

March 3, 2020

**Subject: JTA Pedestrian Bridge Railing
Handrail Design Calculations**

To Whom It May Concern:

This letter certifies that the enclosed design calculations for the above referenced project were performed under the direct supervision of the registered professional engineer whose seal and signature are affixed below. The enclosed calculations for the aluminum handrail system have been performed in accordance with the project construction drawings and specifications, and in accordance with the applicable provisions of the Florida Building Code, 6th Edition.

Finite element software, Visual Analysis by IES, was used in the design of stair and landing members. Hilti Profis software was used to design base plate and concrete anchorages. The attached calculations package includes member design reports which provide support reactions, and member forces and utilization ratios (unity values) for main structural members.

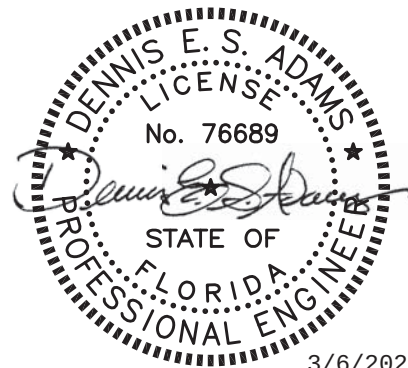
The attached calculations and shop detail drawings have been produced as part of a joint effort with Southeastern Ornamental Iron Co. under the direct supervision of Pi-Tech, Inc. Please contact us with any questions you may have regarding this matter.

Sincerely,
Pi-Tech, Inc.
FL COA #29606

Dennis E. S. Adams, P.E.
Florida License No. 76689

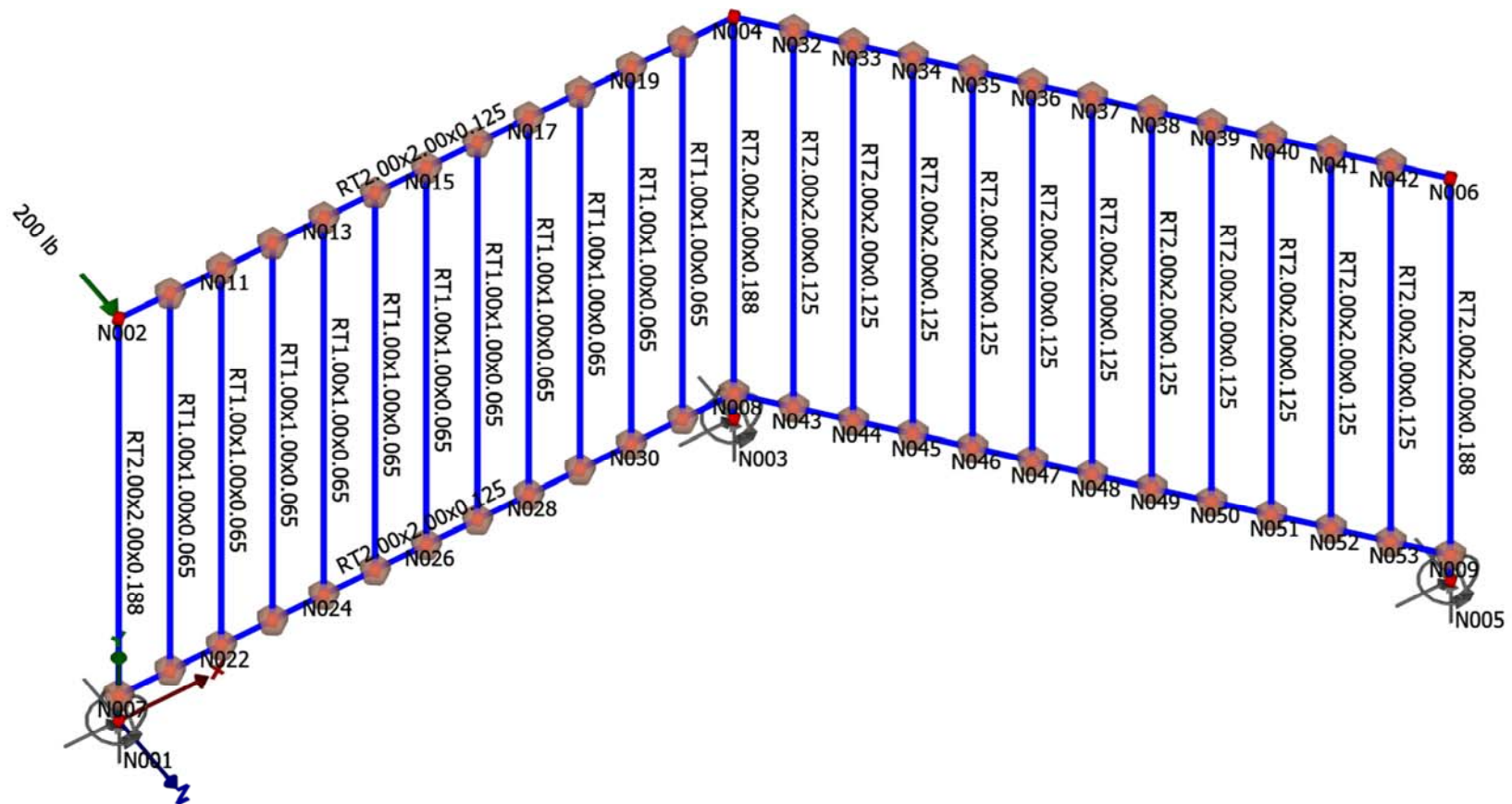
**Dennis
Adams**

Digitally signed by Dennis Adams
DN: c=US, st=Georgia,
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Date: 2020.03.06 11:40:54 -05'00'



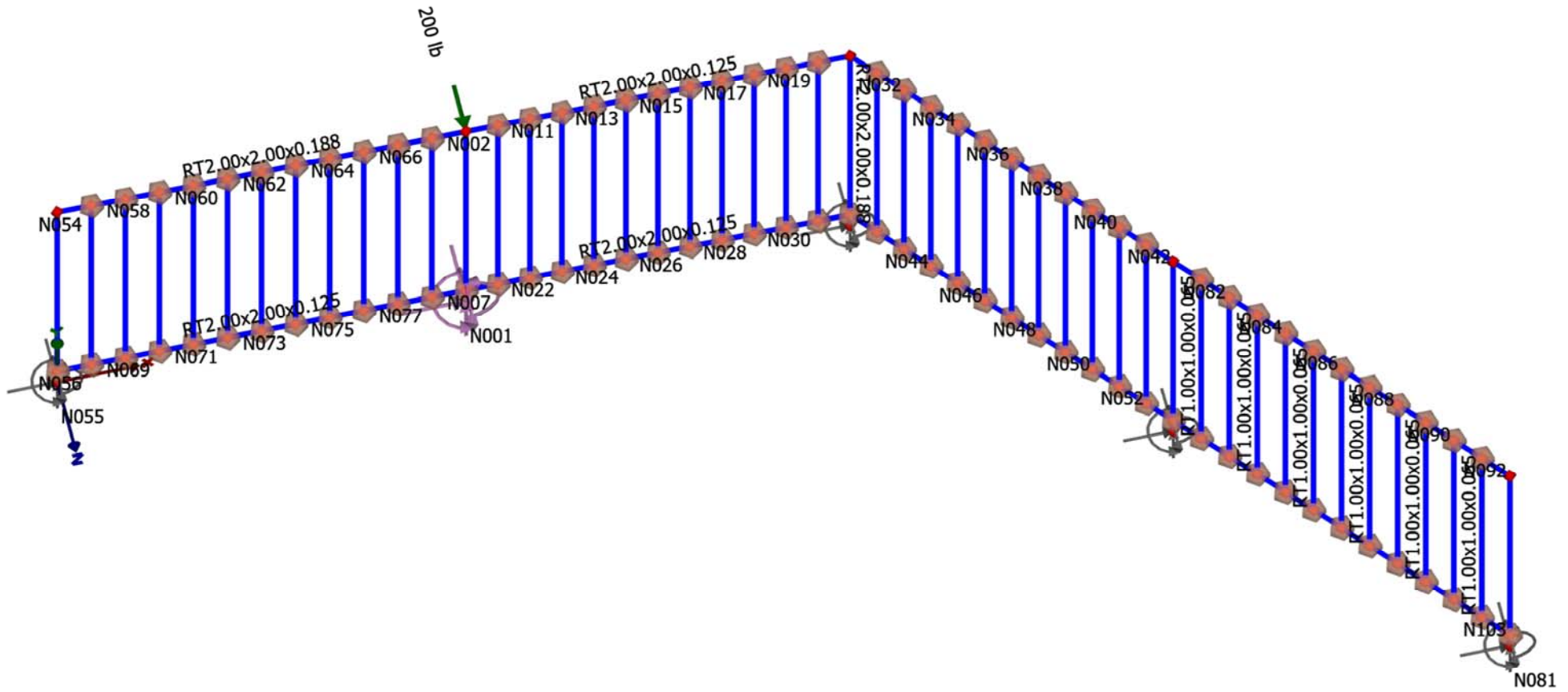
3/6/2020

JTA Railing



FEA Model - Small Rail

JTA Railing Design



Large Railing FEA Model

Model Summary

Model Dimensions:
X: 167 in
Y: 41.1 in
Z: 77.5 in
Object Counts:
Nodes: 103
Spring Supports: 0
Members: 57
Cables: 0
Areas: 0
Plates: 0
Auto-Meshed Areas: 0
Auto-Meshed Plates: 0
Foundations: 0
Nonlinear Features:
One-Way Spring Supports: 0
One-Way Members: 0

