Printing Input Parameters......................

parameters	unit	values	Unnamed: 3
Basin Area	sq mile	6.0	nan
Avg_GL	feet-PWD	4.92	nan
Highest Water Level ,RS	feet-PWD	11.48	nan
Lowest Water Level,RS	feet-PWD	-4.92	14.76
Moonsoon Lowest Water Level	feet-PWD	-5.4	nan
Embankment Crest Level	feet-PWD	16.4	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	-3.28	nan
Discharge/sq mile	cfs/sqmile	51.0	nan
No Vent	nan	2.0	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	10.0	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	15.0	nan
Allowable Exit Gradient	nan	0.143	nan
maximum_floor_thickness	feet	3.28	nan
Top_slab_thickness	inch	12.0	nan
unit weight of fill soil	pcf	120.0	nan
friction Angle of fill soil	degree	30.0	nan
surcharge height	feet	12.68	nan
return wall level	fee-pwd	11.35	nan

Printing Stilling Basin Calcualtion 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(%)
687.03	8.0	3.0	11.25	61.069	4.874	12.528	13.78	49.858	2.179	22.886	23.906	28.739	7.4	3.884	2.733	36.025	78.6	2.207	21.4
687.03	8.0	4.0	11.25	61.069	4.874	12.528	14.623	46.983	1.909	24.607	25.607	26.829	7.573	3.543	3.138	39.079	72.2	3.141	27.8
687.03	9.0	3.0	11.25	61.069	4.874	12.528	14.101	48.722	2.121	22.966	25.514	26.927	7.343	3.667	2.779	36.03	77.8	2.285	22.2
687.03	9.0	4.0	11.25	61.069	4.874	12.528	15.051	45.646	1.849	24.686	27.386	25.087	7.492	3.348	3.199	38.938	71.3	3.243	28.7
687.03	10.0	3.0	11.25	61.069	4.874	12.528	14.424	47.631	2.067	23.042	27.126	25.327	7.287	3.475	2.824	36.02	77.1	2.361	22.9
687.03	10.0	4.0	11.25	61.069	4.874	12.528	15.482	44.376	1.792	24.76	29.16	23.561	7.413	3.178	3.259	38.786	70.5	3.342	29.5

Printing Stilling Basin Calcualtion 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(%)
19.46	8.0	0.91	3.43	5.68	1.49	3.82	4.2	4.63	0.66	6.98	7.29	2.67	2.26	1.18	2.733	11.0	78.6	0.67	21.4
19.46	8.0	1.22	3.43	5.68	1.49	3.82	4.46	4.37	0.58	7.5	7.81	2.49	2.31	1.08	3.138	12.0	72.2	0.96	27.8
19.46	9.0	0.91	3.43	5.68	1.49	3.82	4.3	4.53	0.65	7.0	7.78	2.5	2.24	1.12	2.779	11.0	77.8	0.7	22.2
19.46	9.0	1.22	3.43	5.68	1.49	3.82	4.59	4.24	0.56	7.53	8.35	2.33	2.28	1.02	3.199	12.0	71.3	0.99	28.7
19.46	10.0	0.91	3.43	5.68	1.49	3.82	4.4	4.43	0.63	7.03	8.27	2.35	2.22	1.06	2.824	11.0	77.1	0.72	22.9
19.46	10.0	1.22	3.43	5.68	1.49	3.82	4.72	4.12	0.55	7.55	8.89	2.19	2.26	0.97	3.259	12.0	70.5	1.02	29.5

Printing Basin Selection Data..............

Parmeter Name	Unit	Values
Discharge/ft	cfs/ft	61.069
Flare Angle	Degree	10.0
Glasis_Drop	Feet	4.0
Exit Velocity	Feet/sec	3.18
Fr1		3.26
Jump_Length	Feet	38.79
Energy Loss(%)	%	29.5
Floor Length	Feet	146.0
Point_1	Feet	0.0
Point_2	Feet	57.0
Point_3	Feet	89.0
Point_4	Feet	146.0

Printing Seepage Calcualtion Data..............

locations	uncorrected	mc_corr	t_corrr	corrected
Phi_E	33.52	-1.6504756170209134	1.6	33.57
Phi_C1	66.48	1.6504756170209134	1.6	69.73

Printing thickness calcualtion data............................

location	p(%)	p(feet)	th_min(feet)
1.0	69.73	10.46	0.0
2.0	55.61	8.34	0.0
3.0	47.69	7.15	5.11
4.0	33.57	5.04	3.6

Printing Detiled thickness calcualtion data...........................

dist	P%	Hw	Bi	-WwL	Net(Hw)	t_req
0.0	33.57	5.04	48.0	1.13	3.91	2.79
3.0	34.31301369863014	5.15	46.07	1.18	3.97	2.84
6.0	35.05602739726027	5.26	44.13	1.23	4.03	2.88
9.0	35.79904109589041	5.37	42.2	1.29	4.08	2.91
12.0	36.542054794520546	5.48	40.26	1.35	4.13	2.95
15.0	37.28506849315069	5.59	38.33	1.42	4.17	2.98
18.0	38.028082191780825	5.7	36.39	1.49	4.21	3.01
21.0	38.77109589041096	5.82	34.46	1.58	4.24	3.03
24.0	39.5141095890411	5.93	32.53	1.67	4.26	3.04
27.0	40.257123287671234	6.04	30.59	1.78	4.26	3.04
30.0	41.00013698630137	6.15	28.66	1.9	4.25	3.04
33.0	41.74315068493151	6.26	26.72	2.04	4.22	3.01
36.0	42.48616438356164	6.37	24.79	2.19	4.18	2.99
39.0	43.22917808219178	6.48	22.86	2.38	4.1	2.93
42.0	43.972191780821916	6.6	20.92	2.6	4.0	2.86
45.0	44.71520547945205	6.71	18.99	2.87	3.84	2.74
48.0	45.458219178082196	6.82	17.05	3.19	3.63	2.59
51.0	46.20123287671233	6.93	15.12	3.6	3.33	2.38
54.0	46.94424657534247	7.04	13.18	4.13	2.91	2.08
57.0	47.687260273972605	7.15	11.25	4.84	2.31	1.65

Printing Input Data for Load Calcualtions............

