Index 17725 Concrete Poles

Design Criteria

AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 5th Edition (LTS-5); ***Structures Manual*** Volume 9, FDOT Modifications to LTS-5; ***Structures Manual*** Introduction, I.6 References.

Design Assumptions and Limitations

The maximum span length for the Concrete Poles with Signal Cable is 250 feet. See the ***PPM***, Volume 1, Chapter 29 for more information.

See notes on the ***Design Standard*** and ***Structures Manual*** Volume 9.

The following computer-based design programs available for use on the Structures Design Office Website:

- FDOT Strain Pole Program
- University of Florida Bridge Software Institute ATLAS Program

For Pole Types P-III through P-VIII, design poles within the following limits:

30 ft. ≤ Length (L) ≤ 65 ft.

Pole Height (H) ≤ 50 ft.

Foundation Depth (D) ≥ 7 ft.

Determine maximum loads to be placed on poles, and select the required pole type meeting the requirements of Table 17725-I and Table 17725-2 below.

Table 17725-1 Service Moment Capacity, M_s^*, at Final Grade

H (feet)	Type of Strain Pole				
	P-IV (kip-ft)	P-V (kip-ft)	P-VI (kip-ft)	P-VII (kip-ft)	P-VIII (kip-ft)
20	21	86	121	165	204
22	24	90	126	171	210
24	26	93	131	176	215
26	29	97	135	182	221
28	32	101	140	187	227
30	34	104	144	192	232
32	37	108	149	197	238
34	39	111	153	202	243
36	41	114	157	207	248
38	44	117	161	212	253
40	46	120	165	217	258
42	48	123	169	221	263
44	50	126	173	226	268
46	52	129	177	230	272
48	54	132	180	235	277
50	56	135	184	239	281

* $M_s \geq$ MDL, where MDL = moment due to dead load only

Table 17725-2 Ultimate Moment Capacity, $\varnothing M_n^*$, at Final Grade

H (feet)	Type of Strain Pole				
	P-IV (kip-ft)	P-V (kip-ft)	P-VI (kip-ft)	P-VII (kip-ft)	P-VIII (kip-ft)
20	43	138	198	273	346
22	48	145	206	283	357
24	53	151	215	294	369
26	58	158	224	304	381
28	63	165	232	315	392
30	68	172	241	325	404
32	73	178	250	335	415
34	77	185	258	346	427
36	82	192	267	356	439
38	87	199	276	367	450
40	92	205	284	377	462
42	97	212	293	387	474
44	102	219	302	398	485
46	107	226	310	408	497
48	112	232	319	419	508
50	117	239	328	429	520

* $\varnothing M_n \geq$ Mu = 1.3 (MDL+MWL), where MDL = moment due to dead load, MWL = moment due to wind load and $\varnothing = 0.9$

Plan Content Requirements

Complete the "Strain Pole Schedule" provided with the FDOT CAD Bar Menu and include in the Roadway Plans.

See ***PPM*** Volume 1, Chapter 7.

Payment

Item number	Item description	Unit Measure
641-2-AB	Prestressed Concrete Poles	EA