Service Load Cases

Name	Source	SelfWeight	Loads	Pattern
D	Dead Loads	Vertical Direction	0	0
L	Live Loads	Exclude	2	0
Live 1	Live Loads	Exclude	1	1
Live 2	Live Loads	Exclude	1	2

Members

Name	Node 1	Node 2	Shape	Material	End Connection	Crossing Connection?	Beta, B deg	Length in	Weight lb	Offset y in	Offset z in	Framing	Action
BmX001	N002	N004	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	48.88	4.58	0.00	0.00	Beam	Normal
BmX002	N056	N007	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	52.00	4.88	0.00	0.00	Beam	Normal
BmX003	N007	N008	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	48.88	4.58	0.00	0.00	Beam	Normal
BmX004	N054	N002	RT2.00x2.00x0.188	6063-T6-E/P-All	Rigid Connect	Yes	0.00	52.00	7.07	0.00	0.00	Beam	Normal
COL001	N002	N001	RT2.00x2.00x0.188	6063-T6-E/P-All	Rigid Connect	Yes	0.00	41.06	5.58	0.00	0.00	Column	Normal
COL002	N004	N003	RT2.00x2.00x0.188	6063-T6-E/P-All	Rigid Connect	Yes	0.00	41.06	5.58	0.00	0.00	Column	Normal
COL003	N006	N005	RT2.00x2.00x0.188	6063-T6-E/P-All	Rigid Connect	Yes	0.00	41.06	5.58	0.00	0.00	Column	Normal
COL004	N010	N021	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL005	N011	N022	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL006	N012	N023	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL007	N013	N024	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL008	N014	N025	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL009	N015	N026	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal

Members (continued)

Node	Node 1	Node 2	Shape	Material	End Connection	Crossing Connection?	Beta, B deg	Length in	Weight lb	Offset y in	Offset z in	Framing	Action
COL010	N016	N027	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL011	N017	N028	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL012	N018	N029	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL013	N019	N030	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL014	N020	N031	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL015	N042	N053	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL016	N041	N052	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL017	N040	N051	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL018	N039	N050	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL019	N038	N049	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL020	N037	N048	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL021	N036	N047	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL022	N035	N046	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL023	N034	N045	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL024	N033	N044	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL025	N032	N043	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	3.61	0.00	0.00	Column	Normal
COL026	N054	N055	RT2.00x2.00x0.188	6063-T6-E/P-All	Rigid Connect	Yes	0.00	41.06	5.58	0.00	0.00	Column	Normal
COL027	N068	N057	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL028	N069	N058	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL029	N070	N059	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL030	N071	N060	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL031	N072	N061	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL032	N073	N062	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL033	N074	N063	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL034	N075	N064	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL035	N076	N065	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL036	N077	N066	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal

Members (continued)

Name	Node 1	Node 2	Shape	Material	End Connection	Crossing Connection?	Beta, B deg	Length in	Weight lb	Offset y in	Offset z in	Framing	Action
COL037	N078	N067	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL038	N081	N079	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	41.06	3.85	0.00	0.00	Column	Normal
COL039	N093	N082	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL040	N094	N083	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL041	N095	N084	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL042	N096	N085	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL043	N097	N086	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL044	N098	N087	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL045	N099	N088	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL046	N100	N089	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL047	N101	N090	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL048	N102	N091	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
COL049	N103	N092	RT1.00x1.00x0.065	6063-T6-E/P-All	Rigid Connect	Yes	0.00	38.50	0.94	0.00	0.00	Column	Normal
H001	N004	N006	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	49.88	4.68	0.00	0.00	Beam	Normal
H002	N006	N079	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	52.00	4.88	0.00	0.00	Beam	Normal
H003	N008	N009	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	49.88	4.68	0.00	0.00	Beam	Normal
H005	N009	N080	RT2.00x2.00x0.125	6063-T6-E/P-All	Rigid Connect	Yes	0.00	52.00	4.88	0.00	0.00	Beam	Normal

Nodes

Name	X in	Y in	Z in	Support	Mass lb	Scissor	Used By
N001	52.00	0.00	0.00	Fixed	0.00	No	COL001
N002	52.00	41.06	0.00	Free	0.00	No	COL001,BmX001,BmX004
N003	100.88	0.00	0.00	Fixed	0.00	No	COL002
N004	100.88	41.06	0.00	Free	0.00	No	COL002,BmX001,H001
N005	133.27	0.00	37.93	Fixed	0.00	No	COL003
N006	133.27	41.06	37.93	Free	0.00	No	COL003,H001,H002
N007	52.00	2.56	0.00	Free	0.00	No	BmX003,BmX002
N008	100.88	2.56	0.00	Free	0.00	No	BmX003,H003
N009	133.27	2.56	37.93	Free	0.00	No	H003,H005
N010	56.07	41.06	0.00	Free	0.00	No	COL004
N011	60.15	41.06	0.00	Free	0.00	No	COL005
N012	64.22	41.06	0.00	Free	0.00	No	COL006

Nodes (continued)

Name	X in	Y in	Z in	Support	Mass lb	Scissor	Used By
N013	68.29	41.06	0.00	Free	0.00	No	COL007
N014	72.36	41.06	0.00	Free	0.00	No	COL008
N015	76.44	41.06	0.00	Free	0.00	No	COL009
N016	80.51	41.06	0.00	Free	0.00	No	COL010
N017	84.58	41.06	0.00	Free	0.00	No	COL011
N018	88.66	41.06	0.00	Free	0.00	No	COL012
N019	92.73	41.06	0.00	Free	0.00	No	COL013
N020	96.80	41.06	0.00	Free	0.00	No	COL014
N021	56.07	2.56	0.00	Free	0.00	No	COL004
N022	60.15	2.56	0.00	Free	0.00	No	COL005
N023	64.22	2.56	0.00	Free	0.00	No	COL006
N024	68.29	2.56	0.00	Free	0.00	No	COL007
N025	72.36	2.56	0.00	Free	0.00	No	COL008
N026	76.44	2.56	0.00	Free	0.00	No	COL009
N027	80.51	2.56	0.00	Free	0.00	No	COL010
N028	84.58	2.56	0.00	Free	0.00	No	COL011
N029	88.66	2.56	0.00	Free	0.00	No	COL012
N030	92.73	2.56	0.00	Free	0.00	No	COL013
N031	96.80	2.56	0.00	Free	0.00	No	COL014
N032	103.57	41.06	3.16	Free	0.00	No	COL025
N033	106.27	41.06	6.32	Free	0.00	No	COL024
N034	108.97	41.06	9.48	Free	0.00	No	COL023
N035	111.67	41.06	12.64	Free	0.00	No	COL022
N036	114.37	41.06	15.80	Free	0.00	No	COL021
N037	117.07	41.06	18.96	Free	0.00	No	COL020
N038	119.77	41.06	22.12	Free	0.00	No	COL019
N039	122.47	41.06	25.28	Free	0.00	No	COL018
N040	125.17	41.06	28.44	Free	0.00	No	COL017
N041	127.87	41.06	31.60	Free	0.00	No	COL016
N042	130.57	41.06	34.76	Free	0.00	No	COL015
N043	103.57	2.56	3.16	Free	0.00	No	COL025
N044	106.27	2.56	6.32	Free	0.00	No	COL024
N045	108.97	2.56	9.48	Free	0.00	No	COL023
N046	111.67	2.56	12.64	Free	0.00	No	COL022
N047	114.37	2.56	15.80	Free	0.00	No	COL021
N048	117.07	2.56	18.96	Free	0.00	No	COL020
N049	119.77	2.56	22.12	Free	0.00	No	COL019
N050	122.47	2.56	25.28	Free	0.00	No	COL018
N051	125.17	2.56	28.44	Free	0.00	No	COL017
N052	127.87	2.56	31.60	Free	0.00	No	COL016

Nodes (continued)

Name	X in	Y in	Z in	Support	Mass lb	Scissor	Used By
N053	130.57	2.56	34.76	Free	0.00	No	COL015
N054	0.00	41.06	0.00	Free	0.00	No	COL026,BmX004
N055	0.00	0.00	0.00	Fixed	0.00	No	COL026
N056	0.00	2.56	0.00	Free	0.00	No	BmX002
N057	4.33	41.06	0.00	Free	0.00	No	COL027
N058	8.67	41.06	0.00	Free	0.00	No	COL028
N059	13.00	41.06	0.00	Free	0.00	No	COL029
N060	17.33	41.06	0.00	Free	0.00	No	COL030
N061	21.67	41.06	0.00	Free	0.00	No	COL031
N062	26.00	41.06	0.00	Free	0.00	No	COL032
N063	30.33	41.06	0.00	Free	0.00	No	COL033
N064	34.67	41.06	0.00	Free	0.00	No	COL034
N065	39.00	41.06	0.00	Free	0.00	No	COL035
N066	43.33	41.06	0.00	Free	0.00	No	COL036
N067	47.67	41.06	0.00	Free	0.00	No	COL037
N068	4.33	2.56	0.00	Free	0.00	No	COL027
N069	8.67	2.56	0.00	Free	0.00	No	COL028
N070	13.00	2.56	0.00	Free	0.00	No	COL029
N071	17.33	2.56	0.00	Free	0.00	No	COL030
N072	21.67	2.56	0.00	Free	0.00	No	COL031
N073	26.00	2.56	0.00	Free	0.00	No	COL032
N074	30.33	2.56	0.00	Free	0.00	No	COL033
N075	34.67	2.56	0.00	Free	0.00	No	COL034
N076	39.00	2.56	0.00	Free	0.00	No	COL035
N077	43.33	2.56	0.00	Free	0.00	No	COL036
N078	47.67	2.56	0.00	Free	0.00	No	COL037
N079	167.04	41.06	77.47	Free	0.00	No	COL038,H002
N080	167.04	2.56	77.47	Free	0.00	No	H005
N081	167.04	0.00	77.47	Fixed	0.00	No	COL038
N082	136.08	41.06	41.22	Free	0.00	No	COL039
N083	138.89	41.06	44.52	Free	0.00	No	COL040
N084	141.71	41.06	47.81	Free	0.00	No	COL041
N085	144.52	41.06	51.11	Free	0.00	No	COL042
N086	147.34	41.06	54.40	Free	0.00	No	COL043
N087	150.15	41.06	57.70	Free	0.00	No	COL044
N088	152.97	41.06	60.99	Free	0.00	No	COL045
N089	155.78	41.06	64.29	Free	0.00	No	COL046
N090	158.59	41.06	67.58	Free	0.00	No	COL047
N091	161.41	41.06	70.88	Free	0.00	No	COL048
N092	164.22	41.06	74.17	Free	0.00	No	COL049

