FUTURA LA SCUOLA PER L'ITALIA DI DOMANI

Italiadomani

Ministero dell'Istruzione

Finanziato dall'Unione europea NextGenerationEU

PNRR M4C1 - 1.1 Min. Istruzione - PIANO ASILI NIDO E INFANZIA
C.U.P. F18H22001420006
POTENZIAMENTO POLO INFANZIA - ASILO NIDO

Progetto Esecutivo

COMMITTENTE

Amministrazione Comunale di
Fornovo San Giovanni

TIPOLOGIA / TITOLO DELL'ELABORATO

Relazione di Calcolo

24_04_BG_DC_STR_01_00

UBICAZIONI OPERE

Via Caravaggio, Fornovo San Giovanni (BG)

COMUNE DI FORNOVO SAN GIOVANNI (BG)

DC

STR_01

REV./DATA

00 /ottobre 2024

R.U.P. Ing. Fabio Carminati - Assistente R.U.P Geom. Lidia Villa

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Progettista architettonico	Arch. Letizia Vanelli	ORDINE DEGLI ARCHITETTI, PIANIFICATORI, PAESAGGISTI E CONSERVATORI DELLA PROVINCIA DI MILANO – LETIZIA VANELLI – architetto 21309
Progettista strutture e sicurezza	Ing. Bruno Naldini	ORDINE DEGLI INGEGNERI PROVINCIA DI BERGAMO – DOTTORE INGEGNERE BRUNO NALDINI ALBO N° 2009
Progettista impianti meccanici	Ing. Ferruccio Galmozzi	ORDINE DEGLI INGEGNERI PROVINCIA DI BERGAMO – DOTTORE INGEGNERE FERRUCCIO GALMOZZI ALBO N° 1039
Progettista impianti elettrici	Ing. Fabio Corbani	ORDINE DEGLI INGEGNERI PROV. BERGAMO – DOTTORE INGEGNERE FABIO CORBANI ALBO N° 1401

COMMESSA N. 04/24

GOGGIA & ASSOCIATI STUDIO DI INGEGNERIA ing. Ezio Goggia, ing. Bruno Naldini
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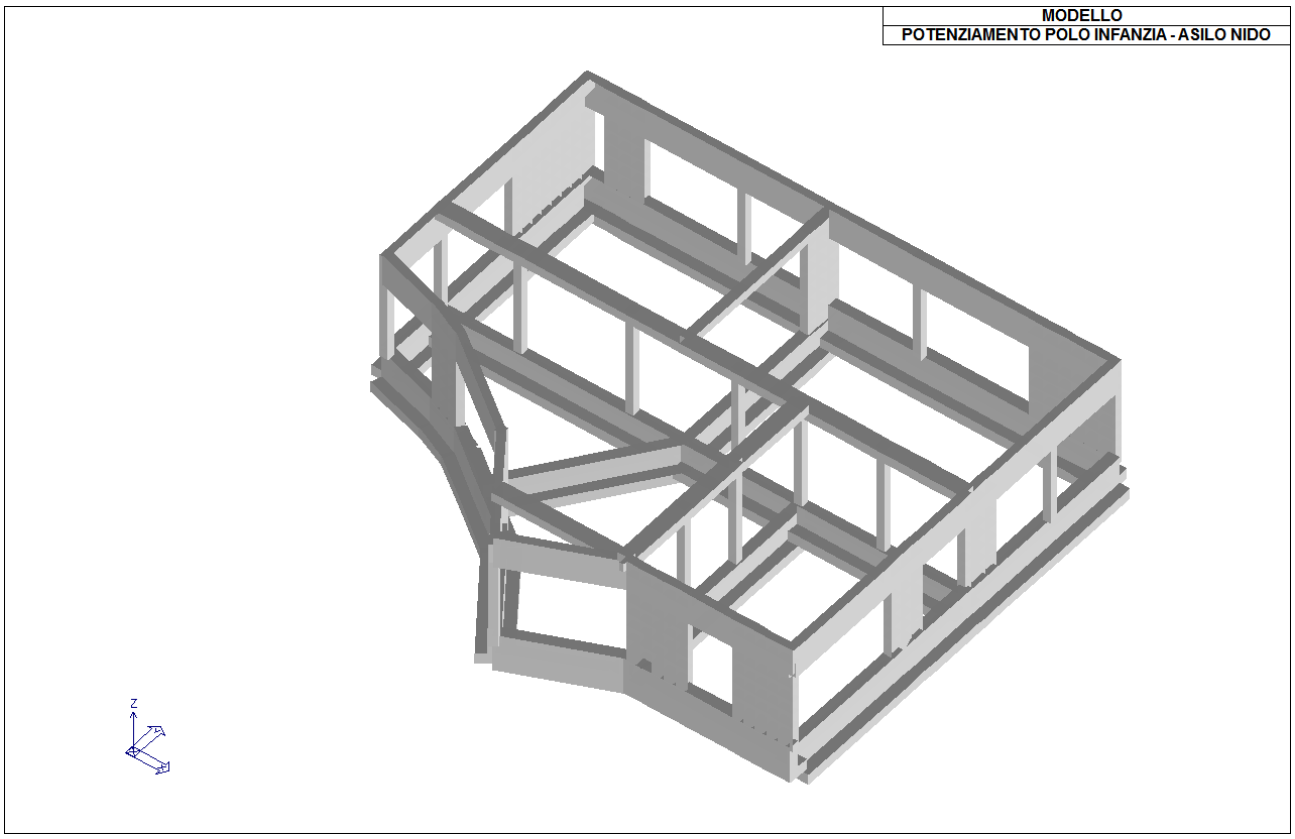
COMUNE DI FORNOVO SAN GIOVANNI (BG)

PROGETTO ESECUTIVO POTENZIAMENTO POLO INFANZIA _ ASILO NIDO PNRR M4C1 - 1.1 MIN. ISTRUZIONE - PIANO ASILI NIDO E INFANZIA CUP F18H22001420006

RELAZIONE TECNICA SPECIALISTICA: STRUTTURE

Committente: **Amministrazione Comunale**



Bergamo, 24-09-2024

il progettista

Il sottoscritto ing. Bruno Naldini, con studio in Bergamo, via G. D'Annunzio 19, iscritto all'Ordine degli Ingegneri di Bergamo al n. 2009, dichiara che le strutture di cui alla presente relazione sono calcolate e progettate a norma delle vigenti disposizioni di legge ed in particolare:

1. D.Min. Infrastrutture e trasporti 17 Gennaio 2018 "Norme tecniche per le costruzioni (NTC 2018)".
2. Circ. Min. Infrastrutture e Trasporti 21 gennaio 2019, n. 7 "Istruzioni per l'applicazione dell'Aggiornamento delle Norme Tecniche per le costruzioni di cui al D.M. 17 gennaio 2018"."
3. D.Min. Infrastrutture Min. Interni e Prot. Civile 14 Gennaio 2008 e allegate "Norme tecniche per le costruzioni".
4. Circ. Min. Infrastrutture e Trasporti 2 febbraio 2009, n.617 "Applicazione norme tecniche per le costruzioni"
5. D.Min. Infrastrutture e trasporti 14 Settembre 2005 e allegate "Norme tecniche per le costruzioni".
6. D.M. LL.PP. 9 Gennaio 1996 "Norme tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche".
7. D.M. LL.PP. 16 Gennaio 1996 "Norme tecniche relative ai <<Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi>>".
8. D.M. LL.PP. 16 Gennaio 1996 "Norme tecniche per le costruzioni in zone sismiche".
9. Circolare 4/07/96, n.156AA.GG./STC. istruzioni per l'applicazione delle "Norme tecniche relative ai <<Criteri generali per la verifica di sicurezza delle costruzioni e dei carichi e sovraccarichi>>" di cui al D.M. 16/01/96.
10. Circolare 10/04/97, n.65AA.GG. istruzioni per l'applicazione delle "Norme tecniche per le costruzioni in zone sismiche" di cui al D.M. 16/01/96.
11. D.M. LL.PP. 20 Novembre 1987 "Norme tecniche per la progettazione, esecuzione e collaudo degli edifici in muratura e per il loro consolidamento".
12. Circolare 4 Gennaio 1989 n. 30787 "Istruzioni in merito alle norme tecniche per la progettazione, esecuzione e collaudo degli edifici in muratura e per il loro consolidamento".
13. D.M. LL.PP. 11 Marzo 1988 "Norme tecniche riguardanti le indagini sui terreni e sulle rocce, la stabilità dei pendii naturali e delle scarpate, i criteri generali e le prescrizioni per la progettazione, l'esecuzione e il collaudo delle opere di sostegno delle terre e delle opere di fondazione".
14. D.M. LL.PP. 3 Dicembre 1987 "Norme tecniche per la progettazione, esecuzione e collaudo delle costruzioni prefabbricate".
15. UNI 9502 - Procedimento analitico per valutare la resistenza al fuoco degli elementi costruttivi di conglomerato cementizio armato, normale e precompresso - edizione maggio 2001
16. Ordinanza del Presidente del Consiglio dei Ministri n. 3274 del 20 marzo 2003 "Primi elementi in materia di criteri generali per la classificazione sismica del territorio nazionale e di normative tecniche per le costruzioni in zona sismica" e successive modificazioni e integrazioni.
17. UNI EN 1990:2006 13/04/2006 Eurocodice 0 - Criteri generali di progettazione strutturale.
18. UNI EN 1991-1-1:2004 01/08/2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-1: Azioni in generale - Pesi per unità di volume, pesi propri e sovraccarichi per gli edifici.
19. UNI EN 1991-2:2005 01/03/2005 Eurocodice 1 - Azioni sulle strutture - Parte 2: Carichi da traffico sui ponti.
20. UNI EN 1991-1-3:2004 01/10/2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-3: Azioni in generale - Carichi da neve.
21. UNI EN 1991-1-4:2005 01/07/2005 Eurocodice 1 - Azioni sulle strutture - Parte 1-4: Azioni in generale - Azioni del vento.
22. UNI EN 1991-1-5:2004 01/10/2004 Eurocodice 1 - Azioni sulle strutture - Parte 1-5: Azioni in generale - Azioni termiche.
23. UNI EN 1992-1-1:2005 24/11/2005 Eurocodice 2 - Progettazione delle strutture di calcestruzzo - Parte 1-1: Regole generali e regole per gli edifici.
24. UNI EN 1992-1-2:2005 01/04/2005 Eurocodice 2 - Progettazione delle strutture di calcestruzzo - Parte 1-2: Regole generali - Progettazione strutturale contro l'incendio.
25. UNI EN 1993-1-1:2005 01/08/2005 Eurocodice 3 - Progettazione delle strutture di acciaio - Parte 1-1: Regole generali e regole per gli edifici.
26. UNI EN 1993-1-8:2005 01/08/2005 Eurocodice 3 - Progettazione delle strutture di acciaio - Parte 1-8: Progettazione dei collegamenti.
27. UNI EN 1994-1-1:2005 01/03/2005 Eurocodice 4 - Progettazione delle strutture composte acciaio-calcestruzzo - Parte 1-1: Regole generali e regole per gli edifici.
28. UNI EN 1994-2:2006 12/01/2006 Eurocodice 4 - Progettazione delle strutture composte acciaio-calcestruzzo - Parte 2: Regole generali e regole per i ponti.
29. UNI EN 1995-1-1:2005 01/02/2005 Eurocodice 5 - Progettazione delle strutture di legno - Parte 1-1: Regole generali – Regole comuni e regole per gli edifici.
30. UNI EN 1995-2:2005 01/01/2005 Eurocodice 5 - Progettazione delle strutture di legno - Parte 2: Ponti.
31. UNI EN 1996-1-1:2006 26/01/2006 Eurocodice 6 - Progettazione delle strutture di muratura - Parte 1-1: Regole generali per strutture di muratura armata e non armata.
32. UNI EN 1996-3:2006 09/03/2006 Eurocodice 6 - Progettazione delle strutture di muratura - Parte 3: Metodi di calcolo semplificato per strutture di muratura non armata.
33. UNI EN 1997-1:2005 01/02/2005 Eurocodice 7 - Progettazione geotecnica - Parte 1: Regole generali.
34. UNI EN 1998-1:2005 01/03/2005 Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 1: Regole generali, azioni sismiche e regole per gli edifici.
35. UNI EN 1998-3:2005 01/08/2005 Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 3: Valutazione e adeguamento degli edifici.

UNI EN 1998-5:2005 01/01/2005 Eurocodice 8 - Progettazione delle strutture per la resistenza sismica - Parte 5: Fondazioni, strutture di contenimento ed aspetti geotecnici.

DESCRIZIONE DELLE OPERE

Il progetto prevede la realizzazione di un nuovo edificio monopiano con sagoma rettangolare con superficie coperta di circa 290 mq e altezza 4,50 m a copertura piana. All'interno di tale volume sarà collocato un nuovo Asilo nido a completamento della precedente Scuola dell'infanzia, insieme alla quale va a realizzare il previsto Polo dell'infanzia.

La sagoma dell'edificio completa un'ampia corte comune (in parte già realizzata dalla Scuola dell'infanzia) che verrà adeguatamente attrezzata permettendo un effettivo uso degli spazi esterni.

Sulla copertura piana è previsto il posizionamento di un impianto fotovoltaico a pannelli zavorrati.

DESCRIZIONE E SCELTA DELLA STRUTTURA

La scelta della struttura ricalca quella effettuata per la Scuola dell'infanzia della quale l'Asilo rappresenta il completamento, adottandone buona parte delle caratteristiche architettoniche. Per la Scuola dell'infanzia la sagoma in parte curva e gli spazi architettonici articolati avevano escluso la realizzazione con struttura prefabbricata facendo propendere per la progettazione di una struttura in c.a.a. realizzata in opera, optando per la realizzazione della copertura in lastre semiprefabbricate. L'asilo viene realizzato effettuando le medesime scelte strutturali, in adiacenza al lato nord della scuola dell'infanzia, interponendo un apposito giunto sismico.

Si tratta di una struttura realizzata in c.c.a. opera, a travi, setti e pilastri intelaiati, con travi perimetrali a veletta e travi centrali in spessore, con una soletta di copertura piana realizzata con lastre semiprefabbricate tipo "predalles" con spessore 5+26+5 e alleggerimento in polistirolo. Completa la copertura in lato ovest, una gronda posizionata a quota inferiore alla copertura e realizzata in c.c.a. pieno in opera con spessore da 17 cm a 19cm.

Le fondazioni sono costituite da un graticcio di travi rovesce. Le travi rovesce del perimetrali portano un camminamento che per evitarne l'assestamento è realizzato da una soletta in c.c.a di sp.17cm realizzata in opera a sbalzo dall'estradosso dell'anima delle travi.

Le chiusure perimetrali sono realizzate da ampie superfici vetrate e da porzioni cieche in muratura POROTON800 sp.30 cm con malta M10, a cui non viene attribuita alcuna funzione statica, completata dagli strati funzionali previsti nel progetto termotecnico.

In copertura è prevista la realizzazione di impianto fotovoltaico.

Sempre in copertura è previsto il posizionamento di una serie di lucernari di dimensioni 60x60cm.

IPOTESI DI CALCOLO ADOTTATE

L'edificio viene inquadrato come "Costruzione con livello di prestazione ordinario" con vita nominale di progetto V_N di 50 anni, con Classe d'uso III (Costruzioni il cui uso preveda affollamenti significativi. Industrie con attività pericolose per l'ambiente. Reti viarie extraurbane non ricadenti in Classe d'uso IV. Ponti e reti ferroviarie la cui interruzione provochi situazioni di emergenza. Dighe rilevanti per le conseguenze di un loro eventuale collasso).
L'edificio è localizzato a Fornovo San Giovanni (BG), sito ricadente in zona 3.
La struttura è stata analizzata considerandola come "struttura non dissipativa" con fattore di comportamento q=1,5 con un analisi modale lineare adottando, come da indicazioni della Relazione Geologico/geotecnica , un suolo di tipo D e un coefficiente topografico T1.

MODELLAZIONE DELLA STRUTTURA

Per coglierne il comportamento globale la struttura è stata analizzata attraverso una modellazione ad elementi finiti con il codice di calcolo PRO_SAP (prodotto da: 2 S.I. Software e Servizi per l'Ingegneria S.r.l. Via Garibaldi, 90 - 44121 Ferrara (FE) codice utente 001055/cli) mediante la schematizzazione dei setti in c.a. con elementi "shell", delle travi e dei pilastri con elementi "beam", dei solai con elementi "solaio" (che attribuiscono agli elementi limitrofi il loro carico caratteristico e al piano che individuano la caratteristica di piano rigido in funzione del materiale e del loro spessore; in particolare quando gli elementi solaio simulano uno sbalzo al piano si attribuisce rigidezzo nulla), delle chiusure perimetrali con elementi "pannello" (settati nella modalità tale che questi attribuiscano all'elemento inferiore (trave) il carico statico e agli elementi superiore ed inferiore metà del carico sismico, con intensità determinata dal materiale e dallo spessore attribuito) I vari elementi "shell" sono stati modellati facendo riferimento ai loro piani medi sia per quanto riguarda le dimensioni che per quanto riguarda le quote di imposta. I setti sono modellati incastrati alla fondazione. Allo stesso modo gli elementi "beam" sono modellati facendo riferimento al loro asse, per le travi si è considerato uno svincolo alla rotazione sul primo e sull'ultimo appoggio, tranne in caso di appogio costituito da setto longitudinale. N.B.: La regola non si applica alle travi perimetrali di sezione 30x120, considerate sempre incastrate. I pilastri sono stati considerati sempre incastrati alla base e in sommità sia che si inseriscano nelle travi perimetrali ribassate che nelle travi in spessore. Sono stati analizzati 2 modelli: il primo, modellato incastrando alla base le strutture in elevazione, è stato utilizzato per il dimensionamento delle strutture in elevazione. Il secondo è stato modellato incastrato appoggiato sulle fondazioni su suolo alla Winkler, con la costante di sottofondo verticale K_W =1,25 (compatibile con i cedimenti ricavabili dalla Relazione Geotecnica) per la verifica delle fondazioni. Le azioni di seguito indicate sono state applicate al modello E.F. e combinate con le modalità più sfavorevoli sia per ottenere le sollecitazioni di calcolo dell'armatura nelle strutture che per valutare la compatibilità delle sollecitazioni sul terreno ai parametri geotecnici.

CARATTERISTICHE MATERIALI UTILIZZATI

CLS:

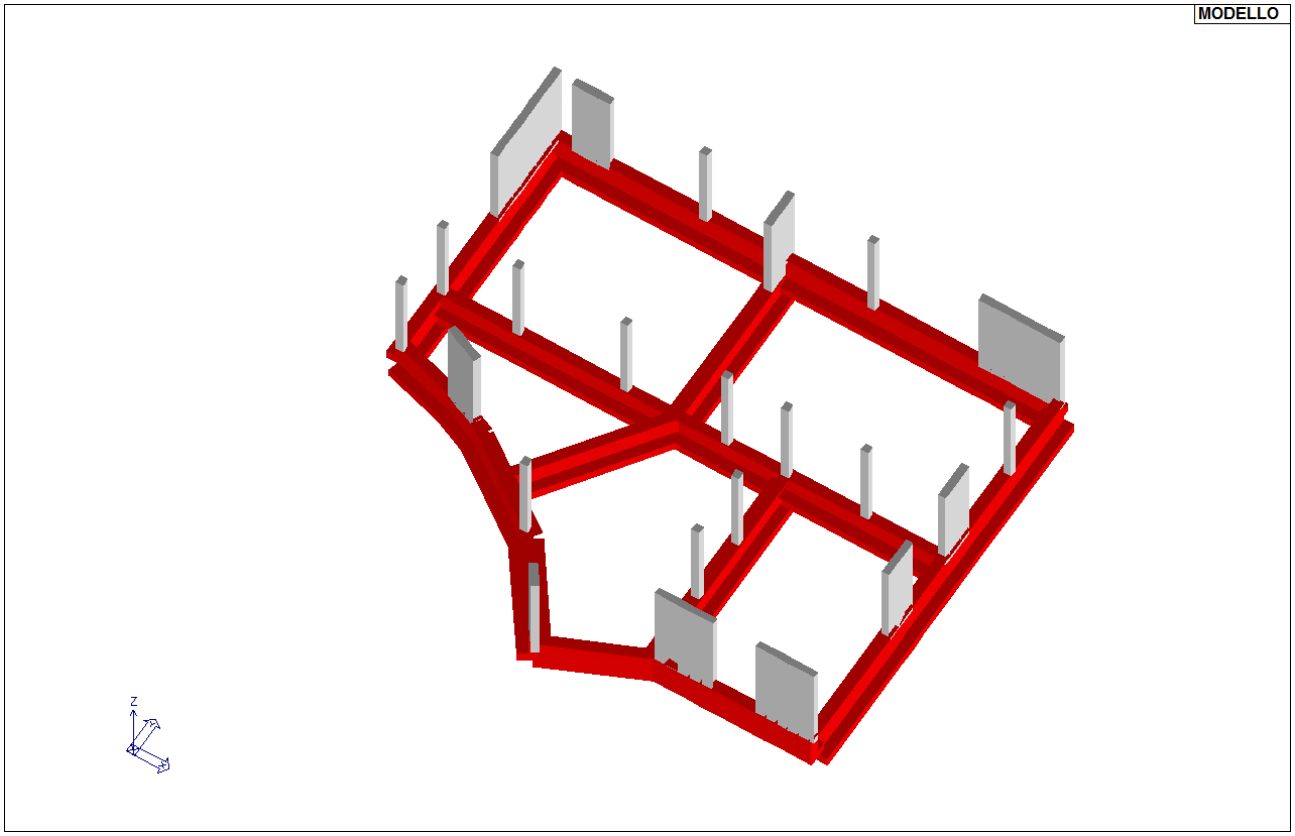
N.B.: C25/30 utilizzato per le fondazioni.
N.B.: C30/37 utilizzato per tutte le altre strutture in c.c.a..

Id	Tipo / Note	V. caratt.	V. medio	Young	Poisson	G	Gamma	Alfa	Altri
		daN/cm2	daN/cm2	daN/cm2		daN/cm2	daN/cm3		
1	Calcestruzzo Classe C25/30			3.145e+05	0.20	1.310e+05	2.50e-03	1.00e-05	
	Resistenza Rc	300.0							
	Resistenza fctm		25.6						
	Rapporto Rfessurata								1.00
	Coefficiente ksb								0.85
	Rapporto HRDb								1.00e-05
	Rapporto HRDv								1.00e-05
4	Calcestruzzo Classe C30/37			3.302e+05	0.20	1.376e+05	2.50e-03	1.00e-05	
	Resistenza Rc	370.0							
	Resistenza fctm		29.4						
	Rapporto Rfessurata								1.00
	Coefficiente ksb								0.85
	Rapporto HRDb								1.00e-05
	Rapporto HRDv								1.00e-05

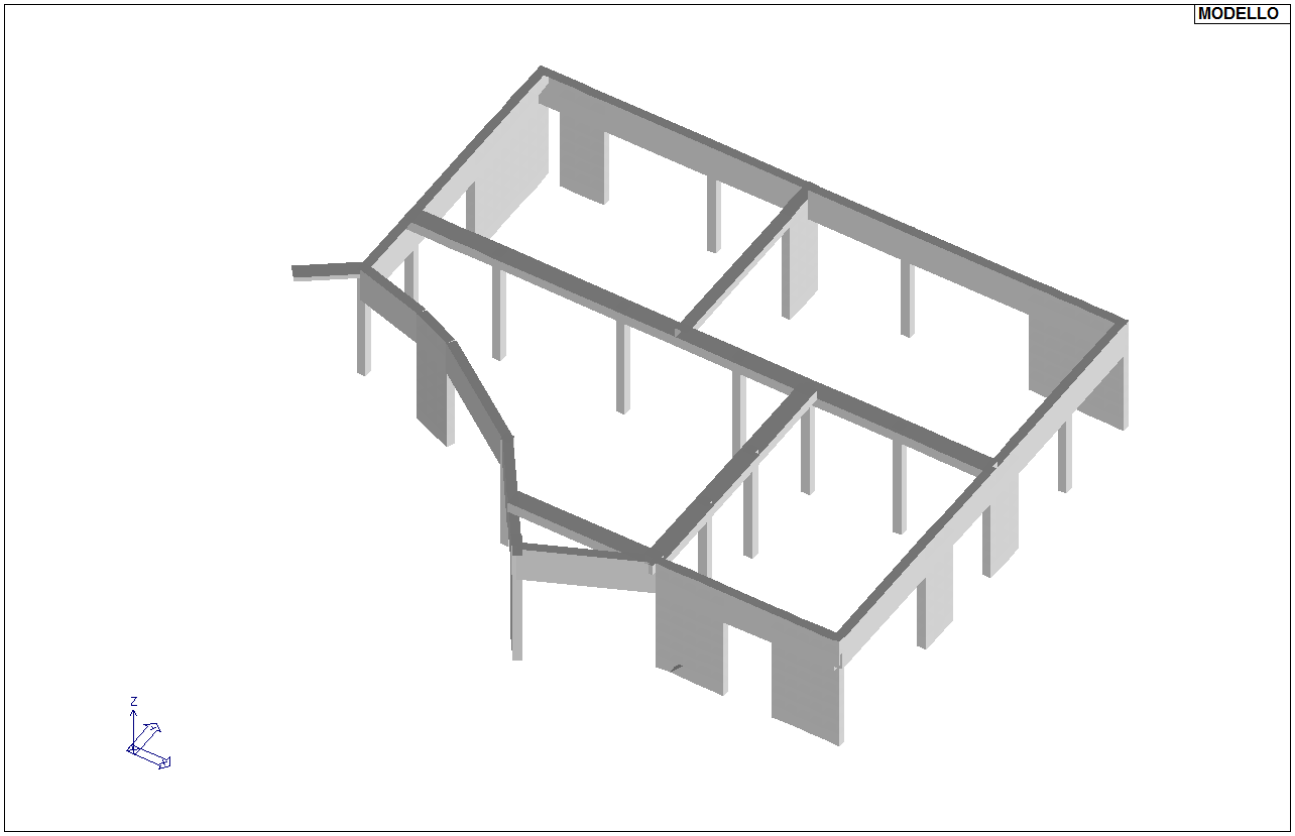
ACCIAIO PER C.A.:

Per tutte le strutture in c.a.:

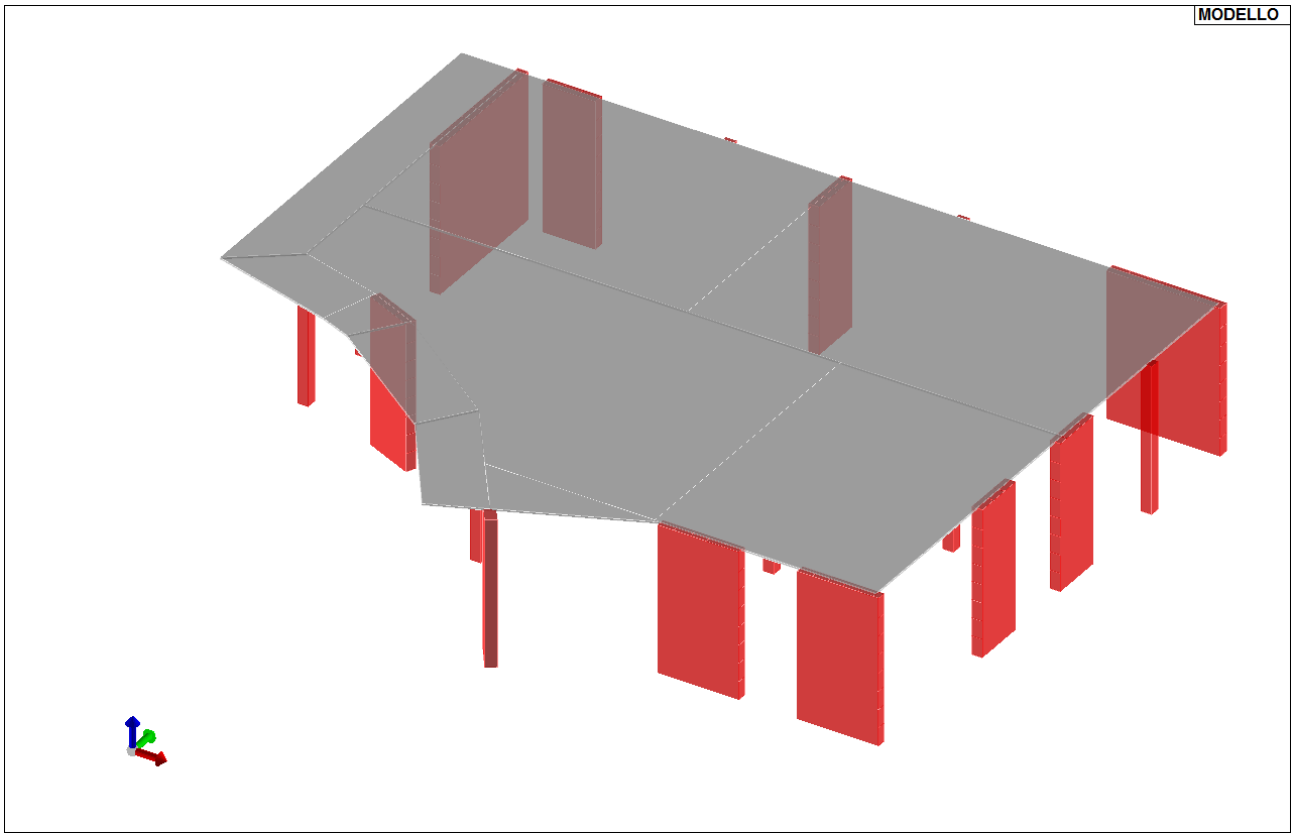
Barre ad aderenza migliorata in acciaio laminato a caldo tipo B450 C secondo UNI EN ISO 9001:2008, accertato secondoUNI EN ISO 15630-1:2010	
Tensione caratteristica di rottura	ftk ≥ 540 MPa
Tensione caratteristica di rottura	fyk ≥ 450 MPa
Percentuale di allungamento	(Agtk)k ≥7.5 %
Caratteristica meccaniche	1.15≤(ft/fy)k≤1.35



LOCALIZZAZIONE DEI MATERIALI: VISTA DELLE FONDAZIONI E STRUTTURE VERTICALI IN PARTENZA: cls C25/30 rosso, C30/37 grigio



LOCALIZZAZIONE DEI MATERIALI: VISTA STRUTTURE VERTICALI E TRAVI COPERTURA: cls C30/37 grigio



LOCALIZZAZIONE DEI MATERIALI UTILIZZATI: SOLAIO E GRONDA DI COPERTURA: cls C30/37 grigio

GEOMETRIE E LOCALIZZAZIONE DI TRAVI E PILASTRI

LEGENDA TABELLA DATI SEZIONI

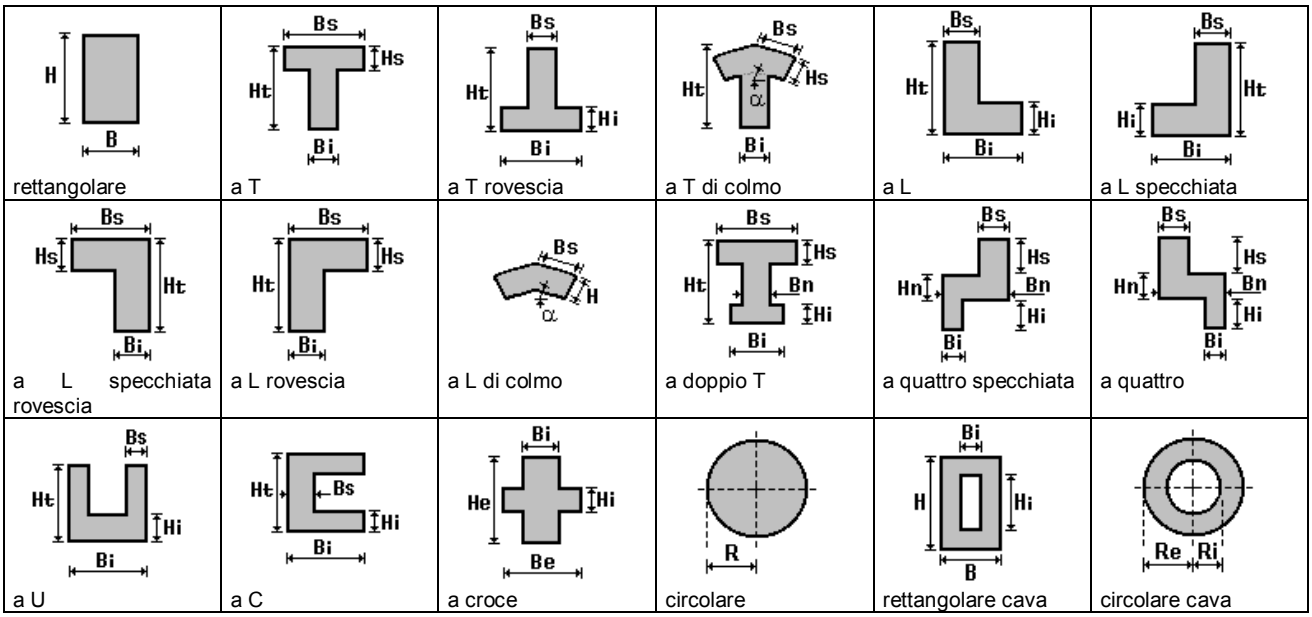
Il programma consente l'uso di sezioni diverse. Sono previsti i seguenti tipi di sezione:

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

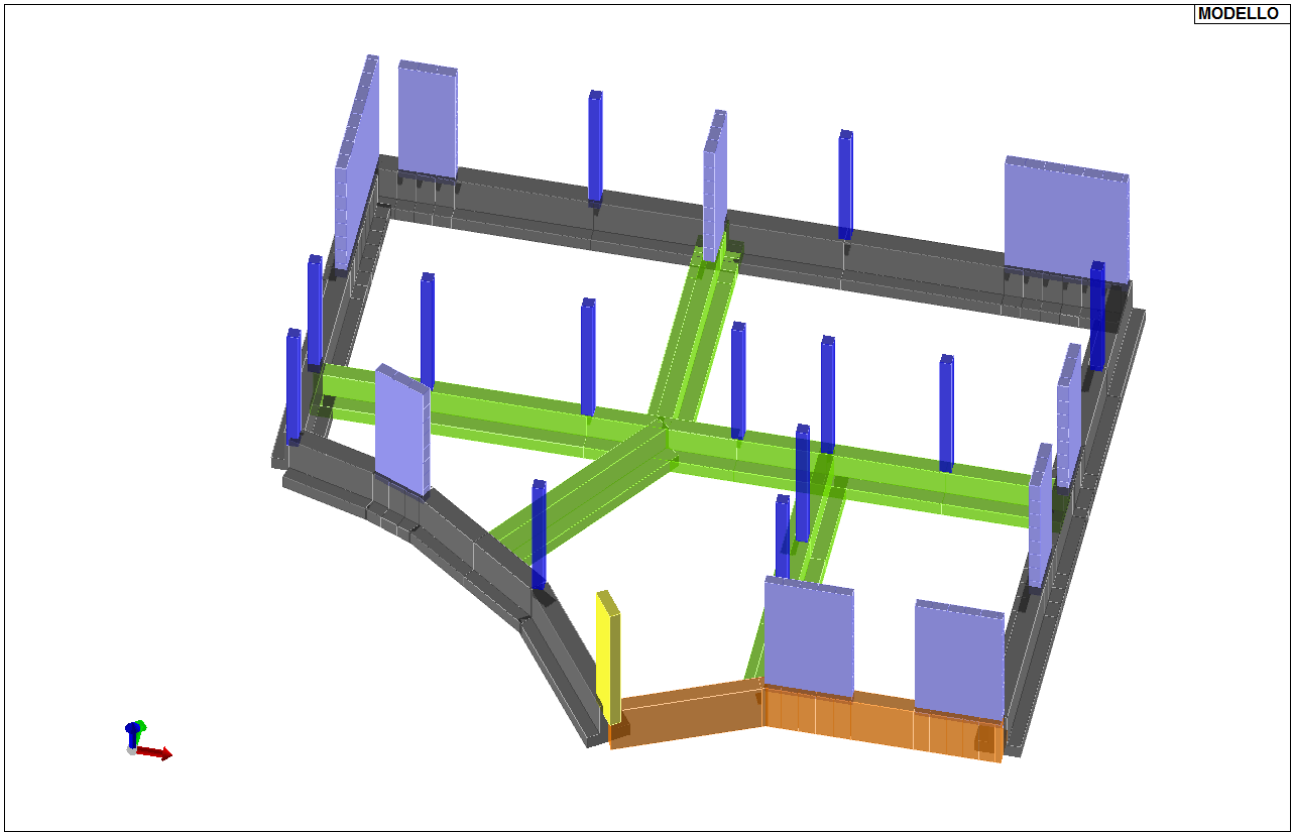
Le sezioni utilizzate nella modellazione sono individuate da una sigla identificativa ed un codice numerico (gli elementi strutturali richiamano quest'ultimo nella propria descrizione). Per ogni sezione vengono riportati in tabella i seguenti dati:

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.



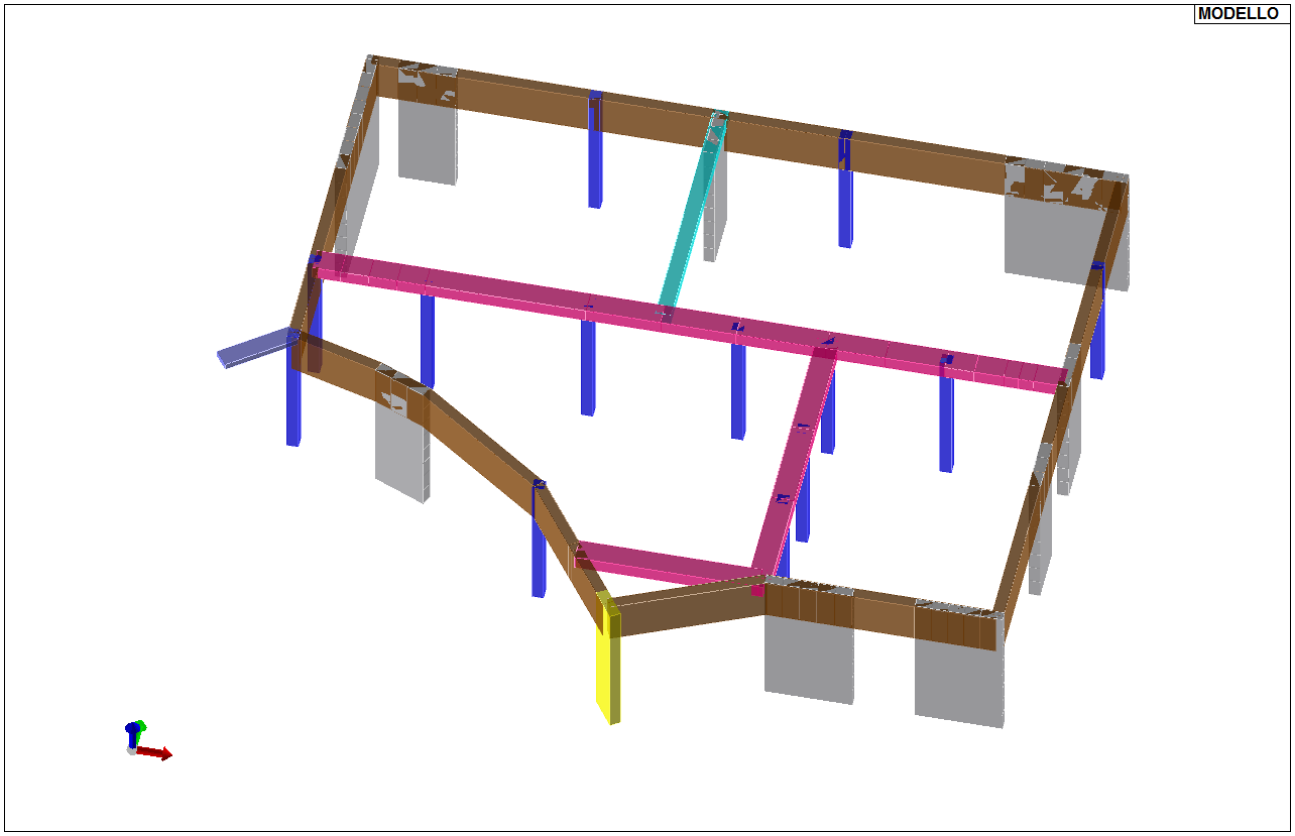
Id	Tipo	Area	A V2	A V3	Jt	J 2-2	J 3-3	W 2-2	W 3-3	Wp 2-2	Wp 3-3
		cm2	cm2	cm2	cm4	cm4	cm4	cm3	cm3	cm3	cm3
1	Rettangolare: b=30 h=30	900.00	750.00	750.00	1.139e+05	6.750e+04	6.750e+04	4500.00	4500.00	6750.00	6750.00
2	Rettangolare: b=60 h=36	2160.00	1800.00	1800.00	5.804e+05	6.480e+05	2.333e+05	2.160e+04	1.296e+04	3.240e+04	1.944e+04
3	Rettangolare: b=40 h=31	1240.00	1033.33	1033.33	2.097e+05	1.653e+05	9.930e+04	8266.67	6406.67	1.240e+04	9610.00
4	Rettangolare: b=30 h=120	3600.00	3000.00	3000.00	9.099e+05	2.700e+05	4.320e+06	1.800e+04	7.200e+04	2.700e+04	1.080e+05
5	SEZIONE SOLAIO-Doppio T: bi=40 ba=13 bs=40 ht=36 hi=5 hs=5	738.00	0.0	0.0	2.344e+04	5.809e+04	1.160e+05	2904.68	6443.00	5098.50	8397.00
6	GRONDA-Rettangolare: b=50 h=17	850.00	708.33	708.33	6.434e+04	1.771e+05	2.047e+04	7083.33	2408.33	1.062e+04	3612.50
8	Rettangolare: b=30 h=90	2700.00	2250.00	2250.00	6.399e+05	2.025e+05	1.822e+06	1.350e+04	4.050e+04	2.025e+04	6.075e+04
10	T rovescia: bi=120 ht=115 bs=40 hi=40	7800.00	0.0	0.0	3.938e+06	6.160e+06	8.150e+06	1.027e+05	1.118e+05	1.740e+05	2.018e+05
11	T rovescia: bi=120 ht=145 bs=50 hi=40	1.005e+04	0.0	0.0	6.752e+06	6.854e+06	1.864e+07	1.142e+05	2.140e+05	2.096e+05	3.706e+05
12	L inversa: bi=80 ht=145 bs=40 hi=40	7400.00	0.0	0.0	3.725e+06	2.993e+06	1.383e+07	5.829e+04	1.650e+05	1.176e+05	2.783e+05



LOCALIZZAZIONE DELLE SEZIONI IN C.C.A : VISTA 3D TRAVI DI FONDAZIONE

LA SEGUENTE TABELLA CONSENTE L'INDIVIDUAZIONE DELLE DIVERSE SEZIONI NEL MODELLO NELL'IMMAGINE PRECEDENTE

Id	Tipo	UTILIZZO	COLORE
1	Rettangolare: b=30 h=30	Pilastri	BLU
8	Rettangolare: b=30 h=90	Pilastro	GIALLO
10	T rovescia: bi=120 ht=115 bs=40 hi=40	Fondazioni	VERDE
11	T rovescia: bi=120 ht=145 bs=50 hi=40	Fondazioni	GRIGIO SCURO
12	L inversa: bi=80 ht=145 bs=40 hi=40	Fondazioni	ARANCIONE



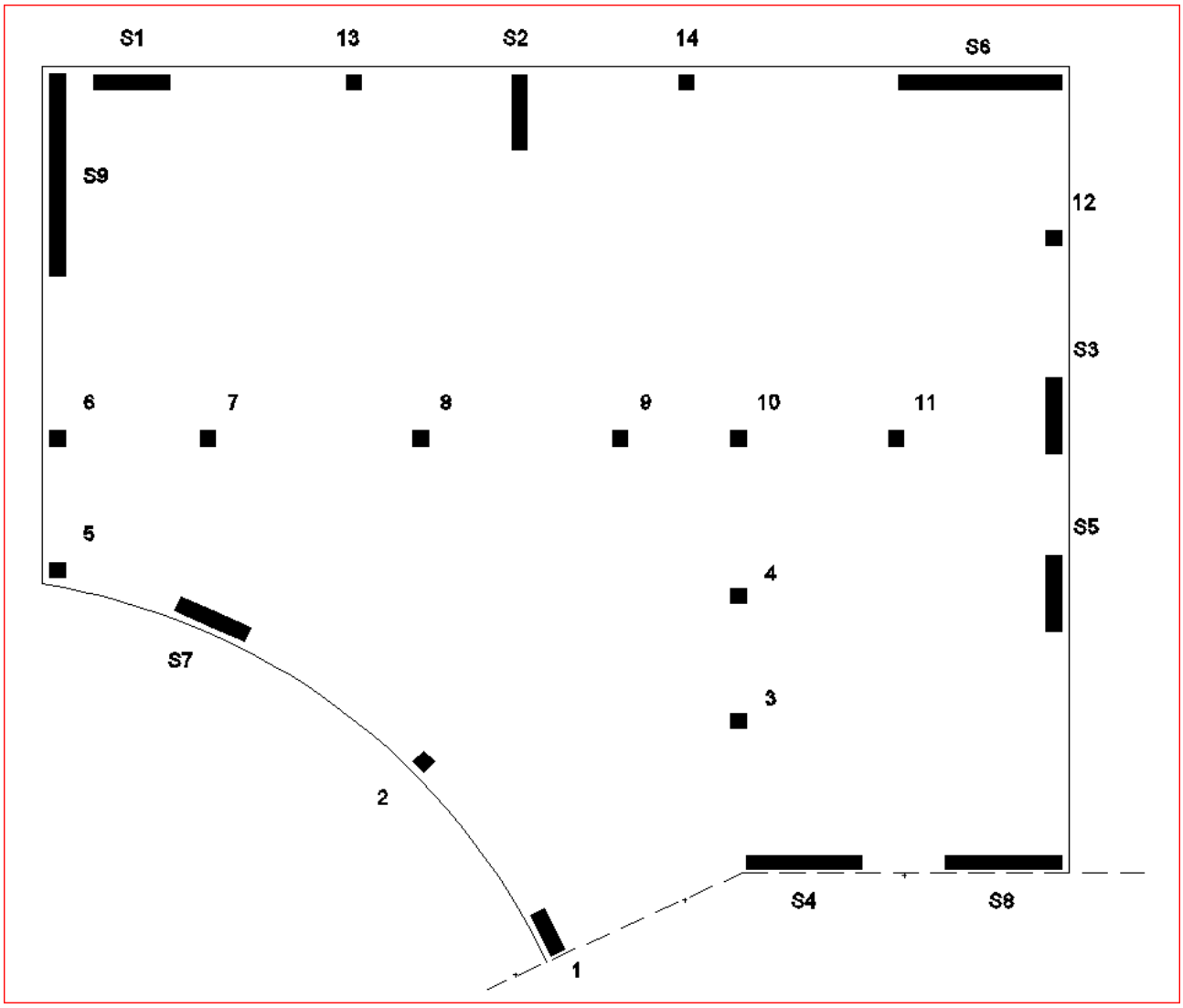
LOCALIZZAZIONE DELLE SEZIONI IN C.C.A : VISTA 3D STRUTTURE IN ELEVAZIONE

LA SEGUENTE TABELLA CONSENTE L'INDIVIDUAZIONE DELLE DIVERSE SEZIONI NEL MODELLO NELL'IMMAGINE PRECEDENTE

Id	Tipo	UTILIZZO	COLORE
1	Rettangolare: b=30 h=30	Pilastri	VIOLA
2	Rettangolare: b=60 h=36	Trave in spessore	FUCSIA
3	Rettangolare: b=40 h=31	Traverso sopralastra	AZZURRA
4	Rettangolare: b=30 h=120	Trave perimetrale	MARRONE
5	SEZIONE SOLAIO-Doppio T: bi=40 ba=13 bs=40 ht=36 hi=5 hs=5	Sezione solaio copertura	NON RAPPRESENTATA
6	GRONDA-Rettangolare: b=50 h=17	Sezione solaio pensilina	NON RAPPRESENTATA

N.B.: Per travi e pilastri si adotta un copriferro netto sulla staffa di 30mm.

LOCALIZZAZIONE E GEOMETRIE DEI SETTI



NUMERAZIONE E DIMENSIONI SETTI

NELLA TABELLA SONO RIASSUNTE LE CARATTERISTICHE GEOMETRICHE IN PIANTA DEI SETTI:

ID	Tipologia	Dim.X	Dim.Y	Materiale
S1	setto	150	30	4
S2	setto	30	150	4
S3	setto	30	150	4
S4	setto	230	25	4
S5	setto	30	150	4
S6	setto	322	30	4
S7	setto	150	30	4
S8	setto	230	25	4
S9	setto	30	400	4

N.B.: Per i setti si adotta un copriferro netto di 30mm.

CALCOLO DELLE AZIONI DELLA NEVE E DEL VENTO

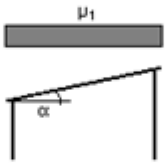
Normativa di riferimento:
D.M. 17 gennaio 2018 - NORME TECNICHE PER LE COSTRUZIONI
Cap. 3 - AZIONI SULLE COSTRUZIONI - Par. 3.3 e 3.4

NEVE:

Zona Neve = I Alpina
Periodo di ritorno, Tr = 75 anni
Ctr = [(1 - v ($6^{1/2}/\pi$) ln[-ln(1-1/Tr) + 0.57722]) / (1 + 2.5923v)] = 1.07
Ce (coeff. di esposizione al vento) = 1,00
Valore caratteristico del carico al suolo = qsk Ce Ctr = 161 daN/mq

Copertura ad una falda:
Angolo di inclinazione della falda α = 0,0°
- Falda con presenza di barriera o impedimento allo scivolamento della neve.
- Copertura piana W = 10.0 m, L = 50.0 m => Lc = 18.0, Cef = 1.000
μ1 = 0,80 => Q1 = 129 daN/mq

Schema di carico:



VENTO:

Zona vento = 1
Velocità base della zona, Vb.o = 25 m/s (Tab. 3.3.I)
Altitudine base della zona, Ao = 1000 m (Tab. 3.3.I)
Altitudine del sito, As = 109 m
Velocità di riferimento, Vb = 25,00 m/s (Vb = Vb.o per As ≤ Ao)
Periodo di ritorno, Tr = 50 anni
Cr = 1 per Tr = 50 anni
Velocità riferita al periodo di ritorno di progetto, Vr = Vb Cr = 25,00 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 500 m di altitudine
(Kr = 0,20; Zo = 0,10 m; Zmin = 5 m)
Pressione cinetica di riferimento, qb = 39 daN/mq

Coefficiente di forma, Cp = 1,00
Coefficiente dinamico, Cd = 1,00
Coefficiente di esposizione, Ce = 1,71
Coefficiente di esposizione topografica, Ct = 1,00
Altezza dell'edificio, h = 4,00 m

Pressione del vento, p = qb Ce Cp Cd = 67 daN/mq

N.B.: non si considera il carico del vento in quanto ritenuto non dimensionante.

MODELLAZIONE DELLA STRUTTURA: ELEMENTI SOLAIO

SCELTA DELLE TIPOLOGIE DEI SOLAI

La tipologia dei solai è stata individuata in base ai requisiti richiesti nel progetto architettonico ed in base alle destinazioni d'uso.

Solaio di copertura: Destinazione d'uso: copertura e copertura accessibile per sola manutenzione e riparazione (utilizzata per la collocazione di pannelli fotovoltaici Cat.H della Tab.3.1.II – Valori dei sovraccarichi per le diverse categorie d'uso delle costruzioni delle NTC 2018). Il valore dei sovraccarichi da considerare per la copertura sono quello per la neve calcolabile per le condizioni di sito, pari a 130 Kg/mq e quello previsto per la categoria H di 50 Kg/mq. Per i due carichi variabili si adottano come coefficienti di combinazione i seguenti valori ricavabili dalla Tab.2.5.1 –Valori dei coefficienti di combinazione delle NTC2018: per la neve considerata la quota inferiore a 1000m: ψ_{01}=0,5; ψ_{02}=0,2; ψ_{03}=0,0; per la categoria H: ψ_{01}=0,0; ψ_{02}=0,0; ψ_{03}=0,0. Il valore dei permanenti viene individuato dal peso degli strati funzionali previsti in progetto: 50Kg/mq per controsoffitto e impianti appesi all'intradosso, la guaina impermeabile, 100Kg/mq come contributo ai carichi relativo ai pannelli fotovoltaici con zavorra e 200 Kg/mq per tutti gli strati funzionali della copertura, tutti considerati come permanenti non strutturali G2.

Per questa soletta è richiesto il requisito di resistenza al fuoco REI60.

Si opta per l'utilizzo di una soletta a lastre lastre prefabbricate tipo "Predalles" con sezione 5 + 26 + 5 cm, i= 40cm, con 2,5 cm di copriferro netto inferiore garantito. Il peso proprio della soletta, maggiorato dall'incidenza dei rompitratta risulta di 486 Kg/mq.

Gronde: Destinazione d'uso: copertura. Il valore dei sovraccarichi da considerare per la copertura è pari a 130 Kg/mq come già visto al punto precedente; si adottano come coefficienti di combinazione i seguenti valori ricavabili dalla Tab.2.5.1 –Valori dei coefficienti di combinazione delle NTC2018 per la neve considerata la quota inferiore a 1000m: ψ_{01}=0,5; ψ_{02}=0,2; ψ_{03}=0,0. Il valore dei permanenti viene individuato dal peso degli strati funzionali previsti in progetto pari a 100 Kg/mq per tutti gli strati funzionali della copertura, tutti considerati come permanenti non strutturali G2.

Si opta per l'utilizzo di una soletta in c.c.a. in getto pieno sp.17 cm con 3,0 cm di copriferro netto inferiore garantito. Il peso proprio della soletta risulta di 425 Kg/mq. N.B.: La parte strutturale delle gronde sporge 160 cm dal filo strutture.

Camminamento: NTC2018 Cap.3.1.4 Tab.3.1.II Valori dei sovraccarichi per le diverse categorie d'uso delle costruzioni Cat.C1 Ambienti suscettibili di affollamento aree con tavoli, quali scuole, caffè, ristoranti, sale per banchetti, lettura e ricevimento.

q_k=3,00 kN/mq; Qk=3,00 kN; Hk= 1,00kN/ml

NTC2018 Cap.2.5.2 Caratteristiche delle azioni elementari Tab.2.5.1 Valori dei coefficienti di combinazione: categoria C Ambienti suscettibili di affollamento.

ψ_{oj}=0,7; ψ_{1j}=0,7; ψ_{2j}=0,6

Il valore dei permanenti viene individuato dal peso degli strati funzionali previsti in progetto pari a 100 Kg/mq per tutti gli strati funzionali della pavimentazione, tutti considerati come permanenti non strutturali G2.

Si opta per l'utilizzo di una soletta in c.c.a. in getto pieno sp.17 cm con 3,0 cm di copriferro netto inferiore garantito. Il peso proprio della soletta risulta di 425 Kg/mq.

Solette interne: Sono realizzate da un vespaio ad igloo tipo vespaio Cupolex della Pontarolo Engineering SpA di San Vito al Tagliamento, con soletta superiore in cls C25/30 di spessore 5cm armata con una rete metallica ϕ6/20x20. Le tabelle di portata del produttore danno per questa soluzione una portata di 300Kg/mq di carico permanente e 700Kg/mq di carico accidentale,compatibile con quella richiesta (600Kg/mq di carico permanente e 300Kg/mq di carico accidentale).

Dimensionamenti frequenti

Nella tabella che segue si riporta l'armatura necessaria per le applicazioni di uso più frequente, nell'ipotesi di terreno con Kw = 1 kg/cm³ e per 10 cm di magrone.

USO DELLA STRUTTURA	SOVRACCARICO PERMANENTE (Kg/m²)	SOVRACCARICO ACCIDENTALE (Kg/m²)	SPESSORE SOLETTA (cm)	ARMATURA METALLICA
Abitazione civile	200	200	4	ø 5/20x20
Uffici	200	300	5	ø 5/20x20
Garages	300	700	5	ø 6/20x20
Industria	300	1200	6	ø 8/20x20
Industria	300	1600	7	ø 8/15x15

CARATTERISTICHE DI RESISTENZA AL FUOCO DELLE STRUTTURE

N.B.: Per tutte le strutture si richiede una resistenza al fuoco pari a R60.

Per quanto riguarda le travi si ricava dalla tabella D.6.1 del Decreto 16 febbraio 2007 che la classe R60 è raggiunta adottando le seguenti possibili combinazioni di larghezza (b) / copriferro all'asse delle armature (a): b=120 / a=40; b=160 / a=35; b=200 / a=30; b=300 / a=25.

Il requisito è senz'altro soddisfatto adottando 30mm di copriferro netto sulla staffa.

Per quanto riguarda i pilastri si ricava dalla tabella D.6.2 del Decreto 16 febbraio 2007 che la classe R60 è raggiunta per pilastri esposti su più lati e con lato minimo o diametro di 250mm adottando un copriferro all'asse delle barre longitudinali di 45mm.. Il requisito è senz'altro soddisfatto adottando 30mm di copriferro netto sulla staffa di diametro minimo 8mm e barre verticali di diametro minimo di 16mm (20mm diametro ferri verticali effettivi nei pilastri).

Per quanto riguarda i setti (pareti portanti) si ricava dalla tabella D.6.23 del Decreto 16 febbraio 2007 che la classe R60 è raggiunta per setti esposti su 2 lati con lato minimo di 140mm adottando un copriferro all'asse delle barre longitudinali di 10mm.. Il requisito è senz'altro soddisfatto adottando 30mm di copriferro netto sulla staffa.Per quanto riguarda le lastre "Predalles" della copertura, il requisito R60 viene soddisfatto dal copriferro di 2,5cm in base alla tabella D.5.1 del Decreto 16 febbraio 2007 che per "Solai a lastra con alleggerimento" prescrive un'altezza complessiva superiore a 200mm e un copriferro netto all'asse di 30mm (raggiunto adottando una sezione minima per l'armatura di calcolo di 10mm). Si sottolinea che la medesima tabella indica che le lastre in caso di alleggerimento in polistirene o materiali affini devono prevedere opportuni sfoghi delle sovra pressioni. Il requisito di tenuta (E) viene garantito dalla cappa in c.a. di 5cm di spessore, come richiesto dalla tabella D.5.2 del Decreto 16 febbraio 2007 che per la classe 60 prevede 40 mm minimi di cappa in c.a.. Il requisto di isolamento (I) dovrà essere garantito dall'isolante previsto a livello di copertura come strato soprastante quello strutturale.

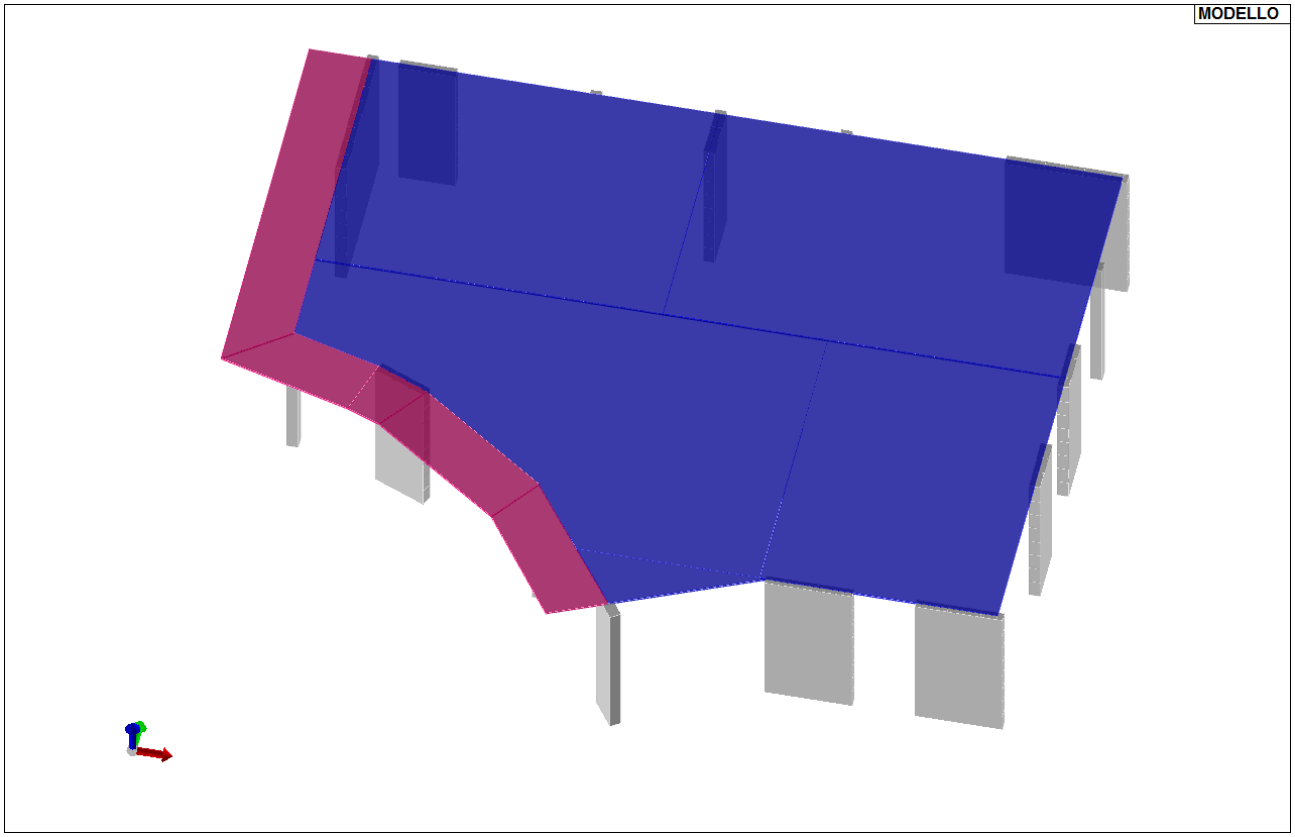
Per quanto riguarda le gronde in c.c.a il requisito R60 viene soddisfatto dal copriferro di 3,0cm in base alla tabella D.5.1 del Decreto 16 febbraio 2007 che per "Solette piene ad armatura monodirezionale" prescrive un'altezza complessiva superiore a 80mm e un copriferro netto all'asse di 20mm entrambi soddisfatti.Il requisito di tenuta (E) e di isolamento (I) non sono applicabili.

MODELLAZIONE DEI SOLAI

I solai individuati sono stati utilizzati nel modello considerando la rigidezza per quello della soletta di copertura in predalles e dando rigidezza zero, (stando a favore di sicurezza) agli sbalzi.

CARATTERISTICHE E LOCALIZZAZIONE DEI SOLAI UTILIZZATI NEL MODELLO

ID	V	G1	G2	V	ψ01	ψ01	ψ01	COLORE	RIGIDEZZA
1	Neve	486.00	350.00	130.00	0.50	0.20	0.00	VIOLA	SI
2	Neve	425.00	100.00	130.00	0.50	0.20	0.00	ROSSO	NO



LOCALIZZAZIONE DEI SOLAI – VISTA 3D STRUTTURA

ULTERIORI CARICHI CONSIDERATI

Oltre ai carichi dai solai e dai pannelli perimetrali sul modello sono stati applicati il carico del muretto perimetrale di coronamento, come carico permanente G2 applicato alle travi perimetrali (vedi ID1) e i carichi V, G1 e G2 relativi al camminamento perimetrale, applicati alle travi di fondazione perimetrali (vedi ID2, ID3 e ID4).

Tipo	carico distribuito globale su trave

Id	Tipo	Pos.	fx	fy	fz	mx	my	mz
		m	daN/ m	daN/ m	daN/ m	daN	daN	daN
1	MURETTO-DG:Fzi=-6.00 Fzf=-6.00	0.0	0.0	0.0	-600.00	0.0	0.0	0.0
		0.0	0.0	0.0	-600.00	0.0	0.0	0.0
2	CAMMINAMENTO G2-DG:Fzi=-2.06 Fzf=-2.06	0.0	0.0	0.0	-206.00	0.0	0.0	0.0
		0.0	0.0	0.0	-206.00	0.0	0.0	0.0
3	CAMMINAMENTO G1-DG:Fzi=-7.00 Fzf=-7.00	0.0	0.0	0.0	-700.00	0.0	0.0	0.0
		0.0	0.0	0.0	-700.00	0.0	0.0	0.0
4	CAMMINAMENTO V-DG:Fzi=-4.95 Fzf=-4.95	0.0	0.0	0.0	-495.00	0.0	0.0	0.0
		0.0	0.0	0.0	-495.00	0.0	0.0	0.0

E' stato inoltre applicato il carico accidentale V per la manutensione, modellando dei solai costituiti da un materiale senza peso e modulo elastico 0, sovrapposti a quelli della copertura, con applicato un carico uniformemente distribuito di 50Kg/mq.

Tipo	carico variabile generale

Id	Tipo	ascissa	valore	ascissa	valore
		m	daN/ m2	m	daN/ m2
5	CARICO MANUTENZIONE-QV:unif - Qz - Area				
	Unif. Qz Area L2=0.0		-50.00		

N.B.: I pannelli modellati per applicare il carico relativo alla manutenzione hanno la stessa posizione e orditura dei solai ID1. Vedi area viola nell'immagine precedente.

MODELLAZIONE ELEMENTI PANNELLO

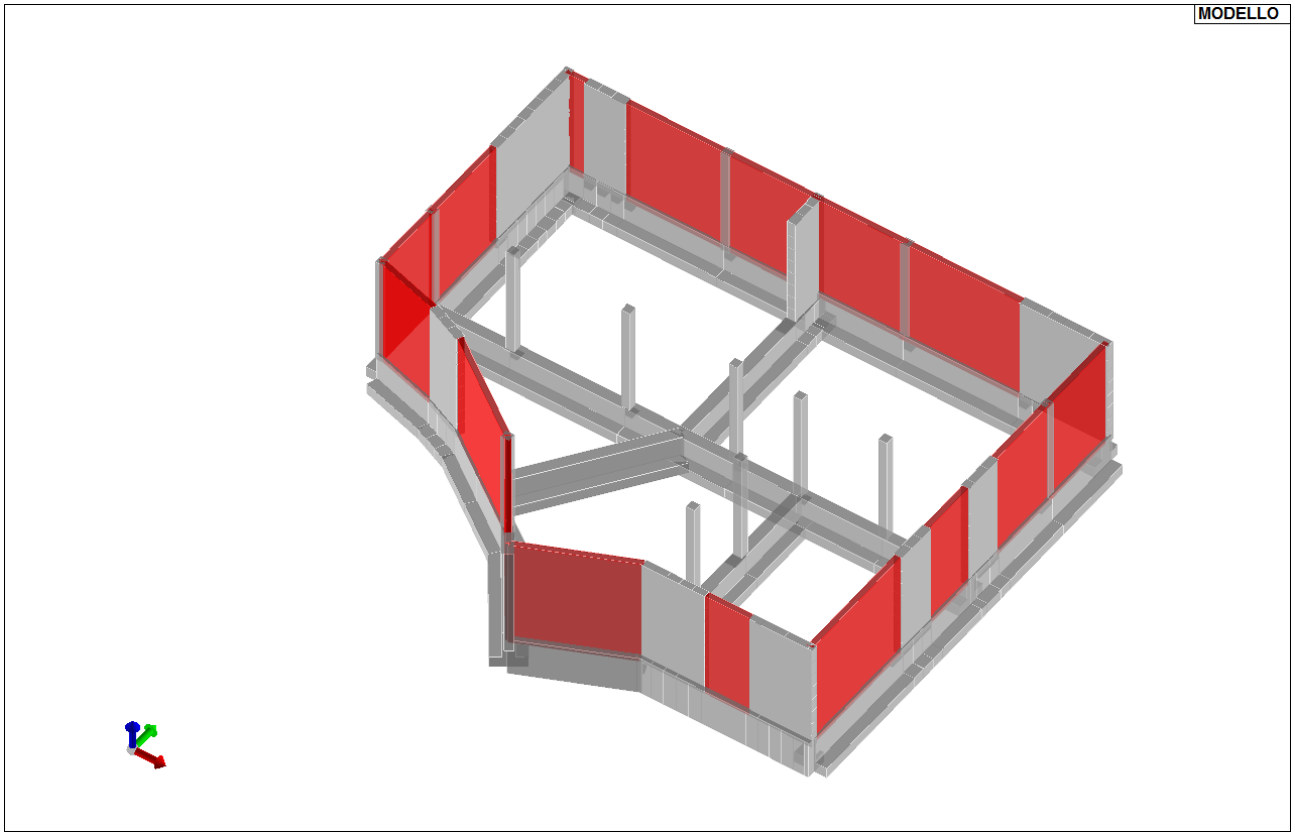
MURATURE PERIMETRALI CONSIDERATE:

Come da predimensionamento del Termotecnico si considerano delle chiusure perimetrali realizzate: dall'esterno verso l'interno dai seguenti strati: 1cm di intonaco plastico, 14cm di termocappotto in EPS grigio tipo Sto Therm Classic (γ=100 Kg/mc), 30cm di muratura portante in POROTON P800 (γ=800 Kg/mc) , 7cm di lana di roccia (γ=100 Kg/mc), 2,5cm in doppia lastra di cartongesso (10 Kg/mq/lastra). Il tutto per 1 peso complessivo di 280 Kg/mq per una parete reale alta 2,98 m.

La parete viene simulata da un elemento pannello con un γ=1000 Kg/mc che per motivi legati alla modellazione ha altezza pari alla distanza tra gli assi delle travi (4.13 m), che per essere equipesante avrà uno spessore di:

280 Kg/mq x 2,98m / 4,13m / 1000 Kg/mc= 0,2 m che a favore di sicurezza si applica su tutto il perimetro esterno.

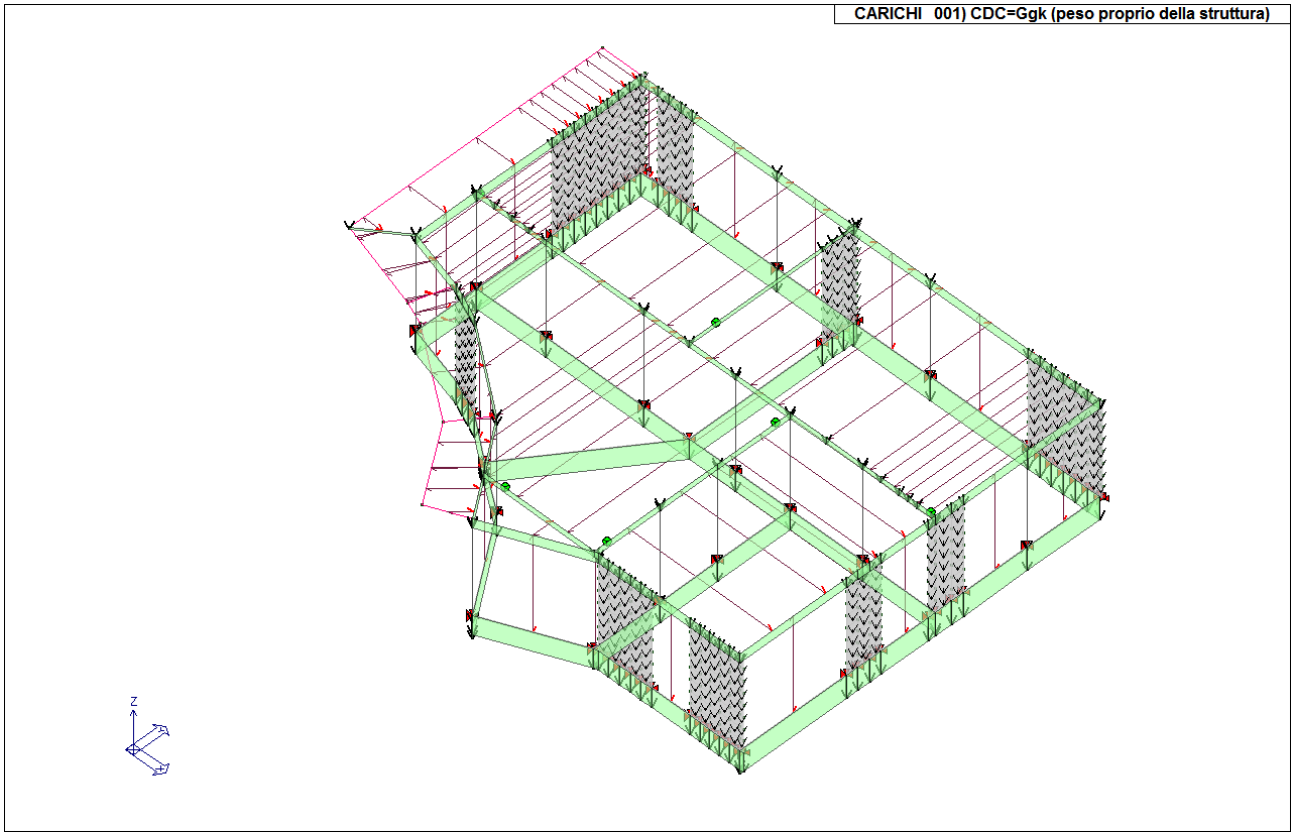
Di seguito si riporta la rappresentazione grafica della posizione degli elementi pannello modellati.



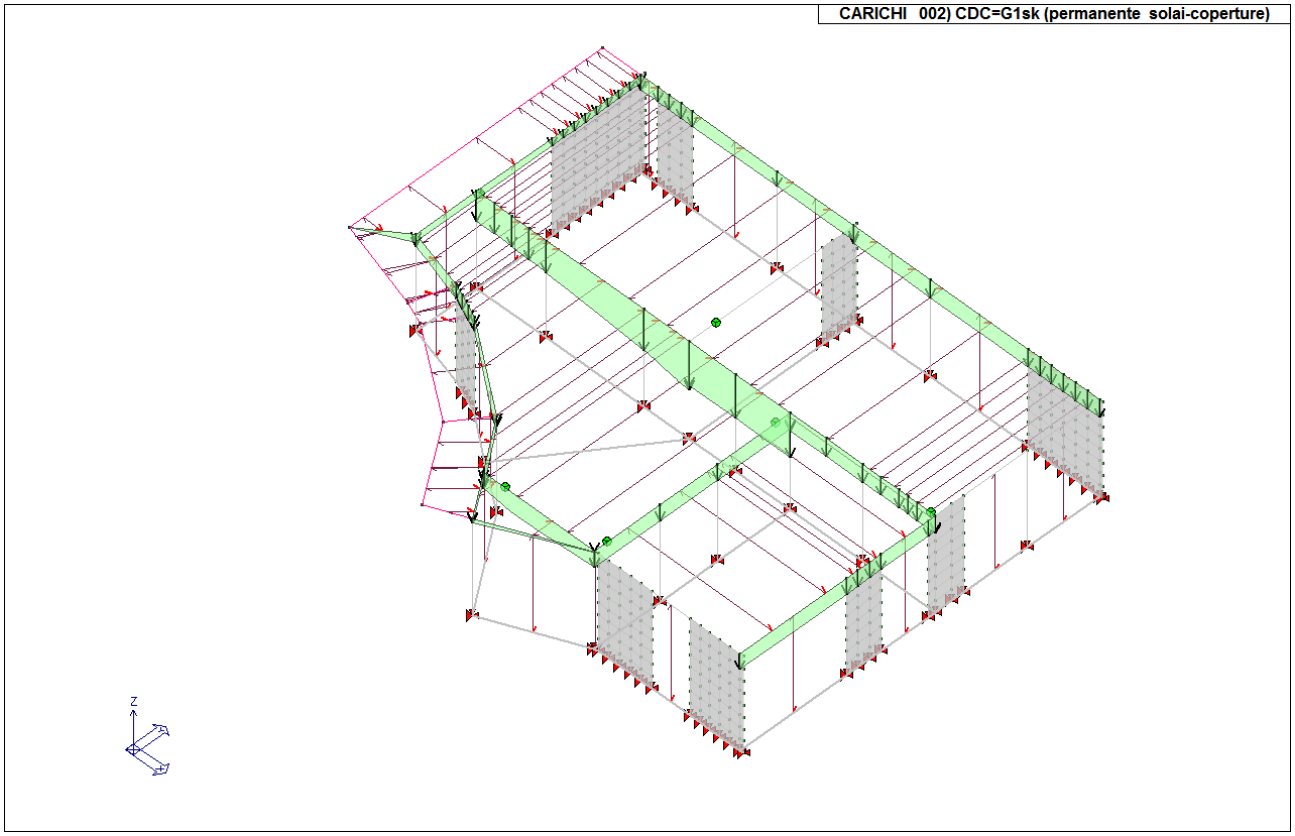
LOCALIZZAZIONE DEGLI ELEMENTI PANNELLO –VISTA 3D STRUTTURA

RAPPRESENTAZIONE GRAFICA DEI CASI DI CARICO CONSIDERATI

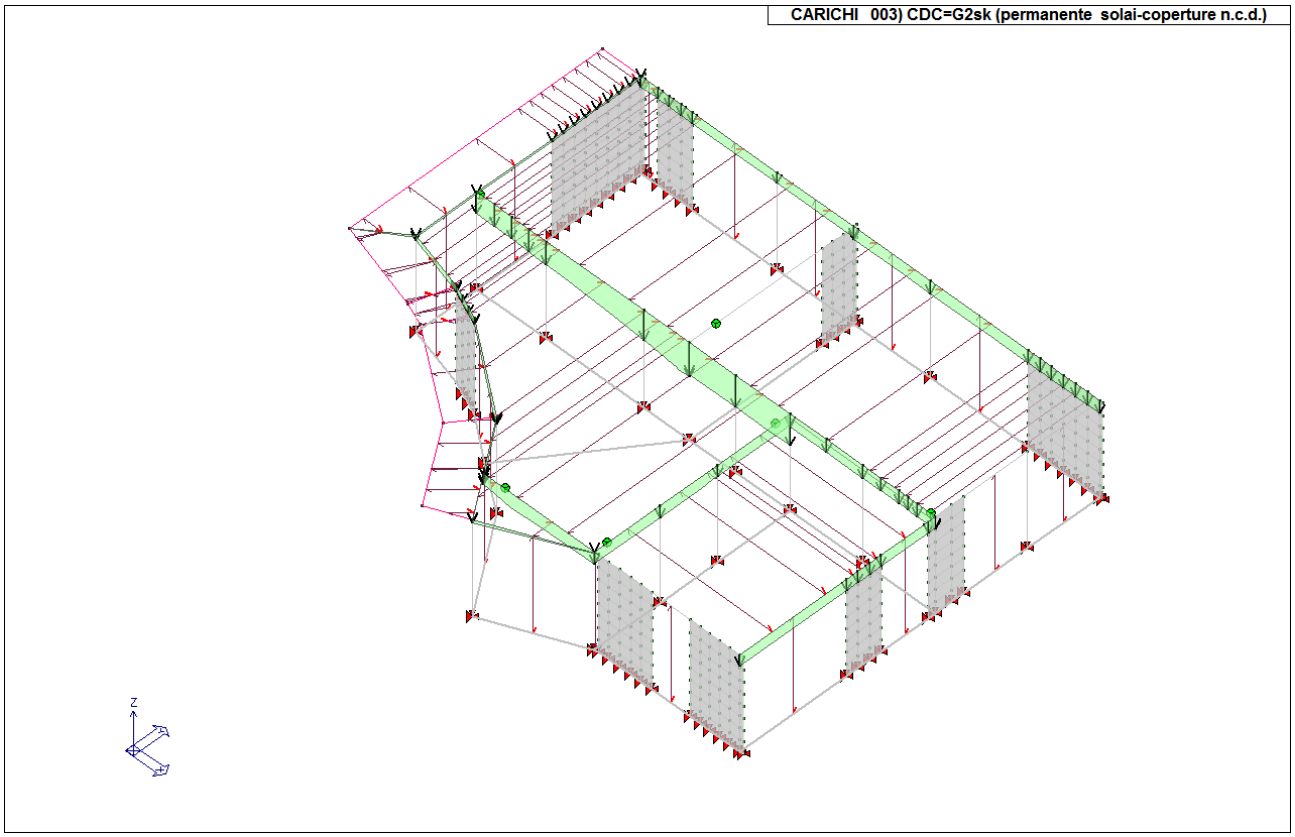
In ciascuna delle seguenti immagini è rappresentato 1 singolo caso di carico, la cui denominazione è quella riportata nel riquadro in alto a destra. I casi di carico vengono successivamente combinati secondo quanto riportato al paragrafo successivo



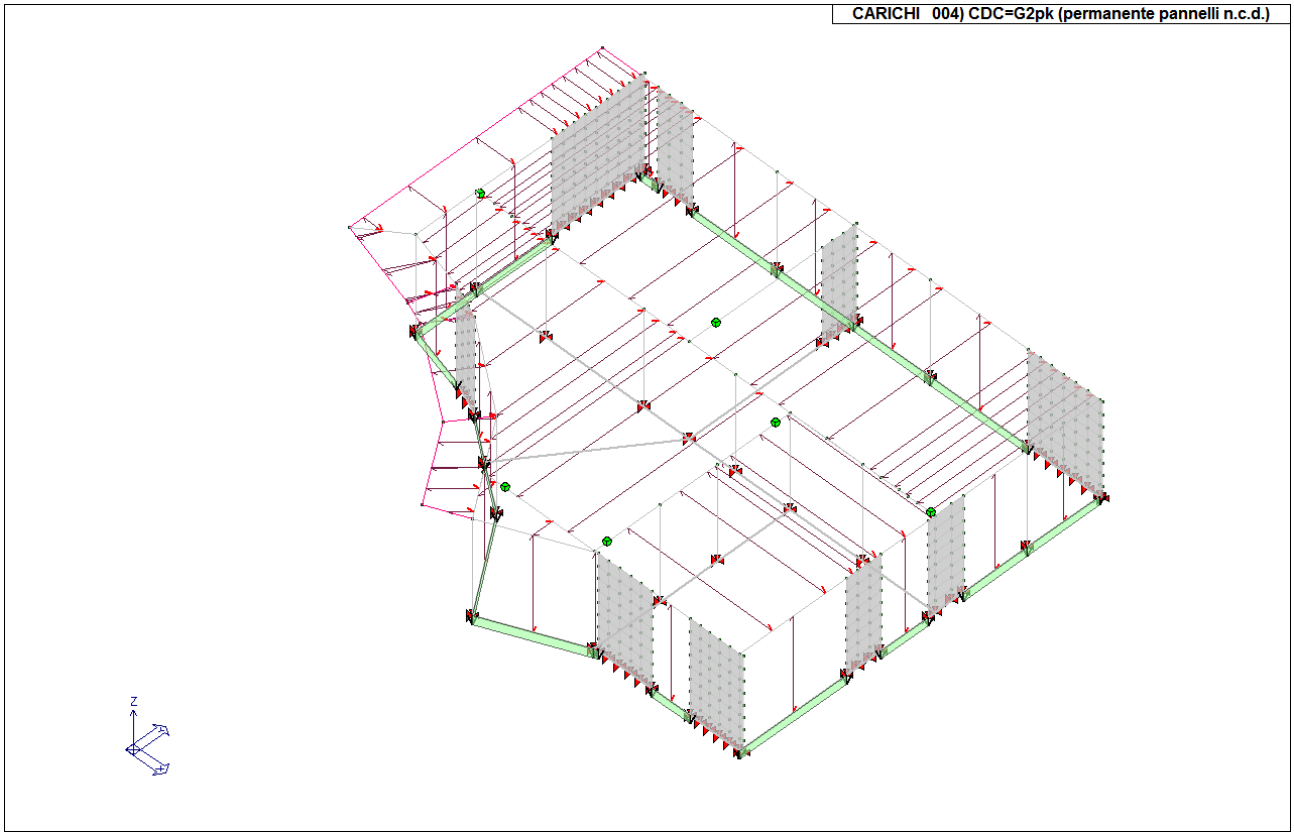
22_CDC_001_CDC=Ggk (peso proprio della struttura)



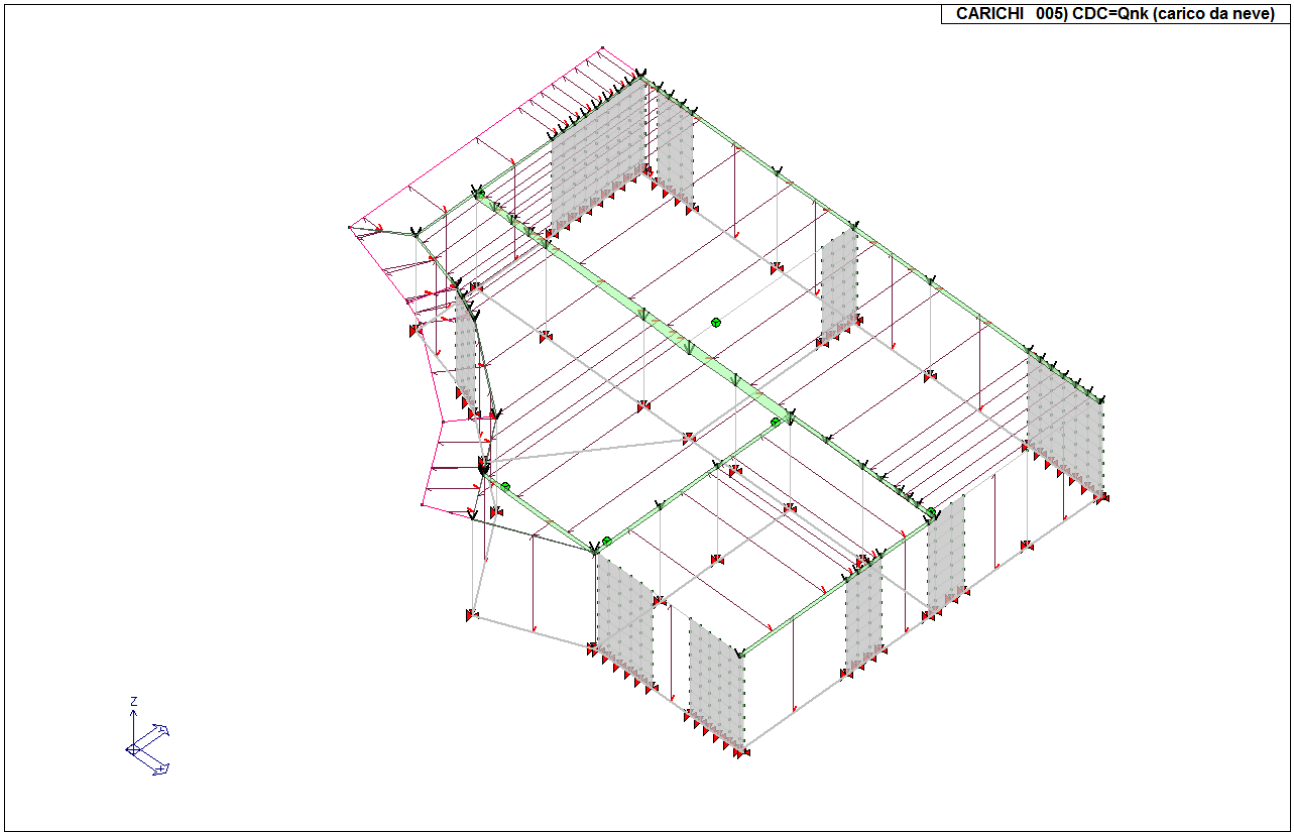
22_CDC_002_CDC=G1sk (permanente solai-coperture)



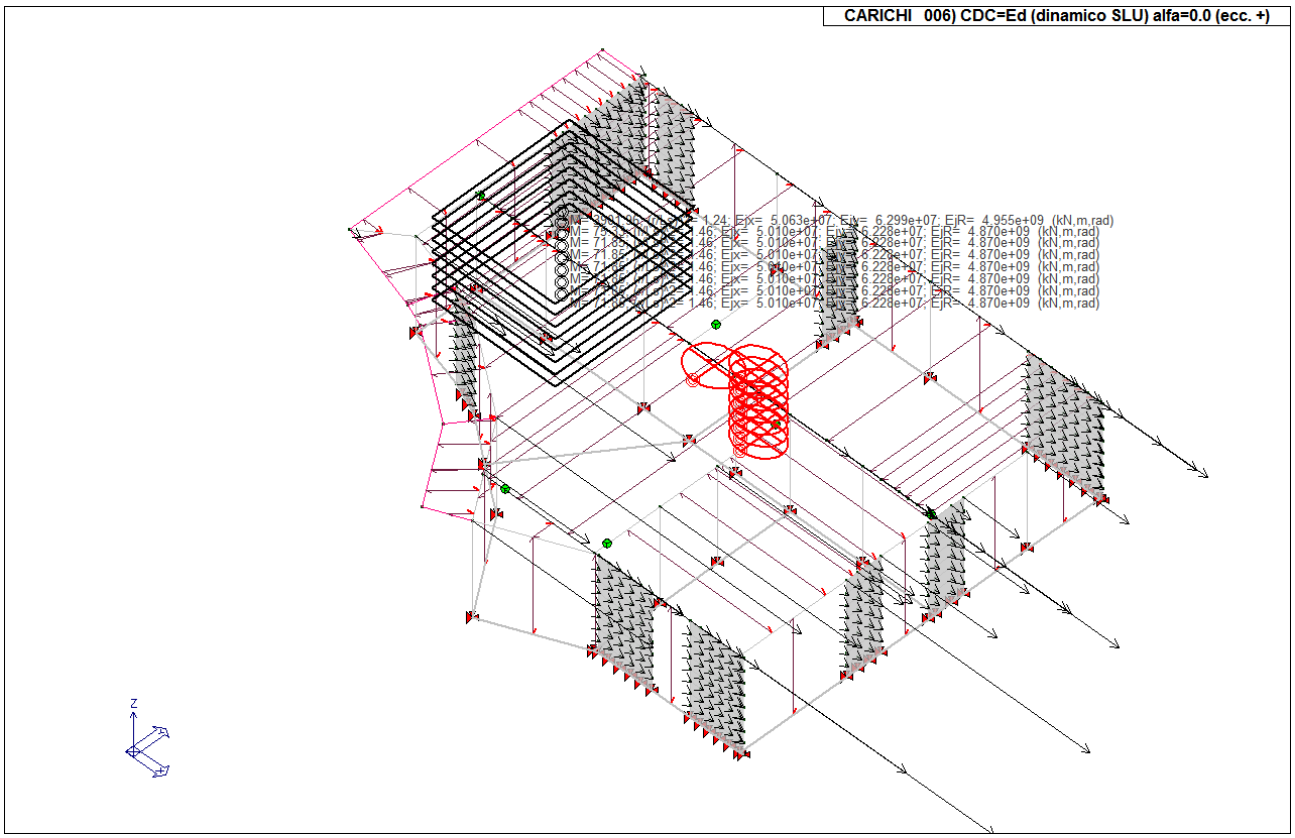
22_CDC_003_CDC=G2sk (permanente solai-coperture n.c.d.)



22_CDC_004_CDC=G2pk (permanente pannelli n.c.d.)



