LOGO:

TITOLO PROGETTO:

SISTEMA IDRICO DEL MENTA

DESCRIZIONE PROGETTO:

LAVORI DI COMPLETAMENTO DELLO SCHEMA IDRICO SULLA DIGA DEL TORRENTE MENTA: OPERE DI BY-PASS DEL TRATTO TERMINALE DELLA CONDOTTA FORZATA PER L'AVVIO DELL'ADDUZIONE IDROPOTABILE

EMISSIONE	-	GEOM. R. ROTUNDO	ING. D. COSTANTINO	ING. D. COSTANTINO	0	16/02/2017
MOTIVO	FASE P.D.P.	ELABORATO	VERIFICATO	APPROVATO	REV.	DATA

FASE:

PROGETTO DEFINITIVO - ESECUTIVO

APPROVAZIONI:

GRUPPO DI PROGETTAZIONE:

Dott. Ing. Domenico COSTANTINO

SIA - Studio Ingegneri Associati:
Dott. Ing. Luigi DE BONI
Dott. Ing. Giancarlo MADONI
Dott. Ing. Poul Erik NIELSEN

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Dott. Ing. Giuseppe SORRENTINO

RESPONSABILE SERVIZI INGEGNERIA:
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UNITA' DI PROGETTAZIONE SORICAL:
Dott. Ing. Luca VITALE
Dott. Ing. Giuseppe VIGGIANI

IMPRESA:

CONSORZIO CONPAT S.C.A.R.L.

L'IMPRESA DESIGNATA

TIPO DOCUMENTO:

FASCICOLO DEI CALCOLI STRUTTURALI

ELEMENTO/ITEM:

VASCA DI DISCONNESSIONE 1 - CAMERA DI MANOVRA

SCALA	LINGUA	FORMATO	TAVOLA	P.D.P.
-	IT	A4	-	

PROGETTO/COMMESSA	ORIGINE/UNUTA'	SISTEMA	PROGRESSIVO		
A.02.4.C	**SOP**	**GET**	**B11**	**-**	**13**

Mod006-02

FONTI CARTOGRAFICHE: REGIONE CALABRIA - CENTRO CARTOGRAFICO / I.G.M. - ISTITUTO GEOGRAFICO MILITARE

SORICAL

(SOCIETA' RISORSE IDRICHE CALABRESI)

LAVORI DI COMPLETAMENTO DELLO SCHEMA IDRICO SULLA DIGA DEL TORRENTE MENTA: OPERE DI BY-PASS DEL TRATTO TERMINALE DELLA CONDOTTA FORZATA PER L'AVVIO DELLA ADDUZIONE IDROPOTABILE

CAMERA DI MANOVRA VASCA N° 1

PROGETTO DEFINITIVO - ESECUTIVO

FASCICOLO DEI CALCOLI

INDICE

1. GENERALITA’

Costituisce oggetto della presente relazione il calcolo di progetto e verifica delle strutture per la realizzazione di una camra di manovra n° 1.

Le strutture riguardano un elemento in conglomerato cementizio armato necessario alla realizzazione di una vasca di disconnessione di lunghezza totale pari a circa 12.60 m e sezione interna trasversale rettangolare, con larghezza 10.60m ed altezza 6.49 m (considerata nella sezione media degli elementi strutturali), con soletta superiore spessore 0.30 m e montanti laterali di spessore pari a 0.30 m.

Le fondazioni sono costituite da elementi plate in calcestruzzo armato gettato in opera spessore pari a 0.50 m.

I muri perimetrali sono composti da lastra in c.a. gettata in opera ed anche l’impalcato è realizzato con soletta gettata in opera.

Nei paragrafi seguenti si illustrano gli aspetti salienti del calcolo dell’intera struttura: soletta di copertura, pareti laterali e delle fondazioni.

Il calcolo dei parametri geotecnici è stato effettuato estrapolando i dati della “Relazione Geologica”

2. IPOTESI DI CALCOLO

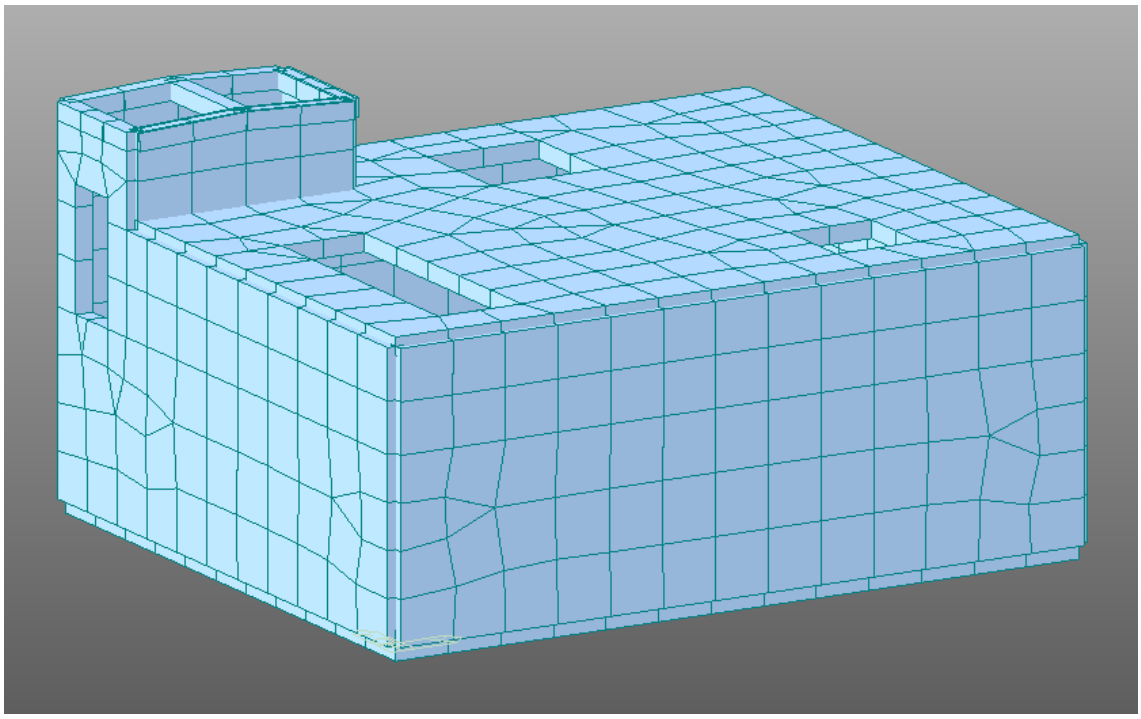
Per ricavare le azioni assiali, flettenti e di taglio agenti sulle strutture è stato schematizzata una porzione significativa rappresentante l'intera struttura in oggetto, facendo ricorso al programma di calcolo agli elementi finiti MIDAS GEN 2013 v1.1, distribuito dalla C.S.P. FEA di Este (PD).

La modellazione di seguito implementata ha fatto ricorso all'utilizzo di elementi bidimensionali a 4 nodi di tipo "plate" per la platea e "plane stress" per le pareti e soletta, i primi ancorati al terreno con molle alla winkler tipo sprig supports .

I carichi verticali sull'impalcato e orizzontali sulle pareti, sono stati applicati come pressioni sulle superfici dei singoli elementi.

L'incremento dinamico dell'azione della spinta del terrapieno è stato calcolato in termini di pressioni efficaci e di pressioni neutre.

I risultati del calcolo sono costituiti dalle azioni in tutti gli elementi costituenti il modello nelle combinazioni di tipo SLU, SLV (sismica), SLf, SLr, SLqp.



Vista assonometrica del modello F.E.M.

2.1 Geometria strutturale

NUMERAZIONE DEI NODI

Tabella Node

Node	X(cm)	Y(cm)	Z(cm)
1	0.000000	0.000000	0.000000
2	1230.000000	0.000000	0.000000
3	0.000000	1030.000000	0.000000
4	1230.000000	1030.000000	0.000000
5	194.000000	815.000000	0.000000
6	479.000000	815.000000	0.000000
7	934.000000	815.000000	0.000000
8	1230.000000	815.000000	0.000000
9	875.000000	1030.000000	0.000000
14	94.615385	0.000000	0.000000
15	189.230769	0.000000	0.000000
16	283.846154	0.000000	0.000000
17	378.461538	0.000000	0.000000
18	473.076923	0.000000	0.000000
19	567.692308	0.000000	0.000000
20	662.307692	0.000000	0.000000
21	756.923077	0.000000	0.000000
22	851.538462	0.000000	0.000000
23	946.153846	0.000000	0.000000
24	1040.769231	0.000000	0.000000
25	1135.384615	0.000000	0.000000
27	1230.000000	90.555556	0.000000
28	1230.000000	181.111111	0.000000
29	1230.000000	271.666667	0.000000
30	1230.000000	362.222222	0.000000
31	1230.000000	452.777778	0.000000
32	1230.000000	543.333333	0.000000
33	1230.000000	633.888889	0.000000
34	1230.000000	724.444444	0.000000
36	1230.000000	886.666667	0.000000
37	1230.000000	958.333333	0.000000
39	1141.250000	1030.000000	0.000000
40	1052.500000	1030.000000	0.000000
41	963.750000	1030.000000	0.000000
43	777.777778	1030.000000	0.000000
44	680.555556	1030.000000	0.000000
45	583.333333	1030.000000	0.000000
46	486.111111	1030.000000	0.000000
47	388.888889	1030.000000	0.000000
48	291.666667	1030.000000	0.000000
49	194.444444	1030.000000	0.000000
50	97.222222	1030.000000	0.000000
52	0.000000	936.363636	0.000000
53	0.000000	842.727273	0.000000
54	0.000000	749.090909	0.000000
55	0.000000	655.454545	0.000000
56	0.000000	561.818182	0.000000
57	0.000000	468.181818	0.000000
58	0.000000	374.545455	0.000000
59	0.000000	280.909091	0.000000

Node	X(cm)	Y(cm)	Z(cm)
60	0.000000	187.272727	0.000000
61	0.000000	93.636364	0.000000
62	678.496305	554.719342	0.000000
63	478.300155	573.870001	0.000000
64	579.921056	555.131448	0.000000
65	518.308030	639.578318	0.000000
66	94.539540	93.759368	0.000000
67	97.921411	930.234652	0.000000
68	1136.097786	91.037273	0.000000
69	1132.758194	942.041732	0.000000
70	967.268709	907.126641	0.000000
71	1137.293962	181.481433	0.000000
72	1137.524603	272.369866	0.000000
73	1138.123124	363.271655	0.000000
74	1139.432984	453.708691	0.000000
75	1141.385064	544.039737	0.000000
76	1145.155742	633.572389	0.000000
77	96.767851	815.000000	0.000000
78	93.799224	743.811804	0.000000
79	93.479776	651.815698	0.000000
80	93.460193	560.389141	0.000000
81	93.847159	467.211527	0.000000
82	94.114795	374.103617	0.000000
83	94.470619	280.747570	0.000000
84	94.552755	187.299373	0.000000
85	189.401272	93.782051	0.000000
86	284.222582	93.827081	0.000000
87	379.095553	93.840285	0.000000
88	473.729889	94.028659	0.000000
89	568.207749	94.231464	0.000000
90	663.294815	93.559107	0.000000
91	758.053420	93.084400	0.000000
92	852.771743	92.437629	0.000000
93	947.061798	92.374253	0.000000
94	1041.575597	92.044966	0.000000
95	678.237518	928.664979	0.000000
96	580.491302	924.210335	0.000000
97	483.103637	920.788409	0.000000
98	387.347447	924.402930	0.000000
99	289.999893	924.689514	0.000000
100	194.324687	923.872553	0.000000
101	1152.499664	719.240839	0.000000
102	776.160492	929.922583	0.000000
103	1055.368660	927.303354	0.000000
104	873.798959	926.879895	0.000000
105	1150.803560	865.016005	0.000000
106	1156.408287	799.849168	0.000000
107	189.467023	187.365842	0.000000
108	1042.882766	182.886661	0.000000
109	287.656792	815.000000	0.000000
110	1079.023427	826.046166	0.000000
111	194.000000	734.539913	0.000000
112	1051.532897	547.034011	0.000000
113	1056.863489	638.483909	0.000000
114	1048.219987	455.860157	0.000000
115	1045.859891	364.702357	0.000000
116	1044.384672	273.695668	0.000000

Node	X(cm)	Y(cm)	Z(cm)
117	189.396641	280.758791	0.000000
118	188.990001	373.917671	0.000000
119	188.764822	466.227595	0.000000
120	188.563316	557.401568	0.000000
121	194.000000	647.550872	0.000000
122	948.410465	184.199138	0.000000
123	854.093589	185.019582	0.000000
124	759.426340	186.135260	0.000000
125	664.576705	186.927148	0.000000
126	284.584637	187.493829	0.000000
127	379.848311	187.507651	0.000000
128	569.311821	187.969515	0.000000
129	474.472581	188.050334	0.000000
130	386.676747	822.024345	0.000000
131	580.141605	826.615824	0.000000
132	678.581613	830.900579	0.000000
133	861.080624	835.372280	0.000000
134	774.562241	832.904936	0.000000
135	1064.470662	731.572953	0.000000
136	284.914337	280.893934	0.000000
137	950.369377	275.451331	0.000000
138	283.331060	738.210609	0.000000
139	961.080761	550.072911	0.000000
140	956.248733	458.248026	0.000000
141	952.761390	366.838309	0.000000
142	284.953714	374.095243	0.000000
143	285.195305	465.254400	0.000000
144	284.202620	556.045953	0.000000
145	855.990913	277.458484	0.000000
146	761.427305	278.800767	0.000000
147	666.323644	279.899634	0.000000
148	380.932167	280.936314	0.000000
149	571.058033	281.303922	0.000000
150	475.940516	281.424451	0.000000
151	682.143793	737.326346	0.000000
152	967.872692	642.144546	0.000000
153	281.594477	647.423826	0.000000
154	783.369828	740.967396	0.000000
155	582.769229	732.798155	0.000000
156	382.389532	731.861462	0.000000
157	978.132102	734.305794	0.000000
158	482.011485	711.795413	0.000000
159	890.111932	746.234051	0.000000
160	382.365387	374.182857	0.000000
161	858.832396	369.197800	0.000000
162	369.809521	645.939089	0.000000
163	876.553138	646.936859	0.000000
164	863.142882	460.858085	0.000000
165	382.851882	464.819782	0.000000
166	669.179482	372.968144	0.000000
167	764.369813	371.160236	0.000000
168	572.632523	375.022651	0.000000
169	477.274815	375.331334	0.000000
170	868.779383	552.907035	0.000000
171	381.024946	557.379253	0.000000
172	684.484861	644.175422	0.000000
173	779.612463	645.808966	0.000000

Node	X(cm)	Y(cm)	Z(cm)
174	999.364479	815.732178	0.000000
175	441.552949	643.926898	0.000000
176	591.960912	634.637215	0.000000
177	478.128186	470.631087	0.000000
178	773.866087	554.007835	0.000000
179	768.254858	463.118007	0.000000
180	672.816524	464.558052	0.000000
181	574.615171	466.772549	0.000000
182	0.000000	0.000000	310.000000
183	1230.000000	0.000000	310.000000
184	0.000000	1030.000000	310.000000
185	1230.000000	1030.000000	310.000000
186	1230.000000	815.000000	310.000000
187	875.000000	1030.000000	310.000000
188	94.615385	0.000000	310.000000
189	189.230769	0.000000	310.000000
190	283.846154	0.000000	310.000000
191	378.461538	0.000000	310.000000
192	473.076923	0.000000	310.000000
193	567.692308	0.000000	310.000000
194	662.307692	0.000000	310.000000
195	756.923077	0.000000	310.000000
196	851.538462	0.000000	310.000000
197	946.153846	0.000000	310.000000
198	1040.769231	0.000000	310.000000
199	1135.384615	0.000000	310.000000
200	1230.000000	90.555556	310.000000
201	1230.000000	181.111111	310.000000
202	1230.000000	271.666667	310.000000
203	1230.000000	362.222222	310.000000
204	1230.000000	452.777778	310.000000
205	1230.000000	543.333333	310.000000
206	1230.000000	633.888889	310.000000
207	1230.000000	724.444444	310.000000
208	1230.000000	872.666667	310.000000
209	1230.000000	972.333333	310.000000
210	1141.250000	1030.000000	310.000000
211	1052.500000	1030.000000	310.000000
212	963.750000	1030.000000	310.000000
213	777.777778	1030.000000	310.000000
214	680.555556	1030.000000	310.000000
215	583.333333	1030.000000	310.000000
216	486.111111	1030.000000	310.000000
217	388.888889	1030.000000	310.000000
218	291.666667	1030.000000	310.000000
219	194.444444	1030.000000	310.000000
220	97.222222	1030.000000	310.000000
221	0.000000	972.000000	310.000000
222	0.000000	815.000000	310.000000
223	0.000000	749.090909	310.000000
224	0.000000	655.454545	310.000000
225	0.000000	561.818182	310.000000
226	0.000000	468.181818	310.000000
227	0.000000	374.545455	310.000000
228	0.000000	280.909091	310.000000
229	0.000000	187.272727	310.000000
230	0.000000	93.636364	310.000000

