**From:** Kri Pelletier [mailto:KPelletier@sbasite.com]
**Sent:** Friday, March 30, 2018 12:22 PM
**To:** Galligan, Coleen
**Cc:** CSC-DL Siting Council; Rick Woods
**Subject:** RE: Incomplete - EM-SPRINT-073-180321 - Mell Rd

Good Afternoon Coleen,

The provided Structural Report does list the New Mount Augmentation items provided on sheet S3 of GeoStructural's Mount Augmentation plans. (Sheet A-3 of Infinigy's plans listed preliminary mount augmentation which was then refined with GeoStructural's plans. Both were submitted to Council.)

As to site plan sheet T-1's note, it is addressed with the attached passing Structural Assessment.

Please let me know if you need anything further.

Thank you,

**Kri Pelletier**
*Prop Spec - Svcs*

508.251.0720 x3804 + **T**
508.366.2610 + **F**
203.446.7700 + **C**

**From:** Galligan, Coleen [mailto:Coleen.Galligan@ct.gov]
**Sent:** Thursday, March 29, 2018 3:46 PM
**To:** Kri Pelletier <KPelletier@sbasite.com>
**Cc:** CSC-DL Siting Council <Siting.Council@ct.gov>
**Subject:** Incomplete - EM-SPRINT-073-180321 - Mell Rd



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Please see the attached correspondence.

Coleen Galligan
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
(860) 827-2935
Coleen.Galligan@ct.gov

# Antenna Mount Structural Analysis

Source: SBA Date: 11.13.2017

| | |
|---|---|
| **SBA Site:** | CT00167-S Lisbon |
| **Sprint Site Number:** | CT23XC404 |
| **Project:** | Sprint DO Macro Upgrade |
| **Prepared For:** | Sprint |
| **Mount Description:** | (3) Sector Frames |
| **Site Location:** | Lisbon, CT<br>New London County<br>41.591033°, -72.01696° |
| **Design Codes:** | ANSI/TIA-222-G<br>IBC 2012 w/ 2016 CT Building Code |
| **Analysis Load Case:** | Sprint Final Configuration |
| **Analysis Result:** | **Adequate @ 74% - Once Augmented**<br>**See Conclusion** |

STATE OF CONNECTICUT
GREGORY DURGIN
No. 32155
LICENSED
PROFESSIONAL ENGINEER

Revision 0
March 7, 2018



GeoStructural • P.O. Box 2621, Boise, ID 83701 • Office: (530) 539-4787
Professional Engineers | Tower Technicians | Climbers | sUAS Mapping

## *1.0 Introduction*

An antenna mount structural analysis has been performed on Sprint's existing mount assembly located at the CT00167-S Lisbon communications site in New London County, CT considering the final equipment loading configuration listed in Section 3.0.

## *2.0 Analysis Criteria*

An elastic three-dimensional model of the mount structure has been analyzed pursuant to the following criteria:

- IBC 2012 – International Building Code.
- ANSI/TIA-222-G – Structural Standard for Antenna Supporting Structures and Antennas.
- AISC – Steel Construction Manual.
- ANSI/AWS D1.1 – Structural Welding Code.

| | |
|---|---|
| Wind w/o ice = 135 mph (3-sec gust Ultimate Wind Speed) | |
| Wind w/o ice = 105 mph (3-sec gust Equivalent per TIA-222-G Tower Code) | |
| Wind with ice = 50 mph (3-sec gust, 3/4" Ice) | Topographic Category 1 |
| Exposure Category C | Structure Class II |

The following documents were provided:

- Prelim Construction Drawings
  Infinigy, 2/20/18.
- Mount and Tower Record Documents
  SBA
- Mount Assessment
  Westchester, 12/21/17.
- RF Design
  Sprint DOMU Project

The results of the analysis are illustrated in Section 4.0. If any of the existing or proposed conditions reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

## *3.0 Appurtenance Information*

### *Table 3.1 – Sprint Final Configuration[1]*

| COR | (Quantity) Appurtenance Make/Model | Mount Description |
|---|---|---|
| 173.0'± | (3) RFS APXVSPP18-C-A20 | *(3) Sector Frames* |
| | (3) ANDREW DT465B-2XR | |
| | (6) ALU 800MHz RRH | |
| | (3) ALU 1900MHz RRH | |
| | (3) ALU 2500MHz RRH | |

1. *Refer to antenna installation Construction Drawings (by others, when applicable) for additional information regarding final antenna and equipment orientations.*
2. *Panel antennas to be installed in Positions 1 and 2 with a horizontal separation not to exceed 4.5'. Existing 800 and 1900 RRH units to remain in their currently installed locations on the sector frame standoffs. New 800 and 2500 RRH units to be installed behind each panel antenna on dual RRH swivel brackets (one RRH per panel mount pipe).*

## *4.0 Analysis Results*

### *Table 4.1 – Existing Mount Capacity*

| Load Case | Governing Mount Component[1] | % Capacity[2] | Result |
|---|---|---|---|
| Final Sprint Configuration | Angle Top Rail | >200% | **Inadequate[3]** |

1. *Refer to the Calculations & Software Output portion of this report for mount component and structural information.*
2. *Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.3. 105% is an acceptable allowable stress percentage for mount components.*
3. *Structural augments to the existing mount structure are required to obtain a mount structure capable of supporting the currently proposed final loading configuration in Table 3.1.*

***Table 4.2 – Augmented Mount Capacity***

| Load Case | Governing Mount Component[1] | % Capacity[2] | Result |
|---|---|---|---|
| Final Sprint Configuration | Standoff Connection Plates | 70% | **Adequate Once Augmented[3]** |

1. *Refer to the Calculations & Software Output portion of this report for mount component and structural information.*
2. *Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.3. 105% is an acceptable allowable stress percentage for mount components.*
3. *Refer to GeoStructural Mount Augmentation Drawings and Section 5.0 for information regarding required mount augments.*

***Table 4.3 – Structural Component Material Strengths***

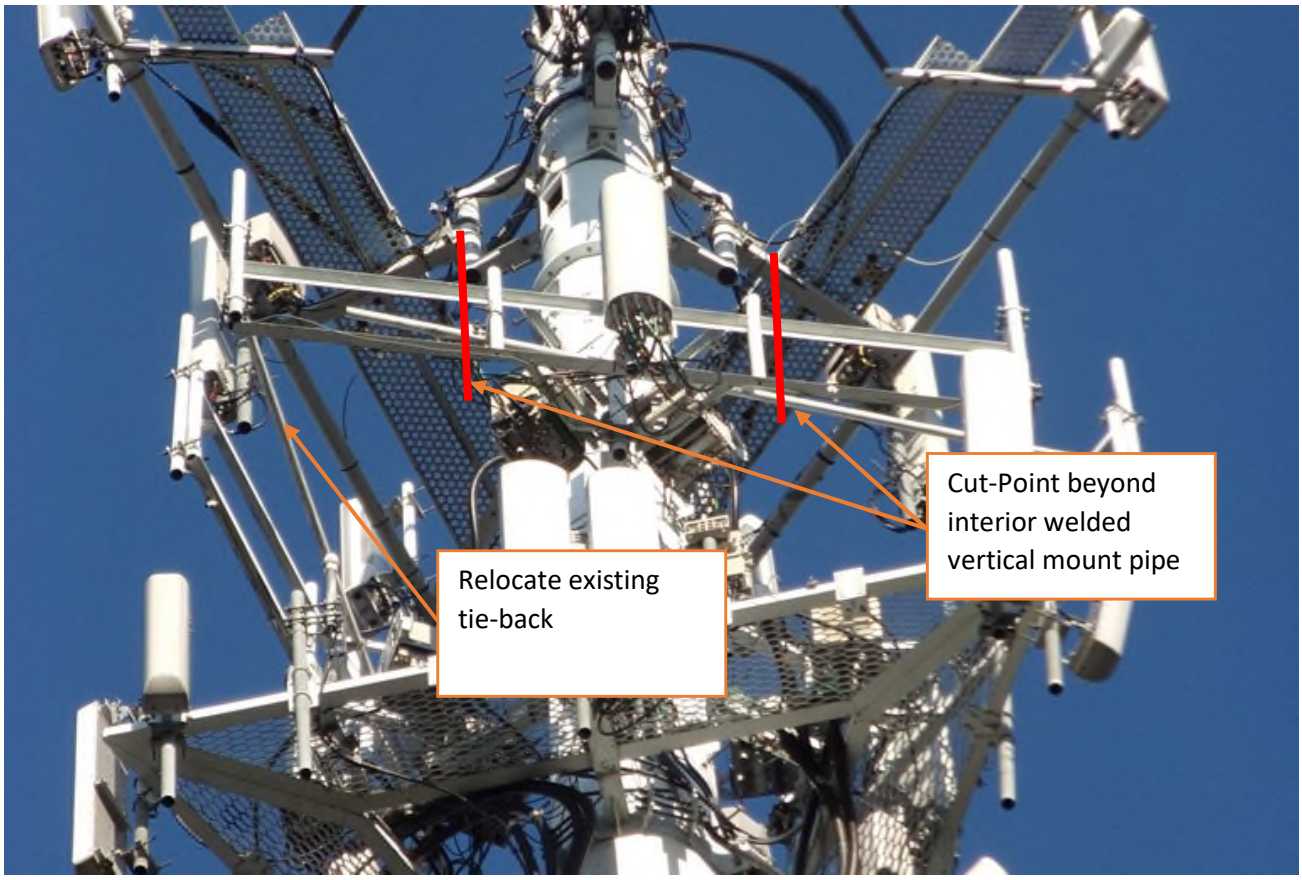
| Structural Component | Nominal Strength/Material[1] |
|---|---|
| Pipe | $F_y$ = 35 ksi (A53, Gr. B) |
| Tube | $F_y$ = 46 ksi (A500, Gr. B) |
| Structural Shapes (L, C, W, etc.), Plate / Bar | $F_y$ = 36 ksi (A36) |
| Uni-Strut | $F_y$ = 33 ksi (A570, Gr. 33) |
| Connection Bolts | A325 |
| Stainless Steel Bolts | 18-8 Stainless, Grade 316/304<br>$F_y$ = 74 ksi (Yield) & $F_u$ = 29 ksi (Tension) |
| U-Bolts / Threaded Rod | SAE J429 Grade 2 (Substitution: ASTM A449)<br>$F_y$ = 57 ksi (Yield) & $F_u$ = 74 ksi (Tension) |
| Welds | E70XX Electrodes |

1. *Strengths listed were assumed for this analysis and are based upon ASTM, AISC, RCSC, AWS and ACI preferred specification values. Values and materials are consistent with industry standards. Material strengths were taken from original design documents when available.*

## ***5.0 Conclusion & Recommendations***

Based on Sprint's final equipment loading configuration, the existing mount assembly does not have sufficient capacity to support the loading considered in this analysis pursuant to the listed standards. Structural augments (reinforcements) will be required and are briefly summarized below:

- Modify (Cut) the front face of the mount to a 4.5' face width;
  - Existing tie-back to be relocated. Top and bottom angle rails to be cut just beyond the welded interior mount pipes.
- Install V-Brace Kit; located 1.0' above the existing mount top face rail.
  - Sitepro1 PRK-SFR-K-L, (3) total. Attach SFR-K-L to existing tower legs.
  - Pipe2.0STD x 7.0' Horizontal Rail, (3) total. Attach new rail to SFR-K.
  - Sitepro1 SCX1-K, (6) total. Attach new mount pipes to new rail.
- Panel antennas to be installed in Positions 1 and 2 with a horizontal separation not to exceed 4.5'. Existing 800 and 1900 RRH units to remain in their currently installed locations on the sector frame standoffs. New 800 and 2500 RRH units to be installed behind each panel antenna on dual RRH swivel brackets (one RRH per panel mount pipe).



Once the recommended augments are successfully implemented, the augmented mount assembly has sufficient capacity to support the loading considered in this analysis pursuant to the listed standards.

**Augmentation Requirements:**

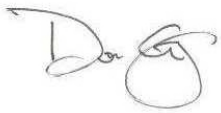
- **In order to obtain a mount structure capable of supporting the currently proposed final loading configuration, upgrade augments must be installed in accordance with GeoStructural's *Mount Augmentation Drawings*.**
- **Antennas and equipment shall be installed centered vertically on the mount front face rails. If this assumption is incorrect, the results of this analysis will be affected.**

This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If any of the existing or proposed conditions (appurtenance loading, member sizes, etc.) reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

Prepared by:

**Jesse Drennen, PE, MLE**
208.761.7986
jesse.drennen@geostructural.com

Reviewed and Approved by:



**Don George, PE, SE, MLSE**
208.602.6569
don.george@geostructural.com

## *6.0 Standard Conditions*

- All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study to verify existing conditions and the results of this analysis are based solely on the information provided. It has been assumed that the tower, antenna support structure and foundation have been constructed according to the provided existing drawings, previous structural analysis reports, mapping documents, etc.

- The default Structure Classification is Class II in accordance with ANSI/TIA-222-G §A.2.2 & §A.15.3 and has been assumed for this analysis. The owner shall verify this classification conforms with original or desired reliability criteria.

- This analysis assumes that the structure has been properly installed and maintained in accordance with ANSI/TIA-222-G §15.5 and that no physical deterioration has occurred in any of the components of the structure. Damaged, missing, or rusted members were not considered.

- This analysis verifies the adequacy of the main components of the structure. Not all connections, welds, bolts, plates, etc. were individually detailed and analyzed. Where not specifically analyzed, the existing connection plates, welds, bolts, etc. were assumed adequate to develop the full capacity of the main structural members.

- No consideration has been made for unusual or extreme wind events, rime/in-cloud ice loadings, harmonic or nodal vibration, vortex shedding or other similar conditions.

- It is the owner's responsibility to determine the appropriate design wind speed and amount of ice accumulation beyond code minimum values that should be considered in the analysis.

- This analysis report does not constitute a maintenance and condition assessment. No certifications regarding maintenance and condition are expressed or implied. If desired, GeoStructural can provide these services under a subsequent contract.

- This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If desired, GeoStructural can provide these services under a subsequent contract.

## *7.0 Calculations & Software Output*

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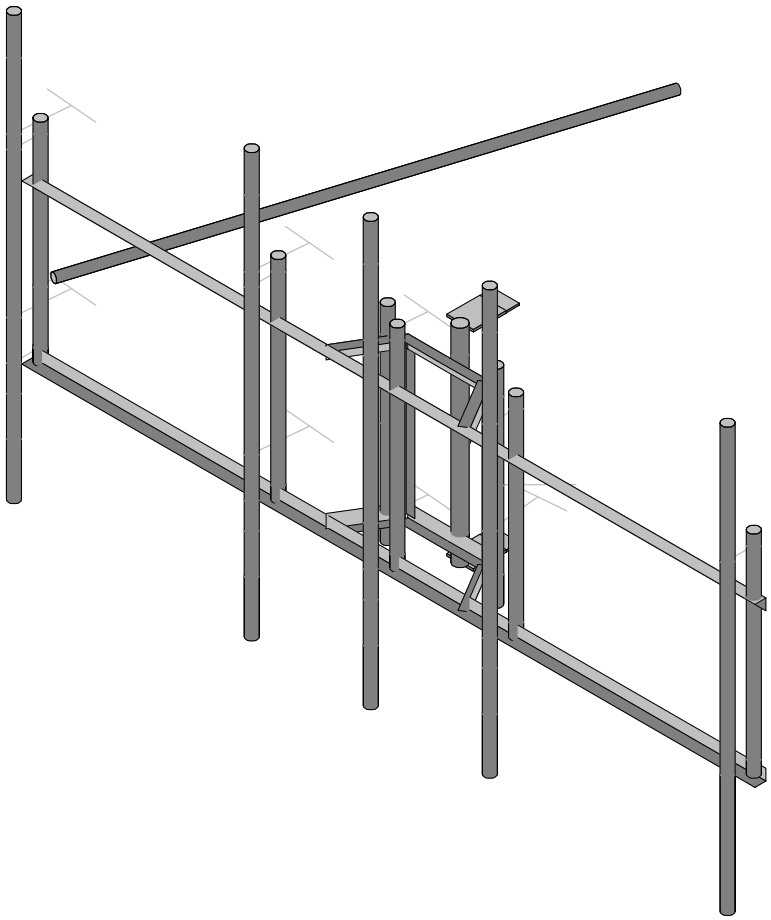