22_CDC_005_CDC=Qnk (carico da neve)



22_CDC_006_CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)

Non si allegano le rappresentazioni per entrambi i modelli di:

22_CDC_007_CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)

22_CDC_008_CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)

22_CDC_009_CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)

22_CDC_010_CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)

22_CDC_011_CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)

22_CDC_012_CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)

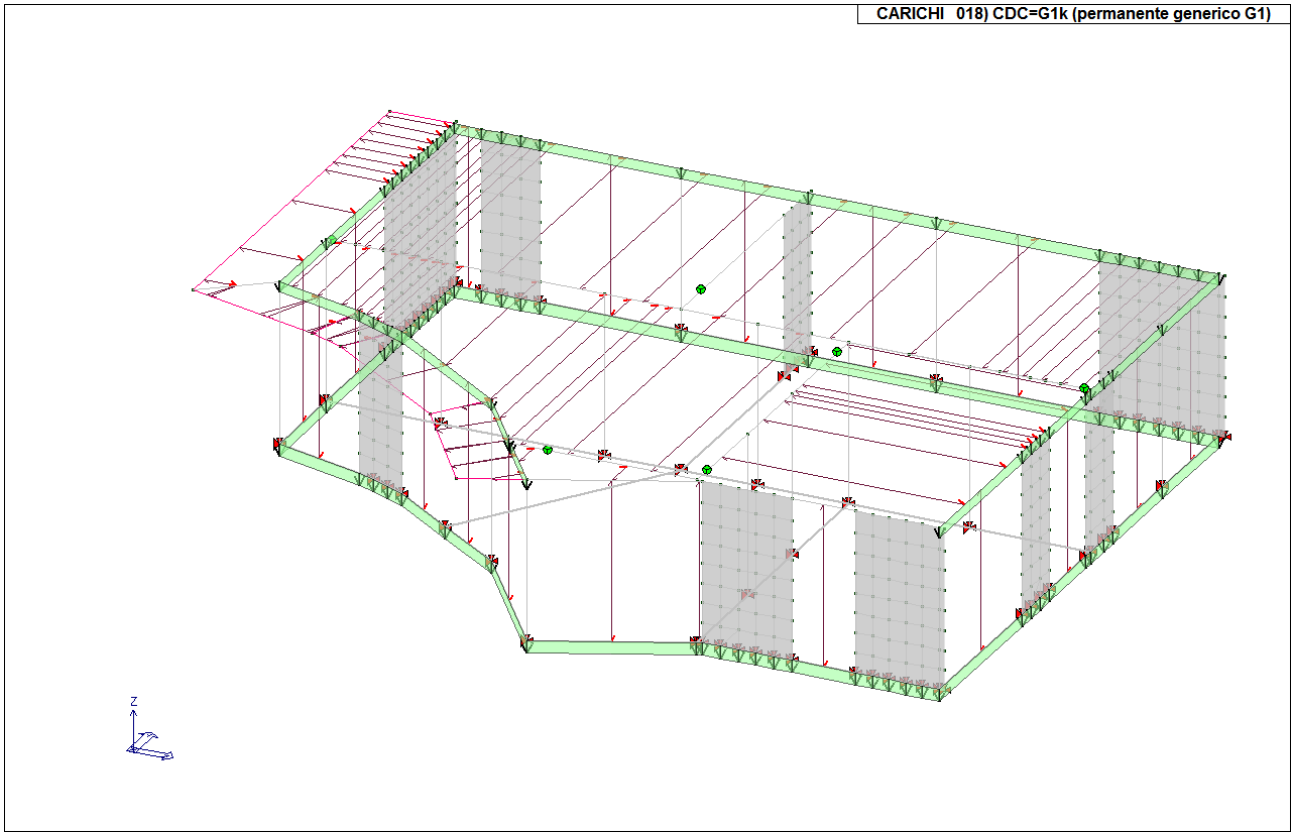
22_CDC_013_CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)

22_CDC_014_CDC=Ed (dinamico SLO) alfa=0.0 (ecc. +)

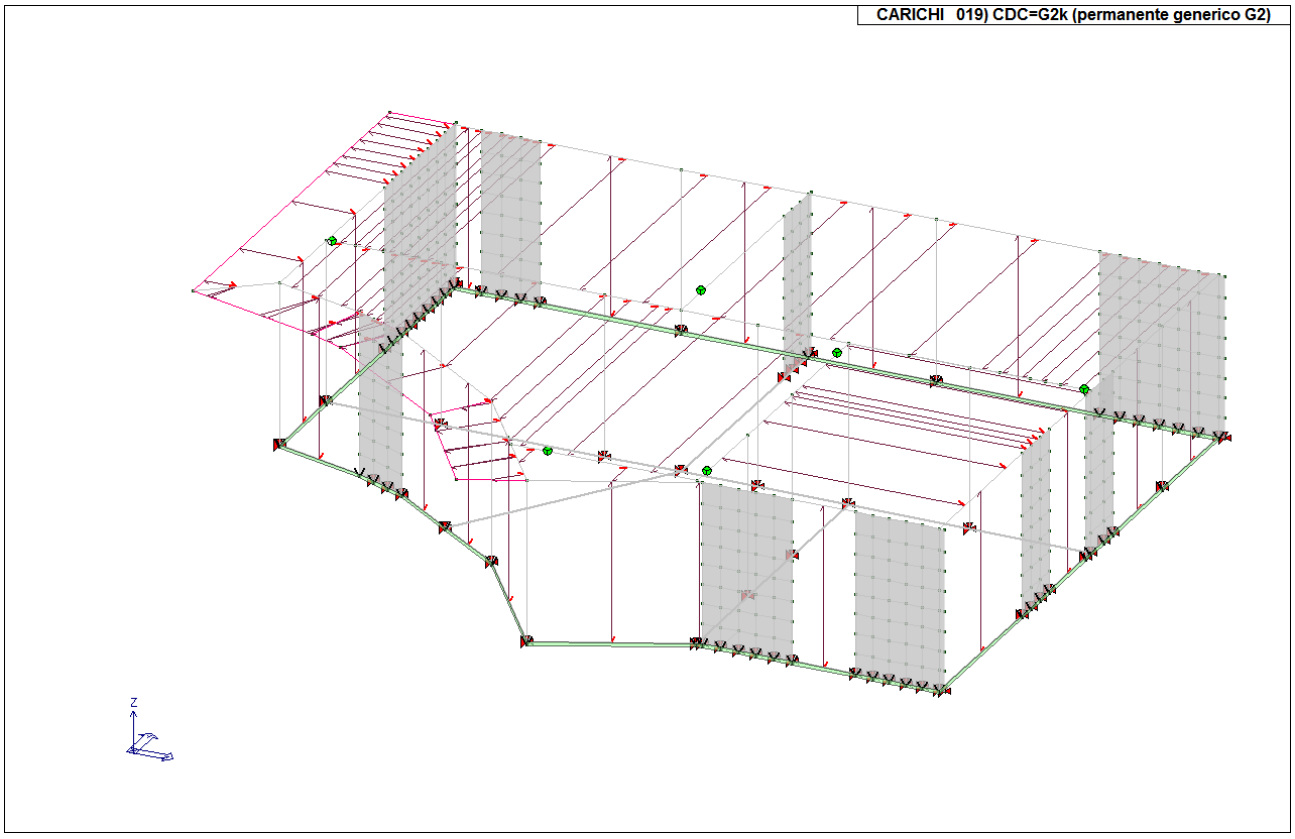
22_CDC_015_CDC=Ed (dinamico SLO) alfa=0.0 (ecc. -)

22_CDC_016_CDC=Ed (dinamico SLO) alfa=90.00 (ecc. +)

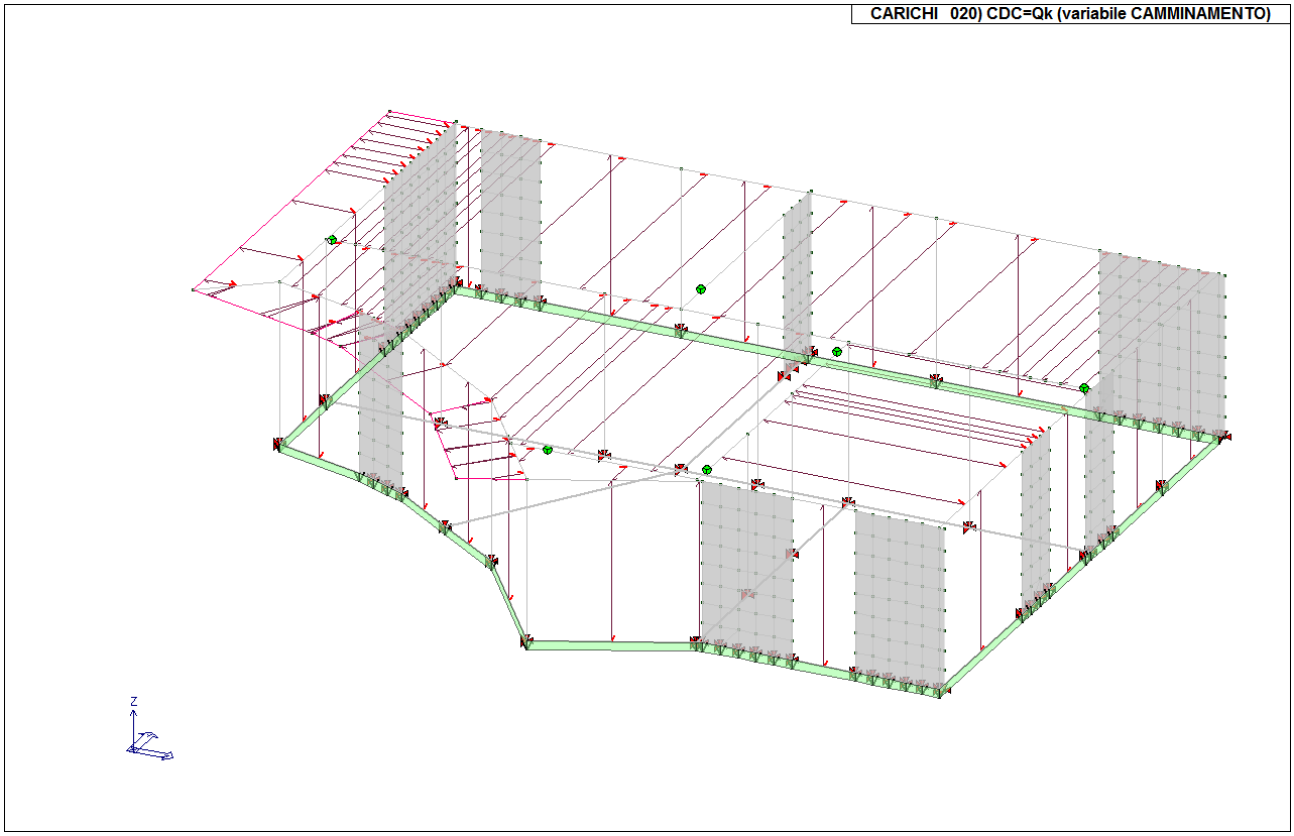
22_CDC_017_CDC=Ed (dinamico SLO) alfa=90.00 (ecc. -)



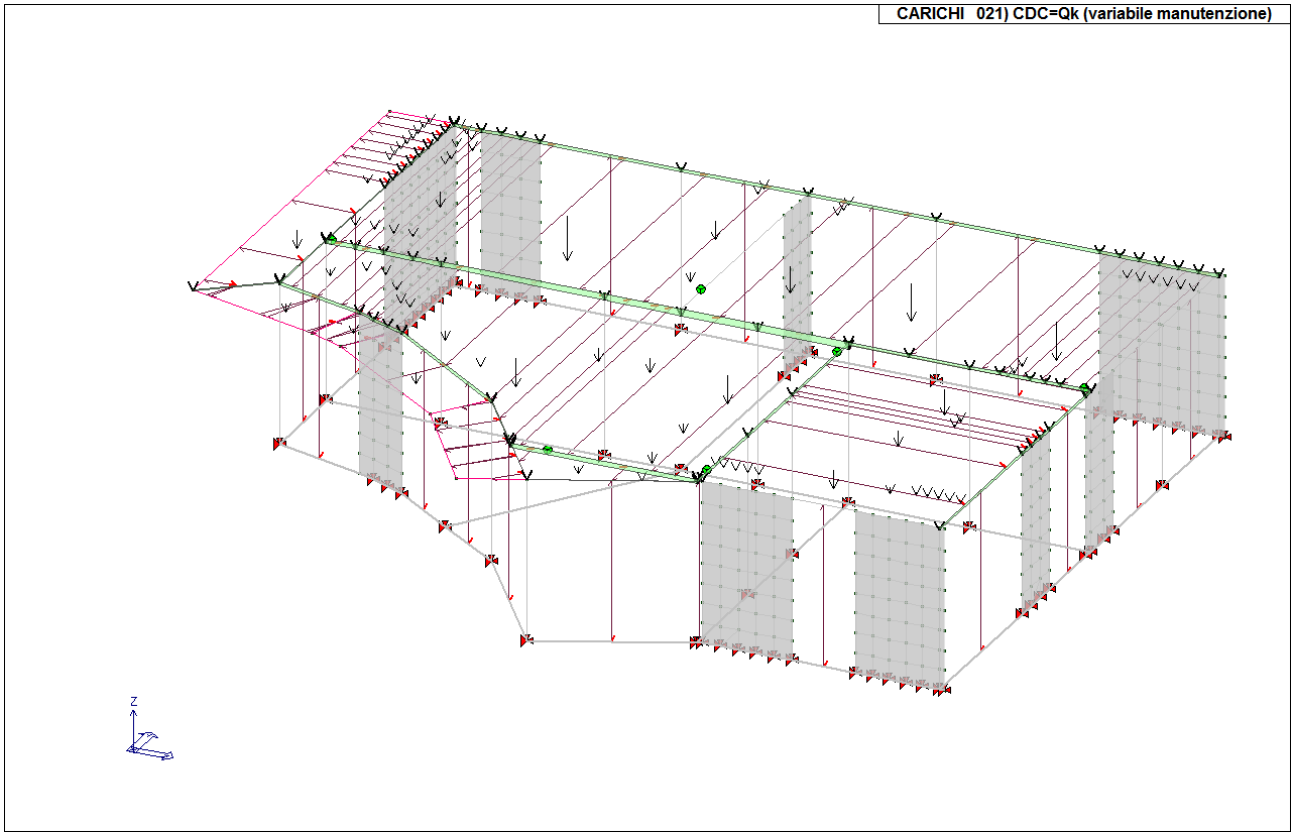
22_CDC_018_CDC=G1k (permanente generico G1)



22_CDC_019_CDC=G2k (permanente generico G2)



22_CDC_020_CDC=Qk (variabile CAMMINAMENTO)



22_CDC_021_CDC=Qk (variabile manutenzione)

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*

$\gamma G1 \cdot G1 + \gamma G2 \cdot G2 + \gamma P \cdot P + \gamma Q1 \cdot Qk1 + \gamma Q2 \cdot \psi 02 \cdot Qk2 + \gamma Q3 \cdot \psi 03 \cdot Qk3 + \ldots$

***Combinazione caratteristica** (rara) SLE*

$G1 + G2 + P + Qk1 + \psi 02 \cdot Qk2 + \psi 03 \cdot Qk3 + \ldots$

***Combinazione frequente** SLE*

$G1 + G2 + P + \psi 11 \cdot Qk1 + \psi 22 \cdot Qk2 + \psi 23 \cdot Qk3 + \ldots$

***Combinazione quasi permanente** SLE*

$G1 + G2 + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \psi 23 \cdot Qk3 + \ldots$

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

$E + G1 + G2 + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \ldots$

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

$G1 + G2 + Ad + P + \psi 21 \cdot Qk1 + \psi 22 \cdot Qk2 + \ldots$

Dove:

NTC 2018 Tabella 2.5.I

Destinazione d'uso/azione	$\psi 0$	$\psi 1$	$\psi 2$
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 <= 30kN)	0,70	0,70	0,60
Categoria G Rimesse e parcheggi (autoveicoli > 30kN)	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.I

		Coefficiente γf	**EQU**	**A1**	**A2**
Carichi permanenti	Favorevoli	$\gamma G1$	0,9	1,0	1,0
	Sfavorevoli		1,1	1,3	1,0
Carichi permanenti non strutturali (Non compiutamente definiti)	Favorevoli	$\gamma G2$	0,8	0,8	0,8
	Sfavorevoli		1,5	1,5	1,3
Carichi variabili	Favorevoli	γQi	0,0	0,0	0,0
	Sfavorevoli		1,5	1,5	1,3

CMB	Sigla Id	PP	G1(perm. solai coperture)	G2(perm. solai coperture)	G2(perm. pannelli)	Qk carico da neve	SISMA SLU =0+	SISMA SLU =0-	SISMA SLU =90+	SISMA SLU =90-	SISMA SLD =0+	SISMA SLD =0-	SISMA SLD =90+	SISMA SLD =90-	SISMA SLO =0+	SISMA SLO =0-	SISMA SLO =90+	SISMA SLO =90-	G1(perm. generico)	G2(perm. generico)	Qk camminamento	Qk manutenzione
		LC1	LC2	LC3	LC4	LC5	LC6	LC7	LC8	LC9	LC10	LC11	LC12	LC13	LC14	LC15	LC16	LC17	LC18	LC19	LC20	
Comb, SLU A1 1	1	1,3	1,3	1,5	1,5	0	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	0	0
Comb, SLU A1 2	1	1,3	1,3	1,5	1,5	0	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	1,05	0
Comb, SLU A1 3	1	1,3	1,3	1,5	1,5	1,5	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	0	0
Comb, SLU A1 4	1	1,3	1,3	1,5	1,5	1,5	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	1,05	0
Comb, SLU A1 5	1	1	1	0,8	0,8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	0	0
Comb, SLU A1 6	1	1	1	0,8	0,8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	1,05	0
Comb, SLU A1 7	1	1	1	0,8	0,8	1,5	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	0	0
Comb, SLU A1 8	1	1	1	0,8	0,8	1,5	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	1,05	0
Comb, SLU A1 9	1	1,3	1,3	1,5	1,5	0	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	1,5	0
Comb, SLU A1 10	1	1,3	1,3	1,5	1,5	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	0	0
Comb, SLU A1 11	1	1,3	1,3	1,5	1,5	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	1,5	0
Comb, SLU A1 12	1	1	1	0,8	0,8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	1,5	0
Comb, SLU A1 13	1	1	1	0,8	0,8	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	0	0
Comb, SLU A1 14	1	1	1	0,8	0,8	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	1,5	0
Comb, SLU A1 15	1	1,3	1,3	1,5	1,5	0	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	0	1,5
Comb, SLU A1 16	1	1,3	1,3	1,5	1,5	0	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	1,05	1,5
Comb, SLU A1 17	1	1,3	1,3	1,5	1,5	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	0	1,5
Comb, SLU A1 18	1	1,3	1,3	1,5	1,5	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	1,05	0
Comb, SLU A1 19	1	1,3	1,3	1,5	1,5	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1,3	1,5	1,05	1,5
Comb, SLU A1 20	1	1	1	0,8	0,8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	0	1,5
Comb, SLU A1 21	1	1	1	0,8	0,8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	1,05	1,5
Comb, SLU A1 22	1	1	1	0,8	0,8	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	0	1,5
Comb, SLU A1 23	1	1	1	0,8	0,8	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	1,05	0
Comb, SLU A1 24	1	1	1	0,8	0,8	0,75	0	0	0	0	0	0	0	0	0	0	0	0	1	0,8	1,05	1,5
Comb, SLU A1 (SLV sism,) 25	1	1	1	1	1	0	-1	0	-0,3	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 26	1	1	1	1	1	0	-1	0	0,3	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 27	1	1	1	1	1	0	1	0	-0,3	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 28	1	1	1	1	1	0	1	0	0,3	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 29	1	1	1	1	1	0	-1	0	0	-0,3	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 30	1	1	1	1	1	0	-1	0	0	0,3	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 31	1	1	1	1	1	0	1	0	0	-0,3	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 32	1	1	1	1	1	0	1	0	0	0,3	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 33	1	1	1	1	1	0	0	-1	-0,3	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 34	1	1	1	1	1	0	0	-1	0,3	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 35	1	1	1	1	1	0	0	1	-0,3	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 36	1	1	1	1	1	0	0	1	0,3	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 37	1	1	1	1	1	0	0	-1	0	-0,3	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 38	1	1	1	1	1	0	0	-1	0	0,3	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 39	1	1	1	1	1	0	0	1	0	-0,3	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 40	1	1	1	1	1	0	0	1	0	0,3	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 41	1	1	1	1	1	0	-0,3	0	-1	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 42	1	1	1	1	1	0	-0,3	0	1	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 43	1	1	1	1	1	0	0,3	0	-1	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 44	1	1	1	1	1	0	0,3	0	1	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 45	1	1	1	1	1	0	0	-0,3	-1	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 46	1	1	1	1	1	0	0	-0,3	1	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 47	1	1	1	1	1	0	0	0,3	-1	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 48	1	1	1	1	1	0	0	0,3	1	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 49	1	1	1	1	1	0	-0,3	0	0	-1	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 50	1	1	1	1	1	0	-0,3	0	0	1	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 51	1	1	1	1	1	0	0,3	0	0	-1	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 52	1	1	1	1	1	0	0,3	0	0	1	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 53	1	1	1	1	1	0	0	-0,3	0	-1	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 54	1	1	1	1	1	0	0	-0,3	0	1	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 55	1	1	1	1	1	0	0	0,3	0	-1	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLU A1 (SLV sism,) 56	1	1	1	1	1	0	0	0,3	0	1	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 57	6	1	1	1	1	0	0	0	0	0	-1	0	-0,3	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 58	6	1	1	1	1	0	0	0	0	0	-1	0	0,3	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 59	6	1	1	1	1	0	0	0	0	0	1	0	-0,3	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 60	6	1	1	1	1	0	0	0	0	0	1	0	0,3	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 61	6	1	1	1	1	0	0	0	0	0	-1	0	0	-0,3	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 62	6	1	1	1	1	0	0	0	0	0	-1	0	0	0,3	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 63	6	1	1	1	1	0	0	0	0	0	1	0	0	-0,3	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 64	6	1	1	1	1	0	0	0	0	0	1	0	0	0,3	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 65	6	1	1	1	1	0	0	0	0	0	0	-1	-0,3	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 66	6	1	1	1	1	0	0	0	0	0	0	-1	0,3	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 67	6	1	1	1	1	0	0	0	0	0	0	1	-0,3	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 68	6	1	1	1	1	0	0	0	0	0	0	1	0,3	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 69	6	1	1	1	1	0	0	0	0	0	0	-1	0	-0,3	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 70	6	1	1	1	1	0	0	0	0	0	0	-1	0	0,3	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 71	6	1	1	1	1	0	0	0	0	0	0	1	0	-0,3	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 72	6	1	1	1	1	0	0	0	0	0	0	1	0	0,3	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 73	6	1	1	1	1	0	0	0	0	0	-0,3	0	-1	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 74	6	1	1	1	1	0	0	0	0	0	-0,3	0	1	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 75	6	1	1	1	1	0	0	0	0	0	0,3	0	-1	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 76	6	1	1	1	1	0	0	0	0	0	0,3	0	1	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 77	6	1	1	1	1	0	0	0	0	0	0	-0,3	-1	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 78	6	1	1	1	1	0	0	0	0	0	0	-0,3	1	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 79	6	1	1	1	1	0	0	0	0	0	0	0,3	-1	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 80	6	1	1	1	1	0	0	0	0	0	0	0,3	1	0	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 81	6	1	1	1	1	0	0	0	0	0	-0,3	0	0	-1	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 82	6	1	1	1	1	0	0	0	0	0	-0,3	0	0	1	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 83	6	1	1	1	1	0	0	0	0	0	0,3	0	0	-1	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 84	6	1	1	1	1	0	0	0	0	0	0,3	0	0	1	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 85	6	1	1	1	1	0	0	0	0	0	0	-0,3	0	-1	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 86	6	1	1	1	1	0	0	0	0	0	0	-0,3	0	1	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 87	6	1	1	1	1	0	0	0	0	0	0	0,3	0	-1	0	0	0	0	1	1	0,6	0
Comb, SLE (SLD Danno sism,) 88	6	1	1	1	1	0	0	0	0	0	0	0,3	0	1	0	0	0	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 89	6	1	1	1	1	0	0	0	0	0	0	0	0	0	-1	0	-0,3	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 90	6	1	1	1	1	0	0	0	0	0	0	0	0	0	-1	0	0,3	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 91	6	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	-0,3	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 92	6	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0,3	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 93	6	1	1	1	1	0	0	0	0	0	0	0	0	0	-1	0	0	-0,3	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 94	6	1	1	1	1	0	0	0	0	0	0	0	0	0	-1	0	0	0,3	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 95	6	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	-0,3	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 96	6	1	1	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0,3	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 97	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-1	-0,3	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 98	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-1	0,3	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 99	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	-0,3	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 100	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0,3	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 101	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-1	0	-0,3	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 102	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-1	0	0,3	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 103	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	-0,3	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 104	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0,3	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 105	6	1	1	1	1	0	0	0	0	0	0	0	0	0	-0,3	0	-1	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 106	6	1	1	1	1	0	0	0	0	0	0	0	0	0	-0,3	0	1	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 107	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0,3	0	-1	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 108	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0,3	0	1	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 109	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-0,3	-1	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 110	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-0,3	1	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 111	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0,3	-1	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 112	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0,3	1	0	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 113	6	1	1	1	1	0	0	0	0	0	0	0	0	0	-0,3	0	0	-1	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 114	6	1	1	1	1	0	0	0	0	0	0	0	0	0	-0,3	0	0	1	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 115	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0,3	0	0	-1	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 116	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0,3	0	0	1	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 117	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-0,3	0	-1	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 118	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	-0,3	0	1	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 119	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0,3	0	-1	1	1	0,6	0
Comb, SLE (SLO Operativo sism,) 120	6	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0,3	0	1	1	1	0,6	0
Comb, SLE(rara) 121	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Comb, SLE(rara) 122	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,7	0
Comb, SLE(rara) 123	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Comb, SLE(rara) 124	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,7	0
Comb, SLE(rara) 125	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
Comb, SLE(rara) 126	2	1	1	1	1	0,5	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Comb, SLE(rara) 127	2	1	1	1	1	0,5	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0
Comb, SLE(rara) 128	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Comb, SLE(rara) 129	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,7	1
Comb, SLE(rara) 130	2	1	1	1	1	0,5	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Comb, SLE(rara) 131	2	1	1	1	1	0,5	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,7	0
Comb, SLE(rara) 132	2	1	1	1	1	0,5	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,7	1
Comb, SLE(freq,) 133	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Comb, SLE(freq,) 134	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLE(freq,) 135	3	1	1	1	1	0,2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Comb, SLE(freq,) 136	3	1	1	1	1	0,2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,6	0
Comb, SLE(freq,) 137	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,7	0
Comb, SLE(perm,) 138	4	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Comb, SLE(perm,) 139	4	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0,6	0

AZIONE SISMICA

VALUTAZIONE DELL' 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 Vr 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 Vr e la probabilità di superamento Pver associata a ciascuno degli stati limite considerati, si ottiene il periodo di ritorno Tr e i relativi parametri di pericolosità sismica (vedi tabella successiva):
ag: accelerazione orizzontale massima del terreno;
Fo: 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 Vn [anni]	Coeff. Uso	Periodo Vr [anni]	Tipo di suolo	Categoria topografica
III	50.0	1.5	75.0	D	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 = Ss*St (3.2.3)
Fo è il fattore che quantifica l'amplificazione spettrale massima, su sito di riferimento rigido orizzontale
Fv è il fattore che quantifica l'amplificazione spettrale massima verticale, in termini di accelerazione orizzontale massima del terreno ag su sito di riferimento rigido orizzontale
Tb è il periodo corrispondente all'inizio del tratto dello spettro ad accelerazione costante.
Tc è il periodo corrispondente all'inizio del tratto dello spettro a velocità costante.
Td 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, Se, è definito dalle seguenti espressioni:

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

$$T_B \le T < T_C \qquad S_e(T) = a_g \cdot S \cdot \eta \cdot F_o$$

$$T_C \le T < T_D \qquad S_e(T) = a_g \cdot S \cdot \eta \cdot F_o \cdot \left(\frac{T_C}{T}\right)$$

$$T_D \le T \qquad S_e(T) = a_g \cdot S \cdot \eta \cdot F_o \cdot \left(\frac{T_C \cdot T_D}{T^2}\right)$$

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 riportane nella seguente Tabella

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

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, Sve, è definito dalle espressioni:

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

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

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

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

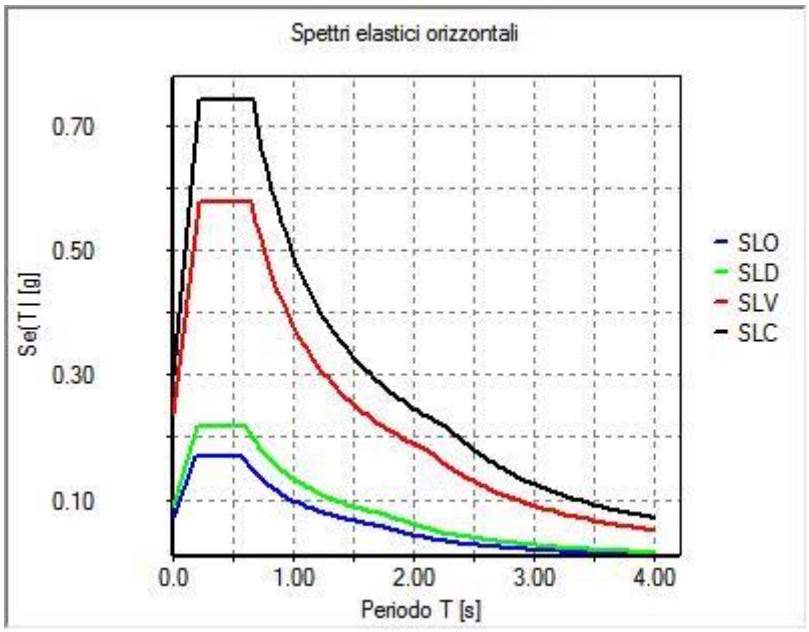
I valori di S_S, T_B, T_C e T_D, sono riportati nella seguenteTabella

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.	9.679	45.497	
12267	9.644	45.474	3.727
12268	9.715	45.476	3.639
12046	9.712	45.526	4.111
12045	9.641	45.524	4.203

SL	Pver	Tr	ag	Fo	T*c
		Anni	g		sec
SLO	81.0	45.2	0.038	2.468	0.216
SLD	63.0	75.4	0.050	2.430	0.238
SLV	10.0	711.8	0.131	2.450	0.277
SLC	5.0	1462.2	0.168	2.488	0.284

SL	ag	S	Fo	Fv	Tb	Tc	Td
	g				sec	sec	sec
SLO	0.038	1.500	2.468	0.652	0.125	0.376	1.753
SLD	0.050	1.500	2.430	0.734	0.134	0.401	1.800
SLV	0.131	1.500	2.450	1.196	0.148	0.444	2.123
SLC	0.168	1.450	2.488	1.376	0.151	0.452	2.271



01_INT_SPETTRI_ELASTICI_O

RISULTATI ANALISI SISMICHE

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

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

a) **analisi sismica dinamica con spettro di risposta**:
- quota, posizione del centro di massa e massa risultante, posizione del baricentro delle rigidezze, rapporto r/Ls (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.

Per ciascuna combinazione sismica definita SLD o SLO viene riportato il livello di deformazione etaT (dr) degli elementi strutturali verticali. Per semplicità di consultazione il livello è espresso anche in unità 1000*etaT/h da confrontare direttamente con i valori forniti 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).

RISULTATI SISMICI:

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

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

Parametri fattore in direzione x e y

Sistema costruttivo:	calcestruzzo	
Tipologia strutturale:	strutture a telaio, a pareti accoppiate, miste	
Definizione rapporto α_u/α_1:	media tra 1 e il valore da normativa	
Riferimento normativo α_u/α_1:	altre strutture a pareti non accoppiate	
Valore rapporto	α_u/α_1 =	1.050
Valore base fattore	q_0 = 3.000 α_u/α_1 =	3.150
Fattore pareti	k_w =	0.89
Fattore di regolarità	K_R =	1.0
Fattore dissipativo	$q_D = q_0 \cdot k_w \cdot K_R$ =	2.80
Fattore non dissipativo	$q_{ND} = 2/3 \cdot q_D$ =	1.87 (≤1.5)

Fattori di comportamento utilizzati

	Dissipativi	Non dissipativi
q SLU x	2.80	1.500
q SLU y	2.80	1.500
q SLU z	1.500	1.500

Determinazione k_w

Qualora nella costruzione siano presenti pareti di calcestruzzo armato, per prevenirne il collasso fragile, i valori di q_0 devono essere ridotti mediante il fattore k_w, con:

$$k_w = \begin{cases} 1{,}00 & \text{per strutture a telaio e miste equivalenti a telai} \\ 0{,}5 \le (1+\alpha_0)/3 \le 1 & \text{per strutture a pareti, miste equivalenti a pareti, torsionalmente deformabili} \end{cases}$$

dove α_0 è il valore assunto in prevalenza dal rapporto tra altezza totale (dalle fondazioni o dalla struttura scatolare rigida di base di cui al § 7.2.1, fino alla sommità) e lunghezza delle pareti; nel caso in cui gli α_0 delle pareti non differiscano significativamente tra di loro, il valore di α_0 per l'insieme delle pareti può essere calcolato assumendo, come altezza, la somma delle altezze delle singole pareti, come lunghezza, la somma delle lunghezze.

Denominazione	Altezza setto	Lunghezza setto	Rapporto H/L
	H	L	H/L
	[cm]	[cm]	[ ]
S1	298	150	1,986667
S2	413	150	2,753333
S3	298	150	1,986667
S4	298	230	1,295652
S5	298	130	2,292308
S6	298	322	0,925466
S7	298	150	1,986667
S8	298	230	1,295652
S9	298	400	0,745
	α_0 = media H/L =		1,696379

Kw = $0{,}5 \le (1+\alpha_0)/3 \le 1$

Considerato di essere nel caso di "strutture miste equivalenti a pareti":

$(1+\alpha_0)/3 = (1+1{,}69)/3 = 0{,}89$ per cui: Kw = 0,89

CDC	Tipo	Sigla Id	Note
6	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. +)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.385 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.086 s
			fattore q: 1.500
			amplificazione ND (non dissipativi): 1.000
			fattore per spost. mu d: 3.500
			classe di duttilità CD: ND
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	0.0	-0.86	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.435	0.106	0.308	1.221e+04	2.7	3.217e+05	71.3	8.58e-03	1.90e-06	0.0	0.0
2	10.026	0.100	0.304	411.03	9.11e-02	1971.80	0.4	631.76	0.1	0.0	0.0
3	11.568	0.086	0.295	3.830e+05	84.9	2199.06	0.5	9.19	2.04e-03	0.0	0.0
4	12.678	0.079	0.289	1.796e+04	4.0	7.084e+04	15.7	0.93	2.05e-04	0.0	0.0
5	13.971	0.072	0.284	12.17	2.70e-03	20.91	4.64e-03	2.612e+04	5.8	0.0	0.0
6	17.864	0.056	0.274	3.39	7.51e-04	1.268e+04	2.8	4.07	9.02e-04	0.0	0.0
7	23.972	0.042	0.264	58.45	1.30e-02	317.14	7.03e-02	187.51	4.16e-02	0.0	0.0
8	24.239	0.041	0.264	49.75	1.10e-02	1.78	3.96e-04	77.36	1.71e-02	0.0	0.0
9	25.057	0.040	0.263	4.63	1.03e-03	23.65	5.24e-03	3.337e+04	7.4	0.0	0.0
10	27.769	0.036	0.260	207.18	4.59e-02	1174.86	0.3	2.583e+04	5.7	0.0	0.0
11	28.249	0.035	0.260	9.33	2.07e-03	2.42	5.37e-04	3.547e+04	7.9	0.0	0.0
12	29.445	0.034	0.259	1.93	4.28e-04	7.56	1.68e-03	1.247e+04	2.8	0.0	0.0
13	29.572	0.034	0.259	1.86	4.12e-04	722.41	0.2	807.99	0.2	0.0	0.0
14	31.126	0.032	0.258	36.11	8.00e-03	2852.44	0.6	6967.76	1.5	0.0	0.0
15	31.665	0.032	0.257	511.67	0.1	1.049e+04	2.3	464.75	0.1	0.0	0.0
16	33.210	0.030	0.256	6422.91	1.4	566.29	0.1	831.47	0.2	0.0	0.0
17	34.173	0.029	0.256	159.48	3.54e-02	31.00	6.87e-03	1.552e+04	3.4	0.0	0.0
18	36.266	0.028	0.254	963.61	0.2	6.32	1.40e-03	1.973e+04	4.4	0.0	0.0
19	37.030	0.027	0.254	465.63	0.1	1023.59	0.2	678.59	0.2	0.0	0.0
20	38.256	0.026	0.253	55.30	1.23e-02	89.00	1.97e-02	1657.21	0.4	0.0	0.0
Risulta				4.226e+05		4.267e+05		1.808e+05			
In percentuale				93.66		94.59		40.08			

CDC	Tipo	Sigla Id	Note
7	Edk	CDC=Ed (dinamico SLU) alfa=0.0 (ecc. -)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.385 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.087 s
			fattore q: 1.500
			amplificazione ND (non dissipativi): 1.000
			fattore per spost. mu d: 3.500
			classe di duttilità CD: ND
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	0.0	0.86	26.91	39.46	1.236	0.874	0.147

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
3.61	7533.44	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.466	0.106	0.308	2283.46	0.5	3.287e+05	72.9	0.11	2.33e-05	0.0	0.0
2	10.028	0.100	0.304	853.88	0.2	1628.79	0.4	633.17	0.1	0.0	0.0
3	11.514	0.087	0.295	3.980e+05	88.2	46.49	1.03e-02	5.07	1.12e-03	0.0	0.0
4	12.654	0.079	0.289	1.138e+04	2.5	6.402e+04	14.2	0.36	7.93e-05	0.0	0.0
5	13.971	0.072	0.284	11.38	2.52e-03	18.22	4.04e-03	2.612e+04	5.8	0.0	0.0
6	18.217	0.055	0.273	1826.84	0.4	1.520e+04	3.4	1.15	2.56e-04	0.0	0.0
7	24.234	0.041	0.264	63.04	1.40e-02	0.79	1.74e-04	58.54	1.30e-02	0.0	0.0
8	24.975	0.040	0.263	37.03	8.21e-03	231.20	5.12e-02	8935.61	2.0	0.0	0.0
9	25.084	0.040	0.263	0.98	2.16e-04	196.55	4.36e-02	2.440e+04	5.4	0.0	0.0
10	27.912	0.036	0.260	174.13	3.86e-02	1349.76	0.3	2.846e+04	6.3	0.0	0.0
11	28.195	0.035	0.260	947.43	0.2	564.94	0.1	2.502e+04	5.5	0.0	0.0
12	28.363	0.035	0.260	1478.30	0.3	942.75	0.2	8714.57	1.9	0.0	0.0
13	29.450	0.034	0.259	0.64	1.43e-04	8.29	1.84e-03	1.324e+04	2.9	0.0	0.0
14	30.755	0.033	0.258	315.85	7.00e-02	5056.70	1.1	6613.81	1.5	0.0	0.0
15	32.227	0.031	0.257	228.33	5.06e-02	6940.44	1.5	1128.07	0.3	0.0	0.0
16	34.135	0.029	0.256	36.45	8.08e-03	3.14	6.96e-04	1.507e+04	3.3	0.0	0.0
17	35.394	0.028	0.255	4193.29	0.9	264.73	5.87e-02	1430.68	0.3	0.0	0.0
18	35.876	0.028	0.255	117.25	2.60e-02	373.22	8.27e-02	1.801e+04	4.0	0.0	0.0
19	36.916	0.027	0.254	444.51	9.85e-02	1046.70	0.2	10.38	2.30e-03	0.0	0.0
20	38.293	0.026	0.253	177.39	3.93e-02	147.98	3.28e-02	1301.74	0.3	0.0	0.0
Risulta				4.226e+05		4.268e+05		1.792e+05			
In percentuale				93.68		94.60		39.71			

CDC	Tipo	Sigla Id	Note
8	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. +)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.385 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.111 s
			fattore q: 1.500
			amplificazione ND (non dissipativi): 1.000
			fattore per spost. mu d: 3.500
			classe di duttilità CD: ND
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	1.08	0.0	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.013	0.111	0.311	3042.19	0.7	3.058e+05	67.8	1.15	2.55e-04	0.0	0.0
2	10.026	0.100	0.304	928.70	0.2	214.68	4.76e-02	630.20	0.1	0.0	0.0
3	11.503	0.087	0.295	3.390e+05	75.1	6511.93	1.4	3.19	7.08e-04	0.0	0.0
4	12.054	0.083	0.292	6.992e+04	15.5	8.182e+04	18.1	6.17	1.37e-03	0.0	0.0
5	13.971	0.072	0.284	9.26	2.05e-03	8.87	1.97e-03	2.612e+04	5.8	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
6	18.224	0.055	0.273	834.93	0.2	1.576e+04	3.5	13.72	3.04e-03	0.0	0.0
7	24.237	0.041	0.264	54.97	1.22e-02	0.99	2.20e-04	66.99	1.48e-02	0.0	0.0
8	25.057	0.040	0.263	6.21	1.38e-03	10.73	2.38e-03	3.346e+04	7.4	0.0	0.0
9	27.170	0.037	0.261	173.45	3.84e-02	1299.66	0.3	189.93	4.21e-02	0.0	0.0
10	27.953	0.036	0.260	134.13	2.97e-02	799.13	0.2	2.975e+04	6.6	0.0	0.0
11	28.250	0.035	0.260	22.43	4.97e-03	14.18	3.14e-03	3.305e+04	7.3	0.0	0.0
12	28.627	0.035	0.259	688.13	0.2	2770.30	0.6	534.17	0.1	0.0	0.0
13	29.450	0.034	0.259	0.35	7.87e-05	2.98	6.60e-04	1.286e+04	2.8	0.0	0.0
14	31.073	0.032	0.258	1686.58	0.4	680.87	0.2	4977.84	1.1	0.0	0.0
15	32.006	0.031	0.257	18.06	4.00e-03	4813.75	1.1	690.26	0.2	0.0	0.0
16	33.576	0.030	0.256	5152.96	1.1	1404.11	0.3	3.25	7.20e-04	0.0	0.0
17	34.184	0.029	0.256	377.51	8.37e-02	44.16	9.79e-03	1.637e+04	3.6	0.0	0.0
18	35.235	0.028	0.255	0.25	5.65e-05	2661.07	0.6	3041.99	0.7	0.0	0.0
19	36.207	0.028	0.254	403.54	8.95e-02	1401.72	0.3	1.659e+04	3.7	0.0	0.0
20	38.207	0.026	0.253	268.71	5.96e-02	145.13	3.22e-02	2417.45	0.5	0.0	0.0
Risulta				4.227e+05		4.261e+05		1.808e+05			
In percentuale				93.69		94.46		40.07			

CDC	Tipo	Sigla Id	Note
9	Edk	CDC=Ed (dinamico SLU) alfa=90.00 (ecc. -)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.385 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.102 s
			fattore q: 1.500
			amplificazione ND (non dissipativi): 1.000
			fattore per spost. mu d: 3.500
			classe di duttilità CD: ND
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	-1.08	0.0	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.848	0.102	0.305	1.294e+04	2.9	3.161e+05	70.1	33.33	7.39e-03	0.0	0.0
2	10.040	0.100	0.303	62.69	1.39e-02	3.358e+04	7.4	599.40	0.1	0.0	0.0
3	11.621	0.086	0.294	3.960e+05	87.8	7033.60	1.6	9.83	2.18e-03	0.0	0.0
4	13.516	0.074	0.286	4483.85	1.0	4.182e+04	9.3	29.19	6.47e-03	0.0	0.0
5	13.972	0.072	0.284	29.95	6.64e-03	120.97	2.68e-02	2.609e+04	5.8	0.0	0.0
6	17.927	0.056	0.274	227.62	5.05e-02	1.089e+04	2.4	0.22	4.90e-05	0.0	0.0
7	22.425	0.045	0.266	37.78	8.37e-03	104.36	2.31e-02	27.99	6.20e-03	0.0	0.0
8	24.237	0.041	0.264	56.79	1.26e-02	1.38	3.06e-04	69.54	1.54e-02	0.0	0.0
9	25.054	0.040	0.263	5.35	1.19e-03	23.07	5.11e-03	3.341e+04	7.4	0.0	0.0
10	27.730	0.036	0.260	108.12	2.40e-02	1474.94	0.3	2.584e+04	5.7	0.0	0.0
11	28.250	0.035	0.260	16.86	3.74e-03	11.11	2.46e-03	3.391e+04	7.5	0.0	0.0
12	29.444	0.034	0.259	19.95	4.42e-03	6.16	1.36e-03	1.459e+04	3.2	0.0	0.0
13	29.647	0.034	0.259	1111.33	0.2	11.00	2.44e-03	410.46	9.10e-02	0.0	0.0
14	30.868	0.032	0.258	53.06	1.18e-02	4546.23	1.0	7034.27	1.6	0.0	0.0
15	31.685	0.032	0.257	2475.01	0.5	9889.54	2.2	669.62	0.1	0.0	0.0
16	33.801	0.030	0.256	3611.40	0.8	690.87	0.2	1225.22	0.3	0.0	0.0
17	34.197	0.029	0.256	548.97	0.1	15.06	3.34e-03	1.477e+04	3.3	0.0	0.0
18	36.019	0.028	0.255	730.77	0.2	133.02	2.95e-02	1.957e+04	4.3	0.0	0.0
19	38.252	0.026	0.253	58.71	1.30e-02	48.08	1.07e-02	1482.50	0.3	0.0	0.0
20	39.035	0.026	0.253	36.11	8.00e-03	121.07	2.68e-02	272.03	6.03e-02	0.0	0.0
Risulta				4.227e+05		4.266e+05		1.800e+05			
In percentuale				93.69		94.57		39.91			

CDC	Tipo	Sigla Id	Note
10	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. +)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.219 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.086 s
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	0.0	-0.86	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.435	0.106	0.157	1.221e+04	2.7	3.217e+05	71.3	8.58e-03	1.90e-06	0.0	0.0
2	10.026	0.100	0.153	411.03	9.11e-02	1971.80	0.4	631.76	0.1	0.0	0.0
3	11.568	0.086	0.145	3.830e+05	84.9	2199.06	0.5	9.19	2.04e-03	0.0	0.0
4	12.678	0.079	0.140	1.796e+04	4.0	7.084e+04	15.7	0.93	2.05e-04	0.0	0.0
5	13.971	0.072	0.135	12.17	2.70e-03	20.91	4.64e-03	2.612e+04	5.8	0.0	0.0
6	17.864	0.056	0.125	3.39	7.51e-04	1.268e+04	2.8	4.07	9.02e-04	0.0	0.0
7	23.972	0.042	0.116	58.45	1.30e-02	317.14	7.03e-02	187.51	4.16e-02	0.0	0.0
8	24.239	0.041	0.116	49.75	1.10e-02	1.78	3.96e-04	77.36	1.71e-02	0.0	0.0
9	25.057	0.040	0.115	4.63	1.03e-03	23.65	5.24e-03	3.337e+04	7.4	0.0	0.0
10	27.769	0.036	0.113	207.18	4.59e-02	1174.86	0.3	2.583e+04	5.7	0.0	0.0
11	28.249	0.035	0.112	9.33	2.07e-03	2.42	5.37e-04	3.547e+04	7.9	0.0	0.0
12	29.445	0.034	0.112	1.93	4.28e-04	7.56	1.68e-03	1.247e+04	2.8	0.0	0.0
13	29.572	0.034	0.111	1.86	4.12e-04	722.41	0.2	807.99	0.2	0.0	0.0
14	31.126	0.032	0.110	36.11	8.00e-03	2852.44	0.6	6967.76	1.5	0.0	0.0
15	31.665	0.032	0.110	511.67	0.1	1.049e+04	2.3	464.75	0.1	0.0	0.0
16	33.210	0.030	0.109	6422.91	1.4	566.29	0.1	831.47	0.2	0.0	0.0
17	34.173	0.029	0.109	159.48	3.54e-02	31.00	6.87e-03	1.552e+04	3.4	0.0	0.0
18	36.266	0.028	0.107	963.61	0.2	6.32	1.40e-03	1.973e+04	4.4	0.0	0.0
19	37.030	0.027	0.107	465.63	0.1	1023.59	0.2	678.59	0.2	0.0	0.0
20	38.256	0.026	0.107	55.30	1.23e-02	89.00	1.97e-02	1657.21	0.4	0.0	0.0
Risulta				4.226e+05		4.267e+05		1.808e+05			
In percentuale				93.66		94.59		40.08			

CDC	Tipo	Sigla Id	Note
11	Edk	CDC=Ed (dinamico SLD) alfa=0.0 (ecc. -)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.219 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.087 s
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	0.0	0.86	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014

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
1.03	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.466	0.106	0.157	2283.46	0.5	3.287e+05	72.9	0.11	2.33e-05	0.0	0.0
2	10.028	0.100	0.153	853.88	0.2	1628.79	0.4	633.17	0.1	0.0	0.0
3	11.514	0.087	0.145	3.980e+05	88.2	46.49	1.03e-02	5.07	1.12e-03	0.0	0.0
4	12.654	0.079	0.140	1.138e+04	2.5	6.402e+04	14.2	0.36	7.93e-05	0.0	0.0
5	13.971	0.072	0.135	11.38	2.52e-03	18.22	4.04e-03	2.612e+04	5.8	0.0	0.0
6	18.217	0.055	0.125	1826.84	0.4	1.520e+04	3.4	1.15	2.56e-04	0.0	0.0
7	24.234	0.041	0.116	63.04	1.40e-02	0.79	1.74e-04	58.54	1.30e-02	0.0	0.0
8	24.975	0.040	0.115	37.03	8.21e-03	231.20	5.12e-02	8935.61	2.0	0.0	0.0
9	25.084	0.040	0.115	0.98	2.16e-04	196.55	4.36e-02	2.440e+04	5.4	0.0	0.0
10	27.912	0.036	0.113	174.13	3.86e-02	1349.76	0.3	2.846e+04	6.3	0.0	0.0
11	28.195	0.035	0.112	947.43	0.2	564.94	0.1	2.502e+04	5.5	0.0	0.0
12	28.363	0.035	0.112	1478.30	0.3	942.75	0.2	8714.57	1.9	0.0	0.0
13	29.450	0.034	0.112	0.64	1.43e-04	8.29	1.84e-03	1.324e+04	2.9	0.0	0.0
14	30.755	0.033	0.111	315.85	7.00e-02	5056.70	1.1	6613.81	1.5	0.0	0.0
15	32.227	0.031	0.110	228.33	5.06e-02	6940.44	1.5	1128.07	0.3	0.0	0.0
16	34.135	0.029	0.109	36.45	8.08e-03	3.14	6.96e-04	1.507e+04	3.3	0.0	0.0
17	35.394	0.028	0.108	4193.29	0.9	264.73	5.87e-02	1430.68	0.3	0.0	0.0
18	35.876	0.028	0.108	117.25	2.60e-02	373.22	8.27e-02	1.801e+04	4.0	0.0	0.0
19	36.916	0.027	0.107	444.51	9.85e-02	1046.70	0.2	10.38	2.30e-03	0.0	0.0
20	38.293	0.026	0.107	177.39	3.93e-02	147.98	3.28e-02	1301.74	0.3	0.0	0.0
Risulta				4.226e+05		4.268e+05		1.792e+05			
In percentuale				93.68		94.60		39.71			

CDC	Tipo	Sigla Id	Note
12	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. +)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.219 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.111 s
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	1.08	0.0	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.013	0.111	0.160	3042.19	0.7	3.058e+05	67.8	1.15	2.55e-04	0.0	0.0
2	10.026	0.100	0.153	928.70	0.2	214.68	4.76e-02	630.20	0.1	0.0	0.0
3	11.503	0.087	0.145	3.390e+05	75.1	6511.93	1.4	3.19	7.08e-04	0.0	0.0
4	12.054	0.083	0.143	6.992e+04	15.5	8.182e+04	18.1	6.17	1.37e-03	0.0	0.0
5	13.971	0.072	0.135	9.26	2.05e-03	8.87	1.97e-03	2.612e+04	5.8	0.0	0.0
6	18.224	0.055	0.125	834.93	0.2	1.576e+04	3.5	13.72	3.04e-03	0.0	0.0
7	24.237	0.041	0.116	54.97	1.22e-02	0.99	2.20e-04	66.99	1.48e-02	0.0	0.0
8	25.057	0.040	0.115	6.21	1.38e-03	10.73	2.38e-03	3.346e+04	7.4	0.0	0.0
9	27.170	0.037	0.113	173.45	3.84e-02	1299.66	0.3	189.93	4.21e-02	0.0	0.0
10	27.953	0.036	0.113	134.13	2.97e-02	799.13	0.2	2.975e+04	6.6	0.0	0.0
11	28.250	0.035	0.112	22.43	4.97e-03	14.18	3.14e-03	3.305e+04	7.3	0.0	0.0
12	28.627	0.035	0.112	688.13	0.2	2770.30	0.6	534.17	0.1	0.0	0.0
13	29.450	0.034	0.112	0.35	7.87e-05	2.98	6.60e-04	1.286e+04	2.8	0.0	0.0
14	31.073	0.032	0.110	1686.58	0.4	680.87	0.2	4977.84	1.1	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
15	32.006	0.031	0.110	18.06	4.00e-03	4813.75	1.1	690.26	0.2	0.0	0.0
16	33.576	0.030	0.109	5152.96	1.1	1404.11	0.3	3.25	7.20e-04	0.0	0.0
17	34.184	0.029	0.109	377.51	8.37e-02	44.16	9.79e-03	1.637e+04	3.6	0.0	0.0
18	35.235	0.028	0.108	0.25	5.65e-05	2661.07	0.6	3041.99	0.7	0.0	0.0
19	36.207	0.028	0.107	403.54	8.95e-02	1401.72	0.3	1.659e+04	3.7	0.0	0.0
20	38.207	0.026	0.107	268.71	5.96e-02	145.13	3.22e-02	2417.45	0.5	0.0	0.0
Risulta				4.227e+05		4.261e+05		1.808e+05			
In percentuale				93.69		94.46		40.07			

CDC	Tipo	Sigla Id	Note
13	Edk	CDC=Ed (dinamico SLD) alfa=90.00 (ecc. -)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.219 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.102 s
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	-1.08	0.0	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.848	0.102	0.154	1.294e+04	2.9	3.161e+05	70.1	33.33	7.39e-03	0.0	0.0
2	10.040	0.100	0.153	62.69	1.39e-02	3.358e+04	7.4	599.40	0.1	0.0	0.0
3	11.621	0.086	0.145	3.960e+05	87.8	7033.60	1.6	9.83	2.18e-03	0.0	0.0
4	13.516	0.074	0.137	4483.85	1.0	4.182e+04	9.3	29.19	6.47e-03	0.0	0.0
5	13.972	0.072	0.135	29.95	6.64e-03	120.97	2.68e-02	2.609e+04	5.8	0.0	0.0
6	17.927	0.056	0.125	227.62	5.05e-02	1.089e+04	2.4	0.22	4.90e-05	0.0	0.0
7	22.425	0.045	0.118	37.78	8.37e-03	104.36	2.31e-02	27.99	6.20e-03	0.0	0.0
8	24.237	0.041	0.116	56.79	1.26e-02	1.38	3.06e-04	69.54	1.54e-02	0.0	0.0
9	25.054	0.040	0.115	5.35	1.19e-03	23.07	5.11e-03	3.341e+04	7.4	0.0	0.0
10	27.730	0.036	0.113	108.12	2.40e-02	1474.94	0.3	2.584e+04	5.7	0.0	0.0
11	28.250	0.035	0.112	16.86	3.74e-03	11.11	2.46e-03	3.391e+04	7.5	0.0	0.0
12	29.444	0.034	0.112	19.95	4.42e-03	6.16	1.36e-03	1.459e+04	3.2	0.0	0.0
13	29.647	0.034	0.111	1111.33	0.2	11.00	2.44e-03	410.46	9.10e-02	0.0	0.0
14	30.868	0.032	0.111	53.06	1.18e-02	4546.23	1.0	7034.27	1.6	0.0	0.0
15	31.685	0.032	0.110	2475.01	0.5	9889.54	2.2	669.62	0.1	0.0	0.0
16	33.801	0.030	0.109	3611.40	0.8	690.87	0.2	1225.22	0.3	0.0	0.0
17	34.197	0.029	0.109	548.97	0.1	15.06	3.34e-03	1.477e+04	3.3	0.0	0.0
18	36.019	0.028	0.108	730.77	0.2	133.02	2.95e-02	1.957e+04	4.3	0.0	0.0
19	38.252	0.026	0.107	58.71	1.30e-02	48.08	1.07e-02	1482.50	0.3	0.0	0.0
20	39.035	0.026	0.106	36.11	8.00e-03	121.07	2.68e-02	272.03	6.03e-02	0.0	0.0
Risulta				4.227e+05		4.266e+05		1.800e+05			
In percentuale				93.69		94.57		39.91			

CDC	Tipo	Sigla Id	Note
14	Edk	CDC=Ed (dinamico SLO) alfa=0.0 (ecc. +)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.170 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: positiva

CDC	Tipo	Sigla Id	Note
			periodo proprio T1: 0.086 s
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	0.0	-0.86	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.0	-0.78	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.435	0.106	0.124	1.221e+04	2.7	3.217e+05	71.3	8.58e-03	1.90e-06	0.0	0.0
2	10.026	0.100	0.121	411.03	9.11e-02	1971.80	0.4	631.76	0.1	0.0	0.0
3	11.568	0.086	0.114	3.830e+05	84.9	2199.06	0.5	9.19	2.04e-03	0.0	0.0
4	12.678	0.079	0.110	1.796e+04	4.0	7.084e+04	15.7	0.93	2.05e-04	0.0	0.0
5	13.971	0.072	0.106	12.17	2.70e-03	20.91	4.64e-03	2.612e+04	5.8	0.0	0.0
6	17.864	0.056	0.098	3.39	7.51e-04	1.268e+04	2.8	4.07	9.02e-04	0.0	0.0
7	23.972	0.042	0.091	58.45	1.30e-02	317.14	7.03e-02	187.51	4.16e-02	0.0	0.0
8	24.239	0.041	0.090	49.75	1.10e-02	1.78	3.96e-04	77.36	1.71e-02	0.0	0.0
9	25.057	0.040	0.090	4.63	1.03e-03	23.65	5.24e-03	3.337e+04	7.4	0.0	0.0
10	27.769	0.036	0.088	207.18	4.59e-02	1174.86	0.3	2.583e+04	5.7	0.0	0.0
11	28.249	0.035	0.087	9.33	2.07e-03	2.42	5.37e-04	3.547e+04	7.9	0.0	0.0
12	29.445	0.034	0.087	1.93	4.28e-04	7.56	1.68e-03	1.247e+04	2.8	0.0	0.0
13	29.572	0.034	0.087	1.86	4.12e-04	722.41	0.2	807.99	0.2	0.0	0.0
14	31.126	0.032	0.086	36.11	8.00e-03	2852.44	0.6	6967.76	1.5	0.0	0.0
15	31.665	0.032	0.085	511.67	0.1	1.049e+04	2.3	464.75	0.1	0.0	0.0
16	33.210	0.030	0.085	6422.91	1.4	566.29	0.1	831.47	0.2	0.0	0.0
17	34.173	0.029	0.084	159.48	3.54e-02	31.00	6.87e-03	1.552e+04	3.4	0.0	0.0
18	36.266	0.028	0.083	963.61	0.2	6.32	1.40e-03	1.973e+04	4.4	0.0	0.0
19	37.030	0.027	0.083	465.63	0.1	1023.59	0.2	678.59	0.2	0.0	0.0
20	38.256	0.026	0.083	55.30	1.23e-02	89.00	1.97e-02	1657.21	0.4	0.0	0.0
Risulta				4.226e+05		4.267e+05		1.808e+05			
In percentuale				93.66		94.59		40.08			

CDC	Tipo	Sigla Id	Note
15	Edk	CDC=Ed (dinamico SLO) alfa=0.0 (ecc. -)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.170 g
			angolo di ingresso:0.0
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.087 s
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	0.0	0.86	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.0	0.78	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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			

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
1	9.466	0.106	0.124	2283.46	0.5	3.287e+05	72.9	0.11	2.33e-05	0.0	0.0
2	10.028	0.100	0.121	853.88	0.2	1628.79	0.4	633.17	0.1	0.0	0.0
3	11.514	0.087	0.114	3.980e+05	88.2	46.49	1.03e-02	5.07	1.12e-03	0.0	0.0
4	12.654	0.079	0.110	1.138e+04	2.5	6.402e+04	14.2	0.36	7.93e-05	0.0	0.0
5	13.971	0.072	0.106	11.38	2.52e-03	18.22	4.04e-03	2.612e+04	5.8	0.0	0.0
6	18.217	0.055	0.098	1826.84	0.4	1.520e+04	3.4	1.15	2.56e-04	0.0	0.0
7	24.234	0.041	0.090	63.04	1.40e-02	0.79	1.74e-04	58.54	1.30e-02	0.0	0.0
8	24.975	0.040	0.090	37.03	8.21e-03	231.20	5.12e-02	8935.61	2.0	0.0	0.0
9	25.084	0.040	0.090	0.98	2.16e-04	196.55	4.36e-02	2.440e+04	5.4	0.0	0.0
10	27.912	0.036	0.088	174.13	3.86e-02	1349.76	0.3	2.846e+04	6.3	0.0	0.0
11	28.195	0.035	0.087	947.43	0.2	564.94	0.1	2.502e+04	5.5	0.0	0.0
12	28.363	0.035	0.087	1478.30	0.3	942.75	0.2	8714.57	1.9	0.0	0.0
13	29.450	0.034	0.087	0.64	1.43e-04	8.29	1.84e-03	1.324e+04	2.9	0.0	0.0
14	30.755	0.033	0.086	315.85	7.00e-02	5056.70	1.1	6613.81	1.5	0.0	0.0
15	32.227	0.031	0.085	228.33	5.06e-02	6940.44	1.5	1128.07	0.3	0.0	0.0
16	34.135	0.029	0.084	36.45	8.08e-03	3.14	6.96e-04	1.507e+04	3.3	0.0	0.0
17	35.394	0.028	0.084	4193.29	0.9	264.73	5.87e-02	1430.68	0.3	0.0	0.0
18	35.876	0.028	0.083	117.25	2.60e-02	373.22	8.27e-02	1.801e+04	4.0	0.0	0.0
19	36.916	0.027	0.083	444.51	9.85e-02	1046.70	0.2	10.38	2.30e-03	0.0	0.0
20	38.293	0.026	0.083	177.39	3.93e-02	147.98	3.28e-02	1301.74	0.3	0.0	0.0
Risulta				4.226e+05		4.268e+05		1.792e+05			
In percentuale				93.68		94.60		39.71			

CDC	Tipo	Sigla Id	Note
16	Edk	CDC=Ed (dinamico SLO) alfa=90.00 (ecc. +)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.170 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: positiva
			periodo proprio T1: 0.111 s
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	1.08	0.0	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	0.99	0.0	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.013	0.111	0.127	3042.19	0.7	3.058e+05	67.8	1.15	2.55e-04	0.0	0.0
2	10.026	0.100	0.121	928.70	0.2	214.68	4.76e-02	630.20	0.1	0.0	0.0
3	11.503	0.087	0.114	3.390e+05	75.1	6511.93	1.4	3.19	7.08e-04	0.0	0.0
4	12.054	0.083	0.112	6.992e+04	15.5	8.182e+04	18.1	6.17	1.37e-03	0.0	0.0
5	13.971	0.072	0.106	9.26	2.05e-03	8.87	1.97e-03	2.612e+04	5.8	0.0	0.0
6	18.224	0.055	0.098	834.93	0.2	1.576e+04	3.5	13.72	3.04e-03	0.0	0.0
7	24.237	0.041	0.090	54.97	1.22e-02	0.99	2.20e-04	66.99	1.48e-02	0.0	0.0
8	25.057	0.040	0.090	6.21	1.38e-03	10.73	2.38e-03	3.346e+04	7.4	0.0	0.0
9	27.170	0.037	0.088	173.45	3.84e-02	1299.66	0.3	189.93	4.21e-02	0.0	0.0
10	27.953	0.036	0.088	134.13	2.97e-02	799.13	0.2	2.975e+04	6.6	0.0	0.0
11	28.250	0.035	0.087	22.43	4.97e-03	14.18	3.14e-03	3.305e+04	7.3	0.0	0.0
12	28.627	0.035	0.087	688.13	0.2	2770.30	0.6	534.17	0.1	0.0	0.0
13	29.450	0.034	0.087	0.35	7.87e-05	2.98	6.60e-04	1.286e+04	2.8	0.0	0.0
14	31.073	0.032	0.086	1686.58	0.4	680.87	0.2	4977.84	1.1	0.0	0.0
15	32.006	0.031	0.085	18.06	4.00e-03	4813.75	1.1	690.26	0.2	0.0	0.0
16	33.576	0.030	0.084	5152.96	1.1	1404.11	0.3	3.25	7.20e-04	0.0	0.0
17	34.184	0.029	0.084	377.51	8.37e-02	44.16	9.79e-03	1.637e+04	3.6	0.0	0.0
18	35.235	0.028	0.084	0.25	5.65e-05	2661.07	0.6	3041.99	0.7	0.0	0.0
19	36.207	0.028	0.083	403.54	8.95e-02	1401.72	0.3	1.659e+04	3.7	0.0	0.0
20	38.207	0.026	0.083	268.71	5.96e-02	145.13	3.22e-02	2417.45	0.5	0.0	0.0
Risulta				4.227e+05		4.261e+05		1.808e+05			
In				93.69		94.46		40.07			

Modo	Frequenza	Periodo	Acc. Spettrale	M efficace X x g	%	M efficace Y x g	%	M efficace Z x g	%	Energia	Energia x v
percentuale											

CDC	Tipo	Sigla Id	Note
17	Edk	CDC=Ed (dinamico SLO) alfa=90.00 (ecc. -)	
			categoria suolo: D
			fattore di sito S = 1.800
			ordinata spettro (tratto Tb-Tc) = 0.170 g
			angolo di ingresso:90.00
			eccentricità aggiuntiva: negativa
			periodo proprio T1: 0.102 s
			numero di modi considerati: 20
			combinaz. modale: CQC

Quota	M Sismica x g	Pos. GX	Pos. GY	E agg. X-X	E agg. Y-Y	Pos. KX	Pos. KY	(r/Ls)^2	rapp. ex/rx	rapp. ey/ry
m	daN	m	m	m	m	m	m			
4.18	4.005e+05	34.66	38.00	-1.08	0.0	26.91	39.46	1.236	0.874	0.147
3.61	7533.44	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
3.10	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.58	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
2.06	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.55	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
1.03	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
0.52	7185.47	35.44	39.38	-0.99	0.0	26.83	39.52	1.465	0.974	0.014
Risulta	4.511e+05									

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	9.848	0.102	0.122	1.294e+04	2.9	3.161e+05	70.1	33.33	7.39e-03	0.0	0.0
2	10.040	0.100	0.121	62.69	1.39e-02	3.358e+04	7.4	599.40	0.1	0.0	0.0
3	11.621	0.086	0.114	3.960e+05	87.8	7033.60	1.6	9.83	2.18e-03	0.0	0.0
4	13.516	0.074	0.108	4483.85	1.0	4.182e+04	9.3	29.19	6.47e-03	0.0	0.0
5	13.972	0.072	0.106	29.95	6.64e-03	120.97	2.68e-02	2.609e+04	5.8	0.0	0.0
6	17.927	0.056	0.098	227.62	5.05e-02	1.089e+04	2.4	0.22	4.90e-05	0.0	0.0
7	22.425	0.045	0.092	37.78	8.37e-03	104.36	2.31e-02	27.99	6.20e-03	0.0	0.0
8	24.237	0.041	0.090	56.79	1.26e-02	1.38	3.06e-04	69.54	1.54e-02	0.0	0.0
9	25.054	0.040	0.090	5.35	1.19e-03	23.07	5.11e-03	3.341e+04	7.4	0.0	0.0
10	27.730	0.036	0.088	108.12	2.40e-02	1474.94	0.3	2.584e+04	5.7	0.0	0.0
11	28.250	0.035	0.087	16.86	3.74e-03	11.11	2.46e-03	3.391e+04	7.5	0.0	0.0
12	29.444	0.034	0.087	19.95	4.42e-03	6.16	1.36e-03	1.459e+04	3.2	0.0	0.0
13	29.647	0.034	0.087	1111.33	0.2	11.00	2.44e-03	410.46	9.10e-02	0.0	0.0
14	30.868	0.032	0.086	53.06	1.18e-02	4546.23	1.0	7034.27	1.6	0.0	0.0
15	31.685	0.032	0.085	2475.01	0.5	9889.54	2.2	669.62	0.1	0.0	0.0
16	33.801	0.030	0.084	3611.40	0.8	690.87	0.2	1225.22	0.3	0.0	0.0
17	34.197	0.029	0.084	548.97	0.1	15.06	3.34e-03	1.477e+04	3.3	0.0	0.0
18	36.019	0.028	0.083	730.77	0.2	133.02	2.95e-02	1.957e+04	4.3	0.0	0.0
19	38.252	0.026	0.083	58.71	1.30e-02	48.08	1.07e-02	1482.50	0.3	0.0	0.0
20	39.035	0.026	0.082	36.11	8.00e-03	121.07	2.68e-02	272.03	6.03e-02	0.0	0.0
Risulta				4.227e+05		4.266e+05		1.800e+05			
In percentuale				93.69		94.57		39.91			

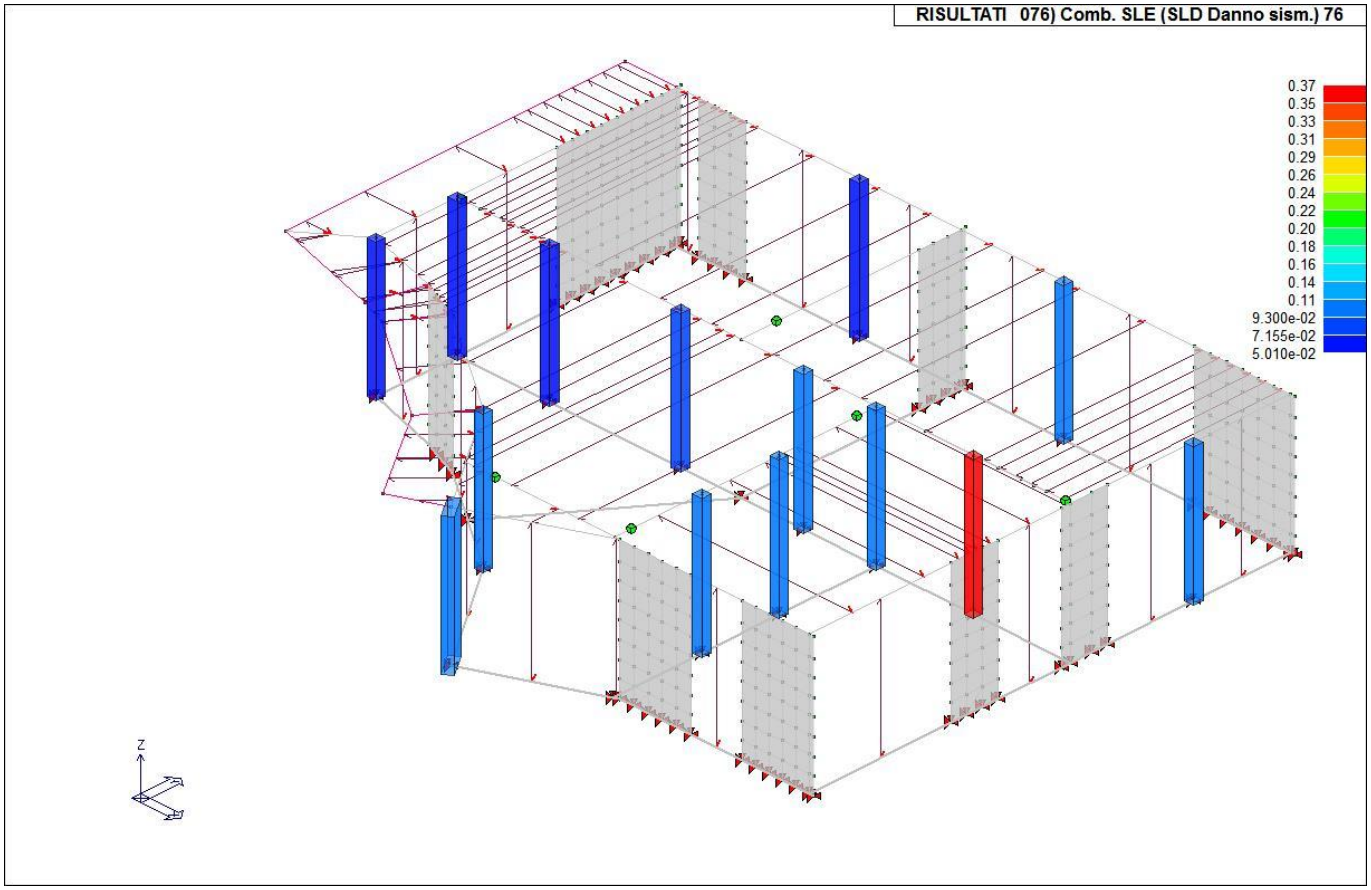
Cmb	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h
			cm	cm			cm	cm			cm	cm
57	23	0.07	0.03	418.0	44	0.06	0.02	418.0	45	0.07	0.03	418.0
	61	0.07	0.03	418.0	64	0.07	0.03	418.0	66	0.08	0.03	418.0
	73	0.08	0.03	418.0	112	0.08	0.03	418.0	120	0.08	0.04	418.0
	122	0.08	0.03	418.0	125	0.07	0.03	418.0	128	0.07	0.03	418.0
	145	0.06	0.03	418.0	163	0.21	0.09	418.0				
58	23	0.03	0.01	418.0	44	0.05	0.02	418.0	45	0.05	0.02	418.0
	61	0.04	0.02	418.0	64	0.06	0.03	418.0	66	0.07	0.03	418.0
	73	0.06	0.03	418.0	112	0.06	0.02	418.0	120	0.06	0.03	418.0
	122	0.05	0.02	418.0	125	0.04	0.02	418.0	128	0.05	0.02	418.0
	145	0.05	0.02	418.0	163	0.07	0.03	418.0				
59	23	0.06	0.03	418.0	44	0.06	0.03	418.0	45	0.06	0.03	418.0
	61	0.06	0.02	418.0	64	0.07	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.07	0.03	418.0

Cmb	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h
	122	0.07	0.03	418.0	125	0.06	0.03	418.0	128	0.06	0.03	418.0
	145	0.05	0.02	418.0	163	0.07	0.03	418.0				
60	23	0.08	0.03	418.0	44	0.06	0.03	418.0	45	0.08	0.03	418.0
	61	0.08	0.03	418.0	64	0.08	0.03	418.0	66	0.08	0.03	418.0
	73	0.09	0.04	418.0	112	0.09	0.04	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.07	0.03	418.0	163	0.21	0.09	418.0				
61	23	0.07	0.03	418.0	44	0.06	0.02	418.0	45	0.07	0.03	418.0
	61	0.07	0.03	418.0	64	0.08	0.03	418.0	66	0.08	0.03	418.0
	73	0.08	0.04	418.0	112	0.08	0.03	418.0	120	0.09	0.04	418.0
	122	0.08	0.03	418.0	125	0.07	0.03	418.0	128	0.07	0.03	418.0
	145	0.07	0.03	418.0	163	0.18	0.07	418.0				
62	23	0.03	0.01	418.0	44	0.05	0.02	418.0	45	0.05	0.02	418.0
	61	0.04	0.02	418.0	64	0.06	0.03	418.0	66	0.06	0.03	418.0
	73	0.06	0.03	418.0	112	0.06	0.02	418.0	120	0.06	0.03	418.0
	122	0.05	0.02	418.0	125	0.04	0.02	418.0	128	0.05	0.02	418.0
	145	0.05	0.02	418.0	163	0.07	0.03	418.0				
63	23	0.06	0.03	418.0	44	0.06	0.03	418.0	45	0.06	0.03	418.0
	61	0.06	0.02	418.0	64	0.07	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.07	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.06	0.03	418.0	128	0.06	0.03	418.0
	145	0.05	0.02	418.0	163	0.07	0.03	418.0				
64	23	0.08	0.03	418.0	44	0.06	0.03	418.0	45	0.08	0.03	418.0
	61	0.08	0.04	418.0	64	0.08	0.04	418.0	66	0.08	0.04	418.0
	73	0.09	0.04	418.0	112	0.10	0.04	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.07	0.03	418.0	163	0.18	0.08	418.0				
65	23	0.06	0.02	418.0	44	0.06	0.03	418.0	45	0.07	0.03	418.0
	61	0.07	0.03	418.0	64	0.08	0.03	418.0	66	0.08	0.03	418.0
	73	0.08	0.03	418.0	112	0.08	0.03	418.0	120	0.08	0.03	418.0
	122	0.07	0.03	418.0	125	0.06	0.03	418.0	128	0.07	0.03	418.0
	145	0.06	0.03	418.0	163	0.17	0.07	418.0				
66	23	0.02	8.05e-03	418.0	44	0.06	0.03	418.0	45	0.05	0.02	418.0
	61	0.04	0.02	418.0	64	0.07	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.06	0.03	418.0	120	0.07	0.03	418.0
	122	0.05	0.02	418.0	125	0.04	0.02	418.0	128	0.06	0.02	418.0
	145	0.06	0.03	418.0	163	0.08	0.03	418.0				
67	23	0.06	0.02	418.0	44	0.07	0.03	418.0	45	0.06	0.03	418.0
	61	0.05	0.02	418.0	64	0.07	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.08	0.03	418.0
	122	0.07	0.03	418.0	125	0.06	0.03	418.0	128	0.07	0.03	418.0
	145	0.07	0.03	418.0	163	0.08	0.03	418.0				
68	23	0.07	0.03	418.0	44	0.07	0.03	418.0	45	0.08	0.03	418.0
	61	0.08	0.03	418.0	64	0.08	0.04	418.0	66	0.08	0.03	418.0
	73	0.09	0.04	418.0	112	0.09	0.04	418.0	120	0.09	0.04	418.0
	122	0.08	0.04	418.0	125	0.08	0.03	418.0	128	0.08	0.03	418.0
	145	0.07	0.03	418.0	163	0.18	0.07	418.0				
69	23	0.06	0.02	418.0	44	0.06	0.03	418.0	45	0.07	0.03	418.0
	61	0.07	0.03	418.0	64	0.08	0.03	418.0	66	0.08	0.03	418.0
	73	0.08	0.04	418.0	112	0.08	0.03	418.0	120	0.08	0.03	418.0
	122	0.07	0.03	418.0	125	0.06	0.03	418.0	128	0.07	0.03	418.0
	145	0.07	0.03	418.0	163	0.15	0.06	418.0				
70	23	0.02	8.60e-03	418.0	44	0.06	0.03	418.0	45	0.05	0.02	418.0
	61	0.04	0.02	418.0	64	0.06	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.06	0.03	418.0	120	0.06	0.03	418.0
	122	0.05	0.02	418.0	125	0.04	0.02	418.0	128	0.05	0.02	418.0
	145	0.06	0.02	418.0	163	0.07	0.03	418.0				
71	23	0.06	0.02	418.0	44	0.07	0.03	418.0	45	0.06	0.03	418.0
	61	0.05	0.02	418.0	64	0.07	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.06	0.03	418.0	128	0.07	0.03	418.0
	145	0.06	0.03	418.0	163	0.07	0.03	418.0				
72	23	0.07	0.03	418.0	44	0.07	0.03	418.0	45	0.08	0.03	418.0
	61	0.08	0.03	418.0	64	0.09	0.04	418.0	66	0.09	0.04	418.0
	73	0.09	0.04	418.0	112	0.09	0.04	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.08	0.03	418.0	128	0.08	0.03	418.0
	145	0.07	0.03	418.0	163	0.15	0.06	418.0				
73	23	0.10	0.04	418.0	44	0.07	0.03	418.0	45	0.05	0.02	418.0
	61	0.09	0.04	418.0	64	0.04	0.02	418.0	66	0.06	0.03	418.0
	73	0.09	0.04	418.0	112	0.10	0.04	418.0	120	0.11	0.05	418.0
	122	0.11	0.04	418.0	125	0.10	0.04	418.0	128	0.10	0.04	418.0
	145	0.10	0.04	418.0	163	0.37	0.15	418.0				
74	23	0.07	0.03	418.0	44	0.07	0.03	418.0	45	0.03	0.01	418.0
	61	0.07	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.09	0.04	418.0
	145	0.09	0.04	418.0	163	0.32	0.13	418.0				
75	23	0.09	0.04	418.0	44	0.07	0.03	418.0	45	0.03	0.01	418.0

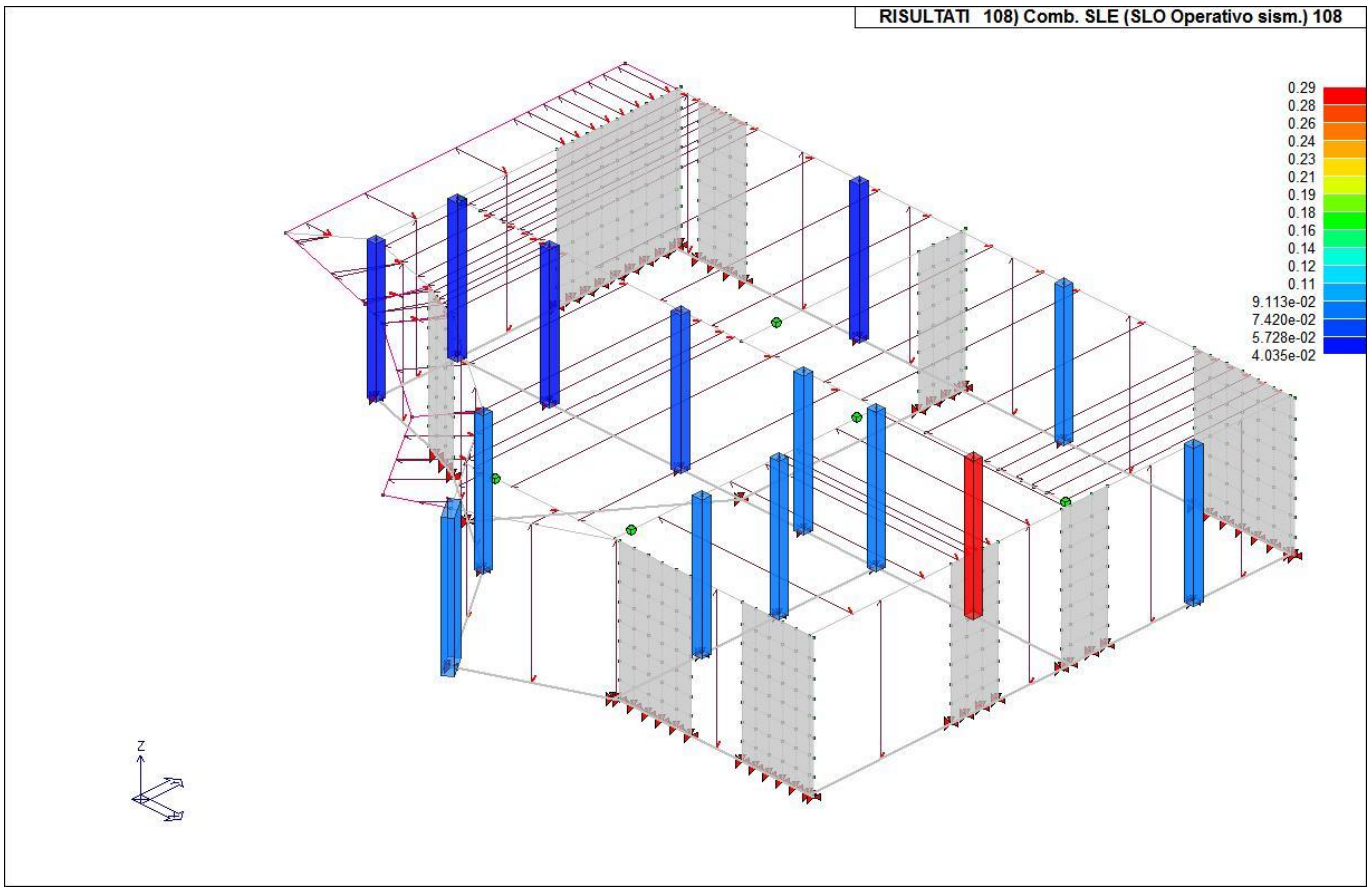
Cmb	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h
	61	0.07	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.07	0.03	418.0	112	0.09	0.04	418.0	120	0.10	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.09	0.04	418.0
	145	0.10	0.04	418.0	163	0.31	0.13	418.0				
76	23	0.10	0.04	418.0	44	0.07	0.03	418.0	45	0.05	0.02	418.0
	61	0.09	0.04	418.0	64	0.05	0.02	418.0	66	0.07	0.03	418.0
	73	0.09	0.04	418.0	112	0.10	0.04	418.0	120	0.11	0.05	418.0
	122	0.11	0.05	418.0	125	0.11	0.05	418.0	128	0.10	0.04	418.0
	145	0.10	0.04	418.0	163	0.37	0.16	418.0				
77	23	0.10	0.04	418.0	44	0.07	0.03	418.0	45	0.05	0.02	418.0
	61	0.09	0.04	418.0	64	0.04	0.02	418.0	66	0.06	0.03	418.0
	73	0.09	0.04	418.0	112	0.10	0.04	418.0	120	0.11	0.04	418.0
	122	0.10	0.04	418.0	125	0.10	0.04	418.0	128	0.09	0.04	418.0
	145	0.10	0.04	418.0	163	0.36	0.15	418.0				
78	23	0.08	0.03	418.0	44	0.07	0.03	418.0	45	0.03	0.01	418.0
	61	0.07	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.07	0.03	418.0	112	0.09	0.04	418.0	120	0.10	0.04	418.0
	122	0.09	0.04	418.0	125	0.10	0.04	418.0	128	0.09	0.04	418.0
	145	0.09	0.04	418.0	163	0.33	0.14	418.0				
79	23	0.09	0.04	418.0	44	0.08	0.03	418.0	45	0.03	0.01	418.0
	61	0.08	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.07	0.03	418.0	112	0.09	0.04	418.0	120	0.10	0.04	418.0
	122	0.10	0.04	418.0	125	0.09	0.04	418.0	128	0.09	0.04	418.0
	145	0.10	0.04	418.0	163	0.33	0.14	418.0				
80	23	0.09	0.04	418.0	44	0.07	0.03	418.0	45	0.05	0.02	418.0
	61	0.09	0.04	418.0	64	0.05	0.02	418.0	66	0.07	0.03	418.0
	73	0.09	0.04	418.0	112	0.10	0.04	418.0	120	0.11	0.05	418.0
	122	0.11	0.04	418.0	125	0.11	0.05	418.0	128	0.10	0.04	418.0
	145	0.10	0.04	418.0	163	0.36	0.15	418.0				
81	23	0.11	0.05	418.0	44	0.08	0.03	418.0	45	0.06	0.02	418.0
	61	0.10	0.04	418.0	64	0.05	0.02	418.0	66	0.08	0.03	418.0
	73	0.10	0.04	418.0	112	0.10	0.04	418.0	120	0.11	0.05	418.0
	122	0.11	0.04	418.0	125	0.10	0.04	418.0	128	0.09	0.04	418.0
	145	0.10	0.04	418.0	163	0.27	0.11	418.0				
82	23	0.08	0.03	418.0	44	0.07	0.03	418.0	45	0.04	0.02	418.0
	61	0.08	0.03	418.0	64	0.04	0.01	418.0	66	0.06	0.03	418.0
	73	0.08	0.03	418.0	112	0.09	0.04	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.09	0.04	418.0	163	0.22	0.09	418.0				
83	23	0.09	0.04	418.0	44	0.08	0.03	418.0	45	0.04	0.02	418.0
	61	0.08	0.03	418.0	64	0.03	0.01	418.0	66	0.06	0.02	418.0
	73	0.08	0.03	418.0	112	0.09	0.04	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.09	0.04	418.0	163	0.22	0.09	418.0				
84	23	0.10	0.04	418.0	44	0.08	0.03	418.0	45	0.06	0.03	418.0
	61	0.10	0.04	418.0	64	0.06	0.03	418.0	66	0.08	0.03	418.0
	73	0.10	0.04	418.0	112	0.11	0.05	418.0	120	0.11	0.05	418.0
	122	0.11	0.05	418.0	125	0.11	0.05	418.0	128	0.09	0.04	418.0
	145	0.10	0.04	418.0	163	0.27	0.11	418.0				
85	23	0.10	0.04	418.0	44	0.08	0.03	418.0	45	0.06	0.02	418.0
	61	0.10	0.04	418.0	64	0.05	0.02	418.0	66	0.08	0.03	418.0
	73	0.10	0.04	418.0	112	0.10	0.04	418.0	120	0.11	0.04	418.0
	122	0.10	0.04	418.0	125	0.10	0.04	418.0	128	0.09	0.04	418.0
	145	0.10	0.04	418.0	163	0.26	0.11	418.0				
86	23	0.08	0.03	418.0	44	0.07	0.03	418.0	45	0.04	0.02	418.0
	61	0.08	0.03	418.0	64	0.04	0.01	418.0	66	0.06	0.03	418.0
	73	0.08	0.03	418.0	112	0.09	0.04	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.09	0.04	418.0	163	0.23	0.10	418.0				
87	23	0.10	0.04	418.0	44	0.08	0.03	418.0	45	0.04	0.02	418.0
	61	0.08	0.03	418.0	64	0.03	0.01	418.0	66	0.06	0.02	418.0
	73	0.08	0.03	418.0	112	0.09	0.04	418.0	120	0.10	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.10	0.04	418.0	163	0.23	0.09	418.0				
88	23	0.10	0.04	418.0	44	0.08	0.03	418.0	45	0.06	0.03	418.0
	61	0.10	0.04	418.0	64	0.06	0.03	418.0	66	0.08	0.03	418.0
	73	0.10	0.04	418.0	112	0.11	0.04	418.0	120	0.11	0.05	418.0
	122	0.11	0.04	418.0	125	0.11	0.05	418.0	128	0.09	0.04	418.0
	145	0.10	0.04	418.0	163	0.26	0.11	418.0				
89	23	0.05	0.02	418.0	44	0.04	0.02	418.0	45	0.05	0.02	418.0
	61	0.06	0.02	418.0	64	0.06	0.02	418.0	66	0.06	0.03	418.0
	73	0.06	0.03	418.0	112	0.06	0.03	418.0	120	0.07	0.03	418.0
	122	0.06	0.03	418.0	125	0.05	0.02	418.0	128	0.05	0.02	418.0
	145	0.05	0.02	418.0	163	0.16	0.07	418.0				
90	23	0.02	7.95e-03	418.0	44	0.04	0.02	418.0	45	0.04	0.02	418.0
	61	0.03	0.01	418.0	64	0.05	0.02	418.0	66	0.05	0.02	418.0
	73	0.05	0.02	418.0	112	0.04	0.02	418.0	120	0.05	0.02	418.0
	122	0.04	0.02	418.0	125	0.03	0.01	418.0	128	0.04	0.02	418.0

Cmb	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h
	145	0.04	0.02	418.0	163	0.05	0.02	418.0				
91	23	0.05	0.02	418.0	44	0.05	0.02	418.0	45	0.05	0.02	418.0
	61	0.05	0.02	418.0	64	0.06	0.02	418.0	66	0.05	0.02	418.0
	73	0.06	0.02	418.0	112	0.06	0.03	418.0	120	0.06	0.02	418.0
	122	0.06	0.02	418.0	125	0.05	0.02	418.0	128	0.05	0.02	418.0
	145	0.04	0.02	418.0	163	0.05	0.02	418.0				
92	23	0.07	0.03	418.0	44	0.05	0.02	418.0	45	0.06	0.03	418.0
	61	0.07	0.03	418.0	64	0.07	0.03	418.0	66	0.06	0.03	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.06	0.03	418.0
	145	0.05	0.02	418.0	163	0.16	0.07	418.0				
93	23	0.06	0.02	418.0	44	0.05	0.02	418.0	45	0.05	0.02	418.0
	61	0.06	0.02	418.0	64	0.06	0.02	418.0	66	0.06	0.03	418.0
	73	0.07	0.03	418.0	112	0.06	0.03	418.0	120	0.07	0.03	418.0
	122	0.06	0.03	418.0	125	0.05	0.02	418.0	128	0.05	0.02	418.0
	145	0.05	0.02	418.0	163	0.14	0.06	418.0				
94	23	0.02	8.19e-03	418.0	44	0.04	0.02	418.0	45	0.04	0.02	418.0
	61	0.03	0.01	418.0	64	0.05	0.02	418.0	66	0.05	0.02	418.0
	73	0.05	0.02	418.0	112	0.04	0.02	418.0	120	0.05	0.02	418.0
	122	0.04	0.02	418.0	125	0.03	0.01	418.0	128	0.04	0.01	418.0
	145	0.04	0.02	418.0	163	0.05	0.02	418.0				
95	23	0.05	0.02	418.0	44	0.05	0.02	418.0	45	0.05	0.02	418.0
	61	0.05	0.02	418.0	64	0.06	0.02	418.0	66	0.05	0.02	418.0
	73	0.05	0.02	418.0	112	0.06	0.03	418.0	120	0.06	0.02	418.0
	122	0.06	0.02	418.0	125	0.05	0.02	418.0	128	0.05	0.02	418.0
	145	0.04	0.02	418.0	163	0.05	0.02	418.0				
96	23	0.07	0.03	418.0	44	0.05	0.02	418.0	45	0.06	0.03	418.0
	61	0.07	0.03	418.0	64	0.07	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.06	0.03	418.0
	145	0.05	0.02	418.0	163	0.14	0.06	418.0				
97	23	0.05	0.02	418.0	44	0.05	0.02	418.0	45	0.05	0.02	418.0
	61	0.05	0.02	418.0	64	0.06	0.02	418.0	66	0.06	0.03	418.0
	73	0.06	0.03	418.0	112	0.06	0.02	418.0	120	0.06	0.03	418.0
	122	0.06	0.02	418.0	125	0.05	0.02	418.0	128	0.05	0.02	418.0
	145	0.05	0.02	418.0	163	0.14	0.06	418.0				
98	23	0.01	4.82e-03	418.0	44	0.05	0.02	418.0	45	0.04	0.02	418.0
	61	0.03	0.01	418.0	64	0.05	0.02	418.0	66	0.05	0.02	418.0
	73	0.05	0.02	418.0	112	0.05	0.02	418.0	120	0.05	0.02	418.0
	122	0.04	0.02	418.0	125	0.03	0.01	418.0	128	0.04	0.02	418.0
	145	0.05	0.02	418.0	163	0.07	0.03	418.0				
99	23	0.05	0.02	418.0	44	0.06	0.02	418.0	45	0.05	0.02	418.0
	61	0.04	0.02	418.0	64	0.06	0.02	418.0	66	0.06	0.02	418.0
	73	0.06	0.02	418.0	112	0.07	0.03	418.0	120	0.06	0.03	418.0
	122	0.06	0.02	418.0	125	0.05	0.02	418.0	128	0.06	0.02	418.0
	145	0.05	0.02	418.0	163	0.07	0.03	418.0				
100	23	0.06	0.02	418.0	44	0.05	0.02	418.0	45	0.06	0.03	418.0
	61	0.06	0.03	418.0	64	0.07	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.07	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.07	0.03	418.0
	145	0.05	0.02	418.0	163	0.14	0.06	418.0				
101	23	0.05	0.02	418.0	44	0.05	0.02	418.0	45	0.05	0.02	418.0
	61	0.05	0.02	418.0	64	0.06	0.03	418.0	66	0.06	0.03	418.0
	73	0.07	0.03	418.0	112	0.06	0.03	418.0	120	0.06	0.03	418.0
	122	0.06	0.02	418.0	125	0.05	0.02	418.0	128	0.05	0.02	418.0
	145	0.05	0.02	418.0	163	0.12	0.05	418.0				
102	23	0.01	5.22e-03	418.0	44	0.05	0.02	418.0	45	0.04	0.02	418.0
	61	0.03	0.01	418.0	64	0.05	0.02	418.0	66	0.05	0.02	418.0
	73	0.05	0.02	418.0	112	0.05	0.02	418.0	120	0.05	0.02	418.0
	122	0.04	0.02	418.0	125	0.03	0.01	418.0	128	0.04	0.02	418.0
	145	0.05	0.02	418.0	163	0.05	0.02	418.0				
103	23	0.05	0.02	418.0	44	0.06	0.02	418.0	45	0.05	0.02	418.0
	61	0.04	0.02	418.0	64	0.06	0.02	418.0	66	0.05	0.02	418.0
	73	0.06	0.02	418.0	112	0.06	0.03	418.0	120	0.06	0.02	418.0
	122	0.06	0.02	418.0	125	0.05	0.02	418.0	128	0.06	0.02	418.0
	145	0.05	0.02	418.0	163	0.06	0.02	418.0				
104	23	0.06	0.02	418.0	44	0.06	0.02	418.0	45	0.06	0.03	418.0
	61	0.06	0.03	418.0	64	0.07	0.03	418.0	66	0.07	0.03	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.07	0.03	418.0
	145	0.05	0.02	418.0	163	0.12	0.05	418.0				
105	23	0.08	0.04	418.0	44	0.06	0.02	418.0	45	0.04	0.02	418.0
	61	0.07	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.09	0.04	418.0
	122	0.08	0.04	418.0	125	0.08	0.03	418.0	128	0.08	0.03	418.0
	145	0.08	0.03	418.0	163	0.29	0.12	418.0				
106	23	0.06	0.02	418.0	44	0.05	0.02	418.0	45	0.02	9.06e-03	418.0
	61	0.06	0.02	418.0	64	0.02	9.11e-03	418.0	66	0.04	0.02	418.0

Cmb	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h	Pilas.	1000 etaT/h	etaT	inter. h
	73	0.05	0.02	418.0	112	0.07	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.07	0.03	418.0
	145	0.07	0.03	418.0	163	0.25	0.10	418.0				
107	23	0.07	0.03	418.0	44	0.06	0.02	418.0	45	0.02	0.01	418.0
	61	0.06	0.02	418.0	64	0.02	9.23e-03	418.0	66	0.04	0.02	418.0
	73	0.06	0.02	418.0	112	0.07	0.03	418.0	120	0.08	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.07	0.03	418.0
	145	0.08	0.03	418.0	163	0.25	0.10	418.0				
108	23	0.08	0.03	418.0	44	0.05	0.02	418.0	45	0.04	0.02	418.0
	61	0.07	0.03	418.0	64	0.04	0.02	418.0	66	0.05	0.02	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.08	0.03	418.0	163	0.29	0.12	418.0				
109	23	0.08	0.03	418.0	44	0.06	0.02	418.0	45	0.04	0.02	418.0
	61	0.07	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.08	0.04	418.0
	122	0.08	0.03	418.0	125	0.08	0.03	418.0	128	0.07	0.03	418.0
	145	0.08	0.03	418.0	163	0.28	0.12	418.0				
110	23	0.06	0.03	418.0	44	0.05	0.02	418.0	45	0.02	8.81e-03	418.0
	61	0.06	0.02	418.0	64	0.02	9.08e-03	418.0	66	0.04	0.02	418.0
	73	0.06	0.02	418.0	112	0.07	0.03	418.0	120	0.08	0.03	418.0
	122	0.07	0.03	418.0	125	0.08	0.03	418.0	128	0.07	0.03	418.0
	145	0.07	0.03	418.0	163	0.26	0.11	418.0				
111	23	0.08	0.03	418.0	44	0.06	0.03	418.0	45	0.02	0.01	418.0
	61	0.06	0.03	418.0	64	0.02	9.30e-03	418.0	66	0.04	0.02	418.0
	73	0.06	0.02	418.0	112	0.07	0.03	418.0	120	0.08	0.03	418.0
	122	0.08	0.03	418.0	125	0.07	0.03	418.0	128	0.07	0.03	418.0
	145	0.08	0.03	418.0	163	0.26	0.11	418.0				
112	23	0.07	0.03	418.0	44	0.05	0.02	418.0	45	0.04	0.02	418.0
	61	0.07	0.03	418.0	64	0.04	0.02	418.0	66	0.05	0.02	418.0
	73	0.07	0.03	418.0	112	0.08	0.03	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.08	0.03	418.0	163	0.29	0.12	418.0				
113	23	0.09	0.04	418.0	44	0.06	0.03	418.0	45	0.05	0.02	418.0
	61	0.08	0.03	418.0	64	0.04	0.02	418.0	66	0.06	0.02	418.0
	73	0.08	0.03	418.0	112	0.08	0.03	418.0	120	0.09	0.04	418.0
	122	0.08	0.03	418.0	125	0.08	0.03	418.0	128	0.07	0.03	418.0
	145	0.08	0.03	418.0	163	0.21	0.09	418.0				
114	23	0.06	0.02	418.0	44	0.06	0.02	418.0	45	0.03	0.01	418.0
	61	0.06	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.06	0.03	418.0	112	0.07	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.06	0.03	418.0
	145	0.07	0.03	418.0	163	0.17	0.07	418.0				
115	23	0.08	0.03	418.0	44	0.06	0.03	418.0	45	0.03	0.01	418.0
	61	0.06	0.03	418.0	64	0.03	0.01	418.0	66	0.04	0.02	418.0
	73	0.06	0.03	418.0	112	0.07	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.06	0.03	418.0
	145	0.08	0.03	418.0	163	0.17	0.07	418.0				
116	23	0.08	0.03	418.0	44	0.06	0.03	418.0	45	0.05	0.02	418.0
	61	0.08	0.03	418.0	64	0.05	0.02	418.0	66	0.06	0.03	418.0
	73	0.08	0.03	418.0	112	0.09	0.04	418.0	120	0.09	0.04	418.0
	122	0.09	0.04	418.0	125	0.09	0.04	418.0	128	0.08	0.03	418.0
	145	0.08	0.03	418.0	163	0.22	0.09	418.0				
117	23	0.08	0.04	418.0	44	0.06	0.03	418.0	45	0.05	0.02	418.0
	61	0.08	0.03	418.0	64	0.04	0.02	418.0	66	0.06	0.02	418.0
	73	0.08	0.03	418.0	112	0.08	0.03	418.0	120	0.08	0.03	418.0
	122	0.08	0.03	418.0	125	0.08	0.03	418.0	128	0.07	0.03	418.0
	145	0.08	0.03	418.0	163	0.21	0.09	418.0				
118	23	0.06	0.03	418.0	44	0.06	0.02	418.0	45	0.03	0.01	418.0
	61	0.06	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.06	0.03	418.0	112	0.07	0.03	418.0	120	0.07	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.06	0.03	418.0
	145	0.07	0.03	418.0	163	0.18	0.08	418.0				
119	23	0.08	0.03	418.0	44	0.07	0.03	418.0	45	0.03	0.01	418.0
	61	0.07	0.03	418.0	64	0.03	0.01	418.0	66	0.05	0.02	418.0
	73	0.06	0.03	418.0	112	0.07	0.03	418.0	120	0.08	0.03	418.0
	122	0.07	0.03	418.0	125	0.07	0.03	418.0	128	0.06	0.03	418.0
	145	0.08	0.03	418.0	163	0.18	0.07	418.0				
120	23	0.08	0.03	418.0	44	0.06	0.03	418.0	45	0.05	0.02	418.0
	61	0.08	0.03	418.0	64	0.05	0.02	418.0	66	0.06	0.03	418.0
	73	0.08	0.03	418.0	112	0.08	0.04	418.0	120	0.09	0.04	418.0
	122	0.08	0.04	418.0	125	0.09	0.04	418.0	128	0.07	0.03	418.0
	145	0.08	0.03	418.0	163	0.21	0.09	418.0				
Cmb		**1000 etaT/h**										
		0.37										



31_RIS_SLE_076_Comb SLE SLD Danno sism 76



31_RIS_SLE_108_Comb SLE SLO Operativo sism 108

RISULTATI DELLE VERIFICHE STRUTTURALI

Per le strutture a ***comportamento strutturale non dissipativo*** si intende che nella valutazione della domanda tutte le membrature e i collegamenti rimangono in campo elastico o sostanzialmente elastico; la domanda derivante dall'azione sismica e dalle altre azioni è calcolata, in funzione dello stato limite cui ci si riferisce, ma indipendentemente dalla tipologia strutturale e senza tener conto delle non linearità di materiale, attraverso un modello elastico (v. § 7.2.6).
Nel caso di comportamento strutturale non dissipativo, la capacità delle membrature deve essere valutata in accordo con le regole di cui al § 4.1, senza nessun requisito aggiuntivo, a condizione che in nessuna sezione si superi il momento resistente massimo in campo sostanzialmente elastico, come definito al § 4.1.2.3.4.2. In particolare è introdotto il concetto di momento resistente in campo sostanzialmente elastico. In altre parole la norma ci consente di realizzare una struttura che non dissipi energia, ma ci penalizza richiedendo che la curvatura delle sezioni in cemento armato sia limitata a quella di prima plasticizzazione.

