

**City of Puyallup
Building
REVIEWED
FOR
COMPLIANCE**

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01/22/2025
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Calculations required to be provided by
the Permittee on site for all Inspections

City of Puyallup Development & Permitting Services ISSUED PERMIT	
Building	Planning
Engineering	Public Works
Fire	Traffic



PRCTI20250032

Structural Calculations

PREPARED FOR:

Welcome Ramp Systems Inc.
3902 B St Ste B, Auburn, WA 98001

PROJECT:

Centeris Puyallup
Exterior Stairs
2241016.20

PREPARED BY:

Andrew McEachern, P.E., S.E.
Principal

DATE:

December 2024

Structural Calculations
For
**Welcome Ramp Systems
Centeris Exterior Stairs**

Project # 2241015.20

**Project Principal
Project Manager**

Drew McEachern, PE, SE
Andy Pflueger, PE, SE



Design Criteria

Design Codes and Standards

Codes and Standards: Structural design and construction shall be in accordance with the applicable sections of the following codes and standards: International Building Code, 2021 Edition.

Structural Design Criteria:

Live Load Criteria (IBC):

1607.9 Loads on handrails, guards, grab bars and sets.

Handrails and guards shall be designed to resist a linear load of 50 pounds per linear foot (plf) in accordance with Section 4.5.1.1 of ASCE 7.

Exception: (1) For one- and two-family dwellings, only the single concentrated load required by Section 1607.8.1.1 shall be applied.

1607.9.1.1 Concentrated Load

Handrails and guards shall be designed to resist a concentrated load of 200 pounds in accordance with Section 4.5.1 of ASCE 7

1607.9.1.2 Guard Component Loads

Balusters, panel fillers and guard infill components, including all rails except the handrail and the top rail, shall be designed to resist a concentrated load of 50 pounds in accordance with Section 4.5.1.2 of ASCE 7.

Live Load Criteria (ASCE 7):

4.5.1 Handrail and Guardrail Systems.

Handrail and guardrail systems shall be designed to resist a single concentrated load of 200 lb applied in any direction at any point on the handrail or top rail to produce the maximum load effect on the element being considered and to transfer this load through the supports to the structure.

4.5.1.1 Uniform Load.

Handrail and guardrail systems shall also be designed to resist a load of 50 lb/ft (pound-force per linear foot) applied in any direction along the handrail or top rail and to transfer this load through the supports to the structure. This load need not be assumed to act concurrently with the concentrated load specified in Section 4.5.1.

EXCEPTIONS: The uniform load need not be considered for the following occupancies:
1. One- and two-family dwellings...

4.5.1.2 Guardrail System Component Loads.

Balusters, panel fillers, and guardrail infill components, including all rails except the handrail and the top rail, shall be designed to resist a horizontally applied normal load of 50 lb on an area not to exceed 12 in. by 12 in., including openings and space between rails and located so as to produce the maximum load effects. Reactions due to this



loading are not required to be superimposed with the loads specified in Sections 4.5.1 and 4.5.1.1.

Wind Load Criteria:

Ultimate Wind Speed	104 mph
Risk Category	III
Wind Exposure	B
Topographic Factor	1.0

Seismic Criteria:

Risk Category	III
Seismic Importance Factor	1.25
$S_s = 1.258$	$S_1 = 0.434$
$S_{ds} = 1.006$	$S_{d1} = \text{N/A}$
Site Class	= D - default
Seismic Design Category	= D
Component Amplification Factor (a_p):	= 1
Component Response Modification Factor (R_p):	= $2 \frac{1}{2}$

Soil Criteria:

Allowable Soil Bearing Capacity: 1,500 psf unless verified by geotechnical report or building official.

Materials Specifications:

The 1 ½" aluminum handrail shall be ASTM 6063-T5 with a yield stress of 16 ksi. All other aluminum parts shall be ASTM 6061-T6 aluminum with a yield stress of 35 ksi. Density of aluminum used shall be 170 lbs. per cubic foot.

Connections:

All bolts shall be grade 5 zinc plated, unless otherwise specified. Locking washers must be provided under all nuts and anchor bolts unless otherwise specified. All tech screws shall be zinc plated #10 x 1 ¼", self-tapping. All welding shall be in accordance with AWS D1.2 code and sized as shown on drawings. Sleeves shall be designed to resist moment and shear of sleeved connection.

Project Description:

This structural scope of work for this project involves the design of exterior stairs. It is the intention of the structural design to satisfy the force levels of the 2021 International Building Code.

The typical stair assembly consists of pre-engineered planking spanning between aluminum edge beams. The beams span between a concrete slab on grade and a concrete retaining wall.

Centeris Voltage Park

Puyallup

Legend

- Centeris
- Feature 1



College Way

Google Earth

Image Landsat / Copernicus

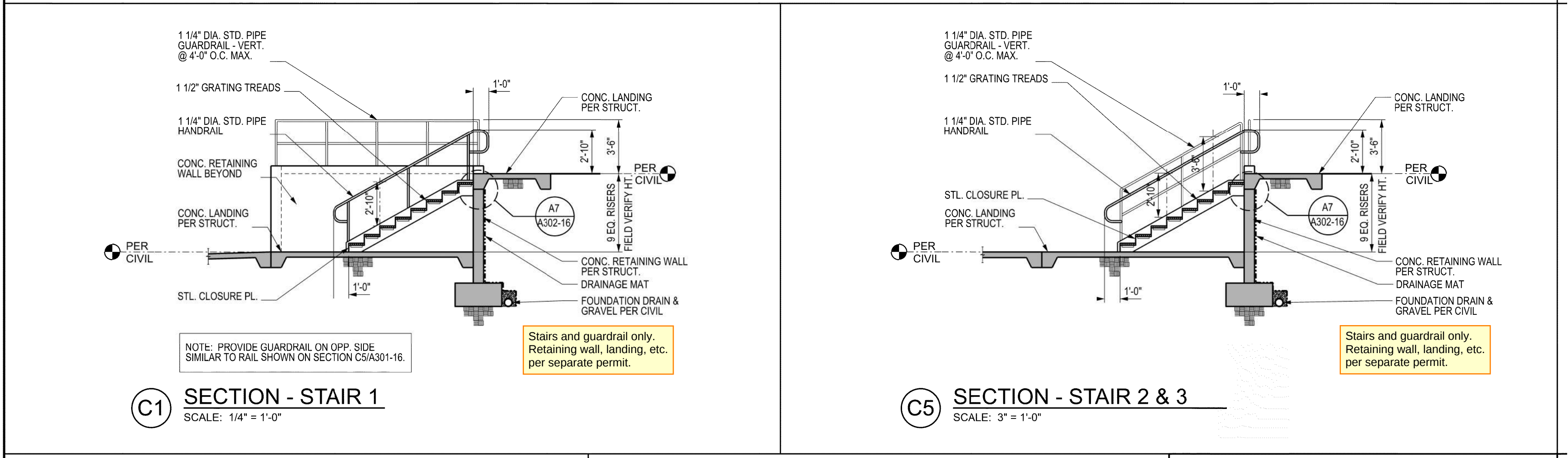
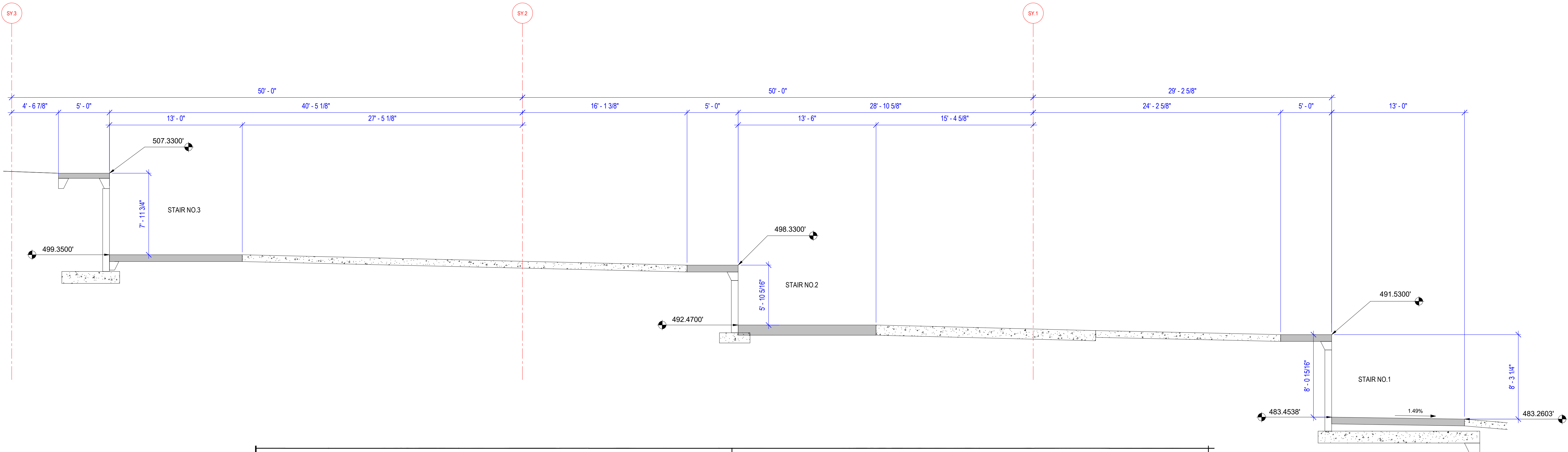
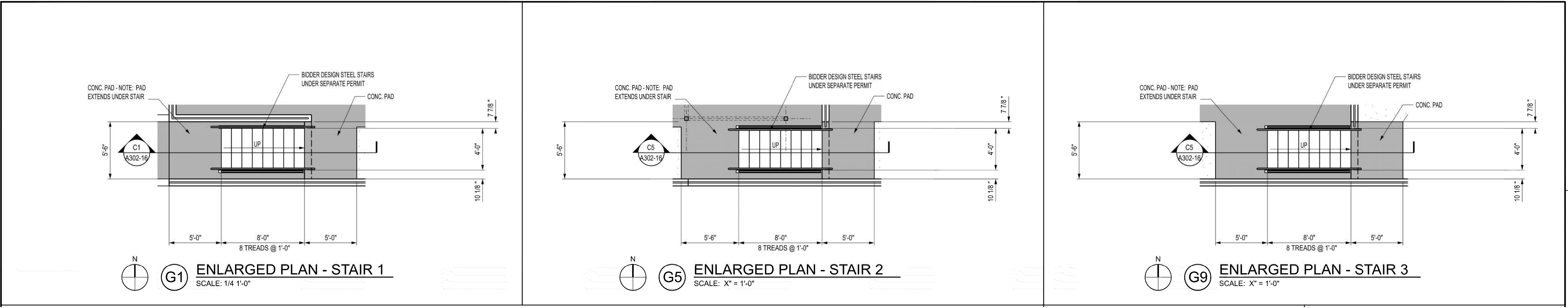
Centeris

Centeris

500 ft



Builders Capital



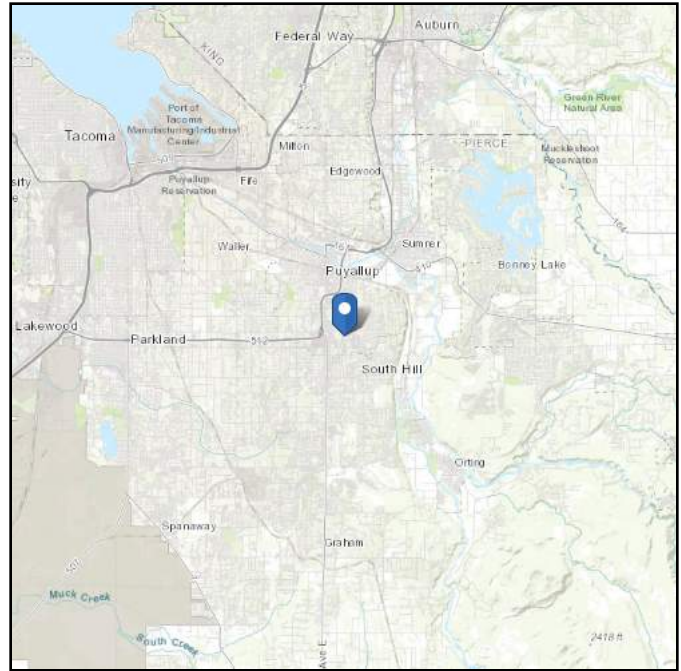
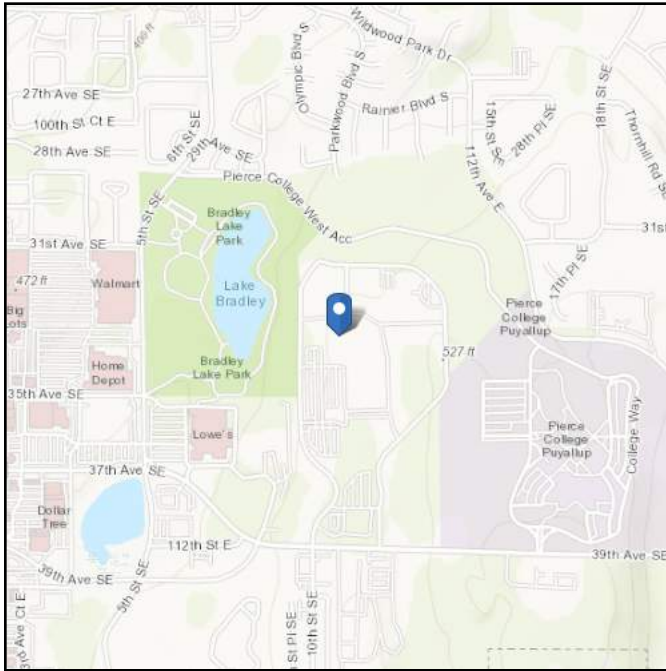
DESIGN CRITERIA

ASCE Hazards Report

Address:
1019 39th Ave SE
Puyallup, Washington
98374

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

Latitude: 47.159875
Longitude: -122.280772
Elevation: 478.38217596439716 ft
(NAVD 88)



Wind

Results:

Wind Speed	104 Vmph
10-year MRI	67 Vmph
25-year MRI	73 Vmph
50-year MRI	78 Vmph
100-year MRI	83 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1C and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Tue Dec 10 2024

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 3% probability of exceedance in 50 years (annual exceedance probability = 0.000588, MRI = 1,700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

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

Results:

S_S :	1.258	S_{D1} :	N/A
S_1 :	0.434	T_L :	6
F_a :	1.2	PGA :	0.5
F_v :	N/A	PGA _M :	0.6
S_{MS} :	1.509	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1.25
S_{DS} :	1.006	C_v :	1.352

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Tue Dec 10 2024

Date Source: [USGS Seismic Design Maps](#)

The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE standard.

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STAIR SHOP DRAWINGS



B

A

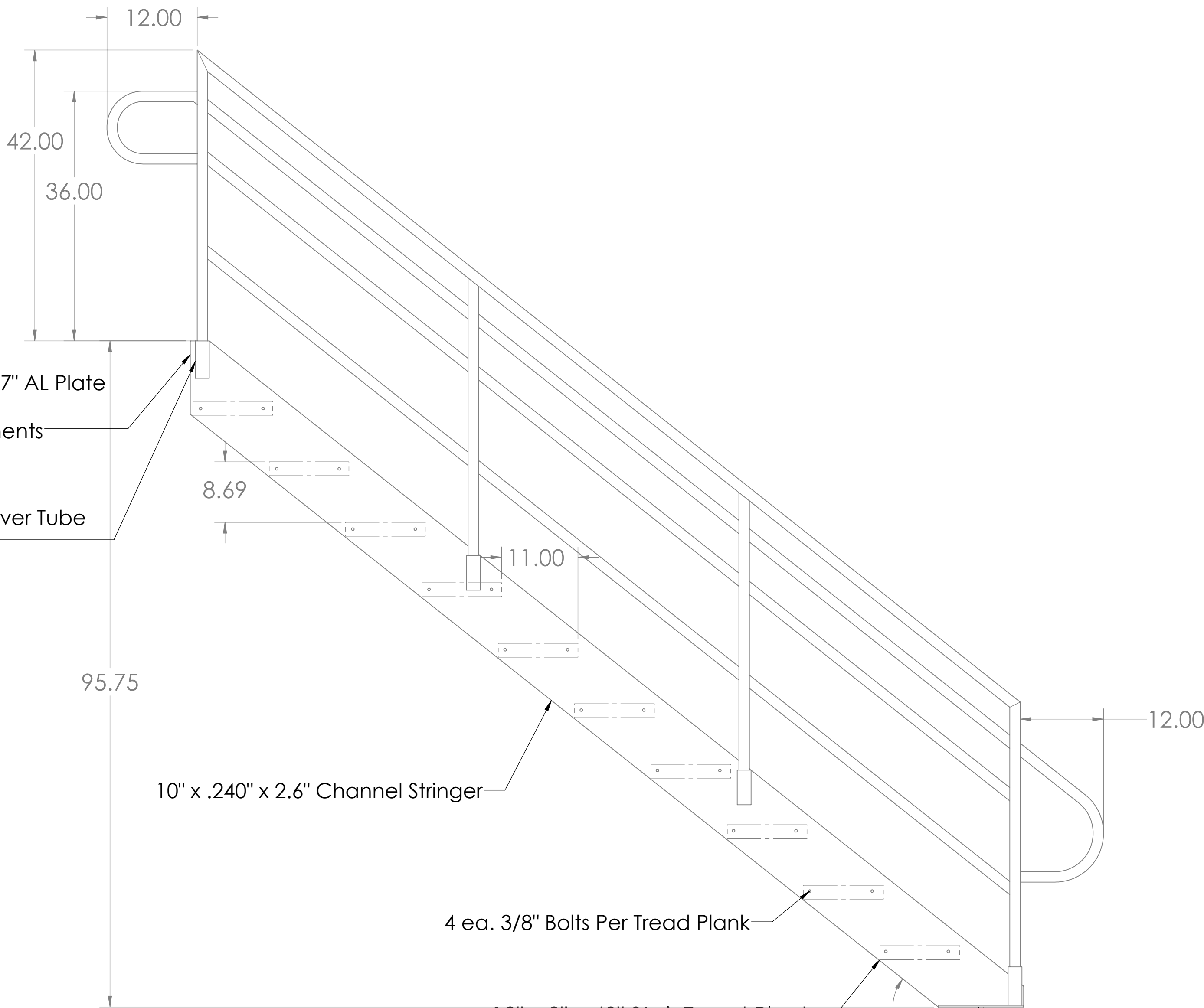
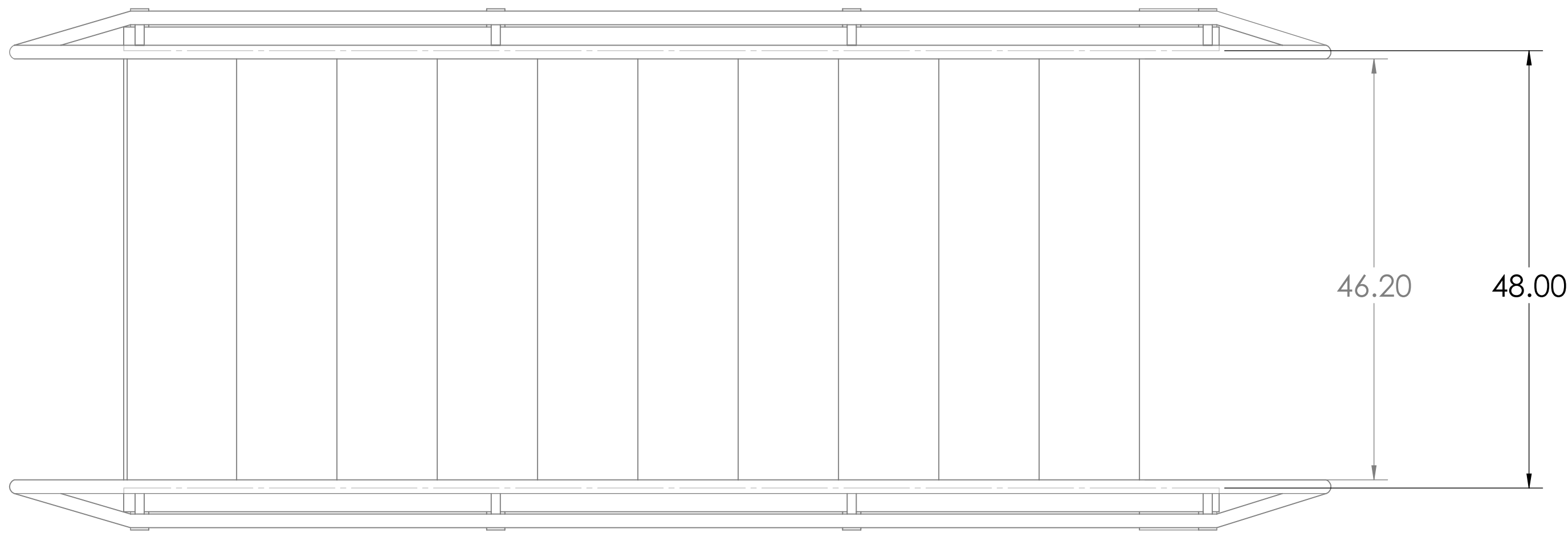
-Anchor To Concrete Per Engineering Requirements

Material Specifications

- Zinc Plated # 12 x 1-1/4" Pan Head



			UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Client: Howard S Wright Location Centaris Puyallup SIZE Title: Stair 2 REV
			DIMENSIONS ARE IN INCHES		Kyle G	10/25/42	
			TOLERANCES		DRAWN		
			FRACTIONAL ±		CHECKED		
			ANGULAR: MACH ± BEND ±		ENG APPR.		
			TWO PLACE DECIMAL ±		MFG APPR.		
			THREE PLACE DECIMAL ±				
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF WELCOMES RAMP SYSTEMS INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF Welcomes Ramp Systems Inc. IS PROHIBITED.			INTERPRET GEOMETRIC TOLERANCING PER:		G.A.		
			MATERIAL:		COMMENTS:		
			6061 T-6 Aluminum				
			6061 T-6 Aluminum				
			Coarse Sand				
			FINISH				
		NEXT ASSY	USED ON				
		APPLICATION	DO NOT SCALE DRAWING				SCALE: NTS SHEET 1 Of 1



3 ea. Anchors Thru 3/8" x 7" AL Plate Into Concrete Per Engineering Requirements

2" x 2" x 3/16" Reciever Tube 5" Long TYP.

10" x .240" x 2.6" Channel Stringer

4 ea. 3/8" Bolts Per Tread Plank

12" x 2" x 48" Stair Tread Plank

Anchor To Concrete Per Engineering Requirements

Code Compliance

1. Stair Rise = 9-1/2" Max
2. Design Loading:

- 2.1. Platform 100 PSF Min.
- 2.2. Stair Tread 300 LBS./Tread min.
- 2.3. Railing 50 PLF/200 LBS. CONC.
- 2.4. Lateral Load 600# Pedestrian Dynamic
- 2.5. Wind Load 135 MPH, EXP C, Kzt=2.0
- 2.6. Seismic Load Sds= 1.0, Seismic CAT. 'D'

3. Graspable Continuous Round Handrail At 36" Off Stair Nosing. Install Both Sides Of Stairs.

4. Platforms To Have 4" Toe Kick.

5. Footing Information

Pre Manufactured ABS Pads Under All Adjustable Legs On Asphalt Or Soils

Material Specifications

Planking

- Platform: All Planking Shall Be 13 GA. 12" W x 1-1/2" Deep
- Stairs: All Planking Shall Be 11 GA. 12" W x 2" Deep

Legs

- Leveling Feet Assumed To Be Placed On Suitable Firm Bearing Ground.
- Leg Material Shall Be 1-1/2" sq. x .125" AL Tubing.
- Leg Pockets Shall Be 1.781" sq. x .125" AL Tubing.
- Adjustable Bolt- 3/8" x 2-1/4" Grade 5 Cap Screw W/Nylon Lock Nut, Zinc Plated

Aluminum

- The 1-1/2" AL. Round Handrail Shall Be 6063 T-5 With A Yield stress Of 16 KSI.
- All Other Aluminum Parts Shall Be 6061 Aluminum With A Yield Stress Of 35 KSI.

Hand Rails

- Stairs: Use 1-1/2" Sq. x .156" Thick Walled Tubing For Posts And Horizontal Rails Except The 1-1/2" Round Graspable Handrail.
- Platform: Use 1-1/2" Sq. x .156" Thick Walled Tubing For Posts And All Horizontal Rails.

Welding

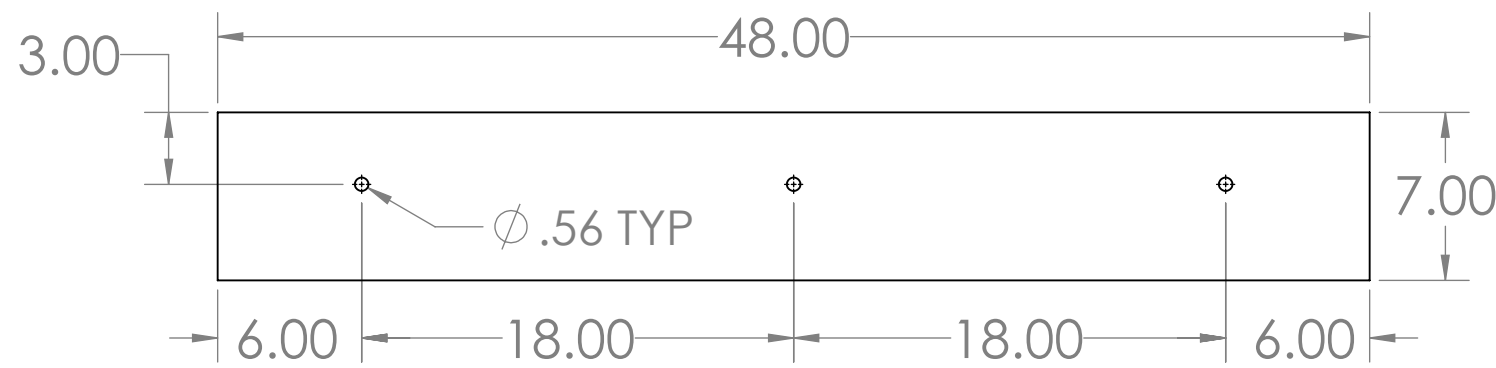
- All References To Welding On Plan Set Refer To In-Plant Fabrication. No On Site Welding Is Required.
- Fabrication Plant Welding By Welders In Accordance With ANSI/AWS D1.2 Code.
- Weld Sizes Are To Be Equal To Or Larger Than The Element Being Welded.
- Welding Is All Around Unless Otherwise Noted. Care Is Taken To Avoid Excess Warping Of Welded Elements.
- Fabricator To Certify Assembled Parts Are Per Drawings.

Bolts

- All Bolts Shall Be Grade 5 Zinc Plated, Unless Otherwise Specified. Provide Locking Washers Under All Nuts.
- High Strength Bolts Are Designed At less Than 50% Capacity For Additional Factor Of Safety And Do Not Require Special Inspection.

Tech Screws

- Zinc Plated # 12 x 1-1/4" Pan Head



Stair Mounting Plate

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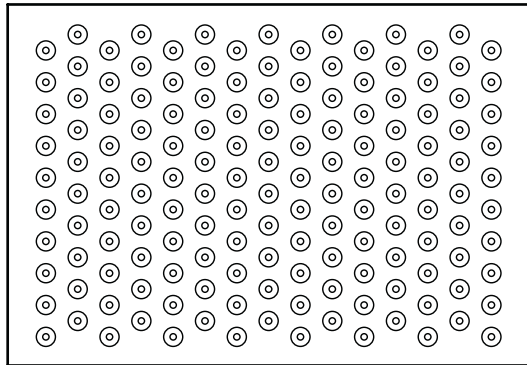
		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	Client: Howard S Wright	
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: ± ANGULAR: MATCH ± BEND: ± TWO PLACE DECIMAL: ± THREE PLACE DECIMAL: ±		Kyle G	10/25/42		
NEXT ASSY	USED ON	DRAWN	CHECKED	ENG APPR.	Location		
				MFG APPR.	Centaris Puyallup		
				Q.A.			
		COMMENTS:					
		INTERPRET GEOMETRIC TOLERANCING PER:		MATERIAL: 6061 T-6 Aluminum 6063 T-5 Aluminum Galvanized Steel		SIZE Title: Stair 3	
		FINISH		REV			
APPLICATION		DO NOT SCALE DRAWING				SCALE: NTS	SHEET 1 OF 1

TREAD AND PLANK PROPERTIES

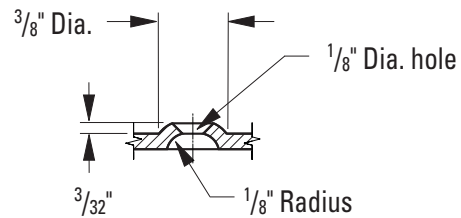


GRATING PACIFIC

TRACTION TREAD™ PLANK GRATING SIZES & OPTIONS

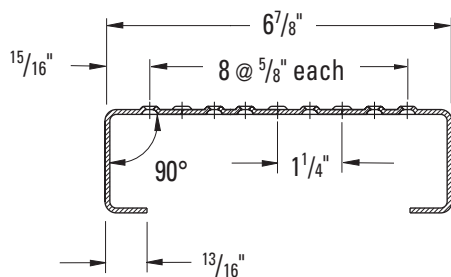


Standard Pattern

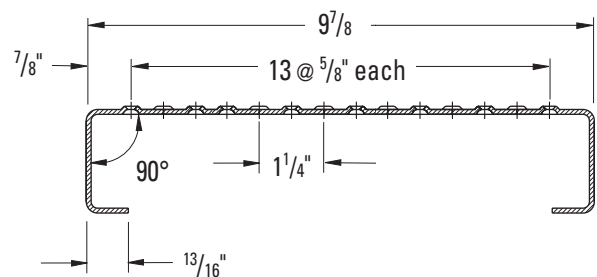


Button Detail

7" Nominal Width



10" Nominal Width



Part No.	Width	Channel Depth	Gauge	Weight per LF
13 Ga. Pre-Galvanized Steel*				
TT-71513 GL	7"	1-1/2"	13	3.4
TT-72013 GL	7"	2"	13	3.7
TT-73013 GL	7"	3"	13	4.1
11 Ga. Pre-Galvanized Steel*				
TT-71511 GL	7"	1-1/2"	11	4.7
TT-72011 GL	7"	2"	11	5.2
TT-73011 GL	7"	3"	11	6.1
.125" 5052 Aluminum				
TT-715125 AL	7"	1-1/2"	.125"	1.6
TT-720125 AL	7"	2"	.125"	1.8

* To indicate HRPO carbon steel, add the suffix "-B" to the above stated part numbers.

Part No.	Width	Channel Depth	Gauge	Weight per LF
13 Ga. Pre-Galvanized Steel*				
TT-101513 GL	10"	1-1/2"	13	4.3
TT-102013 GL	10"	2"	13	4.6
TT-103013 GL	10"	3"	13	5.3
11 Ga. Pre-Galvanized Steel*				
TT-101511 GL	10"	1-1/2"	11	6.0
TT-102011 GL	10"	2"	11	6.4
TT-103011 GL	10"	3"	11	7.5
.125" 5052 Aluminum				
TT-1015125 AL	10"	1-1/2"	.125"	2.1
TT-1020125 AL	10"	2"	.125"	2.2

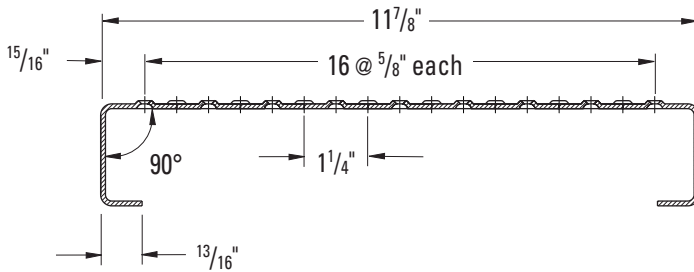
* To indicate HRPO carbon steel, add the suffix "-B" to the above stated part numbers.



GRATING PACIFIC

TRACTION TREAD™ PLANK GRATING SIZES & OPTIONS

12" Nominal Width



Part No.	Width	Channel Depth	Gauge	Weight per LF
13 Ga. Pre-Galvanized Steel*				
TT-121513 GL	12"	1-1/2"	13	5
TT-122013 GL	12"	2"	13	5.3
TT-123013 GL	12"	3"	13	5.9
11 Ga. Pre-Galvanized Steel*				
TT-121511 GL	12"	1-1/2"	11	6.9
TT-122011 GL	12"	2"	11	7.3
TT-123011 GL	12"	3"	11	8.2
.125" 5052 Aluminum				
TT-1215125 AL	12"	1-1/2"	.125"	2.4
TT-1220125 AL	12"	2"	.125"	2.5

* To indicate HRPO carbon steel, add the suffix "-B" to the above stated part numbers.

Stock plank lengths available in 10' and 12'

Custom lengths available upon special order.

ALUMINUM TREAD OPTION CALCULATIONS

Project ALUMINUM TREADS
Subject _____
With/To _____
Address _____
Date _____

Project No. 2240502.20
Phone _____
Fax # _____
Faxed Pages _____
By _____

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Civil Engineers

Structural Engineers

Landscape Architects

Community Planners

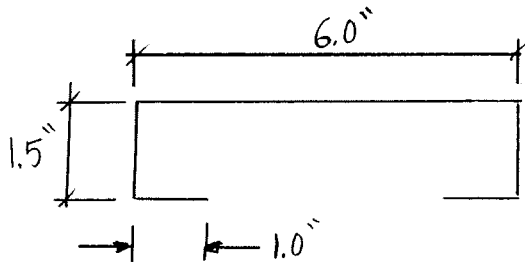
Land Surveyors

MATERIAL: 0.125" 5052 H32 AL

E: 10,100 ksi, $F_{ty} = 23 \text{ ksi}$, $F_{cy} = 20.7 \text{ ksi}$, $F_{tu} = 31 \text{ ksi}$

LOADING: 100 psf or 300 lb

DESIGN 1 - 1.5" x 6" x 48" TREADS



SECTION PROPERTIES (ENERCALC)

$$Z_x = 0.5894 \text{ in}^3$$

$$S_t = 0.4376 \text{ in}^3$$

$$S_c = 0.8907 \text{ in}^3$$

LOADING (A): 100 PSF

$$V = \frac{wl}{2} = \frac{(100 \text{ PSF} \times 0.5 \text{ ft})(4 \text{ ft})}{2} = 100 \text{ lb}$$

$$M = \frac{wl^2}{8} = \frac{(50 \text{ plf})(4 \text{ ft})^2}{8} = 100 \text{ lb-ft} \Rightarrow 1200 \text{ lb-in}$$

LOADING (B): 300 lb @ MIDSPAN

$$V = \frac{P}{2} = \frac{300 \text{ lb}}{2} = 150 \text{ lb} \leftarrow$$

$$M = \frac{PL}{4} = \frac{300 \text{ lb}(4 \text{ ft})}{4} = 300 \text{ lb-ft} \Rightarrow 3600 \text{ lb-in} \leftarrow$$

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FLEXURAL DESIGN

CHAPTER F - ALUMINUM DESIGN MANUAL

Structural Engineers

• YIELDING CHECK:

$$M_{np} = \text{LESSER OF } \begin{cases} Z_x F_{cy} = 0.5894 \text{ in}^3 (20.7 \text{ ksi}) = 12.2 \text{ k-in} \\ 1.5 S_x F_{ty} = 1.5 (0.4376 \text{ in}^3) (23 \text{ ksi}) = 15.1 \text{ k-in} \\ 1.5 S_c F_{cy} = 1.5 (0.8907 \text{ in}^3) (20.7 \text{ ksi}) = 27.7 \text{ k-in} \end{cases}$$

CONTROLS ←

Landscape Architects

Community Planners

Land Surveyors

$$\frac{M_{np}}{\Omega} = \frac{12.2 \text{ k-in}}{1.65} = 7.39 \text{ k-in} > 3.6 \text{ k-in}$$

OK

• RUPTURE CHECK:

$$\frac{M_{nu}}{\Omega} = \frac{Z_x F_{tu}}{K_t (1.95)} = \frac{0.5894 \text{ in}^3 (31 \text{ ksi})}{(1.0) 1.95} = 9.37 \text{ k-in} > 3.6 \text{ k-in}$$

OK

• LOCAL BUCKLING CHECK:

$$\frac{M_{nlb}}{\Omega} = \frac{F_b S_c}{\Omega}$$

$$\frac{b}{t} = \frac{(6 \text{ in} - 2 \times 0.125 \text{ in})}{0.125 \text{ in}} = 46$$

$$= 17.64 \text{ ksi} (0.8907 \text{ in}^3)$$

TABLE 2-9 ⇒ FLAT ELEMENTS SUPPORTED ON BOTH EDGES

$$\frac{M_{nlb}}{\Omega} = 15.7 \text{ k-in} > 3.6 \text{ k-in}$$

OK

$$\lambda_1 = 35.4 \quad \lambda_2 = 103$$

$$\therefore \lambda_1 < b/t < \lambda_2$$

$$\therefore \text{INELASTIC BUCKLING} \Rightarrow \frac{F_b}{\Omega} = 22.7 - 0.110 \frac{b}{t} = 17.64 \text{ ksi}$$

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Civil Engineers

Structural Engineers

Landscape Architects

Community Planners

Land Surveyors

SHEAR DESIGN

CHAPTER G - ALUMINUM DESIGN MANUAL

$$b/t = \frac{1.25\text{in}}{0.125\text{in}} \quad \text{TABLE 2-9} \Rightarrow \lambda_1 = 41.8 \quad \therefore b/t < \lambda_1$$

$$= 10$$

$$\frac{F_v}{\Omega} = 8.4 \text{ ksi}$$

$$\begin{aligned} \frac{V_n}{\Omega} &= \frac{F_v}{\Omega} \frac{A_v}{k_t} = 8.4 \text{ ksi} (2 \times 0.125\text{in} \times 1.25\text{in}) \\ &= 2.63 \text{ kips} > 0.150 \text{ kips} \quad \text{OK} \end{aligned}$$

DEFLECTION CHECK

CHAPTER L - ALUMINUM DESIGN MANUAL

• EFFECTIVE WIDTH, $b_e \Rightarrow$ If $f_a \leq F_e$, $b_e = b$

$$\text{If } f_a > F_e, b_e = b \sqrt{F_e / f_a}$$

$$F_e = \frac{\pi^2 E}{(1.6 b/t)^2} = \frac{\pi^2 (10,100 \text{ ksi})}{(1.6 \times 46)^2} = 18.4 \text{ ksi}$$

$$f_a = \text{MAX. COMPRESSIVE STRESS} = F_b = 17.64 \text{ ksi} \times 1.65 = 29.1 \text{ ksi}$$

$$\therefore b_e = 5.75\text{in} \sqrt{\frac{18.4}{29.1}} = 4.57\text{in}$$

$$\begin{aligned} \text{UPDATED SECTION PROPERTIES} \Rightarrow I_x &= 0.4091\text{in}^4 \\ Z_x &= 0.5815\text{in}^3 \end{aligned}$$

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Structural Engineers

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Land Surveyors

LOADING (A): 100 PSF

$$\Delta = \frac{5 w l^4}{384 EI} = \frac{5 (0.05 \frac{\text{lb}}{\text{ft}} \div 12) (48 \text{ in})^4}{384 (10,100 \text{ ksi}) (0.4091 \text{ in}^4)} = 0.07 \text{ in}$$

LOADING (B): 300 lb

$$\Delta = \frac{P l^3}{48 EI} = \frac{0.30 \text{ k} (48 \text{ in})^3}{48 (10,100 \text{ ksi}) (0.4091 \text{ in}^4)} = 0.167 \text{ in} \leftarrow$$

$$\frac{l}{360} = \frac{48 \text{ in}}{360} = 0.133 \text{ in} \quad \underline{NG}$$

$$0.167 \text{ in} \Rightarrow \frac{l}{287}$$

* HSS 3x1 1/2 x 1/8 STIFFENER REQD

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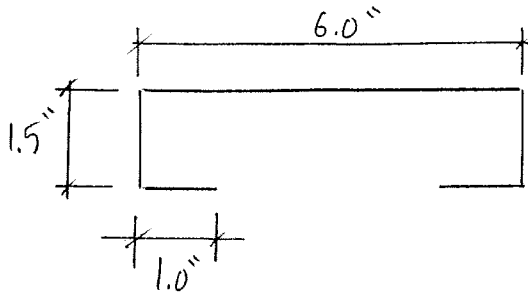
Structural Engineers

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DESIGN 2 - 1.5" x 6" x 60" TREADS



SECTION PROPERTIES (SAME AS DSGN 1)

$$Z_x = 0.5894 \text{ in}^3$$
$$S_t = 0.4376 \text{ in}^3$$
$$S_c = 0.8907 \text{ in}^3$$

LOADING (A): 100 PSF

$$V = \frac{wL}{2} = \frac{50 \text{ plf} (5 \text{ ft})}{2} = 125 \text{ lb}$$

$$M = \frac{wL^2}{8} = \frac{50 \text{ plf} (5 \text{ ft})^2}{8} = 156 \text{ lb-ft} \Rightarrow 1875 \text{ lb-in}$$

LOADING (B): 300 lb @ MIDSPAN

$$V = \frac{P}{2} = 150 \text{ lb} \leftarrow$$

$$M = \frac{PL}{4} = \frac{300 \text{ lb} (5 \text{ ft})}{4} = 375 \text{ lb-ft} \Rightarrow 4500 \text{ lb-in} \leftarrow$$

> FLEXURAL & SHEAR STRENGTHS SAME AS DESIGN (1)
OR BY INSPECTION

Project ALUMINUM TREADS
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Project No. 2240502.20
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DEFLECTION CHECK

LOADING (A) : 100 PSF

$$\Delta = \frac{5w l^4}{384 EI} = \frac{5(0.05 \text{ k/ft} \div 12)(60 \text{ in})^4}{384(10,100 \text{ ksi})(0.4091 \text{ in}^4)} = 0.17 \text{ in}$$

LOADING (B) : 300 lb

$$\Delta = \frac{P l^3}{48 EI} = \frac{0.30 \text{ k}(60 \text{ in})^3}{48(10,100 \text{ ksi})(0.4091 \text{ in}^4)} = 0.327 \text{ in}$$

$$\frac{l}{360} = \frac{60 \text{ in}}{360} = 0.167 \text{ in} \quad \underline{NG}$$

$$0.327 \text{ in} \Rightarrow \frac{l}{184}$$

* HSS 3x1/2 x 1/8 STIFFENER REQ'D

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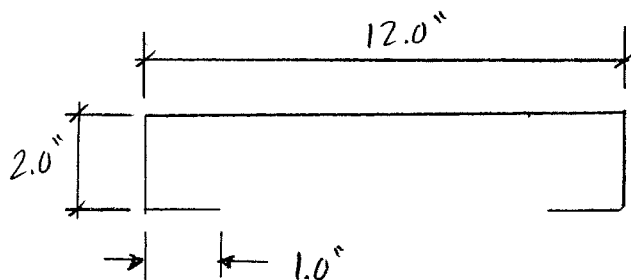
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DESIGN 3 - 2" x 12" x 48" STEPS



SECTION PROPERTIES : (ENERCALC)

$$\begin{aligned} Z_x &= 0.9161 \text{ in}^3 \\ S_t &= 0.693 \text{ in}^3 \\ S_c &= 2.244 \text{ in}^3 \end{aligned}$$

LOADING (A): 100 psf

$$V = \frac{wl}{2} = \frac{(100 \text{ psf} \times 1 \text{ ft})(4 \text{ ft})}{2} = 200 \text{ lb} \leftarrow$$

$$M = \frac{wl^2}{8} = \frac{(100 \text{ plf})(4 \text{ ft})^2}{8} = 200 \text{ lb-ft} \Rightarrow 2400 \text{ lb-in}$$

LOADING (B): 300 lb @ MIDSPAN

$$V = \frac{P}{2} = \frac{300 \text{ lb}}{2} = 150 \text{ lb}$$

$$M = \frac{PL}{4} = \frac{300 \text{ lb}(4 \text{ ft})}{4} = 300 \text{ lb-ft} \Rightarrow 3600 \text{ lb-in} \leftarrow$$

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Land Surveyors

SHEAR DESIGN

$$\frac{b}{t} = \frac{1.75 \text{ in}}{0.125 \text{ in}} = 14$$

$$\text{TABLE 2-9} \Rightarrow \lambda_1 = 41.8 \quad \therefore b/t < \lambda_1$$

$$\frac{F_v}{\Omega} = 8.4 \text{ ksi}$$

$$\frac{V_n}{\Omega} = \frac{F_v}{\Omega} \frac{A_v}{n_t} = 8.4 \text{ ksi} \left(\frac{2 \times 0.125 \text{ in} \times 1.75 \text{ in}}{1.0} \right)$$

$$= 3.675 \text{ kips} > 0.2 \text{ kips} \quad \underline{\text{OK}}$$

DEFLECTION CHECK

$$F_e = \frac{\pi^2 E}{(1.6 b/t)^2} = \frac{\pi^2 (10,100 \text{ ksi})}{(1.6 \times 94)^2} = 4.4 \text{ ksi}$$

$$f_a = F_b = 12.36 \text{ ksi} \times 1.65 = 20.4 \text{ ksi}$$

$$f_a > F_e \quad \therefore b_e = b \sqrt{F_e / f_a}$$

$$= 11.75 \text{ in} \sqrt{4.4 / 20.4}$$

$$= 5.5 \text{ in}$$

$$\text{UPDATED SECTION PROPERTIES} \Rightarrow \begin{aligned} I_x &= 0.843 \text{ in}^4 \\ Z_x &= 0.9074 \text{ in}^3 \end{aligned}$$

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LOADING (A): 100 PSF

$$\Delta = \frac{5w l^4}{384 EI} = \frac{5(0.10 \text{ w/ft} \div 12)(48 \text{ in})^4}{384(10,100 \text{ ksi})(0.843 \text{ in}^4)} = 0.068 \text{ in}$$

LOADING (B): 300 lb

$$\Delta = \frac{P l^3}{48 EI} = \frac{0.30 \text{ in} (48 \text{ in})^3}{48(10,100 \text{ ksi})(0.843 \text{ in}^4)} = 0.081 \text{ in} \leftarrow$$

$$\frac{l}{360} = \frac{48 \text{ in}}{360} = 0.133 \text{ in} > 0.081 \text{ in} \quad \underline{OK}$$



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(253) 383-2422

Project Title: Welcome Ramp Aluminum Treads
Engineer: ADM
Project ID: 2241015.20
Project Descr: Optional Aluminum Tread System

Printed: 10 DEC 2024, 4:30PM

General Section Property Calculator

Project File: 2241015 Aluminum Treads.ec6

LIC# : KW-06014847, Build:20.24.12.02

AHBL, INC

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DESCRIPTION: 6" Aluminum Treads

Final Section Properties

Total Area :	1.223 in ²	Ixx :	0.4070 in ⁴	Sxx : - Y :	0.4151 in ³
Calculated final C.G. distance from Datum :		Iyy :	4.776 in ⁴	Sxx : +Y :	0.7835 in ³
X cg Dist. :	0.0 in	Zxx :	0.5642 in ³	Syy : - X :	1.809 in ³
Y cg Dist. :	-0.4569 in	Zyy :	2.212 in ³	Syy : +X :	1.809 in ³

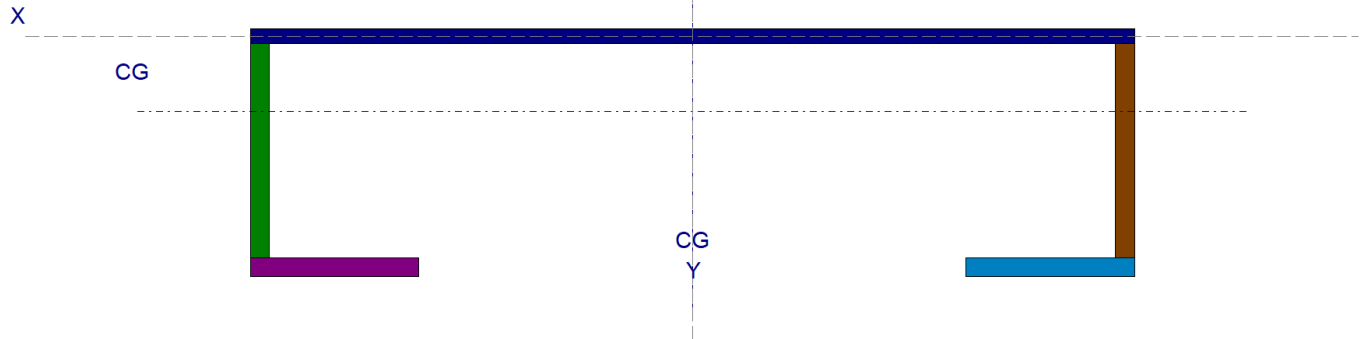
Edge Distances from CG. :

+X :	2.641 in	+Y :	0.5194 in	r xx :	0.5770 in
-X :	-2.641 in	-Y :	-0.9806 in	r yy :	1.977 in

Rotation of All Components @ 0.00 deg CCW

Minumim Section Properties

Rotation Angle (CCW)	0.0 deg CCW	I: Moment of Inertia	0.4070 in ⁴
r: Radius of Gyration	0.5770 in	S: Modulus	0.4151 in ³
		Z: Plastic Modulus	0.5642 in ³



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	0.125 in	Width =	5.280 in	Rotation =	0 deg CCW
	Area =	0.660 in ²	Xcg =	0.000 in		
			Ycg =	0.000 in		



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LIC# : KW-06014847, Build:20.24.12.02

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DESCRIPTION: 6" Aluminum Treads

	Rectangular Shape : 2	Height =	1.250 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.156 in^2	Xcg =	2.578 in	Ycg =	-0.688 in
	Rectangular Shape : 3	Height =	1.250 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.156 in^2	Xcg =	-2.578 in	Ycg =	-0.688 in
	Rectangular Shape : 4	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	-2.140 in	Ycg =	-1.375 in
	Rectangular Shape : 5	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	2.140 in	Ycg =	-1.375 in



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Project File: 2241015 Aluminum Treads.ec6

LIC# : KW-06014847, Build:20.24.12.02

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DESCRIPTION: 6" Aluminum Treads - Deflection

Final Section Properties

Total Area :	1.125 in ²	Ixx :	0.3847 in ⁴	Sxx : - Y :	0.4089 in ³
Calculated final C.G. distance from Datum :		Iyy :	3.232 in ⁴	Sxx : +Y :	0.6882 in ³
X cg Dist. :	0.0 in	Zxx :	0.5586 in ³	Syy : - X :	1.436 in ³
Y cg Dist. :	-0.4965 in	Zyy :	1.754 in ³	Syy : +X :	1.436 in ³

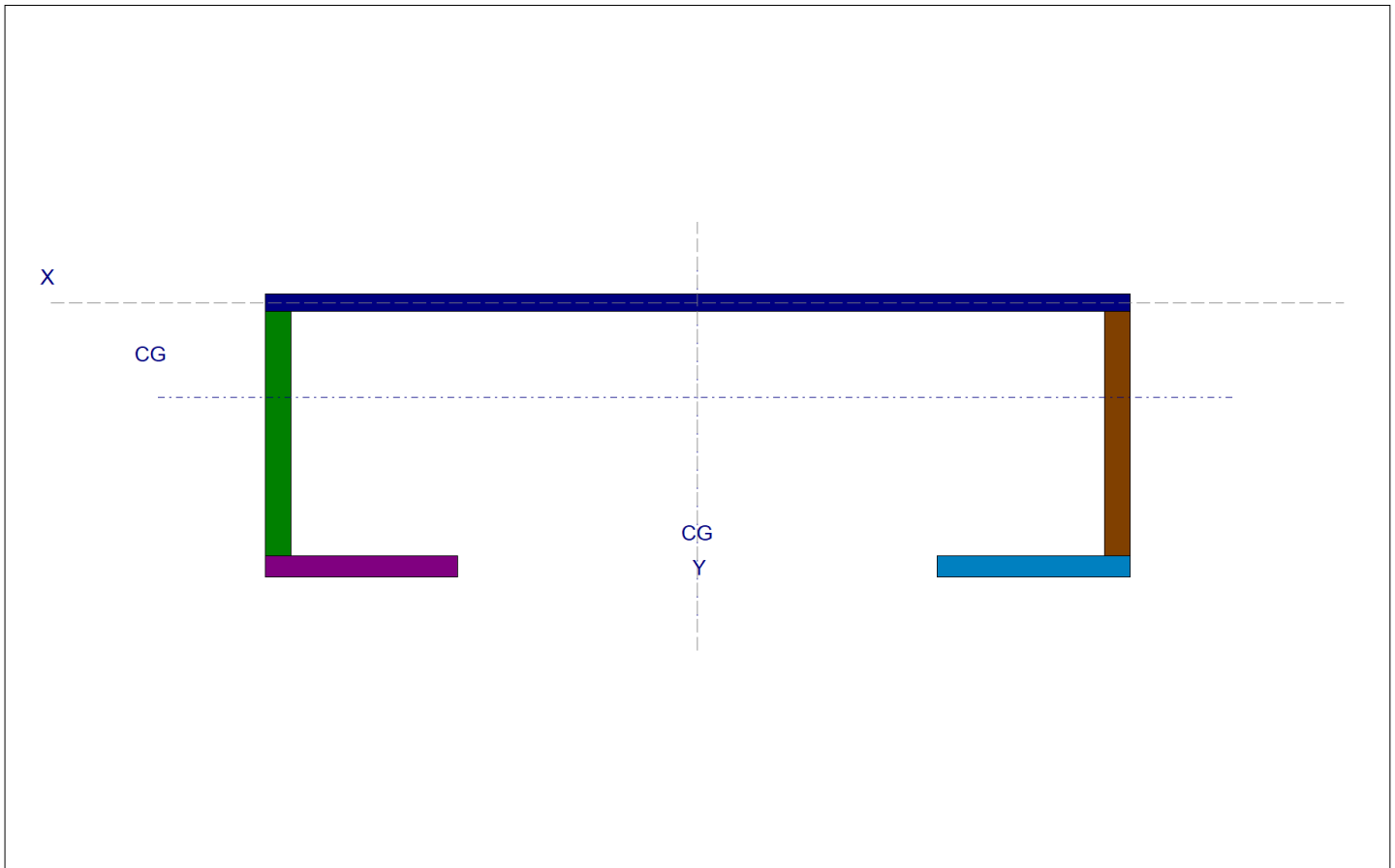
Edge Distances from CG. :

+X :	2.251 in	+Y :	0.5590 in	r xx :	0.5848 in
-X :	-2.251 in	-Y :	-0.9410 in	r yy :	1.695 in

Rotation of All Components @ 0.00 deg CCW

Minumim Section Properties

Rotation Angle (CCW)	0.0 deg CCW	I: Moment of Inertia	0.3847 in ⁴
r: Radius of Gyration	0.5848 in	S: Modulus	0.4089 in ³
		Z: Plastic Modulus	0.5586 in ³



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	0.125 in	Width =	4.500 in	Rotation =	0 deg CCW
	Area =	0.563 in ²	Xcg =	0.000 in		
			Ycg =	0.000 in		



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Project Descr: Optional Aluminum Tread System

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General Section Property Calculator

Project File: 2241015 Aluminum Treads.ec6

LIC# : KW-06014847, Build:20.24.12.02

AHBL, INC

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DESCRIPTION: 6" Aluminum Treads - Deflection

	Rectangular Shape : 2	Height =	1.250 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.156 in^2	Xcg =	2.188 in	Ycg =	-0.688 in
	Rectangular Shape : 3	Height =	1.250 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.156 in^2	Xcg =	-2.188 in	Ycg =	-0.688 in
	Rectangular Shape : 4	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	-1.750 in	Ycg =	-1.375 in
	Rectangular Shape : 5	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	1.750 in	Ycg =	-1.375 in



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LIC# : KW-06014847, Build:20.24.12.02

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DESCRIPTION: 6" Aluminum Treads - Deflection (Built Up Section)

Final Section Properties

Total Area	:	5.396 in ²	Ixx	:	1.296 in ⁴	Sxx : - Y	:	1.576 in ³
Calculated final C.G. distance from Datum	:		Iyy	:	6.739 in ⁴	Sxx : +Y	:	1.616 in ³
X cg Dist.	:	0.0 in	Zxx	:	2.313 in ³	Syy : - X	:	2.796 in ³
Y cg Dist.	:	-0.7399 in	Zyy	:	4.951 in ³	Syy : +X	:	2.796 in ³

