

## Plate analysis

### Input data

#### Project

Date : 31.1.2011

#### Joints

Number	Location		Number	Location		Number	Location		Number	Location	
	x [m]	y [m]		x [m]	y [m]		x [m]	y [m]		x [m]	y [m]
1	27,26	-5,55	2	24,70	-5,55	3	22,10	-5,55	4	13,35	-5,55
5	10,75	-5,55	6	4,55	-5,55	7	1,95	-5,55	8	-4,98	-5,55
9	4,55	-7,45	10	1,95	-7,45	11	13,35	-7,45	12	10,75	-7,45
13	24,70	-7,45	14	22,10	-7,45	15	18,55	12,05	16	21,03	12,05
17	23,63	12,05	18	30,05	12,05	19	21,03	13,95	20	23,63	13,95
21	15,75	12,05	22	13,35	12,05	23	10,75	12,05	24	-3,25	12,05
25	-5,85	12,05	26	-8,42	12,05	27	-3,25	13,95	28	-5,85	13,95
29	13,35	13,95	30	10,75	13,95	31	-5,57	-2,54	32	-10,70	7,90
33	-10,58	7,93	34	-10,48	7,95	35	-9,60	3,56	36	-8,37	3,80
37	-8,36	3,76	38	-8,07	3,81	39	-8,20	4,45	40	15,75	5,58
41	17,20	5,58	42	17,20	5,78	43	18,55	5,78	44	-3,65	-2,05
45	-3,65	-0,05	46	-8,56	-3,12	47	-6,95	4,70	48	18,50	0,25
49	18,50	-1,95	50	-3,60	0,00	51	18,55	0,25	52	1,20	-1,33
53	-5,85	0,00	54	18,55	-2,00	55	16,50	-1,95	56	-5,85	-0,05
57	18,75	-2,12	58	-8,44	-3,10	59	30,03	11,92	60	27,29	-5,42
61	0,15	3,38	62	0,80	3,38	63	0,80	3,70	64	0,15	3,70
65	1,40	3,38	66	2,05	3,38	67	2,05	3,70	68	1,40	3,70
69	0,15	2,80	70	0,80	2,80	71	0,80	3,13	72	0,15	3,13
73	1,40	2,80	74	2,05	2,80	75	2,05	3,13	76	1,40	3,13
77	8,35	3,38	78	9,00	3,38	79	9,00	3,70	80	8,35	3,70
81	9,60	3,38	82	10,25	3,38	83	10,25	3,70	84	9,60	3,70
85	8,35	2,80	86	9,00	2,80	87	9,00	3,13	88	8,35	3,13
89	9,60	2,80	90	10,25	2,80	91	10,25	3,13	92	9,60	3,13
93	24,05	3,38	94	24,70	3,38	95	24,70	3,70	96	24,05	3,70
97	25,30	3,38	98	25,95	3,38	99	25,95	3,70	100	25,30	3,70
101	-6,15	2,29	102	-6,25	2,27	103	-6,40	3,05	104	-6,30	3,07
105	18,80	2,77	106	18,90	2,77	107	18,90	3,73	108	18,80	3,73
109	25,33	3,13	110	25,65	3,13	111	25,65	2,68	112	25,33	2,68
113	25,33	1,53	114	25,65	1,53	115	25,65	2,28	116	25,33	2,28
117	-5,27	-2,75	118	-3,60	-2,75	119	-5,41	-2,05	120	-5,65	-1,85
121	-3,85	-1,85	122	-3,85	-0,25	123	-5,65	-0,25	124	16,70	-1,75
125	18,30	-1,75	126	18,30	0,05	127	16,70	0,05	128	15,75	-2,00
129	15,75	-0,40	130	16,50	-0,40	131	15,65	3,08	132	15,50	3,08
133	15,50	2,78	134	15,65	2,78	135	15,75	-0,15	136	15,85	-0,15
137	15,85	-0,05	138	15,75	-0,05	139	-9,58	2,77	140	-8,69	-1,80
141	-6,93	5,11	142	-8,25	11,92	143	-7,50	11,92	144	-1,32	11,92
145	-0,07	11,92	146	4,43	11,92	147	5,20	11,92	148	5,98	11,92
149	5,20	5,70	150	10,48	11,92	151	11,73	11,92	152	-5,20	7,50
153	-5,20	6,50	154	0,00	7,50	155	0,00	6,50	156	10,40	7,50
157	10,40	6,75	158	10,40	6,50	159	14,98	11,92	160	15,63	11,92
161	15,63	5,70	162	19,40	11,92	163	18,68	11,92	164	18,68	5,70
165	18,68	9,94	166	22,65	11,92	167	23,90	11,92	168	28,90	11,92
169	0,15	-1,33	170	1,19	2,67	171	1,94	2,67	172	4,82	2,67
173	5,20	2,67	174	5,88	2,67	175	9,80	2,67	176	10,85	2,67
177	14,70	2,67	178	15,38	2,67	179	15,75	2,67	180	-5,85	0,13
181	-3,47	0,13	182	-3,47	-3,00	183	-5,75	-0,37	184	-5,75	-0,15
185	-3,75	-0,15	186	-3,75	-1,95	187	-5,75	-1,95	188	-5,75	-1,53
189	-4,20	-5,42	190	-4,88	-5,42	191	-4,92	-5,19	192	-2,70	-5,42

Number	Location		Number	Location		Number	Location		Number	Location	
	x [m]	y [m]		x [m]	y [m]		x [m]	y [m]		x [m]	y [m]
193	-1,45	-5,42	194	5,20	0,80	195	5,20	-5,42	196	5,98	-5,42
197	4,43	-5,42	198	10,48	-5,42	199	11,73	-5,42	200	10,40	-1,00
201	10,40	0,00	202	15,63	1,05	203	15,63	-5,42	204	16,23	-5,42
205	14,98	-5,42	206	17,02	0,15	207	16,60	0,15	208	16,60	-1,85
209	18,40	-1,85	210	18,40	0,15	211	18,18	0,15	212	18,68	1,05
213	18,68	-2,00	214	19,23	-5,42	215	20,48	-5,42	216	26,44	-5,42
217	27,85	-1,02	218	28,02	0,07	219	29,03	6,43	220	29,20	7,52
221	23,90	0,00	222	23,90	-1,00	223	23,90	7,50	224	23,90	6,50
225	0,00	0,00	226	0,00	-1,00	227	-6,79	4,40	228	15,63	5,13
229	18,68	5,13	230	15,38	3,25	231	5,20	3,25	232	-6,21	3,25
233	-6,56	3,25	234	-6,00	2,19	235	-6,47	2,10	236	15,38	2,65
237	15,75	2,65	238	15,38	3,85	239	15,75	3,85	240	-6,01	0,43
241	-3,35	0,43	242	-6,10	0,87	243	-5,53	-2,05	244	-5,37	-2,87
245	-3,60	-2,87	246	15,63	1,38	247	16,50	-0,27	248	15,75	-0,27
249	15,75	-2,12	250	18,68	1,38	251	19,03	3,25	252	28,40	3,25
253	19,03	3,85	254	18,55	3,85	255	19,03	2,65	256	18,55	2,65