Il fatto che sia sufficiente applicare le regole del capitolo 4 significa che:

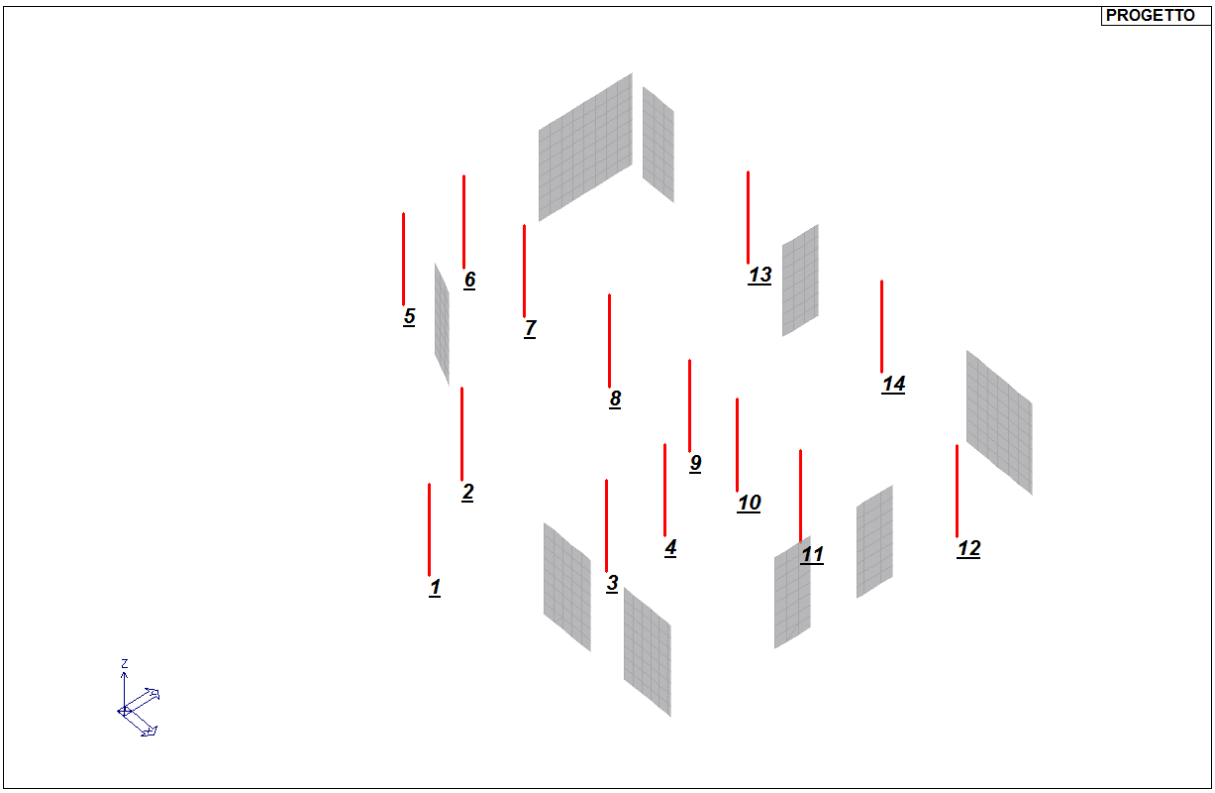
1) non è richiesto il calcolo delle sollecitazioni secondo la Gerarchia delle Resistenze;
2) non si applicano le limitazioni geometriche sulle dimensioni degli elementi strutturali (travi e pilastri);
3) non si applicano le limitazioni di armatura (armature longitudinali minime e massime, passi staffe, etc.) del capitolo 7;

Il problema della verifica dei nodi (obbligatoria per il § 7.4.4.3. delle NTC2018 anche per quanto riguarda le strutture non dissipative ed esclusa nel § C 7.4.4.3.1 della Circolare C.S.LL.PP. n. 7/2019) è stato superato da parere 169 della seduta 75/2019 del comitato tecnico-scientifico della Regione Emilia-Romagna: "Le indicazioni riportate al § C 7.4.4.3.1 della Circolare C.S.LL.PP. n. 7/2019 sono coerenti con le NTC/2018 e pertanto, le verifiche di resistenza dei nodi trave pilastro per strutture a telaio in c.a. in zona sismica, riportate al § 7.4.4.3. delle NTC2018 si applicano alle strutture in CDA e limitatamente ai nodi non internamente confinati, in CDB. Esse non si applicano alle strutture non dissipative". Fermo restando che i quantitativi minimi di armatura trasversale nei nodi, riportati al § 7.4.6.2.3 delle NTC2018, che come precisato al § 7.4.6 delle stesse, si applicano alle strutture in c.a. a comportamento dissipativo (e che si consiglia di applicare anche alle strutture non dissipative), sono inderogabili.

Di seguito si rappresentano graficamente ed in forma tabellare le verifiche degli elementi strutturali per tutti i meccanismi di collasso previsti dalle norme. Le verifiche sono condotte a valle del dimensionamento delle armature, nel rispetto dei requisiti per edifici inon dissipativi.

Nelle immagini seguenti le verifiche vengono illustrate, qualora non diversamente specificato, in termini di rapporto tra la domanda D e la capacità C. La verifica è soddisfatta se D/C è minore di 1. Inoltre sono rappresentati i principali parametri per il calcolo delle sollecitazioni in gerarchia delle resistenze.

VERIFICHE ELEMENTI PILASTRO IN C.A.



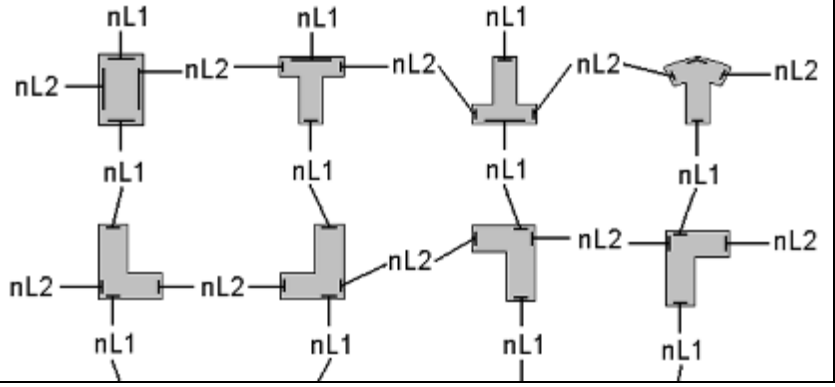
LEGENDA TABELLA VERIFICHE ELEMENTI PILASTRO IN C.A.

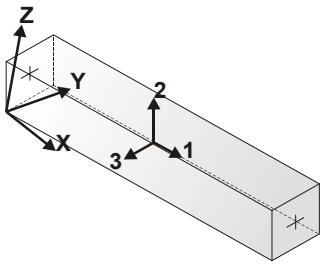
In tabella vengono riportati per ogni elemento il numero identificativo ed il codice di verifica con le sigle **Ok** o **NV**.

Nel caso in cui si sia proceduto alla progettazione con il metodo degli stati limite (**S.L.**) vengono riportati: il rapporto x/d, le verifiche per sollecitazioni proporzionali e la verifica per compressione media con l'indicazione delle combinazioni in cui si sono attinti i rispettivi valori.

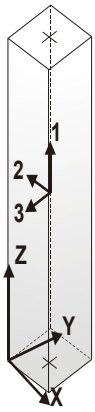
Per gli elementi tipo pilastro sono riportati numero e diametro dei ferri di vertice, numero e diametro di ferri disposti lungo i lati L1 (paralleli alla base della sezione) e lungo i lati L2 (paralleli all'altezza della sezione).

Schema della distribuzione delle armature longitudinali





Orientamento elementi 2D non verticali



Orientamento elementi 2D verticali

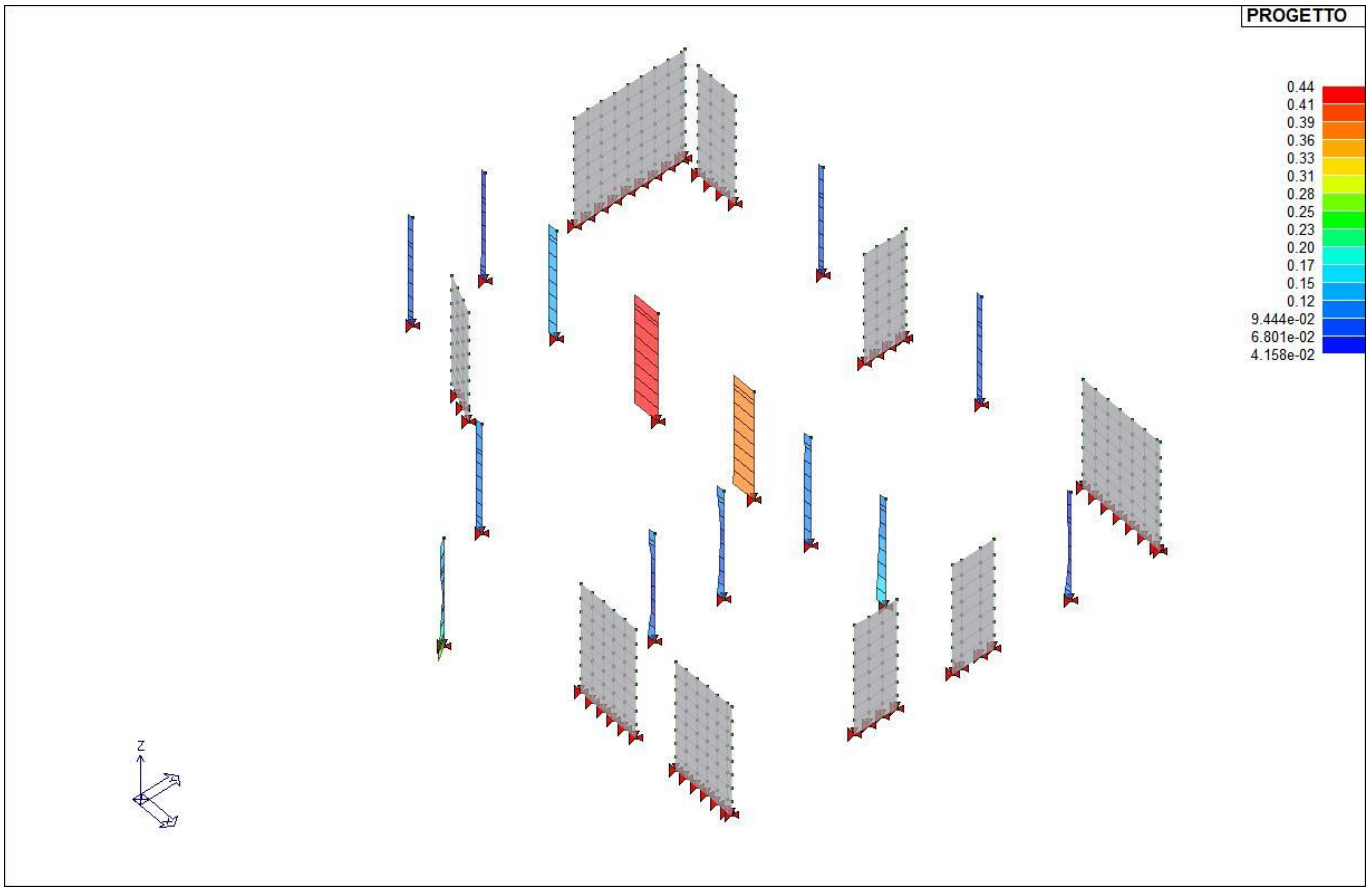
Simbologia adottata nelle tabelle di verifica

Per le verifiche agli S.L. dei pilastri è presente una tabella con i simboli di seguito descritti:

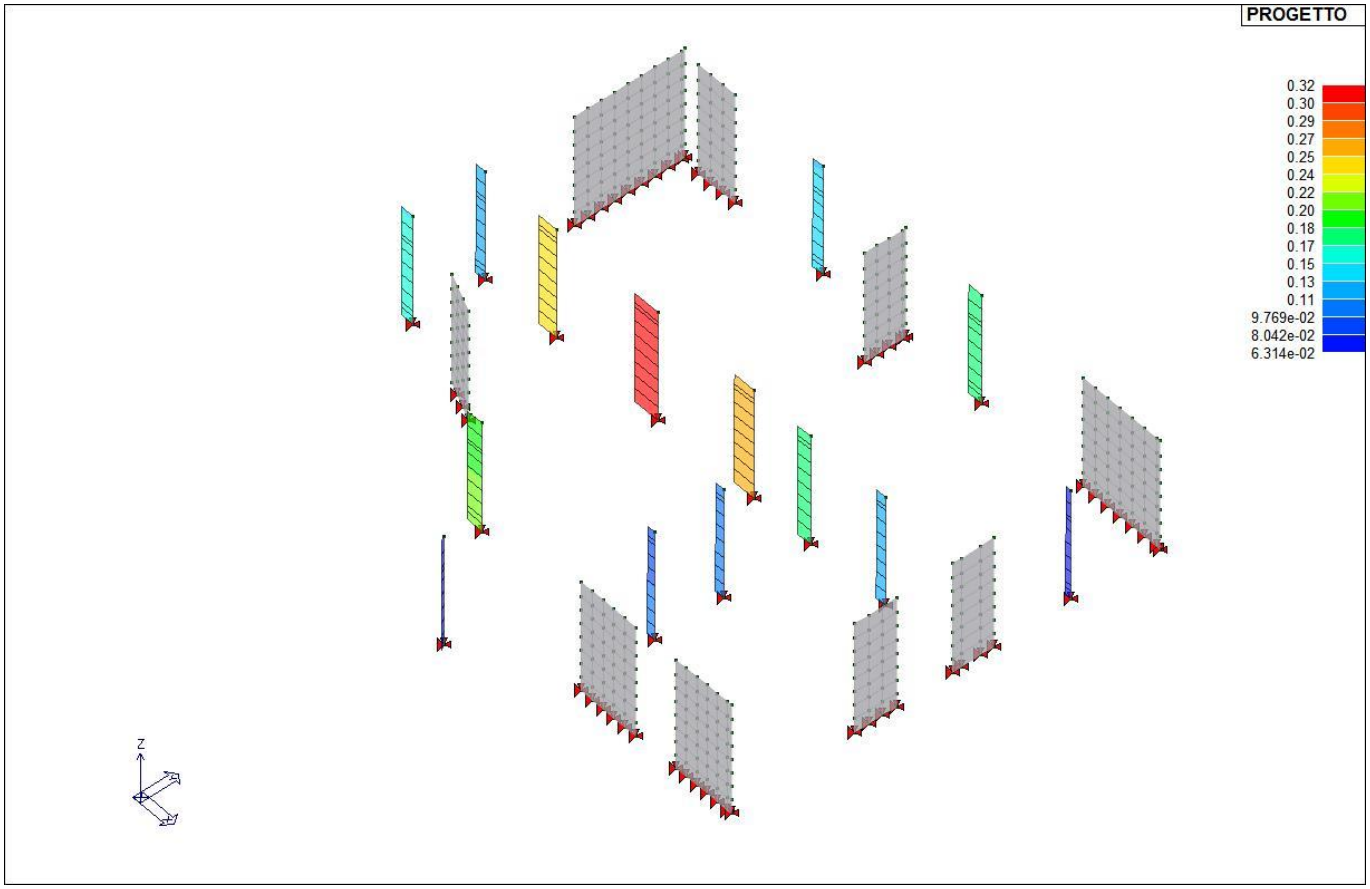
M_P X Y	Numero della pilastrata (P) e posizione in pianta (X,Y)
Pilas.	numero identificativo dell'elemento D2
Note	Codici identificativi delle sezione (s) e materiale (m) pilastro
Stato	Codici relativi all'esito delle verifiche effettuate appresso descritte
Quota	Quota sezione di verifica
%Af	Percentuale di area di armatura rispetto a quella di calcestruzzo
r. snell.	Rapporto di snellezza λ su λ^*: valore superiore a 1 per elementi snelli nel caso in cui viene effettuata la verifica con il metodo diretto dello stato di equilibrio
Armat. long.	Numero e diametro (d) dei ferri di armatura longitudinale distinti in ferri di vertice + ferri di lato nelle posizioni nL1 e nL2, come da schemi in figura precedente
V N/M	Verifica a pressoflessione con rapporto Ed/Rd: valore minore o uguale a 1 per verifica positiva
V N sis	Verifica a compressione solo calcestruzzo con rapporto Nsd/Nrd ed Nrd calcolato come al punto 7.4.4.2.1: valore minore o uguale a 1 per verifica positiva
Staffe	Dati tratto di staffatura oggetto di verifica, nello specifico: numero delle braccia, diametro, passo, lunghezza L tratto
V V/T cls	Verifica a taglio/torsione con rapporto Ved/Vrd: valore minore o uguale a 1 per verifica positiva
Rif. cmb.	Riferimento combinazioni da cui si generano le verifiche più gravose per il pilastro

					M_P= 1	**X=3436.8**	**Y=2810.6**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
			cm						L=cm			
23	s=8,m=4	ok,ok	0.0	1.06	0.45	4d20 2+6 d16	0.25	0.07	2+4d8/10 L=70	0.09	0.07	50,52,50,50
			209.0	1.06	0.45	4d20 2+6 d16	0.07	0.07	2+4d8/15 L=278	0.09	0.11	51,52,50,50
	[b=1.0;1.0]		418.0	1.06	0.45	4d20 2+6 d16	0.15	0.06	2+4d8/10 L=70	0.09	0.07	50,52,50,50
					M_P= 2	**X=3176.0**	**Y=3176.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
61	s=1,m=4	ok,ok	0.0	1.40	0.81	4d20 0+0 d16	0.12	0.21	2+2d8/10 L=70	0.03	0.02	49,53,53,53
			209.0	1.40	0.81	4d20 0+0 d16	0.10	0.20	2+2d8/20 L=298	0.03	0.04	4,53,53,53
	[b=1.0;1.0]		418.0	1.40	0.81	4d20 0+0 d16	0.10	0.20	2+2d8/10 L=50	0.03	0.02	4,53,53,53
					M_P= 3	**X=3800.0**	**Y=3256.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
125	s=1,m=4	ok,ok	0.0	1.40	0.60	4d20 0+0 d16	0.12	0.10	2+2d8/10 L=70	0.02	0.01	41,44,47,47
			209.0	1.40	0.60	4d20 0+0 d16	0.06	0.10	2+2d8/20 L=278	0.02	0.03	4,44,47,47
	[b=1.0;1.0]		418.0	1.40	0.60	4d20 0+0 d16	0.10	0.09	2+2d8/10 L=70	0.02	0.01	41,44,47,47
					M_P= 4	**X=3800.0**	**Y=3505.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
122	s=1,m=4	ok,ok	0.0	1.40	0.64	4d20 0+0 d16	0.13	0.11	2+2d8/10 L=70	0.02	0.02	44,49,46,46
			209.0	1.40	0.64	4d20 0+0 d16	0.07	0.11	2+2d8/20 L=278	0.02	0.03	4,49,46,46
	[b=1.0;1.0]		418.0	1.40	0.64	4d20 0+0 d16	0.12	0.10	2+2d8/10 L=70	0.02	0.02	44,49,46,46
					M_P= 5	**X=2450.0**	**Y=3557.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
45	s=1,m=4	ok,ok	0.0	1.40	0.62	4d20 0+0 d16	0.08	0.16	2+2d8/10 L=70	0.02	0.01	32,40,41,25
			209.0	1.40	0.62	4d20 0+0 d16	0.08	0.15	2+2d8/20 L=278	0.02	0.03	40,40,41,25
	[b=1.0;1.0]		418.0	1.40	0.62	4d20 0+0 d16	0.08	0.15	2+2d8/10 L=70	0.02	0.01	40,40,41,25
					M_P= 6	**X=2450.0**	**Y=3818.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
64	s=1,m=4	ok,ok	0.0	1.40	0.63	4d20 0+0 d16	0.09	0.13	2+2d8/10 L=70	0.01	0.01	40,56,40,40
			209.0	1.40	0.63	4d20 0+0 d16	0.07	0.13	2+2d8/20 L=278	0.01	0.02	56,56,40,40
	[b=1.0;1.0]		418.0	1.40	0.63	4d20 0+0 d16	0.06	0.12	2+2d8/10 L=70	0.01	0.01	56,56,40,40
					M_P= 7	**X=2747.0**	**Y=3818.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
66	s=1,m=4	ok,ok	0.0	1.40	0.96	4d20 0+0 d16	0.14	0.25	2+2d8/10 L=70	0.02	0.02	3,37,52,32
			209.0	1.40	0.96	4d20 0+0 d16	0.14	0.24	2+2d8/20 L=278	0.02	0.04	3,37,52,32
	[b=1.0;1.0]		418.0	1.40	0.96	4d20 0+0 d16	0.14	0.24	2+2d8/10 L=70	0.02	0.02	3,37,52,32
					M_P= 8	**X=3169.5**	**Y=3818.0**					

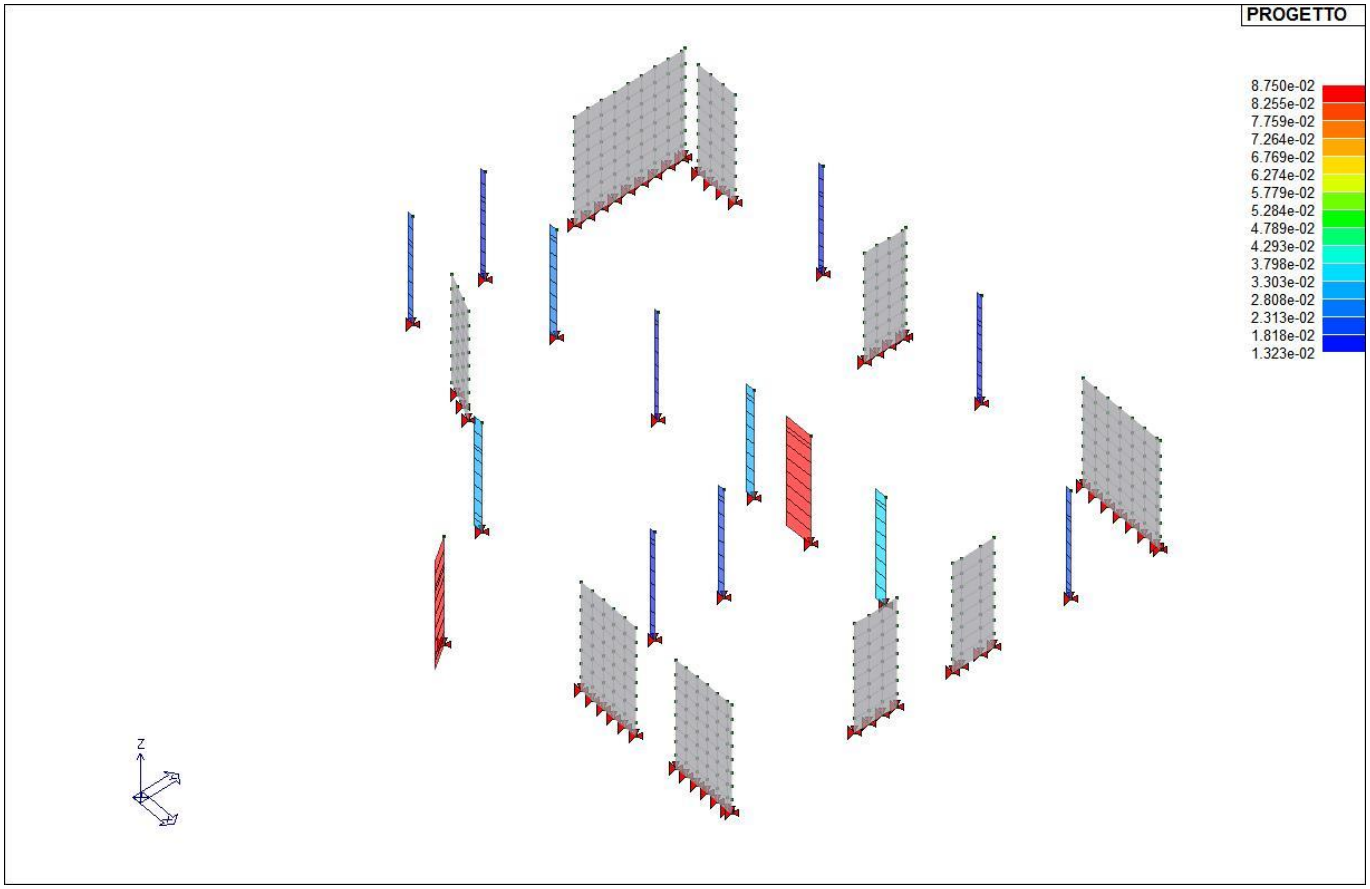
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
73	s=1,m=4	ok,ok	0.0	1.40	1.11	4d20 0+0 d16	0.44	0.32	2+2d8/10 L=70	0.01	0.01	3,51,32,35
			209.0	1.40	1.11	4d20 0+0 d16	0.43	0.32	2+2d8/20 L=278	0.01	0.03	3,51,32,35
	[b=1.0;1.0]		418.0	1.40	1.11	4d20 0+0 d16	0.43	0.31	2+2d8/10 L=70	0.01	0.01	3,51,32,35
					M_P= 9	**X=3564.5**	**Y=3818.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
112	s=1,m=4	ok,ok	0.0	1.40	1.01	4d20 0+0 d16	0.37	0.27	2+2d8/10 L=70	0.03	0.02	3,32,45,33
			209.0	1.40	1.01	4d20 0+0 d16	0.37	0.26	2+2d8/20 L=278	0.03	0.04	3,32,45,33
	[b=1.0;1.0]		418.0	1.40	1.01	4d20 0+0 d16	0.36	0.26	2+2d8/10 L=70	0.03	0.02	3,32,45,33
					M_P= 10	**X=3800.0**	**Y=3818.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
120	s=1,m=4	ok,ok	0.0	1.40	0.81	4d20 0+0 d16	0.11	0.18	2+2d8/10 L=70	0.09	0.05	37,31,41,44
			209.0	1.40	0.81	4d20 0+0 d16	0.11	0.17	2+2d8/20 L=278	0.09	0.10	4,31,41,44
	[b=1.0;1.0]		418.0	1.40	0.81	4d20 0+0 d16	0.11	0.17	2+2d8/10 L=70	0.09	0.05	37,31,41,44
					M_P= 11	**X=4112.5**	**Y=3818.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
163	s=1,m=4	ok,ok	0.0	1.40	0.70	4d20 0+0 d16	0.17	0.13	2+2d8/10 L=70	0.04	0.02	44,38,48,42
			209.0	1.40	0.70	4d20 0+0 d16	0.13	0.13	2+2d8/20 L=278	0.04	0.05	41,38,48,42
	[b=1.0;1.0]		418.0	1.40	0.70	4d20 0+0 d16	0.11	0.12	2+2d8/10 L=70	0.04	0.02	43,38,48,42
					M_P= 12	**X=4425.0**	**Y=4215.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
128	s=1,m=4	ok,ok	0.0	1.40	0.43	4d20 0+0 d16	0.11	0.08	2+2d8/10 L=70	0.02	0.01	44,45,44,41
			209.0	1.40	0.43	4d20 0+0 d16	0.04	0.07	2+2d8/20 L=278	0.02	0.03	45,45,44,41
	[b=1.0;1.0]		418.0	1.40	0.43	4d20 0+0 d16	0.06	0.07	2+2d8/10 L=70	0.02	0.01	41,45,44,41
					M_P= 13	**X=3038.0**	**Y=4525.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
44	s=1,m=4	ok,ok	0.0	1.40	0.64	4d20 0+0 d16	0.08	0.14	2+2d8/10 L=70	0.01	0.01	34,37,46,35
			209.0	1.40	0.64	4d20 0+0 d16	0.07	0.14	2+2d8/20 L=278	0.01	0.02	37,37,46,35
	[b=1.0;1.0]		418.0	1.40	0.64	4d20 0+0 d16	0.07	0.13	2+2d8/10 L=70	0.01	0.01	37,37,46,35
					M_P= 14	**X=3697.0**	**Y=4525.0**					
Pilas.	Note	Stato	Quota	%Af	r. snell.	Armat. long.	V N/M	V N sis	Staffe	V V/T cls	V V/T acc	Rif. cmb
145	s=1,m=4	ok,ok	0.0	1.40	0.73	4d20 0+0 d16	0.09	0.18	2+2d8/10 L=70	0.01	0.01	35,35,47,35
			209.0	1.40	0.73	4d20 0+0 d16	0.09	0.18	2+2d8/20 L=278	0.01	0.02	35,35,47,35
	[b=1.0;1.0]		418.0	1.40	0.73	4d20 0+0 d16	0.09	0.17	2+2d8/10 L=70	0.01	0.01	35,35,47,35
Pilas.				**%Af**	**r. snell.**		**V N/M**	**V N sis**		**V V/T cls**	**V V/T acc**	
				1.40	1.11		0.44	0.32		0.09	0.11	



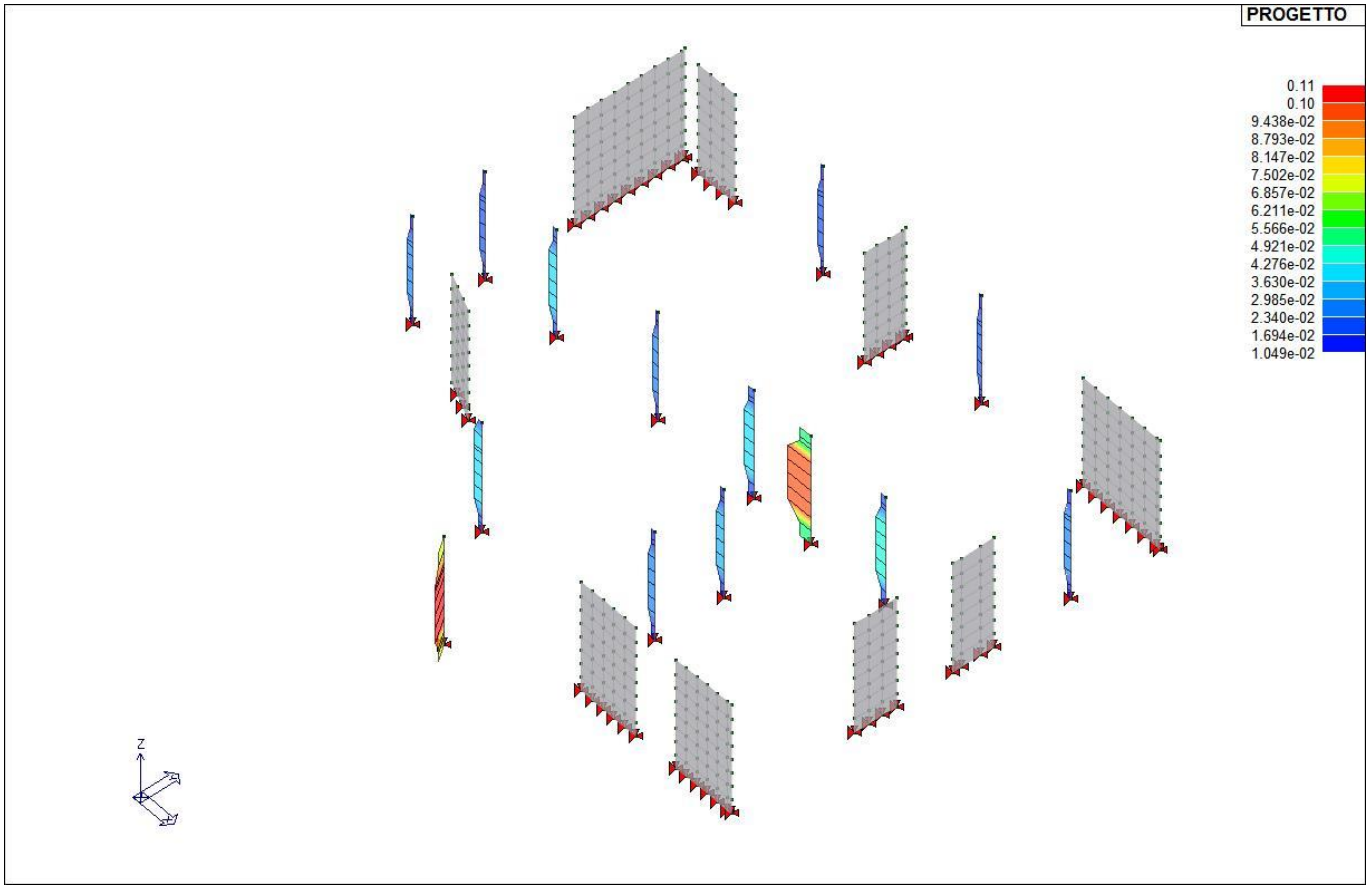
71_CA_PIL_17_Verifica NM



71_CA_PIL_18_Verifica N



71_CA_PIL_20_Verifica VT cls



71_CA_PIL_21_Verifica VT acciaio

STATI LIMITE D' ESERCIZIO

LEGENDA TABELLA STATI LIMITE D' ESERCIZIO

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 sopraripportati viene indicata (Rif.cmb) la combinazione in cui si è verificato.

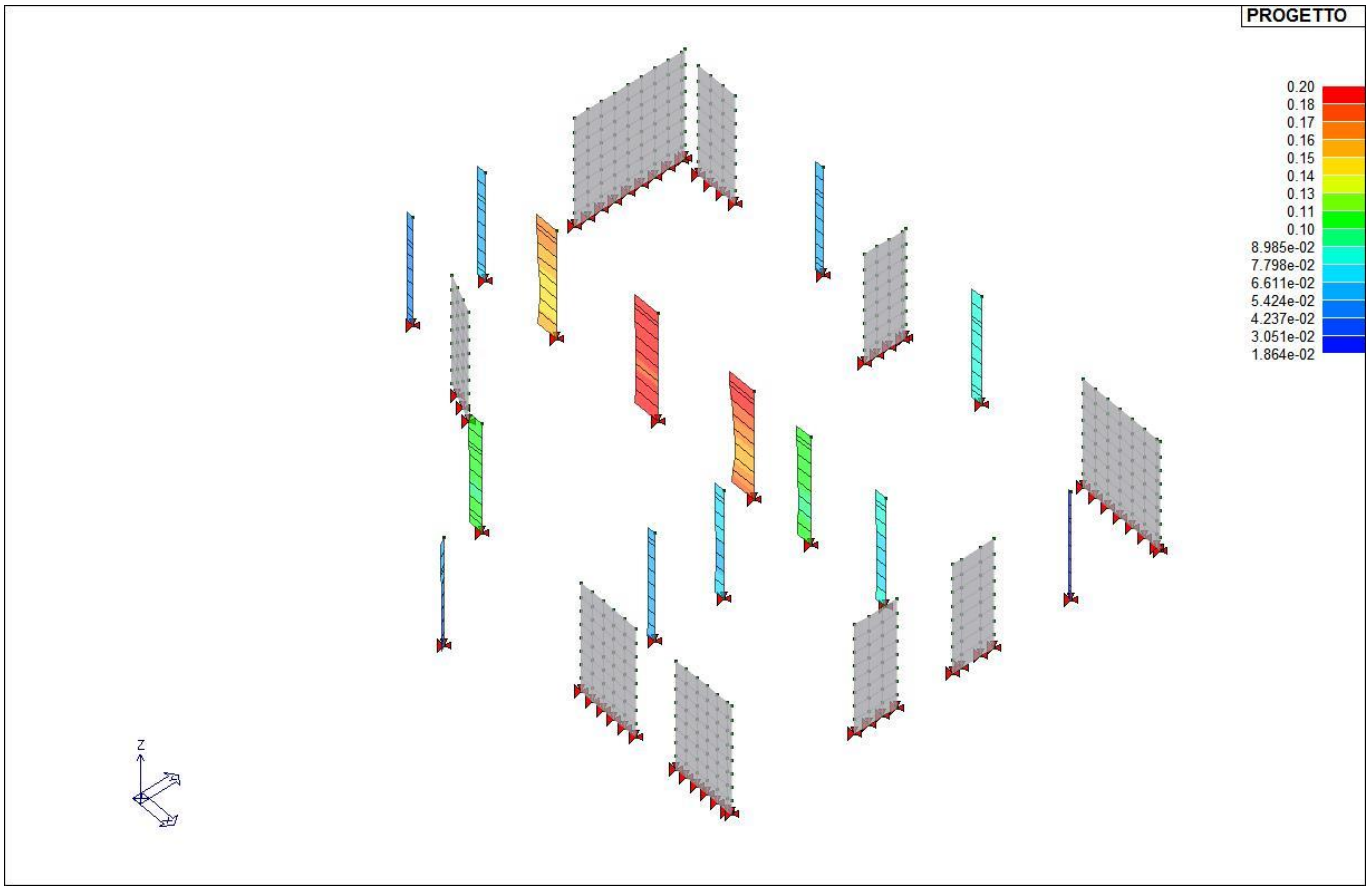
In relazione al tipo di elemento strutturale i valori sono selezionati nel modo seguente:

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

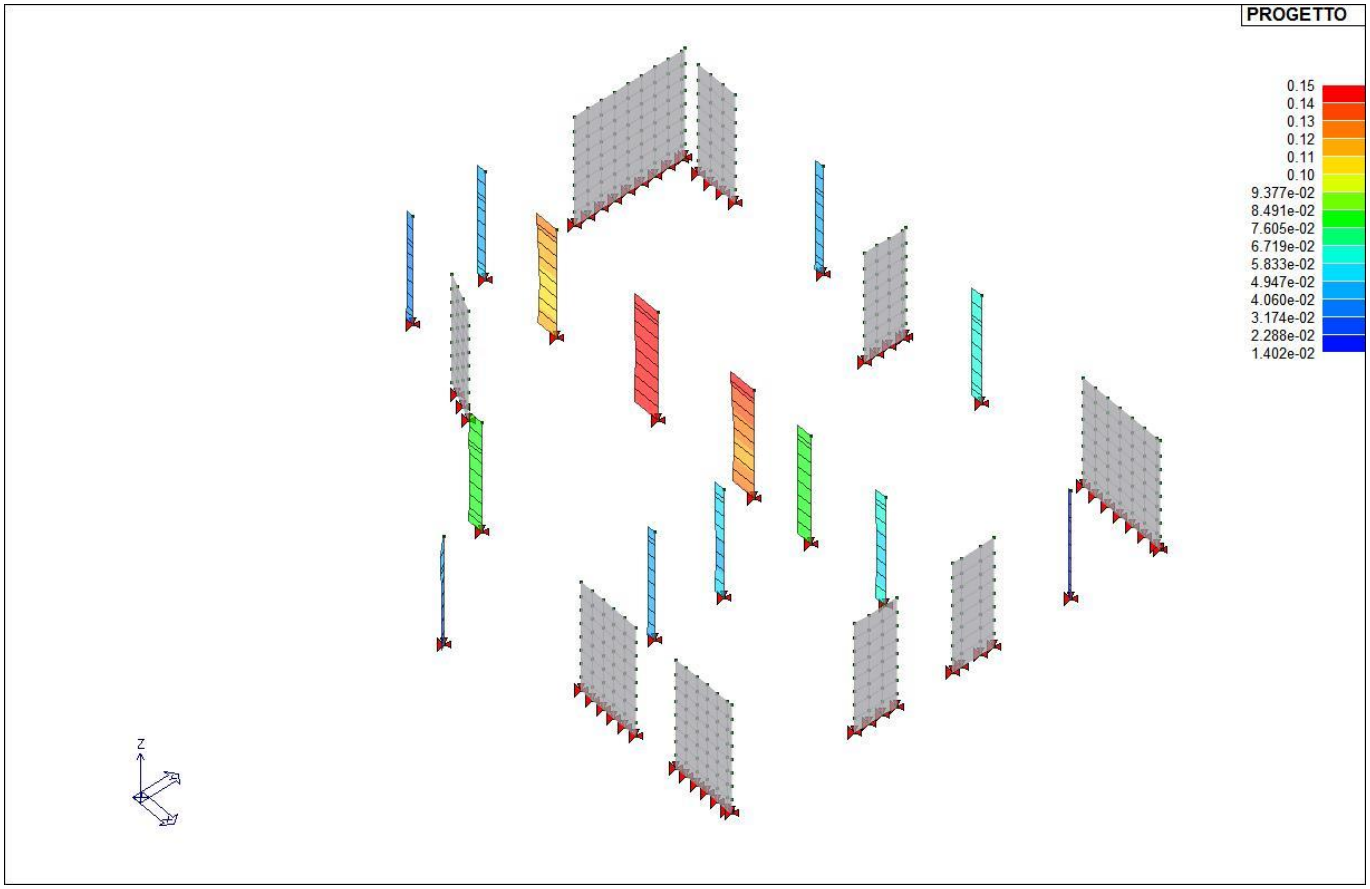
	wR	**wF**	**wP**	massimi nei nodi dell'elemento

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

Pilas.	**Pos.**	**rRfck**	**rRfyk**	**rPfck**	**Rif. cmb**	**Pos.**	**rRfck**	**rRfyk**	**rPfck**	**Rif. cmb**
	cm					cm				
23	0.0	0.05	0.03	0.06	123,123,138	209.0	0.05	0.04	0.06	124,124,139
	418.0	0.06	0.04	0.08	123,123,138					
44	0.0	0.06	0.05	0.08	124,124,139	209.0	0.06	0.05	0.08	123,123,138
	418.0	0.06	0.05	0.07	124,124,138					
45	0.0	0.05	0.04	0.06	123,123,138	209.0	0.05	0.04	0.06	123,123,138
	418.0	0.05	0.04	0.06	123,123,138					
61	0.0	0.11	0.08	0.13	124,124,139	209.0	0.10	0.08	0.12	124,124,139
	418.0	0.11	0.08	0.13	124,124,139					
64	0.0	0.07	0.05	0.08	124,124,139	209.0	0.06	0.05	0.07	123,123,138
	418.0	0.06	0.05	0.08	124,124,139					
66	0.0	0.16	0.12	0.19	124,124,139	209.0	0.15	0.11	0.17	123,123,138
	418.0	0.17	0.12	0.20	124,124,139					
73	0.0	0.19	0.15	0.23	124,124,139	209.0	0.19	0.14	0.22	123,123,138
	418.0	0.20	0.15	0.23	124,124,139					
112	0.0	0.18	0.13	0.21	123,123,138	209.0	0.17	0.12	0.19	124,124,139
	418.0	0.20	0.14	0.23	123,123,138					
120	0.0	0.11	0.08	0.13	123,123,138	209.0	0.10	0.08	0.12	124,124,139
	418.0	0.11	0.08	0.13	123,123,138					
122	0.0	0.07	0.05	0.09	124,124,139	209.0	0.07	0.05	0.08	124,124,139
	418.0	0.08	0.05	0.09	123,123,138					
125	0.0	0.06	0.05	0.07	124,124,139	209.0	0.06	0.04	0.07	124,124,139
	418.0	0.06	0.04	0.07	124,124,139					
128	0.0	0.02	0.02	0.03	132,132,139	209.0	0.02	0.02	0.03	123,123,138
	418.0	0.02	0.01	0.02	123,123,138					
145	0.0	0.08	0.06	0.10	124,124,139	209.0	0.08	0.06	0.10	124,124,139
	418.0	0.08	0.06	0.10	124,124,139					
163	0.0	0.08	0.06	0.10	124,124,139	209.0	0.08	0.06	0.09	123,123,138
	418.0	0.08	0.06	0.10	124,124,139					
Pilas.		**rRfck**	**rRfyk**	**rPfck**			**rRfck**	**rRfyk**	**rPfck**	
		0.20	0.15	0.23						



71_CA_PIL_37_Tens cls rare



71_CA_PIL_38_Tens acc rare

STATO LIMITE D' ESERCIZIO: SLD DANNO SISMICO

LEGENDA TABELLA STATI LIMITE DI DANNO (VERIFICHE RES)

Le verifiche RES per SLD sono effettuate in accordo alle Norme Tecniche 17 Gennaio 2018 e alla circolare n.7 del 21 gennaio 2019 nonché alle linee guida del Consiglio Superiore LL.PP. "Linee guida per la Progettazione, l'Esecuzione ed il Collaudo di Interventi di Rinforzo di strutture di c.a., c.a.p. e murarie mediante FRP".

Le verifiche RES per SLD, sono riportate nelle successive tabelle nella forma di rapporto "domanda" su "capacità" e hanno esito positivo quando il rapporto è non superiore al valore unitario.

La "domanda" è ottenuta direttamente dall'analisi per le previste combinazioni SLD (NTC18 2.5.3. COMBINAZIONI DELLE AZIONI formula [2.5.5]).

Per "capacità" si intende qui il valore della sollecitazione corrispondente al raggiungimento dello stato limite di danno per la sezione: per la resistenza flessionale questo stato limite si identifica con la tensione di snervamento dell'acciaio o la resistenza massima a compressione per il calcestruzzo e la muratura. Lo stato limite di danno si ritiene attinto anche in caso di superamento della resistenza a taglio.

Le resistenze flessionali sono valutate utilizzando i legami costitutivi del materiale limitati al solo tratto elastico, ottenendo così resistenze sostanzialmente elastiche come previsto dalla norma.

La seguente tabella identifica per quali configurazioni (materiale nuovo, esistente, con rinforzi e metodo di analisi) sono state condotte le verifiche di seguito riportate.

Configurazione	Verifica SLD	NOTE
1) c.a. nuovo e esist. Verifica SLU con q>1	Verifica N/M SE	Sono verifiche per struttura non dissipativa condotte secondo il cap.4 NTC18 in regime sostanzialmente elastico; si verificano travi,pilastri,

	Verifica V/T	setti e gusci.
2) Muratura nuova Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap.7
3) Muratura esis. AO Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap. 7 e 8
4) Muratura esis. PO Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap. 7 e 8; Anche per rinforzi FRP è prevista verifica N/M SE e V

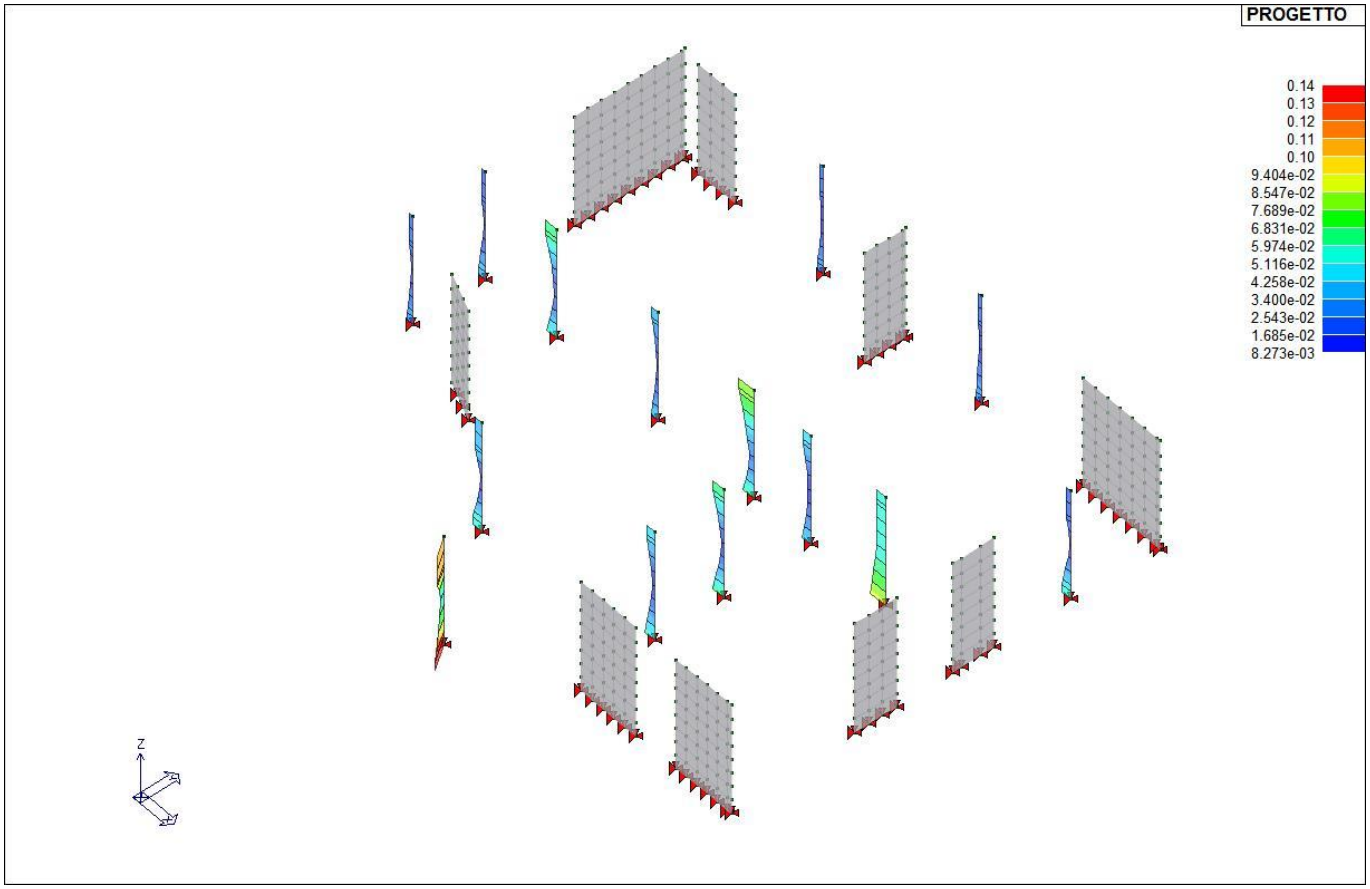
Simbologia adottata nelle tabelle di verifica

Per le verifiche agli SLD di pilastri, travi setti e gusci in *c.a*. è presente una tabella con i simboli di seguito descritti:

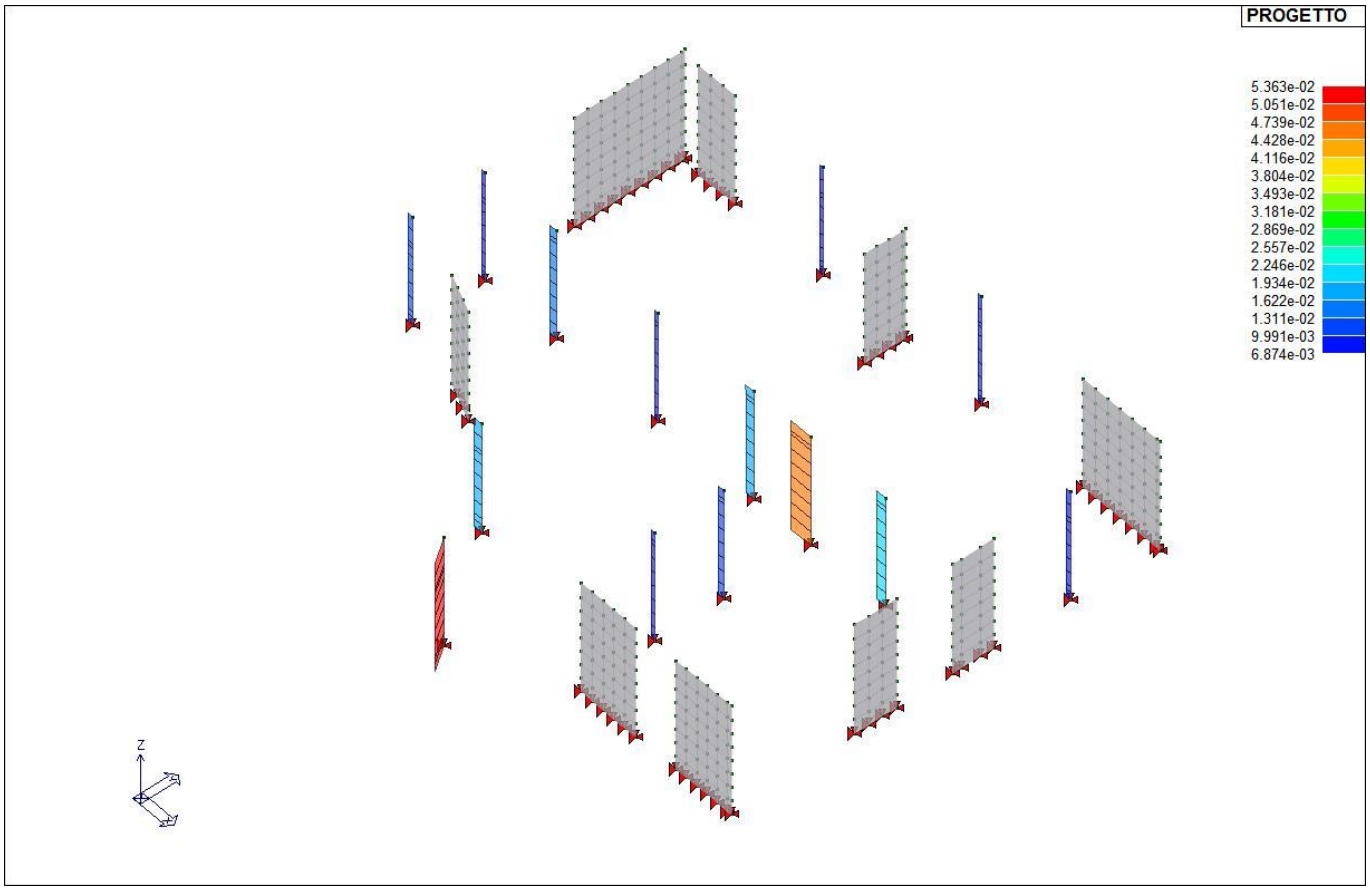
Pilas./Trave/ Setto/Guscio	numero identificativo dell'elemento D2 o D3
Stato	Codici relativi all'esito delle verifiche effettuate appresso descritte
Pos.	Posizione nell'elemento della sezione per la quale si riporta la verifica
V N/M	Verifica a pressoflessione con rapporto Ed/Rd: valore minore o uguale a 1 per verifica positiva
V V/T cls	Verifica a taglio/torsione con rapporto Ved/Vrd lato cls: valore minore o uguale a 1 per verifica positiva
V V/T acc	Verifica a taglio/torsione con rapporto Ved/Vrd lato acciaio: valore minore o uguale a 1 per verifica positiva
Rif. cmb.	Riferimento combinazioni da cui si generano le verifiche più gravose per il pilastro

TABELLA VERIFICHE ELEMENTI D2 PILASTRI C.A.

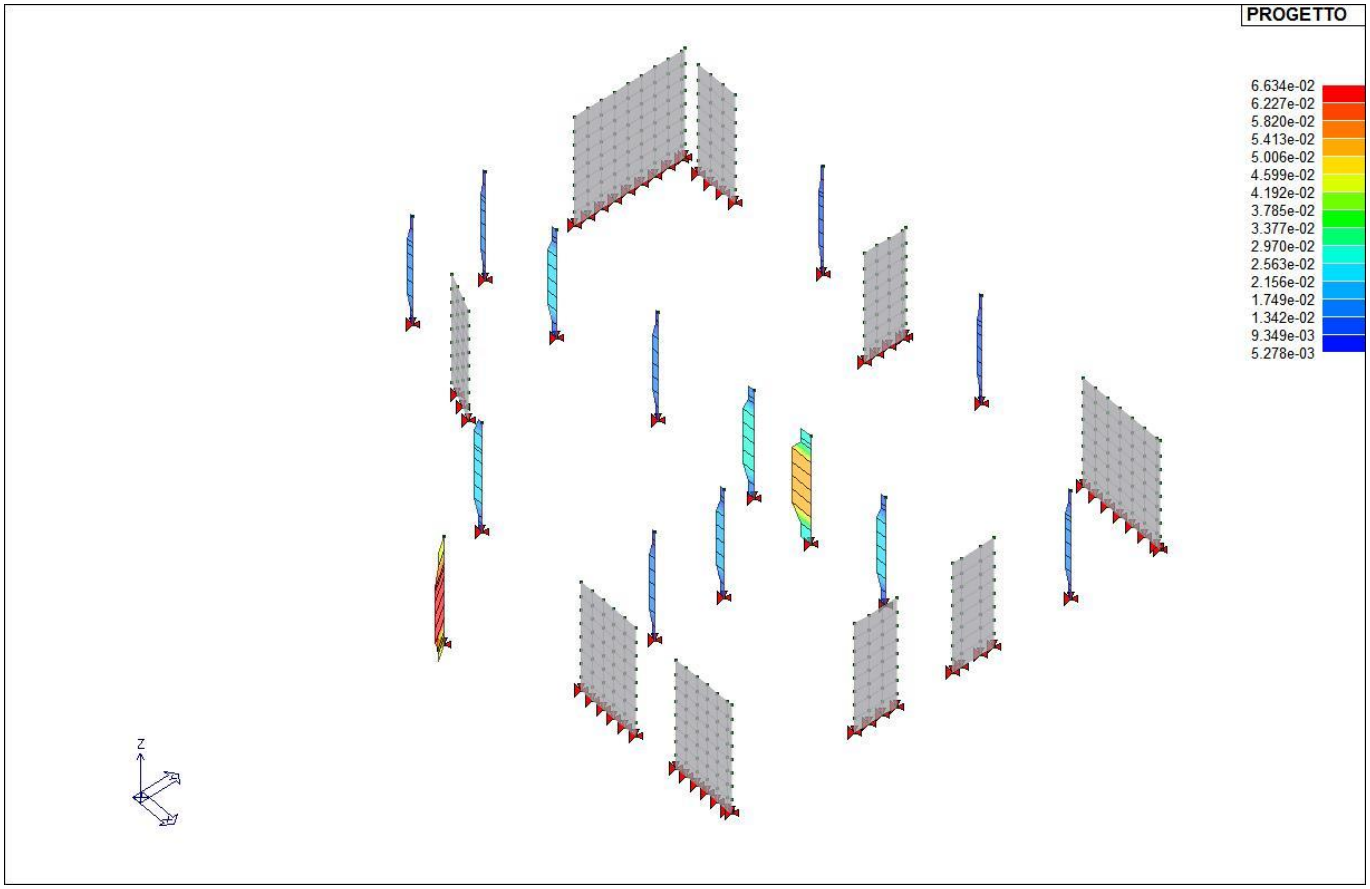
Pilas.	Stato	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb
		cm					cm				
23	ok	0.0	0.14	0.05	0.04	82,82,82	209.0	0.05	0.05	0.07	83,82,82
		418.0	0.11	0.05	0.04	82,82,82					
44	ok	0.0	0.03	6.87e-03	5.28e-03	72,78,67	209.0	0.01	6.89e-03	0.01	81,78,67
		418.0	0.02	6.90e-03	5.28e-03	67,78,67					
45	ok	0.0	0.03	0.01	7.57e-03	69,73,57	209.0	8.27e-03	0.01	0.02	88,73,57
		418.0	0.02	0.01	7.57e-03	62,73,57					
61	ok	0.0	0.06	0.02	0.01	81,85,85	209.0	9.50e-03	0.02	0.02	85,85,85
		418.0	0.04	0.02	0.01	85,85,85					
64	ok	0.0	0.04	8.32e-03	6.82e-03	72,72,72	209.0	9.16e-03	8.34e-03	0.01	69,72,72
		418.0	0.02	8.35e-03	6.82e-03	71,72,72					
66	ok	0.0	0.06	0.01	0.01	72,84,64	209.0	0.02	0.01	0.02	81,84,64
		418.0	0.07	0.01	0.01	63,84,64					
73	ok	0.0	0.04	8.29e-03	7.97e-03	72,67,67	209.0	0.01	8.30e-03	0.02	81,67,67
		418.0	0.04	8.32e-03	7.97e-03	72,67,67					
112	ok	0.0	0.06	0.02	0.01	69,77,65	209.0	0.03	0.02	0.03	75,77,65
		418.0	0.08	0.02	0.01	58,77,65					
120	ok	0.0	0.05	0.04	0.03	61,73,76	209.0	0.01	0.04	0.05	83,73,76
		418.0	0.04	0.04	0.03	61,73,76					
122	ok	0.0	0.07	0.01	9.97e-03	76,78,78	209.0	0.01	0.01	0.02	64,78,78
		418.0	0.06	0.01	9.97e-03	76,78,78					
125	ok	0.0	0.06	8.32e-03	7.52e-03	73,79,79	209.0	0.01	8.34e-03	0.02	64,79,79
		418.0	0.05	8.36e-03	7.52e-03	73,79,79					
128	ok	0.0	0.05	9.43e-03	7.46e-03	76,73,73	209.0	8.80e-03	9.45e-03	0.01	72,73,73
		418.0	0.03	9.48e-03	7.46e-03	76,73,73					
145	ok	0.0	0.03	7.52e-03	5.83e-03	78,79,67	209.0	0.01	7.54e-03	0.01	81,79,67
		418.0	0.02	7.55e-03	5.83e-03	72,79,67					
163	ok	0.0	0.09	0.02	0.01	76,80,74	209.0	0.05	0.02	0.02	73,80,74
		418.0	0.05	0.02	0.01	59,80,74					
Pilas.			**V N/M**	**V V/T cls**	**V V/T acc**			**V N/M**	**V V/T cls**	**V V/T acc**	
			0.14	0.05	0.07						



71_CA_PIL_33_Verifica NM SE



71_CA_PIL_34_Verifica VT cls



71_CA_PIL_35_Verifica VT acciaio

VERIFICHE ELEMENTI TRAVE IN C.A.

LEGENDA TABELLA VERIFICHE ELEMENTI TRAVE IN C.A.

In tabella vengono riportati per ogni elemento il numero identificativo ed il codice di verifica con le sigle **Ok** o **NV**.

Nel caso in cui si sia proceduto alla progettazione con il metodo degli stati limite (**S.L.**) vengono riportati: il rapporto x/d, le verifiche per sollecitazioni proporzionali e la verifica per compressione media con l'indicazione delle combinazioni in cui si sono attinti i rispettivi valori.

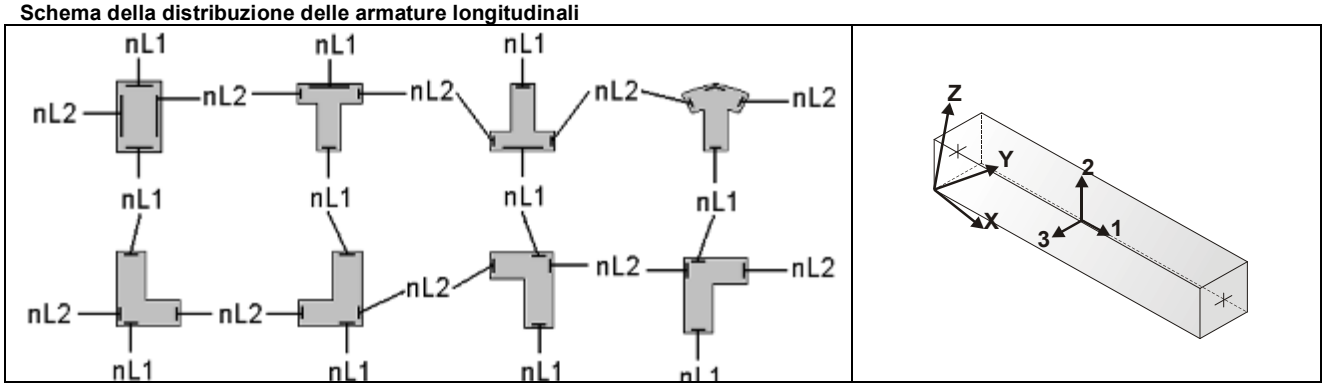
Nel caso in cui si sia proceduto alla progettazione con le tensioni ammissibili (**T.A.**) vengono riportate le massime tensioni nell'elemento (massima compressione nel calcestruzzo, massima compressione media nel calcestruzzo, massima tensione nell'acciaio, massima tensione tangenziale) con l'indicazione delle combinazioni in cui si sono attinti i rispettivi valori.

Nel caso in cui la struttura abbia comportamento dissipativo e sia prevista la progettazione con il criterio della gerarchia delle resistenze **(G.R.)** vengono riportate le verifiche di sovraresistenza e del nodo.

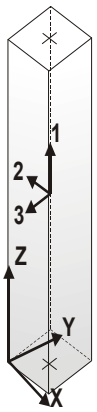
Per gli elementi tipo pilastro sono riportati numero e diametro dei ferri di vertice, numero e diametro di ferri disposti lungo i lati L1 (paralleli alla base della sezione) e lungo i lati L2 (paralleli all'altezza della sezione).

Per gli elementi tipo trave sono riportati infine le quantità di armatura inferiore e superiore.

Schema della distribuzione delle armature longitudinali



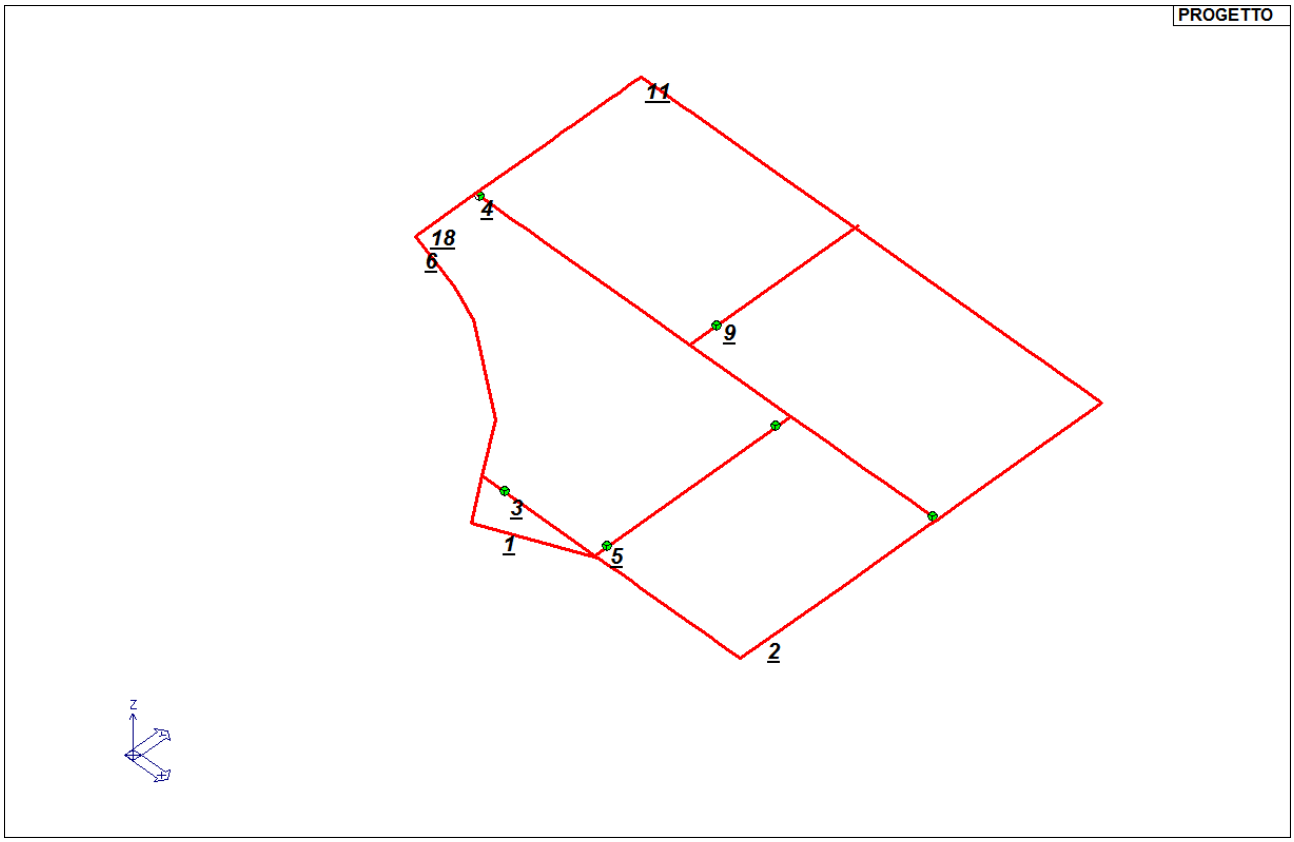
Orientamento elementi 2D non verticali



Orientamento elementi 2D verticali

Per le verifiche agli S.L. delle travi è presente una tabella con i simboli di seguito descritti:

M_T Z P P	Numero della travata (T), quota media (Z), n° pilastrata iniziale (P) e finale (P) (nodo in assenza di pilastrata)
Trave	numero identificativo dell'elemento D2
Note	Codici identificativi sezione (s) e materiale (m) trave; sono inoltre presenti le sigle relative all'esito delle verifiche effettuate appresso descritte
%Af	Percentuale di area di armatura rispetto a quella di calcestruzzo
Af inf.	Area di armatura longitudinale posta all'intradosso
Af sup	Area di armatura longitudinale posta all'estradosso
Af long.	Area complessiva armatura longitudinale
x/d	rapporto tra posizione dell'asse neutro e altezza utile
V N/M	Verifica a pressoflessione rapporto Ed/Rd: valore minore o uguale a 1 per verifica positiva
Staffe	Dati tratto di staffatura oggetto di verifica, nello specifico: numero delle braccia, diametro, passo, lunghezza L tratto
V V/T cls	Verifica a taglio/torsione con rapporto Ved/Vrd: valore minore o uguale a 1 per verifica positiva
Rif. cmb.	Riferimento combinazioni da cui si generano le verifiche più gravose per la trave



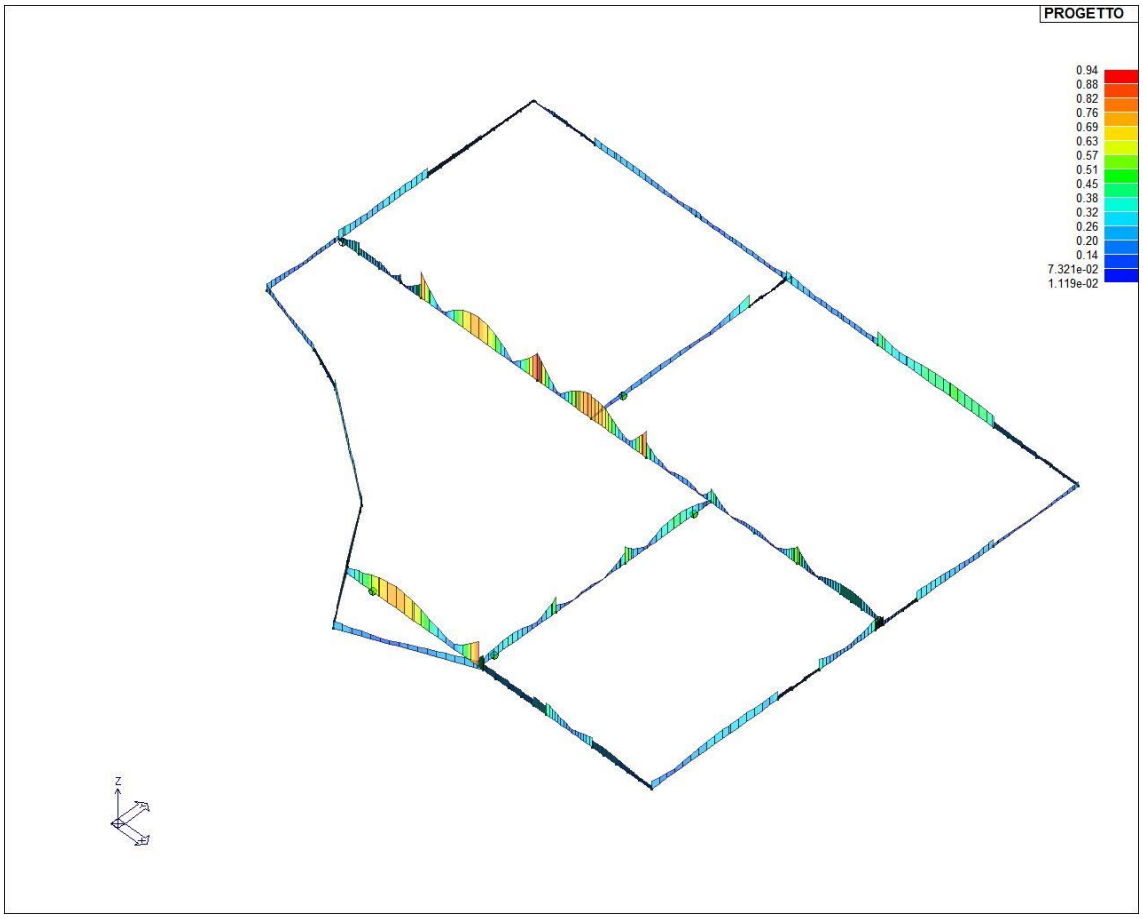
							M_T= 1	Z=418.0	N=81	N=306			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
		cm									L=cm		
1	ok,ok	0.0	0.35	12.6	12.6	25.1	0.06	0.25	0.14	0.08	2d10/20 L=389	32,32,28	

	s=4,m=4	206.4	0.35	12.6	12.6	25.1	0.06	0.15	0.11	0.05	2d10/20 L=389	28,32,28
		412.8	0.35	12.6	12.6	25.1	0.06	0.25	0.08	0.05	2d10/20 L=389	28,32,25
							M_T= 2	**Z=418.0**	**N=176**	**N=257**		
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb
2	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.27	0.15	0.17	2d10/20 L=459	46,4,3
	s=4,m=4	229.5	0.35	12.6	12.6	6.3	0.06	0.28	0.05	0.05	2d10/20 L=459	46,47,43
		459.0	0.35	12.6	12.6	6.3	0.06	0.28	0.17	0.19	2d10/20 L=459	41,4,4
62	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.10	0.07	0.07	2d10/20 L=50	29,44,44
	s=4,m=4	25.0	0.35	12.6	12.6	6.3	0.06	0.11	0.08	0.09	2d10/20 L=50	29,44,44
		50.0	0.35	12.6	12.6	6.3	0.06	0.12	0.09	0.10	2d10/20 L=50	29,44,44
60	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.09	0.19	0.21	2d10/20 L=50	41,41,41
	s=4,m=4	25.0	0.35	12.6	12.6	6.3	0.06	0.06	0.18	0.20	2d10/20 L=50	34,41,41
		50.0	0.35	12.6	12.6	6.3	0.06	0.11	0.17	0.20	2d10/20 L=50	46,41,44
35	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.10	0.06	0.06	2d10/20 L=50	26,3,3
	s=4,m=4	25.0	0.35	12.6	12.6	6.3	0.06	0.08	0.04	0.04	2d10/20 L=50	34,3,3
		50.0	0.35	12.6	12.6	6.3	0.06	0.08	0.03	0.03	2d10/20 L=50	41,25,3
42	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.37	0.23	0.27	2d10/20 L=203	42,44,44
	s=4,m=4	101.5	0.35	12.6	12.6	6.3	0.06	0.15	0.19	0.21	2d10/20 L=203	29,44,44
		203.0	0.35	12.6	12.6	6.3	0.06	0.37	0.21	0.23	2d10/20 L=203	41,41,41
126	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.27	0.03	0.02	2d10/20 L=30	46,37,41
	s=4,m=4	15.0	0.35	12.6	12.6	6.3	0.06	0.27	0.04	0.03	2d10/20 L=30	46,37,41
		30.0	0.35	12.6	12.6	6.3	0.06	0.27	0.04	0.04	2d10/20 L=30	46,37,41
70	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.12	0.10	0.11	2d10/20 L=70	49,46,44
	s=4,m=4	35.0	0.35	12.6	12.6	6.3	0.06	0.10	0.10	0.12	2d10/20 L=70	29,46,44
		70.0	0.35	12.6	12.6	6.3	0.06	0.10	0.11	0.12	2d10/20 L=70	29,46,44
51	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.08	0.05	0.05	2d10/20 L=50	49,47,43
	s=4,m=4	25.0	0.35	12.6	12.6	6.3	0.06	0.10	0.04	0.05	2d10/20 L=50	41,47,43
		50.0	0.35	12.6	12.6	6.3	0.06	0.11	0.04	0.04	2d10/20 L=50	41,47,43
20	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.33	0.09	0.11	2d10/20 L=262	41,44,44
	s=4,m=4	138.5	0.35	12.6	12.6	6.3	0.06	0.22	0.07	0.08	2d10/20 L=262	41,44,44
		277.0	0.35	12.6	12.6	6.3	0.06	0.25	0.08	0.09	2d10/20 L=262	41,41,41
144	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.08	0.05	0.06	2d10/20 L=280	41,46,44
	s=4,m=4	155.0	0.35	12.6	12.6	6.3	0.06	0.04	0.04	0.04	2d10/20 L=280	41,47,41
		310.0	0.35	12.6	12.6	6.3	0.06	0.16	0.06	0.07	2d10/20 L=280	41,47,41
							M_T= 3	**Z=418.0**	**N=257**	**N=318**		
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb
10	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.17	0.21	0.15	4d8/8 L=36	52,4,4
	s=2,m=4	240.6	0.56	12.1	8.0	0.0	0.16	0.65	0.07	0.12	4d8/20 L=409	4,4,3
		481.2	0.74	10.1	16.1	0.0	0.18	0.85	0.33	0.24	4d8/8 L=36	3,4,3
33	ok,ok	0.0	0.74	10.1	16.1	0.0	0.18	0.22	0.48	0.31	4d8/8 L=15	53,4,3
	s=2,m=4	7.5	0.47	10.1	8.0	0.0	0.14	0.39	0.48	0.32	4d8/8 L=15	3,4,3
		15.0	0.47	10.1	8.0	0.0	0.14	0.49	0.48	0.32	4d8/8 L=15	3,4,3
3	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.18	0.20	0.10	2d10/20 L=46	32,28,4
	s=4,m=4	23.0	0.35	12.6	12.6	4.7	0.06	0.21	0.20	0.10	2d10/20 L=46	32,28,4
		46.0	0.35	12.6	12.6	4.7	0.06	0.23	0.20	0.11	2d10/20 L=46	32,28,4
22	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.19	0.16	0.10	2d10/20 L=46	32,28,25
	s=4,m=4	23.0	0.35	12.6	12.6	4.7	0.06	0.21	0.16	0.09	2d10/20 L=46	32,28,25
		46.0	0.35	12.6	12.6	4.7	0.06	0.22	0.16	0.09	2d10/20 L=46	32,28,25
140	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.18	0.14	0.13	2d10/20 L=46	32,25,25
	s=4,m=4	23.0	0.35	12.6	12.6	4.7	0.06	0.20	0.13	0.13	2d10/20 L=46	32,25,25
		46.0	0.35	12.6	12.6	4.7	0.06	0.21	0.13	0.13	2d10/20 L=46	32,25,25
129	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.18	0.11	0.10	2d10/20 L=46	32,25,25
	s=4,m=4	23.0	0.35	12.6	12.6	4.7	0.06	0.19	0.11	0.10	2d10/20 L=46	32,25,25
		46.0	0.35	12.6	12.6	4.7	0.06	0.20	0.11	0.10	2d10/20 L=46	28,25,25
132	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.31	0.11	0.09	2d10/20 L=46	28,28,28
	s=4,m=4	23.0	0.35	12.6	12.6	4.7	0.06	0.29	0.10	0.09	2d10/20 L=46	28,28,28
		46.0	0.35	12.6	12.6	4.7	0.06	0.26	0.10	0.09	2d10/20 L=46	28,28,28
49	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.40	0.22	0.22	2d10/20 L=165	28,28,28
	s=4,m=4	82.5	0.35	12.6	12.6	4.7	0.06	0.14	0.21	0.21	2d10/20 L=165	28,28,28
		165.0	0.35	12.6	12.6	4.7	0.06	0.33	0.20	0.20	2d10/20 L=165	28,28,28
57	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.21	0.07	0.05	2d10/20 L=43	28,31,28
	s=4,m=4	21.5	0.35	12.6	12.6	4.7	0.06	0.23	0.07	0.05	2d10/20 L=43	28,31,25
		43.0	0.35	12.6	12.6	4.7	0.06	0.25	0.07	0.05	2d10/20 L=43	28,31,25
52	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.24	0.06	0.06	2d10/20 L=43	28,28,28
	s=4,m=4	21.5	0.35	12.6	12.6	4.7	0.06	0.23	0.06	0.06	2d10/20 L=43	28,28,28
		43.0	0.35	12.6	12.6	4.7	0.06	0.21	0.07	0.07	2d10/20 L=43	28,28,28
135	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.21	0.09	0.09	2d10/20 L=43	28,44,28
	s=4,m=4	21.5	0.35	12.6	12.6	4.7	0.06	0.18	0.09	0.09	2d10/20 L=43	28,44,28
		43.0	0.35	12.6	12.6	4.7	0.06	0.15	0.09	0.09	2d10/20 L=43	28,44,28
139	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.15	0.10	0.09	2d10/20 L=43	28,26,25
	s=4,m=4	21.5	0.35	12.6	12.6	4.7	0.06	0.13	0.10	0.08	2d10/20 L=43	28,26,25
		43.0	0.35	12.6	12.6	4.7	0.06	0.11	0.10	0.08	2d10/20 L=43	28,44,25
142	ok,ok	0.0	0.35	12.6	12.6	4.7	0.06	0.10	0.13	0.07	2d10/20 L=43	28,42,30
	s=4,m=4	21.5	0.35	12.6	12.6	4.7	0.06	0.10	0.13	0.06	2d10/20 L=43	28,42,30
		43.0	0.35	12.6	12.6	4.7	0.06	0.10	0.12	0.06	2d10/20 L=43	28,42,30
							M_T= 4	**Z=418.0**	**P=6**	**P=11**		
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb
4	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.02	0.19	0.13	4d8/8 L=36	40,4,4
	s=2,m=4	37.1	0.47	10.1	8.0	0.0	0.15	0.23	0.13	0.09	4d8/8 L=36	4,50,4

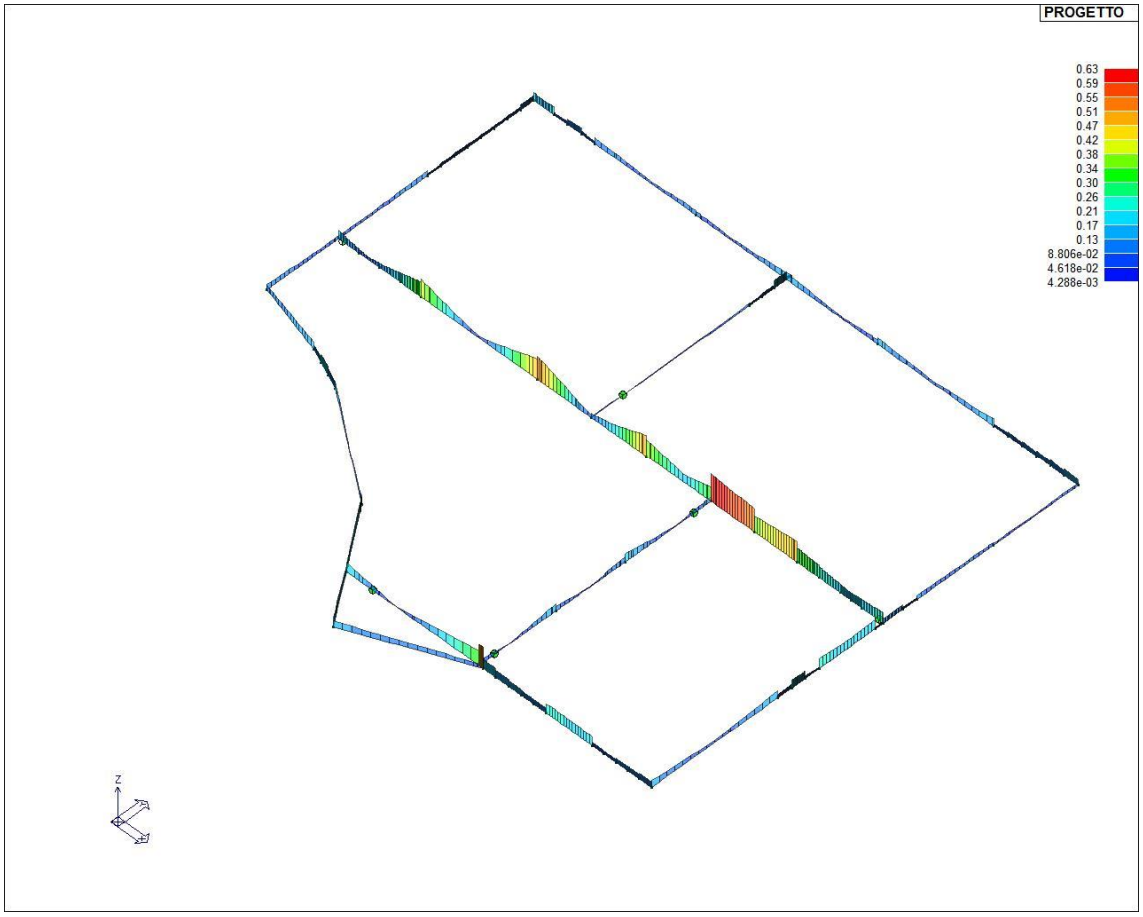
		74.2	0.47	10.1	8.0	0.0	0.15	0.37	0.09	0.10	4d8/20 L=23	4,50,4	
50	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.20	0.09	0.10	4d8/20 L=74	37,51,4	
	s=2,m=4	37.1	0.47	10.1	8.0	0.0	0.15	0.22	0.06	0.02	4d8/20 L=74	37,53,37	
		74.2	0.47	10.1	8.0	0.0	0.15	0.16	0.10	0.13	4d8/20 L=74	25,53,3	
72	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.24	0.09	0.13	4d8/20 L=74	3,51,3	
	s=2,m=4	37.1	0.47	10.1	8.0	0.0	0.15	0.07	0.15	0.25	4d8/20 L=74	47,3,3	
		74.2	0.47	10.1	8.0	0.0	0.14	0.28	0.21	0.37	4d8/20 L=74	3,3,3	
54	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.13	0.21	0.37	4d8/20 L=23	4,3,3	
	s=2,m=4	37.1	0.65	10.1	14.1	0.0	0.17	0.14	0.27	0.20	4d8/8 L=36	3,3,3	
		74.2	0.65	10.1	14.1	0.0	0.17	0.45	0.34	0.25	4d8/8 L=36	3,3,3	
5	ok,ok	0.0	0.65	10.1	14.1	0.0	0.17	0.86	0.40	0.29	4d8/8 L=36	4,4,4	
	s=2,m=4	211.2	0.47	10.1	8.0	0.0	0.15	0.72	0.04	0.02	4d8/20 L=320	3,41,3	
		422.5	0.81	10.1	17.5	0.0	0.19	0.90	0.47	0.34	4d8/8 L=36	3,4,3	
6	ok,ok	0.0	0.81	10.1	17.5	0.0	0.19	0.94	0.52	0.38	4d8/8 L=36	4,3,4	
	s=2,m=4	98.2	0.81	10.1	17.5	0.0	0.15	0.23	0.29	0.52	4d8/20 L=109	3,3,4	
		196.5	0.56	12.1	8.0	0.0	0.16	0.80	0.06	0.02	4d8/8 L=36	3,42,4	
32	ok,ok	0.0	0.56	12.1	8.0	0.0	0.16	0.75	0.10	0.01	4d8/8 L=36	3,43,4	
	s=2,m=4	99.2	0.56	12.1	8.0	0.0	0.16	0.29	0.24	0.42	4d8/20 L=111	3,3,3	
		198.5	0.74	10.1	16.1	0.0	0.18	0.88	0.48	0.35	4d8/8 L=36	3,3,3	
7	ok,ok	0.0	0.74	10.1	16.1	0.0	0.18	0.51	0.38	0.25	4d8/8 L=36	3,42,3	
	s=2,m=4	117.8	0.47	10.1	8.0	0.0	0.15	0.15	0.20	0.09	4d8/20 L=133	4,42,3	
		235.5	0.47	10.1	8.0	0.0	0.14	0.36	0.32	0.18	4d8/8 L=36	4,42,4	
9	ok,ok	0.0	0.47	10.1	8.0	0.0	0.14	0.47	0.63	0.12	4d8/8 L=36	4,44,4	
	s=2,m=4	78.1	0.47	10.1	8.0	0.0	0.15	0.02	0.58	0.15	4d8/20 L=105	19,44,4	
		156.2	0.47	10.1	8.0	0.0	0.15	0.15	0.53	0.02	4d8/20 L=105	4,44,38	
164	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.15	0.37	0.02	4d8/20 L=105	4,44,38	
	s=2,m=4	78.1	0.47	10.1	8.0	0.0	0.14	0.02	0.42	0.16	4d8/20 L=105	40,44,3	
		156.2	0.47	10.1	8.0	0.0	0.14	0.55	0.47	0.13	4d8/8 L=36	3,44,3	
19	ok,ok	0.0	0.47	10.1	8.0	0.0	0.14	0.56	0.33	0.15	4d8/8 L=36	4,43,4	
	s=2,m=4	39.1	0.47	10.1	8.0	0.0	0.14	0.19	0.31	0.12	4d8/8 L=36	4,43,4	
		78.1	0.47	10.1	8.0	0.0	0.15	0.08	0.28	0.22	4d8/20 L=27	3,43,4	
43	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.08	0.25	0.22	4d8/20 L=78	3,43,4	
	s=2,m=4	39.1	0.47	10.1	8.0	0.0	0.15	0.24	0.22	0.14	4d8/20 L=78	3,43,4	
		78.1	0.47	10.1	8.0	0.0	0.15	0.33	0.20	0.06	4d8/20 L=78	3,43,4	
55	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.33	0.19	0.06	4d8/20 L=39	3,43,4	
	s=2,m=4	19.5	0.47	10.1	8.0	0.0	0.15	0.35	0.18	0.03	4d8/20 L=39	3,43,40	
		39.1	0.47	10.1	8.0	0.0	0.15	0.36	0.17	0.02	4d8/20 L=39	3,42,37	
8	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.36	0.17	0.02	4d8/20 L=39	3,42,37	
	s=2,m=4	19.5	0.47	10.1	8.0	0.0	0.15	0.34	0.18	0.05	4d8/20 L=39	3,42,3	
		39.1	0.47	10.1	8.0	0.0	0.15	0.31	0.19	0.09	4d8/20 L=39	3,42,3	
56	ok,ok	0.0	0.47	10.1	8.0	0.0	0.15	0.31	0.19	0.09	4d8/20 L=27	3,42,3	
	s=2,m=4	39.1	0.47	10.1	8.0	0.0	0.15	0.19	0.21	0.07	4d8/8 L=51	3,42,3	
		78.1	0.47	10.1	8.0	0.0	0.14	0.08	0.24	0.10	4d8/8 L=51	40,42,3	
							M_T= 5	**Z=418.0**	**P=3**	**P=10**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
13	ok,ok	0.0	0.37	8.0	8.0	0.0	0.14	0.11	0.10	0.08	4d8/8 L=36	32,3,3	
	s=2,m=4	140.0	0.37	8.0	8.0	0.0	0.14	0.30	0.03	0.06	4d8/20 L=193	3,4,4	
		280.0	0.37	8.0	8.0	0.0	0.14	0.52	0.17	0.12	4d8/8 L=36	4,4,4	
12	ok,ok	0.0	0.37	8.0	8.0	0.0	0.14	0.24	0.11	0.08	4d8/8 L=36	3,3,3	
	s=2,m=4	124.5	0.37	8.0	8.0	0.0	0.14	0.07	0.02	0.03	4d8/20 L=147	4,47,49	
		249.0	0.37	8.0	8.0	0.0	0.14	0.37	0.13	0.10	4d8/8 L=36	4,4,4	
11	ok,ok	0.0	0.37	8.0	8.0	0.0	0.14	0.58	0.19	0.14	4d8/8 L=36	4,3,4	
	s=2,m=4	156.5	0.37	8.0	8.0	0.0	0.14	0.37	0.03	0.06	4d8/20 L=211	3,3,4	
		313.0	0.37	8.0	8.0	0.0	0.14	0.06	0.12	0.09	4d8/8 L=36	52,3,3	
							M_T= 6	**Z=418.0**	**P=1**	**P=5**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
153	ok,ok	0.0	0.34	12.3	12.3	6.3	0.06	0.20	0.11	0.10	2d10/20 L=229	40,32,32	
	s=4,m=4	123.8	0.34	12.3	12.3	6.3	0.06	0.12	0.13	0.09	2d10/20 L=229	32,37,29	
		247.5	0.34	12.3	12.3	6.3	0.06	0.19	0.17	0.14	2d10/20 L=229	30,37,29	
17	ok,ok	0.0	0.34	12.3	12.3	6.3	0.06	0.11	0.09	0.03	2d10/20 L=50	50,31,51	
	s=4,m=4	25.1	0.34	12.3	12.3	6.3	0.06	0.11	0.10	0.05	2d10/20 L=50	50,31,3	
		50.2	0.34	12.3	12.3	6.3	0.06	0.12	0.11	0.06	2d10/20 L=50	50,31,3	
16	ok,ok	0.0	0.34	12.3	12.3	6.3	0.06	0.13	0.17	0.12	2d10/20 L=50	56,31,30	
	s=4,m=4	25.1	0.34	12.3	12.3	6.3	0.06	0.13	0.18	0.12	2d10/20 L=50	56,31,31	
		50.2	0.34	12.3	12.3	6.3	0.06	0.13	0.19	0.14	2d10/20 L=50	40,31,31	
15	ok,ok	0.0	0.34	12.3	12.3	6.3	0.06	0.16	0.14	0.07	2d10/20 L=50	56,51,30	
	s=4,m=4	25.1	0.34	12.3	12.3	6.3	0.06	0.14	0.13	0.06	2d10/20 L=50	56,51,30	
		50.2	0.34	12.3	12.3	6.3	0.06	0.12	0.12	0.05	2d10/20 L=50	40,51,30	
14	ok,ok	0.0	0.34	12.3	12.3	6.3	0.06	0.32	0.15	0.17	2d10/20 L=411	40,3,3	
	s=4,m=4	215.9	0.34	12.3	12.3	6.3	0.06	0.23	0.06	0.04	2d10/20 L=411	50,28,31	
		431.9	0.34	12.3	12.3	6.3	0.06	0.24	0.13	0.14	2d10/20 L=411	50,4,4	
36	ok,ok	0.0	0.34	12.3	12.3	6.3	0.06	0.26	0.23	0.19	2d10/20 L=204	36,53,4	
	s=4,m=4	112.2	0.34	12.3	12.3	6.3	0.06	0.23	0.19	0.12	2d10/20 L=204	40,53,4	
		224.5	0.34	12.3	12.3	6.3	0.06	0.32	0.14	0.06	2d10/20 L=204	31,53,51	
29	ok,ok	0.0	0.34	12.3	12.3	6.3	0.06	0.30	0.10	0.06	2d10/20 L=21	39,43,51	
	s=4,m=4	10.6	0.34	12.3	12.3	6.3	0.06	0.31	0.10	0.05	2d10/20 L=21	31,43,51	
		21.2	0.34	12.3	12.3	6.3	0.06	0.33	0.10	0.05	2d10/20 L=21	31,43,51	
165	ok,ok	0.0	0.34	12.3	12.3	6.3	0.06	0.32	0.14	0.11	2d10/20 L=158	3,52,3	
	s=4,m=4	101.6	0.34	12.3	12.3	6.3	0.06	0.21	0.16	0.16	2d10/20 L=158	31,4,3	

		203.3	0.34	12.3	12.3	6.3	0.06	0.23	0.20	0.20	2d10/20 L=158	56,4,3	
							M_T= 9	**Z=418.0**	**N=211**	**N=317**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
28	ok,ok	0.0	0.49	6.0	6.0	0.0	0.17	0.04	0.03	0.02	2d8/5 L=30	52,1,1	
	s=3,m=4	286.0	0.49	6.0	6.0	0.0	0.17	0.17	0.01	0.03	2d8/15 L=512	52,4,4	
		572.0	0.49	6.0	6.0	0.0	0.17	0.40	0.05	0.03	2d8/5 L=30	4,4,4	
27	ok,ok	0.0	0.49	6.0	6.0	0.0	0.17	0.04	0.04	0.06	2d8/15 L=45	34,4,3	
	s=3,m=4	22.5	0.49	6.0	6.0	0.0	0.17	0.06	0.05	0.06	2d8/15 L=45	46,4,3	
		45.0	0.49	6.0	6.0	0.0	0.17	0.09	0.05	0.07	2d8/15 L=45	46,4,3	
26	ok,ok	0.0	0.49	6.0	6.0	0.0	0.17	0.06	0.07	0.07	2d8/15 L=45	46,40,52	
	s=3,m=4	22.5	0.49	6.0	6.0	0.0	0.17	0.03	0.07	0.06	2d8/15 L=45	46,40,52	
		45.0	0.49	6.0	6.0	0.0	0.17	0.04	0.07	0.06	2d8/15 L=45	46,40,52	
25	ok,ok	0.0	0.49	6.0	6.0	0.0	0.17	0.04	0.18	0.13	2d8/15 L=45	46,35,3	
	s=3,m=4	22.5	0.49	6.0	6.0	0.0	0.17	0.10	0.18	0.12	2d8/15 L=45	46,35,3	
		45.0	0.49	6.0	6.0	0.0	0.17	0.15	0.17	0.12	2d8/15 L=45	46,35,3	
24	ok,ok	0.0	0.49	6.0	6.0	0.0	0.17	0.01	0.05	0.05	2d8/15 L=15	52,35,3	
	s=3,m=4	7.5	0.49	6.0	6.0	0.0	0.17	0.01	0.05	0.05	2d8/15 L=15	52,35,3	
		15.0	0.49	6.0	6.0	0.0	0.17	0.02	0.05	0.05	2d8/15 L=15	52,35,3	
							M_T= 11	**Z=418.0**	**P=13**	**P=14**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
161	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.07	0.18	0.17	2d10/20 L=72	35,40,40	
	s=4,m=4	36.0	0.35	12.6	12.6	6.3	0.06	0.04	0.16	0.16	2d10/20 L=72	40,37,37	
		72.0	0.35	12.6	12.6	6.3	0.06	0.11	0.18	0.17	2d10/20 L=72	40,37,37	
48	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.09	0.04	0.02	2d10/20 L=50	37,53,53	
	s=4,m=4	25.0	0.35	12.6	12.6	6.3	0.06	0.10	0.05	0.03	2d10/20 L=50	37,53,53	
		50.0	0.35	12.6	12.6	6.3	0.06	0.11	0.06	0.04	2d10/20 L=50	37,53,53	
47	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.09	0.11	0.12	2d10/20 L=50	37,40,35	
	s=4,m=4	25.0	0.35	12.6	12.6	6.3	0.06	0.06	0.12	0.14	2d10/20 L=50	53,40,35	
		50.0	0.35	12.6	12.6	6.3	0.06	0.07	0.13	0.15	2d10/20 L=50	51,40,35	
53	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.08	0.07	0.06	2d10/20 L=50	51,53,37	
	s=4,m=4	25.0	0.35	12.6	12.6	6.3	0.06	0.07	0.06	0.05	2d10/20 L=50	51,53,37	
		50.0	0.35	12.6	12.6	6.3	0.06	0.06	0.05	0.04	2d10/20 L=50	55,53,37	
82	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.25	0.13	0.15	2d10/20 L=351	55,47,35	
	s=4,m=4	183.0	0.35	12.6	12.6	6.3	0.06	0.20	0.06	0.06	2d10/20 L=351	37,47,35	
		366.0	0.35	12.6	12.6	6.3	0.06	0.20	0.12	0.13	2d10/20 L=351	37,37,34	
124	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.18	0.10	0.09	2d10/20 L=298	51,47,43	
	s=4,m=4	164.0	0.35	12.6	12.6	6.3	0.06	0.15	0.06	0.07	2d10/20 L=298	51,46,42	
		328.0	0.35	12.6	12.6	6.3	0.06	0.21	0.15	0.16	2d10/20 L=298	3,3,3	
130	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.32	0.17	0.18	2d10/20 L=301	35,4,4	
	s=4,m=4	165.5	0.35	12.6	12.6	6.3	0.06	0.18	0.06	0.06	2d10/20 L=301	55,56,56	
		331.0	0.35	12.6	12.6	6.3	0.06	0.21	0.10	0.10	2d10/20 L=301	55,53,53	
131	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.45	0.15	0.16	2d10/20 L=406	35,4,4	
	s=4,m=4	210.5	0.35	12.6	12.6	6.3	0.06	0.42	0.06	0.06	2d10/20 L=406	35,37,37	
		421.0	0.35	12.6	12.6	6.3	0.06	0.37	0.17	0.19	2d10/20 L=406	35,3,3	
133	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.19	0.05	0.03	2d10/20 L=51	35,51,3	
	s=4,m=4	25.6	0.35	12.6	12.6	6.3	0.06	0.18	0.06	0.06	2d10/20 L=51	35,51,3	
		51.2	0.35	12.6	12.6	6.3	0.06	0.17	0.07	0.08	2d10/20 L=51	35,4,3	
134	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.16	0.10	0.10	2d10/20 L=51	35,34,34	
	s=4,m=4	25.6	0.35	12.6	12.6	6.3	0.06	0.15	0.08	0.09	2d10/20 L=51	35,34,34	
		51.2	0.35	12.6	12.6	6.3	0.06	0.17	0.08	0.08	2d10/20 L=51	35,35,34	
136	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.12	0.11	0.11	2d10/20 L=51	35,46,34	
	s=4,m=4	25.6	0.35	12.6	12.6	6.3	0.06	0.13	0.10	0.09	2d10/20 L=51	35,46,34	
		51.2	0.35	12.6	12.6	6.3	0.06	0.15	0.09	0.08	2d10/20 L=51	35,46,34	
137	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.10	0.12	0.09	2d10/20 L=51	35,46,34	
	s=4,m=4	25.6	0.35	12.6	12.6	6.3	0.06	0.10	0.11	0.07	2d10/20 L=51	35,46,34	
		51.2	0.35	12.6	12.6	6.3	0.06	0.11	0.10	0.06	2d10/20 L=51	35,46,34	
138	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.09	0.13	0.07	2d10/20 L=51	35,46,34	
	s=4,m=4	25.6	0.35	12.6	12.6	6.3	0.06	0.09	0.12	0.06	2d10/20 L=51	35,46,34	
		51.2	0.35	12.6	12.6	6.3	0.06	0.08	0.11	0.04	2d10/20 L=51	35,47,34	
143	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.08	0.15	0.04	2d10/20 L=51	35,43,37	
	s=4,m=4	25.6	0.35	12.6	12.6	6.3	0.06	0.09	0.14	0.03	2d10/20 L=51	35,43,37	
		51.2	0.35	12.6	12.6	6.3	0.06	0.08	0.13	0.02	2d10/20 L=51	35,43,40	
							M_T= 18	**Z=418.0**	**P=5**	**P=6**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
152	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.23	0.11	0.08	2d10/20 L=231	56,50,56	
	s=4,m=4	130.5	0.35	12.6	12.6	6.3	0.06	0.10	0.08	0.04	2d10/20 L=231	56,50,56	
		261.0	0.35	12.6	12.6	6.3	0.06	0.15	0.07	0.06	2d10/20 L=231	56,37,53	
151	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.31	0.08	0.08	2d10/20 L=307	56,56,56	
	s=4,m=4	161.0	0.35	12.6	12.6	6.3	0.06	0.26	0.08	0.07	2d10/20 L=307	56,55,53	
		322.0	0.35	12.6	12.6	6.3	0.06	0.28	0.12	0.12	2d10/20 L=307	56,55,53	
150	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.15	0.04	0.02	2d10/20 L=48	56,51,4	
	s=4,m=4	24.1	0.35	12.6	12.6	6.3	0.06	0.14	0.04	0.03	2d10/20 L=48	56,4,4	
		48.1	0.35	12.6	12.6	6.3	0.06	0.15	0.05	0.04	2d10/20 L=48	56,4,4	
156	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.14	0.07	0.07	2d10/20 L=48	56,53,53	
	s=4,m=4	24.1	0.35	12.6	12.6	6.3	0.06	0.13	0.06	0.06	2d10/20 L=48	56,53,53	
		48.1	0.35	12.6	12.6	6.3	0.06	0.14	0.06	0.06	2d10/20 L=48	56,53,53	
157	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.11	0.08	0.08	2d10/20 L=48	56,53,53	
	s=4,m=4	24.1	0.35	12.6	12.6	6.3	0.06	0.12	0.07	0.07	2d10/20 L=48	56,53,53	
		48.1	0.35	12.6	12.6	6.3	0.06	0.13	0.07	0.06	2d10/20 L=48	56,53,53	

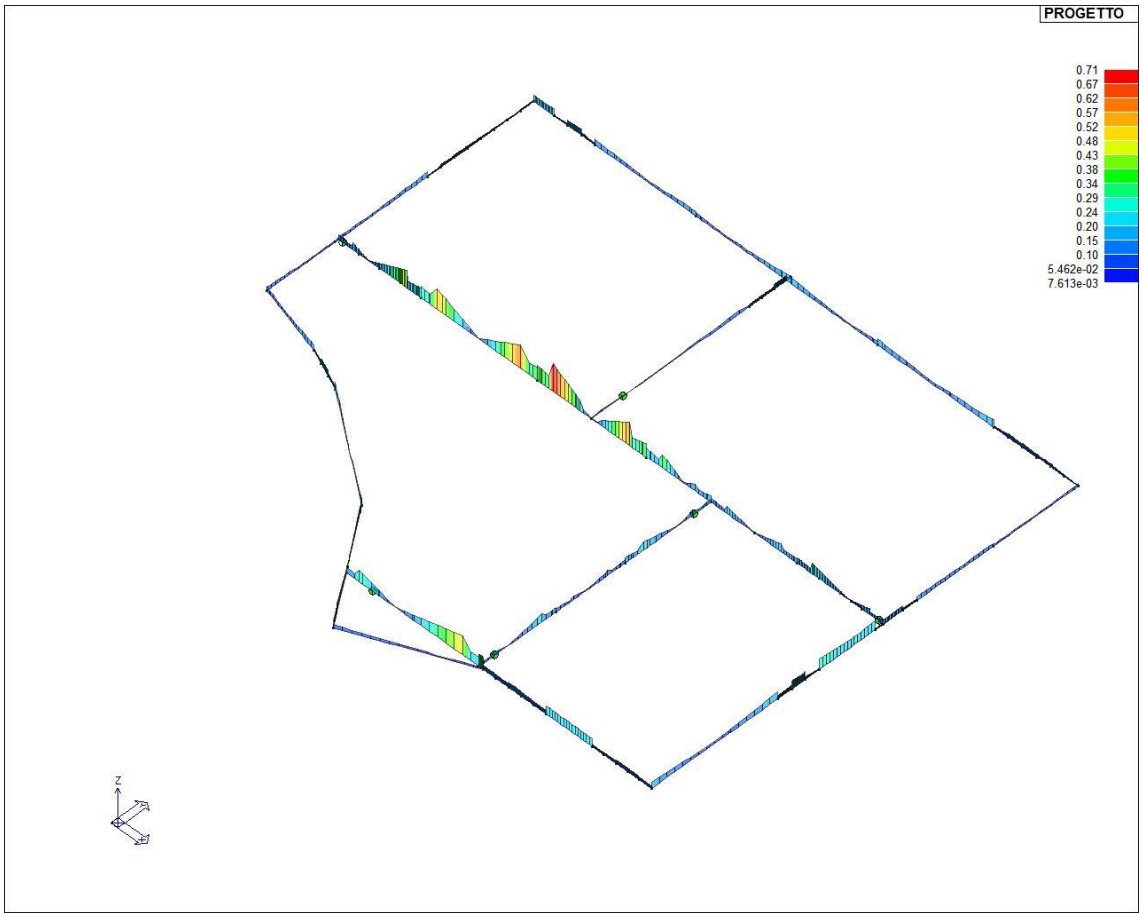
158	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.11	0.07	0.06	2d10/20 L=48	56,53,53	
	s=4,m=4	24.1	0.35	12.6	12.6	6.3	0.06	0.11	0.06	0.05	2d10/20 L=48	56,53,53	
		48.1	0.35	12.6	12.6	6.3	0.06	0.12	0.05	0.05	2d10/20 L=48	56,53,53	
159	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.08	0.07	0.05	2d10/20 L=48	56,37,53	
	s=4,m=4	24.1	0.35	12.6	12.6	6.3	0.06	0.08	0.06	0.04	2d10/20 L=48	56,37,53	
		48.1	0.35	12.6	12.6	6.3	0.06	0.08	0.05	0.03	2d10/20 L=48	56,37,53	
160	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.07	0.06	0.04	2d10/20 L=48	50,37,53	
	s=4,m=4	24.1	0.35	12.6	12.6	6.3	0.06	0.07	0.06	0.03	2d10/20 L=48	50,37,53	
		48.1	0.35	12.6	12.6	6.3	0.06	0.07	0.06	0.02	2d10/20 L=48	56,40,53	
155	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.07	0.07	0.03	2d10/20 L=48	50,40,51	
	s=4,m=4	24.1	0.35	12.6	12.6	6.3	0.06	0.07	0.07	0.02	2d10/20 L=48	50,40,51	
		48.1	0.35	12.6	12.6	6.3	0.06	0.06	0.06	0.01	2d10/20 L=48	50,40,50	
154	ok,ok	0.0	0.35	12.6	12.6	6.3	0.06	0.06	0.12	0.04	2d10/20 L=48	50,40,35	
	s=4,m=4	24.1	0.35	12.6	12.6	6.3	0.06	0.06	0.11	0.03	2d10/20 L=48	50,40,35	
		48.1	0.35	12.6	12.6	6.3	0.06	0.06	0.10	0.03	2d10/20 L=48	56,40,34	
Trave			**%Af**	**Af inf.**	**Af. sup**	**Af long.**	**x/d**	**V N/M**	**V V/T cls**	**V V/T acc**			
			0.81	12.57	17.47	25.13	0.19	0.94	0.63	0.52			



71_CA_TRV_09_Verifica NM



71_CA_TRV_11_Verifica VT cls



71_CA_TRV_12_Verifica VT acciaio

STATI LIMITE D' ESERCIZIO

LEGENDA TABELLA STATI LIMITE D' ESERCIZIO

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 sopraripportati 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).

