



**AGENDA  
TECHNICAL REVIEW COMMITTEE  
REGULAR MEETING  
OCTOBER 23, 2025  
10:00 AM  
CITY HALL COMMISSION CHAMBERS  
204 ASH STREET  
FERNANDINA BEACH, FL 32034**

- 1. CALL TO ORDER**
- 2. ROLL CALL**
- 3. PLEDGE OF ALLEGIANCE**
- 4. APPROVAL OF MINUTES**
  - 4.1 Approval of Minutes from the Regular Meeting of October 9, 2025.
- 5. FIRST STEP REVIEW (PRE-APPLICATION ITEMS)**
  - 5.1 **WD PARTNERS, 1126 S. 14TH STREET SUITE 18- New Medical Office Clinic**  
Seth Dorman  
Site Plan Review for new tenancy, demolition, new construction, and signage. (C-2)
  - 5.2 **RELAY TERMINALS, 315 N. 2ND STREET**  
Patrick Marler  
Relocation of fabric warehouses at the Marine Terminal. (IW)
- 6. OLD BUSINESS**
- 7. NEW BUSINESS**
- 8. SIGN OFF**
  - 8.1 **2025-0007\_SHAYCORE LLC, AGENT FOR OCEAN COAST FERNANDINA, LLC, 2707 SADLER ROAD**
- 9. DEVELOPMENT INQUIRIES FROM APPLICANTS NOT ON THE AGENDA - DISCUSSION ONLY, NO ACTION TO BE TAKEN.**
- 10. COMMITTEE BUSINESS**
- 11. ADJOURNMENT**

**NEXT REGULAR TRC MEETING IS SCHEDULED FOR NOVEMBER 13, 2025.**

Persons with disabilities requiring accommodations in order to participate in this program or activity should contact 310-3115, TTY 711, or through the Florida Relay Services at 1-800-955-8771 (TTY number for all City offices) at least 24 hours in advance to request such accommodations.





**MINUTES  
TECHNICAL REVIEW COMMITTEE  
REGULAR MEETING  
OCTOBER 9, 2025  
10:00 AM  
CITY HALL COMMISSION CHAMBERS  
204 ASH STREET  
FERNANDINA BEACH, FL 32034**

**1. CALL TO ORDER 10:00 AM**

**ROLL CALL**

**MEMBERS PRESENT:**

Jacob Platt, Project Coordinator  
Michelle Forstrom, Code Enforcement  
David Neville, Arborist  
Mia Sadler, Planning

Jimmy Parr, Building  
Jason Higginbotham, Fire  
Victoria Guadagnino, Stormwater/Utilities/Street  
Cathy Sabatini, Stormwater/Utilities/Street

**OTHERS PRESENT:**

Sylvie McCann, Recording Secretary

**2. PLEDGE OF ALLEGIANCE**

**3. APPROVAL OF MINUTES**

**3.1 Approval of the Minutes for the Regular Meeting of September 25, 2025.**

**ACTION TAKEN:** A motion was made by Member Forstrom, seconded by Member Guadagnino, to approve the Minutes for the Regular Meeting of September 25, 2025, as presented.

**Vote upon passage of the motion was taken by voice vote, and being all ayes, carried.**

**4. FIRST STEP REVIEW (PRE-APPLICATION ITEMS)**

**4.1 MCDILL DESIGN & DEVELOPMENT, 2423 SADLER ROAD**  
Site Review Request for Sadler Gym (C-1)

John McDill, agent for the owner, spoke of the project and welcomed comments from the Committee and asked for direction mainly about stormwater and confirmation for use. He noted that this project is for the building of a 45,000 sqft gym.

Member Neville asked Mr. McDill if those plans were dated from 2003. Mr. McDill confirmed in the affirmative. He also noted that there would be a requirement of 18 shade trees to show on the landscaping plan. He added that the parking lot would need to be landscape according to LDC 4.05.07, the construction of a landscaping island break, a buffer C planting requirement along Sadler Road and that the trees or any retrained trees could count for the shade tree requirement.

Member Sadler confirmed that a gym is a permissible use for this Zoning District, that the maximum impervious surface ratio is 60%, the maximum height is 45 feet, no front setback, a 10-foot setback to the rear and 10-foot corner setback.

She added that they did a parking calculation and that the existing parking is satisfactory.

Member Guadagnino, asked the applicant to still provide existing retention system information. She asked if there would be a separate water meter. The applicant noted that they would pull off from Amelia Trace. Member Guadagnino offered to send the applicant utility maps to show where the connection could be made. She addressed capacity fees for gym and asked that the applicant fill out a water and sewer connection application. She suggested that roll off dumpsters to be screened.

Member Forstrom noted to clarify where the roll off would be located and to check with Planning for signage.

Member Sabatini suggested that the best location for a roll-off is in the rear.

Member Parr had no comments.

Paul Nolan, 4167 S. Fletcher Avenue, spoke of concerns about the entrance where electric poles are located. Member Guadagnino noted that Sadler Road is a county ROW and that issues with the pole is the responsibility of FPU.

Member Forstrom addressed the issuance of the LBTRs and the potential need for a 2<sup>nd</sup> LBTR for another business for a golf cart company. Member Platt clarified that you cannot use require parking for other businesses. Mr. Nolan as brought up the need for additional electric car charging stations on the island.

Member Platt summarizes by stating to return and proceed with a full site plan review.

#### **4.2 TARA GRIMALDI, ACR - S. 8TH STREET PROJECT**

Change of Use Review for a Confidential Retail Project located on 8th Street (MU-8)

Applicant will update at the meeting.

Tara Thousand, agent for the owner, 302 S. 8<sup>th</sup> Street, and Kim Kiser, business owner, 302 S. 8th Street, spoke of a project to purchase this property to establish a second location of the franchise Watanut which is currently located at 118 Centre Street. The building currently holds Atlantic Hair Studio. This project would provide retail in the front and a small bakery in the rear, and a small office. There would be no hood system, a number of electrical convention ovens only and would hold a total of 3 to 5 employees. She added that they would like to add a walk-in cooler and possibly drying storage in the rear. She also mentioned acquiring the rear adjacent lot for additional parking and the location of the dumpster. She confirmed that the footprint would not change, and the rear parcel would remain for 3-5 parking spaces.

Member Neville said he would verify if additional landscaping would be required for the rear parcel.

Member Higginbotham asked that requirements for venting equipment be met.

Member Parr said they would address electrical element at permitting.

Ms Thousand confirmed that the current tenant to the adjacent business would remain.

Member Sadler clarified that front setbacks cannot be changed, that all mechanical equipment need to be located in the rear and screened, especially off of the 9th Street view.

Member Platt mentioned that the driveway off of the S. 9th Street parcel should be improved.

Member Guadagnino noted that capacity fees may be increased. She also spoke about a grease trap that would need to be installed under the sink and that they would need to start recording info. She noted that she would send information about yearly reporting. Finally, she commented that if the new storage area is less than 625 sqft, it would not require stormwater review.

Member Forstrom suggested contacting Waste Management for the dumpster to be enclosed, and to contact Planning for signage.

Member Sabatini, said she will investigate why milling was installed on the rear parcel and noted that it should be changed.

Member Platt summarized and to proceed to permitting.

**4.3 MARCHE COTIER LLC, 5 S. 2ND STREET**

Change of Use for new business - Gourmet and Cafe with 12 seats (C-3)

Mr. Greg Devaney, business owner, 5 S. 2<sup>nd</sup> Street, explained that his legal team looked into the requirements from the State and the County but never consulted with the City, and is not present to verify all requirements.

Member Sadler covered requirements for signage for the canvas awning and spoke of the required material for signage within the Historic District.

Member Guadagnino commented on possible increase in capacity fees. Mr. Devaney mentioned that his business will be mostly retail and that there are currently 12 seats. Member Guadagnino stated that there will be a need for a grease trap under the sink and explained that it needs to be cleaned once a week and that reports need to be submitted annually.

Member Forstrom confirmed that best location for a roll-off would be next to the hotel parking area at the north driveway entrance.

Member Guadagnino will confirm if a 2nd sink would also require a grease trap.

Member Sadler confirmed that a Next Step summary will be sent to the applicant.

**5. OLD BUSINESS**

**6. NEW BUSINESS**

**7. DEVELOPMENT INQUIRIES FROM APPLICANTS NOT ON THE AGENDA - DISCUSSION ONLY, NO ACTION TO BE TAKEN.**

There were speakers present for things not on the agenda.

ASA Gillette, Gillette & Associates, spoke of a potential project to expand on an existing airport hangar for commercial space on two sides. This space would be used for emergency helicopter personnel sleeping areas within the same footprint of the current slab. This would be attached to the existing building.

Member Higginbotham said any new building housing emergency services personnel must have sprinkler system.

Member Guadagnino spoke of engineering flow count and noted that verification of an existing sewer system should be done. She also asked to verify if a grease trap is needed.

Member Sadler noted to make sure to amend any lease agreement for that improvement.

Member Forstrom asked about any waste disposal, existing or new.

Member Platt summarized that this can move to permitting directly.

Paul Nolan and Julia Turner, Executives for Enjoy Amelia and Concierge Amelia, explained that their LBTR application was presented specifically for rental of golf cart and minivans. They clarified that reservations would be made online, and that vehicles would be moved from their main storage location to the reserved parking area at Salt Life.

**DRAFT**

Member Sadler spoke of an existing variance granted to Salt Life to share part of the parking (25%) with the City park. Member Platt clarified that the parking area granted by this variance to Salt Life is restricted to Salt Life.

Member Platt will verify with the City Attorney to see what would be allowed. Mr. Nolan clarified that they have a separate meter and that they are paying 1/12 (one-twelfth) of the utility bill with Salt Life.

Member Sadler proposed a meeting with the Planning Staff to discuss this project further.

Peter Reagan, 1326 Atlantic Avenue, converted a rear building into a one-bedroom studio apartment to be used for Bed and Breakfast. He noted that there would be a mini lift station installed.

Member Guadagnino said there will be a need for a backflow preventor, to consult with a plumber, and that there would be additional capacity fees. She directed the owner to fill out a Utility Connection application.

Member Sabatini confirmed that there will be no need for additional waste removal container.