Envelope Only Solution

| | | |
|---|---|---|
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| Jesse Drennen, PE | | Mar 7, 2018 at 3:03 PM |
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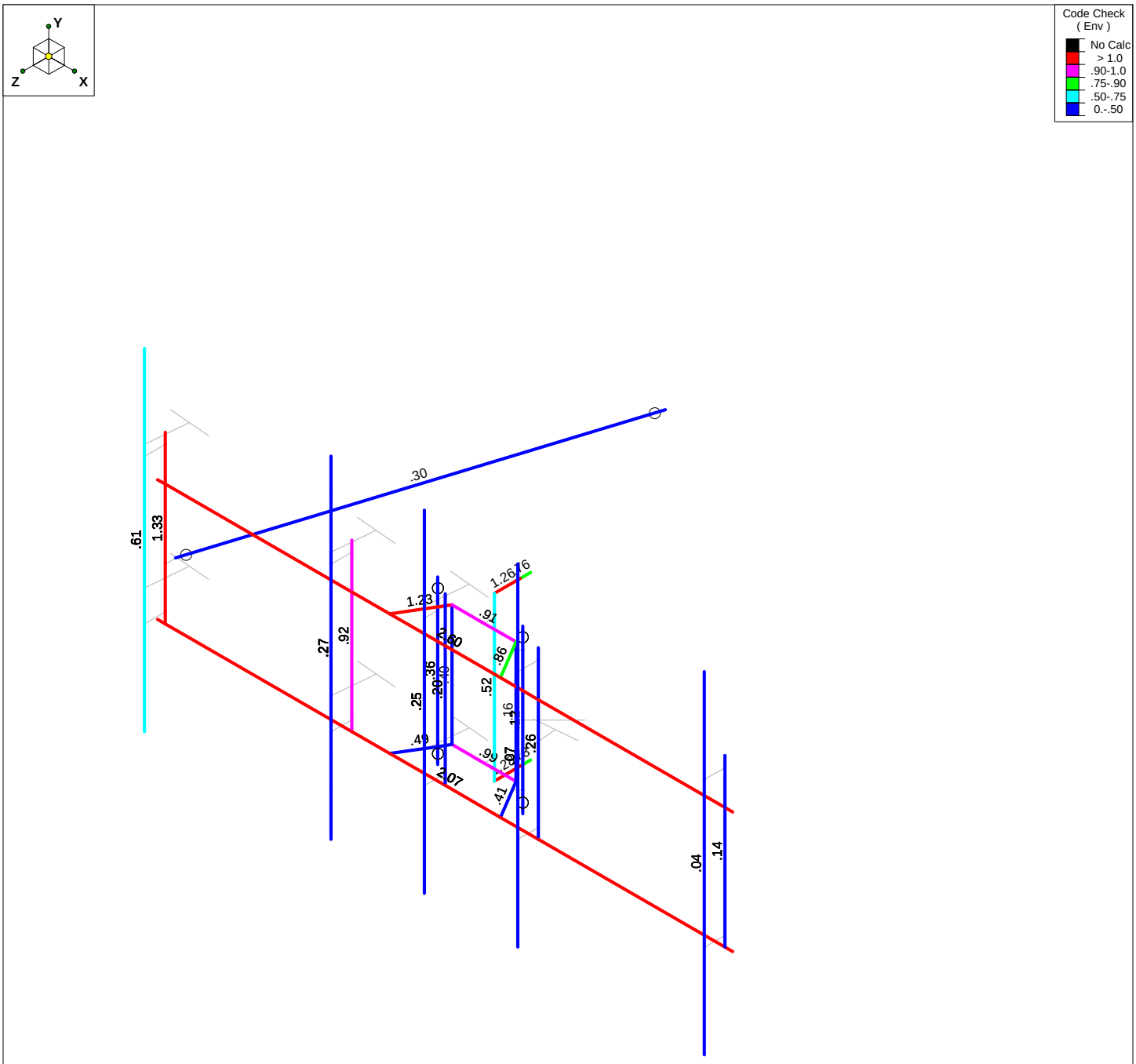


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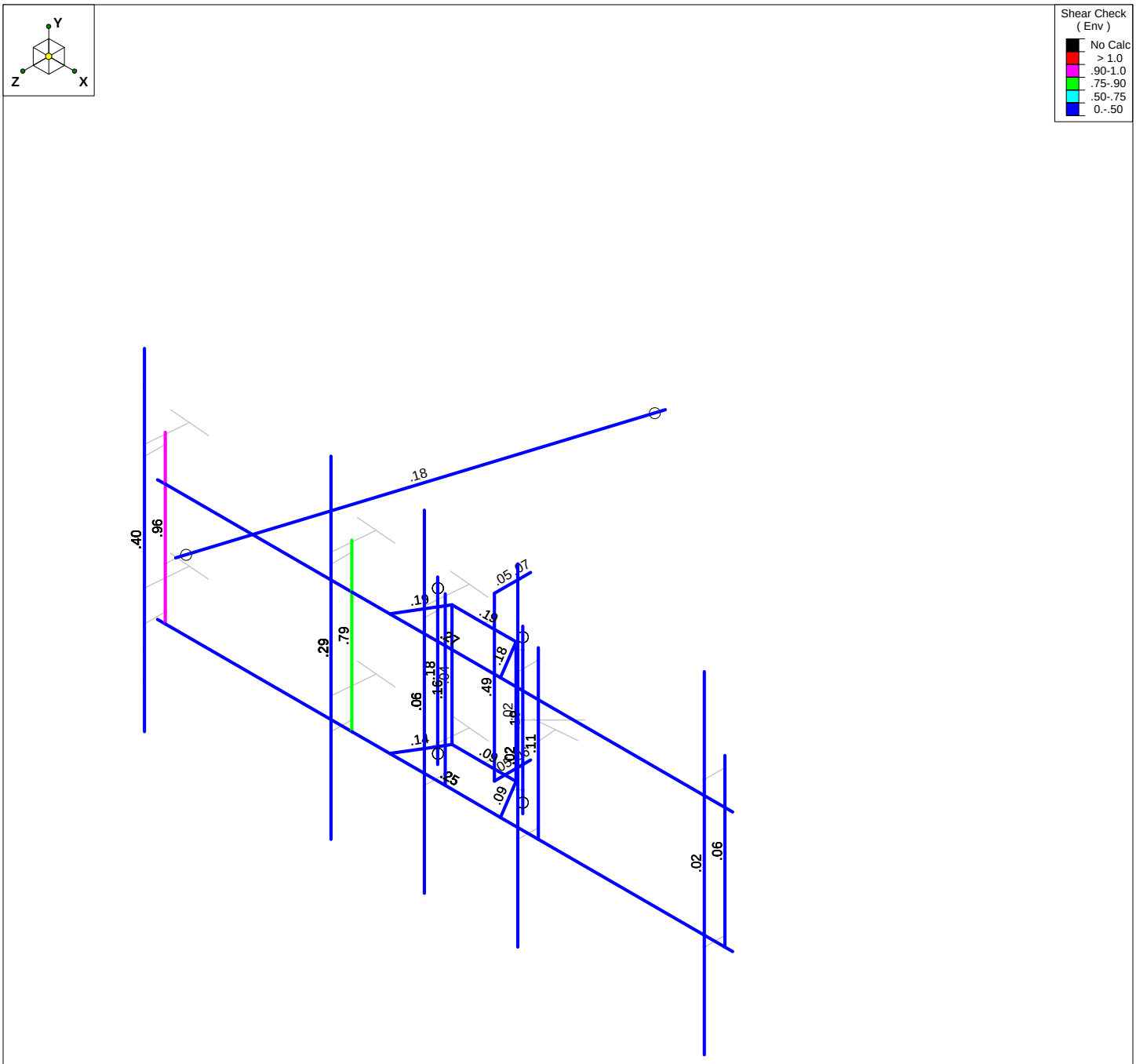


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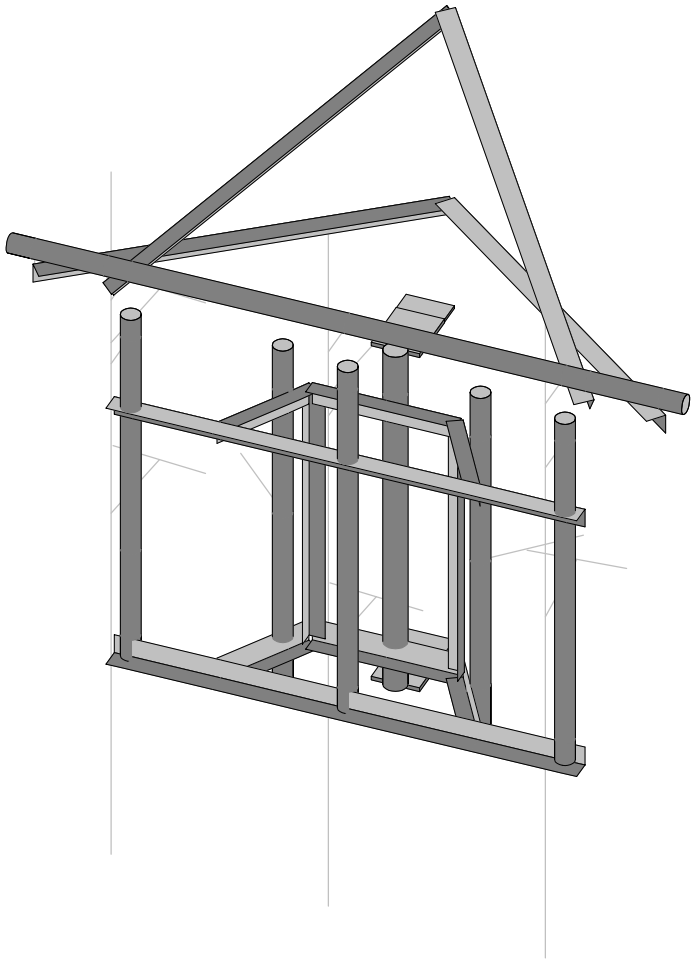

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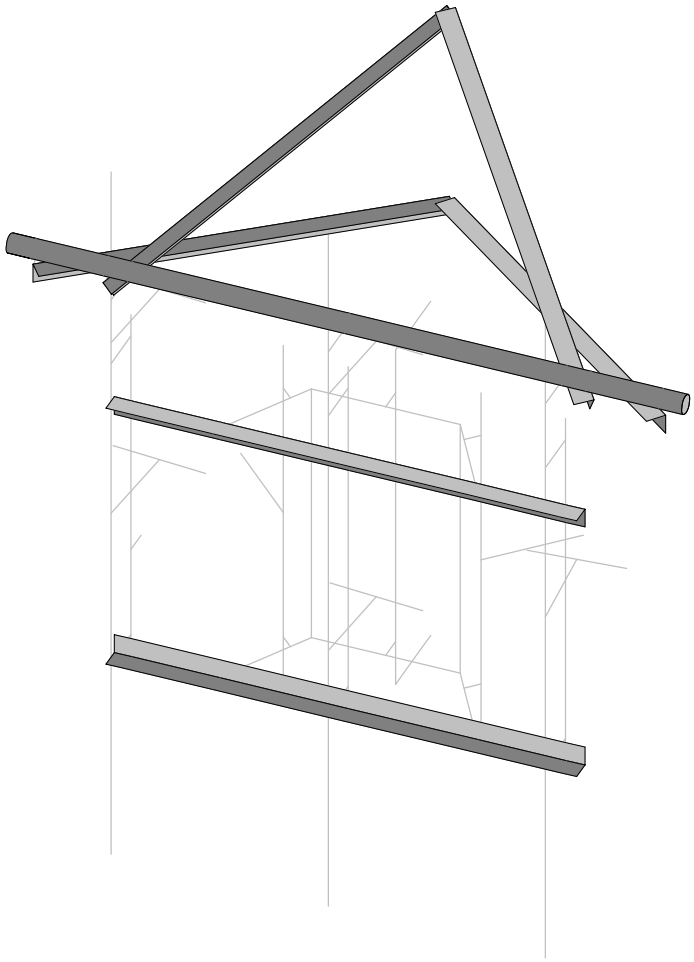


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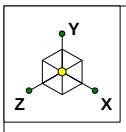


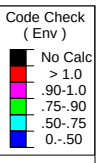


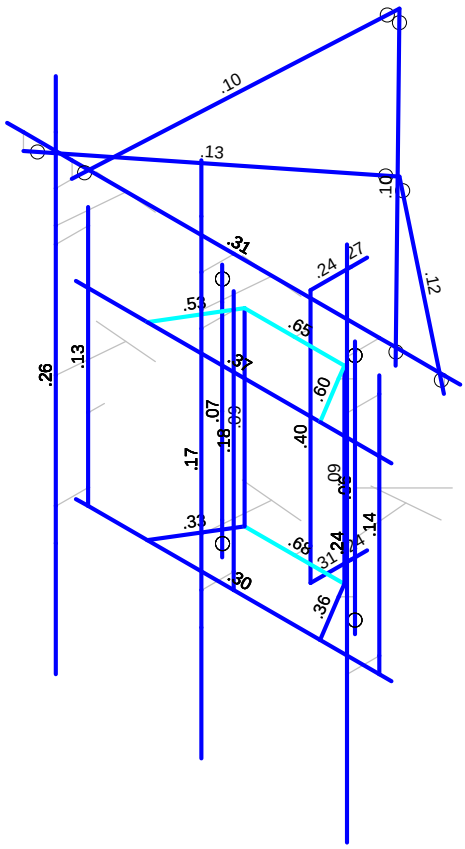


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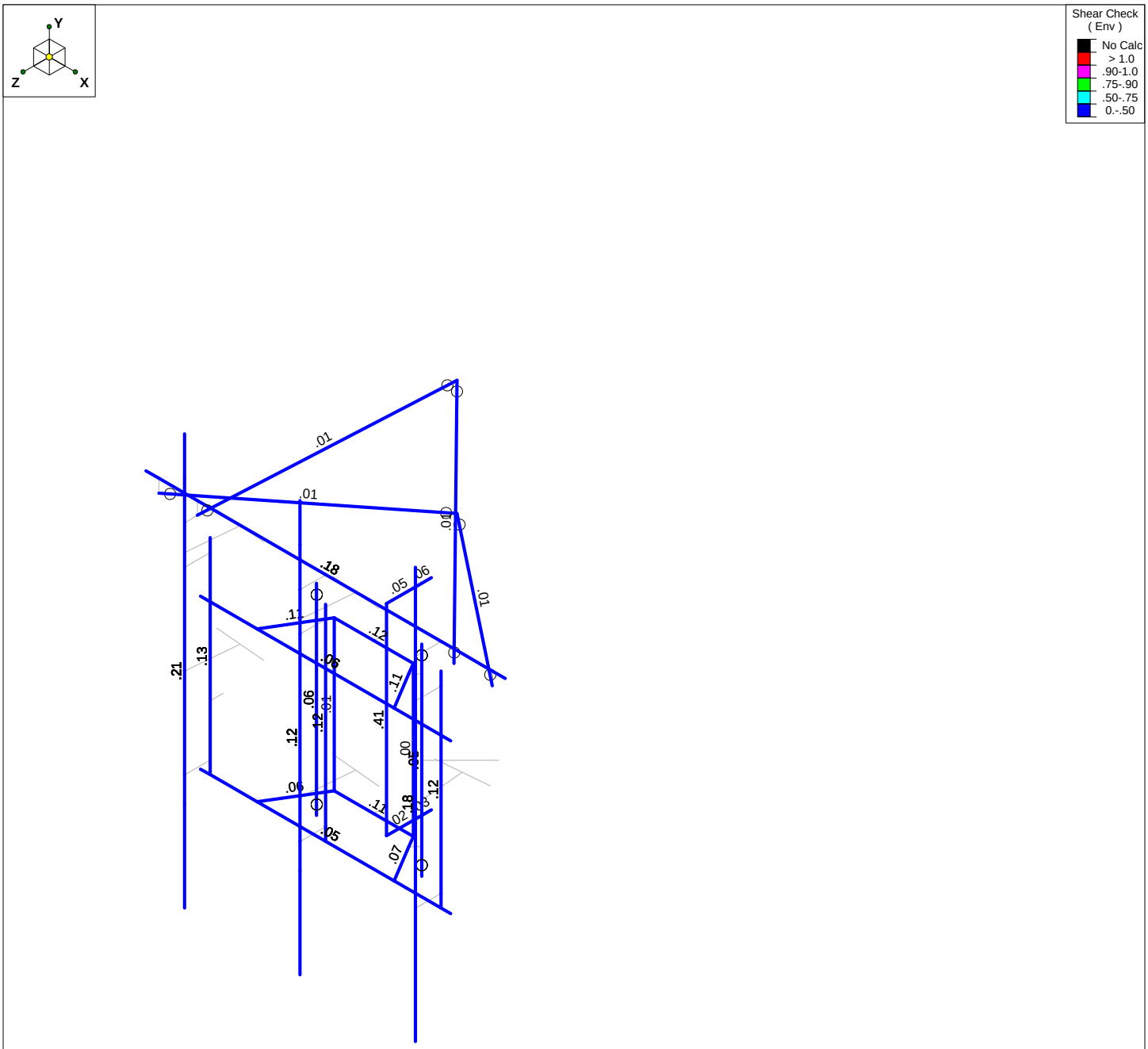


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|---|---|---|
| GeoStructural, LLC | CT23XC404 | SK - 6 |
| Jesse Drennen, PE | | Mar 7, 2018 at 3:31 PM |
| | | CT23XC404_Mount Analysis_R0 1... |

## Basic Load Cases

| | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed | Area(Me... | Surface(P... |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | D | DL | | -1 | | 9 | | | | |
| 2 | Di | SL | | | | 9 | | 27 | | |
| 3 | Lm [500] | LL | | | | 1 | | | | |
| 4 | Lv [250] | LL | | | | 2 | | | | |
| 5 | Woz | WL | | | | 9 | | 25 | | |
| 6 | Wox | WL | | | | 9 | | 25 | | |
| 7 | Wiz | WL | | | | 9 | | 25 | | |
| 8 | Wix | WL | | | | 9 | | 25 | | |
| 9 | Ez | EL | | | | 9 | | | | |
| 10 | Ex | EL | | | | 9 | | | | |

