**Leon County Research and Development Authority**
**Development Review Committee**
Collins Building
2051 East Paul Dirac Drive
Tallahassee, FL 32310

September 12, 2023
9:00am to 10:00am

Wi-Fi: INVP – Guest
Innovate2051

## Agenda

*Anyone wishing to submit written comments may do so by 9:00am the day before the scheduled meeting date so that the comments can be distributed to the Committee. Comments submitted after this time (up to the time of the meeting) will be accepted and included in the official record of the meeting. Email comments to: publicinput@inn-park.com and reference the meeting title and date in the subject line. Include your name and contact information. All times are approximate.*

1. Call to Order

2. Introductions

3. Approval of Participation by Electronic Means
   *In accordance with the Bylaws, there being a quorum of members present in person, the members of the Committee present in person are required to approve participation by those participating via Electronic Means acknowledging that the absence is due to extraordinary circumstances.*

4. Modifications to the Agenda

5. Public Comment
   *Any public comment received prior to the meeting will be provided to the Committee members in addition to any in-person public comment.*

6. Approval of Draft Meeting Minutes, July 11, 2023 *(Attachment A)*

7. Florida Department of Transportation Structures Research Center Proposed Vehicle Shelter
   *DOT requests approval of a vehicle structure to be located at 2007 East Paul Dirac Drive, behind the Phipps Building. (Attachments B-F)*

9. New Business

10. Adjourn

**Leon County Research and Development Authority**
**Development Review Committee**

Collins Building
2051 East Paul Dirac Drive
Tallahassee, FL 32310

July 11, 2023
9:00am to 10:00am

**DRAFT Minutes**

**Members in Attendance:** Chair Michael Kramer, Dylan Haase, Ben Hood, Brad Richardson, Kimberly Strobel-Ball.

**Members Not in Attendance:** None.

**Guests:** Doug McLeod, Signs by Design of North Florida; Chris Neal, Danfoss; Bryce Hill, Sperry & Associates Construction; Peggy Bielby, LCRDA staff.

1. **Call to Order**
   Michael Kramer called the meeting to order at 9:01am.

2. **Introductions**
   All present introduced themselves.

3. **Approval of Participation by Electronic Means**
   As all committee members were present in person no approval was needed.

4. **Modifications to the Agenda**
   None.

5. **Public Comment**
   None.

6. **Approval of Draft Meeting Minutes, June 13, 2023**
   *Dylan Haase offered a motion to approve the draft minutes. Brad Richardson seconded the motion which passed unanimously.*

7. **Innovation Park Building Sign Specifications, Declarations of Covenants and Restrictions**
   The committee reviewed requirements of the sign specifications and covenants and restrictions.

8. **Danfoss Proposed Monument Sign**
   Danfoss representatives reviewed the request for a variance for two new signs to be located at the Roberts Road entrance and the West Paul Dirac Drive entrance of the new Danfoss building currently under construction at 1737 West Paul Dirac Drive. They explained that the Danfoss detailed branding requirements dictate the sign design, and acknowledged the signs do not meet any of the current sign specifications and that denial of the variance would not cause any undue financial hardship to Danfoss.

After discussion it was unanimously agreed by the committee that it would recommend for the Board of Governors to deny that variance request as proposed.
*Ben Hood offered a motion to recommend denial. Brad Richardson seconded the motion which passed unanimously.*

**9. New Business**
None.

**10. Adjourn**
The meeting was adjourned at 9:44am.

**LCRDA Board of Governors Meeting**
Collins Building Seminar Room
Thursday, August 3, 2023
11:00am – 1:00pm

FDOT

Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

August 24, 2023

Mr. Michael Kramer
Executive Director
Leon County R & D Authority
Innovation Park
1736 Paul Dirac Drive
Tallahassee, FL 32310

RE: Truck Shelter
Phipps Building
1736 West Paul
Tallahassee, FL 32310

Dear Mr. Kramer,

We are herein submitting our site plan for an application for approval of the installation of the truck shelter for FDOT. This is a 50'W x 60'L x 23'H fabric structure manufactured by Big Top Manufacturing Inc. needed to protect and shield trucks that carry materials for testing purposes integral for the structural bridge research lab. The structure is largely screened by the gate and surrounding trees, faces a rear parking lot and is partially visible over the fence line. The translucent fabric has a UPF rating of 2,000 and blocks 99.95% of harmful UV-A and UV-B radiation deflecting heat gain and allowing longevity of the vehicles. The structure uses heavy duty PVC-vinyl fabric that is flame retardant and rip resistant anchored to the ground using 40" spiral anchors and galvanized steel that meets Florida Building Code requirements. Permission is needed to trim existing vegetation to maintain the rear egress into the adjacent parking lot.

The building will be 26' off the rear set-back as shown in *figure A* on the site plan. A similar example that was 50'W x 72'L x 23'H that was installed in the same Jurisdiction of Authority (JOA) for the Department of Emergency Management which was approved for use in Tallahassee in 2021 is attached.

Pending manufacture and receipt of the structure, it will take two weeks to install. Please let us know if we need to meet to review plans or if we can answer any questions.

Sincerely,

Scott Cannard, AIA, NCARB
Senior Architect
Florida Department of Transportation

## Project Description

A 50W x 60L x23H fabric structure manufactured by Big Top needed to protect and shield trucks that carry materials for testing purposes integral for the structural bridge research. The structure is largely screened by the gate and surrounding trees, faces a rear parking lot and is partially visible over the fence line. The translucent fabric has a UPF rating of 2,000 and blocks 99.95% of harmful UV-A and UV-B radiation deflecting heat gain and allowing longevity of the vehicles. The structure uses heavy duty PVC-vinyl fabric that is flame retardant and rip resistant anchored to the ground using 40" spiral anchors and galvanized steel that meets Florida Building Code requirements. Permission is needed to trim existing vegetation to maintain the rear egress into the adjacent parking lot.

## Vegetation

Permission is needed to trim existing vegetation to maintain the rear egress into the adjacent parking lot.

Current (Google Earth 2023) below:

Before (Google Earth 2009) below:

## Picture of Mag Lab Rods

**RESOLUTION**

WHEREAS, the Leon County Research and Development Authority (Authority) is a local governmental body created and existing pursuant to Florida Statutes, which has acquired by long term lease from the State of Florida certain lands for development as Innovation Park, a research and development park; and

WHEREAS, the Authority has adopted a Declaration of Protective Covenants and Restrictions which creates a development review committee to review and approve all plans for construction or alteration of any building or other improvements in Innovation Park; and

WHEREAS, the City of Tallahassee's Land Use Administrator has historically been a member of the Authority's Development Review Committee and the Authority wishes to memorialize this position; and

WHEREAS, the City of Tallahassee has approved Innovation Park's planned unit development with conditions acceptable to the Authority regarding the scope of review by the LCRDA Development Review Committee;

BE IT RESOLVED:

1. The LCRDA Development Review Committee shall have, as one of its voting members, the Tallahassee-Leon County Planning Department's land use administrator or other person designated by the Planning Department Director.

2. The LCRDA Development Review Committee's review of a proposed project shall incorporate the elements of Site Plan A Review listed in the attached City of Tallahassee/Innovation Park

Site Plan Review Completeness Determination Checklist, incorporated by reference into this Resolution.

3. If the Planning Department's designee is not satisfied that the LCRDA Development Review Committee has adequately reviewed an aspect of a project application which is part of the Site Plan A requirements incorporated by reference, the Planning Department designee may request and the LCRDA shall require the application for an Innovation Park development project to be submitted to the City of Tallahassee, Growth Management Department for Site Plan A Review.

Resolved this 16th day of June, 1993, by the Leon County Research and Development Authority.

By: Robert M. Johnson
DR. ROBERT M. JOHNSON, Chairman
LEON COUNTY RESEARCH AND DEVELOPMENT AUTHORITY

# CITY OF TALLAHASSEE/INNOVATION PARK
# SITE PLAN REVIEW
# COMPLETENESS DETERMINATION CHECKLIST

---

In order for an application to be eligible for review, the following materials must be submitted to the Innovation Park/Tallahassee Development Review Committee. Five copies are required for this review.

| APPLICANT VERIFICATION | STAFF VERIFICATION | | |
|---|---|---|---|
| | | 1. | The applicant shall submit to the Innovation Park/Tallahassee Development Review Committee a detailed statement of objectives indicating: |
| X | | | a. The general purpose of the development |
| X | | | b. The type and square footage of non-residential development including floor area ratios, pervious and impervious surface areas, and other standards as may be required. |
| X | | 2. | A site conditions map drawn to an appropriate engineer's scale sufficient to show and to depict the location of existing property lines for both private and public property (boundary survey), existing contours shown at a contour interval of two (2) feet, streets, buildings, watercourses, transmission lines, sewers, culverts, and drain pipes, water mains, public utility easements, wooded area, streams, lakes, marshes, and any other physical conditions on the site. |
| | | 3. | A site plan shall be drawn to an appropriate engineer's scale showing: |
| NA | | | a. The proposed grading plan. |
| X | | | b. All rights-of-way and easements showing points of reference. |
| X | | | c. All proposed buildings and other structures. |

Prepared: February 1, 1993
Revised:

NA

NA

NA

NA

x

x

NA

NA

NA

NA

x

NA

NA

NA

NA

d. The location of phase lines indicating all applicable construction phases if applicable.
e. The off-street parking and loading plan.
f. A circulation diagram showing vehicular and pedestrian movements including any special engineering features and traffic regulation devices.
g. Provisions for the control of signs including size, shape and appearance.

4. A utility service plan showing:
   a. Existing drainage and sewer lines.
   b. The disposition and/or retention of sanitary waste and storm water.

5. A landscaping plan showing:
   a. Landscaped areas.
   b. All specimen trees or groups of trees thirty-six (36) inches in diameter or larger, indicating those to be retained, removed, or relocated.
   c. The location, height, and material for walks, fences, walkways, and other man-made landscape features.
   d. Any special landscape features including but not limited to, man-made lakes, land sculptures and waterfalls.

6. Statistical information including:
   a. Total acreage of the site.
   b. Maximum building coverage expressed as a percentage of the total site area.
   c. The area of land devoted to rights-of-way, transportation easements, parking and other transportation facilities expressed as a percentage of the total site area.
   d. The area of land devoted to undisturbed open space expressed as a percentage of the total site area.
   e. The calculated density/intensity for the project and impervious percentage.

| | | |
|---|---|---|
| TBD < 2 weeks on site | | 7. Development schedule showing order of construction, proposed date for the beginning of construction and completion of the project as a whole and any phases thereof. |
| x | | 8. This completed checklist. |
| x | | 9. Other relevant information which is deemed to be appropriate by the Innovation Park/Tallahassee Development Review Committee to ensure consideration of all relevant issues. |

If the Innovation Park/Tallahassee Development Review Committee refers the project to the City of Tallahassee the following will be required:

| | | |
|---|---|---|
| | | 10. Completed application for Site Plan Review - Type A. |
| | | 11. Application fee. |

---

*Note: All of the items listed above must be submitted at time of application, unless the Development Review Committee Chairman waives a specific item.*

Prepared: February 1, 1993
Revised:

PSE CONSULTING ENGINEERS INC.

# STRUCTURAL ENGINEERING CALCULATIONS

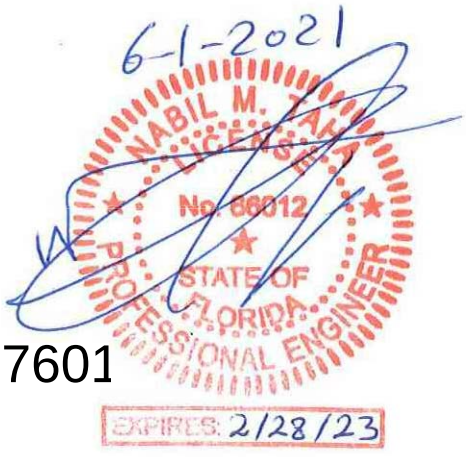
PROJECT: 50 x 72 x 23 Department Emergency Management

PROJECT LOCATION: 3266 Capital Cir SW, Tallahassee, FL 32310

PSE PROJECT NUMBER: Big Top 221-80

DATE: 05/27/21

BY: Nabil Taha, Ph.D., P.E.
Address: 250 Main Street
Klamath Falls, OR 97601
Florida License No: #66012
Company License No: #33311



## A. GENERAL REQUIREMENT:

1. Furnish all labor, materials, and equipment necessary to complete the work shown or inferred by these drawings.
2. Where construction details are not shown or noted for any part of the work, such details shall be the same as for similar work shown on the drawings.
3. Notes and details on the drawings take precedence over the general notes and typical details in case of conflict.
4. Locate and protect underground or concealed conduit, plumbing or other utilities where new work is being performed.
5. The contract drawings and specifications represent the finished structure and do not indicate methods, procedures or sequence of construction. The contractor shall take necessary precautions to maintain and insure the integrity of the new and any existing structures during construction. The design stresses shall not be exceeded during construction based on the age of each element. Neither the owner nor Architect/Engineer will enforce safety measure regulations. Installation Contractor shall design, construct and maintain all safety devices, including shoring and bracing for the new and any existing structures and shall be solely responsible for conforming to all local, state and federal safety and health standards, laws and regulations.
6. Obtain prior written approval for any changes to the drawings.
7. The contractor shall review and compare the structural drawings with all other Construction Documents, such as Architectural, Mechanical and Electrical drawings, specifications, etc. Do not scale drawings. The contractor shall verify dimensions, elevations and all information. Report, in writing, any inconsistencies, errors, or omissions to the Architect/Engineer of record before proceeding with the work.
8. All existing constructions are shown schematic only. Installation Contractor is responsible to verify actual conditions and allow for them in his bid. Notify the Architect/Engineer, in writing, in case of any discrepancy between actual conditions and what is shown on the structural drawings before proceeding with the work.
9. See Architectural, Mechanical, Electrical and other drawings for embedded items.
10. All communication shall be in writing. No verbal communications, decisions, instructions or approvals shall be valid.
11. Adequate drainage path must be provided to drain water away from the perimeter of the building.

PSE Consulting Engineers, Inc.
www.structure1.com
Klamath Falls Office
250 Main
Klamath Falls, Oregon
97603
Phone: (541) 850-6300
Fax: (541) 850-6233
info@structure1.com

## B. CODE AND LOADS:

1. All material and construction work for this project shall conform to 2020 Florida Building Code per 2018 International Building Code (IBC 2018) along with local amendments by the Authority Having Jurisdiction. The International Building Code Parameters are:
   a. Roof Dead Load = 1 PSF
   b. Ground Snow Load = 0 PSF
   c. Roof Snow Load = 0 PSF (FLAT)
   d. Roof Live Load = 5 PSF (Governs)
   e. Seismic Occupancy Category = II
   f. R, Response Modification Coefficient = 3.0
   g. Ultimate Wind Speed, V3g = 110 mph, Exposure = C, Category II

Seismic Parameters:
a. Ss = 0.072
b. S1 = 0.05
C. Sds = 0.102
d. Sd1 = 0.085
c. SDC = B

## C. HOT-ROLLED STEEL:

1. Tube Frames shall be manufactured from steel with the following properties:
   a. Yield strength: 50,000 psi (rectangular); 55,000 psi (round)
   b. Tensile Strength: 55,000 psi (rectangular); 60,000 psi (round)

## D. FOUNDATION DESIGN:

1. Foundation design/check to support the new truss reactions/loads was not included in the scope of service.
2. Any foundation shown on this drawings, if any, are approximate and need to be checked/adjusted to the local site conditions and local soil properties by a licensed Engineer hired by the Contractor/Builder or Owner of this shelter.
3. For soil anchors applications, see page S-0A for additional requirements.

6-1-2021
NABIL M. [illegible]
LICENSE
No. 86012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

BIG TOP MANUFACTURING
BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

CUSTOMER: DEM
SIZE: 50 x 72 x 23
LOCATION: Tallahassee, FL
CUSTOMER CONTACT:
SALES: DH
DRAWN BY: Mo
DATE DRAWN: 5/27/21
APPROVED BY:

NOTES:
FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

DRAWING TYPE: ENGINEERING
PAGE: S-0

## D. FOUNDATION DESIGN CONTINUED:

4. For soil anchor applications, as an alternative to item 2 on sheet S-0, the following approximate method could be used.
   a. Number of soil anchors shown on the plans assumed that the soil anchor's ultimate capacity is 2500 lbs minimum, which shall be verified by site test results.
   b. Pull out strength varies based on the local soil type and shall be verified by local soil tests at the site.
   c. The tables below should be used as a guide only and subject to results of anchor pull test at the site.
   d. Perform soil anchor tests to verify the above value for the soil type. A minimum of four tests shall be conducted to verify the assumed capacity above.
   e. Use an approved method to obtain the values for the site:
      (i) Dynamometer to obtain uplift by pulling out the anchors wilh a forklift
      (ii) Hydraulic Pump
   f. Pull out strength shall be measured at a maximum deflection/letup of 1/2 inch.
   g. The tests shall be performed by a third party approved testing agency. In absence of a third party approved testing agency, the tests shall be performed in the presence of at least two of the following representatives and the results thereafter shall be signed by them upon completion of the tests.
      (i) Big Top Manufacturing representative
      (ii) Customer representative
      (iii) Installation representative
   h. If the test results are less than the above value, do not Install the anchors and contact the Engineer of Record Immediately, both by telephone and In writing.
   I. If the test results are equal to or more than the above value, Install the soll anchors as shown on the plans.
   j. Results of the tests shall be submitted to both the Engineer of Record and to the General Manager of Big Top Manufacturing Inc.
   k. The Owner and/or the Installation Contractor shall assume all responsibilities for the accuracy of the test results when using this method.

PSE Consulting Engineers, Inc.
www.structure1.com
Klamath Falls Office
250 Main
Klamath Falls, Oregon
97603
Phone: (541) 850-6300
Fax: (541) 850-6233
info@structure1.com

# Soil Anchor Installation Guideline

| Soil Type | Anchor Capacity (lbs) |
|---|---|
| Soft/Medium Sandy | 600 |
| Medium/Sandy Grass Top | 1000 |
| Medium/Sandy Soil Gray | 1200 |
| Medium/Sandy with Asphalt Top | 1800 |
| Medium Soild with Limerock and Asphalt | 2000 |
| Caliche | 2500 |
| Medium Dense Soil - Dry | 3000 |
| Medium Dense Soil with Asphalt Top | 3500 |
| Hard Clay | 5500 |
| Hard Clay with Aspalt Top | 6000 |

## 1 Soil Anchor Capacity Based on Soil Type

Scale: N.T.S.

| Time to Set Anchor (min) | Pull Out Strength (lbs) |
|---|---|
| <1 | 0 |
| 1-3 | 0 |
| 4-6 | 600-1100 |
| 7-9 | 1100-1800 |
| 10-15 | 1800-2500 |
| >15 | 2500-3500 |

## 2 Soil Anchor Capacity Based on Time to Set Anchor w/ 60lb Breaker

Scale: N.T.S.

| Time to Set Anchor (min) | Pull Out Strength (lbs) |
|---|---|
| <1 | 0 |
| 1-3 | 600-1100 |
| 4-6 | 1100-1800 |
| 7-9 | 1800-2500 |
| 10-15 | 2500-3500 |
| >15 | >3500 |

## 3 Soil Anchor Capacity Based on Time to Set Anchor w/ 90lb Breaker

Scale: N.T.S.

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

6-1-2021
NABIL M. TAMIM
LICENSE
No. 66012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

BIG TOP MANUFACTURING

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

CUSTOMER: DEM
SIZE: 50 x 72 x 23
LOCATION: Tallahassee, FL
CUSTOMER CONTACT:
SALES: DH
DRAWN BY: Mo
DATE DRAWN: 5/27/21
APPROVED BY:

NOTES:
FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

DRAWING TYPE: ENGINEERING
PAGE: S-0A

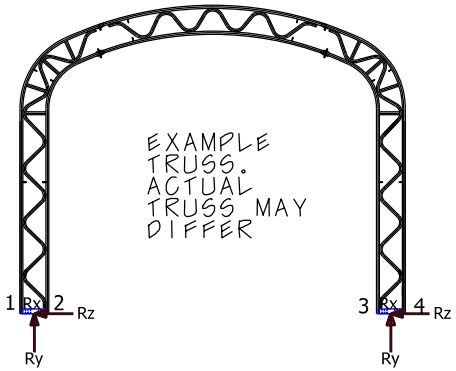
D. FOUNDATION DESIGN CONTINUED:

5. Foundation must meet the building reaction data shown below.

| *See notes below | | UNFACTORED BASE REACTIONS TO CONSIDER AT TYPICAL BASES | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Load Cases | | Side A, Joint 1 (1 as per RISA Model) | | | Side A, Joint 2 (2 as per RISA Model) | | | Side B, Joint 3 (3 as per RISA Model) | | | Side B, Joint 4 (4 as per RISA Model) | | |
| | | Rx (kip) | Ry (kip) | Rz (kip) | Rx (kip) | Ry (kip) | Rz (kip) | Rx (kip) | Ry (kip) | Rz (kip) | Rx (kip) | Ry (kip) | Rz (kip) |
| Dead Load, Self Weight | DL | 0 | 0.5 | -0.07 | 0 | 0.06 | -.07 | 0 | 0.06 | .07 | 0 | 0.49 | 0.07 |
| Snow Load/ Live Load | SL/RLL | 0 | 1.2 | -0.21 | 0 | 0.09 | -.22 | 0 | -.08 | .22 | 0 | 1.19 | .21 |
| Wind Load, Normal to Ridge, Case A | WLZ(+GCp) | 0 | -5.6 | 1.25 | 0 | 1.29 | 1.28 | 0 | -1.07 | -.17 | 0 | -2.51 | -.16 |
| Wind Load, Normal to Ridge, Case B | WLZ(-GCp) | 0 | -3.48 | 1.07 | 0 | .88 | 1.1 | 0 | -.14 | -.23 | 0 | -1.81 | -0.23 |
| *Wind Load, Along the Ridge, Case A | WLX(+GCp) | | | | | | | | | | | | |
| *Wind Load, Along the Ridge, Case B | WLX(-GCp) | | | | | | | | | | | | |

PSE Consulting Engineers, Inc.
www.structure1.com
Klamath Falls Office
250 Main
Klamath Falls, Oregon
97603
Phone: (541) 850-6300
Fax: (541) 850-6233
info@structure1.com

* Note on reactions:
a. All reactions are un-factored loads as per IBC 2018. Reactions should be combined as required by the load combinations from IBC or other applicable code.




Typical Reaction at Base for Intermediate Frame

1

Scale: N.T.S.

6-1-2021
NABIL M. TAMIM
LICENSE
No. 66012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

BIG TOP MANUFACTURING

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

CUSTOMER: DEM
SIZE: 50 x 72 x 23
LOCATION: Tallahassee, FL
CUSTOMER CONTACT:
SALES: DH
DRAWN BY: Mo
DATE DRAWN: 5/27/21
APPROVED BY:

NOTES:
FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

DRAWING TYPE: ENGINEERING
PAGE: S-0B

*ALL INFORMATION IS PROPERTY OF BIG TOP MANUFACTURING INC.

# E. WIND LOAD SAFETY RESTRICTIONS:

1. The Fabric cover for this structure must conform to the following 2020 Florida Building Code Section:

CH 31-(Special Construction) Section - 3105.4 Design:

3105.4.2.1 states that:

The wind design loads for any fabric or membrane-covered structure designed with a quick removal or breakaway membrane or fabric at wind velocities of 75 mph, shall be based on the following criteria:

1.) Minimum wind speed of 105 mph.

2.) Exposure category B, C, or D as defined in Ch 16.

2. For this building, the fabric shall be removed from the steel trusses before the 3-second gust wind speed exceeds 110 mph.

3. Naked trusses without the fabric shall be safe for wind speed of 170 mph.

PSE Consulting Engineers, Inc.
www.structure1.com
Klamath Falls Office
250 Main
Klamath Falls, Oregon
97603
Phone: (541) 850-6300
Fax: (541) 850-6233
info@structure1.com

6-1-2021

NABIL M. TAHA
LICENSE
No. 66012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

BIG TOP MANUFACTURING

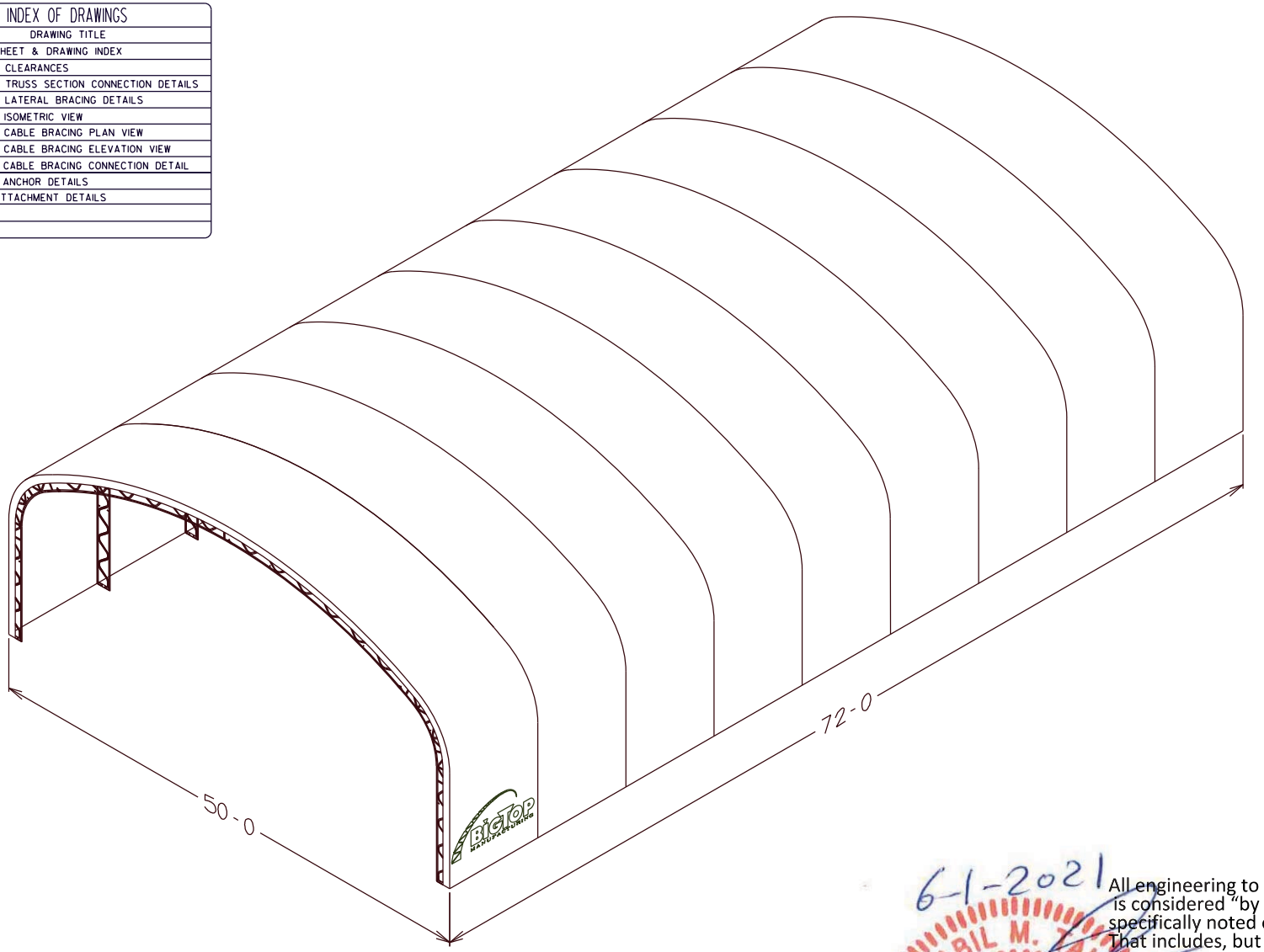
BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | |
| SALES: | DH |
| DRAWN BY: | Mo |
| DATE DRAWN: | 5/27/21 |
| APPROVED BY: | |

NOTES:
FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

DRAWING TYPE: ENGINEERING
PAGE: S-0D

| INDEX OF DRAWINGS | |
|---|---|
| DRAWING NUMBER | DRAWING TITLE |
| S1 | COVER SHEET & DRAWING INDEX |
| S2 | FRAME - CLEARANCES |
| S3 | FRAME - TRUSS SECTION CONNECTION DETAILS |
| S4 | FRAME - LATERAL BRACING DETAILS |
| S5 | FRAME - ISOMETRIC VIEW |
| S6 | FRAME - CABLE BRACING PLAN VIEW |
| S7 | FRAME - CABLE BRACING ELEVATION VIEW |
| S8 | FRAME - CABLE BRACING CONNECTION DETAIL |
| S9 | FRAME - ANCHOR DETAILS |
| S10 | FABRIC ATTACHMENT DETAILS |
| | |
| | |




# COVER SHEET & DRAWING INDEX

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

CUSTOMER: DEM
SIZE: 50 x 72 x 23
LOCATION: Tallahassee, FL
CUSTOMER CONTACT:
SALES: DH
DRAWN BY: Mo
DATE DRAWN: 5/27/21
APPROVED BY:

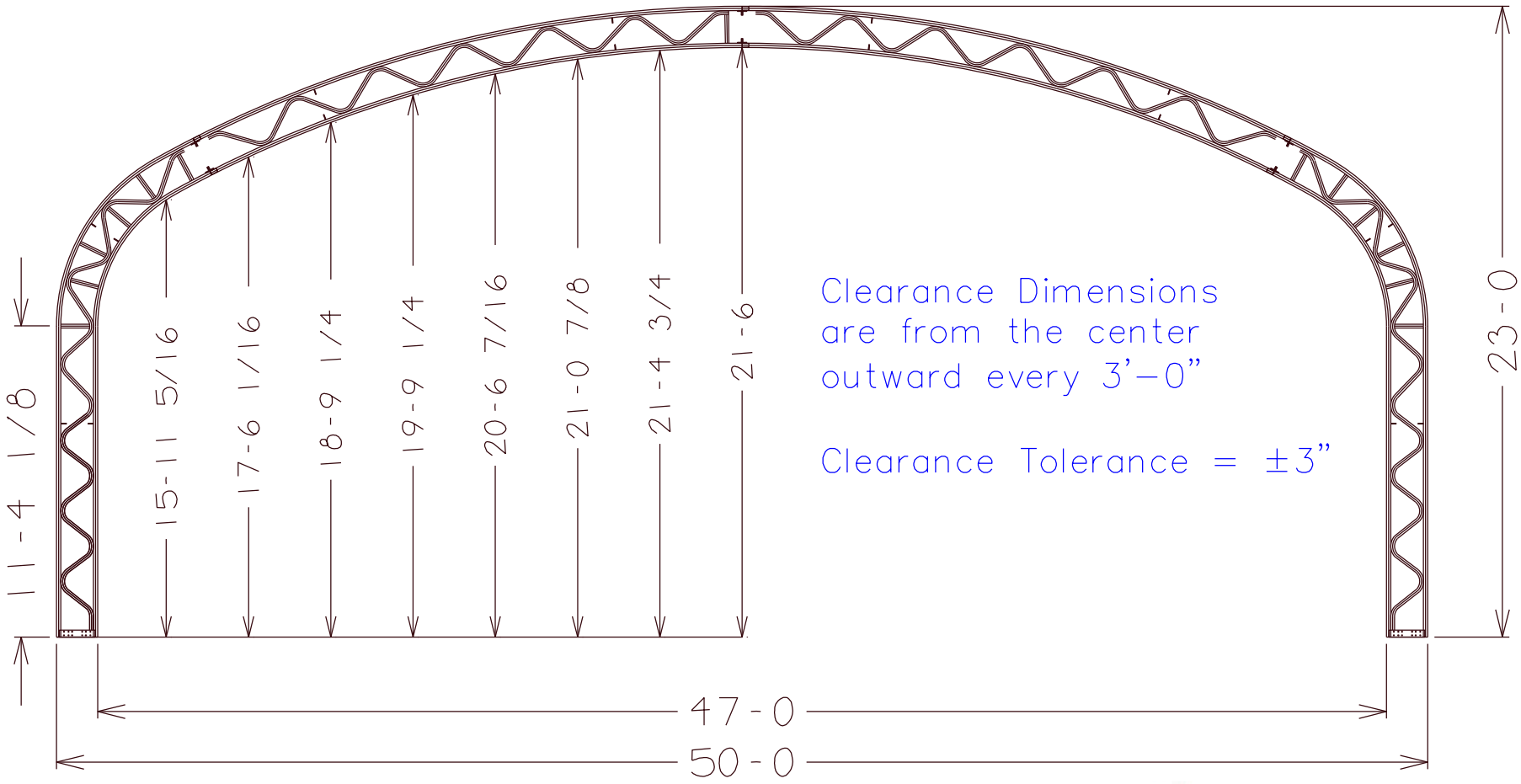
**NOTES:**

FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

6-1-2021
NABIL M. TAHA
LICENSE
No. 68012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

DRAWING TYPE: ENGINEERING
PAGE: S-1




# FRAME - CLEARANCES

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | |
| SALES: | DH |
| DRAWN BY: | Mo |
| DATE DRAWN: | 5/27/21 |
| APPROVED BY: | |

**NOTES:**

FOUNDATION TYPE:

TITLE

TITLE

TITLE

TITLE

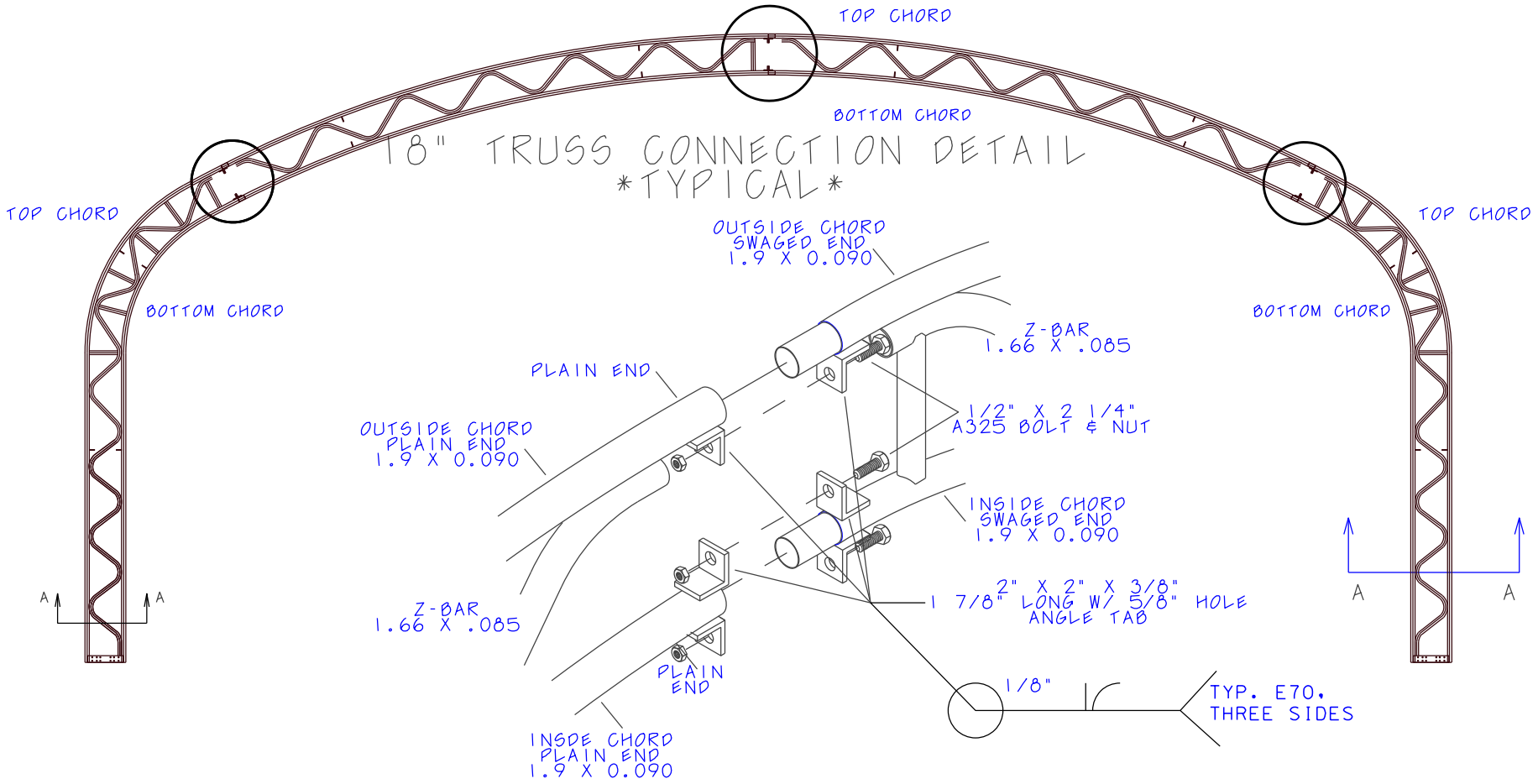
TITLE

TITLE

NABIL M. TAHA LICENSE No. 66012 STATE OF FLORIDA PROFESSIONAL ENGINEER
6-1-2021
EXPIRES: 2/28/23
PE STAMP ONLY

DRAWING TYPE: ENGINEERING

PAGE: S-2




SECTION A-A

TRUSS CHORD IS 1.90" X 0.090 WALL THICKNESS
Z-BAR CHORD IS 1.66" X 0.085 WALL THICKNESS
TENSILE: 60,000 PSI
YIELD: 55,000 PSI

FRAME - TRUSS SECTION CONNECTION DETAILS

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

**NOTES:**

FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

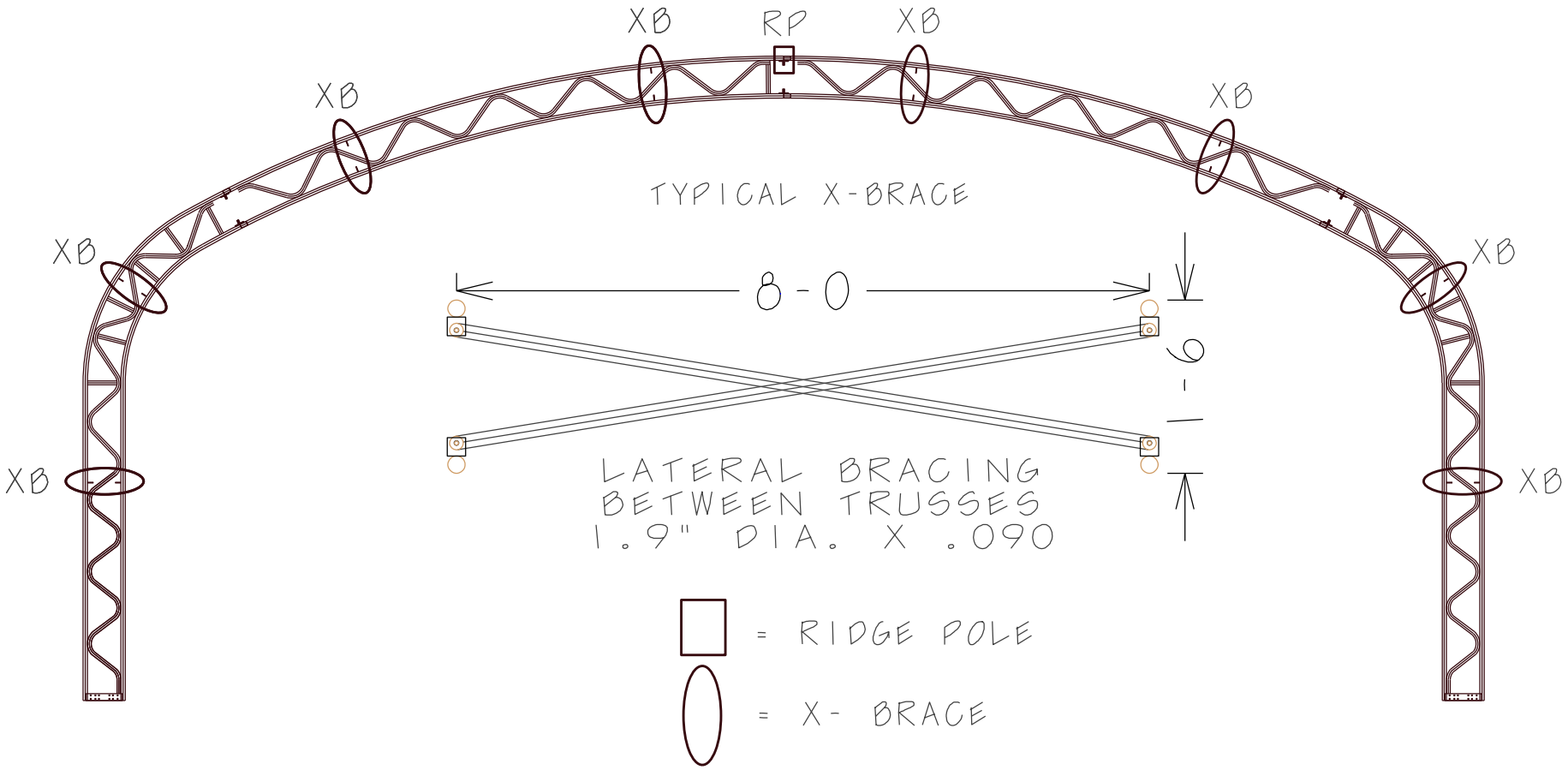
6-1-2021

NABIL M. TAHA
LICENSE
No. 66012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

DRAWING TYPE: ENGINEERING
PAGE: S-3

*ALL INFORMATION IS PROPERTY OF BIG TOP MANUFACTURING INC.




# FRAME - LATERAL BRACING DETAILS

BIG TOP MANUFACTURING

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

**NOTES:**

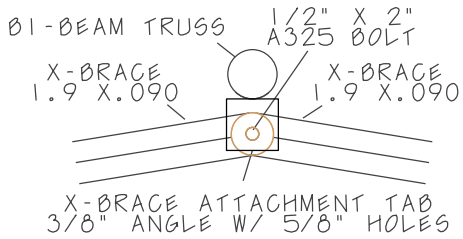
FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

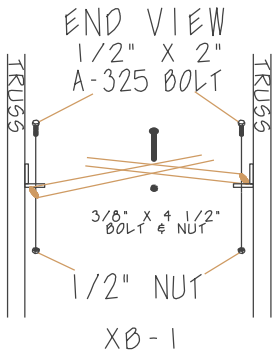
6-1-2021
NABIL M. FAKHOURY
LICENSE
No. 86012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

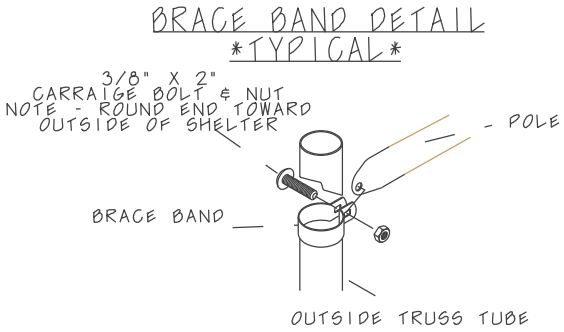
All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

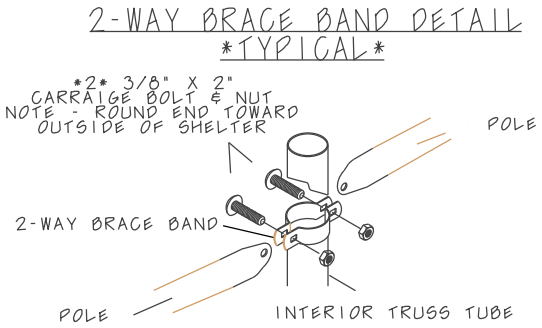
DRAWING TYPE:
ENGINEERING
PAGE:
S-4

*ALL INFORMATION IS PROPERTY OF BIG TOP MANUFACTURING INC.





# FRAME - LATERAL BRACING DETAILS

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

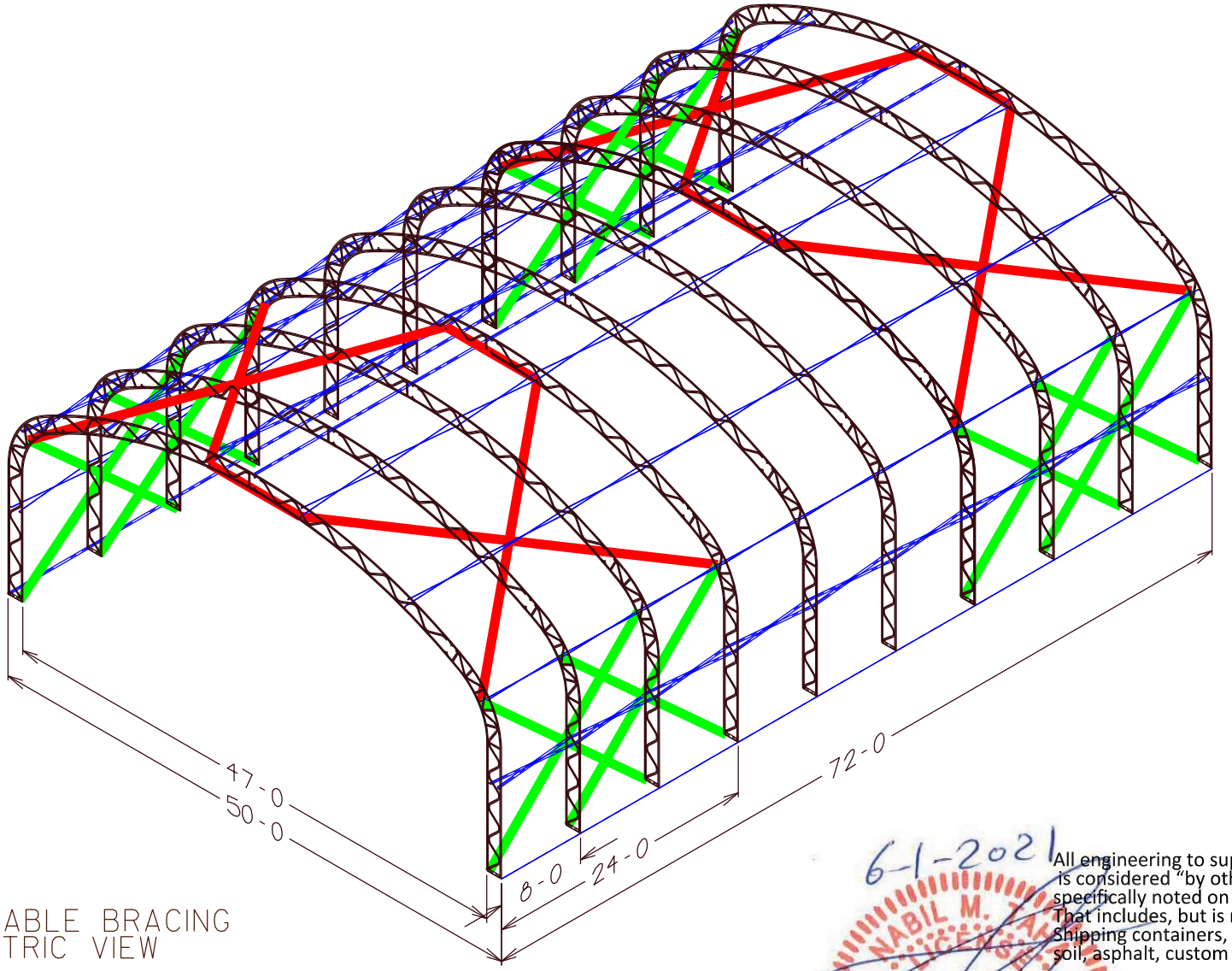
**NOTES:**

FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

6-1-2021
NABIL M. TAHA
LICENSE
No. 66012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

DRAWING TYPE:
ENGINEERING
PAGE:
S-4A

*ALL INFORMATION IS PROPERTY OF BIG TOP MANUFACTURING INC.