Member Forstrom asked if there will be breakfast. Mr Reagan said food will be ordered in advance by guests, that there will be no cooktop, only a microwave and refrigerator.

Member Guadagnino will be contacting them directly and providing needed utility information.

Member Forstrom confirmed with Mr. Reagan that his neighbors were informed of his project.

**8. COMMITTEE BUSINESS**

**9. ADJOURNMENT 11:25 AM**

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Sylvie McCann, Recording Secretary

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Jacob Platt, Chair

**From:** [noreply@civicplus.com](mailto:noreply@civicplus.com)  
**To:** [TRC Info](#)  
**Subject:** Online Form Submittal: Technical Review Committee (TRC): First Step Review Request  
**Date:** Wednesday, October 1, 2025 5:30:56 PM

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## Technical Review Committee (TRC): First Step Review Request

Technical Review Committee (TRC) First Step Review  
USE THIS FORM TO Submit a project for input and guidance from the Technical Review Committee, the City group responsible for reviewing site plans and commercial projects. First Step reviews are a free service provided by the City of Fernandina Beach to help guide a project through the development review and permitting process. The First Step review is a meeting between an applicant and representatives of City departments responsible for reviewing applications for the purpose of exchanging information on the potential development of a site. This may include providing information on permissible uses of the site; required improvements; infrastructure requirements; any applicable design standards; any potential regional, state or federal standards; requirements for supporting plans, documents and studies; and any applicable design standards.

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Fees  
*None*

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### IMPORTANT NOTES

A change of use occurs when an existing use is replaced by a different use, as listed in table 2.03.02. A proposed change of use will require a First Step Review as set forth in 11.01.02. A change of use shall not require a local development order when all the conditions of 11.00.05 are met. The determination that a proposed use or development constitutes a change of use is an administrative decision subject to appeal. When a local development order is required due to a proposed change of use, all standards and procedures of the Comprehensive Plan and LDC shall apply to the proposed new use.

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**\*\*Please note that effective immediately, agendas will include First Step items to be reviewed as Discussion Items at the beginning of each TRC**

**meeting followed by Formal Review items.\*\***

|                                                                      |                                                                                                                     |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Please see the Land Development Code (LDC) for detailed information: | Pre-Application Conference – see LDC section 11.01.02                                                               |
| The LDC is available for review at                                   | <a href="http://www.fbfl.us/LDC">www.fbfl.us/LDC</a>                                                                |
| Application Requirements                                             | A complete application., Site plans or scaled drawings; , Any other files that illustrate the proposed project; and |
| PROPERTY INFORMATION                                                 | <a href="#">Property information can be found at the Nassau County Property Appraiser's Website → Map Search</a>    |
| Site Address                                                         | 1126 S. 14th Street, Suite #18                                                                                      |
| City                                                                 | Fernandina Beach                                                                                                    |
| State                                                                | FL                                                                                                                  |
| Zip                                                                  | 32034                                                                                                               |
| Parcel ID #(s)                                                       | 00-00-31-1800-0265-0011                                                                                             |
| Lot                                                                  | <i>Field not completed.</i>                                                                                         |
| Block                                                                | <i>Field not completed.</i>                                                                                         |
| Subdivision                                                          | <i>Field not completed.</i>                                                                                         |
| Zoning District                                                      | C-2                                                                                                                 |
| Future Land Use Designation                                          | General Commercial                                                                                                  |
| Overlay District                                                     | <i>Field not completed.</i>                                                                                         |
| Size of Property (acres)                                             | 8.61                                                                                                                |
| Present Property Use                                                 | Shopping Center                                                                                                     |
| Wetlands                                                             | No                                                                                                                  |
| Flood Zone                                                           | X, area of minimal flood hazard                                                                                     |
| Coastal Construction                                                 | No                                                                                                                  |

## Control Line (CCCL)

### CONTACT INFORMATION

*Applicant or interested party who will be present at the meeting.*

|                         |                                            |
|-------------------------|--------------------------------------------|
| First Name              | Seth                                       |
| Last Name               | Dorman                                     |
| Company (if applicable) | WD Partners (Project Architect & Engineer) |
| Telephone Number        | (380) 240-1150                             |
| E-mail Address          | seth.dorman@wdpartners.com                 |

### PROJECT INFORMATION

|                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Name                                                             | Millenium Physician Group - Medical Office Clinic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Project Type                                                             | Commercial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Please choose your preferred method of conducting your First Step Review | Zoom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Project Description                                                      | <p>Proposed is a new medical office clinic to be located next to the existing Millennium Physician Group (MPG) tenant space at the Amelia Island 8 Flags Shopping Center at the northeast corner of S. 14th Street and Lime Street.</p> <p>The scope of work is all interior to the tenant space and includes (1) Selective demolition and removal of existing materials as required for the installation of new construction, services, and finishes; (2) Construction of new interior layout, flooring, ceilings, and related finishes, updated mechanical, plumbing, and electrical work as required for new construction and new fixtures; (3) Removal of existing and installation of new; Electrical, HVAC and Plumbing services and equipment to complete the tenant space alterations; (4) Construction as required at existing entry/exit to provide barrier free access to tenant space; (5) There will be no exterior site (Civil) work as part of this tenant improvement project; and (6) There are no Exterior identification signs proposed in this scope of work.</p> |
| Proposed Access Road                                                     | No Change to Existing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Rd Maintenance Jurisdiction                                              | City Maintained                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

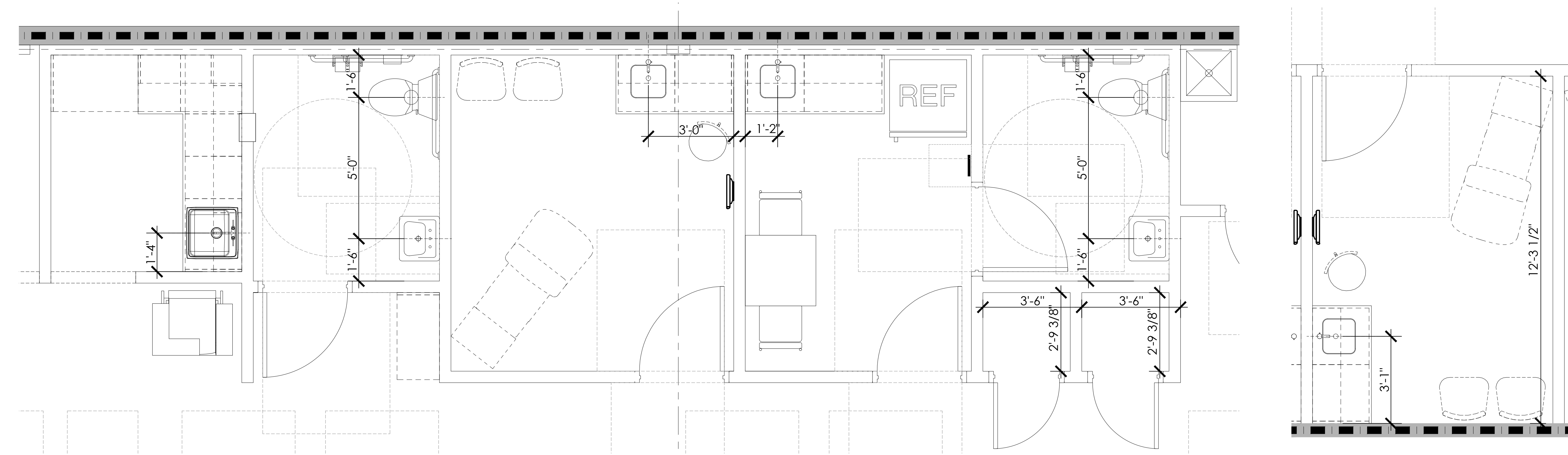
|                                                                                                                                                                              |                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Certification                                                                                                                                                                | By signing below, I certify that the information contained in this application is true and correct to the best of my knowledge at the time of the application. |
| Applicant First Name                                                                                                                                                         | Seth                                                                                                                                                           |
| Applicant Last Name                                                                                                                                                          | Dorman                                                                                                                                                         |
| Today's Date                                                                                                                                                                 | 10/1/2025                                                                                                                                                      |
| Upload Supporting Documentation                                                                                                                                              | <a href="#">A1.1 DIMENSION FLOOR PLAN.pdf</a>                                                                                                                  |
| Upload 2                                                                                                                                                                     | <a href="#">A1.4 FIXTURE FLOOR PLAN.pdf</a>                                                                                                                    |
| Upload 3                                                                                                                                                                     | <a href="#">8 Flags SC Parking Analysis for Millennium Physicians Group_2025-09-17.pdf</a>                                                                     |
| Upload 4                                                                                                                                                                     | <a href="#">Lease plan for 8 Flags with Potential Large Anchor 6.12.2025.pdf</a>                                                                               |
| Upload 5                                                                                                                                                                     | <a href="#">Aerial View of 8 Flags Shopping Center.pdf</a>                                                                                                     |
| DEPARTMENT OF PLANNING & CONSERVATION<br>204 Ash Street   Fernandina Beach, Florida 32034   904 310-3480  <br><a href="http://www.fbfl.us/planning">www.fbfl.us/planning</a> |                                                                                                                                                                |

