

Date: **May 23, 2022**

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Subject: **Structural Analysis Report**

Carrier Designation: **AT&T Mobility Co-Locate**
Site Number: 10091919
Site Name: Mikesville

Smart Link Designation: **Site Number:** 10091919
Site Name: Mikesville

Engineering Firm Designation: **B+T Group Project Number:** 163146.001.01

Site Data: **3050 Southeast County Road 18, Lake City, Columbia County, FL 32025**
Latitude 29° 56' 54", Longitude -82° 33' 28"
262.5 Foot - Self Support Tower

B+T Group is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above-mentioned tower.

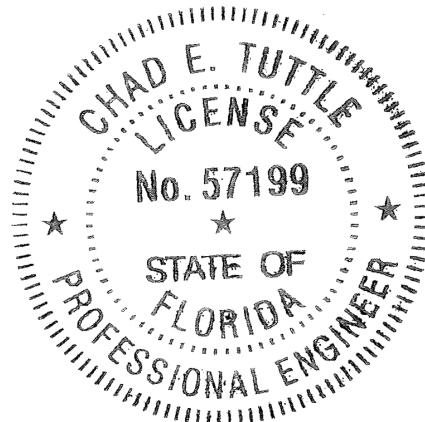
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

Proposed Equipment Configuration

Sufficient Capacity

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2020 Florida Building Code 7th Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria. Structural analysis prepared by: Isaac Fulton

Respectfully submitted by: B+T Engineering, Inc.



Chad E. Tuttle, P.E.

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1) INTRODUCTION

This tower is a 262.5 ft. Self-Support tower mapped by B+T.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor:	1
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
241.0	241.0	3	Andrew	DBXNH-8585B-R2M	12 4 3 3	1-5/8 7/8 3/8 RET Cable
		3	Andrew	E15Z01P13		
		2	Commscope	NNH4-85B-R6		
		9	Commscope	SBNHH-1D85B		
		1	Ericsson	RADIO 4415 B30		
		4	Ericsson	RADIO 4478 B14		
		3	Ericsson	RRUS 32 B30		
		4	Ericsson	RRUS 4449 B5/B12		
		2	Ericsson	RRUS 4460 B25/B66		
		3	Ericsson	RRUS 8843 B2/B66A		
		6	Raycap	DC2-48-60-0-9E		
		1	Raycap	DC6-48-60-18-8C		
		2	Raycap	DC6-48-60-18-8F		
		3	Raycap	DC9-48-60-24-8C-EV		
		4	Sabre	Sabre C10-857-001C Sector Mount		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
273.0	285.0	2	--	26' Bogner	4	1-5/8
	273.0	2	--	14'x6.5" Pipe Mount		
264.5	282.0	1	--	25' Omni	3 2 1	1-5/8 7/8 1/2
	274.5	1	--	20' Dipole		
		3	--	20' Omni		
	264.5	1	--	29' Platform		
252.0	252.0	1	--	31' Platform	--	--
239.5	239.5	4	--	5'x5' Corner Service Platform	--	--
		4	--	Catwalk		
214.5	214.5	2	--	Catwalk	--	--
212.5	212.5	1	--	12.5'x4.5" Pipe Mount	1	EW63

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		1	--	8' Dish		
175.0	175.0	1	--	10.5'x4.5" Pipe Mount	3	EW63
		2	--	12.5'x4.5" Pipe Mount		
		1	--	6' Dish		
		2	--	8' Dish		
143.0	143.0	2	--	10.5'x4.5" Pipe Mount	2	EW63
		2	--	8' Dish		
127.0	127.0	2	--	Catwalk	--	--
16.0	16.0	1	--	Security Camera	1	3/8
15.0	15.0	1	--	Security Camera	1	3/8
		1	--	18" Yagi	1	1/2
		1	--	2'x2.375" Pipe Mount		
11.0	11.0	1	--	Waveguide Support	--	--

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Tower Data	Previous SA by GPD Group, Project No. 2019703.15	Date: 05/10/2019	Smart Link.
Mount Analysis	B+T Group, Project No. 163146.001.01	Date: 04/29/2022	On File
Foundation Data	N/A		
Soil Properties	N/A		
Existing Loading	Previous SA by GPD Group, Project No. 2019703.15	Date: 05/10/2019	Smart Link.
Proposed Loading	RFDS Form	Date: 01/06/2014	Smart Link.
Tower Support Concrete Columns	Previous SA by GPD Group, Project No. 2019703.15	Date: 05/10/2019	Smart Link.

3.1) Analysis Method

RISA-3D (Version 20.0.1) & tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and structures were maintained in accordance with the - TIA-222 standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

Table 4 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
2,3	Tower rating	TWR	94.3	Pass
1,2	Anchor Rods	Base	25.5	Pass
1,2	Tower Support Concrete Columns	FDN	89.9	Pass

Structure Rating (max from all components) =	94.3%
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Notes:

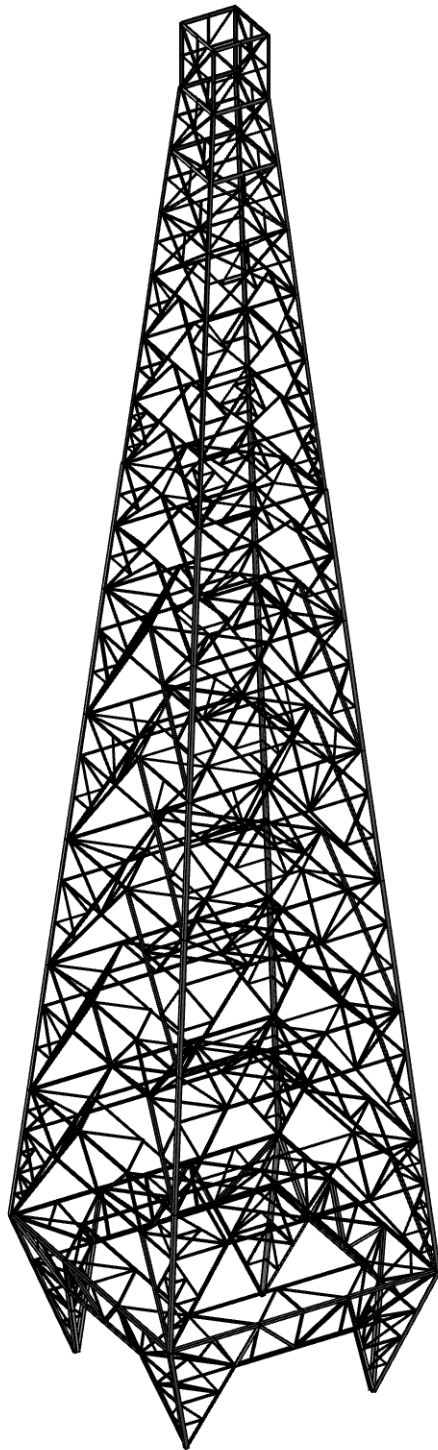
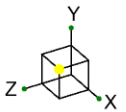
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H Section 15.5.
- 3) RISA See below for the RISA 3D code check in "Appendix A –tnx tower & RISA 3D output"

4.1) Recommendations

The tower and its foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT



Envelope Only Solution

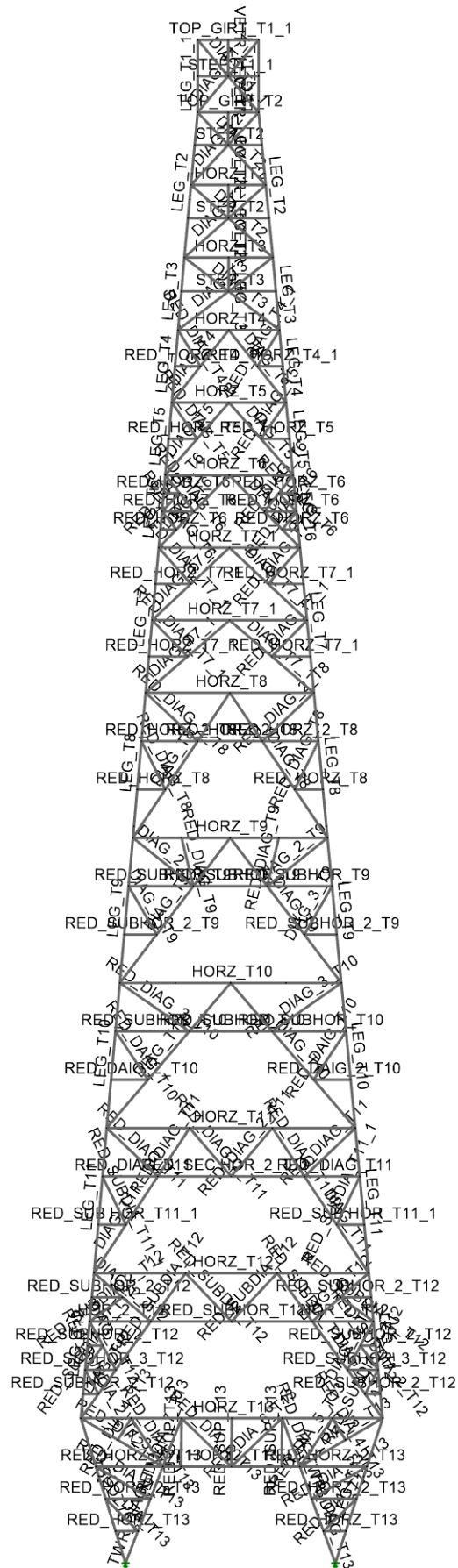
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163146.002.01 - Mikesville, FL (Site# 10091919)

SK-1

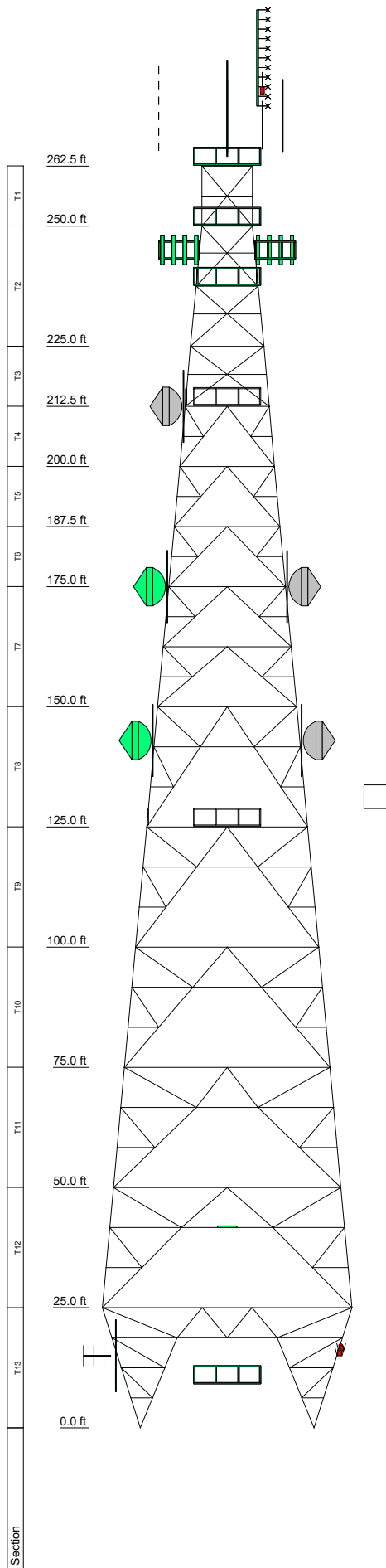
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Envelope Only Solution

B+T Group	163146.002.01 - Mikesville, FL (Site# 10091919)	SK-12
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		163146_002_01_Mikesville_FL.rt3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
14'x6.5" Pipe Mount	273	(2) RRUS 4460 B25/B66	245
14'x6.5" Pipe Mount	273	RADIO 4415 B30	245
26' Bogner	273	(3) DC9-48-60-24-8C-EV	245
26' Bogner	273	(2) 8' x 2.375" Mount Pipe	245
Flash Beacon Lighting	271	Sabre C10-857-001C Sector Mount	245
13' x 2" Mount Pipe	271	Sabre C10-857-001C Sector Mount	245
Lighting Rod 5/8" x 5'	271	Sabre C10-857-001C Sector Mount	245
25' Omni	264.5	Sabre C10-857-001C Sector Mount	245
20' Omni	264.5	5'x5' Corner Service Platform	239.5
20' Omni	264.5	5'x5' Corner Service Platform	239.5
20' Omni	264.5	5'x5' Corner Service Platform	239.5
20' Dipole	264.5	Catwalk	239.5
29' Platform	264.5	Catwalk	239.5
31' Platform	252	Catwalk	239.5
DBXNH-8585B-R2M_TIA w/ Mount Pipe	245	Catwalk	239.5
DBXNH-8585B-R2M_TIA w/ Mount Pipe	245	5'x5' Corner Service Platform	239.5
DBXNH-8585B-R2M_TIA w/ Mount Pipe	245	Catwalk	214.5
DBXNH-8585B-R2M_TIA w/ Mount Pipe	245	Catwalk	214.5
(3) SBNHH-1D85B_TIA w/ Mount Pipe	245	12.5'x4.5" Pipe Mount	212.5
(3) SBNHH-1D85B_TIA w/ Mount Pipe	245	8' Dish	212.5
(3) SBNHH-1D85B_TIA w/ Mount Pipe	245	12.5'x4.5" Pipe Mount	175
RRUS 32 B30	245	12.5'x4.5" Pipe Mount	175
RRUS 32 B30	245	10.5'x4.5" Pipe Mount	175
RRUS 32 B30	245	6' Dish w/Radome	175
E15Z01P13	245	8' Dish	175
E15Z01P13	245	8' Dish	175
E15Z01P13	245	10.5'x4.5" Pipe Mount	143
RADIO 4478 B14	245	10.5'x4.5" Pipe Mount	143
RADIO 4478 B14	245	8' Dish	143
RADIO 4478 B14	245	8' Dish	143
RRUS 4449 B5/B12	245	Catwalk	127
RRUS 4449 B5/B12	245	Catwalk	127
RRUS 4449 B5/B12	245	4' Ice Shield	42
RRUS 8843 B2/B66A	245	(2) 4' Ice Shield	42
RRUS 8843 B2/B66A	245	4' Ice Shield	42
RRUS 8843 B2/B66A	245	4' Ice Shield	42
RRUS 8843 B2/B66A	245	4' Ice Shield	42
DC6-48-60-18-8C	245	4' Ice Shield	42
(2) DC6-48-60-18-8F	245	4' Ice Shield	42
(2) DC2-48-60-0-9E	245	4' Ice Shield	42
(2) DC2-48-60-0-9E	245	1'x4"x4" camera	16
(2) DC2-48-60-0-9E	245	1'x4"x4" camera	15
(2) NNH4-85B-R6_TIA w/ Mount Pipe	245	18" Yagi	15
RRUS 4449 B5/B12	245	2'x2.375" Pipe Mount	15
RADIO 4478 B14	245	Waveguide Mount	11
		(3) Waveguide Mount	11

TOWER DESIGN NOTES

1. Tower is located in Columbia County, Florida.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0'
7. TIA-222-H Annex S



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Job: 163146.002.01 - Mikesville, FL (Site# 10091919)		
Project:		
Client: Smart link	Drawn by: isaac.fulton	App'd:
Code: TIA-222-H	Date: 05/23/22	Scale: NTS
Path:	Dwg No. E-1	

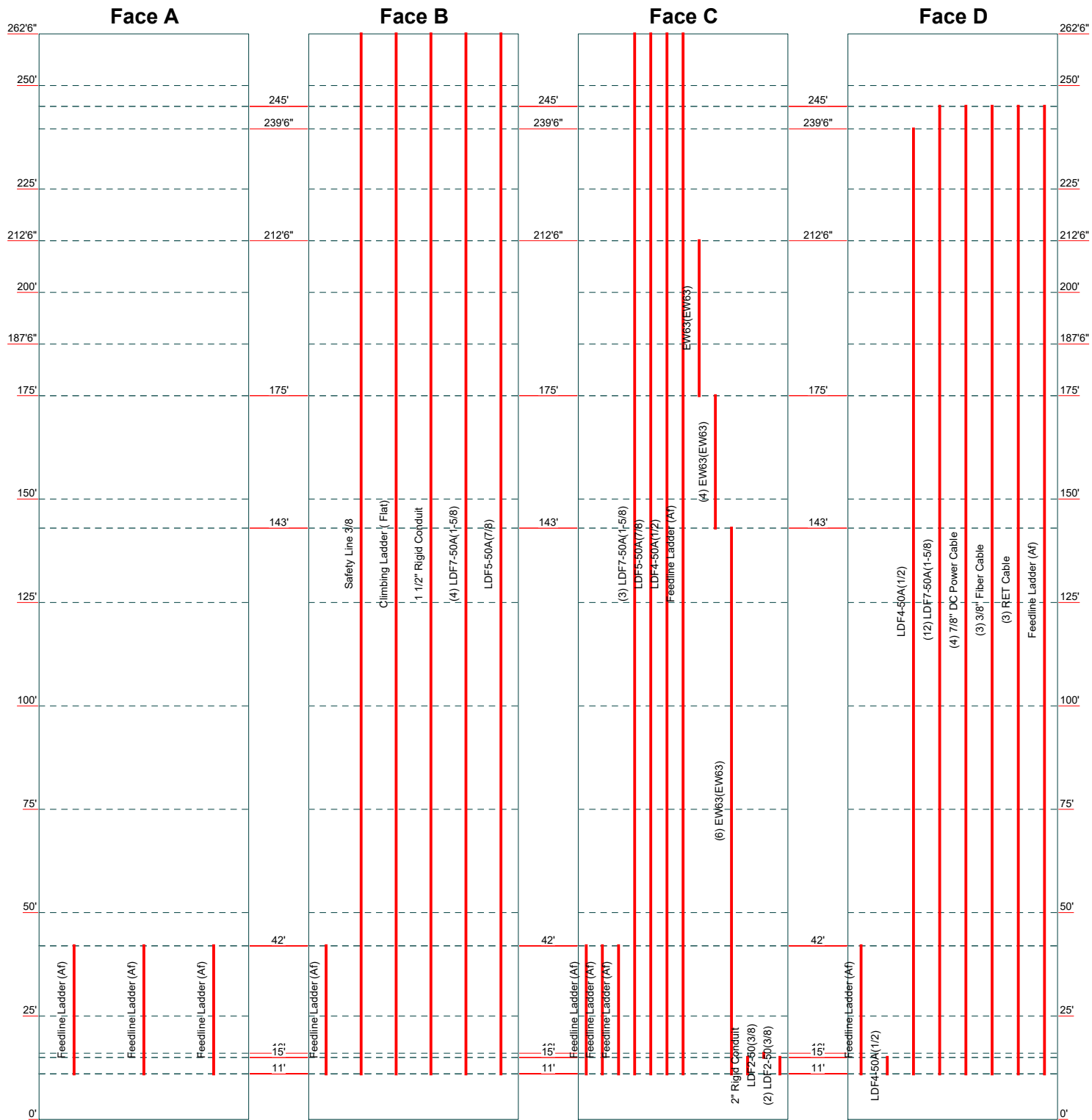
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Feed Line Distribution Chart

0' - 262'6"

Round Flat App In Face App Out Face Truss Leg

Elevation (ft)



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Job: 163146.002.01 - Mikesville, FL (Site# 10091919)		
Project:		
Client: Smart link	Drawn by: Jayaraj B	App'd:
Code: TIA-222-H	Date: 05/09/22	Scale: NTS
Path:	Dwg No. E-7	

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [10^{-6}F^{-1}]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36	29000	11200	0.295	0.65	0.49	36	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	LEG T1_1	L5x5x7/16	Column	Single Angle	A36	Typical	4.18	10	10	0.284
2	TOP GIRT T1_1	C8X11.5	HBrace	Channel	A36	Typical	3.37	1.31	32.5	0.13
3	DIAG T1_1	L3 1/2x3 1/2x1/4	VBrace	Single Angle	A36	Typical	1.69	2.01	2.01	0.039
4	STEP T1_1	L2.5x2.5x3	HBrace	Single Angle	A36	Typical	0.901	0.535	0.535	0.011
5	VETR LEG T1	L2.5x2.5x3	VBrace	Single Angle	A36	Typical	0.901	0.535	0.535	0.011
6	LEG T2	L6x6x5/8	Column	Single Angle	A36	Typical	7.11	24.2	24.2	0.954
7	TOP GIRT T2	C8X11.5	HBrace	Channel	A36	Typical	3.37	1.31	32.5	0.13
8	DIAG T2	L3 1/2x3 1/2x5/16	VBrace	Single Angle	A36	Typical	2.09	2.45	2.45	0.073
9	HORZ T2	C8X11.5	Beam	Channel	A36	Typical	3.37	1.31	32.5	0.13
10	STEP T2	L3X2.5X4	HBrace	Single Angle	A36	Typical	1.32	0.734	1.16	0.03
11	VETR LEG T2	L2.5x2.5x.21	VBrace	Single Angle	A36	Typical	1.006	0.604	0.604	0.014
12	LEG T3	L6x6x7/8	Column	Single Angle	A36	Typical	9.73	31.9	31.9	2.51
13	HORZ T3	L3X2.5X4	Beam	Single Angle	A36	Typical	1.32	0.734	1.16	0.03
14	DIAG T3	2L3x2x1/4x3/8	VBrace	Double Angle (3/8 Gap)	A36	Typical	2.38	1.884	2.17	0.049
15	STEP T3	L3X2.5X4	HBrace	Single Angle	A36	Typical	1.32	0.734	1.16	0.03
16	VETR LEG T3	L2.5x2.5x3	VBrace	Single Angle	A36	Typical	0.901	0.535	0.535	0.011
17	LEG T4	L6x6x7/8	Column	Single Angle	A36	Typical	9.73	31.9	31.9	2.51
18	HORZ T4	2L3x2 1/2x1/4x3/8	Beam	Double Angle (3/8 Gap)	A36	Typical	2.63	3.373	2.35	0.055
19	DIAG T4	2L2 1/2x3x1/4x3/8	VBrace	Double Angle (3/8 Gap)	A36	Typical	2.63	5.508	1.49	0.055
20	RED HORZ T4_1	L2.5x2.5x4	HBrace	Single Angle	A36	Typical	1.19	0.692	0.692	0.026
21	RED DIAG T4_1	L2.5x2x3	VBrace	Single Angle	A36	Typical	0.818	0.292	0.511	0.01
22	LEG T5	L6x6x7/8	Column	Single Angle	A36	Typical	9.73	31.9	31.9	2.51
23	HORZ T5	LL2.5x2.5x4x0	Beam	Double Angle (No Gap)	A36	Typical	2.38	2.57	1.38	0.052
24	DIAG T5	2L2 1/2x3x1/4x3/8	VBrace	Double Angle (3/8 Gap)	A36	Typical	2.63	5.508	1.49	0.055
25	RED HORZ T5	LL2.5x2.5x4x0	HBrace	Double Angle (No Gap)	A36	Typical	2.38	2.57	1.38	0.052
26	RED DIAG T5	LL2.5x2.5x4x0	VBrace	Double Angle (No Gap)	A36	Typical	2.38	2.57	1.38	0.052
27	LEG T6	L6x6x7/8	Column	Single Angle	A36	Typical	9.73	31.9	31.9	2.51
28	HORZ T6	LL2.5x2.5x4x0	Beam	Double Angle (No Gap)	A36	Typical	2.38	2.57	1.38	0.052
29	DIAG T6	2L2 1/2x3x1/4x3/8	VBrace	Double Angle (No Gap)	A36	Typical	2.63	5.508	1.49	0.055
30	RED HORZ T6	L2.5x2.5x4	HBrace	Single Angle	A36	Typical	1.19	0.692	0.692	0.026
31	RED DIAG T6	L2.5x2.5x4	HBrace	Single Angle	A36	Typical	1.19	0.692	0.692	0.026
32	LEG T7	L8x8x3/4	Column	Single Angle	A36	Typical	11.4	69.7	69.7	2.21
33	HORZ T7_1	2L3x2 1/2x1/4x3/8	Beam	None	A36	Typical	2.63	3.373	2.35	0.055
34	DIAG T7_1	2L2 1/2x3 1/2x1/4x3/8	VBrace	None	A36	Typical	2.88	8.466	1.55	0.06
35	RED HORZ T7_1	L2.5x2.5x3	HBrace	Single Angle	A36	Typical	0.901	0.535	0.535	0.011
36	RED DIAG T7_1	2L3x2 1/2x1/4x3/8	VBrace	Double Angle (No Gap)	A36	Typical	2.63	3.373	2.35	0.055
37	INNER SUPP T7_1	L2.5x2.5x3	HBrace	Single Angle	A36	Typical	0.901	0.535	0.535	0.011
38	INNER SUPP 2 T7_1	LL2.5x2x.2"	HBrace	Double Angle (No Gap)	A36	Typical	1.72	1.079	1.077	0.022
39	LEG T8	L8x8x7/8	Column	Single Angle	A36	Typical	13.2	79.6	79.6	3.46
40	HORZ T8	2L3 1/2x2 1/2x1/4x3/8	Beam	None	A36	Typical	2.88	3.4	3.6	0.06
41	DIAG T8	2L3 1/2x4x1/4x3/8	VBrace	None	A36	Typical	3.625	12.186	4.186	0.072
42	RED HORZ T8	L2.5x2x.19"	HBrace	Single Angle	A36	Typical	0.819	0.295	0.515	0.009
43	RED HORZ 2 T8	LL2.5x2.5x3x3	Beam	Double Angle (3/8 Gap)	A36	Typical	1.8	2.46	1.07	0.023
44	RED DIAG T8	2L3x3x3/16	VBrace	None	A36	Typical	2.18	3.387	1.92	0.026
45	RED DIAG 2 T8	LL2.5x2x.19x.31	VBrace	None	A36	Typical	1.638	1.325	1.029	0.019
46	RED SUBHOR T8	LL3.5x4x.25"x.3"	HBrace	None	A36	Typical	7	24.464	7.583	0.531
47	INNER SUPP T8	LL2.5x2x.2"	HBrace	Double Angle (No Gap)	A36	Typical	1.72	1.079	1.077	0.022
48	INNER SUPP 2 T8	L2.5x2.5x.21	HBrace	Single Angle	A36	Typical	1.006	0.604	0.604	0.014
49	LEG T9	L8x8x1 1/8	Column	Single Angle	A36	Typical	16.7	98	98	7.13
50	HORZ T9	2L3 1/2x2 1/2x1/4x3/8	Beam	Double Angle (3/8 Gap)	A36	Typical	2.88	3.4	3.6	0.06