### Lines

Number	Type of line	Mode of input	Line topology
1	segment		Origin (27,26; -5,55) [m] , end (24,70; -5,55) [m]
2	segment		Origin (24,70; -5,55) [m] , end (22,10; -5,55) [m]
3	segment		Origin (22,10; -5,55) [m] , end (13,35; -5,55) [m]
4	segment		Origin (13,35; -5,55) [m] , end (10,75; -5,55) [m]
5	segment		Origin (10,75; -5,55) [m] , end (4,55; -5,55) [m]
6	segment		Origin (4,55; -5,55) [m] , end (1,95; -5,55) [m]
7	segment		Origin (1,95; -5,55) [m] , end (-4,98; -5,55) [m]
8	segment		Origin (4,55; -7,45) [m] , end (1,95; -7,45) [m]
9	segment		Origin (13,35; -7,45) [m] , end (10,75; -7,45) [m]
10	segment		Origin (24,70; -7,45) [m] , end (22,10; -7,45) [m]
11	segment		Origin (18,55; 12,05) [m] , end (21,03; 12,05) [m]
12	segment		Origin (21,03; 12,05) [m] , end (23,63; 12,05) [m]
13	segment		Origin (23,63; 12,05) [m] , end (30,05; 12,05) [m]
14	segment		Origin (21,03; 13,95) [m] , end (23,63; 13,95) [m]
15	segment		Origin (15,75; 12,05) [m] , end (13,35; 12,05) [m]
16	segment		Origin (13,35; 12,05) [m] , end (10,75; 12,05) [m]
17	segment		Origin (10,75; 12,05) [m] , end (-3,25; 12,05) [m]
18	segment		Origin (-3,25; 12,05) [m] , end (-5,85; 12,05) [m]
19	segment		Origin (-5,85; 12,05) [m] , end (-8,42; 12,05) [m]
20	segment		Origin (-3,25; 13,95) [m] , end (-5,85; 13,95) [m]
21	segment		Origin (13,35; 13,95) [m] , end (10,75; 13,95) [m]
22	segment		Origin (-5,57; -2,54) [m] , end (-4,98; -5,55) [m]
23	segment		Origin (-10,70; 7,90) [m] , end (-10,58; 7,93) [m]
24	segment		Origin (-10,58; 7,93) [m] , end (-10,48; 7,95) [m]
25	segment		Origin (-8,42; 12,05) [m] , end (-6,95; 4,70) [m]
26	segment		Origin (-9,60; 3,56) [m] , end (-8,37; 3,80) [m]
27	segment		Origin (-8,37; 3,80) [m] , end (-8,36; 3,76) [m]
28	segment		Origin (-8,36; 3,76) [m] , end (-8,07; 3,81) [m]
29	segment		Origin (-8,07; 3,81) [m] , end (-8,20; 4,45) [m]
30	segment		Origin (-8,20; 4,45) [m] , end (-6,95; 4,70) [m]
31	segment		Origin (18,68; 9,94) [m] , end (18,68; 5,70) [m]
32	segment		Origin (15,75; 5,58) [m] , end (17,20; 5,58) [m]
33	segment		Origin (17,20; 5,58) [m] , end (17,20; 5,78) [m]
34	segment		Origin (17,20; 5,78) [m] , end (18,55; 5,78) [m]
35	segment		Origin (15,75; 12,05) [m] , end (15,75; 5,58) [m]

Number	Type of line	Mode of input	Line topology
36	segment		Origin (-10,70; 7,90) [m] , end (-8,56; -3,12) [m]
37	segment		Origin (-9,60; 3,56) [m] , end (-10,48; 7,95) [m]
38	segment		Origin (18,55; 12,05) [m] , end (18,55; 5,78) [m]
39	segment		Origin (15,63; 1,05) [m] , end (15,63; -5,42) [m]
40	segment		Origin (-5,85; 0,00) [m] , end (-5,85; -0,05) [m]
41	segment		Origin (-5,85; -0,05) [m] , end (-3,65; -0,05) [m]
42	segment		Origin (16,50; -0,40) [m] , end (16,50; -1,95) [m]
43	segment		Origin (16,50; -1,95) [m] , end (18,50; -1,95) [m]
44	segment		Origin (18,50; -1,95) [m] , end (18,50; 0,25) [m]
45	segment		Origin (18,50; 0,25) [m] , end (18,55; 0,25) [m]
46	segment		Origin (-3,65; -0,05) [m] , end (-3,65; -2,05) [m]
47	segment		Origin (18,55; 0,25) [m] , end (18,55; -2,00) [m]
48	segment		Origin (15,75; -2,00) [m] , end (18,55; -2,00) [m]
49	segment		Origin (-5,85; 0,00) [m] , end (-3,60; 0,00) [m]
50	segment		Origin (-5,57; -2,54) [m] , end (-8,44; -3,10) [m]
51	segment		Origin (-8,44; -3,10) [m] , end (-8,56; -3,12) [m]
52	segment		Origin (30,05; 12,05) [m] , end (30,03; 11,92) [m]
53	segment		Origin (30,03; 11,92) [m] , end (27,29; -5,42) [m]
54	segment		Origin (27,29; -5,42) [m] , end (27,26; -5,55) [m]
55	segment		Origin (0,15; 3,38) [m] , end (0,80; 3,38) [m]
56	segment		Origin (0,80; 3,38) [m] , end (0,80; 3,70) [m]
57	segment		Origin (0,80; 3,70) [m] , end (0,15; 3,70) [m]
58	segment		Origin (0,15; 3,70) [m] , end (0,15; 3,38) [m]
59	segment		Origin (1,40; 3,38) [m] , end (2,05; 3,38) [m]
60	segment		Origin (2,05; 3,38) [m] , end (2,05; 3,70) [m]
61	segment		Origin (2,05; 3,70) [m] , end (1,40; 3,70) [m]
62	segment		Origin (1,40; 3,70) [m] , end (1,40; 3,38) [m]
63	segment		Origin (0,15; 2,80) [m] , end (0,80; 2,80) [m]
64	segment		Origin (0,80; 2,80) [m] , end (0,80; 3,13) [m]
65	segment		Origin (0,80; 3,13) [m] , end (0,15; 3,13) [m]
66	segment		Origin (0,15; 3,13) [m] , end (0,15; 2,80) [m]
67	segment		Origin (1,40; 2,80) [m] , end (2,05; 2,80) [m]
68	segment		Origin (2,05; 2,80) [m] , end (2,05; 3,13) [m]
69	segment		Origin (2,05; 3,13) [m] , end (1,40; 3,13) [m]
70	segment		Origin (1,40; 3,13) [m] , end (1,40; 2,80) [m]
71	segment		Origin (8,35; 3,38) [m] , end (9,00; 3,38) [m]
72	segment		Origin (9,00; 3,38) [m] , end (9,00; 3,70) [m]
73	segment		Origin (9,00; 3,70) [m] , end (8,35; 3,70) [m]
74	segment		Origin (8,35; 3,70) [m] , end (8,35; 3,38) [m]
75	segment		Origin (9,60; 3,38) [m] , end (10,25; 3,38) [m]
76	segment		Origin (10,25; 3,38) [m] , end (10,25; 3,70) [m]
77	segment		Origin (10,25; 3,70) [m] , end (9,60; 3,70) [m]
78	segment		Origin (9,60; 3,70) [m] , end (9,60; 3,38) [m]
79	segment		Origin (8,35; 2,80) [m] , end (9,00; 2,80) [m]
80	segment		Origin (9,00; 2,80) [m] , end (9,00; 3,13) [m]
81	segment		Origin (9,00; 3,13) [m] , end (8,35; 3,13) [m]
82	segment		Origin (8,35; 3,13) [m] , end (8,35; 2,80) [m]
83	segment		Origin (9,60; 2,80) [m] , end (10,25; 2,80) [m]
84	segment		Origin (10,25; 2,80) [m] , end (10,25; 3,13) [m]
85	segment		Origin (10,25; 3,13) [m] , end (9,60; 3,13) [m]
86	segment		Origin (9,60; 3,13) [m] , end (9,60; 2,80) [m]
87	segment		Origin (24,05; 3,38) [m] , end (24,70; 3,38) [m]
88	segment		Origin (24,70; 3,38) [m] , end (24,70; 3,70) [m]
89	segment		Origin (24,70; 3,70) [m] , end (24,05; 3,70) [m]
90	segment		Origin (24,05; 3,70) [m] , end (24,05; 3,38) [m]