Nodes (continued)

Name	X in	Y in	Z in	Support	Mass lb	Scissor	Used By
N093	136.08	2.56	41.22	Free	0.00	No	COL039
N094	138.89	2.56	44.52	Free	0.00	No	COL040
N095	141.71	2.56	47.81	Free	0.00	No	COL041
N096	144.52	2.56	51.11	Free	0.00	No	COL042
N097	147.34	2.56	54.40	Free	0.00	No	COL043
N098	150.15	2.56	57.70	Free	0.00	No	COL044
N099	152.97	2.56	60.99	Free	0.00	No	COL045
N100	155.78	2.56	64.29	Free	0.00	No	COL046
N101	158.59	2.56	67.58	Free	0.00	No	COL047
N102	161.41	2.56	70.88	Free	0.00	No	COL048
N103	164.22	2.56	74.17	Free	0.00	No	COL049

Statics Check Information

Result Case Name	Status	Balance DX lb	Balance DY lb	Balance DZ lb	Balance RX lb-in	Balance RY lb-in	Balance RZ lb-in
.6D+.6W	OK	0.00	0.00	0.00	0.00	0.00	0.00
.9D+W	OK	0.00	0.00	0.00	0.00	0.00	0.00
1.2D+1.6L+.5Lr	OK	0.00	0.00	0.00	-15.09	30.06	-0.87
1.2D+1.6L+.5Lr(#1)	OK	0.00	0.00	0.00	-23.86	54.19	-0.80
1.2D+1.6L+.5Lr(#2)	OK	0.00	0.00	0.00	-7.15	8.71	-0.77
1.2D+1.6Lr+.5W	OK	0.00	0.00	0.00	0.01	0.00	0.00
1.2D+1.6Lr+L	OK	0.00	0.00	0.00	-4.68	2.93	-0.27
1.2D+1.6Lr+L(#1)	OK	0.00	0.00	0.00	-7.48	5.28	-0.25
1.2D+1.6Lr+L(#2)	OK	0.00	0.00	0.00	-2.21	0.85	-0.24
1.4D+1.6H	OK	0.00	0.00	0.00	0.01	0.00	0.01
D	OK	0.00	0.00	0.00	0.00	0.00	0.00
D+.75(L+Lr)	OK	0.00	0.00	0.00	-5.87	6.60	-0.34
D+.75(L+Lr)(#1)	OK	0.00	0.00	0.00	-9.34	11.90	-0.31
D+.75(L+Lr)(#2)	OK	0.00	0.00	0.00	-2.78	1.91	-0.30
D+0.75(L+W)	OK	0.00	0.00	0.00	-5.87	6.60	-0.34
D+0.75(L+W)(#1)	OK	0.00	0.00	0.00	-9.34	11.90	-0.31
D+0.75(L+W)(#2)	OK	0.00	0.00	0.00	-2.78	1.91	-0.30
D+H+F	OK	0.00	0.00	0.00	0.00	0.00	0.00
D+L	OK	0.00	0.00	0.00	-7.84	11.74	-0.45
D+L (1)	OK	0.00	0.00	0.00	-7.84	11.74	-0.45
D+L(#1)	OK	0.00	0.00	0.00	-12.44	21.16	-0.41
D+L(#1) (1)	OK	0.00	0.00	0.00	-12.44	21.16	-0.41
D+L(#2)	OK	0.00	0.00	0.00	-3.71	3.40	-0.40
D+L(#2) (1)	OK	0.00	0.00	0.00	-3.71	3.40	-0.40
D+S	OK	0.00	0.00	0.00	0.00	0.00	0.00
L	OK	0.00	0.00	0.00	-0.06	11.76	0.00

Statics Check Information (continued)

Result Case Name	Status	Balance DX lb	Balance DY lb	Balance DZ lb	Balance RX lb-in	Balance RY lb-in	Balance RZ lb-in
Live	OK	0.00	0.00	0.00	-0.06	11.76	0.00
Live 1	OK	0.00	0.00	0.00	0.02	1.24	0.00
Live 2	OK	0.00	0.00	0.00	0.00	2.50	0.00
Live(#1)	OK	0.00	0.00	0.00	0.05	21.19	0.00
Live(#2)	OK	0.00	0.00	0.00	-0.04	3.41	0.00

Member Stresses

(extreme rows: max and min)

Member	fa Min psi	fa Max psi	fby Min psi	fby Max psi	fbz Min psi	fbz Max psi	fc comb Min psi	fc comb Max psi
COL002	-324.49 (24)	72.16 (4)	-2738.99 (24)	2738.99 (24)	-1541.62 (24)	1541.62 (24)	-4566.38 (24)	3994.84 (24)
COL016	-3.12 (23)	2.27 (23)	-663.46 (24)	663.46 (24)	-656.19 (24)	656.19 (24)	-1268.99 (24)	1263.60 (24)
COL026	-16.82 (23)	68.07 (24)	-18233.21 (24)	18233.21 (24)	-1640.01 (24)	1640.01 (24)	-19838.12 (24)	19908.31 (24)
COL034	-1.97 (23)	3.42 (23)	-4818.28 (24)	4818.28 (24)	-1270.18 (24)	1270.18 (24)	-6088.05 (24)	6085.37 (24)
H001	-80.78 (4)	368.55 (24)	-5504.14 (24)	5504.14 (24)	-3020.34 (24)	3020.34 (24)	-8155.93 (24)	8893.03 (24)
H002	-8.14 (4)	36.31 (24)	-80.68 (24)	80.68 (24)	-477.43 (24)	477.43 (24)	-502.67 (24)	542.48 (24)
H005	-17.60 (24)	3.72 (12)	-185.00 (24)	185.00 (24)	-221.32 (24)	221.32 (24)	-414.88 (24)	379.69 (24)

Node Reactions

(extreme rows: max and min)

Node	Result Case	FX lb	FY lb	FZ lb	MX lb-in	MY lb-in	MZ lb-in
N001	1.2D+1.6L+.5Lr(#1)	-135.31	25.01	395.21	13561.31	1046.99	1130.93
N001	Live 2	29.36	1.56	-115.88	-3593.12	-88.47	-258.25
N003	1.2D+1.6L+.5Lr(#1)	-5.64	388.65	115.63	2065.20	969.77	1162.38
N005	1.2D+1.6L+.5Lr(#1)	189.41	-192.84	121.55	52.14	-364.55	-887.74
N055	1.2D+1.6L+.5Lr(#1)	-58.85	-47.73	346.15	13747.84	-1122.18	1236.56

Aluminum_Column_G 1: Results

Aluminum Material: 6063-T6-E/P-All Specification: ADM LRFD (2015) Bridge-Type Structure: False Heat Affected?: Not Heat-Affected Overstrength?: False Live Load Reduction: None Disable Checks?: False Check Level: Each Limit State	Bracing Lateral Top (+y): Unbraced Lateral Bottom (-y): Unbraced Strong (z): Unbraced	Deflections Strong (dy): None Weak (dz): None
Size Constraints Limit Depth?: False Limit Width?: False	Axial Manual Kz: False Kz Sidesway?: False Manual Ky: False Ky Sidesway?: False	Overrides Override Cb?: False Override Ft_u?: False Override Ft_y?: False Override Fc_y?: False Override Fs_u?: False Override Ft_w?: False Override Ft_yw?: False Override Fc_yw?: False Override Fs_w?: False