Node	X(cm)	Y(cm)	Z(cm)
231	0.000000	0.000000	482.500000
232	1230.000000	0.000000	482.500000
233	0.000000	1030.000000	482.500000
234	1230.000000	1030.000000	482.500000
235	1230.000000	815.000000	482.500000
236	875.000000	1030.000000	482.500000
237	94.615385	0.000000	482.500000
238	189.230769	0.000000	482.500000
239	283.846154	0.000000	482.500000
240	378.461538	0.000000	482.500000
241	473.076923	0.000000	482.500000
242	567.692308	0.000000	482.500000
243	662.307692	0.000000	482.500000
244	756.923077	0.000000	482.500000
245	851.538462	0.000000	482.500000
246	946.153846	0.000000	482.500000
247	1040.769231	0.000000	482.500000
248	1135.384615	0.000000	482.500000
249	1230.000000	90.555556	482.500000
250	1230.000000	181.111111	482.500000
251	1230.000000	271.666667	482.500000
252	1230.000000	362.222222	482.500000
253	1230.000000	452.777778	482.500000
254	1230.000000	543.333333	482.500000
255	1230.000000	633.888889	482.500000
256	1230.000000	724.444444	482.500000
259	1141.250000	1030.000000	482.500000
260	1052.500000	1030.000000	482.500000
261	963.750000	1030.000000	482.500000
262	777.777778	1030.000000	482.500000
263	680.555556	1030.000000	482.500000
264	583.333333	1030.000000	482.500000
265	486.111111	1030.000000	482.500000
266	388.888889	1030.000000	482.500000
267	291.666667	1030.000000	482.500000
268	194.444444	1030.000000	482.500000
269	97.222222	1030.000000	482.500000
270	0.000000	972.000000	482.500000
271	0.000000	815.000000	482.500000
272	0.000000	749.090909	482.500000
273	0.000000	655.454545	482.500000
274	0.000000	561.818182	482.500000
275	0.000000	468.181818	482.500000
276	0.000000	374.545455	482.500000
277	0.000000	280.909091	482.500000
278	0.000000	187.272727	482.500000
279	0.000000	93.636364	482.500000
314	0.000000	0.000000	77.500000
315	0.000000	0.000000	155.000000
316	0.000000	0.000000	232.500000
317	0.000000	0.000000	396.250000
320	0.000000	1030.000000	396.250000
321	0.000000	1030.000000	232.500000
322	0.000000	1030.000000	155.000000
323	0.000000	1030.000000	77.500000
328	0.000000	93.389070	395.872366
329	0.000000	972.220000	395.842437

Node	X(cm)	Y(cm)	Z(cm)
332	0.000000	749.274174	395.977389
339	0.000000	655.541038	395.868182
340	0.000000	561.828700	396.239508
341	0.000000	468.170835	396.245321
342	0.000000	374.493421	396.237936
343	0.000000	280.734122	396.154322
344	0.000000	186.990994	395.968662
345	0.000000	815.000000	395.894345
400	1230.000000	0.000000	77.500000
401	1230.000000	0.000000	155.000000
402	1230.000000	0.000000	232.500000
403	1230.000000	0.000000	396.250000
406	277.812587	0.000000	205.071414
407	757.429117	0.000000	206.531902
408	853.084665	0.000000	206.186392
409	951.206632	0.000000	204.169880
410	94.113253	0.000000	395.220002
411	1135.646827	0.000000	395.811224
412	1131.082398	0.000000	79.080419
413	99.969140	0.000000	85.183374
414	946.332210	0.000000	395.945754
415	280.910278	0.000000	104.900545
416	377.157086	0.000000	103.835640
417	472.486937	0.000000	103.441852
418	567.507073	0.000000	103.447498
419	662.345334	0.000000	103.374906
420	757.168266	0.000000	103.401116
421	851.992194	0.000000	103.416878
422	946.454197	0.000000	103.415542
423	283.600246	0.000000	395.855618
424	378.393739	0.000000	396.174815
425	473.067962	0.000000	396.253769
426	567.694021	0.000000	396.235040
427	662.325026	0.000000	396.171145
428	756.967837	0.000000	396.064427
429	851.633683	0.000000	396.095067
430	188.803411	0.000000	395.318007
431	1041.030726	0.000000	395.883915
432	186.251781	0.000000	99.508726
433	1043.098851	0.000000	99.284812
434	79.400915	0.000000	232.609393
435	1145.794392	0.000000	230.614372
436	1150.253137	0.000000	155.453610
437	83.614982	0.000000	165.785494
438	169.414243	0.000000	203.282439
439	1059.647866	0.000000	199.905447
440	376.520562	0.000000	206.383199
441	567.501877	0.000000	206.667788
442	472.412850	0.000000	206.612985
443	662.410087	0.000000	206.643872
471	1230.000000	1030.000000	77.500000
472	1230.000000	1030.000000	155.000000
473	1230.000000	1030.000000	232.500000
527	1230.000000	815.000000	396.250000
530	1230.000000	362.211868	396.250000
531	1230.000000	452.785920	396.250000
532	1230.000000	543.374791	396.250000

Node	X(cm)	Y(cm)	Z(cm)
533	1230.000000	633.969067	396.250000
534	1230.000000	90.410169	396.250000
535	1230.000000	724.589831	396.250000
536	1230.000000	181.030933	396.250000
537	1230.000000	271.625209	396.250000
582	1144.746170	1030.000000	154.904581
583	91.465147	1030.000000	157.699063
584	1063.454568	1030.000000	157.702317
585	875.830464	1030.000000	202.864134
586	1140.600491	1030.000000	76.015361
587	1144.843224	1030.000000	230.922827
588	87.570891	1030.000000	225.726266
589	105.629422	1030.000000	79.665045
590	1047.912121	1030.000000	71.957783
591	1061.622113	1030.000000	227.345384
592	963.143215	1030.000000	92.356127
593	978.191777	1030.000000	199.202334
594	777.210722	1030.000000	102.261644
595	778.504328	1030.000000	205.338468
596	680.236097	1030.000000	103.017632
597	583.100921	1030.000000	103.200855
598	485.785291	1030.000000	103.212697
599	387.989797	1030.000000	103.160813
600	290.023373	1030.000000	103.142204
601	680.566586	1030.000000	206.252041
602	583.206893	1030.000000	206.468606
603	485.786881	1030.000000	206.340885
604	387.549515	1030.000000	205.424858
605	286.008057	1030.000000	204.204085
606	193.616178	1030.000000	97.194418
607	175.995260	1030.000000	198.602912
608	872.464727	1030.000000	100.184063
636	1230.000000	1030.000000	396.250000
639	486.096675	1030.000000	396.250000
640	388.860014	1030.000000	396.250000
641	291.613235	1030.000000	396.250000
642	194.324851	1030.000000	396.250000
643	1141.314273	1030.000000	396.250000
644	96.913312	1030.000000	396.250000
645	1052.438130	1030.000000	396.250000
646	963.537203	1030.000000	396.250000
647	874.483612	1030.000000	396.250000
648	777.791114	1030.000000	396.250000
649	680.560395	1030.000000	396.250000
650	583.330654	1030.000000	396.250000
689	120.000000	75.000000	482.500000
690	270.000000	75.000000	482.500000
691	120.000000	565.000000	482.500000
692	270.000000	565.000000	482.500000
693	845.000000	90.000000	482.500000
694	995.000000	90.000000	482.500000
695	845.000000	240.000000	482.500000
696	995.000000	240.000000	482.500000
697	585.000000	715.000000	482.500000
698	785.000000	715.000000	482.500000
699	585.000000	915.000000	482.500000
700	785.000000	915.000000	482.500000

Node	X(cm)	Y(cm)	Z(cm)
711	60.000000	563.409091	482.500000
713	195.000000	565.000000	482.500000
715	348.750000	602.500000	482.500000
716	427.500000	640.000000	482.500000
717	506.250000	677.500000	482.500000
719	585.000000	815.000000	482.500000
721	584.166667	972.500000	482.500000
726	279.845629	758.933856	482.500000
727	487.580087	836.066646	482.500000
729	496.416036	938.966686	482.500000
730	382.430324	733.258703	482.500000
735	297.794270	679.262099	482.500000
736	91.157646	737.491343	482.500000
737	483.216466	753.938562	482.500000
738	202.855543	647.685527	482.500000
739	87.170647	640.197898	482.500000
741	188.135511	746.134499	482.500000
752	120.000000	173.000000	482.500000
753	120.000000	271.000000	482.500000
754	120.000000	369.000000	482.500000
755	120.000000	467.000000	482.500000
769	845.000000	165.000000	482.500000
771	833.000000	335.000000	482.500000
772	821.000000	430.000000	482.500000
773	809.000000	525.000000	482.500000
774	797.000000	620.000000	482.500000
776	685.000000	715.000000	482.500000
779	270.000000	467.000000	482.500000
780	270.000000	369.000000	482.500000
781	270.000000	271.000000	482.500000
782	270.000000	173.000000	482.500000
784	195.000000	75.000000	482.500000
786	637.259773	515.697245	482.500000
787	561.442526	281.426852	482.500000
788	549.673511	371.746106	482.500000
789	556.449025	443.310020	482.500000
790	703.300373	620.903261	482.500000
791	370.929665	87.947797	482.500000
792	741.333354	326.282903	482.500000
793	470.574893	93.097671	482.500000
794	568.277507	94.455231	482.500000
795	719.251310	521.372009	482.500000
796	728.153945	422.394451	482.500000
797	370.519099	380.287825	482.500000
798	368.173424	279.996511	482.500000
799	368.733743	182.037210	482.500000
800	545.908528	590.976654	482.500000
801	465.569136	560.680136	482.500000
802	662.891175	94.433149	482.500000
803	378.935704	491.518179	482.500000
804	764.931816	164.850943	482.500000
805	754.548475	85.785014	482.500000
806	757.002856	236.902746	482.500000
807	618.576792	612.194943	482.500000
808	468.852368	186.246440	482.500000
809	674.363619	196.920048	482.500000
810	564.424832	515.417728	482.500000

Node	X(cm)	Y(cm)	Z(cm)
811	570.086125	189.026673	482.500000
812	464.899915	280.764399	482.500000
813	632.654897	415.406984	482.500000
814	462.045184	379.998249	482.500000
815	651.962775	305.443166	482.500000
816	482.720820	472.775388	482.500000
821	685.000000	915.000000	482.500000
823	781.388889	972.500000	482.500000
825	683.515441	972.630877	482.500000
832	1151.666667	90.370370	482.500000
833	1073.333333	90.185185	482.500000
835	920.000000	90.000000	482.500000
839	785.000000	815.000000	482.500000
865	920.000000	240.000000	482.500000
867	995.000000	165.000000	482.500000
871	1031.161841	457.484625	482.500000
872	1055.307831	548.809896	482.500000
873	1054.561148	359.133306	482.500000
874	979.558698	544.959674	482.500000
875	1140.912506	725.054275	482.500000
876	1150.389114	181.097451	482.500000
877	879.793443	720.281468	482.500000
878	910.458596	329.828097	482.500000
879	1052.500000	726.250000	482.500000
880	1134.598292	453.849682	482.500000
881	1140.487722	543.872436	482.500000
882	1141.693679	635.098288	482.500000
883	898.743416	527.529699	482.500000
884	928.509513	423.872626	482.500000
885	885.826178	625.353231	482.500000
886	965.975154	724.348454	482.500000
887	1141.562480	362.607460	482.500000
888	1149.002619	272.120464	482.500000
889	1070.982409	180.878965	482.500000
890	1068.645735	262.439741	482.500000
891	981.380955	335.908350	482.500000
892	1055.236326	636.813884	482.500000
893	969.070832	633.664718	482.500000
926	1230.000000	872.666667	482.500000
927	1230.000000	972.333333	482.500000
931	1230.000000	872.666667	396.250000
937	1230.000000	972.333333	396.250000
984	1230.000000	306.792953	143.476681
985	1230.000000	496.760672	154.377548
986	1230.000000	406.031493	154.649546
987	1230.000000	588.611111	155.000000
988	1230.000000	955.894275	78.241886
989	1230.000000	94.567223	78.569331
990	1230.000000	93.680807	232.305078
991	1230.000000	960.110502	233.618526
992	1230.000000	955.331214	155.966649
993	1230.000000	192.197238	77.343917
994	1230.000000	193.426633	232.532274
995	1230.000000	279.522706	69.615293
996	1230.000000	349.379874	66.495680
997	1230.000000	432.626548	75.397257
998	1230.000000	520.627395	75.215777

Node	X(cm)	Y(cm)	Z(cm)
999	1230.000000	609.767920	72.702341
1000	1230.000000	296.659221	236.244055
1001	1230.000000	382.843197	234.454494
1002	1230.000000	467.175589	234.030927
1003	1230.000000	553.000630	237.877429
1004	1230.000000	625.781048	237.859728
1005	1230.000000	707.113469	77.428750
1006	1230.000000	880.508814	78.572434
1007	1230.000000	706.443073	234.481780
1008	1230.000000	881.007014	234.277630
1009	1230.000000	96.182814	155.588946
1010	1230.000000	801.488802	77.529725
1011	1230.000000	804.841581	231.226413
1012	1230.000000	877.213751	155.905246
1013	1230.000000	792.938507	154.751814
1014	1230.000000	694.506731	153.569327
1015	1230.000000	197.514342	157.198179
1016	194.000000	815.000000	168.000000
1017	96.767851	815.000000	168.000000
1018	287.656792	815.000000	168.000000
1019	194.000000	734.539913	168.000000
1020	194.000000	647.550872	168.000000
1024	287.656792	815.000000	84.000000
1028	96.767851	815.000000	84.000000
1029	193.055419	815.000000	84.000000
1033	194.000000	647.550872	84.000000
1037	194.000000	815.000000	84.000000
1038	194.000000	732.988846	84.000000
1039	0.000000	872.000000	482.500000
1040	0.000000	872.220000	395.842437
1041	0.000000	872.000000	310.000000
1042	0.000000	936.363636	310.000000
1043	0.000000	1030.000000	640.000000
1045	0.000000	815.000000	640.000000
1046	0.000000	972.000000	520.500000
1047	0.000000	872.000000	520.500000
1080	0.000000	823.505641	240.599592
1081	0.000000	747.922371	231.309807
1082	0.000000	848.842724	176.950079
1083	0.000000	755.310635	164.091844
1084	0.000000	83.868233	230.640838
1085	0.000000	98.261872	78.604868
1086	0.000000	937.588652	83.715221
1087	0.000000	952.946062	249.996538
1088	0.000000	942.194961	165.099574
1089	0.000000	657.556420	102.827487
1090	0.000000	562.943813	103.387589
1091	0.000000	468.672068	103.710548
1092	0.000000	374.147061	102.705425
1093	0.000000	279.380128	101.384161
1094	0.000000	564.653147	206.007648
1095	0.000000	468.187609	206.254701
1096	0.000000	373.286529	205.179426
1097	0.000000	276.296537	201.249477
1098	0.000000	185.894212	96.619909
1099	0.000000	172.096895	200.762958
1100	0.000000	667.910778	206.191161

Node	X(cm)	Y(cm)	Z(cm)
1101	0.000000	750.326871	80.660999
1102	0.000000	80.161489	155.000000
1103	0.000000	843.312146	89.743687
1104	0.000000	874.376472	248.107952
1110	0.000000	815.000000	561.250000
1112	0.000000	886.666667	640.000000
1113	0.000000	958.333333	640.000000
1115	0.000000	1030.000000	561.250000
1120	0.000000	872.000000	396.250000
1121	0.000000	892.323220	573.758899
1122	0.000000	952.353766	573.980097
1123	388.888889	815.000000	482.500000
1135	388.888889	958.333333	482.500000
1136	388.888889	886.666667	482.500000
1138	291.666667	815.000000	482.500000
1139	194.444444	815.000000	482.500000
1140	97.222222	815.000000	482.500000
1141	388.888889	1030.000000	640.000000
1142	388.888889	815.000000	640.000000
1143	194.444444	1030.000000	649.000000
1144	194.444444	815.000000	649.000000
1149	388.888889	815.000000	561.250000
1151	388.888889	886.666667	640.000000
1152	388.888889	958.333333	640.000000
1154	388.888889	1030.000000	561.250000
1155	388.888889	958.444677	561.250000
1156	388.888889	886.946393	561.250000
1165	291.666667	815.000000	644.500000
1167	97.222222	815.000000	644.500000
1169	96.732735	815.000000	562.786089
1170	292.695572	815.000000	562.779873
1171	194.617486	815.000000	564.155701
1180	97.222222	1030.000000	644.500000
1182	291.666667	1030.000000	644.500000
1184	292.156154	1030.000000	562.786089
1185	96.193317	1030.000000	562.779873
1186	194.271403	1030.000000	564.155701
1205	873.378737	828.761611	482.500000
1206	1147.711051	808.020105	482.500000
1207	1059.985472	878.755477	482.500000
1208	1150.247148	881.860549	482.500000
1209	1149.382463	955.994660	482.500000
1210	1053.068637	941.331852	482.500000
1211	975.439238	914.688956	482.500000
1212	967.771339	826.944273	482.500000
1213	859.768451	939.513745	482.500000
1214	1054.246661	809.978536	482.500000

2.2 MATERIALI

MATERIALI

Tabella Matl

ID	Name	Type	Standard	Code	DB	Use Mass Density	Elasticity (kN/cm^2)	Poisson	Thermal (1/[F])	Density (kN/cm^3)	Mass Density (kN/cm^3/g)
1	C32/40	Concrete	NTC08(RC)		C32/40	X	3.3345e+003	0.2	5.5556e-006	2.5000e-005	2.5493e-008

