

**CITTA' METROPOLITANA DI VENEZIA
COMUNE DI MARTELLAGO**

**COMMITTENTE
AMMINISTRAZIONE COMUNALE DI MARTELLAGO**



**ADEGUAMENTO IMPIANTI SPORTIVI DI
MARTELLAGO – 1° STRALCIO**

CIG 9480596351

PROGETTO ESECUTIVO

**RELAZIONE DI CALCOLO DELLE STRUTTURE
DEI MODULI PREFABBRICATI NORD**

Ottobre 2022

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RELAZIONE TECNICO-ILLUSTRATIVA

Opera: trattasi di una struttura in acciaio ad un piano fuori terra assemblata con n. 16 box prefabbricati, avente dimensioni globali in pianta pari a 16.00 m x 9.76 m e copertura a 2 falde con altezza massima al colmo pari a 3.23 m.

Strutture

La struttura presenta le seguenti caratteristiche:

- fondazioni: platea in c.a. sp. 25 cm, armatura con doppia rete diam. 8 mm maglia 20x20 cm, pressione massima sul terreno allo stato limite ultimo pari a 0.15 daN/cm²;
- strutture orizzontali del pavimento: travi in acciaio principali appoggiate in modo continuo e ancorate alla fondazione, traverse tipo “omega” saldate alla travi principali e multistrato in legno;
- strutture verticali: colonne in acciaio bullonate alle travi di base del pavimento e alle travi di copertura;
- strutture orizzontali della copertura: travi in acciaio di perimetro collegate con bulloni alle colonne, pannelli tipo sandwich autoportanti.

CALCOLO DELLA STRUTTURA, CARICHI PREVISTI, PRESTAZIONI ATTESE:

Il fabbricato in progetto viene verificato per i seguenti carichi, secondo il D.M. 17/01/2018:

- carichi verticali permanenti;
- carichi verticali accidentali di esercizio sul pavimento;
- carichi verticali accidentali per neve sulla copertura;
- forze orizzontali dovute al vento;
- forze orizzontali dovute al sisma.

La struttura viene considerata, dal punto di vista sismico, come “non dissipativa” adottando il fattore di comportamento $q=1.5$.

I parametri principali ai fini sismici sono i seguenti:

- Classe d'uso: II (costruzioni ordinarie)
- Vita nominale $V_n = 50$ anni
- Coeff. d'uso = 1
- Periodo di riferimento $V_r = 50 \times 1 = 50$ anni
- Tipo di suolo = C
- Categoria topografica: T1.

Si rimanda al capitolo dedicato alla definizione dell'azione sismica per la spiegazione dettagliata dei vari parametri sismici, determinati a partire dalla “pericolosità sismica di base”. Per quanto riguarda le prestazioni attese, la struttura viene calcolata considerando i seguenti stati limite nei confronti delle azioni sismiche (D.M. 17/01/2018):

- Stato Limite ultimo di salvaguardia della Vita (SLV);
- Stato Limite di Danno (SLD).

Ogni singolo elemento strutturale viene verificato in corrispondenza delle massime sollecitazioni individuate nella soluzione strutturale; le verifiche sezionali sono eseguite agli stati limite mediante le prescrizioni del D.M. 17/01/2018 con riferimenti anche all'Eurocodice 3.

Materiali:

- calcestruzzo per fondazioni: classe di resistenza C25/30, classe di consistenza S4, classe di esposizione XC2;
- acciaio per c.a. e per rete elettrosaldada: tipo B450C;
- acciaio per carpenteria tipo S250GD; bulloneria classe 8.8; saldature ad arco con elettrodi rivestiti E44 o a filo continuo, cordoni d'angolo con spessore gola = 0.7 spessore minimo da saldare.
- pannelli tipo sandwich per pareti e copertura, composti da due lamiere con interposto materiale isolante.

Classe di esecuzione (Eurocodice 3 - UNI EN 1993-1-1:2005/A1:2014, tab. C.1 Appendice C):

- Categoria di Servizio: SC1 (carichi statici o quasi statici o struttura sismica DCL, bassa duttilità);
- Classe di Conseguenze: CC2 (conseguenze medie per perdita di vite umane, conseguenze considerevoli in termini economici, sociali o ambientali);
- Classe di esecuzione: **EXC2**

ANALISI DEI CARICHISOLAIO DI CALPESTIO:

- carico permanente = 50 daN/m²
 - sovraccarico accidentale = 200 daN/m²
- TOT = 250 daN/m²

SOLAIO DI COPERTURA:

- carico permanente = 30 daN/m²
 - sovraccarico per neve (♦) = 80 daN/m²
- TOT = 110 daN/m²

(♦) LOCALIZZAZIONE DELL'INTERVENTO

Località: MARTELLAGO

Provincia: VENEZIA

Regione: VENETO

Coordinate GPS:

Latitudine : 45,54500 N

Longitudine: 12,15900 E

Altitudine s.l.m.: 12,0 m

CALCOLO DELLE AZIONI DELLA NEVE E DEL VENTO

Normativa di riferimento:

D.M. 17 gennaio 2018 - NORME TECNICHE PER LE COSTRUZIONI

Cap. 3 - AZIONI SULLE COSTRUZIONI - Par. 3.3 e 3.4

NEVE:

Zona Neve = II

Periodo di ritorno, Tr = 50 anni

Ctr = 1 per Tr = 50 anni

Ce (coeff. di esposizione al vento) = 1,00

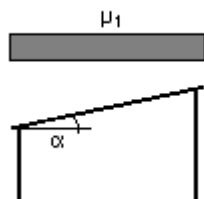
Valore caratteristico del carico al suolo = qsk Ce Ctr = 100 daN/mq

Copertura ad una falda:Angolo di inclinazione della falda $\alpha = 0,0^\circ$

- Copertura piana W = 10.0 m, L = 50.0 m => Lc = 18.0, Cef = 1.000

 $\mu_1 = 0,80 \Rightarrow \underline{\underline{Q1 = 80 \text{ daN/mq}}}$

Schema di carico:



VENTO:

Zona vento = 1

Velocità base della zona, $V_{b.o} = 25 \text{ m/s}$ (Tab. 3.3.I)

Altitudine base della zona, $A_o = 1000 \text{ m}$ (Tab. 3.3.I)

Altitudine del sito, $A_s = 12 \text{ m}$

Velocità di riferimento, $V_b = 25,00 \text{ m/s}$ ($V_b = V_{b.o}$ per $A_s \leq A_o$)

Periodo di ritorno, $T_r = 50 \text{ anni}$

$C_r = 1$ per $T_r = 50 \text{ anni}$

Velocità riferita al periodo di ritorno di progetto, $V_r = V_b C_r = 25,00 \text{ m/s}$

Classe di rugosità del terreno: C

[Aree con ostacoli diffusi (alberi, case, muri, recinzioni...); aree con rugosità non riconducibile alle classi A, B, D]

Esposizione: Cat. III - Entroterra fino a 30 km dal mare

($K_r = 0,20$; $Z_o = 0,10 \text{ m}$; $Z_{min} = 5 \text{ m}$)

Pressione cinetica di riferimento, $q_b = 39 \text{ daN/mq}$

Coefficiente di forma, $C_p = 1,00$

Coefficiente dinamico, $C_d = 1,00$

Coefficiente di esposizione, $C_e = 1,71$

Coefficiente di esposizione topografica, $C_t = 1,00$

Altezza dell'edificio, $h = 3,05 \text{ m}$

Pressione del vento, $p = q_b C_e C_p C_d = 67 \text{ daN/mq}$

pressione del vento - daN/mq	67,0
sopravento (coeff. 0,8) - daN/mq	53,6
sottovento (coeff. 0,4) - daN/mq	26,8
altezza pareti vento X - m	3,05
carico sopravento X - daN/m	82
carico sottovento X - daN/m	41
altezza pareti vento Y - m	3,05
carico sopravento Y - daN/m	82
carico sottovento Y - daN/m	41
lato lungo fabbricato - m	4,00
lato corto fabbricato - m	2,44
F tot. depressione Z - daN	261,6
carico depressione Z - daN/m	20

RELAZIONE DI CALCOLO STRUTTURALE

Descrizione generale dell'opera	
Ubicazione	Comune di MARTELLAGO (VE) (Regione VENETO)
	Località MARTELLAGO (VE)
	Longitudine 12.159, Latitudine 45.545

Parametri della struttura			
Classe d'uso	Vita Vn [anni]	Coeff. Uso	Periodo Vr [anni]
II	50.0	1.0	50.0

Quadro normativo di riferimento adottato

Le norme ed i documenti assunti quale riferimento per la progettazione strutturale vengono indicati di seguito. Nel capitolo "normativa di riferimento" è comunque presente l'elenco completo delle normative disponibili.

Progetto-verifica degli elementi	
Progetto acciaio	D.M. 17-01-2018
Azione sismica	
Norma applicata per l' azione sismica	D.M. 17-01-2018

Azioni di progetto sulla costruzione

Nei capitoli "modellazione delle azioni" e "schematizzazione dei casi di carico" sono indicate le azioni sulla costruzioni.

Nel prosieguo si indicano tipo di analisi strutturale condotta (statico,dinamico, lineare o non lineare) e il metodo adottato per la risoluzione del problema strutturale nonché le metodologie seguite per la verifica o per il progetto-verifica delle sezioni. Si riportano le combinazioni di carico adottate e, nel caso di calcoli non lineari, i percorsi di carico seguiti; le configurazioni studiate per la struttura in esame *sono risultate effettivamente esaustive per la progettazione-verifica.*

La verifica della sicurezza degli elementi strutturali avviene con i metodi della scienza delle costruzioni. L'analisi strutturale è condotta con il metodo degli spostamenti per la valutazione dello stato tensodeformativo indotto da carichi statici. L'analisi strutturale è condotta con il metodo dell'analisi modale e dello spettro di risposta in termini di accelerazione per la valutazione dello stato tensodeformativo indotto da carichi dinamici (tra cui quelli di tipo sismico).

L'analisi strutturale viene effettuata con il metodo degli elementi finiti. Il metodo sopraindicato si basa sulla schematizzazione della struttura in elementi connessi solo in corrispondenza di un numero prefissato di punti denominati nodi. I nodi sono definiti dalle tre coordinate cartesiane in un sistema di riferimento globale. Le incognite del problema (nell'ambito del metodo degli spostamenti) sono le componenti di spostamento dei nodi riferite al sistema di riferimento globale (traslazioni secondo X, Y, Z, rotazioni attorno X, Y, Z). La soluzione del problema si ottiene con un sistema di equazioni algebriche lineari i cui termini noti sono costituiti dai carichi agenti sulla struttura opportunamente concentrati ai nodi:

$$\mathbf{K} * \mathbf{u} = \mathbf{F}$$

dove \mathbf{K} = matrice di rigidezza
 \mathbf{u} = vettore spostamenti nodali
 \mathbf{F} = vettore forze nodali

Dagli spostamenti ottenuti con la risoluzione del sistema vengono quindi dedotte le sollecitazioni e/o le tensioni di ogni elemento, riferite generalmente ad una terna locale all'elemento stesso.

Il sistema di riferimento utilizzato è costituito da una terna cartesiana destrorsa XYZ. Si assume l'asse Z verticale ed orientato verso l'alto.

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

Elemento tipo **TRUSS** (biella-D2)
Elemento tipo **BEAM** (trave-D2)

Elemento tipo MEMBRANE	(membrana-D3)
Elemento tipo PLATE	(piastra-guscio-D3)
Elemento tipo BOUNDARY	(molla)
Elemento tipo STIFFNESS	(matrice di rigidezza)
Elemento tipo BRICK	(elemento solido)
Elemento tipo SOLAIO	(macro elemento composto da più membrane)

Tipo di analisi strutturale

Sismica statica lineare	NO
Sismica dinamica lineare	SI
Sismica statica non lineare (prop. masse)	NO
Sismica statica non lineare (prop. modo)	NO
Sismica statica non lineare (triangolare)	NO
Non linearità geometriche (fattore P delta)	NO
Analisi lineare	SI

Di seguito si indicano l'origine e le caratteristiche dei codici di calcolo utilizzati riportando titolo, produttore e distributore, versione, estremi della licenza d'uso:

Informazioni sul codice di calcolo

Titolo:	PRO_SAP PROfessional Structural Analysis Program
Versione:	PROFESSIONAL (build 2021-05-192)
Produttore-Distributore:	2S.I. Software e Servizi per l'Ingegneria s.r.l., Ferrara

Un attento esame preliminare della documentazione a corredo del software **ha consentito di valutarne l'affidabilità e soprattutto l'idoneità al caso specifico**. La documentazione, fornita dal produttore e distributore del software, contiene una esauriente descrizione delle basi teoriche e degli algoritmi impiegati, l'individuazione dei campi d'impiego, nonché casi prova interamente risolti e commentati, corredati dei file di input necessari a riprodurre l'elaborazione:

Affidabilità dei codici utilizzati

2S.I. ha verificato l'affidabilità e la robustezza del codice di calcolo attraverso un numero significativo di casi prova in cui i risultati dell'analisi numerica sono stati confrontati con soluzioni teoriche.

E' possibile reperire la documentazione contenente alcuni dei più significativi casi trattati al seguente link: <https://www.2si.it/it/prodotti/affidabilita/>

Modellazione della geometria e proprietà meccaniche:

nodi	128
elementi D2 (per aste, travi, pilastri...)	176
elementi D3 (per pareti, platee, gusci...)	0
elementi solaio	16
elementi solidi	0

Dimensione del modello strutturale [cm]:

X min =	-220.00
Xmax =	1395.00
Ymin =	80.00
Ymax =	1071.00
Zmin =	0.00
Zmax =	320.00

Strutture verticali:

Elementi di tipo asta	NO
Pilastri	SI

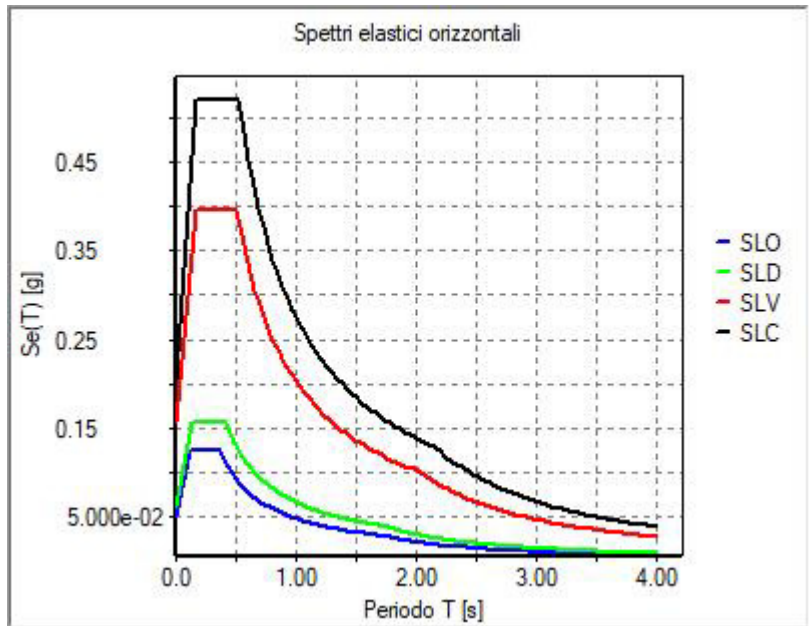
Pareti	NO
Setti (a comportamento membranale)	NO
Strutture non verticali:	
Elementi di tipo asta	NO
Travi	SI
Gusci	NO
Membrane	NO
Orizzontamenti:	
Solai con la proprietà piano rigido	NO
Solai senza la proprietà piano rigido	SI
Tipo di vincoli:	
Nodi vincolati rigidamente	SI
Nodi vincolati elasticamente	NO
Nodi con isolatori sismici	NO
Fondazioni puntuali (plinti/plinti su palo)	NO
Fondazioni di tipo trave	NO
Fondazioni di tipo platea	NO
Fondazioni con elementi solidi	NO

Combinazioni dei casi di carico

APPROCCIO PROGETTUALE	Approccio 2
Tensioni ammissibili	NO
SLU	SI
SLV (SLU con sisma)	SI
SLC	NO
SLD	SI
SLO	NO
SLU GEO A2 (per approccio 1)	NO
SLU EQU	NO
Combinazione caratteristica (rara)	SI
Combinazione frequente	SI
Combinazione quasi permanente (SLE)	SI
SLA (accidentale quale incendio)	NO

Informazioni generali sull'elaborazione e giudizio motivato di accettabilità dei risultati.

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



01_INT_SPETTRI_ELASTICI_O

ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA

Color scale legend:
 <math>< 0.025</math>
 0.025-0.050
 0.050-0.075
 0.075-0.100
 0.100-0.125
 0.125-0.150
 0.150-0.175
 0.175-0.200
 0.200-0.225
 0.225-0.250
 0.250-0.275
 0.275-0.300
 0.300-0.350
 0.350-0.400
 0.400-0.450
 0.450-0.500
 0.500-0.600
 0.600-0.700

p.e. 10% in 50 anni

Scale: 0, 100, 200 km

Nota: per il calcolo dei parametri sismici
 1) inserire le coordinate geografiche 2) introdurre V_n e C_u

Per le isole è possibile utilizzare come località: gruppo isole N
 [con N = 1,2,3,4,5]

Vertici della maglia elementare INGV [riferimento WGS84]

Id nodo	Longitudine	Latitudine	Distanza [km]
12302	12.136	45.527	2.677
12303	12.207	45.528	4.175
12081	12.206	45.578	5.165
12080	12.134	45.577	4.042

Coordinate geografiche [riferimento WGS84]

Località:

Longitudine: Latitudine:

Parametri per le forme spettrali

	P _{ver}	T _r	ag [g]	F _o	T*c
SLO	<input type="text" value="81"/>	<input type="text" value="30.11"/>	<input type="text" value="0.0324"/>	<input type="text" value="2.566"/>	<input type="text" value="0.214"/>
SLD	<input type="text" value="63"/>	<input type="text" value="50.29"/>	<input type="text" value="0.0400"/>	<input type="text" value="2.588"/>	<input type="text" value="0.258"/>
SLV	<input type="text" value="10"/>	<input type="text" value="474.56"/>	<input type="text" value="0.1043"/>	<input type="text" value="2.537"/>	<input type="text" value="0.342"/>
SLC	<input type="text" value="5"/>	<input type="text" value="974.79"/>	<input type="text" value="0.1367"/>	<input type="text" value="2.560"/>	<input type="text" value="0.360"/>

Periodo di riferimento per l'azione sismica

Vita V_n [anni]	Coefficiente uso C_u	Periodo V_r [anni]	Livello di sicurezza
<input type="text" value="50"/>	<input type="text" value="1"/>	<input type="text" value="50"/>	<input type="text" value="100"/>

01_INT_PERICOLOSITA

CARATTERISTICHE MATERIALI UTILIZZATI

Il programma consente l'uso di materiali diversi. Sono previsti i seguenti tipi di materiale:

1	materiale tipo cemento armato
2	materiale tipo acciaio
3	materiale tipo muratura
4	materiale tipo legno
5	materiale tipo generico

I materiali utilizzati nella modellazione sono individuati da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni materiale vengono riportati in tabella i seguenti dati:

Young	modulo di elasticità normale E
Poisson	coefficiente di contrazione trasversale ν
G	modulo di elasticità tangenziale
Gamma	peso specifico
Alfa	coefficiente di dilatazione termica
Fattore di confidenza FC m	Fattore di confidenza specifico per materiale; (è riportato solo se diverso da quello globale della struttura)
Fattore di confidenza FC a	Fattore di confidenza specifico per l'armatura (è riportato solo se diverso da quello globale della struttura)
Elasto-plastico	Materiale elastico perfettamente plastico per aste non lineari
Massima compressione	Massima tensione di compressione per aste non lineari
Massima trazione	Massima tensione di trazione per aste non lineari
Fattore attrito	Coefficiente di attrito per aste non lineari
Rapporto HRDb	Rapporto di hardening a flessione
Rapporto HRDv	Rapporto di hardening a taglio

I dati soprariportati vengono utilizzati per la modellazione dello schema statico e per la determinazione dei carichi inerziali e termici. In relazione al tipo di materiale vengono riportati inoltre:

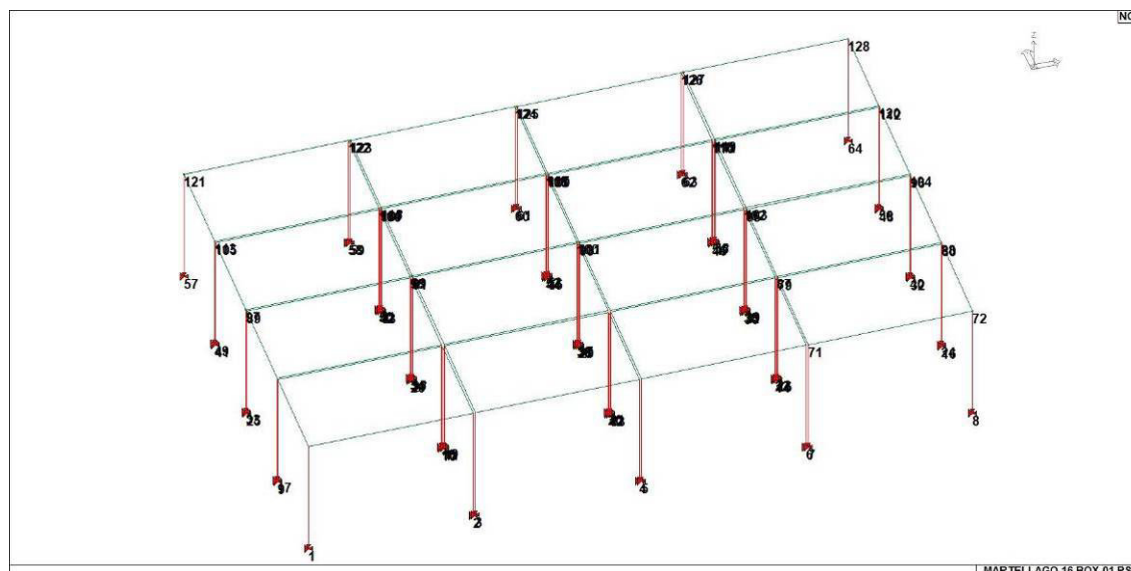
1	c.a.	Resistenza Rc	resistenza a compressione cubica
		Resistenza f_{ctm}	resistenza media a trazione semplice
		Coefficiente ksb	Coefficiente di riduzione della resistenza a compressione da utilizzare nello stress block
2	acciaio	Tensione f_t	Valore della tensione di rottura

Tensione fy	Valore della tensione di snervamento
Resistenza fd	Resistenza di calcolo per SL CNR-UNI 10011
Resistenza fd (>40)	Resistenza di calcolo per SL CNR-UNI 10011 per spessori > 40mm
Tensione ammissibile	Tensione ammissibile CNR-UNI 10011
Tensione ammissibile(>40)	Tensione ammissibile CNR-UNI 10011 per spessori > 40mm

Nel tabulato si riportano sia i valori caratteristici che medi utilizzando gli uni e/o gli altri in relazione alle richieste di normativa ed alla tipologia di verifica. (Cap.7 NTC18 per materiali nuovi, Cap.8 NTC18 e relativa circolare 21/01/2019 per materiali esistenti, Linee Guida Reluis per incamicatura CAM, CNR-DT 200 per interventi con FRP)

Vengono inoltre riportate le tabelle contenenti il riassunto delle informazioni assegnate nei criteri di progetto in uso.

Id	Tipo / Note	V. caratt.	V. medio	Young	Poisson	G	Gamma	Alfa	Altri
		daN/cm2	daN/cm2	daN/cm2		daN/cm2	daN/cm3		
48	Acciaio S250GD			2.100e+06	0.30	8.077e+05	7.85e-03	1.00e-05	
	Tensione ft	3300.0							
	Resistenza fd	2500.0							
	Resistenza fd (>40)	2100.0							
	Tensione ammissibile	1600.0							
	Tensione ammissibile (>40)	1400.0							
	Rapporto HRDb								1.00e-05
	Rapporto HRDv								1.00e-05
1	c.a. classe 30			3.122e+05	0.12	1.394e+05	2.50e-03	1.00e-05	
	Resistenza Rc	300.0							
	Resistenza fctm		26.1						
	Rapporto Rfessurata								1.00
	Coefficiente ksb								0.85
	Rapporto HRDb								1.00e-05
	Rapporto HRDv								1.00e-05



02-NODI

Pilastrici acc.	1/7/..	2/8/..	3/9/..	4/10/..	5/11/..	6/12/..
Lunghezze libere						
Metodo di calcolo 2-2	Assegnato					
2-2 Beta assegnato	1.00					
2-2 Beta * L assegnato [cm]	0.0					
Metodo di calcolo 3-3	Assegnato					
3-3 Beta assegnato	1.00					
3-3 Beta * L assegnato [cm]	0.0					
1-1 Beta assegnato	1.00					
1-1 Beta * L assegnato [cm]	0.0					
Generalità						
Coefficiente gamma M0	1.05					
Coefficiente gamma M1	1.05					
Coefficiente gamma M2	1.20					
Effetti del 2 ordine	NO					
Momenti equivalenti	SI					
Usa condizioni I e II	SI					

Travi acc.	1/7/..	2/8/..	3/9/..	4/10/..	5/11/..	6/12/..
Lunghezze libere						
3-3 Beta * L automatico	NO					
3-3 Beta assegnato	0.75					
3-3 Beta assegnato [cm]	0.0					
2-2 Beta * L automatico	NO					
2-2 Beta assegnato	0.75					
2-2 Beta * L assegnato [cm]	0.0					
1-1 Beta * L automatico	NO					
1-1 Beta assegnato	0.75					
1-1 Beta * L assegnato [cm]	0.0					
Generalità						
Coefficiente gamma M0	1.05					
Coefficiente gamma M1	1.05					
Coefficiente gamma M2	1.20					
Luce di taglio per GR [cm]	0.0					
Usa condizioni I e II	SI					
Momenti equivalenti	SI					

Gusci c.a.	1/7/..	2/8/..	3/9/..	4/10/..	5/11/..	6/12/..
Armatura						
Inclinazione Ax [gradi]	0.0					
Angolo Ax-Ay [gradi]	90.00					
Minima tesa	1.000e-02					
Massima tesa	0.81					
Maglia unica centrale	NO					
Copriferro [cm]	3.00					
Maglia x						
diámetro	8					
passo	20					
diámetro aggiuntivi	8					
Maglia y						
diámetro	8					
passo	20					
diámetro aggiuntivi	8					
Stati limite ultimi						
Tensione fy [daN/cm ²]	4300.00					
Tipo acciaio	tipo C					
Coefficiente gamma s	1.15					
Coefficiente gamma c	1.50					
Verifiche con N costante	SI					
Applica SLU da DIN	NO					
Tensioni ammissibili						
Tensione amm. cls [daN/cm ²]	97.50					
Tensione amm. acciaio [daN/cm ²]	2600.00					
Rapporto omogeneizzazione N	15.00					
Massimo rapporto area compressa/tesa	1.00					
Resistenza al fuoco						
3- intradosso	NO					
3+ estradosso	NO					
Tempo di esposizione R	15					

CARATTERISTICHE DELLE SEZIONI

Eurocodice EN 1993-1-5

$A_{c,eff} = \rho A_c$
 where ρ is the reduction factor for plate buckling.

(2) The reduction factor ρ may be taken as follows:

- internal compression elements:
 $\rho = 1,0$ for $\bar{\lambda}_p \leq 0,673$
 $\rho = \frac{\bar{\lambda}_p - 0,055(3 + \psi)}{\bar{\lambda}_p^2} \leq 1,0$ for $\bar{\lambda}_p > 0,673$, where $(3 + \psi) \geq 0$
- outstand compression elements:
 $\rho = 1,0$ for $\bar{\lambda}_p \leq 0,748$
 $\rho = \frac{\bar{\lambda}_p - 0,188}{\bar{\lambda}_p^2} \leq 1,0$ for $\bar{\lambda}_p > 0,748$

where $\bar{\lambda}_p = \sqrt{\frac{f_y}{\sigma_{cr}}} = \frac{\bar{b}/t}{28,4 \varepsilon \sqrt{k_\sigma}}$

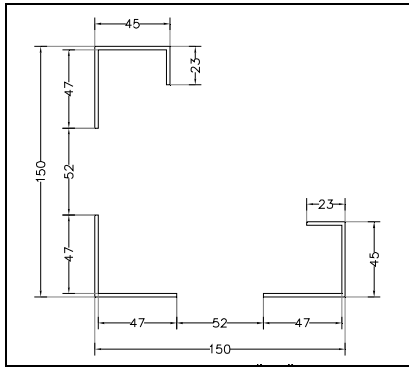
Table 4.1: Internal compression elements

Stress distribution (compression positive)				Effective ^p width b_{eff}		
				$\psi = 1:$ $b_{eff} = \rho \bar{b}$ $b_{e1} = 0,5 b_{eff}$ $b_{e2} = 0,5 b_{eff}$		
				$1 > \psi \geq 0:$ $b_{eff} = \rho \bar{b}$ $b_{e1} = \frac{2}{5 - \psi} b_{eff}$ $b_{e2} = b_{eff} - b_{e1}$		
				$\psi < 0:$ $b_{eff} = \rho b_c = \rho \bar{b} / (1 - \psi)$ $b_{e1} = 0,4 b_{eff}$ $b_{e2} = 0,6 b_{eff}$		
$\psi = \sigma_2/\sigma_1$	1	$1 > \psi > 0$	0	$0 > \psi > -1$	-1	$-1 > \psi > -3$
Buckling factor k_σ	4,0	$8,2 / (1,05 + \psi)$	7,81	$7,81 - 6,29\psi + 9,78\psi^2$	23,9	$5,98 (1 - \psi)^2$

COLONNE D'ANGOLO sp. 2

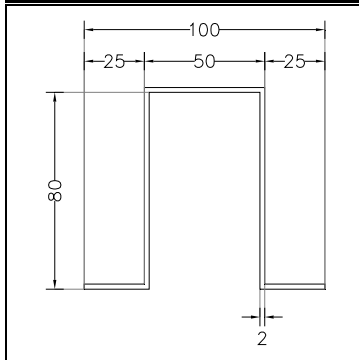
Elementi soggetti a sola compressione

LUNGHEZZA ANIMA l_a (mm)	SPESSORE t (mm)	$c = l_a - 2t$ (mm)	c/t	classe (c/t <> 42)	$\psi = \sigma_2/\sigma_1$	k_σ	snellezza λ_p	ρ ($\lambda_p < 0,673$)	b_{eff} (mm)	b_{e1} (mm)	b_{e2} (mm)
150	2	146	73	4	1	4	1,29	0,64	94	47	47
45	2	41	20,5	3							
ALA SPORGENTE (mm)	SPESSORE t (mm)	c	c/t	classe (c/t <> 14)							
23	2	23	11,5	3							



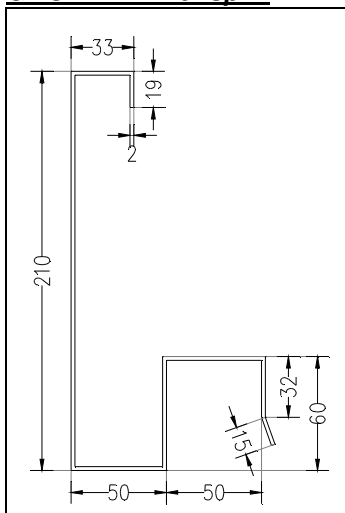
SEZIONE EFFICACE

TRAVERSE PAVIMENTO sp. 2



LUNGHEZZA ANIMA l_a (mm)	SPESORE t (mm)	$c = l_a - 2t$ (mm)	c/t	classe (c/t <> 42)
80	2	76	38	3
ALA SPORGENTE (mm)	SPESORE t (mm)	c	c/t	classe (c/t <> 14)
25	2	25	12,5	3

GRONDA h210: sp. 2



Elementi soggetti a flessione:

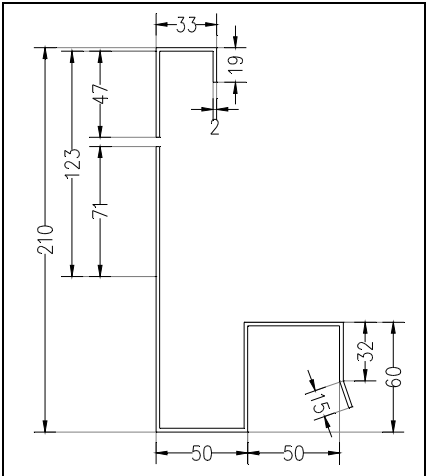
nella sezione lorda l'asse neutro è a 83 mm dal basso (zona tesa) e a 123 mm dall'alto (zona compressa):

$$\psi = \sigma_2 / \sigma_1 = -83 / 123 = -0,67$$

dalla tabella per $0 > \psi > -1$

$$k\sigma = 7,81 - 6,29 \psi + 9,78 \psi^2 = 16,4$$

LUNGHEZZA ANIMA la (mm)	SPESSORE t (mm)	c=la - 2t (mm)	c/t	classe (c/t <>42)	$\psi = \sigma_2 / \sigma_1$	$k\sigma$	snellezza a λp	calcolo p (λp <>0,673)	ρ	bc	b _{eff}	b _{e1}	b _{e2}
210	2	206	103	4	-0,67	16,4	0,90	0,96	0,96	123	118	47	71
ALA SPORGENTE (mm)	SPESSORE t (mm)	c	c/t	classe (c/t <>14)									
19	2	19	9,5	3									



SEZIONE EFFICACE

MODELLAZIONE DELLE SEZIONI LEGENDA TABELLA DATI SEZIONI

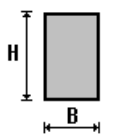
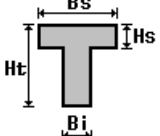
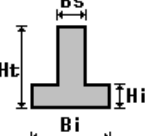
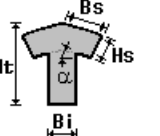
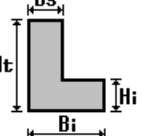
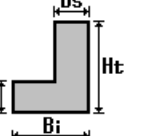
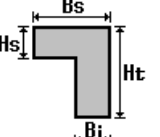
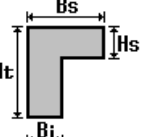
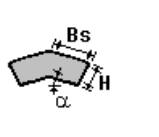
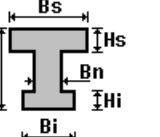
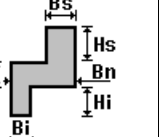
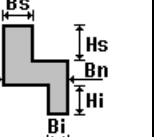
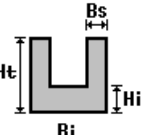
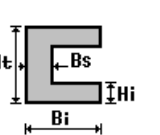
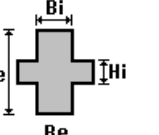
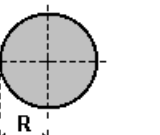
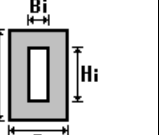
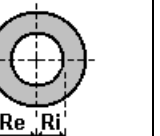
Il programma consente l'uso di sezioni diverse. Sono previsti i seguenti tipi di sezione:

1. sezione di tipo generico
2. profilati semplici
3. profilati accoppiati e speciali

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

Area	area della sezione
A V2	area della sezione/fattore di taglio (per il taglio in direzione 2)
A V3	area della sezione/fattore di taglio (per il taglio in direzione 3)
Jt	fattore torsionale di rigidezza
J2-2	momento d'inerzia della sezione riferito all'asse 2
J3-3	momento d'inerzia della sezione riferito all'asse 3
W2-2	modulo di resistenza della sezione riferito all'asse 2
W3-3	modulo di resistenza della sezione riferito all'asse 3
Wp2-2	modulo di resistenza plastico della sezione riferito all'asse 2
Wp3-3	modulo di resistenza plastico della sezione riferito all'asse 3

I dati sopra riportati vengono utilizzati per la determinazione dei carichi inerziali e per la definizione delle rigidezze degli elementi strutturali; qualora il valore di Area V2 (e/o Area V3) sia nullo la deformabilità per taglio V2 (e/o V3) è trascurata. La valutazione delle caratteristiche inerziali delle sezioni è condotta nel riferimento 2-3 dell'elemento.

 rettangolare	 a T	 a T rovescia	 a T di colmo	 a L	 a L specchiata
 a L specchiata rovescia	 a L rovescia	 a L di colmo	 a doppio T	 a quattro specchiata	 a quattro
 a U	 a C	 a croce	 circolare	 rettangolare cava	 circolare cava

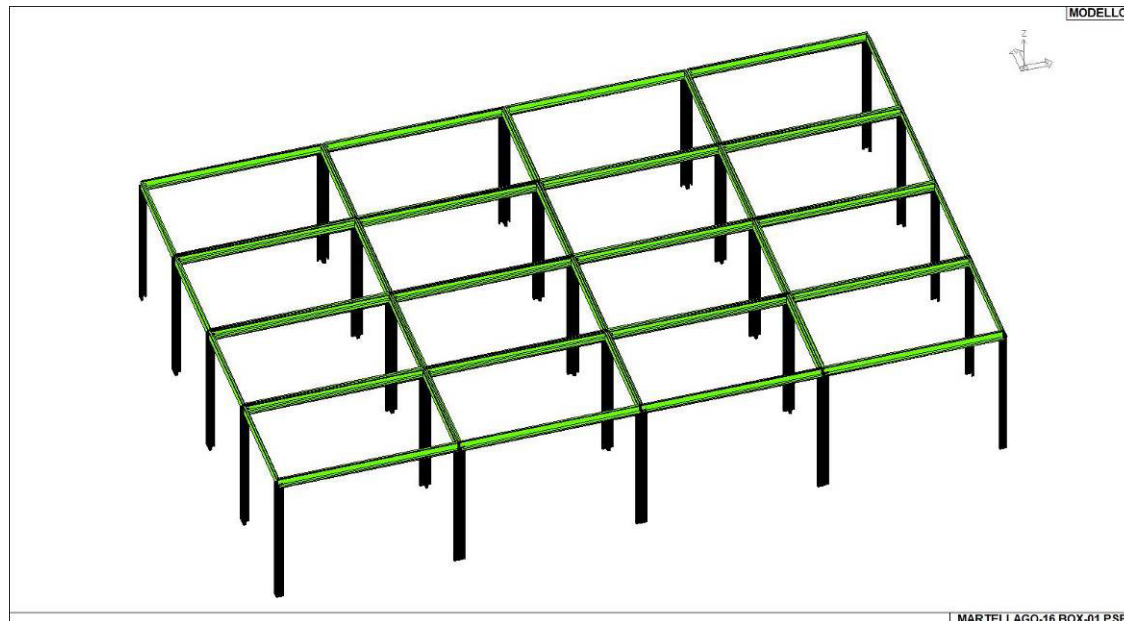
Per quanto concerne i profilati semplici ed accoppiati l'asse 2 del riferimento coincide con l'asse x riportato nei più diffusi profilatari.

Per quanto concerne le sezioni di tipo generico (tipo 1.):

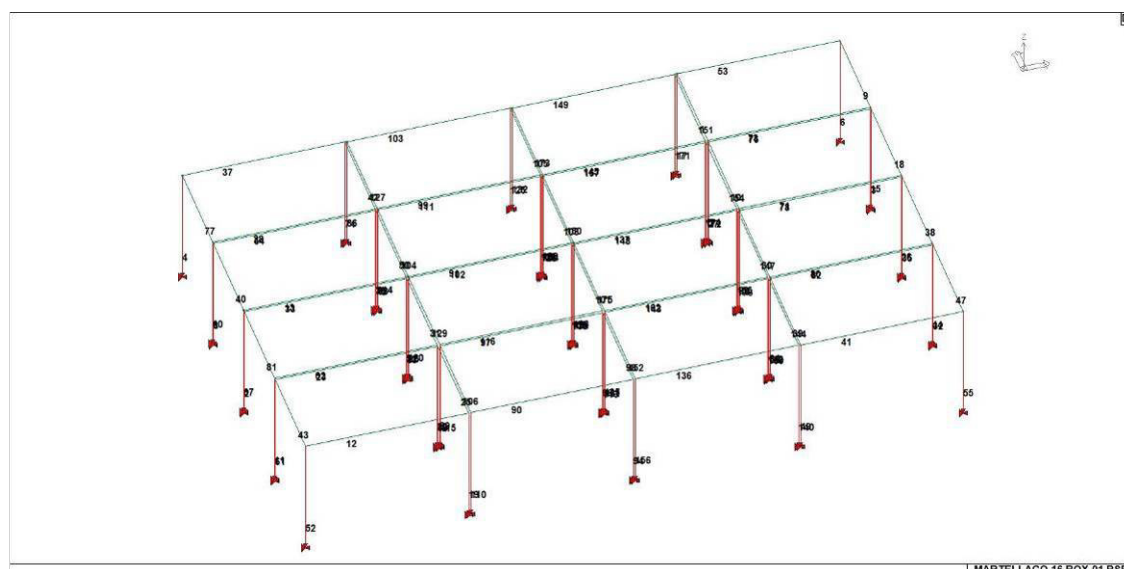
i valori dimensionali con prefisso B sono riferiti all'asse 2

i valori dimensionali con prefisso H sono riferiti all'asse 3

Id	Tipo	Area	A V2	A V3	Jt	J 2-2	J 3-3	W 2-2	W 3-3	Wp 2-2	Wp 3-3
		cm2	cm2	cm2	cm4	cm4	cm4	cm3	cm3	cm3	cm3
4	colonna d'angolo sp. 2	8.52	0.0	0.0	0.11	269.37	269.37	27.80	27.80	27.80	27.80
28	GRONDA H210 SP2 SEZ EFFICACE	9.12	0.0	0.0	0.12	112.87	440.46	14.76	34.56	14.76	34.56



13_MOD_SEZIONI



03-D2

MODELLAZIONE DELLA STRUTTURA: ELEMENTI SOLAIO

Il programma utilizza per la modellazione elementi a tre o più nodi denominati in generale solaio o pannello. Ogni elemento solaio-pannello è individuato da una poligonale di nodi 1,2, ..., N.

L'elemento solaio è utilizzato in primo luogo per la modellazione dei carichi agenti sugli elementi strutturali. In secondo luogo può essere utilizzato per la corretta ripartizione delle forze orizzontali agenti nel proprio piano. L'elemento balcone è derivato dall'elemento solaio.

I carichi agenti sugli elementi solaio, raccolti in un archivio, sono direttamente assegnati agli elementi utilizzando le informazioni raccolte nell' archivio (es. i coefficienti combinatori). La tabella seguente riporta i dati utilizzati per la definizione dei carichi e delle masse.

L'elemento pannello è utilizzato solo per l'applicazione dei carichi, quali pesi delle tamponature o spinte dovute al vento o terre. In questo caso i carichi sono applicati in analogia agli altri elementi strutturali (si veda il cap. SCHEMATIZZAZIONE DEI CASI DI CARICO).

Id.Arch.	Identificativo dell' archivio
Tipo	Tipo di carico Variab. Carico variabile generico Var. rid. Carico variabile generico con riduzione in funzione dell' area (c.5.5. ...) Neve Carico di neve
G1k	carico permanente (comprensivo del peso proprio)
G2k	carico permanente non strutturale e non compiutamente definito
Qk	carico variabile
Fatt. A	fattore di riduzione del carico variabile (0.5 o 0.75) per tipo "Var.rid."
S sis.	fattore di riduzione del carico variabile per la definizione delle masse sismiche per D.M. 96 (vedi NOTA sul capitolo "normativa di riferimento")
Psi 0	Coefficiente combinatorio dei valori caratteristici delle azioni variabili: per valore raro
Psi 1	Coefficiente combinatorio dei valori caratteristici delle azioni variabili: per valore frequente
Psi 2	Coefficiente combinatorio dei valori caratteristici delle azioni variabili: per valore quasi permanente
Psi S 2	Coefficiente di combinazione che fornisce il valore quasi-permanente dell'azione variabile: per la definizione delle masse sismiche
Fatt. Fi	Coefficiente di correlazione dei carichi per edifici

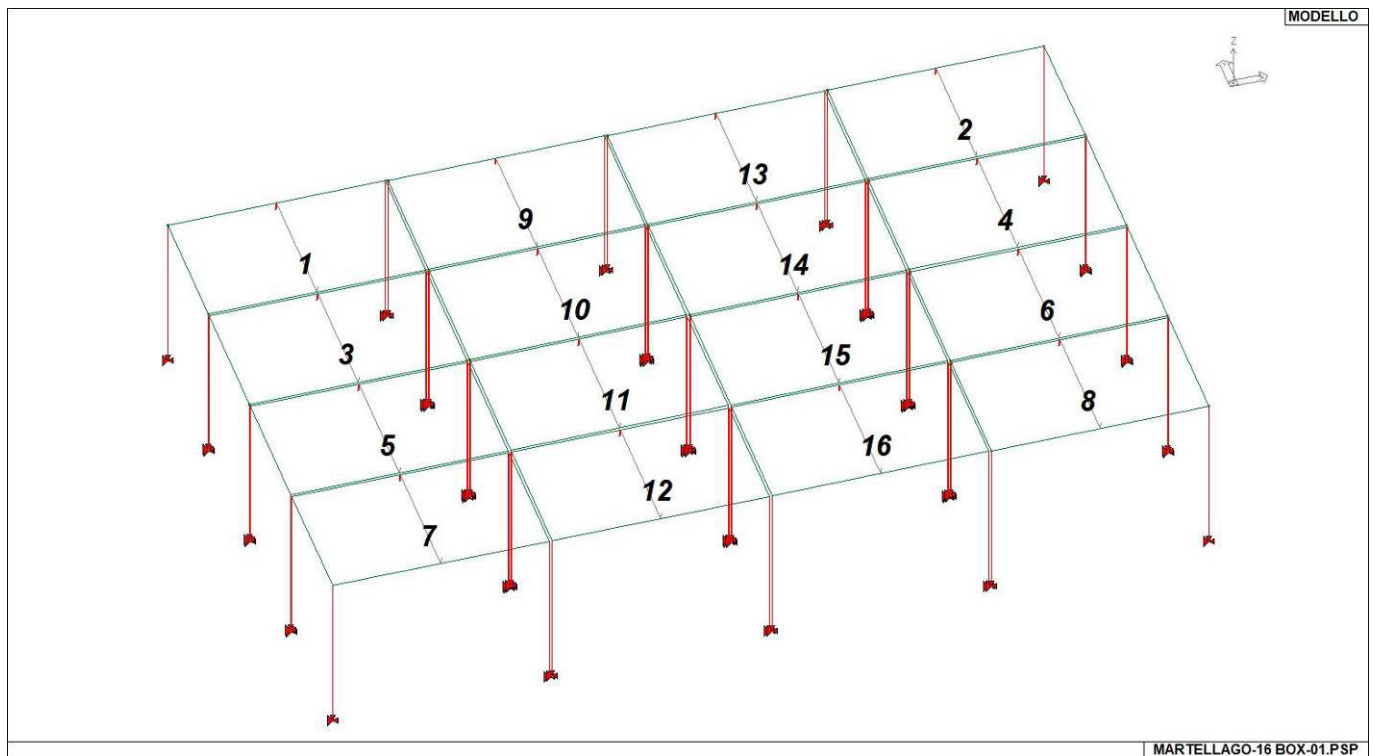
Ogni elemento è caratterizzato da un insieme di proprietà riportate in tabella che ne completano la modellazione. In particolare per ogni elemento viene indicato in tabella:

Elem	numero dell'elemento
Tipo	codice di comportamento S elemento utilizzato solo per scarico C elemento utilizzato per scarico e per modellazione piano rigido P elemento utilizzato come pannello M scarico monodirezionale B scarico bidirezionale
Id.Arch.	Identificativo dell' archivio
Mat	codice del materiale assegnato all'elemento
Spessore	spessore dell'elemento (costante)
Orditura	angolo (rispetto all'asse X) della direzione dei travetti principali
Gk	carico permanente solaio (comprensivo del peso proprio)
Qk	carico variabile solaio

Nodi numero dei nodi che definiscono l'elemento (5 per riga)

ID Arch.	Tipo	G1k daN/cm2	G2k daN/cm2	Qk daN/cm2	Fatt. A	s sis.	Psi 0	Psi 1	Psi 2	Psi S 2	Fatt. Fi
3	Neve	3.00e-03		8.00e-03		1.00	0.50	0.20	0.0	0.0	1.00

Elem.	Tipo	ID Arch.	Mat.	Spessore	Orditura	G1k daN/cm2	G2k daN/cm2	Qk	Nodo 1/6..	Nodo 2/7..	Nodo 3/8..	Nodo..	Nodo..
1	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	113	114	122	121	
2	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	119	120	128	127	
3	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	97	98	106	105	
4	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	103	104	112	111	
5	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	81	82	90	89	
6	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	87	88	96	95	
7	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	65	66	74	73	
8	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	71	72	80	79	
9	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	115	116	124	123	
10	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	99	100	108	107	
11	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	83	84	92	91	
12	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	67	68	76	75	
13	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	117	118	126	125	
14	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	101	102	110	109	
15	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	85	86	94	93	
16	SM	3	m=48	1.0	90.0	3.00e-03	8.00e-03	8.00e-03	69	70	78	77	

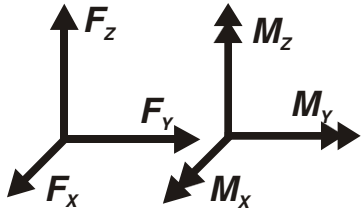
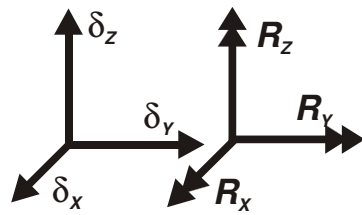
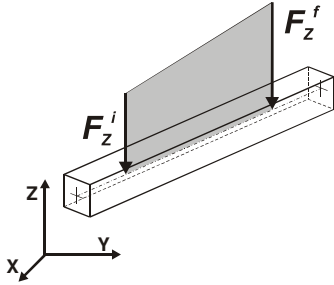
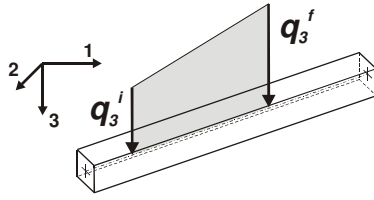
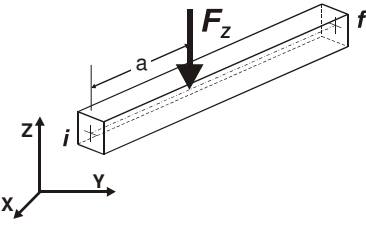
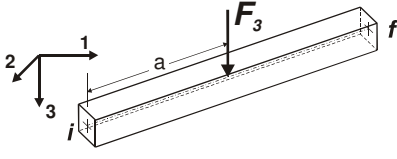
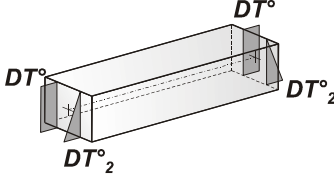
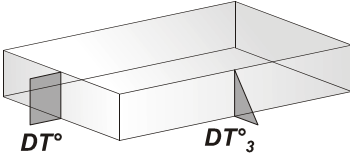
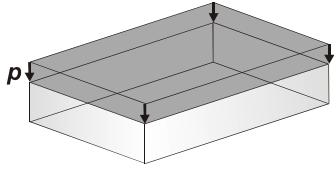
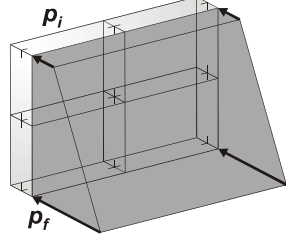


17_MOD_NUMERAZIONE_SOLAI

MODELLAZIONE DELLE AZIONI LEGENDA TABELLA DATI AZIONI

Il programma consente l'uso di diverse tipologie di carico (azioni). Le azioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni azione applicata alla struttura viene di riportato il codice, il tipo e la sigla identificativa. Le tabelle successive dettagliano i valori caratteristici di ogni azione in relazione al tipo. Le tabelle riportano infatti i seguenti dati in relazione al tipo:

1	carico concentrato nodale 6 dati (forza F_x , F_y , F_z , momento M_x , M_y , M_z)
2	spostamento nodale impresso 6 dati (spostamento T_x , T_y , T_z , rotazione R_x , R_y , R_z)
3	carico distribuito globale su elemento tipo trave 7 dati (f_x , f_y , f_z , m_x , m_y , m_z , ascissa di inizio carico) 7 dati (f_x , f_y , f_z , m_x , m_y , m_z , ascissa di fine carico)
4	carico distribuito locale su elemento tipo trave 7 dati (f_1 , f_2 , f_3 , m_1 , m_2 , m_3 , ascissa di inizio carico) 7 dati (f_1 , f_2 , f_3 , m_1 , m_2 , m_3 , ascissa di fine carico)
5	carico concentrato globale su elemento tipo trave 7 dati (F_x , F_y , F_z , M_x , M_y , M_z , ascissa di carico)
6	carico concentrato locale su elemento tipo trave 7 dati (F_1 , F_2 , F_3 , M_1 , M_2 , M_3 , ascissa di carico)
7	variazione termica applicata ad elemento tipo trave 7 dati (variazioni termiche: uniforme, media e differenza in altezza e larghezza al nodo iniziale e finale)
8	carico di pressione uniforme su elemento tipo piastra 1 dato (pressione)
9	carico di pressione variabile su elemento tipo piastra 4 dati (pressione, quota, pressione, quota)
10	variazione termica applicata ad elemento tipo piastra 2 dati (variazioni termiche: media e differenza nello spessore)
11	carico variabile generale su elementi tipo trave e piastra 1 dato descrizione della tipologia 4 dati per segmento (posizione, valore, posizione, valore) la tipologia precisa l'ascissa di definizione, la direzione del carico, la modalità di carico e la larghezza d'influenza per gli elementi tipo trave
12	gruppo di carichi con impronta su piastra 9 dati (numero di ripetizioni in direzione X e Y, valore di ciascun carico, posizione centrale del primo, dimensioni dell'impronta, interasse tra i carichi)

 <p>Carico concentrato nodale</p>	 <p>Spostamento impresso</p>
 <p>Carico distribuito globale</p>	 <p>Carico distribuito locale</p>
 <p>Carico concentrato globale</p>	 <p>Carico concentrato locale</p>
 <p>Carico termico 2D</p>	 <p>Carico termico 3D</p>
 <p>Carico pressione uniforme</p>	 <p>Carico pressione variabile</p>

Tipo carico distribuito globale su trave

Id	Tipo	Pos. cm	fx daN/cm	fy daN/cm	fz daN/cm	mx daN	my daN	mz daN
2	DG:Fxi=0.82 Fxf=0.82	0.0	0.82	0.0	0.0	0.0	0.0	0.0
		0.0	0.82	0.0	0.0	0.0	0.0	0.0
3	DG:Fxi=0.41 Fxf=0.41	0.0	0.41	0.0	0.0	0.0	0.0	0.0
		0.0	0.41	0.0	0.0	0.0	0.0	0.0
4	DG:Fyi=0.82 Fyf=0.82	0.0	0.0	0.82	0.0	0.0	0.0	0.0
		0.0	0.0	0.82	0.0	0.0	0.0	0.0
5	DG:Fyi=0.41 Fyf=0.41	0.0	0.0	0.41	0.0	0.0	0.0	0.0
		0.0	0.0	0.41	0.0	0.0	0.0	0.0
6	DG:Fzi=0.20 Fzf=0.20	0.0	0.0	0.0	0.20	0.0	0.0	0.0
		0.0	0.0	0.0	0.20	0.0	0.0	0.0

SCHEMATIZZAZIONE DEI CASI DI CARICO LEGENDA TABELLA CASI DI CARICO

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

Sono previsti i seguenti 11 tipi di casi di carico:

	Sigla	Tipo	Descrizione
1	Ggk	A	caso di carico comprensivo del peso proprio struttura
2	Gk	NA	caso di carico con azioni permanenti
3	Qk	NA	caso di carico con azioni variabili
4	Gsk	A	caso di carico comprensivo dei carichi permanenti sui solai e sulle coperture
5	Qsk	A	caso di carico comprensivo dei carichi variabili sui solai
6	Qnk	A	caso di carico comprensivo dei carichi di neve sulle coperture
7	Qtk	SA	caso di carico comprensivo di una variazione termica agente sulla struttura
8	Qvk	NA	caso di carico comprensivo di azioni da vento sulla struttura
9	Esk	SA	caso di carico sismico con analisi statica equivalente
10	Edk	SA	caso di carico sismico con analisi dinamica
11	Etk	NA	caso di carico comprensivo di azioni derivanti dall' incremento di spinta delle terre in condizione sismica
12	Pk	NA	caso di carico comprensivo di azioni derivanti da coazioni, cedimenti e precompressioni

Sono di tipo automatico A (ossia non prevedono introduzione dati da parte dell'utente) i seguenti casi di carico: 1-Ggk; 4-Gsk; 5-Qsk; 6-Qnk.

Sono di tipo semi-automatico SA (ossia prevedono una minima introduzione dati da parte dell'utente) i seguenti casi di carico:

7-Qtk, in quanto richiede solo il valore della variazione termica;

9-Esk e 10-Edk, in quanto richiedono il valore dell'angolo di ingresso del sisma e l'individuazione dei casi di carico partecipanti alla definizione delle masse.

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

Nella tabella successiva vengono riportati i casi di carico agenti sulla struttura, con l'indicazione dei dati relativi al caso di carico stesso:

Numero Tipo e Sigla identificativa, Valore di riferimento del caso di carico (se previsto).

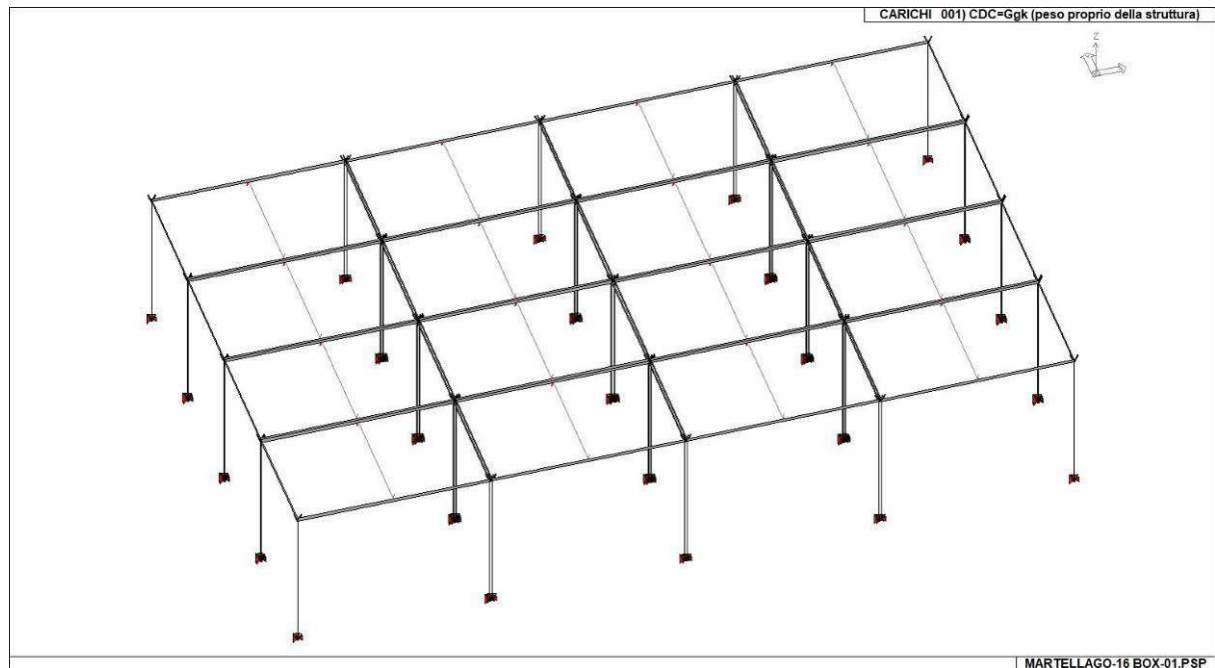
In successione, per i casi di carico non automatici, viene riportato l'elenco di nodi ed elementi direttamente caricati con la sigla identificativa del carico.

Per i casi di carico di tipo sismico (9-Esk e 10-Edk), viene riportata la tabella di definizione delle masse: per ogni caso di carico partecipante alla definizione delle masse viene indicata la relativa aliquota (partecipazione) considerata. Si precisa che per i caso di carico 5-Qsk e 6-Qnk la partecipazione è prevista localmente per ogni elemento solaio o copertura presente nel modello (si confronti il valore Sksol nel capitolo relativo agli elementi solaio) e pertanto la loro partecipazione è di norma pari a uno.