FRAME - CABLE BRACING
ISOMETRIC VIEW

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

6-1-2021
NABIL M. [illegible]
LICENSE
No. 66012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

BIG TOP MANUFACTURING

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

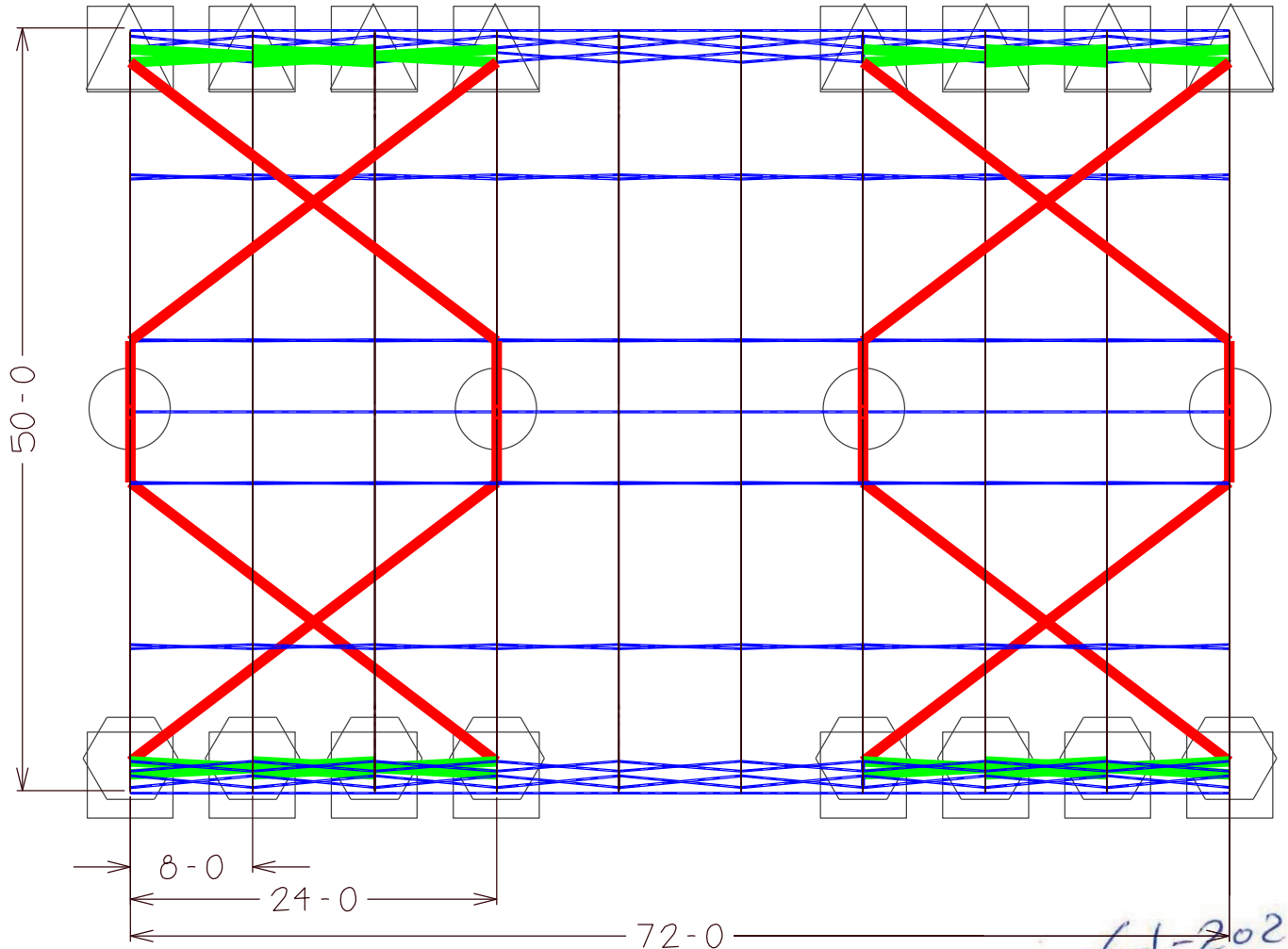
| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

NOTES:

FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

DRAWING TYPE: ENGINEERING
PAGE: S-5

*ALL INFORMATION IS PROPERTY OF BIG TOP MANUFACTURING INC.




FRAME - CABLE BRACING
PLAN VIEW

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

6-1-2021

NABIL M. TAHA
LICENSE
No. 66012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

BIG TOP MANUFACTURING

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

NOTES:

FOUNDATION TYPE:

TITLE

TITLE

TITLE

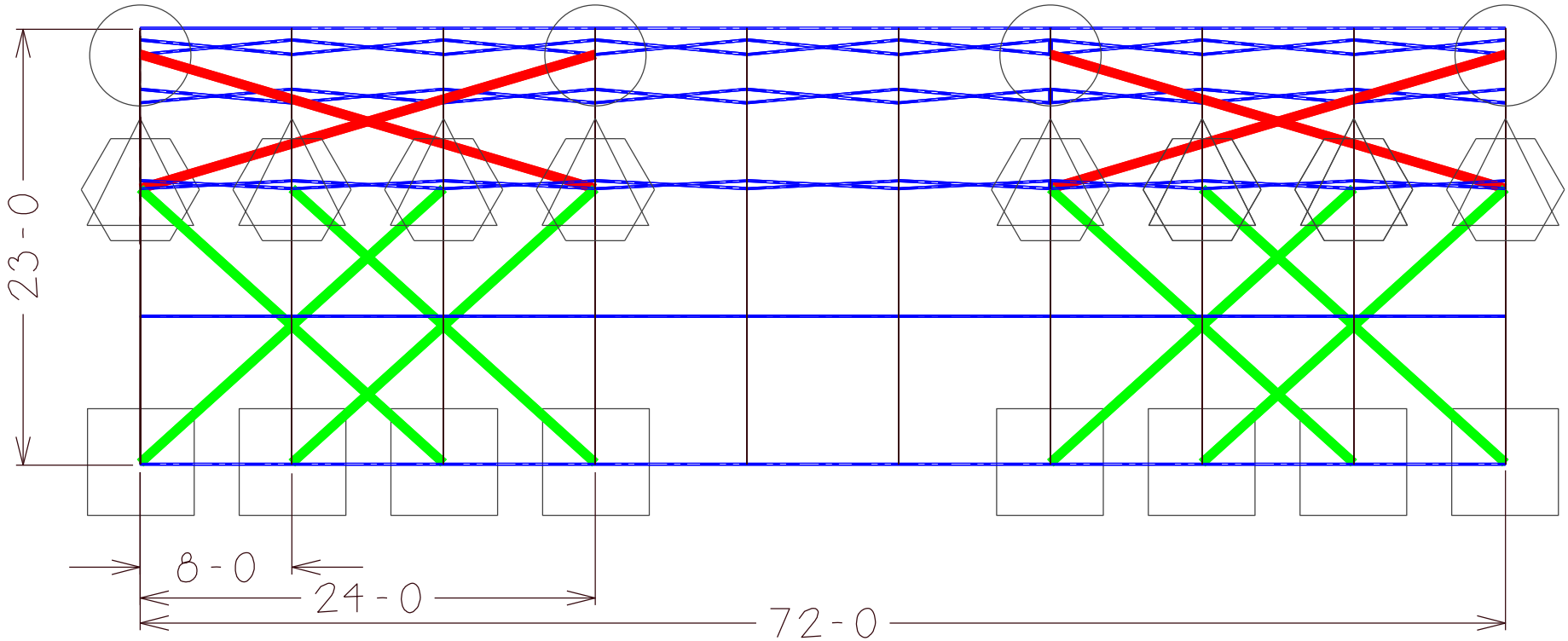
TITLE

TITLE

TITLE

DRAWING TYPE: ENGINEERING

PAGE: S-6




# FRAME - CABLE BRACING
# ELEVATION VIEW

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

**NOTES:**

FOUNDATION TYPE:

TITLE

TITLE

TITLE

TITLE

TITLE

TITLE

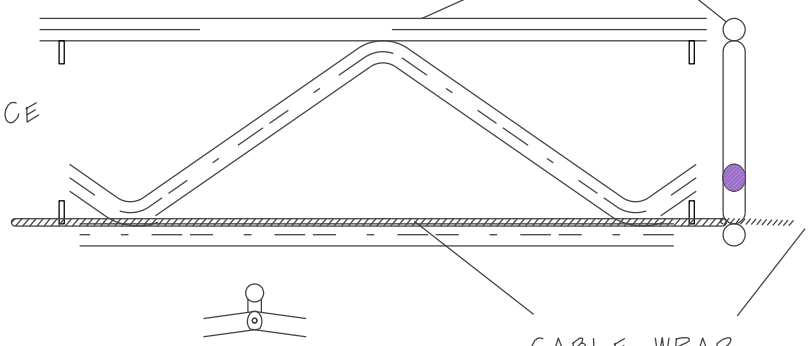
6-1-2021
NABIL M. JAHAL
LICENSE
No. 86012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

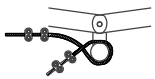
DRAWING TYPE: ENGINEERING

PAGE: S-7

CW - 1



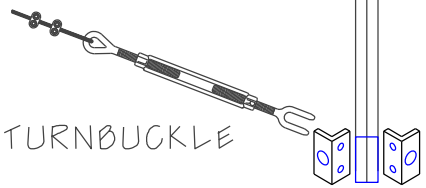

CW - 2



TWO CABLE CLAMPS
PER CABLE WRAP

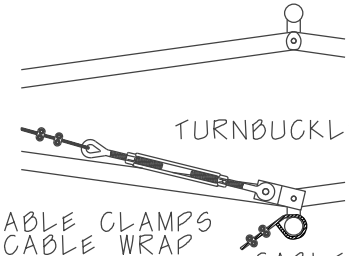
TB - 1

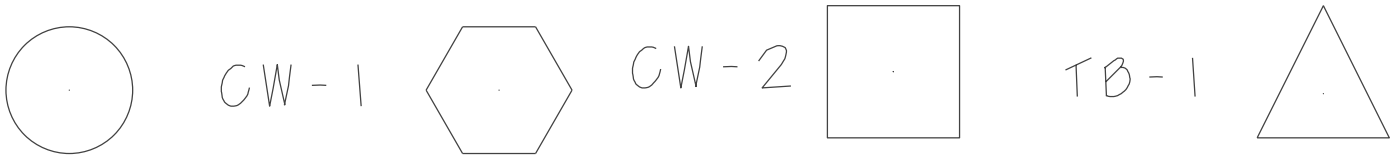
TWO CABLE CLAMPS
PER CABLE WRAP




2 X2 X2 5/8 X3/8"
CORNER ANGLE
2 PLACES
1 PLACE FOR
CABLE BRACING
TURNBUCKLE

TB - 2




TURNBUCKLE
1/2" X 6" EYE/JAW
WLL 2,200LBS.

WIRE ROPE *CABLE*
7X19 GAC
1/4 " GAC
BREAKING STRENGTH 3.5 TONS

# FRAME - CABLE BRACING CONNECTION DETAIL

6-1-2021
NABIL M. TAHA
LICENSE
No. 88012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

BIG TOP MANUFACTURING

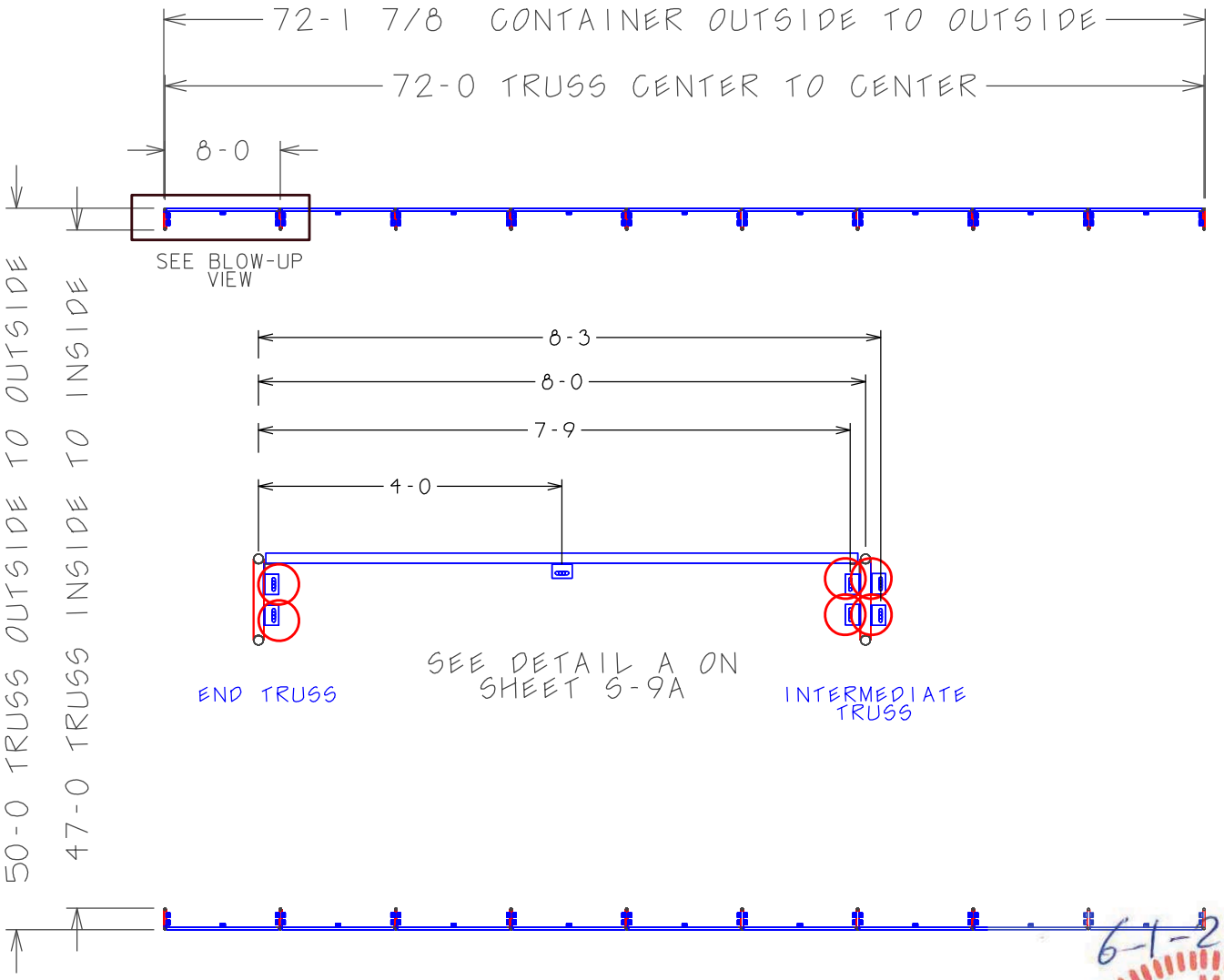
BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

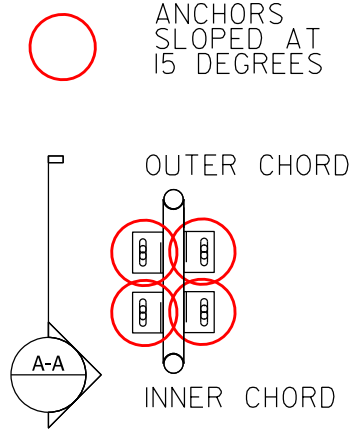
| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

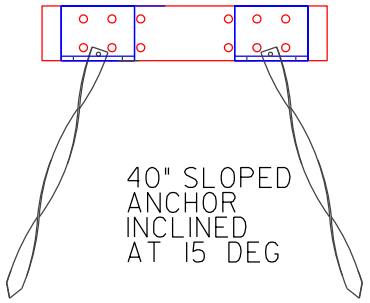
**NOTES:**

FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

DRAWING TYPE: ENGINEERING
PAGE: S-8




VIEW A-A

# FRAME - FRAME ANCHOR DETAIL

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

BIG TOP MANUFACTURING

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

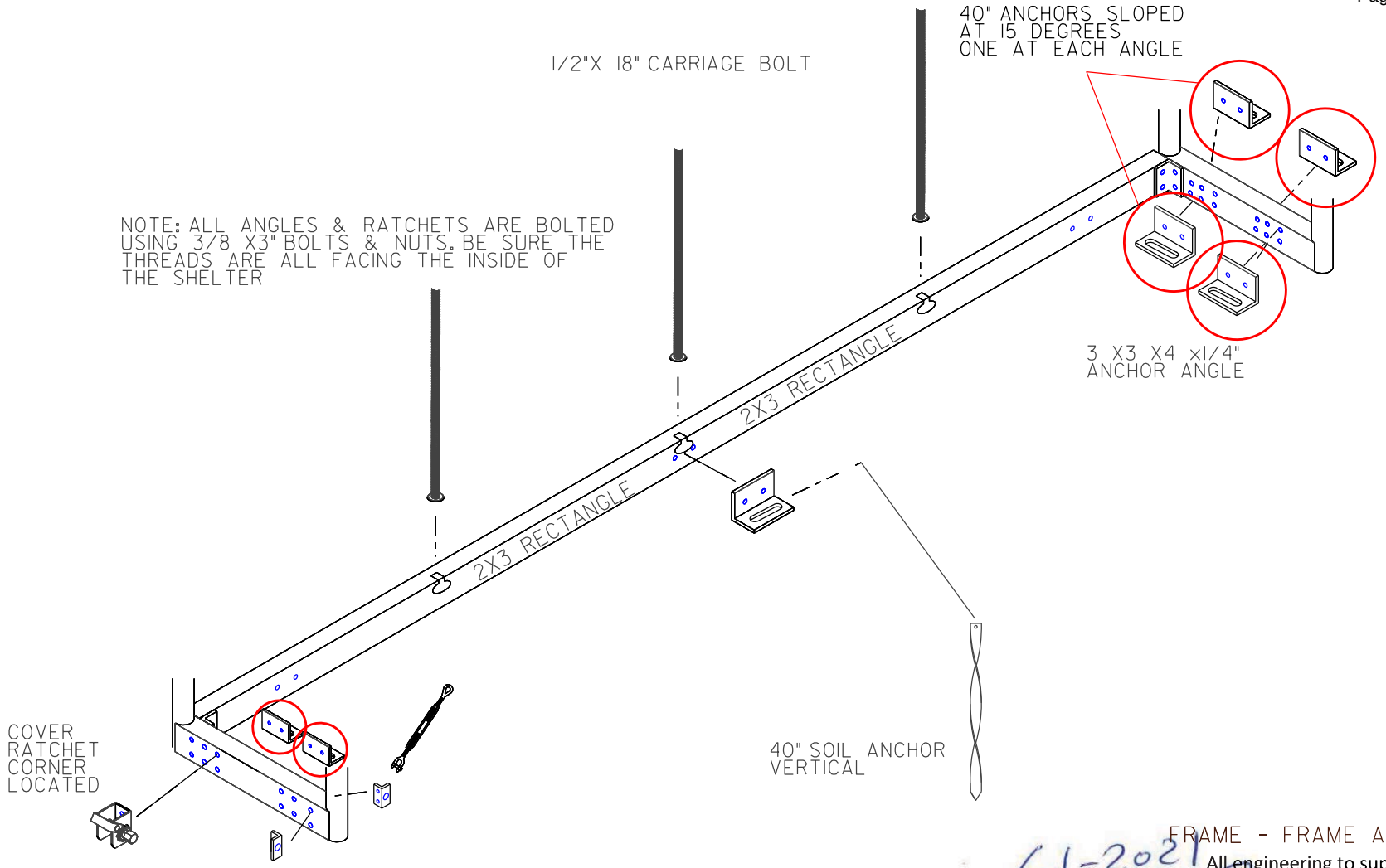
**NOTES:**

FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

6-1-2021
NABIL M. TAHA
LICENSE
No. 66012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

DRAWING TYPE:
ENGINEERING
PAGE:
S-9

*ALL INFORMATION IS PROPERTY OF BIG TOP MANUFACTURING INC.




## FRAME - FRAME ANCHOR DETAIL

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

6-1-2021
NABIL M. TAHA
LICENSE
No. 68012
STATE OF FLORIDA
PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

BIG TOP MANUFACTURING

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

| | |
|---|---|
| CUSTOMER: | DEM |
| SIZE | 50 x 72 x 23 |
| LOCATION | Tallahassee, FL |
| CUSTOMER CONTACT: | SALES: DH |
| DRAWN BY: Mo | DATE DRAWN: 5/27/21 |
| APPROVED BY: | |

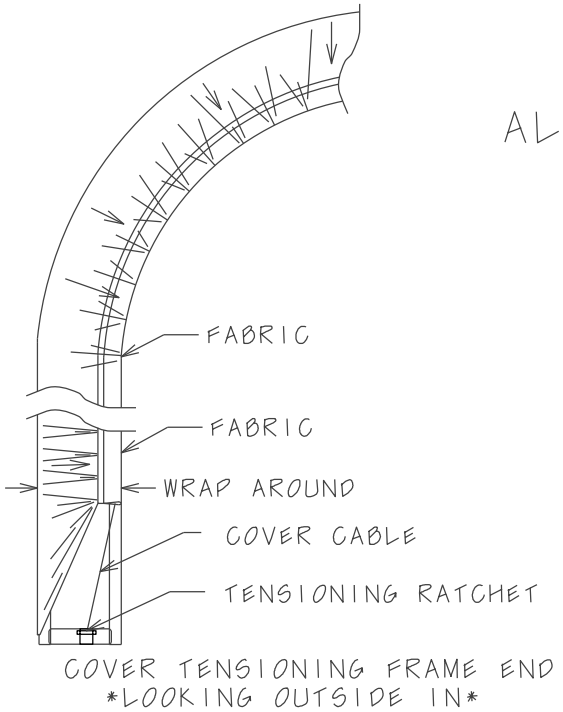
**NOTES:**

FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

DRAWING TYPE: ENGINEERING
PAGE: S-9A

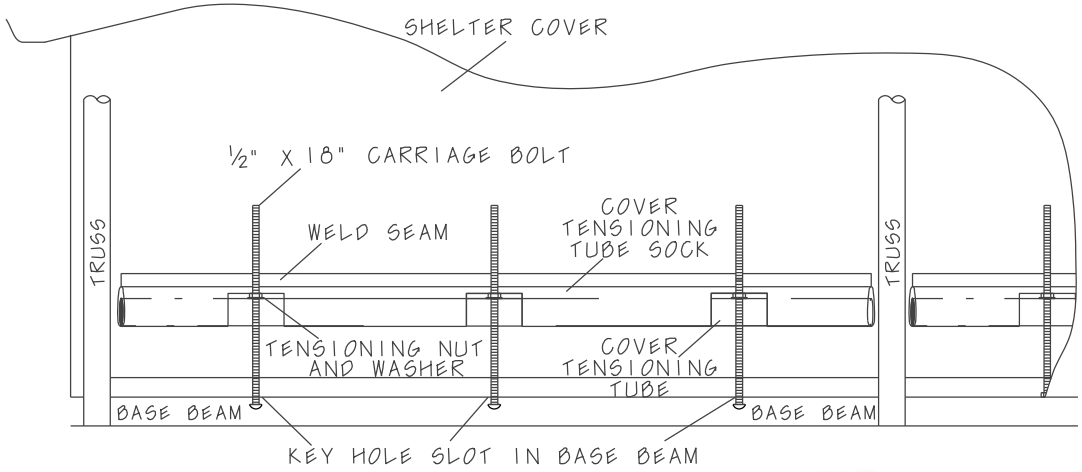
| FABRIC | |
|---|---|
| COLOR | 4000 White |
| WEIGHT | 18 OZ |

18"




COVER TENSIONING FRAME END
*LOOKING OUTSIDE IN*

ALL- THREAD COVER TENSIONING ALONG SIDE
*INSIDE LOOKING OUT*




# FABRIC ATTACHMENT DETAILS

6-1-2021
NABIL M. TAMIM LICENSE No. 68012 STATE OF FLORIDA PROFESSIONAL ENGINEER
EXPIRES: 2/28/23
PE STAMP ONLY

All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, shipping containers, concrete, soil, asphalt, custom support steel, etc.

BIG TOP MANUFACTURING

BIG TOP MANUFACTURING INC.
3255 NORTH US 19
PERRY, FL 32347
PH: (850) 584 - 7786

CUSTOMER: DEM
SIZE: 50 x 72 x 23
LOCATION: Tallahassee, FL
CUSTOMER CONTACT:
SALES: DH
DRAWN BY: Mo
DATE DRAWN: 5/27/21
APPROVED BY:

**NOTES:**

FOUNDATION TYPE:
TITLE
TITLE
TITLE
TITLE
TITLE
TITLE

DRAWING TYPE: ENGINEERING
PAGE: S-10

*ALL INFORMATION IS PROPERTY OF BIG TOP MANUFACTURING INC.

# Table of Contents:



250-A Main Street
Klamath Falls, OR. 97601
E-Mail: info@structure1.com
Web: www.structure1.com
ph. (541) 850-6300
fax (541) 850-6233

# References:

1- Literature:

2020 Edition of the Florida Building Code (7th Ed.) based on 2018 International Building Code (IBC 2018).

2- Software:

(a) **RISA-3D** Version 17.0.4

www.risa.com
26632 Towne Centre Drive, Suite 210
Foothill Ranch, CA 92610

# Design Criteria:

| | | |
|---|---|---|
| 1. Wind | Ultimate Wind speed: | 110 mph (3-sec Gust) |
| | Exposure category: | C |
| | Risk category: | II |
| 2. Roof live load | 5 psf (Governs) | |
| 3. Snow | | |
| Ground | 0 psf | |
| 4. Gravity loads | Self weight of truss plus 1 psf for weight of fabric and fixtures. | |

**Other criteria assumed as stated in design calculations.

250-A Main Street
Klamath Falls, OR. 97601
E-Mail: info@structure1.com
Web: www.structure1.com
ph. (541) 850-6300
fax (541) 850-6233

# Hazards by Location

## Search Information

**Address:** 3266 Capital Cir SW, Tallahassee, FL 32310, USA

**Coordinates:** 30.39877509999999, -84.3515899

**Elevation:** 57 ft

**Timestamp:** 2021-05-27T13:18:19.993Z

**Hazard Type:** Wind


### ASCE 7-16

| | |
|---|---|
| MRI 10-Year | 73 mph |
| MRI 25-Year | 82 mph |
| MRI 50-Year | 88 mph |
| MRI 100-Year | 96 mph |
| Risk Category I | 108 mph |
| Risk Category II | 114 mph |
| Risk Category III | 127 mph |
| Risk Category IV | 128 mph |

### ASCE 7-10

| | |
|---|---|
| MRI 10-Year | 76 mph |
| MRI 25-Year | 84 mph |
| MRI 50-Year | 90 mph |
| MRI 100-Year | 97 mph |
| Risk Category I | 108 mph |
| Risk Category II | 118 mph |
| Risk Category III-IV | 127 mph |

### ASCE 7-05

| | |
|---|---|
| ASCE 7-05 Wind Speed | 107 mph |

*The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.*

## Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no

responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.

# Hazards by Location

## Search Information

**Address:** 3266 Capital Cir SW, Tallahassee, FL 32310, USA

**Coordinates:** 30.39877509999999, -84.3515899

**Elevation:** 57 ft

**Timestamp:** 2021-05-27T13:24:26.896Z

**Hazard Type:** Snow


| ASCE 7-16 | ASCE 7-10 | ASCE 7-05 |
|---|---|---|
| Ground Snow Load ..... 0 lb/sqft | Ground Snow Load .... 0 lb/sqft | Ground Snow Load ..... 0 lb/sqft |

*The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.*

## Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.

# Hazards by Location

## Search Information

**Address:** 3266 Capital Cir SW, Tallahassee, FL 32310, USA

**Coordinates:** 30.39877509999999, -84.3515899

**Elevation:** 57 ft

**Timestamp:** 2021-05-27T13:24:39.148Z

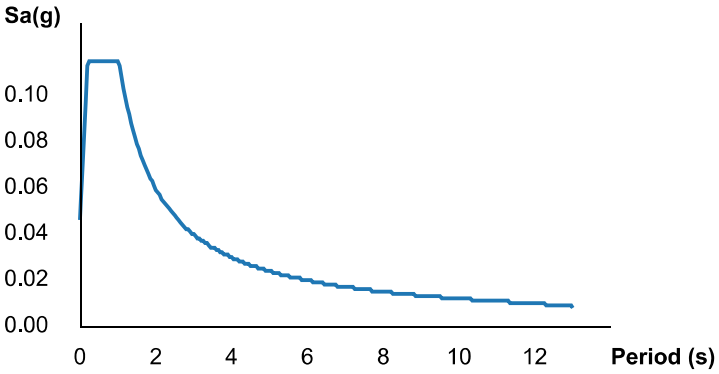
**Hazard Type:** Seismic

**Reference Document:** ASCE7-16

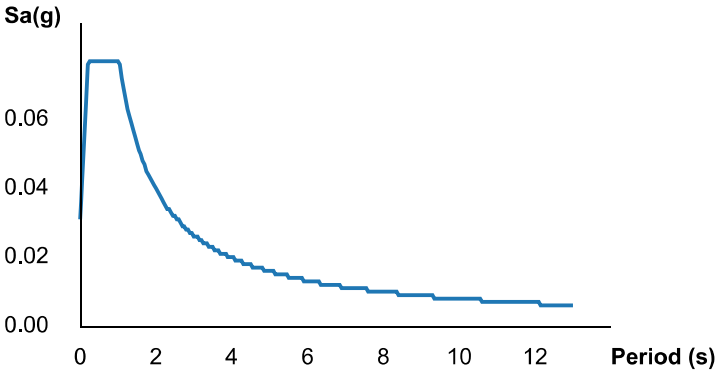
**Risk Category:** II

**Site Class:** D-default


## MCER Horizontal Response Spectrum




## Design Horizontal Response Spectrum




## Basic Parameters

| Name | Value | Description |
|---|---|---|
| $S_S$ | 0.072 | $MCE_R$ ground motion (period=0.2s) |
| $S_1$ | 0.05 | $MCE_R$ ground motion (period=1.0s) |
| $S_{MS}$ | 0.115 | Site-modified spectral acceleration value |
| $S_{M1}$ | 0.119 | Site-modified spectral acceleration value |
| $S_{DS}$ | 0.077 | Numeric seismic design value at 0.2s SA |
| $S_{D1}$ | 0.079 | Numeric seismic design value at 1.0s SA |

## Additional Information

| Name | Value | Description |
|---|---|---|
| SDC | B | Seismic design category |
| $F_a$ | 1.6 | Site amplification factor at 0.2s |
| $F_v$ | 2.4 | Site amplification factor at 1.0s |

| | | |
|---|---|---|
| $CR_S$ | 0.945 | Coefficient of risk (0.2s) |
| $CR_1$ | 0.892 | Coefficient of risk (1.0s) |
| PGA | 0.034 | $MCE_G$ peak ground acceleration |
| $F_{PGA}$ | 1.6 | Site amplification factor at PGA |
| $PGA_M$ | 0.054 | Site modified peak ground acceleration |
| $T_L$ | 12 | Long-period transition period (s) |
| SsRT | 0.072 | Probabilistic risk-targeted ground motion (0.2s) |
| SsUH | 0.076 | Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years) |
| SsD | 1.5 | Factored deterministic acceleration value (0.2s) |
| S1RT | 0.05 | Probabilistic risk-targeted ground motion (1.0s) |
| S1UH | 0.056 | Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years) |
| S1D | 0.6 | Factored deterministic acceleration value (1.0s) |
| PGAd | 0.5 | Factored deterministic acceleration value (PGA) |

*The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.*

## Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the report.

# Big Top Seismic Forces

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ss = | 0.072 | g | Sms = | 0.153 | g | Sds = | 0.102 | g |
| S1 = | 0.050 | g | Sm1 = | 0.128 | g | Sd1 = | 0.085 | g |

| | | | | | |
|---|---|---|---|---|---|
| Site Class | D | Risk Category | II | R = | 3 |
| Importance Factor = | 1 | T = | 0.21 | seconds | |
| Sds Seismic Cat. | A | Seismic Cat = | B | | |
| Sd1 Seismic Cat. | B | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Truss Dimensions | | Width = | 50 | ft | Fabric DL = | 0.25 | psf |
| | | Length = | 72 | | Truss DL = | 0.75 | psf |
| | | Height = | 23 | | Add. DL = | 0 | psf |

Total Weight = 5.753 kips

| | | | |
|---|---|---|---|
| Cs = | 0.034 | | |
| Cs min = | 0.0045 | | |
| Cs max = | 0.1349 | | |
| Use Cs = | 0.034 | | |
| V = Cs x W = | 0.1956 | kips | |
| V per truss = | 0.0033 | kips | < reactions due to wind. Hence wind design governs |

FLORIDA DEPARTMENT OF
Business & Professional Regulation



Florida dbpr

**Florida Building Codes**
**USER**: Public User

OFFICE OF THE SECRETARY

## Florida Building Code Menu

**General Users**

- Order a Florida Building Code Book
- 7th Edition (2020) FBC
- 6th Edition (2017) FBC
- Code Resources and supplements to the FBC
- Find an Amendment or Declaratory Statement
- Find or Submit a Non-Binding Interpretation
- Find or Submit an Accessibility Waiver
- What's New
- FAQ (Getting Started)
- View Related Rules/Statutes
- Contact Us

**Logged In Users**

- Submit a New Local Amendment

## 7th Edition (2020) FBC

7th Edition (2020) FBC

Contact Us :: 2601 Blair Stone Road, Tallahassee FL 32399 Phone: 850-487-1824

All Codes
I Codes

LOOK FOR TAGS TO ACCESS MORE CONTENT

ES View ICC-ES Reports Listing
Errata
P Additional Premium Material

Legend Information

CODE SECTIONS MY NOTES



Search Type
Title Content

**2020 Florida Building Code, Building, 7th Edition**

Upgrade to Premium

BASIC PLUS

First Printing: Jul 2020

## About this Title

The 7th Edition (2020) update to the Florida Building Code: Building is a fully integrated publication that updates the 6th Edition 2017 Florida Building Code: Building using the latest changes to the 2018 International Building Code® with customized amendments adopted statewide. Chapter tabs are also included. Effective Date: December 31, 2020

## My Notes

Recent annotations and bookmarks from this current title. Click here to learn more about using the annotation and bookmark tools.

Purchase premium to take advantage of this feature.

FEEDBACK

LIVE CHAT

# TRUSS ANALYSIS & DESIGN – MAIN TRUSS:

## Pages 1,000 - 1,999

250-A Main Street
Klamath Falls, OR. 97601
E-Mail: info@structure1.com
Web: www.structure1.com
ph. (541) 850-6300
fax (541) 850-6233

Calculations Prepared by:
Date: May 26, 2021

File Location:
F:\Engineering Department\2021 Projects\
Big Top 221-80 50x72x23 DEM 18BB - Tallahassee, FL\Dsg Engineering\Admin\
7-1 Meca Wind.wnd

**Basic Wind Parameters**

| | | | |
|---|---|---|---|
| Wind Load Standard | = ASCE 7-16 | Exposure Category | = C |
| Wind Design Speed | = 110.0 mph | Risk Category | = II |
| Structure Type | = Building | Building Type | = Enclosed |

**General Wind Settings**

| | | |
|---|---|---|
| Incl_LF | = Include ASD Load Factor of 0.6 in Pressures | = False |
| DynType | = Dynamic Type of Structure | = Rigid |
| NF | = Natural Frequency of Structure (Mode 1) | = 1.000 Hz |
| Zg | = Altitude (Ground Elevation) above Sea Level | = 0.000 ft |
| Bdist | = Base Elevation of Structure | = 0.000 ft |
| SDB | = Simple Diaphragm Building | = False |
| MWFRSType | = MWFRS Method Selected | = Ch 27 Pt 1 |

**Topographic Factor per Fig 26.8-1**

| | | |
|---|---|---|
| Topo | = Topographic Feature | = None |
| Kzt | = Topographic Factor | = 1.000 |

**Building Inputs**

| | | | |
|---|---|---|---|
| Roof: Building Roof Type | = Arched | EHt : Eave Height | = 15.229 ft |
| R : Enter Radius of Arch | = 44.100 ft | W : Building Width | = 50.000 ft |
| L : Building Length | = 72.000 ft | | |

**Exposure Constants per Table 26.11-1:**

| | | | |
|---|---|---|---|
| Alpha: Const from Table 26.11-1 | = 9.500 | Zg: Const from Table 26.11-1 | = 900.000 ft |
| At: Const from Table 26.11-1 | = 0.105 | Bt: Const from Table 26.11-1 | = 1.000 |
| Am: Const from Table 26.11-1 | = 0.154 | Bm: Const from Table 26.11-1 | = 0.650 |
| C: Const from Table 26.11-1 | = 0.200 | Eps: Const from Table 26.11-1 | = 0.200 |

**Overhang Inputs:**

| | | |
|---|---|---|
| Std | = Overhangs on all sides are the same | = True |
| OHType | = Type of Roof Wall Intersections | = None |

**Main Wind Force Resisting System (MWFRS) Calculations per Ch 27 Part 1:**

| | | |
|---|---|---|
| h | = Mean Roof Height above grade | = 19.114 ft |
| Kh | = 15 ft [4.572 m]< Z <Zg -->(2.01*(Z/zg)^(2/Alpha) {Table 26.10-1} | = 0.893 |
| Kzt | = Topographic Factor is 1 since no Topographic feature specified | = 1.000 |
| Kd | = Wind Directionality Factor per Table 26.6-1 | = 0.85 |
| Zg | = Elevation above Sea Level | = 0.000 ft |
| Ke | = Ground Elevation Factor: Ke = e^-(0.0000362*Zg) {Table 26.9-1} | = 1.000 |
| GCPi | = Ref Table 26.13-1 for Enclosed Building | = +/-0.18 |
| RA | = Roof Area | = 3826.67 sq ft |
| LF | = Load Factor based upon STRENGTH Design | = 1.00 |
| qh | = (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF | = 23.52 psf |
| qin | = For Negative Internal Pressure of Enclosed Building use qh*LF | = 23.52 psf |
| qip | = For Positive Internal Pressure of Enclosed Building use qh*LF | = 23.52 psf |

**Gust Factor Calculation:**

| | | |
|---|---|---|
| Gust Factor Category I Rigid Structures - Simplified Method | | |
| G1 | = For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 | = 0.85 |
| Gust Factor Category II Rigid Structures - Complete Analysis | | |
| Zm | = 0.6 * Ht | = 15.000 ft |
| Izm | = Cc * (33 / Zm) ^ 0.167 | = 0.228 |
| Lzm | = L * (Zm / 33) ^ Epsilon | = 427.057 |
| Q | = (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5 | = 0.913 |
| G2 | = 0.925*((1+1.7*Izm*3.4*Q)/(1+1.7*3.4*Izm)) | = 0.879 |
| Gust Factor Used in Analysis | | |
| G | = Lessor Of G1 Or G2 | = 0.850 |

**MWFRS Wind Normal to Ridge (Ref Fig 27.3-1)**

| | | |
|---|---|---|
| h | = Mean Roof Height Of Building | = 19.114 ft |
| RHt | = Ridge Height Of Roof | = 23.000 ft |
| B | = Horizontal Dimension Of Building Normal To Wind Direction | = 72.000 ft |
| L | = Horizontal Dimension Of building Parallel To Wind Direction | = 50.000 ft |
| L/B | = Ratio Of L/B used For Cp determination | = 0.694 |
| h/L | = Ratio Of h/L used For Cp determination | = 0.382 |
| RHt | = Ridge Height Of Roof | = 23.000 ft |

```
r         = Rise To Span Ratio  (RHt-EHt)/W                                  = 0.155
Elev      = Is roof on Elevated Structure (Is EHt>0)                         = True
Roof_CH   = Roof Coefficient  Center Half                                    = -0.855, -0.855
Roof_LQ   = Roof Coefficient  Leeward Quarter                                = -0.5, -0.5
Roof_WQ   = Roof Coefficient  Windward Quarter                               = -0.9, -0.9

Cp_WW     = Windward Wall Coefficient (All L/B Values)                       = 0.80
Cp_LW     = Leward Wall Coefficient using L/B                                = -0.50
Cp_SW     = Side Wall Coefficient (All L/B values)                           = -0.70
GCpn_WW   = Parapet Combined Net Pressure Coefficient (Windward Parapet)     = 1.50
GCpn_LW   = Parapet Combined Net Pressure Coefficient (Leeward Parapet)      = -1.00
```

**Wall Wind Pressures based On Positive Internal Pressure (+GCPi) - Normal to Ridge**
**All wind pressures include a load factor of 1.0**

| Elev ft | Kz | Kzt | qz psf | GCPi | Windward Press psf | Leeward Press psf | Side Press psf | Total Press psf | Minimum Pressure* psf |
|---|---|---|---|---|---|---|---|---|---|
| 19.11 | 0.893 | 1.000 | 23.52 | 0.18 | 11.76 | -14.23 | -18.23 | 25.99 | 16.00 |
| 15.23 | 0.852 | 1.000 | 22.42 | 0.18 | 11.01 | -14.23 | -18.23 | 25.24 | 16.00 |

**Wall Wind Pressures based on Negative Internal Pressure (-GCPi) - Normal to Ridge**
**All wind pressures include a load factor of 1.0**

| Elev ft | Kz | Kzt | qz psf | GCPi | Windward Press psf | Leeward Press psf | Side Press psf | Total Press psf | Minimum Pressure* psf |
|---|---|---|---|---|---|---|---|---|---|
| 19.11 | 0.893 | 1.000 | 23.52 | -0.18 | 20.23 | -5.76 | -9.76 | 25.99 | 16.00 |
| 15.23 | 0.852 | 1.000 | 22.42 | -0.18 | 19.48 | -5.76 | -9.76 | 25.24 | 16.00 |

```
Notes Wall Pressures:
Kz       = Velocity Press Exp Coeff        Kzt      = Topographical Factor
qz       = 0.00256*Kz*Kzt*Kd*V^2           GCPi     = Internal Press Coefficient
Side     = qh * G * Cp_SW - qip * +GCPi    Windward = qz * G * Cp_WW - qip * +GCPi
Leeward  = qh * G * Cp_LW - qip * +GCPi    Total    = Windward Press - Leeward Press
* Minimum Pressure: Para 27.1.5 no less than 16.00 psf (Incl LF) applied to Walls
+ Pressures Acting TOWARD Surface          - Pressures Acting AWAY from Surface
```

**Roof Wind Pressures for Positive & Negative Internal Pressure (+/- GCPi) - Normal to Ridge**
**All wind pressures include a load factor of 1.0**

| Roof Var | Start Dist ft | End Dist ft | Cp_min | Cp_max | GCPi | Pressure Pn_min* psf | Pressure Pp_min* psf | Pressure Pn_max psf | Pressure Pp_max psf |
|---|---|---|---|---|---|---|---|---|---|
| Roof_CH | N/A | N/A | -0.855 | -0.855 | 0.180 | -12.87 | -21.34 | -12.87 | -21.34 |
| Roof_LQ | N/A | N/A | -0.500 | -0.500 | 0.180 | -5.76 | -14.23 | -5.76 | -14.23 |
| Roof_WQ | N/A | N/A | -0.900 | -0.900 | 0.180 | -13.76 | -22.23 | -13.76 | -22.23 |

```
Notes Roof Pressures:
Start Dist = Start Dist from Windward Edge  End Dist = End Dist from Windward Edge
Cp_Max     = Largest Coefficient Magnitude  Cp_Min   = Smallest Coefficient Magnitude
Pp_max     = qh*G*Cp_max - qip*(+GCPi)      Pn_max   = qh*G*Cp_max - qin*(-GCPi)
Pp_min*    = qh*G*Cp_min - qip*(+GCPi)      Pn_min*  = qh*G*Cp_min - qin*(-GCPi)
OH = Overhang   X = Dir along Ridge   Y = Dir Perpendcular to Ridge  Z = Vertical
* The smaller uplift pressures due to Cp_Min can become critical when wind is combined
  with roof live load or snow load;  load combinations are given in ASCE 7
+ Pressures Acting TOWARD Surface          - Pressures Acting AWAY from Surface
```

**MWFRS Wind Parallel to Ridge (Ref Fig 27.3-1)**

```
h         = Mean Roof Height Of Building                                     = 19.114 ft
RHt       = Ridge Height Of Roof                                             = 23.000 ft
B         = Horizontal Dimension Of Building Normal To Wind Direction        = 50.000 ft
L         = Horizontal Dimension Of building Parallel To Wind Direction      = 72.000 ft
L/B       = Ratio Of L/B used For Cp determination                           = 1.440
h/L       = Ratio Of h/L used For Cp determination                           = 0.265
RHt       = Ridge Height Of Roof                                             = 23.000 ft
r         = Rise To Span Ratio  (RHt-EHt)/W                                  = 0.155
Elev      = Is roof on Elevated Structure (Is EHt>0)                         = True
Roof_1    = Roof Coeff (0 to h) (0.000 ft to 19.114 ft)                      = -0.18, -0.9
Roof_2    = Roof Coeff (h to 2h) (19.114 ft to 38.229 ft)                    = -0.18, -0.5
Roof_3    = Roof Coeff (>2h) (>38.229 ft)                                    = -0.18, -0.3

Cp_WW     = Windward Wall Coefficient (All L/B Values)                       = 0.80
Cp_LW     = Leward Wall Coefficient using L/B                                = -0.41
```

Cp_SW = Side Wall Coefficient (All L/B values) = -0.70
GCpn_WW = Parapet Combined Net Pressure Coefficient (Windward Parapet) = 1.50
GCpn_LW = Parapet Combined Net Pressure Coefficient (Leeward Parapet) = -1.00

**Wall Wind Pressures based On Positive Internal Pressure (+GCPi) - Parallel to Ridge**
**All wind pressures include a load factor of 1.0**

| Elev ft | Kz | Kzt | qz psf | GCPi | Windward Press psf | Leeward Press psf | Side Press psf | Total Press psf | Minimum Pressure* psf |
|---|---|---|---|---|---|---|---|---|---|
| 23.00 | 0.929 | 1.000 | 24.46 | 0.18 | 12.40 | -12.47 | -18.23 | 24.87 | 16.00 |
| 19.11 | 0.893 | 1.000 | 23.52 | 0.18 | 11.76 | -12.47 | -18.23 | 24.23 | 16.00 |
| 15.23 | 0.852 | 1.000 | 22.42 | 0.18 | 11.01 | -12.47 | -18.23 | 23.48 | 16.00 |

**Wall Wind Pressures based on Negative Internal Pressure (-GCPi) - Parallel to Ridge**
**All wind pressures include a load factor of 1.0**

| Elev ft | Kz | Kzt | qz psf | GCPi | Windward Press psf | Leeward Press psf | Side Press psf | Total Press psf | Minimum Pressure* psf |
|---|---|---|---|---|---|---|---|---|---|
| 23.00 | 0.929 | 1.000 | 24.46 | -0.18 | 20.86 | -4.00 | -9.76 | 24.87 | 16.00 |
| 19.11 | 0.893 | 1.000 | 23.52 | -0.18 | 20.23 | -4.00 | -9.76 | 24.23 | 16.00 |
| 15.23 | 0.852 | 1.000 | 22.42 | -0.18 | 19.48 | -4.00 | -9.76 | 23.48 | 16.00 |

Notes Wall Pressures:
Kz = Velocity Press Exp Coeff Kzt = Topographical Factor
qz = 0.00256*Kz*Kzt*Kd*V^2 GCPi = Internal Press Coefficient
Side = qh * G * Cp_SW - qip * +GCPi Windward = qz * G * Cp_WW - qip * +GCPi
Leeward = qh * G * Cp_LW - qip * +GCPi Total = Windward Press - Leeward Press
* Minimum Pressure: Para 27.1.5 no less than 16.00 psf (Incl LF) applied to Walls
+ Pressures Acting TOWARD Surface - Pressures Acting AWAY from Surface

**Roof Wind Pressures for Positive & Negative Internal Pressure (+/- GCPi) - Parallel to Ridge**
**All wind pressures include a load factor of 1.0**

| Roof Var | Start Dist ft | End Dist ft | Cp_min | Cp_max | GCPi | Pressure Pn_min* psf | Pressure Pp_min* psf | Pressure Pn_max psf | Pressure Pp_max psf |
|---|---|---|---|---|---|---|---|---|---|
| Roof_1 | 0.000 | 19.114 | -0.180 | -0.900 | 0.180 | 0.64 | -7.83 | -13.76 | -22.23 |
| Roof_2 | 19.114 | 38.229 | -0.180 | -0.500 | 0.180 | 0.64 | -7.83 | -5.76 | -14.23 |
| Roof_3 | 38.229 | 72.000 | -0.180 | -0.300 | 0.180 | 0.64 | -7.83 | -1.76 | -10.23 |

