

Printing Input Parameters.....

parameters	unit	values	Unnamed: 3
Basin Area	sq mile	6.725	nan
Avg_GL	feet-PWD	5.248	nan
Highest Water Level ,RS	feet-PWD	12.956	nan
Lowest Water Level,RS	feet-PWD	-4.92	17.875999999999998
Moonsoon Lowest Water Level	feet-PWD	-4.592	nan
Embankment Crest Level	feet-PWD	18.04	nan
Embankment Top Width	feet-PWD	19.68	nan
C/S Slope (1:N)	nan	2.0	nan
R/S Slope	nan	3.0	nan
Invert Level	feet-PWD	-4.92	nan
Discharge/sq mile	cfs/sqmile	54.0	nan
No Vent	nan	3.0	nan
Vent Width	feet	5.0	nan
Vent Height	feet	6.0	nan
Pier_width	inch	15.0	nan
Abutment_width	inch	18.0	nan
flare_Angle_min	degree	8.0	nan
flare_Angle_max	degree	12.0	nan
glacis_drop_min	feet	3.0	nan
glacis_drop_max	feet	4.0	nan
Barrel Length	feet	32.0	nan
cutoff_depth_min	min	9.84	nan

cutoff_depth_max	max	21.32	nan
Laycey's Silt Factor	nan	0.4	nan
maximum head difference	feet	17.876	nan
Allowable Exit Gradient	nan	0.143	nan
maximum_floor_thickness	feet	3.28	nan
Top_slab_thickness	inch	20.0	nan
unit weight of fill soil	pcf	120.0	nan
friction Angle of fill soil	degree	30.0	nan
surcharge height	feet	1.0	nan
return wall level	fee-pwd	12.956	nan

Printing Stilling Basin Calculation in FPS unit.....

Q	FAngle	g_drop	Bc	q	dc	vc	B1	q1	d1	v1	B2	q2	d2	v2	Fr1	LJ	Eff	Del_E	Del_E(%)
1311.53	8.0	3.0	17.5	74.945	5.587	13.413	20.03	65.479	2.783	23.532	31.099	42.173	8.49	4.967	2.486	39.381	82.7	1.967	17.3
1311.53	8.0	4.0	17.5	74.945	5.587	13.413	20.873	62.834	2.49	25.239	33.03	39.707	8.758	4.534	2.819	43.251	77.2	2.824	22.8
1311.53	9.0	3.0	17.5	74.945	5.587	13.413	20.351	64.446	2.73	23.603	32.853	39.921	8.45	4.724	2.517	39.467	82.2	2.028	17.8
1311.53	9.0	4.0	17.5	74.945	5.587	13.413	21.301	61.571	2.432	25.312	34.994	37.478	8.697	4.309	2.86	43.227	76.5	2.906	23.5
1311.53	10.0	3.0	17.5	74.945	5.587	13.413	20.674	63.439	2.68	23.672	34.618	37.886	8.41	4.505	2.548	39.54	81.7	2.087	18.3
1311.53	10.0	4.0	17.5	74.945	5.587	13.413	21.732	60.351	2.378	25.381	36.963	35.482	8.637	4.108	2.901	43.191	75.9	2.986	24.1
1311.53	11.0	3.0	17.5	74.945	5.587	13.413	20.999	62.457	2.631	23.738	36.394	36.037	8.37	4.305	2.579	39.602	81.1	2.146	18.9
1311.53	11.0	4.0	17.5	74.945	5.587	13.413	22.165	59.171	2.325	25.448	38.938	33.683	8.578	3.927	2.941	43.144	75.3	3.064	24.7
1311.53	12.0	3.0	17.5	74.945	5.587	13.413	21.326	61.499	2.584	23.802	38.183	34.349	8.33	4.123	2.61	39.652	80.6	2.204	19.4
1311.53	12.0	4.0	17.5	74.945	5.587	13.413	22.601	58.029	2.275	25.512	40.918	32.053	8.519	3.762	2.981	43.087	74.6	3.142	25.4

Printing Stilling Basin Calculation in MKS unit.....

Q	FAngle	g_drop	Bc	q	dc	vc	B1	q1	d1	v1	B2	q2	d2	v2	Fr1	LJ	Eff	Del_E	Del_E(%)
37.15	8.0	0.91	5.34	6.97	1.7	4.09	6.11	6.09	0.85	7.17	9.48	3.92	2.59	1.51	2.486	13.0	82.7	0.6	17.3
37.15	8.0	1.22	5.34	6.97	1.7	4.09	6.36	5.84	0.76	7.69	10.07	3.69	2.67	1.38	2.819	14.0	77.2	0.86	22.8
37.15	9.0	0.91	5.34	6.97	1.7	4.09	6.2	5.99	0.83	7.2	10.02	3.71	2.58	1.44	2.517	13.0	82.2	0.62	17.8
37.15	9.0	1.22	5.34	6.97	1.7	4.09	6.49	5.72	0.74	7.72	10.67	3.48	2.65	1.31	2.86	14.0	76.5	0.89	23.5
37.15	10.0	0.91	5.34	6.97	1.7	4.09	6.3	5.9	0.82	7.22	10.55	3.52	2.56	1.37	2.548	13.0	81.7	0.64	18.3
37.15	10.0	1.22	5.34	6.97	1.7	4.09	6.63	5.61	0.73	7.74	11.27	3.3	2.63	1.25	2.901	14.0	75.9	0.91	24.1
37.15	11.0	0.91	5.34	6.97	1.7	4.09	6.4	5.8	0.8	7.24	11.1	3.35	2.55	1.31	2.579	13.0	81.1	0.65	18.9
37.15	11.0	1.22	5.34	6.97	1.7	4.09	6.76	5.5	0.71	7.76	11.87	3.13	2.62	1.2	2.941	14.0	75.3	0.93	24.7
37.15	12.0	0.91	5.34	6.97	1.7	4.09	6.5	5.72	0.79	7.26	11.64	3.19	2.54	1.26	2.61	13.0	80.6	0.67	19.4
37.15	12.0	1.22	5.34	6.97	1.7	4.09	6.89	5.39	0.69	7.78	12.48	2.98	2.6	1.15	2.981	14.0	74.6	0.96	25.4

Printing Basin Selection Data.....

Parmeter Name	Unit	Values
Discharge/ft	cfs/ft	74.945
Flare Angle	Degree	12.0
Glasis_Drop	Feet	4.0
Exit Velocity	Feet/sec	3.76
Fr1		2.98
Jump_Length	Feet	43.09
Energy Loss(%)	%	25.4
Floor Length	Feet	156.0
Point_1	Feet	0.0
Point_2	Feet	62.0
Point_3	Feet	94.0
Point_4	Feet	156.0

Printing Seepage Calculation Data.....

locations	uncorrected	mc_corr	t_corr	corrected
Phi_E	32.48	-1.4943471474607308	1.54	32.43
Phi_C1	67.52	1.4943471474607308	1.54	70.56

Printing thickness calcualtion data.....

location	p(%)	p(feet)	th_min(feet)
1.0	70.56	12.61	0.0
2.0	55.41	9.91	0.0
3.0	47.58	8.51	6.08
4.0	32.43	5.8	4.14

Printing Detiled thickness calcaultion data.....

dist	P%	Hw	Bi	-WwL	Net(Hw)	t_req
0.0	32.43	5.8	31.0	2.06	3.74	2.67
3.0	33.16326923076923	5.93	30.35	2.11	3.82	2.73
6.0	33.89653846153846	6.06	29.69	2.15	3.91	2.79
9.0	34.62980769230769	6.19	29.04	2.2	3.99	2.85
12.0	35.363076923076925	6.32	28.39	2.25	4.07	2.91
15.0	36.096346153846156	6.45	27.73	2.3	4.15	2.96
18.0	36.82961538461539	6.58	27.08	2.36	4.22	3.01
21.0	37.56288461538462	6.71	26.43	2.42	4.29	3.06
24.0	38.29615384615384	6.85	25.77	2.48	4.37	3.12
27.0	39.02942307692308	6.98	25.12	2.54	4.44	3.17
30.0	39.762692307692305	7.11	24.47	2.61	4.5	3.21
33.0	40.495961538461536	7.24	23.81	2.68	4.56	3.26
36.0	41.22923076923077	7.37	23.16	2.76	4.61	3.29
39.0	41.9625	7.5	22.51	2.84	4.66	3.33
42.0	42.69576923076923	7.63	21.85	2.92	4.71	3.36
45.0	43.42903846153846	7.76	21.2	3.01	4.75	3.39
48.0	44.16230769230769	7.89	20.55	3.11	4.78	3.41
51.0	44.89557692307692	8.03	19.9	3.21	4.82	3.44
54.0	45.628846153846155	8.16	19.24	3.32	4.84	3.46
57.0	46.362115384615386	8.29	18.59	3.44	4.85	3.46
60.0	47.09538461538462	8.42	17.94	3.56	4.86	3.47

Printing Input Data for Load Calculations.....