Aluminum_Column_G 1: Combined Check

Member	Section	Offset in	Result Case	Demand	Capacity	Code Reference	Unity Check	Details
COL001	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	0.70	1.00	H.1-1	0.70	KLz = 30.9 in, KLy = 35.8 in, Lb = 41.1 in, Axial = 0.001, Flexure: Strong = 0.054, Flexure: Weak = 0.649, Kz = 0.753, Ky = 0.872, Cb = 1
COL002	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	0.17	1.00	H.1-1	0.17	KLz = 33 in, KLy = 35.8 in, Lb = 41.1 in, Axial = 0.017, Flexure: Strong = 0.056, Flexure: Weak = 0.099, Kz = 0.804, Ky = 0.872, Cb = 1
COL003	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 35.8 in, KLy = 35.8 in, Lb = 41.1 in, Axial = 0.006, Flexure: Strong = 0.042, Flexure: Weak = 0.002, Kz = 0.872, Ky = 0.872, Cb = 1
COL004	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.24	1.00	H.1-1	0.24	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.009, Flexure: Strong = 0.036, Flexure: Weak = 0.196, Kz = 1, Ky = 1, Cb = 1
COL005	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.21	1.00	H.1-1	0.21	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.005, Flexure: Strong = 0.041, Flexure: Weak = 0.162, Kz = 1, Ky = 1, Cb = 1
COL006	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.18	1.00	H.1-1	0.18	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.002, Flexure: Strong = 0.044, Flexure: Weak = 0.134, Kz = 1, Ky = 1, Cb = 1
COL007	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.16	1.00	H.1-1	0.16	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.047, Flexure: Weak = 0.109, Kz = 1, Ky = 1, Cb = 1
COL008	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.14	1.00	H.1-1	0.14	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.048, Flexure: Weak = 0.087, Kz = 1, Ky = 1, Cb = 1
COL009	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.12	1.00	H.1-1	0.12	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.001, Flexure: Strong = 0.049, Flexure: Weak = 0.068, Kz = 1, Ky = 1, Cb = 1
COL010	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.10	1.00	H.1-1	0.10	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.001, Flexure: Strong = 0.048, Flexure: Weak = 0.051, Kz = 1, Ky = 1, Cb = 1

Aluminum_Column_G 1: Combined Check (continued)

Member	Section	Offset in	Result Case	Demand	Capacity	Code Reference	Unity Check	Details
COL011	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.08	1.00	H.1-1	0.08	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.045, Flexure: Weak = 0.036, Kz = 1, Ky = 1, Cb = 1
COL012	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.07	1.00	H.1-1	0.07	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.003, Flexure: Strong = 0.041, Flexure: Weak = 0.025, Kz = 1, Ky = 1, Cb = 1
COL013	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.06	1.00	H.1-1	0.06	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.008, Flexure: Strong = 0.035, Flexure: Weak = 0.018, Kz = 1, Ky = 1, Cb = 1
COL014	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.007, Flexure: Strong = 0.029, Flexure: Weak = 0.016, Kz = 1, Ky = 1, Cb = 1
COL015	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.026, Flexure: Weak = 0.019, Kz = 1, Ky = 1, Cb = 1
COL016	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.024, Flexure: Weak = 0.023, Kz = 1, Ky = 1, Cb = 1
COL017	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.024, Flexure: Weak = 0.025, Kz = 1, Ky = 1, Cb = 1
COL018	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.024, Flexure: Weak = 0.026, Kz = 1, Ky = 1, Cb = 1
COL019	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.025, Flexure: Weak = 0.026, Kz = 1, Ky = 1, Cb = 1
COL020	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.026, Flexure: Weak = 0.026, Kz = 1, Ky = 1, Cb = 1

Aluminum_Column_G 1: Combined Check (continued)

Member	Section	Offset in	Result Case	Demand	Capacity	Code Reference	Unity Check	Details
COL021	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.026, Flexure: Weak = 0.027, Kz = 1, Ky = 1, Cb = 1
COL022	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.028, Flexure: Weak = 0.025, Kz = 1, Ky = 1, Cb = 1
COL023	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.028, Flexure: Weak = 0.023, Kz = 1, Ky = 1, Cb = 1
COL024	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.003, Flexure: Strong = 0.025, Flexure: Weak = 0.02, Kz = 1, Ky = 1, Cb = 1
COL025	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	0.03	1.00	H.1-1	0.03	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.004, Flexure: Strong = 0, Flexure: Weak = 0.029, Kz = 1, Ky = 1, Cb = 1
COL026	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	0.72	1.00	H.1-1	0.72	KLz = 32.4 in, KLy = 35.8 in, Lb = 41.1 in, Axial = 0.002, Flexure: Strong = 0.059, Flexure: Weak = 0.658, Kz = 0.788, Ky = 0.872, Cb = 1
COL027	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.28	1.00	H.1-1	0.28	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.018, Flexure: Strong = 0.03, Flexure: Weak = 0.232, Kz = 1, Ky = 1, Cb = 1
COL028	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.26	1.00	H.1-1	0.26	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.014, Flexure: Strong = 0.035, Flexure: Weak = 0.209, Kz = 1, Ky = 1, Cb = 1
COL029	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.24	1.00	H.1-1	0.24	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.005, Flexure: Strong = 0.04, Flexure: Weak = 0.194, Kz = 1, Ky = 1, Cb = 1
COL030	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.23	1.00	H.1-1	0.23	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.043, Flexure: Weak = 0.185, Kz = 1, Ky = 1, Cb = 1

Aluminum_Column_G 1: Combined Check (continued)

Member	Section	Offset in	Result Case	Demand	Capacity	Code Reference	Unity Check	Details
COL031	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.23	1.00	H.1-1	0.23	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.046, Flexure: Weak = 0.18, Kz = 1, Ky = 1, Cb = 1
COL032	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.23	1.00	H.1-1	0.23	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.047, Flexure: Weak = 0.178, Kz = 1, Ky = 1, Cb = 1
COL033	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.23	1.00	H.1-1	0.23	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.048, Flexure: Weak = 0.177, Kz = 1, Ky = 1, Cb = 1
COL034	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.23	1.00	H.1-1	0.23	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.047, Flexure: Weak = 0.179, Kz = 1, Ky = 1, Cb = 1
COL035	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.23	1.00	H.1-1	0.23	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.045, Flexure: Weak = 0.184, Kz = 1, Ky = 1, Cb = 1
COL036	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.24	1.00	H.1-1	0.24	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.002, Flexure: Strong = 0.041, Flexure: Weak = 0.194, Kz = 1, Ky = 1, Cb = 1
COL037	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.25	1.00	H.1-1	0.25	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.002, Flexure: Strong = 0.036, Flexure: Weak = 0.21, Kz = 1, Ky = 1, Cb = 1
COL038	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.04	1.00	H.1-1	0.04	KLz = 35.8 in, KLy = 35.8 in, Lb = 41.1 in, Axial = 0, Flexure: Strong = 0.022, Flexure: Weak = 0.016, Kz = 0.872, Ky = 0.872, Cb = 1
COL039	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.03	1.00	H.1-1	0.03	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.002, Flexure: Strong = 0.012, Flexure: Weak = 0.012, Kz = 1, Ky = 1, Cb = 1
COL040	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.03	1.00	H.1-1	0.03	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.013, Flexure: Weak = 0.013, Kz = 1, Ky = 1, Cb = 1

Aluminum_Column_G 1: Combined Check (continued)

Member	Section	Offset in	Result Case	Demand	Capacity	Code Reference	Unity Check	Details
COL041	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.03	1.00	H.1-1	0.03	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.016, Flexure: Weak = 0.012, Kz = 1, Ky = 1, Cb = 1
COL042	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.03	1.00	H.1-1	0.03	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.016, Flexure: Weak = 0.013, Kz = 1, Ky = 1, Cb = 1
COL043	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.03	1.00	H.1-1	0.03	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.016, Flexure: Weak = 0.013, Kz = 1, Ky = 1, Cb = 1
COL044	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.03	1.00	H.1-1	0.03	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.015, Flexure: Weak = 0.013, Kz = 1, Ky = 1, Cb = 1
COL045	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.03	1.00	H.1-1	0.03	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.014, Flexure: Weak = 0.013, Kz = 1, Ky = 1, Cb = 1
COL046	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.02	1.00	H.1-1	0.02	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0, Flexure: Strong = 0.013, Flexure: Weak = 0.012, Kz = 1, Ky = 1, Cb = 1
COL047	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.02	1.00	H.1-1	0.02	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.002, Flexure: Strong = 0.012, Flexure: Weak = 0.011, Kz = 1, Ky = 1, Cb = 1
COL048	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.02	1.00	H.1-1	0.02	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.005, Flexure: Strong = 0.01, Flexure: Weak = 0.009, Kz = 1, Ky = 1, Cb = 1
COL049	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.02	1.00	H.1-1	0.02	KLz = 38.5 in, KLy = 38.5 in, Lb = 38.5 in, Axial = 0.007, Flexure: Strong = 0.009, Flexure: Weak = 0.008, Kz = 1, Ky = 1, Cb = 1

Aluminum_Column_G 1: Axial Check

Member	Section	Offset in	Result Case	Demand Fx lb	Capacity Fx lb	Code Reference	Unity Check	Details
COL001	RT2.00x2.00x0.188	41.06	1.4D+1.6H	37.85	23430.90	E.2.1 (weak)	0.00	KLz = 30.9 in, KLy = 35.8 in, FcInelastic = 19143 psi, $\lambda = 48.1$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 0.753, Ky = 0.872
COL002	RT2.00x2.00x0.188	38.50	1.2D+1.6L+.5Lr(#1)	441.31	23430.90	E.2.1 (weak)	0.02	KLz = 33 in, KLy = 35.8 in, FcInelastic = 19143 psi, $\lambda = 48.1$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 0.804, Ky = 0.872
COL003	RT2.00x2.00x0.188	38.63	1.2D+1.6L+.5Lr(#1)	193.23	30600.00	D.2a	0.01	psi, $\lambda = 48.1$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 0.804, Ky = 0.872
COL004	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	16.20	1831.52	E.2.1 (strong)	0.01	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL005	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	10.05	1831.52	E.2.1 (strong)	0.01	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL006	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	3.39	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL007	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.60	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL008	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.69	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL009	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.94	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL010	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	2.17	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL011	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	3.86	5467.50	D.2a	0.00	Ag = 0.243 in ² , Fty = 25000 psi, $\phi = 0.9$
COL012	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	19.21	5467.50	D.2a	0.00	Ag = 0.243 in ² , Fty = 25000 psi, $\phi = 0.9$
COL013	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	42.68	5467.50	D.2a	0.01	Ag = 0.243 in ² , Fty = 25000 psi, $\phi = 0.9$
COL014	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	41.10	5467.50	D.2a	0.01	Ag = 0.243 in ² , Fty = 25000 psi, $\phi = 0.9$
COL015	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	17.84	21105.00	D.2a	0.00	Ag = 0.938 in ² , Fty = 25000 psi, $\phi = 0.9$