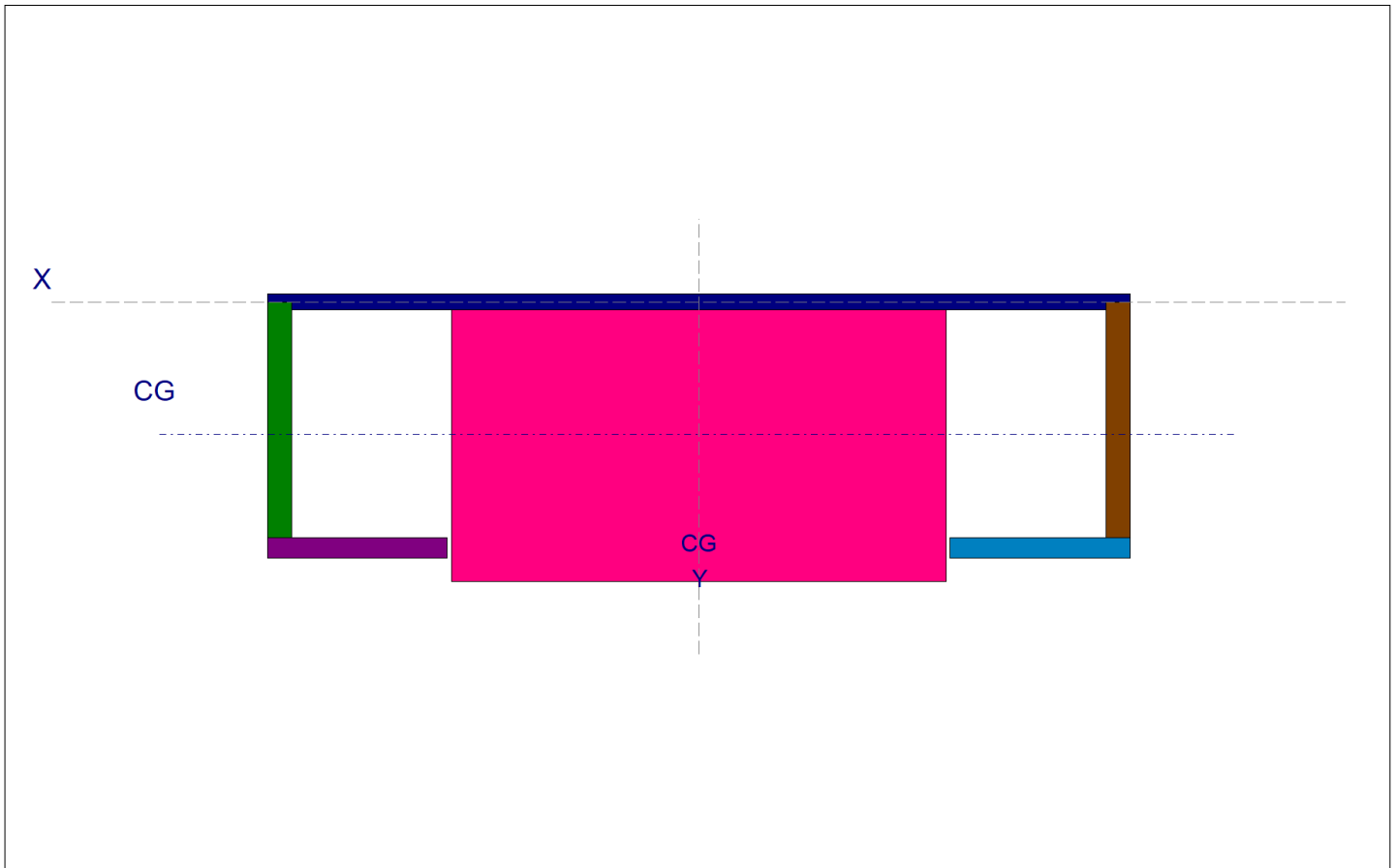
Edge Distances from CG. :

+X	:	2.411 in	+Y	:	0.8024 in	r xx	:	0.4901 in
-X	:	-2.411 in	-Y	:	-0.8226 in	r yy	:	1.117 in

Rotation of All Components @ 0.00 deg CCW

Minumim Section Properties

Rotation Angle (CCW)	0.0 deg CCW	I: Moment of Inertia	1.296 in ⁴
r: Radius of Gyration	0.4901 in	S: Modulus	1.576 in ³
		Z: Plastic Modulus	2.313 in ³



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	0.125 in	Width =	4.820 in	Rotation =	0 deg CCW
	Area =	0.603 in ²	Xcg =	0.000 in		
			Ycg =	0.000 in		



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Project ID: 2241015.20
Project Descr: Optional Aluminum Tread System

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General Section Property Calculator

Project File: 2241015 Aluminum Treads.ec6

LIC# : KW-06014847, Build:20.24.12.02

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DESCRIPTION: 6" Aluminum Treads - Deflection (Built Up Section)

	Rectangular Shape : 2	Height =	1.375 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.172 in^2	Xcg =	2.348 in	Ycg =	-0.688 in
	Rectangular Shape : 3	Height =	1.375 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.172 in^2	Xcg =	-2.348 in	Ycg =	-0.688 in
	Rectangular Shape : 4	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	-1.910 in	Ycg =	-1.375 in
	Rectangular Shape : 5	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	1.910 in	Ycg =	-1.375 in
	Rectangular Shape : 6	Height =	1.500 in	Width =	2.800 in	Rotation =	0 deg CCW
		Area =	4.200 in^2	Xcg =	0.000 in	Ycg =	-0.813 in



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DESCRIPTION: 12" Aluminum Steps

Final Section Properties

Total Area :	2.219 in ²	Ixx :	1.059 in ⁴	Sxx : - Y :	0.6930 in ³
Calculated final C.G. distance from Datum :		Iyy :	42.111 in ⁴	Sxx : +Y :	2.244 in ³
X cg Dist. :	0.0 in	Zxx :	0.9448 in ³	Syy : - X :	7.018 in ³
Y cg Dist. :	-0.4094 in	Zyy :	8.658 in ³	Syy : +X :	7.018 in ³

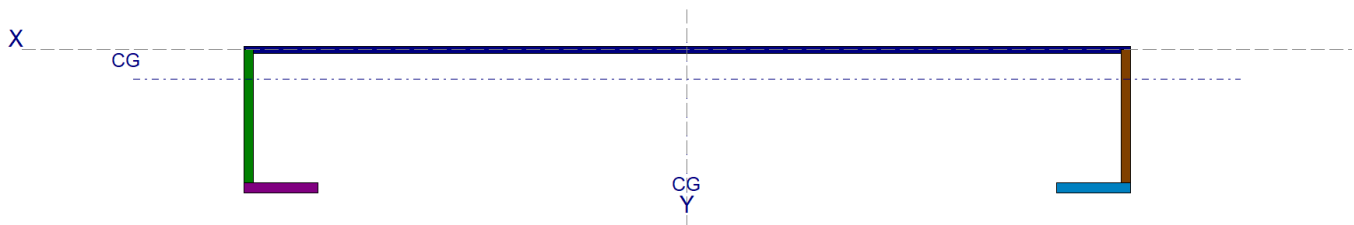
Edge Distances from CG. :

+X :	6.001 in	+Y :	0.4719 in	r xx :	0.6909 in
-X :	-6.001 in	-Y :	-1.528 in	r yy :	4.357 in

Rotation of All Components @ 0.00 deg CCW

Minumim Section Properties

Rotation Angle (CCW)	0.0 deg CCW	I: Moment of Inertia	1.059 in ⁴
r: Radius of Gyration	0.6909 in	S: Modulus	0.6930 in ³
		Z: Plastic Modulus	0.9448 in ³



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	0.125 in	Width =	12.000 in	Rotation =	0 deg CCW
	Area =	1.500 in ²	Xcg =	0.000 in		
			Ycg =	0.000 in		



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DESCRIPTION: 12" Aluminum Steps

	Rectangular Shape : 2	Height =	1.875 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.234 in^2	Xcg =	5.938 in	Ycg =	-0.938 in
	Rectangular Shape : 3	Height =	1.875 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.234 in^2	Xcg =	-5.938 in	Ycg =	-0.938 in
	Rectangular Shape : 4	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	-5.500 in	Ycg =	-1.875 in
	Rectangular Shape : 5	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	5.500 in	Ycg =	-1.875 in



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Project Descr: Optional Aluminum Tread System

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DESCRIPTION: 12" Aluminum Steps - Deflection

Final Section Properties

Total Area :	1.406 in ²	Ixx :	0.8430 in ⁴	Sxx : - Y :	0.6527 in ³
Calculated final C.G. distance from Datum :		Iyy :	6.407 in ⁴	Sxx : +Y :	1.190 in ³
X cg Dist. :	0.0 in	Zxx :	0.9074 in ³	Syy : - X :	2.329 in ³
Y cg Dist. :	-0.6460 in	Zyy :	2.768 in ³	Syy : +X :	2.329 in ³

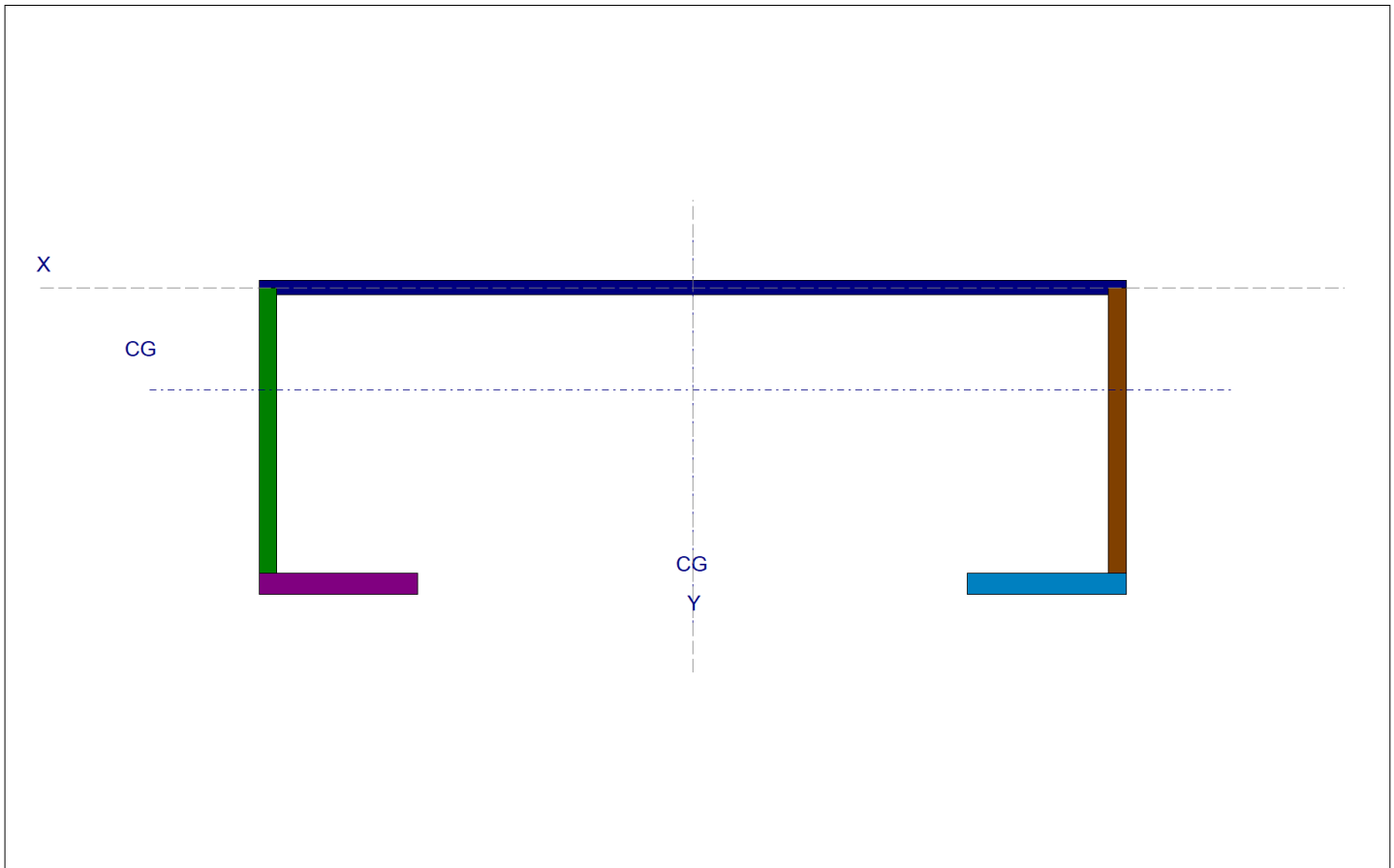
Edge Distances from CG. :

+X :	2.751 in	+Y :	0.7085 in	r xx :	0.7743 in
-X :	-2.751 in	-Y :	-1.292 in	r yy :	2.134 in

Rotation of All Components @ 0.00 deg CCW

Minumim Section Properties

Rotation Angle (CCW)	0.0 deg CCW	I: Moment of Inertia	0.8430 in ⁴
r: Radius of Gyration	0.7743 in	S: Modulus	0.6527 in ³
		Z: Plastic Modulus	0.9074 in ³



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	0.125 in	Width =	5.500 in	Rotation =	0 deg CCW
	Area =	0.688 in ²	Xcg =	0.000 in		
			Ycg =	0.000 in		



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Project Descr: Optional Aluminum Tread System

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LIC# : KW-06014847, Build:20.24.12.02

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DESCRIPTION: 12" Aluminum Steps - Deflection

	Rectangular Shape : 2	Height =	1.875 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.234 in^2	Xcg =	2.688 in	Ycg =	-0.938 in
	Rectangular Shape : 3	Height =	1.875 in	Width =	0.125 in	Rotation =	0 deg CCW
		Area =	0.234 in^2	Xcg =	-2.688 in	Ycg =	-0.938 in
	Rectangular Shape : 4	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	-2.250 in	Ycg =	-1.875 in
	Rectangular Shape : 5	Height =	0.125 in	Width =	1.000 in	Rotation =	0 deg CCW
		Area =	0.125 in^2	Xcg =	2.250 in	Ycg =	-1.875 in

MEMBER PROPERTIES



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Project Title: Centeris Puyallup
Engineer: ADM
Project ID: 2241015.20
Project Descr: Modular Ramps and Stairs

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General Section Property Calculator

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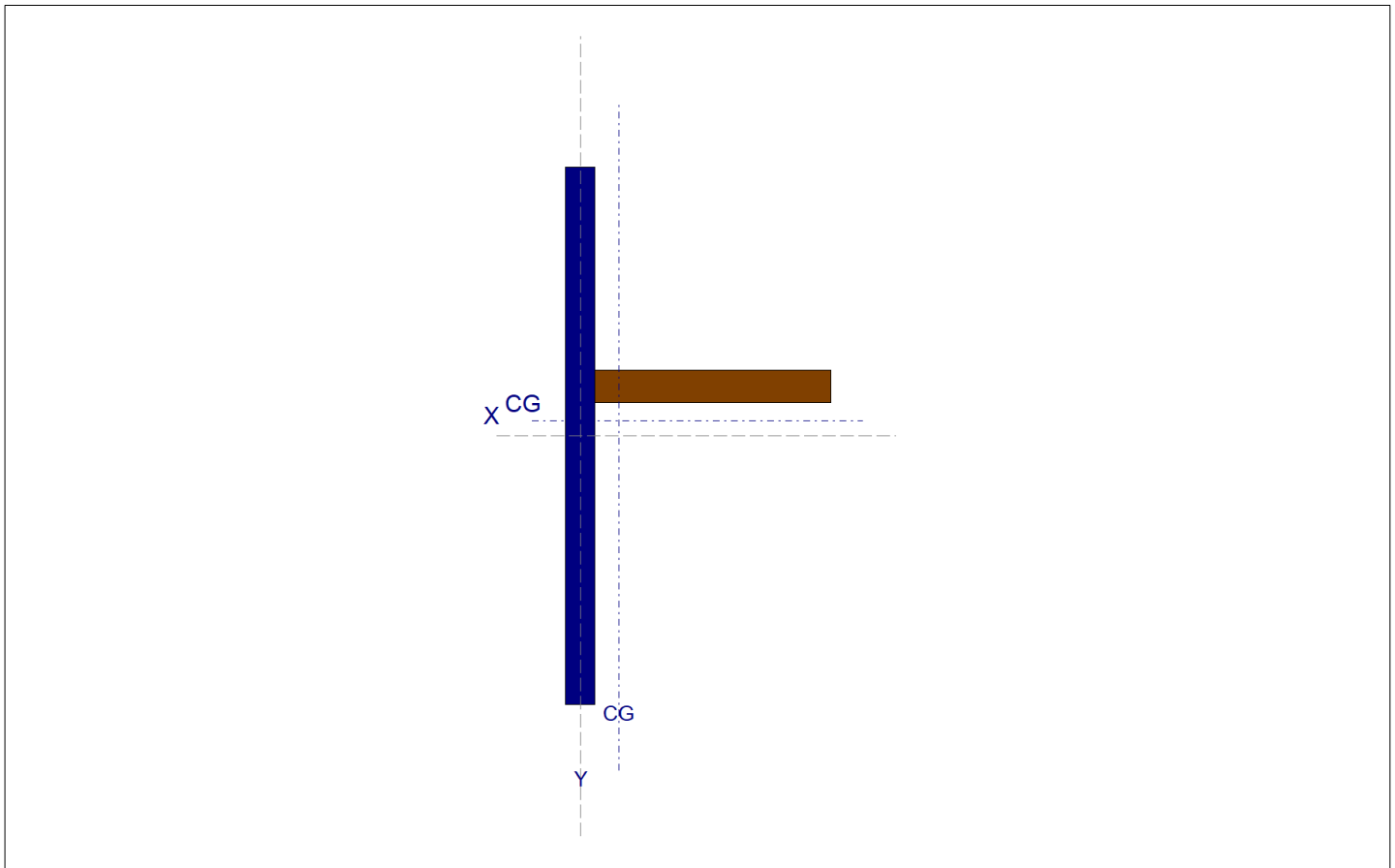
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DESCRIPTION: Platform Support Rail / Edge Member

Final Section Properties

Total Area	:	1.438 in ²	lxx	:	1.378 in ⁴	Sxx : - Y	:	0.6520 in ³
			lyy	:	0.4212 in ⁴	Sxx : +Y	:	0.7309 in ³
Calculated final C.G. distance from Datum	:		Zxx	:	1.058 in ³	Syy : - X	:	0.9810 in ³
X cg Dist.	:	0.3043 in	Zyy	:	0.4880 in ³	Syy : +X	:	0.2682 in ³
Y cg Dist.	:	0.1141 in						
Edge Distances from CG.	:					r xx	:	0.9792 in
+X	:	1.571 in	+Y	:	1.886 in	r yy	:	0.5413 in
-X	:	-0.4293 in	-Y	:	-2.114 in			

Rotation of All Components @ 0.00 deg CCW



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	4.000 in	Width =	0.250 in	Rotation =	0 deg CCW
	Area =	1.000 in ²	Xcg =	0.000 in		
			Ycg =	0.000 in		



AHBL, Inc.
2215 North 30th Street, Suite 200
Tacoma, WA 98403
(253) 383-2422

Project Title: Centeris Puyallup
Engineer: ADM
Project ID: 2241015.20
Project Descr: Modular Ramps and Stairs

Printed: 10 DEC 2024, 4:32PM

General Section Property Calculator

Project File: 2241015 Welcome Ramp.ec6

LIC# : KW-06014847, Build:20.24.12.02

AHBL, INC

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DESCRIPTION: Platform Support Rail / Edge Member

	Rectangular Shape : 2	Height =	0.250 in	Width =	1.750 in	Rotation =	0 deg CCW
		Area =	0.438 in^2	Xcg =	1.000 in	Ycg =	0.375 in



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Printed: 10 DEC 2024, 4:32PM

General Section Property Calculator

Project File: 2241015 Welcome Ramp.ec6

LIC# : KW-06014847, Build:20.24.12.02

AHBL, INC

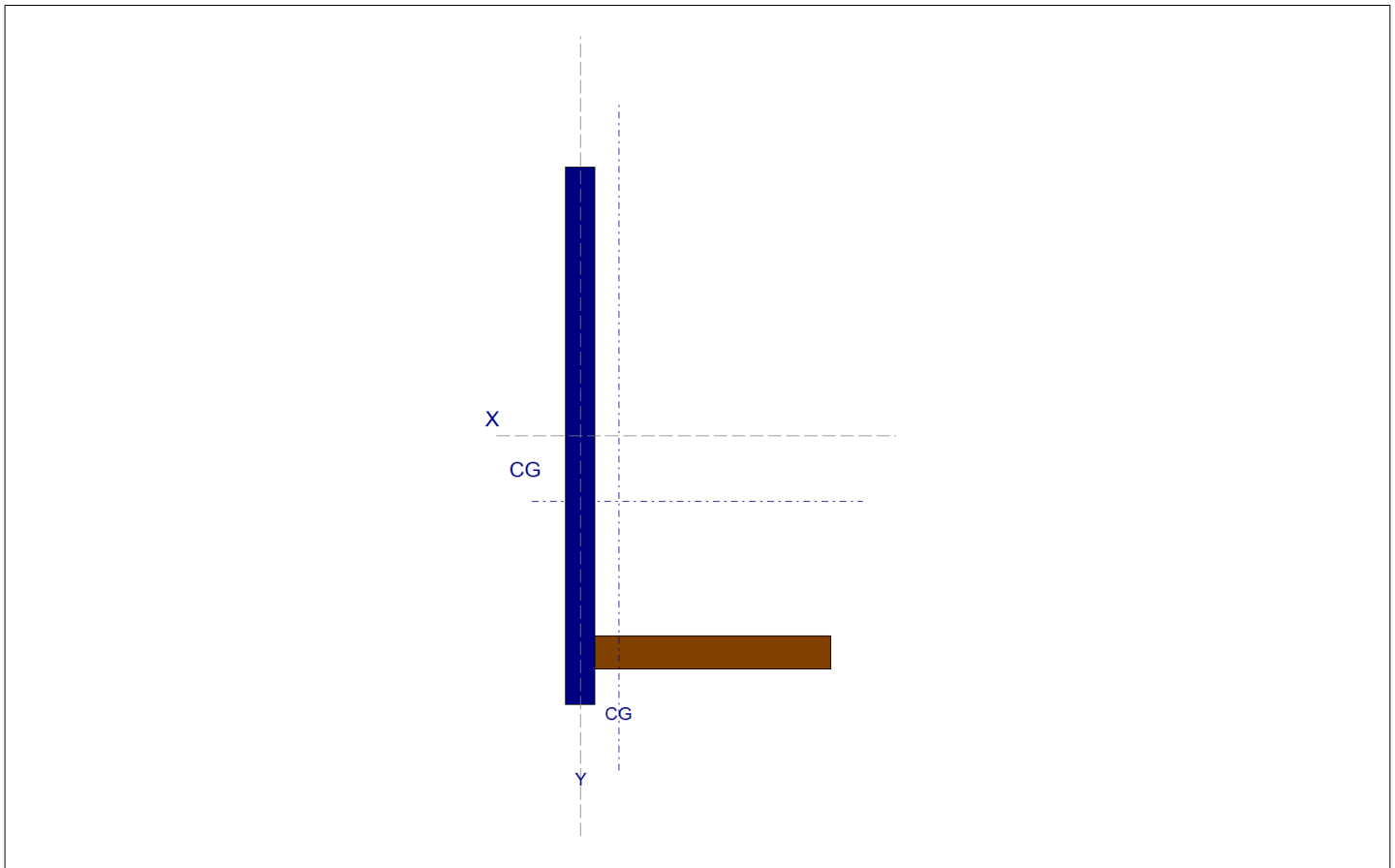
(c) ENERCALC, LLC 1982-2024

DESCRIPTION: Ramp Support Rail / Edge Member

Final Section Properties

Total Area	:	1.438 in ²	lxx	:	2.139 in ⁴	Sxx : - Y	:	1.421 in ³
Calculated final C.G. distance from Datum	:		lyy	:	0.4212 in ⁴	Sxx : +Y	:	0.8576 in ³
X cg Dist.	:	0.3043 in	Zxx	:	1.520 in ³	Syy : - X	:	0.9810 in ³
Y cg Dist.	:	-0.4946 in	Zyy	:	0.4880 in ³	Syy : +X	:	0.2682 in ³
Edge Distances from CG.	:					r xx	:	1.220 in
+X	:	1.571 in	+Y	:	2.495 in	r yy	:	0.5413 in
-X	:	-0.4293 in	-Y	:	-1.505 in			

Rotation of All Components @ 0.00 deg CCW



Rectangular & Circular Shapes

Rectangular Shape : 1	Height =	4.000 in	Width =	0.250 in	Rotation =	0 deg CCW
	Area =	1.000 in ²	Xcg =	0.000 in		
			Ycg =	0.000 in		



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Project Descr: Modular Ramps and Stairs

Printed: 10 DEC 2024, 4:32PM

General Section Property Calculator

Project File: 2241015 Welcome Ramp.ec6

LIC# : KW-06014847, Build:20.24.12.02

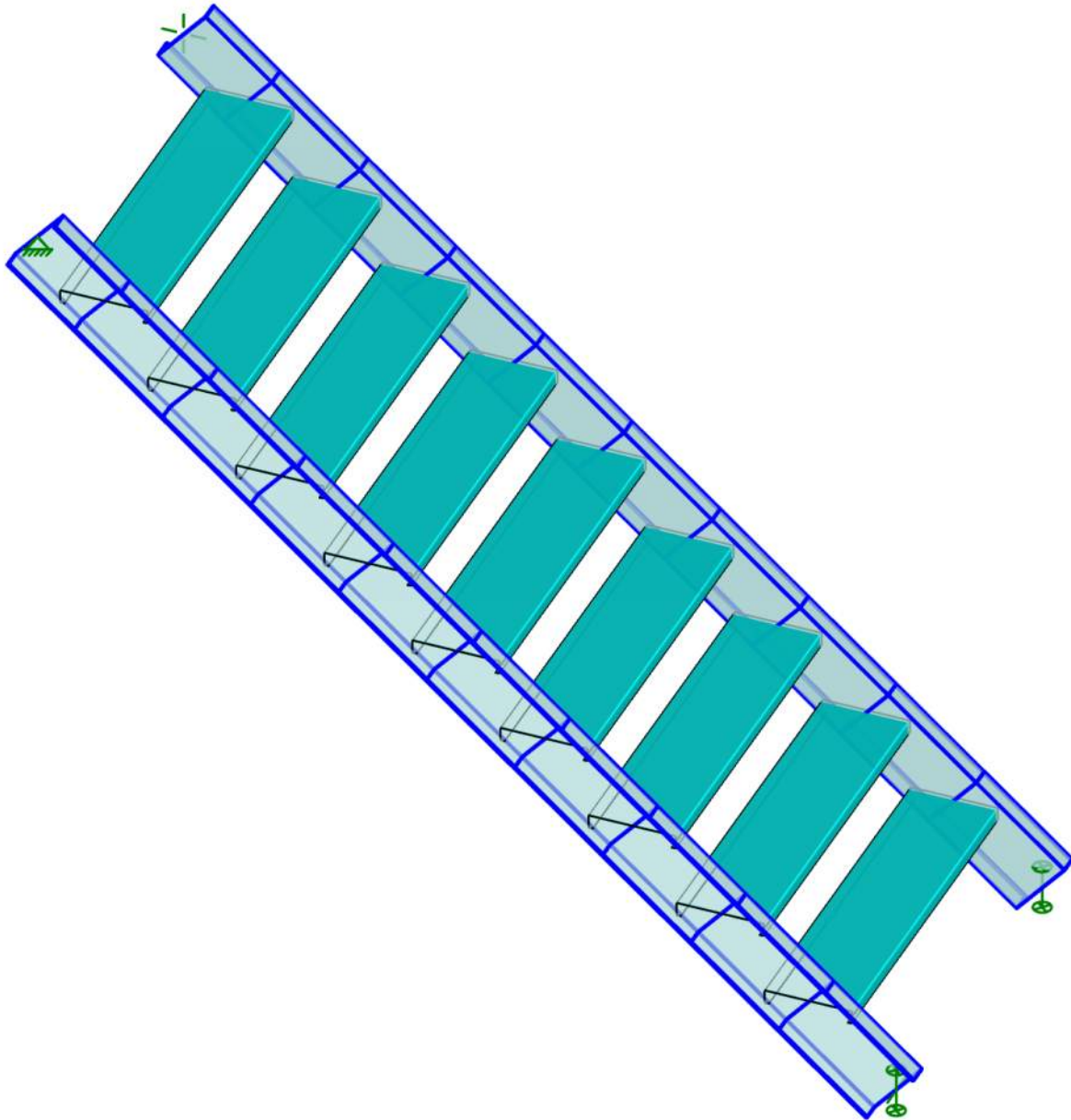
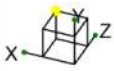
AHBL, INC

(c) ENERCALC, LLC 1982-2024

DESCRIPTION: Ramp Support Rail / Edge Member

	Rectangular Shape : 2	Height =	0.250 in	Width =	1.750 in	Rotation =	0 deg CCW
		Area =	0.438 in^2	Xcg =	1.000 in	Ycg =	-1.625 in

STAIR STRUCTURAL CALCULATIONS



Envelope Only Solution



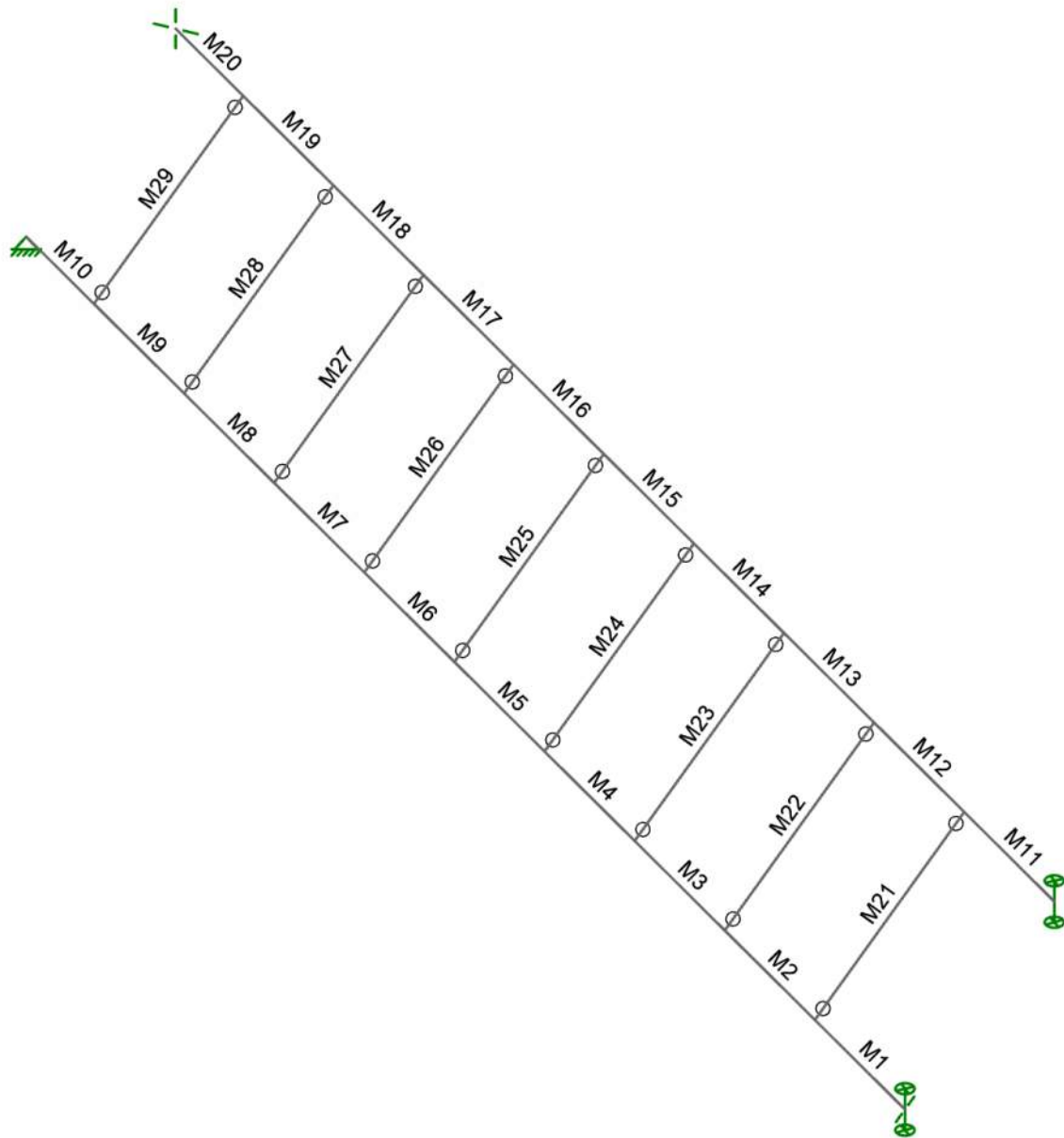
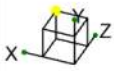
AHBL, Inc.
DMcEachern
2241015.20

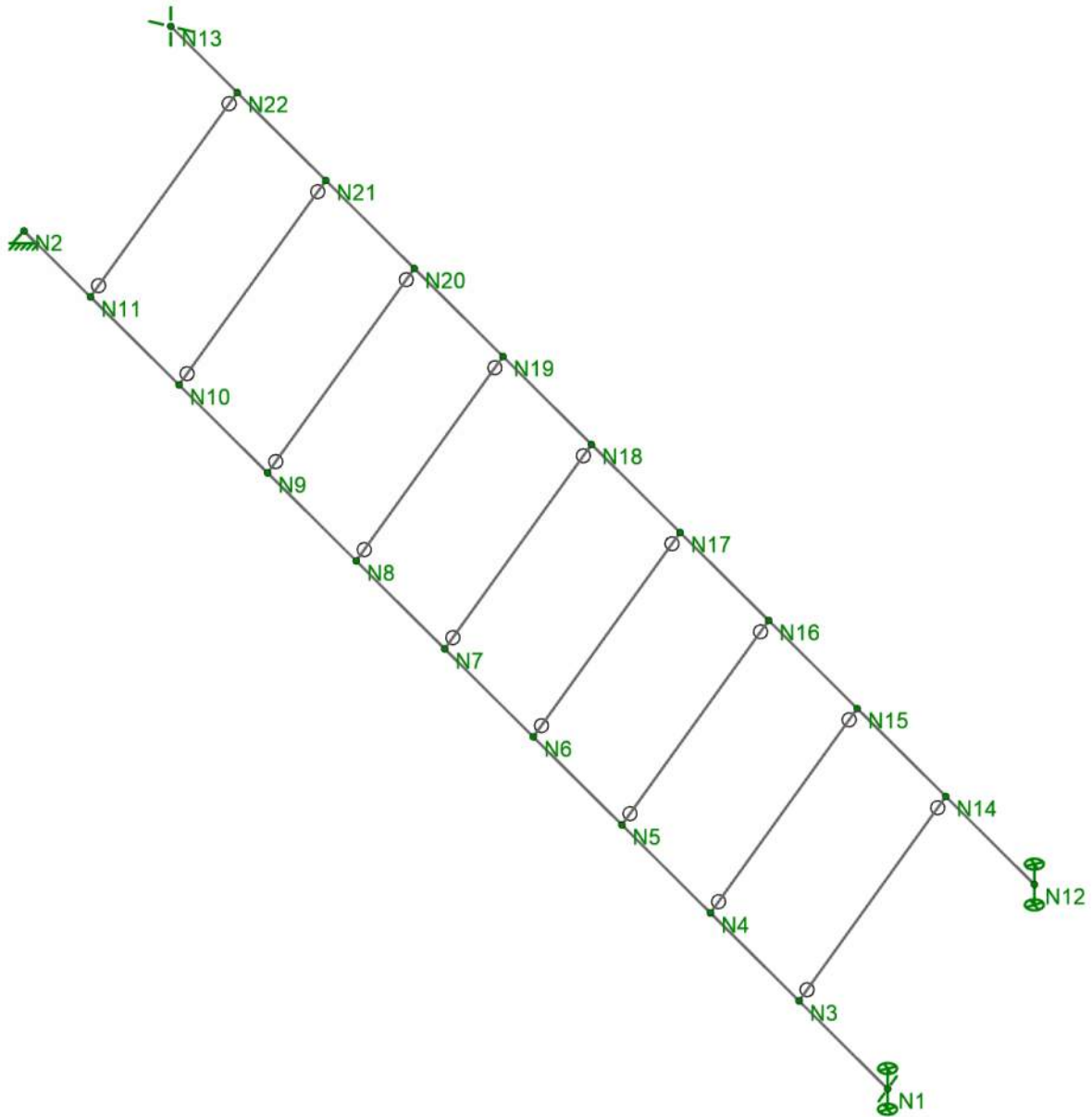
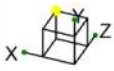
Exterior Stair

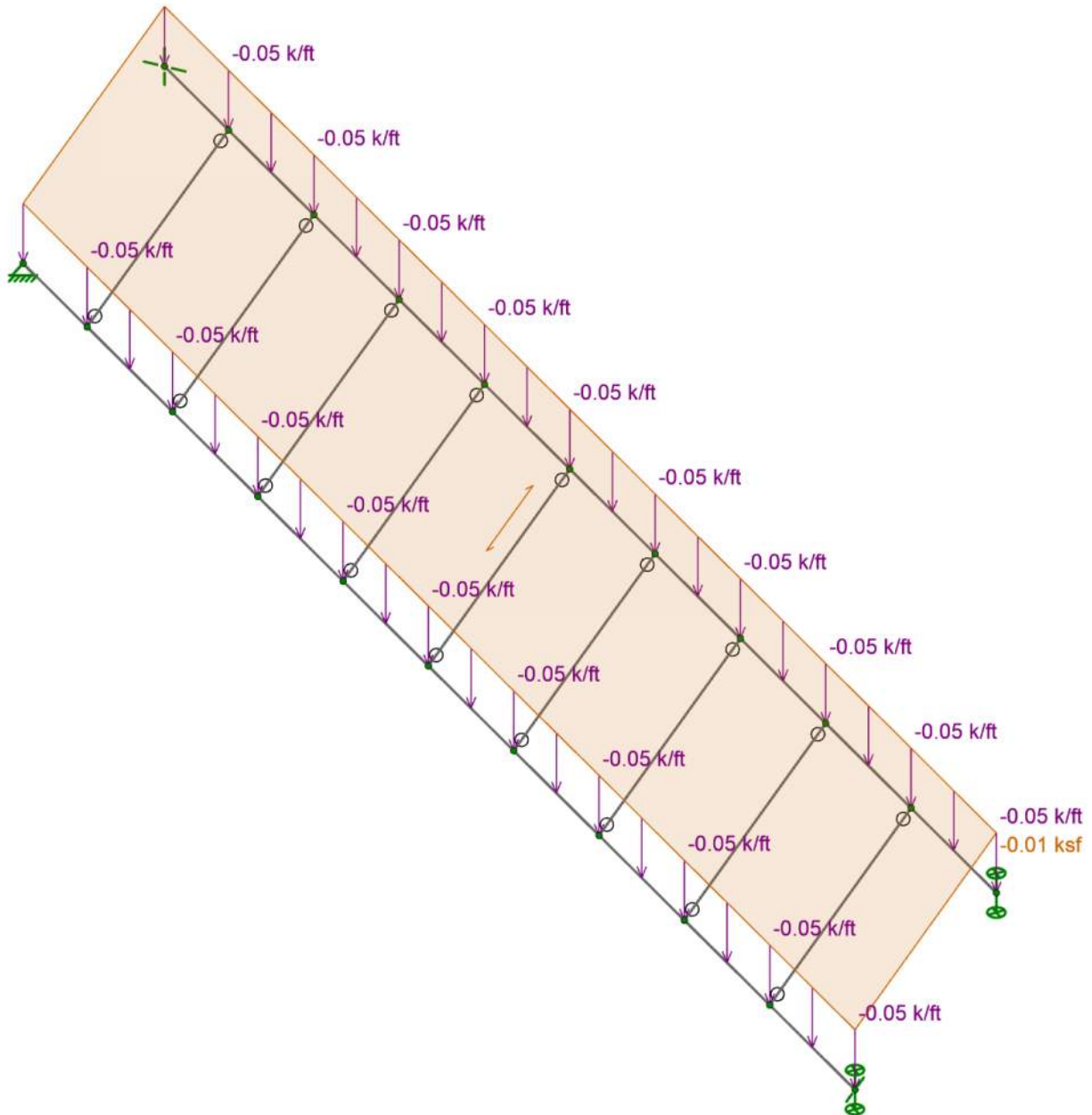
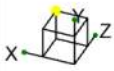
SK-1

Dec 10, 2024 at 05:43 PM

Centeris Stair.r3d







Loads: BLC 1, Dead Load



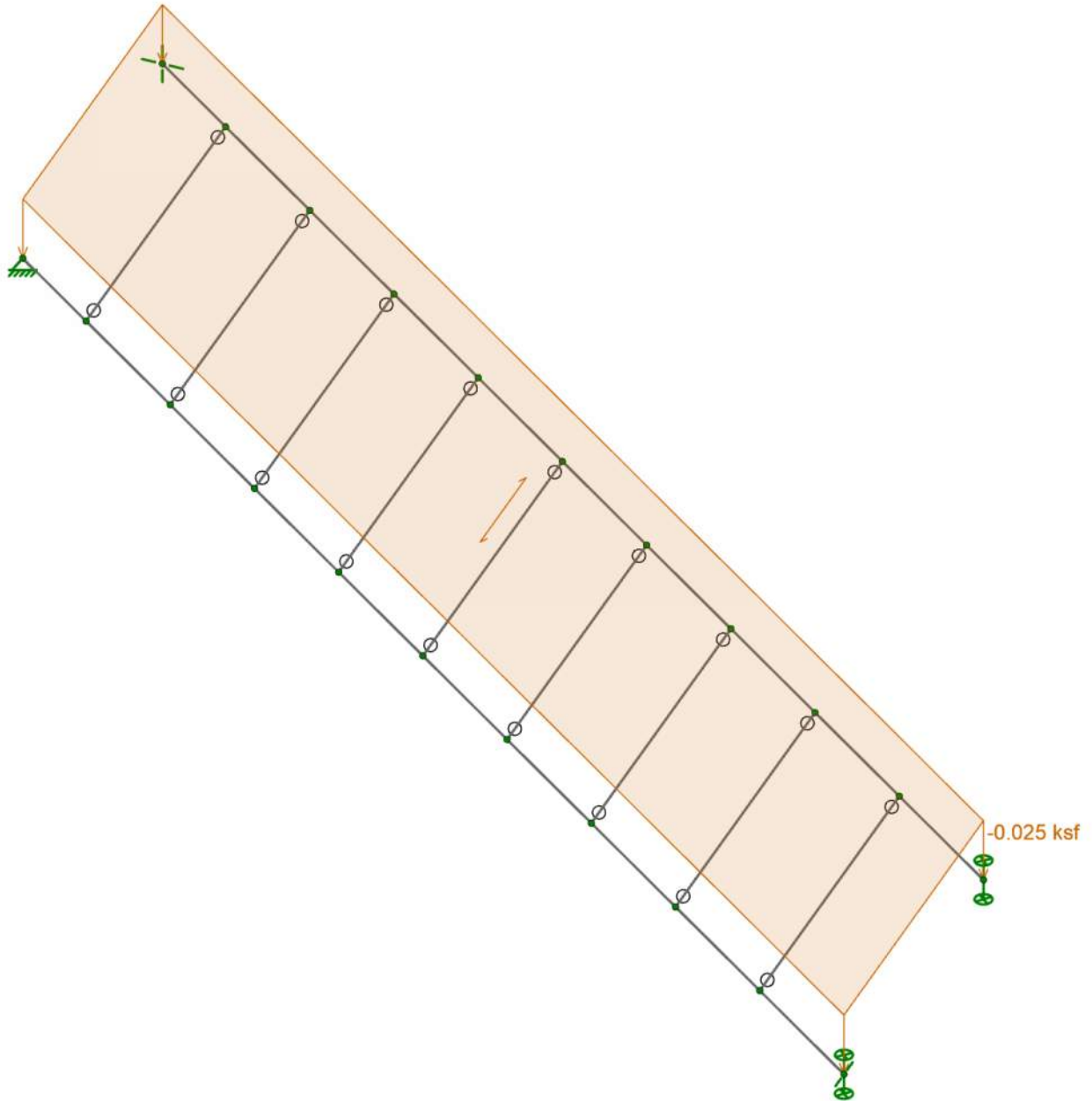
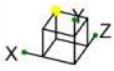
AHBL, Inc.
DMcEachern
2241015.20

Exterior Stair

SK-4

Dec 10, 2024 at 05:45 PM

Centeris Stair.r3d



Loads: BLC 2, Snow Load



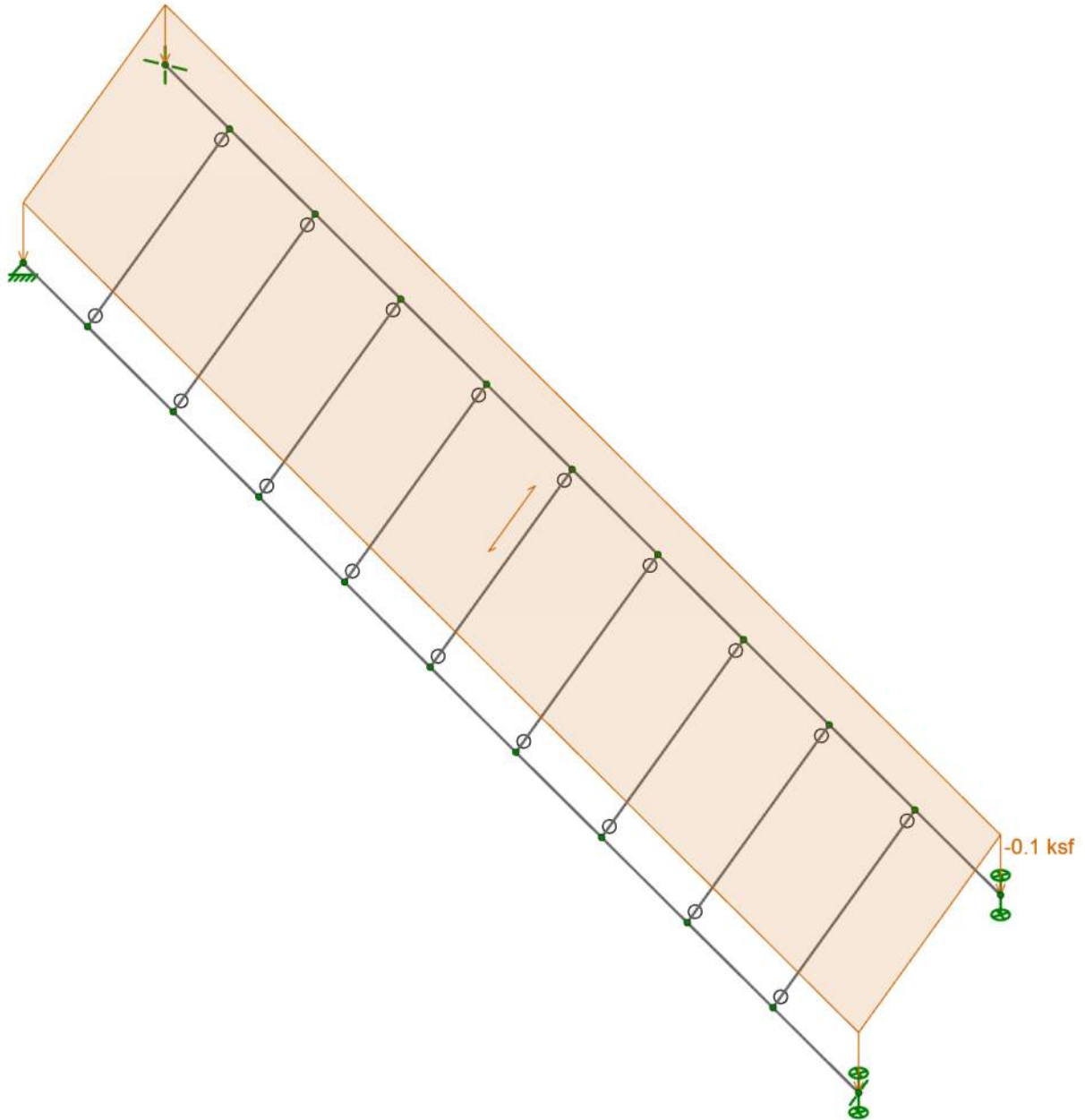
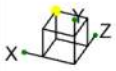
AHBL, Inc.
DMcEachern
2241015.20

Exterior Stair

SK-5

Dec 10, 2024 at 05:45 PM

Centeris Stair.r3d



Loads: BLC 3, Live Load



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Exterior Stair

SK-6

Dec 10, 2024 at 05:45 PM

Centeris Stair.r3d

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	N1	0	0	0	
2	N2	9.75	8.33	0	
3	N3	1	0.854359	0	
4	N4	2	1.708718	0	
5	N5	3	2.563077	0	
6	N6	4	3.417436	0	
7	N7	5	4.271795	0	
8	N8	6	5.126154	0	
9	N9	7	5.980513	0	
10	N10	8	6.834872	0	
11	N11	9	7.689231	0	
12	N12	0	0	4	
13	N13	9.75	8.33	4	
14	N14	1	0.854359	4	
15	N15	2	1.708718	4	
16	N16	3	2.563077	4	
17	N17	4	3.417436	4	
18	N18	5	4.271795	4	
19	N19	6	5.126154	4	
20	N20	7	5.980513	4	
21	N21	8	6.834872	4	
22	N22	9	7.689231	4	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	Y Rot [k-ft/rad]
1	N1		Reaction	Reaction	Reaction
2	N2	Reaction	Reaction	Reaction	
3	N12		Reaction		Reaction
4	N13	Reaction	Reaction		

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$10^{-6}/^{\circ}\text{F}$]	Density [k/ft ³]	Yield [ksi]	Fu [ksi]
1	A653 SS Gr33	29500	11346	0.3	0.65	0.49	33	45
2	A653 SS Gr50/1	29500	11346	0.3	0.65	0.49	50	65

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁵ °F ⁻¹]	Density [k/ft ³]	Table B.4	kt Ft _u [ksi]	F _{ty} [ksi]	F _{cy} [ksi]	F _{su} [ksi]	C _t	
1	3003-H14	10100	3787.5	0.33	1.3	0.173	Table B.4-1	1	19	16	13	12	141
2	6061-T6	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	38	35	35	24	141
3	6063-T5	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	22	16	16	13	141
4	6063-T6	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	30	25	25	19	141
5	5052-H34	10200	3787.5	0.33	1.3	0.173	Table B.4-1	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	0.33	1.3	0.173	Table B.4-1	1	24	15	15	15	141

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
1	Tread	1200S200-97	Beam	CS	A653 SS Gr50/1	Typical	1.68	0.635	30.4	0.006

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	Iyy [in ⁴]	Izz [in ⁴]	J [in ⁴]
1	Stringer	CenterisStringer	Beam	AA Channel	6061-T6	Typical	3.533	1.838	46.982	0.066

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N1	N3	180	Stringer	Beam	AA Channel	6061-T6	Typical
2	M2	N3	N4	180	Stringer	Beam	AA Channel	6061-T6	Typical
3	M3	N4	N5	180	Stringer	Beam	AA Channel	6061-T6	Typical
4	M4	N5	N6	180	Stringer	Beam	AA Channel	6061-T6	Typical
5	M5	N6	N7	180	Stringer	Beam	AA Channel	6061-T6	Typical
6	M6	N7	N8	180	Stringer	Beam	AA Channel	6061-T6	Typical
7	M7	N8	N9	180	Stringer	Beam	AA Channel	6061-T6	Typical
8	M8	N9	N10	180	Stringer	Beam	AA Channel	6061-T6	Typical
9	M9	N10	N11	180	Stringer	Beam	AA Channel	6061-T6	Typical
10	M10	N11	N2	180	Stringer	Beam	AA Channel	6061-T6	Typical
11	M11	N12	N14		Stringer	Beam	AA Channel	6061-T6	Typical
12	M12	N14	N15		Stringer	Beam	AA Channel	6061-T6	Typical
13	M13	N15	N16		Stringer	Beam	AA Channel	6061-T6	Typical
14	M14	N16	N17		Stringer	Beam	AA Channel	6061-T6	Typical
15	M15	N17	N18		Stringer	Beam	AA Channel	6061-T6	Typical
16	M16	N18	N19		Stringer	Beam	AA Channel	6061-T6	Typical
17	M17	N19	N20		Stringer	Beam	AA Channel	6061-T6	Typical
18	M18	N20	N21		Stringer	Beam	AA Channel	6061-T6	Typical
19	M19	N21	N22		Stringer	Beam	AA Channel	6061-T6	Typical
20	M20	N22	N13		Stringer	Beam	AA Channel	6061-T6	Typical
21	M21	N14	N3	90	Tread	Beam	CS	A653 SS Gr50/1	Typical
22	M22	N15	N4	90	Tread	Beam	CS	A653 SS Gr50/1	Typical
23	M23	N16	N5	90	Tread	Beam	CS	A653 SS Gr50/1	Typical
24	M24	N17	N6	90	Tread	Beam	CS	A653 SS Gr50/1	Typical
25	M25	N18	N7	90	Tread	Beam	CS	A653 SS Gr50/1	Typical
26	M26	N19	N8	90	Tread	Beam	CS	A653 SS Gr50/1	Typical
27	M27	N20	N9	90	Tread	Beam	CS	A653 SS Gr50/1	Typical
28	M28	N21	N10	90	Tread	Beam	CS	A653 SS Gr50/1	Typical
29	M29	N22	N11	90	Tread	Beam	CS	A653 SS Gr50/1	Typical

Member Advanced Data

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
1	M1					Default	None
2	M2					Default	None
3	M3					Default	None
4	M4					Default	None
5	M5					Default	None
6	M6					Default	None
7	M7					Default	None
8	M8					Default	None
9	M9					Default	None
10	M10					Default	None
11	M11					Default	None
12	M12					Default	None
13	M13					Default	None
14	M14					Default	None
15	M15					Default	None
16	M16					Default	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
17	M17					Default	None
18	M18					Default	None
19	M19					Default	None
20	M20					Default	None
21	M21	BenPIN	BenPIN		Yes	Default	None
22	M22	BenPIN	BenPIN		Yes	Default	None
23	M23	BenPIN	BenPIN		Yes	Default	None
24	M24	BenPIN	BenPIN		Yes	Default	None
25	M25	BenPIN	BenPIN		Yes	Default	None
26	M26	BenPIN	BenPIN		Yes	Default	None
27	M27	BenPIN	BenPIN		Yes	Default	None
28	M28	BenPIN	BenPIN		Yes	Default	None
29	M29	BenPIN	BenPIN		Yes	Default	None

Cold Formed Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	M21	Tread	4	Lbyy	Lateral
2	M22	Tread	4	Lbyy	Lateral
3	M23	Tread	4	Lbyy	Lateral
4	M24	Tread	4	Lbyy	Lateral
5	M25	Tread	4	Lbyy	Lateral
6	M26	Tread	4	Lbyy	Lateral
7	M27	Tread	4	Lbyy	Lateral
8	M28	Tread	4	Lbyy	Lateral
9	M29	Tread	4	Lbyy	Lateral

Aluminum Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	M1	Stringer	1.315	Lbyy	Lateral
2	M2	Stringer	1.315	Lbyy	Lateral
3	M3	Stringer	1.315	Lbyy	Lateral
4	M4	Stringer	1.315	Lbyy	Lateral
5	M5	Stringer	1.315	Lbyy	Lateral
6	M6	Stringer	1.315	Lbyy	Lateral
7	M7	Stringer	1.315	Lbyy	Lateral
8	M8	Stringer	1.315	Lbyy	Lateral
9	M9	Stringer	1.315	Lbyy	Lateral
10	M10	Stringer	0.986	Lbyy	Lateral
11	M11	Stringer	1.315	Lbyy	Lateral
12	M12	Stringer	1.315	Lbyy	Lateral
13	M13	Stringer	1.315	Lbyy	Lateral
14	M14	Stringer	1.315	Lbyy	Lateral
15	M15	Stringer	1.315	Lbyy	Lateral
16	M16	Stringer	1.315	Lbyy	Lateral
17	M17	Stringer	1.315	Lbyy	Lateral
18	M18	Stringer	1.315	Lbyy	Lateral
19	M19	Stringer	1.315	Lbyy	Lateral
20	M20	Stringer	0.986	Lbyy	Lateral

Member Distributed Loads (BLC 1 : Dead Load)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M5	Y	-0.05	-0.05	0	%100
2	M1	Y	-0.05	-0.05	0	%100
3	M12	Y	-0.05	-0.05	0	%100
4	M8	Y	-0.05	-0.05	0	%100
5	M9	Y	-0.05	-0.05	0	%100
6	M20	Y	-0.05	-0.05	0	%100
7	M17	Y	-0.05	-0.05	0	%100
8	M11	Y	-0.05	-0.05	0	%100
9	M13	Y	-0.05	-0.05	0	%100
10	M14	Y	-0.05	-0.05	0	%100
11	M15	Y	-0.05	-0.05	0	%100
12	M16	Y	-0.05	-0.05	0	%100
13	M18	Y	-0.05	-0.05	0	%100
14	M19	Y	-0.05	-0.05	0	%100
15	M10	Y	-0.05	-0.05	0	%100
16	M7	Y	-0.05	-0.05	0	%100
17	M2	Y	-0.05	-0.05	0	%100
18	M4	Y	-0.05	-0.05	0	%100
19	M3	Y	-0.05	-0.05	0	%100
20	M6	Y	-0.05	-0.05	0	%100

Member Distributed Loads (BLC 4 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.02	-0.02	0	1.315
2	M2	Y	-0.02	-0.02	1.665e-16	1.315
3	M3	Y	-0.02	-0.02	9.437e-16	1.315
4	M4	Y	-0.02	-0.02	6.106e-16	1.315
5	M5	Y	-0.02	-0.02	1.832e-15	1.315
6	M6	Y	-0.02	-0.02	2.387e-15	1.315
7	M7	Y	-0.02	-0.02	9.437e-16	1.315
8	M8	Y	-0.02	-0.02	9.437e-16	1.315
9	M9	Y	-0.035	-0.017	0	0.438
10	M9	Y	-0.017	-0.015	0.438	0.877
11	M9	Y	-0.015	-0.03	0.877	1.315
12	M10	Y	-0.02	-0.02	1.36e-15	0.986
13	M11	Y	-0.02	-0.02	0	1.315
14	M12	Y	-0.02	-0.02	0	1.315
15	M13	Y	-0.02	-0.02	1.499e-15	1.315
16	M14	Y	-0.02	-0.02	0	1.315
17	M15	Y	-0.02	-0.02	1.055e-15	1.315
18	M16	Y	-0.02	-0.02	1.721e-15	1.315
19	M17	Y	-0.02	-0.02	3.886e-16	1.315
20	M18	Y	-0.02	-0.02	3.886e-16	1.315
21	M19	Y	-0.02	-0.016	0	1.315
22	M20	Y	-0.02	-0.02	4.052e-15	0.986

Member Distributed Loads (BLC 5 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.05	-0.05	0	1.315
2	M2	Y	-0.05	-0.05	1.665e-16	1.315
3	M3	Y	-0.05	-0.05	9.437e-16	1.315
4	M4	Y	-0.05	-0.05	6.106e-16	1.315

Member Distributed Loads (BLC 5 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
5	M5	Y	-0.05	-0.05	1.832e-15	1.315
6	M6	Y	-0.05	-0.05	2.387e-15	1.315
7	M7	Y	-0.05	-0.05	9.437e-16	1.315
8	M8	Y	-0.05	-0.05	9.437e-16	1.315
9	M9	Y	-0.088	-0.043	0	0.438
10	M9	Y	-0.043	-0.038	0.438	0.877
11	M9	Y	-0.038	-0.076	0.877	1.315
12	M10	Y	-0.05	-0.05	1.36e-15	0.986
13	M11	Y	-0.05	-0.05	0	1.315
14	M12	Y	-0.05	-0.05	0	1.315
15	M13	Y	-0.05	-0.05	1.499e-15	1.315
16	M14	Y	-0.05	-0.05	0	1.315
17	M15	Y	-0.05	-0.05	1.055e-15	1.315
18	M16	Y	-0.05	-0.05	1.721e-15	1.315
19	M17	Y	-0.05	-0.05	3.886e-16	1.315
20	M18	Y	-0.05	-0.05	3.886e-16	1.315
21	M19	Y	-0.051	-0.04	0	1.315
22	M20	Y	-0.05	-0.05	4.052e-15	0.986

Member Distributed Loads (BLC 6 : BLC 3 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.2	-0.2	0	1.315
2	M2	Y	-0.2	-0.2	1.665e-16	1.315
3	M3	Y	-0.2	-0.2	9.437e-16	1.315
4	M4	Y	-0.2	-0.2	6.106e-16	1.315
5	M5	Y	-0.2	-0.2	1.832e-15	1.315
6	M6	Y	-0.2	-0.2	2.387e-15	1.315
7	M7	Y	-0.2	-0.2	9.437e-16	1.315
8	M8	Y	-0.2	-0.2	9.437e-16	1.315
9	M9	Y	-0.353	-0.17	0	0.438
10	M9	Y	-0.17	-0.154	0.438	0.877
11	M9	Y	-0.154	-0.304	0.877	1.315
12	M10	Y	-0.2	-0.2	1.36e-15	0.986
13	M11	Y	-0.2	-0.2	0	1.315
14	M12	Y	-0.2	-0.2	0	1.315
15	M13	Y	-0.2	-0.2	1.499e-15	1.315
16	M14	Y	-0.2	-0.2	0	1.315
17	M15	Y	-0.2	-0.2	1.055e-15	1.315
18	M16	Y	-0.2	-0.2	1.721e-15	1.315
19	M17	Y	-0.2	-0.2	3.886e-16	1.315
20	M18	Y	-0.2	-0.2	3.886e-16	1.315
21	M19	Y	-0.204	-0.16	0	1.315
22	M20	Y	-0.2	-0.2	4.052e-15	0.986

Member Area Loads (BLC 1 : Dead Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	A Magnitude [ksf]	B Magnitude [ksf]	C Magnitude [ksf]	D Magnitude [ksf]	Exclude Braces
1	N12	N1	N2	N13	Y	A-B	-0.01	-0.01	-0.01	-0.01	Yes

Member Area Loads (BLC 2 : Snow Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	A Magnitude [ksf]	B Magnitude [ksf]	C Magnitude [ksf]	D Magnitude [ksf]	Exclude Braces
1	N12	N1	N2	N13	Y	A-B	-0.025	-0.025	-0.025	-0.025	Yes

Member Area Loads (BLC 3 : Live Load)

	Node A	Node B	Node C	Node D	Direction	Load Direction	A Magnitude [ksf]	B Magnitude [ksf]	C Magnitude [ksf]	D Magnitude [ksf]	Exclude Braces
1	N12	N1	N2	N13	Y	A-B	-0.1	-0.1	-0.1	-0.1	Yes

Plate Surface Loads

No Data to Print...