Parameter Name	Unit	Parameter Value	Detail Name
VW	feet	5.0	Vent Inner Span/width
VH	feet	6.0	Vent Height
NV	nos	3.0	No of Vents
Tt	inch	20.0	Top Slab thicjness
Ts	inch	18.0	Abutmet Thicknes
Tb	inch	41.64	Bottom Slab Thicknes
Tp	inch	15.0	Pier Thicknes
gamma_s	pcf	120.0	Soil Fill Unit Wieght
phi	degree	30.0	friction angle of back fill soil
H	feet	1.0	Height of srcharge above pier
MPF	unitless	1.2	Multiple Presnce Factor
IM	unitless	1.3	Impact factor for Dynamic Loading
INVERT_LEVEL	ft-pwd	-4.92	Invert Level of Regulator
EMBANKMENT_CREST_LEVEL	ft-pwd	18.04	Emnakment Crest Level
h_prime	ft	3.0	Additional Surcharge load above Embankemt

Printing Barrel Load.....

Notations	LoadName	LoadUnits	LoadType	Load_Value_Maximum	Load_Value_Minimum
TSL	Load on Top Slab	klf	UDL	-2.128	-2.128
BSL	Load on Bottom Slab	klf	UDL	2.369	2.369
SWL+	Load on Left Side Wall	klf	Trapizoidal	1.1576	1.671699999999997
SWL(-)	Load on Right Side Wall	klf	Trapizoidal	-1.1576	-1.671699999999997

Wrtitng Node Info.....

JointNo	Marker	Xcoordiante	Ycoordinate	R_x	R_y	R_rotation
1	A	0.0	102.82	1	1	0
2	B	76.5	102.82	1	1	0
3	C	151.5	102.82	1	1	0
4	D	228.0	102.82	1	1	0
5	E	0.0	0.0	1	1	0
6	F	76.5	0.0	1	1	0
7	G	151.5	0.0	1	1	0
8	H	228.0	0.0	1	1	0

Writing Member Info.....

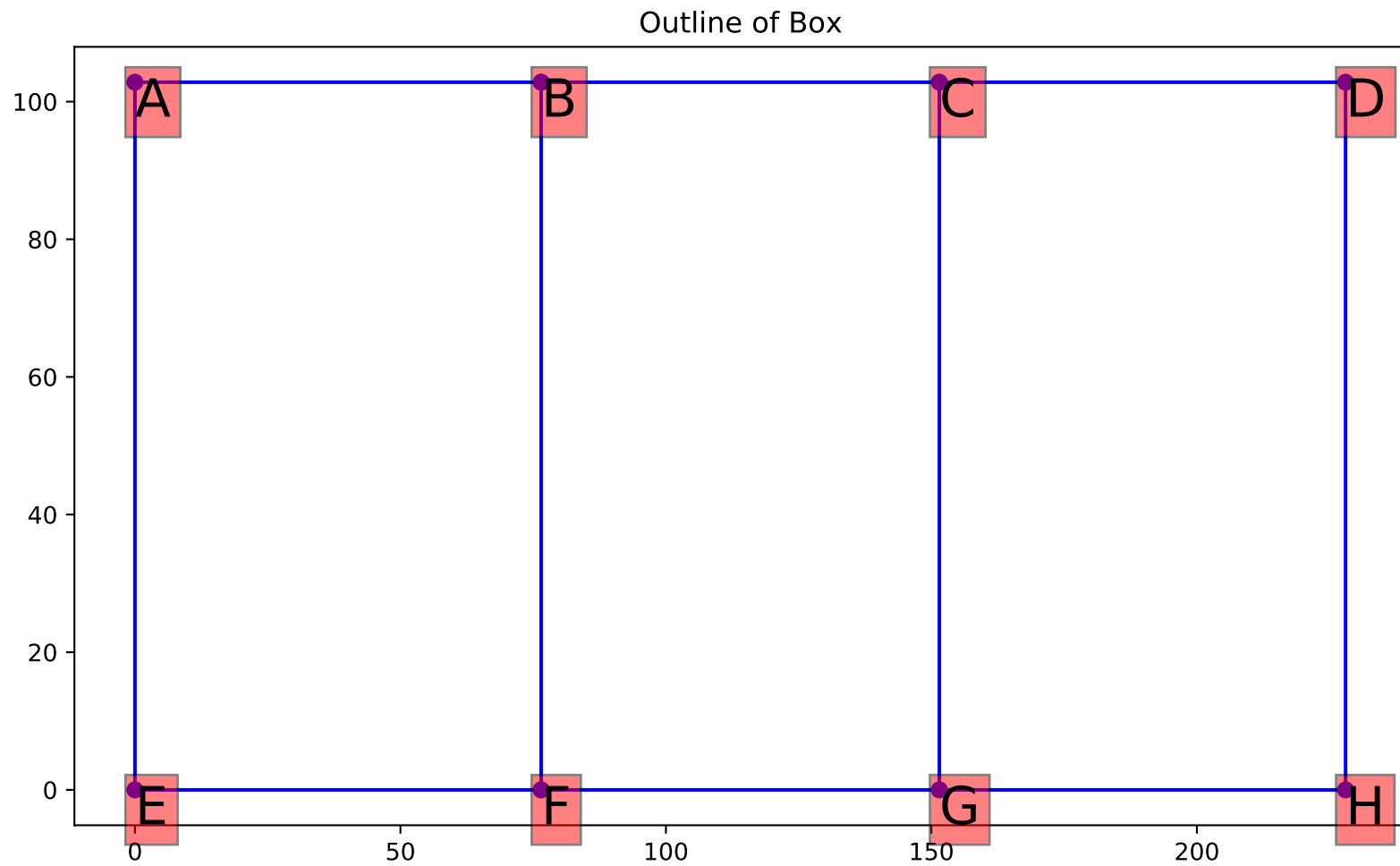
MemberNo	joint_i	joint_k	Area	I	E
1.0	1.0	2.0	240.0	8000.0	3122.0
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3.0	3.0	4.0	240.0	8000.0	3122.0
4.0	5.0	6.0	499.68	72199.162944	3122.0
5.0	6.0	7.0	499.68	72199.162944	3122.0
6.0	7.0	8.0	499.68	72199.162944	3122.0
7.0	1.0	5.0	1.5	5832.0	3122.0
8.0	2.0	6.0	180.0	3375.0	3122.0
9.0	3.0	7.0	180.0	3375.0	3122.0
10.0	4.0	8.0	1.5	5832.0	3122.0