2.3 ELEMENTI STRUTTURALI

Tabella SectAll

ID	Type	Shape	Name	Area (cm^2)	Asy (cm^2)	Asz (cm^2)	Ixx (cm^4)	Iyy (cm^4)	Izz (cm^4)	Cyp (cm)	Cym (cm)	Czp (cm)	Czm (cm)	Qyb (cm^2)	Qzb (cm^2)	Peri. (Out) (cm)	Peri. (In) (cm)
1	DB/User	SB	C0RDOLO	900.0000	750.0000	750.0000	113906.2500	67500.0000	67500.0000	15.0000	15.0000	15.0000	15.0000	112.5000	112.5000	120.0000	0.0000

Tabella Thik

ID	Type	In=Out	Thick-In(cm)	Thick-Out(cm)	Offset	Offset Type	Offset Ratio	Offset Value(cm)
1	Value	Yes	50.0000	0.0000	No	Ratio	0.0000	0.0000
2	Value	Yes	30.0000	0.0000	No	Ratio	0.0000	0.0000
3	Value	Yes	20.0000	0.0000	No	Ratio	0.0000	0.0000
4	Value	Yes	150.0000	0.0000	No	Ratio	0.0000	0.0000

2.4 ELEMENTI

Tabella Element

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
1	PLATE	Thick(w/ Drill)	0	1	1	0.00	63	64	176	65
2	PLATE	Thick(w/ Drill)	0	1	1	0.00	119	143	144	120
3	PLATE	Thick(w/ Drill)	0	1	1	0.00	139	112	113	152
4	PLATE	Thick(w/ Drill)	0	1	1	0.00	102	104	9	43
5	PLATE	Thick(w/ Drill)	0	1	1	0.00	125	124	146	147
6	PLATE	Thick(w/ Drill)	0	1	1	0.00	148	150	169	160
7	PLATE	Thick(w/ Drill)	0	1	1	0.00	147	146	167	166
8	PLATE	Thick(w/ Drill)	0	1	1	0.00	157	135	110	174
9	PLATE	Thick(w/ Drill)	0	1	1	0.00	176	172	151	155
10	PLATE	Thick(w/ Drill)	0	1	1	0.00	105	36	37	69
12	PLATE	Thick(w/ Drill)	0	1	1	0.00	149	147	166	168
13	PLATE	Thick(w/ Drill)	0	1	1	0.00	162	175	158	156

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
14	PLATE	Thick(w/ Drill)	0	1	1	0.00	98	97	46	47
15	PLATE	Thick(w/ Drill)	0	1	1	0.00	179	164	170	178
16	PLATE	Thick(w/ Drill)	0	1	1	0.00	56	80	79	55
17	PLATE	Thick(w/ Drill)	0	1	1	0.00	173	163	159	154
18	PLATE	Thick(w/ Drill)	0	1	1	0.00	19	20	90	89
19	PLATE	Thick(w/ Drill)	0	1	1	0.00	180	179	178	62
20	PLATE	Thick(w/ Drill)	0	1	1	0.00	86	87	127	126
21	PLATE	Thick(w/ Drill)	0	1	1	0.00	181	180	62	64
22	PLATE	Thick(w/ Drill)	0	1	1	0.00	145	137	141	161
23	PLATE	Thick(w/ Drill)	0	1	1	0.00	170	139	152	163
24	PLATE	Thick(w/ Drill)	0	1	1	0.00	25	2	27	68
25	PLATE	Thick(w/ Drill)	0	1	1	0.00	15	16	86	85
26	PLATE	Thick(w/ Drill)	0	1	1	0.00	142	160	165	143
27	PLATE	Thick(w/ Drill)	0	1	1	0.00	136	148	160	142
28	PLATE	Thick(w/ Drill)	0	1	1	0.00	58	82	81	57
29	PLATE	Thick(w/ Drill)	0	1	1	0.00	104	70	41	9
30	PLATE	Thick(w/ Drill)	0	1	1	0.00	171	63	175	162
31	PLATE	Thick(w/ Drill)	0	1	1	0.00	172	173	154	151
32	PLATE	Thick(w/ Drill)	0	1	1	0.00	75	32	33	76
33	PLATE	Thick(w/ Drill)	0	1	1	0.00	144	171	162	153
34	PLATE	Thick(w/ Drill)	0	1	1	0.00	146	145	161	167
35	PLATE	Thick(w/ Drill)	0	1	1	0.00	161	141	140	164
36	PLATE	Thick(w/ Drill)	0	1	1	0.00	166	167	179	180
37	PLATE	Thick(w/ Drill)	0	1	1	0.00	155	151	132	131
38	PLATE	Thick(w/ Drill)	0	1	1	0.00	73	30	31	74
39	PLATE	Thick(w/ Drill)	0	1	1	0.00	76	33	34	101
40	PLATE	Thick(w/ Drill)	0	1	1	0.00	168	166	180	181
41	PLATE	Thick(w/ Drill)	0	1	1	0.00	169	168	181	177
42	PLATE	Thick(w/ Drill)	0	1	1	0.00	177	181	64	63
44	PLATE	Thick(w/ Drill)	0	1	1	0.00	165	177	63	171
45	PLATE	Thick(w/ Drill)	0	1	1	0.00	156	158	6	130
46	PLATE	Thick(w/ Drill)	0	1	1	0.00	122	108	116	137
47	PLATE	Thick(w/ Drill)	0	1	1	0.00	24	25	68	94
48	PLATE	Thick(w/ Drill)	0	1	1	0.00	6	131	96	97
49	PLATE	Thick(w/ Drill)	0	1	1	0.00	134	133	104	102
50	PLATE	Thick(w/ Drill)	0	1	1	0.00	74	31	32	75
51	PLATE	Thick(w/ Drill)	0	1	1	0.00	135	101	106	110
52	PLATE	Thick(w/ Drill)	0	1	1	0.00	65	176	155	158
53	PLATE	Thick(w/ Drill)	0	1	1	0.00	20	21	91	90
54	PLATE	Thick(w/ Drill)	0	1	1	0.00	140	114	112	139
55	PLATE	Thick(w/ Drill)	0	1	1	0.00	87	88	129	127
56	PLATE	Thick(w/ Drill)	0	1	1	0.00	63	65	158	175
57	PLATE	Thick(w/ Drill)	0	1	1	0.00	94	68	71	108
58	PLATE	Thick(w/ Drill)	0	1	1	0.00	70	103	40	41
59	PLATE	Thick(w/ Drill)	0	1	1	0.00	55	79	78	54
61	PLATE	Thick(w/ Drill)	0	1	1	0.00	129	128	149	150
63	PLATE	Thick(w/ Drill)	0	1	1	0.00	95	102	43	44
64	PLATE	Thick(w/ Drill)	0	1	1	0.00	68	27	28	71
65	PLATE	Thick(w/ Drill)	0	1	1	0.00	64	62	172	176
66	PLATE	Thick(w/ Drill)	0	1	1	0.00	23	24	94	93
67	PLATE	Thick(w/ Drill)	0	1	1	0.00	62	178	173	172
68	PLATE	Thick(w/ Drill)	0	1	1	0.00	85	86	126	107
69	PLATE	Thick(w/ Drill)	0	1	1	0.00	52	67	50	3
70	PLATE	Thick(w/ Drill)	0	1	1	0.00	178	170	163	173
71	PLATE	Thick(w/ Drill)	0	1	1	0.00	59	83	82	58
72	PLATE	Thick(w/ Drill)	0	1	1	0.00	96	95	44	45
73	PLATE	Thick(w/ Drill)	0	1	1	0.00	83	117	118	82

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
74	PLATE	Thick(w/ Drill)	0	1	1	0.00	167	161	164	179
75	PLATE	Thick(w/ Drill)	0	1	1	0.00	60	84	83	59
77	PLATE	Thick(w/ Drill)	0	1	1	0.00	116	72	73	115
78	PLATE	Thick(w/ Drill)	0	1	1	0.00	67	100	49	50
79	PLATE	Thick(w/ Drill)	0	1	1	0.00	131	132	95	96
80	PLATE	Thick(w/ Drill)	0	1	1	0.00	163	152	157	159
81	PLATE	Thick(w/ Drill)	0	1	1	0.00	91	92	123	124
82	PLATE	Thick(w/ Drill)	0	1	1	0.00	101	34	8	106
83	PLATE	Thick(w/ Drill)	0	1	1	0.00	16	17	87	86
84	PLATE	Thick(w/ Drill)	0	1	1	0.00	93	94	108	122
85	PLATE	Thick(w/ Drill)	0	1	1	0.00	61	66	84	60
86	PLATE	Thick(w/ Drill)	0	1	1	0.00	113	76	101	135
87	PLATE	Thick(w/ Drill)	0	1	1	0.00	150	149	168	169
89	PLATE	Thick(w/ Drill)	0	1	1	0.00	14	15	85	66
91	PLATE	Thick(w/ Drill)	0	1	1	0.00	174	110	103	70
92	PLATE	Thick(w/ Drill)	0	1	1	0.00	18	19	89	88
93	PLATE	Thick(w/ Drill)	0	1	1	0.00	99	98	47	48
94	PLATE	Thick(w/ Drill)	0	1	1	0.00	71	28	29	72
95	PLATE	Thick(w/ Drill)	0	1	1	0.00	126	127	148	136
96	PLATE	Thick(w/ Drill)	0	1	1	0.00	21	22	92	91
97	PLATE	Thick(w/ Drill)	0	1	1	0.00	69	37	4	39
98	PLATE	Thick(w/ Drill)	0	1	1	0.00	97	96	45	46
99	PLATE	Thick(w/ Drill)	0	1	1	0.00	100	99	48	49
100	PLATE	Thick(w/ Drill)	0	1	1	0.00	110	105	69	103
101	PLATE	Thick(w/ Drill)	0	1	1	0.00	114	74	75	112
102	PLATE	Thick(w/ Drill)	0	1	1	0.00	108	71	72	116
103	PLATE	Thick(w/ Drill)	0	1	1	0.00	106	8	36	105
104	PLATE	Thick(w/ Drill)	0	1	1	0.00	107	126	136	117
105	PLATE	Thick(w/ Drill)	0	1	1	0.00	1	14	66	61
106	PLATE	Thick(w/ Drill)	0	1	1	0.00	72	29	30	73
107	PLATE	Thick(w/ Drill)	0	1	1	0.00	92	93	122	123
108	PLATE	Thick(w/ Drill)	0	1	1	0.00	22	23	93	92
109	PLATE	Thick(w/ Drill)	0	1	1	0.00	81	119	120	80
110	PLATE	Thick(w/ Drill)	0	1	1	0.00	57	81	80	56
111	PLATE	Thick(w/ Drill)	0	1	1	0.00	103	69	39	40
112	PLATE	Thick(w/ Drill)	0	1	1	0.00	17	18	88	87
113	PLATE	Thick(w/ Drill)	0	1	1	0.00	89	90	125	128
115	PLATE	Thick(w/ Drill)	0	1	1	0.00	82	118	119	81
116	PLATE	Thick(w/ Drill)	0	1	1	0.00	84	107	117	83
117	PLATE	Thick(w/ Drill)	0	1	1	0.00	128	125	147	149
118	PLATE	Thick(w/ Drill)	0	1	1	0.00	137	116	115	141
120	PLATE	Thick(w/ Drill)	0	1	1	0.00	160	169	177	165
121	PLATE	Thick(w/ Drill)	0	1	1	0.00	133	7	70	104
123	PLATE	Thick(w/ Drill)	0	1	1	0.00	154	159	133	134
124	PLATE	Thick(w/ Drill)	0	1	1	0.00	80	120	121	79
125	PLATE	Thick(w/ Drill)	0	1	1	0.00	130	6	97	98
126	PLATE	Thick(w/ Drill)	0	1	1	0.00	88	89	128	129
127	PLATE	Thick(w/ Drill)	0	1	1	0.00	132	134	102	95
128	PLATE	Thick(w/ Drill)	0	1	1	0.00	117	136	142	118
129	PLATE	Thick(w/ Drill)	0	1	1	0.00	112	75	76	113
130	PLATE	Thick(w/ Drill)	0	1	1	0.00	151	154	134	132
131	PLATE	Thick(w/ Drill)	0	1	1	0.00	141	115	114	140
132	PLATE	Thick(w/ Drill)	0	1	1	0.00	115	73	74	114
133	PLATE	Thick(w/ Drill)	0	1	1	0.00	158	155	131	6
134	PLATE	Thick(w/ Drill)	0	1	1	0.00	90	91	124	125
135	PLATE	Thick(w/ Drill)	0	1	1	0.00	66	85	107	84
136	PLATE	Thick(w/ Drill)	0	1	1	0.00	143	165	171	144

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
137	PLATE	Thick(w/ Drill)	0	1	1	0.00	152	113	135	157
138	PLATE	Thick(w/ Drill)	0	1	1	0.00	118	142	143	119
139	PLATE	Thick(w/ Drill)	0	1	1	0.00	159	157	174	7
140	PLATE	Thick(w/ Drill)	0	1	1	0.00	153	162	156	138
141	PLATE	Thick(w/ Drill)	0	1	1	0.00	127	129	150	148
142	PLATE	Thick(w/ Drill)	0	1	1	0.00	164	140	139	170
143	PLATE	Thick(w/ Drill)	0	1	1	0.00	120	144	153	121
144	PLATE	Thick(w/ Drill)	0	1	1	0.00	124	123	145	146
145	PLATE	Thick(w/ Drill)	0	1	1	0.00	123	122	137	145
146	PLATE	Thick(w/ Drill)	0	1	1	0.00	110	106	105	0
147	PLATE	Thick(w/ Drill)	0	1	1	0.00	159	7	133	0
148	PLATE	Thick(w/ Drill)	0	1	1	0.00	7	174	70	0
155	PLATE	Thick(w/ Drill)	0	1	2	0.00	227	226	341	342
156	PLATE	Thick(w/ Drill)	0	1	2	0.00	225	224	339	340
158	PLATE	Thick(w/ Drill)	0	1	2	0.00	229	228	343	344
159	PLATE	Thick(w/ Drill)	0	1	2	0.00	339	332	272	273
160	PLATE	Thick(w/ Drill)	0	1	2	0.00	342	341	275	276
161	PLATE	Thick(w/ Drill)	0	1	2	0.00	226	225	340	341
166	PLATE	Thick(w/ Drill)	0	1	2	0.00	230	229	344	328
167	PLATE	Thick(w/ Drill)	0	1	2	0.00	344	343	277	278
168	PLATE	Thick(w/ Drill)	0	1	2	0.00	341	340	274	275
172	PLATE	Thick(w/ Drill)	0	1	2	0.00	328	344	278	279
175	PLATE	Thick(w/ Drill)	0	1	2	0.00	223	222	345	332
176	PLATE	Thick(w/ Drill)	0	1	2	0.00	329	320	233	270
182	PLATE	Thick(w/ Drill)	0	1	2	0.00	228	227	342	343
189	PLATE	Thick(w/ Drill)	0	1	2	0.00	221	184	320	329
193	PLATE	Thick(w/ Drill)	0	1	2	0.00	332	345	271	272
194	PLATE	Thick(w/ Drill)	0	1	2	0.00	224	223	332	339
195	PLATE	Thick(w/ Drill)	0	1	2	0.00	343	342	276	277
198	PLATE	Thick(w/ Drill)	0	1	2	0.00	182	230	328	317
204	PLATE	Thick(w/ Drill)	0	1	2	0.00	340	339	273	274
205	PLATE	Thick(w/ Drill)	0	1	2	0.00	317	328	279	231
208	PLATE	Thick(w/ Drill)	0	1	2	0.00	192	191	424	425
209	PLATE	Thick(w/ Drill)	0	1	2	0.00	437	315	316	434
210	PLATE	Thick(w/ Drill)	0	1	2	0.00	17	16	415	416
211	PLATE	Thick(w/ Drill)	0	1	2	0.00	413	314	315	437
212	PLATE	Thick(w/ Drill)	0	1	2	0.00	15	14	413	432
213	PLATE	Thick(w/ Drill)	0	1	2	0.00	433	422	409	439
214	PLATE	Thick(w/ Drill)	0	1	2	0.00	189	188	410	430
215	PLATE	Thick(w/ Drill)	0	1	2	0.00	430	410	237	238
216	PLATE	Thick(w/ Drill)	0	1	2	0.00	440	406	190	191
217	PLATE	Thick(w/ Drill)	0	1	2	0.00	410	317	231	237
218	PLATE	Thick(w/ Drill)	0	1	2	0.00	190	189	430	423
219	PLATE	Thick(w/ Drill)	0	1	2	0.00	16	15	432	415
220	PLATE	Thick(w/ Drill)	0	1	2	0.00	415	432	438	406
221	PLATE	Thick(w/ Drill)	0	1	2	0.00	428	427	243	244
222	PLATE	Thick(w/ Drill)	0	1	2	0.00	195	194	427	428
223	PLATE	Thick(w/ Drill)	0	1	2	0.00	20	19	418	419
224	PLATE	Thick(w/ Drill)	0	1	2	0.00	434	316	182	188
225	PLATE	Thick(w/ Drill)	0	1	2	0.00	400	412	436	401
226	PLATE	Thick(w/ Drill)	0	1	2	0.00	19	18	417	418
227	PLATE	Thick(w/ Drill)	0	1	2	0.00	18	17	416	417
228	PLATE	Thick(w/ Drill)	0	1	2	0.00	407	443	194	195
229	PLATE	Thick(w/ Drill)	0	1	2	0.00	191	190	423	424
230	PLATE	Thick(w/ Drill)	0	1	2	0.00	402	435	199	183
231	PLATE	Thick(w/ Drill)	0	1	2	0.00	424	423	239	240
232	PLATE	Thick(w/ Drill)	0	1	2	0.00	22	21	420	421