Number	Type of line	Mode of input	Line topology
91	segment		Origin (25,30; 3,38) [m] , end (25,95; 3,38) [m]
92	segment		Origin (25,95; 3,38) [m] , end (25,95; 3,70) [m]
93	segment		Origin (25,95; 3,70) [m] , end (25,30; 3,70) [m]
94	segment		Origin (25,30; 3,70) [m] , end (25,30; 3,38) [m]
95	segment		Origin (-6,15; 2,29) [m] , end (-6,25; 2,27) [m]
96	segment		Origin (-6,25; 2,27) [m] , end (-6,40; 3,05) [m]
97	segment		Origin (-6,40; 3,05) [m] , end (-6,30; 3,07) [m]
98	segment		Origin (-6,30; 3,07) [m] , end (-6,15; 2,29) [m]
99	segment		Origin (18,80; 2,77) [m] , end (18,90; 2,77) [m]
100	segment		Origin (18,90; 2,77) [m] , end (18,90; 3,73) [m]
101	segment		Origin (18,90; 3,73) [m] , end (18,80; 3,73) [m]
102	segment		Origin (18,80; 3,73) [m] , end (18,80; 2,77) [m]
103	segment		Origin (25,33; 3,13) [m] , end (25,65; 3,13) [m]
104	segment		Origin (25,65; 3,13) [m] , end (25,65; 2,68) [m]
105	segment		Origin (25,65; 2,68) [m] , end (25,33; 2,68) [m]
106	segment		Origin (25,33; 2,68) [m] , end (25,33; 3,13) [m]
107	segment		Origin (25,33; 1,53) [m] , end (25,65; 1,53) [m]
108	segment		Origin (25,65; 1,53) [m] , end (25,65; 2,28) [m]
109	segment		Origin (25,65; 2,28) [m] , end (25,33; 2,28) [m]
110	segment		Origin (25,33; 2,28) [m] , end (25,33; 1,53) [m]
111	segment		Origin (-5,27; -2,75) [m] , end (-3,60; -2,75) [m]
112	segment		Origin (-3,60; -2,75) [m] , end (-3,60; 0,00) [m]
113	segment		Origin (-3,65; -2,05) [m] , end (-5,41; -2,05) [m]
114	segment		Origin (-5,41; -2,05) [m] , end (-5,27; -2,75) [m]
115	segment		Origin (-5,65; -1,85) [m] , end (-3,85; -1,85) [m]
116	segment		Origin (-3,85; -1,85) [m] , end (-3,85; -0,25) [m]
117	segment		Origin (-3,85; -0,25) [m] , end (-5,65; -0,25) [m]
118	segment		Origin (-5,65; -0,25) [m] , end (-5,65; -1,85) [m]
119	segment		Origin (16,70; -1,75) [m] , end (18,30; -1,75) [m]
120	segment		Origin (18,30; -1,75) [m] , end (18,30; 0,05) [m]
121	segment		Origin (18,30; 0,05) [m] , end (16,70; 0,05) [m]
122	segment		Origin (16,70; 0,05) [m] , end (16,70; -1,75) [m]
123	segment		Origin (15,75; -2,00) [m] , end (15,75; -0,40) [m]
124	segment		Origin (15,75; -0,40) [m] , end (16,50; -0,40) [m]
125	segment		Origin (15,65; 3,08) [m] , end (15,50; 3,08) [m]
126	segment		Origin (15,50; 3,08) [m] , end (15,50; 2,78) [m]
127	segment		Origin (15,50; 2,78) [m] , end (15,65; 2,78) [m]
128	segment		Origin (15,65; 2,78) [m] , end (15,65; 3,08) [m]
129	segment		Origin (15,75; -0,15) [m] , end (15,85; -0,15) [m]
130	segment		Origin (15,85; -0,15) [m] , end (15,85; -0,05) [m]
131	segment		Origin (15,85; -0,05) [m] , end (15,75; -0,05) [m]
132	segment		Origin (15,75; -0,05) [m] , end (15,75; -0,15) [m]
133	segment		Origin (22,10; -5,55) [m] , end (22,10; -7,45) [m]
134	segment		Origin (24,70; -5,55) [m] , end (24,70; -7,45) [m]
135	segment		Origin (13,35; -5,55) [m] , end (13,35; -7,45) [m]
136	segment		Origin (10,75; -5,55) [m] , end (10,75; -7,45) [m]
137	segment		Origin (1,95; -5,55) [m] , end (1,95; -7,45) [m]
138	segment		Origin (4,55; -5,55) [m] , end (4,55; -7,45) [m]
139	segment		Origin (21,03; 12,05) [m] , end (21,03; 13,95) [m]
140	segment		Origin (23,63; 12,05) [m] , end (23,63; 13,95) [m]
141	segment		Origin (13,35; 12,05) [m] , end (13,35; 13,95) [m]
142	segment		Origin (10,75; 12,05) [m] , end (10,75; 13,95) [m]
143	segment		Origin (-5,85; 13,95) [m] , end (-5,85; 12,05) [m]
144	segment		Origin (-3,25; 13,95) [m] , end (-3,25; 12,05) [m]
145	segment		Origin (-9,58; 2,77) [m] , end (-10,58; 7,93) [m]