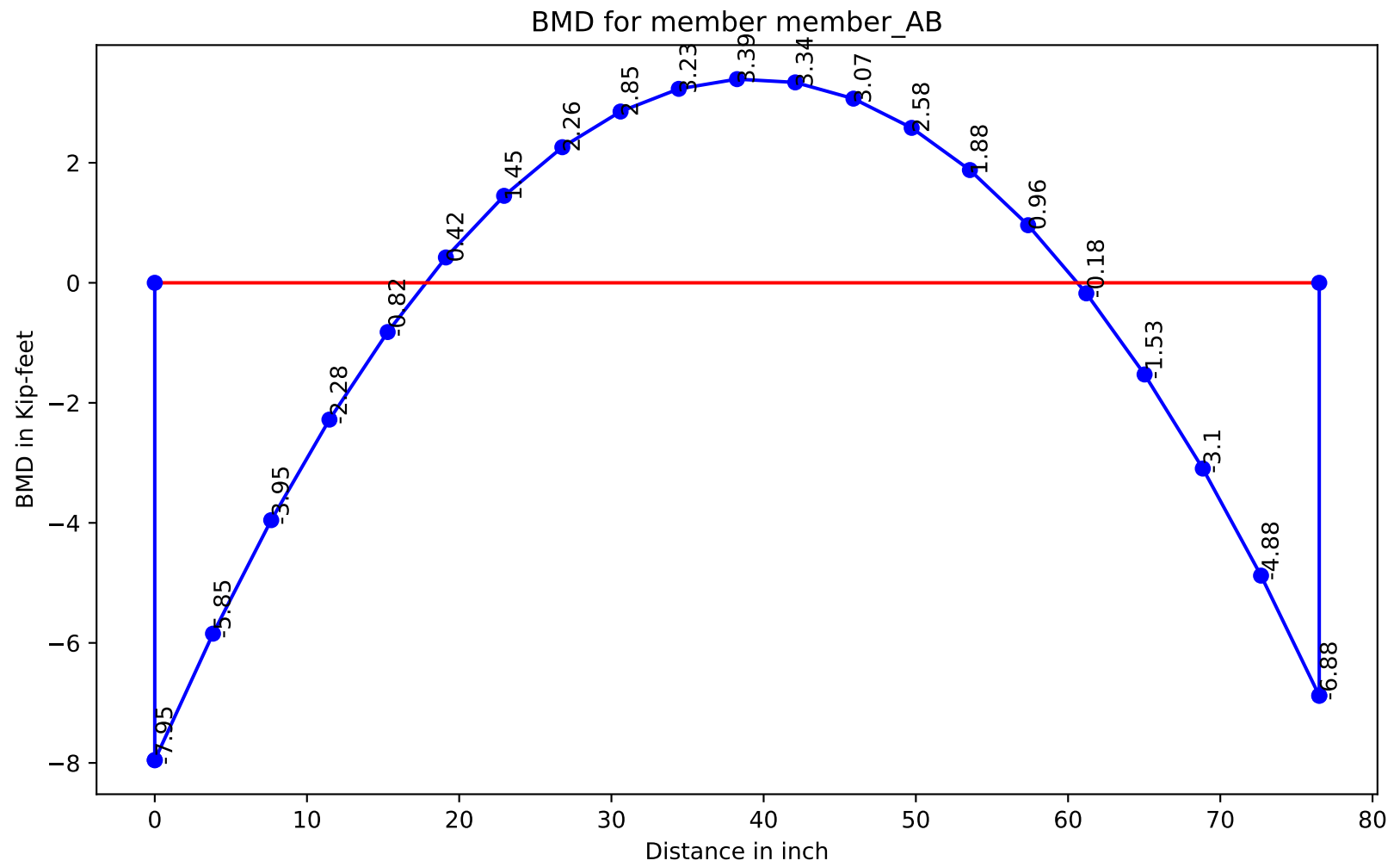
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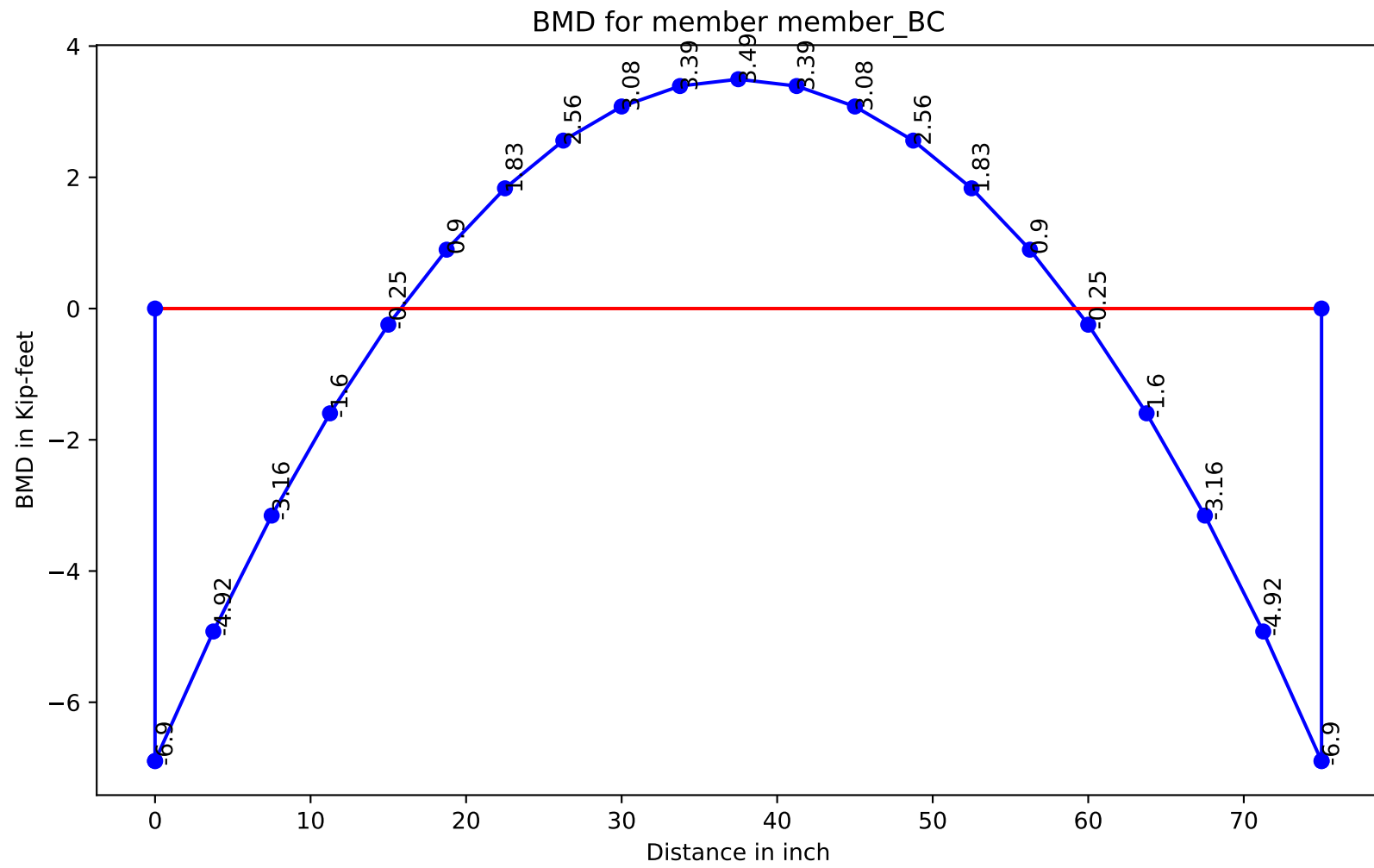
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-0.1773333333333334	0.0	3.0	2.0	-0.1773333333333334
-0.1773333333333334	0.0	3.0	3.0	-0.1773333333333334
0.1974166666666668	0.0	3.0	4.0	0.1974166666666668
0.1974166666666668	0.0	3.0	5.0	0.1974166666666668
0.1974166666666668	0.0	3.0	6.0	0.1974166666666668
0.0964666666666666	0.0	7.0	7.0	0.1393083333333333
-0.0964666666666666	0.0	7.0	10.0	-0.1393083333333333

