.98	1.98	171	-9	2.06	76.	160	-9	0.008	157	-8	1.84	0.008	
563	1.98	1.98	40	-5	0.34	1.	37	-5	0.000	37	-5	0.31	0.000	
565	1.98	1.98	6	0.	0.03	22.	6	0.	0.003	6	0.	0.05	0.003	
566	1.98	1.98	8	-1	0.07	1.	8	-1	0.000	8	-1	0.06	0.000	
567	1.98	1.98	8	-1	0.07	1.	8	-1	0.000	7	-1	0.06	0.000	
568	1.98	1.98	5	0.	0.00	20.	5	0.	0.003	5	0.	0.03	0.003	
570	4.84	4.84	59	-100	2.49	-45.	56	-94	0.000	55	-92	2.28	0.000	
571	4.84	4.84	28	-110	2.88	-47.	26	-102	0.000	26	-100	2.62	0.000	
572	1.98	1.98	94	-114	2.75	-54.	88	-106	0.000	87	-103	2.50	0.000	
573	1.98	1.98	65	-118	3.00	-54.	61	-109	0.000	60	-107	2.71	0.000	
574	1.98	1.98	110	-130	3.14	-62.	103	-120	0.000	102	-118	2.83	0.000	
575	1.98	1.98	90	-130	3.23	-60.	85	-120	0.000	83	-117	2.90	0.000	
576	4.84	4.84	101	-69	1.45	-35.	95	-65	0.000	93	-64	1.35	0.000	
577	1.98	1.98	140	-52	0.81	-31.	131	-49	0.000	129	-48	0.75	0.000	
578	1.98	1.98	132	-23	0.02	-18.	124	-21	0.000	122	-21	0.01	0.000	
579	4.84	4.84	139	-62	1.08	-34.	130	-59	0.000	128	-58	1.01	0.000	
580	1.98	1.98	215	-31	1.91	1.	202	-30	0.000	199	-30	1.77	0.000	
581	1.98	1.98	154	-10	1.63	41.	144	-9	0.005	142	-9	1.48	0.005	
582	4.84	4.84	181	-57	0.75	-34.	170	-53	0.000	167	-52	0.68	0.000	
583	1.98	1.98	331	-25	3.11	50.	310	-24	0.006	305	-23	2.82	0.005	
584	1.98	1.98	162	-12	1.54	26.	152	-11	0.004	149	-10	1.48	0.004	
585	4.84	4.84	0.	-17	0.46	-7.	0.	-16	0.000	0.	-15	0.42	0.000	
586	1.98	1.98	395	-15	5.25	268.	370	-14	0.034	364	-14	4.90	0.034	
587	1.98	1.98	146	-2	2.14	173.	137	-2	0.022	135	-2	1.99	0.022	
589	1.98	1.98	74	2	0.97	168.	69	2	0.025	68	2	0.90	0.024	
590	1.98	1.98	95	1	1.38	166.	89	1	0.021	87	1	1.27	0.021	
591	1.98	1.98	118	6	1.08	347.	111	6	0.056	109	6	1.03	0.055	
592	1.98	1.98	125	-9	1.18	19.	117	-9	0.002	115	-9	1.09	0.002	
593	1.98	1.98	120	-148	3.59	-70.	112	-136	0.000	110	-133	3.23	0.000	
594	4.84	4.84	0.	-111	3.06	-46.	0.	-104	0.000	0.	-102	2.79	0.000	
595	4.84	4.84	0.	-105	2.87	-43.	0.	-97	0.000	0.	-96	2.62	0.000	
596	1.98	1.98	0.	-119	3.36	-50.	0.	-111	0.000	0.	-108	3.05	0.000	
597	1.98	1.98	0.	-114	3.19	-48.	0.	-105	0.000	0.	-103	2.90	0.000	
598	1.98	1.98	0.	-132	3.71	-56.	0.	-122	0.000	0.	-119	3.35	0.000	