Number	Type of line	Mode of input	Line topology
146	segment		Origin (-8,69; -1,80) [m] , end (-8,44; -3,10) [m]
147	segment		Origin (-6,93; 5,11) [m] , end (-8,25; 11,92) [m]
148	segment		Origin (-7,50; 11,92) [m] , end (-8,25; 11,92) [m]
149	segment		Origin (-1,32; 11,92) [m] , end (-0,07; 11,92) [m]
150	segment		Origin (4,43; 11,92) [m] , end (5,20; 11,92) [m]
151	segment		Origin (5,20; 11,92) [m] , end (5,98; 11,92) [m]
152	segment		Origin (5,20; 5,70) [m] , end (5,20; 11,92) [m]
153	segment		Origin (10,48; 11,92) [m] , end (11,73; 11,92) [m]
154	segment		Origin (-5,20; 7,50) [m] , end (-5,20; 6,50) [m]
155	segment		Origin (0,00; 7,50) [m] , end (0,00; 6,50) [m]
156	segment		Origin (10,40; 7,50) [m] , end (10,40; 6,75) [m]
157	segment		Origin (10,40; 6,75) [m] , end (10,40; 6,50) [m]
158	segment		Origin (14,98; 11,92) [m] , end (15,63; 11,92) [m]
159	segment		Origin (15,63; 5,70) [m] , end (15,63; 11,92) [m]
160	segment		Origin (19,40; 11,92) [m] , end (18,68; 11,92) [m]
161	segment		Origin (18,68; 9,94) [m] , end (18,68; 11,92) [m]
162	segment		Origin (22,65; 11,92) [m] , end (23,90; 11,92) [m]
163	segment		Origin (28,90; 11,92) [m] , end (30,03; 11,92) [m]
164	segment		Origin (0,15; -1,33) [m] , end (1,20; -1,33) [m]
165	segment		Origin (1,19; 2,67) [m] , end (1,94; 2,67) [m]
166	segment		Origin (4,82; 2,67) [m] , end (5,20; 2,67) [m]
167	segment		Origin (5,20; 2,67) [m] , end (5,88; 2,67) [m]
168	segment		Origin (9,80; 2,67) [m] , end (10,85; 2,67) [m]
169	segment		Origin (14,70; 2,67) [m] , end (15,38; 2,67) [m]
170	segment		Origin (15,38; 2,67) [m] , end (15,75; 2,67) [m]
171	segment		Origin (-5,85; 0,13) [m] , end (-3,47; 0,13) [m]
172	segment		Origin (-3,47; -3,00) [m] , end (-3,47; 0,13) [m]
173	segment		Origin (-5,75; -0,37) [m] , end (-5,75; -0,15) [m]
174	segment		Origin (-3,75; -0,15) [m] , end (-5,75; -0,15) [m]
175	segment		Origin (-3,75; -1,95) [m] , end (-3,75; -0,15) [m]
176	segment		Origin (-3,75; -1,95) [m] , end (-5,75; -1,95) [m]
177	segment		Origin (-5,75; -1,95) [m] , end (-5,75; -1,53) [m]
178	segment		Origin (-4,20; -5,42) [m] , end (-4,88; -5,42) [m]
179	segment		Origin (-4,92; -5,19) [m] , end (-4,88; -5,42) [m]
180	segment		Origin (-2,70; -5,42) [m] , end (-1,45; -5,42) [m]
181	segment		Origin (5,20; 0,80) [m] , end (5,20; -5,42) [m]
182	segment		Origin (5,98; -5,42) [m] , end (5,20; -5,42) [m]
183	segment		Origin (5,20; -5,42) [m] , end (4,43; -5,42) [m]
184	segment		Origin (10,48; -5,42) [m] , end (11,73; -5,42) [m]
185	segment		Origin (10,40; -1,00) [m] , end (10,40; 0,00) [m]
186	segment		Origin (16,23; -5,42) [m] , end (15,63; -5,42) [m]
187	segment		Origin (15,63; -5,42) [m] , end (14,98; -5,42) [m]
188	segment		Origin (17,02; 0,15) [m] , end (16,60; 0,15) [m]
189	segment		Origin (16,60; 0,15) [m] , end (16,60; -1,85) [m]
190	segment		Origin (16,60; -1,85) [m] , end (18,40; -1,85) [m]
191	segment		Origin (18,40; -1,85) [m] , end (18,40; 0,15) [m]
192	segment		Origin (18,40; 0,15) [m] , end (18,18; 0,15) [m]
193	segment		Origin (18,68; 1,05) [m] , end (18,68; -2,00) [m]
194	segment		Origin (19,23; -5,42) [m] , end (20,48; -5,42) [m]
195	segment		Origin (26,44; -5,42) [m] , end (27,29; -5,42) [m]
196	segment		Origin (27,85; -1,02) [m] , end (28,02; 0,07) [m]
197	segment		Origin (29,03; 6,43) [m] , end (29,20; 7,52) [m]
198	segment		Origin (23,90; 0,00) [m] , end (23,90; -1,00) [m]
199	segment		Origin (23,90; 7,50) [m] , end (23,90; 6,50) [m]
200	segment		Origin (0,00; 0,00) [m] , end (0,00; -1,00) [m]