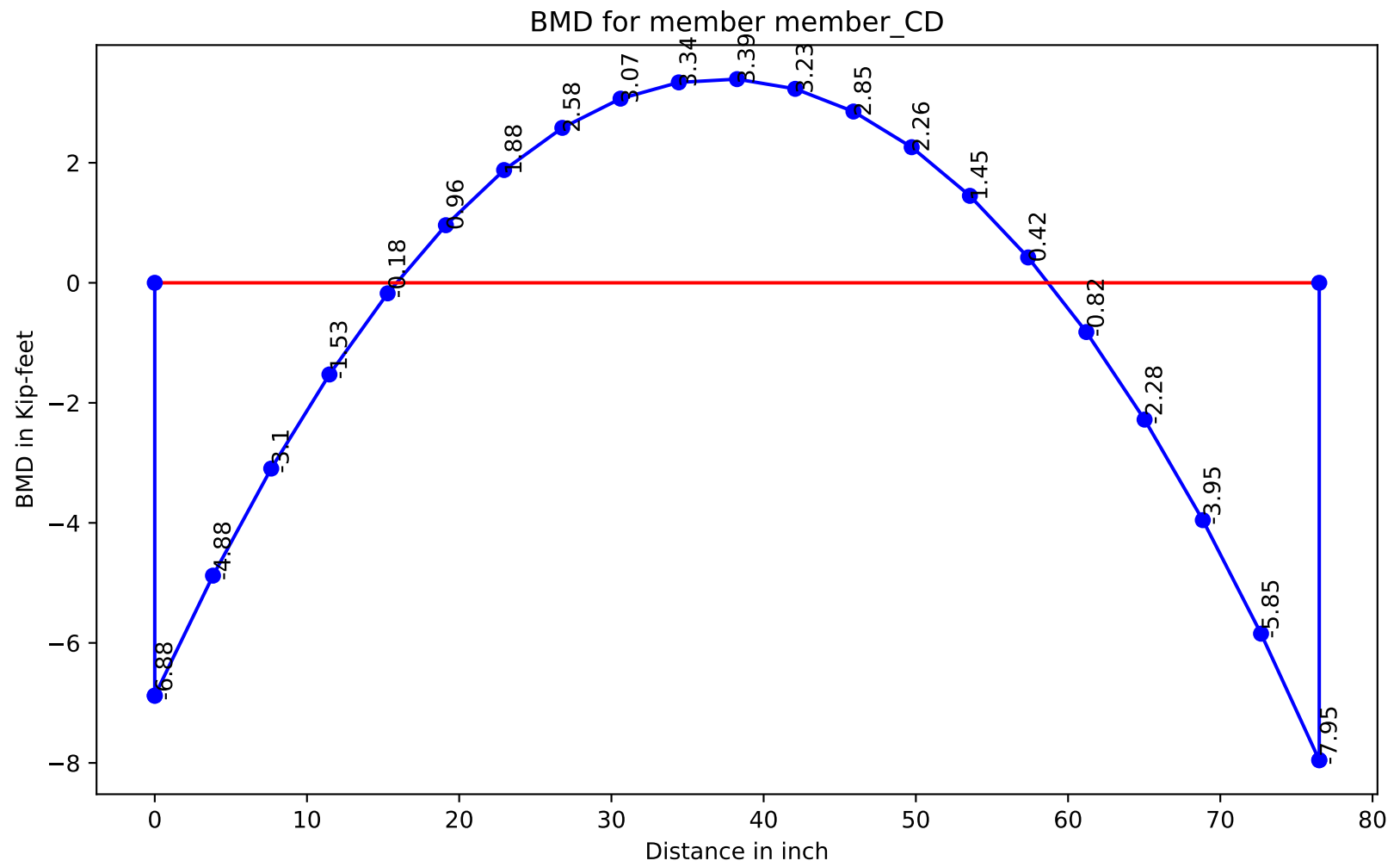
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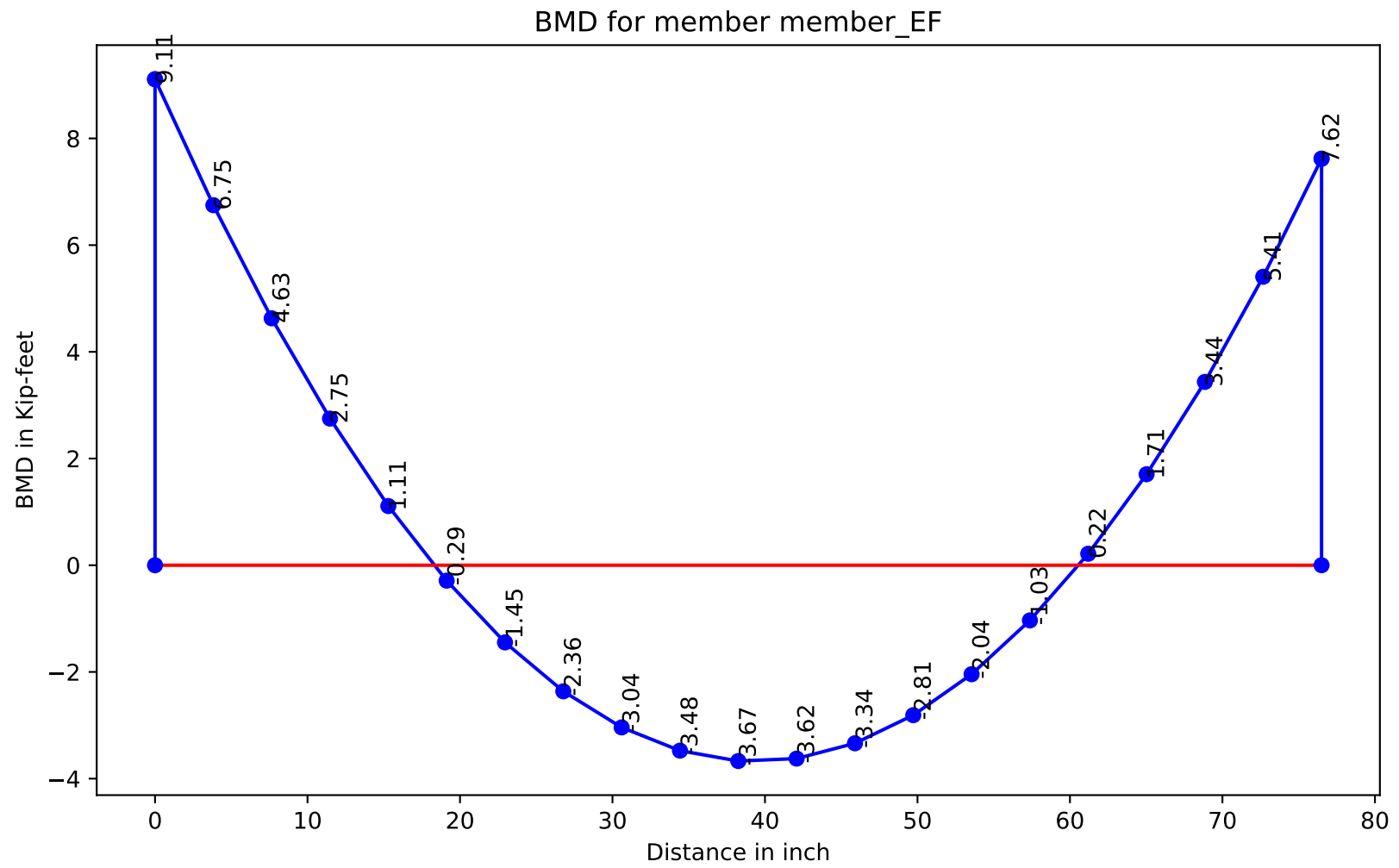
JointNo	xvalue	yvalue	mvalue
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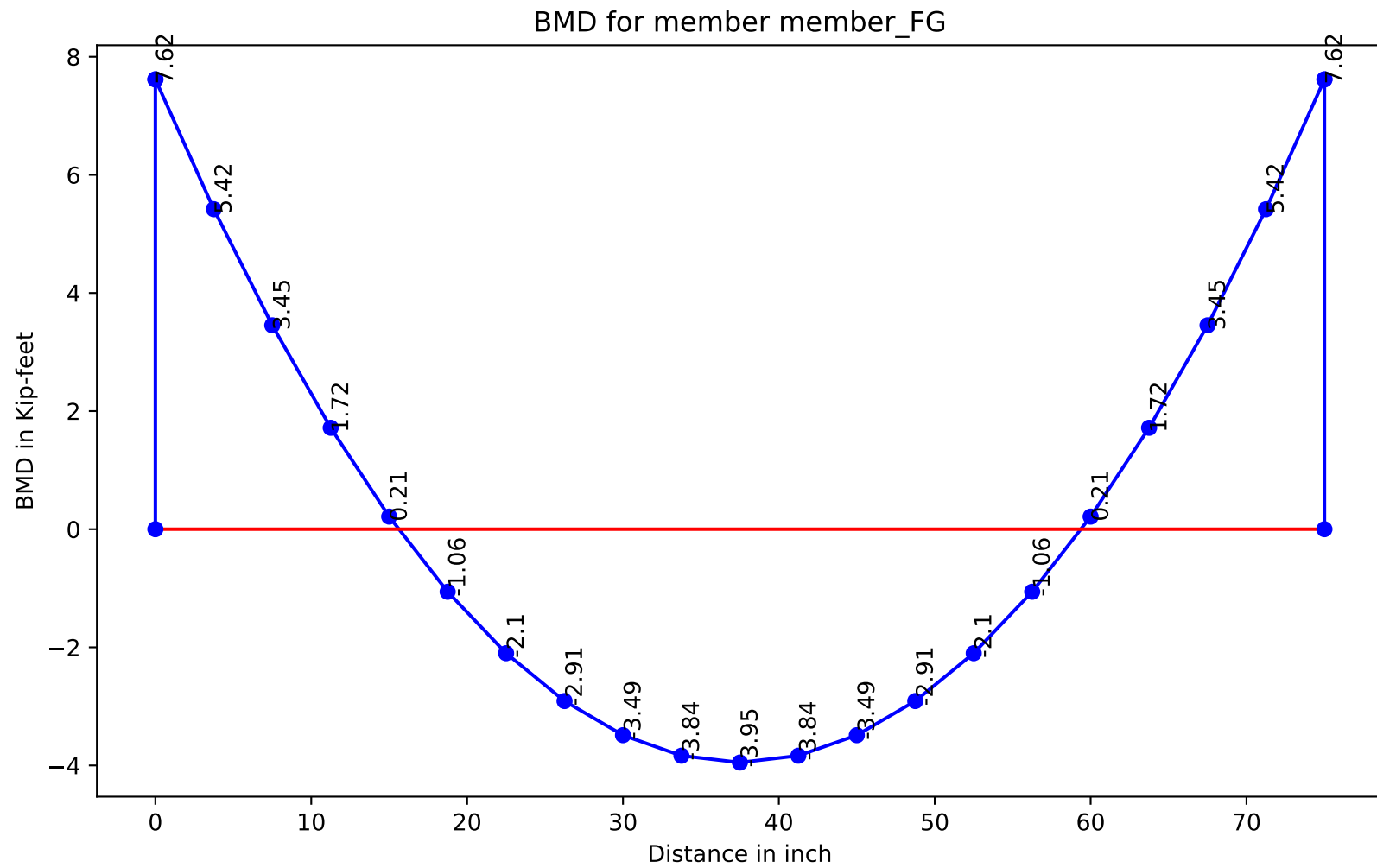