Aluminum_Column_G 1: Axial Check (continued)

Member	Section	Offset in	Result Case	Demand Fx lb	Capacity Fx lb	Code Reference	Unity Check	Details
COL016	RT2.00x2.00x0.125	38.50	1.4D+1.6H	2.93	15834.03	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcInelastic = 18756 psi, $\lambda = 50.2$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL017	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	3.86	15834.03	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcInelastic = 18756 psi, $\lambda = 50.2$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL018	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	2.57	15834.03	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcInelastic = 18756 psi, $\lambda = 50.2$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL019	RT2.00x2.00x0.125	38.50	1.4D+1.6H	2.53	15834.03	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcInelastic = 18756 psi, $\lambda = 50.2$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL020	RT2.00x2.00x0.125	38.50	1.4D+1.6H	2.56	15834.03	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcInelastic = 18756 psi, $\lambda = 50.2$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL021	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	3.93	15834.03	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcInelastic = 18756 psi, $\lambda = 50.2$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL022	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	5.64	15834.03	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcInelastic = 18756 psi, $\lambda = 50.2$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL023	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	9.71	21105.00	D.2a	0.00	Ag = 0.938 in ² , Fty = 25000 psi, $\phi = 0.9$
COL024	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	57.88	21105.00	D.2a	0.00	Ag = 0.938 in ² , Fty = 25000 psi, $\phi = 0.9$
COL025	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	87.80	21105.00	D.2a	0.00	Ag = 0.938 in ² , Fty = 25000 psi, $\phi = 0.9$
COL026	RT2.00x2.00x0.188	0.00	1.2D+1.6L+.5Lr(#1)	92.57	30600.00	D.2a	0.00	Ag = 1.36 in ² , Fty = 25000 psi, $\phi = 0.9$
COL027	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	33.59	1831.52	E.2.1 (strong)	0.02	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL028	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	24.77	1831.52	E.2.1 (strong)	0.01	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
COL029	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	9.23	1831.52	E.2.1 (strong)	0.01	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, $\lambda = 101$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1

Aluminum_Column_G 1: Axial Check (continued)

Member	Section	Offset in	Result Case	Demand Fx lb	Capacity Fx lb	Code Reference	Unity Check	Details
COL030	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	1.20	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL031	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.78	5467.50	D.2a	0.00	Ag = 0.243 in ² , Fty = 25000 psi, φ = 0.9
COL032	RT1.00x1.00x0.065	0.00	1.4D+1.6H	0.51	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL033	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.70	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL034	RT1.00x1.00x0.065	0.00	1.4D+1.6H	0.48	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL035	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	3.70	5467.50	D.2a	0.00	Ag = 0.243 in ² , Fty = 25000 psi, φ = 0.9
COL036	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	9.76	5467.50	D.2a	0.00	Ag = 0.243 in ² , Fty = 25000 psi, φ = 0.9
COL037	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	14.14	5467.50	D.2a	0.00	Ag = 0.243 in ² , Fty = 25000 psi, φ = 0.9
COL038	RT2.00x2.00x0.125	41.06	1.2D+1.6L+.5Lr(#1)	30.49	21105.00	D.2a	0.00	Ag = 0.938 in ² , Fty = 25000 psi, φ = 0.9
COL039	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	10.75	5467.50	D.2a	0.00	Ag = 0.243 in ² , Fty = 25000 psi, φ = 0.9
COL040	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	4.21	5467.50	D.2a	0.00	Ag = 0.243 in ² , Fty = 25000 psi, φ = 0.9
COL041	RT1.00x1.00x0.065	0.00	1.4D+1.6H	0.61	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL042	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	1.14	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL043	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	0.85	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL044	RT1.00x1.00x0.065	0.00	1.4D+1.6H	0.59	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL045	RT1.00x1.00x0.065	0.00	1.4D+1.6H	0.56	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1

Aluminum_Column_G 1: Axial Check (continued)

Member	Section	Offset in	Result Case	Demand Fx lb	Capacity Fx lb	Code Reference	Unity Check	Details
COL046	RT1.00x1.00x0.065	0.00	1.4D+1.6H	0.57	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL047	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	3.46	1831.52	E.2.1 (strong)	0.00	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL048	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	9.59	1831.52	E.2.1 (strong)	0.01	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1
COL049	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	13.39	1831.52	E.2.1 (strong)	0.01	KLz = 38.5 in, KLy = 38.5 in, FcElastic = 8375 psi, λ = 101, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1

Aluminum_Column_G 1: Strong Flexure Check

Member	Section	Offset in	Result Case	Demand Mz lb-in	Capacity Mz lb-in	Code Reference	Unity Check	Details
COL001	RT2.00x2.00x0.188	38.50	1.2D+1.6L+.5Lr(#1)	1232.36	20907.00	F.2 (plastic)	0.06	Lbz = 41.1 in, Z = 0.929 in ³ , φ = 0.9, Cb = 1
COL002	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	1162.38	20907.00	F.2 (plastic)	0.06	Lbz = 41.1 in, Z = 0.929 in ³ , φ = 0.9, Cb = 1
COL003	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	-887.74	20907.00	F.2 (plastic)	0.04	Lbz = 41.1 in, Z = 0.929 in ³ , φ = 0.9, Cb = 1
COL004	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-68.94	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL005	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-78.60	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL006	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-85.59	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL007	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-90.35	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL008	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	93.09	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL009	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	93.61	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL010	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-91.75	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL011	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-87.56	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL012	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-80.54	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL013	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-69.61	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL014	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	55.30	1921.50	F.2 (plastic)	0.03	Lbz = 38.5 in, Z = 0.085 in ³ , φ = 0.9, Cb = 1
COL015	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-379.73	14854.50	F.2 (plastic)	0.03	Lbz = 38.5 in, Z = 0.66 in ³ , φ = 0.9, Cb = 1
COL016	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-362.22	14854.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.66 in ³ , φ = 0.9, Cb = 1
COL017	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-358.69	14854.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.66 in ³ , φ = 0.9, Cb = 1

Aluminum_Column_G 1: Strong Flexure Check (continued)

Member	Section	Offset in	Result Case	Demand Mz lb-in	Capacity Mz lb-in	Code Reference	Unity Check	Details
COL018	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-361.76	14854.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL019	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-367.85	14854.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL020	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	381.96	14854.50	F.2 (plastic)	0.03	Lbz = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL021	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	396.95	14854.50	F.2 (plastic)	0.03	Lbz = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL022	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	410.44	14854.50	F.2 (plastic)	0.03	Lbz = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL023	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	414.05	14854.50	F.2 (plastic)	0.03	Lbz = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL024	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	377.02	14854.50	F.2 (plastic)	0.03	Lbz = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL025	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	196.83	14854.50	F.2 (plastic)	0.01	Lbz = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL026	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	1236.56	20907.00	F.2 (plastic)	0.06	Lbz = 41.1 in, Z = 0.929 in ³ , $\phi = 0.9$, Cb = 1
COL027	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-57.45	1921.50	F.2 (plastic)	0.03	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL028	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	68.34	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL029	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	77.01	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL030	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	83.60	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL031	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	88.30	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL032	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-91.12	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL033	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	91.85	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL034	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	90.44	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL035	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	86.60	1921.50	F.2 (plastic)	0.05	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL036	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	79.98	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL037	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-70.01	1921.50	F.2 (plastic)	0.04	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL038	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	325.90	14854.50	F.2 (plastic)	0.02	Lbz = 41.1 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
COL039	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	29.54	1921.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL040	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	30.84	1921.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL041	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	31.24	1921.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL042	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	30.85	1921.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL043	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	29.86	1921.50	F.2 (plastic)	0.02	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL044	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	28.41	1921.50	F.2 (plastic)	0.01	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1

Aluminum_Column_G 1: Strong Flexure Check (continued)

Member	Section	Offset in	Result Case	Demand Mz lb-in	Capacity Mz lb-in	Code Reference	Unity Check	Details
COL045	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	26.60	1921.50	F.2 (plastic)	0.01	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL046	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	24.50	1921.50	F.2 (plastic)	0.01	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL047	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	22.18	1921.50	F.2 (plastic)	0.01	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL048	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	19.76	1921.50	F.2 (plastic)	0.01	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1
COL049	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	17.55	1921.50	F.2 (plastic)	0.01	Lbz = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$, Cb = 1

