STAAD.Pro Report

To: From:

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Job Information

	Engineer	Checked	Approved
Name:			
Date:	18-Oct-10		

Structure Type SPACE FRAME

Number of Nodes	20	Highest Node	24
Number of Elements	26	Highest Beam	40

Number of Basic Load Cases	4
Number of Combination Load Cases	4

Included in this printout are data for:
Beams 11 to 14,21,22,27,28,31,34,37,40
Näille sauvoille tuli suurimmat rasitukset!

Included in this printout are results for load cases:

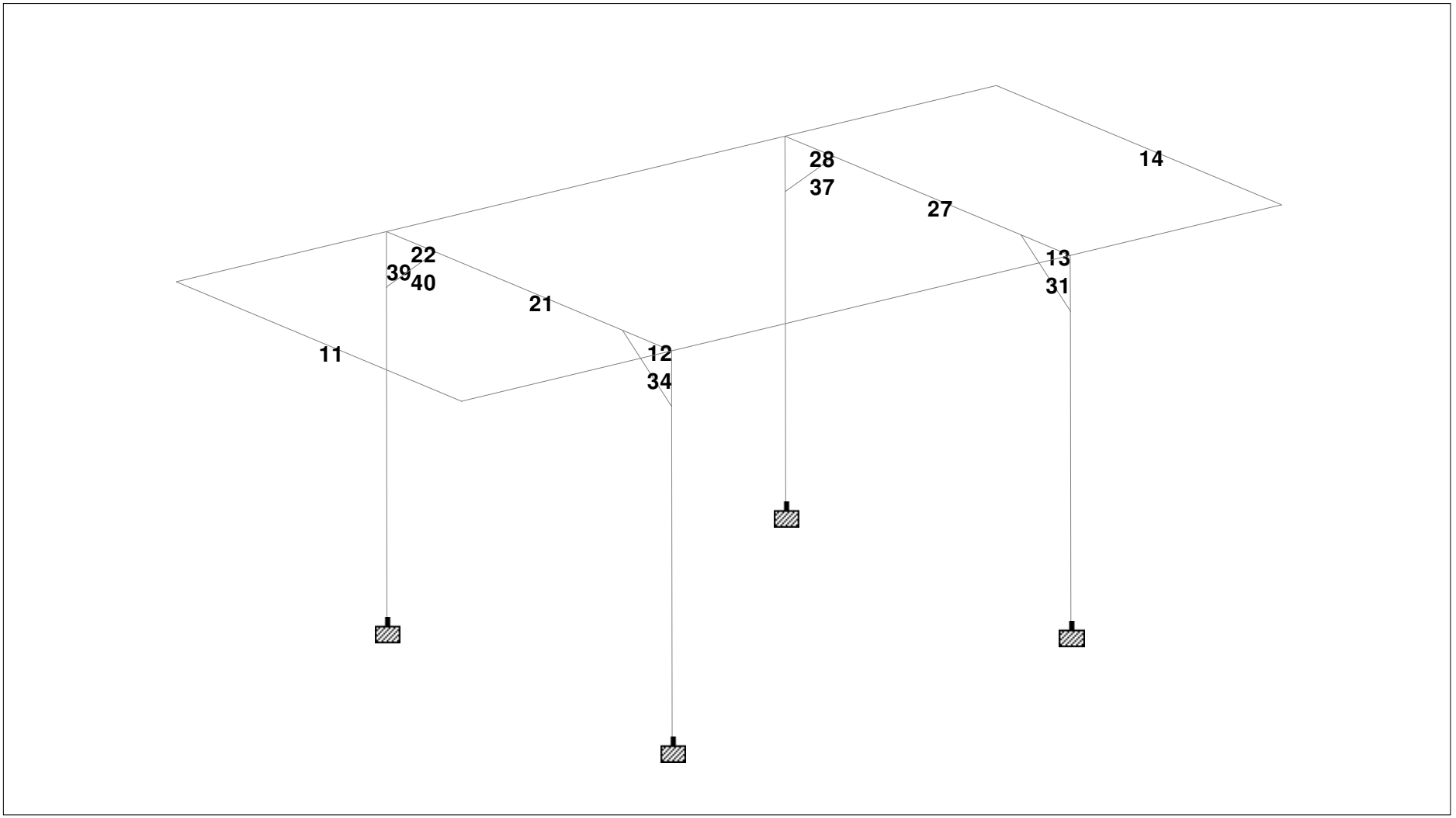
Type	L/C	Name
Combination	4	KY1
Combination	5	KY2
Combination	7	ACC1
Combination	8	ACC2