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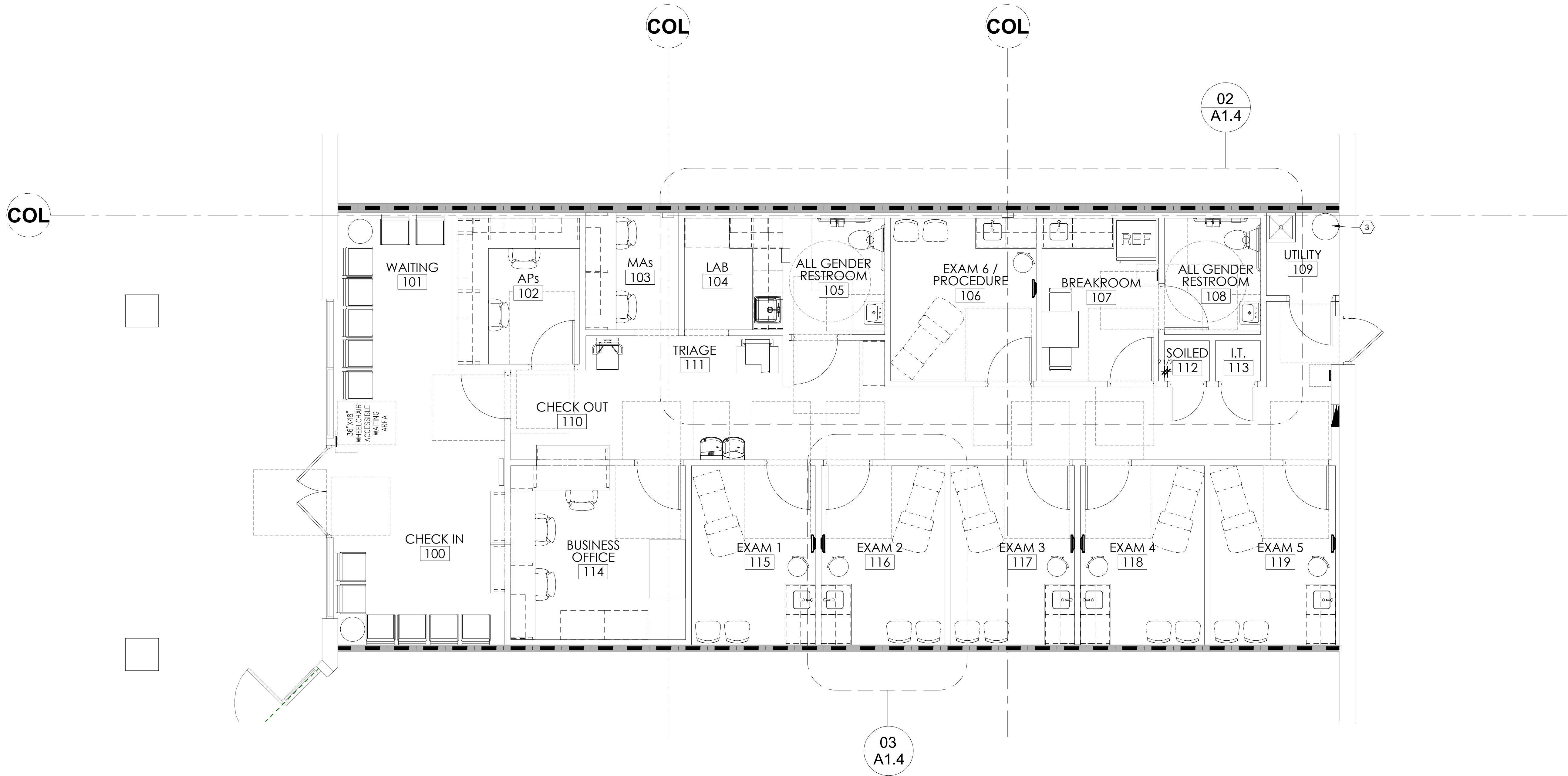






02 Enlarged floor plan

03 Typical exam Room



01 Fixture floor plan

## general notes

- REFER TO ELECTRICAL DRAWINGS FOR ALL REQUIRED POWER AND DATA REQUIREMENTS. REFER TO ELECTRICAL DRAWINGS FOR ALL ELECTRICAL MOUNTING HEIGHTS. SUPPLY AND INSTALL WHITE DEVICE COVERS.
- VERIFY ALL EQUIPMENT ELECTRICAL REQUIREMENTS WITH OWNER.
- G.C. TO PROVIDE AND INSTALL EMERGENCY/ EXIT LIGHTING AS REQUIRED
- TELEPHONE AND COMPUTER SYSTEMS ARE BY OWNER. COORDINATE ROUGH IN REQUIREMENTS WITH OWNER.
- OFFICE AND WAITING AREA CHAIRS TO BE PROVIDED BY OWNER AND ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY UNLESS OTHERWISE NOTED.
- REFER TO INTERIOR ELEVATIONS FOR ADDITIONAL EQUIPMENT INFORMATION.
- GENERAL CONTRACTOR TO VERIFY THE EXTENT OF INTERIOR FIXTURE, FURNITURE AND MILLWORK PROVIDED BY THE OWNER UNDER SEPARATE CONTRACT.
- GENERAL CONTRACTOR SHALL RECEIVE, UNPACK AND INSTALL ALL ITEMS AS REQUIRED. INSTALLATION TO INCLUDE ALL REQUIRED MECHANICAL, PLUMBING, AND ELECTRICAL SERVICE AND FINAL CONNECTIONS TO COMPLETE INSTALLATION.
- COORDINATE EXTENT OF PACKAGE MATERIALS WITH THE OWNER CONSTRUCTION REP DURING THE BID PROCESS.

## floor plan legend

|  |                                                                                                            |
|--|------------------------------------------------------------------------------------------------------------|
|  | NEW DOOR (SHOWN OPEN 90°), DOOR HARDWARE REFER TO DOOR SCHEDULE                                            |
|  | EXISTING DOOR (SHOWN OPEN 45°), (E) HARDWARE TO REMAIN. REFER TO DOOR SCHEDULE FOR ADDITIONAL INFORMATION. |
|  | DOUBLE ACTING DOOR, DOOR HARDWARE REFER TO DOOR SCHEDULE                                                   |
|  | EXISTING DOOR TO REMAIN INACCESSIBLE.                                                                      |

## key notes:

- GC TO ENSURE FURRING FULLY ENCAPSULATES THE PIPING
- GC TO VERIFY IN FIELD
- INSTALL NEW WATER HEATER. RE: PLUMBING AND 10/A3.0

architect + engineer



7007 DISCOVERY BLVD  
DUBLIN, OH 43017  
614.634.7000 T

WDPARTNERS.COM

project no. | MPGCD0002

owner



## project info

1126 S 14TH ST.  
FERNANDINA BEACH, FL 32034

## issue dates

submission: date  
PERMIT 07/16/2025  
BID  
CONSTRUCTION  
revisions: description date