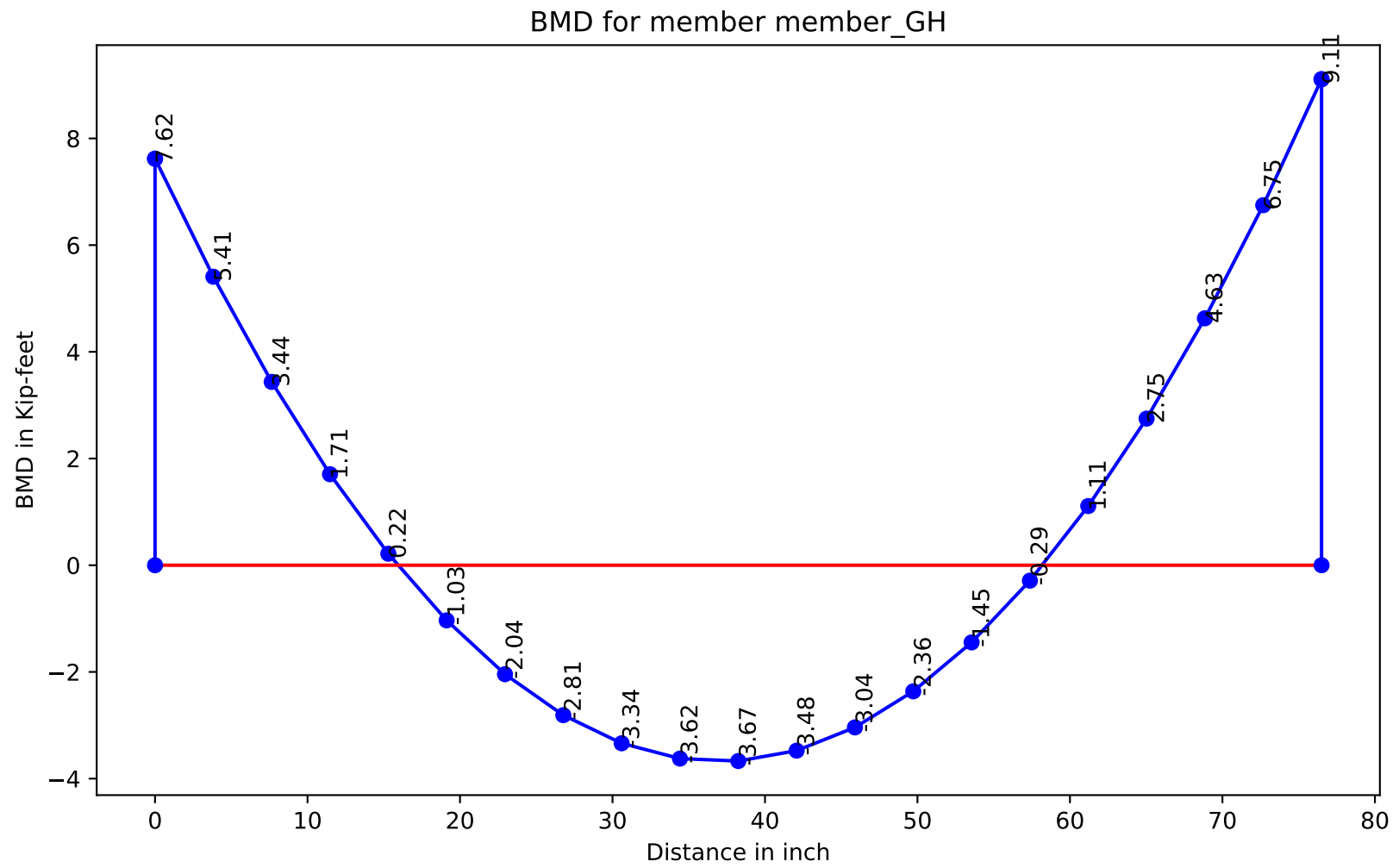


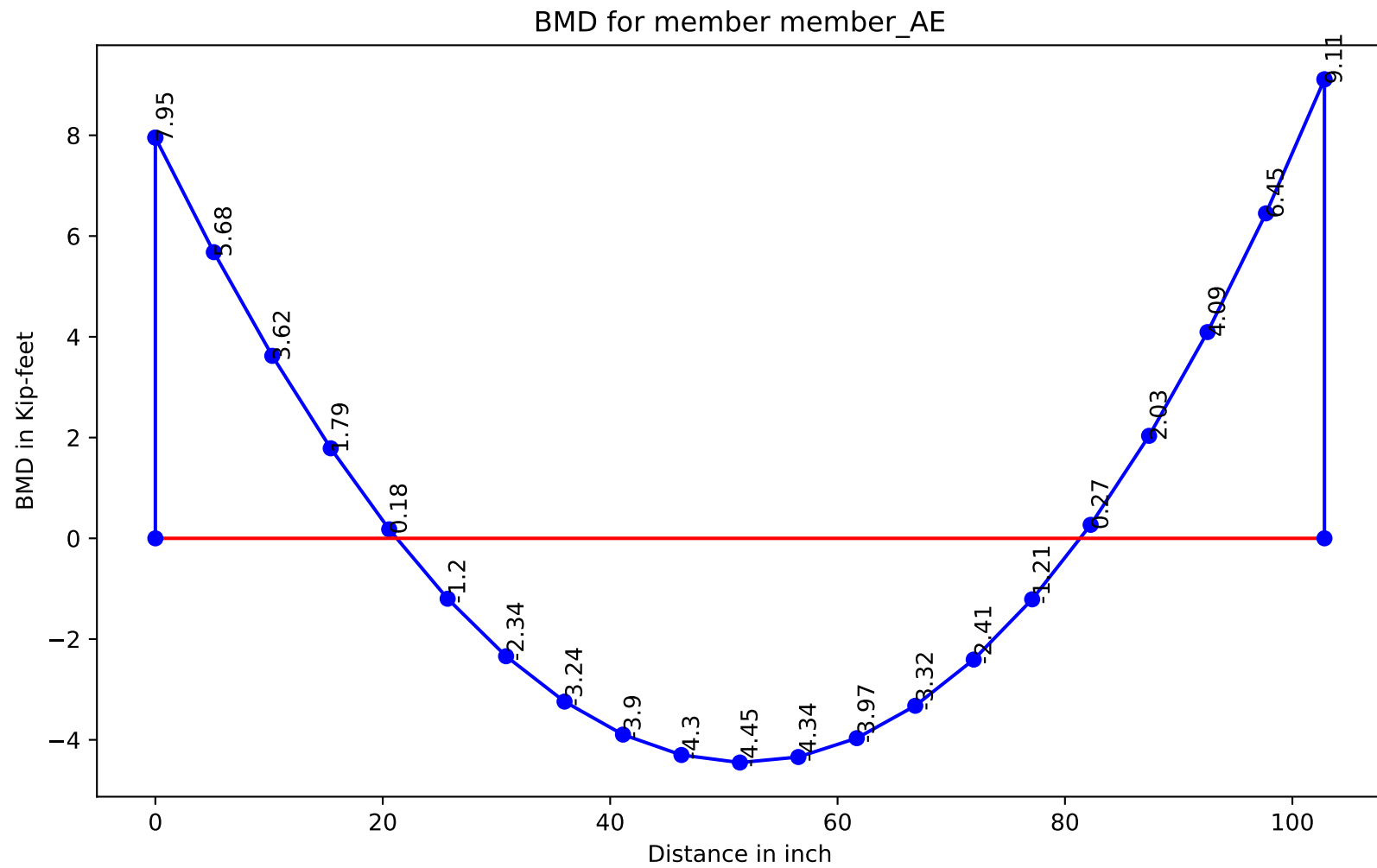


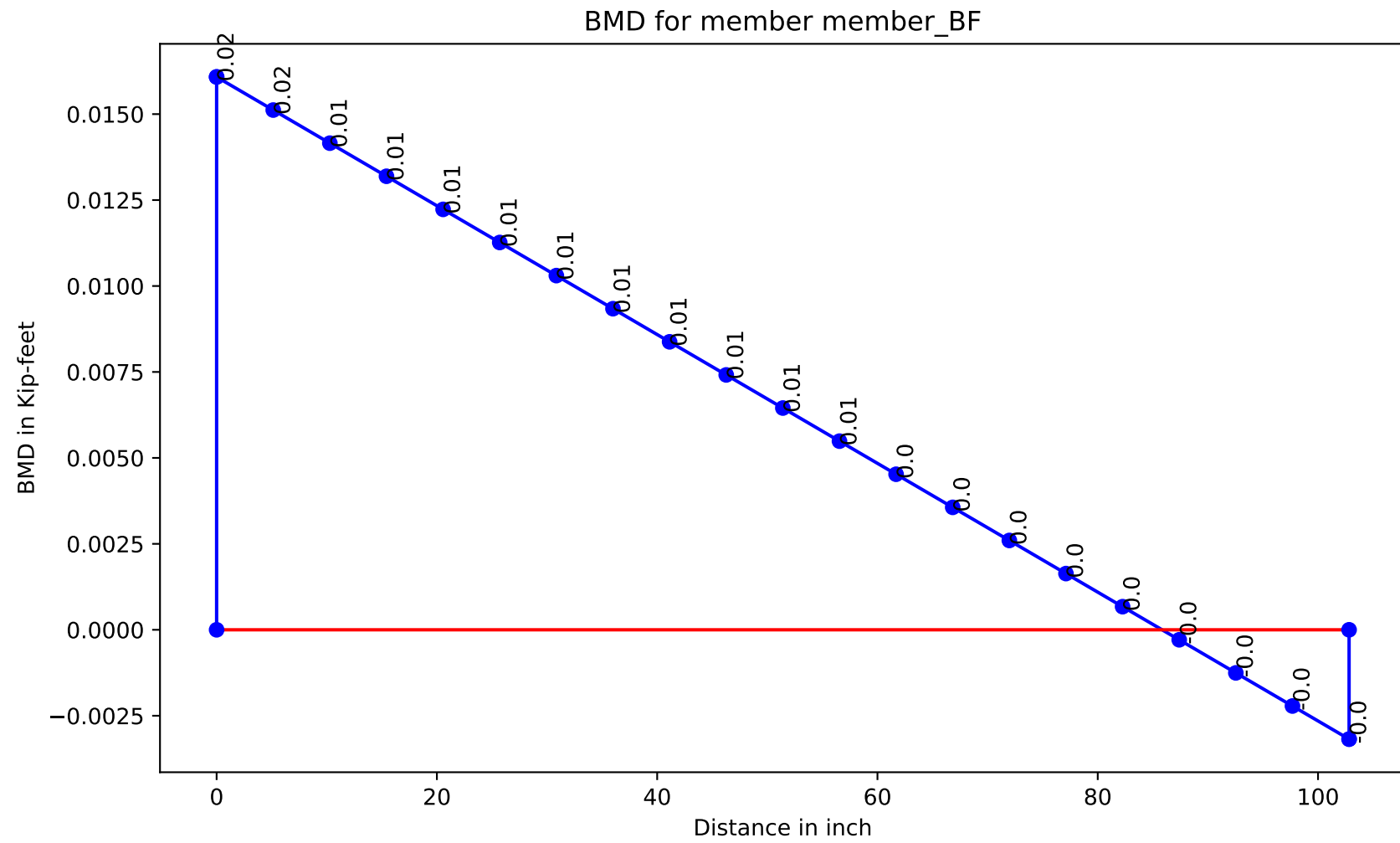


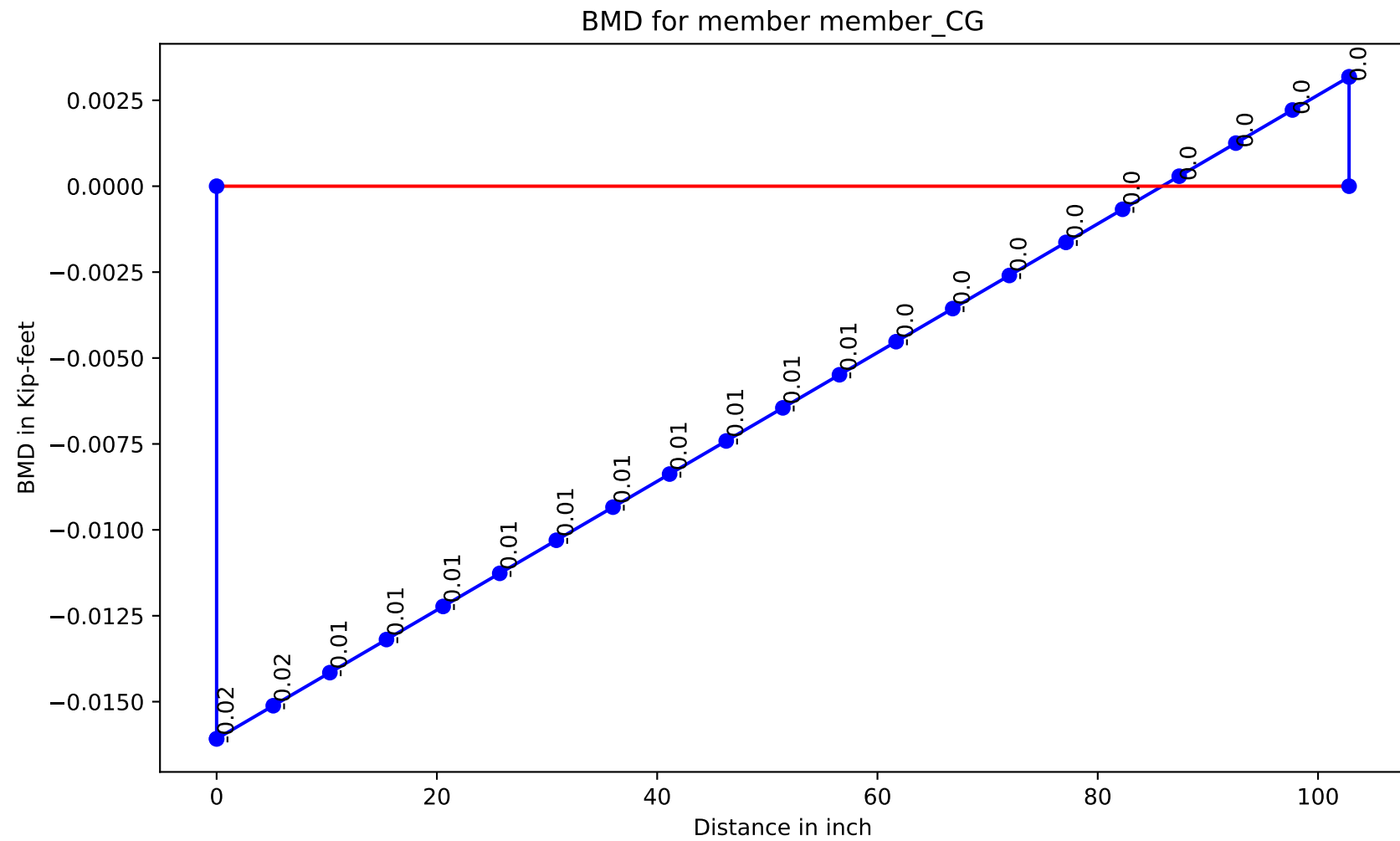


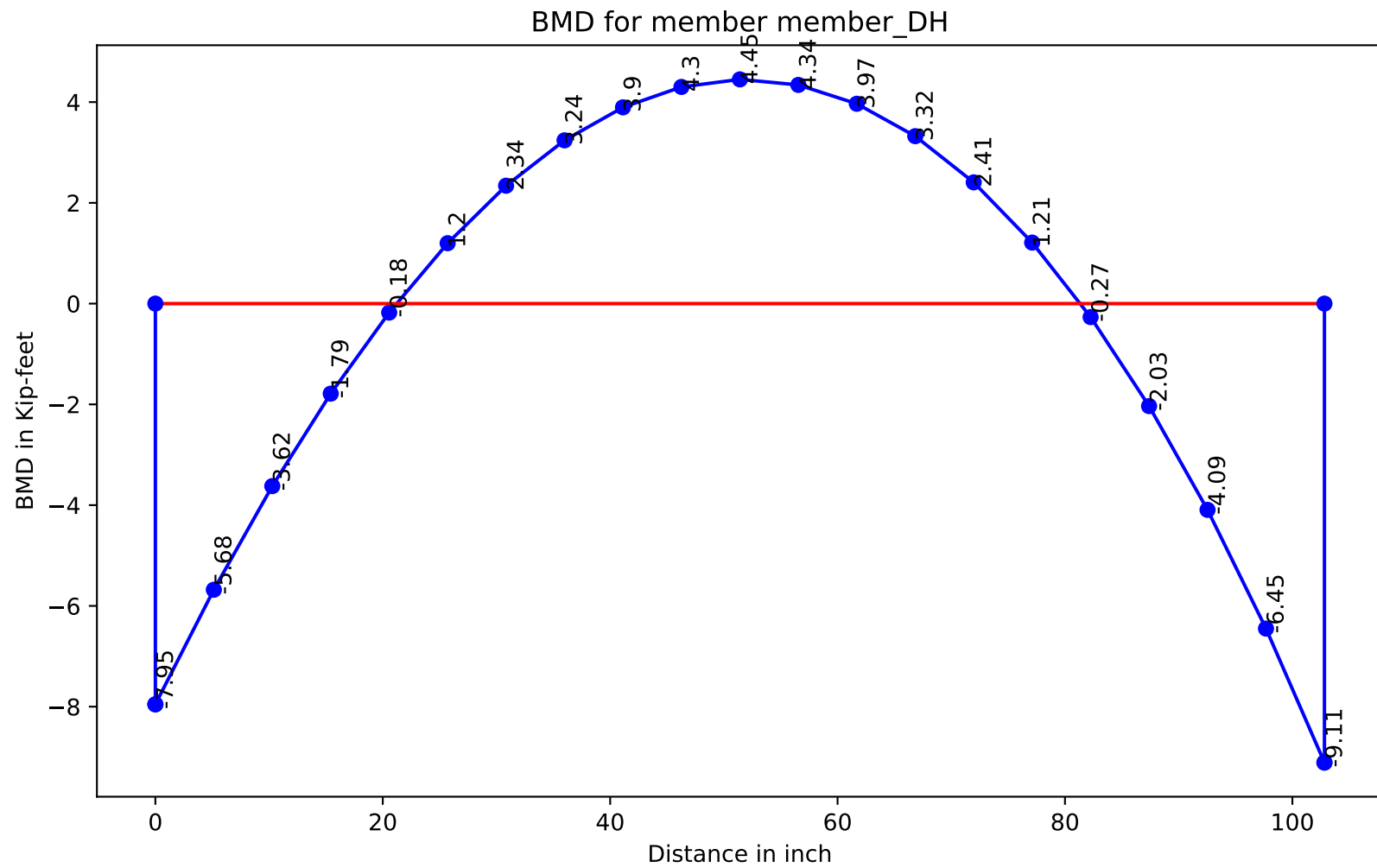


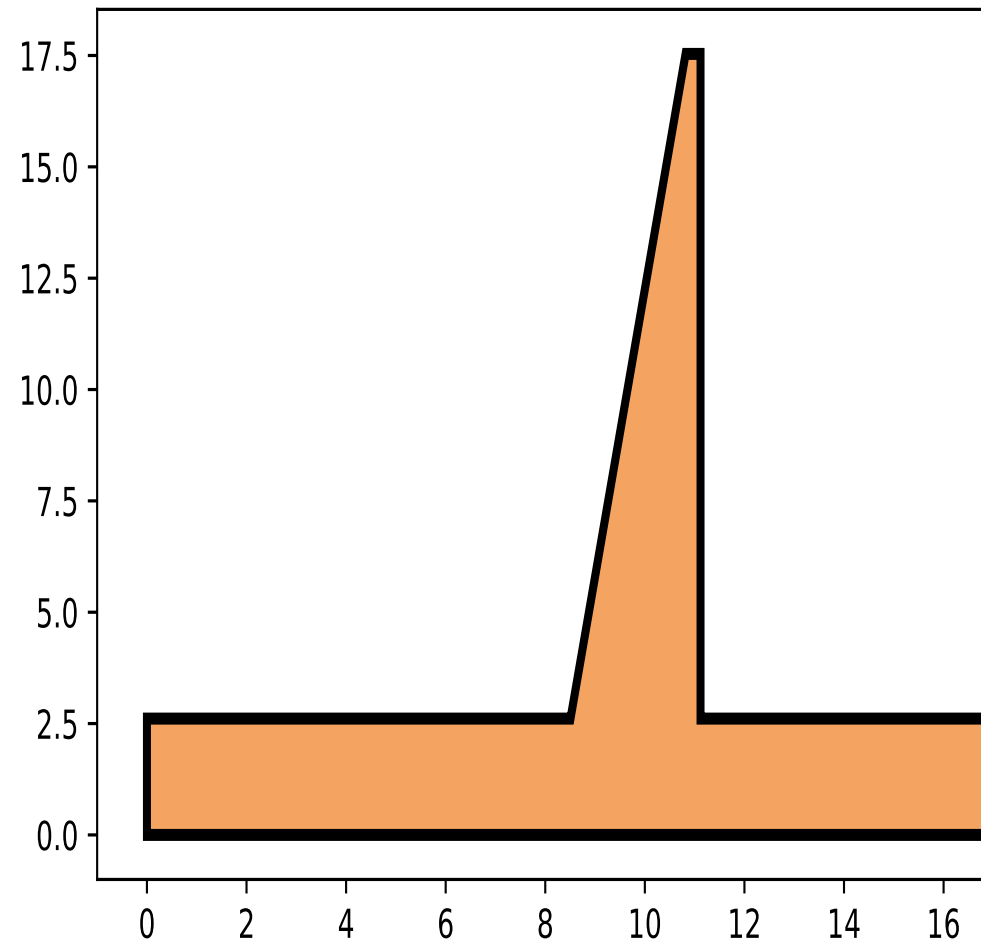












Printing Earth Pressure Calculation for CASE(B) After Construction

component	area	PV	PH	Arm_V	Arm_H	M
C1	4.4772	-671.5799999999999	0.0	-5.970360000000001	0.0	4009.5743688000002
C2	17.2499054	-2587.48581	0.0	-6.890926666666669	0.0	17830.174967750605
C3	44.238907258	-6635.8360887	0.0	-8.46937	0.0	56201.351094553116
S1	17.2499054	-1897.489594	0.0	-6.890926666666669	0.0	13075.46164301711
S2	126.95369231999999	-13964.906155199998	0.0	-12.6854	0.0	177150.42054117404
SH	0.0	0.0	5581.1390569935	0.0	7.586366666666667	-42340.56730400692

Printing Earth Pressure Calculation for CASE(C) During Operation

component	area	PV	PH	Arm_V	Arm_H	M