Selfweight : 1 OMAPAINO

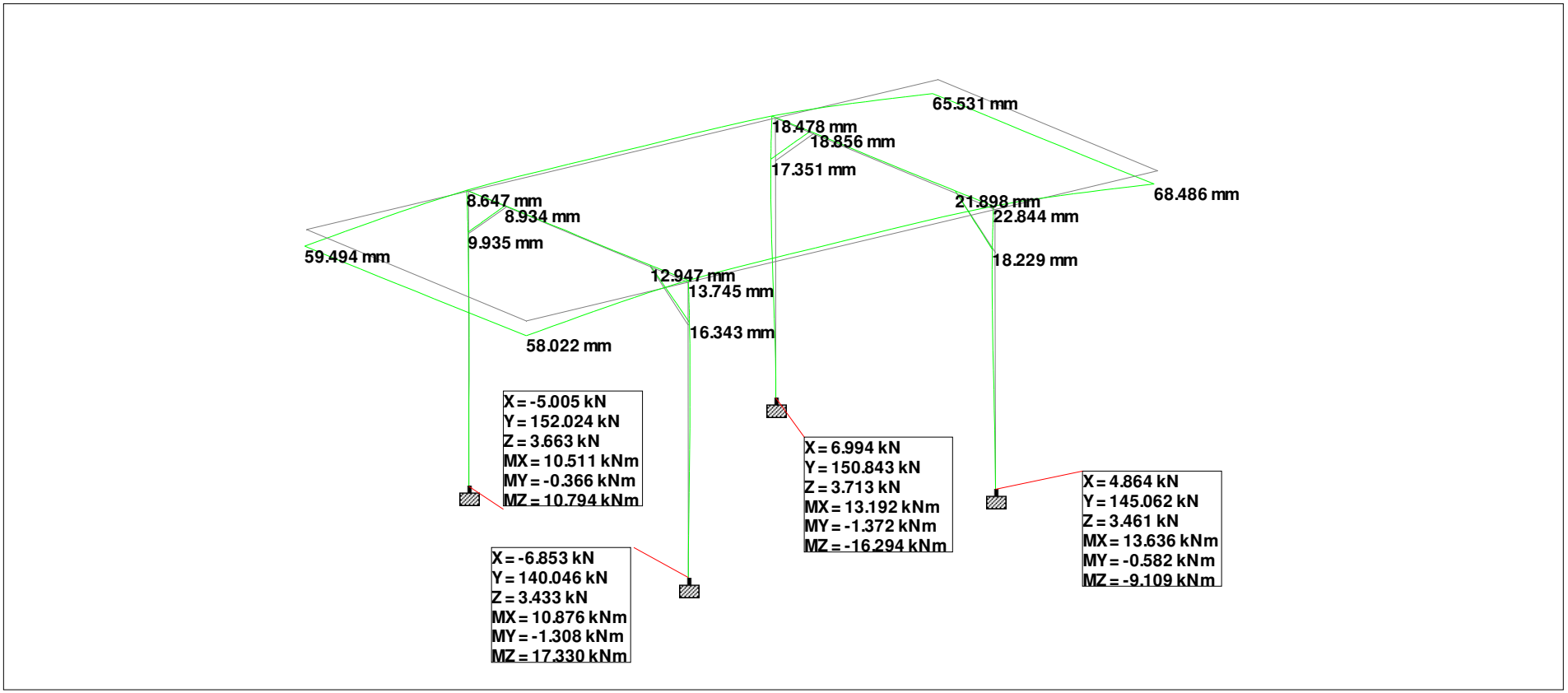
Direction	Factor
Y	-1.000

Combination Load Cases

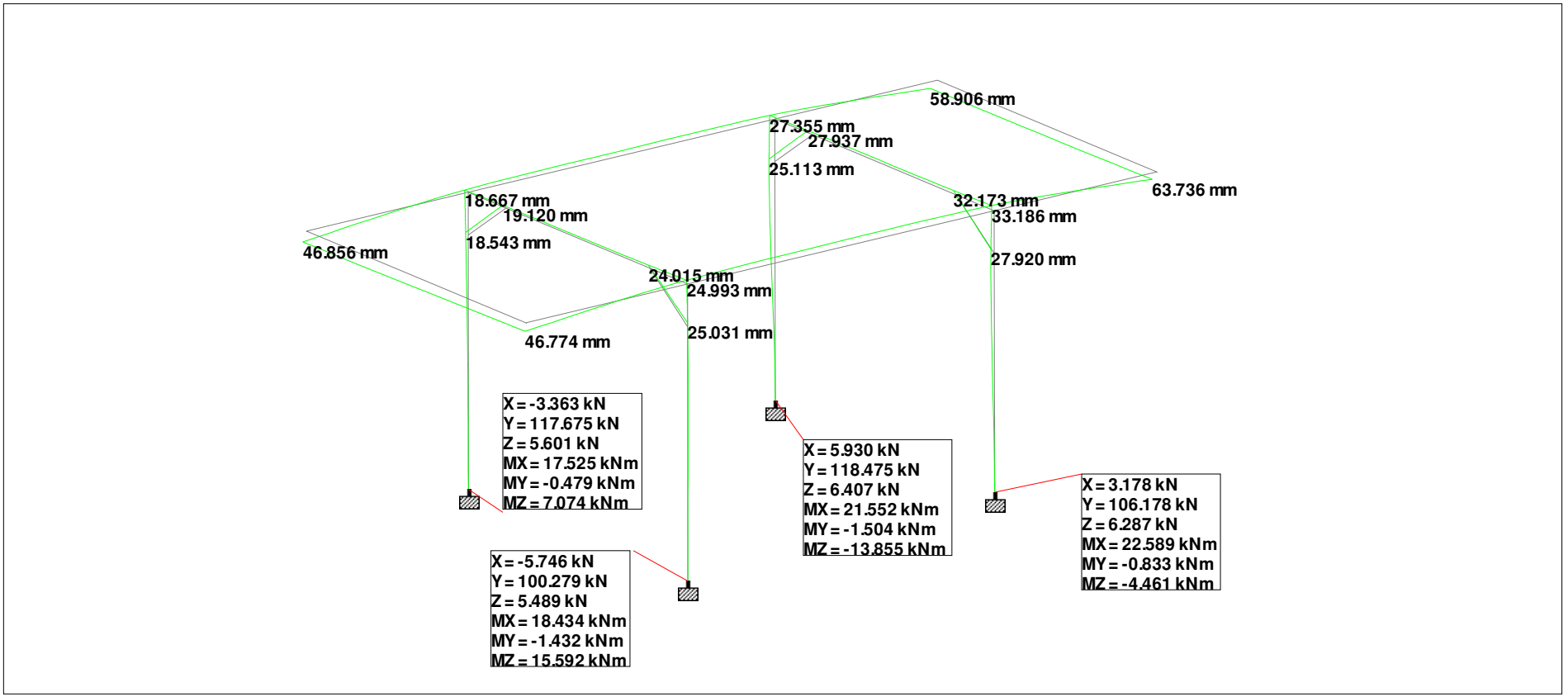
Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
4	KY1	2	LUMI	1.50
		3	TUULI	0.90
		1	OMAPAINO	1.15
5	KY2	2	LUMI	1.05
		3	TUULI	1.50
		1	OMAPAINO	1.15
7	ACC1	6	ONNETTOMUUS	1.00
		2	LUMI	0.40
		1	OMAPAINO	1.00
8	ACC2	6	ONNETTOMUUS	1.00
		3	TUULI	0.20
		2	LUMI	0.20
		1	OMAPAINO	1.00