Wall Panel Surface Loads

No Data to Print...

Diaphragm Surface Loads

No Data to Print...

Basic Load Cases

	BLC Description	Category	Y Gravity	Distributed	Area(Member)
1	Dead Load	DL	-1	20	1
2	Snow Load	SL			1
3	Live Load	LL			1
4	BLC 1 Transient Area Loads	None		22	
5	BLC 2 Transient Area Loads	None		22	
6	BLC 3 Transient Area Loads	None		22	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Deflection 1	Yes	C	DL	1								
2	Deflection 2	Yes	C	LL	1								
3	Deflection 3	Yes	C	DL	1	LL	1						
4	IBC 21/ASCE ASD 1	Yes	C	DL	1								
5	IBC 21/ASCE ASD 2	Yes	C	DL	1	LL	1	LLS	1				
6	IBC 21/ASCE ASD 3 (b)	Yes	C	DL	1	SL	1	SLN	1				
7	IBC 21/ASCE ASD 4 (b)	Yes	C	DL	1	LL	0.75	LLS	0.75	SL	0.75	SLN	0.75

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	N1	max	0	7	1.809	5	0	7	0	7	0	7	0	7
2		min	0	1	0.526	1	0	1	0	1	0	1	0	1
3	N2	max	0	4	1.837	5	0	7	0	7	0	7	0	7
4		min	0	3	0.531	1	0	1	0	1	0	1	0	1
5	N12	max	0	7	1.802	5	0	7	0	7	0	7	0	7
6		min	0	1	0.526	1	0	1	0	1	0	1	0	1
7	N13	max	0	5	1.792	5	0	7	0	7	0	7	0	7
8		min	0	6	0.527	1	0	1	0	1	0	1	0	1
9	Totals:	max	0	4	7.239	5	0	7						
10		min	0	7	2.11	1	0	1						

Envelope Node Reactions - Overstrength or Capacity Limit

No Data to Print...

Envelope Node Displacements

	Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	4	0	4	0	7	0	7	0	7	-2.106e-3	4
2		min	0	3	0	3	0	1	0	1	0	1	-7.234e-3	3
3	N2	max	0	5	0	4	0	7	0	7	0	7	7.242e-3	5
4		min	0	1	0	3	0	1	0	1	0	1	2.108e-3	1
5	N3	max	0.074	5	-0.025	4	0	7	0	7	0	7	-1.983e-3	4
6		min	0.022	1	-0.087	3	0	1	0	1	0	1	-6.809e-3	3
7	N4	max	0.139	5	-0.048	4	0	7	0	7	0	7	-1.648e-3	4
8		min	0.041	1	-0.165	3	0	1	0	1	0	1	-5.658e-3	3
9	N5	max	0.19	5	-0.065	4	0	7	0	7	0	7	-1.156e-3	4
10		min	0.055	1	-0.224	3	0	1	0	1	0	1	-3.968e-3	3
11	N6	max	0.221	5	-0.076	4	0	7	0	7	0	7	-5.614e-4	4
12		min	0.064	1	-0.261	3	0	1	0	1	0	1	-1.928e-3	3
13	N7	max	0.229	5	-0.079	4	0	7	0	7	0	7	2.755e-4	5
14		min	0.067	1	-0.271	3	0	1	0	1	0	1	8.055e-5	1
15	N8	max	0.215	5	-0.074	4	0	7	0	7	0	7	2.456e-3	5
16		min	0.063	1	-0.254	3	0	1	0	1	0	1	7.158e-4	1
17	N9	max	0.179	5	-0.062	4	0	7	0	7	0	7	4.427e-3	5
18		min	0.052	1	-0.211	3	0	1	0	1	0	1	1.29e-3	1
19	N10	max	0.124	5	-0.043	4	0	7	0	7	0	7	6.005e-3	5
20		min	0.036	1	-0.147	3	0	1	0	1	0	1	1.748e-3	1
21	N11	max	0.056	5	-0.019	4	0	7	0	7	0	7	6.997e-3	5
22		min	0.016	1	-0.066	3	0	1	0	1	0	1	2.036e-3	1
23	N12	max	0	4	0	4	0	7	0	7	0	7	-2.101e-3	4
24		min	0	3	0	3	0	1	0	1	0	1	-7.183e-3	3
25	N13	max	0	6	0	4	0	7	0	7	0	7	7.159e-3	5
26		min	0	3	0	3	0	1	0	1	0	1	2.1e-3	1
27	N14	max	0.073	5	-0.025	4	0	7	0	7	0	7	-1.978e-3	4
28		min	0.021	1	-0.087	3	0	1	0	1	0	1	-6.76e-3	3
29	N15	max	0.138	5	-0.048	4	0	7	0	7	0	7	-1.643e-3	4
30		min	0.04	1	-0.164	3	0	1	0	1	0	1	-5.613e-3	3
31	N16	max	0.188	5	-0.065	4	0	7	0	7	0	7	-1.152e-3	4
32		min	0.055	1	-0.222	3	0	1	0	1	0	1	-3.932e-3	3
33	N17	max	0.219	5	-0.076	4	0	7	0	7	0	7	-5.592e-4	4
34		min	0.064	1	-0.258	3	0	1	0	1	0	1	-1.903e-3	3
35	N18	max	0.227	5	-0.079	4	0	7	0	7	0	7	2.854e-4	5
36		min	0.067	1	-0.268	3	0	1	0	1	0	1	8.145e-5	1
37	N19	max	0.213	5	-0.074	4	0	7	0	7	0	7	2.448e-3	5
38		min	0.062	1	-0.252	3	0	1	0	1	0	1	7.15e-4	1
39	N20	max	0.177	5	-0.061	4	0	7	0	7	0	7	4.398e-3	5
40		min	0.052	1	-0.209	3	0	1	0	1	0	1	1.287e-3	1
41	N21	max	0.123	5	-0.043	4	0	7	0	7	0	7	5.95e-3	5
42		min	0.036	1	-0.145	3	0	1	0	1	0	1	1.743e-3	1
43	N22	max	0.055	5	-0.019	4	0	7	0	7	0	7	6.92e-3	5
44		min	0.016	1	-0.065	3	0	1	0	1	0	1	2.029e-3	1

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
1	M1	1	max	1.175	5	-0.401	4	0	7	0	7	0	7	0	7
2			min	0.342	1	-1.387	3	0	1	0	1	0	1	0	1
3		2	max	1.116	5	-0.383	4	0	7	0	7	0	7	0.445	5
4			min	0.326	1	-1.319	3	0	1	0	1	0	1	0.129	1
5		3	max	1.058	5	-0.364	4	0	7	0	7	0	7	0.867	5
6			min	0.31	1	-1.25	3	0	1	0	1	0	1	0.252	1
7		4	max	0.999	5	-0.345	4	0	7	0	7	0	7	1.267	5

Envelope Member Section Forces (Continued)

Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
8		min	0.294	1	-1.182	3	0	1	0	1	0	1	0.368	1
9	5	max	0.941	5	-0.327	4	0	7	0	7	0	7	1.645	5
10		min	0.278	1	-1.113	3	0	1	0	1	0	1	0.479	1
11	M2	1	max	0.933	5	-0.318	4	0	7	0	7	0	1.645	5
12		min	0.271	1	-1.101	3	0	1	0	1	0	1	0.479	1
13	2	max	0.875	5	-0.299	4	0	7	0	7	0	7	1.995	5
14		min	0.255	1	-1.032	3	0	1	0	1	0	1	0.58	1
15	3	max	0.816	5	-0.281	4	0	7	0	7	0	7	2.323	5
16		min	0.239	1	-0.964	3	0	1	0	1	0	1	0.676	1
17	4	max	0.757	5	-0.262	4	0	7	0	7	0	7	2.629	5
18		min	0.223	1	-0.895	3	0	1	0	1	0	1	0.765	1
19	5	max	0.699	5	-0.244	4	0	7	0	7	0	7	2.912	5
20		min	0.208	1	-0.826	3	0	1	0	1	0	1	0.848	1
21	M3	1	max	0.691	5	-0.235	4	0	7	0	7	0	2.912	5
22		min	0.2	1	-0.814	3	0	1	0	1	0	1	0.848	1
23	2	max	0.633	5	-0.216	4	0	7	0	7	0	7	3.168	5
24		min	0.184	1	-0.745	3	0	1	0	1	0	1	0.922	1
25	3	max	0.574	5	-0.197	4	0	7	0	7	0	7	3.402	5
26		min	0.168	1	-0.677	3	0	1	0	1	0	1	0.99	1
27	4	max	0.516	5	-0.179	4	0	7	0	7	0	7	3.613	5
28		min	0.153	1	-0.608	3	0	1	0	1	0	1	1.052	1
29	5	max	0.457	5	-0.16	4	0	7	0	7	0	7	3.802	5
30		min	0.137	1	-0.54	3	0	1	0	1	0	1	1.108	1
31	M4	1	max	0.45	5	-0.151	4	0	7	0	7	0	3.802	5
32		min	0.129	1	-0.528	3	0	1	0	1	0	1	1.108	1
33	2	max	0.391	5	-0.133	4	0	7	0	7	0	7	3.964	5
34		min	0.113	1	-0.459	3	0	1	0	1	0	1	1.154	1
35	3	max	0.333	5	-0.114	4	0	7	0	7	0	7	4.104	5
36		min	0.098	1	-0.391	3	0	1	0	1	0	1	1.195	1
37	4	max	0.274	5	-0.096	4	0	7	0	7	0	7	4.221	5
38		min	0.082	1	-0.322	3	0	1	0	1	0	1	1.23	1
39	5	max	0.215	5	-0.077	4	0	7	0	7	0	7	4.316	5
40		min	0.066	1	-0.254	3	0	1	0	1	0	1	1.258	1
41	M5	1	max	0.208	5	-0.068	4	0	7	0	7	0	4.316	5
42		min	0.058	1	-0.244	3	0	1	0	1	0	1	1.258	1
43	2	max	0.149	5	-0.05	4	0	7	0	7	0	7	4.385	5
44		min	0.043	1	-0.175	3	0	1	0	1	0	1	1.277	1
45	3	max	0.091	5	-0.031	4	0	7	0	7	0	7	4.431	5
46		min	0.027	1	-0.107	3	0	1	0	1	0	1	1.291	1
47	4	max	0.032	5	-0.013	4	0	7	0	7	0	7	4.455	5
48		min	0.011	1	-0.038	3	0	1	0	1	0	1	1.298	1
49	5	max	-0.005	4	0.031	5	0	7	0	7	0	7	4.456	5
50		min	-0.026	3	0.006	1	0	1	0	1	0	1	1.299	1
51	M6	1	max	-0.012	4	0.039	5	0	7	0	7	0	4.456	5
52		min	-0.034	3	0.015	1	0	1	0	1	0	1	1.299	1
53	2	max	-0.028	4	0.108	5	0	7	0	7	0	7	4.432	5
54		min	-0.092	3	0.033	1	0	1	0	1	0	1	1.291	1
55	3	max	-0.044	4	0.177	5	0	7	0	7	0	7	4.385	5
56		min	-0.151	3	0.052	1	0	1	0	1	0	1	1.277	1
57	4	max	-0.06	4	0.245	5	0	7	0	7	0	7	4.316	5
58		min	-0.209	3	0.07	1	0	1	0	1	0	1	1.257	1
59	5	max	-0.076	4	0.314	5	0	7	0	7	0	7	4.224	5
60		min	-0.268	3	0.089	1	0	1	0	1	0	1	1.231	1
61	M7	1	max	-0.083	4	0.322	5	0	7	0	7	0	4.224	5
62		min	-0.275	3	0.098	1	0	1	0	1	0	1	1.231	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
63		2	max	-0.099	4	0.391	5	0	7	0	7	0	7	4.107	5
64			min	-0.334	3	0.116	1	0	1	0	1	0	1	1.196	1
65		3	max	-0.115	4	0.459	5	0	7	0	7	0	7	3.967	5
66			min	-0.393	3	0.135	1	0	1	0	1	0	1	1.155	1
67		4	max	-0.131	4	0.528	5	0	7	0	7	0	7	3.804	5
68			min	-0.451	3	0.153	1	0	1	0	1	0	1	1.107	1
69		5	max	-0.147	4	0.597	5	0	7	0	7	0	7	3.62	5
70			min	-0.51	3	0.172	1	0	1	0	1	0	1	1.054	1
71	M8	1	max	-0.154	4	0.605	5	0	7	0	7	0	7	3.62	5
72			min	-0.517	3	0.18	1	0	1	0	1	0	1	1.054	1
73		2	max	-0.17	4	0.674	5	0	7	0	7	0	7	3.409	5
74			min	-0.576	3	0.199	1	0	1	0	1	0	1	0.992	1
75		3	max	-0.186	4	0.742	5	0	7	0	7	0	7	3.176	5
76			min	-0.634	3	0.218	1	0	1	0	1	0	1	0.923	1
77		4	max	-0.202	4	0.811	5	0	7	0	7	0	7	2.921	5
78			min	-0.693	3	0.236	1	0	1	0	1	0	1	0.848	1
79		5	max	-0.218	4	0.879	5	0	7	0	7	0	7	2.643	5
80			min	-0.751	3	0.255	1	0	1	0	1	0	1	0.768	1
81	M9	1	max	-0.225	4	0.888	5	0	7	0	7	0	7	2.643	5
82			min	-0.759	3	0.263	1	0	1	0	1	0	1	0.768	1
83		2	max	-0.243	4	0.98	5	0	7	0	7	0	7	2.335	5
84			min	-0.837	3	0.284	1	0	1	0	1	0	1	0.678	1
85		3	max	-0.258	4	1.042	5	0	7	0	7	0	7	2.002	5
86			min	-0.89	3	0.302	1	0	1	0	1	0	1	0.581	1
87		4	max	-0.273	4	1.1	5	0	7	0	7	0	7	1.65	5
88			min	-0.94	3	0.32	1	0	1	0	1	0	1	0.479	1
89		5	max	-0.29	4	1.182	5	0	7	0	7	0	7	1.276	5
90			min	-1.01	3	0.339	1	0	1	0	1	0	1	0.371	1
91	M10	1	max	-0.297	4	1.191	5	0	7	0	7	0	7	1.276	5
92			min	-1.017	3	0.348	1	0	1	0	1	0	1	0.371	1
93		2	max	-0.309	4	1.242	5	0	7	0	7	0	7	0.976	5
94			min	-1.061	3	0.362	1	0	1	0	1	0	1	0.283	1
95		3	max	-0.321	4	1.293	5	0	7	0	7	0	7	0.663	5
96			min	-1.105	3	0.376	1	0	1	0	1	0	1	0.192	1
97		4	max	-0.333	4	1.345	5	0	7	0	7	0	7	0.338	5
98			min	-1.149	3	0.39	1	0	1	0	1	0	1	0.098	1
99		5	max	-0.345	4	1.396	5	0	7	0	7	0	7	0	7
100			min	-1.193	3	0.404	1	0	1	0	1	0	1	0	1
101	M11	1	max	1.171	5	1.382	5	0	7	0	7	0	7	0	7
102			min	0.341	1	0.401	1	0	1	0	1	0	1	0	1
103		2	max	1.112	5	1.314	5	0	7	0	7	0	7	-0.129	4
104			min	0.326	1	0.382	1	0	1	0	1	0	1	-0.443	3
105		3	max	1.054	5	1.245	5	0	7	0	7	0	7	-0.251	4
106			min	0.31	1	0.364	1	0	1	0	1	0	1	-0.864	3
107		4	max	0.995	5	1.177	5	0	7	0	7	0	7	-0.368	4
108			min	0.294	1	0.345	1	0	1	0	1	0	1	-1.262	3
109		5	max	0.936	5	1.108	5	0	7	0	7	0	7	-0.478	4
110			min	0.278	1	0.326	1	0	1	0	1	0	1	-1.638	3
111	M12	1	max	0.929	5	1.096	5	0	7	0	7	0	7	-0.478	4
112			min	0.271	1	0.317	1	0	1	0	1	0	1	-1.638	3
113		2	max	0.87	5	1.027	5	0	7	0	7	0	7	-0.579	4
114			min	0.255	1	0.299	1	0	1	0	1	0	1	-1.987	3
115		3	max	0.812	5	0.958	5	0	7	0	7	0	7	-0.675	4
116			min	0.239	1	0.28	1	0	1	0	1	0	1	-2.313	3
117		4	max	0.753	5	0.89	5	0	7	0	7	0	7	-0.764	4

Envelope Member Section Forces (Continued)

Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
118		min	0.223	1	0.262	1	0	1	0	1	0	1	-2.617	3
119	5	max	0.695	5	0.821	5	0	7	0	7	0	7	-0.847	4
120		min	0.207	1	0.243	1	0	1	0	1	0	1	-2.899	3
121	M13	1	max	0.687	5	0.809	5	0	7	0	7	0	-0.847	4
122		min	0.2	1	0.234	1	0	1	0	1	0	1	-2.899	3
123	2	max	0.629	5	0.74	5	0	7	0	7	0	7	-0.921	4
124		min	0.184	1	0.216	1	0	1	0	1	0	1	-3.153	3
125	3	max	0.57	5	0.672	5	0	7	0	7	0	7	-0.989	4
126		min	0.168	1	0.197	1	0	1	0	1	0	1	-3.385	3
127	4	max	0.512	5	0.603	5	0	7	0	7	0	7	-1.05	4
128		min	0.152	1	0.178	1	0	1	0	1	0	1	-3.595	3
129	5	max	0.453	5	0.535	5	0	7	0	7	0	7	-1.106	4
130		min	0.136	1	0.16	1	0	1	0	1	0	1	-3.782	3
131	M14	1	max	0.446	5	0.523	5	0	7	0	7	0	-1.106	4
132		min	0.129	1	0.151	1	0	1	0	1	0	1	-3.782	3
133	2	max	0.387	5	0.454	5	0	7	0	7	0	7	-1.152	4
134		min	0.113	1	0.132	1	0	1	0	1	0	1	-3.943	3
135	3	max	0.328	5	0.386	5	0	7	0	7	0	7	-1.193	4
136		min	0.097	1	0.114	1	0	1	0	1	0	1	-4.081	3
137	4	max	0.27	5	0.317	5	0	7	0	7	0	7	-1.227	4
138		min	0.081	1	0.095	1	0	1	0	1	0	1	-4.197	3
139	5	max	0.211	5	0.249	5	0	7	0	7	0	7	-1.256	4
140		min	0.065	1	0.077	1	0	1	0	1	0	1	-4.29	3
141	M15	1	max	0.204	5	0.239	5	0	7	0	7	0	-1.256	4
142		min	0.058	1	0.068	1	0	1	0	1	0	1	-4.29	3
143	2	max	0.145	5	0.17	5	0	7	0	7	0	7	-1.275	4
144		min	0.042	1	0.049	1	0	1	0	1	0	1	-4.357	3
145	3	max	0.087	5	0.101	5	0	7	0	7	0	7	-1.288	4
146		min	0.026	1	0.031	1	0	1	0	1	0	1	-4.401	3
147	4	max	0.028	5	0.033	5	0	7	0	7	0	7	-1.295	4
148		min	0.01	1	0.012	1	0	1	0	1	0	1	-4.424	3
149	5	max	-0.005	4	-0.006	4	0	7	0	7	0	7	-1.296	4
150		min	-0.031	3	-0.036	3	0	1	0	1	0	1	-4.423	3
151	M16	1	max	-0.013	4	-0.015	4	0	7	0	7	0	-1.296	4
152		min	-0.038	3	-0.044	3	0	1	0	1	0	1	-4.423	3
153	2	max	-0.029	4	-0.034	4	0	7	0	7	0	7	-1.288	4
154		min	-0.097	3	-0.113	3	0	1	0	1	0	1	-4.397	3
155	3	max	-0.045	4	-0.052	4	0	7	0	7	0	7	-1.274	4
156		min	-0.155	3	-0.182	3	0	1	0	1	0	1	-4.349	3
157	4	max	-0.06	4	-0.071	4	0	7	0	7	0	7	-1.254	4
158		min	-0.214	3	-0.25	3	0	1	0	1	0	1	-4.278	3
159	5	max	-0.076	4	-0.089	4	0	7	0	7	0	7	-1.227	4
160		min	-0.272	3	-0.319	3	0	1	0	1	0	1	-4.184	3
161	M17	1	max	-0.084	4	-0.098	4	0	7	0	7	0	-1.227	4
162		min	-0.28	3	-0.327	3	0	1	0	1	0	1	-4.184	3
163	2	max	-0.1	4	-0.117	4	0	7	0	7	0	7	-1.192	4
164		min	-0.338	3	-0.396	3	0	1	0	1	0	1	-4.065	3
165	3	max	-0.115	4	-0.135	4	0	7	0	7	0	7	-1.151	4
166		min	-0.397	3	-0.465	3	0	1	0	1	0	1	-3.924	3
167	4	max	-0.131	4	-0.154	4	0	7	0	7	0	7	-1.103	4
168		min	-0.455	3	-0.533	3	0	1	0	1	0	1	-3.76	3
169	5	max	-0.147	4	-0.172	4	0	7	0	7	0	7	-1.05	4
170		min	-0.514	3	-0.602	3	0	1	0	1	0	1	-3.573	3
171	M18	1	max	-0.155	4	-0.181	4	0	7	0	7	0	-1.05	4
172		min	-0.521	3	-0.61	3	0	1	0	1	0	1	-3.573	3

Envelope Member Section Forces (Continued)

Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC	
173		2	max	-0.17	4	-0.199	4	0	7	0	7	0	7	-0.987	4
174			min	-0.58	3	-0.679	3	0	1	0	1	0	1	-3.361	3
175		3	max	-0.186	4	-0.218	4	0	7	0	7	0	7	-0.919	4
176			min	-0.639	3	-0.747	3	0	1	0	1	0	1	-3.127	3
177		4	max	-0.202	4	-0.237	4	0	7	0	7	0	7	-0.844	4
178			min	-0.697	3	-0.816	3	0	1	0	1	0	1	-2.87	3
179		5	max	-0.218	4	-0.255	4	0	7	0	7	0	7	-0.763	4
180			min	-0.756	3	-0.885	3	0	1	0	1	0	1	-2.59	3
181	M19	1	max	-0.225	4	-0.264	4	0	7	0	7	0	7	-0.763	4
182			min	-0.763	3	-0.893	3	0	1	0	1	0	1	-2.59	3
183		2	max	-0.241	4	-0.282	4	0	7	0	7	0	7	-0.673	4
184			min	-0.821	3	-0.961	3	0	1	0	1	0	1	-2.285	3
185		3	max	-0.257	4	-0.301	4	0	7	0	7	0	7	-0.577	4
186			min	-0.877	3	-1.027	3	0	1	0	1	0	1	-1.958	3
187		4	max	-0.272	4	-0.319	4	0	7	0	7	0	7	-0.475	4
188			min	-0.93	3	-1.089	3	0	1	0	1	0	1	-1.61	3
189		5	max	-0.287	4	-0.336	4	0	7	0	7	0	7	-0.368	4
190			min	-0.981	3	-1.148	3	0	1	0	1	0	1	-1.242	3
191	M20	1	max	-0.295	4	-0.345	4	0	7	0	7	0	7	-0.368	4
192			min	-0.988	3	-1.157	3	0	1	0	1	0	1	-1.242	3
193		2	max	-0.307	4	-0.359	4	0	7	0	7	0	7	-0.281	4
194			min	-1.032	3	-1.208	3	0	1	0	1	0	1	-0.951	3
195		3	max	-0.319	4	-0.373	4	0	7	0	7	0	7	-0.191	4
196			min	-1.076	3	-1.26	3	0	1	0	1	0	1	-0.647	3
197		4	max	-0.33	4	-0.387	4	0	7	0	7	0	7	-0.097	4
198			min	-1.12	3	-1.311	3	0	1	0	1	0	1	-0.33	3
199		5	max	-0.342	4	-0.401	4	0	7	0	7	0	7	0	7
200			min	-1.164	3	-1.362	3	0	1	0	1	0	1	0	1
201	M21	1	max	0	7	0	7	0	2	0	4	0	7	0	7
202			min	0	1	0	1	-0.011	1	0	3	0	1	0	1
203		2	max	0	7	0	7	0	2	0	4	0	2	0	7
204			min	0	1	0	1	-0.006	1	0	3	-0.009	1	0	1
205		3	max	0	7	0	7	0	7	0	4	0	2	0	7
206			min	0	1	0	1	0	1	0	3	-0.011	1	0	1
207		4	max	0	7	0	7	0.006	7	0	4	0	2	0	7
208			min	0	1	0	1	0	2	0	3	-0.009	1	0	1
209		5	max	0	7	0	7	0.011	7	0	4	0	7	0	7
210			min	0	1	0	1	0	2	0	3	0	1	0	1
211	M22	1	max	0	7	0	7	0	2	0	4	0	7	0	7
212			min	0	1	0	1	-0.011	1	0	3	0	1	0	1
213		2	max	0	7	0	7	0	2	0	4	0	2	0	7
214			min	0	1	0	1	-0.006	1	0	3	-0.009	1	0	1
215		3	max	0	7	0	7	0	7	0	4	0	2	0	7
216			min	0	1	0	1	0	1	0	3	-0.011	1	0	1
217		4	max	0	7	0	7	0.006	7	0	4	0	2	0	7
218			min	0	1	0	1	0	2	0	3	-0.009	1	0	1
219		5	max	0	7	0	7	0.011	7	0	4	0	7	0	7
220			min	0	1	0	1	0	2	0	3	0	1	0	1
221	M23	1	max	0	7	0	7	0	2	0	4	0	7	0	7
222			min	0	1	0	1	-0.011	1	0	3	0	1	0	1
223		2	max	0	7	0	7	0	2	0	4	0	2	0	7
224			min	0	1	0	1	-0.006	1	0	3	-0.009	1	0	1
225		3	max	0	7	0	7	0	7	0	4	0	2	0	7
226			min	0	1	0	1	0	1	0	3	-0.011	1	0	1
227		4	max	0	7	0	7	0.006	7	0	4	0	2	0	7

Envelope Member Section Forces (Continued)

Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC	
228		min	0	1	0	1	0	2	0	3	-0.009	1	0	1	
229	5	max	0	7	0	7	0.011	7	0	4	0	7	0	7	
230		min	0	1	0	1	0	2	0	3	0	1	0	1	
231	M24	1	max	0	7	0	7	0	2	0	4	0	7	0	7
232		min	0	1	0	1	-0.011	1	0	3	0	1	0	1	
233	2	max	0	7	0	7	0	2	0	4	0	2	0	7	
234		min	0	1	0	1	-0.006	1	0	3	-0.009	1	0	1	
235	3	max	0	7	0	7	0	7	0	4	0	2	0	7	
236		min	0	1	0	1	0	1	0	3	-0.011	1	0	1	
237	4	max	0	7	0	7	0.006	7	0	4	0	2	0	7	
238		min	0	1	0	1	0	2	0	3	-0.009	1	0	1	
239	5	max	0	7	0	7	0.011	7	0	4	0	7	0	7	
240		min	0	1	0	1	0	2	0	3	0	1	0	1	
241	M25	1	max	0	7	0	7	0	2	0	4	0	7	0	7
242		min	0	1	0	1	-0.011	1	0	3	0	1	0	1	
243	2	max	0	7	0	7	0	2	0	4	0	2	0	7	
244		min	0	1	0	1	-0.006	1	0	3	-0.009	1	0	1	
245	3	max	0	7	0	7	0	7	0	4	0	2	0	7	
246		min	0	1	0	1	0	1	0	3	-0.011	1	0	1	
247	4	max	0	7	0	7	0.006	7	0	4	0	2	0	7	
248		min	0	1	0	1	0	2	0	3	-0.009	1	0	1	
249	5	max	0	7	0	7	0.011	7	0	4	0	7	0	7	
250		min	0	1	0	1	0	2	0	3	0	1	0	1	
251	M26	1	max	0	7	0	7	0	2	0	5	0	7	0	7
252		min	0	1	0	1	-0.011	1	0	1	0	1	0	1	
253	2	max	0	7	0	7	0	2	0	5	0	2	0	7	
254		min	0	1	0	1	-0.006	1	0	1	-0.009	1	0	1	
255	3	max	0	7	0	7	0	7	0	5	0	2	0	7	
256		min	0	1	0	1	0	1	0	1	-0.011	1	0	1	
257	4	max	0	7	0	7	0.006	7	0	5	0	2	0	7	
258		min	0	1	0	1	0	2	0	1	-0.009	1	0	1	
259	5	max	0	7	0	7	0.011	7	0	5	0	7	0	7	
260		min	0	1	0	1	0	2	0	1	0	1	0	1	
261	M27	1	max	0	7	0	7	0	2	0	5	0	7	0	7
262		min	0	1	0	1	-0.011	1	0	1	0	1	0	1	
263	2	max	0	7	0	7	0	2	0	5	0	2	0	7	
264		min	0	1	0	1	-0.006	1	0	1	-0.009	1	0	1	
265	3	max	0	7	0	7	0	7	0	5	0	2	0	7	
266		min	0	1	0	1	0	1	0	1	-0.011	1	0	1	
267	4	max	0	7	0	7	0.006	7	0	5	0	2	0	7	
268		min	0	1	0	1	0	2	0	1	-0.009	1	0	1	
269	5	max	0	7	0	7	0.011	7	0	5	0	7	0	7	
270		min	0	1	0	1	0	2	0	1	0	1	0	1	
271	M28	1	max	0	7	0	7	0	2	0	5	0	7	0	7
272		min	0	1	0	1	-0.011	1	0	1	0	1	0	1	
273	2	max	0	7	0	7	0	2	0	5	0	2	0	7	
274		min	0	1	0	1	-0.006	1	0	1	-0.009	1	0	1	
275	3	max	0	7	0	7	0	7	0	5	0	2	0	7	
276		min	0	1	0	1	0	1	0	1	-0.011	1	0	1	
277	4	max	0	7	0	7	0.006	7	0	5	0	2	0	7	
278		min	0	1	0	1	0	2	0	1	-0.009	1	0	1	
279	5	max	0	7	0	7	0.011	7	0	5	0	7	0	7	
280		min	0	1	0	1	0	2	0	1	0	1	0	1	
281	M29	1	max	0	7	0	7	0	2	0	5	0	7	0	7
282		min	0	1	0	1	-0.011	1	0	1	0	1	0	1	

Envelope Member Section Forces (Continued)

Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC	
283		2	max	0	7	0	7	0	2	0	5	0	2	0	7
284			min	0	1	0	1	-0.006	1	0	1	-0.009	1	0	1
285		3	max	0	7	0	7	0	7	0	5	0	2	0	7
286			min	0	1	0	1	0	1	0	1	-0.011	1	0	1
287		4	max	0	7	0	7	0.006	7	0	5	0	2	0	7
288			min	0	1	0	1	0	2	0	1	-0.009	1	0	1
289		5	max	0	7	0	7	0.011	7	0	5	0	7	0	7
290			min	0	1	0	1	0	2	0	1	0	1	0	1

Envelope Maximum Member Section Forces

Member		Axial[k]	Loc[ft]	LCy	Shear[k]	Loc[ft]	LCz	Shear[k]	Loc[ft]	LC	Torque[k-ft]	Loc[ft]	LCy-y	Moment[k-ft]	Loc[ft]	LCz-z	Moment[k-ft]	Loc[ft]	LC	
1	M1	max	1.175	0	5	-0.327	1.315	4	0	1.315	7	0	1.315	7	0	1.315	7	1.645	1.315	5
2		min	0.278	1.315	1	-1.387	0	3	0	0	1	0	0	1	0	0	1	0	1	
3	M2	max	0.933	0	5	-0.244	1.315	4	0	1.315	7	0	1.315	7	0	1.315	7	2.912	1.315	5
4		min	0.208	1.315	1	-1.101	0	3	0	0	1	0	0	1	0	0	1	0.479	0	1
5	M3	max	0.691	0	5	-0.16	1.315	4	0	1.315	7	0	1.315	7	0	1.315	7	3.802	1.315	5
6		min	0.137	1.315	1	-0.814	0	3	0	0	1	0	0	1	0	0	1	0.848	0	1
7	M4	max	0.45	0	5	-0.077	1.315	4	0	1.315	7	0	1.315	7	0	1.315	7	4.316	1.315	5
8		min	0.066	1.315	1	-0.528	0	3	0	0	1	0	0	1	0	0	1	1.108	0	1
9	M5	max	0.208	0	5	0.031	1.315	5	0	1.315	7	0	1.315	7	0	1.315	7	4.458	1.165	5
10		min	-0.026	1.315	3	-0.244	0	3	0	0	1	0	0	1	0	0	1	1.258	0	1
11	M6	max	-0.012	0	4	0.314	1.315	5	0	1.315	7	0	1.315	7	0	1.315	7	4.456	0	5
12		min	-0.268	1.315	3	0.015	0	1	0	0	1	0	0	1	0	0	1	1.231	1.315	1
13	M7	max	-0.083	0	4	0.597	1.315	5	0	1.315	7	0	1.315	7	0	1.315	7	4.224	0	5
14		min	-0.51	1.315	3	0.098	0	1	0	0	1	0	0	1	0	0	1	1.054	1.315	1
15	M8	max	-0.154	0	4	0.879	1.315	5	0	1.315	7	0	1.315	7	0	1.315	7	3.62	0	5
16		min	-0.751	1.315	3	0.18	0	1	0	0	1	0	0	1	0	0	1	0.768	1.315	1
17	M9	max	-0.225	0	4	1.182	1.315	5	0	1.315	7	0	1.315	7	0	1.315	7	2.643	0	5
18		min	-1.01	1.315	3	0.263	0	1	0	0	1	0	0	1	0	0	1	0.371	1.315	1
19	M10	max	-0.297	0	4	1.396	0.986	5	0	0.986	7	0	0.986	7	0	0.986	7	1.276	0	5
20		min	-1.193	0.986	3	0.348	0	1	0	0	1	0	0	1	0	0	1	0	0.986	1
21	M11	max	1.171	0	5	1.382	0	5	0	1.315	7	0	1.315	7	0	1.315	7	0	0	7
22		min	0.278	1.315	1	0.326	1.315	1	0	0	1	0	0	1	0	0	1	-1.638	1.315	3
23	M12	max	0.929	0	5	1.096	0	5	0	1.315	7	0	1.315	7	0	1.315	7	-0.478	0	4
24		min	0.207	1.315	1	0.243	1.315	1	0	0	1	0	0	1	0	0	1	-2.899	1.315	3
25	M13	max	0.687	0	5	0.809	0	5	0	1.315	7	0	1.315	7	0	1.315	7	-0.847	0	4
26		min	0.136	1.315	1	0.16	1.315	1	0	0	1	0	0	1	0	0	1	-3.782	1.315	3
27	M14	max	0.446	0	5	0.523	0	5	0	1.315	7	0	1.315	7	0	1.315	7	-1.106	0	4
28		min	0.065	1.315	1	0.077	1.315	1	0	0	1	0	0	1	0	0	1	-4.29	1.315	3
29	M15	max	0.204	0	5	0.239	0	5	0	1.315	7	0	1.315	7	0	1.315	7	-1.256	0	4
30		min	-0.031	1.315	3	-0.036	1.315	3	0	0	1	0	0	1	0	0	1	-4.426	1.151	3
31	M16	max	-0.013	0	4	-0.015	0	4	0	1.315	7	0	1.315	7	0	1.315	7	-1.227	1.315	4
32		min	-0.272	1.315	3	-0.319	1.315	3	0	0	1	0	0	1	0	0	1	-4.423	0	3
33	M17	max	-0.084	0	4	-0.098	0	4	0	1.315	7	0	1.315	7	0	1.315	7	-1.05	1.315	4
34		min	-0.514	1.315	3	-0.602	1.315	3	0	0	1	0	0	1	0	0	1	-4.184	0	3
35	M18	max	-0.155	0	4	-0.181	0	4	0	1.315	7	0	1.315	7	0	1.315	7	-0.763	1.315	4
36		min	-0.756	1.315	3	-0.885	1.315	3	0	0	1	0	0	1	0	0	1	-3.573	0	3
37	M19	max	-0.225	0	4	-0.264	0	4	0	1.315	7	0	1.315	7	0	1.315	7	-0.368	1.315	4
38		min	-0.981	1.315	3	-1.148	1.315	3	0	0	1	0	0	1	0	0	1	-2.59	0	3
39	M20	max	-0.295	0	4	-0.345	0	4	0	0.986	7	0	0.986	7	0	0.986	7	0	0.986	7
40		min	-1.164	0.986	3	-1.362	0.986	3	0	0	1	0	0	1	0	0	1	-1.242	0	3
41	M21	max	0	4	7	0	4	7	0.011	4	7	0	4	4	0	4	7	0	4	7
42		min	0	0	1	0	0	1	-0.011	0	1	0	0	3	-0.011	2	1	0	0	1
43	M22	max	0	4	7	0	4	7	0.011	4	7	0	4	4	0	4	7	0	4	7
44		min	0	0	1	0	0	1	-0.011	0	1	0	0	3	-0.011	2	1	0	0	1

Envelope Maximum Member Section Forces (Continued)

Member		Axial[k]	Loc[ft]	LCy	Shear[k]	Loc[ft]	LCz	Shear[k]	Loc[ft]	LCTorque[k-ft]	Loc[ft]	LCy-y	Moment[k-ft]	Loc[ft]	LCz-z	Moment[k-ft]	Loc[ft]	LC		
45	M23	max	0	4	7	0	4	7	0.011	4	7	0	4	4	0	4	7	0	4	7
46		min	0	0	1	0	0	1	-0.011	0	1	0	0	3	-0.011	2	1	0	0	1
47	M24	max	0	4	7	0	4	7	0.011	4	7	0	4	4	0	4	7	0	4	7
48		min	0	0	1	0	0	1	-0.011	0	1	0	0	3	-0.011	2	1	0	0	1
49	M25	max	0	4	7	0	4	7	0.011	4	7	0	4	4	0	4	7	0	4	7
50		min	0	0	1	0	0	1	-0.011	0	1	0	0	3	-0.011	2	1	0	0	1
51	M26	max	0	4	7	0	4	7	0.011	4	7	0	4	5	0	4	7	0	4	7
52		min	0	0	1	0	0	1	-0.011	0	1	0	0	1	-0.011	2	1	0	0	1
53	M27	max	0	4	7	0	4	7	0.011	4	7	0	4	5	0	4	7	0	4	7
54		min	0	0	1	0	0	1	-0.011	0	1	0	0	1	-0.011	2	1	0	0	1
55	M28	max	0	4	7	0	4	7	0.011	4	7	0	4	5	0	4	7	0	4	7
56		min	0	0	1	0	0	1	-0.011	0	1	0	0	1	-0.011	2	1	0	0	1
57	M29	max	0	4	7	0	4	7	0.011	4	7	0	4	5	0	4	7	0	4	7
58		min	0	0	1	0	0	1	-0.011	0	1	0	0	1	-0.011	2	1	0	0	1

Envelope Member End Reactions

Member	Member End	Axial[k]	LC	y	Shear[k]	LC	z	Shear[k]	LC	Torque[k-ft]	LC	y-y	Moment[k-ft]	LC	z-z	Moment[k-ft]	LC
1 M1	I	max	1.175	5	-0.401	4	0	7	0	7	0	7	0	7	0	7	0
2		min	0.342	1	-1.387	3	0	1	0	1	0	1	0	1	0	1	0
3	J	max	0.941	5	-0.327	4	0	7	0	7	0	7	0	7	1.645	5	0
4		min	0.278	1	-1.113	3	0	1	0	1	0	1	0	1	0.479	1	0
5 M2	I	max	0.933	5	-0.318	4	0	7	0	7	0	7	0	7	1.645	5	0
6		min	0.271	1	-1.101	3	0	1	0	1	0	1	0	1	0.479	1	0
7	J	max	0.699	5	-0.244	4	0	7	0	7	0	7	0	7	2.912	5	0
8		min	0.208	1	-0.826	3	0	1	0	1	0	1	0	1	0.848	1	0
9 M3	I	max	0.691	5	-0.235	4	0	7	0	7	0	7	0	7	2.912	5	0
10		min	0.2	1	-0.814	3	0	1	0	1	0	1	0	1	0.848	1	0
11	J	max	0.457	5	-0.16	4	0	7	0	7	0	7	0	7	3.802	5	0
12		min	0.137	1	-0.54	3	0	1	0	1	0	1	0	1	1.108	1	0
13 M4	I	max	0.45	5	-0.151	4	0	7	0	7	0	7	0	7	3.802	5	0
14		min	0.129	1	-0.528	3	0	1	0	1	0	1	0	1	1.108	1	0
15	J	max	0.215	5	-0.077	4	0	7	0	7	0	7	0	7	4.316	5	0
16		min	0.066	1	-0.254	3	0	1	0	1	0	1	0	1	1.258	1	0
17 M5	I	max	0.208	5	-0.068	4	0	7	0	7	0	7	0	7	4.316	5	0
18		min	0.058	1	-0.244	3	0	1	0	1	0	1	0	1	1.258	1	0
19	J	max	-0.005	4	0.031	5	0	7	0	7	0	7	0	7	4.456	5	0
20		min	-0.026	3	0.006	1	0	1	0	1	0	1	0	1	1.299	1	0
21 M6	I	max	-0.012	4	0.039	5	0	7	0	7	0	7	0	7	4.456	5	0
22		min	-0.034	3	0.015	1	0	1	0	1	0	1	0	1	1.299	1	0
23	J	max	-0.076	4	0.314	5	0	7	0	7	0	7	0	7	4.224	5	0
24		min	-0.268	3	0.089	1	0	1	0	1	0	1	0	1	1.231	1	0
25 M7	I	max	-0.083	4	0.322	5	0	7	0	7	0	7	0	7	4.224	5	0
26		min	-0.275	3	0.098	1	0	1	0	1	0	1	0	1	1.231	1	0
27	J	max	-0.147	4	0.597	5	0	7	0	7	0	7	0	7	3.62	5	0
28		min	-0.51	3	0.172	1	0	1	0	1	0	1	0	1	1.054	1	0
29 M8	I	max	-0.154	4	0.605	5	0	7	0	7	0	7	0	7	3.62	5	0
30		min	-0.517	3	0.18	1	0	1	0	1	0	1	0	1	1.054	1	0
31	J	max	-0.218	4	0.879	5	0	7	0	7	0	7	0	7	2.643	5	0
32		min	-0.751	3	0.255	1	0	1	0	1	0	1	0	1	0.768	1	0
33 M9	I	max	-0.225	4	0.888	5	0	7	0	7	0	7	0	7	2.643	5	0
34		min	-0.759	3	0.263	1	0	1	0	1	0	1	0	1	0.768	1	0
35	J	max	-0.29	4	1.182	5	0	7	0	7	0	7	0	7	1.276	5	0
36		min	-1.01	3	0.339	1	0	1	0	1	0	1	0	1	0.371	1	0
37 M10	I	max	-0.297	4	1.191	5	0	7	0	7	0	7	0	7	1.276	5	0
38		min	-1.017	3	0.348	1	0	1	0	1	0	1	0	1	0.371	1	0

Envelope Member End Reactions (Continued)

Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC	
39		J	max	-0.345	4	1.396	5	0	7	0	7	0	7	0	7
40			min	-1.193	3	0.404	1	0	1	0	1	0	1	0	1
41	M11	I	max	1.171	5	1.382	5	0	7	0	7	0	7	0	7
42			min	0.341	1	0.401	1	0	1	0	1	0	1	0	1
43		J	max	0.936	5	1.108	5	0	7	0	7	0	7	-0.478	4
44			min	0.278	1	0.326	1	0	1	0	1	0	1	-1.638	3
45	M12	I	max	0.929	5	1.096	5	0	7	0	7	0	7	-0.478	4
46			min	0.271	1	0.317	1	0	1	0	1	0	1	-1.638	3
47		J	max	0.695	5	0.821	5	0	7	0	7	0	7	-0.847	4
48			min	0.207	1	0.243	1	0	1	0	1	0	1	-2.899	3
49	M13	I	max	0.687	5	0.809	5	0	7	0	7	0	7	-0.847	4
50			min	0.2	1	0.234	1	0	1	0	1	0	1	-2.899	3
51		J	max	0.453	5	0.535	5	0	7	0	7	0	7	-1.106	4
52			min	0.136	1	0.16	1	0	1	0	1	0	1	-3.782	3
53	M14	I	max	0.446	5	0.523	5	0	7	0	7	0	7	-1.106	4
54			min	0.129	1	0.151	1	0	1	0	1	0	1	-3.782	3
55		J	max	0.211	5	0.249	5	0	7	0	7	0	7	-1.256	4
56			min	0.065	1	0.077	1	0	1	0	1	0	1	-4.29	3
57	M15	I	max	0.204	5	0.239	5	0	7	0	7	0	7	-1.256	4
58			min	0.058	1	0.068	1	0	1	0	1	0	1	-4.29	3
59		J	max	-0.005	4	-0.006	4	0	7	0	7	0	7	-1.296	4
60			min	-0.031	3	-0.036	3	0	1	0	1	0	1	-4.423	3
61	M16	I	max	-0.013	4	-0.015	4	0	7	0	7	0	7	-1.296	4
62			min	-0.038	3	-0.044	3	0	1	0	1	0	1	-4.423	3
63		J	max	-0.076	4	-0.089	4	0	7	0	7	0	7	-1.227	4
64			min	-0.272	3	-0.319	3	0	1	0	1	0	1	-4.184	3
65	M17	I	max	-0.084	4	-0.098	4	0	7	0	7	0	7	-1.227	4
66			min	-0.28	3	-0.327	3	0	1	0	1	0	1	-4.184	3
67		J	max	-0.147	4	-0.172	4	0	7	0	7	0	7	-1.05	4
68			min	-0.514	3	-0.602	3	0	1	0	1	0	1	-3.573	3
69	M18	I	max	-0.155	4	-0.181	4	0	7	0	7	0	7	-1.05	4
70			min	-0.521	3	-0.61	3	0	1	0	1	0	1	-3.573	3
71		J	max	-0.218	4	-0.255	4	0	7	0	7	0	7	-0.763	4
72			min	-0.756	3	-0.885	3	0	1	0	1	0	1	-2.59	3
73	M19	I	max	-0.225	4	-0.264	4	0	7	0	7	0	7	-0.763	4
74			min	-0.763	3	-0.893	3	0	1	0	1	0	1	-2.59	3
75		J	max	-0.287	4	-0.336	4	0	7	0	7	0	7	-0.368	4
76			min	-0.981	3	-1.148	3	0	1	0	1	0	1	-1.242	3
77	M20	I	max	-0.295	4	-0.345	4	0	7	0	7	0	7	-0.368	4
78			min	-0.988	3	-1.157	3	0	1	0	1	0	1	-1.242	3
79		J	max	-0.342	4	-0.401	4	0	7	0	7	0	7	0	7
80			min	-1.164	3	-1.362	3	0	1	0	1	0	1	0	1
81	M21	I	max	0	7	0	7	0	2	0	4	0	7	0	7
82			min	0	1	0	1	-0.011	1	0	3	0	1	0	1
83		J	max	0	7	0	7	0.011	7	0	4	0	7	0	7
84			min	0	1	0	1	0	2	0	3	0	1	0	1
85	M22	I	max	0	7	0	7	0	2	0	4	0	7	0	7
86			min	0	1	0	1	-0.011	1	0	3	0	1	0	1
87		J	max	0	7	0	7	0.011	7	0	4	0	7	0	7
88			min	0	1	0	1	0	2	0	3	0	1	0	1
89	M23	I	max	0	7	0	7	0	2	0	4	0	7	0	7
90			min	0	1	0	1	-0.011	1	0	3	0	1	0	1
91		J	max	0	7	0	7	0.011	7	0	4	0	7	0	7
92			min	0	1	0	1	0	2	0	3	0	1	0	1
93	M24	I	max	0	7	0	7	0	2	0	4	0	7	0	7

Envelope Member End Reactions (Continued)

	Member	Member End		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Moment[k-ft]	LC	z-z Moment[k-ft]	LC
94			min	0	1	0	1	-0.011	1	0	3	0	1	0	1
95		J	max	0	7	0	7	0.011	7	0	4	0	7	0	7
96			min	0	1	0	1	0	2	0	3	0	1	0	1
97	M25	I	max	0	7	0	7	0	2	0	4	0	7	0	7
98			min	0	1	0	1	-0.011	1	0	3	0	1	0	1
99		J	max	0	7	0	7	0.011	7	0	4	0	7	0	7
100			min	0	1	0	1	0	2	0	3	0	1	0	1
101	M26	I	max	0	7	0	7	0	2	0	5	0	7	0	7
102			min	0	1	0	1	-0.011	1	0	1	0	1	0	1
103		J	max	0	7	0	7	0.011	7	0	5	0	7	0	7
104			min	0	1	0	1	0	2	0	1	0	1	0	1
105	M27	I	max	0	7	0	7	0	2	0	5	0	7	0	7
106			min	0	1	0	1	-0.011	1	0	1	0	1	0	1
107		J	max	0	7	0	7	0.011	7	0	5	0	7	0	7
108			min	0	1	0	1	0	2	0	1	0	1	0	1
109	M28	I	max	0	7	0	7	0	2	0	5	0	7	0	7
110			min	0	1	0	1	-0.011	1	0	1	0	1	0	1
111		J	max	0	7	0	7	0.011	7	0	5	0	7	0	7
112			min	0	1	0	1	0	2	0	1	0	1	0	1
113	M29	I	max	0	7	0	7	0	2	0	5	0	7	0	7
114			min	0	1	0	1	-0.011	1	0	1	0	1	0	1
115		J	max	0	7	0	7	0.011	7	0	5	0	7	0	7
116			min	0	1	0	1	0	2	0	1	0	1	0	1