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
51	DIAG T9	2L3 1/2x4x1/4x3/8	VBrace	Double Angle (No Gap)	A36	Typical	3.625	12.186	4.186	0.072
52	DIAG 2 T9	LL2.5x2x3x0	VBrace	Double Angle (No Gap)	A36	Typical	1.64	1.01	1.02	0.021
53	DIAG 3 T9	L3x3x.21	VBrace	Single Angle	A36	Typical	1.216	1.065	1.065	0.017
54	RED DIAG T9	L2.5x2x3	VBrace	None	A36	Typical	0.818	0.292	0.511	0.01
55	RED SUBHOR 2 T9	L2.5x2x3	HBrace	None	A36	Typical	0.818	0.292	0.511	0.01
56	RED SUBHOR T9	LL2.5x2.5x3x0	HBrace	Double Angle (No Gap)	A36	Typical	1.8	1.91	1.07	0.023
57	INNER SUPP T9	L3X3X4	HBrace	Single Angle	A36	Typical	1.44	1.23	1.23	0.031
58	INNER SUPP 2 T9	L2.5x2x.21"	HBrace	Single Angle	A36	Typical	0.901	0.321	0.562	0.012
59	LEG T10	L8x8x1 1/8	Column	Single Angle	A36	Typical	16.7	98	98	7.13
60	HORZ T10	LL3.5x3.5x4x3	Beam	None	A36	Typical	3.4	8.38	4	0.077
61	DIAG T10	2L3 1/2x4x1/4x3/8	Column	None	A36	Typical	3.625	12.186	4.186	0.072
62	RED SUBHOR T10	LL2.5x2.5x.25x.51"	Beam	None	A36	Typical	2.375	3.651	1.406	0.046
63	RED DAIG T10	L3x3x.2	VBrace	Single Angle	A36	Typical	1.16	1.02	1.02	0.015
64	RED DAIG 2 T10	L2 1/2x2 1/2x.19	VBrace	Single Angle	A36	Typical	0.914	0.553	0.553	0.01
65	RED DIAG 3 T10	LL3x2x3x3	VBrace	Double Angle (3/8 Gap)	A36	Typical	1.83	1.38	1.69	0.024
66	RED HIP 2 T10 1	2L4x4x3/8x3/8	VBrace	None	A36	Typical	5.72	18.768	8.72	0.268
67	INNER SUPP T10	L3X3X1/5	HBrace	Single Angle	A36	Typical	1.16	1.02	1.02	0.015
68	INNER SUPP 2 T10	L3X3X1/5	HBrace	Single Angle	A36	Typical	1.16	1.02	1.02	0.015
69	INNER SUPP 3 T10	LLV3.5X3X4	HBrace	Single Angle	A36	Typical	1.563	1.304	1.913	0.031
70	INNER SUPP 4 T10	L3X3X4	HBrace	Single Angle	A36	Typical	1.44	1.23	1.23	0.031
71	LEG T11	L8x8x1 1/8	Column	Single Angle	A36	Typical	16.7	98	98	7.13
72	HORZ T11	2L4x3x1/4x3/8	Beam	None	A36	Typical	3.38	5.587	5.54	0.07
73	DIAG T11	2L3 1/2x4x5/16x3/8	VBrace	None	A36	Typical	4.49	15.551	5.1	0.146
74	RED DIAG T11	LL2.5x2.5x4x.33"	VBrace	Double Angle (No Gap)	A36	Typical	2.375	3.254	1.406	0.046
75	RED DIAG 2 T11	LL3.5x3.5x.28x.34"	VBrace	Double Angle (No Gap)	A36	Typical	3.763	9.411	4.447	0.093
76	RED SUBDIA T11 1	L3X3X3	VBrace	Single Angle	A36	Typical	1.09	0.948	0.948	0.014
77	RED SUB HOR T11 1	L2.5x2x3	HBrace	Single Angle	A36	Typical	0.818	0.292	0.511	0.01
78	RED SEC HOR 2 T11 1	LL3.5x3.5x8x3	HBrace	Double Angle (No Gap)	A36	Typical	6.5	17.3	7.26	0.562
79	INNER SUPP T11	L3x3x.2	HBrace	Single Angle	A36	Typical	1.16	1.02	1.02	0.015
80	INNER SUPP 2 T11	L4x3x1/4	Beam	Single Angle	A36	Typical	1.69	1.36	2.77	0.039
81	LEG T12	L8x8x1 1/8	Column	Single Angle	A36	Typical	16.7	98	98	7.13
82	HORZ T12	2L4x4x1/4x3/8	Beam	None	A36	Typical	3.88	12.424	6.08	0.081
83	DIAG T12	2L3 1/2x4x5/16x3/8	VBrace	None	A36	Typical	4.49	15.551	5.1	0.146
84	HOR 2 T12	LL2.5x2.5x4x3	Beam	Double Angle (3/8 Gap)	A36	Typical	2.38	3.31	1.38	0.052
85	RED SUBHOR T12	2L3 1/2x3 1/2x1/4x3/8	HBrace	None	A36	Typical	3.38	8.518	4.02	0.07
86	RED SUBDIA T12	2L3 1/2x2 1/2x1/4x3/8	VBrace	None	A36	Typical	2.88	3.4	3.6	0.06
87	RED SUBDIA 2 T12	L2.5x2.5x4	VBrace	Single Angle	A36	Typical	1.19	0.692	0.692	0.026
88	RED SUBHOR 2 T12	L2.5x2.5x4	HBrace	Single Angle	A36	Typical	1.19	0.692	0.692	0.026
89	RED SUBHOR 3 T12	L2.5x2x3	HBrace	Single Angle	A36	Typical	0.818	0.292	0.511	0.01
90	DIAG 2 T12	LL2.5x2.5x4x3	VBrace	Double Angle (No Gap)	A36	Typical	2.38	3.31	1.38	0.052
91	DIAG 3 T12	L3X3X3	VBrace	Single Angle	A36	Typical	1.09	0.948	0.948	0.014
92	INNER SUPP T12	L4x3x1/4	HBrace	Single Angle	A36	Typical	1.69	1.36	2.77	0.039
93	INNER SUPP 2 T12	L3.5x3x1/4	HBrace	Single Angle	A36	Typical	1.563	1.304	1.913	0.031
94	LEG T13	L8x8x1 + L4x4x1/2 Reinf	Column	Single Angle	A36	Typical	18.747	108.098	108.098	10.127
95	HORZ T13	LL5x5x10x6	Beam	Double Angle (3/4 Gap)	A36	Typical	11.8	67.4	27.2	1.584
96	HORZ2 T13	LL5x5x12x6	Beam	Double Angle (No Gap)	A36	Typical	14	81.3	31.4	2.66
97	TWR DIAG T13	2L4x6x3/4x3/8	VBrace	Double Angle (No Gap)	A36	Typical	13.9	120.106	17.4	2.602
98	RED HIP T13 0	L3x3x.2	VBrace	Single Angle	A36	Typical	1.16	1.02	1.02	0.015
99	RED HIP 2 T13 Check 0	L3x3x.2	HBrace	Single Angle	A36	Typical	1.16	1.02	1.02	0.015
100	RED HIP 3 T13 Check 0	L3x3x.2	HBrace	Single Angle	A36	Typical	1.16	1.02	1.02	0.015
101	RED 2HIP 3 T13 0	L2.5x2.5x3	HBrace	Single Angle	A36	Typical	0.901	0.535	0.535	0.011
102	RED DIA T13	L2.5x2.5x4	VBrace	Single Angle	A36	Typical	1.19	0.692	0.692	0.026
103	RED DIA 2 T13	L3X3X3	VBrace	Single Angle	A36	Typical	1.09	0.948	0.948	0.014
104	RED DIA 3 T13	LL4x6x7x3	VBrace	Double Angle (3/8 Gap)	A36	Typical	8.36	69.3	11.1	0.552
105	RED DIA 4 T13	L2.5x2.5x3	VBrace	Single Angle	A36	Typical	0.901	0.535	0.535	0.011

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
106	RED DIA 5 T13	L3X3X3	VBrace	Single Angle	A36	Typical	1.09	0.948	0.948	0.014
107	RED DIA 6 T13	LL5x5x12x6	VBrace	Double Angle (No Gap)	A36	Typical	14	81.3	31.4	2.66
108	RED DIA 7 T13	LL6x4x8x6	VBrace	Double Angle (No Gap)	A36	Typical	9.5	29.8	34.6	0.814
109	RED HORZ T13	L2.5x2x3	HBrace	Single Angle	A36	Typical	0.818	0.292	0.511	0.01
110	RED HORZ 2 T13	LL2.5x2.5x4x3	HBrace	Double Angle (No Gap)	A36	Typical	2.38	3.31	1.38	0.052
111	RED SUP T13	LL2.5x2.5x4x6	HBrace	None	A36	Typical	2.38	4.21	1.38	0.052
112	INNER SUPP T13 1	L3.5X3.5X4	HBrace	Single Angle	A36	Typical	1.7	2	2	0.039
113	INNER SUPP 2 T13 1	LL4x3x4x0	HBrace	Double Angle (No Gap)	A36	Typical	3.38	4.47	5.5	0.077
114	INNER SUPP 3 T13 1	L3.5X3.5X4	HBrace	Single Angle	A36	Typical	1.7	2	2	0.039

Member Point Loads

No Data to Print...

Load Combinations

	Description	Solve P-Delta	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor
1	Dead Only	Yes	Y	1	1	18	1	19	1	0	0	0	0	0	0	0
2	1.2 Dead+1.0 Wind 0 deg - No Ice	Yes	Y	1	1.2	2	1	18	1.2	19	1	0	0	0	0	0
3	0.9 Dead+1.0 Wind 0 deg - No Ice	Yes	Y	1	0.9	2	1	18	0.9	19	1	0	0	0	0	0
4	1.2 Dead+1.0 Wind 45 deg - No Ice	Yes	Y	1	1.2	3	1	18	1.2	19	1	0	0	0	0	0
5	0.9 Dead+1.0 Wind 45 deg - No Ice	Yes	Y	1	0.9	3	1	18	0.9	19	1	0	0	0	0	0
6	1.2 Dead+1.0 Wind 90 deg - No Ice	Yes	Y	1	1.2	4	1	18	1.2	19	1	0	0	0	0	0
7	0.9 Dead+1.0 Wind 90 deg - No Ice	Yes	Y	1	0.9	4	1	18	0.9	19	1	0	0	0	0	0
8	1.2 Dead+1.0 Wind 135 deg - No Ice	Yes	Y	1	1.2	5	1	18	1.2	19	1	0	0	0	0	0
9	0.9 Dead+1.0 Wind 135 deg - No Ice	Yes	Y	1	0.9	5	1	18	0.9	19	1	0	0	0	0	0
10	1.2 Dead+1.0 Wind 180 deg - No Ice	Yes	Y	1	1.2	6	1	18	1.2	19	1	0	0	0	0	0
11	0.9 Dead+1.0 Wind 180 deg - No Ice	Yes	Y	1	0.9	6	1	18	0.9	19	1	0	0	0	0	0
12	1.2 Dead+1.0 Wind 225 deg - No Ice	Yes	Y	1	1.2	7	1	18	1.2	19	1	0	0	0	0	0
13	0.9 Dead+1.0 Wind 225 deg - No Ice	Yes	Y	1	0.9	7	1	18	0.9	19	1	0	0	0	0	0
14	1.2 Dead+1.0 Wind 270 deg - No Ice	Yes	Y	1	1.2	8	1	18	1.2	19	1	0	0	0	0	0
15	0.9 Dead+1.0 Wind 270 deg - No Ice	Yes	Y	1	0.9	8	1	18	0.9	19	1	0	0	0	0	0
16	1.2 Dead+1.0 Wind 315 deg - No Ice	Yes	Y	1	1.2	9	1	18	1.2	19	1	0	0	0	0	0
17	0.9 Dead+1.0 Wind 315 deg - No Ice	Yes	Y	1	0.9	9	1	18	0.9	19	1	0	0	0	0	0
18	Dead+Wind 0 deg - Service	Yes	Y	1	1	10	1	18	1	19	1	0	0	0	0	0
19	Dead+Wind 45 deg - Service	Yes	Y	1	1	11	1	18	1	19	1	0	0	0	0	0
20	Dead+Wind 90 deg - Service	Yes	Y	1	1	12	1	18	1	19	1	0	0	0	0	0
21	Dead+Wind 135 deg - Service	Yes	Y	1	1	13	1	18	1	19	1	0	0	0	0	0
22	Dead+Wind 180 deg - Service	Yes	Y	1	1	14	1	18	1	19	1	0	0	0	0	0
23	Dead+Wind 225 deg - Service	Yes	Y	1	1	15	1	18	1	19	1	0	0	0	0	0
24	Dead+Wind 270 deg - Service	Yes	Y	1	1	16	1	18	1	19	1	0	0	0	0	0
25	Dead+Wind 315 deg - Service	Yes	Y	1	1	17	1	18	1	19	1	0	0	0	0	0

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*P _{nc} [k]	phi*P _{nt} [k]	phi*M _n y-y [k-ft]	phi*M _n z-z [k-ft]	C _b	Eqn
1	M3	L5x5x7/16	0.085	0	12	0.018	0	y	2	119.078	135.432	3.247	16.89	1	H2-1	
2	M4	L5x5x7/16	0.087	0	16	0.017	0	z	2	119.078	135.432	3.247	16.89	1	H2-1	
3	M7	C8X11.5	0.039	10.5	17	0.003	5.25	y	6	44.021	109.188	3.353	15.241	1	H1-1b	
4	M13	L3 1/2x3 1/2x1/4	0.122	3.741	10	0.003	0	z	16	35.157	54.756	0.921	3.888	1	H2-1	
5	M14	L3 1/2x3 1/2x1/4	0.128	0.85	2	0.003	0	z	16	35.157	54.756	0.921	3.888	1	H2-1	
6	M19	L2.5x2.5x3	0.066	0	17	0.002	5.25	z	8	19.964	29.192	0.873	1.534	1	H2-1	
7	M21	L6x6x5/8	0.16	1.314	16	0.022	12.612	y	10	206.16	230.364	6.631	35.605	1	H2-1	
8	M22	L6x6x5/8	0.163	4.204	12	0.022	12.612	z	2	206.16	230.364	6.631	35.605	1	H2-1	
9	M23	L6x6x5/8	0.162	2.102	8	0.022	12.612	y	2	206.16	230.364	6.631	35.605	1	H2-1	
10	M24	L6x6x5/8	0.166	4.204	4	0.022	12.612	z	10	206.16	230.364	6.631	35.605	1	H2-1	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member		Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
11	M25	C8X11.5	0.073	10.5	10	0.006	5.25	y	10	44.021	109.188	3.353	15.241	1	H1-1b
12	M26	C8X11.5	0.079	10.5	16	0.006	5.25	y	6	44.021	109.188	3.353	15.241	1	H1-1b
13	M27	C8X11.5	0.076	10.5	10	0.007	5.25	y	2	44.021	109.188	3.353	15.241	1	H1-1b
14	M28	C8X11.5	0.068	0	16	0.007	5.25	y	14	44.021	109.188	3.353	15.241	1	H1-1b
15	M29	L3 1/2x3 1/2x5/16	0.266	3.928	2	0.006	0	z	12	33.527	67.716	1.135	4.748	1	H2-1
16	M30	L3 1/2x3 1/2x5/16	0.257	1.571	10	0.005	10.408	z	12	33.527	67.716	1.135	4.748	1	H2-1
17	M31	L3 1/2x3 1/2x5/16	0.221	5.499	14	0.006	0	z	8	33.527	67.716	1.135	4.748	1	H2-1
18	M32	L3 1/2x3 1/2x5/16	0.242	0.589	6	0.005	10.212	z	12	33.527	67.716	1.135	4.748	1	H2-1
19	M33	L3 1/2x3 1/2x5/16	0.26	6.088	10	0.006	0	z	4	33.527	67.716	1.135	4.748	1	H2-1
20	M34	L3 1/2x3 1/2x5/16	0.29	0.393	2	0.006	0	z	16	33.527	67.716	1.135	4.748	1	H2-1
21	M35	L3 1/2x3 1/2x5/16	0.222	4.517	6	0.005	0	z	16	33.527	67.716	1.135	4.748	1	H2-1
22	M36	L3 1/2x3 1/2x5/16	0.237	0.982	14	0.006	10.212	z	4	33.527	67.716	1.135	4.748	1	H2-1
23	M37	C8X11.5	0.224	12.875	4	0.017	6.438	y	12	29.345	109.188	3.353	12.07	1	H1-1b
24	M38	C8X11.5	0.232	12.875	16	0.015	6.438	y	8	29.345	109.188	3.353	12.07	1	H1-1b
25	M39	C8X11.5	0.249	0	16	0.017	6.438	y	4	29.345	109.188	3.353	12.07	1	H1-1b
26	M40	C8X11.5	0.203	0	12	0.016	6.438	y	16	29.345	109.188	3.353	12.07	1	H1-1b
27	M41	L3X2.5X4	0.077	6.981	4	0.003	0	z	4	24.011	42.768	1.251	2.272	1	H2-1
28	M42	L3X2.5X4	0.078	6.981	16	0.003	13.962	z	2	24.011	42.768	1.251	2.272	1	H2-1
29	M43	L3X2.5X4	0.076	6.981	12	0.003	0	z	12	24.011	42.768	1.251	2.272	1	H2-1
30	M44	L3X2.5X4	0.076	6.981	8	0.003	0	z	8	24.011	42.768	1.251	2.272	1	H2-1
31	M45	L3 1/2x3 1/2x5/16	0.233	8.577	2	0.004	0	z	12	37.142	67.716	1.135	4.881	1	H2-1
32	M46	L3 1/2x3 1/2x5/16	0.228	2.502	10	0.004	9.47	z	16	37.142	67.716	1.135	4.881	1	H2-1
33	M47	L3 1/2x3 1/2x5/16	0.202	5.182	14	0.005	9.292	z	16	37.142	67.716	1.135	4.881	1	H2-1
34	M48	L3 1/2x3 1/2x5/16	0.225	0.715	6	0.004	9.292	z	12	37.142	67.716	1.135	4.881	1	H2-1
35	M49	L3 1/2x3 1/2x5/16	0.224	6.254	10	0.005	0	z	4	37.142	67.716	1.135	4.881	1	H2-1
36	M50	L3 1/2x3 1/2x5/16	0.259	0.715	2	0.006	0	z	16	37.142	67.716	1.135	4.881	1	H2-1
37	M51	L3 1/2x3 1/2x5/16	0.205	3.752	6	0.004	17.154	z	16	37.142	67.716	1.135	4.881	1	H2-1
38	M52	L3 1/2x3 1/2x5/16	0.22	1.429	14	0.004	9.292	z	4	37.142	67.716	1.135	4.881	1	H2-1
39	M53	L3X2.5X4	0.137	0	10	0.002	11.567	z	8	28.778	42.768	1.251	2.395	1	H2-1
40	M54	L3X2.5X4	0.12	11.567	16	0.002	11.567	z	16	28.778	42.768	1.251	2.545	1	H2-1
41	M55	L3X2.5X4	0.151	11.567	10	0.002	0	z	16	28.778	42.768	1.251	2.545	1	H2-1
42	M56	L3X2.5X4	0.1	0	16	0.002	0	z	8	28.778	42.768	1.251	2.395	1	H2-1
43	M57	L6x6x7/8	0.169	4.986	16	0.021	0	y	12	283.608	315.252	9.123	48.188	1	H2-1
44	M58	L6x6x7/8	0.163	3.805	12	0.01	0	y	8	283.608	315.252	9.123	48.188	1	H2-1
45	M59	L6x6x7/8	0.171	3.805	8	0.01	0	y	4	283.608	315.252	9.123	48.188	1	H2-1
46	M60	L6x6x7/8	0.172	9.448	4	0.014	0	z	8	283.608	315.252	9.123	48.188	1	H2-1
47	M61	L3X2.5X4	0.643	15.25	5	0.022	15.25	z	5	5.699	42.768	1.251	1.602	1	H2-1
48	M62	L3X2.5X4	0.622	15.25	3	0.022	15.25	z	17	5.699	42.768	1.251	1.602	1	H2-1
49	M63	L3X2.5X4	0.588	0	17	0.021	0	z	17	5.699	42.768	1.251	1.602	1	H2-1
50	M64	L3X2.5X4	0.613	0	11	0.021	0	z	11	5.699	42.768	1.251	1.602	1	H2-1
51	M65	2L3x2x1/4x3/8	0.257	0	2	0.005	10.951	y	12	44.46	77.112	3.72	3.419	1	H1-1a
52	M66	2L3x2x1/4x3/8	0.196	0	10	0.004	0	y	16	44.459	77.112	3.72	3.419	1	H1-1b*
53	M67	2L3x2x1/4x3/8	0.137	0	14	0.005	0	y	16	44.46	77.112	3.72	3.419	1	H1-1b*
54	M68	2L3x2x1/4x3/8	0.14	0	6	0.005	0	y	12	44.46	77.112	3.72	3.419	1	H1-1b*
55	M69	2L3x2x1/4x3/8	0.197	0	10	0.005	10.951	y	4	44.46	77.112	3.72	3.419	1	H1-1b*
56	M70	2L3x2x1/4x3/8	0.19	0	2	0.005	0	y	8	44.46	77.112	3.72	3.419	1	H1-1b*
57	M71	2L3x2x1/4x3/8	0.143	0	6	0.004	0	y	8	44.46	77.112	3.72	3.419	1	H1-1b*
58	M72	2L3x2x1/4x3/8	0.144	0	14	0.005	0	y	4	44.46	77.112	3.72	3.419	1	H1-1b*
59	M73	L3X2.5X4	0.106	8.14	8	0.003	0	z	6	19.511	42.768	1.251	2.161	1	H2-1
60	M74	L3X2.5X4	0.093	8.14	16	0.003	16.28	z	2	19.511	42.768	1.251	2.161	1	H2-1
61	M75	L3X2.5X4	0.099	8.14	12	0.003	0	z	14	19.511	42.768	1.251	2.161	1	H2-1
62	M76	L3X2.5X4	0.095	8.14	8	0.004	0	z	10	19.511	42.768	1.251	2.161	1	H2-1
63	M77	L6x6x7/8	0.2	3.674	16	0.013	0	y	12	287.306	315.252	9.123	48.188	1	H2-1
64	M78	L6x6x7/8	0.184	9.185	12	0.013	0	z	16	287.306	315.252	9.123	48.188	1	H2-1
65	M81	2L3x2 1/2x1/4x3/8	0.219	0	9	0.011	17.458	z	4	64.846	85.212	5.423	3.925	1	H1-1b

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
66	M82	2L2	1/2x3x1/4x3/8	0.289	7.971	2	0.006	7.971	y	4	59.497	85.212	7.465	3.177	1	H1-1a
67	M83		L2.5x2.5x4	0.07	0	8	0.003	0	z	4	20.706	38.556	1.114	2.253	1	H2-1
68	M84		L2.5x2x3	0.103	7.342	12	0.003	0	z	8	10.226	26.503	0.626	1.016	1	H2-1
69	M85	2L2	1/2x3x1/4x3/8	0.29	7.971	10	0.006	7.971	y	8	59.497	85.212	7.465	3.177	1	H1-1a
70	M86		L2.5x2.5x4	0.075	4.365	5	0.003	4.365	z	8	20.706	38.556	1.114	2.253	1	H2-1
71	M87		L2.5x2x3	0.061	0	16	0.003	7.342	z	4	10.226	26.503	0.626	1.016	1	H2-1
72	M114		L6x6x7/8	0.259	3.94	16	0.013	0	z	4	287.261	315.252	9.123	48.188	1	H2-1
73	M115		L6x6x7/8	0.224	9.719	12	0.013	0	z	16	287.261	315.252	9.123	48.188	1	H2-1
74	M118		LL2.5x2.5x4x0	0.303	19.667	2	0.012	19.667	z	4	45.203	77.112	4.441	2.853	1	H1-1a
75	M119	2L2	1/2x3x1/4x3/8	0.301	8.346	2	0.008	8.346	y	4	57.475	85.212	7.465	3.165	1	H1-1a
76	M120		LL2.5x2.5x4x0	0.078	0	8	0.003	0	z	4	56.214	77.112	4.441	3.055	1	H1-1b
77	M121		LL2.5x2.5x4x0	0.047	7.628	8	0.004	0	z	16	36.036	77.112	4.441	2.942	1	H1-1b
78	M122	2L2	1/2x3x1/4x3/8	0.304	8.346	10	0.008	16.692	y	16	57.475	85.212	7.465	3.165	1	H1-1a
79	M123		LL2.5x2.5x4x0	0.08	4.917	4	0.003	4.917	z	10	56.214	77.112	4.441	3.055	1	H1-1b
80	M124		LL2.5x2.5x4x0	0.05	7.628	4	0.004	0	z	12	36.036	77.112	4.441	2.942	1	H1-1b
81	M151		L6x6x7/8	0.302	7.355	16	0.023	12.608	z	4	287.261	315.252	9.123	48.188	1	H2-1
82	M152		L6x6x7/8	0.268	5.122	12	0.022	12.608	y	8	287.261	315.252	9.123	48.188	1	H2-1
83	M155		LL2.5x2.5x4x0	0.415	22	4	0.014	22	z	4	39.523	77.112	4.441	2.807	1	H1-1a
84	M156	2L2	1/2x3x1/4x3/8	0.301	8.741	2	0.008	8.741	y	4	55.323	85.212	7.465	3.153	1	H1-1a
85	M157		L2.5x2.5x4	0.069	0	8	0.003	0	z	12	14.338	38.556	1.114	2.131	1	H2-1
86	M158		L2.5x2.5x4	0.118	3.987	16	0.007	3.987	y	8	16.05	38.556	1.114	1.904	1	H2-1
87	M159	2L2	1/2x3x1/4x3/8	0.302	0	10	0.008	17.483	y	16	55.323	85.212	7.465	3.153	1	H1-1a
88	M160		L2.5x2.5x4	0.082	5.5	4	0.003	5.5	z	8	14.338	38.556	1.114	2.131	1	H2-1
89	M161		L2.5x2.5x4	0.11	3.987	12	0.008	3.987	y	4	16.05	38.556	1.114	1.904	1	H2-1
90	M188		L8x8x3/4	0.339	1.313	16	0.012	12.608	z	4	350.999	369.36	14.265	79.428	1	H2-1
91	M189		L8x8x3/4	0.291	0	10	0.012	12.608	y	8	350.999	369.36	14.265	79.428	1	H2-1
92	M192	2L3x2	1/2x1/4x3/8	0.363	26.667	4	0.009	26.667	z	4	45.057	85.212	5.423	3.662	1	H1-1a
93	M193	2L2	1/2x3 1/2x1/4x3/8	0.348	9.59	2	0.007	9.59	y	4	53.981	93.312	9.918	3.258	1	H1-1a
94	M194		L2.5x2.5x3	0.149	0	4	0.002	0	z	16	7.388	29.192	0.873	1.408	1	H2-1
95	M195	2L3x2	1/2x1/4x3/8	0.062	8.741	8	0.004	8.741	z	8	44.564	85.212	5.423	3.924	1	H1-1b
96	M196	2L2	1/2x3 1/2x1/4x3/8	0.346	9.59	10	0.007	9.59	y	8	53.981	93.312	9.918	3.258	1	H1-1a
97	M197		L2.5x2.5x3	0.156	6.667	8	0.002	6.667	z	12	7.388	29.192	0.873	1.408	1	H2-1
98	M198	2L3x2	1/2x1/4x3/8	0.06	8.741	4	0.004	8.741	z	4	44.564	85.212	5.423	3.924	1	H1-1b
99	M225	2L3x2	1/2x1/4x3/8	0.341	12.167	16	0.009	12.167	z	16	50.124	85.212	5.423	3.727	1	H1-1a
100	M226	2L2	1/2x3 1/2x1/4x3/8	0.36	18.314	2	0.004	9.157	z	4	56.653	93.312	9.918	3.269	1	H1-1a
101	M227		L2.5x2.5x3	0.127	6.083	5	0.002	0	z	4	8.875	29.192	0.873	1.458	1	H2-1
102	M228	2L3x2	1/2x1/4x3/8	0.036	8.346	4	0.004	0	z	4	47.19	85.212	5.423	3.948	1	H1-1b
103	M229	2L2	1/2x3 1/2x1/4x3/8	0.356	0	10	0.004	0	y	16	56.653	93.312	9.918	3.269	1	H1-1a
104	M230		L2.5x2.5x3	0.122	0	9	0.002	6.083	z	8	8.875	29.192	0.873	1.458	1	H2-1
105	M231	2L3x2	1/2x1/4x3/8	0.038	8.259	16	0.003	0	z	8	47.19	85.212	5.423	3.948	1	H1-1b
106	M258		L8x8x7/8	0.324	0.263	16	0.021	0	y	10	390.207	427.68	16.388	89.861	1	H2-1
107	M259		L8x8x7/8	0.278	25.202	11	0.015	16.801	z	10	390.207	427.68	16.388	89.861	1	H2-1
108	M262	2L3	1/2x2 1/2x1/4x3/8	0.392	14.5	4	0.009	14.5	z	4	48.533	93.312	5.465	4.378	1	H1-1a
109	M263	2L3	1/2x4x1/4x3/8	0.419	20.118	2	0.003	0	y	12	80.76	117.45	12.64	5.63	1	H1-1a
110	M264		L2.5x2x.19"	0.066	0	16	0.002	0	z	4	17.607	26.532	0.638	1.187	1	H2-1
111	M265		LL2.5x2.5x3x3	0.105	0	16	0.006	0	y	8	35.25	58.32	3.954	2.035	1	H1-1b
112	M266		2L3x3x3/16	0.043	9.31	10	0.002	0	y	4	47.791	70.632	4.823	2.778	1	H1-1b
113	M267		LL2.5x2x.19x.31	0.199	0	16	0.003	12.228	y	4	24.763	53.065	2.656	1.765	1	H1-1b*
114	M268	2L3	1/2x4x1/4x3/8	0.416	20.118	10	0.004	0	y	16	80.76	117.45	12.64	5.63	1	H1-1a
115	M269		L2.5x2x.19"	0.073	4.833	8	0.002	4.833	z	8	17.607	26.532	0.638	1.187	1	H2-1
116	M270		LL2.5x2.5x3x3	0.124	9.667	12	0.006	0	y	8	35.25	58.32	3.954	2.035	1	H1-1b
117	M271		2L3x3x3/16	0.043	9.31	16	0.002	9.31	y	16	47.791	70.632	4.823	2.778	1	H1-1b
118	M272		LL2.5x2x.19x.31	0.189	0	12	0.003	0	y	8	24.763	53.065	2.656	1.765	1	H1-1b*
119	M273		LL2.5x2.5x3x3	0.217	0	16	0.004	0	z	8	29.786	58.32	3.954	1.993	1	H1-1b
120	M323		L8x8x1 1/8	0.337	25.217	16	0.012	25.217	y	12	493.034	541.08	20.783	111.228	1	H2-1

