



# POINTS: A, P1, P2, P3, B AT SAME ELEVATIONS (NEED BEING ADJUSTED) Model with LC1: 2000lb at P2

## Manually Input Dead Loads and Drag Areas:

Point Label	Attach Point	Vertical Dead Load (kips)	Transverse Wind Area (ft^2)	Longitudinal Wind Area (ft^2)
LC1	P2P	2.000	0.000	0.000
Total		2.000	0.000	0.000

## Cable Properties:

Label	Stock Number	Area (in^2)	Modulus of Elasticity (psi)	Diameter (in)	Unit Weight (lbs/ft)	Drag Coef.	Thermal Expansion Coeff. (/deg F)	Ultimate Tension (kips)	Allowable % of Ultimate
1/4 EHS		0.03142	2.896e+007	0.25	0.121	1	6.5e-006	6.65	50

## Structure Cable Connectivity:

Cable Label	Origin Joint	End Joint	Property Set	Unstressed Length at 32 (deg F) (ft)	Installed Tension (% of Ult.)	Design Tension Capacity (kips)
A1	AP	CP	1/4 EHS	37.9999	0	3.325
A2	BP	DP	1/4 EHS	37.5955	0	3.325
C1	AP	EP	1/4 EHS	14.0008	0	3.325
C2	BP	FP	1/4 EHS	12.8753	0	3.325
B1	AP	P1P	1/4 EHS	10	0	3.325
B2	P1P	P2P	1/4 EHS	10	0	3.325
B3	P2P	P3P	1/4 EHS	10	0	3.325
B4	P3P	BP	1/4 EHS	10	0	3.325

Equilibrium Joint Positions and Rotations for Load Case "LC1":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
AP	0.139	0.408	0.6433	0.0000	0.0000	0.0000	-26.73	27.28	25.64
BP	-0.1144	-0.1163	-1.598	0.0000	0.0000	0.0000	-26.98	66.75	23.4
CP	0	0	0	0.0000	0.0000	0.0000	0	0	25
DP	0	0	0	0.0000	0.0000	0.0000	0	93.17	25
EP	0	0	0	0.0000	0.0000	0.0000	-38.13	20.63	30.5
FP	0	0	0	0.0000	0.0000	0.0000	-38.13	73.11	25
P1P	0.07632	0.1716	-1.779	0.0000	0.0000	0.0000	-26.79	37.04	23.22
P2P	0.01366	-0.06421	-4.2	0.0000	0.0000	0.0000	-26.86	46.81	20.8
P3P	-0.05037	-0.0901	-2.9	0.0000	0.0000	0.0000	-26.92	56.78	22.1

Joint Support Reactions for Load Case "LC1":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Z Force (kips)	Z Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
CP	3.31	0.0	-3.38	0.0	-0.08	0.0	0.0	4.73	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0
DP	3.40	0.0	3.33	0.0	0.20	0.0	0.0	4.77	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0
EP	-3.28	0.0	-1.91	0.0	1.40	0.0	0.0	4.04	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0
FP	-3.44	0.0	1.96	0.0	0.49	0.0	0.0	3.99	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0

Joint Displacements, Loads and Member Forces on Joints for Load Case "LC1":

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
AP	0.0000	0.0000	0.0000	-0.0000	-0.0000	-0.0000	0.1390	0.4080	0.6433
BP	0.0000	0.0000	0.0000	-0.0000	0.0000	-0.0000	-0.1144	-0.1163	-1.5982
CP	0.0000	0.0000	0.0000	-3.3116	3.3793	0.0774	0.0000	0.0000	0.0000
DP	0.0000	0.0000	0.0000	-3.4030	-3.3307	-0.2038	0.0000	0.0000	0.0000
EP	0.0000	0.0000	0.0000	3.2776	1.9119	-1.3972	0.0000	0.0000	0.0000
FP	0.0000	0.0000	0.0000	3.4370	-1.9605	-0.4936	0.0000	0.0000	0.0000
P1P	0.0000	0.0000	0.0000	-0.0000	-0.0000	-0.0000	0.0763	0.1716	-1.7793
P2P	0.0000	0.0000	-2.0000	-0.0000	-0.0000	2.0000	0.0137	-0.0642	-4.1998
P3P	0.0000	0.0000	0.0000	-0.0000	0.0000	-0.0000	-0.0504	-0.0901	-2.9001

Summary of Cable Tensions and Usages for Load Case "LC1":

Cable Label	Max. Tension (kips)	Allowable Tension (kips)	Factored Allowable (kips)	Usage %
A1	4.73	3.33	3.33	142.32 NG