Envelope Member 2nd/1st Moment Ratios

Member		y-y Moment [k-ft]	2nd/1st Ratio	Loc [ft]	LC	z-z Moment [k-ft]	2nd/1st Ratio	Loc [ft]	LC
1	M1	max	NC			1.645	1.008	1.315	5
2		min	NC			0.479	1.002	1.315	1
3	M2	max	NC			2.912	1.007	1.315	5
4		min	NC			0.848	1.002	1.315	1
5	M3	max	NC			3.802	1.006	1.315	5
6		min	NC			1.108	1.002	1.315	1
7	M4	max	NC			4.316	1.005	1.315	5
8		min	NC			1.258	1.001	1.315	1
9	M5	max	NC			4.458	1.004	1.165	5
10		min	NC			1.299	1.001	1.206	1
11	M6	max	NC			4.456	1.004	0	5
12		min	NC			1.299	1.001	0	1
13	M7	max	NC			4.224	1.003	0	5
14		min	NC			1.231	1.001	0	1
15	M8	max	NC			3.62	1.003	0	5
16		min	NC			1.054	1.001	0	1
17	M9	max	NC			2.643	1.002	0	5
18		min	NC			0.768	1.001	0	1
19	M10	max	NC			1.276	1.002	0	5
20		min	NC			0.371	1.001	0	1
21	M11	max	NC			-1.638	1.008	1.315	5
22		min	NC			-0.478	1.002	1.315	1
23	M12	max	NC			-2.899	1.007	1.315	5
24		min	NC			-0.847	1.002	1.315	1
25	M13	max	NC			-3.782	1.006	1.315	5
26		min	NC			-1.106	1.002	1.315	1
27	M14	max	NC			-4.29	1.005	1.315	5
28		min	NC			-1.256	1.001	1.315	1
29	M15	max	NC			-4.426	1.004	1.151	5

Envelope Member 2nd/1st Moment Ratios (Continued)

Member		y-y Moment [k-ft]	2nd/1st Ratio	Loc [ft]	LC	z-z Moment [k-ft]	2nd/1st Ratio	Loc [ft]	LC
30		min	NC			-1.296	1.001	1.206	1
31	M16	max	NC			-4.423	1.004	0	5
32		min	NC			-1.296	1.001	0	1
33	M17	max	NC			-4.184	1.003	0	5
34		min	NC			-1.227	1.001	0	1
35	M18	max	NC			-3.573	1.003	0	5
36		min	NC			-1.05	1.001	0	1
37	M19	max	NC			-2.59	1.002	0	5
38		min	NC			-0.763	1.001	0	1
39	M20	max	NC			-1.242	1.002	0	5
40		min	NC			-0.368	1.001	0	1
41	M21	max	-0.011	1	2	7	NC	NC	
42		min	-0.011	1	2	1	NC	NC	
43	M22	max	-0.011	1	2	7	NC	NC	
44		min	-0.011	1	2	1	NC	NC	
45	M23	max	-0.011	1	2	7	NC	NC	
46		min	-0.011	1	2	1	NC	NC	
47	M24	max	-0.011	1	2	7	NC	NC	
48		min	-0.011	1	2	1	NC	NC	
49	M25	max	-0.011	1	2	7	NC	NC	
50		min	-0.011	1	2	1	NC	NC	
51	M26	max	-0.011	1	2	7	NC	NC	
52		min	-0.011	1	2	1	NC	NC	
53	M27	max	-0.011	1	2	7	NC	NC	
54		min	-0.011	1	2	1	NC	NC	
55	M28	max	-0.011	1	2	7	NC	NC	
56		min	-0.011	1	2	1	NC	NC	
57	M29	max	-0.011	1	2	7	NC	NC	
58		min	-0.011	1	2	1	NC	NC	

Envelope Member Torsion Stresses

Member	Sec	Torque[k-ft]	LC	Torsion Shear[ksi]	LC	y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
1	M1	1 max	0	7	0	7	NC	NC	NC
2		min	0	1	0	1	NC	NC	NC
3		2 max	0	7	0	7	NC	NC	NC
4		min	0	1	0	1	NC	NC	NC
5		3 max	0	7	0	7	NC	NC	NC
6		min	0	1	0	1	NC	NC	NC
7		4 max	0	7	0	7	NC	NC	NC
8		min	0	1	0	1	NC	NC	NC
9		5 max	0	7	0	7	NC	NC	NC
10		min	0	1	0	1	NC	NC	NC
11	M2	1 max	0	7	0	7	NC	NC	NC
12		min	0	1	0	1	NC	NC	NC
13		2 max	0	7	0	7	NC	NC	NC
14		min	0	1	0	1	NC	NC	NC
15		3 max	0	7	0	7	NC	NC	NC
16		min	0	1	0	1	NC	NC	NC
17		4 max	0	7	0	7	NC	NC	NC
18		min	0	1	0	1	NC	NC	NC
19		5 max	0	7	0	7	NC	NC	NC
20		min	0	1	0	1	NC	NC	NC
21	M3	1 max	0	7	0	7	NC	NC	NC
22		min	0	1	0	1	NC	NC	NC
23		2 max	0	7	0	7	NC	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec		Torque[k-ft]	LC Torsion Shear[ksi]	LC y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
24		min	0	1	0	1	NC	NC
25	3	max	0	7	0	7	NC	NC
26		min	0	1	0	1	NC	NC
27	4	max	0	7	0	7	NC	NC
28		min	0	1	0	1	NC	NC
29	5	max	0	7	0	7	NC	NC
30		min	0	1	0	1	NC	NC
31	M4	1	max	0	7	0	7	NC
32		min	0	1	0	1	NC	NC
33	2	max	0	7	0	7	NC	NC
34		min	0	1	0	1	NC	NC
35	3	max	0	7	0	7	NC	NC
36		min	0	1	0	1	NC	NC
37	4	max	0	7	0	7	NC	NC
38		min	0	1	0	1	NC	NC
39	5	max	0	7	0	7	NC	NC
40		min	0	1	0	1	NC	NC
41	M5	1	max	0	7	0	7	NC
42		min	0	1	0	1	NC	NC
43	2	max	0	7	0	7	NC	NC
44		min	0	1	0	1	NC	NC
45	3	max	0	7	0	7	NC	NC
46		min	0	1	0	1	NC	NC
47	4	max	0	7	0	7	NC	NC
48		min	0	1	0	1	NC	NC
49	5	max	0	7	0	7	NC	NC
50		min	0	1	0	1	NC	NC
51	M6	1	max	0	7	0	7	NC
52		min	0	1	0	1	NC	NC
53	2	max	0	7	0	7	NC	NC
54		min	0	1	0	1	NC	NC
55	3	max	0	7	0	7	NC	NC
56		min	0	1	0	1	NC	NC
57	4	max	0	7	0	7	NC	NC
58		min	0	1	0	1	NC	NC
59	5	max	0	7	0	7	NC	NC
60		min	0	1	0	1	NC	NC
61	M7	1	max	0	7	0	7	NC
62		min	0	1	0	1	NC	NC
63	2	max	0	7	0	7	NC	NC
64		min	0	1	0	1	NC	NC
65	3	max	0	7	0	7	NC	NC
66		min	0	1	0	1	NC	NC
67	4	max	0	7	0	7	NC	NC
68		min	0	1	0	1	NC	NC
69	5	max	0	7	0	7	NC	NC
70		min	0	1	0	1	NC	NC
71	M8	1	max	0	7	0	7	NC
72		min	0	1	0	1	NC	NC
73	2	max	0	7	0	7	NC	NC
74		min	0	1	0	1	NC	NC
75	3	max	0	7	0	7	NC	NC
76		min	0	1	0	1	NC	NC
77	4	max	0	7	0	7	NC	NC
78		min	0	1	0	1	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec		Torque[k-ft]	LC Torsion Shear[ksi]	LC y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]			
79		5	max	0	7	0	7	NC	NC	NC	NC
80			min	0	1	0	1	NC	NC	NC	NC
81	M9	1	max	0	7	0	7	NC	NC	NC	NC
82			min	0	1	0	1	NC	NC	NC	NC
83		2	max	0	7	0	7	NC	NC	NC	NC
84			min	0	1	0	1	NC	NC	NC	NC
85		3	max	0	7	0	7	NC	NC	NC	NC
86			min	0	1	0	1	NC	NC	NC	NC
87		4	max	0	7	0	7	NC	NC	NC	NC
88			min	0	1	0	1	NC	NC	NC	NC
89		5	max	0	7	0	7	NC	NC	NC	NC
90			min	0	1	0	1	NC	NC	NC	NC
91	M10	1	max	0	7	0	7	NC	NC	NC	NC
92			min	0	1	0	1	NC	NC	NC	NC
93		2	max	0	7	0	7	NC	NC	NC	NC
94			min	0	1	0	1	NC	NC	NC	NC
95		3	max	0	7	0	7	NC	NC	NC	NC
96			min	0	1	0	1	NC	NC	NC	NC
97		4	max	0	7	0	7	NC	NC	NC	NC
98			min	0	1	0	1	NC	NC	NC	NC
99		5	max	0	7	0	7	NC	NC	NC	NC
100			min	0	1	0	1	NC	NC	NC	NC
101	M11	1	max	0	7	0	7	NC	NC	NC	NC
102			min	0	1	0	1	NC	NC	NC	NC
103		2	max	0	7	0	7	NC	NC	NC	NC
104			min	0	1	0	1	NC	NC	NC	NC
105		3	max	0	7	0	7	NC	NC	NC	NC
106			min	0	1	0	1	NC	NC	NC	NC
107		4	max	0	7	0	7	NC	NC	NC	NC
108			min	0	1	0	1	NC	NC	NC	NC
109		5	max	0	7	0	7	NC	NC	NC	NC
110			min	0	1	0	1	NC	NC	NC	NC
111	M12	1	max	0	7	0	7	NC	NC	NC	NC
112			min	0	1	0	1	NC	NC	NC	NC
113		2	max	0	7	0	7	NC	NC	NC	NC
114			min	0	1	0	1	NC	NC	NC	NC
115		3	max	0	7	0	7	NC	NC	NC	NC
116			min	0	1	0	1	NC	NC	NC	NC
117		4	max	0	7	0	7	NC	NC	NC	NC
118			min	0	1	0	1	NC	NC	NC	NC
119		5	max	0	7	0	7	NC	NC	NC	NC
120			min	0	1	0	1	NC	NC	NC	NC
121	M13	1	max	0	7	0	7	NC	NC	NC	NC
122			min	0	1	0	1	NC	NC	NC	NC
123		2	max	0	7	0	7	NC	NC	NC	NC
124			min	0	1	0	1	NC	NC	NC	NC
125		3	max	0	7	0	7	NC	NC	NC	NC
126			min	0	1	0	1	NC	NC	NC	NC
127		4	max	0	7	0	7	NC	NC	NC	NC
128			min	0	1	0	1	NC	NC	NC	NC
129		5	max	0	7	0	7	NC	NC	NC	NC
130			min	0	1	0	1	NC	NC	NC	NC
131	M14	1	max	0	7	0	7	NC	NC	NC	NC
132			min	0	1	0	1	NC	NC	NC	NC
133		2	max	0	7	0	7	NC	NC	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec		Torque[k-ft]	LC Torsion Shear[ksi]	LC y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
134		min	0	1	0	1	NC	NC
135	3	max	0	7	0	7	NC	NC
136		min	0	1	0	1	NC	NC
137	4	max	0	7	0	7	NC	NC
138		min	0	1	0	1	NC	NC
139	5	max	0	7	0	7	NC	NC
140		min	0	1	0	1	NC	NC
141	M15	1	max	0	7	0	7	NC
142		min	0	1	0	1	NC	NC
143	2	max	0	7	0	7	NC	NC
144		min	0	1	0	1	NC	NC
145	3	max	0	7	0	7	NC	NC
146		min	0	1	0	1	NC	NC
147	4	max	0	7	0	7	NC	NC
148		min	0	1	0	1	NC	NC
149	5	max	0	7	0	7	NC	NC
150		min	0	1	0	1	NC	NC
151	M16	1	max	0	7	0	7	NC
152		min	0	1	0	1	NC	NC
153	2	max	0	7	0	7	NC	NC
154		min	0	1	0	1	NC	NC
155	3	max	0	7	0	7	NC	NC
156		min	0	1	0	1	NC	NC
157	4	max	0	7	0	7	NC	NC
158		min	0	1	0	1	NC	NC
159	5	max	0	7	0	7	NC	NC
160		min	0	1	0	1	NC	NC
161	M17	1	max	0	7	0	7	NC
162		min	0	1	0	1	NC	NC
163	2	max	0	7	0	7	NC	NC
164		min	0	1	0	1	NC	NC
165	3	max	0	7	0	7	NC	NC
166		min	0	1	0	1	NC	NC
167	4	max	0	7	0	7	NC	NC
168		min	0	1	0	1	NC	NC
169	5	max	0	7	0	7	NC	NC
170		min	0	1	0	1	NC	NC
171	M18	1	max	0	7	0	7	NC
172		min	0	1	0	1	NC	NC
173	2	max	0	7	0	7	NC	NC
174		min	0	1	0	1	NC	NC
175	3	max	0	7	0	7	NC	NC
176		min	0	1	0	1	NC	NC
177	4	max	0	7	0	7	NC	NC
178		min	0	1	0	1	NC	NC
179	5	max	0	7	0	7	NC	NC
180		min	0	1	0	1	NC	NC
181	M19	1	max	0	7	0	7	NC
182		min	0	1	0	1	NC	NC
183	2	max	0	7	0	7	NC	NC
184		min	0	1	0	1	NC	NC
185	3	max	0	7	0	7	NC	NC
186		min	0	1	0	1	NC	NC
187	4	max	0	7	0	7	NC	NC
188		min	0	1	0	1	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec	Torque[k-ft]	LC Torsion Shear[ksi]	LC y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
189	5 max	0	7	0	7	NC	NC
190	min	0	1	0	1	NC	NC
191	M20 1 max	0	7	0	7	NC	NC
192	min	0	1	0	1	NC	NC
193	2 max	0	7	0	7	NC	NC
194	min	0	1	0	1	NC	NC
195	3 max	0	7	0	7	NC	NC
196	min	0	1	0	1	NC	NC
197	4 max	0	7	0	7	NC	NC
198	min	0	1	0	1	NC	NC
199	5 max	0	7	0	7	NC	NC
200	min	0	1	0	1	NC	NC
201	M21 1 max	0	4	0	4	NC	NC
202	min	0	3	-0.001	3	NC	NC
203	2 max	0	4	0	4	NC	NC
204	min	0	3	-0.001	3	NC	NC
205	3 max	0	4	0	4	NC	NC
206	min	0	3	-0.001	3	NC	NC
207	4 max	0	4	0	4	NC	NC
208	min	0	3	-0.001	3	NC	NC
209	5 max	0	4	0	4	NC	NC
210	min	0	3	-0.001	3	NC	NC
211	M22 1 max	0	4	0	4	NC	NC
212	min	0	3	-0.001	3	NC	NC
213	2 max	0	4	0	4	NC	NC
214	min	0	3	-0.001	3	NC	NC
215	3 max	0	4	0	4	NC	NC
216	min	0	3	-0.001	3	NC	NC
217	4 max	0	4	0	4	NC	NC
218	min	0	3	-0.001	3	NC	NC
219	5 max	0	4	0	4	NC	NC
220	min	0	3	-0.001	3	NC	NC
221	M23 1 max	0	4	0	4	NC	NC
222	min	0	3	-0.001	3	NC	NC
223	2 max	0	4	0	4	NC	NC
224	min	0	3	-0.001	3	NC	NC
225	3 max	0	4	0	4	NC	NC
226	min	0	3	-0.001	3	NC	NC
227	4 max	0	4	0	4	NC	NC
228	min	0	3	-0.001	3	NC	NC
229	5 max	0	4	0	4	NC	NC
230	min	0	3	-0.001	3	NC	NC
231	M24 1 max	0	4	0	4	NC	NC
232	min	0	3	-0.001	3	NC	NC
233	2 max	0	4	0	4	NC	NC
234	min	0	3	-0.001	3	NC	NC
235	3 max	0	4	0	4	NC	NC
236	min	0	3	-0.001	3	NC	NC
237	4 max	0	4	0	4	NC	NC
238	min	0	3	-0.001	3	NC	NC
239	5 max	0	4	0	4	NC	NC
240	min	0	3	-0.001	3	NC	NC
241	M25 1 max	0	4	0	4	NC	NC
242	min	0	3	0	3	NC	NC
243	2 max	0	4	0	4	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec		Torque[k-ft]	LC Torsion Shear[ksi]	LC y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
244		min	0	3	0	3	NC	NC
245	3	max	0	4	0	4	NC	NC
246		min	0	3	0	3	NC	NC
247	4	max	0	4	0	4	NC	NC
248		min	0	3	0	3	NC	NC
249	5	max	0	4	0	4	NC	NC
250		min	0	3	0	3	NC	NC
251	M26	1	max	0	5	0	5	NC
252		min	0	1	0	1	NC	NC
253	2	max	0	5	0	5	NC	NC
254		min	0	1	0	1	NC	NC
255	3	max	0	5	0	5	NC	NC
256		min	0	1	0	1	NC	NC
257	4	max	0	5	0	5	NC	NC
258		min	0	1	0	1	NC	NC
259	5	max	0	5	0	5	NC	NC
260		min	0	1	0	1	NC	NC
261	M27	1	max	0	5	0.001	5	NC
262		min	0	1	0	1	NC	NC
263	2	max	0	5	0.001	5	NC	NC
264		min	0	1	0	1	NC	NC
265	3	max	0	5	0.001	5	NC	NC
266		min	0	1	0	1	NC	NC
267	4	max	0	5	0.001	5	NC	NC
268		min	0	1	0	1	NC	NC
269	5	max	0	5	0.001	5	NC	NC
270		min	0	1	0	1	NC	NC
271	M28	1	max	0	5	0.001	5	NC
272		min	0	1	0	1	NC	NC
273	2	max	0	5	0.001	5	NC	NC
274		min	0	1	0	1	NC	NC
275	3	max	0	5	0.001	5	NC	NC
276		min	0	1	0	1	NC	NC
277	4	max	0	5	0.001	5	NC	NC
278		min	0	1	0	1	NC	NC
279	5	max	0	5	0.001	5	NC	NC
280		min	0	1	0	1	NC	NC
281	M29	1	max	0	5	0.002	5	NC
282		min	0	1	0	1	NC	NC
283	2	max	0	5	0.002	5	NC	NC
284		min	0	1	0	1	NC	NC
285	3	max	0	5	0.002	5	NC	NC
286		min	0	1	0	1	NC	NC
287	4	max	0	5	0.002	5	NC	NC
288		min	0	1	0	1	NC	NC
289	5	max	0	5	0.002	5	NC	NC
290		min	0	1	0	1	NC	NC

Envelope Member Section Stresses

Member	Sec	Axial[ksi]	LC y Shear[ksi]	LC z Shear[ksi]	LC y-Top[ksi]	LC y-Bot[ksi]	LC z-Top[ksi]	LC z-Bot[ksi]	LC
1	M1	1	max	0.333	5	-0.167	4	0	7
2			min	0.097	1	-0.578	3	0	1
3		2	max	0.316	5	-0.159	4	0	7
4			min	0.092	1	-0.55	3	0	1
5		3	max	0.299	5	-0.152	4	0	7

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC	
6		min	0.088	1	-0.521	3	0	1	-1.108	3	0.321	1	0	1	0	1	
7	4	max	0.283	5	-0.144	4	0	7	-0.47	4	1.618	5	0	7	0	7	
8		min	0.083	1	-0.492	3	0	1	-1.618	3	0.47	1	0	1	0	1	
9	5	max	0.266	5	-0.136	4	0	7	-0.611	4	2.1	5	0	7	0	7	
10		min	0.079	1	-0.464	3	0	1	-2.1	3	0.611	1	0	1	0	1	
11	M2	1	max	0.264	5	-0.132	4	0	7	-0.611	4	2.1	5	0	7	0	7
12		min	0.077	1	-0.459	3	0	1	-2.1	3	0.611	1	0	1	0	1	
13	2	max	0.248	5	-0.125	4	0	7	-0.741	4	2.548	5	0	7	0	7	
14		min	0.072	1	-0.43	3	0	1	-2.548	3	0.741	1	0	1	0	1	
15	3	max	0.231	5	-0.117	4	0	7	-0.863	4	2.967	5	0	7	0	7	
16		min	0.068	1	-0.401	3	0	1	-2.967	3	0.863	1	0	1	0	1	
17	4	max	0.214	5	-0.109	4	0	7	-0.977	4	3.357	5	0	7	0	7	
18		min	0.063	1	-0.373	3	0	1	-3.357	3	0.977	1	0	1	0	1	
19	5	max	0.198	5	-0.102	4	0	7	-1.083	4	3.719	5	0	7	0	7	
20		min	0.059	1	-0.344	3	0	1	-3.719	3	1.083	1	0	1	0	1	
21	M3	1	max	0.196	5	-0.098	4	0	7	-1.083	4	3.719	5	0	7	0	7
22		min	0.057	1	-0.339	3	0	1	-3.719	3	1.083	1	0	1	0	1	
23	2	max	0.179	5	-0.09	4	0	7	-1.178	4	4.046	5	0	7	0	7	
24		min	0.052	1	-0.311	3	0	1	-4.046	3	1.178	1	0	1	0	1	
25	3	max	0.163	5	-0.082	4	0	7	-1.264	4	4.344	5	0	7	0	7	
26		min	0.048	1	-0.282	3	0	1	-4.344	3	1.264	1	0	1	0	1	
27	4	max	0.146	5	-0.075	4	0	7	-1.343	4	4.614	5	0	7	0	7	
28		min	0.043	1	-0.253	3	0	1	-4.614	3	1.343	1	0	1	0	1	
29	5	max	0.129	5	-0.067	4	0	7	-1.415	4	4.855	5	0	7	0	7	
30		min	0.039	1	-0.225	3	0	1	-4.855	3	1.415	1	0	1	0	1	
31	M4	1	max	0.127	5	-0.063	4	0	7	-1.415	4	4.855	5	0	7	0	7
32		min	0.037	1	-0.22	3	0	1	-4.855	3	1.415	1	0	1	0	1	
33	2	max	0.111	5	-0.055	4	0	7	-1.474	4	5.063	5	0	7	0	7	
34		min	0.032	1	-0.191	3	0	1	-5.063	3	1.474	1	0	1	0	1	
35	3	max	0.094	5	-0.048	4	0	7	-1.526	4	5.241	5	0	7	0	7	
36		min	0.028	1	-0.163	3	0	1	-5.241	3	1.526	1	0	1	0	1	
37	4	max	0.078	5	-0.04	4	0	7	-1.57	4	5.391	5	0	7	0	7	
38		min	0.023	1	-0.134	3	0	1	-5.391	3	1.57	1	0	1	0	1	
39	5	max	0.061	5	-0.032	4	0	7	-1.607	4	5.512	5	0	7	0	7	
40		min	0.019	1	-0.106	3	0	1	-5.512	3	1.607	1	0	1	0	1	
41	M5	1	max	0.059	5	-0.028	4	0	7	-1.607	4	5.512	5	0	7	0	7
42		min	0.017	1	-0.102	3	0	1	-5.512	3	1.607	1	0	1	0	1	
43	2	max	0.042	5	-0.021	4	0	7	-1.631	4	5.6	5	0	7	0	7	
44		min	0.012	1	-0.073	3	0	1	-5.6	3	1.631	1	0	1	0	1	
45	3	max	0.026	5	-0.013	4	0	7	-1.648	4	5.659	5	0	7	0	7	
46		min	0.008	1	-0.044	3	0	1	-5.659	3	1.648	1	0	1	0	1	
47	4	max	0.009	5	-0.005	4	0	7	-1.658	4	5.689	5	0	7	0	7	
48		min	0.003	1	-0.016	3	0	1	-5.689	3	1.658	1	0	1	0	1	
49	5	max	-0.001	4	0.013	5	0	7	-1.659	4	5.691	5	0	7	0	7	
50		min	-0.007	3	0.002	1	0	1	-5.691	3	1.659	1	0	1	0	1	
51	M6	1	max	-0.004	4	0.016	5	0	7	-1.659	4	5.691	5	0	7	0	7
52		min	-0.01	3	0.006	1	0	1	-5.691	3	1.659	1	0	1	0	1	
53	2	max	-0.008	4	0.045	5	0	7	-1.649	4	5.66	5	0	7	0	7	
54		min	-0.026	3	0.014	1	0	1	-5.66	3	1.649	1	0	1	0	1	
55	3	max	-0.013	4	0.074	5	0	7	-1.631	4	5.6	5	0	7	0	7	
56		min	-0.043	3	0.022	1	0	1	-5.6	3	1.631	1	0	1	0	1	
57	4	max	-0.017	4	0.102	5	0	7	-1.606	4	5.512	5	0	7	0	7	
58		min	-0.059	3	0.029	1	0	1	-5.512	3	1.606	1	0	1	0	1	
59	5	max	-0.021	4	0.131	5	0	7	-1.572	4	5.394	5	0	7	0	7	
60		min	-0.076	3	0.037	1	0	1	-5.394	3	1.572	1	0	1	0	1	

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC	
61	M7	1	max	-0.024	4	0.134	5	0	7	-1.572	4	5.394	5	0	7	0	7
62			min	-0.078	3	0.041	1	0	1	-5.394	3	1.572	1	0	1	0	1
63		2	max	-0.028	4	0.163	5	0	7	-1.527	4	5.244	5	0	7	0	7
64			min	-0.095	3	0.048	1	0	1	-5.244	3	1.527	1	0	1	0	1
65		3	max	-0.033	4	0.191	5	0	7	-1.475	4	5.066	5	0	7	0	7
66			min	-0.111	3	0.056	1	0	1	-5.066	3	1.475	1	0	1	0	1
67		4	max	-0.037	4	0.22	5	0	7	-1.414	4	4.859	5	0	7	0	7
68			min	-0.128	3	0.064	1	0	1	-4.859	3	1.414	1	0	1	0	1
69		5	max	-0.042	4	0.249	5	0	7	-1.346	4	4.623	5	0	7	0	7
70			min	-0.144	3	0.072	1	0	1	-4.623	3	1.346	1	0	1	0	1
71	M8	1	max	-0.044	4	0.252	5	0	7	-1.346	4	4.623	5	0	7	0	7
72			min	-0.146	3	0.075	1	0	1	-4.623	3	1.346	1	0	1	0	1
73		2	max	-0.048	4	0.281	5	0	7	-1.266	4	4.354	5	0	7	0	7
74			min	-0.163	3	0.083	1	0	1	-4.354	3	1.266	1	0	1	0	1
75		3	max	-0.053	4	0.309	5	0	7	-1.179	4	4.057	5	0	7	0	7
76			min	-0.18	3	0.091	1	0	1	-4.057	3	1.179	1	0	1	0	1
77		4	max	-0.057	4	0.338	5	0	7	-1.084	4	3.73	5	0	7	0	7
78			min	-0.196	3	0.098	1	0	1	-3.73	3	1.084	1	0	1	0	1
79		5	max	-0.062	4	0.366	5	0	7	-0.981	4	3.376	5	0	7	0	7
80			min	-0.213	3	0.106	1	0	1	-3.376	3	0.981	1	0	1	0	1
81	M9	1	max	-0.064	4	0.37	5	0	7	-0.981	4	3.376	5	0	7	0	7
82			min	-0.215	3	0.11	1	0	1	-3.376	3	0.981	1	0	1	0	1
83		2	max	-0.069	4	0.408	5	0	7	-0.865	4	2.982	5	0	7	0	7
84			min	-0.237	3	0.118	1	0	1	-2.982	3	0.865	1	0	1	0	1
85		3	max	-0.073	4	0.434	5	0	7	-0.742	4	2.557	5	0	7	0	7
86			min	-0.252	3	0.126	1	0	1	-2.557	3	0.742	1	0	1	0	1
87		4	max	-0.077	4	0.458	5	0	7	-0.612	4	2.108	5	0	7	0	7
88			min	-0.266	3	0.133	1	0	1	-2.108	3	0.612	1	0	1	0	1
89		5	max	-0.082	4	0.492	5	0	7	-0.474	4	1.629	5	0	7	0	7
90			min	-0.286	3	0.141	1	0	1	-1.629	3	0.474	1	0	1	0	1
91	M10	1	max	-0.084	4	0.496	5	0	7	-0.474	4	1.629	5	0	7	0	7
92			min	-0.288	3	0.145	1	0	1	-1.629	3	0.474	1	0	1	0	1
93		2	max	-0.088	4	0.518	5	0	7	-0.362	4	1.246	5	0	7	0	7
94			min	-0.3	3	0.151	1	0	1	-1.246	3	0.362	1	0	1	0	1
95		3	max	-0.091	4	0.539	5	0	7	-0.246	4	0.847	5	0	7	0	7
96			min	-0.313	3	0.157	1	0	1	-0.847	3	0.246	1	0	1	0	1
97		4	max	-0.094	4	0.56	5	0	7	-0.125	4	0.432	5	0	7	0	7
98			min	-0.325	3	0.162	1	0	1	-0.432	3	0.125	1	0	1	0	1
99		5	max	-0.098	4	0.582	5	0	7	0	7	0	7	0	7	0	7
100			min	-0.338	3	0.168	1	0	1	0	1	0	1	0	1	0	1
101	M11	1	max	0.331	5	0.576	5	0	7	0	7	0	7	0	7	0	7
102			min	0.097	1	0.167	1	0	1	0	1	0	1	0	1	0	1
103		2	max	0.315	5	0.547	5	0	7	0.566	5	-0.164	4	0	7	0	7
104			min	0.092	1	0.159	1	0	1	0.164	1	-0.566	3	0	1	0	1
105		3	max	0.298	5	0.519	5	0	7	1.103	5	-0.321	4	0	7	0	7
106			min	0.088	1	0.151	1	0	1	0.321	1	-1.103	3	0	1	0	1
107		4	max	0.282	5	0.49	5	0	7	1.612	5	-0.47	4	0	7	0	7
108			min	0.083	1	0.144	1	0	1	0.47	1	-1.612	3	0	1	0	1
109		5	max	0.265	5	0.462	5	0	7	2.092	5	-0.611	4	0	7	0	7
110			min	0.079	1	0.136	1	0	1	0.611	1	-2.092	3	0	1	0	1
111	M12	1	max	0.263	5	0.457	5	0	7	2.092	5	-0.611	4	0	7	0	7
112			min	0.077	1	0.132	1	0	1	0.611	1	-2.092	3	0	1	0	1
113		2	max	0.246	5	0.428	5	0	7	2.537	5	-0.74	4	0	7	0	7
114			min	0.072	1	0.125	1	0	1	0.74	1	-2.537	3	0	1	0	1
115		3	max	0.23	5	0.399	5	0	7	2.954	5	-0.862	4	0	7	0	7

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC	
116		min	0.068	1	0.117	1	0	1	0.862	1	-2.954	3	0	1	0	1	
117	4	max	0.213	5	0.371	5	0	7	3.342	5	-0.975	4	0	7	0	7	
118		min	0.063	1	0.109	1	0	1	0.975	1	-3.342	3	0	1	0	1	
119	5	max	0.197	5	0.342	5	0	7	3.702	5	-1.081	4	0	7	0	7	
120		min	0.059	1	0.101	1	0	1	1.081	1	-3.702	3	0	1	0	1	
121	M13	1	max	0.195	5	0.337	5	0	7	3.702	5	-1.081	4	0	7	0	7
122		min	0.057	1	0.098	1	0	1	1.081	1	-3.702	3	0	1	0	1	
123	2	max	0.178	5	0.308	5	0	7	4.027	5	-1.176	4	0	7	0	7	
124		min	0.052	1	0.09	1	0	1	1.176	1	-4.027	3	0	1	0	1	
125	3	max	0.161	5	0.28	5	0	7	4.323	5	-1.262	4	0	7	0	7	
126		min	0.048	1	0.082	1	0	1	1.262	1	-4.323	3	0	1	0	1	
127	4	max	0.145	5	0.251	5	0	7	4.591	5	-1.341	4	0	7	0	7	
128		min	0.043	1	0.074	1	0	1	1.341	1	-4.591	3	0	1	0	1	
129	5	max	0.128	5	0.223	5	0	7	4.83	5	-1.412	4	0	7	0	7	
130		min	0.039	1	0.067	1	0	1	1.412	1	-4.83	3	0	1	0	1	
131	M14	1	max	0.126	5	0.218	5	0	7	4.83	5	-1.412	4	0	7	0	7
132		min	0.036	1	0.063	1	0	1	1.412	1	-4.83	3	0	1	0	1	
133	2	max	0.11	5	0.189	5	0	7	5.035	5	-1.472	4	0	7	0	7	
134		min	0.032	1	0.055	1	0	1	1.472	1	-5.035	3	0	1	0	1	
135	3	max	0.093	5	0.161	5	0	7	5.212	5	-1.524	4	0	7	0	7	
136		min	0.027	1	0.047	1	0	1	1.524	1	-5.212	3	0	1	0	1	
137	4	max	0.076	5	0.132	5	0	7	5.359	5	-1.567	4	0	7	0	7	
138		min	0.023	1	0.04	1	0	1	1.567	1	-5.359	3	0	1	0	1	
139	5	max	0.06	5	0.104	5	0	7	5.478	5	-1.604	4	0	7	0	7	
140		min	0.019	1	0.032	1	0	1	1.604	1	-5.478	3	0	1	0	1	
141	M15	1	max	0.058	5	0.099	5	0	7	5.478	5	-1.604	4	0	7	0	7
142		min	0.016	1	0.028	1	0	1	1.604	1	-5.478	3	0	1	0	1	
143	2	max	0.041	5	0.071	5	0	7	5.564	5	-1.628	4	0	7	0	7	
144		min	0.012	1	0.021	1	0	1	1.628	1	-5.564	3	0	1	0	1	
145	3	max	0.025	5	0.042	5	0	7	5.621	5	-1.645	4	0	7	0	7	
146		min	0.007	1	0.013	1	0	1	1.645	1	-5.621	3	0	1	0	1	
147	4	max	0.008	5	0.014	5	0	7	5.649	5	-1.654	4	0	7	0	7	
148		min	0.003	1	0.005	1	0	1	1.654	1	-5.649	3	0	1	0	1	
149	5	max	-0.002	4	-0.003	4	0	7	5.649	5	-1.655	4	0	7	0	7	
150		min	-0.009	3	-0.015	3	0	1	1.655	1	-5.649	3	0	1	0	1	
151	M16	1	max	-0.004	4	-0.006	4	0	7	5.649	5	-1.655	4	0	7	0	7
152		min	-0.011	3	-0.019	3	0	1	1.655	1	-5.649	3	0	1	0	1	
153	2	max	-0.008	4	-0.014	4	0	7	5.616	5	-1.645	4	0	7	0	7	
154		min	-0.027	3	-0.047	3	0	1	1.645	1	-5.616	3	0	1	0	1	
155	3	max	-0.013	4	-0.022	4	0	7	5.554	5	-1.627	4	0	7	0	7	
156		min	-0.044	3	-0.076	3	0	1	1.627	1	-5.554	3	0	1	0	1	
157	4	max	-0.017	4	-0.029	4	0	7	5.463	5	-1.601	4	0	7	0	7	
158		min	-0.06	3	-0.104	3	0	1	1.601	1	-5.463	3	0	1	0	1	
159	5	max	-0.022	4	-0.037	4	0	7	5.344	5	-1.568	4	0	7	0	7	
160		min	-0.077	3	-0.133	3	0	1	1.568	1	-5.344	3	0	1	0	1	
161	M17	1	max	-0.024	4	-0.041	4	0	7	5.344	5	-1.568	4	0	7	0	7
162		min	-0.079	3	-0.136	3	0	1	1.568	1	-5.344	3	0	1	0	1	
163	2	max	-0.028	4	-0.049	4	0	7	5.192	5	-1.523	4	0	7	0	7	
164		min	-0.096	3	-0.165	3	0	1	1.523	1	-5.192	3	0	1	0	1	
165	3	max	-0.033	4	-0.056	4	0	7	5.011	5	-1.47	4	0	7	0	7	
166		min	-0.112	3	-0.194	3	0	1	1.47	1	-5.011	3	0	1	0	1	
167	4	max	-0.037	4	-0.064	4	0	7	4.802	5	-1.409	4	0	7	0	7	
168		min	-0.129	3	-0.222	3	0	1	1.409	1	-4.802	3	0	1	0	1	
169	5	max	-0.042	4	-0.072	4	0	7	4.563	5	-1.341	4	0	7	0	7	
170		min	-0.146	3	-0.251	3	0	1	1.341	1	-4.563	3	0	1	0	1	

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
171	M18	1	max	-0.044	4	-0.075	4	0	7	4.563	5	-1.341	4	0	7	0
172			min	-0.148	3	-0.254	3	0	1	1.341	1	-4.563	3	0	1	0
173		2	max	-0.048	4	-0.083	4	0	7	4.293	5	-1.261	4	0	7	0
174			min	-0.164	3	-0.283	3	0	1	1.261	1	-4.293	3	0	1	0
175		3	max	-0.053	4	-0.091	4	0	7	3.993	5	-1.173	4	0	7	0
176			min	-0.181	3	-0.311	3	0	1	1.173	1	-3.993	3	0	1	0
177		4	max	-0.057	4	-0.099	4	0	7	3.665	5	-1.078	4	0	7	0
178			min	-0.197	3	-0.34	3	0	1	1.078	1	-3.665	3	0	1	0
179		5	max	-0.062	4	-0.106	4	0	7	3.308	5	-0.974	4	0	7	0
180			min	-0.214	3	-0.369	3	0	1	0.974	1	-3.308	3	0	1	0
181	M19	1	max	-0.064	4	-0.11	4	0	7	3.308	5	-0.974	4	0	7	0
182			min	-0.216	3	-0.372	3	0	1	0.974	1	-3.308	3	0	1	0
183		2	max	-0.068	4	-0.118	4	0	7	2.918	5	-0.86	4	0	7	0
184			min	-0.233	3	-0.401	3	0	1	0.86	1	-2.918	3	0	1	0
185		3	max	-0.073	4	-0.125	4	0	7	2.501	5	-0.737	4	0	7	0
186			min	-0.248	3	-0.428	3	0	1	0.737	1	-2.501	3	0	1	0
187		4	max	-0.077	4	-0.133	4	0	7	2.057	5	-0.607	4	0	7	0
188			min	-0.263	3	-0.454	3	0	1	0.607	1	-2.057	3	0	1	0
189		5	max	-0.081	4	-0.14	4	0	7	1.587	5	-0.47	4	0	7	0
190			min	-0.278	3	-0.478	3	0	1	0.47	1	-1.587	3	0	1	0
191	M20	1	max	-0.083	4	-0.144	4	0	7	1.587	5	-0.47	4	0	7	0
192			min	-0.28	3	-0.482	3	0	1	0.47	1	-1.587	3	0	1	0
193		2	max	-0.087	4	-0.15	4	0	7	1.214	5	-0.359	4	0	7	0
194			min	-0.292	3	-0.503	3	0	1	0.359	1	-1.214	3	0	1	0
195		3	max	-0.09	4	-0.155	4	0	7	0.826	5	-0.244	4	0	7	0
196			min	-0.305	3	-0.525	3	0	1	0.244	1	-0.826	3	0	1	0
197		4	max	-0.094	4	-0.161	4	0	7	0.421	5	-0.124	4	0	7	0
198			min	-0.317	3	-0.546	3	0	1	0.124	1	-0.421	3	0	1	0
199		5	max	-0.097	4	-0.167	4	0	7	0	7	0	7	0	7	0
200			min	-0.329	3	-0.568	3	0	1	0	1	0	1	0	1	0
201	M21	1	max	0	7	0	7	0	2	0	7	0	7	0	7	0
202			min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0
203		2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062
204			min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0
205		3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082
206			min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0
207		4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062
208			min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0
209		5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0
210			min	0	1	0	1	0	2	0	1	0	1	0	1	0
211	M22	1	max	0	7	0	7	0	2	0	7	0	7	0	7	0
212			min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0
213		2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062
214			min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0
215		3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082
216			min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0
217		4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062
218			min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0
219		5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0
220			min	0	1	0	1	0	2	0	1	0	1	0	1	0
221	M23	1	max	0	7	0	7	0	2	0	7	0	7	0	7	0
222			min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0
223		2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062
224			min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0
225		3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
226		min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0	2
227	4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062	7
228		min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0	2
229	5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0	7
230		min	0	1	0	1	0	2	0	1	0	1	0	1	0	1
231	M24	1	max	0	7	0	7	0	2	0	7	0	7	0	7	7
232		min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0	1
233	2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062	7
234		min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0	2
235	3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082	7
236		min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0	2
237	4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062	7
238		min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0	2
239	5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0	7
240		min	0	1	0	1	0	2	0	1	0	1	0	1	0	1
241	M25	1	max	0	7	0	7	0	2	0	7	0	7	0	7	7
242		min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0	1
243	2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062	7
244		min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0	2
245	3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082	7
246		min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0	2
247	4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062	7
248		min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0	2
249	5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0	7
250		min	0	1	0	1	0	2	0	1	0	1	0	1	0	1
251	M26	1	max	0	7	0	7	0	2	0	7	0	7	0	7	7
252		min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0	1
253	2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062	7
254		min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0	2
255	3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082	7
256		min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0	2
257	4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062	7
258		min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0	2
259	5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0	7
260		min	0	1	0	1	0	2	0	1	0	1	0	1	0	1
261	M27	1	max	0	7	0	7	0	2	0	7	0	7	0	7	7
262		min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0	1
263	2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062	7
264		min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0	2
265	3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082	7
266		min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0	2
267	4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062	7
268		min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0	2
269	5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0	7
270		min	0	1	0	1	0	2	0	1	0	1	0	1	0	1
271	M28	1	max	0	7	0	7	0	2	0	7	0	7	0	7	7
272		min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0	1
273	2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062	7
274		min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0	2
275	3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082	7
276		min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0	2
277	4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062	7
278		min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0	2
279	5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0	7
280		min	0	1	0	1	0	2	0	1	0	1	0	1	0	1

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
281	M29	1	max	0	7	0	7	0	2	0	7	0	7	0	7	0
282			min	0	1	0	1	-0.045	1	0	1	0	1	0	1	0
283		2	max	0	7	0	7	0	2	0	7	0	7	0	2	0.062
284			min	0	1	0	1	-0.023	1	0	1	0	1	-0.262	1	0
285		3	max	0	7	0	7	0	7	0	7	0	7	0	2	0.082
286			min	0	1	0	1	0	1	0	1	0	1	-0.35	1	0
287		4	max	0	7	0	7	0.023	7	0	7	0	7	0	2	0.062
288			min	0	1	0	1	0	2	0	1	0	1	-0.262	1	0
289		5	max	0	7	0	7	0.045	7	0	7	0	7	0	7	0
290			min	0	1	0	1	0	2	0	1	0	1	0	1	0

Envelope Member Section Deflections - Service

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [rad]	LC	(n) L/y' Ratio	LC	(n) L/z' Ratio	LC
1	M1	1	max	0	4	0	4	0	7	0	7	NC	7	NC	7
2			min	0	3	0	3	0	1	0	1	NC	1	NC	1
3		2	max	0	4	0.029	5	0	7	0	7	1859.29	4	NC	7
4			min	0	3	0.008	1	0	1	0	1	541.264	3	NC	1
5		3	max	0	4	0.058	5	0	7	0	7	933.116	4	NC	7
6			min	0	3	0.017	1	0	1	0	1	271.648	3	NC	1
7		4	max	0	4	0.087	5	0	7	0	7	625.905	4	NC	7
8			min	0	3	0.025	1	0	1	0	1	182.217	3	NC	1
9		5	max	0	4	0.115	5	0	7	0	7	473.433	4	NC	7
10			min	-0.001	3	0.033	1	0	1	0	1	137.831	3	NC	1
11	M2	1	max	0	4	0.115	5	0	7	0	7	NC	7	NC	7
12			min	-0.001	3	0.033	1	0	1	0	1	NC	1	NC	1
13		2	max	0	4	0.141	5	0	7	0	7	NC	7	NC	7
14			min	-0.001	3	0.041	1	0	1	0	1	9681.792	3	NC	1
15		3	max	0	4	0.167	5	0	7	0	7	NC	6	NC	7
16			min	-0.001	3	0.049	1	0	1	0	1	6924.308	3	NC	1
17		4	max	0	4	0.192	5	0	7	0	7	NC	6	NC	7
18			min	-0.001	3	0.056	1	0	1	0	1	8836.596	3	NC	1
19		5	max	0	4	0.216	5	0	7	0	7	NC	7	NC	7
20			min	-0.001	3	0.063	1	0	1	0	1	NC	1	NC	1
21	M3	1	max	0	4	0.216	5	0	7	0	7	NC	7	NC	7
22			min	-0.001	3	0.063	1	0	1	0	1	NC	1	NC	1
23		2	max	0	4	0.238	5	0	7	0	7	NC	6	NC	7
24			min	-0.001	3	0.069	1	0	1	0	1	6442.858	3	NC	1
25		3	max	0	4	0.258	5	0	7	0	7	NC	6	NC	7
26			min	-0.001	3	0.075	1	0	1	0	1	4723.875	3	NC	1
27		4	max	0	4	0.277	5	0	7	0	7	NC	6	NC	7
28			min	-0.001	3	0.081	1	0	1	0	1	6167.146	3	NC	1
29		5	max	0	4	0.294	5	0	7	0	7	NC	7	NC	7
30			min	-0.001	3	0.086	1	0	1	0	1	NC	1	NC	1
31	M4	1	max	0	4	0.294	5	0	7	0	7	NC	7	NC	7
32			min	-0.001	3	0.086	1	0	1	0	1	NC	1	NC	1
33		2	max	0	4	0.309	5	0	7	0	7	NC	6	NC	7
34			min	-0.001	3	0.09	1	0	1	0	1	5276.573	3	NC	1
35		3	max	0	4	0.322	5	0	7	0	7	NC	4	NC	7
36			min	-0.001	3	0.094	1	0	1	0	1	3914.225	3	NC	1
37		4	max	0	4	0.332	5	0	7	0	7	NC	6	NC	7
38			min	-0.002	3	0.097	1	0	1	0	1	5167.291	3	NC	1
39		5	max	0	4	0.341	5	0	7	0	7	NC	7	NC	7
40			min	-0.002	3	0.099	1	0	1	0	1	NC	1	NC	1
41	M5	1	max	0	4	0.341	5	0	7	0	7	NC	7	NC	7
42			min	-0.002	3	0.099	1	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections - Service (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [rad]	LC	(n) L/y' Ratio	LC	(n) L/z' Ratio	LC
43		2	max	0	4	0.348	5	0	7	0	7	NC	6	NC	7
44			min	-0.002	3	0.101	1	0	1	0	1	4847.894	3	NC	1
45		3	max	0	4	0.352	5	0	7	0	7	NC	4	NC	7
46			min	-0.002	3	0.103	1	0	1	0	1	3624.782	3	NC	1
47		4	max	0	4	0.355	5	0	7	0	7	NC	6	NC	7
48			min	-0.002	3	0.103	1	0	1	0	1	4822.365	3	NC	1
49		5	max	0	4	0.355	5	0	7	0	7	NC	7	NC	7
50			min	-0.002	3	0.103	1	0	1	0	1	NC	1	NC	1
51	M6	1	max	0	4	0.355	5	0	7	0	7	NC	7	NC	7
52			min	-0.002	3	0.103	1	0	1	0	1	NC	1	NC	1
53		2	max	0	4	0.352	5	0	7	0	7	NC	6	NC	7
54			min	-0.002	3	0.103	1	0	1	0	1	4864.475	3	NC	1
55		3	max	0	4	0.348	5	0	7	0	7	NC	4	NC	7
56			min	-0.002	3	0.101	1	0	1	0	1	3662.917	3	NC	1
57		4	max	0	4	0.341	5	0	7	0	7	NC	6	NC	7
58			min	-0.002	3	0.099	1	0	1	0	1	4907.687	3	NC	1
59		5	max	0	4	0.333	5	0	7	0	7	NC	7	NC	7
60			min	-0.002	3	0.097	1	0	1	0	1	NC	1	NC	1
61	M7	1	max	0	4	0.333	5	0	7	0	7	NC	7	NC	7
62			min	-0.002	3	0.097	1	0	1	0	1	NC	1	NC	1
63		2	max	0	4	0.322	5	0	7	0	7	NC	6	NC	7
64			min	-0.001	3	0.094	1	0	1	0	1	5334.481	3	NC	1
65		3	max	0	4	0.309	5	0	7	0	7	NC	4	NC	7
66			min	-0.001	3	0.09	1	0	1	0	1	4049.849	3	NC	1
67		4	max	0	4	0.294	5	0	7	0	7	NC	6	NC	7
68			min	-0.001	3	0.086	1	0	1	0	1	5471.993	3	NC	1
69		5	max	0	4	0.277	5	0	7	0	7	NC	7	NC	7
70			min	-0.001	3	0.081	1	0	1	0	1	NC	1	NC	1
71	M8	1	max	0	4	0.277	5	0	7	0	7	NC	7	NC	7
72			min	-0.001	3	0.081	1	0	1	0	1	NC	1	NC	1
73		2	max	0	4	0.258	5	0	7	0	7	NC	6	NC	7
74			min	-0.001	3	0.075	1	0	1	0	1	6581.439	3	NC	1
75		3	max	0	4	0.238	5	0	7	0	7	NC	6	NC	7
76			min	-0.001	3	0.069	1	0	1	0	1	5059.894	3	NC	1
77		4	max	0	4	0.216	5	0	7	0	7	NC	6	NC	7
78			min	-0.001	3	0.063	1	0	1	0	1	6928.531	3	NC	1
79		5	max	0	4	0.192	5	0	7	0	7	NC	7	NC	7
80			min	-0.001	3	0.056	1	0	1	0	1	NC	1	NC	1
81	M9	1	max	0	4	0.192	5	0	7	0	7	NC	7	NC	7
82			min	-0.001	3	0.056	1	0	1	0	1	NC	1	NC	1
83		2	max	0	4	0.168	5	0	7	0	7	NC	7	NC	7
84			min	-0.001	3	0.049	1	0	1	0	1	NC	1	NC	1
85		3	max	0	4	0.142	5	0	7	0	7	NC	6	NC	7
86			min	-0.001	3	0.041	1	0	1	0	1	8034.596	3	NC	1
87		4	max	0	4	0.115	5	0	7	0	7	NC	7	NC	7
88			min	-0.001	3	0.033	1	0	1	0	1	NC	1	NC	1
89		5	max	0	4	0.087	5	0	7	0	7	NC	7	NC	7
90			min	0	3	0.025	1	0	1	0	1	NC	1	NC	1
91	M10	1	max	0	4	0.087	5	0	7	0	7	468.787	4	NC	7
92			min	0	3	0.025	1	0	1	0	1	136.424	3	NC	1
93		2	max	0	4	0.065	5	0	7	0	7	622.025	4	NC	7
94			min	0	3	0.019	1	0	1	0	1	181.015	3	NC	1
95		3	max	0	4	0.044	5	0	7	0	7	929.781	4	NC	7
96			min	0	3	0.013	1	0	1	0	1	270.572	3	NC	1
97		4	max	0	4	0.022	5	0	7	0	7	1855.624	4	NC	7

Envelope Member Section Deflections - Service (Continued)

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [rad]	LC	(n) L/y' Ratio	LC	(n) L/z' Ratio	LC	
98			min	0	3	0.006	1	0	1	0	1	539.992	3	NC	1
99		5	max	0	7	0	7	0	7	0	7	NC	7	NC	7
100			min	0	1	0	1	0	1	0	1	NC	1	NC	1
101	M11	1	max	0	4	0	5	0	7	0	7	NC	7	NC	7
102			min	0	3	0	1	0	1	0	1	NC	1	NC	1
103		2	max	0	4	-0.008	4	0	7	0	7	1863.327	4	NC	7
104			min	0	3	-0.029	3	0	1	0	1	545.068	3	NC	1
105		3	max	0	4	-0.017	4	0	7	0	7	935.146	4	NC	7
106			min	0	3	-0.058	3	0	1	0	1	273.56	3	NC	1
107		4	max	0	4	-0.025	4	0	7	0	7	627.27	4	NC	7
108			min	0	3	-0.086	3	0	1	0	1	183.504	3	NC	1
109		5	max	0	4	-0.033	4	0	7	0	7	474.47	4	NC	7
110			min	-0.001	3	-0.114	3	0	1	0	1	138.809	3	NC	1
111	M12	1	max	0	4	-0.033	4	0	7	0	7	NC	7	NC	7
112			min	-0.001	3	-0.114	3	0	1	0	1	NC	1	NC	1
113		2	max	0	4	-0.041	4	0	7	0	7	NC	7	NC	7
114			min	-0.001	3	-0.14	3	0	1	0	1	9722.877	3	NC	1
115		3	max	0	4	-0.049	4	0	7	0	7	NC	6	NC	7
116			min	-0.001	3	-0.166	3	0	1	0	1	6953.98	3	NC	1
117		4	max	0	4	-0.056	4	0	7	0	7	NC	6	NC	7
118			min	-0.001	3	-0.191	3	0	1	0	1	8874.858	3	NC	1
119		5	max	0	4	-0.063	4	0	7	0	7	NC	7	NC	7
120			min	-0.001	3	-0.214	3	0	1	0	1	NC	1	NC	1
121	M13	1	max	0	4	-0.063	4	0	7	0	7	NC	7	NC	7
122			min	-0.001	3	-0.214	3	0	1	0	1	NC	1	NC	1
123		2	max	0	4	-0.069	4	0	7	0	7	NC	6	NC	7
124			min	-0.001	3	-0.236	3	0	1	0	1	6473.919	3	NC	1
125		3	max	0	4	-0.075	4	0	7	0	7	NC	6	NC	7
126			min	-0.001	3	-0.256	3	0	1	0	1	4746.909	3	NC	1
127		4	max	0	4	-0.08	4	0	7	0	7	NC	6	NC	7
128			min	-0.001	3	-0.275	3	0	1	0	1	6197.575	3	NC	1
129		5	max	0	4	-0.085	4	0	7	0	7	NC	7	NC	7
130			min	-0.001	3	-0.291	3	0	1	0	1	NC	1	NC	1
131	M14	1	max	0	4	-0.085	4	0	7	0	7	NC	7	NC	7
132			min	-0.001	3	-0.291	3	0	1	0	1	NC	1	NC	1
133		2	max	0	4	-0.09	4	0	7	0	7	NC	6	NC	7
134			min	-0.001	3	-0.306	3	0	1	0	1	5306.053	3	NC	1
135		3	max	0	4	-0.093	4	0	7	0	7	NC	4	NC	7
136			min	-0.001	3	-0.319	3	0	1	0	1	3936.384	3	NC	1
137		4	max	0	4	-0.097	4	0	7	0	7	NC	6	NC	7
138			min	-0.001	3	-0.33	3	0	1	0	1	5196.948	3	NC	1
139		5	max	0	4	-0.099	4	0	7	0	7	NC	7	NC	7
140			min	-0.002	3	-0.339	3	0	1	0	1	NC	1	NC	1
141	M15	1	max	0	4	-0.099	4	0	7	0	7	NC	7	NC	7
142			min	-0.002	3	-0.339	3	0	1	0	1	NC	1	NC	1
143		2	max	0	4	-0.101	4	0	7	0	7	NC	6	NC	7
144			min	-0.002	3	-0.345	3	0	1	0	1	4880.102	3	NC	1
145		3	max	0	4	-0.102	4	0	7	0	7	NC	4	NC	7
146			min	-0.002	3	-0.35	3	0	1	0	1	3649.246	3	NC	1
147		4	max	0	4	-0.103	4	0	7	0	7	NC	6	NC	7
148			min	-0.002	3	-0.352	3	0	1	0	1	4855.447	3	NC	1
149		5	max	0	4	-0.103	4	0	7	0	7	NC	7	NC	7
150			min	-0.002	3	-0.352	3	0	1	0	1	NC	1	NC	1
151	M16	1	max	0	4	-0.103	4	0	7	0	7	NC	7	NC	7
152			min	-0.002	3	-0.352	3	0	1	0	1	NC	1	NC	1

Envelope Member Section Deflections - Service (Continued)