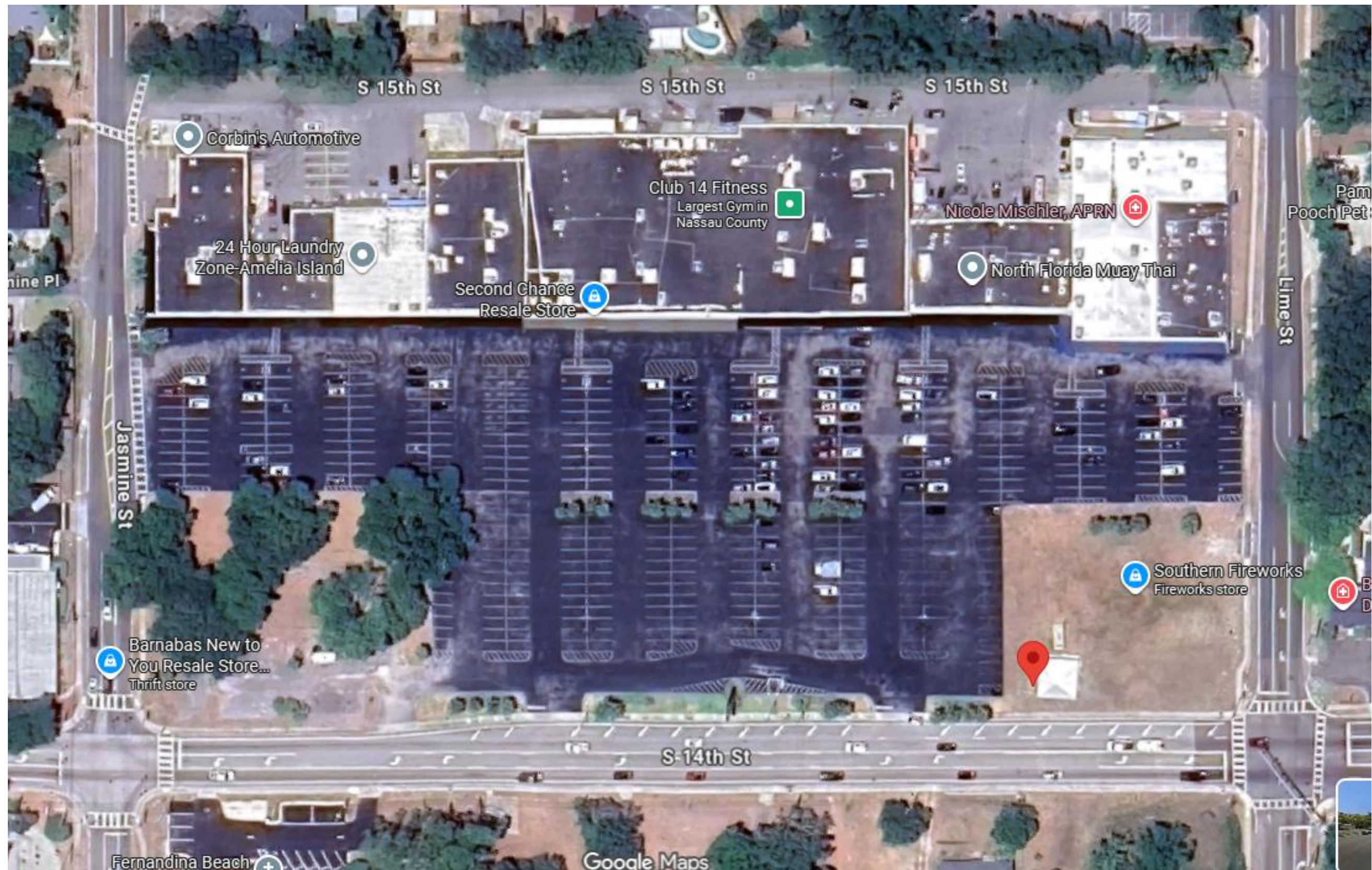
designed by: KS  
checked by: JR



## sheet info

A



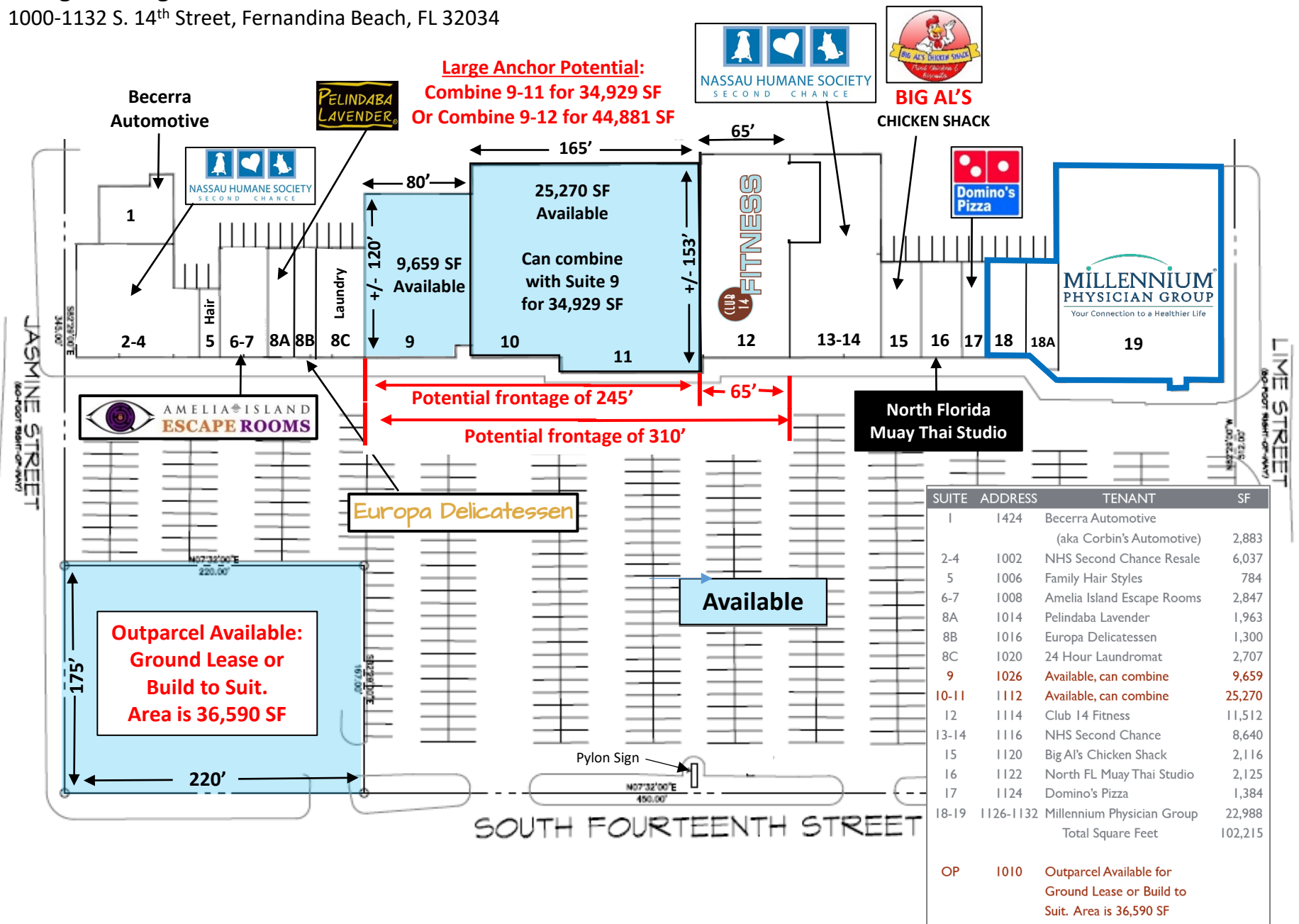


Aerial View (from Google Maps) of the Amelia Island 8 Flags Shopping Center



# 8 Flags Leasing Plan

1000-1132 S. 14<sup>th</sup> Street, Fernandina Beach, FL 32034



**8 FLAGS SHOPPING CENTER**

Fernandina Beach, Florida

**Parking Analysis**

| Unit No. | Unit Description / User             | Unit Use             | Unit Area (SF) | Parking Requirement | Total Parking | Notes                                        |
|----------|-------------------------------------|----------------------|----------------|---------------------|---------------|----------------------------------------------|
| 1        | Corbin Automotive                   | auto service station | 2,301          | 1 per 350 s.f.      | 7             | parking for Corbin is self contained at area |
| 1        | Corbin Automotive                   | (4 service bays)     | -              | 3 per bay           | 12            | parking for Corbin is self contained at area |
| 2        | Nassau Humane Society               | retail               | 2,646          | 1 per 300 s.f.      | 9             |                                              |
| 3        | Nassau Humane Society               | retail               | 3,093          | 1 per 300 s.f.      | 10            |                                              |
| 4        | Nassau Humane Society               | retail               | 985            | 1 per 300 s.f.      | 3             |                                              |
| 5        | Family Hair (barber shop)           | business             | 791            | 1 per 300 s.f.      | 3             |                                              |
| 6        | A.I. Escape Room                    | business             | 1,441          | 1 per 300 s.f.      | 5             |                                              |
| 7        | A.I. Escape Room                    | business             | 1,406          | 1 per 300 s.f.      | 5             |                                              |
| 8A       | Pelindaba Lavender                  | business             | 1,927          | 1 per 300 s.f.      | 6             |                                              |
| 8B       | Europa Delicatessen (take out only) | restaurant           | 1,290          | 1 per 250 s.f.      | 5             |                                              |
| 8C       | Laundry Facility                    | business             | 2,688          | 1 per 300 s.f.      | 9             |                                              |
| 9        | Vacant                              | retail               | 2,637          | 1 per 300 s.f.      | 9             | assume retail for now.                       |
| 10       | Vacant                              | retail               | 6,720          | 1 per 300 s.f.      | 22            | assume retail for now.                       |
| 11       | Vacant                              | retail               | 19,275         | 1 per 300 s.f.      | 64            | assume retail for now.                       |
| 12       | Health/Fitness Club                 | business             | 15,691         | 1 per 300 s.f.      | 52            |                                              |
| 13       | Nassau Humane Society               | retail               | 8,248          | 1 per 300 s.f.      | 27            |                                              |
| 14       | Nassau Humane Society               | retail               | 1,559          | 1 per 300 s.f.      | 5             |                                              |
| 15       | Big Al's Chicken Shack              | restaurant           | 2,116          | 1 per 250 s.f.      | -             | 8 calculated for total area (don't use)      |
| 15       | Big Al's Chicken Shack              | restaurant           | 850            | 1 per 50 s.f.       | 17            | customer service area (assumed; use this)    |
| 16       | Muay Thai Studio                    | business             | 2,125          | 1 per 300 s.f.      | 7             |                                              |
| 17       | Domino's Pizza (take out only)      | restaurant           | 1,384          | 1 per 300 s.f.      | 5             |                                              |
| 18A      | Millennium Physician Group          | medical office       | 3,642          | 1 per 200 s.f.      | 18            |                                              |
| 18B      | Millennium Physician Group          | medical office       | -              |                     | -             |                                              |
| 19       | Millennium Physician Group          | medical office       | 19,310         | 1 per 200 s.f.      | 97            |                                              |

**Subtotals: 102,125 397**

spaces not part of main parking lot: 19 Corbin Automotive

**Parking Spaces Required for Main Parking Lot: 378**

**Parking Spaces Available for Main Parking Lot: 457**

*Current parking lot contains more than enough parking to satisfy requirements under the City's L.D.C.*

## Print

# Technical Review Committee (TRC): First Step Review Request - Submission #17291

Date Submitted: 10/9/2025

## Technical Review Committee (TRC) First Step Review

USE THIS FORM TO Submit a project for input and guidance from the Technical Review Committee, the City group responsible for reviewing site plans and commercial projects. First Step reviews are a free service provided by the City of Fernandina Beach to help guide a project through the development review and permitting process. The First Step review is a meeting between an applicant and representatives of City departments responsible for reviewing applications for the purpose of exchanging information on the potential development of a site. This may include providing information on permissible uses of the site; required improvements; infrastructure requirements; any applicable design standards; any potential regional, state or federal standards; requirements for supporting plans, documents and studies; and any applicable design standards.

### Fees

None

### IMPORTANT NOTES

A change of use occurs when an existing use is replaced by a different use, as listed in table 2.03.02. A proposed change of use will require a First Step Review as set forth in 11.01.02. A change of use shall not require a local development order when all the conditions of 11.00.05 are met. The determination that a proposed use or development constitutes a change of use is an administrative decision subject to appeal. When a local development order is required due to a proposed change of use, all standards and procedures of the Comprehensive Plan and LDC shall apply to the proposed new use.

### 2025 TRC MEETINGS + DEADLINES

 New Schedule 2025-04-29

**\*\*Please note that effective immediately, agendas will include First Step items to be reviewed as Discussion Items at the beginning of each TRC meeting followed by Formal Review items.\*\***

**Please see the Land Development Code (LDC) for detailed information:**



Local Development Orders for a Change of Use – see LDC Section 11.00.05



Pre-Application Conference – see LDC section 11.01.02

**The LDC is available for review at**

[www.fbf1.us/LDC](http://www.fbf1.us/LDC)

### **Application Requirements**

The First Step application and all required documents must be submitted no later than seven (7) days before the scheduled meeting. All required documents are as follow:



A complete application.



Site plans or scaled drawings;



Any other files that illustrate the proposed project; and



A signed and notarized Agent Authorization form (if applicable).

### **PROPERTY INFORMATION**

[Property information can be found at the Nassau County Property Appraiser's Website → Map Search](#)

**Site Address\***

315 N 2nd St

**City\***

Fernandina Beach

**State\***

Florida

**Zip\***

32034

**Parcel ID #(s)\***

00-00-31-1800-0005-0010

**Lot**

**Block**

**Subdivision**

**Zoning District\***

MU-1

**Future Land Use Designation\***

Industrial Waterfront

**Overlay District**

-- Select One --

**Size of Property (acres)\***

12.4

**Present Property Use\***

Marine Terminal

**Wetlands\***

No

**Flood Zone\***

X, 0.2 % chance flor

**Coastal Construction Control Line (CCCL)\***

No

**CONTACT INFORMATION**



Applicant or interested party who will be present at the meeting.