599	1.98	1.98	0.	-128	3.61	-54.	0.	-118	0.000	0.	-116	3.26	0.000	
600	4.84	4.84	0.	-84	2.31	-35.	0.	-79	0.000	0.	-77	2.12	0.000	
601	1.98	1.98	0.	-60	1.67	-25.	0.	-55	0.000	0.	-54	1.53	0.000	
602	1.98	1.98	2	-23	0.65	-10.	2	-22	0.000	3	-21	0.58	0.000	
603	4.84	4.84	0.	-76	2.09	-31.	0.	-71	0.000	0.	-70	1.92	0.000	
604	1.98	1.98	0.	-38	1.07	-16.	0.	-36	0.000	0.	-35	0.99	0.000	
605	1.98	1.98	0.	-6	0.16	-2.	0.	-5	0.000	0.	-5	0.14	0.000	
606	4.84	4.84	0.	-75	2.06	-31.	0.	-70	0.000	0.	-69	1.89	0.000	

607	1.98	1.98	0.	-37	1.05	-16.	0.	-35	0.000	0.	-34	0.96	0.000
608	1.98	1.98	3	-5	0.13	-2.	3	-5	0.000	3	-5	0.11	0.000
609	4.84	4.84	12	-81	2.18	-34.	11	-76	0.000	11	-74	1.99	0.000
610	1.98	1.98	43	-57	1.41	-27.	40	-53	0.000	40	-52	1.28	0.000
611	1.98	1.98	71	-22	0.28	-14.	67	-20	0.000	66	-20	0.24	0.000
612	1.98	1.98	108	-148	3.65	-69.	101	-136	0.000	100	-134	3.28	0.000
613	1.98	1.98	93	-8	0.79	7.	87	-8	0.001	86	-8	0.74	0.001
614	1.98	1.98	76	5	0.53	238.	71	4	0.039	70	4	0.56	0.038
615	1.98	1.98	53	5	0.00	210.	51	4	0.037	50	4	0.00	0.036
616	1.98	1.98	22	-9	0.14	-5.	21	-8	0.000	21	-8	0.13	0.000
617	1.98	1.98	3	-148	4.15	-63.	3	-137	0.000	3	-134	3.74	0.000
618	4.84	4.84	0.	-116	3.18	-48.	0.	-108	0.000	0.	-106	2.90	0.000
619	4.84	4.84	3	-99	2.71	-41.	2	-93	0.000	2	-91	2.50	0.000
620	1.98	1.98	20	-122	3.33	-53.	18	-113	0.000	18	-111	3.02	0.000
621	1.98	1.98	51	-113	2.95	-51.	47	-105	0.000	46	-103	2.69	0.000
622	1.98	1.98	55	-132	3.44	-59.	51	-122	0.000	50	-119	3.10	0.000
623	1.98	1.98	77	-130	3.28	-60.	72	-120	0.000	71	-117	2.97	0.000
624	4.84	4.84	0.	-88	2.41	-36.	0.	-82	0.000	0.	-80	2.21	0.000
625	1.98	1.98	0.	-62	1.75	-26.	0.	-58	0.000	0.	-57	1.59	0.000
626	1.98	1.98	34	-25	0.53	-13.	31	-23	0.000	31	-22	0.48	0.000
627	4.84	4.84	0.	-90	2.47	-37.	0.	-84	0.000	0.	-82	2.26	0.000
628	1.98	1.98	0.	-52	1.46	-22.	0.	-48	0.000	0.	-48	1.34	0.000
629	1.98	1.98	4	-14	0.37	-6.	3	-13	0.000	3	-12	0.33	0.000
630	4.84	4.84	0.	-79	2.18	-33.	0.	-74	0.000	0.	-73	2.01	0.000
631	1.98	1.98	0.	-43	1.22	-18.	0.	-41	0.000	0.	-40	1.12	0.000
632	1.98	1.98	0.	-9	0.25	-4.	0.	-8	0.000	0.	-8	0.23	0.000