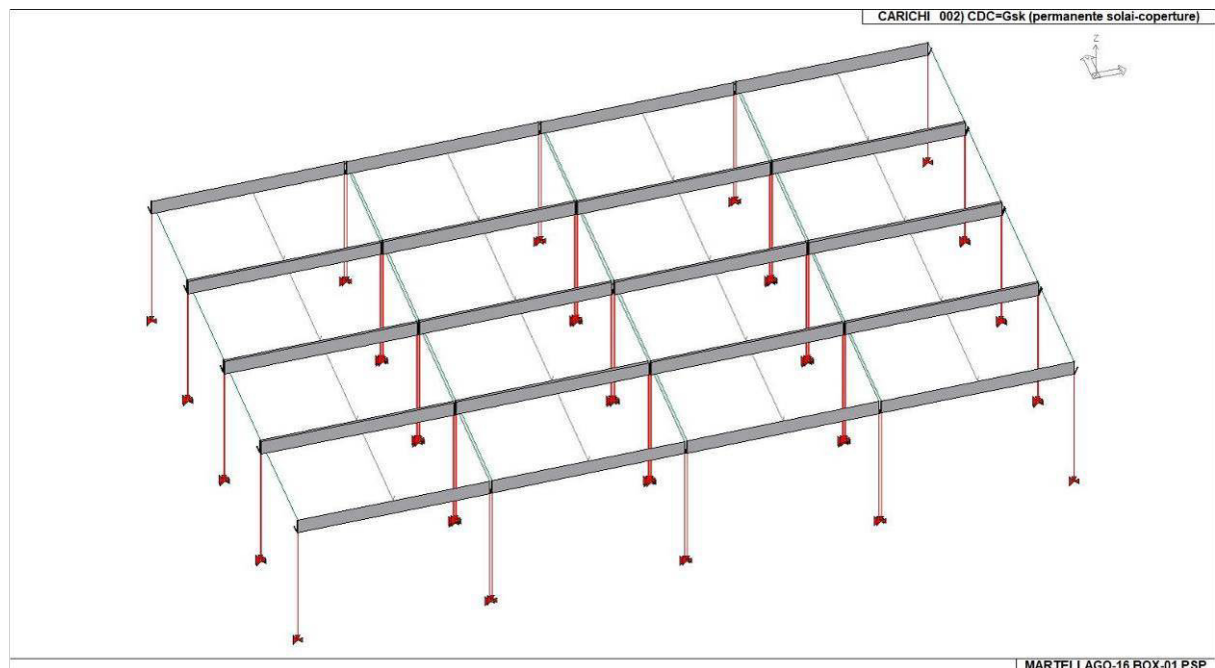
CDC	Tipo	Sigla Id	Note
1	Ggk	CDC=Ggk (peso proprio della struttura)	
2	Gsk	CDC=Gsk (permanente solai-coperture)	
3	Qnk	CDC=Qnk (carico da neve)	
4	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	partecipazione:1.00 per 1 CDC=Ggk (peso proprio della struttura)
			partecipazione:1.00 per 2 CDC=Gsk (permanente solai-coperture)
			partecipazione:1.00 per 3 CDC=Qnk (carico da neve)

CDC	Tipo	Sigla Id	Note
5	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	come precedente CDC sismico
6	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	come precedente CDC sismico
7	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	come precedente CDC sismico
8	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	come precedente CDC sismico
9	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	come precedente CDC sismico
10	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	come precedente CDC sismico
11	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	come precedente CDC sismico
12	Qvk	CDC=Qvk (carico da vento) X	Azioni applicate: D2 : 1 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 9 a 10 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 9 a 10 Azione : DG:Fxi=0.41 Fxf=0.41 D2 :da 12 a 13 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 18 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 18 Azione : DG:Fxi=0.41 Fxf=0.41 D2 : 23 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 25 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 28 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 30 a 31 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 33 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 37 a 43 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 47 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 47 Azione : DG:Fxi=0.41 Fxf=0.41 D2 : 50 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 53 a 54 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 62 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 71 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 73 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 76 a 78 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 80 a 82 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 90 a 91 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 97 a 99 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 101 a 106 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 108 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 111 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 116 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 127 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 129 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 136 a 137 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 143 a 145 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 147 a 152 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 154 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 157 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 162 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 173 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 175 Azione : DG:Fzi=0.20 Fzf=0.20
13	Qvk	CDC=Qvk (carico da vento) Y	Azioni applicate: D2 : 1 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 9 a 10 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 12 Azione : DG:Fyi=0.82 Fyf=0.82 D2 :da 12 a 13 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 18 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 23 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 25 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 28 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 30 a 31 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 33 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 37 Azione : DG:Fyi=0.41 Fyf=0.41 D2 :da 37 a 43 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 47 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 50 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 53 Azione : DG:Fyi=0.41 Fyf=0.41 D2 :da 53 a 54 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 62 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 71 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 73 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 76 a 78 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 80 a 82 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 90 Azione : DG:Fyi=0.82 Fyf=0.82 D2 :da 90 a 91 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 97 a 99 Azione : DG:Fzi=0.20 Fzf=0.20 D2 :da 101 a 106 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 108 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 111 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 116 Azione : DG:Fzi=0.20 Fzf=0.20 D2 : 127 Azione : DG:Fzi=0.20 Fzf=0.20

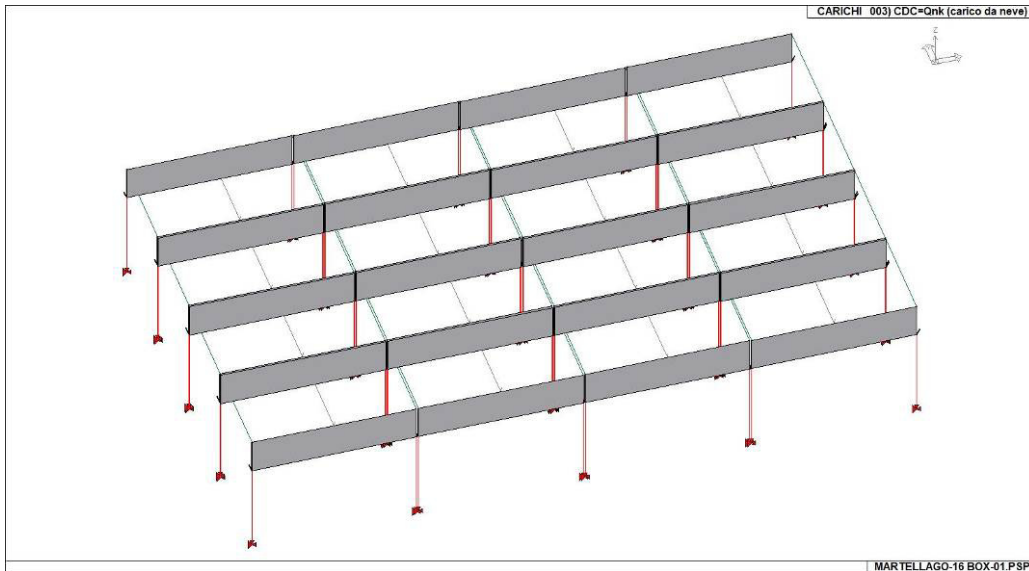
CDC	Tipo	Sigla Id	Note
			D2 : 129 Azione : DG:Fzi=0.20 Fzf=0.20
			D2 : 136 Azione : DG:Fyi=0.82 Fyf=0.82
			D2 :da 136 a 137 Azione : DG:Fzi=0.20 Fzf=0.20
			D2 :da 143 a 145 Azione : DG:Fzi=0.20 Fzf=0.20
			D2 :da 147 a 152 Azione : DG:Fzi=0.20 Fzf=0.20
			D2 : 154 Azione : DG:Fzi=0.20 Fzf=0.20
			D2 : 157 Azione : DG:Fzi=0.20 Fzf=0.20
			D2 : 162 Azione : DG:Fzi=0.20 Fzf=0.20
			D2 : 173 Azione : DG:Fzi=0.20 Fzf=0.20
			D2 : 175 Azione : DG:Fzi=0.20 Fzf=0.20



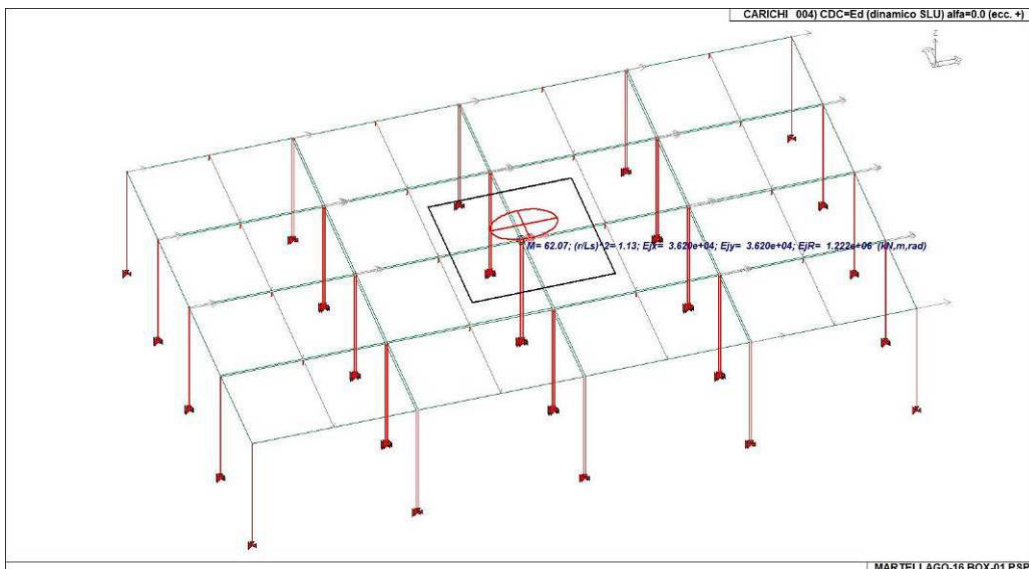
22_CDC_001_CDC=Ggk (peso proprio della struttura)



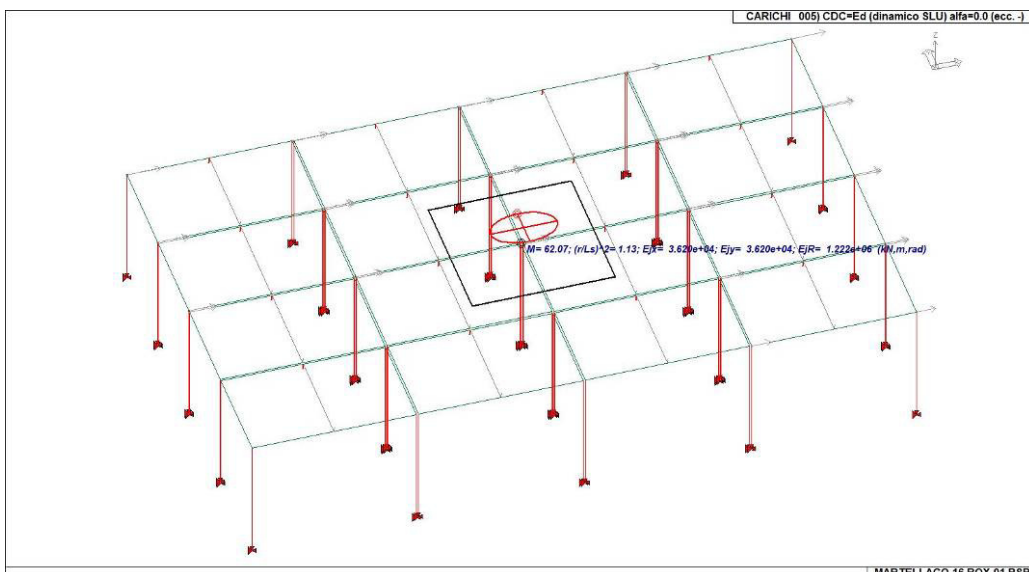
22_CDC_002_CDC=Gsk (permanente solai-coperture)



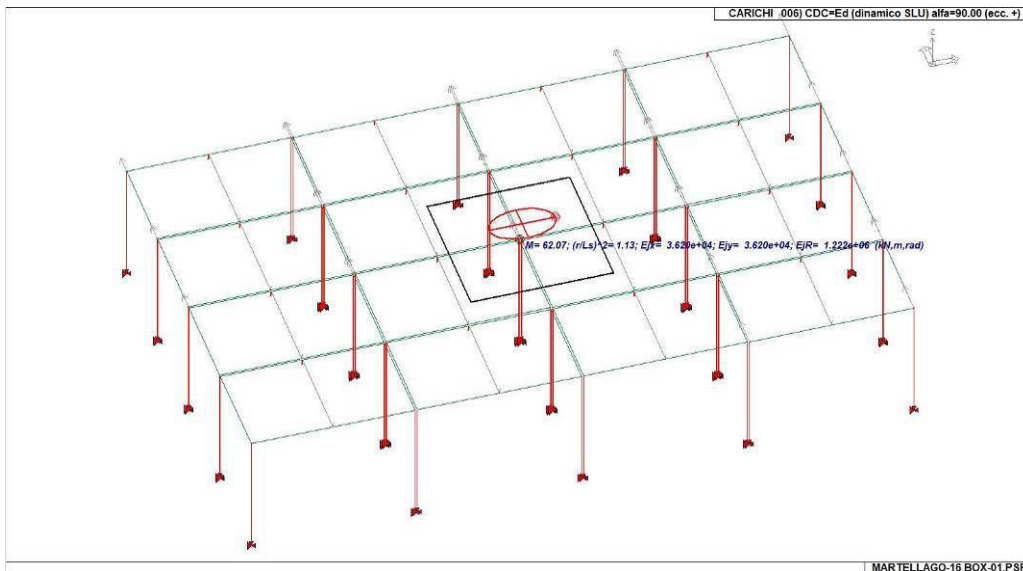
22_CDC_003_CDC=Qnk (carico da neve)



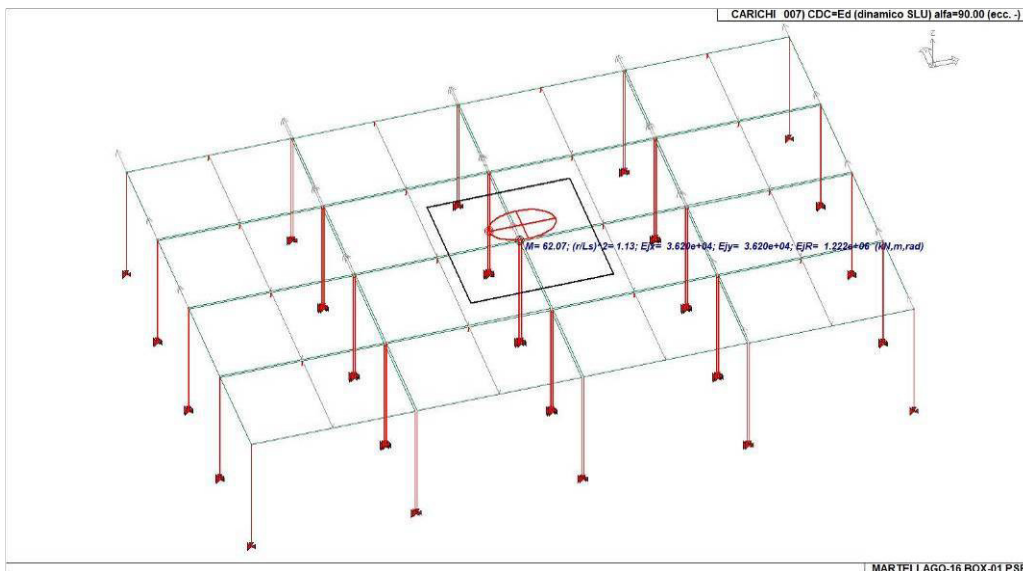
22_CDC_004_CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)



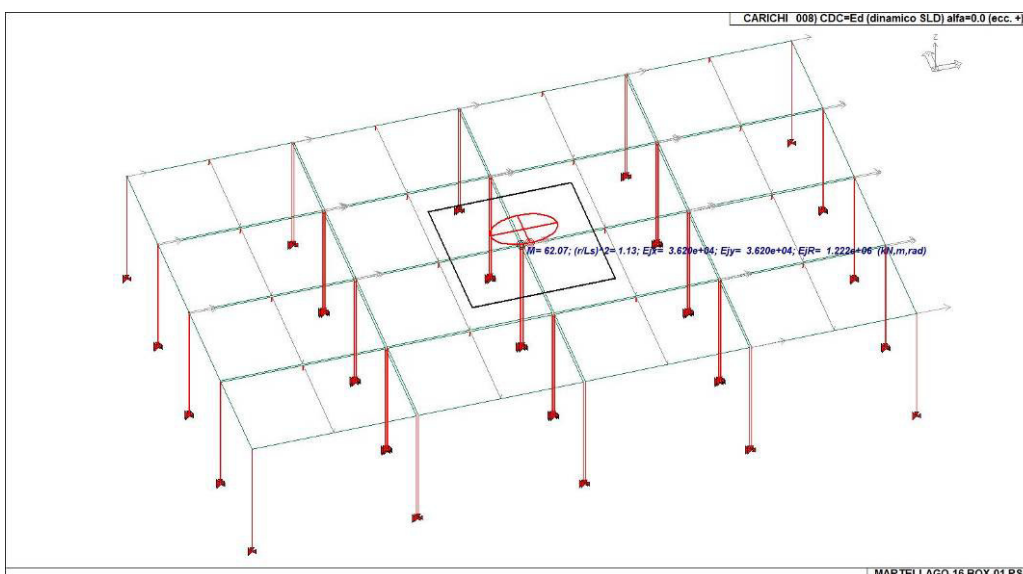
22_CDC_005_CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)



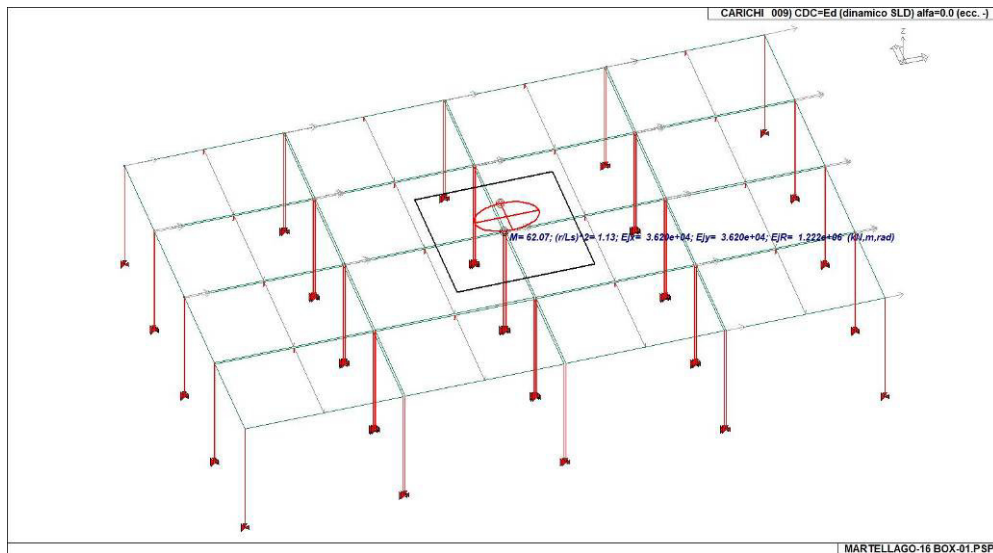
22_CDC_006_CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)



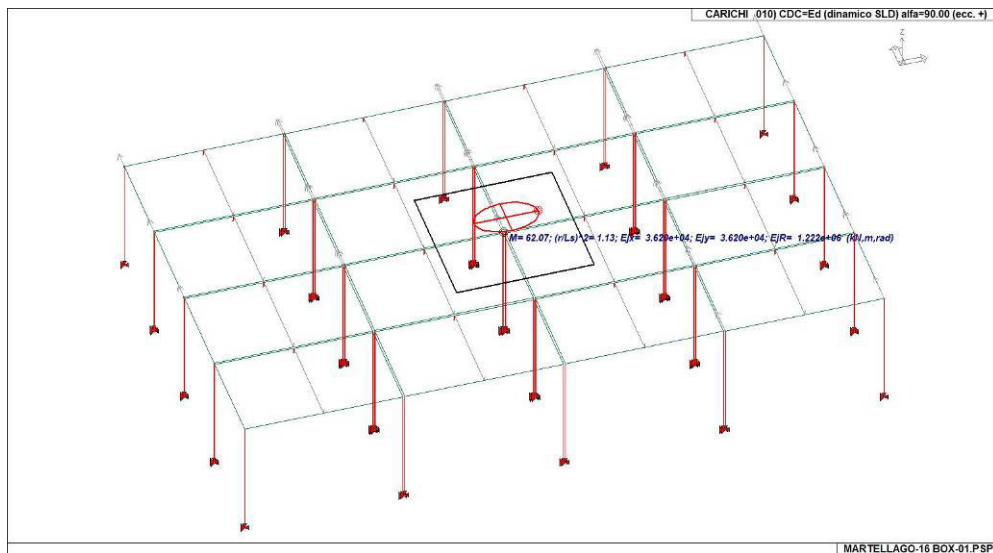
22_CDC_007_CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)



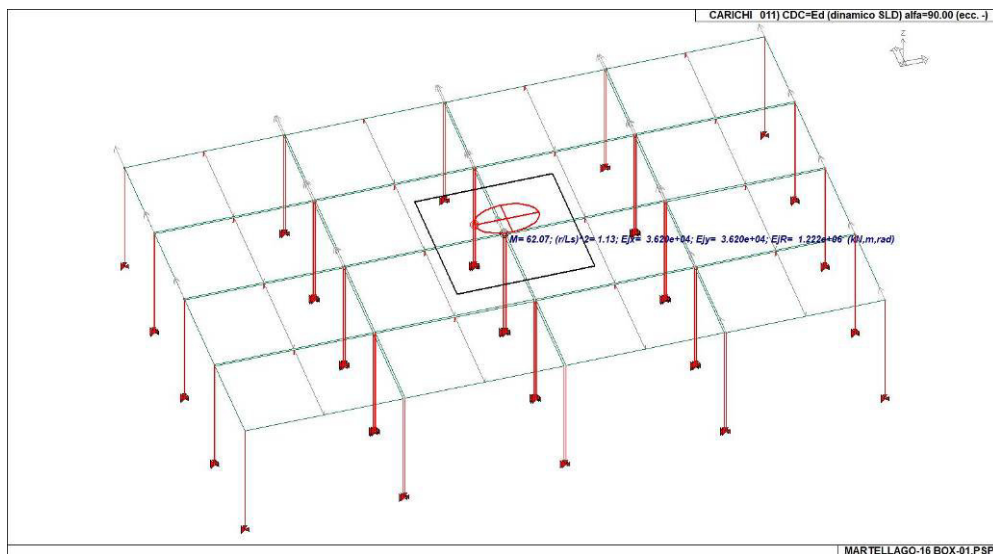
22_CDC_008_CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)



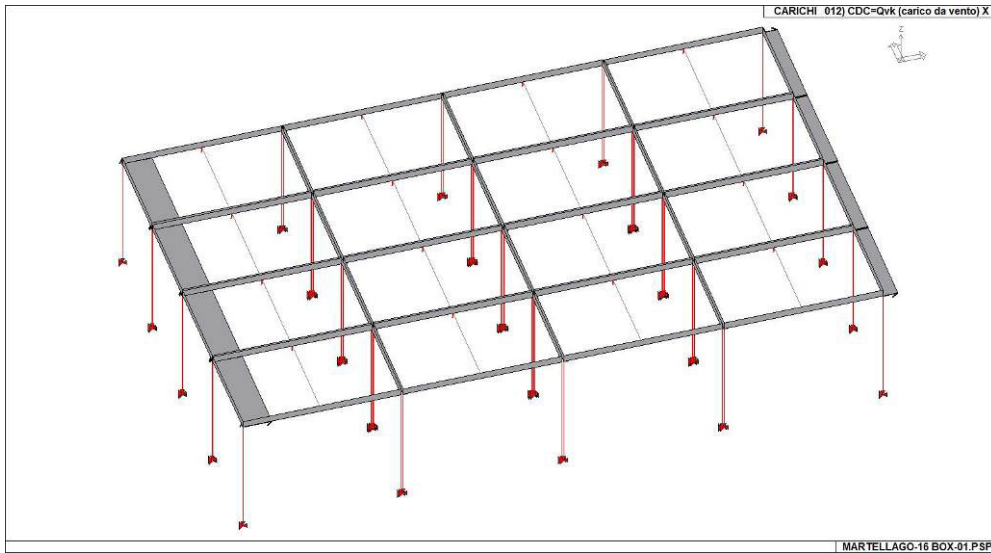
22_CDC_009_CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)



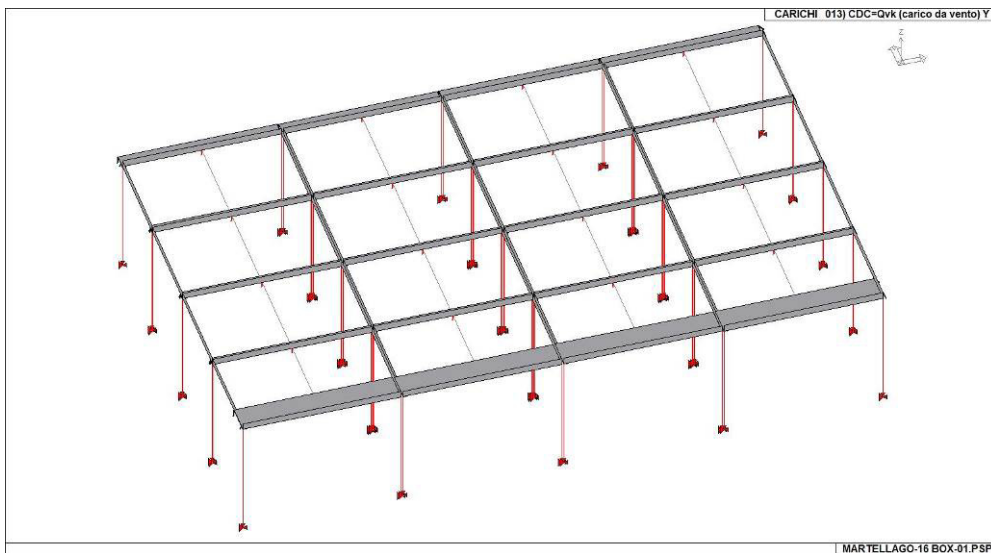
22_CDC_010_CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)



22_CDC_011_CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)



22_CDC_012_CDC=Qvk (carico da vento) X



22_CDC_013_CDC=Qvk (carico da vento) Y

DEFINIZIONE DELLE COMBINAZIONI LEGENDA TABELLA COMBINAZIONI DI CARICO

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

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

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

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

Combinazione fondamentale SLU

$$\gamma G_1 \cdot G_1 + \gamma G_2 \cdot G_2 + \gamma P \cdot P + \gamma Q_1 \cdot Q_{k1} + \gamma Q_2 \cdot \psi_{02} \cdot Q_{k2} + \gamma Q_3 \cdot \psi_{03} \cdot Q_{k3} + \dots$$

Combinazione caratteristica (rara) SLE

$$G_1 + G_2 + P + Q_{k1} + \psi_{02} \cdot Q_{k2} + \psi_{03} \cdot Q_{k3} + \dots$$

Combinazione frequente SLE

$$G_1 + G_2 + P + \psi_{11} \cdot Q_{k1} + \psi_{22} \cdot Q_{k2} + \psi_{23} \cdot Q_{k3} + \dots$$

Combinazione quasi permanente SLE

$$G_1 + G_2 + P + \psi_{21} \cdot Q_{k1} + \psi_{22} \cdot Q_{k2} + \psi_{23} \cdot Q_{k3} + \dots$$

Combinazione sismica, impiegata per gli stati limite ultimi e di esercizio connessi all'azione sismica E

$$E + G_1 + G_2 + P + \psi_{21} \cdot Q_{k1} + \psi_{22} \cdot Q_{k2} + \dots$$

Combinazione eccezionale, impiegata per gli stati limite connessi alle azioni eccezionali

$$G_1 + G_2 + A_d + P + \psi_{21} \cdot Q_{k1} + \psi_{22} \cdot Q_{k2} + \dots$$

Dove:

NTC 2018 Tabella 2.5.1

Destinazione d'uso/azione	ψ_0	ψ_1	ψ_2
Categoria A residenziali	0,70	0,50	0,30
Categoria B uffici	0,70	0,50	0,30
Categoria C ambienti suscettibili di affollamento	0,70	0,70	0,60
Categoria D ambienti ad uso commerciale	0,70	0,70	0,60
Categoria E biblioteche, archivi, magazzini,...	1,00	0,90	0,80
Categoria F Rimesse e parcheggi (autoveicoli ≤ 30 kN)	0,70	0,70	0,60
Categoria G Rimesse e parcheggi (autoveicoli > 30 kN)	0,70	0,50	0,30
Categoria H Coperture	0,00	0,00	0,00
Vento	0,60	0,20	0,00
Neve a quota ≤ 1000 m	0,50	0,20	0,00
Neve a quota > 1000 m	0,70	0,50	0,20
Variazioni Termiche	0,60	0,50	0,00

Nelle verifiche possono essere adottati in alternativa due diversi approcci progettuali:

- per l'approccio 1 si considerano due diverse combinazioni di gruppi di coefficienti di sicurezza parziali per le azioni, per i materiali e per la resistenza globale (combinazione 1 con coefficienti A1 e combinazione 2 con coefficienti A2),

- per l'approccio 2 si definisce un'unica combinazione per le azioni, per la resistenza dei materiali e per la resistenza globale (con coefficienti A1).

NTC 2018 Tabella 2.6.1

		Coefficiente γ_f	EQU	A1	A2
<i>Carichi permanenti</i>	<i>Favorevoli</i>	γ_{G1}	0,9	1,0	1,0
	<i>Sfavorevoli</i>		1,1	1,3	1,0
<i>Carichi permanenti non strutturali (Non compiutamente definiti)</i>	<i>Favorevoli</i>	γ_{G2}	0,8	0,8	0,8
	<i>Sfavorevoli</i>		1,5	1,5	1,3
<i>Carichi variabili</i>	<i>Favorevoli</i>	γ_{Qi}	0,0	0,0	0,0
	<i>Sfavorevoli</i>		1,5	1,5	1,3

Cmb	Tipo	Sigla Id	effetto P-delta
1	SLU	Comb. SLU A1 1	
2	SLU	Comb. SLU A1 2	
3	SLU	Comb. SLU A1 3	
4	SLU	Comb. SLU A1 4	
5	SLU	Comb. SLU A1 5	
6	SLU	Comb. SLU A1 6	
7	SLU	Comb. SLU A1 7	
8	SLU	Comb. SLU A1 8	
9	SLU	Comb. SLU A1 9	
10	SLU	Comb. SLU A1 10	
11	SLU	Comb. SLU A1 11	
12	SLU	Comb. SLU A1 12	
13	SLU	Comb. SLU A1 13	
14	SLU	Comb. SLU A1 14	
15	SLU	Comb. SLU A1 15	
16	SLU	Comb. SLU A1 16	
17	SLU	Comb. SLU A1 17	
18	SLU	Comb. SLU A1 18	
19	SLU	Comb. SLU A1 19	
20	SLU	Comb. SLU A1 20	
21	SLU	Comb. SLU A1 21	
22	SLU	Comb. SLU A1 22	
23	SLU	Comb. SLU A1 23	
24	SLU	Comb. SLU A1 24	
25	SLU	Comb. SLU A1 25	
26	SLU	Comb. SLU A1 26	
27	SLU	Comb. SLU A1 (SLV sism.) 27	
28	SLU	Comb. SLU A1 (SLV sism.) 28	
29	SLU	Comb. SLU A1 (SLV sism.) 29	
30	SLU	Comb. SLU A1 (SLV sism.) 30	
31	SLU	Comb. SLU A1 (SLV sism.) 31	
32	SLU	Comb. SLU A1 (SLV sism.) 32	
33	SLU	Comb. SLU A1 (SLV sism.) 33	
34	SLU	Comb. SLU A1 (SLV sism.) 34	
35	SLU	Comb. SLU A1 (SLV sism.) 35	
36	SLU	Comb. SLU A1 (SLV sism.) 36	
37	SLU	Comb. SLU A1 (SLV sism.) 37	
38	SLU	Comb. SLU A1 (SLV sism.) 38	
39	SLU	Comb. SLU A1 (SLV sism.) 39	
40	SLU	Comb. SLU A1 (SLV sism.) 40	
41	SLU	Comb. SLU A1 (SLV sism.) 41	
42	SLU	Comb. SLU A1 (SLV sism.) 42	
43	SLU	Comb. SLU A1 (SLV sism.) 43	
44	SLU	Comb. SLU A1 (SLV sism.) 44	
45	SLU	Comb. SLU A1 (SLV sism.) 45	
46	SLU	Comb. SLU A1 (SLV sism.) 46	
47	SLU	Comb. SLU A1 (SLV sism.) 47	
48	SLU	Comb. SLU A1 (SLV sism.) 48	
49	SLU	Comb. SLU A1 (SLV sism.) 49	

Cmb	Tipo	Sigla Id	effetto P-delta
50	SLU	Comb. SLU A1 (SLV sism.) 50	
51	SLU	Comb. SLU A1 (SLV sism.) 51	
52	SLU	Comb. SLU A1 (SLV sism.) 52	
53	SLU	Comb. SLU A1 (SLV sism.) 53	
54	SLU	Comb. SLU A1 (SLV sism.) 54	
55	SLU	Comb. SLU A1 (SLV sism.) 55	
56	SLU	Comb. SLU A1 (SLV sism.) 56	
57	SLU	Comb. SLU A1 (SLV sism.) 57	
58	SLU	Comb. SLU A1 (SLV sism.) 58	
59	SLD(sis)	Comb. SLE (SLD Danno sism.) 59	
60	SLD(sis)	Comb. SLE (SLD Danno sism.) 60	
61	SLD(sis)	Comb. SLE (SLD Danno sism.) 61	
62	SLD(sis)	Comb. SLE (SLD Danno sism.) 62	
63	SLD(sis)	Comb. SLE (SLD Danno sism.) 63	
64	SLD(sis)	Comb. SLE (SLD Danno sism.) 64	
65	SLD(sis)	Comb. SLE (SLD Danno sism.) 65	
66	SLD(sis)	Comb. SLE (SLD Danno sism.) 66	
67	SLD(sis)	Comb. SLE (SLD Danno sism.) 67	
68	SLD(sis)	Comb. SLE (SLD Danno sism.) 68	
69	SLD(sis)	Comb. SLE (SLD Danno sism.) 69	
70	SLD(sis)	Comb. SLE (SLD Danno sism.) 70	
71	SLD(sis)	Comb. SLE (SLD Danno sism.) 71	
72	SLD(sis)	Comb. SLE (SLD Danno sism.) 72	
73	SLD(sis)	Comb. SLE (SLD Danno sism.) 73	
74	SLD(sis)	Comb. SLE (SLD Danno sism.) 74	
75	SLD(sis)	Comb. SLE (SLD Danno sism.) 75	
76	SLD(sis)	Comb. SLE (SLD Danno sism.) 76	
77	SLD(sis)	Comb. SLE (SLD Danno sism.) 77	
78	SLD(sis)	Comb. SLE (SLD Danno sism.) 78	
79	SLD(sis)	Comb. SLE (SLD Danno sism.) 79	
80	SLD(sis)	Comb. SLE (SLD Danno sism.) 80	
81	SLD(sis)	Comb. SLE (SLD Danno sism.) 81	
82	SLD(sis)	Comb. SLE (SLD Danno sism.) 82	
83	SLD(sis)	Comb. SLE (SLD Danno sism.) 83	
84	SLD(sis)	Comb. SLE (SLD Danno sism.) 84	
85	SLD(sis)	Comb. SLE (SLD Danno sism.) 85	
86	SLD(sis)	Comb. SLE (SLD Danno sism.) 86	
87	SLD(sis)	Comb. SLE (SLD Danno sism.) 87	
88	SLD(sis)	Comb. SLE (SLD Danno sism.) 88	
89	SLD(sis)	Comb. SLE (SLD Danno sism.) 89	
90	SLD(sis)	Comb. SLE (SLD Danno sism.) 90	
91	SLE(r)	Comb. SLE(rara) 91	
92	SLE(r)	Comb. SLE(rara) 92	
93	SLE(r)	Comb. SLE(rara) 93	
94	SLE(r)	Comb. SLE(rara) 94	
95	SLE(r)	Comb. SLE(rara) 95	
96	SLE(r)	Comb. SLE(rara) 96	
97	SLE(r)	Comb. SLE(rara) 97	
98	SLE(r)	Comb. SLE(rara) 98	
99	SLE(r)	Comb. SLE(rara) 99	
100	SLE(r)	Comb. SLE(rara) 100	
101	SLE(r)	Comb. SLE(rara) 101	
102	SLE(r)	Comb. SLE(rara) 102	
103	SLE(r)	Comb. SLE(rara) 103	
104	SLE(f)	Comb. SLE(freq.) 104	
105	SLE(f)	Comb. SLE(freq.) 105	
106	SLE(f)	Comb. SLE(freq.) 106	
107	SLE(f)	Comb. SLE(freq.) 107	
108	SLE(p)	Comb. SLE(perm.) 108	

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...	CDC 14/28...
1	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	0.0	
3	1.30	1.30	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	1.30	1.30	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	0.0	
5	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	0.0	
7	1.00	1.00	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8	1.00	1.00	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	0.0	
9	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.50	0.0	
10	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.50	0.0	
12	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.50	0.0	

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...	CDC 14/28...
13	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.50	0.0	
15	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	0.0	
16	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	0.0	
17	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	
18	1.30	1.30	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	
19	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	
20	1.00	1.00	1.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	
21	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	
22	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.90	
23	1.30	1.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.50	
24	1.30	1.30	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.50	
25	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.50	
26	1.00	1.00	0.75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.50	
27	1.00	1.00	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
28	1.00	1.00	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
29	1.00	1.00	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
30	1.00	1.00	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
31	1.00	1.00	0.0	-1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	0.0	
32	1.00	1.00	0.0	-1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	0.0	0.0	
33	1.00	1.00	0.0	1.00	0.0	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	0.0	
34	1.00	1.00	0.0	1.00	0.0	0.0	0.30	0.0	0.0	0.0	0.0	0.0	0.0	
35	1.00	1.00	0.0	0.0	-1.00	-0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
36	1.00	1.00	0.0	0.0	-1.00	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
37	1.00	1.00	0.0	0.0	1.00	-0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
38	1.00	1.00	0.0	0.0	1.00	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
39	1.00	1.00	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	0.0	
40	1.00	1.00	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	0.0	
41	1.00	1.00	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	0.0	0.0	0.0	
42	1.00	1.00	0.0	0.0	1.00	0.0	0.30	0.0	0.0	0.0	0.0	0.0	0.0	
43	1.00	1.00	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
44	1.00	1.00	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
45	1.00	1.00	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
46	1.00	1.00	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
47	1.00	1.00	0.0	0.0	-0.30	-1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
48	1.00	1.00	0.0	0.0	-0.30	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
49	1.00	1.00	0.0	0.0	0.30	-1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
50	1.00	1.00	0.0	0.0	0.30	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
51	1.00	1.00	0.0	-0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	0.0	
52	1.00	1.00	0.0	-0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	
53	1.00	1.00	0.0	0.30	0.0	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	0.0	
54	1.00	1.00	0.0	0.30	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	
55	1.00	1.00	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	0.0	
56	1.00	1.00	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	
57	1.00	1.00	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	0.0	0.0	0.0	
58	1.00	1.00	0.0	0.0	0.30	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	
59	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	0.0	
60	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	0.0	
61	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	0.0	
62	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.30	0.0	0.0	0.0	
63	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.0	-0.30	0.0	0.0	
64	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.0	0.30	0.0	0.0	
65	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	-0.30	0.0	0.0	
66	1.00	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.30	0.0	0.0	
67	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	-0.30	0.0	0.0	0.0	
68	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.30	0.0	0.0	0.0	
69	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	-0.30	0.0	0.0	0.0	
70	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.30	0.0	0.0	0.0	
71	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	-0.30	0.0	0.0	
72	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-1.00	0.0	0.30	0.0	0.0	
73	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	-0.30	0.0	0.0	
74	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	0.30	0.0	0.0	
75	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	0.0	
76	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	0.0	
77	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	0.0	
78	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.00	0.0	0.0	0.0	
79	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	-1.00	0.0	0.0	0.0	
80	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	1.00	0.0	0.0	0.0	
81	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	-1.00	0.0	0.0	0.0	
82	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	1.00	0.0	0.0	0.0	
83	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	0.0	-1.00	0.0	0.0	
84	1.00	1.00	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	0.0	1.00	0.0	0.0	
85	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	0.0	-1.00	0.0	0.0	
86	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.30	0.0	0.0	1.00	0.0	0.0	

Cmb	CDC 1/15...	CDC 2/16...	CDC 3/17...	CDC 4/18...	CDC 5/19...	CDC 6/20...	CDC 7/21...	CDC 8/22...	CDC 9/23...	CDC 10/24...	CDC 11/25...	CDC 12/26...	CDC 13/27...	CDC 14/28...
87	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	-1.00	0.0	0.0	
88	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	-0.30	0.0	1.00	0.0	0.0	
89	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	0.0	-1.00	0.0	0.0	
90	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.00	0.0	0.0	
91	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
92	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.60	0.0	
93	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
94	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.60	0.0	
95	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
96	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
97	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	0.0	
98	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.60	0.0	
99	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.60	
100	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.60	
101	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.60	
102	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	
103	1.00	1.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00	
104	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
105	1.00	1.00	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
106	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.20	0.0	
107	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.20	
108	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

AZIONE SISMICA

L'azione sismica sulle costruzioni è valutata a partire dalla "pericolosità sismica di base", in condizioni ideali di sito di riferimento rigido con superficie topografica orizzontale.

Allo stato attuale, la pericolosità sismica su reticolo di riferimento nell'intervallo di riferimento è fornita dai dati pubblicati sul sito <http://esse1.mi.ingv.it/>. Per punti non coincidenti con il reticolo di riferimento e periodi di ritorno non contemplati direttamente si opera come indicato nell'allegato alle NTC (rispettivamente media pesata e interpolazione).

L'azione sismica viene definita in relazione ad un periodo di riferimento V_r che si ricava, per ciascun tipo di costruzione, moltiplicandone la vita nominale per il coefficiente d'uso (vedi tabella Parametri della struttura). Fissato il periodo di riferimento V_r e la probabilità di superamento P_{ver} associata a ciascuno degli stati limite considerati, si ottiene il periodo di ritorno T_r e i relativi parametri di pericolosità sismica (vedi tabella successiva):

a_g : accelerazione orizzontale massima del terreno;

F_o : valore massimo del fattore di amplificazione dello spettro in accelerazione orizzontale;

T^*c : periodo di inizio del tratto a velocità costante dello spettro in accelerazione orizzontale;

Parametri della struttura					
Classe d'uso	Vita V_n [anni]	Coeff. Uso	Periodo V_r [anni]	Tipo di suolo	Categoria topografica
II	50.0	1.0	50.0	C	T1

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

S è il coefficiente che tiene conto della categoria di sottosuolo e delle condizioni topografiche mediante la relazione seguente $S = S_s \cdot S_t$ (3.2.3)

F_o è il fattore che quantifica l'amplificazione spettrale massima, su sito di riferimento rigido orizzontale

F_v è il fattore che quantifica l'amplificazione spettrale massima verticale, in termini di accelerazione orizzontale massima del terreno a_g su sito di riferimento rigido orizzontale

T_b è il periodo corrispondente all'inizio del tratto dello spettro ad accelerazione costante.

T_c è il periodo corrispondente all'inizio del tratto dello spettro a velocità costante.

T_d è il periodo corrispondente all'inizio del tratto dello spettro a spostamento costante.

Lo spettro di risposta elastico in accelerazione della componente orizzontale del moto sismico, S_e , è definito dalle seguenti espressioni:

$$\begin{aligned}
 0 \leq T < T_b & \quad S_e(T) = a_g \cdot S \cdot \eta \cdot F_o \cdot \left[\frac{T}{T_b} + \frac{1}{\eta \cdot F_o} \left(1 - \frac{T}{T_b} \right) \right] \\
 T_b \leq T < T_c & \quad S_e(T) = a_g \cdot S \cdot \eta \cdot F_o \\
 T_c \leq T < T_d & \quad S_e(T) = a_g \cdot S \cdot \eta \cdot F_o \cdot \left(\frac{T_c}{T} \right) \\
 T_d \leq T & \quad S_e(T) = a_g \cdot S \cdot \eta \cdot F_o \cdot \left(\frac{T_c \cdot T_d}{T^2} \right)
 \end{aligned}$$

Dove per sottosuolo di categoria **A** i coefficienti S_s e C_c valgono 1; mentre per le categorie di sottosuolo B, C, D, E i coefficienti S_s e C_c vengono calcolati mediante le espressioni riportate nella seguente Tabella

Categoria sottosuolo	S_s	C_c
A	1,00	1,00
B	$1,00 \leq 1,40 - 0,40 \cdot F_o \cdot \frac{a_g}{g} \leq 1,20$	$1,10 \cdot (T_c^*)^{-0,20}$
C	$1,00 \leq 1,70 - 0,60 \cdot F_o \cdot \frac{a_g}{g} \leq 1,50$	$1,05 \cdot (T_c^*)^{-0,33}$
D	$0,90 \leq 2,40 - 1,50 \cdot F_o \cdot \frac{a_g}{g} \leq 1,80$	$1,25 \cdot (T_c^*)^{-0,50}$
E	$1,00 \leq 2,00 - 1,10 \cdot F_o \cdot \frac{a_g}{g} \leq 1,60$	$1,15 \cdot (T_c^*)^{-0,40}$

Per tenere conto delle condizioni topografiche e in assenza di specifiche analisi di risposta sismica locale, si utilizzano i valori del coefficiente topografico S_T riportati nella seguente Tabella

Categoria topografica	Ubicazione dell'opera o dell'intervento	S_T
T1	-	1,0
T2	In corrispondenza della sommità del pendio	1,2
T3	In corrispondenza della cresta di un rilievo con pendenza media minore o uguale a 30°	1,2
T4	In corrispondenza della cresta di un rilievo con pendenza media maggiore di 30°	1,4

Lo spettro di risposta elastico in accelerazione della componente verticale del moto sismico, S_{ve} , è definito dalle espressioni:

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

$$T_B \leq T < T_C \quad S_{ve}(T) = a_g \cdot S \cdot \eta \cdot F_v$$

$$T_C \leq T < T_D \quad S_{ve}(T) = a_g \cdot S \cdot \eta \cdot F_v \cdot \left(\frac{T_C}{T} \right)$$

$$T_D \leq T \quad S_{ve}(T) = a_g \cdot S \cdot \eta \cdot F_v \cdot \left(\frac{T_C \cdot T_D}{T^2} \right)$$

I valori di S_s , T_B , T_C e T_D , sono riportati nella seguente Tabella

Categoria di sottosuolo	S_s	T_B	T_C	T_D
A, B, C, D, E	1,0	0,05 s	0,15 s	1,0 s

Id nodo	Longitudine	Latitudine	Distanza
			Km
Loc.	12.159	45.545	
12302	12.136	45.527	2.677
12303	12.207	45.528	4.175
12081	12.206	45.578	5.165
12080	12.134	45.577	4.042

SL	Pver	Tr	ag	Fo	T*c
		Anni	g		sec
SLO	81.0	30.1	0.032	2.566	0.214
SLD	63.0	50.3	0.040	2.588	0.258
SLV	10.0	474.6	0.104	2.537	0.342
SLC	5.0	974.8	0.137	2.560	0.360

SL	ag	S	Fo	Fv	Tb	Tc	Td
	g				sec	sec	sec
SLO	0.032	1.500	2.566	0.624	0.125	0.374	1.730
SLD	0.040	1.500	2.588	0.699	0.141	0.424	1.760
SLV	0.104	1.500	2.537	1.106	0.171	0.512	2.017
SLC	0.137	1.490	2.560	1.278	0.177	0.530	2.147

RISULTATI ANALISI SISMICHE

Il programma consente l'analisi di diverse configurazioni sismiche.

Sono previsti, infatti, i seguenti casi di carico:

10. Edk caso di carico sismico con analisi dinamica

Ciascun caso di carico è caratterizzato da un angolo di ingresso e da una configurazione di masse determinante la forza sismica complessiva (si rimanda al capitolo relativo ai casi di carico per chiarimenti inerenti questo aspetto).

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

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

Nel caso di elementi progettati in campo non dissipativo vengono adottate le sollecitazioni calcolate con un fattore q_{ND} ricavato come da 7.3.2 in funzione del fattore di comportamento q utilizzato per la struttura: $1 < q_{ND} = 2/3 * q < 1.5$. Il coefficiente di amplificazione delle azioni sismiche rispetto alle azioni calcolate con il fattore di comportamento globale viene indicato nelle relative tabelle.

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

analisi sismica dinamica con spettro di risposta:

- quota, posizione del centro di massa e massa risultante, posizione del baricentro delle rigidezze, rapporto r/L_s (per strutture a nucleo) , indici di regolarità e/r secondo EC8 4.2.3.2

- frequenza, periodo, accelerazione spettrale, massa eccitata nelle tre direzioni globali per tutti i modi
- massa complessiva ed aliquota di massa complessiva eccitata.

Calcolo dei fattori di comportamento secondo il D.M. 17/01/2018

La costruzione, nuova, è caratterizzata da regolarità sia in pianta sia in altezza ed è progettata considerando un comportamento non dissipativo (ND).

Parametri fattore in direzione x e y

Sistema costruttivo: acciaio o composto acciaio-calcestruzzo
 Tipologia strutturale: strutture intelaiate o strutture con controventi eccentrici
 Valore base fattore $q_0 = 4.000$
 Fattore di regolarità $K_R = 1.0$
 Fattore dissipativo $q_D = q_0 \cdot K_R = 4.000$
 Fattore non dissipativo $q_{ND} = 2/3 \cdot q_D = 1.500 (\leq 1.5)$

Fattori di comportamento utilizzati

	Dissipativi	Non dissipativi
q SLU x	4.000	1.500
q SLU y	4.000	1.500
q SLU z	1.500	1.500

CDC	Tipo	Sigla Id	Note
4	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.265 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.192 sec.
			fattore q: 1.500
			amplificazione ND (non dissipativi): 1.000
			fattore per spost. μd : 2.331
			classe di duttilità CD: ND
			numero di modi considerati: 15
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
cm	daN	cm	cm	cm	cm	cm	cm			
320.00	6848.50	587.50	575.50	0.0	-49.55	587.50	575.50	1.128	0.0	0.0
Risulta	6848.50									

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
	Hz	sec	g	daN		daN		daN			
1	5.198	0.192	0.265	2055.72	30.0	0.76	1.12e-02	0.0	0.0	0.0	0.0
2	5.507	0.182	0.265	1761.02	25.7	3.05	4.46e-02	0.0	0.0	0.0	0.0
3	5.876	0.170	0.264	1447.66	21.1	131.61	1.9	0.0	0.0	0.0	0.0
4	5.964	0.168	0.263	54.61	0.8	6567.20	95.9	0.0	0.0	0.0	0.0
5	5.979	0.167	0.262	5.77e-03	8.42e-05	0.83	1.22e-02	0.0	0.0	0.0	0.0
6	5.979	0.167	0.262	0.01	1.72e-04	1.86	2.71e-02	0.0	0.0	0.0	0.0
7	5.979	0.167	0.262	3.71e-05	0.0	2.02e-03	2.95e-05	0.0	0.0	0.0	0.0
8	6.332	0.158	0.256	1225.97	17.9	15.52	0.2	0.0	0.0	0.0	0.0
9	6.855	0.146	0.249	25.65	0.4	31.52	0.5	0.0	0.0	0.0	0.0
10	6.988	0.143	0.247	0.0	0.0	4.42e-04	6.45e-06	0.0	0.0	0.0	0.0
11	6.988	0.143	0.247	0.0	0.0	2.63e-03	3.83e-05	0.0	0.0	0.0	0.0
12	6.988	0.143	0.247	1.89e-05	0.0	1.07e-03	1.56e-05	0.0	0.0	0.0	0.0
13	7.535	0.133	0.240	61.09	0.9	37.20	0.5	0.0	0.0	0.0	0.0
14	7.988	0.125	0.236	73.89	1.1	28.39	0.4	0.0	0.0	0.0	0.0
15	8.547	0.117	0.230	73.31	1.1	18.57	0.3	0.0	0.0	0.0	0.0
Risulta				6778.94		6836.52		0.0			
In percentuale				98.98		99.83		0.0			

CDC	Tipo	Sigla Id	Note
5	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.265 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.190 sec.
			fattore q: 1.500
			amplificazione ND (non dissipativi): 1.000
			fattore per spost. mu d: 2.350
			classe di duttilità CD: ND
			numero di modi considerati: 15
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
cm	daN	cm	cm	cm	cm	cm	cm			
320.00	6848.50	587.50	575.50	0.0	49.55	587.50	575.50	1.128	0.0	0.0
Risulta	6848.50									

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
	Hz	sec	g	daN		daN		daN			
1	5.274	0.190	0.265	2162.95	31.6	0.21	3.00e-03	0.0	0.0	0.0	0.0
2	5.597	0.179	0.265	1819.24	26.6	0.56	8.16e-03	0.0	0.0	0.0	0.0
3	5.961	0.168	0.263	14.08	0.2	6672.89	97.4	0.0	0.0	0.0	0.0
4	5.979	0.167	0.262	0.02	3.60e-04	0.54	7.90e-03	0.0	0.0	0.0	0.0
5	5.979	0.167	0.262	0.03	4.99e-04	1.25	1.83e-02	0.0	0.0	0.0	0.0
6	5.979	0.167	0.262	1.16e-03	1.69e-05	6.94e-04	1.01e-05	0.0	0.0	0.0	0.0
7	5.985	0.167	0.262	1492.19	21.8	32.19	0.5	0.0	0.0	0.0	0.0
8	6.457	0.155	0.254	1055.43	15.4	1.08	1.58e-02	0.0	0.0	0.0	0.0
9	6.886	0.145	0.248	224.41	3.3	28.80	0.4	0.0	0.0	0.0	0.0
10	6.988	0.143	0.247	4.74e-05	0.0	4.74e-04	6.92e-06	0.0	0.0	0.0	0.0
11	6.988	0.143	0.247	5.65e-05	0.0	2.63e-03	3.83e-05	0.0	0.0	0.0	0.0
12	6.988	0.143	0.247	7.24e-06	0.0	1.03e-03	1.50e-05	0.0	0.0	0.0	0.0
13	7.428	0.135	0.242	36.13	0.5	43.99	0.6	0.0	0.0	0.0	0.0
14	7.856	0.127	0.237	23.20	0.3	32.93	0.5	0.0	0.0	0.0	0.0
15	8.384	0.119	0.232	13.63	0.2	20.88	0.3	0.0	0.0	0.0	0.0
Risulta				6841.32		6835.34		0.0			
In percentuale				99.90		99.81		0.0			

CDC	Tipo	Sigla Id	Note
6	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.265 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.185 sec.
			fattore q: 1.500
			amplificazione ND (non dissipativi): 1.000
			fattore per spost. mu d: 2.381
			classe di duttilità CD: ND
			numero di modi considerati: 15
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
cm	daN	cm	cm	cm	cm	cm	cm			
320.00	6848.50	587.50	575.50	80.75	0.0	587.50	575.50	1.128	0.0	0.0
Risulta	6848.50									

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
	Hz	sec	g	daN		daN		daN			
1	5.394	0.185	0.265	17.38	0.3	1952.84	28.5	0.0	0.0	0.0	0.0
2	5.699	0.175	0.265	2263.19	33.0	1010.44	14.8	0.0	0.0	0.0	0.0
3	5.738	0.174	0.265	4307.36	62.9	676.82	9.9	0.0	0.0	0.0	0.0
4	5.749	0.174	0.265	0.25	3.70e-03	0.03	4.52e-04	0.0	0.0	0.0	0.0

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
5	5.750	0.174	0.265	1.63	2.39e-02	0.13	1.83e-03	0.0	0.0	0.0	0.0
6	5.750	0.174	0.265	5.79e-03	8.45e-05	1.46e-03	2.13e-05	0.0	0.0	0.0	0.0
7	6.094	0.164	0.260	20.63	0.3	1498.34	21.9	0.0	0.0	0.0	0.0
8	6.439	0.155	0.255	62.31	0.9	184.56	2.7	0.0	0.0	0.0	0.0
9	6.561	0.152	0.253	9.30	0.1	1183.83	17.3	0.0	0.0	0.0	0.0
10	6.836	0.146	0.249	16.00	0.2	85.42	1.2	0.0	0.0	0.0	0.0
11	7.312	0.137	0.243	0.88	1.29e-02	71.66	1.0	0.0	0.0	0.0	0.0
12	7.864	0.127	0.237	14.49	0.2	11.27	0.2	0.0	0.0	0.0	0.0
13	8.112	0.123	0.234	2.08e-06	0.0	1.13e-04	1.64e-06	0.0	0.0	0.0	0.0
14	8.113	0.123	0.234	9.73e-06	0.0	7.17e-05	1.05e-06	0.0	0.0	0.0	0.0
15	8.113	0.123	0.234	2.53e-05	0.0	2.44e-04	3.57e-06	0.0	0.0	0.0	0.0
Risulta				6713.43		6675.33		0.0			
In percentuale				98.03		97.47		0.0			

CDC	Tipo	Sigla Id	Note
7	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.265 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.183 sec.
			fattore q: 1.500
			amplificazione ND (non dissipativi): 1.000
			fattore per spost. mu d: 2.401
			classe di duttilità CD: ND
			numero di modi considerati: 15
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
cm	daN	cm	cm	cm	cm	cm	cm			
320.00	6848.50	587.50	575.50	-80.75	0.0	587.50	575.50	1.128	0.0	0.0
Risulta	6848.50									

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
	Hz	sec	g	daN		daN		daN			
1	5.473	0.183	0.265	6.89	0.1	2177.67	31.8	0.0	0.0	0.0	0.0
2	5.721	0.175	0.265	6491.50	94.8	18.79	0.3	0.0	0.0	0.0	0.0
3	5.749	0.174	0.265	0.04	5.64e-04	1.93e-03	2.82e-05	0.0	0.0	0.0	0.0
4	5.750	0.174	0.265	0.48	7.04e-03	3.58e-03	5.23e-05	0.0	0.0	0.0	0.0
5	5.750	0.174	0.265	6.89e-05	1.01e-06	2.56e-04	3.73e-06	0.0	0.0	0.0	0.0
6	5.805	0.172	0.265	71.98	1.1	1803.31	26.3	0.0	0.0	0.0	0.0
7	6.200	0.161	0.258	4.81	7.02e-02	1502.24	21.9	0.0	0.0	0.0	0.0
8	6.355	0.157	0.256	88.66	1.3	13.51	0.2	0.0	0.0	0.0	0.0
9	6.685	0.150	0.251	2.40	3.50e-02	1003.82	14.7	0.0	0.0	0.0	0.0
10	6.742	0.148	0.250	23.68	0.3	200.86	2.9	0.0	0.0	0.0	0.0
11	7.199	0.139	0.244	5.45	7.96e-02	32.85	0.5	0.0	0.0	0.0	0.0
12	7.758	0.129	0.238	1.81	2.64e-02	47.22	0.7	0.0	0.0	0.0	0.0
13	8.112	0.123	0.234	3.68e-05	0.0	3.49e-05	0.0	0.0	0.0	0.0	0.0
14	8.113	0.123	0.234	1.32e-05	0.0	1.21e-05	0.0	0.0	0.0	0.0	0.0
15	8.113	0.123	0.234	1.72e-05	0.0	1.43e-04	2.09e-06	0.0	0.0	0.0	0.0
Risulta				6697.70		6800.29		0.0			
In percentuale				97.80		99.30		0.0			

CDC	Tipo	Sigla Id	Note
8	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.155 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.192 sec.
			numero di modi considerati: 15
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
cm	daN	cm	cm	cm	cm	cm	cm			
320.00	6848.50	587.50	575.50	0.0	-49.55	587.50	575.50	1.128	0.0	0.0
Risulta	6848.50									

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
	Hz	sec	g	daN		daN		daN			
1	5.198	0.192	0.155	2055.72	30.0	0.76	1.12e-02	0.0	0.0	0.0	0.0
2	5.507	0.182	0.155	1761.02	25.7	3.05	4.46e-02	0.0	0.0	0.0	0.0
3	5.876	0.170	0.155	1447.66	21.1	131.61	1.9	0.0	0.0	0.0	0.0
4	5.964	0.168	0.155	54.61	0.8	6567.20	95.9	0.0	0.0	0.0	0.0
5	5.979	0.167	0.155	5.77e-03	8.42e-05	0.83	1.22e-02	0.0	0.0	0.0	0.0
6	5.979	0.167	0.155	0.01	1.72e-04	1.86	2.71e-02	0.0	0.0	0.0	0.0
7	5.979	0.167	0.155	3.71e-05	0.0	2.02e-03	2.95e-05	0.0	0.0	0.0	0.0
8	6.332	0.158	0.155	1225.97	17.9	15.52	0.2	0.0	0.0	0.0	0.0
9	6.855	0.146	0.155	25.65	0.4	31.52	0.5	0.0	0.0	0.0	0.0
10	6.988	0.143	0.155	0.0	0.0	4.42e-04	6.45e-06	0.0	0.0	0.0	0.0
11	6.988	0.143	0.155	0.0	0.0	2.63e-03	3.83e-05	0.0	0.0	0.0	0.0
12	6.988	0.143	0.155	1.89e-05	0.0	1.07e-03	1.56e-05	0.0	0.0	0.0	0.0
13	7.535	0.133	0.150	61.09	0.9	37.20	0.5	0.0	0.0	0.0	0.0
14	7.988	0.125	0.145	73.89	1.1	28.39	0.4	0.0	0.0	0.0	0.0
15	8.547	0.117	0.139	73.31	1.1	18.57	0.3	0.0	0.0	0.0	0.0
Risulta				6778.94		6836.52		0.0			
In percentuale				98.98		99.83		0.0			

CDC	Tipo	Sigla Id	Note
9	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.155 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.190 sec.
			numero di modi considerati: 15
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
cm	daN	cm	cm	cm	cm	cm	cm			
320.00	6848.50	587.50	575.50	0.0	49.55	587.50	575.50	1.128	0.0	0.0
Risulta	6848.50									

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
	Hz	sec	g	daN		daN		daN			
1	5.274	0.190	0.155	2162.95	31.6	0.21	3.00e-03	0.0	0.0	0.0	0.0
2	5.597	0.179	0.155	1819.24	26.6	0.56	8.16e-03	0.0	0.0	0.0	0.0
3	5.961	0.168	0.155	14.08	0.2	6672.89	97.4	0.0	0.0	0.0	0.0
4	5.979	0.167	0.155	0.02	3.60e-04	0.54	7.90e-03	0.0	0.0	0.0	0.0
5	5.979	0.167	0.155	0.03	4.99e-04	1.25	1.83e-02	0.0	0.0	0.0	0.0
6	5.979	0.167	0.155	1.16e-03	1.69e-05	6.94e-04	1.01e-05	0.0	0.0	0.0	0.0
7	5.985	0.167	0.155	1492.19	21.8	32.19	0.5	0.0	0.0	0.0	0.0
8	6.457	0.155	0.155	1055.43	15.4	1.08	1.58e-02	0.0	0.0	0.0	0.0
9	6.886	0.145	0.155	224.41	3.3	28.80	0.4	0.0	0.0	0.0	0.0
10	6.988	0.143	0.155	4.74e-05	0.0	4.74e-04	6.92e-06	0.0	0.0	0.0	0.0
11	6.988	0.143	0.155	5.65e-05	0.0	2.63e-03	3.83e-05	0.0	0.0	0.0	0.0
12	6.988	0.143	0.155	7.24e-06	0.0	1.03e-03	1.50e-05	0.0	0.0	0.0	0.0
13	7.428	0.135	0.151	36.13	0.5	43.99	0.6	0.0	0.0	0.0	0.0
14	7.856	0.127	0.146	23.20	0.3	32.93	0.5	0.0	0.0	0.0	0.0
15	8.384	0.119	0.141	13.63	0.2	20.88	0.3	0.0	0.0	0.0	0.0
Risulta				6841.32		6835.34		0.0			
In percentuale				99.90		99.81		0.0			

CDC	Tipo	Sigla Id	Note
10	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.155 g
			angolo di ingresso:90.00

CDC	Tipo	Sigla Id	Note
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.185 sec.
			numero di modi considerati: 15
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
cm	daN	cm	cm	cm	cm	cm	cm			
320.00	6848.50	587.50	575.50	80.75	0.0	587.50	575.50	1.128	0.0	0.0
Risulta	6848.50									

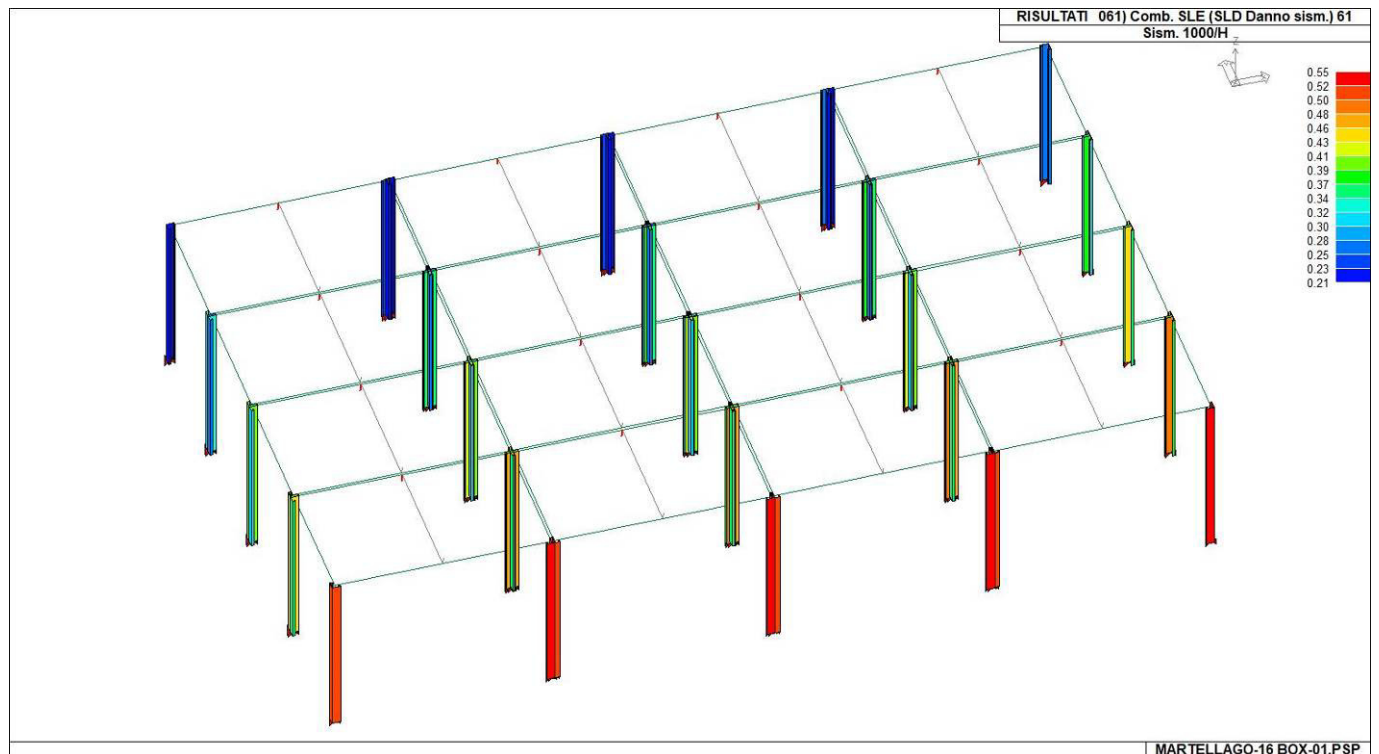
Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
	Hz	sec	g	daN		daN		daN			
1	5.394	0.185	0.155	17.38	0.3	1952.84	28.5	0.0	0.0	0.0	0.0
2	5.699	0.175	0.155	2263.19	33.0	1010.44	14.8	0.0	0.0	0.0	0.0
3	5.738	0.174	0.155	4307.36	62.9	676.82	9.9	0.0	0.0	0.0	0.0
4	5.749	0.174	0.155	0.25	3.70e-03	0.03	4.52e-04	0.0	0.0	0.0	0.0
5	5.750	0.174	0.155	1.63	2.39e-02	0.13	1.83e-03	0.0	0.0	0.0	0.0
6	5.750	0.174	0.155	5.79e-03	8.45e-05	1.46e-03	2.13e-05	0.0	0.0	0.0	0.0
7	6.094	0.164	0.155	20.63	0.3	1498.34	21.9	0.0	0.0	0.0	0.0
8	6.439	0.155	0.155	62.31	0.9	184.56	2.7	0.0	0.0	0.0	0.0
9	6.561	0.152	0.155	9.30	0.1	1183.83	17.3	0.0	0.0	0.0	0.0
10	6.836	0.146	0.155	16.00	0.2	85.42	1.2	0.0	0.0	0.0	0.0
11	7.312	0.137	0.152	0.88	1.29e-02	71.66	1.0	0.0	0.0	0.0	0.0
12	7.864	0.127	0.146	14.49	0.2	11.27	0.2	0.0	0.0	0.0	0.0
13	8.112	0.123	0.143	2.08e-06	0.0	1.13e-04	1.64e-06	0.0	0.0	0.0	0.0
14	8.113	0.123	0.143	9.73e-06	0.0	7.17e-05	1.05e-06	0.0	0.0	0.0	0.0
15	8.113	0.123	0.143	2.53e-05	0.0	2.44e-04	3.57e-06	0.0	0.0	0.0	0.0
Risulta				6713.43		6675.33		0.0			
In percentuale				98.03		97.47		0.0			

CDC	Tipo	Sigla Id	Note
11	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	
			categoria suolo: C
			fattore di sito S = 1.500
			ordinata spettro (tratto Tb-Tc) = 0.155 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.183 sec.
			numero di modi considerati: 15
			combinaz. modale: CQC

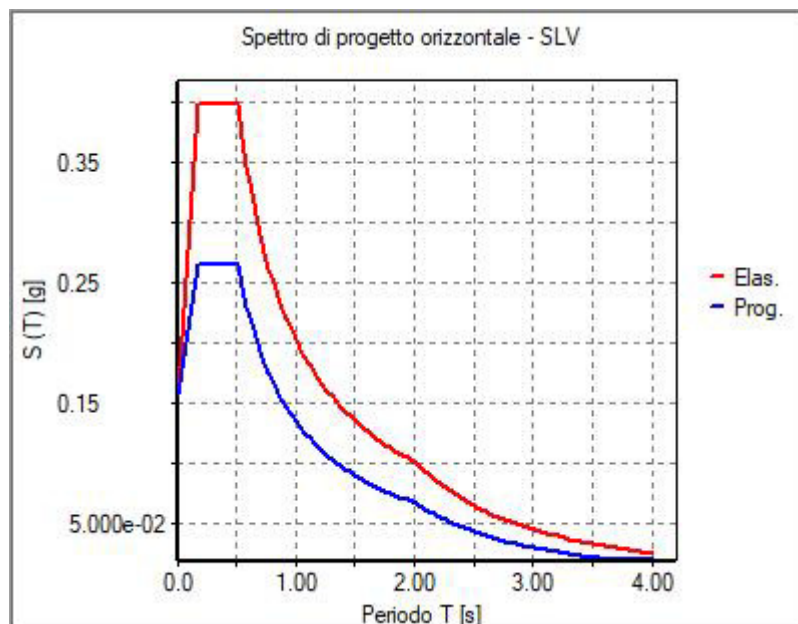
Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
cm	daN	cm	cm	cm	cm	cm	cm			
320.00	6848.50	587.50	575.50	-80.75	0.0	587.50	575.50	1.128	0.0	0.0
Risulta	6848.50									

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
	Hz	sec	g	daN		daN		daN			
1	5.473	0.183	0.155	6.89	0.1	2177.67	31.8	0.0	0.0	0.0	0.0
2	5.721	0.175	0.155	6491.50	94.8	18.79	0.3	0.0	0.0	0.0	0.0
3	5.749	0.174	0.155	0.04	5.64e-04	1.93e-03	2.82e-05	0.0	0.0	0.0	0.0
4	5.750	0.174	0.155	0.48	7.04e-03	3.58e-03	5.23e-05	0.0	0.0	0.0	0.0
5	5.750	0.174	0.155	6.89e-05	1.01e-06	2.56e-04	3.73e-06	0.0	0.0	0.0	0.0
6	5.805	0.172	0.155	71.98	1.1	1803.31	26.3	0.0	0.0	0.0	0.0
7	6.200	0.161	0.155	4.81	7.02e-02	1502.24	21.9	0.0	0.0	0.0	0.0
8	6.355	0.157	0.155	88.66	1.3	13.51	0.2	0.0	0.0	0.0	0.0
9	6.685	0.150	0.155	2.40	3.50e-02	1003.82	14.7	0.0	0.0	0.0	0.0
10	6.742	0.148	0.155	23.68	0.3	200.86	2.9	0.0	0.0	0.0	0.0
11	7.199	0.139	0.154	5.45	7.96e-02	32.85	0.5	0.0	0.0	0.0	0.0
12	7.758	0.129	0.147	1.81	2.64e-02	47.22	0.7	0.0	0.0	0.0	0.0
13	8.112	0.123	0.143	3.68e-05	0.0	3.49e-05	0.0	0.0	0.0	0.0	0.0
14	8.113	0.123	0.143	1.32e-05	0.0	1.21e-05	0.0	0.0	0.0	0.0	0.0
15	8.113	0.123	0.143	1.72e-05	0.0	1.43e-04	2.09e-06	0.0	0.0	0.0	0.0
Risulta				6697.70		6800.29		0.0			
In percentuale				97.80		99.30		0.0			

Per ciascuna combinazione sismica definita SLD o SLO viene riportato il livello di deformazione ϵT (dr) degli elementi strutturali verticali. Per semplicità di consultazione il livello è espresso anche in unità $1000 \cdot \epsilon T/h$ da confrontare direttamente con i valori forniti nella norma (es. 5 per edifici con tamponamenti collegati rigidamente alla struttura, 10.0 per edifici con tamponamenti collegati elasticamente, 3 per edifici in muratura ordinaria, 4 per edifici in muratura armata).