## Load Combination Design

| | Description | ASIF | CD | ABIF | Service | Hot Rolled | Cold For... | Wood | Concrete | Masonry | Footings | Aluminum | Connecti... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1) 1.4D | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 2 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 4 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 5 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 6 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 7 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 8 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 9 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 10 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 11 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 12 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 13 | 2) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 14 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 15 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 16 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 17 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 18 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 19 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 20 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 21 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 22 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 23 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 24 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 25 | 3) 0.9D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 26 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 27 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 28 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 29 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 30 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 31 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 32 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 33 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 34 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 35 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 36 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 37 | 4) 1.2D+1.0... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 38 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 39 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 40 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 41 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

## Load Combination Design (Continued)

| | Description | ASIF | CD | ABIF | Service | Hot Rolled | Cold For... | Wood | Concrete | Masonry | Footings | Aluminum | Connecti... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 43 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 44 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 45 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 46 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 47 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 48 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 49 | 5) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 50 | 6) 1.2D+1.5... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 51 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 52 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 53 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 54 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 55 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 56 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 57 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 58 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 59 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 60 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 61 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 62 | 7) (1.2+0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 63 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 64 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 65 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 66 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 67 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 68 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 69 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 70 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 71 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 72 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 73 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 74 | 8) (0.9-0.2S... | | | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

## Envelope Joint Reactions

| | Joint | | X [k] | LC | Y [k] | LC | Z [k] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N28 | max | 1.757 | 5 | .257 | 32 | 1.346 | 2 | 0 | 1 | 2.462 | 5 | 0 | 1 |
| 2 | | min | -1.749 | 23 | .044 | 14 | -.845 | 20 | 0 | 1 | -2.447 | 23 | 0 | 1 |
| 3 | N27 | max | .714 | 17 | .36 | 26 | 1.112 | 14 | 0 | 1 | 1.571 | 17 | 0 | 1 |
| 4 | | min | -.732 | 11 | -.094 | 20 | -1.166 | 8 | 0 | 1 | -1.583 | 11 | 0 | 1 |
| 5 | N21 | max | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 6 | | min | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 7 | N33 | max | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 8 | | min | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 9 | N68 | max | .624 | 23 | .063 | 32 | 1.325 | 26 | 0 | 1 | 0 | 1 | 0 | 1 |
| 10 | | min | -.657 | 5 | .01 | 14 | -.426 | 20 | 0 | 1 | 0 | 1 | 0 | 1 |
| 11 | N73 | max | .47 | 5 | 1.846 | 32 | -.204 | 14 | 0 | 1 | 0 | 6 | 0 | 1 |
| 12 | | min | -.427 | 23 | .297 | 14 | -2.035 | 32 | 0 | 1 | 0 | 11 | 0 | 1 |
| 13 | Totals: | max | 2.281 | 5 | 2.469 | 27 | 3.227 | 2 | | | | | | |
| 14 | | min | -2.281 | 23 | .569 | 70 | -3.227 | 20 | | | | | | |

## Envelope Member Section Deflections

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M1 | 1 | max | 0 | 20 | .064 | 10 | .015 | 11 | 7.76e-03 | 10 | NC | 1 | NC | 1 |
| 2 | | | min | -.101 | 26 | -.062 | 16 | -.015 | 17 | -7.725e-03 | 16 | 2799.574 | 9 | 1746.662 | 33 |
| 3 | | 2 | max | 0 | 20 | .066 | 22 | .02 | 22 | 7.645e-03 | 22 | NC | 1 | NC | 1 |
| 4 | | | min | -.101 | 26 | -.069 | 4 | -.021 | 4 | -7.824e-03 | 4 | 4030.604 | 9 | 2384.586 | 33 |
| 5 | | 3 | max | 0 | 20 | .067 | 22 | .024 | 22 | 7.544e-03 | 22 | NC | 2 | NC | 1 |
| 6 | | | min | -.101 | 26 | -.074 | 4 | -.026 | 4 | -7.939e-03 | 4 | 3572.918 | 34 | 2648.712 | 4 |
| 7 | | 4 | max | 0 | 20 | .063 | 22 | .025 | 22 | 7.443e-03 | 22 | NC | 3 | NC | 1 |
| 8 | | | min | -.101 | 26 | -.075 | 4 | -.026 | 4 | -8.053e-03 | 4 | 2281.567 | 34 | 3174.41 | 4 |
| 9 | | 5 | max | 0 | 20 | .052 | 22 | .023 | 11 | 7.342e-03 | 22 | NC | 3 | NC | 1 |
| 10 | | | min | -.101 | 26 | -.068 | 4 | -.023 | 17 | -8.168e-03 | 4 | 1594.345 | 35 | 4168.531 | 56 |
| 11 | M2 | 1 | max | 0 | 20 | .015 | 17 | .054 | 6 | 7.351e-03 | 23 | NC | 1 | NC | 1 |
| 12 | | | min | -.1 | 26 | -.015 | 11 | -.05 | 24 | -7.55e-03 | 5 | 4422.39 | 7 | 1810.891 | 29 |
| 13 | | 2 | max | 0 | 20 | .02 | 17 | .055 | 18 | 7.415e-03 | 11 | NC | 1 | NC | 1 |
| 14 | | | min | -.1 | 26 | -.021 | 11 | -.057 | 12 | -7.409e-03 | 17 | 7150.865 | 30 | 2512.684 | 30 |
| 15 | | 3 | max | 0 | 20 | .023 | 17 | .056 | 18 | 7.507e-03 | 11 | NC | 4 | NC | 1 |
| 16 | | | min | -.1 | 26 | -.025 | 11 | -.063 | 12 | -7.296e-03 | 17 | 3649.702 | 29 | 3124.636 | 12 |
| 17 | | 4 | max | 0 | 20 | .025 | 17 | .053 | 18 | 7.599e-03 | 11 | NC | 4 | NC | 1 |
| 18 | | | min | -.1 | 26 | -.026 | 11 | -.064 | 12 | -7.183e-03 | 17 | 2330.622 | 28 | 3760.452 | 12 |
| 19 | | 5 | max | 0 | 20 | .023 | 5 | .044 | 18 | 7.691e-03 | 11 | NC | 4 | NC | 1 |
| 20 | | | min | -.1 | 26 | -.023 | 23 | -.059 | 12 | -7.07e-03 | 17 | 1596.083 | 28 | 4395.369 | 57 |
| 21 | M5 | 1 | max | .01 | 18 | .167 | 5 | .232 | 5 | 7.738e-03 | 23 | NC | 1 | NC | 1 |
| 22 | | | min | -.077 | 36 | -.166 | 23 | -.205 | 23 | -8.044e-03 | 5 | NC | 1 | 957.819 | 5 |
| 23 | | 2 | max | .01 | 18 | .161 | 5 | .203 | 5 | 7.738e-03 | 23 | NC | 1 | NC | 1 |
| 24 | | | min | -.077 | 36 | -.158 | 23 | -.194 | 23 | -8.044e-03 | 5 | NC | 1 | 1340.379 | 5 |
| 25 | | 3 | max | .01 | 18 | .168 | 5 | .179 | 17 | 6.141e-03 | 23 | NC | 1 | NC | 1 |
| 26 | | | min | -.076 | 36 | -.165 | 23 | -.19 | 11 | -6.535e-03 | 5 | 8289.254 | 50 | 2120.112 | 5 |
| 27 | | 4 | max | .01 | 18 | .193 | 5 | .153 | 17 | 5.975e-03 | 22 | NC | 1 | NC | 13 |
| 28 | | | min | -.076 | 36 | -.187 | 23 | -.185 | 11 | -6.743e-03 | 4 | 3109.213 | 4 | 1692.74 | 9 |
| 29 | | 5 | max | .01 | 18 | .248 | 5 | .154 | 18 | 5.316e-03 | 22 | NC | 13 | NC | 1 |
| 30 | | | min | -.076 | 36 | -.228 | 23 | -.179 | 12 | -6.528e-03 | 4 | 1105.324 | 4 | 995.945 | 2 |
| 31 | M6 | 1 | max | .2 | 5 | .007 | 19 | .113 | 5 | 2.749e-04 | 50 | NC | 1 | NC | 1 |
| 32 | | | min | -.193 | 23 | -.084 | 37 | -.112 | 23 | -1.476e-04 | 24 | NC | 1 | NC | 1 |
| 33 | | 2 | max | .2 | 5 | .008 | 19 | .125 | 5 | 2.749e-04 | 50 | NC | 1 | NC | 1 |
| 34 | | | min | -.193 | 23 | -.082 | 37 | -.124 | 23 | -1.476e-04 | 24 | NC | 1 | NC | 1 |
| 35 | | 3 | max | .2 | 5 | .009 | 19 | .137 | 5 | 2.749e-04 | 50 | NC | 1 | NC | 1 |
| 36 | | | min | -.193 | 23 | -.08 | 37 | -.135 | 23 | -1.476e-04 | 24 | NC | 1 | NC | 1 |
| 37 | | 4 | max | .2 | 5 | .009 | 19 | .149 | 5 | 2.749e-04 | 50 | NC | 1 | NC | 1 |
| 38 | | | min | -.193 | 23 | -.078 | 37 | -.147 | 23 | -1.476e-04 | 24 | NC | 1 | NC | 1 |
| 39 | | 5 | max | .2 | 5 | .01 | 18 | .161 | 5 | 2.749e-04 | 50 | NC | 1 | NC | 1 |
| 40 | | | min | -.193 | 23 | -.077 | 36 | -.158 | 23 | -1.476e-04 | 24 | NC | 1 | NC | 1 |
| 41 | M7 | 1 | max | .157 | 17 | .008 | 19 | .145 | 5 | 2.047e-03 | 4 | NC | 1 | NC | 1 |
| 42 | | | min | -.186 | 11 | -.084 | 37 | -.144 | 23 | -1.846e-03 | 22 | NC | 1 | NC | 1 |
| 43 | | 2 | max | .157 | 17 | .008 | 19 | .156 | 5 | 2.047e-03 | 4 | NC | 1 | NC | 1 |
| 44 | | | min | -.186 | 11 | -.082 | 37 | -.153 | 23 | -1.846e-03 | 22 | NC | 1 | NC | 1 |
| 45 | | 3 | max | .157 | 17 | .009 | 19 | .166 | 5 | 2.047e-03 | 4 | NC | 1 | NC | 1 |
| 46 | | | min | -.186 | 11 | -.08 | 37 | -.163 | 23 | -1.846e-03 | 22 | NC | 1 | NC | 1 |
| 47 | | 4 | max | .157 | 17 | .009 | 19 | .176 | 5 | 2.047e-03 | 4 | NC | 1 | NC | 1 |
| 48 | | | min | -.186 | 11 | -.078 | 37 | -.172 | 23 | -1.846e-03 | 22 | NC | 1 | NC | 1 |
| 49 | | 5 | max | .157 | 17 | .01 | 18 | .187 | 5 | 2.047e-03 | 4 | NC | 1 | NC | 1 |
| 50 | | | min | -.186 | 11 | -.076 | 36 | -.182 | 23 | -1.846e-03 | 22 | NC | 1 | NC | 1 |
| 51 | M8 | 1 | max | 0 | 20 | .005 | 17 | 0 | 8 | 8.479e-04 | 11 | NC | 1 | NC | 1 |
| 52 | | | min | -.099 | 26 | -.005 | 11 | 0 | 14 | -8.452e-04 | 17 | NC | 1 | NC | 1 |
| 53 | | 2 | max | 0 | 20 | .005 | 17 | .026 | 20 | 2.997e-03 | 23 | NC | 1 | NC | 1 |
| 54 | | | min | -.099 | 26 | -.005 | 11 | -.026 | 2 | -3.007e-03 | 5 | NC | 1 | 1810.299 | 2 |
| 55 | | 3 | max | 0 | 20 | .008 | 17 | .033 | 20 | 3.076e-03 | 23 | NC | 1 | NC | 5 |
| 56 | | | min | -.099 | 26 | -.008 | 11 | -.04 | 2 | -3.093e-03 | 5 | NC | 1 | 1173.406 | 2 |

## Envelope Member Section Deflections (Continued)

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 | | 4 | max | 0 | 20 | .012 | 17 | .024 | 20 | 3.156e-03 | 23 | NC | 1 | NC | 17 |
| 58 | | | min | -.099 | 26 | -.012 | 11 | -.034 | 2 | -3.178e-03 | 5 | NC | 1 | 1381.015 | 2 |
| 59 | | 5 | max | 0 | 20 | .008 | 5 | 0 | 20 | 1.143e-03 | 23 | NC | 1 | NC | 1 |
| 60 | | | min | -.099 | 26 | -.008 | 23 | 0 | 2 | -1.151e-03 | 5 | NC | 1 | NC | 1 |
| 61 | M9 | 1 | max | 0 | 14 | .005 | 11 | .099 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 1 |
| 62 | | | min | 0 | 8 | -.005 | 17 | 0 | 20 | -2.226e-04 | 19 | 1568.98 | 11 | 714.812 | 9 |
| 63 | | 2 | max | 0 | 14 | .004 | 11 | .095 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 6 |
| 64 | | | min | 0 | 8 | -.004 | 17 | -.003 | 20 | -2.226e-04 | 19 | 2313.713 | 11 | 782.137 | 26 |
| 65 | | 3 | max | 0 | 14 | .003 | 11 | .083 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 6 |
| 66 | | | min | 0 | 8 | -.003 | 17 | -.005 | 20 | -2.226e-04 | 19 | 3913.13 | 11 | 639.875 | 26 |
| 67 | | 4 | max | 0 | 14 | .001 | 11 | .065 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 6 |
| 68 | | | min | 0 | 8 | -.001 | 17 | -.005 | 20 | -2.226e-04 | 19 | 9053.263 | 11 | 938.871 | 26 |
| 69 | | 5 | max | 0 | 14 | 0 | 11 | .043 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 1 |
| 70 | | | min | 0 | 8 | 0 | 17 | -.004 | 20 | -2.226e-04 | 19 | NC | 1 | NC | 1 |
| 71 | M10 | 1 | max | 0 | 2 | .008 | 23 | .099 | 26 | 9.003e-04 | 17 | NC | 1 | NC | 1 |
| 72 | | | min | 0 | 20 | -.008 | 5 | 0 | 20 | -9.15e-04 | 11 | 1070.209 | 5 | NC | 1 |
| 73 | | 2 | max | 0 | 2 | .006 | 23 | .091 | 26 | 9.003e-04 | 17 | NC | 1 | 5910.356 | 14 |
| 74 | | | min | 0 | 20 | -.006 | 5 | .004 | 20 | -9.15e-04 | 11 | 1550.611 | 5 | 1084.137 | 32 |
| 75 | | 3 | max | 0 | 2 | .004 | 23 | .077 | 26 | 9.003e-04 | 17 | NC | 1 | 4815.533 | 14 |
| 76 | | | min | 0 | 20 | -.004 | 5 | .005 | 20 | -9.15e-04 | 11 | 2578.949 | 5 | 886.144 | 32 |
| 77 | | 4 | max | 0 | 2 | .002 | 23 | .06 | 26 | 9.003e-04 | 17 | NC | 1 | 7038.294 | 14 |
| 78 | | | min | 0 | 20 | -.002 | 5 | .005 | 20 | -9.15e-04 | 11 | 5871.179 | 5 | 1299.066 | 32 |
| 79 | | 5 | max | 0 | 2 | .001 | 23 | .039 | 26 | 9.003e-04 | 17 | NC | 1 | NC | 1 |
| 80 | | | min | 0 | 20 | -.001 | 5 | .004 | 20 | -9.15e-04 | 11 | NC | 1 | NC | 1 |
| 81 | M11 | 1 | max | .036 | 21 | .101 | 26 | .044 | 22 | 1.58e-03 | 10 | NC | 1 | NC | 2 |
| 82 | | | min | -.05 | 3 | 0 | 20 | -.053 | 4 | -1.472e-03 | 16 | 1902.554 | 70 | 581.105 | 29 |
| 83 | | 2 | max | .036 | 21 | .099 | 26 | .071 | 22 | 4.512e-04 | 9 | NC | 1 | NC | 1 |
| 84 | | | min | -.05 | 3 | -.001 | 20 | -.081 | 4 | -2.515e-04 | 15 | 958.665 | 10 | 520.914 | 5 |
| 85 | | 3 | max | .036 | 21 | .098 | 26 | .101 | 22 | 5.861e-04 | 10 | NC | 1 | NC | 1 |
| 86 | | | min | -.05 | 3 | -.004 | 20 | -.112 | 4 | -4.857e-04 | 16 | 472.114 | 10 | 244.688 | 5 |
| 87 | | 4 | max | .036 | 21 | .097 | 26 | .131 | 22 | 7.226e-04 | 10 | NC | 1 | NC | 1 |
| 88 | | | min | -.05 | 3 | -.006 | 20 | -.141 | 4 | -7.222e-04 | 16 | 311.568 | 10 | 159.373 | 5 |
| 89 | | 5 | max | .036 | 21 | .096 | 26 | .157 | 23 | 8.719e-04 | 22 | NC | 1 | NC | 1 |
| 90 | | | min | -.05 | 3 | -.009 | 20 | -.168 | 4 | -9.716e-04 | 4 | 233.142 | 10 | 121.653 | 5 |
| 91 | M12 | 1 | max | .023 | 5 | .1 | 26 | .044 | 18 | 1.722e-03 | 5 | NC | 1 | NC | 1 |
| 92 | | | min | -.023 | 23 | 0 | 20 | -.059 | 12 | -1.157e-03 | 23 | 494.926 | 23 | 292.527 | 6 |
| 93 | | 2 | max | .022 | 5 | .103 | 26 | .021 | 19 | 1.334e-03 | 19 | NC | 1 | NC | 8 |
| 94 | | | min | -.022 | 23 | -.003 | 20 | -.032 | 13 | -1.507e-03 | 13 | 701.103 | 23 | 440.356 | 6 |
| 95 | | 3 | max | .022 | 5 | .105 | 26 | .014 | 20 | 1.961e-03 | 20 | NC | 1 | NC | 68 |
| 96 | | | min | -.022 | 23 | -.005 | 20 | -.022 | 2 | -2.868e-03 | 2 | 999.273 | 17 | 509.651 | 10 |
| 97 | | 4 | max | .022 | 17 | .103 | 26 | .026 | 21 | 1.583e-03 | 21 | NC | 1 | NC | 2 |
| 98 | | | min | -.022 | 23 | -.003 | 20 | -.038 | 3 | -1.787e-03 | 3 | 689.442 | 17 | 352.336 | 10 |
| 99 | | 5 | max | .023 | 17 | .101 | 26 | .052 | 22 | 1.855e-03 | 10 | NC | 1 | NC | 1 |
| 100 | | | min | -.023 | 11 | 0 | 20 | -.068 | 4 | -1.358e-03 | 16 | 486.071 | 5 | 235.715 | 22 |
| 101 | M13 | 1 | max | .041 | 12 | .093 | 26 | .158 | 17 | 7.354e-04 | 18 | NC | 1 | NC | 1 |
| 102 | | | min | -.028 | 18 | -.006 | 20 | -.166 | 11 | -9.089e-04 | 12 | 230.561 | 5 | 122.393 | 11 |
| 103 | | 2 | max | .041 | 12 | .095 | 26 | .13 | 17 | 5.901e-04 | 18 | NC | 1 | NC | 1 |
| 104 | | | min | -.028 | 18 | -.004 | 20 | -.137 | 11 | -6.42e-04 | 12 | 309.032 | 5 | 160.14 | 11 |
| 105 | | 3 | max | .041 | 12 | .096 | 26 | .098 | 17 | 4.55e-04 | 6 | NC | 1 | NC | 1 |
| 106 | | | min | -.028 | 18 | -.002 | 20 | -.106 | 11 | -3.855e-04 | 24 | 470.746 | 5 | 245.454 | 11 |
| 107 | | 4 | max | .041 | 12 | .098 | 26 | .066 | 17 | 3.655e-04 | 30 | NC | 1 | NC | 1 |
| 108 | | | min | -.028 | 18 | 0 | 20 | -.075 | 11 | -1.356e-04 | 24 | 963.222 | 5 | 521.896 | 11 |
| 109 | | 5 | max | .041 | 12 | .1 | 26 | .039 | 17 | 1.33e-03 | 6 | NC | 1 | NC | 1 |
| 110 | | | min | -.028 | 18 | 0 | 20 | -.047 | 11 | -1.217e-03 | 24 | 3190.144 | 68 | 623.396 | 35 |
| 111 | M14 | 1 | max | .046 | 16 | .001 | 20 | .153 | 10 | 1.044e-03 | 23 | NC | 1 | NC | 1 |
| 112 | | | min | -.048 | 10 | -.091 | 27 | -.153 | 16 | -1.124e-03 | 5 | 398.034 | 6 | 123.421 | 11 |
| 113 | | 2 | max | .046 | 16 | 0 | 20 | .125 | 10 | 8.259e-04 | 23 | NC | 1 | NC | 1 |