Parameter Name	Unit	Parameter Value	Detail Name
VW	feet	5.0	Vent Inner Span/width
VH	feet	6.0	Vent Height
NV	nos	2.0	No of Vents
Tt	inch	12.0	Top Slab thicjness
Ts	inch	18.0	Abutmet Thicknes
Tb	inch	36.480000000000004	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	12.68	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	-3.28	Invert Level of Regulator
EMBANKMENT_CREST_LEVEL	ft-pwd	16.4	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	-1.723	-1.723
BSL	Load on Bottom Slab	klf	UDL	1.992	1.992
SWL+	Load on Left Side Wall	klf	Trapizoidal	1.0008	1.4819999999999998
SWL(-)	Load on Right Side Wall	klf	Trapizoidal	-1.0008	-1.4819999999999998

Wrtitng Node Info..........

JointNo	Marker	Xcoordiante	Ycoordinate	R_x	R_y	R_rotation
1	A	0.0	96.24000000000001	1	1	0
2	B	76.5	96.24000000000001	1	1	0
3	C	153.0	96.24000000000001	1	1	0
4	D	0.0	0.0	1	1	0
5	E	76.5	0.0	1	1	0
6	F	153.0	0.0	1	1	0

Writing Member Info...........

MemberNo	joint_i	joint_k	Area	I	E
1.0	1.0	2.0	144.0	1728.0	3122.0
2.0	2.0	3.0	144.0	1728.0	3122.0
3.0	4.0	5.0	437.76000000000005	48547.23379200001	3122.0
4.0	5.0	6.0	437.76000000000005	48547.23379200001	3122.0
5.0	1.0	4.0	1.5	5832.0	3122.0
6.0	2.0	5.0	180.0	3375.0	3122.0
7.0	3.0	6.0	1.5	5832.0	3122.0

Writing Member Load Info......

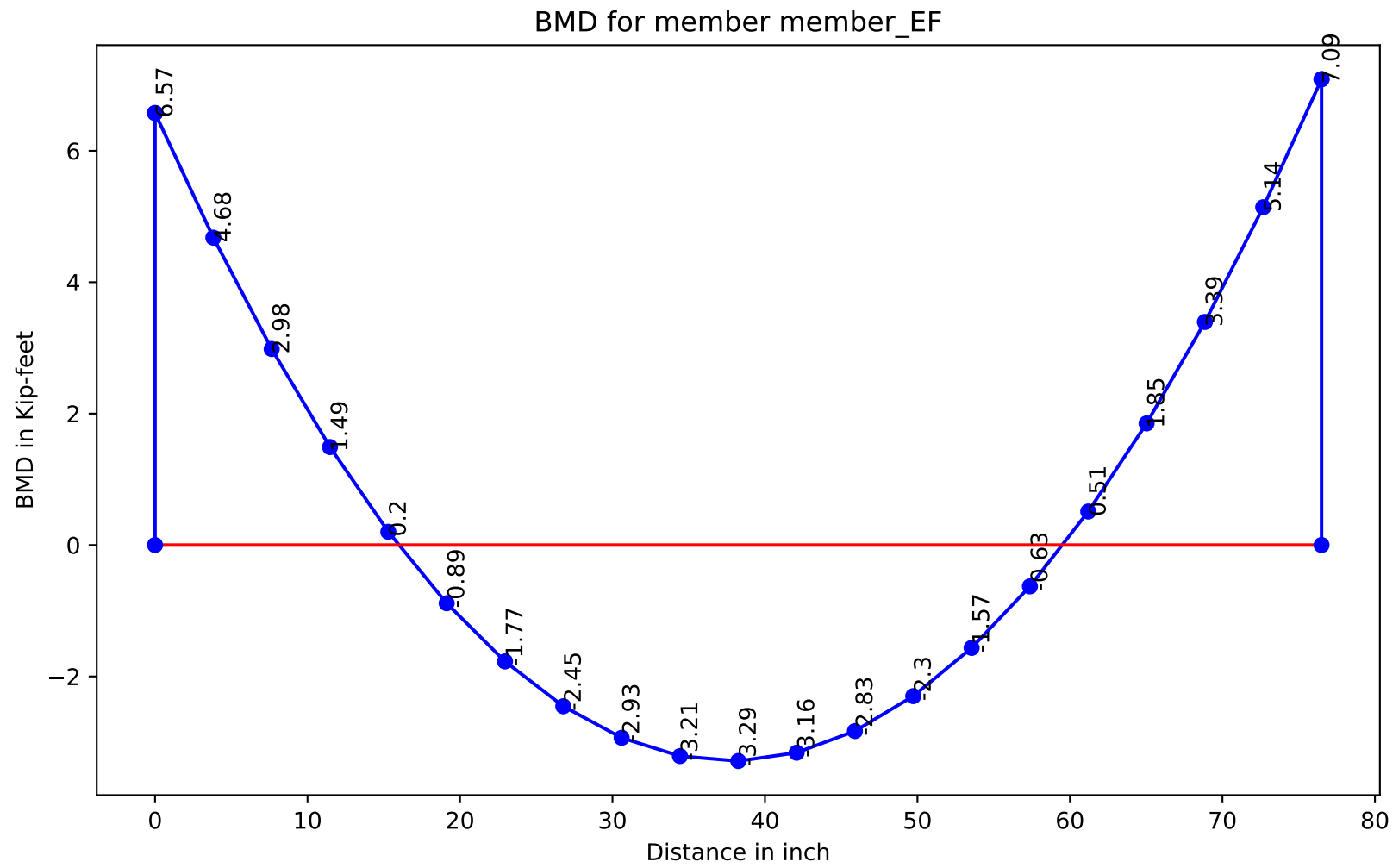| load_value	application_point	Type	memberNo	w2
-0.14358333333333334	0.0	3.0	1.0	-0.14358333333333334
-0.14358333333333334	0.0	3.0	2.0	-0.14358333333333334
0.166	0.0	3.0	3.0	0.166
0.166	0.0	3.0	4.0	0.166
0.0833999999999999	0.0	7.0	5.0	0.12349999999999998
-0.0833999999999999	0.0	7.0	7.0	-0.12349999999999998

Wrting Joint Load Info.......