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [rad]	LC	(n) L/y' Ratio	LC	(n) L/z' Ratio	LC	
153		2	max	0	4	-0.102	4	0	7	0	7	NC	6	NC	7
154			min	-0.002	3	-0.349	3	0	1	0	1	4904.335	3	NC	1
155		3	max	0	4	-0.101	4	0	7	0	7	NC	4	NC	7
156			min	-0.002	3	-0.345	3	0	1	0	1	3693.522	3	NC	1
157		4	max	0	4	-0.099	4	0	7	0	7	NC	6	NC	7
158			min	-0.002	3	-0.338	3	0	1	0	1	4949.528	3	NC	1
159		5	max	0	4	-0.097	4	0	7	0	7	NC	7	NC	7
160			min	-0.002	3	-0.33	3	0	1	0	1	NC	1	NC	1
161	M17	1	max	0	4	-0.097	4	0	7	0	7	NC	7	NC	7
162			min	-0.002	3	-0.33	3	0	1	0	1	NC	1	NC	1
163		2	max	0	4	-0.093	4	0	7	0	7	NC	6	NC	7
164			min	-0.001	3	-0.319	3	0	1	0	1	5391.488	3	NC	1
165		3	max	0	4	-0.09	4	0	7	0	7	NC	4	NC	7
166			min	-0.001	3	-0.306	3	0	1	0	1	4094.245	3	NC	1
167		4	max	0	4	-0.085	4	0	7	0	7	NC	6	NC	7
168			min	-0.001	3	-0.291	3	0	1	0	1	5533.587	3	NC	1
169		5	max	0	4	-0.08	4	0	7	0	7	NC	7	NC	7
170			min	-0.001	3	-0.274	3	0	1	0	1	NC	1	NC	1
171	M18	1	max	0	4	-0.08	4	0	7	0	7	NC	7	NC	7
172			min	-0.001	3	-0.274	3	0	1	0	1	NC	1	NC	1
173		2	max	0	4	-0.075	4	0	7	0	7	NC	6	NC	7
174			min	-0.001	3	-0.256	3	0	1	0	1	6682.402	3	NC	1
175		3	max	0	4	-0.069	4	0	7	0	7	NC	6	NC	7
176			min	-0.001	3	-0.235	3	0	1	0	1	5140.415	3	NC	1
177		4	max	0	4	-0.063	4	0	7	0	7	NC	6	NC	7
178			min	-0.001	3	-0.214	3	0	1	0	1	7043.112	3	NC	1
179		5	max	0	4	-0.056	4	0	7	0	7	NC	7	NC	7
180			min	-0.001	3	-0.19	3	0	1	0	1	NC	1	NC	1
181	M19	1	max	0	4	-0.056	4	0	7	0	7	NC	7	NC	7
182			min	-0.001	3	-0.19	3	0	1	0	1	NC	1	NC	1
183		2	max	0	4	-0.049	4	0	7	0	7	NC	7	NC	7
184			min	-0.001	3	-0.166	3	0	1	0	1	NC	1	NC	1
185		3	max	0	4	-0.041	4	0	7	0	7	NC	6	NC	7
186			min	-0.001	3	-0.14	3	0	1	0	1	8217.694	3	NC	1
187		4	max	0	4	-0.033	4	0	7	0	7	NC	7	NC	7
188			min	-0.001	3	-0.113	3	0	1	0	1	NC	1	NC	1
189		5	max	0	4	-0.025	4	0	7	0	7	NC	7	NC	7
190			min	0	3	-0.086	3	0	1	0	1	NC	1	NC	1
191	M20	1	max	0	4	-0.025	4	0	7	0	7	470.492	4	NC	7
192			min	0	3	-0.086	3	0	1	0	1	138.03	3	NC	1
193		2	max	0	4	-0.019	4	0	7	0	7	624.301	4	NC	7
194			min	0	3	-0.065	3	0	1	0	1	183.159	3	NC	1
195		3	max	0	4	-0.013	4	0	7	0	7	933.196	4	NC	7
196			min	0	3	-0.043	3	0	1	0	1	273.788	3	NC	1
197		4	max	0	4	-0.006	4	0	7	0	7	1862.458	4	NC	7
198			min	0	3	-0.022	3	0	1	0	1	546.427	3	NC	1
199		5	max	0	7	0	7	0	7	0	7	NC	7	NC	7
200			min	0	1	0	1	0	1	0	1	NC	1	NC	1
201	M21	1	max	0	7	0.073	5	0.087	5	0.007	5	NC	7	NC	7
202			min	0	1	0.021	1	0.025	1	0.002	1	NC	1	NC	1
203		2	max	0	7	0.074	5	0.088	5	0.007	5	NC	7	NC	7
204			min	0	1	0.021	1	0.027	1	0.002	1	NC	1	NC	1
205		3	max	0	7	0.074	5	0.089	5	0.007	5	NC	7	NC	7
206			min	0	1	0.021	1	0.027	1	0.002	1	NC	1	NC	1
207		4	max	0	7	0.074	5	0.089	5	0.007	5	NC	7	NC	7

Envelope Member Section Deflections - Service (Continued)

Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [rad]	LC	(n) L/y' Ratio	LC	(n) L/z' Ratio	LC	
208			min	0	1	0.022	1	0.027	1	0.002	1	NC	1	NC	1
209		5	max	0	7	0.074	5	0.087	5	0.007	5	NC	7	NC	7
210			min	0	1	0.022	1	0.025	1	0.002	1	NC	1	NC	1
211	M22	1	max	0	7	0.138	5	0.164	5	0.006	5	NC	7	NC	7
212			min	0	1	0.04	1	0.048	1	0.002	1	NC	1	NC	1
213		2	max	0	7	0.139	5	0.165	5	0.006	5	NC	7	NC	7
214			min	0	1	0.04	1	0.049	1	0.002	1	NC	1	NC	1
215		3	max	0	7	0.139	5	0.166	5	0.006	5	NC	7	NC	7
216			min	0	1	0.041	1	0.05	1	0.002	1	NC	1	NC	1
217		4	max	0	7	0.139	5	0.166	5	0.006	5	NC	7	NC	7
218			min	0	1	0.041	1	0.049	1	0.002	1	NC	1	NC	1
219		5	max	0	7	0.139	5	0.165	5	0.006	5	NC	7	NC	7
220			min	0	1	0.041	1	0.048	1	0.002	1	NC	1	NC	1
221	M23	1	max	0	7	0.188	5	0.222	5	0.004	5	NC	7	NC	7
222			min	0	1	0.055	1	0.065	1	0.001	1	NC	1	NC	1
223		2	max	0	7	0.189	5	0.224	5	0.004	5	NC	7	NC	7
224			min	0	1	0.055	1	0.067	1	0.001	1	NC	1	NC	1
225		3	max	0	7	0.189	5	0.225	5	0.004	5	NC	7	NC	7
226			min	0	1	0.055	1	0.067	1	0.001	1	NC	1	NC	1
227		4	max	0	7	0.189	5	0.225	5	0.004	5	NC	7	NC	7
228			min	0	1	0.055	1	0.067	1	0.001	1	NC	1	NC	1
229		5	max	0	7	0.19	5	0.224	5	0.004	5	NC	7	NC	7
230			min	0	1	0.055	1	0.065	1	0.001	1	NC	1	NC	1
231	M24	1	max	0	7	0.219	5	0.258	5	0.002	5	NC	7	NC	7
232			min	0	1	0.064	1	0.076	1	0.001	1	NC	1	NC	1
233		2	max	0	7	0.219	5	0.26	5	0.002	5	NC	7	NC	7
234			min	0	1	0.064	1	0.077	1	0.001	1	NC	1	NC	1
235		3	max	0	7	0.22	5	0.261	5	0.002	5	NC	7	NC	7
236			min	0	1	0.064	1	0.078	1	0.001	1	NC	1	NC	1
237		4	max	0	7	0.22	5	0.261	5	0.002	5	NC	7	NC	7
238			min	0	1	0.064	1	0.077	1	0.001	1	NC	1	NC	1
239		5	max	0	7	0.221	5	0.261	5	0.002	5	NC	7	NC	7
240			min	0	1	0.064	1	0.076	1	0.001	1	NC	1	NC	1
241	M25	1	max	0	7	0.227	5	0.268	5	0	4	NC	7	NC	7
242			min	0	1	0.067	1	0.079	1	0	3	NC	1	NC	1
243		2	max	0	7	0.228	5	0.27	5	0	4	NC	7	NC	7
244			min	0	1	0.067	1	0.08	1	0	3	NC	1	NC	1
245		3	max	0	7	0.228	5	0.272	5	0	4	NC	7	NC	7
246			min	0	1	0.067	1	0.081	1	0	3	NC	1	NC	1
247		4	max	0	7	0.229	5	0.272	5	0	4	NC	7	NC	7
248			min	0	1	0.067	1	0.08	1	0	3	NC	1	NC	1
249		5	max	0	7	0.229	5	0.271	5	0	4	NC	7	NC	7
250			min	0	1	0.067	1	0.079	1	0	3	NC	1	NC	1
251	M26	1	max	0	7	0.213	5	0.252	5	-0.001	4	NC	7	NC	7
252			min	0	1	0.062	1	0.074	1	-0.002	3	NC	1	NC	1
253		2	max	0	7	0.213	5	0.254	5	-0.001	4	NC	7	NC	7
254			min	0	1	0.062	1	0.075	1	-0.002	3	NC	1	NC	1
255		3	max	0	7	0.214	5	0.255	5	-0.001	4	NC	7	NC	7
256			min	0	1	0.062	1	0.076	1	-0.002	3	NC	1	NC	1
257		4	max	0	7	0.214	5	0.255	5	-0.001	4	NC	7	NC	7
258			min	0	1	0.063	1	0.075	1	-0.002	3	NC	1	NC	1
259		5	max	0	7	0.215	5	0.254	5	-0.001	4	NC	7	NC	7
260			min	0	1	0.063	1	0.074	1	-0.002	3	NC	1	NC	1
261	M27	1	max	0	7	0.177	5	0.209	5	-0.001	4	NC	7	NC	7
262			min	0	1	0.052	1	0.061	1	-0.004	3	NC	1	NC	1

Envelope Member Section Deflections - Service (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	z [in]	LC	x Rotate [rad]	LC	(n) L/y' Ratio	LC	(n) L/z' Ratio	LC
263		2	max	0	7	0.178	5	0.211	5	-0.001	4	NC	7	NC	7
264			min	0	1	0.052	1	0.063	1	-0.004	3	NC	1	NC	1
265		3	max	0	7	0.178	5	0.212	5	-0.001	4	NC	7	NC	7
266			min	0	1	0.052	1	0.063	1	-0.004	3	NC	1	NC	1
267		4	max	0	7	0.178	5	0.212	5	-0.001	4	NC	7	NC	7
268			min	0	1	0.052	1	0.063	1	-0.004	3	NC	1	NC	1
269		5	max	0	7	0.179	5	0.211	5	-0.001	4	NC	7	NC	7
270			min	0	1	0.052	1	0.062	1	-0.004	3	NC	1	NC	1
271	M28	1	max	0	7	0.123	5	0.145	5	-0.002	4	NC	7	NC	7
272			min	0	1	0.036	1	0.043	1	-0.006	3	NC	1	NC	1
273		2	max	0	7	0.123	5	0.147	5	-0.002	4	NC	7	NC	7
274			min	0	1	0.036	1	0.044	1	-0.006	3	NC	1	NC	1
275		3	max	0	7	0.124	5	0.148	5	-0.002	4	NC	7	NC	7
276			min	0	1	0.036	1	0.045	1	-0.006	3	NC	1	NC	1
277		4	max	0	7	0.124	5	0.148	5	-0.002	4	NC	7	NC	7
278			min	0	1	0.036	1	0.044	1	-0.006	3	NC	1	NC	1
279		5	max	0	7	0.124	5	0.147	5	-0.002	4	NC	7	NC	7
280			min	0	1	0.036	1	0.043	1	-0.006	3	NC	1	NC	1
281	M29	1	max	0	7	0.055	5	0.065	5	-0.002	4	NC	7	NC	7
282			min	0	1	0.016	1	0.019	1	-0.007	3	NC	1	NC	1
283		2	max	0	7	0.056	5	0.067	5	-0.002	4	NC	7	NC	7
284			min	0	1	0.016	1	0.021	1	-0.007	3	NC	1	NC	1
285		3	max	0	7	0.056	5	0.068	5	-0.002	4	NC	7	NC	7
286			min	0	1	0.016	1	0.021	1	-0.007	3	NC	1	NC	1
287		4	max	0	7	0.056	5	0.067	5	-0.002	4	NC	7	NC	7
288			min	0	1	0.016	1	0.021	1	-0.007	3	NC	1	NC	1
289		5	max	0	7	0.056	5	0.066	5	-0.002	4	NC	7	NC	7
290			min	0	1	0.016	1	0.019	1	-0.007	3	NC	1	NC	1

Envelope AISI S100-20: ASD Member Cold Formed Steel Code Checks

	Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	Pn/Om[k]	Tn/Om[k]	Mnyy/Om[k-ft]	Mnzz/Om[k-ft]	Vny/Om[k]	Vnz/Om[k]	Cb	Eqn
1	M21	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		
2	M22	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		
3	M23	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		
4	M24	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		
5	M25	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		
6	M26	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		
7	M27	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		
8	M28	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		
9	M29	1200S200-97	0.013	2	7	0.002	4	z	5	18.63	50.299	0.884	6.832	8.145	5.688	1	H1.2-1		

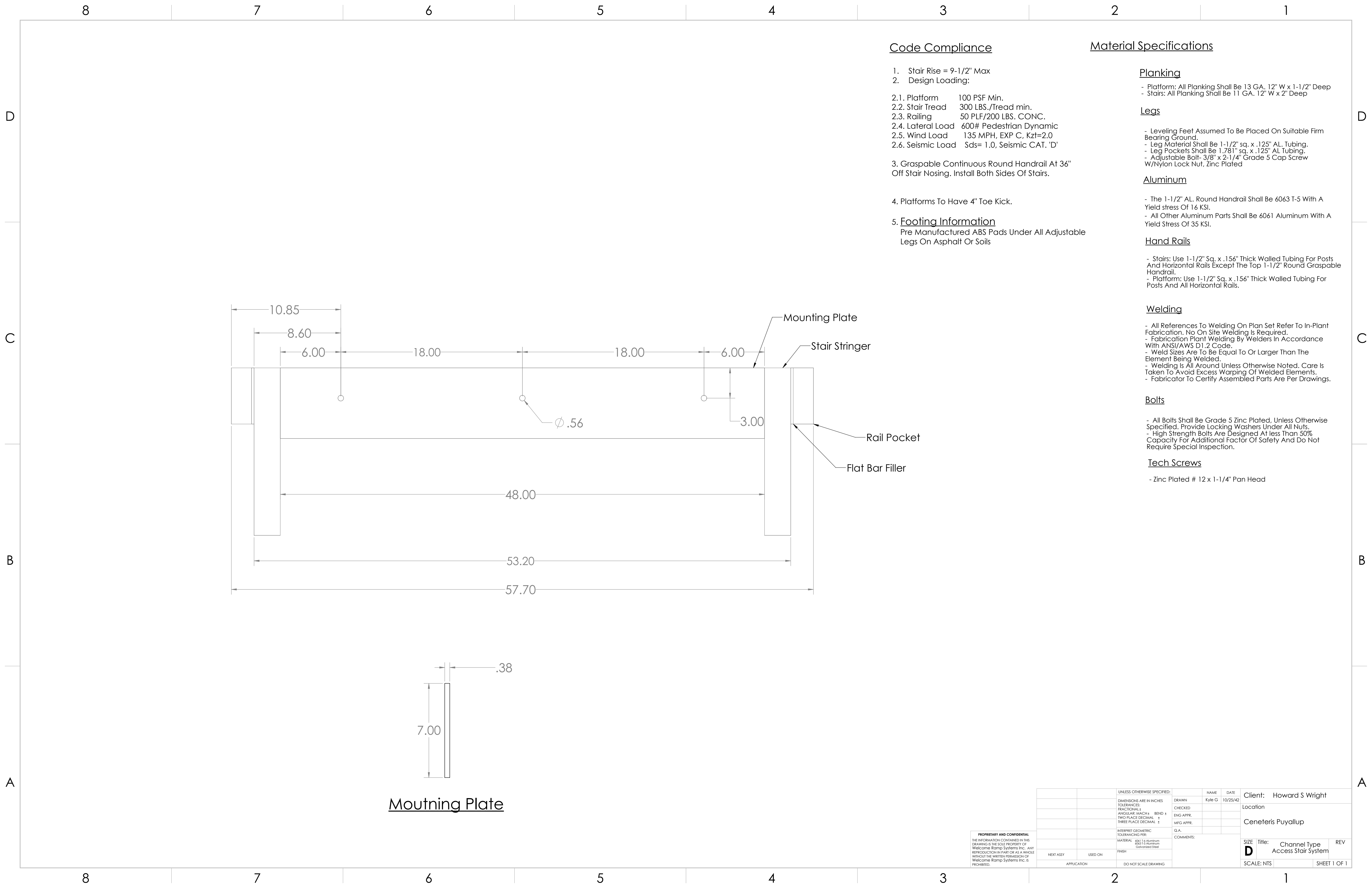
Envelope AA ADM1-20: ASD - BUILDING Member Aluminum Code Checks

	Member	Shape	Code	Check	Loc[ft]	LC	Shear	Check	Loc[ft]	Dir	LC	Pnc/Om[k]	Pnt/Om[k]	Mny/Om[k-ft]	Mnz/Om[k-ft]	Vny/Om[k]	Vnz/Om[k]	Cb	Eqn
1	M1	CenterisStringer	0.131	1.315	5	0.047	0	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.688	H.1-1		
2	M2	CenterisStringer	0.215	1.315	5	0.037	0	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.229	H.1-1		
3	M3	CenterisStringer	0.272	1.274	5	0.028	0	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.11	H.1-1		
4	M4	CenterisStringer	0.301	1.315	5	0.018	0	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.049	H.1-1		
5	M5	CenterisStringer	0.311	1.165	5	0.008	0	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.007	H.1-1		
6	M6	CenterisStringer	0.311	0	5	0.011	1.315	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.016	H.1-1		
7	M7	CenterisStringer	0.294	0	5	0.02	1.315	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.061	H.1-1		
8	M8	CenterisStringer	0.252	0	5	0.03	1.315	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.129	H.1-1		
9	M9	CenterisStringer	0.195	0	5	0.04	1.315	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.284	H.1-1		
10	M10	CenterisStringer	0.104	0	5	0.047	0.986	y	5	56.257	68.844	1.999	14.347	29.42	15.36	1.704	H.1-1		

Envelope AA ADM1-20: ASD - BUILDING Member Aluminum Code Checks (Continued)

Member		Shape	Code	Check	Loc[ft]	LCS	Shear	Check	Loc[ft]	Dir	LC	Pnc/Om[k]	Pnt/Om[k]	Mny/Om[k-ft]	Mnz/Om[k-ft]	Vny/Om[k]	Vnz/Om[k]	Cb	Eqn
11	M11	CenterisStringer	0.131	1.315	5		0.047	0	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.688	H.1-1
12	M12	CenterisStringer	0.214	1.315	5		0.037	0	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.229	H.1-1
13	M13	CenterisStringer	0.269	1.247	5		0.027	0	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.109	H.1-1
14	M14	CenterisStringer	0.299	1.315	5		0.018	0	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.049	H.1-1
15	M15	CenterisStringer	0.308	1.151	5		0.008	0	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.007	H.1-1
16	M16	CenterisStringer	0.308	0	5		0.011	1.315	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.017	H.1-1
17	M17	CenterisStringer	0.292	0	5		0.02	1.315	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.063	H.1-1
18	M18	CenterisStringer	0.249	0	5		0.03	1.315	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.132	H.1-1
19	M19	CenterisStringer	0.192	0	5		0.039	1.315	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.287	H.1-1
20	M20	CenterisStringer	0.101	0	5		0.046	0.986	y	5		56.257	68.844	1.999	14.347	29.42	15.36	1.702	H.1-1

ANCHORAGE CALCULATIONS



Code Compliance

1. Stair Rise = 9-1/2" Max
2. Design Loading:

- 2.1. Platform 100 PSF Min.
- 2.2. Stair Tread 300 LBS./Tread min.
- 2.3. Railing 50 PLF/200 LBS. CONC.
- 2.4. Lateral Load 600# Pedestrian Dynamic
- 2.5. Wind Load 135 MPH, EXP C, Kzt=2.0
- 2.6. Seismic Load Sds= 1.0, Seismic CAT. 'D'

3. Graspable Continuous Round Handrail At 36" Off Stair Nosing. Install Both Sides Of Stairs.

4. Platforms To Have 4" Toe Kick.

5. Footing Information

Pre Manufactured ABS Pads Under All Adjustable Legs On Asphalt Or Soils

Material Specifications

Planking

- Platform: All Planking Shall Be 13 GA. 12" W x 1-1/2" Deep
- Stairs: All Planking Shall Be 11 GA. 12" W x 2" Deep

Legs

- Leveling Feet Assumed To Be Placed On Suitable Firm Bearing Ground.
- Leg Material Shall Be 1-1/2" sq. x .125" AL Tubing.
- Leg Pockets Shall Be 1.781" sq. x .125" AL Tubing.
- Adjustable Bolt- 3/8" x 2-1/4" Grade 5 Cap Screw W/Nylon Lock Nut, Zinc Plated

Aluminum

- The 1-1/2" AL Round Handrail Shall Be 6063 T-5 With A Yield stress Of 16 KSI.
- All Other Aluminum Parts Shall Be 6061 Aluminum With A Yield Stress Of 35 KSI.

Hand Rails

- Stairs: Use 1-1/2" Sq. x .156" Thick Walled Tubing For Posts And Horizontal Rails Except The Top 1-1/2" Round Graspable Handrail.
- Platform: Use 1-1/2" Sq. x .156" Thick Walled Tubing For Posts And All Horizontal Rails.

Welding

- All References To Welding On Plan Set Refer To In-Plant Fabrication. No On Site Welding Is Required.
- Fabrication Plant Welding By Welders In Accordance With ANSI/AWS D1.2 Code.
- Weld Sizes Are To Be Equal To Or Larger Than The Element Being Welded.
- Welding Is All Around Unless Otherwise Noted. Care Is Taken To Avoid Excess Warping Of Welded Elements.
- Fabricator To Certify Assembled Parts Are Per Drawings.

Bolts

- All Bolts Shall Be Grade 5 Zinc Plated, Unless Otherwise Specified. Provide Locking Washers Under All Nuts.
- High Strength Bolts Are Designed At less Than 50% Capacity For Additional Factor Of Safety And Do Not Require Special Inspection.

Tech Screws

- Zinc Plated # 12 x 1-1/4" Pan Head

Mouting Plate



Anchor Designer™ for
Concrete Software
Version 3.3.2404.1

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Engineer:	ADM	Page:	1/4
Project:	Centeris Exterior Stairs		
Address:	2215 North 30th Street		
Phone:			
E-mail:	dmceachern@ahbl.com		

1. Project information

Project description: Anchorage of exterior stairs.

Location:

Fastening description:

Comment:

2. Input Data & Anchor Parameters

General

Design method: ACI 318-19

Units: Imperial units

Anchor Information:

Anchor type: Concrete screw

Material: Stainless Steel

Diameter (inch): 0.500

Nominal Embedment depth (inch): 3.250

Effective Embedment depth, h_{ef} (inch): 1.860

Code report: IAPMO UES ER-493

Anchor category: 1

Anchor ductility: Yes

h_{min} (inch): 5.00

c_{ac} (inch): 6.00

c_{min} (inch): 2.25

s_{min} (inch): 3.00

Base Material

Concrete: Normal-weight

Concrete thickness, h (inch): 8.00

State: Cracked

Compressive strength, f'_c (psi): 3000

$\Psi_{c,v}$: 1.0

Reinforcement condition: Supplementary reinforcement not present

Supplemental edge reinforcement: Not applicable

Reinforcement provided at corners: No

Ignore concrete breakout in tension: No

Ignore concrete breakout in shear: No

Ignore 6do requirement: Not applicable

Build-up grout pad: No

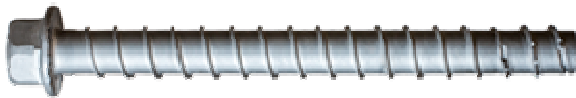
Base Plate

Length x Width x Thickness (inch): 7.00 x 48.00 x 0.38

Recommended Anchor

Anchor Name: Titen HD® Stainless Steel - 1/2"Ø THDSS, h_{nom} : 3.25" (83mm)

Code Report: IAPMO UES ER-493





Anchor Designer™ for
Concrete Software
Version 3.3.2404.1

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Project:	Centeris Exterior Stairs		
Address:	2215 North 30th Street		
Phone:			
E-mail:	dmceachern@ahbl.com		

Load and Geometry

Load factor source: ACI 318 Section 5.3

Load combination: $U = 1.2(D + F) + 1.6(L) + 0.5(L_r \text{ or } S \text{ or } R)$

Seismic design: Yes

Anchors subjected to sustained tension: Not applicable

Ductility section for tension: 17.10.5.3 (d) is satisfied

Ductility section for shear: 17.10.6.3 (c) is satisfied

Ω_0 factor: not set

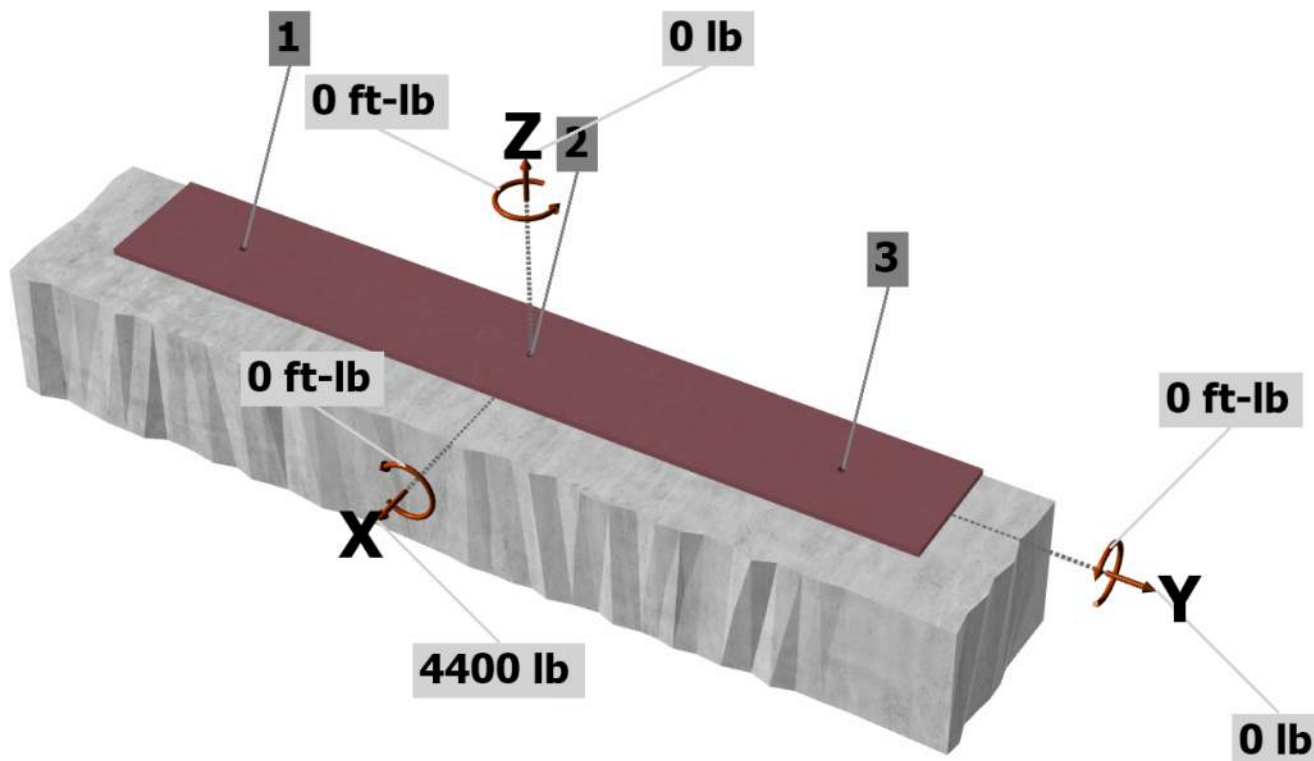
Apply entire shear load at front row: No

Anchors only resisting wind and/or seismic loads: No

Service level loads:

	D	F	L	L _r /S/R	Strength level loads
N _a [lb]:	0	0	0	0	0
V _{ax} [lb]:	1000	0	2000	0	4400
V _{ay} [lb]:	0	0	0	0	0
M _x [ft-lb]:	0	0	0	0	0
M _y [ft-lb]:	0	0	0	0	0
M _z [ft-lb]:	0	0	0	0	0

<Figure 1>



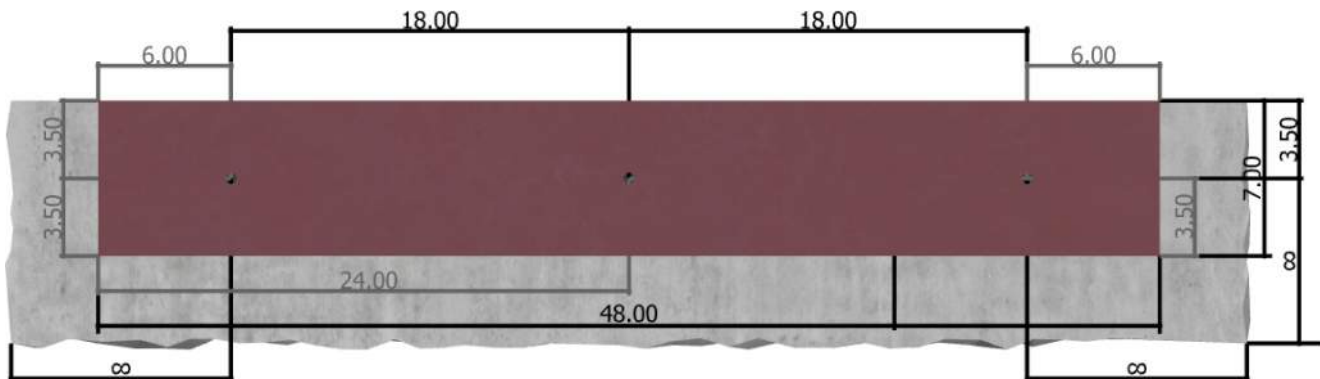
Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.

Simpson Strong-Tie Company Inc. 5956 W. Las Positas Boulevard Pleasanton, CA 94588 Phone: 925.560.9000 Fax: 925.847.3871 www.strongtie.com



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Project:	Centeris Exterior Stairs		
Address:	2215 North 30th Street		
Phone:			
E-mail:	dmceachern@ahbl.com		

<Figure 2>



3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2 + (V_{uay})^2}$ (lb)
1	0.0	1466.7	0.0	1466.7
2	0.0	1466.7	0.0	1466.7
3	0.0	1466.7	0.0	1466.7
Sum	0.0	4400.0	0.0	4400.0

Maximum concrete compression strain (%): 0.00

Maximum concrete compression stress (psi): 0

Resultant tension force (lb): 0

Resultant compression force (lb): 0

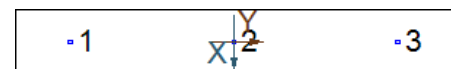
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00

Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00

Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00

Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>





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Phone:			
E-mail:	dmceachern@ahbl.com		

8. Steel Strength of Anchor in Shear (Sec. 17.7.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
5345	1.0	0.65	3474

10. Concrete Pryout Strength of Anchor in Shear (Sec. 17.7.3)

$\phi V_{cpq} = \phi k_{cp} N_{cbg} = \phi k_{cp} (A_{Nc} / A_{Nco}) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.7.3.1b)

k_{cp}	A_{Nc} (in ²)	A_{Nco} (in ²)	$\psi_{ec,N}$	$\psi_{ed,N}$	$\psi_{c,N}$	$\psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpq} (lb)
1.0	93.41	31.14	1.000	1.000	1.000	1.000	2362	0.70	4960

11. Results

Interaction of Tensile and Shear Forces (Sec. 17.8)

Shear	Factored Load, V_{ua} (lb)	Design Strength, ϕV_n (lb)	Ratio	Status
Steel	1467	3474	0.42	Pass
Pryout	4400	4960	0.89	Pass (Governs)

1/2"Ø THDSS, hnom:3.25" (83mm) meets the selected design criteria.

12. Warnings

- Per designer input, ductility requirements for tension have been determined to be satisfied – designer to verify.
- Per designer input, ductility requirements for shear have been determined to be satisfied – designer to verify.
- Designer must exercise own judgement to determine if this design is suitable.
- Refer to manufacturer's product literature for hole cleaning and installation instructions.



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Engineer:	ADM	Page:	1/5
Project:	Centeris Exterior Stairs		
Address:	2215 North 30th Street		
Phone:			
E-mail:	dmceachern@ahbl.com		

1. Project information

Project description: Anchorage of exterior stairs.

Location:

Fastening description:

Comment:

2. Input Data & Anchor Parameters

General

Design method: ACI 318-19

Units: Imperial units

Anchor Information:

Anchor type: Concrete screw

Material: Stainless Steel

Diameter (inch): 0.500

Nominal Embedment depth (inch): 3.250

Effective Embedment depth, h_{ef} (inch): 1.860

Code report: IAPMO UES ER-493

Anchor category: 1

Anchor ductility: Yes

h_{min} (inch): 5.00

c_{ac} (inch): 6.00

c_{min} (inch): 2.25

s_{min} (inch): 3.00

Base Material

Concrete: Normal-weight

Concrete thickness, h (inch): 8.00

State: Cracked

Compressive strength, f'_c (psi): 3000

$\Psi_{c,v}$: 1.0

Reinforcement condition: Supplementary reinforcement not present

Supplemental edge reinforcement: Not applicable

Reinforcement provided at corners: No

Ignore concrete breakout in tension: No

Ignore concrete breakout in shear: No

Ignore 6do requirement: Not applicable

Build-up grout pad: No

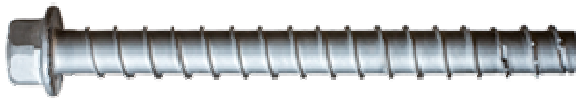
Base Plate

Length x Width x Thickness (inch): 7.00 x 48.00 x 0.38

Recommended Anchor

Anchor Name: Titen HD® Stainless Steel - 1/2"Ø THDSS, h_{nom} : 3.25" (83mm)

Code Report: IAPMO UES ER-493





Anchor Designer™ for
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Version 3.3.2404.1

Company:	AHBL	Date:	12/10/2024
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Project:	Centeris Exterior Stairs		
Address:	2215 North 30th Street		
Phone:			
E-mail:	dmceachern@ahbl.com		

Load and Geometry

Load factor source: ACI 318 Section 5.3

Load combination: $U = 1.2D + 1.0E + 1.0L + 0.2S$

Seismic design: Yes

Anchors subjected to sustained tension: Not applicable

Ductility section for tension: 17.10.5.3 (d) is satisfied

Ductility section for shear: 17.10.6.3 (c) is satisfied

Ω_0 factor: 2.0

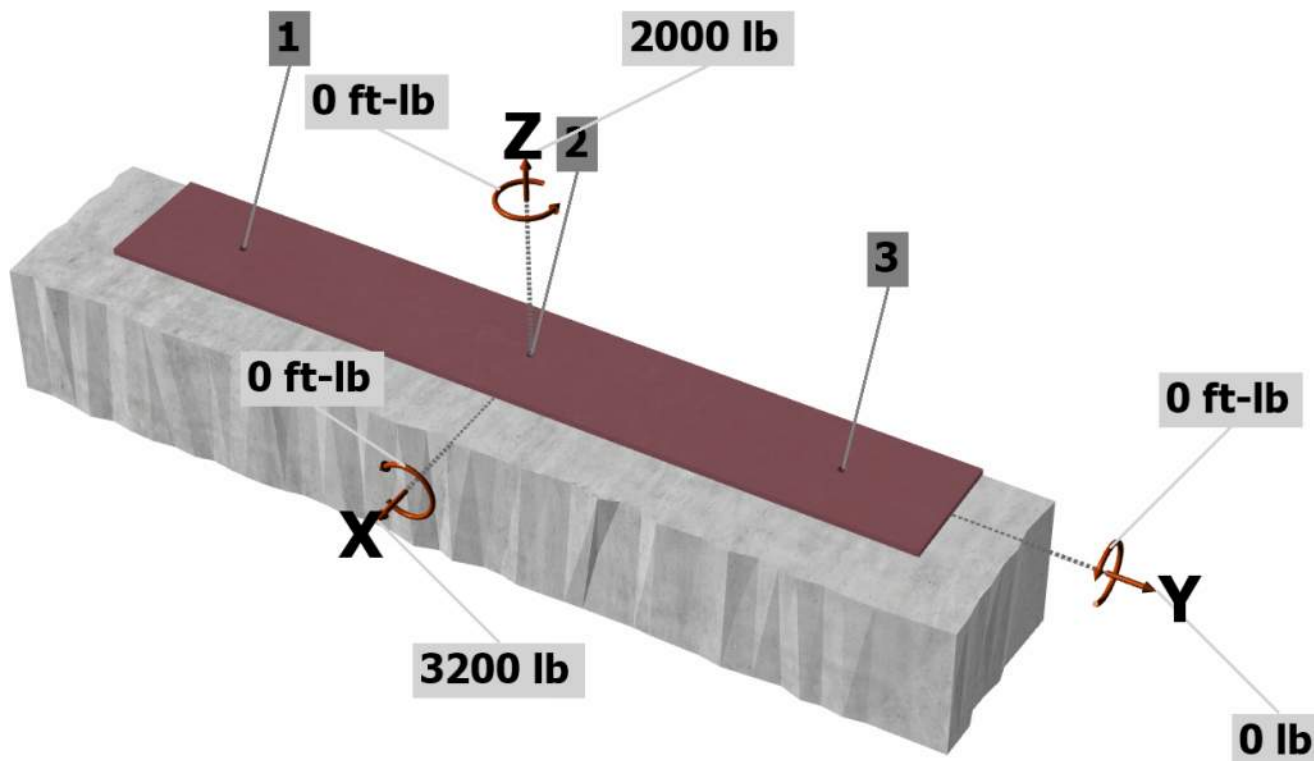
Apply entire shear load at front row: No

Anchors only resisting wind and/or seismic loads: No

Service level loads:

	D	E	L	S	Strength level loads
N_a [lb]:	0	1000	0	0	2000
V_{ax} [lb]:	1000	0	2000	0	3200
V_{ay} [lb]:	0	0	0	0	0
M_x [ft-lb]:	0	0	0	0	0
M_y [ft-lb]:	0	0	0	0	0
M_z [ft-lb]:	0	0	0	0	0

<Figure 1>



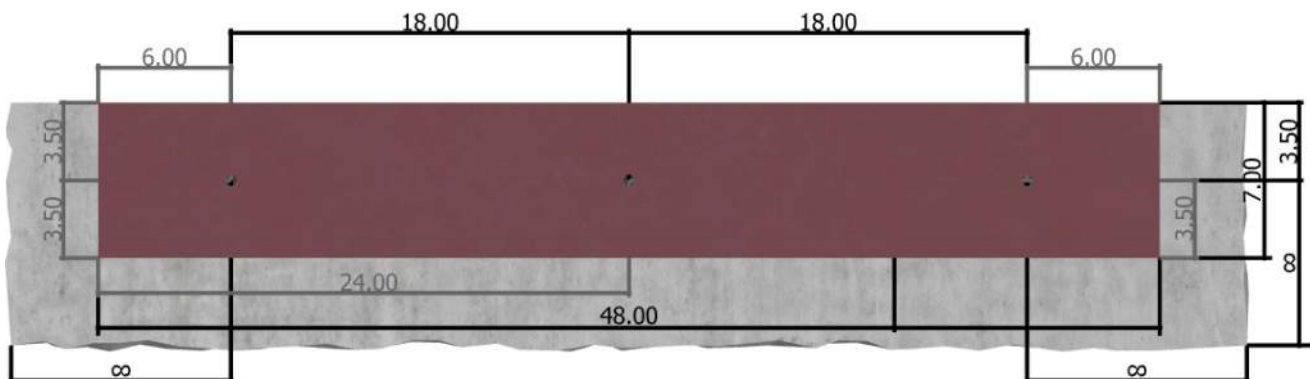
Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.

Simpson Strong-Tie Company Inc. 5956 W. Las Positas Boulevard Pleasanton, CA 94588 Phone: 925.560.9000 Fax: 925.847.3871 www.strongtie.com



Company:	AHBL	Date:	12/10/2024
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Address:	2215 North 30th Street		
Phone:			
E-mail:	dmceachern@ahbl.com		

<Figure 2>



3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2 + (V_{uay})^2}$ (lb)
1	666.7	1066.7	0.0	1066.7
2	666.7	1066.7	0.0	1066.7
3	666.7	1066.7	0.0	1066.7
Sum	2000.0	3200.0	0.0	3200.0

Maximum concrete compression strain (%): 0.00

Maximum concrete compression stress (psi): 0

Resultant tension force (lb): 2000

Resultant compression force (lb): 0

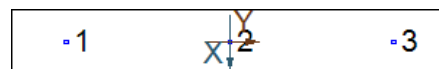
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00

Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00

Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00

Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>





**Anchor Designer™ for
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E-mail:	dmceachern@ahbl.com		

4. Steel Strength of Anchor in Tension (Sec. 17.6.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
20885	0.75	15664

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.6.2)

$$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5} \text{ (Eq. 17.6.2.2.1)}$$

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
17.0	1.00	3000	1.860	2362

$$0.75\phi N_{cbg} = 0.75\phi (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b \text{ (Sec. 17.5.1.2 & Eq. 17.6.2.1a)}$$

A_{Nc} (in ²)	A_{Nco} (in ²)	$C_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	$0.75\phi N_{cbg}$ (lb)
93.41	31.14	3.50	1.000	1.000	1.00	1.000	2362	0.65	3454

6. Pullout Strength of Anchor in Tension (Sec. 17.6.3)

$$0.75\phi N_{pn} = 0.75\phi \Psi_{c,P} \lambda_a N_p (f'_c / 2,500)^n \text{ (Sec. 17.5.1.2, Eq. 17.6.3.1 & Code Report)}$$

$\Psi_{c,P}$	λ_a	N_p (lb)	f'_c (psi)	n	ϕ	$0.75\phi N_{pn}$ (lb)
1.0	1.00	1995	3000	0.50	0.65	1065



**Anchor Designer™ for
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Address:	2215 North 30th Street		
Phone:			
E-mail:	dmceachern@ahbl.com		

8. Steel Strength of Anchor in Shear (Sec. 17.7.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
5345	1.0	0.65	3474

10. Concrete Pryout Strength of Anchor in Shear (Sec. 17.7.3)

$\phi V_{cpq} = \phi k_{cp} N_{cbg} = \phi k_{cp} (A_{Nc} / A_{Nco}) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.7.3.1b)

k_{cp}	A_{Nc} (in ²)	A_{Nco} (in ²)	$\psi_{ec,N}$	$\psi_{ed,N}$	$\psi_{c,N}$	$\psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpq} (lb)
1.0	93.41	31.14	1.000	1.000	1.000	1.000	2362	0.70	4960

11. Results

Interaction of Tensile and Shear Forces (Sec. R17.8)

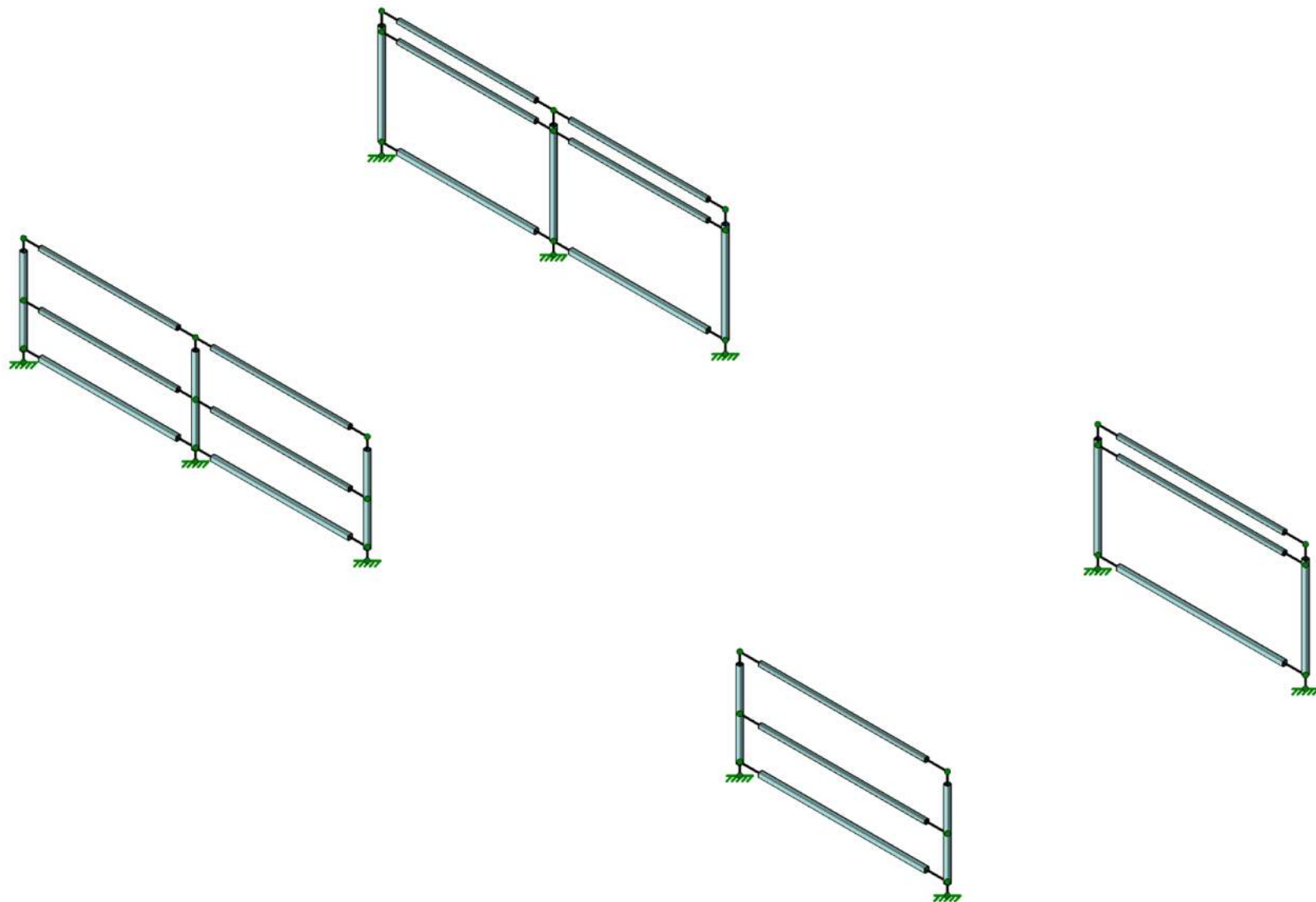
Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status	
Steel	667	15664	0.04	Pass	
Concrete breakout	2000	3454	0.58	Pass	
Pullout	667	1065	0.63	Pass (Governs)	
Shear	Factored Load, V_{ua} (lb)	Design Strength, ϕV_n (lb)	Ratio	Status	
Steel	1067	3474	0.31	Pass	
Pryout	3200	4960	0.65	Pass (Governs)	
Interaction check	$(N_{ua}/\phi N_{ua})^{5/3}$	$(V_{ua}/\phi V_{ua})^{5/3}$	Combined Ratio	Permissible	Status
Sec. R17.8	0.46	0.48	93.9%	1.0	Pass

1/2"Ø THDSS, hnom:3.25" (83mm) meets the selected design criteria.

12. Warnings

- Per designer input, ductility requirements for tension have been determined to be satisfied – designer to verify.
- Per designer input, ductility requirements for shear have been determined to be satisfied – designer to verify.
- Designer must exercise own judgement to determine if this design is suitable.
- Refer to manufacturer's product literature for hole cleaning and installation instructions.

RAILING DESIGN



Envelope Only Solution



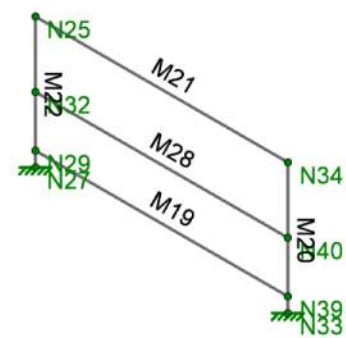
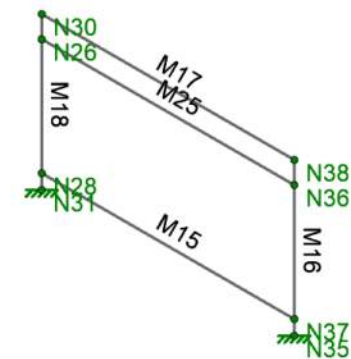
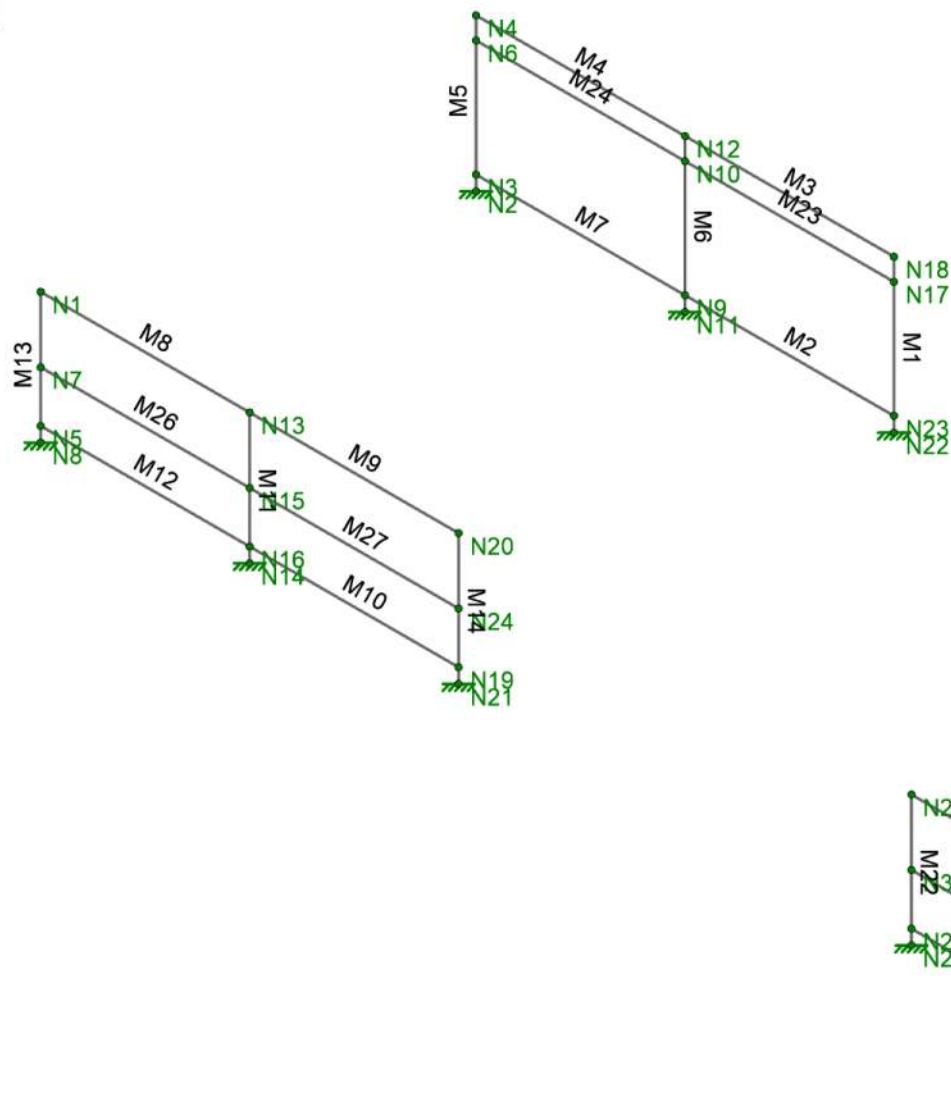
AHBL, Inc.
AMP
2240887.20

Welcome Ramp Standards

SK-1

Oct 20, 2024 at 04:43 PM

Typical Railing



Envelope Only Solution



AHBL, Inc.