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
121	M324	L8x8x1 1/8	0.292	1.839	10	0.012	25.217	z	16	493.034	541.08	20.783	111.228	1	H2-1	
122	M329	L2.5x2x3	0.087	0	4	0.002	5.583	y	10	15.289	26.503	0.626	1.219	1	H2-1	
123	M330	LL2.5x2.5x3x0	0.073	0	12	0.003	0	y	16	29.786	58.32	3.3	1.95	1	H1-1b	
124	M331	L3x3x.21	0.039	9.651	12	0.001	9.651	y	12	16.953	39.395	1.488	2.076	1	H2-1	
125	M332	LL2.5x2x3x0	0.152	0	14	0.003	13.341	y	4	19.951	53.136	2.182	1.686	1	H1-1b*	
126	M334	L2.5x2x3	0.087	5.583	8	0.003	5.583	y	10	15.289	26.503	0.626	1.219	1	H2-1	
127	M335	LL2.5x2.5x3x0	0.069	11.167	16	0.003	11.167	y	10	29.786	58.32	3.3	1.95	1	H1-1b	
128	M336	L3x3x.21	0.046	0	10	0.001	0	y	14	16.953	39.395	1.488	2.076	1	H2-1	
129	M337	LL2.5x2x3x0	0.161	0	16	0.003	13.341	y	8	19.951	53.136	2.182	1.686	1	H1-1b*	
130	M338	LL2.5x2.5x3x0	0.174	0	16	0.003	0	y	2	24.382	58.32	3.3	1.902	1	H1-1b	
131	M388	L8x8x1 1/8	0.391	14.71	16	0.008	25.217	y	12	493.034	541.08	20.783	111.228	1	H2-1	
132	M389	L8x8x1 1/8	0.33	15.235	10	0.008	25.217	z	16	493.034	541.08	20.783	111.228	1	H2-1	
133	M392	LL3.5x3.5x4x3	0.521	19.083	4	0.008	19.083	z	17	40.785	110.16	9.817	4.976	1	H1-1a	
134	M393	2L3 1/2x4x1/4x3/8	0.415	11.001	2	0.006	11.001	y	8	80.484	117.45	12.64	5.585	1	H1-1a	
135	M394	L2 1/2x2 1/2x.19	0.071	0	8	0.003	0	y	16	17.438	29.61	0.921	1.484	1	H2-1	
136	M395	LL2.5x2.5x.25x.51"	0.075	0	8	0.004	0	y	16	32.062	76.95	5.724	2.82	1	H1-1b	
137	M396	L3x3x.2	0.054	10.061	8	0.002	0	y	16	15.063	37.584	1.429	1.893	1	H2-1	
138	M397	LL3x2x3x3	0.158	0	16	0.003	14.585	y	4	21.908	59.292	2.725	2.125	1	H1-1b*	
139	M398	2L3 1/2x4x1/4x3/8	0.409	11.001	10	0.006	22.001	z	8	80.484	117.45	12.64	5.585	1	H1-1a	
140	M399	L2 1/2x2 1/2x.19	0.075	6.361	4	0.003	0	y	4	17.438	29.61	0.921	1.484	1	H2-1	
141	M400	LL2.5x2.5x.25x.51"	0.076	12.722	4	0.004	12.722	y	12	32.062	76.95	5.724	2.82	1	H1-1b	
142	M401	L3x3x.2	0.072	0	12	0.002	0	y	12	15.063	37.584	1.429	1.893	1	H2-1	
143	M402	LL3x2x3x3	0.147	14.585	16	0.003	14.585	y	8	21.908	59.292	2.725	2.125	1	H1-1b	
144	M403	LL2.5x2.5x.25x.51"	0.193	0	16	0.003	0	y	16	25.615	76.95	5.724	2.768	1	H1-1b	
145	M453	L8x8x1 1/8	0.413	3.938	16	0.013	25.202	z	4	493.084	541.08	20.783	111.228	1	H2-1	
146	M454	L8x8x1 1/8	0.366	14.176	10	0.013	25.202	y	8	493.084	541.08	20.783	111.228	1	H2-1	
147	M457	2L4x3x1/4x3/8	0.735	42.833	3	0.008	28.556	z	8	40.68	109.512	7.572	5.031	1	H1-1a	
148	M528	L8x8x1 1/8	0.466	23.115	8	0.027	0	z	10	493.03	541.08	20.783	111.228	1	H2-1	
149	M529	L8x8x1 1/8	0.468	23.115	4	0.029	0	y	2	493.03	541.08	20.783	111.228	1	H2-1	
150	M560	2L4x4x1/4x3/8	0.787	0	2	0.007	31.556	z	16	40.306	125.712	12.817	5.902	1	H1-1a	
151	M601	L8x8x1 + L4x4x1/2 Reinf	0.376	9.701	8	0.023	18.262	y	4	570.976	607.418	23.542	122.2	1	H2-1	
152	M602	L8x8x1 + L4x4x1/2 Reinf	0.373	9.701	4	0.024	18.262	y	16	570.976	607.418	23.542	122.2	1	H2-1	
153	M647	LL5x5x10x6	0.953	0	3	0.029	17.333	y	16	209.581	382.32	54.171	30.228	1	H1-1a	
154	M676	LL5x5x12x6	0.681	0	10	0.039	0	y	10	424.154	453.6	65.343	36.543	1.371	H1-1a	
155	M677	LL2.5x2.5x4x6	0.296	0	10	0.007	8.741	z	10	50.562	77.112	6.326	2.975	2.233	H1-1b	
156	M673	2L4x6x3/4x3/8	0.834	18.575	2	0.013	18.575	z	10	408.096	450.36	83.856	24.099	1	H1-1a	
157	M674	2L4x6x3/4x3/8	0.842	0	10	0.012	6.192	z	2	408.096	450.36	83.856	24.099	1	H1-1a	
158	M675	LL4x6x7x3	0.849	0	2	0.012	7.467	y	2	219.859	270.864	48.384	14.773	1.975	H1-1a	
159	M671	LL2.5x2.5x4x6	0.208	0	2	0.008	8.741	z	2	50.562	77.112	6.326	3.281	2.226	H1-1b	
160	M678	LL2.5x2.5x4x6	0.208	8.741	10	0.009	8.741	z	10	50.562	77.112	6.326	3.281	2.226	H1-1b	
161	M688	LL5x5x12x6	0.599	0	2	0.005	0	y	10	365.344	453.6	65.343	36.543	1.052	H1-1a	
162	M689	LL5x5x12x6	0.598	0	10	0.005	0	y	2	365.344	453.6	65.343	36.543	1.04	H1-1a	
163	M704	L3X3X3	0.451	0	2	0.004	0	y	2	12.994	35.316	1.32	2.045	1.5	H2-1	
164	M687	LL4x6x7x3	0.844	16.67	10	0.015	9.203	y	10	219.859	270.864	48.384	14.773	2.075	H1-1a	
165	M690	L3X3X3	0.44	0	10	0.005	0	y	10	12.994	35.316	1.32	2.045	1.5	H2-1	
166	M705	LL2.5x2.5x4x3	0.075	0	2	0.003	0	y	4	55.558	77.112	5.321	2.977	1.105	H1-1b	
167	M706	L2.5x2x3	0.115	0	2	0.006	3.852	y	10	20.397	26.503	0.626	1.465	1.5	H2-1	
168	M707	L2.5x2.5x3	0.219	0	2	0.01	0	y	2	21.955	29.192	0.873	1.772	1.5	H2-1	
169	M708	L3X3X3	0.602	11.113	2	0.003	11.113	y	16	11.253	35.316	1.32	1.889	1.349	H2-1	
170	M709	L2.5x2.5x4	0.142	0	8	0.002	8.09	y	16	15.641	38.556	1.114	2.142	1.5	H2-1	
171	M710	L2.5x2x3	0.112	0	8	0.006	0	y	10	20.397	26.503	0.626	1.465	1.5	H2-1	
172	M711	L2.5x2.5x4	0.133	8.09	4	0.002	0	y	8	15.641	38.556	1.114	2.142	1.5	H2-1	
173	M712	L2.5x2.5x3	0.15	4.546	10	0.005	0	y	10	21.955	29.192	0.873	1.772	1.5	H2-1	
174	M713	LL2.5x2.5x4x3	0.072	0	10	0.003	0	y	8	55.558	77.112	5.321	2.977	1.529	H1-1b	
175	M714	L3X3X3	0.527	11.113	10	0.003	11.113	y	10	11.253	35.316	1.32	1.984	1.5	H2-1	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn	
176	M626	LL5x5x12x6	0.288	12.309	16	0.004	12.309	y	4	365.344	453.6	65.343	36.543	1.483	H1-1a
177	M627	LL5x5x12x6	0.284	12.309	6	0.004	12.309	y	16	365.344	453.6	65.343	36.543	1.375	H1-1a
178	M628	2L4x6x3/4x3/8	0.417	18.575	16	0.01	18.575	z	16	408.096	450.36	83.856	24.099	3	H1-1a
179	M629	L2.5x2x3	0.106	0	2	0.005	3.852	y	4	20.397	26.503	0.626	1.369	1.5	H2-1
180	M630	L2.5x2.5x4	0.168	0	2	0.002	8.09	y	10	15.641	38.556	1.114	2.142	1.5	H2-1
181	M631	LL5x5x12x6	0.263	23.611	12	0.024	0	y	16	424.154	453.6	65.343	36.543	1.442	H1-1b
182	M632	L2.5x2.5x3	0.187	0	16	0.008	0	y	16	21.955	29.192	0.873	1.772	1.5	H2-1
183	M633	LL4x6x7x3	0.413	16.67	6	0.01	9.203	y	4	219.859	270.864	48.384	14.773	2.176	H1-1a
184	M634	L2.5x2x3	0.096	0	4	0.004	0	y	8	20.397	26.503	0.626	1.465	1.5	H2-1
185	M635	LL5x5x10x6	0.66	52	9	0.029	34.667	y	8	209.581	382.32	54.171	30.228	1	H1-1a
186	M636	LL2.5x2.5x4x6	0.098	8.741	6	0.005	8.741	z	6	50.562	77.112	6.326	3.281	2.23	H1-1b
187	M637	L2.5x2.5x4	0.181	0	2	0.002	0	y	2	15.641	38.556	1.114	2.142	1.5	H2-1
188	M638	LL4x6x7x3	0.447	0	16	0.01	7.467	y	16	219.859	270.864	48.384	14.773	2.167	H1-1a
189	M639	L2.5x2.5x3	0.122	4.546	4	0.004	0	y	4	21.955	29.192	0.873	1.772	1.5	H2-1
190	M641	L3X3X3	0.205	0	16	0.003	0	y	4	11.253	35.316	1.32	1.984	1.5	H2-1
191	M642	2L4x6x3/4x3/8	0.405	0	6	0.011	6.192	z	16	408.096	450.36	83.856	24.099	1	H1-1a
192	M643	L3X3X3	0.318	0	16	0.004	0	y	16	12.994	35.316	1.32	2.045	1.5	H2-1
193	M644	LL2.5x2.5x4x6	0.104	0	16	0.005	8.741	z	14	50.562	77.112	6.326	3.281	2.227	H1-1b
194	M645	L3X3X3	0.287	0	4	0.003	0	y	4	12.994	35.316	1.32	2.045	1.5	H2-1
195	M646	L8x8x1 + L4x4x1/2 Reinf	0.385	10.558	16	0.023	18.262	z	4	570.976	607.418	23.542	122.2	1	H2-1
196	M648	LL2.5x2.5x4x3	0.05	0	16	0.003	0	y	16	55.558	77.112	5.321	2.977	2.158	H1-1b
197	M649	LL2.5x2.5x4x6	0.299	0	8	0.007	8.741	y	10	50.562	77.112	6.326	2.975	2.231	H1-1b
198	M650	L3X3X3	0.275	11.113	4	0.003	0	y	10	11.253	35.316	1.32	1.984	1.5	H2-1
199	M651	LL2.5x2.5x4x3	0.054	0	4	0.003	0	y	4	55.558	77.112	5.321	2.977	2.265	H1-1b
200	M652	LL5x5x12x6	0.598	0	10	0.005	0	y	2	365.344	453.6	65.343	36.543	1.032	H1-1a
201	M653	LL5x5x12x6	0.596	12.309	2	0.005	12.309	y	10	365.344	453.6	65.343	36.543	1.056	H1-1a
202	M654	2L4x6x3/4x3/8	0.837	18.575	10	0.012	18.575	z	2	408.096	450.36	83.856	24.099	1	H1-1a
203	M655	L2.5x2x3	0.111	0	2	0.006	3.852	y	2	20.397	26.503	0.626	1.369	1.5	H2-1
204	M656	L2.5x2.5x4	0.142	0	16	0.002	8.09	y	8	15.641	38.556	1.114	2.142	1.5	H2-1
205	M657	LL5x5x12x6	0.691	23.611	2	0.041	23.611	y	2	424.154	453.6	65.343	36.543	1.371	H1-1a
206	M658	L2.5x2.5x3	0.218	0	10	0.01	0	y	10	21.955	29.192	0.873	1.772	1.5	H2-1
207	M659	LL4x6x7x3	0.838	16.67	2	0.015	9.203	y	2	219.859	270.864	48.384	14.773	2.102	H1-1a
208	M660	L2.5x2x3	0.108	0	10	0.006	0	y	2	20.397	26.503	0.626	1.369	1.5	H2-1
209	M661	LL5x5x10x6	0.951	52	3	0.029	34.667	y	4	209.581	382.32	54.171	30.228	1	H1-1a
210	M662	LL2.5x2.5x4x6	0.211	8.741	2	0.009	8.741	z	2	50.562	77.112	6.326	3.281	2.226	H1-1b
211	M663	L2.5x2.5x4	0.122	0	12	0.002	0	y	16	15.641	38.556	1.114	2.142	1.5	H2-1
212	M664	LL4x6x7x3	0.842	0	10	0.012	7.467	y	10	219.859	270.864	48.384	14.773	1.992	H1-1a
213	M665	L2.5x2.5x3	0.151	4.546	16	0.005	0	y	2	21.955	29.192	0.873	1.772	1.5	H2-1
214	M667	L3X3X3	0.527	11.113	10	0.003	11.113	y	10	11.253	35.316	1.32	1.856	1.301	H2-1
215	M668	2L4x6x3/4x3/8	0.852	0	2	0.013	6.192	z	10	408.096	450.36	83.856	24.099	1	H1-1a
216	M669	L3X3X3	0.45	0	10	0.004	0	y	10	12.994	35.316	1.32	2.045	1.5	H2-1
217	M670	LL2.5x2.5x4x6	0.209	0	10	0.008	8.741	z	10	50.562	77.112	6.326	3.281	2.226	H1-1b
218	M672	L3X3X3	0.439	0	2	0.005	0	y	2	12.994	35.316	1.32	2.045	1.5	H2-1
219	M679	L8x8x1 + L4x4x1/2 Reinf	0.342	9.987	10	0.024	18.262	z	16	570.976	607.418	23.542	122.2	1	H2-1
220	M680	LL2.5x2.5x4x3	0.073	0	10	0.003	0	y	10	55.558	77.112	5.321	2.977	1.108	H1-1b
221	M681	LL2.5x2.5x4x6	0.299	0	4	0.006	8.741	z	2	50.562	77.112	6.326	2.975	2.232	H1-1b
222	M682	L3X3X3	0.368	11.113	2	0.003	11.113	y	2	11.253	35.316	1.32	1.984	1.5	H2-1
223	M683	LL2.5x2.5x4x3	0.066	0	2	0.003	0	y	16	55.558	77.112	5.321	2.977	1.259	H1-1b
224	M684	LL5x5x12x6	0.284	12.309	6	0.004	12.309	y	12	365.344	453.6	65.343	36.543	1.266	H1-1a
225	M685	LL5x5x12x6	0.281	0	14	0.004	0	y	8	365.344	453.6	65.343	36.543	1.386	H1-1a
226	M686	2L4x6x3/4x3/8	0.405	18.575	6	0.01	18.575	z	8	408.096	450.36	83.856	24.099	1	H1-1a
227	M691	L2.5x2x3	0.106	0	10	0.004	3.852	y	12	20.397	26.503	0.626	1.369	1.5	H2-1
228	M692	L2.5x2.5x4	0.171	0	10	0.002	8.09	y	2	15.641	38.556	1.114	2.142	1.5	H2-1
229	M693	LL5x5x12x6	0.26	23.611	6	0.022	2.951	y	17	424.154	453.6	65.343	36.543	1.422	H1-1b
230	M694	L2.5x2.5x3	0.176	0	8	0.008	0	y	8	21.955	29.192	0.873	1.772	1.5	H2-1

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*	Pnc [k]	phi*	Pnt [k]	phi*	Mn y-y [k-ft]	phi*	Mn z-z [k-ft]	Cb	Eqn
231	M695	LL4x6x7x3	0.419	16.67	12	0.01	9.203	y 12	219.859	270.864	48.384	14.773	2.163	H1-1a						
232	M696	L2.5x2x3	0.085	3.852	8	0.005	0	y 16	20.397	26.503	0.626	1.465	1.5	H2-1						
233	M697	LL5x5x10x6	0.711	52	17	0.03	34.667	y 16	209.581	382.32	54.171	30.228	1	H1-1a						
234	M698	LL2.5x2.5x4x6	0.099	8.741	12	0.005	8.741	z 16	50.562	77.112	6.326	3.281	2.227	H1-1b						
235	M715	L2.5x2.5x4	0.176	0	10	0.002	0	y 10	15.641	38.556	1.114	2.142	1.5	H2-1						
236	M716	LL4x6x7x3	0.413	0	6	0.009	7.467	y 8	219.859	270.864	48.384	14.773	2.128	H1-1a						
237	M717	L2.5x2.5x3	0.114	4.546	12	0.004	0	y 12	21.955	29.192	0.873	1.772	1.5	H2-1						
238	M719	L3X3X3	0.236	0	8	0.003	11.113	y 4	11.253	35.316	1.32	1.984	1.5	H2-1						
239	M720	2L4x6x3/4x3/8	0.405	0	14	0.009	6.192	z 12	408.096	450.36	83.856	24.099	1	H1-1a						
240	M721	L3X3X3	0.295	0	8	0.003	0	y 8	12.994	35.316	1.32	2.045	1.5	H2-1						
241	M722	LL2.5x2.5x4x6	0.1	0	6	0.005	8.741	z 6	50.562	77.112	6.326	3.281	2.23	H1-1b						
242	M723	L3X3X3	0.278	0	12	0.003	0	y 12	12.994	35.316	1.32	2.045	1.5	H2-1						
243	M725	LL2.5x2.5x4x3	0.052	0	8	0.003	0	y 8	55.558	77.112	5.321	2.977	2.215	H1-1b						
244	M726	LL2.5x2.5x4x6	0.304	0	16	0.007	8.741	y 2	50.562	77.112	6.326	2.975	2.231	H1-1b						
245	M727	L3X3X3	0.241	11.113	12	0.003	0	y 2	11.253	35.316	1.32	1.984	1.5	H2-1						
246	M728	LL2.5x2.5x4x3	0.05	0	12	0.003	0	y 12	55.558	77.112	5.321	2.977	2.241	H1-1b						
247	M703	L3.5X3.5X4	0.917	0	17	0.006	0	y 12	19.89	55.08	2.416	3.874	1.5	H2-1						
248	M730	L3.5X3.5X4	0.872	12.257	5	0.007	12.257	y 2	19.89	55.08	2.416	3.874	1.5	H2-1						
249	M731	L3.5X3.5X4	0.878	12.257	9	0.006	12.257	y 4	19.89	55.08	2.416	3.874	1.5	H2-1						
250	M732	L3.5X3.5X4	0.751	12.257	13	0.007	12.257	y 10	19.89	55.08	2.416	3.874	1.5	H2-1						
251	M733	L3.5X3.5X4	0.661	0	10	0.019	0	y 10	19.89	55.08	2.416	3.874	1.5	H2-1						
252	M734	L3.5X3.5X4	0.771	0	2	0.019	0	y 12	19.89	55.08	2.416	3.874	1.5	H2-1						
253	M735	L3.5X3.5X4	0.782	12.257	10	0.02	12.257	y 16	19.89	55.08	2.416	3.874	1.5	H2-1						
254	M738	L3.5X3.5X4	0.669	0	4	0.024	0	y 2	19.89	55.08	2.416	3.874	1.5	H2-1						
255	M739	L3.5X3.5X4	0.698	12.257	16	0.025	12.257	y 2	19.89	55.08	2.416	3.874	1.5	H2-1						
256	M740	L3.5X3.5X4	0.344	12.257	4	0.016	12.257	y 2	19.89	55.08	2.416	3.874	1.5	H2-1						
257	M741	L3.5X3.5X4	0.673	0	2	0.019	0	y 2	19.89	55.08	2.416	3.874	1.5	H2-1						
258	M742	L3.5X3.5X4	0.776	0	10	0.019	0	y 4	19.89	55.08	2.416	3.874	1.5	H2-1						
259	M743	L3.5X3.5X4	0.788	12.257	2	0.019	12.257	y 8	19.89	55.08	2.416	3.874	1.5	H2-1						
260	M744	L3.5X3.5X4	0.545	12.257	10	0.016	12.257	y 10	19.89	55.08	2.416	3.587	1.236	H2-1						
261	M745	L3.5X3.5X4	0.345	0	6	0.016	0	y 4	19.89	55.08	2.416	3.874	1.5	H2-1						
262	M746	L3.5X3.5X4	0.632	0	12	0.024	0	y 10	19.89	55.08	2.416	3.874	1.5	H2-1						
263	M747	L3.5X3.5X4	0.685	12.257	8	0.025	12.257	y 10	19.89	55.08	2.416	3.874	1.5	H2-1						
264	M748	L3.5X3.5X4	0.348	0	12	0.017	0	y 10	19.89	55.08	2.416	3.874	1.5	H2-1						
265	M729	LL4x3x4x0	0.536	17.333	2	0.017	34.667	y 2	48.385	109.512	6.437	5.333	1	H1-1a						
266	M751	LL4x3x4x0	0.348	13.722	17	0.012	34.667	y 16	48.385	109.512	6.437	5.333	1	H1-1a						
267	M752	L3.5X3.5X4	0.323	8.667	12	0.008	8.667	y 12	33.134	55.08	2.416	4.323	1.5	H2-1						
268	M753	L3.5X3.5X4	0.427	8.667	2	0.008	8.667	y 2	33.134	55.08	2.416	4.323	1.5	H2-1						
269	M754	L3.5X3.5X4	0.315	8.667	4	0.008	8.667	y 4	33.134	55.08	2.416	4.323	1.5	H2-1						
270	M755	L3.5X3.5X4	0.428	8.667	10	0.008	8.667	y 10	33.134	55.08	2.416	4.323	1.5	H2-1						
271	M759	LL2.5x2.5x4x3	0.549	6.421	2	0.002	6.421	y 8	31.007	77.112	5.321	2.795	1.491	H1-1a						
272	M760	LL2.5x2.5x4x3	0.542	6.421	10	0.003	6.421	y 8	31.007	77.112	5.321	2.795	1.403	H1-1a						
273	M761	2L3 1/2x2 1/2x1/4x3/8	0.499	0	10	0.003	11.501	y 4	59.168	93.312	5.465	4.622	1.222	H1-1a						
274	M762	2L3 1/2x2 1/2x1/4x3/8	0.499	11.501	2	0.003	0	y 8	59.168	93.312	5.465	4.622	1.221	H1-1a						
275	M763	2L3 1/2x4x5/16x3/8	0.474	20.639	2	0.011	20.639	y 4	107.737	145.476	16.043	7.53	1	H1-1a						
276	M764	L3X3X3	0.304	4.747	4	0.003	4.747	z 4	15.236	35.316	1.32	1.968	1.258	H2-1						
277	M765	L2.5x2.5x4	0.065	0	8	0.003	5.259	y 2	26.332	38.556	1.114	2.356	1.5	H2-1						
278	M766	L2.5x2x3	0.076	5.259	12	0.002	0	y 2	16.266	26.503	0.626	1.371	1.5	H2-1						
279	M767	L2.5x2.5x4	0.125	0	4	0.005	2.63	z 4	35.05	38.556	1.114	2.537	1.5	H2-1						
280	M768	L2.5x2.5x4	0.194	0	4	0.009	2.63	z 4	35.05	38.556	1.114	2.537	1.5	H2-1						
281	M769	L2.5x2.5x4	0.162	5.16	4	0.002	0	y 4	26.711	38.556	1.114	2.365	1.5	H2-1						
282	M770	L2.5x2.5x4	0.18	0	4	0.005	0	y 4	28.26	38.556	1.114	2.401	1.5	H2-1						
283	M771	L2.5x2.5x4	0.126	0	4	0.003	0	y 4	19.509	38.556	1.114	2.217	1.5	H2-1						
284	M756	2L3 1/2x2 1/2x1/4x3/8	0.481	10.32	2	0.002	10.32	y 8	62.905	93.312	5.465	4.721	1.87	H1-1a						
285	M757	2L3 1/2x2 1/2x1/4x3/8	0.481	0	10	0.002	0	y 4	62.905	93.312	5.465	4.721	1.856	H1-1a						