Number	Type of line	Mode of input	Line topology
201	segment		Origin (-6,93; 5,11) [m] , end (-6,79; 4,40) [m]
202	segment		Origin (15,63; 5,70) [m] , end (15,63; 5,13) [m]
203	segment		Origin (18,68; 5,70) [m] , end (18,68; 5,13) [m]
204	segment		Origin (15,38; 3,25) [m] , end (5,20; 3,25) [m]
205	segment		Origin (5,20; 3,25) [m] , end (-6,21; 3,25) [m]
206	segment		Origin (-6,21; 3,25) [m] , end (-6,56; 3,25) [m]
207	segment		Origin (-6,21; 3,25) [m] , end (-6,00; 2,19) [m]
208	segment		Origin (-6,47; 2,10) [m] , end (-6,00; 2,19) [m]
209	segment		Origin (15,38; 2,65) [m] , end (15,38; 2,67) [m]
210	segment		Origin (15,38; 2,67) [m] , end (15,38; 3,25) [m]
211	segment		Origin (15,75; 2,65) [m] , end (15,38; 2,65) [m]
212	segment		Origin (15,38; 3,85) [m] , end (15,38; 3,25) [m]
213	segment		Origin (15,75; 3,85) [m] , end (15,38; 3,85) [m]
214	segment		Origin (5,20; 5,70) [m] , end (5,20; 3,25) [m]
215	segment		Origin (5,20; 3,25) [m] , end (5,20; 2,67) [m]
216	segment		Origin (5,20; 2,67) [m] , end (5,20; 0,80) [m]
217	segment		Origin (-6,01; 0,43) [m] , end (-3,35; 0,43) [m]
218	segment		Origin (-6,10; 0,87) [m] , end (-6,01; 0,43) [m]
219	segment		Origin (-5,53; -2,05) [m] , end (-5,37; -2,87) [m]
220	segment		Origin (-3,60; -2,87) [m] , end (-5,37; -2,87) [m]
221	segment		Origin (15,63; 1,05) [m] , end (15,63; 1,38) [m]
222	segment		Origin (16,50; -0,27) [m] , end (15,75; -0,27) [m]
223	segment		Origin (18,75; -2,12) [m] , end (15,75; -2,12) [m]
224	segment		Origin (18,68; 1,05) [m] , end (18,68; 1,38) [m]
225	segment		Origin (19,03; 3,25) [m] , end (28,40; 3,25) [m]
226	segment		Origin (19,03; 3,85) [m] , end (18,55; 3,85) [m]
227	segment		Origin (19,03; 3,25) [m] , end (19,03; 3,85) [m]
228	segment		Origin (19,03; 2,65) [m] , end (18,55; 2,65) [m]
229	segment		Origin (19,03; 3,25) [m] , end (19,03; 2,65) [m]

### Macroelements

Number	List of lines	Thickness [m]	Material
1	18,20,143-144	0,16	B 30 E <sub>b</sub> = 32500,00 MPa G = 13650,00 MPa α <sub>t</sub> = 0,000010 1/K γ = 25,00 kN/m <sup>3</sup> R <sub>bd</sub> = 17,00 MPa R <sub>btd</sub> = 1,20 MPa
2	16,21,141-142	0,16	B 30 E <sub>b</sub> = 32500,00 MPa G = 13650,00 MPa α <sub>t</sub> = 0,000010 1/K γ = 25,00 kN/m <sup>3</sup> R <sub>bd</sub> = 17,00 MPa R <sub>btd</sub> = 1,20 MPa
3	12,14,139-140	0,16	B 30 E <sub>b</sub> = 32500,00 MPa G = 13650,00 MPa α <sub>t</sub> = 0,000010 1/K γ = 25,00 kN/m <sup>3</sup> R <sub>bd</sub> = 17,00 MPa R <sub>btd</sub> = 1,20 MPa

Number	List of lines	Thickness [m]	Material
4	6,8,137-138	0,16	B 30 E <sub>b</sub> = 32500,00 MPa G = 13650,00 MPa α <sub>t</sub> = 0,000010 1/K γ = 25,00 kN/m <sup>3</sup> R <sub>bd</sub> = 17,00 MPa R <sub>btd</sub> = 1,20 MPa
5	4,9,135-136	0,16	B 30 E <sub>b</sub> = 32500,00 MPa G = 13650,00 MPa α <sub>t</sub> = 0,000010 1/K γ = 25,00 kN/m <sup>3</sup> R <sub>bd</sub> = 17,00 MPa R <sub>btd</sub> = 1,20 MPa
6	2,10,133-134	0,16	B 30 E <sub>b</sub> = 32500,00 MPa G = 13650,00 MPa α <sub>t</sub> = 0,000010 1/K γ = 25,00 kN/m <sup>3</sup> R <sub>bd</sub> = 17,00 MPa R <sub>btd</sub> = 1,20 MPa
7	1-7,11-13,15-19,22-30,32-38,50-54	0,22	B 30 E <sub>b</sub> = 32500,00 MPa G = 13650,00 MPa α <sub>t</sub> = 0,000010 1/K γ = 25,00 kN/m <sup>3</sup> R <sub>bd</sub> = 17,00 MPa R <sub>btd</sub> = 1,20 MPa

### Openings

Number	List of lines
1	42-45,47-48,123-124
2	129-132
3	119-122
4	99-102
5	40-41,46,49,111-114
6	115-118
7	59-62
8	67-70
9	55-58
10	63-66
11	95-98
12	125-128
13	75-78
14	83-86
15	79-82
16	71-74
17	87-90
18	91-94
19	103-106
20	107-110

### Line refinements

Number	Location	Radius r [m]	Length l [m]
1	Line No. 31	0,50	0,25
2	Line No. 39	0,50	0,25
3	Line No. 145	0,50	0,25

Number	Location	Radius r [m]	Length l [m]
4	Line No. 146	0,50	0,25
5	Line No. 147	0,50	0,25
6	Line No. 148	0,50	0,25
7	Line No. 149	0,50	0,25
8	Line No. 150	0,50	0,25
9	Line No. 151	0,50	0,25
10	Line No. 152	0,50	0,25
11	Line No. 153	0,50	0,25
12	Line No. 154	0,50	0,25
13	Line No. 155	0,50	0,25
14	Line No. 156	0,50	0,25
15	Line No. 157	0,50	0,25
16	Line No. 158	0,50	0,25
17	Line No. 159	0,50	0,25
18	Line No. 160	0,50	0,25
19	Line No. 161	0,50	0,25
20	Line No. 162	0,50	0,25
21	Line No. 163	0,50	0,25
22	Line No. 171	0,50	0,25
23	Line No. 172	0,50	0,25
24	Line No. 173	0,50	0,25
25	Line No. 174	0,50	0,25
26	Line No. 175	0,50	0,25
27	Line No. 176	0,50	0,25
28	Line No. 177	0,50	0,25
29	Line No. 178	0,50	0,25
30	Line No. 179	0,50	0,25
31	Line No. 180	0,50	0,25
32	Line No. 181	0,50	0,25
33	Line No. 182	0,50	0,25
34	Line No. 183	0,50	0,25
35	Line No. 184	0,50	0,25
36	Line No. 185	0,50	0,25
37	Line No. 186	0,50	0,25
38	Line No. 187	0,50	0,25
39	Line No. 188	0,50	0,25
40	Line No. 189	0,50	0,25
41	Line No. 190	0,50	0,25
42	Line No. 191	0,50	0,25
43	Line No. 192	0,50	0,25
44	Line No. 193	0,50	0,25
45	Line No. 194	0,50	0,25
46	Line No. 195	0,50	0,25
47	Line No. 196	0,50	0,25
48	Line No. 197	0,50	0,25
49	Line No. 198	0,50	0,25
50	Line No. 199	0,50	0,25
51	Line No. 200	0,50	0,25