31_RIS_SLE_061_Comb. SLE (SLD Danno sism.) 61



31_RIS_SPETTRI_PROGETTO_SLV_O

RISULTATI NODALI

Una prima tabella riporta per ogni nodo a cui sia associato un vincolo rigido e per ogni combinazione (i valori delle azioni esercitate dalla struttura sui vincoli (reazioni vincolari cambiate di segno).

Una seconda tabella, riassume per ogni nodo le sei combinazioni in cui si attingono i valori minimi e massimi della reazione Fz, della reazione Mx e della reazione My.

Nodo	Cmb	Azione X	Azione Y	Azione Z	Azione RX	Azione RY	Azione RZ	daN cm
		daN	daN	daN	daN	daN cm	daN cm	daN cm
1	3	-74.00	17.81	-447.10	-1939.16	-7873.40	0.15	
1	18	-82.44	40.40	-359.08	-6449.85	-9938.32	0.84	
1	24	-61.36	48.69	-153.53	-8719.73	-8471.82	1.25	
1	25	-29.89	40.93	28.74	-7875.24	-5123.97	1.19	
1	33	-58.22	26.23	-131.79	-4884.78	-9586.11	-0.05	
1	51	-15.94	35.50	-69.84	-5941.30	-2035.65	0.04	
1	53	-39.25	42.81	-85.40	-7511.31	-6327.96	-6.06e-03	
1	54	-15.71	-28.94	-166.07	5226.44	-1329.24	0.03	
1	65	-40.70	16.75	-126.09	-3014.40	-6320.23	-0.01	
1	83	-15.89	22.18	-89.73	-3633.03	-1890.43	0.04	
1	85	-29.58	26.47	-98.87	-4554.66	-4409.00	0.01	
1	86	-15.75	-15.62	-146.18	2918.17	-1474.46	0.03	
1	93	-51.44	12.31	-313.79	-1340.43	-5473.26	0.10	
1	100	-57.07	27.37	-255.12	-4347.56	-6849.87	0.57	
1	102	-25.20	28.38	-20.16	-5369.31	-3976.80	0.80	
1	103	-43.01	32.90	-118.08	-5860.81	-5872.20	0.84	
1	105	-22.95	5.08	-157.12	-554.03	-2440.61	0.05	
1	107	-17.70	8.30	-98.40	-1359.81	-2141.32	0.19	
1	108	-15.82	3.28	-117.96	-357.43	-1682.45	0.03	
2	3	73.73	18.73	-444.48	-1932.29	7857.07	-0.05	
2	4	84.57	23.15	-400.24	-2993.96	1.036e+04	0.05	
2	24	59.28	73.64	-136.32	-1.093e+04	7433.39	-1.17	
2	25	27.93	65.49	44.83	-1.009e+04	4092.63	-1.15	
2	31	56.60	24.70	-131.61	-4593.00	9334.82	0.12	
2	51	35.66	39.59	-85.73	-6941.06	5733.56	0.06	
2	52	18.84	-25.77	-164.68	4734.07	1870.79	-6.81e-03	
2	53	12.66	32.74	-70.09	-5451.15	1487.93	-0.01	
2	63	39.72	15.94	-125.73	-2844.58	6171.74	0.07	
2	83	27.43	24.68	-98.80	-4222.26	4058.20	0.03	
2	84	17.57	-13.68	-145.15	2630.29	1791.99	-8.22e-03	
2	85	13.93	20.65	-89.63	-3347.36	1566.74	-0.01	
2	93	51.26	12.95	-311.97	-1336.00	5461.96	-0.04	
2	94	58.48	15.90	-282.48	-2043.78	7130.90	0.03	
2	102	23.87	44.82	-9.24	-6847.54	3288.21	-0.77	
2	103	41.62	49.56	-106.53	-7336.27	5179.51	-0.78	
2	105	22.85	5.38	-156.30	-554.03	2435.88	-0.02	
2	107	17.37	11.75	-95.76	-1656.34	2001.13	-0.16	
2	108	15.75	3.49	-117.39	-358.54	1679.36	-0.01	
3	3	-74.26	17.89	-447.34	-1956.60	-7921.03	0.15	
3	18	-82.81	40.56	-359.38	-6479.91	-1.001e+04	0.84	
3	24	-61.71	48.86	-153.80	-8751.91	-8537.81	1.25	
3	25	-30.13	41.07	28.56	-7900.02	-5169.72	1.19	
3	33	-58.14	25.20	-133.31	-4704.29	-9560.81	-0.05	
3	51	-15.54	31.97	-74.69	-5323.76	-1925.47	0.04	
3	53	-38.86	39.30	-90.26	-6894.96	-6218.12	-6.37e-03	
3	54	-16.21	-25.38	-161.38	4601.41	-1459.83	0.03	
3	65	-40.68	16.15	-127.01	-2909.73	-6309.71	-0.01	
3	83	-15.69	20.11	-92.62	-3271.16	-1830.34	0.04	
3	85	-29.37	24.41	-101.76	-4193.49	-4349.11	0.01	
3	86	-16.07	-13.52	-143.45	2548.81	-1554.96	0.03	
3	93	-51.62	12.37	-313.96	-1352.55	-5506.37	0.10	
3	100	-57.33	27.48	-255.33	-4368.09	-6897.20	0.57	
3	102	-25.38	28.48	-20.31	-5387.07	-4010.70	0.80	
3	103	-43.26	33.01	-118.27	-5882.76	-5917.56	0.84	
3	105	-23.03	5.11	-157.22	-559.45	-2455.39	0.05	
3	107	-17.78	8.33	-98.49	-1366.35	-2156.26	0.19	
3	108	-15.88	3.30	-118.04	-361.17	-1692.65	0.03	
4	3	73.48	18.65	-444.31	-1914.99	7809.92	-0.06	
4	4	84.68	23.76	-399.36	-3035.79	1.034e+04	-0.02	
4	24	58.94	73.49	-136.23	-1.090e+04	7369.06	-1.18	
4	25	27.69	65.38	44.85	-1.007e+04	4048.35	-1.15	
4	27	56.90	23.98	-133.39	-4465.54	9353.75	0.13	
4	43	36.78	37.22	-91.74	-6524.70	5819.54	0.09	
4	52	20.82	-21.07	-159.74	3890.24	2285.70	6.25e-03	
4	53	10.57	28.01	-74.96	-4599.89	1052.81	-0.03	

4	59	39.90	15.59	-126.67	-2782.87	6183.83	0.07
4	75	28.15	23.55	-102.00	-4025.10	4121.69	0.05
4	84	18.71	-10.94	-142.23	2136.97	2031.70	-7.30e-04
4	85	12.68	17.87	-92.47	-2846.61	1306.81	-0.02
4	93	51.08	12.90	-311.85	-1323.97	5429.18	-0.04
4	94	58.55	16.30	-281.89	-2071.17	7115.90	-0.02
4	102	23.69	44.74	-9.22	-6832.20	3255.32	-0.77
4	103	41.39	49.46	-106.47	-7316.77	5135.28	-0.79
4	105	22.77	5.35	-156.25	-548.65	2421.24	-0.02
4	107	17.29	11.72	-95.72	-1650.30	1986.47	-0.16
4	108	15.69	3.47	-117.35	-354.82	1669.26	-0.01
5	3	-74.52	17.97	-447.51	-1974.05	-7968.49	0.15
5	18	-83.18	40.69	-359.57	-6507.48	-1.008e+04	0.84
5	24	-62.05	48.99	-153.94	-8779.94	-8602.52	1.25
5	25	-30.36	41.17	28.49	-7920.64	-5214.26	1.18
5	33	-57.87	23.85	-135.03	-4464.83	-9496.56	-0.05
5	51	-14.51	27.40	-80.36	-4516.33	-1687.03	0.03
5	53	-37.83	34.73	-95.92	-6087.61	-5979.77	-0.01
5	54	-17.36	-20.78	-155.79	3786.49	-1718.62	0.03
5	65	-40.58	15.47	-127.91	-2790.43	-6283.86	-0.02
5	83	-15.23	17.81	-95.54	-2864.48	-1720.11	0.03
5	85	-28.91	22.11	-104.68	-3786.85	-4238.93	7.16e-03
5	86	-16.64	-11.18	-140.60	2134.64	-1685.54	0.03
5	93	-51.80	12.42	-314.08	-1364.69	-5539.37	0.10
5	100	-57.58	27.57	-255.45	-4386.98	-6943.94	0.56
5	102	-25.55	28.55	-20.36	-5402.06	-4043.78	0.80
5	103	-43.49	33.10	-118.37	-5901.95	-5962.05	0.84
5	105	-23.11	5.14	-157.27	-564.87	-2470.13	0.05
5	107	-17.86	8.36	-98.53	-1372.35	-2171.01	0.19
5	108	-15.93	3.31	-118.07	-364.92	-1702.82	0.03
6	3	73.22	18.57	-444.15	-1897.84	7762.83	-0.06
6	4	84.42	23.68	-399.15	-3019.12	1.029e+04	-0.02
6	24	58.60	73.35	-136.15	-1.088e+04	7305.15	-1.18
6	25	27.46	65.27	44.87	-1.005e+04	4004.44	-1.16
6	27	57.15	25.37	-131.60	-4711.09	9413.21	0.13
6	43	37.72	41.89	-85.83	-7351.62	6040.88	0.10
6	44	16.57	-28.14	-164.45	5159.35	1523.29	-0.05
6	45	14.71	35.04	-70.19	-5861.64	1795.04	0.03
6	59	40.00	16.31	-125.70	-2909.40	6209.13	0.07
6	75	28.59	25.99	-98.86	-4455.38	4229.34	0.06
6	76	16.19	-15.06	-144.95	2878.15	1580.58	-0.03
6	77	15.09	21.96	-89.68	-3580.44	1737.75	0.01
6	93	50.90	12.84	-311.74	-1312.05	5396.44	-0.04
6	94	58.36	16.24	-281.74	-2059.56	7082.59	-0.02
6	102	23.52	44.66	-9.19	-6817.09	3222.68	-0.77
6	103	41.15	49.36	-106.41	-7297.54	5091.32	-0.79
6	105	22.69	5.33	-156.20	-543.32	2406.62	-0.02
6	107	17.22	11.69	-95.69	-1644.33	1971.87	-0.16
6	108	15.64	3.45	-117.32	-351.14	1659.17	-0.01
7	3	-74.78	18.06	-447.67	-1991.52	-8015.98	0.15
7	18	-83.54	40.81	-359.75	-6535.04	-1.014e+04	0.84
7	24	-62.39	49.12	-154.06	-8807.92	-8667.03	1.24
7	25	-30.59	41.26	28.43	-7941.20	-5258.59	1.18
7	29	-57.47	23.57	-134.74	-4429.46	-9445.42	-0.03
7	43	-13.05	26.45	-79.30	-4389.41	-1492.66	0.09
7	45	-36.37	33.78	-94.86	-5960.73	-5785.42	0.05
7	46	-18.93	-19.79	-156.91	3652.07	-1933.34	-0.03
7	61	-40.35	15.24	-127.85	-2756.95	-6253.14	-4.48e-03
7	75	-14.32	16.99	-95.26	-2743.96	-1593.89	0.07
7	77	-28.01	21.29	-104.40	-3666.36	-4112.72	0.04
7	78	-17.66	-10.33	-140.95	2006.62	-1832.11	-1.79e-03
7	93	-51.98	12.48	-314.20	-1376.84	-5572.39	0.10
7	100	-57.83	27.65	-255.58	-4405.85	-6990.62	0.56
7	102	-25.73	28.62	-20.41	-5417.02	-4076.73	0.80
7	103	-43.72	33.19	-118.46	-5921.11	-6006.42	0.83
7	105	-23.19	5.16	-157.32	-570.30	-2484.88	0.05
7	107	-17.94	8.39	-98.57	-1378.34	-2185.75	0.19
7	108	-15.99	3.33	-118.11	-368.67	-1713.00	0.03
8	3	72.97	18.49	-443.95	-1880.37	7715.35	-0.06
8	4	86.00	25.18	-399.70	-3137.02	1.043e+04	-0.17
8	24	58.27	73.24	-136.09	-1.085e+04	7241.75	-1.18
8	25	27.24	65.20	44.84	-1.003e+04	3961.22	-1.16
8	27	57.23	26.60	-129.82	-4928.09	9443.76	0.14
8	43	38.15	46.08	-80.07	-8088.82	6167.62	0.11
8	44	16.02	-32.37	-170.06	5905.06	1375.98	-0.06
8	45	15.15	39.24	-64.43	-6599.85	1922.01	0.04
8	59	40.03	17.03	-124.62	-3035.69	6223.05	0.08
8	75	28.82	28.45	-95.44	-4888.08	4300.15	0.06

8	76	15.84	-17.56	-148.23	3318.95	1489.30	-0.04
8	77	15.33	24.43	-86.27	-4013.74	1808.69	0.02
8	93	50.72	12.78	-311.60	-1299.90	5363.44	-0.04
8	94	59.41	17.25	-282.10	-2137.66	7174.21	-0.11
8	102	23.36	44.61	-9.19	-6804.42	3190.48	-0.78
8	103	40.93	49.29	-106.36	-7280.67	5047.70	-0.79
8	105	22.61	5.30	-156.12	-537.90	2391.88	-0.02
8	107	17.14	11.67	-95.63	-1638.80	1957.29	-0.16
8	108	15.59	3.43	-117.25	-347.40	1648.99	-0.01
9	3	-73.16	-18.61	-444.06	1905.75	-7743.27	0.05
9	12	16.30	1.44	-5.72	-1376.64	3967.69	0.54
9	25	12.52	46.80	-68.98	-8296.96	2878.29	-0.38
9	34	-46.88	-24.89	-124.59	4527.53	-7581.30	-0.10
9	52	-19.67	-35.90	-71.28	6066.40	-2764.44	-1.01e-04
9	53	-11.59	28.99	-163.32	-5361.76	-545.07	0.02
9	54	-36.20	-42.34	-82.90	7421.07	-5843.51	-0.06
9	66	-33.99	-16.04	-121.61	2804.27	-5136.36	-0.06
9	84	-18.00	-22.49	-90.30	3703.83	-2305.58	3.92e-03
9	85	-13.26	15.57	-144.30	-2999.19	-1003.93	0.02
9	86	-27.71	-26.27	-97.13	4500.07	-4114.59	-0.03
9	93	-50.86	-12.87	-311.68	1317.48	-5382.81	0.03
9	95	5.66	-0.19	-42.92	-800.32	2093.54	0.36
9	102	3.14	30.05	-85.09	-5413.87	1367.28	-0.25
9	105	-22.67	-5.34	-156.18	545.35	-2400.37	0.01
9	106	-11.37	-2.80	-102.43	121.79	-905.10	0.08
9	107	-11.87	3.24	-110.86	-800.91	-1050.35	-0.04
9	108	-15.63	-3.46	-117.30	352.32	-1654.75	9.58e-03
10	3	74.72	-18.15	-447.55	2020.69	8022.94	-0.15
10	4	84.74	-23.69	-397.78	3232.10	1.036e+04	-0.21
10	12	32.68	-12.58	-35.16	2393.59	5611.34	-0.12
10	25	-10.57	40.79	-88.94	-7608.45	-2612.35	0.43
10	32	46.31	-23.86	-125.04	4400.03	7439.21	0.02
10	51	16.61	26.19	-163.38	-4738.67	1514.21	-4.13e-03
10	52	32.14	-39.30	-84.13	6859.28	5032.92	-0.03
10	54	15.34	-32.89	-72.84	5487.82	1914.77	-0.07
10	64	33.80	-15.39	-122.19	2737.15	5076.94	-2.71e-03
10	83	16.36	13.99	-144.69	-2626.56	1598.28	-0.02
10	84	25.47	-24.45	-98.17	4180.61	3662.40	-0.03
10	86	15.60	-20.68	-91.54	3375.71	1830.70	-0.05
10	93	51.94	-12.55	-314.11	1397.07	5577.22	-0.11
10	94	58.63	-16.24	-280.93	2204.68	7135.97	-0.14
10	95	27.11	-9.50	-62.81	1720.58	4312.39	-0.09
10	102	-1.72	26.08	-98.67	-4947.44	-1170.07	0.27
10	105	23.17	-5.19	-157.31	579.07	2487.04	-0.05
10	106	18.20	-4.58	-107.05	643.78	2234.07	-0.05
10	107	12.44	2.54	-114.22	-689.83	1137.58	0.03
10	108	15.98	-3.35	-118.11	374.57	1714.49	-0.04
11	3	-73.34	-18.67	-444.21	1919.48	-7775.65	0.05
11	12	21.90	6.75	-3.63	-1822.53	4484.74	0.06
11	25	12.75	46.86	-68.87	-8311.95	2918.76	-0.38
11	34	-46.64	-23.81	-125.99	4333.38	-7520.98	-0.10
11	52	-18.73	-32.21	-75.79	5405.18	-2545.53	0.01
11	53	-12.59	25.27	-158.94	-4694.70	-777.74	7.96e-03
11	54	-35.28	-38.66	-87.40	6761.05	-5624.89	-0.05
11	66	-33.86	-15.41	-122.45	2691.22	-5103.89	-0.05
11	84	-17.47	-20.32	-92.98	3315.93	-2180.24	0.01
11	85	-13.86	13.38	-141.75	-2605.46	-1143.03	8.51e-03
11	86	-27.19	-24.11	-99.81	4112.87	-3989.42	-0.03
11	93	-50.98	-12.91	-311.79	1327.02	-5405.32	0.03
11	95	9.38	3.34	-41.54	-1096.60	2435.95	0.05
11	102	3.28	30.09	-85.03	-5422.89	1391.96	-0.25
11	105	-22.73	-5.36	-156.25	549.59	-2410.37	0.01
11	106	-10.65	-2.11	-102.20	64.87	-842.12	0.02
11	107	-11.88	3.24	-110.90	-800.39	-1050.92	-0.04
11	108	-15.66	-3.47	-117.36	355.24	-1661.64	9.43e-03
12	3	74.55	-18.09	-447.42	2007.25	7990.53	-0.16
12	4	84.83	-24.61	-399.57	3330.47	1.035e+04	-0.13
12	12	33.08	-14.20	-38.33	2577.08	5644.53	9.19e-03
12	25	-10.33	40.67	-88.98	-7588.63	-2571.37	0.42
12	28	46.04	-22.97	-126.26	4247.26	7381.87	0.01
12	43	17.34	23.28	-159.19	-4241.51	1675.61	0.02
12	44	31.34	-36.36	-88.27	6356.45	4857.75	-0.05
12	46	14.54	-29.95	-76.98	4984.95	1739.59	-0.09
12	60	33.65	-14.94	-122.80	2660.80	5045.05	-6.60e-03
12	75	16.70	12.56	-142.54	-2384.25	1674.76	-4.10e-03
12	76	25.05	-22.99	-100.26	3932.62	3572.15	-0.05
12	78	15.18	-19.23	-93.63	3127.69	1740.44	-0.07
12	93	51.82	-12.50	-314.03	1387.73	5554.70	-0.11

12	94	58.68	-16.85	-282.13	2269.88	7129.47	-0.09
12	95	27.37	-10.58	-64.92	1841.96	4332.22	-5.58e-03
12	102	-1.57	26.00	-98.68	-4935.18	-1145.05	0.27
12	105	23.12	-5.17	-157.27	574.92	2477.02	-0.05
12	106	18.22	-4.78	-107.45	665.77	2232.52	-0.03
12	107	12.44	2.53	-114.20	-689.66	1137.07	0.03
12	108	15.94	-3.33	-118.09	371.72	1707.60	-0.04
13	3	-73.51	-18.73	-444.34	1933.06	-7807.83	0.05
13	12	21.69	6.67	-3.72	-1804.87	4444.10	0.06
13	25	12.98	46.95	-68.77	-8329.62	2959.62	-0.39
13	34	-46.21	-22.41	-127.60	4081.71	-7426.14	-0.10
13	52	-17.25	-27.50	-81.09	4559.74	-2213.91	0.02
13	53	-14.15	20.53	-153.69	-3843.50	-1123.05	1.69e-03
13	54	-33.79	-33.95	-92.70	5915.58	-5293.19	-0.04
13	66	-33.66	-14.71	-123.28	2564.17	-5058.25	-0.05
13	84	-16.72	-17.92	-95.68	2885.79	-2012.43	0.01
13	85	-14.68	10.96	-139.10	-2169.54	-1324.53	5.22e-03
13	86	-26.44	-21.71	-102.51	3682.71	-3821.56	-0.02
13	93	-51.10	-12.95	-311.88	1336.46	-5427.68	0.03
13	95	9.23	3.28	-41.61	-1083.87	2406.57	0.04
13	102	3.42	30.14	-84.98	-5433.70	1416.92	-0.25
13	105	-22.78	-5.38	-156.29	553.79	-2420.32	0.01
13	106	-10.71	-2.13	-102.23	69.73	-853.47	0.02
13	107	-11.88	3.24	-110.91	-800.24	-1051.40	-0.04
13	108	-15.70	-3.48	-117.39	358.12	-1668.48	9.28e-03
14	3	74.37	-18.03	-447.30	1993.67	7958.06	-0.16
14	4	84.63	-24.54	-399.41	3314.87	1.032e+04	-0.13
14	12	33.00	-14.17	-38.24	2570.84	5631.53	9.22e-03
14	25	-10.09	40.55	-89.02	-7569.00	-2530.39	0.42
14	28	46.74	-24.51	-124.73	4521.82	7520.78	0.01
14	43	14.85	28.47	-164.18	-5169.46	1182.16	0.02
14	44	33.76	-41.52	-83.23	7278.59	5337.32	-0.06
14	46	16.95	-35.11	-71.94	5907.12	2219.23	-0.10
14	60	34.02	-15.75	-122.00	2804.74	5118.84	-8.13e-03
14	75	15.29	15.31	-145.11	-2876.69	1398.61	6.34e-04
14	76	26.38	-25.72	-97.64	4419.27	3834.45	-0.05
14	78	16.51	-21.95	-91.00	3614.36	2002.78	-0.07
14	93	51.70	-12.46	-313.94	1378.29	5532.13	-0.11
14	94	58.54	-16.80	-282.01	2259.09	7104.47	-0.09
14	95	27.30	-10.55	-64.85	1836.84	4321.25	-5.58e-03
14	102	-1.43	25.93	-98.70	-4923.06	-1120.03	0.27
14	105	23.06	-5.15	-157.24	570.72	2466.98	-0.05
14	106	18.18	-4.77	-107.42	662.43	2224.81	-0.03
14	107	12.44	2.53	-114.19	-689.54	1136.55	0.03
14	108	15.90	-3.32	-118.06	368.83	1700.70	-0.04
15	3	-73.68	-18.80	-444.46	1946.65	-7840.04	0.05
15	12	22.04	7.32	-4.36	-1867.15	4475.23	-1.55e-03
15	25	13.22	47.04	-68.68	-8347.40	3000.71	-0.39
15	30	-46.04	-22.19	-127.49	4050.66	-7395.93	-0.11
15	44	-16.58	-26.75	-80.68	4450.19	-2098.26	-0.02
15	45	-14.89	19.76	-154.16	-3728.17	-1252.40	0.03
15	46	-33.12	-33.20	-92.29	5805.91	-5177.37	-0.08
15	62	-33.56	-14.51	-123.33	2533.29	-5039.44	-0.06
15	76	-16.29	-17.23	-95.78	2776.55	-1934.35	-5.54e-03
15	77	-15.18	10.24	-139.06	-2054.53	-1416.30	0.02
15	78	-26.01	-21.03	-102.60	3573.41	-3743.38	-0.04
15	93	-51.22	-13.00	-311.96	1345.90	-5450.07	0.03
15	95	9.45	3.72	-42.04	-1124.43	2425.04	2.01e-03
15	102	3.57	30.19	-84.92	-5444.60	1442.03	-0.25
15	105	-22.83	-5.40	-156.33	557.99	-2430.27	0.01
15	106	-10.70	-2.05	-102.34	63.92	-855.25	7.71e-03
15	107	-11.88	3.24	-110.92	-800.11	-1051.85	-0.04
15	108	-15.74	-3.50	-117.42	361.01	-1675.33	9.13e-03
16	3	74.20	-17.97	-447.10	1980.29	7925.59	-0.16
16	4	83.63	-26.01	-399.17	3505.73	1.022e+04	0.01
16	12	31.58	-16.72	-38.11	2908.39	5518.70	0.25
16	25	-9.84	40.41	-88.96	-7546.13	-2488.07	0.42
16	28	47.46	-25.95	-123.34	4781.23	7664.76	8.58e-03
16	43	12.27	33.39	-168.50	-6054.33	669.98	0.03
16	44	36.26	-46.41	-78.76	8156.48	5835.31	-0.07
16	46	19.46	-40.01	-67.47	6786.31	2717.61	-0.10
16	60	34.43	-16.59	-121.15	2956.39	5200.93	-9.50e-03
16	75	13.75	18.21	-147.63	-3399.14	1093.67	4.65e-03
16	76	27.85	-28.59	-94.98	4935.27	4125.35	-0.05
16	78	17.98	-24.83	-88.35	4131.12	2293.91	-0.08
16	93	51.58	-12.42	-313.80	1368.99	5509.56	-0.11
16	94	57.87	-17.78	-281.85	2385.95	7039.53	4.68e-03
16	95	26.34	-12.25	-64.74	2060.92	4243.73	0.15

16	102	-1.27	25.84	-98.64	-4908.76	-1094.11	0.27
16	105	23.01	-5.13	-157.15	566.59	2456.95	-0.05
16	106	17.96	-5.10	-107.34	704.98	2203.78	2.55e-03
16	108	15.86	-3.31	-117.99	365.99	1693.79	-0.04
17	3	-74.02	17.85	-447.11	-1946.74	-7876.48	0.15
17	18	-77.09	46.37	-357.41	-6993.73	-9194.98	0.13
17	24	-52.42	58.59	-150.74	-9618.31	-7229.73	0.07
17	25	-20.95	50.81	31.52	-8770.56	-3880.56	5.78e-03
17	33	-53.50	24.18	-129.44	-4473.06	-8720.50	-0.03
17	51	-17.39	36.13	-70.57	-6067.68	-2299.35	0.07
17	53	-37.87	42.21	-84.71	-7389.62	-6071.40	0.03
17	54	-14.26	-29.56	-165.40	5349.87	-1066.75	-1.08e-03
17	65	-37.93	15.55	-124.72	-2773.14	-5812.42	-1.32e-03
17	83	-16.75	22.55	-90.17	-3707.88	-2045.46	0.06
17	85	-28.76	26.12	-98.47	-4483.77	-4258.66	0.03
17	86	-14.91	-15.98	-145.81	2990.07	-1320.63	0.01
17	93	-51.45	12.34	-313.81	-1345.68	-5475.39	0.11
17	100	-53.50	31.35	-254.00	-4710.34	-6354.39	0.09
17	102	-19.24	34.97	-18.32	-5966.67	-3148.06	0.02
17	103	-37.05	39.50	-116.22	-6460.06	-5044.23	0.05
17	105	-22.95	5.10	-157.15	-556.26	-2441.52	0.05
17	107	-16.51	9.62	-98.05	-1480.46	-1976.05	0.03
17	108	-15.83	3.29	-117.99	-358.90	-1683.05	0.03
18	3	73.74	18.76	-444.48	-1937.60	7858.60	-0.05
18	4	84.59	23.20	-400.23	-3003.48	1.036e+04	0.05
18	24	48.22	56.73	-148.35	-9236.61	6531.30	0.01
18	25	16.87	48.57	32.80	-8393.62	3189.87	0.03
18	31	52.02	22.93	-128.94	-4224.74	8490.12	0.10
18	51	34.31	39.07	-84.95	-6832.39	5483.83	0.05
18	52	17.43	-26.31	-163.91	4845.29	1613.35	-0.01
18	53	14.07	33.29	-70.92	-5564.22	1745.87	-9.05e-03
18	63	37.04	14.91	-124.17	-2629.94	5676.49	0.06
18	83	26.64	24.38	-98.36	-4159.19	3911.86	0.03
18	84	16.74	-14.00	-144.70	2694.84	1641.12	-0.01
18	85	14.76	20.98	-90.13	-3413.77	1718.10	-9.53e-03
18	93	51.26	12.97	-311.98	-1339.66	5463.01	-0.04
18	94	58.49	15.93	-282.48	-2050.25	7133.53	0.03
18	102	16.49	33.54	-17.28	-5715.56	2686.45	0.02
18	103	34.25	38.28	-114.56	-6205.67	4578.15	5.90e-03
18	105	22.85	5.39	-156.33	-555.50	2436.29	-0.02
18	107	15.90	9.50	-97.39	-1430.68	1880.98	-4.26e-03
18	108	15.75	3.49	-117.42	-359.46	1679.61	-0.01
19	3	-74.28	17.94	-447.35	-1964.20	-7924.12	0.15
19	18	-77.35	46.46	-357.63	-7013.14	-9243.39	0.13
19	24	-52.59	58.66	-150.88	-9632.71	-7261.46	0.07
19	25	-21.01	50.84	31.47	-8777.54	-3892.04	5.29e-03
19	33	-53.43	23.16	-130.95	-4292.31	-8695.18	-0.03
19	51	-16.99	32.61	-75.42	-5450.43	-2189.47	0.07
19	53	-37.48	38.70	-89.56	-6773.37	-5961.80	0.03
19	54	-14.77	-26.00	-160.71	4725.13	-1197.04	1.10e-03
19	65	-37.91	14.95	-125.65	-2668.32	-5801.88	-1.87e-03
19	83	-16.54	20.49	-93.06	-3346.19	-1985.56	0.05
19	85	-28.56	24.06	-101.36	-4122.67	-4198.91	0.03
19	86	-15.22	-13.88	-143.08	2620.88	-1400.96	0.01
19	93	-51.63	12.40	-313.98	-1357.82	-5508.51	0.11
19	100	-53.69	31.41	-254.16	-4723.78	-6388.03	0.09
19	102	-19.30	35.00	-18.37	-5972.58	-3159.11	0.02
19	103	-37.18	39.54	-116.33	-6470.16	-5066.74	0.05
19	105	-23.03	5.12	-157.25	-561.69	-2456.31	0.05
19	107	-16.56	9.64	-98.13	-1484.64	-1986.43	0.03
19	108	-15.88	3.30	-118.07	-362.65	-1693.26	0.03
20	3	73.49	18.68	-444.32	-1920.27	7811.42	-0.06
20	4	84.70	23.80	-399.36	-3043.41	1.034e+04	-0.02
20	24	48.06	56.67	-148.27	-9224.16	6500.67	9.97e-03
20	25	16.81	48.54	32.81	-8388.53	3179.28	0.03
20	27	52.32	22.21	-130.73	-4097.22	8508.73	0.11
20	43	35.42	36.69	-90.96	-6415.83	5568.88	0.08
20	52	19.42	-21.61	-158.96	4001.01	2029.42	1.66e-03
20	53	11.97	28.56	-75.80	-4712.50	1309.59	-0.02
20	59	37.21	14.56	-125.11	-2568.19	5688.40	0.06
20	75	27.35	23.25	-101.55	-3961.92	3974.82	0.05
20	84	17.89	-11.25	-141.79	2201.26	1881.52	-3.43e-03
20	85	13.51	18.19	-92.98	-2912.75	1457.49	-0.02
20	93	51.08	12.92	-311.86	-1327.61	5430.21	-0.04
20	94	58.56	16.33	-281.89	-2076.37	7117.77	-0.02
20	102	16.44	33.52	-17.26	-5710.94	2676.02	0.02
20	103	34.13	38.24	-114.50	-6196.87	4556.38	5.26e-03
20	105	22.77	5.36	-156.28	-550.12	2421.65	-0.02

20	107	15.84	9.48	-97.36	-1426.78	1870.81	-4.50e-03
20	108	15.70	3.47	-117.38	-355.74	1669.50	-0.01
21	3	-74.53	18.02	-447.52	-1981.69	-7971.60	0.15
21	18	-77.61	46.55	-357.77	-7032.94	-9291.76	0.13
21	24	-52.76	58.73	-150.95	-9647.76	-7293.29	0.07
21	25	-21.07	50.88	31.47	-8785.16	-3903.69	4.79e-03
21	33	-53.16	21.80	-132.68	-4052.85	-8630.88	-0.04
21	51	-15.96	28.04	-81.09	-4643.09	-1950.98	0.03
21	53	-36.44	34.13	-95.23	-5966.09	-5723.38	-4.53e-03
21	54	-15.91	-21.40	-155.12	3910.28	-1455.89	0.03
21	65	-37.81	14.28	-126.55	-2549.03	-5776.01	-7.87e-03
21	83	-16.08	18.18	-95.99	-2939.57	-1875.33	0.03
21	85	-28.10	21.76	-104.29	-3716.09	-4088.73	0.01
21	86	-15.80	-11.54	-140.22	2206.76	-1531.54	0.03
21	93	-51.81	12.45	-314.09	-1369.98	-5541.53	0.11
21	100	-53.87	31.48	-254.26	-4737.48	-6421.63	0.09
21	102	-19.36	35.03	-18.39	-5978.91	-3170.27	0.01
21	103	-37.30	39.60	-116.38	-6480.70	-5089.32	0.05
21	105	-23.11	5.15	-157.30	-567.12	-2471.05	0.05
21	107	-16.62	9.66	-98.16	-1488.91	-1996.80	0.03
21	108	-15.94	3.32	-118.10	-366.40	-1703.43	0.03
22	3	73.23	18.60	-444.15	-1903.09	7764.31	-0.06
22	4	84.43	23.72	-399.15	-3026.70	1.029e+04	-0.02
22	24	47.89	56.61	-148.18	-9211.97	6470.11	9.04e-03
22	25	16.75	48.52	32.82	-8383.64	3168.75	0.03
22	27	52.56	23.60	-128.93	-4342.79	8568.27	0.12
22	43	36.37	41.37	-85.04	-7242.79	5790.57	0.10
22	44	15.16	-28.68	-163.68	5270.43	1266.39	-0.05
22	45	16.12	35.59	-71.02	-5974.54	2052.43	0.03
22	59	37.31	15.28	-124.14	-2694.73	5713.74	0.06
22	75	27.80	25.68	-98.40	-4392.22	4082.65	0.05
22	76	15.36	-15.37	-144.51	2942.63	1430.03	-0.04
22	77	15.92	22.29	-90.18	-3646.75	1888.78	0.02
22	93	50.91	12.86	-311.75	-1315.67	5397.46	-0.04
22	94	58.37	16.27	-281.75	-2064.74	7084.44	-0.02
22	102	16.38	33.50	-17.24	-5706.45	2665.64	0.02
22	103	34.01	38.20	-114.44	-6188.25	4534.66	4.61e-03
22	105	22.69	5.34	-156.23	-544.78	2407.02	-0.02
22	107	15.79	9.46	-97.32	-1422.94	1860.65	-4.73e-03
22	108	15.64	3.46	-117.35	-352.06	1659.41	-0.01
23	3	-74.79	18.10	-447.68	-1999.20	-8019.13	0.15
23	18	-77.87	46.65	-357.92	-7052.79	-9340.21	0.13
23	24	-52.93	58.80	-151.03	-9662.86	-7325.21	0.06
23	25	-21.13	50.92	31.47	-8792.82	-3915.41	-3.95e-03
23	29	-52.76	21.52	-132.38	-4017.48	-8579.76	-0.02
23	43	-14.49	27.09	-80.04	-4516.03	-1756.67	0.09
23	45	-34.98	33.18	-94.17	-5839.09	-5529.09	0.05
23	46	-17.49	-20.41	-156.24	3775.70	-1670.57	-0.02
23	61	-37.58	14.04	-126.49	-2515.54	-5745.30	6.55e-04
23	75	-15.17	17.37	-95.70	-2818.96	-1749.11	0.07
23	77	-27.19	20.94	-104.00	-3595.51	-3962.53	0.04
23	78	-16.81	-10.69	-140.57	2078.63	-1678.13	-2.69e-04
23	93	-51.99	12.51	-314.21	-1382.15	-5574.57	0.10
23	100	-54.05	31.54	-254.37	-4751.22	-6455.29	0.09
23	102	-19.42	35.06	-18.40	-5985.27	-3181.48	8.66e-03
23	103	-37.42	39.65	-116.44	-6491.26	-5111.95	0.04
23	105	-23.19	5.17	-157.35	-572.56	-2485.81	0.05
23	107	-16.68	9.68	-98.19	-1493.18	-2007.19	0.03
23	108	-15.99	3.34	-118.14	-370.16	-1713.62	0.03
24	3	72.98	18.52	-443.96	-1885.59	7716.83	-0.06
24	4	86.01	25.23	-399.70	-3145.94	1.043e+04	-0.17
24	24	47.73	56.54	-148.07	-9198.75	6438.98	8.07e-03
24	25	16.69	48.49	32.87	-8377.86	3157.80	0.03
24	27	52.65	24.83	-127.15	-4559.88	8598.75	0.12
24	43	36.80	45.56	-79.28	-7979.79	5916.97	0.11
24	44	14.62	-32.91	-169.30	6015.85	1119.43	-0.07
24	45	16.55	39.79	-65.26	-6712.46	2179.04	0.04
24	59	37.34	16.00	-123.06	-2821.07	5727.61	0.07
24	75	28.03	28.15	-94.99	-4824.80	4153.25	0.06
24	76	15.02	-17.87	-147.79	3383.26	1338.95	-0.04
24	77	16.15	24.75	-86.77	-4079.87	1959.52	0.02
24	93	50.73	12.81	-311.61	-1303.50	5364.45	-0.04
24	94	59.42	17.28	-282.10	-2143.73	7176.12	-0.11
24	102	16.32	33.47	-17.18	-5701.34	2654.94	0.02
24	103	33.90	38.15	-114.35	-6178.94	4512.55	3.95e-03
24	105	22.61	5.31	-156.14	-539.34	2392.28	-0.02
24	107	15.73	9.45	-97.26	-1418.91	1850.38	-4.97e-03
24	108	15.59	3.44	-117.28	-348.30	1649.23	-0.01

25	3	-73.15	-18.57	-444.11	1898.29	-7740.19	0.05
25	12	16.29	1.42	-5.71	-1372.66	3965.80	0.54
25	25	9.86	42.61	-73.99	-7913.16	2759.60	0.07
25	42	-44.40	-25.78	-119.69	4628.34	-7099.77	-0.06
25	52	-20.61	-36.10	-72.17	6114.46	-2937.38	-9.07e-03
25	53	-10.64	29.21	-162.45	-5412.71	-370.93	0.03
25	58	-35.46	-42.61	-81.42	7450.73	-5699.00	-0.05
25	74	-32.64	-16.61	-118.84	2872.50	-4872.44	-0.03
25	84	-18.55	-22.60	-90.83	3731.27	-2407.04	-1.48e-03
25	85	-12.70	15.70	-143.79	-3029.52	-901.27	0.02
25	90	-27.31	-26.44	-96.30	4519.77	-4035.21	-0.03
25	93	-50.85	-12.84	-311.71	1312.31	-5380.68	0.03
25	95	5.65	-0.20	-42.91	-798.15	2092.48	0.36
25	102	1.37	27.26	-88.43	-5158.48	1288.35	0.05
25	105	-22.67	-5.33	-156.19	543.16	-2399.46	0.01
25	106	-11.37	-2.80	-102.43	121.07	-904.83	0.08
25	107	-12.23	2.69	-111.54	-751.00	-1065.65	0.02
25	108	-15.62	-3.45	-117.31	350.88	-1654.15	9.26e-03
26	3	74.72	-18.12	-447.59	2015.36	8021.40	-0.15
26	4	84.73	-23.64	-397.84	3222.67	1.036e+04	-0.21
26	12	32.66	-12.54	-35.20	2385.83	5608.00	-0.12
26	25	-5.70	41.26	-74.76	-7570.72	-1927.08	-2.99e-03
26	40	43.48	-23.89	-121.06	4298.64	6868.08	-0.02
26	51	15.65	26.46	-162.60	-4798.65	1336.63	-6.52e-03
26	54	16.30	-33.14	-73.64	5545.94	2091.84	-0.06
26	56	31.29	-39.31	-82.93	6828.19	4861.00	-0.04
26	72	32.24	-15.46	-119.95	2688.12	4761.25	-0.02
26	83	15.79	14.15	-144.23	-2662.27	1493.62	-0.02
26	86	16.16	-20.83	-92.00	3409.56	1934.84	-0.05
26	88	25.00	-24.47	-97.49	4165.24	3567.28	-0.04
26	93	51.94	-12.53	-314.14	1393.40	5576.16	-0.11
26	94	58.62	-16.21	-280.97	2198.27	7133.67	-0.14
26	95	27.10	-9.47	-62.84	1715.10	4310.08	-0.09
26	102	1.53	26.40	-89.21	-4922.60	-713.31	-0.01
26	105	23.17	-5.18	-157.32	577.59	2486.62	-0.05
26	106	18.20	-4.57	-107.06	641.93	2233.40	-0.05
26	107	13.09	2.61	-112.34	-685.60	1228.72	-0.03
26	108	15.98	-3.34	-118.12	373.64	1714.23	-0.04
27	3	-73.32	-18.63	-444.26	1911.98	-7772.55	0.05
27	12	21.90	6.73	-3.61	-1820.14	4483.42	0.06
27	25	9.90	42.64	-74.03	-7918.05	2765.96	0.07
27	42	-44.15	-24.70	-121.09	4433.70	-7039.24	-0.05
27	52	-19.67	-32.41	-76.68	5453.11	-2718.10	2.50e-03
27	53	-11.65	25.48	-158.07	-4745.55	-603.97	0.02
27	58	-34.53	-38.92	-85.93	6790.41	-5479.98	-0.04
27	74	-32.51	-15.98	-119.69	2759.16	-4839.85	-0.03
27	84	-18.02	-20.43	-93.51	3343.30	-2281.47	5.29e-03
27	85	-13.30	13.51	-141.24	-2635.73	-1040.59	0.01
27	90	-26.78	-24.28	-98.98	4132.41	-3909.80	-0.02
27	93	-50.97	-12.88	-311.82	1321.82	-5403.17	0.03
27	95	9.38	3.34	-41.53	-1095.50	2435.27	0.05
27	102	1.38	27.27	-88.48	-5160.77	1290.29	0.05
27	105	-22.72	-5.35	-156.26	547.39	-2409.46	0.01
27	106	-10.65	-2.10	-102.20	63.93	-841.77	0.02
27	107	-12.25	2.69	-111.59	-749.13	-1070.77	0.02
27	108	-15.66	-3.46	-117.37	353.78	-1661.03	9.10e-03
28	3	74.54	-18.06	-447.46	2001.95	7989.01	-0.16
28	4	84.82	-24.57	-399.62	3322.81	1.035e+04	-0.13
28	12	33.07	-14.18	-38.36	2572.23	5642.27	9.29e-03
28	25	-5.67	41.24	-74.76	-7567.55	-1921.48	-3.40e-03
28	36	43.21	-23.00	-122.28	4146.03	6810.84	-0.02
28	43	16.37	23.55	-158.41	-4301.58	1497.86	0.01
28	46	15.50	-30.21	-77.78	5043.17	1916.83	-0.08
28	48	30.49	-36.37	-87.07	6325.50	4686.02	-0.06
28	68	32.09	-15.01	-120.56	2611.87	4729.43	-0.03
28	75	16.13	12.72	-142.09	-2420.02	1570.01	-5.49e-03
28	78	15.75	-19.38	-94.10	3161.61	1844.69	-0.06
28	80	24.58	-23.01	-99.59	3917.33	3477.14	-0.05
28	93	51.82	-12.48	-314.05	1384.07	5553.65	-0.11
28	94	58.67	-16.82	-282.16	2264.65	7127.62	-0.09
28	95	27.36	-10.56	-64.93	1838.42	4330.63	-5.51e-03
28	102	1.54	26.39	-89.21	-4921.44	-711.87	-0.01
28	105	23.11	-5.16	-157.28	573.45	2476.61	-0.05
28	106	18.22	-4.78	-107.46	664.32	2232.00	-0.03
28	107	13.06	2.61	-112.31	-687.65	1223.50	-0.03
28	108	15.94	-3.33	-118.09	370.79	1707.35	-0.04
29	3	-73.49	-18.69	-444.38	1925.53	-7804.72	0.05
29	12	21.68	6.65	-3.70	-1802.51	4442.79	0.06

29	25	9.93	42.67	-74.04	-7923.38	2772.40	0.07
29	42	-43.73	-23.29	-122.70	4181.98	-6944.37	-0.05
29	52	-18.19	-27.70	-81.98	4607.56	-2386.24	9.67e-03
29	53	-13.21	20.75	-152.82	-3894.24	-949.51	8.23e-03
29	58	-33.04	-34.21	-91.23	5944.83	-5148.06	-0.03
29	74	-32.31	-15.27	-120.52	2632.08	-4794.19	-0.03
29	84	-17.27	-18.03	-96.21	2913.09	-2113.52	8.93e-03
29	85	-14.13	11.08	-138.59	-2199.76	-1222.23	8.97e-03
29	90	-26.03	-21.88	-101.68	3702.18	-3741.81	-0.02
29	93	-51.09	-12.92	-311.91	1331.24	-5425.53	0.03
29	95	9.22	3.28	-41.60	-1082.78	2405.90	0.05
29	102	1.39	27.29	-88.49	-5163.36	1292.31	0.05
29	105	-22.78	-5.36	-156.30	551.58	-2419.40	0.01
29	106	-10.71	-2.12	-102.24	68.77	-853.12	0.02
29	107	-12.28	2.68	-111.62	-747.34	-1075.84	0.02
29	108	-15.70	-3.47	-117.40	356.66	-1667.87	8.95e-03
30	3	74.37	-18.00	-447.34	1988.40	7956.55	-0.16
30	4	84.62	-24.49	-399.46	3307.25	1.031e+04	-0.13
30	12	32.99	-14.14	-38.27	2566.00	5629.27	9.32e-03
30	25	-5.63	41.23	-74.76	-7564.59	-1915.97	-3.83e-03
30	36	43.91	-24.54	-120.75	4420.58	6949.76	-0.03
30	43	13.89	28.73	-163.40	-5229.42	1004.56	0.02
30	46	17.92	-35.37	-72.73	5965.25	2396.33	-0.09
30	48	32.90	-41.53	-82.03	7247.55	5165.46	-0.07
30	68	32.46	-15.82	-119.75	2755.80	4803.22	-0.03
30	75	14.72	15.47	-144.66	-2912.39	1293.94	-7.63e-04
30	78	17.08	-22.10	-91.47	3648.22	2106.94	-0.07
30	80	25.91	-25.73	-96.96	4403.93	3739.36	-0.06
30	93	51.70	-12.44	-313.97	1374.65	5531.09	-0.11
30	94	58.53	-16.77	-282.05	2253.89	7102.63	-0.09
30	95	27.29	-10.53	-64.87	1833.31	4319.66	-5.52e-03
30	102	1.55	26.38	-89.20	-4920.42	-710.50	-0.01
30	105	23.06	-5.14	-157.25	569.26	2466.57	-0.05
30	106	18.18	-4.76	-107.43	660.99	2224.29	-0.03
30	107	13.03	2.62	-112.29	-689.75	1218.26	-0.03
30	108	15.90	-3.32	-118.07	367.91	1700.44	-0.04
31	3	-73.67	-18.76	-444.51	1939.09	-7836.92	0.05
31	12	22.03	7.30	-4.33	-1862.79	4473.21	-1.47e-03
31	25	9.97	42.70	-74.05	-7928.72	2778.86	0.06
31	38	-43.56	-23.08	-122.59	4151.05	-6914.39	-0.06
31	44	-17.52	-26.95	-81.57	4498.06	-2271.06	-0.02
31	45	-13.95	19.98	-153.28	-3778.98	-1078.38	0.04
31	50	-32.38	-33.47	-90.82	5835.26	-5032.74	-0.06
31	70	-32.20	-15.08	-120.57	2601.27	-4775.51	-0.03
31	76	-16.84	-17.35	-96.31	2803.87	-2035.72	-7.56e-03
31	77	-14.63	10.37	-138.54	-2084.79	-1313.72	0.03
31	82	-25.60	-21.19	-101.78	3592.92	-3663.93	-0.03
31	93	-51.21	-12.97	-311.99	1340.67	-5447.91	0.03
31	95	9.44	3.70	-42.03	-1122.01	2423.90	2.07e-03
31	102	1.40	27.30	-88.51	-5165.97	1294.33	0.04
31	105	-22.83	-5.38	-156.34	555.77	-2429.36	0.01
31	106	-10.70	-2.05	-102.35	63.23	-855.00	7.72e-03
31	107	-12.31	2.67	-111.64	-745.56	-1080.91	0.02
31	108	-15.73	-3.49	-117.43	359.54	-1674.72	9.14e-03
32	3	74.19	-17.94	-447.14	1975.04	7924.11	-0.16
32	4	83.61	-25.96	-399.23	3496.63	1.022e+04	0.01
32	12	31.57	-16.68	-38.15	2901.05	5515.51	0.25
32	25	-5.60	41.20	-74.72	-7560.95	-1910.11	-4.27e-03
32	36	44.63	-25.98	-119.35	4680.59	7094.06	-0.03
32	43	11.30	33.66	-167.72	-6114.27	491.98	0.03
32	46	20.43	-40.26	-68.27	6844.43	2895.12	-0.10
32	48	35.41	-46.42	-77.56	8125.68	5663.94	-0.08
32	68	32.87	-16.67	-118.90	2907.80	4885.51	-0.03
32	75	13.18	18.37	-147.17	-3434.82	988.78	3.25e-03
32	78	18.54	-24.98	-88.82	4164.98	2398.32	-0.07
32	80	27.38	-28.61	-94.31	4920.07	4030.56	-0.06
32	93	51.58	-12.40	-313.82	1365.37	5508.55	-0.11
32	94	57.86	-17.75	-281.89	2379.76	7037.33	4.72e-03
32	95	26.33	-12.22	-64.76	2055.72	4241.52	0.15
32	102	1.56	26.37	-89.14	-4918.94	-708.89	-0.01
32	105	23.01	-5.12	-157.16	565.14	2456.55	-0.05
32	106	17.96	-5.09	-107.35	703.21	2203.14	2.56e-03
32	108	15.86	-3.30	-117.99	365.08	1693.55	-0.04
33	3	-74.03	17.90	-447.06	-1954.24	-7879.51	0.15
33	18	-77.07	46.29	-357.45	-6978.47	-9190.12	0.13
33	24	-52.37	58.41	-150.86	-9585.07	-7218.48	0.06
33	25	-20.89	50.61	31.38	-8734.07	-3868.00	-2.47e-03
33	41	-50.16	22.28	-130.11	-4068.39	-8068.07	1.13e-03

33	55	-18.39	36.71	-70.36	-6191.00	-2495.84	0.03
33	57	-36.87	41.65	-84.90	-7269.26	-5876.09	8.48e-03
33	58	-13.26	-30.13	-165.60	5470.29	-871.43	0.04
33	73	-35.98	14.50	-125.11	-2544.85	-5431.70	0.01
33	87	-17.33	22.88	-90.04	-3778.27	-2160.45	0.03
33	89	-28.18	25.81	-98.58	-4416.32	-4144.86	0.02
33	90	-14.32	-16.29	-145.92	3057.56	-1206.83	0.04
33	93	-51.46	12.37	-313.77	-1350.88	-5477.49	0.10
33	100	-53.49	31.30	-254.03	-4700.36	-6351.23	0.09
33	102	-19.21	34.84	-18.40	-5942.83	-3139.88	9.76e-03
33	103	-37.02	39.38	-116.30	-6438.09	-5036.81	0.04
33	105	-22.96	5.11	-157.14	-558.46	-2442.41	0.05
33	107	-16.50	9.60	-98.06	-1476.85	-1974.89	0.03
33	108	-15.83	3.29	-117.98	-360.35	-1683.64	0.03
34	3	73.75	18.79	-444.44	-1942.95	7860.22	-0.05
34	4	84.61	23.25	-400.17	-3012.78	1.037e+04	0.05
34	24	48.18	56.57	-148.46	-9206.10	6520.50	0.01
34	25	16.82	48.39	32.67	-8360.76	3178.35	0.03
34	39	49.01	21.81	-129.04	-4002.36	7919.27	0.06
34	51	33.02	38.91	-83.83	-6785.63	5247.65	0.05
34	56	16.53	-26.64	-163.93	4911.31	1442.30	-0.02
34	57	14.97	33.63	-70.89	-5632.10	1917.48	4.03e-03
34	71	35.28	14.28	-124.24	-2503.31	5342.27	0.03
34	83	25.90	24.29	-97.70	-4133.27	3775.43	0.03
34	88	16.21	-14.18	-144.72	2732.16	1541.05	-0.02
34	89	15.29	21.17	-90.10	-3452.94	1818.72	-1.95e-03
34	93	51.27	12.99	-311.95	-1343.35	5464.13	-0.04
34	94	58.50	15.97	-282.44	-2056.57	7135.79	0.03
34	102	16.46	33.43	-17.36	-5693.97	2678.86	0.02
34	103	34.22	38.18	-114.63	-6185.45	4570.99	5.76e-03
34	105	22.85	5.40	-156.32	-556.98	2436.74	-0.02
34	107	15.89	9.48	-97.40	-1427.11	1879.68	-4.29e-03
34	108	15.75	3.50	-117.41	-360.39	1679.89	-0.01
35	3	-74.29	17.98	-447.30	-1971.74	-7927.17	0.15
35	18	-77.33	46.38	-357.67	-6997.88	-9238.52	0.13
35	24	-52.54	58.48	-151.00	-9599.45	-7250.18	0.06
35	25	-20.95	50.65	31.33	-8741.02	-3879.44	-2.98e-03
35	41	-50.09	21.25	-131.62	-3887.70	-8042.77	9.17e-04
35	55	-18.00	33.19	-75.21	-5573.78	-2385.99	0.02
35	57	-36.48	38.13	-89.75	-6653.06	-5766.51	8.21e-03
35	58	-13.77	-26.57	-160.91	4845.57	-1001.71	0.04
35	73	-35.96	13.90	-126.03	-2440.06	-5421.18	0.01
35	87	-17.13	20.81	-92.93	-3416.60	-2100.55	0.03
35	89	-27.98	23.75	-101.47	-4055.25	-4085.13	0.02
35	90	-14.64	-14.19	-143.18	2688.38	-1287.15	0.04
35	93	-51.64	12.43	-313.94	-1363.04	-5510.62	0.10
35	100	-53.67	31.36	-254.19	-4713.80	-6384.86	0.09
35	102	-19.26	34.87	-18.46	-5948.72	-3150.91	9.39e-03
35	103	-37.14	39.43	-116.41	-6448.18	-5059.30	0.04
35	105	-23.04	5.14	-157.24	-563.89	-2457.21	0.05
35	107	-16.56	9.62	-98.14	-1481.03	-1985.26	0.03
35	108	-15.88	3.31	-118.06	-364.11	-1693.85	0.03
36	3	73.49	18.71	-444.28	-1925.59	7813.03	-0.06
36	4	84.71	23.84	-399.31	-3050.93	1.035e+04	-0.02
36	24	48.02	56.50	-148.38	-9193.65	6489.90	9.77e-03
36	25	16.76	48.37	32.68	-8355.69	3167.81	0.03
36	35	49.31	21.08	-130.83	-3874.79	7937.83	0.07
36	43	34.13	36.53	-89.84	-6369.19	5332.75	0.08
36	56	18.52	-21.94	-158.99	4067.03	1858.35	-0.01
36	57	12.87	28.90	-75.76	-4780.37	1481.20	-9.41e-03
36	67	35.45	13.93	-125.17	-2441.53	5354.15	0.04
36	75	26.61	23.16	-100.90	-3936.07	3838.42	0.04
36	88	17.36	-11.43	-141.80	2238.58	1781.44	-0.01
36	89	14.04	18.39	-92.95	-2951.92	1558.11	-9.81e-03
36	93	51.09	12.94	-311.84	-1331.28	5431.32	-0.04
36	94	58.57	16.36	-281.86	-2081.51	7119.52	-0.02
36	102	16.41	33.40	-17.34	-5689.35	2668.46	0.02
36	103	34.10	38.13	-114.57	-6176.66	4549.24	5.12e-03
36	105	22.78	5.37	-156.27	-551.59	2422.08	-0.02
36	107	15.84	9.46	-97.37	-1423.21	1869.51	-4.52e-03
36	108	15.70	3.48	-117.38	-356.67	1669.77	-0.01
37	3	-74.55	18.06	-447.47	-1989.25	-7974.67	0.15
37	18	-77.59	46.47	-357.82	-7017.70	-9286.88	0.13
37	24	-52.71	58.55	-151.07	-9614.49	-7281.98	0.06
37	25	-21.02	50.68	31.33	-8748.62	-3891.06	-3.48e-03
37	41	-49.82	19.89	-133.34	-3648.20	-7978.44	-6.37e-04
37	55	-16.97	28.62	-80.88	-4766.50	-2147.55	0.02
37	57	-35.44	33.56	-95.42	-5845.81	-5528.12	3.30e-03

37	58	-14.91	-21.96	-155.31	4030.76	-1260.51	0.05
37	73	-35.86	13.22	-126.93	-2320.75	-5395.29	0.01
37	87	-16.67	18.51	-95.86	-3010.03	-1990.36	0.03
37	89	-27.51	21.45	-104.40	-3648.69	-3974.97	0.02
37	90	-15.21	-11.85	-140.33	2274.29	-1417.70	0.04
37	93	-51.82	12.48	-314.06	-1375.22	-5543.65	0.10
37	100	-53.85	31.43	-254.29	-4727.52	-6418.46	0.09
37	102	-19.32	34.90	-18.48	-5955.03	-3162.05	9.02e-03
37	103	-37.27	39.48	-116.46	-6458.71	-5081.86	0.04
37	105	-23.12	5.16	-157.29	-569.34	-2471.96	0.05
37	107	-16.62	9.64	-98.17	-1485.30	-1995.64	0.03
37	108	-15.94	3.33	-118.09	-367.87	-1704.03	0.03
38	3	73.24	18.63	-444.12	-1908.38	7765.90	-0.06
38	4	84.44	23.76	-399.10	-3034.20	1.030e+04	-0.02
38	24	47.85	56.45	-148.29	-9181.47	6459.38	8.84e-03
38	25	16.71	48.34	32.69	-8350.82	3157.31	0.03
38	35	49.56	22.47	-129.03	-4120.28	7997.29	0.07
38	43	35.07	41.21	-83.92	-7196.04	5554.31	0.09
38	48	14.26	-29.01	-163.70	5336.56	1095.28	-0.07
38	49	17.03	35.93	-70.98	-6042.51	2224.07	0.05
38	67	35.55	14.65	-124.20	-2568.03	5379.44	0.04
38	75	27.05	25.60	-97.75	-4366.29	3946.17	0.05
38	80	14.83	-15.56	-144.53	2980.02	1329.93	-0.04
38	81	16.45	22.48	-90.15	-3685.97	1989.42	0.02
38	93	50.91	12.88	-311.72	-1319.31	5398.56	-0.04
38	94	58.38	16.30	-281.71	-2069.86	7086.18	-0.02
38	102	16.35	33.38	-17.32	-5684.87	2658.10	0.02
38	103	33.99	38.09	-114.51	-6168.04	4527.54	4.48e-03
38	105	22.70	5.35	-156.22	-546.24	2407.45	-0.02
38	107	15.78	9.45	-97.34	-1419.36	1859.36	-4.76e-03
38	108	15.64	3.46	-117.34	-352.98	1659.68	-0.01
39	3	-74.81	18.14	-447.64	-2006.77	-8022.20	0.15
39	18	-77.86	46.57	-357.96	-7037.58	-9335.32	0.13
39	24	-52.88	58.62	-151.15	-9629.62	-7313.88	0.06
39	25	-21.08	50.72	31.33	-8756.30	-3902.75	-3.98e-03
39	37	-49.42	19.62	-133.05	-3612.89	-7927.29	0.02
39	47	-15.50	27.67	-79.83	-4639.37	-1953.23	0.08
39	49	-33.98	32.61	-94.36	-5718.79	-5333.80	0.06
39	50	-16.49	-20.98	-156.43	3896.11	-1475.20	-0.01
39	69	-35.63	12.99	-126.87	-2287.30	-5364.56	0.02
39	79	-15.76	17.69	-95.58	-2889.37	-1864.13	0.06
39	81	-26.61	20.63	-104.11	-3528.10	-3848.74	0.05
39	82	-16.23	-11.00	-140.68	2146.11	-1564.30	6.64e-03
39	93	-52.00	12.54	-314.18	-1387.40	-5576.69	0.10
39	100	-54.04	31.49	-254.39	-4741.27	-6452.11	0.09
39	102	-19.38	34.93	-18.49	-5961.41	-3173.24	8.64e-03
39	103	-37.39	39.53	-116.51	-6469.30	-5104.48	0.04
39	105	-23.20	5.19	-157.34	-574.78	-2486.71	0.05
39	107	-16.67	9.66	-98.20	-1489.59	-2006.02	0.03
39	108	-15.99	3.35	-118.13	-371.63	-1714.22	0.03
40	3	72.98	18.55	-443.92	-1890.85	7718.39	-0.06
40	4	86.03	25.28	-399.64	-3154.96	1.044e+04	-0.17
40	24	47.68	56.38	-148.18	-9168.26	6428.26	7.88e-03
40	25	16.65	48.31	32.74	-8345.06	3146.39	0.03
40	35	49.64	23.70	-127.25	-4337.09	8027.61	0.08
40	43	35.50	45.40	-78.17	-7932.87	5680.61	0.10
40	48	13.72	-33.24	-169.32	6081.95	948.31	-0.08
40	49	17.46	40.13	-65.22	-6780.38	2350.68	0.06
40	67	35.58	15.36	-123.13	-2694.20	5393.22	0.04
40	75	27.29	28.06	-94.34	-4798.77	4016.71	0.06
40	80	14.49	-18.06	-147.80	3420.63	1238.84	-0.05
40	81	16.68	24.95	-86.74	-4119.06	2060.15	0.03
40	93	50.73	12.83	-311.58	-1307.13	5365.53	-0.04
40	94	59.43	17.31	-282.06	-2149.87	7178.29	-0.11
40	102	16.30	33.36	-17.26	-5679.78	2647.43	0.02
40	103	33.87	38.05	-114.42	-6158.73	4505.44	3.81e-03
40	105	22.62	5.32	-156.13	-540.80	2392.70	-0.02
40	107	15.73	9.43	-97.27	-1415.33	1849.08	-5.00e-03
40	108	15.59	3.44	-117.27	-349.22	1649.49	-0.01
41	3	-73.13	-18.52	-444.15	1890.80	-7737.12	0.05
41	12	16.28	1.39	-5.68	-1368.59	3963.86	0.54
41	25	9.84	42.56	-73.86	-7905.71	2755.97	0.07
41	42	-48.43	-27.11	-122.35	4920.06	-7844.33	-0.07
41	56	-19.20	-35.22	-71.97	5945.43	-2684.45	-0.02
41	57	-12.04	28.34	-162.67	-5246.58	-622.66	0.04
41	58	-36.67	-43.00	-82.23	7537.27	-5921.98	-0.06
41	74	-34.87	-17.35	-120.31	3034.64	-5286.45	-0.04
41	88	-17.73	-22.08	-90.71	3631.29	-2259.28	-6.43e-03