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
286	M772	2L3 1/2x4x5/16x3/8	0.471	20.639	10	0.011	20.639	y	8	107.737	145.476	16.043	7.53	1	H1-1a		
287	M758	LL2.5x2.5x4x3	0.072	10.519	16	0.003	0	y	10	41.851	77.112	5.321	2.875	2.127	H1-1b		
288	M773	2L3 1/2x3 1/2x1/4x3/8	0.42	0	2	0.004	0	y	2	64.6	109.512	9.98	5.203	1	H1-1a		
289	M774	LL2.5x2.5x4x3	0.061	0	10	0.003	10.519	y	2	41.851	77.112	5.321	2.875	2.216	H1-1b		
290	M699	L2.5x2.5x4	0.145	0	8	0.005	2.63	z	8	35.05	38.556	1.114	2.537	1.5	H2-1		
291	M700	L3X3X3	0.335	4.747	8	0.007	4.747	y	8	15.236	35.316	1.32	2.115	1.5	H2-1		
292	M701	L2.5x2.5x4	0.156	0	8	0.003	0	y	8	28.26	38.556	1.114	2.401	1.5	H2-1		
293	M702	L2.5x2.5x4	0.059	0	17	0.002	0	y	4	26.332	38.556	1.114	2.356	1.5	H2-1		
294	M775	L2.5x2x3	0.077	5.259	17	0.003	0	y	10	16.266	26.503	0.626	1.371	1.5	H2-1		
295	M776	L2.5x2.5x4	0.194	0	8	0.008	2.63	z	10	35.05	38.556	1.114	2.537	1.5	H2-1		
296	M777	L2.5x2.5x4	0.164	5.16	8	0.002	0	y	8	26.711	38.556	1.114	2.365	1.5	H2-1		
297	M778	L2.5x2.5x4	0.123	0	8	0.003	0	y	8	19.509	38.556	1.114	2.217	1.5	H2-1		
298	M779	L2.5x2.5x4	0.116	0	16	0.005	2.63	z	16	35.05	38.556	1.114	2.537	1.5	H2-1		
299	M780	LL2.5x2.5x4x3	0.441	6.421	16	0.003	6.421	y	2	31.007	77.112	5.321	2.795	2.23	H1-1a		
300	M781	LL2.5x2.5x4x3	0.416	6.421	4	0.003	6.421	y	4	31.007	77.112	5.321	2.795	2.594	H1-1a		
301	M782	L3X3X3	0.309	4.747	16	0.003	4.747	z	16	15.236	35.316	1.32	2.034	1.359	H2-1		
302	M783	L2.5x2.5x4	0.141	5.16	4	0.002	0	y	4	26.711	38.556	1.114	2.365	1.5	H2-1		
303	M784	2L3 1/2x2 1/2x1/4x3/8	0.196	11.501	7	0.003	11.501	y	16	59.168	93.312	5.465	4.622	1.323	H1-1b*		
304	M785	2L3 1/2x2 1/2x1/4x3/8	0.196	0	12	0.002	10.32	y	4	62.905	93.312	5.465	4.721	2.315	H1-1b*		
305	M786	L2.5x2.5x4	0.255	0	2	0.005	0	y	16	28.26	38.556	1.114	2.401	1.5	H2-1		
306	M787	L2.5x2.5x4	0.083	5.259	2	0.002	5.259	y	12	26.332	38.556	1.114	2.356	1.5	H2-1		
307	M789	2L3 1/2x2 1/2x1/4x3/8	0.181	10.32	6	0.002	0	y	16	62.905	93.312	5.465	4.721	2.469	H1-1b*		
308	M790	L2.5x2x3	0.098	0	11	0.002	5.259	y	2	16.266	26.503	0.626	1.371	1.5	H2-1		
309	M791	L2.5x2.5x4	0.233	0	2	0.003	0	y	4	28.26	38.556	1.114	2.401	1.5	H2-1		
310	M792	L8x8x1 1/8	0.485	23.115	16	0.028	0	z	2	493.03	541.08	20.783	111.228	1	H2-1		
311	M793	2L3 1/2x4x5/16x3/8	0.368	20.639	4	0.01	20.639	y	4	107.737	145.476	16.043	7.53	1	H1-1a		
312	M794	2L3 1/2x2 1/2x1/4x3/8	0.238	7.668	12	0.003	0	y	4	59.168	93.312	5.465	4.622	1.449	H1-1a		
313	M795	2L3 1/2x3 1/2x1/4x3/8	0.276	0	16	0.004	0	y	16	64.6	109.512	9.98	5.203	1	H1-1a		
314	M796	LL2.5x2.5x4x3	0.063	10.519	4	0.003	10.519	y	4	41.851	77.112	5.321	2.875	1.828	H1-1b		
315	M797	LL2.5x2.5x4x3	0.067	0	16	0.003	0	y	16	41.851	77.112	5.321	2.875	2.235	H1-1b		
316	M798	L2.5x2.5x4	0.231	0	16	0.01	2.63	y	2	35.05	38.556	1.114	2.537	1.5	H2-1		
317	M799	L2.5x2.5x4	0.148	5.16	16	0.002	0	y	16	26.711	38.556	1.114	2.365	1.5	H2-1		
318	M800	L2.5x2.5x4	0.151	0	16	0.003	0	y	16	19.509	38.556	1.114	2.217	1.5	H2-1		
319	M801	2L4x4x1/4x3/8	0.437	15.778	12	0.007	31.556	z	12	40.306	125.712	12.817	5.902	1	H1-1a		
320	M802	L2.5x2.5x4	0.129	0	4	0.005	2.63	z	4	35.05	38.556	1.114	2.537	1.5	H2-1		
321	M803	L3X3X3	0.324	4.747	4	0.007	4.747	y	4	15.236	35.316	1.32	2.115	1.5	H2-1		
322	M804	L2.5x2.5x4	0.079	0	2	0.003	0	y	16	26.332	38.556	1.114	2.336	1.435	H2-1		
323	M805	L2.5x2x3	0.097	5.259	10	0.002	0	y	4	16.266	26.503	0.626	1.371	1.5	H2-1		
324	M806	L2.5x2.5x4	0.216	0	4	0.006	2.63	y	16	35.05	38.556	1.114	2.537	1.417	H2-1		
325	M807	L2.5x2.5x4	0.142	0	4	0.003	0	y	4	19.509	38.556	1.114	2.217	1.5	H2-1		
326	M808	L2.5x2.5x4	0.122	0	10	0.004	2.63	z	10	35.05	38.556	1.114	2.537	1.5	H2-1		
327	M809	LL2.5x2.5x4x3	0.541	6.421	10	0.003	6.421	y	16	31.007	77.112	5.321	2.795	1.499	H1-1a		
328	M810	LL2.5x2.5x4x3	0.552	6.421	2	0.003	6.421	y	16	31.007	77.112	5.321	2.795	1.539	H1-1a		
329	M811	L3X3X3	0.275	4.747	10	0.003	4.747	z	10	15.236	35.316	1.32	1.902	1.168	H2-1		
330	M812	L2.5x2.5x4	0.17	5.16	16	0.002	0	y	16	26.711	38.556	1.114	2.365	1.5	H2-1		
331	M813	2L3 1/2x2 1/2x1/4x3/8	0.502	0	2	0.003	11.501	y	10	59.168	93.312	5.465	4.622	1.222	H1-1a		
332	M814	2L3 1/2x2 1/2x1/4x3/8	0.481	10.32	10	0.002	10.32	y	16	62.905	93.312	5.465	4.721	1.866	H1-1a		
333	M815	L2.5x2.5x4	0.169	0	12	0.004	0	y	12	28.26	38.556	1.114	2.401	1.5	H2-1		
334	M816	L2.5x2.5x4	0.066	0	16	0.003	5.259	y	10	26.332	38.556	1.114	2.356	1.5	H2-1		
335	M818	2L3 1/2x2 1/2x1/4x3/8	0.482	0	2	0.002	0	y	10	62.905	93.312	5.465	4.721	1.837	H1-1a		
336	M819	L2.5x2x3	0.067	5.259	4	0.002	0	y	10	16.266	26.503	0.626	1.371	1.5	H2-1		
337	M820	L2.5x2.5x4	0.168	0	16	0.003	0	y	16	28.26	38.556	1.114	2.401	1.5	H2-1		
338	M821	L8x8x1 1/8	0.423	23.115	10	0.029	0	y	10	493.03	541.08	20.783	111.228	1	H2-1		
339	M822	2L3 1/2x4x5/16x3/8	0.475	20.639	2	0.011	20.639	y	16	107.737	145.476	16.043	7.53	1	H1-1a		
340	M823	2L3 1/2x2 1/2x1/4x3/8	0.498	11.501	10	0.003	0	y	16	59.168	93.312	5.465	4.622	1.22	H1-1a		

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
341	M824	2L3 1/2x3 1/2x1/4x3/8	0.423	27.852	2	0.004	0	y	10	64.6	109.512	9.98	5.203	1	H1-1a	
342	M825	LL2.5x2.5x4x3	0.07	0	4	0.003	10.519	y	10	41.851	77.112	5.321	2.875	2.252	H1-1b	
343	M826	LL2.5x2.5x4x3	0.069	10.519	8	0.003	0	y	2	41.851	77.112	5.321	2.875	2.101	H1-1b	
344	M827	L2.5x2.5x4	0.172	0	12	0.007	2.63	z	12	35.05	38.556	1.114	2.537	1.5	H2-1	
345	M828	L2.5x2.5x4	0.158	5.16	10	0.002	0	y	10	26.711	38.556	1.114	2.365	1.5	H2-1	
346	M829	L2.5x2.5x4	0.114	0	12	0.003	0	y	10	19.509	38.556	1.114	2.217	1.5	H2-1	
347	M830	2L4x4x1/4x3/8	0.79	47.333	2	0.007	31.556	z	8	40.306	125.712	12.817	5.902	1	H1-1a	
348	M831	L2.5x2.5x4	0.15	0	16	0.005	2.63	z	16	35.05	38.556	1.114	2.537	1.5	H2-1	
349	M832	L3X3X3	0.348	4.747	16	0.007	4.747	y	16	15.236	35.316	1.32	2.115	1.5	H2-1	
350	M833	L2.5x2.5x4	0.061	2.027	16	0.002	0	y	12	26.332	38.556	1.114	2.337	1.435	H2-1	
351	M834	L2.5x2x3	0.072	5.259	8	0.003	0	y	2	16.266	26.503	0.626	1.371	1.5	H2-1	
352	M835	L2.5x2.5x4	0.205	0	16	0.008	2.63	z	2	35.05	38.556	1.114	2.537	1.5	H2-1	
353	M836	L2.5x2.5x4	0.129	0	16	0.003	0	y	16	19.509	38.556	1.114	2.217	1.5	H2-1	
354	M837	L2.5x2.5x4	0.109	0	8	0.005	2.63	z	8	35.05	38.556	1.114	2.537	1.5	H2-1	
355	M838	LL2.5x2.5x4x3	0.414	6.421	8	0.003	6.421	y	10	31.007	77.112	5.321	2.795	2.224	H1-1a	
356	M839	LL2.5x2.5x4x3	0.367	6.421	12	0.003	6.421	y	10	31.007	77.112	5.321	2.795	2.676	H1-1a	
357	M840	L3X3X3	0.296	4.747	8	0.003	4.747	z	8	15.236	35.316	1.32	2.041	1.37	H2-1	
358	M841	L2.5x2.5x4	0.124	5.16	12	0.002	0	y	12	26.711	38.556	1.114	2.365	1.5	H2-1	
359	M842	2L3 1/2x2 1/2x1/4x3/8	0.234	3.594	16	0.003	11.501	y	8	59.168	93.312	5.465	4.622	1.476	H1-1a	
360	M843	2L3 1/2x2 1/2x1/4x3/8	0.179	0	6	0.002	10.32	y	12	62.905	93.312	5.465	4.721	2.483	H1-1b*	
361	M844	L2.5x2.5x4	0.252	0	10	0.005	0	y	8	28.26	38.556	1.114	2.401	1.5	H2-1	
362	M845	L2.5x2.5x4	0.082	5.259	10	0.002	0	y	12	26.332	38.556	1.114	2.356	1.5	H2-1	
363	M847	2L3 1/2x2 1/2x1/4x3/8	0.191	10.32	16	0.002	0	y	8	62.905	93.312	5.465	4.721	2.28	H1-1b*	
364	M848	L2.5x2x3	0.099	5.259	16	0.002	5.259	y	10	16.266	26.503	0.626	1.371	1.5	H2-1	
365	M849	L2.5x2.5x4	0.236	0	10	0.003	0	y	10	28.26	38.556	1.114	2.401	1.5	H2-1	
366	M851	2L3 1/2x4x5/16x3/8	0.329	20.639	12	0.009	20.639	y	12	107.737	145.476	16.043	7.53	1	H1-1a	
367	M852	2L3 1/2x2 1/2x1/4x3/8	0.193	0	7	0.003	0	y	12	59.168	93.312	5.465	4.622	1.344	H1-1b*	
368	M853	2L3 1/2x3 1/2x1/4x3/8	0.196	13.926	8	0.004	27.852	y	12	64.6	109.512	9.98	5.203	1	H1-1b*	
369	M854	LL2.5x2.5x4x3	0.062	0	16	0.003	10.519	y	10	41.851	77.112	5.321	2.875	2.024	H1-1b	
370	M855	LL2.5x2.5x4x3	0.067	0	8	0.003	0	y	8	41.851	77.112	5.321	2.875	2.132	H1-1b	
371	M856	L2.5x2.5x4	0.223	0	8	0.01	2.63	y	10	35.05	38.556	1.114	2.537	1.5	H2-1	
372	M857	L2.5x2.5x4	0.14	5.16	8	0.002	0	y	8	26.711	38.556	1.114	2.365	1.5	H2-1	
373	M858	L2.5x2.5x4	0.147	0	10	0.003	0	y	8	19.509	38.556	1.114	2.217	1.5	H2-1	
374	M859	2L4x4x1/4x3/8	0.438	31.556	16	0.007	15.778	z	16	40.306	125.712	12.817	5.902	1	H1-1a	
375	M860	L2.5x2.5x4	0.112	0	12	0.004	2.63	z	10	35.05	38.556	1.114	2.537	1.5	H2-1	
376	M861	L3X3X3	0.274	4.747	12	0.006	4.747	y	10	15.236	35.316	1.32	2.115	1.5	H2-1	
377	M862	L2.5x2.5x4	0.08	0	10	0.003	0	y	8	26.332	38.556	1.114	2.356	1.5	H2-1	
378	M863	L2.5x2x3	0.1	5.259	5	0.002	0	y	12	16.266	26.503	0.626	1.371	1.5	H2-1	
379	M864	L2.5x2.5x4	0.207	0	10	0.006	2.63	y	8	35.05	38.556	1.114	2.537	1.378	H2-1	
380	M865	L2.5x2.5x4	0.144	0	10	0.002	7.03	y	4	19.509	38.556	1.114	2.217	1.5	H2-1	
381	M870	L3.5x3x1/4	0.38	11.157	16	0.005	11.157	y	4	18.559	50.625	1.894	3.386	1.5	H2-1	
382	M871	L3.5x3x1/4	0.137	5.695	16	0.005	0	y	10	18.559	50.625	1.894	2.945	1.182	H2-1	
383	M872	L3.5x3x1/4	0.271	0	4	0.01	0	y	2	18.559	50.625	1.894	3.386	1.5	H2-1	
384	M873	L3.5x3x1/4	0.269	11.157	16	0.01	11.157	y	2	18.559	50.625	1.894	3.386	1.5	H2-1	
385	M874	L3.5x3x1/4	0.139	5.346	4	0.005	11.157	y	8	18.559	50.625	1.894	2.946	1.182	H2-1	
386	M875	L3.5x3x1/4	0.377	0	4	0.005	0	y	16	18.559	50.625	1.894	3.386	1.5	H2-1	
387	M876	L3.5x3x1/4	0.194	0	2	0.004	0	y	16	18.559	50.625	1.894	3.202	1.268	H2-1	
388	M877	L3.5x3x1/4	0.334	0	10	0.01	0	y	4	18.559	50.625	1.894	3.386	1.5	H2-1	
389	M878	L3.5x3x1/4	0.335	11.157	2	0.01	11.157	y	8	18.559	50.625	1.894	3.386	1.5	H2-1	
390	M879	L3.5x3x1/4	0.192	11.157	10	0.005	11.157	y	10	18.559	50.625	1.894	3.386	1.5	H2-1	
391	M880	L3.5x3x1/4	0.366	0	8	0.006	0	y	2	18.559	50.625	1.894	3.386	1.5	H2-1	
392	M881	L3.5x3x1/4	0.14	5.695	8	0.004	0	y	4	18.559	50.625	1.894	2.933	1.17	H2-1	
393	M882	L3.5x3x1/4	0.268	0	12	0.011	0	y	10	18.559	50.625	1.894	3.386	1.5	H2-1	
394	M883	L3.5x3x1/4	0.271	11.157	8	0.011	11.157	y	10	18.559	50.625	1.894	3.386	1.5	H2-1	
395	M884	L3.5x3x1/4	0.141	11.157	12	0.005	11.157	y	16	18.559	50.625	1.894	3.174	1.237	H2-1	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
396	M885	L3.5x3x1/4	0.323	0	10	0.005	0	y	8	18.559	50.625	1.894	3.386	1.5	H2-1	
397	M886	L3.5x3x1/4	0.186	0	10	0.004	0	y	8	18.559	50.625	1.894	3.195	1.26	H2-1	
398	M887	L3.5x3x1/4	0.327	0	2	0.01	0	y	12	18.559	50.625	1.894	3.386	1.5	H2-1	
399	M888	L3.5x3x1/4	0.328	11.157	10	0.01	11.157	y	16	18.559	50.625	1.894	3.386	1.5	H2-1	
400	M889	L3.5x3x1/4	0.183	11.157	2	0.004	11.157	y	4	18.559	50.625	1.894	3.192	1.257	H2-1	
401	M866	L4x3x1/4	0.808	31.556	2	0.014	31.556	y	2	10.68	54.756	0.823	2.715	1	H2-1	
402	M867	L4x3x1/4	0.605	0	4	0.013	31.556	y	4	10.68	54.756	0.823	2.715	1	H2-1	
403	M868	L4x3x1/4	0.79	0	10	0.014	31.556	y	10	10.68	54.756	0.823	2.715	1	H2-1	
404	M869	L4x3x1/4	0.623	31.556	16	0.013	0	y	16	10.68	54.756	0.823	2.715	1	H2-1	
405	M893	LL2.5x2.5x4x.33"	0.534	0	10	0.003	0	y	8	34.764	76.95	5.275	2.816	2.155	H1-1a	
406	M894	LL2.5x2.5x4x.33"	0.593	0	16	0.003	0	y	4	34.764	76.95	5.275	2.816	1.666	H1-1a	
407	M895	LL3.5x3.5x.28x.34"	0.346	10.999	2	0.003	10.999	y	16	87.843	121.928	11.078	6.181	2.061	H1-1a	
408	M896	LL3.5x3.5x.28x.34"	0.345	0	10	0.003	10.999	y	16	87.843	121.928	11.078	6.181	2.057	H1-1a	
409	M897	L2.5x2x3	0.095	0	4	0.004	0	y	2	17.77	26.503	0.626	1.403	1.5	H2-1	
410	M898	L3X3X3	0.07	9.278	16	0.002	9.278	y	16	15.823	35.316	1.32	2.134	1.5	H2-1	
411	M890	2L3 1/2x4x5/16x3/8	0.448	20.036	2	0.004	20.036	y	2	108.613	145.476	16.043	6.96	1.573	H1-1a	
412	M891	2L3 1/2x4x5/16x3/8	0.44	0	10	0.004	0	y	10	108.613	145.476	16.043	6.96	1.685	H1-1a	
413	M899	LL2.5x2.5x4x.33"	0.633	0	10	0.002	10.018	y	2	44.714	76.95	5.275	2.893	2.172	H1-1a	
414	M900	LL2.5x2.5x4x.33"	0.635	10.018	2	0.002	0	y	10	44.714	76.95	5.275	2.893	2.179	H1-1a	
415	M892	LL2.5x2.5x4x.33"	0.067	9.519	2	0.003	9.519	y	4	47.138	76.95	5.275	2.912	2.184	H1-1b	
416	M901	LL3.5x3.5x8x3	0.602	0	16	0.004	0	y	4	42.128	210.6	20.267	11.045	1.424	H1-1a	
417	M902	LL2.5x2.5x4x.33"	0.066	0	10	0.003	0	y	8	47.138	76.95	5.275	2.912	2.191	H1-1b	
418	M903	L3X3X3	0.073	0	16	0.001	9.278	y	10	15.823	35.316	1.32	2.134	1.5	H2-1	
419	M904	L2.5x2x3	0.08	4.759	16	0.002	4.759	y	16	17.77	26.503	0.626	1.403	1.5	H2-1	
420	M905	2L4x3x1/4x3/8	0.469	42.833	17	0.008	28.556	z	4	40.68	109.512	7.572	5.031	1	H1-1a	
421	M906	LL2.5x2.5x4x.33"	0.291	10.018	6	0.002	10.018	y	2	44.714	76.95	5.275	2.893	2.201	H1-1a	
422	M907	L3X3X3	0.112	9.278	10	0.002	9.278	y	10	15.823	35.316	1.32	2.134	1.5	H2-1	
423	M908	2L3 1/2x4x5/16x3/8	0.286	20.036	8	0.003	0	y	8	108.613	145.476	16.043	6.96	1.925	H1-1a	
424	M909	2L3 1/2x4x5/16x3/8	0.264	0	12	0.004	0	y	8	108.613	145.476	16.043	6.96	1.804	H1-1a	
425	M910	LL2.5x2.5x4x.33"	0.317	0	16	0.002	0	y	2	44.714	76.95	5.275	2.893	2.27	H1-1a	
426	M911	L2.5x2x3	0.086	0	16	0.003	0	y	16	17.77	26.503	0.626	1.403	1.5	H2-1	
427	M913	L8x8x1 1/8	0.395	3.938	8	0.013	25.202	y	4	493.084	541.08	20.783	111.228	1	H2-1	
428	M914	LL3.5x3.5x.28x.34"	0.143	0	17	0.003	10.999	y	12	87.843	121.928	11.078	6.181	1.814	H1-1b*	
429	M915	LL3.5x3.5x.28x.34"	0.132	10.999	7	0.003	0	y	8	87.843	121.928	11.078	6.181	1.71	H1-1b*	
430	M916	LL2.5x2.5x4x.33"	0.056	9.519	16	0.003	9.519	y	16	47.138	76.95	5.275	2.912	2.258	H1-1b	
431	M917	LL2.5x2.5x4x.33"	0.488	0	8	0.003	0	y	6	34.764	76.95	5.275	2.816	1.233	H1-1a	
432	M918	LL2.5x2.5x4x.33"	0.416	0	12	0.003	0	y	8	34.764	76.95	5.275	2.816	1.581	H1-1a	
433	M919	LL2.5x2.5x4x.33"	0.053	0	4	0.003	0	y	4	47.138	76.95	5.275	2.912	2.266	H1-1b	
434	M920	LL3.5x3.5x8x3	0.134	25.296	8	0.004	12.648	y	16	133.115	210.6	20.267	11.045	1.372	H1-1b*	
435	M921	L3X3X3	0.093	9.278	10	0.001	9.278	y	8	15.823	35.316	1.32	2.134	1.5	H2-1	
436	M922	L2.5x2x3	0.082	0	2	0.002	4.759	y	10	17.77	26.503	0.626	1.403	1.5	H2-1	
437	M923	2L4x3x1/4x3/8	0.716	0	3	0.008	28.556	z	16	40.68	109.512	7.572	5.031	1	H1-1a	
438	M924	LL2.5x2.5x4x.33"	0.627	0	2	0.002	10.018	y	10	44.714	76.95	5.275	2.893	2.167	H1-1a	
439	M925	L3X3X3	0.065	9.278	6	0.002	9.278	y	8	15.823	35.316	1.32	2.134	1.5	H2-1	
440	M926	2L3 1/2x4x5/16x3/8	0.442	0	2	0.004	0	y	4	108.613	145.476	16.043	6.96	1.726	H1-1a	
441	M927	2L3 1/2x4x5/16x3/8	0.441	20.036	10	0.004	20.036	y	10	108.613	145.476	16.043	6.96	1.542	H1-1a	
442	M928	LL2.5x2.5x4x.33"	0.629	10.018	10	0.002	0	y	2	44.714	76.95	5.275	2.893	2.164	H1-1a	
443	M929	L2.5x2x3	0.083	0	10	0.004	0	y	10	17.77	26.503	0.626	1.403	1.5	H2-1	
444	M931	L8x8x1 1/8	0.397	3.938	4	0.014	25.202	y	16	493.084	541.08	20.783	111.228	1	H2-1	
445	M932	LL3.5x3.5x.28x.34"	0.343	10.999	10	0.003	10.999	y	8	87.843	121.928	11.078	6.181	2.039	H1-1a	
446	M933	LL3.5x3.5x.28x.34"	0.342	0	2	0.003	0	y	4	87.843	121.928	11.078	6.181	2.008	H1-1a	
447	M934	LL2.5x2.5x4x.33"	0.067	9.519	10	0.003	9.519	y	10	47.138	76.95	5.275	2.912	2.19	H1-1b	
448	M935	LL2.5x2.5x4x.33"	0.569	0	4	0.003	0	y	16	34.764	76.95	5.275	2.816	1.393	H1-1a	
449	M936	LL2.5x2.5x4x.33"	0.567	0	8	0.003	0	y	10	34.764	76.95	5.275	2.816	1.548	H1-1a	
450	M937	LL2.5x2.5x4x.33"	0.068	0	16	0.003	0	y	16	47.138	76.95	5.275	2.912	2.241	H1-1b	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*	Pnc [k]	phi*	Pnt [k]	phi*	Mn y-y [k-ft]	phi*	Mn z-z [k-ft]	Cb	Eqn
451	M938	LL3.5x3.5x8x3	0.163	25.296	4	0.004	25.296	y	16	133.115	210.6	20.267	11.045	1.421	H1-1b*					
452	M939	L3X3X3	0.071	0	8	0.001	9.278	y	2	15.823	35.316	1.32	2.134	1.5	H2-1					
453	M940	L2.5x2x3	0.087	0	16	0.002	4.759	y	8	17.77	26.503	0.626	1.403	1.5	H2-1					
454	M941	2L4x3x1/4x3/8	0.451	0	13	0.008	28.556	z	12	40.68	109.512	7.572	5.031	1	H1-1a					
455	M942	LL2.5x2.5x4x.33"	0.323	10.018	12	0.002	10.018	y	10	44.714	76.95	5.275	2.893	2.237	H1-1a					
456	M943	L3X3X3	0.11	9.278	2	0.002	9.278	y	4	15.823	35.316	1.32	2.134	1.5	H2-1					
457	M944	2L3 1/2x4x5/16x3/8	0.309	20.036	16	0.003	20.036	y	4	108.613	145.476	16.043	6.96	1.776	H1-1a					
458	M945	2L3 1/2x4x5/16x3/8	0.288	0	4	0.004	0	y	16	108.613	145.476	16.043	6.96	1.754	H1-1a					
459	M946	LL2.5x2.5x4x.33"	0.294	0	6	0.002	0	y	10	44.714	76.95	5.275	2.893	2.204	H1-1a					
460	M947	L2.5x2x3	0.082	0	8	0.003	0	y	8	17.77	26.503	0.626	1.403	1.5	H2-1					
461	M950	LL3.5x3.5x.28x.34"	0.134	0	7	0.003	10.999	y	4	87.843	121.928	11.078	6.181	1.767	H1-1b*					
462	M951	LL3.5x3.5x.28x.34"	0.148	10.999	13	0.003	0	y	16	87.843	121.928	11.078	6.181	1.85	H1-1b*					
463	M952	LL2.5x2.5x4x.33"	0.053	9.519	8	0.003	9.519	y	8	47.138	76.95	5.275	2.912	2.269	H1-1b					
464	M953	LL2.5x2.5x4x.33"	0.514	0	16	0.003	0	y	12	34.764	76.95	5.275	2.816	1.28	H1-1a					
465	M954	LL2.5x2.5x4x.33"	0.487	0	4	0.003	0	y	16	34.764	76.95	5.275	2.816	1.478	H1-1a					
466	M955	LL2.5x2.5x4x.33"	0.054	0	12	0.003	0	y	12	47.138	76.95	5.275	2.912	2.254	H1-1b					
467	M956	LL3.5x3.5x8x3	0.142	25.296	16	0.004	12.648	y	8	133.115	210.6	20.267	11.045	1.377	H1-1b*					
468	M957	L3X3X3	0.096	9.278	2	0.001	9.278	y	16	15.823	35.316	1.32	2.134	1.5	H2-1					
469	M958	L2.5x2x3	0.085	0	11	0.002	4.759	y	4	17.77	26.503	0.626	1.403	1.5	H2-1					
470	M963	L3x3x.2	0.201	10.096	16	0.004	10.096	y	2	14.968	37.584	1.429	2.272	1.5	H2-1					
471	M964	L3x3x.2	0.28	0	4	0.009	0	y	2	14.968	37.584	1.429	2.272	1.5	H2-1					
472	M965	L3x3x.2	0.272	10.096	16	0.009	10.096	y	2	14.968	37.584	1.429	2.272	1.5	H2-1					
473	M966	L3x3x.2	0.201	0	4	0.005	10.096	y	8	14.968	37.584	1.429	2.272	1.5	H2-1					
474	M967	L3x3x.2	0.409	0	4	0.006	0	y	16	14.968	37.584	1.429	2.272	1.5	H2-1					
475	M968	L3x3x.2	0.262	10.096	4	0.004	10.096	y	4	14.968	37.584	1.429	2.272	1.5	H2-1					
476	M969	L3x3x.2	0.369	0	10	0.008	0	y	4	14.968	37.584	1.429	2.272	1.5	H2-1					
477	M970	L3x3x.2	0.363	10.096	2	0.008	10.096	y	8	14.968	37.584	1.429	2.272	1.5	H2-1					
478	M971	L3x3x.2	0.264	0	8	0.004	10.096	y	12	14.968	37.584	1.429	2.272	1.5	H2-1					
479	M972	L3x3x.2	0.389	0	8	0.006	0	y	4	14.968	37.584	1.429	2.272	1.5	H2-1					
480	M973	L3x3x.2	0.201	10.096	8	0.004	10.096	y	10	14.968	37.584	1.429	2.272	1.5	H2-1					
481	M974	L3x3x.2	0.278	0	12	0.009	0	y	10	14.968	37.584	1.429	2.272	1.5	H2-1					
482	M975	L3x3x.2	0.272	10.096	8	0.009	10.096	y	10	14.968	37.584	1.429	2.272	1.5	H2-1					
483	M976	L3x3x.2	0.202	0	12	0.005	10.096	y	16	14.968	37.584	1.429	2.272	1.5	H2-1					
484	M977	L3x3x.2	0.356	0	10	0.006	0	y	8	14.968	37.584	1.429	2.272	1.5	H2-1					
485	M978	L3x3x.2	0.235	10.096	10	0.004	10.096	y	10	14.968	37.584	1.429	2.272	1.5	H2-1					
486	M979	L3x3x.2	0.357	0	2	0.008	0	y	12	14.968	37.584	1.429	2.272	1.5	H2-1					
487	M980	L3x3x.2	0.349	10.096	10	0.009	10.096	y	16	14.968	37.584	1.429	2.272	1.5	H2-1					
488	M981	L3x3x.2	0.255	0	16	0.005	10.096	y	4	14.968	37.584	1.429	2.272	1.5	H2-1					
489	M982	L3x3x.2	0.407	0	16	0.006	0	y	10	14.968	37.584	1.429	2.272	1.5	H2-1					
490	M959	L4x3x1/4	0.785	14.278	2	0.013	28.556	z	2	13.042	54.756	0.823	2.822	1	H2-1					
491	M960	L4x3x1/4	0.64	14.278	4	0.012	28.556	z	4	13.042	54.756	0.823	2.822	1	H2-1					
492	M961	L4x3x1/4	0.766	14.278	10	0.013	28.556	z	10	13.042	54.756	0.823	2.822	1	H2-1					
493	M962	L4x3x1/4	0.663	14.278	16	0.012	28.556	z	12	13.042	54.756	0.823	2.822	1	H2-1					
494	M983	LL3.5x3.5x4x3	0.376	19.083	16	0.008	19.083	z	16	40.785	110.16	9.817	4.976	1	H1-1a					
495	M984	LL2.5x2.5x.25x.51"	0.085	0	4	0.004	0	y	12	32.062	76.95	5.724	2.82	1	H1-1b					
496	M985	LL2.5x2.5x.25x.51"	0.085	12.722	16	0.004	12.722	y	8	32.062	76.95	5.724	2.82	1	H1-1b					
497	M986	2L3 1/2x4x1/4x3/8	0.244	0	12	0.005	11.001	y	4	80.484	117.45	12.64	5.585	1	H1-1a					
498	M988	L3x3x.2	0.069	0	10	0.002	10.061	y	4	15.063	37.584	1.429	1.893	1	H2-1					
499	M989	LL3x2x3x3	0.315	0	10	0.003	14.585	y	16	21.908	59.292	2.725	2.125	1	H1-1a					
500	M990	LL3x2x3x3	0.312	0	10	0.003	14.585	y	4	21.908	59.292	2.725	2.125	1	H1-1a					
501	M991	LL2.5x2.5x.25x.51"	0.342	0	10	0.003	14.278	y	8	25.615	76.95	5.724	2.768	1	H1-1a					
502	M992	L8x8x1 1/8	0.372	4.203	8	0.008	25.217	y	4	493.034	541.08	20.783	111.228	1	H2-1					
503	M993	2L3 1/2x4x1/4x3/8	0.254	0	8	0.005	11.001	y	16	80.484	117.45	12.64	5.585	1	H1-1a					
504	M994	L3x3x.2	0.094	0	8	0.002	0	y	8	15.063	37.584	1.429	1.893	1	H2-1					
505	M995	L2 1/2x2 1/2x.19	0.098	0	4	0.003	0	y	12	17.438	29.61	0.921	1.484	1	H2-1					