### Macroelement refinements

Number	Location	Length l [m]
1	Macroelement No. 7	0,40

### Line supports

Number	Location	Support	
		Direction Z	About T
1	Line No. 31	fixed	fixed
2	Line No. 39	fixed	fixed
3	Line No. 145	fixed	fixed
4	Line No. 146	fixed	fixed
5	Line No. 147	fixed	fixed
6	Line No. 148	fixed	fixed
7	Line No. 149	fixed	fixed
8	Line No. 150	fixed	fixed
9	Line No. 151	fixed	fixed
10	Line No. 152	fixed	fixed
11	Line No. 153	fixed	fixed
12	Line No. 154	fixed	fixed
13	Line No. 155	fixed	fixed
14	Line No. 156	fixed	fixed
15	Line No. 157	fixed	fixed
16	Line No. 158	fixed	fixed
17	Line No. 159	fixed	fixed
18	Line No. 160	fixed	fixed
19	Line No. 161	fixed	fixed
20	Line No. 162	fixed	fixed
21	Line No. 163	fixed	fixed
22	Line No. 171	fixed	fixed
23	Line No. 172	fixed	fixed
24	Line No. 173	fixed	fixed
25	Line No. 174	fixed	fixed
26	Line No. 175	fixed	fixed
27	Line No. 176	fixed	fixed
28	Line No. 177	fixed	fixed
29	Line No. 178	fixed	fixed
30	Line No. 179	fixed	fixed
31	Line No. 180	fixed	fixed
32	Line No. 181	fixed	fixed
33	Line No. 182	fixed	fixed
34	Line No. 183	fixed	fixed
35	Line No. 184	fixed	fixed
36	Line No. 185	fixed	fixed
37	Line No. 186	fixed	fixed
38	Line No. 187	fixed	fixed
39	Line No. 188	fixed	fixed
40	Line No. 189	fixed	fixed
41	Line No. 190	fixed	fixed
42	Line No. 191	fixed	fixed
43	Line No. 192	fixed	fixed
44	Line No. 193	fixed	fixed
45	Line No. 194	fixed	fixed
46	Line No. 195	fixed	fixed
47	Line No. 196	fixed	fixed
48	Line No. 197	fixed	fixed
49	Line No. 198	fixed	fixed
50	Line No. 199	fixed	fixed
51	Line No. 200	fixed	fixed

## Mesh generation

### Mesh generation parameters

Element edge length : 0,30 [m]  
Mesh type : triangular  
Mesh smoothing : yes

**Mesh generation result**

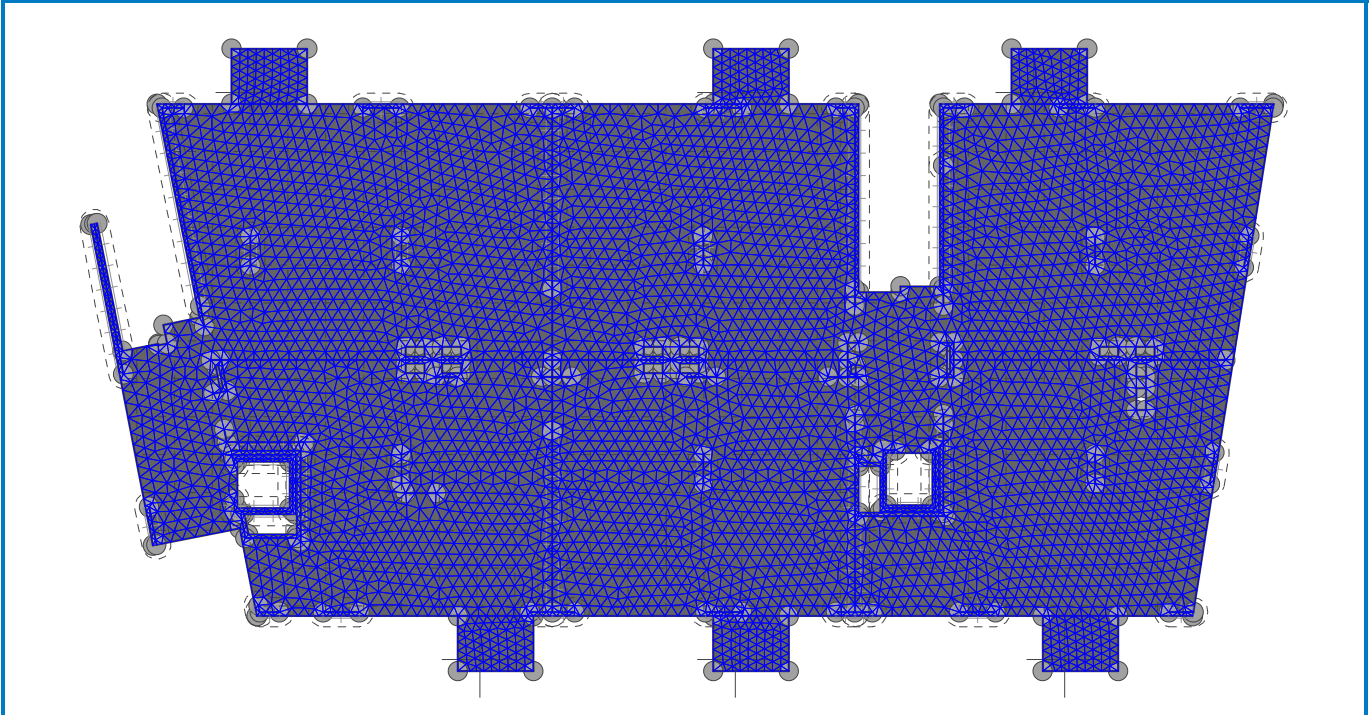
**Finite element mesh was successfully generated.**

Number of nodes 5303, number of elements 9929

**Warning**

- [W041] Mesh points (15,38; 2,67) and (15,38; 2,65) are found too close to each other.
- [W041] Mesh points (15,75; 2,67) and (15,75; 2,65) are found too close to each other.
- [W042] Mesh point (15,38; 2,65) is found too close to line LI{(14,70; 2,67) .. (15,38; 2,67)}.
- [W042] Mesh point (15,38; 2,65) is found too close to line LI{(15,38; 2,67) .. (15,75; 2,67)}.
- [W042] Mesh point (15,75; 2,65) is found too close to line LI{(15,38; 2,67) .. (15,75; 2,67)}.
- [W042] Mesh point (15,38; 2,67) is found too close to line LI{(15,75; 2,65) .. (15,38; 2,65)}.