41	89	-13.52	15.20	-143.93	-2932.43	-1047.84	0.02
41	90	-27.98	-26.66	-96.75	4567.42	-4159.01	-0.03
41	93	-50.84	-12.81	-311.74	1307.13	-5378.55	0.03
41	95	5.65	-0.22	-42.90	-795.92	2091.39	0.36
41	102	1.36	27.23	-88.34	-5153.99	1286.13	0.05
41	105	-22.66	-5.31	-156.21	540.97	-2398.56	0.01
41	106	-11.37	-2.80	-102.44	120.36	-904.57	0.08
41	107	-12.23	2.69	-111.53	-751.26	-1065.62	0.02
41	108	-15.62	-3.44	-117.32	349.43	-1653.56	9.26e-03
42	3	74.71	-18.09	-447.62	2010.05	8019.88	-0.16
42	4	84.71	-23.59	-397.90	3213.28	1.035e+04	-0.21
42	12	32.65	-12.50	-35.25	2378.11	5604.64	-0.12
42	25	-5.70	41.23	-74.63	-7565.47	-1927.49	-2.91e-03
42	40	47.56	-25.28	-123.72	4598.02	7618.80	-0.02
42	55	16.99	25.77	-163.01	-4680.49	1568.24	-0.01
42	56	32.51	-39.72	-83.74	6917.31	5086.01	-0.04
42	58	14.96	-32.45	-73.24	5425.93	1859.72	-0.06
42	72	34.51	-16.23	-121.42	2854.71	5178.78	-0.02
42	87	16.57	13.74	-144.48	-2592.55	1628.77	-0.02
42	88	25.68	-24.69	-97.94	4214.54	3692.34	-0.04
42	90	15.38	-20.42	-91.78	3337.98	1799.19	-0.05
42	93	51.94	-12.51	-314.17	1389.73	5575.12	-0.11
42	94	58.60	-16.17	-281.01	2191.88	7131.38	-0.14
42	95	27.09	-9.44	-62.87	1709.65	4307.75	-0.09
42	102	1.52	26.37	-89.13	-4919.41	-713.67	-0.01
42	105	23.17	-5.17	-157.33	576.12	2486.21	-0.05
42	106	18.20	-4.56	-107.07	640.10	2232.74	-0.05
42	107	13.08	2.60	-112.33	-685.71	1228.45	-0.03
42	108	15.97	-3.34	-118.13	372.72	1713.98	-0.04
43	3	-73.31	-18.59	-444.31	1904.47	-7769.47	0.05
43	12	21.89	6.72	-3.60	-1817.80	4482.10	0.06
43	25	9.88	42.59	-73.90	-7910.60	2762.33	0.07
43	42	-48.18	-26.03	-123.75	4725.71	-7783.88	-0.06
43	56	-18.27	-31.52	-76.47	5284.13	-2465.18	-5.97e-03
43	57	-13.05	24.62	-158.29	-4579.47	-855.68	0.02
43	58	-35.74	-39.31	-86.73	6877.07	-5703.00	-0.04
43	74	-34.74	-16.72	-121.16	2921.46	-5253.90	-0.03
43	88	-17.20	-19.91	-93.39	3243.33	-2133.72	3.31e-04
43	89	-14.12	13.00	-141.38	-2538.67	-1187.14	0.02
43	90	-27.45	-24.49	-99.43	4180.12	-4033.62	-0.02
43	93	-50.96	-12.85	-311.85	1316.62	-5401.04	0.03
43	95	9.37	3.33	-41.53	-1094.42	2434.59	0.05
43	102	1.37	27.24	-88.39	-5156.29	1288.07	0.05
43	105	-22.72	-5.33	-156.28	545.19	-2408.55	0.01
43	106	-10.65	-2.10	-102.21	62.98	-841.43	0.02
43	107	-12.25	2.69	-111.58	-749.39	-1070.73	0.02
43	108	-15.66	-3.45	-117.38	352.33	-1660.43	9.11e-03
44	3	74.53	-18.03	-447.50	1996.66	7987.50	-0.16
44	4	84.81	-24.53	-399.67	3315.18	1.035e+04	-0.13
44	12	33.06	-14.15	-38.38	2567.41	5639.99	9.39e-03
44	25	-5.67	41.21	-74.63	-7562.31	-1921.89	-3.32e-03
44	36	47.29	-24.39	-124.95	4445.48	7561.59	-0.02
44	47	17.71	22.86	-158.82	-4183.52	1729.42	5.79e-03
44	48	31.72	-36.78	-87.87	6414.79	4911.12	-0.06
44	50	14.16	-29.51	-77.38	4923.28	1684.77	-0.08
44	68	34.36	-15.79	-122.03	2778.50	5146.98	-0.03
44	79	16.91	12.31	-142.33	-2350.35	1705.13	-0.01
44	80	25.26	-23.24	-100.03	3966.73	3602.26	-0.05
44	82	14.96	-18.96	-93.87	3090.10	1709.07	-0.06
44	93	51.81	-12.46	-314.08	1380.42	5552.61	-0.11
44	94	58.66	-16.79	-282.19	2259.44	7125.77	-0.09
44	95	27.35	-10.54	-64.95	1834.90	4329.03	-5.45e-03
44	102	1.53	26.36	-89.12	-4918.25	-712.22	-0.01
44	105	23.11	-5.15	-157.29	571.99	2476.20	-0.05
44	106	18.22	-4.77	-107.47	662.88	2231.48	-0.03
44	107	13.06	2.61	-112.30	-687.75	1223.23	-0.03
44	108	15.94	-3.32	-118.10	369.88	1707.10	-0.04
45	3	-73.48	-18.65	-444.43	1917.99	-7801.62	0.05
45	12	21.68	6.64	-3.69	-1800.19	4441.48	0.06
45	25	9.92	42.62	-73.91	-7915.92	2768.78	0.07
45	42	-47.76	-24.63	-125.36	4473.99	-7688.99	-0.06
45	56	-16.78	-26.81	-81.77	4438.60	-2133.32	1.20e-03
45	57	-14.61	19.88	-153.04	-3728.20	-1201.22	0.02
45	58	-34.25	-34.60	-92.03	6031.50	-5371.07	-0.04
45	74	-34.54	-16.01	-121.98	2794.37	-5208.23	-0.03
45	88	-16.45	-17.51	-96.09	2813.13	-1965.76	3.97e-03
45	89	-14.94	10.58	-138.73	-2102.73	-1368.78	0.01
45	90	-26.70	-22.10	-102.13	3749.90	-3865.62	-0.02

45	93	-51.08	-12.90	-311.94	1326.02	-5423.38	0.03
45	95	9.22	3.27	-41.60	-1081.73	2405.23	0.05
45	102	1.38	27.26	-88.41	-5158.88	1290.09	0.05
45	105	-22.77	-5.35	-156.31	549.37	-2418.49	0.01
45	106	-10.71	-2.12	-102.25	67.82	-852.77	0.02
45	107	-12.28	2.68	-111.61	-747.61	-1075.80	0.02
45	108	-15.69	-3.47	-117.41	355.20	-1667.27	8.96e-03
46	3	74.36	-17.97	-447.37	1983.13	7955.07	-0.16
46	4	84.61	-24.45	-399.51	3299.64	1.031e+04	-0.13
46	12	32.98	-14.12	-38.29	2561.19	5627.00	9.42e-03
46	25	-5.64	41.19	-74.63	-7559.35	-1916.37	-3.75e-03
46	36	47.99	-25.93	-123.42	4720.02	7700.50	-0.02
46	47	15.23	28.05	-163.81	-5111.29	1236.13	0.01
46	48	34.13	-41.94	-82.83	7336.77	5390.55	-0.07
46	50	16.57	-34.67	-72.34	5845.29	2164.26	-0.08
46	68	34.73	-16.59	-121.23	2922.43	5220.76	-0.03
46	79	15.51	15.06	-144.90	-2842.68	1429.07	-5.56e-03
46	80	26.59	-25.96	-97.41	4453.29	3864.48	-0.06
46	82	16.29	-21.68	-91.25	3576.68	1971.33	-0.06
46	93	51.69	-12.42	-313.99	1371.02	5530.07	-0.11
46	94	58.52	-16.74	-282.08	2248.70	7100.79	-0.09
46	95	27.28	-10.51	-64.89	1829.79	4318.06	-5.46e-03
46	102	1.54	26.36	-89.11	-4917.23	-710.85	-0.01
46	105	23.06	-5.13	-157.26	567.80	2466.17	-0.05
46	106	18.18	-4.75	-107.44	659.56	2223.77	-0.03
46	107	13.03	2.62	-112.28	-689.85	1217.99	-0.03
46	108	15.90	-3.31	-118.07	367.00	1700.20	-0.04
47	3	-73.65	-18.71	-444.55	1931.53	-7833.81	0.05
47	12	22.02	7.27	-4.31	-1858.43	4471.17	-1.39e-03
47	25	9.95	42.65	-73.92	-7921.31	2775.25	0.06
47	38	-47.58	-24.41	-125.25	4442.91	-7658.92	-0.07
47	48	-16.11	-26.07	-81.36	4329.07	-2018.12	-0.03
47	49	-15.35	19.11	-153.51	-3612.92	-1330.10	0.05
47	50	-33.58	-33.86	-91.62	5921.84	-5255.70	-0.06
47	70	-34.44	-15.81	-122.03	2763.47	-5189.50	-0.04
47	80	-16.02	-16.82	-96.18	2703.90	-1887.95	-0.01
47	81	-15.44	9.86	-138.68	-1987.75	-1460.28	0.03
47	82	-26.27	-21.41	-102.22	3640.59	-3787.71	-0.03
47	93	-51.20	-12.94	-312.03	1335.43	-5445.75	0.03
47	95	9.44	3.69	-42.02	-1119.59	2422.74	2.12e-03
47	102	1.39	27.27	-88.42	-5161.51	1292.13	0.04
47	105	-22.82	-5.37	-156.35	553.55	-2428.44	0.01
47	106	-10.70	-2.05	-102.35	62.54	-854.74	7.74e-03
47	107	-12.31	2.67	-111.63	-745.84	-1080.86	0.02
47	108	-15.73	-3.48	-117.43	358.08	-1674.11	9.14e-03
48	3	74.19	-17.91	-447.17	1969.81	7922.64	-0.16
48	4	83.60	-25.91	-399.29	3487.51	1.021e+04	0.01
48	12	31.55	-16.64	-38.19	2893.68	5512.28	0.25
48	25	-5.60	41.17	-74.59	-7555.71	-1910.51	-4.19e-03
48	36	48.71	-27.37	-122.02	4979.81	7844.75	-0.03
48	47	12.64	32.97	-168.13	-5995.97	723.66	0.02
48	48	36.64	-46.83	-78.37	8214.73	5888.94	-0.08
48	50	19.09	-39.57	-67.88	6724.31	2662.95	-0.09
48	68	35.14	-17.44	-120.38	3074.31	5303.02	-0.03
48	79	13.97	17.97	-147.41	-3365.00	1123.97	-1.54e-03
48	80	28.06	-28.83	-94.76	4969.34	4155.62	-0.06
48	82	17.76	-24.56	-88.59	4093.34	2262.64	-0.07
48	93	51.57	-12.38	-313.85	1361.76	5507.53	-0.11
48	94	57.85	-17.71	-281.92	2373.56	7035.12	4.76e-03
48	95	26.32	-12.19	-64.79	2050.51	4239.29	0.15
48	102	1.55	26.35	-89.06	-4915.75	-709.24	-0.01
48	105	23.00	-5.11	-157.17	563.69	2456.15	-0.05
48	106	17.95	-5.08	-107.36	701.44	2202.50	2.58e-03
48	108	15.86	-3.30	-118.00	364.17	1693.31	-0.04
49	3	-74.05	17.94	-447.02	-1961.80	-7882.65	0.15
49	18	-75.59	46.49	-361.55	-6980.44	-8985.93	-5.00e-03
49	24	-49.89	58.70	-157.75	-9580.48	-6874.90	-0.16
49	25	-18.40	50.89	24.47	-8726.22	-3523.06	-0.22
49	41	-55.17	24.61	-132.44	-4532.77	-8985.67	-7.71e-03
49	55	-16.89	36.02	-69.66	-6053.19	-2220.78	0.03
49	57	-38.37	42.35	-85.60	-7409.27	-6151.30	5.81e-03
49	58	-14.77	-29.42	-166.28	5329.55	-1147.74	0.04
49	73	-38.92	15.85	-126.47	-2815.78	-5970.30	9.15e-03
49	87	-16.46	22.48	-89.63	-3698.67	-1999.33	0.03
49	89	-29.06	26.22	-98.99	-4498.43	-4306.59	0.02
49	90	-15.21	-15.88	-146.31	2975.02	-1369.19	0.04
49	93	-51.48	12.40	-313.74	-1356.11	-5479.67	0.10
49	100	-52.50	31.43	-256.77	-4701.87	-6215.19	1.23e-03

49	102	-17.55	35.03	-23.01	-5938.09	-2910.13	-0.14
49	103	-35.37	39.57	-120.90	-6435.23	-4807.83	-0.10
49	105	-22.96	5.12	-157.12	-560.68	-2443.34	0.05
49	107	-16.17	9.65	-98.98	-1477.08	-1929.43	-2.34e-04
49	108	-15.83	3.30	-117.97	-361.82	-1684.26	0.03
50	3	73.75	18.82	-444.41	-1948.24	7861.71	-0.05
50	4	84.62	23.30	-400.12	-3022.04	1.037e+04	0.05
50	24	46.83	54.53	-145.81	-9023.40	6449.29	0.23
50	25	15.46	46.35	35.30	-8175.75	3106.48	0.25
50	39	53.86	23.72	-131.77	-4400.91	8810.38	0.08
50	55	34.87	39.31	-85.79	-6886.49	5580.78	0.05
50	56	17.98	-26.06	-164.73	4791.08	1709.18	-0.02
50	57	13.52	33.06	-70.07	-5513.71	1651.07	-8.47e-04
50	71	38.12	15.40	-125.83	-2736.32	5865.26	0.04
50	87	26.97	24.53	-98.85	-4192.37	3969.15	0.02
50	88	17.06	-13.84	-145.18	2661.59	1697.76	-0.02
50	89	14.44	20.84	-89.62	-3384.23	1662.50	-4.78e-03
50	93	51.27	13.01	-311.92	-1347.00	5465.15	-0.04
50	94	58.51	16.00	-282.40	-2062.87	7138.01	0.03
50	102	15.56	32.07	-15.60	-5570.94	2631.03	0.16
50	103	33.32	36.82	-112.86	-6063.78	4523.54	0.15
50	105	22.86	5.40	-156.31	-558.45	2437.13	-0.02
50	107	15.71	9.21	-97.04	-1403.24	1870.31	0.02
50	108	15.75	3.50	-117.40	-361.32	1680.13	-0.01
51	3	-74.31	18.02	-447.26	-1979.32	-7930.33	0.15
51	18	-75.89	46.59	-361.81	-7002.27	-9042.04	-6.25e-03
51	24	-50.12	58.78	-157.94	-9598.87	-6919.43	-0.16
51	25	-18.53	50.93	24.37	-8737.16	-3547.33	-0.23
51	41	-55.09	23.58	-133.95	-4352.44	-8960.58	-7.94e-03
51	55	-16.50	32.50	-74.51	-5436.10	-2111.30	0.03
51	57	-37.98	38.84	-90.45	-6793.37	-6042.16	5.54e-03
51	58	-15.27	-25.86	-161.59	4704.94	-1277.65	0.04
51	73	-38.90	15.25	-127.39	-2711.20	-5959.90	8.96e-03
51	87	-16.25	20.42	-92.52	-3337.07	-1939.66	0.03
51	89	-28.86	24.16	-101.88	-4137.54	-4247.11	0.02
51	90	-15.52	-13.78	-143.58	2605.91	-1449.29	0.04
51	93	-51.66	12.46	-313.91	-1368.29	-5512.82	0.10
51	100	-52.71	31.50	-256.94	-4716.92	-6253.96	3.80e-04
51	102	-17.65	35.06	-23.10	-5946.64	-2929.71	-0.14
51	103	-35.53	39.63	-121.04	-6447.99	-4838.88	-0.10
51	105	-23.04	5.15	-157.22	-566.13	-2458.14	0.05
51	107	-16.24	9.67	-99.06	-1481.79	-1941.52	-5.09e-04
51	108	-15.89	3.32	-118.05	-365.58	-1694.47	0.03
52	3	73.50	18.74	-444.24	-1930.85	7814.50	-0.06
52	4	84.72	23.88	-399.26	-3058.44	1.035e+04	-0.02
52	24	46.59	54.44	-145.73	-9004.70	6405.57	0.22
52	25	15.34	46.29	35.31	-8164.43	3082.83	0.25
52	35	54.15	23.00	-133.55	-4273.44	8829.01	0.09
52	47	35.98	36.94	-91.80	-6470.25	5665.97	0.08
52	56	19.97	-21.36	-159.79	3946.63	2125.65	-6.52e-03
52	57	11.42	28.33	-74.95	-4661.80	1214.37	-0.01
52	67	38.29	15.05	-126.77	-2674.60	5877.18	0.05
52	79	27.68	23.40	-102.05	-3995.29	4032.20	0.04
52	88	18.21	-11.09	-142.27	2167.92	1938.39	-8.17e-03
52	89	13.19	18.06	-92.47	-2883.09	1401.63	-0.01
52	93	51.09	12.96	-311.81	-1334.91	5432.33	-0.04
52	94	58.57	16.39	-281.82	-2086.64	7121.24	-0.02
52	102	15.46	32.02	-15.58	-5562.15	2611.89	0.16
52	103	33.16	36.76	-112.81	-6050.81	4493.05	0.15
52	105	22.78	5.38	-156.26	-553.05	2422.48	-0.02
52	107	15.65	9.19	-97.01	-1398.50	1858.39	0.02
52	108	15.70	3.48	-117.37	-357.59	1670.01	-0.01
53	3	-74.56	18.10	-447.42	-1996.86	-7977.85	0.15
53	18	-76.19	46.70	-361.97	-7025.18	-9098.21	-7.49e-03
53	24	-50.36	58.88	-158.04	-9619.04	-6964.22	-0.16
53	25	-18.66	51.00	24.34	-8749.89	-3571.93	-0.23
53	41	-54.82	22.23	-135.67	-4113.04	-8896.44	-9.49e-03
53	55	-15.47	27.93	-80.18	-4629.10	-1873.37	0.02
53	57	-36.95	34.27	-96.12	-5986.40	-5804.28	6.38e-04
53	58	-16.41	-21.26	-155.99	3890.40	-1535.95	0.05
53	73	-38.80	14.57	-128.30	-2591.95	-5934.13	8.00e-03
53	87	-15.79	18.12	-95.45	-2930.67	-1829.77	0.03
53	89	-28.40	21.86	-104.80	-3731.15	-4137.26	0.01
53	90	-16.10	-11.44	-140.72	2191.97	-1579.55	0.04
53	93	-51.84	12.51	-314.03	-1380.49	-5545.85	0.10
53	100	-52.92	31.58	-257.06	-4732.70	-6292.76	-4.61e-04
53	102	-17.75	35.11	-23.13	-5956.37	-2949.51	-0.14
53	103	-35.70	39.70	-121.11	-6461.94	-4870.10	-0.10

53	105	-23.12	5.17	-157.27	-571.58	-2472.90	0.05
53	107	-16.30	9.69	-99.09	-1486.75	-1953.63	-7.81e-04
53	108	-15.94	3.34	-118.08	-369.35	-1704.66	0.03
54	3	73.24	18.66	-444.08	-1913.61	7767.36	-0.06
54	4	84.46	23.80	-399.05	-3041.68	1.030e+04	-0.02
54	24	46.36	54.35	-145.65	-8986.23	6361.87	0.22
54	25	15.21	46.23	35.32	-8153.29	3059.16	0.25
54	35	54.40	24.39	-131.75	-4518.88	8888.37	0.09
54	47	36.92	41.61	-85.89	-7296.87	5887.16	0.09
54	48	15.71	-28.43	-164.51	5216.28	1362.52	-0.06
54	49	15.58	35.36	-70.16	-5924.06	1957.30	0.04
54	67	38.39	15.77	-125.80	-2801.06	5902.41	0.05
54	79	28.13	25.84	-98.90	-4425.38	4139.73	0.05
54	80	15.69	-15.22	-145.00	2909.43	1486.83	-0.04
54	81	15.60	22.15	-89.67	-3617.21	1832.99	0.02
54	93	50.91	12.90	-311.70	-1322.93	5399.56	-0.04
54	94	58.39	16.33	-281.68	-2074.97	7087.88	-0.02
54	102	15.36	31.98	-15.56	-5553.49	2592.74	0.16
54	103	32.99	36.69	-112.74	-6038.01	4462.57	0.15
54	105	22.70	5.35	-156.21	-547.70	2407.84	-0.02
54	107	15.59	9.17	-96.98	-1393.81	1846.48	0.02
54	108	15.64	3.47	-117.33	-353.89	1659.91	-0.01
55	3	-74.82	18.19	-447.59	-2014.42	-8025.40	0.15
55	18	-76.50	46.81	-362.13	-7048.21	-9154.52	-8.74e-03
55	24	-50.60	58.98	-158.14	-9639.39	-7009.21	-0.17
55	25	-18.79	51.06	24.31	-8762.77	-3596.71	-0.23
55	37	-54.42	21.95	-135.38	-4077.82	-8845.24	8.18e-03
55	47	-14.00	26.98	-79.13	-4501.69	-1678.65	0.08
55	49	-35.48	33.32	-95.07	-5859.19	-5609.61	0.06
55	50	-17.99	-20.27	-157.11	3755.46	-1751.05	-0.01
55	69	-38.57	14.34	-128.23	-2558.56	-5903.37	0.02
55	79	-14.88	17.30	-95.16	-2809.85	-1703.31	0.06
55	81	-27.49	21.04	-104.52	-3610.45	-4010.82	0.05
55	82	-17.11	-10.59	-141.08	2063.62	-1726.39	5.09e-03
55	93	-52.01	12.57	-314.14	-1392.70	-5578.91	0.10
55	100	-53.13	31.65	-257.17	-4748.56	-6331.66	-1.31e-03
55	102	-17.86	35.16	-23.17	-5966.22	-2969.42	-0.14
55	103	-35.87	39.76	-121.18	-6476.01	-4901.46	-0.11
55	105	-23.20	5.20	-157.32	-577.03	-2487.66	0.05
55	107	-16.37	9.72	-99.13	-1491.74	-1965.76	-1.06e-03
55	108	-16.00	3.36	-118.12	-373.12	-1714.85	0.03
56	3	72.99	18.58	-443.88	-1896.06	7719.82	-0.06
56	4	86.04	25.33	-399.58	-3164.00	1.044e+04	-0.17
56	24	46.12	54.24	-145.56	-8965.47	6317.08	0.22
56	25	15.08	46.15	35.34	-8139.99	3034.57	0.24
56	35	54.48	25.62	-129.97	-4735.38	8918.55	0.09
56	47	37.35	45.80	-80.13	-8033.37	6013.14	0.10
56	48	15.17	-32.66	-170.12	5961.51	1215.86	-0.07
56	49	16.01	39.56	-64.40	-6661.76	2083.60	0.05
56	67	38.42	16.48	-124.73	-2927.04	5916.10	0.05
56	79	28.36	28.30	-95.48	-4857.67	4210.08	0.05
56	80	15.34	-17.72	-148.27	3349.95	1395.92	-0.05
56	81	15.83	24.62	-86.25	-4050.20	1903.53	0.03
56	93	50.74	12.85	-311.56	-1310.72	5366.51	-0.04
56	94	59.44	17.35	-282.02	-2156.02	7180.45	-0.11
56	102	15.25	31.92	-15.53	-5543.37	2572.96	0.16
56	103	32.83	36.62	-112.67	-6023.67	4431.35	0.15
56	105	22.62	5.33	-156.12	-542.24	2393.08	-0.02
56	107	15.52	9.14	-96.92	-1388.77	1834.37	0.02
56	108	15.59	3.45	-117.26	-350.12	1649.73	-0.01
57	3	-73.12	-18.48	-444.16	1883.31	-7734.07	0.05
57	12	16.25	1.37	-5.60	-1363.92	3960.13	0.54
57	25	4.22	34.29	-67.95	-7094.68	2289.83	0.65
57	42	-51.68	-27.70	-125.73	5067.66	-8442.65	-0.07
57	56	-18.18	-35.02	-70.94	5898.20	-2500.81	-8.53e-03
57	57	-13.05	28.16	-163.65	-5202.25	-805.11	0.03
57	58	-37.61	-43.16	-83.24	7579.64	-6098.24	-0.05
57	74	-36.79	-17.69	-122.28	3120.42	-5638.08	-0.04
57	88	-17.13	-21.96	-90.09	3603.04	-2151.03	-1.01e-03
57	89	-14.11	15.09	-144.49	-2907.09	-1154.89	0.02
57	90	-28.53	-26.75	-97.33	4591.62	-4262.43	-0.03
57	93	-50.83	-12.78	-311.74	1301.94	-5376.44	0.03
57	95	5.63	-0.23	-42.83	-793.29	2089.10	0.36
57	102	-2.39	21.71	-84.39	-4613.79	975.57	0.44
57	105	-22.66	-5.30	-156.18	538.77	-2397.66	0.01
57	106	-11.37	-2.79	-102.40	119.72	-904.55	0.08
57	107	-12.97	1.60	-110.71	-644.38	-1127.26	0.09
57	108	-15.62	-3.43	-117.29	347.97	-1652.96	9.59e-03

58	3	74.70	-18.06	-447.61	2004.67	8018.35	-0.16
58	4	84.70	-23.54	-397.91	3204.00	1.035e+04	-0.21
58	12	32.64	-12.46	-35.26	2370.67	5602.22	-0.12
58	25	-1.25	46.41	-76.18	-8068.22	-1324.37	-0.61
58	40	50.93	-26.08	-126.60	4784.93	8238.12	-8.96e-03
58	55	18.03	25.52	-163.84	-4623.86	1757.82	-0.01
58	56	33.50	-39.95	-84.58	6971.70	5268.32	-0.04
58	58	13.91	-32.19	-72.34	5367.41	1669.63	-0.06
58	72	36.49	-16.70	-123.09	2963.87	5542.93	-0.02
58	87	17.19	13.60	-144.95	-2559.74	1740.17	-0.02
58	88	26.26	-24.83	-98.42	4246.03	3799.47	-0.04
58	90	14.76	-20.26	-91.23	3303.29	1687.28	-0.05
58	93	51.93	-12.48	-314.15	1386.01	5574.07	-0.11
58	94	58.60	-16.13	-281.02	2185.57	7129.46	-0.14
58	95	27.08	-9.41	-62.87	1704.37	4306.06	-0.09
58	102	4.49	29.83	-90.15	-5254.89	-311.67	-0.42
58	105	23.16	-5.16	-157.30	574.62	2485.79	-0.05
58	106	18.20	-4.55	-107.05	638.29	2232.19	-0.05
58	107	13.68	3.30	-112.50	-753.56	1308.65	-0.11
58	108	15.97	-3.33	-118.09	371.78	1713.73	-0.04
59	3	-73.29	-18.54	-444.31	1896.95	-7766.40	0.05
59	12	21.88	6.71	-3.55	-1815.52	4480.95	0.06
59	25	4.34	34.36	-67.91	-7106.72	2310.25	0.65
59	42	-51.44	-26.62	-127.13	4873.52	-8382.29	-0.07
59	56	-17.25	-31.33	-75.44	5236.89	-2281.69	2.49e-03
59	57	-14.06	24.44	-159.27	-4535.15	-1037.98	0.02
59	58	-36.69	-39.48	-87.74	6919.55	-5879.43	-0.04
59	74	-36.66	-17.06	-123.13	3007.36	-5605.58	-0.04
59	88	-16.60	-19.79	-92.77	3215.08	-2025.56	5.42e-03
59	89	-14.71	12.90	-141.94	-2513.34	-1294.11	0.01
59	90	-28.00	-24.58	-100.01	4204.38	-4137.14	-0.02
59	93	-50.95	-12.82	-311.85	1311.41	-5398.91	0.03
59	95	9.37	3.32	-41.49	-1093.39	2434.02	0.05
59	102	-2.32	21.76	-84.39	-4620.86	986.89	0.43
59	105	-22.71	-5.32	-156.25	542.98	-2407.65	0.01
59	106	-10.65	-2.09	-102.18	62.02	-841.07	0.02
59	107	-12.99	1.60	-110.76	-643.48	-1130.49	0.09
59	108	-15.65	-3.44	-117.35	350.87	-1659.84	9.44e-03
60	3	74.53	-18.00	-447.48	1991.31	7985.99	-0.16
60	4	84.80	-24.48	-399.66	3307.54	1.034e+04	-0.13
60	12	33.05	-14.12	-38.37	2562.67	5638.03	9.48e-03
60	25	-1.13	46.35	-76.20	-8058.57	-1304.99	-0.61
60	36	50.67	-25.20	-127.82	4632.51	8181.27	-0.02
60	47	18.75	22.62	-159.65	-4127.37	1917.79	7.90e-03
60	48	32.71	-37.02	-88.72	6469.66	5094.64	-0.06
60	50	13.12	-29.26	-76.48	4865.24	1495.90	-0.08
60	68	36.34	-16.26	-123.71	2887.74	5511.34	-0.02
60	79	17.52	12.17	-142.80	-2317.81	1815.83	-9.09e-03
60	80	25.85	-23.37	-100.52	3998.50	3710.08	-0.05
60	82	14.35	-18.81	-93.33	3055.69	1597.87	-0.06
60	93	51.81	-12.44	-314.06	1376.73	5551.57	-0.11
60	94	58.66	-16.76	-282.18	2254.22	7124.05	-0.09
60	95	27.34	-10.52	-64.93	1831.42	4327.64	-5.39e-03
60	102	4.56	29.80	-90.15	-5249.40	-301.05	-0.42
60	105	23.11	-5.14	-157.26	570.50	2475.79	-0.05
60	106	18.22	-4.76	-107.44	661.44	2231.00	-0.03
60	107	13.66	3.30	-112.48	-754.73	1305.27	-0.11
60	108	15.94	-3.32	-118.06	368.94	1706.85	-0.04
61	3	-73.46	-18.61	-444.43	1910.45	-7798.54	0.05
61	12	21.67	6.63	-3.64	-1797.94	4440.34	0.06
61	25	4.45	34.41	-67.88	-7116.76	2329.88	0.65
61	42	-51.02	-25.21	-128.73	4621.79	-8287.43	-0.07
61	56	-15.77	-26.62	-80.74	4391.39	-1950.01	8.50e-03
61	57	-15.61	19.70	-154.02	-3683.92	-1383.33	0.01
61	58	-35.20	-34.77	-93.04	6074.01	-5547.68	-0.04
61	74	-36.46	-16.35	-123.95	2880.26	-5559.92	-0.04
61	88	-15.85	-17.39	-95.47	2784.88	-1857.67	8.45e-03
61	89	-15.53	10.48	-139.29	-2077.41	-1475.67	0.01
61	90	-27.26	-22.19	-102.70	3774.16	-3969.20	-0.02
61	93	-51.07	-12.87	-311.94	1320.80	-5421.25	0.03
61	95	9.22	3.26	-41.56	-1080.71	2404.67	0.05
61	102	-2.26	21.79	-84.38	-4626.60	997.70	0.43
61	105	-22.77	-5.34	-156.29	547.15	-2417.59	0.01
61	106	-10.71	-2.11	-102.21	66.85	-852.40	0.02
61	107	-13.01	1.59	-110.78	-642.33	-1133.80	0.09
61	108	-15.69	-3.46	-117.38	353.74	-1666.67	9.29e-03
62	3	74.35	-17.94	-447.35	1977.81	7953.56	-0.16
62	4	84.60	-24.41	-399.50	3292.04	1.031e+04	-0.13

62	12	32.97	-14.09	-38.28	2556.46	5625.04	9.51e-03
62	25	-1.02	46.30	-76.21	-8049.20	-1285.89	-0.61
62	36	51.37	-26.74	-126.29	4907.02	8320.13	-0.02
62	47	16.26	27.80	-164.64	-5055.04	1424.60	0.02
62	48	35.12	-42.17	-83.68	7391.56	5573.96	-0.07
62	50	15.53	-34.41	-71.44	5787.18	1975.29	-0.09
62	68	36.72	-17.06	-122.90	3031.66	5585.10	-0.02
62	79	16.12	14.92	-145.37	-2810.09	1539.81	-4.37e-03
62	80	27.18	-26.09	-97.90	4485.02	3972.26	-0.06
62	82	15.68	-21.53	-90.71	3542.23	1860.09	-0.07
62	93	51.69	-12.40	-313.97	1367.35	5529.03	-0.11
62	94	58.52	-16.71	-282.07	2243.50	7099.07	-0.09
62	95	27.28	-10.50	-64.86	1826.33	4316.68	-5.40e-03
62	102	4.62	29.76	-90.16	-5244.11	-290.61	-0.42
62	105	23.06	-5.12	-157.23	566.32	2465.77	-0.05
62	106	18.17	-4.74	-107.40	658.12	2223.29	-0.03
62	107	13.64	3.31	-112.46	-755.97	1301.84	-0.11
62	108	15.90	-3.31	-118.04	366.07	1699.95	-0.04
63	3	-73.64	-18.67	-444.56	1923.94	-7830.70	0.05
63	12	22.02	7.25	-4.24	-1854.21	4469.61	-1.32e-03
63	25	4.56	34.46	-72.86	-7126.86	2349.42	0.65
63	38	-50.84	-25.00	-128.63	4590.55	-8257.25	-0.08
63	48	-15.10	-25.87	-80.32	4281.79	-1834.74	-0.02
63	49	-16.35	18.93	-154.49	-3568.58	-1512.27	0.04
63	50	-34.53	-34.02	-92.62	5964.21	-5432.20	-0.07
63	70	-36.36	-16.15	-124.00	2849.27	-5541.14	-0.04
63	80	-15.42	-16.70	-95.56	2675.62	-1779.86	-0.01
63	81	-16.03	9.76	-139.25	-1962.41	-1567.15	0.03
63	82	-26.83	-21.50	-102.80	3664.77	-3891.27	-0.04
63	93	-51.19	-12.91	-312.02	1330.18	-5443.60	0.03
63	95	9.43	3.68	-41.96	-1117.27	2421.91	2.17e-03
63	102	-2.20	21.82	-84.37	-4632.37	1008.44	0.43
63	105	-22.82	-5.36	-156.33	551.32	-2427.53	0.01
63	106	-10.70	-2.04	-102.32	61.83	-854.42	7.75e-03
63	107	-13.02	1.59	-110.80	-641.19	-1137.12	0.09
63	108	-15.73	-3.47	-117.41	356.60	-1673.51	9.14e-03
64	3	74.18	-17.88	-447.16	1964.50	7921.13	-0.16
64	4	83.58	-25.86	-399.29	3478.22	1.021e+04	0.01
64	12	31.53	-16.59	-38.19	2886.11	5508.38	0.25
64	25	-0.91	46.26	-76.15	-8041.42	-1266.80	-0.61
64	36	52.09	-28.17	-124.90	5166.53	8464.18	-0.02
64	47	13.68	32.72	-168.95	-5939.58	912.50	0.02
64	48	37.62	-47.06	-79.22	8269.24	6071.94	-0.08
64	50	18.04	-39.31	-66.98	6666.07	2473.61	-0.09
64	68	37.13	-17.90	-122.05	3183.38	5667.25	-0.03
64	79	14.58	17.82	-147.88	-3332.33	1234.92	-3.72e-04
64	80	28.64	-28.97	-95.24	5000.91	4263.16	-0.06
64	82	17.15	-24.41	-88.05	4058.82	2151.19	-0.07
64	93	51.57	-12.36	-313.83	1358.10	5506.49	-0.11
64	94	57.84	-17.68	-281.92	2367.25	7032.63	4.81e-03
64	95	26.31	-12.16	-64.79	2045.15	4236.61	0.15
64	102	4.68	29.74	-90.09	-5239.87	-280.18	-0.42
64	105	23.00	-5.11	-157.14	562.21	2455.74	-0.05
64	106	17.95	-5.07	-107.33	699.62	2201.77	2.59e-03
64	107	13.63	3.31	-112.39	-757.38	1298.41	-0.11
64	108	15.86	-3.29	-117.97	363.24	1693.05	-0.04
Nodo		Azione X	Azione Y	Azione Z	Azione RX	Azione RY	Azione RZ
		-83.54	-47.06	-447.68	-1.093e+04	-1.014e+04	-1.18
		86.04	73.64	44.87	8269.24	1.044e+04	1.25

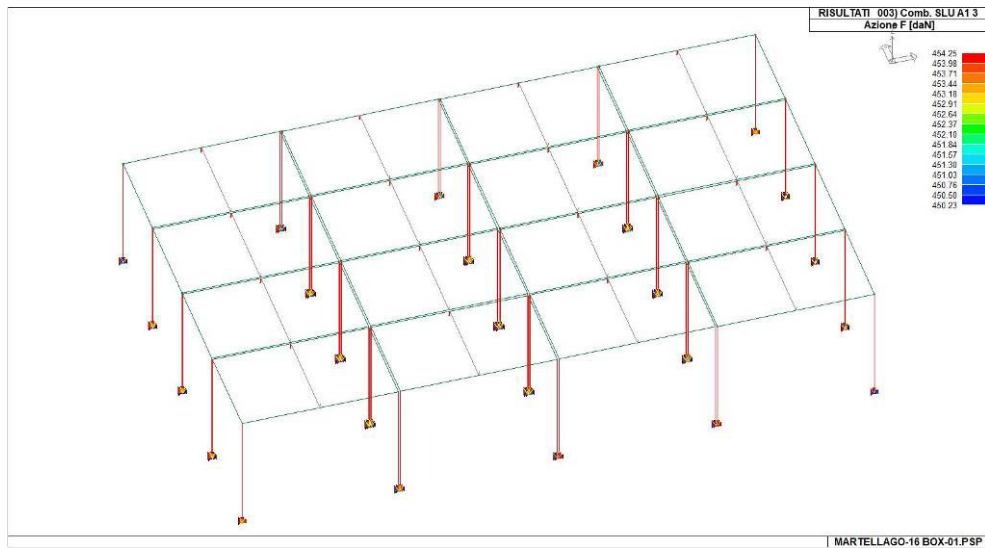
Nodo	Cmb	Azione X daN	Azione Y daN	Azione Z daN	Azione RX daN cm	Azione RY daN cm	Azione RZ daN cm
1	3	-74.00	17.81	-447.10	-1939.16	-7873.40	0.15
	25	-29.89	40.93	28.74	-7875.24	-5123.97	1.19
	24	-61.36	48.69	-153.53	-8719.73	-8471.82	1.25
	52	7.61	-36.26	-150.51	6796.45	2963.07	0.07
	18	-82.44	40.40	-359.08	-6449.85	-9938.32	0.84
2	32	26.57	-19.67	-104.12	4169.92	6221.22	0.12
	3	73.73	18.73	-444.48	-1932.29	7857.07	-0.05
	25	27.93	65.49	44.83	-1.009e+04	4092.63	-1.15
	24	59.28	73.64	-136.32	-1.093e+04	7433.39	-1.17
	54	-4.16	-32.62	-149.04	6223.99	-2374.83	-0.08
3	34	-25.10	-17.73	-103.16	3875.93	-5976.10	-0.14
	4	84.57	23.15	-400.24	-2993.96	1.036e+04	0.05
	3	-74.26	17.89	-447.34	-1956.60	-7921.03	0.15
	25	-30.13	41.07	28.56	-7900.02	-5169.72	1.19
	24	-61.71	48.86	-153.80	-8751.91	-8537.81	1.25
4	52	7.11	-32.71	-145.82	6172.61	2832.82	0.07
	18	-82.81	40.56	-359.38	-6479.91	-1.001e+04	0.84
	32	26.38	-18.61	-102.76	3981.95	6175.51	0.12
	3	73.48	18.65	-444.31	-1914.99	7809.92	-0.06
	25	27.69	65.38	44.85	-1.007e+04	4048.35	-1.15
5	24	58.94	73.49	-136.23	-1.090e+04	7369.06	-1.18
	46	-5.39	-30.28	-142.96	5815.05	-2481.03	-0.11
	30	-25.51	-17.04	-101.31	3755.89	-6015.24	-0.15
	4	84.68	23.76	-399.36	-3035.79	1.034e+04	-0.02
	3	-74.52	17.97	-447.51	-1974.05	-7968.49	0.15
6	25	-30.36	41.17	28.49	-7920.64	-5214.26	1.18
	24	-62.05	48.99	-153.94	-8779.94	-8602.52	1.25
	52	5.96	-28.10	-140.22	5357.77	2574.12	0.08
	18	-83.18	40.69	-359.57	-6507.48	-1.008e+04	0.84
	32	26.00	-17.22	-101.11	3734.99	6090.91	0.12
7	3	73.22	18.57	-444.15	-1897.84	7762.83	-0.06
	25	27.46	65.27	44.87	-1.005e+04	4004.44	-1.16
	24	58.60	73.35	-136.15	-1.088e+04	7305.15	-1.18
	46	-6.43	-34.99	-148.80	6649.33	-2722.55	-0.12
	30	-25.87	-18.47	-103.04	4008.80	-6094.87	-0.15
8	4	84.42	23.68	-399.15	-3019.12	1.029e+04	-0.02
	3	-74.78	18.06	-447.67	-1991.52	-8015.98	0.15
	25	-30.59	41.26	28.43	-7941.20	-5258.59	1.18
	24	-62.39	49.12	-154.06	-8807.92	-8667.03	1.24
	44	4.39	-27.12	-141.35	5223.39	2359.42	0.02
9	18	-83.54	40.81	-359.75	-6535.04	-1.014e+04	0.84
	28	25.49	-16.91	-101.48	3692.12	6019.42	0.10
	3	72.97	18.49	-443.95	-1880.37	7715.35	-0.06
	25	27.24	65.20	44.84	-1.003e+04	3961.22	-1.16
	24	58.27	73.24	-136.09	-1.085e+04	7241.75	-1.18
10	46	-6.97	-39.21	-154.42	7394.03	-2869.64	-0.13
	30	-26.06	-19.73	-104.68	4233.30	-6145.78	-0.16
	4	86.00	25.18	-399.70	-3137.02	1.043e+04	-0.17
	3	-73.16	-18.61	-444.06	1905.75	-7743.27	0.05
	12	16.30	1.44	-5.72	-1376.64	3967.69	0.54
11	25	12.52	46.80	-68.98	-8296.96	2878.29	-0.38
	54	-36.20	-42.34	-82.90	7421.07	-5843.51	-0.06
	3	-73.16	-18.61	-444.06	1905.75	-7743.27	0.05
	31	15.63	17.98	-110.01	-3822.88	4271.79	0.12
	3	74.72	-18.15	-447.55	2020.69	8022.94	-0.15
12	12	32.68	-12.58	-35.16	2393.59	5611.34	-0.12
	25	-10.57	40.79	-88.94	-7608.45	-2612.35	0.43
	52	32.14	-39.30	-84.13	6859.28	5032.92	-0.03
	33	-14.36	17.16	-111.19	-3650.88	-4010.23	-0.09
	4	84.74	-23.69	-397.78	3232.10	1.036e+04	-0.21
13	3	-73.34	-18.67	-444.21	1919.48	-7775.65	0.05
	12	21.90	6.75	-3.63	-1822.53	4484.74	0.06
	25	12.75	46.86	-68.87	-8311.95	2918.76	-0.38
	54	-35.28	-38.66	-87.40	6761.05	-5624.89	-0.05
	3	-73.34	-18.67	-444.21	1919.48	-7775.65	0.05
14	12	21.90	6.75	-3.63	-1822.53	4484.74	0.06
	3	74.55	-18.09	-447.42	2007.25	7990.53	-0.16
	12	33.08	-14.20	-38.33	2577.08	5644.53	9.19e-03
	25	-10.33	40.67	-88.98	-7588.63	-2571.37	0.42
	44	31.34	-36.36	-88.27	6356.45	4857.75	-0.05
15	29	-14.17	16.30	-109.91	-3503.82	-3966.66	-0.08
	4	84.83	-24.61	-399.57	3330.47	1.035e+04	-0.13
	3	-73.51	-18.73	-444.34	1933.06	-7807.83	0.05
12	21.69	6.67	-3.72	-1804.87	4444.10	0.06	

	25	12.98	46.95	-68.77	-8329.62	2959.62	-0.39
	54	-33.79	-33.95	-92.70	5915.58	-5293.19	-0.04
	3	-73.51	-18.73	-444.34	1933.06	-7807.83	0.05
14	12	21.69	6.67	-3.72	-1804.87	4444.10	0.06
	3	74.37	-18.03	-447.30	1993.67	7958.06	-0.16
	12	33.00	-14.17	-38.24	2570.84	5631.53	9.22e-03
	25	-10.09	40.55	-89.02	-7569.00	-2530.39	0.42
	44	33.76	-41.52	-83.23	7278.59	5337.32	-0.06
	29	-14.94	17.87	-111.39	-3784.15	-4119.39	-0.08
	4	84.63	-24.54	-399.41	3314.87	1.032e+04	-0.13
15	3	-73.68	-18.80	-444.46	1946.65	-7840.04	0.05
	12	22.04	7.32	-4.36	-1867.15	4475.23	-1.55e-03
	25	13.22	47.04	-68.68	-8347.40	3000.71	-0.39
	46	-33.12	-33.20	-92.29	5805.91	-5177.37	-0.08
	3	-73.68	-18.80	-444.46	1946.65	-7840.04	0.05
	12	22.04	7.32	-4.36	-1867.15	4475.23	-1.55e-03
16	3	74.20	-17.97	-447.10	1980.29	7925.59	-0.16
	12	31.58	-16.72	-38.11	2908.39	5518.70	0.25
	25	-9.84	40.41	-88.96	-7546.13	-2488.07	0.42
	44	36.26	-46.41	-78.76	8156.48	5835.31	-0.07
	29	-15.73	19.33	-112.64	-4049.24	-4277.17	-0.08
	4	83.63	-26.01	-399.17	3505.73	1.022e+04	0.01
17	3	-74.02	17.85	-447.11	-1946.74	-7876.48	0.15
	25	-20.95	50.81	31.52	-8770.56	-3880.56	5.78e-03
	24	-52.42	58.59	-150.74	-9618.31	-7229.73	0.07
	52	6.22	-35.64	-151.27	6671.81	2705.30	0.04
	18	-77.09	46.37	-357.41	-6993.73	-9194.98	0.13
	32	21.85	-17.61	-106.54	3755.26	5354.40	0.10
18	3	73.74	18.76	-444.48	-1937.60	7858.60	-0.05
	25	16.87	48.57	32.80	-8393.62	3189.87	0.03
	24	48.22	56.73	-148.35	-9236.61	6531.30	0.01
	54	-2.81	-32.09	-149.89	6113.47	-2124.61	-0.07
	34	-20.52	-15.95	-105.89	3505.81	-5130.89	-0.12
	4	84.59	23.20	-400.23	-3003.48	1.036e+04	0.05
19	3	-74.28	17.94	-447.35	-1964.20	-7924.12	0.15
	25	-21.01	50.84	31.47	-8777.54	-3892.04	5.29e-03
	24	-52.59	58.66	-150.88	-9632.71	-7261.46	0.07
	52	5.72	-32.09	-146.58	6048.07	2575.28	0.04
	18	-77.35	46.46	-357.63	-7013.14	-9243.39	0.13
	32	21.67	-16.55	-105.18	3567.01	5308.66	0.10
20	3	73.49	18.68	-444.32	-1920.27	7811.42	-0.06
	25	16.81	48.54	32.81	-8388.53	3179.28	0.03
	24	48.06	56.67	-148.27	-9224.16	6500.67	9.97e-03
	46	-4.03	-29.75	-143.81	5704.34	-2229.88	-0.10
	30	-20.93	-15.26	-104.04	3385.73	-5169.73	-0.13
	4	84.70	23.80	-399.36	-3043.41	1.034e+04	-0.02
21	3	-74.53	18.02	-447.52	-1981.69	-7971.60	0.15
	25	-21.07	50.88	31.47	-8785.16	-3903.69	4.79e-03
	24	-52.76	58.73	-150.95	-9647.76	-7293.29	0.07
	52	4.57	-27.49	-140.98	5233.28	2316.51	0.07
	18	-77.61	46.55	-357.77	-7032.94	-9291.76	0.13
	32	21.29	-15.15	-103.53	3320.04	5224.02	0.11
22	3	73.23	18.60	-444.15	-1903.09	7764.31	-0.06
	25	16.75	48.52	32.82	-8383.64	3168.75	0.03
	24	47.89	56.61	-148.18	-9211.97	6470.11	9.04e-03
	46	-5.08	-34.46	-149.65	6538.68	-2471.75	-0.12
	30	-21.28	-16.68	-105.77	3638.67	-5249.45	-0.14
	4	84.43	23.72	-399.15	-3026.70	1.029e+04	-0.02
23	3	-74.79	18.10	-447.68	-1999.20	-8019.13	0.15
	25	-21.13	50.92	31.47	-8792.82	-3915.41	-3.95e-03
	24	-52.93	58.80	-151.03	-9662.86	-7325.21	0.06
	44	3.00	-26.50	-142.11	5098.76	2101.85	0.02
	18	-77.87	46.65	-357.92	-7052.79	-9340.21	0.13
	28	20.77	-14.85	-103.89	3277.15	5152.52	0.09
24	3	72.98	18.52	-443.96	-1885.59	7716.83	-0.06
	25	16.69	48.49	32.87	-8377.86	3157.80	0.03
	24	47.73	56.54	-148.07	-9198.75	6438.98	8.07e-03
	46	-5.62	-38.68	-155.27	7283.19	-2618.50	-0.13
	30	-21.48	-17.95	-107.41	3863.27	-5300.28	-0.14
	4	86.01	25.23	-399.70	-3145.94	1.043e+04	-0.17
25	3	-73.15	-18.57	-444.11	1898.29	-7740.19	0.05
	12	16.29	1.42	-5.71	-1372.66	3965.80	0.54
	25	9.86	42.61	-73.99	-7913.16	2759.60	0.07
	58	-35.46	-42.61	-81.42	7450.73	-5699.00	-0.05
	3	-73.15	-18.57	-444.11	1898.29	-7740.19	0.05
	12	16.29	1.42	-5.71	-1372.66	3965.80	0.54
26	3	74.72	-18.12	-447.59	2015.36	8021.40	-0.15
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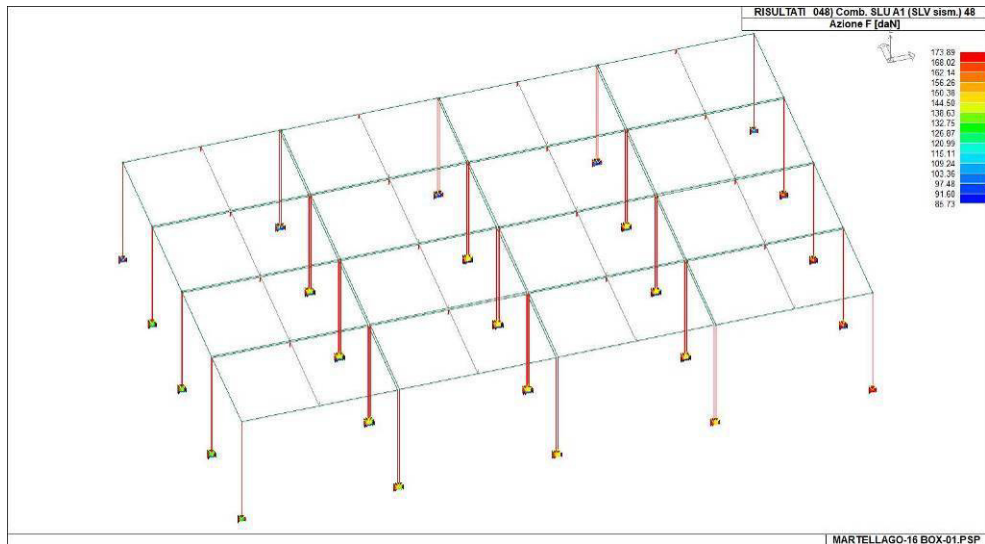
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	56	31.29	-39.31	-82.93	6828.19	4861.00	-0.04
	41	-11.53	17.21	-115.18	-3551.35	-3439.62	-0.05
	4	84.73	-23.64	-397.84	3222.67	1.036e+04	-0.21
27	3	-73.32	-18.63	-444.26	1911.98	-7772.55	0.05
	12	21.90	6.73	-3.61	-1820.14	4483.42	0.06
	25	9.90	42.64	-74.03	-7918.05	2765.96	0.07
	58	-34.53	-38.92	-85.93	6790.41	-5479.98	-0.04
	3	-73.32	-18.63	-444.26	1911.98	-7772.55	0.05
	12	21.90	6.73	-3.61	-1820.14	4483.42	0.06
28	3	74.54	-18.06	-447.46	2001.95	7989.01	-0.16
	12	33.07	-14.18	-38.36	2572.23	5642.27	9.29e-03
	25	-5.67	41.24	-74.76	-7567.55	-1921.48	-3.40e-03
	48	30.49	-36.37	-87.07	6325.50	4686.02	-0.06
	37	-11.34	16.34	-113.90	-3404.44	-3396.15	-0.05
	4	84.82	-24.57	-399.62	3322.81	1.035e+04	-0.13
29	3	-73.49	-18.69	-444.38	1925.53	-7804.72	0.05
	12	21.68	6.65	-3.70	-1802.51	4442.79	0.06
	25	9.93	42.67	-74.04	-7923.38	2772.40	0.07
	58	-33.04	-34.21	-91.23	5944.83	-5148.06	-0.03
	3	-73.49	-18.69	-444.38	1925.53	-7804.72	0.05
	12	21.68	6.65	-3.70	-1802.51	4442.79	0.06
30	3	74.37	-18.00	-447.34	1988.40	7956.55	-0.16
	12	32.99	-14.14	-38.27	2566.00	5629.27	9.32e-03
	25	-5.63	41.23	-74.76	-7564.59	-1915.97	-3.83e-03
	48	32.90	-41.53	-82.03	7247.55	5165.46	-0.07
	37	-12.11	17.91	-115.38	-3684.75	-3548.87	-0.04
	4	84.62	-24.49	-399.46	3307.25	1.031e+04	-0.13
31	3	-73.67	-18.76	-444.51	1939.09	-7836.92	0.05
	12	22.03	7.30	-4.33	-1862.79	4473.21	-1.47e-03
	25	9.97	42.70	-74.05	-7928.72	2778.86	0.06
	50	-32.38	-33.47	-90.82	5835.26	-5032.74	-0.06
	3	-73.67	-18.76	-444.51	1939.09	-7836.92	0.05
32	12	22.03	7.30	-4.33	-1862.79	4473.21	-1.47e-03
	3	74.19	-17.94	-447.14	1975.04	7924.11	-0.16
	12	31.57	-16.68	-38.15	2901.05	5515.51	0.25
	25	-5.60	41.20	-74.72	-7560.95	-1910.11	-4.27e-03
	48	35.41	-46.42	-77.56	8125.68	5663.94	-0.08
	37	-12.91	19.38	-116.64	-3950.43	-3706.97	-0.04
	4	83.61	-25.96	-399.23	3496.63	1.022e+04	0.01
33	3	-74.03	17.90	-447.06	-1954.24	-7879.51	0.15
	25	-20.89	50.61	31.38	-8734.07	-3868.00	-2.47e-03
	24	-52.37	58.41	-150.86	-9585.07	-7218.48	0.06
	56	5.21	-35.06	-151.06	6548.55	2508.81	0.06
	18	-77.07	46.29	-357.45	-6978.47	-9190.12	0.13
34	12	27.13	0.19	0.12	810.93	5098.17	-0.46
	3	73.75	18.79	-444.44	-1942.95	7860.22	-0.05
	25	16.82	48.39	32.67	-8360.76	3178.35	0.03
	24	48.18	56.57	-148.46	-9206.10	6520.50	0.01
	54	-1.51	-31.92	-150.99	6064.84	-1887.87	-0.07
	42	-17.51	-14.81	-105.78	3281.57	-4559.50	-0.08
	4	84.61	23.25	-400.17	-3012.78	1.037e+04	0.05
35	3	-74.29	17.98	-447.30	-1971.74	-7927.17	0.15
	25	-20.95	50.65	31.33	-8741.02	-3879.44	-2.98e-03
	24	-52.54	58.48	-151.00	-9599.45	-7250.18	0.06
	56	4.71	-31.51	-146.37	5924.85	2378.81	0.06
	18	-77.33	46.38	-357.67	-6997.88	-9238.52	0.13
36	12	23.74	-4.59	-0.11	1411.87	4754.52	0.02
	3	73.49	18.71	-444.28	-1925.59	7813.03	-0.06
	25	16.76	48.37	32.68	-8355.69	3167.81	0.03
	24	48.02	56.50	-148.38	-9193.65	6489.90	9.77e-03
	46	-2.74	-29.58	-144.91	5655.85	-1993.20	-0.10
	38	-17.92	-14.12	-103.92	3161.45	-4598.28	-0.09
	4	84.71	23.84	-399.31	-3050.93	1.035e+04	-0.02
37	3	-74.55	18.06	-447.47	-1989.25	-7974.67	0.15
	25	-21.02	50.68	31.33	-8748.62	-3891.06	-3.48e-03
	24	-52.71	58.55	-151.07	-9614.49	-7281.98	0.06
	56	3.57	-26.90	-140.77	5110.07	2120.05	0.06
	18	-77.59	46.47	-357.82	-7017.70	-9286.88	0.13
38	12	23.54	-4.53	-0.21	1398.27	4716.95	0.02
	3	73.24	18.63	-444.12	-1908.38	7765.90	-0.06
	25	16.71	48.34	32.69	-8350.82	3157.31	0.03
	24	47.85	56.45	-148.29	-9181.47	6459.38	8.84e-03
	46	-3.79	-34.28	-150.76	6490.09	-2234.95	-0.11
	38	-18.27	-15.55	-105.65	3414.33	-4677.94	-0.09
	4	84.44	23.76	-399.10	-3034.20	1.030e+04	-0.02
39	3	-74.81	18.14	-447.64	-2006.77	-8022.20	0.15
	25	-21.08	50.72	31.33	-8756.30	-3902.75	-3.98e-03

	24	-52.88	58.62	-151.15	-9629.62	-7313.88	0.06
	48	1.99	-25.92	-141.90	4975.53	1905.37	5.31e-03
	18	-77.86	46.57	-357.96	-7037.58	-9335.32	0.13
	12	23.77	-5.29	1.53	1484.90	4741.33	0.08
40	3	72.98	18.55	-443.92	-1890.85	7718.39	-0.06
	25	16.65	48.31	32.74	-8345.06	3146.39	0.03
	24	47.68	56.38	-148.18	-9168.26	6428.26	7.88e-03
	46	-4.33	-38.51	-156.37	7234.44	-2381.62	-0.13
	38	-18.47	-16.81	-107.29	3638.65	-4728.62	-0.10
	4	86.03	25.28	-399.64	-3154.96	1.044e+04	-0.17
41	3	-73.13	-18.52	-444.15	1890.80	-7737.12	0.05
	12	16.28	1.39	-5.68	-1368.59	3963.86	0.54
	25	9.84	42.56	-73.86	-7905.71	2755.97	0.07
	58	-36.67	-43.00	-82.23	7537.27	-5921.98	-0.06
	42	-48.43	-27.11	-122.35	4920.06	-7844.33	-0.07
	39	17.19	20.23	-112.29	-4221.21	4537.22	0.09
42	3	74.71	-18.09	-447.62	2010.05	8019.88	-0.16
	12	32.65	-12.50	-35.25	2378.11	5604.64	-0.12
	25	-5.70	41.23	-74.63	-7565.47	-1927.49	-2.91e-03
	56	32.51	-39.72	-83.74	6917.31	5086.01	-0.04
	41	-15.61	18.61	-112.53	-3852.58	-4190.83	-0.05
	4	84.71	-23.59	-397.90	3213.28	1.035e+04	-0.21
43	3	-73.31	-18.59	-444.31	1904.47	-7769.47	0.05
	12	21.89	6.72	-3.60	-1817.80	4482.10	0.06
	25	9.88	42.59	-73.90	-7910.60	2762.33	0.07
	58	-35.74	-39.31	-86.73	6877.07	-5703.00	-0.04
	42	-48.18	-26.03	-123.75	4725.71	-7783.88	-0.06
	12	21.89	6.72	-3.60	-1817.80	4482.10	0.06
44	3	74.53	-18.03	-447.50	1996.66	7987.50	-0.16
	12	33.06	-14.15	-38.38	2567.41	5639.99	9.39e-03
	25	-5.67	41.21	-74.63	-7562.31	-1921.89	-3.32e-03
	48	31.72	-36.78	-87.87	6414.79	4911.12	-0.06
	37	-15.42	17.74	-111.25	-3705.73	-4147.40	-0.05
	4	84.81	-24.53	-399.67	3315.18	1.035e+04	-0.13
45	3	-73.48	-18.65	-444.43	1917.99	-7801.62	0.05
	12	21.68	6.64	-3.69	-1800.19	4441.48	0.06
	25	9.92	42.62	-73.91	-7915.92	2768.78	0.07
	58	-34.25	-34.60	-92.03	6031.50	-5371.07	-0.04
	3	-73.48	-18.65	-444.43	1917.99	-7801.62	0.05
46	12	21.68	6.64	-3.69	-1800.19	4441.48	0.06
	3	74.36	-17.97	-447.37	1983.13	7955.07	-0.16
	12	32.98	-14.12	-38.29	2561.19	5627.00	9.42e-03
	25	-5.64	41.19	-74.63	-7559.35	-1916.37	-3.75e-03
	48	34.13	-41.94	-82.83	7336.77	5390.55	-0.07
	37	-16.19	19.31	-112.73	-3986.02	-4300.10	-0.05
	4	84.61	-24.45	-399.51	3299.64	1.031e+04	-0.13
47	3	-73.65	-18.71	-444.55	1931.53	-7833.81	0.05
	12	22.02	7.27	-4.31	-1858.43	4471.17	-1.39e-03
	25	9.95	42.65	-73.92	-7921.31	2775.25	0.06
	50	-33.58	-33.86	-91.62	5921.84	-5255.70	-0.06
	3	-73.65	-18.71	-444.55	1931.53	-7833.81	0.05
	12	22.02	7.27	-4.31	-1858.43	4471.17	-1.39e-03
48	3	74.19	-17.91	-447.17	1969.81	7922.64	-0.16
	12	31.55	-16.64	-38.19	2893.68	5512.28	0.25
	25	-5.60	41.17	-74.59	-7555.71	-1910.51	-4.19e-03
	48	36.64	-46.83	-78.37	8214.73	5888.94	-0.08
	37	-16.99	20.78	-113.98	-4251.47	-4458.14	-0.04
	4	83.60	-25.91	-399.29	3487.51	1.021e+04	0.01
49	3	-74.05	17.94	-447.02	-1961.80	-7882.65	0.15
	25	-18.40	50.89	24.47	-8726.22	-3523.06	-0.22
	24	-49.89	58.70	-157.75	-9580.48	-6874.90	-0.16
	56	6.71	-35.74	-150.34	6685.62	2782.79	0.06
	18	-75.59	46.49	-361.55	-6980.44	-8985.93	-5.00e-03
	40	23.50	-18.00	-103.50	3809.13	5617.16	0.08
50	3	73.75	18.82	-444.41	-1948.24	7861.71	-0.05
	25	15.46	46.35	35.30	-8175.75	3106.48	0.25
	24	46.83	54.53	-145.81	-9023.40	6449.29	0.23
	58	-3.36	-32.31	-149.01	6163.86	-2220.53	-0.07
	42	-22.35	-16.72	-103.04	3678.28	-5450.13	-0.10
	4	84.62	23.30	-400.12	-3022.04	1.037e+04	0.05
51	3	-74.31	18.02	-447.26	-1979.32	-7930.33	0.15
	25	-18.53	50.93	24.37	-8737.16	-3547.33	-0.23
	24	-50.12	58.78	-157.94	-9598.87	-6919.43	-0.16
	56	6.21	-32.19	-145.65	6062.20	2653.21	0.06
	18	-75.89	46.59	-361.81	-7002.27	-9042.04	-6.25e-03
	40	23.32	-16.94	-102.15	3621.27	5571.63	0.08
52	3	73.50	18.74	-444.24	-1930.85	7814.50	-0.06
	25	15.34	46.29	35.31	-8164.43	3082.83	0.25