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
506	M996	L2 1/2x2 1/2x.19	0.101	6.361	16	0.003	6.361	y	8	17.438	29.61	0.921	1.484	1	H2-1	
507	M997	LL3.5x3.5x4x3	0.514	19.083	16	0.008	19.083	z	12	40.785	110.16	9.817	4.976	1	H1-1a	
508	M998	LL2.5x2.5x.25x.51"	0.077	0	16	0.004	0	y	8	32.062	76.95	5.724	2.82	1	H1-1b	
509	M999	LL2.5x2.5x.25x.51"	0.081	12.722	12	0.004	12.722	y	4	32.062	76.95	5.724	2.82	1	H1-1b	
510	M1000	2L3 1/2x4x1/4x3/8	0.404	11.001	10	0.006	11.001	y	16	80.484	117.45	12.64	5.585	1	H1-1a	
511	M1002	L3x3x.2	0.055	10.061	16	0.002	0	y	8	15.063	37.584	1.429	1.893	1	H2-1	
512	M1003	LL3x2x3x3	0.142	0	6	0.003	14.585	y	12	21.908	59.292	2.725	2.125	1	H1-1b*	
513	M1004	LL3x2x3x3	0.143	0	6	0.003	14.585	y	16	21.908	59.292	2.725	2.125	1	H1-1b*	
514	M1005	LL2.5x2.5x.25x.51"	0.178	14.278	4	0.004	0	y	8	25.615	76.95	5.724	2.768	1	H1-1b	
515	M1006	L8x8x1 1/8	0.374	4.203	4	0.008	25.217	z	8	493.034	541.08	20.783	111.228	1	H2-1	
516	M1007	2L3 1/2x4x1/4x3/8	0.407	11.001	2	0.006	22.001	z	16	80.484	117.45	12.64	5.585	1	H1-1a	
517	M1008	L3x3x.2	0.071	0	4	0.002	0	y	4	15.063	37.584	1.429	1.893	1	H2-1	
518	M1009	L2 1/2x2 1/2x.19	0.075	0	16	0.003	0	y	8	17.438	29.61	0.921	1.484	1	H2-1	
519	M1010	L2 1/2x2 1/2x.19	0.086	6.361	12	0.003	6.361	y	4	17.438	29.61	0.921	1.484	1	H2-1	
520	M1011	LL3.5x3.5x4x3	0.364	19.083	12	0.008	19.083	z	8	40.785	110.16	9.817	4.976	1	H1-1a	
521	M1012	LL2.5x2.5x.25x.51"	0.081	0	12	0.004	0	y	4	32.062	76.95	5.724	2.82	1	H1-1b	
522	M1013	LL2.5x2.5x.25x.51"	0.085	12.722	8	0.004	12.722	y	16	32.062	76.95	5.724	2.82	1	H1-1b	
523	M1014	2L3 1/2x4x1/4x3/8	0.253	0	4	0.006	11.001	y	12	80.484	117.45	12.64	5.585	1	H1-1a	
524	M1016	L3x3x.2	0.075	0	4	0.002	0	y	4	15.063	37.584	1.429	1.893	1	H2-1	
525	M1017	LL3x2x3x3	0.309	0	2	0.003	14.585	y	8	21.908	59.292	2.725	2.125	1	H1-1a	
526	M1018	LL3x2x3x3	0.312	0	2	0.003	14.585	y	12	21.908	59.292	2.725	2.125	1	H1-1a	
527	M1019	LL2.5x2.5x.25x.51"	0.338	0	2	0.003	14.278	y	16	25.615	76.95	5.724	2.768	1	H1-1a	
528	M1021	2L3 1/2x4x1/4x3/8	0.277	0	16	0.005	22.001	z	12	80.484	117.45	12.64	5.585	1	H1-1a	
529	M1022	L3x3x.2	0.094	0	16	0.002	0	y	16	15.063	37.584	1.429	1.893	1	H2-1	
530	M1023	L2 1/2x2 1/2x.19	0.085	0	12	0.003	0	y	4	17.438	29.61	0.921	1.484	1	H2-1	
531	M1024	L2 1/2x2 1/2x.19	0.101	6.361	9	0.003	6.361	y	16	17.438	29.61	0.921	1.484	1	H2-1	
532	M1029	L3X3X1/5	0.293	13.494	16	0.004	13.494	y	4	8.388	37.584	1.429	2.006	1.5	H2-1	
533	M1030	L3X3X1/5	0.266	13.494	16	0.003	0	y	12	8.388	37.584	1.429	2.006	1.5	H2-1	
534	M1031	L3X3X1/5	0.286	0	4	0.004	13.494	y	8	8.388	37.584	1.429	2.006	1.5	H2-1	
535	M1032	L3X3X1/5	0.282	0	2	0.004	0	y	16	8.388	37.584	1.429	2.006	1.5	H2-1	
536	M1033	L3X3X1/5	0.405	13.494	2	0.004	13.494	y	2	8.388	37.584	1.429	2.006	1.5	H2-1	
537	M1034	L3X3X1/5	0.417	0	10	0.004	0	y	10	8.388	37.584	1.429	2.006	1.5	H2-1	
538	M1035	L3X3X1/5	0.255	0	8	0.004	0	y	4	8.388	37.584	1.429	2.006	1.5	H2-1	
539	M1036	L3X3X1/5	0.289	0	8	0.003	0	y	16	8.388	37.584	1.429	2.006	1.5	H2-1	
540	M1037	L3X3X1/5	0.3	13.494	12	0.004	13.494	y	16	8.388	37.584	1.429	2.006	1.5	H2-1	
541	M1038	L3X3X1/5	0.244	0	10	0.004	0	y	8	8.388	37.584	1.429	2.006	1.5	H2-1	
542	M1039	L3X3X1/5	0.367	13.494	10	0.004	13.494	y	10	8.388	37.584	1.429	2.006	1.5	H2-1	
543	M1040	L3X3X1/5	0.367	0	2	0.004	0	y	16	8.388	37.584	1.429	2.006	1.5	H2-1	
544	M1041	LLV3.5X3X4	0.095	0	12	0.003	0	y	16	24.338	50.625	1.894	3.555	1.5	H2-1	
545	M1042	LLV3.5X3X4	0.1	9.542	2	0.003	9.542	y	16	24.338	50.625	1.894	3.555	1.5	H2-1	
546	M1043	LLV3.5X3X4	0.092	9.542	8	0.003	9.542	y	16	24.338	50.625	1.894	3.555	1.5	H2-1	
547	M1044	LLV3.5X3X4	0.102	9.542	10	0.003	9.542	y	10	24.338	50.625	1.894	3.555	1.5	H2-1	
548	M1025	L3X3X4	0.264	19.083	2	0.007	19.083	y	16	20.048	46.656	1.688	2.627	1	H2-1	
549	M1027	L3X3X4	0.184	19.083	4	0.006	19.083	y	4	20.048	46.656	1.688	2.627	1	H2-1	
550	M1028	L3X3X4	0.182	19.083	12	0.006	0	y	16	20.048	46.656	1.688	2.627	1	H2-1	
551	M1026	L3X3X4	0.249	19.083	10	0.007	0	y	8	20.048	46.656	1.688	2.627	1	H2-1	
552	M1045	2L3 1/2x4x1/4x3/8	0.414	10.513	2	0.003	31.538	y	12	80.637	117.45	12.64	5.609	1	H1-1a	
553	M1046	2L3 1/2x4x1/4x3/8	0.411	10.513	10	0.003	31.538	y	16	80.637	117.45	12.64	5.609	1	H1-1a	
554	M1051	L2.5x2x3	0.057	8.608	12	0.001	0	y	8	7.438	26.503	0.626	1.129	1.5	H2-1	
555	M1052	L2.5x2x3	0.057	0	16	0.001	8.608	y	4	7.438	26.503	0.626	1.129	1.5	H2-1	
556	M1049	2L3 1/2x2 1/2x1/4x3/8	0.467	33.5	5	0.012	16.75	z	17	40.324	93.312	5.465	4.202	1	H1-1a	
557	M1050	LL2.5x2x3x0	0.309	0	10	0.003	13.341	y	16	19.951	53.136	2.182	1.686	1	H1-1a	
558	M1053	2L3 1/2x2 1/2x1/4x3/8	0.346	33.5	17	0.011	16.75	z	13	40.324	93.312	5.465	4.202	1	H1-1a	
559	M1056	L8x8x1 1/8	0.316	1.839	8	0.012	25.217	y	4	493.034	541.08	20.783	111.228	1	H2-1	
560	M1057	L2.5x2x3	0.081	0	2	0.002	0	y	16	15.289	26.503	0.626	1.219	1	H2-1	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn	
561	M1058	LL2.5x2.5x3x0	0.069	11.167	12	0.003	11.167	y	8	29.786	58.32	3.3	1.95	1	H1-1b
562	M1059	LL2.5x2.5x3x0	0.071	0	8	0.003	0	y	14	29.786	58.32	3.3	1.95	1	H1-1b
563	M1060	L3x3x.21	0.065	0	10	0.001	9.651	y	4	16.953	39.395	1.488	2.076	1	H2-1
564	M1061	L2.5x2x3	0.075	5.583	2	0.002	5.583	y	4	15.289	26.503	0.626	1.219	1	H2-1
565	M1065	LL2.5x2x3x0	0.305	0	10	0.003	13.341	y	4	19.951	53.136	2.182	1.686	1	H1-1a
566	M1066	LL2.5x2.5x3x0	0.322	12.722	10	0.003	0	y	16	24.382	58.32	3.3	1.902	1	H1-1a
567	M1067	L2.5x2x3	0.059	8.608	10	0.001	8.608	y	10	7.438	26.503	0.626	1.193	1.5	H2-1
568	M1068	L2.5x2x3	0.061	0	10	0.001	0	y	10	7.438	26.503	0.626	1.193	1.5	H2-1
569	M1069	L3x3x.21	0.067	0	10	0.001	0	y	10	16.953	39.395	1.488	2.076	1	H2-1
570	M1070	LL2.5x2x3x0	0.15	0	6	0.003	13.341	y	12	19.951	53.136	2.182	1.686	1	H1-1b*
571	M1071	2L3 1/2x2 1/2x1/4x3/8	0.457	0	17	0.012	16.75	z	9	40.324	93.312	5.465	4.202	1	H1-1a
572	M1072	2L3 1/2x4x1/4x3/8	0.41	10.513	10	0.003	31.538	y	4	80.637	117.45	12.64	5.609	1	H1-1a
573	M1074	L8x8x1 1/8	0.327	25.217	4	0.012	25.217	z	8	493.034	541.08	20.783	111.228	1	H2-1
574	M1075	L2.5x2x3	0.076	0	10	0.002	5.583	y	2	15.289	26.503	0.626	1.219	1	H2-1
575	M1076	LL2.5x2.5x3x0	0.074	11.167	8	0.003	11.167	y	4	29.786	58.32	3.3	1.95	1	H1-1b
576	M1077	LL2.5x2.5x3x0	0.069	0	4	0.003	0	y	8	29.786	58.32	3.3	1.95	1	H1-1b
577	M1078	L3x3x.21	0.045	9.651	4	0.002	9.651	y	4	16.953	39.395	1.488	2.076	1	H2-1
578	M1079	L2.5x2x3	0.091	5.583	16	0.003	5.583	y	2	15.289	26.503	0.626	1.219	1	H2-1
579	M1080	2L3 1/2x4x1/4x3/8	0.403	10.513	2	0.003	31.538	y	8	80.637	117.45	12.64	5.609	1	H1-1a
580	M1083	LL2.5x2x3x0	0.152	0	6	0.003	13.341	y	16	19.951	53.136	2.182	1.686	1	H1-1b*
581	M1084	LL2.5x2.5x3x0	0.169	12.722	6	0.003	0	y	10	24.382	58.32	3.3	1.902	1	H1-1b*
582	M1085	L2.5x2x3	0.06	0	8	0.001	8.608	y	10	7.438	26.503	0.626	1.129	1.5	H2-1
583	M1086	L2.5x2x3	0.056	8.608	4	0.001	0	y	16	7.438	26.503	0.626	1.129	1.5	H2-1
584	M1087	L3x3x.21	0.045	0	2	0.002	0	y	4	16.953	39.395	1.488	2.076	1	H2-1
585	M1088	LL2.5x2x3x0	0.305	0	2	0.003	13.341	y	8	19.951	53.136	2.182	1.686	1	H1-1a
586	M1089	2L3 1/2x2 1/2x1/4x3/8	0.334	16.75	13	0.011	16.75	z	17	40.324	93.312	5.465	4.202	1	H1-1a
587	M1090	2L3 1/2x4x1/4x3/8	0.186	31.538	4	0.003	31.538	y	16	80.637	117.45	12.64	5.609	1	H1-1b*
588	M1093	L2.5x2x3	0.075	0	10	0.002	5.583	y	16	15.289	26.503	0.626	1.219	1	H2-1
589	M1094	LL2.5x2.5x3x0	0.07	11.167	4	0.003	11.167	y	16	29.786	58.32	3.3	1.95	1	H1-1b
590	M1095	LL2.5x2.5x3x0	0.07	0	16	0.003	0	y	6	29.786	58.32	3.3	1.95	1	H1-1b
591	M1096	L3x3x.21	0.063	0	2	0.001	0	y	4	16.953	39.395	1.488	2.076	1	H2-1
592	M1097	L2.5x2x3	0.082	5.583	10	0.002	5.583	y	12	15.289	26.503	0.626	1.219	1	H2-1
593	M1098	2L3 1/2x4x1/4x3/8	0.24	31.538	16	0.003	31.538	y	4	80.637	117.45	12.64	5.609	1	H1-1a
594	M1101	LL2.5x2x3x0	0.309	0	2	0.003	13.341	y	12	19.951	53.136	2.182	1.686	1	H1-1a
595	M1102	LL2.5x2.5x3x0	0.323	0	2	0.003	12.722	y	12	24.382	58.32	3.3	1.902	1	H1-1a
596	M1103	L2.5x2x3	0.058	8.608	2	0.001	8.608	y	2	7.438	26.503	0.626	1.193	1.5	H2-1
597	M1104	L2.5x2x3	0.057	0	2	0.001	0	y	2	7.438	26.503	0.626	1.193	1.5	H2-1
598	M1105	L3x3x.21	0.072	0	2	0.001	0	y	2	16.953	39.395	1.488	2.076	1	H2-1
599	M1110	L2.5x2x.21"	0.486	0	17	0.003	11.844	y	4	4.328	29.189	0.696	1.212	1.5	H2-1
600	M1111	L2.5x2x.21"	0.375	11.844	16	0.003	11.844	y	16	4.328	29.189	0.696	1.212	1.5	H2-1
601	M1112	L2.5x2x.21"	0.387	0	4	0.003	0	y	4	4.328	29.189	0.696	1.212	1.5	H2-1
602	M1113	L2.5x2x.21"	0.617	11.844	2	0.003	11.844	y	2	4.328	29.189	0.696	1.212	1.5	H2-1
603	M1114	L2.5x2x.21"	0.633	0	10	0.003	0	y	10	4.328	29.189	0.696	1.212	1.5	H2-1
604	M1115	L2.5x2x.21"	0.457	0	9	0.003	0	y	4	4.328	29.189	0.696	1.212	1.5	H2-1
605	M1116	L2.5x2x.21"	0.376	11.844	8	0.003	11.844	y	8	4.328	29.189	0.696	1.212	1.5	H2-1
606	M1117	L2.5x2x.21"	0.398	0	12	0.003	0	y	12	4.328	29.189	0.696	1.212	1.5	H2-1
607	M1118	L2.5x2x.21"	0.45	0	11	0.003	0	y	8	4.328	29.189	0.696	1.212	1.5	H2-1
608	M1119	L2.5x2x.21"	0.565	11.844	10	0.003	11.844	y	10	4.328	29.189	0.696	1.212	1.5	H2-1
609	M1120	L2.5x2x.21"	0.573	0	2	0.003	0	y	2	4.328	29.189	0.696	1.212	1.5	H2-1
610	M1121	L2.5x2x.21"	0.081	8.375	16	0.003	8.375	y	10	8.655	29.189	0.696	1.369	1.5	H2-1
611	M1122	L2.5x2x.21"	0.087	8.375	2	0.003	8.375	y	4	8.655	29.189	0.696	1.369	1.5	H2-1
612	M1123	L2.5x2x.21"	0.08	8.375	8	0.003	8.375	y	2	8.655	29.189	0.696	1.369	1.5	H2-1
613	M1124	L2.5x2x.21"	0.088	8.375	10	0.003	8.375	y	8	8.655	29.189	0.696	1.369	1.5	H2-1
614	M1106	L3X3X4	0.198	16.75	2	0.006	16.75	y	16	24.105	46.656	1.688	2.757	1	H2-1
615	M1107	L3X3X4	0.139	16.75	4	0.005	16.75	y	4	24.105	46.656	1.688	2.757	1	H2-1