$w_1 = 0{,}2$ mm $w_2 = 0{,}3$ mm $w_3 = 0{,}4$ mm

Tab. 4.1.IV - *Criteri di scelta dello stato limite di fessurazione*

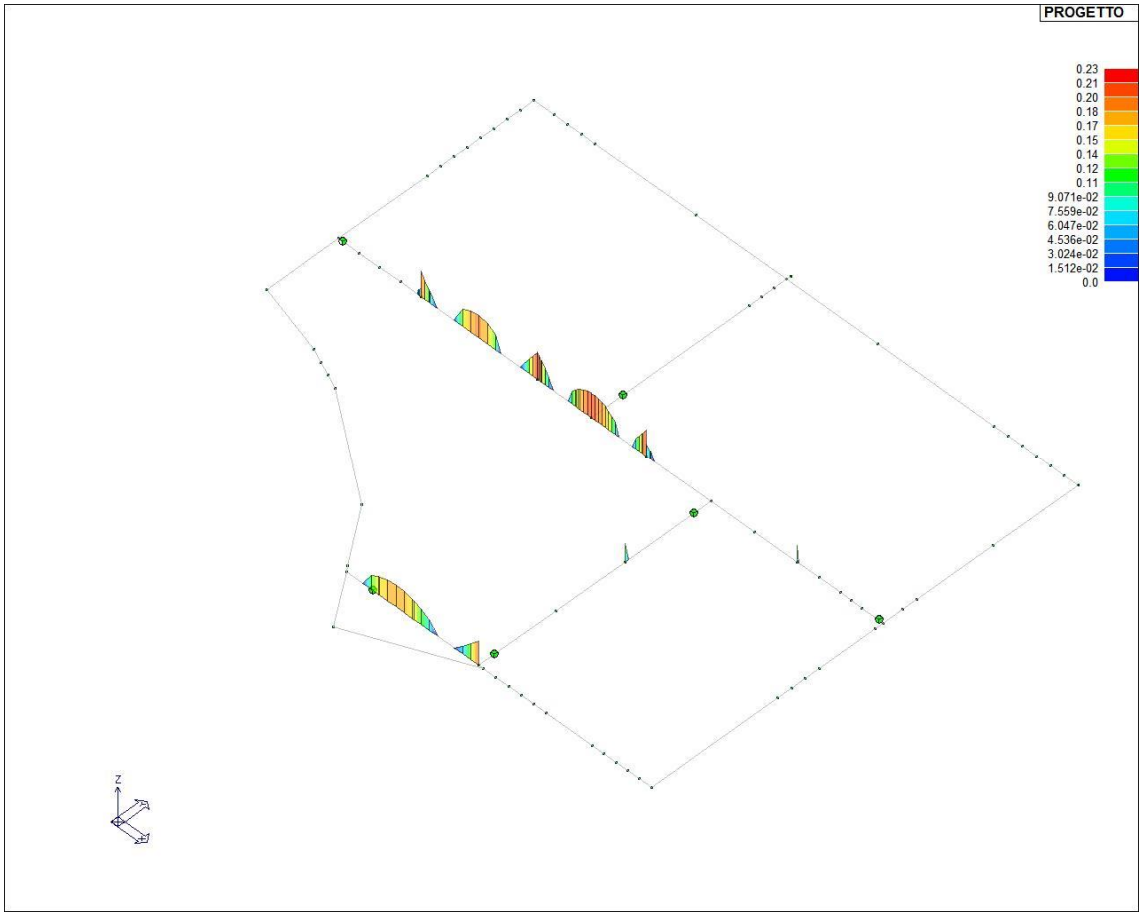
Gruppi di Esigenze	Condizioni ambientali	Combinazione di azioni	Armatura			
			Sensibile		Poco sensibile	
			Stato limite	w_k	Stato limite	w_k
A	Ordinarie	frequente	apertura fessure	$\le w_2$	apertura fessure	$\le w_3$
		quasi permanente	apertura fessure	$\le w_1$	apertura fessure	$\le w_2$
B	Aggressive	frequente	apertura fessure	$\le w_1$	apertura fessure	$\le w_2$
		quasi permanente	decompressione	-	apertura fessure	$\le w_1$
C	Molto aggressive	frequente	formazione fessure	-	apertura fessure	$\le w_1$
		quasi permanente	decompressione	-	apertura fessure	$\le w_1$

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	cm					mm	mm	mm		cm	cm	cm	
1	0.0	0.01	0.10	0.02	124,124,139	0.0	0.0	0.0	0,0,0	-0.01	-0.01	-0.01	132,136,139
	206.4	0.01	0.10	0.02	130,124,138	0.0	0.0	0.0	0,0,0				
	412.8	0.02	0.11	0.02	132,124,139	0.0	0.0	0.0	0,0,0				
2	0.0	0.01	0.08	0.01	123,123,138	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	124,136,139
	229.5	0.06	0.20	0.08	124,123,139	0.0	0.0	0.0	0,0,0				
	459.0	0.04	0.15	0.05	124,123,139	0.0	0.0	0.0	0,0,0				
3	0.0	0.04	0.05	0.05	124,124,139	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	124,136,139
	23.0	0.05	0.07	0.07	124,124,139	0.0	0.0	0.0	0,0,0				
	46.0	0.07	0.10	0.08	124,124,139	0.0	0.0	0.0	0,0,0				
4	0.0	9.97e-03	7.60e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0	-0.04	-0.04	-0.04	124,136,139
	37.1	0.12	0.15	0.14	124,124,139	0.0	0.0	0.0	0,0,0				
	74.2	0.19	0.27	0.22	124,124,139	0.0	0.0	0.0	0,0,0				
5	0.0	0.46	0.70	0.53	124,124,139	0.22	0.21	0.21	124,136,139	-0.39	-0.39	-0.37	123,135,138

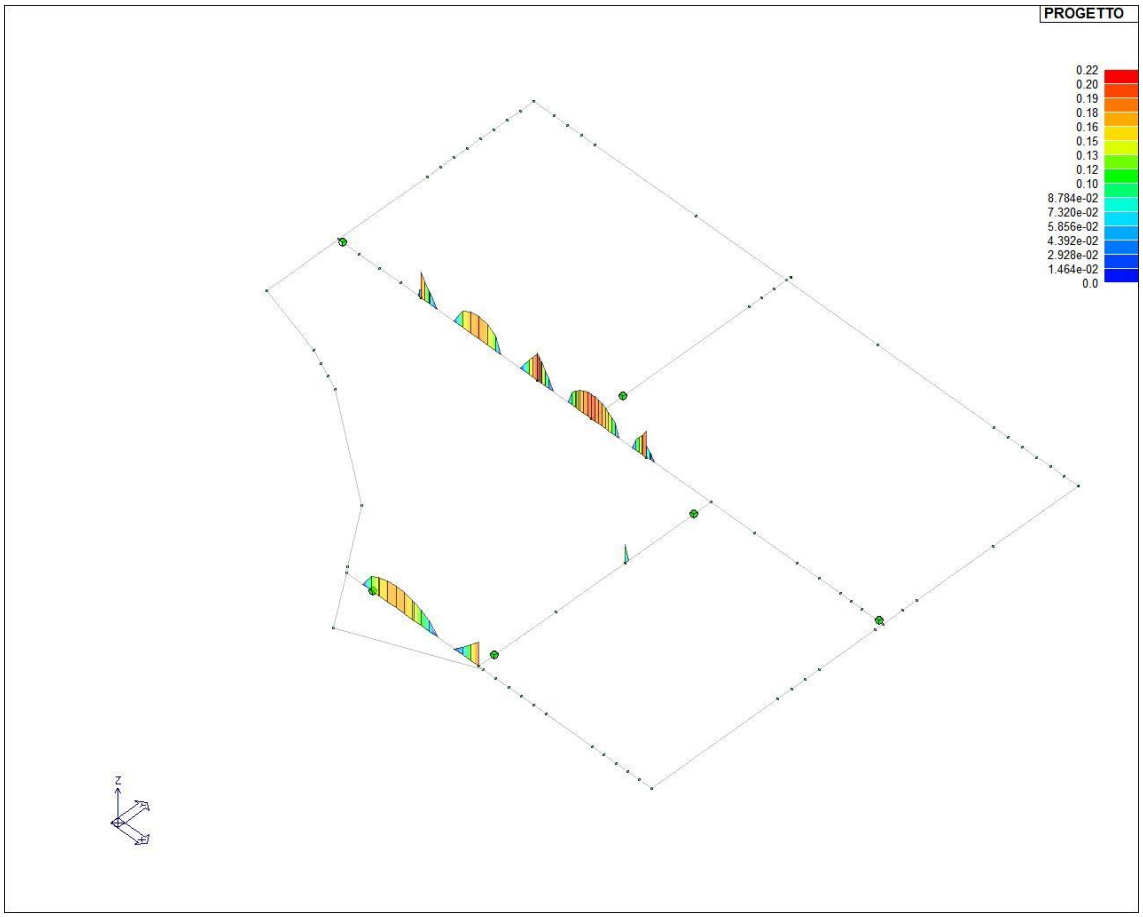
Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	211.2	0.32	0.60	0.37	123,124,138	0.18	0.19	0.18	124,136,139				
	422.5	0.55	0.73	0.64	123,124,138	0.23	0.22	0.21	124,136,139				
6	0.0	0.56	0.76	0.66	123,124,138	0.24	0.23	0.22	124,136,139	-0.40	-0.40	-0.39	123,135,138
	98.2	0.09	0.23	0.10	123,124,138	0.0	0.0	0.0	0,0,0				
	196.5	0.39	0.66	0.46	123,124,138	0.20	0.21	0.20	124,136,139				
7	0.0	0.33	0.40	0.39	123,124,138	0.09	0.10	0.09	124,136,139	0.03	0.03	0.03	123,135,138
	117.8	0.08	0.07	0.09	124,124,139	0.0	0.0	0.0	0,0,0				
	235.5	0.16	0.24	0.19	124,124,139	0.0	0.0	0.0	0,0,0				
8	0.0	0.17	0.28	0.20	123,124,138	0.0	0.0	0.0	0,0,0	-0.07	-0.06	-0.06	123,135,138
	19.5	0.16	0.27	0.19	123,124,138	0.0	0.0	0.0	0,0,0				
	39.1	0.15	0.24	0.18	123,124,138	0.0	0.0	0.0	0,0,0				
9	0.0	0.20	0.38	0.23	123,124,138	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	132,136,139
	78.1	0.01	7.02e-03	0.01	132,130,139	0.0	0.0	0.0	0,0,0				
	156.2	0.07	0.11	0.09	123,124,138	0.0	0.0	0.0	0,0,0				
10	0.0	1.21e-03	9.22e-04	1.51e-03	123,123,138	0.0	0.0	0.0	0,0,0	-0.69	-0.68	-0.66	124,136,139
	240.6	0.34	0.53	0.40	123,124,138	0.15	0.15	0.15	124,136,139				
	481.2	0.51	0.69	0.60	123,124,138	0.21	0.20	0.20	124,136,139				
11	0.0	0.23	0.49	0.27	124,123,139	0.17	0.15	0.15	123,135,138	-0.06	-0.06	-0.05	123,135,138
	156.5	0.15	0.32	0.17	124,123,139	0.0	0.0	0.0	0,0,0				
	313.0	0.0	0.02	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
12	0.0	0.11	0.15	0.13	123,123,138	0.0	0.0	0.0	0,0,0	-4.08e-03	-3.70e-03	-3.60e-03	124,136,139
	124.5	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
	249.0	0.17	0.26	0.20	124,123,139	0.0	0.0	0.0	0,0,0				
13	0.0	0.0	0.07	0.0	0,124,0	0.0	0.0	0.0	0,0,0	-0.04	-0.03	-0.03	123,135,138
	140.0	0.10	0.29	0.12	123,124,138	0.0	0.0	0.0	0,0,0				
	280.0	0.19	0.47	0.23	124,124,139	0.16	0.0	0.0	124,0,0				
14	0.0	0.06	0.16	0.07	123,123,138	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	123,135,138
	215.9	0.04	0.13	0.05	123,124,138	0.0	0.0	0.0	0,0,0				
	431.9	0.02	0.06	0.02	124,132,139	0.0	0.0	0.0	0,0,0				
15	0.0	0.04	0.05	0.05	123,124,138	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	124,136,139
	25.1	0.03	0.03	0.04	123,124,138	0.0	0.0	0.0	0,0,0				
	50.2	0.03	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
16	0.0	0.04	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	124,136,139
	25.1	0.04	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
	50.2	0.04	0.04	0.05	123,123,138	0.0	0.0	0.0	0,0,0				
17	0.0	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	123,135,138
	25.1	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0				
	50.2	0.03	0.03	0.04	124,132,139	0.0	0.0	0.0	0,0,0				
19	0.0	0.24	0.46	0.28	124,124,139	0.16	0.14	0.0	124,136,0	-0.07	-0.06	-0.06	123,135,138
	39.1	0.08	0.14	0.10	124,124,139	0.0	0.0	0.0	0,0,0				
	78.1	0.04	0.05	0.04	123,124,138	0.0	0.0	0.0	0,0,0				
20	0.0	0.02	0.05	0.02	124,123,139	0.0	0.0	0.0	0,0,0	1.85e-03	-1.95e-03	-2.01e-03	121,133,138
	138.5	3.09e-03	0.02	4.12e-03	125,121,139	0.0	0.0	0.0	0,0,0				
	277.0	0.0	8.04e-03	0.0	0,121,0	0.0	0.0	0.0	0,0,0				
22	0.0	0.06	0.08	0.08	124,124,139	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	124,136,139
	23.0	0.06	0.08	0.07	124,124,139	0.0	0.0	0.0	0,0,0				
	46.0	0.06	0.07	0.07	124,124,139	0.0	0.0	0.0	0,0,0				
24	0.0	0.0	0.01	0.0	0,123,0	0.0	0.0	0.0	0,0,0	-8.06e-04	-7.40e-04	-7.23e-04	124,136,139
	7.5	0.0	0.01	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
	15.0	0.0	0.01	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
25	0.0	0.0	0.04	0.0	0,123,0	0.0	0.0	0.0	0,0,0	-6.34e-03	-5.83e-03	-5.71e-03	124,136,139
	22.5	0.02	0.08	0.03	124,123,139	0.0	0.0	0.0	0,0,0				
	45.0	0.06	0.14	0.07	123,123,138	0.0	0.0	0.0	0,0,0				
26	0.0	0.02	0.04	0.02	123,123,138	0.0	0.0	0.0	0,0,0	-4.44e-03	-4.07e-03	-3.98e-03	124,136,139
	22.5	1.79e-03	0.02	2.39e-03	125,123,139	0.0	0.0	0.0	0,0,0				
	45.0	4.96e-03	0.02	6.25e-03	124,123,139	0.0	0.0	0.0	0,0,0				
27	0.0	0.0	0.04	0.0	0,123,0	0.0	0.0	0.0	0,0,0	-1.48e-03	-1.25e-03	-1.19e-03	124,136,139
	22.5	0.0	0.04	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
	45.0	0.02	0.07	0.03	124,123,139	0.0	0.0	0.0	0,0,0				
28	0.0	0.0	0.01	0.0	0,123,0	0.0	0.0	0.0	0,0,0	0.29	0.27	0.26	124,136,139
	286.0	0.05	0.10	0.06	121,121,138	0.0	0.0	0.0	0,0,0				
	572.0	0.20	0.35	0.25	124,123,139	0.10	0.0	0.0	123,0,0				
29	0.0	0.07	0.28	0.08	123,124,138	0.0	0.0	0.0	0,0,0	-0.01	-9.84e-03	-9.61e-03	124,136,139
	10.6	0.07	0.29	0.09	123,124,138	0.0	0.0	0.0	0,0,0				
	21.2	0.07	0.29	0.09	123,124,138	0.0	0.0	0.0	0,0,0				
32	0.0	0.31	0.64	0.37	123,124,138	0.20	0.20	0.19	124,136,139	0.47	0.47	0.45	123,135,138
	99.2	0.10	0.32	0.12	123,124,138	0.0	0.0	0.0	0,0,0				
	198.5	0.45	0.72	0.53	123,124,138	0.22	0.21	0.21	124,136,139				
33	0.0	0.22	0.14	0.26	123,123,138	0.0	0.0	0.0	0,0,0	6.69e-03	6.08e-03	5.93e-03	124,136,139
	7.5	0.28	0.18	0.33	123,123,138	0.0	0.0	0.0	0,0,0				
	15.0	0.35	0.21	0.42	123,123,138	0.0	0.0	0.0	0,0,0				
35	0.0	0.03	0.03	0.04	123,123,138	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	123,135,138
	25.0	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
	50.0	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0				
36	0.0	0.03	0.19	0.03	123,124,138	0.0	0.0	0.0	0,0,0	-0.01	-9.84e-03	-9.61e-03	123,135,138
	112.2	0.02	0.18	0.02	123,124,138	0.0	0.0	0.0	0,0,0				
	224.5	0.07	0.28	0.08	123,124,138	0.0	0.0	0.0	0,0,0				
42	0.0	0.03	0.08	0.03	124,123,139	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	123,135,138

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	101.5	2.84e-03	0.02	2.93e-03	124,123,139	0.0	0.0	0.0	0,0,0				
	203.0	0.0	0.01	0.0	0,121,0	0.0	0.0	0.0	0,0,0				
43	0.0	0.04	0.05	0.04	123,124,138	0.0	0.0	0.0	0,0,0	-0.07	-0.06	-0.06	123,135,138
	39.1	0.12	0.18	0.14	123,124,138	0.0	0.0	0.0	0,0,0				
	78.1	0.16	0.26	0.19	123,124,138	0.0	0.0	0.0	0,0,0				
47	0.0	0.01	9.07e-03	0.02	132,132,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	123,135,138
	25.0	0.02	0.01	0.02	132,132,139	0.0	0.0	0.0	0,0,0				
	50.0	0.02	0.02	0.03	124,132,139	0.0	0.0	0.0	0,0,0				
48	0.0	7.67e-03	5.59e-03	9.38e-03	132,132,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	123,135,138
	25.0	9.29e-03	6.70e-03	0.01	132,132,139	0.0	0.0	0.0	0,0,0				
	50.0	0.01	9.62e-03	0.02	132,132,139	0.0	0.0	0.0	0,0,0				
49	0.0	0.04	0.09	0.04	124,124,139	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	124,136,139
	82.5	0.02	0.05	0.02	123,124,138	0.0	0.0	0.0	0,0,0				
	165.0	2.69e-03	0.01	3.31e-03	123,123,138	0.0	0.0	0.0	0,0,0				
50	0.0	0.01	0.22	0.01	123,124,138	0.0	0.0	0.0	0,0,0	-0.04	-0.04	-0.04	124,136,139
	37.1	0.04	0.25	0.05	123,124,138	0.0	0.0	0.0	0,0,0				
	74.2	0.0	0.20	0.0	0,124,0	0.0	0.0	0.0	0,0,0				
51	0.0	0.01	0.02	0.02	124,123,139	0.0	0.0	0.0	0,0,0	1.85e-03	-1.95e-03	-2.01e-03	121,133,138
	25.0	0.01	0.01	0.01	124,123,139	0.0	0.0	0.0	0,0,0				
	50.0	9.04e-03	8.25e-03	0.01	123,123,138	0.0	0.0	0.0	0,0,0				
52	0.0	7.42e-03	0.03	9.15e-03	123,124,138	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	123,135,138
	21.5	7.53e-03	0.03	9.29e-03	123,124,138	0.0	0.0	0.0	0,0,0				
	43.0	8.03e-03	0.04	9.97e-03	123,124,138	0.0	0.0	0.0	0,0,0				
53	0.0	0.02	0.03	0.03	124,132,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	123,135,138
	25.0	0.02	0.02	0.02	124,132,139	0.0	0.0	0.0	0,0,0				
	50.0	0.01	9.10e-03	0.02	124,124,139	0.0	0.0	0.0	0,0,0				
54	0.0	0.08	0.05	0.10	124,123,139	0.0	0.0	0.0	0,0,0	-0.04	-0.04	-0.04	124,136,139
	37.1	0.11	0.07	0.13	123,123,138	0.0	0.0	0.0	0,0,0				
	74.2	0.31	0.30	0.37	123,123,138	0.07	0.06	0.06	124,135,138				
55	0.0	0.16	0.26	0.19	123,124,138	0.0	0.0	0.0	0,0,0	-0.07	-0.06	-0.06	123,135,138
	19.5	0.17	0.28	0.20	123,124,138	0.0	0.0	0.0	0,0,0				
	39.1	0.17	0.28	0.20	123,124,138	0.0	0.0	0.0	0,0,0				
56	0.0	0.15	0.24	0.18	123,124,138	0.0	0.0	0.0	0,0,0	-0.07	-0.06	-0.06	123,135,138
	39.1	0.09	0.14	0.11	123,124,138	0.0	0.0	0.0	0,0,0				
	78.1	3.08e-03	2.35e-03	3.60e-03	123,123,138	0.0	0.0	0.0	0,0,0				
57	0.0	8.26e-03	0.04	9.96e-03	123,124,138	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	123,135,138
	21.5	6.59e-03	0.04	8.07e-03	123,124,138	0.0	0.0	0.0	0,0,0				
	43.0	5.29e-03	0.04	6.67e-03	123,124,138	0.0	0.0	0.0	0,0,0				
60	0.0	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	123,135,138
	25.0	0.03	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
	50.0	0.03	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
62	0.0	0.02	0.02	0.02	123,123,138	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	123,135,138
	25.0	0.03	0.03	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
	50.0	0.04	0.05	0.04	123,123,138	0.0	0.0	0.0	0,0,0				
70	0.0	3.49e-03	2.52e-03	4.65e-03	125,125,139	0.0	0.0	0.0	0,0,0	1.85e-03	-1.95e-03	-2.01e-03	124,136,139
	35.0	7.69e-03	8.07e-03	9.98e-03	124,123,139	0.0	0.0	0.0	0,0,0				
	70.0	0.01	0.02	0.02	124,123,139	0.0	0.0	0.0	0,0,0				
72	0.0	0.10	0.22	0.12	123,124,138	0.0	0.0	0.0	0,0,0	-0.04	-0.04	-0.04	123,135,138
	37.1	0.02	0.08	0.02	123,124,138	0.0	0.0	0.0	0,0,0				
	74.2	0.11	0.26	0.12	123,124,138	0.0	0.0	0.0	0,0,0				
82	0.0	0.03	0.10	0.04	124,124,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	124,136,139
	183.0	0.03	0.10	0.04	123,123,138	0.0	0.0	0.0	0,0,0				
	366.0	0.01	0.05	0.02	123,123,138	0.0	0.0	0.0	0,0,0				
124	0.0	2.97e-03	2.20e-03	3.59e-03	124,124,139	0.0	0.0	0.0	0,0,0	0.01	0.01	0.01	130,135,138
	164.0	0.01	0.02	0.02	130,132,138	0.0	0.0	0.0	0,0,0				
	328.0	0.08	0.17	0.09	123,124,138	0.0	0.0	0.0	0,0,0				
126	0.0	0.0	6.46e-03	0.0	0,123,0	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	124,136,139
	15.0	0.0	8.24e-03	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
	30.0	2.81e-03	0.01	3.75e-03	125,123,139	0.0	0.0	0.0	0,0,0				
129	0.0	0.05	0.06	0.06	124,124,139	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	124,136,139
	23.0	0.04	0.05	0.05	124,124,139	0.0	0.0	0.0	0,0,0				
	46.0	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
130	0.0	0.08	0.18	0.10	123,124,138	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	124,136,139
	165.5	0.02	0.03	0.02	123,124,138	0.0	0.0	0.0	0,0,0				
	331.0	0.01	0.02	0.01	123,124,138	0.0	0.0	0.0	0,0,0				
131	0.0	0.02	0.08	0.02	123,124,138	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	123,135,138
	210.5	0.05	0.15	0.06	123,124,138	0.0	0.0	0.0	0,0,0				
	421.0	0.05	0.15	0.06	123,124,138	0.0	0.0	0.0	0,0,0				
132	0.0	0.05	0.08	0.05	124,124,139	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	124,136,139
	23.0	0.04	0.07	0.05	124,124,139	0.0	0.0	0.0	0,0,0				
	46.0	0.04	0.07	0.05	124,124,139	0.0	0.0	0.0	0,0,0				
133	0.0	0.02	0.02	0.03	123,124,138	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	124,136,139
	25.6	0.03	0.03	0.03	123,124,138	0.0	0.0	0.0	0,0,0				
	51.2	0.04	0.05	0.04	123,124,138	0.0	0.0	0.0	0,0,0				
134	0.0	0.04	0.05	0.04	123,124,138	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	124,136,139
	25.6	0.03	0.03	0.04	123,124,138	0.0	0.0	0.0	0,0,0				
	51.2	0.03	0.03	0.03	123,124,138	0.0	0.0	0.0	0,0,0				
135	0.0	8.44e-03	0.03	0.01	123,124,138	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	123,135,138

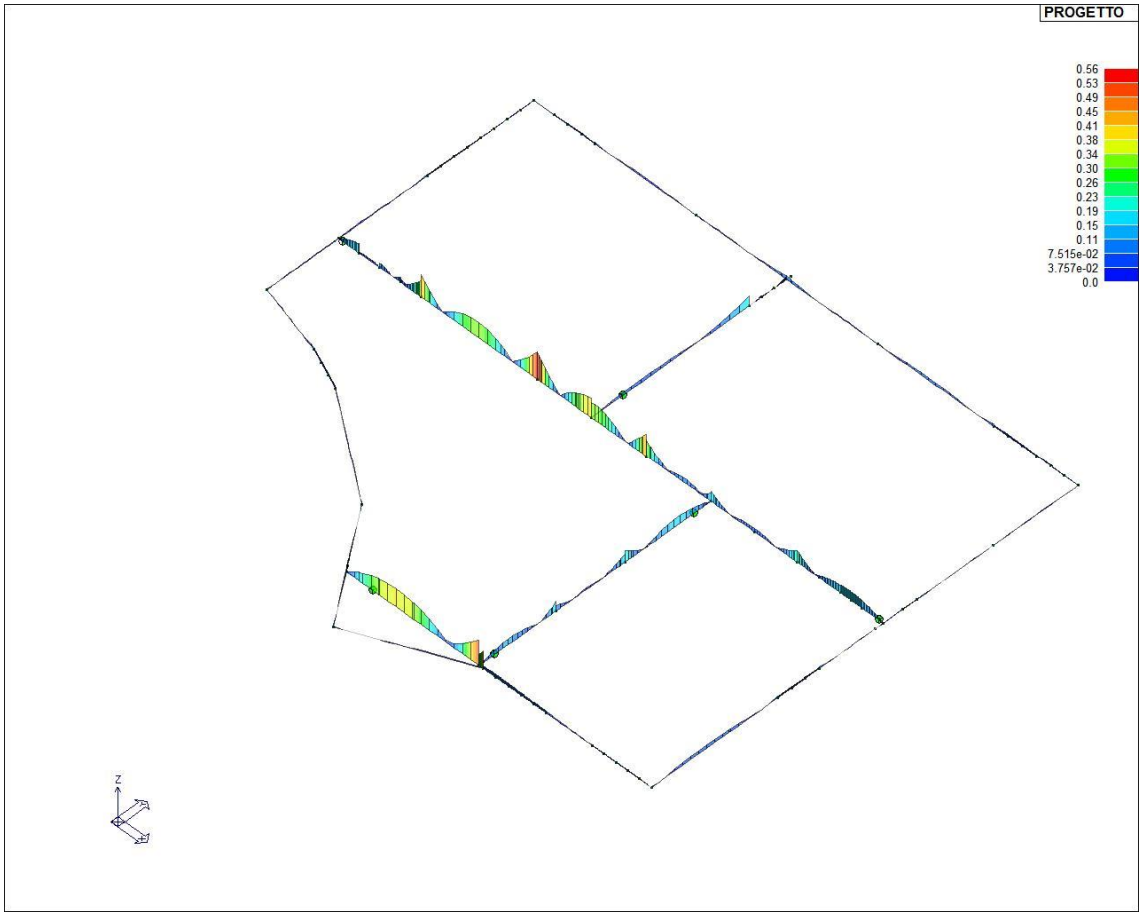
Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	21.5	8.90e-03	0.03	0.01	123,124,138	0.0	0.0	0.0	0,0,0				
	43.0	9.73e-03	0.04	0.01	123,124,138	0.0	0.0	0.0	0,0,0				
136	0.0	0.03	0.04	0.04	123,124,138	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	124,136,139
	25.6	0.02	0.03	0.03	123,124,138	0.0	0.0	0.0	0,0,0				
	51.2	0.02	0.02	0.02	123,124,138	0.0	0.0	0.0	0,0,0				
137	0.0	0.02	0.03	0.03	123,124,138	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	124,136,139
	25.6	0.02	0.02	0.02	123,124,138	0.0	0.0	0.0	0,0,0				
	51.2	0.01	9.17e-03	0.01	123,124,138	0.0	0.0	0.0	0,0,0				
138	0.0	0.01	0.02	0.02	123,124,138	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	124,136,139
	25.6	8.87e-03	8.88e-03	0.01	123,124,138	0.0	0.0	0.0	0,0,0				
	51.2	5.68e-03	4.04e-03	7.30e-03	123,123,138	0.0	0.0	0.0	0,0,0				
139	0.0	9.80e-03	0.03	0.01	123,124,138	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	123,135,138
	21.5	8.56e-03	0.03	0.01	123,124,138	0.0	0.0	0.0	0,0,0				
	43.0	7.68e-03	0.03	9.43e-03	123,124,138	0.0	0.0	0.0	0,0,0				
140	0.0	0.06	0.08	0.07	124,124,139	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	124,136,139
	23.0	0.05	0.06	0.06	124,124,139	0.0	0.0	0.0	0,0,0				
	46.0	0.04	0.05	0.05	124,124,139	0.0	0.0	0.0	0,0,0				
142	0.0	8.09e-03	0.03	9.93e-03	123,124,138	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	123,135,138
	21.5	2.80e-03	0.02	3.53e-03	123,124,138	0.0	0.0	0.0	0,0,0				
	43.0	0.0	0.01	0.0	0,124,0	0.0	0.0	0.0	0,0,0				
143	0.0	7.58e-03	9.73e-03	9.58e-03	123,124,138	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	124,136,139
	25.6	3.78e-03	2.68e-03	4.86e-03	123,123,138	0.0	0.0	0.0	0,0,0				
	51.2	3.05e-03	2.19e-03	3.80e-03	123,123,138	0.0	0.0	0.0	0,0,0				
144	0.0	0.0	8.13e-03	0.0	0,121,0	0.0	0.0	0.0	0,0,0	7.47e-03	7.46e-03	7.46e-03	124,136,139
	155.0	0.01	0.04	0.02	124,121,139	0.0	0.0	0.0	0,0,0				
	310.0	3.64e-03	0.02	4.86e-03	121,121,138	0.0	0.0	0.0	0,0,0				
150	0.0	0.02	0.03	0.02	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	123,135,138
	24.1	0.02	0.04	0.03	124,123,139	0.0	0.0	0.0	0,0,0				
	48.1	0.03	0.05	0.03	124,123,139	0.0	0.0	0.0	0,0,0				
151	0.0	0.01	0.03	0.02	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	124,136,139
	161.0	0.02	0.05	0.02	124,123,139	0.0	0.0	0.0	0,0,0				
	322.0	0.03	0.08	0.04	124,123,139	0.0	0.0	0.0	0,0,0				
152	0.0	0.02	0.04	0.02	123,123,138	0.0	0.0	0.0	0,0,0	-5.82e-03	-5.42e-03	-5.32e-03	124,136,139
	130.5	0.02	0.05	0.02	124,123,139	0.0	0.0	0.0	0,0,0				
	261.0	0.01	0.03	0.01	124,123,139	0.0	0.0	0.0	0,0,0				
153	0.0	4.00e-03	2.96e-03	4.62e-03	130,130,138	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	123,135,138
	123.8	4.90e-03	4.60e-03	5.98e-03	123,123,138	0.0	0.0	0.0	0,0,0				
	247.5	0.04	0.08	0.05	124,124,139	0.0	0.0	0.0	0,0,0				
154	0.0	2.27e-03	2.62e-03	2.70e-03	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	123,135,138
	24.1	8.55e-04	6.21e-04	9.94e-04	124,124,139	0.0	0.0	0.0	0,0,0				
	48.1	8.55e-04	6.21e-04	1.01e-03	124,124,139	0.0	0.0	0.0	0,0,0				
155	0.0	4.03e-03	4.66e-03	4.82e-03	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	123,135,138
	24.1	2.01e-03	1.43e-03	2.37e-03	124,124,139	0.0	0.0	0.0	0,0,0				
	48.1	1.46e-03	1.06e-03	1.73e-03	124,124,139	0.0	0.0	0.0	0,0,0				
156	0.0	0.02	0.02	0.03	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	123,135,138
	24.1	0.02	0.02	0.02	124,123,139	0.0	0.0	0.0	0,0,0				
	48.1	0.02	0.01	0.02	124,123,139	0.0	0.0	0.0	0,0,0				
157	0.0	0.02	0.02	0.02	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	123,135,138
	24.1	0.02	0.01	0.02	124,123,139	0.0	0.0	0.0	0,0,0				
	48.1	0.01	9.07e-03	0.02	124,123,139	0.0	0.0	0.0	0,0,0				
158	0.0	0.02	0.02	0.02	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	123,135,138
	24.1	0.01	0.01	0.01	124,123,139	0.0	0.0	0.0	0,0,0				
	48.1	9.47e-03	8.10e-03	0.01	124,123,139	0.0	0.0	0.0	0,0,0				
159	0.0	0.01	0.01	0.01	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	123,135,138
	24.1	7.04e-03	5.72e-03	8.45e-03	124,123,139	0.0	0.0	0.0	0,0,0				
	48.1	5.40e-03	3.84e-03	6.49e-03	124,124,139	0.0	0.0	0.0	0,0,0				
160	0.0	6.79e-03	8.48e-03	8.15e-03	124,123,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	123,135,138
	24.1	4.31e-03	3.48e-03	5.15e-03	124,123,139	0.0	0.0	0.0	0,0,0				
	48.1	3.23e-03	2.30e-03	3.85e-03	124,124,139	0.0	0.0	0.0	0,0,0				
161	0.0	1.15e-03	8.46e-04	1.40e-03	132,123,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	123,135,138
	36.0	8.39e-04	6.27e-04	9.85e-04	123,123,138	0.0	0.0	0.0	0,0,0				
	72.0	3.60e-03	3.86e-03	4.45e-03	130,130,138	0.0	0.0	0.0	0,0,0				
164	0.0	0.07	0.11	0.09	123,124,138	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	124,136,139
	78.1	5.29e-03	3.59e-03	6.17e-03	123,123,138	0.0	0.0	0.0	0,0,0				
	156.2	0.23	0.45	0.27	123,124,138	0.15	0.0	0.0	124,0,0				
165	0.0	0.10	0.30	0.12	123,124,138	0.0	0.0	0.0	0,0,0	0.05	0.05	0.04	124,136,139
	101.6	0.02	0.13	0.03	123,124,138	0.0	0.0	0.0	0,0,0				
	203.3	0.05	0.18	0.06	123,124,138	0.0	0.0	0.0	0,0,0				
Trave		**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**		**dR**	**dF**	**dP**	
										-0.69	-0.68	-0.66	
		0.56	0.76	0.66		0.24	0.23	0.22		0.47	0.47	0.45	



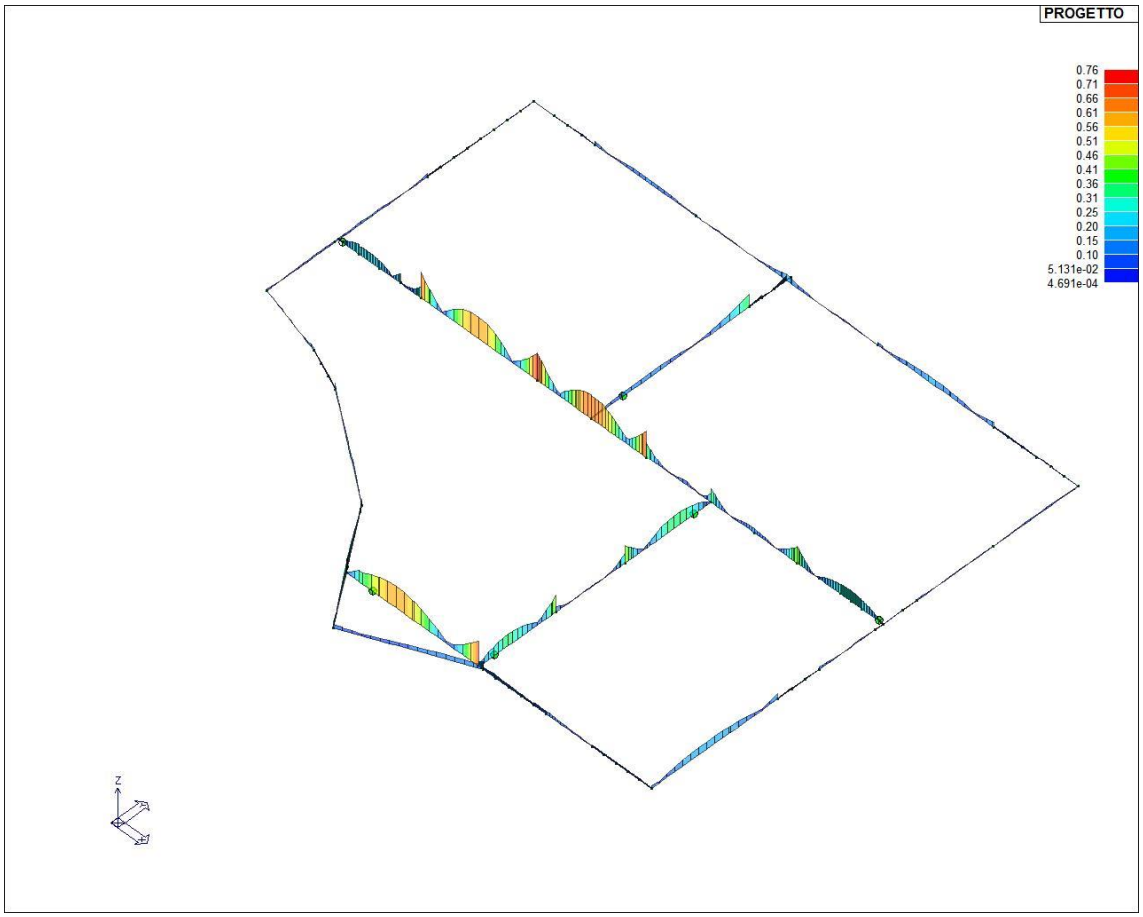
71_CA_TRV_21_Fessure freq



71_CA_TRV_22_Fessure perm



71_CA_TRV_23_Tens cls rare



71_CA_TRV_24_Tens acc rare

STATO LIMITE D' ESERCIZIO: SLD DANNO SISMICO

LEGENDA TABELLA STATI LIMITE DI DANNO (VERIFICHE RES)

Le verifiche RES per SLD sono effettuate in accordo alle Norme Tecniche 17 Gennaio 2018 e alla circolare n.7 del 21 gennaio 2019 nonché alle linee guida del Consiglio Superiore LL.PP. "Linee guida per la Progettazione, l'Esecuzione ed il Collaudo di Interventi di Rinforzo di strutture di c.a., c.a.p. e murarie mediante FRP".
Le verifiche RES per SLD, sono riportate nelle successive tabelle nella forma di rapporto "domanda" su "capacità" e hanno esito positivo quando il rapporto è non superiore al valore unitario.
La "domanda" è ottenuta direttamente dall'analisi per le previste combinazioni SLD (NTC18 2.5.3. COMBINAZIONI DELLE AZIONI formula [2.5.5]).
Per "capacità" si intende qui il valore della sollecitazione corrispondente al raggiungimento dello stato limite di danno per la sezione: per la resistenza flessionale questo stato limite si identifica con la tensione di snervamento dell'acciaio o la resistenza massima a compressione per il calcestruzzo e la muratura. Lo stato limite di danno si ritiene attinto anche in caso di superamento della resistenza a taglio.
Le resistenze flessionali sono valutate utilizzando i legami costitutivi del materiale limitati al solo tratto elastico, ottenendo così resistenze sostanzialmente elastiche come previsto dalla norma.
La seguente tabella identifica per quali configurazioni (materiale nuovo, esistente, con rinforzi e metodo di analisi) sono state condotte le verifiche di seguito riportate.

Configurazione	Verifica SLD	NOTE
1) c.a. nuovo e esist. Verifica SLU con q>1	Verifica N/M SE Verifica V/T	Sono verifiche per struttura non dissipativa condotte secondo il cap.4 NTC18 in regime sostanzialmente elastico; si verificano travi,pilastri, setti e gusci.
2) Muratura nuova Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap.7
3) Muratura esis. AO Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap. 7 e 8
4) Muratura esis. PO Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap. 7 e 8; Anche per rinforzi FRP è prevista verifica N/M SE e V

Simbologia adottata nelle tabelle di verifica

Per le verifiche agli SLD di pilastri, travi setti e gusci in *c.a*. è presente una tabella con i simboli di seguito descritti:

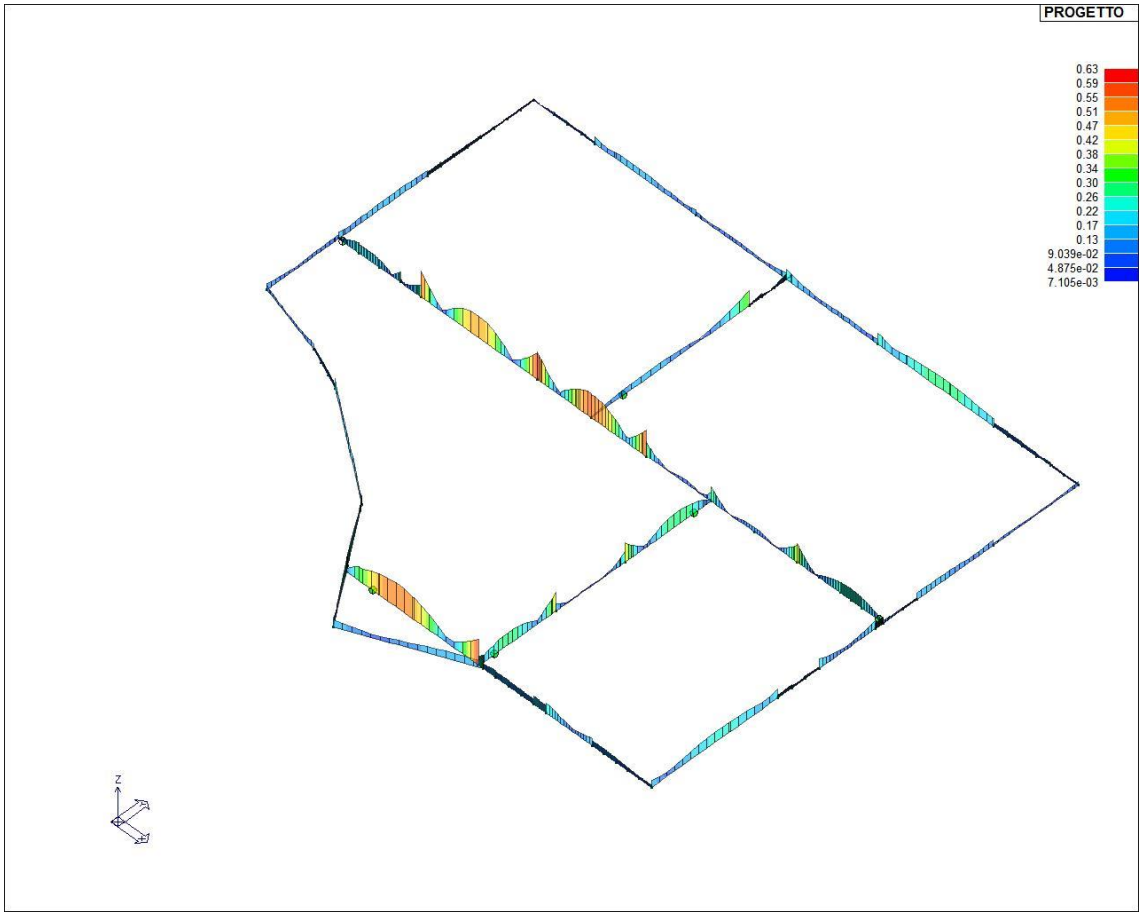
Pilas./Trave/ Setto/Guscio	numero identificativo dell'elemento D2 o D3
Stato	Codici relativi all'esito delle verifiche effettuate appresso descritte
Pos.	Posizione nell'elemento della sezione per la quale si riporta la verifica
V N/M	Verifica a pressoflessione con rapporto Ed/Rd: valore minore o uguale a 1 per verifica positiva
V V/T cls	Verifica a taglio/torsione con rapporto Ved/Vrd lato cls: valore minore o uguale a 1 per verifica positiva
V V/T acc	Verifica a taglio/torsione con rapporto Ved/Vrd lato acciaio: valore minore o uguale a 1 per verifica positiva
Rif. cmb.	Riferimento combinazioni da cui si generano le verifiche più gravose per il pilastro

TABELLA VERIFICHE ELEMENTI D2 TRAVI C.A.

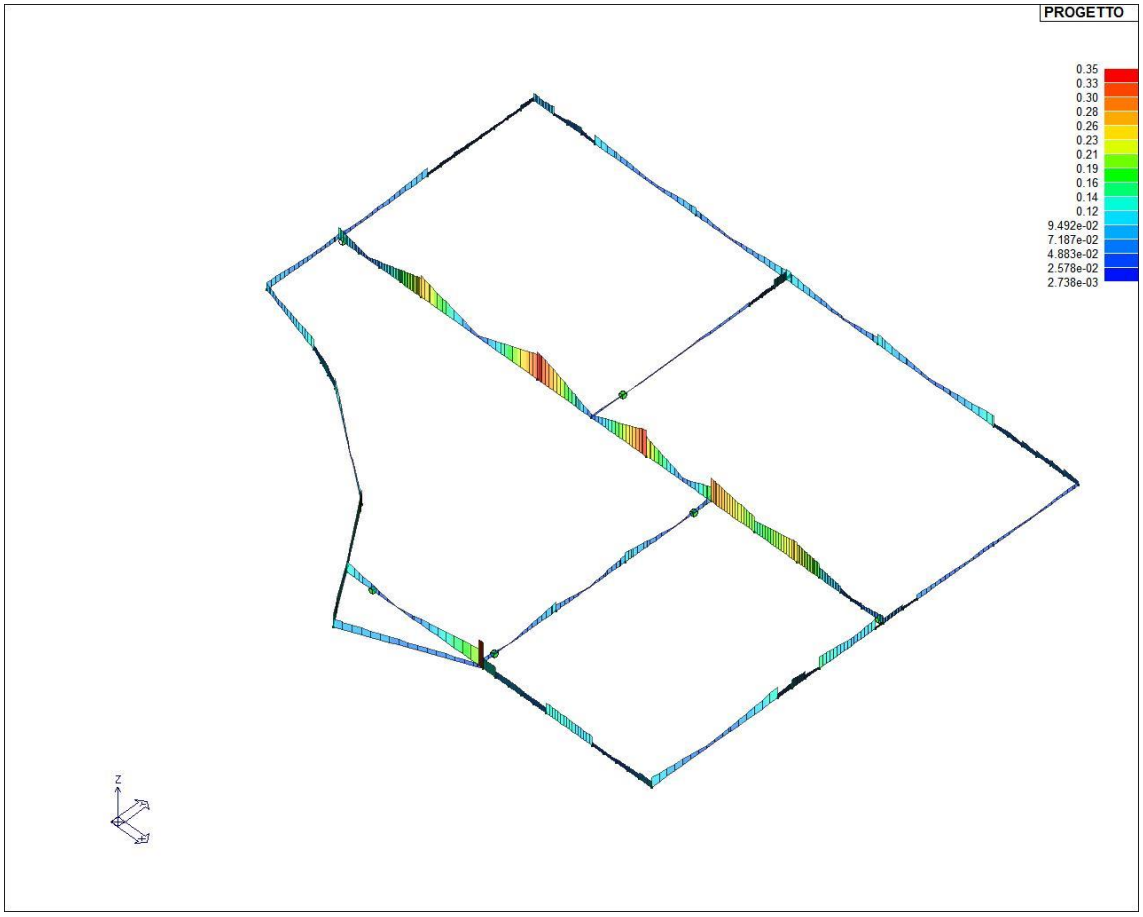
Trave	Stato	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb
		cm					cm				
1	ok	0.0	0.17	0.10	0.07	64,64,60	206.4	0.12	0.07	0.03	60,64,60
		412.8	0.17	0.04	0.03	60,64,57					
2	ok	0.0	0.17	0.12	0.13	78,80,74	229.5	0.22	0.03	0.03	78,79,75
		459.0	0.20	0.13	0.15	73,79,75					
3	ok	0.0	0.10	0.12	0.08	64,60,60	23.0	0.13	0.12	0.08	64,60,60
		46.0	0.15	0.13	0.08	64,60,60					
4	ok	0.0	0.01	0.14	0.09	72,82,72	37.1	0.14	0.10	0.06	69,82,72
		74.2	0.23	0.06	0.07	69,82,72					
5	ok	0.0	0.59	0.27	0.18	88,76,72	211.2	0.49	0.02	0.01	72,73,69
		422.5	0.60	0.31	0.22	62,73,69					
6	ok	0.0	0.63	0.35	0.24	88,74,84	98.2	0.20	0.20	0.33	82,74,84
		196.5	0.56	0.04	0.02	88,74,84					
7	ok	0.0	0.33	0.25	0.16	72,76,63	117.8	0.07	0.07	0.06	57,76,63
		235.5	0.21	0.19	0.11	82,76,62					
8	ok	0.0	0.25	0.02	0.01	72,77,69	19.5	0.25	0.04	0.04	72,77,69
		39.1	0.23	0.05	0.06	72,77,69					
9	ok	0.0	0.32	0.29	0.08	72,76,71	78.1	0.01	0.24	0.10	84,76,71
		156.2	0.10	0.19	0.01	72,76,70					
10	ok	0.0	0.08	0.13	0.10	84,60,60	240.6	0.50	0.04	0.08	84,62,57
		481.2	0.60	0.21	0.15	84,82,57					
11	ok	0.0	0.44	0.12	0.09	84,76,76	156.5	0.28	0.02	0.04	84,76,76
		313.0	0.04	0.08	0.06	84,73,73					
12	ok	0.0	0.16	0.08	0.05	76,78,76	124.5	0.03	0.01	0.02	76,79,73
		249.0	0.25	0.09	0.06	87,79,73					
13	ok	0.0	0.08	0.07	0.05	64,62,62	140.0	0.26	0.02	0.04	64,63,63
		280.0	0.43	0.11	0.08	59,63,63					
14	ok	0.0	0.22	0.12	0.12	72,60,63	215.9	0.17	0.04	0.03	82,60,63
		431.9	0.15	0.10	0.11	82,82,62					
15	ok	0.0	0.09	0.09	0.06	88,83,62	25.1	0.08	0.08	0.05	88,83,62
		50.2	0.06	0.07	0.04	72,83,62					
16	ok	0.0	0.08	0.08	0.06	82,63,62	25.1	0.08	0.09	0.07	88,63,63
		50.2	0.08	0.10	0.08	72,63,63					
17	ok	0.0	0.05	0.05	0.03	82,63,83	25.1	0.06	0.06	0.04	82,63,83
		50.2	0.07	0.07	0.05	82,63,83					
19	ok	0.0	0.42	0.23	0.10	72,75,72	39.1	0.15	0.20	0.08	72,75,72
		78.1	0.05	0.17	0.14	72,75,72					
20	ok	0.0	0.15	0.06	0.07	73,76,76	138.5	0.12	0.04	0.05	73,76,76
		277.0	0.13	0.05	0.05	73,73,73					
22	ok	0.0	0.13	0.07	0.06	64,60,57	23.0	0.13	0.07	0.05	60,60,57
		46.0	0.14	0.08	0.05	60,60,57					
24	ok	0.0	0.01	0.03	0.03	84,67,84	7.5	0.01	0.03	0.03	84,67,84
		15.0	0.01	0.03	0.04	84,67,84					
25	ok	0.0	0.04	0.10	0.09	74,67,76	22.5	0.08	0.10	0.09	78,67,76
		45.0	0.13	0.10	0.08	78,67,76					
26	ok	0.0	0.05	0.05	0.05	78,72,84	22.5	0.02	0.04	0.05	78,72,84
		45.0	0.03	0.04	0.04	78,72,84					
27	ok	0.0	0.04	0.03	0.05	66,68,74	22.5	0.05	0.04	0.05	78,68,74
		45.0	0.08	0.04	0.05	78,68,74					
28	ok	0.0	0.03	0.02	0.01	84,84,84	286.0	0.13	0.01	0.02	84,81,81
		572.0	0.35	0.04	0.03	81,81,81					
29	ok	0.0	0.27	0.07	0.04	71,75,83	10.6	0.27	0.07	0.04	63,75,83
		21.2	0.28	0.06	0.03	63,75,83					
32	ok	0.0	0.54	0.05	7.20e-03	82,75,71	99.2	0.27	0.18	0.27	88,75,70
		198.5	0.60	0.33	0.22	82,75,70					
33	ok	0.0	0.21	0.32	0.21	85,59,62	7.5	0.25	0.32	0.21	85,59,62
		15.0	0.31	0.32	0.21	81,59,62					
35	ok	0.0	0.06	0.04	0.05	58,57,58	25.0	0.04	0.03	0.03	78,57,58
		50.0	0.04	0.02	0.02	76,57,58					
36	ok	0.0	0.21	0.18	0.14	68,85,83	112.2	0.19	0.14	0.09	72,85,83
		224.5	0.28	0.09	0.04	63,85,83					
42	ok	0.0	0.22	0.15	0.17	74,78,76	101.5	0.08	0.10	0.12	61,78,76
		203.0	0.19	0.12	0.14	73,73,73					
43	ok	0.0	0.05	0.13	0.14	72,75,72	39.1	0.17	0.11	0.09	72,75,72
		78.1	0.24	0.08	0.04	72,75,72					
47	ok	0.0	0.05	0.06	0.06	69,67,67	25.0	0.04	0.07	0.08	85,67,67
		50.0	0.04	0.08	0.09	83,67,67					
48	ok	0.0	0.04	0.02	0.01	69,85,85	25.0	0.05	0.03	0.02	69,85,85
		50.0	0.06	0.04	0.04	69,85,85					
49	ok	0.0	0.24	0.13	0.12	60,60,60	82.5	0.09	0.12	0.11	76,60,60
		165.0	0.16	0.11	0.11	60,60,60					
50	ok	0.0	0.19	0.06	0.07	69,83,72	37.1	0.21	0.03	0.01	69,85,69
		74.2	0.16	0.07	0.09	57,85,69					
51	ok	0.0	0.04	0.03	0.03	61,79,75	25.0	0.04	0.03	0.03	69,79,75
		50.0	0.04	0.02	0.02	73,79,75					
52	ok	0.0	0.12	0.03	0.03	60,60,60	21.5	0.11	0.03	0.03	60,60,60
		43.0	0.10	0.04	0.04	60,60,60					
53	ok	0.0	0.05	0.05	0.05	83,85,69	25.0	0.04	0.04	0.04	83,85,69

Trave	Stato	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb
		50.0	0.03	0.03	0.02	87,85,69					
54	ok	0.0	0.08	0.15	0.24	82,84,69	37.1	0.10	0.19	0.13	85,84,69
		74.2	0.26	0.23	0.16	69,84,69					
55	ok	0.0	0.23	0.06	0.04	72,75,72	19.5	0.25	0.04	0.02	72,75,72
		39.1	0.25	0.04	0.01	72,74,69					
56	ok	0.0	0.22	0.03	0.06	72,69,69	39.1	0.15	0.06	0.04	72,69,69
		78.1	0.03	0.09	0.06	72,69,69					
57	ok	0.0	0.10	0.04	0.03	60,63,60	21.5	0.11	0.04	0.02	60,63,57
		43.0	0.12	0.03	0.03	60,63,57					
60	ok	0.0	0.05	0.11	0.12	73,73,73	25.0	0.04	0.10	0.11	66,73,73
		50.0	0.06	0.09	0.10	78,76,76					
62	ok	0.0	0.06	0.04	0.05	61,78,76	25.0	0.07	0.06	0.06	61,78,76
		50.0	0.08	0.07	0.08	61,78,76					
70	ok	0.0	0.06	0.05	0.06	81,78,76	35.0	0.05	0.06	0.07	61,78,76
		70.0	0.06	0.07	0.08	61,78,76					
72	ok	0.0	0.18	0.07	0.09	57,83,69	37.1	0.06	0.11	0.16	79,83,69
		74.2	0.23	0.15	0.24	85,83,69					
82	ok	0.0	0.16	0.11	0.12	87,79,67	183.0	0.14	0.03	0.03	69,79,67
		366.0	0.12	0.10	0.11	69,69,66					
124	ok	0.0	0.09	0.07	0.07	83,79,75	164.0	0.08	0.04	0.05	83,62,74
		328.0	0.16	0.11	0.13	66,58,74					
126	ok	0.0	0.14	0.01	0.02	78,77,73	15.0	0.14	0.02	0.02	78,77,73
		30.0	0.13	0.03	0.03	78,77,73					
129	ok	0.0	0.12	0.06	0.07	60,61,57	23.0	0.11	0.06	0.07	60,61,57
		46.0	0.11	0.06	0.07	60,61,57					
130	ok	0.0	0.23	0.12	0.14	67,88,88	165.5	0.10	0.04	0.04	87,88,88
		331.0	0.11	0.08	0.08	87,85,85					
131	ok	0.0	0.25	0.12	0.14	67,67,72	210.5	0.27	0.04	0.03	67,69,69
		421.0	0.19	0.14	0.15	75,69,69					
132	ok	0.0	0.19	0.07	0.06	60,60,60	23.0	0.17	0.06	0.06	60,60,60
		46.0	0.16	0.06	0.06	60,60,60					
133	ok	0.0	0.07	0.03	0.03	67,83,81	25.6	0.08	0.04	0.04	67,83,81
		51.2	0.10	0.06	0.05	67,83,81					
134	ok	0.0	0.08	0.06	0.07	67,66,66	25.6	0.09	0.05	0.05	67,66,66
		51.2	0.09	0.04	0.04	67,67,66					
135	ok	0.0	0.10	0.04	0.04	60,76,60	21.5	0.08	0.05	0.05	60,76,60
		43.0	0.06	0.05	0.05	76,76,60					
136	ok	0.0	0.08	0.07	0.08	67,66,66	25.6	0.07	0.06	0.06	67,66,66
		51.2	0.08	0.04	0.05	67,66,66					
137	ok	0.0	0.06	0.07	0.07	67,78,66	25.6	0.05	0.06	0.05	67,78,66
		51.2	0.05	0.04	0.04	67,78,66					
138	ok	0.0	0.04	0.07	0.05	71,78,66	25.6	0.04	0.06	0.04	71,78,66
		51.2	0.04	0.04	0.03	67,78,66					
139	ok	0.0	0.07	0.05	0.05	60,58,57	21.5	0.06	0.05	0.05	60,58,57
		43.0	0.05	0.05	0.04	60,58,57					
140	ok	0.0	0.12	0.08	0.09	60,61,57	23.0	0.12	0.08	0.08	60,61,57
		46.0	0.12	0.07	0.08	60,61,57					
142	ok	0.0	0.05	0.08	0.05	80,74,62	21.5	0.05	0.07	0.05	60,74,62
		43.0	0.05	0.07	0.04	60,74,62					
143	ok	0.0	0.03	0.07	0.03	67,75,69	25.6	0.04	0.06	0.02	67,75,69
		51.2	0.03	0.05	9.79e-03	67,75,72					
144	ok	0.0	0.05	0.04	0.04	73,76,76	155.0	0.04	0.02	0.02	77,79,73
		310.0	0.09	0.04	0.05	73,79,73					
150	ok	0.0	0.08	0.03	0.02	88,83,83	24.1	0.09	0.03	0.03	88,83,83
		48.1	0.09	0.04	0.03	88,83,83					
151	ok	0.0	0.15	0.05	0.06	88,88,88	161.0	0.15	0.05	0.04	88,87,85
		322.0	0.12	0.09	0.09	72,87,85					
152	ok	0.0	0.13	0.09	0.07	88,82,88	130.5	0.07	0.06	0.03	88,82,88
		261.0	0.09	0.06	0.04	88,69,85					
153	ok	0.0	0.10	0.08	0.07	72,64,64	123.8	0.06	0.09	0.05	64,69,61
		247.5	0.13	0.13	0.10	62,69,61					
154	ok	0.0	0.03	0.05	0.03	82,72,67	24.1	0.03	0.05	0.02	82,72,67
		48.1	0.03	0.04	0.02	88,72,66					
155	ok	0.0	0.03	0.03	0.02	82,72,83	24.1	0.03	0.03	0.01	82,72,83
		48.1	0.03	0.02	7.43e-03	82,72,82					
156	ok	0.0	0.06	0.04	0.05	84,85,85	24.1	0.07	0.04	0.04	88,85,85
		48.1	0.08	0.03	0.03	88,85,85					
157	ok	0.0	0.06	0.05	0.05	88,85,85	24.1	0.06	0.04	0.04	88,85,85
		48.1	0.07	0.04	0.04	88,85,85					
158	ok	0.0	0.06	0.04	0.04	88,85,85	24.1	0.06	0.03	0.04	88,85,85
		48.1	0.06	0.03	0.03	88,85,85					
159	ok	0.0	0.04	0.04	0.03	88,69,85	24.1	0.04	0.03	0.03	88,69,85
		48.1	0.04	0.03	0.02	88,69,85					
160	ok	0.0	0.03	0.03	0.03	88,69,85	24.1	0.03	0.03	0.02	88,69,85
		48.1	0.03	0.02	0.01	88,72,85					
161	ok	0.0	0.03	0.09	0.09	67,72,72	36.0	0.02	0.08	0.08	72,69,69
		72.0	0.05	0.10	0.10	69,69,69					
164	ok	0.0	0.10	0.14	0.01	88,76,70	78.1	9.36e-03	0.20	0.11	69,76,70

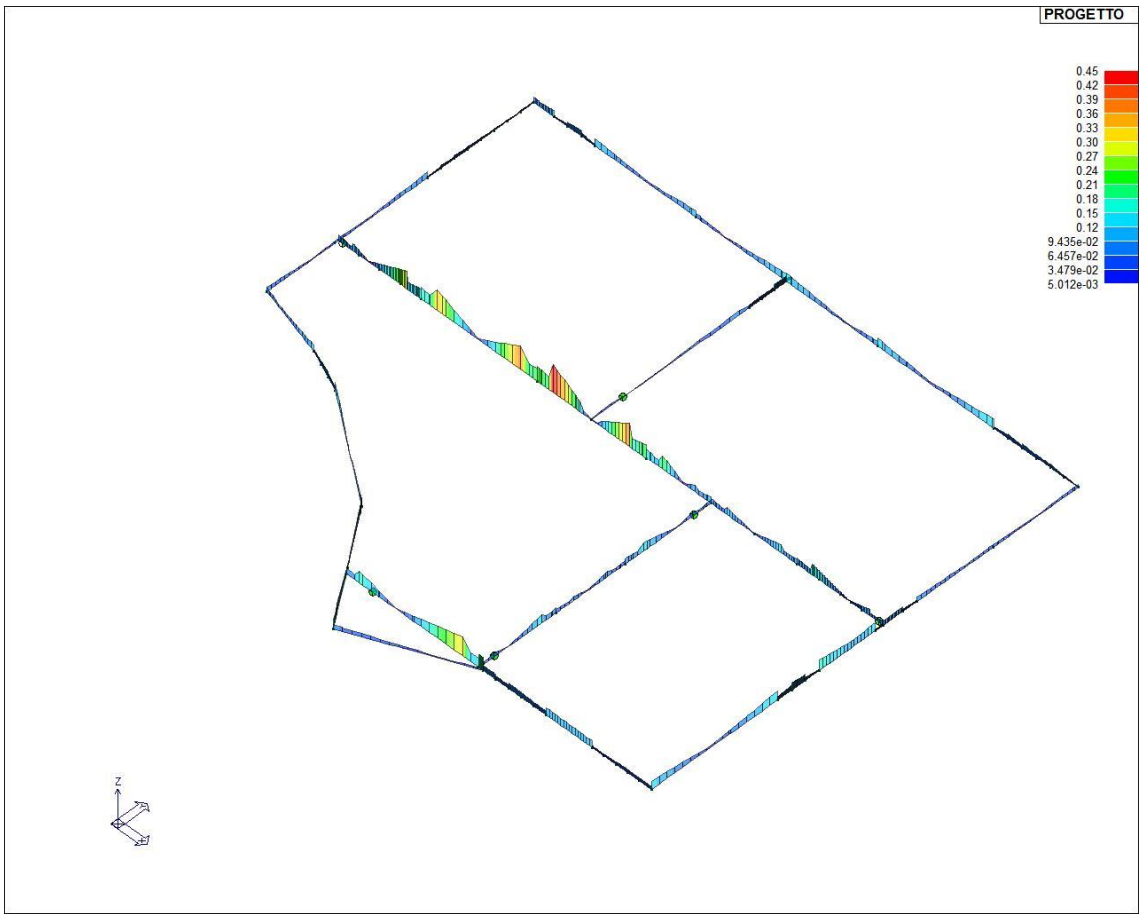
Trave	Stato	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb
		156.2	0.38	0.25	0.08	58,76,70					
165	ok	0.0	0.28	0.11	0.09	63,84,82	101.6	0.16	0.13	0.12	63,84,82
		203.3	0.19	0.16	0.15	88,84,82					
Trave			**V N/M**	**V V/T cls**	**V V/T acc**			**V N/M**	**V V/T cls**	**V V/T acc**	
			0.63	0.35	0.33						



71_CA_TRV_16_Verifica NM SE



71_CA_TRV_17_Verifica VT cls



71_CA_TRV_18_Verifica VT acciaio

VERIFICHE ELEMENTI PARETE E/O GUSCIO IN C.A.

LEGENDA TABELLA VERIFICHE ELEMENTI PARETE E GUSCIO IN C.A.

Per le pareti in c.a., in ottemperanza al cap. 7 del DM 17-01-18, viene effettuata una doppia progettazione: sia come *Singolo Elemento* sia come *Parete Sismica* o *Parete Debolmente Armata.*

Per la progettazione come *Singolo Elemento* di ogni elemento vengono riportati il codice dello stato di verifica con le sigle **Ok e NV,** 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), gli sforzi membranali e flessionali, il quantitativo di armatura nella direzione principale e secondaria sia inferiore che superiore e il quantitativo di armatura a taglio.

Per la progettazione come *Parete Sismica* o *Parete Debolmente Armata* vengono riportate invece le caratteristiche geometriche della parete e delle zone dissipative (quest'ultime solo nel caso di parete sismica), i coefficienti di verifica a compressione assiale, pressoflessione e sollecitazioni taglianti.

Le azioni derivate dall'analisi, in ogni combinazione di calcolo, sono elaborate come previsto al punto 7.4.4.5.1: traslazione del momento, incremento e variazione diagramma taglio, incremento e decremento sforzo assiale

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.

Simbologia adottata nelle tabelle di verifica

Per gli elementi con progettazione di tipo "*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 di tipo "*Parete Sismica" e "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

Sia per le verifiche degli elementi con progettazione di tipo "*Singolo Elemento …*" e "*Parete …*" 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

Per le verifiche degli elementi con progettazione "*Parete Sismica o Parete Debolmente Armata*", oltre alla tabella con le verifiche per gli elementi con progettazione "*Singolo Elemento …*", è presente una tabella con i simboli di seguito descritti:

Quota	Ascissa verticale di riferimento
Af conf.	Numero e diametro armatura presente in una zona confinata
Af std	Diametro e passo armatura in zona non confinata (doppia maglia)
Af estremi	Diametro dei ferri di estremità del pannello; se posto uguale 0, viene utilizzato il diametro standard
Af V (ori)	Diametro e passo armatura orizzontale (doppia maglia)
Ver. N	Rapporto tra azione di calcolo e resistenza a compressione (normalizzato a 1 in quanto da confrontare con 40% in CDB e 35 % in CDA)
Ver. N/M	Rapporto tra azione di calcolo e resistenza a pressoflessione
Ver. V acc(7)	Rapporto tra azione di calcolo e resistenza a taglio-trazione per alfaS minore di 2 secondo paragrafo 7.4.4.5.1
Ver. V cls	Rapporto tra azione di calcolo e resistenza a taglio-compressione
Ver. V acc	Rapporto tra azione di calcolo e resistenza a taglio-trazione
Ver. V scorr.	Rapporto tra azione di calcolo e resistenza a taglio scorrimento
N add	Sforzo assiale di cui al punto 7.4.4.5.1 da sommare e sottrarre nelle verifiche quando q supera 2
N invil M invil	Inviluppo del Momento e Sforzo Normale come al punto 7.4.4.5.1 (informativo) (solo in Parete Sismica)

Quota	Ascissa verticale di riferimento
N v.N	Valore dello sforzo assiale per cui Ver. N attinge il massimo valore
N v.M/N, M v.M/N	Valore dello sforzo assiale e momento per cui Ver. N/M attinge il massimo valore
N v.M/N, M v.M/N Mo v.M/N	Valore dello sforzo assiale e dei momenti per cui Ver. N/M attinge il massimo valore (per le pareti estese debolmente armate)
N v.Vcls, V v.Vcls,	Valore dello sforzo assiale e taglio per cui Ver. V. cls attinge il massimo valore
N v.Vacc, M v.Vacc, V v.Vacc,	Valore dello sforzo assiale, momento e taglio per cui Ver. V. acc attinge il massimo valore
N v.Vscorr, M v.Vscorr, V v.Vscorr,	Valore dello sforzo assiale, momento e taglio per cui Ver. V. scorr.e
N v.N	Valore dello sforzo assiale per cui Ver. N attinge il massimo valore
N v.M/N, M v.M/N	Valore dello sforzo assiale e momento per cui Ver. N/M attinge il massimo valore
N v.M/N, M v.M/N Mo v.M/N	Valore dello sforzo assiale e dei momenti per cui Ver. N/M attinge il massimo valore (per le pareti estese debolmente armate)
N v.Vcls, V v.Vcls,	Valore dello sforzo assiale e taglio per cui Ver. V. cls attinge il massimo valore

Quota	Ascissa verticale di riferimento
CtgT Vcls	Valore di ctg(teta) adottato nella verifica V compressione cls
Vrsd Vcls	Valore della resistenza a taglio trazione (armatura di calcolo)
Vrcd Vcls	Valore della resistenza a taglio compressione
CtgT Vacc	Valore di ctg(teta) adottato nella verifica V trazione armatura
Vrsd Vacc	Valore della resistenza a taglio trazione (armatura presente)
Vrcd Vacc	Valore della resistenza a taglio compressione
Vdd	Valore del contributo alla resistenza allo scorrimento come da [7.4.20]
Vid	Valore del contributo alla resistenza allo scorrimento come da [7.4.21]
A s.i.	Somma delle aree di armature
Incli.	Angolo di inclinazione delle armature
Dist.	Distanza alla base tra le armature inclinate

Quota	Ascissa verticale di riferimento
V[7.4.16]	Verifica a taglio-trazione dell'armatura dell'anima (7.4.16)
N M V	Sollecitazioni di calcolo della condizione più gravosa
Alfas	Rapporto di Taglio
Vrd,c	Resistenza a taglio degli elementi non armati
VRd,s	Resistenza a taglio nei confronti dello scorrimento
V[7.4.17]	Verifica a taglio-trazione dell'armatura dell'anima (7.4.17)
roH	Rapporto tra l'armatura orizzontale e l'area della sezione relativa di calcestruzzo
roV	Rapporto tra l'armatura verticale e l'area della sezione relativa di calcestruzzo
roN	Sforzo normale adimensionalizzato Ned/(bw fyd)

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
1	418.00	30.00	150.00	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d18/20	1+1d10/20	0.43	0.01	0.02
51.6	1+1d18/20	1+1d10/20	0.42	0.01	0.02
103.2	1+1d18/20	1+1d10/20	0.35	0.19	0.22
154.9	1+1d18/20	1+1d10/20	0.23	0.19	0.22
206.5	1+1d18/20	1+1d10/20	0.14	0.19	0.22
258.1	1+1d18/20	1+1d10/20	0.08	0.19	0.22
309.8	1+1d18/20	1+1d10/20	0.16	0.19	0.22
361.4	1+1d18/20	1+1d10/20	0.28	0.19	0.22
418.0	1+1d18/20	1+1d10/20	0.33	0.02	0.03
Quota			**Ver. N/M**	**Ver. V cls**	**Ver. V acc**
			0.43	0.19	0.22

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-1.105e+04	3.053e+06	4236.77	-1.758e+04	1491.83	1491.83	2.50	1.068e+05	2.50	8.904e+04
51.6	-1.105e+04	3.017e+06	4235.33	-1.758e+04	1491.83	1491.83	2.50	1.068e+05	2.50	8.904e+04
103.2	-1.134e+04	2.486e+06	4666.96	-1.134e+04	2.003e+04	2.003e+04	2.50	1.059e+05	2.50	8.904e+04
154.9	-1.079e+04	1.601e+06	4903.21	-1.079e+04	2.000e+04	2.000e+04	2.50	1.059e+05	2.50	8.904e+04
206.5	-2.557e+04	1.078e+06	1.145e+04	-1.025e+04	1.995e+04	1.995e+04	2.50	1.058e+05	2.50	8.904e+04
258.1	-1.539e+04	5.645e+05	1.292e+04	-9682.85	1.987e+04	1.987e+04	2.50	1.057e+05	2.50	8.904e+04
309.8	-7363.38	1.130e+06	8203.79	-9139.94	1.975e+04	1.975e+04	2.50	1.056e+05	2.50	8.904e+04
361.4	-7006.26	1.957e+06	1.363e+04	-9361.40	1.961e+04	1.961e+04	2.50	1.057e+05	2.50	8.904e+04
418.0	-5824.89	2.246e+06	1.856e+04	-5824.89	2521.07	2521.07	2.50	1.052e+05	2.50	8.904e+04

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
58	ok	0.14	1.71e-02	2.27e-02	12.7	12.7	3.9	3.9	-695.1	-199.6	0.2	59.0	11.2	-3.8
78	ok	0.14	3.68e-02	5.89e-02	12.7	12.7	3.9	3.9	-272.7	-19.6	88.7	57.9	3.1	13.3
79	ok	0.14	3.24e-02	5.03e-02	12.7	12.7	3.9	3.9	-398.4	-35.2	89.3	76.1	0.4	12.1
101	ok	0.14	2.77e-02	4.16e-02	12.7	12.7	3.9	3.9	-524.7	-51.9	86.1	41.6	0.3	11.5
104	ok	0.14	2.18e-02	3.14e-02	12.7	12.7	3.9	3.9	-387.1	-49.5	-90.1	-32.7	-0.2	-11.8
105	ok	0.14	2.61e-02	3.67e-02	12.7	12.7	3.9	3.9	-399.3	15.9	-115.0	-32.4	-0.2	-11.0
107	ok	0.14	2.69e-02	4.01e-02	12.7	12.7	3.9	3.9	-566.7	-32.5	-92.0	-29.3	-0.1	-12.0
110	ok	0.14	3.17e-02	4.54e-02	12.7	12.7	3.9	3.9	-577.3	55.3	-142.1	-29.0	0.1	-10.7
119	ok	0.14	3.80e-02	5.65e-02	12.7	12.7	3.9	3.9	-697.3	-225.8	44.7	-8.8	1.2	-11.4
120	ok	0.14	3.02e-02	4.33e-02	12.7	12.7	3.9	3.9	-192.5	44.8	-14.3	-239.9	-35.7	-40.5
123	ok	0.14	3.86e-02	6.05e-02	12.7	12.7	3.9	3.9	-712.6	-162.5	-22.1	-10.9	-2.6	-5.5
125	ok	0.14	2.68e-02	4.00e-02	12.7	12.7	3.9	3.9	-182.1	6.9	16.6	-241.4	-48.3	-17.3
127	ok	0.14	3.23e-02	4.19e-02	12.7	12.7	3.9	3.9	-164.3	10.5	-49.1	127.1	51.1	-53.8
128	ok	0.14	2.27e-02	3.23e-02	12.7	12.7	3.9	3.9	-142.7	120.0	-15.4	113.9	59.7	-14.9
129	ok	0.14	3.58e-02	5.22e-02	12.7	12.7	3.9	3.9	-385.2	18.7	-151.9	-39.2	-4.5	-19.2
130	ok	0.14	3.01e-02	4.43e-02	12.7	12.7	3.9	3.9	-192.7	-4.4	142.0	56.6	-0.5	14.6
131	ok	0.14	2.89e-02	4.20e-02	12.7	12.7	3.9	3.9	-186.1	-19.2	142.9	76.4	0.7	14.8
133	ok	0.14	2.80e-02	4.02e-02	12.7	12.7	3.9	3.9	-513.4	17.6	69.0	40.7	7.76e-02	12.3
136	ok	0.14	2.73e-02	3.84e-02	12.7	12.7	3.9	3.9	-660.3	68.6	88.5	42.0	0.9	10.6
137	ok	0.14	3.04e-02	4.20e-02	12.7	12.7	3.9	3.9	-157.0	-26.2	23.0	-295.8	-46.7	-35.7
138	ok	0.14	2.09e-02	2.83e-02	12.7	12.7	3.9	3.9	-149.9	-82.7	7.6	-296.5	-59.3	-12.4
139	ok	0.14	5.52e-02	9.22e-02	12.7	12.7	3.9	3.9	-515.5	-222.9	-160.4	-76.5	-20.6	-47.5
140	ok	0.14	5.39e-02	9.62e-02	12.7	12.7	3.9	3.9	-610.9	34.9	-38.6	-54.4	-18.6	-20.9
141	ok	0.14	4.13e-02	6.81e-02	12.7	12.7	3.9	3.9	-434.9	-6.9	-99.3	-71.4	-7.9	-23.2
378	ok	0.14	2.26e-02	3.24e-02	12.7	12.7	3.9	3.9	-647.7	-56.5	97.0	45.8	1.5	10.2
381	ok	0.14	1.53e-02	2.11e-02	12.7	12.7	3.9	3.9	-691.2	-192.5	-12.9	56.3	3.0	3.5
427	ok	0.14	7.87e-03	4.79e-03	12.7	12.7	3.9	3.9	409.4	-60.8	-3.5	-99.1	-22.8	56.9
428	ok	0.14	1.19e-03	0.0	12.7	12.7	3.9	3.9	382.2	175.2	-112.2	-125.8	-27.9	84.2
429	ok	0.14	1.88e-02	2.42e-02	12.7	12.7	3.9	3.9	-73.7	8.9	-8.4	125.6	50.1	-44.9
430	ok	0.14	9.46e-03	1.22e-02	12.7	12.7	3.9	3.9	-56.7	103.6	-7.0	126.1	43.2	-57.9
431	ok	0.14	9.22e-03	5.08e-03	12.7	12.7	3.9	3.9	346.4	28.3	-105.7	-127.5	-17.6	61.0
432	ok	0.14	1.90e-02	2.43e-02	12.7	12.7	3.9	3.9	281.3	-25.9	-128.7	-75.8	-9.0	57.7
433	ok	0.14	7.50e-03	9.89e-03	12.7	12.7	3.9	3.9	-235.5	-32.6	81.9	56.7	8.1	-38.7
434	ok	0.14	2.16e-02	2.86e-02	12.7	12.7	3.9	3.9	-289.9	-4.23e-02	57.3	58.8	8.5	-41.4
435	ok	0.14	1.50e-02	2.08e-02	12.7	12.7	3.9	3.9	-128.4	-14.9	83.4	59.9	7.2	-37.8
436	ok	0.14	2.39e-02	3.26e-02	12.7	12.7	3.9	3.9	-161.5	-13.7	59.2	58.7	6.0	-40.4
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-712.59	-225.76	-160.38	-296.52	-59.31	-57.93
		0.14	0.06	0.10	12.72	12.72	3.93	3.93	409.39	175.18	142.87	127.09	59.73	84.20

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

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
58	ok	0.23						
78	ok	0.20						
79	ok	0.21						
101	ok	0.22						
104	ok	0.03						
105	ok	0.08						
107	ok	0.05						
110	ok	0.11						
119	ok	0.15						
120	ok	0.22						
123	ok	0.13						
125	ok	0.20						
127	ok	0.30						
128	ok	1.26						
129	ok	0.19						
130	ok	0.20						
131	ok	0.21						
133	ok	0.22						
136	ok	0.22						
137	ok	0.23						
138	ok	0.23						
139	ok	0.30						
140	ok	1.00						
141	ok	0.19						
378	ok	0.22						
381	ok	0.23						
427	ok	1.72						
428	ok	0.41						
429	ok	0.41						
430	ok	1.72						
431	ok	0.08						
432	ok	0.08						
433	ok	0.04						
434	ok	0.06						
435	ok	0.03						
436	ok	0.07						
Nodo		**Max tau**	**Ver V pr**	**Ver V sec**	**Af V pr**	**Af V sec**	**V pr**	**V sec**
		1.72						

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
2	418.00	30.00	150.00	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d18/20	1+1d10/20	0.36	0.08	0.09
51.6	1+1d18/20	1+1d10/20	0.35	0.08	0.09
103.2	1+1d18/20	1+1d10/20	0.37	0.12	0.14
154.9	1+1d18/20	1+1d10/20	0.32	0.12	0.14
206.5	1+1d18/20	1+1d10/20	0.28	0.12	0.14
258.1	1+1d18/20	1+1d10/20	0.23	0.12	0.14
309.8	1+1d18/20	1+1d10/20	0.19	0.12	0.14
361.4	1+1d18/20	1+1d10/20	0.15	0.12	0.14
418.0	1+1d18/20	1+1d10/20	0.12	0.07	0.08
Quota			**Ver. N/M**	**Ver. V cls**	**Ver. V acc**
			0.37	0.12	0.14

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-2.747e+04	2.809e+06	2.590e+04	-1.726e+04	8004.98	8004.98	2.50	1.067e+05	2.50	8.904e+04
51.6	-2.747e+04	2.760e+06	2.345e+04	-1.726e+04	8004.98	8004.98	2.50	1.067e+05	2.50	8.904e+04
103.2	-1.954e+04	2.763e+06	1.025e+04	-2.797e+04	1.288e+04	1.288e+04	2.50	1.081e+05	2.50	8.904e+04
154.9	-1.896e+04	2.427e+06	7553.99	-2.738e+04	1.286e+04	1.286e+04	2.50	1.081e+05	2.50	8.904e+04
206.5	-1.838e+04	2.088e+06	4780.05	-2.680e+04	1.283e+04	1.283e+04	2.50	1.080e+05	2.50	8.904e+04
258.1	-1.780e+04	1.754e+06	2821.21	-2.622e+04	1.278e+04	1.278e+04	2.50	1.079e+05	2.50	8.904e+04
309.8	-1.722e+04	1.422e+06	435.03	-2.563e+04	1.270e+04	1.270e+04	2.50	1.078e+05	2.50	8.904e+04
361.4	-1.698e+04	1.061e+06	4.065e+04	-2.504e+04	1.259e+04	1.259e+04	2.50	1.078e+05	2.50	8.904e+04

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
418.0	-1.880e+04	6.774e+05	1.146e+05	-2.315e+04	7100.47	7100.47	2.50	1.075e+05	2.50	8.904e+04

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
211	ok	0.14	5.81e-02	0.1	12.7	12.7	3.9	3.9	-511.4	80.7	84.0	-227.3	-23.0	8.4
212	ok	0.14	8.22e-02	0.2	12.7	12.7	3.9	3.9	-792.2	-192.2	158.8	-92.1	-2.6	3.8
217	ok	0.14	7.18e-02	0.1	12.7	12.7	3.9	3.9	-443.6	-223.1	138.4	-93.2	-5.4	0.7
220	ok	0.14	6.46e-02	0.1	12.7	12.7	3.9	3.9	-535.2	-28.8	143.5	-247.1	-20.9	53.9
386	ok	0.14	5.25e-02	9.34e-02	12.7	12.7	3.9	3.9	-502.1	-43.4	5.1	-6.8	0.9	-12.7
387	ok	0.14	5.40e-02	9.81e-02	12.7	12.7	3.9	3.9	-480.2	21.8	26.7	-52.5	4.5	-9.50e-02
388	ok	0.14	4.58e-02	7.83e-02	12.7	12.7	3.9	3.9	-574.9	-23.8	-15.3	-19.2	-4.1	-15.3
389	ok	0.14	4.46e-02	7.46e-02	12.7	12.7	3.9	3.9	-551.7	-0.3	-19.9	-19.3	-4.0	-17.8
390	ok	0.14	4.17e-02	6.90e-02	12.7	12.7	3.9	3.9	-666.6	-22.9	-19.6	-32.1	-3.0	-14.9
391	ok	0.14	3.97e-02	6.48e-02	12.7	12.7	3.9	3.9	-653.5	-6.53e-02	-16.8	-32.1	-2.9	-16.8
392	ok	0.14	3.69e-02	5.91e-02	12.7	12.7	3.9	3.9	-746.5	-23.2	-2.5	-51.0	-3.5	-15.9
393	ok	0.14	3.63e-02	5.77e-02	12.7	12.7	3.9	3.9	-742.6	-6.1	-2.1	-50.6	-3.1	-17.4
394	ok	0.14	3.12e-02	4.80e-02	12.7	12.7	3.9	3.9	-866.7	1.6	-72.3	-67.6	-4.2	-17.8
395	ok	0.14	3.36e-02	5.13e-02	12.7	12.7	3.9	3.9	-890.1	43.5	-79.9	-67.9	-3.5	-19.9
396	ok	0.14	2.89e-02	4.17e-02	12.7	12.7	3.9	3.9	-861.5	-211.3	-102.6	-52.0	4.7	-14.4
397	ok	0.14	2.79e-02	4.19e-02	12.7	12.7	3.9	3.9	-843.3	-153.7	-76.6	-53.7	4.6	-15.3
398	ok	0.14	2.60e-02	3.79e-02	12.7	12.7	3.9	3.9	-767.7	-138.1	46.8	-55.9	-15.4	-25.0
399	ok	0.14	2.52e-02	3.65e-02	12.7	12.7	3.9	3.9	-759.8	-119.0	51.0	-56.9	-13.3	-17.4
400	ok	0.14	6.01e-02	6.08e-02	12.7	12.7	3.9	3.9	-101.5	-50.1	97.7	-115.5	6.8	69.0
401	ok	0.14	2.93e-02	4.33e-02	12.7	12.7	3.9	3.9	-160.7	11.4	87.9	-104.5	-0.3	36.0
402	ok	0.14	4.18e-02	5.86e-02	12.7	12.7	3.9	3.9	-198.8	-22.3	124.0	-92.7	1.5	52.5
403	ok	0.14	3.49e-02	5.34e-02	12.7	12.7	3.9	3.9	-224.2	19.0	122.5	-47.2	-2.1	38.2
404	ok	0.14	3.40e-02	5.18e-02	12.7	12.7	3.9	3.9	-399.6	25.3	-48.7	-31.8	-2.6	-32.9
405	ok	0.14	3.37e-02	5.09e-02	12.7	12.7	3.9	3.9	-258.9	41.3	130.5	69.7	5.4	39.8
406	ok	0.14	3.35e-02	4.98e-02	12.7	12.7	3.9	3.9	-275.0	46.5	97.7	111.7	9.4	43.2
407	ok	0.14	3.94e-02	5.67e-02	12.7	12.7	3.9	3.9	-236.0	94.3	-49.0	158.6	23.6	28.9
408	ok	0.14	2.93e-02	4.03e-02	12.7	12.7	3.9	3.9	-230.3	-16.3	-20.4	176.4	35.2	13.5
409	ok	0.14	4.55e-02	3.39e-02	12.7	12.7	3.9	3.9	-84.2	-97.2	81.9	-83.3	12.4	80.5
410	ok	0.14	2.15e-02	0.0	12.7	12.7	3.9	3.9	40.8	116.6	-4.2	-53.1	55.1	42.8
411	ok	0.14	2.13e-02	2.78e-02	12.7	12.7	3.9	3.9	-119.7	-26.4	101.4	-76.6	5.3	56.2
412	ok	0.14	2.40e-02	3.24e-02	12.7	12.7	3.9	3.9	-401.6	13.5	76.4	-14.7	4.5	43.2
413	ok	0.14	2.64e-02	3.70e-02	12.7	12.7	3.9	3.9	-513.4	23.0	77.0	25.0	3.9	42.3
414	ok	0.14	2.91e-02	4.21e-02	12.7	12.7	3.9	3.9	-626.4	28.8	71.9	70.2	4.4	41.0
415	ok	0.14	3.51e-02	5.22e-02	12.7	12.7	3.9	3.9	-741.8	65.9	86.3	115.7	7.2	37.3
416	ok	0.14	3.45e-02	5.11e-02	12.7	12.7	3.9	3.9	-262.0	-15.5	-0.9	168.6	24.5	24.7
417	ok	0.14	3.06e-02	4.69e-02	12.7	12.7	3.9	3.9	-249.3	-98.8	-38.1	187.2	37.2	8.1
418	ok	0.14	3.34e-02	2.71e-02	12.7	12.7	3.9	3.9	-166.9	-67.0	11.2	-70.7	-1.1	58.7
419	ok	0.14	2.49e-02	3.56e-02	12.7	12.7	3.9	3.9	-165.5	51.9	-44.0	-8.9	-16.2	22.5
420	ok	0.14	3.88e-03	2.14e-03	12.7	12.7	3.9	3.9	-199.6	-32.4	46.7	-52.6	3.5	47.6
421	ok	0.14	5.71e-03	7.45e-03	12.7	12.7	3.9	3.9	-226.5	-1.4	51.2	-43.3	-2.4	45.1
422	ok	0.14	1.44e-02	1.98e-02	12.7	12.7	3.9	3.9	-464.6	-43.7	51.9	25.5	3.3	44.6
423	ok	0.14	2.20e-02	3.18e-02	12.7	12.7	3.9	3.9	-598.7	-50.2	46.1	72.1	4.0	42.4
424	ok	0.14	2.77e-02	4.15e-02	12.7	12.7	3.9	3.9	-713.6	-11.2	31.3	123.2	6.6	36.8
425	ok	0.14	3.97e-02	5.93e-02	12.7	12.7	3.9	3.9	-757.0	-198.3	78.4	136.4	1.8	26.9
426	ok	0.14	4.13e-02	6.58e-02	12.7	12.7	3.9	3.9	-794.5	-165.7	0.5	179.7	32.1	-6.3
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-890.13	-223.14	-102.59	-247.07	-22.99	-32.94
		0.14	0.08	0.17	12.72	12.72	3.93	3.93	40.79	116.62	158.79	187.25	55.07	80.55