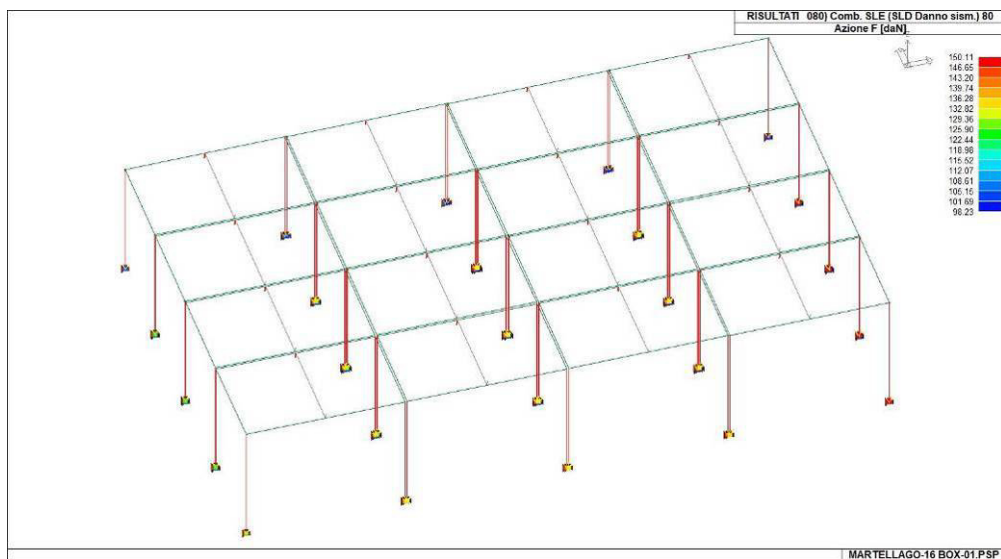
	24	46.59	54.44	-145.73	-9004.70	6405.57	0.22
	50	-4.58	-29.97	-142.94	5755.08	-2325.95	-0.10
	38	-22.76	-16.03	-101.19	3558.27	-5488.99	-0.11
	4	84.72	23.88	-399.26	-3058.44	1.035e+04	-0.02
53	3	-74.56	18.10	-447.42	-1996.86	-7977.85	0.15
	25	-18.66	51.00	24.34	-8749.89	-3571.93	-0.23
	24	-50.36	58.88	-158.04	-9619.04	-6964.22	-0.16
	56	5.06	-27.59	-140.05	5247.70	2394.97	0.07
	18	-76.19	46.70	-361.97	-7025.18	-9098.21	-7.49e-03
	40	22.94	-15.55	-100.50	3374.34	5487.12	0.08
54	3	73.24	18.66	-444.08	-1913.61	7767.36	-0.06
	25	15.21	46.23	35.32	-8153.29	3059.16	0.25
	24	46.36	54.35	-145.65	-8986.23	6361.87	0.22
	50	-5.63	-34.68	-148.78	6589.09	-2567.34	-0.11
	38	-23.11	-17.46	-102.92	3811.10	-5568.55	-0.11
	4	84.46	23.80	-399.05	-3041.68	1.030e+04	-0.02
55	3	-74.82	18.19	-447.59	-2014.42	-8025.40	0.15
	25	-18.79	51.06	24.31	-8762.77	-3596.71	-0.23
	24	-50.60	58.98	-158.14	-9639.39	-7009.21	-0.17
	48	3.49	-26.61	-141.18	5112.96	2179.92	7.96e-03
	18	-76.50	46.81	-362.13	-7048.21	-9154.52	-8.74e-03
	36	22.42	-15.24	-100.86	3331.58	5415.55	0.06
56	3	72.99	18.58	-443.88	-1896.06	7719.82	-0.06
	25	15.08	46.15	35.34	-8139.99	3034.57	0.24
	24	46.12	54.24	-145.56	-8965.47	6317.08	0.22
	50	-6.17	-38.90	-154.40	7333.13	-2713.68	-0.12
	38	-23.30	-18.72	-104.55	4035.13	-5619.10	-0.11
	4	86.04	25.33	-399.58	-3164.00	1.044e+04	-0.17
57	3	-73.12	-18.48	-444.16	1883.31	-7734.07	0.05
	12	16.25	1.37	-5.60	-1363.92	3960.13	0.54
	25	4.22	34.29	-67.95	-7094.68	2289.83	0.65
	58	-37.61	-43.16	-83.24	7579.64	-6098.24	-0.05
	42	-51.68	-27.70	-125.73	5067.66	-8442.65	-0.07
	39	20.45	20.83	-108.86	-4371.72	5136.72	0.09
58	3	74.70	-18.06	-447.61	2004.67	8018.35	-0.16
	12	32.64	-12.46	-35.26	2370.67	5602.22	-0.12
	25	-1.25	46.41	-76.18	-8068.22	-1324.37	-0.61
	56	33.50	-39.95	-84.58	6971.70	5268.32	-0.04
	41	-18.99	19.42	-109.59	-4041.38	-4810.67	-0.06
	4	84.70	-23.54	-397.91	3204.00	1.035e+04	-0.21
59	3	-73.29	-18.54	-444.31	1896.95	-7766.40	0.05
	12	21.88	6.71	-3.55	-1815.52	4480.95	0.06
	25	4.34	34.36	-67.91	-7106.72	2310.25	0.65
	58	-36.69	-39.48	-87.74	6919.55	-5879.43	-0.04
	42	-51.44	-26.62	-127.13	4873.52	-8382.29	-0.07
	39	20.13	19.73	-107.58	-4171.78	5062.62	0.09
60	3	74.53	-18.00	-447.48	1991.31	7985.99	-0.16
	12	33.05	-14.12	-38.37	2562.67	5638.03	9.48e-03
	25	-1.13	46.35	-76.20	-8058.57	-1304.99	-0.61
	48	32.71	-37.02	-88.72	6469.66	5094.64	-0.06
	37	-18.80	18.56	-108.31	-3894.64	-4767.58	-0.06
	4	84.80	-24.48	-399.66	3307.54	1.034e+04	-0.13
61	3	-73.46	-18.61	-444.43	1910.45	-7798.54	0.05
	12	21.67	6.63	-3.64	-1797.94	4440.34	0.06
	25	4.45	34.41	-67.88	-7116.76	2329.88	0.65
	58	-35.20	-34.77	-93.04	6074.01	-5547.68	-0.04
	42	-51.02	-25.21	-128.73	4621.79	-8287.43	-0.07
	39	19.63	18.30	-106.03	-3914.32	4954.09	0.09
62	3	74.35	-17.94	-447.35	1977.81	7953.56	-0.16
	12	32.97	-14.09	-38.28	2556.46	5625.04	9.51e-03
	25	-1.02	46.30	-76.21	-8049.20	-1285.89	-0.61
	48	35.12	-42.17	-83.68	7391.56	5573.96	-0.07
	37	-19.57	20.12	-109.79	-4174.89	-4920.23	-0.05
	4	84.60	-24.41	-399.50	3292.04	1.031e+04	-0.13
63	3	-73.64	-18.67	-444.56	1923.94	-7830.70	0.05
	12	22.02	7.25	-4.24	-1854.21	4469.61	-1.32e-03
	25	4.56	34.46	-67.86	-7126.86	2349.42	0.65
	50	-34.53	-34.02	-92.62	5964.21	-5432.20	-0.07
	38	-50.84	-25.00	-128.63	4590.55	-8257.25	-0.08
	35	19.38	18.05	-106.19	-3877.34	4910.24	0.10
64	3	74.18	-17.88	-447.16	1964.50	7921.13	-0.16
	12	31.53	-16.59	-38.19	2886.11	5508.38	0.25
	25	-0.91	46.26	-76.15	-8041.42	-1266.80	-0.61
	48	37.62	-47.06	-79.22	8269.24	6071.94	-0.08
	37	-20.36	21.59	-111.04	-4440.04	-5078.07	-0.05
	4	83.58	-25.86	-399.29	3478.22	1.021e+04	0.01



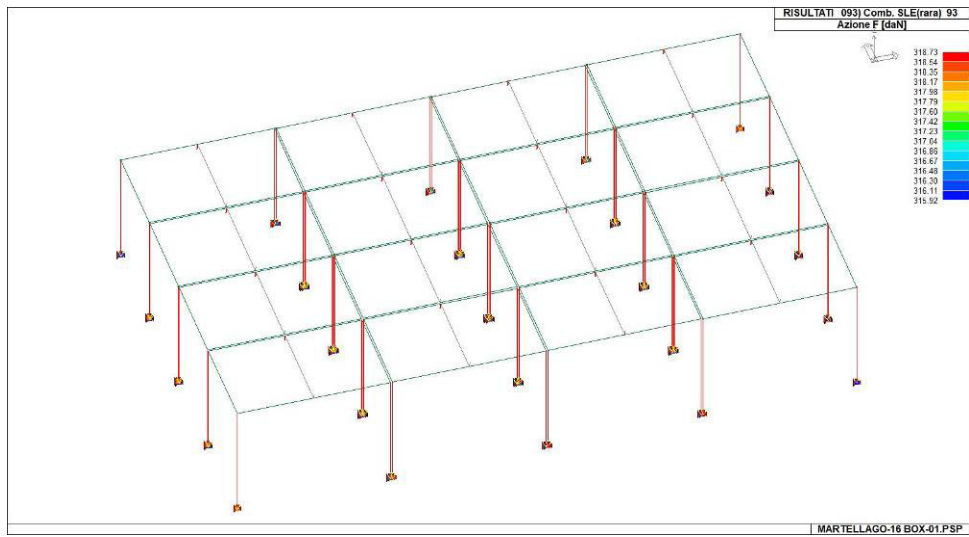
42_RIS_REAZIONI_003_Comb. SLU A1 3



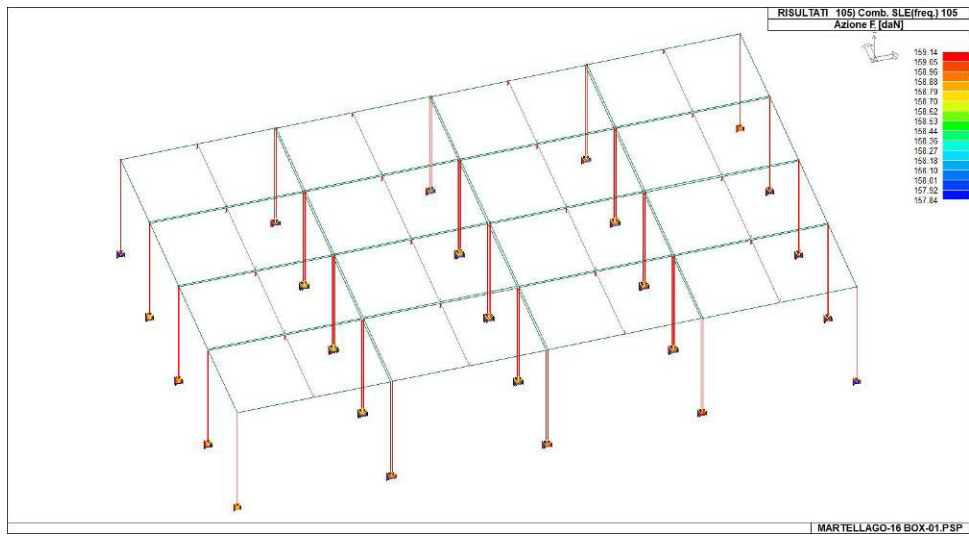
42_RIS_REAZIONI_048_Comb. SLU A1 (SLV sism.) 48



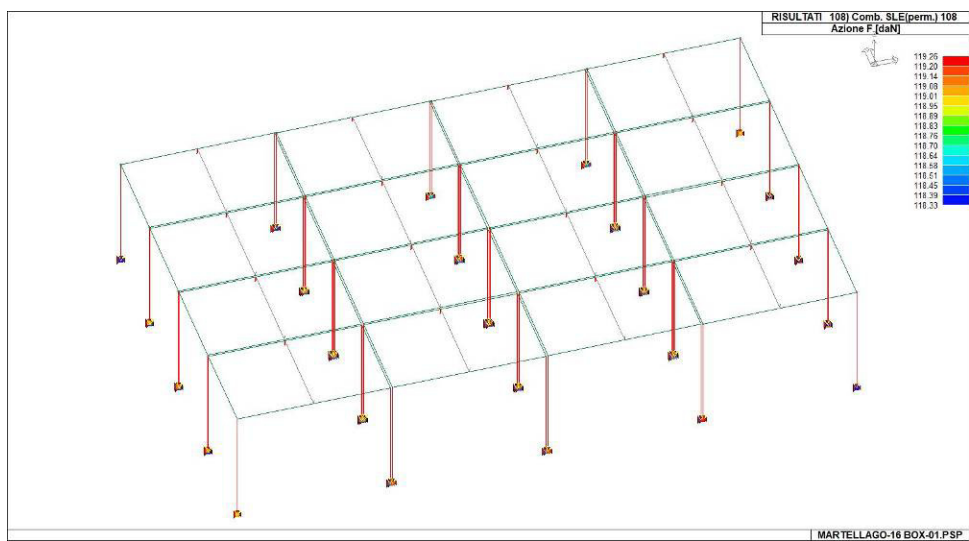
42_RIS_REAZIONI_080_Comb. SLE (SLD Danno sism.) 80



42_RIS_REAZIONI_093_Comb. SLE(rara) 93



42_RIS_REAZIONI_105_Comb. SLE(freq.) 105



42_RIS_REAZIONI_108_Comb. SLE(perm.) 108

VERIFICHE PER ELEMENTI IN ACCIAIO

Il programma consente la verifica dei seguenti tipi di elementi:

1. **aste** 2. **travi** 3. **pilastr**

L'esito delle verifiche è espresso con un codice come di seguito indicato

- Ok:** verifica con esito positivo
NV: verifica con esito negativo
Nr: verifica non richiesta.

Per comodità gli elementi vengono raggruppati in tabelle in relazione al tipo.

Ai fini delle verifiche (come da D.M. 17 Gennaio 2018 e circolare 21 Gennaio 2019 n.7) i tipi elementi differiscono per i seguenti aspetti:

Verifica	Aste	Travi	Pilastr
4.2.3.1 Classificazione	X	X	X
4.2.4.1.2.1 Trazione	X	X	X
4.2.4.1.2.2 Compressione	X	X	X
4.2.4.1.2.4 Taglio		X	X
4.2.4.1.2.5 Torsione		X	X
Flessione, taglio e forza assiale		X	X
4.2.4.1.3.1 Aste compresse	X	X	X
4.2.4.1.3.2 Instabilità flesso-torsionale		X	X
4.2.4.1.3.3 Membrature inflesse e compresse		X	X

Ai fini delle verifiche per strutture dissipative (come da D.M. 17 Gennaio 2018 e 2018 e circolare 21 Gennaio 2019 n.7) per strutture intelaiate e a controventi concentrici) si considerano le verifiche del capitolo 4 con azioni amplificate e le verifiche del capitolo 7:

Verifica	Travi	Pilastr
4.2.4.1.2.1 Trazione	X	X
4.2.4.1.2.2 Compressione	X	X
4.2.4.1.2.4 Taglio	X	X
4.2.4.1.2.5 Torsione	X	X
Flessione, taglio e forza assiale	X	X
4.2.4.1.3.1 Aste compresse	X	X
4.2.4.1.3.2 Instabilità flesso-torsionale	X	X
4.2.4.1.3.3 Membrature inflesse e compresse	X	X
7.5.3 Sfruttamento per momento	X	
7.5.4 Sfruttamento per sforzo normale	X	
7.5.5 Sfruttamento per taglio da capacità flessionale	X	
7.5.9 Sfruttamento per taglio amplificato		X

Viene inoltre riportata la verifica della "Gerarchia delle resistenze trave-colonna" per ogni colonna, considerando piede e testa in entrambe le direzioni globali X e Y.

L'insieme delle verifiche sopra riportate è condotto sugli elementi purché dotati di sezione idonea come da tabella seguente:

Azione	SEZIONI GENERICHE	PROFILI SEMPLICI	PROFILI ACCOPPIATI
4.2.3.1 Classificazione automatica	L, doppio T, C, rettangolare cava, circolare cava	Tutti	Da profilo semplice

4.2.3.1	Classificazione di default 2	Circolare		
4.2.3.1	Classificazione di default 3	restanti		
4.2.4.1.2.1	Trazione	si	si	si
4.2.4.1.2.2	Compressione	si	si	si
4.2.4.1.2.4	Taglio	si	si	si
4.2.4.1.2.5	Torsione	si	si	si
	Flessione, taglio e forza assiale	si	si	si
4.2.4.1.3.1	Aste compresse	si	si	per elementi ravvicinati e a croce o coppie calastrellate
4.2.4.1.3.2	Travi inflesse	doppio T simmetrica	doppio T	no

Le verifiche sono riportate in tabelle con il significato sotto indicato; le verifiche sono espresse dal rapporto tra l'azione di progetto e la capacità ultima, pertanto la verifica ha esito positivo per rapporti non superiori all'unità.

Asta	Trave	Pilastro	numero dell'elemento		
Stato			codice di verifica per resistenza, stabilità, svergolamento		
Note			sezione e materiali adottati per l'elemento		
V N			(ASTE) verifica come da par. 4.2.4.1.2 per punto (4.2.6) e (4.2.10)		
V V/T			(TRAVI E PILASTRI) verifica di resistenza come da par. 4.2.4.1.2 per azioni taglio-torsione (4.2.16 e 4.2.28)		
V N/M			(TRAVI E PILASTRI) verifica di resistenza come da par. 4.2.4.1.2 per azioni composte (4.2.33) con riduzione per taglio (4.2.40) ove richiesto		
N	M3	M2	V2	V3	T
V stab			(ASTE) verifica come da par. 4.2.4.1.3.1 per punto (4.2.41)		
V stab			(TRAVI E PILASTRI) verifica come da par. 4.2.4.1.3 per punti (C4.2.32) o (C4.2.36) (membrature inflesse e compresse senza/con presenza di instabilità flessio-torsionale)		
BetaxL	B22xL	B33xL	lunghezze libere di inflessione (se indicato riferiti al piano di normale 22 o 33 rispettivamente)		
Snellezza			snellezza massima		
Classe			classe del profilo		
Chi mn			coefficiente di riduzione (della capacità) per la modalità di instabilità pertinente		
Rif. cmb			combinazioni in cui si sono rispettivamente attinti i valori di verifica più elevati		
V flst			(TRAVI E PILASTRI) verifica di stabilità come da par. 4.2.4.1.3.2 per punto (4.2.48)		
B1-1 x L			Beta1-1 x L: interasse tra i ritegni torsionali		
Chi LT			coefficiente di riduzione (della capacità) per la modalità di instabilità flessio-torsionale		
Snell adim			Valore della snellezza adimensionale, utilizzato per il controllo previsto al par. 7.5.5		
v.Omeg			Valore del rapporto capacità/domanda per l'azione di interesse (momento per travi e azione assiale per aste) utilizzato per l'amplificazione delle azioni		
f.Om. N			Fattore di amplificazione delle azioni assiali per travi e colonne (prodotto di 1.1 x Omega x gamma rd materiale); utilizzato come specificato al par. 7.5.5		
f.Om. T			Fattore di amplificazione delle azioni (assiali, flettenti e taglianti) per colonne (prodotto di 1.1 x Omega x gamma rd materiale); utilizzato come specificato al par. 7.5.4		
V.7.5.4 M Ed			Verifica come prevista al punto 7.5.4 e valore dell'azione flettente		
V.7.5.5 N Ed			Verifica come prevista al punto 7.5.5 e valore dell'azione assiale		
V.7.5.6 V Ed,G V Ed,M			Verifica come prevista al punto 7.5.6 e valore dei tagli dovuti ai carichi e alla capacità		
V.7.5.10 V Ed			Verifica come prevista al punto 7.5.10 e valore dell'azione di taglio		
sovr. Xi (Xf, Yi, Yf)			Valore della sovraresistenza come prevista al par. 7.5.4.2 (i valori non sono normalizzati pertanto saranno maggiori uguali a gamma rd in base alla classe di duttilità)		

Nel caso in cui λS sia minore di 0.2, oppure nel caso in cui la sollecitazione di calcolo NEd sia inferiore a 0.04 Ncr, gli effetti legati ai fenomeni di instabilità sono trascurati, come da paragrafo 4.2.4.1.3.1

Trave	Stato	Note	V V/T	V N/M	V stab	Cl.LamS	22LamS	33	Snell.	Chi mn	V flstLamS	LT	Chi LT	Rif. cmb
1	oks=28,m=48		0.01	0.20		3								25,24,0,0
9	oks=28,m=48		0.01	0.20		3								26,24,0,0
10	oks=28,m=48		0.01	0.13		3								25,24,0,0
12	oks=28,m=48		0.06	0.42	0.43	3	1.1	0.5	100.4	0.48				3,24,3,0
13	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
18	oks=28,m=48		0.01	0.11		3								11,24,0,0
23	oks=28,m=48		0.06	0.33	0.38	3	1.1	0.5	100.4	0.48				3,3,4,0
25	oks=28,m=48		0.02	0.38	0.56	3	0.7	0.3	61.3	0.74				26,24,24,0
28	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
30	oks=28,m=48		0.01	0.13	0.16	3	0.7	0.3	61.3	0.74				25,24,24,0
31	oks=28,m=48		0.01	0.11	0.19	3	0.7	0.3	61.3	0.74				26,24,24,0
33	oks=28,m=48		0.06	0.33	0.38	3	1.1	0.5	100.4	0.48				3,3,4,0
37	oks=28,m=48		0.06	0.35	0.38	3	1.1	0.5	100.4	0.48				3,18,4,0
38	oks=28,m=48		0.01	0.11	0.19	3	0.7	0.3	61.3	0.74				11,24,24,0
39	oks=28,m=48		0.01	0.37	0.41	3	0.7	0.3	61.3	0.74				25,24,24,0
40	oks=28,m=48		0.03	0.18		3								11,12,0,0
41	oks=28,m=48		0.06	0.42	0.43	3	1.1	0.5	100.4	0.48				3,24,3,0
42	oks=28,m=48		0.01	0.20		3								26,24,0,0
43	oks=28,m=48		0.03	0.37	0.41	3	0.7	0.3	61.3	0.74				11,24,24,0
47	oks=28,m=48		0.02	0.38	0.56	3	0.7	0.3	61.3	0.74				26,24,24,0
50	oks=28,m=48		0.01	0.11		3								26,24,0,0
53	oks=28,m=48		0.06	0.35		3								3,18,0,0
54	oks=28,m=48		0.06	0.33	0.38	3	1.1	0.5	100.4	0.48				3,3,4,0
62	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
71	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
73	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
76	oks=28,m=48		0.06	0.33		3								3,3,0,0
77	oks=28,m=48		0.03	0.20		3								11,24,0,0
78	oks=28,m=48		0.06	0.33		3								3,3,0,0
80	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
81	oks=28,m=48		0.03	0.18	0.16	3	0.7	0.3	61.3	0.74				11,12,24,0
82	oks=28,m=48		0.06	0.33		3								3,3,0,0
90	oks=28,m=48		0.06	0.42	0.43	3	1.1	0.5	100.4	0.48				3,24,3,0
91	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
97	oks=28,m=48		0.06	0.33	0.39	3	1.1	0.5	100.4	0.48				3,3,4,0
98	oks=28,m=48		0.02	0.38	0.56	3	0.7	0.3	61.3	0.74				26,24,24,0
99	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
101	oks=28,m=48		0.01	0.11	0.19	3	0.7	0.3	61.3	0.74				26,24,24,0
102	oks=28,m=48		0.06	0.33	0.39	3	1.1	0.5	100.4	0.48				3,3,4,0
103	oks=28,m=48		0.06	0.35	0.39	3	1.1	0.5	100.4	0.48				3,18,4,0
104	oks=28,m=48		0.01	0.13		3								25,24,0,0
105	oks=28,m=48		0.01	0.20		3								26,24,0,0
106	oks=28,m=48		0.01	0.37	0.41	3	0.7	0.3	61.3	0.74				25,24,24,0
108	oks=28,m=48		0.01	0.11		3								26,24,0,0
111	oks=28,m=48		0.06	0.33	0.39	3	1.1	0.5	100.4	0.48				3,3,4,0
116	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
127	oks=28,m=48		0.01	0.20		3								25,24,0,0
129	oks=28,m=48		0.01	0.13	0.16	3	0.7	0.3	61.3	0.74				25,24,24,0
136	oks=28,m=48		0.06	0.42	0.43	3	1.1	0.5	100.4	0.48				3,24,3,0
137	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
143	oks=28,m=48		0.06	0.33		3								3,3,0,0
144	oks=28,m=48		0.02	0.38	0.56	3	0.7	0.3	61.3	0.74				26,24,24,0
145	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
147	oks=28,m=48		0.01	0.11	0.19	3	0.7	0.3	61.3	0.74				26,24,24,0
148	oks=28,m=48		0.06	0.33		3								3,3,0,0
149	oks=28,m=48		0.06	0.35		3								3,18,0,0
150	oks=28,m=48		0.01	0.13		3								25,24,0,0
151	oks=28,m=48		0.01	0.20		3								26,24,0,0
152	oks=28,m=48		0.01	0.37	0.41	3	0.7	0.3	61.3	0.74				25,24,24,0
154	oks=28,m=48		0.01	0.11		3								26,24,0,0
157	oks=28,m=48		0.06	0.33		3								3,3,0,0
162	oks=28,m=48		0.06	0.33	0.43	3	1.1	0.5	100.4	0.48				3,3,3,0
173	oks=28,m=48		0.01	0.20		3								25,24,0,0
175	oks=28,m=48		0.01	0.13	0.16	3	0.7	0.3	61.3	0.74				25,24,24,0
Trave			V V/T	V N/M	V stab		LamS	22LamS	33	Snell.	Chi mn	V flstLamS	LT	Chi LT
			0.06	0.42	0.56		1.10	0.49	100.44		0.48			

Pilas.	Stato	Note	V V/T	V N/M	V stab	CI.LamS	22LamS	33	Snell.	Chi mn	V flstLamS	LT	Chi LT	Rif. cmb
2	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
3	ok	s=4,m=48	0.01	0.25	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
4	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
5	ok	s=4,m=48	0.01	0.25	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
6	ok	s=4,m=48	0.01	0.25	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
8	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
11	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
15	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
17	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
19	ok	s=4,m=48	0.01	0.26	0.21	3	0.9	0.5	77.7	0.63				4,4,18,0
20	ok	s=4,m=48	0.01	0.25	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
22	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
26	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
27	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
32	ok	s=4,m=48	0.01	0.25	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
34	ok	s=4,m=48	0.01	0.25	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
35	ok	s=4,m=48	0.01	0.25	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
44	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
46	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
49	ok	s=4,m=48	0.01	0.25	0.20	3	0.9	0.5	77.7	0.63				18,3,18,0
51	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
52	ok	s=4,m=48	0.01	0.24	0.20	3	0.9	0.5	77.7	0.63				18,3,18,0
55	ok	s=4,m=48	0.01	0.26	0.21	3	0.9	0.5	77.7	0.63				4,4,18,0
56	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
59	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
60	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
61	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
67	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
74	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
75	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
79	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
83	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
85	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
86	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
88	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
89	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
94	ok	s=4,m=48	0.01	0.26	0.21	3	0.9	0.5	77.7	0.63				4,4,18,0
96	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
109	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
110	ok	s=4,m=48	0.01	0.24	0.20	3	0.9	0.5	77.7	0.63				18,3,18,0
113	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
114	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
115	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
120	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
125	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
126	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
128	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
130	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
131	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
132	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
134	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
135	ok	s=4,m=48	0.01	0.25	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
140	ok	s=4,m=48	0.01	0.26	0.21	3	0.9	0.5	77.7	0.63				4,4,18,0
142	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
155	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
156	ok	s=4,m=48	0.01	0.25	0.20	3	0.9	0.5	77.7	0.63				18,3,18,0
159	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
160	ok	s=4,m=48	0.01	0.25	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
161	ok	s=4,m=48	0.01	0.24	0.19	3	0.9	0.5	77.7	0.63				3,3,3,0
166	ok	s=4,m=48	0.01	0.25	0.19	3	0.9	0.5	77.7	0.63				18,3,18,0
171	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
172	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
174	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
176	ok	s=4,m=48	0.01	0.26	0.20	3	0.9	0.5	77.7	0.63				4,4,4,0
Pilas.			V V/T	V N/M	V stab	LamS	22LamS	33	Snell.	Chi mn	V flstLamS	LT	Chi LT	
			0.01	0.26	0.21	0.85	0.52		77.69	0.63				

STATI LIMITE D' ESERCIZIO ACCIAIO

In tabella vengono riportati i valori di interesse per il controllo degli stati limite d'esercizio.

In particolare vengono riportati, per gli elementi trave, i risultati relativi alle combinazioni considerate (rare o caratteristiche).

I valori di interesse sono i seguenti:

f*1000/L	massima deformazione normalizzata in combinazioni rare
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Si precisa che i valori di massima deformazione per travi sono riferiti ai due piani locali (1-2 con momenti flettenti 3-3 e 1-3 con momenti flettenti 2-2). Il valore riportato (massimo) è espresso in 1000/L per rendere agevole il confronto di più valori e in particolare di più range di valori (ad esempio 2 rappresenta L/500, 4 L/250 e così via).

Trave	f*1000/L	Trave	f*1000/L	Trave	f*1000/L	Trave	f*1000/L	Trave	f*1000/L	Trave	f*1000/L	Trave	f*1000/L
1	0.3	9	0.3	10	0.1	12	1.5	13	0.7	18	0.2	23	0.7
25	0.5	28	0.7	30	0.1	31	0.1	33	0.7	37	0.8	38	0.2
39	0.5	40	0.4	41	1.5	42	0.3	43	0.5	47	0.5	50	0.1
53	0.8	54	0.7	62	0.7	71	0.7	73	0.7	76	0.7	77	0.4
78	0.7	80	0.7	81	0.4	82	0.7	90	1.5	91	0.7	97	0.7
98	0.5	99	0.7	101	0.1	102	0.7	103	0.8	104	0.1	105	0.3
106	0.5	108	0.1	111	0.7	116	0.7	127	0.3	129	0.1	136	1.5
137	0.7	143	0.7	144	0.5	145	0.7	147	0.1	148	0.7	149	0.8
150	0.1	151	0.3	152	0.5	154	0.1	157	0.7	162	0.7	173	0.3
175	0.1												

GIUDIZIO MOTIVATO SULL'ACCETTABILITA' DEI RISULTATI

Di seguito vengono effettuati dei controlli per accertare la corrispondenza tra i risultati forniti dal software ed i calcoli eseguiti manualmente.

VERIFICA TRAVI PRINCIPALI DI COPERTURA

SEZIONE EFFICACE GRONDA H210 SP 2

TRAVE APPOGGIATA CON CARICO DISTRIBUITO

Carico permanente: Q_p [daN/m²]

Carico accidentale: Q_a [daN/m²]

Interasse: i (m)

Luce: L (m)

$q_p = Q_p \times i + \text{peso proprio}$ [daN/m]

$q_a = Q_a \times i$ [daN/m]

SLU

Combinazione allo stato limite ultimo: $q_{SLU} = 1.3 q_p + 1.5 q_a$

Momento sollecitante: $M_{Ed} = (q_{SLU} L^2 / 8) \times 100$ [daNcm]

Momento resistente: $M_{Rd} = W f_{yk} / \gamma_{M0}$ [daNcm]

$W = W_{efficace}$ per sezioni di classe 4 [cm³]

$f_{yk} = 2500$ daN/cm² (acciaio S250GD)

$\gamma_{M0} = 1.05$

SLE

Combinazione allo stato limite di esercizio (rara):

$q_{SLE} = q_p + q_a$

freccia [cm]:

$f = 5/384 q_{SLE} L^4 / (E J)$

$E = 2100000$ daN/cm²

$J = [\text{cm}^4]$

DATI									
Qp	Qa	int.	L	W(cm^3)	J(cm^4)	f _{yk}	γ _{M0}	E	
30	80	1,22	4,00	34,00	440,00	2500,00	1,05	2100000	
peso proprio=		10							
RISULTATI									
q _p	q _a	q _{SLU}	M _{Ed}	M _{Rd}	M _{Ed} /M _{Rd}	q _{SLE}	freccia	1/.....L	
46,6	97,6	206,98	41396	80952	0,51	144,2	0,52	769	

COLONNE D'ANGOLO sp. 2 - profilo irrigidito INSTABILITA' PRESSO-FLESSIONALE

caratteristiche della sezione efficace:

$$J_x = J_y = 232 \text{ cm}^4$$

$$W_x = W_y = 25 \text{ cm}^3$$

$$J_{\min} = 103 \text{ cm}^4 \text{ (direzione a } 45^\circ)$$

$$A = 6.44 \text{ cm}^2$$

lunghezza libera di inflessione $l_0 = 300 \text{ cm}$

$$\lambda = l_0 / i_{\min} = l_0 / \sqrt{(J_{\min}/A)}$$

sezione cava formata a freddo, acciaio S250GD, curva "c", $\alpha=0.49$

$$N_{cr} = \pi^2 E A / \lambda^2$$

$$\bar{\lambda} = \sqrt{(A f_{yk} / N_{cr})}$$

$$\Phi = 0.5 [1 + \alpha (\bar{\lambda} - 0.2) + \bar{\lambda}^2]$$

$$\chi = 1 / [\Phi + \sqrt{(\Phi^2 - \bar{\lambda}^2)}]$$

$$N_{b,Rd} = \chi A \phi_{yk} / \gamma_{M1}$$

$$\frac{N_{Ed}}{N_{b,Rd}} + \frac{M_{Ed} \cdot \gamma_{M1}}{f_{yk} \cdot W \cdot (1 - \frac{N_{Ed}}{N_{cr}})} \leq 1 \quad (*)$$

J _{min}	A	l ₀	f _{yk}	α	γ _{M1}	W
103	6,44	300	2500	0,49	1,05	25

i _{min}	λ = l ₀ / i _{min}	N _{cr} = π ² E A / λ ²	λ̄ = √(A f _{yk} / N _{cr})
4,0	75	23720	0,82

Φ = 0.5 [1 + α (λ̄ - 0.2) + λ̄ ²]	χ = 1 / [Φ + √(Φ ² - λ̄ ²)]	N _{b,Rd} = χ A φ _{yk} / γ _{M1}
0,99	0,65	9923



dati dal calcolo	N _{Ed} (daN)	M _{Ed} (daNcm)
	448	17090

Verifica formula (*) 0,34 verificare <=1

VERIFICA ANCORAGGI DI BASE DELLE COLONNE

Viene realizzato un ancoraggio meccanico con 1M12 in corrispondenza di ogni colonna.

Tabella valori di resistenza a **TAGLIO** dei fissaggi meccanici "Tecfi s.p.a."::

 		<small>ISO 9001:2008 ISO 14001:2004</small>							
Dichiarazione di Prestazione numero 1219-DPC-0071									
In accordo al regolamento UE No 305/2011									
Tabella 2 – Prestazioni dichiarate in accordo all'ETAG 001 parte 1 e parte 2 (cont.)									
Rottura acciaio per carichi di taglio – (ZJE01 and ZJE31)									
Misura		M6	M8	M10	M12	M14 ¹⁾	M16	M20	
Rottura acciaio senza braccio di leva	$V_{Rk,s}$ [kN]	5,1	9,3	14,7	20,6	28,1	38,4	56,3	
Rottura acciaio con braccio di leva	$M^0_{Rk,s}$ [Nm]	7,7	19,1	38,1	64,1	102,2	163,1	298,5	
Coefficiente parziale di sicurezza	$\gamma_{M,p}$ [-]	1,25							
Rottura del calcestruzzo per pryout – (ZJE01 and ZJE31)									
Misura		M6	M8	M10	M12	M14 ¹⁾	M16	M20	
Fattore nell'equazione 5.6 dell'Annex C della linea guida	For $h_{ef, std}$	1,0		2,0					
	For $h_{ef, red}$	NPD	1,0 ²⁾	1,0		NPD	NPD	NPD	
Coefficiente parziale di sicurezza	$\gamma_{M,p}$ [-]	1,5 ³⁾							
Rottura del bordo di calcestruzzo – (ZJE01 and ZJE31)									
Misura		M6	M8	M10	M12	M14 ¹⁾	M16	M20	
Fattore nell'equazione 5.6 dell'Annex C della linea guida	For $h_{ef, std}$	l_f [-]	40	48	55	65	75	84	103
	For $h_{ef, red}$	l_f [-]	NPD	35 ²⁾	42	50	NPD	NPD	NPD
Diametro esterno dell'ancorante	d_{nom} [mm]	6	8	10	12	14	16	20	
Coefficiente parziale di sicurezza	$\gamma_{M,p}$ [-]	1,5 ³⁾							
Rottura acciaio per carichi di taglio – (ZJE71 and ZJE81)									
Misura		M6	M8	M10	M12	M14 ¹⁾	M16	M20	
Rottura acciaio senza braccio di leva	$V_{Rk,s}$ [kN]	6,0	10,9	17,4	25,2	--	47,1	73,5	
Rottura acciaio con braccio di leva	$M^0_{Rk,s}$ [Nm]	9,2	22,5	44,9	78,6	--	200	389	
Coefficiente parziale di sicurezza	$\gamma_{M,p}$ [-]	1,52							
Rottura del calcestruzzo per pryout – (ZJE71 and ZJE81)									
Misura		M6	M8	M10	M12	M14 ¹⁾	M16	M20	
Fattore nell'equazione 5.6 dell'Annex C della linea guida	For $h_{ef, std}$	1,0		2,0		--	2,0		
	For $h_{ef, red}$	NPD	1,0 ²⁾	1,0		--	NPD	NPD	
Coefficiente parziale di sicurezza	$\gamma_{M,p}$ [-]	1,5 ³⁾							

¹⁾ Non disponibile per la versione in acciaio inox (ZJE71 and ZJE 81)
²⁾ Solo per fissaggi staticamente indeterminati
³⁾ Il coefficiente parziale di sicurezza $\gamma_2 = 1,0$ è incluso

Dalla tabella, per ancoraggi M12, si ha una resistenza minima a taglio di progetto pari a:

$$20,6 / 1,25 = 16,48 \text{ kN} = 1648 \text{ daN}$$

Sforzo di taglio massimo sollecitante = 86 daN

Tabella valori di resistenza a **TRAZIONE** dei fissaggi meccanici "Tecfi s.p.a.":

Dichiarazione di Prestazione numero 1219-DPC-0071

In accordo al regolamento UE No 305/2011

Tabella 2 – Prestazioni dichiarate in accordo all'ETAG 001 parte 1 e parte 2 (cont.)								
Inserimento Standard – $h_{ef, std}$								
Size		M6	M8	M10	M12	M14 ¹⁾	M16	M20
Minimo interasse consentito	s_{min} [mm]	50	65	70	85	100	110	135
Minima distanza dal bordo consentita	c_{min} [mm]	50	65	70	85	100	110	135
Inserimento Ridotto – $h_{ef, red}$								
Profondità d'inserimento	h_{nom} [mm]	NPD	46,5	53,5	62	NPD	NPD	NPD
Minimo spessore dell'elemento di calcestruzzo	h_{min} [mm]	NPD	100	100	100	NPD	NPD	NPD
Profondità effettiva di ancoraggio	h_{ef} [mm]	NPD	35 ²⁾	42	50	NPD	NPD	NPD
Profondità del foro	h_1 [mm]	NPD	50	60	70	NPD	NPD	NPD
Profondità d'inserimento	s_{min} [mm]	NPD	65	70	85	NPD	NPD	NPD
Minima distanza dal bordo consentita	c_{min} [mm]	NPD	65	70	85	NPD	NPD	NPD
Rottura acciaio per carichi di trazione – versione zincata (ZJE01 e ZJE31)								
Misura		M6	M8	M10	M12	M14 ¹⁾	M16	M20
Resistenza a trazione caratteristica	$N_{Rk,s}$ [kN]	7,7	16,4	25,6	35,4	51,7	65,0	104,4
Coefficiente parziale di sicurezza	γ_{Ms} [-]	1,40	1,40	1,40	1,43	1,43	1,43	1,47
Rottura acciaio per carichi di trazione – versione in acciaio inox (ZJE71 e ZJE81)								
Misura		M6	M8	M10	M12	M14 ¹⁾	M16	M20
Resistenza a trazione caratteristica	$N_{Rk,s}$ [kN]	10,1	19,1	34,3	49,6	--	85,9	140,7
Coefficiente parziale di sicurezza	γ_{Ms} [-]	1,68				--	1,68	
Rottura per pull-out per carichi di trazione – Inserimento Standard – $h_{ef, std}$								
Misura		M6	M8	M10	M12	M14 ¹⁾	M16	M20
Resistenza a trazione caratteristica	$N_{Rk,p,ucr}$ [kN]	- ²⁾	12	16	25	30	35	50
Coefficiente parziale di sicurezza	γ_{Mp} [-]	-	1,5 ³⁾	1,8 ⁴⁾				
Coefficiente di incremento della resistenza per calcestruzzo di classe C30/37	Ψ_c C30/37 [-]				1,22			
Coefficiente di incremento della resistenza per calcestruzzo di classe C40/50	Ψ_c C40/50 [-]				1,41			
Coefficiente di incremento della resistenza per calcestruzzo di classe C50/60	Ψ_c C50/60 [-]				1,55			

¹⁾ Non disponibile per la versione in acciaio inox (ZJE71 and ZJE 81)

²⁾ La rottura per pull-out non è decisiva



³⁾ Il coefficiente parziale di sicurezza $\gamma_2 = 1,0$ è incluso

⁴⁾ Il coefficiente parziale di sicurezza $\gamma_2 = 1,2$ è incluso

Dalla tabella, per ancoraggi M12, si ha una resistenza minima a trazione di progetto pari a:
 $25 / 1.8 = 13.9 \text{ kN} = 1390 \text{ daN}$
 Sforzo di trazione massimo sollecitante = 45 daN

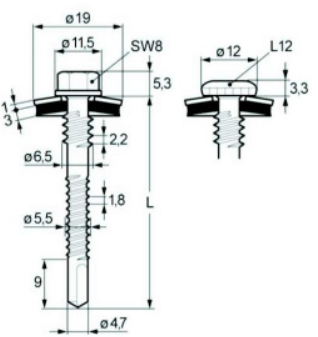
VERIFICA PANNELLI DI COPERTURA E DI PARETE

Tabella pannelli copertura:

		isolante : schiuma poliuretanic rigidita densità = kg/mc 40 $f_{cc,10\%} = N/mm^2 0,10$		IN ACCORDO CON EN 14509 MATERIALE LAMIERE Esterna S250GD-EN10346 Interna S250GD-EN10346																																																																																																																																	
limite di freccia normale I / 200 limite di freccia scorrim. I / 100 limite carico max. kN/m^2 $p_{max} = 10$ carico perm. portato kN/m^2 $p_p = 0$				- gradiente termico $\Delta T = ^\circ C$ 0 - protezione esterna mm 0,01 - protezione interna mm 0,01 - in rosso carico limitato da freccia																																																																																																																																	
s	h	peso	sp. lamiera		$U_{d,s}$																																																																																																																																
mm	mm	kg/m^2	t_{F1}	t_{F2}	W																																																																																																																																
30	70,0	10,40	0,50	0,50	0,68																																																																																																																																
40	80,0	10,80			0,52																																																																																																																																
50	90,0	11,20	lamiera esterna	lamiera interna	0,41																																																																																																																																
80	120,0	12,40			0,26																																																																																																																																
100	140,0	13,20	lamiera esterna	lamiera interna	0,21																																																																																																																																
120	160,0	14,00			0,17																																																																																																																																
larghezza efficace appoggio 100 mm pannello di copertura																																																																																																																																					
<table border="1" style="width:100%; text-align:center;"> <tr> <td>P</td> <td colspan="10"></td> </tr> <tr> <td>Δ</td> <td colspan="10"></td> </tr> <tr> <td>I</td> <td colspan="10"></td> </tr> <tr> <td>Δ</td> <td colspan="10"></td> </tr> <tr> <td>$I = m$</td> <td>2</td><td>2,25</td><td>2,5</td><td>2,75</td><td>3</td><td>3,25</td><td>3,5</td><td>3,75</td><td>4</td><td>4,25</td><td>4,5</td> </tr> <tr> <td>$P = daN/m^2$</td> <td>150</td><td>130</td><td>115</td><td>105</td><td>90</td><td>75</td><td>60</td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td>190</td><td>170</td><td>150</td><td>130</td><td>110</td><td>95</td><td>80</td><td>65</td><td>55</td><td></td><td></td> </tr> <tr> <td></td> <td>235</td><td>205</td><td>180</td><td>155</td><td>135</td><td>120</td><td>105</td><td>85</td><td>75</td><td>60</td><td>50</td> </tr> <tr> <td></td> <td>360</td><td>315</td><td>275</td><td>245</td><td>215</td><td>190</td><td>170</td><td>155</td><td>135</td><td>120</td><td>100</td> </tr> <tr> <td></td> <td>435</td><td>380</td><td>340</td><td>300</td><td>270</td><td>240</td><td>220</td><td>195</td><td>180</td><td>160</td><td>140</td> </tr> <tr> <td></td> <td>505</td><td>450</td><td>405</td><td>360</td><td>325</td><td>295</td><td>265</td><td>240</td><td>220</td><td>200</td><td>180</td> </tr> </table>						P											Δ											I											Δ											$I = m$	2	2,25	2,5	2,75	3	3,25	3,5	3,75	4	4,25	4,5	$P = daN/m^2$	150	130	115	105	90	75	60						190	170	150	130	110	95	80	65	55				235	205	180	155	135	120	105	85	75	60	50		360	315	275	245	215	190	170	155	135	120	100		435	380	340	300	270	240	220	195	180	160	140		505	450	405	360	325	295	265	240	220	200	180
P																																																																																																																																					
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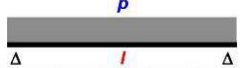
Dalla tabella, per pannelli sp. 40 mm (spessore minimo utilizzato) e luce singola di 2.50 m, si ricava una portata di 150 daN/mq. Nel nostro caso abbiamo una luce di 2.44 m ed un carico neve pari a 80 daN/mq, quindi risultano verificati.

Tabella viti di fissaggio pannelli copertura:

		Materials Fastener: Carbon steel with anticorrosion coating Washer: Aluminum alloy - EN 573 with EPDM-seal Component I: S280GD to S450GD - EN 10346 Component II: S235 to S355 - EN 10025, S280GD to S450GD - EN 10346, HX300LAD to HX460LAD - EN 10346					
		Drilling-capacity $\Sigma(t_{n1} + t_{n2} + t_i) \leq 6.00$ mm					
		t_i [mm]					
		1.50	1.75	2.00	2.50	3.00	4.00
$V_{R,k}$ [kN]	0.40	0.67 ^a	0.85 ^a	0.85 ^a	0.85 ^a	0.85 ^a	0.85 ^a
	0.45	0.90 ^a	0.90 ^a	0.90 ^a	0.90 ^a	0.90 ^a	0.90 ^a
	0.50	1.12 ^a	1.25 ^a	1.25 ^a	1.25 ^a	1.25 ^a	1.25 ^a
	0.55	1.34 ^a	1.50 ^a	1.50 ^a	1.50 ^a	1.50 ^a	1.50 ^a
	0.60	1.57 ^a	1.69 ^a	1.69 ^a	1.69 ^a	1.69 ^a	1.69 ^a
	0.63	1.70 ^a	1.84 ^a	1.84 ^a	1.84 ^a	1.84 ^a	1.84 ^a
$N_{R,k}$ [kN]	0.70	1.70 ^a	1.93 ^a	1.93 ^a	1.93 ^a	1.93 ^a	1.93 ^a
	≥ 0.75	1.70 ^a	1.99 ^a	1.99 ^a	1.99 ^a	1.99 ^a	1.99 ^a
	0.40	1.18 ^a	1.18 ^a	1.18 ^a	1.18 ^a	1.18 ^a	1.18 ^a
	0.45	1.32 ^a	1.32 ^a	1.32 ^a	1.32 ^a	1.32 ^a	1.32 ^a
	0.50	1.46 ^a	1.46 ^a	1.46 ^a	1.46 ^a	1.46 ^a	1.46 ^a
	0.55	1.70	1.70 ^a	1.70 ^a	1.70 ^a	1.70 ^a	1.70 ^a
$N_{R,tx}$ [kN]	0.60	1.82	1.94 ^a	1.94 ^a	1.94 ^a	1.94 ^a	1.94 ^a
	0.63	1.82	2.08 ^a	2.08 ^a	2.08 ^a	2.08 ^a	2.08 ^a
	0.70	1.82	2.41	2.42 ^a	2.42 ^a	2.42 ^a	2.42 ^a
	≥ 0.75	1.82	2.41	2.66 ^a	2.66 ^a	2.66 ^a	2.66 ^a
	$N_{R,tx}$ [kN]	1.82	2.41	3.00	4.31	5.61	10.77
	u [mm]	40	2.0				
	60	4.0					
	80	5.7					
	≥ 100	7.1					

Per spessore $t_i = 0.50$ mm (pannello) e $t_{i1} = 2.00$ mm (gronda) si ha una resistenza a rottura a trazione pari a 146 daN. La resistenza di progetto è pari a $146/1.25 = 117$ daN. Considerando ogni pannello (1.00 m x 2.44 m) fissato con minimo n. 2 viti, lo sforzo di trazione dovuto alla depressione del vento per ogni vite (in combinazione SLU) è pari a: $(67 \text{ daN/mq} \times 0.4 \times 1.5 \times 1.00 \text{ m} \times 2.44 \text{ m}) / 2 = 50 \text{ daN} < 117 \text{ daN}$

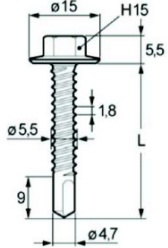
Tabella pannelli parete:

		isolante : schiuma poliuretanica rigida densità = kg/mc 40 $f_{cc,10\%} = N/mm^2 0,10$		IN ACCORDO CON EN 14509 MATERIALE LAMIERE Esterna S250GD-EN10346 Interna S250GD-EN10346																																																																																												
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80	80,0	11,30	0,27	0,21																																																																																												
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120	120,0	12,90	0,18																																																																																													
<table border="1"> <thead> <tr> <th rowspan="2">l = m</th> <th colspan="11">p</th> </tr> <tr> <th>2</th><th>2,25</th><th>2,5</th><th>2,75</th><th>3</th><th>3,25</th><th>3,5</th><th>3,75</th><th>4</th><th>4,25</th><th>4,5</th> </tr> </thead> <tbody> <tr> <td rowspan="5">p = daN/m²</td> <td>85</td><td>65</td><td>50</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>135</td><td>105</td><td>85</td><td>65</td><td>55</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>190</td><td>155</td><td>125</td><td>100</td><td>80</td><td>65</td><td>55</td><td></td><td></td><td></td><td></td> </tr> <tr> <td>325</td><td>285</td><td>250</td><td>210</td><td>180</td><td>150</td><td>130</td><td>110</td><td>95</td><td>80</td><td>70</td> </tr> <tr> <td>410</td><td>365</td><td>325</td><td>290</td><td>250</td><td>215</td><td>185</td><td>160</td><td>140</td><td>120</td><td>105</td> </tr> <tr> <td></td> <td>495</td><td>440</td><td>395</td><td>355</td><td>325</td><td>280</td><td>245</td><td>215</td><td>190</td><td>165</td><td>145</td> </tr> </tbody> </table>						l = m	p											2	2,25	2,5	2,75	3	3,25	3,5	3,75	4	4,25	4,5	p = daN/m ²	85	65	50									135	105	85	65	55							190	155	125	100	80	65	55					325	285	250	210	180	150	130	110	95	80	70	410	365	325	290	250	215	185	160	140	120	105		495	440	395	355	325	280	245	215	190	165	145
l = m	p																																																																																															
	2	2,25	2,5	2,75	3	3,25	3,5	3,75	4	4,25	4,5																																																																																					
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Dalla tabella, per pannelli sp. 50 mm (spessore minimo utilizzato) e luce singola di 3.00 m (altezza parete), si ricava una portata di 80 daN/mq.

Nel nostro caso abbiamo un carico di vento pari a 67 daN/mq x 0.8 = 54 daN/mq, quindi risultano verificati.

Tabella viti di fissaggio pannelli parete:

	Materials Fastener: Carbon steel with anticorrosion coating Washer: - Component I: S280GD to S450GD - EN 10346 Component II: S235 to S355 - EN 10025 S280GD to S450GD - EN 10346 HX300LAD to HX460LAD - EN 10346																																																																																																																																																															
	Drilling-capacity $\Sigma(t_i + t_{ii}) \leq 6.00$ mm																																																																																																																																																															
	<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="7">t_{ii} [mm]</th> </tr> <tr> <th>1.50</th><th>1.75</th><th>2.00</th><th>2.50</th><th>3.00</th><th>4.00</th><th>5.00</th> </tr> </thead> <tbody> <tr> <td rowspan="7">V_{R,k} [kN]</td> <td>0.50</td><td>1.57^a ac</td><td>1.67^a ac</td><td>1.76^a ac</td><td>1.76^a ac</td><td>1.76^a ac</td><td>1.76^a ac</td><td>1.76^a ac</td> </tr> <tr> <td>0.55</td><td>1.71^a ac</td><td>1.79^a ac</td><td>1.86^a ac</td><td>1.86^a ac</td><td>1.86^a ac</td><td>1.86^a ac</td><td>1.86^a ac</td> </tr> <tr> <td>0.63</td><td>1.94^a ac</td><td>1.99^a ac</td><td>2.03^a ac</td><td>2.03^a ac</td><td>2.03^a ac</td><td>2.03^a ac</td><td>2.03^a ac</td> </tr> <tr> <td>0.75</td><td>2.28^a ac</td><td>2.28^a ac</td><td>2.28^a ac</td><td>2.28^a ac</td><td>2.28^a ac</td><td>2.28^a ac</td><td>2.28^a ac</td> </tr> <tr> <td>0.88</td><td>2.86^a ac</td><td>2.86^a ac</td><td>2.86^a ac</td><td>3.04^a ac</td><td>3.27^a ac</td><td>3.27^a ac</td><td>3.27^a ac</td> </tr> <tr> <td>1.00</td><td>3.43 ac</td><td>3.43 ac</td><td>3.43 ac</td><td>3.74 ac</td><td>4.18 ac</td><td>4.18 ac</td><td>4.18 ac</td> </tr> <tr> <td>1.25</td><td>3.43 -</td><td>3.87 -</td><td>4.31 -</td><td>5.20 -</td><td>6.08 ac</td><td>6.08 a</td><td>-</td> </tr> <tr> <td>1.50</td><td>3.43 -</td><td>3.87 -</td><td>4.31 -</td><td>5.20 -</td><td>6.08 -</td><td>6.08 -</td><td>-</td> </tr> <tr> <td rowspan="7">N_{R,k} [kN]</td> <td>0.50</td><td>1.15 ac</td><td>1.15 ac</td><td>1.15 ac</td><td>1.15 ac</td><td>1.15 ac</td><td>1.15 ac</td><td>1.15 ac</td> </tr> <tr> <td>0.55</td><td>1.28 ac</td><td>1.28 ac</td><td>1.28 ac</td><td>1.28 ac</td><td>1.28 ac</td><td>1.28 ac</td><td>1.28 ac</td> </tr> <tr> <td>0.63</td><td>1.80 ac</td><td>1.80 ac</td><td>1.80 ac</td><td>1.80 ac</td><td>1.80 ac</td><td>1.80 ac</td><td>1.80 ac</td> </tr> <tr> <td>0.75</td><td>2.20 ac</td><td>2.70 ac</td><td>3.20 ac</td><td>3.20 ac</td><td>3.20 ac</td><td>3.20 ac</td><td>3.20 ac</td> </tr> <tr> <td>0.88</td><td>2.20 ac</td><td>2.70 ac</td><td>3.20 ac</td><td>4.00 ac</td><td>4.00 ac</td><td>4.00 ac</td><td>4.00 ac</td> </tr> <tr> <td>1.00</td><td>2.20 ac</td><td>2.70 ac</td><td>3.20 ac</td><td>4.30 ac</td><td>4.80 ac</td><td>4.80 ac</td><td>4.80 ac</td> </tr> <tr> <td>1.25</td><td>2.20 -</td><td>2.70 -</td><td>3.20 -</td><td>4.30 -</td><td>5.40 ac</td><td>5.60 a</td><td>-</td> </tr> <tr> <td>1.50</td><td>2.20 -</td><td>2.70 -</td><td>3.20 -</td><td>4.30 -</td><td>5.40 -</td><td>5.80 -</td><td>-</td> </tr> <tr> <td>N_{R,II,k} [kN]</td> <td>2.20</td><td>2.70</td><td>3.20</td><td>4.30</td><td>5.40</td><td>n/a</td><td>n/a</td> </tr> </tbody> </table>								t _{ii} [mm]							1.50	1.75	2.00	2.50	3.00	4.00	5.00	V_{R,k} [kN]	0.50	1.57 ^a ac	1.67 ^a ac	1.76 ^a ac	1.76 ^a ac	1.76 ^a ac	1.76 ^a ac	1.76 ^a ac	0.55	1.71 ^a ac	1.79 ^a ac	1.86 ^a ac	1.86 ^a ac	1.86 ^a ac	1.86 ^a ac	1.86 ^a ac	0.63	1.94 ^a ac	1.99 ^a ac	2.03 ^a ac	2.03 ^a ac	2.03 ^a ac	2.03 ^a ac	2.03 ^a ac	0.75	2.28 ^a ac	2.28 ^a ac	2.28 ^a ac	2.28 ^a ac	2.28 ^a ac	2.28 ^a ac	2.28 ^a ac	0.88	2.86 ^a ac	2.86 ^a ac	2.86 ^a ac	3.04 ^a ac	3.27 ^a ac	3.27 ^a ac	3.27 ^a ac	1.00	3.43 ac	3.43 ac	3.43 ac	3.74 ac	4.18 ac	4.18 ac	4.18 ac	1.25	3.43 -	3.87 -	4.31 -	5.20 -	6.08 ac	6.08 a	-	1.50	3.43 -	3.87 -	4.31 -	5.20 -	6.08 -	6.08 -	-	N_{R,k} [kN]	0.50	1.15 ac	1.15 ac	1.15 ac	1.15 ac	1.15 ac	1.15 ac	1.15 ac	0.55	1.28 ac	1.28 ac	1.28 ac	1.28 ac	1.28 ac	1.28 ac	1.28 ac	0.63	1.80 ac	1.80 ac	1.80 ac	1.80 ac	1.80 ac	1.80 ac	1.80 ac	0.75	2.20 ac	2.70 ac	3.20 ac	3.20 ac	3.20 ac	3.20 ac	3.20 ac	0.88	2.20 ac	2.70 ac	3.20 ac	4.00 ac	4.00 ac	4.00 ac	4.00 ac	1.00	2.20 ac	2.70 ac	3.20 ac	4.30 ac	4.80 ac	4.80 ac	4.80 ac	1.25	2.20 -	2.70 -	3.20 -	4.30 -	5.40 ac	5.60 a	-	1.50	2.20 -	2.70 -	3.20 -	4.30 -	5.40 -	5.80 -	-	N_{R,II,k} [kN]	2.20	2.70	3.20	4.30	5.40	n/a	n/a
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Per spessore t_i = 0.50 mm (pannello) e t_{ii} = 1.50 mm (profilo a "C" di base) si ha una resistenza a rottura a trazione pari a 115 daN. La resistenza di progetto è pari a 115/1.25 = 92 daN

Considerando ogni pannello (1.00 m x 3.00 m) fissato con minimo n. 4 viti, lo sforzo di trazione dovuto alla pressione del vento per ogni vite (in combinazione SLU) è pari a:

$$(67 \text{ daN/mq} \times 0.8 \times 1.5 \times 1.00 \text{ m} \times 3.00 \text{ m}) / 4 = 61 \text{ daN} < 92 \text{ daN}$$

VERIFICA PANNELLI IN LEGNO DEL PAVIMENTO

Calcolo della densità di carico uniforme e carico dinamico

Gli esempi di calcolo seguenti valgono per il Duripanel B1 e riportano le massime resistenze a carichi uniformemente distribuiti su diverse luci in kN/m². I valori indicati possono essere considerati come valori massimi per il carico utile, in quanto il peso proprio del pannello Duripanel è già considerato.

q = massime resistenze a carico uniformemente distribuito e carico dinamico ammesse. per Duripanel A2 q diminuisce del fattore 0,77

Tutti i valori con coefficiente di sicurezza 3, rispetto alla resistenza alla flessione minima,

valgono per le applicazioni non soggette a autorizzazione. Dove i pannelli B1 vengono utilizzati con funzione portante e di rinforzo deve essere considerato un coefficiente di sicurezza 5.

Parametri dei materiali / basi di calcolo

G = sollecitazione di tensione ammessa = 3,0 N/mm² (coefficiente di sicurezza 3)

= 1,8 N/mm² (coefficiente di sicurezza 5)

E = modulo di elasticità = 4500 N/mm²

l = Interasse appoggi in mm

J = momento di inerzia

$$J = \frac{1000 \cdot d^4}{12}$$

carico proprio = 15 kN/m²

d = spessore in mm

Resistenza di carico superficiali con travi appoggiate alle estremità in kN/m² con freccia massima di l/300

$$q_{max} = \frac{384 \cdot E \cdot J}{l^3 \cdot 5 \cdot 300}$$

Resistenza di carico superficiali con travi a due campate in kN/m² con freccia massima di l/300

$$q_{max} = \frac{369 \cdot E \cdot J}{l^3 \cdot 2 \cdot 300}$$

Duripanel B1 – pannello di rivestimento/ tabelle di carico

Carichi dinamici max q (kN/m²) per applicazioni non soggette ad autorizzazione, coefficiente di sicurezza 3 (1 kN/m² Δ 98,07 kg/m²)

Sono già considerati il peso proprio del pannello Duripanel e 0,2 kN/m² per il rivestimento superiore. (max q = q_{max} - (15 kN/m² · d in m) - 0,2 kN/m²)

I carichi dinamici devono essere calcolati con la sollecitazione di tensione ammessa e una freccia massima di l/300.

Sistema/distanze degli appoggi [mm]	Sollecitazione assiale (1250 mm)										Sollecitazione trasversale						
	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ		
	2 x 625	3 x 417			4 x 313			5 x 250			6 x 208			625	313	208	
Sollecitazione ass. e trasv.	max. q		max. q			max. q			max. q			max. q			max. q	max. q	max. q
Spessore pannello d [mm]	18	2,85	7,51			13,24			21,13			30,63			1,82	12,76	31,43
	25	5,83	14,81			25,87			41,09			59,42			5,57	24,94	60,96

Carichi dinamici max q (kN/m²) per applicazioni soggette ad autorizzazione, coefficiente sicurezza 5 (1 kN/m² Δ 98,07 kg/m²)

Sono già considerati il peso proprio del pannello Duripanel e 0,2 kN/m² per il rivestimento superiore. (max q = q_{max} - (15 kN/m² · d in m) - 0,2 kN/m²)

I carichi dinamici devono essere calcolati con la sollecitazione di tensione ammessa e una inflessione massima di l/300.

Sistema/distanze degli appoggi [mm]	Sollecitazione assiale (1250mm)										Sollecitazione trasversale						
	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ			
	2 x 625	3 x 417			4 x 313			5 x 250			6 x 208			625	313	208	
Sollecitazione ass. e trasv.	max. q		max. q			max. q			max. q			max. q			max. q	max. q	max. q
Spessore pannello d [mm]	18	1,52	5,12			8,80			14,34			20,93			1,52	7,47	22,00
	25	3,27	10,21			17,31			28,00			40,70			3,27	14,74	42,76

Dalle tabelle, per interasse degli appoggi pari a 41.7 cm e spessore pannello 18 mm si ha una portata max di 512 daN/mq.

Nel nostro caso abbiamo un carico totale di 250 daN/mq, quindi risultano verificati.

VERIFICA BULLONI COLONNA-TRAVE E COLONNA-BASE

(colonna sp. 2)

Il collegamento delle colonne con la base e con i profili di gronda avviene con squadrette saldate alla struttura e bullonate alla colonna con (2+2) M12 in sommità e (2+2) M12 alla base.

Nel modello di calcolo i collegamenti in questione sono stati schematizzati come incastro; dalla relazione di calcolo si ha uno sforzo massimo di flessione per combinazioni allo stato limite ultimo, agli estremi delle colonne, pari a M_{Ed} = 17090 daNcm.