JointNo	xvalue	yvalue	mvalue
0	0	0	0

Outline of Box

BMD for member member_AB

BMD for member member_BC

BMD for member member_DE

BMD for member member_EF

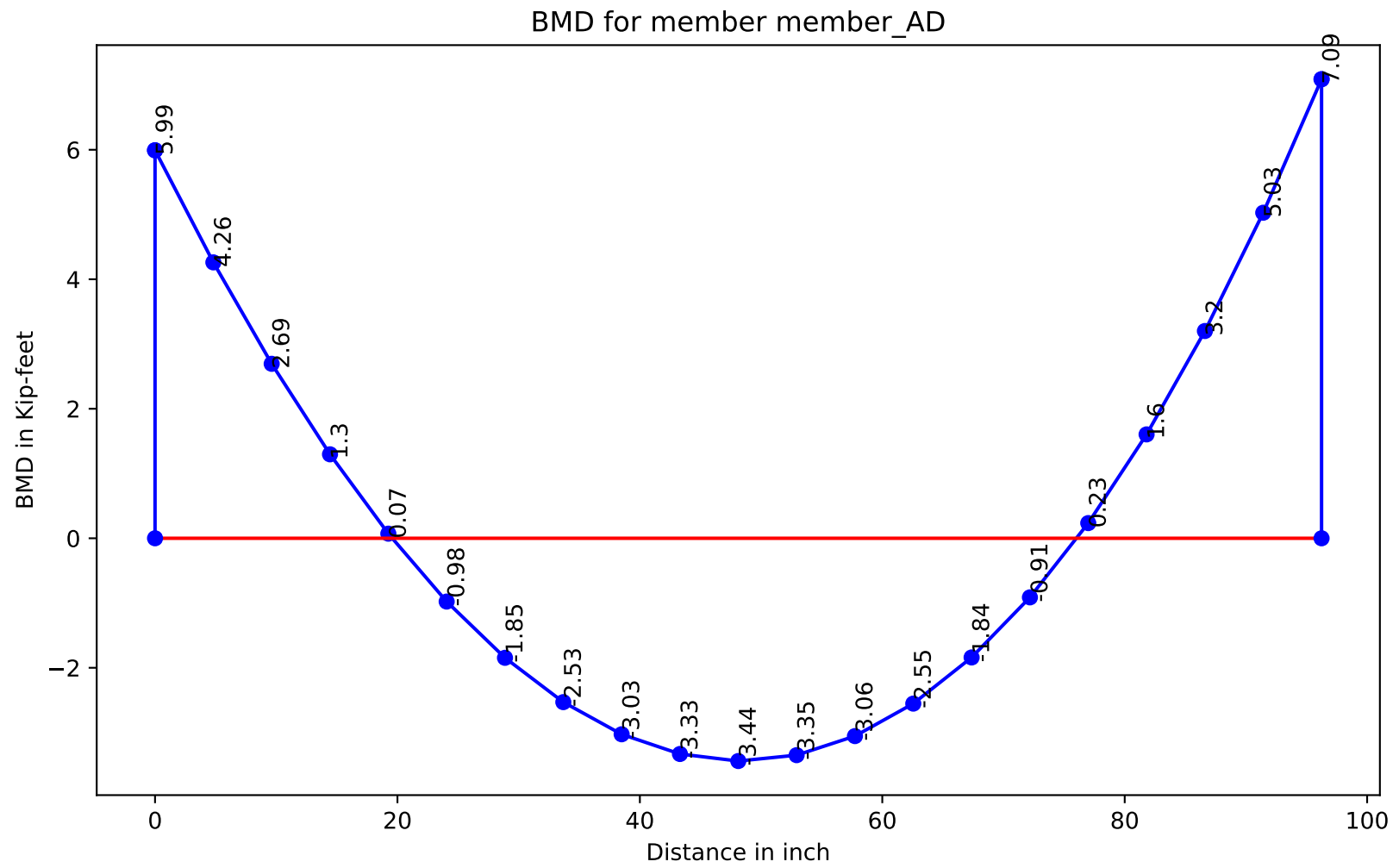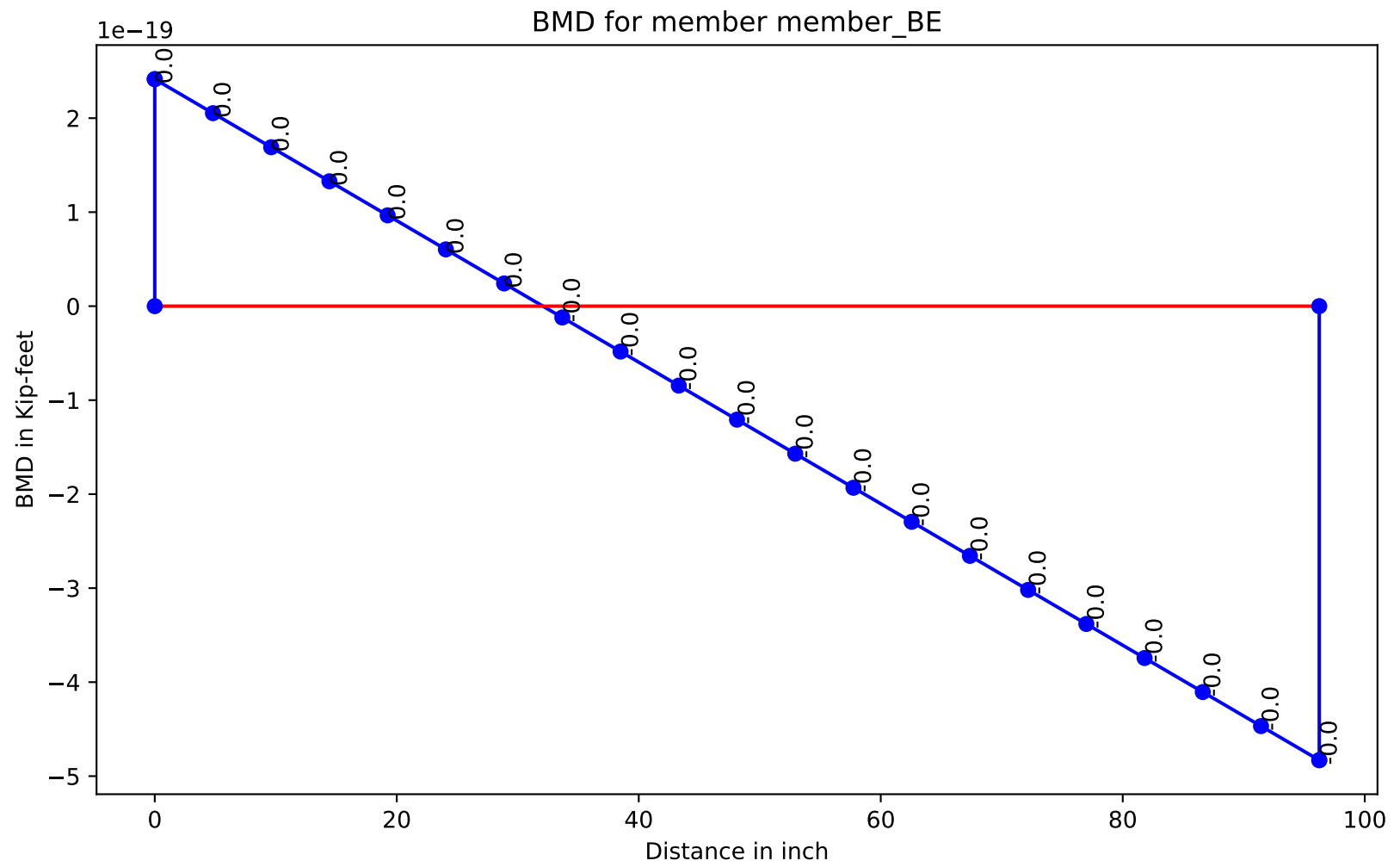BMD for member member_AD