Notes Roof Pressures:
Start Dist = Start Dist from Windward Edge End Dist = End Dist from Windward Edge
Cp_Max = Largest Coefficient Magnitude Cp_Min = Smallest Coefficient Magnitude
Pp_max = qh*G*Cp_max - qip*(+GCPi) Pn_max = qh*G*Cp_max - qin*(-GCpi)
Pp_min* = qh*G*Cp_min - qip*(+GCPi) Pn_min* = qh*G*Cp_min - qin*(-GCPi)
OH = Overhang X = Dir along Ridge Y = Dir Perpendcular to Ridge Z = Vertical
* The smaller uplift pressures due to Cp_Min can become critical when wind is combined with roof live load or snow load; load combinations are given in ASCE 7
+ Pressures Acting TOWARD Surface - Pressures Acting AWAY from Surface

Job: _____ Designer: _____
Date: _____

Tributary Width = 8 ft

## Dead Load

| | | | | | | | | Design Loads Used |
|---|---|---|---|---|---|---|---|---|
| DL = | 1 | psf | x | 8 | ft | = | 8 | plf |

## Roof Live Load

| | | | | | | | | Design Loads Used |
|---|---|---|---|---|---|---|---|---|
| RLL = | 5 | psf | x | 8 | ft | = | 40 | plf |

## Wind Loads

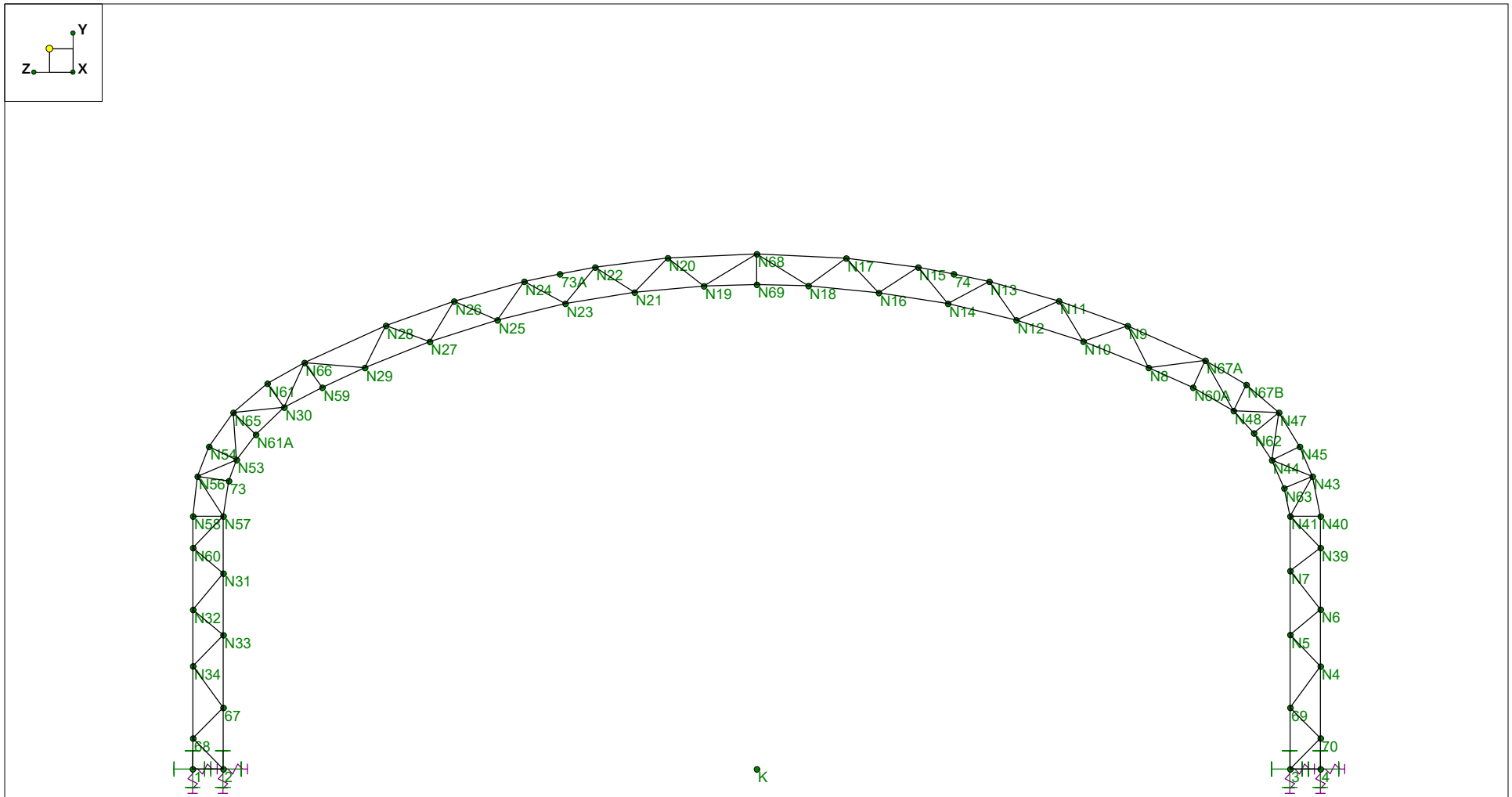
Wind Speed: 110 mph

### Walls:

| | | | | | | | | | Design Loads Used |
|---|---|---|---|---|---|---|---|---|---|
| $+GC_{pi}$ | Windward | 11.76 | psf | x | 8 | ft | = | 94.08 | plf |
| | Leeward | -14.23 | psf | x | 8 | ft | = | -113.84 | plf |
| $-GC_{pi}$ | Windward | 20.23 | psf | x | 8 | ft | = | 161.84 | plf |
| | Leeward | -5.76 | psf | x | 8 | ft | = | -46.08 | plf |

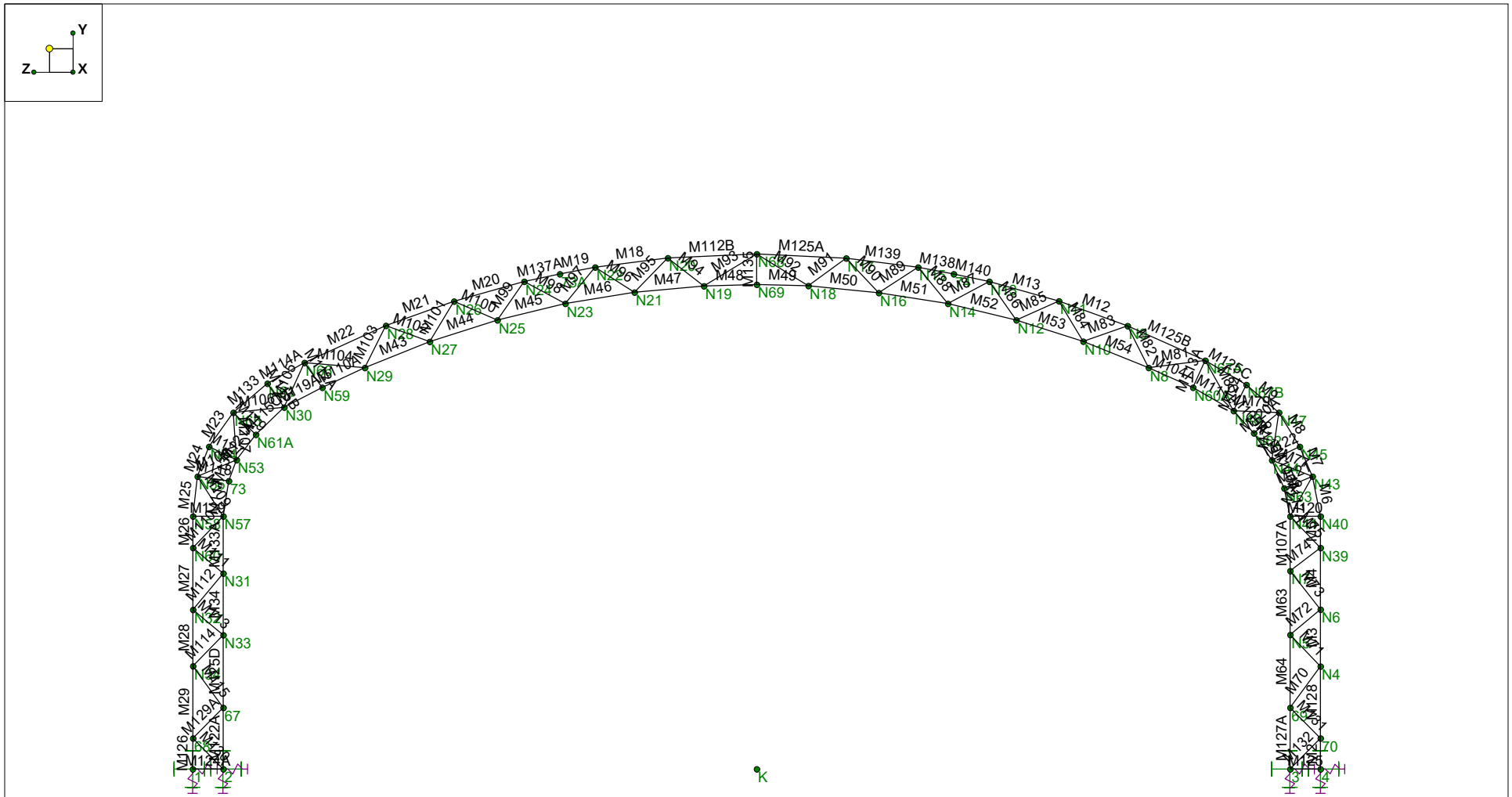
### Roof:

| | | | | | | | | | Design Loads Used |
|---|---|---|---|---|---|---|---|---|---|
| $+GC_{pi}$ | Windward Quarter | -22.23 | psf | x | 8 | ft | = | -177.84 | plf |
| | Center Half | -21.34 | psf | x | 8 | ft | = | -170.7 | plf |
| | Leeward Quarter | -14.23 | psf | x | 8 | ft | = | -113.84 | plf |
| $-GC_{pi}$ | Windward Quarter | -13.76 | psf | x | 8 | ft | = | -110.08 | plf |
| | Center Half | -12.87 | psf | x | 8 | ft | = | -102.96 | plf |
| | Leeward Quarter | -5.76 | psf | x | 8 | ft | = | -46.08 | plf |



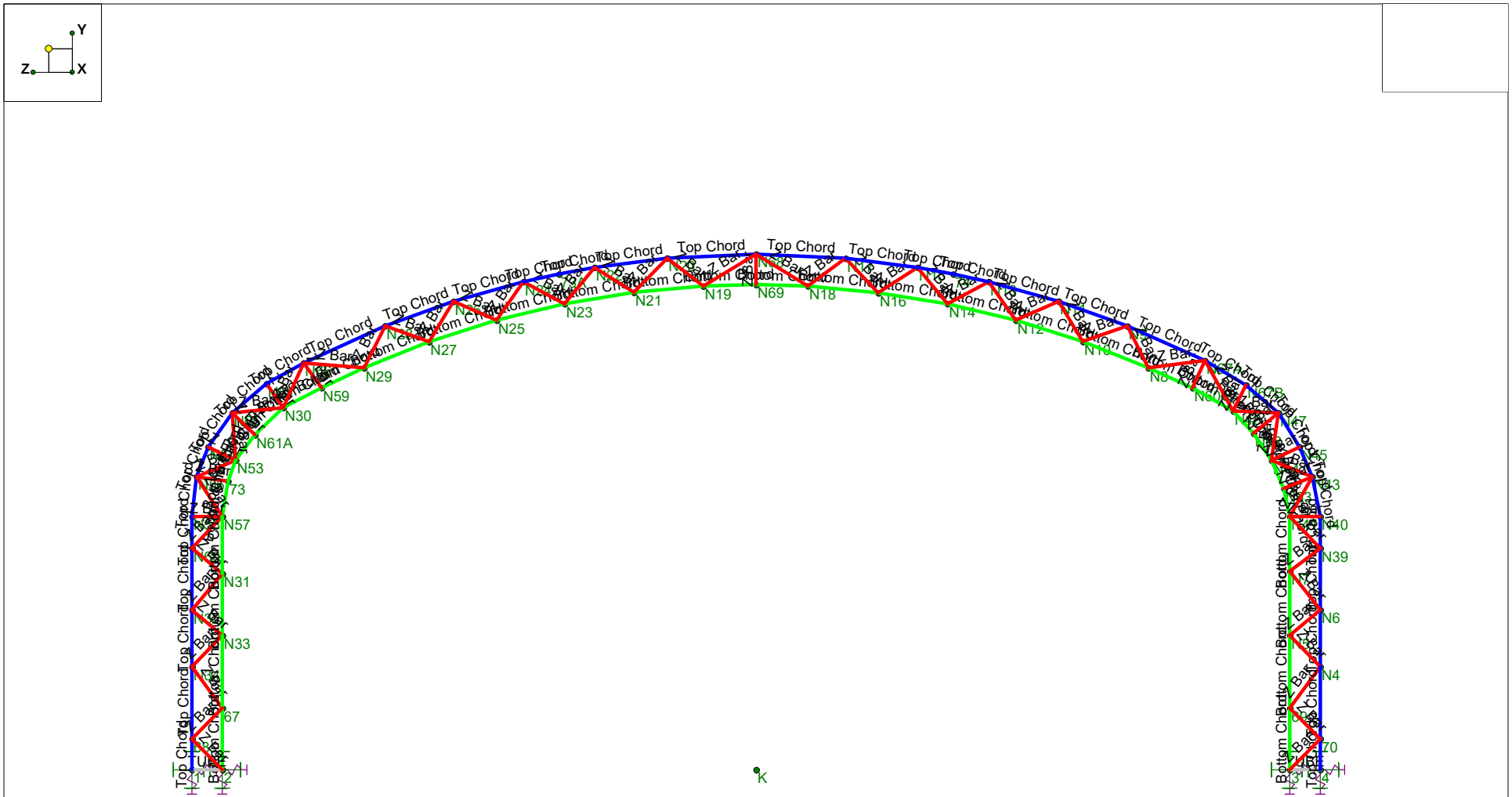

Envelope Only Solution
Reaction and Moment Units are k and k-ft (Enveloped)

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 1 |
| Mo | | May 27, 2021 at 10:41 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |



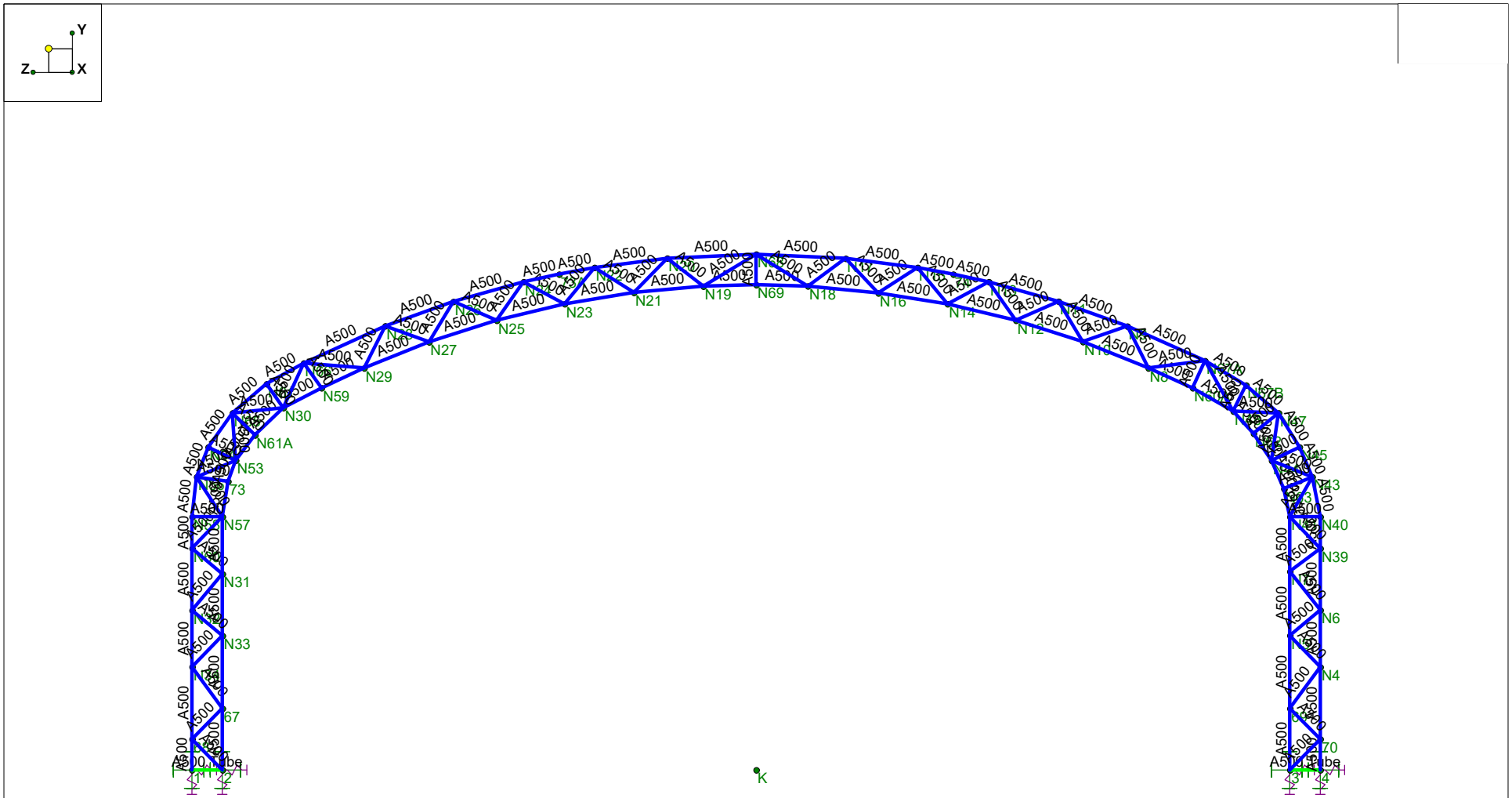

Envelope Only Solution
Reaction and Moment Units are k and k-ft (Enveloped)

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 2 |
| Mo | | May 27, 2021 at 10:41 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |



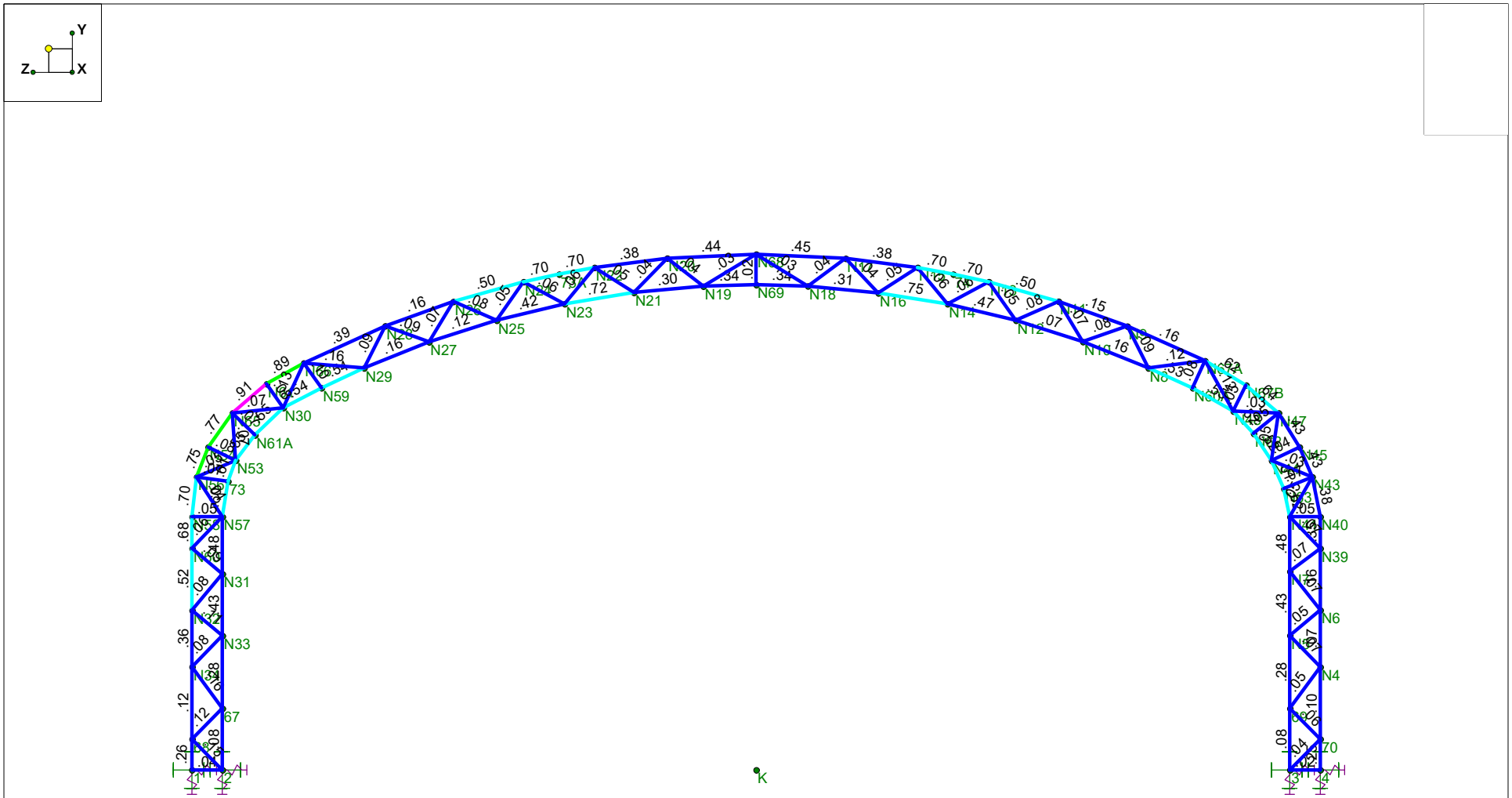

Envelope Only Solution
Reaction and Moment Units are k and k-ft (Enveloped)

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 3 |
| Mo | | May 27, 2021 at 10:41 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |



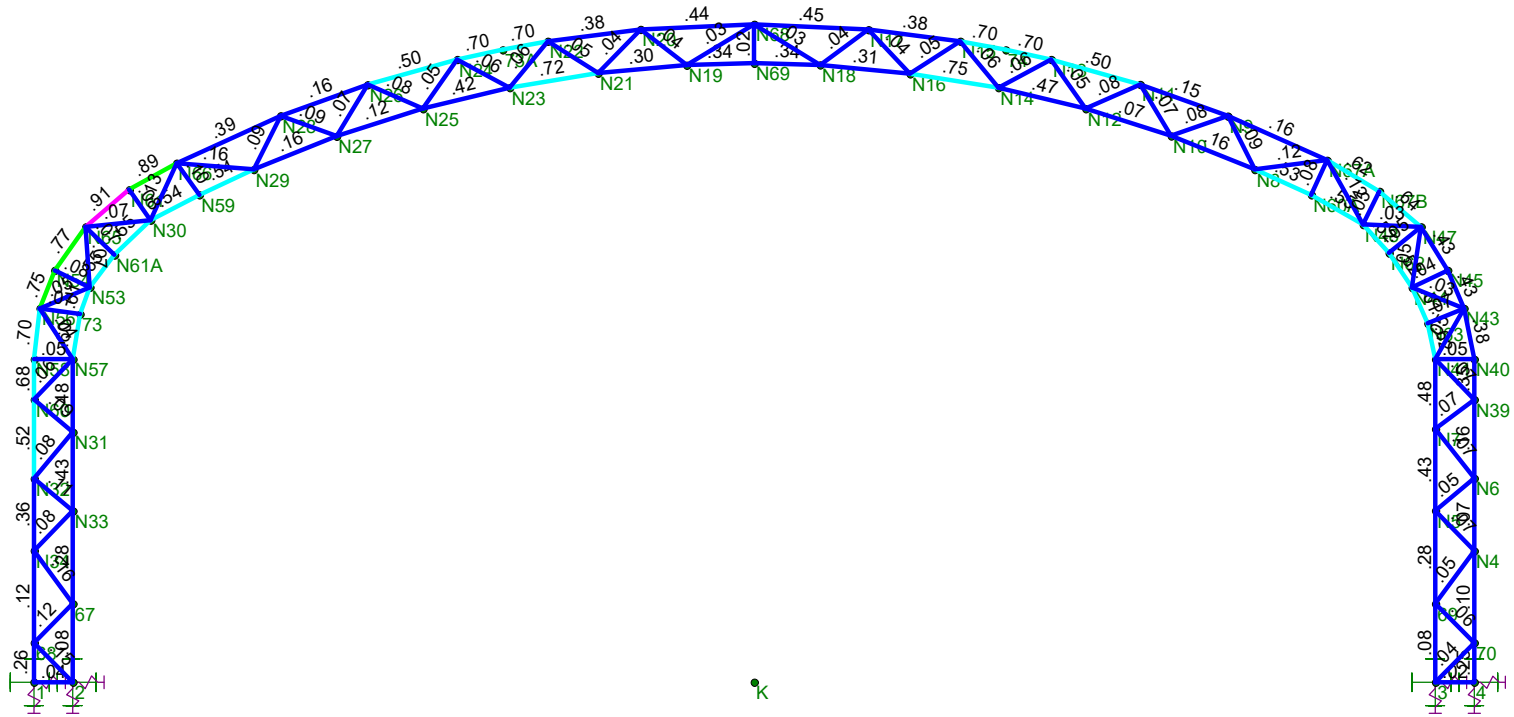

Envelope Only Solution
Reaction and Moment Units are k and k-ft (Enveloped)

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 4 |
| Mo | | May 27, 2021 at 10:41 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |




Member Code Checks Displayed (Enveloped)
Envelope Only Solution
Reaction and Moment Units are k and k-ft (Enveloped)

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 5 |
| Mo | | May 27, 2021 at 10:41 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |




Member Code Checks Displayed (Enveloped)
Envelope Only Solution
Reaction and Moment Units are k and k-ft (Enveloped)

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 6 |
| Mo | | May 27, 2021 at 10:42 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |

## Hot Rolled Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm (/1E...Density[k/ft... | | Yield[ksi] | Ry | Fu[ksi] | Rt |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A36 Gr.36 | 29000 | 11154 | .3 | .65 | .49 | 36 | 1.5 | 58 | 1.2 |
| 2 | A572 Gr.50 | 29000 | 11154 | .3 | .65 | .49 | 50 | 1.1 | 65 | 1.1 |
| 3 | A992 | 29000 | 11154 | .3 | .65 | .49 | 50 | 1.1 | 65 | 1.1 |
| 4 | A500 Gr.B RND | 29000 | 11154 | .3 | .65 | .527 | 42 | 1.4 | 58 | 1.3 |
| 5 | A500 Gr.B Rect | 29000 | 11154 | .3 | .65 | .527 | 46 | 1.4 | 58 | 1.3 |
| 6 | A53 Gr.B | 29000 | 11154 | .3 | .65 | .49 | 35 | 1.6 | 60 | 1.2 |
| 7 | A1085 | 29000 | 11154 | .3 | .65 | .49 | 50 | 1.4 | 65 | 1.3 |
| 8 | A500 | 29000 | 11154 | .3 | .65 | .49 | 55 | 1.5 | 60 | 1.2 |
| 9 | A500 Tube | 29000 | 11154 | .3 | .65 | .49 | 50 | 1.5 | 55 | 1.2 |

## Hot Rolled Steel Section Sets

| | Label | Shape | Type | Design List | Material | Design Rul... | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Top Chord | 1.9x0.09 | Beam | pipe | A500 | Typical | .512 | .21 | .21 | .42 |
| 2 | Bottom Ch... | 1.9x0.09 | Beam | pipe | A500 | Typical | .512 | .21 | .21 | .42 |
| 3 | Z Bar | 1.66" x 0.085" | Beam | pipe | A500 | Typical | .421 | .131 | .131 | .262 |
| 4 | TUBE | 2" x 3" x 0.085_HRA | Beam | Tube | A500 Tube | Typical | .821 | .555 | 1.044 | 1.599 |

## Joint Coordinates and Temperatures

| | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diaphragm |
|---|---|---|---|---|---|---|
| 1 | 4 | 0 | 0 | 0 | 0 | |
| 2 | N4 | 0 | 4.54402 | 0 | 0 | |
| 3 | N5 | 0 | 5.937425 | 1.342617 | 0 | |
| 4 | N6 | 0 | 7.062501 | .000208 | 0 | |
| 5 | N7 | 0 | 8.763718 | 1.342617 | 0 | |
| 6 | N8 | 0 | 17.744401 | 7.597053 | 0 | |
| 7 | N9 | 0 | 19.597085 | 8.528475 | 0 | |
| 8 | N10 | 0 | 18.906915 | 10.492788 | 0 | |
| 9 | N11 | 0 | 20.687479 | 11.560188 | 0 | |
| 10 | N12 | 0 | 19.84965 | 13.448197 | 0 | |
| 11 | N13 | 0 | 21.548065 | 14.642898 | 0 | |
| 12 | N14 | 0 | 20.575947 | 16.468847 | 0 | |
| 13 | N15 | 0 | 22.183845 | 17.789965 | 0 | |
| 14 | N16 | 0 | 21.059978 | 19.53114 | 0 | |
| 15 | N17 | 0 | 22.587854 | 20.969305 | 0 | |
| 16 | N18 | 0 | 21.360603 | 22.634184 | 0 | |
| 17 | N19 | 0 | 21.358088 | 27.253696 | 0 | |
| 18 | N20 | 0 | 22.590051 | 28.847784 | 0 | |
| 19 | N21 | 0 | 21.078546 | 30.321601 | 0 | |
| 20 | N22 | 0 | 22.18268 | 32.058638 | 0 | |
| 21 | N23 | 0 | 20.57353 | 33.384614 | 0 | |
| 22 | N24 | 0 | 21.548065 | 35.198617 | 0 | |
| 23 | N25 | 0 | 19.851642 | 36.386185 | 0 | |
| 24 | N26 | 0 | 20.683322 | 38.294359 | 0 | |
| 25 | N27 | 0 | 18.900269 | 39.367195 | 0 | |
| 26 | N28 | 0 | 19.599048 | 41.308151 | 0 | |
| 27 | N29 | 0 | 17.748948 | 42.234232 | 0 | |
| 28 | N30 | 0 | 15.989399 | 45.80603 | 0 | |
| 29 | N31 | 0 | 8.652807 | 48.497462 | 0 | |
| 30 | N32 | 0 | 7.050734 | 49.841307 | 0 | |
| 31 | N33 | 0 | 5.932535 | 48.497462 | 0 | |
| 32 | N34 | 0 | 4.549053 | 49.841369 | 0 | |
| 33 | 1 | 0 | 0 | 49.841432 | 0 | |
| 34 | N39 | 0 | 9.778993 | 0 | 0 | |

## Joint Coordinates and Temperatures (Continued)

| | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diaphragm |
|---|---|---|---|---|---|---|
| 35 | N40 | 0 | 11.179751 | -0.000415 | 0 | |
| 36 | N41 | 0 | 11.17937 | 1.342617 | 0 | |
| 37 | N43 | 0 | 12.934971 | 0.356554 | 0 | |
| 38 | N44 | 0 | 13.658254 | 2.154954 | 0 | |
| 39 | N45 | 0 | 14.25 | 0.921186 | 0 | |
| 40 | N47 | 0 | 15.757562 | 1.845699 | 0 | |
| 41 | N48 | 0 | 15.8434 | 3.846632 | 0 | |
| 42 | N53 | 0 | 13.664443 | 47.913487 | 0 | |
| 43 | N54 | 0 | 14.249955 | 49.123036 | 0 | |
| 44 | N56 | 0 | 12.934971 | 49.638676 | 0 | |
| 45 | N57 | 0 | 11.179699 | 48.497462 | 0 | |
| 46 | N58 | 0 | 11.179699 | 49.841212 | 0 | |
| 47 | N60 | 0 | 9.784097 | 49.841244 | 0 | |
| 48 | N65 | 0 | 15.757562 | 48.0546 | 0 | |
| 49 | N66 | 0 | 17.962567 | 44.907439 | 0 | |
| 50 | N68 | 0 | 22.765704 | 24.920758 | 0 | |
| 51 | N69 | 0 | 21.421954 | 24.920758 | 0 | |
| 52 | K | 0 | 0 | 24.92004 | 0 | |
| 53 | N59 | 0 | 16.864173 | 44.120131 | 0 | |
| 54 | N60A | 0 | 16.864173 | 5.641548 | 0 | |
| 55 | N61 | 0 | 17.05 | 46.55 | 0 | |
| 56 | N61A | 0 | 14.791921 | 47.059759 | 0 | |
| 57 | N62 | 0 | 14.856672 | 2.950499 | 0 | |
| 58 | N63 | 0 | 12.422071 | 1.608786 | 0 | |
| 59 | 2 | 0 | 0 | 48.497462 | 0 | |
| 60 | 3 | 0 | 0 | 1.342617 | 0 | |
| 61 | N67A | 0 | 18.06927 | 5.093754 | 0 | |
| 62 | N67B | 0 | 16.990064 | 3.280432 | 0 | |
| 63 | 67 | 0 | 2.72027 | 48.497462 | 0 | |
| 64 | 68 | 0 | 1.360135 | 49.8414 | 0 | |
| 65 | 69 | 0 | 2.72027 | 1.342617 | 0 | |
| 66 | 70 | 0 | 1.360135 | 0 | 0 | |
| 67 | 73 | 0 | 12.7389 | 48.25 | 0 | |
| 68 | 73A | 0 | 21.89 | 33.628627 | 0 | |
| 69 | 74 | 0 | 21.89 | 16.216432 | 0 | |

## Joint Boundary Conditions

| | Joint 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 | 1 | Reaction | S40 | S40 | | Reaction | Reaction |
| 2 | 2 | Reaction | S40 | S40 | | Reaction | Reaction |
| 3 | 3 | Reaction | S40 | S40 | | Reaction | Reaction |
| 4 | 4 | Reaction | S40 | S40 | | Reaction | Reaction |

## Hot Rolled Steel Design Parameters

| | Label | Shape | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torqu... | Kyy | Kzz | Cb | Function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M43 | Bottom Chord | 3.09 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 2 | M44 | Bottom Chord | 3.129 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 3 | M45 | Bottom Chord | 3.087 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 4 | M46 | Bottom Chord | 3.104 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 5 | M47 | Bottom Chord | 3.081 | 4.7 | | 4.7 | 4.7 | 4.7 | .7 | .7 | | Lateral |
| 6 | M48 | Bottom Chord | 2.334 | 4.7 | | 4.7 | 4.7 | 4.7 | .7 | .7 | | Lateral |
| 7 | M49 | Bottom Chord | 2.287 | 4.7 | | 4.7 | 4.7 | 4.7 | .7 | .7 | | Lateral |
| 8 | M50 | Bottom Chord | 3.118 | 4.7 | | 4.7 | 4.7 | 4.7 | .7 | .7 | | Lateral |
| 9 | M51 | Bottom Chord | 3.1 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |

## Hot Rolled Steel Design Parameters (Continued)

| | Label | Shape | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torqu... | Kyy | Kzz | Cb | Function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | M52 | Bottom Chord | 3.107 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 11 | M53 | Bottom Chord | 3.102 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 12 | M54 | Bottom Chord | 3.12 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 13 | M104A | Bottom Chord | 2.144 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 14 | M110A | Bottom Chord | 2.083 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 15 | M34 | Bottom Chord | 2.72 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 16 | M63 | Bottom Chord | 2.826 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 17 | M64 | Bottom Chord | 3.217 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 18 | M121A | Bottom Chord | 1.414 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 19 | M119A | Bottom Chord | 1.899 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 20 | M117 | Bottom Chord | 1.579 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 21 | M105A | Bottom Chord | 1.333 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 22 | M106A | Bottom Chord | 1.351 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 23 | M107A | Bottom Chord | 2.416 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 24 | M111A | Bottom Chord | 2.065 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 25 | M115C | Bottom Chord | 1.734 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 26 | M116A | Bottom Chord | 1.438 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 27 | M117A | Bottom Chord | 1.271 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 28 | M122A | Bottom Chord | 2.72 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 29 | M125D | Bottom Chord | 3.212 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 30 | M127A | Bottom Chord | 2.72 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 31 | M133A | Bottom Chord | 2.527 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 32 | M137 | Bottom Chord | .985 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 33 | M124A | TUBE | 1.344 | | | | | | .7 | .7 | | Lateral |
| 34 | M125 | TUBE | 1.343 | | | | | | .7 | .7 | | Lateral |
| 35 | M2 | Top Chord | 1.36 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 36 | M3 | Top Chord | 2.518 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 37 | M4 | Top Chord | 2.716 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 38 | M5 | Top Chord | 1.401 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 39 | M6 | Top Chord | 1.791 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 40 | M7 | Top Chord | 1.431 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 41 | M8 | Top Chord | 1.768 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 42 | M9 | Top Chord | 1.891 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 43 | M12 | Top Chord | 3.222 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 44 | M13 | Top Chord | 3.201 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 45 | M18 | Top Chord | 3.237 | 4.7 | | 4.7 | 4.7 | 4.7 | .7 | .7 | | Lateral |
| 46 | M19 | Top Chord | 1.597 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 47 | M20 | Top Chord | 3.214 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 48 | M21 | Top Chord | 3.203 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 49 | M22 | Top Chord | 3.954 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 50 | M23 | Top Chord | 1.848 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 51 | M24 | Top Chord | 1.412 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 52 | M25 | Top Chord | 1.767 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 53 | M26 | Top Chord | 1.396 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 54 | M27 | Top Chord | 2.733 | 6.7 | | 6.7 | 6.7 | 6.7 | .7 | .7 | | Lateral |
| 55 | M28 | Top Chord | 2.502 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 56 | M29 | Top Chord | 3.189 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 57 | M133 | Top Chord | 1.983 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 58 | M114A | Top Chord | 1.879 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 59 | M112B | Top Chord | 3.931 | 4.7 | | 4.7 | 4.7 | 4.7 | .7 | .7 | | Lateral |
| 60 | M125A | Top Chord | 3.955 | 4.7 | | 4.7 | 4.7 | 4.7 | .7 | .7 | | Lateral |
| 61 | M125B | Top Chord | 3.759 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 62 | M125C | Top Chord | 2.11 | 8.8 | | 8.8 | 8.8 | 8.8 | .7 | .7 | | Lateral |
| 63 | M126 | Top Chord | 1.36 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 64 | M128 | Top Chord | 3.184 | 7.8 | | 7.8 | 7.8 | 7.8 | .7 | .7 | | Lateral |
| 65 | M139 | Top Chord | 3.205 | 4.7 | | 4.7 | 4.7 | 4.7 | .7 | .7 | | Lateral |
| 66 | M140 | Top Chord | 1.61 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |

## Hot Rolled Steel Design Parameters (Continued)

| | Label | Shape | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torqu... | Kyy | Kzz | Cb | Function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67 | M137A | Top Chord | 1.607 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 68 | M138 | Top Chord | 1.601 | 10.9 | | 10.9 | 10.9 | 10.9 | .7 | .7 | | Lateral |
| 69 | M70 | Z Bar | 2.265 | | | | | | .7 | .7 | | Lateral |
| 70 | M71 | Z Bar | 1.935 | | | | | | .7 | .7 | | Lateral |
| 71 | M72 | Z Bar | 1.752 | | | | | | .7 | .7 | | Lateral |
| 72 | M73 | Z Bar | 2.167 | | | | | | .7 | .7 | | Lateral |
| 73 | M74 | Z Bar | 1.683 | | | | | | .7 | .7 | | Lateral |
| 74 | M75 | Z Bar | 1.94 | | | | | | .7 | .7 | | Lateral |
| 75 | M76 | Z Bar | 2.014 | | | | | | .7 | .7 | | Lateral |
| 76 | M77 | Z Bar | 1.938 | | | | | | .7 | .7 | | Lateral |
| 77 | M78 | Z Bar | 2.122 | | | | | | .7 | .7 | | Lateral |
| 78 | M79 | Z Bar | 2.003 | | | | | | .7 | .7 | | Lateral |
| 79 | M80 | Z Bar | 2.551 | | | | | | .7 | .7 | | Lateral |
| 80 | M81 | Z Bar | 2.524 | | | | | | .7 | .7 | | Lateral |
| 81 | M82 | Z Bar | 2.074 | | | | | | .7 | .7 | | Lateral |
| 82 | M83 | Z Bar | 2.082 | | | | | | .7 | .7 | | Lateral |
| 83 | M84 | Z Bar | 2.076 | | | | | | .7 | .7 | | Lateral |
| 84 | M85 | Z Bar | 2.066 | | | | | | .7 | .7 | | Lateral |
| 85 | M86 | Z Bar | 2.077 | | | | | | .7 | .7 | | Lateral |
| 86 | M87 | Z Bar | 2.069 | | | | | | .7 | .7 | | Lateral |
| 87 | M88 | Z Bar | 2.081 | | | | | | .7 | .7 | | Lateral |
| 88 | M89 | Z Bar | 2.072 | | | | | | .7 | .7 | | Lateral |
| 89 | M90 | Z Bar | 2.098 | | | | | | .7 | .7 | | Lateral |
| 90 | M91 | Z Bar | 2.068 | | | | | | .7 | .7 | | Lateral |
| 91 | M92 | Z Bar | 2.684 | | | | | | .7 | .7 | | Lateral |
| 92 | M93 | Z Bar | 2.725 | | | | | | .7 | .7 | | Lateral |
| 93 | M94 | Z Bar | 2.015 | | | | | | .7 | .7 | | Lateral |
| 94 | M95 | Z Bar | 2.111 | | | | | | .7 | .7 | | Lateral |
| 95 | M96 | Z Bar | 2.058 | | | | | | .7 | .7 | | Lateral |
| 96 | M97 | Z Bar | 2.085 | | | | | | .7 | .7 | | Lateral |
| 97 | M98 | Z Bar | 2.059 | | | | | | .7 | .7 | | Lateral |
| 98 | M99 | Z Bar | 2.071 | | | | | | .7 | .7 | | Lateral |
| 99 | M100 | Z Bar | 2.082 | | | | | | .7 | .7 | | Lateral |
| 100 | M101 | Z Bar | 2.081 | | | | | | .7 | .7 | | Lateral |
| 101 | M102 | Z Bar | 2.063 | | | | | | .7 | .7 | | Lateral |
| 102 | M103 | Z Bar | 2.069 | | | | | | .7 | .7 | | Lateral |
| 103 | M104 | Z Bar | 2.682 | | | | | | .7 | .7 | | Lateral |
| 104 | M105 | Z Bar | 2.168 | | | | | | .7 | .7 | | Lateral |
| 105 | M106 | Z Bar | 2.26 | | | | | | .7 | .7 | | Lateral |
| 106 | M107 | Z Bar | 2.098 | | | | | | .7 | .7 | | Lateral |
| 107 | M108 | Z Bar | 1.873 | | | | | | .7 | .7 | | Lateral |
| 108 | M109 | Z Bar | 2.094 | | | | | | .7 | .7 | | Lateral |
| 109 | M110 | Z Bar | 1.937 | | | | | | .7 | .7 | | Lateral |
| 110 | M111 | Z Bar | 1.757 | | | | | | .7 | .7 | | Lateral |
| 111 | M112 | Z Bar | 2.091 | | | | | | .7 | .7 | | Lateral |
| 112 | M113 | Z Bar | 1.748 | | | | | | .7 | .7 | | Lateral |
| 113 | M114 | Z Bar | 1.929 | | | | | | .7 | .7 | | Lateral |
| 114 | M115 | Z Bar | 2.269 | | | | | | .7 | .7 | | Lateral |
| 115 | M120 | Z Bar | 1.343 | | | | | | .7 | .7 | | Lateral |
| 116 | M122 | Z Bar | 1.368 | | | | | | .7 | .7 | | Lateral |
| 117 | M124 | Z Bar | 1.279 | | | | | | .7 | .7 | | Lateral |
| 118 | M127 | Z Bar | 1.344 | | | | | | .7 | .7 | | Lateral |
| 119 | M129 | Z Bar | 1.344 | | | | | | .7 | .7 | | Lateral |
| 120 | M135 | Z Bar | 1.344 | | | | | | .7 | .7 | | Lateral |
| 121 | M112A | Z Bar | 1.351 | | | | | | .7 | .7 | | Lateral |
| 122 | M113A | Z Bar | 1.324 | | | | | | .7 | .7 | | Lateral |
| 123 | M115B | Z Bar | 1.296 | | | | | | .7 | .7 | | Lateral |

## Hot Rolled Steel Design Parameters (Continued)

| | Label | Shape | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torqu... | Kyy | Kzz | Cb | Function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 124 | M118 | Z Bar | 1.402 | | | | | | .7 | .7 | | Lateral |
| 125 | M119 | Z Bar | 1.386 | | | | | | .7 | .7 | | Lateral |
| 126 | M120A | Z Bar | 1.426 | | | | | | .7 | .7 | | Lateral |
| 127 | M121 | Z Bar | 1.353 | | | | | | .7 | .7 | | Lateral |
| 128 | M129A | Z Bar | 1.912 | | | | | | .7 | .7 | | Lateral |
| 129 | M130 | Z Bar | 1.912 | | | | | | .7 | .7 | | Lateral |
| 130 | M131 | Z Bar | 1.911 | | | | | | .7 | .7 | | Lateral |
| 131 | M132 | Z Bar | 1.911 | | | | | | .7 | .7 | | Lateral |

## Member Distributed Loads (BLC 1 : DL)

| | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft,%] | End Location[ft,%] |
|---|---|---|---|---|---|---|
| 1 | M29 | Y | -.008 | -.008 | 0 | 0 |
| 2 | M28 | Y | -.008 | -.008 | 0 | 0 |
| 3 | M27 | Y | -.008 | -.008 | 0 | 0 |
| 4 | M26 | Y | -.008 | -.008 | 0 | 0 |
| 5 | M25 | Y | -.008 | -.008 | 0 | 0 |
| 6 | M24 | Y | -.008 | -.008 | 0 | 0 |
| 7 | M23 | Y | -.008 | -.008 | 0 | 0 |
| 8 | M133 | Y | -.008 | -.008 | 0 | 0 |
| 9 | M22 | Y | -.008 | -.008 | 0 | 0 |
| 10 | M21 | Y | -.008 | -.008 | 0 | 0 |
| 11 | M20 | Y | -.008 | -.008 | 0 | 0 |
| 12 | M19 | Y | -.008 | -.008 | 0 | 0 |
| 13 | M18 | Y | -.008 | -.008 | 0 | 0 |
| 14 | M13 | Y | -.008 | -.008 | 0 | 0 |
| 15 | M12 | Y | -.008 | -.008 | 0 | 0 |
| 16 | M9 | Y | -.008 | -.008 | 0 | 0 |
| 17 | M8 | Y | -.008 | -.008 | 0 | 0 |
| 18 | M7 | Y | -.008 | -.008 | 0 | 0 |
| 19 | M6 | Y | -.008 | -.008 | 0 | 0 |
| 20 | M5 | Y | -.008 | -.008 | 0 | 0 |
| 21 | M4 | Y | -.008 | -.008 | 0 | 0 |
| 22 | M3 | Y | -.008 | -.008 | 0 | 0 |
| 23 | M2 | Y | -.008 | -.008 | 0 | 0 |
| 24 | M114A | Y | -.008 | -.008 | 0 | 0 |
| 25 | M112B | Y | -.008 | -.008 | 0 | 0 |
| 26 | M125C | Y | -.008 | -.008 | 0 | 0 |
| 27 | M125A | Y | -.008 | -.008 | 0 | 0 |
| 28 | M125B | Y | -.008 | -.008 | 0 | 0 |
| 29 | M126 | Y | -.008 | -.008 | 0 | 0 |
| 30 | M128 | Y | -.008 | -.008 | 0 | 0 |
| 31 | M139 | Y | -.008 | -.008 | 0 | 0 |
| 32 | M140 | Y | -.008 | -.008 | 0 | 0 |
| 33 | M137A | Y | -.008 | -.008 | 0 | 0 |
| 34 | M138 | Y | -.008 | -.008 | 0 | 0 |