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
233	PLATE	Thick(w/ Drill)	0	1	2	0.00	443	441	193	194
234	PLATE	Thick(w/ Drill)	0	1	2	0.00	193	192	425	426
235	PLATE	Thick(w/ Drill)	0	1	2	0.00	426	425	241	242
236	PLATE	Thick(w/ Drill)	0	1	2	0.00	414	429	245	246
237	PLATE	Thick(w/ Drill)	0	1	2	0.00	419	418	441	443
238	PLATE	Thick(w/ Drill)	0	1	2	0.00	427	426	242	243
239	PLATE	Thick(w/ Drill)	0	1	2	0.00	441	442	192	193
240	PLATE	Thick(w/ Drill)	0	1	2	0.00	406	438	189	190
241	PLATE	Thick(w/ Drill)	0	1	2	0.00	425	424	240	241
242	PLATE	Thick(w/ Drill)	0	1	2	0.00	188	182	317	410
243	PLATE	Thick(w/ Drill)	0	1	2	0.00	196	195	428	429
244	PLATE	Thick(w/ Drill)	0	1	2	0.00	23	22	421	422
245	PLATE	Thick(w/ Drill)	0	1	2	0.00	418	417	442	441
246	PLATE	Thick(w/ Drill)	0	1	2	0.00	420	419	443	407
247	PLATE	Thick(w/ Drill)	0	1	2	0.00	198	197	414	431
248	PLATE	Thick(w/ Drill)	0	1	2	0.00	24	23	422	433
249	PLATE	Thick(w/ Drill)	0	1	2	0.00	2	25	412	400
250	PLATE	Thick(w/ Drill)	0	1	2	0.00	408	407	195	196
251	PLATE	Thick(w/ Drill)	0	1	2	0.00	435	439	198	199
252	PLATE	Thick(w/ Drill)	0	1	2	0.00	412	433	439	436
253	PLATE	Thick(w/ Drill)	0	1	2	0.00	423	430	238	239
254	PLATE	Thick(w/ Drill)	0	1	2	0.00	442	440	191	192
255	PLATE	Thick(w/ Drill)	0	1	2	0.00	409	408	196	197
256	PLATE	Thick(w/ Drill)	0	1	2	0.00	421	420	407	408
257	PLATE	Thick(w/ Drill)	0	1	2	0.00	422	421	408	409
258	PLATE	Thick(w/ Drill)	0	1	2	0.00	401	436	435	402
259	PLATE	Thick(w/ Drill)	0	1	2	0.00	199	198	431	411
260	PLATE	Thick(w/ Drill)	0	1	2	0.00	438	434	188	189
261	PLATE	Thick(w/ Drill)	0	1	2	0.00	197	196	429	414
262	PLATE	Thick(w/ Drill)	0	1	2	0.00	416	415	406	440
263	PLATE	Thick(w/ Drill)	0	1	2	0.00	431	414	246	247
264	PLATE	Thick(w/ Drill)	0	1	2	0.00	439	409	197	198
265	PLATE	Thick(w/ Drill)	0	1	2	0.00	417	416	440	442
266	PLATE	Thick(w/ Drill)	0	1	2	0.00	194	193	426	427
267	PLATE	Thick(w/ Drill)	0	1	2	0.00	14	1	314	413
268	PLATE	Thick(w/ Drill)	0	1	2	0.00	429	428	244	245
269	PLATE	Thick(w/ Drill)	0	1	2	0.00	183	199	411	403
270	PLATE	Thick(w/ Drill)	0	1	2	0.00	403	411	248	232
271	PLATE	Thick(w/ Drill)	0	1	2	0.00	411	431	247	248
272	PLATE	Thick(w/ Drill)	0	1	2	0.00	432	413	437	438
273	PLATE	Thick(w/ Drill)	0	1	2	0.00	21	20	419	420
274	PLATE	Thick(w/ Drill)	0	1	2	0.00	25	24	433	412
275	PLATE	Thick(w/ Drill)	0	1	2	0.00	436	439	435	0
276	PLATE	Thick(w/ Drill)	0	1	2	0.00	438	437	434	0
326	PLATE	Thick(w/ Drill)	0	1	2	0.00	534	536	250	249
327	PLATE	Thick(w/ Drill)	0	1	2	0.00	200	201	536	534
328	PLATE	Thick(w/ Drill)	0	1	2	0.00	403	534	249	232
329	PLATE	Thick(w/ Drill)	0	1	2	0.00	531	532	254	253
330	PLATE	Thick(w/ Drill)	0	1	2	0.00	537	530	252	251
331	PLATE	Thick(w/ Drill)	0	1	2	0.00	202	203	530	537
332	PLATE	Thick(w/ Drill)	0	1	2	0.00	203	204	531	530
333	PLATE	Thick(w/ Drill)	0	1	2	0.00	207	186	527	535
334	PLATE	Thick(w/ Drill)	0	1	2	0.00	535	527	235	256
335	PLATE	Thick(w/ Drill)	0	1	2	0.00	533	535	256	255
336	PLATE	Thick(w/ Drill)	0	1	2	0.00	206	207	535	533
337	PLATE	Thick(w/ Drill)	0	1	2	0.00	201	202	537	536
338	PLATE	Thick(w/ Drill)	0	1	2	0.00	530	531	253	252

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
339	PLATE	Thick(w/ Drill)	0	1	2	0.00	536	537	251	250
340	PLATE	Thick(w/ Drill)	0	1	2	0.00	204	205	532	531
341	PLATE	Thick(w/ Drill)	0	1	2	0.00	183	200	534	403
342	PLATE	Thick(w/ Drill)	0	1	2	0.00	532	533	255	254
343	PLATE	Thick(w/ Drill)	0	1	2	0.00	205	206	533	532
344	PLATE	Thick(w/ Drill)	0	1	2	0.00	605	607	219	218
345	PLATE	Thick(w/ Drill)	0	1	2	0.00	40	41	592	590
346	PLATE	Thick(w/ Drill)	0	1	2	0.00	608	594	595	585
347	PLATE	Thick(w/ Drill)	0	1	2	0.00	39	40	590	586
348	PLATE	Thick(w/ Drill)	0	1	2	0.00	4	39	586	471
349	PLATE	Thick(w/ Drill)	0	1	2	0.00	44	45	597	596
350	PLATE	Thick(w/ Drill)	0	1	2	0.00	589	323	322	583
351	PLATE	Thick(w/ Drill)	0	1	2	0.00	49	50	589	606
352	PLATE	Thick(w/ Drill)	0	1	2	0.00	585	595	213	187
353	PLATE	Thick(w/ Drill)	0	1	2	0.00	41	9	608	592
354	PLATE	Thick(w/ Drill)	0	1	2	0.00	600	606	607	605
355	PLATE	Thick(w/ Drill)	0	1	2	0.00	592	608	585	593
356	PLATE	Thick(w/ Drill)	0	1	2	0.00	43	44	596	594
357	PLATE	Thick(w/ Drill)	0	1	2	0.00	597	598	603	602
358	PLATE	Thick(w/ Drill)	0	1	2	0.00	587	591	211	210
359	PLATE	Thick(w/ Drill)	0	1	2	0.00	603	604	217	216
360	PLATE	Thick(w/ Drill)	0	1	2	0.00	598	599	604	603
361	PLATE	Thick(w/ Drill)	0	1	2	0.00	596	597	602	601
362	PLATE	Thick(w/ Drill)	0	1	2	0.00	607	588	220	219
363	PLATE	Thick(w/ Drill)	0	1	2	0.00	586	590	584	582
364	PLATE	Thick(w/ Drill)	0	1	2	0.00	604	605	218	217
365	PLATE	Thick(w/ Drill)	0	1	2	0.00	47	48	600	599
366	PLATE	Thick(w/ Drill)	0	1	2	0.00	583	322	321	588
367	PLATE	Thick(w/ Drill)	0	1	2	0.00	50	3	323	589
368	PLATE	Thick(w/ Drill)	0	1	2	0.00	45	46	598	597
369	PLATE	Thick(w/ Drill)	0	1	2	0.00	471	586	582	472
370	PLATE	Thick(w/ Drill)	0	1	2	0.00	595	601	214	213
371	PLATE	Thick(w/ Drill)	0	1	2	0.00	46	47	599	598
372	PLATE	Thick(w/ Drill)	0	1	2	0.00	472	582	587	473
373	PLATE	Thick(w/ Drill)	0	1	2	0.00	591	593	212	211
374	PLATE	Thick(w/ Drill)	0	1	2	0.00	593	585	187	212
375	PLATE	Thick(w/ Drill)	0	1	2	0.00	582	584	591	587
376	PLATE	Thick(w/ Drill)	0	1	2	0.00	594	596	601	595
377	PLATE	Thick(w/ Drill)	0	1	2	0.00	9	43	594	608
378	PLATE	Thick(w/ Drill)	0	1	2	0.00	473	587	210	185
379	PLATE	Thick(w/ Drill)	0	1	2	0.00	599	600	605	604
380	PLATE	Thick(w/ Drill)	0	1	2	0.00	590	592	593	584
381	PLATE	Thick(w/ Drill)	0	1	2	0.00	601	602	215	214
382	PLATE	Thick(w/ Drill)	0	1	2	0.00	606	589	583	607
383	PLATE	Thick(w/ Drill)	0	1	2	0.00	588	321	184	220
384	PLATE	Thick(w/ Drill)	0	1	2	0.00	602	603	216	215
385	PLATE	Thick(w/ Drill)	0	1	2	0.00	48	49	606	600
386	PLATE	Thick(w/ Drill)	0	1	2	0.00	607	583	588	0
387	PLATE	Thick(w/ Drill)	0	1	2	0.00	584	593	591	0
388	PLATE	Thick(w/ Drill)	0	1	2	0.00	649	650	264	263
389	PLATE	Thick(w/ Drill)	0	1	2	0.00	647	648	262	236
390	PLATE	Thick(w/ Drill)	0	1	2	0.00	220	184	320	644
391	PLATE	Thick(w/ Drill)	0	1	2	0.00	218	219	642	641
392	PLATE	Thick(w/ Drill)	0	1	2	0.00	212	187	647	646
393	PLATE	Thick(w/ Drill)	0	1	2	0.00	648	649	263	262
394	PLATE	Thick(w/ Drill)	0	1	2	0.00	185	210	643	636
395	PLATE	Thick(w/ Drill)	0	1	2	0.00	640	641	267	266

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
396	PLATE	Thick(w/ Drill)	0	1	2	0.00	639	640	266	265
397	PLATE	Thick(w/ Drill)	0	1	2	0.00	643	645	260	259
398	PLATE	Thick(w/ Drill)	0	1	2	0.00	211	212	646	645
399	PLATE	Thick(w/ Drill)	0	1	2	0.00	217	218	641	640
400	PLATE	Thick(w/ Drill)	0	1	2	0.00	214	215	650	649
401	PLATE	Thick(w/ Drill)	0	1	2	0.00	645	646	261	260
402	PLATE	Thick(w/ Drill)	0	1	2	0.00	641	642	268	267
403	PLATE	Thick(w/ Drill)	0	1	2	0.00	646	647	236	261
404	PLATE	Thick(w/ Drill)	0	1	2	0.00	210	211	645	643
405	PLATE	Thick(w/ Drill)	0	1	2	0.00	219	220	644	642
406	PLATE	Thick(w/ Drill)	0	1	2	0.00	642	644	269	268
407	PLATE	Thick(w/ Drill)	0	1	2	0.00	636	643	259	234
408	PLATE	Thick(w/ Drill)	0	1	2	0.00	213	214	649	648
409	PLATE	Thick(w/ Drill)	0	1	2	0.00	650	639	265	264
410	PLATE	Thick(w/ Drill)	0	1	2	0.00	644	320	233	269
411	PLATE	Thick(w/ Drill)	0	1	2	0.00	187	213	648	647
412	PLATE	Thick(w/ Drill)	0	1	2	0.00	215	216	639	650
413	PLATE	Thick(w/ Drill)	0	1	2	0.00	216	217	640	639
448	PLATE	Thick(w/ Drill)	0	1	2	0.00	729	721	264	265
450	PLATE	Thick(w/ Drill)	0	1	2	0.00	691	713	738	739
454	PLATE	Thick(w/ Drill)	0	1	2	0.00	715	716	730	735
455	PLATE	Thick(w/ Drill)	0	1	2	0.00	692	715	735	738
456	PLATE	Thick(w/ Drill)	0	1	2	0.00	716	717	737	730
457	PLATE	Thick(w/ Drill)	0	1	2	0.00	739	738	741	736
464	PLATE	Thick(w/ Drill)	0	1	2	0.00	737	697	719	727
466	PLATE	Thick(w/ Drill)	0	1	2	0.00	273	739	736	272
468	PLATE	Thick(w/ Drill)	0	1	2	0.00	727	719	699	729
470	PLATE	Thick(w/ Drill)	0	1	2	0.00	274	711	739	273
471	PLATE	Thick(w/ Drill)	0	1	2	0.00	738	735	726	741
474	PLATE	Thick(w/ Drill)	0	1	2	0.00	713	692	738	0
475	PLATE	Thick(w/ Drill)	0	1	2	0.00	717	697	737	0
476	PLATE	Thick(w/ Drill)	0	1	2	0.00	735	730	726	0
477	PLATE	Thick(w/ Drill)	0	1	2	0.00	729	699	721	0
478	PLATE	Thick(w/ Drill)	0	1	2	0.00	711	691	739	0
479	PLATE	Thick(w/ Drill)	0	1	2	0.00	276	754	755	275
480	PLATE	Thick(w/ Drill)	0	1	2	0.00	278	752	753	277
481	PLATE	Thick(w/ Drill)	0	1	2	0.00	277	753	754	276
482	PLATE	Thick(w/ Drill)	0	1	2	0.00	231	237	689	279
483	PLATE	Thick(w/ Drill)	0	1	2	0.00	279	689	752	278
484	PLATE	Thick(w/ Drill)	0	1	2	0.00	275	755	711	274
485	PLATE	Thick(w/ Drill)	0	1	2	0.00	711	755	691	0
486	PLATE	Thick(w/ Drill)	0	1	2	0.00	786	795	790	807
487	PLATE	Thick(w/ Drill)	0	1	2	0.00	810	786	807	800
488	PLATE	Thick(w/ Drill)	0	1	2	0.00	792	771	772	796
489	PLATE	Thick(w/ Drill)	0	1	2	0.00	781	798	797	780
490	PLATE	Thick(w/ Drill)	0	1	2	0.00	799	808	812	798
491	PLATE	Thick(w/ Drill)	0	1	2	0.00	807	790	776	697
492	PLATE	Thick(w/ Drill)	0	1	2	0.00	793	794	811	808
493	PLATE	Thick(w/ Drill)	0	1	2	0.00	791	793	808	799
494	PLATE	Thick(w/ Drill)	0	1	2	0.00	240	241	793	791
495	PLATE	Thick(w/ Drill)	0	1	2	0.00	241	242	794	793
496	PLATE	Thick(w/ Drill)	0	1	2	0.00	806	695	771	792
497	PLATE	Thick(w/ Drill)	0	1	2	0.00	780	797	803	779
498	PLATE	Thick(w/ Drill)	0	1	2	0.00	796	772	773	795
499	PLATE	Thick(w/ Drill)	0	1	2	0.00	779	803	715	692
500	PLATE	Thick(w/ Drill)	0	1	2	0.00	814	788	789	816
501	PLATE	Thick(w/ Drill)	0	1	2	0.00	238	239	690	784