BMD for member member_BE

BMD for member member_CF
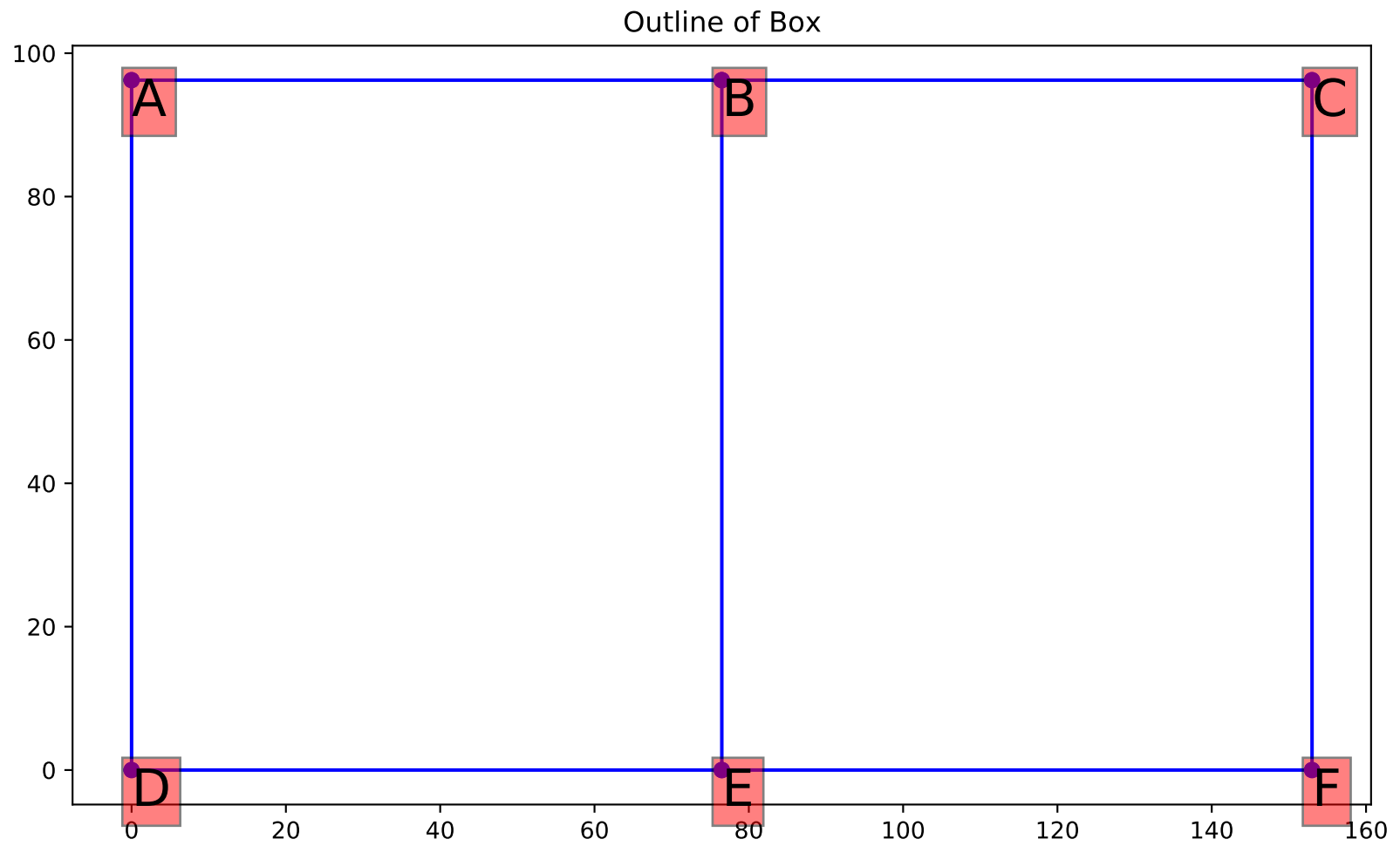