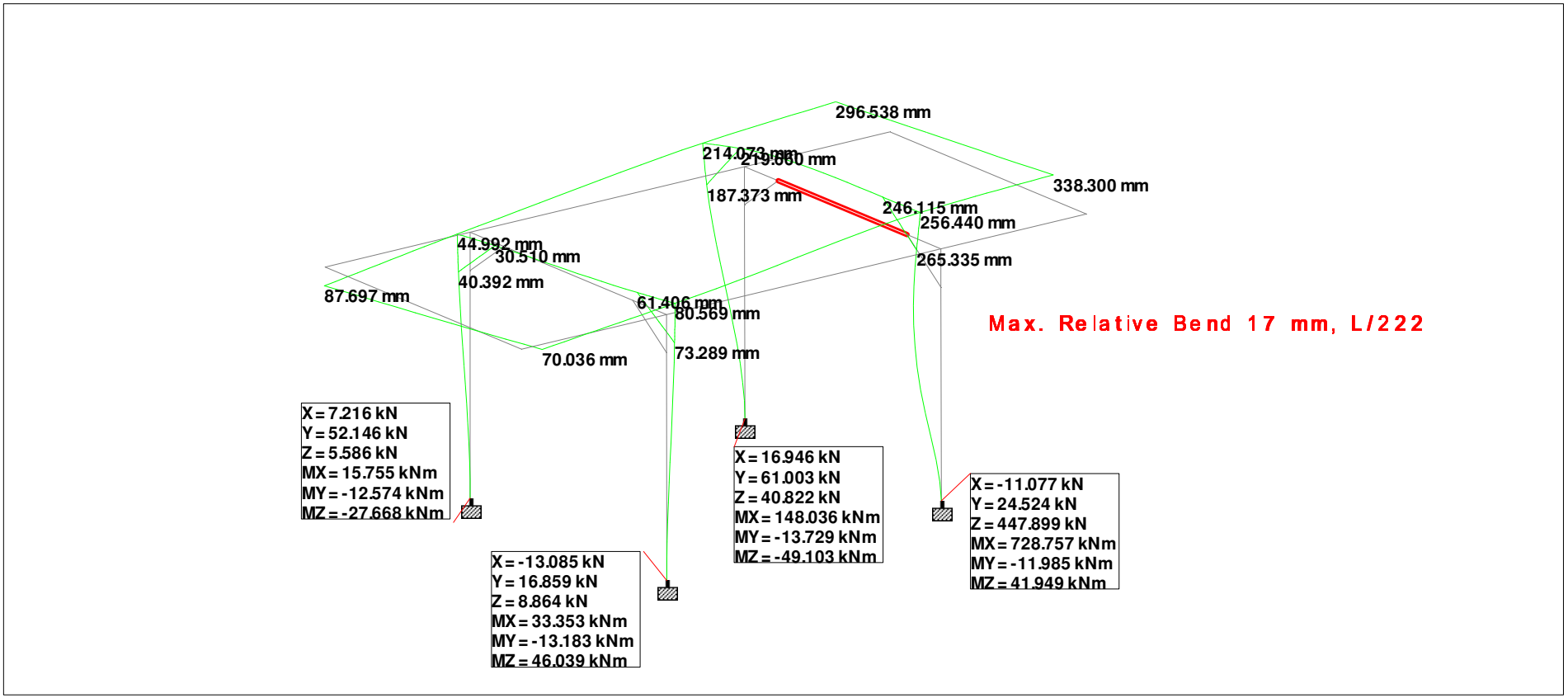
Whole Structure, beam labels



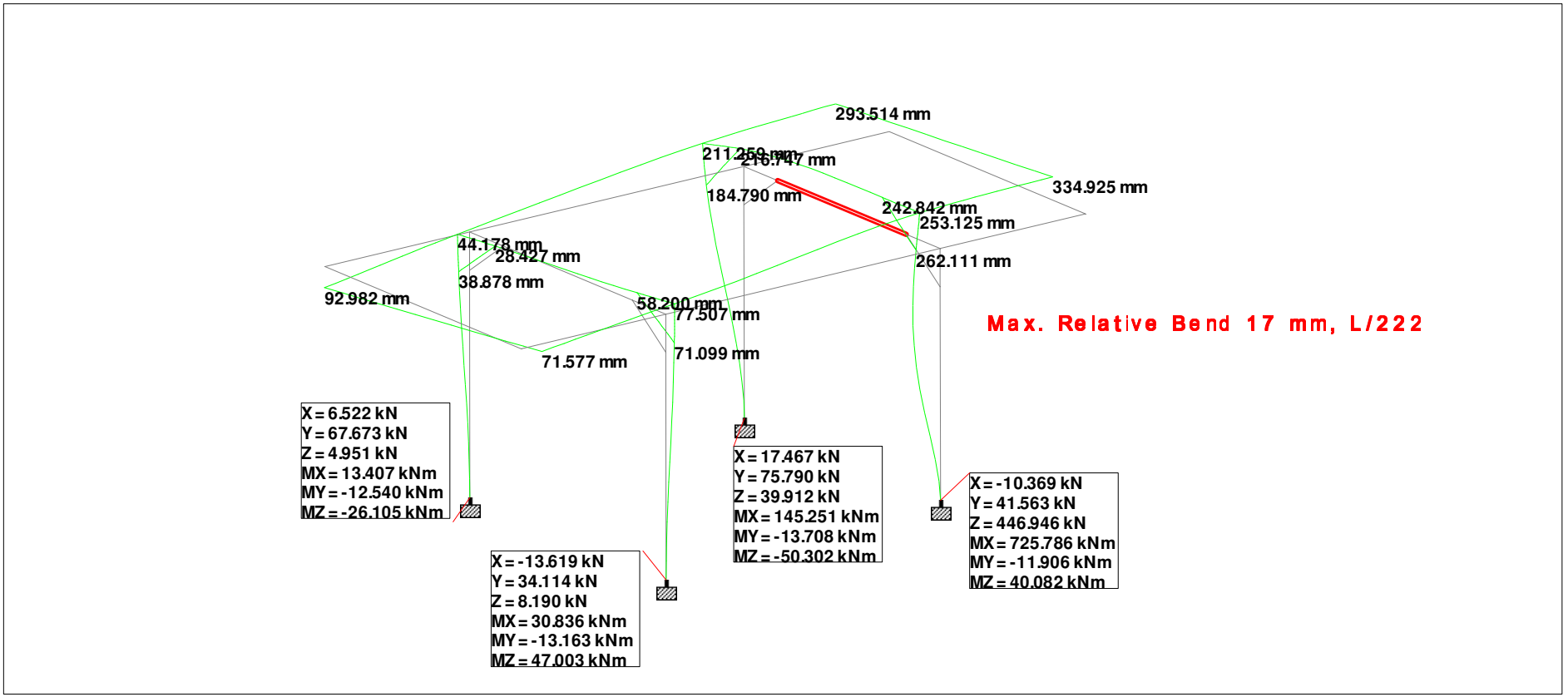
Whole Structure Displacements 150mm:1m 4 KY1+Reactions