## Member Distributed Loads (BLC 2 : RLL)

| | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft,%] | End Location[ft,%] |
|---|---|---|---|---|---|---|
| 1 | M23 | Y | -.04 | -.04 | 0 | 0 |
| 2 | M133 | Y | -.04 | -.04 | 0 | 0 |
| 3 | M22 | Y | -.04 | -.04 | 0 | 0 |
| 4 | M8 | Y | -.04 | -.04 | 0 | 0 |
| 5 | M9 | Y | -.04 | -.04 | 0 | 0 |
| 6 | M21 | Y | -.04 | -.04 | 0 | 0 |
| 7 | M12 | Y | -.04 | -.04 | 0 | 0 |

## Member Distributed Loads (BLC 2 : RLL) (Continued)

| | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft,%] | End Location[ft,%] |
|---|---|---|---|---|---|---|
| 8 | M20 | Y | -.04 | -.04 | 0 | 0 |
| 9 | M19 | Y | -.04 | -.04 | 0 | 0 |
| 10 | M18 | Y | -.04 | -.04 | 0 | 0 |
| 11 | M13 | Y | -.04 | -.04 | 0 | 0 |
| 12 | M114A | Y | -.04 | -.04 | 0 | 0 |
| 13 | M112B | Y | -.04 | -.04 | 0 | 0 |
| 14 | M24 | Y | -.04 | -.04 | 0 | 0 |
| 15 | M7 | Y | -.04 | -.04 | 0 | 0 |
| 16 | M125C | Y | -.04 | -.04 | 0 | 0 |
| 17 | M125A | Y | -.04 | -.04 | 0 | 0 |
| 18 | M125B | Y | -.04 | -.04 | 0 | 0 |
| 19 | M139 | Y | -.04 | -.04 | 0 | 0 |
| 20 | M140 | Y | -.04 | -.04 | 0 | 0 |
| 21 | M137A | Y | -.04 | -.04 | 0 | 0 |
| 22 | M138 | Y | -.04 | -.04 | 0 | 0 |

## Member Distributed Loads (BLC 3 : WL+Z)

| | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft,%] | End Location[ft,%] |
|---|---|---|---|---|---|---|
| 1 | M126 | y | .094 | .094 | 0 | 0 |
| 2 | M29 | y | .094 | .094 | 0 | 0 |
| 3 | M28 | y | .094 | .094 | 0 | 0 |
| 4 | M27 | y | .094 | .094 | 0 | 0 |
| 5 | M26 | y | .094 | .094 | 0 | 0 |
| 6 | M2 | y | -.114 | -.114 | 0 | 0 |
| 7 | M128 | y | -.114 | -.114 | 0 | 0 |
| 8 | M3 | y | -.114 | -.114 | 0 | 0 |
| 9 | M4 | y | -.114 | -.114 | 0 | 0 |
| 10 | M5 | y | -.114 | -.114 | 0 | 0 |
| 11 | M6 | y | -.114 | -.114 | 0 | 0 |
| 12 | M24 | y | -.178 | -.178 | 0 | 0 |
| 13 | M23 | y | -.178 | -.178 | 0 | 0 |
| 14 | M133 | y | -.178 | -.178 | 0 | 0 |
| 15 | M114A | y | -.178 | -.178 | 0 | 0 |
| 16 | M22 | y | -.178 | -.178 | 0 | 0 |
| 17 | M21 | y | -.178 | -.178 | 0 | 0 |
| 18 | M7 | y | -.114 | -.114 | 0 | 0 |
| 19 | M8 | y | -.114 | -.114 | 0 | 0 |
| 20 | M9 | y | -.114 | -.114 | 0 | 0 |
| 21 | M125C | y | -.114 | -.114 | 0 | 0 |
| 22 | M125B | y | -.114 | -.114 | 0 | 0 |
| 23 | M19 | y | -.171 | -.171 | 0 | 0 |
| 24 | M18 | y | -.171 | -.171 | 0 | 0 |
| 25 | M112B | y | -.171 | -.171 | 0 | 0 |
| 26 | M125A | y | -.171 | -.171 | 0 | 0 |
| 27 | M13 | y | -.171 | -.171 | 0 | 0 |
| 28 | M139 | y | -.171 | -.171 | 0 | 0 |
| 29 | M140 | y | -.171 | -.171 | 0 | 0 |
| 30 | M20 | y | -.171 | -.171 | 0 | 0 |
| 31 | M12 | y | -.114 | -.114 | 0 | 0 |
| 32 | M25 | y | .094 | .094 | 0 | 0 |
| 33 | M137A | y | -.178 | -.178 | 0 | 0 |
| 34 | M138 | y | -.171 | -.171 | 0 | 0 |

## Member Distributed Loads (BLC 4 : WL-Z)

| | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft,%] | End Location[ft,%] |
|---|---|---|---|---|---|---|
| 1 | M126 | y | .162 | .162 | 0 | 0 |

## Member Distributed Loads (BLC 4 : WL-Z) (Continued)

| | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft,%] | End Location[ft,%] |
|---|---|---|---|---|---|---|
| 2 | M29 | y | .162 | .162 | 0 | 0 |
| 3 | M28 | y | .162 | .162 | 0 | 0 |
| 4 | M27 | y | .162 | .162 | 0 | 0 |
| 5 | M26 | y | .162 | .162 | 0 | 0 |
| 6 | M2 | y | -.046 | -.046 | 0 | 0 |
| 7 | M128 | y | -.046 | -.046 | 0 | 0 |
| 8 | M3 | y | -.046 | -.046 | 0 | 0 |
| 9 | M4 | y | -.046 | -.046 | 0 | 0 |
| 10 | M5 | y | -.046 | -.046 | 0 | 0 |
| 11 | M6 | y | -.046 | -.046 | 0 | 0 |
| 12 | M24 | y | -.11 | -.11 | 0 | 0 |
| 13 | M23 | y | -.11 | -.11 | 0 | 0 |
| 14 | M133 | y | -.11 | -.11 | 0 | 0 |
| 15 | M114A | y | -.11 | -.11 | 0 | 0 |
| 16 | M22 | y | -.11 | -.11 | 0 | 0 |
| 17 | M21 | y | -.11 | -.11 | 0 | 0 |
| 18 | M7 | y | -.046 | -.046 | 0 | 0 |
| 19 | M8 | y | -.046 | -.046 | 0 | 0 |
| 20 | M9 | y | -.046 | -.046 | 0 | 0 |
| 21 | M125C | y | -.046 | -.046 | 0 | 0 |
| 22 | M125B | y | -.046 | -.046 | 0 | 0 |
| 23 | M12 | y | -.046 | -.046 | 0 | 0 |
| 24 | M25 | y | -.11 | -.11 | 0 | 0 |
| 25 | M20 | y | 0 | 0 | 0 | 0 |
| 26 | M20 | y | 0 | 0 | 0 | 0 |
| 27 | M20 | y | -.103 | -.103 | 0 | 0 |
| 28 | M137A | y | -.103 | -.103 | 0 | 0 |
| 29 | M19 | y | -.103 | -.103 | 0 | 0 |
| 30 | M18 | y | -.103 | -.103 | 0 | 0 |
| 31 | M112B | y | -.103 | -.103 | 0 | 0 |
| 32 | M125A | y | -.103 | -.103 | 0 | 0 |
| 33 | M139 | y | -.103 | -.103 | 0 | 0 |
| 34 | M138 | y | -.103 | -.103 | 0 | 0 |
| 35 | M140 | y | -.103 | -.103 | 0 | 0 |
| 36 | M13 | y | -.103 | -.103 | 0 | 0 |

## Basic Load Cases

| | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed | Area(Me... | Surface(P... |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | DL | DL | | -1 | | | | 34 | | |
| 2 | RLL | RLL | | | | | | 22 | | |
| 3 | WL+Z | WL+Z | | | | | | 34 | | |
| 4 | WL-Z | WL-Z | | | | | | 36 | | |

## Load Combinations

| | Description | So... | PDe... | S... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | IBC 16-8 | Yes | Y | | DL | 1 | | | | | | | | | | | | | | | | | | |
| 2 | IBC 16-9 | Yes | Y | | DL | 1 | LL | 1 | LLS | 1 | | | | | | | | | | | | | | |
| 3 | IBC 16-1... | Yes | Y | | DL | 1 | RLL | 1 | | | | | | | | | | | | | | | | |
| 4 | IBC 16-1... | Yes | Y | | DL | 1 | LL | .75 | LLS | .75 | RLL | .75 | | | | | | | | | | | | |
| 5 | IBC 16-1... | Yes | Y | | DL | 1 | WL+Z | .6 | | | | | | | | | | | | | | | | |
| 6 | IBC 16-1... | Yes | Y | | DL | 1 | WL+Z | .45 | LL | .75 | LLS | .75 | RLL | .75 | | | | | | | | | | |
| 7 | IBC 16-1... | Yes | Y | | DL | 1 | WL+Z | .45 | LL | .75 | LLS | .75 | | | | | | | | | | | | |
| 8 | IBC 16-15 | Yes | Y | | DL | .6 | WL+Z | .6 | | | | | | | | | | | | | | | | |
| 9 | IBC 16-1... | Yes | Y | | DL | 1 | WL-Z | .6 | | | | | | | | | | | | | | | | |

## Load Combinations (Continued)

| | Description | So... | PDe... | S... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... | BLC | Fac... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | IBC 16-1... | Yes | Y | | DL | 1 | WL-Z | .45 | LL | .75 | LLS | .75 | RLL | .75 | | | | | | | | | | |
| 11 | IBC 16-1... | Yes | Y | | DL | 1 | WL-Z | .45 | LL | .75 | LLS | .75 | | | | | | | | | | | | |
| 12 | IBC 16-15 | Yes | Y | | DL | .6 | WL-Z | .6 | | | | | | | | | | | | | | | | |
| 13 | DL | | Y | | DL | 1 | | | | | | | | | | | | | | | | | | |
| 14 | RLL | | Y | | RLL | 1 | | | | | | | | | | | | | | | | | | |
| 15 | WL+Z | | Y | | WL+Z | 1 | | | | | | | | | | | | | | | | | | |
| 16 | WL-Z | | Y | | WL-Z | 1 | | | | | | | | | | | | | | | | | | |

## 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 | 1 | max | 0 | 12 | 1.706 | 3 | .706 | 8 | 0 | 12 | 0 | 12 | 0 | 12 |
| 2 | | min | 0 | 1 | -3.111 | 8 | -.285 | 3 | 0 | 1 | 0 | 1 | 0 | 1 |
| 3 | 2 | max | 0 | 12 | .887 | 5 | .726 | 8 | 0 | 12 | 0 | 12 | 0 | 12 |
| 4 | | min | 0 | 1 | -.035 | 3 | -.294 | 3 | 0 | 1 | 0 | 1 | 0 | 1 |
| 5 | 3 | max | 0 | 12 | .062 | 2 | .294 | 3 | 0 | 12 | 0 | 12 | 0 | 12 |
| 6 | | min | 0 | 1 | -.605 | 8 | -.098 | 12 | 0 | 1 | 0 | 1 | 0 | 1 |
| 7 | 4 | max | 0 | 12 | 1.686 | 3 | .285 | 3 | 0 | 12 | 0 | 12 | 0 | 12 |
| 8 | | min | 0 | 1 | -1.209 | 8 | -.095 | 12 | 0 | 1 | 0 | 1 | 0 | 1 |
| 9 | Totals: | max | 0 | 12 | 3.336 | 3 | 1.315 | 8 | | | | | | |
| 10 | | min | 0 | 1 | -4.067 | 8 | 0 | 1 | | | | | | |