C1	4.4772	-671.5799999999999	0.0	-5.970360000000001	0.0	4009.5743688000002
C2	17.2499054	-2587.48581	0.0	-6.890926666666669	0.0	17830.174967750605
C3	44.238907258	-6635.8360887	0.0	-8.46937	0.0	56201.351094553116
S1	92.9418178960879	-10223.599968569668	0.0	-12.308687697668185	0.0	125839.09915901432
S2	7.820049243956044	-860.2054168351648	0.0	-7.159210263557581	0.0	6158.391448974139
S3	41.376491519999995	-4965.1789824	0.0	-12.6854	0.0	62985.281463336956
S4	1.8323286385419457	-219.8794366250335	0.0	-8.180918465112123	0.0	1798.8157431841873
W	28.310231039999998	-1766.558416896	0.0	-2.91018	0.0	5141.002973682401
U	126.62893861799999	7901.6457697631995	0.0	-8.46937	0.0	-66921.96163305934
P1	0.0	0.0	1828.382979456	0.0	10.8213	-19785.480735587214
P2	0.0	0.0	2723.665439088	0.0	3.73785	-10180.65286149508
P3	0.0	0.0	2274.7874273049597	0.0	2.4919	-5668.542790101229
P4	0.0	0.0	1886.3991272879998	0.0	2.4919	-4700.717985288967

Printing Earth Pressure Calculation for CASE(B) After Construction

dist	P	A_list	P/A	I	c	S	P*e	M/S	R
0.0	25757.3	16.94	1520.5	405.1	-8.47	-47.83	-7727.0	161.55	1682.05
8.51	25757.3	16.94	1520.5	405.1	0.04	10127.5	-7727.0	-0.76	1519.74
10.82	25757.3	16.94	1520.5	405.1	2.35	172.38	-7727.0	-44.83	1475.67
11.12	25757.3	16.94	1520.5	405.1	2.65	152.87	-7727.0	-50.55	1469.95
16.94	25757.3	16.94	1520.5	405.1	8.47	47.83	-7727.0	-161.55	1358.95

Printing Earth Pressure Calculation for CASE(C) During Operation

dist	P	A_list	P/A	I	c	S	P*e	M/S	R
0.0	20028.68	16.94	1182.42	405.01	-8.47	-47.82	-3076.05	64.33	1246.74
8.51	20028.68	16.94	1182.42	405.01	0.04	10855.17	-3076.05	-0.28	1182.14
10.82	20028.68	16.94	1182.42	405.01	2.35	172.42	-3076.05	-17.84	1164.58
11.12	20028.68	16.94	1182.42	405.01	2.65	152.89	-3076.05	-20.12	1162.3