**First Name\***

Patrick

**Last Name\***

Marler

**Company (if applicable)**

Relay Terminals

**Telephone Number\***

8326968528

**E-mail Address\***

patrickmarler@savageco.com

## PROJECT INFORMATION

**Project Name**

Fabric Warehouse Relocation

**Project Type\***

Commercial ▼

**Please choose your preferred method of conducting your First Step Review\***

Zoom ▼

**Project Description\***

Tear down fabric warehouse that is impeding into the protected zone and relocate it beside our other fabric warehouse. This will allow both fabric warehouses to be located centrally on the property and outside of any protected zones.

Describe your project in detail

Describe your project in detail

**Proposed Access Road\***

Not Applicable

**Rd Maintenance Jurisdiction \***

County Maintained ▼

**Certification\***



By signing below, I certify that the information contained in this application is true and correct to the best of my knowledge at the time of the application.



I acknowledge that I understand and have complied with all of the submittal requirements and procedures.

**Applicant First Name\***

Patrick

**Applicant Last Name\***

Marler

**Today's Date\***

10/9/2025

**Upload Supporting Documentation\***

NMT Fabric Bld Layout.pdf

**Upload 2**

70x220x35 NMT  
Fabric Bld.pdf

**Upload 3**

1100x250x35 NMT  
Fabric Bld.pdf

**Upload 4**

NMT Overview.png

**Upload 5**

No...en

# DEPARTMENT OF PLANNING & CONSERVATION

204 Ash Street | Fernandina Beach, Florida 32034 | 904 310-3480 |  
[www.fbfl.us/planning](http://www.fbfl.us/planning)









PSE Consulting Engineers Inc.

---

# STRUCTURAL ENGINEERING CALCULATIONS

PROJECT: 70 x 220 x 35 World Wide Terminals

PROJECT LOCATION: 315 North 2<sup>nd</sup> St,  
Fernandina Beach, FL 32034

PSE PROJECT NUMBER: Big Top 220-91

DATE: 07/01/2020

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.

#### B. CODE AND LOADS:

1. All material and construction work for this project shall conform to 2017 Florida Building Code (6th ed.) based on 2015 International Building Code.
2. The International Building Code Parameters:
  - a. Roof Dead Load = 1 PSF,
  - b. Ground Snow Load = 0 PSF
  - c. Roof Snow Load = 0 PSF
  - d. Roof Live Load = 5 PSF (Governs)
  - e. Seismic Occupancy Category = II
  - f. R, response modification coefficient = 3.0
  - g. Designed wind speed, V3g = 110 mph, Exposure = C, Category II

#### C. HOT-ROLLED STEEL:

1. Tube Frames shall be manufactured from steel with the following properties:
  - a. Yield strength: 55,000 psi
  - b. Tensile Strength: 60,000 psi

#### D. FOUNDATION DESIGN:

1. Foundation design/check to support the new truss reactions/loads was not included in the scope of service by Precision Structural Engineering.
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.

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:<br>World Wide Terminals |                          |
| SIZE<br>70 x 220 x 35             |                          |
| LOCATION<br>Fernandina Beach, FL  |                          |
| CUSTOMER CONTACT:<br>N/A          | SALES:<br>Jay C.         |
| DRAWN BY:<br>Luke S.              | DATE DRAWN:<br>6/30/2020 |
| APPROVED BY:                      |                          |

#### NOTES:

|                                                      |
|------------------------------------------------------|
| FOUNDATION TYPE:                                     |
| SHELTER BASE HEIGHT ABOVE GROUND:<br>At Ground Level |
| TITLE                                                |
| TITLE                                                |
| TITLE                                                |
| TITLE                                                |
| TITLE                                                |



|                                                                             |
|-----------------------------------------------------------------------------|
| DRAWING TYPE:<br><b>ENGINEERING</b>                                         |
| PAGE:<br><b>S-0</b>                                                         |
| *ALL INFORMATION IS<br>PROPERTY OF<br><b>BIG TOP<br/>MANUFACTURING INC.</b> |

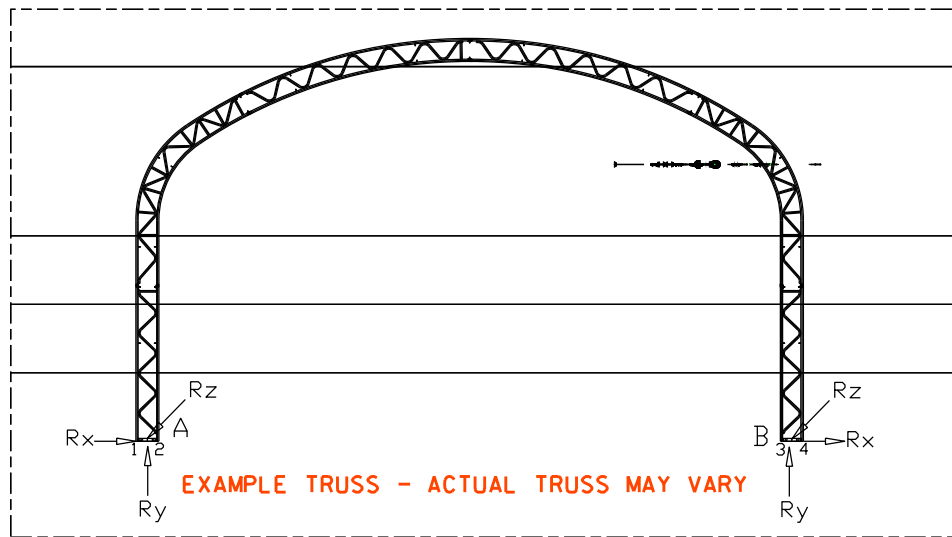
## D. FOUNDATION DESIGN CONTINUED:

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

| *See notes below                    |           | UNFACTORED BASE REACTIONS<br>TO CONSIDER AT TYPICAL BASES |          |          |                                            |          |          |                                            |          |          |                                            |          |          |
|-------------------------------------|-----------|-----------------------------------------------------------|----------|----------|--------------------------------------------|----------|----------|--------------------------------------------|----------|----------|--------------------------------------------|----------|----------|
|                                     |           | Side A, Joint 1 (Nxx as per<br>RISA Model)                |          |          | Side A, Joint 2 (Nxx as per<br>RISA Model) |          |          | Side B, Joint 1 (Nxx as<br>per RISA Model) |          |          | Side B, Joint 2 (Nxx as<br>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        | -0.18                                                     | 1.00     | 0        | -0.18                                      | 0.73     | 0        | 0.18                                       | 0.73     | 0        | 0.18                                       | 1.00     | 0        |
| Roof Snow/ Live Load                | SL/RLL    | -0.31                                                     | 1.20     | 0        | -0.32                                      | 0.76     | 0        | 0.32                                       | 0.76     | 0        | 0.31                                       | 1.20     | 0        |
| Wind load, Normal to Ridge, Case A  | WLX(+GCp) | 1.89                                                      | -5.43    | 0        | 1.91                                       | -3.01    | 0        | -0.13                                      | -3.49    | 0        | -0.12                                      | -3.92    | 0        |
| Wind load, Normal to Ridge, Case B  | WLX(-GCp) | 2.02                                                      | -3.72    | 0        | 2.04                                       | -1.53    | 0        | -0.25                                      | -2.04    | 0        | -0.25                                      | -2.16    | 0        |
| *Wind load, Along the Ridge, Case A | WLZ(+GCp) |                                                           |          |          |                                            |          |          |                                            |          |          |                                            |          |          |
| *Wind load, Along the Ridge, Case B | WLZ(-GCp) |                                                           |          |          |                                            |          |          |                                            |          |          |                                            |          |          |

TYPICAL REACTION AT BASE  
FOR INTERMEDIATE FRAME

① Scale: N.T.S.



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3255 NORTH US 19  
PERRY, FL 32347  
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CUSTOMER:  
World Wide Terminals  
SIZE  
70 x 220 x 35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
Jay C.  
DRAWN BY:  
Luke S.  
DATE DRAWN:  
6/30/2020  
APPROVED BY:

### NOTES:

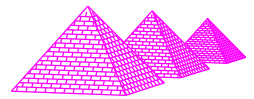
FOUNDATION TYPE:  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE



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:  
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PAGE:  
S-0B  
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EXPIRES: 2/28/21



PSE  
Consulting  
Engineers,  
Inc.

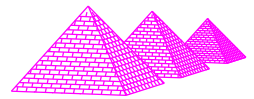
www.structure1.com  
Klamath Falls Office  
250 Main  
Klamath Falls, Oregon  
97603  
Phone: (541) 850-6300  
Fax: (541) 850-6233  
info@structure1.com  
Big Top 220-91



#### D. FOUNDATION DESIGN CONTINUED:

6. See below table for endwall reactions.

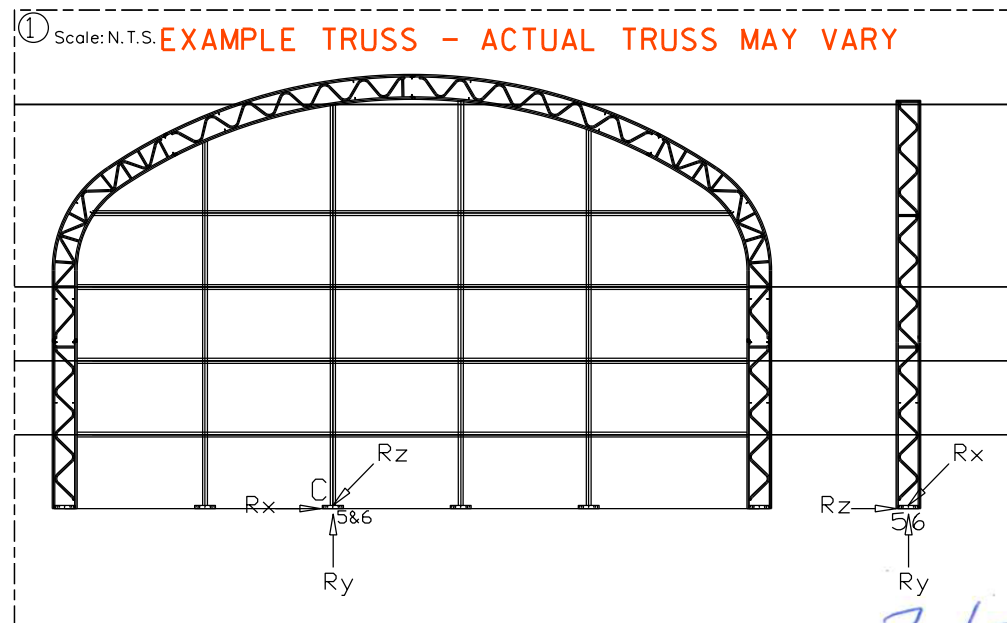
| *See notes below                   |           | UNFACTORED BASE REACTIONS<br>TO CONSIDER AT TYPICAL BASES |          |          |                               |          |          |
|------------------------------------|-----------|-----------------------------------------------------------|----------|----------|-------------------------------|----------|----------|
| Load Case                          |           | Joint 5 (5 as per RISA Model)                             |          |          | Joint 5 (5 as per RISA Model) |          |          |
|                                    |           | Rx (kip)                                                  | Ry (kip) | Rz (kip) | Rx (kip)                      | Ry (kip) | Rz (kip) |
| Wind load, Along the Ridge, Case A | WLZ(+GCp) | 0                                                         | 0.47     | 1.83     | 0                             | -0.47    | 1.80     |
| Wind load, Along the Ridge, Case B | WLZ(-GCp) | 0                                                         | -0.54    | -2.10    | 0                             | 0.54     | -2.07    |