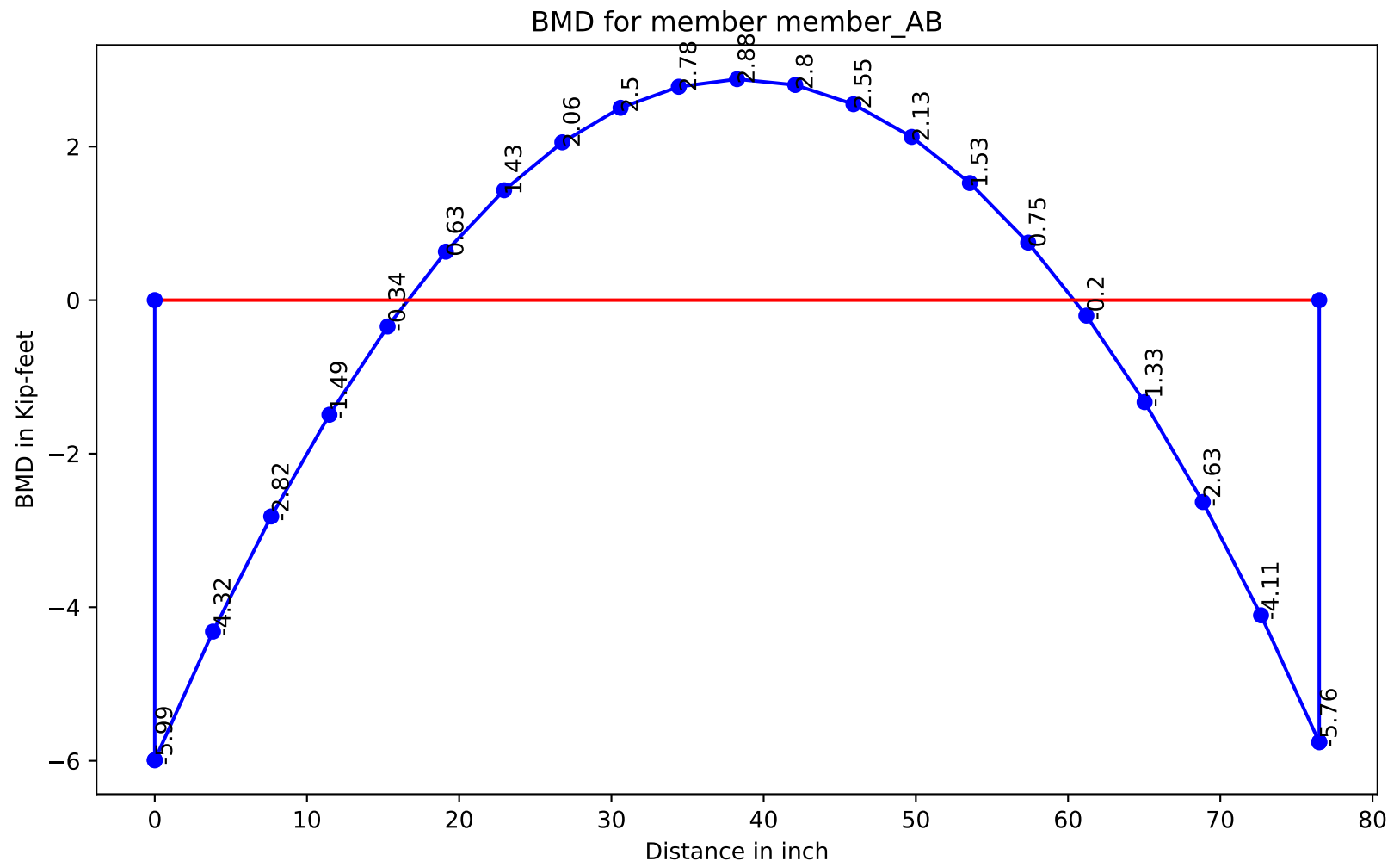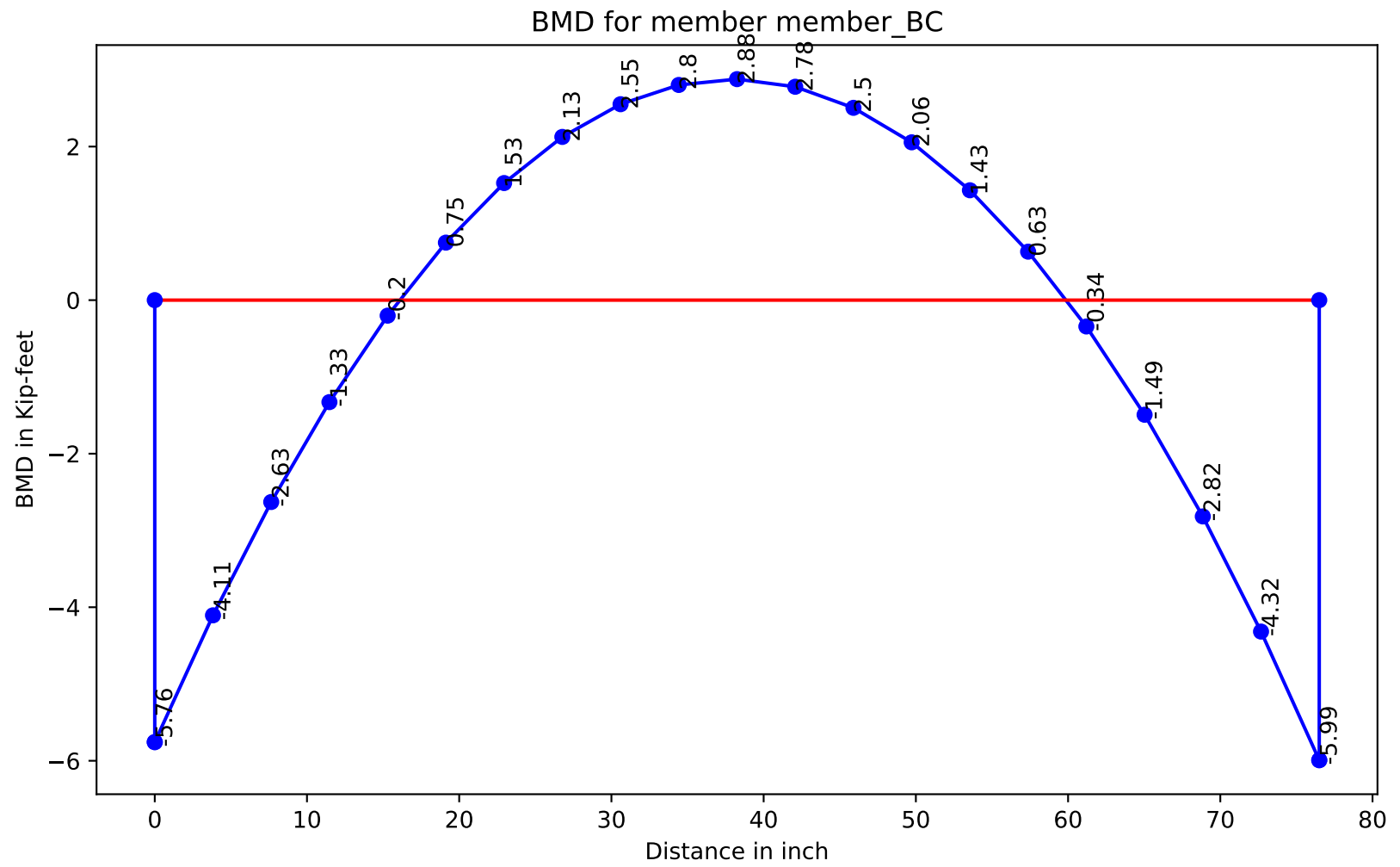