Aluminum_Column_G 1: Weak Flexure Check

Member	Section	Offset in	Result Case	Demand My lb-in	Capacity My lb-in	Code Reference	Unity Check	Details
COL001	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	-13561.31	20907.00	F.2 (plastic)	0.65	Lby = 41.1 in, Z = 0.929 in ³ , $\phi = 0.9$
COL002	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	-2065.20	20907.00	F.2 (plastic)	0.10	Lby = 41.1 in, Z = 0.929 in ³ , $\phi = 0.9$
COL003	RT2.00x2.00x0.188	0.00	1.2D+1.6L+.5Lr(#1)	368.17	20907.00	F.2 (plastic)	0.02	Lby = 41.1 in, Z = 0.929 in ³ , $\phi = 0.9$
COL004	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-376.69	1921.50	F.2 (plastic)	0.20	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL005	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-312.20	1921.50	F.2 (plastic)	0.16	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL006	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-256.98	1921.50	F.2 (plastic)	0.13	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL007	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-209.03	1921.50	F.2 (plastic)	0.11	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL008	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-166.91	1921.50	F.2 (plastic)	0.09	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL009	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-129.74	1921.50	F.2 (plastic)	0.07	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL010	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-97.20	1921.50	F.2 (plastic)	0.05	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL011	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-69.60	1921.50	F.2 (plastic)	0.04	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL012	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-47.96	1921.50	F.2 (plastic)	0.02	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL013	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr	-34.69	1921.50	F.2 (plastic)	0.02	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL014	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr	-31.09	1921.50	F.2 (plastic)	0.02	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL015	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	334.90	14854.50	F.2 (plastic)	0.02	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL016	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	366.23	14854.50	F.2 (plastic)	0.02	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL017	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	381.33	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL018	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	389.09	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL019	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	392.54	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$

Aluminum_Column_G 1: Weak Flexure Check (continued)

Member	Section	Offset in	Result Case	Demand My lb-in	Capacity My lb-in	Code Reference	Unity Check	Details
COL020	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-397.86	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL021	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-399.50	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL022	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-396.63	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL023	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-388.43	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL024	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-382.39	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL025	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-426.20	14854.50	F.2 (plastic)	0.03	Lby = 38.5 in, Z = 0.66 in ³ , $\phi = 0.9$
COL026	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	-13747.84	20907.00	F.2 (plastic)	0.66	Lby = 41.1 in, Z = 0.929 in ³ , $\phi = 0.9$
COL027	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-445.17	1921.50	F.2 (plastic)	0.23	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL028	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-401.01	1921.50	F.2 (plastic)	0.21	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL029	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-372.27	1921.50	F.2 (plastic)	0.19	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL030	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-354.93	1921.50	F.2 (plastic)	0.18	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL031	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-345.58	1921.50	F.2 (plastic)	0.18	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL032	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-341.24	1921.50	F.2 (plastic)	0.18	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL033	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-339.94	1921.50	F.2 (plastic)	0.18	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL034	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-343.06	1921.50	F.2 (plastic)	0.18	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL035	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-352.98	1921.50	F.2 (plastic)	0.18	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL036	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-372.37	1921.50	F.2 (plastic)	0.19	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL037	RT1.00x1.00x0.065	0.00	1.2D+1.6L+.5Lr(#1)	-404.44	1921.50	F.2 (plastic)	0.21	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL038	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	-237.19	14854.50	F.2 (plastic)	0.02	Lby = 41.1 in, Z = 0.66 in ³ , $\phi = 0.9$
COL039	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	22.45	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL040	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	25.70	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL041	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	27.70	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL042	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	28.74	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL043	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	28.98	1921.50	F.2 (plastic)	0.02	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL044	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	28.52	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL045	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	27.48	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL046	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	25.93	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$

Aluminum_Column_G 1: Weak Flexure Check (continued)

Member	Section	Offset in	Result Case	Demand My lb-in	Capacity My lb-in	Code Reference	Unity Check	Details
COL047	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	23.96	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL048	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	21.51	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$
COL049	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	18.33	1921.50	F.2 (plastic)	0.01	Lby = 38.5 in, Z = 0.085 in ³ , $\phi = 0.9$

Aluminum_Column_G 1: Weak Shear Check

Member	Section	Offset in	Result Case	Demand Vz lb	Capacity Vz lb	Code Reference	Unity Check	Details
COL001	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	-395.21	10152.00	G.2-1	0.04	$A_v = 0.752 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL002	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	-115.63	10152.00	G.2-1	0.01	$A_v = 0.752 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL004	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-10.53	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL005	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-8.52	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL006	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-6.81	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL007	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-5.32	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL016	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-18.26	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL017	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-19.40	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL018	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-20.03	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL019	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-20.39	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL020	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-20.50	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL021	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-20.35	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL024	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-17.58	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL025	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-16.85	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL026	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	-346.15	10152.00	G.2-1	0.03	$A_v = 0.752 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL027	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	11.72	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL028	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	10.65	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL029	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	10.11	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL030	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	9.92	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL031	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	9.92	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL032	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	9.97	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

Aluminum_Column_G 1: Weak Shear Check (continued)

Member	Section	Offset in	Result Case	Demand Vz lb	Capacity Vz lb	Code Reference	Unity Check	Details
COL033	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	9.97	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL034	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	9.99	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL035	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	10.15	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL036	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	10.59	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL037	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	11.46	1755.00	G.2-1	0.01	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL038	RT2.00x2.00x0.125	2.56	1.2D+1.6L+.5Lr(#1)	14.22	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL044	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.39	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL045	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.34	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL046	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.26	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL047	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.16	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL048	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.03	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL049	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.87	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

Aluminum_Column_G 1: Torsion Check

Member	Section	Offset in	Result Case	Demand lb-in	Capacity lb-in	Code Reference	Unity Check	Details
COL001	RT2.00x2.00x0.188	38.50	1.2D+1.6L+.5Lr(#1)	-1194.25	13040.81	H.2-7	0.09	$C = 0.966 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL002	RT2.00x2.00x0.188	38.50	1.2D+1.6L+.5Lr(#1)	-972.49	13040.81	H.2-7	0.07	$C = 0.966 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL003	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	364.55	13040.81	H.2-7	0.03	$C = 0.966 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL004	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-63.20	1314.04	H.2-7	0.05	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL005	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-69.12	1314.04	H.2-7	0.05	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL006	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-74.28	1314.04	H.2-7	0.06	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL007	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-78.55	1314.04	H.2-7	0.06	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL008	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-81.73	1314.04	H.2-7	0.06	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL009	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-83.56	1314.04	H.2-7	0.06	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL010	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-83.73	1314.04	H.2-7	0.06	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL011	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-81.91	1314.04	H.2-7	0.06	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL012	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-77.68	1314.04	H.2-7	0.06	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL013	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-70.63	1314.04	H.2-7	0.05	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

Aluminum_Column_G 1: Torsion Check (continued)

Member	Section	Offset in	Result Case	Demand	Capacity lb-in	Code Reference	Unity Check	Details
COL014	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-60.27	1314.04	H.2-7	0.05	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL015	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr	-23.95	10234.09	H.2-7	0.00	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL016	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-42.22	10234.09	H.2-7	0.00	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL017	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-58.70	10234.09	H.2-7	0.01	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL018	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-75.15	10234.09	H.2-7	0.01	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL019	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-94.14	10234.09	H.2-7	0.01	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL020	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-118.58	10234.09	H.2-7	0.01	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL021	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-152.18	10234.09	H.2-7	0.01	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL022	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-199.94	10234.09	H.2-7	0.02	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL023	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-268.86	10234.09	H.2-7	0.03	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL024	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-368.63	10234.09	H.2-7	0.04	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL025	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-512.24	10234.09	H.2-7	0.05	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL026	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	1122.18	13040.81	H.2-7	0.09	$C = 0.966 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL027	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	30.24	1314.04	H.2-7	0.02	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL028	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	26.81	1314.04	H.2-7	0.02	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL029	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	21.13	1314.04	H.2-7	0.02	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL030	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	13.22	1314.04	H.2-7	0.01	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL031	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#2)	-15.02	1314.04	H.2-7	0.01	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL032	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#2)	-18.00	1314.04	H.2-7	0.01	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL033	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-21.85	1314.04	H.2-7	0.02	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL034	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-32.53	1314.04	H.2-7	0.02	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL035	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-41.35	1314.04	H.2-7	0.03	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL036	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-48.31	1314.04	H.2-7	0.04	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL037	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-53.40	1314.04	H.2-7	0.04	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL038	RT2.00x2.00x0.125	41.06	1.2D+1.6L+.5Lr(#1)	22.71	10234.09	H.2-7	0.00	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL039	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	0.70	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL040	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.12	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL041	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.45	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

Aluminum_Column_G 1: Torsion Check (continued)

Member	Section	Offset in	Result Case	Demand	Capacity lb-in	Code Reference	Unity Check	Details
COL042	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.69	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL043	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.86	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL044	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.96	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL045	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	2.00	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL046	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.99	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL047	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.93	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL048	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.82	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL049	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	1.67	1314.04	H.2-7	0.00	$C = 0.097 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

Aluminum_Column_G 1: Strong Shear Check

Member	Section	Offset in	Result Case	Demand V_y lb	Capacity V_y lb	Code Reference	Unity Check	Details
COL003	RT2.00x2.00x0.188	41.06	1.2D+1.6L+.5Lr(#1)	-189.41	10152.00	G.2-1	0.02	$A_v = 0.752 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL008	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	4.83	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL009	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	4.86	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL010	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	4.76	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL011	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	4.53	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL012	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	4.14	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL013	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	3.58	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL014	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	2.80	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL015	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-17.84	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL022	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-20.42	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL023	RT2.00x2.00x0.125	38.50	1.2D+1.6L+.5Lr(#1)	-19.70	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL039	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-1.36	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL040	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-1.45	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL041	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-1.48	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL042	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-1.48	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
COL043	RT1.00x1.00x0.065	38.50	1.2D+1.6L+.5Lr(#1)	-1.44	1755.00	G.2-1	0.00	$A_v = 0.13 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