**Name : Mesh generation**



**Load case 1**

Name	Load case		Coefficient		Active load case
	Code	Type	$\gamma_{f,sup}$	$\gamma_{f,inf}$	
G1 1	Self-weight	Permanent	1,00	0,90	

**Macroelement loads**

Number	Location	Self weight	
		Type of load	f [kN/m <sup>2</sup> ]
1	Macroelement No. 1	uniform	-4,00
2	Macroelement No. 2	uniform	-4,00
3	Macroelement No. 3	uniform	-4,00
4	Macroelement No. 4	uniform	-4,00
5	Macroelement No. 5	uniform	-4,00
6	Macroelement No. 6	uniform	-4,00
7	Macroelement No. 7	uniform	-5,50

**Load case 2**

Name	Load case		Coefficient		Active load case
	Code	Type	$\gamma_{f,sup}$	$\gamma_{f,inf}$	
G2 2	Force	Permanent	1,20	0,90	

**Macroelement loads**

Number	Location	Type of load	Rorce load								
			$f/f_1$ [kN/m <sup>2</sup> ]	x [m]	y [m]	$f_2$ [kN/m <sup>2</sup> ]	x [m]	y [m]	$f_3$ [kN/m <sup>2</sup> ]	x [m]	y [m]
1	Macroelement No. 1	uniform	-3,00								
2	Macroelement No. 2	uniform	-3,00								
3	Macroelement No. 3	uniform	-3,00								
4	Macroelement No. 4	uniform	-3,00								
5	Macroelement No. 5	uniform	-3,00								
6	Macroelement No. 6	uniform	-3,00								
7	Macroelement No. 7	uniform	-1,50								

### Load case 3

Name	Load case		Coefficient		Active load case
	Code	Type	$\gamma_{f,sup}$	$\gamma_{f,inf}$	
A3 3	Force	Accidental imposed	1,00		

### Macroelement loads

Number	Location	Type of load	Rorce load								
			$f/f_1$ [kN/m <sup>2</sup> ]	x [m]	y [m]	$f_2$ [kN/m <sup>2</sup> ]	x [m]	y [m]	$f_3$ [kN/m <sup>2</sup> ]	x [m]	y [m]
1	Macroelement No. 7	uniform	-2,00								

### Load case 4

Name	Load case		Coefficient		Active load case
	Code	Type	$\gamma_{f,sup}$	$\gamma_{f,inf}$	
G4 4	Force	Permanent	1,20	0,90	

### Line loads

Number	Location	Type of load	Rorce load						
			Load direction	A [m]	D [m]	F, f, f <sub>1</sub> , M, m, m <sub>1</sub>	f <sub>2</sub> , m <sub>2</sub>	unit	
1	Line No. 201	uniform on whole	in Z-direction				-8,20		[kN/m]
2	Line No. 202	uniform on whole	in Z-direction				-8,20		[kN/m]
3	Line No. 203	uniform on whole	in Z-direction				-8,20		[kN/m]
4	Line No. 204	uniform on whole	in Z-direction				-8,20		[kN/m]
5	Line No. 205	uniform on whole	in Z-direction				-8,20		[kN/m]
6	Line No. 206	uniform on whole	in Z-direction				-8,20		[kN/m]
7	Line No. 207	uniform on whole	in Z-direction				-8,20		[kN/m]
8	Line No. 208	uniform on whole	in Z-direction				-8,20		[kN/m]
9	Line No. 209	uniform on whole	in Z-direction				-8,20		[kN/m]
10	Line No. 210	uniform on whole	in Z-direction				-8,20		[kN/m]
11	Line No. 211	uniform on whole	in Z-direction				-8,20		[kN/m]
12	Line No. 212	uniform on whole	in Z-direction				-8,20		[kN/m]
13	Line No. 213	uniform on whole	in Z-direction				-8,20		[kN/m]
14	Line No. 214	uniform on whole	in Z-direction				-8,20		[kN/m]
15	Line No. 215	uniform on whole	in Z-direction				-8,20		[kN/m]
16	Line No. 216	uniform on whole	in Z-direction				-8,20		[kN/m]
17	Line No. 217	uniform on whole	in Z-direction				-8,20		[kN/m]
18	Line No. 218	uniform on whole	in Z-direction				-8,20		[kN/m]
19	Line No. 219	uniform on whole	in Z-direction				-8,20		[kN/m]
20	Line No. 220	uniform on whole	in Z-direction				-8,20		[kN/m]
21	Line No. 221	uniform on whole	in Z-direction				-8,20		[kN/m]
22	Line No. 222	uniform on whole	in Z-direction				-8,20		[kN/m]
23	Line No. 223	uniform on whole	in Z-direction				-8,20		[kN/m]
24	Line No. 224	uniform on whole	in Z-direction				-8,20		[kN/m]
25	Line No. 225	uniform on whole	in Z-direction				-8,20		[kN/m]
26	Line No. 226	uniform on whole	in Z-direction				-8,20		[kN/m]
27	Line No. 227	uniform on whole	in Z-direction				-8,20		[kN/m]
28	Line No. 228	uniform on whole	in Z-direction				-8,20		[kN/m]

Number	Location	Type of load	Load direction	Rorce load				
				A [m]	D [m]	F, f, f <sub>1</sub> , M, m, m <sub>1</sub>	f <sub>2</sub> , m <sub>2</sub>	unit
29	Line No. 229	uniform on whole	in Z-direction			-8,20		[kN/m]

#### Load case 5

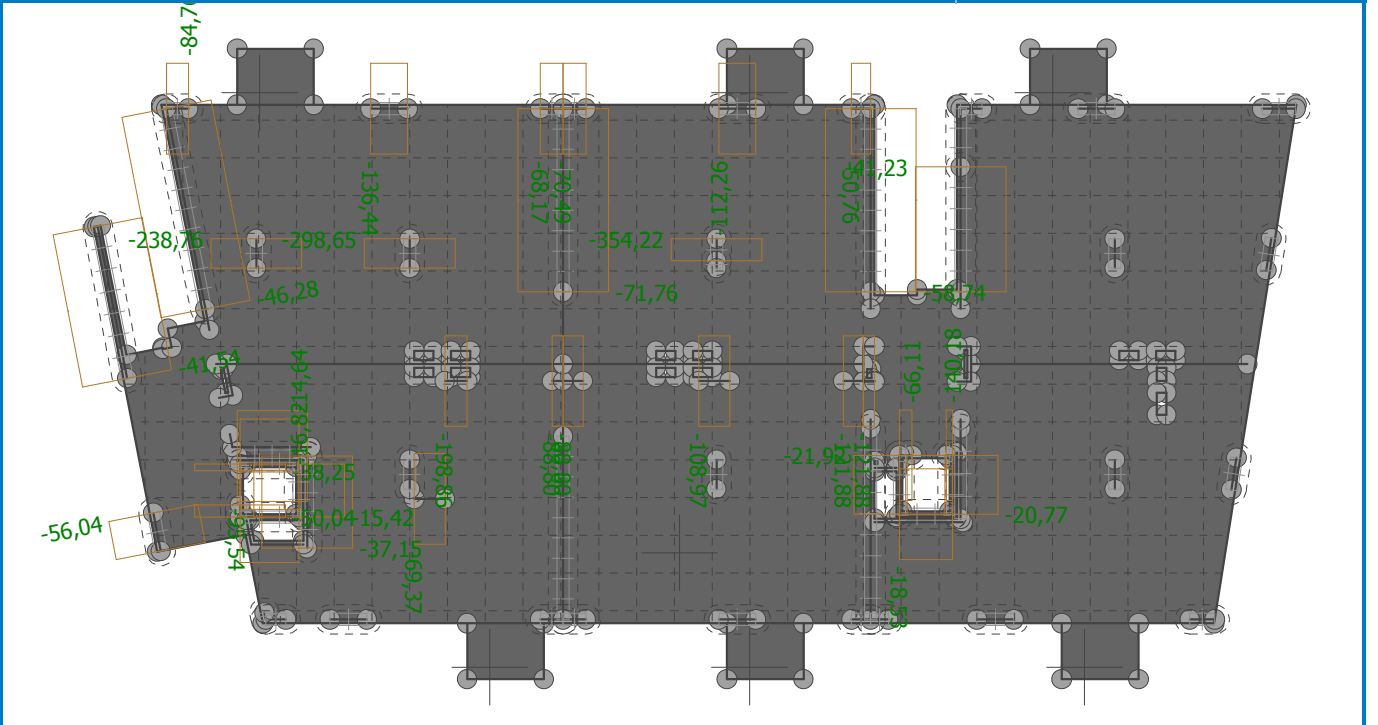
Name	Load case		Coefficient		Active load case
	Code	Type	$\gamma_{f,sup}$	$\gamma_{f,inf}$	
G5 5	Force	Permanent	1,00	0,90	Yes