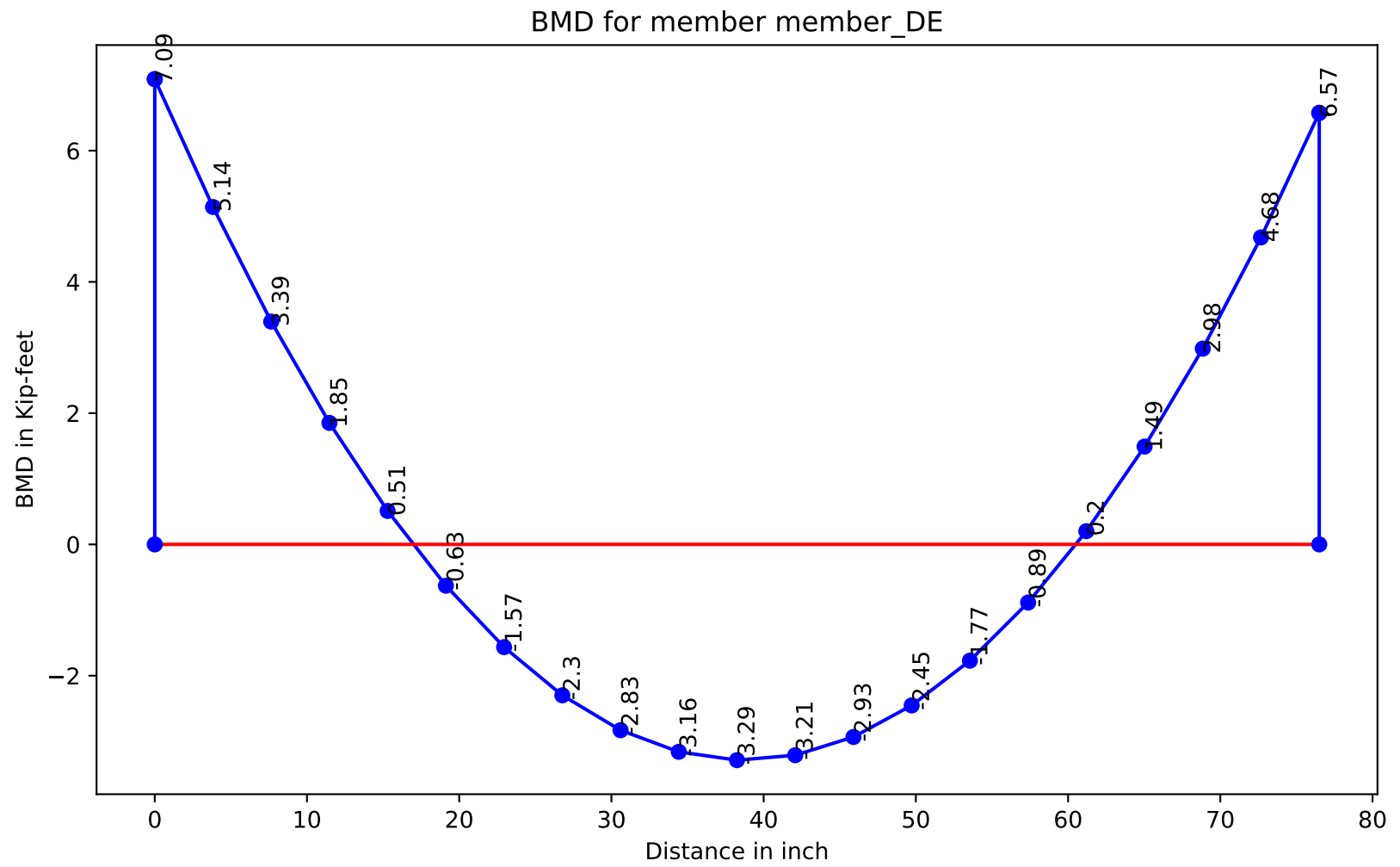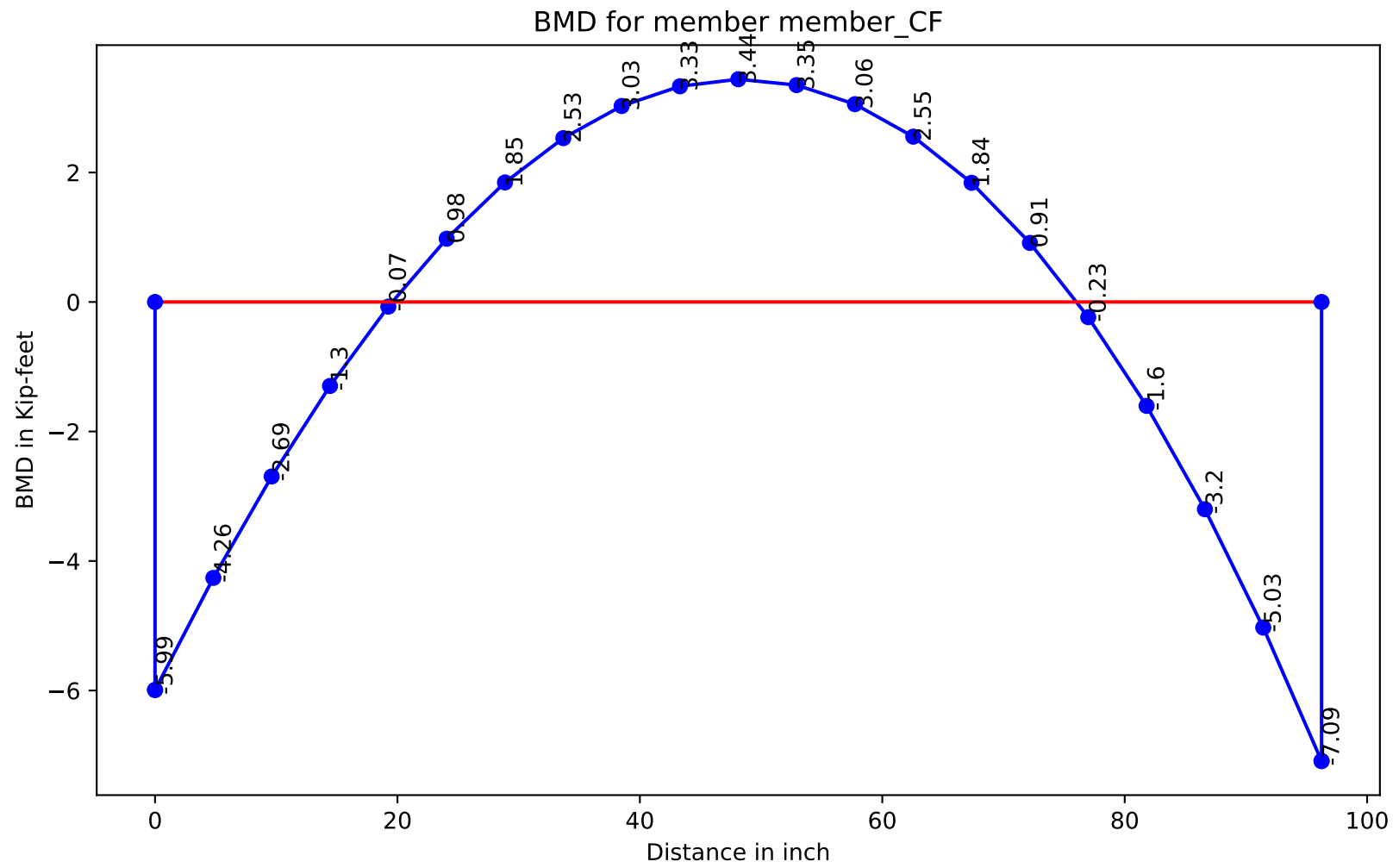