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
616	M1108	L3X3X4	0.201	16.75	10	0.006	16.75	y	8	24.105	46.656	1.688	2.757	1	H2-1	
617	M1109	L3X3X4	0.142	16.75	12	0.005	16.75	y	12	24.105	46.656	1.688	2.757	1	H2-1	
618	M1125	L2.5x2x.21"	0.464	11.844	5	0.003	0	y	16	4.328	29.189	0.696	1.212	1.5	H2-1	
619	M1126	L2.5x2x.19"	0.065	4.833	4	0.002	4.833	z	4	17.607	26.532	0.638	1.187	1	H2-1	
620	M1127	LL2.5x2x.19x.31	0.31	0	10	0.003	12.228	y	4	24.763	53.065	2.656	1.765	1	H1-1a	
621	M1128	LL2.5x2.5x3x3	0.328	0	10	0.004	0	z	4	29.786	58.32	3.954	1.993	1	H1-1a	
622	M1129	LL2.5x2.5x3x3	0.126	0	12	0.006	0	y	4	35.25	58.32	3.954	2.035	1	H1-1b	
623	M1130	2L3 1/2x2 1/2x1/4x3/8	0.226	14.5	8	0.009	14.5	z	16	48.533	93.312	5.465	4.378	1	H1-1b	
624	M1131	2L3 1/2x4x1/4x3/8	0.239	20.118	12	0.004	0	y	8	80.76	117.45	12.64	5.63	1	H1-1a	
625	M1132	L2.5x2x.19"	0.075	0	16	0.002	0	z	16	17.607	26.532	0.638	1.187	1	H2-1	
626	M1133	LL2.5x2x.19x.31	0.316	0	10	0.003	12.228	y	16	24.763	53.065	2.656	1.765	1	H1-1a	
627	M1134	2L3 1/2x4x1/4x3/8	0.242	0	8	0.004	0	y	12	80.76	117.45	12.64	5.63	1	H1-1a	
628	M1135	LL2.5x2.5x3x3	0.108	9.667	8	0.006	9.667	y	16	35.25	58.32	3.954	2.035	1	H1-1b	
629	M1136	L8x8x7/8	0.306	3.413	8	0.01	0	y	4	390.207	427.68	16.388	89.861	1	H2-1	
630	M1138	2L3x3x3/16	0.041	0	8	0.002	0	y	12	47.791	70.632	4.823	2.778	1	H1-1b	
631	M1139	2L3x3x3/16	0.039	9.31	8	0.002	0	y	8	47.791	70.632	4.823	2.778	1	H1-1b	
632	M1140	L2.5x2x.19"	0.063	4.833	12	0.002	4.833	z	16	17.607	26.532	0.638	1.291	1	H2-1	
633	M1141	LL2.5x2x.19x.31	0.187	0	4	0.003	12.228	y	16	24.763	53.065	2.656	1.765	1	H1-1b*	
634	M1142	LL2.5x2.5x3x3	0.209	0	8	0.004	11.167	z	12	29.786	58.32	3.954	1.993	1	H1-1b	
635	M1143	LL2.5x2.5x3x3	0.103	0	8	0.006	0	y	16	35.25	58.32	3.954	2.035	1	H1-1b	
636	M1144	2L3 1/2x2 1/2x1/4x3/8	0.364	14.5	16	0.009	14.5	z	16	48.533	93.312	5.465	4.378	1	H1-1a	
637	M1145	2L3 1/2x4x1/4x3/8	0.408	20.118	10	0.004	0	y	4	80.76	117.45	12.64	5.63	1	H1-1a	
638	M1146	L2.5x2x.19"	0.057	0	12	0.002	0	z	10	17.607	26.532	0.638	1.187	1	H2-1	
639	M1147	LL2.5x2x.19x.31	0.182	0	8	0.003	12.228	y	12	24.763	53.065	2.656	1.765	1	H1-1b*	
640	M1148	2L3 1/2x4x1/4x3/8	0.406	20.118	2	0.004	0	y	8	80.76	117.45	12.64	5.63	1	H1-1a	
641	M1149	LL2.5x2.5x3x3	0.123	9.667	4	0.005	0	y	16	35.25	58.32	3.954	2.035	1	H1-1b	
642	M1150	L8x8x7/8	0.31	0.525	5	0.021	0	z	10	390.207	427.68	16.388	89.861	1	H2-1	
643	M1152	2L3x3x3/16	0.039	9.31	8	0.002	9.31	z	8	47.791	70.632	4.823	2.778	1	H1-1b	
644	M1153	2L3x3x3/16	0.044	9.31	4	0.002	9.31	y	4	47.791	70.632	4.823	2.778	1	H1-1b	
645	M1154	L2.5x2x.19"	0.078	4.833	10	0.002	4.833	z	12	17.607	26.532	0.638	1.291	1	H2-1	
646	M1155	LL2.5x2x.19x.31	0.311	0	2	0.003	12.228	y	12	24.763	53.065	2.656	1.765	1	H1-1a	
647	M1156	LL2.5x2.5x3x3	0.326	11.167	16	0.004	11.167	z	8	29.786	58.32	3.954	1.993	1	H1-1a	
648	M1157	LL2.5x2.5x3x3	0.113	0	13	0.005	0	y	12	35.25	58.32	3.954	2.035	1	H1-1b	
649	M1158	2L3 1/2x2 1/2x1/4x3/8	0.23	14.5	16	0.009	14.5	z	8	48.533	93.312	5.465	4.378	1	H1-1b	
650	M1159	2L3 1/2x4x1/4x3/8	0.246	0	4	0.004	0	y	16	80.76	117.45	12.64	5.63	1	H1-1a	
651	M1160	L2.5x2x.19"	0.067	0	10	0.002	0	z	8	17.607	26.532	0.638	1.291	1	H2-1	
652	M1161	LL2.5x2x.19x.31	0.31	0	2	0.003	12.228	y	8	24.763	53.065	2.656	1.765	1	H1-1a	
653	M1162	2L3 1/2x4x1/4x3/8	0.269	0	16	0.004	0	y	4	80.76	117.45	12.64	5.63	1	H1-1a	
654	M1163	LL2.5x2.5x3x3	0.109	9.667	16	0.006	9.667	y	8	35.25	58.32	3.954	2.035	1	H1-1b	
655	M1166	2L3x3x3/16	0.043	0	2	0.002	0	y	4	47.791	70.632	4.823	2.778	1	H1-1b	
656	M1167	2L3x3x3/16	0.04	0	4	0.002	0	y	16	47.791	70.632	4.823	2.778	1	H1-1b	
657	M1172	LL2.5x2x.2"	0.119	10.253	8	0.003	10.253	y	10	30.629	55.728	2.33	1.919	2.243	H1-1b	
658	M1173	LL2.5x2x.2"	0.087	10.253	16	0.003	10.253	y	16	30.629	55.728	2.33	1.919	2.238	H1-1b	
659	M1174	LL2.5x2x.2"	0.086	0	4	0.003	0	y	4	30.629	55.728	2.33	1.919	2.228	H1-1b	
660	M1175	LL2.5x2x.2"	0.101	10.253	2	0.003	10.253	y	4	30.629	55.728	2.33	1.919	2.242	H1-1b	
661	M1176	LL2.5x2x.2"	0.098	0	10	0.003	0	y	8	30.629	55.728	2.33	1.919	2.232	H1-1b	
662	M1177	LL2.5x2x.2"	0.088	0	4	0.003	10.253	y	8	30.629	55.728	2.33	1.919	2.254	H1-1b	
663	M1178	LL2.5x2x.2"	0.086	10.253	16	0.003	0	y	12	30.629	55.728	2.33	1.919	2.253	H1-1b	
664	M1179	LL2.5x2x.2"	0.098	10.253	10	0.003	10.253	y	12	30.629	55.728	2.33	1.919	2.242	H1-1b	
665	M1180	LL2.5x2x.2"	0.1	0	16	0.003	0	y	16	30.629	55.728	2.33	1.919	2.225	H1-1b	
666	M1181	LL2.5x2x.2"	0.119	0	4	0.003	0	y	2	30.629	55.728	2.33	1.919	2.253	H1-1b	
667	M1182	LL2.5x2x.2"	0.118	0	16	0.003	0	y	2	30.629	55.728	2.33	1.919	2.26	H1-1b	
668	M1183	LL2.5x2x.2"	0.12	10.253	2	0.003	0	y	10	30.629	55.728	2.33	1.919	2.182	H1-1b	
669	M1184	L2.5x2.5x.21	0.737	0	2	0.003	14.5	y	8	4.327	32.591	0.999	1.417	1.5	H2-1	
670	M1185	L2.5x2.5x.21	0.309	0	4	0.003	0	y	10	4.327	32.591	0.999	1.417	1.5	H2-1	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
671	M1186	L2.5x2.5x.21	0.672	0	10	0.003	0	y	4	4.327	32.591	0.999	1.417	1.5	H2-1	
672	M1187	L2.5x2.5x.21	0.347	0	12	0.003	0	y	2	4.327	32.591	0.999	1.417	1.5	H2-1	
673	M1169	L2.5x2.5x3	0.147	0	3	0.002	0	z	8	8.875	29.192	0.873	1.458	1	H2-1	
674	M1170	L2.5x2.5x3	0.157	6.667	2	0.002	6.667	z	10	7.388	29.192	0.873	1.408	1	H2-1	
675	M1171	L8x8x3/4	0.32	1.576	8	0.011	12.608	y	4	350.999	369.36	14.265	79.428	1	H2-1	
676	M1188	2L3x2 1/2x1/4x3/8	0.043	8.346	4	0.004	8.346	z	4	47.19	85.212	5.423	3.948	1	H1-1b	
677	M1189	2L2 1/2x3 1/2x1/4x3/8	0.138	9.59	16	0.007	9.59	y	16	53.981	93.312	9.918	3.258	1	H1-1b*	
678	M1190	2L3x2 1/2x1/4x3/8	0.171	12.167	8	0.008	12.167	z	8	50.124	85.212	5.423	3.727	1	H1-1b	
679	M1191	2L2 1/2x3 1/2x1/4x3/8	0.139	9.157	16	0.004	9.157	y	16	56.653	93.312	9.918	3.269	1	H1-1b*	
680	M1192	2L3x2 1/2x1/4x3/8	0.042	8.346	16	0.004	8.346	z	16	47.19	85.212	5.423	3.948	1	H1-1b	
681	M1193	2L3x2 1/2x1/4x3/8	0.243	26.667	16	0.009	26.667	z	16	45.057	85.212	5.423	3.662	1	H1-1b	
682	M1194	2L2 1/2x3 1/2x1/4x3/8	0.132	0	8	0.004	9.157	y	4	56.653	93.312	9.918	3.269	1	H1-1b*	
683	M1195	L2.5x2.5x3	0.181	0	2	0.002	0	z	8	7.388	29.192	0.873	1.408	1	H2-1	
684	M1196	L2.5x2.5x3	0.127	6.083	3	0.002	6.083	z	10	8.875	29.192	0.873	1.458	1	H2-1	
685	M1197	2L3x2 1/2x1/4x3/8	0.069	8.741	16	0.004	8.741	z	16	44.564	85.212	5.423	3.924	1	H1-1b	
686	M1198	2L3x2 1/2x1/4x3/8	0.071	8.741	4	0.004	8.741	z	4	44.564	85.212	5.423	3.924	1	H1-1b	
687	M1200	L2.5x2.5x3	0.095	6.083	13	0.002	0	z	12	8.875	29.192	0.873	1.458	1	H2-1	
688	M1201	L2.5x2.5x3	0.163	6.667	16	0.002	6.667	z	4	7.388	29.192	0.873	1.408	1	H2-1	
689	M1202	L8x8x3/4	0.323	0	4	0.012	12.608	y	16	350.999	369.36	14.265	79.428	1	H2-1	
690	M1203	2L3x2 1/2x1/4x3/8	0.037	8.346	8	0.004	0	z	16	47.19	85.212	5.423	3.948	1	H1-1b	
691	M1204	2L2 1/2x3 1/2x1/4x3/8	0.329	9.59	10	0.007	9.59	y	12	53.981	93.312	9.918	3.258	1	H1-1a	
692	M1205	2L3x2 1/2x1/4x3/8	0.272	24.333	10	0.009	12.167	z	8	50.124	85.212	5.423	3.727	1	H1-1a	
693	M1206	2L2 1/2x3 1/2x1/4x3/8	0.341	0	10	0.004	0	y	4	56.653	93.312	9.918	3.269	1	H1-1a	
694	M1207	2L3x2 1/2x1/4x3/8	0.037	8.346	4	0.003	0	z	12	47.19	85.212	5.423	3.948	1	H1-1b	
695	M1208	2L3x2 1/2x1/4x3/8	0.357	0	16	0.01	0	z	16	45.057	85.212	5.423	3.662	1	H1-1a	
696	M1209	2L2 1/2x3 1/2x1/4x3/8	0.338	0	2	0.004	0	y	8	56.653	93.312	9.918	3.269	1	H1-1a	
697	M1210	L2.5x2.5x3	0.107	0	12	0.002	0	z	8	7.388	29.192	0.873	1.408	1	H2-1	
698	M1211	L2.5x2.5x3	0.124	0	17	0.002	6.083	z	16	8.875	29.192	0.873	1.458	1	H2-1	
699	M1212	2L3x2 1/2x1/4x3/8	0.065	8.741	12	0.004	8.741	z	12	44.564	85.212	5.423	3.924	1	H1-1b	
700	M1213	2L3x2 1/2x1/4x3/8	0.063	8.741	16	0.004	8.741	z	16	44.564	85.212	5.423	3.924	1	H1-1b	
701	M1215	L2.5x2.5x3	0.126	0	11	0.002	0	z	16	8.875	29.192	0.873	1.458	1	H2-1	
702	M1216	L2.5x2.5x3	0.18	6.667	10	0.002	6.667	z	2	7.388	29.192	0.873	1.408	1	H2-1	
703	M1218	2L3x2 1/2x1/4x3/8	0.041	8.346	4	0.003	8.346	z	12	47.19	85.212	5.423	3.948	1	H1-1b	
704	M1219	2L2 1/2x3 1/2x1/4x3/8	0.131	0	4	0.007	9.59	y	8	53.981	93.312	9.918	3.258	1	H1-1b*	
705	M1220	2L3x2 1/2x1/4x3/8	0.191	12.167	16	0.008	12.167	z	4	50.124	85.212	5.423	3.727	1	H1-1b	
706	M1221	2L2 1/2x3 1/2x1/4x3/8	0.131	0	4	0.004	9.157	y	8	56.653	93.312	9.918	3.269	1	H1-1b*	
707	M1222	2L3x2 1/2x1/4x3/8	0.043	8.346	8	0.004	8.346	z	8	47.19	85.212	5.423	3.948	1	H1-1b	
708	M1223	2L3x2 1/2x1/4x3/8	0.241	0	12	0.009	0	z	12	45.057	85.212	5.423	3.662	1	H1-1b	
709	M1224	2L2 1/2x3 1/2x1/4x3/8	0.142	9.157	12	0.004	0	y	4	56.653	93.312	9.918	3.269	1	H1-1b*	
710	M1225	L2.5x2.5x3	0.158	0	10	0.002	0	z	2	7.388	29.192	0.873	1.408	1	H2-1	
711	M1226	L2.5x2.5x3	0.143	6.083	11	0.002	6.083	z	4	8.875	29.192	0.873	1.458	1	H2-1	
712	M1227	2L3x2 1/2x1/4x3/8	0.07	8.741	8	0.004	8.741	z	8	44.564	85.212	5.423	3.924	1	H1-1b	
713	M1228	2L3x2 1/2x1/4x3/8	0.064	8.741	12	0.004	8.741	z	12	44.564	85.212	5.423	3.924	1	H1-1b	
714	M1230	L2.5x2.5x3	0.333	0	16	0.005	0	y	12	10.502	29.192	0.873	1.489	1.5	H2-1	
715	M1232	L2.5x2.5x3	0.518	8.603	16	0.013	8.603	y	16	10.502	29.192	0.873	1.489	1.5	H2-1	
716	M1234	L2.5x2.5x3	0.384	0	6	0.013	0	y	4	10.502	29.192	0.873	1.489	1.5	H2-1	
717	M1236	L2.5x2.5x3	0.334	8.603	4	0.005	8.603	y	8	10.502	29.192	0.873	1.489	1.5	H2-1	
718	M1237	L2.5x2.5x3	0.406	8.603	4	0.013	8.603	y	4	10.502	29.192	0.873	1.489	1.5	H2-1	
719	M1238	L2.5x2.5x3	0.366	0	8	0.013	0	y	8	10.502	29.192	0.873	1.489	1.5	H2-1	
720	M1239	L2.5x2.5x3	0.285	8.603	8	0.005	8.603	y	12	10.502	29.192	0.873	1.489	1.5	H2-1	
721	M1240	L2.5x2.5x3	0.389	8.603	4	0.012	8.603	y	8	10.502	29.192	0.873	1.489	1.5	H2-1	
722	M1241	L2.5x2.5x3	0.453	0	10	0.013	0	y	12	10.502	29.192	0.873	1.489	1.5	H2-1	
723	M1242	L2.5x2.5x3	0.329	8.603	10	0.005	8.603	y	10	10.502	29.192	0.873	1.489	1.5	H2-1	
724	M1243	L2.5x2.5x3	0.553	8.603	10	0.013	8.603	y	12	10.502	29.192	0.873	1.489	1.5	H2-1	
725	M1244	L2.5x2.5x3	0.564	0	16	0.013	0	y	16	10.502	29.192	0.873	1.489	1.5	H2-1	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*	Pnc [k]	phi*	Pnt [k]	phi*	Mn y-y [k-ft]	phi*	Mn z-z [k-ft]	Cb	Eqn
726	M1229	LL2.5x2x.2"	0.086	6.717	10	0.003	12.167	y	16	24.711	55.728	2.33	1.837	1.768	H1-1b					
727	M1231	LL2.5x2x.2"	0.096	5.703	10	0.003	0	y	16	24.711	55.728	2.33	2.408	2.216	H1-1b					
728	M1233	LL2.5x2x.2"	0.076	6.21	4	0.003	12.167	y	10	24.711	55.728	2.33	2.408	1.034	H1-1b					
729	M1235	LL2.5x2x.2"	0.099	6.083	2	0.003	0	y	12	24.711	55.728	2.33	2.408	1.74	H1-1b					
730	M1245	L2.5x2.5x4	0.054	0	12	0.004	3.987	y	4	30.969	38.556	1.114	2.472	1.5	H2-1					
731	M1246	L2.5x2.5x4	0.057	0	12	0.005	4.371	z	4	29.629	38.556	1.114	2.313	1.133	H2-1					
732	M1247	L2.5x2.5x4	0.096	2.75	5	0.005	2.75	z	5	30.125	38.556	1.114	2.537	1.483	H2-1					
733	M1248	L2.5x2.5x4	0.099	2.75	5	0.005	2.75	z	5	30.125	38.556	1.114	2.537	1.5	H2-1					
734	M1253	L2.5x2.5x4	0.091	2.75	16	0.005	2.75	y	8	30.125	38.556	1.114	2.537	1.5	H2-1					
735	M1254	L2.5x2.5x4	0.059	0	16	0.004	4.371	y	8	29.629	38.556	1.114	2.435	1.5	H2-1					
736	M1255	L2.5x2.5x4	0.055	3.987	12	0.005	3.987	y	8	30.969	38.556	1.114	2.472	1.5	H2-1					
737	M1256	L2.5x2.5x4	0.08	2.75	9	0.003	2.75	y	4	30.125	38.556	1.114	2.537	1.42	H2-1					
738	M1249	LL2.5x2.5x4x0	0.289	22	16	0.014	22	z	16	39.523	77.112	4.441	2.807	1	H1-1b					
739	M1251	L2.5x2.5x4	0.12	3.987	12	0.007	3.987	y	4	16.05	38.556	1.114	1.904	1	H2-1					
740	M1252	L2.5x2.5x4	0.1	2.75	17	0.006	2.75	z	17	30.125	38.556	1.114	2.537	1.5	H2-1					
741	M1257	2L2 1/2x3x1/4x3/8	0.123	4.371	12	0.008	8.741	y	16	55.323	85.212	7.465	3.153	1	H1-1b					
742	M1258	L2.5x2.5x4	0.097	0	4	0.003	0	z	8	14.338	38.556	1.114	2.131	1	H2-1					
743	M1260	L2.5x2.5x4	0.063	0	8	0.005	4.371	z	16	29.629	38.556	1.114	2.317	1.143	H2-1					
744	M1261	L2.5x2.5x4	0.065	0	10	0.005	3.987	y	4	30.969	38.556	1.114	2.472	1.5	H2-1					
745	M1262	2L2 1/2x3x1/4x3/8	0.13	4.371	8	0.008	8.741	y	4	55.323	85.212	7.465	3.153	1	H1-1b					
746	M1263	L6x6x7/8	0.292	5.122	8	0.022	12.608	z	12	287.261	315.252	9.123	48.188	1	H2-1					
747	M1264	L2.5x2.5x4	0.107	5.5	16	0.003	5.5	z	12	14.338	38.556	1.114	2.131	1	H2-1					
748	M1265	L2.5x2.5x4	0.066	0	8	0.005	3.987	z	16	30.969	38.556	1.114	2.472	1.5	H2-1					
749	M1266	L2.5x2.5x4	0.133	3.987	8	0.008	3.987	y	16	16.05	38.556	1.114	1.904	1	H2-1					
750	M1267	L2.5x2.5x4	0.113	2.75	17	0.004	2.75	z	17	30.125	38.556	1.114	2.537	1.5	H2-1					
751	M1268	L2.5x2.5x4	0.089	2.75	5	0.005	2.75	y	8	30.125	38.556	1.114	2.537	1.5	H2-1					
752	M1269	L2.5x2.5x4	0.055	0	12	0.005	4.371	y	4	29.629	38.556	1.114	2.435	1.5	H2-1					
753	M1270	L2.5x2.5x4	0.1	2.75	5	0.003	2.75	z	4	30.125	38.556	1.114	2.537	1.495	H2-1					
754	M1271	LL2.5x2.5x4x0	0.314	0	16	0.014	0	z	16	39.523	77.112	4.441	2.807	1	H1-1b					
755	M1273	L2.5x2.5x4	0.116	3.987	8	0.007	3.987	y	16	16.05	38.556	1.114	1.904	1	H2-1					
756	M1274	L2.5x2.5x4	0.095	2.75	13	0.005	2.75	z	4	30.125	38.556	1.114	2.537	1.491	H2-1					
757	M1275	2L2 1/2x3x1/4x3/8	0.258	0	10	0.008	8.741	y	12	55.323	85.212	7.465	3.153	1	H1-1a					
758	M1276	L2.5x2.5x4	0.081	0	16	0.003	0	z	4	14.338	38.556	1.114	2.131	1	H2-1					
759	M1278	L2.5x2.5x4	0.06	0	4	0.005	4.371	z	12	29.629	38.556	1.114	2.302	1.106	H2-1					
760	M1279	L2.5x2.5x4	0.053	3.987	4	0.006	3.987	y	16	30.969	38.556	1.114	2.472	1.5	H2-1					
761	M1280	2L2 1/2x3x1/4x3/8	0.259	0	2	0.008	17.483	y	8	55.323	85.212	7.465	3.153	1	H1-1a					
762	M1281	L6x6x7/8	0.293	5.122	4	0.022	12.608	y	16	287.261	315.252	9.123	48.188	1	H2-1					
763	M1282	L2.5x2.5x4	0.095	5.5	12	0.003	5.5	z	16	14.338	38.556	1.114	2.131	1	H2-1					
764	M1283	L2.5x2.5x4	0.06	0	4	0.004	3.987	z	12	30.969	38.556	1.114	2.472	1.5	H2-1					
765	M1284	L2.5x2.5x4	0.12	3.987	4	0.008	3.987	y	12	16.05	38.556	1.114	1.904	1	H2-1					
766	M1285	L2.5x2.5x4	0.108	2.75	13	0.005	2.75	y	16	30.125	38.556	1.114	2.537	1.5	H2-1					
767	M1286	L2.5x2.5x4	0.091	2.75	8	0.005	2.75	y	16	30.125	38.556	1.114	2.537	1.5	H2-1					
768	M1287	L2.5x2.5x4	0.057	0	8	0.005	4.371	y	16	29.629	38.556	1.114	2.435	1.5	H2-1					
769	M1288	L2.5x2.5x4	0.089	2.75	17	0.003	2.75	z	16	30.125	38.556	1.114	2.537	1.438	H2-1					
770	M1289	LL2.5x2.5x4x0	0.286	0	12	0.014	0	z	12	39.523	77.112	4.441	2.807	1	H1-1b					
771	M1291	L2.5x2.5x4	0.131	3.987	4	0.007	3.987	y	12	16.05	38.556	1.114	1.904	1	H2-1					
772	M1292	L2.5x2.5x4	0.096	2.75	9	0.005	2.75	z	16	30.125	38.556	1.114	2.537	1.5	H2-1					
773	M1293	2L2 1/2x3x1/4x3/8	0.132	4.371	4	0.008	8.741	y	8	55.323	85.212	7.465	3.153	1	H1-1b					
774	M1294	L2.5x2.5x4	0.087	0	12	0.003	0	z	16	14.338	38.556	1.114	2.131	1	H2-1					
775	M1296	L2.5x2.5x4	0.06	0	16	0.005	4.371	z	8	29.629	38.556	1.114	2.283	1.064	H2-1					
776	M1297	L2.5x2.5x4	0.062	0	2	0.005	3.987	y	12	30.969	38.556	1.114	2.472	1.5	H2-1					
777	M1298	2L2 1/2x3x1/4x3/8	0.142	0	16	0.008	17.483	y	4	55.323	85.212	7.465	3.153	1	H1-1b*					
778	M1300	L2.5x2.5x4	0.103	5.5	8	0.003	5.5	z	4	14.338	38.556	1.114	2.131	1	H2-1					
779	M1301	L2.5x2.5x4	0.071	0	2	0.004	3.987	y	8	30.969	38.556	1.114	2.472	1.5	H2-1					
780	M1302	L2.5x2.5x4	0.134	3.987	16	0.008	3.987	y	8	16.05	38.556	1.114	1.904	1	H2-1					