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Fax: (541) 850-6233  
info@structure1.com  
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TYPICAL REACTION AT BASE FOR END PANEL TRUSS



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3255 NORTH US 19  
PERRY, FL 32347  
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CUSTOMER:  
World Wide Terminals  
SIZE  
70 x 220 x 35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
Jay C.  
DATE DRAWN:  
6/30/2020  
APPROVED BY:  
Luke S.

#### NOTES:

FOUNDATION TYPE:  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE



|                                                                     |             |
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| DRAWING TYPE:                                                       | ENGINEERING |
| PAGE:                                                               | S-0C        |
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EXPIRES: 2/28/21

E. WIND LOAD SAFETY RESTRICTIONS:

1.

The Fabric cover for this structure must conform to the following 2017 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.

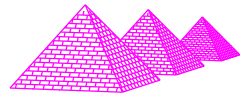
2.) Exposure category B, C, or D as defined in Ch 16.

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.



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|                                   |                          |
|-----------------------------------|--------------------------|
| CUSTOMER:<br>World Wide Terminals |                          |
| SIZE<br>70 x 220 x 35             |                          |
| LOCATION<br>Fernandina Beach, FL  |                          |
| CUSTOMER CONTACT:<br>N/A          | SALES:<br>Jay C.         |
| DRAWN BY:<br>Luke S.              | DATE DRAWN:<br>6/30/2020 |
| APPROVED BY:                      |                          |

**NOTES:**

|                                                      |
|------------------------------------------------------|
| FOUNDATION TYPE:                                     |
| SHELTER BASE HEIGHT ABOVE GROUND:<br>At Ground Level |
| TITLE                                                |
| TITLE                                                |
| TITLE                                                |
| TITLE                                                |
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| TITLE                                                |



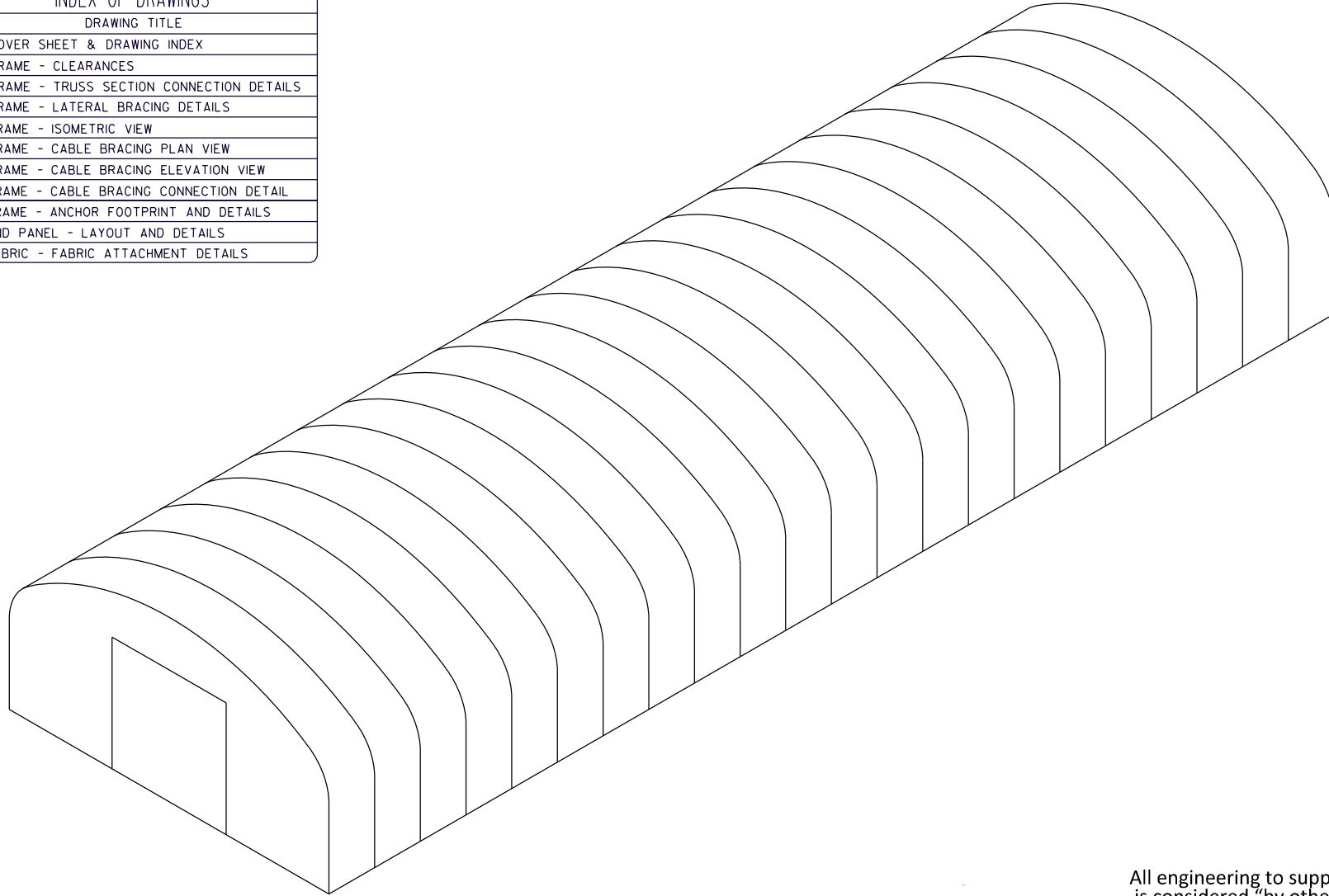
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|                                                                     |
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| DRAWING TYPE:<br><b>ENGINEERING</b>                                 |
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# INDEX OF DRAWINGS

| DRAWING NUMBER | DRAWING TITLE                            |
|----------------|------------------------------------------|
| S1             | COVER SHEET & DRAWING INDEX              |
| S2             | FRAME - CLEARANCES                       |
| S3             | FRAME - TRUSS SECTION CONNECTION DETAILS |
| S4,S4A         | 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,S9A         | FRAME - ANCHOR FOOTPRINT AND DETAILS     |
| S10,S10A       | END PANEL - LAYOUT AND DETAILS           |
| S11            | FABRIC - FABRIC ATTACHMENT DETAILS       |



## COVER PAGE AND INDEX



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

CUSTOMER:  
World Wide Terminals  
SIZE:  
70 x 220 x 35  
LOCATION:  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
Jay C.  
DRAWN BY:  
Luke S.  
DATE DRAWN:  
6/30/2020  
APPROVED BY:

### NOTES:

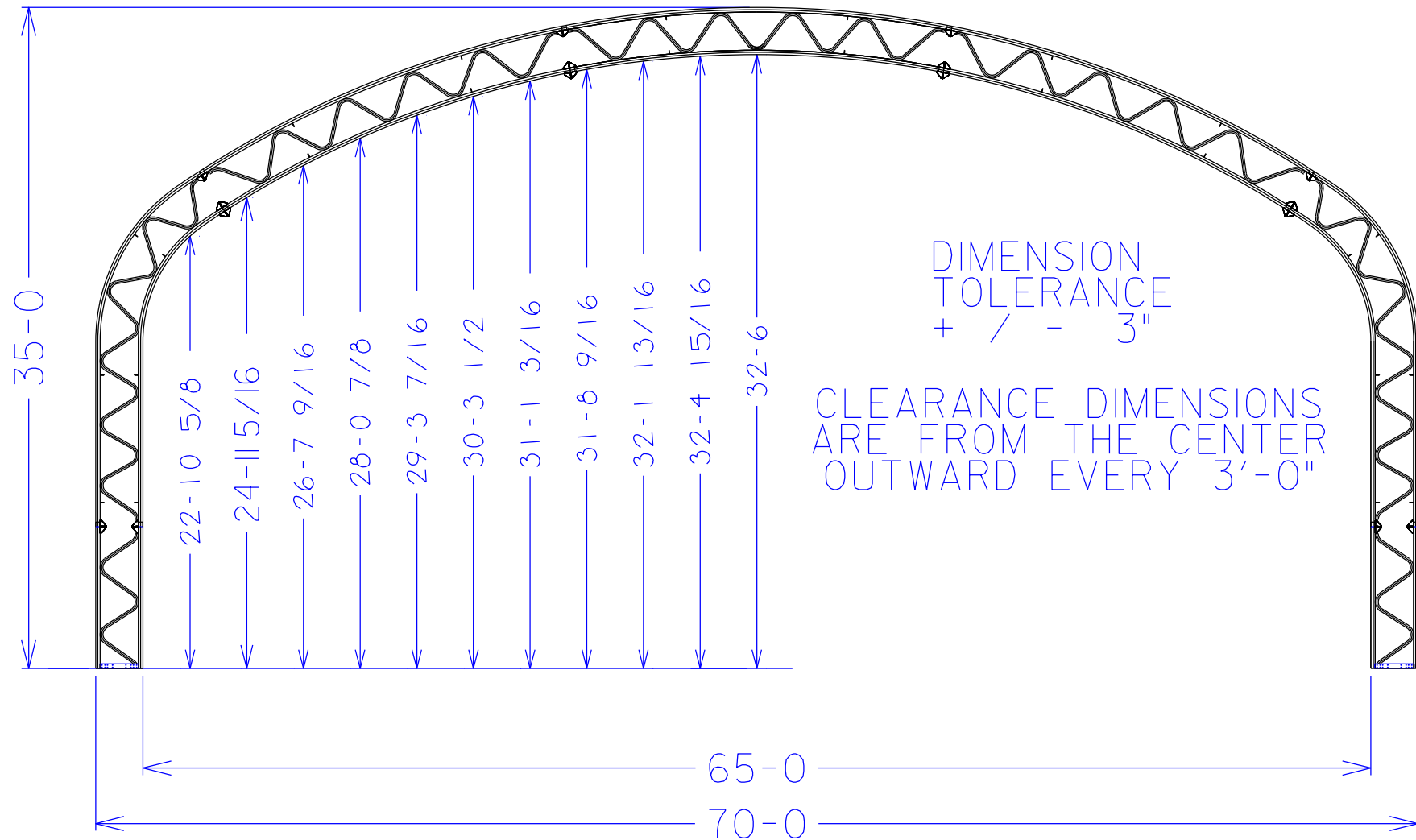
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SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE:  
TITLE:  
TITLE:  
TITLE:  
TITLE:



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DRAWING TYPE:  
ENGINEERING  
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S-1  
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## FRAME - CLEARANCES



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PERRY, FL 32347  
PH: (850) 584 - 7786

CUSTOMER:  
World Wide Terminals

SIZE:  
70 x 220 x 35

LOCATION:  
Fernandina Beach, FL

CUSTOMER CONTACT:  
N/A

SALES:  
Jay C.

DRAWN BY:  
Luke S.

DATE DRAWN:  
6/30/2020

APPROVED BY:

### NOTES:

FOUNDATION TYPE:

SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level

TITLE:

TITLE:

TITLE:

TITLE:

TITLE:



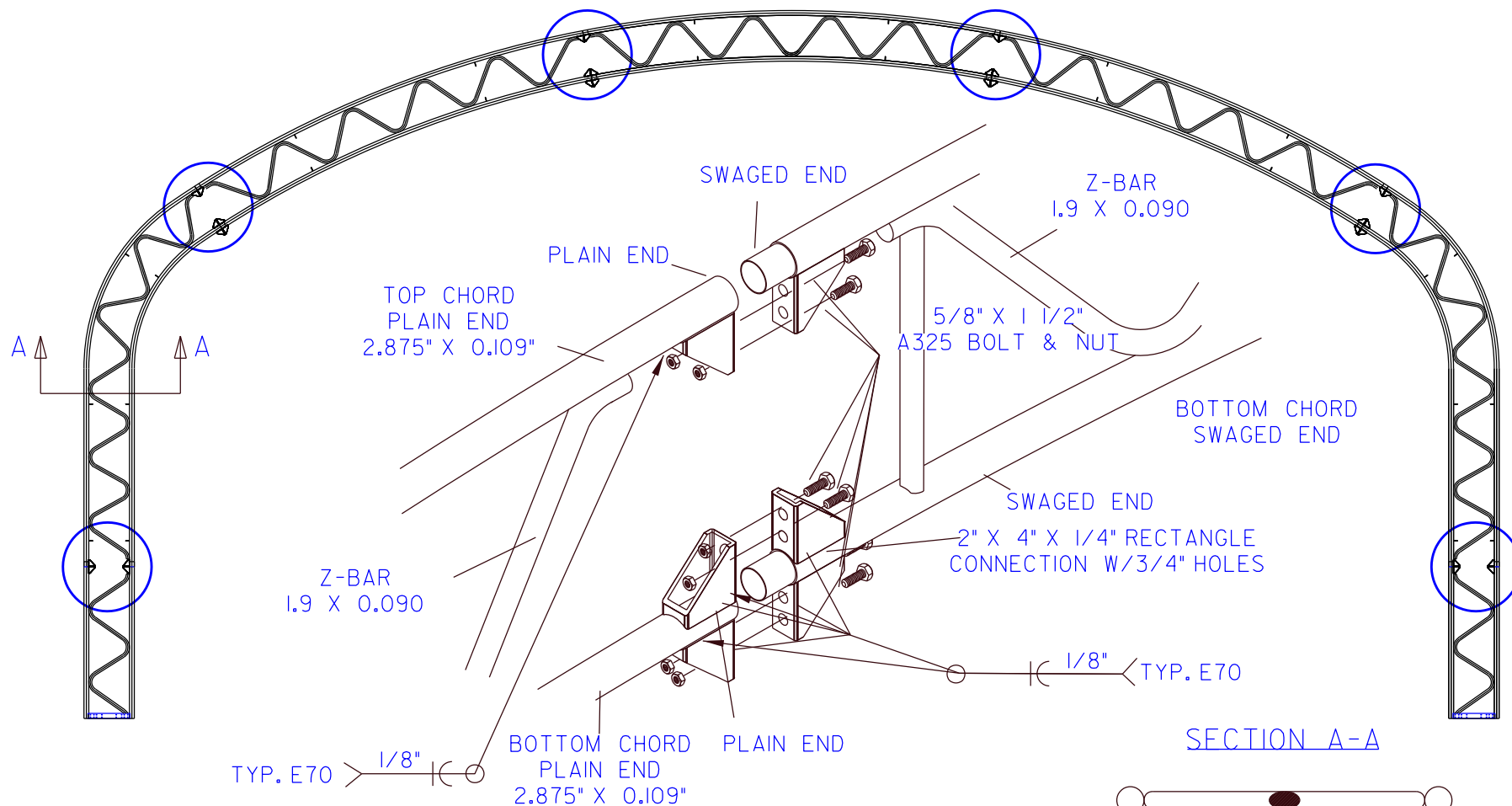
All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

DRAWING TYPE:  
ENGINEERING

PAGE:  
S-2

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TRUSS CHORDS ARE 2.875" X 0.109" WALL THICKNESS  
 Z-BAR IS 1.9" X 0.090" WALL THICKNESS  
 TENSILE: 60,000 PSI  
 YIELD: 55,000 PSI



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.

## FRAME - TRUSS SECTION CONNECTION DETAILS



BIG TOP MANUFACTURING INC.  
 3255 NORTH US 19  
 PERRY, FL 32347  
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CUSTOMER:  
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SIZE  
 70 x 220 x 35

LOCATION  
 Fernandina Beach, FL

CUSTOMER CONTACT:  
 N/A

SALES:  
 Jay C.

DRAWN BY:  
 Luke S.

DATE DRAWN:  
 6/30/2020

APPROVED BY:

### NOTES:

FOUNDATION TYPE:

SHELTER BASE HEIGHT ABOVE GROUND:  
 At Ground Level

TITLE

TITLE

TITLE

TITLE

TITLE



PE STAMP ONLY

EXPIRES: 2/28/21

DRAWING TYPE:

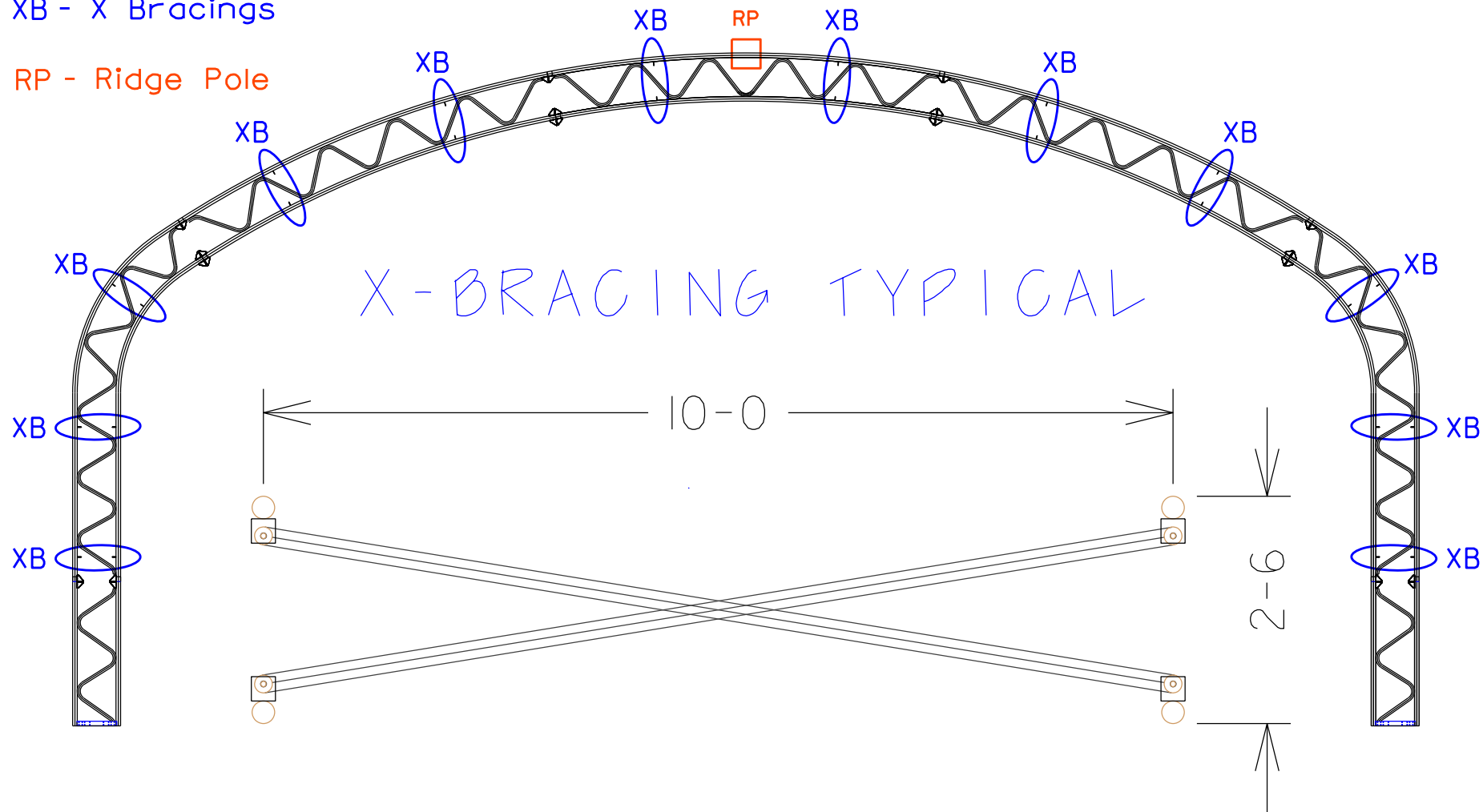
ENGINEERING

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S-3

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 XB - X Bracings  
 RP - Ridge Pole