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
502	PLATE	Thick(w/ Drill)	0	1	2	0.00	800	807	697	717
503	PLATE	Thick(w/ Drill)	0	1	2	0.00	242	243	802	794
504	PLATE	Thick(w/ Drill)	0	1	2	0.00	795	773	774	790
505	PLATE	Thick(w/ Drill)	0	1	2	0.00	787	815	813	788
506	PLATE	Thick(w/ Drill)	0	1	2	0.00	798	812	814	797
507	PLATE	Thick(w/ Drill)	0	1	2	0.00	789	813	786	810
508	PLATE	Thick(w/ Drill)	0	1	2	0.00	690	791	799	782
509	PLATE	Thick(w/ Drill)	0	1	2	0.00	815	792	796	813
510	PLATE	Thick(w/ Drill)	0	1	2	0.00	802	805	804	809
511	PLATE	Thick(w/ Drill)	0	1	2	0.00	808	811	787	812
512	PLATE	Thick(w/ Drill)	0	1	2	0.00	797	814	816	803
513	PLATE	Thick(w/ Drill)	0	1	2	0.00	244	245	693	805
514	PLATE	Thick(w/ Drill)	0	1	2	0.00	790	774	698	776
515	PLATE	Thick(w/ Drill)	0	1	2	0.00	237	238	784	689
516	PLATE	Thick(w/ Drill)	0	1	2	0.00	801	800	717	716
517	PLATE	Thick(w/ Drill)	0	1	2	0.00	811	809	815	787
518	PLATE	Thick(w/ Drill)	0	1	2	0.00	813	796	795	786
519	PLATE	Thick(w/ Drill)	0	1	2	0.00	782	799	798	781
520	PLATE	Thick(w/ Drill)	0	1	2	0.00	812	787	788	814
521	PLATE	Thick(w/ Drill)	0	1	2	0.00	809	806	792	815
522	PLATE	Thick(w/ Drill)	0	1	2	0.00	805	693	769	804
523	PLATE	Thick(w/ Drill)	0	1	2	0.00	243	244	805	802
524	PLATE	Thick(w/ Drill)	0	1	2	0.00	794	802	809	811
525	PLATE	Thick(w/ Drill)	0	1	2	0.00	816	810	800	801
526	PLATE	Thick(w/ Drill)	0	1	2	0.00	804	769	695	806
527	PLATE	Thick(w/ Drill)	0	1	2	0.00	239	240	791	690
528	PLATE	Thick(w/ Drill)	0	1	2	0.00	803	801	716	715
529	PLATE	Thick(w/ Drill)	0	1	2	0.00	816	789	810	0
530	PLATE	Thick(w/ Drill)	0	1	2	0.00	809	804	806	0
531	PLATE	Thick(w/ Drill)	0	1	2	0.00	788	813	789	0
532	PLATE	Thick(w/ Drill)	0	1	2	0.00	803	816	801	0
533	PLATE	Thick(w/ Drill)	0	1	2	0.00	821	700	823	825
534	PLATE	Thick(w/ Drill)	0	1	2	0.00	825	823	262	263
535	PLATE	Thick(w/ Drill)	0	1	2	0.00	699	821	825	721
536	PLATE	Thick(w/ Drill)	0	1	2	0.00	721	825	263	264
537	PLATE	Thick(w/ Drill)	0	1	2	0.00	247	248	832	833
538	PLATE	Thick(w/ Drill)	0	1	2	0.00	248	232	249	832
539	PLATE	Thick(w/ Drill)	0	1	2	0.00	246	247	694	835
540	PLATE	Thick(w/ Drill)	0	1	2	0.00	245	246	835	693
541	PLATE	Thick(w/ Drill)	0	1	2	0.00	694	247	833	0
547	PLATE	Thick(w/ Drill)	0	1	2	0.00	881	254	255	882
548	PLATE	Thick(w/ Drill)	0	1	2	0.00	774	885	877	698
549	PLATE	Thick(w/ Drill)	0	1	2	0.00	882	255	256	875
550	PLATE	Thick(w/ Drill)	0	1	2	0.00	771	878	884	772
552	PLATE	Thick(w/ Drill)	0	1	2	0.00	892	882	875	879
553	PLATE	Thick(w/ Drill)	0	1	2	0.00	865	696	891	878
554	PLATE	Thick(w/ Drill)	0	1	2	0.00	890	888	887	873
556	PLATE	Thick(w/ Drill)	0	1	2	0.00	695	865	878	771
557	PLATE	Thick(w/ Drill)	0	1	2	0.00	880	253	254	881
558	PLATE	Thick(w/ Drill)	0	1	2	0.00	871	880	881	872
559	PLATE	Thick(w/ Drill)	0	1	2	0.00	696	890	873	891
560	PLATE	Thick(w/ Drill)	0	1	2	0.00	832	249	250	876
562	PLATE	Thick(w/ Drill)	0	1	2	0.00	887	252	253	880
563	PLATE	Thick(w/ Drill)	0	1	2	0.00	885	893	886	877
564	PLATE	Thick(w/ Drill)	0	1	2	0.00	772	884	883	773
565	PLATE	Thick(w/ Drill)	0	1	2	0.00	833	832	876	889
566	PLATE	Thick(w/ Drill)	0	1	2	0.00	891	873	871	884

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
567	PLATE	Thick(w/ Drill)	0	1	2	0.00	873	887	880	871
569	PLATE	Thick(w/ Drill)	0	1	2	0.00	872	881	882	892
570	PLATE	Thick(w/ Drill)	0	1	2	0.00	893	892	879	886
571	PLATE	Thick(w/ Drill)	0	1	2	0.00	874	872	892	893
572	PLATE	Thick(w/ Drill)	0	1	2	0.00	884	871	874	883
573	PLATE	Thick(w/ Drill)	0	1	2	0.00	773	883	885	774
574	PLATE	Thick(w/ Drill)	0	1	2	0.00	888	251	252	887
575	PLATE	Thick(w/ Drill)	0	1	2	0.00	889	876	888	890
576	PLATE	Thick(w/ Drill)	0	1	2	0.00	883	874	893	885
577	PLATE	Thick(w/ Drill)	0	1	2	0.00	876	250	251	888
578	PLATE	Thick(w/ Drill)	0	1	2	0.00	867	889	890	696
579	PLATE	Thick(w/ Drill)	0	1	2	0.00	694	833	889	867
581	PLATE	Thick(w/ Drill)	0	1	2	0.00	874	871	872	0
582	PLATE	Thick(w/ Drill)	0	1	2	0.00	878	891	884	0
602	PLATE	Thick(w/ Drill)	0	1	2	0.00	186	208	931	527
603	PLATE	Thick(w/ Drill)	0	1	2	0.00	527	931	926	235
604	PLATE	Thick(w/ Drill)	0	1	2	0.00	209	185	636	937
605	PLATE	Thick(w/ Drill)	0	1	2	0.00	937	636	234	927
614	PLATE	Thick(w/ Drill)	0	1	2	0.00	991	473	185	209
615	PLATE	Thick(w/ Drill)	0	1	2	0.00	1015	984	1000	994
616	PLATE	Thick(w/ Drill)	0	1	2	0.00	30	31	997	996
617	PLATE	Thick(w/ Drill)	0	1	2	0.00	990	994	201	200
618	PLATE	Thick(w/ Drill)	0	1	2	0.00	992	472	473	991
619	PLATE	Thick(w/ Drill)	0	1	2	0.00	1007	1011	186	207
620	PLATE	Thick(w/ Drill)	0	1	2	0.00	32	33	999	998
621	PLATE	Thick(w/ Drill)	0	1	2	0.00	1001	1002	204	203
622	PLATE	Thick(w/ Drill)	0	1	2	0.00	402	990	200	183
623	PLATE	Thick(w/ Drill)	0	1	2	0.00	1004	1007	207	206
624	PLATE	Thick(w/ Drill)	0	1	2	0.00	33	34	1005	999
625	PLATE	Thick(w/ Drill)	0	1	2	0.00	400	989	1009	401
626	PLATE	Thick(w/ Drill)	0	1	2	0.00	1012	992	991	1008
627	PLATE	Thick(w/ Drill)	0	1	2	0.00	36	37	988	1006
628	PLATE	Thick(w/ Drill)	0	1	2	0.00	8	36	1006	1010
629	PLATE	Thick(w/ Drill)	0	1	2	0.00	37	4	471	988
630	PLATE	Thick(w/ Drill)	0	1	2	0.00	1013	1012	1008	1011
631	PLATE	Thick(w/ Drill)	0	1	2	0.00	994	1000	202	201
632	PLATE	Thick(w/ Drill)	0	1	2	0.00	1014	1013	1011	1007
633	PLATE	Thick(w/ Drill)	0	1	2	0.00	27	28	993	989
634	PLATE	Thick(w/ Drill)	0	1	2	0.00	28	29	995	993
635	PLATE	Thick(w/ Drill)	0	1	2	0.00	989	993	1015	1009
636	PLATE	Thick(w/ Drill)	0	1	2	0.00	29	30	996	995
637	PLATE	Thick(w/ Drill)	0	1	2	0.00	997	998	985	986
638	PLATE	Thick(w/ Drill)	0	1	2	0.00	986	985	1002	1001
639	PLATE	Thick(w/ Drill)	0	1	2	0.00	1005	1010	1013	1014
640	PLATE	Thick(w/ Drill)	0	1	2	0.00	999	1005	1014	987
641	PLATE	Thick(w/ Drill)	0	1	2	0.00	987	1014	1007	1004
642	PLATE	Thick(w/ Drill)	0	1	2	0.00	1003	1004	206	205
643	PLATE	Thick(w/ Drill)	0	1	2	0.00	984	986	1001	1000
644	PLATE	Thick(w/ Drill)	0	1	2	0.00	985	987	1003	1002
645	PLATE	Thick(w/ Drill)	0	1	2	0.00	1008	991	209	208
646	PLATE	Thick(w/ Drill)	0	1	2	0.00	1002	1003	205	204
647	PLATE	Thick(w/ Drill)	0	1	2	0.00	1011	1008	208	186
648	PLATE	Thick(w/ Drill)	0	1	2	0.00	2	27	989	400
649	PLATE	Thick(w/ Drill)	0	1	2	0.00	1000	1001	203	202
650	PLATE	Thick(w/ Drill)	0	1	2	0.00	34	8	1010	1005
651	PLATE	Thick(w/ Drill)	0	1	2	0.00	993	995	984	1015
652	PLATE	Thick(w/ Drill)	0	1	2	0.00	1010	1006	1012	1013

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
653	PLATE	Thick(w/ Drill)	0	1	2	0.00	988	471	472	992
654	PLATE	Thick(w/ Drill)	0	1	2	0.00	998	999	987	985
655	PLATE	Thick(w/ Drill)	0	1	2	0.00	1006	988	992	1012
656	PLATE	Thick(w/ Drill)	0	1	2	0.00	401	1009	990	402
657	PLATE	Thick(w/ Drill)	0	1	2	0.00	996	997	986	984
658	PLATE	Thick(w/ Drill)	0	1	2	0.00	31	32	998	997
659	PLATE	Thick(w/ Drill)	0	1	2	0.00	1009	1015	994	990
660	PLATE	Thick(w/ Drill)	0	1	2	0.00	987	1004	1003	0
661	PLATE	Thick(w/ Drill)	0	1	2	0.00	995	996	984	0
662	PLATE	Thick(w/ Drill)	0	1	1	0.00	138	156	130	109
663	PLATE	Thick(w/ Drill)	0	1	1	0.00	121	153	138	111
664	PLATE	Thick(w/ Drill)	0	1	1	0.00	111	138	109	5
665	PLATE	Thick(w/ Drill)	0	1	1	0.00	54	78	77	53
666	PLATE	Thick(w/ Drill)	0	1	1	0.00	78	111	5	77
667	PLATE	Thick(w/ Drill)	0	1	1	0.00	79	121	111	78
668	PLATE	Thick(w/ Drill)	0	1	1	0.00	109	130	98	99
669	PLATE	Thick(w/ Drill)	0	1	1	0.00	53	77	67	52
670	PLATE	Thick(w/ Drill)	0	1	1	0.00	5	109	99	100
671	PLATE	Thick(w/ Drill)	0	1	1	0.00	77	5	100	67
672	PLATE	Thick(w/ Drill)	0	1	4	0.00	5	77	1028	1029
673	PLATE	Thick(w/ Drill)	0	1	4	0.00	1029	1028	1017	1016
674	PLATE	Thick(w/ Drill)	0	1	4	0.00	109	5	1029	1024
675	PLATE	Thick(w/ Drill)	0	1	4	0.00	1024	1029	1016	1018
676	PLATE	Thick(w/ Drill)	0	1	4	0.00	5	111	1038	1037
677	PLATE	Thick(w/ Drill)	0	1	4	0.00	1037	1038	1019	1016
678	PLATE	Thick(w/ Drill)	0	1	4	0.00	111	121	1033	1038
679	PLATE	Thick(w/ Drill)	0	1	4	0.00	1038	1033	1020	1019
687	PLATE	Thick(w/ Drill)	0	1	2	0.00	1089	1101	1083	1100
688	PLATE	Thick(w/ Drill)	0	1	2	0.00	1098	1093	1097	1099
689	PLATE	Thick(w/ Drill)	0	1	2	0.00	1100	1081	223	224
690	PLATE	Thick(w/ Drill)	0	1	2	0.00	1088	322	321	1087
691	PLATE	Thick(w/ Drill)	0	1	2	0.00	1087	321	184	221
692	PLATE	Thick(w/ Drill)	0	1	2	0.00	1104	1087	1042	1041
693	PLATE	Thick(w/ Drill)	0	1	2	0.00	55	54	1101	1089
694	PLATE	Thick(w/ Drill)	0	1	2	0.00	1094	1100	224	225
695	PLATE	Thick(w/ Drill)	0	1	2	0.00	1	61	1085	314
696	PLATE	Thick(w/ Drill)	0	1	2	0.00	61	60	1098	1085
697	PLATE	Thick(w/ Drill)	0	1	2	0.00	1084	1099	229	230
698	PLATE	Thick(w/ Drill)	0	1	2	0.00	1095	1094	225	226
699	PLATE	Thick(w/ Drill)	0	1	2	0.00	316	1084	230	182
700	PLATE	Thick(w/ Drill)	0	1	2	0.00	56	55	1089	1090
701	PLATE	Thick(w/ Drill)	0	1	2	0.00	1081	1080	222	223
702	PLATE	Thick(w/ Drill)	0	1	2	0.00	1096	1095	226	227
703	PLATE	Thick(w/ Drill)	0	1	2	0.00	1097	1096	227	228
704	PLATE	Thick(w/ Drill)	0	1	2	0.00	1083	1082	1080	1081
705	PLATE	Thick(w/ Drill)	0	1	2	0.00	57	56	1090	1091
706	PLATE	Thick(w/ Drill)	0	1	2	0.00	315	1102	1084	316
707	PLATE	Thick(w/ Drill)	0	1	2	0.00	314	1085	1102	315
708	PLATE	Thick(w/ Drill)	0	1	2	0.00	1099	1097	228	229
709	PLATE	Thick(w/ Drill)	0	1	2	0.00	1093	1092	1096	1097
710	PLATE	Thick(w/ Drill)	0	1	2	0.00	1082	1088	1087	1104
711	PLATE	Thick(w/ Drill)	0	1	2	0.00	59	58	1092	1093
712	PLATE	Thick(w/ Drill)	0	1	2	0.00	1085	1098	1099	1102
713	PLATE	Thick(w/ Drill)	0	1	2	0.00	54	53	1103	1101
714	PLATE	Thick(w/ Drill)	0	1	2	0.00	60	59	1093	1098
715	PLATE	Thick(w/ Drill)	0	1	2	0.00	1101	1103	1082	1083
716	PLATE	Thick(w/ Drill)	0	1	2	0.00	1091	1090	1094	1095