AMP

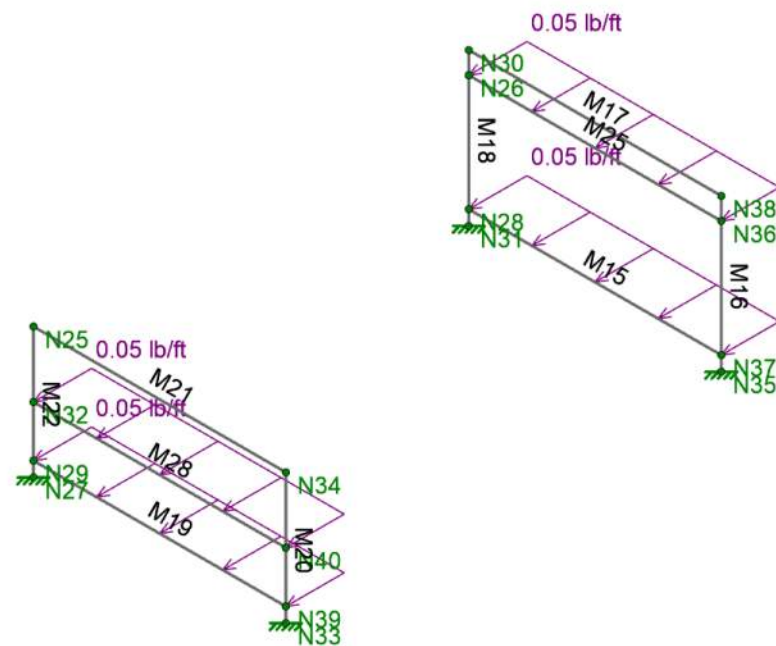
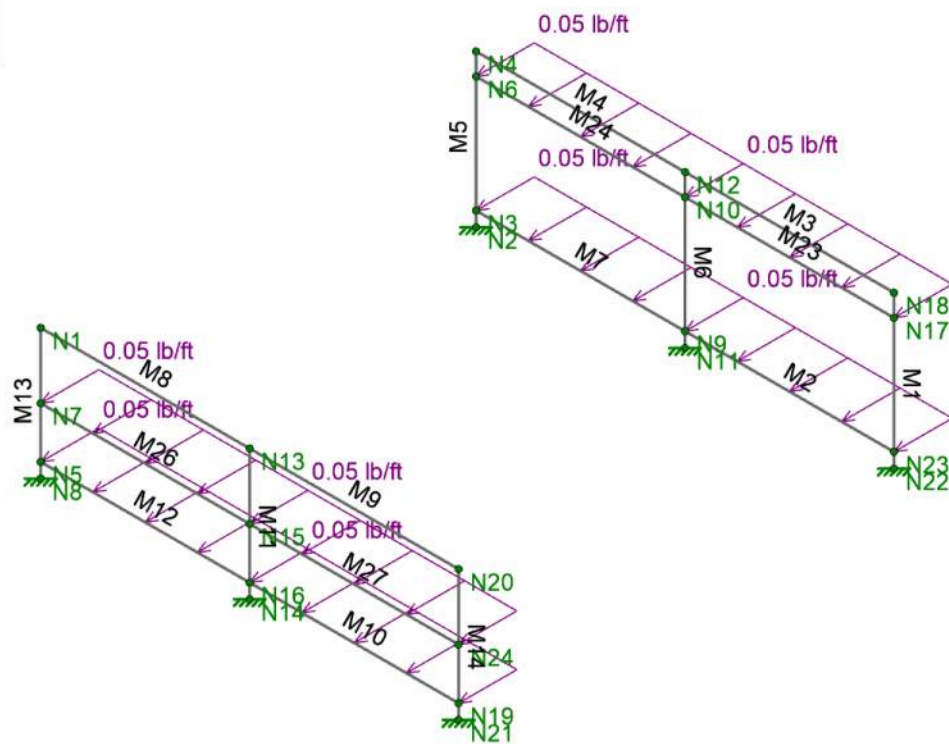
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Welcome Ramp Standards

SK-2

Oct 20, 2024 at 04:43 PM

Typical Railing



Loads: BLC 2, Uniform Live - Intermediate Rail
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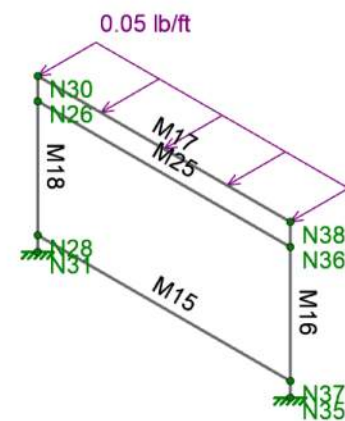
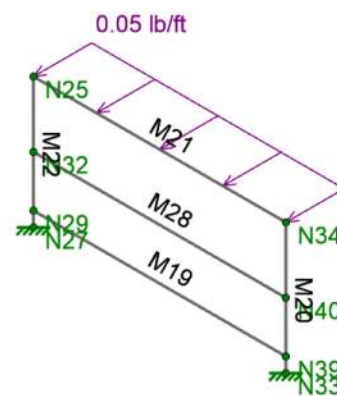
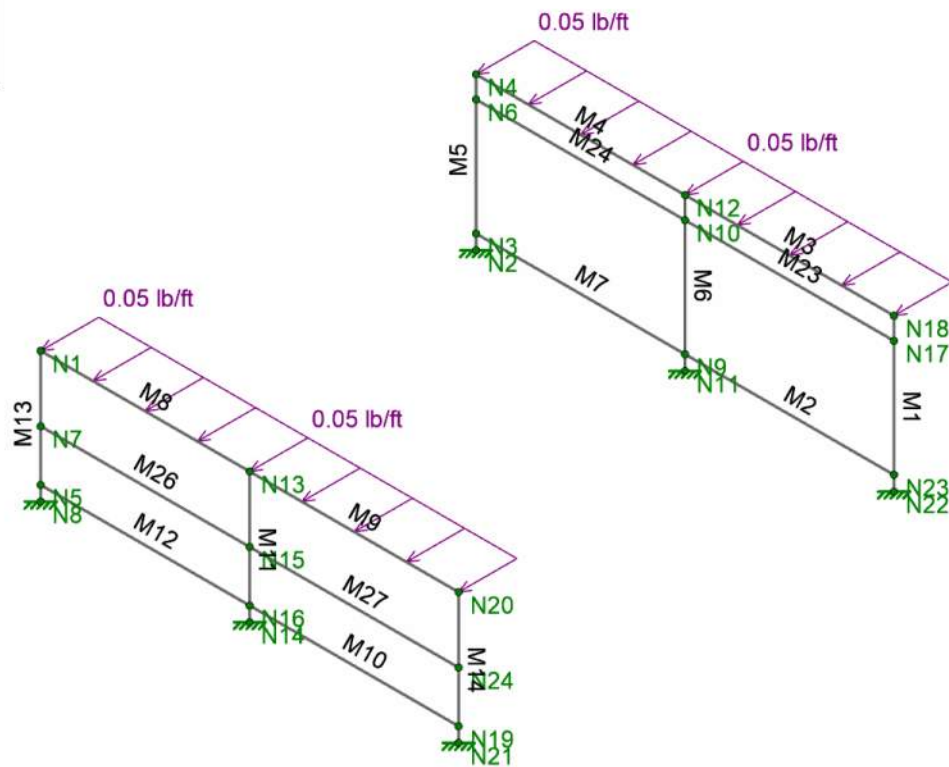
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Welcome Ramp Standards

SK-3

Oct 20, 2024 at 04:43 PM

Typical Railing



Loads: BLC 3, Uniform Live - Top Rail
Envelope Only Solution



AHBL, Inc.
AMP
2240887.20

Welcome Ramp Standards

SK-4

Oct 20, 2024 at 04:43 PM

Typical Railing

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	N1	0	3	10	
2	N2	0	0	0	
3	N3	0	0.333	0	
4	N4	0	3.5	0	
5	N5	0	0.333	10	
6	N6	0	3	0	
7	N7	0	1.5	10	
8	N8	0	0	10	
9	N9	4.8	0.333	0	
10	N10	4.8	3	0	
11	N11	4.8	0	0	
12	N12	4.8	3.5	0	
13	N13	4.8	3	10	
14	N14	4.8	0	10	
15	N15	4.8	1.5	10	
16	N16	4.8	0.333	10	
17	N17	9.6	3	0	
18	N18	9.6	3.5	0	
19	N19	9.6	0.333	10	
20	N20	9.6	3	10	
21	N21	9.6	0	10	
22	N22	9.6	0	0	
23	N23	9.6	0.333	0	
24	N24	9.6	1.5	10	
25	N25	20	3	10	
26	N26	20	3	0	
27	N27	20	0	10	
28	N28	20	0.333	0	
29	N29	20	0.333	10	
30	N30	20	3.5	0	
31	N31	20	0	0	
32	N32	20	1.5	10	
33	N33	25.8	0	10	
34	N34	25.8	3	10	
35	N35	25.8	0	0	
36	N36	25.8	3	0	
37	N37	25.8	0.333	0	
38	N38	25.8	3.5	0	
39	N39	25.8	0.333	10	
40	N40	25.8	1.5	10	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N11	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N22	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N21	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N14	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N8	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N31	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N35	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N27	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	N33	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$10^{-6}/^{\circ}\text{F}$]	Density [k/ft ³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B RECT	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A500 Gr.C RND	29000	11154	0.3	0.65	0.527	46	1.4	62	1.3
7	A500 Gr.C RECT	29000	11154	0.3	0.65	0.527	50	1.4	62	1.3
8	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
9	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
10	A913 Gr.65	29000	11154	0.3	0.65	0.49	65	1.1	80	1.1

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$10^{-6}/^{\circ}\text{F}$]	Density [k/ft ³]	Yield [ksi]	Fu [ksi]
1	A653 SS Gr33	29500	11346	0.3	0.65	0.49	33	45
2	A653 SS Gr50/1	29500	11346	0.3	0.65	0.49	50	65

Wood Properties

	Label	Type	Database	Species	Grade	Cm	Ci	Emod	Nu	Therm. Coeff. [$10^{-6}/^{\circ}\text{F}$]	Density [k/ft ³]
1	DF	Solid Sawn	Visually Graded	Douglas Fir-Larch	No.1			1	0.3	0.3	0.035
2	SP	Solid Sawn	Visually Graded	Southern Pine	No.1			1	0.3	0.3	0.035
3	HF	Solid Sawn	Visually Graded	Hem-Fir	No.1			1	0.3	0.3	0.035
4	SPF	Solid Sawn	Visually Graded	Spruce-Pine-fir	No.1			1	0.3	0.3	0.035
5	24F-1.8E DF Balanced	Glulam	NDS Table 5A	24F-1.8E DF BAL	na			1	0.3	0.3	0.035
6	24F-1.8E DF Unbalanced	Glulam	NDS Table 5A	24F-1.8E DF UNBAL	na			1	0.3	0.3	0.035
7	24F-1.8E SP Balanced	Glulam	NDS Table 5A	24F-1.8E SP BAL	na			1	0.3	0.3	0.035
8	24F-1.8E SP Unbalanced	Glulam	NDS Table 5A	24F-1.8E SP UNBAL	na			1	0.3	0.3	0.035
9	1.3E-1600F VERSALAM	SCL	Boise Cascade	1.3E-1600F VERSALAM	na			1	0.3	0.3	0.035
10	1.35E LSL SolidStart	SCL	Louisiana Pacific	1.35E LSL SolidStart	na			1	0.3	0.3	0.035
11	1.3E RIGIDLAM LVL	SCL	Roseburg Forest Products 2012	1.3E RIGIDLAM LVL	na			1	0.3	0.3	0.035
12	2.0E DF Parallam PSL	SCL	TrusJoist	2.0E DF Parallam PSL	na			1	0.3	0.3	0.035
13	LVL PRL 1.5E 2250F	Custom	N/A	LVL PRL 1.5E 2250F	na			1	0.3	0.3	0.035
14	LVL Microlam 1.9E 2600F	Custom	N/A	LVL Microlam 1.9E 2600F	na			1	0.3	0.3	0.035
15	PSL Parallam 2.0E 2900F	Custom	N/A	PSL Parallam 2.0E 2900F	na			1	0.3	0.3	0.035
16	LSL TimberStrand 1.55E 2325F	Custom	N/A	LSL TimberStrand 1.55E 2325F	na			1	0.3	0.3	0.035

Concrete Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$10^{-6}/^{\circ}\text{F}$]	Density [k/ft ³]	f'c [ksi]	Lambda	Flex Steel [ksi]	Shear Steel [ksi]
1	Conc3000NW	3156	1372	0.15	0.6	0.145	3	1	60	60
2	Conc3500NW	3409	1482	0.15	0.6	0.145	3.5	1	60	60
3	Conc4000NW	3644	1584	0.15	0.6	0.145	4	1	60	60
4	Conc3000LW	2085	907	0.15	0.6	0.11	3	0.75	60	60
5	Conc3500LW	2252	979	0.15	0.6	0.11	3.5	0.75	60	60
6	Conc4000LW	2408	1047	0.15	0.6	0.11	4	0.75	60	60

Masonry Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$10^{-6}/^{\circ}\text{F}$]	Self Weight [k/ft ³]	f'm [ksi]	Flex Steel [ksi]	Shear Steel [ksi]
1	Concrete Matl	1350	540	0.25	0.6	Custom	1.5	60	60
2	Clay Matl	1050	420	0.25	0.6	Custom	1.5	60	60
3	Gen Masonry	1050	420	0.25	0.6	0.08	1.5	60	60

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e ⁵ °F ⁻¹]	Density [k/ft ³]	Table B.4	kt Ft _u [ksi]	F _{ty} [ksi]	F _{cy} [ksi]	F _{su} [ksi]	Ct	
1	3003-H14	10100	3787.5	0.33	1.3	0.173	Table B.4-1	1	19	16	13	12	141
2	6061-T6	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	38	35	35	24	141
3	6063-T5	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	22	16	16	13	141
4	6063-T6	10100	3787.5	0.33	1.3	0.173	Table B.4-2	1	30	25	25	19	141
5	5052-H34	10200	3787.5	0.33	1.3	0.173	Table B.4-1	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	0.33	1.3	0.173	Table B.4-1	1	24	15	15	15	141

Stainless Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$10^{-6}F^{-1}$]	Density [k/ft ³]	n	Yield [ksi]	F _u [ksi]
1	A276 S316	28000	10780	0.3	0.93	0.5	5.6	30	75
2	A276 S321	29000	11165	0.3	0.73	0.48	5.6	65	94
3	A276 S304	28000	10780	0.3	0.93	0.49	5.6	30	75

General Materials Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [$10^{-6}F^{-1}$]	Density [k/ft ³]	Plate Methodology
1	gen Conc3NW	3155	1372	0.15	0.6	0.145	Isotropic
2	gen Conc4NW	3644	1584	0.15	0.6	0.145	Isotropic
3	gen Conc3LW	2085	906	0.15	0.6	0.11	Isotropic
4	gen Conc4LW	2408	1047	0.15	0.6	0.11	Isotropic
5	gen Alum	10100	4077	0.3	1.29	0.173	Isotropic
6	gen Steel	29000	11154	0.3	0.65	0.49	Isotropic
7	gen Plywood	1800	38	0	0.3	0.035	Isotropic
8	RIGID	1e+6		0.3	0	0	Isotropic
9	gen Ortho				0.65	0.49	Orthotropic

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
1	Horiz Guard	RT1.5X1.5X0.156	Beam	Rectangular Tubes	6061-T6	Typical	0.839	0.256	0.256	0.379
2	Post 1875 6061-T6	RT1.5X1.5X.1875	Column	Rectangular Tubes	6061-T6	Typical	0.987	0.289	0.289	0.425
3	Handrail	1.500ODX0.188	Beam	Pipe	6063-T5	Typical	0.775	0.17	0.17	0.333
4	POST 1875 6063-T5	RT1.5X1.5X.1875	Column	Rectangular Tubes	6063-T5	Typical	0.987	0.289	0.289	0.425

Member Primary Data

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N18	N22	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
2	M2	N9	N23	Horiz Guard	Beam	Rectangular Tubes	6061-T6	Typical
3	M3	N12	N18	Handrail	Beam	Pipe	6063-T5	Typical
4	M4	N4	N12	Handrail	Beam	Pipe	6063-T5	Typical
5	M5	N2	N4	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
6	M6	N12	N11	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
7	M7	N3	N9	Horiz Guard	Beam	Rectangular Tubes	6061-T6	Typical
8	M8	N1	N13	Handrail	Beam	Pipe	6063-T5	Typical
9	M9	N13	N20	Handrail	Beam	Pipe	6063-T5	Typical
10	M10	N16	N19	Horiz Guard	Beam	Rectangular Tubes	6061-T6	Typical
11	M11	N13	N14	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
12	M12	N5	N16	Horiz Guard	Beam	Rectangular Tubes	6061-T6	Typical
13	M13	N8	N1	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
14	M14	N20	N21	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
15	M15	N28	N37	Horiz Guard	Beam	Rectangular Tubes	6061-T6	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Section/Shape	Type	Design List	Material	Design Rule
16	M16	N38	N35	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
17	M17	N30	N38	Handrail	Beam	Pipe	6063-T5	Typical
18	M18	N30	N31	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
19	M19	N29	N39	Horiz Guard	Beam	Rectangular Tubes	6061-T6	Typical
20	M20	N34	N33	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
21	M21	N25	N34	Handrail	Beam	Pipe	6063-T5	Typical
22	M22	N25	N27	Post 1875 6061-T6	Column	Rectangular Tubes	6061-T6	Typical
23	M23	N10	N17	Handrail	Beam	Pipe	6063-T5	Typical
24	M24	N6	N10	Handrail	Beam	Pipe	6063-T5	Typical
25	M25	N26	N36	Handrail	Beam	Pipe	6063-T5	Typical
26	M26	N7	N15	Handrail	Beam	Pipe	6063-T5	Typical
27	M27	N15	N24	Handrail	Beam	Pipe	6063-T5	Typical
28	M28	N32	N40	Handrail	Beam	Pipe	6063-T5	Typical

Member Advanced Data

	Label	Col-Wall Vert Release	Physical	Deflection Ratio Options	Seismic DR
1	M1		Yes	** NA **	None
2	M2		Yes	Default	None
3	M3		Yes	Default	None
4	M4		Yes	Default	None
5	M5		Yes	** NA **	None
6	M6		Yes	** NA **	None
7	M7		Yes	Default	None
8	M8		Yes	Default	None
9	M9		Yes	Default	None
10	M10		Yes	Default	None
11	M11		Yes	** NA **	None
12	M12		Yes	Default	None
13	M13		Yes	** NA **	None
14	M14		Yes	** NA **	None
15	M15		Yes	Default	None
16	M16		Yes	** NA **	None
17	M17		Yes	Default	None
18	M18		Yes	** NA **	None
19	M19		Yes	Default	None
20	M20		Yes	** NA **	None
21	M21		Yes	Default	None
22	M22		Yes	** NA **	None
23	M23		Yes	Default	None
24	M24		Yes	Default	None
25	M25		Yes	Default	None
26	M26		Yes	Default	None
27	M27		Yes	Default	None
28	M28		Yes	Default	None

Aluminum Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	M1	Post 1875 6061-T6	3.5	Lbyy	Lateral
2	M2	Horiz Guard	4.8	Lbyy	Lateral
3	M3	Handrail	4.8	Lbyy	Lateral
4	M4	Handrail	4.8	Lbyy	Lateral
5	M5	Post 1875 6061-T6	3.5	Lbyy	Lateral
6	M6	Post 1875 6061-T6	3.5	Lbyy	Lateral

Aluminum Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
7	M7	Horiz Guard	4.8	Lbyy	Lateral
8	M8	Handrail	4.8	Lbyy	Lateral
9	M9	Handrail	4.8	Lbyy	Lateral
10	M10	Horiz Guard	4.8	Lbyy	Lateral
11	M11	Post 1875 6061-T6	3	Lbyy	Lateral
12	M12	Horiz Guard	4.8	Lbyy	Lateral
13	M13	Post 1875 6061-T6	3	Lbyy	Lateral
14	M14	Post 1875 6061-T6	3	Lbyy	Lateral
15	M15	Horiz Guard	5.8	Lbyy	Lateral
16	M16	Post 1875 6061-T6	3.5	Lbyy	Lateral
17	M17	Handrail	5.8	Lbyy	Lateral
18	M18	Post 1875 6061-T6	3.5	Lbyy	Lateral
19	M19	Horiz Guard	5.8	Lbyy	Lateral
20	M20	Post 1875 6061-T6	3	Lbyy	Lateral
21	M21	Handrail	5.8	Lbyy	Lateral
22	M22	Post 1875 6061-T6	3	Lbyy	Lateral
23	M23	Handrail	4.8	Lbyy	Lateral
24	M24	Handrail	4.8	Lbyy	Lateral
25	M25	Handrail	5.8	Lbyy	Lateral
26	M26	Handrail	4.8	Lbyy	Lateral
27	M27	Handrail	4.8	Lbyy	Lateral
28	M28	Handrail	5.8	Lbyy	Lateral

Nodal Loads and Enforced Displacements

No Data to Print...

Member Point Loads

No Data to Print...

Member Distributed Loads (BLC 2 : Uniform Live - Intermediate Rail)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, lb-ft/ft]	End Magnitude [lb/ft, F, psf, lb-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M26	Z	0.05	0.05	0	%100
2	M27	Z	0.05	0.05	0	%100
3	M12	Z	0.05	0.05	0	%100
4	M10	Z	0.05	0.05	0	%100
5	M7	Z	0.05	0.05	0	%100
6	M2	Z	0.05	0.05	0	%100
7	M19	Z	0.05	0.05	0	%100
8	M28	Z	0.05	0.05	0	%100
9	M15	Z	0.05	0.05	0	%100
10	M24	Z	0.05	0.05	0	%100
11	M23	Z	0.05	0.05	0	%100
12	M25	Z	0.05	0.05	0	%100

Member Distributed Loads (BLC 3 : Uniform Live - Top Rail)

	Member Label	Direction	Start Magnitude [lb/ft, F, psf, lb-ft/ft]	End Magnitude [lb/ft, F, psf, lb-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M8	Z	0.05	0.05	0	%100
2	M9	Z	0.05	0.05	0	%100
3	M4	Z	0.05	0.05	0	%100
4	M3	Z	0.05	0.05	0	%100
5	M21	Z	0.05	0.05	0	%100
6	M17	Z	0.05	0.05	0	%100

Wall Panel Distributed Loads

No Data to Print...

Diaphragm Distributed Loads

No Data to Print...

Basic Load Cases

	BLC Description	Category	Y Gravity	Distributed
1	Dead Load	DL	-1	
2	Uniform Live - Intermediate Rail	LL		12
3	Uniform Live - Top Rail	LL		6
4	Point Live - Intermediate Rail	LL		
5	Point Live - Hand Rail	LL		
6	Point Live - Top Rail	LL		

Moving Loads

	Tag	Pattern	Increment [ft]	Both Ways	1st Node	2nd Node	3rd Node
1	M1	200#LL	0.5	Yes	N7	N15	N24
2	M2	200#LL	0.5	Yes	N6	N10	N17
3	M3	200#LL	0.5	Yes	N32	N40	
4	M4	200#LL	0.5	Yes	N26	N36	
5	M5	200#LL	0.5	Yes	N1	N13	N20
6	M6	200#LL	0.5	Yes	N4	N12	N18
7	M7	200#LL	0.5	Yes	N25	N34	
8	M8	200#LL	0.5	Yes	N30	N38	

Moving Load Patterns

	Pattern Label	Magnitude [lb]	Direction	Distance [ft]
1	200#LL	200	Z	0

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Dead Load	Yes	C	1	1								
2	D + L Uniform - Intermediate	Yes	C	1	1	2	1						
3	D + L Uniform - Top Rail	Yes	C	1	1	3	1						
4	D + L Point - Intermediate	Yes	C	1	1	M1	1	M3	1				
5	D + L Point - Handrail	Yes	C	1	1	M2	1	M4	1				
6	D + L Point - Top Rail	Yes	C	1	1	M5	1	M6	1	M7	1	M8	1

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N2	max	2.564	6-1	10.857	6-1	8.275	6-21	0	4-1	32.588	5-7	0.272	6-1
2		min	2.564	1	10.857	1	-182.085	5-1	-506.608	6-1	-35.691	6-1	0.272	1
3	N11	max	0	6-1	18.235	6-1	0	4-1	0	4-1	26.733	5-16	0	6-1
4		min	0	1	18.235	1	-149.154	5-31	-377.312	6-31	-26.733	5-36	0	1
5	N22	max	-2.564	6-1	10.857	6-1	8.275	6-1	0	4-1	35.691	6-21	-0.272	6-1
6		min	-2.564	1	10.857	1	-182.085	5-21	-506.608	6-21	-32.588	5-27	-0.272	1
7	N21	max	-2.601	6-1	10.29	6-1	10.825	4-6	0	5-1	26.829	6-21	-0.095	6-1
8		min	-2.601	1	10.29	1	-193.892	4-21	-452.694	6-21	-51.114	4-25	-0.095	1
9	N14	max	0	6-1	17.593	6-1	0	5-1	0	5-1	36.175	4-15	0	6-1

Envelope Node Reactions (Continued)

Node Label			X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
10		min	0	1	17.593	1	-182.284	4-31	-352.718	6-11	-36.175	4-35	0	1
11	N8	max	2.601	6-1	10.29	6-1	10.825	4-26	0	5-1	51.114	4-5	0.095	6-1
12		min	2.601	1	10.29	1	-193.892	4-1	-452.694	6-1	-26.829	6-1	0.095	1
13	N31	max	4.872	6-1	12.456	6-1	0	6-13	0	6-13	48.32	5-26	0.231	6-1
14		min	4.872	1	12.456	1	-191.311	5-1	-552.64	6-1	-30.595	6-1	0.231	1
15	N35	max	-4.872	6-1	12.456	6-1	0	6-13	0	6-13	30.595	6-21	-0.231	6-1
16		min	-4.872	1	12.456	1	-191.311	5-21	-552.64	6-21	-48.32	5-6	-0.231	1
17	N27	max	4.461	6-1	11.864	6-1	0	6-13	0	6-13	75.425	4-6	0.041	6-1
18		min	4.461	1	11.864	1	-196.944	4-1	-483.45	6-1	-21.786	6-1	0.041	1
19	N33	max	-4.461	6-1	11.864	6-1	0	6-13	0	6-13	21.786	6-21	-0.041	6-1
20		min	-4.461	1	11.864	1	-196.944	4-21	-483.45	6-21	-75.425	4-26	-0.041	1
21	Totals:	max	0	6-1	126.763	6-1	0	1						
22		min	0	1	126.763	1	-800	6-12						

Envelope Node Displacements

Node Label			X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	6-1	0	6-1	0.966	6-1	3.852e-2	6-1	9.318e-3	6-1	-3.392e-5	6-1
2		min	0	1	0	1	0	1	0	1	-1.288e-2	6-35	-3.392e-5	1
3	N2	max	0	6-1	0	6-1	0	5-1	0	6-1	0	6-1	0	6-1
4		min	0	1	0	1	0	6-21	0	1	0	5-7	0	1
5	N3	max	0	6-1	0	6-1	0.02	6-1	9.796e-3	6-1	1.064e-3	6-1	-1.435e-5	6-1
6		min	0	1	0	1	0	1	0	1	-9.718e-4	5-7	-1.435e-5	1
7	N4	max	0	6-1	0	6-1	1.425	6-1	4.716e-2	6-1	1.388e-2	6-1	-2.845e-5	6-1
8		min	0	1	0	1	0	1	0	1	-1.207e-2	6-8	-2.845e-5	1
9	N5	max	0	6-1	0	6-1	0.018	6-1	8.667e-3	6-1	8.e-4	6-1	-1.085e-5	6-1
10		min	0	1	0	1	0	1	0	1	-1.524e-3	4-5	-1.085e-5	1
11	N6	max	0	6-1	0	6-1	1.14	6-1	4.722e-2	6-1	1.243e-2	6-1	-1.893e-5	6-1
12		min	0	1	0	1	0	1	0	1	-1.028e-2	5-7	-1.893e-5	1
13	N7	max	0	6-1	0	6-1	0.309	6-1	3.007e-2	6-1	4.435e-3	6-1	-8.011e-6	6-1
14		min	0	1	0	1	0	1	0	1	-8.191e-3	4-5	-8.011e-6	1
15	N8	max	0	6-1	0	6-1	0	4-1	0	6-1	0	6-1	0	6-1
16		min	0	1	0	1	0	4-26	0	1	0	4-5	0	1
17	N9	max	0	6-1	0	6-1	0.015	6-31	7.27e-3	6-31	7.971e-4	5-36	0	6-1
18		min	0	1	0	1	0	1	0	1	-7.971e-4	5-16	0	1
19	N10	max	0	6-1	0	6-1	0.843	6-31	3.43e-2	6-31	1.028e-2	5-36	0	6-1
20		min	0	1	0	1	0	1	0	1	-1.028e-2	5-16	0	1
21	N11	max	0	6-1	0	6-1	0	5-31	0	6-31	0	5-36	0	6-1
22		min	0	1	0	1	0	1	0	1	0	5-16	0	1
23	N12	max	0	6-1	0	6-1	1.05	6-31	3.407e-2	6-31	1.276e-2	6-5	0	6-1
24		min	0	1	0	1	0	1	0	1	-1.276e-2	6-25	0	1
25	N13	max	0	6-1	0	6-1	0.742	6-11	2.898e-2	6-11	1.227e-2	6-6	0	6-1
26		min	0	1	0	1	0	1	0	1	-1.227e-2	6-26	0	1
27	N14	max	0	6-1	0	6-1	0	4-11	0	6-11	0	4-35	0	6-1
28		min	0	1	0	1	0	1	0	1	0	4-15	0	1
29	N15	max	0	6-1	0	6-1	0.239	6-11	2.303e-2	6-11	6.548e-3	4-7	0	6-1
30		min	0	1	0	1	0	1	0	1	-6.548e-3	4-27	0	1
31	N16	max	0	6-1	0	6-1	0.014	6-11	6.705e-3	6-11	1.079e-3	4-35	0	6-1
32		min	0	1	0	1	0	1	0	1	-1.079e-3	4-15	0	1
33	N17	max	0	6-1	0	6-1	1.14	6-21	4.722e-2	6-21	1.028e-2	5-27	1.893e-5	6-1
34		min	0	1	0	1	0	1	0	1	-1.243e-2	6-21	1.893e-5	1
35	N18	max	0	6-1	0	6-1	1.425	6-21	4.716e-2	6-21	1.207e-2	6-28	2.845e-5	6-1
36		min	0	1	0	1	0	1	0	1	-1.388e-2	6-21	2.845e-5	1
37	N19	max	0	6-1	0	6-1	0.018	6-21	8.667e-3	6-21	1.524e-3	4-25	1.085e-5	6-1
38		min	0	1	0	1	0	1	0	1	-8.e-4	6-21	1.085e-5	1
39	N20	max	0	6-1	0	6-1	0.966	6-21	3.852e-2	6-21	1.288e-2	6-15	3.392e-5	6-1

Envelope Node Displacements (Continued)

Node Label		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC	
40		min	0	1	0	1	0	1	0	-9.318e-3	6-21	3.392e-5	1	
41	N21	max	0	6-1	0	6-1	0	4-21	0	6-21	0	4-25	0	6-1
42		min	0	1	0	1	0	4-6	0	1	0	6-21	0	1
43	N22	max	0	6-1	0	6-1	0	5-21	0	6-21	0	5-27	0	6-1
44		min	0	1	0	1	0	6-1	0	1	0	6-21	0	1
45	N23	max	0	6-1	0	6-1	0.02	6-21	9.796e-3	6-21	9.718e-4	5-27	1.435e-5	6-1
46		min	0	1	0	1	0	1	0	1	-1.064e-3	6-21	1.435e-5	1
47	N24	max	0	6-1	0	6-1	0.309	6-21	3.007e-2	6-21	8.191e-3	4-25	8.011e-6	6-1
48		min	0	1	0	1	0	1	0	1	-4.435e-3	6-21	8.011e-6	1
49	N25	max	0	6-1	0	6-1	1.037	6-1	4.164e-2	6-1	7.579e-3	6-1	-5.42e-5	6-1
50		min	0	1	0	1	0	1	0	1	-1.879e-2	6-27	-5.42e-5	1
51	N26	max	0	6-1	0	6-1	1.254	6-1	5.246e-2	6-1	1.063e-2	6-1	-2.313e-5	6-1
52		min	0	1	0	1	0	1	0	1	-1.466e-2	5-7	-2.313e-5	1
53	N27	max	0	6-1	0	6-1	0	4-1	0	6-1	0	6-1	0	6-1
54		min	0	1	0	1	0	1	0	1	0	4-6	0	1
55	N28	max	0	6-1	0	6-1	0.022	6-1	1.07e-2	6-1	9.123e-4	6-1	-2.141e-5	6-1
56		min	0	1	0	1	0	1	0	1	-1.441e-3	5-26	-2.141e-5	1
57	N29	max	0	6-1	0	6-1	0.019	6-1	9.273e-3	6-1	6.496e-4	6-1	-1.61e-5	6-1
58		min	0	1	0	1	0	1	0	1	-2.249e-3	4-6	-1.61e-5	1
59	N30	max	0	6-1	0	6-1	1.572	6-1	5.257e-2	6-1	1.184e-2	6-1	-3.609e-5	6-1
60		min	0	1	0	1	0	1	0	1	-1.714e-2	6-26	-3.609e-5	1
61	N31	max	0	6-1	0	6-1	0	5-1	0	6-1	0	6-1	0	6-1
62		min	0	1	0	1	0	1	0	1	0	5-26	0	1
63	N32	max	0	6-1	0	6-1	0.331	6-1	3.231e-2	6-1	3.608e-3	6-1	-1.104e-5	6-1
64		min	0	1	0	1	0	1	0	1	-1.149e-2	4-28	-1.104e-5	1
65	N33	max	0	6-1	0	6-1	0	4-21	0	6-21	0	4-26	0	6-1
66		min	0	1	0	1	0	1	0	1	0	6-21	0	1
67	N34	max	0	6-1	0	6-1	1.037	6-21	4.164e-2	6-21	1.879e-2	6-7	5.42e-5	6-1
68		min	0	1	0	1	0	1	0	1	-7.579e-3	6-21	5.42e-5	1
69	N35	max	0	6-1	0	6-1	0	5-21	0	6-21	0	5-6	0	6-1
70		min	0	1	0	1	0	1	0	1	0	6-21	0	1
71	N36	max	0	6-1	0	6-1	1.254	6-21	5.246e-2	6-21	1.466e-2	5-27	2.313e-5	6-1
72		min	0	1	0	1	0	1	0	1	-1.063e-2	6-21	2.313e-5	1
73	N37	max	0	6-1	0	6-1	0.022	6-21	1.07e-2	6-21	1.441e-3	5-6	2.141e-5	6-1
74		min	0	1	0	1	0	1	0	1	-9.123e-4	6-21	2.141e-5	1
75	N38	max	0	6-1	0	6-1	1.572	6-21	5.257e-2	6-21	1.714e-2	6-6	3.609e-5	6-1
76		min	0	1	0	1	0	1	0	1	-1.184e-2	6-21	3.609e-5	1
77	N39	max	0	6-1	0	6-1	0.019	6-21	9.273e-3	6-21	2.249e-3	4-26	1.61e-5	6-1
78		min	0	1	0	1	0	1	0	1	-6.496e-4	6-21	1.61e-5	1
79	N40	max	0	6-1	0	6-1	0.331	6-21	3.231e-2	6-21	1.149e-2	4-8	1.104e-5	6-1
80		min	0	1	0	1	0	1	0	1	-3.608e-3	6-21	1.104e-5	1

Envelope Member Section Forces

Member Sec			Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[lb-ft]	LC	y-y Moment[lb-ft]	LC	z-z Moment[lb-ft]	LC	
1	M1	1	max	2.164	6-40	-5.025	6-40	15.89	5-19	55.872	5-18	47.999	6-21	-1.565	6-40
2			min	2.164	1	-5.025	1	-183.9	6-21	-68.31	6-16	-29.909	6-7	-1.565	1
3		2	max	5.387	6-40	-0.499	6-40	5.935	6-1	47.593	6-21	9.37	5-21	-0.506	6-40
4			min	5.387	1	-0.499	1	-178.878	5-21	-38.995	5-27	-71.348	6-31	-0.506	1
5		3	max	6.423	6-40	-0.499	6-40	5.935	6-1	47.593	6-21	0	4-40	-0.069	6-40
6			min	6.423	1	-0.499	1	-178.878	5-21	-38.995	5-27	-212.826	6-21	-0.069	1
7		4	max	7.459	6-40	-0.499	6-40	5.935	6-1	47.593	6-21	0	4-40	0.367	6-40
8			min	7.459	1	-0.499	1	-178.878	5-21	-38.995	5-27	-365.849	6-21	0.367	1
9		5	max	10.857	6-40	-2.564	6-40	8.269	6-1	35.691	6-21	0	4-40	-0.272	6-40
10			min	10.857	1	-2.564	1	-182.162	5-21	-32.588	5-27	-506.608	6-21	-0.272	1
11	M2	1	max	2.066	6-40	2.468	6-40	4.363	6-21	9.582	6-8	9.106	5-6	2.016	6-40

Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[lb-ft]	LC	y-y Moment[lb-ft]	LC	z-z Moment[lb-ft]	LC	
12		min	2.066	1	2.468	1	-3.326	6-6	-13.625	6-21	-9.042	6-21	2.016	1	
13	2	max	2.066	6-40	1.261	6-40	4.363	6-21	9.582	6-8	5.209	5-36	-0.221	6-40	
14		min	2.066	1	1.261	1	-3.326	6-6	-13.625	6-21	-4.568	5-15	-0.221	1	
15	3	max	2.066	6-40	0.053	6-40	4.363	6-21	9.582	6-8	1.43	6-21	-1.009	6-40	
16		min	2.066	1	0.053	1	-3.326	6-6	-13.625	6-21	-5.182	5-15	-1.009	1	
17	4	max	2.066	6-40	-1.155	6-40	4.363	6-21	9.582	6-8	6.666	6-21	-0.348	6-40	
18		min	2.066	1	-1.155	1	-3.326	6-6	-13.625	6-21	-5.796	5-15	-0.348	1	
19	5	max	2.066	6-40	-2.362	6-40	4.363	6-21	9.582	6-8	11.903	6-21	1.762	6-40	
20		min	2.066	1	-2.362	1	-3.326	6-6	-13.625	6-21	-7.873	6-33	1.762	1	
21	M3	1	max	5.025	6-40	2.3	6-40	15.707	5-30	29.909	6-7	80.112	6-26	1.893	6-40
22		min	5.025	1	2.3	1	-178.766	6-11	-47.999	6-21	-63.371	5-12	1.893	1	
23	2	max	5.025	6-40	1.184	6-40	35.504	6-29	29.909	6-7	26.784	6-21	-0.198	6-40	
24		min	5.025	1	1.184	1	-151.531	6-13	-47.999	6-21	-130.647	6-13	-0.198	1	
25	3	max	5.025	6-40	0.068	6-40	92.821	6-26	29.909	6-7	14.232	6-38	-0.949	6-40	
26		min	5.025	1	0.068	1	-89.707	6-16	-47.999	6-21	-157.117	6-26	-0.949	1	
27	4	max	5.025	6-40	-1.048	6-40	135.831	6-24	29.909	6-7	13.094	6-37	-0.362	6-40	
28		min	5.025	1	-1.048	1	-48.484	6-18	-47.999	6-21	-111.844	6-18	-0.362	1	
29	5	max	5.025	6-40	-2.164	6-40	181.568	6-20	29.909	6-7	68.31	6-16	1.565	6-40	
30		min	5.025	1	-2.164	1	-16.41	6-21	-47.999	6-21	-55.872	5-18	1.565	1	
31	M4	1	max	5.025	6-40	2.164	6-40	16.41	6-1	47.999	6-1	68.31	6-36	1.565	6-40
32		min	5.025	1	2.164	1	-181.568	6-40	-29.909	6-27	-55.872	5-38	1.565	1	
33	2	max	5.025	6-40	1.048	6-40	48.484	6-38	47.999	6-1	13.094	6-17	-0.362	6-40	
34		min	5.025	1	1.048	1	-135.831	6-4	-29.909	6-27	-111.844	6-38	-0.362	1	
35	3	max	5.025	6-40	-0.068	6-40	89.707	6-36	47.999	6-1	14.232	6-18	-0.949	6-40	
36		min	5.025	1	-0.068	1	-92.821	6-6	-29.909	6-27	-157.117	6-6	-0.949	1	
37	4	max	5.025	6-40	-1.184	6-40	151.531	6-33	47.999	6-1	26.784	6-1	-0.198	6-40	
38		min	5.025	1	-1.184	1	-35.504	6-9	-29.909	6-27	-130.647	6-33	-0.198	1	
39	5	max	5.025	6-40	-2.3	6-40	178.766	6-31	47.999	6-1	80.112	6-6	1.893	6-40	
40		min	5.025	1	-2.3	1	-15.707	5-10	-29.909	6-27	-63.371	5-32	1.893	1	
41	M5	1	max	10.857	6-40	-2.564	6-40	8.269	6-21	32.588	5-7	506.608	6-1	0.272	6-40
42		min	10.857	1	-2.564	1	-182.162	5-1	-35.691	6-1	0	1	0.272	1	
43	2	max	7.459	6-40	-0.499	6-40	5.935	6-21	38.995	5-7	365.849	6-1	-0.367	6-40	
44		min	7.459	1	-0.499	1	-178.878	5-1	-47.593	6-1	0	1	-0.367	1	
45	3	max	6.423	6-40	-0.499	6-40	5.935	6-21	38.995	5-7	212.826	6-1	0.069	6-40	
46		min	6.423	1	-0.499	1	-178.878	5-1	-47.593	6-1	0	1	0.069	1	
47	4	max	5.387	6-40	-0.499	6-40	5.935	6-21	38.995	5-7	71.348	6-11	0.506	6-40	
48		min	5.387	1	-0.499	1	-178.878	5-1	-47.593	6-1	-9.37	5-1	0.506	1	
49	5	max	2.164	6-40	-5.025	6-40	15.89	5-39	68.31	6-36	29.909	6-27	1.565	6-40	
50		min	2.164	1	-5.025	1	-183.9	6-1	-55.872	5-38	-47.999	6-1	1.565	1	
51	M6	1	max	4.601	6-40	0	6-40	29.05	5-11	73.551	6-27	48.159	6-11	0	6-40
52		min	4.601	1	0	1	-163.494	6-11	-73.551	6-7	-24.156	6-21	0	1	
53	2	max	10.19	6-40	0	6-40	0	4-40	39.705	5-16	26.37	5-11	0	6-40	
54		min	10.19	1	0	1	-146.224	5-31	-39.705	5-36	-71.331	6-1	0	1	
55	3	max	11.226	6-40	0	6-40	0	4-40	39.705	5-16	0	4-40	0	6-40	
56		min	11.226	1	0	1	-146.224	5-31	-39.705	5-36	-152.802	6-31	0	1	
57	4	max	12.262	6-40	0	6-40	0	4-40	39.705	5-16	0	4-40	0	6-40	
58		min	12.262	1	0	1	-146.224	5-31	-39.705	5-36	-272.799	6-31	0	1	
59	5	max	18.235	6-40	0	6-40	0	4-40	26.733	5-16	0	4-40	0	6-40	
60		min	18.235	1	0	1	-149.252	5-31	-26.733	5-36	-377.312	6-31	0	1	
61	M7	1	max	2.066	6-40	2.362	6-40	3.326	6-26	13.625	6-1	11.903	6-1	1.762	6-40
62		min	2.066	1	2.362	1	-4.363	6-1	-9.582	6-28	-7.873	6-13	1.762	1	
63	2	max	2.066	6-40	1.155	6-40	3.326	6-26	13.625	6-1	6.666	6-1	-0.348	6-40	
64		min	2.066	1	1.155	1	-4.363	6-1	-9.582	6-28	-5.796	5-35	-0.348	1	
65	3	max	2.066	6-40	-0.053	6-40	3.326	6-26	13.625	6-1	1.43	6-1	-1.009	6-40	
66		min	2.066	1	-0.053	1	-4.363	6-1	-9.582	6-28	-5.182	5-35	-1.009	1	

Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[lb-ft]	LC	y-y Moment[lb-ft]	LC	z-z Moment[lb-ft]	LC	
67		4	max	2.066	6-40	-1.261	6-40	3.326	6-26	13.625	6-1	5.209	5-16	-0.221	6-40
68			min	2.066	1	-1.261	1	-4.363	6-1	-9.582	6-28	-4.568	5-35	-0.221	1
69		5	max	2.066	6-40	-2.468	6-40	3.326	6-26	13.625	6-1	9.106	5-26	2.016	6-40
70			min	2.066	1	-2.468	1	-4.363	6-1	-9.582	6-28	-9.042	6-1	2.016	1
71	M8	1	max	1.654	6-40	2.15	6-40	17.076	6-1	46.035	6-1	59.331	6-6	1.52	6-40
72			min	1.654	1	2.15	1	-180.317	6-40	-31.839	6-13	-36.349	6-1	1.52	1
73		2	max	1.654	6-40	1.034	6-40	52.357	6-38	46.035	6-1	15.625	6-15	-0.39	6-40
74			min	1.654	1	1.034	1	-132.18	6-4	-31.839	6-13	-120.967	6-38	-0.39	1
75		3	max	1.654	6-40	-0.082	6-40	92.188	6-36	46.035	6-1	17.936	6-16	-0.96	6-40
76			min	1.654	1	-0.082	1	-91.432	6-6	-31.839	6-13	-160.107	6-6	-0.96	1
77		4	max	1.654	6-40	-1.198	6-40	150.153	6-33	46.035	6-1	25.125	6-1	-0.192	6-40
78			min	1.654	1	-1.198	1	-37.302	6-9	-31.839	6-13	-131.919	6-33	-0.192	1
79		5	max	1.654	6-40	-2.314	6-40	177.479	6-31	46.035	6-1	81.064	6-36	1.916	6-40
80			min	1.654	1	-2.314	1	-15.782	6-11	-31.839	6-13	-47.969	6-11	1.916	1
81	M9	1	max	1.654	6-40	2.314	6-40	15.782	6-31	31.839	6-33	81.064	6-16	1.916	6-40
82			min	1.654	1	2.314	1	-177.479	6-11	-46.035	6-21	-47.969	6-31	1.916	1
83		2	max	1.654	6-40	1.198	6-40	37.302	6-29	31.839	6-33	25.125	6-21	-0.192	6-40
84			min	1.654	1	1.198	1	-150.153	6-13	-46.035	6-21	-131.919	6-13	-0.192	1
85		3	max	1.654	6-40	0.082	6-40	91.432	6-26	31.839	6-33	17.936	6-36	-0.96	6-40
86			min	1.654	1	0.082	1	-92.188	6-16	-46.035	6-21	-160.107	6-26	-0.96	1
87		4	max	1.654	6-40	-1.034	6-40	132.18	6-24	31.839	6-33	15.625	6-35	-0.39	6-40
88			min	1.654	1	-1.034	1	-52.357	6-18	-46.035	6-21	-120.967	6-18	-0.39	1
89		5	max	1.654	6-40	-2.15	6-40	180.317	6-20	31.839	6-33	59.331	6-26	1.52	6-40
90			min	1.654	1	-2.15	1	-17.076	6-21	-46.035	6-21	-36.349	6-21	1.52	1
91	M10	1	max	1.224	6-40	2.455	6-40	2.838	6-21	9.586	6-33	10.443	4-35	1.996	6-40
92			min	1.224	1	2.455	1	-2.874	4-35	-12.853	6-21	-6.728	4-28	1.996	1
93		2	max	1.224	6-40	1.248	6-40	2.838	6-21	9.586	6-33	6.994	4-35	-0.226	6-40
94			min	1.224	1	1.248	1	-2.874	4-35	-12.853	6-21	-6.551	4-14	-0.226	1
95		3	max	1.224	6-40	0.04	6-40	2.838	6-21	9.586	6-33	3.544	4-35	-0.999	6-40
96			min	1.224	1	0.04	1	-2.874	4-35	-12.853	6-21	-7.573	4-26	-0.999	1
97		4	max	1.224	6-40	-1.168	6-40	2.838	6-21	9.586	6-33	4.551	6-21	-0.322	6-40
98			min	1.224	1	-1.168	1	-2.874	4-35	-12.853	6-21	-10.082	4-25	-0.322	1
99		5	max	1.224	6-40	-2.375	6-40	2.838	6-21	9.586	6-33	7.956	6-21	1.804	6-40
100			min	1.224	1	-2.375	1	-2.874	4-35	-12.853	6-21	-13.08	4-17	1.804	1
101	M11	1	max	4.629	6-40	0	6-40	11.591	4-11	59.633	6-15	57.142	6-11	0	6-40
102			min	4.629	1	0	1	-161.984	6-11	-59.633	6-35	-28.691	6-21	0	1
103		2	max	5.517	6-40	0	6-40	11.591	4-11	59.633	6-15	18.36	4-11	0	6-40
104			min	5.517	1	0	1	-161.984	6-11	-59.633	6-35	-64.346	6-11	0	1
105		3	max	10.907	6-40	0	6-40	0	5-40	59.633	6-15	46.033	4-31	0	6-40
106			min	10.907	1	0	1	-181.689	4-31	-59.633	6-35	-185.834	6-11	0	1
107		4	max	11.794	6-40	0	6-40	0	5-40	52.376	4-27	0	5-40	0	6-40
108			min	11.794	1	0	1	-181.689	4-31	-52.376	4-7	-252.611	6-11	0	1
109		5	max	17.593	6-40	0	6-40	0	5-40	36.175	4-15	0	5-40	0	6-40
110			min	17.593	1	0	1	-182.342	4-11	-36.175	4-35	-352.718	6-11	0	1
111	M12	1	max	1.224	6-40	2.375	6-40	2.874	4-15	12.853	6-1	7.956	6-1	1.804	6-40
112			min	1.224	1	2.375	1	-2.838	6-1	-9.586	6-13	-13.08	4-37	1.804	1
113		2	max	1.224	6-40	1.168	6-40	2.874	4-15	12.853	6-1	4.551	6-1	-0.322	6-40
114			min	1.224	1	1.168	1	-2.838	6-1	-9.586	6-13	-10.082	4-5	-0.322	1
115		3	max	1.224	6-40	-0.04	6-40	2.874	4-15	12.853	6-1	3.544	4-15	-0.999	6-40
116			min	1.224	1	-0.04	1	-2.838	6-1	-9.586	6-13	-7.573	4-6	-0.999	1
117		4	max	1.224	6-40	-1.248	6-40	2.874	4-15	12.853	6-1	6.994	4-15	-0.226	6-40
118			min	1.224	1	-1.248	1	-2.838	6-1	-9.586	6-13	-6.551	4-34	-0.226	1
119		5	max	1.224	6-40	-2.455	6-40	2.874	4-15	12.853	6-1	10.443	4-15	1.996	6-40
120			min	1.224	1	-2.455	1	-2.838	6-1	-9.586	6-13	-6.728	4-8	1.996	1
121	M13	1	max	10.29	6-40	-2.601	6-40	10.823	4-26	51.114	4-5	452.694	6-1	0.095	6-40

Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[lb-ft]	LC	y-y Moment[lb-ft]	LC	z-z Moment[lb-ft]	LC	
122		min	10.29	1	-2.601	1	-193.931	4-1	-26.829	6-1	0	1	0.095	1	
123	2	max	7.027	6-40	-1.377	6-40	7.964	4-26	63.797	4-5	327.727	6-1	-0.269	6-40	
124		min	7.027	1	-1.377	1	-193.126	4-1	-34.785	6-1	0	1	-0.269	1	
125	3	max	6.139	6-40	-1.377	6-34	7.964	4-26	63.797	4-5	228.662	6-1	-0.96	6-40	
126		min	6.139	1	-1.654	1	-193.126	4-1	-36.349	6-1	-31.087	4-1	-0.96	1	
127	4	max	3.037	6-40	-1.654	6-40	7.471	4-3	59.331	6-6	91.313	6-1	0.28	6-40	
128		min	3.037	1	-1.654	1	-183.132	6-1	-36.349	6-1	-13.611	4-1	0.28	1	
129	5	max	2.15	6-40	-1.654	6-40	7.471	4-3	59.331	6-6	31.839	6-13	1.52	6-40	
130		min	2.15	1	-1.654	1	-183.132	6-1	-36.349	6-1	-46.035	6-1	1.52	1	
131	M14	1	max	2.15	6-40	-1.654	6-40	7.471	4-23	36.349	6-21	46.035	6-21	-1.52	6-40
132		min	2.15	1	-1.654	1	-183.132	6-21	-59.331	6-26	-31.839	6-33	-1.52	1	
133	2	max	3.037	6-40	-1.654	6-40	7.471	4-23	36.349	6-21	13.611	4-21	-0.28	6-40	
134		min	3.037	1	-1.654	1	-183.132	6-21	-59.331	6-26	-91.313	6-21	-0.28	1	
135	3	max	6.139	6-40	-1.377	6-40	7.964	4-6	36.349	6-21	31.087	4-21	0.96	6-40	
136		min	6.139	1	-1.654	1	-193.126	4-21	-63.797	4-25	-228.662	6-21	0.96	1	
137	4	max	7.027	6-40	-1.377	6-40	7.964	4-6	34.785	6-21	0	5-40	0.269	6-40	
138		min	7.027	1	-1.377	1	-193.126	4-21	-63.797	4-25	-327.727	6-21	0.269	1	
139	5	max	10.29	6-40	-2.601	6-40	10.823	4-6	26.829	6-21	0	5-40	-0.095	6-40	
140		min	10.29	1	-2.601	1	-193.931	4-21	-51.114	4-25	-452.694	6-21	-0.095	1	
141	M15	1	max	4.217	6-40	2.919	6-40	3.476	6-21	13.18	6-1	10.08	6-1	2.715	6-40
142		min	4.217	1	2.919	1	-3.476	6-1	-13.18	6-21	-10.08	6-21	2.715	1	
143	2	max	4.217	6-40	1.459	6-40	3.476	6-21	13.18	6-1	5.04	6-1	-0.459	6-40	
144		min	4.217	1	1.459	1	-3.476	6-1	-13.18	6-21	-7.089	5-7	-0.459	1	
145	3	max	4.217	6-40	0	6-40	3.476	6-21	13.18	6-1	0	6-40	-1.517	6-40	
146		min	4.217	1	0	1	-3.476	6-1	-13.18	6-21	-7.083	5-7	-1.517	1	
147	4	max	4.217	6-40	-1.459	6-40	3.476	6-21	13.18	6-1	5.04	6-21	-0.459	6-40	
148		min	4.217	1	-1.459	1	-3.476	6-1	-13.18	6-21	-7.089	5-27	-0.459	1	
149	5	max	4.217	6-40	-2.919	6-40	3.476	6-21	13.18	6-1	10.08	6-21	2.715	6-40	
150		min	4.217	1	-2.919	1	-3.476	6-1	-13.18	6-21	-10.08	6-1	2.715	1	
151	M16	1	max	2.697	6-40	-8.273	6-40	10.935	5-23	60.723	5-24	44.316	6-21	-2.488	6-40
152		min	2.697	1	-8.273	1	-191.06	6-21	-93.184	6-8	-44.316	6-1	-2.488	1	
153	2	max	6.43	6-40	-0.654	6-40	0	6-40	40.675	6-21	0	6-40	-0.638	6-40	
154		min	6.43	1	-0.654	1	-188.862	5-21	-55.363	5-27	-100.54	6-1	-0.638	1	
155	3	max	7.466	6-40	-0.654	6-40	0	6-40	40.675	6-21	0	6-40	-0.065	6-40	
156		min	7.466	1	-0.654	1	-188.862	5-21	-55.363	5-27	-238.175	6-21	-0.065	1	
157	4	max	8.502	6-40	-0.654	6-40	0	6-40	40.675	6-21	0	6-40	0.507	6-40	
158		min	8.502	1	-0.654	1	-188.862	5-21	-55.363	5-27	-401.478	6-21	0.507	1	
159	5	max	12.456	6-40	-4.872	6-40	0	6-40	30.595	6-21	0	6-40	-0.231	6-40	
160		min	12.456	1	-4.872	1	-191.406	5-21	-48.32	5-6	-552.64	6-21	-0.231	1	
161	M17	1	max	8.273	6-40	2.697	6-40	11.218	5-31	44.316	6-1	93.184	6-28	2.488	6-40
162		min	8.273	1	2.697	1	-185.149	6-32	-44.316	6-21	-60.723	5-4	2.488	1	
163	2	max	8.273	6-40	1.349	6-40	41.48	6-30	44.316	6-1	13.608	6-21	-0.445	6-40	
164		min	8.273	1	1.349	1	-151.97	6-4	-44.316	6-21	-140.691	6-4	-0.445	1	
165	3	max	8.273	6-40	0	6-40	96.11	6-27	44.316	6-1	0	6-40	-1.422	6-40	
166		min	8.273	1	0	1	-96.11	6-7	-44.316	6-21	-190.201	6-7	-1.422	1	
167	4	max	8.273	6-40	-1.349	6-40	151.97	6-24	44.316	6-1	13.608	6-1	-0.445	6-40	
168		min	8.273	1	-1.349	1	-41.48	6-10	-44.316	6-21	-140.691	6-24	-0.445	1	
169	5	max	8.273	6-40	-2.697	6-40	185.149	6-12	44.316	6-1	93.184	6-8	2.488	6-40	
170		min	8.273	1	-2.697	1	-11.218	5-11	-44.316	6-21	-60.723	5-24	2.488	1	
171	M18	1	max	2.697	6-40	8.273	6-40	10.935	5-3	93.184	6-28	44.316	6-1	2.488	6-40
172		min	2.697	1	8.273	1	-191.06	6-1	-60.723	5-4	-44.316	6-21	2.488	1	
173	2	max	6.43	6-40	0.654	6-40	0	6-40	55.363	5-7	0	6-40	0.638	6-40	
174		min	6.43	1	0.654	1	-188.862	5-1	-40.675	6-1	-100.54	6-21	0.638	1	
175	3	max	7.466	6-40	0.654	6-40	0	6-40	55.363	5-7	0	6-40	0.065	6-40	
176		min	7.466	1	0.654	1	-188.862	5-1	-40.675	6-1	-238.175	6-1	0.065	1	

Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[lb-ft]	LC	y-y Moment[lb-ft]	LC	z-z Moment[lb-ft]	LC	
177		4	max	8.502	6-40	0.654	6-40	0	6-40	55.363	5-7	0	6-40	-0.507	6-40
178			min	8.502	1	0.654	1	-188.862	5-1	-40.675	6-1	-401.478	6-1	-0.507	1
179		5	max	12.456	6-40	4.872	6-40	0	6-40	48.32	5-26	0	6-40	0.231	6-40
180			min	12.456	1	4.872	1	-191.406	5-1	-30.595	6-1	-552.64	6-1	0.231	1
181	M19	1	max	2.499	6-40	2.919	6-40	2.249	6-21	11.827	6-1	6.521	6-1	2.742	6-40
182			min	2.499	1	2.919	1	-2.249	6-1	-11.827	6-21	-13.69	4-29	2.742	1
183		2	max	2.499	6-40	1.459	6-40	2.249	6-21	11.827	6-1	3.26	6-1	-0.432	6-40
184			min	2.499	1	1.459	1	-2.249	6-1	-11.827	6-21	-11.719	4-28	-0.432	1
185		3	max	2.499	6-40	0	6-40	2.249	6-21	11.827	6-1	0	6-40	-1.49	6-40
186			min	2.499	1	0	1	-2.249	6-1	-11.827	6-21	-10.789	4-27	-1.49	1
187		4	max	2.499	6-40	-1.459	6-40	2.249	6-21	11.827	6-1	3.26	6-21	-0.432	6-40
188			min	2.499	1	-1.459	1	-2.249	6-1	-11.827	6-21	-11.719	4-8	-0.432	1
189		5	max	2.499	6-40	-2.919	6-40	2.249	6-21	11.827	6-1	6.521	6-21	2.742	6-40
190			min	2.499	1	-2.919	1	-2.249	6-1	-11.827	6-21	-13.69	4-9	2.742	1
191	M20	1	max	2.697	6-40	-2.617	6-40	5.451	4-23	33.622	4-9	41.771	6-21	-2.429	6-40
192			min	2.697	1	-2.617	1	-190.075	6-21	-83.815	6-26	-41.771	6-1	-2.429	1
193		2	max	3.585	6-40	-2.617	6-40	5.451	4-23	33.622	4-9	11.453	4-21	-0.466	6-40
194			min	3.585	1	-2.617	1	-190.075	6-21	-83.815	6-26	-100.785	6-21	-0.466	1
195		3	max	7.17	6-40	-1.962	6-32	0	6-40	29.564	6-21	26.116	4-21	1.496	6-40
196			min	7.17	1	-2.617	1	-196.342	4-21	-88.433	4-8	-243.341	6-21	1.496	1
197		4	max	8.058	6-40	-1.962	6-40	0	6-40	28.307	6-21	0	6-40	0.397	6-40
198			min	8.058	1	-1.962	1	-196.342	4-21	-88.433	4-8	-351.669	6-21	0.397	1
199		5	max	11.864	6-40	-4.461	6-40	0	6-40	21.786	6-21	0	6-40	-0.041	6-40
200			min	11.864	1	-4.461	1	-196.992	4-21	-75.425	4-26	-483.45	6-21	-0.041	1
201	M21	1	max	2.617	6-40	2.697	6-40	10.195	6-1	41.771	6-1	83.815	6-6	2.429	6-40
202			min	2.617	1	2.697	1	-183.314	6-32	-41.771	6-21	-33.622	4-29	2.429	1
203		2	max	2.617	6-40	1.349	6-40	44.345	6-30	41.771	6-1	14.782	6-21	-0.504	6-40
204			min	2.617	1	1.349	1	-149.246	6-4	-41.771	6-21	-149.759	6-4	-0.504	1
205		3	max	2.617	6-40	0	6-40	96.355	6-27	41.771	6-1	0	6-40	-1.482	6-40
206			min	2.617	1	0	1	-96.355	6-7	-41.771	6-21	-196.867	6-7	-1.482	1
207		4	max	2.617	6-40	-1.349	6-40	149.246	6-24	41.771	6-1	14.782	6-1	-0.504	6-40
208			min	2.617	1	-1.349	1	-44.345	6-10	-41.771	6-21	-149.759	6-24	-0.504	1
209		5	max	2.617	6-40	-2.697	6-40	183.314	6-12	41.771	6-1	83.815	6-26	2.429	6-40
210			min	2.617	1	-2.697	1	-10.195	6-21	-41.771	6-21	-33.622	4-9	2.429	1
211	M22	1	max	2.697	6-40	2.617	6-40	5.451	4-3	83.815	6-6	41.771	6-1	2.429	6-40
212			min	2.697	1	2.617	1	-190.075	6-1	-33.622	4-29	-41.771	6-21	2.429	1
213		2	max	3.585	6-40	2.617	6-40	5.451	4-3	83.815	6-6	11.453	4-1	0.466	6-40
214			min	3.585	1	2.617	1	-190.075	6-1	-33.622	4-29	-100.785	6-1	0.466	1
215		3	max	7.17	6-40	2.617	6-40	0	6-40	88.433	4-28	26.116	4-1	-1.496	6-40
216			min	7.17	1	1.962	4-1	-196.342	4-1	-29.564	6-1	-243.341	6-1	-1.496	1
217		4	max	8.058	6-40	1.962	6-40	0	6-40	88.433	4-28	0	6-40	-0.397	6-40
218			min	8.058	1	1.962	1	-196.342	4-1	-28.307	6-1	-351.669	6-1	-0.397	1
219		5	max	11.864	6-40	4.461	6-40	0	6-40	75.425	4-6	0	6-40	0.041	6-40
220			min	11.864	1	4.461	1	-196.992	4-1	-21.786	6-1	-483.45	6-1	0.041	1
221	M23	1	max	-4.527	6-40	2.277	6-40	14.52	6-30	31.697	6-34	86.447	5-15	1.856	6-40
222			min	-4.527	1	2.277	1	-184.773	5-11	-49.729	6-21	-62.426	6-29	1.856	1
223		2	max	-4.527	6-40	1.161	6-40	30.408	5-29	31.697	6-34	17.799	6-21	-0.207	6-40
224			min	-4.527	1	1.161	1	-155.481	5-13	-49.729	6-21	-118.936	5-13	-0.207	1
225		3	max	-4.527	6-40	0.045	6-40	93.313	5-26	31.697	6-34	12.042	6-40	-0.93	6-40
226			min	-4.527	1	0.045	1	-87.436	5-16	-49.729	6-21	-150.295	5-26	-0.93	1
227		4	max	-4.527	6-40	-1.071	6-40	140.596	5-24	31.697	6-34	8.595	6-5	-0.315	6-40
228			min	-4.527	1	-1.071	1	-42.322	5-18	-49.729	6-21	-100.825	5-18	-0.315	1
229		5	max	-4.527	6-40	-2.187	6-40	189.537	5-20	31.697	6-34	80.81	5-25	1.64	6-40
230			min	-4.527	1	-2.187	1	-13.073	6-19	-49.729	6-21	-50.566	6-24	1.64	1
231	M24	1	max	-4.527	6-40	2.187	6-40	13.073	6-39	49.729	6-1	80.81	5-5	1.64	6-40

Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[lb-ft]	LC	y-y Moment[lb-ft]	LC	z-z Moment[lb-ft]	LC	
232		min	-4.527	1	2.187	1	-189.537	5-40	-31.697	6-14	-50.566	6-4	1.64	1	
233	2	max	-4.527	6-40	1.071	6-40	42.322	5-38	49.729	6-1	8.595	6-25	-0.315	6-40	
234		min	-4.527	1	1.071	1	-140.596	5-4	-31.697	6-14	-100.825	5-38	-0.315	1	
235	3	max	-4.527	6-40	-0.045	6-40	87.436	5-36	49.729	6-1	12.042	6-20	-0.93	6-40	
236		min	-4.527	1	-0.045	1	-93.313	5-6	-31.697	6-14	-150.295	5-6	-0.93	1	
237	4	max	-4.527	6-40	-1.161	6-40	155.481	5-33	49.729	6-1	17.799	6-1	-0.207	6-40	
238		min	-4.527	1	-1.161	1	-30.408	5-9	-31.697	6-14	-118.936	5-33	-0.207	1	
239	5	max	-4.527	6-40	-2.277	6-40	184.773	5-31	49.729	6-1	86.447	5-35	1.856	6-40	
240		min	-4.527	1	-2.277	1	-14.52	6-10	-31.697	6-14	-62.426	6-9	1.856	1	
241	M25	1	max	-7.618	6-40	2.697	6-40	9.399	6-3	46.328	6-1	105.022	5-28	2.531	6-40
242		min	-7.618	1	2.697	1	-190.346	5-32	-46.328	6-21	-56.949	6-29	2.531	1	
243	2	max	-7.618	6-40	1.349	6-40	37.325	5-30	46.328	6-1	6.73	6-21	-0.402	6-40	
244		min	-7.618	1	1.349	1	-155.726	5-4	-46.328	6-21	-129.818	5-4	-0.402	1	
245	3	max	-7.618	6-40	0	6-40	95.814	5-27	46.328	6-1	0	6-40	-1.38	6-40	
246		min	-7.618	1	0	1	-95.814	5-7	-46.328	6-21	-183.133	5-7	-1.38	1	
247	4	max	-7.618	6-40	-1.349	6-40	155.726	5-24	46.328	6-1	6.73	6-1	-0.402	6-40	
248		min	-7.618	1	-1.349	1	-37.325	5-10	-46.328	6-21	-129.818	5-24	-0.402	1	
249	5	max	-7.618	6-40	-2.697	6-40	190.346	5-12	46.328	6-1	105.022	5-8	2.531	6-40	
250		min	-7.618	1	-2.697	1	-9.399	6-23	-46.328	6-21	-56.949	6-9	2.531	1	
251	M26	1	max	-0.276	6-40	2.213	6-40	9.185	4-27	37.861	6-1	91.587	4-37	1.725	6-40
252		min	-0.276	1	2.213	1	-195.938	4-40	-27.376	6-13	-26.047	6-37	1.725	1	
253	2	max	-0.276	6-40	1.097	6-40	38.911	4-38	37.861	6-1	2.63	6-25	-0.262	6-40	
254		min	-0.276	1	1.097	1	-142.504	4-4	-27.376	6-13	-92.102	4-38	-0.262	1	
255	3	max	-0.276	6-40	-0.019	6-40	87.943	4-36	37.861	6-1	13.074	4-27	-0.909	6-40	
256		min	-0.276	1	-0.019	1	-91.169	4-6	-27.376	6-13	-138.169	4-6	-0.909	1	
257	4	max	-0.276	6-40	-1.135	6-40	161.757	4-33	37.861	6-1	24.096	4-27	-0.217	6-40	
258		min	-0.276	1	-1.135	1	-22.926	4-9	-27.376	6-13	-97.039	4-33	-0.217	1	
259	5	max	-0.276	6-40	-2.251	6-40	193.594	4-31	37.861	6-1	108.569	4-7	1.815	6-40	
260		min	-0.276	1	-2.251	1	-4.041	6-32	-27.376	6-13	-23.367	6-9	1.815	1	
261	M27	1	max	-0.276	6-40	2.251	6-40	4.041	6-12	27.376	6-33	108.569	4-27	1.815	6-40
262		min	-0.276	1	2.251	1	-193.594	4-11	-37.861	6-21	-23.367	6-29	1.815	1	
263	2	max	-0.276	6-40	1.135	6-40	22.926	4-29	27.376	6-33	24.096	4-7	-0.217	6-40	
264		min	-0.276	1	1.135	1	-161.757	4-13	-37.861	6-21	-97.039	4-13	-0.217	1	
265	3	max	-0.276	6-40	0.019	6-40	91.169	4-26	27.376	6-33	13.074	4-7	-0.909	6-40	
266		min	-0.276	1	0.019	1	-87.943	4-16	-37.861	6-21	-138.169	4-26	-0.909	1	
267	4	max	-0.276	6-40	-1.097	6-40	142.504	4-24	27.376	6-33	2.63	6-5	-0.262	6-40	
268		min	-0.276	1	-1.097	1	-38.911	4-18	-37.861	6-21	-92.102	4-18	-0.262	1	
269	5	max	-0.276	6-40	-2.213	6-40	195.938	4-20	27.376	6-33	91.587	4-17	1.725	6-40	
270		min	-0.276	1	-2.213	1	-9.185	4-7	-37.861	6-21	-26.047	6-17	1.725	1	
271	M28	1	max	-0.654	6-40	2.697	6-40	3.388	6-30	34.594	6-1	120.097	4-5	2.571	6-40
272		min	-0.654	1	2.697	1	-193.793	4-32	-34.594	6-21	-29.884	6-5	2.571	1	
273	2	max	-0.654	6-40	1.349	6-40	34.719	4-30	34.594	6-1	1.116	4-21	-0.362	6-40	
274		min	-0.654	1	1.349	1	-158.066	4-4	-34.594	6-21	-117.236	4-4	-0.362	1	
275	3	max	-0.654	6-40	0	6-40	95.633	4-27	34.594	6-1	0	6-40	-1.34	6-40	
276		min	-0.654	1	0	1	-95.633	4-7	-34.594	6-21	-171.168	4-7	-1.34	1	
277	4	max	-0.654	6-40	-1.349	6-40	158.066	4-24	34.594	6-1	1.116	4-1	-0.362	6-40	
278		min	-0.654	1	-1.349	1	-34.719	4-10	-34.594	6-21	-117.236	4-24	-0.362	1	
279	5	max	-0.654	6-40	-2.697	6-40	193.793	4-12	34.594	6-1	120.097	4-25	2.571	6-40	
280		min	-0.654	1	-2.697	1	-3.388	6-10	-34.594	6-21	-29.884	6-25	2.571	1	

Envelope Maximum Member Section Forces

Member		Axial[lb]	Loc[ft]	LC	y Shear[lb]	Loc[ft]	LC	z Shear[lb]	Loc[ft]	LC	Torque[lb-ft]	Loc[ft]	LC	y-y Moment[lb-ft]	Loc[ft]	LC	z-z Moment[lb-ft]	Loc[ft]	LC	
1	M1	max	10.857	3.5	6-40	-0.499	3.135	6-40	15.89	0.474	5-19	55.872	0.474	5-18	74.586	0.51	5-21	0.817	0.474	6-40
2		min	2.164	0	1	-5.025	0	1	-183.9	0	6-21	-68.31	0	6-16	-506.608	3.5	6-21	-1.565	0	1
3	M2	max	2.066	4.8	6-40	2.468	0	6-40	4.363	4.8	6-21	9.582	4.8	6-8	11.903	4.8	6-21	2.016	0	6-40

Envelope Maximum Member Section Forces (Continued)

Member		Axial[lb]	Loc[ft]	LC	y	Shear[lb]	Loc[ft]	LC	z	Shear[lb]	Loc[ft]	LC	Torque[lb-ft]	Loc[ft]	LC	y-y Moment[lb-ft]	Loc[ft]	LC	z-z Moment[lb-ft]	Loc[ft]	LC
4		min	2.066	0	1	-2.362	4.8	1	-3.326	0	6-6	-13.625	0	6-21	-9.042	0	6-21	-1.01	2.45	1	
5	M3	max	5.025	4.8	6-40	2.3	0	6-40	181.568	4.8	6-20	29.909	4.8	6-7	80.112	0	6-26	1.893	0	6-40	
6		min	5.025	0	1	-2.164	4.8	1	-178.766	0	6-11	-47.999	0	6-21	-166.399	2.3	6-26	-0.952	2.45	1	
7	M4	max	5.025	4.8	6-40	2.164	0	6-40	178.766	4.8	6-31	47.999	4.8	6-1	80.112	4.8	6-6	1.893	4.8	6-40	
8		min	5.025	0	1	-2.3	4.8	1	-181.568	0	6-40	-29.909	0	6-27	-166.399	2.5	6-6	-0.952	2.35	1	
9	M5	max	10.857	0	6-40	-0.499	2.99	6-40	15.89	3.5	5-39	68.31	3.5	6-36	506.608	0	6-1	1.565	3.5	6-40	
10		min	2.164	3.5	1	-5.025	3.026	1	-183.9	3.026	6-1	-55.872	3.026	5-38	-74.586	2.99	5-1	-0.817	3.026	1	
11	M6	max	18.235	3.5	6-40	0	3.5	6-40	29.05	0.474	5-11	73.551	0.474	6-27	79.681	0.51	5-11	0	3.5	6-40	
12		min	4.601	0	1	0	0	1	-163.494	0	6-11	-73.551	0	6-7	-377.312	3.5	6-31	0	0	1	
13	M7	max	2.066	4.8	6-40	2.362	0	6-40	3.326	4.8	6-26	13.625	4.8	6-1	11.903	0	6-1	2.016	4.8	6-40	
14		min	2.066	0	1	-2.468	4.8	1	-4.363	0	6-1	-9.582	0	6-28	-9.042	4.8	6-1	-1.01	2.35	1	
15	M8	max	1.654	4.8	6-40	2.15	0	6-40	177.479	4.8	6-31	46.035	4.8	6-1	81.064	4.8	6-36	1.916	4.8	6-40	
16		min	1.654	0	1	-2.314	4.8	1	-180.317	0	6-40	-31.839	0	6-13	-169.25	2.5	6-6	-0.964	2.3	1	
17	M9	max	1.654	4.8	6-40	2.314	0	6-40	180.317	4.8	6-20	31.839	4.8	6-33	81.064	0	6-16	1.916	0	6-40	
18		min	1.654	0	1	-2.15	4.8	1	-177.479	0	6-11	-46.035	0	6-21	-169.25	2.3	6-26	-0.964	2.5	1	
19	M10	max	1.224	4.8	6-40	2.455	0	6-40	2.838	4.8	6-21	9.586	4.8	6-33	10.443	0	4-35	1.996	0	6-40	
20		min	1.224	0	1	-2.375	4.8	1	-2.874	0	4-35	-12.853	0	6-21	-13.08	4.8	4-17	-0.999	2.45	1	
21	M11	max	17.593	3	6-40	0	3	6-40	11.591	1.469	4-11	59.633	1.5	6-15	57.142	0	6-11	0	3	6-40	
22		min	4.629	0	1	0	0	1	-182.342	2.688	4-11	-59.633	0	6-35	-352.718	3	6-11	0	0	1	
23	M12	max	1.224	4.8	6-40	2.375	0	6-40	2.874	4.8	4-15	12.853	4.8	6-1	10.443	4.8	4-15	1.996	4.8	6-40	
24		min	1.224	0	1	-2.455	4.8	1	-2.838	0	6-1	-9.586	0	6-13	-13.08	0	4-37	-0.999	2.35	1	
25	M13	max	10.29	0	6-40	-1.377	1.5	6-34	10.823	0.313	4-26	63.797	1.5	4-5	452.694	0	6-1	1.52	3	6-40	
26		min	2.15	3	1	-2.601	0	1	-193.931	0	4-1	-36.349	1.5	6-1	-46.035	3	6-1	-0.96	1.5	1	
27	M14	max	10.29	3	6-40	-1.377	2.656	6-40	10.823	3	4-6	36.349	1.5	6-21	46.035	0	6-21	0.96	1.5	6-40	
28		min	2.15	0	1	-2.601	2.688	1	-193.931	2.688	4-21	-63.797	1.5	4-25	-452.694	3	6-21	-1.52	0	1	
29	M15	max	4.217	5.8	6-40	2.919	0	6-40	3.476	5.8	6-21	13.18	5.8	6-1	10.08	5.8	6-21	2.715	5.8	6-40	
30		min	4.217	0	1	-2.919	5.8	1	-3.476	0	6-1	-13.18	0	6-21	-10.08	0	6-21	-1.517	2.9	1	
31	M16	max	12.456	3.5	6-40	-0.654	3.135	6-40	10.935	0.474	5-23	60.723	0.474	5-24	67.687	0.51	5-21	1.433	0.474	6-40	
32		min	2.697	0	1	-8.273	0	1	-191.406	3.172	5-21	-93.184	0	6-8	-552.64	3.5	6-21	-2.488	0	1	
33	M17	max	8.273	5.8	6-40	2.697	0	6-40	185.149	5.8	6-12	44.316	5.8	6-1	93.184	0	6-28	2.488	5.8	6-40	
34		min	8.273	0	1	-2.697	5.8	1	-185.149	0	6-32	-44.316	0	6-21	-197.648	2.779	6-27	-1.422	2.9	1	
35	M18	max	12.456	3.5	6-40	8.273	0.474	6-40	10.935	0.474	5-3	93.184	0.474	6-28	67.687	0.51	5-1	2.488	0	6-40	
36		min	2.697	0	1	0.654	0.51	1	-191.406	3.172	5-1	-60.723	0	5-4	-552.64	3.5	6-1	-1.433	0.474	1	
37	M19	max	2.499	5.8	6-40	2.919	0	6-40	2.249	5.8	6-21	11.827	5.8	6-1	6.521	0	6-1	2.742	5.8	6-40	
38		min	2.499	0	1	-2.919	5.8	1	-2.249	0	6-1	-11.827	0	6-21	-13.69	5.8	4-9	-1.49	2.9	1	
39	M20	max	11.864	3	6-40	-1.962	2.656	6-40	5.451	1.469	4-23	33.622	1.469	4-9	41.771	0	6-21	1.496	1.5	6-40	
40		min	2.697	0	1	-4.461	2.688	1	-196.992	2.688	4-21	-88.433	1.5	4-8	-483.45	3	6-21	-2.429	0	1	
41	M21	max	2.617	5.8	6-40	2.697	0	6-40	183.314	5.8	6-12	41.771	5.8	6-1	83.815	5.8	6-26	2.429	5.8	6-40	
42		min	2.617	0	1	-2.697	5.8	1	-183.314	0	6-32	-41.771	0	6-21	-204.343	2.779	6-27	-1.482	2.9	1	
43	M22	max	11.864	3	6-40	4.461	3	6-40	5.451	1.469	4-3	88.433	2.656	4-28	41.771	0	6-1	2.429	0	6-40	
44		min	2.697	0	1	1.962	1.5	4-1	-196.992	2.688	4-1	-33.622	0	4-29	-483.45	3	6-1	-1.496	1.5	1	
45	M23	max	-4.527	4.8	6-40	2.277	0	6-40	189.537	4.8	5-20	31.697	4.8	6-34	86.447	0	5-15	1.856	0	6-40	
46		min	-4.527	0	1	-2.187	4.8	1	-184.773	0	5-11	-49.729	0	6-21	-159.627	2.3	5-26	-0.931	2.45	1	
47	M24	max	-4.527	4.8	6-40	2.187	0	6-40	184.773	4.8	5-31	49.729	4.8	6-1	86.447	4.8	5-35	1.856	4.8	6-40	
48		min	-4.527	0	1	-2.277	4.8	1	-189.537	0	5-40	-31.697	0	6-14	-159.627	2.5	5-6	-0.931	2.35	1	
49	M25	max	-7.618	5.8	6-40	2.697	0	6-40	190.346	5.8	5-12	46.328	5.8	6-1	105.022	0	5-28	2.531	5.8	6-40	
50		min	-7.618	0	1	-2.697	5.8	1	-190.346	0	5-32	-46.328	0	6-21	-190.544	2.779	5-27	-1.38	2.9	1	
51	M26	max	-0.276	4.8	6-40	2.213	0	6-40	193.594	4.8	4-31	37.861	4.8	6-1	108.569	4.8	4-7	1.815	4.8	6-40	
52		min	-0.276	0	1	-2.251	4.8	1	-195.938	0	4-40	-27.376	0	6-13	-147.286	2.5	4-6	-0.909	2.4	1	
53	M27	max	-0.276	4.8	6-40	2.251	0	6-40	195.938	4.8	4-20	27.376	4.8	6-33	108.569	0	4-27	1.815	0	6-40	
54		min	-0.276	0	1	-2.213	4.8	1	-193.594	0	4-11	-37.861	0	6-21	-147.286	2.3	4-26	-0.909	2.4	1	
55	M28	max	-0.654	5.8	6-40	2.697	0	6-40	193.793	5.8	4-12	34.594	5.8	6-1	120.097	5.8	4-25	2.571	5.8	6-40	
56		min	-0.654	0	1	-2.697	5.8	1	-193.793	0	4-32	-34.594	0	6-21	-178.557	2.779	4-27	-1.34	2.9	1	

Envelope Member End Reactions

	Member	Member End		Axial[lb]	LC y Shear[lb]	LC z Shear[lb]	LC Torque[lb-ft]	LC y-y Moment[lb-ft]	LC z-z Moment[lb-ft]	LC					
1	M1	I	max	2.164	6-40	-5.025	6-40	15.89	5-19	55.872	5-18	47.999	6-21	-1.565	6-40
2			min	2.164	1	-5.025	1	-183.9	6-21	-68.31	6-16	-29.909	6-7	-1.565	1
3		J	max	10.857	6-40	-2.564	6-40	8.269	6-1	35.691	6-21	0	4-40	-0.272	6-40
4			min	10.857	1	-2.564	1	-182.162	5-21	-32.588	5-27	-506.608	6-21	-0.272	1
5	M2	I	max	2.066	6-40	2.468	6-40	4.363	6-21	9.582	6-8	9.106	5-6	2.016	6-40
6			min	2.066	1	2.468	1	-3.326	6-6	-13.625	6-21	-9.042	6-21	2.016	1
7		J	max	2.066	6-40	-2.362	6-40	4.363	6-21	9.582	6-8	11.903	6-21	1.762	6-40
8			min	2.066	1	-2.362	1	-3.326	6-6	-13.625	6-21	-7.873	6-33	1.762	1
9	M3	I	max	5.025	6-40	2.3	6-40	15.707	5-30	29.909	6-7	80.112	6-26	1.893	6-40
10			min	5.025	1	2.3	1	-178.766	6-11	-47.999	6-21	-63.371	5-12	1.893	1
11		J	max	5.025	6-40	-2.164	6-40	181.568	6-20	29.909	6-7	68.31	6-16	1.565	6-40
12			min	5.025	1	-2.164	1	-16.41	6-21	-47.999	6-21	-55.872	5-18	1.565	1
13	M4	I	max	5.025	6-40	2.164	6-40	16.41	6-1	47.999	6-1	68.31	6-36	1.565	6-40
14			min	5.025	1	2.164	1	-181.568	6-40	-29.909	6-27	-55.872	5-38	1.565	1
15		J	max	5.025	6-40	-2.3	6-40	178.766	6-31	47.999	6-1	80.112	6-6	1.893	6-40
16			min	5.025	1	-2.3	1	-15.707	5-10	-29.909	6-27	-63.371	5-32	1.893	1
17	M5	I	max	10.857	6-40	-2.564	6-40	8.269	6-21	32.588	5-7	506.608	6-1	0.272	6-40
18			min	10.857	1	-2.564	1	-182.162	5-1	-35.691	6-1	0	1	0.272	1
19		J	max	2.164	6-40	-5.025	6-40	15.89	5-39	68.31	6-36	29.909	6-27	1.565	6-40
20			min	2.164	1	-5.025	1	-183.9	6-1	-55.872	5-38	-47.999	6-1	1.565	1
21	M6	I	max	4.601	6-40	0	6-40	29.05	5-11	73.551	6-27	48.159	6-11	0	6-40
22			min	4.601	1	0	1	-163.494	6-11	-73.551	6-7	-24.156	6-21	0	1
23		J	max	18.235	6-40	0	6-40	0	4-40	26.733	5-16	0	4-40	0	6-40
24			min	18.235	1	0	1	-149.252	5-31	-26.733	5-36	-377.312	6-31	0	1
25	M7	I	max	2.066	6-40	2.362	6-40	3.326	6-26	13.625	6-1	11.903	6-1	1.762	6-40
26			min	2.066	1	2.362	1	-4.363	6-1	-9.582	6-28	-7.873	6-13	1.762	1
27		J	max	2.066	6-40	-2.468	6-40	3.326	6-26	13.625	6-1	9.106	5-26	2.016	6-40
28			min	2.066	1	-2.468	1	-4.363	6-1	-9.582	6-28	-9.042	6-1	2.016	1
29	M8	I	max	1.654	6-40	2.15	6-40	17.076	6-1	46.035	6-1	59.331	6-6	1.52	6-40
30			min	1.654	1	2.15	1	-180.317	6-40	-31.839	6-13	-36.349	6-1	1.52	1
31		J	max	1.654	6-40	-2.314	6-40	177.479	6-31	46.035	6-1	81.064	6-36	1.916	6-40
32			min	1.654	1	-2.314	1	-15.782	6-11	-31.839	6-13	-47.969	6-11	1.916	1
33	M9	I	max	1.654	6-40	2.314	6-40	15.782	6-31	31.839	6-33	81.064	6-16	1.916	6-40
34			min	1.654	1	2.314	1	-177.479	6-11	-46.035	6-21	-47.969	6-31	1.916	1
35		J	max	1.654	6-40	-2.15	6-40	180.317	6-20	31.839	6-33	59.331	6-26	1.52	6-40
36			min	1.654	1	-2.15	1	-17.076	6-21	-46.035	6-21	-36.349	6-21	1.52	1
37	M10	I	max	1.224	6-40	2.455	6-40	2.838	6-21	9.586	6-33	10.443	4-35	1.996	6-40
38			min	1.224	1	2.455	1	-2.874	4-35	-12.853	6-21	-6.728	4-28	1.996	1
39		J	max	1.224	6-40	-2.375	6-40	2.838	6-21	9.586	6-33	7.956	6-21	1.804	6-40
40			min	1.224	1	-2.375	1	-2.874	4-35	-12.853	6-21	-13.08	4-17	1.804	1
41	M11	I	max	4.629	6-40	0	6-40	11.591	4-11	59.633	6-15	57.142	6-11	0	6-40
42			min	4.629	1	0	1	-161.984	6-11	-59.633	6-35	-28.691	6-21	0	1
43		J	max	17.593	6-40	0	6-40	0	5-40	36.175	4-15	0	5-40	0	6-40
44			min	17.593	1	0	1	-182.342	4-11	-36.175	4-35	-352.718	6-11	0	1
45	M12	I	max	1.224	6-40	2.375	6-40	2.874	4-15	12.853	6-1	7.956	6-1	1.804	6-40
46			min	1.224	1	2.375	1	-2.838	6-1	-9.586	6-13	-13.08	4-37	1.804	1
47		J	max	1.224	6-40	-2.455	6-40	2.874	4-15	12.853	6-1	10.443	4-15	1.996	6-40
48			min	1.224	1	-2.455	1	-2.838	6-1	-9.586	6-13	-6.728	4-8	1.996	1
49	M13	I	max	10.29	6-40	-2.601	6-40	10.823	4-26	51.114	4-5	452.694	6-1	0.095	6-40
50			min	10.29	1	-2.601	1	-193.931	4-1	-26.829	6-1	0	1	0.095	1
51		J	max	2.15	6-40	-1.654	6-40	7.471	4-3	59.331	6-6	31.839	6-13	1.52	6-40
52			min	2.15	1	-1.654	1	-183.132	6-1	-36.349	6-1	-46.035	6-1	1.52	1
53	M14	I	max	2.15	6-40	-1.654	6-40	7.471	4-23	36.349	6-21	46.035	6-21	-1.52	6-40
54			min	2.15	1	-1.654	1	-183.132	6-21	-59.331	6-26	-31.839	6-33	-1.52	1
55		J	max	10.29	6-40	-2.601	6-40	10.823	4-6	26.829	6-21	0	5-40	-0.095	6-40

Envelope Member End Reactions (Continued)

Member	Member End		Axial[lb]	LC y	Shear[lb]	LC z	Shear[lb]	LC Torque[lb-ft]	LC y-y Moment[lb-ft]	LC z-z Moment[lb-ft]	LC				
56			min	10.29	1	-2.601	1	-193.931	4-21	-51.114	4-25	-452.694	6-21	-0.095	1
57	M15	I	max	4.217	6-40	2.919	6-40	3.476	6-21	13.18	6-1	10.08	6-1	2.715	6-40
58			min	4.217	1	2.919	1	-3.476	6-1	-13.18	6-21	-10.08	6-21	2.715	1
59		J	max	4.217	6-40	-2.919	6-40	3.476	6-21	13.18	6-1	10.08	6-21	2.715	6-40
60			min	4.217	1	-2.919	1	-3.476	6-1	-13.18	6-21	-10.08	6-1	2.715	1
61	M16	I	max	2.697	6-40	-8.273	6-40	10.935	5-23	60.723	5-24	44.316	6-21	-2.488	6-40
62			min	2.697	1	-8.273	1	-191.06	6-21	-93.184	6-8	-44.316	6-1	-2.488	1
63		J	max	12.456	6-40	-4.872	6-40	0	6-40	30.595	6-21	0	6-40	-0.231	6-40
64			min	12.456	1	-4.872	1	-191.406	5-21	-48.32	5-6	-552.64	6-21	-0.231	1
65	M17	I	max	8.273	6-40	2.697	6-40	11.218	5-31	44.316	6-1	93.184	6-28	2.488	6-40
66			min	8.273	1	2.697	1	-185.149	6-32	-44.316	6-21	-60.723	5-4	2.488	1
67		J	max	8.273	6-40	-2.697	6-40	185.149	6-12	44.316	6-1	93.184	6-8	2.488	6-40
68			min	8.273	1	-2.697	1	-11.218	5-11	-44.316	6-21	-60.723	5-24	2.488	1
69	M18	I	max	2.697	6-40	8.273	6-40	10.935	5-3	93.184	6-28	44.316	6-1	2.488	6-40
70			min	2.697	1	8.273	1	-191.06	6-1	-60.723	5-4	-44.316	6-21	2.488	1
71		J	max	12.456	6-40	4.872	6-40	0	6-40	48.32	5-26	0	6-40	0.231	6-40
72			min	12.456	1	4.872	1	-191.406	5-1	-30.595	6-1	-552.64	6-1	0.231	1
73	M19	I	max	2.499	6-40	2.919	6-40	2.249	6-21	11.827	6-1	6.521	6-1	2.742	6-40
74			min	2.499	1	2.919	1	-2.249	6-1	-11.827	6-21	-13.69	4-29	2.742	1
75		J	max	2.499	6-40	-2.919	6-40	2.249	6-21	11.827	6-1	6.521	6-21	2.742	6-40
76			min	2.499	1	-2.919	1	-2.249	6-1	-11.827	6-21	-13.69	4-9	2.742	1
77	M20	I	max	2.697	6-40	-2.617	6-40	5.451	4-23	33.622	4-9	41.771	6-21	-2.429	6-40
78			min	2.697	1	-2.617	1	-190.075	6-21	-83.815	6-26	-41.771	6-1	-2.429	1
79		J	max	11.864	6-40	-4.461	6-40	0	6-40	21.786	6-21	0	6-40	-0.041	6-40
80			min	11.864	1	-4.461	1	-196.992	4-21	-75.425	4-26	-483.45	6-21	-0.041	1
81	M21	I	max	2.617	6-40	2.697	6-40	10.195	6-1	41.771	6-1	83.815	6-6	2.429	6-40
82			min	2.617	1	2.697	1	-183.314	6-32	-41.771	6-21	-33.622	4-29	2.429	1
83		J	max	2.617	6-40	-2.697	6-40	183.314	6-12	41.771	6-1	83.815	6-26	2.429	6-40
84			min	2.617	1	-2.697	1	-10.195	6-21	-41.771	6-21	-33.622	4-9	2.429	1
85	M22	I	max	2.697	6-40	2.617	6-40	5.451	4-3	83.815	6-6	41.771	6-1	2.429	6-40
86			min	2.697	1	2.617	1	-190.075	6-1	-33.622	4-29	-41.771	6-21	2.429	1
87		J	max	11.864	6-40	4.461	6-40	0	6-40	75.425	4-6	0	6-40	0.041	6-40
88			min	11.864	1	4.461	1	-196.992	4-1	-21.786	6-1	-483.45	6-1	0.041	1
89	M23	I	max	-4.527	6-40	2.277	6-40	14.52	6-30	31.697	6-34	86.447	5-15	1.856	6-40
90			min	-4.527	1	2.277	1	-184.773	5-11	-49.729	6-21	-62.426	6-29	1.856	1
91		J	max	-4.527	6-40	-2.187	6-40	189.537	5-20	31.697	6-34	80.81	5-25	1.64	6-40
92			min	-4.527	1	-2.187	1	-13.073	6-19	-49.729	6-21	-50.566	6-24	1.64	1
93	M24	I	max	-4.527	6-40	2.187	6-40	13.073	6-39	49.729	6-1	80.81	5-5	1.64	6-40
94			min	-4.527	1	2.187	1	-189.537	5-40	-31.697	6-14	-50.566	6-4	1.64	1
95		J	max	-4.527	6-40	-2.277	6-40	184.773	5-31	49.729	6-1	86.447	5-35	1.856	6-40
96			min	-4.527	1	-2.277	1	-14.52	6-10	-31.697	6-14	-62.426	6-9	1.856	1
97	M25	I	max	-7.618	6-40	2.697	6-40	9.399	6-3	46.328	6-1	105.022	5-28	2.531	6-40
98			min	-7.618	1	2.697	1	-190.346	5-32	-46.328	6-21	-56.949	6-29	2.531	1
99		J	max	-7.618	6-40	-2.697	6-40	190.346	5-12	46.328	6-1	105.022	5-8	2.531	6-40
100			min	-7.618	1	-2.697	1	-9.399	6-23	-46.328	6-21	-56.949	6-9	2.531	1
101	M26	I	max	-0.276	6-40	2.213	6-40	9.185	4-27	37.861	6-1	91.587	4-37	1.725	6-40
102			min	-0.276	1	2.213	1	-195.938	4-40	-27.376	6-13	-26.047	6-37	1.725	1
103		J	max	-0.276	6-40	-2.251	6-40	193.594	4-31	37.861	6-1	108.569	4-7	1.815	6-40
104			min	-0.276	1	-2.251	1	-4.041	6-32	-27.376	6-13	-23.367	6-9	1.815	1
105	M27	I	max	-0.276	6-40	2.251	6-40	4.041	6-12	27.376	6-33	108.569	4-27	1.815	6-40
106			min	-0.276	1	2.251	1	-193.594	4-11	-37.861	6-21	-23.367	6-29	1.815	1
107		J	max	-0.276	6-40	-2.213	6-40	195.938	4-20	27.376	6-33	91.587	4-17	1.725	6-40
108			min	-0.276	1	-2.213	1	-9.185	4-7	-37.861	6-21	-26.047	6-17	1.725	1
109	M28	I	max	-0.654	6-40	2.697	6-40	3.388	6-30	34.594	6-1	120.097	4-5	2.571	6-40
110			min	-0.654	1	2.697	1	-193.793	4-32	-34.594	6-21	-29.884	6-5	2.571	1

Envelope Member End Reactions (Continued)

Member	Member End		Axial[lb]	LC y	Shear[lb]	LC z	Shear[lb]	LC Torque[lb-ft]	LC y-y Moment[lb-ft]	LC z-z Moment[lb-ft]	LC			
111	J	max	-0.654	6-40	-2.697	6-40	193.793	4-12	34.594	6-1	120.097	4-25	2.571	6-40
112		min	-0.654	1	-2.697	1	-3.388	6-10	-34.594	6-21	-29.884	6-25	2.571	1

Envelope Member 2nd/1st Moment Ratios

	Member		y-y Moment [lb-ft]	2nd/1st Ratio	Loc [ft]	LC	z-z Moment [lb-ft]	2nd/1st Ratio	Loc [ft]	LC
1	M1	max	-44.473	1.005	3.172	5-37	-1.565	1	0	6-40
2		min	-448.779	1.002	3.5	5-21	-1.565	1	0	1
3	M2	max	-7.858	1.003	4.8	6-8	2.016	1	0	6-40
4		min	-4.054	0.999	4.8	5-24	2.016	1	0	1
5	M3	max	-27.437	1.006	0	6-9	1.893	1	0	6-40
6		min	13.22	0.992	0	6-5	1.893	1	0	1
7	M4	max	-27.437	1.006	4.8	6-29	1.893	1	4.8	6-40
8		min	13.22	0.992	4.8	6-25	1.893	1	4.8	1
9	M5	max	44.473	1.005	0.328	5-17	1.565	1	3.5	6-40
10		min	448.779	1.002	0	5-1	1.565	1	3.5	1
11	M6	max	-162.148	1.004	3.5	6-1	NC	NC		
12		min	-0.703	1.003	3.5	2	NC	NC		
13	M7	max	-7.858	1.003	0	6-28	2.016	1	4.8	6-40
14		min	-4.054	0.999	0	5-4	2.016	1	4.8	1
15	M8	max	-0.012	1.003	4.8	2	1.916	1	4.8	6-40
16		min	19.9	0.997	4.8	6-15	1.916	1	4.8	1
17	M9	max	-0.012	1.003	0	2	1.916	1	0	6-40
18		min	19.9	0.997	0	6-35	1.916	1	0	1
19	M10	max	-1.007	1.002	0	4-20	1.996	1	0	6-40
20		min	-4.25	1	4.8	6-24	1.996	1	0	1
21	M11	max	-123.825	1.002	3	6-21	NC	NC		
22		min	-0.432	1.001	3	2	NC	NC		
23	M12	max	-1.007	1.002	4.8	4-40	1.996	1	4.8	6-40
24		min	-4.25	1	0	6-4	1.996	1	4.8	1
25	M13	max	41.856	1.003	0.313	6-17	1.52	1	3	6-40
26		min	251.29	1.001	0	4-1	1.52	1	3	1
27	M14	max	-41.856	1.003	2.688	6-37	-1.52	1	0	6-40
28		min	-251.29	1.001	3	4-21	-1.52	1	0	1
29	M15	max	-7.353	1.003	5.8	5-32	2.715	1	5.8	6-40
30		min	-0.006	1	0	3	2.715	1	5.8	1
31	M16	max	-552.64	1.003	3.5	6-21	-2.488	1	0	6-40
32		min	-115.703	1.002	3.5	5-1	-2.488	1	0	1
33	M17	max	-21.476	1.003	5.8	5-21	2.488	1	5.8	6-40
34		min	-0.123	1	2.9	3	2.488	1	5.8	1
35	M18	max	-552.64	1.003	3.5	6-1	2.488	1	0	6-40
36		min	-115.703	1.002	3.5	5-21	2.488	1	0	1
37	M19	max	-2.084	1.001	5.8	4-1	2.742	1	5.8	6-40
38		min	-3.085	0.999	0	4-32	2.742	1	5.8	1
39	M20	max	-117.44	1.002	3	6-1	-2.429	1	0	6-40
40		min	-0.266	1.001	3	2	-2.429	1	0	1
41	M21	max	-8.759	1.001	5.8	4-21	2.429	1	5.8	6-40
42		min	-0.029	1	0	2	2.429	1	5.8	1
43	M22	max	-117.44	1.002	3	6-21	2.429	1	0	6-40
44		min	-0.266	1.001	3	2	2.429	1	0	1
45	M23	max	-11.219	1.01	0	5-9	1.856	1	0	6-40
46		min	10.634	0.992	0	5-34	1.856	1	0	1
47	M24	max	-11.219	1.01	4.8	5-29	1.856	1	4.8	6-40
48		min	10.634	0.992	4.8	5-14	1.856	1	4.8	1
49	M25	max	-13.46	1.003	5.8	6-21	2.531	1	5.8	6-40
50		min	-0.121	1	2.9	2	2.531	1	5.8	1

Envelope Member 2nd/1st Moment Ratios (Continued)

Member			y-y Moment [lb-ft]	2nd/1st Ratio	Loc [ft]	LC	z-z Moment [lb-ft]	2nd/1st Ratio	Loc [ft]	LC
51	M26	max	-3.295	1.006	4.8	6-29	1.815	1	4.8	6-40
52		min	1.513	0.988	4.8	6-13	1.815	1	4.8	1
53	M27	max	-3.295	1.006	0	6-9	1.815	1	0	6-40
54		min	1.513	0.988	0	6-33	1.815	1	0	1
55	M28	max	1.257	1.001	0	6-1	2.571	1	5.8	6-40
56		min	-8.598	1	5.8	6-12	2.571	1	5.8	1

Envelope Member Torsion Stresses

Member	Sec		Torque[lb-ft]	LC	Torsion Shear[ksi]	LC	y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
1	M1	1	max	55.872	5-18	1.036	5-18	NC	NC	NC
2			min	-68.31	6-16	-1.267	6-16	NC	NC	NC
3		2	max	47.593	6-21	0.882	6-21	NC	NC	NC
4			min	-38.995	5-27	-0.723	5-27	NC	NC	NC
5		3	max	47.593	6-21	0.882	6-21	NC	NC	NC
6			min	-38.995	5-27	-0.723	5-27	NC	NC	NC
7		4	max	47.593	6-21	0.882	6-21	NC	NC	NC
8			min	-38.995	5-27	-0.723	5-27	NC	NC	NC
9		5	max	35.691	6-21	0.662	6-21	NC	NC	NC
10			min	-32.588	5-27	-0.604	5-27	NC	NC	NC
11	M2	1	max	9.582	6-8	0.204	6-8	NC	NC	NC
12			min	-13.625	6-21	-0.29	6-21	NC	NC	NC
13		2	max	9.582	6-8	0.204	6-8	NC	NC	NC
14			min	-13.625	6-21	-0.29	6-21	NC	NC	NC
15		3	max	9.582	6-8	0.204	6-8	NC	NC	NC
16			min	-13.625	6-21	-0.29	6-21	NC	NC	NC
17		4	max	9.582	6-8	0.204	6-8	NC	NC	NC
18			min	-13.625	6-21	-0.29	6-21	NC	NC	NC
19		5	max	9.582	6-8	0.204	6-8	NC	NC	NC
20			min	-13.625	6-21	-0.29	6-21	NC	NC	NC
21	M3	1	max	29.909	6-7	0.791	6-7	NC	NC	NC
22			min	-47.999	6-21	-1.269	6-21	NC	NC	NC
23		2	max	29.909	6-7	0.791	6-7	NC	NC	NC
24			min	-47.999	6-21	-1.269	6-21	NC	NC	NC
25		3	max	29.909	6-7	0.791	6-7	NC	NC	NC
26			min	-47.999	6-21	-1.269	6-21	NC	NC	NC
27		4	max	29.909	6-7	0.791	6-7	NC	NC	NC
28			min	-47.999	6-21	-1.269	6-21	NC	NC	NC
29		5	max	29.909	6-7	0.791	6-7	NC	NC	NC
30			min	-47.999	6-21	-1.269	6-21	NC	NC	NC
31	M4	1	max	47.999	6-1	1.269	6-1	NC	NC	NC
32			min	-29.909	6-27	-0.791	6-27	NC	NC	NC
33		2	max	47.999	6-1	1.269	6-1	NC	NC	NC
34			min	-29.909	6-27	-0.791	6-27	NC	NC	NC
35		3	max	47.999	6-1	1.269	6-1	NC	NC	NC
36			min	-29.909	6-27	-0.791	6-27	NC	NC	NC
37		4	max	47.999	6-1	1.269	6-1	NC	NC	NC
38			min	-29.909	6-27	-0.791	6-27	NC	NC	NC
39		5	max	47.999	6-1	1.269	6-1	NC	NC	NC
40			min	-29.909	6-27	-0.791	6-27	NC	NC	NC
41	M5	1	max	32.588	5-7	0.604	5-7	NC	NC	NC
42			min	-35.691	6-1	-0.662	6-1	NC	NC	NC
43		2	max	38.995	5-7	0.723	5-7	NC	NC	NC
44			min	-47.593	6-1	-0.882	6-1	NC	NC	NC
45		3	max	38.995	5-7	0.723	5-7	NC	NC	NC
46			min	-47.593	6-1	-0.882	6-1	NC	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec		Torque[lb-ft]	LC	Torsion Shear[ksi]	LC	y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
47	4	max	38.995	5-7	0.723	5-7	NC	NC	NC	NC
48		min	-47.593	6-1	-0.882	6-1	NC	NC	NC	NC
49	5	max	68.31	6-36	1.267	6-36	NC	NC	NC	NC
50		min	-55.872	5-38	-1.036	5-38	NC	NC	NC	NC
51	M6	1	max	73.551	6-27	1.364	6-27	NC	NC	NC
52		min	-73.551	6-7	-1.364	6-7	NC	NC	NC	NC
53	2	max	39.705	5-16	0.736	5-16	NC	NC	NC	NC
54		min	-39.705	5-36	-0.736	5-36	NC	NC	NC	NC
55	3	max	39.705	5-16	0.736	5-16	NC	NC	NC	NC
56		min	-39.705	5-36	-0.736	5-36	NC	NC	NC	NC
57	4	max	39.705	5-16	0.736	5-16	NC	NC	NC	NC
58		min	-39.705	5-36	-0.736	5-36	NC	NC	NC	NC
59	5	max	26.733	5-16	0.496	5-16	NC	NC	NC	NC
60		min	-26.733	5-36	-0.496	5-36	NC	NC	NC	NC
61	M7	1	max	13.625	6-1	0.29	6-1	NC	NC	NC
62		min	-9.582	6-28	-0.204	6-28	NC	NC	NC	NC
63	2	max	13.625	6-1	0.29	6-1	NC	NC	NC	NC
64		min	-9.582	6-28	-0.204	6-28	NC	NC	NC	NC
65	3	max	13.625	6-1	0.29	6-1	NC	NC	NC	NC
66		min	-9.582	6-28	-0.204	6-28	NC	NC	NC	NC
67	4	max	13.625	6-1	0.29	6-1	NC	NC	NC	NC
68		min	-9.582	6-28	-0.204	6-28	NC	NC	NC	NC
69	5	max	13.625	6-1	0.29	6-1	NC	NC	NC	NC
70		min	-9.582	6-28	-0.204	6-28	NC	NC	NC	NC
71	M8	1	max	46.035	6-1	1.217	6-1	NC	NC	NC
72		min	-31.839	6-13	-0.842	6-13	NC	NC	NC	NC
73	2	max	46.035	6-1	1.217	6-1	NC	NC	NC	NC
74		min	-31.839	6-13	-0.842	6-13	NC	NC	NC	NC
75	3	max	46.035	6-1	1.217	6-1	NC	NC	NC	NC
76		min	-31.839	6-13	-0.842	6-13	NC	NC	NC	NC
77	4	max	46.035	6-1	1.217	6-1	NC	NC	NC	NC
78		min	-31.839	6-13	-0.842	6-13	NC	NC	NC	NC
79	5	max	46.035	6-1	1.217	6-1	NC	NC	NC	NC
80		min	-31.839	6-13	-0.842	6-13	NC	NC	NC	NC
81	M9	1	max	31.839	6-33	0.842	6-33	NC	NC	NC
82		min	-46.035	6-21	-1.217	6-21	NC	NC	NC	NC
83	2	max	31.839	6-33	0.842	6-33	NC	NC	NC	NC
84		min	-46.035	6-21	-1.217	6-21	NC	NC	NC	NC
85	3	max	31.839	6-33	0.842	6-33	NC	NC	NC	NC
86		min	-46.035	6-21	-1.217	6-21	NC	NC	NC	NC
87	4	max	31.839	6-33	0.842	6-33	NC	NC	NC	NC
88		min	-46.035	6-21	-1.217	6-21	NC	NC	NC	NC
89	5	max	31.839	6-33	0.842	6-33	NC	NC	NC	NC
90		min	-46.035	6-21	-1.217	6-21	NC	NC	NC	NC
91	M10	1	max	9.586	6-33	0.204	6-33	NC	NC	NC
92		min	-12.853	6-21	-0.274	6-21	NC	NC	NC	NC
93	2	max	9.586	6-33	0.204	6-33	NC	NC	NC	NC
94		min	-12.853	6-21	-0.274	6-21	NC	NC	NC	NC
95	3	max	9.586	6-33	0.204	6-33	NC	NC	NC	NC
96		min	-12.853	6-21	-0.274	6-21	NC	NC	NC	NC
97	4	max	9.586	6-33	0.204	6-33	NC	NC	NC	NC
98		min	-12.853	6-21	-0.274	6-21	NC	NC	NC	NC
99	5	max	9.586	6-33	0.204	6-33	NC	NC	NC	NC
100		min	-12.853	6-21	-0.274	6-21	NC	NC	NC	NC
101	M11	1	max	59.633	6-15	1.106	6-15	NC	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec		Torque[lb-ft]	LC	Torsion Shear[ksi]	LC	y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
102		min	-59.633	6-35	-1.106	6-35	NC	NC	NC	NC
103	2	max	59.633	6-15	1.106	6-15	NC	NC	NC	NC
104		min	-59.633	6-35	-1.106	6-35	NC	NC	NC	NC
105	3	max	59.633	6-15	1.106	6-15	NC	NC	NC	NC
106		min	-59.633	6-35	-1.106	6-35	NC	NC	NC	NC
107	4	max	52.376	4-27	0.971	4-27	NC	NC	NC	NC
108		min	-52.376	4-7	-0.971	4-7	NC	NC	NC	NC
109	5	max	36.175	4-15	0.671	4-15	NC	NC	NC	NC
110		min	-36.175	4-35	-0.671	4-35	NC	NC	NC	NC
111	M12	1	max	12.853	6-1	0.274	6-1	NC	NC	NC
112		min	-9.586	6-13	-0.204	6-13	NC	NC	NC	NC
113	2	max	12.853	6-1	0.274	6-1	NC	NC	NC	NC
114		min	-9.586	6-13	-0.204	6-13	NC	NC	NC	NC
115	3	max	12.853	6-1	0.274	6-1	NC	NC	NC	NC
116		min	-9.586	6-13	-0.204	6-13	NC	NC	NC	NC
117	4	max	12.853	6-1	0.274	6-1	NC	NC	NC	NC
118		min	-9.586	6-13	-0.204	6-13	NC	NC	NC	NC
119	5	max	12.853	6-1	0.274	6-1	NC	NC	NC	NC
120		min	-9.586	6-13	-0.204	6-13	NC	NC	NC	NC
121	M13	1	max	51.114	4-5	0.948	4-5	NC	NC	NC
122		min	-26.829	6-1	-0.497	6-1	NC	NC	NC	NC
123	2	max	63.797	4-5	1.183	4-5	NC	NC	NC	NC
124		min	-34.785	6-1	-0.645	6-1	NC	NC	NC	NC
125	3	max	63.797	4-5	1.183	4-5	NC	NC	NC	NC
126		min	-36.349	6-1	-0.674	6-1	NC	NC	NC	NC
127	4	max	59.331	6-6	1.1	6-6	NC	NC	NC	NC
128		min	-36.349	6-1	-0.674	6-1	NC	NC	NC	NC
129	5	max	59.331	6-6	1.1	6-6	NC	NC	NC	NC
130		min	-36.349	6-1	-0.674	6-1	NC	NC	NC	NC
131	M14	1	max	36.349	6-21	0.674	6-21	NC	NC	NC
132		min	-59.331	6-26	-1.1	6-26	NC	NC	NC	NC
133	2	max	36.349	6-21	0.674	6-21	NC	NC	NC	NC
134		min	-59.331	6-26	-1.1	6-26	NC	NC	NC	NC
135	3	max	36.349	6-21	0.674	6-21	NC	NC	NC	NC
136		min	-63.797	4-25	-1.183	4-25	NC	NC	NC	NC
137	4	max	34.785	6-21	0.645	6-21	NC	NC	NC	NC
138		min	-63.797	4-25	-1.183	4-25	NC	NC	NC	NC
139	5	max	26.829	6-21	0.497	6-21	NC	NC	NC	NC
140		min	-51.114	4-25	-0.948	4-25	NC	NC	NC	NC
141	M15	1	max	13.18	6-1	0.281	6-1	NC	NC	NC
142		min	-13.18	6-21	-0.281	6-21	NC	NC	NC	NC
143	2	max	13.18	6-1	0.281	6-1	NC	NC	NC	NC
144		min	-13.18	6-21	-0.281	6-21	NC	NC	NC	NC
145	3	max	13.18	6-1	0.281	6-1	NC	NC	NC	NC
146		min	-13.18	6-21	-0.281	6-21	NC	NC	NC	NC
147	4	max	13.18	6-1	0.281	6-1	NC	NC	NC	NC
148		min	-13.18	6-21	-0.281	6-21	NC	NC	NC	NC
149	5	max	13.18	6-1	0.281	6-1	NC	NC	NC	NC
150		min	-13.18	6-21	-0.281	6-21	NC	NC	NC	NC
151	M16	1	max	60.723	5-24	1.126	5-24	NC	NC	NC
152		min	-93.184	6-8	-1.728	6-8	NC	NC	NC	NC
153	2	max	40.675	6-21	0.754	6-21	NC	NC	NC	NC
154		min	-55.363	5-27	-1.026	5-27	NC	NC	NC	NC
155	3	max	40.675	6-21	0.754	6-21	NC	NC	NC	NC
156		min	-55.363	5-27	-1.026	5-27	NC	NC	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec		Torque[lb-ft]	LC	Torsion Shear[ksi]	LC	y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
157	4	max	40.675	6-21	0.754	6-21	NC	NC	NC	NC
158		min	-55.363	5-27	-1.026	5-27	NC	NC	NC	NC
159	5	max	30.595	6-21	0.567	6-21	NC	NC	NC	NC
160		min	-48.32	5-6	-0.896	5-6	NC	NC	NC	NC
161	M17	1	max	44.316	6-1	1.172	6-1	NC	NC	NC
162		min	-44.316	6-21	-1.172	6-21	NC	NC	NC	NC
163	2	max	44.316	6-1	1.172	6-1	NC	NC	NC	NC
164		min	-44.316	6-21	-1.172	6-21	NC	NC	NC	NC
165	3	max	44.316	6-1	1.172	6-1	NC	NC	NC	NC
166		min	-44.316	6-21	-1.172	6-21	NC	NC	NC	NC
167	4	max	44.316	6-1	1.172	6-1	NC	NC	NC	NC
168		min	-44.316	6-21	-1.172	6-21	NC	NC	NC	NC
169	5	max	44.316	6-1	1.172	6-1	NC	NC	NC	NC
170		min	-44.316	6-21	-1.172	6-21	NC	NC	NC	NC
171	M18	1	max	93.184	6-28	1.728	6-28	NC	NC	NC
172		min	-60.723	5-4	-1.126	5-4	NC	NC	NC	NC
173	2	max	55.363	5-7	1.026	5-7	NC	NC	NC	NC
174		min	-40.675	6-1	-0.754	6-1	NC	NC	NC	NC
175	3	max	55.363	5-7	1.026	5-7	NC	NC	NC	NC
176		min	-40.675	6-1	-0.754	6-1	NC	NC	NC	NC
177	4	max	55.363	5-7	1.026	5-7	NC	NC	NC	NC
178		min	-40.675	6-1	-0.754	6-1	NC	NC	NC	NC
179	5	max	48.32	5-26	0.896	5-26	NC	NC	NC	NC
180		min	-30.595	6-1	-0.567	6-1	NC	NC	NC	NC
181	M19	1	max	11.827	6-1	0.252	6-1	NC	NC	NC
182		min	-11.827	6-21	-0.252	6-21	NC	NC	NC	NC
183	2	max	11.827	6-1	0.252	6-1	NC	NC	NC	NC
184		min	-11.827	6-21	-0.252	6-21	NC	NC	NC	NC
185	3	max	11.827	6-1	0.252	6-1	NC	NC	NC	NC
186		min	-11.827	6-21	-0.252	6-21	NC	NC	NC	NC
187	4	max	11.827	6-1	0.252	6-1	NC	NC	NC	NC
188		min	-11.827	6-21	-0.252	6-21	NC	NC	NC	NC
189	5	max	11.827	6-1	0.252	6-1	NC	NC	NC	NC
190		min	-11.827	6-21	-0.252	6-21	NC	NC	NC	NC
191	M20	1	max	33.622	4-9	0.623	4-9	NC	NC	NC
192		min	-83.815	6-26	-1.554	6-26	NC	NC	NC	NC
193	2	max	33.622	4-9	0.623	4-9	NC	NC	NC	NC
194		min	-83.815	6-26	-1.554	6-26	NC	NC	NC	NC
195	3	max	29.564	6-21	0.548	6-21	NC	NC	NC	NC
196		min	-88.433	4-8	-1.64	4-8	NC	NC	NC	NC
197	4	max	28.307	6-21	0.525	6-21	NC	NC	NC	NC
198		min	-88.433	4-8	-1.64	4-8	NC	NC	NC	NC
199	5	max	21.786	6-21	0.404	6-21	NC	NC	NC	NC
200		min	-75.425	4-26	-1.398	4-26	NC	NC	NC	NC
201	M21	1	max	41.771	6-1	1.105	6-1	NC	NC	NC
202		min	-41.771	6-21	-1.105	6-21	NC	NC	NC	NC
203	2	max	41.771	6-1	1.105	6-1	NC	NC	NC	NC
204		min	-41.771	6-21	-1.105	6-21	NC	NC	NC	NC
205	3	max	41.771	6-1	1.105	6-1	NC	NC	NC	NC
206		min	-41.771	6-21	-1.105	6-21	NC	NC	NC	NC
207	4	max	41.771	6-1	1.105	6-1	NC	NC	NC	NC
208		min	-41.771	6-21	-1.105	6-21	NC	NC	NC	NC
209	5	max	41.771	6-1	1.105	6-1	NC	NC	NC	NC
210		min	-41.771	6-21	-1.105	6-21	NC	NC	NC	NC
211	M22	1	max	83.815	6-6	1.554	6-6	NC	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec		Torque[lb-ft]	LC	Torsion Shear[ksi]	LC	y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
212		min	-33.622	4-29	-0.623	4-29	NC	NC	NC	NC
213	2	max	83.815	6-6	1.554	6-6	NC	NC	NC	NC
214		min	-33.622	4-29	-0.623	4-29	NC	NC	NC	NC
215	3	max	88.433	4-28	1.64	4-28	NC	NC	NC	NC
216		min	-29.564	6-1	-0.548	6-1	NC	NC	NC	NC
217	4	max	88.433	4-28	1.64	4-28	NC	NC	NC	NC
218		min	-28.307	6-1	-0.525	6-1	NC	NC	NC	NC
219	5	max	75.425	4-6	1.398	4-6	NC	NC	NC	NC
220		min	-21.786	6-1	-0.404	6-1	NC	NC	NC	NC
221	M23	1	max	31.697	6-34	0.838	6-34	NC	NC	NC
222		min	-49.729	6-21	-1.315	6-21	NC	NC	NC	NC
223	2	max	31.697	6-34	0.838	6-34	NC	NC	NC	NC
224		min	-49.729	6-21	-1.315	6-21	NC	NC	NC	NC
225	3	max	31.697	6-34	0.838	6-34	NC	NC	NC	NC
226		min	-49.729	6-21	-1.315	6-21	NC	NC	NC	NC
227	4	max	31.697	6-34	0.838	6-34	NC	NC	NC	NC
228		min	-49.729	6-21	-1.315	6-21	NC	NC	NC	NC
229	5	max	31.697	6-34	0.838	6-34	NC	NC	NC	NC
230		min	-49.729	6-21	-1.315	6-21	NC	NC	NC	NC
231	M24	1	max	49.729	6-1	1.315	6-1	NC	NC	NC
232		min	-31.697	6-14	-0.838	6-14	NC	NC	NC	NC
233	2	max	49.729	6-1	1.315	6-1	NC	NC	NC	NC
234		min	-31.697	6-14	-0.838	6-14	NC	NC	NC	NC
235	3	max	49.729	6-1	1.315	6-1	NC	NC	NC	NC
236		min	-31.697	6-14	-0.838	6-14	NC	NC	NC	NC
237	4	max	49.729	6-1	1.315	6-1	NC	NC	NC	NC
238		min	-31.697	6-14	-0.838	6-14	NC	NC	NC	NC
239	5	max	49.729	6-1	1.315	6-1	NC	NC	NC	NC
240		min	-31.697	6-14	-0.838	6-14	NC	NC	NC	NC
241	M25	1	max	46.328	6-1	1.225	6-1	NC	NC	NC
242		min	-46.328	6-21	-1.225	6-21	NC	NC	NC	NC
243	2	max	46.328	6-1	1.225	6-1	NC	NC	NC	NC
244		min	-46.328	6-21	-1.225	6-21	NC	NC	NC	NC
245	3	max	46.328	6-1	1.225	6-1	NC	NC	NC	NC
246		min	-46.328	6-21	-1.225	6-21	NC	NC	NC	NC
247	4	max	46.328	6-1	1.225	6-1	NC	NC	NC	NC
248		min	-46.328	6-21	-1.225	6-21	NC	NC	NC	NC
249	5	max	46.328	6-1	1.225	6-1	NC	NC	NC	NC
250		min	-46.328	6-21	-1.225	6-21	NC	NC	NC	NC
251	M26	1	max	37.861	6-1	1.001	6-1	NC	NC	NC
252		min	-27.376	6-13	-0.724	6-13	NC	NC	NC	NC
253	2	max	37.861	6-1	1.001	6-1	NC	NC	NC	NC
254		min	-27.376	6-13	-0.724	6-13	NC	NC	NC	NC
255	3	max	37.861	6-1	1.001	6-1	NC	NC	NC	NC
256		min	-27.376	6-13	-0.724	6-13	NC	NC	NC	NC
257	4	max	37.861	6-1	1.001	6-1	NC	NC	NC	NC
258		min	-27.376	6-13	-0.724	6-13	NC	NC	NC	NC
259	5	max	37.861	6-1	1.001	6-1	NC	NC	NC	NC
260		min	-27.376	6-13	-0.724	6-13	NC	NC	NC	NC
261	M27	1	max	27.376	6-33	0.724	6-33	NC	NC	NC
262		min	-37.861	6-21	-1.001	6-21	NC	NC	NC	NC
263	2	max	27.376	6-33	0.724	6-33	NC	NC	NC	NC
264		min	-37.861	6-21	-1.001	6-21	NC	NC	NC	NC
265	3	max	27.376	6-33	0.724	6-33	NC	NC	NC	NC
266		min	-37.861	6-21	-1.001	6-21	NC	NC	NC	NC