Whole Structure Displacements 150mm:1m 5 KY2+Reactions



Whole Structure Displacements 150mm:1m 8 ACC2+Reactions



Whole Structure Displacements 150mm:1m 7 ACC1+Reactions

Beams

Beam	Node A	Node B	Length (m)	Property	β (degrees)
11	9	10	5.805	2	0
12	13	17	1.000	2	0
13	15	23	1.000	2	0
14	11	12	5.805	2	0
21	17	18	3.805	2	0
22	18	14	1.000	2	0
27	23	24	3.805	2	0
28	24	16	1.000	2	0
31	23	22	1.415	3	0
34	17	20	1.414	3	0
37	21	24	1.414	3	0
40	19	18	1.414	3	0

Beam End Force Summary

The signs of the forces at end B of each beam have been reversed. For example: this means that the Min Fx entry gives the largest tension value for an beam.

				Axial	Shear		Torsion	Bending	
	Beam	Node	L/C	Fx (kN)	Fy (kN)	Fz (kN)	Mx (kNm)	My (kNm)	Mz (kNm)
Max Fx	37	21	8:ACC2	**157.162**	-8.956	10.590	4.095	-10.964	28.486
Min Fx	28	24	8:ACC2	**-66.612**	76.737	-13.158	-0.002	0.743	57.609
Max Fy	28	24	8:ACC2	-66.612	**76.737**	-13.158	-0.002	0.743	57.609
Min Fy	27	24	8:ACC2	50.829	**-27.534**	-2.338	-0.022	-4.987	99.020
Max Fz	31	23	8:ACC2	-24.820	23.208	**17.933**	6.791	-6.799	4.205
Min Fz	13	15	8:ACC2	51.951	8.099	**-20.273**	-0.030	14.572	0.493
Max Mx	34	17	7:ACC1	-22.340	-9.303	17.363	**7.115**	-7.010	-11.198
Min Mx	40	19	4:KY1	16.903	-2.946	-6.277	**-3.095**	5.812	-0.224
Max My	31	22	8:ACC2	-24.447	22.835	17.933	6.791	**18.568**	-28.360
Min My	28	16	7:ACC1	-64.477	75.756	-14.050	-0.006	**-12.926**	-19.359
Max Mz	27	24	8:ACC2	50.829	-27.534	-2.338	-0.022	-4.987	**99.020**
Min Mz	31	22	8:ACC2	-24.447	22.835	17.933	6.791	18.568	**-28.360**

Beam Maximum Moments

Distances to maxima are given from beam end A.

Beam	Node A	Length (m)	L/C		d (m)	Max My (kNm)	d (m)	Max Mz (kNm)
11	9	5.805	4:KY1	Max -ve	5.805	1.199	5.805	0.160
				Max +ve	0.000	-1.093	2.903	-1.676
			5:KY2	Max -ve	5.805	2.019	5.805	0.192
				Max +ve	0.000	-1.907	2.903	-1.677
			7:ACC1	Max -ve	0.000	3.021	0.000	0.144
				Max +ve	5.805	-2.954	2.903	-1.485
			8:ACC2	Max -ve	0.000	2.748	0.000	0.134
				Max +ve	5.805	-2.680	2.903	-1.486
12	13	1.000	4:KY1	Max -ve	0.000	3.058		
				Max +ve	1.000	-4.455	0.000	-5.371
			5:KY2	Max -ve	0.000	1.917		
				Max +ve	1.000	-4.267	1.000	-6.206
			7:ACC1	Max -ve	0.000	15.054		
				Max +ve	1.000	-4.901	1.000	-8.112
			8:ACC2	Max -ve	0.000	14.580		
				Max +ve	1.000	-4.746	1.000	-9.240
13	15	1.000	4:KY1	Max -ve	1.000	2.675	0.000	3.568
				Max +ve	0.000	-2.157	1.000	-4.263
			5:KY2	Max -ve	1.000	1.167	0.000	3.132
				Max +ve	0.000	-1.728	1.000	-7.980
			7:ACC1	Max -ve	0.000	14.375	0.000	0.720
				Max +ve	1.000	-5.102	1.000	-6.167
			8:ACC2	Max -ve	0.000	14.572	0.000	0.493
				Max +ve	1.000	-5.701	1.000	-7.432
14	11	5.805	4:KY1	Max -ve	0.000	0.744	0.000	0.100
				Max +ve	5.805	-0.768	2.903	-1.680
			5:KY2	Max -ve	0.000	0.850	0.000	0.071
				Max +ve	5.805	-0.876	2.903	-1.681
			7:ACC1	Max -ve	0.000	2.865	0.000	0.388
				Max +ve	5.805	-2.980	2.903	-1.116
			8:ACC2	Max -ve	0.000	2.889	0.000	0.376
				Max +ve	5.805	-3.003	2.903	-1.117
21	17	3.805	4:KY1	Max -ve	3.805	1.020	3.805	9.539
				Max +ve	0.000	-0.449	0.000	-9.912
			5:KY2	Max -ve	3.805	2.018	3.805	14.050
				Max +ve	0.000	-1.319	0.000	-14.702
			7:ACC1	Max -ve	0.000	5.087	3.805	12.224
				Max +ve	3.805	-4.721	0.000	-19.310
			8:ACC2	Max -ve	0.000	4.780	3.805	13.671

