Aluminum Design Report

Element: C:/DCC/AluminumDesign4/AluminumDesign.rtf
Description:
Date: 10/9/2018 1:36:59 PM

Company:
User:
Software: Aluminum Design 4.0

GENERAL INFORMATION

Description	Value	Description	Value
Run Mode	Design Mode	Total Load Deflection Limit	L / 240
Design Method	Aluminum Design Manual 2015, ASD	Live Load Deflection Limit	L / 360
Member Length	10.00 ft	Lateral Torsional Braced(LTB) Length	10 ft
Alloy	6061-T6	Section shape	W
Max Compression	200.00	Maximum Section Depth	12.00 in
Max Tension	300.00	Minimum Section Depth	6.00 in
% Tens. Area Reduction	15.00	Back-Back Distance(double angles only)	-
L_x	10.00 ft	Section Width (angles,double angles)	-
L_y	10.00 ft	Check Section List	-
K_x	1.00	Maximum Stress Ratio	1.000
K_y	1.00	Welded	No

LOAD INFORMATION

Ref. No.	Load Case	Load Type	Dir	Begin Value	Begin Position	End Value	End Position
1	Dead	Concen	Z	-1.000 (kips)	10.000 (ft)	-	-
2	Live	Concen	Z	-1.500 (kips)	10.000 (ft)	-	-
3	Wind	Concen	Z	-0.900 (kips)	10.000 (ft)	-	-
4	Wind	EndMom	X	-9.200 (kips-ft)	10.000 (ft)	-	-

ANALYSIS RESULT

Note: Deflections are calculated based on $I_x = I_y = 1.0$ in^4

LOAD COMBINATION LC1: 1.00DL+1.00LL

Distance (ft)	Shear Y (kips)	Shear X (kips)	Moment X (ft-kips)	Moment Y (ft-kips)	Deflection Y (in)	Deflection X (in)
0	0	0	0	0	0	0
0.5	0	0	0	0	0	0
1	0	0	0	0	0	0
1.5	0	0	0	0	0	0
2	0	0	0	0	0	0
2.5	0	0	0	0	0	0
3	0	0	0	0	0	0
3.5	0	0	0	0	0	0
4	0	0	0	0	0	0
4.5	0	0	0	0	0	0
5	0	0	0	0	0	0
5.5	0	0	0	0	0	0
6	0	0	0	0	0	0
6.5	0	0	0	0	0	0
7	0	0	0	0	0	0
7.5	0	0	0	0	0	0
8	0	0	0	0	0	0
8.5	0	0	0	0	0	0
9	0	0	0	0	0	0
9.5	0	0	0	0	0	0
10	0	0	0	0	0	0

LOAD COMBINATION LC2: 1.00DL+1.00LL+1.00WL

Distance	Shear Y	Shear X	Moment X	Moment Y	Deflection Y	Deflection X

(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(in)
0	0.92	0	0	0	0	0
0.5	0.92	0	0.46	0	-1.3084	0
1	0.92	0	0.92	0	-2.5971	0
1.5	0.92	0	1.38	0	-3.8465	0
2	0.92	0	1.84	0	-5.0368	0
2.5	0.92	0	2.3	0	-6.1485	0
3	0.92	0	2.76	0	-7.1618	0
3.5	0.92	0	3.22	0	-8.057	0
4	0.92	0	3.68	0	-8.8145	0
4.5	0.92	0	4.14	0	-9.4146	0
5	0.92	0	4.6	0	-9.8376	0
5.5	0.92	0	5.06	0	-10.0639	0
5.7735	0.92	0	5.3116	0	-10.0973	0
6	0.92	0	5.52	0	-10.0737	0
6.5	0.92	0	5.98	0	-9.8475	0
7	0.92	0	6.44	0	-9.3654	0
7.5	0.92	0	6.9	0	-8.6079	0
8	0.92	0	7.36	0	-7.5553	0
8.5	0.92	0	7.82	0	-6.1879	0
9	0.92	0	8.28	0	-4.486	0
9.5	0.92	0	8.74	0	-2.4299	0
10	0.92	0	9.2	0	0	0

DESIGN OPTION: 1
ELEMENTS: 1
MODE: DESIGN

DESIGN FORCES
SIGN CONVENTION : BEAM DESIGNERS

Elem No	Load Comb	End	Axial	Shear X	Moment Y	Max Mom	Dist	Shear Y	Moment X	Max Mom	Dist
			K	K	K -Ft	K -Ft	Ft	K	K -Ft	K -Ft	Ft
1	1	NE	-2.50	0.00	0.00			0.00	0.00		
		PE	-2.50	0.00	0.00			0.00	0.00		
	2	NE	-3.40	0.00	0.00			0.92	0.00		
		PE	-3.40	0.00	0.00			0.92	9.20		

LOAD COMBINATIONS:

LC1: 1.00DL+1.00LL
LC2: 1.00DL+1.00LL+1.00WL

CRITICAL STRESS

Shape	fa	Fa	fbx	Fbx	fby	Fby	fvx	Fvx	fvy	Fvy	Stress Ratio	Load Comb	Govn Crit
	K /In^2	K /In^2	K /In^2	K /In^2	K /In^2	K /In^2	K /In^2	K /In^2	K /In^2	K /In^2			
W8x7.02	-0.57	5.11	-6.52	8.65	0.00	8.65	0.00	12.70	0.46	12.70	0.86	2	H.1-1
W9x8.36	-0.48	6.12	-4.87	10.37	0.00	10.37	0.00	12.70	0.38	12.70	0.55	2	H.1-1
W10x8.65	-0.46	7.17	-4.18	12.15	0.00	12.15	0.00	12.70	0.37	12.70	0.41	2	H.1-1
W12x11.67	-0.34	9.67	-2.59	16.38	0.00	16.38	0.00	12.71	0.26	12.70	0.19	2	H.1-1

GOVERNING DEFLECTIONS

Shape	Total Dx	Load Comb	Actual/ Allow	Total Dy	Load Comb	Actual/ Allow	Live Dx	Load Comb	Actual/ Allow	Live Dy	Load Comb	Actual/ Allow
	In			In			In			In		
W8x7.02	0.000	2	0.00	-0.149	2	0.30	0.000	2	0.00	-0.149	2	0.45
W9x8.36	0.000	2	0.00	-0.099	2	0.20	0.000	2	0.00	-0.099	2	0.30
W10x8.65	0.000	2	0.00	-0.076	2	0.15	0.000	2	0.00	-0.076	2	0.23
W12x11.67	0.000	2	0.00	-0.040	2	0.08	0.000	2	0.00	-0.039	2	0.12