## Envelope Member Section Deflections (Continued)

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 114 | | | min | -.048 | 10 | -.094 | 26 | -.125 | 16 | -9.617e-04 | 5 | 531.681 | 6 | 165.276 | 11 |
| 115 | | 3 | max | .046 | 16 | 0 | 20 | .098 | 10 | 6.144e-04 | 22 | NC | 1 | NC | 1 |
| 116 | | | min | -.048 | 10 | -.096 | 26 | -.097 | 16 | -8.122e-04 | 4 | 608.031 | 4 | 254.739 | 11 |
| 117 | | 4 | max | .046 | 16 | 0 | 20 | .071 | 10 | 4.936e-04 | 22 | NC | 1 | NC | 1 |
| 118 | | | min | -.048 | 10 | -.098 | 26 | -.069 | 16 | -7.449e-04 | 4 | 403.207 | 4 | 534.625 | 11 |
| 119 | | 5 | max | .046 | 16 | 0 | 20 | .044 | 10 | 1.023e-03 | 21 | NC | 1 | NC | 1 |
| 120 | | | min | -.048 | 10 | -.101 | 26 | -.043 | 16 | -1.478e-03 | 3 | 300.939 | 4 | 1359.783 | 58 |
| 121 | M15 | 1 | max | .015 | 11 | 0 | 20 | .064 | 10 | 3.205e-04 | 22 | NC | 1 | NC | 1 |
| 122 | | | min | -.015 | 17 | -.101 | 26 | -.062 | 16 | -1.07e-03 | 28 | 487.355 | 11 | 202.411 | 4 |
| 123 | | 2 | max | .015 | 11 | -.005 | 20 | .032 | 9 | 1.129e-03 | 20 | NC | 1 | NC | 1 |
| 124 | | | min | -.015 | 17 | -.099 | 26 | -.031 | 15 | -1.465e-03 | 2 | 684.072 | 23 | 309.649 | 4 |
| 125 | | 3 | max | .015 | 11 | -.007 | 20 | .016 | 8 | 2.142e-03 | 20 | NC | 1 | NC | 1 |
| 126 | | | min | -.015 | 17 | -.098 | 26 | -.015 | 14 | -2.167e-03 | 2 | 1002.293 | 22 | 466.036 | 4 |
| 127 | | 4 | max | .015 | 11 | -.004 | 20 | .026 | 6 | 1.07e-03 | 20 | NC | 1 | NC | 1 |
| 128 | | | min | -.015 | 17 | -.099 | 26 | -.024 | 24 | -1.416e-03 | 2 | 685.179 | 17 | 411.333 | 12 |
| 129 | | 5 | max | .015 | 11 | 0 | 20 | .054 | 6 | 2.502e-04 | 18 | NC | 1 | NC | 1 |
| 130 | | | min | -.015 | 17 | -.1 | 26 | -.05 | 24 | -1.08e-03 | 36 | 488.058 | 17 | 263.137 | 6 |
| 131 | M16 | 1 | max | .04 | 6 | 0 | 20 | .039 | 5 | 8.459e-04 | 18 | NC | 1 | NC | 1 |
| 132 | | | min | -.037 | 24 | -.1 | 26 | -.038 | 23 | -1.267e-03 | 12 | 366.868 | 12 | 3719.747 | 56 |
| 133 | | 2 | max | .04 | 6 | 0 | 20 | .066 | 5 | 3.967e-04 | 18 | NC | 1 | NC | 1 |
| 134 | | | min | -.037 | 24 | -.098 | 26 | -.064 | 23 | -6.248e-04 | 12 | 491.04 | 12 | 527.869 | 5 |
| 135 | | 3 | max | .04 | 6 | 0 | 20 | .095 | 5 | 5.936e-04 | 17 | NC | 1 | NC | 1 |
| 136 | | | min | -.037 | 24 | -.095 | 26 | -.093 | 23 | -7.412e-04 | 11 | 597.976 | 11 | 251.943 | 5 |
| 137 | | 4 | max | .04 | 6 | -.001 | 20 | .124 | 5 | 8.641e-04 | 16 | NC | 1 | NC | 1 |
| 138 | | | min | -.037 | 24 | -.092 | 26 | -.122 | 23 | -9.253e-04 | 10 | 397.471 | 11 | 163.785 | 5 |
| 139 | | 5 | max | .04 | 6 | 0 | 19 | .152 | 5 | 1.212e-03 | 4 | NC | 1 | NC | 1 |
| 140 | | | min | -.037 | 24 | -.089 | 37 | -.15 | 23 | -1.193e-03 | 22 | 298.583 | 11 | 122.467 | 5 |
| 141 | M17 | 1 | max | .124 | 23 | .194 | 22 | .088 | 27 | 4.685e-04 | 16 | NC | 1 | NC | 1 |
| 142 | | | min | -.125 | 5 | -.219 | 4 | -.014 | 21 | -1.966e-03 | 34 | 249.325 | 6 | NC | 1 |
| 143 | | 2 | max | .124 | 23 | .1 | 22 | .096 | 26 | 1.226e-03 | 16 | NC | 1 | NC | 1 |
| 144 | | | min | -.125 | 5 | -.118 | 4 | -.009 | 20 | -1.55e-03 | 10 | 335.733 | 6 | 3957.176 | 26 |
| 145 | | 3 | max | .124 | 23 | .032 | 20 | .095 | 26 | 4.701e-04 | 20 | NC | 1 | NC | 1 |
| 146 | | | min | -.125 | 5 | -.053 | 2 | -.004 | 20 | -1.758e-03 | 26 | 498.835 | 6 | 6560.457 | 32 |
| 147 | | 4 | max | .124 | 23 | .089 | 17 | .094 | 37 | 9.906e-04 | 23 | NC | 1 | NC | 1 |
| 148 | | | min | -.125 | 5 | -.104 | 11 | -.006 | 19 | -1.374e-03 | 5 | 957.493 | 6 | 3994.155 | 26 |
| 149 | | 5 | max | .125 | 23 | .186 | 17 | .083 | 37 | 4.514e-04 | 22 | NC | 1 | NC | 1 |
| 150 | | | min | -.125 | 5 | -.205 | 11 | -.009 | 19 | -1.862e-03 | 28 | NC | 1 | NC | 1 |
| 151 | M18 | 1 | max | .111 | 23 | .013 | 21 | .238 | 10 | 4.397e-04 | 17 | NC | 1 | NC | 1 |
| 152 | | | min | -.112 | 5 | -.088 | 27 | -.233 | 16 | -1.302e-03 | 35 | 207.897 | 23 | 180.346 | 4 |
| 153 | | 2 | max | .111 | 23 | .001 | 20 | .109 | 10 | 2.477e-04 | 50 | NC | 1 | NC | 1 |
| 154 | | | min | -.111 | 5 | -.092 | 26 | -.107 | 16 | -7.911e-04 | 30 | 285.072 | 23 | 256.867 | 4 |
| 155 | | 3 | max | .111 | 23 | .004 | 20 | .027 | 8 | 4.392e-04 | 20 | NC | 1 | NC | 1 |
| 156 | | | min | -.111 | 5 | -.095 | 26 | -.024 | 14 | -1.374e-03 | 26 | 415.962 | 11 | 370.424 | 4 |
| 157 | | 4 | max | .111 | 23 | 0 | 20 | .099 | 5 | 9.228e-05 | 16 | NC | 1 | NC | 1 |
| 158 | | | min | -.111 | 5 | -.09 | 26 | -.096 | 23 | -8.301e-04 | 34 | 393.292 | 18 | 334.596 | 12 |
| 159 | | 5 | max | .111 | 23 | .008 | 19 | .221 | 5 | 5.206e-04 | 22 | NC | 1 | NC | 1 |
| 160 | | | min | -.112 | 5 | -.083 | 37 | -.212 | 23 | -1.318e-03 | 28 | 274.938 | 18 | 231.978 | 6 |
| 161 | M21 | 1 | max | .007 | 19 | .112 | 5 | .203 | 5 | 7.766e-03 | 23 | NC | 1 | NC | 1 |
| 162 | | | min | -.084 | 37 | -.111 | 23 | -.194 | 23 | -8.107e-03 | 5 | NC | 1 | 1652.252 | 19 |
| 163 | | 2 | max | .007 | 19 | .113 | 5 | .191 | 17 | 7.359e-03 | 23 | NC | 1 | NC | 3 |
| 164 | | | min | -.084 | 37 | -.113 | 23 | -.191 | 23 | -7.571e-03 | 5 | NC | 1 | 2058.07 | 19 |
| 165 | | 3 | max | .008 | 19 | .115 | 17 | .183 | 17 | 6.854e-03 | 23 | NC | 1 | NC | 6 |
| 166 | | | min | -.084 | 37 | -.115 | 11 | -.192 | 11 | -6.941e-03 | 5 | NC | 1 | 1718.524 | 31 |
| 167 | | 4 | max | .008 | 19 | .127 | 5 | .17 | 17 | 6.39e-03 | 23 | NC | 1 | NC | 6 |
| 168 | | | min | -.084 | 37 | -.126 | 23 | -.19 | 11 | -6.413e-03 | 5 | 3157.998 | 5 | 1040.22 | 31 |
| 169 | | 5 | max | .008 | 19 | .151 | 5 | .153 | 17 | 6.379e-03 | 23 | NC | 1 | NC | 3 |
| 170 | | | min | -.084 | 37 | -.149 | 23 | -.185 | 11 | -6.863e-03 | 5 | 1205.505 | 5 | 720.702 | 27 |

## *Envelope Member Section Deflections (Continued)*

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 171 | M26 | 1 | max | .022 | 2 | .005 | 20 | .022 | 23 | 8.974e-05 | 20 | NC | 1 | NC | 1 |
| 172 | | | min | -.014 | 20 | -.105 | 26 | -.022 | 5 | -2.036e-04 | 39 | NC | 1 | NC | 1 |
| 173 | | 2 | max | .022 | 2 | .003 | 20 | .02 | 23 | 8.974e-05 | 20 | NC | 1 | NC | 1 |
| 174 | | | min | -.014 | 20 | -.104 | 26 | -.02 | 17 | -2.036e-04 | 39 | NC | 1 | NC | 1 |
| 175 | | 3 | max | .022 | 2 | .002 | 20 | .017 | 23 | 8.974e-05 | 20 | NC | 1 | NC | 1 |
| 176 | | | min | -.014 | 20 | -.102 | 26 | -.017 | 17 | -2.036e-04 | 39 | NC | 1 | NC | 1 |
| 177 | | 4 | max | .022 | 2 | 0 | 20 | .015 | 11 | 8.974e-05 | 20 | NC | 1 | NC | 1 |
| 178 | | | min | -.014 | 20 | -.101 | 26 | -.015 | 17 | -2.036e-04 | 39 | NC | 1 | NC | 1 |
| 179 | | 5 | max | .022 | 2 | 0 | 20 | .013 | 11 | 8.974e-05 | 20 | NC | 1 | NC | 1 |
| 180 | | | min | -.014 | 20 | -.099 | 26 | -.013 | 17 | -2.036e-04 | 39 | NC | 1 | NC | 1 |
| 181 | M27 | 1 | max | .015 | 14 | -.007 | 20 | .015 | 11 | 3.143e-04 | 16 | NC | 1 | NC | 1 |
| 182 | | | min | -.016 | 8 | -.098 | 26 | -.015 | 17 | -3.078e-04 | 22 | NC | 1 | NC | 1 |
| 183 | | 2 | max | .015 | 14 | -.006 | 20 | .013 | 11 | 3.143e-04 | 16 | NC | 1 | NC | 1 |
| 184 | | | min | -.016 | 8 | -.098 | 26 | -.012 | 17 | -3.078e-04 | 22 | NC | 1 | NC | 1 |
| 185 | | 3 | max | .015 | 14 | -.004 | 20 | .01 | 11 | 3.143e-04 | 16 | NC | 1 | NC | 1 |
| 186 | | | min | -.016 | 8 | -.099 | 26 | -.01 | 17 | -3.078e-04 | 22 | NC | 1 | NC | 1 |
| 187 | | 4 | max | .015 | 14 | -.002 | 20 | .008 | 11 | 3.143e-04 | 16 | NC | 1 | NC | 1 |
| 188 | | | min | -.016 | 8 | -.099 | 26 | -.008 | 17 | -3.078e-04 | 22 | NC | 1 | NC | 1 |
| 189 | | 5 | max | .015 | 14 | 0 | 20 | .006 | 11 | 3.143e-04 | 16 | NC | 1 | NC | 1 |
| 190 | | | min | -.016 | 8 | -.099 | 26 | -.006 | 17 | -3.078e-04 | 22 | NC | 1 | NC | 1 |
| 191 | M28 | 1 | max | 0 | 2 | .001 | 23 | .039 | 26 | 9.003e-04 | 17 | NC | 1 | NC | 1 |
| 192 | | | min | 0 | 20 | -.001 | 5 | .004 | 20 | -9.15e-04 | 11 | 2869.1 | 5 | NC | 1 |
| 193 | | 2 | max | 0 | 2 | 0 | 23 | .03 | 26 | 9.003e-04 | 17 | NC | 1 | NC | 1 |
| 194 | | | min | 0 | 20 | 0 | 5 | .003 | 20 | -9.15e-04 | 11 | 4675.848 | 5 | 4713.363 | 32 |
| 195 | | 3 | max | 0 | 2 | 0 | 23 | .02 | 26 | 9.003e-04 | 17 | NC | 1 | NC | 1 |
| 196 | | | min | 0 | 20 | 0 | 5 | .002 | 20 | -9.15e-04 | 11 | 9104.884 | 5 | 4122.803 | 32 |
| 197 | | 4 | max | 0 | 2 | 0 | 23 | .01 | 26 | 9.003e-04 | 17 | NC | 1 | NC | 1 |
| 198 | | | min | 0 | 20 | 0 | 5 | .001 | 20 | -9.15e-04 | 11 | NC | 1 | 6594.81 | 32 |
| 199 | | 5 | max | 0 | 1 | 0 | 1 | 0 | 1 | 9.003e-04 | 17 | NC | 1 | NC | 1 |
| 200 | | | min | 0 | 1 | 0 | 1 | 0 | 1 | -9.15e-04 | 11 | NC | 1 | NC | 1 |
| 201 | M29 | 1 | max | 0 | 14 | 0 | 11 | .043 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 1 |
| 202 | | | min | 0 | 8 | 0 | 17 | -.004 | 20 | -2.226e-04 | 19 | 4779.858 | 11 | 855.274 | 22 |
| 203 | | 2 | max | 0 | 14 | 0 | 11 | .033 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 5 |
| 204 | | | min | 0 | 8 | 0 | 17 | -.003 | 20 | -2.226e-04 | 19 | 7993.687 | 11 | 1143.977 | 22 |
| 205 | | 3 | max | 0 | 14 | 0 | 11 | .023 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 6 |
| 206 | | | min | 0 | 8 | 0 | 17 | -.002 | 20 | -2.226e-04 | 19 | NC | 1 | 1719.675 | 22 |
| 207 | | 4 | max | 0 | 14 | 0 | 11 | .011 | 26 | 2.284e-04 | 13 | NC | 1 | NC | 1 |
| 208 | | | min | 0 | 8 | 0 | 17 | -.001 | 20 | -2.226e-04 | 19 | NC | 1 | 3443.601 | 22 |
| 209 | | 5 | max | 0 | 1 | 0 | 1 | 0 | 1 | 2.284e-04 | 13 | NC | 1 | NC | 1 |
| 210 | | | min | 0 | 1 | 0 | 1 | 0 | 1 | -2.226e-04 | 19 | NC | 1 | NC | 1 |
| 211 | M36A | 1 | max | .21 | 4 | .012 | 21 | .113 | 23 | 7.078e-05 | 22 | NC | 1 | NC | 1 |
| 212 | | | min | -.203 | 22 | -.088 | 27 | -.114 | 5 | -1.568e-04 | 50 | NC | 1 | NC | 1 |
| 213 | | 2 | max | .21 | 4 | .011 | 21 | .107 | 23 | 7.078e-05 | 22 | NC | 1 | NC | 1 |
| 214 | | | min | -.203 | 22 | -.089 | 27 | -.108 | 5 | -1.568e-04 | 50 | NC | 1 | NC | 1 |
| 215 | | 3 | max | .21 | 4 | .01 | 21 | .102 | 23 | 7.078e-05 | 22 | NC | 1 | NC | 1 |
| 216 | | | min | -.203 | 22 | -.09 | 27 | -.103 | 5 | -1.568e-04 | 50 | NC | 1 | NC | 1 |
| 217 | | 4 | max | .21 | 4 | .01 | 21 | .096 | 23 | 7.078e-05 | 22 | NC | 1 | NC | 1 |
| 218 | | | min | -.203 | 22 | -.09 | 27 | -.097 | 5 | -1.568e-04 | 50 | NC | 1 | NC | 1 |
| 219 | | 5 | max | .21 | 4 | .009 | 21 | .091 | 23 | 7.078e-05 | 22 | NC | 1 | NC | 1 |
| 220 | | | min | -.203 | 22 | -.091 | 27 | -.092 | 5 | -1.568e-04 | 50 | NC | 1 | NC | 1 |
| 221 | M45 | 1 | max | .017 | 21 | .167 | 17 | .255 | 10 | 8.335e-03 | 10 | NC | 1 | NC | 1 |
| 222 | | | min | -.081 | 27 | -.168 | 11 | -.233 | 16 | -8.204e-03 | 16 | NC | 1 | 958.197 | 11 |
| 223 | | 2 | max | .017 | 21 | .16 | 17 | .22 | 10 | 8.335e-03 | 10 | NC | 1 | NC | 1 |
| 224 | | | min | -.081 | 27 | -.161 | 11 | -.215 | 16 | -8.204e-03 | 16 | 9518.791 | 8 | 1341.614 | 11 |
| 225 | | 3 | max | .017 | 21 | .166 | 17 | .195 | 22 | 6.593e-03 | 11 | NC | 1 | NC | 1 |
| 226 | | | min | -.081 | 27 | -.167 | 11 | -.211 | 4 | -6.291e-03 | 17 | 7534.213 | 49 | 2150.878 | 11 |
| 227 | | 4 | max | .017 | 21 | .189 | 17 | .163 | 22 | 6.548e-03 | 11 | NC | 1 | NC | 2 |