				Max +ve	3.805	-4.378	0.000	-20.854
22	18	1.000	4:KY1	Max -ve	1.000	3.321	0.000	5.292
				Max +ve	0.000	-3.336		
			5:KY2	Max -ve	1.000	3.730	0.000	7.948
				Max +ve	0.000	-2.314		
			7:ACC1	Max -ve			0.000	8.614
				Max +ve	1.000	-10.657	1.000	-4.936
			8:ACC2	Max -ve			0.000	9.472
				Max +ve	1.000	-10.572	1.000	-5.445
27	23	3.805	4:KY1	Max -ve	3.805	0.069	3.805	6.947
				Max +ve	0.000	-0.513	0.000	-7.315
			5:KY2	Max -ve	3.805	0.639	3.805	13.464
				Max +ve	0.000	-1.151	0.000	-14.122
			7:ACC1	Max -ve	0.000	4.131	3.805	96.793
				Max +ve	3.805	-5.193	0.000	-0.900
			8:ACC2	Max -ve	0.000	3.909	3.805	99.020
				Max +ve	3.805	-4.987	0.000	-3.227
28	24	1.000	4:KY1	Max -ve	0.000	3.552	0.000	6.671
				Max +ve	1.000	-2.952	1.000	-7.009
			5:KY2	Max -ve	0.000	2.679	0.000	9.811
				Max +ve	1.000	-1.716	1.000	-6.356
			7:ACC1	Max -ve	0.000	1.129	0.000	56.601
				Max +ve	1.000	-12.926	1.000	-19.359
			8:ACC2	Max -ve	0.000	0.743	0.000	57.609
				Max +ve	1.000	-12.420	1.000	-18.984
31	23	1.415	4:KY1	Max -ve	0.000	2.247		
				Max +ve	1.415	-4.394	1.415	-5.171
			5:KY2	Max -ve	0.000	1.644		
				Max +ve	1.415	-1.833	0.472	-6.169
			7:ACC1	Max -ve	1.415	17.554	0.000	5.266
				Max +ve	0.000	-6.537	1.415	-28.161
			8:ACC2	Max -ve	1.415	18.568	0.000	4.205
				Max +ve	0.000	-6.799	1.415	-28.360
34	17	1.414	4:KY1	Max -ve	1.414	8.358	1.414	2.167
				Max +ve	0.000	-2.804	0.000	-6.973
			5:KY2	Max -ve	1.414	7.915		
				Max +ve	0.000	-2.057	0.000	-8.495
			7:ACC1	Max -ve	1.414	17.549	1.414	2.224
				Max +ve	0.000	-7.010	0.000	-11.198
			8:ACC2	Max -ve	1.414	17.225	1.414	1.382
				Max +ve	0.000	-6.683	0.000	-11.615
37	21	1.414	4:KY1	Max -ve	1.414	2.442	0.000	7.201
				Max +ve	0.000	-6.932		
			5:KY2	Max -ve	1.414	1.421	0.000	8.231
				Max +ve	0.000	-5.399		
			7:ACC1	Max -ve	1.414	4.427	1.414	40.193

				Max +ve	0.000	-11.656		
			8:ACC2	Max -ve	1.414	4.008	1.414	41.412
				Max +ve	0.000	-10.964		
40	19	1.414	4:KY1	Max -ve	0.000	5.812	1.414	4.246
				Max +ve	1.414	-3.066	0.000	-0.224
			5:KY2	Max -ve	0.000	4.268	1.414	6.101
				Max +ve	1.414	-3.054		
			7:ACC1	Max -ve	1.414	2.956	0.000	7.787
				Max +ve	0.000	-7.724		
			8:ACC2	Max -ve	1.414	3.019	0.000	8.656
				Max +ve	0.000	-8.397		

Beam Maximum Shear Forces

Distances to maxima are given from beam end A.