#### Line loads

Number	Location	Type of load	Load direction	Rorce load				
				A [m]	D [m]	F, f, f <sub>1</sub> , M, m, m <sub>1</sub>	f <sub>2</sub> , m <sub>2</sub>	unit
1	Line No. 31	uniform on whole	in Z-direction			-41,23		[kN/m]
2	Line No. 145	uniform on whole	in Z-direction			-41,54		[kN/m]
3	Line No. 146	uniform on whole	in Z-direction			-56,04		[kN/m]
4	Line No. 147	uniform on whole	in Z-direction			-46,28		[kN/m]
5	Line No. 148	uniform on whole	in Z-direction			-84,76		[kN/m]
6	Line No. 149	uniform on whole	in Z-direction			-136,44		[kN/m]
7	Line No. 150	uniform on whole	in Z-direction			-68,17		[kN/m]
8	Line No. 151	uniform on whole	in Z-direction			-70,49		[kN/m]
9	Line No. 152	uniform on whole	in Z-direction			-71,76		[kN/m]
10	Line No. 153	uniform on whole	in Z-direction			-112,26		[kN/m]
11	Line No. 154	uniform on whole	in Z-direction			-238,76		[kN/m]
12	Line No. 155	uniform on whole	in Z-direction			-298,65		[kN/m]
13	Line No. 156	uniform on whole	in Z-direction			-354,22		[kN/m]
14	Line No. 158	uniform on whole	in Z-direction			-50,76		[kN/m]
15	Line No. 159	uniform on whole	in Z-direction			-58,74		[kN/m]
16	Line No. 164	uniform on whole	in Z-direction			-69,37		[kN/m]
17	Line No. 165	uniform on whole	in Z-direction			-198,86		[kN/m]
18	Line No. 166	uniform on whole	in Z-direction			-88,80		[kN/m]
19	Line No. 167	uniform on whole	in Z-direction			-88,80		[kN/m]
20	Line No. 168	uniform on whole	in Z-direction			-108,97		[kN/m]
21	Line No. 169	uniform on whole	in Z-direction			-121,88		[kN/m]
22	Line No. 170	uniform on whole	in Z-direction			-121,88		[kN/m]
23	Line No. 171	uniform on whole	in Z-direction			-95,54		[kN/m]
24	Line No. 172	uniform on whole	in Z-direction			-37,15		[kN/m]
25	Line No. 173	uniform on whole	in Z-direction			-38,25		[kN/m]
26	Line No. 174	uniform on whole	in Z-direction			-14,64		[kN/m]
27	Line No. 175	uniform on whole	in Z-direction			-15,42		[kN/m]
28	Line No. 176	uniform on whole	in Z-direction			-16,82		[kN/m]
29	Line No. 177	uniform on whole	in Z-direction			-50,04		[kN/m]
30	Line No. 188	uniform on whole	in Z-direction			-66,11		[kN/m]
31	Line No. 189	uniform on whole	in Z-direction			-21,92		[kN/m]
32	Line No. 190	uniform on whole	in Z-direction			-18,53		[kN/m]
33	Line No. 191	uniform on whole	in Z-direction			-20,77		[kN/m]
34	Line No. 192	uniform on whole	in Z-direction			-140,18		[kN/m]

Name : Line loads

Analysis 5



Combination ULS

Number	Name and type of combination	Assembly
1	G1+G2+G4+G5	$\gamma_{f,sup,1} * [G1\ 1] + \gamma_{f,sup,2} * [G2\ 2] + \gamma_{f,sup,4} * [G4\ 4] + \gamma_{f,sup,5} * [G5\ 5]$

Combination SLS

Number	Name and type of combination	Assembly
1	G1+G2+G4+G5	$[G1\ 1] + [G2\ 2] + [G4\ 4] + [G5\ 5]$

Dimensioning parameters

Standard of concrete structures : CSN 73 1201 R

Combinations for dimensioning : (all)

Material of longitudinal reinforcement : 10 505 R

Tensile strength :  $R_{sd} = 450,00\text{ MPa}$

Compressive strength :  $R_{scd} = 420,00\text{ MPa}$

Shear reinforcement : crooks

Crooks angle :  $45,00^\circ$

Dimensioning of macroelements

Number	Reinforc.ang.		Dist. of top reinforcement centroid from plate edge		Dist. of bottom reinforcement centroid from plate edge	
	Direc. 1 [°]	Direc. 2 [°]	Direc. 1 [mm]	Direc. 2 [mm]	Direc. 1 [mm]	Direc. 2 [mm]
1	0,00	90,00	30,0	30,0	30,0	30,0
2	0,00	90,00	30,0	30,0	30,0	30,0
3	0,00	90,00	30,0	30,0	30,0	30,0
4	0,00	90,00	30,0	30,0	30,0	30,0
5	0,00	90,00	30,0	30,0	30,0	30,0
6	0,00	90,00	30,0	30,0	30,0	30,0
7	0,00	90,00	30,0	30,0	30,0	30,0

Results

Standard of concrete structures : CSN 73 1201 R

Analysis result

Analysis terminated without errors.

Name : Analysis

Results : G1 1 Variable : Deflection  $w_z$  Range : <-2,98; 0,05> mm