Aluminum_Beam X_G 1: Results

Aluminum Material: 6063-T6-E/P-All Specification: ADM LRFD (2015) Bridge-Type Structure: False Heat Affected?: Not Heat-Affected Overstrength?: False Live Load Reduction: None Disable Checks?: False Check Level: Each Limit State	Bracing Lateral Top (+y): Unbraced Lateral Bottom (-y): Unbraced Strong (z): Unbraced	Deflections Strong (dy): None Weak (dz): None
Size Constraints Limit Depth?: False Limit Width?: False	Axial Manual Kz: False Kz Sidesway?: False Manual Ky: False Ky Sidesway?: False	Overrides Override Cb?: False Override Ftu?: False Override Fty?: False Override Fcy?: False Override Fsu?: False Override Ftuw?: False Override Ftyw?: False Override Fcyw?: False Override Fsuw?: False

Aluminum_Beam X_G 1: Combined Check

Member	Section	Offset in	Result Case	Demand	Capacity	Code Reference	Unity Check	Details
BmX001	RT2.00x2.00x0.125	48.88	1.2D+1.6L+.5Lr(#1)	0.36	1.00	H.1-1	0.36	KLz = 37.3 in, KLy = 48.9 in, Lb = 48.9 in, Axial = 0.01, Flexure: Strong = 0.085, Flexure: Weak = 0.27, Kz = 0.763, Ky = 1, Cb = 1
BmX002	RT2.00x2.00x0.125	52.00	1.2D+1.6L+.5Lr(#1)	0.05	1.00	H.1-1	0.05	KLz = 52 in, KLy = 52 in, Lb = 52 in, Axial = 0.003, Flexure: Strong = 0.016, Flexure: Weak = 0.033, Kz = 1, Ky = 1, Cb = 1
BmX003	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.06	1.00	H.1-1	0.06	KLz = 48.9 in, KLy = 48.9 in, Lb = 48.9 in, Axial = 0.002, Flexure: Strong = 0.014, Flexure: Weak = 0.043, Kz = 1, Ky = 1, Cb = 1
BmX004	RT2.00x2.00x0.188	26.14	1.2D+1.6L+.5Lr(#1)	0.25	1.00	H.1-1	0.25	KLz = 40.5 in, KLy = 52 in, Lb = 52 in, Axial = 0.002, Flexure: Strong = 0.005, Flexure: Weak = 0.246, Kz = 0.778, Ky = 1, Cb = 1

Aluminum_Beam X_G 1: Axial Check

Member	Section	Offset in	Result Case	Demand Fx lb	Capacity Fx lb	Code Reference	Unity Check	Details
BmX001	RT2.00x2.00x0.125	44.94	1.2D+1.6L+.5Lr(#1)	204.82	21105.00	D.2a	0.01	Ag = 0.938 in ² , Fty = 25000 psi, φ = 0.9
BmX002	RT2.00x2.00x0.125	47.88	1.2D+1.6L+.5Lr(#1)	37.04	13196.82	E.2.1 (strong)	0.00	KLz = 52 in, KLy = 52 in, FcInelastic = 15632 psi, λ = 67.8, λ1 = 18.2, λ2 = 78.4, Kz = 1, Ky = 1

Aluminum_Beam X_G 1: Axial Check (continued)

Member	Section	Offset in	Result Case	Demand Fx lb	Capacity Fx lb	Code Reference	Unity Check	Details
BmX003	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	35.62	21105.00	D.2a	0.00	Ag = 0.938 in ² , Fty = 25000 psi, $\phi = 0.9$
BmX004	RT2.00x2.00x0.188	47.81	1.2D+1.6L+.5Lr(#1)	95.89	30600.00	D.2a	0.00	Ag = 1.30 in ² , Fty = 25000 psi, $\phi = 0.9$

Aluminum_Beam X_G 1: Strong Flexure Check

Member	Section	Offset in	Result Case	Demand Mz lb-in	Capacity Mz lb-in	Code Reference	Unity Check	Details
BmX001	RT2.00x2.00x0.125	48.88	1.2D+1.6L+.5Lr(#1)	-1266.16	14854.50	F.2 (plastic)	0.09	Lbz = 48.9 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
BmX002	RT2.00x2.00x0.125	47.67	1.2D+1.6L+.5Lr(#1)	-260.39	14854.50	F.2 (plastic)	0.02	Lbz = 52 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
BmX003	RT2.00x2.00x0.125	40.73	1.2D+1.6L+.5Lr(#1)	-314.98	14854.50	F.2 (plastic)	0.02	Lbz = 48.9 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
BmX004	RT2.00x2.00x0.188	0.00	1.2D+1.6L+.5Lr(#1)	886.38	20907.00	F.2 (plastic)	0.04	Lbz = 52 in, Z = 0.929 in ³ , $\phi = 0.9$, Cb = 1

Aluminum_Beam X_G 1: Weak Flexure Check

Member	Section	Offset in	Result Case	Demand My lb-in	Capacity My lb-in	Code Reference	Unity Check	Details
BmX001	RT2.00x2.00x0.125	48.88	1.2D+1.6L+.5Lr(#1)	-4010.77	14854.50	F.2 (plastic)	0.27	Lby = 48.9 in, Z = 0.66 in ³ , $\phi = 0.9$
BmX002	RT2.00x2.00x0.125	52.00	1.2D+1.6L+.5Lr(#1)	-484.60	14854.50	F.2 (plastic)	0.03	Lby = 52 in, Z = 0.66 in ³ , $\phi = 0.9$
BmX003	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	-631.86	14854.50	F.2 (plastic)	0.04	Lby = 48.9 in, Z = 0.66 in ³ , $\phi = 0.9$
BmX004	RT2.00x2.00x0.188	26.00	1.2D+1.6L+.5Lr(#1)	5154.35	20907.00	F.2 (plastic)	0.25	Lby = 52 in, Z = 0.929 in ³ , $\phi = 0.9$

Aluminum_Beam X_G 1: Weak Shear Check

Member	Section	Offset in	Result Case	Demand Vz lb	Capacity Vz lb	Code Reference	Unity Check	Details
BmX001	RT2.00x2.00x0.125	48.88	1.2D+1.6L+.5Lr(#1)	-275.87	6750.00	G.2-1	0.04	Av = 0.5 in ² , Fs = 18000 psi, $\phi = 0.75$
BmX002	RT2.00x2.00x0.125	4.33	1.2D+1.6L+.5Lr(#1)	59.01	6750.00	G.2-1	0.01	Av = 0.5 in ² , Fs = 18000 psi, $\phi = 0.75$
BmX003	RT2.00x2.00x0.125	4.07	1.2D+1.6L+.5Lr(#1)	65.95	6750.00	G.2-1	0.01	Av = 0.5 in ² , Fs = 18000 psi, $\phi = 0.75$
BmX004	RT2.00x2.00x0.188	0.00	1.2D+1.6L+.5Lr(#1)	287.15	10152.00	G.2-1	0.03	Av = 0.732 in ² , Fs = 18000 psi, $\phi = 0.75$

Aluminum_Beam X_G 1: Torsion Check

Member	Section	Offset in	Result Case	Demand lb-in	Capacity lb-in	Code Reference	Unity Check	Details
BmX001	RT2.00x2.00x0.125	16.29	1.2D+1.6L+.5Lr(#1)	1587.56	10234.09	H.2-7	0.16	C = 0.758 in ³ , Fs = 18000 psi, $\phi = 0.75$

Aluminum_Beam X_G 1: Torsion Check (continued)

Member	Section	Offset in	Result Case	Demand lb-in	Capacity lb-in	Code Reference	Unity Check	Details
BmX002	RT2.00x2.00x0.125	4.33	1.2D+1.6L+.5Lr(#1)	-2065.23	10234.09	H.2-7	0.20	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
BmX003	RT2.00x2.00x0.125	4.07	1.2D+1.6L+.5Lr(#1)	-943.84	10234.09	H.2-7	0.09	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
BmX004	RT2.00x2.00x0.188	52.00	1.2D+1.6L+.5Lr(#1)	592.85	13040.81	H.2-7	0.05	$C = 0.966 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

Aluminum_H Brace_G 1: Results

Aluminum Material: 6063-T6-E/P-All Specification: ADM LRFD (2015) Bridge-Type Structure: False Heat Affected?: Not Heat-Affected Overstrength?: False Live Load Reduction: None Disable Checks?: False Check Level: Each Limit State	Bracing Lateral Top (+y): Unbraced Lateral Bottom (-y): Unbraced Strong (z): Unbraced	Deflections Strong (dy): None Weak (dz): None
Size Constraints Limit Depth?: False Limit Width?: False	Axial Manual Kz: False Kz Sidesway?: False Manual Ky: False Ky Sidesway?: False	Overrides Override Cb?: False Override Ft _u ?: False Override Ft _y ?: False Override Fc _y ?: False Override Fs _u ?: False Override Ft _w ?: False Override Ft _{yw} ?: False Override Fc _{yw} ?: False Override Fs _w ?: False