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
717	PLATE	Thick(w/ Drill)	0	1	2	0.00	1090	1089	1100	1094
718	PLATE	Thick(w/ Drill)	0	1	2	0.00	1103	1086	1088	1082
719	PLATE	Thick(w/ Drill)	0	1	2	0.00	1080	1104	1041	222
720	PLATE	Thick(w/ Drill)	0	1	2	0.00	1086	323	322	1088
721	PLATE	Thick(w/ Drill)	0	1	2	0.00	58	57	1091	1092
722	PLATE	Thick(w/ Drill)	0	1	2	0.00	53	52	1086	1103
723	PLATE	Thick(w/ Drill)	0	1	2	0.00	52	3	323	1086
724	PLATE	Thick(w/ Drill)	0	1	2	0.00	1092	1091	1095	1096
725	PLATE	Thick(w/ Drill)	0	1	2	0.00	1087	221	1042	0
726	PLATE	Thick(w/ Drill)	0	1	2	0.00	1100	1083	1081	0
727	PLATE	Thick(w/ Drill)	0	1	2	0.00	1102	1099	1084	0
728	PLATE	Thick(w/ Drill)	0	1	2	0.00	1080	1082	1104	0
729	PLATE	Thick(w/ Drill)	0	1	2	0.00	345	1120	1039	271
730	PLATE	Thick(w/ Drill)	0	1	2	0.00	222	1041	1120	345
731	PLATE	Thick(w/ Drill)	0	1	2	0.00	1047	1046	1122	1121
732	PLATE	Thick(w/ Drill)	0	1	2	0.00	270	233	1115	1046
733	PLATE	Thick(w/ Drill)	0	1	2	0.00	1121	1122	1113	1112
734	PLATE	Thick(w/ Drill)	0	1	2	0.00	271	1039	1047	1110
735	PLATE	Thick(w/ Drill)	0	1	2	0.00	1122	1115	1043	1113
736	PLATE	Thick(w/ Drill)	0	1	2	0.00	1110	1121	1112	1045
737	PLATE	Thick(w/ Drill)	0	1	2	0.00	1110	1047	1121	0
738	PLATE	Thick(w/ Drill)	0	1	2	0.00	1046	1115	1122	0
739	PLATE	Thick(w/ Drill)	0	1	2	0.00	208	209	937	931
740	PLATE	Thick(w/ Drill)	0	1	2	0.00	931	937	927	926
741	PLATE	Thick(w/ Drill)	0	1	2	0.00	736	741	1139	1140
742	PLATE	Thick(w/ Drill)	0	1	2	0.00	272	736	1140	271
743	PLATE	Thick(w/ Drill)	0	1	2	0.00	730	737	727	1123
744	PLATE	Thick(w/ Drill)	0	1	2	0.00	1135	729	265	266
745	PLATE	Thick(w/ Drill)	0	1	2	0.00	1136	727	729	1135
746	PLATE	Thick(w/ Drill)	0	1	2	0.00	741	726	1138	1139
747	PLATE	Thick(w/ Drill)	0	1	2	0.00	726	730	1123	1138
748	PLATE	Thick(w/ Drill)	0	1	2	0.00	1123	727	1136	0
749	PLATE	Thick(w/ Drill)	0	1	3	0.00	1136	1156	1155	1135
750	PLATE	Thick(w/ Drill)	0	1	3	0.00	1152	1155	1156	1151
751	PLATE	Thick(w/ Drill)	0	1	3	0.00	1155	1152	1141	1154
752	PLATE	Thick(w/ Drill)	0	1	3	0.00	1142	1151	1156	1149
753	PLATE	Thick(w/ Drill)	0	1	3	0.00	1123	1149	1156	1136
754	PLATE	Thick(w/ Drill)	0	1	3	0.00	266	1135	1155	1154
755	PLATE	Thick(w/ Drill)	0	1	3	0.00	1123	1138	1170	1149
756	PLATE	Thick(w/ Drill)	0	1	3	0.00	1169	1110	1045	1167
757	PLATE	Thick(w/ Drill)	0	1	3	0.00	1138	1139	1171	1170
758	PLATE	Thick(w/ Drill)	0	1	3	0.00	1171	1169	1167	1144
759	PLATE	Thick(w/ Drill)	0	1	3	0.00	1140	271	1110	1169
760	PLATE	Thick(w/ Drill)	0	1	3	0.00	1149	1170	1165	1142
761	PLATE	Thick(w/ Drill)	0	1	3	0.00	1170	1171	1144	1165
762	PLATE	Thick(w/ Drill)	0	1	3	0.00	1139	1140	1169	1171
763	PLATE	Thick(w/ Drill)	0	1	2	0.00	1186	1185	1180	1143
764	PLATE	Thick(w/ Drill)	0	1	2	0.00	1154	1184	1182	1141
765	PLATE	Thick(w/ Drill)	0	1	2	0.00	266	267	1184	1154
766	PLATE	Thick(w/ Drill)	0	1	2	0.00	269	233	1115	1185
767	PLATE	Thick(w/ Drill)	0	1	2	0.00	268	269	1185	1186
768	PLATE	Thick(w/ Drill)	0	1	2	0.00	1184	1186	1143	1182
769	PLATE	Thick(w/ Drill)	0	1	2	0.00	1185	1115	1043	1180
770	PLATE	Thick(w/ Drill)	0	1	2	0.00	267	268	1186	1184
771	PLATE	Thick(w/ Drill)	0	1	2	0.00	1212	1214	1207	1211
772	PLATE	Thick(w/ Drill)	0	1	2	0.00	839	1205	1213	700
773	PLATE	Thick(w/ Drill)	0	1	2	0.00	1210	1209	259	260

Element	Type	Sub Type	Wall ID	Material	Property	B-Angle ([deg])	Node1	Node2	Node3	Node4
774	PLATE	Thick(w/ Drill)	0	1	2	0.00	1205	1212	1211	1213
775	PLATE	Thick(w/ Drill)	0	1	2	0.00	886	879	1214	1212
776	PLATE	Thick(w/ Drill)	0	1	2	0.00	1209	927	234	259
777	PLATE	Thick(w/ Drill)	0	1	2	0.00	877	886	1212	1205
778	PLATE	Thick(w/ Drill)	0	1	2	0.00	823	1213	236	262
779	PLATE	Thick(w/ Drill)	0	1	2	0.00	875	256	235	1206
780	PLATE	Thick(w/ Drill)	0	1	2	0.00	1207	1208	1209	1210
781	PLATE	Thick(w/ Drill)	0	1	2	0.00	1208	926	927	1209
782	PLATE	Thick(w/ Drill)	0	1	2	0.00	698	877	1205	839
783	PLATE	Thick(w/ Drill)	0	1	2	0.00	879	875	1206	1214
784	PLATE	Thick(w/ Drill)	0	1	2	0.00	1211	1210	260	261
785	PLATE	Thick(w/ Drill)	0	1	2	0.00	1214	1206	1208	1207
786	PLATE	Thick(w/ Drill)	0	1	2	0.00	1206	235	926	1208
787	PLATE	Thick(w/ Drill)	0	1	2	0.00	1213	1211	261	236
788	PLATE	Thick(w/ Drill)	0	1	2	0.00	1211	1207	1210	0
789	PLATE	Thick(w/ Drill)	0	1	2	0.00	700	1213	823	0
790	BEAM		0	1	1	0.00	1045	1167	0	0
791	BEAM		0	1	1	0.00	1167	1144	0	0
792	BEAM		0	1	1	0.00	1142	1151	0	0
793	BEAM		0	1	1	0.00	1151	1152	0	0
794	BEAM		0	1	1	0.00	1152	1141	0	0
795	BEAM		0	1	1	0.00	1143	1180	0	0
796	BEAM		0	1	1	0.00	1180	1043	0	0
801	BEAM		0	1	1	0.00	1144	1165	0	0
802	BEAM		0	1	1	0.00	1165	1142	0	0
808	BEAM		0	1	1	0.00	1141	1182	0	0
809	BEAM		0	1	1	0.00	1182	1143	0	0
812	BEAM		0	1	1	0.00	1113	1043	0	0
813	BEAM		0	1	1	0.00	1112	1113	0	0
814	BEAM		0	1	1	0.00	1045	1112	0	0
815	BEAM		0	1	1	0.00	1144	1143	0	0

3. NORMATIVE

I calcoli riportati nella presente relazione sono stati eseguiti secondo il metodo degli Stati Limite, nel rispetto delle seguenti normative:

Legge 05.11.1971 n° 1086: “Norme per le discipline delle opere di conglomerato cementizio armato normale e precompresso ed a struttura metallica”.

D.M. 14.01.2008: "Norme tecniche per le costruzioni".

Eurocodice 8 parte 5 ed 2005.

Circolare del Ministero delle Infrastrutture e dei Trasporti del 02.02.2009 n° 617: “Istruzioni per l’applicazione delle Nuove Norme Tecniche per le Costruzioni di cui al D.M. del 14.01.2008”.

UNI EN 206-1:2006: Calcestruzzo - Specificazione, prestazione, produzione e conformità.

UNI 11104:2004: Calcestruzzo - Specificazione, prestazione, produzione e conformità - Istruzioni complementari per l'applicazione della EN 206-1.

4. MATERIALI

Si prevede l'impiego dei materiali seguenti:

4.1 Calcestruzzo per strutture di fondazione, muri e impalcato C 32/40 XF1

Resistenza caratteristica cubica a 28 giorni $R_{ck} \geq 40$ N/mm^2 con:

$f_{ck} = 0{,}83 \times R_{ck}$	= 33.20 N/mm^2
$f_{cd} = f_{ck} / 1{,}5$	= 22.13 N/mm^2
$f_{cd}^{*} = 0{,}85 \times f_{cd}$	= 18.81 N/mm^2
$f_{ctm} = 0{,}30 \times f_{ck}^{2/3}$	= 3.02 N/mm^2
$f_{ctk} = 0{,}7 \times f_{ctm}$	= 2.11 N/mm^2
$f_{ctd} = f_{ctk} / 1{,}5$	= 1.41 N/mm^2
$f_{bd} = 2{,}25 \times f_{ctd}$	= 3.19 N/mm^2

Gli inerti per il calcestruzzo devono essere di predeterminata granulometria, accuratamente lavati ed esenti da impurità.

Il rapporto acqua-cemento dovrà essere il più basso possibile compatibilmente con la lavorabilità dell'impasto e comunque non superiore a 0,45 (UNI 11104).

4.2 Acciaio per armature di elementi in c.a.

Si prevede l'impiego di acciaio B450C controllato in stabilimento avente le seguenti caratteristiche:

Tensione caratteristica di rottura:	f_{tk}	= 540 N/mm^2
Tensione caratteristica di snervamento:	f_{yk}	= 450 N/mm^2
Tensione di snervamento di progetto:	$f_{yd} = f_{yk} / 1{,}15$	= 391 N/mm^2

5. ANALISI DEI CARICHI

Oltre al peso proprio degli elementi strutturali, le strutture sono soggette ai seguenti sovraccarichi:

5.1 Carichi sulla vasca di disconnessione

5.1.1 Sovraccarico permanente portato

I pesi permanenti portati sono rappresentati dal massetto e dalla relativa pavimentazione in scheggionato.

Calcolo azioni permanenti

peso permante sulla piastra

materiale		spessore [m]	peso elementare [KN/mc]	peso applicato [KN/mq]
isolante	0,02	15	0,30	
massetto	0,05	14	0,70	
scheggionato materiale granitico	0,05	27	1,35	
totale permanente [KN/mq]				**2,35**

peso permante sulla copertura

materiale	spessore [m]	peso elementare [KN/m	peso applicato [KN/mq]
tegole			0,80
cartonfeltro bitumato			0,03
sottotegole e assitto in legname			0,35
totale permanente [KN/mq]			**1,18**

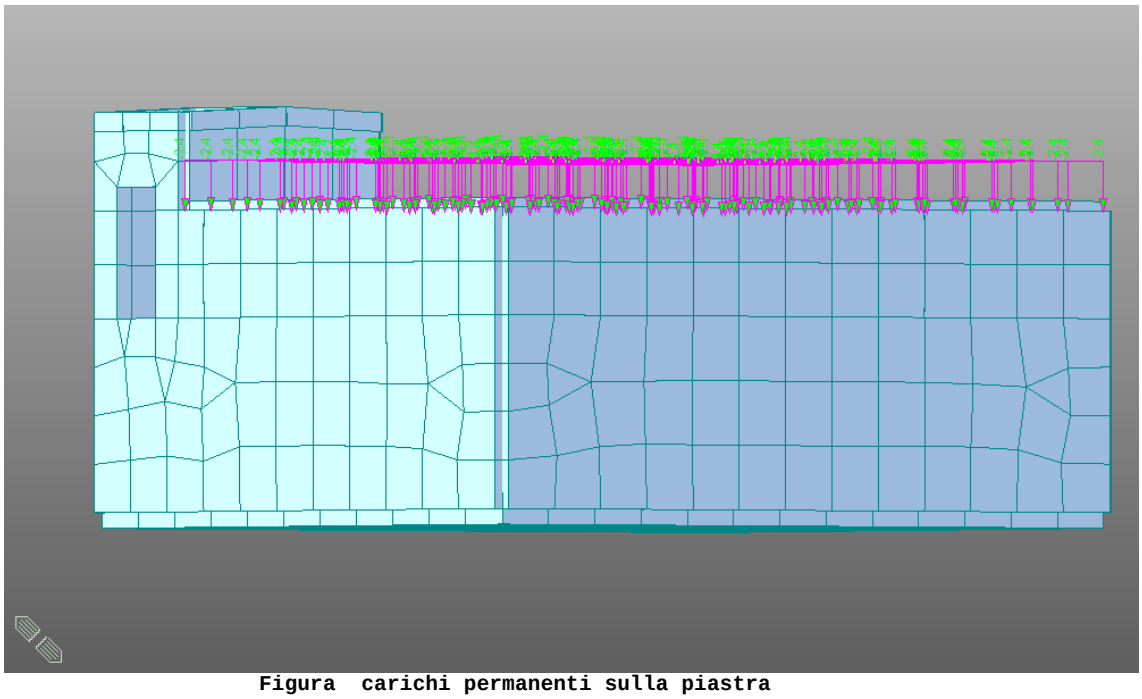


Figura carichi permanenti sulla piastra

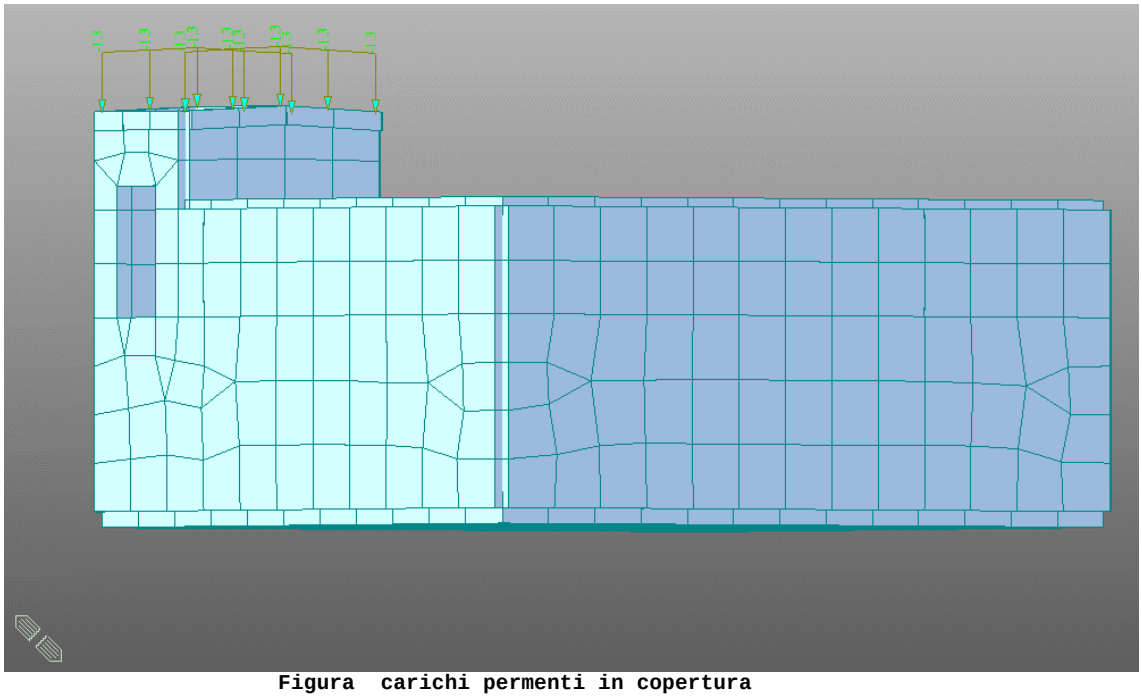


Figura carichi permenti in copertura

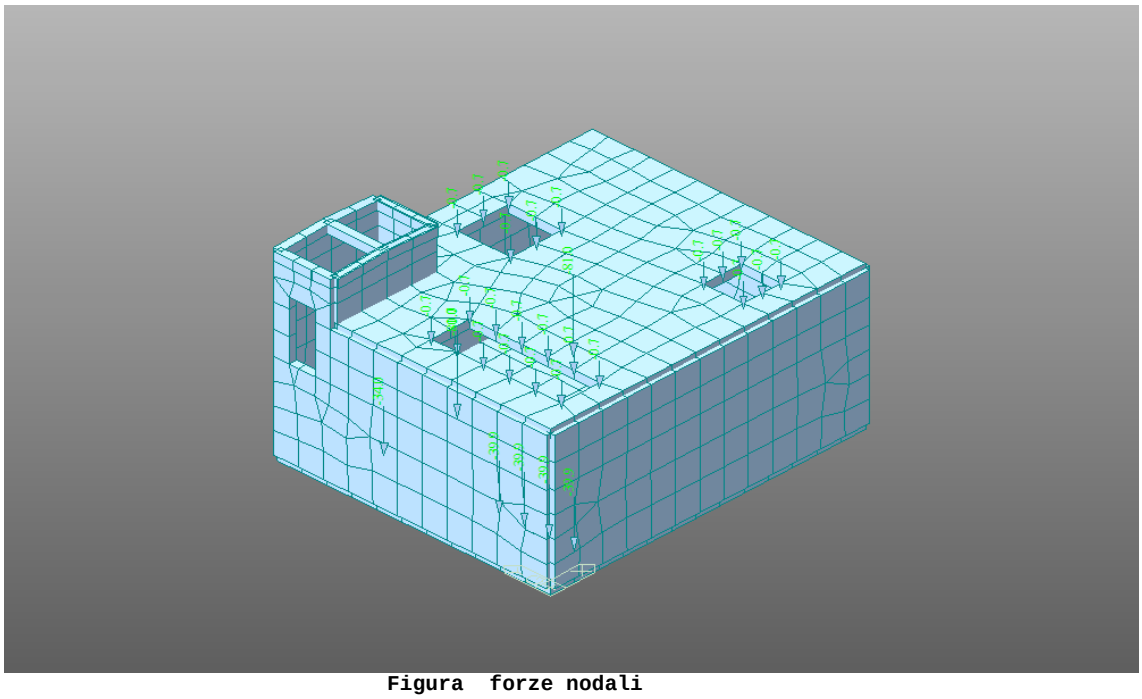


Figura forze nodali

5.1.2 Spinta della tubazione di arrivo sulla platea

calcolo delle spinte

DH [m]=	250	salto
D tubo [cm]=	90	diametro della condotta
Pe [Kg/cmq]	24,20	pressione di esercizio
P1 [KN]	**1510,37**	**spinta nella tubazione**

DH [m]=	250	salto
D tubo [cm]=	50	diametro della condotta
Pe [Kg/cmq]	24,20	pressione di esercizio
P2 [KN]	**466,16**	**spinta nella tubazione**

