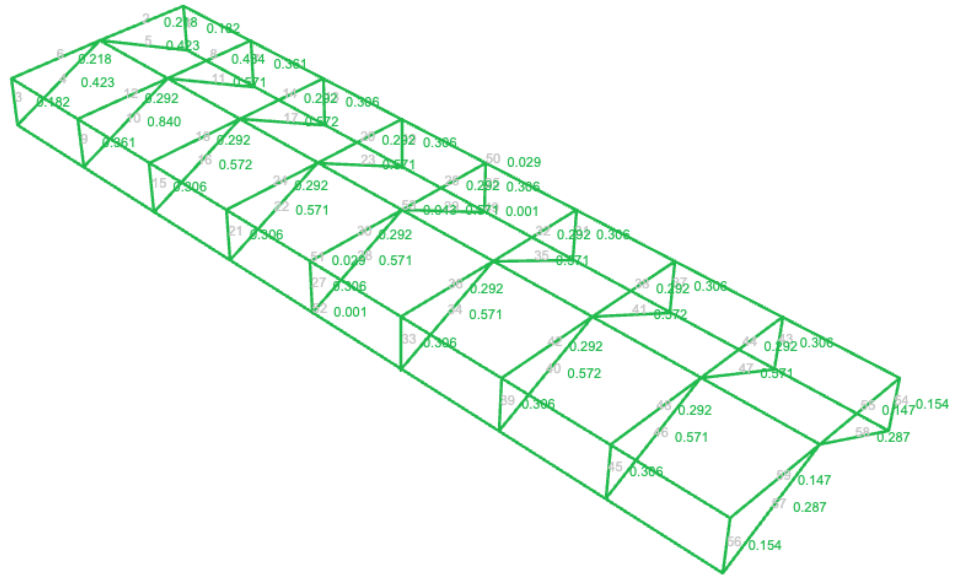


ADM 2015 Aluminum Design Calculator Report

14/02/2024, 15:27:59



Model/File name:	Example-007-Aluminum
Designer:	Sam Carigliano
Email:	sam@skyciv.com
Calculation:	ADM 2015 Aluminum Design Calculator
Description:	Calculates the Bending, Shear, Axial and Combined Utilization of Aluminum shapes, or any custom S3D shapes as per US ADM 2015

Element ID	Section	Method	Ly (in)	Lz (in)	Shape	b (in)	d (in)	t1 (in)	t2 (in)	welded	alloy	temper	product	Mz (kip-ft)	My (kip-ft)	Vy (kip)	Vz (kip)	Nc (kip)	Nt (kip)
1	1	ASD	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.88	0.011	0.438	0.005	3.85	0.021
2	3	ASD	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	5.064	0.002	5.232	0.001	0.439	0.002
3	1	ASD	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.88	0.011	0.438	0.005	3.85	0.021
4	2	ASD	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	1.43	0.021	0.44	0.004	10.946	0.07
5	2	ASD	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	1.43	0.021	0.44	0.004	10.946	0.07
6	3	ASD	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	5.064	0.002	5.232	0.001	0.439	0.002
7	1	ASD	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.743	0.004	0.868	0.002	7.665	0.028
8	3	ASD	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.085	0.001	10.419	0	0.868	0.002
9	1	ASD	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.743	0.004	0.868	0.002	7.665	0.028
10	2	ASD	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.812	0.009	0.852	0.002	21.686	0.077
11	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.812	0.009	0.852	0.002	21.686	0.077
12	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.085	0.001	10.419	0	0.868	0.002
13	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.747	0.001	0.87	0.001	7.669	0.027
14	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.086	0	10.421	0	0.87	0.002
15	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.747	0.001	0.87	0.001	7.669	0.027
16	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.818	0.002	0.854	0	21.734	0.076
17	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.818	0.002	0.854	0	21.734	0.076
18	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.086	0	10.421	0	0.87	0.002
19	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.746	0	0.87	0	7.666	0.027
20	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.089	0	10.422	0	0.87	0.002
21	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.746	0	0.87	0	7.666	0.027
22	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.816	0	0.853	0	21.715	0.076
23	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.816	0	0.853	0	21.715	0.076
24	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.089	0	10.422	0	0.87	0.002
25	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.746	0	0.87	0	7.667	0.027