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
211	ok	0.66						
212	ok	0.53						
217	ok	0.84						
220	ok	1.77						
386	ok	0.36						
387	ok	0.36						
388	ok	0.40						
389	ok	0.40						
390	ok	0.42						
391	ok	0.42						
392	ok	0.42						
393	ok	0.42						
394	ok	0.42						
395	ok	0.42						
396	ok	0.36						
397	ok	0.36						
398	ok	0.13						
399	ok	0.33						
400	ok	0.84						

Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
401	ok	1.77						
402	ok	0.24						
403	ok	0.20						
404	ok	0.22						
405	ok	0.24						
406	ok	0.27						
407	ok	0.42						
408	ok	0.41						
409	ok	0.48						
410	ok	1.06						
411	ok	0.18						
412	ok	0.22						
413	ok	0.24						
414	ok	0.25						
415	ok	0.26						
416	ok	0.42						
417	ok	0.41						
418	ok	0.13						
419	ok	0.39						
420	ok	0.18						
421	ok	0.22						
422	ok	0.24						
423	ok	0.25						
424	ok	0.25						
425	ok	0.26						
426	ok	0.14						
Nodo		**Max tau**	**Ver V pr**	**Ver V sec**	**Af V pr**	**Af V sec**	**V pr**	**V sec**
		1.77						

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
3	418.00	30.00	150.00	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d18/20	1+1d10/20	0.54	0.01	0.01
51.6	1+1d18/20	1+1d10/20	0.55	0.01	0.01
103.2	1+1d18/20	1+1d10/20	0.49	0.25	0.30
154.9	1+1d18/20	1+1d10/20	0.32	0.25	0.30
206.5	1+1d18/20	1+1d10/20	0.16	0.25	0.30
258.1	1+1d18/20	1+1d10/20	0.02	0.25	0.30
309.8	1+1d18/20	1+1d10/20	0.16	0.25	0.30
361.4	1+1d18/20	1+1d10/20	0.33	0.25	0.30
418.0	1+1d18/20	1+1d10/20	0.39	0.04	0.05
Quota			**Ver. N/M**	**Ver. V cls**	**Ver. V acc**
			0.55	0.25	0.30

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-1.012e+04	3.747e+06	7.355e+04	-1.286e+04	1301.91	1301.91	2.50	1.061e+05	2.50	8.904e+04
51.6	-1.012e+04	3.756e+06	7.367e+04	-1.286e+04	1301.91	1301.91	2.50	1.061e+05	2.50	8.904e+04
103.2	-6635.66	3.273e+06	5.729e+04	-6635.66	2.645e+04	2.687e+04	2.50	1.053e+05	2.50	8.904e+04
154.9	-6173.28	2.164e+06	4.064e+04	-6173.28	2.642e+04	2.684e+04	2.50	1.052e+05	2.50	8.904e+04
206.5	-5805.35	1.068e+06	2.476e+04	-5805.35	2.638e+04	2.679e+04	2.50	1.052e+05	2.50	8.904e+04
258.1	-2.535e+04	1.301e+05	5900.09	-6219.19	2.630e+04	2.672e+04	2.50	1.052e+05	2.50	8.904e+04
309.8	-5246.57	1.122e+06	3229.27	-5246.57	2.619e+04	2.661e+04	2.50	1.051e+05	2.50	8.904e+04
361.4	-5055.08	2.215e+06	1.331e+04	-5055.08	2.605e+04	2.647e+04	2.50	1.051e+05	2.50	8.904e+04
418.0	-984.20	2.591e+06	2.108e+04	390.63	4256.37	4256.37	2.50	1.044e+05	2.50	8.904e+04

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
7	ok	0.14	1.90e-02	2.67e-02	12.7	12.7	3.9	3.9	-498.3	-212.2	179.1	-103.6	-26.0	41.9
10	ok	0.14	1.79e-02	2.38e-02	12.7	12.7	3.9	3.9	-537.4	-101.4	-32.3	-124.8	-19.4	37.4
12	ok	0.14	1.32e-02	1.34e-02	12.7	12.7	3.9	3.9	-230.1	126.9	35.6	307.8	145.7	-39.2
13	ok	0.14	1.57e-02	2.18e-02	12.7	12.7	3.9	3.9	-486.1	-59.6	159.9	-113.2	-21.9	35.5
14	ok	0.14	1.87e-02	2.64e-02	12.7	12.7	3.9	3.9	-503.6	43.2	166.2	-88.3	-11.1	30.6
15	ok	0.14	1.71e-02	2.40e-02	12.7	12.7	3.9	3.9	-260.9	-49.3	138.0	-38.5	-14.4	23.1
16	ok	0.14	1.95e-02	2.76e-02	12.7	12.7	3.9	3.9	-207.5	30.1	-233.5	34.3	-1.2	-20.3
17	ok	0.14	1.86e-02	2.63e-02	12.7	12.7	3.9	3.9	-376.2	-46.1	-137.0	-92.5	-10.4	-17.7

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
19	ok	0.14	2.22e-02	3.22e-02	12.7	12.7	3.9	3.9	-471.1	-10.2	-95.4	134.3	13.6	-35.1
20	ok	0.14	2.03e-02	2.89e-02	12.7	12.7	3.9	3.9	-382.6	-1.7	-142.5	-93.0	-9.7	-28.4
22	ok	0.14	1.99e-02	2.84e-02	12.7	12.7	3.9	3.9	-611.8	-71.5	-134.1	-224.9	-14.4	-16.6
23	ok	0.14	2.12e-02	3.05e-02	12.7	12.7	3.9	3.9	-127.0	58.8	243.0	268.7	15.3	35.4
26	ok	0.14	2.05e-02	2.90e-02	12.7	12.7	3.9	3.9	-848.3	-64.2	-143.7	-368.6	-24.4	-28.0
29	ok	0.14	2.35e-02	3.40e-02	12.7	12.7	3.9	3.9	-183.1	104.5	230.3	367.9	24.7	36.7
30	ok	0.14	2.33e-02	3.32e-02	12.7	12.7	3.9	3.9	-936.3	-271.9	45.7	-434.9	-26.7	-61.0
31	ok	0.14	2.54e-02	3.67e-02	12.7	12.7	3.9	3.9	-217.6	61.1	0.2	488.1	60.9	28.4
33	ok	0.14	2.35e-02	3.35e-02	12.7	12.7	3.9	3.9	-936.4	-259.3	18.3	-455.3	-90.5	-40.7
50	ok	0.14	2.24e-02	3.24e-02	12.7	12.7	3.9	3.9	-299.9	-16.3	96.7	165.2	11.5	32.7
51	ok	0.14	2.26e-02	3.27e-02	12.7	12.7	3.9	3.9	-132.4	-73.7	236.2	271.9	15.8	39.7
53	ok	0.14	2.32e-02	3.35e-02	12.7	12.7	3.9	3.9	-185.9	-88.2	218.6	388.0	28.8	29.5
54	ok	0.14	2.47e-02	3.63e-02	12.7	12.7	3.9	3.9	-256.6	-137.2	10.5	521.9	68.0	9.0
55	ok	0.14	2.21e-02	3.13e-02	12.7	12.7	3.9	3.9	-238.0	-138.3	14.8	514.3	103.0	-1.5
56	ok	0.14	2.65e-02	3.93e-02	12.7	12.7	3.9	3.9	-873.6	-22.8	6.6	313.4	-8.3	56.8
57	ok	0.14	3.09e-02	4.66e-02	12.7	12.7	3.9	3.9	-900.6	-28.1	-9.7	336.7	208.6	95.7
91	ok	0.14	2.22e-02	3.22e-02	12.7	12.7	3.9	3.9	-740.1	-5.2	-111.7	216.7	17.8	-22.5
121	ok	0.14	2.29e-02	3.25e-02	12.7	12.7	3.9	3.9	-745.2	76.4	-116.8	227.0	5.7	2.2
142	ok	0.14	2.87e-02	3.33e-02	12.7	12.7	3.9	3.9	-857.6	131.3	2.8	368.0	257.9	39.1
148	ok	0.14	2.35e-02	3.42e-02	12.7	12.7	3.9	3.9	-746.0	-75.3	-108.5	249.9	18.9	-28.9
190	ok	0.14	2.31e-02	3.37e-02	12.7	12.7	3.9	3.9	-475.9	-41.4	-96.2	132.5	11.7	-35.6
192	ok	0.14	2.31e-02	3.36e-02	12.7	12.7	3.9	3.9	-302.7	-43.5	95.7	165.4	11.0	40.6
193	ok	0.14	2.28e-02	3.32e-02	12.7	12.7	3.9	3.9	-583.9	-52.5	95.6	273.7	13.6	37.7
201	ok	0.14	2.22e-02	3.21e-02	12.7	12.7	3.9	3.9	-855.1	-96.0	99.5	402.6	24.7	29.9
209	ok	0.14	2.21e-02	3.19e-02	12.7	12.7	3.9	3.9	-981.2	38.6	-16.7	509.6	18.8	-12.4
210	ok	0.14	2.55e-02	3.69e-02	12.7	12.7	3.9	3.9	-1001.2	-250.7	7.1	510.1	103.6	-26.9
320	ok	0.14	2.02e-02	2.84e-02	12.7	12.7	3.9	3.9	-919.1	-97.0	29.9	-503.7	-100.7	-17.0
367	ok	0.14	1.92e-02	2.73e-02	12.7	12.7	3.9	3.9	-590.1	-103.1	-25.3	-110.8	-17.0	8.0
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-1001.24	-271.88	-233.48	-503.65	-100.71	-60.99
		0.14	0.03	0.05	12.72	12.72	3.93	3.93	-127.03	131.33	243.00	521.88	257.94	95.70

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
7	ok	0.21						
10	ok	0.30						
12	ok	0.46						
13	ok	0.15						
14	ok	0.15						
15	ok	0.18						
16	ok	0.18						
17	ok	0.21						
19	ok	0.30						
20	ok	0.21						
22	ok	0.21						
23	ok	0.21						
26	ok	0.22						
29	ok	0.23						
30	ok	0.25						
31	ok	0.38						
33	ok	0.11						
50	ok	0.32						
51	ok	0.33						
53	ok	0.33						
54	ok	0.38						
55	ok	0.38						
56	ok	0.19						
57	ok	0.83						
91	ok	0.25						
121	ok	0.30						
142	ok	0.83						
148	ok	0.25						
190	ok	0.30						
192	ok	0.32						
193	ok	0.33						
201	ok	0.33						
209	ok	0.33						
210	ok	0.14						
320	ok	0.38						
367	ok	0.36						
Nodo		**Max tau**	**Ver V pr**	**Ver V sec**	**Af V pr**	**Af V sec**	**V pr**	**V sec**
		0.83						

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
4	418.00	25.00	230.00	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d16/20	1+1d10/15	0.41	0.12	0.09
51.6	1+1d16/20	1+1d10/15	0.45	0.09	0.07
103.2	1+1d16/20	1+1d10/15	0.37	0.21	0.16
154.9	1+1d16/20	1+1d10/15	0.29	0.21	0.16
206.5	1+1d16/20	1+1d10/15	0.22	0.21	0.16
258.1	1+1d16/20	1+1d10/15	0.17	0.21	0.16
309.8	1+1d16/20	1+1d10/15	0.14	0.21	0.16
361.4	1+1d16/20	1+1d10/15	0.25	0.21	0.15
418.0	1+1d16/20	1+1d10/15	0.34	0.08	0.06
Quota			**Ver. N/M**	**Ver. V cls**	**Ver. V acc**
			0.45	0.21	0.16

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-3.268e+04	5.261e+06	1.949e+05	-1.608e+04	1.607e+04	1.607e+04	2.50	1.372e+05	2.50	1.842e+05
51.6	-7663.27	5.271e+06	1.114e+05	-7663.27	1.245e+04	1.245e+04	2.50	1.361e+05	2.50	1.842e+05
103.2	-3.748e+04	5.088e+06	1.068e+05	-1.186e+04	2.893e+04	2.893e+04	2.50	1.366e+05	2.50	1.842e+05
154.9	-3.674e+04	4.103e+06	4.307e+04	-1.112e+04	2.890e+04	2.890e+04	2.50	1.365e+05	2.50	1.842e+05
206.5	-3.569e+04	3.109e+06	4.083e+04	-1.068e+04	2.885e+04	2.885e+04	2.50	1.365e+05	2.50	1.842e+05
258.1	-3.503e+04	2.120e+06	1.039e+05	-9851.85	2.877e+04	2.877e+04	2.50	1.363e+05	2.50	1.842e+05
309.8	-1.700e+04	1.671e+06	5.692e+04	-9381.96	2.865e+04	2.865e+04	2.50	1.363e+05	2.50	1.842e+05
361.4	-8343.20	2.967e+06	6.257e+04	-8343.20	2.851e+04	2.851e+04	2.50	1.361e+05	2.50	1.842e+05
418.0	-8548.71	4.011e+06	8.044e+04	-8548.71	1.079e+04	1.079e+04	2.50	1.362e+05	2.50	1.842e+05

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
2	ok	0.15	3.97e-02	4.71e-02	10.1	10.1	5.2	5.2	-340.5	10.8	-111.3	180.7	36.9	-50.5
3	ok	0.15	4.00e-02	4.71e-02	10.1	10.1	5.2	5.2	-214.1	1.3	-96.5	-370.6	-41.4	-47.3
6	ok	0.15	4.01e-02	4.60e-02	10.1	10.1	5.2	5.2	-137.4	-26.6	-119.4	-638.3	-86.8	-28.8
8	ok	0.15	4.63e-02	4.13e-02	10.1	10.1	5.2	5.2	-136.5	-38.8	53.7	-429.1	-69.5	14.4
9	ok	0.15	7.82e-02	2.49e-02	10.1	10.1	5.2	5.2	-9.8	104.7	-36.2	-1194.3	-253.1	103.9
11	ok	0.15	0.1	1.52e-02	10.1	10.1	5.2	5.2	8.3	300.3	-57.1	-1316.8	-277.1	-33.1
18	ok	0.15	3.43e-02	3.89e-02	10.1	10.1	5.2	5.2	-166.8	-1.2	-45.4	762.8	149.3	-24.3
21	ok	0.15	3.69e-02	3.72e-02	10.1	10.1	5.2	5.2	-164.8	-9.8	-44.2	848.7	168.7	-6.5
24	ok	0.15	3.39e-02	3.81e-02	10.1	10.1	5.2	5.2	-144.4	11.5	-104.8	447.4	89.6	-34.7
25	ok	0.15	3.19e-02	3.53e-02	10.1	10.1	5.2	5.2	-196.8	14.9	162.7	-228.7	-30.0	20.0
27	ok	0.15	2.90e-02	3.12e-02	10.1	10.1	5.2	5.2	-114.7	-8.6	-136.5	-364.5	-40.7	-33.5
28	ok	0.15	3.24e-02	2.54e-02	10.1	10.1	5.2	5.2	-114.8	-21.4	-127.5	-605.4	-65.7	-29.6
32	ok	0.15	4.74e-02	1.57e-02	10.1	10.1	5.2	5.2	-103.6	-36.6	-114.4	-823.3	-105.3	16.0
34	ok	0.15	7.47e-02	3.75e-03	10.1	10.1	5.2	5.2	-97.2	-12.8	-49.7	-1039.9	-248.7	74.7
35	ok	0.15	7.58e-02	7.46e-02	10.1	10.1	5.2	5.2	-217.1	-122.2	102.0	-636.9	-93.3	274.8
36	ok	0.15	8.69e-02	5.19e-04	10.1	10.1	5.2	5.2	-84.2	349.0	-52.8	-1128.1	-258.1	-19.3
37	ok	0.15	3.14e-02	3.36e-02	10.1	10.1	5.2	5.2	-249.6	-93.3	80.5	-465.7	-89.1	19.2
38	ok	0.15	3.58e-02	3.44e-02	10.1	10.1	5.2	5.2	-556.9	-80.4	35.0	-389.4	-76.9	8.4
46	ok	0.15	2.98e-02	3.23e-02	10.1	10.1	5.2	5.2	-216.2	-39.2	139.7	-338.1	-52.0	27.3
63	ok	0.15	2.08e-02	2.15e-02	10.1	10.1	5.2	5.2	-162.6	-17.3	149.6	-237.6	-32.9	19.8
76	ok	0.15	5.59e-02	2.88e-02	10.1	10.1	5.2	5.2	-376.2	-184.5	-72.7	-779.2	-33.1	-110.9
77	ok	0.15	4.98e-02	8.03e-03	10.1	10.1	5.2	5.2	-84.2	13.6	-73.2	-668.2	5.6	-6.8
83	ok	0.15	9.94e-02	0.2	10.1	10.1	5.2	5.2	-700.6	-188.5	-42.7	-853.4	116.8	89.3
86	ok	0.15	3.94e-02	4.70e-02	10.1	10.1	5.2	5.2	-491.6	-65.2	-20.5	809.2	168.8	-17.0
93	ok	0.15	3.71e-02	3.97e-02	10.1	10.1	5.2	5.2	-175.4	-56.8	-53.7	879.5	177.2	-5.1
114	ok	0.15	3.91e-02	4.63e-02	10.1	10.1	5.2	5.2	-168.3	-20.8	-102.0	453.3	91.4	-38.2
293	ok	0.15	1.92e-02	1.53e-02	10.1	10.1	5.2	5.2	-28.2	6.8	152.9	154.6	25.5	20.2
304	ok	0.15	3.41e-02	8.82e-03	10.1	10.1	5.2	5.2	-75.7	-25.3	-144.7	-614.5	-58.1	-24.3
305	ok	0.15	4.80e-02	6.10e-03	10.1	10.1	5.2	5.2	-77.4	-44.3	-135.0	-749.9	-75.5	-10.9
306	ok	0.15	0.1	0.2	10.1	10.1	5.2	5.2	-760.9	119.1	61.2	-941.0	-252.0	110.4
307	ok	0.15	5.77e-02	7.83e-03	10.1	10.1	5.2	5.2	-67.3	-18.9	-69.3	-847.0	-210.1	9.7
308	ok	0.15	8.85e-02	0.0	10.1	10.1	5.2	5.2	-337.8	436.7	-21.7	-942.4	-302.5	-67.7
309	ok	0.15	3.11e-02	3.29e-02	10.1	10.1	5.2	5.2	-552.6	-187.0	-2.8	-402.3	-46.2	58.3
310	ok	0.15	3.88e-02	4.57e-02	10.1	10.1	5.2	5.2	-590.0	-125.5	51.8	-372.2	-88.7	16.6
311	ok	0.15	1.29e-02	1.36e-02	10.1	10.1	5.2	5.2	-419.4	-11.9	68.5	-362.4	-40.5	14.2
312	ok	0.15	5.82e-03	5.92e-03	10.1	10.1	5.2	5.2	-279.4	-25.6	53.5	-242.5	-27.0	5.0
313	ok	0.15	2.08e-02	1.21e-04	10.1	10.1	5.2	5.2	-19.3	11.3	61.4	159.0	23.6	4.2
314	ok	0.15	3.71e-02	5.17e-04	10.1	10.1	5.2	5.2	123.8	22.0	68.0	248.1	28.6	10.2
315	ok	0.15	0.1	5.94e-02	10.1	10.1	5.2	5.2	-115.8	300.9	-65.2	-1541.9	-337.1	-19.4
347	ok	0.15	5.53e-02	1.72e-02	10.1	10.1	5.2	5.2	-360.9	286.0	36.2	-711.8	-179.1	-108.8
348	ok	0.15	3.99e-02	4.78e-02	10.1	10.1	5.2	5.2	-699.7	-165.5	-42.2	889.9	161.9	47.1

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
349	ok	0.15	3.95e-02	4.77e-02	10.1	10.1	5.2	5.2	-699.7	-182.7	-15.1	796.8	32.0	21.6
350	ok	0.15	4.52e-02	5.53e-02	10.1	10.1	5.2	5.2	-478.1	-41.5	-45.6	808.9	162.6	-15.5
351	ok	0.15	3.81e-02	4.27e-02	10.1	10.1	5.2	5.2	-482.4	-89.0	-32.2	892.1	179.3	-12.8
352	ok	0.15	4.69e-02	5.91e-02	10.1	10.1	5.2	5.2	-657.3	-15.7	-65.4	515.4	48.3	-53.7
353	ok	0.15	4.36e-02	5.39e-02	10.1	10.1	5.2	5.2	-399.6	-46.8	-116.3	483.1	77.7	-39.7
354	ok	0.15	5.26e-02	6.86e-02	10.1	10.1	5.2	5.2	-558.5	-30.3	-51.8	201.2	29.0	-71.5
355	ok	0.15	4.65e-02	5.78e-02	10.1	10.1	5.2	5.2	-372.5	-24.4	-116.0	190.6	37.8	-60.7
356	ok	0.15	5.80e-02	7.80e-02	10.1	10.1	5.2	5.2	-362.0	3.9	-47.1	-409.6	-29.9	-68.3
357	ok	0.15	4.97e-02	6.29e-02	10.1	10.1	5.2	5.2	-259.2	-7.8	-101.3	-388.1	-41.7	-55.8
358	ok	0.15	6.44e-02	9.01e-02	10.1	10.1	5.2	5.2	-397.4	-20.9	-46.0	-495.9	7.5	-54.6
359	ok	0.15	5.36e-02	6.94e-02	10.1	10.1	5.2	5.2	-275.9	-31.5	-93.3	-473.7	-39.5	-41.6
360	ok	0.15	7.43e-02	0.1	10.1	10.1	5.2	5.2	-414.8	85.2	-29.8	-507.3	7.3	17.3
361	ok	0.15	6.73e-02	9.10e-02	10.1	10.1	5.2	5.2	-298.6	-9.1	63.6	-469.8	-47.6	22.4
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-760.95	-188.48	-144.68	-1541.85	-337.09	-110.95
		0.15	0.10	0.19	10.05	10.05	5.24	5.24	123.82	436.74	162.74	892.15	179.31	274.80

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
2	ok	0.39						
3	ok	0.37						
6	ok	0.35						
8	ok	0.40						
9	ok	1.20						
11	ok	3.67						
18	ok	0.55						
21	ok	0.54						
24	ok	0.43						
25	ok	0.39						
27	ok	0.37						
28	ok	0.35						
32	ok	0.34						
34	ok	0.99						
35	ok	1.20						
36	ok	3.32						
37	ok	0.55						
38	ok	0.54						
46	ok	0.40						
63	ok	0.38						
76	ok	0.52						
77	ok	0.29						
83	ok	0.76						
86	ok	0.64						
93	ok	0.52						
114	ok	0.43						
293	ok	0.38						
304	ok	0.35						
305	ok	0.29						
306	ok	3.16						
307	ok	0.97						
308	ok	3.22						
309	ok	0.39						
310	ok	0.19						
311	ok	0.38						
312	ok	0.38						
313	ok	0.38						
314	ok	0.35						
315	ok	3.67						
347	ok	0.99						
348	ok	0.37						
349	ok	0.50						
350	ok	0.62						
351	ok	0.57						
352	ok	0.50						
353	ok	0.50						
354	ok	0.50						
355	ok	0.50						
356	ok	0.50						
357	ok	0.50						
358	ok	0.47						
359	ok	0.47						
360	ok	0.46						
361	ok	0.46						
Nodo		**Max tau**	**Ver V pr**	**Ver V sec**	**Af V pr**	**Af V sec**	**V pr**	**V sec**

Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
		3.67						

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
5	418.00	30.00	150.00	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d18/20	1+1d10/20	0.49	0.05	0.06
51.6	1+1d18/20	1+1d10/20	0.59	0.05	0.06
103.2	1+1d18/20	1+1d10/20	0.48	0.25	0.30
154.9	1+1d18/20	1+1d10/20	0.31	0.25	0.30
206.5	1+1d18/20	1+1d10/20	0.16	0.25	0.30
258.1	1+1d18/20	1+1d10/20	0.04	0.25	0.30
309.8	1+1d18/20	1+1d10/20	0.19	0.25	0.30
361.4	1+1d18/20	1+1d10/20	0.35	0.25	0.30
418.0	1+1d18/20	1+1d10/20	0.43	0.04	0.05
Quota			**Ver. N/M**	**Ver. V cls**	**Ver. V acc**
			0.59	0.25	0.30

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-2.217e+04	3.660e+06	8.365e+04	-2.651e+04	5246.47	5246.47	2.50	1.079e+05	2.50	8.904e+04
51.6	1383.49	3.761e+06	6.792e+04	-4.955e+04	5715.97	5715.97	2.50	1.110e+05	2.50	8.904e+04
103.2	-1.328e+04	3.387e+06	5.222e+04	-1.328e+04	2.694e+04	2.694e+04	2.50	1.062e+05	2.50	8.904e+04
154.9	-1.271e+04	2.191e+06	3.612e+04	-1.271e+04	2.692e+04	2.692e+04	2.50	1.061e+05	2.50	8.904e+04
206.5	-3.779e+04	1.268e+06	2.709e+04	-1.118e+04	2.687e+04	2.687e+04	2.50	1.059e+05	2.50	8.904e+04
258.1	-2.702e+04	3.224e+05	2762.36	-1.209e+04	2.679e+04	2.679e+04	2.50	1.060e+05	2.50	8.904e+04
309.8	-1.100e+04	1.356e+06	6142.12	-1.100e+04	2.669e+04	2.669e+04	2.50	1.059e+05	2.50	8.904e+04
361.4	-1.040e+04	2.498e+06	1.463e+04	-1.040e+04	2.655e+04	2.655e+04	2.50	1.058e+05	2.50	8.904e+04
418.0	-9333.64	3.030e+06	2.042e+04	-9333.64	4485.40	4485.40	2.50	1.057e+05	2.50	8.904e+04

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
4	ok	0.14	3.13e-02	4.73e-02	12.7	12.7	3.9	3.9	-983.3	-308.5	-31.8	532.0	20.6	-12.3
5	ok	0.14	3.40e-02	5.15e-02	12.7	12.7	3.9	3.9	-994.9	-268.6	10.5	569.1	109.0	-35.5
44	ok	0.14	3.45e-02	5.39e-02	12.7	12.7	3.9	3.9	-491.9	1.0	126.5	180.5	10.5	31.3
47	ok	0.14	3.44e-02	5.35e-02	12.7	12.7	3.9	3.9	-257.8	-48.9	239.4	294.4	17.6	25.7
48	ok	0.14	3.44e-02	5.40e-02	12.7	12.7	3.9	3.9	-257.3	-80.0	220.6	417.3	33.1	16.7
64	ok	0.14	3.73e-02	5.67e-02	12.7	12.7	3.9	3.9	-491.3	26.1	-32.6	557.7	98.6	9.9
69	ok	0.14	3.36e-02	5.22e-02	12.7	12.7	3.9	3.9	-938.6	-40.5	121.9	439.5	28.6	16.5
96	ok	0.14	5.37e-02	9.22e-02	12.7	12.7	3.9	3.9	-632.9	-265.9	-200.0	88.6	5.1	-3.0
97	ok	0.14	5.65e-02	0.1	12.7	12.7	3.9	3.9	-786.3	8.8	-14.9	86.6	42.5	11.6
100	ok	0.14	4.24e-02	7.06e-02	12.7	12.7	3.9	3.9	-564.2	-28.9	-140.7	108.7	15.6	-6.4
108	ok	0.14	4.01e-02	6.56e-02	12.7	12.7	3.9	3.9	-345.4	-41.6	-132.2	52.4	11.6	-11.6
109	ok	0.14	3.96e-02	6.22e-02	12.7	12.7	3.9	3.9	-862.1	-226.9	3.4	-463.3	-95.1	-25.4
111	ok	0.14	3.12e-02	4.78e-02	12.7	12.7	3.9	3.9	-816.3	-73.1	38.5	-475.5	-94.6	1.66e-02
113	ok	0.14	3.87e-02	4.92e-02	12.7	12.7	3.9	3.9	-499.2	-117.1	-156.4	82.3	7.3	6.5
115	ok	0.14	2.49e-02	3.66e-02	12.7	12.7	3.9	3.9	-549.5	169.8	47.3	123.6	82.5	15.4
116	ok	0.14	3.83e-02	5.97e-02	12.7	12.7	3.9	3.9	-535.6	43.2	-184.8	92.8	11.1	2.0
118	ok	0.14	3.49e-02	5.46e-02	12.7	12.7	3.9	3.9	-257.9	25.1	234.6	-23.4	-14.0	25.7
135	ok	0.14	3.83e-02	6.19e-02	12.7	12.7	3.9	3.9	-519.0	-48.0	133.4	181.1	10.2	31.8
144	ok	0.14	3.63e-02	5.78e-02	12.7	12.7	3.9	3.9	-731.1	-73.8	127.5	303.3	14.7	31.5
172	ok	0.14	2.96e-02	4.50e-02	12.7	12.7	3.9	3.9	-971.0	-97.5	-16.9	576.0	115.9	4.2
366	ok	0.14	2.94e-02	4.44e-02	12.7	12.7	3.9	3.9	-774.5	-44.3	9.2	-129.2	-4.2	26.0
368	ok	0.14	2.22e-02	3.16e-02	12.7	12.7	3.9	3.9	-733.3	-302.1	7.5	-146.4	-24.8	11.7
369	ok	0.14	2.72e-02	3.66e-02	12.7	12.7	3.9	3.9	-637.0	-152.2	164.1	-87.9	-7.5	31.2
370	ok	0.14	1.62e-02	2.26e-02	12.7	12.7	3.9	3.9	-696.1	159.9	-2.3	-132.9	-2.2	36.2
371	ok	0.14	1.81e-02	2.55e-02	12.7	12.7	3.9	3.9	-595.6	-64.6	166.0	-112.6	-15.1	16.8
372	ok	0.14	2.70e-02	4.00e-02	12.7	12.7	3.9	3.9	-646.0	53.8	168.7	-87.5	-8.4	24.6
373	ok	0.14	2.12e-02	3.04e-02	12.7	12.7	3.9	3.9	-393.5	-45.6	132.9	-23.7	-11.7	5.7
374	ok	0.14	2.88e-02	4.30e-02	12.7	12.7	3.9	3.9	-434.1	-2.2	119.0	-24.4	-11.5	18.4
375	ok	0.14	2.48e-02	3.66e-02	12.7	12.7	3.9	3.9	-269.7	-47.2	-131.2	43.9	1.0	-29.8
376	ok	0.14	3.02e-02	4.55e-02	12.7	12.7	3.9	3.9	-231.6	23.6	233.0	179.9	9.7	21.1
377	ok	0.14	2.82e-02	4.25e-02	12.7	12.7	3.9	3.9	-515.6	-68.2	-128.2	-243.2	-14.0	4.7
380	ok	0.14	3.16e-02	4.82e-02	12.7	12.7	3.9	3.9	-240.9	52.6	245.7	295.9	17.7	21.8
382	ok	0.14	3.05e-02	4.62e-02	12.7	12.7	3.9	3.9	-754.1	-52.8	-130.4	-365.0	-28.4	3.33e-03
383	ok	0.14	3.52e-02	5.44e-02	12.7	12.7	3.9	3.9	-250.6	61.1	224.7	404.4	29.4	29.7
384	ok	0.14	3.66e-02	5.52e-02	12.7	12.7	3.9	3.9	-840.2	-266.7	67.1	-429.4	-23.0	-41.7
385	ok	0.14	3.51e-02	5.42e-02	12.7	12.7	3.9	3.9	-525.0	18.8	-80.3	551.1	97.8	12.1

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-994.94	-308.55	-200.01	-475.48	-95.05	-41.74
		0.14	0.06	0.10	12.72	12.72	3.93	3.93	-231.57	169.79	245.66	575.99	115.91	36.21

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
4	ok	0.20						
5	ok	0.10						
44	ok	0.17						
47	ok	0.17						
48	ok	0.20						
64	ok	0.35						
69	ok	0.17						
96	ok	0.08						
97	ok	0.24						
100	ok	0.11						
108	ok	0.14						
109	ok	0.18						
111	ok	0.30						
113	ok	0.10						
115	ok	0.24						
116	ok	0.11						
118	ok	0.14						
135	ok	0.17						
144	ok	0.17						
172	ok	0.35						
366	ok	0.55						
368	ok	0.16						
369	ok	0.16						
370	ok	0.55						
371	ok	0.17						
372	ok	0.17						
373	ok	0.20						
374	ok	0.20						
375	ok	0.22						
376	ok	0.22						
377	ok	0.22						
380	ok	0.22						
382	ok	0.22						
383	ok	0.22						
384	ok	0.23						
385	ok	0.36						
Nodo		**Max tau**	**Ver V pr**	**Ver V sec**	**Af V pr**	**Af V sec**	**V pr**	**V sec**
		0.55						

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
6	418.00	30.00	322.00	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d18/20	1+1d10/20	0.51	0.11	0.13
51.6	1+1d18/20	1+1d10/20	0.51	0.11	0.13
103.2	1+1d18/20	1+1d10/20	0.47	0.22	0.26
154.9	1+1d18/20	1+1d10/20	0.40	0.22	0.26
206.5	1+1d18/20	1+1d10/20	0.32	0.22	0.26
258.1	1+1d18/20	1+1d10/20	0.24	0.22	0.26
309.8	1+1d18/20	1+1d10/20	0.17	0.22	0.26
361.4	1+1d18/20	1+1d10/20	0.11	0.22	0.26
418.0	1+1d18/20	1+1d10/20	0.14	0.11	0.13
Quota			**Ver. N/M**	**Ver. V cls**	**Ver. V acc**
			0.51	0.22	0.26

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-3.459e+04	1.481e+07	2.148e+05	-3.428e+04	2.407e+04	2.407e+04	2.50	2.285e+05	2.50	1.910e+05
51.6	-3.459e+04	1.488e+07	2.099e+05	-3.428e+04	2.407e+04	2.407e+04	2.50	2.285e+05	2.50	1.910e+05
103.2	-3.187e+04	1.391e+07	1.487e+05	-3.719e+04	5.057e+04	5.057e+04	2.50	2.289e+05	2.50	1.910e+05

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
154.9	-2.914e+04	1.171e+07	9.151e+04	-3.599e+04	5.052e+04	5.052e+04	2.50	2.287e+05	2.50	1.910e+05
206.5	-2.795e+04	9.430e+06	5.266e+04	-3.241e+04	5.044e+04	5.044e+04	2.50	2.283e+05	2.50	1.910e+05
258.1	-2.674e+04	7.154e+06	3.086e+04	-3.199e+04	5.031e+04	5.031e+04	2.50	2.282e+05	2.50	1.910e+05
309.8	-2.565e+04	4.903e+06	2.514e+04	-3.215e+04	5.013e+04	5.013e+04	2.50	2.282e+05	2.50	1.910e+05
361.4	-2.505e+04	2.446e+06	1.769e+05	-3.079e+04	4.991e+04	4.991e+04	2.50	2.281e+05	2.50	1.910e+05
418.0	-2.685e+04	2.800e+06	2.954e+05	-1.942e+04	2.534e+04	2.534e+04	2.50	2.265e+05	2.50	1.910e+05

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
173	ok	0.14	1.10e-02	1.30e-02	12.7	12.7	3.9	3.9	-99.4	24.4	-12.0	693.4	-6.6	-254.3
174	ok	0.14	1.50e-02	1.47e-02	12.7	12.7	3.9	3.9	-91.7	-37.0	-40.4	1327.3	-115.1	199.2
175	ok	0.14	1.56e-02	1.44e-02	12.7	12.7	3.9	3.9	-103.6	-56.4	-11.3	975.4	-7.0	145.4
176	ok	0.14	2.13e-02	1.59e-02	12.7	12.7	3.9	3.9	-75.3	2.3	-40.6	1058.9	244.5	141.0
177	ok	0.14	7.03e-03	9.06e-03	12.7	12.7	3.9	3.9	-65.5	-2.5	-20.1	1351.0	138.7	-26.2
178	ok	0.14	8.18e-03	1.03e-02	12.7	12.7	3.9	3.9	-76.1	2.6	-36.6	1192.0	100.6	20.5
179	ok	0.14	5.24e-03	6.80e-03	12.7	12.7	3.9	3.9	-355.4	-15.7	16.9	-37.2	-6.2	-17.9
180	ok	0.14	6.95e-03	9.10e-03	12.7	12.7	3.9	3.9	-297.3	-23.4	80.3	-38.9	-11.0	-32.1
181	ok	0.14	4.89e-03	6.34e-03	12.7	12.7	3.9	3.9	-481.5	-15.7	18.8	-120.0	-5.2	-21.7
182	ok	0.14	7.09e-03	9.31e-03	12.7	12.7	3.9	3.9	-400.9	-26.8	83.7	-121.1	-17.1	-34.7
183	ok	0.14	5.42e-03	6.92e-03	12.7	12.7	3.9	3.9	-606.8	-14.8	-3.6	-269.5	-5.6	-16.8
184	ok	0.14	8.51e-03	1.11e-02	12.7	12.7	3.9	3.9	-622.1	-20.6	3.6	-268.1	-5.3	-16.1
185	ok	0.14	7.49e-03	9.59e-03	12.7	12.7	3.9	3.9	-616.3	47.7	3.8	-275.3	1.3	-14.7
186	ok	0.14	1.19e-02	1.60e-02	12.7	12.7	3.9	3.9	-627.5	-58.3	153.7	498.7	49.3	3.8
187	ok	0.14	2.17e-02	2.53e-02	12.7	12.7	3.9	3.9	-911.5	-258.5	149.4	-202.8	10.8	-13.9
188	ok	0.14	1.93e-02	1.75e-02	12.7	12.7	3.9	3.9	-627.7	-347.2	171.2	485.0	18.2	-9.7
189	ok	0.14	1.57e-02	2.07e-02	12.7	12.7	3.9	3.9	-917.7	-172.8	-15.7	-262.9	-50.5	16.3
191	ok	0.14	1.61e-02	1.98e-02	12.7	12.7	3.9	3.9	-687.2	-158.4	27.4	-261.8	-51.6	9.1
194	ok	0.14	1.56e-02	1.52e-02	12.7	12.7	3.9	3.9	-24.1	-30.4	-104.1	759.1	168.5	36.5
195	ok	0.14	1.61e-02	1.25e-02	12.7	12.7	3.9	3.9	-57.6	33.2	-31.7	806.9	222.2	54.0
196	ok	0.14	1.13e-02	1.39e-02	12.7	12.7	3.9	3.9	-94.2	2.6	127.9	-417.7	-57.3	-72.3
197	ok	0.14	1.09e-02	1.41e-02	12.7	12.7	3.9	3.9	-134.4	-9.2	161.1	-258.8	-42.7	3.9
198	ok	0.14	1.16e-02	1.57e-02	12.7	12.7	3.9	3.9	-278.9	-31.0	166.5	-117.7	-21.6	-23.7
199	ok	0.14	1.33e-02	1.79e-02	12.7	12.7	3.9	3.9	-543.0	7.9	119.3	165.6	30.3	10.2
200	ok	0.14	1.64e-02	2.12e-02	12.7	12.7	3.9	3.9	-361.4	-95.5	172.0	468.7	78.5	-0.9
202	ok	0.14	1.78e-02	2.14e-02	12.7	12.7	3.9	3.9	-373.0	-153.7	99.3	665.3	128.1	-0.3
203	ok	0.14	1.69e-02	2.10e-02	12.7	12.7	3.9	3.9	-379.8	-103.1	96.1	655.2	131.1	0.2
204	ok	0.14	1.14e-02	1.45e-02	12.7	12.7	3.9	3.9	-48.2	34.6	-128.5	581.0	119.6	33.5
205	ok	0.14	1.02e-02	1.16e-02	12.7	12.7	3.9	3.9	-26.9	54.9	-82.5	591.4	80.1	54.3
206	ok	0.14	1.25e-02	1.58e-02	12.7	12.7	3.9	3.9	-42.3	18.4	-174.2	437.4	68.0	73.3
207	ok	0.14	1.36e-02	1.87e-02	12.7	12.7	3.9	3.9	-84.1	-28.6	199.6	-227.3	-34.9	-5.3
208	ok	0.14	1.60e-02	2.19e-02	12.7	12.7	3.9	3.9	-298.6	-2.2	174.6	-114.6	-20.6	-21.1
213	ok	0.14	1.78e-02	2.45e-02	12.7	12.7	3.9	3.9	-152.1	-39.5	216.2	161.4	29.6	3.6
214	ok	0.14	1.92e-02	2.62e-02	12.7	12.7	3.9	3.9	-159.3	-58.8	175.7	467.1	94.7	2.9
215	ok	0.14	2.03e-02	2.78e-02	12.7	12.7	3.9	3.9	-168.1	-72.7	113.1	663.3	135.2	2.9
216	ok	0.14	2.01e-02	2.66e-02	12.7	12.7	3.9	3.9	-167.0	-52.7	119.7	653.8	130.8	1.7
218	ok	0.14	1.15e-02	1.51e-02	12.7	12.7	3.9	3.9	-57.4	14.1	-121.1	458.7	89.1	45.1
221	ok	0.14	9.39e-03	1.25e-02	12.7	12.7	3.9	3.9	-50.2	83.8	-111.6	451.0	39.1	46.4
222	ok	0.14	1.51e-02	2.03e-02	12.7	12.7	3.9	3.9	-102.1	44.8	-174.1	374.4	47.5	65.9
224	ok	0.14	1.90e-02	2.56e-02	12.7	12.7	3.9	3.9	-121.8	16.2	-202.5	255.7	31.1	18.0
225	ok	0.14	2.10e-02	2.93e-02	12.7	12.7	3.9	3.9	-151.5	12.4	-208.6	108.5	15.3	1.6
226	ok	0.14	2.22e-02	3.15e-02	12.7	12.7	3.9	3.9	-174.1	-3.0	222.8	158.3	57.0	4.3
227	ok	0.14	2.29e-02	3.27e-02	12.7	12.7	3.9	3.9	-180.9	-19.0	179.8	465.4	94.2	3.5
228	ok	0.14	2.33e-02	3.32e-02	12.7	12.7	3.9	3.9	-247.3	-19.8	-105.1	-665.0	-136.0	-4.1
229	ok	0.14	2.27e-02	3.20e-02	12.7	12.7	3.9	3.9	-242.0	-26.1	-99.6	-672.1	-134.4	-1.5
230	ok	0.14	1.77e-02	2.35e-02	12.7	12.7	3.9	3.9	-105.4	63.6	-109.2	384.5	64.6	53.3
231	ok	0.14	1.32e-02	1.80e-02	12.7	12.7	3.9	3.9	-96.2	112.5	-114.5	373.7	32.0	35.9
232	ok	0.14	2.50e-02	3.24e-02	12.7	12.7	3.9	3.9	-134.3	26.4	-153.2	318.4	34.8	59.1
233	ok	0.14	2.63e-02	3.66e-02	12.7	12.7	3.9	3.9	-154.5	3.5	-188.6	227.5	24.2	19.4
234	ok	0.14	2.65e-02	3.84e-02	12.7	12.7	3.9	3.9	-179.8	-5.4	-200.4	101.2	14.9	15.8
235	ok	0.14	2.68e-02	3.94e-02	12.7	12.7	3.9	3.9	-243.7	-22.4	-190.3	-136.2	-57.3	-5.4
236	ok	0.14	2.69e-02	4.02e-02	12.7	12.7	3.9	3.9	-259.3	-37.9	-156.5	-451.2	-92.1	-7.4
237	ok	0.14	2.82e-02	4.25e-02	12.7	12.7	3.9	3.9	-265.2	-59.9	-103.5	-656.9	-134.4	-2.6
238	ok	0.14	2.53e-02	3.74e-02	12.7	12.7	3.9	3.9	-492.9	-67.9	-99.3	-663.4	-132.7	-0.4
239	ok	0.14	4.32e-02	5.03e-02	12.7	12.7	3.9	3.9	-121.7	-246.7	111.3	-314.1	-55.7	0.3
240	ok	0.14	2.63e-02	3.91e-02	12.7	12.7	3.9	3.9	-306.1	36.3	26.4	-321.5	-81.3	-38.8
241	ok	0.14	4.20e-02	6.21e-02	12.7	12.7	3.9	3.9	-98.6	-81.5	214.5	-241.3	-21.3	-39.6
242	ok	0.14	3.30e-02	5.03e-02	12.7	12.7	3.9	3.9	-238.9	15.4	-160.7	206.9	14.2	28.5
243	ok	0.14	3.16e-02	4.81e-02	12.7	12.7	3.9	3.9	-550.9	3.0	-50.3	164.8	6.7	4.9
244	ok	0.14	3.08e-02	4.69e-02	12.7	12.7	3.9	3.9	-470.3	-27.9	-152.6	-141.2	-47.3	3.4
245	ok	0.14	3.18e-02	4.90e-02	12.7	12.7	3.9	3.9	-513.3	-66.1	-147.2	-453.5	-70.4	-8.4
246	ok	0.14	3.26e-02	4.90e-02	12.7	12.7	3.9	3.9	-507.3	-113.2	-113.8	-633.5	-114.6	-9.2
247	ok	0.14	2.81e-02	4.23e-02	12.7	12.7	3.9	3.9	-882.7	-126.9	-38.3	-643.0	-128.7	-3.9
248	ok	0.14	6.25e-02	0.1	12.7	12.7	3.9	3.9	-551.3	-331.7	33.1	-292.1	-15.6	31.8
249	ok	0.14	6.25e-02	0.1	12.7	12.7	3.9	3.9	-590.7	-56.3	112.4	-310.8	-77.5	-9.5
250	ok	0.14	4.28e-02	7.15e-02	12.7	12.7	3.9	3.9	-243.2	-7.6	136.7	-239.0	-12.9	-38.0
251	ok	0.14	3.80e-02	6.12e-02	12.7	12.7	3.9	3.9	-474.8	-20.4	-61.0	66.9	6.7	-1.8

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
252	ok	0.14	3.54e-02	5.60e-02	12.7	12.7	3.9	3.9	-576.9	-26.4	-58.4	171.8	8.0	1.8
253	ok	0.14	3.38e-02	5.30e-02	12.7	12.7	3.9	3.9	-682.2	-32.0	-58.2	-145.5	-29.0	20.5
254	ok	0.14	3.21e-02	4.95e-02	12.7	12.7	3.9	3.9	-803.4	-20.8	-86.3	-478.5	-40.2	17.7
255	ok	0.14	3.43e-02	5.18e-02	12.7	12.7	3.9	3.9	-911.0	-262.6	-14.8	-587.4	-37.8	-27.6
256	ok	0.14	3.60e-02	5.52e-02	12.7	12.7	3.9	3.9	-921.9	-202.5	-68.5	-609.9	-121.2	-20.1
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-921.90	-347.19	-208.58	-672.05	-135.97	-254.35
		0.14	0.06	0.12	12.72	12.72	3.93	3.93	-24.14	112.54	222.81	1350.96	244.53	199.22

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
173	ok	0.32						
174	ok	0.62						
175	ok	1.29						
176	ok Av	5.62	0.02	0.21	0.5	6.4	10.8	144.1
177	ok	0.59						
178	ok	0.59						
179	ok	0.59						
180	ok	0.59						
181	ok	0.59						
182	ok	0.59						
183	ok	0.59						
184	ok	0.59						
185	ok	0.55						
186	ok	0.55						
187	ok	0.42						
188	ok	0.42						
189	ok	0.06						
191	ok	0.38						
194	ok	1.29						
195	ok Av	5.62	0.02	0.21	0.5	6.4	10.8	144.1
196	ok	0.41						
197	ok	0.33						
198	ok	0.33						
199	ok	0.33						
200	ok	0.35						
202	ok	0.44						
203	ok	0.44						
204	ok	1.28						
205	ok	4.73						
206	ok	0.31						
207	ok	0.29						
208	ok	0.30						
213	ok	0.33						
214	ok	0.36						
215	ok	0.44						
216	ok	0.44						
218	ok	0.95						
221	ok	3.55						
222	ok	0.26						
224	ok	0.28						
225	ok	0.30						
226	ok	0.33						
227	ok	0.36						
228	ok	0.37						
229	ok	0.37						
230	ok	0.64						
231	ok	2.54						
232	ok	0.22						
233	ok	0.26						
234	ok	0.29						
235	ok	0.31						
236	ok	0.34						
237	ok	0.43						
238	ok	0.42						
239	ok	0.42						
240	ok	1.70						
241	ok	0.26						
242	ok	0.30						
243	ok	0.31						
244	ok	0.31						
245	ok	0.31						
246	ok	0.43						
247	ok	0.42						
248	ok	0.39						

Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
249	ok	1.25						
250	ok	0.26						
251	ok	0.30						
252	ok	0.31						
253	ok	0.31						
254	ok	0.30						
255	ok	0.31						
256	ok	0.12						
Nodo		**Max tau**	**Ver V pr**	**Ver V sec**	**Af V pr**	**Af V sec**	**V pr**	**V sec**
		5.62	0.02	0.21	0.48	6.37	10.81	144.09

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
7	418.00	30.00	150.48	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d18/20	1+1d10/20	0.35	9.51e-03	0.01
51.6	1+1d18/20	1+1d10/20	0.34	9.51e-03	0.01
103.2	1+1d18/20	1+1d10/20	0.28	0.15	0.18
154.9	1+1d18/20	1+1d10/20	0.20	0.15	0.18
206.5	1+1d18/20	1+1d10/20	0.13	0.15	0.18
258.1	1+1d18/20	1+1d10/20	0.06	0.15	0.18
309.8	1+1d18/20	1+1d10/20	0.11	0.15	0.18
361.4	1+1d18/20	1+1d10/20	0.21	0.15	0.18
418.0	1+1d18/20	1+1d10/20	0.26	0.02	0.03
Quota			**Ver. N/M**	**Ver. V cls**	**Ver. V acc**
			0.35	0.15	0.18

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-1.751e+04	2.559e+06	3.318e+04	-1.751e+04	1016.65	1016.65	2.50	1.069e+05	2.50	8.918e+04
51.6	-1.751e+04	2.560e+06	1.568e+04	-1.751e+04	1016.65	1016.65	2.50	1.069e+05	2.50	8.918e+04
103.2	-2.012e+04	2.149e+06	1492.05	-2.012e+04	1.623e+04	1.623e+04	2.50	1.073e+05	2.50	8.918e+04
154.9	-2.516e+04	1.567e+06	2361.10	-1.951e+04	1.620e+04	1.620e+04	2.50	1.072e+05	2.50	8.918e+04
206.5	-2.469e+04	9.626e+05	1.590e+04	-1.882e+04	1.615e+04	1.615e+04	2.50	1.071e+05	2.50	8.918e+04
258.1	-2.510e+04	3.742e+05	6.175e+04	-1.875e+04	1.608e+04	1.608e+04	2.50	1.071e+05	2.50	8.918e+04
309.8	-2.138e+04	5.159e+05	1.447e+05	-1.803e+04	1.597e+04	1.597e+04	2.50	1.070e+05	2.50	8.918e+04
361.4	-1.738e+04	1.383e+06	8.826e+04	-1.738e+04	1.582e+04	1.582e+04	2.50	1.069e+05	2.50	8.918e+04
418.0	-1.576e+04	1.703e+06	1.196e+05	-1.576e+04	2536.16	2536.16	2.50	1.067e+05	2.50	8.918e+04

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
85	ok	0.14	6.32e-02	9.70e-02	12.7	12.7	3.9	3.9	-675.2	-72.6	-170.2	-10.6	6.2	-163.4
103	ok	0.14	7.41e-02	4.47e-02	12.7	12.7	3.9	3.9	-458.5	61.4	3.5	719.3	257.0	-213.0
143	ok	0.14	5.32e-02	3.54e-02	12.7	12.7	3.9	3.9	-427.9	-185.8	5.9	649.2	-41.8	69.6
145	ok	0.14	6.18e-02	2.95e-02	12.7	12.7	3.9	3.9	-112.4	-54.9	106.2	989.8	113.8	-56.2
146	ok	0.14	7.59e-02	1.85e-02	12.7	12.7	3.9	3.9	-364.1	192.0	-12.7	623.3	165.8	-97.2
147	ok	0.14	4.45e-02	2.48e-02	12.7	12.7	3.9	3.9	-316.8	-31.5	96.3	430.0	14.0	29.4
149	ok	0.14	4.37e-02	3.53e-02	12.7	12.7	3.9	3.9	-122.8	-7.0	-50.8	1177.8	66.2	-50.9
150	ok	0.14	3.20e-02	2.85e-02	12.7	12.7	3.9	3.9	-112.9	-17.8	-77.8	311.0	-0.9	-35.6
151	ok	0.14	3.08e-02	3.84e-02	12.7	12.7	3.9	3.9	-106.5	9.7	-152.5	335.8	4.3	-69.4
152	ok	0.14	2.34e-02	3.42e-02	12.7	12.7	3.9	3.9	-261.6	-32.4	-79.2	241.7	0.3	-39.4
153	ok	0.14	2.75e-02	4.08e-02	12.7	12.7	3.9	3.9	-282.1	3.0	-92.0	242.3	0.8	-49.6
155	ok	0.14	2.67e-02	3.97e-02	12.7	12.7	3.9	3.9	-412.0	-46.9	-76.7	127.3	0.2	-39.8
156	ok	0.14	2.88e-02	4.31e-02	12.7	12.7	3.9	3.9	-286.9	32.2	-90.9	123.1	-5.0	-50.9
157	ok	0.14	2.86e-02	4.25e-02	12.7	12.7	3.9	3.9	-547.2	-35.8	-65.9	8.2	-1.7	-48.5
158	ok	0.14	3.25e-02	4.95e-02	12.7	12.7	3.9	3.9	-167.7	39.9	117.8	-150.7	-11.4	59.5
159	ok	0.14	4.37e-02	5.35e-02	12.7	12.7	3.9	3.9	-616.9	-211.0	60.5	33.3	8.0	55.6
160	ok	0.14	4.10e-02	5.30e-02	12.7	12.7	3.9	3.9	-161.2	53.8	-0.5	-190.4	-34.7	31.5
162	ok	0.14	5.55e-02	8.23e-02	12.7	12.7	3.9	3.9	-403.6	-55.2	12.2	-693.1	-111.4	31.5
164	ok	0.14	6.77e-02	4.02e-02	12.7	12.7	3.9	3.9	-141.3	-72.9	-71.3	1429.5	184.4	53.2
166	ok	0.14	8.95e-02	2.96e-02	12.7	12.7	3.9	3.9	-82.0	194.3	-12.9	-466.5	-90.4	-117.9
167	ok	0.14	4.30e-02	5.22e-02	12.7	12.7	3.9	3.9	-160.4	-20.4	-69.6	1276.1	92.2	-29.7
168	ok	0.14	3.12e-02	4.74e-02	12.7	12.7	3.9	3.9	-221.4	-8.9	61.2	415.4	-10.4	-27.4
169	ok	0.14	3.08e-02	4.69e-02	12.7	12.7	3.9	3.9	-216.1	16.4	61.8	298.5	24.8	-30.8
170	ok	0.14	3.08e-02	4.67e-02	12.7	12.7	3.9	3.9	-470.9	18.0	68.1	-16.4	-4.8	34.7
171	ok	0.14	3.14e-02	4.74e-02	12.7	12.7	3.9	3.9	-171.7	-49.9	105.7	-136.0	-18.4	43.1
219	ok	0.14	3.83e-02	5.73e-02	12.7	12.7	3.9	3.9	-259.4	44.3	11.8	-326.7	-74.4	1.2

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
322	ok	0.14	4.10e-02	4.11e-02	12.7	12.7	3.9	3.9	-139.1	-55.0	-34.6	-561.8	-126.8	17.8
323	ok	0.14	6.46e-02	8.59e-02	12.7	12.7	3.9	3.9	-541.5	-209.6	17.0	1478.2	6.0	70.1
325	ok	0.14	7.64e-02	9.34e-02	12.7	12.7	3.9	3.9	-516.4	85.9	-11.9	721.4	180.0	70.2
326	ok	0.14	4.34e-02	6.11e-02	12.7	12.7	3.9	3.9	-387.0	-3.6	-79.6	566.1	45.0	-2.1
327	ok	0.14	3.54e-02	5.60e-02	12.7	12.7	3.9	3.9	-249.6	-15.8	66.8	427.2	-16.5	-80.7
328	ok	0.14	3.37e-02	5.27e-02	12.7	12.7	3.9	3.9	-236.0	9.8	67.0	307.2	25.2	-86.1
329	ok	0.14	3.20e-02	4.95e-02	12.7	12.7	3.9	3.9	-483.1	-45.9	73.7	-16.6	-0.3	-7.0
363	ok	0.14	2.99e-02	4.52e-02	12.7	12.7	3.9	3.9	-461.7	-0.9	72.9	-143.7	1.3	48.8
364	ok	0.14	2.36e-02	3.41e-02	12.7	12.7	3.9	3.9	-545.2	-167.5	98.0	-278.7	-2.4	42.9
365	ok	0.14	3.65e-02	3.33e-02	12.7	12.7	3.9	3.9	-640.6	-179.8	8.5	-359.1	-47.3	52.3
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-675.22	-210.96	-170.21	-693.08	-126.84	-212.96
		0.14	0.09	0.10	12.72	12.72	3.93	3.93	-82.04	194.26	117.80	1478.22	257.04	70.15

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
85	ok	0.50						
103	ok	2.95						
143	ok	1.18						
145	ok	1.07						
146	ok	3.01						
147	ok	0.28						
149	ok	0.27						
150	ok	0.29						
151	ok	0.29						
152	ok	0.31						
153	ok	0.31						
155	ok	0.31						
156	ok	0.31						
157	ok	0.31						
158	ok	0.35						
159	ok	0.29						
160	ok	0.69						
162	ok	0.68						
164	ok	0.98						
166	ok	3.63						
167	ok	0.47						
168	ok	0.40						
169	ok	0.43						
170	ok	0.45						
171	ok	0.45						
219	ok	0.69						
322	ok	0.68						
323	ok	0.96						
325	ok	3.70						
326	ok	0.46						
327	ok	0.40						
328	ok	0.43						
329	ok	0.45						
363	ok	0.45						
364	ok	0.49						
365	ok	0.48						
Nodo		**Max tau**	**Ver V pr**	**Ver V sec**	**Af V pr**	**Af V sec**	**V pr**	**V sec**
		3.70						

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
8	418.00	25.00	230.00	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d16/20	1+1d10/15	0.47	0.06	0.05
51.6	1+1d16/20	1+1d10/15	0.46	0.06	0.05
103.2	1+1d16/20	1+1d10/15	0.40	0.20	0.15
154.9	1+1d16/20	1+1d10/15	0.28	0.20	0.15
206.5	1+1d16/20	1+1d10/15	0.17	0.20	0.15
258.1	1+1d16/20	1+1d10/15	0.10	0.20	0.15
309.8	1+1d16/20	1+1d10/15	0.13	0.20	0.15
361.4	1+1d16/20	1+1d10/15	0.23	0.20	0.15
418.0	1+1d16/20	1+1d10/15	0.32	0.06	0.04

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
Quota			Ver. N/M	Ver. V cls	Ver. V acc
			0.47	0.20	0.15

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-2032.02	5.221e+06	1.380e+05	-2032.02	8419.36	8419.36	2.50	1.353e+05	2.50	1.842e+05
51.6	-2032.02	5.125e+06	1.263e+05	-2032.02	8419.36	8419.36	2.50	1.353e+05	2.50	1.842e+05
103.2	418.38	4.419e+06	8.349e+04	418.38	2.713e+04	2.713e+04	2.50	1.350e+05	2.50	1.842e+05
154.9	1144.11	3.099e+06	4.164e+04	1144.11	2.711e+04	2.711e+04	2.50	1.350e+05	2.50	1.842e+05
206.5	-2.769e+04	2.326e+06	1.258e+04	1867.33	2.706e+04	2.706e+04	2.50	1.350e+05	2.50	1.842e+05
258.1	-2.749e+04	1.332e+06	2.161e+04	1447.75	2.698e+04	2.698e+04	2.50	1.350e+05	2.50	1.842e+05
309.8	-7251.88	1.053e+06	1.303e+05	3015.43	2.688e+04	2.688e+04	2.50	1.350e+05	2.50	1.842e+05
361.4	3691.57	2.218e+06	1.189e+05	3691.57	2.674e+04	2.674e+04	2.50	1.350e+05	2.50	1.842e+05
418.0	6561.81	3.049e+06	1.518e+05	6561.81	7994.48	7994.48	2.50	1.350e+05	2.50	1.842e+05

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
257	ok	0.15	5.34e-02	6.98e-02	10.1	10.1	5.2	5.2	-258.0	32.6	97.0	-1225.7	-22.3	409.0
258	ok	0.15	5.10e-02	6.29e-02	10.1	10.1	5.2	5.2	-222.6	-65.6	-46.9	-927.3	22.0	-139.7
259	ok	0.15	6.89e-02	9.43e-02	10.1	10.1	5.2	5.2	-343.9	-95.0	-95.5	-1000.8	30.0	-115.4
260	ok	0.15	5.01e-02	5.96e-02	10.1	10.1	5.2	5.2	-256.1	40.2	-67.9	-830.1	17.5	269.7
261	ok	0.15	4.53e-02	5.59e-02	10.1	10.1	5.2	5.2	-256.4	3.5	-59.0	-899.2	-42.6	-27.0
262	ok	0.15	4.18e-02	5.10e-02	10.1	10.1	5.2	5.2	-193.4	21.4	0.6	-981.7	-67.7	-12.2
263	ok	0.15	3.30e-02	3.80e-02	10.1	10.1	5.2	5.2	-157.8	1.6	45.8	-144.4	-5.5	23.0
264	ok	0.15	3.32e-02	3.88e-02	10.1	10.1	5.2	5.2	-173.8	11.6	16.1	-139.2	-2.9	17.5
265	ok	0.15	2.68e-02	3.02e-02	10.1	10.1	5.2	5.2	-311.3	-19.5	69.5	-57.2	-13.7	3.8
266	ok	0.15	2.75e-02	3.11e-02	10.1	10.1	5.2	5.2	-370.1	-15.9	19.7	-57.7	-14.1	2.3
267	ok	0.15	2.21e-02	2.44e-02	10.1	10.1	5.2	5.2	-395.6	-22.7	79.3	-236.2	-22.7	6.2
268	ok	0.15	2.23e-02	2.46e-02	10.1	10.1	5.2	5.2	-468.5	-15.8	4.6	-235.8	-15.5	3.6
269	ok	0.15	1.82e-02	1.92e-02	10.1	10.1	5.2	5.2	-463.5	-43.6	101.1	-339.7	-34.3	9.6
270	ok	0.15	1.77e-02	1.91e-02	10.1	10.1	5.2	5.2	-642.6	-15.4	88.4	-337.4	-22.7	6.2
271	ok	0.15	1.36e-02	1.34e-02	10.1	10.1	5.2	5.2	-481.2	-212.8	0.7	-406.3	-47.8	24.6
272	ok	0.15	1.11e-02	6.16e-03	10.1	10.1	5.2	5.2	-625.0	-141.2	-26.2	-396.5	-0.8	33.5
273	ok	0.15	1.51e-02	1.02e-02	10.1	10.1	5.2	5.2	-636.0	-110.2	-26.6	-397.5	-83.1	9.8
274	ok	0.15	1.47e-02	1.05e-02	10.1	10.1	5.2	5.2	-639.3	-134.5	-22.5	-396.7	-86.8	21.1
275	ok	0.15	4.15e-02	3.30e-02	10.1	10.1	5.2	5.2	-81.9	-67.0	-53.8	-615.7	-135.8	-87.2
276	ok	0.15	4.87e-02	2.80e-02	10.1	10.1	5.2	5.2	-138.5	28.4	2.1	-1144.1	-240.8	-21.5
277	ok	0.15	3.34e-02	3.62e-02	10.1	10.1	5.2	5.2	-61.6	-10.1	-120.3	-466.7	-61.0	-56.3
278	ok	0.15	2.78e-02	3.04e-02	10.1	10.1	5.2	5.2	-138.7	2.6	35.1	-137.8	-13.7	15.9
279	ok	0.15	2.54e-02	2.75e-02	10.1	10.1	5.2	5.2	-299.7	-3.7	60.6	-55.5	-16.6	3.0
280	ok	0.15	2.33e-02	2.48e-02	10.1	10.1	5.2	5.2	-250.3	-20.7	124.8	-227.0	-29.4	8.7
281	ok	0.15	2.18e-02	2.26e-02	10.1	10.1	5.2	5.2	-259.9	-52.1	101.3	-316.7	-48.5	12.6
282	ok	0.15	2.34e-02	2.43e-02	10.1	10.1	5.2	5.2	-258.8	-89.8	41.9	-433.4	-82.9	6.9
283	ok	0.15	1.79e-02	1.57e-02	10.1	10.1	5.2	5.2	-259.5	-76.3	38.4	-394.9	-79.2	3.8
284	ok	0.15	3.73e-02	1.61e-02	10.1	10.1	5.2	5.2	-58.7	-54.3	-38.2	-586.4	-151.8	-57.9
285	ok	0.15	4.88e-02	1.06e-02	10.1	10.1	5.2	5.2	-18.1	88.2	19.2	-316.1	-52.6	15.0
286	ok	0.15	2.73e-02	2.19e-02	10.1	10.1	5.2	5.2	-31.0	-8.2	-115.4	-447.7	-67.0	-42.6
287	ok	0.15	2.32e-02	2.38e-02	10.1	10.1	5.2	5.2	-101.5	-12.3	124.2	98.7	16.5	8.8
288	ok	0.15	2.36e-02	2.43e-02	10.1	10.1	5.2	5.2	-202.6	1.14e-02	116.6	-53.6	-18.8	6.6
289	ok	0.15	2.38e-02	2.47e-02	10.1	10.1	5.2	5.2	-99.1	-19.3	126.6	-218.4	-30.0	13.2
290	ok	0.15	2.36e-02	2.46e-02	10.1	10.1	5.2	5.2	-90.3	-28.7	95.5	-312.8	-52.5	11.1
291	ok	0.15	2.30e-02	2.49e-02	10.1	10.1	5.2	5.2	-87.5	-31.5	37.6	-432.2	-85.9	3.3
292	ok	0.15	1.93e-02	2.00e-02	10.1	10.1	5.2	5.2	-82.7	-34.1	47.6	-387.4	-77.5	2.6
294	ok	0.15	3.61e-02	6.12e-03	10.1	10.1	5.2	5.2	19.9	36.3	-120.8	-494.7	-122.7	-5.4
295	ok	0.15	4.74e-02	2.94e-03	10.1	10.1	5.2	5.2	-27.7	117.4	34.4	-262.2	-43.7	-16.1
296	ok	0.15	2.79e-02	1.24e-02	10.1	10.1	5.2	5.2	75.2	23.3	-148.2	-444.3	-59.3	-11.9
297	ok	0.15	1.99e-02	1.67e-02	10.1	10.1	5.2	5.2	-82.6	-14.7	131.3	100.9	18.1	8.6
298	ok	0.15	1.98e-02	1.99e-02	10.1	10.1	5.2	5.2	-25.0	11.7	-148.6	-170.0	-19.5	-40.3
299	ok	0.15	2.24e-02	2.31e-02	10.1	10.1	5.2	5.2	-94.5	9.4	131.0	-218.9	-29.8	11.5
300	ok	0.15	2.45e-02	2.58e-02	10.1	10.1	5.2	5.2	-211.6	8.9	-128.1	352.6	52.0	-30.2
301	ok	0.15	2.50e-02	2.66e-02	10.1	10.1	5.2	5.2	-240.5	-37.4	-64.9	563.3	101.1	-18.5
302	ok	0.15	2.29e-02	2.46e-02	10.1	10.1	5.2	5.2	-235.2	-25.7	-57.0	616.6	123.5	-7.2
303	ok	0.15	3.89e-02	2.94e-03	10.1	10.1	5.2	5.2	117.2	141.9	-39.1	-588.3	-111.8	8.0
330	ok	0.15	4.85e-02	0.0	10.1	10.1	5.2	5.2	-372.9	126.0	36.2	150.5	-48.6	-23.0
331	ok	0.15	2.96e-02	4.64e-03	10.1	10.1	5.2	5.2	91.2	40.7	-136.8	-464.9	-52.2	-4.4
332	ok	0.15	2.12e-02	9.25e-03	10.1	10.1	5.2	5.2	-41.4	-6.4	-65.0	-214.8	2.5	-40.6
333	ok	0.15	1.44e-02	1.42e-02	10.1	10.1	5.2	5.2	-52.9	17.2	-67.1	-173.0	-15.5	-47.7
334	ok	0.15	1.89e-02	1.96e-02	10.1	10.1	5.2	5.2	-155.2	-15.4	-133.3	185.1	28.8	-43.9
335	ok	0.15	2.70e-02	2.92e-02	10.1	10.1	5.2	5.2	-212.5	-28.1	-119.3	364.3	51.6	-31.1
336	ok	0.15	2.74e-02	2.91e-02	10.1	10.1	5.2	5.2	-244.2	-80.9	-60.9	555.4	95.4	-17.0
337	ok	0.15	2.72e-02	3.01e-02	10.1	10.1	5.2	5.2	-511.2	-74.8	-20.6	618.1	124.5	-5.6
338	ok	0.15	4.49e-02	6.77e-03	10.1	10.1	5.2	5.2	276.9	178.5	-122.3	-541.1	-18.6	15.6
339	ok	0.15	4.91e-02	1.26e-03	10.1	10.1	5.2	5.2	418.7	14.3	-73.3	-650.0	-68.5	39.5
340	ok	0.15	3.15e-02	6.80e-03	10.1	10.1	5.2	5.2	253.7	25.0	-105.4	-506.9	-23.7	-4.3
341	ok	0.15	2.18e-02	1.82e-03	10.1	10.1	5.2	5.2	-25.2	-13.5	-52.1	-224.0	1.0	-39.7

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
342	ok	0.15	1.30e-02	7.90e-03	10.1	10.1	5.2	5.2	-40.6	8.2	-52.3	-181.2	-14.0	-45.0
343	ok	0.15	1.46e-02	1.55e-02	10.1	10.1	5.2	5.2	-286.1	-23.4	-46.1	190.8	19.9	-43.5
344	ok	0.15	2.05e-02	2.24e-02	10.1	10.1	5.2	5.2	-412.6	-6.0	-56.4	388.2	29.2	-34.2
345	ok	0.15	3.46e-02	3.83e-02	10.1	10.1	5.2	5.2	-527.9	-165.8	9.5	532.3	19.8	-5.3
346	ok	0.15	3.86e-02	4.55e-02	10.1	10.1	5.2	5.2	-550.5	-112.2	-41.0	600.4	109.7	38.5
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-642.60	-212.83	-148.56	-1225.67	-240.85	-139.74
		0.15	0.07	0.09	10.05	10.05	5.24	5.24	418.71	178.46	131.28	618.13	124.55	409.02

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
257	ok	3.85						
258	ok	0.85						
259	ok	0.59						
260	ok	0.51						
261	ok	0.35						
262	ok	0.35						
263	ok	0.44						
264	ok	0.44						
265	ok	0.47						
266	ok	0.47						
267	ok	0.46						
268	ok	0.46						
269	ok	0.44						
270	ok	0.44						
271	ok	0.39						
272	ok	0.36						
273	ok	0.35						
274	ok	0.11						
275	ok	0.86						
276	ok	3.85						
277	ok	0.30						
278	ok	0.27						
279	ok	0.29						
280	ok	0.31						
281	ok	0.34						
282	ok	0.43						
283	ok	0.43						
284	ok	0.86						
285	ok	3.14						
286	ok	0.29						
287	ok	0.27						
288	ok	0.29						
289	ok	0.31						
290	ok	0.36						
291	ok	0.43						
292	ok	0.43						
294	ok	0.65						
295	ok	2.28						
296	ok	0.26						
297	ok	0.27						
298	ok	0.29						
299	ok	0.31						
300	ok	0.36						
301	ok	0.46						
302	ok	0.46						
303	ok	0.48						
330	ok	1.77						
331	ok	0.29						
332	ok	0.34						
333	ok	0.36						
334	ok	0.36						
335	ok	0.36						
336	ok	0.46						
337	ok	0.46						
338	ok	0.47						
339	ok	1.77						
340	ok	0.29						
341	ok	0.34						
342	ok	0.36						
343	ok	0.36						
344	ok	0.36						
345	ok	0.37						
346	ok	0.21						

Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
Nodo		Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
		3.85						

Parete ND	H totale	Spessore	L totale	Verif. N-M	Verif. V	Prog. composta
	cm	cm	cm			
9	418.00	30.00	400.00	ok	ok	SI

Quota	Af std	Af V (ori)	Ver. N/M	Ver. V cls	Ver. V acc
cm					
0.0	1+1d18/20	1+1d10/20	0.32	0.10	0.12
51.6	1+1d18/20	1+1d10/20	0.32	0.10	0.12
103.2	1+1d18/20	1+1d10/20	0.30	0.17	0.20
154.9	1+1d18/20	1+1d10/20	0.25	0.17	0.20
206.5	1+1d18/20	1+1d10/20	0.20	0.17	0.20
258.1	1+1d18/20	1+1d10/20	0.15	0.17	0.20
309.8	1+1d18/20	1+1d10/20	0.10	0.17	0.20
361.4	1+1d18/20	1+1d10/20	0.09	0.17	0.20
418.0	1+1d18/20	1+1d10/20	0.11	0.10	0.12
Quota			Ver. N/M	Ver. V cls	Ver. V acc
			0.32	0.17	0.20

Quota	N v.M/N	M v.M/N	Mo v.M/N	N v.Vcls	V v.Vcls	V v.Vacc	Ctg Vcls	Vrcd Vcls	Ctg Vac	Vrsd Vac
cm	daN	daN cm	daN cm	daN	daN	daN		daN		daN
0.0	-2.415e+04	1.382e+07	1.105e+05	-2.117e+04	2.903e+04	2.903e+04	2.50	2.837e+05	2.50	2.395e+05
51.6	-2.415e+04	1.389e+07	1.188e+05	-2.117e+04	2.903e+04	2.903e+04	2.50	2.837e+05	2.50	2.395e+05
103.2	-2.143e+04	1.276e+07	1.053e+05	-2.246e+04	4.749e+04	4.749e+04	2.50	2.839e+05	2.50	2.395e+05
154.9	-1.988e+04	1.063e+07	8.865e+04	-2.124e+04	4.746e+04	4.746e+04	2.50	2.837e+05	2.50	2.395e+05
206.5	-1.893e+04	8.532e+06	6.338e+04	-1.993e+04	4.742e+04	4.742e+04	2.50	2.835e+05	2.50	2.395e+05
258.1	-1.725e+04	6.391e+06	4.179e+04	-1.945e+04	4.736e+04	4.736e+04	2.50	2.835e+05	2.50	2.395e+05
309.8	-1.548e+04	4.275e+06	4.607e+04	-1.776e+04	4.728e+04	4.728e+04	2.50	2.832e+05	2.50	2.395e+05
361.4	-6740.27	3.271e+06	1.049e+05	-1.603e+04	4.715e+04	4.715e+04	2.50	2.830e+05	2.50	2.395e+05
418.0	-8462.74	3.918e+06	1.649e+05	-1.720e+04	2.798e+04	2.798e+04	2.50	2.832e+05	2.50	2.395e+05

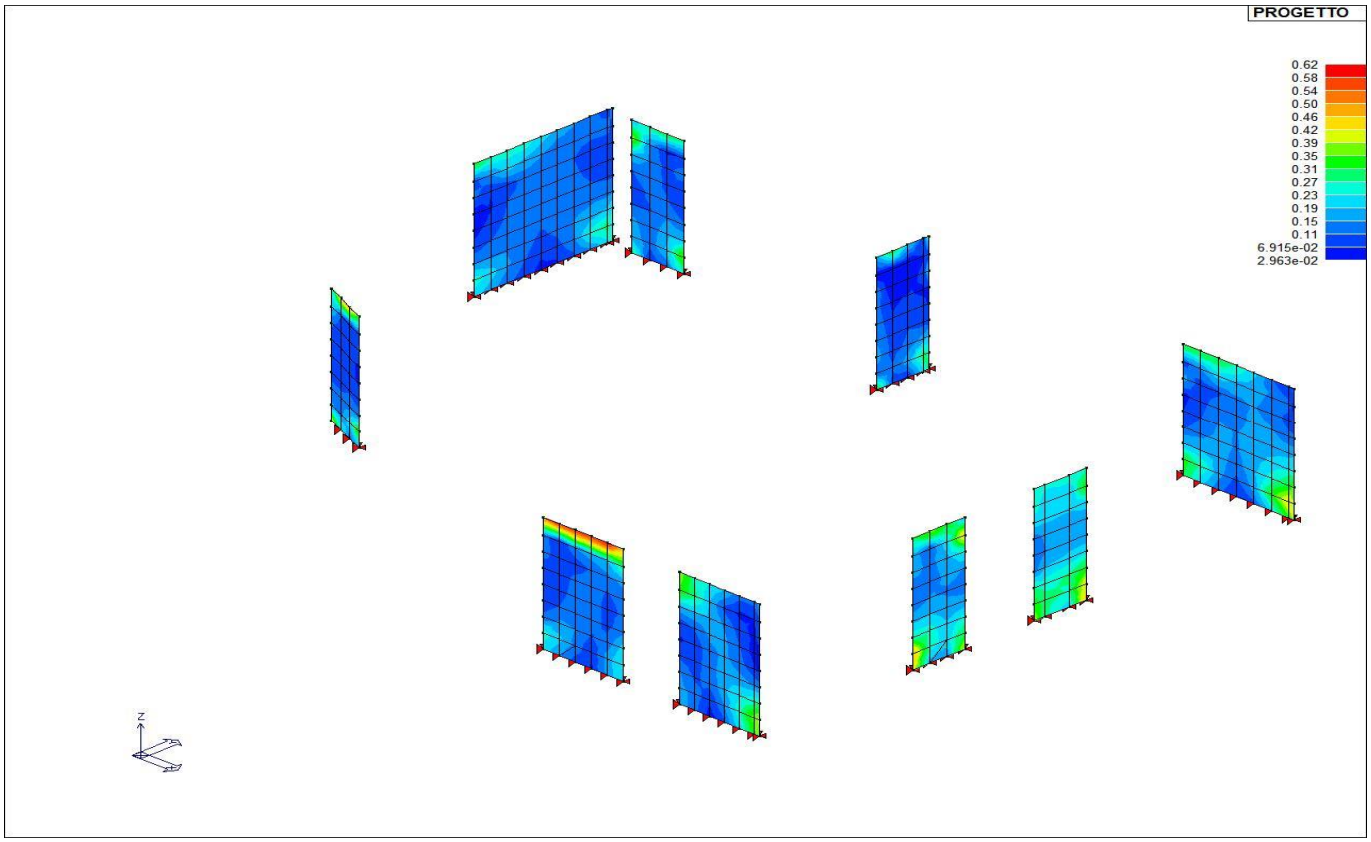
Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
									daN/cm	daN/cm	daN/cm	daN	daN	daN
74	ok	0.14	1.31e-02	1.67e-02	12.7	12.7	3.9	3.9	-479.7	-104.1	-25.7	535.1	104.2	5.4
75	ok	0.14	3.17e-02	9.74e-03	12.7	12.7	3.9	3.9	-163.4	15.2	20.1	-1236.1	-366.1	220.1
82	ok	0.14	1.21e-02	1.51e-02	12.7	12.7	3.9	3.9	-476.1	-72.6	-17.4	530.2	106.5	-10.8
92	ok	0.14	1.21e-02	1.52e-02	12.7	12.7	3.9	3.9	-285.0	-72.7	-110.7	348.5	58.9	-43.6
102	ok	0.14	9.55e-03	1.26e-02	12.7	12.7	3.9	3.9	-263.7	-29.0	-116.6	222.7	38.6	-59.9
106	ok	0.14	8.31e-03	1.10e-02	12.7	12.7	3.9	3.9	-215.4	-19.2	-103.9	110.3	26.8	-69.2
122	ok	0.14	1.70e-02	9.30e-03	12.7	12.7	3.9	3.9	-153.2	-53.8	19.8	-864.8	-75.7	63.9
124	ok	0.14	7.71e-03	9.93e-03	12.7	12.7	3.9	3.9	-115.5	-0.8	-93.5	-19.6	12.8	-76.9
132	ok	0.14	2.57e-02	7.32e-03	12.7	12.7	3.9	3.9	-153.6	45.8	15.2	-959.5	-278.9	99.7
134	ok	0.14	1.02e-02	9.43e-03	12.7	12.7	3.9	3.9	-133.1	-2.6	57.8	-595.8	-75.7	112.0
161	ok	0.14	1.34e-02	1.75e-02	12.7	12.7	3.9	3.9	-615.3	-111.7	5.0	536.9	100.0	14.1
437	ok	0.14	1.54e-02	6.25e-03	12.7	12.7	3.9	3.9	-59.0	78.1	30.4	-740.4	-156.4	61.3
438	ok	0.14	1.62e-02	1.60e-02	12.7	12.7	3.9	3.9	-475.3	-252.5	-5.9	496.5	46.5	-9.6
439	ok	0.14	1.14e-02	1.54e-02	12.7	12.7	3.9	3.9	-437.5	-36.0	-96.9	374.7	34.5	-46.6
440	ok	0.14	8.54e-03	1.12e-02	12.7	12.7	3.9	3.9	-357.0	-19.9	-65.3	235.3	23.0	-68.9
441	ok	0.14	7.30e-03	9.62e-03	12.7	12.7	3.9	3.9	-274.3	-15.1	-50.1	117.8	16.0	-79.1
442	ok	0.14	7.46e-03	9.04e-03	12.7	12.7	3.9	3.9	-173.2	-1.5	1.9	-326.3	-24.6	-18.9
443	ok	0.14	1.08e-02	8.80e-03	12.7	12.7	3.9	3.9	-133.9	-19.2	55.6	-777.3	-101.1	83.8
444	ok	0.14	2.04e-02	9.11e-03	12.7	12.7	3.9	3.9	-155.2	-78.4	16.8	-1079.4	-65.4	100.7
445	ok	0.14	1.33e-02	1.51e-02	12.7	12.7	3.9	3.9	-297.5	-120.6	-70.2	499.5	95.3	-27.0
446	ok	0.14	2.01e-02	2.74e-02	12.7	12.7	3.9	3.9	-598.7	-133.5	45.9	-11.7	-7.1	23.0
447	ok	0.14	1.85e-02	2.49e-02	12.7	12.7	3.9	3.9	-582.3	-180.6	19.2	541.1	33.7	4.0
448	ok	0.14	1.88e-02	2.54e-02	12.7	12.7	3.9	3.9	-354.9	-90.4	86.7	545.8	100.2	28.9
449	ok	0.14	1.62e-02	2.24e-02	12.7	12.7	3.9	3.9	-359.5	-91.3	80.9	572.4	114.2	10.8
450	ok	0.14	1.73e-02	2.40e-02	12.7	12.7	3.9	3.9	-409.1	5.2	31.9	-203.6	4.4	42.6
451	ok	0.14	1.80e-02	2.54e-02	12.7	12.7	3.9	3.9	-348.8	-49.9	104.9	375.8	60.0	49.7
452	ok	0.14	1.83e-02	2.58e-02	12.7	12.7	3.9	3.9	-417.4	-18.9	31.5	-229.2	-3.2	43.9
453	ok	0.14	1.77e-02	2.45e-02	12.7	12.7	3.9	3.9	-412.5	-3.0	29.7	-219.4	-1.0	48.8
454	ok	0.14	1.95e-02	2.77e-02	12.7	12.7	3.9	3.9	-345.8	-14.7	33.9	-155.7	-3.2	43.5
455	ok	0.14	1.84e-02	2.53e-02	12.7	12.7	3.9	3.9	-263.3	-11.1	89.3	-153.7	-3.8	56.6
456	ok	0.14	2.16e-02	3.11e-02	12.7	12.7	3.9	3.9	-188.0	13.0	46.4	-96.0	1.2	43.0
457	ok	0.14	1.99e-02	2.70e-02	12.7	12.7	3.9	3.9	-173.4	13.9	35.9	-88.1	7.7	50.6

Nodo	Stato	x/d	V N/M	ver. rid	Af pr-	Af pr+	Af sec-	Af sec+	N z	N o	N zo	M z	M o	M zo
458	ok	0.14	2.56e-02	3.79e-02	12.7	12.7	3.9	3.9	-155.3	-10.6	-102.7	99.0	0.5	-82.6
459	ok	0.14	2.69e-02	3.45e-02	12.7	12.7	3.9	3.9	-54.1	-66.0	-154.3	124.6	6.2	-83.6
460	ok	0.14	4.27e-02	6.23e-02	12.7	12.7	3.9	3.9	-385.0	-261.6	-39.7	134.7	-10.1	-100.0
461	ok	0.14	2.94e-02	2.80e-02	12.7	12.7	3.9	3.9	-244.1	-178.5	-77.9	172.5	-13.8	-85.4
462	ok	0.14	4.10e-02	6.75e-02	12.7	12.7	3.9	3.9	-405.8	-48.3	-68.4	103.5	38.9	-15.1
463	ok	0.14	1.92e-02	2.18e-02	12.7	12.7	3.9	3.9	-82.4	-21.6	-65.9	111.7	-39.6	-2.9
464	ok	0.14	1.74e-02	2.44e-02	12.7	12.7	3.9	3.9	-236.7	-62.6	88.5	533.3	110.2	30.6
465	ok	0.14	1.55e-02	2.15e-02	12.7	12.7	3.9	3.9	-352.6	-53.4	80.1	554.5	110.9	12.4
466	ok	0.14	1.64e-02	2.28e-02	12.7	12.7	3.9	3.9	-225.0	-41.9	114.5	143.4	75.9	46.6
467	ok	0.14	1.64e-02	2.23e-02	12.7	12.7	3.9	3.9	-207.6	-21.4	127.9	81.3	49.1	63.3
468	ok	0.14	1.67e-02	2.18e-02	12.7	12.7	3.9	3.9	-250.6	0.3	90.1	-150.6	-1.7	55.8
469	ok	0.14	1.71e-02	2.12e-02	12.7	12.7	3.9	3.9	-141.1	9.4	129.7	-89.5	-11.5	56.2
470	ok	0.14	1.71e-02	1.94e-02	12.7	12.7	3.9	3.9	-20.7	-69.9	-145.5	112.8	2.3	-81.0
471	ok	0.14	1.21e-02	1.38e-02	12.7	12.7	3.9	3.9	-79.2	89.2	117.4	-264.8	-24.5	83.8
472	ok	0.14	1.25e-02	9.55e-03	12.7	12.7	3.9	3.9	-60.9	108.4	89.0	-301.9	-1.2	51.3
473	ok	0.14	1.56e-02	2.11e-02	12.7	12.7	3.9	3.9	-232.2	-44.9	92.1	213.8	107.2	27.5
474	ok	0.14	1.50e-02	2.03e-02	12.7	12.7	3.9	3.9	-229.0	-34.6	88.1	233.5	46.6	10.2
475	ok	0.14	1.52e-02	2.05e-02	12.7	12.7	3.9	3.9	-218.2	-24.7	117.8	147.6	75.5	47.5
476	ok	0.14	1.49e-02	1.96e-02	12.7	12.7	3.9	3.9	-117.2	-15.1	141.2	77.7	24.1	60.3
477	ok	0.14	1.44e-02	1.82e-02	12.7	12.7	3.9	3.9	-86.2	-2.9	151.7	-96.1	-8.5	70.0
478	ok	0.14	1.36e-02	1.61e-02	12.7	12.7	3.9	3.9	-71.2	7.0	143.1	-168.3	-10.1	76.4
479	ok	0.14	1.13e-02	1.27e-02	12.7	12.7	3.9	3.9	-59.1	28.5	121.3	-253.6	-18.0	87.7
480	ok	0.14	9.76e-03	8.30e-03	12.7	12.7	3.9	3.9	-51.5	56.1	126.8	-269.6	-32.4	87.9
481	ok	0.14	1.02e-02	6.15e-03	12.7	12.7	3.9	3.9	-40.5	114.2	97.6	-291.0	-29.3	40.1
482	ok	0.14	1.48e-02	1.95e-02	12.7	12.7	3.9	3.9	-108.5	-18.9	-96.6	470.1	96.5	-21.9
483	ok	0.14	1.45e-02	1.90e-02	12.7	12.7	3.9	3.9	-107.2	-12.0	-91.8	489.1	97.7	-8.1
484	ok	0.14	1.40e-02	1.85e-02	12.7	12.7	3.9	3.9	-101.7	-16.6	-123.4	332.2	72.6	-39.9
485	ok	0.14	1.33e-02	1.72e-02	12.7	12.7	3.9	3.9	-94.9	-12.8	-145.9	203.1	50.8	-51.0
486	ok	0.14	1.21e-02	1.53e-02	12.7	12.7	3.9	3.9	-77.4	5.8	158.7	-94.0	-6.8	65.7
487	ok	0.14	1.03e-02	1.27e-02	12.7	12.7	3.9	3.9	-62.5	15.9	151.2	-192.9	-12.9	66.3
488	ok	0.14	8.43e-03	9.64e-03	12.7	12.7	3.9	3.9	-52.1	39.2	131.7	-259.1	-14.8	90.3
489	ok	0.14	1.10e-02	7.09e-03	12.7	12.7	3.9	3.9	-24.6	34.2	127.6	-273.3	-39.6	101.0
490	ok	0.14	1.14e-02	5.66e-03	12.7	12.7	3.9	3.9	-27.8	70.0	93.0	-293.5	-11.5	45.5
491	ok	0.14	1.39e-02	1.79e-02	12.7	12.7	3.9	3.9	-199.3	-53.3	-89.3	473.8	97.0	-24.6
492	ok	0.14	1.37e-02	1.76e-02	12.7	12.7	3.9	3.9	-198.2	-29.1	-85.1	494.0	98.7	-8.8
493	ok	0.14	1.29e-02	1.67e-02	12.7	12.7	3.9	3.9	-95.6	-33.5	-119.1	335.3	73.2	-42.6
494	ok	0.14	1.18e-02	1.52e-02	12.7	12.7	3.9	3.9	-88.8	-28.0	-140.4	206.3	51.1	-54.0
495	ok	0.14	1.03e-02	1.33e-02	12.7	12.7	3.9	3.9	-149.4	-10.8	-141.3	98.2	34.7	-59.8
496	ok	0.14	8.44e-03	1.10e-02	12.7	12.7	3.9	3.9	-41.5	-20.2	-150.4	93.0	37.0	-71.0
497	ok	0.14	8.76e-03	9.03e-03	12.7	12.7	3.9	3.9	-45.5	2.9	-116.2	150.7	71.5	-95.1
498	ok	0.14	1.08e-02	7.52e-03	12.7	12.7	3.9	3.9	-24.9	39.9	133.6	-312.8	-47.4	101.1
499	ok	0.14	1.16e-02	5.74e-03	12.7	12.7	3.9	3.9	-32.0	89.6	34.7	-580.7	-78.9	61.0
500	ok	0.14	1.33e-02	1.70e-02	12.7	12.7	3.9	3.9	-193.3	-72.6	-83.4	486.2	99.6	-27.0
501	ok	0.14	1.30e-02	1.63e-02	12.7	12.7	3.9	3.9	-304.4	-46.8	-69.2	509.7	101.9	-10.2
502	ok	0.14	1.20e-02	1.54e-02	12.7	12.7	3.9	3.9	-180.2	-56.6	-115.5	340.1	71.0	-44.5
503	ok	0.14	1.06e-02	1.39e-02	12.7	12.7	3.9	3.9	-168.0	-33.8	-134.1	211.9	48.0	-56.5
504	ok	0.14	9.14e-03	1.21e-02	12.7	12.7	3.9	3.9	-145.4	-23.7	-135.2	103.4	33.8	-63.6
505	ok	0.14	8.07e-03	1.04e-02	12.7	12.7	3.9	3.9	-117.6	2.4	-97.6	-21.5	14.6	-70.1
506	ok	0.14	9.50e-03	9.21e-03	12.7	12.7	3.9	3.9	-44.8	3.9	-111.0	151.1	66.7	-105.9
507	ok	0.14	1.38e-02	8.08e-03	12.7	12.7	3.9	3.9	-44.6	-3.2	-110.6	131.8	85.8	-104.0
511	ok	0.14	7.85e-03	8.87e-03	12.7	12.7	3.9	3.9	-228.7	22.1	-2.0	-764.5	26.2	-212.2
512	ok	0.14	2.28e-02	1.24e-02	12.7	12.7	3.9	3.9	-220.5	-63.0	48.7	-858.8	44.6	150.1
513	ok	0.14	1.06e-02	8.66e-03	12.7	12.7	3.9	3.9	-201.8	-3.7	34.0	-844.1	-80.1	38.5
514	ok	0.14	6.76e-03	7.99e-03	12.7	12.7	3.9	3.9	-172.7	-1.9	-0.9	-305.7	-20.8	-9.1
515	ok	0.14	6.19e-03	8.09e-03	12.7	12.7	3.9	3.9	-310.8	-9.1	-11.1	116.3	11.0	-37.6
516	ok	0.14	6.59e-03	8.56e-03	12.7	12.7	3.9	3.9	-390.5	-7.0	4.2	234.1	12.0	-31.3
517	ok	0.14	8.23e-03	1.07e-02	12.7	12.7	3.9	3.9	-549.4	4.5	-77.6	367.9	17.2	-21.5
518	ok	0.14	1.97e-02	2.35e-02	12.7	12.7	3.9	3.9	-603.7	-167.3	31.5	485.7	-12.3	3.1
Nodo		**x/d**	**V N/M**	**ver. rid**	**Af pr-**	**Af pr+**	**Af sec-**	**Af sec+**	**N z**	**N o**	**N zo**	**M z**	**M o**	**M zo**
									-615.28	-261.60	-154.26	-1236.07	-366.13	-212.19
		0.14	0.04	0.07	12.72	12.72	3.93	3.93	-20.68	114.19	158.75	572.36	114.17	220.13

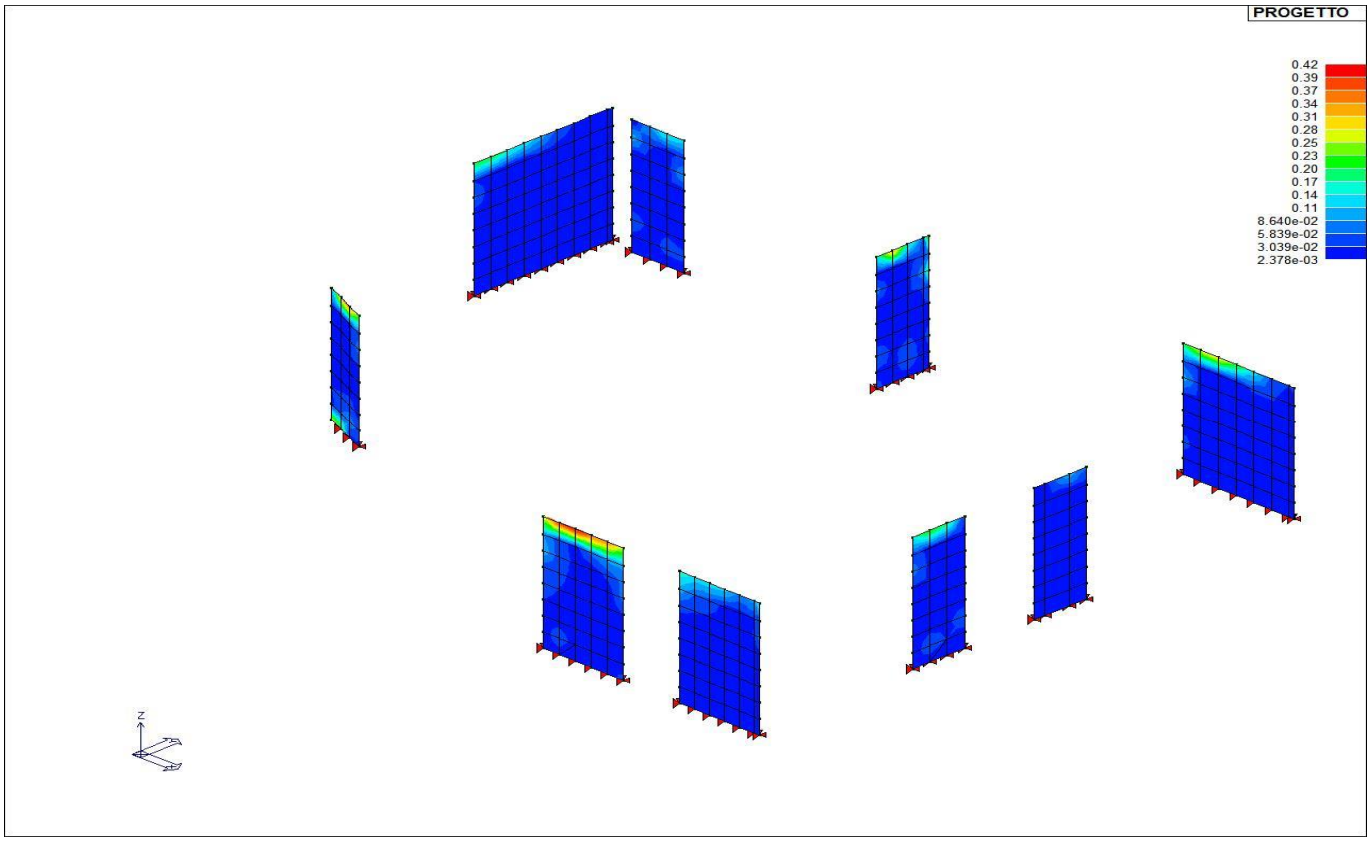
Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
		daN/cm2					daN/cm	daN/cm
74	ok	0.27						
75	ok	4.05						
82	ok	0.32						
92	ok	0.25						
102	ok	0.24						
106	ok	0.23						
122	ok	0.83						
124	ok	0.21						
132	ok	4.05						
134	ok	0.26						
161	ok	0.15						

Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
437	ok	2.69						
438	ok	0.29						
439	ok	0.36						
440	ok	0.38						
441	ok	0.38						
442	ok	0.37						
443	ok	0.29						
444	ok	0.83						
445	ok	0.32						
446	ok	0.15						
447	ok	0.26						
448	ok	0.33						
449	ok	0.32						
450	ok	0.27						
451	ok	0.27						
452	ok	0.27						
453	ok	0.27						
454	ok	0.27						
455	ok	0.27						
456	ok	0.26						
457	ok	0.26						
458	ok	0.23						
459	ok	0.23						
460	ok	0.21						
461	ok	0.21						
462	ok	0.73						
463	ok	0.73						
464	ok	0.33						
465	ok	0.32						
466	ok	0.25						
467	ok	0.23						
468	ok	0.20						
469	ok	0.18						
470	ok	0.14						
471	ok	0.19						
472	ok	0.79						
473	ok	0.27						
474	ok	0.27						
475	ok	0.25						
476	ok	0.23						
477	ok	0.21						
478	ok	0.18						
479	ok	0.14						
480	ok	0.29						
481	ok	1.18						
482	ok	0.25						
483	ok	0.25						
484	ok	0.25						
485	ok	0.24						
486	ok	0.22						
487	ok	0.19						
488	ok	0.16						
489	ok	0.43						
490	ok	1.64						
491	ok	0.27						
492	ok	0.27						
493	ok	0.26						
494	ok	0.24						
495	ok	0.22						
496	ok	0.20						
497	ok	0.18						
498	ok	0.59						
499	ok	2.04						
500	ok	0.32						
501	ok	0.32						
502	ok	0.26						
503	ok	0.24						
504	ok	0.22						
505	ok	0.20						
506	ok	0.21						
507	ok	0.75						
511	ok	0.49						
512	ok	0.48						
513	ok	0.29						
514	ok	0.37						
515	ok	0.38						
516	ok	0.38						
517	ok	0.36						