633	4.84	4.84	0.	-78	2.13	-32.	0.	-73	0.000	0.	-71	1.96	0.000
634	1.98	1.98	0.	-54	1.51	-23.	0.	-50	0.000	0.	-49	1.39	0.000
635	1.98	1.98	0.	-20	0.56	-8.	0.	-18	0.000	0.	-18	0.51	0.000
636	1.98	1.98	0.	-149	4.18	-63.	0.	-137	0.000	0.	-134	3.77	0.000
637	1.98	1.98	0.	-8	0.23	-3.	0.	-8	0.000	0.	-7	0.21	0.000
638	1.98	1.98	3	4	0.00	113.	3	4	0.026	3	4	0.00	0.025
639	1.98	1.98	23	5	0.00	166.	21	5	0.033	21	4	0.00	0.032
640	1.98	1.98	50	-9	0.02	-7.	46	-8	0.000	45	-8	0.02	0.000
641	1.98	1.98	78	-147	3.75	-67.	72	-135	0.000	70	-132	3.39	0.000
648	4.84	4.84	0.	-16	0.44	-7.	0.	-15	0.000	0.	-14	0.40	0.000
649	1.98	1.98	346	9	4.60	770.	322	8	0.113	317	8	4.19	0.112
650	1.98	1.98	120	7	0.99	365.	112	6	0.061	110	6	0.82	0.061
651	4.84	4.84	131	-61	1.10	-33.	121	-58	0.000	119	-57	1.04	0.000
652	1.98	1.98	287	-28	2.42	17.	267	-25	0.002	262	-25	2.21	0.002
653	1.98	1.98	125	-5	1.66	86.	116	-4	0.011	114	-4	1.55	0.011
654	4.84	4.84	88	-65	1.38	-32.	81	-61	0.000	79	-60	1.30	0.000
655	1.98	1.98	175	-41	0.33	-28.	163	-39	0.000	160	-38	0.32	0.000
656	1.98	1.98	127	-16	1.08	2.	118	-16	0.000	116	-15	0.99	0.000
657	4.84	4.84	47	-71	1.73	-32.	43	-67	0.000	42	-66	1.61	0.000
658	1.98	1.98	98	-57	1.13	-30.	91	-53	0.000	89	-52	1.04	0.000
659	1.98	1.98	102	-26	0.26	-18.	95	-25	0.000	94	-24	0.24	0.000
660	1.98	1.98	93	-147	3.69	-68.	87	-136	0.000	85	-133	3.33	0.000
661	1.98	1.98	102	-10	0.86	6.	95	-9	0.001	94	-9	0.79	0.001
662	1.98	1.98	100	7	0.00	348.	93	7	0.059	92	7	0.09	0.058
663	1.98	1.98	81	2	1.09	176.	76	2	0.025	74	2	1.01	0.025
664	1.98	1.98	63	3	0.64	177.	59	3	0.028	58	3	0.60	0.027
672	4.84	4.84	0.	4	0.00	42.	0.	3	0.004	0.	3	0.00	0.004
673	1.98	1.98	76	15	0.00	509.	71	14	0.099	70	13	0.00	0.097
674	1.98	1.98	21	1	0.13	67.	20	1	0.011	19	1	0.12	0.011
675	4.84	4.84	0.	-53	1.45	-22.	0.	-50	0.000	0.	-49	1.34	0.000
676	1.98	1.98	0.	-21	0.60	-9.	0.	-20	0.000	0.	-20	0.56	0.000
677	1.98	1.98	5	-10	0.26	-5.	5	-9	0.000	5	-9	0.24	0.000
678	4.84	4.84	0.	-51	1.39	-21.	0.	-48	0.000	0.	-47	1.30	0.000
679	1.98	1.98	0.	-21	0.60	-9.	0.	-20	0.000	0.	-20	0.56	0.000
680	1.98	1.98	0.	-10	0.29	-4.	0.	-10	0.000	0.	-9	0.26	0.000