26	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.088	0	10.422	0	0.87	0.002
27	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.746	0	0.87	0	7.667	0.027
28	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.816	0	0.853	0	21.721	0.076
29	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.816	0	0.853	0	21.721	0.076
30	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.088	0	10.422	0	0.87	0.002
31	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.746	0	0.87	0	7.666	0.027
32	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.089	0	10.422	0	0.87	0.002
33	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.746	0	0.87	0	7.666	0.027
34	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.816	0	0.853	0	21.715	0.076
35	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.816	0	0.853	0	21.715	0.076
36	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.089	0	10.422	0	0.87	0.002
37	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.747	0.001	0.87	0.001	7.669	0.027
38	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.086	0	10.421	0	0.87	0.002
39	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.747	0.001	0.87	0.001	7.669	0.027
40	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.818	0.002	0.854	0	21.734	0.076
41	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.818	0.002	0.854	0	21.734	0.076
42	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.086	0	10.421	0	0.87	0.002
43	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.743	0.004	0.868	0.002	7.665	0.028
44	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.085	0.001	10.419	0	0.868	0.002
45	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	1.743	0.004	0.868	0.002	7.665	0.028
46	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.812	0.009	0.852	0.002	21.686	0.077
47	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	2.812	0.009	0.852	0.002	21.686	0.077
48	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	10.085	0.001	10.419	0	0.868	0.002
49	1	undefined	576	576	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.008	0.004	0.008	0.001	0	0
50	1	undefined	576	576	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.014	0	0.011	0	0.008	0.001
51	1	undefined	576	576	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.014	0	0.011	0	0.008	0.001

52	1	undefined	576	576	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.008	0.004	0.008	0.001	0	0
53	1	undefined	576	576	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.069	0	0.022	0	0.01	0
54	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.88	0.011	0.438	0.005	3.85	0.021
55	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	5.064	0.002	5.232	0.001	0.439	0.002
56	1	undefined	36	36	hollow rectangular	2	5	0.188	0.188	No	2219	T87	B209, sheet & plate	0.88	0.011	0.438	0.005	3.85	0.021
57	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	1.43	0.021	0.44	0.004	10.946	0.07
58	2	undefined	80	80	c_section	3	9	0.448	0.413	No	2219	T87	B209, sheet & plate	1.43	0.021	0.44	0.004	10.946	0.07
59	3	undefined	72	72	i_section	8	8	0.29	0.43	No	2219	T87	B209, sheet & plate	5.064	0.002	5.232	0.001	0.439	0.002

1* - Section object imported from S3D model.

2* - Design Method

3* - The span of the member, as unbraced length in the Y (minor) direction.

4* - The span of the member, as unbraced length in the Z (major) direction.

5* - Shape

6* - The width of the section.

7* - The depth of the section. For custom shapes, this is used as an override for the Leg Height.

8* - Thickness of the web. For custom shapes, this is used as an override for the Leg Thickness.

9* - Thickness of the flange.

10* - Flag indicating welded or not.

11* - Alloy

12* - Temper

13* - ADM specification, product.

14* - Moment in major axis (about the Z-axis).

15* - Moment in minor axis (about the Y-axis).

16* - Shear in minor axis (about the Y-axis).

17* - Shear in major axis (about the Z-axis).

18* - Axial compression.

19* - Axial tension.