Beam	Node A	Length (m)	L/C		d (m)	Max Fz (kN)	d (m)	Max Fy (kN)
11	9	5.805	4:KY1	Max -ve	0.000	0.395	0.000	1.110
				Max +ve			5.805	-1.213
			5:KY2	Max -ve	0.000	0.676	0.000	1.098
				Max +ve			5.805	-1.225
			7:ACC1	Max -ve			0.000	1.066
				Max +ve	0.000	-1.029	5.805	-0.954
			8:ACC2	Max -ve			0.000	1.063
				Max +ve	0.000	-0.935	5.805	-0.957
12	13	1.000	4:KY1	Max -ve				
				Max +ve	0.000	-7.513	1.000	-2.632
			5:KY2	Max -ve			0.000	2.614
				Max +ve	0.000	-6.185		
			7:ACC1	Max -ve			0.000	1.939
				Max +ve	0.000	-19.955		
			8:ACC2	Max -ve			0.000	3.744
				Max +ve	0.000	-19.326		
13	15	1.000	4:KY1	Max -ve	0.000	4.831	0.000	8.032
				Max +ve				
			5:KY2	Max -ve	0.000	2.895	0.000	11.312
				Max +ve				
			7:ACC1	Max -ve			0.000	7.060
				Max +ve	0.000	-19.478		
			8:ACC2	Max -ve			0.000	8.099
				Max +ve	0.000	-20.273		
14	11	5.805	4:KY1	Max -ve			0.000	1.194
				Max +ve	0.000	-0.260	5.805	-1.129
			5:KY2	Max -ve			0.000	1.184

				Max +ve	0.000	-0.297	5.805	-1.139
			7:ACC1	Max -ve			0.000	1.023
				Max +ve	0.000	-1.007	5.805	-0.997
			8:ACC2	Max -ve			0.000	1.019
				Max +ve	0.000	-1.015	5.805	-1.001
21	17	3.805	4:KY1	Max -ve	0.000	0.386		
				Max +ve			3.805	-5.873
			5:KY2	Max -ve	0.000	0.877		
				Max +ve			3.805	-8.318
			7:ACC1	Max -ve				
				Max +ve	0.000	-2.578	3.805	-8.949
			8:ACC2	Max -ve				
				Max +ve	0.000	-2.407	3.805	-9.736
22	18	1.000	4:KY1	Max -ve	0.000	6.654	0.000	3.388
				Max +ve				
			5:KY2	Max -ve	0.000	6.042	0.000	7.337
				Max +ve				
			7:ACC1	Max -ve			0.000	13.719
				Max +ve	0.000	-10.141		
			8:ACC2	Max -ve			0.000	15.086
				Max +ve	0.000	-10.492		
27	23	3.805	4:KY1	Max -ve	0.000	0.153		
				Max +ve			3.805	-4.510
			5:KY2	Max -ve	0.000	0.470		
				Max +ve			3.805	-8.011
			7:ACC1	Max -ve				
				Max +ve	0.000	-2.450	3.805	-26.337
			8:ACC2	Max -ve				
				Max +ve	0.000	-2.338	3.805	-27.534
28	24	1.000	4:KY1	Max -ve			0.000	13.875
				Max +ve	0.000	-6.501		
			5:KY2	Max -ve			0.000	16.361
				Max +ve	0.000	-4.393		
			7:ACC1	Max -ve			0.000	76.104
				Max +ve	0.000	-14.050		
			8:ACC2	Max -ve			0.000	76.737
				Max +ve	0.000	-13.158		
31	23	1.415	4:KY1	Max -ve			0.000	1.713
				Max +ve	0.000	-4.695		
			5:KY2	Max -ve			0.000	0.130
				Max +ve	0.000	-2.458	1.415	-0.300
			7:ACC1	Max -ve	0.000	17.031	0.000	23.819
				Max +ve				
			8:ACC2	Max -ve	0.000	17.933	0.000	23.208
				Max +ve				
34	17	1.414	4:KY1	Max -ve	0.000	7.892		

