

Verifiche a resistenza

file: F:\Google Drive 2019\Programmi\VERIFICA\PaliAntenne\Esempio 412 v31\Esempio 412 v31

DATA: 11 gennaio 2022

Caratteristiche statiche (non penalizzate ed efficaci) delle sezioni

quota (m)	diam. est. (m)	spessore (m)	area (m ²)	W (m ³)	area eff. (m ²)	W eff. (m ³)
0.00	1.100	0.0050	0.01676	0.00445	0.01285	0.00359
2.24	1.048	0.0050	0.01596	0.00404	0.01231	0.00328
4.48	0.995	0.0050	0.01516	0.00364	0.01178	0.00298
5.00	0.983	0.0050	0.01497	0.00355	0.01165	0.00291
6.72	0.943	0.0050	0.01436	0.00326	0.01124	0.00269
8.96	0.891	0.0050	0.01356	0.00291	0.01071	0.00242
11.20	0.849	0.0050	0.01292	0.00264	0.01028	0.00221
12.80	0.812	0.0050	0.01235	0.00241	0.00990	0.00204
15.04	0.759	0.0050	0.01155	0.00211	0.00937	0.00180
17.28	0.707	0.0050	0.01075	0.00182	0.00883	0.00158
19.52	0.655	0.0050	0.00994	0.00156	0.00830	0.00137
21.76	0.602	0.0050	0.00914	0.00132	0.00776	0.00118
24.00	0.194	0.0070	0.00401	0.00018	0.00401	0.00018
25.00	0.194	0.0070	0.00401	0.00018	0.00401	0.00018
26.00	0.194	0.0070	0.00401	0.00018	0.00401	0.00018
27.00	0.194	0.0070	0.00401	0.00018	0.00401	0.00018
28.00	0.194	0.0070	0.00401	0.00018	0.00401	0.00018
29.00	0.194	0.0070	0.00401	0.00018	0.00401	0.00018
30.00	0.194	0.0070	0.00401	0.00018	0.00401	0.00018

Tensioni sulle sezioni efficaci (MPa)

quota	combinazioni									
	1		2		3		4		5	
	σ	τ	σ	τ	σ	τ	σ	τ	σ	τ
0.00	366.9	9.46	223.5	5.77	244.6	6.31	149.0	3.85	41.3	1.43
2.24	361.0	9.72	219.9	5.93	240.7	6.48	146.6	3.95	39.2	1.37
4.48	352.9	9.99	214.9	6.09	235.3	6.66	143.3	4.06	37.1	1.32
5.00	350.6	10.06	213.5	6.12	233.8	6.70	142.3	4.08	36.6	1.30
6.72	342.0	10.26	208.2	6.25	228.0	6.84	138.8	4.17	34.9	1.26
8.96	327.6	10.50	199.5	6.39	218.4	7.00	133.0	4.26	32.5	1.21
11.20	302.1	10.58	184.0	6.44	201.4	7.05	122.7	4.29	29.3	1.14
12.80	140.5	5.06	85.6	3.08	93.7	3.37	57.0	2.05	13.4	0.52
15.04	261.0	10.46	159.0	6.37	174.0	6.98	106.0	4.24	24.5	1.05
17.28	230.1	10.41	140.2	6.34	153.4	6.94	93.5	4.22	21.3	1.00
19.52	192.5	10.24	117.4	6.23	128.4	6.83	78.3	4.16	17.6	0.96
21.76	147.2	9.84	89.8	5.99	98.1	6.56	59.9	4.00	13.3	0.92
24.00	530.3	13.61	323.3	8.35	353.5	9.07	215.5	5.57	45.8	1.41
25.00	398.5	11.33	242.4	6.95	265.7	7.55	161.6	4.63	31.8	1.17
26.00	280.6	10.53	170.3	6.43	187.1	7.02	113.5	4.28	20.4	0.94
27.00	173.9	8.94	105.3	5.44	115.9	5.96	70.2	3.63	11.5	0.70
28.00	87.2	7.35	52.7	4.45	58.1	4.90	35.1	2.96	5.1	0.47
29.00	20.3	4.20	12.3	2.54	13.6	2.80	8.2	1.69	1.3	0.23
30.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00