Envelope Member Torsion Stresses (Continued)

Member	Sec	Torque[lb-ft]	LC	Torsion Shear[ksi]	LC	y-y Warp Shear[ksi]	z-z Warp Shear[ksi]	z-Top Warp Bend[ksi]	z-Bot Warp Bend[ksi]
267	4	max	27.376	6-33	0.724	6-33	NC	NC	NC
268		min	-37.861	6-21	-1.001	6-21	NC	NC	NC
269	5	max	27.376	6-33	0.724	6-33	NC	NC	NC
270		min	-37.861	6-21	-1.001	6-21	NC	NC	NC
271	M28	1	max	34.594	6-1	0.915	6-1	NC	NC
272		min	-34.594	6-21	-0.915	6-21	NC	NC	NC
273	2	max	34.594	6-1	0.915	6-1	NC	NC	NC
274		min	-34.594	6-21	-0.915	6-21	NC	NC	NC
275	3	max	34.594	6-1	0.915	6-1	NC	NC	NC
276		min	-34.594	6-21	-0.915	6-21	NC	NC	NC
277	4	max	34.594	6-1	0.915	6-1	NC	NC	NC
278		min	-34.594	6-21	-0.915	6-21	NC	NC	NC
279	5	max	34.594	6-1	0.915	6-1	NC	NC	NC
280		min	-34.594	6-21	-0.915	6-21	NC	NC	NC

Envelope Member Section Stresses

Member	Sec	Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
1	M1	1	max	0.002	6-40	-0.009	6-40	0.028	5-19	0.049	6-40	-0.049	6-40	1.495	6-21
2			min	0.002	1	-0.009	1	-0.326	6-21	0.049	1	-0.049	1	-0.932	6-7
3	2	max	0.005	6-40	-0.001	6-40	0.011	6-1	0.016	6-40	-0.016	6-40	0.292	5-21	2.223
4			min	0.005	1	-0.001	1	-0.317	5-21	0.016	1	-0.016	1	-2.223	6-31
5	3	max	0.007	6-40	-0.001	6-40	0.011	6-1	0.002	6-40	-0.002	6-40	0	4-40	6.631
6			min	0.007	1	-0.001	1	-0.317	5-21	0.002	1	-0.002	1	-6.631	6-21
7	4	max	0.008	6-40	-0.001	6-40	0.011	6-1	-0.011	6-40	0.011	6-40	0	4-40	11.399
8			min	0.008	1	-0.001	1	-0.317	5-21	-0.011	1	0.011	1	-11.399	6-21
9	5	max	0.011	6-40	-0.005	6-40	0.015	6-1	0.008	6-40	-0.008	6-40	0	4-40	15.784
10			min	0.011	1	-0.005	1	-0.323	5-21	0.008	1	-0.008	1	-15.784	6-21
11	M2	1	max	0.002	6-40	0.005	6-40	0.009	6-21	-0.071	6-40	0.071	6-40	0.32	5-6
12			min	0.002	1	0.005	1	-0.007	6-6	-0.071	1	0.071	1	-0.318	6-21
13	2	max	0.002	6-40	0.003	6-40	0.009	6-21	0.008	6-40	-0.008	6-40	0.183	5-36	0.161
14			min	0.002	1	0.003	1	-0.007	6-6	0.008	1	-0.008	1	-0.161	5-15
15	3	max	0.002	6-40	0	6-40	0.009	6-21	0.035	6-40	-0.035	6-40	0.05	6-21	0.182
16			min	0.002	1	0	1	-0.007	6-6	0.035	1	-0.035	1	-0.182	5-15
17	4	max	0.002	6-40	-0.002	6-40	0.009	6-21	0.012	6-40	-0.012	6-40	0.234	6-21	0.204
18			min	0.002	1	-0.002	1	-0.007	6-6	0.012	1	-0.012	1	-0.204	5-15
19	5	max	0.002	6-40	-0.005	6-40	0.009	6-21	-0.062	6-40	0.062	6-40	0.419	6-21	0.277
20			min	0.002	1	-0.005	1	-0.007	6-6	-0.062	1	0.062	1	-0.277	6-33
21	M3	1	max	0.006	6-40	0.006	6-40	0.041	5-30	-0.1	6-40	0.1	6-40	4.241	6-26
22			min	0.006	1	0.006	1	-0.461	6-11	-0.1	1	0.1	1	-3.355	5-12
23	2	max	0.006	6-40	0.003	6-40	0.092	6-29	0.01	6-40	-0.01	6-40	1.418	6-21	6.917
24			min	0.006	1	0.003	1	-0.391	6-13	0.01	1	-0.01	1	-6.917	6-13
25	3	max	0.006	6-40	0	6-40	0.24	6-26	0.05	6-40	-0.05	6-40	0.753	6-38	8.318
26			min	0.006	1	0	1	-0.232	6-16	0.05	1	-0.05	1	-8.318	6-26
27	4	max	0.006	6-40	-0.003	6-40	0.351	6-24	0.019	6-40	-0.019	6-40	0.693	6-37	5.921
28			min	0.006	1	-0.003	1	-0.125	6-18	0.019	1	-0.019	1	-5.921	6-18
29	5	max	0.006	6-40	-0.006	6-40	0.469	6-20	-0.083	6-40	0.083	6-40	3.616	6-16	2.958
30			min	0.006	1	-0.006	1	-0.042	6-21	-0.083	1	0.083	1	-2.958	5-18
31	M4	1	max	0.006	6-40	0.006	6-40	0.042	6-1	-0.083	6-40	0.083	6-40	3.616	6-36
32			min	0.006	1	0.006	1	-0.469	6-40	-0.083	1	0.083	1	-2.958	5-38
33	2	max	0.006	6-40	0.003	6-40	0.125	6-38	0.019	6-40	-0.019	6-40	0.693	6-17	5.921
34			min	0.006	1	0.003	1	-0.351	6-4	0.019	1	-0.019	1	-5.921	6-38
35	3	max	0.006	6-40	0	6-40	0.232	6-36	0.05	6-40	-0.05	6-40	0.753	6-18	8.318
36			min	0.006	1	0	1	-0.24	6-6	0.05	1	-0.05	1	-8.318	6-6
37	4	max	0.006	6-40	-0.003	6-40	0.391	6-33	0.01	6-40	-0.01	6-40	1.418	6-1	6.917
38			min	0.006	1	-0.003	1	-0.092	6-9	0.01	1	-0.01	1	-6.917	6-33

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC	
39		5	max	0.006	6-40	-0.006	6-40	0.461	6-31	-0.1	6-40	0.1	6-40	4.241	6-6	3.355	5-32
40			min	0.006	1	-0.006	1	-0.041	5-10	-0.1	1	0.1	1	-3.355	5-32	-4.241	6-6
41	M5	1	max	0.011	6-40	-0.005	6-40	0.015	6-21	-0.008	6-40	0.008	6-40	15.784	6-1	0	4-40
42			min	0.011	1	-0.005	1	-0.323	5-1	-0.008	1	0.008	1	0	1	-15.784	6-1
43		2	max	0.008	6-40	-0.001	6-40	0.011	6-21	0.011	6-40	-0.011	6-40	11.399	6-1	0	4-40
44			min	0.008	1	-0.001	1	-0.317	5-1	0.011	1	-0.011	1	0	1	-11.399	6-1
45		3	max	0.007	6-40	-0.001	6-40	0.011	6-21	-0.002	6-40	0.002	6-40	6.631	6-1	0	4-40
46			min	0.007	1	-0.001	1	-0.317	5-1	-0.002	1	0.002	1	0	1	-6.631	6-1
47		4	max	0.005	6-40	-0.001	6-40	0.011	6-21	-0.016	6-40	0.016	6-40	2.223	6-11	0.292	5-1
48			min	0.005	1	-0.001	1	-0.317	5-1	-0.016	1	0.016	1	-0.292	5-1	-2.223	6-11
49		5	max	0.002	6-40	-0.009	6-40	0.028	5-39	-0.049	6-40	0.049	6-40	0.932	6-27	1.495	6-1
50			min	0.002	1	-0.009	1	-0.326	6-1	-0.049	1	0.049	1	-1.495	6-1	-0.932	6-27
51	M6	1	max	0.005	6-40	0	6-40	0.052	5-11	0	6-40	0	6-40	1.5	6-11	0.753	6-21
52			min	0.005	1	0	1	-0.29	6-11	0	1	0	1	-0.753	6-21	-1.5	6-11
53		2	max	0.01	6-40	0	6-40	0	4-40	0	6-40	0	6-40	0.822	5-11	2.222	6-1
54			min	0.01	1	0	1	-0.259	5-31	0	1	0	1	-2.222	6-1	-0.822	5-11
55		3	max	0.011	6-40	0	6-40	0	4-40	0	6-40	0	6-40	0	4-40	4.761	6-31
56			min	0.011	1	0	1	-0.259	5-31	0	1	0	1	-4.761	6-31	0	1
57		4	max	0.012	6-40	0	6-40	0	4-40	0	6-40	0	6-40	0	4-40	8.499	6-31
58			min	0.012	1	0	1	-0.259	5-31	0	1	0	1	-8.499	6-31	0	1
59		5	max	0.018	6-40	0	6-40	0	4-40	0	6-40	0	6-40	0	4-40	11.756	6-31
60			min	0.018	1	0	1	-0.265	5-31	0	1	0	1	-11.756	6-31	0	1
61	M7	1	max	0.002	6-40	0.005	6-40	0.007	6-26	-0.062	6-40	0.062	6-40	0.419	6-1	0.277	6-13
62			min	0.002	1	0.005	1	-0.009	6-1	-0.062	1	0.062	1	-0.277	6-13	-0.419	6-1
63		2	max	0.002	6-40	0.002	6-40	0.007	6-26	0.012	6-40	-0.012	6-40	0.234	6-1	0.204	5-35
64			min	0.002	1	0.002	1	-0.009	6-1	0.012	1	-0.012	1	-0.204	5-35	-0.234	6-1
65		3	max	0.002	6-40	0	6-40	0.007	6-26	0.035	6-40	-0.035	6-40	0.05	6-1	0.182	5-35
66			min	0.002	1	0	1	-0.009	6-1	0.035	1	-0.035	1	-0.182	5-35	-0.05	6-1
67		4	max	0.002	6-40	-0.003	6-40	0.007	6-26	0.008	6-40	-0.008	6-40	0.183	5-16	0.161	5-35
68			min	0.002	1	-0.003	1	-0.009	6-1	0.008	1	-0.008	1	-0.161	5-35	-0.183	5-16
69		5	max	0.002	6-40	-0.005	6-40	0.007	6-26	-0.071	6-40	0.071	6-40	0.32	5-26	0.318	6-1
70			min	0.002	1	-0.005	1	-0.009	6-1	-0.071	1	0.071	1	-0.318	6-1	-0.32	5-26
71	M8	1	max	0.002	6-40	0.006	6-40	0.044	6-1	-0.08	6-40	0.08	6-40	3.141	6-6	1.924	6-1
72			min	0.002	1	0.006	1	-0.465	6-40	-0.08	1	0.08	1	-1.924	6-1	-3.141	6-6
73		2	max	0.002	6-40	0.003	6-40	0.135	6-38	0.021	6-40	-0.021	6-40	0.827	6-15	6.404	6-38
74			min	0.002	1	0.003	1	-0.341	6-4	0.021	1	-0.021	1	-6.404	6-38	-0.827	6-15
75		3	max	0.002	6-40	0	6-40	0.238	6-36	0.051	6-40	-0.051	6-40	0.95	6-16	8.476	6-6
76			min	0.002	1	0	1	-0.236	6-6	0.051	1	-0.051	1	-8.476	6-6	-0.95	6-16
77		4	max	0.002	6-40	-0.003	6-40	0.387	6-33	0.01	6-40	-0.01	6-40	1.33	6-1	6.984	6-33
78			min	0.002	1	-0.003	1	-0.096	6-9	0.01	1	-0.01	1	-6.984	6-33	-1.33	6-1
79		5	max	0.002	6-40	-0.006	6-40	0.458	6-31	-0.101	6-40	0.101	6-40	4.292	6-36	2.54	6-11
80			min	0.002	1	-0.006	1	-0.041	6-11	-0.101	1	0.101	1	-2.54	6-11	-4.292	6-36
81	M9	1	max	0.002	6-40	0.006	6-40	0.041	6-31	-0.101	6-40	0.101	6-40	4.292	6-16	2.54	6-31
82			min	0.002	1	0.006	1	-0.458	6-11	-0.101	1	0.101	1	-2.54	6-31	-4.292	6-16
83		2	max	0.002	6-40	0.003	6-40	0.096	6-29	0.01	6-40	-0.01	6-40	1.33	6-21	6.984	6-13
84			min	0.002	1	0.003	1	-0.387	6-13	0.01	1	-0.01	1	-6.984	6-13	-1.33	6-21
85		3	max	0.002	6-40	0	6-40	0.236	6-26	0.051	6-40	-0.051	6-40	0.95	6-36	8.476	6-26
86			min	0.002	1	0	1	-0.238	6-16	0.051	1	-0.051	1	-8.476	6-26	-0.95	6-36
87		4	max	0.002	6-40	-0.003	6-40	0.341	6-24	0.021	6-40	-0.021	6-40	0.827	6-35	6.404	6-18
88			min	0.002	1	-0.003	1	-0.135	6-18	0.021	1	-0.021	1	-6.404	6-18	-0.827	6-35
89		5	max	0.002	6-40	-0.006	6-40	0.465	6-20	-0.08	6-40	0.08	6-40	3.141	6-26	1.924	6-21
90			min	0.002	1	-0.006	1	-0.044	6-21	-0.08	1	0.08	1	-1.924	6-21	-3.141	6-26
91	M10	1	max	0.001	6-40	0.005	6-40	0.006	6-21	-0.07	6-40	0.07	6-40	0.367	4-35	0.237	4-28
92			min	0.001	1	0.005	1	-0.006	4-35	-0.07	1	0.07	1	-0.237	4-28	-0.367	4-35
93		2	max	0.001	6-40	0.003	6-40	0.006	6-21	0.008	6-40	-0.008	6-40	0.246	4-35	0.23	4-14

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC	
94		min	0.001	1	0.003	1	-0.006	4-35	0.008	1	-0.008	1	-0.23	4-14	-0.246	4-35	
95	3	max	0.001	6-40	0	6-40	0.006	6-21	0.035	6-40	-0.035	6-40	0.125	4-35	0.266	4-26	
96		min	0.001	1	0	1	-0.006	4-35	0.035	1	-0.035	1	-0.266	4-26	-0.125	4-35	
97	4	max	0.001	6-40	-0.002	6-40	0.006	6-21	0.011	6-40	-0.011	6-40	0.16	6-21	0.355	4-25	
98		min	0.001	1	-0.002	1	-0.006	4-35	0.011	1	-0.011	1	-0.355	4-25	-0.16	6-21	
99	5	max	0.001	6-40	-0.005	6-40	0.006	6-21	-0.063	6-40	0.063	6-40	0.28	6-21	0.46	4-17	
100		min	0.001	1	-0.005	1	-0.006	4-35	-0.063	1	0.063	1	-0.46	4-17	-0.28	6-21	
101	M11	1	max	0.005	6-40	0	6-40	0.021	4-11	0	6-40	0	6-40	1.78	6-11	0.894	6-21
102		min	0.005	1	0	1	-0.287	6-11	0	1	0	1	-0.894	6-21	-1.78	6-11	
103	2	max	0.006	6-40	0	6-40	0.021	4-11	0	6-40	0	6-40	0.572	4-11	2.005	6-11	
104		min	0.006	1	0	1	-0.287	6-11	0	1	0	1	-2.005	6-11	-0.572	4-11	
105	3	max	0.011	6-40	0	6-40	0	5-40	0	6-40	0	6-40	1.434	4-31	5.79	6-11	
106		min	0.011	1	0	1	-0.322	4-31	0	1	0	1	-5.79	6-11	-1.434	4-31	
107	4	max	0.012	6-40	0	6-40	0	5-40	0	6-40	0	6-40	0	5-40	7.87	6-11	
108		min	0.012	1	0	1	-0.322	4-31	0	1	0	1	-7.87	6-11	0	1	
109	5	max	0.018	6-40	0	6-40	0	5-40	0	6-40	0	6-40	0	5-40	10.989	6-11	
110		min	0.018	1	0	1	-0.323	4-11	0	1	0	1	-10.989	6-11	0	1	
111	M12	1	max	0.001	6-40	0.005	6-40	0.006	4-15	-0.063	6-40	0.063	6-40	0.28	6-1	0.46	4-37
112		min	0.001	1	0.005	1	-0.006	6-1	-0.063	1	0.063	1	-0.46	4-37	-0.28	6-1	
113	2	max	0.001	6-40	0.002	6-40	0.006	4-15	0.011	6-40	-0.011	6-40	0.16	6-1	0.355	4-5	
114		min	0.001	1	0.002	1	-0.006	6-1	0.011	1	-0.011	1	-0.355	4-5	-0.16	6-1	
115	3	max	0.001	6-40	0	6-40	0.006	4-15	0.035	6-40	-0.035	6-40	0.125	4-15	0.266	4-6	
116		min	0.001	1	0	1	-0.006	6-1	0.035	1	-0.035	1	-0.266	4-6	-0.125	4-15	
117	4	max	0.001	6-40	-0.003	6-40	0.006	4-15	0.008	6-40	-0.008	6-40	0.246	4-15	0.23	4-34	
118		min	0.001	1	-0.003	1	-0.006	6-1	0.008	1	-0.008	1	-0.23	4-34	-0.246	4-15	
119	5	max	0.001	6-40	-0.005	6-40	0.006	4-15	-0.07	6-40	0.07	6-40	0.367	4-15	0.237	4-8	
120		min	0.001	1	-0.005	1	-0.006	6-1	-0.07	1	0.07	1	-0.237	4-8	-0.367	4-15	
121	M13	1	max	0.01	6-40	-0.005	6-40	0.019	4-26	-0.003	6-40	0.003	6-40	14.104	6-1	0	5-40
122		min	0.01	1	-0.005	1	-0.344	4-1	-0.003	1	0.003	1	0	1	-14.104	6-1	
123	2	max	0.007	6-40	-0.002	6-40	0.014	4-26	0.008	6-40	-0.008	6-40	10.211	6-1	0	5-40	
124		min	0.007	1	-0.002	1	-0.342	4-1	0.008	1	-0.008	1	0	1	-10.211	6-1	
125	3	max	0.006	6-40	-0.002	6-34	0.014	4-26	0.03	6-40	-0.03	6-40	7.124	6-1	0.969	4-1	
126		min	0.006	1	-0.003	1	-0.342	4-1	0.03	1	-0.03	1	-0.969	4-1	-7.124	6-1	
127	4	max	0.003	6-40	-0.003	6-40	0.013	4-3	-0.009	6-40	0.009	6-40	2.845	6-1	0.424	4-1	
128		min	0.003	1	-0.003	1	-0.325	6-1	-0.009	1	0.009	1	-0.424	4-1	-2.845	6-1	
129	5	max	0.002	6-40	-0.003	6-40	0.013	4-3	-0.047	6-40	0.047	6-40	0.992	6-13	1.434	6-1	
130		min	0.002	1	-0.003	1	-0.325	6-1	-0.047	1	0.047	1	-1.434	6-1	-0.992	6-13	
131	M14	1	max	0.002	6-40	-0.003	6-40	0.013	4-23	0.047	6-40	-0.047	6-40	1.434	6-21	0.992	6-33
132		min	0.002	1	-0.003	1	-0.325	6-21	0.047	1	-0.047	1	-0.992	6-33	-1.434	6-21	
133	2	max	0.003	6-40	-0.003	6-40	0.013	4-23	0.009	6-40	-0.009	6-40	0.424	4-21	2.845	6-21	
134		min	0.003	1	-0.003	1	-0.325	6-21	0.009	1	-0.009	1	-2.845	6-21	-0.424	4-21	
135	3	max	0.006	6-40	-0.002	6-40	0.014	4-6	-0.03	6-40	0.03	6-40	0.969	4-21	7.124	6-21	
136		min	0.006	1	-0.003	1	-0.342	4-21	-0.03	1	0.03	1	-7.124	6-21	-0.969	4-21	
137	4	max	0.007	6-40	-0.002	6-40	0.014	4-6	-0.008	6-40	0.008	6-40	0	5-40	10.211	6-21	
138		min	0.007	1	-0.002	1	-0.342	4-21	-0.008	1	0.008	1	-10.211	6-21	0	1	
139	5	max	0.01	6-40	-0.005	6-40	0.019	4-6	0.003	6-40	-0.003	6-40	0	5-40	14.104	6-21	
140		min	0.01	1	-0.005	1	-0.344	4-21	0.003	1	-0.003	1	-14.104	6-21	0	1	
141	M15	1	max	0.005	6-40	0.006	6-40	0.007	6-21	-0.096	6-40	0.096	6-40	0.355	6-1	0.355	6-21
142		min	0.005	1	0.006	1	-0.007	6-1	-0.096	1	0.096	1	-0.355	6-21	-0.355	6-1	
143	2	max	0.005	6-40	0.003	6-40	0.007	6-21	0.016	6-40	-0.016	6-40	0.177	6-1	0.249	5-7	
144		min	0.005	1	0.003	1	-0.007	6-1	0.016	1	-0.016	1	-0.249	5-7	-0.177	6-1	
145	3	max	0.005	6-40	0	6-40	0.007	6-21	0.053	6-40	-0.053	6-40	0	6-40	0.249	5-27	
146		min	0.005	1	0	1	-0.007	6-1	0.053	1	-0.053	1	-0.249	5-7	0	1	
147	4	max	0.005	6-40	-0.003	6-40	0.007	6-21	0.016	6-40	-0.016	6-40	0.177	6-21	0.249	5-27	
148		min	0.005	1	-0.003	1	-0.007	6-1	0.016	1	-0.016	1	-0.249	5-27	-0.177	6-21	

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC	
149		5	max	0.005	6-40	-0.006	6-40	0.007	6-21	-0.096	6-40	0.096	6-40	0.355	6-21	0.355	6-1
150			min	0.005	1	-0.006	1	-0.007	6-1	-0.096	1	0.096	1	-0.355	6-1	-0.355	6-21
151	M16	1	max	0.003	6-40	-0.015	6-40	0.019	5-23	0.078	6-40	-0.078	6-40	1.381	6-21	1.381	6-1
152			min	0.003	1	-0.015	1	-0.339	6-21	0.078	1	-0.078	1	-1.381	6-1	-1.381	6-21
153		2	max	0.007	6-40	-0.001	6-40	0	6-40	0.02	6-40	-0.02	6-40	0	6-40	3.132	6-1
154			min	0.007	1	-0.001	1	-0.335	5-21	0.02	1	-0.02	1	-3.132	6-1	0	1
155		3	max	0.008	6-40	-0.001	6-40	0	6-40	0.002	6-40	-0.002	6-40	0	6-40	7.421	6-21
156			min	0.008	1	-0.001	1	-0.335	5-21	0.002	1	-0.002	1	-7.421	6-21	0	1
157		4	max	0.009	6-40	-0.001	6-40	0	6-40	-0.016	6-40	0.016	6-40	0	6-40	12.509	6-21
158			min	0.009	1	-0.001	1	-0.335	5-21	-0.016	1	0.016	1	-12.509	6-21	0	1
159		5	max	0.013	6-40	-0.009	6-40	0	6-40	0.007	6-40	-0.007	6-40	0	6-40	17.218	6-21
160			min	0.013	1	-0.009	1	-0.339	5-21	0.007	1	-0.007	1	-17.218	6-21	0	1
161	M17	1	max	0.011	6-40	0.007	6-40	0.029	5-31	-0.132	6-40	0.132	6-40	4.933	6-28	3.215	5-4
162			min	0.011	1	0.007	1	-0.478	6-32	-0.132	1	0.132	1	-3.215	5-4	-4.933	6-28
163		2	max	0.011	6-40	0.003	6-40	0.107	6-30	0.024	6-40	-0.024	6-40	0.72	6-21	7.448	6-4
164			min	0.011	1	0.003	1	-0.392	6-4	0.024	1	-0.024	1	-7.448	6-4	-0.72	6-21
165		3	max	0.011	6-40	0	6-40	0.248	6-27	0.075	6-40	-0.075	6-40	0	6-40	10.069	6-7
166			min	0.011	1	0	1	-0.248	6-7	0.075	1	-0.075	1	-10.069	6-7	0	1
167		4	max	0.011	6-40	-0.003	6-40	0.392	6-24	0.024	6-40	-0.024	6-40	0.72	6-1	7.448	6-24
168			min	0.011	1	-0.003	1	-0.107	6-10	0.024	1	-0.024	1	-7.448	6-24	-0.72	6-1
169		5	max	0.011	6-40	-0.007	6-40	0.478	6-12	-0.132	6-40	0.132	6-40	4.933	6-8	3.215	5-24
170			min	0.011	1	-0.007	1	-0.029	5-11	-0.132	1	0.132	1	-3.215	5-24	-4.933	6-8
171	M18	1	max	0.003	6-40	0.015	6-40	0.019	5-3	-0.078	6-40	0.078	6-40	1.381	6-1	1.381	6-21
172			min	0.003	1	0.015	1	-0.339	6-1	-0.078	1	0.078	1	-1.381	6-21	-1.381	6-1
173		2	max	0.007	6-40	0.001	6-40	0	6-40	-0.02	6-40	0.02	6-40	0	6-40	3.132	6-21
174			min	0.007	1	0.001	1	-0.335	5-1	-0.02	1	0.02	1	-3.132	6-21	0	1
175		3	max	0.008	6-40	0.001	6-40	0	6-40	-0.002	6-40	0.002	6-40	0	6-40	7.421	6-1
176			min	0.008	1	0.001	1	-0.335	5-1	-0.002	1	0.002	1	-7.421	6-1	0	1
177		4	max	0.009	6-40	0.001	6-40	0	6-40	0.016	6-40	-0.016	6-40	0	6-40	12.509	6-1
178			min	0.009	1	0.001	1	-0.335	5-1	0.016	1	-0.016	1	-12.509	6-1	0	1
179		5	max	0.013	6-40	0.009	6-40	0	6-40	-0.007	6-40	0.007	6-40	0	6-40	17.218	6-1
180			min	0.013	1	0.009	1	-0.339	5-1	-0.007	1	0.007	1	-17.218	6-1	0	1
181	M19	1	max	0.003	6-40	0.006	6-40	0.005	6-21	-0.096	6-40	0.096	6-40	0.229	6-1	0.482	4-29
182			min	0.003	1	0.006	1	-0.005	6-1	-0.096	1	0.096	1	-0.482	4-29	-0.229	6-1
183		2	max	0.003	6-40	0.003	6-40	0.005	6-21	0.015	6-40	-0.015	6-40	0.115	6-1	0.412	4-28
184			min	0.003	1	0.003	1	-0.005	6-1	0.015	1	-0.015	1	-0.412	4-28	-0.115	6-1
185		3	max	0.003	6-40	0	6-40	0.005	6-21	0.052	6-40	-0.052	6-40	0	6-40	0.379	4-27
186			min	0.003	1	0	1	-0.005	6-1	0.052	1	-0.052	1	-0.379	4-27	0	1
187		4	max	0.003	6-40	-0.003	6-40	0.005	6-21	0.015	6-40	-0.015	6-40	0.115	6-21	0.412	4-8
188			min	0.003	1	-0.003	1	-0.005	6-1	0.015	1	-0.015	1	-0.412	4-8	-0.115	6-21
189		5	max	0.003	6-40	-0.006	6-40	0.005	6-21	-0.096	6-40	0.096	6-40	0.229	6-21	0.482	4-9
190			min	0.003	1	-0.006	1	-0.005	6-1	-0.096	1	0.096	1	-0.482	4-9	-0.229	6-21
191	M20	1	max	0.003	6-40	-0.005	6-40	0.01	4-23	0.076	6-40	-0.076	6-40	1.301	6-21	1.301	6-1
192			min	0.003	1	-0.005	1	-0.337	6-21	0.076	1	-0.076	1	-1.301	6-1	-1.301	6-21
193		2	max	0.004	6-40	-0.005	6-40	0.01	4-23	0.015	6-40	-0.015	6-40	0.357	4-21	3.14	6-21
194			min	0.004	1	-0.005	1	-0.337	6-21	0.015	1	-0.015	1	-3.14	6-21	-0.357	4-21
195		3	max	0.007	6-40	-0.003	6-32	0	6-40	-0.047	6-40	0.047	6-40	0.814	4-21	7.582	6-21
196			min	0.007	1	-0.005	1	-0.348	4-21	-0.047	1	0.047	1	-7.582	6-21	-0.814	4-21
197		4	max	0.008	6-40	-0.003	6-40	0	6-40	-0.012	6-40	0.012	6-40	0	6-40	10.957	6-21
198			min	0.008	1	-0.003	1	-0.348	4-21	-0.012	1	0.012	1	-10.957	6-21	0	1
199		5	max	0.012	6-40	-0.008	6-40	0	6-40	0.001	6-40	-0.001	6-40	0	6-40	15.063	6-21
200			min	0.012	1	-0.008	1	-0.349	4-21	0.001	1	-0.001	1	-15.063	6-21	0	1
201	M21	1	max	0.003	6-40	0.007	6-40	0.026	6-1	-0.129	6-40	0.129	6-40	4.437	6-6	1.78	4-29
202			min	0.003	1	0.007	1	-0.473	6-32	-0.129	1	0.129	1	-1.78	4-29	-4.437	6-6
203		2	max	0.003	6-40	0.003	6-40	0.114	6-30	0.027	6-40	-0.027	6-40	0.783	6-21	7.928	6-4

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC	
204		min	0.003	1	0.003	1	-0.385	6-4	0.027	1	-0.027	1	-7.928	6-4	-0.783	6-21	
205	3	max	0.003	6-40	0	6-40	0.249	6-27	0.078	6-40	-0.078	6-40	0	6-40	10.422	6-7	
206		min	0.003	1	0	1	-0.249	6-7	0.078	1	-0.078	1	-10.422	6-7	0	1	
207	4	max	0.003	6-40	-0.003	6-40	0.385	6-24	0.027	6-40	-0.027	6-40	0.783	6-1	7.928	6-24	
208		min	0.003	1	-0.003	1	-0.114	6-10	0.027	1	-0.027	1	-7.928	6-24	-0.783	6-1	
209	5	max	0.003	6-40	-0.007	6-40	0.473	6-12	-0.129	6-40	0.129	6-40	4.437	6-26	1.78	4-9	
210		min	0.003	1	-0.007	1	-0.026	6-21	-0.129	1	0.129	1	-1.78	4-9	-4.437	6-26	
211	M22	1	max	0.003	6-40	0.005	6-40	0.01	4-3	-0.076	6-40	0.076	6-40	1.301	6-1	1.301	6-21
212		min	0.003	1	0.005	1	-0.337	6-1	-0.076	1	0.076	1	-1.301	6-21	-1.301	6-1	
213	2	max	0.004	6-40	0.005	6-40	0.01	4-3	-0.015	6-40	0.015	6-40	0.357	4-1	3.14	6-1	
214		min	0.004	1	0.005	1	-0.337	6-1	-0.015	1	0.015	1	-3.14	6-1	-0.357	4-1	
215	3	max	0.007	6-40	0.005	6-40	0	6-40	0.047	6-40	-0.047	6-40	0.814	4-1	7.582	6-1	
216		min	0.007	1	0.003	4-1	-0.348	4-1	0.047	1	-0.047	1	-7.582	6-1	-0.814	4-1	
217	4	max	0.008	6-40	0.003	6-40	0	6-40	0.012	6-40	-0.012	6-40	0	6-40	10.957	6-1	
218		min	0.008	1	0.003	1	-0.348	4-1	0.012	1	-0.012	1	-10.957	6-1	0	1	
219	5	max	0.012	6-40	0.008	6-40	0	6-40	-0.001	6-40	0.001	6-40	0	6-40	15.063	6-1	
220		min	0.012	1	0.008	1	-0.349	4-1	-0.001	1	0.001	1	-15.063	6-1	0	1	
221	M23	1	max	-0.006	6-40	0.006	6-40	0.037	6-30	-0.098	6-40	0.098	6-40	4.577	5-15	3.305	6-29
222		min	-0.006	1	0.006	1	-0.477	5-11	-0.098	1	0.098	1	-3.305	6-29	-4.577	5-15	
223	2	max	-0.006	6-40	0.003	6-40	0.078	5-29	0.011	6-40	-0.011	6-40	0.942	6-21	6.297	5-13	
224		min	-0.006	1	0.003	1	-0.401	5-13	0.011	1	-0.011	1	-6.297	5-13	-0.942	6-21	
225	3	max	-0.006	6-40	0	6-40	0.241	5-26	0.049	6-40	-0.049	6-40	0.638	6-40	7.957	5-26	
226		min	-0.006	1	0	1	-0.226	5-16	0.049	1	-0.049	1	-7.957	5-26	-0.638	6-40	
227	4	max	-0.006	6-40	-0.003	6-40	0.363	5-24	0.017	6-40	-0.017	6-40	0.455	6-5	5.338	5-18	
228		min	-0.006	1	-0.003	1	-0.109	5-18	0.017	1	-0.017	1	-5.338	5-18	-0.455	6-5	
229	5	max	-0.006	6-40	-0.006	6-40	0.489	5-20	-0.087	6-40	0.087	6-40	4.278	5-25	2.677	6-24	
230		min	-0.006	1	-0.006	1	-0.034	6-19	-0.087	1	0.087	1	-2.677	6-24	-4.278	5-25	
231	M24	1	max	-0.006	6-40	0.006	6-40	0.034	6-39	-0.087	6-40	0.087	6-40	4.278	5-5	2.677	6-4
232		min	-0.006	1	0.006	1	-0.489	5-40	-0.087	1	0.087	1	-2.677	6-4	-4.278	5-5	
233	2	max	-0.006	6-40	0.003	6-40	0.109	5-38	0.017	6-40	-0.017	6-40	0.455	6-25	5.338	5-38	
234		min	-0.006	1	0.003	1	-0.363	5-4	0.017	1	-0.017	1	-5.338	5-38	-0.455	6-25	
235	3	max	-0.006	6-40	0	6-40	0.226	5-36	0.049	6-40	-0.049	6-40	0.638	6-20	7.957	5-6	
236		min	-0.006	1	0	1	-0.241	5-6	0.049	1	-0.049	1	-7.957	5-6	-0.638	6-20	
237	4	max	-0.006	6-40	-0.003	6-40	0.401	5-33	0.011	6-40	-0.011	6-40	0.942	6-1	6.297	5-33	
238		min	-0.006	1	-0.003	1	-0.078	5-9	0.011	1	-0.011	1	-6.297	5-33	-0.942	6-1	
239	5	max	-0.006	6-40	-0.006	6-40	0.477	5-31	-0.098	6-40	0.098	6-40	4.577	5-35	3.305	6-9	
240		min	-0.006	1	-0.006	1	-0.037	6-10	-0.098	1	0.098	1	-3.305	6-9	-4.577	5-35	
241	M25	1	max	-0.01	6-40	0.007	6-40	0.024	6-3	-0.134	6-40	0.134	6-40	5.56	5-28	3.015	6-29
242		min	-0.01	1	0.007	1	-0.491	5-32	-0.134	1	0.134	1	-3.015	6-29	-5.56	5-28	
243	2	max	-0.01	6-40	0.003	6-40	0.096	5-30	0.021	6-40	-0.021	6-40	0.356	6-21	6.873	5-4	
244		min	-0.01	1	0.003	1	-0.402	5-4	0.021	1	-0.021	1	-6.873	5-4	-0.356	6-21	
245	3	max	-0.01	6-40	0	6-40	0.247	5-27	0.073	6-40	-0.073	6-40	0	6-40	9.695	5-7	
246		min	-0.01	1	0	1	-0.247	5-7	0.073	1	-0.073	1	-9.695	5-7	0	1	
247	4	max	-0.01	6-40	-0.003	6-40	0.402	5-24	0.021	6-40	-0.021	6-40	0.356	6-1	6.873	5-24	
248		min	-0.01	1	-0.003	1	-0.096	5-10	0.021	1	-0.021	1	-6.873	5-24	-0.356	6-1	
249	5	max	-0.01	6-40	-0.007	6-40	0.491	5-12	-0.134	6-40	0.134	6-40	5.56	5-8	3.015	6-9	
250		min	-0.01	1	-0.007	1	-0.024	6-23	-0.134	1	0.134	1	-3.015	6-9	-5.56	5-8	
251	M26	1	max	0	6-40	0.006	6-40	0.024	4-27	-0.091	6-40	0.091	6-40	4.849	4-37	1.379	6-37
252		min	0	1	0.006	1	-0.506	4-40	-0.091	1	0.091	1	-1.379	6-37	-4.849	4-37	
253	2	max	0	6-40	0.003	6-40	0.1	4-38	0.014	6-40	-0.014	6-40	0.139	6-25	4.876	4-38	
254		min	0	1	0.003	1	-0.368	4-4	0.014	1	-0.014	1	-4.876	4-38	-0.139	6-25	
255	3	max	0	6-40	0	6-40	0.227	4-36	0.048	6-40	-0.048	6-40	0.692	4-27	7.315	4-6	
256		min	0	1	0	1	-0.235	4-6	0.048	1	-0.048	1	-7.315	4-6	-0.692	4-27	
257	4	max	0	6-40	-0.003	6-40	0.417	4-33	0.011	6-40	-0.011	6-40	1.276	4-27	5.137	4-33	
258		min	0	1	-0.003	1	-0.059	4-9	0.011	1	-0.011	1	-5.137	4-33	-1.276	4-27	

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[ksi]	LC	z Shear[ksi]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC	
259		5	max	0	6-40	-0.006	6-40	0.5	4-31	-0.096	6-40	0.096	6-40	5.748	4-7	1.237	6-9
260			min	0	1	-0.006	1	-0.01	6-32	-0.096	1	0.096	1	-1.237	6-9	-5.748	4-7
261	M27	1	max	0	6-40	0.006	6-40	0.01	6-12	-0.096	6-40	0.096	6-40	5.748	4-27	1.237	6-29
262			min	0	1	0.006	1	-0.5	4-11	-0.096	1	0.096	1	-1.237	6-29	-5.748	4-27
263		2	max	0	6-40	0.003	6-40	0.059	4-29	0.011	6-40	-0.011	6-40	1.276	4-7	5.137	4-13
264			min	0	1	0.003	1	-0.417	4-13	0.011	1	-0.011	1	-5.137	4-13	-1.276	4-7
265		3	max	0	6-40	0	6-40	0.235	4-26	0.048	6-40	-0.048	6-40	0.692	4-7	7.315	4-26
266			min	0	1	0	1	-0.227	4-16	0.048	1	-0.048	1	-7.315	4-26	-0.692	4-7
267		4	max	0	6-40	-0.003	6-40	0.368	4-24	0.014	6-40	-0.014	6-40	0.139	6-5	4.876	4-18
268			min	0	1	-0.003	1	-0.1	4-18	0.014	1	-0.014	1	-4.876	4-18	-0.139	6-5
269		5	max	0	6-40	-0.006	6-40	0.506	4-20	-0.091	6-40	0.091	6-40	4.849	4-17	1.379	6-17
270			min	0	1	-0.006	1	-0.024	4-7	-0.091	1	0.091	1	-1.379	6-17	-4.849	4-17
271	M28	1	max	-0.001	6-40	0.007	6-40	0.009	6-30	-0.136	6-40	0.136	6-40	6.358	4-5	1.582	6-5
272			min	-0.001	1	0.007	1	-0.5	4-32	-0.136	1	0.136	1	-1.582	6-5	-6.358	4-5
273		2	max	-0.001	6-40	0.003	6-40	0.09	4-30	0.019	6-40	-0.019	6-40	0.059	4-21	6.207	4-4
274			min	-0.001	1	0.003	1	-0.408	4-4	0.019	1	-0.019	1	-6.207	4-4	-0.059	4-21
275		3	max	-0.001	6-40	0	6-40	0.247	4-27	0.071	6-40	-0.071	6-40	0	6-40	9.062	4-7
276			min	-0.001	1	0	1	-0.247	4-7	0.071	1	-0.071	1	-9.062	4-7	0	1
277		4	max	-0.001	6-40	-0.003	6-40	0.408	4-24	0.019	6-40	-0.019	6-40	0.059	4-1	6.207	4-24
278			min	-0.001	1	-0.003	1	-0.09	4-10	0.019	1	-0.019	1	-6.207	4-24	-0.059	4-1
279		5	max	-0.001	6-40	-0.007	6-40	0.5	4-12	-0.136	6-40	0.136	6-40	6.358	4-25	1.582	6-25
280			min	-0.001	1	-0.007	1	-0.009	6-10	-0.136	1	0.136	1	-1.582	6-25	-6.358	4-25

Envelope AA ADM1-20: ASD - BUILDING Member Aluminum Code Checks

Member	Shape	Code	CheckLoc[ft]	LC	Shear	CheckLoc[ft]	Dir	LC	Pnc/Om[lb]	Pnt/Om[lb]	Mny/Om[lb-ft]	Mnz/Om[lb-ft]	Vny/Om[lb]	Vnz/Om[lb]	Cb	Eqn	
1	M1	RT1.5X1.5X.1875	0.745	3.5	6-21	0.191	0.474	z	6-25	8409.157	19226.519	680.827	680.827	4331.52	4331.52	3	H.1-1
2	M2	RT1.5X1.5X0.156	0.023	4.8	6-21	0.035	4.8	z	6-21	3960.539	16343.04	603.094	603.094	3962.88	3962.88	2.341	H.1-1
3	M3	1.500ODX0.188	0.708	2.3	6-26	0.292	4.8	6-20	2631.238	7515.152	238.032	238.032	2254.545	2254.545	1	H.3-4	
4	M4	1.500ODX0.188	0.709	2.5	6-6	0.292	0	6-40	2631.238	7515.152	238.032	238.032	2254.545	2254.545	1	H.3-4	
5	M5	RT1.5X1.5X.1875	0.745	0	6-1	0.191	3.5	z	6-5	8409.157	19226.519	680.827	680.827	4331.52	4331.52	3	H.1-1
6	M6	RT1.5X1.5X.1875	0.554	3.5	6-31	0.207	0.474	z	6-7	8409.157	19226.519	680.827	680.827	4331.52	4331.52	1	H.1-1
7	M7	RT1.5X1.5X0.156	0.023	0	6-1	0.035	4.8	z	6-1	3960.539	16343.04	603.094	603.094	3962.88	3962.88	2.341	H.1-1
8	M8	1.500ODX0.188	0.719	2.5	6-6	0.283	0	6-40	2631.238	7515.152	238.032	238.032	2254.545	2254.545	1	H.3-4	
9	M9	1.500ODX0.188	0.718	2.7	6-16	0.283	4.8	6-20	2631.238	7515.152	238.032	238.032	2254.545	2254.545	1	H.3-4	
10	M10	RT1.5X1.5X0.156	0.025	4.8	4-17	0.033	4.8	z	6-21	3960.539	16343.04	603.094	603.094	3962.88	3962.88	2.346	H.1-1
11	M11	RT1.5X1.5X.1875	0.518	3	6-11	0.171	1.5	z	6-35	11445.797	19226.519	680.827	680.827	4331.52	4331.52	1	H.1-1
12	M12	RT1.5X1.5X0.156	0.025	0	4-37	0.033	4.8	z	6-1	3960.539	16343.04	603.094	603.094	3962.88	3962.88	2.346	H.1-1
13	M13	RT1.5X1.5X.1875	0.665	0	6-1	0.18	1.5	z	4-5	11445.797	19226.519	680.827	680.827	4331.52	4331.52	1.987	H.1-1
14	M14	RT1.5X1.5X.1875	0.665	3	6-21	0.18	2.656	z	4-25	11445.797	19226.519	680.827	680.827	4331.52	4331.52	1.987	H.1-1
15	M15	RT1.5X1.5X0.156	0.021	5.8	6-21	0.034	5.8	z	6-21	2712.569	16343.04	603.094	603.094	3962.88	3962.88	2.165	H.1-1
16	M16	RT1.5X1.5X.1875	0.812	3.5	6-21	0.253	0.474	z	6-8	8409.157	19226.519	680.827	680.827	4331.52	4331.52	3	H.1-1
17	M17	1.500ODX0.188	0.848	3.021	6-7	0.267	5.8	6-12	1802.132	7515.152	235.524	235.524	2254.545	2254.545	1	H.3-4	
18	M18	RT1.5X1.5X.1875	0.812	3.5	6-1	0.253	0.474	z	6-28	8409.157	19226.519	680.827	680.827	4331.52	4331.52	3	H.1-1
19	M19	RT1.5X1.5X0.156	0.027	5.8	4-9	0.03	5.8	y	6-1	2712.569	16343.04	603.094	603.094	3962.88	3962.88	2.213	H.1-1
20	M20	RT1.5X1.5X.1875	0.71	3	6-21	0.242	2.656	z	4-8	11445.797	19226.519	680.827	680.827	4331.52	4331.52	2.023	H.1-1
21	M21	1.500ODX0.188	0.877	2.779	6-27	0.257	0	6-32	1802.132	7515.152	235.524	235.524	2254.545	2254.545	1	H.3-4	
22	M22	RT1.5X1.5X.1875	0.71	3	6-1	0.242	2.656	z	4-28	11445.797	19226.519	680.827	680.827	4331.52	4331.52	2.023	H.1-1
23	M23	1.500ODX0.188	0.678	2.3	5-26	0.244	4.8	5-20	2631.238	7515.152	238.032	238.032	2254.545	2254.545	1	H.3-4	
24	M24	1.500ODX0.188	0.679	2.5	5-6	0.244	0	5-40	2631.238	7515.152	238.032	238.032	2254.545	2254.545	1	H.3-4	
25	M25	1.500ODX0.188	0.818	2.779	5-27	0.227	5.8	5-12	1802.132	7515.152	235.524	235.524	2254.545	2254.545	1	H.3-4	
26	M26	1.500ODX0.188	0.625	2.5	4-6	0.173	4.8	6-1	2631.238	7515.152	238.032	238.032	2254.545	2254.545	1	H.3-4	
27	M27	1.500ODX0.188	0.624	2.3	4-26	0.173	0	6-21	2631.238	7515.152	238.032	238.032	2254.545	2254.545	1	H.3-4	
28	M28	1.500ODX0.188	0.766	2.779	4-27	0.158	5.8	6-1	1802.132	7515.152	235.524	235.524	2254.545	2254.545	1	H.3-4	



Company : AHBL, Inc.
Designer : AMP
Job Number : 2240887.20
Model Name : Typical Handrail Design

10/20/2024
4:47:34 PM
Checked By : ADM

Member Suggested Designs

	Section Set/Member	Current Shape	Suggested Shape	Controlling Member	Controlling Criteria	Use Suggested?
1	Horiz Guard	RT1.5X1.5X0.156	RT1X1X0.065	M7	Strength	Yes
2	Post 1875 6061-T6	RT1.5X1.5X.1875	RT2X2X0.095	M18	Strength	Yes
3	Handrail	1.500ODX0.188	1.500ODX0.094	M21	Strength	Yes

GUARDRAIL POST DESIGN

VERIFICATION OF POST CAPACITIES

10/16/2024

	6061-T6	6061-T6	6063-T5	6063-T5		6061-T6	6061-T6	6063-T5	6063-T5		6061-T6W	6061-T6W	6063-T5W	6063-T5W		6061-T6W	6061-T6W	6063-T5W	6063-T5W
Ftu	38000	38000	22000	22000		38000	38000	22000	22000		24000	24000	17000	17000		24000	24000	17000	17000
Fty	35000	35000	16000	16000		35000	35000	16000	16000		15000	15000	8000	8000		15000	15000	8000	8000
Height	42	42	42	42		36	36	36	36		42	42	42	42		36	36	36	36
Load	200	250	200	250		200	250	200	250		200	250	200	250		200	250	200	250
Ma	8400	10500	8400	10500		7200	9000	7200	9000		8400	10500	8400	10500		7200	9000	7200	9000
Rupture																			
Omega	1.95	1.95	1.95	1.95		1.95	1.95	1.95	1.95		1.95	1.95	1.95	1.95		1.95	1.95	1.95	1.95
Zreq	0.431	0.539	0.745	0.931		0.369	0.462	0.638	0.798		0.683	0.853	0.964	1.204		0.585	0.731	0.826	1.032
Check	OK	NG	NG	NG		OK	OK	NG	NG		NG	NG	NG	NG		NG	NG	NG	NG
Yeilding																			
Omega	1.65	1.65	1.65	1.65		1.65	1.65	1.65	1.65		1.65	1.65	1.65	1.65		1.65	1.65	1.65	1.65
Zreq'd	0.396	0.495	0.866	1.083		0.339	0.424	0.743	0.928		0.924	1.155	1.733	2.166		0.792	0.990	1.485	1.856
Check	OK	NG	NG	NG		OK	OK	NG	NG		NG	NG	NG	NG		NG	NG	NG	NG
Sreq'd	0.264	0.330	0.578	0.722		0.226	0.283	0.495	0.619		0.616	0.770	1.155	1.444		0.528	0.660	0.990	1.238
Check	OK	OK	NG	NG		OK	OK	NG	NG		NG	NG	NG	NG		NG	NG	NG	NG
Depth (d)	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5
Width (b)	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5
Thickness	0.1875	0.1875	0.1875	0.1875		0.1875	0.1875	0.1875	0.1875		0.1875	0.1875	0.1875	0.1875		0.1875	0.1875	0.1875	0.1875
d1	1.125	1.125	1.125	1.125		1.125	1.125	1.125	1.125		1.125	1.125	1.125	1.125		1.125	1.125	1.125	1.125
b1	1.125	1.125	1.125	1.125		1.125	1.125	1.125	1.125		1.125	1.125	1.125	1.125		1.125	1.125	1.125	1.125
Z	0.488	0.488	0.488	0.488		0.488	0.488	0.488	0.488		0.488	0.488	0.488	0.488		0.488	0.488	0.488	0.488
S	0.385	0.385	0.385	0.385		0.385	0.385	0.385	0.385		0.385	0.385	0.385	0.385		0.385	0.385	0.385	0.385
Mcap	9506	9506	4730	4730		9506	9506	4730	4730		4434	4434	2365	2365		4434	4434	2365	2365
Check	OK	NG	NG	NG		OK	OK	NG	NG		NG	NG	NG	NG		NG	NG	NG	NG
Unity	0.88	1.10	1.78	2.22		0.76	0.95	1.52	1.90		1.89	2.37	3.55	4.44		1.62	2.03	3.04	3.81