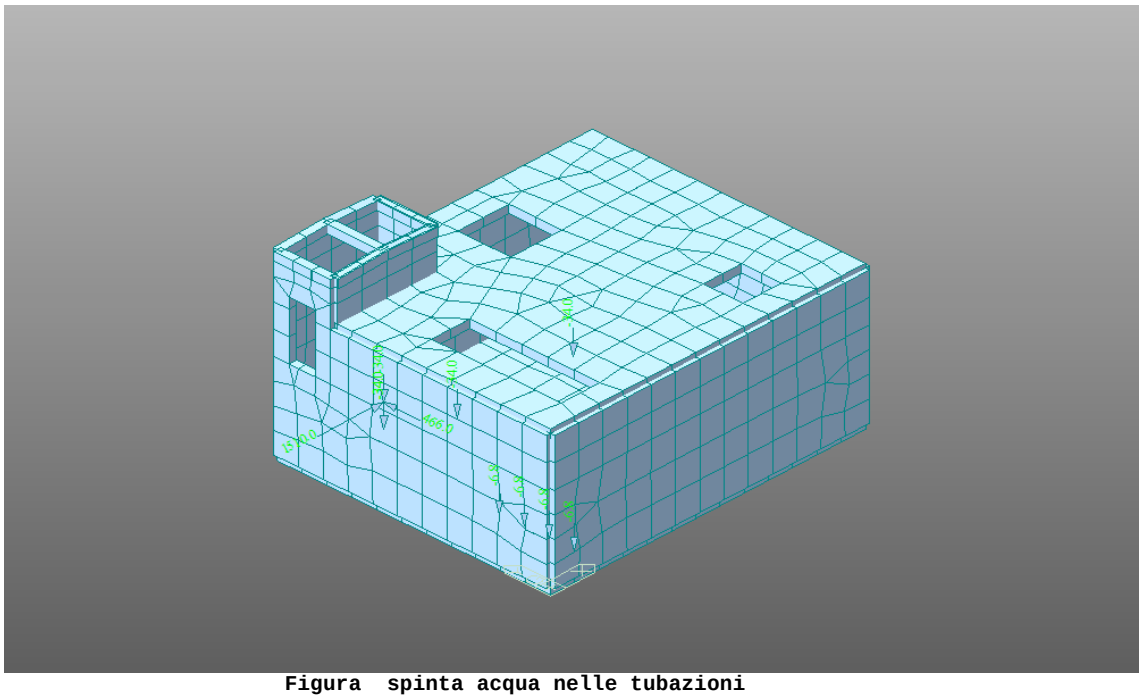


Figura spinta acqua nelle tubazioni

5.1.3 Sovraccarico accidentale

Per il sovraccarico accidentale ci si riferisce alle azioni di cui alla tabella 3.1.II F della norma NTC 2008.

accidentale sulle piastre Q1k
[KN/mq]= 2,5

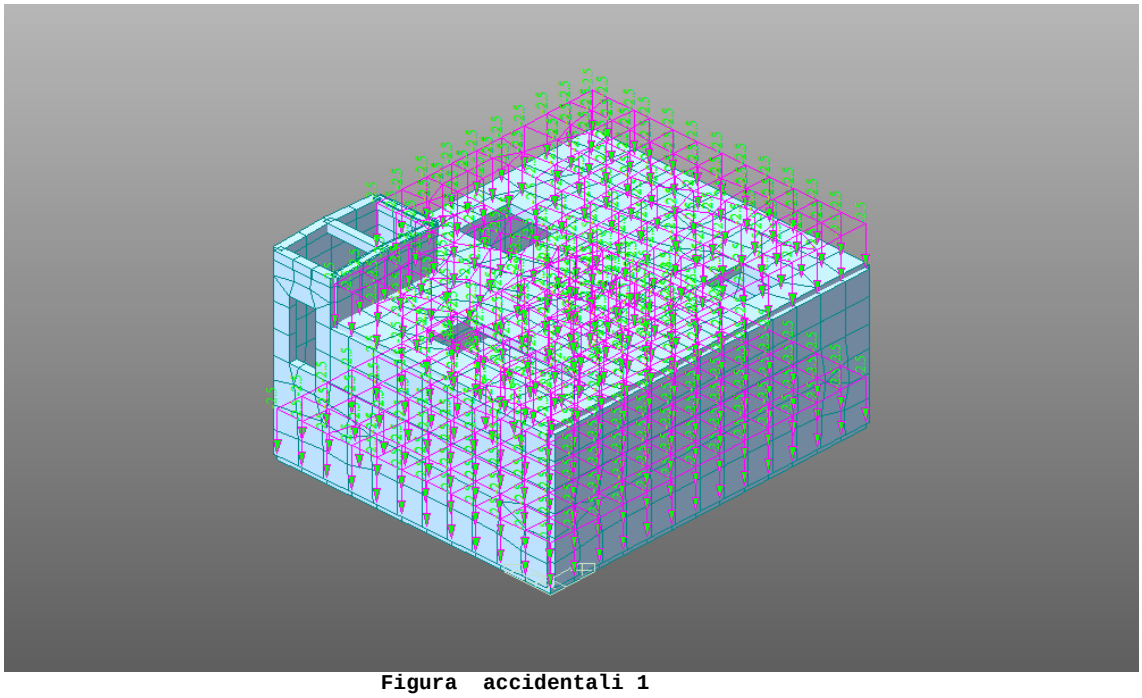


Figura accidentali 1

In copertura si ha:

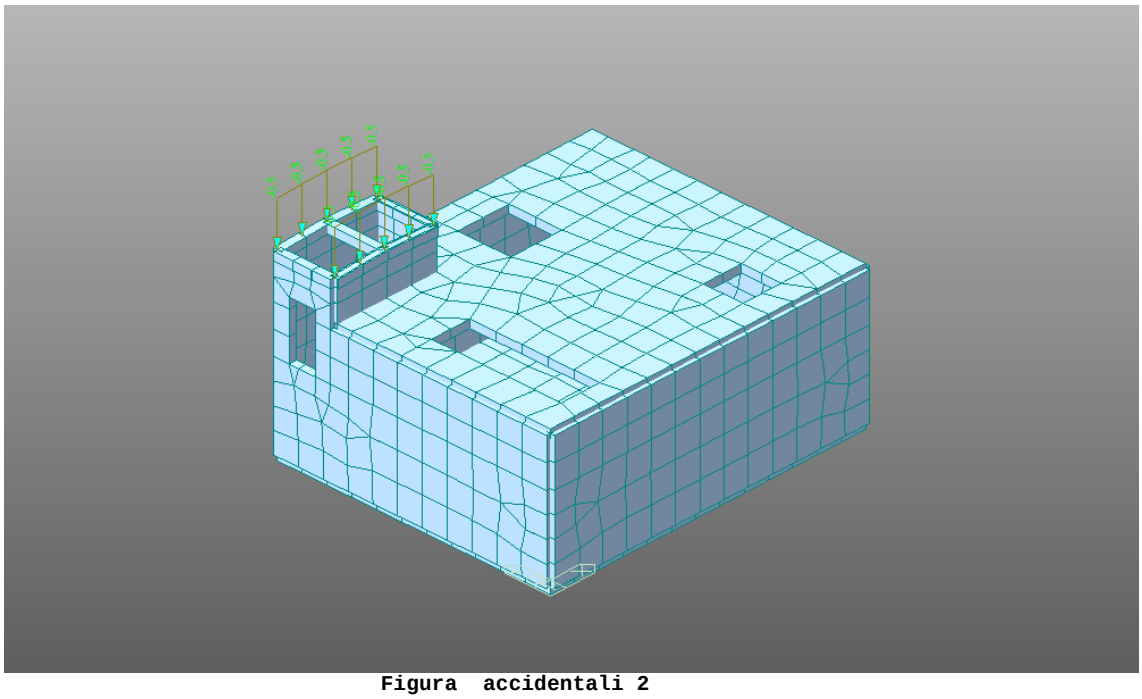


Figura accidentali 2

Sui coperchi:

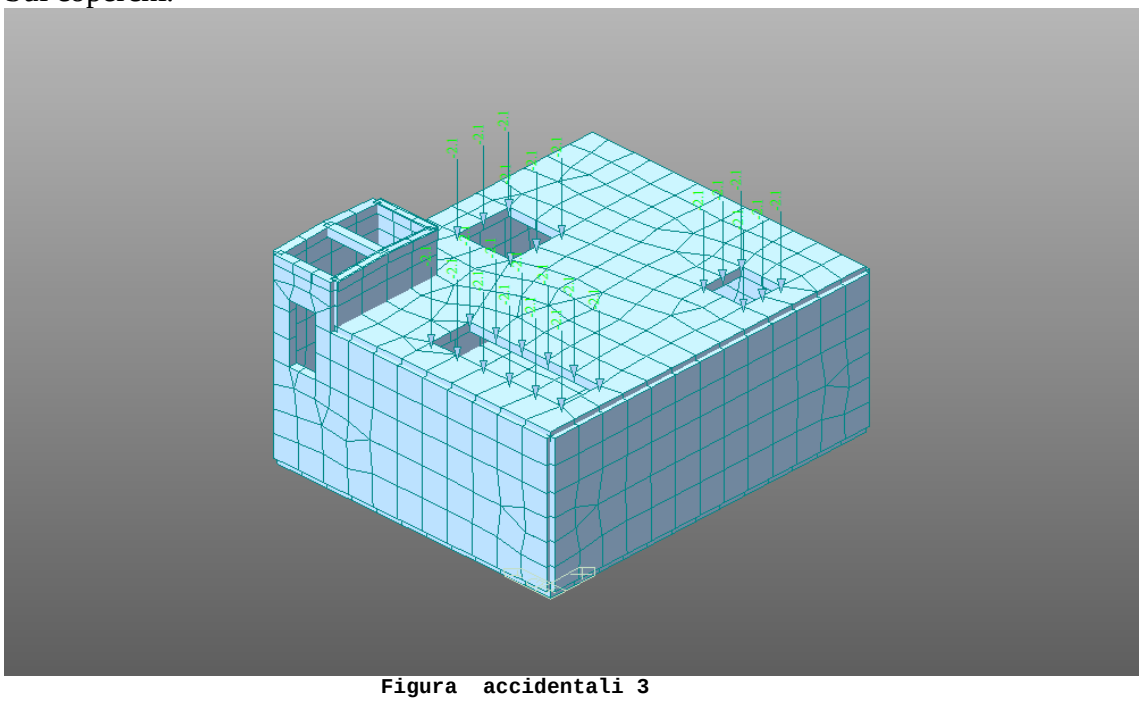


Figura accidentali 3

5.1.4 Spinta orizzontale del terreno sulle pareti

Ai fini del calcolo delle spinte delle terre a lato dei muri, si considera un angolo di resistenza al taglio pari a $\varphi' = 22°$ e peso del volume pari a $\gamma_t = 17.6$ kN/m^3.

spinta del terreno

γ [kN/mc]	17,6	peso dell'unità di volume di terreno saturo
γw[kN/mc]	0	
γ' [kN/mc]	17,6	
ϕ' [°]	22	0,38397244 tangente angolo di resistenza
ff	0,40402622	al taglio del rilevato
γϕ	1	coefficiente parziale M1 per l'angolo di resistenza al taglio
ϕd	22	0,38397244 tangente angolo di resistenza
ff d	0,4040	al taglio di calcolo
Cos f [-]	0,9272	coseno angolo di resistenza al taglio
sin f [-]	0,3746	seno angolo di resistenza al taglio
K0	0,6254	coefficiente di spinta a riposo
Ka	0,4550	coefficiente di spinta attiva
Kp	2,1980	coefficiente di spinta passiva
h [m]	3,3	altezza del terrapieno
h0 [m]	3,3	altezza del ritto più il rilevato (h+t)
S'1 [kN/m]	59,93	spinta efficace del terrapieno
Sw [kN/m]	0	spinta idro-

		statica	
S [kN/m]		59,93	
Z [m]	σ'o [KN]	u [KN]	σo [KN]
0	0	0	0
3,3	36,32	0	36,32

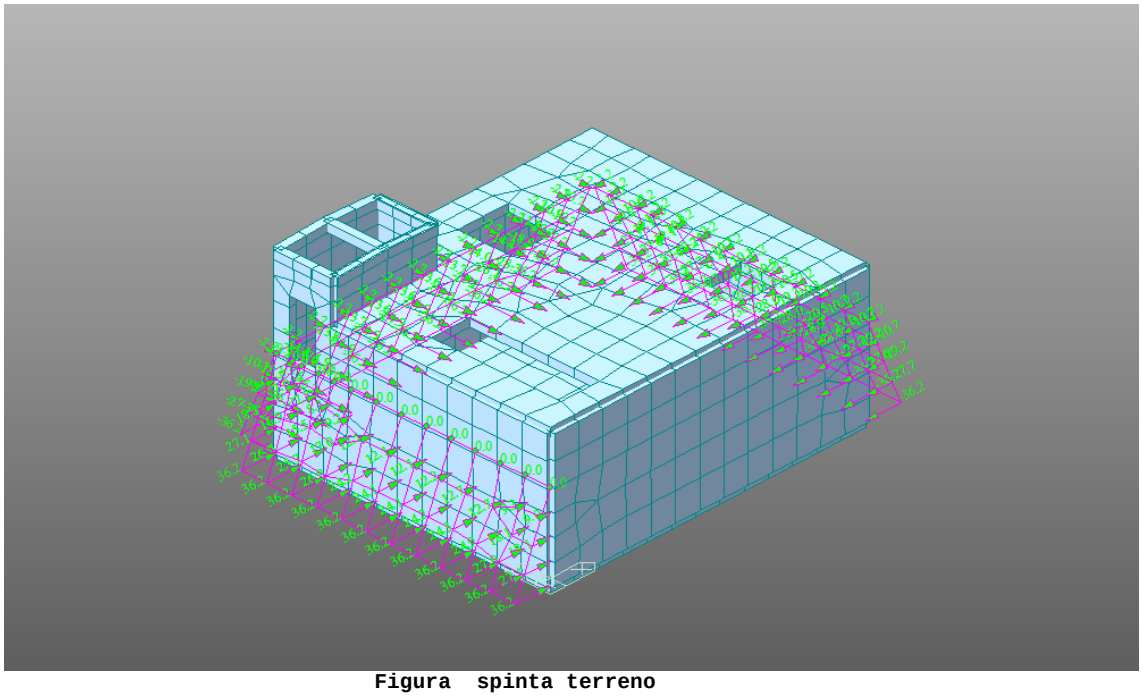


Figura spinta terreno

5.1.5 Incremento della spinta orizzontale sulle pareti dovuta al sisma

INCREMENTO PRESSIONI PER EFFETTO DEL SISMA			
ED50			
LATITUDINE	38,091025		
LONGITUDINE	15,743523		
categoria sottosuolo	B		
Categoria Topografica	T1		
vita nominale	50		
classe d'uso	IV		
coefficiente d'uso	2		
periodo di riferimento	100		
St fattore amp. Topogr.	1		

	SLO	SLD	SLV
ag/g	0,099	0,13	0,358
Fo	2,275	2,291	2,467
Tc*	0,294	0,313	0,388
Cc	1,4049145	1,38766239	1,32931021
Ss	1,2	1,2	1,0467256
S=SsxSt	1,2	1,2	1,0467256
Tb	0,1377979	0,14477944	0,17192412
Tc	0,41339369	0,43433833	0,51577236
Td	1,996	2,12	3,032
Pga	0,1188	0,156	0,37472776
Z [m]	σ'o	σ'o	σ'o
0	0	0	0
3,3	4,31515447	5,66636445	13,61118