681	4.84	4.84	0.	7	0.00	69.	0.	5	0.007	0.	5	0.00	0.006
682	1.98	1.98	0.	15	0.00	383.	0.	14	0.089	0.	13	0.00	0.087
683	1.98	1.98	0.	1	0.00	32.	0.	1	0.007	0.	1	0.00	0.008
685	1.98	1.98	1	1	0.00	23.	1	1	0.005	1	1	0.00	0.004
686	1.98	1.98	4	-1	0.00	-1.	4	-1	0.000	4	-1	0.01	0.000
687	1.98	1.98	4	-1	0.00	-1.	4	-1	0.000	4	-1	0.01	0.000
688	1.98	1.98	1	1	0.00	22.	1	1	0.005	1	1	0.00	0.004
696	4.84	4.84	0.	-4	0.12	-2.	0.	-5	0.000	0.	-5	0.13	0.000
697	1.98	1.98	58	1	0.77	129.	55	1	0.016	54	1	0.76	0.015
698	1.98	1.98	18	-3	0.01	-3.	17	-3	0.000	17	-3	0.00	0.000
699	4.84	4.84	0.	-38	1.04	-16.	0.	-36	0.000	0.	-35	0.97	0.000
700	1.98	1.98	0.	-18	0.51	-8.	0.	-17	0.000	0.	-17	0.48	0.000
701	1.98	1.98	4	-10	0.26	-5.	4	-9	0.000	4	-9	0.24	0.000
702	4.84	4.84	0.	-43	1.18	-18.	0.	-41	0.000	0.	-40	1.10	0.000
703	1.98	1.98	0.	-19	0.53	-8.	0.	-18	0.000	0.	-18	0.50	0.000
704	1.98	1.98	0.	-10	0.28	-4.	0.	-9	0.000	0.	-9	0.25	0.000
705	4.84	4.84	0.	-8	0.23	-3.	0.	-9	0.000	0.	-9	0.24	0.000
706	1.98	1.98	0.	1	0.00	32.	0.	1	0.004	0.	1	0.00	0.004
707	1.98	1.98	3	-3	0.08	-2.	3	-3	0.000	3	-3	0.07	0.000
709	1.98	1.98	1	0.	0.00	10.	1	0.	0.002	1	0.	0.00	0.002
710	1.98	1.98	3	-1	0.01	-1.	2	-1	0.000	2	-1	0.01	0.000
711	1.98	1.98	3	-1	0.01	-1.	3	-1	0.000	2	-1	0.01	0.000
712	1.98	1.98	1	0.	0.00	10.	1	0.	0.002	1	0.	0.00	0.001
720	4.84	4.84	0.	1	0.00	11.	0.	0.	0.000	0.	0.	0.00	0.000
721	1.98	1.98	122	-7	1.39	43.	115	-7	0.005	114	-7	1.26	0.005
722	1.98	1.98	31	-4	0.27	0.	29	-4	0.000	29	-4	0.25	0.000
723	4.84	4.84	0.	-24	0.66	-10.	0.	-23	0.000	0.	-23	0.63	0.000
724	1.98	1.98	24	-19	0.41	-9.	23	-18	0.000	23	-17	0.38	0.000
725	1.98	1.98	13	-10	0.23	-5.	12	-10	0.000	12	-9	0.21	0.000
726	4.84	4.84	0.	-41	1.12	-17.	0.	-39	0.000	0.	-38	1.05	0.000
727	1.98	1.98	0.	-21	0.59	-9.	0.	-20	0.000	0.	-20	0.56	0.000
728	1.98	1.98	0.	-10	0.29	-4.	0.	-10	0.000	0.	-9	0.26	0.000
729	4.84	4.84	0.	-7	0.19	-3.	0.	-7	0.000	0.	-7	0.20	0.000
730	1.98	1.98	0.	-7	0.21	-3.	0.	-7	0.000	0.	-7	0.20	0.000
731	1.98	1.98	0.	-4	0.12	-2.	0.	-4	0.000	0.	-4	0.11	0.000
733	1.98	1.98	4	1	0.00	19.	3	0.	0.003	3	0.	0.00	0.003
734	1.98	1.98	6	-1	0.05	0.	6	-1	0.000	6	-1	0.05	0.000