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn	
781	M1303	L2.5x2.5x4	0.108	2.75	9	0.004	2.75	z	9	30.125	38.556	1.114	2.537	1.5	H2-1
782	M1304	L2.5x2.5x4	0.094	2.75	4	0.005	2.75	y	12	30.125	38.556	1.114	2.537	1.5	H2-1
783	M1305	L2.5x2.5x4	0.06	0	4	0.004	4.371	y	12	29.629	38.556	1.114	2.435	1.5	H2-1
784	M1306	L2.5x2.5x4	0.094	2.75	13	0.003	0	y	16	30.125	38.556	1.114	2.537	1.5	H2-1
785	M1308	2L2 1/2x3x1/4x3/8	0.119	0	14	0.009	8.346	y	16	57.475	85.212	7.465	3.165	1	H1-1b*
786	M1309	LL2.5x2.5x4x0	0.056	7.628	4	0.004	0	z	12	36.036	77.112	4.441	2.942	1	H1-1b
787	M1310	LL2.5x2.5x4x0	0.059	7.628	16	0.004	7.628	z	16	36.036	77.112	4.441	2.942	1	H1-1b
788	M1311	L6x6x7/8	0.239	9.719	8	0.012	0	y	4	287.261	315.252	9.123	48.188	1	H2-1
789	M1312	2L2 1/2x3x1/4x3/8	0.121	0	6	0.008	8.346	y	4	57.475	85.212	7.465	3.165	1	H1-1b*
790	M1313	LL2.5x2.5x4x0	0.255	19.667	16	0.012	19.667	z	16	45.203	77.112	4.441	2.853	1	H1-1b
791	M1314	LL2.5x2.5x4x0	0.089	0	4	0.003	0	z	16	56.214	77.112	4.441	3.055	1	H1-1b
792	M1315	LL2.5x2.5x4x0	0.098	4.917	16	0.003	4.917	y	16	56.214	77.112	4.441	3.055	1	H1-1b
793	M1317	2L2 1/2x3x1/4x3/8	0.259	8.346	10	0.008	8.346	y	12	57.475	85.212	7.465	3.165	1	H1-1a
794	M1318	LL2.5x2.5x4x0	0.056	7.628	16	0.004	7.628	z	16	36.036	77.112	4.441	2.942	1	H1-1b
795	M1319	LL2.5x2.5x4x0	0.053	7.628	12	0.004	0	z	4	36.036	77.112	4.441	2.942	1	H1-1b
796	M1320	L6x6x7/8	0.244	9.85	4	0.012	0	y	16	287.261	315.252	9.123	48.188	1	H2-1
797	M1321	2L2 1/2x3x1/4x3/8	0.256	8.346	2	0.009	8.346	y	16	57.475	85.212	7.465	3.165	1	H1-1a
798	M1322	LL2.5x2.5x4x0	0.276	0	16	0.012	0	z	16	45.203	77.112	4.441	2.853	1	H1-1b
799	M1323	LL2.5x2.5x4x0	0.092	0	16	0.003	0	z	10	56.214	77.112	4.441	3.055	1	H1-1b
800	M1324	LL2.5x2.5x4x0	0.089	4.917	12	0.003	4.917	z	16	56.214	77.112	4.441	3.055	1	H1-1b
801	M1326	2L2 1/2x3x1/4x3/8	0.129	0	6	0.008	8.346	y	8	57.475	85.212	7.465	3.165	1	H1-1b*
802	M1327	LL2.5x2.5x4x0	0.053	7.628	12	0.004	0	z	4	36.036	77.112	4.441	2.942	1	H1-1b
803	M1328	LL2.5x2.5x4x0	0.053	7.628	8	0.004	0	z	16	36.036	77.112	4.441	2.942	1	H1-1b
804	M1330	2L2 1/2x3x1/4x3/8	0.131	0	16	0.008	8.346	y	12	57.475	85.212	7.465	3.165	1	H1-1b*
805	M1331	LL2.5x2.5x4x0	0.25	0	12	0.012	0	z	12	45.203	77.112	4.441	2.853	1	H1-1b
806	M1332	LL2.5x2.5x4x0	0.088	0	12	0.003	0	z	8	56.214	77.112	4.441	3.055	1	H1-1b
807	M1333	LL2.5x2.5x4x0	0.086	4.917	8	0.003	4.917	z	12	56.214	77.112	4.441	3.055	1	H1-1b
808	M1334	L6x6x7/8	0.197	9.317	8	0.012	0	y	4	287.306	315.252	9.123	48.188	1	H2-1
809	M1335	2L2 1/2x3x1/4x3/8	0.125	0	14	0.007	15.943	z	16	59.497	85.212	7.465	3.177	1	H1-1b*
810	M1336	2L2 1/2x3x1/4x3/8	0.128	0	6	0.006	7.971	y	4	59.497	85.212	7.465	3.177	1	H1-1b*
811	M1338	2L3x2 1/2x1/4x3/8	0.21	17.458	16	0.012	17.458	z	16	64.846	85.212	5.423	3.925	1	H1-1b
812	M1339	L2.5x2.5x4	0.104	4.365	17	0.002	4.365	z	4	20.706	38.556	1.114	2.253	1	H2-1
813	M1340	L2.5x2.5x4	0.084	0	5	0.002	0	z	16	20.706	38.556	1.114	2.253	1	H2-1
814	M1341	L2.5x2x3	0.066	7.342	9	0.004	7.342	z	16	10.226	26.503	0.626	1.016	1	H2-1
815	M1342	L2.5x2x3	0.082	7.342	8	0.003	0	z	6	10.226	26.503	0.626	1.016	1	H2-1
816	M1343	L6x6x7/8	0.203	10.235	4	0.012	0	y	16	287.306	315.252	9.123	48.188	1	H2-1
817	M1344	2L2 1/2x3x1/4x3/8	0.243	7.971	10	0.006	7.971	y	12	59.497	85.212	7.465	3.177	1	H1-1a
818	M1345	2L2 1/2x3x1/4x3/8	0.24	7.971	2	0.007	15.943	z	16	59.497	85.212	7.465	3.177	1	H1-1a
819	M1347	2L3x2 1/2x1/4x3/8	0.22	0	16	0.012	0	z	16	64.846	85.212	5.423	3.925	1	H1-1b
820	M1348	L2.5x2.5x4	0.084	4.365	13	0.003	4.365	z	16	20.706	38.556	1.114	2.253	1	H2-1
821	M1349	L2.5x2.5x4	0.1	0	17	0.003	0	z	12	20.706	38.556	1.114	2.253	1	H2-1
822	M1350	L2.5x2x3	0.07	7.342	8	0.003	7.342	z	10	10.226	26.503	0.626	1.101	1	H2-1
823	M1351	L2.5x2x3	0.075	7.342	4	0.003	0	z	16	10.226	26.503	0.626	1.016	1	H2-1
824	M1353	2L2 1/2x3x1/4x3/8	0.137	0	6	0.006	7.971	y	8	59.497	85.212	7.465	3.177	1	H1-1b*
825	M1354	2L2 1/2x3x1/4x3/8	0.137	0	14	0.007	7.971	y	12	59.497	85.212	7.465	3.177	1	H1-1b*
826	M1356	2L3x2 1/2x1/4x3/8	0.193	0	4	0.011	0	z	12	64.846	85.212	5.423	3.925	1	H1-1b
827	M1357	L2.5x2.5x4	0.078	4.365	9	0.003	4.365	z	12	20.706	38.556	1.114	2.253	1	H2-1
828	M1358	L2.5x2.5x4	0.087	0	13	0.002	0	z	8	20.706	38.556	1.114	2.253	1	H2-1
829	M1359	L2.5x2x3	0.065	7.342	17	0.003	7.342	z	8	10.226	26.503	0.626	1.016	1	H2-1
830	M1360	L2.5x2x3	0.07	7.342	12	0.003	0	z	12	10.226	26.503	0.626	1.016	1	H2-1
831	M1361	L2.5x2.5x3	0.157	5.851	7	0.003	5.851	y	5	18.21	29.192	0.873	1.67	1.5	H2-1
832	M1362	L2.5x2.5x3	0.159	5.851	3	0.003	5.851	y	17	18.21	29.192	0.873	1.67	1.5	H2-1
833	M1363	L2.5x2.5x3	0.161	5.851	11	0.003	5.851	y	11	18.21	29.192	0.873	1.67	1.5	H2-1
834	M1364	L2.5x2.5x3	0.157	5.851	15	0.003	5.851	y	13	18.21	29.192	0.873	1.67	1.5	H2-1
835	M1367	L2.5x2.5x3	0.016	6.25	4	0	6.25	y	2	17.037	29.192	0.873	1.642	1.5	H2-1

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
836	M1369	L2.5x2.5x.21	0.021	0	14	0.001	5.64	z	5	21.451	32.591	0.999	1.947	1.5	H2-1	
837	M1370	L2.5x2.5x.21	0.022	5.64	14	0.001	5.64	z	17	21.451	32.591	0.999	1.947	1.5	H2-1	
838	M1371	L2.5x2.5x.21	0.022	0	2	0.001	5.64	z	10	21.451	32.591	0.999	1.947	1.5	H2-1	
839	M1372	L2.5x2.5x.21	0.023	0	10	0.001	5.64	z	13	21.451	32.591	0.999	1.947	1.5	H2-1	
840	M1373	L2.5x2.5x.21	0.077	5.748	10	0.002	5.748	y	16	21.107	32.591	0.999	1.939	1.5	H2-1	
841	M1374	L2.5x2.5x.21	0.077	5.748	2	0.002	0	y	16	21.107	32.591	0.999	1.939	1.5	H2-1	
842	M1375	L2.5x2.5x.21	0.078	5.748	16	0.002	5.748	y	4	21.107	32.591	0.999	1.92	1.439	H2-1	
843	M1376	L2.5x2.5x.21	0.078	5.748	8	0.002	5.748	y	12	21.107	32.591	0.999	1.918	1.432	H2-1	
844	M1365	C8X11.5	0.049	0	16	0.004	5.25	y	16	44.021	109.188	3.353	15.241	1	H1-1b	
845	M1366	L3 1/2x3 1/2x1/4	0.124	3.571	14	0.003	16.325	z	16	35.157	54.756	0.921	3.888	1	H2-1	
846	M1368	L2.5x2.5x3	0.018	6.25	16	0	6.25	z	16	17.037	29.192	0.873	1.642	1.5	H2-1	
847	M1377	L5x5x7/16	0.111	1.953	16	0.017	0	y	6	119.078	135.432	3.247	16.89	1	H2-1	
848	M1379	L3 1/2x3 1/2x1/4	0.136	1.19	6	0.003	8.162	z	16	35.157	54.756	0.921	3.888	1	H2-1	
849	M1380	L2.5x2.5x3	0.065	0	16	0.002	5.25	z	2	19.964	29.192	0.873	1.534	1	H2-1	
850	M1381	C8X11.5	0.047	0	10	0.004	5.25	y	16	44.021	109.188	3.353	15.241	1	H1-1b	
851	M1382	L3 1/2x3 1/2x1/4	0.117	5.102	10	0.003	0	z	16	35.157	54.756	0.921	3.888	1	H2-1	
852	M1383	L2.5x2.5x3	0.017	0	10	0	6.25	y	2	17.037	29.192	0.873	1.642	1.5	H2-1	
853	M1384	L5x5x7/16	0.092	0	16	0.018	0	z	10	119.078	135.432	3.247	16.89	1	H2-1	
854	M1386	L3 1/2x3 1/2x1/4	0.142	0.51	2	0.003	0	z	16	35.157	54.756	0.921	3.888	1	H2-1	
855	M1387	L2.5x2.5x3	0.069	10.5	16	0.002	5.25	z	16	19.964	29.192	0.873	1.534	1	H2-1	
856	M1388	C8X11.5	0.039	10.5	10	0.003	5.25	y	14	44.021	109.188	3.353	15.241	1	H1-1b	
857	M1389	L3 1/2x3 1/2x1/4	0.116	0.34	8	0.003	0	z	10	35.157	54.756	0.921	3.888	1	H2-1	
858	M1390	L2.5x2.5x3	0.016	6.25	12	0	6.25	z	4	17.037	29.192	0.873	1.642	1.5	H2-1	
859	M1393	L3 1/2x3 1/2x1/4	0.104	6.972	14	0.003	8.162	z	16	35.157	54.756	0.921	3.888	1	H2-1	
860	M1394	L2.5x2.5x3	0.066	0	16	0.002	5.25	z	10	19.964	29.192	0.873	1.534	1	H2-1	
861	875	LL6x4x8x6	0.781	0	2	0.007	0	y	10	253.726	307.8	29.425	31.083	2.082	H1-1a	
862	876	LL6x4x8x6	0.769	0	10	0.007	0	y	2	253.726	307.8	29.425	31.083	2.084	H1-1a	
863	877	LL6x4x8x6	0.38	0	12	0.005	9.288	z	4	253.726	307.8	29.425	31.083	1.723	H1-1a	
864	878	LL6x4x8x6	0.367	0	6	0.005	9.288	z	16	253.726	307.8	29.425	31.083	1.802	H1-1a	
865	879	LL6x4x8x6	0.772	0	10	0.007	0	y	2	253.726	307.8	29.425	31.083	2.083	H1-1a	
866	880	LL6x4x8x6	0.765	0	2	0.007	0	y	10	253.726	307.8	29.425	31.083	2.085	H1-1a	
867	881	LL6x4x8x6	0.368	0	6	0.005	9.288	z	12	253.726	307.8	29.425	31.083	1.792	H1-1a	
868	882	LL6x4x8x6	0.399	0	16	0.005	9.288	z	8	253.726	307.8	29.425	31.083	1.76	H1-1a	
869	883	2L2 1/2x3 1/2x1/4x3/8	0.141	0	16	0.007	9.59	y	12	53.981	93.312	9.918	3.258	1	H1-1b*	
870	884	2L2 1/2x3 1/2x1/4x3/8	0.133	0	8	0.007	9.59	y	4	53.981	93.312	9.918	3.258	1	H1-1b*	
871	885	2L2 1/2x3 1/2x1/4x3/8	0.326	9.59	2	0.007	9.59	y	16	53.981	93.312	9.918	3.258	1	H1-1a	
872	886	LL2.5x2.5x4x3	0.12	0	16	0.004	0	y	12	36.88	77.112	5.321	2.839	2.218	H1-1b	
873	887	LL2.5x2.5x4x3	0.125	0	8	0.004	0	y	8	36.88	77.112	5.321	2.839	2.204	H1-1b	
874	888	LL2.5x2.5x4x3	0.163	11.556	10	0.004	0	y	2	36.88	77.112	5.321	2.839	2.206	H1-1b	
875	889	LL2.5x2.5x4x3	0.127	0	4	0.004	0	y	4	36.88	77.112	5.321	2.839	2.192	H1-1b	
876	890	LL2.5x2.5x4x3	0.169	11.556	2	0.004	0	y	10	36.88	77.112	5.321	2.839	2.191	H1-1b	
877	891	LL2.5x2.5x4x3	0.145	0	2	0.004	11.556	y	10	36.88	77.112	5.321	2.839	2.214	H1-1b	
878	892	LL2.5x2.5x4x3	0.123	11.556	16	0.004	11.556	y	16	36.88	77.112	5.321	2.839	2.203	H1-1b	
879	893	LL2.5x2.5x4x3	0.162	0	10	0.004	11.556	y	2	36.88	77.112	5.321	2.839	2.195	H1-1b	
880	898	LL2.5x2.5x4x3	0.049	0	2	0.003	10.895	y	8	40.029	77.112	5.321	2.862	1.288	H1-1b	
881	899	LL2.5x2.5x4x3	0.051	0	10	0.003	10.895	y	4	40.029	77.112	5.321	2.862	1.021	H1-1b	
882	900	LL2.5x2.5x4x3	0.05	10.895	10	0.003	10.895	y	8	40.029	77.112	5.321	2.862	1.217	H1-1b	
883	901	LL2.5x2.5x4x3	0.047	0	2	0.003	0	y	4	40.029	77.112	5.321	2.862	1.165	H1-1b	
884	902	LL2.5x2.5x4x3	0.124	0	10	0.004	8.171	y	2	19.187	77.112	5.321	2.682	2.305	H1-1b	
885	903	LL2.5x2.5x4x3	0.125	0	2	0.005	8.171	y	10	19.187	77.112	5.321	2.682	2.185	H1-1b	
886	904	LL2.5x2.5x4x3	0.124	16.342	2	0.004	8.171	y	10	19.187	77.112	5.321	2.682	2.325	H1-1b	
887	905	LL2.5x2.5x4x3	0.125	0	10	0.005	8.171	y	2	19.187	77.112	5.321	2.682	2.226	H1-1b	
888	906	L3X3X3	0.048	0	10	0.002	7.784	y	16	20.069	35.316	1.32	2.267	1.5	H2-1	
889	907	L3X3X3	0.027	0	6	0.002	7.784	y	16	20.069	35.316	1.32	2.267	1.5	H2-1	
890	908	L3X3X3	0.599	11.676	10	0.012	11.676	z	10	10.194	35.316	1.32	1.941	1.5	H2-1	

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member		Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
891	909	L3X3X3	0.533	11.676	10	0.015	11.676	z	10	10.194	35.316	1.32	1.941	1.5	H2-1		
892	910	L3X3X3	0.545	11.676	2	0.013	11.676	z	4	10.194	35.316	1.32	1.941	1.5	H2-1		
893	913	L3X3X3	0.546	11.676	8	0.012	11.676	z	2	10.194	35.316	1.32	1.941	1.5	H2-1		
894	914	L3X3X3	0.028	7.784	16	0.002	7.784	y	12	20.069	35.316	1.32	2.267	1.5	H2-1		
895	915	L3X3X3	0.039	0	2	0.002	7.784	y	10	20.069	35.316	1.32	2.267	1.5	H2-1		
896	916	L3X3X3	0.532	11.676	2	0.015	11.676	z	2	10.194	35.316	1.32	1.941	1.5	H2-1		
897	919	L3X3X3	0.602	11.676	2	0.012	11.676	z	2	10.194	35.316	1.32	1.941	1.5	H2-1		
898	920	L3X3X3	0.04	7.784	8	0.002	7.784	y	8	20.069	35.316	1.32	2.267	1.5	H2-1		
899	921	L3X3X3	0.031	0	8	0.002	7.784	y	8	20.069	35.316	1.32	2.267	1.5	H2-		
900	922	L3X3X3	0.568	11.676	10	0.013	11.676	z	12	10.194	35.316	1.32	1.941	1.5	H2-1		
901	925	L3X3X3	0.564	11.676	16	0.012	11.676	z	10	10.194	35.316	1.32	1.941	1.5	H2-1		
902	926	L3X3X3	0.031	0	12	0.002	7.784	y	4	20.069	35.316	1.32	2.267	1.5	H2-1		
903	927	L3X3X3	0.037	7.784	2	0.002	7.784	y	4	20.069	35.316	1.32	2.267	1.5	H2-1		
904	931	2L3 1/2x4x5/16x3/8	0.41	20.639	16	0.011	20.639	y	16	107.737	145.476	16.043	6.927	2.952	H1-1a		
905	932	2L3 1/2x4x5/16x3/8	0.48	20.639	10	0.01	20.639	y	10	107.737	145.476	16.043	6.927	1.35	H1-1a		
906	933	2L3 1/2x4x5/16x3/8	0.386	20.639	8	0.011	20.639	y	8	107.737	145.476	16.043	6.927	3	H1-1a		
907	923	LL2.5x2.5x4x3	0.088	0	16	0.004	14.875	y	4	23.157	77.112	5.321	2.728	1.59	H1-1b		
908	924	LL2.5x2.5x4x3	0.112	12.165	4	0.004	12.165	y	10	34.05	77.112	5.321	2.818	2.016	H1-1b		
909	928	LL2.5x2.5x4x3	0.136	12.165	10	0.004	12.165	y	8	34.05	77.112	5.321	2.818	2.158	H1-1b		
910	929	LL2.5x2.5x4x3	0.086	0	12	0.004	0	y	8	23.157	77.112	5.321	2.728	1.452	H1-1b		
911	930	LL2.5x2.5x4x3	0.122	12.165	2	0.004	12.165	y	4	34.05	77.112	5.321	2.818	2.156	H1-1b		
912	934	LL2.5x2.5x4x3	0.131	12.165	8	0.004	12.165	y	4	34.05	77.112	5.321	2.818	2.111	H1-1b		
913	935	LL2.5x2.5x4x3	0.086	0	8	0.004	0	y	4	23.157	77.112	5.321	2.728	1.498	H1-1b		
914	936	LL2.5x2.5x4x3	0.127	12.165	12	0.004	12.165	y	16	34.05	77.112	5.321	2.818	2.137	H1-1b		
915	937	LL2.5x2.5x4x3	0.122	12.165	2	0.004	12.165	y	16	34.05	77.112	5.321	2.818	2.157	H1-1b		
916	938	LL2.5x2.5x4x3	0.087	14.875	4	0.004	0	y	16	23.157	77.112	5.321	2.728	1.497	H1-1b		
917	939	LL2.5x2.5x4x3	0.122	12.165	10	0.004	12.165	y	12	34.05	77.112	5.321	2.818	2.156	H1-1b		
918	940	LL2.5x2.5x4x3	0.133	12.165	16	0.004	12.165	y	12	34.05	77.112	5.321	2.818	2.116	H1-1b		
919	941	LL2.5x2.5x4x.33"	0.067	13.461	2	0.004	13.461	y	4	28.817	76.95	5.275	2.769	2.119	H1-1b		
920	942	LL2.5x2.5x4x.33"	0.154	11.59	12	0.004	11.59	y	4	37.208	76.95	5.275	2.835	2.148	H1-1b		
921	943	LL2.5x2.5x4x.33"	0.125	11.59	4	0.004	11.59	y	12	37.208	76.95	5.275	2.835	2.081	H1-1b		
922	944	LL2.5x2.5x4x.33"	0.067	0	10	0.004	13.461	y	16	28.817	76.95	5.275	2.769	1.929	H1-1b		
923	945	LL2.5x2.5x4x.33"	0.155	11.59	8	0.004	11.59	y	16	37.208	76.95	5.275	2.835	2.143	H1-1b		
924	946	LL2.5x2.5x4x.33"	0.13	11.59	16	0.004	11.59	y	8	37.208	76.95	5.275	2.835	2.117	H1-1b		
925	947	LL2.5x2.5x4x.33"	0.068	13.461	8	0.004	0	y	4	28.817	76.95	5.275	2.769	1.806	H1-1b		
926	948	LL2.5x2.5x4x.33"	0.158	11.59	4	0.004	11.59	y	12	37.208	76.95	5.275	2.835	2.146	H1-1b		
927	949	LL2.5x2.5x4x.33"	0.124	11.59	12	0.004	11.59	y	4	37.208	76.95	5.275	2.835	2.132	H1-1b		
928	950	LL2.5x2.5x4x.33"	0.066	0	2	0.004	0	y	16	28.817	76.95	5.275	2.769	1.791	H1-1b		
929	951	LL2.5x2.5x4x.33"	0.157	11.59	16	0.004	11.59	y	8	37.208	76.95	5.275	2.835	2.143	H1-1b		
930	952	LL2.5x2.5x4x.33"	0.129	11.59	8	0.004	11.59	y	16	37.208	76.95	5.275	2.835	2.13	H1-1b		
931	953	LL3x2x3x3	0.117	17.992	4	0.003	17.992	y	4	14.894	59.292	2.725	1.951	2.06	H1-1b		
932	954	LL3x2x3x3	0.078	13.48	12	0.003	13.48	y	12	24.918	59.292	2.725	2.184	2.514	H1-1b		
933	955	LL3x2x3x3	0.089	13.48	12	0.002	13.48	y	12	24.918	59.292	2.725	2.184	2.487	H1-1b		
934	956	LL3x2x3x3	0.085	13.48	8	0.003	13.48	y	8	24.918	59.292	2.725	2.184	2.647	H1-1b		
935	957	LL3x2x3x3	0.116	0	8	0.003	0	y	8	14.894	59.292	2.725	1.951	2.064	H1-1b		
936	958	LL3x2x3x3	0.087	13.48	10	0.003	13.48	y	10	24.918	59.292	2.725	2.184	2.486	H1-1b		
937	959	LL3x2x3x3	0.09	13.48	8	0.003	13.48	y	8	24.918	59.292	2.725	2.184	2.379	H1-1b		
938	960	LL3x2x3x3	0.114	17.992	12	0.003	17.992	y	12	14.894	59.292	2.725	1.951	2.021	H1-1b		
939	961	LL3x2x3x3	0.085	13.48	12	0.003	13.48	y	12	24.918	59.292	2.725	2.184	2.611	H1-1b		
940	962	LL3x2x3x3	0.08	13.48	8	0.003	13.48	y	16	24.918	59.292	2.725	2.184	2.496	H1-1b		
941	963	LL3x2x3x3	0.117	0	16	0.003	0	y	16	14.894	59.292	2.725	1.951	2.077	H1-1b		
942	964	LL3x2x3x3	0.093	13.48	4	0.002	13.48	y	16	24.918	59.292	2.725	2.184	2.334	H1-1b		
943	965	LL2.5x2.5x3x0	0.092	0	8	0.003	0	y	16	15.932	58.32	3.3	1.81	2.138	H1-1b		
944	966	LL2.5x2.5x3x0	0.077	12.541	10	0.003	12.541	y	14	24.992	58.32	3.3	1.908	2.166	H1-1b		
945	967	LL2.5x2.5x3x0	0.069	12.541	12	0.003	12.541	y	8	24.992	58.32	3.3	1.908	2.222	H1-1b		

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

Member		Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	phi*	Pnc [k]	phi*	Pnt [k]	phi*	Mn y-y [k-ft]	phi*	Mn z-z [k-ft]	Cb	Eqn
946	968	LL2.5x2.5x3x0	0.07	12.541	10	0.003	12.541	y	12	24.992	58.32	3.3	1.908	2.247	H1-1b						
947	969	LL2.5x2.5x3x0	0.075	12.541	10	0.003	12.541	y	4	24.992	58.32	3.3	1.908	2.16	H1-1b						
948	970	LL2.5x2.5x3x0	0.092	15.792	12	0.003	15.792	y	4	15.932	58.32	3.3	1.81	2.15	H1-1b						
949	971	LL2.5x2.5x3x0	0.078	12.541	2	0.003	12.541	y	4	24.992	58.32	3.3	1.908	2.167	H1-1b						
950	972	LL2.5x2.5x3x0	0.07	12.541	2	0.003	12.541	y	16	24.992	58.32	3.3	1.908	2.251	H1-1b						
951	973	LL2.5x2.5x3x0	0.091	0	16	0.003	0	y	8	15.932	58.32	3.3	1.81	2.134	H1-1b						
952	974	LL2.5x2.5x3x0	0.072	12.541	16	0.003	12.541	y	4	24.992	58.32	3.3	1.908	2.215	H1-1b						
953	975	LL2.5x2.5x3x0	0.072	12.541	16	0.003	12.541	y	12	24.992	58.32	3.3	1.908	2.217	H1-1b						
954	976	LL2.5x2.5x3x0	0.092	15.792	4	0.003	15.792	y	10	15.932	58.32	3.3	1.81	2.04	H1-1b						
955	977	LL2.5x2.5x3x3	0.089	0	16	0.003	0	z	9	21.259	58.32	3.954	1.923	1.395	H1-1b						
956	978	LL2.5x2.5x3x3	0.13	0	4	0.005	0	y	4	27.994	58.32	3.954	1.978	2.435	H1-1b						
957	979	LL2.5x2.5x3x3	0.13	0	12	0.005	0	y	12	27.994	58.32	3.954	1.978	2.432	H1-1b						
958	980	LL2.5x2.5x3x3	0.129	0	16	0.005	0	y	16	27.994	58.32	3.954	1.978	2.447	H1-1b						
959	981	LL2.5x2.5x3x3	0.09	13.671	12	0.003	13.671	z	5	21.259	58.32	3.954	1.923	1.39	H1-1b						
960	982	LL2.5x2.5x3x3	0.132	0	8	0.005	0	y	8	27.994	58.32	3.954	1.978	2.467	H1-1b						
961	983	LL2.5x2.5x3x3	0.129	0	12	0.005	0	y	12	27.994	58.32	3.954	1.978	2.444	H1-1b						
962	984	LL2.5x2.5x3x3	0.09	0	8	0.003	0	z	9	21.259	58.32	3.954	1.923	1.391	H1-1b						
963	985	LL2.5x2.5x3x3	0.128	0	4	0.005	0	y	4	27.994	58.32	3.954	1.978	2.444	H1-1b						
964	986	LL2.5x2.5x3x3	0.129	0	8	0.005	0	y	8	27.994	58.32	3.954	1.978	2.443	H1-1b						
965	987	LL2.5x2.5x3x3	0.09	0	4	0.003	13.671	z	5	21.259	58.32	3.954	1.923	1.38	H1-1b						
966	988	LL2.5x2.5x3x3	0.131	0	16	0.005	0	y	16	27.994	58.32	3.954	1.978	2.456	H1-1b						
967	M987	2L3 1/2x4x1/4x3/8	0.185	31.538	12	0.003	31.538	y	8	80.637	117.45	12.64	5.609	1	H1-1b*						
968	M1001	2L3 1/2x4x1/4x3/8	0.184	31.538	8	0.003	31.538	y	12	80.637	117.45	12.64	5.609	1	H1-1b*						
969	989	LL4x3x4x0	0.541	17.333	10	0.017	34.667	y	10	48.385	109.512	6.437	5.333	1	H1-1a						
970	990	LL4x3x4x0	0.273	13	8	0.012	0	y	4	48.385	109.512	6.437	5.333	1	H1-1b						
971	995	L3.5X3.5X4	0.538	12.257	2	0.016	0	y	16	19.89	55.08	2.416	3.58	1.23	H2-1						
972	996	L3.5X3.5X4	0.344	0	14	0.016	0	y	12	19.89	55.08	2.416	3.874	1.5	H2-1						

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Distributed	Area(Member)
1	Dead	None	-1	140		
2	No Ice Wind 0 deg	None		140		13
3	No Ice Wind 45 deg	None		237		26
4	No Ice Wind 90 deg	None		96		13
5	No Ice Wind 135 deg	None		236		26
6	No Ice Wind 180 deg	None		140		13
7	No Ice Wind 225 deg	None		236		26
8	No Ice Wind 270 deg	None		96		13
9	No Ice Wind 315 deg	None		236		26
10	Service Wind 0 deg	None		140		13
11	Service Wind 45 deg	None		236		26
12	Service Wind 90 deg	None		96		13
13	Service Wind 135 deg	None		236		26
14	Service Wind 180 deg	None		140		13
15	Service Wind 225 deg	None		237		26
16	Service Wind 270 deg	None		96		13
17	Service Wind 315 deg	None		236		26
18	Superimposed Self Weight	None				
20	BLC 2 Transient Area Loads	None			122	
21	BLC 3 Transient Area Loads	None			244	
22	BLC 4 Transient Area Loads	None			122	
23	BLC 5 Transient Area Loads	None			244	
24	BLC 6 Transient Area Loads	None			122	
25	BLC 7 Transient Area Loads	None			244	
26	BLC 8 Transient Area Loads	None			122	

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Distributed	Area(Member)
27	BLC 9 Transient Area Loads	None			244	
28	BLC 10 Transient Area Loads	None			122	
29	BLC 11 Transient Area Loads	None			244	
30	BLC 12 Transient Area Loads	None			122	
31	BLC 13 Transient Area Loads	None			244	
32	BLC 14 Transient Area Loads	None			122	
33	BLC 15 Transient Area Loads	None			244	
34	BLC 16 Transient Area Loads	None			122	
35	BLC 17 Transient Area Loads	None			244	