Element ID	Tension Utilization	Compression Utilization	Governing Tension Stress in Bending	Governing Compression Stress in Bending	Governing Shear Stress	Combined Tension + Bending	Combined Compression + Bending	Governing	Status	Report	Logs
1	0.000	0.097	0.000	0.085	0.012	0.000	0.182	0.182	PASS	-	-
2	0.000	0.002	0.000	0.218	0.126	0.000	0.187	0.218	PASS	-	-
3	0.000	0.097	0.000	0.085	0.012	0.000	0.182	0.182	PASS	-	-
4	0.000	0.317	0.003	0.122	0.006	0.003	0.423	0.423	PASS	-	-
5	0.000	0.317	0.003	0.122	0.006	0.003	0.423	0.423	PASS	-	-
6	0.000	0.002	0.000	0.218	0.126	0.000	0.187	0.218	PASS	-	-
7	0.000	0.193	0.000	0.168	0.025	0.000	0.361	0.361	PASS	-	-
8	0.000	0.004	0.000	0.434	0.252	0.000	0.373	0.434	PASS	-	-
9	0.000	0.193	0.000	0.168	0.025	0.000	0.361	0.361	PASS	-	-
10	0.000	0.628	0.001	0.239	0.012	0.002	0.840	0.840	PASS	-	-
11	0.000	0.430	0.001	0.161	0.008	0.001	0.571	0.571	PASS	-	-
12	0.000	0.003	0.000	0.292	0.169	0.000	0.251	0.292	PASS	-	-
13	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
14	0.000	0.003	0.000	0.292	0.170	0.000	0.251	0.292	PASS	-	-
15	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
16	0.000	0.430	0.000	0.162	0.008	0.001	0.572	0.572	PASS	-	-
17	0.000	0.430	0.000	0.162	0.008	0.001	0.572	0.572	PASS	-	-
18	0.000	0.003	0.000	0.292	0.170	0.000	0.251	0.292	PASS	-	-
19	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
20	0.000	0.003	0.000	0.292	0.170	0.000	0.252	0.292	PASS	-	-
21	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
22	0.000	0.430	0.000	0.161	0.008	0.000	0.571	0.571	PASS	-	-
23	0.000	0.430	0.000	0.161	0.008	0.000	0.571	0.571	PASS	-	-
24	0.000	0.003	0.000	0.292	0.170	0.000	0.252	0.292	PASS	-	-
25	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
26	0.000	0.003	0.000	0.292	0.170	0.000	0.251	0.292	PASS	-	-
27	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
28	0.000	0.430	0.000	0.161	0.008	0.000	0.571	0.571	PASS	-	-
29	0.000	0.430	0.000	0.161	0.008	0.000	0.571	0.571	PASS	-	-
30	0.000	0.003	0.000	0.292	0.170	0.000	0.251	0.292	PASS	-	-
31	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
32	0.000	0.003	0.000	0.292	0.170	0.000	0.252	0.292	PASS	-	-
33	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
34	0.000	0.430	0.000	0.161	0.008	0.000	0.571	0.571	PASS	-	-
35	0.000	0.430	0.000	0.161	0.008	0.000	0.571	0.571	PASS	-	-
36	0.000	0.003	0.000	0.292	0.170	0.000	0.252	0.292	PASS	-	-
37	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
38	0.000	0.003	0.000	0.292	0.170	0.000	0.251	0.292	PASS	-	-
39	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
40	0.000	0.430	0.000	0.162	0.008	0.001	0.572	0.572	PASS	-	-
41	0.000	0.430	0.000	0.162	0.008	0.001	0.572	0.572	PASS	-	-
42	0.000	0.003	0.000	0.292	0.170	0.000	0.251	0.292	PASS	-	-
43	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
44	0.000	0.003	0.000	0.292	0.169	0.000	0.251	0.292	PASS	-	-
45	0.000	0.193	0.000	0.113	0.017	0.000	0.306	0.306	PASS	-	-
46	0.000	0.430	0.001	0.161	0.008	0.001	0.571	0.571	PASS	-	-
47	0.000	0.430	0.001	0.161	0.008	0.001	0.571	0.571	PASS	-	-
48	0.000	0.003	0.000	0.292	0.169	0.000	0.251	0.292	PASS	-	-
49	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.001	PASS	-	-
50	0.000	0.029	0.000	0.001	0.000	0.000	0.029	0.029	PASS	-	-
51	0.000	0.029	0.000	0.001	0.000	0.000	0.029	0.029	PASS	-	-
52	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.001	PASS	-	-
53	0.000	0.038	0.000	0.004	0.000	0.000	0.043	0.043	PASS	-	-

54	0.000	0.097	0.000	0.057	0.008	0.000	0.154	0.154	PASS	-	-
55	0.000	0.001	0.000	0.147	0.085	0.000	0.126	0.147	PASS	-	-
56	0.000	0.097	0.000	0.057	0.008	0.000	0.154	0.154	PASS	-	-
57	0.000	0.217	0.003	0.082	0.004	0.003	0.287	0.287	PASS	-	-
58	0.000	0.217	0.003	0.082	0.004	0.003	0.287	0.287	PASS	-	-
59	0.000	0.001	0.000	0.147	0.085	0.000	0.126	0.147	PASS	-	-

1* - Tension Utilization

2* - Compression Utilization

3* - Governing Tension Stress in Bending Utilization

4* - Governing Compression Stress in Bending Utilization

5* - Governing Shear Stress Utilization

6* - Governing Combined Tension and Bending

7* - Governing Combined Compression and Bending