## Envelope Member Section Deflections (Continued)

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 228 | | | min | -.081 | 27 | -.192 | 11 | -.2 | 4 | -5.919e-03 | 17 | 3437.231 | 12 | 1455.057 | 8 |
| 229 | | 5 | max | .017 | 21 | .23 | 17 | .179 | 22 | 5.946e-03 | 11 | NC | 2 | NC | 1 |
| 230 | | | min | -.081 | 27 | -.247 | 11 | -.206 | 4 | -4.845e-03 | 17 | 1205.739 | 12 | 1151.162 | 13 |
| 231 | M46 | 1 | max | .216 | 10 | .012 | 21 | .112 | 5 | 1.913e-04 | 41 | NC | 1 | NC | 1 |
| 232 | | | min | -.213 | 16 | -.088 | 27 | -.112 | 23 | -1.707e-04 | 11 | NC | 1 | NC | 1 |
| 233 | | 2 | max | .216 | 10 | .013 | 21 | .124 | 17 | 1.913e-04 | 41 | NC | 1 | NC | 1 |
| 234 | | | min | -.213 | 16 | -.086 | 27 | -.124 | 23 | -1.707e-04 | 11 | NC | 1 | NC | 1 |
| 235 | | 3 | max | .216 | 10 | .015 | 21 | .136 | 17 | 1.913e-04 | 41 | NC | 1 | NC | 1 |
| 236 | | | min | -.213 | 16 | -.085 | 27 | -.136 | 11 | -1.707e-04 | 11 | NC | 1 | NC | 1 |
| 237 | | 4 | max | .216 | 10 | .016 | 21 | .148 | 17 | 1.913e-04 | 41 | NC | 1 | NC | 1 |
| 238 | | | min | -.213 | 16 | -.083 | 27 | -.148 | 11 | -1.707e-04 | 11 | NC | 1 | NC | 1 |
| 239 | | 5 | max | .216 | 10 | .017 | 21 | .159 | 17 | 1.913e-04 | 41 | NC | 1 | NC | 1 |
| 240 | | | min | -.213 | 16 | -.081 | 27 | -.161 | 11 | -1.707e-04 | 11 | NC | 1 | NC | 1 |
| 241 | M47 | 1 | max | .166 | 22 | .012 | 21 | .144 | 17 | 1.793e-03 | 17 | NC | 1 | NC | 1 |
| 242 | | | min | -.201 | 4 | -.088 | 27 | -.144 | 11 | -1.961e-03 | 11 | NC | 1 | NC | 1 |
| 243 | | 2 | max | .166 | 22 | .013 | 21 | .154 | 17 | 1.793e-03 | 17 | NC | 1 | NC | 1 |
| 244 | | | min | -.201 | 4 | -.086 | 27 | -.155 | 11 | -1.961e-03 | 11 | NC | 1 | NC | 1 |
| 245 | | 3 | max | .166 | 22 | .015 | 21 | .164 | 17 | 1.793e-03 | 17 | NC | 1 | NC | 1 |
| 246 | | | min | -.201 | 4 | -.084 | 27 | -.165 | 11 | -1.961e-03 | 11 | NC | 1 | NC | 1 |
| 247 | | 4 | max | .166 | 22 | .016 | 21 | .173 | 17 | 1.793e-03 | 17 | NC | 1 | NC | 1 |
| 248 | | | min | -.201 | 4 | -.083 | 27 | -.175 | 11 | -1.961e-03 | 11 | NC | 1 | NC | 1 |
| 249 | | 5 | max | .166 | 22 | .017 | 21 | .183 | 17 | 1.793e-03 | 17 | NC | 1 | NC | 1 |
| 250 | | | min | -.201 | 4 | -.081 | 27 | -.185 | 11 | -1.961e-03 | 11 | NC | 1 | NC | 1 |
| 251 | M48 | 1 | max | .012 | 21 | .112 | 5 | .219 | 10 | 8.556e-03 | 10 | NC | 1 | NC | 1 |
| 252 | | | min | -.088 | 27 | -.111 | 23 | -.215 | 16 | -8.387e-03 | 16 | NC | 1 | 1096.266 | 8 |
| 253 | | 2 | max | .012 | 21 | .113 | 5 | .206 | 22 | 7.731e-03 | 10 | NC | 1 | NC | 2 |
| 254 | | | min | -.088 | 27 | -.113 | 23 | -.21 | 4 | -7.704e-03 | 16 | NC | 1 | 1362.927 | 8 |
| 255 | | 3 | max | .012 | 21 | .116 | 5 | .194 | 22 | 6.936e-03 | 22 | NC | 1 | NC | 2 |
| 256 | | | min | -.088 | 27 | -.115 | 23 | -.207 | 4 | -7.047e-03 | 4 | NC | 1 | 1598.69 | 32 |
| 257 | | 4 | max | .012 | 21 | .127 | 5 | .179 | 22 | 6.387e-03 | 23 | NC | 1 | NC | 2 |
| 258 | | | min | -.088 | 27 | -.126 | 23 | -.204 | 4 | -6.506e-03 | 5 | 3113.641 | 5 | 963.241 | 32 |
| 259 | | 5 | max | .012 | 21 | .15 | 17 | .163 | 22 | 6.85e-03 | 11 | NC | 1 | NC | 2 |
| 260 | | | min | -.088 | 27 | -.15 | 11 | -.2 | 4 | -6.457e-03 | 17 | 1226.755 | 11 | 685.819 | 32 |
| 261 | M50A | 1 | max | .107 | 11 | 0 | 19 | .124 | 17 | 5.507e-05 | 23 | NC | 1 | NC | 1 |
| 262 | | | min | -.105 | 17 | -.095 | 37 | -.138 | 11 | -1.779e-03 | 29 | NC | 1 | NC | 1 |
| 263 | | 2 | max | .107 | 11 | 0 | 19 | .144 | 17 | 5.507e-05 | 23 | NC | 1 | NC | 1 |
| 264 | | | min | -.105 | 17 | -.096 | 37 | -.156 | 11 | -1.779e-03 | 29 | NC | 1 | NC | 1 |
| 265 | | 3 | max | .107 | 11 | 0 | 19 | .163 | 17 | 5.507e-05 | 23 | NC | 1 | NC | 1 |
| 266 | | | min | -.105 | 17 | -.096 | 37 | -.175 | 11 | -1.779e-03 | 29 | NC | 1 | NC | 1 |
| 267 | | 4 | max | .107 | 11 | -.002 | 19 | .183 | 17 | 5.507e-05 | 23 | NC | 1 | NC | 1 |
| 268 | | | min | -.105 | 17 | -.096 | 37 | -.193 | 11 | -1.779e-03 | 29 | NC | 1 | NC | 1 |
| 269 | | 5 | max | .107 | 11 | -.002 | 19 | .202 | 17 | 5.507e-05 | 23 | NC | 1 | NC | 1 |
| 270 | | | min | -.105 | 17 | -.096 | 36 | -.211 | 11 | -1.779e-03 | 29 | NC | 1 | NC | 1 |
| 271 | M51A | 1 | max | .175 | 11 | .01 | 18 | .181 | 23 | 5.576e-04 | 9 | NC | 1 | NC | 1 |
| 272 | | | min | -.163 | 17 | -.076 | 36 | -.183 | 5 | -4.988e-04 | 15 | NC | 1 | NC | 1 |
| 273 | | 2 | max | .175 | 11 | .007 | 19 | .162 | 23 | 5.576e-04 | 9 | NC | 1 | NC | 1 |
| 274 | | | min | -.163 | 17 | -.081 | 36 | -.163 | 5 | -4.988e-04 | 15 | NC | 1 | NC | 1 |
| 275 | | 3 | max | .175 | 11 | .004 | 19 | .144 | 11 | 5.576e-04 | 9 | NC | 1 | NC | 1 |
| 276 | | | min | -.163 | 17 | -.086 | 37 | -.144 | 17 | -4.988e-04 | 15 | NC | 1 | NC | 1 |
| 277 | | 4 | max | .175 | 11 | .002 | 19 | .126 | 11 | 5.576e-04 | 9 | NC | 1 | NC | 1 |
| 278 | | | min | -.163 | 17 | -.091 | 37 | -.124 | 17 | -4.988e-04 | 15 | NC | 1 | NC | 1 |
| 279 | | 5 | max | .175 | 11 | 0 | 19 | .107 | 11 | 5.576e-04 | 9 | NC | 1 | NC | 1 |
| 280 | | | min | -.163 | 17 | -.096 | 37 | -.105 | 17 | -4.988e-04 | 15 | NC | 1 | NC | 1 |
| 281 | M50B | 1 | max | .107 | 5 | .003 | 21 | .159 | 4 | 2.005e-03 | 33 | NC | 1 | NC | 1 |
| 282 | | | min | -.103 | 23 | -.101 | 27 | -.142 | 22 | -2.601e-04 | 15 | NC | 1 | NC | 1 |
| 283 | | 2 | max | .107 | 5 | .002 | 21 | .178 | 4 | 2.005e-03 | 33 | NC | 1 | NC | 1 |
| 284 | | | min | -.103 | 23 | -.102 | 27 | -.161 | 22 | -2.601e-04 | 15 | NC | 1 | NC | 1 |

