

**MAST ARM POLE HEIGHT CALCULATIONS**

SUPPORT NO.	ARM	MIN CLEARANCE FROM PAVEMENT TO BOTTOM OF SIGNAL HEAD	MAX CLEARANCE FROM PAVEMENT TO BOTTOM OF SIGNAL HEAD	FOUNDATION ELEVATION AT GROUND LEVEL	DISTANCE FROM GROUND TO FOUNDATION	ELEVATION B TOP OF FOUNDATION	RISE ANGLE WITH HORIZONTAL ARM TIP	SIGNAL HEADS CENTERED ON WHICH COLOR?	SIGNAL NO.	SIGNAL HEAD TYPE (12 IN. SECTIONS WITH BACKPLATES)	DISTANCE FROM BOTTOM OF SIGNAL HEAD TO CENTER OF MAST ARM (TEM 497-6)	SIGNAL HEAD DISTANCE FROM SUPPORT POLE	ELEVATION A PAVEMENT ELEVATION UNDER SIGNAL HEAD OR SIGN	MINIMUM HEIGHT (FOUNDATION TO MAST ARM)	MAXIMUM HEIGHT (FOUNDATION TO MAST ARM)	MINIMUM ALLOWABLE HEIGHT (FOUNDATION TO MAST ARM)	MAXIMUM ALLOWABLE HEIGHT (FOUNDATION TO MAST ARM)	FINAL ATTACHMENT ARM HEIGHT (FOUNDATION TO MAST ARM)	DOES MAST ARM HAVE POLE EXTENSION?	HEIGHT FROM MAST ARM TO TOP OF POLE	SUGGESTED POLE HEIGHT	POLE HEIGHT WITH EXTENSION
		FT	FT	FT	IN	FT	DEGREE				FT	FT	FT	FT	FT	FT	FT	FT		FT	FT	FT
1	A	17	19	987.9	2	988.07	3	YELLOW		3 SECTIONS	2.3		988.00	19.23	21.23	19.2	21.2	20	NO	1.5	21.5	N/A
											-											
											-											
											-											
2	B	17	19	992.1	2	992.27	3	YELLOW		3 SECTIONS	2.3		991.90	18.93	20.93	18.9	20.9	20	NO	1.5	21.5	N/A
											-											
											-											
											-											
3	C	17	19	1016.6	2	1016.77	3	YELLOW		3 SECTIONS	2.3		1017.10	19.63	21.63	19.6	21.6	20	NO	1.5	21.5	N/A
											-											
											-											
											-											
4	D	17	19	1051.6	2	1051.77	3	YELLOW		3 SECTIONS	2.3		1051.90	19.43	21.43	19.4	21.4	20	YES	3.5	23.5	33.5
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**MAST ARM DESIGN CALCULATIONS**

SUPPORT NO.	ARM	NUMBER OF LUMINAIRES OR BRACKET ARMS	LUMINAIRE/ BRACKET ARM LENGTH	SIGNAL OR SIGN?	SIGNAL/ SIGN NO.	ATTACHMENT DISTANCE FROM SUPPORT POLE		SIGNAL HEAD TYPE (12 IN. LENS)	SIGN SIZE			ATTACHMENT LENGTH * AREA	L	DAMPER REQUIRED?	K	DESIGN NO.
			FT			NO.	FT		IN	SQ. FT.	FT		AREA MOMENT DESIGN FACTOR			
1	A	0	-	SIGN	1	L1	50.5	-	30	36	7.5	378.8	60	YES	975	13
				SIGN	2	L2	38.5	-	30	36	7.5	288.8				
				SIGN	3	L3	26.5	-	30	36	7.5	198.8				
				SIGN	4	L4	14.5	-	30	36	7.5	108.8				
2	B	0	-	SIGN	1	L1	65	-	30	36	7.5	487.5	72	YES	1410	14
				SIGN	2	L2	53	-	30	36	7.5	397.5				
				SIGN	3	L3	41	-	30	36	7.5	307.5				
				SIGN	4	L4	29	-	30	36	7.5	217.5				
3	C	0	-	SIGN	1	L1	48	-	30	36	7.5	360.0	60	YES	900	13
				SIGN	2	L2	36	-	30	36	7.5	270.0				
				SIGN	3	L3	24	-	30	36	7.5	180.0				
				SIGN	4	L4	12	-	30	36	7.5	90.0				
4	D	0	-	SIGN	1	L1	49.5	-	30	36	7.5	371.3	60	YES	1134	13
				SIGN	2	L2	37.5	-	30	36	7.5	281.3				
				SIGN	3	L3	25.5	-	30	36	7.5	191.3				
				SIGN	4	L4	13.5	-	30	36	7.5	101.3				
									84	72	42.0	189.0				

**NOTES:**

- CALCULATIONS SHOULD BE CHECKED AGAINST CROSS SECTIONS. BE SURE TO TAKE INTO CONSIDERATION CRITICAL PAVEMENT ELEVATIONS UNDER SIGNS AND THE CROWN/SLOPE OF THE ROADWAY.
- FOR MAST ARMS LESS THAN OR EQUAL TO 48', ASSUME A 0° RISE. FOR MAST ARMS GREATER THAN 48' IN LENGTH, ASSUME A 0.5° RISE. FOR NON-STANDARD/SPECIALY MAST ARMS, CHECK WITH THE MANUFACTURER FOR APPROPRIATE RISE. IT IS UP THE DESIGNER TO DETERMINE WHETHER THE ASSUMED IS APPLICABLE.
- FOUNDATIONS SHALL BE LEVEL WITH THE SIDEWALK WHEN ADJACENT TO ADA LANDINGS, OTHERWISE, THE TOP OF FOUNDATION SHOULD BE 2" (± 1") ABOVE GROUND LEVEL
- TYPICAL HEIGHT FROM MAST ARM TO TOP OF POLE WITHOUT EXTENSION IS 1.5', WITH EXTENSION IS 3.5' OF POLE + 10' EXTENSION
- FOR DIMENSIONS OF STANDARD SIGNS, PLEASE REFERENCE THE SIGN DESIGNS AND MARKINGS MANUAL.
- DESIGN NUMBERS SHALL BE DETERMINED USING TEM SECTIONS 440-3 & 440-4

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**MAST ARM CALCULATIONS**

**MED - 18 - 12.99**