16.94	20028.68	16.94	1182.42	405.01	8.47	47.82	-3076.05	-64.33	1118.09

Stem Design Force.....

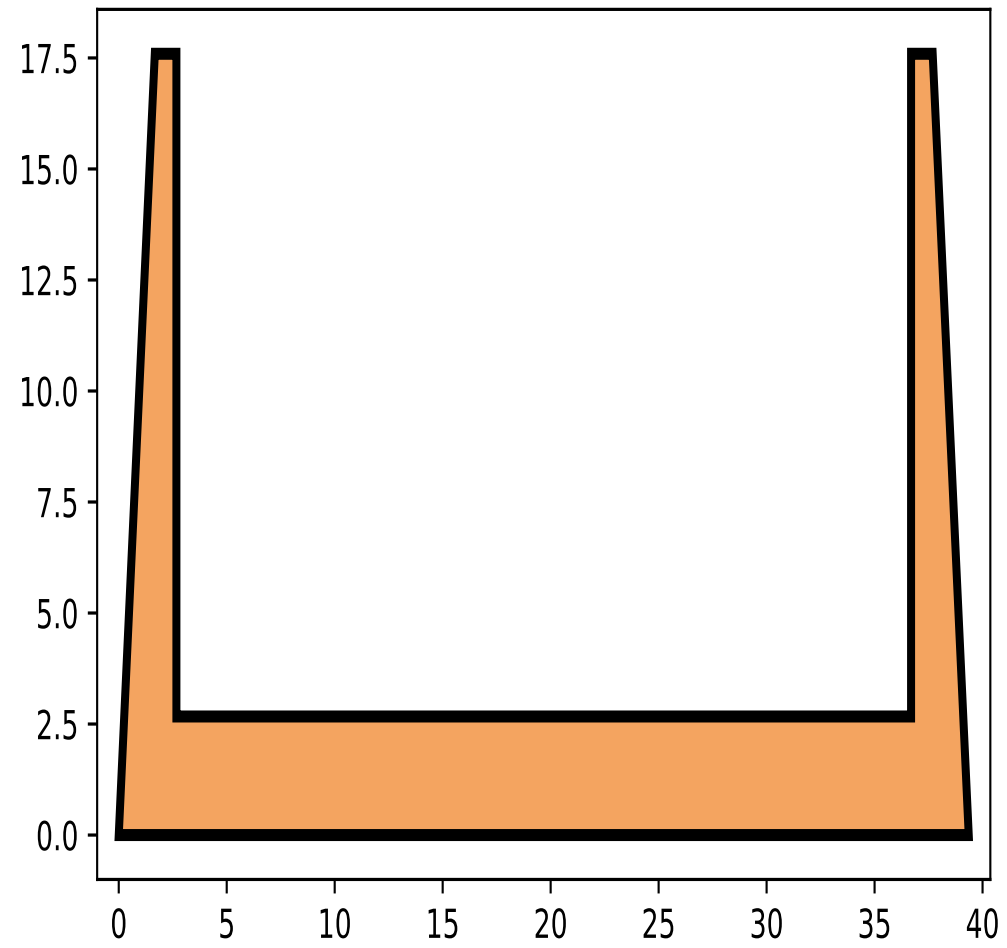
Case	Desc	V	M
Case B	After Construction	4042.4728344000005	20109.9548601952
Case C	During Operation	4563.5079264	20881.448491003288

Toe Design Force.....

Case	Desc	V	M
Case B	After Construction	5952.08490000000035	17007.2473590000015
Case C	During Operation	7070.855817600002	20451.39886221601

Heel Design Force.....

Case	Desc	V	M
Case B	After Construction	-3680.574999999999	-14681.304422416659
Case C	During Operation	-7290.250466800002	-14041.991366832677



Design Load Effects on Utype wing wall.....

Description	Load Case	F	P	Mend	Mcl
During Construction	A	11989.67	0.0	0.0	34937.1
After Construction	B	13290.42	4042.47	20109.95	25889.98
During Operation	C	13207.28	3611.11	19184.5	18914.23
During Maintenance	D	7288.78	4581.17	20987.53	25012.41