## Envelope Member Section Deflections (Continued)

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 285 | | 3 | max | .107 | 5 | 0 | 21 | .196 | 4 | 2.005e-03 | 33 | NC | 1 | NC | 1 |
| 286 | | | min | -.103 | 23 | -.102 | 27 | -.18 | 22 | -2.601e-04 | 15 | NC | 1 | NC | 1 |
| 287 | | 4 | max | .107 | 5 | 0 | 21 | .215 | 4 | 2.005e-03 | 33 | NC | 1 | NC | 1 |
| 288 | | | min | -.103 | 23 | -.102 | 27 | -.2 | 22 | -2.601e-04 | 15 | NC | 1 | NC | 1 |
| 289 | | 5 | max | .107 | 5 | 0 | 21 | .233 | 4 | 2.005e-03 | 33 | NC | 1 | NC | 1 |
| 290 | | | min | -.103 | 23 | -.102 | 27 | -.219 | 22 | -2.601e-04 | 15 | NC | 1 | NC | 1 |
| 291 | M51B | 1 | max | .196 | 4 | .017 | 21 | .182 | 23 | 5.6e-04 | 25 | NC | 1 | NC | 1 |
| 292 | | | min | -.18 | 22 | -.081 | 27 | -.182 | 5 | -6.369e-04 | 7 | NC | 1 | NC | 1 |
| 293 | | 2 | max | .196 | 4 | .013 | 21 | .162 | 23 | 5.6e-04 | 25 | NC | 1 | NC | 1 |
| 294 | | | min | -.18 | 22 | -.086 | 27 | -.163 | 5 | -6.369e-04 | 7 | NC | 1 | NC | 1 |
| 295 | | 3 | max | .196 | 4 | .009 | 21 | .142 | 23 | 5.6e-04 | 25 | NC | 1 | NC | 1 |
| 296 | | | min | -.18 | 22 | -.091 | 27 | -.144 | 5 | -6.369e-04 | 7 | NC | 1 | NC | 1 |
| 297 | | 4 | max | .196 | 4 | .005 | 21 | .123 | 23 | 5.6e-04 | 25 | NC | 1 | NC | 1 |
| 298 | | | min | -.18 | 22 | -.097 | 27 | -.126 | 5 | -6.369e-04 | 7 | NC | 1 | NC | 1 |
| 299 | | 5 | max | .196 | 4 | 0 | 21 | .103 | 23 | 5.6e-04 | 25 | NC | 1 | NC | 1 |
| 300 | | | min | -.18 | 22 | -.102 | 27 | -.107 | 5 | -6.369e-04 | 7 | NC | 1 | NC | 1 |
| 301 | M54 | 1 | max | .134 | 5 | .016 | 20 | .154 | 4 | 1.591e-03 | 12 | NC | 1 | NC | 1 |
| 302 | | | min | -.126 | 23 | -.093 | 26 | -.113 | 22 | -1.114e-03 | 18 | NC | 1 | NC | 1 |
| 303 | | 2 | max | .134 | 5 | .016 | 20 | .169 | 4 | 1.591e-03 | 12 | NC | 1 | NC | 1 |
| 304 | | | min | -.126 | 23 | -.091 | 26 | -.13 | 22 | -1.114e-03 | 18 | NC | 1 | NC | 1 |
| 305 | | 3 | max | .134 | 5 | .016 | 20 | .184 | 4 | 1.591e-03 | 12 | NC | 1 | NC | 1 |
| 306 | | | min | -.126 | 23 | -.09 | 26 | -.147 | 22 | -1.114e-03 | 18 | NC | 1 | NC | 1 |
| 307 | | 4 | max | .134 | 5 | .017 | 21 | .199 | 4 | 1.591e-03 | 12 | NC | 1 | NC | 1 |
| 308 | | | min | -.126 | 23 | -.089 | 27 | -.164 | 22 | -1.114e-03 | 18 | NC | 1 | NC | 1 |
| 309 | | 5 | max | .134 | 5 | .02 | 21 | .214 | 4 | 1.591e-03 | 12 | NC | 1 | NC | 1 |
| 310 | | | min | -.126 | 23 | -.088 | 27 | -.181 | 22 | -1.114e-03 | 18 | NC | 1 | NC | 1 |
| 311 | M55 | 1 | max | .184 | 4 | .017 | 21 | .204 | 23 | 1.974e-03 | 11 | NC | 1 | NC | 1 |
| 312 | | | min | -.147 | 22 | -.081 | 27 | -.204 | 5 | -1.727e-03 | 17 | NC | 1 | NC | 1 |
| 313 | | 2 | max | .184 | 4 | .017 | 21 | .184 | 23 | 1.974e-03 | 11 | NC | 1 | NC | 1 |
| 314 | | | min | -.147 | 22 | -.083 | 27 | -.186 | 5 | -1.727e-03 | 17 | NC | 1 | NC | 1 |
| 315 | | 3 | max | .184 | 4 | .016 | 21 | .165 | 23 | 1.974e-03 | 11 | NC | 1 | NC | 1 |
| 316 | | | min | -.147 | 22 | -.085 | 27 | -.169 | 5 | -1.727e-03 | 17 | NC | 1 | NC | 1 |
| 317 | | 4 | max | .184 | 4 | .015 | 21 | .146 | 23 | 1.974e-03 | 11 | NC | 1 | NC | 1 |
| 318 | | | min | -.147 | 22 | -.087 | 27 | -.151 | 5 | -1.727e-03 | 17 | NC | 1 | NC | 1 |
| 319 | | 5 | max | .184 | 4 | .016 | 20 | .126 | 23 | 1.974e-03 | 11 | NC | 1 | NC | 1 |
| 320 | | | min | -.147 | 22 | -.09 | 26 | -.134 | 5 | -1.727e-03 | 17 | NC | 1 | NC | 1 |
| 321 | M56 | 1 | max | .004 | 20 | .111 | 5 | .027 | 8 | 6.174e-03 | 23 | NC | 1 | NC | 1 |
| 322 | | | min | -.095 | 26 | -.111 | 23 | -.024 | 14 | -6.207e-03 | 5 | NC | 1 | 7993.319 | 10 |
| 323 | | 2 | max | .004 | 20 | .113 | 5 | .03 | 20 | 6.196e-03 | 23 | NC | 1 | NC | 5 |
| 324 | | | min | -.095 | 26 | -.112 | 23 | -.035 | 2 | -6.239e-03 | 5 | NC | 1 | 3402.775 | 26 |
| 325 | | 3 | max | .004 | 20 | .116 | 5 | .03 | 20 | 6.12e-03 | 23 | NC | 1 | NC | 6 |
| 326 | | | min | -.095 | 26 | -.115 | 23 | -.042 | 2 | -6.171e-03 | 5 | NC | 1 | 1958.639 | 26 |
| 327 | | 4 | max | .004 | 20 | .127 | 5 | .033 | 20 | 6.14e-03 | 23 | NC | 1 | NC | 6 |
| 328 | | | min | -.095 | 26 | -.126 | 23 | -.054 | 2 | -6.198e-03 | 5 | 3147.662 | 5 | 1181.606 | 26 |
| 329 | | 5 | max | .004 | 20 | .153 | 5 | .041 | 20 | 6.952e-03 | 23 | NC | 1 | NC | 6 |
| 330 | | | min | -.095 | 26 | -.152 | 23 | -.075 | 2 | -7.007e-03 | 5 | 1158.083 | 5 | 761.72 | 26 |
| 331 | M35 | 1 | max | .147 | 17 | .021 | 19 | .17 | 5 | 1.964e-03 | 4 | NC | 1 | NC | 1 |
| 332 | | | min | -.179 | 11 | -.073 | 37 | -.168 | 23 | -1.309e-03 | 22 | NC | 1 | NC | 1 |
| 333 | | 2 | max | .147 | 17 | .018 | 19 | .179 | 5 | 1.964e-03 | 4 | NC | 1 | NC | 1 |
| 334 | | | min | -.179 | 11 | -.073 | 37 | -.176 | 23 | -1.309e-03 | 22 | NC | 1 | NC | 1 |
| 335 | | 3 | max | .147 | 17 | .015 | 19 | .188 | 5 | 1.964e-03 | 4 | NC | 1 | NC | 1 |
| 336 | | | min | -.179 | 11 | -.074 | 37 | -.183 | 23 | -1.309e-03 | 22 | NC | 1 | NC | 1 |
| 337 | | 4 | max | .147 | 17 | .013 | 19 | .196 | 5 | 1.964e-03 | 4 | NC | 1 | NC | 1 |
| 338 | | | min | -.179 | 11 | -.075 | 37 | -.19 | 23 | -1.309e-03 | 22 | NC | 1 | NC | 1 |
| 339 | | 5 | max | .147 | 17 | .01 | 18 | .205 | 5 | 1.964e-03 | 4 | NC | 1 | NC | 1 |
| 340 | | | min | -.179 | 11 | -.076 | 36 | -.197 | 23 | -1.309e-03 | 22 | NC | 1 | NC | 1 |
| 341 | M36 | 1 | max | .162 | 22 | .027 | 21 | .17 | 5 | 1.247e-03 | 17 | NC | 1 | NC | 1 |

## Envelope Member Section Deflections (Continued)

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 342 | | | min | -.199 | 4 | -.076 | 27 | -.169 | 23 | -1.873e-03 | 11 | NC | 1 | NC | 1 |
| 343 | | 2 | max | .162 | 22 | .025 | 21 | .177 | 17 | 1.247e-03 | 17 | NC | 1 | NC | 1 |
| 344 | | | min | -.199 | 4 | -.077 | 27 | -.177 | 11 | -1.873e-03 | 11 | NC | 1 | NC | 1 |
| 345 | | 3 | max | .162 | 22 | .022 | 21 | .184 | 17 | 1.247e-03 | 17 | NC | 1 | NC | 1 |
| 346 | | | min | -.199 | 4 | -.078 | 27 | -.186 | 11 | -1.873e-03 | 11 | NC | 1 | NC | 1 |
| 347 | | 4 | max | .162 | 22 | .02 | 21 | .191 | 17 | 1.247e-03 | 17 | NC | 1 | NC | 1 |
| 348 | | | min | -.199 | 4 | -.079 | 27 | -.195 | 11 | -1.873e-03 | 11 | NC | 1 | NC | 1 |
| 349 | | 5 | max | .162 | 22 | .017 | 21 | .198 | 17 | 1.247e-03 | 17 | NC | 1 | NC | 1 |
| 350 | | | min | -.199 | 4 | -.08 | 27 | -.204 | 11 | -1.873e-03 | 11 | NC | 1 | NC | 1 |
| 351 | M37 | 1 | max | .169 | 23 | .03 | 22 | .225 | 23 | 3.034e-03 | 8 | NC | 1 | NC | 1 |
| 352 | | | min | -.17 | 5 | -.055 | 4 | -.226 | 5 | -3.033e-03 | 14 | 2180.82 | 21 | NC | 1 |
| 353 | | 2 | max | .169 | 23 | .024 | 20 | .133 | 22 | 2.373e-03 | 7 | NC | 5 | NC | 6 |
| 354 | | | min | -.169 | 5 | -.082 | 26 | -.174 | 4 | -2.066e-03 | 25 | 2344.274 | 37 | 1091.135 | 2 |
| 355 | | 3 | max | .168 | 23 | .013 | 20 | .051 | 20 | 1.952e-03 | 20 | NC | 7 | NC | 6 |
| 356 | | | min | -.169 | 5 | -.093 | 26 | -.09 | 2 | -2.517e-03 | 2 | 1759.064 | 26 | 1028.067 | 2 |
| 357 | | 4 | max | .168 | 23 | .018 | 19 | .112 | 18 | 2.516e-03 | 8 | NC | 6 | NC | 5 |
| 358 | | | min | -.17 | 5 | -.079 | 26 | -.15 | 12 | -2.317e-03 | 15 | 2426.932 | 27 | 1195.429 | 37 |
| 359 | | 5 | max | .169 | 23 | .025 | 18 | .226 | 5 | 3.014e-03 | 20 | NC | 1 | NC | 1 |
| 360 | | | min | -.17 | 5 | -.049 | 12 | -.225 | 23 | -3.117e-03 | 2 | 3735.106 | 7 | NC | 1 |
| 361 | M38 | 1 | max | .054 | 36 | .17 | 5 | .217 | 11 | 6.798e-03 | 4 | NC | 1 | NC | 1 |
| 362 | | | min | -.024 | 18 | -.169 | 23 | -.211 | 17 | -4.075e-03 | 22 | NC | 1 | NC | 1 |
| 363 | | 2 | max | .054 | 36 | .169 | 5 | .217 | 11 | 6.798e-03 | 4 | NC | 1 | NC | 1 |
| 364 | | | min | -.024 | 18 | -.169 | 23 | -.211 | 17 | -4.075e-03 | 22 | NC | 1 | NC | 1 |
| 365 | | 3 | max | .054 | 36 | .168 | 17 | .217 | 11 | 6.798e-03 | 4 | NC | 1 | NC | 1 |
| 366 | | | min | -.024 | 18 | -.169 | 11 | -.211 | 17 | -4.075e-03 | 22 | NC | 1 | NC | 1 |
| 367 | | 4 | max | .054 | 36 | .167 | 17 | .217 | 11 | 6.798e-03 | 4 | NC | 1 | NC | 1 |
| 368 | | | min | -.024 | 18 | -.169 | 11 | -.211 | 17 | -4.075e-03 | 22 | NC | 1 | NC | 1 |
| 369 | | 5 | max | .054 | 36 | .166 | 17 | .218 | 11 | 6.798e-03 | 4 | NC | 1 | NC | 1 |
| 370 | | | min | -.024 | 18 | -.169 | 11 | -.211 | 17 | -4.075e-03 | 22 | NC | 1 | NC | 1 |
| 371 | M39 | 1 | max | 0 | 1 | 0 | 1 | 0 | 1 | 1.975e-03 | 8 | NC | 1 | NC | 1 |
| 372 | | | min | 0 | 1 | 0 | 1 | 0 | 1 | -1.156e-03 | 14 | NC | 1 | NC | 1 |
| 373 | | 2 | max | 0 | 18 | .077 | 5 | .022 | 34 | 1.975e-03 | 8 | NC | 1 | NC | 1 |
| 374 | | | min | 0 | 36 | -.076 | 23 | .001 | 15 | -1.156e-03 | 14 | 1118.015 | 16 | 1267.125 | 22 |
| 375 | | 3 | max | 0 | 18 | .148 | 5 | .038 | 35 | 1.975e-03 | 8 | NC | 1 | NC | 1 |
| 376 | | | min | -.001 | 36 | -.148 | 11 | .001 | 17 | -1.156e-03 | 14 | 557.834 | 16 | 627.412 | 22 |
| 377 | | 4 | max | 0 | 18 | .211 | 17 | .048 | 36 | 1.975e-03 | 8 | NC | 1 | NC | 1 |
| 378 | | | min | -.002 | 36 | -.214 | 11 | -.008 | 18 | -1.156e-03 | 14 | 370.927 | 16 | 413.319 | 22 |
| 379 | | 5 | max | 0 | 18 | .269 | 17 | .054 | 36 | 1.975e-03 | 8 | NC | 1 | NC | 1 |
| 380 | | | min | -.003 | 36 | -.276 | 11 | -.024 | 18 | -1.156e-03 | 14 | 277.546 | 16 | 306.701 | 22 |
| 381 | M40 | 1 | max | .06 | 3 | .17 | 5 | .219 | 5 | 3.547e-03 | 18 | NC | 1 | NC | 1 |
| 382 | | | min | -.03 | 21 | -.169 | 23 | -.209 | 23 | -6.314e-03 | 12 | NC | 1 | NC | 1 |
| 383 | | 2 | max | .06 | 3 | .17 | 5 | .219 | 5 | 3.547e-03 | 18 | NC | 1 | NC | 1 |
| 384 | | | min | -.03 | 21 | -.168 | 23 | -.21 | 23 | -6.314e-03 | 12 | NC | 1 | NC | 1 |
| 385 | | 3 | max | .06 | 3 | .17 | 5 | .219 | 5 | 3.547e-03 | 18 | NC | 1 | NC | 1 |
| 386 | | | min | -.03 | 21 | -.167 | 23 | -.21 | 23 | -6.314e-03 | 12 | NC | 1 | NC | 1 |
| 387 | | 4 | max | .06 | 3 | .17 | 5 | .219 | 5 | 3.547e-03 | 18 | NC | 1 | NC | 1 |
| 388 | | | min | -.03 | 21 | -.166 | 23 | -.21 | 23 | -6.314e-03 | 12 | NC | 1 | NC | 1 |
| 389 | | 5 | max | .06 | 3 | .171 | 5 | .219 | 5 | 3.547e-03 | 18 | NC | 1 | NC | 1 |
| 390 | | | min | -.03 | 21 | -.165 | 23 | -.21 | 23 | -6.314e-03 | 12 | NC | 1 | NC | 1 |
| 391 | M41 | 1 | max | 0 | 1 | 0 | 1 | 0 | 1 | 1.084e-03 | 14 | NC | 1 | NC | 1 |
| 392 | | | min | 0 | 1 | 0 | 1 | 0 | 1 | -2.012e-03 | 8 | NC | 1 | NC | 1 |
| 393 | | 2 | max | 0 | 21 | .023 | 28 | .08 | 22 | 1.084e-03 | 14 | NC | 1 | NC | 1 |
| 394 | | | min | 0 | 27 | .003 | 23 | -.081 | 4 | -2.012e-03 | 8 | 1417.852 | 24 | 1534.813 | 18 |
| 395 | | 3 | max | 0 | 21 | .04 | 28 | .15 | 22 | 1.084e-03 | 14 | NC | 1 | NC | 1 |
| 396 | | | min | -.001 | 27 | 0 | 22 | -.153 | 4 | -2.012e-03 | 8 | 707.04 | 24 | 758.402 | 18 |
| 397 | | 4 | max | 0 | 21 | .051 | 28 | .21 | 23 | 1.084e-03 | 14 | NC | 1 | NC | 1 |
| 398 | | | min | -.002 | 27 | -.011 | 22 | -.216 | 4 | -2.012e-03 | 8 | 469.816 | 24 | 498.377 | 18 |