## Envelope Member Section Forces

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M43 | 1 | max | .933 | 3 | -.001 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 8 |
| 2 | | | min | -1.867 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 10 |
| 3 | | 2 | max | .933 | 3 | 0 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 5 |
| 4 | | | min | -1.867 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 12 |
| 5 | | 3 | max | .932 | 3 | 0 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 5 |
| 6 | | | min | -1.868 | 8 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 12 |
| 7 | | 4 | max | .932 | 3 | .001 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 6 |
| 8 | | | min | -1.868 | 8 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 12 |
| 9 | | 5 | max | .931 | 3 | .003 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 10 | | | min | -1.868 | 8 | .002 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 9 |
| 11 | M44 | 1 | max | .47 | 12 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 8 |
| 12 | | | min | -.39 | 3 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 13 | | 2 | max | .47 | 12 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 3 |
| 14 | | | min | -.39 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 12 |
| 15 | | 3 | max | .47 | 12 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 16 | | | min | -.39 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 8 |
| 17 | | 4 | max | .469 | 12 | .005 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 18 | | | min | -.391 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 8 |
| 19 | | 5 | max | .469 | 12 | .006 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 20 | | | min | -.391 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 21 | M45 | 1 | max | 1.523 | 8 | 0 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 22 | | | min | -1.46 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 5 |
| 23 | | 2 | max | 1.523 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 24 | | | min | -1.46 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 8 |
| 25 | | 3 | max | 1.522 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 26 | | | min | -1.46 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 27 | | 4 | max | 1.522 | 8 | .004 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 28 | | | min | -1.461 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 29 | | 5 | max | 1.522 | 8 | .005 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 30 | | | min | -1.461 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 31 | M46 | 1 | max | 2.625 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | | | min | -2.265 | 3 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 33 | | 2 | max | 2.625 | 8 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 34 | | | min | -2.266 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 35 | | 3 | max | 2.625 | 8 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 3 |
| 36 | | | min | -2.266 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 37 | | 4 | max | 2.624 | 8 | .005 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 38 | | | min | -2.266 | 3 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 39 | | 5 | max | 2.624 | 8 | .006 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 3 |
| 40 | | | min | -2.266 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 8 |
| 41 | M47 | 1 | max | 3.378 | 8 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 42 | | | min | -2.814 | 3 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 43 | | 2 | max | 3.377 | 8 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 44 | | | min | -2.814 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 45 | | 3 | max | 3.377 | 8 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 3 |
| 46 | | | min | -2.814 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 47 | | 4 | max | 3.377 | 8 | .005 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 48 | | | min | -2.814 | 3 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 8 |
| 49 | | 5 | max | 3.377 | 8 | .007 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 50 | | | min | -2.814 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.027 | 8 |
| 51 | M48 | 1 | max | 3.803 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 52 | | | min | -3.114 | 3 | -.007 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.026 | 8 |
| 53 | | 2 | max | 3.803 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 54 | | | min | -3.114 | 3 | -.006 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 8 |
| 55 | | 3 | max | 3.803 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 3 |
| 56 | | | min | -3.114 | 3 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 57 | | 4 | max | 3.803 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 58 | | | min | -3.114 | 3 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 59 | | 5 | max | 3.803 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 60 | | | min | -3.114 | 3 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 61 | M49 | 1 | max | 3.804 | 8 | .005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 62 | | | min | -3.114 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 63 | | 2 | max | 3.804 | 8 | .006 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 64 | | | min | -3.114 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 65 | | 3 | max | 3.804 | 8 | .006 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 3 |
| 66 | | | min | -3.114 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 8 |
| 67 | | 4 | max | 3.804 | 8 | .007 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 68 | | | min | -3.114 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 8 |
| 69 | | 5 | max | 3.804 | 8 | .008 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 70 | | | min | -3.114 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.027 | 8 |
| 71 | M50 | 1 | max | 3.409 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .017 | 3 |
| 72 | | | min | -2.791 | 3 | -.007 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.028 | 8 |
| 73 | | 2 | max | 3.409 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 74 | | | min | -2.79 | 3 | -.006 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 8 |
| 75 | | 3 | max | 3.409 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 3 |
| 76 | | | min | -2.79 | 3 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 77 | | 4 | max | 3.409 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 78 | | | min | -2.79 | 3 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 79 | | 5 | max | 3.409 | 8 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 80 | | | min | -2.79 | 3 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 81 | M51 | 1 | max | 2.715 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 82 | | | min | -2.252 | 3 | -.005 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.022 | 8 |
| 83 | | 2 | max | 2.715 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 84 | | | min | -2.252 | 3 | -.004 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 85 | | 3 | max | 2.715 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 86 | | | min | -2.252 | 3 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 87 | | 4 | max | 2.716 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 88 | | | min | -2.252 | 3 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 89 | | 5 | max | 2.716 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 90 | | | min | -2.251 | 3 | -.001 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 91 | M52 | 1 | max | 1.684 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 92 | | | min | -1.461 | 3 | -.005 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 8 |
| 93 | | 2 | max | 1.684 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 94 | | | min | -1.461 | 3 | -.004 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 95 | | 3 | max | 1.684 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 96 | | | min | -1.461 | 3 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 97 | | 4 | max | 1.684 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 98 | | | min | -1.46 | 3 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 99 | | 5 | max | 1.684 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 100 | | | min | -1.46 | 3 | -.001 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 5 |
| 101 | M53 | 1 | max | .251 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 102 | | | min | -.398 | 3 | -.007 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 103 | | 2 | max | .251 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 104 | | | min | -.397 | 3 | -.006 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 105 | | 3 | max | .252 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 106 | | | min | -.397 | 3 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 8 |
| 107 | | 4 | max | .252 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 10 |
| 108 | | | min | -.396 | 3 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 8 |
| 109 | | 5 | max | .252 | 8 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 12 |
| 110 | | | min | -.396 | 3 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 111 | M54 | 1 | max | .933 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 112 | | | min | -1.472 | 8 | -.004 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 5 |
| 113 | | 2 | max | .934 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 10 |
| 114 | | | min | -1.471 | 8 | -.003 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 8 |
| 115 | | 3 | max | .934 | 3 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 9 |
| 116 | | | min | -1.471 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 117 | | 4 | max | .935 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 12 |
| 118 | | | min | -1.471 | 8 | -.001 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 119 | | 5 | max | .935 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 12 |
| 120 | | | min | -1.47 | 8 | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 121 | M104A | 1 | max | 2.873 | 3 | .013 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 122 | | | min | -3.785 | 8 | -.021 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 123 | | 2 | max | 2.873 | 3 | .013 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 12 |
| 124 | | | min | -3.785 | 8 | -.021 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 125 | | 3 | max | 2.873 | 3 | .014 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 126 | | | min | -3.785 | 8 | -.02 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 127 | | 4 | max | 2.874 | 3 | .015 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 8 |
| 128 | | | min | -3.785 | 8 | -.02 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 129 | | 5 | max | 2.874 | 3 | .016 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .034 | 8 |
| 130 | | | min | -3.784 | 8 | -.019 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.025 | 3 |
| 131 | M110A | 1 | max | 2.938 | 3 | .03 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .05 | 8 |
| 132 | | | min | -4.912 | 8 | -.021 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.031 | 3 |
| 133 | | 2 | max | 2.938 | 3 | .031 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .034 | 8 |
| 134 | | | min | -4.912 | 8 | -.02 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 3 |
| 135 | | 3 | max | 2.937 | 3 | .031 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .017 | 8 |
| 136 | | | min | -4.912 | 8 | -.019 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 137 | | 4 | max | 2.937 | 3 | .032 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 5 |
| 138 | | | min | -4.913 | 8 | -.018 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 10 |
| 139 | | 5 | max | 2.937 | 3 | .032 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 140 | | | min | -4.913 | 8 | -.017 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 141 | M34 | 1 | max | 3.004 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 12 |
| 142 | | | min | -5.501 | 8 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 143 | | 2 | max | 3.003 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 8 |
| 144 | | | min | -5.502 | 8 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 145 | | 3 | max | 3.001 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 146 | | | min | -5.503 | 8 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 147 | | 4 | max | 3 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 8 |
| 148 | | | min | -5.504 | 8 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 149 | | 5 | max | 2.999 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .026 | 8 |
| 150 | | | min | -5.504 | 8 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 151 | M63 | 1 | max | 3.02 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 152 | | | min | -2.454 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 153 | | 2 | max | 3.021 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 154 | | | min | -2.453 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 155 | | 3 | max | 3.023 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 156 | | | min | -2.453 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 157 | | 4 | max | 3.024 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 158 | | | min | -2.452 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 159 | | 5 | max | 3.025 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 160 | | | min | -2.451 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 161 | M64 | 1 | max | 1.932 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 162 | | | min | -1.483 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 163 | | 2 | max | 1.933 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 164 | | | min | -1.483 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 165 | | 3 | max | 1.935 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 8 |
| 166 | | | min | -1.482 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 167 | | 4 | max | 1.936 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 168 | | | min | -1.481 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 3 |
| 169 | | 5 | max | 1.937 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 170 | | | min | -1.48 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 171 | M121A | 1 | max | 4.73 | 3 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .032 | 8 |
| 172 | | | min | -7.728 | 8 | -.004 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 3 |
| 173 | | 2 | max | 4.729 | 3 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .033 | 8 |
| 174 | | | min | -7.728 | 8 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 3 |
| 175 | | 3 | max | 4.729 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .035 | 8 |
| 176 | | | min | -7.728 | 8 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 3 |
| 177 | | 4 | max | 4.728 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .036 | 8 |
| 178 | | | min | -7.729 | 8 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.022 | 3 |
| 179 | | 5 | max | 4.728 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .037 | 8 |
| 180 | | | min | -7.729 | 8 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.024 | 3 |
| 181 | M119A | 1 | max | 2.964 | 3 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .039 | 8 |
| 182 | | | min | -4.955 | 8 | -.012 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.025 | 3 |
| 183 | | 2 | max | 2.963 | 3 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .031 | 8 |
| 184 | | | min | -4.955 | 8 | -.011 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 3 |
| 185 | | 3 | max | 2.963 | 3 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 8 |
| 186 | | | min | -4.956 | 8 | -.01 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 187 | | 4 | max | 2.962 | 3 | .017 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 188 | | | min | -4.956 | 8 | -.01 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 189 | | 5 | max | 2.962 | 3 | .017 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 190 | | | min | -4.956 | 8 | -.009 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 191 | M117 | 1 | max | 5.055 | 3 | .022 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 12 |
| 192 | | | min | -8.458 | 8 | -.03 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 193 | | 2 | max | 5.054 | 3 | .022 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .026 | 8 |
| 194 | | | min | -8.459 | 8 | -.03 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 3 |
| 195 | | 3 | max | 5.054 | 3 | .022 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .038 | 8 |
| 196 | | | min | -8.459 | 8 | -.03 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.022 | 3 |
| 197 | | 4 | max | 5.053 | 3 | .022 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .05 | 8 |
| 198 | | | min | -8.459 | 8 | -.03 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.031 | 3 |
| 199 | | 5 | max | 5.052 | 3 | .022 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .061 | 8 |
| 200 | | | min | -8.46 | 8 | -.03 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.039 | 3 |
| 201 | M105A | 1 | max | 4.518 | 3 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .021 | 8 |
| 202 | | | min | -5.39 | 8 | -.006 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 203 | | 2 | max | 4.518 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 8 |
| 204 | | | min | -5.39 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 3 |
| 205 | | 3 | max | 4.519 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 8 |
| 206 | | | min | -5.39 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.022 | 3 |
| 207 | | 4 | max | 4.519 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .027 | 8 |
| 208 | | | min | -5.389 | 8 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 3 |
| 209 | | 5 | max | 4.52 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .029 | 8 |
| 210 | | | min | -5.389 | 8 | -.005 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.024 | 3 |
| 211 | M106A | 1 | max | 5.069 | 3 | .033 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 12 |
| 212 | | | min | -5.385 | 8 | -.035 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 213 | | 2 | max | 5.07 | 3 | .033 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 214 | | | min | -5.384 | 8 | -.035 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 215 | | 3 | max | 5.07 | 3 | .034 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .024 | 8 |
| 216 | | | min | -5.384 | 8 | -.034 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 3 |
| 217 | | 4 | max | 5.071 | 3 | .034 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .036 | 8 |
| 218 | | | min | -5.384 | 8 | -.034 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.034 | 3 |
| 219 | | 5 | max | 5.071 | 3 | .034 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .047 | 8 |
| 220 | | | min | -5.383 | 8 | -.034 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.046 | 3 |
| 221 | M107A | 1 | max | 4.181 | 3 | .005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .018 | 8 |
| 222 | | | min | -3.852 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 3 |
| 223 | | 2 | max | 4.182 | 3 | .005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 224 | | | min | -3.851 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 225 | | 3 | max | 4.183 | 3 | .005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 226 | | | min | -3.851 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 227 | | 4 | max | 4.184 | 3 | .005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 228 | | | min | -3.85 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 3 |
| 229 | | 5 | max | 4.185 | 3 | .005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 230 | | | min | -3.85 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 231 | M111A | 1 | max | 2.932 | 3 | .015 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 12 |
| 232 | | | min | -3.853 | 8 | -.016 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 233 | | 2 | max | 2.933 | 3 | .016 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 234 | | | min | -3.853 | 8 | -.015 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 235 | | 3 | max | 2.933 | 3 | .017 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 8 |
| 236 | | | min | -3.852 | 8 | -.015 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 237 | | 4 | max | 2.934 | 3 | .018 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .027 | 8 |
| 238 | | | min | -3.852 | 8 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.025 | 3 |
| 239 | | 5 | max | 2.934 | 3 | .019 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .034 | 8 |
| 240 | | | min | -3.852 | 8 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.034 | 3 |
| 241 | M115C | 1 | max | 4.682 | 3 | .024 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .051 | 8 |
| 242 | | | min | -7.656 | 8 | -.016 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.032 | 3 |
| 243 | | 2 | max | 4.682 | 3 | .024 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .041 | 8 |
| 244 | | | min | -7.657 | 8 | -.016 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.025 | 3 |
| 245 | | 3 | max | 4.681 | 3 | .025 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .03 | 8 |
| 246 | | | min | -7.657 | 8 | -.015 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 3 |
| 247 | | 4 | max | 4.681 | 3 | .025 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 8 |
| 248 | | | min | -7.657 | 8 | -.015 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 249 | | 5 | max | 4.68 | 3 | .025 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 250 | | | min | -7.658 | 8 | -.014 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 251 | M116A | 1 | max | 4.538 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .032 | 8 |
| 252 | | | min | -5.402 | 8 | -.007 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 3 |
| 253 | | 2 | max | 4.539 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 8 |
| 254 | | | min | -5.401 | 8 | -.007 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 3 |
| 255 | | 3 | max | 4.539 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .018 | 8 |
| 256 | | | min | -5.401 | 8 | -.007 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 257 | | 4 | max | 4.54 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 258 | | | min | -5.401 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 259 | | 5 | max | 4.54 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 260 | | | min | -5.401 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 261 | M117A | 1 | max | 5.144 | 3 | .053 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .057 | 8 |
| 262 | | | min | -5.444 | 8 | -.038 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.048 | 3 |
| 263 | | 2 | max | 5.145 | 3 | .054 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .04 | 8 |
| 264 | | | min | -5.444 | 8 | -.038 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.036 | 3 |
| 265 | | 3 | max | 5.145 | 3 | .054 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 8 |
| 266 | | | min | -5.443 | 8 | -.038 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.024 | 3 |
| 267 | | 4 | max | 5.146 | 3 | .054 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 268 | | | min | -5.443 | 8 | -.038 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 269 | | 5 | max | 5.146 | 3 | .054 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 270 | | | min | -5.443 | 8 | -.038 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 5 |
| 271 | M122A | 1 | max | .55 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 3 |
| 272 | | | min | -.622 | 12 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.027 | 8 |
| 273 | | 2 | max | .549 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 274 | | | min | -.623 | 12 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 8 |
| 275 | | 3 | max | .548 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 276 | | | min | -.623 | 12 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 8 |
| 277 | | 4 | max | .547 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 12 |
| 278 | | | min | -.624 | 12 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 279 | | 5 | max | .545 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 12 |
| 280 | | | min | -.625 | 12 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 281 | M125D | 1 | max | 1.925 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 282 | | | min | -3.49 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 8 |
| 283 | | 2 | max | 1.923 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 12 |
| 284 | | | min | -3.491 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 3 |
| 285 | | 3 | max | 1.922 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 286 | | | min | -3.492 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 287 | | 4 | max | 1.92 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .018 | 8 |
| 288 | | | min | -3.493 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 289 | | 5 | max | 1.919 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 8 |
| 290 | | | min | -3.494 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 291 | M127A | 1 | max | .56 | 3 | .002 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 292 | | | min | -.74 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 293 | | 2 | max | .561 | 3 | .002 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 294 | | | min | -.739 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 6 |
| 295 | | 3 | max | .562 | 3 | .002 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 296 | | | min | -.738 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 297 | | 4 | max | .563 | 3 | .002 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 298 | | | min | -.738 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 12 |
| 299 | | 5 | max | .564 | 3 | .002 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 3 |
| 300 | | | min | -.737 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 12 |
| 301 | M133A | 1 | max | 4.171 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .021 | 8 |
| 302 | | | min | -7.395 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 303 | | 2 | max | 4.17 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .024 | 8 |
| 304 | | | min | -7.395 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 3 |
| 305 | | 3 | max | 4.169 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .028 | 8 |
| 306 | | | min | -7.396 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 307 | | 4 | max | 4.168 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .031 | 8 |
| 308 | | | min | -7.397 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 309 | | 5 | max | 4.167 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .035 | 8 |
| 310 | | | min | -7.397 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 3 |
| 311 | M137 | 1 | max | 5.156 | 3 | .061 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .07 | 8 |
| 312 | | | min | -8.618 | 8 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.041 | 3 |
| 313 | | 2 | max | 5.155 | 3 | .061 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .055 | 8 |
| 314 | | | min | -8.619 | 8 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.033 | 3 |
| 315 | | 3 | max | 5.155 | 3 | .061 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .04 | 8 |
| 316 | | | min | -8.619 | 8 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.025 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 317 | | 4 | max | 5.154 | 3 | .061 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 8 |
| 318 | | | min | -8.619 | 8 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 319 | | 5 | max | 5.154 | 3 | .061 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 320 | | | min | -8.619 | 8 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 321 | M124A | 1 | max | .267 | 3 | .066 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .035 | 8 |
| 322 | | | min | -.601 | 8 | -.03 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.018 | 3 |
| 323 | | 2 | max | .267 | 3 | .065 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 324 | | | min | -.601 | 8 | -.031 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 325 | | 3 | max | .267 | 3 | .065 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 326 | | | min | -.601 | 8 | -.032 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 12 |
| 327 | | 4 | max | .267 | 3 | .064 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 328 | | | min | -.601 | 8 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.03 | 8 |
| 329 | | 5 | max | .267 | 3 | .063 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 3 |
| 330 | | | min | -.601 | 8 | -.034 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.052 | 8 |
| 331 | M125 | 1 | max | .267 | 3 | .018 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 332 | | | min | -.093 | 12 | -.03 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.018 | 3 |
| 333 | | 2 | max | .267 | 3 | .017 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 334 | | | min | -.093 | 12 | -.031 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 335 | | 3 | max | .267 | 3 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 336 | | | min | -.093 | 12 | -.032 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 12 |
| 337 | | 4 | max | .267 | 3 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 338 | | | min | -.093 | 12 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 339 | | 5 | max | .267 | 3 | .015 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 3 |
| 340 | | | min | -.093 | 12 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 341 | M2 | 1 | max | 1.652 | 3 | .026 | 6 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 3 |
| 342 | | | min | -1.193 | 8 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 343 | | 2 | max | 1.648 | 3 | .026 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 344 | | | min | -1.195 | 8 | -.012 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 345 | | 3 | max | 1.645 | 3 | .026 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 346 | | | min | -1.197 | 8 | -.035 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 12 |
| 347 | | 4 | max | 1.642 | 3 | .026 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 348 | | | min | -1.199 | 8 | -.058 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 349 | | 5 | max | 1.638 | 3 | .026 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .037 | 8 |
| 350 | | | min | -1.201 | 8 | -.081 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 351 | M3 | 1 | max | .377 | 12 | .087 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .044 | 8 |
| 352 | | | min | -.949 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 353 | | 2 | max | .373 | 12 | .044 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 8 |
| 354 | | | min | -.955 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 355 | | 3 | max | .37 | 12 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | -.002 | 2 |
| 356 | | | min | -.961 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 6 |
| 357 | | 4 | max | .366 | 12 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 12 |
| 358 | | | min | -.967 | 3 | -.042 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 359 | | 5 | max | .362 | 12 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .043 | 8 |
| 360 | | | min | -.973 | 3 | -.085 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 361 | M4 | 1 | max | 1.445 | 8 | .09 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .044 | 8 |
| 362 | | | min | -2.196 | 3 | .001 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 363 | | 2 | max | 1.441 | 8 | .043 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 12 |
| 364 | | | min | -2.203 | 3 | .001 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 365 | | 3 | max | 1.437 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | -.003 | 12 |
| 366 | | | min | -2.21 | 3 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 6 |
| 367 | | 4 | max | 1.433 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 12 |
| 368 | | | min | -2.216 | 3 | -.05 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 369 | | 5 | max | 1.429 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .054 | 8 |
| 370 | | | min | -2.223 | 3 | -.096 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 3 |
| 371 | M5 | 1 | max | 2.841 | 8 | .055 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .035 | 8 |
| 372 | | | min | -3.269 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 373 | | 2 | max | 2.839 | 8 | .031 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .02 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 374 | | | min | -3.272 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 375 | | 3 | max | 2.837 | 8 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 376 | | | min | -3.276 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 377 | | 4 | max | 2.835 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 378 | | | min | -3.279 | 3 | -.016 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 379 | | 5 | max | 2.833 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .024 | 8 |
| 380 | | | min | -3.282 | 3 | -.04 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 381 | M6 | 1 | max | 2.918 | 8 | .038 | 6 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 382 | | | min | -3.364 | 3 | .003 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 383 | | 2 | max | 2.916 | 8 | .016 | 6 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 12 |
| 384 | | | min | -3.368 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 385 | | 3 | max | 2.913 | 8 | .016 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 12 |
| 386 | | | min | -3.372 | 3 | -.023 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.018 | 3 |
| 387 | | 4 | max | 2.911 | 8 | .017 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .024 | 8 |
| 388 | | | min | -3.376 | 3 | -.053 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.025 | 3 |
| 389 | | 5 | max | 2.908 | 8 | .018 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .054 | 8 |
| 390 | | | min | -3.381 | 3 | -.083 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.033 | 3 |
| 391 | M7 | 1 | max | 3.47 | 8 | .064 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .044 | 8 |
| 392 | | | min | -3.435 | 3 | -.029 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.033 | 3 |
| 393 | | 2 | max | 3.468 | 8 | .04 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 8 |
| 394 | | | min | -3.451 | 3 | -.022 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.024 | 3 |
| 395 | | 3 | max | 3.466 | 8 | .017 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 396 | | | min | -3.467 | 3 | -.015 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 397 | | 4 | max | 3.464 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 398 | | | min | -3.484 | 3 | -.011 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 3 |
| 399 | | 5 | max | 3.462 | 8 | -.001 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .02 | 8 |
| 400 | | | min | -3.5 | 3 | -.031 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 401 | M8 | 1 | max | 3.474 | 8 | .049 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .024 | 8 |
| 402 | | | min | -3.506 | 3 | -.021 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 3 |
| 403 | | 2 | max | 3.472 | 8 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 404 | | | min | -3.525 | 3 | -.01 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 405 | | 3 | max | 3.47 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 12 |
| 406 | | | min | -3.544 | 3 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 407 | | 4 | max | 3.468 | 8 | .013 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .017 | 8 |
| 408 | | | min | -3.563 | 3 | -.037 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 409 | | 5 | max | 3.466 | 8 | .025 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .04 | 8 |
| 410 | | | min | -3.581 | 3 | -.066 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 3 |
| 411 | M9 | 1 | max | 3.419 | 8 | .062 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .04 | 8 |
| 412 | | | min | -3.156 | 3 | -.035 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.027 | 3 |
| 413 | | 2 | max | 3.417 | 8 | .032 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .017 | 8 |
| 414 | | | min | -3.172 | 3 | -.018 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 415 | | 3 | max | 3.415 | 8 | .002 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 416 | | | min | -3.187 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 417 | | 4 | max | 3.414 | 8 | .018 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 8 |
| 418 | | | min | -3.202 | 3 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 419 | | 5 | max | 3.412 | 8 | .036 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .036 | 8 |
| 420 | | | min | -3.218 | 3 | -.059 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.028 | 3 |
| 421 | M12 | 1 | max | .563 | 3 | .104 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .061 | 8 |
| 422 | | | min | -1.21 | 8 | -.079 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.048 | 3 |
| 423 | | 2 | max | .549 | 3 | .053 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 10 |
| 424 | | | min | -1.212 | 8 | -.042 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 425 | | 3 | max | .536 | 3 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .02 | 3 |
| 426 | | | min | -1.214 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.025 | 8 |
| 427 | | 4 | max | .522 | 3 | .034 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 428 | | | min | -1.215 | 8 | -.048 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 429 | | 5 | max | .509 | 3 | .071 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .053 | 8 |
| 430 | | | min | -1.217 | 8 | -.099 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.034 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 431 | M13 | 1 | max | 1.721 | 3 | .161 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .077 | 8 |
| 432 | | | min | -2.826 | 8 | -.082 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.041 | 3 |
| 433 | | 2 | max | 1.71 | 3 | .083 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 434 | | | min | -2.827 | 8 | -.044 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 8 |
| 435 | | 3 | max | 1.699 | 3 | .006 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .029 | 3 |
| 436 | | | min | -2.828 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.056 | 8 |
| 437 | | 4 | max | 1.689 | 3 | .033 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .018 | 3 |
| 438 | | | min | -2.829 | 8 | -.072 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.03 | 8 |
| 439 | | 5 | max | 1.678 | 3 | .071 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .058 | 8 |
| 440 | | | min | -2.831 | 8 | -.149 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 3 |
| 441 | M18 | 1 | max | 3.246 | 3 | .165 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .08 | 8 |
| 442 | | | min | -4.88 | 8 | -.085 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.038 | 3 |
| 443 | | 2 | max | 3.251 | 3 | .087 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 3 |
| 444 | | | min | -4.88 | 8 | -.045 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.022 | 8 |
| 445 | | 3 | max | 3.256 | 3 | .009 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .035 | 3 |
| 446 | | | min | -4.879 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.06 | 8 |
| 447 | | 4 | max | 3.261 | 3 | .035 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 3 |
| 448 | | | min | -4.879 | 8 | -.069 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.036 | 8 |
| 449 | | 5 | max | 3.267 | 3 | .075 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .052 | 8 |
| 450 | | | min | -4.878 | 8 | -.148 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 3 |
| 451 | M19 | 1 | max | 2.574 | 3 | .092 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 5 |
| 452 | | | min | -3.925 | 8 | -.038 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 453 | | 2 | max | 2.577 | 3 | .054 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 454 | | | min | -3.924 | 8 | -.018 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 12 |
| 455 | | 3 | max | 2.581 | 3 | .016 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 456 | | | min | -3.924 | 8 | .001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.018 | 8 |
| 457 | | 4 | max | 2.584 | 3 | .021 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 458 | | | min | -3.924 | 8 | -.023 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 8 |
| 459 | | 5 | max | 2.588 | 3 | .04 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 12 |
| 460 | | | min | -3.923 | 8 | -.062 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 461 | M20 | 1 | max | 1.68 | 3 | .147 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .057 | 8 |
| 462 | | | min | -2.639 | 8 | -.071 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 3 |
| 463 | | 2 | max | 1.69 | 3 | .069 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 3 |
| 464 | | | min | -2.638 | 8 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.03 | 8 |
| 465 | | 3 | max | 1.701 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .029 | 3 |
| 466 | | | min | -2.636 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.054 | 8 |
| 467 | | 4 | max | 1.712 | 3 | .044 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 468 | | | min | -2.635 | 8 | -.087 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 8 |
| 469 | | 5 | max | 1.723 | 3 | .083 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .085 | 8 |
| 470 | | | min | -2.634 | 8 | -.164 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.042 | 3 |
| 471 | M21 | 1 | max | .5 | 3 | .153 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .075 | 8 |
| 472 | | | min | -.896 | 8 | -.07 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.034 | 3 |
| 473 | | 2 | max | .514 | 3 | .072 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 474 | | | min | -.895 | 8 | -.033 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 8 |
| 475 | | 3 | max | .527 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 3 |
| 476 | | | min | -.893 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.04 | 8 |
| 477 | | 4 | max | .541 | 3 | .042 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 6 |
| 478 | | | min | -.891 | 8 | -.091 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 12 |
| 479 | | 5 | max | .554 | 3 | .08 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .105 | 8 |
| 480 | | | min | -.89 | 8 | -.172 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.048 | 3 |
| 481 | M22 | 1 | max | 1.29 | 8 | .193 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .12 | 8 |
| 482 | | | min | -.92 | 3 | -.084 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.052 | 3 |
| 483 | | 2 | max | 1.293 | 8 | .092 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 484 | | | min | -.899 | 3 | -.04 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 8 |
| 485 | | 3 | max | 1.295 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .026 | 3 |
| 486 | | | min | -.879 | 3 | -.008 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.063 | 8 |
| 487 | | 4 | max | 1.298 | 8 | .05 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 488 | | | min | -.859 | 3 | -.108 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 5 |
| 489 | | 5 | max | 1.3 | 8 | .095 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .151 | 8 |
| 490 | | | min | -.838 | 3 | -.208 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.072 | 3 |
| 491 | M23 | 1 | max | 6.322 | 8 | .105 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .066 | 8 |
| 492 | | | min | -3.902 | 3 | -.032 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.031 | 3 |
| 493 | | 2 | max | 6.325 | 8 | .057 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .028 | 8 |
| 494 | | | min | -3.883 | 3 | -.019 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 3 |
| 495 | | 3 | max | 6.327 | 8 | .009 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 496 | | | min | -3.864 | 3 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 3 |
| 497 | | 4 | max | 6.329 | 8 | .008 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .02 | 8 |
| 498 | | | min | -3.845 | 3 | -.039 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 499 | | 5 | max | 6.331 | 8 | .021 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .049 | 8 |
| 500 | | | min | -3.827 | 3 | -.086 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 3 |
| 501 | M24 | 1 | max | 6.275 | 8 | .061 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .037 | 8 |
| 502 | | | min | -3.791 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 503 | | 2 | max | 6.276 | 8 | .025 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .021 | 8 |
| 504 | | | min | -3.775 | 3 | .001 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 3 |
| 505 | | 3 | max | 6.278 | 8 | .011 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 8 |
| 506 | | | min | -3.759 | 3 | -.016 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 507 | | 4 | max | 6.28 | 8 | .017 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .031 | 8 |
| 508 | | | min | -3.742 | 3 | -.05 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.022 | 3 |
| 509 | | 5 | max | 6.282 | 8 | .024 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .055 | 8 |
| 510 | | | min | -3.726 | 3 | -.087 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.029 | 3 |
| 511 | M25 | 1 | max | 5.939 | 8 | .067 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .039 | 12 |
| 512 | | | min | -3.31 | 3 | -.036 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.028 | 3 |
| 513 | | 2 | max | 5.941 | 8 | .039 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .042 | 8 |
| 514 | | | min | -3.305 | 3 | -.015 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.022 | 3 |
| 515 | | 3 | max | 5.944 | 8 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .04 | 8 |
| 516 | | | min | -3.301 | 3 | -.012 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 3 |
| 517 | | 4 | max | 5.946 | 8 | .041 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .027 | 8 |
| 518 | | | min | -3.297 | 3 | -.022 | 10 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 519 | | 5 | max | 5.949 | 8 | .067 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .022 | 12 |
| 520 | | | min | -3.292 | 3 | -.049 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 521 | M26 | 1 | max | 5.896 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 8 |
| 522 | | | min | -3.257 | 3 | -.046 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 523 | | 2 | max | 5.898 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .027 | 8 |
| 524 | | | min | -3.253 | 3 | -.014 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 525 | | 3 | max | 5.9 | 8 | .022 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .029 | 8 |
| 526 | | | min | -3.25 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 527 | | 4 | max | 5.902 | 8 | .056 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 8 |
| 528 | | | min | -3.247 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 529 | | 5 | max | 5.904 | 8 | .089 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 530 | | | min | -3.243 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 10 |
| 531 | M27 | 1 | max | 4.276 | 8 | -.001 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 532 | | | min | -2.155 | 3 | -.127 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.036 | 10 |
| 533 | | 2 | max | 4.28 | 8 | -.001 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .037 | 8 |
| 534 | | | min | -2.148 | 3 | -.061 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 535 | | 3 | max | 4.284 | 8 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .051 | 12 |
| 536 | | | min | -2.141 | 3 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 537 | | 4 | max | 4.288 | 8 | .072 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .024 | 12 |
| 538 | | | min | -2.135 | 3 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 539 | | 5 | max | 4.292 | 8 | .139 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | -.001 | 2 |
| 540 | | | min | -2.128 | 3 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.048 | 9 |
| 541 | M28 | 1 | max | 2.281 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | -.003 | 2 |
| 542 | | | min | -.95 | 3 | -.115 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.034 | 9 |
| 543 | | 2 | max | 2.285 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .021 | 8 |
| 544 | | | min | -.944 | 3 | -.054 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 545 | | 3 | max | 2.289 | 8 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .034 | 12 |
| 546 | | | min | -.938 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 547 | | 4 | max | 2.292 | 8 | .068 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 548 | | | min | -.932 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 549 | | 5 | max | 2.296 | 8 | .129 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 550 | | | min | -.926 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.051 | 9 |
| 551 | M29 | 1 | max | .566 | 10 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | -.002 | 2 |
| 552 | | | min | -.465 | 8 | -.152 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.066 | 9 |
| 553 | | 2 | max | .574 | 10 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 12 |
| 554 | | | min | -.461 | 8 | -.075 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 555 | | 3 | max | .582 | 10 | .005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .054 | 12 |
| 556 | | | min | -.456 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 557 | | 4 | max | .589 | 10 | .08 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .021 | 9 |
| 558 | | | min | -.451 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 559 | | 5 | max | .597 | 10 | .158 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 560 | | | min | -.447 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.074 | 12 |
| 561 | M133 | 1 | max | 4.738 | 8 | .124 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .079 | 8 |
| 562 | | | min | -2.935 | 3 | -.049 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.039 | 3 |
| 563 | | 2 | max | 4.736 | 8 | .073 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .031 | 8 |
| 564 | | | min | -2.951 | 3 | -.031 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 3 |
| 565 | | 3 | max | 4.734 | 8 | .023 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 566 | | | min | -2.967 | 3 | -.012 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 567 | | 4 | max | 4.732 | 8 | .007 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 568 | | | min | -2.983 | 3 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 569 | | 5 | max | 4.73 | 8 | .025 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .035 | 8 |
| 570 | | | min | -2.999 | 3 | -.079 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 571 | M114A | 1 | max | 4.706 | 8 | .084 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .051 | 8 |
| 572 | | | min | -2.983 | 3 | -.037 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.027 | 3 |
| 573 | | 2 | max | 4.705 | 8 | .036 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 8 |
| 574 | | | min | -2.994 | 3 | -.017 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 575 | | 3 | max | 4.704 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .017 | 8 |
| 576 | | | min | -3.005 | 3 | -.012 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 577 | | 4 | max | 4.702 | 8 | .024 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .034 | 8 |
| 578 | | | min | -3.017 | 3 | -.06 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.018 | 3 |
| 579 | | 5 | max | 4.701 | 8 | .045 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .073 | 8 |
| 580 | | | min | -3.028 | 3 | -.107 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.034 | 3 |
| 581 | M112B | 1 | max | 3.646 | 3 | .187 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .096 | 8 |
| 582 | | | min | -5.434 | 8 | -.096 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.046 | 3 |
| 583 | | 2 | max | 3.644 | 3 | .092 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 3 |
| 584 | | | min | -5.434 | 8 | -.048 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.04 | 8 |
| 585 | | 3 | max | 3.642 | 3 | .001 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .047 | 3 |
| 586 | | | min | -5.435 | 8 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.084 | 8 |
| 587 | | 4 | max | 3.639 | 3 | .05 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .022 | 3 |
| 588 | | | min | -5.435 | 8 | -.098 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.034 | 8 |
| 589 | | 5 | max | 3.637 | 3 | .099 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .109 | 8 |
| 590 | | | min | -5.435 | 8 | -.193 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.051 | 3 |
| 591 | M125A | 1 | max | 3.642 | 3 | .194 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .11 | 8 |
| 592 | | | min | -5.479 | 8 | -.099 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.051 | 3 |
| 593 | | 2 | max | 3.644 | 3 | .099 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 3 |
| 594 | | | min | -5.478 | 8 | -.05 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.035 | 8 |
| 595 | | 3 | max | 3.646 | 3 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .048 | 3 |
| 596 | | | min | -5.478 | 8 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.085 | 8 |
| 597 | | 4 | max | 3.649 | 3 | .048 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 3 |
| 598 | | | min | -5.478 | 8 | -.092 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.041 | 8 |
| 599 | | 5 | max | 3.651 | 3 | .097 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .098 | 8 |
| 600 | | | min | -5.478 | 8 | -.188 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.047 | 3 |
| 601 | M125B | 1 | max | .851 | 12 | .124 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .089 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 602 | | | min | -.834 | 3 | -.09 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.065 | 3 |
| 603 | | 2 | max | .849 | 12 | .065 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 12 |
| 604 | | | min | -.853 | 3 | -.047 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 605 | | 3 | max | .847 | 12 | .006 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .024 | 3 |
| 606 | | | min | -.872 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.034 | 8 |
| 607 | | 4 | max | .845 | 12 | .039 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 608 | | | min | -.891 | 3 | -.053 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 609 | | 5 | max | .842 | 12 | .081 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .066 | 8 |
| 610 | | | min | -.91 | 3 | -.112 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.049 | 3 |
| 611 | M125C | 1 | max | 3.281 | 8 | .069 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .047 | 8 |
| 612 | | | min | -3.095 | 3 | -.052 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.04 | 3 |
| 613 | | 2 | max | 3.279 | 8 | .036 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .02 | 8 |
| 614 | | | min | -3.108 | 3 | -.029 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 3 |
| 615 | | 3 | max | 3.278 | 8 | .004 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 616 | | | min | -3.122 | 3 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 617 | | 4 | max | 3.276 | 8 | .016 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .017 | 8 |
| 618 | | | min | -3.135 | 3 | -.031 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 619 | | 5 | max | 3.275 | 8 | .039 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .042 | 8 |
| 620 | | | min | -3.148 | 3 | -.064 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.027 | 3 |
| 621 | M126 | 1 | max | 1.658 | 3 | -.005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | -.003 | 2 |
| 622 | | | min | -3.061 | 8 | -.06 | 10 | 0 | 1 | 0 | 1 | 0 | 1 | -.029 | 9 |
| 623 | | 2 | max | 1.661 | 3 | .014 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 624 | | | min | -3.059 | 8 | -.035 | 10 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 9 |
| 625 | | 3 | max | 1.664 | 3 | .034 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 626 | | | min | -3.057 | 8 | -.026 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 627 | | 4 | max | 1.668 | 3 | .053 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 3 |
| 628 | | | min | -3.055 | 8 | -.026 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.031 | 8 |
| 629 | | 5 | max | 1.671 | 3 | .075 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .025 | 3 |
| 630 | | | min | -3.053 | 8 | -.026 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.052 | 8 |
| 631 | M128 | 1 | max | .475 | 3 | .106 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .049 | 5 |
| 632 | | | min | -.772 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 633 | | 2 | max | .467 | 3 | .051 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 634 | | | min | -.777 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 635 | | 3 | max | .459 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 636 | | | min | -.782 | 8 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.033 | 5 |
| 637 | | 4 | max | .452 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | -.001 | 2 |
| 638 | | | min | -.786 | 8 | -.058 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 6 |
| 639 | | 5 | max | .444 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .059 | 8 |
| 640 | | | min | -.791 | 8 | -.112 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 641 | M139 | 1 | max | 3.229 | 3 | .145 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .05 | 8 |
| 642 | | | min | -4.919 | 8 | -.074 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 3 |
| 643 | | 2 | max | 3.224 | 3 | .068 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .022 | 3 |
| 644 | | | min | -4.92 | 8 | -.034 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.036 | 8 |
| 645 | | 3 | max | 3.219 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .034 | 3 |
| 646 | | | min | -4.92 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.059 | 8 |
| 647 | | 4 | max | 3.214 | 3 | .045 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 648 | | | min | -4.921 | 8 | -.087 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 8 |
| 649 | | 5 | max | 3.209 | 3 | .084 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .08 | 8 |
| 650 | | | min | -4.921 | 8 | -.164 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.037 | 3 |
| 651 | M140 | 1 | max | 2.609 | 3 | .097 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .033 | 8 |
| 652 | | | min | -4.062 | 8 | -.043 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 653 | | 2 | max | 2.605 | 3 | .058 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 10 |
| 654 | | | min | -4.062 | 8 | -.023 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | .001 | 8 |
| 655 | | 3 | max | 2.6 | 3 | .02 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 656 | | | min | -4.063 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 657 | | 4 | max | 2.596 | 3 | .016 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 658 | | | min | -4.063 | 8 | -.019 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 659 | | 5 | max | 2.592 | 3 | .036 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 8 |
| 660 | | | min | -4.064 | 8 | -.058 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 10 |
| 661 | M137A | 1 | max | 2.588 | 3 | .06 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 12 |
| 662 | | | min | -3.924 | 8 | -.037 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 663 | | 2 | max | 2.592 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 664 | | | min | -3.924 | 8 | -.017 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 8 |
| 665 | | 3 | max | 2.596 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 666 | | | min | -3.923 | 8 | -.022 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 8 |
| 667 | | 4 | max | 2.601 | 3 | .022 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 6 |
| 668 | | | min | -3.923 | 8 | -.062 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 12 |
| 669 | | 5 | max | 2.605 | 3 | .042 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .035 | 5 |
| 670 | | | min | -3.922 | 8 | -.103 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 671 | M138 | 1 | max | 2.592 | 3 | .064 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 8 |
| 672 | | | min | -4.063 | 8 | -.039 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 10 |
| 673 | | 2 | max | 2.589 | 3 | .026 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 674 | | | min | -4.063 | 8 | -.02 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 8 |
| 675 | | 3 | max | 2.585 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 676 | | | min | -4.064 | 8 | -.014 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 677 | | 4 | max | 2.581 | 3 | .019 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 678 | | | min | -4.064 | 8 | -.052 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 679 | | 5 | max | 2.578 | 3 | .039 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .023 | 5 |
| 680 | | | min | -4.064 | 8 | -.09 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 681 | M70 | 1 | max | .523 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 682 | | | min | -.969 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 8 |
| 683 | | 2 | max | .523 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 684 | | | min | -.97 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 8 |
| 685 | | 3 | max | .522 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 686 | | | min | -.97 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 6 |
| 687 | | 4 | max | .522 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 688 | | | min | -.971 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 689 | | 5 | max | .521 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 690 | | | min | -.972 | 3 | -.001 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 691 | M71 | 1 | max | .843 | 3 | .011 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 692 | | | min | -.744 | 8 | -.008 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 693 | | 2 | max | .843 | 3 | .011 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 694 | | | min | -.745 | 8 | -.008 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 695 | | 3 | max | .842 | 3 | .012 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 696 | | | min | -.745 | 8 | -.007 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 697 | | 4 | max | .842 | 3 | .012 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 698 | | | min | -.745 | 8 | -.007 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 699 | | 5 | max | .841 | 3 | .012 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 700 | | | min | -.746 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 701 | M72 | 1 | max | .661 | 8 | .001 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 12 |
| 702 | | | min | -.753 | 3 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 703 | | 2 | max | .661 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 12 |
| 704 | | | min | -.753 | 3 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 705 | | 3 | max | .661 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 8 |
| 706 | | | min | -.754 | 3 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 707 | | 4 | max | .661 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 708 | | | min | -.754 | 3 | -.004 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 709 | | 5 | max | .66 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 710 | | | min | -.755 | 3 | -.004 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 711 | M73 | 1 | max | .937 | 3 | 0 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 712 | | | min | -1.103 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 713 | | 2 | max | .936 | 3 | .001 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 714 | | | min | -1.104 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 715 | | 3 | max | .935 | 3 | .001 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 716 | | | min | -1.104 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 717 | | 4 | max | .935 | 3 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 8 |
| 718 | | | min | -1.105 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 719 | | 5 | max | .934 | 3 | .002 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 8 |
| 720 | | | min | -1.105 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 721 | M74 | 1 | max | .865 | 8 | .007 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 722 | | | min | -.715 | 3 | .001 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 723 | | 2 | max | .865 | 8 | .007 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 724 | | | min | -.715 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 725 | | 3 | max | .865 | 8 | .006 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 8 |
| 726 | | | min | -.716 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 727 | | 4 | max | .865 | 8 | .006 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 12 |
| 728 | | | min | -.716 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 729 | | 5 | max | .864 | 8 | .005 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 730 | | | min | -.716 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 731 | M75 | 1 | max | .847 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .017 | 8 |
| 732 | | | min | -1.218 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 733 | | 2 | max | .846 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 734 | | | min | -1.218 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 735 | | 3 | max | .846 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 736 | | | min | -1.218 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 737 | | 4 | max | .845 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 12 |
| 738 | | | min | -1.219 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 739 | | 5 | max | .845 | 3 | .011 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 740 | | | min | -1.219 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 6 |
| 741 | M76 | 1 | max | .632 | 8 | .001 | 9 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 742 | | | min | -.249 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 743 | | 2 | max | .632 | 8 | .001 | 9 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 744 | | | min | -.249 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 745 | | 3 | max | .631 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 746 | | | min | -.25 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 747 | | 4 | max | .631 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 748 | | | min | -.251 | 3 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 749 | | 5 | max | .631 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 750 | | | min | -.251 | 3 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 751 | M77 | 1 | max | -.018 | 2 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 752 | | | min | -.321 | 5 | -.001 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 753 | | 2 | max | -.018 | 2 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 754 | | | min | -.321 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 755 | | 3 | max | -.019 | 2 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 756 | | | min | -.322 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 757 | | 4 | max | -.019 | 2 | .004 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 758 | | | min | -.322 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 759 | | 5 | max | -.019 | 2 | .004 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 760 | | | min | -.322 | 5 | .001 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 761 | M78 | 1 | max | .612 | 3 | 0 | 9 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 762 | | | min | -.318 | 8 | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 763 | | 2 | max | .612 | 3 | 0 | 9 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 764 | | | min | -.319 | 8 | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 765 | | 3 | max | .611 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 766 | | | min | -.319 | 8 | 0 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 767 | | 4 | max | .61 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 768 | | | min | -.32 | 8 | -.001 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 769 | | 5 | max | .609 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 770 | | | min | -.32 | 8 | -.001 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 771 | M79 | 1 | max | -.012 | 2 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 772 | | | min | -.234 | 9 | -.005 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 773 | | 2 | max | -.012 | 2 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 774 | | | min | -.234 | 9 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 775 | | 3 | max | -.012 | 2 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 776 | | | min | -.234 | 9 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 777 | | 4 | max | -.012 | 2 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 778 | | | min | -.234 | 9 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 779 | | 5 | max | -.012 | 2 | .007 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 780 | | | min | -.234 | 9 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 3 |
| 781 | M80 | 1 | max | 1.471 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 782 | | | min | -1.644 | 8 | -.002 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 783 | | 2 | max | 1.47 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 784 | | | min | -1.644 | 8 | -.002 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 785 | | 3 | max | 1.47 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 786 | | | min | -1.644 | 8 | -.001 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 787 | | 4 | max | 1.469 | 3 | .001 | 9 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 788 | | | min | -1.645 | 8 | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 789 | | 5 | max | 1.468 | 3 | .002 | 9 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 790 | | | min | -1.645 | 8 | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 791 | M81 | 1 | max | 1.472 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 12 |
| 792 | | | min | -1.254 | 3 | -.002 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 793 | | 2 | max | 1.472 | 8 | 0 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 12 |
| 794 | | | min | -1.254 | 3 | 0 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 795 | | 3 | max | 1.472 | 8 | .001 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 796 | | | min | -1.253 | 3 | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 797 | | 4 | max | 1.472 | 8 | .002 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 798 | | | min | -1.253 | 3 | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 799 | | 5 | max | 1.472 | 8 | .003 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 800 | | | min | -1.253 | 3 | .001 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 801 | M82 | 1 | max | 1.117 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 802 | | | min | -1.364 | 8 | -.007 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 803 | | 2 | max | 1.117 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 804 | | | min | -1.364 | 8 | -.007 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 8 |
| 805 | | 3 | max | 1.116 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 10 |
| 806 | | | min | -1.365 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 807 | | 4 | max | 1.115 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 12 |
| 808 | | | min | -1.365 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 3 |
| 809 | | 5 | max | 1.115 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 810 | | | min | -1.366 | 8 | -.006 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 811 | M83 | 1 | max | 1.061 | 8 | .007 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 812 | | | min | -.845 | 3 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 813 | | 2 | max | 1.061 | 8 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 814 | | | min | -.845 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 815 | | 3 | max | 1.062 | 8 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 5 |
| 816 | | | min | -.844 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 817 | | 4 | max | 1.062 | 8 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 818 | | | min | -.844 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 819 | | 5 | max | 1.062 | 8 | .009 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 820 | | | min | -.844 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 8 |
| 821 | M84 | 1 | max | .869 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 822 | | | min | -1.157 | 8 | -.013 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 823 | | 2 | max | .868 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 824 | | | min | -1.158 | 8 | -.013 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 825 | | 3 | max | .868 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 9 |
| 826 | | | min | -1.158 | 8 | -.013 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 827 | | 4 | max | .867 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 828 | | | min | -1.158 | 8 | -.013 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 829 | | 5 | max | .866 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 830 | | | min | -1.159 | 8 | -.012 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 831 | M85 | 1 | max | .979 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 832 | | | min | -.745 | 3 | -.006 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 833 | | 2 | max | .979 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 834 | | | min | -.745 | 3 | -.005 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 835 | | 3 | max | .979 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 836 | | | min | -.745 | 3 | -.005 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 8 |
| 837 | | 4 | max | .979 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 838 | | | min | -.745 | 3 | -.004 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 839 | | 5 | max | .979 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 10 |
| 840 | | | min | -.744 | 3 | -.004 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 5 |
| 841 | M86 | 1 | max | .631 | 3 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 842 | | | min | -.873 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 843 | | 2 | max | .63 | 3 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 844 | | | min | -.873 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 8 |
| 845 | | 3 | max | .629 | 3 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 846 | | | min | -.874 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 8 |
| 847 | | 4 | max | .629 | 3 | .003 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 848 | | | min | -.874 | 8 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 849 | | 5 | max | .628 | 3 | .004 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 850 | | | min | -.874 | 8 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 851 | M87 | 1 | max | .783 | 8 | .014 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 852 | | | min | -.62 | 3 | -.009 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 853 | | 2 | max | .784 | 8 | .015 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 854 | | | min | -.62 | 3 | -.008 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 855 | | 3 | max | .784 | 8 | .015 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 856 | | | min | -.619 | 3 | -.008 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 857 | | 4 | max | .784 | 8 | .015 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 858 | | | min | -.619 | 3 | -.007 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 859 | | 5 | max | .784 | 8 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 860 | | | min | -.618 | 3 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.018 | 8 |
| 861 | M88 | 1 | max | .4 | 3 | .009 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 3 |
| 862 | | | min | -.546 | 8 | -.017 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.022 | 8 |
| 863 | | 2 | max | .399 | 3 | .009 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 864 | | | min | -.547 | 8 | -.017 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 865 | | 3 | max | .399 | 3 | .01 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 866 | | | min | -.547 | 8 | -.017 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 8 |
| 867 | | 4 | max | .398 | 3 | .01 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 868 | | | min | -.547 | 8 | -.017 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 869 | | 5 | max | .398 | 3 | .011 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 870 | | | min | -.548 | 8 | -.016 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 871 | M89 | 1 | max | .584 | 8 | .001 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 872 | | | min | -.465 | 3 | -.003 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 873 | | 2 | max | .584 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 874 | | | min | -.465 | 3 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 875 | | 3 | max | .584 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 876 | | | min | -.464 | 3 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 877 | | 4 | max | .585 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 878 | | | min | -.464 | 3 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 879 | | 5 | max | .585 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 880 | | | min | -.463 | 3 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 8 |
| 881 | M90 | 1 | max | .23 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 3 |
| 882 | | | min | -.306 | 8 | -.013 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 883 | | 2 | max | .229 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 884 | | | min | -.307 | 8 | -.013 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 885 | | 3 | max | .229 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 886 | | | min | -.307 | 8 | -.012 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 887 | | 4 | max | .228 | 3 | .007 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 6 |
| 888 | | | min | -.307 | 8 | -.012 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 12 |
| 889 | | 5 | max | .228 | 3 | .007 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 890 | | | min | -.307 | 8 | -.012 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 891 | M91 | 1 | max | .429 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 892 | | | min | -.356 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 893 | | 2 | max | .429 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 894 | | | min | -.356 | 3 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 895 | | 3 | max | .429 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 896 | | | min | -.355 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 897 | | 4 | max | .43 | 8 | .003 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 898 | | | min | -.355 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 899 | | 5 | max | .43 | 8 | .003 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 900 | | | min | -.355 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 8 |
| 901 | M92 | 1 | max | .058 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 902 | | | min | -.115 | 12 | -.005 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 903 | | 2 | max | .057 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 904 | | | min | -.115 | 12 | -.004 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 905 | | 3 | max | .057 | 3 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 906 | | | min | -.115 | 12 | -.004 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 907 | | 4 | max | .056 | 3 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 908 | | | min | -.115 | 12 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 909 | | 5 | max | .056 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 910 | | | min | -.116 | 12 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 911 | M93 | 1 | max | .061 | 3 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 912 | | | min | -.124 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 913 | | 2 | max | .061 | 3 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 914 | | | min | -.124 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 915 | | 3 | max | .062 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 916 | | | min | -.123 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 917 | | 4 | max | .062 | 3 | .004 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 918 | | | min | -.123 | 8 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 919 | | 5 | max | .063 | 3 | .005 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 920 | | | min | -.123 | 8 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 8 |
| 921 | M94 | 1 | max | .42 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 922 | | | min | -.323 | 3 | -.004 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 8 |
| 923 | | 2 | max | .42 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 924 | | | min | -.324 | 3 | -.003 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 925 | | 3 | max | .42 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 926 | | | min | -.324 | 3 | -.003 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 927 | | 4 | max | .419 | 8 | .001 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 928 | | | min | -.325 | 3 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 929 | | 5 | max | .419 | 8 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 930 | | | min | -.325 | 3 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 931 | M95 | 1 | max | .207 | 3 | .011 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 932 | | | min | -.318 | 8 | -.007 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 933 | | 2 | max | .207 | 3 | .012 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 934 | | | min | -.318 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 12 |
| 935 | | 3 | max | .208 | 3 | .012 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 936 | | | min | -.318 | 8 | -.006 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 937 | | 4 | max | .208 | 3 | .012 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 938 | | | min | -.317 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 939 | | 5 | max | .209 | 3 | .013 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 3 |
| 940 | | | min | -.317 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 941 | M96 | 1 | max | .644 | 8 | .001 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 942 | | | min | -.491 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 943 | | 2 | max | .643 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 944 | | | min | -.492 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 945 | | 3 | max | .643 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 946 | | | min | -.492 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 947 | | 4 | max | .643 | 8 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 948 | | | min | -.492 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 949 | | 5 | max | .643 | 8 | .003 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 3 |
| 950 | | | min | -.493 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 951 | M97 | 1 | max | .421 | 3 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 952 | | | min | -.617 | 8 | -.011 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 953 | | 2 | max | .422 | 3 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 954 | | | min | -.617 | 8 | -.01 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 955 | | 3 | max | .422 | 3 | .016 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 956 | | | min | -.616 | 8 | -.01 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 8 |
| 957 | | 4 | max | .423 | 3 | .017 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 958 | | | min | -.616 | 8 | -.009 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 959 | | 5 | max | .423 | 3 | .017 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 3 |
| 960 | | | min | -.616 | 8 | -.009 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.021 | 8 |
| 961 | M98 | 1 | max | .808 | 8 | .007 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 962 | | | min | -.616 | 3 | -.015 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.017 | 8 |
| 963 | | 2 | max | .808 | 8 | .007 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 964 | | | min | -.616 | 3 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 8 |
| 965 | | 3 | max | .808 | 8 | .008 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 966 | | | min | -.617 | 3 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 967 | | 4 | max | .808 | 8 | .009 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 968 | | | min | -.617 | 3 | -.014 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 969 | | 5 | max | .807 | 8 | .009 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 970 | | | min | -.617 | 3 | -.013 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 971 | M99 | 1 | max | .627 | 3 | .001 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 972 | | | min | -.923 | 8 | -.002 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 973 | | 2 | max | .627 | 3 | .001 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 974 | | | min | -.922 | 8 | -.002 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 8 |
| 975 | | 3 | max | .628 | 3 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 976 | | | min | -.922 | 8 | -.002 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 977 | | 4 | max | .629 | 3 | .002 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 978 | | | min | -.922 | 8 | -.002 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 979 | | 5 | max | .629 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 980 | | | min | -.921 | 8 | -.001 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 8 |
| 981 | M100 | 1 | max | 1.009 | 8 | -.001 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 3 |
| 982 | | | min | -.75 | 3 | -.002 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 5 |
| 983 | | 2 | max | 1.009 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 984 | | | min | -.751 | 3 | -.002 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 985 | | 3 | max | 1.008 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 986 | | | min | -.751 | 3 | -.001 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 987 | | 4 | max | 1.008 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 988 | | | min | -.751 | 3 | 0 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 989 | | 5 | max | 1.008 | 8 | .001 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 990 | | | min | -.752 | 3 | 0 | 6 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 991 | M101 | 1 | max | .868 | 3 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 992 | | | min | -1.3 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 993 | | 2 | max | .869 | 3 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 994 | | | min | -1.299 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 995 | | 3 | max | .869 | 3 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 996 | | | min | -1.299 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 12 |
| 997 | | 4 | max | .87 | 3 | .008 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 998 | | | min | -1.298 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 8 |
| 999 | | 5 | max | .871 | 3 | .009 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 1000 | | | min | -1.298 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1001 | M102 | 1 | max | 1.158 | 8 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 1002 | | | min | -.836 | 3 | -.012 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 8 |
| 1003 | | 2 | max | 1.157 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 1004 | | | min | -.836 | 3 | -.011 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 12 |
| 1005 | | 3 | max | 1.157 | 8 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 1006 | | | min | -.836 | 3 | -.011 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 3 |
| 1007 | | 4 | max | 1.157 | 8 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 1008 | | | min | -.837 | 3 | -.01 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1009 | | 5 | max | 1.157 | 8 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 1010 | | | min | -.837 | 3 | -.01 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 1011 | M103 | 1 | max | 1.13 | 3 | .003 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 8 |
| 1012 | | | min | -1.763 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 1013 | | 2 | max | 1.131 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 1014 | | | min | -1.762 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 9 |
| 1015 | | 3 | max | 1.132 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 1016 | | | min | -1.762 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 1017 | | 4 | max | 1.132 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 1018 | | | min | -1.762 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 8 |
| 1019 | | 5 | max | 1.133 | 3 | .004 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 1020 | | | min | -1.761 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 8 |
| 1021 | M104 | 1 | max | 1.915 | 8 | .001 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 1022 | | | min | -1.28 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 1023 | | 2 | max | 1.915 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 1024 | | | min | -1.28 | 3 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1025 | | 3 | max | 1.915 | 8 | .003 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 1026 | | | min | -1.28 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1027 | | 4 | max | 1.915 | 8 | .004 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 1028 | | | min | -1.28 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1029 | | 5 | max | 1.915 | 8 | .004 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 8 |
| 1030 | | | min | -1.28 | 3 | .001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1031 | M105 | 1 | max | 1.373 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .027 | 8 |
| 1032 | | | min | -2.198 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 3 |
| 1033 | | 2 | max | 1.374 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .021 | 8 |
| 1034 | | | min | -2.197 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 1035 | | 3 | max | 1.374 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 8 |
| 1036 | | | min | -2.197 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1037 | | 4 | max | 1.375 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 1038 | | | min | -2.197 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 1039 | | 5 | max | 1.376 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 1040 | | | min | -2.196 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 1041 | M106 | 1 | max | .835 | 8 | 0 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 1042 | | | min | -.545 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 1043 | | 2 | max | .835 | 8 | 0 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 1044 | | | min | -.545 | 3 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1045 | | 3 | max | .835 | 8 | 0 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 1046 | | | min | -.545 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 1047 | | 4 | max | .835 | 8 | .001 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 1048 | | | min | -.545 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 1049 | | 5 | max | .835 | 8 | .002 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 1050 | | | min | -.545 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1051 | M107 | 1 | max | .754 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 1052 | | | min | -1.29 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 1053 | | 2 | max | .754 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 1054 | | | min | -1.289 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1055 | | 3 | max | .755 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 1056 | | | min | -1.289 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1057 | | 4 | max | .756 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1058 | | | min | -1.288 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 1059 | | 5 | max | .757 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 8 |
| 1060 | | | min | -1.288 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 1061 | M108 | 1 | max | .246 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .024 | 8 |
| 1062 | | | min | -.204 | 8 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 3 |
| 1063 | | 2 | max | .246 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 8 |
| 1064 | | | min | -.204 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 1065 | | 3 | max | .247 | 3 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 1066 | | | min | -.203 | 8 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1067 | | 4 | max | .247 | 3 | .011 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 1068 | | | min | -.203 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 1069 | | 5 | max | .247 | 3 | .011 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 12 |
| 1070 | | | min | -.203 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 1071 | M109 | 1 | max | .099 | 8 | .002 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 8 |
| 1072 | | | min | -.389 | 10 | -.003 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1073 | | 2 | max | .099 | 8 | .002 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .018 | 8 |
| 1074 | | | min | -.389 | 10 | -.003 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1075 | | 3 | max | .099 | 8 | .002 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .017 | 8 |
| 1076 | | | min | -.388 | 10 | -.003 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1077 | | 4 | max | .1 | 8 | .001 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 8 |
| 1078 | | | min | -.387 | 10 | -.004 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1079 | | 5 | max | .1 | 8 | .001 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 1080 | | | min | -.387 | 10 | -.004 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1081 | M110 | 1 | max | .838 | 3 | .004 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 1082 | | | min | -1.174 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 1083 | | 2 | max | .838 | 3 | .004 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 1084 | | | min | -1.174 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 1085 | | 3 | max | .839 | 3 | .005 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 1086 | | | min | -1.174 | 8 | -.002 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 1087 | | 4 | max | .839 | 3 | .005 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 1088 | | | min | -1.173 | 8 | -.001 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1089 | | 5 | max | .84 | 3 | .006 | 10 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 8 |
| 1090 | | | min | -1.173 | 8 | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 3 |
| 1091 | M111 | 1 | max | 1.22 | 8 | .012 | 9 | 0 | 12 | 0 | 12 | 0 | 12 | .02 | 12 |
| 1092 | | | min | -.747 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 1093 | | 2 | max | 1.22 | 8 | .011 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 8 |
| 1094 | | | min | -.746 | 3 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 1095 | | 3 | max | 1.22 | 8 | .011 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 1096 | | | min | -.746 | 3 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 1097 | | 4 | max | 1.22 | 8 | .011 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 1098 | | | min | -.746 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 1099 | | 5 | max | 1.221 | 8 | .01 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 1100 | | | min | -.745 | 3 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 1101 | M112 | 1 | max | .902 | 3 | .003 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 8 |
| 1102 | | | min | -1.442 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 3 |
| 1103 | | 2 | max | .903 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 1104 | | | min | -1.441 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 1105 | | 3 | max | .903 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 8 |
| 1106 | | | min | -1.441 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 1107 | | 4 | max | .904 | 3 | .004 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 1108 | | | min | -1.441 | 8 | -.008 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 1109 | | 5 | max | .905 | 3 | .005 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .019 | 8 |
| 1110 | | | min | -1.44 | 8 | -.008 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1111 | M113 | 1 | max | 1.403 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 8 |
| 1112 | | | min | -.753 | 3 | -.004 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 1113 | | 2 | max | 1.404 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 1114 | | | min | -.752 | 3 | -.004 | 12 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1115 | | 3 | max | 1.404 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 1116 | | | min | -.752 | 3 | -.005 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1117 | | 4 | max | 1.404 | 8 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 1118 | | | min | -.751 | 3 | -.005 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 1119 | | 5 | max | 1.404 | 8 | -.001 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 1120 | | | min | -.751 | 3 | -.006 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 1121 | M114 | 1 | max | .838 | 3 | .006 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 10 |
| 1122 | | | min | -1.535 | 8 | -.009 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 8 |
| 1123 | | 2 | max | .838 | 3 | .007 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 9 |
| 1124 | | | min | -1.535 | 8 | -.008 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 1125 | | 3 | max | .839 | 3 | .007 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 1126 | | | min | -1.535 | 8 | -.008 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 1127 | | 4 | max | .839 | 3 | .008 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 1128 | | | min | -1.534 | 8 | -.008 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 1129 | | 5 | max | .84 | 3 | .008 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .013 | 8 |
| 1130 | | | min | -1.534 | 8 | -.008 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 1131 | M115 | 1 | max | 2.059 | 8 | .011 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .018 | 12 |
| 1132 | | | min | -.973 | 3 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 1133 | | 2 | max | 2.059 | 8 | .011 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 12 |
| 1134 | | | min | -.972 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1135 | | 3 | max | 2.06 | 8 | .01 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 12 |
| 1136 | | | min | -.972 | 3 | -.004 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 1137 | | 4 | max | 2.06 | 8 | .01 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 1138 | | | min | -.971 | 3 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 8 |
| 1139 | | 5 | max | 2.061 | 8 | .01 | 12 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 1140 | | | min | -.97 | 3 | -.005 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 1141 | M120 | 1 | max | .657 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 1142 | | | min | -.656 | 8 | -.016 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 3 |
| 1143 | | 2 | max | .657 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 1144 | | | min | -.656 | 8 | -.016 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1145 | | 3 | max | .657 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 1146 | | | min | -.656 | 8 | -.015 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 1147 | | 4 | max | .657 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 1148 | | | min | -.656 | 8 | -.015 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 8 |
| 1149 | | 5 | max | .657 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 3 |
| 1150 | | | min | -.656 | 8 | -.014 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 8 |
| 1151 | M122 | 1 | max | .53 | 3 | .006 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 1152 | | | min | -.576 | 8 | -.014 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1153 | | 2 | max | .53 | 3 | .006 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 8 |
| 1154 | | | min | -.577 | 8 | -.013 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 1155 | | 3 | max | .53 | 3 | .006 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 9 |
| 1156 | | | min | -.577 | 8 | -.013 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 1157 | | 4 | max | .53 | 3 | .007 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 1158 | | | min | -.577 | 8 | -.012 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 1159 | | 5 | max | .53 | 3 | .007 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 1160 | | | min | -.577 | 8 | -.012 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 8 |
| 1161 | M124 | 1 | max | .651 | 3 | .018 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 1162 | | | min | -.71 | 8 | -.015 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 8 |
| 1163 | | 2 | max | .651 | 3 | .018 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 1164 | | | min | -.71 | 8 | -.015 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 8 |
| 1165 | | 3 | max | .65 | 3 | .018 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 8 |
| 1166 | | | min | -.711 | 8 | -.016 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 3 |
| 1167 | | 4 | max | .65 | 3 | .018 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 8 |
| 1168 | | | min | -.711 | 8 | -.016 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 3 |
| 1169 | | 5 | max | .649 | 3 | .017 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 8 |
| 1170 | | | min | -.711 | 8 | -.016 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 1171 | M127 | 1 | max | .951 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1172 | | | min | -1.661 | 8 | -.011 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 3 |
| 1173 | | 2 | max | .951 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 1174 | | | min | -1.662 | 8 | -.011 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.004 | 3 |
| 1175 | | 3 | max | .951 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 8 |
| 1176 | | | min | -1.662 | 8 | -.01 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 1177 | | 4 | max | .951 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 1178 | | | min | -1.662 | 8 | -.01 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 1179 | | 5 | max | .95 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 3 |
| 1180 | | | min | -1.662 | 8 | -.009 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 8 |
| 1181 | M129 | 1 | max | .371 | 3 | .013 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 1182 | | | min | -.57 | 8 | -.023 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.015 | 8 |
| 1183 | | 2 | max | .371 | 3 | .014 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 1184 | | | min | -.57 | 8 | -.023 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 8 |
| 1185 | | 3 | max | .371 | 3 | .014 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 6 |
| 1186 | | | min | -.57 | 8 | -.022 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 12 |
| 1187 | | 4 | max | .371 | 3 | .015 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 1188 | | | min | -.57 | 8 | -.022 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 10 |
| 1189 | | 5 | max | .371 | 3 | .015 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .015 | 8 |
| 1190 | | | min | -.57 | 8 | -.022 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 10 |
| 1191 | M135 | 1 | max | .221 | 8 | 0 | 12 | .001 | 8 | 0 | 12 | 0 | 10 | 0 | 12 |
| 1192 | | | min | -.173 | 3 | 0 | 1 | 0 | 9 | 0 | 1 | 0 | 8 | 0 | 1 |
| 1193 | | 2 | max | .222 | 8 | 0 | 12 | .001 | 8 | 0 | 12 | 0 | 10 | 0 | 12 |
| 1194 | | | min | -.173 | 3 | 0 | 1 | 0 | 9 | 0 | 1 | 0 | 8 | 0 | 1 |
| 1195 | | 3 | max | .222 | 8 | 0 | 12 | .001 | 8 | 0 | 12 | 0 | 3 | 0 | 12 |
| 1196 | | | min | -.172 | 3 | 0 | 1 | 0 | 9 | 0 | 1 | 0 | 12 | 0 | 1 |
| 1197 | | 4 | max | .222 | 8 | 0 | 12 | .001 | 8 | 0 | 12 | 0 | 5 | 0 | 12 |
| 1198 | | | min | -.172 | 3 | 0 | 1 | 0 | 9 | 0 | 1 | 0 | 9 | 0 | 1 |
| 1199 | | 5 | max | .222 | 8 | 0 | 12 | .001 | 8 | 0 | 12 | 0 | 8 | 0 | 12 |
| 1200 | | | min | -.171 | 3 | 0 | 1 | 0 | 9 | 0 | 1 | 0 | 9 | 0 | 1 |
| 1201 | M112A | 1 | max | .104 | 3 | .041 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .026 | 3 |
| 1202 | | | min | -.165 | 8 | -.07 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.042 | 8 |
| 1203 | | 2 | max | .104 | 3 | .041 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 1204 | | | min | -.165 | 8 | -.07 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.019 | 8 |
| 1205 | | 3 | max | .104 | 3 | .041 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 1206 | | | min | -.165 | 8 | -.071 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 1207 | | 4 | max | .103 | 3 | .04 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .029 | 8 |
| 1208 | | | min | -.165 | 8 | -.071 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 3 |
| 1209 | | 5 | max | .103 | 3 | .04 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .053 | 8 |
| 1210 | | | min | -.166 | 8 | -.071 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.029 | 3 |
| 1211 | M113A | 1 | max | .278 | 3 | .045 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .026 | 3 |
| 1212 | | | min | -.353 | 8 | -.051 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.03 | 8 |
| 1213 | | 2 | max | .278 | 3 | .044 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .012 | 3 |
| 1214 | | | min | -.353 | 8 | -.051 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 8 |
| 1215 | | 3 | max | .277 | 3 | .044 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 8 |
| 1216 | | | min | -.353 | 8 | -.052 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 3 |
| 1217 | | 4 | max | .277 | 3 | .044 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .021 | 8 |
| 1218 | | | min | -.353 | 8 | -.052 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.018 | 3 |
| 1219 | | 5 | max | .276 | 3 | .044 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .038 | 8 |
| 1220 | | | min | -.354 | 8 | -.052 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.032 | 3 |
| 1221 | M115B | 1 | max | .673 | 3 | .021 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 3 |
| 1222 | | | min | -1.106 | 8 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.02 | 8 |
| 1223 | | 2 | max | .672 | 3 | .02 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 3 |
| 1224 | | | min | -1.106 | 8 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.011 | 8 |
| 1225 | | 3 | max | .672 | 3 | .02 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 1226 | | | min | -1.106 | 8 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 8 |
| 1227 | | 4 | max | .671 | 3 | .02 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 1228 | | | min | -1.106 | 8 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1229 | | 5 | max | .671 | 3 | .02 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .016 | 8 |
| 1230 | | | min | -1.107 | 8 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 1231 | M118 | 1 | max | .934 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 1232 | | | min | -1.525 | 8 | -.013 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.008 | 5 |
| 1233 | | 2 | max | .934 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 1234 | | | min | -1.525 | 8 | -.012 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 5 |
| 1235 | | 3 | max | .934 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 12 |
| 1236 | | | min | -1.525 | 8 | -.012 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 3 |
| 1237 | | 4 | max | .934 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 8 |
| 1238 | | | min | -1.525 | 8 | -.011 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 3 |
| 1239 | | 5 | max | .934 | 3 | .001 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 8 |
| 1240 | | | min | -1.524 | 8 | -.011 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 3 |
| 1241 | M119 | 1 | max | .741 | 3 | .021 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .014 | 8 |
| 1242 | | | min | -1.186 | 8 | -.012 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.009 | 3 |
| 1243 | | 2 | max | .741 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 8 |
| 1244 | | | min | -1.186 | 8 | -.012 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.005 | 3 |
| 1245 | | 3 | max | .742 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 8 |
| 1246 | | | min | -1.186 | 8 | -.013 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 10 |
| 1247 | | 4 | max | .742 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 3 |
| 1248 | | | min | -1.185 | 8 | -.013 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.007 | 8 |
| 1249 | | 5 | max | .742 | 3 | .02 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .009 | 3 |
| 1250 | | | min | -1.185 | 8 | -.013 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.014 | 8 |
| 1251 | M120A | 1 | max | .678 | 3 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 1252 | | | min | -.784 | 8 | -.004 | 10 | 0 | 1 | 0 | 1 | 0 | 1 | -.003 | 10 |
| 1253 | | 2 | max | .679 | 3 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 1254 | | | min | -.784 | 8 | -.004 | 10 | 0 | 1 | 0 | 1 | 0 | 1 | -.002 | 10 |
| 1255 | | 3 | max | .679 | 3 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 1256 | | | min | -.784 | 8 | -.005 | 10 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 1257 | | 4 | max | .679 | 3 | -.001 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 10 |
| 1258 | | | min | -.783 | 8 | -.005 | 10 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 1259 | | 5 | max | .68 | 3 | -.002 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .004 | 10 |
| 1260 | | | min | -.783 | 8 | -.006 | 10 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 1261 | M121 | 1 | max | .986 | 3 | .013 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .008 | 8 |
| 1262 | | | min | -1.012 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 1263 | | 2 | max | .986 | 3 | .013 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 5 |
| 1264 | | | min | -1.012 | 8 | -.003 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 1265 | | 3 | max | .986 | 3 | .013 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .001 | 3 |
| 1266 | | | min | -1.012 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.001 | 8 |
| 1267 | | 4 | max | .986 | 3 | .013 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 1268 | | | min | -1.011 | 8 | -.002 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 8 |
| 1269 | | 5 | max | .986 | 3 | .014 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 1270 | | | min | -1.011 | 8 | -.001 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 1271 | M129A | 1 | max | .833 | 3 | .011 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 1272 | | | min | -1.767 | 8 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.023 | 8 |
| 1273 | | 2 | max | .834 | 3 | .011 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 1274 | | | min | -1.767 | 8 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.01 | 8 |
| 1275 | | 3 | max | .834 | 3 | .012 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 9 |
| 1276 | | | min | -1.767 | 8 | -.028 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| 1277 | | 4 | max | .835 | 3 | .012 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .018 | 12 |
| 1278 | | | min | -1.766 | 8 | -.027 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.006 | 3 |
| 1279 | | 5 | max | .835 | 3 | .013 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .031 | 12 |
| 1280 | | | min | -1.766 | 8 | -.027 | 8 | 0 | 1 | 0 | 1 | 0 | 1 | -.012 | 3 |
| 1281 | M130 | 1 | max | 1.88 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 3 |
| 1282 | | | min | -.789 | 3 | -.007 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.016 | 12 |
| 1283 | | 2 | max | 1.88 | 8 | 0 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .002 | 3 |
| 1284 | | | min | -.788 | 3 | -.007 | 9 | 0 | 1 | 0 | 1 | 0 | 1 | -.013 | 12 |
| 1285 | | 3 | max | 1.881 | 8 | -.001 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |

## Envelope Member Section Forces (Continued)

| | Member | Sec | | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1287 | | 4 | max | 1.881 | 8 | -.002 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 1289 | | 5 | max | 1.881 | 8 | -.002 | 2 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |
| 1291 | M131 | 1 | max | .833 | 3 | .011 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .01 | 3 |
| 1293 | | 2 | max | .834 | 3 | .011 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 1295 | | 3 | max | .834 | 3 | .012 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 2 |
| 1297 | | 4 | max | .835 | 3 | .012 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 1299 | | 5 | max | .835 | 3 | .013 | 3 | 0 | 12 | 0 | 12 | 0 | 12 | 0 | 12 |
| 1301 | M132 | 1 | max | .264 | 12 | .011 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .011 | 5 |
| 1303 | | 2 | max | .264 | 12 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .006 | 5 |
| 1305 | | 3 | max | .264 | 12 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .003 | 3 |
| 1307 | | 4 | max | .265 | 12 | .01 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .005 | 3 |
| 1309 | | 5 | max | .265 | 12 | .009 | 8 | 0 | 12 | 0 | 12 | 0 | 12 | .007 | 3 |