Considerando un braccio tra i 2 gruppi di 2 bulloni pari a 15 cm (larghezza colonna), si ha uno sforzo di taglio su ogni bullone pari a :

$$F_{v,Ed} = 17090 / (15 \times 2) = \mathbf{570 \text{ daN}}$$

La resistenza a taglio del singolo bullone è pari a (M12 A_{res}=0.84 cm², classe 8.8, resistenza a rottura f_{tb} = 800 N/mm² = 8000 daN/cm², □_{M2} = 1.25):

resistenza a taglio $F_{V,Rd} = 0.6 f_{tb} A_{res} / \gamma_{M2} = 0,6 \times 8000 \times 0.84 / 1.25 = 3226 \text{ daN}$

570 daN < 3226 daN.

Verifica a rifollamento:

ogni bullone è collegato alla colonna avente lamiera **sp. 2 mm** (acciaio S250GD, $f_{tk} = 3300 \text{ daN/cm}^2$, distanza bulloni dal bordo $e_1 = e_2 = 40 \text{ mm}$) con dado "graffato".

La Resistenza di calcolo a rifollamento della lamiera di spessore 2 mm è pari a:

$$F_{b,Rd} = k \alpha \phi_{tk} \delta \tau / \gamma_{M2}$$

$$k = 2.5$$

$$\alpha = 40 / (3 \times 14) = 0.95$$

$$d = 12 \text{ mm}$$

$$d_0 = 14 \text{ mm (diam. foro)}$$

$$t = 2 \text{ mm}$$

$$\gamma_{M2} = 1.25$$

$$F_{b,Rd} = 2.5 \times 0.95 \times 3300 \times 1.2 \times 0.2 / 1.25 = 1505 \text{ daN}$$

Per il dado graffato sono state eseguite prove di laboratorio a taglio con i seguenti risultati:

Nella tabella seguente vengono riepilogati i carichi massimi raggiunti in corrispondenza del distacco del dado graffato:

	Forza massima di taglio raggiunta [N]		
	Piastra nr.1	Piastra nr.2	Piastra nr.3
Dado A	11.012	7.831	10.241
Dado B	9.432	8.361	10.781

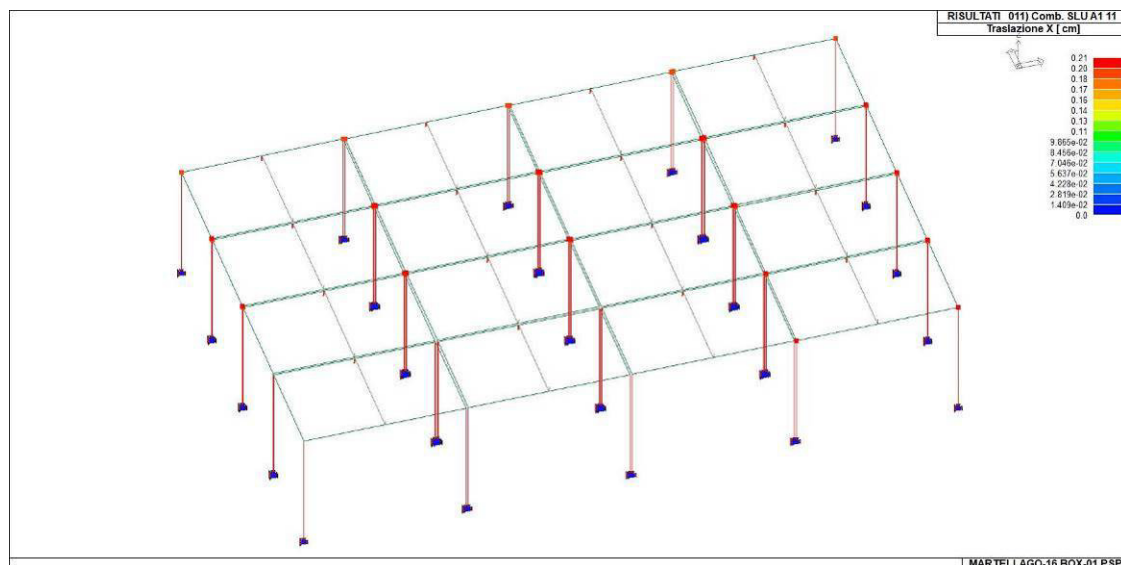
Scartando i valori estremi risulta una resistenza di calcolo media pari a:

$$[(1024.1 + 943.2 + 836.1 + 1078.1) / 4] / 1.25 = 776 \text{ daN}$$

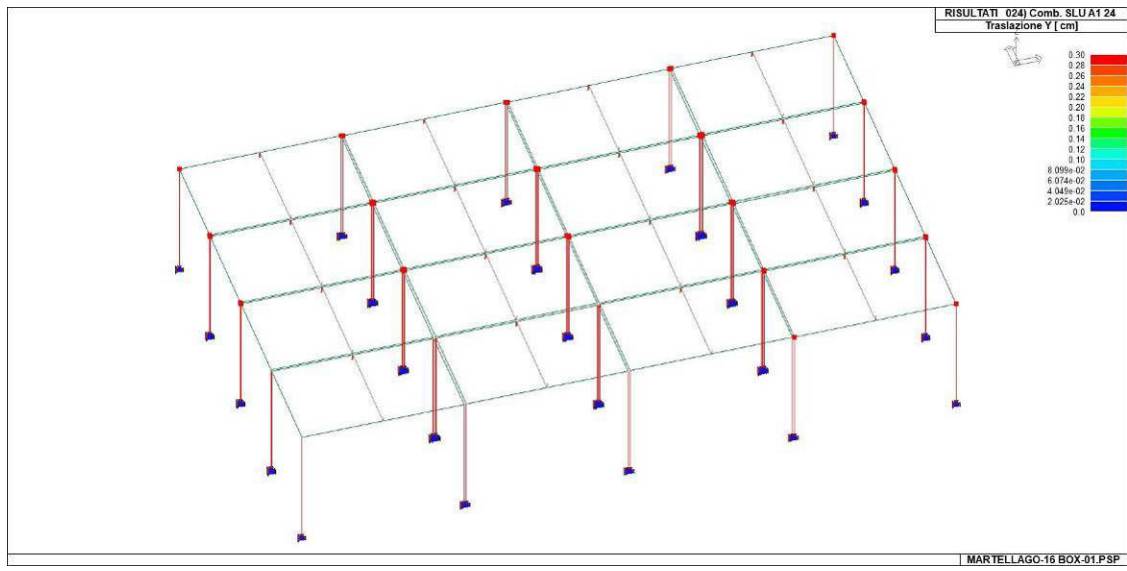
Globalmente, quindi, la resistenza a rifollamento del singolo bullone è pari a:

$$1505 + 776 = 2281 \text{ daN} > 570 \text{ daN.}$$

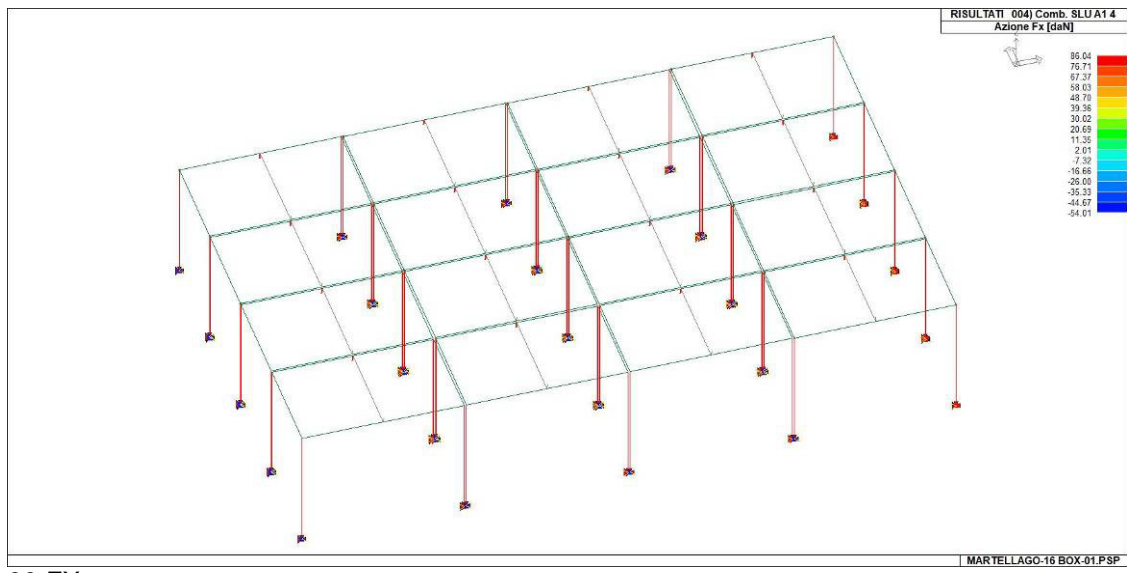
MAPPE CROMATICHE DEI RISULTATI



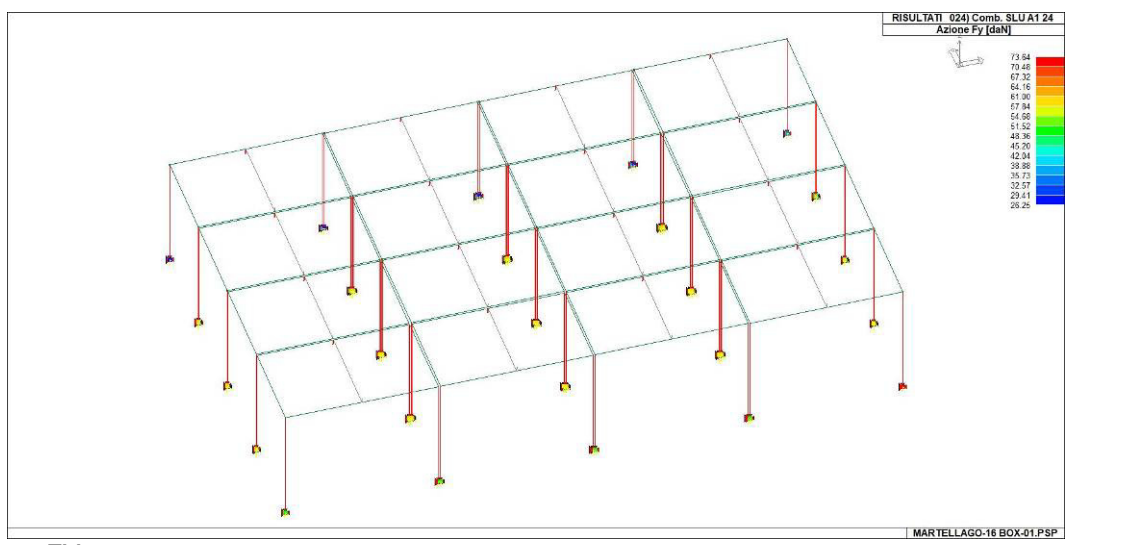
04-X



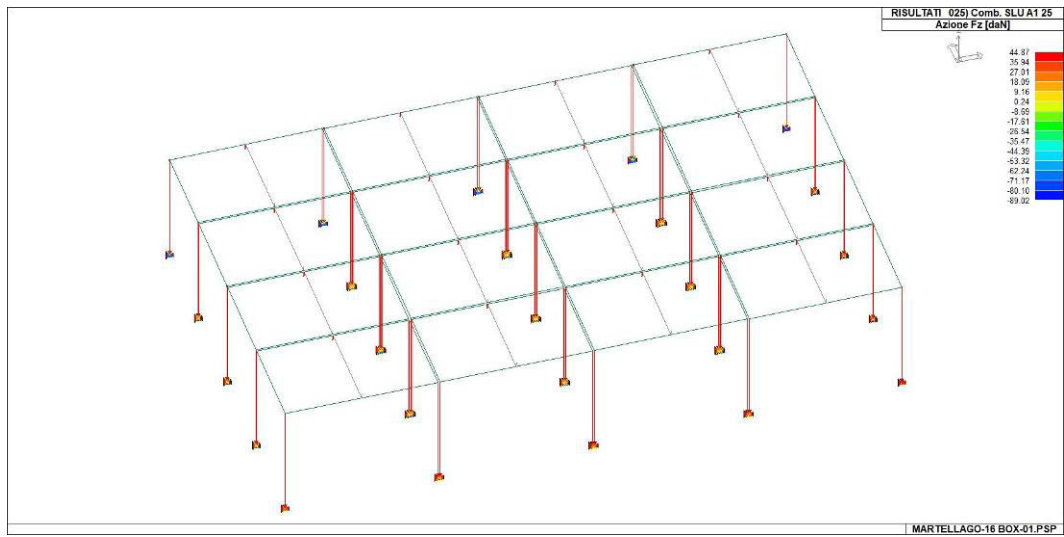
05-Y



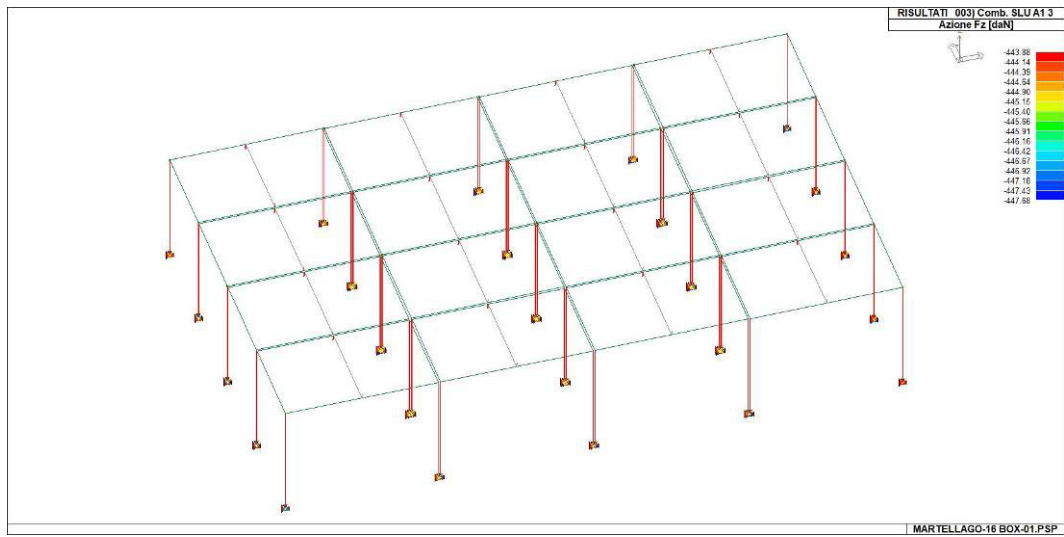
06-FX



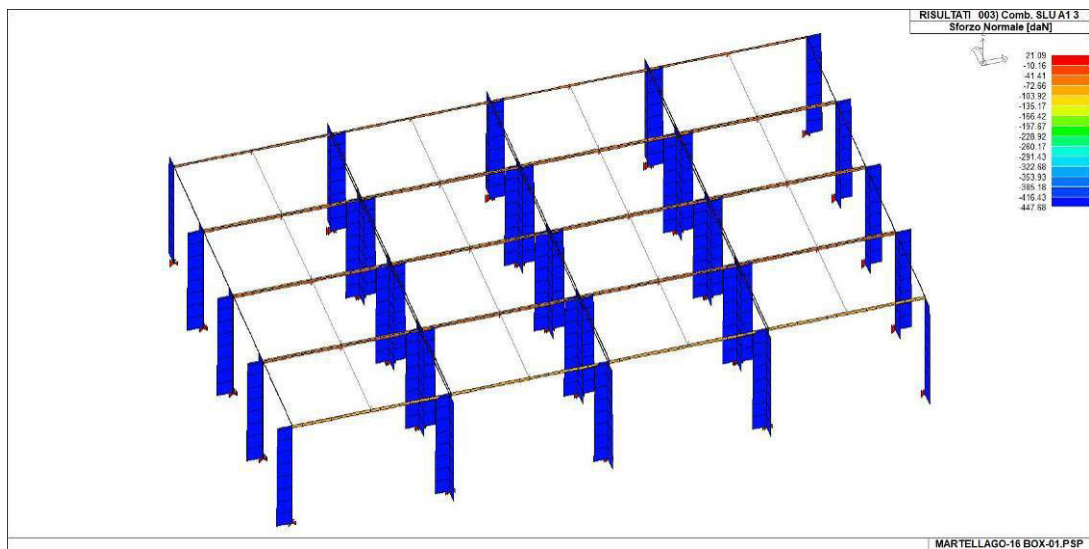
07-FY



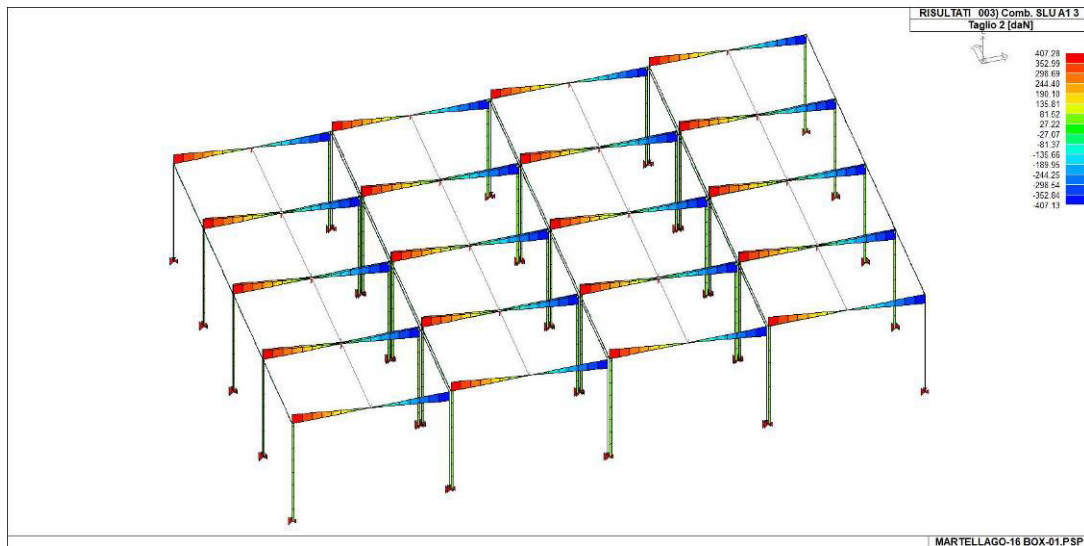
08-FZ



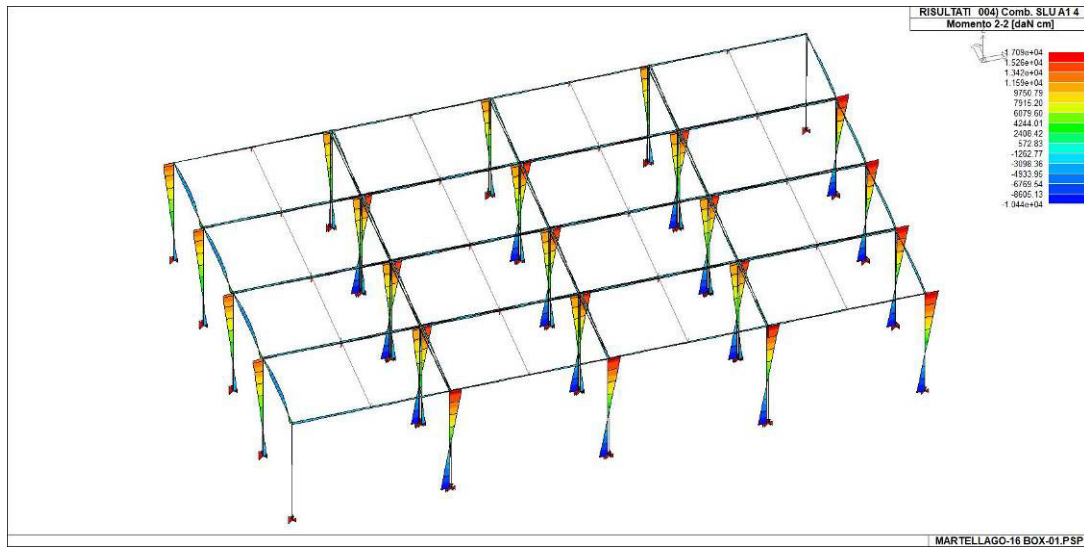
09-FZ



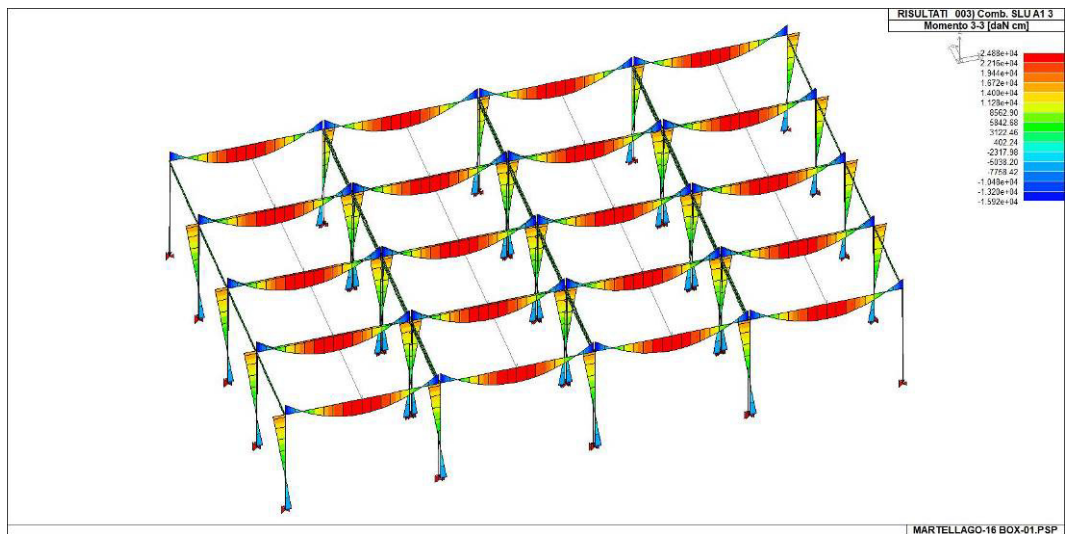
10-SN



11-T2

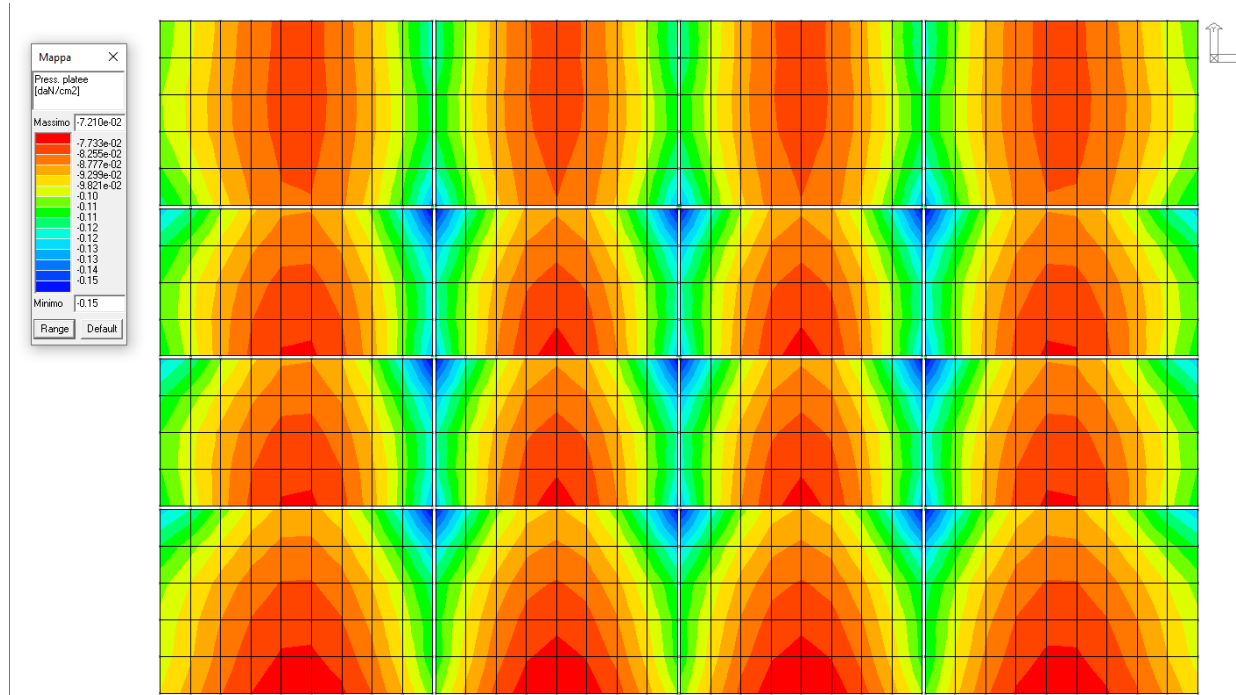


12-M2



13-M3

VERIFICHE ELEMENTI PLATEA IN C.A.



PRESSIONI MASSIME PLATEA SUL TERRENO

La progettazione nel caso dei gusci viene effettuata una progettazione come *Singolo Elemento*, riportando in tabella il rapporto x/d , la verifica per sollecitazioni ultime, (verifica a compressione media gli sforzi membranali, verifica a presso-flessionale e verifica a sollecitazioni taglianti) di ogni elemento.

Per ogni elemento, viene riportata inoltre la maglia di armatura necessaria in relazione alle risultanze della progettazione dei nodi dell'elemento stesso. Le quantità di armature necessarie sono armature (disposte rispettivamente in direzione principale e secondaria, inferiore e superiore) distribuite nell'elemento ed espresse in centimetri quadri per sviluppo lineare pari ad un metro.

Nel caso dei gusci viene effettuata, inoltre, la verifica a punzonamento, riportando in tabella il codice dello stato di verifica, il coefficiente di verifica per piastre prive di armature a taglio lungo il perimetro resistente e lungo il perimetro del pilastro, coefficiente di incremento dovuto ai momenti flettenti, fattore di amplificazione per le fondazioni, il fattore di amplificazione dell'altezza utile per individuare il perimetro di verifica lungo il quale l'armatura a taglio non è richiesta, il quantitativo di armatura a punzonamento, il numero di serie di armature, il numero di braccia di armatura ed il riferimento alla combinazione più gravosa.

Simbologia adottata nelle tabelle di verifica

Per gli elementi con progettazione “*Singolo Elemento ...*” è presente una tabella con i simboli di seguito descritti:

Macro Guscio	Numero del macroelemento di tipo guscio (elementi non verticali contigui ed analoghi per proprietà)
Macro Setto	Numero del macroelemento di tipo setto (elementi verticali contigui ed analoghi per proprietà)
Spessore	Spessore della parete

Id Materiale	Codice del materiale assegnato all'elemento
Id Criterio	Codice del criterio di progetto assegnato all'elemento
Progettazione	Sigla tipo di Elemento: - Singolo Elemento; - Singolo Elemento FONDAZIONE; - Singolo Elemento NON DISSIPATIVO

Per gli elementi con progettazione “Parete Sismica o Parete Debolmente Armata” è presente una tabella con i simboli di seguito descritti:

Parete	Numero della PARETE SISMICA
Parete PDA	Numero della PARETE DEBOLMENTE ARMATA
H totale	Altezza complessiva della parete
Spessore	Spessore della parete
H critica	Altezza come da punto 7.4.4.5.1 per traslazione momento (solo in Parete Sismica)
H critica V	Altezza della zona dissipativa (solo in Parete Sismica)
L totale	Larghezza di base della parete
L confinata	Lunghezza della zona dissipativa (solo in Parete Sismica)
Verif. N	Verifica di cui al punto 7.4.4.5.1 compressione semplice
Verif. N-M	Verifica di cui al punto 7.4.4.5.1 pressoflessione
Fattore V	Fattore di amplificazione del taglio di cui al punto 7.4.4.5.1
Diagramma V	Diagramma elaborato per effetto modi superiori come da fig. 7.4.4
Verif. V	Verifica di cui al punto 7.4.4.5.1 taglio (compressione cls, trazione acciaio, scorrimento in zona critica) (solo in Parete Sismica)
Verifica Snellezza	Verifica di cui al punto 7.4.4.5.1 limitazione compressione per prevenire l'instabilità (solo in Parete Debolmente Armata)
Prog. composta	Sigla per la progettazione composta

Per le verifiche degli elementi con progettazione “Singolo Elemento ...” e Progettazione Composta è presente una tabella con i simboli di seguito descritti:

Nodo	numero del nodo
Stato	codice di verifica dell'elemento ok o NV
x/d	rapporto tra posizione dell'asse neutro e altezza utile alla rottura della sezione (per sola flessione)
V N/M	Verifica delle sollecitazioni Normali (momento e sforzo normale)
Ver. rid	Rapporto Nd/Nu (Nu ottenuto con riduzione del 25% di fcd)
Af pr+	quantità di armatura richiesta in direzione principale relativa alla faccia positiva (estradosso piastre) (valore derivante da calcolo o minimo normativo)
Af pr-	quantità di armatura richiesta in direzione principale relativa alla faccia negativa (intradosso piastre) (valore derivante da calcolo o minimo normativo)
Af sec+	quantità di armatura richiesta in direzione secondaria relativa alla faccia positiva (estradosso piastre) (valore derivante da calcolo o minimo normativo)
Af sec-	quantità di armatura richiesta in direzione secondaria relativa alla faccia negativa (intradosso piastre) (valore derivante da calcolo o minimo normativo)

Nz	No	Nzo	Sforzi membranali per pareti e\o setti verticali
Mz	Mo	Mzo	Sforzi flessionali per pareti e\o setti verticali
Nx	Ny	Nxy	Sforzi membranali per gusci orizzontali
Mx	Mx	Mxy	Sforzi flessionali per gusci orizzontali

Nodo	numero del nodo
Stato	codice di verifica dell'elemento ok o NV
Max tau	Tensione tangenziale Massima
Ver V pr	Verifica a taglio nella direzione principale lato calcestruzzo
Ver V sec	Verifica a taglio nella direzione secondaria lato calcestruzzo
Af V pr	Armatura nella direzione principale
V pr-	Verifica dell'armatura nella direzione principale
Af V sec	Armatura nella direzione secondaria
V sec-	Verifica dell'armatura nella direzione secondaria

PROGETTAZIONE DELLE FONDAZIONI

Il D.M.17/01/2018 - par: 7.2.5 prevede:

“Sia per CD“A” sia per CD“B” il dimensionamento delle strutture di fondazione e la verifica di sicurezza del complesso fondazione-terreno devono essere eseguiti assumendo come azione in fondazione, trasmessa dagli elementi soprastanti, una tra le seguenti:

- quella derivante dall'analisi strutturale eseguita ipotizzando comportamento strutturale non dissipativo;
- [...];
- quella trasferita dagli elementi soprastanti nell'ipotesi di comportamento strutturale dissipativo, amplificata di un coefficiente pari a 1,30 in CD“A” e 1,10 in CD“B”;

Nel contesto visualizzazione risultati e nella stampa della relazione sulle fondazioni PRO_SAP mostra le sollecitazioni che derivano dall'analisi non incrementate sia in termini di pressioni sul terreno che in termini di sollecitazioni.

La progettazione degli elementi strutturali con proprietà fondazione è effettuata da PRO_SAP (per travi e platee) o da PRO_CAD Plinti (per plinti e pali di fondazione) incrementando le sollecitazioni delle combinazioni con sisma di un coefficiente pari 1.1 in CDB e 1.3 in CDA per pali, plinti, travi e platee.

Per i bicchieri dei plinti di fondazione prefabbricati l'incremento delle sollecitazioni ha un fattore pari a 1.2 in CDB e 1.35 in CDA.

N.B.: nel caso di comportamento strutturale non dissipativo la progettazione viene effettuata senza nessun incremento.

Le verifiche geotecniche vengono effettuate dal modulo geotecnico incrementando automaticamente le sollecitazioni del fattore 1.1 in CDB e 1.3 in CDA per pali, plinti, travi e platee.

N.B.: nel caso di comportamento strutturale non dissipativo le verifiche geotecniche vengono effettuate senza nessun incremento.

Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
	cm			
1	25.00	1	1	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
1	ok	0.10	0.1	4.20e-04	2.5	2.5	2.5	2.5	-0.4	-0.4	0.8	-180.7	-174.9	98.2
2	ok	0.10	0.3	6.77e-04	2.5	2.5	2.5	2.5	0.9	1.1	1.8	236.9	254.0	270.1
9	ok	0.10	0.2	7.99e-04	2.5	2.5	2.5	2.5	-0.9	-0.5	-1.6	-339.8	-55.0	-119.0
10	ok	0.10	0.4	1.26e-03	2.5	2.5	2.5	2.5	5.8	-3.5	0.9	612.5	-168.9	297.8
129	ok	0.10	5.52e-02	2.15e-04	2.5	2.5	2.5	2.5	0.3	-0.3	-0.4	81.8	88.5	-27.7
130	ok	0.10	4.14e-02	9.54e-05	2.5	2.5	2.5	2.5	0.3	-6.45e-02	0.2	63.9	42.5	14.0
131	ok	0.10	5.15e-02	1.11e-04	2.5	2.5	2.5	2.5	0.7	-0.2	0.2	60.8	-40.3	31.5
132	ok	0.10	5.64e-02	1.81e-04	2.5	2.5	2.5	2.5	0.2	-0.3	9.29e-02	27.9	109.2	-22.6
133	ok	0.10	4.41e-02	1.02e-04	2.5	2.5	2.5	2.5	0.2	0.1	2.58e-02	65.1	76.3	-18.8
134	ok	0.10	7.74e-02	2.80e-04	2.5	2.5	2.5	2.5	1.0	-0.3	0.7	119.8	136.0	-17.9
135	ok	0.10	8.90e-02	1.24e-04	2.5	2.5	2.5	2.5	0.2	0.4	-0.6	70.6	97.6	-96.7
136	ok	0.10	7.71e-02	2.87e-04	2.5	2.5	2.5	2.5	1.2	0.6	0.3	92.3	-54.8	-47.2
137	ok	0.10	4.60e-02	9.33e-05	2.5	2.5	2.5	2.5	0.3	0.1	0.1	92.3	33.0	5.1
138	ok	0.10	4.75e-02	8.41e-05	2.5	2.5	2.5	2.5	0.3	8.41e-02	6.62e-02	96.5	6.7	6.8
139	ok	0.10	4.79e-02	9.54e-05	2.5	2.5	2.5	2.5	0.3	0.2	-1.95e-02	93.8	53.7	-13.5
140	ok	0.10	6.45e-02	1.34e-04	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	114.4	39.2	-40.1
141	ok	0.10	7.11e-02	2.74e-04	2.5	2.5	2.5	2.5	1.1	-0.2	5.91e-02	137.8	0.7	-32.5
142	ok	0.10	5.46e-02	3.70e-05	2.5	2.5	2.5	2.5	0.3	0.1	2.90e-02	111.2	28.5	2.1
143	ok	0.10	5.49e-02	6.96e-05	2.5	2.5	2.5	2.5	0.4	4.69e-02	3.56e-02	112.3	8.1	4.5
144	ok	0.10	5.72e-02	6.81e-05	2.5	2.5	2.5	2.5	0.4	0.2	-1.46e-02	116.6	42.2	-5.5
145	ok	0.10	6.75e-02	1.41e-04	2.5	2.5	2.5	2.5	0.7	7.03e-02	-4.86e-02	135.7	31.1	-16.1
146	ok	0.10	7.63e-02	3.03e-04	2.5	2.5	2.5	2.5	0.9	-1.91e-02	3.76e-04	154.8	-0.6	-12.8
147	ok	0.10	6.30e-02	2.77e-05	2.5	2.5	2.5	2.5	0.3	0.2	-3.83e-02	128.6	28.8	1.7
148	ok	0.10	6.31e-02	6.56e-05	2.5	2.5	2.5	2.5	0.4	4.98e-02	-5.23e-02	129.3	9.4	2.6
149	ok	0.10	6.60e-02	5.67e-05	2.5	2.5	2.5	2.5	0.4	0.2	2.58e-02	135.1	41.6	3.3
150	ok	0.10	7.59e-02	1.52e-04	2.5	2.5	2.5	2.5	0.7	7.63e-02	7.22e-02	154.8	31.2	6.6
151	ok	0.10	8.53e-02	3.14e-04	2.5	2.5	2.5	2.5	0.9	-9.87e-03	7.91e-03	173.9	-0.7	3.9
152	ok	0.10	7.06e-02	5.19e-05	2.5	2.5	2.5	2.5	0.2	0.2	-0.1	144.1	33.8	0.6
153	ok	0.10	7.21e-02	7.71e-05	2.5	2.5	2.5	2.5	0.4	5.50e-02	-0.1	147.3	10.4	-1.6
154	ok	0.10	7.36e-02	1.14e-04	2.5	2.5	2.5	2.5	0.3	0.2	3.83e-02	149.1	51.5	12.1
155	ok	0.10	8.82e-02	1.49e-04	2.5	2.5	2.5	2.5	0.7	0.1	0.2	173.2	39.5	31.6
156	ok	0.10	9.81e-02	3.13e-04	2.5	2.5	2.5	2.5	1.1	-7.75e-03	2.90e-02	197.5	-0.4	23.3
157	ok	0.10	7.29e-02	1.78e-04	2.5	2.5	2.5	2.5	0.2	4.18e-02	-0.2	148.8	41.2	-8.4
158	ok	0.10	7.86e-02	9.51e-05	2.5	2.5	2.5	2.5	0.4	0.1	-0.1	159.9	6.0	-10.0
159	ok	0.10	7.48e-02	1.84e-04	2.5	2.5	2.5	2.5	-2.69e-02	0.2	-6.35e-02	146.1	73.5	24.3
160	ok	0.10	0.1	1.35e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.4	182.6	57.9	67.4
161	ok	0.10	0.1	3.44e-04	2.5	2.5	2.5	2.5	1.6	3.83e-02	7.42e-02	222.1	5.1	58.8
162	ok	0.10	9.16e-02	2.96e-04	2.5	2.5	2.5	2.5	0.1	-7.95e-02	-0.3	146.5	27.2	-81.2
163	ok	0.10	8.70e-02	3.37e-04	2.5	2.5	2.5	2.5	0.7	-0.8	-0.5	53.8	-150.7	-39.8
164	ok	0.10	7.48e-02	2.34e-04	2.5	2.5	2.5	2.5	0.1	-0.4	-9.18e-02	95.6	124.6	40.4
165	ok	0.10	0.2	3.70e-04	2.5	2.5	2.5	2.5	-0.3	0.7	0.5	160.5	157.2	200.9
166	ok	0.10	0.1	8.43e-04	2.5	2.5	2.5	2.5	4.1	2.6	1.2	204.9	72.2	67.5
167	ok	0.10	8.49e-02	5.09e-04	2.5	2.5	2.5	2.5	-0.5	-1.1	0.5	-156.9	144.7	-29.0
168	ok	0.10	8.63e-02	5.23e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	-0.1	-29.8	173.4	22.3
169	ok	0.10	0.2	1.77e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	-1.5	-309.7	193.2	76.4
842	ok	0.10	4.28e-02	1.31e-04	2.5	2.5	2.5	2.5	-1.25e-02	-7.96e-02	-4.10e-02	40.2	-58.6	25.7
844	ok	0.10	5.82e-02	2.27e-04	2.5	2.5	2.5	2.5	0.3	-0.4	0.4	85.3	6.3	61.7
857	ok	0.10	3.62e-02	2.45e-04	2.5	2.5	2.5	2.5	-0.1	-0.6	0.2	-46.1	15.2	22.5
858	ok	0.10	2.09e-02	6.59e-05	2.5	2.5	2.5	2.5	-2.35e-02	-2.76e-02	9.68e-03	-30.0	14.7	11.3
859	ok	0.10	6.10e-02	3.58e-04	2.5	2.5	2.5	2.5	-5.21e-02	-1.0	-8.86e-02	-12.7	121.9	-17.0
861	ok	0.10	7.24e-02	4.89e-04	2.5	2.5	2.5	2.5	-0.2	-0.7	-0.2	-51.3	135.3	-12.1
864	ok	0.10	3.77e-02	1.22e-04	2.5	2.5	2.5	2.5	0.1	8.27e-02	1.08e-02	38.4	49.7	-25.3
865	ok	0.10	4.18e-02	8.30e-05	2.5	2.5	2.5	2.5	0.6	0.3	-0.2	76.0	16.9	-25.4
867	ok	0.10	4.66e-02	1.22e-04	2.5	2.5	2.5	2.5	0.4	-3.84e-03	1.97e-02	95.4	-2.7	2.2
869	ok	0.10	5.50e-02	1.37e-04	2.5	2.5	2.5	2.5	0.3	-8.67e-03	2.62e-03	112.5	-0.4	3.5
871	ok	0.10	6.34e-02	1.47e-04	2.5	2.5	2.5	2.5	0.4	-7.73e-03	-6.57e-03	129.8	0.3	3.2
873	ok	0.10	7.27e-02	1.45e-04	2.5	2.5	2.5	2.5	0.5	-9.07e-03	-1.55e-02	148.8	-2.0	2.0
875	ok	0.10	7.85e-02	1.28e-04	2.5	2.5	2.5	2.5	0.7	-7.92e-03	-3.51e-02	160.5	-7.0	3.9
877	ok	0.10	8.93e-02	9.33e-05	2.5	2.5	2.5	2.5	0.9	1.0	0.4	142.8	51.7	70.9
879	ok	0.10	8.42e-02	4.43e-04	2.5	2.5	2.5	2.5	0.3	-0.7	-0.9	-118.6	-37.4	-62.4

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
1	ok	0.10	0.36	1.77e-03	2.51	2.51	2.51	2.51	5.85	-3.48	-1.57	-339.85	-174.89	-119.01
2	ok	0.10	0.36	1.77e-03	2.51	2.51	2.51	2.51	5.85	2.62	1.84	612.46	254.02	297.83

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
1	ok	0.13						
2	ok	0.19						
9	ok	0.15						
10	ok	0.29						
129	ok	0.13						
130	ok	0.11						
131	ok	0.11						
132	ok	0.05						
133	ok	0.05						
134	ok	0.15						
135	ok	0.13						
136	ok	0.13						
137	ok	0.03						
138	ok	0.03						
139	ok	0.02						
140	ok	0.05						
141	ok	0.05						
142	ok	0.02						
143	ok	0.02						
144	ok	0.02						
145	ok	0.02						
146	ok	0.02						
147	ok	0.02						
148	ok	0.02						
149	ok	0.02						
150	ok	0.03						
151	ok	0.03						
152	ok	0.02						
153	ok	0.02						
154	ok	0.02						
155	ok	0.03						
156	ok	0.03						
157	ok	0.05						
158	ok	0.05						
159	ok	0.03						
160	ok	0.07						
161	ok	0.07						
162	ok	0.19						
163	ok	0.19						
164	ok	0.08						
165	ok	0.29						
166	ok	0.29						
167	ok	0.19						
168	ok	0.08						
169	ok	0.29						
842	ok	0.13						
844	ok	0.15						
857	ok	0.13						
858	ok	0.10						

848	ok	0.16
866	ok	0.16
872	ok	0.04
876	ok	0.16

Nodo	Max tau 0.36	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
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Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
3	25.00 cm	1	1	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
33	ok	0.10	0.2	1.01e-03	2.5	2.5	2.5	2.5	-1.0	-0.8	2.0	-333.0	-208.4	206.0
34	ok	0.10	0.4	1.54e-03	2.5	2.5	2.5	2.5	5.8	-3.4	-0.8	610.1	-149.8	-306.2
41	ok	0.10	0.2	7.96e-04	2.5	2.5	2.5	2.5	-0.9	-0.5	-1.6	-332.6	-51.4	-112.9
42	ok	0.10	0.4	1.24e-03	2.5	2.5	2.5	2.5	5.8	-3.4	0.8	609.2	-161.3	299.9
211	ok	0.10	8.61e-02	3.17e-04	2.5	2.5	2.5	2.5	1.1	-0.5	-0.9	145.0	134.6	-35.4
212	ok	0.10	7.97e-02	1.40e-04	2.5	2.5	2.5	2.5	0.3	0.3	0.2	87.4	67.1	59.6
213	ok	0.10	8.08e-02	2.11e-04	2.5	2.5	2.5	2.5	1.6	0.4	0.4	112.6	-10.9	46.0
214	ok	0.10	7.00e-02	2.36e-04	2.5	2.5	2.5	2.5	0.2	-0.4	0.1	40.4	142.4	8.5
215	ok	0.10	4.87e-02	1.44e-04	2.5	2.5	2.5	2.5	0.2	0.2	6.86e-02	78.3	99.1	3.8
216	ok	0.10	7.70e-02	2.57e-04	2.5	2.5	2.5	2.5	0.9	-0.4	0.6	124.5	148.9	-10.0
217	ok	0.10	8.82e-02	1.93e-04	2.5	2.5	2.5	2.5	0.1	0.3	-0.7	79.2	99.1	-90.3
218	ok	0.10	8.22e-02	2.81e-04	2.5	2.5	2.5	2.5	1.0	0.6	0.2	100.2	-52.7	-44.8
219	ok	0.10	6.86e-02	1.04e-04	2.5	2.5	2.5	2.5	0.6	0.1	0.2	127.9	43.6	34.4
220	ok	0.10	7.53e-02	1.76e-04	2.5	2.5	2.5	2.5	0.8	-0.2	-5.62e-02	148.2	1.1	29.9
221	ok	0.10	5.60e-02	1.15e-04	2.5	2.5	2.5	2.5	0.3	0.3	2.29e-02	113.7	67.1	2.3
222	ok	0.10	6.82e-02	1.79e-04	2.5	2.5	2.5	2.5	0.6	0.1	-0.2	127.7	43.6	-33.6
223	ok	0.10	7.51e-02	3.34e-04	2.5	2.5	2.5	2.5	0.8	-0.2	5.46e-02	147.9	1.1	-29.3
224	ok	0.10	7.50e-02	8.72e-05	2.5	2.5	2.5	2.5	0.6	7.99e-02	6.42e-02	151.7	33.0	14.1
225	ok	0.10	8.19e-02	1.97e-04	2.5	2.5	2.5	2.5	0.7	-1.05e-02	7.18e-03	166.4	-1.0	11.6
226	ok	0.10	6.90e-02	6.29e-05	2.5	2.5	2.5	2.5	0.5	0.2	1.42e-02	141.0	50.5	1.0
227	ok	0.10	7.49e-02	1.73e-04	2.5	2.5	2.5	2.5	0.6	7.98e-02	-5.93e-02	151.7	33.0	-13.3
228	ok	0.10	8.19e-02	3.84e-04	2.5	2.5	2.5	2.5	0.7	-1.04e-02	-6.72e-03	166.3	-1.0	-11.1
229	ok	0.10	8.51e-02	8.09e-05	2.5	2.5	2.5	2.5	0.6	8.58e-02	-7.10e-02	173.9	32.5	-3.1
230	ok	0.10	9.21e-02	2.10e-04	2.5	2.5	2.5	2.5	0.7	-1.31e-02	-1.18e-02	188.4	-0.6	-1.5
231	ok	0.10	8.00e-02	2.30e-05	2.5	2.5	2.5	2.5	0.5	0.2	7.85e-03	163.7	49.2	0.7
232	ok	0.10	8.51e-02	1.72e-04	2.5	2.5	2.5	2.5	0.6	8.59e-02	7.59e-02	174.0	32.5	3.9
233	ok	0.10	9.22e-02	4.02e-04	2.5	2.5	2.5	2.5	0.7	-1.34e-02	1.22e-02	188.6	-0.6	2.0
234	ok	0.10	9.71e-02	9.55e-05	2.5	2.5	2.5	2.5	0.6	0.1	-0.2	195.2	42.3	-23.0
235	ok	0.10	0.1	2.12e-04	2.5	2.5	2.5	2.5	0.9	-1.76e-02	-4.14e-02	214.5	-2.8	-15.9
236	ok	0.10	8.87e-02	8.72e-05	2.5	2.5	2.5	2.5	0.3	0.3	1.75e-02	181.5	62.8	1.2
237	ok	0.10	9.74e-02	1.78e-04	2.5	2.5	2.5	2.5	0.6	0.1	0.2	195.5	42.4	24.0
238	ok	0.10	0.1	3.84e-04	2.5	2.5	2.5	2.5	0.9	-1.80e-02	4.16e-02	215.0	-2.8	16.5
239	ok	0.10	0.1	1.13e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	204.6	64.9	-54.0
240	ok	0.10	0.1	2.24e-04	2.5	2.5	2.5	2.5	1.4	3.00e-02	-8.32e-02	240.1	4.6	-52.1
241	ok	0.10	8.77e-02	2.02e-04	2.5	2.5	2.5	2.5	-9.45e-02	0.4	5.39e-03	179.7	92.8	3.8
242	ok	0.10	0.1	1.89e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	205.3	65.0	55.2
243	ok	0.10	0.1	3.71e-04	2.5	2.5	2.5	2.5	1.4	2.20e-02	8.11e-02	241.0	4.8	53.0
244	ok	0.10	0.2	4.93e-04	2.5	2.5	2.5	2.5	-1.1	1.0	-0.3	241.9	58.2	-168.6
245	ok	0.10	0.1	3.23e-04	2.5	2.5	2.5	2.5	4.2	2.9	-1.6	195.5	155.9	-61.9
246	ok	0.10	7.80e-02	2.82e-04	2.5	2.5	2.5	2.5	2.99e-02	-0.4	0.1	117.6	159.0	4.9
247	ok	0.10	0.2	3.95e-04	2.5	2.5	2.5	2.5	-0.4	0.7	0.7	176.6	166.3	186.6
248	ok	0.10	0.1	7.79e-04	2.5	2.5	2.5	2.5	4.0	2.6	1.2	218.4	68.4	62.6
249	ok	0.10	0.2	1.79e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	1.5	-308.8	213.5	-65.3
250	ok	0.10	0.1	6.45e-04	2.5	2.5	2.5	2.5	-0.3	-1.5	-0.1	-28.7	220.7	2.1
251	ok	0.10	0.2	1.77e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	-1.5	-308.5	214.3	66.6
850	ok	0.10	7.58e-02	3.04e-04	2.5	2.5	2.5	2.5	0.4	-0.5	-0.7	93.4	56.8	-77.7
852	ok	0.10	5.78e-02	2.28e-04	2.5	2.5	2.5	2.5	0.3	-0.4	0.4	85.8	4.5	60.8
884	ok	0.10	6.56e-02	6.23e-04	2.5	2.5	2.5	2.5	-0.6	-1.5	0.5	-85.9	21.4	51.8
890	ok	0.10	7.92e-02	4.62e-04	2.5	2.5	2.5	2.5	-4.12e-02	-1.3	0.1	-13.2	160.4	10.6
894	ok	0.10	7.08e-02	5.02e-04	2.5	2.5	2.5	2.5	-0.4	-1.3	-0.4	-76.1	98.7	-32.5

Nodo	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
0.10	0.36	1.79e-03	2.51	2.51	2.51	2.51	2.51	-3.60	-3.45	-1.62	-332.96	-208.41	-306.21
								5.80	2.87	1.98	610.11	220.69	299.92

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
33	ok	0.17						
34	ok	0.36						
41	ok	0.16						
42	ok	0.29						
211	ok	0.17						
212	ok	0.17						
213	ok	0.17						
214	ok	0.06						
215	ok	0.06						
216	ok	0.16						
217	ok	0.12						
218	ok	0.12						
219	ok	0.05						
220	ok	0.05						
221	ok	0.02						
222	ok	0.05						
223	ok	0.05						
224	ok	0.02						
225	ok	0.02						
226	ok	0.02						
227	ok	0.03						
228	ok	0.03						
229	ok	0.03						
230	ok	0.03						
231	ok	0.03						
232	ok	0.03						
233	ok	0.03						
234	ok	0.03						
235	ok	0.03						
236	ok	0.03						
237	ok	0.04						
238	ok	0.04						
239	ok	0.07						
240	ok	0.07						
241	ok	0.03						
242	ok	0.07						
243	ok	0.07						
244	ok	0.36						
245	ok	0.36						
246	ok	0.09						
247	ok	0.29						
248	ok	0.29						
249	ok	0.36						
250	ok	0.09						
251	ok	0.29						
850	ok	0.16						
852	ok	0.16						
884	ok	0.16						
890	ok	0.04						
894	ok	0.16						

Nodo	Max tau 0.36	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
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Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
	cm			
4	25.00	1	1	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
49	ok	0.10	0.2	1.01e-03	2.5	2.5	2.5	2.5	-0.9	-0.8	2.0	-335.7	-211.9	209.3
50	ok	0.10	0.4	1.54e-03	2.5	2.5	2.5	2.5	5.8	-3.5	-0.9	613.3	-156.8	-304.3
57	ok	0.10	9.55e-02	3.40e-04	2.5	2.5	2.5	2.5	-0.3	-0.3	-0.7	-158.6	-113.1	-54.7
58	ok	0.10	0.2	4.05e-04	2.5	2.5	2.5	2.5	1.3	-0.7	0.5	304.6	-232.8	157.4
252	ok	0.10	7.80e-02	3.22e-04	2.5	2.5	2.5	2.5	1.1	-0.5	-0.9	137.8	120.2	-28.5
253	ok	0.10	7.88e-02	1.28e-04	2.5	2.5	2.5	2.5	0.4	0.3	0.2	77.2	58.7	68.1
254	ok	0.10	8.77e-02	2.16e-04	2.5	2.5	2.5	2.5	1.7	0.4	0.4	104.2	-11.0	48.4
255	ok	0.10	5.67e-02	2.60e-04	2.5	2.5	2.5	2.5	0.1	-0.3	-9.08e-02	27.8	109.5	23.5
256	ok	0.10	4.45e-02	1.08e-04	2.5	2.5	2.5	2.5	0.2	0.1	-2.03e-02	65.3	76.5	19.6
257	ok	0.10	4.66e-02	2.42e-04	2.5	2.5	2.5	2.5	0.2	-0.3	0.2	69.9	90.4	11.3
258	ok	0.10	4.10e-02	1.34e-04	2.5	2.5	2.5	2.5	0.1	7.32e-02	-0.4	58.5	41.1	-28.0
259	ok	0.10	4.77e-02	1.62e-04	2.5	2.5	2.5	2.5	0.4	-2.55e-02	-0.2	73.7	-9.0	-9.2
260	ok	0.10	6.49e-02	1.06e-04	2.5	2.5	2.5	2.5	0.7	0.1	0.2	114.7	39.3	40.9
261	ok	0.10	7.13e-02	1.17e-04	2.5	2.5	2.5	2.5	1.1	-0.2	-6.08e-02	138.1	0.8	33.0
262	ok	0.10	4.81e-02	7.00e-05	2.5	2.5	2.5	2.5	0.3	0.2	2.56e-02	93.9	53.8	14.1
263	ok	0.10	4.59e-02	9.92e-05	2.5	2.5	2.5	2.5	0.3	0.1	-9.69e-02	92.2	33.2	-4.6
264	ok	0.10	4.73e-02	1.24e-04	2.5	2.5	2.5	2.5	0.3	8.57e-02	-6.42e-02	96.3	6.7	-6.4
265	ok	0.10	6.77e-02	5.82e-05	2.5	2.5	2.5	2.5	0.7	7.07e-02	5.29e-02	135.7	31.2	16.7
266	ok	0.10	7.64e-02	1.20e-04	2.5	2.5	2.5	2.5	0.9	-1.97e-02	-9.35e-05	154.9	-0.6	13.2
267	ok	0.10	5.72e-02	4.13e-05	2.5	2.5	2.5	2.5	0.4	0.2	2.08e-02	116.6	42.3	6.0
268	ok	0.10	5.46e-02	6.69e-05	2.5	2.5	2.5	2.5	0.3	0.2	-2.40e-02	111.2	28.6	-1.7
269	ok	0.10	5.49e-02	1.20e-04	2.5	2.5	2.5	2.5	0.3	5.63e-02	-2.73e-02	112.1	9.0	-3.4
270	ok	0.10	7.58e-02	5.22e-05	2.5	2.5	2.5	2.5	0.7	7.61e-02	-6.81e-02	154.7	31.1	-5.9
271	ok	0.10	8.52e-02	1.32e-04	2.5	2.5	2.5	2.5	0.9	-9.87e-03	-7.49e-03	173.7	-0.7	-3.5
272	ok	0.10	6.60e-02	3.59e-05	2.5	2.5	2.5	2.5	0.4	0.2	-1.96e-02	135.1	41.6	-2.8
273	ok	0.10	6.30e-02	4.67e-05	2.5	2.5	2.5	2.5	0.3	0.2	4.36e-02	128.6	28.7	-1.3
274	ok	0.10	6.32e-02	1.20e-04	2.5	2.5	2.5	2.5	0.4	4.97e-02	5.47e-02	129.4	9.4	-2.3
275	ok	0.10	8.78e-02	6.18e-05	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	172.8	39.4	-30.8
276	ok	0.10	9.78e-02	1.56e-04	2.5	2.5	2.5	2.5	1.1	-7.02e-03	-2.86e-02	196.9	-0.4	-22.8
277	ok	0.10	7.35e-02	4.84e-05	2.5	2.5	2.5	2.5	0.3	0.2	-3.17e-02	149.0	51.4	-11.5
278	ok	0.10	7.07e-02	9.32e-05	2.5	2.5	2.5	2.5	0.2	0.1	0.1	143.8	34.0	0.9
279	ok	0.10	7.23e-02	1.21e-04	2.5	2.5	2.5	2.5	0.4	5.40e-02	0.1	147.6	10.4	1.9
280	ok	0.10	0.1	8.23e-05	2.5	2.5	2.5	2.5	0.6	0.2	-0.4	181.8	57.8	-66.3
281	ok	0.10	0.1	2.28e-04	2.5	2.5	2.5	2.5	1.6	4.60e-02	-7.64e-02	221.0	5.0	-58.0
282	ok	0.10	7.45e-02	1.54e-04	2.5	2.5	2.5	2.5	-2.71e-02	0.2	7.09e-02	145.9	73.3	-23.3
283	ok	0.10	7.31e-02	1.49e-04	2.5	2.5	2.5	2.5	0.2	4.11e-02	0.2	149.2	40.8	9.2
284	ok	0.10	7.90e-02	1.27e-04	2.5	2.5	2.5	2.5	0.4	0.1	0.1	160.6	5.8	10.5
285	ok	0.10	0.2	4.80e-04	2.5	2.5	2.5	2.5	-1.0	1.0	-0.2	228.7	42.6	-184.7
286	ok	0.10	0.2	3.84e-04	2.5	2.5	2.5	2.5	4.2	2.8	-1.6	182.7	158.1	-66.1
287	ok	0.10	7.39e-02	2.82e-04	2.5	2.5	2.5	2.5	0.1	-0.4	9.87e-02	95.3	124.2	-38.6
288	ok	0.10	9.07e-02	2.45e-04	2.5	2.5	2.5	2.5	0.2	3.18e-02	0.6	113.2	79.0	86.9
289	ok	0.10	8.03e-02	2.34e-04	2.5	2.5	2.5	2.5	0.6	-0.6	0.4	145.5	-61.2	59.6
290	ok	0.10	0.2	1.78e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	1.5	-310.0	192.6	-75.1
291	ok	0.10	8.60e-02	5.20e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	0.1	-29.3	173.0	-21.4
292	ok	0.10	7.79e-02	4.75e-04	2.5	2.5	2.5	2.5	-0.5	-1.1	-0.5	-156.5	145.7	29.8
785	ok	0.10	3.80e-02	9.24e-05	2.5	2.5	2.5	2.5	0.2	-2.44e-02	-0.2	20.7	34.9	-21.5
786	ok	0.10	6.87e-02	3.69e-04	2.5	2.5	2.5	2.5	0.2	-0.6	0.7	-130.7	7.5	38.4
795	ok	0.10	3.45e-02	1.12e-04	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	65.4	-7.5	1.3
796	ok	0.10	6.08e-02	6.28e-04	2.5	2.5	2.5	2.5	-0.6	-1.5	0.5	-85.0	1.7	55.1
797	ok	0.10	4.65e-02	1.87e-04	2.5	2.5	2.5	2.5	0.4	-4.12e-03	-1.93e-02	95.1	-2.6	-2.1
799	ok	0.10	5.50e-02	2.36e-04	2.5	2.5	2.5	2.5	0.3	-8.54e-03	-2.36e-03	112.4	-0.4	-3.3
801	ok	0.10	6.35e-02	2.56e-04	2.5	2.5	2.5	2.5	0.3	-7.66e-03	6.86e-03	130.0	0.3	-3.0
803	ok	0.10	7.29e-02	2.56e-04	2.5	2.5	2.5	2.5	0.5	-9.23e-03	1.56e-02	149.2	-2.0	-1.8
805	ok	0.10	7.89e-02	2.39e-04	2.5	2.5	2.5	2.5	0.7	-7.57e-03	3.53e-02	161.2	-7.1	-3.8
807	ok	0.10	8.95e-02	2.23e-04	2.5	2.5	2.5	2.5	0.6	0.8	-0.2	161.4	12.0	-60.7
808	ok	0.10	6.13e-02	3.97e-04	2.5	2.5	2.5	2.5	-5.43e-02	-1.0	8.79e-02	-12.9	122.3	17.5
818	ok	0.10	3.64e-02	2.27e-04	2.5	2.5	2.5	2.5	-7.12e-02	-0.6	-0.2	-40.8	46.7	-11.7
828	ok	0.10	1.94e-02	5.61e-05	2.5	2.5	2.5	2.5	5.99e-02	-0.1	7.78e-02	-29.3	-29.8	7.0
854	ok	0.10	7.60e-02	3.06e-04	2.5	2.5	2.5	2.5	0.4	-0.5	-0.7	91.6	58.6	-78.5
856	ok	0.10	3.10e-02	1.01e-04	2.5	2.5	2.5	2.5	-1.17e-02	-8.14e-02	4.42e-02	39.7	-57.4	-25.2
Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
		0.10	0.36	1.78e-03	2.51	2.51	2.51	2.51	-3.64	-3.46	-1.61	-335.65	-232.82	-304.32
Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm						
49	ok	0.17												
50	ok	0.36												
57	ok	0.12												
58	ok	0.16												
252	ok	0.17												
253	ok	0.17												
254	ok	0.17												
255	ok	0.05												
256	ok	0.05												
257	ok	0.12												
258	ok	0.09												
259	ok	0.09												
260	ok	0.05												
261	ok	0.05												
262	ok	0.02												
263	ok	0.03												
264	ok	0.03												
265	ok	0.02												
266	ok	0.02												
267	ok	0.02												
268	ok	0.02												
269	ok	0.02												
270	ok	0.03												
271	ok	0.03												
272	ok	0.02												
273	ok	0.02												
274	ok	0.02												
275	ok	0.03												
276	ok	0.03												
277	ok	0.02												
278	ok	0.02												
279	ok	0.02												
280	ok	0.08												
281	ok	0.08												
282	ok	0.03												
283	ok	0.05												
284	ok	0.05												
285	ok	0.36												
286	ok	0.36												
287	ok	0.08												
288	ok	0.16												
289	ok	0.16												
290	ok	0.36												
291	ok	0.08												
292	ok	0.16												
785	ok	0.09												
786	ok	0.16												
795	ok	0.09												
796	ok	0.15												
797	ok	0.03												

799	ok	0.02
801	ok	0.02
803	ok	0.02
805	ok	0.04
807	ok	0.16
808	ok	0.04
818	ok	0.12
828	ok	0.08
854	ok	0.15
856	ok	0.12