### Manually Input Dead Loads and Drag Areas:

Load Point Label	Attach Point	Vertical Dead Load (kips)	Transverse Wind Area (ft^2)	Longitudinal Wind Area (ft^2)
a	AP	0.250	0.000	0.000
p1	P1P	0.500	0.000	0.000
p2	P2P	0.500	0.000	0.000
p3	P3P	0.500	0.000	0.000
b	BP	0.250	0.000	0.000
Total		2.000	0.000	0.000

Cable Label	Origin Joint	End Joint	Property Set	Unstressed Length at 32 (deg F) (ft)	Installed Tension (% of Ult.)	Design Tension Capacity (kips)
A1	AP	CP	1/4 EHS	37.9999	0	3.325
A2	BP	DP	1/4 EHS	37.5955	0	3.325
C1	AP	EP	1/4 EHS	14.0008	0	3.325
C2	BP	FP	1/4 EHS	12.8753	0	3.325
B1	AP	P1P	1/4 EHS	10	0	3.325
B2	P1P	P2P	1/4 EHS	10	0	3.325
B3	P2P	P3P	1/4 EHS	10	0	3.325
B4	P3P	BP	1/4 EHS	10	0	3.325

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
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AP	0.004818	0.2293	0.1461	0.0000	0.0000	0.0000	-26.87	27.1	25.15
BP	-0.1477	0.01062	-2.148	0.0000	0.0000	0.0000	-27.02	66.88	22.85
CP	0	0	0	0.0000	0.0000	0.0000	0	0	25
DP	0	0	0	0.0000	0.0000	0.0000	0	93.17	25
EP	0	0	0	0.0000	0.0000	0.0000	-38.13	20.63	30.5
FP	0	0	0	0.0000	0.0000	0.0000	-38.13	73.11	25
P1P	-0.03265	0.008937	-2.16	0.0000	0.0000	0.0000	-26.9	36.88	22.84
P2P	-0.07089	-0.01305	-3.334	0.0000	0.0000	0.0000	-26.94	46.86	21.67
P3P	-0.1094	0.03351	-3.33	0.0000	0.0000	0.0000	-26.98	56.9	21.67

**Joint Support Reactions for Load Case "LC1":**

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X X-M. Moment (ft-k)	Y Y-M. Moment (ft-k)	Z Z-M. Moment (ft-k)	Max. Usage %
CP	2.69	0.0	-2.71	0.0	-0.01	0.0	0.0	3.82	0.0	0.00	0.0	0.0	0.0
DP	2.76	0.0	2.69	0.0	0.22	0.0	0.0	3.86	0.0	0.00	0.0	0.0	0.0
EP	-2.67	0.0	-1.53	0.0	1.27	0.0	0.0	3.33	0.0	0.00	0.0	0.0	0.0
FP	-2.78	0.0	1.56	0.0	0.54	0.0	0.0	3.23	0.0	0.00	0.0	0.0	0.0

**Joint Displacements, Loads and Member Forces on Joints for Load Case "LC1":**

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
AP	0.0000	0.0000	-0.2500	0.0000	0.0000	0.2500	0.0048	0.2293	0.1461
BP	0.0000	0.0000	-0.2500	-0.0000	0.0000	0.2500	-0.1477	0.0106	-2.1482
CP	0.0000	0.0000	0.0000	-2.6868	2.7102	0.0123	0.0000	0.0000	0.0000
DP	0.0000	0.0000	0.0000	-2.7616	-2.6866	-0.2218	0.0000	0.0000	0.0000
EP	0.0000	0.0000	0.0000	2.6705	1.5340	-1.2700	0.0000	0.0000	0.0000
FP	0.0000	0.0000	0.0000	2.7778	-1.5576	-0.5377	0.0000	0.0000	0.0000
P1P	0.0000	0.0000	-0.5000	-0.0000	0.0000	0.5000	-0.0326	0.0089	-2.1599
P2P	0.0000	0.0000	-0.5000	-0.0000	0.0000	0.5000	-0.0709	-0.0131	-3.3343
P3P	0.0000	0.0000	-0.5000	-0.0000	0.0000	0.5000	-0.1094	0.0335	-3.3303

**Summary of Cable Tensions and Usages for Load Case "LC1":**

Cable Label	Max. Allowable Tension (kips)	Factored Allowable Tension (kips)	Usage %
A1	3.82	3.33	3.33 114.78 NG
A2	3.86	3.33	3.33 116.07 NG
C1	3.33	3.33	3.33 100.19 NG
C2	3.23	3.33	3.32 97.14
B1	4.36	3.33	3.32 131.15 NG
B2	4.27	3.33	3.32 128.53 NG

B3 4.24 3.33 3.33 127.64 NG  
 B4 4.27 3.33 3.33 128.54 NG

## Model with LC1: 400lbs at P1, P2, P3, A & B

Manually Input Dead Loads and Drag Areas:

Point Label	Attach Point	Vertical Dead Load (kips)	Transverse Wind Area (ft^2)	Longitudinal Wind Area (ft^2)
a	AP	0.400	0.000	0.000
p1	P1P	0.400	0.000	0.000
p2	P2P	0.400	0.000	0.000
p3	P3P	0.400	0.000	0.000
b	BP	0.400	0.000	0.000
Total		2.000	0.000	0.000

Structure Cable Connectivity:

Cable Label	Origin Joint	End Joint	Property Set	Unstressed Length at 32 (deg F) (ft)	Installed Tension (% of Ult.)	Design Tension Capacity (kips)
A1	AP	CP	1/4 EHS	37.9999	0	3.325
A2	BP	DP	1/4 EHS	37.5955	0	3.325
C1	AP	EP	1/4 EHS	14.0008	0	3.325
C2	BP	FP	1/4 EHS	12.8753	0	3.325
B1	AP	P1P	1/4 EHS	10	0	3.325
B2	P1P	P2P	1/4 EHS	10	0	3.325
B3	P2P	P3P	1/4 EHS	10	0	3.325
B4	P3P	BP	1/4 EHS	10	0	3.325

Equilibrium Joint Positions and Rotations for Load Case "LC1":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
AP	-0.03387	0.1799	0.01307	0.0000	0.0000	0.0000	-26.9	27.05	25.01
BP	-0.1597	0.04692	-2.297	0.0000	0.0000	0.0000	-27.03	66.92	22.7
CP	0	0	0	0.0000	0.0000	0.0000	0	0	25
DP	0	0	0	0.0000	0.0000	0.0000	0	93.17	25
EP	0	0	0	0.0000	0.0000	0.0000	-38.13	20.63	30.5

FP	0	0	0	0.0000	0.0000	0.0000	-38.13	73.11	25
P1P	-0.0649	0.01419	-2.034	0.0000	0.0000	0.0000	-26.93	36.88	22.97
P2P	-0.09641	1.668e-005	-3.118	0.0000	0.0000	0.0000	-26.97	46.87	21.88
P3P	-0.1281	0.0438	-3.206	0.0000	0.0000	0.0000	-27	56.91	21.79

**Joint Support Reactions for Load Case "LC1":**

Joint Label	X Force (kips)	X Usage % (kips)	Y Force (kips)	Y Usage % (kips)	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X-Moment (ft-k)	X-M. Usage % (ft-k)	Y-Moment (ft-k)	Y-M. Usage % (ft-k)	Z-Moment (ft-k)	Z-M. Usage %	Max. Usage %
CP	2.56	0.0	-2.57	0.0	0.00	0.0	0.0	3.62	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0
DP	2.63	0.0	2.55	0.0	0.23	0.0	0.0	3.67	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0
EP	-2.54	0.0	-1.45	0.0	1.24	0.0	0.0	3.18	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0
FP	-2.64	0.0	1.47	0.0	0.55	0.0	0.0	3.07	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0

**Joint Displacements, Loads and Member Forces on Joints for Load Case "LC1":**

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
AP	0.0000	0.0000	-0.4000	0.0000	0.0000	0.4000	-0.0339	0.1799	0.0131
BP	0.0000	0.0000	-0.4000	-0.0000	0.0000	0.4000	-0.1597	0.0469	-2.2970
CP	0.0000	0.0000	0.0000	-2.5557	2.5696	-0.0011	0.0000	0.0000	0.0000
DP	0.0000	0.0000	0.0000	-2.6271	-2.5511	-0.2255	0.0000	0.0000	0.0000
EP	0.0000	0.0000	0.0000	2.5430	1.4546	-1.2437	0.0000	0.0000	0.0000
FP	0.0000	0.0000	0.0000	2.6398	-1.4731	-0.5470	0.0000	0.0000	0.0000
P1P	0.0000	0.0000	-0.4000	-0.0000	0.0000	0.4000	-0.0649	0.0142	-2.0344
P2P	0.0000	0.0000	-0.4000	-0.0000	0.0000	0.4000	-0.0964	0.0000	-3.1178
P3P	0.0000	0.0000	-0.4000	-0.0000	0.0000	0.4000	-0.1281	0.0438	-3.2062

**Summary of Cable Tensions and Usages for Load Case "LC1":**

Cable Label	Max. Tension (kips)	Allowable Tension (kips)	Factored Allowable (kips)	Usage %	
A1	3.62	3.33	3.32	109.00	NG
A2	3.67	3.33	3.33	110.34	NG
C1	3.18	3.33	3.32	95.72	
C2	3.07	3.33	3.33	92.39	
B1	4.11	3.33	3.33	123.63	NG
B2	4.05	3.33	3.33	121.74	NG
B3	4.02	3.33	3.33	121.03	NG
B4	4.04	3.33	3.33	121.53	NG