Aluminum_H Brace_G 1: Combined Check

Member	Section	Offset in	Result Case	Demand	Capacity	Code Reference	Unity Check	Details
H001	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.33	1.00	H.1-1	0.33	KL _z = 37.5 in, KL _y = 49.9 in, L _b = 49.9 in, Axial = 0.016, Flexure: Strong = 0.112, Flexure: Weak = 0.205, K _z = 0.751, K _y = 1, C _b = 1
H002	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.02	1.00	H.1-1	0.02	KL _z = 40 in, KL _y = 52 in, L _b = 52 in, Axial = 0.002, Flexure: Strong = 0.016, Flexure: Weak = 0.003, K _z = 0.769, K _y = 1, C _b = 1
H003	RT2.00x2.00x0.125	49.88	1.2D+1.6L+.5Lr(#1)	0.06	1.00	H.1-1	0.06	KL _z = 49.9 in, KL _y = 49.9 in, L _b = 49.9 in, Axial = 0.008, Flexure: Strong = 0.025, Flexure: Weak = 0.031, K _z = 1, K _y = 1, C _b = 1
H005	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	0.02	1.00	H.1-1	0.02	KL _z = 52 in, KL _y = 52 in, L _b = 52 in, Axial = 0.001, Flexure: Strong = 0.008, Flexure: Weak = 0.007, K _z = 1, K _y = 1, C _b = 1

Aluminum_H Brace_G 1: Axial Check

Member	Section	Offset in	Result Case	Demand Fx lb	Capacity Fx lb	Code Reference	Unity Check	Details
H001	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	345.70	21105.00	D.2a	0.02	Ag = 0.938 in ² , Fty = 25000 psi, $\phi = 0.9$
H002	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	34.06	21105.00	D.2a	0.00	Ag = 0.938 in ² , Fty = 25000 psi, $\phi = 0.9$
H003	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	112.70	13599.44	E.2.1 (strong)	0.01	KLz = 49.9 in, KLy = 49.9 in, FcInelastic = 16109 psi, $\lambda = 65$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1
H005	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	16.50	13196.82	E.2.1 (strong)	0.00	KLz = 52 in, KLy = 52 in, FcInelastic = 15632 psi, $\lambda = 67.8$, $\lambda_1 = 18.2$, $\lambda_2 = 78.4$, Kz = 1, Ky = 1

Aluminum_H Brace_G 1: Strong Flexure Check

Member	Section	Offset in	Result Case	Demand Mz lb-in	Capacity Mz lb-in	Code Reference	Unity Check	Details
H001	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	-1667.23	14854.50	F.2 (plastic)	0.11	Lbz = 49.9 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
H002	RT2.00x2.00x0.125	52.00	1.2D+1.6L+.5Lr(#1)	263.54	14854.50	F.2 (plastic)	0.02	Lbz = 52 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
H003	RT2.00x2.00x0.125	8.52	1.2D+1.6L+.5Lr(#1)	-392.74	14854.50	F.2 (plastic)	0.03	Lbz = 49.9 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1
H005	RT2.00x2.00x0.125	4.55	1.2D+1.6L+.5Lr(#1)	-122.17	14854.50	F.2 (plastic)	0.01	Lbz = 52 in, Z = 0.66 in ³ , $\phi = 0.9$, Cb = 1

Aluminum_H Brace_G 1: Weak Flexure Check

Member	Section	Offset in	Result Case	Demand My lb-in	Capacity My lb-in	Code Reference	Unity Check	Details
H001	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	-3038.28	14854.50	F.2 (plastic)	0.20	Lby = 49.9 in, Z = 0.66 in ³ , $\phi = 0.9$
H002	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	-44.53	14854.50	F.2 (plastic)	0.00	Lby = 52 in, Z = 0.66 in ³ , $\phi = 0.9$
H003	RT2.00x2.00x0.125	49.88	1.2D+1.6L+.5Lr(#1)	463.10	14854.50	F.2 (plastic)	0.03	Lby = 49.9 in, Z = 0.66 in ³ , $\phi = 0.9$
H005	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	102.12	14854.50	F.2 (plastic)	0.01	Lby = 52 in, Z = 0.66 in ³ , $\phi = 0.9$

Aluminum_H Brace_G 1: Strong Shear Check

Member	Section	Offset in	Result Case	Demand Vy lb	Capacity Vy lb	Code Reference	Unity Check	Details
H001	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	291.55	6750.00	G.2-1	0.04	Av = 0.5 in ² , Fs = 18000 psi, $\phi = 0.75$
H002	RT2.00x2.00x0.125	0.00	1.2D+1.6L+.5Lr(#1)	31.73	6750.00	G.2-1	0.00	Av = 0.5 in ² , Fs = 18000 psi, $\phi = 0.75$
H003	RT2.00x2.00x0.125	12.68	1.2D+1.6L+.5Lr(#1)	145.19	6750.00	G.2-1	0.02	Av = 0.5 in ² , Fs = 18000 psi, $\phi = 0.75$

Aluminum_H Brace_G 1: Strong Shear Check (continued)

Member	Section	Offset in	Result Case	Demand Vy lb	Capacity Vy lb	Code Reference	Unity Check	Details
H005	RT2.00x2.00x0.125	8.88	1.2D+1.6L+.5Lr(#1)	17.33	6750.00	G.2-1	0.00	$A_v = 0.5 \text{ in}^2$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

Aluminum_H Brace_G 1: Torsion Check

Member	Section	Offset in	Result Case	Demand lb-in	Capacity lb-in	Code Reference	Unity Check	Details
H001	RT2.00x2.00x0.125	4.16	1.2D+1.6L+.5Lr(#1)	483.07	10234.09	H.2-7	0.05	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
H002	RT2.00x2.00x0.125	26.00	1.2D+1.6L+.5Lr(#1)	-28.21	10234.09	H.2-7	0.00	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
H003	RT2.00x2.00x0.125	12.47	1.2D+1.6L+.5Lr(#1)	193.63	10234.09	H.2-7	0.02	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$
H005	RT2.00x2.00x0.125	52.00	1.2D+1.6L+.5Lr(#1)	-35.20	10234.09	H.2-7	0.00	$C = 0.758 \text{ in}^3$, $F_s = 18000 \text{ psi}$, $\phi = 0.75$

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Company:
Address:
Phone | Fax: |
Design: JTA Railing Base
Fastening point:

Page: 1
Specifier:
E-Mail:
Date: 3/6/2020

Specifier's comments:

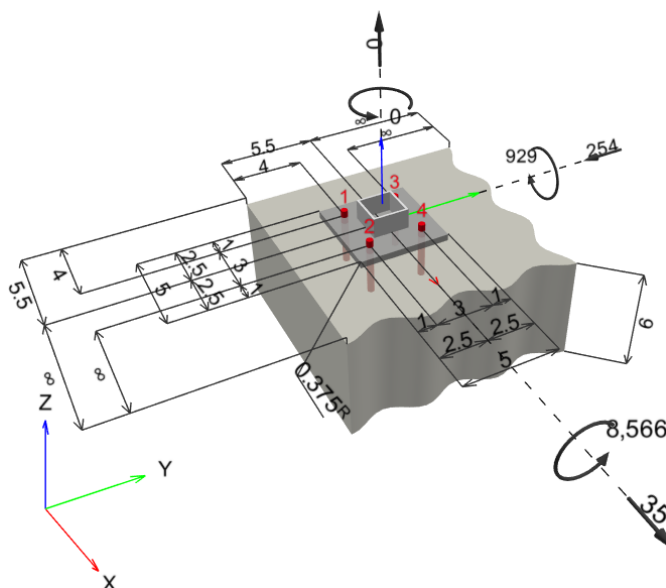
1 Input data

Anchor type and diameter:	KWIK HUS-EZ (KH-EZ) 3/8 (3 1/4)
Item number:	418059 KH-EZ 3/8"x4"
Effective embedment depth:	$h_{ef,act} = 2.500$ in., $h_{nom} = 3.250$ in.
Material:	Carbon Steel
Evaluation Service Report:	ESR-3027
Issued Valid:	6/1/2019 12/1/2019
Proof:	Design Method ACI 318-14 / Mech
Stand-off installation:	$e_b = 0.000$ in. (no stand-off); $t = 0.375$ in.
Anchor plate ^R :	$l_x \times l_y \times t = 5.000$ in. x 5.000 in. x 0.375 in.; (Recommended plate thickness: not calculated)
Profile:	Square HSS (AISC), HSS2X2X.125; (L x W x T) = 2.000 in. x 2.000 in. x 0.125 in.
Base material:	cracked concrete, 2500, $f'_c = 2,500$ psi; $h = 6.000$ in.
Installation:	hammer drilled hole, Installation condition: Dry
Reinforcement:	tension: condition B, shear: condition B; no supplemental splitting reinforcement present edge reinforcement: none or < No. 4 bar



^R - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [lb, in.lb]





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Company:		Page:	2
Address:		Specifier:	
Phone Fax:		E-Mail:	
Design:	JTA Railing Base	Date:	3/6/2020
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [in.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 0; V _x = 35; V _y = -254; M _x = 8,566; M _y = 929; M _z = 0;	no	80

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Company:		Page:	3
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Phone Fax:		E-Mail:	
Design:	JTA Railing Base	Date:	3/6/2020
Fastening point:			

2 Proof I Utilization (Governing Cases)

Loading	Proof	Design values [lb]		Utilization	Status
		Load	Capacity	β_N / β_V [%]	
Tension	Concrete Breakout Failure	2,372	3,002	80 / -	OK
Shear	Concrete edge failure in direction y-	256	1,710	- / 15	OK

Loading	β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.790	0.150	5/3	72	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!



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Company:		Page:	4
Address:		Specifier:	
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Design:	JTA Railing Base	Date:	3/6/2020
Fastening point:			

4 Remarks; Your Cooperation Duties

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