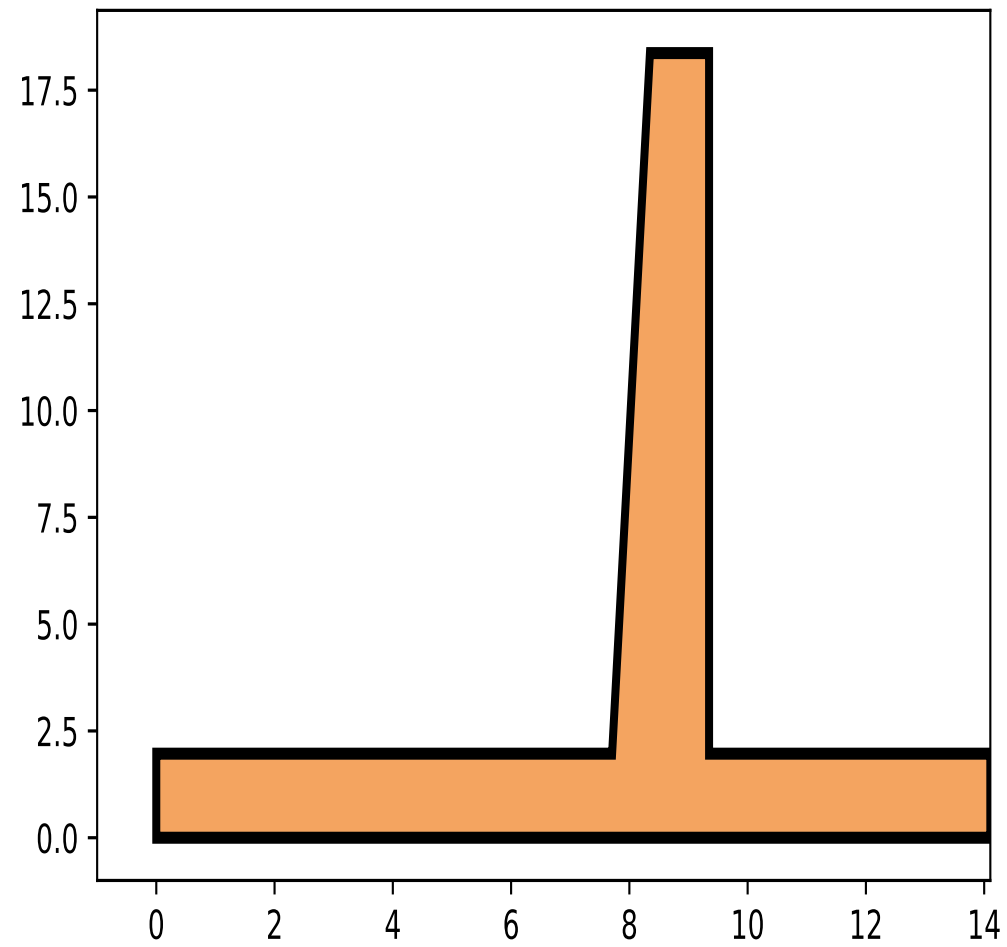
Printing Earth Pressure Calcualtion for CASE(B) After Construction