## Envelope Member Section Deflections (Continued)

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 399 | | 5 | max | .001 | 21 | .06 | 3 | .267 | 23 | 1.084e-03 | 14 | NC | 1 | NC | 1 |
| 400 | | | min | -.003 | 27 | -.03 | 21 | -.278 | 5 | -2.012e-03 | 8 | 351.321 | 24 | 369.012 | 18 |
| 401 | M42 | 1 | max | .069 | 37 | .17 | 5 | .192 | 11 | 6.616e-03 | 4 | NC | 1 | NC | 1 |
| 402 | | | min | -.022 | 19 | -.168 | 23 | -.164 | 17 | -4.841e-03 | 22 | NC | 1 | NC | 1 |
| 403 | | 2 | max | .069 | 37 | .169 | 5 | .193 | 11 | 6.616e-03 | 4 | NC | 1 | NC | 1 |
| 404 | | | min | -.022 | 19 | -.168 | 23 | -.164 | 17 | -4.841e-03 | 22 | NC | 1 | NC | 1 |
| 405 | | 3 | max | .069 | 37 | .167 | 5 | .193 | 11 | 6.616e-03 | 4 | NC | 1 | NC | 1 |
| 406 | | | min | -.022 | 19 | -.167 | 23 | -.164 | 17 | -4.841e-03 | 22 | NC | 1 | NC | 1 |
| 407 | | 4 | max | .069 | 37 | .166 | 17 | .194 | 11 | 6.616e-03 | 4 | NC | 1 | NC | 1 |
| 408 | | | min | -.022 | 19 | -.166 | 11 | -.165 | 17 | -4.841e-03 | 22 | NC | 1 | NC | 1 |
| 409 | | 5 | max | .069 | 37 | .165 | 17 | .195 | 11 | 6.616e-03 | 4 | NC | 1 | NC | 1 |
| 410 | | | min | -.022 | 19 | -.166 | 11 | -.165 | 17 | -4.841e-03 | 22 | NC | 1 | NC | 1 |
| 411 | M43 | 1 | max | 0 | 1 | 0 | 1 | 0 | 1 | 3.804e-03 | 5 | NC | 1 | NC | 1 |
| 412 | | | min | 0 | 1 | 0 | 1 | 0 | 1 | -2.136e-03 | 23 | NC | 1 | NC | 1 |
| 413 | | 2 | max | .001 | 34 | .076 | 17 | .028 | 27 | 3.804e-03 | 5 | NC | 1 | NC | 1 |
| 414 | | | min | 0 | 16 | -.079 | 11 | -.006 | 21 | -2.136e-03 | 23 | 1145.762 | 10 | 2108.493 | 6 |
| 415 | | 3 | max | .002 | 34 | .141 | 17 | .051 | 26 | 3.804e-03 | 5 | NC | 1 | NC | 1 |
| 416 | | | min | 0 | 16 | -.149 | 11 | -.009 | 21 | -2.136e-03 | 23 | 570.821 | 10 | 1502.301 | 6 |
| 417 | | 4 | max | .003 | 34 | .192 | 17 | .067 | 26 | 3.804e-03 | 5 | NC | 1 | NC | 1 |
| 418 | | | min | 0 | 16 | -.206 | 11 | -.013 | 20 | -2.136e-03 | 23 | 378.864 | 10 | 1636.908 | 2 |
| 419 | | 5 | max | .004 | 34 | .233 | 17 | .079 | 37 | 3.804e-03 | 5 | NC | 1 | NC | 1 |
| 420 | | | min | 0 | 16 | -.255 | 11 | -.027 | 19 | -2.136e-03 | 23 | 283.015 | 10 | 1093.115 | 2 |
| 421 | M44 | 1 | max | .073 | 27 | .17 | 5 | .208 | 4 | 4.197e-03 | 18 | NC | 1 | NC | 1 |
| 422 | | | min | -.029 | 21 | -.169 | 23 | -.175 | 22 | -5.945e-03 | 12 | NC | 1 | NC | 1 |
| 423 | | 2 | max | .073 | 27 | .169 | 5 | .208 | 4 | 4.197e-03 | 18 | NC | 1 | NC | 1 |
| 424 | | | min | -.029 | 21 | -.167 | 23 | -.174 | 22 | -5.945e-03 | 12 | NC | 1 | NC | 1 |
| 425 | | 3 | max | .073 | 27 | .168 | 5 | .208 | 4 | 4.197e-03 | 18 | NC | 1 | NC | 1 |
| 426 | | | min | -.029 | 21 | -.166 | 23 | -.173 | 22 | -5.945e-03 | 12 | NC | 1 | NC | 1 |
| 427 | | 4 | max | .073 | 27 | .167 | 5 | .207 | 4 | 4.197e-03 | 18 | NC | 1 | NC | 1 |
| 428 | | | min | -.029 | 21 | -.165 | 23 | -.173 | 22 | -5.945e-03 | 12 | NC | 1 | NC | 1 |
| 429 | | 5 | max | .073 | 27 | .167 | 5 | .207 | 4 | 4.197e-03 | 18 | NC | 1 | NC | 1 |
| 430 | | | min | -.029 | 21 | -.164 | 23 | -.172 | 22 | -5.945e-03 | 12 | NC | 1 | NC | 1 |
| 431 | M45A | 1 | max | 0 | 1 | 0 | 1 | 0 | 1 | 2.119e-03 | 17 | NC | 1 | NC | 1 |
| 432 | | | min | 0 | 1 | 0 | 1 | 0 | 1 | -3.853e-03 | 11 | NC | 1 | NC | 1 |
| 433 | | 2 | max | .001 | 30 | .029 | 37 | .077 | 22 | 2.119e-03 | 17 | NC | 1 | NC | 1 |
| 434 | | | min | 0 | 24 | -.008 | 19 | -.082 | 4 | -3.853e-03 | 11 | 1382.163 | 6 | 2108.495 | 10 |
| 435 | | 3 | max | .002 | 30 | .053 | 26 | .143 | 22 | 2.119e-03 | 17 | NC | 1 | NC | 1 |
| 436 | | | min | 0 | 24 | -.013 | 19 | -.154 | 4 | -3.853e-03 | 11 | 688.085 | 6 | 1502.303 | 10 |
| 437 | | 4 | max | .003 | 30 | .071 | 26 | .193 | 22 | 2.119e-03 | 17 | NC | 1 | NC | 1 |
| 438 | | | min | 0 | 24 | -.02 | 20 | -.212 | 4 | -3.853e-03 | 11 | 456.28 | 6 | 2108.495 | 10 |
| 439 | | 5 | max | .004 | 30 | .083 | 27 | .232 | 22 | 2.119e-03 | 17 | NC | 1 | NC | 1 |
| 440 | | | min | 0 | 24 | -.035 | 21 | -.26 | 4 | -3.853e-03 | 11 | 340.569 | 6 | 4840.104 | 66 |
| 441 | M54A | 1 | max | .001 | 20 | .152 | 5 | .036 | 32 | 6.254e-03 | 23 | NC | 1 | NC | 1 |
| 442 | | | min | -.086 | 26 | -.152 | 23 | -.002 | 14 | -6.29e-03 | 5 | NC | 1 | 4373.295 | 70 |
| 443 | | 2 | max | .001 | 20 | .149 | 5 | .027 | 8 | 6.254e-03 | 23 | NC | 1 | NC | 1 |
| 444 | | | min | -.086 | 26 | -.149 | 23 | -.024 | 14 | -6.29e-03 | 5 | NC | 1 | 2911.757 | 26 |
| 445 | | 3 | max | 0 | 20 | .159 | 5 | .033 | 20 | 6.603e-03 | 23 | NC | 1 | NC | 1 |
| 446 | | | min | -.086 | 26 | -.158 | 23 | -.048 | 2 | -6.649e-03 | 5 | NC | 1 | 1519.206 | 26 |
| 447 | | 4 | max | 0 | 20 | .195 | 5 | .042 | 20 | 6.632e-03 | 23 | NC | 1 | NC | 1 |
| 448 | | | min | -.086 | 26 | -.194 | 23 | -.076 | 2 | -6.693e-03 | 5 | 2253.637 | 5 | 995.954 | 26 |
| 449 | | 5 | max | 0 | 20 | .227 | 5 | .087 | 20 | 5.993e-03 | 23 | NC | 1 | NC | 1 |
| 450 | | | min | -.086 | 26 | -.225 | 23 | -.137 | 2 | -6.064e-03 | 5 | 1285.883 | 5 | 698.37 | 2 |
| 451 | M55A | 1 | max | .028 | 8 | .004 | 20 | .112 | 5 | 3.162e-04 | 50 | NC | 1 | NC | 1 |
| 452 | | | min | -.027 | 14 | -.095 | 26 | -.111 | 23 | -9.487e-05 | 24 | NC | 1 | NC | 1 |
| 453 | | 2 | max | .028 | 8 | .003 | 20 | .121 | 5 | 3.162e-04 | 50 | NC | 1 | NC | 1 |
| 454 | | | min | -.027 | 14 | -.093 | 26 | -.121 | 23 | -9.487e-05 | 24 | NC | 1 | NC | 1 |
| 455 | | 3 | max | .028 | 8 | .002 | 20 | .131 | 5 | 3.162e-04 | 50 | NC | 1 | NC | 1 |

## Envelope Member Section Deflections (Continued)

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 456 | | | min | -.027 | 14 | -.091 | 26 | -.13 | 23 | -9.487e-05 | 24 | NC | 1 | NC | 1 |
| 457 | | 4 | max | .028 | 8 | .002 | 20 | .14 | 5 | 3.162e-04 | 50 | NC | 1 | NC | 1 |
| 458 | | | min | -.027 | 14 | -.088 | 26 | -.139 | 23 | -9.487e-05 | 24 | NC | 1 | NC | 1 |
| 459 | | 5 | max | .028 | 8 | .001 | 20 | .15 | 5 | 3.162e-04 | 50 | NC | 1 | NC | 1 |
| 460 | | | min | -.027 | 14 | -.086 | 26 | -.149 | 23 | -9.487e-05 | 24 | NC | 1 | NC | 1 |
| 461 | M56A | 1 | max | .039 | 20 | .004 | 20 | .146 | 5 | 2.202e-03 | 5 | NC | 1 | NC | 1 |
| 462 | | | min | -.07 | 2 | -.095 | 26 | -.145 | 23 | -2.184e-03 | 23 | NC | 1 | NC | 1 |
| 463 | | 2 | max | .039 | 20 | .003 | 20 | .157 | 5 | 2.202e-03 | 5 | NC | 1 | NC | 1 |
| 464 | | | min | -.07 | 2 | -.093 | 26 | -.156 | 23 | -2.184e-03 | 23 | NC | 1 | NC | 1 |
| 465 | | 3 | max | .039 | 20 | .003 | 20 | .167 | 5 | 2.202e-03 | 5 | NC | 1 | NC | 1 |
| 466 | | | min | -.07 | 2 | -.09 | 26 | -.166 | 23 | -2.184e-03 | 23 | NC | 1 | NC | 1 |
| 467 | | 4 | max | .039 | 20 | .002 | 20 | .178 | 5 | 2.202e-03 | 5 | NC | 1 | NC | 1 |
| 468 | | | min | -.07 | 2 | -.088 | 26 | -.177 | 23 | -2.184e-03 | 23 | NC | 1 | NC | 1 |
| 469 | | 5 | max | .039 | 20 | 0 | 20 | .188 | 5 | 2.202e-03 | 5 | NC | 1 | NC | 1 |
| 470 | | | min | -.07 | 2 | -.086 | 26 | -.187 | 23 | -2.184e-03 | 23 | NC | 1 | NC | 1 |
| 471 | M57 | 1 | max | .074 | 5 | .004 | 20 | .06 | 12 | 1.228e-03 | 26 | NC | 1 | NC | 1 |
| 472 | | | min | -.073 | 23 | -.1 | 26 | -.054 | 18 | -2.746e-04 | 20 | NC | 1 | NC | 1 |
| 473 | | 2 | max | .074 | 5 | .004 | 20 | .046 | 12 | 1.228e-03 | 26 | NC | 1 | NC | 1 |
| 474 | | | min | -.073 | 23 | -.1 | 26 | -.039 | 18 | -2.746e-04 | 20 | NC | 1 | NC | 1 |
| 475 | | 3 | max | .074 | 5 | .004 | 20 | .037 | 13 | 1.228e-03 | 26 | NC | 1 | NC | 1 |
| 476 | | | min | -.073 | 23 | -.101 | 26 | -.031 | 19 | -2.746e-04 | 20 | NC | 1 | NC | 1 |
| 477 | | 4 | max | .074 | 5 | .004 | 20 | .038 | 2 | 1.228e-03 | 26 | NC | 1 | NC | 1 |
| 478 | | | min | -.073 | 23 | -.101 | 26 | -.032 | 20 | -2.746e-04 | 20 | NC | 1 | NC | 1 |
| 479 | | 5 | max | .074 | 5 | .004 | 20 | .05 | 3 | 1.228e-03 | 26 | NC | 1 | NC | 1 |
| 480 | | | min | -.073 | 23 | -.102 | 26 | -.043 | 21 | -2.746e-04 | 20 | NC | 1 | NC | 1 |
| 481 | M58 | 1 | max | .037 | 13 | .001 | 20 | .15 | 23 | 3.342e-04 | 23 | NC | 1 | NC | 1 |
| 482 | | | min | -.031 | 19 | -.086 | 26 | -.151 | 5 | -4.123e-04 | 5 | NC | 1 | NC | 1 |
| 483 | | 2 | max | .037 | 13 | .002 | 20 | .131 | 23 | 3.342e-04 | 23 | NC | 1 | NC | 1 |
| 484 | | | min | -.031 | 19 | -.09 | 26 | -.132 | 5 | -4.123e-04 | 5 | NC | 1 | NC | 1 |
| 485 | | 3 | max | .037 | 13 | .003 | 20 | .112 | 23 | 3.342e-04 | 23 | NC | 1 | NC | 1 |
| 486 | | | min | -.031 | 19 | -.094 | 26 | -.113 | 5 | -4.123e-04 | 5 | NC | 1 | NC | 1 |
| 487 | | 4 | max | .037 | 13 | .004 | 20 | .092 | 23 | 3.342e-04 | 23 | NC | 1 | NC | 1 |
| 488 | | | min | -.031 | 19 | -.097 | 26 | -.093 | 5 | -4.123e-04 | 5 | NC | 1 | NC | 1 |
| 489 | | 5 | max | .037 | 13 | .004 | 20 | .073 | 23 | 3.342e-04 | 23 | NC | 1 | NC | 1 |
| 490 | | | min | -.031 | 19 | -.101 | 26 | -.074 | 5 | -4.123e-04 | 5 | NC | 1 | NC | 1 |
| 491 | M59 | 1 | max | .116 | 5 | .014 | 19 | .092 | 12 | 1.977e-03 | 2 | NC | 1 | NC | 1 |
| 492 | | | min | -.112 | 23 | -.105 | 37 | -.058 | 18 | -1.075e-03 | 20 | NC | 1 | NC | 1 |
| 493 | | 2 | max | .116 | 5 | .012 | 20 | .081 | 13 | 1.977e-03 | 2 | NC | 1 | NC | 1 |
| 494 | | | min | -.112 | 23 | -.105 | 26 | -.047 | 19 | -1.075e-03 | 20 | NC | 1 | NC | 1 |
| 495 | | 3 | max | .116 | 5 | .014 | 20 | .074 | 13 | 1.977e-03 | 2 | NC | 1 | NC | 1 |
| 496 | | | min | -.112 | 23 | -.106 | 26 | -.04 | 19 | -1.075e-03 | 20 | NC | 1 | NC | 1 |
| 497 | | 4 | max | .116 | 5 | .015 | 20 | .076 | 2 | 1.977e-03 | 2 | NC | 1 | NC | 1 |
| 498 | | | min | -.112 | 23 | -.106 | 26 | -.042 | 20 | -1.075e-03 | 20 | NC | 1 | NC | 1 |
| 499 | | 5 | max | .116 | 5 | .016 | 20 | .084 | 3 | 1.977e-03 | 2 | NC | 1 | NC | 1 |
| 500 | | | min | -.112 | 23 | -.107 | 26 | -.049 | 21 | -1.075e-03 | 20 | NC | 1 | NC | 1 |
| 501 | M60 | 1 | max | .074 | 13 | 0 | 20 | .192 | 23 | 2.049e-03 | 23 | NC | 1 | NC | 1 |
| 502 | | | min | -.04 | 19 | -.086 | 26 | -.196 | 5 | -2.15e-03 | 5 | NC | 1 | NC | 1 |
| 503 | | 2 | max | .074 | 13 | .004 | 20 | .172 | 23 | 2.049e-03 | 23 | NC | 1 | NC | 1 |
| 504 | | | min | -.04 | 19 | -.091 | 26 | -.176 | 5 | -2.15e-03 | 5 | NC | 1 | NC | 1 |
| 505 | | 3 | max | .074 | 13 | .007 | 20 | .152 | 23 | 2.049e-03 | 23 | NC | 1 | NC | 1 |
| 506 | | | min | -.04 | 19 | -.096 | 26 | -.156 | 5 | -2.15e-03 | 5 | NC | 1 | NC | 1 |
| 507 | | 4 | max | .074 | 13 | .01 | 20 | .132 | 23 | 2.049e-03 | 23 | NC | 1 | NC | 1 |
| 508 | | | min | -.04 | 19 | -.101 | 26 | -.136 | 5 | -2.15e-03 | 5 | NC | 1 | NC | 1 |
| 509 | | 5 | max | .074 | 13 | .014 | 20 | .112 | 23 | 2.049e-03 | 23 | NC | 1 | NC | 1 |
| 510 | | | min | -.04 | 19 | -.106 | 26 | -.116 | 5 | -2.15e-03 | 5 | NC | 1 | NC | 1 |
| 511 | M61 | 1 | max | .09 | 2 | 0 | 20 | .204 | 23 | 1.085e-03 | 23 | NC | 1 | NC | 1 |
| 512 | | | min | -.051 | 20 | -.086 | 26 | -.206 | 5 | -1.123e-03 | 5 | NC | 1 | NC | 1 |