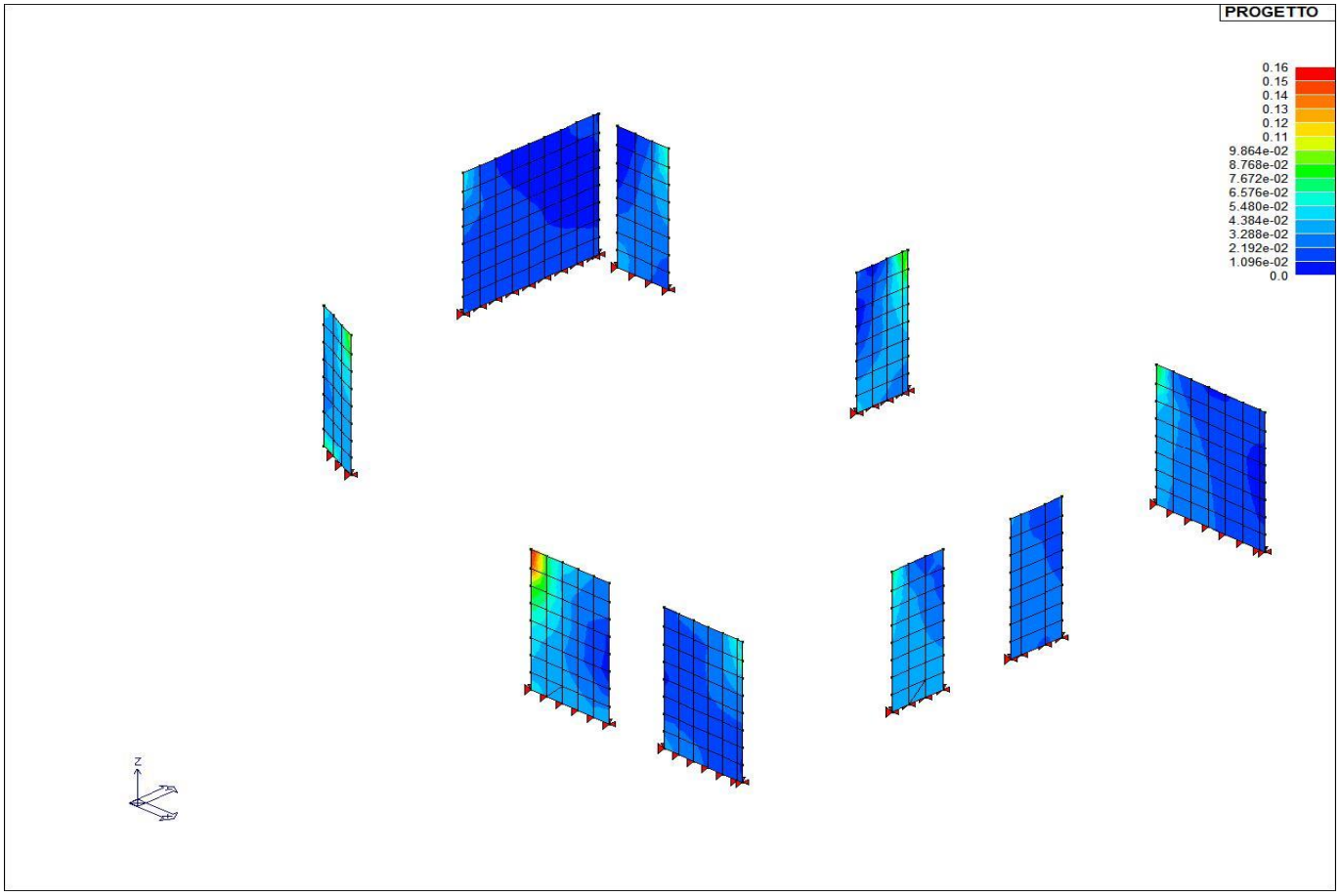
Nodo	Stato	Max tau	Ver V pr	Ver V sec	Af V pr	Af V sec	V pr	V sec
518	ok	0.28						
Nodo		**Max tau**	**Ver V pr**	**Ver V sec**	**Af V pr**	**Af V sec**	**V pr**	**V sec**
		4.05						



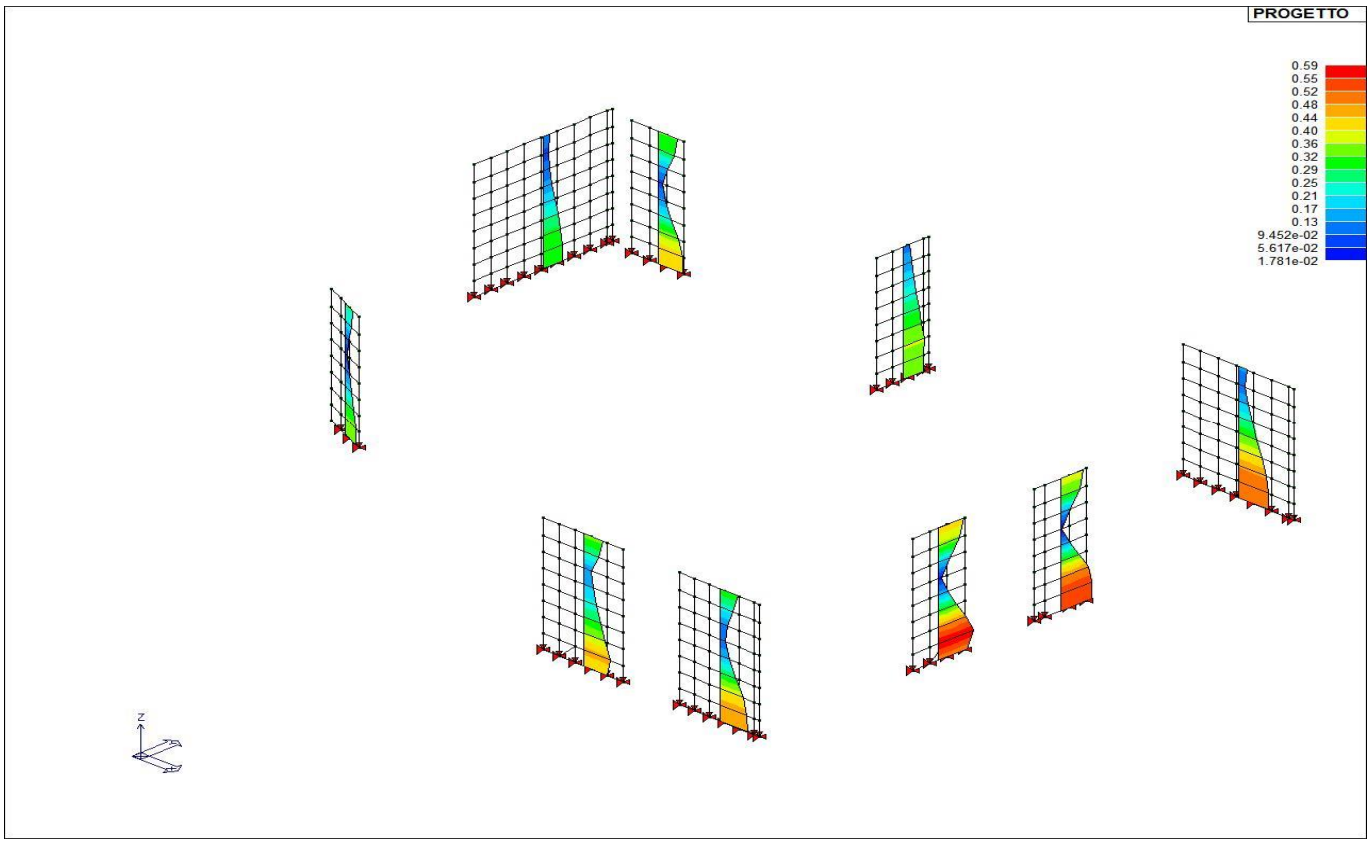
72_CA_D3_13_Verifica NM SE



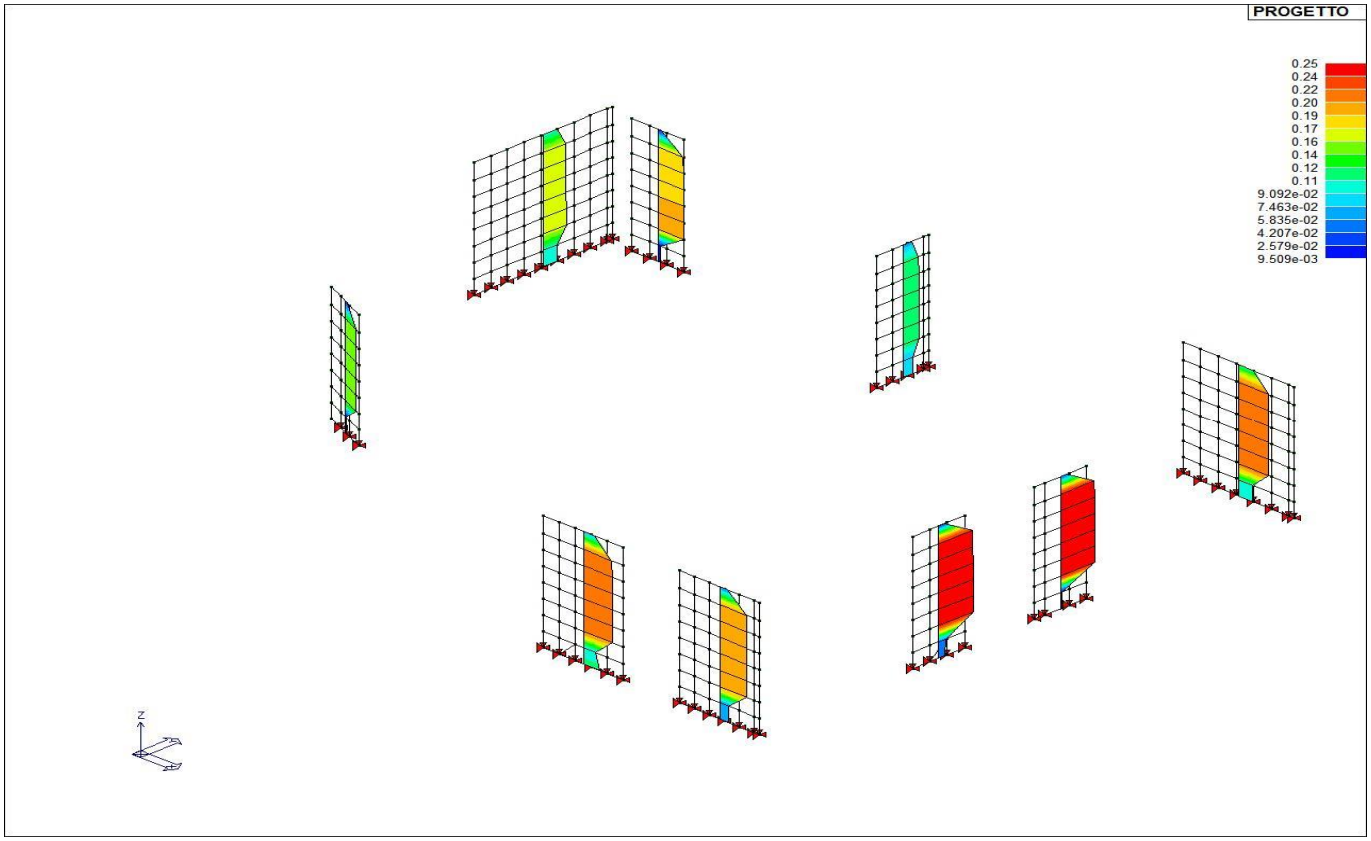
72_CA_D3_22_Tens acc rare



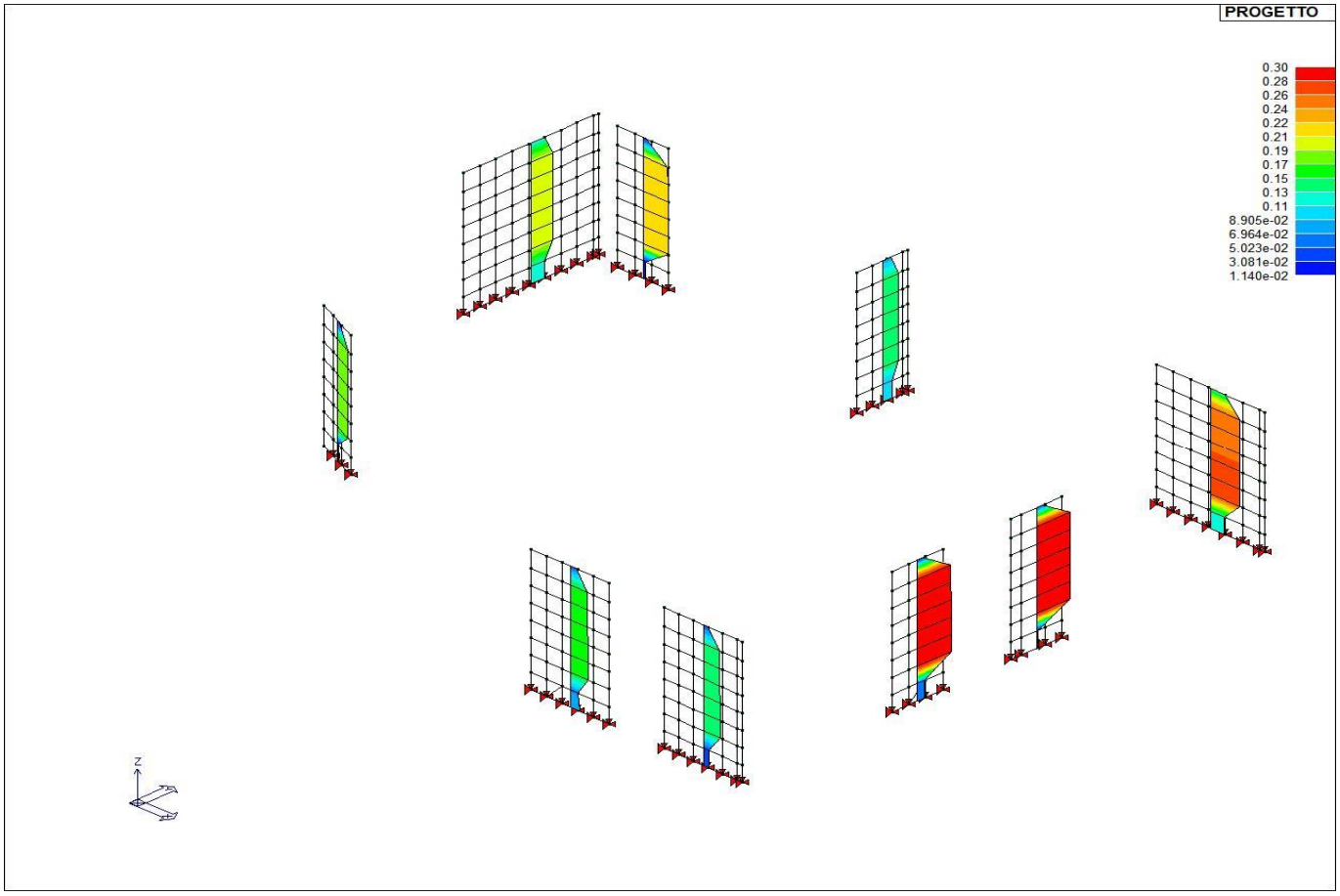
72_CA_D3_23_Tens cls perm



72_CA_PAR_07_Verifica NM



72_CA_PAR_11_Verifica V compressione



72_CA_PAR_12_Verifica V trazione

STATI LIMITE D' ESERCIZIO

LEGENDA TABELLA STATI LIMITE D' ESERCIZIO

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 sopraripportati 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).

Setto	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
					mm	mm	mm	
1	0.01	0.10	0.02	124,124,139	0.0	0.0	0.0	0,0,0
2	0.02	0.03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
3	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
4	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
5	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
6	0.03	0.09	0.04	124,124,139	0.0	0.0	0.0	0,0,0
7	0.04	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
8	0.02	0.16	0.03	124,124,139	0.0	0.0	0.0	0,0,0
9	0.03	0.05	0.03	124,124,139	0.0	0.0	0.0	0,0,0
10	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
11	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
12	0.02	0.02	0.03	123,124,139	0.0	0.0	0.0	0,0,0
13	0.02	0.03	0.03	124,124,138	0.0	0.0	0.0	0,0,0
14	0.02	0.06	0.03	124,124,139	0.0	0.0	0.0	0,0,0
15	0.03	0.07	0.03	124,124,139	0.0	0.0	0.0	0,0,0
16	0.06	0.14	0.07	124,132,139	0.0	0.0	0.0	0,0,0
17	0.08	0.23	0.09	124,124,139	0.0	0.0	0.0	0,0,0
18	0.10	0.34	0.12	124,123,139	0.0	0.0	0.0	0,0,0
19	0.05	0.06	0.07	124,123,139	0.0	0.0	0.0	0,0,0
20	0.05	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
21	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
22	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
23	0.03	0.07	0.04	124,124,139	0.0	0.0	0.0	0,0,0
24	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
25	0.07	0.30	0.09	124,123,139	0.0	0.0	0.0	0,0,0
26	0.06	0.17	0.08	124,123,139	0.0	0.0	0.0	0,0,0
27	0.05	0.04	0.06	124,124,139	0.0	0.0	0.0	0,0,0
28	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
29	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
30	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
31	0.03	0.07	0.04	124,123,139	0.0	0.0	0.0	0,0,0
32	0.03	0.02	0.03	124,123,139	0.0	0.0	0.0	0,0,0
33	0.03	0.33	0.03	124,123,139	0.0	0.0	0.0	0,0,0
34	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
35	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0

Setto	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
36	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
37	0.03	0.02	0.04	124,123,139	0.0	0.0	0.0	0,0,0
38	0.03	0.03	0.04	124,123,139	0.0	0.0	0.0	0,0,0
39	0.03	0.07	0.04	124,123,139	0.0	0.0	0.0	0,0,0
40	0.02	0.01	0.02	124,124,139	0.0	0.0	0.0	0,0,0
41	0.03	0.08	0.04	124,123,139	0.0	0.0	0.0	0,0,0
42	0.02	0.32	0.03	124,123,139	0.0	0.0	0.0	0,0,0
43	0.02	0.13	0.02	124,124,139	0.0	0.0	0.0	0,0,0
44	0.02	0.02	0.02	123,124,138	0.0	0.0	0.0	0,0,0
45	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
46	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
47	0.03	0.02	0.03	124,123,139	0.0	0.0	0.0	0,0,0
48	0.02	0.01	0.02	124,124,139	0.0	0.0	0.0	0,0,0
49	0.03	0.10	0.04	123,123,138	0.0	0.0	0.0	0,0,0
50	0.04	0.04	0.05	123,123,138	0.0	0.0	0.0	0,0,0
51	0.02	0.03	0.03	124,123,139	0.0	0.0	0.0	0,0,0
52	0.02	0.02	0.02	123,123,138	0.0	0.0	0.0	0,0,0
53	0.02	0.13	0.03	123,123,138	0.0	0.0	0.0	0,0,0
54	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
55	0.02	0.02	0.02	123,123,138	0.0	0.0	0.0	0,0,0
56	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
57	8.09e-03	0.13	9.90e-03	123,132,138	0.0	0.0	0.0	0,0,0
58	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
59	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
60	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
61	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
62	0.03	0.04	0.04	123,124,138	0.0	0.0	0.0	0,0,0
63	0.03	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
64	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
65	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
66	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
67	0.04	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
68	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
69	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
70	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
71	0.02	0.02	0.02	124,121,139	0.0	0.0	0.0	0,0,0
72	0.02	0.04	0.03	123,123,138	0.0	0.0	0.0	0,0,0
73	0.04	0.03	0.05	124,123,139	0.0	0.0	0.0	0,0,0
74	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
75	0.05	0.04	0.06	124,124,139	0.0	0.0	0.0	0,0,0
76	0.06	0.05	0.07	124,124,139	0.0	0.0	0.0	0,0,0
77	0.08	0.06	0.09	124,124,139	0.0	0.0	0.0	0,0,0
78	0.12	0.17	0.14	123,123,138	0.0	0.0	0.0	0,0,0
79	0.14	0.39	0.16	123,124,138	0.0	0.0	0.0	0,0,0
80	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
81	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
82	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
83	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
84	0.03	0.09	0.04	124,124,139	0.0	0.0	0.0	0,0,0
85	0.06	0.27	0.07	124,123,139	0.0	0.0	0.0	0,0,0
86	0.05	0.12	0.06	123,124,138	0.0	0.0	0.0	0,0,0
87	0.04	0.03	0.05	123,123,138	0.0	0.0	0.0	0,0,0
88	0.04	0.03	0.05	123,123,138	0.0	0.0	0.0	0,0,0
89	0.04	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
90	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
91	0.03	0.04	0.04	124,124,139	0.0	0.0	0.0	0,0,0
92	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
93	0.02	0.09	0.02	123,123,138	0.0	0.0	0.0	0,0,0
94	0.02	0.03	0.02	123,125,138	0.0	0.0	0.0	0,0,0
95	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
96	0.01	0.05	0.02	124,124,139	0.0	0.0	0.0	0,0,0
97	0.01	0.02	0.02	125,125,139	0.0	0.0	0.0	0,0,0
98	7.80e-03	5.66e-03	0.01	121,121,138	0.0	0.0	0.0	0,0,0
99	6.77e-03	4.97e-03	9.02e-03	121,121,138	0.0	0.0	0.0	0,0,0
100	6.47e-03	5.88e-03	8.63e-03	121,123,138	0.0	0.0	0.0	0,0,0
101	7.18e-03	0.01	9.58e-03	121,123,138	0.0	0.0	0.0	0,0,0
102	0.05	0.14	0.06	124,124,139	0.0	0.0	0.0	0,0,0
103	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
104	0.03	0.03	0.04	123,123,138	0.0	0.0	0.0	0,0,0
105	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
106	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
107	0.02	0.06	0.03	123,124,138	0.0	0.0	0.0	0,0,0
108	0.02	0.06	0.02	123,124,138	0.0	0.0	0.0	0,0,0
109	0.04	0.07	0.04	124,123,139	0.0	0.0	0.0	0,0,0
110	0.04	0.04	0.05	124,123,139	0.0	0.0	0.0	0,0,0
111	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
112	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
113	0.05	0.04	0.06	124,124,139	0.0	0.0	0.0	0,0,0

Setto	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
114	0.06	0.04	0.07	124,124,139	0.0	0.0	0.0	0,0,0
115	0.06	0.04	0.07	124,124,139	0.0	0.0	0.0	0,0,0
116	0.06	0.41	0.08	124,124,139	0.0	0.0	0.0	0,0,0
117	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
118	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
119	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
120	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
121	0.04	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
122	0.04	0.02	0.04	124,123,139	0.0	0.0	0.0	0,0,0
123	0.04	0.06	0.04	124,124,139	0.0	0.0	0.0	0,0,0
124	0.04	0.43	0.05	124,124,139	0.0	0.0	0.0	0,0,0
125	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
126	0.03	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
127	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
128	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
129	0.02	0.02	0.03	124,123,139	0.0	0.0	0.0	0,0,0
130	0.02	0.04	0.03	124,124,139	0.0	0.0	0.0	0,0,0
131	0.03	0.09	0.03	124,124,139	0.0	0.0	0.0	0,0,0
132	0.04	0.38	0.04	124,124,139	0.0	0.0	0.0	0,0,0
133	0.04	0.04	0.04	123,123,138	0.0	0.0	0.0	0,0,0
134	0.02	0.06	0.03	123,123,138	0.0	0.0	0.0	0,0,0
135	0.02	0.02	0.02	123,123,138	0.0	0.0	0.0	0,0,0
136	0.01	0.03	0.02	123,124,138	0.0	0.0	0.0	0,0,0
137	0.02	0.07	0.02	124,124,139	0.0	0.0	0.0	0,0,0
138	0.02	0.07	0.03	124,124,139	0.0	0.0	0.0	0,0,0
139	0.03	0.11	0.03	124,123,139	0.0	0.0	0.0	0,0,0
140	0.03	0.42	0.03	124,124,139	0.0	0.0	0.0	0,0,0
141	0.02	0.01	0.02	124,124,139	0.0	0.0	0.0	0,0,0
142	0.04	0.30	0.05	124,124,139	0.0	0.0	0.0	0,0,0
143	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
144	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
145	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
146	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
147	0.03	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
148	0.04	0.07	0.04	124,124,139	0.0	0.0	0.0	0,0,0
149	0.07	0.37	0.08	123,124,138	0.0	0.0	0.0	0,0,0
150	0.04	0.35	0.05	123,123,138	0.0	0.0	0.0	0,0,0
151	0.04	0.03	0.05	123,123,138	0.0	0.0	0.0	0,0,0
152	0.04	0.03	0.05	123,123,138	0.0	0.0	0.0	0,0,0
153	0.02	0.07	0.02	123,123,138	0.0	0.0	0.0	0,0,0
154	0.01	0.04	0.02	123,123,138	0.0	0.0	0.0	0,0,0
155	0.01	0.08	0.02	124,123,139	0.0	0.0	0.0	0,0,0
156	0.01	0.02	0.01	123,124,138	0.0	0.0	0.0	0,0,0
157	9.64e-03	7.26e-03	0.01	123,124,138	0.0	0.0	0.0	0,0,0
158	9.48e-03	7.08e-03	0.01	123,123,138	0.0	0.0	0.0	0,0,0
159	0.01	7.79e-03	0.01	123,123,138	0.0	0.0	0.0	0,0,0
160	0.01	8.82e-03	0.01	123,123,138	0.0	0.0	0.0	0,0,0
161	0.01	0.03	0.02	123,123,138	0.0	0.0	0.0	0,0,0
162	0.01	9.66e-03	0.02	123,123,138	0.0	0.0	0.0	0,0,0
163	0.01	0.16	0.01	124,124,139	0.0	0.0	0.0	0,0,0
164	0.01	0.05	0.01	124,123,139	0.0	0.0	0.0	0,0,0
165	0.01	8.46e-03	0.01	123,123,138	0.0	0.0	0.0	0,0,0
166	0.01	9.73e-03	0.02	123,123,138	0.0	0.0	0.0	0,0,0
167	0.01	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
168	0.01	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
169	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
170	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
171	9.96e-03	0.24	0.01	124,124,139	0.0	0.0	0.0	0,0,0
172	0.01	0.04	0.01	123,124,138	0.0	0.0	0.0	0,0,0
173	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
174	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
175	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
176	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
177	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
178	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
179	0.03	0.04	0.04	124,124,139	0.0	0.0	0.0	0,0,0
180	0.04	0.15	0.04	124,124,139	0.0	0.0	0.0	0,0,0
181	0.06	0.15	0.08	124,124,139	0.0	0.0	0.0	0,0,0
182	0.08	0.35	0.10	123,124,138	0.0	0.0	0.0	0,0,0
183	0.07	0.12	0.08	123,123,138	0.0	0.0	0.0	0,0,0
184	0.05	0.04	0.06	124,124,139	0.0	0.0	0.0	0,0,0
185	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
186	0.04	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
187	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
188	0.04	0.09	0.05	124,124,139	0.0	0.0	0.0	0,0,0
189	0.04	0.07	0.04	123,124,138	0.0	0.0	0.0	0,0,0
190	0.03	0.23	0.03	123,123,138	0.0	0.0	0.0	0,0,0
191	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0

Setto	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
192	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
193	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
194	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
195	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
196	0.03	0.07	0.04	124,124,139	0.0	0.0	0.0	0,0,0
197	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
198	0.03	0.18	0.03	124,123,139	0.0	0.0	0.0	0,0,0
199	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
200	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
201	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
202	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
203	0.01	0.31	0.02	124,124,139	0.0	0.0	0.0	0,0,0
204	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
205	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
206	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
207	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
208	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
209	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
210	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
211	0.03	0.28	0.03	123,124,138	0.0	0.0	0.0	0,0,0
212	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
213	0.03	0.02	0.04	123,123,138	0.0	0.0	0.0	0,0,0
214	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
215	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
216	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
217	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
218	0.02	0.02	0.03	124,123,139	0.0	0.0	0.0	0,0,0
219	0.07	0.27	0.08	123,124,138	0.0	0.0	0.0	0,0,0
220	0.06	0.18	0.08	123,123,138	0.0	0.0	0.0	0,0,0
221	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
222	0.04	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
223	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
224	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
225	0.03	0.06	0.03	124,124,139	0.0	0.0	0.0	0,0,0
226	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
227	0.06	0.16	0.07	124,124,139	0.0	0.0	0.0	0,0,0
228	0.06	0.12	0.08	124,124,139	0.0	0.0	0.0	0,0,0
229	0.04	0.03	0.05	124,124,139	0.0	0.0	0.0	0,0,0
230	0.03	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
231	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
232	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
233	0.01	0.01	0.02	123,124,138	0.0	0.0	0.0	0,0,0
234	0.01	0.01	0.01	123,124,138	0.0	0.0	0.0	0,0,0
235	0.05	0.10	0.06	124,123,139	0.0	0.0	0.0	0,0,0
236	0.04	0.05	0.05	124,124,139	0.0	0.0	0.0	0,0,0
237	0.03	0.02	0.04	124,124,139	0.0	0.0	0.0	0,0,0
238	0.03	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
239	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
240	0.02	0.02	0.02	123,124,138	0.0	0.0	0.0	0,0,0
241	0.02	0.04	0.02	123,124,138	0.0	0.0	0.0	0,0,0
242	0.01	0.04	0.02	123,124,138	0.0	0.0	0.0	0,0,0
243	0.03	0.13	0.04	124,123,139	0.0	0.0	0.0	0,0,0
244	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
245	0.03	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
246	0.02	0.02	0.03	124,124,138	0.0	0.0	0.0	0,0,0
247	0.02	0.02	0.02	123,124,138	0.0	0.0	0.0	0,0,0
248	0.02	0.03	0.02	123,124,138	0.0	0.0	0.0	0,0,0
249	0.02	0.05	0.02	123,124,138	0.0	0.0	0.0	0,0,0
250	0.02	0.04	0.02	123,124,138	0.0	0.0	0.0	0,0,0
251	0.02	0.14	0.03	124,123,139	0.0	0.0	0.0	0,0,0
252	0.02	0.05	0.02	124,124,139	0.0	0.0	0.0	0,0,0
253	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
254	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
255	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
256	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
257	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
258	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
259	0.02	0.14	0.03	124,123,139	0.0	0.0	0.0	0,0,0
260	0.02	0.06	0.02	124,124,139	0.0	0.0	0.0	0,0,0
261	0.01	0.03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
262	0.01	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
263	0.01	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
264	0.02	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
265	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
266	0.02	0.02	0.03	124,124,139	0.0	0.0	0.0	0,0,0
267	0.02	0.17	0.02	123,124,138	0.0	0.0	0.0	0,0,0
268	0.02	0.10	0.02	124,124,139	0.0	0.0	0.0	0,0,0
269	0.01	0.04	0.02	124,124,139	0.0	0.0	0.0	0,0,0

Setto	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
270	0.01	0.01	0.01	124,124,139	0.0	0.0	0.0	0,0,0
271	0.01	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
272	0.01	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
273	0.03	0.05	0.03	124,124,139	0.0	0.0	0.0	0,0,0
274	0.03	0.03	0.04	124,124,139	0.0	0.0	0.0	0,0,0
275	0.01	9.09e-03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
276	9.99e-03	0.02	0.01	124,124,139	0.0	0.0	0.0	0,0,0
277	8.60e-03	6.49e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
278	7.53e-03	5.59e-03	9.50e-03	124,124,139	0.0	0.0	0.0	0,0,0
279	7.68e-03	5.56e-03	9.60e-03	124,124,139	0.0	0.0	0.0	0,0,0
280	8.18e-03	5.77e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
281	9.33e-03	0.01	0.01	124,124,139	0.0	0.0	0.0	0,0,0
282	0.01	0.02	0.02	124,124,139	0.0	0.0	0.0	0,0,0
283	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
284	0.02	0.03	0.02	123,123,138	0.0	0.0	0.0	0,0,0
285	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
286	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
287	0.02	0.02	0.02	123,123,138	0.0	0.0	0.0	0,0,0
288	0.02	0.02	0.03	123,123,138	0.0	0.0	0.0	0,0,0
289	0.04	0.12	0.05	124,124,139	0.0	0.0	0.0	0,0,0
290	0.05	0.24	0.05	124,123,139	0.0	0.0	0.0	0,0,0
291	0.02	0.02	0.02	123,124,138	0.0	0.0	0.0	0,0,0
292	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
293	0.01	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
294	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
295	0.02	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
296	0.02	0.01	0.02	124,124,139	0.0	0.0	0.0	0,0,0
297	0.02	0.01	0.02	124,124,139	0.0	0.0	0.0	0,0,0
298	0.02	0.18	0.02	124,123,139	0.0	0.0	0.0	0,0,0
299	0.01	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
300	0.01	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
301	0.01	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
302	0.01	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
303	0.01	0.01	0.02	123,123,138	0.0	0.0	0.0	0,0,0
304	0.01	9.97e-03	0.02	123,123,138	0.0	0.0	0.0	0,0,0
305	0.01	9.27e-03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
306	9.71e-03	0.17	0.01	124,123,139	0.0	0.0	0.0	0,0,0
307	0.01	0.01	0.02	124,124,139	0.0	0.0	0.0	0,0,0
308	0.01	9.93e-03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
309	0.01	9.23e-03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
310	0.01	8.77e-03	0.01	123,123,138	0.0	0.0	0.0	0,0,0
311	0.01	8.32e-03	0.01	123,123,138	0.0	0.0	0.0	0,0,0
312	0.01	7.69e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
313	8.77e-03	0.02	0.01	124,123,139	0.0	0.0	0.0	0,0,0
314	6.55e-03	0.15	8.03e-03	123,123,138	0.0	0.0	0.0	0,0,0
315	0.01	9.71e-03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
316	0.01	9.10e-03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
317	0.01	8.28e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
318	9.98e-03	7.49e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
319	9.38e-03	7.03e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
320	8.53e-03	6.25e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
321	7.38e-03	0.02	9.09e-03	124,123,139	0.0	0.0	0.0	0,0,0
322	6.57e-03	0.11	8.05e-03	124,123,139	0.0	0.0	0.0	0,0,0
323	0.01	9.06e-03	0.02	124,124,139	0.0	0.0	0.0	0,0,0
324	0.01	8.33e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
325	9.84e-03	7.45e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
326	8.89e-03	6.65e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
327	8.31e-03	6.16e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
328	7.88e-03	5.60e-03	9.77e-03	124,124,139	0.0	0.0	0.0	0,0,0
329	8.01e-03	0.02	9.85e-03	124,123,139	0.0	0.0	0.0	0,0,0
330	7.70e-03	0.06	9.43e-03	124,123,139	0.0	0.0	0.0	0,0,0
331	0.01	8.58e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
332	0.01	7.71e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
333	8.99e-03	6.80e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
334	8.17e-03	6.09e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
335	7.93e-03	5.76e-03	9.91e-03	124,124,139	0.0	0.0	0.0	0,0,0
336	8.16e-03	5.78e-03	0.01	124,124,139	0.0	0.0	0.0	0,0,0
337	9.31e-03	0.02	0.01	124,124,139	0.0	0.0	0.0	0,0,0
338	0.01	0.04	0.01	124,124,139	0.0	0.0	0.0	0,0,0
339	0.01	0.04	0.02	124,124,139	0.0	0.0	0.0	0,0,0
340	0.01	0.02	0.01	123,123,138	0.0	0.0	0.0	0,0,0
341	8.05e-03	5.64e-03	9.97e-03	124,124,139	0.0	0.0	0.0	0,0,0
342	7.23e-03	5.20e-03	9.06e-03	124,124,139	0.0	0.0	0.0	0,0,0
343	6.69e-03	5.50e-03	8.49e-03	124,132,139	0.0	0.0	0.0	0,0,0
344	7.05e-03	0.01	8.91e-03	132,124,139	0.0	0.0	0.0	0,0,0
345	0.02	0.06	0.02	124,132,139	0.0	0.0	0.0	0,0,0
346	0.01	0.04	0.02	124,124,139	0.0	0.0	0.0	0,0,0

Setto	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb
Setto	rRfck	rRfyk	rPfck		wR	wF	wP	
	0.14	0.43	0.16		0.0	0.0	0.0	

STATO LIMITE D' ESERCIZIO: SLD DANNO SISMICO

LEGENDA TABELLA STATI LIMITE DI DANNO (VERIFICHE RES)

Le verifiche RES per SLD sono effettuate in accordo alle Norme Tecniche 17 Gennaio 2018 e alla circolare n.7 del 21 gennaio 2019 nonché alle linee guida del Consiglio Superiore LL.PP. "Linee guida per la Progettazione, l'Esecuzione ed il Collaudo di Interventi di Rinforzo di strutture di c.a., c.a.p. e murarie mediante FRP".

Le verifiche RES per SLD, sono riportate nelle successive tabelle nella forma di rapporto "domanda" su "capacità" e hanno esito positivo quando il rapporto è non superiore al valore unitario.

La "domanda" è ottenuta direttamente dall'analisi per le previste combinazioni SLD (NTC18 2.5.3. COMBINAZIONI DELLE AZIONI formula [2.5.5]).

Per "capacità" si intende qui il valore della sollecitazione corrispondente al raggiungimento dello stato limite di danno per la sezione: per la resistenza flessionale questo stato limite si identifica con la tensione di snervamento dell'acciaio o la resistenza massima a compressione per il calcestruzzo e la muratura. Lo stato limite di danno si ritiene attinto anche in caso di superamento della resistenza a taglio.

Le resistenze flessionali sono valutate utilizzando i legami costitutivi del materiale limitati al solo tratto elastico, ottenendo così resistenze sostanzialmente elastiche come previsto dalla norma.

La seguente tabella identifica per quali configurazioni (materiale nuovo, esistente, con rinforzi e metodo di analisi) sono state condotte le verifiche di seguito riportate.

Configurazione	Verifica SLD	NOTE
1) c.a. nuovo e esist. Verifica SLU con q>1	Verifica N/M SE Verifica V/T	Sono verifiche per struttura non dissipativa condotte secondo il cap.4 NTC18 in regime sostanzialmente elastico; si verificano travi,pilastri, setti e gusci.

Simbologia adottata nelle tabelle di verifica

Per le verifiche agli SLD di pilastri, travi setti e gusci in *c.a*. è presente una tabella con i simboli di seguito descritti:

Pilas./Trave/ Setto/Guscio	numero identificativo dell'elemento D2 o D3
Stato	Codici relativi all'esito delle verifiche effettuate appresso descritte
Pos.	Posizione nell'elemento della sezione per la quale si riporta la verifica
V N/M	Verifica a pressoflessione con rapporto Ed/Rd: valore minore o uguale a 1 per verifica positiva
V V/T cls	Verifica a taglio/torsione con rapporto Ved/Vrd lato cls: valore minore o uguale a 1 per verifica positiva
V V/T acc	Verifica a taglio/torsione con rapporto Ved/Vrd lato acciaio: valore minore o uguale a 1 per verifica positiva
Rif. cmb.	Riferimento combinazioni da cui si generano le verifiche più gravose per il pilastro

TABELLA VERIFICHE ELEMENTI D3 SETTI C.A.

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
1	ok	428	0.28	0.0	0.0	67,0,0	429	0.17	0.0	0.0	67,0,0

TABELLA VERIFICHE ELEMENTI D3 SETTI C.A.

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
1	ok	428	0.39	0.0	0.0	72,0,0	429	0.21	0.0	0.0	72,0,0
		432	0.20	0.0	0.0	72,0,0	431	0.22	0.0	0.0	72,0,0
2	ok	431	0.14	0.0	0.0	72,0,0	432	0.10	0.0	0.0	72,0,0
		434	0.13	0.0	0.0	72,0,0	433	0.13	0.0	0.0	72,0,0
3	ok	433	0.08	0.0	0.0	66,0,0	434	0.08	0.0	0.0	72,0,0
		436	0.11	0.0	0.0	67,0,0	435	0.07	0.0	0.0	72,0,0
4	ok	435	0.11	0.0	0.0	66,0,0	436	0.07	0.0	0.0	67,0,0
		105	0.11	0.0	0.0	67,0,0	104	0.07	0.0	0.0	66,0,0
5	ok	104	0.14	0.0	0.0	66,0,0	105	0.07	0.0	0.0	67,0,0
		110	0.14	0.0	0.0	67,0,0	107	0.09	0.0	0.0	66,0,0
6	ok	107	0.24	0.0	0.0	66,0,0	110	0.14	0.0	0.0	67,0,0
		120	0.16	0.0	0.0	66,0,0	119	0.14	0.0	0.0	66,0,0
7	ok	119	0.21	0.0	0.0	66,0,0	120	0.16	0.0	0.0	66,0,0
		125	0.12	0.0	0.0	66,0,0	123	0.28	0.0	0.0	66,0,0
8	ok	430	0.19	0.0	0.0	83,0,0	128	0.31	0.0	0.0	85,0,0
		127	0.03	0.0	0.0	69,0,0	429	0.10	0.0	0.0	72,0,0
9	ok	429	0.12	0.0	0.0	72,0,0	127	0.04	0.0	0.0	67,0,0
		129	0.08	0.0	0.0	67,0,0	432	0.12	0.0	0.0	72,0,0
10	ok	432	0.17	0.0	0.0	67,0,0	129	0.11	0.0	0.0	67,0,0
		130	0.13	0.0	0.0	67,0,0	434	0.17	0.0	0.0	67,0,0
11	ok	434	0.15	0.0	0.0	67,0,0	130	0.13	0.0	0.0	67,0,0
		131	0.14	0.0	0.0	67,0,0	436	0.14	0.0	0.0	67,0,0
12	ok	436	0.13	0.0	0.0	67,0,0	131	0.15	0.0	0.0	67,0,0
		133	0.16	0.0	0.0	67,0,0	105	0.12	0.0	0.0	67,0,0
13	ok	105	0.12	0.0	0.0	66,0,0	133	0.19	0.0	0.0	67,0,0
		136	0.20	0.0	0.0	67,0,0	110	0.11	0.0	0.0	66,0,0
14	ok	110	0.09	0.0	0.0	66,0,0	136	0.17	0.0	0.0	67,0,0
		137	0.20	0.0	0.0	67,0,0	120	0.10	0.0	0.0	66,0,0
15	ok	120	0.09	0.0	0.0	66,0,0	137	0.13	0.0	0.0	67,0,0
		138	0.03	0.0	0.0	85,0,0	125	0.03	0.0	0.0	85,0,0
16	ok	128	0.31	0.0	0.0	83,0,0	140	0.28	0.0	0.0	85,0,0
		139	0.07	0.0	0.0	67,0,0	127	0.08	0.0	0.0	66,0,0
17	ok	217	0.07	0.0	0.0	67,0,0	212	0.09	0.0	0.0	67,0,0
		211	0.23	0.0	0.0	72,0,0	220	0.09	0.0	0.0	67,0,0
18	ok	387	0.07	0.0	0.0	81,0,0	386	0.33	0.0	0.0	79,0,0
		212	0.10	0.0	0.0	67,0,0	217	0.06	0.0	0.0	67,0,0
19	ok	389	0.06	0.0	0.0	87,0,0	388	0.06	0.0	0.0	81,0,0
		386	0.07	0.0	0.0	87,0,0	387	0.06	0.0	0.0	87,0,0
20	ok	391	0.06	0.0	0.0	81,0,0	390	0.06	0.0	0.0	81,0,0
		388	0.07	0.0	0.0	81,0,0	389	0.06	0.0	0.0	81,0,0
21	ok	393	0.07	0.0	0.0	81,0,0	392	0.07	0.0	0.0	81,0,0
		390	0.07	0.0	0.0	81,0,0	391	0.07	0.0	0.0	81,0,0
22	ok	395	0.14	0.0	0.0	84,0,0	394	0.12	0.0	0.0	84,0,0
		392	0.09	0.0	0.0	84,0,0	393	0.09	0.0	0.0	84,0,0
23	ok	397	0.30	0.0	0.0	84,0,0	396	0.27	0.0	0.0	84,0,0
		394	0.28	0.0	0.0	84,0,0	395	0.23	0.0	0.0	84,0,0
24	ok	399	0.27	0.0	0.0	84,0,0	398	0.31	0.0	0.0	84,0,0
		396	0.25	0.0	0.0	84,0,0	397	0.22	0.0	0.0	84,0,0
25	ok	400	0.04	0.0	0.0	84,0,0	217	0.07	0.0	0.0	67,0,0
		220	0.09	0.0	0.0	67,0,0	401	0.32	0.0	0.0	87,0,0
26	ok	402	0.04	0.0	0.0	67,0,0	387	0.16	0.0	0.0	86,0,0
		217	0.07	0.0	0.0	72,0,0	400	0.03	0.0	0.0	67,0,0
27	ok	403	0.05	0.0	0.0	81,0,0	389	0.05	0.0	0.0	87,0,0
		387	0.06	0.0	0.0	84,0,0	402	0.04	0.0	0.0	87,0,0
28	ok	404	0.06	0.0	0.0	81,0,0	391	0.07	0.0	0.0	84,0,0
		389	0.08	0.0	0.0	84,0,0	403	0.05	0.0	0.0	84,0,0
29	ok	405	0.08	0.0	0.0	81,0,0	393	0.09	0.0	0.0	84,0,0
		391	0.10	0.0	0.0	84,0,0	404	0.07	0.0	0.0	84,0,0
30	ok	406	0.08	0.0	0.0	84,0,0	395	0.14	0.0	0.0	84,0,0
		393	0.12	0.0	0.0	84,0,0	405	0.09	0.0	0.0	84,0,0
31	ok	407	0.20	0.0	0.0	84,0,0	397	0.34	0.0	0.0	84,0,0
		395	0.16	0.0	0.0	84,0,0	406	0.13	0.0	0.0	81,0,0
32	ok	408	0.08	0.0	0.0	84,0,0	399	0.17	0.0	0.0	84,0,0
		397	0.34	0.0	0.0	84,0,0	407	0.10	0.0	0.0	84,0,0
33	ok	409	0.03	0.0	0.0	84,0,0	400	0.03	0.0	0.0	72,0,0
		401	0.07	0.0	0.0	76,0,0	410	0.32	0.0	0.0	78,0,0
34	ok	411	0.02	0.0	0.0	84,0,0	402	0.04	0.0	0.0	72,0,0

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		400	0.04	0.0	0.0	72,0,0	409	0.06	0.0	0.0	81,0,0
35	ok	412	0.07	0.0	0.0	86,0,0	403	0.10	0.0	0.0	84,0,0
		402	0.05	0.0	0.0	84,0,0	411	0.03	0.0	0.0	81,0,0
36	ok	413	0.06	0.0	0.0	81,0,0	404	0.11	0.0	0.0	84,0,0
		403	0.10	0.0	0.0	84,0,0	412	0.06	0.0	0.0	81,0,0
37	ok	414	0.07	0.0	0.0	81,0,0	405	0.13	0.0	0.0	84,0,0
		404	0.11	0.0	0.0	84,0,0	413	0.08	0.0	0.0	81,0,0
38	ok	415	0.06	0.0	0.0	81,0,0	406	0.16	0.0	0.0	84,0,0
		405	0.13	0.0	0.0	84,0,0	414	0.09	0.0	0.0	81,0,0
39	ok	416	0.04	0.0	0.0	72,0,0	407	0.19	0.0	0.0	84,0,0
		406	0.10	0.0	0.0	84,0,0	415	0.04	0.0	0.0	81,0,0
40	ok	23	0.13	0.0	0.0	76,0,0	22	0.16	0.0	0.0	76,0,0
		17	0.20	0.0	0.0	76,0,0	20	0.15	0.0	0.0	76,0,0
41	ok	417	0.04	0.0	0.0	72,0,0	408	0.04	0.0	0.0	72,0,0
		407	0.20	0.0	0.0	84,0,0	416	0.08	0.0	0.0	87,0,0
42	ok	418	0.02	0.0	0.0	64,0,0	409	0.02	0.0	0.0	87,0,0
		410	0.34	0.0	0.0	78,0,0	419	0.18	0.0	0.0	78,0,0
43	ok	420	0.14	0.0	0.0	84,0,0	411	0.03	0.0	0.0	88,0,0
		409	0.09	0.0	0.0	87,0,0	418	0.06	0.0	0.0	81,0,0
44	ok	421	0.11	0.0	0.0	81,0,0	412	0.07	0.0	0.0	84,0,0
		411	0.03	0.0	0.0	84,0,0	420	0.13	0.0	0.0	81,0,0
45	ok	422	0.11	0.0	0.0	81,0,0	413	0.08	0.0	0.0	84,0,0
		412	0.05	0.0	0.0	84,0,0	421	0.15	0.0	0.0	81,0,0
46	ok	423	0.12	0.0	0.0	81,0,0	414	0.09	0.0	0.0	84,0,0
		413	0.08	0.0	0.0	81,0,0	422	0.16	0.0	0.0	81,0,0
47	ok	424	0.12	0.0	0.0	81,0,0	415	0.14	0.0	0.0	84,0,0
		414	0.11	0.0	0.0	81,0,0	423	0.17	0.0	0.0	81,0,0
48	ok	29	0.21	0.0	0.0	76,0,0	26	0.25	0.0	0.0	76,0,0
		22	0.28	0.0	0.0	76,0,0	23	0.23	0.0	0.0	76,0,0
49	ok	425	0.12	0.0	0.0	81,0,0	416	0.14	0.0	0.0	81,0,0
		415	0.14	0.0	0.0	84,0,0	424	0.22	0.0	0.0	81,0,0
50	ok	426	0.33	0.0	0.0	81,0,0	417	0.15	0.0	0.0	81,0,0
		416	0.19	0.0	0.0	81,0,0	425	0.15	0.0	0.0	81,0,0
51	ok	31	0.38	0.0	0.0	76,0,0	30	0.44	0.0	0.0	76,0,0
		26	0.40	0.0	0.0	76,0,0	29	0.32	0.0	0.0	76,0,0
52	ok	320	0.35	0.0	0.0	76,0,0	33	0.46	0.0	0.0	76,0,0
		30	0.41	0.0	0.0	76,0,0	31	0.36	0.0	0.0	76,0,0
53	ok	121	0.13	0.0	0.0	78,0,0	10	0.06	0.0	0.0	73,0,0
		12	0.29	0.0	0.0	81,0,0	142	0.19	0.0	0.0	66,0,0
54	ok	91	0.22	0.0	0.0	78,0,0	14	0.22	0.0	0.0	73,0,0
		10	0.18	0.0	0.0	73,0,0	121	0.20	0.0	0.0	78,0,0
55	ok	19	0.22	0.0	0.0	76,0,0	16	0.19	0.0	0.0	73,0,0
		14	0.21	0.0	0.0	73,0,0	91	0.20	0.0	0.0	76,0,0
56	ok	50	0.18	0.0	0.0	76,0,0	20	0.19	0.0	0.0	76,0,0
		16	0.19	0.0	0.0	76,0,0	19	0.18	0.0	0.0	76,0,0
57	ok	427	0.20	0.0	0.0	72,0,0	430	0.35	0.0	0.0	69,0,0
		429	0.17	0.0	0.0	72,0,0	428	0.37	0.0	0.0	72,0,0
58	ok	51	0.21	0.0	0.0	73,0,0	23	0.21	0.0	0.0	76,0,0
		20	0.20	0.0	0.0	76,0,0	50	0.21	0.0	0.0	73,0,0
59	ok	53	0.23	0.0	0.0	73,0,0	29	0.27	0.0	0.0	76,0,0
		23	0.24	0.0	0.0	76,0,0	51	0.26	0.0	0.0	73,0,0
60	ok	54	0.29	0.0	0.0	73,0,0	31	0.21	0.0	0.0	76,0,0
		29	0.29	0.0	0.0	76,0,0	53	0.28	0.0	0.0	73,0,0
61	ok	55	0.18	0.0	0.0	73,0,0	320	0.06	0.0	0.0	76,0,0
		31	0.10	0.0	0.0	76,0,0	54	0.20	0.0	0.0	73,0,0
62	ok	56	0.26	0.0	0.0	78,0,0	121	0.29	0.0	0.0	76,0,0
		142	0.28	0.0	0.0	76,0,0	57	0.24	0.0	0.0	76,0,0
63	ok	148	0.29	0.0	0.0	76,0,0	91	0.26	0.0	0.0	78,0,0
		121	0.24	0.0	0.0	78,0,0	56	0.24	0.0	0.0	78,0,0
64	ok	190	0.17	0.0	0.0	76,0,0	19	0.15	0.0	0.0	76,0,0
		91	0.12	0.0	0.0	76,0,0	148	0.13	0.0	0.0	76,0,0
65	ok	349	0.28	0.0	0.0	57,0,0	350	0.23	0.0	0.0	57,0,0
		351	0.23	0.0	0.0	57,0,0	348	0.21	0.0	0.0	57,0,0
66	ok	172	0.14	0.0	0.0	76,0,0	111	0.11	0.0	0.0	76,0,0
		385	0.14	0.0	0.0	76,0,0					
67	ok	351	0.09	0.0	0.0	57,0,0	86	0.15	0.0	0.0	57,0,0
		93	0.12	0.0	0.0	57,0,0					
68	ok	192	0.10	0.0	0.0	76,0,0	50	0.10	0.0	0.0	76,0,0
		19	0.09	0.0	0.0	73,0,0	190	0.09	0.0	0.0	73,0,0
69	ok	193	0.07	0.0	0.0	73,0,0	51	0.11	0.0	0.0	76,0,0
		50	0.10	0.0	0.0	73,0,0	192	0.13	0.0	0.0	73,0,0
70	ok	201	0.19	0.0	0.0	73,0,0	53	0.18	0.0	0.0	73,0,0
		51	0.18	0.0	0.0	73,0,0	193	0.20	0.0	0.0	73,0,0
71	ok	209	0.31	0.0	0.0	73,0,0	54	0.30	0.0	0.0	73,0,0
		53	0.31	0.0	0.0	73,0,0	201	0.34	0.0	0.0	73,0,0
72	ok	210	0.38	0.0	0.0	73,0,0	55	0.37	0.0	0.0	73,0,0
		54	0.35	0.0	0.0	73,0,0	209	0.36	0.0	0.0	73,0,0
73	ok	352	0.18	0.0	0.0	57,0,0	353	0.19	0.0	0.0	57,0,0

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		350	0.24	0.0	0.0	57,0,0	349	0.22	0.0	0.0	57,0,0
74	ok	354	0.08	0.0	0.0	57,0,0	355	0.11	0.0	0.0	57,0,0
		353	0.10	0.0	0.0	57,0,0	352	0.08	0.0	0.0	60,0,0
75	ok	356	0.07	0.0	0.0	60,0,0	357	0.07	0.0	0.0	57,0,0
		355	0.06	0.0	0.0	60,0,0	354	0.06	0.0	0.0	60,0,0
76	ok	358	0.08	0.0	0.0	60,0,0	359	0.07	0.0	0.0	60,0,0
		357	0.06	0.0	0.0	60,0,0	356	0.07	0.0	0.0	60,0,0
77	ok	360	0.09	0.0	0.0	60,0,0	361	0.07	0.0	0.0	60,0,0
		359	0.06	0.0	0.0	60,0,0	358	0.07	0.0	0.0	60,0,0
78	ok	83	0.12	0.0	0.0	76,0,0	35	0.07	0.0	0.0	76,0,0
		361	0.07	0.0	0.0	76,0,0	360	0.19	0.0	0.0	60,0,0
79	ok	306	0.54	0.0	0.0	60,0,0	315	0.59	0.0	0.0	60,0,0
		35	0.08	0.0	0.0	76,0,0	83	0.13	0.0	0.0	76,0,0
80	ok	44	0.18	0.0	0.0	73,0,0	376	0.19	0.0	0.0	73,0,0
		374	0.19	0.0	0.0	73,0,0	118	0.18	0.0	0.0	73,0,0
81	ok	47	0.21	0.0	0.0	73,0,0	380	0.17	0.0	0.0	73,0,0
		376	0.17	0.0	0.0	73,0,0	44	0.20	0.0	0.0	73,0,0
82	ok	48	0.26	0.0	0.0	73,0,0	383	0.21	0.0	0.0	76,0,0
		380	0.21	0.0	0.0	76,0,0	47	0.25	0.0	0.0	73,0,0
83	ok	64	0.20	0.0	0.0	73,0,0	385	0.33	0.0	0.0	76,0,0
		383	0.20	0.0	0.0	76,0,0	48	0.26	0.0	0.0	73,0,0
84	ok	64	0.15	0.0	0.0	73,0,0	172	0.06	0.0	0.0	76,0,0
		385	0.09	0.0	0.0	60,0,0					
85	ok	96	0.18	0.0	0.0	76,0,0	113	0.15	0.0	0.0	76,0,0
		115	0.43	0.0	0.0	57,0,0	97	0.30	0.0	0.0	58,0,0
86	ok	100	0.28	0.0	0.0	76,0,0	116	0.14	0.0	0.0	73,0,0
		113	0.17	0.0	0.0	78,0,0	96	0.16	0.0	0.0	76,0,0
87	ok	108	0.13	0.0	0.0	76,0,0	118	0.06	0.0	0.0	78,0,0
		116	0.13	0.0	0.0	73,0,0	100	0.06	0.0	0.0	79,0,0
88	ok	135	0.08	0.0	0.0	76,0,0	44	0.08	0.0	0.0	76,0,0
		118	0.12	0.0	0.0	73,0,0	108	0.10	0.0	0.0	79,0,0
89	ok	144	0.12	0.0	0.0	73,0,0	47	0.11	0.0	0.0	73,0,0
		44	0.14	0.0	0.0	73,0,0	135	0.16	0.0	0.0	73,0,0
90	ok	69	0.19	0.0	0.0	73,0,0	48	0.20	0.0	0.0	76,0,0
		47	0.20	0.0	0.0	73,0,0	144	0.23	0.0	0.0	73,0,0
91	ok	4	0.45	0.0	0.0	73,0,0	64	0.38	0.0	0.0	73,0,0
		48	0.27	0.0	0.0	73,0,0	69	0.33	0.0	0.0	73,0,0
92	ok	5	0.42	0.0	0.0	73,0,0	172	0.30	0.0	0.0	73,0,0
		64	0.28	0.0	0.0	73,0,0	4	0.50	0.0	0.0	73,0,0
93	ok	10	0.22	0.0	0.0	73,0,0	7	0.33	0.0	0.0	73,0,0
		367	0.27	0.0	0.0	73,0,0	12	0.22	0.0	0.0	73,0,0
94	ok	14	0.21	0.0	0.0	73,0,0	13	0.31	0.0	0.0	73,0,0
		7	0.36	0.0	0.0	73,0,0	10	0.30	0.0	0.0	73,0,0
95	ok	16	0.14	0.0	0.0	73,0,0	15	0.18	0.0	0.0	73,0,0
		13	0.13	0.0	0.0	73,0,0	14	0.14	0.0	0.0	76,0,0
96	ok	176	0.09	0.0	0.0	67,0,0	173	0.12	0.0	0.0	78,0,0
		174	0.07	0.0	0.0	66,0,0	175	0.10	0.0	0.0	66,0,0
97	ok	175	0.06	0.0	0.0	66,0,0	174	0.05	0.0	0.0	66,0,0
		177	0.09	0.0	0.0	66,0,0	178	0.07	0.0	0.0	67,0,0
98	ok	178	0.07	0.0	0.0	67,0,0	177	0.08	0.0	0.0	67,0,0
		179	0.08	0.0	0.0	72,0,0	180	0.08	0.0	0.0	72,0,0
99	ok	180	0.14	0.0	0.0	72,0,0	179	0.15	0.0	0.0	72,0,0
		181	0.15	0.0	0.0	72,0,0	182	0.14	0.0	0.0	72,0,0
100	ok	182	0.20	0.0	0.0	72,0,0	181	0.21	0.0	0.0	72,0,0
		183	0.21	0.0	0.0	72,0,0	184	0.20	0.0	0.0	72,0,0
101	ok	184	0.26	0.0	0.0	72,0,0	183	0.27	0.0	0.0	72,0,0
		185	0.26	0.0	0.0	72,0,0	186	0.26	0.0	0.0	72,0,0
102	ok	127	0.11	0.0	0.0	66,0,0	139	0.07	0.0	0.0	67,0,0
		141	0.23	0.0	0.0	66,0,0	129	0.09	0.0	0.0	67,0,0
103	ok	129	0.10	0.0	0.0	72,0,0	141	0.04	0.0	0.0	72,0,0
		78	0.08	0.0	0.0	66,0,0	130	0.05	0.0	0.0	72,0,0
104	ok	130	0.09	0.0	0.0	67,0,0	78	0.06	0.0	0.0	67,0,0
		79	0.05	0.0	0.0	66,0,0	131	0.06	0.0	0.0	67,0,0
105	ok	131	0.11	0.0	0.0	67,0,0	79	0.10	0.0	0.0	67,0,0
		101	0.08	0.0	0.0	67,0,0	133	0.09	0.0	0.0	67,0,0
106	ok	133	0.14	0.0	0.0	67,0,0	101	0.15	0.0	0.0	67,0,0
		378	0.14	0.0	0.0	67,0,0	136	0.13	0.0	0.0	67,0,0
107	ok	136	0.20	0.0	0.0	67,0,0	378	0.23	0.0	0.0	67,0,0
		381	0.37	0.0	0.0	67,0,0	137	0.26	0.0	0.0	67,0,0
108	ok	137	0.20	0.0	0.0	67,0,0	381	0.37	0.0	0.0	67,0,0
		58	0.27	0.0	0.0	67,0,0	138	0.21	0.0	0.0	67,0,0
109	ok	350	0.15	0.0	0.0	57,0,0	86	0.15	0.0	0.0	57,0,0
		351	0.11	0.0	0.0	57,0,0					
110	ok	353	0.18	0.0	0.0	57,0,0	114	0.16	0.0	0.0	57,0,0
		86	0.17	0.0	0.0	57,0,0	350	0.20	0.0	0.0	57,0,0
111	ok	355	0.15	0.0	0.0	57,0,0	2	0.15	0.0	0.0	57,0,0
		114	0.15	0.0	0.0	57,0,0	353	0.16	0.0	0.0	57,0,0
112	ok	357	0.12	0.0	0.0	57,0,0	3	0.13	0.0	0.0	57,0,0

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		2	0.12	0.0	0.0	57,0,0	355	0.12	0.0	0.0	57,0,0
113	ok	359	0.11	0.0	0.0	57,0,0	6	0.12	0.0	0.0	57,0,0
		3	0.11	0.0	0.0	57,0,0	357	0.10	0.0	0.0	57,0,0
114	ok	361	0.07	0.0	0.0	57,0,0	8	0.08	0.0	0.0	57,0,0
		6	0.10	0.0	0.0	57,0,0	359	0.09	0.0	0.0	57,0,0
115	ok	35	0.09	0.0	0.0	60,0,0	9	0.20	0.0	0.0	60,0,0
		8	0.05	0.0	0.0	61,0,0	361	0.07	0.0	0.0	76,0,0
116	ok	315	0.58	0.0	0.0	60,0,0	11	0.58	0.0	0.0	60,0,0
		9	0.17	0.0	0.0	60,0,0	35	0.08	0.0	0.0	76,0,0
117	ok	86	0.09	0.0	0.0	57,0,0	18	0.06	0.0	0.0	76,0,0
		21	0.06	0.0	0.0	76,0,0	93	0.06	0.0	0.0	76,0,0
118	ok	114	0.13	0.0	0.0	57,0,0	24	0.11	0.0	0.0	57,0,0
		18	0.09	0.0	0.0	57,0,0	86	0.12	0.0	0.0	57,0,0
119	ok	2	0.16	0.0	0.0	57,0,0	25	0.14	0.0	0.0	57,0,0
		24	0.13	0.0	0.0	57,0,0	114	0.15	0.0	0.0	57,0,0
120	ok	3	0.15	0.0	0.0	57,0,0	27	0.14	0.0	0.0	57,0,0
		25	0.14	0.0	0.0	57,0,0	2	0.15	0.0	0.0	57,0,0
121	ok	6	0.14	0.0	0.0	57,0,0	28	0.14	0.0	0.0	57,0,0
		27	0.15	0.0	0.0	57,0,0	3	0.14	0.0	0.0	57,0,0
122	ok	8	0.12	0.0	0.0	57,0,0	32	0.12	0.0	0.0	57,0,0
		28	0.14	0.0	0.0	57,0,0	6	0.14	0.0	0.0	57,0,0
123	ok	9	0.14	0.0	0.0	60,0,0	34	0.22	0.0	0.0	60,0,0
		32	0.09	0.0	0.0	60,0,0	8	0.09	0.0	0.0	61,0,0
124	ok	11	0.63	0.0	0.0	60,0,0	36	0.55	0.0	0.0	60,0,0
		34	0.19	0.0	0.0	60,0,0	9	0.09	0.0	0.0	60,0,0
125	ok	18	0.05	0.0	0.0	76,0,0	37	0.10	0.0	0.0	60,0,0
		38	0.07	0.0	0.0	60,0,0	21	0.07	0.0	0.0	76,0,0
126	ok	24	0.09	0.0	0.0	57,0,0	46	0.12	0.0	0.0	60,0,0
		37	0.13	0.0	0.0	60,0,0	18	0.09	0.0	0.0	60,0,0
127	ok	25	0.12	0.0	0.0	57,0,0	63	0.11	0.0	0.0	60,0,0
		46	0.11	0.0	0.0	60,0,0	24	0.10	0.0	0.0	61,0,0
128	ok	27	0.11	0.0	0.0	57,0,0	293	0.10	0.0	0.0	57,0,0
		63	0.11	0.0	0.0	57,0,0	25	0.13	0.0	0.0	57,0,0
129	ok	28	0.12	0.0	0.0	57,0,0	304	0.11	0.0	0.0	57,0,0
		293	0.13	0.0	0.0	57,0,0	27	0.14	0.0	0.0	57,0,0
130	ok	32	0.13	0.0	0.0	57,0,0	305	0.14	0.0	0.0	57,0,0
		304	0.15	0.0	0.0	57,0,0	28	0.14	0.0	0.0	57,0,0
131	ok	34	0.16	0.0	0.0	60,0,0	307	0.17	0.0	0.0	60,0,0
		305	0.12	0.0	0.0	57,0,0	32	0.12	0.0	0.0	57,0,0
132	ok	36	0.62	0.0	0.0	60,0,0	308	0.50	0.0	0.0	60,0,0
		307	0.15	0.0	0.0	76,0,0	34	0.10	0.0	0.0	76,0,0
133	ok	37	0.26	0.0	0.0	60,0,0	309	0.28	0.0	0.0	60,0,0
		310	0.23	0.0	0.0	60,0,0	38	0.26	0.0	0.0	60,0,0
134	ok	46	0.17	0.0	0.0	60,0,0	311	0.27	0.0	0.0	60,0,0
		309	0.20	0.0	0.0	60,0,0	37	0.20	0.0	0.0	60,0,0
135	ok	63	0.11	0.0	0.0	60,0,0	312	0.17	0.0	0.0	60,0,0
		311	0.15	0.0	0.0	60,0,0	46	0.10	0.0	0.0	60,0,0
136	ok	293	0.07	0.0	0.0	60,0,0	313	0.14	0.0	0.0	60,0,0
		312	0.11	0.0	0.0	60,0,0	63	0.06	0.0	0.0	61,0,0
137	ok	304	0.05	0.0	0.0	60,0,0	314	0.12	0.0	0.0	60,0,0
		313	0.09	0.0	0.0	60,0,0	293	0.07	0.0	0.0	61,0,0
138	ok	305	0.08	0.0	0.0	57,0,0	77	0.12	0.0	0.0	57,0,0
		314	0.13	0.0	0.0	57,0,0	304	0.10	0.0	0.0	57,0,0
139	ok	307	0.19	0.0	0.0	57,0,0	76	0.31	0.0	0.0	57,0,0
		77	0.21	0.0	0.0	57,0,0	305	0.19	0.0	0.0	57,0,0
140	ok	308	0.74	0.0	0.0	60,0,0	347	0.46	0.0	0.0	60,0,0
		76	0.25	0.0	0.0	57,0,0	307	0.27	0.0	0.0	57,0,0
141	ok	20	0.12	0.0	0.0	73,0,0	17	0.12	0.0	0.0	73,0,0
		15	0.12	0.0	0.0	76,0,0	16	0.12	0.0	0.0	76,0,0
142	ok	103	0.25	0.0	0.0	88,0,0	146	0.47	0.0	0.0	82,0,0
		145	0.15	0.0	0.0	63,0,0	143	0.20	0.0	0.0	63,0,0
143	ok	143	0.21	0.0	0.0	63,0,0	145	0.14	0.0	0.0	63,0,0
		149	0.09	0.0	0.0	63,0,0	147	0.17	0.0	0.0	63,0,0
144	ok	147	0.07	0.0	0.0	63,0,0	149	0.05	0.0	0.0	58,0,0
		151	0.08	0.0	0.0	63,0,0	150	0.09	0.0	0.0	63,0,0
145	ok	150	0.07	0.0	0.0	62,0,0	151	0.04	0.0	0.0	63,0,0
		153	0.08	0.0	0.0	63,0,0	152	0.05	0.0	0.0	63,0,0
146	ok	152	0.09	0.0	0.0	62,0,0	153	0.04	0.0	0.0	59,0,0
		156	0.08	0.0	0.0	63,0,0	155	0.06	0.0	0.0	62,0,0
147	ok	155	0.12	0.0	0.0	62,0,0	156	0.06	0.0	0.0	59,0,0
		158	0.12	0.0	0.0	63,0,0	157	0.08	0.0	0.0	62,0,0
148	ok	157	0.18	0.0	0.0	62,0,0	158	0.15	0.0	0.0	63,0,0
		160	0.15	0.0	0.0	62,0,0	159	0.15	0.0	0.0	62,0,0
149	ok	159	0.17	0.0	0.0	61,0,0	160	0.14	0.0	0.0	61,0,0
		162	0.42	0.0	0.0	62,0,0	85	0.39	0.0	0.0	62,0,0
150	ok	146	0.40	0.0	0.0	88,0,0	166	0.45	0.0	0.0	82,0,0
		164	0.06	0.0	0.0	85,0,0	145	0.08	0.0	0.0	64,0,0
151	ok	145	0.08	0.0	0.0	88,0,0	164	0.06	0.0	0.0	72,0,0

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		167	0.05	0.0	0.0	85,0,0	149	0.05	0.0	0.0	63,0,0
152	ok	149	0.11	0.0	0.0	63,0,0	167	0.10	0.0	0.0	63,0,0
		168	0.10	0.0	0.0	63,0,0	151	0.12	0.0	0.0	63,0,0
153	ok	186	0.39	0.0	0.0	67,0,0	185	0.46	0.0	0.0	67,0,0
		187	0.39	0.0	0.0	67,0,0	188	0.43	0.0	0.0	67,0,0
154	ok	188	0.38	0.0	0.0	67,0,0	187	0.40	0.0	0.0	67,0,0
		189	0.41	0.0	0.0	67,0,0	191	0.40	0.0	0.0	67,0,0
155	ok	195	0.12	0.0	0.0	79,0,0	176	0.06	0.0	0.0	78,0,0
		175	0.18	0.0	0.0	66,0,0	194	0.13	0.0	0.0	66,0,0
156	ok	194	0.15	0.0	0.0	66,0,0	175	0.15	0.0	0.0	66,0,0
		178	0.10	0.0	0.0	66,0,0	196	0.11	0.0	0.0	67,0,0
157	ok	196	0.11	0.0	0.0	67,0,0	178	0.13	0.0	0.0	67,0,0
		180	0.12	0.0	0.0	67,0,0	197	0.10	0.0	0.0	67,0,0
158	ok	197	0.13	0.0	0.0	72,0,0	180	0.16	0.0	0.0	67,0,0
		182	0.15	0.0	0.0	67,0,0	198	0.12	0.0	0.0	67,0,0
159	ok	198	0.16	0.0	0.0	72,0,0	182	0.20	0.0	0.0	72,0,0
		184	0.19	0.0	0.0	72,0,0	199	0.15	0.0	0.0	72,0,0
160	ok	199	0.22	0.0	0.0	72,0,0	184	0.26	0.0	0.0	72,0,0
		186	0.25	0.0	0.0	72,0,0	200	0.21	0.0	0.0	72,0,0
161	ok	200	0.27	0.0	0.0	67,0,0	186	0.35	0.0	0.0	67,0,0
		188	0.47	0.0	0.0	67,0,0	202	0.43	0.0	0.0	67,0,0
162	ok	202	0.35	0.0	0.0	67,0,0	188	0.45	0.0	0.0	67,0,0
		191	0.28	0.0	0.0	67,0,0	203	0.26	0.0	0.0	67,0,0
163	ok	205	0.19	0.0	0.0	67,0,0	195	0.11	0.0	0.0	67,0,0
		194	0.14	0.0	0.0	66,0,0	204	0.12	0.0	0.0	66,0,0
164	ok	204	0.16	0.0	0.0	66,0,0	194	0.15	0.0	0.0	66,0,0
		196	0.14	0.0	0.0	67,0,0	206	0.11	0.0	0.0	67,0,0
165	ok	206	0.14	0.0	0.0	67,0,0	196	0.18	0.0	0.0	67,0,0
		197	0.17	0.0	0.0	67,0,0	207	0.13	0.0	0.0	67,0,0
166	ok	207	0.15	0.0	0.0	67,0,0	197	0.20	0.0	0.0	67,0,0
		198	0.18	0.0	0.0	67,0,0	208	0.13	0.0	0.0	67,0,0
167	ok	208	0.15	0.0	0.0	67,0,0	198	0.21	0.0	0.0	67,0,0
		199	0.19	0.0	0.0	67,0,0	213	0.14	0.0	0.0	67,0,0
168	ok	213	0.17	0.0	0.0	67,0,0	199	0.23	0.0	0.0	67,0,0
		200	0.26	0.0	0.0	67,0,0	214	0.20	0.0	0.0	67,0,0
169	ok	214	0.19	0.0	0.0	67,0,0	200	0.24	0.0	0.0	67,0,0
		202	0.29	0.0	0.0	67,0,0	215	0.23	0.0	0.0	67,0,0
170	ok	215	0.17	0.0	0.0	67,0,0	202	0.24	0.0	0.0	67,0,0
		203	0.16	0.0	0.0	67,0,0	216	0.13	0.0	0.0	67,0,0
171	ok	221	0.27	0.0	0.0	67,0,0	205	0.21	0.0	0.0	67,0,0
		204	0.17	0.0	0.0	67,0,0	218	0.11	0.0	0.0	67,0,0
172	ok	218	0.15	0.0	0.0	67,0,0	204	0.19	0.0	0.0	67,0,0
		206	0.16	0.0	0.0	67,0,0	222	0.10	0.0	0.0	66,0,0
173	ok	222	0.14	0.0	0.0	67,0,0	206	0.20	0.0	0.0	67,0,0
		207	0.17	0.0	0.0	67,0,0	224	0.13	0.0	0.0	66,0,0
174	ok	224	0.13	0.0	0.0	66,0,0	207	0.19	0.0	0.0	67,0,0
		208	0.17	0.0	0.0	67,0,0	225	0.15	0.0	0.0	66,0,0
175	ok	225	0.15	0.0	0.0	66,0,0	208	0.18	0.0	0.0	67,0,0
		213	0.18	0.0	0.0	67,0,0	226	0.15	0.0	0.0	66,0,0
176	ok	226	0.14	0.0	0.0	66,0,0	213	0.17	0.0	0.0	67,0,0
		214	0.18	0.0	0.0	67,0,0	227	0.13	0.0	0.0	67,0,0
177	ok	151	0.10	0.0	0.0	63,0,0	168	0.11	0.0	0.0	63,0,0
		169	0.11	0.0	0.0	63,0,0	153	0.10	0.0	0.0	63,0,0
178	ok	153	0.09	0.0	0.0	62,0,0	169	0.12	0.0	0.0	63,0,0
		170	0.12	0.0	0.0	63,0,0	156	0.09	0.0	0.0	62,0,0
179	ok	156	0.12	0.0	0.0	62,0,0	170	0.14	0.0	0.0	63,0,0
		171	0.17	0.0	0.0	63,0,0	158	0.11	0.0	0.0	62,0,0
180	ok	158	0.11	0.0	0.0	58,0,0	171	0.12	0.0	0.0	59,0,0
		219	0.28	0.0	0.0	63,0,0	160	0.09	0.0	0.0	61,0,0
181	ok	160	0.17	0.0	0.0	69,0,0	219	0.24	0.0	0.0	63,0,0
		322	0.06	0.0	0.0	85,0,0	162	0.08	0.0	0.0	85,0,0
182	ok	166	0.50	0.0	0.0	72,0,0	325	0.35	0.0	0.0	88,0,0
		323	0.10	0.0	0.0	83,0,0	164	0.09	0.0	0.0	61,0,0
183	ok	164	0.08	0.0	0.0	62,0,0	323	0.09	0.0	0.0	83,0,0
		326	0.18	0.0	0.0	58,0,0	167	0.07	0.0	0.0	63,0,0
184	ok	167	0.08	0.0	0.0	63,0,0	326	0.06	0.0	0.0	83,0,0
		327	0.07	0.0	0.0	62,0,0	168	0.05	0.0	0.0	83,0,0
185	ok	168	0.07	0.0	0.0	63,0,0	327	0.06	0.0	0.0	63,0,0
		328	0.04	0.0	0.0	61,0,0	169	0.05	0.0	0.0	62,0,0
186	ok	169	0.07	0.0	0.0	63,0,0	328	0.09	0.0	0.0	63,0,0
		329	0.06	0.0	0.0	63,0,0	170	0.06	0.0	0.0	62,0,0
187	ok	170	0.09	0.0	0.0	63,0,0	329	0.11	0.0	0.0	63,0,0
		363	0.09	0.0	0.0	63,0,0	171	0.10	0.0	0.0	62,0,0
188	ok	171	0.16	0.0	0.0	58,0,0	363	0.17	0.0	0.0	63,0,0
		364	0.33	0.0	0.0	63,0,0	219	0.22	0.0	0.0	63,0,0
189	ok	219	0.14	0.0	0.0	63,0,0	364	0.37	0.0	0.0	63,0,0
		365	0.21	0.0	0.0	63,0,0	322	0.15	0.0	0.0	63,0,0
190	ok	369	0.25	0.0	0.0	73,0,0	368	0.45	0.0	0.0	73,0,0

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		366	0.20	0.0	0.0	73,0,0	370	0.43	0.0	0.0	78,0,0
191	ok	372	0.23	0.0	0.0	73,0,0	371	0.33	0.0	0.0	73,0,0
		368	0.45	0.0	0.0	73,0,0	369	0.31	0.0	0.0	73,0,0
192	ok	374	0.16	0.0	0.0	73,0,0	373	0.19	0.0	0.0	73,0,0
		371	0.15	0.0	0.0	73,0,0	372	0.11	0.0	0.0	73,0,0
193	ok	376	0.13	0.0	0.0	73,0,0	375	0.12	0.0	0.0	73,0,0
		373	0.11	0.0	0.0	76,0,0	374	0.08	0.0	0.0	73,0,0
194	ok	380	0.14	0.0	0.0	73,0,0	377	0.10	0.0	0.0	78,0,0
		375	0.16	0.0	0.0	76,0,0	376	0.08	0.0	0.0	73,0,0
195	ok	383	0.19	0.0	0.0	73,0,0	382	0.15	0.0	0.0	76,0,0
		377	0.21	0.0	0.0	76,0,0	380	0.11	0.0	0.0	76,0,0
196	ok	385	0.27	0.0	0.0	76,0,0	384	0.29	0.0	0.0	76,0,0
		382	0.34	0.0	0.0	76,0,0	383	0.18	0.0	0.0	76,0,0
197	ok	111	0.22	0.0	0.0	76,0,0	109	0.40	0.0	0.0	76,0,0
		384	0.33	0.0	0.0	76,0,0	385	0.23	0.0	0.0	76,0,0
198	ok	113	0.03	0.0	0.0	76,0,0	369	0.13	0.0	0.0	73,0,0
		370	0.22	0.0	0.0	58,0,0	115	0.32	0.0	0.0	78,0,0
199	ok	116	0.10	0.0	0.0	73,0,0	372	0.14	0.0	0.0	73,0,0
		369	0.17	0.0	0.0	73,0,0	113	0.12	0.0	0.0	73,0,0
200	ok	118	0.17	0.0	0.0	73,0,0	374	0.22	0.0	0.0	73,0,0
		372	0.21	0.0	0.0	73,0,0	116	0.17	0.0	0.0	73,0,0
201	ok	227	0.10	0.0	0.0	67,0,0	214	0.15	0.0	0.0	67,0,0
		215	0.15	0.0	0.0	67,0,0	228	0.11	0.0	0.0	67,0,0
202	ok	228	0.06	0.0	0.0	67,0,0	215	0.12	0.0	0.0	67,0,0
		216	0.07	0.0	0.0	67,0,0	229	0.05	0.0	0.0	73,0,0
203	ok	231	0.33	0.0	0.0	67,0,0	221	0.28	0.0	0.0	67,0,0
		218	0.22	0.0	0.0	67,0,0	230	0.12	0.0	0.0	67,0,0
204	ok	230	0.17	0.0	0.0	67,0,0	218	0.25	0.0	0.0	67,0,0
		222	0.15	0.0	0.0	67,0,0	232	0.09	0.0	0.0	66,0,0
205	ok	232	0.12	0.0	0.0	66,0,0	222	0.17	0.0	0.0	67,0,0
		224	0.13	0.0	0.0	66,0,0	233	0.15	0.0	0.0	66,0,0
206	ok	233	0.16	0.0	0.0	66,0,0	224	0.13	0.0	0.0	70,0,0
		225	0.15	0.0	0.0	70,0,0	234	0.17	0.0	0.0	66,0,0
207	ok	234	0.18	0.0	0.0	66,0,0	225	0.15	0.0	0.0	66,0,0
		226	0.15	0.0	0.0	66,0,0	235	0.17	0.0	0.0	66,0,0
208	ok	235	0.18	0.0	0.0	66,0,0	226	0.15	0.0	0.0	66,0,0
		227	0.16	0.0	0.0	66,0,0	236	0.18	0.0	0.0	66,0,0
209	ok	236	0.16	0.0	0.0	66,0,0	227	0.13	0.0	0.0	66,0,0
		228	0.14	0.0	0.0	66,0,0	237	0.16	0.0	0.0	66,0,0
210	ok	237	0.13	0.0	0.0	66,0,0	228	0.09	0.0	0.0	66,0,0
		229	0.09	0.0	0.0	66,0,0	238	0.09	0.0	0.0	66,0,0
211	ok	240	0.31	0.0	0.0	67,0,0	231	0.29	0.0	0.0	79,0,0
		230	0.26	0.0	0.0	67,0,0	239	0.17	0.0	0.0	67,0,0
212	ok	239	0.20	0.0	0.0	67,0,0	230	0.30	0.0	0.0	67,0,0
		232	0.09	0.0	0.0	67,0,0	241	0.09	0.0	0.0	66,0,0
213	ok	241	0.10	0.0	0.0	66,0,0	232	0.10	0.0	0.0	67,0,0
		233	0.12	0.0	0.0	70,0,0	242	0.12	0.0	0.0	66,0,0
214	ok	242	0.14	0.0	0.0	66,0,0	233	0.13	0.0	0.0	66,0,0
		234	0.12	0.0	0.0	66,0,0	243	0.13	0.0	0.0	66,0,0
215	ok	243	0.16	0.0	0.0	66,0,0	234	0.14	0.0	0.0	66,0,0
		235	0.13	0.0	0.0	66,0,0	244	0.15	0.0	0.0	66,0,0
216	ok	244	0.19	0.0	0.0	66,0,0	235	0.16	0.0	0.0	66,0,0
		236	0.17	0.0	0.0	66,0,0	245	0.20	0.0	0.0	66,0,0
217	ok	245	0.21	0.0	0.0	66,0,0	236	0.18	0.0	0.0	66,0,0
		237	0.22	0.0	0.0	66,0,0	246	0.28	0.0	0.0	66,0,0
218	ok	246	0.24	0.0	0.0	66,0,0	237	0.17	0.0	0.0	66,0,0
		238	0.15	0.0	0.0	66,0,0	247	0.15	0.0	0.0	66,0,0
219	ok	249	0.33	0.0	0.0	67,0,0	240	0.33	0.0	0.0	67,0,0
		239	0.09	0.0	0.0	67,0,0	248	0.11	0.0	0.0	67,0,0
220	ok	248	0.07	0.0	0.0	66,0,0	239	0.14	0.0	0.0	67,0,0
		241	0.09	0.0	0.0	66,0,0	250	0.29	0.0	0.0	67,0,0
221	ok	250	0.05	0.0	0.0	67,0,0	241	0.06	0.0	0.0	66,0,0
		242	0.04	0.0	0.0	67,0,0	251	0.05	0.0	0.0	67,0,0
222	ok	251	0.06	0.0	0.0	69,0,0	242	0.06	0.0	0.0	66,0,0
		243	0.05	0.0	0.0	67,0,0	252	0.05	0.0	0.0	67,0,0
223	ok	252	0.09	0.0	0.0	69,0,0	243	0.09	0.0	0.0	69,0,0
		244	0.08	0.0	0.0	69,0,0	253	0.08	0.0	0.0	69,0,0
224	ok	253	0.13	0.0	0.0	66,0,0	244	0.13	0.0	0.0	69,0,0
		245	0.13	0.0	0.0	69,0,0	254	0.12	0.0	0.0	69,0,0
225	ok	254	0.26	0.0	0.0	66,0,0	245	0.20	0.0	0.0	66,0,0
		246	0.30	0.0	0.0	66,0,0	255	0.28	0.0	0.0	66,0,0
226	ok	255	0.39	0.0	0.0	66,0,0	246	0.26	0.0	0.0	66,0,0
		247	0.26	0.0	0.0	66,0,0	256	0.31	0.0	0.0	66,0,0
227	ok	257	0.15	0.0	0.0	60,0,0	260	0.19	0.0	0.0	73,0,0
		259	0.08	0.0	0.0	76,0,0	258	0.08	0.0	0.0	76,0,0
228	ok	258	0.06	0.0	0.0	76,0,0	259	0.09	0.0	0.0	76,0,0
		262	0.15	0.0	0.0	73,0,0	261	0.07	0.0	0.0	76,0,0
229	ok	261	0.04	0.0	0.0	78,0,0	262	0.05	0.0	0.0	78,0,0

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		264	0.04	0.0	0.0	78,0,0	263	0.04	0.0	0.0	78,0,0
230	ok	263	0.04	0.0	0.0	58,0,0	264	0.04	0.0	0.0	58,0,0
		266	0.04	0.0	0.0	58,0,0	265	0.03	0.0	0.0	58,0,0
231	ok	265	0.09	0.0	0.0	63,0,0	266	0.08	0.0	0.0	63,0,0
		268	0.10	0.0	0.0	63,0,0	267	0.11	0.0	0.0	63,0,0
232	ok	267	0.17	0.0	0.0	60,0,0	268	0.17	0.0	0.0	60,0,0
		270	0.21	0.0	0.0	60,0,0	269	0.20	0.0	0.0	60,0,0
233	ok	269	0.35	0.0	0.0	60,0,0	270	0.35	0.0	0.0	60,0,0
		272	0.40	0.0	0.0	60,0,0	271	0.39	0.0	0.0	60,0,0
234	ok	271	0.37	0.0	0.0	60,0,0	272	0.40	0.0	0.0	60,0,0
		274	0.39	0.0	0.0	60,0,0	273	0.39	0.0	0.0	60,0,0
235	ok	276	0.12	0.0	0.0	74,0,0	257	0.09	0.0	0.0	57,0,0
		258	0.06	0.0	0.0	76,0,0	275	0.05	0.0	0.0	76,0,0
236	ok	275	0.08	0.0	0.0	57,0,0	258	0.07	0.0	0.0	76,0,0
		261	0.08	0.0	0.0	57,0,0	277	0.08	0.0	0.0	60,0,0
237	ok	277	0.08	0.0	0.0	60,0,0	261	0.05	0.0	0.0	60,0,0
		263	0.05	0.0	0.0	60,0,0	278	0.07	0.0	0.0	60,0,0
238	ok	278	0.10	0.0	0.0	60,0,0	263	0.08	0.0	0.0	60,0,0
		265	0.07	0.0	0.0	60,0,0	279	0.09	0.0	0.0	60,0,0
239	ok	279	0.13	0.0	0.0	60,0,0	265	0.11	0.0	0.0	60,0,0
		267	0.11	0.0	0.0	60,0,0	280	0.12	0.0	0.0	60,0,0
240	ok	280	0.19	0.0	0.0	60,0,0	267	0.18	0.0	0.0	60,0,0
		269	0.20	0.0	0.0	60,0,0	281	0.20	0.0	0.0	60,0,0
241	ok	281	0.27	0.0	0.0	60,0,0	269	0.27	0.0	0.0	60,0,0
		271	0.39	0.0	0.0	60,0,0	282	0.34	0.0	0.0	60,0,0
242	ok	282	0.26	0.0	0.0	60,0,0	271	0.31	0.0	0.0	60,0,0
		273	0.28	0.0	0.0	60,0,0	283	0.27	0.0	0.0	60,0,0
243	ok	285	0.17	0.0	0.0	58,0,0	276	0.12	0.0	0.0	58,0,0
		275	0.06	0.0	0.0	73,0,0	284	0.05	0.0	0.0	61,0,0
244	ok	284	0.09	0.0	0.0	60,0,0	275	0.05	0.0	0.0	60,0,0
		277	0.09	0.0	0.0	60,0,0	286	0.11	0.0	0.0	60,0,0
245	ok	286	0.14	0.0	0.0	60,0,0	277	0.13	0.0	0.0	60,0,0
		278	0.13	0.0	0.0	60,0,0	287	0.14	0.0	0.0	60,0,0
246	ok	287	0.15	0.0	0.0	60,0,0	278	0.15	0.0	0.0	60,0,0
		279	0.14	0.0	0.0	60,0,0	288	0.14	0.0	0.0	60,0,0
247	ok	288	0.16	0.0	0.0	60,0,0	279	0.16	0.0	0.0	60,0,0
		280	0.16	0.0	0.0	60,0,0	289	0.15	0.0	0.0	60,0,0
248	ok	289	0.19	0.0	0.0	60,0,0	280	0.19	0.0	0.0	60,0,0
		281	0.22	0.0	0.0	60,0,0	290	0.20	0.0	0.0	60,0,0
249	ok	290	0.19	0.0	0.0	60,0,0	281	0.21	0.0	0.0	60,0,0
		282	0.26	0.0	0.0	60,0,0	291	0.22	0.0	0.0	60,0,0
250	ok	291	0.16	0.0	0.0	60,0,0	282	0.20	0.0	0.0	60,0,0
		283	0.15	0.0	0.0	60,0,0	292	0.14	0.0	0.0	60,0,0
251	ok	295	0.21	0.0	0.0	58,0,0	285	0.21	0.0	0.0	58,0,0
		284	0.10	0.0	0.0	60,0,0	294	0.11	0.0	0.0	60,0,0
252	ok	294	0.18	0.0	0.0	60,0,0	284	0.16	0.0	0.0	60,0,0
		286	0.15	0.0	0.0	60,0,0	296	0.15	0.0	0.0	60,0,0
253	ok	296	0.19	0.0	0.0	60,0,0	286	0.18	0.0	0.0	60,0,0
		287	0.17	0.0	0.0	60,0,0	297	0.17	0.0	0.0	60,0,0
254	ok	297	0.16	0.0	0.0	60,0,0	287	0.17	0.0	0.0	60,0,0
		288	0.16	0.0	0.0	60,0,0	298	0.16	0.0	0.0	60,0,0
255	ok	298	0.14	0.0	0.0	60,0,0	288	0.16	0.0	0.0	60,0,0
		289	0.17	0.0	0.0	60,0,0	299	0.15	0.0	0.0	60,0,0
256	ok	299	0.15	0.0	0.0	60,0,0	289	0.17	0.0	0.0	60,0,0
		290	0.18	0.0	0.0	60,0,0	300	0.15	0.0	0.0	60,0,0
257	ok	300	0.12	0.0	0.0	60,0,0	290	0.16	0.0	0.0	60,0,0
		291	0.15	0.0	0.0	60,0,0	301	0.11	0.0	0.0	60,0,0
258	ok	301	0.06	0.0	0.0	76,0,0	291	0.10	0.0	0.0	60,0,0
		292	0.07	0.0	0.0	60,0,0	302	0.05	0.0	0.0	76,0,0
259	ok	330	0.20	0.0	0.0	62,0,0	295	0.25	0.0	0.0	58,0,0
		294	0.20	0.0	0.0	60,0,0	303	0.22	0.0	0.0	60,0,0
260	ok	303	0.29	0.0	0.0	60,0,0	294	0.26	0.0	0.0	60,0,0
		296	0.20	0.0	0.0	60,0,0	331	0.20	0.0	0.0	60,0,0
261	ok	331	0.19	0.0	0.0	60,0,0	296	0.19	0.0	0.0	60,0,0
		297	0.17	0.0	0.0	60,0,0	332	0.17	0.0	0.0	60,0,0
262	ok	332	0.12	0.0	0.0	60,0,0	297	0.13	0.0	0.0	60,0,0
		298	0.14	0.0	0.0	60,0,0	333	0.12	0.0	0.0	60,0,0
263	ok	333	0.09	0.0	0.0	57,0,0	298	0.11	0.0	0.0	60,0,0
		299	0.13	0.0	0.0	60,0,0	334	0.10	0.0	0.0	60,0,0
264	ok	334	0.11	0.0	0.0	57,0,0	299	0.11	0.0	0.0	60,0,0
		300	0.11	0.0	0.0	60,0,0	335	0.09	0.0	0.0	57,0,0
265	ok	335	0.10	0.0	0.0	57,0,0	300	0.09	0.0	0.0	60,0,0
		301	0.08	0.0	0.0	57,0,0	336	0.10	0.0	0.0	57,0,0
266	ok	336	0.07	0.0	0.0	57,0,0	301	0.05	0.0	0.0	76,0,0
		302	0.05	0.0	0.0	76,0,0	337	0.06	0.0	0.0	76,0,0
267	ok	339	0.38	0.0	0.0	60,0,0	330	0.31	0.0	0.0	60,0,0
		303	0.33	0.0	0.0	60,0,0	338	0.32	0.0	0.0	60,0,0
268	ok	338	0.36	0.0	0.0	60,0,0	303	0.28	0.0	0.0	60,0,0