Z [m]	Δu	Δu	Δu
0	0	0	0
3,3	0	0	0

Z [m]	σ o	σ o	σ o
0	0	0	0
3,3	4,31515447	5,66636445	13,61118

Incremento sismico sulle pareti per effetto del terreno in direzione x

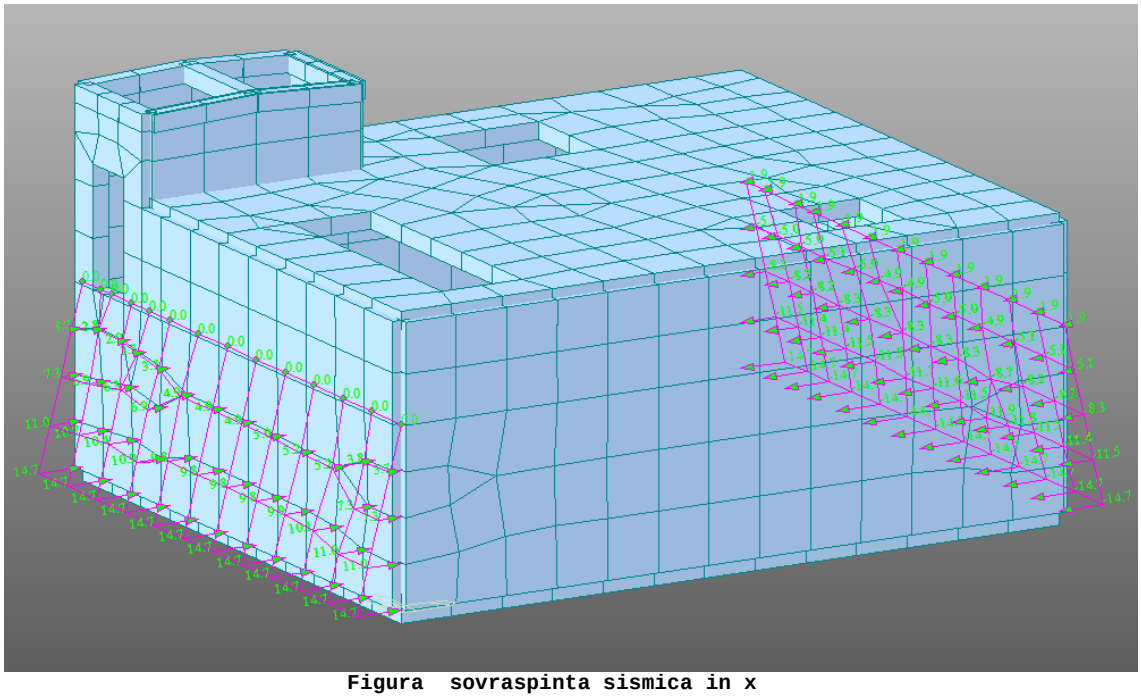


Figura sovraspinta sismica in x

Incremento sismico sulle pareti per effetto del terreno in direzione y

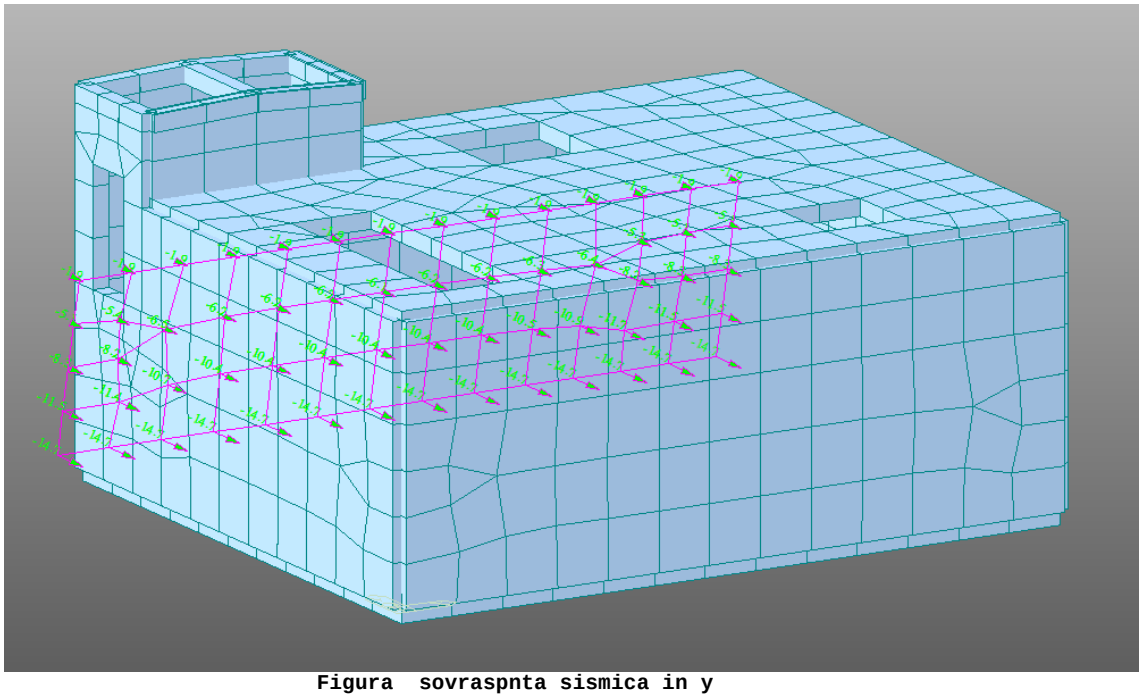


Figura sovraspnta sismica in y

5.1.6 Effetto della neve

SOVRACCARICO NEVE

Provincia :	REGGIO CALABRIA
Zona :	3
Altitudine a_s :	1145 m s.l.m.
Esposizione :	Normale
Periodo di ritorno :	50 anni

Il carico neve sulle coperture viene valutato con la seguente espressione:

$$q_s = \mu_i \cdot q_{sk} \cdot C_E \cdot C_t \, KN/m^2$$

dove:

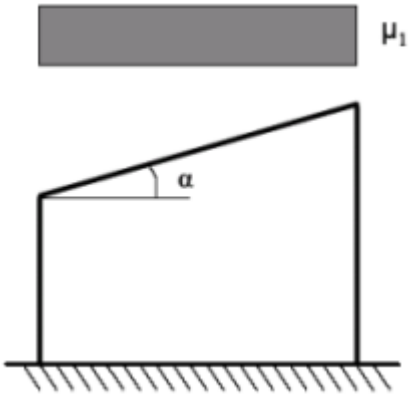
μ_i	Coefficiente di forma della copertura
$C_E = 1.0$	Coefficiente di esposizione
$C_t = 1.0$	Coefficiente termico
$q_{sk} = 3.40$ KN/m^2	Carico neve al suolo

Nel caso in esame (copertura ad una falda), con

$\alpha = 0.00°$

il coefficiente di forma vale:

$\mu_1(\alpha) = 0.80$ => $q_s = 2.72$ KN/m^2



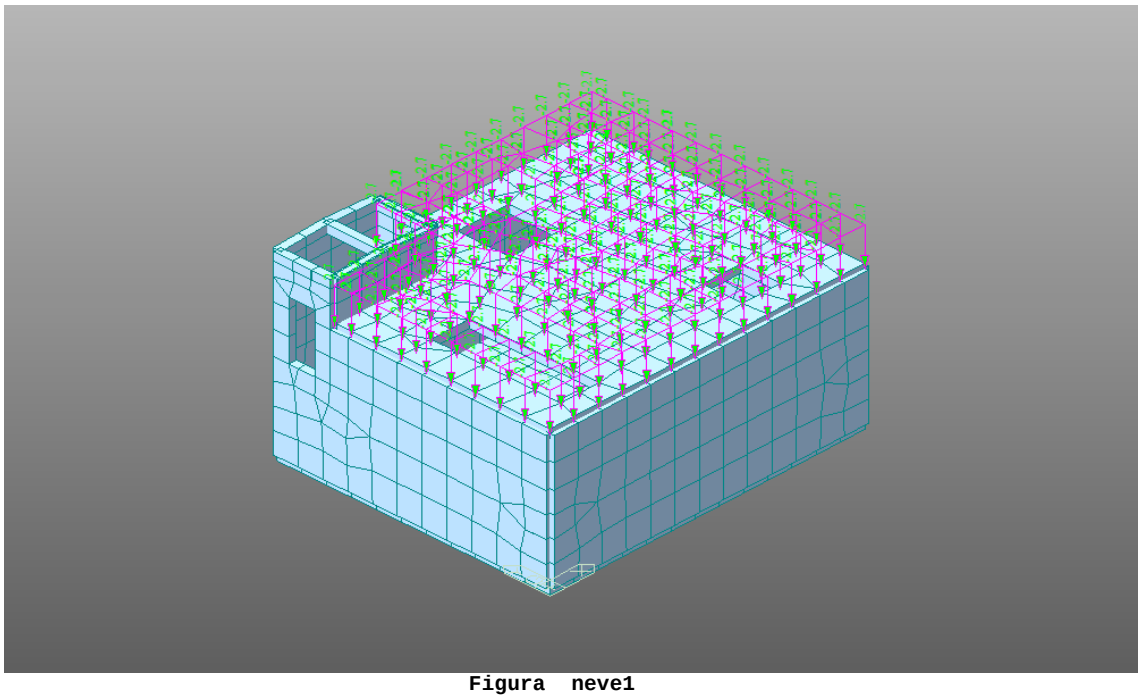


Figura neve1

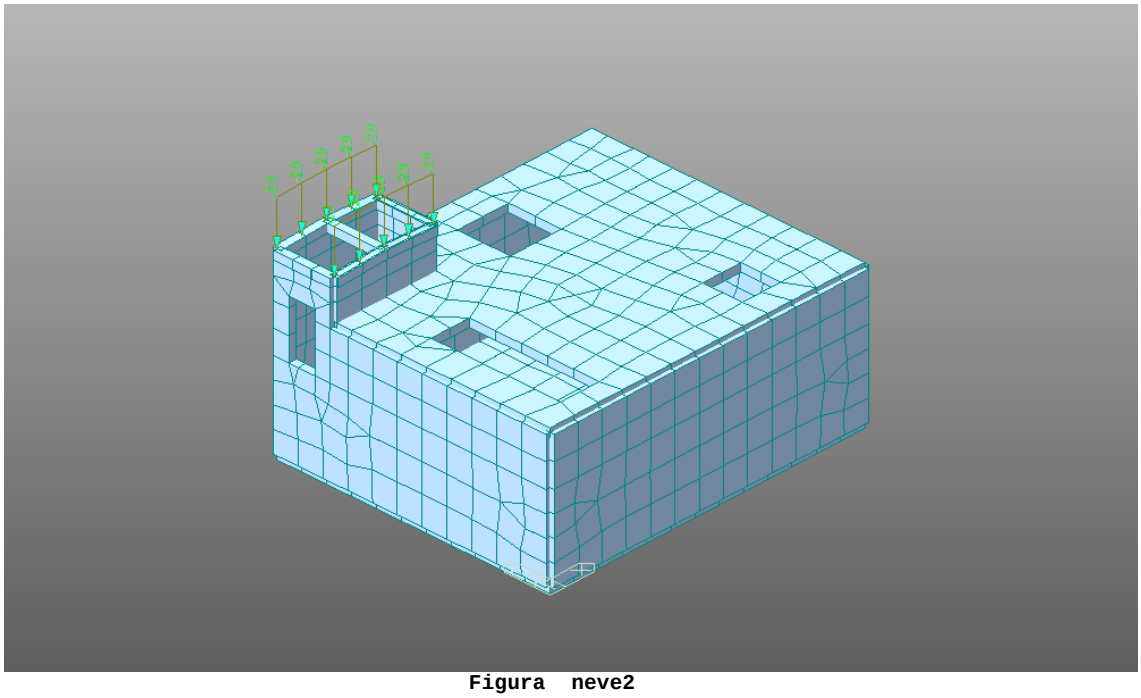


Figura neve2

5.2 Combinazioni di carico

I coefficienti utilizzati per la combinazione delle azioni di calcolo sono i seguenti:

Per lo Stato Limite Ultimo con azioni statiche

$$F_d = \gamma_{G1} \times G_1 + \gamma_{G2} \times G_2 + \gamma_Q \times [Q_{k1} + \Sigma\psi_{0,i} \times Q_{k,i}]$$

$\gamma_{G1} = 1,3$ per il peso proprio degli elementi strutturali ($\gamma_{G1} = 1,0$ se il contributo è a favore di sicurezza);

$\gamma_{G2} = 1,5$ per le azioni permanenti ($\gamma_{G2} = 0$ se il contributo è a favore di sicurezza);

$\gamma_Q = 1,5$ per le azioni variabili ($\gamma_Q = 0$ se il loro contributo è a favore di sicurezza);

$\psi_{0i} = 0,70$ nel caso di azioni accidentali.

Combinazione sismica

$$Fd = E + G_1 + G_2 + P + \sum \psi_{2,i} \times Qk,i$$

$\psi_{2,i} = 0,60 – 0,20$ (per carichi di tipo F e neve)

Per lo Stato Limite di Esercizio

Combinazione CARATTERISTICA (RARA)

$$F_d = G_1 + G_2 + Q_{k,1} + \Sigma\psi_{0,i} \times Q_{k,i}$$

Combinazione QUASI PERMANENTE

$$F_d = G_1 + G_2 + \Sigma\psi_{2,i} \times Q_{k,i}$$

$\psi_{2,i} = 0,60 – 0,20$ (carico F e neve rispettivamente)

Combinazione FREQUENTE

$$F_d = G_1 + G_2 + \psi_{11} \times Q_{k1} + \Sigma\psi_{2,i} \times Q_{k,i}$$

$\Psi_{0,i} = \Psi_{1,i} = 0,70$ (carico F e neve)

$\psi_{2,i} = 0,60 – 0,20$ (carico F e neve rispettivamente)

6. CARATTERISTICHE DEL TERRENO

I parametri geotecnici sono stati ricavati dalla “Relazione geologica”.

Nella tabella seguente è riportata la stratigrafia del sito ed i relativi parametri geotecnici per come evidenziato nella suddetta relazione geologica.

Litologia	*Descrizione*	*Profondità dello strato base dal piano di campagna [m]*(1)	*Vs [m/s]*	*SPT*(2)	*CU [kPa]*(2)	*Peso dell'unità di volume gamma*	*Gamma saturo Gamma saturo*	*Angolo di resistenza al taglio Fi*	*coesione*	*Nspt*
Copertura	Suolo geopedologico	0.8	200	-	15	1.52	1.85	18	-	1.51
Sabbie limose	Depositi alluvionali sabbioso-limose (*Pleistocene med.-inf.)*	7-8	324	-	62	1.76	1.88	22	-	6.4
Scisti biotitici	Substrato roccioso scistoso	35	673	-	0	2.21	2.01	35	-	33.9

Di seguito è riportata la valutazione della costante di sottofondo verticale ed orizzontale.

INDIVIDUAZIONE DELLA COSTANTE DI SOTTOFONDO

I strato

h	0,8	spessore dello strato
γ [kN/mc]	15,2	peso dell'unità di volume di terreno
γw[kN/mc]	0	
γ' [kN/mc]	15,2	
ϕ' [°]	18	0,31415927
ff	0,3249	tangente angolo di resistenza al taglio
γϕ	1	coefficiente parziale M1 per l'angolo di resistenza al taglio
ϕd	18	0,31415927
ff d	0,3249	tangente angolo di resistenza al taglio di calcolo
Cos f [-]	0,9511	coseno angolo di resistenza al taglio
sin f [-]	0,3090	seno angolo di resistenza al taglio
K0	0,6910	coefficiente di spinta a riposo
Ka	0,5279	coefficiente di spinta attiva
Kp	1,8944	coefficiente di spinta passiva
λ	1,06	fattore di concentrazione
a [m]	10,6	lato della fondazione
b [m]	12,6	lato della fondazione
A [mq]	133,56	superficie
E0 [Kg/cmq]	17	modulo edometrico VEDI DSH1-2-3-4
ν	0,30	coefficiente di Poisson
Kw,v [dN/cmc]	1,71	
ηp	0,5	fattore di riduzione della spinta passiva
Kw,o [dN/cmc]	1,62	coefficiente di winkler orizzontale stimato

con l'ipotesi di invariabilità di Kw,o nello strato

II strato

h	7	spessore dello strato
γ [kN/mc]	17,6	peso dell'unità di volume di terreno saturo
γw[kN/mc]	0	
γ' [kN/mc]	17,6	
ϕ [°]	22	0,38397244
ff	0,40402623	tangente angolo di resistenza al taglio del rilevato
γϕ	1	coefficiente parziale M1 per l'angolo di resistenza al taglio
ϕd	22	0,38397244
ff d	0,4040	tangente angolo di resistenza al taglio di calcolo
Cos f [-]	0,9272	coseno angolo di resistenza al taglio
sin f [-]	0,3746	seno angolo di resistenza al taglio
K0	0,6254	coefficiente di spinta a riposo
Ka	0,4550	coefficiente di spinta attiva
Kp	2,1980	coefficiente di spinta passiva

λ	1,06	fattore di concentrazione
a [m]	10,6	lato della fondazione
b [m]	12,6	lato della fondazione
A [mq]	133,56	superficie
E0 [Kg/cmq]	35	modulo edometrico VEDI DSH1-2-3-4
ν	0,30	coefficiente di Poisson
Kw,v [dN/cmc]	3,53	
ηp	0,5	fattore di riduzione della spinta passiva
Kw,o [dN/cmc]	3,87694322	coefficiente di winkler orizzontale stimato

con l'ipotesi di invariabilità di Kw,o nello strato

III strato

h	27,2	spessore dello strato
γ [kN/mc]	22,1	peso dell'unità di volume di terreno saturo
γw[kN/mc]	0	
γ' [kN/mc]	22,1	
ϕ [°]	35	0,61086524
ff	0,70020754	tangente angolo di resistenza al taglio del rilevato
γϕ	1	coefficiente parziale M1 per l'angolo di resistenza al taglio
ϕd	35	0,61086524
ff d	0,70020754	tangente angolo di resistenza al taglio di calcolo
Cos f [-]	0,81915204	coseno angolo di resistenza al taglio
sin f [-]	0,57357644	seno angolo di resistenza al taglio
K0	0,42642356	coefficiente di spinta a riposo
Ka	0,27099005	coefficiente di spinta attiva
Kp	3,69017233	coefficiente di spinta passiva

λ	1,06	fattore di concentrazione
a [m]	10,6	lato della fondazione
b [m]	12,6	lato della fondazione
A [mq]	133,56	superficie
E0 [Kg/cmq]	77	modulo edometrico vedi DSH1-2-3-4
ν	0,30	coefficiente di Poisson
Kw,v [dN/cmc]	7,76	
ηp	0,5	fattore di riduzione della spinta passiva
Kw,o [dN/cmc]	14,319691	coefficiente di winkler orizzontale stimato

con l'ipotesi di invariabilità di Kw,o nello strato

7. ANALISI SISMICA

Secondo il D.M. 14.01.2008 tutti i parametri necessari alla definizione dello spettro vengono definiti in funzione delle coordinate geografiche del sito di costruzione. Il sito in esame è individuato dalle coordinate geografiche del Comune:

- Regione: Calabria
- Provincia: Reggio Calabria