Nodo	Max tau 0.36	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
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Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
5	25.00 cm	t	t	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
51	ok	0.10	0.3	1.61e-03	2.5	2.5	2.5	2.5	6.0	-4.6	0.3	542.1	-404.9	149.0
52	ok	0.10	0.4	1.54e-03	2.5	2.5	2.5	2.5	5.9	-3.5	-0.8	613.8	-158.7	-303.8
59	ok	0.10	0.1	3.32e-04	2.5	2.5	2.5	2.5	1.1	-0.5	-0.5	233.3	-205.5	-146.7
60	ok	0.10	0.2	4.07e-04	2.5	2.5	2.5	2.5	1.3	-0.7	0.5	305.0	-237.9	157.0
293	ok	0.10	0.1	1.86e-03	2.5	2.5	2.5	2.5	-4.0	-3.9	-1.3	-276.9	199.9	112.1
294	ok	0.10	0.2	5.18e-04	2.5	2.5	2.5	2.5	-1.3	0.9	-0.3	199.8	-45.5	131.2
295	ok	0.10	0.2	4.25e-04	2.5	2.5	2.5	2.5	4.4	3.0	1.7	188.9	168.5	67.9
296	ok	0.10	8.63e-02	5.21e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	-0.1	-29.8	173.6	21.6
297	ok	0.10	7.51e-02	2.98e-04	2.5	2.5	2.5	2.5	0.1	-0.4	-9.65e-02	98.3	125.1	39.7
298	ok	0.10	7.72e-02	4.01e-04	2.5	2.5	2.5	2.5	-0.4	-0.9	0.4	-121.4	153.6	-32.4
299	ok	0.10	8.71e-02	2.50e-04	2.5	2.5	2.5	2.5	0.1	-4.03e-02	-0.3	133.2	43.5	-78.2
300	ok	0.10	8.09e-02	1.89e-04	2.5	2.5	2.5	2.5	0.5	-0.5	-0.3	153.9	-45.5	-49.2
301	ok	0.10	0.1	1.11e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.4	194.5	59.4	66.0
302	ok	0.10	0.1	2.27e-04	2.5	2.5	2.5	2.5	1.6	3.84e-02	7.26e-02	234.9	5.7	58.3
303	ok	0.10	7.95e-02	1.61e-04	2.5	2.5	2.5	2.5	-4.05e-02	0.2	-7.21e-02	157.0	75.2	23.2
304	ok	0.10	7.80e-02	1.54e-04	2.5	2.5	2.5	2.5	0.2	6.29e-02	-0.2	159.1	41.7	-9.4
305	ok	0.10	8.35e-02	1.28e-04	2.5	2.5	2.5	2.5	0.4	0.1	-0.1	169.8	5.8	-11.2
306	ok	0.10	9.98e-02	7.05e-05	2.5	2.5	2.5	2.5	0.7	0.1	0.2	199.0	42.5	28.7
307	ok	0.10	0.1	1.56e-04	2.5	2.5	2.5	2.5	1.2	-9.75e-03	2.47e-02	225.1	-0.1	22.0
308	ok	0.10	8.50e-02	4.25e-05	2.5	2.5	2.5	2.5	0.2	0.3	2.33e-02	173.1	55.2	10.3
309	ok	0.10	8.20e-02	9.60e-05	2.5	2.5	2.5	2.5	0.2	0.2	-9.14e-02	166.8	36.3	-1.6
310	ok	0.10	8.33e-02	1.31e-04	2.5	2.5	2.5	2.5	0.4	6.82e-02	-0.1	170.1	10.9	-3.1
311	ok	0.10	9.71e-02	5.32e-05	2.5	2.5	2.5	2.5	0.7	0.1	4.29e-03	198.4	36.9	0.9
312	ok	0.10	0.1	1.20e-04	2.5	2.5	2.5	2.5	1.1	-1.38e-02	-2.15e-03	221.2	-0.9	0.7
313	ok	0.10	8.57e-02	3.91e-05	2.5	2.5	2.5	2.5	0.3	0.3	5.20e-03	175.5	48.9	0.4
314	ok	0.10	8.24e-02	4.53e-05	2.5	2.5	2.5	2.5	0.2	0.2	1.89e-03	168.1	33.2	0.6
315	ok	0.10	8.26e-02	1.25e-04	2.5	2.5	2.5	2.5	0.4	7.57e-02	-7.13e-04	168.8	11.3	0.5
316	ok	0.10	9.96e-02	5.76e-05	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	198.7	42.4	-27.9
317	ok	0.10	0.1	1.34e-04	2.5	2.5	2.5	2.5	1.2	-9.09e-03	-2.46e-02	224.7	-0.1	-21.5
318	ok	0.10	8.49e-02	5.13e-05	2.5	2.5	2.5	2.5	0.2	0.3	-1.66e-02	173.1	55.1	-9.6
319	ok	0.10	8.21e-02	9.43e-05	2.5	2.5	2.5	2.5	0.2	0.2	9.71e-02	167.1	36.2	2.1
320	ok	0.10	8.35e-02	1.25e-04	2.5	2.5	2.5	2.5	0.4	6.77e-02	0.1	170.6	10.8	3.4
321	ok	0.10	0.1	7.31e-05	2.5	2.5	2.5	2.5	0.6	0.2	-0.4	193.9	59.3	-64.9
322	ok	0.10	0.1	2.18e-04	2.5	2.5	2.5	2.5	1.6	4.51e-02	-7.47e-02	234.0	5.5	-57.5
323	ok	0.10	7.93e-02	1.58e-04	2.5	2.5	2.5	2.5	-4.03e-02	0.2	7.86e-02	157.0	75.0	-22.2
324	ok	0.10	7.83e-02	1.49e-04	2.5	2.5	2.5	2.5	0.2	6.20e-02	0.2	159.7	41.4	10.1
325	ok	0.10	8.40e-02	1.28e-04	2.5	2.5	2.5	2.5	0.4	0.1	0.1	170.8	5.6	11.7
326	ok	0.10	0.2	4.79e-04	2.5	2.5	2.5	2.5	-1.0	1.0	-0.2	231.5	42.6	-183.5
327	ok	0.10	0.2	3.79e-04	2.5	2.5	2.5	2.5	4.2	2.8	-1.6	185.3	158.5	-66.2
328	ok	0.10	7.42e-02	2.82e-04	2.5	2.5	2.5	2.5	0.1	-0.4	0.1	98.1	124.8	-37.9
329	ok	0.10	9.19e-02	2.41e-04	2.5	2.5	2.5	2.5	0.2	4.43e-02	0.6	115.8	78.8	87.4
330	ok	0.10	8.18e-02	2.39e-04	2.5	2.5	2.5	2.5	0.6	-0.6	0.4	147.8	-63.4	61.0
331	ok	0.10	0.2	1.79e-03	2.5	2.5	2.5	2.5	-3.7	-3.4	1.5	-310.4	193.5	-74.6
332	ok	0.10	8.61e-02	5.25e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	0.1	-29.3	173.3	-20.6
333	ok	0.10	7.81e-02	4.79e-04	2.5	2.5	2.5	2.5	-0.5	-1.1	-0.5	-156.6	146.0	31.0
787	ok	0.10	5.24e-02	3.16e-04	2.5	2.5	2.5	2.5	0.1	-0.5	-0.6	-101.9	27.4	-21.1
788	ok	0.10	6.92e-02	3.72e-04	2.5	2.5	2.5	2.5	0.2	-0.6	0.7	-131.0	7.2	39.5
811	ok	0.10	7.87e-02	1.82e-04	2.5	2.5	2.5	2.5	0.5	0.7	0.2	146.3	-3.7	49.1
813	ok	0.10	8.30e-02	2.17e-04	2.5	2.5	2.5	2.5	0.7	-9.73e-03	-3.33e-02	169.7	-6.3	1.9
815	ok	0.10	8.37e-02	2.53e-04	2.5	2.5	2.5	2.5	0.5	-1.14e-02	-1.21e-02	171.3	-1.4	-0.6
817	ok	0.10	8.29e-02	2.70e-04	2.5	2.5	2.5	2.5	0.4	-1.02e-02	-6.67e-04	169.8	0.3	0.8
819	ok	0.10	8.39e-02	2.67e-04	2.5	2.5	2.5	2.5	0.5	-1.12e-02	1.18e-02	171.7	-1.4	0.7
821	ok	0.10	8.35e-02	2.46e-04	2.5	2.5	2.5	2.5	0.7	-9.11e-03	3.32e-02	170.7	-6.4	-1.8
823	ok	0.10	9.04e-02	2.22e-04	2.5	2.5	2.5	2.5	0.6	0.8	-0.2	163.2	13.4	-60.8

Nodo	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
	0.10	0.36	1.86e-03	2.51	2.51	2.51	2.51	-3.98	-4.55	-1.62	-310.36	-404.87	-303.76
								6.00	2.97	1.70	613.76	199.91	156.97

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
51	ok	0.39						
52	ok	0.36						
59	ok	0.15						
60	ok	0.16						
293	ok	0.39						
294	ok	0.39						
295	ok	0.39						
296	ok	0.08						
297	ok	0.08						
298	ok	0.13						
299	ok	0.13						
300	ok	0.15						
301	ok	0.08						
302	ok	0.08						
303	ok	0.03						
304	ok	0.05						
305	ok	0.05						
306	ok	0.03						
307	ok	0.03						
308	ok	0.02						
309	ok	0.02						
310	ok	0.03						
311	ok	0.02						
312	ok	0.02						
313	ok	0.02						
314	ok	0.02						
315	ok	0.02						
316	ok	0.03						
317	ok	0.03						
318	ok	0.02						
319	ok	0.02						
320	ok	0.03						
321	ok	0.08						
322	ok	0.08						
323	ok	0.03						
324	ok	0.05						
325	ok	0.05						
326	ok	0.36						
327	ok	0.36						
328	ok	0.08						
329	ok	0.16						
330	ok	0.16						
331	ok	0.36						

332	ok	0.08
333	ok	0.16
787	ok	0.15
788	ok	0.16
811	ok	0.15
813	ok	0.04
815	ok	0.03
817	ok	0.02
819	ok	0.03
821	ok	0.04
823	ok	0.16

Nodo	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
	0.39						

Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
6	25.00	1	1	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
									daN/cm	daN/cm	daN/cm	daN	daN	daN
53	ok	0.10	0.3	1.61e-03	2.5	2.5	2.5	2.5	6.0	-4.6	0.3	545.3	-406.3	149.9
54	ok	0.10	0.4	1.53e-03	2.5	2.5	2.5	2.5	5.9	-3.5	-0.8	611.1	-157.7	-303.0
61	ok	0.10	0.1	3.33e-04	2.5	2.5	2.5	2.5	1.1	-0.5	-0.5	234.2	-205.9	-147.0
62	ok	0.10	0.2	4.06e-04	2.5	2.5	2.5	2.5	1.3	-0.7	0.5	304.0	-237.3	156.7
334	ok	0.10	0.1	1.87e-03	2.5	2.5	2.5	2.5	-4.0	-4.0	-1.3	-278.5	200.1	112.2
335	ok	0.10	0.2	5.19e-04	2.5	2.5	2.5	2.5	-1.3	0.9	-0.3	200.6	-45.8	131.6
336	ok	0.10	0.2	4.21e-04	2.5	2.5	2.5	2.5	4.4	3.0	1.7	189.1	169.1	67.7
337	ok	0.10	8.63e-02	5.22e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	-0.1	-29.9	173.7	21.6
338	ok	0.10	7.52e-02	2.99e-04	2.5	2.5	2.5	2.5	0.1	-0.4	-9.65e-02	98.5	125.1	39.8
339	ok	0.10	7.73e-02	4.02e-04	2.5	2.5	2.5	2.5	-0.4	-0.9	0.4	-121.9	153.7	-32.4
340	ok	0.10	8.73e-02	2.50e-04	2.5	2.5	2.5	2.5	0.1	-4.08e-02	-0.3	133.5	43.4	-78.3
341	ok	0.10	8.09e-02	1.90e-04	2.5	2.5	2.5	2.5	0.5	-0.5	-0.3	154.1	-45.7	-49.4
342	ok	0.10	0.1	1.11e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.4	194.7	59.4	66.0
343	ok	0.10	0.1	2.18e-04	2.5	2.5	2.5	2.5	1.6	3.87e-02	7.26e-02	235.1	5.7	58.3
344	ok	0.10	7.96e-02	1.61e-04	2.5	2.5	2.5	2.5	-4.13e-02	0.2	-7.17e-02	157.2	75.1	23.3
345	ok	0.10	7.81e-02	1.54e-04	2.5	2.5	2.5	2.5	0.2	6.29e-02	-0.2	159.3	41.7	-9.3
346	ok	0.10	8.36e-02	1.28e-04	2.5	2.5	2.5	2.5	0.4	0.1	-0.1	170.0	5.8	-11.2
347	ok	0.10	9.99e-02	6.99e-05	2.5	2.5	2.5	2.5	0.7	0.1	0.2	199.1	42.5	28.7
348	ok	0.10	0.1	1.31e-04	2.5	2.5	2.5	2.5	1.2	-9.75e-03	2.46e-02	225.2	-9.80e-02	22.0
349	ok	0.10	8.50e-02	4.24e-05	2.5	2.5	2.5	2.5	0.2	0.3	2.43e-02	173.2	55.2	10.3
350	ok	0.10	8.20e-02	9.59e-05	2.5	2.5	2.5	2.5	0.2	0.2	-9.13e-02	166.9	36.3	-1.6
351	ok	0.10	8.33e-02	1.31e-04	2.5	2.5	2.5	2.5	0.4	6.83e-02	-0.1	170.2	10.9	-3.1
352	ok	0.10	9.71e-02	4.97e-05	2.5	2.5	2.5	2.5	0.7	0.1	5.68e-03	198.4	36.9	0.9
353	ok	0.10	0.1	1.12e-04	2.5	2.5	2.5	2.5	1.1	-1.38e-02	-2.34e-03	221.2	-0.9	0.7
354	ok	0.10	8.57e-02	3.88e-05	2.5	2.5	2.5	2.5	0.3	0.3	6.24e-03	175.5	48.9	0.4
355	ok	0.10	8.24e-02	4.53e-05	2.5	2.5	2.5	2.5	0.2	0.2	2.13e-03	168.1	33.2	0.6
356	ok	0.10	8.26e-02	1.25e-04	2.5	2.5	2.5	2.5	0.4	7.58e-02	-8.50e-04	168.8	11.3	0.5
357	ok	0.10	9.95e-02	5.61e-05	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	198.6	42.4	-27.9
358	ok	0.10	0.1	1.52e-04	2.5	2.5	2.5	2.5	1.2	-9.09e-03	-2.48e-02	224.6	-0.1	-21.5
359	ok	0.10	8.49e-02	5.15e-05	2.5	2.5	2.5	2.5	0.2	0.3	-1.56e-02	173.0	55.1	-9.6
360	ok	0.10	8.21e-02	9.43e-05	2.5	2.5	2.5	2.5	0.2	0.2	9.72e-02	167.0	36.2	2.1
361	ok	0.10	8.34e-02	1.25e-04	2.5	2.5	2.5	2.5	0.4	6.76e-02	0.1	170.5	10.8	3.4
362	ok	0.10	0.1	8.02e-05	2.5	2.5	2.5	2.5	0.6	0.2	-0.4	193.7	59.3	-64.9
363	ok	0.10	0.1	2.26e-04	2.5	2.5	2.5	2.5	1.6	4.48e-02	-7.48e-02	233.8	5.4	-57.5
364	ok	0.10	7.92e-02	1.58e-04	2.5	2.5	2.5	2.5	-3.95e-02	0.2	7.90e-02	156.8	75.0	-22.2
365	ok	0.10	7.83e-02	1.49e-04	2.5	2.5	2.5	2.5	0.2	6.20e-02	0.2	159.6	41.4	10.1
366	ok	0.10	8.39e-02	1.28e-04	2.5	2.5	2.5	2.5	0.4	0.1	0.1	170.6	5.6	11.7
367	ok	0.10	0.2	4.78e-04	2.5	2.5	2.5	2.5	-1.0	1.0	-0.2	230.8	42.8	-183.2
368	ok	0.10	0.2	3.91e-04	2.5	2.5	2.5	2.5	4.2	2.8	-1.6	185.1	158.0	-66.4
369	ok	0.10	7.41e-02	2.81e-04	2.5	2.5	2.5	2.5	0.1	-0.4	0.1	98.0	124.7	-37.8
370	ok	0.10	9.17e-02	2.41e-04	2.5	2.5	2.5	2.5	0.2	4.50e-02	0.6	115.6	78.8	87.4
371	ok	0.10	8.17e-02	2.38e-04	2.5	2.5	2.5	2.5	0.6	-0.6	0.4	147.6	-63.2	60.9
372	ok	0.10	0.2	1.78e-03	2.5	2.5	2.5	2.5	-3.7	-3.4	1.5	-309.0	193.3	-74.6
373	ok	0.10	8.61e-02	5.23e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	0.1	-29.1	173.3	-20.6
374	ok	0.10	7.78e-02	4.77e-04	2.5	2.5	2.5	2.5	-0.5	-1.1	-0.5	-156.2	145.8	31.0
789	ok	0.10	5.25e-02	3.17e-04	2.5	2.5	2.5	2.5	0.1	-0.5	-0.6	-102.3	27.3	-21.3
790	ok	0.10	6.90e-02	3.71e-04	2.5	2.5	2.5	2.5	0.2	-0.6	0.7	-130.6	7.3	39.4
827	ok	0.10	7.89e-02	1.83e-04	2.5	2.5	2.5	2.5	0.5	0.7	0.2	146.6	-3.6	49.3
829	ok	0.10	8.31e-02	2.18e-04	2.5	2.5	2.5	2.5	0.7	-9.88e-03	-3.32e-02	169.9	-6.3	1.9
831	ok	0.10	8.37e-02	2.54e-04	2.5	2.5	2.5	2.5	0.5	-1.15e-02	-1.20e-02	171.3	-1.4	-0.6
833	ok	0.10	8.29e-02	2.70e-04	2.5	2.5	2.5	2.5	0.4	-1.01e-02	-5.89e-04	169.8	0.3	0.8
835	ok	0.10	8.39e-02	2.67e-04	2.5	2.5	2.5	2.5	0.5	-1.11e-02	1.19e-02	171.7	-1.4	0.7
837	ok	0.10	8.34e-02	2.45e-04	2.5	2.5	2.5	2.5	0.7	-8.96e-03	3.33e-02	170.6	-6.4	-1.8
839	ok	0.10	9.02e-02	2.21e-04	2.5	2.5	2.5	2.5	0.6	0.8	-0.2	162.8	13.2	-60.7
Nodo		x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
									-4.00	-4.56	-1.62	-309.01	-406.25	-302.95
		0.10	0.36	1.87e-03	2.51	2.51	2.51	2.51	6.02	2.98	1.70	611.05	200.10	156.67

Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
		daN/cm2					daN/cm	daN/cm
53	ok	0.39						
54	ok	0.36						
61	ok	0.15						
62	ok	0.16						
334	ok	0.39						
335	ok	0.39						
336	ok	0.39						
337	ok	0.07						
338	ok	0.07						
339	ok	0.14						
340	ok	0.14						
341	ok	0.15						
342	ok	0.08						
343	ok	0.08						
344	ok	0.03						
345	ok	0.05						
346	ok	0.05						
347	ok	0.03						
348	ok	0.03						
349	ok	0.02						
350	ok	0.02						
351	ok	0.03						
352	ok	0.02						
353	ok	0.02						
354	ok	0.02						
355	ok	0.02						
356	ok	0.02						
357	ok	0.03						
358	ok	0.03						
359	ok	0.02						
360	ok	0.02						
361	ok	0.03						
362	ok	0.08						
363	ok	0.08						
364	ok	0.03						
365	ok	0.05						
366	ok	0.05						
367	ok	0.36						
368	ok	0.36						
369	ok	0.08						
370	ok	0.16						
371	ok	0.16						

372	ok	0.36
373	ok	0.08
374	ok	0.16
789	ok	0.15
790	ok	0.16
827	ok	0.15
829	ok	0.04
831	ok	0.03
833	ok	0.02
835	ok	0.03
837	ok	0.04
839	ok	0.16

Nodo	Max tau 0.39	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
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Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
7	25.00	t	t	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
55	ok	0.10	0.3	1.61e-03	2.5	2.5	2.5	2.5	6.0	-4.6	0.3	546.1	-407.3	149.4
56	ok	0.10	0.2	9.68e-04	2.5	2.5	2.5	2.5	-0.9	-0.8	-1.9	-320.5	-196.8	-196.8
63	ok	0.10	0.1	3.30e-04	2.5	2.5	2.5	2.5	1.1	-0.5	-0.5	233.9	-204.8	-146.1
64	ok	0.10	0.1	4.12e-04	2.5	2.5	2.5	2.5	-0.4	-0.4	0.8	-183.3	-136.0	79.8
375	ok	0.10	0.1	1.87e-03	2.5	2.5	2.5	2.5	-4.0	-4.0	-1.3	-278.8	200.0	112.5
376	ok	0.10	0.2	5.20e-04	2.5	2.5	2.5	2.5	-1.3	0.9	-0.2	198.2	-46.1	131.2
377	ok	0.10	0.2	4.40e-04	2.5	2.5	2.5	2.5	4.4	3.0	1.7	186.5	168.7	67.6
378	ok	0.10	8.63e-02	5.23e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	-0.1	-29.9	173.4	22.4
379	ok	0.10	7.49e-02	2.97e-04	2.5	2.5	2.5	2.5	0.1	-0.4	-9.34e-02	95.6	124.6	40.5
380	ok	0.10	7.75e-02	4.03e-04	2.5	2.5	2.5	2.5	-0.4	-0.9	0.4	-121.8	154.3	-32.2
381	ok	0.10	8.58e-02	2.54e-04	2.5	2.5	2.5	2.5	0.1	-5.26e-02	-0.3	130.8	43.8	-77.2
382	ok	0.10	7.95e-02	1.92e-04	2.5	2.5	2.5	2.5	0.5	-0.5	-0.3	151.6	-45.0	-47.9
383	ok	0.10	0.1	1.11e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.4	182.6	57.9	67.3
384	ok	0.10	0.1	2.21e-04	2.5	2.5	2.5	2.5	1.6	3.97e-02	7.42e-02	222.1	5.2	58.8
385	ok	0.10	7.48e-02	1.57e-04	2.5	2.5	2.5	2.5	-2.82e-02	0.2	-6.42e-02	146.1	73.5	24.3
386	ok	0.10	7.29e-02	1.53e-04	2.5	2.5	2.5	2.5	0.4	4.21e-02	-0.2	148.7	41.2	-8.4
387	ok	0.10	7.86e-02	1.25e-04	2.5	2.5	2.5	2.5	0.4	0.1	-0.1	159.8	6.0	-10.0
388	ok	0.10	8.82e-02	6.95e-05	2.5	2.5	2.5	2.5	0.7	0.1	0.2	173.2	39.5	31.5
389	ok	0.10	9.81e-02	1.38e-04	2.5	2.5	2.5	2.5	1.1	-7.66e-03	2.86e-02	197.5	-0.4	23.2
390	ok	0.10	7.36e-02	4.10e-05	2.5	2.5	2.5	2.5	0.3	0.2	3.93e-02	149.1	51.5	12.1
391	ok	0.10	7.06e-02	9.33e-05	2.5	2.5	2.5	2.5	0.2	0.2	-0.1	144.0	33.8	0.5
392	ok	0.10	7.21e-02	1.24e-04	2.5	2.5	2.5	2.5	0.4	5.47e-02	-0.1	147.2	10.4	-1.6
393	ok	0.10	7.59e-02	4.94e-05	2.5	2.5	2.5	2.5	0.7	7.61e-02	7.37e-02	154.8	31.2	6.5
394	ok	0.10	8.53e-02	1.17e-04	2.5	2.5	2.5	2.5	0.9	-1.00e-02	7.56e-03	173.9	-0.7	3.9
395	ok	0.10	6.80e-02	3.71e-05	2.5	2.5	2.5	2.5	0.4	0.2	2.71e-02	135.1	41.6	3.2
396	ok	0.10	6.30e-02	4.50e-05	2.5	2.5	2.5	2.5	0.3	0.2	-3.75e-02	128.6	28.8	1.6
397	ok	0.10	6.31e-02	1.18e-04	2.5	2.5	2.5	2.5	0.4	5.00e-02	-5.13e-02	129.3	9.4	2.5
398	ok	0.10	6.75e-02	5.45e-05	2.5	2.5	2.5	2.5	0.7	7.05e-02	-4.71e-02	135.6	31.2	-16.1
399	ok	0.10	7.63e-02	1.11e-04	2.5	2.5	2.5	2.5	0.9	-1.89e-02	2.02e-05	154.8	-0.6	-12.9
400	ok	0.10	5.72e-02	3.31e-05	2.5	2.5	2.5	2.5	0.4	0.2	-1.33e-02	116.6	42.2	-5.6
401	ok	0.10	5.47e-02	6.98e-05	2.5	2.5	2.5	2.5	0.3	0.2	3.00e-02	111.2	28.5	2.1
402	ok	0.10	5.50e-02	1.17e-04	2.5	2.5	2.5	2.5	0.4	4.71e-02	3.64e-02	112.4	8.1	4.4
403	ok	0.10	6.45e-02	6.83e-05	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	114.4	39.3	-40.2
404	ok	0.10	7.10e-02	1.10e-04	2.5	2.5	2.5	2.5	1.0	-0.2	5.85e-02	137.7	0.7	-32.5
405	ok	0.10	4.79e-02	7.46e-05	2.5	2.5	2.5	2.5	0.3	0.2	-1.87e-02	93.8	53.7	-13.5
406	ok	0.10	4.60e-02	1.00e-04	2.5	2.5	2.5	2.5	0.3	0.1	0.1	92.4	33.0	5.1
407	ok	0.10	4.75e-02	1.24e-04	2.5	2.5	2.5	2.5	0.3	8.47e-02	6.61e-02	96.6	6.7	6.7
408	ok	0.10	8.12e-02	1.27e-04	2.5	2.5	2.5	2.5	0.4	0.3	-0.1	76.8	58.7	-67.2
409	ok	0.10	8.81e-02	1.65e-04	2.5	2.5	2.5	2.5	1.9	0.8	-0.1	81.0	66.6	-24.9
410	ok	0.10	4.40e-02	1.04e-04	2.5	2.5	2.5	2.5	0.2	0.1	2.58e-02	65.1	76.3	-18.8
411	ok	0.10	4.51e-02	1.35e-04	2.5	2.5	2.5	2.5	0.2	0.1	0.4	62.3	43.3	31.9
412	ok	0.10	4.80e-02	1.78e-04	2.5	2.5	2.5	2.5	0.5	-0.2	0.3	71.2	-20.4	29.2
413	ok	0.10	7.98e-02	3.28e-04	2.5	2.5	2.5	2.5	1.0	-0.5	0.9	131.6	117.7	27.2
414	ok	0.10	5.63e-02	2.45e-04	2.5	2.5	2.5	2.5	0.2	-0.3	9.18e-02	28.0	109.2	-22.5
415	ok	0.10	5.27e-02	2.50e-04	2.5	2.5	2.5	2.5	0.3	-0.4	-0.2	89.7	84.8	-20.6
791	ok	0.10	5.24e-02	3.16e-04	2.5	2.5	2.5	2.5	0.1	-0.5	-0.6	-102.2	26.7	-20.6
792	ok	0.10	4.10e-02	1.09e-04	2.5	2.5	2.5	2.5	0.2	-2.63e-02	0.3	24.3	37.3	25.2
800	ok	0.10	3.72e-02	1.38e-04	2.5	2.5	2.5	2.5	3.41e-02	-0.2	-0.3	49.2	-42.9	-31.6
822	ok	0.10	5.76e-02	5.98e-04	2.5	2.5	2.5	2.5	-0.6	-1.4	-0.5	-81.2	6.1	-51.5
836	ok	0.10	7.22e-02	2.91e-04	2.5	2.5	2.5	2.5	0.4	-0.5	0.6	87.7	54.6	74.8
843	ok	0.10	7.82e-02	1.84e-04	2.5	2.5	2.5	2.5	0.5	0.7	0.2	144.8	-4.3	49.7
845	ok	0.10	7.84e-02	2.10e-04	2.5	2.5	2.5	2.5	0.7	-8.34e-03	-3.52e-02	160.3	-7.0	3.9
847	ok	0.10	7.27e-02	2.38e-04	2.5	2.5	2.5	2.5	0.5	-9.49e-03	-1.57e-02	148.7	-2.0	1.9
849	ok	0.10	6.34e-02	2.47e-04	2.5	2.5	2.5	2.5	0.3	-7.60e-03	-6.96e-03	129.8	0.3	3.2
851	ok	0.10	5.50e-02	2.32e-04	2.5	2.5	2.5	2.5	0.3	-8.39e-03	2.32e-03	112.6	-0.4	3.4
853	ok	0.10	4.67e-02	1.84e-04	2.5	2.5	2.5	2.5	7.10e-02	-0.1	2.59e-02	92.6	-2.1	7.4
855	ok	0.10	4.34e-02	1.17e-04	2.5	2.5	2.5	2.5	0.5	0.2	0.1	59.0	-5.6	0.9
868	ok	0.10	6.10e-02	4.31e-04	2.5	2.5	2.5	2.5	-5.18e-02	-1.0	-8.77e-02	-12.6	121.9	-16.8
878	ok	0.10	2.08e-02	6.56e-05	2.5	2.5	2.5	2.5	5.57e-02	-0.1	-9.28e-02	-31.6	-32.0	-8.3
886	ok	0.10	3.61e-02	2.82e-04	2.5	2.5	2.5	2.5	-0.1	-0.7	0.2	-47.4	32.3	17.6

Nodo	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
	0.10	0.30	1.87e-03	2.51	2.51	2.51	2.51	-3.99	-4.56	-1.89	-320.47	-407.26	-196.80
								6.01	2.98	1.69	546.09	200.04	149.39

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
55	ok	0.39						
56	ok	0.16						
63	ok	0.15						
64	ok	0.13						
375	ok	0.39						
376	ok	0.39						
377	ok	0.39						
378	ok	0.07						
379	ok	0.07						
380	ok	0.13						
381	ok	0.13						
382	ok	0.15						
383	ok	0.08						
384	ok	0.08						
385	ok	0.03						
386	ok	0.05						
387	ok	0.05						
388	ok	0.03						
389	ok	0.03						
390	ok	0.02						
391	ok	0.02						
392	ok	0.02						
393	ok	0.02						
394	ok	0.02						
395	ok	0.02						
396	ok	0.02						
397	ok	0.02						
398	ok	0.02						
399	ok	0.02						
400	ok	0.02						
401	ok	0.02						
402	ok	0.02						
403	ok	0.06						
404	ok	0.06						
405	ok	0.02						

406	ok	0.03
407	ok	0.04
408	ok	0.16
409	ok	0.16
410	ok	0.05
411	ok	0.10
412	ok	0.10
413	ok	0.16
414	ok	0.05
415	ok	0.13
791	ok	0.15
792	ok	0.10
800	ok	0.13
822	ok	0.16
836	ok	0.16
843	ok	0.15
845	ok	0.04
847	ok	0.02
849	ok	0.02
851	ok	0.02
853	ok	0.04
855	ok	0.09
868	ok	0.04
878	ok	0.10
886	ok	0.13

Macro Guscio	Spessore cm	Id Materiale	Id Criterio	Progettazione
8	25.00	1	1	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
39	ok	0.10	0.3	1.59e-03	2.5	2.5	2.5	2.5	6.0	-4.5	0.4	551.0	-396.3	155.8
40	ok	0.10	0.2	9.80e-04	2.5	2.5	2.5	2.5	-0.9	-0.8	-1.9	-317.2	-198.6	-193.7
47	ok	0.10	0.3	1.04e-03	2.5	2.5	2.5	2.5	3.3	-1.0	-1.0	301.1	223.6	-344.1
48	ok	0.10	0.2	9.44e-04	2.5	2.5	2.5	2.5	-1.0	-0.6	1.8	-375.4	-108.0	172.5
416	ok	0.10	0.1	1.86e-03	2.5	2.5	2.5	2.5	-4.0	-3.9	-1.3	-281.3	222.6	101.8
417	ok	0.10	0.2	5.15e-04	2.5	2.5	2.5	2.5	-0.4	0.4	0.5	174.3	105.5	108.5
418	ok	0.10	0.1	4.42e-04	2.5	2.5	2.5	2.5	4.4	3.0	1.7	197.7	163.4	60.8
419	ok	0.10	0.1	5.49e-04	2.5	2.5	2.5	2.5	-0.3	-1.5	-0.1	-28.8	220.7	2.1
420	ok	0.10	7.80e-02	2.94e-04	2.5	2.5	2.5	2.5	3.01e-02	-0.4	0.1	117.6	159.1	4.9
421	ok	0.10	0.1	1.51e-03	2.5	2.5	2.5	2.5	-3.0	-2.9	1.3	-234.9	227.9	-71.4
422	ok	0.10	0.2	3.29e-04	2.5	2.5	2.5	2.5	-0.9	0.8	-0.3	210.4	90.8	-168.8
423	ok	0.10	0.1	8.59e-04	2.5	2.5	2.5	2.5	3.5	2.2	-1.0	229.8	32.6	-87.8
424	ok	0.10	0.1	1.14e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	205.3	65.0	55.2
425	ok	0.10	0.1	1.97e-04	2.5	2.5	2.5	2.5	1.4	2.34e-02	8.11e-02	241.0	4.9	52.9
426	ok	0.10	8.77e-02	2.07e-04	2.5	2.5	2.5	2.5	-9.51e-02	0.4	4.26e-03	179.7	92.8	3.7
427	ok	0.10	0.1	1.94e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	204.5	65.0	-54.1
428	ok	0.10	0.1	4.07e-04	2.5	2.5	2.5	2.5	1.4	2.84e-02	-8.32e-02	240.0	4.5	-52.2
429	ok	0.10	9.74e-02	8.44e-05	2.5	2.5	2.5	2.5	0.6	0.1	0.2	195.5	42.4	23.9
430	ok	0.10	0.1	1.87e-04	2.5	2.5	2.5	2.5	0.9	-1.75e-02	4.16e-02	215.0	-2.8	16.4
431	ok	0.10	8.87e-02	8.07e-05	2.5	2.5	2.5	2.5	0.3	0.3	1.83e-02	181.5	62.8	1.1
432	ok	0.10	9.71e-02	1.84e-04	2.5	2.5	2.5	2.5	0.6	0.1	-0.2	195.2	42.4	-23.1
433	ok	0.10	0.1	4.08e-04	2.5	2.5	2.5	2.5	0.9	-1.81e-02	-4.14e-02	214.5	-2.8	-16.0
434	ok	0.10	8.51e-02	7.11e-05	2.5	2.5	2.5	2.5	0.6	8.57e-02	7.72e-02	174.0	32.5	3.8
435	ok	0.10	9.22e-02	1.88e-04	2.5	2.5	2.5	2.5	0.7	-1.31e-02	1.20e-02	188.6	-0.6	1.9
436	ok	0.10	8.00e-02	2.54e-05	2.5	2.5	2.5	2.5	0.5	0.2	9.01e-03	163.7	49.2	0.6
437	ok	0.10	8.50e-02	1.77e-04	2.5	2.5	2.5	2.5	0.6	8.60e-02	-6.97e-02	173.9	32.5	-3.2
438	ok	0.10	9.22e-02	4.13e-04	2.5	2.5	2.5	2.5	0.7	-1.35e-02	-1.19e-02	188.5	-0.6	-1.6
439	ok	0.10	7.49e-02	8.04e-05	2.5	2.5	2.5	2.5	0.6	8.00e-02	-5.80e-02	151.7	33.0	-13.4
440	ok	0.10	8.18e-02	1.80e-04	2.5	2.5	2.5	2.5	0.7	-1.06e-02	-6.92e-03	166.3	-1.0	-11.2
441	ok	0.10	6.90e-02	7.35e-05	2.5	2.5	2.5	2.5	0.5	0.2	1.55e-02	141.1	50.5	1.0
442	ok	0.10	7.50e-02	1.75e-04	2.5	2.5	2.5	2.5	0.6	7.97e-02	6.56e-02	151.8	33.0	14.0
443	ok	0.10	8.19e-02	3.63e-04	2.5	2.5	2.5	2.5	0.7	-1.03e-02	6.98e-03	166.5	-1.0	11.5
444	ok	0.10	6.82e-02	1.00e-04	2.5	2.5	2.5	2.5	0.6	0.1	-0.2	127.7	43.6	-33.6
445	ok	0.10	7.51e-02	1.64e-04	2.5	2.5	2.5	2.5	0.8	-0.2	5.41e-02	147.9	1.0	-29.4
446	ok	0.10	5.61e-02	1.21e-04	2.5	2.5	2.5	2.5	0.3	0.3	2.37e-02	113.8	67.0	2.3
447	ok	0.10	6.86e-02	1.78e-04	2.5	2.5	2.5	2.5	0.6	0.1	0.2	128.0	43.6	34.3
448	ok	0.10	7.54e-02	3.16e-04	2.5	2.5	2.5	2.5	0.8	-0.2	-5.66e-02	148.3	1.2	29.8
449	ok	0.10	8.28e-02	1.49e-04	2.5	2.5	2.5	2.5	0.3	0.3	-0.2	87.1	67.1	-58.6
450	ok	0.10	8.16e-02	1.42e-04	2.5	2.5	2.5	2.5	1.9	0.8	-0.1	88.3	66.5	-21.7
451	ok	0.10	4.87e-02	1.44e-04	2.5	2.5	2.5	2.5	0.1	0.2	6.84e-02	78.3	99.1	3.9
452	ok	0.10	8.98e-02	1.97e-04	2.5	2.5	2.5	2.5	0.2	0.4	0.7	84.6	96.7	92.5
453	ok	0.10	8.24e-02	2.52e-04	2.5	2.5	2.5	2.5	0.1	0.2	-0.3	59.7	-90.9	33.6
454	ok	0.10	8.32e-02	3.07e-04	2.5	2.5	2.5	2.5	1.0	-0.5	0.9	136.7	133.0	34.3
455	ok	0.10	7.00e-02	2.28e-04	2.5	2.5	2.5	2.5	0.2	-0.4	0.1	40.3	142.4	8.6
456	ok	0.10	8.27e-02	2.95e-04	2.5	2.5	2.5	2.5	1.0	-0.4	-0.7	165.4	140.6	-9.4
870	ok	0.10	6.56e-02	6.11e-04	2.5	2.5	2.5	2.5	-0.6	-1.5	-0.5	-81.9	24.6	-48.3
874	ok	0.10	7.24e-02	2.95e-04	2.5	2.5	2.5	2.5	0.4	-0.5	0.6	89.4	53.8	74.3
882	ok	0.10	7.92e-02	5.53e-04	2.5	2.5	2.5	2.5	-4.13e-02	-1.3	0.1	-13.3	160.4	10.7
888	ok	0.10	6.95e-02	6.01e-04	2.5	2.5	2.5	2.5	-0.5	-1.5	0.4	-90.3	70.6	46.1
898	ok	0.10	7.04e-02	2.80e-04	2.5	2.5	2.5	2.5	0.4	-0.5	-0.6	98.1	22.7	-74.6

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
39	ok	0.10	0.30	1.86e-03	2.51	2.51	2.51	2.51	-3.97	-4.49	-1.91	-375.39	-396.28	-344.13
40	ok	0.10	0.20	9.80e-04	2.51	2.51	2.51	2.51	6.01	2.97	1.84	550.97	227.87	172.49

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
39	ok	0.39						
40	ok	0.17						
47	ok	0.27						
48	ok	0.17						
416	ok	0.39						
417	ok	0.39						
418	ok	0.39						
419	ok	0.08						
420	ok	0.08						
421	ok	0.27						
422	ok	0.27						
423	ok	0.27						
424	ok	0.07						
425	ok	0.07						
426	ok	0.03						
427	ok	0.07						
428	ok	0.07						
429	ok	0.03						
430	ok	0.03						
431	ok	0.02						
432	ok	0.03						
433	ok	0.03						
434	ok	0.03						
435	ok	0.03						
436	ok	0.02						
437	ok	0.03						
438	ok	0.03						
439	ok	0.02						
440	ok	0.02						
441	ok	0.02						
442	ok	0.03						
443	ok	0.03						

444	ok	0.06
445	ok	0.06
446	ok	0.02
447	ok	0.06
448	ok	0.06
449	ok	0.16
450	ok	0.16
451	ok	0.06
452	ok	0.11
453	ok	0.11
454	ok	0.17
455	ok	0.06
456	ok	0.17
870	ok	0.17
874	ok	0.17
882	ok	0.04
888	ok	0.17
898	ok	0.17

Macro Guscio	Spessore cm	Id Materiale	Id Criterio	Progettazione				Ver V pr				Ver V sec				Af V pr				Af V sec				V pr				V sec			
9	25.00	t	t	Singolo elemento																											
Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN																	
23	ok	0.10	0.3	1.59e-03	2.5	2.5	2.5	2.5	6.0	-4.5	0.4	551.3	-397.2	155.5																	
24	ok	0.10	0.2	9.81e-04	2.5	2.5	2.5	2.5	-0.9	-0.8	-1.9	-317.3	-199.1	-194.0																	
31	ok	0.10	0.3	1.05e-03	2.5	2.5	2.5	2.5	3.3	-1.0	-1.0	301.1	223.5	-344.1																	
32	ok	0.10	0.2	9.44e-04	2.5	2.5	2.5	2.5	-1.0	-0.6	1.8	-375.4	-108.2	172.7																	
457	ok	0.10	0.1	1.86e-03	2.5	2.5	2.5	2.5	-4.0	-3.9	-1.3	-281.5	222.7	101.9																	
458	ok	0.10	0.2	5.16e-04	2.5	2.5	2.5	2.5	-0.4	0.4	0.5	174.3	105.5	108.5																	
459	ok	0.10	0.1	4.41e-04	2.5	2.5	2.5	2.5	4.4	3.0	1.7	197.7	163.8	60.8																	
460	ok	0.10	0.1	5.49e-04	2.5	2.5	2.5	2.5	-0.3	-1.5	-0.1	-28.8	220.7	2.1																	
461	ok	0.10	7.80e-02	2.95e-04	2.5	2.5	2.5	2.5	3.00e-02	-0.4	0.1	117.6	159.1	4.9																	
462	ok	0.10	0.1	1.51e-03	2.5	2.5	2.5	2.5	-3.0	-2.9	1.3	-235.0	227.9	-71.5																	
463	ok	0.10	0.2	3.29e-04	2.5	2.5	2.5	2.5	-0.9	0.8	-0.3	210.4	90.6	-168.8																	
464	ok	0.10	0.1	8.60e-04	2.5	2.5	2.5	2.5	3.5	2.2	-1.0	229.8	32.8	-87.8																	
465	ok	0.10	0.1	1.14e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	205.3	65.0	55.2																	
466	ok	0.10	0.1	2.22e-04	2.5	2.5	2.5	2.5	1.4	2.31e-02	8.10e-02	241.0	4.8	52.9																	
467	ok	0.10	8.77e-02	2.07e-04	2.5	2.5	2.5	2.5	-9.50e-02	0.4	4.63e-03	179.7	92.8	3.7																	
468	ok	0.10	0.1	1.95e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	204.5	65.0	-54.1																	
469	ok	0.10	0.1	4.07e-04	2.5	2.5	2.5	2.5	1.4	2.87e-02	-8.32e-02	240.0	4.6	-52.2																	
470	ok	0.10	9.74e-02	8.53e-05	2.5	2.5	2.5	2.5	0.6	0.1	0.2	195.5	42.4	23.9																	
471	ok	0.10	0.1	1.93e-04	2.5	2.5	2.5	2.5	0.9	-1.76e-02	4.16e-02	215.0	-2.8	16.4																	
472	ok	0.10	8.87e-02	8.09e-05	2.5	2.5	2.5	2.5	0.3	0.3	1.84e-02	181.5	62.8	1.1																	
473	ok	0.10	9.71e-02	1.85e-04	2.5	2.5	2.5	2.5	0.6	0.1	-0.2	195.2	42.4	-23.1																	
474	ok	0.10	0.1	4.09e-04	2.5	2.5	2.5	2.5	0.9	-1.80e-02	-4.14e-02	214.5	-2.8	-16.0																	
475	ok	0.10	8.51e-02	7.15e-05	2.5	2.5	2.5	2.5	0.6	8.57e-02	7.71e-02	174.0	32.5	3.9																	
476	ok	0.10	9.22e-02	1.91e-04	2.5	2.5	2.5	2.5	0.7	-1.31e-02	1.20e-02	188.6	-0.6	1.9																	
477	ok	0.10	8.00e-02	2.54e-05	2.5	2.5	2.5	2.5	0.5	0.2	9.02e-03	163.7	49.2	0.6																	
478	ok	0.10	8.51e-02	1.77e-04	2.5	2.5	2.5	2.5	0.6	8.60e-02	-6.98e-02	173.9	32.5	-3.2																	
479	ok	0.10	9.21e-02	4.14e-04	2.5	2.5	2.5	2.5	0.7	-1.34e-02	-1.19e-02	188.4	-0.6	-1.6																	
480	ok	0.10	7.49e-02	8.05e-05	2.5	2.5	2.5	2.5	0.6	8.00e-02	-5.81e-02	151.7	33.0	-13.4																	
481	ok	0.10	8.19e-02	1.81e-04	2.5	2.5	2.5	2.5	0.7	-1.07e-02	-6.89e-03	166.3	-1.0	-11.2																	
482	ok	0.10	6.90e-02	7.37e-05	2.5	2.5	2.5	2.5	0.5	0.2	1.54e-02	141.1	50.5	1.0																	
483	ok	0.10	7.50e-02	1.75e-04	2.5	2.5	2.5	2.5	0.6	7.97e-02	6.55e-02	151.8	33.0	14.0																	
484	ok	0.10	8.19e-02	3.84e-04	2.5	2.5	2.5	2.5	0.7	-1.02e-02	7.02e-03	166.4	-1.0	11.5																	
485	ok	0.10	6.82e-02	9.98e-05	2.5	2.5	2.5	2.5	0.6	0.1	-0.2	127.7	43.6	-33.6																	
486	ok	0.10	7.51e-02	1.64e-04	2.5	2.5	2.5	2.5	0.8	-0.2	5.41e-02	147.9	1.0	-29.4																	
487	ok	0.10	5.61e-02	1.21e-04	2.5	2.5	2.5	2.5	0.3	0.3	2.35e-02	113.8	67.0	2.3																	
488	ok	0.10	6.86e-02	1.78e-04	2.5	2.5	2.5	2.5	0.6	0.1	0.2	128.0	43.6	34.3																	
489	ok	0.10	7.54e-02	3.17e-04	2.5	2.5	2.5	2.5	0.8	-0.2	-5.66e-02	148.3	1.2	29.8																	
490	ok	0.10	8.29e-02	1.49e-04	2.5	2.5	2.5	2.5	0.3	0.3	-0.2	87.1	67.1	-58.6																	
491	ok	0.10	8.67e-02	1.62e-04	2.5	2.5	2.5	2.5	1.9	0.8	-0.1	88.3	66.7	-21.7																	
492	ok	0.10	4.87e-02	1.45e-04	2.5	2.5	2.5	2.5	0.2	0.2	6.82e-02	78.3	99.1	3.9																	
493	ok	0.10	8.98e-02	1.97e-04	2.5	2.5	2.5	2.5	0.2	0.4	0.7	84.6	96.7	92.5																	
494	ok	0.10	7.56e-02	2.52e-04	2.5	2.5	2.5	2.5	0.1	0.2	-0.3	59.7	-90.9	33.6																	
495	ok	0.10	8.32e-02	3.07e-04	2.5	2.5	2.5	2.5	1.0	-0.5	0.9	136.8	133.0	34.4																	
496	ok	0.10	7.00e-02	2.28e-04	2.5	2.5	2.5	2.5	0.2	-0.4	0.1	40.3	142.4	8.6																	
497	ok	0.10	8.27e-02	2.95e-04	2.5	2.5	2.5	2.5	1.0	-0.4	-0.7	165.4	140.6	-9.4																	
825	ok	0.10	6.56e-02	6.12e-04	2.5	2.5	2.5	2.5	-0.6	-1.5	-0.5	-82.0	24.5	-48.3																	
832	ok	0.10	7.25e-02	2.96e-04	2.5	2.5	2.5	2.5	0.4	-0.5	0.6	89.5	54.0	74.4																	
840	ok	0.10	7.92e-02	5.53e-04	2.5	2.5	2.5	2.5	-4.13e-02	-1.3	0.1	-13.3	160.4	10.7																	
862	ok	0.10	6.95e-02	6.01e-04	2.5	2.5	2.5	2.5	-0.5	-1.5	0.4	-90.3	70.5	46.1																	
863	ok	0.10	7.04e-02	2.80e-04	2.5	2.5	2.5	2.5	0.4	-0.5	-0.6	98.1	22.8	-74.6																	

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
		0.10	0.30	1.86e-03	2.51	2.51	2.51	2.51	-3.98	-4.49	-1.92	-375.44	-397.21	-344.11
									6.01	2.98	1.84	551.26	227.90	172.65

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
23	ok	0.39						
24	ok	0.17						
31	ok	0.27						
32	ok	0.17						
457	ok	0.39						
458	ok	0.39						
459	ok	0.39						
460	ok	0.08						
461	ok	0.08						
462	ok	0.27						
463	ok	0.27						
464	ok	0.27						
465	ok	0.08						
466	ok	0.08						
467	ok	0.03						
468	ok	0.07						
469	ok	0.07						
470	ok	0.03						
471	ok	0.03						
472	ok	0.02						
473	ok	0.03						
474	ok	0.03						
475	ok	0.03						
476	ok	0.03						
477	ok	0.02						
478	ok	0.03						
479	ok	0.03						
480	ok	0.02						
481	ok	0.02						
482	ok	0.02						
483	ok	0.02						
484	ok	0.02						
485	ok	0.06						
486	ok	0.06						
487	ok	0.02						
488	ok	0.06						
489	ok	0.06						
490	ok	0.16						
491	ok	0.16						

492	ok	0.06
493	ok	0.11
494	ok	0.11
495	ok	0.17
496	ok	0.06
497	ok	0.17
825	ok	0.17
832	ok	0.17
840	ok	0.04
862	ok	0.17
863	ok	0.17

Nodo	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
	0.39						

Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
10	25.00	t	t	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
7	ok	0.10	0.2	4.09e-04	2.5	2.5	2.5	2.5	1.3	-1.0	0.3	267.0	-325.6	97.7
8	ok	0.10	0.1	4.75e-04	2.5	2.5	2.5	2.5	-0.4	-0.6	-0.9	-170.1	-188.7	-97.9
15	ok	0.10	0.3	1.06e-03	2.5	2.5	2.5	2.5	3.1	-0.8	-1.0	296.9	234.1	-346.4
16	ok	0.10	0.2	9.43e-04	2.5	2.5	2.5	2.5	-1.0	-0.6	1.8	-382.2	-110.8	177.8
498	ok	0.10	8.11e-02	4.55e-04	2.5	2.5	2.5	2.5	-0.7	-1.1	-0.4	-148.4	156.5	52.2
499	ok	0.10	8.71e-02	2.00e-04	2.5	2.5	2.5	2.5	-4.56e-02	-0.5	0.2	90.6	73.8	43.9
500	ok	0.10	8.74e-02	2.58e-04	2.5	2.5	2.5	2.5	0.7	-0.6	0.4	128.8	-104.6	60.8
501	ok	0.10	8.61e-02	4.45e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	0.1	-29.2	173.1	-21.5
502	ok	0.10	7.39e-02	1.99e-04	2.5	2.5	2.5	2.5	0.1	-0.4	9.79e-02	95.2	124.2	-38.7
503	ok	0.10	0.1	1.52e-03	2.5	2.5	2.5	2.5	-3.1	-2.9	1.3	-237.2	205.2	-81.5
504	ok	0.10	0.2	3.07e-04	2.5	2.5	2.5	2.5	-0.9	0.9	-0.2	197.3	72.7	-185.7
505	ok	0.10	0.1	1.00e-03	2.5	2.5	2.5	2.5	3.5	2.2	-1.0	216.2	37.1	-92.8
506	ok	0.10	7.31e-02	1.24e-04	2.5	2.5	2.5	2.5	0.2	4.10e-02	0.2	149.1	40.9	9.2
507	ok	0.10	7.90e-02	8.20e-05	2.5	2.5	2.5	2.5	0.4	0.1	0.1	160.6	5.9	10.5
508	ok	0.10	7.45e-02	1.38e-04	2.5	2.5	2.5	2.5	-2.66e-02	0.2	7.04e-02	145.9	73.4	-23.4
509	ok	0.10	0.1	1.06e-04	2.5	2.5	2.5	2.5	0.6	0.2	-0.4	181.7	57.8	-66.4
510	ok	0.10	0.1	3.92e-04	2.5	2.5	2.5	2.5	1.6	4.51e-02	-7.62e-02	221.0	4.9	-58.1
511	ok	0.10	7.07e-02	4.31e-05	2.5	2.5	2.5	2.5	0.2	0.1	0.1	143.8	34.0	0.9
512	ok	0.10	7.23e-02	6.90e-05	2.5	2.5	2.5	2.5	0.4	5.41e-02	0.1	147.6	10.4	1.9
513	ok	0.10	7.35e-02	8.58e-05	2.5	2.5	2.5	2.5	0.3	0.2	-3.16e-02	149.0	51.4	-11.5
514	ok	0.10	8.78e-02	1.31e-04	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	172.8	39.4	-30.9
515	ok	0.10	9.78e-02	3.30e-04	2.5	2.5	2.5	2.5	1.1	-7.10e-03	-2.88e-02	196.9	-0.4	-22.9
516	ok	0.10	6.30e-02	2.29e-05	2.5	2.5	2.5	2.5	0.3	0.2	4.37e-02	128.6	28.7	-1.3
517	ok	0.10	6.32e-02	5.88e-05	2.5	2.5	2.5	2.5	0.4	4.97e-02	5.50e-02	129.4	9.4	-2.3
518	ok	0.10	6.80e-02	4.44e-05	2.5	2.5	2.5	2.5	0.4	0.2	-1.93e-02	135.1	41.6	-2.8
519	ok	0.10	7.58e-02	1.44e-04	2.5	2.5	2.5	2.5	0.7	7.62e-02	-6.76e-02	154.7	31.1	-6.0
520	ok	0.10	8.52e-02	3.10e-04	2.5	2.5	2.5	2.5	0.9	-9.83e-03	-7.63e-03	173.7	-0.7	-3.6
521	ok	0.10	5.46e-02	4.44e-05	2.5	2.5	2.5	2.5	0.3	0.2	-2.38e-02	111.2	28.6	-1.8
522	ok	0.10	5.49e-02	6.46e-05	2.5	2.5	2.5	2.5	0.3	5.63e-02	-2.73e-02	112.1	9.0	-3.4
523	ok	0.10	5.72e-02	8.52e-05	2.5	2.5	2.5	2.5	0.4	0.2	2.11e-02	116.6	42.2	6.0
524	ok	0.10	6.77e-02	1.47e-04	2.5	2.5	2.5	2.5	0.7	7.06e-02	5.34e-02	135.8	31.2	16.6
525	ok	0.10	7.64e-02	2.86e-04	2.5	2.5	2.5	2.5	0.9	-8.32e-03	6.39e-03	154.7	-1.6	11.5
526	ok	0.10	4.59e-02	1.26e-04	2.5	2.5	2.5	2.5	0.3	0.1	-9.69e-02	92.2	33.2	-4.7
527	ok	0.10	4.73e-02	8.72e-05	2.5	2.5	2.5	2.5	0.3	8.55e-02	-6.43e-02	96.3	6.7	-6.5
528	ok	0.10	4.81e-02	1.19e-04	2.5	2.5	2.5	2.5	0.3	0.2	2.57e-02	93.9	53.8	14.1
529	ok	0.10	6.49e-02	1.44e-04	2.5	2.5	2.5	2.5	0.5	0.2	0.4	104.8	45.3	46.1
530	ok	0.10	7.13e-02	2.51e-04	2.5	2.5	2.5	2.5	0.5	-0.3	-5.67e-02	131.7	-5.1	36.4
531	ok	0.10	4.60e-02	1.54e-04	2.5	2.5	2.5	2.5	0.3	-6.52e-02	-0.2	63.7	42.8	-13.3
532	ok	0.10	5.13e-02	1.77e-04	2.5	2.5	2.5	2.5	0.6	-0.2	-0.2	26.2	-68.7	-20.8
533	ok	0.10	4.45e-02	1.25e-04	2.5	2.5	2.5	2.5	0.2	0.1	-2.05e-02	65.3	76.5	19.7
534	ok	0.10	8.96e-02	1.33e-04	2.5	2.5	2.5	2.5	0.2	0.3	0.6	72.2	93.3	99.7
535	ok	0.10	7.83e-02	2.41e-04	2.5	2.5	2.5	2.5	0.2	0.2	-0.3	56.3	-90.4	40.6
536	ok	0.10	5.76e-02	2.51e-04	2.5	2.5	2.5	2.5	0.3	-0.4	0.4	74.3	89.7	35.3
537	ok	0.10	5.67e-02	2.16e-04	2.5	2.5	2.5	2.5	0.1	-0.3	-9.13e-02	27.8	109.4	23.6
538	ok	0.10	8.07e-02	3.17e-04	2.5	2.5	2.5	2.5	1.1	-0.4	-0.8	159.7	128.8	-0.9
793	ok	0.10	6.12e-02	4.27e-04	2.5	2.5	2.5	2.5	-5.43e-02	-1.0	8.84e-02	-12.9	122.2	17.6
804	ok	0.10	6.79e-02	5.78e-04	2.5	2.5	2.5	2.5	-0.5	-1.5	0.4	-90.1	53.6	50.7
810	ok	0.10	7.06e-02	2.75e-04	2.5	2.5	2.5	2.5	0.4	-0.5	-0.6	97.5	24.3	-75.1
814	ok	0.10	8.05e-02	4.18e-04	2.5	2.5	2.5	2.5	0.2	-0.6	0.8	-106.2	-68.9	74.5
816	ok	0.10	9.02e-02	1.07e-04	2.5	2.5	2.5	2.5	0.8	0.9	-0.3	150.3	42.2	-69.1
820	ok	0.10	7.88e-02	1.14e-04	2.5	2.5	2.5	2.5	0.7	-7.42e-03	3.52e-02	161.2	-7.1	-3.8
824	ok	0.10	7.29e-02	1.30e-04	2.5	2.5	2.5	2.5	0.5	-9.07e-03	1.55e-02	149.2	-2.0	-1.8
826	ok	0.10	6.35e-02	1.35e-04	2.5	2.5	2.5	2.5	0.3	-7.71e-03	6.70e-03	130.0	0.3	-3.0
830	ok	0.10	5.50e-02	1.27e-04	2.5	2.5	2.5	2.5	0.3	-8.65e-03	-2.48e-03	112.4	-0.4	-3.3
834	ok	0.10	4.65e-02	1.12e-04	2.5	2.5	2.5	2.5	0.4	-4.26e-03	-1.94e-02	95.1	-2.6	-2.1
838	ok	0.10	4.36e-02	7.62e-05	2.5	2.5	2.5	2.5	0.6	0.3	0.3	53.0	42.0	29.5
841	ok	0.10	4.04e-02	1.33e-04	2.5	2.5	2.5	2.5	0.3	2.49e-02	-0.1	71.2	-35.6	24.9
860	ok	0.10	2.08e-02	6.78e-05	2.5	2.5	2.5	2.5	0.1	-0.1	-8.34e-02	-18.1	34.1	-2.7
892	ok	0.10	3.64e-02	2.91e-04	2.5	2.5	2.5	2.5	4.81e-02	-0.6	3.77e-02	-0.2	73.7	3.9
900	ok	0.10	4.32e-02	1.82e-04	2.5	2.5	2.5	2.5	-2.71e-02	-0.1	5.65e-02	44.5	-69.0	-28.4

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
		0.10	0.31	1.52e-03	2.51	2.51	2.51	2.51	3.52	-2.87	-1.04	-382.24	-325.61	-346.42

Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
7	ok	0.19						
8	ok	0.13						
15	ok	0.28						
16	ok	0.16						
498	ok	0.19						
499	ok	0.19						
500	ok	0.19						
501	ok	0.07						
502	ok	0.07						
503	ok	0.28						
504	ok	0.28						
505	ok	0.28						
506	ok	0.05						
507	ok	0.05						
508	ok	0.03						
509	ok	0.07						
510	ok	0.07						
511	ok	0.02						
512	ok	0.02						
513	ok	0.02						
514	ok	0.03						
515	ok	0.03						
516	ok	0.02						
517	ok	0.02						
518	ok	0.02						
519	ok	0.02						
520	ok	0.02						
521	ok	0.02						
522	ok	0.02						
523	ok	0.02						
524	ok	0.02						
525	ok	0.02						
526	ok	0.03						
527	ok	0.03						
528	ok	0.03						
529	ok	0.06						

530	ok	0.06
531	ok	0.11
532	ok	0.11
533	ok	0.05
534	ok	0.12
535	ok	0.12
536	ok	0.13
537	ok	0.05
538	ok	0.16
793	ok	0.05
804	ok	0.16
810	ok	0.16
814	ok	0.13
816	ok	0.13
820	ok	0.04
824	ok	0.02
826	ok	0.02
830	ok	0.02
834	ok	0.03
838	ok	0.07
841	ok	0.10
860	ok	0.10
892	ok	0.13
900	ok	0.13

Nodo	Max tau 0.28	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
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Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
	cm			
11	25.00	1	1	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
5	ok	0.10	0.2	4.11e-04	2.5	2.5	2.5	2.5	1.3	-1.0	0.3	286.0	-326.2	98.4
6	ok	0.10	0.3	6.78e-04	2.5	2.5	2.5	2.5	0.9	1.1	1.8	233.9	252.2	267.7
13	ok	0.10	0.3	1.07e-03	2.5	2.5	2.5	2.5	3.1	-0.8	-1.0	299.0	234.1	-347.6
14	ok	0.10	0.4	1.27e-03	2.5	2.5	2.5	2.5	5.9	-3.5	0.8	612.3	-174.3	296.0
539	ok	0.10	8.08e-02	4.55e-04	2.5	2.5	2.5	2.5	-0.7	-1.1	-0.4	-147.9	155.8	52.5
540	ok	0.10	8.85e-02	1.96e-04	2.5	2.5	2.5	2.5	-4.83e-02	-0.5	0.2	93.2	73.5	44.6
541	ok	0.10	8.81e-02	2.54e-04	2.5	2.5	2.5	2.5	0.7	-0.6	0.4	130.5	-105.3	62.5
542	ok	0.10	8.61e-02	4.43e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	0.1	-29.3	173.3	-20.7
543	ok	0.10	7.42e-02	1.98e-04	2.5	2.5	2.5	2.5	0.1	-0.4	0.1	98.1	124.8	-38.0
544	ok	0.10	0.1	1.53e-03	2.5	2.5	2.5	2.5	-3.1	-2.9	1.3	-237.9	206.1	-80.9
545	ok	0.10	0.2	3.07e-04	2.5	2.5	2.5	2.5	-0.9	0.9	-0.2	200.9	73.2	-185.4
546	ok	0.10	0.1	1.01e-03	2.5	2.5	2.5	2.5	3.5	2.2	-1.0	220.1	38.1	-92.3
547	ok	0.10	7.83e-02	1.29e-04	2.5	2.5	2.5	2.5	0.2	6.22e-02	0.2	159.7	41.4	10.1
548	ok	0.10	8.39e-02	7.79e-05	2.5	2.5	2.5	2.5	0.4	0.1	0.1	170.7	5.6	11.7
549	ok	0.10	7.93e-02	1.42e-04	2.5	2.5	2.5	2.5	-4.06e-02	0.2	7.88e-02	156.9	75.0	-22.2
550	ok	0.10	0.1	1.09e-04	2.5	2.5	2.5	2.5	0.6	0.2	-0.4	193.9	59.3	-64.9
551	ok	0.10	0.1	4.02e-04	2.5	2.5	2.5	2.5	1.6	4.52e-02	-7.47e-02	234.1	5.5	-57.5
552	ok	0.10	8.21e-02	4.61e-05	2.5	2.5	2.5	2.5	0.2	0.2	9.69e-02	167.1	36.2	2.1
553	ok	0.10	8.35e-02	6.21e-05	2.5	2.5	2.5	2.5	0.4	6.76e-02	0.1	170.5	10.9	3.4
554	ok	0.10	8.49e-02	8.99e-05	2.5	2.5	2.5	2.5	0.2	0.3	-1.69e-02	173.1	55.1	-9.6
555	ok	0.10	9.96e-02	1.42e-04	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	198.7	42.4	-27.9
556	ok	0.10	0.1	3.53e-04	2.5	2.5	2.5	2.5	1.2	-9.11e-03	-2.45e-02	224.8	-0.1	-21.5
557	ok	0.10	8.24e-02	2.46e-05	2.5	2.5	2.5	2.5	0.2	0.2	1.67e-03	168.1	33.2	0.6
558	ok	0.10	8.26e-02	5.45e-05	2.5	2.5	2.5	2.5	0.4	7.57e-02	-8.49e-04	168.8	11.3	0.5
559	ok	0.10	8.57e-02	5.62e-05	2.5	2.5	2.5	2.5	0.3	0.3	4.89e-03	175.5	48.9	0.5
560	ok	0.10	9.71e-02	1.60e-04	2.5	2.5	2.5	2.5	0.7	0.1	3.92e-03	198.4	36.9	0.9
561	ok	0.10	0.1	3.39e-04	2.5	2.5	2.5	2.5	1.1	-1.38e-02	-2.07e-03	221.2	-0.9	0.7
562	ok	0.10	8.20e-02	5.38e-05	2.5	2.5	2.5	2.5	0.2	0.2	-9.17e-02	166.8	36.3	-1.6
563	ok	0.10	8.33e-02	6.85e-05	2.5	2.5	2.5	2.5	0.4	6.83e-02	-0.1	170.1	10.9	-3.1
564	ok	0.10	8.50e-02	1.18e-04	2.5	2.5	2.5	2.5	0.2	0.3	2.31e-02	173.1	55.2	10.3
565	ok	0.10	9.98e-02	1.57e-04	2.5	2.5	2.5	2.5	0.7	0.1	0.2	199.0	42.5	28.7
566	ok	0.10	0.1	3.26e-04	2.5	2.5	2.5	2.5	1.2	-9.75e-03	2.49e-02	225.1	-0.1	22.0
567	ok	0.10	7.80e-02	1.61e-04	2.5	2.5	2.5	2.5	0.2	6.28e-02	-0.2	159.2	41.7	-9.3
568	ok	0.10	8.35e-02	9.58e-05	2.5	2.5	2.5	2.5	0.4	0.1	-0.1	169.9	5.8	-11.2
569	ok	0.10	7.95e-02	1.88e-04	2.5	2.5	2.5	2.5	-4.03e-02	0.2	-7.21e-02	157.0	75.1	23.2
570	ok	0.10	0.1	1.39e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.4	194.5	59.4	66.0
571	ok	0.10	0.1	3.49e-04	2.5	2.5	2.5	2.5	1.6	3.82e-02	7.26e-02	234.9	5.7	58.3
572	ok	0.10	9.23e-02	2.98e-04	2.5	2.5	2.5	2.5	0.1	-7.82e-02	-0.3	148.2	27.0	-81.4
573	ok	0.10	8.79e-02	3.34e-04	2.5	2.5	2.5	2.5	0.7	-0.8	-0.5	54.2	-150.8	-40.7
574	ok	0.10	7.51e-02	2.35e-04	2.5	2.5	2.5	2.5	0.1	-0.4	-9.63e-02	98.4	125.1	39.7
575	ok	0.10	0.2	3.76e-04	2.5	2.5	2.5	2.5	-0.3	0.7	0.5	164.1	158.2	200.1
576	ok	0.10	0.1	8.39e-04	2.5	2.5	2.5	2.5	4.1	2.6	1.2	208.7	75.1	67.8
577	ok	0.10	8.46e-02	5.06e-04	2.5	2.5	2.5	2.5	-0.5	-1.1	0.5	-156.2	144.5	-29.1
578	ok	0.10	8.63e-02	5.25e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	-0.1	-29.8	173.6	21.6
579	ok	0.10	0.2	1.79e-03	2.5	2.5	2.5	2.5	-3.7	-3.4	-1.5	-309.8	195.1	77.3
794	ok	0.10	8.39e-02	1.20e-04	2.5	2.5	2.5	2.5	0.5	-1.13e-02	1.19e-02	171.7	-1.4	0.7
798	ok	0.10	8.29e-02	1.28e-04	2.5	2.5	2.5	2.5	0.4	-1.02e-02	-5.80e-04	169.8	0.3	0.8
802	ok	0.10	8.37e-02	1.37e-04	2.5	2.5	2.5	2.5	0.5	-1.13e-02	-1.21e-02	171.3	-1.4	-0.6
806	ok	0.10	8.30e-02	1.22e-04	2.5	2.5	2.5	2.5	0.7	-9.63e-03	-3.33e-02	169.8	-6.3	1.9
809	ok	0.10	8.97e-02	9.48e-05	2.5	2.5	2.5	2.5	0.9	1.0	0.4	142.9	51.8	69.8
812	ok	0.10	8.37e-02	4.43e-04	2.5	2.5	2.5	2.5	0.3	-0.7	-0.9	-117.4	-36.4	-62.4
896	ok	0.10	8.04e-02	4.21e-04	2.5	2.5	2.5	2.5	0.2	-0.6	0.8	-105.6	-68.6	74.6
897	ok	0.10	9.01e-02	1.03e-04	2.5	2.5	2.5	2.5	0.8	0.9	-0.3	150.9	42.6	-68.2
899	ok	0.10	8.34e-02	1.06e-04	2.5	2.5	2.5	2.5	0.7	-9.22e-03	3.32e-02	170.6	-6.4	-1.8