## Envelope Member Section Deflections Service

| | 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 | M43 | 1 | max | .728 | 8 | .186 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 2 | | | min | -.291 | 3 | -.133 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 3 | | 2 | max | .73 | 8 | .228 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 4 | | | min | -.292 | 3 | -.17 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 5 | | 3 | max | .731 | 8 | .269 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 6 | | | min | -.292 | 3 | -.21 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 7 | | 4 | max | .733 | 8 | .311 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 8 | | | min | -.293 | 3 | -.267 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 9 | | 5 | max | .734 | 8 | .352 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 10 | | | min | -.294 | 3 | -.324 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 11 | M44 | 1 | max | .708 | 8 | .372 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 12 | | | min | -.267 | 3 | -.377 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 13 | | 2 | max | .708 | 8 | .414 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 14 | | | min | -.267 | 3 | -.435 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 15 | | 3 | max | .708 | 8 | .456 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 16 | | | min | -.267 | 3 | -.493 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 17 | | 4 | max | .708 | 8 | .497 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 18 | | | min | -.267 | 3 | -.55 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 19 | | 5 | max | .708 | 8 | .536 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 20 | | | min | -.266 | 3 | -.605 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 21 | M45 | 1 | max | .662 | 8 | .554 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 22 | | | min | -.226 | 3 | -.655 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 23 | | 2 | max | .661 | 8 | .592 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 24 | | | min | -.225 | 3 | -.708 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 25 | | 3 | max | .66 | 8 | .628 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 26 | | | min | -.224 | 3 | -.759 | 8 | 0 | 1 | 0 | 1 | 7890.906 | 8 | NC | 1 |
| 27 | | 4 | max | .659 | 8 | .663 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | | | min | -.223 | 3 | -.807 | 8 | 0 | 1 | 0 | 1 | 9918.555 | 8 | NC | 1 |
| 29 | | 5 | max | .658 | 8 | .695 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 30 | | | min | -.222 | 3 | -.853 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 31 | M46 | 1 | max | .594 | 8 | .709 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 32 | | | min | -.171 | 3 | -.899 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 33 | | 2 | max | .592 | 8 | .74 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 34 | | | min | -.169 | 3 | -.942 | 8 | 0 | 1 | 0 | 1 | 7605.545 | 8 | NC | 1 |
| 35 | | 3 | max | .59 | 8 | .768 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 36 | | | min | -.167 | 3 | -.982 | 8 | 0 | 1 | 0 | 1 | 5386.808 | 8 | NC | 1 |
| 37 | | 4 | max | .588 | 8 | .794 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 38 | | | min | -.166 | 3 | -1.019 | 8 | 0 | 1 | 0 | 1 | 6762.894 | 8 | NC | 1 |
| 39 | | 5 | max | .586 | 8 | .817 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 40 | | | min | -.164 | 3 | -1.051 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 41 | M47 | 1 | max | .508 | 8 | .827 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 42 | | | min | -.104 | 3 | -1.091 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 43 | | 2 | max | .505 | 8 | .847 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 44 | | | min | -.102 | 3 | -1.12 | 8 | 0 | 1 | 0 | 1 | 6411.823 | 8 | NC | 1 |
| 45 | | 3 | max | .503 | 8 | .864 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 46 | | | min | -.1 | 3 | -1.145 | 8 | 0 | 1 | 0 | 1 | 4547.372 | 8 | NC | 1 |
| 47 | | 4 | max | .5 | 8 | .878 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 48 | | | min | -.098 | 3 | -1.166 | 8 | 0 | 1 | 0 | 1 | 5721.563 | 8 | NC | 1 |
| 49 | | 5 | max | .498 | 8 | .889 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 50 | | | min | -.095 | 3 | -1.182 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 51 | M48 | 1 | max | .422 | 8 | .894 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 52 | | | min | -.039 | 3 | -1.212 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 53 | | 2 | max | .419 | 8 | .9 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 54 | | | min | -.037 | 3 | -1.221 | 8 | 0 | 1 | 0 | 1 | 7510.741 | 8 | NC | 1 |
| 55 | | 3 | max | .417 | 8 | .904 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 56 | | | min | -.035 | 3 | -1.227 | 8 | 0 | 1 | 0 | 1 | 5941.491 | 8 | NC | 1 |
| 57 | | 4 | max | .415 | 8 | .906 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 58 | | | min | -.033 | 3 | -1.23 | 8 | 0 | 1 | 0 | 1 | 8354.037 | 8 | NC | 1 |
| 59 | | 5 | max | .413 | 8 | .907 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 60 | | | min | -.031 | 3 | -1.232 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 61 | M49 | 1 | max | .348 | 5 | .907 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 62 | | | min | .004 | 1 | -1.253 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 63 | | 2 | max | .346 | 5 | .906 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 64 | | | min | .005 | 1 | -1.253 | 8 | 0 | 1 | 0 | 1 | 8472.045 | 8 | NC | 1 |
| 65 | | 3 | max | .344 | 5 | .904 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 66 | | | min | .005 | 1 | -1.251 | 8 | 0 | 1 | 0 | 1 | 5983.567 | 8 | NC | 1 |
| 67 | | 4 | max | .342 | 5 | .899 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 68 | | | min | .006 | 1 | -1.247 | 8 | 0 | 1 | 0 | 1 | 7518.102 | 8 | NC | 1 |
| 69 | | 5 | max | .34 | 5 | .893 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 70 | | | min | .006 | 1 | -1.24 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 71 | M50 | 1 | max | .259 | 5 | .889 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 72 | | | min | .022 | 1 | -1.26 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 73 | | 2 | max | .257 | 5 | .878 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 74 | | | min | .023 | 1 | -1.246 | 8 | 0 | 1 | 0 | 1 | 5618.088 | 8 | NC | 1 |
| 75 | | 3 | max | .255 | 6 | .863 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 76 | | | min | .023 | 1 | -1.227 | 8 | 0 | 1 | 0 | 1 | 4503.024 | 8 | NC | 1 |
| 77 | | 4 | max | .254 | 6 | .845 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 78 | | | min | .024 | 1 | -1.204 | 8 | 0 | 1 | 0 | 1 | 6409.314 | 8 | NC | 1 |
| 79 | | 5 | max | .254 | 6 | .825 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 80 | | | min | .024 | 1 | -1.177 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 81 | M51 | 1 | max | .233 | 6 | .817 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 82 | | | min | -.006 | 12 | -1.189 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 83 | | 2 | max | .233 | 6 | .794 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 84 | | | min | -.007 | 12 | -1.159 | 8 | 0 | 1 | 0 | 1 | 6731.12 | 8 | NC | 1 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 85 | | 3 | max | .232 | 6 | .769 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 86 | | | min | -.008 | 12 | -1.124 | 8 | 0 | 1 | 0 | 1 | 5298.205 | 8 | NC | 1 |
| 87 | | 4 | max | .232 | 6 | .74 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 88 | | | min | -.009 | 12 | -1.087 | 8 | 0 | 1 | 0 | 1 | 7383.388 | 8 | NC | 1 |
| 89 | | 5 | max | .232 | 6 | .71 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 90 | | | min | -.011 | 12 | -1.046 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 91 | M52 | 1 | max | .208 | 3 | .695 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 92 | | | min | -.058 | 12 | -1.055 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 93 | | 2 | max | .209 | 3 | .663 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 94 | | | min | -.058 | 12 | -1.011 | 8 | 0 | 1 | 0 | 1 | 9423.611 | 8 | NC | 1 |
| 95 | | 3 | max | .21 | 3 | .628 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 96 | | | min | -.059 | 12 | -.964 | 8 | 0 | 1 | 0 | 1 | 7513.408 | 8 | NC | 1 |
| 97 | | 4 | max | .212 | 3 | .592 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 98 | | | min | -.06 | 12 | -.915 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 99 | | 5 | max | .213 | 3 | .553 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 100 | | | min | -.061 | 12 | -.863 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 101 | M53 | 1 | max | .252 | 3 | .536 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 102 | | | min | -.095 | 12 | -.866 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 103 | | 2 | max | .253 | 3 | .497 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 104 | | | min | -.094 | 12 | -.812 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 105 | | 3 | max | .253 | 3 | .457 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 106 | | | min | -.094 | 12 | -.757 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 107 | | 4 | max | .253 | 3 | .415 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 108 | | | min | -.094 | 12 | -.701 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 109 | | 5 | max | .254 | 3 | .374 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 110 | | | min | -.094 | 12 | -.644 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 111 | M54 | 1 | max | .28 | 3 | .354 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 112 | | | min | -.118 | 12 | -.643 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 113 | | 2 | max | .279 | 3 | .312 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 114 | | | min | -.117 | 12 | -.586 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 115 | | 3 | max | .279 | 3 | .27 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 116 | | | min | -.116 | 12 | -.528 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 117 | | 4 | max | .278 | 3 | .228 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 118 | | | min | -.115 | 12 | -.471 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 119 | | 5 | max | .277 | 3 | .187 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 120 | | | min | -.114 | 12 | -.414 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 121 | M104A | 1 | max | .285 | 3 | .175 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 122 | | | min | -.121 | 12 | -.412 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 123 | | 2 | max | .283 | 3 | .147 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 124 | | | min | -.12 | 12 | -.372 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 125 | | 3 | max | .282 | 3 | .118 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 126 | | | min | -.118 | 12 | -.333 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 127 | | 4 | max | .28 | 3 | .091 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 128 | | | min | -.117 | 12 | -.295 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 129 | | 5 | max | .278 | 3 | .065 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 130 | | | min | -.116 | 12 | -.259 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 131 | M110A | 1 | max | .722 | 8 | .118 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 132 | | | min | -.295 | 3 | -.015 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 133 | | 2 | max | .725 | 8 | .11 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 134 | | | min | -.296 | 3 | -.037 | 12 | 0 | 1 | 0 | 1 | 7610.803 | 8 | NC | 1 |
| 135 | | 3 | max | .727 | 8 | .114 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 136 | | | min | -.298 | 3 | -.062 | 12 | 0 | 1 | 0 | 1 | 7499.362 | 8 | NC | 1 |
| 137 | | 4 | max | .73 | 8 | .142 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 138 | | | min | -.3 | 3 | -.087 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 139 | | 5 | max | .733 | 8 | .17 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 140 | | | min | -.301 | 3 | -.113 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 141 | M34 | 1 | max | -.004 | 12 | .488 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 142 | | | min | -.012 | 6 | -.215 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 143 | | 2 | max | 0 | 12 | .534 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 144 | | | min | -.01 | 6 | -.235 | 3 | 0 | 1 | 0 | 1 | 7348.196 | 8 | NC | 1 |
| 145 | | 3 | max | .002 | 12 | .578 | 8 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 146 | | | min | -.011 | 3 | -.253 | 3 | 0 | 1 | 0 | 1 | 5177.021 | 8 | NC | 1 |
| 147 | | 4 | max | .005 | 12 | .618 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 148 | | | min | -.013 | 3 | -.271 | 3 | 0 | 1 | 0 | 1 | 6508.123 | 8 | NC | 1 |
| 149 | | 5 | max | .007 | 12 | .655 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 150 | | | min | -.015 | 3 | -.286 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 151 | M63 | 1 | max | .016 | 3 | .127 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 152 | | | min | -.029 | 8 | -.282 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 153 | | 2 | max | .014 | 3 | .12 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 154 | | | min | -.027 | 8 | -.267 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 155 | | 3 | max | .012 | 3 | .112 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 156 | | | min | -.025 | 8 | -.25 | 3 | 0 | 1 | 0 | 1 | 9594.515 | 3 | NC | 1 |
| 157 | | 4 | max | .009 | 3 | .103 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 158 | | | min | -.024 | 8 | -.231 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 159 | | 5 | max | .007 | 3 | .094 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 160 | | | min | -.022 | 8 | -.211 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 161 | M64 | 1 | max | .007 | 3 | .094 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 162 | | | min | -.022 | 8 | -.211 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 163 | | 2 | max | .006 | 3 | .082 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 164 | | | min | -.021 | 8 | -.186 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 165 | | 3 | max | .004 | 3 | .07 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 166 | | | min | -.02 | 8 | -.159 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 167 | | 4 | max | .003 | 4 | .057 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 168 | | | min | -.018 | 8 | -.131 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 169 | | 5 | max | .002 | 2 | .044 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 170 | | | min | -.017 | 8 | -.102 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 171 | M121A | 1 | max | .507 | 8 | .597 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 172 | | | min | -.227 | 3 | -.231 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 173 | | 2 | max | .51 | 8 | .593 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 174 | | | min | -.228 | 3 | -.226 | 3 | 0 | 1 | 0 | 1 | 7483.714 | 8 | NC | 1 |
| 175 | | 3 | max | .513 | 8 | .588 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 176 | | | min | -.23 | 3 | -.22 | 3 | 0 | 1 | 0 | 1 | 5536.282 | 8 | NC | 1 |
| 177 | | 4 | max | .516 | 8 | .581 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 178 | | | min | -.232 | 3 | -.213 | 3 | 0 | 1 | 0 | 1 | 7285.18 | 8 | NC | 1 |
| 179 | | 5 | max | .518 | 8 | .572 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 180 | | | min | -.234 | 3 | -.205 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 181 | M119A | 1 | max | .708 | 8 | .227 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 182 | | | min | -.291 | 3 | -.03 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 183 | | 2 | max | .711 | 8 | .204 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 184 | | | min | -.293 | 3 | -.012 | 3 | 0 | 1 | 0 | 1 | 7364.866 | 8 | NC | 1 |
| 185 | | 3 | max | .713 | 8 | .181 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 186 | | | min | -.294 | 3 | .004 | 1 | 0 | 1 | 0 | 1 | 6141.015 | 8 | NC | 1 |
| 187 | | 4 | max | .715 | 8 | .156 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 188 | | | min | -.296 | 3 | .009 | 1 | 0 | 1 | 0 | 1 | 9233.951 | 8 | NC | 1 |
| 189 | | 5 | max | .718 | 8 | .132 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 190 | | | min | -.297 | 3 | 0 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 191 | M117 | 1 | max | .143 | 8 | .741 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 192 | | | min | -.076 | 3 | -.315 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 193 | | 2 | max | .147 | 8 | .75 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 194 | | | min | -.078 | 3 | -.318 | 3 | 0 | 1 | 0 | 1 | 6799.397 | 8 | NC | 1 |
| 195 | | 3 | max | .15 | 8 | .759 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 196 | | | min | -.08 | 3 | -.32 | 3 | 0 | 1 | 0 | 1 | 4560.009 | 8 | NC | 1 |
| 197 | | 4 | max | .153 | 8 | .765 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 198 | | | min | -.082 | 3 | -.321 | 3 | 0 | 1 | 0 | 1 | 5498.849 | 8 | NC | 1 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 199 | | 5 | max | .157 | 8 | .769 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 200 | | | min | -.084 | 3 | -.32 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 201 | M105A | 1 | max | .249 | 3 | .026 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 202 | | | min | -.116 | 12 | -.176 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 203 | | 2 | max | .247 | 3 | .035 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 204 | | | min | -.114 | 12 | -.171 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 205 | | 3 | max | .246 | 3 | .043 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 206 | | | min | -.113 | 12 | -.167 | 6 | 0 | 1 | 0 | 1 | 8014.667 | 8 | NC | 1 |
| 207 | | 4 | max | .244 | 3 | .05 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 208 | | | min | -.112 | 12 | -.162 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 209 | | 5 | max | .243 | 3 | .056 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 210 | | | min | -.111 | 12 | -.17 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 211 | M106A | 1 | max | .165 | 3 | .108 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 212 | | | min | -.087 | 8 | -.264 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 213 | | 2 | max | .164 | 3 | .112 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 214 | | | min | -.085 | 8 | -.269 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 215 | | 3 | max | .162 | 3 | .116 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 216 | | | min | -.083 | 8 | -.274 | 3 | 0 | 1 | 0 | 1 | 8385.85 | 8 | NC | 1 |
| 217 | | 4 | max | .16 | 3 | .119 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 218 | | | min | -.081 | 8 | -.278 | 3 | 0 | 1 | 0 | 1 | 9618.709 | 8 | NC | 1 |
| 219 | | 5 | max | .158 | 3 | .122 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 220 | | | min | -.079 | 8 | -.28 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 221 | M107A | 1 | max | .026 | 3 | .141 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 222 | | | min | -.038 | 8 | -.315 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 223 | | 2 | max | .024 | 3 | .139 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 224 | | | min | -.036 | 8 | -.31 | 3 | 0 | 1 | 0 | 1 | 9572.738 | 3 | NC | 1 |
| 225 | | 3 | max | .021 | 3 | .136 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 226 | | | min | -.034 | 8 | -.302 | 3 | 0 | 1 | 0 | 1 | 7463.61 | 3 | NC | 1 |
| 227 | | 4 | max | .018 | 3 | .132 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 228 | | | min | -.031 | 8 | -.293 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 229 | | 5 | max | .016 | 3 | .127 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 230 | | | min | -.029 | 8 | -.282 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 231 | M111A | 1 | max | .283 | 3 | .039 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 232 | | | min | -.123 | 12 | -.254 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 233 | | 2 | max | .282 | 3 | .016 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 234 | | | min | -.122 | 12 | -.221 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 235 | | 3 | max | .28 | 3 | 0 | 2 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 236 | | | min | -.121 | 12 | -.19 | 5 | 0 | 1 | 0 | 1 | 6851.311 | 8 | NC | 1 |
| 237 | | 4 | max | .279 | 3 | -.005 | 2 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 238 | | | min | -.119 | 12 | -.162 | 5 | 0 | 1 | 0 | 1 | 8059.22 | 8 | NC | 1 |
| 239 | | 5 | max | .277 | 3 | -.01 | 2 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 240 | | | min | -.118 | 12 | -.137 | 5 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 241 | M115C | 1 | max | .603 | 8 | .482 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 242 | | | min | -.263 | 3 | -.165 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 243 | | 2 | max | .606 | 8 | .469 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 244 | | | min | -.265 | 3 | -.153 | 3 | 0 | 1 | 0 | 1 | 6206.455 | 8 | NC | 1 |
| 245 | | 3 | max | .61 | 8 | .453 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 246 | | | min | -.267 | 3 | -.14 | 3 | 0 | 1 | 0 | 1 | 5203.116 | 8 | NC | 1 |
| 247 | | 4 | max | .613 | 8 | .435 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 248 | | | min | -.269 | 3 | -.126 | 3 | 0 | 1 | 0 | 1 | 7870.76 | 8 | NC | 1 |
| 249 | | 5 | max | .617 | 8 | .416 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 250 | | | min | -.271 | 3 | -.11 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 251 | M116A | 1 | max | .214 | 3 | .072 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 252 | | | min | -.101 | 12 | -.205 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 253 | | 2 | max | .213 | 3 | .078 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 254 | | | min | -.1 | 12 | -.213 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 255 | | 3 | max | .211 | 3 | .084 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 256 | | | min | -.099 | 12 | -.22 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 257 | | 4 | max | .209 | 3 | .089 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 258 | | | min | -.098 | 12 | -.226 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 259 | | 5 | max | .208 | 3 | .093 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 260 | | | min | -.096 | 12 | -.232 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 261 | M117A | 1 | max | .098 | 3 | .134 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 262 | | | min | -.065 | 8 | -.306 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 263 | | 2 | max | .096 | 3 | .135 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 264 | | | min | -.063 | 8 | -.307 | 3 | 0 | 1 | 0 | 1 | 9810.691 | 8 | NC | 1 |
| 265 | | 3 | max | .095 | 3 | .135 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 266 | | | min | -.062 | 8 | -.306 | 3 | 0 | 1 | 0 | 1 | 8814.566 | 3 | NC | 1 |
| 267 | | 4 | max | .093 | 3 | .135 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 268 | | | min | -.06 | 8 | -.304 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 269 | | 5 | max | .091 | 3 | .135 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 270 | | | min | -.058 | 8 | -.302 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 271 | M122A | 1 | max | 0 | 3 | .018 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 272 | | | min | -.022 | 5 | -.007 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 273 | | 2 | max | 0 | 3 | .071 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 274 | | | min | -.022 | 5 | -.03 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 275 | | 3 | max | 0 | 3 | .126 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 276 | | | min | -.022 | 5 | -.055 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 277 | | 4 | max | 0 | 3 | .182 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 278 | | | min | -.021 | 5 | -.079 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 279 | | 5 | max | 0 | 3 | .238 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 280 | | | min | -.021 | 5 | -.104 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 281 | M125D | 1 | max | 0 | 3 | .238 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 282 | | | min | -.021 | 5 | -.104 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 283 | | 2 | max | -.002 | 3 | .303 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 284 | | | min | -.018 | 5 | -.133 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 285 | | 3 | max | -.003 | 2 | .368 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 286 | | | min | -.016 | 5 | -.162 | 3 | 0 | 1 | 0 | 1 | 8134.577 | 8 | NC | 1 |
| 287 | | 4 | max | -.003 | 2 | .43 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 288 | | | min | -.013 | 5 | -.189 | 3 | 0 | 1 | 0 | 1 | 8796.009 | 8 | NC | 1 |
| 289 | | 5 | max | -.004 | 12 | .488 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 290 | | | min | -.012 | 6 | -.215 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 291 | M127A | 1 | max | .002 | 2 | .044 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 292 | | | min | -.017 | 8 | -.102 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 293 | | 2 | max | .002 | 2 | .034 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 294 | | | min | -.017 | 8 | -.078 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 295 | | 3 | max | .002 | 2 | .023 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 296 | | | min | -.016 | 8 | -.054 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 297 | | 4 | max | .002 | 2 | .012 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 298 | | | min | -.016 | 8 | -.03 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 299 | | 5 | max | .002 | 2 | .002 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 300 | | | min | -.015 | 8 | -.007 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 301 | M133A | 1 | max | .007 | 12 | .655 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 302 | | | min | -.015 | 3 | -.286 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 303 | | 2 | max | .011 | 8 | .685 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 304 | | | min | -.018 | 3 | -.298 | 3 | 0 | 1 | 0 | 1 | 5368.515 | 8 | NC | 1 |
| 305 | | 3 | max | .016 | 8 | .712 | 8 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 306 | | | min | -.02 | 3 | -.309 | 3 | 0 | 1 | 0 | 1 | 3856.795 | 8 | NC | 1 |
| 307 | | 4 | max | .021 | 8 | .735 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 308 | | | min | -.023 | 3 | -.317 | 3 | 0 | 1 | 0 | 1 | 4934.552 | 8 | NC | 1 |
| 309 | | 5 | max | .025 | 8 | .754 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 310 | | | min | -.026 | 3 | -.323 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 311 | M137 | 1 | max | .3 | 8 | .725 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 312 | | | min | -.143 | 3 | -.298 | 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 [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 313 | | 2 | max | .302 | 8 | .725 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 314 | | | min | -.145 | 3 | -.296 | 3 | 0 | 1 | 0 | 1 | 8063.768 | 8 | NC | 1 |
| 315 | | 3 | max | .304 | 8 | .724 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 316 | | | min | -.146 | 3 | -.294 | 3 | 0 | 1 | 0 | 1 | 6794.778 | 8 | NC | 1 |
| 317 | | 4 | max | .307 | 8 | .723 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 318 | | | min | -.147 | 3 | -.291 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 319 | | 5 | max | .309 | 8 | .72 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 320 | | | min | -.149 | 3 | -.288 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 321 | M124A | 1 | max | .007 | 3 | 0 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 322 | | | min | -.018 | 8 | -.022 | 5 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 323 | | 2 | max | .007 | 3 | .003 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 324 | | | min | -.018 | 8 | -.01 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 325 | | 3 | max | .007 | 3 | .028 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 326 | | | min | -.018 | 8 | -.021 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 327 | | 4 | max | .007 | 3 | .053 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 328 | | | min | -.018 | 8 | -.032 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 329 | | 5 | max | .007 | 3 | .078 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 330 | | | min | -.018 | 8 | -.043 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 331 | M125 | 1 | max | .007 | 3 | .015 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 332 | | | min | -.002 | 12 | -.002 | 1 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 333 | | 2 | max | .007 | 3 | .019 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 334 | | | min | -.002 | 12 | -.01 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 335 | | 3 | max | .007 | 3 | .023 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 336 | | | min | -.002 | 12 | -.021 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 337 | | 4 | max | .007 | 3 | .026 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 338 | | | min | -.002 | 12 | -.031 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 339 | | 5 | max | .007 | 3 | .03 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 340 | | | min | -.002 | 12 | -.042 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 341 | M2 | 1 | max | .03 | 8 | .002 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 342 | | | min | -.042 | 3 | -.007 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 343 | | 2 | max | .031 | 8 | .007 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 344 | | | min | -.043 | 3 | -.019 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 345 | | 3 | max | .031 | 8 | .013 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 346 | | | min | -.043 | 3 | -.031 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 347 | | 4 | max | .031 | 8 | .018 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 348 | | | min | -.044 | 3 | -.043 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 349 | | 5 | max | .032 | 8 | .023 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 350 | | | min | -.044 | 3 | -.056 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 351 | M3 | 1 | max | .034 | 8 | .074 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 352 | | | min | -.046 | 3 | -.168 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 353 | | 2 | max | .034 | 8 | .083 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 354 | | | min | -.045 | 3 | -.188 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 355 | | 3 | max | .034 | 8 | .092 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 356 | | | min | -.045 | 3 | -.208 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 357 | | 4 | max | .034 | 8 | .101 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 358 | | | min | -.044 | 3 | -.226 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 359 | | 5 | max | .034 | 8 | .109 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 360 | | | min | -.043 | 3 | -.243 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 361 | M4 | 1 | max | .034 | 8 | .109 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 362 | | | min | -.043 | 3 | -.243 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 363 | | 2 | max | .033 | 8 | .116 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 364 | | | min | -.042 | 3 | -.26 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 365 | | 3 | max | .032 | 8 | .123 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 366 | | | min | -.04 | 3 | -.276 | 3 | 0 | 1 | 0 | 1 | 7773.621 | 3 | NC | 1 |
| 367 | | 4 | max | .031 | 8 | .129 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 368 | | | min | -.039 | 3 | -.289 | 3 | 0 | 1 | 0 | 1 | 9457.515 | 3 | NC | 1 |
| 369 | | 5 | max | .03 | 8 | .135 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 370 | | | min | -.037 | 3 | -.3 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 371 | M5 | 1 | max | .03 | 8 | .135 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 372 | | | min | -.037 | 3 | -.3 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 373 | | 2 | max | .029 | 8 | .137 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 374 | | | min | -.036 | 3 | -.304 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 375 | | 3 | max | .028 | 8 | .139 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 376 | | | min | -.035 | 3 | -.308 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 377 | | 4 | max | .027 | 8 | .139 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 378 | | | min | -.034 | 3 | -.311 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 379 | | 5 | max | .026 | 8 | .14 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 380 | | | min | -.033 | 3 | -.314 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 381 | M6 | 1 | max | .045 | 8 | .134 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 382 | | | min | -.095 | 3 | -.301 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 383 | | 2 | max | .043 | 8 | .134 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 384 | | | min | -.093 | 3 | -.303 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 385 | | 3 | max | .042 | 8 | .134 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 386 | | | min | -.092 | 3 | -.305 | 3 | 0 | 1 | 0 | 1 | 8474.236 | 3 | NC | 1 |
| 387 | | 4 | max | .041 | 8 | .134 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 388 | | | min | -.09 | 3 | -.306 | 3 | 0 | 1 | 0 | 1 | 9916.61 | 3 | NC | 1 |
| 389 | | 5 | max | .04 | 8 | .132 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 390 | | | min | -.088 | 3 | -.304 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 391 | M7 | 1 | max | .065 | 12 | .121 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 392 | | | min | -.149 | 3 | -.28 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 393 | | 2 | max | .064 | 12 | .119 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 394 | | | min | -.147 | 3 | -.277 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 395 | | 3 | max | .063 | 12 | .116 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 396 | | | min | -.146 | 3 | -.274 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 397 | | 4 | max | .063 | 12 | .112 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 398 | | | min | -.145 | 3 | -.269 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 399 | | 5 | max | .062 | 12 | .108 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 400 | | | min | -.144 | 3 | -.264 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 401 | M8 | 1 | max | .077 | 12 | .098 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 402 | | | min | -.18 | 3 | -.241 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 403 | | 2 | max | .076 | 12 | .092 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 404 | | | min | -.179 | 3 | -.233 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 405 | | 3 | max | .074 | 12 | .086 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 406 | | | min | -.177 | 3 | -.225 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 407 | | 4 | max | .073 | 12 | .079 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 408 | | | min | -.175 | 3 | -.217 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 409 | | 5 | max | .072 | 12 | .071 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 410 | | | min | -.174 | 3 | -.207 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 411 | M9 | 1 | max | .091 | 12 | .046 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 412 | | | min | -.229 | 3 | -.144 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 413 | | 2 | max | .089 | 12 | .036 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 414 | | | min | -.227 | 3 | -.147 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 415 | | 3 | max | .088 | 12 | .026 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 416 | | | min | -.226 | 3 | -.154 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 417 | | 4 | max | .087 | 12 | .015 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 418 | | | min | -.224 | 3 | -.161 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 419 | | 5 | max | .086 | 12 | .003 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 420 | | | min | -.223 | 3 | -.167 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 421 | M12 | 1 | max | .049 | 12 | .276 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 422 | | | min | -.201 | 6 | -.523 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 423 | | 2 | max | .049 | 12 | .322 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 424 | | | min | -.201 | 6 | -.585 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 425 | | 3 | max | .049 | 12 | .367 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 426 | | | min | -.2 | 6 | -.646 | 8 | 0 | 1 | 0 | 1 | 7681.776 | 8 | NC | 1 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 427 | | 4 | max | .05 | 12 | .409 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 428 | | | min | -.2 | 3 | -.703 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 429 | | 5 | max | .05 | 12 | .449 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 430 | | | min | -.2 | 3 | -.76 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 431 | M13 | 1 | max | .021 | 12 | .463 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 432 | | | min | -.219 | 6 | -.752 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 433 | | 2 | max | .022 | 12 | .507 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 434 | | | min | -.218 | 6 | -.816 | 8 | 0 | 1 | 0 | 1 | 3892.019 | 8 | NC | 1 |
| 435 | | 3 | max | .023 | 12 | .551 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 436 | | | min | -.217 | 6 | -.876 | 8 | 0 | 1 | 0 | 1 | 2368.563 | 8 | NC | 1 |
| 437 | | 4 | max | .024 | 12 | .588 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 438 | | | min | -.216 | 6 | -.925 | 8 | 0 | 1 | 0 | 1 | 3511.675 | 8 | NC | 1 |
| 439 | | 5 | max | .025 | 12 | .621 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 440 | | | min | -.215 | 6 | -.968 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 441 | M18 | 1 | max | .103 | 3 | .861 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 442 | | | min | -.504 | 8 | -1.127 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 443 | | 2 | max | .101 | 3 | .846 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 444 | | | min | -.5 | 8 | -1.106 | 8 | 0 | 1 | 0 | 1 | 3519.863 | 8 | NC | 1 |
| 445 | | 3 | max | .098 | 3 | .828 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 446 | | | min | -.496 | 8 | -1.082 | 8 | 0 | 1 | 0 | 1 | 2127.065 | 8 | NC | 1 |
| 447 | | 4 | max | .095 | 3 | .802 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 448 | | | min | -.492 | 8 | -1.044 | 8 | 0 | 1 | 0 | 1 | 3062.424 | 8 | NC | 1 |
| 449 | | 5 | max | .093 | 3 | .772 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 450 | | | min | -.488 | 8 | -.999 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 451 | M19 | 1 | max | .137 | 3 | .765 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 452 | | | min | -.545 | 8 | -.969 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 453 | | 2 | max | .136 | 3 | .75 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 454 | | | min | -.543 | 8 | -.949 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 455 | | 3 | max | .135 | 3 | .735 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 456 | | | min | -.542 | 8 | -.928 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 457 | | 4 | max | .134 | 3 | .719 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 458 | | | min | -.54 | 8 | -.906 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 459 | | 5 | max | .133 | 3 | .703 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 460 | | | min | -.539 | 8 | -.883 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 461 | M20 | 1 | max | .186 | 3 | .621 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 462 | | | min | -.602 | 8 | -.736 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 463 | | 2 | max | .185 | 3 | .588 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 464 | | | min | -.6 | 8 | -.691 | 8 | 0 | 1 | 0 | 1 | 3741.552 | 8 | NC | 1 |
| 465 | | 3 | max | .184 | 3 | .55 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 466 | | | min | -.598 | 8 | -.64 | 8 | 0 | 1 | 0 | 1 | 2562.926 | 8 | NC | 1 |
| 467 | | 4 | max | .182 | 3 | .507 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 468 | | | min | -.596 | 8 | -.578 | 8 | 0 | 1 | 0 | 1 | 4439.985 | 8 | NC | 1 |
| 469 | | 5 | max | .181 | 3 | .462 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 470 | | | min | -.594 | 8 | -.514 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 471 | M21 | 1 | max | .214 | 3 | .448 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 472 | | | min | -.63 | 8 | -.469 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 473 | | 2 | max | .214 | 3 | .407 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 474 | | | min | -.629 | 8 | -.415 | 8 | 0 | 1 | 0 | 1 | 7406.52 | 8 | NC | 1 |
| 475 | | 3 | max | .213 | 3 | .366 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 476 | | | min | -.628 | 8 | -.358 | 8 | 0 | 1 | 0 | 1 | 4670.54 | 8 | NC | 1 |
| 477 | | 4 | max | .213 | 3 | .321 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 478 | | | min | -.627 | 8 | -.294 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 479 | | 5 | max | .212 | 3 | .276 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 480 | | | min | -.627 | 8 | -.231 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 481 | M22 | 1 | max | .234 | 3 | .258 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 482 | | | min | -.643 | 8 | -.192 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 483 | | 2 | max | .235 | 3 | .212 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 484 | | | min | -.645 | 8 | -.155 | 12 | 0 | 1 | 0 | 1 | 3798.705 | 8 | NC | 1 |
| 485 | | 3 | max | .236 | 3 | .164 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 486 | | | min | -.646 | 8 | -.114 | 12 | 0 | 1 | 0 | 1 | 2304.276 | 8 | NC | 1 |
| 487 | | 4 | max | .237 | 3 | .108 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 488 | | | min | -.647 | 8 | -.061 | 12 | 0 | 1 | 0 | 1 | 4834.653 | 8 | NC | 1 |
| 489 | | 5 | max | .238 | 3 | .117 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 490 | | | min | -.649 | 8 | -.009 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 491 | M23 | 1 | max | .195 | 3 | .581 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 492 | | | min | -.466 | 8 | -.206 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 493 | | 2 | max | .197 | 3 | .591 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 494 | | | min | -.469 | 8 | -.216 | 3 | 0 | 1 | 0 | 1 | 8257.596 | 8 | NC | 1 |
| 495 | | 3 | max | .199 | 3 | .6 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 496 | | | min | -.472 | 8 | -.225 | 3 | 0 | 1 | 0 | 1 | 7176.445 | 8 | NC | 1 |
| 497 | | 4 | max | .201 | 3 | .607 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 498 | | | min | -.475 | 8 | -.233 | 3 | 0 | 1 | 0 | 1 | 9369.186 | 8 | NC | 1 |
| 499 | | 5 | max | .203 | 3 | .612 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 500 | | | min | -.478 | 8 | -.239 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 501 | M24 | 1 | max | .139 | 3 | .709 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 502 | | | min | -.317 | 8 | -.281 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 503 | | 2 | max | .14 | 3 | .711 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 504 | | | min | -.319 | 8 | -.285 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 505 | | 3 | max | .142 | 3 | .713 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 506 | | | min | -.322 | 8 | -.289 | 3 | 0 | 1 | 0 | 1 | 8044.07 | 8 | NC | 1 |
| 507 | | 4 | max | .143 | 3 | .713 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 508 | | | min | -.324 | 8 | -.292 | 3 | 0 | 1 | 0 | 1 | 9673.296 | 8 | NC | 1 |
| 509 | | 5 | max | .145 | 3 | .712 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 510 | | | min | -.326 | 8 | -.294 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 511 | M25 | 1 | max | .064 | 3 | .772 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 512 | | | min | -.133 | 8 | -.321 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 513 | | 2 | max | .066 | 3 | .768 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 514 | | | min | -.135 | 8 | -.322 | 3 | 0 | 1 | 0 | 1 | 5391.796 | 8 | NC | 1 |
| 515 | | 3 | max | .067 | 3 | .762 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 516 | | | min | -.138 | 8 | -.321 | 3 | 0 | 1 | 0 | 1 | 4205.51 | 8 | NC | 1 |
| 517 | | 4 | max | .069 | 3 | .753 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 518 | | | min | -.141 | 8 | -.319 | 3 | 0 | 1 | 0 | 1 | 6168.519 | 8 | NC | 1 |
| 519 | | 5 | max | .07 | 3 | .742 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 520 | | | min | -.143 | 8 | -.317 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 521 | M26 | 1 | max | .034 | 3 | .753 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 522 | | | min | -.058 | 8 | -.322 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 523 | | 2 | max | .035 | 3 | .744 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 524 | | | min | -.06 | 8 | -.32 | 3 | 0 | 1 | 0 | 1 | 9797.578 | 8 | NC | 1 |
| 525 | | 3 | max | .036 | 3 | .733 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 526 | | | min | -.062 | 8 | -.316 | 3 | 0 | 1 | 0 | 1 | 7364.641 | 8 | NC | 1 |
| 527 | | 4 | max | .037 | 3 | .721 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 528 | | | min | -.064 | 8 | -.312 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 529 | | 5 | max | .038 | 3 | .708 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 530 | | | min | -.066 | 8 | -.307 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 531 | M27 | 1 | max | .038 | 3 | .708 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 532 | | | min | -.066 | 8 | -.307 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 533 | | 2 | max | .04 | 3 | .681 | 8 | 0 | 12 | 0 | 12 | NC | 4 | NC | 12 |
| 534 | | | min | -.069 | 8 | -.296 | 3 | 0 | 1 | 0 | 1 | 3803.608 | 8 | NC | 1 |
| 535 | | 3 | max | .041 | 3 | .648 | 8 | 0 | 12 | 0 | 12 | NC | 2 | NC | 12 |
| 536 | | | min | -.072 | 8 | -.282 | 3 | 0 | 1 | 0 | 1 | 2747.742 | 12 | NC | 1 |
| 537 | | 4 | max | .043 | 3 | .608 | 8 | 0 | 12 | 0 | 12 | NC | 4 | NC | 12 |
| 538 | | | min | -.075 | 8 | -.265 | 3 | 0 | 1 | 0 | 1 | 4277.522 | 12 | NC | 1 |
| 539 | | 5 | max | .044 | 3 | .564 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 540 | | | min | -.078 | 8 | -.248 | 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 [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 541 | M28 | 1 | max | .044 | 3 | .564 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 542 | | | min | -.078 | 8 | -.248 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 543 | | 2 | max | .045 | 3 | .524 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 544 | | | min | -.079 | 8 | -.23 | 3 | 0 | 1 | 0 | 1 | 7172.068 | 8 | NC | 1 |
| 545 | | 3 | max | .045 | 3 | .482 | 8 | 0 | 12 | 0 | 12 | NC | 6 | NC | 12 |
| 546 | | | min | -.081 | 8 | -.211 | 3 | 0 | 1 | 0 | 1 | 5049.279 | 12 | NC | 1 |
| 547 | | 4 | max | .046 | 3 | .436 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 548 | | | min | -.082 | 8 | -.192 | 3 | 0 | 1 | 0 | 1 | 8505.83 | 8 | NC | 1 |
| 549 | | 5 | max | .046 | 3 | .388 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 550 | | | min | -.083 | 8 | -.171 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 551 | M29 | 1 | max | .046 | 3 | .388 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 552 | | | min | -.083 | 8 | -.171 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 553 | | 2 | max | .046 | 3 | .33 | 8 | 0 | 12 | 0 | 12 | NC | 4 | NC | 12 |
| 554 | | | min | -.083 | 8 | -.143 | 3 | 0 | 1 | 0 | 1 | 3939.687 | 12 | NC | 1 |
| 555 | | 3 | max | .046 | 3 | .268 | 8 | 0 | 12 | 0 | 12 | NC | 4 | NC | 12 |
| 556 | | | min | -.083 | 8 | -.115 | 3 | 0 | 1 | 0 | 1 | 2559.787 | 12 | NC | 1 |
| 557 | | 4 | max | .045 | 3 | .2 | 8 | 0 | 12 | 0 | 12 | NC | 4 | NC | 12 |
| 558 | | | min | -.082 | 8 | -.086 | 3 | 0 | 1 | 0 | 1 | 4144.775 | 12 | NC | 1 |
| 559 | | 5 | max | .045 | 3 | .129 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 560 | | | min | -.082 | 8 | -.056 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 561 | M133 | 1 | max | .593 | 8 | .451 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 562 | | | min | -.239 | 3 | -.152 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 563 | | 2 | max | .591 | 8 | .435 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 564 | | | min | -.238 | 3 | -.139 | 3 | 0 | 1 | 0 | 1 | 8664.325 | 8 | NC | 1 |
| 565 | | 3 | max | .589 | 8 | .416 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 566 | | | min | -.236 | 3 | -.123 | 3 | 0 | 1 | 0 | 1 | 8986.721 | 8 | NC | 1 |
| 567 | | 4 | max | .586 | 8 | .396 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 568 | | | min | -.235 | 3 | -.107 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 569 | | 5 | max | .584 | 8 | .376 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 570 | | | min | -.233 | 3 | -.09 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 571 | M114A | 1 | max | .647 | 8 | .251 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 572 | | | min | -.247 | 3 | -.042 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 573 | | 2 | max | .645 | 8 | .229 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 574 | | | min | -.245 | 3 | -.024 | 3 | 0 | 1 | 0 | 1 | 7836.355 | 8 | NC | 1 |
| 575 | | 3 | max | .643 | 8 | .206 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 576 | | | min | -.244 | 3 | -.006 | 3 | 0 | 1 | 0 | 1 | 5879.854 | 8 | NC | 1 |
| 577 | | 4 | max | .641 | 8 | .183 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 578 | | | min | -.243 | 3 | .005 | 1 | 0 | 1 | 0 | 1 | 6804.895 | 8 | NC | 1 |
| 579 | | 5 | max | .639 | 8 | .157 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 580 | | | min | -.241 | 3 | .011 | 1 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 581 | M112B | 1 | max | .41 | 8 | .866 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 582 | | | min | -.033 | 3 | -1.165 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 583 | | 2 | max | .416 | 8 | .89 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 584 | | | min | -.037 | 3 | -1.203 | 8 | 0 | 1 | 0 | 1 | 1994.238 | 8 | NC | 1 |
| 585 | | 3 | max | .421 | 8 | .908 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 586 | | | min | -.04 | 3 | -1.231 | 8 | 0 | 1 | 0 | 1 | 1304.891 | 8 | NC | 1 |
| 587 | | 4 | max | .426 | 8 | .91 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 588 | | | min | -.044 | 3 | -1.232 | 8 | 0 | 1 | 0 | 1 | 2088.795 | 8 | NC | 1 |
| 589 | | 5 | max | .432 | 8 | .906 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 590 | | | min | -.047 | 3 | -1.225 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 591 | M125A | 1 | max | .325 | 5 | .906 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 592 | | | min | .009 | 1 | -1.258 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 593 | | 2 | max | .33 | 5 | .91 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 594 | | | min | .008 | 1 | -1.269 | 8 | 0 | 1 | 0 | 1 | 2039.117 | 8 | NC | 1 |
| 595 | | 3 | max | .335 | 5 | .907 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 596 | | | min | .007 | 1 | -1.271 | 8 | 0 | 1 | 0 | 1 | 1275.633 | 8 | NC | 1 |
| 597 | | 4 | max | .341 | 5 | .889 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 598 | | | min | .006 | 1 | -1.246 | 8 | 0 | 1 | 0 | 1 | 1949.467 | 8 | NC | 1 |
| 599 | | 5 | max | .346 | 5 | .864 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 600 | | | min | .005 | 1 | -1.209 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 601 | M125B | 1 | max | .07 | 12 | .067 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 602 | | | min | -.222 | 3 | -.259 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 603 | | 2 | max | .069 | 12 | .118 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 604 | | | min | -.221 | 3 | -.33 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 605 | | 3 | max | .069 | 12 | .17 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 606 | | | min | -.22 | 3 | -.403 | 8 | 0 | 1 | 0 | 1 | 4718.261 | 8 | NC | 1 |
| 607 | | 4 | max | .068 | 12 | .216 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 608 | | | min | -.219 | 3 | -.466 | 8 | 0 | 1 | 0 | 1 | 7659.395 | 8 | NC | 1 |
| 609 | | 5 | max | .067 | 12 | .261 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 610 | | | min | -.218 | 3 | -.528 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 611 | M125C | 1 | max | .085 | 12 | -.01 | 2 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 612 | | | min | -.234 | 3 | -.142 | 5 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 613 | | 2 | max | .084 | 12 | -.005 | 2 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 614 | | | min | -.233 | 3 | -.168 | 5 | 0 | 1 | 0 | 1 | 9847.897 | 8 | NC | 1 |
| 615 | | 3 | max | .083 | 12 | 0 | 2 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 616 | | | min | -.231 | 3 | -.197 | 5 | 0 | 1 | 0 | 1 | 8300.361 | 8 | NC | 1 |
| 617 | | 4 | max | .081 | 12 | .016 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 618 | | | min | -.23 | 3 | -.228 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 619 | | 5 | max | .08 | 12 | .04 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 620 | | | min | -.228 | 3 | -.262 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 621 | M126 | 1 | max | .045 | 3 | .129 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 622 | | | min | -.082 | 8 | -.056 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 623 | | 2 | max | .044 | 3 | .1 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 624 | | | min | -.081 | 8 | -.044 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 625 | | 3 | max | .044 | 3 | .072 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 626 | | | min | -.08 | 8 | -.031 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 627 | | 4 | max | .043 | 3 | .044 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 628 | | | min | -.079 | 8 | -.019 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 629 | | 5 | max | .043 | 3 | .018 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 630 | | | min | -.078 | 8 | -.007 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 631 | M128 | 1 | max | .032 | 8 | .023 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 632 | | | min | -.044 | 3 | -.056 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 633 | | 2 | max | .032 | 8 | .034 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 634 | | | min | -.045 | 3 | -.084 | 3 | 0 | 1 | 0 | 1 | 7390.752 | 5 | NC | 1 |
| 635 | | 3 | max | .033 | 8 | .046 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 636 | | | min | -.045 | 3 | -.113 | 3 | 0 | 1 | 0 | 1 | 4677.706 | 5 | NC | 1 |
| 637 | | 4 | max | .034 | 8 | .06 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 638 | | | min | -.046 | 3 | -.141 | 3 | 0 | 1 | 0 | 1 | 8214.629 | 5 | NC | 1 |
| 639 | | 5 | max | .034 | 8 | .074 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 640 | | | min | -.046 | 3 | -.168 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 641 | M139 | 1 | max | -.02 | 2 | .77 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 642 | | | min | -.268 | 5 | -1.115 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 643 | | 2 | max | -.021 | 2 | .8 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 644 | | | min | -.264 | 5 | -1.157 | 8 | 0 | 1 | 0 | 1 | 3136.871 | 8 | NC | 1 |
| 645 | | 3 | max | -.021 | 2 | .826 | 3 | 0 | 12 | 0 | 12 | NC | 10 | NC | 12 |
| 646 | | | min | -.261 | 5 | -1.191 | 8 | 0 | 1 | 0 | 1 | 2191.426 | 8 | NC | 1 |
| 647 | | 4 | max | -.022 | 2 | .844 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 648 | | | min | -.257 | 5 | -1.214 | 8 | 0 | 1 | 0 | 1 | 3651.101 | 8 | NC | 1 |
| 649 | | 5 | max | -.023 | 2 | .86 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 650 | | | min | -.253 | 5 | -1.233 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 651 | M140 | 1 | max | -.006 | 12 | .63 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 652 | | | min | -.233 | 6 | -.959 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 653 | | 2 | max | -.005 | 12 | .648 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 654 | | | min | -.233 | 6 | -.983 | 8 | 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 [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 655 | | 3 | max | -.004 | 12 | .665 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 656 | | | min | -.232 | 6 | -1.006 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 657 | | 4 | max | -.003 | 12 | .682 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 658 | | | min | -.232 | 6 | -1.029 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 659 | | 5 | max | -.002 | 12 | .698 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 660 | | | min | -.231 | 6 | -1.052 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 661 | M137A | 1 | max | .154 | 3 | .698 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 662 | | | min | -.565 | 8 | -.867 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 663 | | 2 | max | .153 | 3 | .682 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 664 | | | min | -.563 | 8 | -.843 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 665 | | 3 | max | .152 | 3 | .665 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 666 | | | min | -.562 | 8 | -.819 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 667 | | 4 | max | .151 | 3 | .648 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 668 | | | min | -.56 | 8 | -.795 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 669 | | 5 | max | .15 | 3 | .631 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 670 | | | min | -.559 | 8 | -.77 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 671 | M138 | 1 | max | -.02 | 12 | .702 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 672 | | | min | -.24 | 6 | -1.046 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 673 | | 2 | max | -.019 | 12 | .718 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 674 | | | min | -.24 | 6 | -1.068 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 675 | | 3 | max | -.018 | 12 | .734 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 676 | | | min | -.239 | 6 | -1.089 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 677 | | 4 | max | -.017 | 12 | .75 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 678 | | | min | -.239 | 6 | -1.109 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 679 | | 5 | max | -.016 | 12 | .764 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 680 | | | min | -.238 | 6 | -1.128 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 681 | M70 | 1 | max | .06 | 3 | .039 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 682 | | | min | -.025 | 12 | -.083 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 683 | | 2 | max | .06 | 3 | .046 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 684 | | | min | -.025 | 12 | -.103 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 685 | | 3 | max | .061 | 3 | .055 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 686 | | | min | -.025 | 12 | -.123 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 687 | | 4 | max | .062 | 3 | .064 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 688 | | | min | -.026 | 12 | -.143 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 689 | | 5 | max | .063 | 3 | .073 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 690 | | | min | -.026 | 12 | -.162 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 691 | M71 | 1 | max | .067 | 12 | .038 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 692 | | | min | -.149 | 3 | -.089 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 693 | | 2 | max | .068 | 8 | .045 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 694 | | | min | -.15 | 3 | -.104 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 695 | | 3 | max | .068 | 8 | .052 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 696 | | | min | -.15 | 3 | -.119 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 697 | | 4 | max | .069 | 8 | .058 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 698 | | | min | -.151 | 3 | -.133 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 699 | | 5 | max | .069 | 8 | .064 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 700 | | | min | -.151 | 3 | -.147 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 701 | M72 | 1 | max | .157 | 3 | .066 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 702 | | | min | -.069 | 12 | -.141 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 703 | | 2 | max | .157 | 3 | .071 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 704 | | | min | -.069 | 12 | -.154 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 705 | | 3 | max | .158 | 3 | .075 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 706 | | | min | -.069 | 12 | -.166 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 707 | | 4 | max | .158 | 3 | .081 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 708 | | | min | -.07 | 12 | -.178 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 709 | | 5 | max | .158 | 3 | .086 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 710 | | | min | -.07 | 12 | -.189 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 711 | M73 | 1 | max | .084 | 12 | .072 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 712 | | | min | -.185 | 3 | -.164 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 713 | | 2 | max | .085 | 12 | .079 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 714 | | | min | -.185 | 3 | -.177 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 715 | | 3 | max | .085 | 12 | .084 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 716 | | | min | -.186 | 3 | -.189 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 717 | | 4 | max | .085 | 12 | .089 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 718 | | | min | -.187 | 3 | -.201 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 719 | | 5 | max | .086 | 12 | .094 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 720 | | | min | -.187 | 3 | -.212 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 721 | M74 | 1 | max | .215 | 3 | .084 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 722 | | | min | -.096 | 12 | -.183 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 723 | | 2 | max | .216 | 3 | .087 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 724 | | | min | -.096 | 12 | -.191 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 725 | | 3 | max | .216 | 3 | .09 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 726 | | | min | -.097 | 12 | -.198 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 727 | | 4 | max | .216 | 3 | .093 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 728 | | | min | -.097 | 12 | -.205 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 729 | | 5 | max | .217 | 3 | .096 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 730 | | | min | -.097 | 12 | -.211 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 731 | M75 | 1 | max | .107 | 12 | .085 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 732 | | | min | -.235 | 3 | -.191 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 733 | | 2 | max | .107 | 12 | .088 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 734 | | | min | -.235 | 3 | -.197 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 735 | | 3 | max | .107 | 12 | .089 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 736 | | | min | -.236 | 3 | -.202 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 737 | | 4 | max | .108 | 12 | .09 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 738 | | | min | -.236 | 3 | -.206 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 739 | | 5 | max | .108 | 12 | .091 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 740 | | | min | -.237 | 3 | -.209 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 741 | M76 | 1 | max | .131 | 3 | .13 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 742 | | | min | -.056 | 12 | -.287 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 743 | | 2 | max | .131 | 3 | .13 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 744 | | | min | -.056 | 12 | -.29 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 745 | | 3 | max | .132 | 3 | .13 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 746 | | | min | -.056 | 12 | -.291 | 3 | 0 | 1 | 0 | 1 | 7979.233 | 3 | NC | 1 |
| 747 | | 4 | max | .132 | 3 | .128 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 748 | | | min | -.057 | 12 | -.29 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 749 | | 5 | max | .132 | 3 | .126 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 750 | | | min | -.057 | 12 | -.288 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 751 | M77 | 1 | max | .132 | 12 | .04 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 752 | | | min | -.303 | 3 | -.094 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 753 | | 2 | max | .132 | 12 | .037 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 754 | | | min | -.303 | 3 | -.09 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 755 | | 3 | max | .132 | 12 | .033 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 756 | | | min | -.303 | 3 | -.086 | 3 | 0 | 1 | 0 | 1 | 9035.262 | 8 | NC | 1 |
| 757 | | 4 | max | .132 | 12 | .028 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 758 | | | min | -.303 | 3 | -.081 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 759 | | 5 | max | .132 | 12 | .022 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 760 | | | min | -.303 | 3 | -.084 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 761 | M78 | 1 | max | .058 | 8 | .134 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 762 | | | min | -.002 | 1 | -.311 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 763 | | 2 | max | .059 | 8 | .127 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 764 | | | min | -.002 | 1 | -.303 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 765 | | 3 | max | .059 | 8 | .119 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 766 | | | min | -.002 | 1 | -.293 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 767 | | 4 | max | .059 | 8 | .11 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 768 | | | min | -.002 | 1 | -.282 | 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 [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 769 | | 5 | max | .059 | 8 | .101 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 770 | | | min | -.002 | 1 | -.27 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 771 | M79 | 1 | max | .1 | 12 | .029 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 772 | | | min | -.269 | 3 | -.059 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 773 | | 2 | max | .1 | 12 | .041 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 774 | | | min | -.269 | 3 | -.078 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 775 | | 3 | max | .1 | 12 | .054 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 776 | | | min | -.269 | 3 | -.099 | 8 | 0 | 1 | 0 | 1 | 8025.941 | 8 | NC | 1 |
| 777 | | 4 | max | .1 | 12 | .068 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 778 | | | min | -.268 | 3 | -.121 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 779 | | 5 | max | .1 | 12 | .084 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 780 | | | min | -.268 | 3 | -.145 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 781 | M80 | 1 | max | .12 | 8 | .052 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 782 | | | min | -.213 | 3 | -.194 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 783 | | 2 | max | .122 | 8 | .034 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 784 | | | min | -.214 | 3 | -.203 | 6 | 0 | 1 | 0 | 1 | 7736.412 | 8 | NC | 1 |
| 785 | | 3 | max | .123 | 8 | .015 | 12 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 786 | | | min | -.215 | 3 | -.213 | 6 | 0 | 1 | 0 | 1 | 5679.55 | 8 | NC | 1 |
| 787 | | 4 | max | .124 | 8 | -.006 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 788 | | | min | -.216 | 3 | -.224 | 6 | 0 | 1 | 0 | 1 | 7433.646 | 8 | NC | 1 |
| 789 | | 5 | max | .126 | 8 | -.019 | 2 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 790 | | | min | -.217 | 3 | -.238 | 5 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 791 | M81 | 1 | max | .014 | 12 | .172 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 792 | | | min | -.239 | 6 | -.202 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 793 | | 2 | max | .013 | 12 | .203 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 794 | | | min | -.239 | 6 | -.245 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 795 | | 3 | max | .012 | 12 | .234 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 796 | | | min | -.239 | 6 | -.288 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 797 | | 4 | max | .012 | 12 | .266 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 798 | | | min | -.239 | 6 | -.333 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 799 | | 5 | max | .011 | 12 | .299 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 800 | | | min | -.24 | 6 | -.378 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 801 | M82 | 1 | max | .301 | 8 | -.01 | 2 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 802 | | | min | -.331 | 3 | -.291 | 5 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 803 | | 2 | max | .301 | 8 | -.003 | 2 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 804 | | | min | -.332 | 3 | -.326 | 5 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 805 | | 3 | max | .302 | 8 | .01 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 806 | | | min | -.333 | 3 | -.36 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 807 | | 4 | max | .303 | 8 | .037 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 808 | | | min | -.334 | 3 | -.396 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 809 | | 5 | max | .304 | 8 | .064 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 810 | | | min | -.334 | 3 | -.433 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 811 | M83 | 1 | max | .021 | 3 | .34 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 812 | | | min | -.39 | 8 | -.357 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 813 | | 2 | max | .021 | 3 | .367 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 814 | | | min | -.391 | 8 | -.394 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 815 | | 3 | max | .022 | 3 | .395 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 816 | | | min | -.392 | 8 | -.433 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 817 | | 4 | max | .022 | 3 | .423 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 818 | | | min | -.393 | 8 | -.472 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 819 | | 5 | max | .023 | 3 | .451 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 820 | | | min | -.393 | 8 | -.51 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 821 | M84 | 1 | max | .421 | 8 | .113 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 822 | | | min | -.437 | 3 | -.488 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 823 | | 2 | max | .422 | 8 | .14 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 824 | | | min | -.438 | 3 | -.525 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 825 | | 3 | max | .422 | 8 | .167 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 826 | | | min | -.438 | 3 | -.561 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 827 | | 4 | max | .423 | 8 | .194 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 828 | | | min | -.439 | 3 | -.597 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 829 | | 5 | max | .424 | 8 | .221 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 830 | | | min | -.439 | 3 | -.635 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 831 | M85 | 1 | max | .166 | 3 | .463 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 832 | | | min | -.578 | 8 | -.498 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 833 | | 2 | max | .166 | 3 | .49 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 834 | | | min | -.579 | 8 | -.536 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 835 | | 3 | max | .167 | 3 | .517 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 836 | | | min | -.579 | 8 | -.572 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 837 | | 4 | max | .167 | 3 | .543 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 838 | | | min | -.58 | 8 | -.608 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 839 | | 5 | max | .168 | 3 | .569 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 840 | | | min | -.581 | 8 | -.643 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 841 | M86 | 1 | max | .518 | 8 | .275 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 842 | | | min | -.525 | 3 | -.694 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 843 | | 2 | max | .518 | 8 | .3 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 844 | | | min | -.526 | 3 | -.729 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 845 | | 3 | max | .519 | 8 | .325 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 846 | | | min | -.526 | 3 | -.762 | 8 | 0 | 1 | 0 | 1 | 9162.132 | 8 | NC | 1 |
| 847 | | 4 | max | .519 | 8 | .349 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 848 | | | min | -.527 | 3 | -.794 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 849 | | 5 | max | .52 | 8 | .372 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 850 | | | min | -.527 | 3 | -.825 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 851 | M87 | 1 | max | .304 | 3 | .569 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 852 | | | min | -.754 | 8 | -.618 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 853 | | 2 | max | .304 | 3 | .591 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 854 | | | min | -.755 | 8 | -.648 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 855 | | 3 | max | .305 | 3 | .614 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 856 | | | min | -.755 | 8 | -.679 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 857 | | 4 | max | .305 | 3 | .637 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 858 | | | min | -.756 | 8 | -.71 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 859 | | 5 | max | .306 | 3 | .659 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 860 | | | min | -.756 | 8 | -.74 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 861 | M88 | 1 | max | .576 | 8 | .429 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 862 | | | min | -.585 | 3 | -.887 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 863 | | 2 | max | .576 | 8 | .45 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 864 | | | min | -.586 | 3 | -.914 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 865 | | 3 | max | .577 | 8 | .469 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 866 | | | min | -.586 | 3 | -.939 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 867 | | 4 | max | .577 | 8 | .487 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 868 | | | min | -.586 | 3 | -.963 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 869 | | 5 | max | .577 | 8 | .506 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 870 | | | min | -.586 | 3 | -.988 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 871 | M89 | 1 | max | .435 | 3 | .64 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 872 | | | min | -.916 | 8 | -.687 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 873 | | 2 | max | .436 | 3 | .659 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 874 | | | min | -.916 | 8 | -.711 | 8 | 0 | 1 | 0 | 1 | 9121.269 | 8 | NC | 1 |
| 875 | | 3 | max | .436 | 3 | .676 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 876 | | | min | -.917 | 8 | -.734 | 8 | 0 | 1 | 0 | 1 | 7084.461 | 8 | NC | 1 |
| 877 | | 4 | max | .436 | 3 | .691 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 878 | | | min | -.917 | 8 | -.755 | 8 | 0 | 1 | 0 | 1 | 9766.13 | 8 | NC | 1 |
| 879 | | 5 | max | .437 | 3 | .706 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 880 | | | min | -.917 | 8 | -.775 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 881 | M90 | 1 | max | .596 | 8 | .557 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 882 | | | min | -.615 | 3 | -1.043 | 8 | 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 [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 883 | | 2 | max | .596 | 8 | .571 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 884 | | | min | -.615 | 3 | -1.06 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 885 | | 3 | max | .596 | 8 | .583 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 886 | | | min | -.616 | 3 | -1.076 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 887 | | 4 | max | .596 | 8 | .595 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 888 | | | min | -.616 | 3 | -1.091 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 889 | | 5 | max | .597 | 8 | .607 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 890 | | | min | -.616 | 3 | -1.106 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 891 | M91 | 1 | max | .529 | 3 | .684 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 892 | | | min | -1.026 | 8 | -.725 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 893 | | 2 | max | .529 | 3 | .695 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 894 | | | min | -1.027 | 8 | -.739 | 8 | 0 | 1 | 0 | 1 | 8936.454 | 8 | NC | 1 |
| 895 | | 3 | max | .529 | 3 | .705 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 896 | | | min | -1.027 | 8 | -.752 | 8 | 0 | 1 | 0 | 1 | 6485.703 | 8 | NC | 1 |
| 897 | | 4 | max | .529 | 3 | .713 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 898 | | | min | -1.027 | 8 | -.763 | 8 | 0 | 1 | 0 | 1 | 8357.002 | 8 | NC | 1 |
| 899 | | 5 | max | .529 | 3 | .72 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 900 | | | min | -1.028 | 8 | -.771 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 901 | M92 | 1 | max | .329 | 8 | .761 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 902 | | | min | -.469 | 3 | -1.242 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 903 | | 2 | max | .329 | 8 | .768 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 904 | | | min | -.469 | 3 | -1.25 | 8 | 0 | 1 | 0 | 1 | 7383.416 | 8 | NC | 1 |
| 905 | | 3 | max | .33 | 8 | .773 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 906 | | | min | -.469 | 3 | -1.254 | 8 | 0 | 1 | 0 | 1 | 5981.281 | 8 | NC | 1 |
| 907 | | 4 | max | .33 | 8 | .775 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 908 | | | min | -.469 | 3 | -1.256 | 8 | 0 | 1 | 0 | 1 | 8620.754 | 8 | NC | 1 |
| 909 | | 5 | max | .33 | 8 | .776 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 910 | | | min | -.469 | 3 | -1.256 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 911 | M93 | 1 | max | .474 | 3 | .773 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 912 | | | min | -.964 | 8 | -.869 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 913 | | 2 | max | .474 | 3 | .772 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 914 | | | min | -.964 | 8 | -.867 | 8 | 0 | 1 | 0 | 1 | 8658.489 | 8 | NC | 1 |
| 915 | | 3 | max | .474 | 3 | .77 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 916 | | | min | -.964 | 8 | -.863 | 8 | 0 | 1 | 0 | 1 | 6000.84 | 8 | NC | 1 |
| 917 | | 4 | max | .474 | 3 | .765 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 918 | | | min | -.964 | 8 | -.857 | 8 | 0 | 1 | 0 | 1 | 7398.603 | 8 | NC | 1 |
| 919 | | 5 | max | .474 | 3 | .758 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 920 | | | min | -.964 | 8 | -.846 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 921 | M94 | 1 | max | .441 | 8 | .716 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 922 | | | min | -.536 | 3 | -1.205 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 923 | | 2 | max | .44 | 8 | .71 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 924 | | | min | -.535 | 3 | -1.195 | 8 | 0 | 1 | 0 | 1 | 8824.552 | 8 | NC | 1 |
| 925 | | 3 | max | .44 | 8 | .702 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 926 | | | min | -.535 | 3 | -1.183 | 8 | 0 | 1 | 0 | 1 | 6866.794 | 8 | NC | 1 |
| 927 | | 4 | max | .44 | 8 | .693 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 928 | | | min | -.535 | 3 | -1.169 | 8 | 0 | 1 | 0 | 1 | 9489.481 | 8 | NC | 1 |
| 929 | | 5 | max | .44 | 8 | .682 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 930 | | | min | -.535 | 3 | -1.154 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 931 | M95 | 1 | max | .617 | 3 | .609 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 932 | | | min | -1.096 | 8 | -.569 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 933 | | 2 | max | .617 | 3 | .598 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 934 | | | min | -1.096 | 8 | -.552 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 935 | | 3 | max | .616 | 3 | .587 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 936 | | | min | -1.095 | 8 | -.536 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 937 | | 4 | max | .616 | 3 | .574 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 938 | | | min | -1.095 | 8 | -.519 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 939 | | 5 | max | .616 | 3 | .561 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 940 | | | min | -1.095 | 8 | -.499 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 941 | M96 | 1 | max | .27 | 12 | .718 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 942 | | | min | -.422 | 3 | -1.174 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 943 | | 2 | max | .269 | 12 | .704 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 944 | | | min | -.422 | 3 | -1.153 | 8 | 0 | 1 | 0 | 1 | 9733.946 | 8 | NC | 1 |
| 945 | | 3 | max | .269 | 12 | .688 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 946 | | | min | -.422 | 3 | -1.131 | 8 | 0 | 1 | 0 | 1 | 7078.892 | 8 | NC | 1 |
| 947 | | 4 | max | .269 | 12 | .671 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 948 | | | min | -.422 | 3 | -1.107 | 8 | 0 | 1 | 0 | 1 | 9135.996 | 8 | NC | 1 |
| 949 | | 5 | max | .269 | 12 | .653 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 950 | | | min | -.421 | 3 | -1.081 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 951 | M97 | 1 | max | .596 | 3 | .498 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 952 | | | min | -1.04 | 8 | -.393 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 953 | | 2 | max | .596 | 3 | .479 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 954 | | | min | -1.04 | 8 | -.367 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 955 | | 3 | max | .596 | 3 | .461 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 956 | | | min | -1.039 | 8 | -.341 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 957 | | 4 | max | .596 | 3 | .442 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 958 | | | min | -1.039 | 8 | -.314 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 959 | | 5 | max | .595 | 3 | .422 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 960 | | | min | -1.039 | 8 | -.286 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 961 | M98 | 1 | max | .162 | 12 | .666 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 962 | | | min | -.298 | 3 | -1.074 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 963 | | 2 | max | .162 | 12 | .645 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 964 | | | min | -.297 | 3 | -1.044 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 965 | | 3 | max | .162 | 12 | .622 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 966 | | | min | -.297 | 3 | -1.012 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 967 | | 4 | max | .162 | 12 | .6 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 968 | | | min | -.296 | 3 | -.98 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 969 | | 5 | max | .161 | 12 | .577 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 970 | | | min | -.296 | 3 | -.948 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 971 | M99 | 1 | max | .538 | 3 | .362 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 972 | | | min | -.933 | 8 | -.226 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 973 | | 2 | max | .538 | 3 | .339 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 974 | | | min | -.932 | 8 | -.208 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 975 | | 3 | max | .538 | 3 | .315 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 976 | | | min | -.932 | 8 | -.188 | 12 | 0 | 1 | 0 | 1 | 9743.653 | 8 | NC | 1 |
| 977 | | 4 | max | .537 | 3 | .291 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 978 | | | min | -.931 | 8 | -.168 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 979 | | 5 | max | .537 | 3 | .265 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 980 | | | min | -.93 | 8 | -.147 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 981 | M100 | 1 | max | .036 | 12 | .579 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 982 | | | min | -.214 | 6 | -.922 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 983 | | 2 | max | .036 | 12 | .553 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 984 | | | min | -.214 | 6 | -.886 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 985 | | 3 | max | .036 | 12 | .526 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 986 | | | min | -.214 | 6 | -.849 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 987 | | 4 | max | .035 | 12 | .5 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 988 | | | min | -.215 | 6 | -.811 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 989 | | 5 | max | .035 | 12 | .473 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 990 | | | min | -.215 | 6 | -.773 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 991 | M101 | 1 | max | .449 | 3 | .212 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 992 | | | min | -.784 | 8 | -.096 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 993 | | 2 | max | .448 | 3 | .189 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 994 | | | min | -.784 | 8 | -.073 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 995 | | 3 | max | .448 | 3 | .198 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 996 | | | min | -.783 | 8 | -.05 | 12 | 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 [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 997 | | 4 | max | .447 | 3 | .208 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 998 | | | min | -.782 | 8 | -.027 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 999 | | 5 | max | .447 | 3 | .218 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1000 | | | min | -.781 | 8 | -.003 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1001 | M102 | 1 | max | -.004 | 2 | .458 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1002 | | | min | -.336 | 5 | -.73 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1003 | | 2 | max | -.004 | 2 | .431 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1004 | | | min | -.337 | 5 | -.692 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1005 | | 3 | max | -.004 | 2 | .403 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1006 | | | min | -.337 | 5 | -.653 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1007 | | 4 | max | -.004 | 2 | .375 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1008 | | | min | -.338 | 5 | -.614 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1009 | | 5 | max | -.004 | 2 | .348 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1010 | | | min | -.339 | 5 | -.578 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1011 | M103 | 1 | max | .344 | 3 | .272 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1012 | | | min | -.613 | 8 | .014 | 1 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1013 | | 2 | max | .344 | 3 | .305 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1014 | | | min | -.612 | 8 | .008 | 1 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1015 | | 3 | max | .343 | 3 | .339 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1016 | | | min | -.611 | 8 | 0 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1017 | | 4 | max | .342 | 3 | .374 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1018 | | | min | -.61 | 8 | -.026 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1019 | | 5 | max | .341 | 3 | .411 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1020 | | | min | -.609 | 8 | -.053 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1021 | M104 | 1 | max | .177 | 3 | .297 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1022 | | | min | -.609 | 8 | -.41 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1023 | | 2 | max | .178 | 3 | .261 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1024 | | | min | -.611 | 8 | -.362 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1025 | | 3 | max | .18 | 3 | .227 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1026 | | | min | -.612 | 8 | -.316 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1027 | | 4 | max | .181 | 3 | .194 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1028 | | | min | -.614 | 8 | -.271 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1029 | | 5 | max | .182 | 3 | .162 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1030 | | | min | -.616 | 8 | -.227 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1031 | M105 | 1 | max | .215 | 3 | .501 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1032 | | | min | -.423 | 8 | -.115 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1033 | | 2 | max | .214 | 3 | .534 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1034 | | | min | -.422 | 8 | -.14 | 3 | 0 | 1 | 0 | 1 | 5856.299 | 8 | NC | 1 |
| 1035 | | 3 | max | .213 | 3 | .564 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 1036 | | | min | -.421 | 8 | -.162 | 3 | 0 | 1 | 0 | 1 | 4893.721 | 8 | NC | 1 |
| 1037 | | 4 | max | .212 | 3 | .59 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1038 | | | min | -.419 | 8 | -.183 | 3 | 0 | 1 | 0 | 1 | 7375.132 | 8 | NC | 1 |
| 1039 | | 5 | max | .211 | 3 | .615 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1040 | | | min | -.418 | 8 | -.203 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1041 | M106 | 1 | max | .282 | 3 | .079 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1042 | | | min | -.742 | 8 | -.063 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1043 | | 2 | max | .282 | 3 | .06 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1044 | | | min | -.743 | 8 | -.045 | 12 | 0 | 1 | 0 | 1 | 6920.253 | 8 | NC | 1 |
| 1045 | | 3 | max | .283 | 3 | .042 | 3 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 1046 | | | min | -.743 | 8 | -.028 | 12 | 0 | 1 | 0 | 1 | 5208.912 | 8 | NC | 1 |
| 1047 | | 4 | max | .283 | 3 | .031 | 6 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1048 | | | min | -.744 | 8 | -.012 | 12 | 0 | 1 | 0 | 1 | 6992.645 | 8 | NC | 1 |
| 1049 | | 5 | max | .284 | 3 | .034 | 5 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1050 | | | min | -.744 | 8 | .002 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1051 | M107 | 1 | max | .022 | 3 | .745 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1052 | | | min | -.011 | 12 | -.283 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1053 | | 2 | max | .021 | 3 | .758 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1054 | | | min | -.01 | 12 | -.295 | 3 | 0 | 1 | 0 | 1 | 7484.982 | 8 | NC | 1 |
| 1055 | | 3 | max | .021 | 6 | .769 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1056 | | | min | -.01 | 12 | -.306 | 3 | 0 | 1 | 0 | 1 | 5508.024 | 8 | NC | 1 |
| 1057 | | 4 | max | .021 | 6 | .778 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1058 | | | min | -.009 | 12 | -.315 | 3 | 0 | 1 | 0 | 1 | 7207.01 | 8 | NC | 1 |
| 1059 | | 5 | max | .021 | 6 | .784 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1060 | | | min | -.009 | 12 | -.323 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1061 | M108 | 1 | max | .312 | 3 | .264 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1062 | | | min | -.738 | 8 | -.087 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1063 | | 2 | max | .312 | 3 | .267 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1064 | | | min | -.738 | 8 | -.093 | 3 | 0 | 1 | 0 | 1 | 7682.011 | 8 | NC | 1 |
| 1065 | | 3 | max | .312 | 3 | .268 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 1066 | | | min | -.738 | 8 | -.097 | 3 | 0 | 1 | 0 | 1 | 6429.163 | 8 | NC | 1 |
| 1067 | | 4 | max | .311 | 3 | .267 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1068 | | | min | -.738 | 8 | -.1 | 3 | 0 | 1 | 0 | 1 | 9718.479 | 8 | NC | 1 |
| 1069 | | 5 | max | .311 | 3 | .265 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1070 | | | min | -.737 | 8 | -.102 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1071 | M109 | 1 | max | .39 | 8 | .679 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1072 | | | min | -.155 | 3 | -.289 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1073 | | 2 | max | .39 | 8 | .675 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1074 | | | min | -.155 | 3 | -.29 | 3 | 0 | 1 | 0 | 1 | 6212.138 | 8 | NC | 1 |
| 1075 | | 3 | max | .39 | 8 | .668 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 1076 | | | min | -.155 | 3 | -.29 | 3 | 0 | 1 | 0 | 1 | 4740.146 | 8 | NC | 1 |
| 1077 | | 4 | max | .39 | 8 | .658 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1078 | | | min | -.155 | 3 | -.288 | 3 | 0 | 1 | 0 | 1 | 6423.852 | 8 | NC | 1 |
| 1079 | | 5 | max | .39 | 8 | .646 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1080 | | | min | -.155 | 3 | -.285 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1081 | M110 | 1 | max | .243 | 3 | .526 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1082 | | | min | -.541 | 8 | -.215 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1083 | | 2 | max | .242 | 3 | .512 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1084 | | | min | -.541 | 8 | -.211 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1085 | | 3 | max | .242 | 3 | .498 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1086 | | | min | -.54 | 8 | -.207 | 3 | 0 | 1 | 0 | 1 | 7902.297 | 8 | NC | 1 |
| 1087 | | 4 | max | .241 | 3 | .482 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1088 | | | min | -.539 | 8 | -.201 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1089 | | 5 | max | .241 | 3 | .464 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1090 | | | min | -.539 | 8 | -.195 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1091 | M111 | 1 | max | .499 | 8 | .506 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1092 | | | min | -.21 | 3 | -.227 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1093 | | 2 | max | .499 | 8 | .489 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1094 | | | min | -.21 | 3 | -.22 | 3 | 0 | 1 | 0 | 1 | 9265.93 | 8 | NC | 1 |
| 1095 | | 3 | max | .498 | 8 | .469 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 1096 | | | min | -.21 | 3 | -.213 | 3 | 0 | 1 | 0 | 1 | 7528.286 | 8 | NC | 1 |
| 1097 | | 4 | max | .497 | 8 | .448 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1098 | | | min | -.209 | 3 | -.204 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1099 | | 5 | max | .497 | 8 | .427 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1100 | | | min | -.209 | 3 | -.196 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1101 | M112 | 1 | max | .195 | 3 | .497 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1102 | | | min | -.426 | 8 | -.209 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1103 | | 2 | max | .195 | 3 | .471 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1104 | | | min | -.425 | 8 | -.198 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1105 | | 3 | max | .194 | 3 | .443 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 1106 | | | min | -.424 | 8 | -.187 | 3 | 0 | 1 | 0 | 1 | 7759.207 | 8 | NC | 1 |
| 1107 | | 4 | max | .194 | 3 | .414 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1108 | | | min | -.423 | 8 | -.175 | 3 | 0 | 1 | 0 | 1 | 9057.144 | 8 | NC | 1 |
| 1109 | | 5 | max | .193 | 3 | .382 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1110 | | | min | -.422 | 8 | -.161 | 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 [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1111 | M113 | 1 | max | .384 | 8 | .421 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1112 | | | min | -.162 | 3 | -.192 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1113 | | 2 | max | .383 | 8 | .393 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1114 | | | min | -.162 | 3 | -.18 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1115 | | 3 | max | .382 | 8 | .365 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1116 | | | min | -.161 | 3 | -.168 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1117 | | 4 | max | .382 | 8 | .336 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1118 | | | min | -.161 | 3 | -.156 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1119 | | 5 | max | .381 | 8 | .306 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1120 | | | min | -.161 | 3 | -.143 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1121 | M114 | 1 | max | .154 | 3 | .356 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1122 | | | min | -.334 | 8 | -.149 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1123 | | 2 | max | .154 | 3 | .323 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1124 | | | min | -.333 | 8 | -.135 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1125 | | 3 | max | .153 | 3 | .29 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1126 | | | min | -.332 | 8 | -.12 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1127 | | 4 | max | .153 | 3 | .256 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1128 | | | min | -.331 | 8 | -.106 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1129 | | 5 | max | .152 | 3 | .221 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1130 | | | min | -.331 | 8 | -.09 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1131 | M115 | 1 | max | .163 | 8 | .362 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1132 | | | min | -.064 | 3 | -.165 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1133 | | 2 | max | .161 | 8 | .319 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1134 | | | min | -.063 | 3 | -.146 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1135 | | 3 | max | .16 | 8 | .273 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1136 | | | min | -.062 | 3 | -.125 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1137 | | 4 | max | .159 | 8 | .227 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1138 | | | min | -.062 | 3 | -.105 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1139 | | 5 | max | .157 | 8 | .18 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1140 | | | min | -.061 | 3 | -.084 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1141 | M120 | 1 | max | .14 | 12 | .033 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1142 | | | min | -.314 | 3 | -.026 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1143 | | 2 | max | .14 | 12 | .031 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1144 | | | min | -.314 | 3 | -.029 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1145 | | 3 | max | .14 | 12 | .03 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1146 | | | min | -.314 | 3 | -.032 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1147 | | 4 | max | .141 | 12 | .028 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1148 | | | min | -.314 | 3 | -.036 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1149 | | 5 | max | .141 | 12 | .026 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1150 | | | min | -.315 | 3 | -.038 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1151 | M122 | 1 | max | .259 | 3 | .173 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1152 | | | min | -.106 | 12 | -.087 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1153 | | 2 | max | .258 | 3 | .169 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1154 | | | min | -.106 | 12 | -.078 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1155 | | 3 | max | .258 | 3 | .164 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1156 | | | min | -.105 | 12 | -.074 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1157 | | 4 | max | .258 | 3 | .159 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1158 | | | min | -.105 | 12 | -.07 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1159 | | 5 | max | .258 | 3 | .154 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1160 | | | min | -.105 | 12 | -.066 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1161 | M124 | 1 | max | .138 | 5 | .117 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1162 | | | min | .006 | 1 | -.28 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1163 | | 2 | max | .139 | 5 | .109 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1164 | | | min | .006 | 1 | -.269 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1165 | | 3 | max | .139 | 5 | .101 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1166 | | | min | .006 | 1 | -.259 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1167 | | 4 | max | .139 | 5 | .092 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1168 | | | min | .006 | 1 | -.248 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1169 | | 5 | max | .139 | 5 | .084 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1170 | | | min | .006 | 1 | -.238 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1171 | M127 | 1 | max | .271 | 3 | .177 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1172 | | | min | -.685 | 8 | -.38 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1173 | | 2 | max | .271 | 3 | .173 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1174 | | | min | -.685 | 8 | -.378 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1175 | | 3 | max | .27 | 3 | .169 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1176 | | | min | -.684 | 8 | -.375 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1177 | | 4 | max | .27 | 3 | .165 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1178 | | | min | -.683 | 8 | -.373 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1179 | | 5 | max | .27 | 3 | .16 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1180 | | | min | -.682 | 8 | -.371 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1181 | M129 | 1 | max | .323 | 3 | .026 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1182 | | | min | -.754 | 8 | -.025 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1183 | | 2 | max | .323 | 3 | .028 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1184 | | | min | -.754 | 8 | -.034 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1185 | | 3 | max | .323 | 3 | .03 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1186 | | | min | -.754 | 8 | -.041 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1187 | | 4 | max | .323 | 3 | .032 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1188 | | | min | -.753 | 8 | -.049 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1189 | | 5 | max | .322 | 3 | .034 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1190 | | | min | -.753 | 8 | -.058 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1191 | M135 | 1 | max | .907 | 3 | 0 | 12 | .377 | 5 | 0 | 12 | NC | 12 | NC | 12 |
| 1192 | | | min | -1.243 | 8 | 0 | 1 | -.007 | 3 | 0 | 1 | NC | 1 | NC | 1 |
| 1193 | | 2 | max | .907 | 3 | 0 | 12 | .378 | 5 | 0 | 12 | NC | 12 | NC | 12 |
| 1194 | | | min | -1.243 | 8 | 0 | 1 | -.007 | 3 | 0 | 1 | NC | 1 | NC | 1 |
| 1195 | | 3 | max | .907 | 3 | 0 | 12 | .378 | 5 | 0 | 12 | NC | 12 | NC | 12 |
| 1196 | | | min | -1.243 | 8 | 0 | 1 | -.007 | 3 | 0 | 1 | NC | 1 | NC | 1 |
| 1197 | | 4 | max | .907 | 3 | 0 | 12 | .379 | 5 | 0 | 12 | NC | 12 | NC | 12 |
| 1198 | | | min | -1.243 | 8 | 0 | 1 | -.007 | 3 | 0 | 1 | NC | 1 | NC | 1 |
| 1199 | | 5 | max | .907 | 3 | 0 | 12 | .379 | 5 | 0 | 12 | NC | 12 | NC | 12 |
| 1200 | | | min | -1.243 | 8 | 0 | 1 | -.007 | 3 | 0 | 1 | NC | 1 | NC | 1 |
| 1201 | M112A | 1 | max | -.003 | 2 | .693 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1202 | | | min | -.227 | 5 | -.301 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1203 | | 2 | max | -.004 | 2 | .674 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1204 | | | min | -.226 | 5 | -.286 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1205 | | 3 | max | -.004 | 2 | .656 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1206 | | | min | -.226 | 5 | -.273 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1207 | | 4 | max | -.004 | 2 | .637 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1208 | | | min | -.226 | 5 | -.259 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1209 | | 5 | max | -.004 | 2 | .617 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1210 | | | min | -.226 | 5 | -.244 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1211 | M113A | 1 | max | .259 | 8 | .116 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1212 | | | min | -.064 | 3 | -.279 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1213 | | 2 | max | .259 | 8 | .105 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1214 | | | min | -.065 | 3 | -.264 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1215 | | 3 | max | .259 | 8 | .094 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1216 | | | min | -.065 | 3 | -.251 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1217 | | 4 | max | .259 | 8 | .083 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1218 | | | min | -.065 | 3 | -.237 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1219 | | 5 | max | .259 | 8 | .071 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1220 | | | min | -.065 | 3 | -.222 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1221 | M115B | 1 | max | .068 | 3 | .672 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1222 | | | min | -.319 | 8 | -.285 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1223 | | 2 | max | .068 | 3 | .658 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1224 | | | min | -.318 | 8 | -.274 | 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 [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1225 | | 3 | max | .068 | 3 | .645 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1226 | | | min | -.318 | 8 | -.263 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1227 | | 4 | max | .067 | 3 | .631 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1228 | | | min | -.317 | 8 | -.252 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1229 | | 5 | max | .067 | 3 | .618 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1230 | | | min | -.317 | 8 | -.241 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1231 | M118 | 1 | max | .768 | 8 | .073 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1232 | | | min | -.319 | 3 | -.152 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1233 | | 2 | max | .769 | 8 | .074 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1234 | | | min | -.32 | 3 | -.15 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1235 | | 3 | max | .77 | 8 | .075 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1236 | | | min | -.32 | 3 | -.148 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1237 | | 4 | max | .77 | 8 | .077 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1238 | | | min | -.321 | 3 | -.146 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1239 | | 5 | max | .771 | 8 | .079 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1240 | | | min | -.321 | 3 | -.144 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1241 | M119 | 1 | max | .503 | 8 | .55 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1242 | | | min | -.173 | 3 | -.225 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1243 | | 2 | max | .503 | 8 | .559 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1244 | | | min | -.174 | 3 | -.233 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1245 | | 3 | max | .504 | 8 | .567 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1246 | | | min | -.174 | 3 | -.241 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1247 | | 4 | max | .504 | 8 | .576 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1248 | | | min | -.174 | 3 | -.249 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1249 | | 5 | max | .505 | 8 | .584 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1250 | | | min | -.175 | 3 | -.257 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1251 | M120A | 1 | max | .061 | 12 | .081 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1252 | | | min | -.182 | 3 | -.2 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1253 | | 2 | max | .061 | 12 | .088 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1254 | | | min | -.182 | 3 | -.208 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1255 | | 3 | max | .061 | 12 | .095 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1256 | | | min | -.182 | 3 | -.217 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1257 | | 4 | max | .062 | 12 | .101 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1258 | | | min | -.183 | 3 | -.225 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1259 | | 5 | max | .062 | 12 | .108 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1260 | | | min | -.183 | 3 | -.233 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1261 | M121 | 1 | max | .123 | 12 | .144 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1262 | | | min | -.282 | 3 | -.063 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1263 | | 2 | max | .123 | 12 | .146 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1264 | | | min | -.283 | 3 | -.065 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1265 | | 3 | max | .123 | 12 | .147 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1266 | | | min | -.283 | 3 | -.067 | 12 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1267 | | 4 | max | .123 | 12 | .149 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1268 | | | min | -.284 | 3 | -.071 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1269 | | 5 | max | .124 | 12 | .151 | 3 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1270 | | | min | -.284 | 3 | -.078 | 8 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1271 | M129A | 1 | max | .074 | 3 | .183 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1272 | | | min | -.153 | 8 | -.074 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1273 | | 2 | max | .073 | 3 | .146 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1274 | | | min | -.152 | 8 | -.057 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1275 | | 3 | max | .073 | 3 | .11 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1276 | | | min | -.151 | 8 | -.041 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1277 | | 4 | max | .072 | 3 | .073 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1278 | | | min | -.15 | 8 | -.025 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1279 | | 5 | max | .072 | 3 | .034 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1280 | | | min | -.149 | 8 | -.009 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1281 | M130 | 1 | max | .032 | 8 | .149 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |

## Envelope Member Section Deflections Service (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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1282 | | | min | -.008 | 3 | -.072 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1283 | | 2 | max | .031 | 8 | .11 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1284 | | | min | -.007 | 3 | -.054 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1285 | | 3 | max | .03 | 8 | .071 | 8 | 0 | 12 | 0 | 12 | NC | 11 | NC | 12 |
| 1286 | | | min | -.007 | 3 | -.037 | 3 | 0 | 1 | 0 | 1 | 8978.056 | 8 | NC | 1 |
| 1287 | | 4 | max | .029 | 8 | .034 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1288 | | | min | -.006 | 3 | -.021 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1289 | | 5 | max | .028 | 5 | 0 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1290 | | | min | -.006 | 3 | -.005 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1291 | M131 | 1 | max | .073 | 3 | .03 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1292 | | | min | -.037 | 8 | -.072 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1293 | | 2 | max | .072 | 3 | .023 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1294 | | | min | -.037 | 8 | -.056 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1295 | | 3 | max | .072 | 3 | .016 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1296 | | | min | -.037 | 8 | -.04 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1297 | | 4 | max | .071 | 3 | .009 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1298 | | | min | -.036 | 8 | -.025 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1299 | | 5 | max | .071 | 3 | .002 | 12 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1300 | | | min | -.036 | 8 | -.013 | 6 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1301 | M132 | 1 | max | .002 | 12 | .036 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1302 | | | min | -.012 | 6 | -.071 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1303 | | 2 | max | .001 | 12 | .03 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1304 | | | min | -.012 | 6 | -.054 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1305 | | 3 | max | .001 | 12 | .024 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1306 | | | min | -.012 | 6 | -.037 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1307 | | 4 | max | .001 | 12 | .018 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1308 | | | min | -.011 | 6 | -.021 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |
| 1309 | | 5 | max | 0 | 12 | .012 | 8 | 0 | 12 | 0 | 12 | NC | 12 | NC | 12 |
| 1310 | | | min | -.011 | 6 | -.005 | 3 | 0 | 1 | 0 | 1 | NC | 1 | NC | 1 |

## Envelope AISC 15th(360-16): ASD Steel Code Checks

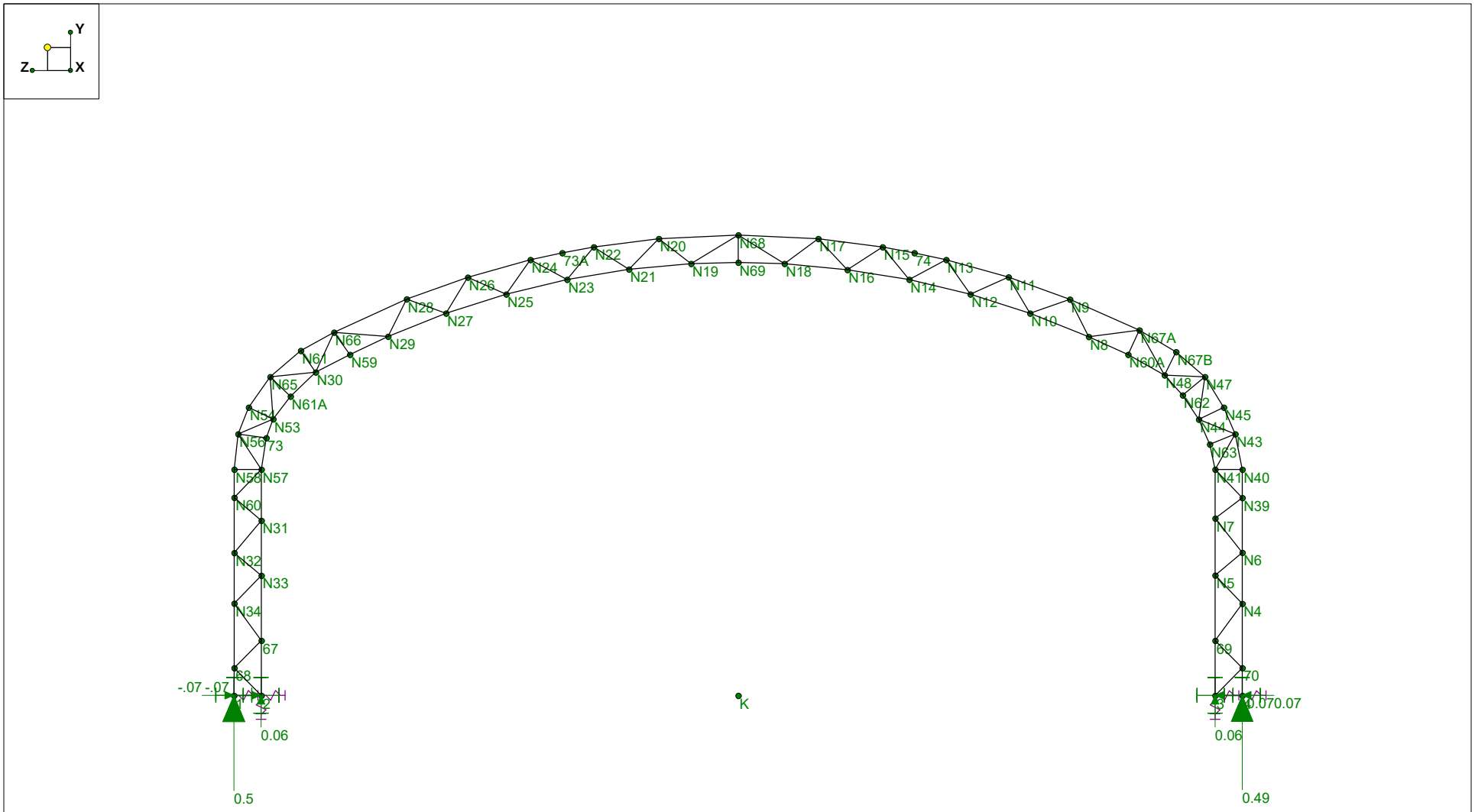
| | Member | Shape | Code C... | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | Pnc/om [k] | Pnt/om [k] | Mnyy/om ... | Mnzz/om ... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M43 | 1.9x0.09 | .162 | 0 | 3 | .001 | 0 | | 3 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1b* |
| 2 | M44 | 1.9x0.09 | .125 | 0 | 12 | .001 | 3.129 | | 5 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1b* |
| 3 | M45 | 1.9x0.09 | .422 | 3.087 | 8 | .001 | 3.087 | | 5 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 4 | M46 | 1.9x0.09 | .722 | 3.104 | 8 | .001 | 3.104 | | 5 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 5 | M47 | 1.9x0.09 | .301 | 3.081 | 8 | .001 | 3.081 | | 5 | 12.422 | 16.862 | .81 | .81 | 1 | H1-1a |
| 6 | M48 | 1.9x0.09 | .335 | 0 | 8 | .001 | 0 | | 5 | 12.422 | 16.862 | .81 | .81 | 1 | H1-1a |
| 7 | M49 | 1.9x0.09 | .336 | 2.287 | 8 | .002 | 2.287 | | 5 | 12.422 | 16.862 | .81 | .81 | 1 | H1-1a |
| 8 | M50 | 1.9x0.09 | .305 | 0 | 8 | .001 | 0 | | 5 | 12.422 | 16.862 | .81 | .81 | 1 | H1-1a |
| 9 | M51 | 1.9x0.09 | .745 | 0 | 8 | .001 | 0 | | 5 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 10 | M52 | 1.9x0.09 | .466 | 0 | 8 | .001 | 0 | | 5 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 11 | M53 | 1.9x0.09 | .067 | 3.102 | 8 | .001 | 0 | | 5 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1b* |
| 12 | M54 | 1.9x0.09 | .162 | 3.12 | 3 | .001 | 0 | | 5 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1b* |
| 13 | M104A | 1.9x0.09 | .525 | 2.144 | 3 | .004 | 0 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 14 | M110A | 1.9x0.09 | .543 | 0 | 3 | .006 | 2.083 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 15 | M34 | 1.9x0.09 | .428 | 2.72 | 3 | .001 | 0 | | 8 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1a |
| 16 | M63 | 1.9x0.09 | .432 | 0 | 3 | .001 | 0 | | 8 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1a |
| 17 | M64 | 1.9x0.09 | .279 | 0 | 3 | .001 | 0 | | 3 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1a |
| 18 | M121A | 1.9x0.09 | .548 | 1.414 | 3 | .001 | 0 | | 5 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 19 | M119A | 1.9x0.09 | .540 | 0 | 3 | .003 | 1.899 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 20 | M117 | 1.9x0.09 | .601 | 1.579 | 3 | .006 | 0 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 21 | M105A | 1.9x0.09 | .525 | 1.333 | 3 | .001 | 0 | | 5 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 22 | M106A | 1.9x0.09 | .610 | 1.351 | 3 | .007 | 0 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 23 | M107A | 1.9x0.09 | .482 | 0 | 3 | .001 | 0 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |

## Envelope AISC 15th(360-16): ASD Steel Code Checks (Continued)

| | Member | Shape | Code C... | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | Pnc/om [k] | Pnt/om [k] | Mnyy/om ... | Mnzz/om ... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | M111A | 1.9x0.09 | .545 | 2.065 | 3 | .004 | 2.065 | | 3 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 25 | M115C | 1.9x0.09 | .552 | 0 | 3 | .005 | 1.734 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 26 | M116A | 1.9x0.09 | .524 | 0 | 3 | .004 | 1.438 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 27 | M117A | 1.9x0.09 | .621 | 0 | 3 | .011 | 1.271 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 28 | M122A | 1.9x0.09 | .076 | 0 | 3 | .003 | 0 | | 8 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1b* |
| 29 | M125D | 1.9x0.09 | .278 | 3.212 | 3 | .002 | 0 | | 8 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1a |
| 30 | M127A | 1.9x0.09 | .078 | 2.72 | 3 | .001 | 0 | | 3 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1b* |
| 31 | M133A | 1.9x0.09 | .482 | 2.527 | 3 | .001 | 0 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 32 | M137 | 1.9x0.09 | .614 | 0 | 3 | .012 | .985 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 33 | M124A | 2" x 3" x 0.08... | .037 | 1.344 | 8 | .008 | 0 | y | 8 | 24.244 | 24.581 | 1.425 | 2.086 | 2.... | H1-1b |
| 34 | M125 | 2" x 3" x 0.08... | .017 | 1.343 | 3 | .004 | 1.343 | y | 3 | 24.245 | 24.581 | 1.425 | 2.086 | 2.... | H1-1b |
| 35 | M2 | 1.9x0.09 | .254 | 0 | 3 | .016 | 1.36 | | 8 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1a |
| 36 | M3 | 1.9x0.09 | .067 | 0 | 8 | .017 | 0 | | 5 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1b |
| 37 | M4 | 1.9x0.09 | .160 | 0 | 8 | .019 | 2.716 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1b* |
| 38 | M5 | 1.9x0.09 | .352 | 0 | 8 | .011 | 0 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 39 | M6 | 1.9x0.09 | .380 | 1.791 | 8 | .016 | 1.791 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 40 | M7 | 1.9x0.09 | .431 | 0 | 8 | .013 | 0 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 41 | M8 | 1.9x0.09 | .426 | 1.768 | 8 | .013 | 1.768 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 42 | M9 | 1.9x0.09 | .636 | 0 | 8 | .012 | 0 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 43 | M12 | 1.9x0.09 | .150 | 0 | 3 | .021 | 0 | | 8 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1b* |
| 44 | M13 | 1.9x0.09 | .503 | 0 | 3 | .032 | 0 | | 8 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 45 | M18 | 1.9x0.09 | .378 | 0 | 8 | .033 | 0 | | 8 | 12.422 | 16.862 | .81 | .81 | 1 | H1-1a |
| 46 | M19 | 1.9x0.09 | .698 | .815 | 3 | .018 | 0 | | 8 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 47 | M20 | 1.9x0.09 | .503 | 3.214 | 3 | .032 | 3.214 | | 8 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 48 | M21 | 1.9x0.09 | .156 | 3.203 | 8 | .034 | 3.203 | | 8 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1b |
| 49 | M22 | 1.9x0.09 | .391 | 3.954 | 8 | .041 | 3.954 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 50 | M23 | 1.9x0.09 | .770 | 0 | 8 | .021 | 0 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 51 | M24 | 1.9x0.09 | .753 | 1.412 | 8 | .017 | 1.412 | | 8 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 52 | M25 | 1.9x0.09 | .702 | .607 | 8 | .013 | 0 | | 12 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 53 | M26 | 1.9x0.09 | .683 | .611 | 8 | .018 | 1.396 | | 12 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 54 | M27 | 1.9x0.09 | .521 | 1.196 | 8 | .027 | 2.733 | | 12 | 9.061 | 16.862 | .81 | .81 | 1 | H1-1a |
| 55 | M28 | 1.9x0.09 | .360 | 2.502 | 12 | .025 | 2.502 | | 12 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1a |
| 56 | M29 | 1.9x0.09 | .120 | 3.189 | 9 | .031 | 3.189 | | 12 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1b |
| 57 | M133 | 1.9x0.09 | .907 | 0 | 8 | .024 | 0 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 58 | M114A | 1.9x0.09 | .894 | 1.879 | 8 | .021 | 1.879 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 59 | M112B | 1.9x0.09 | .442 | 3.931 | 8 | .038 | 3.931 | | 8 | 12.422 | 16.862 | .81 | .81 | 1 | H1-1a |
| 60 | M125A | 1.9x0.09 | .446 | 0 | 8 | .038 | 0 | | 8 | 12.422 | 16.862 | .81 | .81 | 1 | H1-1a |
| 61 | M125B | 1.9x0.09 | .163 | 0 | 8 | .025 | 0 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1b |
| 62 | M125C | 1.9x0.09 | .620 | 0 | 8 | .014 | 0 | | 8 | 5.777 | 16.862 | .81 | .81 | 1 | H1-1a |
| 63 | M126 | 1.9x0.09 | .257 | 1.36 | 3 | .015 | 1.36 | | 12 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1a |
| 64 | M128 | 1.9x0.09 | .097 | 3.184 | 8 | .022 | 3.184 | | 8 | 7.266 | 16.862 | .81 | .81 | 1 | H1-1b |
| 65 | M139 | 1.9x0.09 | .380 | 3.205 | 8 | .032 | 3.205 | | 8 | 12.422 | 16.862 | .81 | .81 | 1 | H1-1a |
| 66 | M140 | 1.9x0.09 | .703 | 0 | 3 | .019 | 0 | | 8 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 67 | M137A | 1.9x0.09 | .702 | 1.607 | 3 | .020 | 1.607 | | 8 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 68 | M138 | 1.9x0.09 | .700 | .767 | 3 | .018 | 1.601 | | 8 | 3.765 | 16.862 | .81 | .81 | 1 | H1-1a |
| 69 | M70 | 1.66" x 0.085" | .046 | 2.265 | 3 | .001 | 0 | | 3 | 12.614 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 70 | M71 | 1.66" x 0.085" | .065 | 0 | 3 | .003 | 1.935 | | 8 | 12.937 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 71 | M72 | 1.66" x 0.085" | .050 | 0 | 8 | .001 | 1.752 | | 5 | 13.097 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 72 | M73 | 1.66" x 0.085" | .074 | 0 | 3 | .001 | 0 | | 3 | 12.714 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 73 | M74 | 1.66" x 0.085" | .066 | 0 | 8 | .002 | 0 | | 5 | 13.153 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 74 | M75 | 1.66" x 0.085" | .073 | 0 | 8 | .003 | 1.94 | | 5 | 12.932 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 75 | M76 | 1.66" x 0.085" | .049 | 0 | 8 | .000 | 2.014 | | 3 | 12.864 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 76 | M77 | 1.66" x 0.085" | .033 | 0 | 8 | .001 | 1.938 | | 5 | 12.934 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 77 | M78 | 1.66" x 0.085" | .048 | 0 | 3 | .000 | 2.122 | | 5 | 12.759 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 78 | M79 | 1.66" x 0.085" | .032 | 2.003 | 8 | .002 | 2.003 | | 3 | 12.874 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 79 | M80 | 1.66" x 0.085" | .120 | 0 | 3 | .001 | 0 | | 6 | 12.3 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 80 | M81 | 1.66" x 0.085" | .119 | 2.524 | 8 | .001 | 2.524 | | 10 | 12.331 | 13.851 | .579 | .579 | 1.... | H1-1b* |