735	1.98	1.98	6	-1	0.05	0.	6	-1	0.000	6	-1	0.05	0.000
736	1.98	1.98	4	1	0.00	20.	4	0.	0.003	4	0.	0.00	0.003
738	4.84	4.84	0.	-89	2.43	-36.	0.	-84	0.000	0.	-83	2.28	0.000
739	1.98	1.98	107	-75	1.61	-38.	99	-72	0.000	97	-71	1.53	0.000
740	1.98	1.98	124	-54	0.94	-31.	115	-52	0.000	113	-51	0.90	0.000
741	4.84	4.84	0.	-76	2.10	-31.	0.	-72	0.000	0.	-71	1.95	0.000
742	1.98	1.98	48	-57	1.38	-27.	43	-54	0.000	42	-53	1.29	0.000
743	1.98	1.98	138	-35	0.33	-23.	129	-33	0.000	127	-33	0.32	0.000
744	4.84	4.84	0.	-55	1.51	-23.	0.	-52	0.000	0.	-52	1.42	0.000
745	1.98	1.98	0.	-31	0.87	-13.	0.	-29	0.000	0.	-29	0.81	0.000
746	1.98	1.98	108	-7	1.14	28.	101	-6	0.004	99	-6	1.09	0.004
747	4.84	4.84	0.	-2	0.05	-1.	0.	-3	0.000	0.	-3	0.09	0.000
748	1.98	1.98	0.	-3	0.08	-1.	0.	-3	0.000	0.	-3	0.09	0.000
749	1.98	1.98	5	5	0.00	125.	5	4	0.030	5	4	0.00	0.030
750	7.78	7.78	0.	12	0.00	80.	0.	10	0.005	0.	10	0.00	0.005
751	4.93	4.93	0.	2	0.00	16.	0.	1	0.001	0.	1	0.00	0.001
752	4.93	4.93	0.	8	0.00	81.	0.	8	0.008	0.	8	0.00	0.008
754	4.93	4.93	112	3	0.90	103.	105	3	0.006	104	3	0.84	0.006
755	1.98	1.98	166	3	2.32	334.	156	3	0.047	154	2	2.16	0.046
756	1.98	1.98	230	9	2.74	582.	216	8	0.091	213	8	2.54	0.089
757	1.98	1.98	238	-15	2.54	65.	224	-14	0.008	221	-14	2.33	0.008
758	1.98	1.98	198	-41	0.21	-30.	186	-39	0.000	184	-38	0.21	0.000
3314	5.57	5.57	0.	-85	2.32	-35.	0.	-80	0.000	0.	-78	2.14	0.000
3315	4.84	4.84	0.	-106	2.90	-43.	0.	-98	0.000	0.	-97	2.65	0.000
3316	4.84	4.84	0.	-87	2.40	-36.	0.	-82	0.000	0.	-81	2.21	0.000
3317	4.84	4.84	0.	-87	2.39	-36.	0.	-82	0.000	0.	-80	2.20	0.000
3318	4.84	4.84	0.	-86	2.36	-35.	0.	-81	0.000	0.	-80	2.18	0.000
3319	4.84	4.84	0.	-73	2.01	-30.	0.	-69	0.000	0.	-68	1.85	0.000
3320	4.84	4.84	0.	-68	1.87	-28.	0.	-64	0.000	0.	-63	1.74	0.000
3321	4.84	4.84	0.	-94	2.57	-39.	0.	-87	0.000	0.	-86	2.35	0.000
3322	4.84	4.84	0.	-98	2.69	-40.	0.	-91	0.000	0.	-89	2.45	0.000
3323	4.84	4.84	0.	-96	2.62	-39.	0.	-90	0.000	0.	-88	2.41	0.000
3324	4.84	4.84	0.	-94	2.57	-39.	0.	-88	0.000	0.	-86	2.36	0.000
3325	4.84	4.84	0.	-78	2.14	-32.	0.	-73	0.000	0.	-72	1.97	0.000
3326	4.84	4.84	605	-59	4.70	25.	569	-57	0.001	560	-56	4.36	0.001