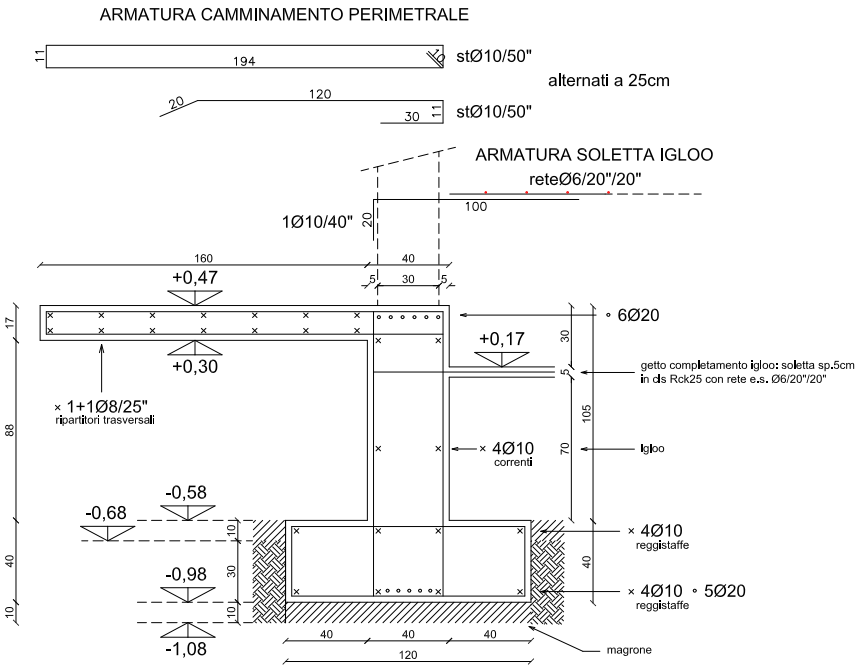
Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		331	0.26	0.0	0.0	60,0,0	340	0.24	0.0	0.0	60,0,0
269	ok	340	0.13	0.0	0.0	60,0,0	331	0.12	0.0	0.0	60,0,0
		332	0.12	0.0	0.0	60,0,0	341	0.11	0.0	0.0	60,0,0
270	ok	341	0.06	0.0	0.0	57,0,0	332	0.05	0.0	0.0	60,0,0
		333	0.06	0.0	0.0	60,0,0	342	0.04	0.0	0.0	60,0,0
271	ok	342	0.09	0.0	0.0	57,0,0	333	0.05	0.0	0.0	57,0,0
		334	0.05	0.0	0.0	60,0,0	343	0.06	0.0	0.0	57,0,0
272	ok	343	0.13	0.0	0.0	57,0,0	334	0.11	0.0	0.0	57,0,0
		335	0.08	0.0	0.0	57,0,0	344	0.10	0.0	0.0	57,0,0
273	ok	344	0.21	0.0	0.0	57,0,0	335	0.15	0.0	0.0	57,0,0
		336	0.16	0.0	0.0	57,0,0	345	0.12	0.0	0.0	57,0,0
274	ok	345	0.20	0.0	0.0	57,0,0	336	0.20	0.0	0.0	57,0,0
		337	0.18	0.0	0.0	57,0,0	346	0.18	0.0	0.0	57,0,0
275	ok	82	0.17	0.0	0.0	82,0,0	74	0.18	0.0	0.0	82,0,0
		438	0.32	0.0	0.0	82,0,0	445	0.27	0.0	0.0	82,0,0
276	ok	445	0.31	0.0	0.0	88,0,0	438	0.32	0.0	0.0	82,0,0
		439	0.23	0.0	0.0	82,0,0	92	0.18	0.0	0.0	82,0,0
277	ok	92	0.14	0.0	0.0	82,0,0	439	0.16	0.0	0.0	82,0,0
		440	0.17	0.0	0.0	82,0,0	102	0.15	0.0	0.0	82,0,0
278	ok	102	0.10	0.0	0.0	82,0,0	440	0.11	0.0	0.0	82,0,0
		441	0.12	0.0	0.0	82,0,0	106	0.11	0.0	0.0	82,0,0
279	ok	106	0.08	0.0	0.0	82,0,0	441	0.09	0.0	0.0	82,0,0
		442	0.10	0.0	0.0	82,0,0	124	0.09	0.0	0.0	82,0,0
280	ok	124	0.06	0.0	0.0	82,0,0	442	0.07	0.0	0.0	82,0,0
		443	0.07	0.0	0.0	82,0,0	134	0.06	0.0	0.0	82,0,0
281	ok	134	0.08	0.0	0.0	69,0,0	443	0.10	0.0	0.0	69,0,0
		444	0.13	0.0	0.0	85,0,0	122	0.14	0.0	0.0	85,0,0
282	ok	122	0.11	0.0	0.0	85,0,0	444	0.15	0.0	0.0	85,0,0
		75	0.08	0.0	0.0	72,0,0	132	0.12	0.0	0.0	72,0,0
283	ok	446	0.21	0.0	0.0	85,0,0	449	0.20	0.0	0.0	85,0,0
		448	0.20	0.0	0.0	85,0,0	447	0.29	0.0	0.0	85,0,0
284	ok	447	0.22	0.0	0.0	83,0,0	448	0.22	0.0	0.0	85,0,0
		451	0.15	0.0	0.0	85,0,0	450	0.19	0.0	0.0	85,0,0
285	ok	450	0.11	0.0	0.0	83,0,0	451	0.11	0.0	0.0	83,0,0
		453	0.11	0.0	0.0	83,0,0	452	0.10	0.0	0.0	83,0,0
286	ok	452	0.07	0.0	0.0	83,0,0	453	0.07	0.0	0.0	83,0,0
		455	0.07	0.0	0.0	83,0,0	454	0.07	0.0	0.0	83,0,0
287	ok	454	0.04	0.0	0.0	83,0,0	455	0.04	0.0	0.0	83,0,0
		457	0.05	0.0	0.0	83,0,0	456	0.04	0.0	0.0	83,0,0
288	ok	456	0.04	0.0	0.0	82,0,0	457	0.03	0.0	0.0	85,0,0
		459	0.04	0.0	0.0	83,0,0	458	0.03	0.0	0.0	88,0,0
289	ok	458	0.21	0.0	0.0	88,0,0	459	0.07	0.0	0.0	81,0,0
		461	0.14	0.0	0.0	88,0,0	460	0.08	0.0	0.0	88,0,0
290	ok	460	0.11	0.0	0.0	88,0,0	461	0.08	0.0	0.0	88,0,0
		463	0.28	0.0	0.0	88,0,0	462	0.34	0.0	0.0	88,0,0
291	ok	449	0.13	0.0	0.0	85,0,0	465	0.13	0.0	0.0	85,0,0
		464	0.15	0.0	0.0	85,0,0	448	0.20	0.0	0.0	85,0,0
292	ok	448	0.22	0.0	0.0	85,0,0	464	0.17	0.0	0.0	85,0,0
		466	0.14	0.0	0.0	85,0,0	451	0.17	0.0	0.0	85,0,0
293	ok	451	0.15	0.0	0.0	85,0,0	466	0.13	0.0	0.0	85,0,0
		467	0.12	0.0	0.0	85,0,0	453	0.14	0.0	0.0	85,0,0
294	ok	453	0.12	0.0	0.0	83,0,0	467	0.11	0.0	0.0	83,0,0
		468	0.11	0.0	0.0	83,0,0	455	0.12	0.0	0.0	83,0,0
295	ok	455	0.10	0.0	0.0	83,0,0	468	0.09	0.0	0.0	83,0,0
		469	0.10	0.0	0.0	83,0,0	457	0.10	0.0	0.0	83,0,0
296	ok	457	0.10	0.0	0.0	85,0,0	469	0.10	0.0	0.0	85,0,0
		470	0.09	0.0	0.0	88,0,0	459	0.08	0.0	0.0	88,0,0
297	ok	459	0.09	0.0	0.0	88,0,0	470	0.09	0.0	0.0	88,0,0
		471	0.26	0.0	0.0	88,0,0	461	0.19	0.0	0.0	88,0,0
298	ok	461	0.20	0.0	0.0	88,0,0	471	0.24	0.0	0.0	88,0,0
		472	0.23	0.0	0.0	88,0,0	463	0.25	0.0	0.0	88,0,0
299	ok	465	0.11	0.0	0.0	85,0,0	474	0.10	0.0	0.0	83,0,0
		473	0.11	0.0	0.0	85,0,0	464	0.14	0.0	0.0	85,0,0
300	ok	464	0.15	0.0	0.0	85,0,0	473	0.13	0.0	0.0	85,0,0
		475	0.13	0.0	0.0	85,0,0	466	0.15	0.0	0.0	85,0,0
301	ok	466	0.16	0.0	0.0	81,0,0	475	0.14	0.0	0.0	81,0,0
		476	0.13	0.0	0.0	81,0,0	467	0.15	0.0	0.0	85,0,0
302	ok	467	0.14	0.0	0.0	85,0,0	476	0.13	0.0	0.0	85,0,0
		477	0.12	0.0	0.0	85,0,0	468	0.14	0.0	0.0	85,0,0
303	ok	468	0.13	0.0	0.0	85,0,0	477	0.12	0.0	0.0	85,0,0
		478	0.11	0.0	0.0	85,0,0	469	0.12	0.0	0.0	85,0,0
304	ok	469	0.12	0.0	0.0	85,0,0	478	0.11	0.0	0.0	85,0,0
		479	0.14	0.0	0.0	88,0,0	470	0.11	0.0	0.0	88,0,0
305	ok	470	0.09	0.0	0.0	88,0,0	479	0.13	0.0	0.0	88,0,0
		480	0.22	0.0	0.0	88,0,0	471	0.17	0.0	0.0	88,0,0
306	ok	471	0.15	0.0	0.0	88,0,0	480	0.20	0.0	0.0	88,0,0
		481	0.23	0.0	0.0	88,0,0	472	0.27	0.0	0.0	88,0,0
307	ok	474	0.07	0.0	0.0	83,0,0	483	0.07	0.0	0.0	83,0,0

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		482	0.07	0.0	0.0	83,0,0	473	0.09	0.0	0.0	83,0,0
308	ok	473	0.11	0.0	0.0	85,0,0	482	0.10	0.0	0.0	85,0,0
		484	0.10	0.0	0.0	85,0,0	475	0.12	0.0	0.0	85,0,0
309	ok	475	0.14	0.0	0.0	85,0,0	484	0.12	0.0	0.0	85,0,0
		485	0.12	0.0	0.0	85,0,0	476	0.14	0.0	0.0	85,0,0
310	ok	476	0.14	0.0	0.0	85,0,0	485	0.13	0.0	0.0	85,0,0
		486	0.12	0.0	0.0	81,0,0	477	0.14	0.0	0.0	85,0,0
311	ok	477	0.14	0.0	0.0	81,0,0	486	0.13	0.0	0.0	81,0,0
		487	0.12	0.0	0.0	88,0,0	478	0.13	0.0	0.0	81,0,0
312	ok	478	0.12	0.0	0.0	81,0,0	487	0.11	0.0	0.0	84,0,0
		488	0.15	0.0	0.0	84,0,0	479	0.12	0.0	0.0	84,0,0
313	ok	479	0.10	0.0	0.0	88,0,0	488	0.13	0.0	0.0	82,0,0
		489	0.18	0.0	0.0	88,0,0	480	0.15	0.0	0.0	88,0,0
314	ok	480	0.13	0.0	0.0	88,0,0	489	0.17	0.0	0.0	88,0,0
		490	0.24	0.0	0.0	88,0,0	481	0.28	0.0	0.0	88,0,0
315	ok	483	0.05	0.0	0.0	83,0,0	492	0.05	0.0	0.0	88,0,0
		491	0.07	0.0	0.0	88,0,0	482	0.05	0.0	0.0	87,0,0
316	ok	482	0.08	0.0	0.0	88,0,0	491	0.10	0.0	0.0	88,0,0
		493	0.10	0.0	0.0	88,0,0	484	0.08	0.0	0.0	85,0,0
317	ok	484	0.11	0.0	0.0	85,0,0	493	0.12	0.0	0.0	88,0,0
		494	0.12	0.0	0.0	88,0,0	485	0.11	0.0	0.0	85,0,0
318	ok	485	0.13	0.0	0.0	85,0,0	494	0.13	0.0	0.0	88,0,0
		495	0.13	0.0	0.0	88,0,0	486	0.12	0.0	0.0	85,0,0
319	ok	486	0.13	0.0	0.0	85,0,0	495	0.13	0.0	0.0	88,0,0
		496	0.14	0.0	0.0	88,0,0	487	0.12	0.0	0.0	85,0,0
320	ok	487	0.12	0.0	0.0	85,0,0	496	0.13	0.0	0.0	88,0,0
		497	0.15	0.0	0.0	88,0,0	488	0.12	0.0	0.0	88,0,0
321	ok	488	0.10	0.0	0.0	82,0,0	497	0.13	0.0	0.0	82,0,0
		498	0.15	0.0	0.0	88,0,0	489	0.14	0.0	0.0	88,0,0
322	ok	489	0.12	0.0	0.0	88,0,0	498	0.14	0.0	0.0	88,0,0
		499	0.17	0.0	0.0	88,0,0	490	0.19	0.0	0.0	72,0,0
323	ok	492	0.07	0.0	0.0	88,0,0	501	0.09	0.0	0.0	82,0,0
		500	0.12	0.0	0.0	82,0,0	491	0.09	0.0	0.0	88,0,0
324	ok	491	0.13	0.0	0.0	88,0,0	500	0.14	0.0	0.0	88,0,0
		502	0.14	0.0	0.0	88,0,0	493	0.12	0.0	0.0	88,0,0
325	ok	493	0.14	0.0	0.0	88,0,0	502	0.16	0.0	0.0	88,0,0
		503	0.15	0.0	0.0	88,0,0	494	0.12	0.0	0.0	88,0,0
326	ok	494	0.13	0.0	0.0	88,0,0	503	0.15	0.0	0.0	88,0,0
		504	0.15	0.0	0.0	88,0,0	495	0.12	0.0	0.0	88,0,0
327	ok	495	0.11	0.0	0.0	88,0,0	504	0.13	0.0	0.0	88,0,0
		505	0.14	0.0	0.0	88,0,0	496	0.12	0.0	0.0	88,0,0
328	ok	496	0.11	0.0	0.0	85,0,0	505	0.13	0.0	0.0	88,0,0
		506	0.14	0.0	0.0	88,0,0	497	0.12	0.0	0.0	88,0,0
329	ok	497	0.10	0.0	0.0	85,0,0	506	0.11	0.0	0.0	88,0,0
		507	0.12	0.0	0.0	88,0,0	498	0.11	0.0	0.0	88,0,0
330	ok	498	0.08	0.0	0.0	88,0,0	507	0.10	0.0	0.0	88,0,0
		437	0.15	0.0	0.0	72,0,0	499	0.18	0.0	0.0	72,0,0
331	ok	501	0.11	0.0	0.0	82,0,0	82	0.12	0.0	0.0	82,0,0
		445	0.19	0.0	0.0	82,0,0	500	0.15	0.0	0.0	88,0,0
332	ok	500	0.18	0.0	0.0	88,0,0	445	0.22	0.0	0.0	88,0,0
		92	0.18	0.0	0.0	88,0,0	502	0.15	0.0	0.0	88,0,0
333	ok	502	0.16	0.0	0.0	88,0,0	92	0.18	0.0	0.0	88,0,0
		102	0.17	0.0	0.0	88,0,0	503	0.13	0.0	0.0	88,0,0
334	ok	503	0.11	0.0	0.0	88,0,0	102	0.14	0.0	0.0	88,0,0
		106	0.14	0.0	0.0	82,0,0	504	0.12	0.0	0.0	88,0,0
335	ok	504	0.10	0.0	0.0	88,0,0	106	0.12	0.0	0.0	88,0,0
		124	0.13	0.0	0.0	88,0,0	505	0.11	0.0	0.0	88,0,0
336	ok	505	0.10	0.0	0.0	88,0,0	124	0.11	0.0	0.0	88,0,0
		134	0.11	0.0	0.0	88,0,0	506	0.10	0.0	0.0	88,0,0
337	ok	506	0.10	0.0	0.0	85,0,0	134	0.09	0.0	0.0	85,0,0
		122	0.13	0.0	0.0	85,0,0	507	0.14	0.0	0.0	85,0,0
338	ok	507	0.11	0.0	0.0	85,0,0	122	0.12	0.0	0.0	85,0,0
		132	0.13	0.0	0.0	72,0,0	437	0.16	0.0	0.0	72,0,0
339	ok	444	0.12	0.0	0.0	69,0,0	512	0.09	0.0	0.0	69,0,0
		511	0.13	0.0	0.0	69,0,0	75	0.10	0.0	0.0	69,0,0
340	ok	443	0.09	0.0	0.0	69,0,0	513	0.12	0.0	0.0	69,0,0
		512	0.09	0.0	0.0	69,0,0	444	0.11	0.0	0.0	69,0,0
341	ok	442	0.05	0.0	0.0	70,0,0	514	0.05	0.0	0.0	70,0,0
		513	0.05	0.0	0.0	82,0,0	443	0.05	0.0	0.0	70,0,0
342	ok	441	0.08	0.0	0.0	82,0,0	515	0.08	0.0	0.0	82,0,0
		514	0.08	0.0	0.0	82,0,0	442	0.08	0.0	0.0	82,0,0
343	ok	440	0.12	0.0	0.0	82,0,0	516	0.12	0.0	0.0	82,0,0
		515	0.12	0.0	0.0	82,0,0	441	0.12	0.0	0.0	82,0,0
344	ok	439	0.16	0.0	0.0	82,0,0	517	0.15	0.0	0.0	82,0,0
		516	0.16	0.0	0.0	82,0,0	440	0.15	0.0	0.0	82,0,0
345	ok	438	0.27	0.0	0.0	82,0,0	518	0.24	0.0	0.0	82,0,0
		517	0.30	0.0	0.0	82,0,0	439	0.25	0.0	0.0	82,0,0
346	ok	74	0.25	0.0	0.0	82,0,0	161	0.27	0.0	0.0	82,0,0

Setto	Stato	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb	Nodo	V N/M	V V/T cls	V V/T acc	Rif. cmb
		518	0.25	0.0	0.0	82,0,0	438	0.24	0.0	0.0	82,0,0
Setto			**V N/M**	**V V/T cls**	**V V/T acc**			**V N/M**	**V V/T cls**	**V V/T acc**	
			0.74	0.0	0.0						

VERIFICA DEL CAMMINAMENTO

SEZIONE 2
FONDAZIONI PERIMETRALI



Verifica di soletta c.a. in aggetto

Dati generali:
Normativa di riferimento: NTC 2018
Calcestruzzo classe: C25/30
Acciaio in barre: B450C
Ambiente aggressivo
Categoria carichi variabili: C - Ambienti suscettibili di affollamento

Dimensioni:
Sbalzo soletta: l = 165,0 cm
Spessore soletta: t = 17,0 cm

Armatura:
Superiore: 1ϕ10 / 25
Inferiore: 1ϕ10 / 50
Copriferro: cf = 3.0 cm

Carichi:
Carichi permanenti compiutamente definiti G1:
- soletta in CLS = 425,0 daN/mq

Carichi permanenti non compiutamente definiti G2:

- pavimento+sottofondo = 125,0 daN/mq

Carichi variabili Qi:
- carico variabile = 300,0 daN/mq

Azioni di calcolo per porzione di soletta di 100 cm:
Combinazione SLU:
Q = G1 γg1 + G2 γg2 + Qi γqi = 1190.00 daN/mq (γg1 = 1.30; γg2 = 1.50; γqi = 1.50)
M = Q l^2 / 2 =161988,8 daN cm
V = Q l =1963,5 daN

Combinazione SLE rare:
Q = G1 + G2 + Qi = 850.00 daN/mq
M = Q l^2 / 2 =115706,3 daN cm

Combinazione SLE frequenti:
Q = G1 + G2 + Qi ψ11 = 760.00 daN/mq (ψ11 = 0.70)
M = Q l^2 / 2 =103455,0 daN cm

Combinazione SLE quasi permanenti:
Q = G1 + G2 + Qi ψ21 = 730.00 daN/mq (ψ21 = 0.60)
M = Q l^2 / 2 =99371,3 daN cm

Verifiche per porzione di soletta di 100 cm:
Verifica taglio per elementi senza armature trasversali resistenti a taglio.
Ved = 1963,5 daN; Vrd = 6915,8 daN (Ved < Vrd Ok)

Verifica a flessione SLU:
M = 161988,8 daN cm; Mu = -169217.9 daN cm; M / Mu = 0.96 (M / Mu < 1 Ok)

Verifiche SLE per c. c. rare:
M = 115706,3 daN cm
Verifica cls:
σc = 77,6 daN/cmq; σcL = 149,4 daN/cmq; σc / σcL = 0.52 (σc / σcL < 1 Ok)
Verifica acciaio:
σa = 3166,0 daN/cmq; σaL = 3600,0 daN/cmq; σa / σaL = 0.88 (σa / σaL < 1 Ok)

Verifiche SLE per c. c. frequenti:
M = 103455,0 daN cm
Verifica fessurazione:
Wk = 0,00 mm; WkL = 0,30 mm; Wk / WkL = 0.00 (Wk / WkL < 1 Ok)

Verifiche SLE per c. c. quasi permanenti:
M = 99371,3 daN cm
Verifica cls:
σc = 66,6 daN/cmq; σcL = 112,1 daN/cmq; σc / σcL = 0.59 (σc / σcL < 1 Ok)
Verifica fessurazione:
Wk = 0,00 mm; WkL = 0,20 mm; Wk / WkL = 0.00 (Wk / WkL < 1 Ok)

VERIFICA MURO PERIMETRALE

Progettazione elementi strutturali secondari - D.M. 17.01.2018 NTC - §7.2.3

Localizzazione della struttura:
Comune: FORNOVO SAN GIOVANNI
Provincia: BERGAMO
Regione: LOMBARDIA
Coordinate: Lat. 45,4970 N, Long. 9,6790 E

Dati di progetto:
Classe d'uso: III
Categoria del suolo: D (Ss = 1,80)
Categoria topografica: T1 (St = 1,00)
Altezza dell'edificio H = 450,0 cm
Periodo proprio dell'edificio T_1 = 0,232 s
Fattore di struttura qa = 2,00

Caratteristiche della parete:
Resistenza caratteristica a compressione fk = 44.80 daN/cmq
Resistenza di progetto a compressione fd = 22.40 daN/cmq
Massa volumica = 0.00086 kg/cmc
Modulo elastico Em = 35870,0 daN/cmq
Le verifiche vengono effettuate su una striscia di parete larga un metro, perciò le dimensioni dell'elemento risultano:
altezza tamponatura h = 290,0 cm, larghezza L = 100,0 cm, spessore t = 30,0 cm
Quota del baricentro dell'elemento Z = 150,0 cm
Peso elemento non strutturale Wa = 748,20 daN
Periodo proprio della parete Ta = 0,031 s

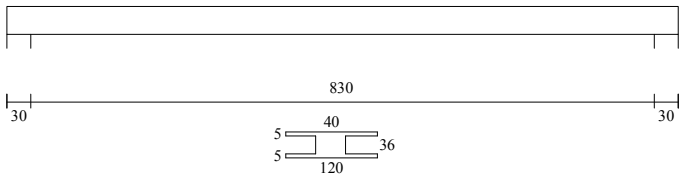
Azioni sismiche per combinazioni SLV:
Ag = 0,131 g, Fo = 2,450, Tc* = 0,277 s
Accelerazione massima
T_1 < 0.5 s => a = 0.8, b = 1.4, a_p = 5
Ta < a T_1
Sa = α S (1 + Z / H)) [a_p / (1 + (a_p - 1)(1 - Ta / a T_1)^2)] = 0,414
Forza sismica orizzontale agente nel baricentro dell'elemento strutturale:
Fa = (Sa Wa) / qa = 155,06

Verifica di stabilità:
Momento ribaltante Med = (Fa h / 8) + (Wa t / 4) = 11232,34
Momento stabilizzante Mrd = (Wa / 2) [t – Wa / (4 L 0.85 fd)] = 11186,25 (7.8.2.2.3 NTC 2018)
Verifica Med / Mrd = 1,00 > 1,00 **Verificato**

PREDIMENSIONAMENTO DEL SOLAIO

N.B.: Il solaio sarà progettato a cura del prefabbricatore ed approvato dalla D.L. Strutturale, si effettua un predimensionamento su un ipotetica campata da 860cm di luce per valutare la fattibilità della soluzione e per i computi prendendo in considerazione la luce maggiore e come schema di calcolo una trave in semplice appoggio..

Geometria di input



Metodo di calcolo: NTC2018. Valori in daN cm.

FATTORI DI SICUREZZA PARZIALI PER LE PROPRIETA' DEI MATERIALI
Gamma s (fattore di sicurezza parziale dell'acciaio da armatura) 1.15
Gamma c (fattore di sicurezza parziale del calcestruzzo) 1.50

FATTORI DI SICUREZZA PARZIALI PER LE AZIONI
Gamma G1 inf. (pesi struttura, effetto favorevole) 1.00
Gamma G1 sup. (pesi struttura, effetto sfavorevole) 1.30
Gamma G2 inf. (permanenti portati, effetto favorevole) 0.00
Gamma G2 sup. (permanenti portati, effetto sfavorevole) 1.50
Gamma Q inf. (azioni variabili, effetto favorevole) 0.00
Gamma Q sup. (azioni variabili, effetto sfavorevole) 1.50

COEFFICIENTI DI COMBINAZIONE DEI CARICHI VARIABILI PER STATI LIMITE DI ESERCIZIO
Combinazioni rare 1.00
Combinazioni frequenti 0.20
Combinazioni quasi permanenti 0.00

GEOMETRIA DELLE SEZIONI INIZIALI
n. 2 sezione a doppio T H tot. 36.0 B anima 40.0 Cs 2.0 Ci 3.0 B1 ala 40.0 B2 ala 40.0 H ala s 5.0 H ala i 5.0

GEOMETRIA DELLE CAMPATE

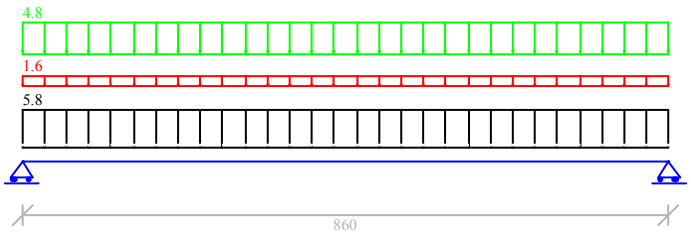
	luce	sezione	altezza finale	Y asse
campata n. 1	860.0	2	36.0	0.00

CARATTERISTICHE DEGLI APPOGGI

appoggio n.	nome	ampiezza	zona piena sin.	zona piena destra	coeff. elastico verticale	
1		30.0	0.0	35.0	0.0000E+00	diretto
2		30.0	35.0	0.0	0.0000E+00	diretto

CARATTERISTICHE DEI MATERIALI
Resistenza caratteristica cubica del calcestruzzo Rck= 300
Tensione di snervamento caratteristica dell'acciaio fyk= 4500
Valore finale del coefficiente di viscosità (EC2 Tab.3.3)= 3
Valore finale della deformazione di ritiro (EC2 Tab.3.4)= -.0004

Schema statico



AZIONI CARATTERISTICHE APPLICATE ALLA TRAVE

CAMPATA n. 1

carico uniforme	permanente struttura	permanente portato	variabile
	5.80	4.80	1.56

Diagramma dei momenti (daN*cm)

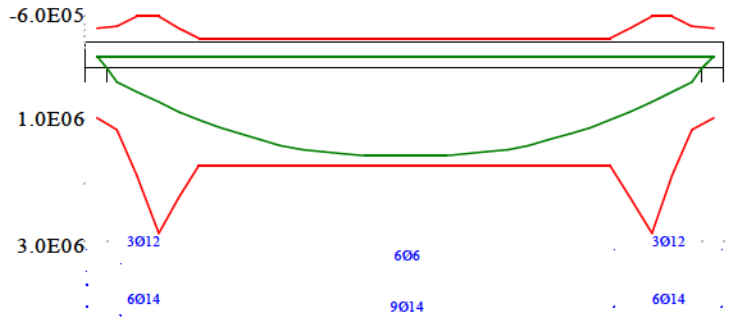
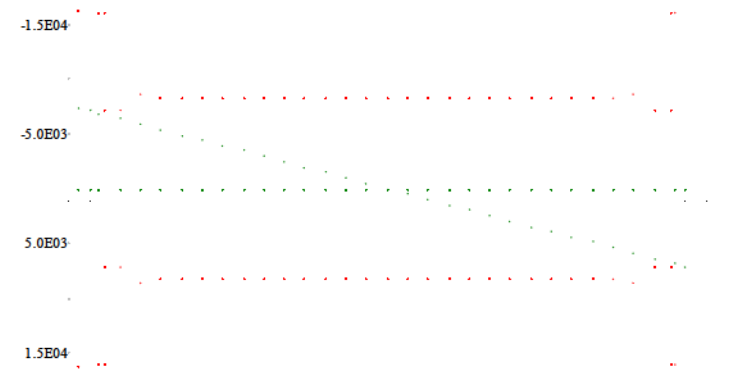
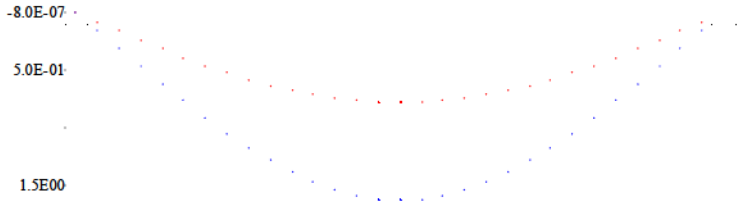


Diagramma dei tagli (daN)



Deformata condizione rara (cm)



OUTPUT CAMPATE (momenti in kN*cm, tagli in kN, apertura fessure in mm).

campata n. 1 tra gli appoggi -
sezione n. 2
stati limite ultimi

x	Asup	cs	Ainf	ci	Mela	MEd	MRd	x/d	Ast	Afp+	Afp-	VRcd	VEd	VEd.rid	VRd	VRsd	teta
0	3.0	2.6	7.7	2.7	0	0	-4178	.062	.000	.000	.000	1246	73		163	0	0.79
15	3.4	2.6	9.2	2.7	1082	2104	11646	.079	.000	.000	.000	1219	71		161	0	0.79
287	1.7	2.3	13.9	2.7	14036	14685	17219	.110	.000	.000	.000	406	24		82	0	0.79
401	1.7	2.3	13.9	2.7	15720	15790	17219	.110	.000	.000	.000	406	5		82	0	0.79
573	1.7	2.3	13.9	2.7	14036	14685	17219	.110	.000	.000	.000	406	-24		82	0	0.79
845	3.4	2.6	9.2	2.7	1082	2104	11646	.079	.000	.000	.000	1219	-71		161	0	0.79
860	3.0	2.6	7.7	2.7	0	0	-4178	.062	.000	.000	.000	1246	-73		163	0	0.79

stati limite di esercizio

x	Mese.R	σc.R	sf.R	Mese.QP	σc.QP	srmi	wkiR	wkiF	wkiQP	srms	wksR	wksF	wksQP	fg.R	ff.R	fg.QP	ff.QP	f.c	l/f.c
0	0	0	0	0	0									0.00	0.00	0.00	0.00	0.00	9999
15	771	4	56	672	3									0.04	0.00	0.04	0.00	0.00	9999
287	9993	64	2349	8711	56	24.1	0.16	0.13	0.20					0.68	1.39	0.60	1.21	2.72	316
401	11192	72	2631	9756	62	24.1	0.19	0.16	0.23					0.78	1.62	0.68	1.41	3.15	273
573	9993	64	2349	8711	56	24.1	0.16	0.13	0.20					0.68	1.39	0.60	1.21	2.72	316
845	771	4	56	672	3									0.04	0.00	0.04	0.00	0.00	9999
860	0	0	0	0	0									0.00	0.00	0.00	0.00	0.00	9999

REAZIONI VINCOLARI (daN)

		ULTIME		RARE		FREQUENTI		QUASI PERMANENTI	
appoggio n.	nome	massima	minima	massima	minima	massima	minima	massima	minima
1		7344	2494	5229	2494	4692	2494	4558	2494
2		7344	2494	5229	2494	4692	2494	4558	2494

RISULTATI OPERE DI FONDAZIONE

Le strutture di fondazione sono state dimensionate in riferimento alla Relazione di fattibilità geologica redatta dal Dott. Matteo Rota che individua un modello geologico locale come da tabella allegata:

Unità	Profondità base (m dal p.c.)	Descrizione litologica
A	2	Limo sabbioso argilloso
B	6	Sabbia limosa
C	13	Ghiaia sabbiosa debolmente limosa
D	25	Alternanze di strati ghiaiosi e sabbiosi
E	35	Ghiaie con strati conglomeratici e argillosi

Tabella 1: Modello geologico indicativo.

La falda si attesta a 2 - 3 m di profondità con escursioni stagionali; la presenza di materiale limoso favorisce la risalita capillare e l'umidità.

In base alla Relazione geotecnica risulta che per la fondazione progettata, con larghezza alla quota d'appoggio di 120cm e reinterro (o carico equivalente) pari a 100 cm, sono da considerarsi ammissibili e compatibili con i relativi cedimenti i seguenti stati di collecitazione:

CMB SLU σ_t < 2,10 Kg/cmq

CMB SLV σ_t < 2,10 Kg/cmq

CMB SLE σ_t < 1,00 Kg/cmq

Si riportano di seguito i risultati in termini di massime sollecitazioni sul terreno ricavati 3 condizioni di carico citate, da tali risultati si evince che il modello si trova nelle condizioni concordate.RISULTATI OPERE DI FONDAZIONE

LEGENDA RISULTATI OPERE DI FONDAZIONE

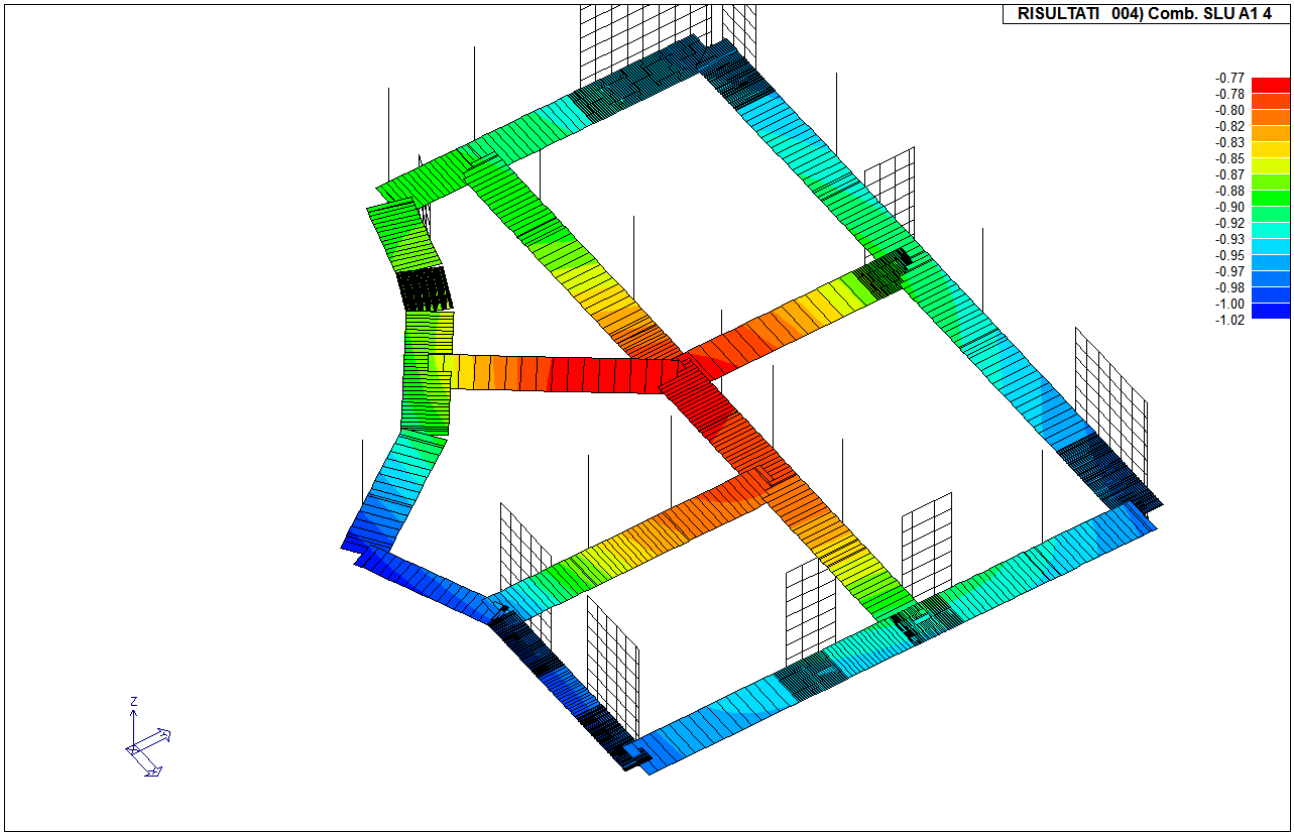
Il controllo dei risultati delle analisi condotte, per quanto concerne le opere di fondazione, è possibile in relazione alla tabelle sotto riportata vengono riportate le pressioni alle estremità dell'elemento e la massima (in valore assoluto) pressione lungo lo sviluppo dell'elemento.
Vengono inoltre riportati, con funzione statistica, i valori massimo e minimo delle pressioni che compaiono nella tabella.

Elem.	Cmb	Pt ini	Pt fin	Pt max	Cmb	Pt ini	Pt fin	Pt max	Cmb	Pt ini	Pt fin	Pt max
		daN/cm2	daN/cm2	daN/cm2		daN/cm2	daN/cm2	daN/cm2		daN/cm2	daN/cm2	daN/cm2
18	4	-0.93	-0.94	-0.94	29	-0.91	-0.92	-0.92	61	-0.81	-0.81	-0.81
	93	-0.77	-0.78	-0.78	124	-0.69	-0.69	-0.69	136	-0.66	-0.67	-0.67
	139	-0.66	-0.66	-0.66								
21	4	-0.90	-0.92	-0.92	45	-0.78	-0.82	-0.82	77	-0.71	-0.74	-0.74
	109	-0.69	-0.72	-0.72	124	-0.66	-0.68	-0.68	136	-0.63	-0.65	-0.65
	139	-0.63	-0.64	-0.64								
30	4	-0.94	-0.94	-0.94	29	-0.92	-0.92	-0.92	61	-0.81	-0.82	-0.82
	93	-0.78	-0.78	-0.78	124	-0.69	-0.70	-0.70	136	-0.67	-0.67	-0.67
	139	-0.66	-0.66	-0.66								
31	4	-0.94	-0.94	-0.94	29	-0.92	-0.93	-0.93	61	-0.82	-0.82	-0.82
	93	-0.78	-0.79	-0.79	124	-0.70	-0.70	-0.70	136	-0.67	-0.67	-0.67
	139	-0.66	-0.67	-0.67								

Elem.	Cmb	Pt ini	Pt fin	Pt max	Cmb	Pt ini	Pt fin	Pt max	Cmb	Pt ini	Pt fin	Pt max
34	4	-0.94	-0.95	-0.95	29	-0.93	-0.95	-0.95	61	-0.82	-0.83	-0.83
	93	-0.79	-0.80	-0.80	124	-0.70	-0.70	-0.70	136	-0.67	-0.68	-0.68
	139	-0.67	-0.67	-0.67								
37	4	-0.92	-1.02	-1.02	45	-0.81	-1.04	-1.04	77	-0.74	-0.90	-0.90
	109	-0.72	-0.86	-0.86	124	-0.68	-0.75	-0.75	136	-0.65	-0.72	-0.72
	139	-0.64	-0.71	-0.71								
38	4	-0.88	-0.90	-0.90	53	-0.82	-0.78	-0.82	85	-0.73	-0.72	-0.73
	117	-0.70	-0.70	-0.70	124	-0.65	-0.66	-0.66	136	-0.62	-0.63	-0.63
	139	-0.62	-0.63	-0.63								
39	4	-0.88	-0.88	-0.88	53	-0.83	-0.81	-0.83	85	-0.74	-0.73	-0.74
	117	-0.71	-0.70	-0.71	124	-0.65	-0.65	-0.65	136	-0.62	-0.62	-0.62
	139	-0.61	-0.62	-0.62								
40	4	-0.88	-0.88	-0.88	53	-0.85	-0.83	-0.85	85	-0.75	-0.74	-0.75
	117	-0.72	-0.71	-0.72	124	-0.65	-0.65	-0.65	136	-0.62	-0.62	-0.62
	139	-0.62	-0.61	-0.62								
41	4	-0.88	-0.88	-0.88	53	-0.87	-0.85	-0.87	85	-0.76	-0.75	-0.76
	117	-0.73	-0.72	-0.73	124	-0.65	-0.65	-0.65	136	-0.62	-0.62	-0.62
	139	-0.62	-0.62	-0.62								
46	4	-0.88	-0.78	-0.88	53	-0.75	-0.58	-0.75	85	-0.69	-0.56	-0.69
	117	-0.68	-0.55	-0.68	124	-0.65	-0.57	-0.65	136	-0.62	-0.54	-0.62
	139	-0.61	-0.53	-0.61								
58	4	-0.84	-0.93	-0.93	25	-0.68	-0.87	-0.87	57	-0.64	-0.78	-0.78
	89	-0.63	-0.75	-0.75	124	-0.62	-0.69	-0.69	136	-0.59	-0.66	-0.66
	139	-0.59	-0.66	-0.66								
59	4	-0.99	-0.99	-0.99	45	-0.92	-0.91	-0.92	77	-0.82	-0.82	-0.82
	109	-0.79	-0.79	-0.79	124	-0.73	-0.73	-0.73	136	-0.70	-0.70	-0.70
	139	-0.70	-0.70	-0.70								
63	4	-0.78	-0.79	-0.79	53	-0.57	-0.57	-0.57	85	-0.55	-0.55	-0.55
	117	-0.55	-0.55	-0.55	124	-0.57	-0.58	-0.58	136	-0.54	-0.54	-0.54
	139	-0.53	-0.53	-0.53								
65	4	-0.91	-0.91	-0.91	53	-0.83	-0.84	-0.84	85	-0.75	-0.75	-0.75
	117	-0.72	-0.73	-0.73	124	-0.67	-0.67	-0.67	136	-0.65	-0.65	-0.65
	139	-0.64	-0.64	-0.64								
67	4	-0.95	-0.95	-0.95	29	-0.95	-0.96	-0.96	61	-0.83	-0.84	-0.84
	93	-0.80	-0.80	-0.80	124	-0.70	-0.71	-0.71	136	-0.68	-0.68	-0.68
	139	-0.67	-0.67	-0.67								
68	4	-0.90	-0.91	-0.91	53	-0.78	-0.83	-0.83	85	-0.72	-0.75	-0.75
	117	-0.70	-0.72	-0.72	124	-0.66	-0.67	-0.67	136	-0.64	-0.65	-0.65
	139	-0.63	-0.64	-0.64								
69	4	-0.95	-0.96	-0.96	29	-0.96	-0.97	-0.97	61	-0.84	-0.85	-0.85
	93	-0.80	-0.81	-0.81	124	-0.71	-0.71	-0.71	136	-0.68	-0.68	-0.68
	139	-0.67	-0.68	-0.68								
71	4	-0.98	-0.98	-0.98	29	-1.07	-1.07	-1.07	61	-0.91	-0.92	-0.92
	93	-0.87	-0.87	-0.87	124	-0.73	-0.73	-0.73	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
74	4	-0.89	-0.90	-0.90	53	-0.75	-0.78	-0.78	85	-0.69	-0.72	-0.72
	117	-0.68	-0.70	-0.70	124	-0.66	-0.66	-0.66	136	-0.63	-0.64	-0.64
	139	-0.63	-0.63	-0.63								
75	4	-0.97	-0.96	-0.97	29	-0.99	-0.96	-0.99	61	-0.86	-0.84	-0.86
	93	-0.82	-0.81	-0.82	124	-0.72	-0.71	-0.72	136	-0.69	-0.69	-0.69
	139	-0.68	-0.68	-0.68								
76	4	-0.96	-0.96	-0.96	49	-0.98	-0.97	-0.98	81	-0.85	-0.85	-0.85
	113	-0.81	-0.81	-0.81	124	-0.71	-0.71	-0.71	136	-0.69	-0.69	-0.69
	139	-0.68	-0.68	-0.68								
77	4	-0.96	-0.96	-0.96	49	-0.97	-0.97	-0.97	81	-0.85	-0.85	-0.85
	113	-0.81	-0.81	-0.81	124	-0.71	-0.71	-0.71	136	-0.69	-0.68	-0.69
	139	-0.68	-0.68	-0.68								
78	4	-0.96	-0.95	-0.96	49	-0.97	-0.97	-0.97	81	-0.85	-0.84	-0.85
	113	-0.81	-0.81	-0.81	124	-0.71	-0.71	-0.71	136	-0.68	-0.68	-0.68
	139	-0.68	-0.68	-0.68								
79	4	-0.95	-0.93	-0.95	49	-0.97	-0.92	-0.97	81	-0.84	-0.81	-0.84
	113	-0.81	-0.77	-0.81	124	-0.71	-0.69	-0.71	136	-0.68	-0.66	-0.68
	139	-0.68	-0.66	-0.68								
80	4	-0.93	-0.92	-0.93	53	-0.92	-0.87	-0.92	85	-0.81	-0.77	-0.81
	117	-0.77	-0.75	-0.77	124	-0.69	-0.68	-0.69	136	-0.66	-0.66	-0.66
	139	-0.66	-0.65	-0.66								
81	4	-0.92	-0.94	-0.94	45	-0.87	-0.87	-0.87	77	-0.77	-0.78	-0.78
	109	-0.75	-0.75	-0.75	124	-0.68	-0.69	-0.69	136	-0.66	-0.67	-0.67
	139	-0.65	-0.66	-0.66								
83	4	-0.94	-0.97	-0.97	41	-0.86	-0.96	-0.96	73	-0.78	-0.85	-0.85
	105	-0.75	-0.81	-0.81	124	-0.69	-0.72	-0.72	136	-0.67	-0.70	-0.70
	139	-0.66	-0.69	-0.69								
84	4	-0.97	-0.97	-0.97	41	-0.96	-0.99	-0.99	73	-0.85	-0.86	-0.86
	105	-0.81	-0.82	-0.82	124	-0.72	-0.72	-0.72	136	-0.70	-0.70	-0.70
	139	-0.69	-0.69	-0.69								
85	4	-0.97	-0.98	-0.98	41	-0.99	-1.02	-1.02	73	-0.86	-0.88	-0.88
	105	-0.82	-0.84	-0.84	124	-0.72	-0.72	-0.72	136	-0.70	-0.70	-0.70
	139	-0.69	-0.70	-0.70								

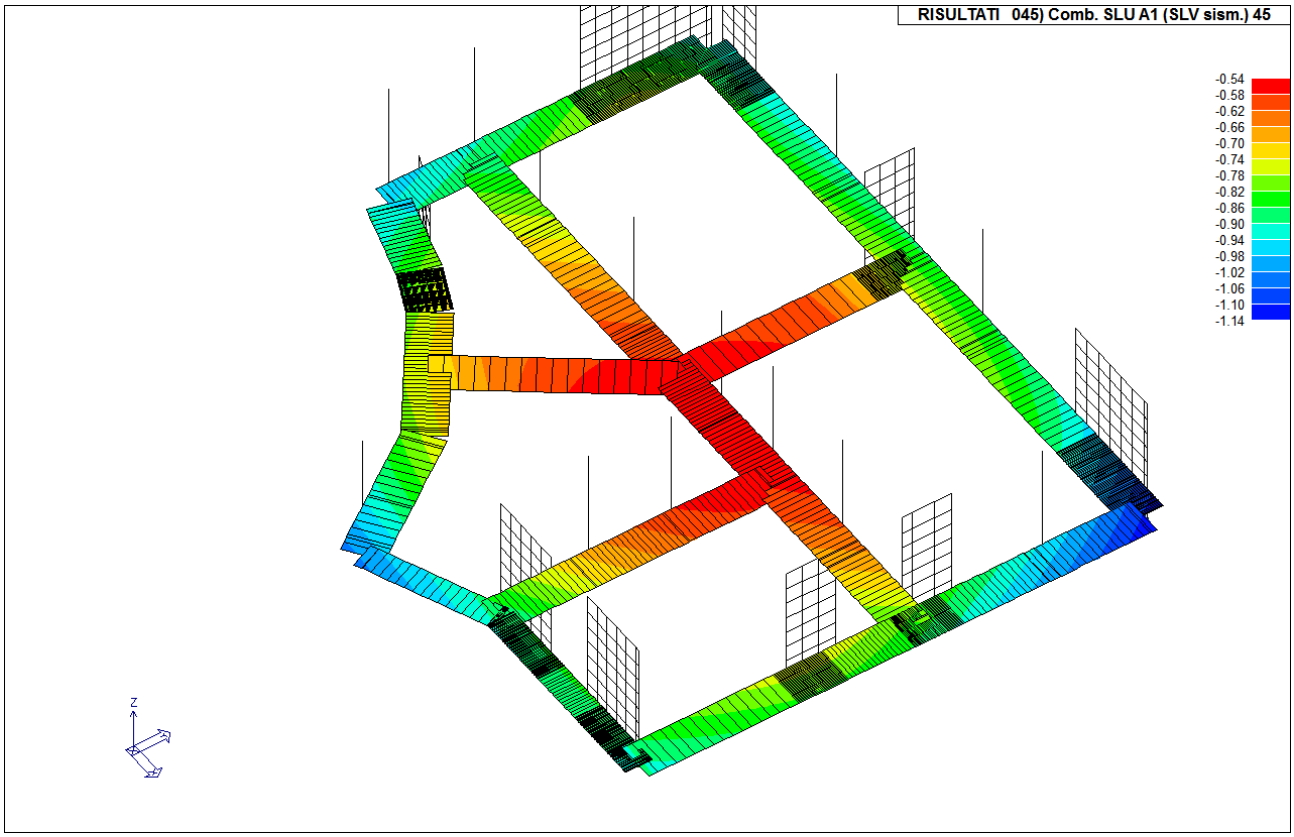
Elem.	Cmb	Pt ini	Pt fin	Pt max	Cmb	Pt ini	Pt fin	Pt max	Cmb	Pt ini	Pt fin	Pt max
86	4	-0.98	-0.98	-0.98	41	-1.02	-1.04	-1.04	73	-0.88	-0.89	-0.89
	105	-0.84	-0.85	-0.85	124	-0.72	-0.72	-0.72	136	-0.70	-0.70	-0.70
	139	-0.70	-0.70	-0.70								
87	4	-0.98	-0.98	-0.98	41	-1.04	-1.07	-1.07	73	-0.89	-0.91	-0.91
	105	-0.85	-0.86	-0.86	124	-0.72	-0.73	-0.73	136	-0.70	-0.70	-0.70
	139	-0.70	-0.70	-0.70								
88	4	-0.98	-0.98	-0.98	45	-1.07	-1.10	-1.10	73	-0.91	-0.93	-0.93
	105	-0.86	-0.88	-0.88	124	-0.73	-0.73	-0.73	136	-0.70	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
89	4	-0.98	-0.98	-0.98	45	-1.10	-1.13	-1.13	77	-0.93	-0.95	-0.95
	109	-0.88	-0.89	-0.89	124	-0.73	-0.73	-0.73	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
90	4	-0.94	-0.97	-0.97	45	-1.01	-1.14	-1.14	77	-0.86	-0.95	-0.95
	109	-0.82	-0.89	-0.89	124	-0.70	-0.72	-0.72	136	-0.68	-0.70	-0.70
	139	-0.67	-0.70	-0.70								
91	11	-0.93	-0.94	-0.94	41	-0.92	-1.01	-1.01	73	-0.81	-0.86	-0.86
	105	-0.78	-0.82	-0.82	127	-0.69	-0.70	-0.70	136	-0.67	-0.68	-0.68
	139	-0.67	-0.67	-0.67								
92	4	-0.94	-0.93	-0.94	41	-0.90	-0.92	-0.92	73	-0.80	-0.81	-0.81
	105	-0.77	-0.78	-0.78	124	-0.70	-0.69	-0.70	136	-0.67	-0.67	-0.67
	139	-0.67	-0.67	-0.67								
93	4	-0.94	-0.94	-0.94	25	-0.90	-0.90	-0.90	57	-0.80	-0.80	-0.80
	89	-0.77	-0.77	-0.77	124	-0.70	-0.70	-0.70	136	-0.68	-0.67	-0.68
	139	-0.67	-0.67	-0.67								
94	4	-0.94	-0.94	-0.94	25	-0.90	-0.90	-0.90	57	-0.80	-0.80	-0.80
	89	-0.77	-0.77	-0.77	124	-0.70	-0.70	-0.70	136	-0.68	-0.68	-0.68
	139	-0.67	-0.67	-0.67								
95	4	-0.95	-0.94	-0.95	29	-0.91	-0.89	-0.91	61	-0.81	-0.80	-0.81
	93	-0.78	-0.77	-0.78	124	-0.70	-0.70	-0.70	136	-0.68	-0.68	-0.68
	139	-0.68	-0.67	-0.68								
96	4	-0.95	-0.95	-0.95	29	-0.91	-0.91	-0.91	61	-0.81	-0.81	-0.81
	93	-0.78	-0.78	-0.78	124	-0.70	-0.70	-0.70	136	-0.68	-0.68	-0.68
	139	-0.68	-0.68	-0.68								
97	4	-0.95	-0.95	-0.95	29	-0.92	-0.91	-0.92	61	-0.82	-0.81	-0.82
	93	-0.79	-0.78	-0.79	124	-0.70	-0.70	-0.70	136	-0.68	-0.68	-0.68
	139	-0.68	-0.68	-0.68								
98	4	-0.95	-0.95	-0.95	29	-0.93	-0.92	-0.93	61	-0.82	-0.82	-0.82
	93	-0.79	-0.79	-0.79	124	-0.70	-0.70	-0.70	136	-0.68	-0.68	-0.68
	139	-0.68	-0.68	-0.68								
99	4	-0.98	-0.95	-0.98	29	-1.09	-0.93	-1.09	61	-0.92	-0.82	-0.92
	93	-0.87	-0.79	-0.87	124	-0.73	-0.70	-0.73	136	-0.70	-0.68	-0.70
	139	-0.70	-0.68	-0.70								
100	4	-0.99	-0.98	-0.99	29	-1.04	-1.07	-1.07	61	-0.90	-0.91	-0.91
	93	-0.86	-0.87	-0.87	124	-0.73	-0.73	-0.73	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
101	4	-0.99	-0.99	-0.99	29	-1.02	-1.04	-1.04	61	-0.89	-0.90	-0.90
	93	-0.85	-0.86	-0.86	124	-0.73	-0.73	-0.73	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
102	4	-0.99	-0.99	-0.99	29	-1.00	-1.02	-1.02	61	-0.88	-0.89	-0.89
	93	-0.84	-0.85	-0.85	124	-0.73	-0.73	-0.73	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
103	4	-0.99	-0.99	-0.99	29	-0.98	-1.00	-1.00	61	-0.86	-0.88	-0.88
	93	-0.83	-0.84	-0.84	124	-0.73	-0.73	-0.73	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
104	4	-0.99	-0.99	-0.99	25	-0.96	-0.98	-0.98	61	-0.85	-0.86	-0.86
	93	-0.82	-0.83	-0.83	124	-0.73	-0.73	-0.73	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
105	4	-0.99	-0.99	-0.99	25	-0.89	-0.96	-0.96	57	-0.81	-0.85	-0.85
	89	-0.79	-0.82	-0.82	124	-0.74	-0.73	-0.74	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
106	4	-0.99	-0.99	-0.99	45	-0.90	-0.90	-0.90	65	-0.81	-0.82	-0.82
	97	-0.78	-0.79	-0.79	124	-0.74	-0.74	-0.74	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
107	4	-0.99	-0.99	-0.99	45	-0.90	-0.90	-0.90	77	-0.82	-0.81	-0.82
	109	-0.79	-0.79	-0.79	124	-0.73	-0.74	-0.74	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
108	4	-0.99	-0.99	-0.99	45	-0.90	-0.90	-0.90	77	-0.82	-0.82	-0.82
	109	-0.79	-0.79	-0.79	124	-0.73	-0.73	-0.73	136	-0.71	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
109	4	-0.99	-0.99	-0.99	45	-0.91	-0.90	-0.91	77	-0.82	-0.82	-0.82
	109	-0.79	-0.79	-0.79	124	-0.73	-0.73	-0.73	136	-0.70	-0.71	-0.71
	139	-0.70	-0.70	-0.70								
110	4	-0.99	-0.99	-0.99	45	-0.91	-0.91	-0.91	77	-0.82	-0.82	-0.82
	109	-0.79	-0.79	-0.79	124	-0.73	-0.73	-0.73	136	-0.70	-0.70	-0.70
	139	-0.70	-0.70	-0.70								
111	4	-1.02	-0.99	-1.02	45	-1.04	-0.92	-1.04	77	-0.90	-0.82	-0.90
	109	-0.86	-0.79	-0.86	124	-0.75	-0.73	-0.75	136	-0.72	-0.70	-0.72
	139	-0.71	-0.70	-0.71								

Elem.	Cmb	Pt ini	Pt fin	Pt max	Cmb	Pt ini	Pt fin	Pt max	Cmb	Pt ini	Pt fin	Pt max
113	4	-0.88	-0.89	-0.89	53	-0.71	-0.75	-0.75	85	-0.67	-0.69	-0.69
	117	-0.66	-0.68	-0.68	124	-0.65	-0.66	-0.66	136	-0.62	-0.63	-0.63
	139	-0.62	-0.63	-0.63								
114	4	-0.96	-0.96	-0.96	29	-0.97	-0.99	-0.99	61	-0.85	-0.86	-0.86
	93	-0.81	-0.82	-0.82	124	-0.71	-0.72	-0.72	136	-0.68	-0.69	-0.69
	139	-0.68	-0.68	-0.68								
115	4	-0.90	-0.89	-0.90	37	-0.92	-0.77	-0.92	69	-0.80	-0.70	-0.80
	101	-0.76	-0.68	-0.76	124	-0.67	-0.66	-0.67	136	-0.64	-0.62	-0.64
	139	-0.63	-0.62	-0.63								
116	4	-0.89	-0.82	-0.89	53	-0.78	-0.62	-0.78	85	-0.71	-0.60	-0.71
	117	-0.69	-0.59	-0.69	124	-0.66	-0.60	-0.66	136	-0.62	-0.57	-0.62
	139	-0.62	-0.56	-0.62								
117	4	-0.82	-0.78	-0.82	53	-0.62	-0.57	-0.62	85	-0.60	-0.55	-0.60
	117	-0.59	-0.55	-0.59	124	-0.60	-0.57	-0.60	136	-0.57	-0.54	-0.57
	139	-0.56	-0.53	-0.56								
118	4	-0.79	-0.80	-0.80	49	-0.57	-0.59	-0.59	81	-0.55	-0.57	-0.57
	113	-0.55	-0.56	-0.56	124	-0.58	-0.59	-0.59	136	-0.54	-0.55	-0.55
	139	-0.53	-0.54	-0.54								
119	4	-0.80	-0.84	-0.84	41	-0.59	-0.69	-0.69	73	-0.57	-0.65	-0.65
	105	-0.56	-0.63	-0.63	124	-0.59	-0.62	-0.62	136	-0.55	-0.59	-0.59
	139	-0.54	-0.59	-0.59								
121	4	-0.78	-0.88	-0.88	49	-0.57	-0.71	-0.71	81	-0.56	-0.67	-0.67
	113	-0.55	-0.66	-0.66	124	-0.57	-0.65	-0.65	136	-0.54	-0.62	-0.62
	139	-0.53	-0.62	-0.62								
123	4	-0.82	-0.80	-0.82	41	-0.63	-0.59	-0.63	73	-0.60	-0.57	-0.60
	105	-0.60	-0.56	-0.60	124	-0.61	-0.59	-0.61	136	-0.57	-0.56	-0.57
	139	-0.57	-0.55	-0.57								
127	4	-0.88	-0.82	-0.88	41	-0.74	-0.63	-0.74	73	-0.69	-0.60	-0.69
	105	-0.67	-0.60	-0.67	124	-0.65	-0.61	-0.65	136	-0.62	-0.57	-0.62
	139	-0.61	-0.57	-0.61								
141	4	-0.98	-0.88	-0.98	45	-0.92	-0.74	-0.92	77	-0.82	-0.69	-0.82
	109	-0.79	-0.67	-0.79	124	-0.73	-0.65	-0.73	136	-0.70	-0.62	-0.70
	139	-0.69	-0.61	-0.69								
146	4	-0.89	-0.88	-0.89	53	-0.99	-0.86	-0.99	85	-0.83	-0.76	-0.83
	117	-0.78	-0.73	-0.78	124	-0.66	-0.65	-0.66	136	-0.63	-0.62	-0.63
	139	-0.62	-0.61	-0.62								
147	4	-0.89	-0.90	-0.90	53	-1.00	-0.93	-1.00	85	-0.84	-0.80	-0.84
	117	-0.79	-0.77	-0.79	124	-0.66	-0.67	-0.67	136	-0.63	-0.64	-0.64
	139	-0.62	-0.63	-0.63								
148	4	-0.90	-0.93	-0.93	37	-0.94	-0.92	-0.94	69	-0.81	-0.81	-0.81
	101	-0.77	-0.77	-0.77	124	-0.67	-0.69	-0.69	136	-0.64	-0.66	-0.66
	139	-0.63	-0.65	-0.65								
149	4	-0.93	-0.93	-0.93	37	-0.92	-0.92	-0.92	61	-0.80	-0.81	-0.81
	93	-0.77	-0.77	-0.77	124	-0.69	-0.69	-0.69	136	-0.66	-0.66	-0.66
	139	-0.65	-0.66	-0.66								
Elem.		**Pt ini**	**Pt fin**	**Pt max**		**Pt ini**	**Pt fin**	**Pt max**		**Pt ini**	**Pt fin**	**Pt max**
		-1.14										
		-0.53										



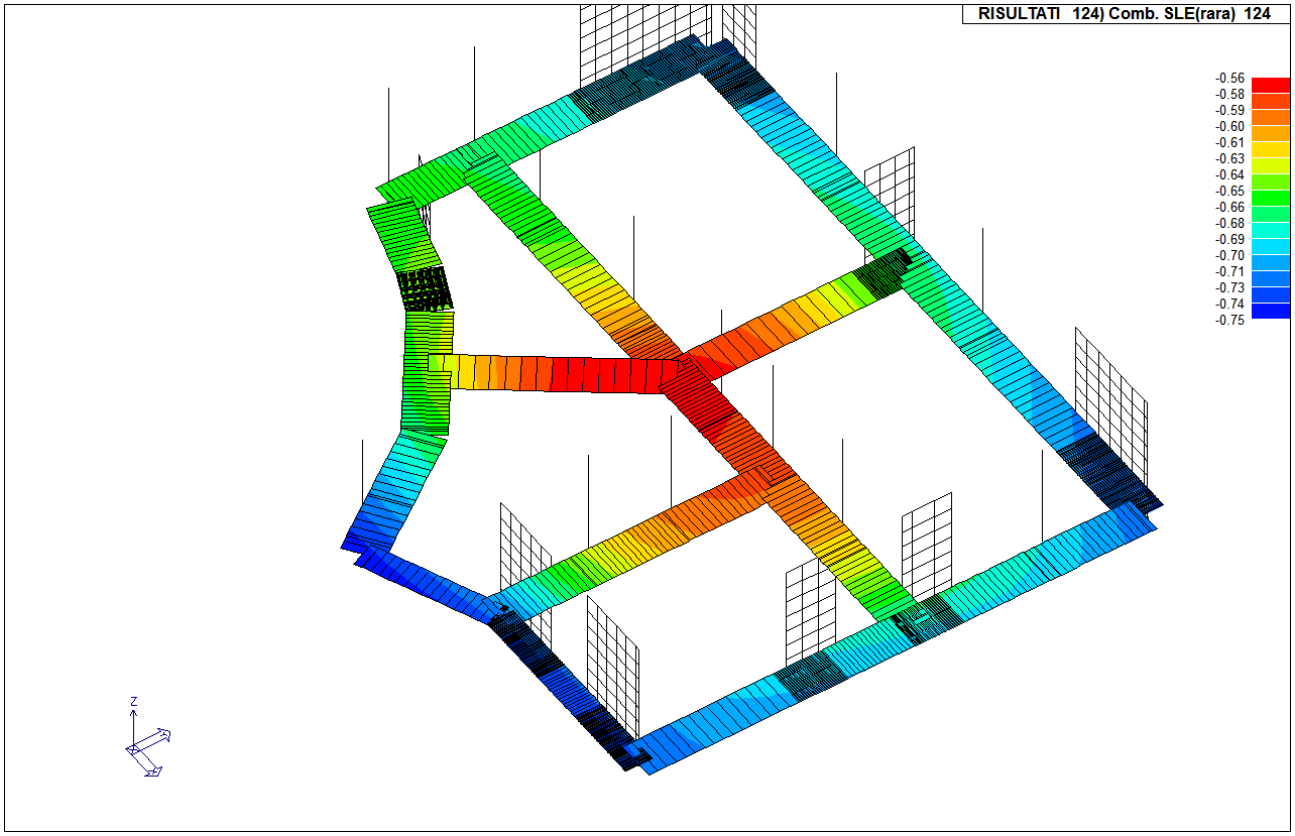
46_RIS_PRESSIONI_004_Comb SLU A1 4

CMB SLU Massima pressione sul terreno rilevata = 1,02 daN/mmq ≤ 2,1 Kg/cmq



46_RIS_PRESSIONI_045_Comb SLU A1 SLV sism 45

CMB SLV Massima pressione sul terreno rilevata = 1,14 daN/mmq ≤ 2,1 Kg/cmq



46_RIS_PRESSIONI_124_Comb SLErara 124

Massima pressione sul terreno rilevata = 0,75 daN/mmq ≤ 1,0 Kg/cmq

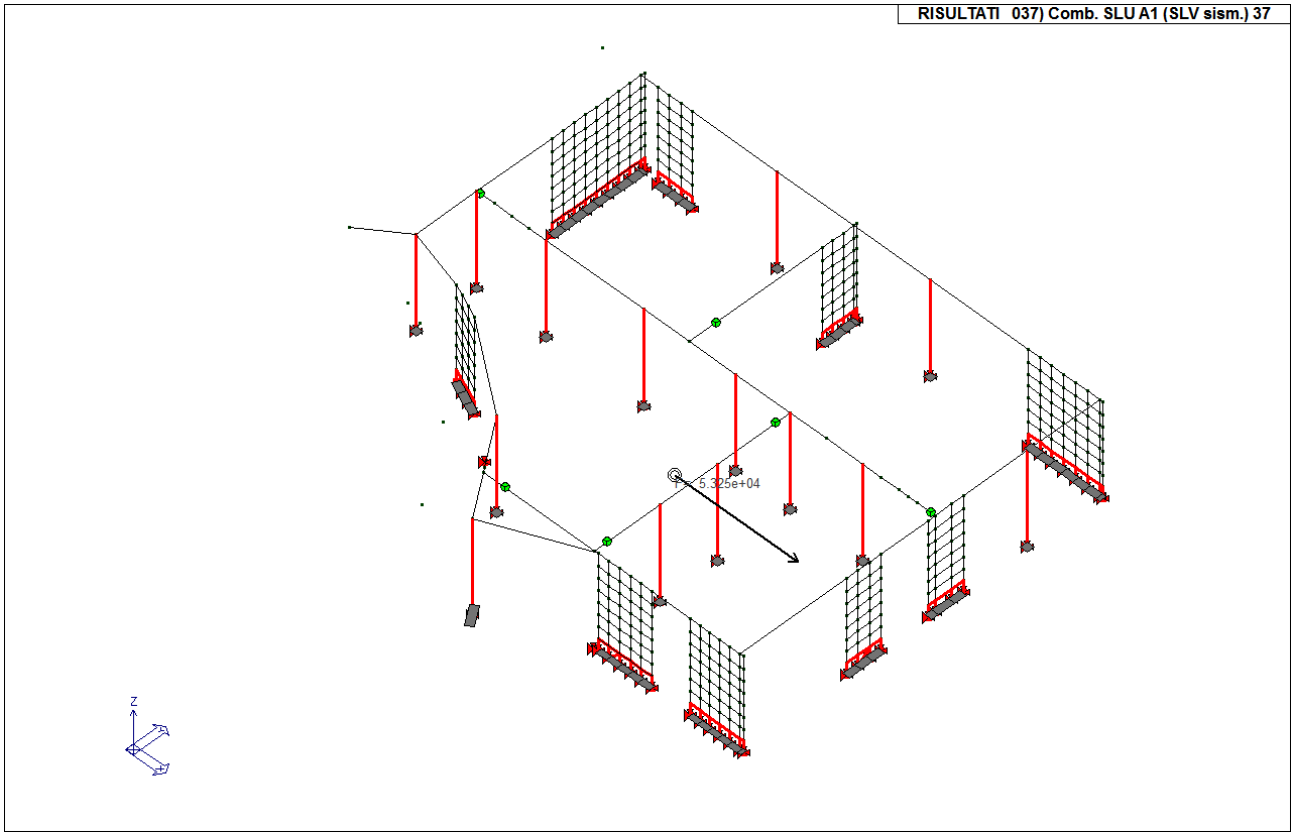
Ammissibilità dei risultati:

Interazione terreno-struttura: i controlli imposti dalla normativa

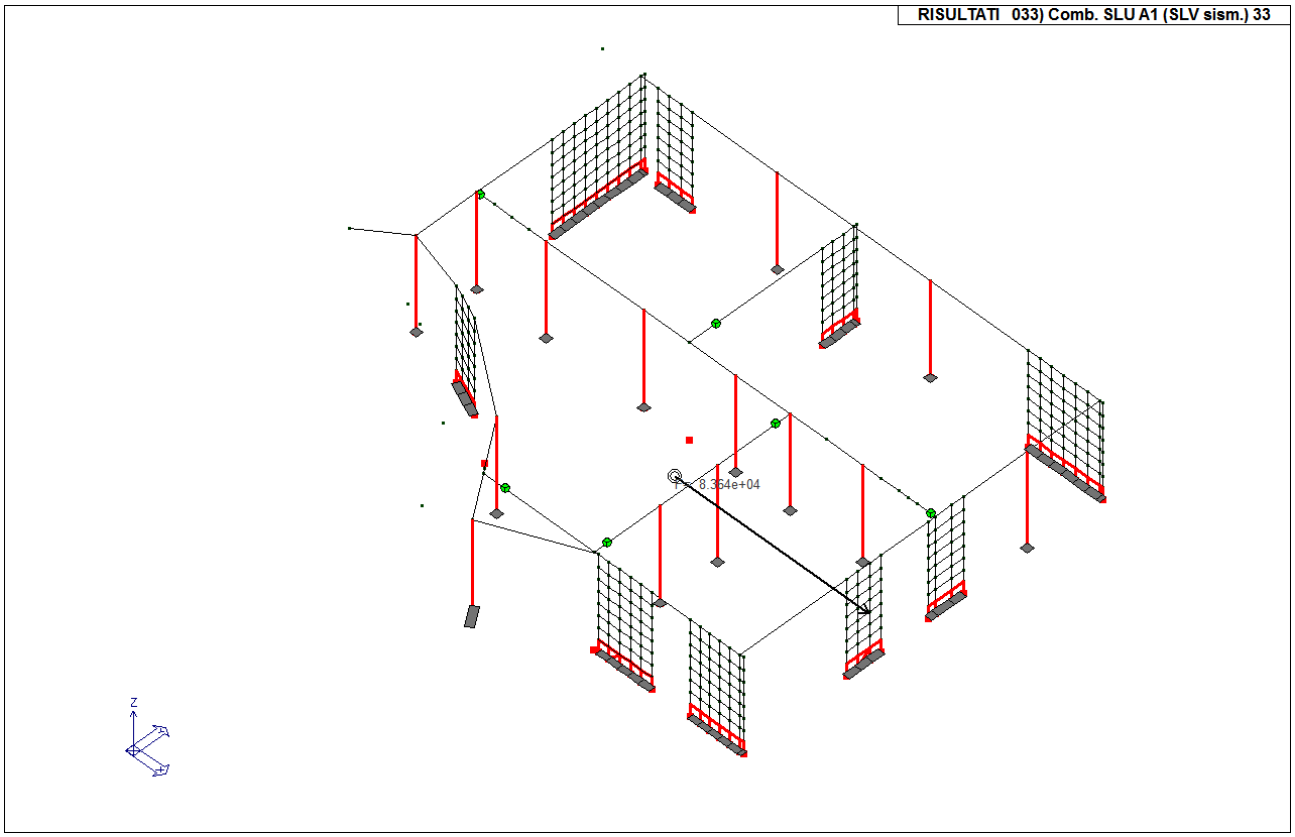
"7.2.6. CRITERI DI MODELLAZIONE DELLA STRUTTURA E DELL'AZIONE SISMICA

Il modello della struttura deve essere tridimensionale e rappresentare in modo adeguato le effettive distribuzioni spaziali di massa, rigidezza e resistenza, […]

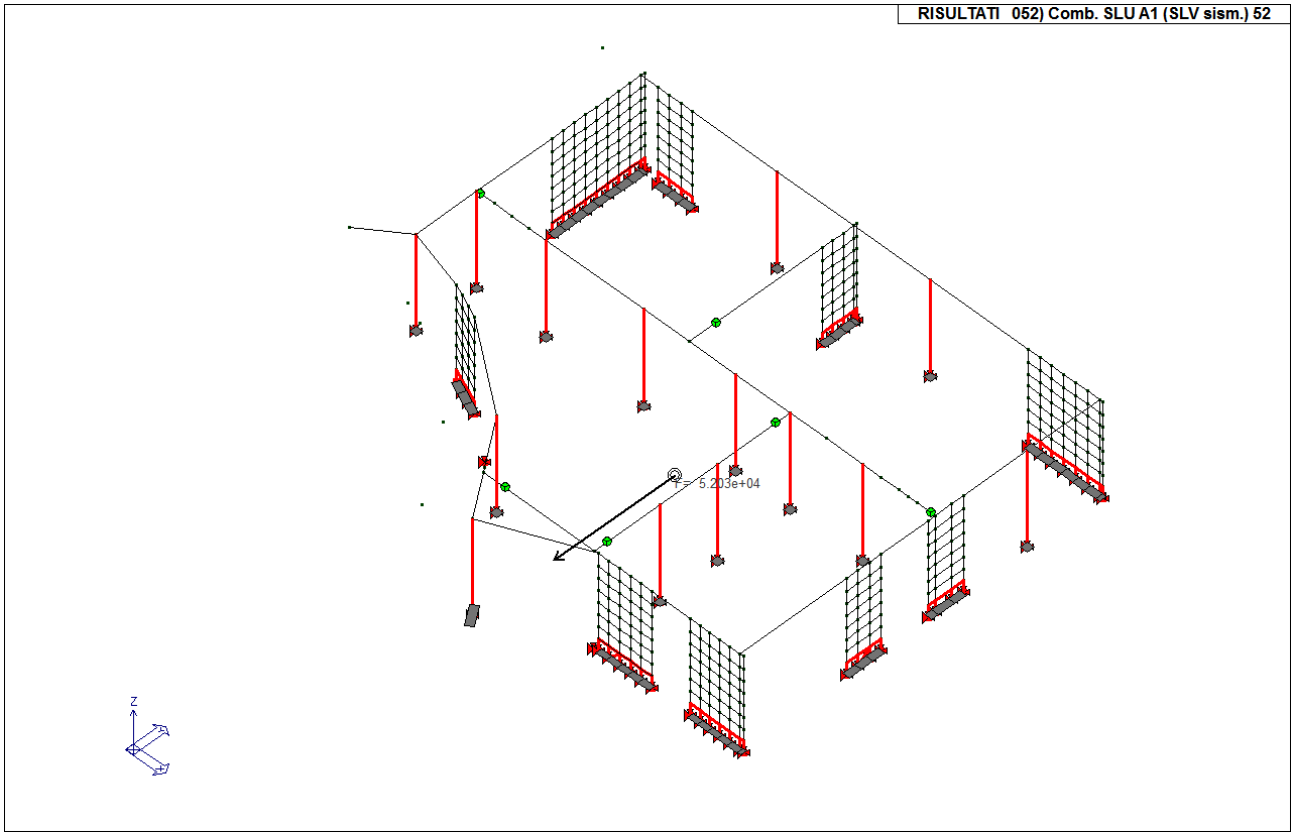
b) Ove si effettuino analisi di interazione terreno-struttura, la risultante globale di taglio e sforzo normale trasmessa all'estradosso della fondazione della costruzione ***deve essere almeno pari al 70 %*** *di quella ottenuta da identico modello strutturale con vincoli fissi all'estradosso della fondazione e con input sismico corrispondente allo spettro di risposta per sottosuolo tipo A, come definito al § 3.2.3.2."*



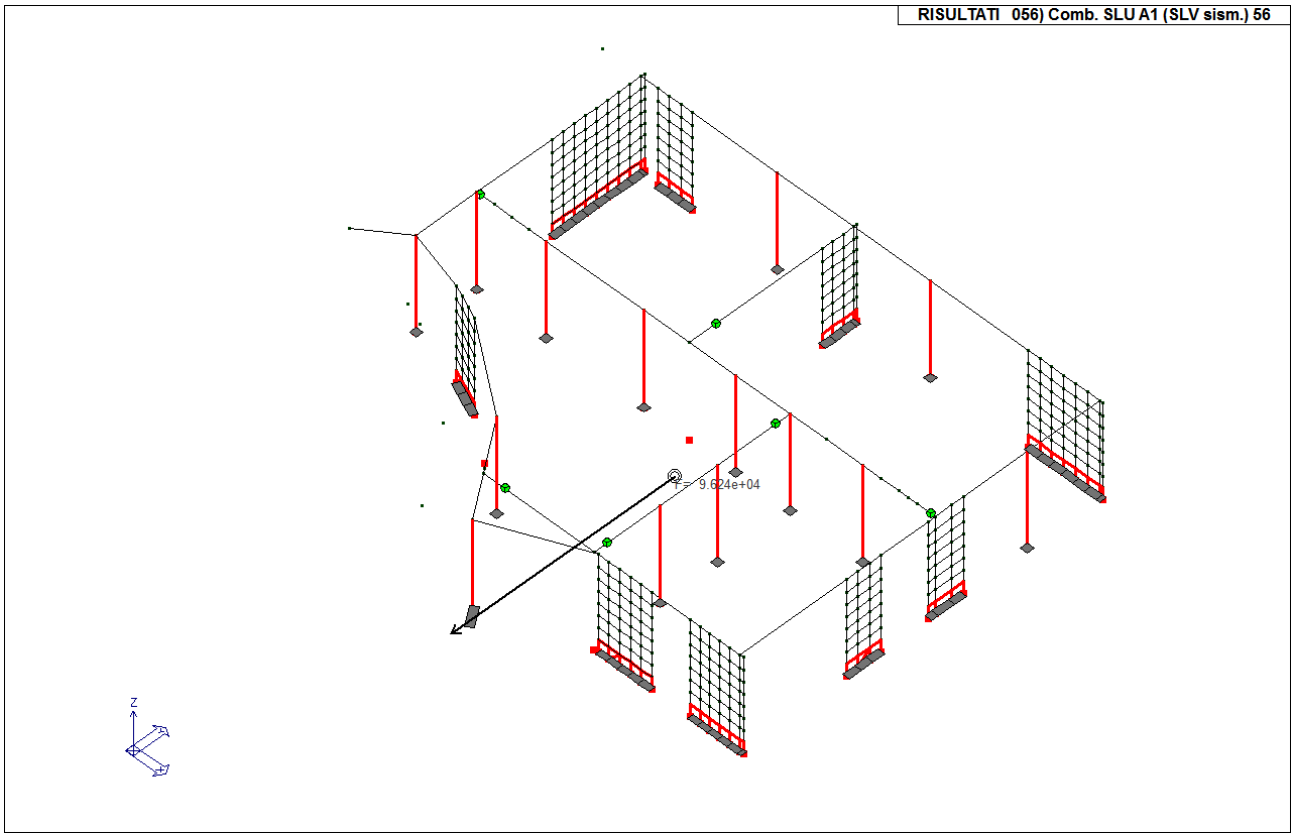
Taglio alla base Fx modello incastrato.



Taglio alla base Fx modello su travi alla Winkler.



Taglio alla base Fy modello incastrato.



Taglio alla base Fy su travi alla Winkler.

VERIFICHE ELEMENTI TRAVE DI FONDAZIONE IN C.A.

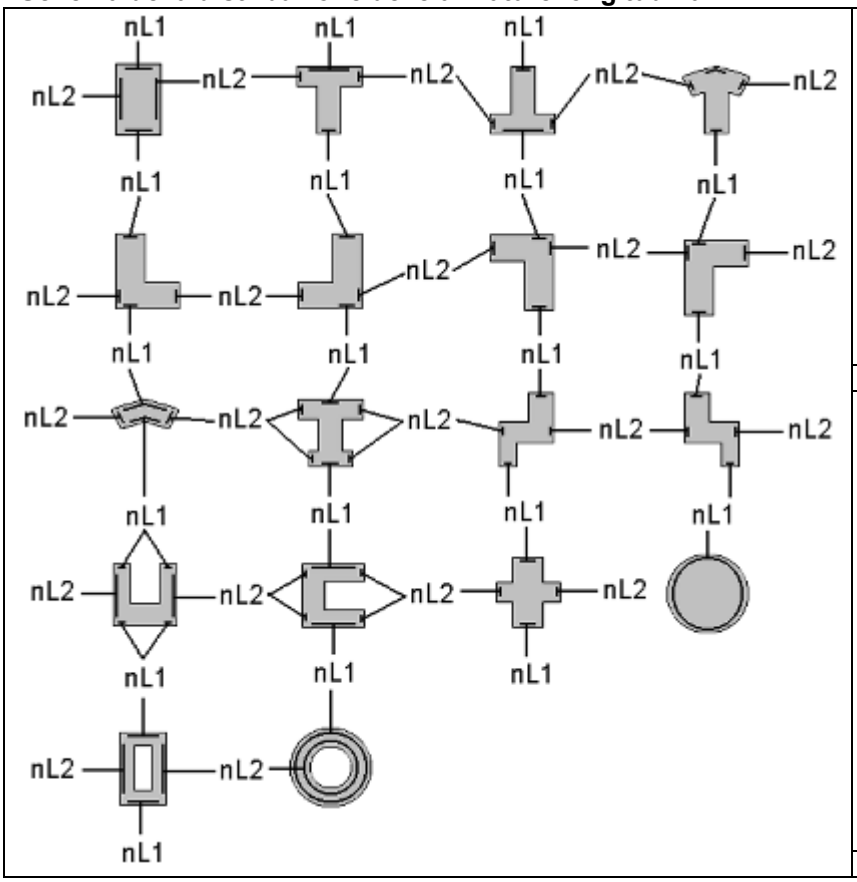
LEGENDA TABELLA VERIFICHE ELEMENTI TRAVE E/O PILASTRO IN C.A.

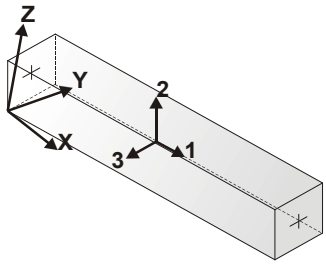
In tabella vengono riportati per ogni elemento il numero identificativo ed il codice di verifica con le sigle **Ok** o **NV**.

Nel caso in cui si sia proceduto alla progettazione con il metodo degli stati limite (**S.L.**) vengono riportati: il rapporto x/d, le verifiche per sollecitazioni proporzionali e la verifica per compressione media con l'indicazione delle combinazioni in cui si sono attinti i rispettivi valori.

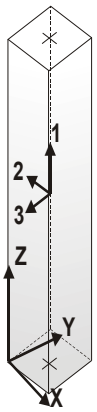
Per gli elementi tipo trave sono riportati le quantità di armatura inferiore e superiore.

Schema della distribuzione delle armature longitudinali





Orientamento elementi 2D non verticali



Orientamento elementi 2D verticali

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.

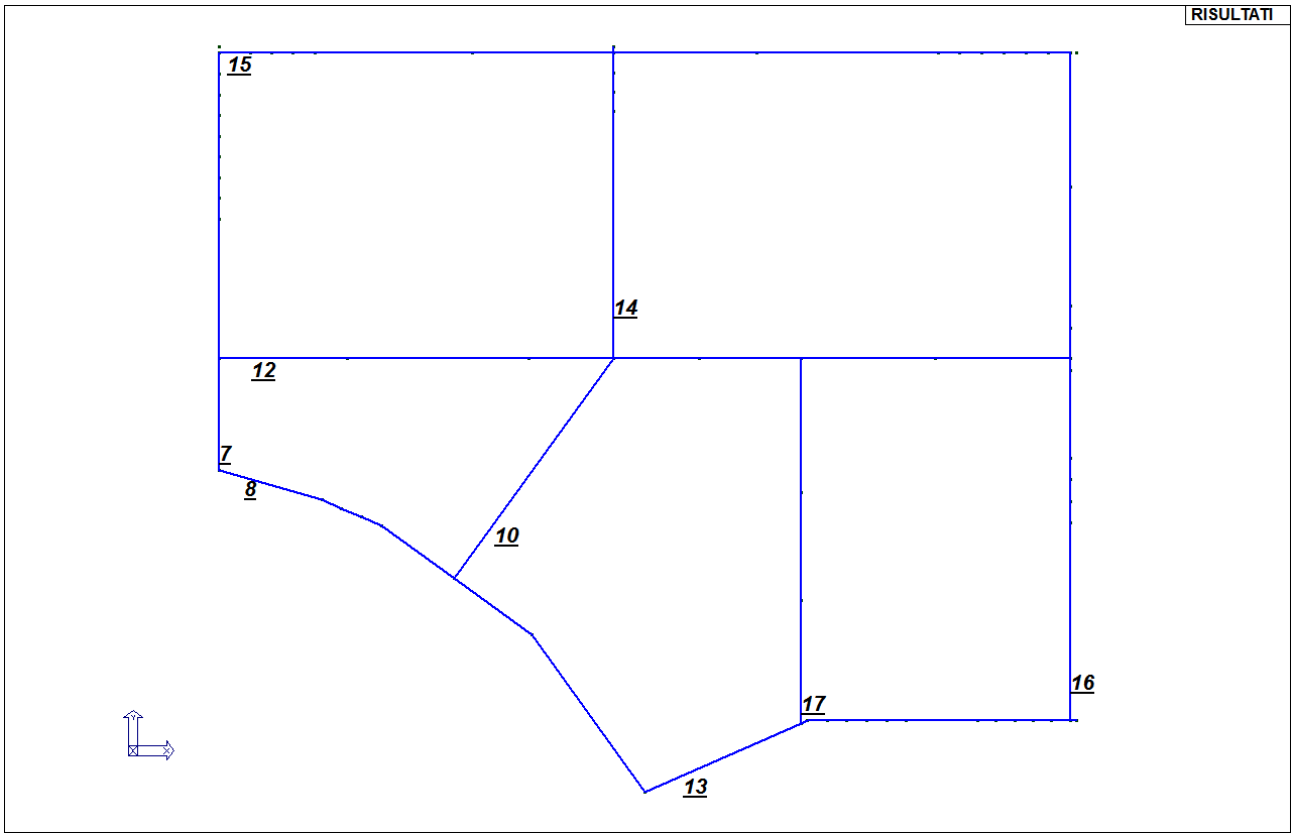
La progettazione degli elementi strutturali con proprietà fondazione è effettuata da PRO_SAP (per travi e platee) o da PRO_CAD Plinti (per plinti e pali di fondazione) incrementando le sollecitazioni delle combinazioni con sisma di un coefficiente pari 1.1 in CDB e 1.3 in CDA per pali, plinti, travi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

Simbologia adottata nelle tabelle di verifica

Per le verifiche agli S.L. delle travi è presente una tabella con i simboli di seguito descritti:

M_T Z P P	Numero della travata (T), quota media (Z), n° pilastrata iniziale (P) e finale (P) (nodo in assenza di pilastrata)
Trave	numero identificativo dell'elemento D2
Note	Codici identificativi sezione (s) e materiale (m) trave; sono inoltre presenti le sigle relative all'esito delle verifiche effettuate appresso descritte

%Af	Percentuale di area di armatura rispetto a quella di calcestruzzo
Af inf.	Area di armatura longitudinale posta all'intradosso
Af sup	Area di armatura longitudinale posta all'estradosso
Af long.	Area complessiva armatura longitudinale
x/d	rapporto tra posizione dell'asse neutro e altezza utile
V N/M	Verifica a pressoflessione rapporto Ed/Rd: valore minore o uguale a 1 per verifica positiva
Staffe	Dati tratto di staffatura oggetto di verifica, nello specifico: numero delle braccia, diametro, passo, lunghezza L tratto
V V/T cls	Verifica a taglio/torsione con rapporto Ved/Vrd: valore minore o uguale a 1 per verifica positiva
Rif. cmb.	Riferimento combinazioni da cui si generano le verifiche più gravose per la trave

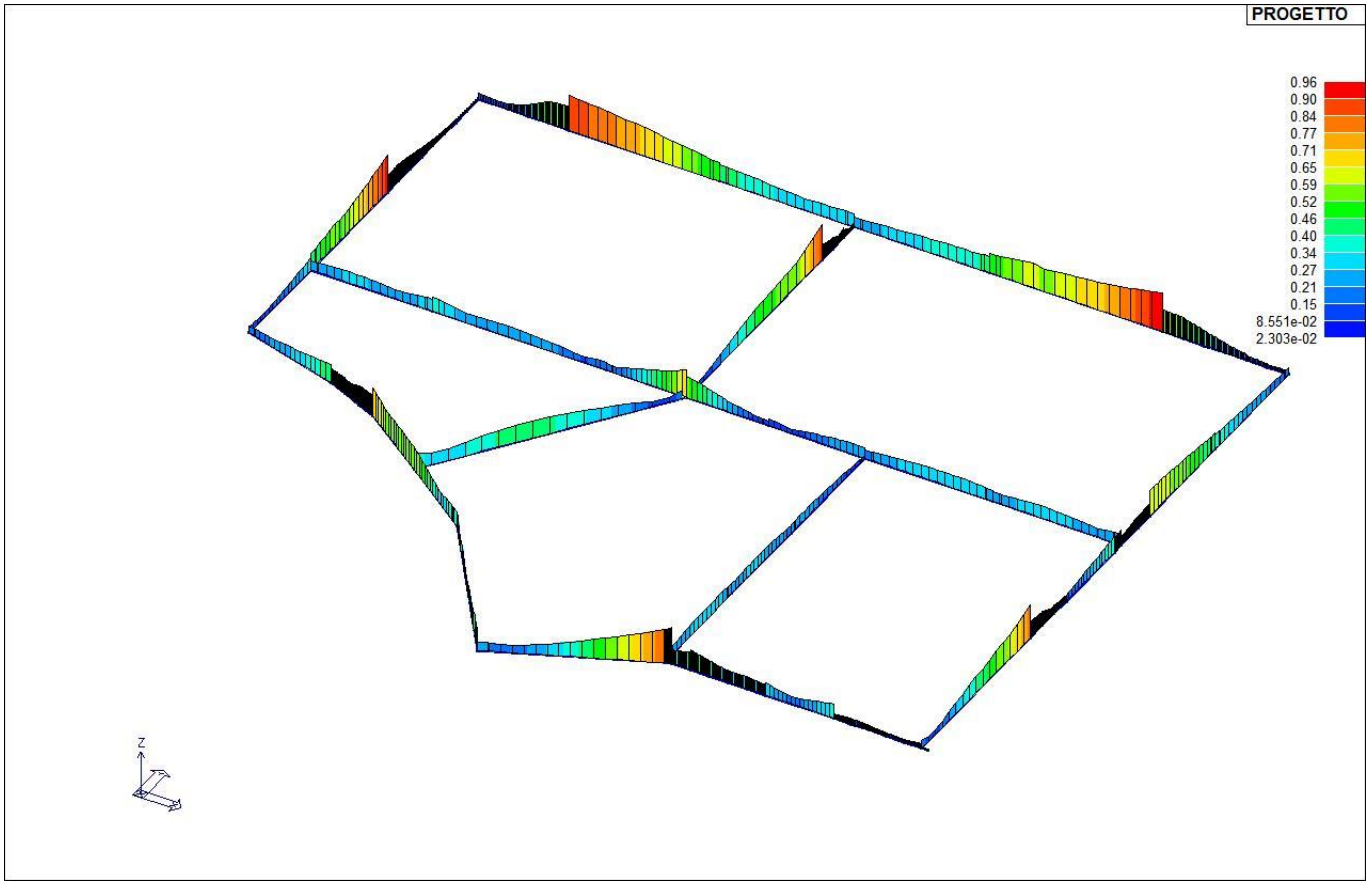


							M_T= 7	Z=0.0	P=5	P=6			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
		cm									L=cm		
147	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.15	0.32	0.15	2d12/25 L=231	53,32,32	
	s=11,m=1	130.5	0.19	18.8	18.8	7.9	0.04	0.17	0.28	0.11	2d12/25 L=231	29,32,52	
		261.0	0.19	18.8	18.8	7.9	0.04	0.30	0.29	0.14	2d12/25 L=231	49,29,49	
148	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.43	0.18	0.17	2d12/25 L=307	49,56,56	
	s=11,m=1	161.0	0.22	22.0	18.8	7.9	0.04	0.58	0.19	0.19	2d12/25 L=307	49,53,53	
		322.0	0.22	22.0	18.8	7.9	0.05	0.92	0.24	0.26	2d12/25 L=307	53,53,53	
149	ok,ok	0.0	0.22	22.0	18.8	7.9	0.04	0.40	0.13	0.11	2d12/25 L=48	56,37,53	
	s=11,m=1	24.1	0.19	18.8	18.8	7.9	0.05	0.41	0.14	0.13	2d12/25 L=48	56,37,53	
		48.1	0.19	18.8	18.8	7.9	0.05	0.43	0.15	0.14	2d12/25 L=48	56,37,53	
18	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.42	0.14	0.15	2d12/25 L=48	56,52,52	
	s=11,m=1	24.1	0.19	18.8	18.8	7.9	0.05	0.38	0.14	0.16	2d12/25 L=48	56,49,49	
		48.1	0.19	18.8	18.8	7.9	0.05	0.34	0.14	0.16	2d12/25 L=48	56,49,49	
30	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.33	0.18	0.19	2d12/25 L=48	56,56,52	
	s=11,m=1	24.1	0.19	18.8	18.8	7.9	0.05	0.29	0.17	0.18	2d12/25 L=48	56,52,52	
		48.1	0.19	18.8	18.8	7.9	0.05	0.24	0.17	0.18	2d12/25 L=48	56,49,49	
31	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.23	0.18	0.17	2d12/25 L=48	56,56,56	
	s=11,m=1	24.1	0.19	18.8	18.8	7.9	0.05	0.20	0.17	0.16	2d12/25 L=48	56,56,52	
		48.1	0.19	18.8	18.8	7.9	0.05	0.16	0.17	0.15	2d12/25 L=48	50,52,52	
34	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.15	0.18	0.13	2d12/25 L=48	56,40,56	
	s=11,m=1	24.1	0.19	18.8	18.8	7.9	0.05	0.13	0.17	0.12	2d12/25 L=48	50,40,52	
		48.1	0.19	18.8	18.8	7.9	0.05	0.11	0.16	0.12	2d12/25 L=48	50,40,52	
67	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.10	0.18	0.08	2d12/25 L=48	50,40,52	
	s=11,m=1	24.1	0.19	18.8	18.8	7.9	0.05	0.09	0.17	0.08	2d12/25 L=48	50,40,52	
		48.1	0.19	18.8	18.8	7.9	0.04	0.08	0.17	0.07	2d12/25 L=48	50,37,52	

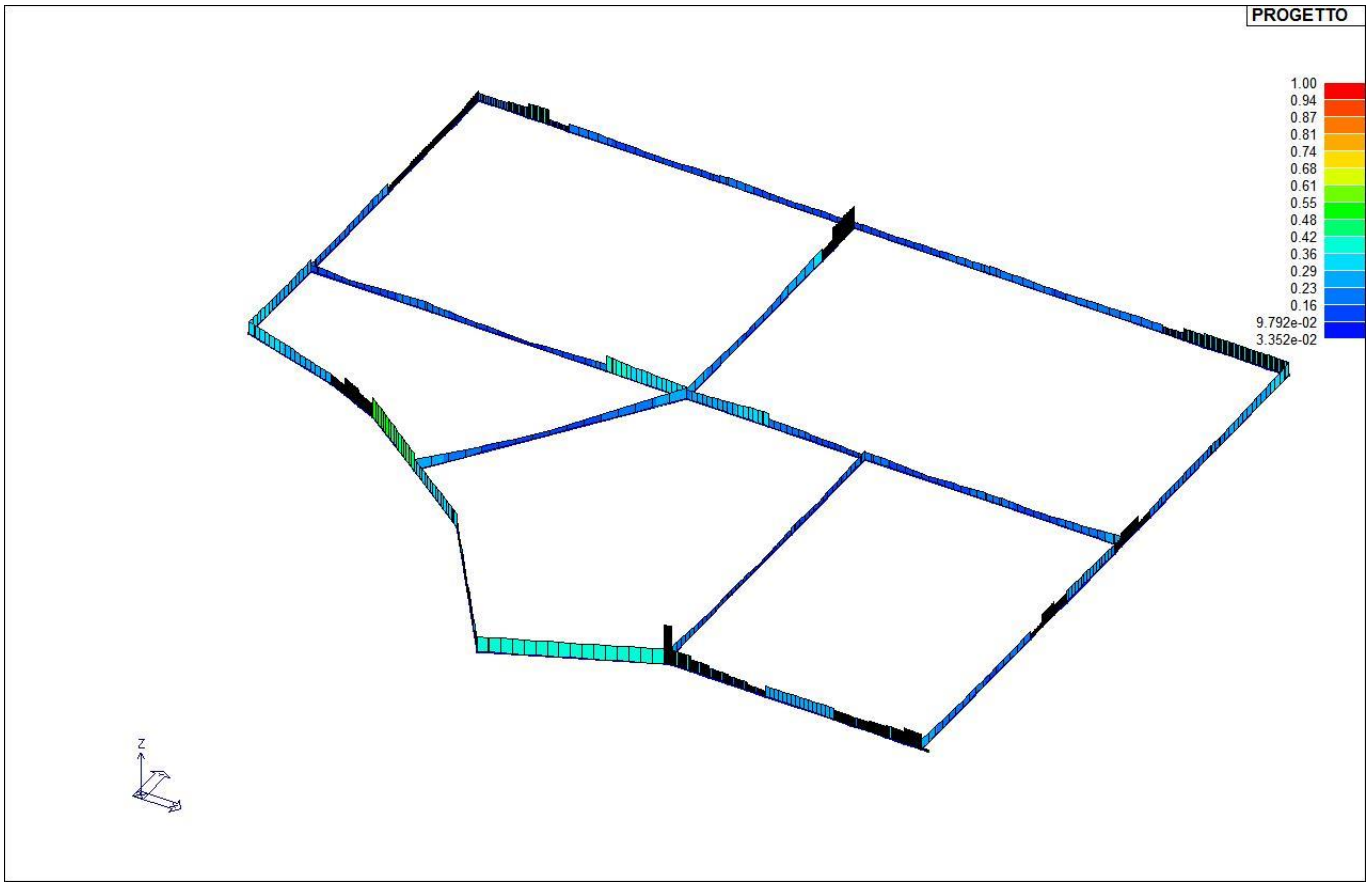
69	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.07	0.18	0.03	2d12/25 L=48	30,40,52
	s=11,m=1	24.1	0.19	18.8	18.8	7.9	0.04	0.07	0.17	0.03	2d12/25 L=48	50,37,52
		48.1	0.19	18.8	18.8	7.9	0.04	0.06	0.19	0.03	2d12/25 L=48	50,37,29
114	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.05	0.22	0.04	2d12/25 L=48	50,37,56
	s=11,m=1	24.1	0.19	18.8	18.8	7.9	0.04	0.06	0.23	0.05	2d12/25 L=48	50,37,53
		48.1	0.19	18.8	18.8	7.9	0.05	0.06	0.24	0.05	2d12/25 L=48	50,37,53
							M_T= 8	**Z=0.0**	**P=1**	**P=5**		
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb
146	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.18	0.32	0.13	2d12/25 L=229	29,52,52
	s=11,m=1	123.8	0.19	18.8	18.8	7.9	0.04	0.28	0.28	0.12	2d12/25 L=229	29,52,49
		247.5	0.19	18.8	18.8	7.9	0.05	0.45	0.25	0.14	2d12/25 L=229	29,52,29
41	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.36	0.25	0.19	2d12/25 L=50	53,28,25
	s=11,m=1	25.1	0.19	18.8	18.8	7.9	0.05	0.38	0.24	0.20	2d12/25 L=50	53,28,25
		50.2	0.19	18.8	18.8	7.9	0.05	0.40	0.23	0.20	2d12/25 L=50	53,28,25
40	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.38	0.44	0.39	2d12/25 L=50	53,32,32
	s=11,m=1	25.1	0.19	18.8	18.8	7.9	0.05	0.39	0.43	0.38	2d12/25 L=50	49,32,32
		50.2	0.19	18.8	18.8	7.9	0.05	0.48	0.42	0.37	2d12/25 L=50	25,32,32
39	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.49	0.34	0.20	2d12/25 L=50	25,32,32
	s=11,m=1	25.1	0.19	18.8	18.8	7.9	0.05	0.50	0.33	0.19	2d12/25 L=50	25,32,32
		50.2	0.19	18.8	18.8	7.9	0.04	0.52	0.32	0.18	2d12/25 L=50	25,32,32
38	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.71	0.50	0.22	2d12/25 L=210	29,32,32
	s=11,m=1	104.9	0.19	18.8	18.8	7.9	0.04	0.58	0.48	0.20	2d12/25 L=210	28,28,32
		209.7	0.19	18.8	18.8	7.9	0.04	0.57	0.46	0.18	2d12/25 L=210	28,28,32
21	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.58	0.31	0.16	2d12/25 L=201	28,49,29
	s=11,m=1	111.1	0.19	18.8	18.8	7.9	0.04	0.36	0.33	0.19	2d12/25 L=201	28,41,29
		222.1	0.19	18.8	18.8	7.9	0.04	0.36	0.35	0.22	2d12/25 L=201	41,41,25
37	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.35	0.19	0.14	2d12/25 L=383	41,32,32
	s=11,m=1	224.5	0.19	18.8	18.8	7.9	0.04	0.26	0.23	0.13	2d12/25 L=383	49,25,25
		449.0	0.19	18.8	18.8	7.9	0.05	0.49	0.29	0.21	2d12/25 L=383	29,41,25
							M_T= 10	**Z=0.0**	**N=45**	**N=362**		
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb
46	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.40	0.28	0.37	2d10/25 L=632	41,11,11
	s=10,m=1	315.8	0.20	15.7	15.7	4.7	0.04	0.41	0.10	0.06	2d10/25 L=632	48,53,44
		631.6	0.20	15.7	15.7	4.7	0.06	0.23	0.27	0.37	2d10/25 L=632	3,4,3
							M_T= 12	**Z=0.0**	**P=6**	**P=11**		
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb
115	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.23	0.16	0.13	2d10/25 L=267	28,56,56
	s=10,m=1	148.5	0.20	15.7	15.7	4.7	0.06	0.27	0.13	0.14	2d10/25 L=267	32,49,3
		297.0	0.20	15.7	15.7	4.7	0.06	0.31	0.21	0.31	2d10/25 L=267	3,49,3
116	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.34	0.18	0.28	2d10/25 L=392	53,4,4
	s=10,m=1	211.2	0.20	15.7	15.7	4.7	0.06	0.27	0.08	0.06	2d10/25 L=392	32,44,56
		422.5	0.20	15.7	15.7	4.7	0.06	0.20	0.17	0.22	2d10/25 L=392	3,41,4
117	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.17	0.39	0.60	2d10/25 L=181	37,3,3
	s=10,m=1	98.2	0.20	15.7	15.7	4.7	0.04	0.36	0.33	0.51	2d10/25 L=181	32,56,3
		196.5	0.20	15.7	15.7	4.7	0.04	0.69	0.29	0.40	2d10/25 L=181	3,56,3
63	ok,ok	0.0	0.20	15.7	15.7	4.7	0.04	0.54	0.22	0.27	2d10/25 L=183	4,53,3
	s=10,m=1	99.2	0.20	15.7	15.7	4.7	0.04	0.27	0.28	0.38	2d10/25 L=183	28,4,3
		198.5	0.20	15.7	15.7	4.7	0.06	0.11	0.34	0.47	2d10/25 L=183	51,4,3
118	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.14	0.20	0.21	2d10/25 L=205	3,28,32
	s=10,m=1	117.8	0.20	15.7	15.7	4.7	0.06	0.18	0.15	0.13	2d10/25 L=205	32,28,32
		235.5	0.20	15.7	15.7	4.7	0.04	0.27	0.11	0.09	2d10/25 L=205	32,28,29
119	ok,ok	0.0	0.20	15.7	15.7	4.7	0.04	0.21	0.18	0.17	2d10/25 L=282	32,48,3
	s=10,m=1	156.2	0.20	15.7	15.7	4.7	0.04	0.32	0.12	0.05	2d10/25 L=282	32,45,53
		312.5	0.20	15.7	15.7	4.7	0.04	0.27	0.18	0.17	2d10/25 L=282	32,45,4
58	ok,ok	0.0	0.20	15.7	15.7	4.7	0.04	0.24	0.18	0.13	2d10/25 L=282	32,48,3
	s=10,m=1	156.2	0.20	15.7	15.7	4.7	0.04	0.29	0.16	0.08	2d10/25 L=282	32,45,9
		312.5	0.20	15.7	15.7	4.7	0.06	0.27	0.25	0.26	2d10/25 L=282	37,45,9
							M_T= 13	**Z=0.0**	**N=80**	**N=274**		
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb
111	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.21	0.39	0.30	2d12/25 L=373	41,28,28
	s=12,m=1	198.2	0.21	14.9	15.7	5.5	0.04	0.37	0.38	0.31	2d12/25 L=373	25,44,25
		396.4	0.21	14.9	15.7	5.5	0.04	0.82	0.39	0.40	2d1/25 L=373	25,41,25
59	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.81	1.00	0.87	2d8/25 L=16	25,29,25
	s=12,m=1	8.2	0.21	14.9	15.7	5.5	0.04	0.85	1.00	0.87	2d12/25 L=16	25,29,25
		16.4	0.21	14.9	15.7	5.5	0.04	0.89	1.00	0.88	2d12/25 L=16	25,29,25
110	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.34	0.37	0.32	2d12/25 L=46	41,41,41
	s=12,m=1	23.0	0.21	14.9	15.7	5.5	0.04	0.38	0.38	0.34	2d12/25 L=46	41,41,41
		46.0	0.21	14.9	15.7	5.5	0.04	0.43	0.38	0.36	2d12/25 L=46	41,41,41
109	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.50	0.29	0.44	2d12/25 L=46	25,25,25
	s=12,m=1	23.0	0.21	14.9	15.7	5.5	0.04	0.44	0.29	0.45	2d12/25 L=46	25,25,25
		46.0	0.21	14.9	15.7	5.5	0.04	0.39	0.30	0.46	2d12/25 L=46	25,25,25
108	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.39	0.24	0.48	2d12/25 L=46	25,28,28
	s=12,m=1	23.0	0.21	14.9	15.7	5.5	0.04	0.33	0.23	0.47	2d12/25 L=46	41,28,28
		46.0	0.21	14.9	15.7	5.5	0.04	0.30	0.24	0.46	2d12/25 L=46	45,25,28
107	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.30	0.20	0.39	2d12/25 L=46	41,28,28
	s=12,m=1	23.0	0.21	14.9	15.7	5.5	0.04	0.29	0.20	0.38	2d12/25 L=46	45,28,28
		46.0	0.21	14.9	15.7	5.5	0.04	0.30	0.20	0.37	2d12/25 L=46	45,28,28
106	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.30	0.14	0.15	2d12/25 L=46	41,47,48
	s=12,m=1	23.0	0.21	14.9	15.7	5.5	0.04	0.28	0.13	0.14	2d12/25 L=46	41,47,48