## Envelope AISC 15th(360-16): ASD Steel Code Checks (Continued)

| | Member | Shape | Code C... | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | Pnc/om [k] | Pnt/om [k] | Mnyy/om ... | Mnzz/om ... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81 | M82 | 1.66" x 0.085" | .087 | 0 | 3 | .002 | 0 | | 8 | 12.806 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 82 | M83 | 1.66" x 0.085" | .083 | 2.082 | 8 | .002 | 2.082 | | 5 | 12.798 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 83 | M84 | 1.66" x 0.085" | .068 | 0 | 3 | .003 | 0 | | 8 | 12.804 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 84 | M85 | 1.66" x 0.085" | .076 | 2.066 | 8 | .001 | 0 | | 9 | 12.814 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 85 | M86 | 1.66" x 0.085" | .052 | 2.077 | 8 | .001 | 2.077 | | 5 | 12.803 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 86 | M87 | 1.66" x 0.085" | .062 | 2.069 | 8 | .004 | 2.069 | | 8 | 12.811 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 87 | M88 | 1.66" x 0.085" | .057 | 0 | 8 | .004 | 0 | | 8 | 12.799 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 88 | M89 | 1.66" x 0.085" | .047 | 0 | 8 | .001 | 2.072 | | 3 | 12.807 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 89 | M90 | 1.66" x 0.085" | .044 | 0 | 8 | .003 | 0 | | 8 | 12.782 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 90 | M91 | 1.66" x 0.085" | .043 | 2.068 | 8 | .001 | 2.068 | | 5 | 12.811 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 91 | M92 | 1.66" x 0.085" | .030 | 0 | 8 | .001 | 0 | | 5 | 12.145 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 92 | M93 | 1.66" x 0.085" | .032 | 2.725 | 8 | .001 | 2.725 | | 5 | 12.096 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 93 | M94 | 1.66" x 0.085" | .042 | 0 | 8 | .001 | 0 | | 5 | 12.863 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 94 | M95 | 1.66" x 0.085" | .044 | 2.111 | 8 | .003 | 2.111 | | 8 | 12.77 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 95 | M96 | 1.66" x 0.085" | .050 | 0 | 8 | .001 | 0 | | 3 | 12.821 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 96 | M97 | 1.66" x 0.085" | .059 | 2.085 | 8 | .004 | 2.085 | | 8 | 12.795 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 97 | M98 | 1.66" x 0.085" | .063 | 0 | 8 | .004 | 0 | | 8 | 12.82 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 98 | M99 | 1.66" x 0.085" | .051 | 0 | 8 | .001 | 2.071 | | 3 | 12.809 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 99 | M100 | 1.66" x 0.085" | .079 | 0 | 8 | .001 | 0 | | 6 | 12.798 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 100 | M101 | 1.66" x 0.085" | .068 | 2.081 | 3 | .002 | 2.081 | | 8 | 12.799 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 101 | M102 | 1.66" x 0.085" | .090 | 0 | 8 | .003 | 0 | | 5 | 12.816 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 102 | M103 | 1.66" x 0.085" | .088 | 2.069 | 3 | .001 | 0 | | 3 | 12.811 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 103 | M104 | 1.66" x 0.085" | .158 | 0 | 8 | .001 | 2.682 | | 5 | 12.148 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 104 | M105 | 1.66" x 0.085" | .125 | 0 | 8 | .003 | 2.168 | | 8 | 12.713 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 105 | M106 | 1.66" x 0.085" | .066 | 2.26 | 8 | .001 | 0 | | 3 | 12.618 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 106 | M107 | 1.66" x 0.085" | .075 | 2.098 | 8 | .000 | 2.098 | | 8 | 12.782 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 107 | M108 | 1.66" x 0.085" | .048 | 0 | 8 | .003 | 1.873 | | 5 | 12.992 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 108 | M109 | 1.66" x 0.085" | .036 | 0 | 8 | .001 | 2.094 | | 9 | 12.787 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 109 | M110 | 1.66" x 0.085" | .065 | 1.937 | 3 | .001 | 1.937 | | 10 | 12.934 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 110 | M111 | 1.66" x 0.085" | .093 | 1.757 | 8 | .003 | 0 | | 9 | 13.093 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 111 | M112 | 1.66" x 0.085" | .085 | 2.091 | 8 | .002 | 0 | | 8 | 12.789 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 112 | M113 | 1.66" x 0.085" | .107 | 1.748 | 8 | .001 | 1.748 | | 9 | 13.1 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 113 | M114 | 1.66" x 0.085" | .077 | 1.929 | 8 | .002 | 0 | | 8 | 12.942 | 13.851 | .579 | .579 | 1.... | H1-1b |
| 114 | M115 | 1.66" x 0.085" | .163 | 2.269 | 8 | .003 | 0 | | 12 | 12.609 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 115 | M120 | 1.66" x 0.085" | .050 | 1.343 | 8 | .005 | 1.343 | | 8 | 13.403 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 116 | M122 | 1.66" x 0.085" | .040 | 0 | 3 | .003 | 0 | | 3 | 13.386 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 117 | M124 | 1.66" x 0.085" | .048 | 0 | 3 | .004 | 0 | | 3 | 13.444 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 118 | M127 | 1.66" x 0.085" | .084 | 0 | 8 | .005 | 1.344 | | 8 | 13.402 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 119 | M129 | 1.66" x 0.085" | .047 | 1.344 | 8 | .006 | 0 | | 8 | 13.402 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 120 | M135 | 1.66" x 0.085" | .017 | 1.344 | 8 | .000 | 0 | | 8 | 13.402 | 13.851 | .579 | .579 | 1 | H1-1b* |
| 121 | M112A | 1.66" x 0.085" | .097 | 1.351 | 8 | .017 | 1.351 | | 8 | 13.397 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 122 | M113A | 1.66" x 0.085" | .078 | 1.324 | 8 | .012 | 1.324 | | 8 | 13.416 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 123 | M115B | 1.66" x 0.085" | .075 | 0 | 8 | .007 | 1.296 | | 8 | 13.434 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 124 | M118 | 1.66" x 0.085" | .071 | 1.402 | 8 | .003 | 0 | | 5 | 13.363 | 13.851 | .579 | .579 | 2.2 | H1-1b |
| 125 | M119 | 1.66" x 0.085" | .067 | 0 | 8 | .005 | 0 | | 8 | 13.374 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 126 | M120A | 1.66" x 0.085" | .051 | 1.426 | 3 | .001 | 1.426 | | 10 | 13.347 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 127 | M121 | 1.66" x 0.085" | .074 | 1.353 | 3 | .003 | 1.353 | | 5 | 13.396 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 128 | M129A | 1.66" x 0.085" | .115 | 1.912 | 8 | .007 | 0 | | 8 | 12.957 | 13.851 | .579 | .579 | 2.... | H1-1b |
| 129 | M130 | 1.66" x 0.085" | .145 | 1.912 | 8 | .002 | 1.912 | | 9 | 12.957 | 13.851 | .579 | .579 | 1.... | H1-1b* |
| 130 | M131 | 1.66" x 0.085" | .064 | 1.911 | 3 | .003 | 1.911 | | 3 | 12.958 | 13.851 | .579 | .579 | 2.... | H1-1b* |
| 131 | M132 | 1.66" x 0.085" | .040 | 1.911 | 3 | .003 | 0 | | 8 | 12.958 | 13.851 | .579 | .579 | 1.... | H1-1b |



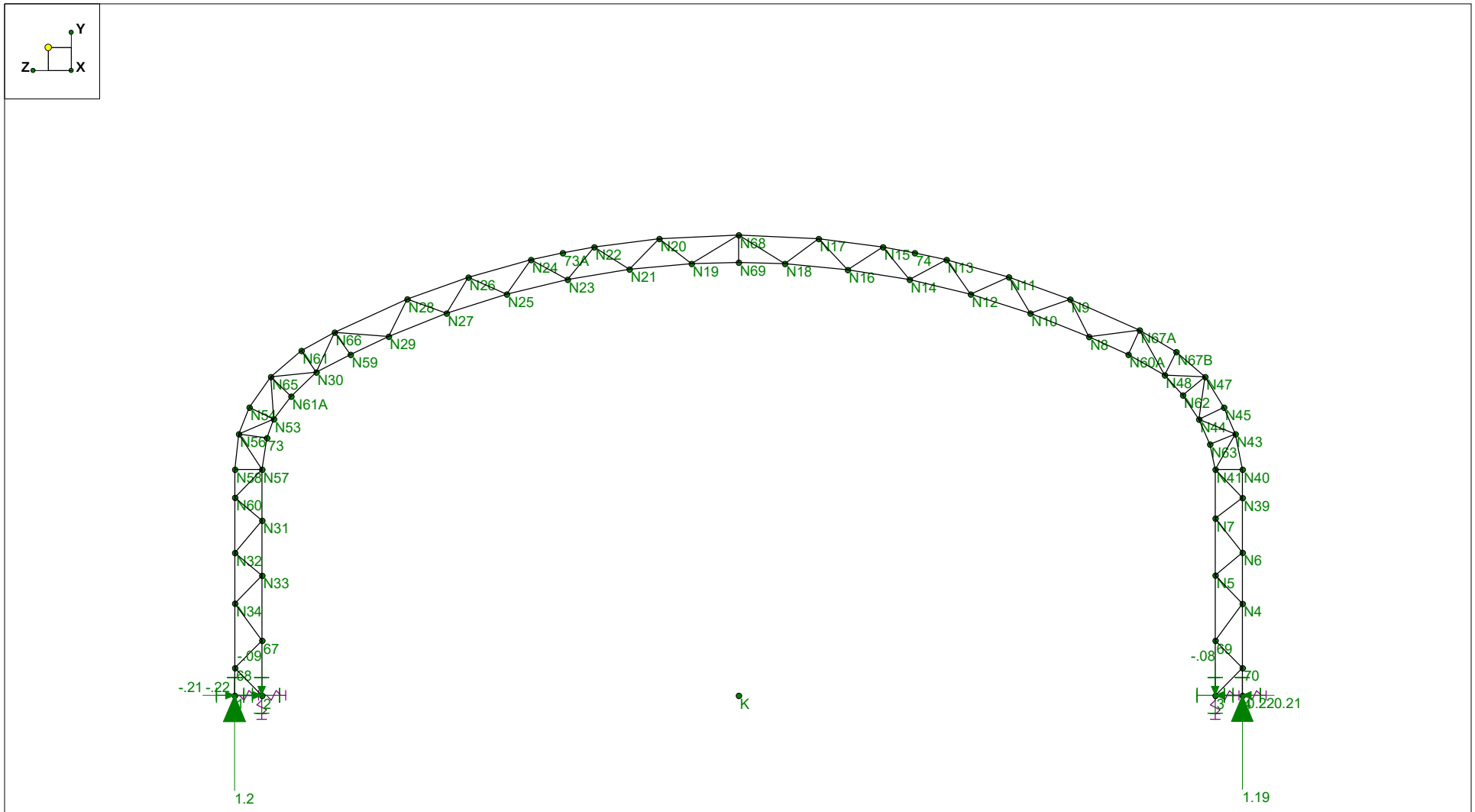

Results for LC 13, DL
Reaction and Moment Units are k and k-ft

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 8 |
| Mo | | May 27, 2021 at 11:32 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |

## Joint Reactions (By Combination)

| | LC | Joint Label | X [k] | Y [k] | Z [k] | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 1 | 0 | .498 | -.071 | 0 | 0 | 0 |
| 2 | 13 | 2 | 0 | .058 | -.073 | 0 | 0 | 0 |
| 3 | 13 | 3 | 0 | .062 | .073 | 0 | 0 | 0 |
| 4 | 13 | 4 | 0 | .493 | .071 | 0 | 0 | 0 |
| 5 | 13 | Totals: | 0 | 1.111 | 0 | | | |
| 6 | 13 | COG (ft): | X: 0 | Y: 15.238 | Z: 24.95 | | | |

Reactions due to DL only



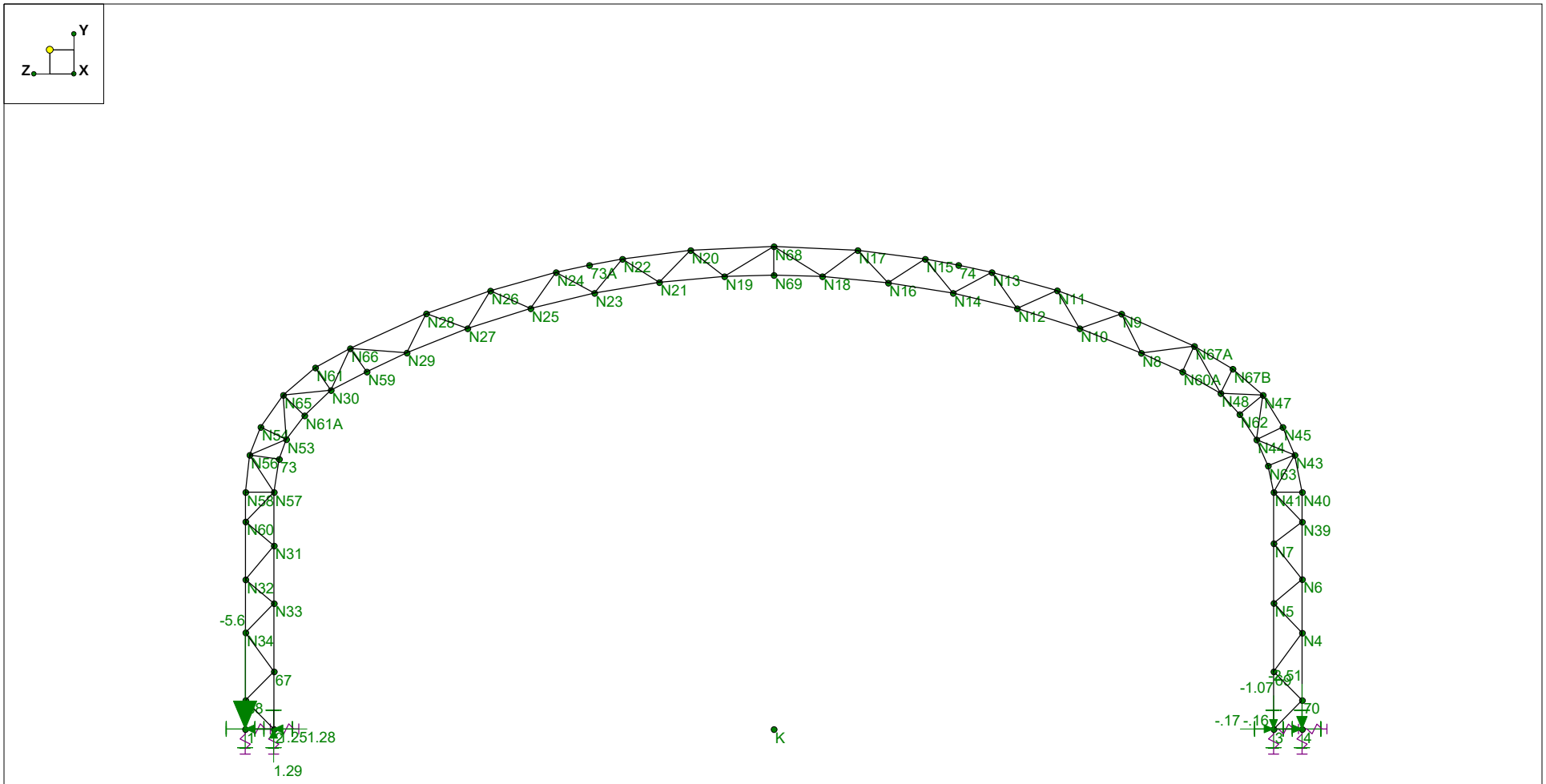

Results for LC 14, RLL
Reaction and Moment Units are k and k-ft

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 9 |
| Mo | | May 27, 2021 at 11:32 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |

## Joint Reactions (By Combination)

| | LC | Joint Label | X [k] | Y [k] | Z [k] | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|---|---|---|---|---|---|---|---|
| 1 | 14 | 1 | 0 | 1.204 | -.215 | 0 | 0 | 0 |
| 2 | 14 | 2 | 0 | -.089 | -.221 | 0 | 0 | 0 |
| 3 | 14 | 3 | 0 | -.079 | .221 | 0 | 0 | 0 |
| 4 | 14 | 4 | 0 | 1.19 | .215 | 0 | 0 | 0 |
| 5 | 14 | Totals: | 0 | 2.225 | 0 | | | |
| 6 | 14 | COG (ft): | X: 0 | Y: 19.77 | Z: 24.977 | | | |

Reactions due to RLL only



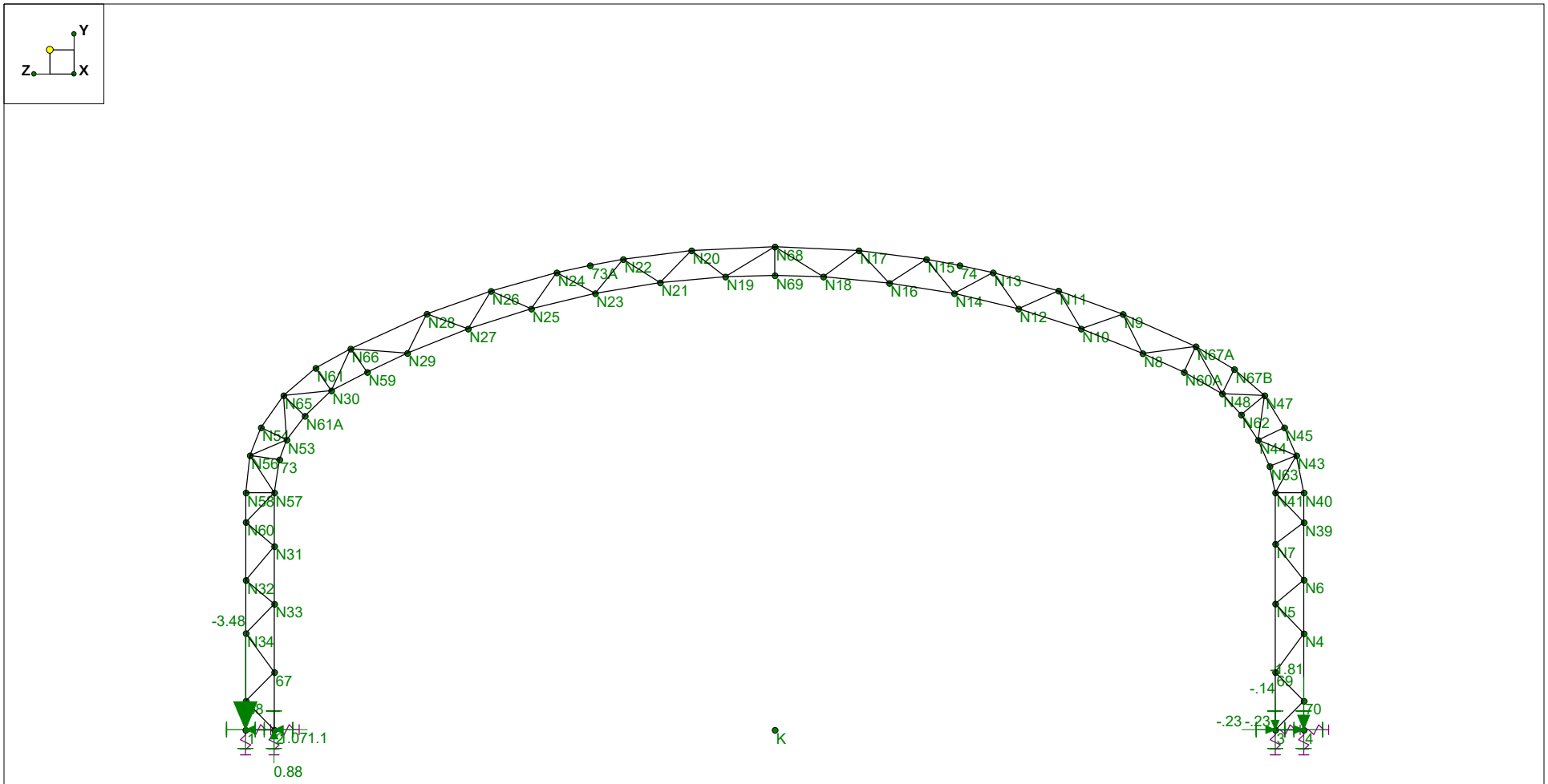

Results for LC 15, WL+Z
Reaction and Moment Units are k and k-ft

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 10 |
| Mo | | May 27, 2021 at 11:32 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |

## Joint Reactions (By Combination)

| | LC | Joint Label | X [k] | Y [k] | Z [k] | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 1 | 0 | -5.597 | 1.245 | 0 | 0 | 0 |
| 2 | 15 | 2 | 0 | 1.29 | 1.28 | 0 | 0 | 0 |
| 3 | 15 | 3 | 0 | -1.073 | -.17 | 0 | 0 | 0 |
| 4 | 15 | 4 | 0 | -2.509 | -.164 | 0 | 0 | 0 |
| 5 | 15 | Totals: | 0 | -7.889 | 2.191 | | | |
| 6 | 15 | COG (ft): | X: 0 | Y: 20.363 | Z: 26.556 | | | |

Reactions due to WL+Z only



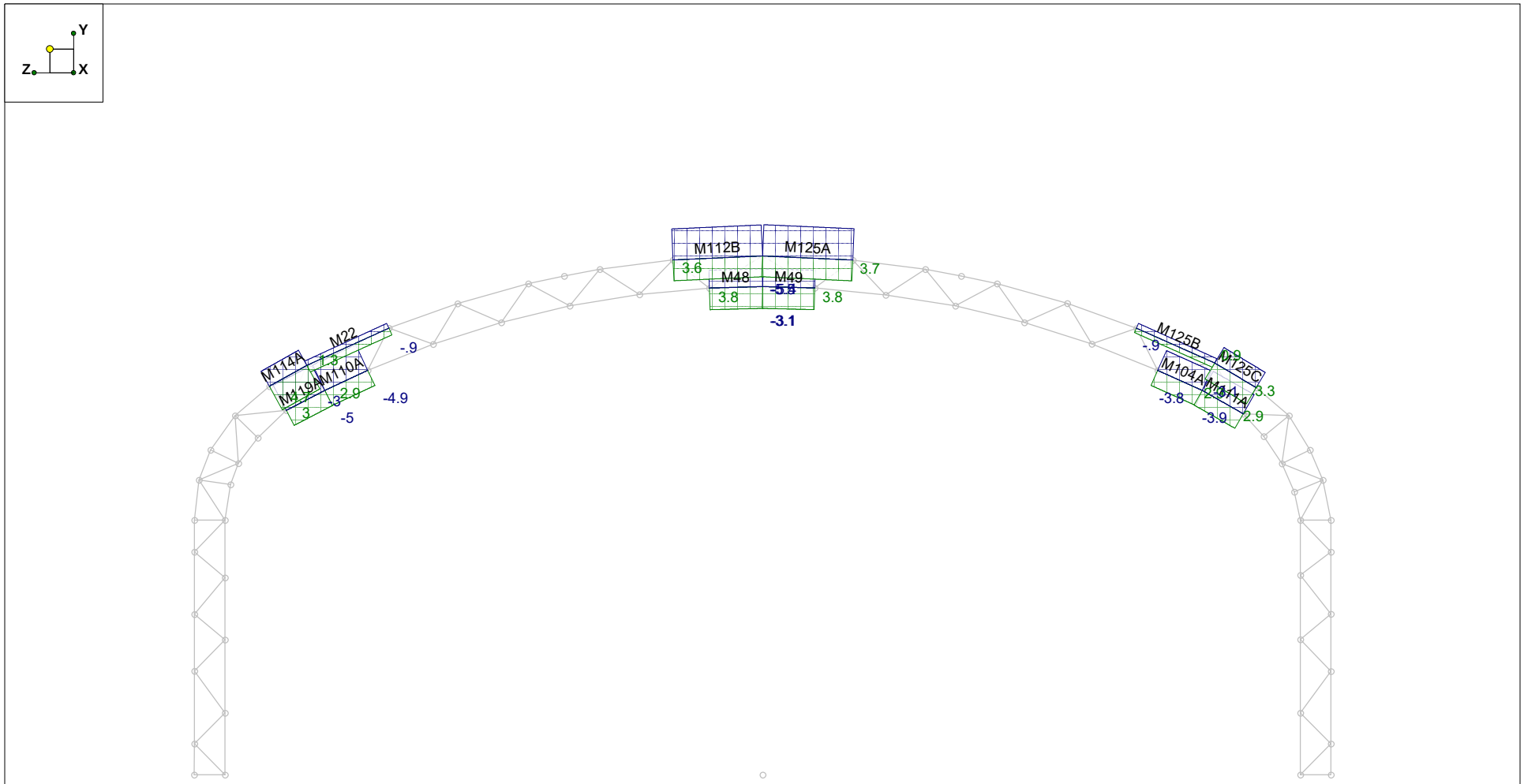

Results for LC 16, WL-Z
Reaction and Moment Units are k and k-ft

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 11 |
| Mo | | May 27, 2021 at 11:32 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |

## Joint Reactions (By Combination)

| | LC | Joint Label | X [k] | Y [k] | Z [k] | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 1 | 0 | -3.476 | 1.073 | 0 | 0 | 0 |
| 2 | 16 | 2 | 0 | .879 | 1.104 | 0 | 0 | 0 |
| 3 | 16 | 3 | 0 | -.143 | -.234 | 0 | 0 | 0 |
| 4 | 16 | 4 | 0 | -1.815 | -.227 | 0 | 0 | 0 |
| 5 | 16 | Totals: | 0 | -4.555 | 1.716 | | | |
| 6 | 16 | COG (ft): | X: 0 | Y: 20.425 | Z: 28.032 | | | |

Reactions due to WL-Z only




Envelope Only Solution
Member Axial Forces (k) (Enveloped)
Reaction and Moment Units are k and k-ft (Enveloped)

| | | |
|---|---|---|
| Big Top | 50x72x23 DEM 18BB - Tallahassee, FL | SK - 7 |
| Mo | | May 27, 2021 at 10:44 AM |
| 221-80 | | 50x72x23 DEM 18BB - Tallahassee, FL.r3d |

# Connection Check

PROJECT NUMBER: 221-80

DESIGNER: Mo

=Input

=Calculation

## Connection Check

Max Tension at Bolts = 5.5 kips

### Bolted Connection

Material: A325

| 1 | 1/2 | inch | 45 | ksi | 8.8 | kips |
|---|---|---|---|---|---|---|
| (# Bolts) | (dia.) | | ($F_{nt}/\Omega$, AISC Table 7-2) | | | |

(try 1/2" for trusses<= 40', otherwise use 5/8" min.)

Number of bolts * Steel Strength * d^2 * pi/4

*USE only 90% of capacity because bolts are not centered in the connection.

Capacity = 0.9* 8.8 kips = 8.0 > 5.5 kips

USE (1) 1/2" DIAM. BOLTS IN THE TOP AND BOTTOM CHORDS

### Welded Connection

Max. Weld size allowed per AISC 360-10 (15th Edition), section J2.2b (a): 1/11 inch

Max Tension = 5.5 kips / 1.34 kips/in = 4.1 Inch Weld Length

USE 5" MIN. LENGTH E70 WELD 0.09"

# PRYING ACTION ANALYSIS

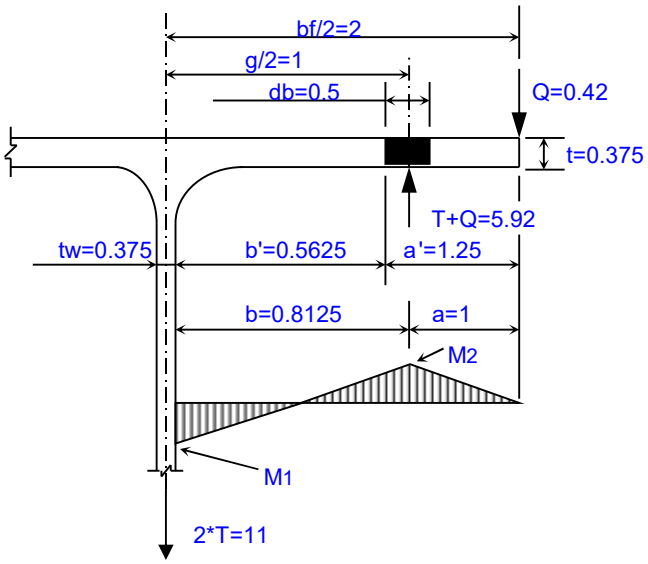
**For Structural Steel Connections**

**Per AISC 13th Edition Manual (ASD) - Pages 9-10 to 9-13**

| Project Name: | | Client: | | | |
|---|---|---|---|---|---|
| Project No.: | 221-80 | Prep. By: | | Date: | |

**Input Data:**

| | | |
|---|---|---|
| Total Tension Load, Tt = | 5.50 | kips |
| Total Shear Load, Vt = | 0.20 | kips |
| Tensile Strength, Fu = | 65 | ksi |
| Bolt Diameter, db = | 1/2 | in. |
| ASTM Bolt Desig. = | A325 | |
| Bolt Type (N, X, or SC) = | N | |
| Faying Surface Class = | N.A. | |
| Bolt Hole Type = | Oversized | |
| Tributary Length/Bolt, p = | 1.875 | in. |
| Total No. of Bolts, Nb = | 1 | bolts |
| Width, bf = | 4.0000 | in. |
| Thickness, t = | 0.3750 | in. |
| Thickness, tw = | 0.3750 | in. |
| Bolt Gage, g = | 2.000 | in. |
| No. of Loading Cycles = | 20000 | |




**Results:**

**Check Bolt Tension and Shear:**

| | | | | |
|---|---|---|---|---|
| Ab = | 0.1963 | in.^2 | Ab = *db^2/4 | **Nomenclature** |
| vb = | 0.20 | kips/bolt | vb = Vt/Nb | |
| fv = | 1.02 | ksi | fv = vb/Ab | |
| T = | 5.50 | kips/bolt | T = Tt/Nb | |
| ft = | 28.01 | ksi | ft = T/Ab | |
| Tb = | N.A. | kips | Tb = not applicable for N or X bolts | |
| Fnv = | 48.00 | ksi | Fnv = Nominal shear stress for A325-N from AISC Table J3.2, page 16.1-104 | |
| Fnv' = | 48.00 | ksi | Fnv' = Fnv (no reduction needed for comb. effects) | |
| Fv = | 24.00 | ksi | Fv = Fnv' / 2 | |
| ks = | N.A. | | ks = not applicable for N or X bolts | |
| Vb = | 4.71 | kips/bolt | Vb = Ab*Fv | Vb >= vb, O.K. |
| At = | 0.1419 | in.^2 | At = /4*(db - 0.9743/n)^2 | |
| Fnt = | 90.00 | ksi | Fnt = Nominal tensile stress for A325 bolts from AISC Table J3.2, page 16.1-104 | |
| Fnt' = | 90.00 | ksi | Fnt' = Fnt (no reduction needed for comb. effects | |
| Ft = | 45.00 | ksi | Ft = Fnt' / 2, fatigue is not considered) | |
| B = | 8.84 | kips/bolt | B = Ft*Ab | B >= T, O.K. |

(continued)

**Calculate Required Thickness:**

| | | | |
|---|---|---|---|
| b = | 0.8125 | in. | b = (g-tw)/2 |
| b' = | 0.5625 | in. | b' = b-db/2 |
| a = | 1.0000 | in. | a = minimum of: (bf-g)/2 or 1.25*b |
| a' = | 1.2500 | in. | a' = a+db/2 |
| = | 0.4500 | | = b'/a' |
| d' = | 0.6250 | in. | d' = Nominal hole dimensions from Table J3.3 |
| = | 0.6667 | | = 1-d'/p |
| = | 1.348 | | = (1/ )*(B/T-1) |
| ' = | 1.0000 | | If >= 1: ' = 1, If < 1: ' = lesser of 1 or (1/ )*( /(1- )) |
| t(req'd) = | 0.318 | in. | t(req'd) = SQRT(6.66*T*b'/(p*Fu*(1+ * '))) t >= t(req'd), O.K. |

**Calculate Prying Force, Q:**

| | | | |
|---|---|---|---|
| tc = | 0.521 | in. | tc = SQRT(6.66*B*b'/(p*Fu)) (to develop 'B' in bolts/no prying) |
| = | 0.303 | | = 1/ *((T/B)/(t/tc)^2-1) (Note: 0 <= a <= 1.0) |
| Q = | 0.42 | kips | Q = B* * * *(t/tc)^2 (prying force per bolt at design load) |

**Check Allowable Bolt Tension with Prying Action:**

| | | | |
|---|---|---|---|
| ' = | 0.9635 | | ' = 1/( *(1+ ))*((tc/t)^2-1) |
| Ta = | 7.51 | kips | If ' >1: Ta = B*(t/tc)^2*(1+ ) , If ' < 0: Ta = B |
| | | | If 0 <= ' <= 1: Ta = B*(t/tc)^2*(1+ * ') |

Ta >= T, O.K.

**Calculate Required Thickness to Eliminate Prying Action:**

| | | | |
|---|---|---|---|
| t(req'd) = | 0.411 | in. | t(req'd) = SQRT(6.66*T*b'/(p*Fu)) |

**Comments:**

# PRYING ACTION ANALYSIS

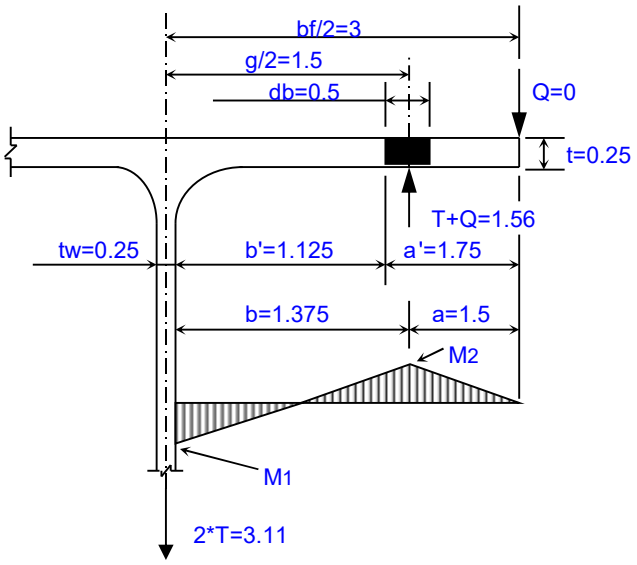
## For Structural Steel Connections

## Per AISC 13th Edition Manual (ASD) - Pages 9-10 to 9-13

| | | | | | |
|---|---|---|---|---|---|
| Project Name: | | Client: | | | |
| Project No.: | 221-80 | Prep. By: | | Date: | |

**Input Data:** Anchor Angle at Base

| | | |
|---|---|---|
| Total Tension Load, Tt = | 1.56 | kips |
| Total Shear Load, Vt = | 0.36 | kips |
| Tensile Strength, Fu = | 65 | ksi |
| Bolt Diameter, db = | 1/2 | in. |
| ASTM Bolt Desig. = | A325 | |
| Bolt Type (N, X, or SC) = | N | |
| Faying Surface Class = | N.A. | |
| Bolt Hole Type = | Oversized | |
| Tributary Length/Bolt, p = | 4.000 | in. |
| Total No. of Bolts, Nb = | 1 | bolts |
| Width, bf = | 6.0000 | in. |
| Thickness, t = | 0.2500 | in. |
| Thickness, tw = | 0.2500 | in. |
| Bolt Gage, g = | 3.000 | in. |
| No. of Loading Cycles = | 20000 | |




**Results:**

**Check Bolt Tension and Shear:**

| | | | | |
|---|---|---|---|---|
| Ab = | 0.1963 | in.^2 | Ab = *db^2/4 | **Nomenclature** |
| vb = | 0.36 | kips/bolt | vb = Vt/Nb | |
| fv = | 1.85 | ksi | fv = vb/Ab | |
| T = | 1.56 | kips/bolt | T = Tt/Nb | |
| ft = | 7.92 | ksi | ft = T/Ab | |
| Tb = | N.A. | kips | Tb = not applicable for N or X bolts | |
| Fnv = | 48.00 | ksi | Fnv = Nominal shear stress for A325-N from AISC Table J3.2, page 16.1-104 | |
| Fnv' = | 48.00 | ksi | Fnv' = Fnv (no reduction needed for comb. effects) | |
| Fv = | 24.00 | ksi | Fv = Fnv' / 2 | |
| ks = | N.A. | | ks = not applicable for N or X bolts | |
| Vb = | 4.71 | kips/bolt | Vb = Ab*Fv | Vb >= vb, O.K. |
| At = | 0.1419 | in.^2 | At = /4*(db - 0.9743/n)^2 | |
| Fnt = | 90.00 | ksi | Fnt = Nominal tensile stress for A325 bolts from AISC Table J3.2, page 16.1-104 | |
| Fnt' = | 90.00 | ksi | Fnt' = Fnt (no reduction needed for comb. effects | |
| Ft = | 45.00 | ksi | Ft = Fnt' / 2, fatigue is not considered) | |
| B = | 8.84 | kips/bolt | B = Ft*Ab | B >= T, O.K. |

(continued)

**Calculate Required Thickness:**

| | | | |
|---|---|---|---|
| b = | 1.3750 | in. | b = (g-tw)/2 |
| b' = | 1.1250 | in. | b' = b-db/2 |
| a = | 1.5000 | in. | a = minimum of: (bf-g)/2 or 1.25*b |
| a' = | 1.7500 | in. | a' = a+db/2 |
| = | 0.6429 | | = b'/a' |
| d' = | 0.6250 | in. | d' = Nominal hole dimensions from Table J3.3 |
| = | 0.8438 | | = 1-d'/p |
| = | 7.283 | | = (1/ )*(B/T-1) |
| ' = | 1.0000 | | If >= 1: ' = 1, If < 1: ' = lesser of 1 or (1/ )*( /(1- )) |
| t(req'd) = | 0.156 | in. | t(req'd) = SQRT(6.66*T*b'/(p*Fu*(1+ * '))) t >= t(req'd), O.K. |

**Calculate Prying Force, Q:**

| | | | |
|---|---|---|---|
| tc = | 0.505 | in. | tc = SQRT(6.66*B*b'/(p*Fu)) (to develop 'B' in bolts/no prying) |
| = | 0.000 | | = 1/ *((T/B)/(t/tc)^2-1) (Note: 0 <= a <= 1.0) |
| Q = | 0.00 | kips | Q = B* * * *(t/tc)^2 (prying force per bolt at design load) |

**Check Allowable Bolt Tension with Prying Action:**

| | | | |
|---|---|---|---|
| ' = | 2.2176 | | ' = 1/( *(1+ ))*((tc/t)^2-1) |
| Ta = | 4.00 | kips | If ' >1: Ta = B*(t/tc)^2*(1+ ) , If ' < 0: Ta = B |
| | | | If 0 <= ' <= 1: Ta = B*(t/tc)^2*(1+ * ') |

Ta >= T, O.K.

**Calculate Required Thickness to Eliminate Prying Action:**

| | | | |
|---|---|---|---|
| t(req'd) = | 0.212 | in. | t(req'd) = SQRT(6.66*T*b'/(p*Fu)) |

**Comments:**

# Soil Anchor Design - Tension

PROJECT NUMBER

DESIGNER Mo

=Input

=Calculation

## Connection Check

Max Uplift at Anchors = 3.111 kips as per page: *Joint 1*

Anchored Connection

| | | | |
|---|---|---|---|
| 2500 | lbs | Medium/Sandy Soil Gray (Type of Soil) | Ultimate Pullout Strength |
| 2 | | ---------- | Facto of Safety |
| 1250 | lbs | ---------- | Allowable Pullout Strength |
| 250 | lbs | ---------- | Alloawble Shear Strength |

| | |
|---|---|
| # of Vertical Anchors at Truss | 1 |
| # of sloped Anchors = | 2 |
| Angle of slope, ϕ = | 15 |

Pullout capacity = Pullout Strength * # of vertical Anchors + Pullout Strength * # of Sloped Anchors Cos (ϕ)

Allowable Pullout Capacity = **3.66** kips

Shear capacity = Shear Strength * total # of Anchors + Pullout Strength * # of Sloped Anchors Sin (ϕ)

Allowable shear Capacity = **1.40** kips

Pullout Capacity = 3.7 kips > 3.111 kips

# Soil Anchor Design - Shear

PROJECT NUMBER

DESIGNER Mo

=Input
=Calculation

## Connection Check

Max Shear at Anchors = 0.726 kips as per page: *Joint 2*

Anchored Connection

| | | | |
|---|---|---|---|
| 2000 | lbs | Medium/Sandy Soil Gray (Type of Soil) | Ultimate Pullout Strength |
| 2 | | ---------- | Facto of Safety |
| 1000 | lbs | ---------- | Allowable Pullout Strength |
| 250 | lbs | ---------- | Alloawble Shear Strength |

| | |
|---|---|
| # of Vertical Anchors at Truss | 1 |
| # of sloped Anchors = | 2 |
| Angle of slope, ϕ = | 15 |

Pullout capacity = Pullout Strength * # of vertical Anchors + Pullout Strength * # of Sloped Anchors Cos (ϕ)
Allowable Pullout Capacity = 2.93 kips

Shear capacity = Shear Strength * total # of Anchors + Pullout Strength * # of Sloped Anchors Sin (ϕ)
Allowable shear Capacity = 1.27 kips

Shear Capacity = 1.3 kips > 0.726 kips

Job: 221-80

Name:
Date:

Wind Pressure: Ultimate

Wind Pressure = 20.86 psf

Height to Use: Average

Tallest Height = 23 ft
Medium Height = 19.1145 ft
Lowest Height = 15.229 ft

Assumed Height = 0 ft

Height = 19.1 ft

Half Height = 9.6 ft

Wind Force = 199 plf of shelter width
*=(Wind Pressure)*(Half Height)*

Shelter Dimensions
Width: 50 ft
Length: 72 ft
Height: 23 ft

Cable Diameter Roof
1/4 in

Cable Diameter Wall
1/4 in

Total Wind Force on Roof = 9968 lbs
*=(Wind Force)*(With)*

Total Wind Force on Single Wall = 4984 lbs
*=(Total Wind Force on Roof)/2*

Roof Cables
# of Cables Along one Side = 4
Length along X-Braces = 31.8 ft
Bay Spacing = 24 ft

Cable Angle = 53.0 degrees

Sum of Forces Equation

Force on 1 Side of Shelter = 8274

Ultimate Capacity of Roof Cables
Capacity of Single Cable = 7000 lbs

Capacity of All Roof Cables = 28000 lbs

SAFE

Wall Cables
# of Cables Along one Wall = 8
Length along X-Braces = 17.2 ft
Bay Spacing = 16 ft

Cable Angle = 47.1 degrees

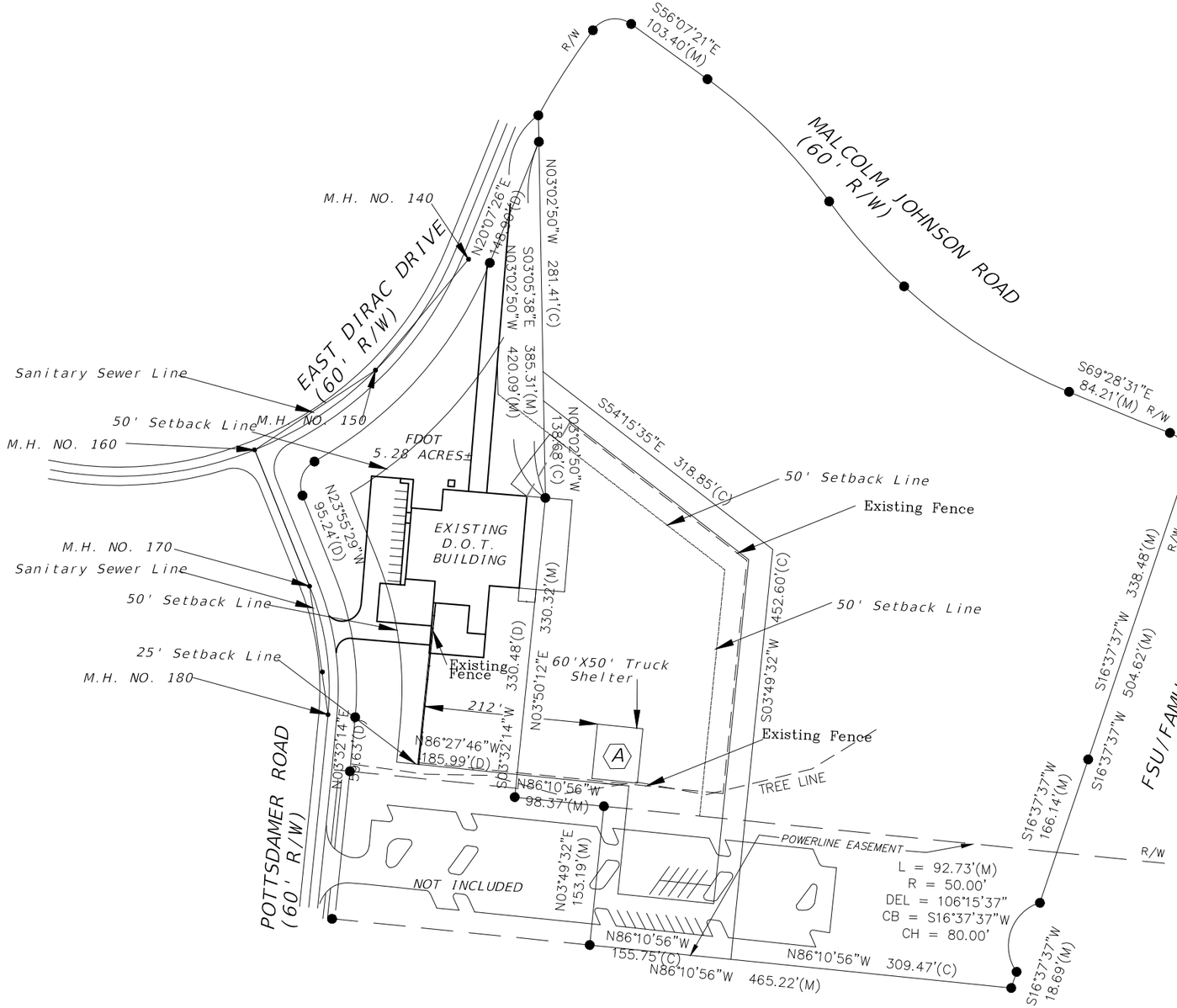
Sum of Forces Equation

Force on 1 Side of Shelter = 3659

Capacity of Side Wall Cables
Capacity of Single Cable = 7000 lbs

Capacity of Cables in Wall = 56000 lbs

SAFE




CONSTRUCTION NOTES:

(A) Truck Parking Shelter

## SITE PLAN

GENERAL NOTE:
Contracter to verify all survey data and utilities locations

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION |
| ---- | ---- | ---- | ---- | ---- | ---- |
| ---- | ---- | ---- | ---- | ---- | ---- |
| ---- | ---- | ---- | ---- | ---- | ---- |
| ---- | ---- | ---- | ---- | ---- | ---- |

DRAWN BY: YY 08-23
CHECKED BY:
DESIGNED BY: CF 08-23
CHECKED BY:

**STATE OF FLORIDA**
**DEPARTMENT OF TRANSPORTATION**

| ROAD NO. | COUNTY | FINANCIAL PROJECT ID. |
|---|---|---|
| | LEON | |

SHEET TITLE: Truck Parking Shelter

REF. DWG. NO.

PROJECT NAME: FDOT STRUCTURES RESEARCH CENTER
2007 E. PAUL DIRAC DRIVE, TALLAHASSEE, FL

Freeman, Christina 8/23/2023 2:30:50 PM C:\Users\st986cn\Florida Department of Transportation\Structures Research Center Engineers - General\Facilities\Truck