				Max +ve			1.414	-6.677
			5:KY2	Max -ve	0.000	7.051		
				Max +ve			1.414	-6.177
			7:ACC1	Max -ve	0.000	17.363		
				Max +ve			1.414	-9.676
			8:ACC2	Max -ve	0.000	16.904		
				Max +ve			1.414	-9.376
37	21	1.414	4:KY1	Max -ve	0.000	6.631	0.000	5.113
				Max +ve				
			5:KY2	Max -ve	0.000	4.825	0.000	3.452
				Max +ve				
			7:ACC1	Max -ve	0.000	11.376		
				Max +ve			1.414	-8.638
			8:ACC2	Max -ve	0.000	10.590		
				Max +ve			1.414	-9.329
40	19	1.414	4:KY1	Max -ve				
				Max +ve	0.000	-6.277	1.414	-3.376
			5:KY2	Max -ve				
				Max +ve	0.000	-5.177	1.414	-3.017
			7:ACC1	Max -ve	0.000	7.552	0.000	3.140
				Max +ve				
			8:ACC2	Max -ve	0.000	8.072	0.000	3.339
				Max +ve				

Beam Maximum Axial Forces

Distances to maxima are given from beam end A.

Beam	Node A	Length (m)	L/C		d (m)	Max Fx (kN)
11	9	5.805	4:KY1	Max -ve	0.000	0.503
				Max +ve		
			5:KY2	Max -ve	0.000	0.732
				Max +ve		
			7:ACC1	Max -ve	0.000	0.464
				Max +ve		
			8:ACC2	Max -ve	0.000	0.537
				Max +ve		
12	13	1.000	4:KY1	Max -ve	0.000	13.689
				Max +ve		
			5:KY2	Max -ve	0.000	22.238
				Max +ve		
			7:ACC1	Max -ve	0.000	21.516
				Max +ve		
			8:ACC2	Max -ve	0.000	24.339

				Max +ve		
13	15	1.000	4:KY1	Max -ve	0.000	11.460
				Max +ve		
			5:KY2	Max -ve	0.000	22.503
				Max +ve		
			7:ACC1	Max -ve	0.000	48.178
				Max +ve		
			8:ACC2	Max -ve	0.000	51.951
				Max +ve		
14	11	5.805	4:KY1	Max -ve	0.000	0.721
				Max +ve		
			5:KY2	Max -ve	0.000	1.059
				Max +ve		
			7:ACC1	Max -ve	0.000	0.611
				Max +ve		
			8:ACC2	Max -ve	0.000	0.719
				Max +ve		
21	17	3.805	4:KY1	Max -ve	0.000	3.140
				Max +ve		
			5:KY2	Max -ve	0.000	5.103
				Max +ve		
			7:ACC1	Max -ve		
				Max +ve	0.000	-0.849
			8:ACC2	Max -ve		
				Max +ve	0.000	-0.194
22	18	1.000	4:KY1	Max -ve		
				Max +ve	0.000	-10.901
			5:KY2	Max -ve		
				Max +ve	0.000	-14.824
			7:ACC1	Max -ve		
				Max +ve	0.000	-19.603
			8:ACC2	Max -ve		
				Max +ve	0.000	-20.820
27	23	3.805	4:KY1	Max -ve	0.000	3.246
				Max +ve		
			5:KY2	Max -ve	0.000	5.264
				Max +ve		
			7:ACC1	Max -ve	0.000	50.155
				Max +ve		
			8:ACC2	Max -ve	0.000	50.829
				Max +ve		
28	24	1.000	4:KY1	Max -ve		
				Max +ve	0.000	-8.502
			5:KY2	Max -ve		
				Max +ve	0.000	-14.823
			7:ACC1	Max -ve		

				Max +ve	0.000	-64.477
			8:ACC2	Max -ve		
				Max +ve	0.000	-66.612
31	23	1.415	4:KY1	Max -ve		
				Max +ve	0.000	-13.309
			5:KY2	Max -ve		
				Max +ve	0.000	-24.491
			7:ACC1	Max -ve		
				Max +ve	0.000	-21.046
			8:ACC2	Max -ve		
				Max +ve	0.000	-24.820
34	17	1.414	4:KY1	Max -ve		
				Max +ve	0.000	-8.679
			5:KY2	Max -ve		
				Max +ve	0.000	-18.490
			7:ACC1	Max -ve		
				Max +ve	0.000	-22.340
			8:ACC2	Max -ve		
				Max +ve	0.000	-25.706
37	21	1.414	4:KY1	Max -ve	0.000	21.746
				Max +ve		
			5:KY2	Max -ve	0.000	31.873
				Max +ve		
			7:ACC1	Max -ve	0.000	153.883
				Max +ve		
			8:ACC2	Max -ve	0.000	157.162
				Max +ve		
40	19	1.414	4:KY1	Max -ve	0.000	16.903
				Max +ve		
			5:KY2	Max -ve	0.000	25.587
				Max +ve		
			7:ACC1	Max -ve	0.000	29.666
				Max +ve		
			8:ACC2	Max -ve	0.000	32.514
				Max +ve		