Verifiche più gravose sulle sezioni efficaci

quota (m)	combin.	Tx (kN)	Myy (kNm)	Ty (kN)	Mxx (kNm)	N (kN)	σ (MPa)	%	verifica
0.00	SLU 1	-3.167E+01	5.691E+02	5.189E+01	1.188E+03	-5.670E+01	367.2	108.6	NO
2.24	SLU 1	-2.987E+01	5.002E+02	5.186E+01	1.072E+03	-5.244E+01	361.4	106.9	NO
4.48	SLU 1	-2.814E+01	4.352E+02	5.167E+01	9.556E+02	-4.792E+01	353.3	104.5	NO
5.00	SLU 1	-2.777E+01	4.207E+02	5.161E+01	9.288E+02	-4.623E+01	351.1	103.8	NO
6.72	SLU 1	-2.645E+01	3.741E+02	5.127E+01	8.403E+02	-4.317E+01	342.4	101.3	NO

8.96		SLU 1		-2.468E+01		3.168E+02		5.054E+01		7.262E+02		-3.923E+01		328.1		97.1		OK	
11.20		SLU 1		-2.287E+01		2.635E+02		4.936E+01		6.142E+02		-3.547E+01		302.7		89.5		OK	
12.80		SLU 1		-1.024E+01		1.119E+02		2.285E+01		2.631E+02		-1.515E+01		140.8		41.6		OK	
15.04		SLU 1		-1.976E+01		1.817E+02		4.484E+01		4.331E+02		-2.710E+01		261.6		77.4		OK	
17.28		SLU 1		-1.801E+01		1.394E+02		4.230E+01		3.354E+02		-2.386E+01		230.8		68.3		OK	
19.52		SLU 1		-1.632E+01		1.010E+02		3.922E+01		2.440E+02		-2.083E+01		193.4		57.2		OK	
21.76		SLU 1		-1.473E+01		6.621E+01		3.521E+01		1.603E+02		-1.801E+01		148.2		43.8		OK	
24.00		SLU 1		-1.187E+01		3.594E+01		2.454E+01		9.120E+01		-1.480E+01		530.8		157.0		NO	
25.00		SLU 1		-9.938E+00		2.504E+01		2.040E+01		6.929E+01		-8.737E+00		399.0		118.0		NO	
26.00		SLU 1		-7.988E+00		1.607E+01		1.952E+01		4.932E+01		-8.286E+00		281.2		83.2		OK	
27.00		SLU 1		-6.019E+00		9.069E+00		1.687E+01		3.084E+01		-7.834E+00		174.5		51.6		OK	
28.00		SLU 1		-4.031E+00		4.043E+00		1.415E+01		1.560E+01		-5.763E+00		88.1		26.1		OK	
29.00		SLU 1		-2.024E+00		1.014E+00		8.159E+00		3.623E+00		-5.312E+00		21.6		6.4		OK	
30.00		SLV		-1.581E-01		5.664E-05		4.743E-02		1.166E-05		-5.400E-01		0.1		0.0		OK	

Verifiche a deformabilità - (Combinazione 5: vento a 100 km/h con Ce = costante)

nodo	altezza (m)	rotazione (rad.)	rotazione (')
1	0.000E+00	0.000E+00	0.000E+00
2	2.240E+00	6.477E-04	2.227E+00
3	4.480E+00	1.297E-03	4.460E+00
4	5.000E+00	1.448E-03	4.979E+00
5	6.720E+00	1.948E-03	6.695E+00
6	8.960E+00	2.597E-03	8.927E+00
7	1.120E+01	3.241E-03	1.114E+01
8	1.280E+01	3.464E-03	1.191E+01
9	1.504E+01	4.063E-03	1.397E+01
10	1.728E+01	4.637E-03	1.594E+01
11	1.952E+01	5.170E-03	1.777E+01
12	2.176E+01	5.639E-03	1.939E+01
13	2.400E+01	6.007E-03	2.065E+01
14	2.500E+01	8.002E-03	2.751E+01
15	2.600E+01	9.339E-03	3.211E+01
16	2.700E+01	1.015E-02	3.489E+01
17	2.800E+01	1.057E-02	3.633E+01
18	2.900E+01	1.072E-02	3.685E+01
19	3.000E+01	1.074E-02	3.693E+01