## *Envelope Member Section Deflections (Continued)*

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 513 | | 2 | max | .09 | 2 | .004 | 20 | .195 | 23 | 1.085e-03 | 23 | NC | 1 | NC | 1 |
| 514 | | | min | -.051 | 20 | -.088 | 26 | -.197 | 5 | -1.123e-03 | 5 | NC | 1 | NC | 1 |
| 515 | | 3 | max | .09 | 2 | .007 | 20 | .186 | 23 | 1.085e-03 | 23 | NC | 1 | NC | 1 |
| 516 | | | min | -.051 | 20 | -.089 | 26 | -.188 | 5 | -1.123e-03 | 5 | NC | 1 | NC | 1 |
| 517 | | 4 | max | .09 | 2 | .01 | 20 | .177 | 23 | 1.085e-03 | 23 | NC | 1 | NC | 1 |
| 518 | | | min | -.051 | 20 | -.091 | 26 | -.178 | 5 | -1.123e-03 | 5 | NC | 1 | NC | 1 |
| 519 | | 5 | max | .09 | 2 | .013 | 20 | .168 | 23 | 1.085e-03 | 23 | NC | 1 | NC | 1 |
| 520 | | | min | -.051 | 20 | -.093 | 26 | -.169 | 5 | -1.123e-03 | 5 | NC | 1 | NC | 1 |
| 521 | M70 | 1 | max | .075 | 22 | 0 | 20 | .034 | 21 | 3.688e-04 | 16 | NC | 1 | NC | 1 |
| 522 | | | min | -.088 | 4 | -.1 | 26 | -.046 | 3 | -6.89e-04 | 10 | NC | 1 | NC | 1 |
| 523 | | 2 | max | .075 | 22 | 0 | 20 | .031 | 21 | 3.688e-04 | 16 | NC | 1 | NC | 1 |
| 524 | | | min | -.088 | 4 | -.1 | 26 | -.043 | 3 | -6.89e-04 | 10 | NC | 1 | NC | 1 |
| 525 | | 3 | max | .075 | 22 | 0 | 20 | .028 | 21 | 3.688e-04 | 16 | NC | 1 | NC | 1 |
| 526 | | | min | -.088 | 4 | -.1 | 26 | -.039 | 3 | -6.89e-04 | 10 | NC | 1 | NC | 1 |
| 527 | | 4 | max | .075 | 22 | .001 | 20 | .025 | 21 | 3.688e-04 | 16 | NC | 1 | NC | 1 |
| 528 | | | min | -.088 | 4 | -.099 | 26 | -.036 | 3 | -6.89e-04 | 10 | NC | 1 | NC | 1 |
| 529 | | 5 | max | .075 | 22 | .001 | 20 | .021 | 21 | 3.688e-04 | 16 | NC | 1 | NC | 1 |
| 530 | | | min | -.088 | 4 | -.099 | 26 | -.033 | 3 | -6.89e-04 | 10 | NC | 1 | NC | 1 |
| 531 | M71 | 1 | max | .078 | 10 | 0 | 20 | .047 | 10 | 2.256e-04 | 17 | NC | 1 | NC | 1 |
| 532 | | | min | -.076 | 16 | -.1 | 26 | -.046 | 16 | -6.05e-04 | 35 | NC | 1 | NC | 1 |
| 533 | | 2 | max | .078 | 10 | 0 | 20 | .043 | 10 | 2.256e-04 | 17 | NC | 1 | NC | 1 |
| 534 | | | min | -.076 | 16 | -.1 | 26 | -.042 | 16 | -6.05e-04 | 35 | NC | 1 | NC | 1 |
| 535 | | 3 | max | .078 | 10 | 0 | 20 | .039 | 10 | 2.256e-04 | 17 | NC | 1 | NC | 1 |
| 536 | | | min | -.076 | 16 | -.099 | 26 | -.037 | 16 | -6.05e-04 | 35 | NC | 1 | NC | 1 |
| 537 | | 4 | max | .078 | 10 | 0 | 20 | .036 | 9 | 2.256e-04 | 17 | NC | 1 | NC | 1 |
| 538 | | | min | -.076 | 16 | -.099 | 26 | -.034 | 15 | -6.05e-04 | 35 | NC | 1 | NC | 1 |
| 539 | | 5 | max | .078 | 10 | 0 | 20 | .032 | 9 | 2.256e-04 | 17 | NC | 1 | NC | 1 |
| 540 | | | min | -.076 | 16 | -.099 | 26 | -.031 | 15 | -6.05e-04 | 35 | NC | 1 | NC | 1 |
| 541 | M72 | 1 | max | .1 | 26 | .031 | 5 | .092 | 4 | 8.929e-03 | 4 | NC | 1 | NC | 1 |
| 542 | | | min | 0 | 20 | -.031 | 23 | -.072 | 22 | -8.635e-03 | 23 | 8199.14 | 50 | 1194.61 | 32 |
| 543 | | 2 | max | .1 | 26 | .032 | 5 | .097 | 4 | 8.722e-03 | 4 | NC | 1 | NC | 1 |
| 544 | | | min | 0 | 20 | -.031 | 23 | -.082 | 22 | -8.394e-03 | 22 | NC | 1 | 1536.067 | 32 |
| 545 | | 3 | max | .1 | 26 | .032 | 5 | .095 | 4 | 8.297e-03 | 4 | NC | 1 | NC | 1 |
| 546 | | | min | 0 | 20 | -.031 | 23 | -.087 | 22 | -8.064e-03 | 22 | 7454.666 | 4 | 2347.507 | 35 |
| 547 | | 4 | max | .1 | 26 | .026 | 17 | .089 | 4 | 8.255e-03 | 4 | NC | 1 | NC | 1 |
| 548 | | | min | 0 | 20 | -.026 | 11 | -.088 | 22 | -8.094e-03 | 22 | NC | 1 | 1499.153 | 35 |
| 549 | | 5 | max | .1 | 26 | .02 | 17 | .084 | 16 | 8.279e-03 | 5 | NC | 1 | NC | 1 |
| 550 | | | min | 0 | 20 | -.02 | 11 | -.09 | 10 | -8.239e-03 | 23 | NC | 1 | 1157.515 | 35 |
| 551 | M73 | 1 | max | .083 | 22 | -.003 | 20 | .143 | 22 | -3.894e-06 | 18 | NC | 1 | NC | 1 |
| 552 | | | min | -.089 | 4 | -.113 | 26 | -.152 | 4 | -6.682e-04 | 36 | NC | 1 | NC | 1 |
| 553 | | 2 | max | .083 | 22 | -.002 | 20 | .118 | 22 | -3.894e-06 | 18 | NC | 1 | NC | 1 |
| 554 | | | min | -.089 | 4 | -.11 | 26 | -.125 | 4 | -6.682e-04 | 36 | NC | 1 | NC | 1 |
| 555 | | 3 | max | .083 | 22 | -.001 | 20 | .092 | 22 | -3.894e-06 | 18 | NC | 1 | NC | 1 |
| 556 | | | min | -.089 | 4 | -.107 | 26 | -.099 | 4 | -6.682e-04 | 36 | NC | 1 | NC | 1 |
| 557 | | 4 | max | .083 | 22 | 0 | 20 | .066 | 22 | -3.894e-06 | 18 | NC | 1 | NC | 1 |
| 558 | | | min | -.089 | 4 | -.103 | 26 | -.073 | 4 | -6.682e-04 | 36 | NC | 1 | NC | 1 |
| 559 | | 5 | max | .083 | 22 | 0 | 20 | .041 | 21 | -3.894e-06 | 18 | NC | 1 | NC | 1 |
| 560 | | | min | -.089 | 4 | -.1 | 26 | -.047 | 3 | -6.682e-04 | 36 | NC | 1 | NC | 1 |
| 561 | M74 | 1 | max | .067 | 17 | 0 | 20 | .039 | 12 | 6.353e-04 | 5 | NC | 1 | NC | 1 |
| 562 | | | min | -.079 | 11 | -.099 | 26 | -.028 | 18 | -2.479e-04 | 23 | NC | 1 | NC | 1 |
| 563 | | 2 | max | .067 | 17 | 0 | 20 | .035 | 12 | 6.353e-04 | 5 | NC | 1 | NC | 1 |
| 564 | | | min | -.079 | 11 | -.099 | 26 | -.024 | 18 | -2.479e-04 | 23 | NC | 1 | NC | 1 |
| 565 | | 3 | max | .067 | 17 | 0 | 20 | .031 | 12 | 6.353e-04 | 5 | NC | 1 | NC | 1 |
| 566 | | | min | -.079 | 11 | -.099 | 26 | -.021 | 18 | -2.479e-04 | 23 | NC | 1 | NC | 1 |
| 567 | | 4 | max | .067 | 17 | 0 | 20 | .029 | 13 | 6.353e-04 | 5 | NC | 1 | NC | 1 |
| 568 | | | min | -.079 | 11 | -.098 | 26 | -.018 | 19 | -2.479e-04 | 23 | NC | 1 | NC | 1 |
| 569 | | 5 | max | .067 | 17 | 0 | 20 | .027 | 13 | 6.353e-04 | 5 | NC | 1 | NC | 1 |

## Envelope Member Section Deflections (Continued)

| | Member | Sec | | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y Ratio | LC | (n) L/z Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 570 | | | min | -.079 | 11 | -.098 | 26 | -.016 | 19 | -2.479e-04 | 23 | NC | 1 | NC | 1 |
| 571 | M75 | 1 | max | .071 | 5 | 0 | 20 | .036 | 24 | 6.753e-04 | 28 | NC | 1 | NC | 1 |
| 572 | | | min | -.068 | 23 | -.099 | 26 | -.039 | 6 | -2.237e-04 | 22 | NC | 1 | NC | 1 |
| 573 | | 2 | max | .071 | 5 | 0 | 20 | .033 | 24 | 6.753e-04 | 28 | NC | 1 | NC | 1 |
| 574 | | | min | -.068 | 23 | -.099 | 26 | -.035 | 6 | -2.237e-04 | 22 | NC | 1 | NC | 1 |
| 575 | | 3 | max | .071 | 5 | 0 | 20 | .029 | 24 | 6.753e-04 | 28 | NC | 1 | NC | 1 |
| 576 | | | min | -.068 | 23 | -.098 | 26 | -.032 | 6 | -2.237e-04 | 22 | NC | 1 | NC | 1 |
| 577 | | 4 | max | .071 | 5 | 0 | 20 | .026 | 24 | 6.753e-04 | 28 | NC | 1 | NC | 1 |
| 578 | | | min | -.068 | 23 | -.098 | 26 | -.028 | 6 | -2.237e-04 | 22 | NC | 1 | NC | 1 |
| 579 | | 5 | max | .071 | 5 | 0 | 20 | .022 | 24 | 6.753e-04 | 28 | NC | 1 | NC | 1 |
| 580 | | | min | -.068 | 23 | -.098 | 26 | -.025 | 6 | -2.237e-04 | 22 | NC | 1 | NC | 1 |
| 581 | M76 | 1 | max | .099 | 26 | .031 | 17 | .079 | 12 | 8.746e-03 | 17 | NC | 1 | NC | 1 |
| 582 | | | min | 0 | 20 | -.031 | 11 | -.06 | 17 | -8.891e-03 | 11 | NC | 1 | 1221.501 | 31 |
| 583 | | 2 | max | .099 | 26 | .03 | 17 | .082 | 12 | 8.489e-03 | 17 | NC | 1 | NC | 1 |
| 584 | | | min | 0 | 20 | -.031 | 11 | -.068 | 18 | -8.601e-03 | 11 | NC | 1 | 1599.275 | 31 |
| 585 | | 3 | max | .099 | 26 | .03 | 17 | .079 | 12 | 7.964e-03 | 17 | NC | 1 | NC | 1 |
| 586 | | | min | 0 | 20 | -.03 | 11 | -.072 | 17 | -8.007e-03 | 11 | 9916.891 | 5 | 2374.087 | 29 |
| 587 | | 4 | max | .099 | 26 | .026 | 5 | .075 | 23 | 8.208e-03 | 5 | NC | 1 | NC | 1 |
| 588 | | | min | 0 | 20 | -.026 | 23 | -.075 | 5 | -8.195e-03 | 23 | NC | 1 | 1540.264 | 29 |
| 589 | | 5 | max | .099 | 26 | .02 | 17 | .072 | 23 | 8.331e-03 | 5 | NC | 1 | NC | 1 |
| 590 | | | min | 0 | 20 | -.02 | 11 | -.079 | 5 | -8.29e-03 | 23 | NC | 1 | 1171.814 | 29 |
| 591 | M77 | 1 | max | .073 | 17 | -.002 | 20 | .136 | 11 | 6.337e-04 | 27 | NC | 1 | NC | 1 |
| 592 | | | min | -.077 | 11 | -.111 | 26 | -.131 | 17 | -9.17e-05 | 21 | NC | 1 | NC | 1 |
| 593 | | 2 | max | .073 | 17 | -.002 | 20 | .111 | 11 | 6.337e-04 | 27 | NC | 1 | NC | 1 |
| 594 | | | min | -.077 | 11 | -.108 | 26 | -.106 | 17 | -9.17e-05 | 21 | NC | 1 | NC | 1 |
| 595 | | 3 | max | .073 | 17 | -.001 | 20 | .085 | 11 | 6.337e-04 | 27 | NC | 1 | NC | 1 |
| 596 | | | min | -.077 | 11 | -.105 | 26 | -.081 | 17 | -9.17e-05 | 21 | NC | 1 | NC | 1 |
| 597 | | 4 | max | .073 | 17 | 0 | 20 | .06 | 11 | 6.337e-04 | 27 | NC | 1 | NC | 1 |
| 598 | | | min | -.077 | 11 | -.102 | 26 | -.055 | 17 | -9.17e-05 | 21 | NC | 1 | NC | 1 |
| 599 | | 5 | max | .073 | 17 | 0 | 20 | .038 | 12 | 6.337e-04 | 27 | NC | 1 | NC | 1 |
| 600 | | | min | -.077 | 11 | -.099 | 26 | -.033 | 18 | -9.17e-05 | 21 | NC | 1 | NC | 1 |

## Envelope AISC 14th(360-10): LRFD Steel Code Checks

| | Member | Shape | Code Check | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | phi*Pnc... | phi*Pnt ... | phi*Mn ... | phi*Mn ... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M15 | L3x2x4 | .680 | .771 | 10 | .106 | .771 | z | 9 | 35.286 | 38.88 | .826 | 2.489 | 1... | H2-1 |
| 2 | M12 | L3x2x4 | .654 | .771 | 3 | .121 | .771 | z | 3 | 35.286 | 38.88 | .826 | 2.453 | 1... | H2-1 |
| 3 | M13 | L3x2x4 | .600 | 1.093 | 4 | .115 | 1.093 | z | 5 | 37.029 | 38.88 | .826 | 2.489 | 1... | H2-1 |
| 4 | M11 | L3x2x4 | .527 | 0 | 12 | .115 | 0 | z | 11 | 37.029 | 38.88 | .826 | 2.489 | 1... | H2-1 |
| 5 | M8 | PIPE_2.5 | .400 | 3.427 | 4 | .408 | 3.917 | | 5 | 44.732 | 50.715 | 3.596 | 3.596 | 3... | H3-6 |
| 6 | M17 | L2.5x2.5x3 | .369 | 3.809 | 4 | .061 | 3.809 | y | 3 | 17.176 | 29.192 | .873 | 1.784 | 1... | H2-1 |
| 7 | M16 | L3x2x4 | .362 | 0 | 9 | .065 | .251 | z | 9 | 37.029 | 38.88 | .826 | 2.489 | 1... | H2-1 |
| 8 | M14 | L3x2x4 | .326 | 1.093 | 6 | .065 | 1.093 | z | 13 | 37.029 | 38.88 | .826 | 2.489 | 1... | H2-1 |
| 9 | M9 | 1/2"x6" | .313 | 0 | 27 | .019 | .625 | y | 11 | 84.321 | 97.2 | 1.012 | 12.15 | 1... | H1-1b |
| 10 | M37 | PIPE_2.0 | .312 | 1.24 | 3 | .175 | .292 | | 27 | 26.521 | 32.13 | 1.872 | 1.872 | 1 | H1-1b |
| 11 | M18 | L2.5x2.5x3 | .303 | 1.066 | 8 | .053 | 1.066 | z | 9 | 17.176 | 29.192 | .873 | 1.97 | 2... | H2-1 |
| 12 | M28 | 3/8x6 | .272 | .25 | 5 | .060 | .25 | y | 5 | 69.866 | 72.9 | .57 | 9.113 | 1... | H1-1b |
| 13 | M45 | PIPE_2.0 | .263 | 6.5 | 32 | .213 | 6.5 | | 3 | 14.916 | 32.13 | 1.872 | 1.872 | 2.5 | H1-1b |
| 14 | M5 | PIPE_2.0 | .245 | 6.5 | 32 | .179 | 5.75 | | 12 | 14.916 | 32.13 | 1.872 | 1.872 | 2... | H1-1b |
| 15 | M29 | 3/8x6 | .237 | 0 | 4 | .025 | .25 | y | 11 | 69.866 | 72.9 | .57 | 9.113 | 1... | H1-1b |
| 16 | M10 | 1/2"x6" | .236 | 0 | 29 | .045 | .625 | y | 5 | 84.321 | 97.2 | 1.012 | 12.15 | 1... | H1-1b |
| 17 | M56 | PIPE_2.0 | .177 | 2.917 | 11 | .117 | 2.917 | | 11 | 26.521 | 32.13 | 1.872 | 1.872 | 2... | H1-1b |
| 18 | M54A | PIPE_2.0 | .171 | 6.5 | 11 | .122 | 5.75 | | 11 | 14.916 | 32.13 | 1.872 | 1.872 | 2... | H1-1b |
| 19 | M21 | PIPE_2.0 | .142 | 2.917 | 4 | .120 | 2.917 | | 3 | 26.521 | 32.13 | 1.872 | 1.872 | 1... | H1-1b |
| 20 | M48 | PIPE_2.0 | .135 | 2.917 | 11 | .128 | 0 | | 8 | 26.521 | 32.13 | 1.872 | 1.872 | 1... | H1-1b |
| 21 | M41 | L2.5x2.5x3 | .134 | 2.069 | 3 | .006 | 4.139 | z | 3 | 16.566 | 29.192 | .873 | 1.738 | 1... | H2-1 |

## *Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)*

| | Member | Shape | Code Check | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | phi*Pnc... | phi*Pnt ... | phi*Mn ... | phi*Mn ... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | M39 | L2.5x2.5x3 | .123 | 2.069 | 13 | .006 | 4.139 | y | 25 | 16.566 | 29.192 | .873 | 1.738 | 1... | H2-1 |
| 23 | M45A | L2.5x2.5x3 | .098 | 2.114 | 35 | .006 | 4.228 | z | 16 | 16.172 | 29.192 | .873 | 1.729 | 1... | H2-1 |
| 24 | M43 | L2.5x2.5x3 | .095 | 2.114 | 29 | .006 | 4.228 | y | 12 | 16.172 | 29.192 | .873 | 1.729 | 1... | H2-1 |
| 25 | M2 | L2x2x3 | .094 | 2.917 | 5 | .004 | 0 | z | 29 | 15.276 | 23.393 | .558 | 1.239 | 2... | H2-1 |
| 26 | M1 | L2x2x3 | .088 | 2.917 | 11 | .006 | 0 | y | 50 | 15.276 | 23.393 | .558 | 1.239 | 2... | H2-1 |
| 27 | M72 | PIPE_2.0 | .070 | 1.958 | 3 | .062 | .53 | | 6 | 26.732 | 32.13 | 1.872 | 1.872 | 1... | H1-1b |
| 28 | M76 | PIPE_2.0 | .057 | 1.958 | 12 | .047 | .53 | | 10 | 26.732 | 32.13 | 1.872 | 1.872 | 1... | H1-1b |