Nodo	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
	0.10	0.36	1.79e-03	2.51	2.51	2.51	2.51	-3.68	-3.54	-1.51	-309.78	-326.21	-347.62
								5.88	2.64	1.84	612.25	252.22	295.96

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
5	ok	0.19						
6	ok	0.19						
13	ok	0.28						
14	ok	0.30						
539	ok	0.19						
540	ok	0.19						
541	ok	0.19						
542	ok	0.07						
543	ok	0.07						
544	ok	0.28						
545	ok	0.28						
546	ok	0.28						
547	ok	0.05						
548	ok	0.05						
549	ok	0.03						
550	ok	0.07						
551	ok	0.07						
552	ok	0.02						
553	ok	0.03						
554	ok	0.02						
555	ok	0.03						
556	ok	0.03						
557	ok	0.02						
558	ok	0.02						
559	ok	0.02						
560	ok	0.02						
561	ok	0.02						
562	ok	0.02						
563	ok	0.03						

564	ok	0.02
565	ok	0.03
566	ok	0.03
567	ok	0.05
568	ok	0.05
569	ok	0.04
570	ok	0.07
571	ok	0.07
572	ok	0.19
573	ok	0.19
574	ok	0.08
575	ok	0.30
576	ok	0.30
577	ok	0.19
578	ok	0.08
579	ok	0.30
794	ok	0.03
798	ok	0.02
802	ok	0.03
806	ok	0.04
809	ok	0.14
812	ok	0.14
896	ok	0.13
897	ok	0.13
899	ok	0.04

Nodo	Max tau 0.30	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
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Macro Guscio	Spessore cm	Id Materiale	Id Criterio	Progettazione
12	25.00	1	1	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
3	ok	0.10	0.2	4.11e-04	2.5	2.5	2.5	2.5	1.3	-1.0	0.3	284.1	-325.2	97.8
4	ok	0.10	0.3	6.79e-04	2.5	2.5	2.5	2.5	0.9	1.1	1.8	235.7	252.8	269.0
11	ok	0.10	0.3	1.07e-03	2.5	2.5	2.5	2.5	3.1	-0.8	-1.0	298.8	234.1	-347.6
12	ok	0.10	0.4	1.28e-03	2.5	2.5	2.5	2.5	5.9	-3.5	0.8	614.3	-175.2	296.5
580	ok	0.10	8.08e-02	4.53e-04	2.5	2.5	2.5	2.5	-0.7	-1.1	-0.4	-146.9	155.6	52.5
581	ok	0.10	8.83e-02	1.95e-04	2.5	2.5	2.5	2.5	-4.79e-02	-0.5	0.2	93.1	73.6	44.5
582	ok	0.10	8.88e-02	2.53e-04	2.5	2.5	2.5	2.5	0.7	-0.6	0.4	130.3	-104.9	62.1
583	ok	0.10	8.61e-02	4.42e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	0.1	-29.2	173.3	-20.7
584	ok	0.10	7.42e-02	1.98e-04	2.5	2.5	2.5	2.5	0.1	-0.4	0.1	98.0	124.8	-38.0
585	ok	0.10	0.1	1.52e-03	2.5	2.5	2.5	2.5	-3.1	-2.9	1.3	-237.0	205.9	-80.9
586	ok	0.10	0.2	3.07e-04	2.5	2.5	2.5	2.5	-0.9	0.9	-0.1	200.4	73.4	-185.2
587	ok	0.10	0.1	1.00e-03	2.5	2.5	2.5	2.5	3.5	2.2	-1.0	219.9	37.8	-92.4
588	ok	0.10	7.82e-02	1.29e-04	2.5	2.5	2.5	2.5	0.2	6.22e-02	0.2	159.5	41.4	10.1
589	ok	0.10	8.38e-02	9.09e-05	2.5	2.5	2.5	2.5	0.4	0.1	0.1	170.5	5.6	11.7
590	ok	0.10	7.92e-02	1.42e-04	2.5	2.5	2.5	2.5	-4.01e-02	0.2	7.90e-02	156.8	75.0	-22.2
591	ok	0.10	0.1	1.09e-04	2.5	2.5	2.5	2.5	0.6	0.2	-0.4	193.8	59.3	-64.9
592	ok	0.10	0.1	4.00e-04	2.5	2.5	2.5	2.5	1.6	4.50e-02	-7.46e-02	233.9	5.4	-57.5
593	ok	0.10	8.21e-02	4.63e-05	2.5	2.5	2.5	2.5	0.2	0.2	9.68e-02	167.0	36.2	2.1
594	ok	0.10	8.34e-02	7.07e-05	2.5	2.5	2.5	2.5	0.4	6.75e-02	0.1	170.4	10.9	3.4
595	ok	0.10	8.49e-02	9.02e-05	2.5	2.5	2.5	2.5	0.2	0.3	-1.64e-02	173.0	55.1	-9.6
596	ok	0.10	9.95e-02	1.42e-04	2.5	2.5	2.5	2.5	0.7	0.1	-0.2	198.6	42.4	-27.9
597	ok	0.10	0.1	3.53e-04	2.5	2.5	2.5	2.5	1.2	-9.13e-03	-2.46e-02	224.7	-0.1	-21.5
598	ok	0.10	8.24e-02	2.66e-05	2.5	2.5	2.5	2.5	0.2	0.2	1.60e-03	168.1	33.2	0.7
599	ok	0.10	8.26e-02	5.78e-05	2.5	2.5	2.5	2.5	0.4	7.57e-02	-1.13e-03	168.8	11.3	0.5
600	ok	0.10	8.57e-02	5.58e-05	2.5	2.5	2.5	2.5	0.3	0.3	5.44e-03	175.5	48.9	0.4
601	ok	0.10	9.71e-02	1.60e-04	2.5	2.5	2.5	2.5	0.7	0.1	4.81e-03	198.4	36.9	0.9
602	ok	0.10	0.1	3.39e-04	2.5	2.5	2.5	2.5	1.1	-1.37e-02	-2.20e-03	221.2	-0.9	0.7
603	ok	0.10	8.20e-02	5.35e-05	2.5	2.5	2.5	2.5	0.2	0.2	-9.18e-02	166.9	36.3	-1.6
604	ok	0.10	8.33e-02	6.74e-05	2.5	2.5	2.5	2.5	0.4	6.84e-02	-0.1	170.2	10.9	-3.0
605	ok	0.10	8.50e-02	1.18e-04	2.5	2.5	2.5	2.5	0.2	0.3	2.36e-02	173.2	55.2	10.3
606	ok	0.10	9.99e-02	1.57e-04	2.5	2.5	2.5	2.5	0.7	0.1	0.2	199.1	42.5	28.7
607	ok	0.10	0.1	3.27e-04	2.5	2.5	2.5	2.5	1.2	-9.73e-03	2.48e-02	225.2	-9.70e-02	22.0
608	ok	0.10	7.81e-02	1.92e-04	2.5	2.5	2.5	2.5	0.2	6.27e-02	-0.2	159.3	41.7	-9.3
609	ok	0.10	8.36e-02	9.56e-05	2.5	2.5	2.5	2.5	0.4	0.1	-0.1	170.0	5.8	-11.2
610	ok	0.10	7.96e-02	1.88e-04	2.5	2.5	2.5	2.5	-4.08e-02	0.2	-7.19e-02	157.2	75.1	23.2
611	ok	0.10	0.1	1.39e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.4	194.7	59.4	65.9
612	ok	0.10	0.1	3.51e-04	2.5	2.5	2.5	2.5	1.6	3.84e-02	7.27e-02	235.1	5.7	58.3
613	ok	0.10	9.25e-02	2.98e-04	2.5	2.5	2.5	2.5	0.1	-7.84e-02	-0.3	148.6	26.9	-81.5
614	ok	0.10	8.73e-02	3.34e-04	2.5	2.5	2.5	2.5	0.7	-0.8	-0.5	54.3	-151.2	-41.1
615	ok	0.10	7.52e-02	2.35e-04	2.5	2.5	2.5	2.5	0.1	-0.4	-9.62e-02	98.5	125.1	39.7
616	ok	0.10	0.2	3.77e-04	2.5	2.5	2.5	2.5	-0.3	0.7	0.5	164.2	158.2	200.1
617	ok	0.10	0.1	8.44e-04	2.5	2.5	2.5	2.5	4.1	2.7	1.2	208.9	75.5	67.7
618	ok	0.10	8.46e-02	5.08e-04	2.5	2.5	2.5	2.5	-0.5	-1.1	0.5	-156.9	144.7	-29.1
619	ok	0.10	8.63e-02	5.26e-04	2.5	2.5	2.5	2.5	-0.3	-1.2	-0.1	-29.9	173.6	21.6
620	ok	0.10	0.2	1.79e-03	2.5	2.5	2.5	2.5	-3.7	-3.4	-1.5	-310.8	195.3	77.4
880	ok	0.10	7.99e-02	4.19e-04	2.5	2.5	2.5	2.5	0.2	-0.6	0.8	-104.9	-68.3	74.3
881	ok	0.10	8.97e-02	1.04e-04	2.5	2.5	2.5	2.5	0.8	0.9	-0.3	150.3	42.4	-67.9
883	ok	0.10	8.33e-02	1.27e-04	2.5	2.5	2.5	2.5	0.7	-9.17e-03	3.33e-02	170.4	-6.4	-1.8
885	ok	0.10	8.38e-02	1.41e-04	2.5	2.5	2.5	2.5	0.5	-1.13e-02	1.20e-02	171.6	-1.4	0.8
887	ok	0.10	8.29e-02	1.36e-04	2.5	2.5	2.5	2.5	0.4	-1.02e-02	-4.19e-04	169.8	0.3	0.8
889	ok	0.10	8.37e-02	1.28e-04	2.5	2.5	2.5	2.5	0.5	-1.13e-02	-1.19e-02	171.4	-1.4	-0.5
891	ok	0.10	8.31e-02	1.14e-04	2.5	2.5	2.5	2.5	0.7	-9.67e-03	-3.31e-02	170.0	-6.3	1.9
893	ok	0.10	8.99e-02	7.99e-05	2.5	2.5	2.5	2.5	0.9	1.0	0.4	143.5	52.1	70.1
895	ok	0.10	8.41e-02	4.44e-04	2.5	2.5	2.5	2.5	0.3	-0.7	-0.9	-118.1	-36.7	-62.8

Nodo	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x -3.69	N y -3.55	N xy -1.51	M x -310.80	M y -325.22	M xy -347.55
	0.10	0.36	1.79e-03	2.51	2.51	2.51	2.51	5.90	2.65	1.85	614.29	252.85	296.49

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
3	ok	0.19						
4	ok	0.19						
11	ok	0.28						
12	ok	0.30						
580	ok	0.19						
581	ok	0.19						
582	ok	0.19						
583	ok	0.08						
584	ok	0.08						
585	ok	0.28						
586	ok	0.28						
587	ok	0.28						
588	ok	0.05						
589	ok	0.05						
590	ok	0.03						
591	ok	0.07						
592	ok	0.07						
593	ok	0.02						
594	ok	0.03						
595	ok	0.02						
596	ok	0.03						
597	ok	0.03						
598	ok	0.02						
599	ok	0.02						
600	ok	0.02						
601	ok	0.02						
602	ok	0.02						
603	ok	0.02						

604	ok	0.03
605	ok	0.02
606	ok	0.03
607	ok	0.03
608	ok	0.05
609	ok	0.05
610	ok	0.04
611	ok	0.07
612	ok	0.07
613	ok	0.19
614	ok	0.19
615	ok	0.07
616	ok	0.30
617	ok	0.30
618	ok	0.19
619	ok	0.07
620	ok	0.30
880	ok	0.13
881	ok	0.13
883	ok	0.04
885	ok	0.03
887	ok	0.02
889	ok	0.03
891	ok	0.04
893	ok	0.14
895	ok	0.14

Nodo	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
	0.30						

Macro Guscio	Spessore	Id Materiale	Id Criterio	Progettazione
	cm			
13	25.00	1	1	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
									daN/cm	daN/cm	daN/cm	daN	daN	daN
19	ok	0.10	0.3	1.59e-03	2.5	2.5	2.5	2.5	6.0	-4.5	0.4	548.4	-394.8	155.8
20	ok	0.10	0.4	1.55e-03	2.5	2.5	2.5	2.5	5.8	-3.5	-0.8	610.7	-151.1	-306.0
27	ok	0.10	0.3	1.05e-03	2.5	2.5	2.5	2.5	3.3	-1.0	-1.0	300.8	224.5	-344.8
28	ok	0.10	0.4	1.27e-03	2.5	2.5	2.5	2.5	5.8	-3.5	0.8	611.3	-168.0	298.7
621	ok	0.10	0.1	1.86e-03	2.5	2.5	2.5	2.5	-4.0	-3.9	-1.3	-280.0	222.3	101.7
622	ok	0.10	0.2	5.15e-04	2.5	2.5	2.5	2.5	-0.4	0.4	0.5	177.6	106.2	108.5
623	ok	0.10	0.2	4.27e-04	2.5	2.5	2.5	2.5	4.4	3.0	1.7	199.9	163.8	61.4
624	ok	0.10	0.1	5.50e-04	2.5	2.5	2.5	2.5	-0.3	-1.5	-0.1	-28.6	221.0	1.7
625	ok	0.10	7.85e-02	2.97e-04	2.5	2.5	2.5	2.5	2.88e-02	-0.4	0.1	120.9	159.7	5.0
626	ok	0.10	0.1	1.51e-03	2.5	2.5	2.5	2.5	-3.1	-2.9	1.3	-234.8	228.2	-71.1
627	ok	0.10	0.2	3.29e-04	2.5	2.5	2.5	2.5	-0.9	0.8	-0.3	213.8	91.1	-169.3
628	ok	0.10	0.1	8.66e-04	2.5	2.5	2.5	2.5	3.5	2.2	-1.0	233.4	33.5	-87.8
629	ok	0.10	0.1	1.13e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	218.8	66.4	55.0
630	ok	0.10	0.1	2.44e-04	2.5	2.5	2.5	2.5	1.4	2.13e-02	8.00e-02	255.0	5.5	53.2
631	ok	0.10	9.42e-02	2.12e-04	2.5	2.5	2.5	2.5	-0.1	0.4	5.31e-03	192.9	94.9	3.7
632	ok	0.10	0.1	1.98e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	218.2	66.3	-53.8
633	ok	0.10	0.1	4.18e-04	2.5	2.5	2.5	2.5	1.4	2.82e-02	-8.21e-02	254.1	5.3	-52.4
634	ok	0.10	0.1	8.68e-05	2.5	2.5	2.5	2.5	0.6	0.2	0.2	225.6	45.5	22.8
635	ok	0.10	0.1	2.16e-04	2.5	2.5	2.5	2.5	0.9	-1.58e-02	3.15e-02	246.7	0.4	18.7
636	ok	0.10	0.1	8.62e-05	2.5	2.5	2.5	2.5	0.3	0.4	1.85e-02	210.9	67.0	1.4
637	ok	0.10	0.1	1.93e-04	2.5	2.5	2.5	2.5	0.6	0.2	-0.2	225.4	45.4	-21.8
638	ok	0.10	0.1	4.28e-04	2.5	2.5	2.5	2.5	0.9	-1.52e-02	-3.12e-02	246.3	0.4	-18.1
639	ok	0.10	0.1	7.91e-05	2.5	2.5	2.5	2.5	0.6	0.2	3.07e-03	222.5	42.1	0.8
640	ok	0.10	0.1	1.98e-04	2.5	2.5	2.5	2.5	0.7	-1.78e-02	1.92e-03	242.7	-0.2	0.5
641	ok	0.10	0.1	2.56e-05	2.5	2.5	2.5	2.5	0.4	0.3	3.81e-03	213.2	58.7	0.6
642	ok	0.10	0.1	1.86e-04	2.5	2.5	2.5	2.5	0.6	0.2	3.48e-03	222.5	42.1	0.7
643	ok	0.10	0.1	4.39e-04	2.5	2.5	2.5	2.5	0.7	-1.77e-02	1.77e-03	242.7	-0.2	0.5
644	ok	0.10	0.1	8.74e-05	2.5	2.5	2.5	2.5	0.6	0.2	-0.2	225.5	45.4	-21.8
645	ok	0.10	0.1	1.91e-04	2.5	2.5	2.5	2.5	0.9	-1.52e-02	-3.11e-02	246.4	0.4	-18.1
646	ok	0.10	0.1	9.45e-05	2.5	2.5	2.5	2.5	0.3	0.4	1.86e-02	211.0	67.0	1.4
647	ok	0.10	0.1	1.90e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.2	225.7	45.5	22.7
648	ok	0.10	0.1	4.16e-04	2.5	2.5	2.5	2.5	0.9	-1.57e-02	3.13e-02	246.8	0.4	18.6
649	ok	0.10	0.1	1.03e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	218.5	66.3	-53.8
650	ok	0.10	0.1	2.16e-04	2.5	2.5	2.5	2.5	1.4	2.83e-02	-8.22e-02	254.3	5.3	-52.3
651	ok	0.10	9.43e-02	2.09e-04	2.5	2.5	2.5	2.5	-0.1	0.4	5.07e-03	193.2	94.8	3.8
652	ok	0.10	0.1	1.95e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	219.1	66.3	54.9
653	ok	0.10	0.1	3.86e-04	2.5	2.5	2.5	2.5	1.4	2.19e-02	8.02e-02	255.3	5.6	53.2
654	ok	0.10	0.2	4.94e-04	2.5	2.5	2.5	2.5	-1.1	1.0	-0.3	245.0	58.1	-168.3
655	ok	0.10	0.1	3.59e-04	2.5	2.5	2.5	2.5	4.2	2.9	-1.6	197.9	156.9	-62.4
656	ok	0.10	7.85e-02	2.87e-04	2.5	2.5	2.5	2.5	2.87e-02	-0.4	0.1	121.1	159.7	5.1
657	ok	0.10	0.2	4.04e-04	2.5	2.5	2.5	2.5	-0.4	0.7	0.7	180.3	167.1	186.4
658	ok	0.10	0.1	7.88e-04	2.5	2.5	2.5	2.5	4.1	2.7	1.2	222.1	72.0	63.1
659	ok	0.10	0.2	1.80e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	1.5	-309.1	214.1	-65.0
660	ok	0.10	0.1	6.54e-04	2.5	2.5	2.5	2.5	-0.3	-1.6	-0.1	-28.8	221.0	1.7
661	ok	0.10	0.2	1.78e-03	2.5	2.5	2.5	2.5	-3.6	-3.5	-1.5	-309.6	215.9	67.8

Nodo	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
	0.10	0.36	1.86e-03	2.51	2.51	2.51	2.51	6.01	-4.49	-1.63	-309.62	-394.80	-344.79

Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
		daN/cm2					daN/cm	
19	ok	0.39						
20	ok	0.36						
27	ok	0.26						
28	ok	0.29						
621	ok	0.39						
622	ok	0.39						
623	ok	0.39						
624	ok	0.09						
625	ok	0.09						
626	ok	0.26						
627	ok	0.26						
628	ok	0.26						
629	ok	0.08						
630	ok	0.08						
631	ok	0.03						
632	ok	0.07						
633	ok	0.07						
634	ok	0.03						
635	ok	0.03						
636	ok	0.02						
637	ok	0.03						
638	ok	0.03						
639	ok	0.02						
640	ok	0.02						
641	ok	0.02						
642	ok	0.02						
643	ok	0.02						
644	ok	0.03						
645	ok	0.03						
646	ok	0.02						
647	ok	0.03						
648	ok	0.03						
649	ok	0.08						
650	ok	0.08						
651	ok	0.03						
652	ok	0.07						

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
37	ok	0.10	0.3	1.59e-03	2.5	2.5	2.5	2.5	6.0	-4.5	0.4	550.8	-395.1	156.8
38	ok	0.10	0.4	1.54e-03	2.5	2.5	2.5	2.5	5.8	-3.5	-0.8	608.1	-150.5	-305.1
45	ok	0.10	0.3	1.05e-03	2.5	2.5	2.5	2.5	3.3	-1.0	-1.0	302.1	224.1	-345.2
46	ok	0.10	0.4	1.26e-03	2.5	2.5	2.5	2.5	5.8	-3.5	0.8	609.2	-166.7	298.3
703	ok	0.10	0.1	1.87e-03	2.5	2.5	2.5	2.5	-4.0	-3.9	-1.3	-281.2	222.4	101.7
704	ok	0.10	0.2	5.14e-04	2.5	2.5	2.5	2.5	-0.4	0.4	0.5	177.9	106.1	108.5
705	ok	0.10	0.1	4.24e-04	2.5	2.5	2.5	2.5	4.4	3.0	1.7	200.1	163.9	61.3
706	ok	0.10	0.1	5.51e-04	2.5	2.5	2.5	2.5	-0.3	-1.6	-0.1	-28.7	221.0	1.7
707	ok	0.10	7.85e-02	2.97e-04	2.5	2.5	2.5	2.5	2.87e-02	-0.4	0.1	121.1	159.7	5.1
708	ok	0.10	0.1	1.51e-03	2.5	2.5	2.5	2.5	-3.1	-2.9	1.3	-235.6	228.3	-71.1
709	ok	0.10	0.2	3.30e-04	2.5	2.5	2.5	2.5	-0.9	0.8	-0.3	214.3	91.1	-169.5
710	ok	0.10	0.1	8.66e-04	2.5	2.5	2.5	2.5	3.5	2.2	-1.0	233.6	33.7	-87.7
711	ok	0.10	0.1	1.12e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	219.1	66.3	54.9
712	ok	0.10	0.1	2.02e-04	2.5	2.5	2.5	2.5	1.4	2.19e-02	8.01e-02	255.2	5.5	53.2
713	ok	0.10	9.43e-02	2.12e-04	2.5	2.5	2.5	2.5	-0.1	0.4	5.23e-03	193.1	94.9	3.8
714	ok	0.10	0.1	1.98e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	218.4	66.3	-53.8
715	ok	0.10	0.1	4.17e-04	2.5	2.5	2.5	2.5	1.4	2.81e-02	-8.22e-02	254.3	5.3	-52.4
716	ok	0.10	0.1	8.03e-05	2.5	2.5	2.5	2.5	0.6	0.2	0.2	225.7	45.5	22.7
717	ok	0.10	0.1	1.78e-04	2.5	2.5	2.5	2.5	0.9	-1.58e-02	3.12e-02	246.8	0.4	18.6
718	ok	0.10	0.1	8.59e-05	2.5	2.5	2.5	2.5	0.3	0.4	1.89e-02	211.0	67.0	1.4
719	ok	0.10	0.1	1.93e-04	2.5	2.5	2.5	2.5	0.6	0.2	-0.2	225.5	45.4	-21.8
720	ok	0.10	0.1	4.27e-04	2.5	2.5	2.5	2.5	0.9	-1.52e-02	-3.12e-02	246.4	0.4	-18.1
721	ok	0.10	0.1	7.32e-05	2.5	2.5	2.5	2.5	0.6	0.2	3.70e-03	222.5	42.1	0.8
722	ok	0.10	0.1	1.87e-04	2.5	2.5	2.5	2.5	0.7	-1.77e-02	1.72e-03	242.7	-0.2	0.5
723	ok	0.10	0.1	2.57e-05	2.5	2.5	2.5	2.5	0.4	0.3	4.18e-03	213.2	58.7	0.6
724	ok	0.10	0.1	1.86e-04	2.5	2.5	2.5	2.5	0.6	0.2	3.37e-03	222.5	42.1	0.8
725	ok	0.10	0.1	4.38e-04	2.5	2.5	2.5	2.5	0.7	-1.77e-02	1.89e-03	242.7	-0.2	0.5
726	ok	0.10	0.1	8.42e-05	2.5	2.5	2.5	2.5	0.6	0.2	-0.2	225.4	45.4	-21.8
727	ok	0.10	0.1	2.06e-04	2.5	2.5	2.5	2.5	0.9	-1.52e-02	-3.13e-02	246.3	0.4	-18.1
728	ok	0.10	0.1	9.44e-05	2.5	2.5	2.5	2.5	0.3	0.4	1.87e-02	210.9	67.0	1.4
729	ok	0.10	0.1	1.90e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.2	225.6	45.5	22.7
730	ok	0.10	0.1	4.15e-04	2.5	2.5	2.5	2.5	0.9	-1.58e-02	3.14e-02	246.7	0.4	18.6
731	ok	0.10	0.1	1.09e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	218.2	66.3	-53.8
732	ok	0.10	0.1	2.35e-04	2.5	2.5	2.5	2.5	1.4	2.83e-02	-8.23e-02	254.1	5.2	-52.3
733	ok	0.10	9.42e-02	2.09e-04	2.5	2.5	2.5	2.5	-0.1	0.4	5.17e-03	193.0	94.9	3.8
734	ok	0.10	0.1	1.95e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	218.9	66.3	55.0
735	ok	0.10	0.1	3.85e-04	2.5	2.5	2.5	2.5	1.4	2.15e-02	8.00e-02	255.1	5.5	53.2
736	ok	0.10	0.2	4.92e-04	2.5	2.5	2.5	2.5	-1.1	1.0	-0.3	244.2	58.2	-167.9
737	ok	0.10	0.1	3.32e-04	2.5	2.5	2.5	2.5	4.2	2.9	-1.6	197.7	156.1	-62.6
738	ok	0.10	7.85e-02	2.96e-04	2.5	2.5	2.5	2.5	2.89e-02	-0.4	0.1	120.9	159.7	5.1
739	ok	0.10	0.2	4.02e-04	2.5	2.5	2.5	2.5	-0.4	0.7	0.7	179.9	167.2	186.2
740	ok	0.10	0.1	7.86e-04	2.5	2.5	2.5	2.5	4.1	2.6	1.2	221.9	71.5	63.2
741	ok	0.10	0.2	1.79e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	1.5	-307.8	213.9	-65.0
742	ok	0.10	0.1	6.52e-04	2.5	2.5	2.5	2.5	-0.3	-1.5	-0.1	-28.7	220.9	1.7
743	ok	0.10	0.2	1.78e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	-1.5	-308.5	215.7	67.7

Nodo	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
	0.10	0.36	1.87e-03	2.51	2.51	2.51	2.51	-3.98	-4.50	-1.62	-308.53	-395.05	-345.21
								6.02	2.98	1.66	609.18	228.32	298.28

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
37	ok	0.39						
38	ok	0.36						
45	ok	0.26						
46	ok	0.29						
703	ok	0.39						
704	ok	0.39						
705	ok	0.39						
706	ok	0.08						
707	ok	0.08						
708	ok	0.26						
709	ok	0.26						
710	ok	0.26						
711	ok	0.07						
712	ok	0.07						
713	ok	0.03						
714	ok	0.08						
715	ok	0.08						
716	ok	0.03						
717	ok	0.03						
718	ok	0.02						
719	ok	0.03						
720	ok	0.03						
721	ok	0.02						
722	ok	0.02						
723	ok	0.02						
724	ok	0.03						
725	ok	0.03						
726	ok	0.03						
727	ok	0.03						
728	ok	0.02						
729	ok	0.03						
730	ok	0.03						
731	ok	0.08						
732	ok	0.08						
733	ok	0.03						
734	ok	0.08						
735	ok	0.08						
736	ok	0.36						
737	ok	0.36						
738	ok	0.09						
739	ok	0.29						
740	ok	0.29						
741	ok	0.36						
742	ok	0.09						
743	ok	0.29						

Nodo	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
	0.39						

Macro Guscio	Spessore cm	Id Materiale	Id Criterio	Progettazione
16	25.00	t	t	Singolo elemento

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x daN/cm	N y daN/cm	N xy daN/cm	M x daN	M y daN	M xy daN
21	ok	0.10	0.3	1.59e-03	2.5	2.5	2.5	2.5	6.0	-4.5	0.4	551.1	-396.0	156.5
22	ok	0.10	0.4	1.55e-03	2.5	2.5	2.5	2.5	5.8	-3.5	-0.8	608.0	-150.1	-305.2
29	ok	0.10	0.3	1.05e-03	2.5	2.5	2.5	2.5	3.3	-1.0	-1.0	302.2	224.0	-345.2
30	ok	0.10	0.4	1.26e-03	2.5	2.5	2.5	2.5	5.8	-3.5	0.8	609.3	-167.1	298.2
744	ok	0.10	0.1	1.87e-03	2.5	2.5	2.5	2.5	-4.0	-3.9	-1.3	-281.3	222.5	101.8
745	ok	0.10	0.2	5.16e-04	2.5	2.5	2.5	2.5	-0.4	0.4	0.5	177.9	106.1	108.6
746	ok	0.10	0.2	4.24e-04	2.5	2.5	2.5	2.5	4.4	3.0	1.7	200.1	164.3	61.3
747	ok	0.10	0.1	5.51e-04	2.5	2.5	2.5	2.5	-0.3	-1.6	-0.1	-28.7	221.0	1.7
748	ok	0.10	7.85e-02	2.98e-04	2.5	2.5	2.5	2.5	2.87e-02	-0.4	0.1	121.1	159.7	5.1
749	ok	0.10	0.1	1.51e-03	2.5	2.5	2.5	2.5	-3.1	-2.9	1.3	-235.7	228.4	-71.1
750	ok	0.10	0.2	3.30e-04	2.5	2.5	2.5	2.5	-0.9	0.8	-0.3	214.3	90.9	-169.4
751	ok	0.10	0.1	8.67e-04	2.5	2.5	2.5	2.5	3.5	2.2	-1.0	233.6	33.9	-87.7
752	ok	0.10	0.1	1.12e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	219.1	66.3	55.0
753	ok	0.10	0.1	2.20e-04	2.5	2.5	2.5	2.5	1.4	2.16e-02	8.00e-02	255.2	5.5	53.2

754	ok	0.10	9.43e-02	2.12e-04	2.5	2.5	2.5	2.5	-0.1	0.4	5.60e-03	193.1	94.9	3.8
755	ok	0.10	0.1	1.99e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	218.4	66.3	-53.8
756	ok	0.10	0.1	4.18e-04	2.5	2.5	2.5	2.5	1.4	2.84e-02	-8.22e-02	254.3	5.3	-52.4
757	ok	0.10	0.1	8.02e-05	2.5	2.5	2.5	2.5	0.6	0.2	0.2	225.7	45.5	22.7
758	ok	0.10	0.1	1.83e-04	2.5	2.5	2.5	2.5	0.9	-1.58e-02	3.13e-02	246.8	0.4	18.6
759	ok	0.10	0.1	8.61e-05	2.5	2.5	2.5	2.5	0.3	0.4	1.91e-02	211.0	67.0	1.4
760	ok	0.10	0.1	1.93e-04	2.5	2.5	2.5	2.5	0.6	0.2	-0.2	225.5	45.4	-21.8
761	ok	0.10	0.1	4.28e-04	2.5	2.5	2.5	2.5	0.9	-1.52e-02	-3.11e-02	246.4	0.4	-18.1
762	ok	0.10	0.1	7.30e-05	2.5	2.5	2.5	2.5	0.6	0.2	3.65e-03	222.5	42.1	0.8
763	ok	0.10	0.1	1.87e-04	2.5	2.5	2.5	2.5	0.7	-1.77e-02	1.70e-03	242.7	-0.2	0.5
764	ok	0.10	0.1	2.57e-05	2.5	2.5	2.5	2.5	0.4	0.3	4.45e-03	213.2	58.7	0.6
765	ok	0.10	0.1	1.86e-04	2.5	2.5	2.5	2.5	0.6	0.2	3.38e-03	222.5	42.1	0.8
766	ok	0.10	0.1	4.39e-04	2.5	2.5	2.5	2.5	0.7	-1.77e-02	1.93e-03	242.7	-0.2	0.5
767	ok	0.10	0.1	8.42e-05	2.5	2.5	2.5	2.5	0.6	0.2	-0.2	225.4	45.4	-21.8
768	ok	0.10	0.1	2.09e-04	2.5	2.5	2.5	2.5	0.9	-1.52e-02	-3.13e-02	246.3	0.4	-18.1
769	ok	0.10	0.1	9.47e-05	2.5	2.5	2.5	2.5	0.3	0.4	1.86e-02	210.9	67.0	1.4
770	ok	0.10	0.1	1.90e-04	2.5	2.5	2.5	2.5	0.6	0.2	0.2	225.6	45.5	22.7
771	ok	0.10	0.1	4.16e-04	2.5	2.5	2.5	2.5	0.9	-1.58e-02	3.14e-02	246.7	0.4	18.6
772	ok	0.10	0.1	1.09e-04	2.5	2.5	2.5	2.5	0.5	0.3	-0.5	218.2	66.3	-53.8
773	ok	0.10	0.1	2.42e-04	2.5	2.5	2.5	2.5	-1.4	2.80e-02	-8.22e-02	254.1	5.2	-52.3
774	ok	0.10	9.42e-02	2.09e-04	2.5	2.5	2.5	2.5	-0.1	0.4	4.86e-03	193.0	94.9	3.8
775	ok	0.10	0.1	1.95e-04	2.5	2.5	2.5	2.5	0.5	0.3	0.5	218.9	66.3	55.0
776	ok	0.10	0.1	3.85e-04	2.5	2.5	2.5	2.5	-1.4	2.17e-02	8.01e-02	255.1	5.5	53.2
777	ok	0.10	0.2	4.93e-04	2.5	2.5	2.5	2.5	-1.1	1.0	-0.3	244.2	58.3	-168.0
778	ok	0.10	0.2	3.71e-04	2.5	2.5	2.5	2.5	4.2	2.9	-1.6	197.7	156.4	-62.5
779	ok	0.10	7.85e-02	2.87e-04	2.5	2.5	2.5	2.5	2.89e-02	-0.4	0.1	120.9	159.7	5.1
780	ok	0.10	0.2	4.02e-04	2.5	2.5	2.5	2.5	-0.4	0.7	0.7	179.9	167.2	186.2
781	ok	0.10	0.1	7.87e-04	2.5	2.5	2.5	2.5	4.1	2.6	1.2	221.9	71.6	63.2
782	ok	0.10	0.2	1.80e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	1.5	-307.8	213.8	-65.0
783	ok	0.10	0.1	6.52e-04	2.5	2.5	2.5	2.5	-0.3	-1.5	-0.1	-28.7	220.9	1.7
784	ok	0.10	0.2	1.78e-03	2.5	2.5	2.5	2.5	-3.6	-3.4	-1.5	-308.6	215.7	67.8
Nodo		x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N x	N y	N xy	M x	M y	M xy
		0.10	0.36	1.87e-03	2.51	2.51	2.51	2.51	-3.99	-4.50	-1.63	-308.61	-395.99	-345.19
									6.03	2.98	1.67	609.32	228.35	298.15

Nodo	Stato	Max tau daN/cm2	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr daN/cm	V sec daN/cm
21	ok	0.39						
22	ok	0.36						
29	ok	0.27						
30	ok	0.29						
744	ok	0.39						
745	ok	0.39						
746	ok	0.39						
747	ok	0.08						
748	ok	0.08						
749	ok	0.27						
750	ok	0.27						
751	ok	0.27						
752	ok	0.08						
753	ok	0.08						
754	ok	0.03						
755	ok	0.07						
756	ok	0.07						
757	ok	0.03						
758	ok	0.03						
759	ok	0.02						
760	ok	0.03						
761	ok	0.03						
762	ok	0.02						
763	ok	0.02						
764	ok	0.02						
765	ok	0.02						
766	ok	0.02						
767	ok	0.03						
768	ok	0.03						
769	ok	0.02						
770	ok	0.03						
771	ok	0.03						
772	ok	0.08						
773	ok	0.08						
774	ok	0.03						
775	ok	0.07						
776	ok	0.07						
777	ok	0.36						
778	ok	0.36						
779	ok	0.10						
780	ok	0.29						
781	ok	0.29						
782	ok	0.36						
783	ok	0.10						
784	ok	0.29						
Nodo		Max tau 0.39	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec

STATI LIMITE D' ESERCIZIO PLATEA IN C.A.

In tabella vengono riportati i valori di interesse per il controllo degli stati limite d'esercizio.

In particolare vengono riportati, in relazione al tipo di elemento strutturale, i risultati relativi alle tre categorie di combinazione considerate:

- Combinazioni rare
- Combinazioni frequenti
- Combinazioni quasi permanenti.

I valori di interesse sono i seguenti:

rRfck	rapporto tra la massima compressione nel calcestruzzo e la tensione fck in combinazioni rare [normalizzato a 1]
rRfyk	rapporto tra la massima tensione nell'acciaio e la tensione fyk in combinazioni rare [normalizzato a 1]
rPfck	rapporto tra la massima compressione nel calcestruzzo e la tensione fck in combinazioni quasi permanenti [normalizzato a 1]
wR	apertura caratteristica delle fessure in combinazioni rare [mm]
wF	apertura caratteristica delle fessure in combinazioni frequenti [mm]
wP	apertura caratteristica delle fessure in combinazioni quasi permanenti [mm]
dR	massima deformazione in combinazioni rare
dF	massima deformazione in combinazioni frequenti
dP	massima deformazione in combinazioni quasi permanenti

Per ognuno dei nove valori soprariportati viene indicata (Rif.cmb) la combinazione in cui si è verificato.

In relazione al tipo di elemento strutturale i valori sono selezionati nel modo seguente:

pilastri	rRfck	rRfyk	rPfck	per sezioni significative
travi	rRfck	rRfyk	rPfck	per sezioni significative
	wR	wF	wP	per sezioni significative
	dR	dF	dP	massimi in campata
setti e gusci	rRfck	rRfyk	rPfck	massimi nei nodi dell'elemento
	wR	wF	wP	massimi nei nodi dell'elemento

Si precisa che i valori di massima deformazione per travi sono riferiti al piano verticale (piano locale 1-2 con momenti flettenti 3-3).

Guscio	rRfck	rRfyk	rPfck	Rif. cmb	wR mm	wF mm	wP mm	Rif. cmb
1	0.02	0.06	6.36e-03	103,103,108	0.0	0.0	0.0	0,0,0
2	0.01	0.04	6.89e-03	93,93,108	0.0	0.0	0.0	0,0,0
3	0.02	0.05	7.36e-03	100,100,108	0.0	0.0	0.0	0,0,0
4	0.04	0.12	9.44e-03	103,103,108	0.0	0.0	0.0	0,0,0
5	0.01	0.04	5.83e-03	93,93,108	0.0	0.0	0.0	0,0,0
6	0.01	0.04	5.77e-03	93,93,108	0.0	0.0	0.0	0,0,0
7	0.02	0.05	7.52e-03	100,93,108	0.0	0.0	0.0	0,0,0
8	0.02	0.06	8.85e-03	93,93,108	0.0	0.0	0.0	0,0,0
9	0.01	0.05	6.84e-03	93,93,108	0.0	0.0	0.0	0,0,0
10	0.01	0.05	7.08e-03	93,93,108	0.0	0.0	0.0	0,0,0
11	0.02	0.06	8.23e-03	93,93,108	0.0	0.0	0.0	0,0,0

12	0.02	0.07	9.58e-03	93,93,108	0.0	0.0	0.0	0.0
13	0.02	0.05	7.87e-03	93,93,108	0.0	0.0	0.0	0.0
14	0.02	0.06	8.22e-03	93,93,108	0.0	0.0	0.0	0.0
15	0.02	0.06	9.33e-03	93,93,108	0.0	0.0	0.0	0.0
16	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
17	0.02	0.06	8.96e-03	93,93,108	0.0	0.0	0.0	0.0
18	0.02	0.06	9.12e-03	93,93,108	0.0	0.0	0.0	0.0
19	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
20	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
21	0.02	0.07	9.61e-03	93,93,108	0.0	0.0	0.0	0.0
22	0.02	0.06	9.13e-03	93,93,108	0.0	0.0	0.0	0.0
23	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
24	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.0
25	0.02	0.07	9.70e-03	94,94,108	0.0	0.0	0.0	0.0
26	0.02	0.06	9.05e-03	93,93,108	0.0	0.0	0.0	0.0
27	0.03	0.09	0.01	93,100,108	0.0	0.0	0.0	0.0
28	0.03	0.11	0.02	93,94,108	0.0	0.0	0.0	0.0
29	0.05	0.14	0.01	103,94,108	0.0	0.0	0.0	0.0
30	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.0
31	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
32	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.0
33	0.03	0.10	9.68e-03	102,102,108	0.0	0.0	0.0	0.0
34	0.02	0.05	8.84e-03	93,93,108	0.0	0.0	0.0	0.0
35	0.02	0.05	8.84e-03	93,93,108	0.0	0.0	0.0	0.0
36	0.04	0.12	9.54e-03	103,103,108	0.0	0.0	0.0	0.0
37	0.02	0.06	9.36e-03	93,93,108	0.0	0.0	0.0	0.0
38	0.02	0.06	8.03e-03	93,93,108	0.0	0.0	0.0	0.0
39	0.02	0.06	8.00e-03	93,93,108	0.0	0.0	0.0	0.0
40	0.02	0.06	9.34e-03	93,93,108	0.0	0.0	0.0	0.0
41	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
42	0.02	0.06	9.15e-03	93,93,108	0.0	0.0	0.0	0.0
43	0.02	0.06	9.14e-03	93,93,108	0.0	0.0	0.0	0.0
44	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
45	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
46	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
47	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
48	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
49	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
50	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
51	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
52	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
53	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.0
54	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
55	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
56	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.0
57	0.03	0.12	0.02	94,94,108	0.0	0.0	0.0	0.0
58	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
59	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
60	0.03	0.12	0.02	94,94,108	0.0	0.0	0.0	0.0
61	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.0
62	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
63	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
64	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.0
65	0.03	0.10	9.67e-03	102,102,108	0.0	0.0	0.0	0.0
66	0.02	0.05	8.84e-03	93,93,108	0.0	0.0	0.0	0.0
67	0.02	0.05	8.84e-03	93,93,108	0.0	0.0	0.0	0.0
68	0.04	0.12	9.55e-03	103,103,108	0.0	0.0	0.0	0.0
69	0.02	0.06	9.36e-03	93,93,108	0.0	0.0	0.0	0.0
70	0.02	0.06	8.03e-03	93,93,108	0.0	0.0	0.0	0.0
71	0.02	0.06	8.00e-03	93,93,108	0.0	0.0	0.0	0.0
72	0.02	0.06	9.34e-03	93,93,108	0.0	0.0	0.0	0.0
73	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
74	0.02	0.06	9.15e-03	93,93,108	0.0	0.0	0.0	0.0
75	0.02	0.06	9.14e-03	93,93,108	0.0	0.0	0.0	0.0
76	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
77	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
78	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
79	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
80	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
81	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
82	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
83	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
84	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
85	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.0
86	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
87	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
88	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.0
89	0.03	0.12	0.02	94,94,108	0.0	0.0	0.0	0.0
90	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
91	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
92	0.03	0.12	0.02	94,94,108	0.0	0.0	0.0	0.0
93	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.0
94	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
95	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
96	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.0
97	0.03	0.10	9.54e-03	102,102,108	0.0	0.0	0.0	0.0
98	0.02	0.05	7.42e-03	93,93,108	0.0	0.0	0.0	0.0
99	0.01	0.04	6.92e-03	93,93,108	0.0	0.0	0.0	0.0
100	0.01	0.04	6.29e-03	93,102,108	0.0	0.0	0.0	0.0
101	0.02	0.06	8.88e-03	93,93,108	0.0	0.0	0.0	0.0
102	0.02	0.05	7.55e-03	93,93,108	0.0	0.0	0.0	0.0
103	0.01	0.04	5.79e-03	93,93,108	0.0	0.0	0.0	0.0
104	0.01	0.04	5.82e-03	93,93,108	0.0	0.0	0.0	0.0
105	0.02	0.07	9.59e-03	93,93,108	0.0	0.0	0.0	0.0
106	0.02	0.06	8.24e-03	93,93,108	0.0	0.0	0.0	0.0
107	0.01	0.05	7.09e-03	93,93,108	0.0	0.0	0.0	0.0
108	0.01	0.05	6.83e-03	93,93,108	0.0	0.0	0.0	0.0
109	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
110	0.02	0.06	9.32e-03	93,93,108	0.0	0.0	0.0	0.0
111	0.02	0.06	8.22e-03	93,93,108	0.0	0.0	0.0	0.0
112	0.02	0.05	7.88e-03	93,93,108	0.0	0.0	0.0	0.0
113	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
114	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
115	0.02	0.06	9.10e-03	93,93,108	0.0	0.0	0.0	0.0
116	0.02	0.06	8.98e-03	93,93,108	0.0	0.0	0.0	0.0
117	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.0
118	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.0
119	0.02	0.06	9.12e-03	93,93,108	0.0	0.0	0.0	0.0
120	0.02	0.07	9.65e-03	93,93,108	0.0	0.0	0.0	0.0
121	0.03	0.11	0.02	93,94,108	0.0	0.0	0.0	0.0
122	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
123	0.02	0.06	9.02e-03	93,93,108	0.0	0.0	0.0	0.0
124	0.02	0.07	9.74e-03	94,94,108	0.0	0.0	0.0	0.0
125	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.0
126	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
127	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.0
128	0.04	0.14	0.02	94,94,108	0.0	0.0	0.0	0.0
129	0.07	0.25	0.03	93,93,108	0.0	0.0	0.0	0.0
130	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
131	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.0
132	0.03	0.12	0.01	93,93,108	0.0	0.0	0.0	0.0
133	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.0
134	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.0
135	0.02	0.06	9.65e-03	93,93,108	0.0	0.0	0.0	0.0
136	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0

137	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
138	0.03	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
139	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
140	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
141	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
142	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
143	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
144	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
145	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
146	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
147	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
148	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
149	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
150	0.03	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
151	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
152	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
153	0.03	0.11	0.02	93,94,108	0.0	0.0	0.0	0.00
154	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
155	0.02	0.06	9.63e-03	93,93,108	0.0	0.0	0.0	0.00
156	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
157	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.00
158	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
159	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
160	0.04	0.14	0.02	94,94,108	0.0	0.0	0.0	0.00
161	0.07	0.26	0.03	93,93,108	0.0	0.0	0.0	0.00
162	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
163	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
164	0.03	0.12	0.01	93,93,108	0.0	0.0	0.0	0.00
165	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00
166	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
167	0.02	0.06	9.66e-03	93,93,108	0.0	0.0	0.0	0.00
168	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
169	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
170	0.03	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
171	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
172	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
173	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
174	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
175	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
176	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
177	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
178	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
179	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
180	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
181	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
182	0.03	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
183	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
184	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
185	0.03	0.11	0.02	93,94,108	0.0	0.0	0.0	0.00
186	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
187	0.02	0.06	9.62e-03	93,93,108	0.0	0.0	0.0	0.00
188	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
189	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.00
190	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
191	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
192	0.04	0.14	0.02	94,94,108	0.0	0.0	0.0	0.00
193	0.07	0.26	0.03	93,93,108	0.0	0.0	0.0	0.00
194	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
195	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
196	0.03	0.12	0.01	93,93,108	0.0	0.0	0.0	0.00
197	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00
198	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
199	0.02	0.06	9.05e-03	93,93,108	0.0	0.0	0.0	0.00
200	0.02	0.07	9.69e-03	93,93,108	0.0	0.0	0.0	0.00
201	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
202	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
203	0.02	0.06	9.13e-03	93,93,108	0.0	0.0	0.0	0.00
204	0.02	0.07	9.61e-03	93,93,108	0.0	0.0	0.0	0.00
205	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
206	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
207	0.02	0.06	9.12e-03	93,93,108	0.0	0.0	0.0	0.00
208	0.02	0.06	8.95e-03	93,93,108	0.0	0.0	0.0	0.00
209	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
210	0.02	0.06	9.33e-03	93,93,108	0.0	0.0	0.0	0.00
211	0.02	0.06	8.22e-03	93,93,108	0.0	0.0	0.0	0.00
212	0.02	0.05	7.87e-03	93,93,108	0.0	0.0	0.0	0.00
213	0.02	0.07	9.58e-03	93,93,108	0.0	0.0	0.0	0.00
214	0.02	0.06	8.23e-03	93,93,108	0.0	0.0	0.0	0.00
215	0.01	0.05	7.08e-03	93,93,108	0.0	0.0	0.0	0.00
216	0.01	0.05	6.84e-03	93,93,108	0.0	0.0	0.0	0.00
217	0.02	0.06	8.85e-03	93,93,108	0.0	0.0	0.0	0.00
218	0.02	0.05	7.52e-03	93,93,108	0.0	0.0	0.0	0.00
219	0.01	0.04	5.77e-03	93,93,108	0.0	0.0	0.0	0.00
220	0.01	0.04	5.84e-03	93,93,108	0.0	0.0	0.0	0.00
221	0.03	0.11	9.44e-03	94,94,108	0.0	0.0	0.0	0.00
222	0.02	0.05	7.36e-03	93,93,108	0.0	0.0	0.0	0.00
223	0.01	0.04	6.89e-03	93,93,108	0.0	0.0	0.0	0.00
224	0.02	0.05	6.39e-03	102,102,108	0.0	0.0	0.0	0.00
225	0.07	0.25	0.03	93,93,108	0.0	0.0	0.0	0.00
226	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
227	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
228	0.07	0.25	0.03	100,100,108	0.0	0.0	0.0	0.00
229	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00
230	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
231	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
232	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00
233	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
234	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
235	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
236	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
237	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
238	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
239	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
240	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
241	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
242	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
243	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
244	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
245	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
246	0.02	0.06	9.14e-03	93,93,108	0.0	0.0	0.0	0.00
247	0.02	0.06	9.15e-03	93,93,108	0.0	0.0	0.0	0.00
248	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
249	0.02	0.06	9.33e-03	93,93,108	0.0	0.0	0.0	0.00
250	0.02	0.06	8.00e-03	93,93,108	0.0	0.0	0.0	0.00
251	0.02	0.06	8.03e-03	93,93,108	0.0	0.0	0.0	0.00
252	0.02	0.06	9.36e-03	93,93,108	0.0	0.0	0.0	0.00
253	0.03	0.11	9.55e-03	94,94,108	0.0	0.0	0.0	0.00
254	0.02	0.05	8.84e-03	93,93,108	0.0	0.0	0.0	0.00
255	0.02	0.06	8.84e-03	93,100,108	0.0	0.0	0.0	0.00
256	0.04	0.12	9.70e-03	103,103,108	0.0	0.0	0.0	0.00
257	0.07	0.25	0.03	93,93,108	0.0	0.0	0.0	0.00
258	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
259	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
260	0.07	0.25	0.03	100,100,108	0.0	0.0	0.0	0.00
261	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00

262	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
263	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
264	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00
265	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
266	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
267	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
268	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
269	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
270	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
271	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
272	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
273	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
274	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
275	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
276	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
277	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
278	0.02	0.06	9.14e-03	93,93,108	0.0	0.0	0.0	0.00
279	0.02	0.06	9.15e-03	93,93,108	0.0	0.0	0.0	0.00
280	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
281	0.02	0.06	9.34e-03	93,93,108	0.0	0.0	0.0	0.00
282	0.02	0.06	8.00e-03	93,93,108	0.0	0.0	0.0	0.00
283	0.02	0.06	8.03e-03	93,93,108	0.0	0.0	0.0	0.00
284	0.02	0.06	9.36e-03	93,93,108	0.0	0.0	0.0	0.00
285	0.03	0.11	9.55e-03	94,94,108	0.0	0.0	0.0	0.00
286	0.02	0.05	8.84e-03	93,93,108	0.0	0.0	0.0	0.00
287	0.02	0.06	8.84e-03	93,100,108	0.0	0.0	0.0	0.00
288	0.04	0.12	9.70e-03	103,103,108	0.0	0.0	0.0	0.00
289	0.04	0.13	0.01	100,100,108	0.0	0.0	0.0	0.00
290	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
291	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
292	0.08	0.25	0.03	100,100,108	0.0	0.0	0.0	0.00
293	0.02	0.07	9.73e-03	93,93,108	0.0	0.0	0.0	0.00
294	0.02	0.06	9.02e-03	93,93,108	0.0	0.0	0.0	0.00
295	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
296	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00
297	0.02	0.07	9.65e-03	93,93,108	0.0	0.0	0.0	0.00
298	0.02	0.06	9.12e-03	93,93,108	0.0	0.0	0.0	0.00
299	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
300	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
301	0.02	0.06	8.98e-03	93,93,108	0.0	0.0	0.0	0.00
302	0.02	0.06	9.10e-03	93,93,108	0.0	0.0	0.0	0.00
303	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
304	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
305	0.02	0.05	7.88e-03	93,93,108	0.0	0.0	0.0	0.00
306	0.02	0.06	8.22e-03	93,93,108	0.0	0.0	0.0	0.00
307	0.02	0.06	9.32e-03	93,93,108	0.0	0.0	0.0	0.00
308	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
309	0.01	0.05	6.83e-03	93,93,108	0.0	0.0	0.0	0.00
310	0.01	0.05	7.09e-03	93,93,108	0.0	0.0	0.0	0.00
311	0.02	0.06	8.24e-03	93,93,108	0.0	0.0	0.0	0.00
312	0.02	0.07	9.59e-03	93,93,108	0.0	0.0	0.0	0.00
313	0.01	0.04	5.82e-03	93,93,108	0.0	0.0	0.0	0.00
314	0.01	0.04	5.79e-03	93,93,108	0.0	0.0	0.0	0.00
315	0.02	0.05	7.55e-03	100,100,108	0.0	0.0	0.0	0.00
316	0.02	0.06	8.88e-03	93,93,108	0.0	0.0	0.0	0.00
317	0.02	0.07	6.27e-03	103,103,108	0.0	0.0	0.0	0.00
318	0.01	0.04	6.91e-03	93,93,108	0.0	0.0	0.0	0.00
319	0.02	0.05	7.41e-03	100,100,108	0.0	0.0	0.0	0.00
320	0.04	0.12	9.55e-03	103,103,108	0.0	0.0	0.0	0.00
321	0.04	0.13	0.02	100,100,108	0.0	0.0	0.0	0.00
322	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
323	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
324	0.08	0.25	0.03	100,100,108	0.0	0.0	0.0	0.00
325	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
326	0.02	0.06	9.63e-03	93,93,108	0.0	0.0	0.0	0.00
327	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
328	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00
329	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
330	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
331	0.03	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
332	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
333	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
334	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
335	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
336	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
337	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
338	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
339	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
340	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
341	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
342	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
343	0.03	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
344	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
345	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
346	0.02	0.06	9.66e-03	93,93,108	0.0	0.0	0.0	0.00
347	0.03	0.09	0.01	93,100,108	0.0	0.0	0.0	0.00
348	0.03	0.11	0.02	93,94,108	0.0	0.0	0.0	0.00
349	0.05	0.14	0.01	103,94,108	0.0	0.0	0.0	0.00
350	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
351	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
352	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.00
353	0.04	0.13	0.01	100,100,108	0.0	0.0	0.0	0.00
354	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
355	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
356	0.08	0.25	0.03	100,100,108	0.0	0.0	0.0	0.00
357	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
358	0.02	0.06	9.62e-03	93,93,108	0.0	0.0	0.0	0.00
359	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
360	0.03	0.11	0.02	93,93,108	0.0	0.0	0.0	0.00
361	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
362	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
363	0.03	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
364	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
365	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
366	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
367	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
368	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
369	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
370	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
371	0.02	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
372	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
373	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
374	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
375	0.03	0.08	0.01	93,93,108	0.0	0.0	0.0	0.00
376	0.03	0.10	0.01	93,93,108	0.0	0.0	0.0	0.00
377	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.00
378	0.02	0.06	9.66e-03	93,93,108	0.0	0.0	0.0	0.00
379	0.03	0.09	0.01	93,100,108	0.0	0.0	0.0	0.00
380	0.03	0.11	0.02	93,94,108	0.0	0.0	0.0	0.00
381	0.05	0.14	0.01	103,94,108	0.0	0.0	0.0	0.00
382	0.02	0.06	0.01	93,93,108	0.0	0.0	0.0	0.00
383	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00
384	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.00
385	0.07	0.25	0.03	93,93,108	0.0	0.0	0.0	0.00
386	0.03	0.09	0.01	93,93,108	0.0	0.0	0.0	0.00

512	0.09	0.30	0.03	94,94,108	0.0	0.0	0.0	0.0
513	0.02	0.06	4.63e-03	102,102,108	0.0	0.0	0.0	0.0
514	0.01	0.04	5.82e-03	93,93,108	0.0	0.0	0.0	0.0
515	0.01	0.05	6.88e-03	93,93,108	0.0	0.0	0.0	0.0
516	0.02	0.05	7.97e-03	93,93,108	0.0	0.0	0.0	0.0
517	0.02	0.06	9.11e-03	93,93,108	0.0	0.0	0.0	0.0
518	0.02	0.07	9.73e-03	93,93,108	0.0	0.0	0.0	0.0
519	0.02	0.07	9.75e-03	93,93,108	0.0	0.0	0.0	0.0
520	0.05	0.16	0.02	94,94,108	0.0	0.0	0.0	0.0
521	0.04	0.12	0.01	93,93,108	0.0	0.0	0.0	0.0
522	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
523	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
524	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
525	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
526	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
527	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
528	0.05	0.17	0.02	94,94,108	0.0	0.0	0.0	0.0
529	0.04	0.12	0.01	93,93,108	0.0	0.0	0.0	0.0
530	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
531	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
532	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
533	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
534	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
535	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
536	0.05	0.17	0.02	94,94,108	0.0	0.0	0.0	0.0
537	0.04	0.12	0.01	93,93,108	0.0	0.0	0.0	0.0
538	0.02	0.07	9.70e-03	93,93,108	0.0	0.0	0.0	0.0
539	0.02	0.07	9.68e-03	93,93,108	0.0	0.0	0.0	0.0
540	0.02	0.06	9.08e-03	93,93,108	0.0	0.0	0.0	0.0
541	0.02	0.05	7.96e-03	93,93,108	0.0	0.0	0.0	0.0
542	0.01	0.05	6.89e-03	93,93,108	0.0	0.0	0.0	0.0
543	0.01	0.04	5.84e-03	93,93,108	0.0	0.0	0.0	0.0
544	0.02	0.06	4.67e-03	97,97,108	0.0	0.0	0.0	0.0
545	0.03	0.09	4.66e-03	103,103,108	0.0	0.0	0.0	0.0
546	0.01	0.04	5.83e-03	93,93,108	0.0	0.0	0.0	0.0
547	0.01	0.05	6.89e-03	93,93,108	0.0	0.0	0.0	0.0
548	0.02	0.05	7.96e-03	93,93,108	0.0	0.0	0.0	0.0
549	0.02	0.06	9.09e-03	93,93,108	0.0	0.0	0.0	0.0
550	0.02	0.07	9.69e-03	93,93,108	0.0	0.0	0.0	0.0
551	0.02	0.07	9.71e-03	93,93,108	0.0	0.0	0.0	0.0
552	0.06	0.21	0.02	103,103,108	0.0	0.0	0.0	0.0
553	0.06	0.20	0.02	103,103,108	0.0	0.0	0.0	0.0
554	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
555	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
556	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
557	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
558	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
559	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
560	0.06	0.21	0.01	103,103,108	0.0	0.0	0.0	0.0
561	0.06	0.20	0.02	103,103,108	0.0	0.0	0.0	0.0
562	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
563	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
564	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
565	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
566	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
567	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
568	0.06	0.21	0.01	103,103,108	0.0	0.0	0.0	0.0
569	0.06	0.20	0.02	103,103,108	0.0	0.0	0.0	0.0
570	0.02	0.07	9.74e-03	93,93,108	0.0	0.0	0.0	0.0
571	0.02	0.07	9.72e-03	93,93,108	0.0	0.0	0.0	0.0
572	0.02	0.06	9.11e-03	93,93,108	0.0	0.0	0.0	0.0
573	0.02	0.05	7.97e-03	93,93,108	0.0	0.0	0.0	0.0
574	0.01	0.05	6.88e-03	93,93,108	0.0	0.0	0.0	0.0
575	0.01	0.04	5.82e-03	93,93,108	0.0	0.0	0.0	0.0
576	0.03	0.10	4.63e-03	103,103,108	0.0	0.0	0.0	0.0
577	0.03	0.10	0.01	100,100,108	0.0	0.0	0.0	0.0
578	0.02	0.05	7.70e-03	93,93,108	0.0	0.0	0.0	0.0
579	0.02	0.05	7.68e-03	100,100,108	0.0	0.0	0.0	0.0
580	0.05	0.14	0.02	93,93,108	0.0	0.0	0.0	0.0
581	0.06	0.18	0.02	100,100,108	0.0	0.0	0.0	0.0
582	0.02	0.06	9.99e-03	93,93,108	0.0	0.0	0.0	0.0
583	0.02	0.06	9.99e-03	93,93,108	0.0	0.0	0.0	0.0
584	0.05	0.14	0.02	93,93,108	0.0	0.0	0.0	0.0
585	0.06	0.18	0.02	100,100,108	0.0	0.0	0.0	0.0
586	0.02	0.06	9.99e-03	93,93,108	0.0	0.0	0.0	0.0
587	0.02	0.06	9.99e-03	93,93,108	0.0	0.0	0.0	0.0
588	0.05	0.14	0.02	93,93,108	0.0	0.0	0.0	0.0
589	0.06	0.18	0.02	100,100,108	0.0	0.0	0.0	0.0
590	0.02	0.05	7.71e-03	93,93,108	0.0	0.0	0.0	0.0
591	0.02	0.05	7.72e-03	93,93,108	0.0	0.0	0.0	0.0
592	0.02	0.07	0.01	93,93,108	0.0	0.0	0.0	0.0
593	0.02	0.06	8.19e-03	93,93,108	0.0	0.0	0.0	0.0
594	0.02	0.06	8.30e-03	93,93,108	0.0	0.0	0.0	0.0
595	0.03	0.10	0.01	100,100,108	0.0	0.0	0.0	0.0
596	0.02	0.05	7.72e-03	93,93,108	0.0	0.0	0.0	0.0
597	0.02	0.05	7.71e-03	100,100,108	0.0	0.0	0.0	0.0
598	0.06	0.17	0.02	94,94,108	0.0	0.0	0.0	0.0
599	0.06	0.17	0.02	94,94,108	0.0	0.0	0.0	0.0
600	0.02	0.06	9.99e-03	93,93,108	0.0	0.0	0.0	0.0
601	0.02	0.06	9.99e-03	93,93,108	0.0	0.0	0.0	0.0
602	0.06	0.17	0.02	94,94,108	0.0	0.0	0.0	0.0
603	0.06	0.17	0.02	94,94,108	0.0	0.0	0.0	0.0
604	0.02	0.06	9.99e-03	93,93,108	0.0	0.0	0.0	0.0
605	0.02	0.06	9.99e-03	93,93,108	0.0	0.0	0.0	0.0
606	0.06	0.17	0.02	94,94,108	0.0	0.0	0.0	0.0
607	0.06	0.18	0.02	94,94,108	0.0	0.0	0.0	0.0
608	0.02	0.05	7.68e-03	93,93,108	0.0	0.0	0.0	0.0
609	0.02	0.05	7.70e-03	93,93,108	0.0	0.0	0.0	0.0
610	0.03	0.09	0.01	94,94,108	0.0	0.0	0.0	0.0
611	0.02	0.06	8.34e-03	94,94,108	0.0	0.0	0.0	0.0
612	0.02	0.07	8.19e-03	94,94,108	0.0	0.0	0.0	0.0
Guscio	rRfck	rRfyk	rPfck	wR	wF	wP		
	0.09	0.30	0.03	0.0	0.0	0.0		