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	C	max	93.381	4	461.222	8	93.263	3	0	25	3.85	10	0	25
2		min	-62.334	13	-366.249	17	-120.986	10	0	1	-4.534	4	0	1
3	B	max	71.181	17	462.663	4	93.236	11	0	25	4.657	8	0	25
4		min	-94.287	8	-290.983	13	-120.995	2	0	1	-4.747	16	0	1
5	A	max	63.824	5	480.592	16	120.843	2	0	25	4.045	4	0	25
6		min	-83.326	12	-349.621	9	-93.212	11	0	1	-3.535	11	0	1
7	D	max	98.294	16	397.465	10	120.979	10	0	25	4.623	16	0	25
8		min	-63.042	9	-348.462	5	-93.13	3	0	1	-4.009	8	0	1
9	Totals:	max	166.959	2	260.251	4	73.572	7						
10		min	-166.959	11	150.171	13	-75.106	16						

APPENDIX C
ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity

Site Info	
Site #	10091919
Site Name	Mikesville, FL
Project #	163146.001.01

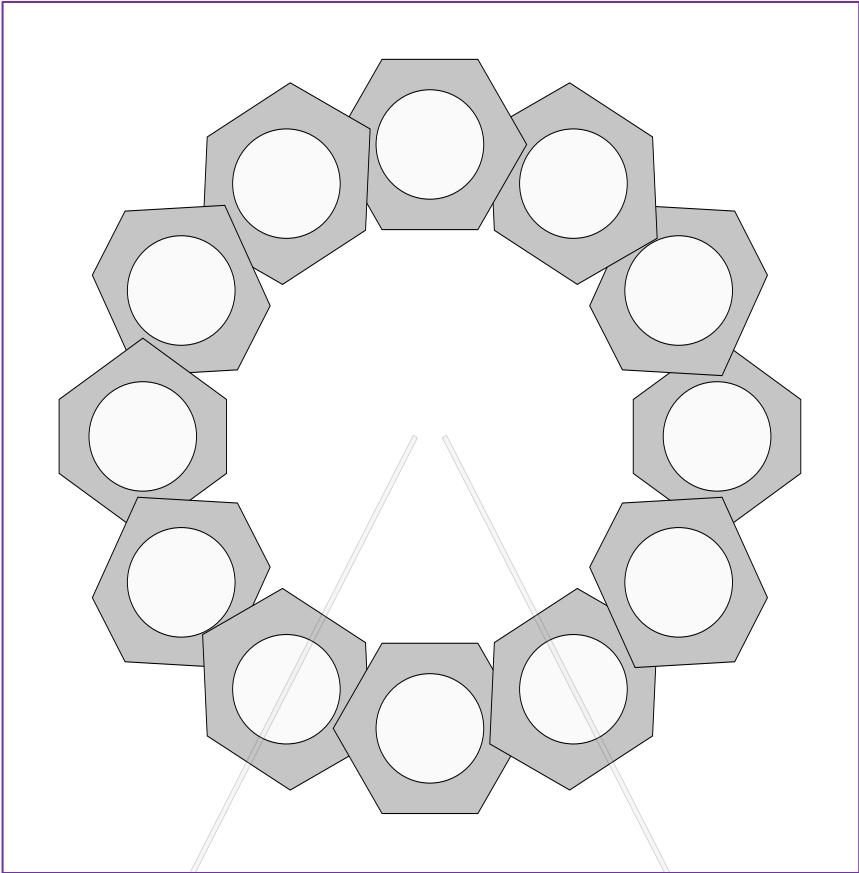
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	481.00	366.00
Shear Force (kips)	156.00	153.00

*TIA-222-H Section 15.5 Applied

Considered Eccentricity	
Leg Mod Eccentricity (in)	0.000
Anchor Rod N.A Shift (in)	0.000
Total Eccentricity (in)	0.000

*Anchor Rod Eccentricity Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary (units of kips, kip-in)	
(12) 2-1/4" ϕ bolts (C-1015 N; Fy=47 ksi, Fu=56 ksi)		$Pu_c = 40.08$	$\phi Pn_c = 168.19$
l_{ar} (in): 0		$Vu = 13$	$\phi Vn = 75.68$
		$Mu = n/a$	$\phi Mn = n/a$
			Stress Rating
			25.5%
			Pass

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Concrete Column

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 B & T ENGINEERING INC

Lic. # : KW-06014071

DESCRIPTION: --None--

Code References

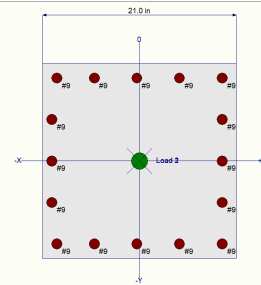
Calculations per ACI 318-11, IBC 2012, CBC 2013, ASCE 7-10
 Load Combinations Used : ASCE 7-16

General Information

fc : Concrete 28 day strength	=	3.0 ksi	Overall Column Height	=	13.167 ft
E =	=	3,122.0 ksi	End Fixity		Top & Bottom Pinned
Density	=	150.0 pcf	Brace condition for deflection (buckling) along columns :		
β	=	0.850	X-X (width) axis :		Fully braced against buckling ABOUT Y-Y Axis
fy - Main Rebar	=	60.0 ksi	Y-Y (depth) axis :		Fully braced against buckling ABOUT X-X Axis
E - Main Rebar	=	29,000.0 ksi			
Allow. Reinforcing Limits		ASTM A615 Bars Used			
Min. Reinf.	=	1.0 %			
Max. Reinf.	=	8.0 %			

Column Cross Section

Column Dimensions :	21.0in Square Column, Column Edge to Rebar Edge Cover = 1.0in
Column Reinforcing :	4 - #9 bars @ corners,, 3 - #9 bars top & bottom between corner bars, 3 - #9 bars left & right between corner bars



Entered loads are factored per load combinations specified by user.

Applied Loads

Column self weight included : 6,048.59 lbs * Dead Load Factor
 AXIAL LOADS . . .
 Axial Load at 13.167 ft above base, D = 343.280 k
 Axial Load at 13.167 ft above base, D = 308.0 k

DESIGN SUMMARY

Load Combination	+1.40D	Maximum SERVICE Load Reactions . .			
Location of max. above base	13.079 ft	Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Maximum Stress Ratio	0.866 : 1	Top along X-X	0.0 k	Bottom along X-X	0.0 k
Ratio = $(P_u^2 + M_u^2)^{.5} / (\Phi P_n^2 + \Phi M_n^2)^{.5}$					
Pu =	920.26 k	$\Phi * P_n$ =	1,062.75 k		
Mu-x =	0.0 k-ft	$\Phi * M_n$ -x =	0.0 k-ft		
Mu-y =	0.0 k-ft	$\Phi * M_n$ -y =	0.0 k-ft		
Mu Angle =	0.0 deg				
Mu at Angle =	0.0 k-ft	ΦM_n at Angle =	0.0 k-ft		
Pn & Mn values located at Pu-Mu vector intersection with capacity curve					
Column Capacities . . .		Maximum SERVICE Load Deflections . .			
Pnmax : Nominal Max. Compressive Axial Capacity	2,043.75 k	Along Y-Y	0.0 in at 0.0 ft above base		
Pnmin : Nominal Min. Tension Axial Capacity	k	for load combination :			
ΦP_n , max : Usable Compressive Axial Capacity	1,062.75 k	Along X-X	0.0 in at 0.0 ft above base		
ΦP_n , min : Usable Tension Axial Capacity	k	for load combination :			
		General Section Information .	$\phi = 0.650$	$\beta = 0.850$	$\theta = 0.80$
		ρ : % Reinforcing	3.628 %	Rebar % Ok	
		Reinforcing Area	16.0 in ²		
		Concrete Area	441.0 in ²		

Governing Load Combination Results

Governing Factored Load Combination	Moment		Dist. from		Axial Load	Bending Analysis k-ft						Utilization Ratio	
	X-X	Y-Y	base	ft	Pu	$\phi * P_n$	δx	$\delta x * M_{ux}$	δy	$\delta y * M_{uy}$	Alpha (deg)	δM_u	ϕM_n
+1.40D			13.08		920.26	1,062.75					0.000		0.866
+1.20D			13.08		788.79	1,062.75					0.000		0.742

Project Title:
Engineer:
Project ID:
Project Descr:

Concrete Column

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DESCRIPTION: --None--

Governing Load Combination Results

Governing Factored Load Combination	Moment		Dist. from		Axial Load		Bending Analysis k-ft						Utilization	
	X-X	Y-Y	base	ft	Pu	$\phi * P_n$	δx	$\delta x * M_{ux}$	δy	$\delta y * M_{uy}$	Alpha (deg)	δM_u	ϕM_n	Ratio
+0.90D			13.08		591.60	1,062.75					0.000			0.557

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		k	Y-Y Axis Reaction		Axial Reaction	My - End Moments		k-ft	Mx - End Moments	
	@ Base	@ Top		@ Base	@ Top		@ Base	@ Top		@ Base	@ Top
D Only						657.329					
+0.60D						394.397					

Maximum Moment Reactions

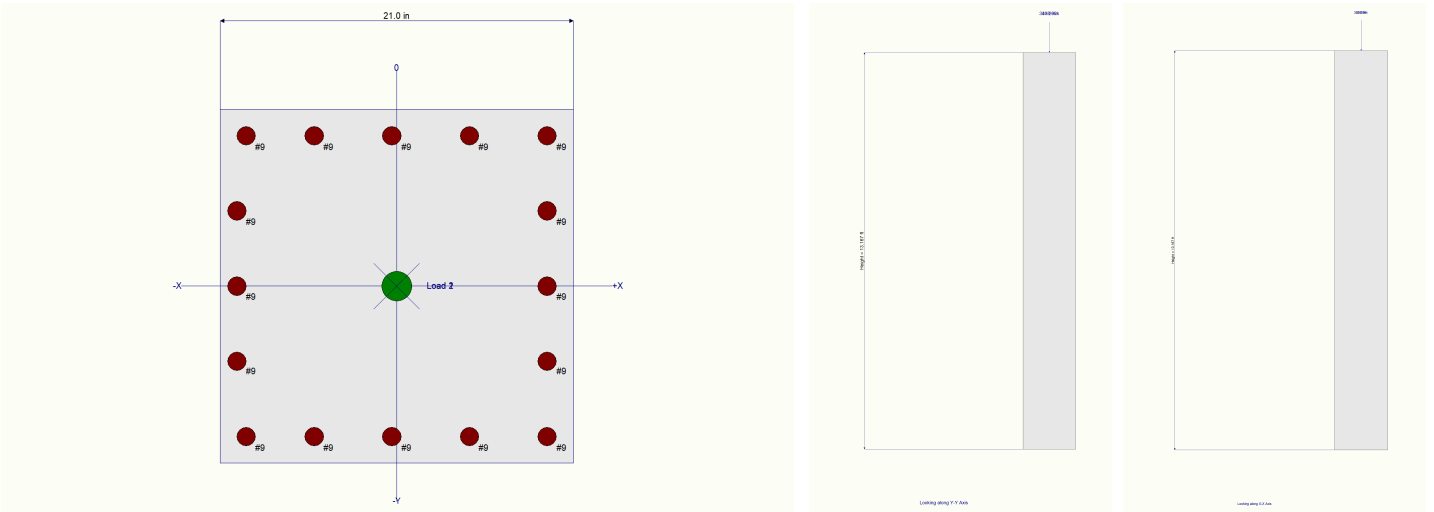
Note: Only non-zero reactions are listed.

Load Combination	Moment About X-X Axis			Moment About Y-Y Axis		
	@ Base	@ Top		@ Base	@ Top	
D Only			k-ft			k-ft
+0.60D			k-ft			k-ft

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
D Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
+0.60D	0.0000	in	0.000	ft	0.000	in	0.000	ft

Sketches



Interaction Diagrams

Project Title:
Engineer:
Project ID:
Project Descr:

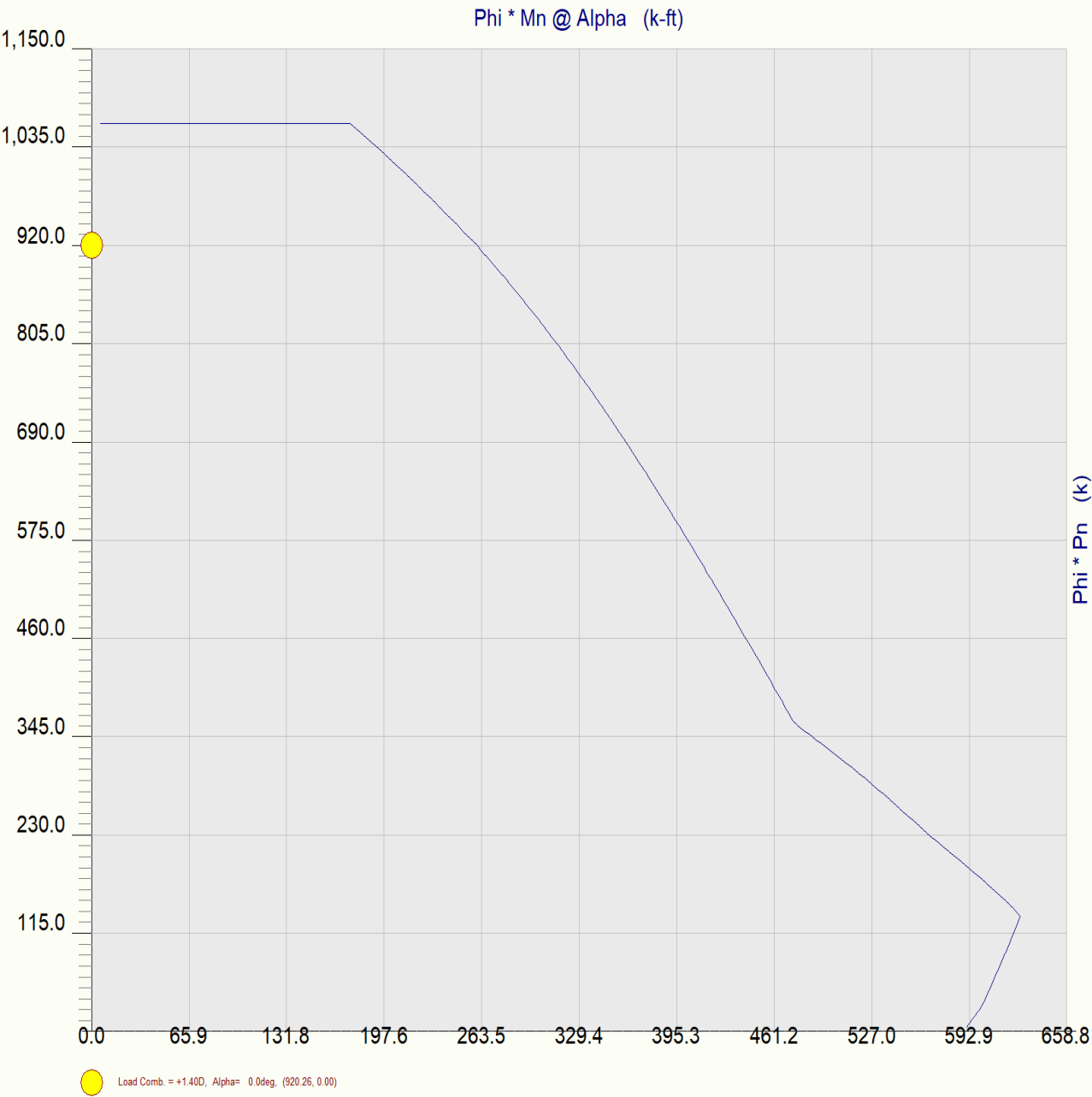
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DESCRIPTION: --None--

Concrete Column P-M Interaction Diagram



Concrete Column

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B & T ENGINEERING INC

DESCRIPTION: --None--

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

Concrete Column

Lic. # : KW-06014071

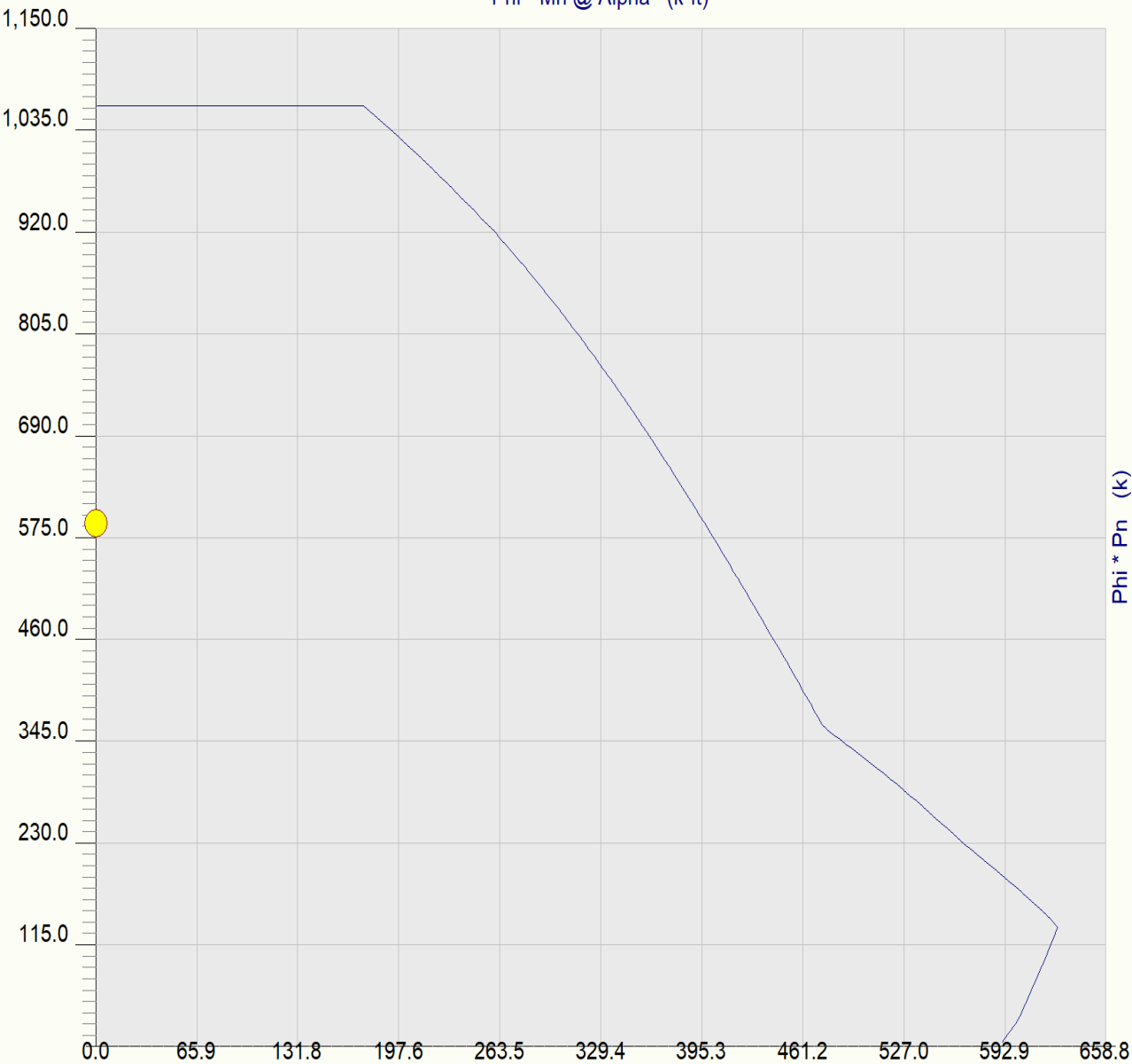
File: 163146.002.01_Mikesville_Smartlink.ec6
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B & T ENGINEERING INC

DESCRIPTION: --None--

Concrete Column P-M Interaction Diagram

Phi * Mn @ Alpha (k-ft)



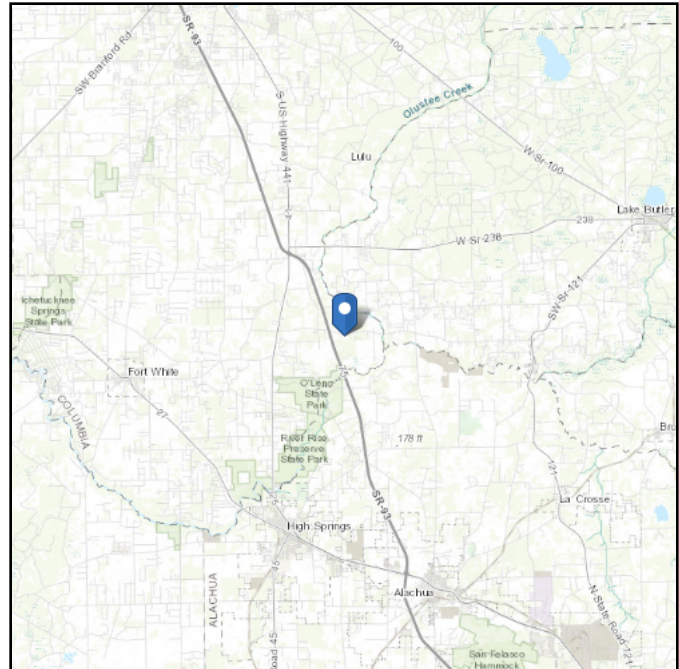
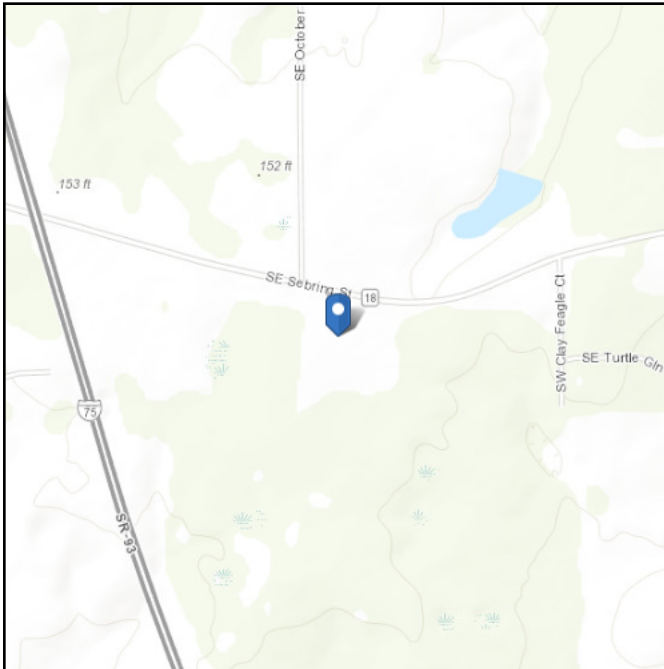
Load Comb. = +0.90D, Alpha= 0.0deg, (591.60, 0.00)

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see
Section 11.4.3)

Elevation: 0 ft (NAVD 88)
Latitude: 29.948417
Longitude: -82.558111



Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Sat Apr 30 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

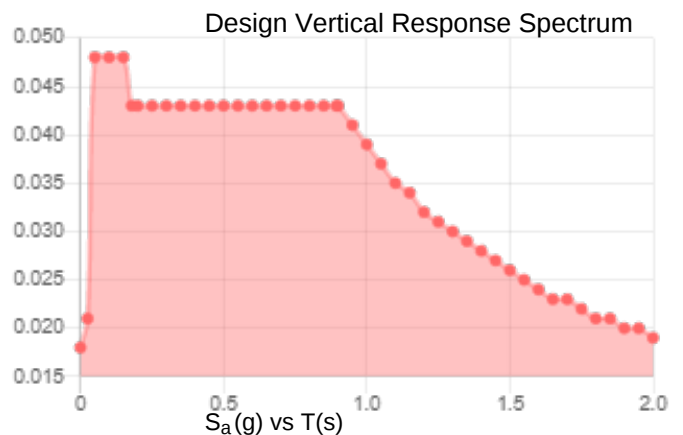
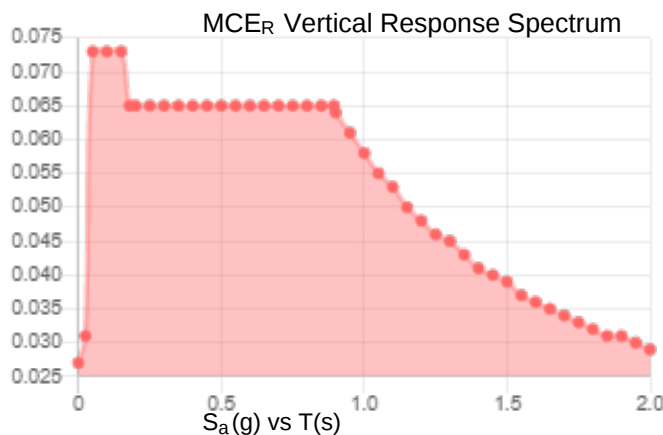
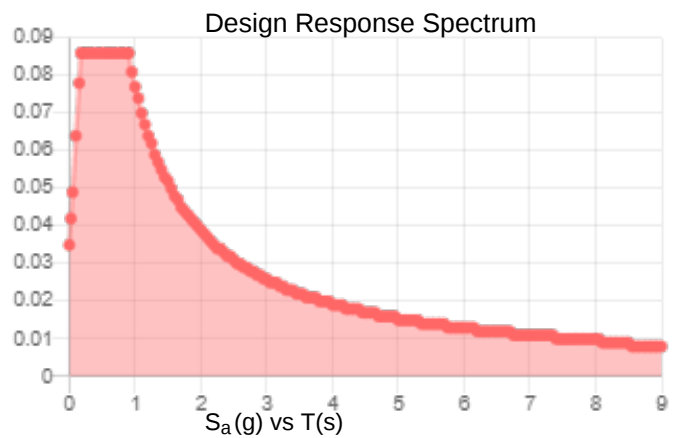
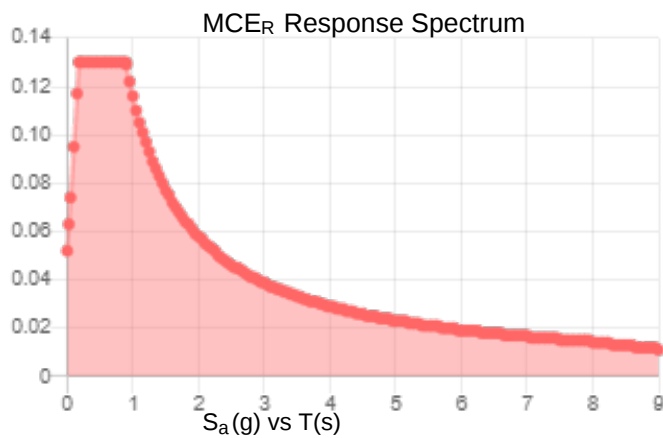
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_S :	0.081	S_{D1} :	0.077
S_1 :	0.048	T_L :	8
F_a :	1.6	PGA :	0.039
F_v :	2.4	PGA _M :	0.062
S_{MS} :	0.13	F_{PGA} :	1.6
S_{M1} :	0.116	I_e :	1
S_{DS} :	0.086	C_v :	0.7

Seismic Design Category B



Data Accessed: Sat Apr 30 2022

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.25 in.

Concurrent Temperature: 25 F

Gust Speed 30 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Sat Apr 30 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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