		46.0	0.21	14.9	15.7	5.5	0.04	0.26	0.13	0.13	2d12/25 L=46	41,47,48	
105	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.31	0.26	0.37	2d12/25 L=165	41,41,44	
	s=12,m=1	82.5	0.21	14.9	15.7	5.5	0.04	0.20	0.27	0.35	2d12/25 L=165	41,41,44	
		165.0	0.21	14.9	15.7	5.5	0.04	0.36	0.28	0.33	2d12/25 L=165	41,41,44	
104	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.11	0.23	0.18	2d12/25 L=43	55,41,44	
	s=12,m=1	21.5	0.21	14.9	15.7	5.5	0.04	0.13	0.24	0.17	2d12/25 L=43	41,41,44	
		43.0	0.21	14.9	15.7	5.5	0.04	0.15	0.24	0.16	2d12/25 L=43	41,41,41	
103	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.15	0.22	0.10	2d12/25 L=43	41,41,28	
	s=12,m=1	21.5	0.21	14.9	15.7	5.5	0.04	0.14	0.23	0.10	2d12/25 L=43	41,41,28	
		43.0	0.21	14.9	15.7	5.5	0.04	0.13	0.23	0.10	2d12/25 L=43	41,41,28	
102	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.12	0.27	0.15	2d12/25 L=43	41,41,28	
	s=12,m=1	21.5	0.21	14.9	15.7	5.5	0.04	0.10	0.28	0.14	2d12/25 L=43	47,41,28	
		43.0	0.21	14.9	15.7	5.5	0.04	0.09	0.28	0.14	2d12/25 L=43	47,41,28	
101	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.09	0.31	0.10	2d12/25 L=43	47,41,44	
	s=12,m=1	21.5	0.21	14.9	15.7	5.5	0.04	0.07	0.30	0.10	2d12/25 L=43	51,41,28	
		43.0	0.21	14.9	15.7	5.5	0.04	0.07	0.30	0.10	2d12/25 L=43	28,41,28	
100	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.06	0.40	0.23	2d12/25 L=43	28,44,28	
	s=12,m=1	21.5	0.21	14.9	15.7	5.5	0.04	0.09	0.39	0.22	2d12/25 L=43	28,44,44	
		43.0	0.21	14.9	15.7	5.5	0.04	0.12	0.39	0.20	2d12/25 L=43	28,44,44	
71	ok,ok	0.0	0.21	14.9	15.7	5.5	0.04	0.03	0.03	0.06	2d12/25 L=15	25,41,41	
	s=12,m=1	7.5	0.21	14.9	15.7	5.5	0.04	0.02	0.04	0.06	2d12/25 L=15	25,41,25	
		15.0	0.21	14.9	15.7	5.5	0.04	0.02	0.04	0.07	2d12/25 L=15	25,25,25	
							M_T= 14	**Z=0.0**	**N=45**	**N=398**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
121	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.17	0.26	0.32	2d10/25 L=572	3,56,48	
	s=10,m=1	286.0	0.20	15.7	15.7	4.7	0.04	0.45	0.16	0.19	2d10/25 L=572	48,53,45	
		572.0	0.24	18.8	15.7	4.7	0.07	0.89	0.31	0.42	2d10/25 L=572	45,53,45	
113	ok,ok	0.0	0.24	18.8	15.7	4.7	0.07	0.36	0.24	0.19	2d10/25 L=45	56,37,45	
	s=10,m=1	22.5	0.20	15.7	15.7	4.7	0.06	0.32	0.25	0.21	2d10/25 L=45	56,37,45	
		45.0	0.20	15.7	15.7	4.7	0.06	0.27	0.27	0.24	2d10/25 L=45	56,37,45	
74	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.27	0.56	0.60	2d10/25 L=45	56,56,48	
	s=10,m=1	22.5	0.20	15.7	15.7	4.7	0.06	0.19	0.55	0.59	2d10/25 L=45	56,56,48	
		45.0	0.20	15.7	15.7	4.7	0.06	0.25	0.54	0.57	2d10/25 L=45	56,56,48	
68	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.20	0.59	0.52	2d10/25 L=45	45,56,48	
	s=10,m=1	22.5	0.20	15.7	15.7	4.7	0.06	0.09	0.58	0.50	2d10/25 L=45	45,56,48	
		45.0	0.20	15.7	15.7	4.7	0.06	0.10	0.57	0.49	2d10/25 L=45	56,56,48	
65	ok,ok	0.0	0.20	15.7	15.7	4.7	0.04	0.06	0.07	0.08	2d10/25 L=15	45,56,48	
	s=10,m=1	7.5	0.20	15.7	15.7	4.7	0.04	0.05	0.07	0.08	2d10/25 L=15	45,56,48	
		15.0	0.20	15.7	15.7	4.7	0.04	0.05	0.06	0.07	2d10/25 L=15	45,56,48	
							M_T= 15	**Z=0.0**	**P=13**	**P=14**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
75	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.15	0.18	0.13	2d12/25 L=72	37,51,53	
	s=11,m=1	36.0	0.19	18.8	18.8	7.9	0.05	0.13	0.19	0.14	2d12/25 L=72	37,53,53	
		72.0	0.19	18.8	18.8	7.9	0.05	0.12	0.19	0.14	2d12/25 L=72	34,53,53	
76	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.13	0.23	0.24	2d12/25 L=50	37,53,37	
	s=11,m=1	25.0	0.19	18.8	18.8	7.9	0.05	0.21	0.24	0.25	2d12/25 L=50	37,53,37	
		50.0	0.19	18.8	18.8	7.9	0.05	0.28	0.25	0.26	2d12/25 L=50	37,53,37	
77	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.29	0.36	0.43	2d12/25 L=50	37,53,37	
	s=11,m=1	25.0	0.19	18.8	18.8	7.9	0.05	0.42	0.37	0.44	2d12/25 L=50	37,53,37	
		50.0	0.19	18.8	18.8	7.9	0.05	0.55	0.38	0.45	2d12/25 L=50	37,53,37	
78	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.55	0.13	0.14	2d12/25 L=50	37,27,40	
	s=11,m=1	25.0	0.19	18.8	18.8	7.9	0.05	0.57	0.12	0.13	2d12/25 L=50	37,27,40	
		50.0	0.19	18.8	18.8	7.9	0.05	0.60	0.11	0.12	2d12/25 L=50	37,56,40	
79	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.87	0.20	0.26	2d12/25 L=351	40,56,56	
	s=11,m=1	183.0	0.19	18.8	18.8	7.9	0.04	0.70	0.14	0.17	2d12/25 L=351	40,40,56	
		366.0	0.19	18.8	18.8	7.9	0.04	0.46	0.15	0.14	2d12/25 L=351	40,37,37	
80	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.42	0.19	0.21	2d12/25 L=298	40,56,56	
	s=11,m=1	164.0	0.19	18.8	18.8	7.9	0.04	0.31	0.14	0.15	2d12/25 L=298	40,40,40	
		328.0	0.19	18.8	18.8	7.9	0.04	0.33	0.15	0.13	2d12/25 L=298	56,37,37	
81	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.24	0.16	0.13	2d12/25 L=301	44,40,40	
	s=11,m=1	165.5	0.19	18.8	18.8	7.9	0.04	0.33	0.15	0.16	2d12/25 L=301	56,37,37	
		331.0	0.19	18.8	18.8	7.9	0.05	0.42	0.18	0.20	2d12/25 L=301	37,37,37	
83	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.50	0.20	0.18	2d12/25 L=406	37,56,40	
	s=11,m=1	210.5	0.25	25.1	18.8	7.9	0.04	0.65	0.17	0.16	2d12/25 L=406	56,37,37	
		421.0	0.25	25.1	18.8	7.9	0.06	0.96	0.21	0.22	2d12/25 L=406	37,37,37	
84	ok,ok	0.0	0.25	25.1	18.8	7.9	0.06	0.55	0.16	0.07	2d12/25 L=51	40,45,45	
	s=11,m=1	25.6	0.19	18.8	18.8	7.9	0.05	0.54	0.17	0.08	2d12/25 L=51	40,45,45	
		51.2	0.19	18.8	18.8	7.9	0.05	0.53	0.18	0.10	2d12/25 L=51	40,45,45	
85	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.52	0.30	0.27	2d12/25 L=51	40,56,40	
	s=11,m=1	25.6	0.19	18.8	18.8	7.9	0.05	0.45	0.30	0.27	2d12/25 L=51	40,56,40	
		51.2	0.19	18.8	18.8	7.9	0.05	0.38	0.29	0.26	2d12/25 L=51	40,56,40	
86	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.37	0.35	0.31	2d12/25 L=51	40,40,40	
	s=11,m=1	25.6	0.19	18.8	18.8	7.9	0.05	0.31	0.34	0.31	2d12/25 L=51	40,40,40	
		51.2	0.19	18.8	18.8	7.9	0.05	0.25	0.34	0.30	2d12/25 L=51	40,56,40	
87	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.23	0.35	0.27	2d12/25 L=51	40,48,40	
	s=11,m=1	25.6	0.19	18.8	18.8	7.9	0.05	0.19	0.35	0.27	2d12/25 L=51	40,48,40	
		51.2	0.19	18.8	18.8	7.9	0.05	0.14	0.34	0.26	2d12/25 L=51	40,48,40	
88	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.12	0.34	0.19	2d12/25 L=51	40,48,40	
	s=11,m=1	25.6	0.19	18.8	18.8	7.9	0.05	0.10	0.34	0.19	2d12/25 L=51	40,48,40	

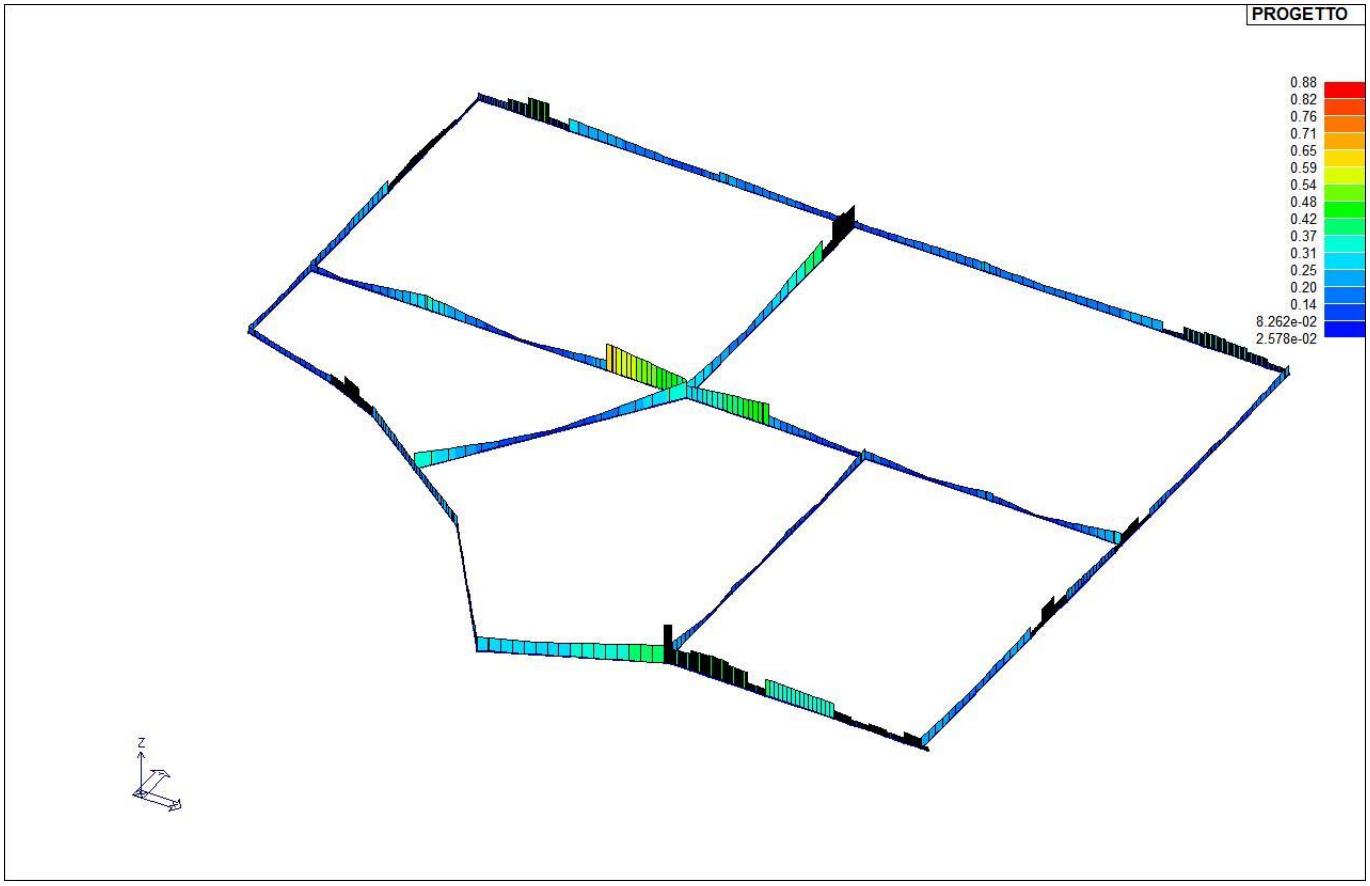
		51.2	0.19	18.8	18.8	7.9	0.05	0.09	0.34	0.19	2d12/25 L=51	40,48,40	
89	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.06	0.36	0.11	2d12/25 L=51	56,45,4	
	s=11,m=1	25.6	0.19	18.8	18.8	7.9	0.04	0.08	0.35	0.10	2d12/25 L=51	40,45,56	
		51.2	0.19	18.8	18.8	7.9	0.04	0.09	0.33	0.10	2d12/25 L=51	40,45,56	
							M_T= 16	**Z=0.0**	**N=191**	**N=273**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
99	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.18	0.26	0.25	2d12/25 L=459	41,28,44	
	s=11,m=1	229.5	0.19	18.8	18.8	7.9	0.04	0.40	0.17	0.16	2d12/25 L=459	28,44,41	
		459.0	0.19	18.8	18.8	7.9	0.05	0.81	0.19	0.23	2d12/25 L=459	41,43,45	
98	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.40	0.11	0.10	2d12/25 L=50	44,41,41	
	s=11,m=1	25.0	0.19	18.8	18.8	7.9	0.05	0.37	0.11	0.11	2d12/25 L=50	44,41,41	
		50.0	0.19	18.8	18.8	7.9	0.05	0.34	0.12	0.12	2d12/25 L=50	44,41,41	
97	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.35	0.32	0.37	2d12/25 L=50	44,44,41	
	s=11,m=1	25.0	0.19	18.8	18.8	7.9	0.05	0.24	0.32	0.38	2d12/25 L=50	44,41,41	
		50.0	0.19	18.8	18.8	7.9	0.05	0.17	0.33	0.39	2d12/25 L=50	28,41,41	
96	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.21	0.23	0.18	2d12/25 L=50	47,44,44	
	s=11,m=1	25.0	0.19	18.8	18.8	7.9	0.05	0.17	0.23	0.17	2d12/25 L=50	47,44,44	
		50.0	0.19	18.8	18.8	7.9	0.05	0.15	0.22	0.16	2d12/25 L=50	28,44,44	
95	ok,ok	0.0	0.19	18.8	18.8	7.9	0.05	0.14	0.29	0.21	2d12/25 L=203	36,44,44	
	s=11,m=1	101.5	0.19	18.8	18.8	7.9	0.04	0.27	0.25	0.17	2d12/25 L=203	28,44,48	
		203.0	0.19	18.8	18.8	7.9	0.04	0.39	0.22	0.13	2d12/25 L=203	44,44,48	
94	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.36	0.22	0.09	2d12/25 L=30	44,28,48	
	s=11,m=1	15.0	0.19	18.8	18.8	7.9	0.04	0.36	0.21	0.09	2d12/25 L=30	44,28,48	
		30.0	0.19	18.8	18.8	7.9	0.04	0.36	0.21	0.09	2d12/25 L=30	28,28,48	
93	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.20	0.33	0.23	2d12/25 L=70	32,45,48	
	s=11,m=1	35.0	0.19	18.8	18.8	7.9	0.04	0.25	0.34	0.24	2d12/25 L=70	36,45,45	
		70.0	0.19	18.8	18.8	7.9	0.04	0.31	0.35	0.25	2d12/25 L=70	36,45,45	
92	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.29	0.14	0.07	2d12/25 L=50	36,45,48	
	s=11,m=1	25.0	0.19	18.8	18.8	7.9	0.04	0.30	0.15	0.06	2d12/25 L=50	36,45,48	
		50.0	0.19	18.8	18.8	7.9	0.04	0.31	0.16	0.06	2d12/25 L=50	36,45,45	
91	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.64	0.20	0.18	2d12/25 L=262	48,45,48	
	s=11,m=1	138.5	0.19	18.8	18.8	7.9	0.04	0.55	0.21	0.11	2d12/25 L=262	36,45,48	
		277.0	0.19	18.8	18.8	7.9	0.04	0.40	0.23	0.13	2d12/25 L=262	36,33,33	
90	ok,ok	0.0	0.19	18.8	18.8	7.9	0.04	0.36	0.22	0.11	2d12/25 L=280	36,33,48	
	s=11,m=1	155.0	0.19	18.8	18.8	7.9	0.04	0.24	0.26	0.14	2d12/25 L=280	48,37,33	
		310.0	0.19	18.8	18.8	7.9	0.05	0.17	0.32	0.21	2d12/25 L=280	48,37,37	
							M_T= 17	**Z=0.0**	**P=3**	**P=10**			
Trave	Note	Pos.	%Af	Af inf.	Af. sup	Af long.	x/d	V N/M	V V/T cls	V V/T acc	Staffe	Rif. cmb	
141	ok,ok	0.0	0.20	15.7	15.7	4.7	0.06	0.31	0.27	0.31	2d10/25 L=272	29,28,11	
	s=10,m=1	143.3	0.20	15.7	15.7	4.7	0.04	0.29	0.16	0.12	2d10/25 L=272	32,28,28	
		286.6	0.20	15.7	15.7	4.7	0.04	0.26	0.14	0.08	2d10/25 L=272	32,29,29	
127	ok,ok	0.0	0.20	15.7	15.7	4.7	0.04	0.25	0.14	0.14	2d10/25 L=219	32,28,4	
	s=10,m=1	124.5	0.20	15.7	15.7	4.7	0.04	0.28	0.08	0.03	2d10/25 L=219	52,32,32	
		249.0	0.20	15.7	15.7	4.7	0.04	0.20	0.12	0.13	2d10/25 L=219	56,29,4	
123	ok,ok	0.0	0.20	15.7	15.7	4.7	0.04	0.21	0.17	0.13	2d10/25 L=283	56,28,52	
	s=10,m=1	156.5	0.20	15.7	15.7	4.7	0.04	0.20	0.13	0.08	2d10/25 L=283	11,25,41	
		313.0	0.20	15.7	15.7	4.7	0.04	0.08	0.20	0.20	2d10/25 L=283	56,25,4	
Trave			**%Af**	**Af inf.**	**Af. sup**	**Af long.**	**x/d**	**V N/M**	**V V/T cls**	**V V/T acc**			
			0.25	25.13	18.85	7.85	0.07	0.96	1.00	0.88			



71_CA_TRV_09_Verifica NM



71_CA_TRV_11_Verifica VT cls



71_CA_TRV_12_Verifica VT acciaio

STATI LIMITE D' ESERCIZIO

LEGENDA TABELLA STATI LIMITE D' ESERCIZIO

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 sopraripportati 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:

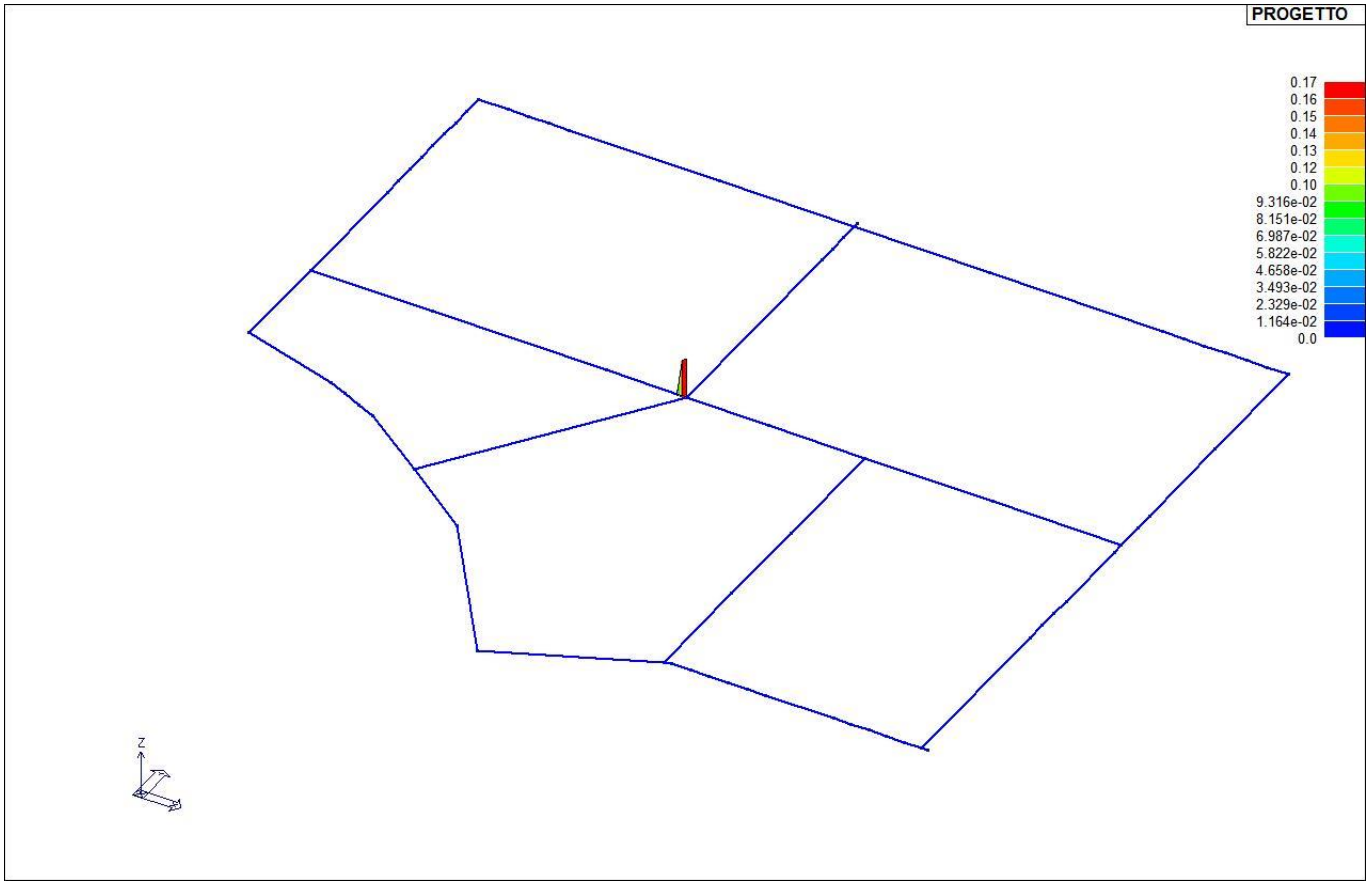
pilastri	**rRfck**	**rRfyk**	**rPfck**	per sezioni significative
travi	**rRfck**	**rRfyk**	**rPfck**	per sezioni significative
	wR	**wF**	**wP**	per sezioni significative
	dR	**dF**	**dP**	massimi in campata
setti e gusci	**rRfck**	**rRfyk**	**rPfck**	massimi nei nodi dell'elemento
	wR	**wF**	**wP**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

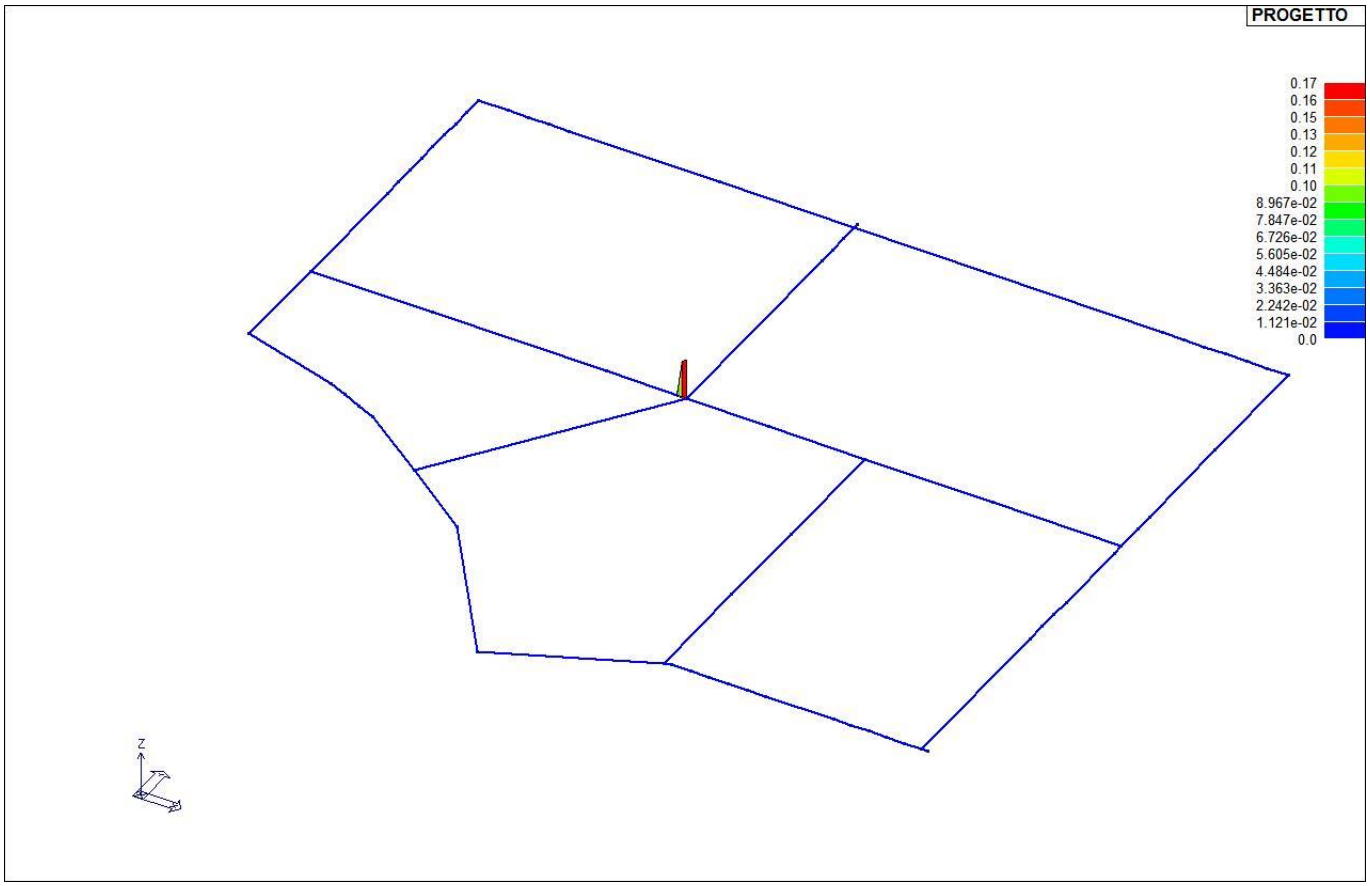
Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	cm					mm	mm	mm		cm	cm	cm	
18	0.0	7.23e-03	0.03	9.54e-03	125,125,139	0.0	0.0	0.0	0,0,0	-6.45e-03	-6.30e-03	-6.26e-03	125,137,139
	24.1	7.75e-03	0.03	0.01	125,125,139	0.0	0.0	0.0	0,0,0				
	48.1	9.53e-03	0.03	0.01	125,125,139	0.0	0.0	0.0	0,0,0				
21	0.0	0.09	0.26	0.11	124,124,139	0.0	0.0	0.0	0,0,0	0.03	0.03	0.03	127,137,139
	111.1	0.05	0.13	0.06	124,124,139	0.0	0.0	0.0	0,0,0				
	222.1	3.97e-03	2.33e-03	5.24e-03	123,123,138	0.0	0.0	0.0	0,0,0				
30	0.0	9.10e-03	0.03	0.01	125,125,139	0.0	0.0	0.0	0,0,0	6.31e-03	6.16e-03	6.12e-03	125,137,139
	24.1	7.53e-03	0.03	9.89e-03	125,125,139	0.0	0.0	0.0	0,0,0				
	48.1	7.27e-03	0.03	9.55e-03	125,127,139	0.0	0.0	0.0	0,0,0				
31	0.0	7.77e-03	0.03	0.01	125,127,139	0.0	0.0	0.0	0,0,0	-6.19e-03	-6.05e-03	-6.01e-03	125,137,139
	24.1	5.06e-03	0.02	6.61e-03	125,125,139	0.0	0.0	0.0	0,0,0				
	48.1	3.58e-03	0.02	4.69e-03	125,125,139	0.0	0.0	0.0	0,0,0				
34	0.0	4.99e-03	0.02	6.56e-03	125,125,139	0.0	0.0	0.0	0,0,0	-6.14e-03	-6.00e-03	-5.95e-03	125,137,139
	24.1	1.74e-03	0.01	2.23e-03	125,121,139	0.0	0.0	0.0	0,0,0				
	48.1	0.0	8.86e-03	0.0	0,121,0	0.0	0.0	0.0	0,0,0				
37	0.0	5.38e-03	3.24e-03	6.47e-03	125,125,139	0.0	0.0	0.0	0,0,0	0.13	0.13	0.13	127,137,139
	224.5	0.01	0.02	0.01	123,123,138	0.0	0.0	0.0	0,0,0				
	449.0	0.04	0.05	0.05	125,127,139	0.0	0.0	0.0	0,0,0				
38	0.0	3.15e-03	2.08e-03	3.29e-03	123,123,138	0.0	0.0	0.0	0,0,0	6.60e-03	5.99e-03	5.79e-03	125,137,139
	104.9	0.05	0.15	0.06	124,124,139	0.0	0.0	0.0	0,0,0				
	209.7	0.08	0.26	0.10	124,124,139	0.0	0.0	0.0	0,0,0				
39	0.0	0.01	0.04	0.02	132,132,139	0.0	0.0	0.0	0,0,0	3.05e-03	2.63e-03	2.53e-03	124,136,139
	25.1	3.44e-03	0.02	4.37e-03	129,130,139	0.0	0.0	0.0	0,0,0				
	50.2	2.02e-03	0.02	2.37e-03	124,123,139	0.0	0.0	0.0	0,0,0				
40	0.0	0.02	0.05	0.03	130,130,138	0.0	0.0	0.0	0,0,0	2.81e-03	2.41e-03	2.31e-03	124,136,139
	25.1	0.02	0.05	0.02	132,130,139	0.0	0.0	0.0	0,0,0				
	50.2	0.02	0.04	0.02	132,130,139	0.0	0.0	0.0	0,0,0				
41	0.0	0.01	0.04	0.02	130,130,138	0.0	0.0	0.0	0,0,0	-2.48e-03	-2.10e-03	-2.00e-03	124,136,139
	25.1	0.02	0.04	0.02	132,130,139	0.0	0.0	0.0	0,0,0				
	50.2	0.02	0.05	0.03	132,130,139	0.0	0.0	0.0	0,0,0				
46	0.0	0.07	0.11	0.09	125,125,139	0.0	0.0	0.0	0,0,0	0.15	0.14	-0.13	125,137,139
	315.8	0.10	0.28	0.12	127,127,139	0.0	0.0	0.0	0,0,0				
	631.6	0.09	0.14	0.07	123,123,138	0.0	0.0	0.0	0,0,0				
58	0.0	0.03	0.08	0.03	125,125,139	0.0	0.0	0.0	0,0,0	0.13	0.12	0.11	125,137,139
	156.2	0.03	0.09	0.04	127,124,139	0.0	0.0	0.0	0,0,0				
	312.5	0.05	0.09	0.06	125,125,139	0.0	0.0	0.0	0,0,0				
59	0.0	7.54e-03	0.02	8.09e-03	130,130,138	0.0	0.0	0.0	0,0,0	-1.52e-03	-1.37e-03	-1.34e-03	127,137,139
	8.2	0.02	0.04	0.02	130,130,138	0.0	0.0	0.0	0,0,0				
	16.4	0.03	0.06	0.03	130,130,138	0.0	0.0	0.0	0,0,0				
63	0.0	0.14	0.44	0.17	124,124,139	0.13	0.0	0.0	124,0,0	0.01	8.75e-03	8.09e-03	123,135,138
	99.2	0.07	0.21	0.09	125,127,139	0.0	0.0	0.0	0,0,0				
	198.5	0.04	0.07	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
65	0.0	0.0	5.59e-03	0.0	0,123,0	0.0	0.0	0.0	0,0,0	-2.02e-03	-1.92e-03	-1.89e-03	125,137,139
	7.5	3.55e-04	6.39e-03	1.48e-04	123,123,138	0.0	0.0	0.0	0,0,0				
	15.0	4.98e-04	6.65e-03	6.08e-04	123,123,138	0.0	0.0	0.0	0,0,0				
67	0.0	1.86e-03	7.93e-03	2.44e-03	125,121,139	0.0	0.0	0.0	0,0,0	-2.94e-03	-2.87e-03	-2.85e-03	125,137,139
	24.1	0.0	3.24e-03	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
	48.1	6.74e-04	5.74e-03	4.72e-04	132,124,139	0.0	0.0	0.0	0,0,0				
68	0.0	0.06	0.12	0.07	125,125,139	0.0	0.0	0.0	0,0,0	-0.01	-0.01	-0.01	125,137,139
	22.5	0.04	0.09	0.05	125,125,139	0.0	0.0	0.0	0,0,0				
	45.0	0.02	0.06	0.03	125,125,139	0.0	0.0	0.0	0,0,0				
69	0.0	5.04e-04	1.27e-03	4.65e-04	132,132,139	0.0	0.0	0.0	0,0,0	-6.08e-03	-5.94e-03	-5.89e-03	125,137,139
	24.1	1.48e-03	4.57e-03	1.76e-03	132,124,139	0.0	0.0	0.0	0,0,0				
	48.1	1.58e-03	4.95e-03	1.95e-03	127,127,139	0.0	0.0	0.0	0,0,0				
71	0.0	6.76e-04	6.01e-03	8.40e-04	123,123,138	0.0	0.0	0.0	0,0,0	-2.50e-04	-1.33e-04	-1.04e-04	123,135,138
	7.5	1.26e-04	5.10e-03	1.46e-04	123,123,138	0.0	0.0	0.0	0,0,0				
	15.0	0.0	3.91e-03	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
74	0.0	0.05	0.17	0.07	125,125,139	0.0	0.0	0.0	0,0,0	-0.01	-0.01	-0.01	125,137,139
	22.5	0.04	0.14	0.05	125,125,139	0.0	0.0	0.0	0,0,0				
	45.0	0.03	0.12	0.03	127,125,139	0.0	0.0	0.0	0,0,0				
75	0.0	3.92e-03	8.72e-03	4.10e-03	123,123,138	0.0	0.0	0.0	0,0,0	4.60e-03	4.03e-03	3.89e-03	124,136,139
	36.0	8.01e-03	0.02	9.07e-03	123,123,138	0.0	0.0	0.0	0,0,0				
	72.0	0.01	0.03	0.02	123,123,138	0.0	0.0	0.0	0,0,0				
76	0.0	0.02	0.04	0.02	124,123,139	0.0	0.0	0.0	0,0,0	-3.49e-03	-3.07e-03	-2.97e-03	124,136,139
	25.0	0.02	0.05	0.03	132,130,139	0.0	0.0	0.0	0,0,0				
	50.0	0.03	0.07	0.04	132,132,139	0.0	0.0	0.0	0,0,0				
77	0.0	0.02	0.07	0.03	132,132,139	0.0	0.0	0.0	0,0,0	3.92e-03	3.49e-03	3.39e-03	124,136,139
	25.0	0.03	0.08	0.03	127,132,139	0.0	0.0	0.0	0,0,0				
	50.0	0.03	0.09	0.04	125,132,139	0.0	0.0	0.0	0,0,0				
78	0.0	0.03	0.10	0.03	127,132,139	0.0	0.0	0.0	0,0,0	-4.41e-03	-3.97e-03	-3.87e-03	124,136,139
	25.0	0.02	0.09	0.03	125,127,139	0.0	0.0	0.0	0,0,0				
	50.0	0.02	0.08	0.02	125,125,139	0.0	0.0	0.0	0,0,0				
79	0.0	0.05	0.09	0.07	125,125,139	0.0	0.0	0.0	0,0,0	-0.04	-0.04	-0.03	127,136,139
	183.0	9.23e-03	0.02	8.21e-03	123,123,138	0.0	0.0	0.0	0,0,0				
	366.0	7.05e-03	9.13e-03	8.50e-03	124,123,139	0.0	0.0	0.0	0,0,0				
80	0.0	9.16e-03	0.02	0.01	127,124,139	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	127,137,139
	164.0	0.04	0.11	0.05	127,124,139	0.0	0.0	0.0	0,0,0				

Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	328.0	0.04	0.12	0.05	125,127,139	0.0	0.0	0.0	0,0,0				
81	0.0	0.04	0.13	0.05	125,127,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	125,137,139
	165.5	0.03	0.10	0.04	125,125,139	0.0	0.0	0.0	0,0,0				
	331.0	5.51e-03	3.77e-03	2.32e-03	123,123,138	0.0	0.0	0.0	0,0,0				
83	0.0	8.30e-03	0.01	3.96e-03	123,123,138	0.0	0.0	0.0	0,0,0	0.05	0.05	0.05	125,137,139
	210.5	4.71e-03	8.37e-03	6.28e-03	121,128,138	0.0	0.0	0.0	0,0,0				
	421.0	0.06	0.10	0.07	124,124,139	0.0	0.0	0.0	0,0,0				
84	0.0	0.02	0.09	0.02	124,124,139	0.0	0.0	0.0	0,0,0	-4.51e-03	-4.36e-03	-4.31e-03	125,137,139
	25.6	0.03	0.14	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
	51.2	0.04	0.16	0.05	124,124,139	0.0	0.0	0.0	0,0,0				
85	0.0	0.04	0.16	0.05	124,124,139	0.0	0.0	0.0	0,0,0	-3.80e-03	-3.66e-03	-3.61e-03	125,137,139
	25.6	0.04	0.15	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
	51.2	0.03	0.15	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
86	0.0	0.04	0.14	0.05	124,124,139	0.0	0.0	0.0	0,0,0	3.14e-03	3.00e-03	2.96e-03	125,137,139
	25.6	0.03	0.13	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
	51.2	0.02	0.11	0.03	124,123,139	0.0	0.0	0.0	0,0,0				
87	0.0	0.03	0.11	0.04	124,123,139	0.0	0.0	0.0	0,0,0	2.65e-03	2.52e-03	2.47e-03	125,137,139
	25.6	0.02	0.09	0.02	124,123,139	0.0	0.0	0.0	0,0,0				
	51.2	6.91e-03	0.07	8.73e-03	123,123,138	0.0	0.0	0.0	0,0,0				
88	0.0	0.02	0.07	0.02	124,123,139	0.0	0.0	0.0	0,0,0	-2.40e-03	-2.27e-03	-2.22e-03	125,137,139
	25.6	3.77e-03	0.05	4.55e-03	123,123,138	0.0	0.0	0.0	0,0,0				
	51.2	0.0	0.03	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
89	0.0	1.33e-03	0.02	1.37e-03	123,123,138	0.0	0.0	0.0	0,0,0	-2.36e-03	-2.22e-03	-2.17e-03	125,137,139
	25.6	3.48e-03	0.02	4.00e-03	125,124,139	0.0	0.0	0.0	0,0,0				
	51.2	9.46e-03	0.04	0.01	125,124,139	0.0	0.0	0.0	0,0,0				
90	0.0	0.04	0.12	0.05	124,124,139	0.0	0.0	0.0	0,0,0	-0.05	-0.05	-0.05	127,137,139
	155.0	0.03	0.10	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
	310.0	2.01e-03	1.21e-03	2.34e-03	124,124,139	0.0	0.0	0.0	0,0,0				
91	0.0	0.04	0.10	0.04	127,127,139	0.0	0.0	0.0	0,0,0	-0.01	-0.01	-0.01	125,137,139
	138.5	0.05	0.15	0.06	124,124,139	0.0	0.0	0.0	0,0,0				
	277.0	0.04	0.12	0.05	124,124,139	0.0	0.0	0.0	0,0,0				
92	0.0	0.02	0.03	0.02	125,125,139	0.0	0.0	0.0	0,0,0	-1.11e-03	-7.79e-04	-6.97e-04	123,135,138
	25.0	0.02	0.04	0.03	127,127,139	0.0	0.0	0.0	0,0,0				
	50.0	0.02	0.04	0.03	127,124,139	0.0	0.0	0.0	0,0,0				
93	0.0	0.02	0.04	0.03	125,125,139	0.0	0.0	0.0	0,0,0	2.23e-03	1.78e-03	1.67e-03	124,136,139
	35.0	0.02	0.04	0.03	125,125,139	0.0	0.0	0.0	0,0,0				
	70.0	0.02	0.03	0.02	125,125,139	0.0	0.0	0.0	0,0,0				
94	0.0	0.03	0.09	0.04	125,125,139	0.0	0.0	0.0	0,0,0	1.31e-03	1.12e-03	1.08e-03	124,136,139
	15.0	0.04	0.10	0.05	125,125,139	0.0	0.0	0.0	0,0,0				
	30.0	0.04	0.11	0.05	125,125,139	0.0	0.0	0.0	0,0,0				
95	0.0	0.04	0.06	0.04	123,123,138	0.0	0.0	0.0	0,0,0	0.01	0.01	0.01	124,136,139
	101.5	0.01	0.03	0.02	125,125,139	0.0	0.0	0.0	0,0,0				
	203.0	0.03	0.10	0.04	125,125,139	0.0	0.0	0.0	0,0,0				
96	0.0	0.03	0.09	0.03	123,123,138	0.0	0.0	0.0	0,0,0	3.30e-03	3.06e-03	3.01e-03	127,137,139
	25.0	0.02	0.07	0.02	123,123,138	0.0	0.0	0.0	0,0,0				
	50.0	0.01	0.06	0.01	123,123,138	0.0	0.0	0.0	0,0,0				
97	0.0	0.02	0.08	0.03	123,123,138	0.0	0.0	0.0	0,0,0	2.92e-03	2.70e-03	2.65e-03	127,137,139
	25.0	0.02	0.08	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
	50.0	0.03	0.09	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
98	0.0	5.49e-03	0.04	4.25e-03	123,123,138	0.0	0.0	0.0	0,0,0	2.59e-03	2.41e-03	2.35e-03	127,137,139
	25.0	0.01	0.06	0.02	123,123,138	0.0	0.0	0.0	0,0,0				
	50.0	0.02	0.08	0.03	123,123,138	0.0	0.0	0.0	0,0,0				
99	0.0	0.0	9.80e-03	0.0	0,127,0	0.0	0.0	0.0	0,0,0	0.05	0.05	0.04	125,137,139
	229.5	0.03	0.11	0.04	127,127,139	0.0	0.0	0.0	0,0,0				
	459.0	9.38e-03	0.03	3.47e-03	123,123,138	0.0	0.0	0.0	0,0,0				
100	0.0	0.0	0.01	0.0	0,123,0	0.0	0.0	0.0	0,0,0	1.50e-03	8.28e-04	6.59e-04	123,135,138
	21.5	2.84e-03	0.02	3.21e-03	125,127,139	0.0	0.0	0.0	0,0,0				
	43.0	7.66e-03	0.04	9.65e-03	125,127,139	0.0	0.0	0.0	0,0,0				
101	0.0	6.01e-03	0.03	7.40e-03	123,123,138	0.0	0.0	0.0	0,0,0	-1.54e-03	-8.59e-04	-6.88e-04	123,135,138
	21.5	0.0	0.02	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
	43.0	0.0	0.02	0.0	0,123,0	0.0	0.0	0.0	0,0,0				
102	0.0	0.01	0.04	0.01	124,124,139	0.0	0.0	0.0	0,0,0	-1.43e-03	-7.58e-04	-5.89e-04	123,135,138
	21.5	7.86e-03	0.04	9.75e-03	124,124,139	0.0	0.0	0.0	0,0,0				
	43.0	5.94e-03	0.03	6.97e-03	123,123,138	0.0	0.0	0.0	0,0,0				
103	0.0	0.01	0.05	0.02	124,127,139	0.0	0.0	0.0	0,0,0	-1.27e-03	-5.99e-04	-4.32e-04	123,135,138
	21.5	0.01	0.04	0.02	124,127,139	0.0	0.0	0.0	0,0,0				
	43.0	0.01	0.04	0.01	124,124,139	0.0	0.0	0.0	0,0,0				
104	0.0	0.02	0.05	0.02	132,127,139	0.0	0.0	0.0	0,0,0	1.06e-03	3.97e-04	2.32e-04	123,135,138
	21.5	0.02	0.05	0.02	124,127,139	0.0	0.0	0.0	0,0,0				
	43.0	0.02	0.05	0.02	124,127,139	0.0	0.0	0.0	0,0,0				
105	0.0	0.05	0.10	0.06	132,132,139	0.0	0.0	0.0	0,0,0	4.42e-03	3.88e-03	3.70e-03	125,137,139
	82.5	0.04	0.07	0.05	132,132,139	0.0	0.0	0.0	0,0,0				
	165.0	0.03	0.06	0.04	124,127,139	0.0	0.0	0.0	0,0,0				
106	0.0	0.03	0.11	0.04	132,132,139	0.0	0.0	0.0	0,0,0	2.55e-03	2.38e-03	2.33e-03	125,137,139
	23.0	0.03	0.10	0.03	132,132,139	0.0	0.0	0.0	0,0,0				
	46.0	0.02	0.09	0.03	132,132,139	0.0	0.0	0.0	0,0,0				
107	0.0	0.04	0.14	0.05	132,132,139	0.0	0.0	0.0	0,0,0	3.08e-03	2.90e-03	2.85e-03	125,137,139
	23.0	0.03	0.13	0.04	132,132,139	0.0	0.0	0.0	0,0,0				

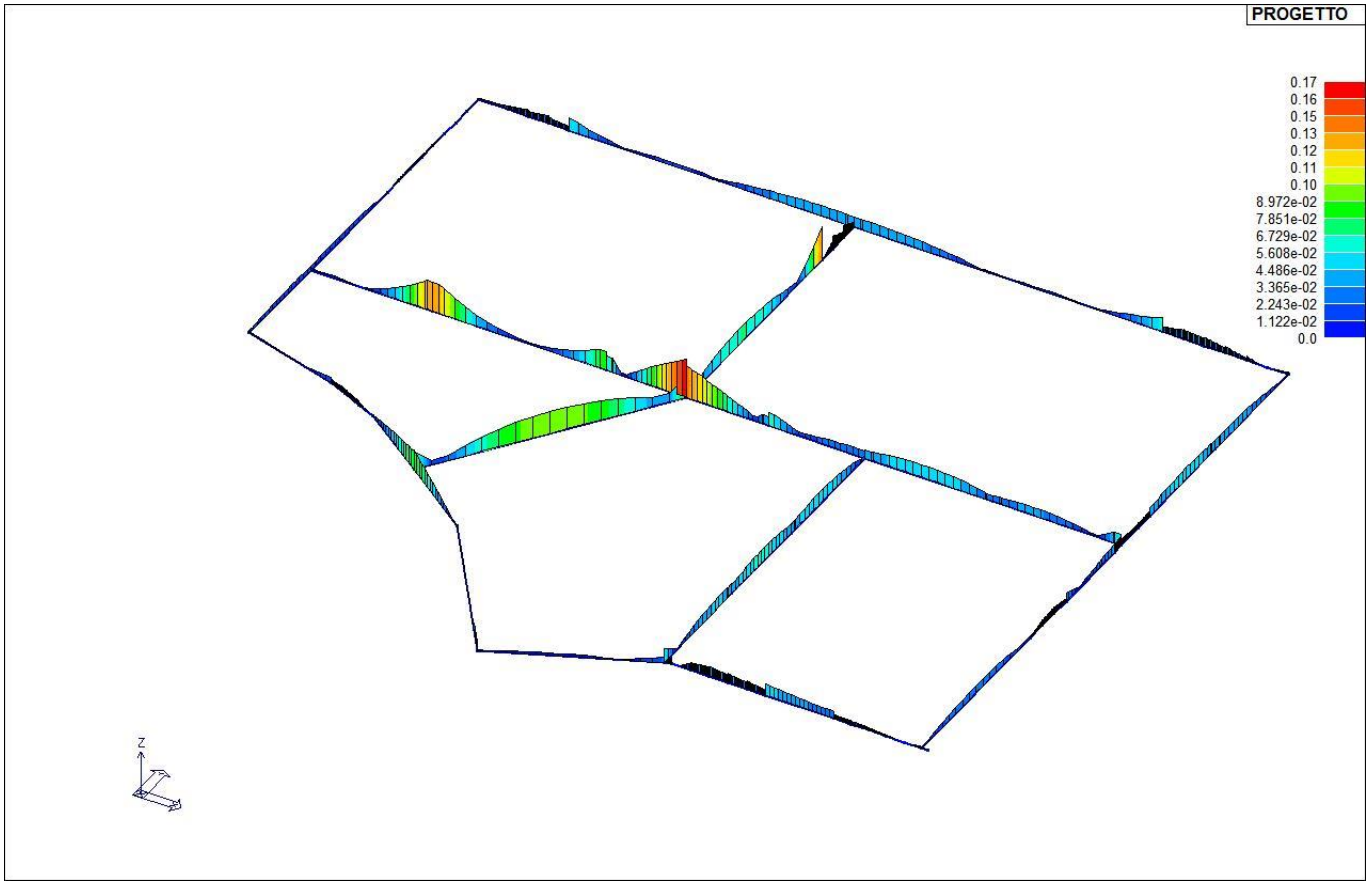
Trave	Pos.	rRfck	rRfyk	rPfck	Rif. cmb	wR	wF	wP	Rif. cmb	dR	dF	dP	Rif. cmb
	46.0	0.03	0.12	0.03	132,132,139	0.0	0.0	0.0	0,0,0				
108	0.0	0.04	0.16	0.05	132,132,139	0.0	0.0	0.0	0,0,0	-3.70e-03	-3.52e-03	-3.46e-03	125,137,139
	23.0	0.04	0.15	0.05	132,132,139	0.0	0.0	0.0	0,0,0				
	46.0	0.03	0.15	0.04	132,132,139	0.0	0.0	0.0	0,0,0				
109	0.0	0.03	0.15	0.04	132,132,139	0.0	0.0	0.0	0,0,0	4.38e-03	4.19e-03	4.13e-03	125,137,139
	23.0	0.04	0.15	0.04	132,132,139	0.0	0.0	0.0	0,0,0				
	46.0	0.04	0.16	0.05	132,132,139	0.0	0.0	0.0	0,0,0				
110	0.0	0.0	0.07	0.0	0,130,0	0.0	0.0	0.0	0,0,0	4.92e-03	4.73e-03	4.67e-03	125,137,139
	23.0	3.20e-03	0.11	3.57e-03	128,132,138	0.0	0.0	0.0	0,0,0				
	46.0	0.03	0.15	0.04	132,132,139	0.0	0.0	0.0	0,0,0				
111	0.0	3.33e-03	8.30e-03	4.26e-03	125,128,139	0.0	0.0	0.0	0,0,0	0.04	0.03	0.03	127,136,139
	198.2	9.81e-03	0.03	0.01	123,123,138	0.0	0.0	0.0	0,0,0				
	396.4	0.02	0.05	0.03	129,130,139	0.0	0.0	0.0	0,0,0				
113	0.0	0.0	0.10	0.0	0,125,0	0.0	0.0	0.0	0,0,0	-0.01	-0.01	-0.01	125,137,139
	22.5	0.02	0.14	0.02	125,125,139	0.0	0.0	0.0	0,0,0				
	45.0	0.03	0.17	0.04	125,125,139	0.0	0.0	0.0	0,0,0				
114	0.0	1.13e-03	1.80e-03	1.39e-03	127,125,139	0.0	0.0	0.0	0,0,0	6.17e-03	6.03e-03	5.98e-03	125,137,139
	24.1	9.53e-04	1.33e-03	1.16e-03	125,125,139	0.0	0.0	0.0	0,0,0				
	48.1	7.48e-04	4.42e-04	6.24e-04	130,130,138	0.0	0.0	0.0	0,0,0				
115	0.0	6.18e-03	0.03	1.30e-03	125,123,139	0.0	0.0	0.0	0,0,0	-0.03	-0.03	-0.03	125,137,139
	148.5	9.61e-03	0.03	0.01	123,123,138	0.0	0.0	0.0	0,0,0				
	297.0	0.13	0.26	0.14	123,123,138	0.0	0.0	0.0	0,0,0				
116	0.0	0.13	0.26	0.14	123,123,138	0.0	0.0	0.0	0,0,0	-0.10	-0.09	-0.09	125,137,139
	211.2	8.75e-03	0.03	0.0	123,123,0	0.0	0.0	0.0	0,0,0				
	422.5	0.08	0.17	0.09	123,123,138	0.0	0.0	0.0	0,0,0				
117	0.0	0.06	0.13	0.07	123,123,138	0.0	0.0	0.0	0,0,0	-0.06	-0.05	-0.05	127,137,139
	98.2	0.07	0.23	0.08	123,123,138	0.0	0.0	0.0	0,0,0				
	196.5	0.17	0.56	0.19	123,123,138	0.18	0.17	0.17	123,135,138				
118	0.0	0.06	0.10	0.05	123,123,138	0.0	0.0	0.0	0,0,0	0.02	0.02	0.02	125,137,139
	117.8	0.02	0.06	0.02	125,125,139	0.0	0.0	0.0	0,0,0				
	235.5	0.03	0.08	0.03	125,125,139	0.0	0.0	0.0	0,0,0				
119	0.0	0.03	0.10	0.04	125,125,139	0.0	0.0	0.0	0,0,0	0.08	0.07	0.07	125,137,139
	156.2	0.06	0.17	0.07	125,125,139	0.0	0.0	0.0	0,0,0				
	312.5	0.03	0.08	0.03	125,125,139	0.0	0.0	0.0	0,0,0				
121	0.0	0.07	0.07	0.04	123,123,138	0.0	0.0	0.0	0,0,0	-0.16	-0.15	-0.15	125,137,139
	286.0	0.06	0.15	0.08	127,124,139	0.0	0.0	0.0	0,0,0				
	572.0	0.14	0.19	0.18	125,125,139	0.0	0.0	0.0	0,0,0				
123	0.0	0.04	0.11	0.05	125,125,139	0.0	0.0	0.0	0,0,0	0.04	0.03	0.03	125,137,139
	156.5	0.05	0.15	0.07	127,127,139	0.0	0.0	0.0	0,0,0				
	313.0	0.01	0.03	0.02	125,125,139	0.0	0.0	0.0	0,0,0				
127	0.0	0.04	0.12	0.05	125,125,139	0.0	0.0	0.0	0,0,0	0.08	0.07	0.07	125,137,139
	124.5	0.06	0.17	0.07	127,127,139	0.0	0.0	0.0	0,0,0				
	249.0	0.04	0.12	0.05	125,125,139	0.0	0.0	0.0	0,0,0				
141	0.0	0.06	0.11	0.08	125,125,139	0.0	0.0	0.0	0,0,0	0.14	0.13	0.13	125,137,139
	143.3	0.04	0.10	0.04	124,124,139	0.0	0.0	0.0	0,0,0				
	286.6	0.04	0.13	0.05	125,125,139	0.0	0.0	0.0	0,0,0				
146	0.0	5.95e-03	9.44e-03	6.49e-03	125,125,139	0.0	0.0	0.0	0,0,0	-0.01	-0.01	-0.01	124,136,139
	123.8	3.94e-03	4.03e-03	4.45e-03	125,125,139	0.0	0.0	0.0	0,0,0				
	247.5	0.02	0.03	0.03	130,130,138	0.0	0.0	0.0	0,0,0				
147	0.0	0.01	0.03	0.01	125,125,139	0.0	0.0	0.0	0,0,0	-0.02	-0.02	-0.02	121,133,138
	130.5	0.02	0.06	0.03	125,125,139	0.0	0.0	0.0	0,0,0				
	261.0	0.02	0.05	0.02	125,125,139	0.0	0.0	0.0	0,0,0				
148	0.0	0.02	0.05	0.02	125,125,139	0.0	0.0	0.0	0,0,0	0.04	0.04	0.04	125,137,139
	161.0	0.02	0.06	0.03	132,132,139	0.0	0.0	0.0	0,0,0				
	322.0	5.36e-03	3.37e-03	7.14e-03	125,121,139	0.0	0.0	0.0	0,0,0				
149	0.0	0.0	9.74e-03	0.0	0,132,0	0.0	0.0	0.0	0,0,0	6.59e-03	6.45e-03	6.40e-03	125,137,139
	24.1	1.45e-03	0.01	1.89e-03	125,121,139	0.0	0.0	0.0	0,0,0				
	48.1	7.62e-03	0.03	0.01	125,125,139	0.0	0.0	0.0	0,0,0				
Trave		**rRfck**	**rRfyk**	**rPfck**		**wR**	**wF**	**wP**		**dR**	**dF**	**dP**	
										-0.16	-0.15	-0.15	
		0.17	0.56	0.19		0.18	0.17	0.17		0.15	0.14	0.13	



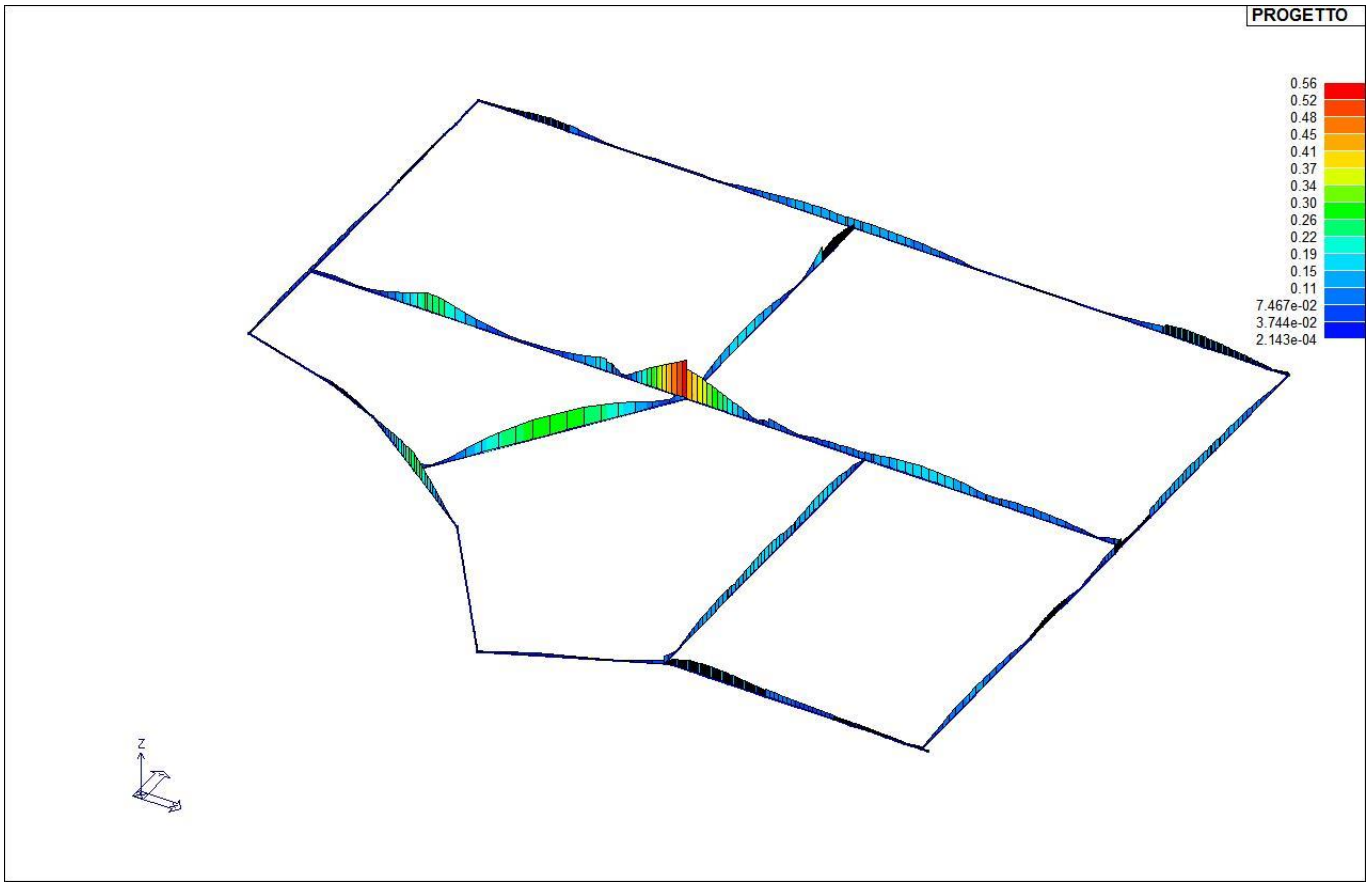
71_CA_TRV_21_Fessure freq



71_CA_TRV_22_Fessure perm



71_CA_TRV_23_Tens cls rare



71_CA_TRV_24_Tens acc rare

STATO LIMITE D' ESERCIZIO: SLD DANNO SISMICO

LEGENDA TABELLA STATI LIMITE DI DANNO (VERIFICHE RES)

Le verifiche RES per SLD sono effettuate in accordo alle Norme Tecniche 17 Gennaio 2018 e alla circolare n.7 del 21 gennaio 2019 nonché alle linee guida del Consiglio Superiore LL.PP. "Linee guida per la Progettazione, l'Esecuzione ed il Collaudo di Interventi di Rinforzo di strutture di c.a., c.a.p. e murarie mediante FRP".

Le verifiche RES per SLD, sono riportate nelle successive tabelle nella forma di rapporto "domanda" su "capacità" e hanno esito positivo quando il rapporto è non superiore al valore unitario.

La "domanda" è ottenuta direttamente dall'analisi per le previste combinazioni SLD (NTC18 2.5.3. COMBINAZIONI DELLE AZIONI formula [2.5.5]).

Per "capacità" si intende qui il valore della sollecitazione corrispondente al raggiungimento dello stato limite di danno per la sezione: per la resistenza flessionale questo stato limite si identifica con la tensione di snervamento dell'acciaio o la resistenza massima a compressione per il calcestruzzo e la muratura. Lo stato limite di danno si ritiene attinto anche in caso di superamento della resistenza a taglio.

Le resistenze flessionali sono valutate utilizzando i legami costitutivi del materiale limitati al solo tratto elastico, ottenendo così resistenze sostanzialmente elastiche come previsto dalla norma.

La seguente tabella identifica per quali configurazioni (materiale nuovo, esistente, con rinforzi e metodo di analisi) sono state condotte le verifiche di seguito riportate.

Configurazione	Verifica SLD	NOTE
1) c.a. nuovo e esist. Verifica SLU con q>1	Verifica N/M SE Verifica V/T	Sono verifiche per struttura non dissipativa condotte secondo il cap.4 NTC18 in regime sostanzialmente elastico; si verificano travi,pilastri, setti e gusci.
2) Muratura nuova Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap.7
3) Muratura esis. AO Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap. 7 e 8
4) Muratura esis. PO Verifica SLU con q>1	Verifica N/M SE Verifica V	Per N/M identificato SL elastico, per V formulazione secondo cap. 7 e 8; Anche per rinforzi FRP è prevista verifica N/M SE e V

Simbologia adottata nelle tabelle di verifica

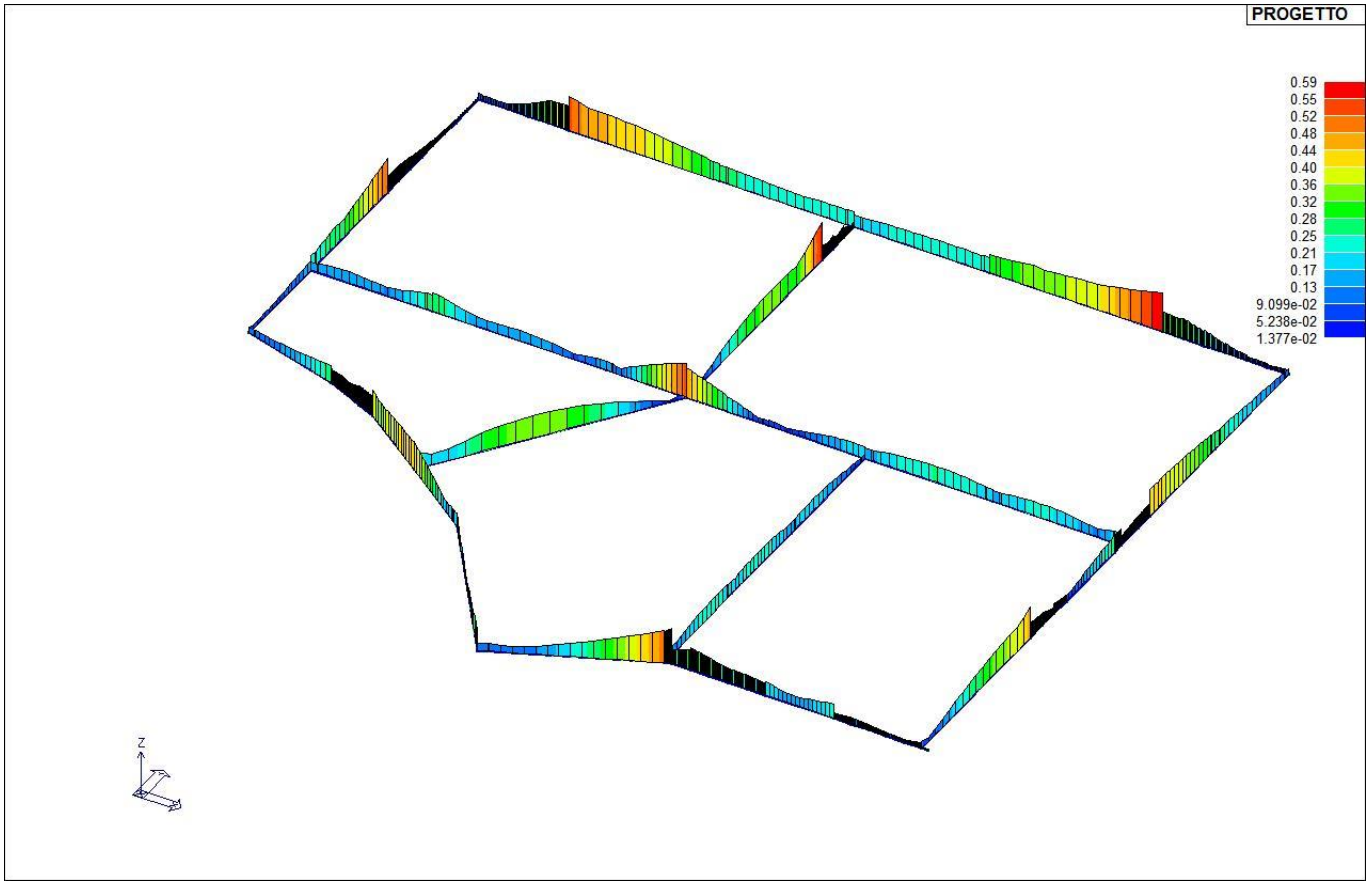
Per le verifiche agli SLD di pilastri, travi setti e gusci in *c.a*. è presente una tabella con i simboli di seguito descritti:

Pilas./Trave/ Setto/Guscio	numero identificativo dell'elemento D2 o D3
Stato	Codici relativi all'esito delle verifiche effettuate appresso descritte
Pos.	Posizione nell'elemento della sezione per la quale si riporta la verifica
V N/M	Verifica a pressoflessione con rapporto Ed/Rd: valore minore o uguale a 1 per verifica positiva
V V/T cls	Verifica a taglio/torsione con rapporto Ved/Vrd lato cls: valore minore o uguale a 1 per verifica positiva
V V/T acc	Verifica a taglio/torsione con rapporto Ved/Vrd lato acciaio: valore minore o uguale a 1 per verifica positiva
Rif. cmb.	Riferimento combinazioni da cui si generano le verifiche più gravose per il pilastro

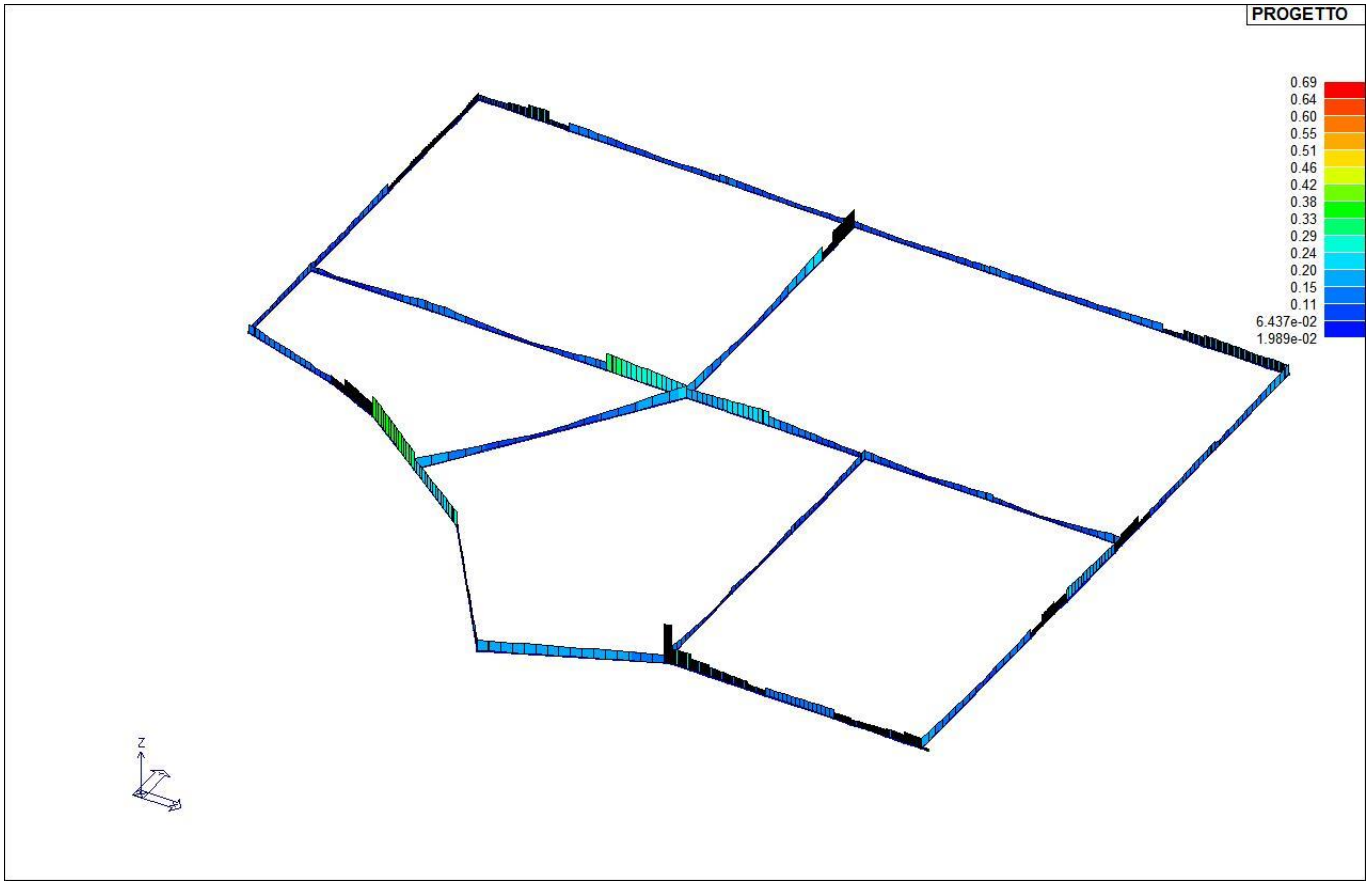
TABELLA VERIFICHE ELEMENTI D2 TRAVI C.A.

Trave	Stato	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb
		cm					cm				
18	ok	0.0	0.23	0.08	0.08	88,84,84	24.1	0.21	0.07	0.09	88,81,81
		48.1	0.18	0.08	0.10	88,81,81					
21	ok	0.0	0.43	0.21	0.13	60,73,61	111.1	0.26	0.23	0.16	60,73,61
		222.1	0.19	0.25	0.18	73,73,57					
30	ok	0.0	0.18	0.11	0.11	88,84,84	24.1	0.16	0.10	0.11	88,84,84
		48.1	0.13	0.09	0.10	88,84,81					
31	ok	0.0	0.13	0.11	0.10	88,88,84	24.1	0.11	0.10	0.10	88,84,84
		48.1	0.09	0.09	0.09	82,84,84					
34	ok	0.0	0.08	0.10	0.08	88,88,88	24.1	0.07	0.09	0.08	82,88,84
		48.1	0.06	0.09	0.07	82,84,84					
37	ok	0.0	0.19	0.09	0.10	73,64,64	224.5	0.12	0.11	0.08	81,57,57
		449.0	0.31	0.16	0.15	61,57,57					
38	ok	0.0	0.41	0.36	0.18	61,64,64	104.9	0.39	0.34	0.16	60,64,64
		209.7	0.42	0.32	0.13	60,64,64					
39	ok	0.0	0.30	0.23	0.15	57,64,64	25.1	0.30	0.22	0.14	57,64,64
		50.2	0.30	0.21	0.13	57,64,64					
40	ok	0.0	0.23	0.26	0.24	85,64,64	25.1	0.24	0.25	0.23	61,64,64
		50.2	0.29	0.24	0.22	57,64,64					
41	ok	0.0	0.22	0.13	0.12	85,60,57	25.1	0.23	0.13	0.13	85,61,57
		50.2	0.24	0.13	0.13	85,61,57					
46	ok	0.0	0.27	0.19	0.28	73,75,64	315.8	0.34	0.05	0.04	76,77,76
		631.6	0.09	0.21	0.27	85,77,77					
58	ok	0.0	0.17	0.08	0.10	64,84,88	156.2	0.20	0.06	0.07	64,85,85
		312.5	0.19	0.14	0.20	69,73,57					
59	ok	0.0	0.48	0.68	0.58	57,57,57	8.2	0.51	0.69	0.58	57,57,57
		16.4	0.54	0.69	0.59	57,57,57					
63	ok	0.0	0.46	0.16	0.21	60,78,61	99.2	0.24	0.20	0.28	60,78,61
		198.5	0.07	0.24	0.34	83,78,61					
65	ok	0.0	0.03	0.04	0.06	77,88,80	7.5	0.03	0.04	0.05	77,88,80
		15.0	0.03	0.04	0.04	77,88,80					
67	ok	0.0	0.05	0.09	0.06	82,88,84	24.1	0.05	0.08	0.05	82,88,84
		48.1	0.05	0.08	0.04	82,85,84					
68	ok	0.0	0.16	0.33	0.36	77,88,80	22.5	0.09	0.32	0.34	77,88,80
		45.0	0.08	0.30	0.33	88,88,80					
69	ok	0.0	0.04	0.07	0.03	62,88,84	24.1	0.04	0.07	0.02	82,85,84
		48.1	0.04	0.08	0.02	82,85,61					
71	ok	0.0	0.01	0.02	0.04	57,73,73	7.5	0.01	0.02	0.05	57,73,57
		15.0	0.01	0.02	0.05	57,73,57					
74	ok	0.0	0.19	0.31	0.39	77,88,80	22.5	0.15	0.30	0.37	88,88,80
		45.0	0.19	0.28	0.36	88,88,80					
75	ok	0.0	0.09	0.08	0.08	69,85,85	36.0	0.08	0.08	0.09	69,85,85
		72.0	0.08	0.09	0.10	66,85,85					
76	ok	0.0	0.09	0.13	0.16	69,69,69	25.0	0.14	0.13	0.16	69,69,69
		50.0	0.19	0.14	0.17	69,69,69					
77	ok	0.0	0.20	0.20	0.26	69,69,69	25.0	0.27	0.21	0.27	69,69,69
		50.0	0.35	0.22	0.28	69,69,69					
78	ok	0.0	0.36	0.07	0.10	69,64,72	25.0	0.36	0.07	0.09	69,64,72
		50.0	0.38	0.06	0.08	69,64,72					
79	ok	0.0	0.53	0.14	0.19	69,88,88	183.0	0.40	0.08	0.11	72,88,88
		366.0	0.27	0.09	0.09	72,69,69					
80	ok	0.0	0.25	0.12	0.15	72,80,88	164.0	0.22	0.08	0.10	72,64,72
		328.0	0.23	0.08	0.08	88,69,69					
81	ok	0.0	0.18	0.09	0.08	76,88,72	165.5	0.23	0.08	0.11	88,69,69
		331.0	0.24	0.11	0.15	69,69,69					
83	ok	0.0	0.29	0.12	0.12	69,72,72	210.5	0.37	0.09	0.10	88,69,69
		421.0	0.59	0.13	0.17	69,69,69					
84	ok	0.0	0.31	0.06	0.05	72,77,77	25.6	0.30	0.07	0.07	72,77,77
		51.2	0.30	0.08	0.08	69,77,77					
85	ok	0.0	0.31	0.16	0.17	69,72,72	25.6	0.26	0.15	0.16	69,72,72
		51.2	0.22	0.14	0.15	69,72,72					
86	ok	0.0	0.24	0.19	0.21	69,72,72	25.6	0.18	0.18	0.20	69,72,72
		51.2	0.13	0.18	0.19	72,72,72					
87	ok	0.0	0.15	0.18	0.19	69,72,72	25.6	0.10	0.18	0.18	72,72,72
		51.2	0.08	0.17	0.17	88,72,72					
88	ok	0.0	0.06	0.16	0.14	66,68,72	25.6	0.06	0.16	0.14	72,68,72
		51.2	0.06	0.15	0.13	72,68,72					
89	ok	0.0	0.04	0.18	0.09	88,65,88	25.6	0.05	0.16	0.08	72,65,88
		51.2	0.07	0.15	0.08	72,65,80					
90	ok	0.0	0.26	0.10	0.07	68,65,80	155.0	0.18	0.14	0.09	80,65,65
		310.0	0.09	0.18	0.16	80,69,69					
91	ok	0.0	0.41	0.11	0.12	68,78,80	138.5	0.37	0.11	0.07	68,77,80
		277.0	0.28	0.14	0.09	68,65,65					

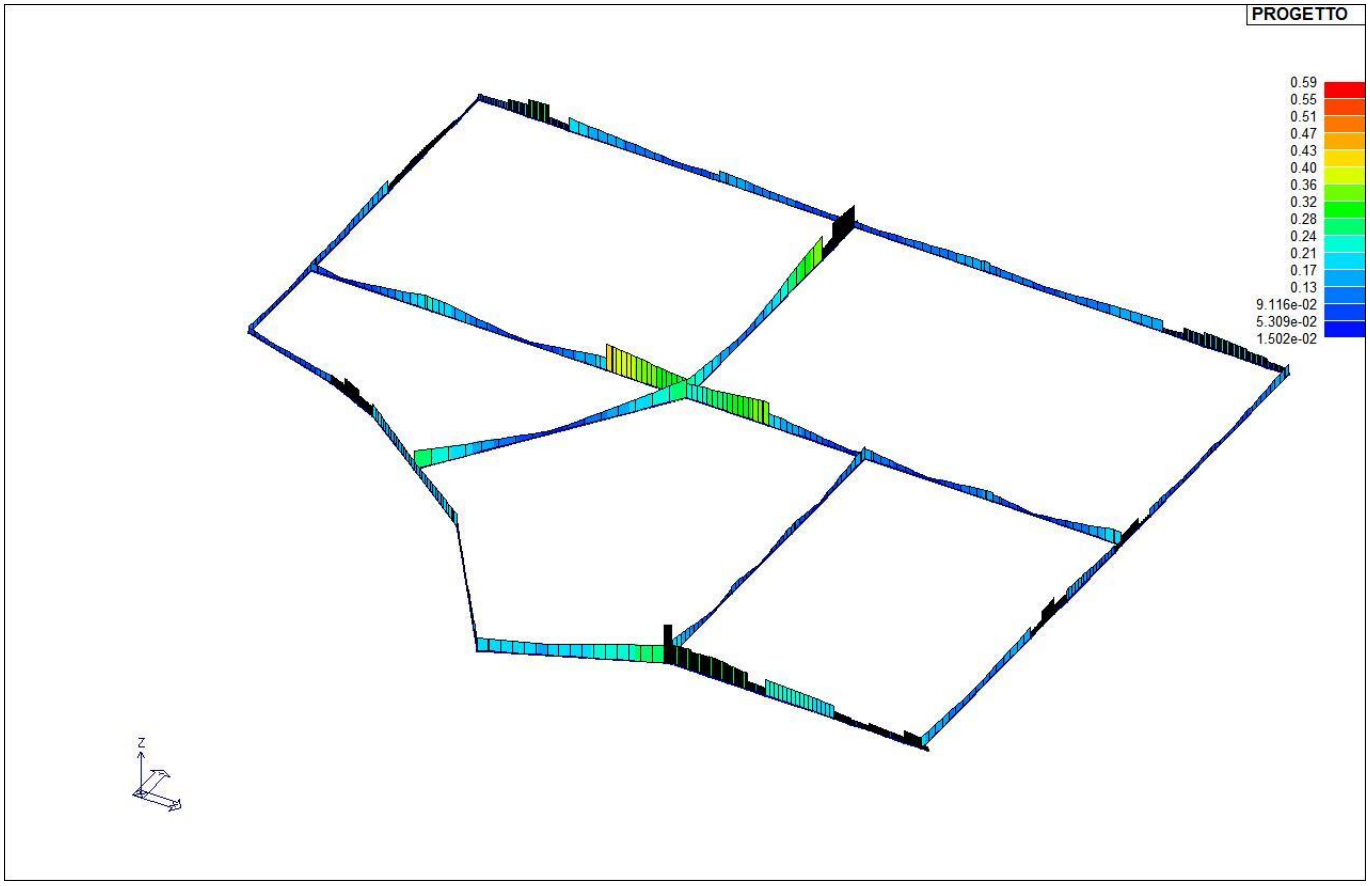
Trave	Stato	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb	Pos.	V N/M	V V/T cls	V V/T acc	Rif. cmb
92	ok	0.0	0.18	0.08	0.05	68,65,80	25.0	0.19	0.08	0.04	68,65,80
		50.0	0.20	0.09	0.03	68,77,77					
93	ok	0.0	0.13	0.19	0.13	64,77,80	35.0	0.16	0.20	0.14	68,77,77
		70.0	0.19	0.21	0.15	68,77,77					
94	ok	0.0	0.24	0.14	0.07	76,60,80	15.0	0.25	0.13	0.07	76,60,80
		30.0	0.25	0.13	0.06	60,60,80					
95	ok	0.0	0.09	0.20	0.16	66,76,76	101.5	0.17	0.18	0.12	60,76,80
		203.0	0.26	0.15	0.09	76,76,80					
96	ok	0.0	0.15	0.16	0.13	79,76,76	25.0	0.12	0.15	0.12	79,76,76
		50.0	0.09	0.15	0.11	83,76,76					
97	ok	0.0	0.19	0.19	0.22	73,73,73	25.0	0.14	0.20	0.23	73,73,73
		50.0	0.09	0.20	0.24	79,73,73					
98	ok	0.0	0.23	0.08	0.07	76,73,73	25.0	0.21	0.09	0.08	76,73,73
		50.0	0.18	0.09	0.10	76,73,73					
99	ok	0.0	0.11	0.17	0.17	73,76,60	229.5	0.27	0.11	0.09	60,76,73
		459.0	0.47	0.14	0.16	73,77,77					
100	ok	0.0	0.04	0.18	0.18	83,76,60	21.5	0.06	0.18	0.17	60,76,76
		43.0	0.08	0.17	0.15	60,76,76					
101	ok	0.0	0.06	0.14	0.09	79,73,76	21.5	0.05	0.13	0.08	83,73,60
		43.0	0.04	0.13	0.08	60,73,60					
102	ok	0.0	0.08	0.11	0.10	73,73,60	21.5	0.07	0.11	0.10	79,73,60
		43.0	0.06	0.12	0.09	79,73,60					
103	ok	0.0	0.10	0.09	0.07	73,73,60	21.5	0.09	0.09	0.07	73,73,60
		43.0	0.09	0.10	0.06	73,73,60					
104	ok	0.0	0.08	0.10	0.11	87,73,76	21.5	0.09	0.11	0.10	73,73,76
		43.0	0.11	0.11	0.09	73,73,73					
105	ok	0.0	0.21	0.13	0.24	73,73,76	82.5	0.14	0.14	0.22	73,73,76
		165.0	0.23	0.15	0.19	73,73,76					
106	ok	0.0	0.21	0.09	0.12	73,73,80	23.0	0.20	0.08	0.11	73,73,80
		46.0	0.18	0.08	0.11	73,73,80					
107	ok	0.0	0.22	0.14	0.26	73,60,60	23.0	0.21	0.14	0.25	77,60,60
		46.0	0.22	0.13	0.24	77,60,60					
108	ok	0.0	0.28	0.16	0.30	57,60,60	23.0	0.25	0.15	0.29	73,60,60
		46.0	0.22	0.15	0.28	77,60,60					
109	ok	0.0	0.34	0.19	0.27	57,57,57	23.0	0.31	0.19	0.28	57,57,57
		46.0	0.29	0.20	0.29	57,57,57					
110	ok	0.0	0.22	0.26	0.28	73,73,73	23.0	0.26	0.27	0.29	73,73,73
		46.0	0.30	0.28	0.31	73,73,73					
111	ok	0.0	0.12	0.18	0.19	73,60,60	198.2	0.20	0.17	0.19	57,60,57
		396.4	0.50	0.15	0.27	57,60,57					
113	ok	0.0	0.21	0.10	0.14	88,85,77	22.5	0.18	0.12	0.17	88,85,77
		45.0	0.20	0.13	0.19	88,85,77					
114	ok	0.0	0.03	0.10	0.03	82,85,88	24.1	0.03	0.10	0.03	82,85,85
		48.1	0.04	0.11	0.04	82,85,85					
115	ok	0.0	0.13	0.07	0.10	60,64,72	148.5	0.15	0.07	0.08	64,61,85
		297.0	0.25	0.15	0.21	85,61,73					
116	ok	0.0	0.28	0.14	0.19	85,88,88	211.2	0.16	0.04	0.04	64,88,84
		422.5	0.14	0.14	0.18	63,85,85					
117	ok	0.0	0.14	0.30	0.40	69,88,88	98.2	0.29	0.26	0.34	64,88,88
		196.5	0.53	0.22	0.27	60,88,88					
118	ok	0.0	0.09	0.16	0.18	83,60,64	117.8	0.12	0.11	0.10	64,60,64
		235.5	0.18	0.06	0.06	64,60,61					
119	ok	0.0	0.15	0.12	0.13	64,80,88	156.2	0.24	0.05	0.03	64,77,85
		312.5	0.18	0.12	0.14	64,77,85					
121	ok	0.0	0.05	0.19	0.26	85,88,80	286.0	0.32	0.08	0.13	80,85,77
		572.0	0.58	0.23	0.36	77,85,77					
123	ok	0.0	0.16	0.11	0.11	88,64,84	156.5	0.16	0.07	0.06	88,61,73
		313.0	0.06	0.14	0.16	88,61,73					
127	ok	0.0	0.19	0.10	0.11	64,64,60	124.5	0.22	0.04	0.02	84,64,64
		249.0	0.16	0.09	0.11	88,61,61					
141	ok	0.0	0.22	0.17	0.26	61,60,76	143.3	0.21	0.08	0.10	64,60,60
		286.6	0.20	0.06	0.07	64,61,61					
146	ok	0.0	0.09	0.15	0.08	61,84,84	123.8	0.15	0.13	0.08	61,84,81
		247.5	0.27	0.10	0.10	61,74,61					
147	ok	0.0	0.07	0.09	0.10	85,84,64	130.5	0.08	0.09	0.07	59,81,84
		261.0	0.15	0.12	0.09	81,81,81					
148	ok	0.0	0.22	0.10	0.11	81,88,84	161.0	0.30	0.09	0.11	81,85,85
		322.0	0.52	0.14	0.18	85,85,85					
149	ok	0.0	0.23	0.06	0.08	88,85,85	24.1	0.23	0.07	0.09	88,85,85
		48.1	0.24	0.08	0.10	88,69,85					
Trave			**V N/M**	**V V/T cls**	**V V/T acc**			**V N/M**	**V V/T cls**	**V V/T acc**	
			0.59	0.69	0.59						



71_CA_TRV_16_Verifica NM SE



71_CA_TRV_17_Verifica VT cls



71_CA_TRV_18_Verifica VT acciaio

VERIFICA DEL GIUNTO SISMICO (LATO ADIACENTE SCUOLA DELL'INFANZIA)

Il giunto tra i fabbricati per motivi realizzativi è di 12,5cm.

7.2.1 Distanza tra minima tra 2 costruzioni che si fronteggiano

La distanza tra due punti di costruzioni che si fronteggiano non potrà in ogni caso essere inferiore a 1/100 della quota dei punti considerati, misurata dallo spiccato della fondazione o dalla sommità della struttura scatolare rigida di cui al § 7.2.1, moltiplicata per $2\ a_g S / g \leq 1$.

H	420	
a_g	0,131	g
S_T	1	
S_S	1,8	
d_{min}	1,98072	cm

7.3.3.3 Valutazione degli spostamenti

Gli spostamenti d_E della struttura sotto l'azione sismica di progetto allo SLV si ottengono moltiplicando per il fattore di duttilità in spostamento μ_d i valori d_{Ee} ottenuti dall'analisi lineare, dinamica o statica, secondo l'espressione seguente:

$$d_E = \pm \mu_d \cdot d_{Ee} \qquad (7.3.8)$$

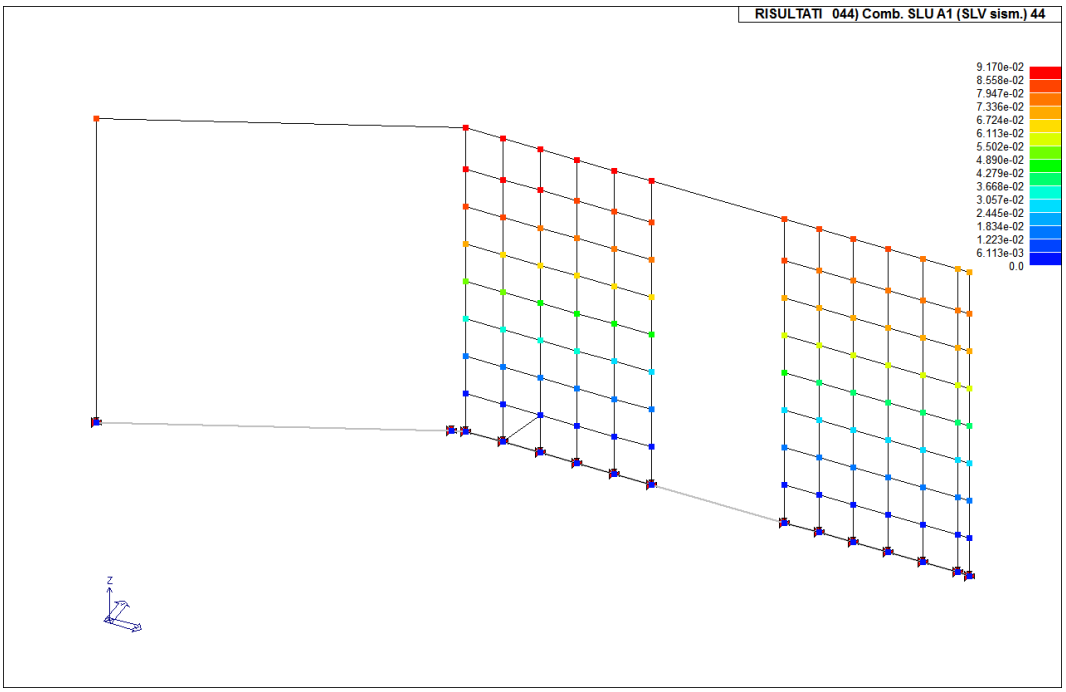
dove:

$$\mu_d = q \qquad \text{se } T_1 \geq T_C$$

$$\mu_d = 1 + (q-1) \cdot T_C / T_1 \qquad \text{se } T_1 < T_C \qquad (7.3.9)$$

In ogni caso:

$$\mu_d \leq 5\,q - 4$$



T_1	0,081	[s^{-1}]
T_C	0,5	[s^{-1}]
q	1,5	
μ_d	3,5	= 5 q-4
d_{Ee}	0,1	[cm]
d_E	0,35	[cm]

7.2.1 Spostamento massimo di una costruzione non isolata alla base

Qualora non si possano eseguire calcoli specifici, lo spostamento massimo di una costruzione non isolata alla base può essere stimato in 1/100 della sua altezza, misurata come sopra, moltiplicata per a_g S / g; in questo caso, la distanza tra costruzioni contigue non potrà essere inferiore alla somma degli spostamenti massimi di ciascuna di esse.
Spostamento massimo di una costruzione non isolata:

H	420	
a_g	0,131	g
S_T	1	
S_S	1,8	
d_{min}	0,99036	cm

7.2.1 Distanza tra costruzioni contigue

La distanza tra costruzioni contigue deve essere tale da evitare fenomeni di martellamento e comunque non può essere inferiore alla somma degli spostamenti massimi determinati per lo *SLV*, calcolati per ciascuna costruzione secondo il § 7.3.3 (analisi lineare) o il § 7.3.4 (analisi non lineare) e tenendo conto, laddove significativo, dello spostamento relativo delle fondazioni delle due costruzioni contigue, secondo quanto indicato ai §§ 3.2.4.1, 3.2.4.2 e 7.3.5.

Distanza minima d_{min} tra 2 punti che si fronteggiano:

Caso costruzione nuova e costruzione esistente:

$$\mu_d \cdot d_{Ee} + d_{min} = 0{,}35 \text{ cm} + 0{,}99 \text{ cm} = 1{,}35 \text{ cm} < 12{,}5 \text{ cm}$$