component	area	PV	PH	Arm_V	Arm_H	M
C1	16.4	-2460.0	0.0	-5.256	0.0	12929.76
C2	5.247999999999998	-787.1999999999998	0.0	-5.969333333333333	0.0	4699.059199999999
C3	27.756671999999995	-4163.500799999999	0.0	-7.052	0.0	29361.00764159999
S1	5.247999999999998	-577.2799999999999	0.0	-5.969333333333333	0.0	3445.976746666666
S2	126.41119999999998	-13905.231999999998	0.0	-10.25	0.0	142528.62799999997
SH	0.0	0.0	6123.509145599999	0.0	7.434666666666666	-45526.24932782079

Printing Earth Pressure Calcualtion for CASE(C) During Operation

component	area	PV	PH	Arm_V	Arm_H	M
C1	16.4	-2460.0	0.0	-5.256	0.0	12929.76
C2	5.247999999999998	-787.1999999999998	0.0	-5.969333333333333	0.0	4699.059199999999
C3	27.756671999999995	-4163.500799999999	0.0	-7.052	0.0	29361.00764159999
S1	80.10407078399999	-8811.447786239998	0.0	-10.126479999999999	0.0	89228.9497784036
S2	1.9784750079999998	-217.63225088	0.0	-6.017973333333333	0.0	1309.7050822691497
S3	48.794723199999986	-5855.366783999998	0.0	-10.25	0.0	60017.50953599998
S4	0.7819310079999997	-93.83172095999997	0.0	-6.313653333333332	0.0	592.4209578115069
W	26.519455999999995	-1654.8140543999996	0.0	-2.3779999999999997	0.0	3935.1478213631985
U	117.04063359999998	7303.335536639998	0.0	-7.052	0.0	-51503.12220438527
P1	0.0	0.0	1840.3527215039999	0.0	11.654933333333332	-21449.188278947684
P2	0.0	0.0	3033.284941632	0.0	4.1491999999999996	-12585.705879819494
P3	0.0	0.0	2803.017565962239	0.0	2.766133333333333	-7753.520323127013
P4	0.0	0.0	1919.6840831999996	0.0	2.5146666666666664	-4827.365574553598

Printing Earth Pressure Calcualtion for CASE(B) After Construction

dist	P	A_list	P/A	I	c	S	P*e	M/S	R
0.0	21893.21	14.1	1552.71	233.6	-7.05	-33.13	7006.0	-211.47	1341.24
7.71	21893.21	14.1	1552.71	233.6	0.66	353.94	7006.0	19.79	1572.5
8.35	21893.21	14.1	1552.71	233.6	1.3	179.69	7006.0	38.99	1591.7
9.35	21893.21	14.1	1552.71	233.6	2.3	101.57	7006.0	68.98	1621.69
14.1	21893.21	14.1	1552.71	233.6	7.05	33.13	7006.0	211.47	1764.18

Printing Earth Pressure Calcualtion for CASE(C) During Operation

dist	P	A_list	P/A	I	c	S	P*e	M/S	R
0.0	16740.46	14.1	1186.93	233.8	-7.05	-33.15	14099.05	-425.26	761.67
7.71	16740.46	14.1	1186.93	233.8	0.66	356.4	14099.05	39.56	1226.49
8.35	16740.46	14.1	1186.93	233.8	1.3	180.4	14099.05	78.15	1265.08
9.35	16740.46	14.1	1186.93	233.8	2.3	101.83	14099.05	138.46	1325.39
14.1	16740.46	14.1	1186.93	233.8	7.05	33.15	14099.05	425.26	1612.19

Stem Design Force.........

| Case	Desc	V	M
Case B	After Construction	4881.624	26686.211199999994
Case C	During Operation	5785.4521876646395	28593.409186397406

Toe Design Force.............

Case	Desc	V	M
Case B	After Construction	6639.24125	16036.108854166669
Case C	During Operation	8034.19826	19620.464617500005

Heel Design Force.............

Case	Desc	V	M
Case B	After Construction	-4952.364299999999	-20236.951257
Case C	During Operation	-4428.3939336	-21639.847076172002
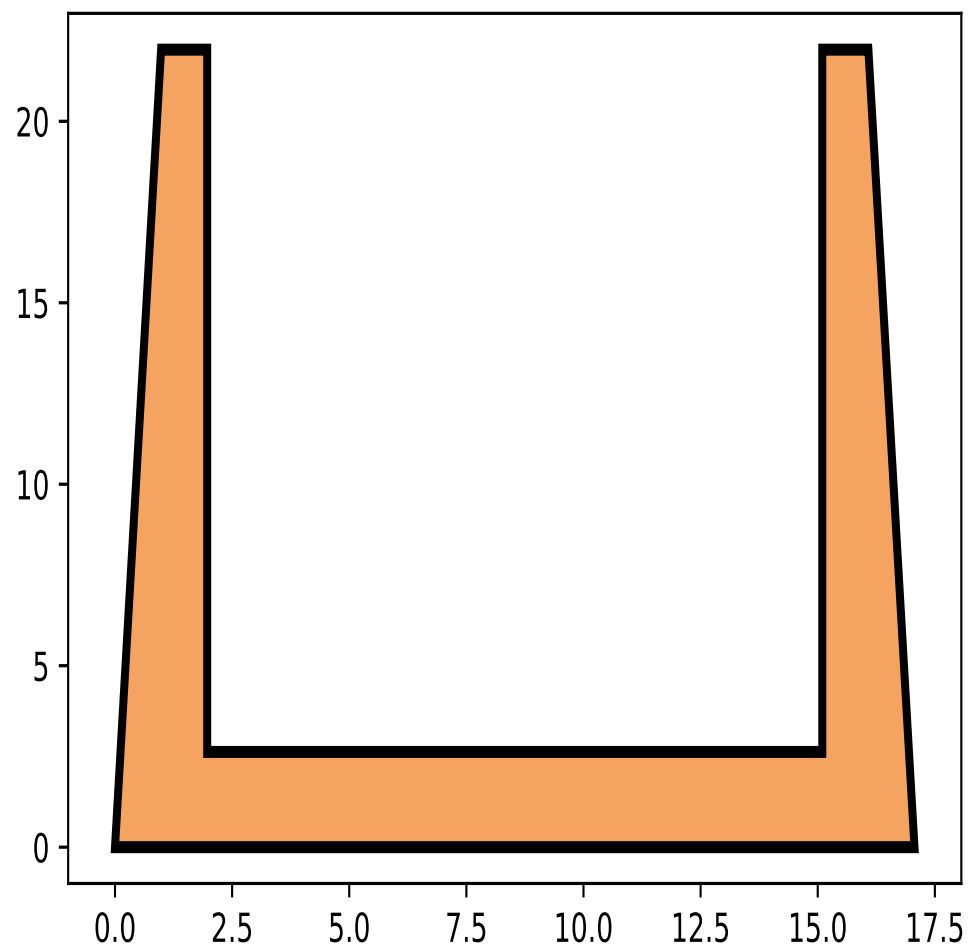
Design Load Effects on Utype wing wall............

Description	Load Case	F	P	Mend	Mcl
During Construction	A	6989.35	0.0	0.0	11917.72
After Construction	B	7771.3	6795.77	43832.71	-29348.45
During Operation	C	6684.88	4815.39	26790.38	-14553.65
During Maintenance	D	4400.81	5785.45	28593.41	-14109.15