## FRAME - LATERAL BRACING DETAILS

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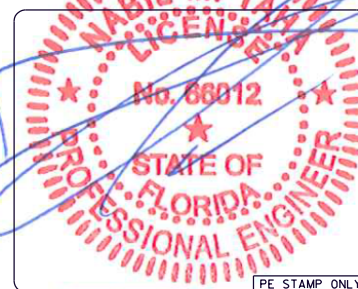


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| DRAWN BY:<br>Luke S.              | DATE DRAWN:<br>6/30/2020 |
| APPROVED BY:                      |                          |

### NOTES:

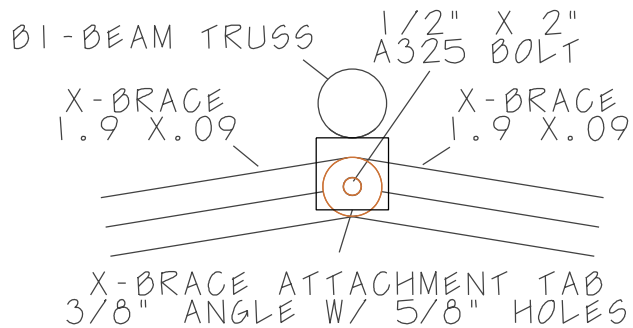
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|------------------------------------------------------|
| FOUNDATION TYPE:                                     |
| SHELTER BASE HEIGHT ABOVE GROUND:<br>At Ground Level |
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| TITLE                                                |



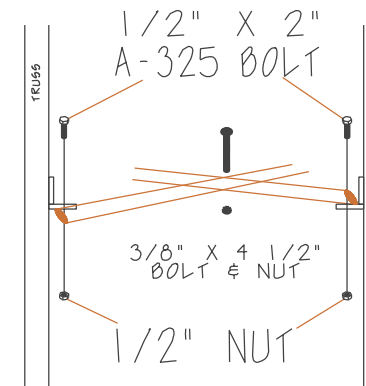
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| DRAWING TYPE:<br><b>ENGINEERING</b>                                 |
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EXPIRES: 2/28/21

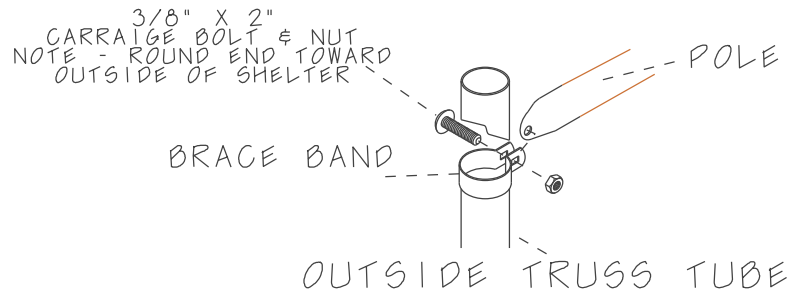




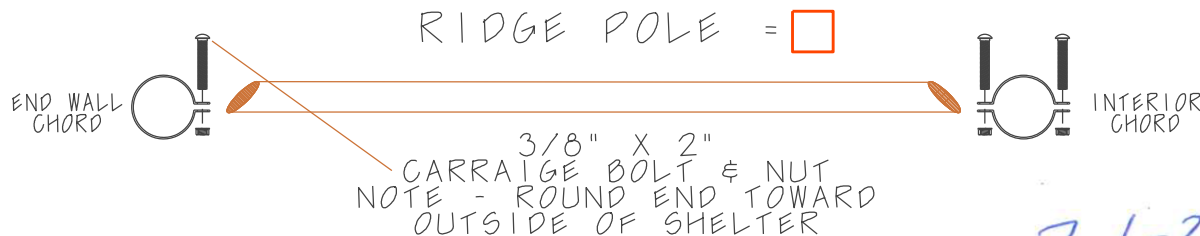
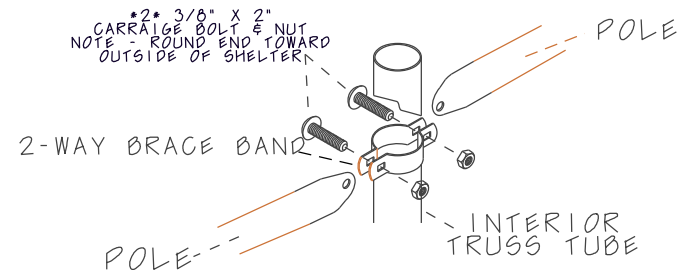
X-BRACE END VIEW



BRACE BAND TYPICAL DETAIL



2-WAY BRACE BAND TYPICAL DETAIL



## FRAME - LATERAL BRACING DETAILS

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LOCATION  
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CUSTOMER CONTACT:  
N/A

SALES:  
Jay C.

DRAWN BY:  
Luke S.

DATE DRAWN:  
6/30/2020

APPROVED BY:

### NOTES:

FOUNDATION TYPE:

SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level

TITLE

TITLE

TITLE

TITLE

TITLE

TITLE



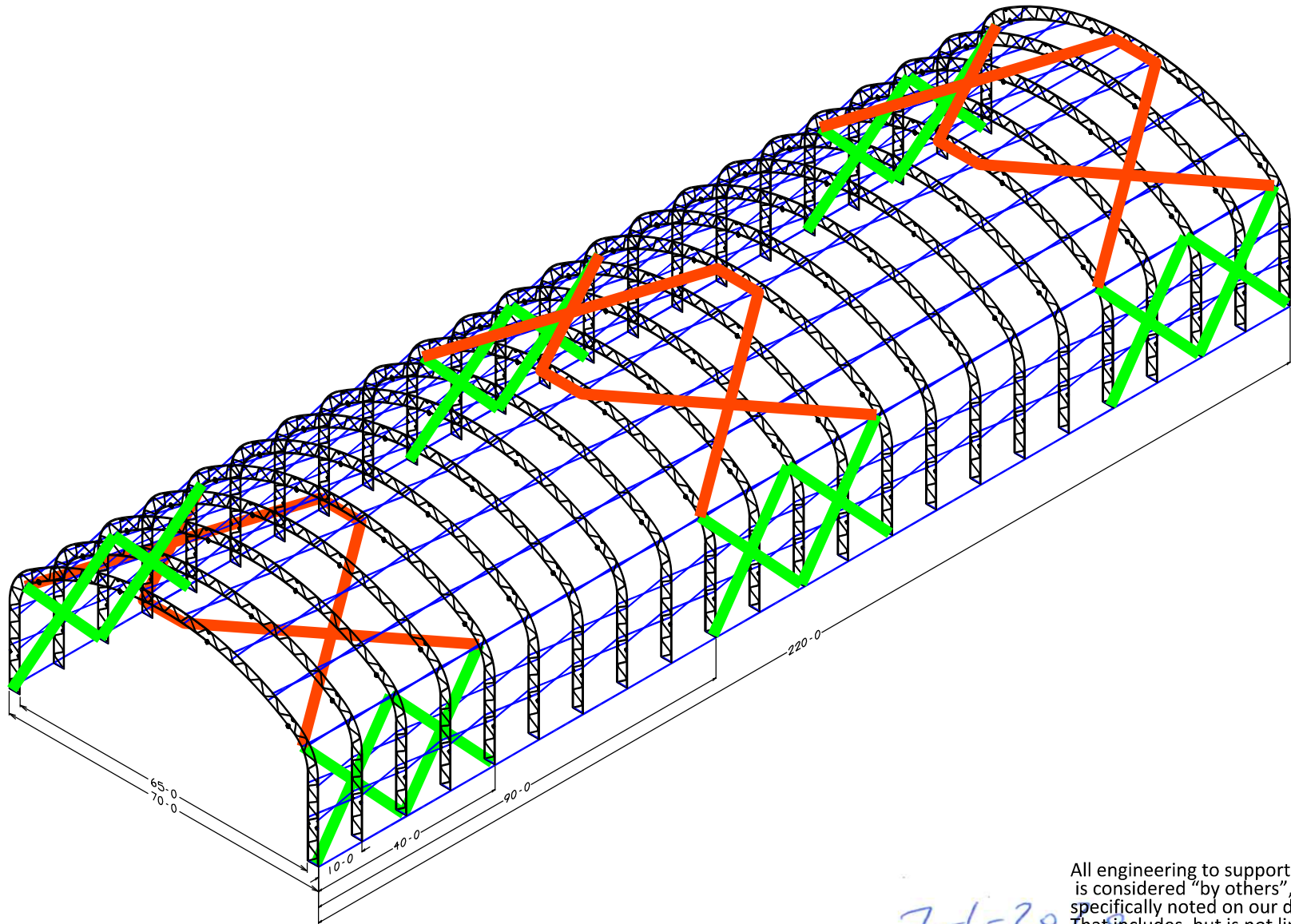
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PAGE:

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## FRAME - ISOMETRIC VIEW



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CUSTOMER:  
World Wide Terminals

SIZE  
70 x 220 x 35

LOCATION  
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CUSTOMER CONTACT:  
N/A

SALES:  
Jay C.

DRAWN BY:  
Luke S.

DATE DRAWN:  
6/30/2020

APPROVED BY:

### NOTES:

FOUNDATION TYPE:

SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level

TITLE

TITLE

TITLE

TITLE

TITLE

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DRAWING TYPE:

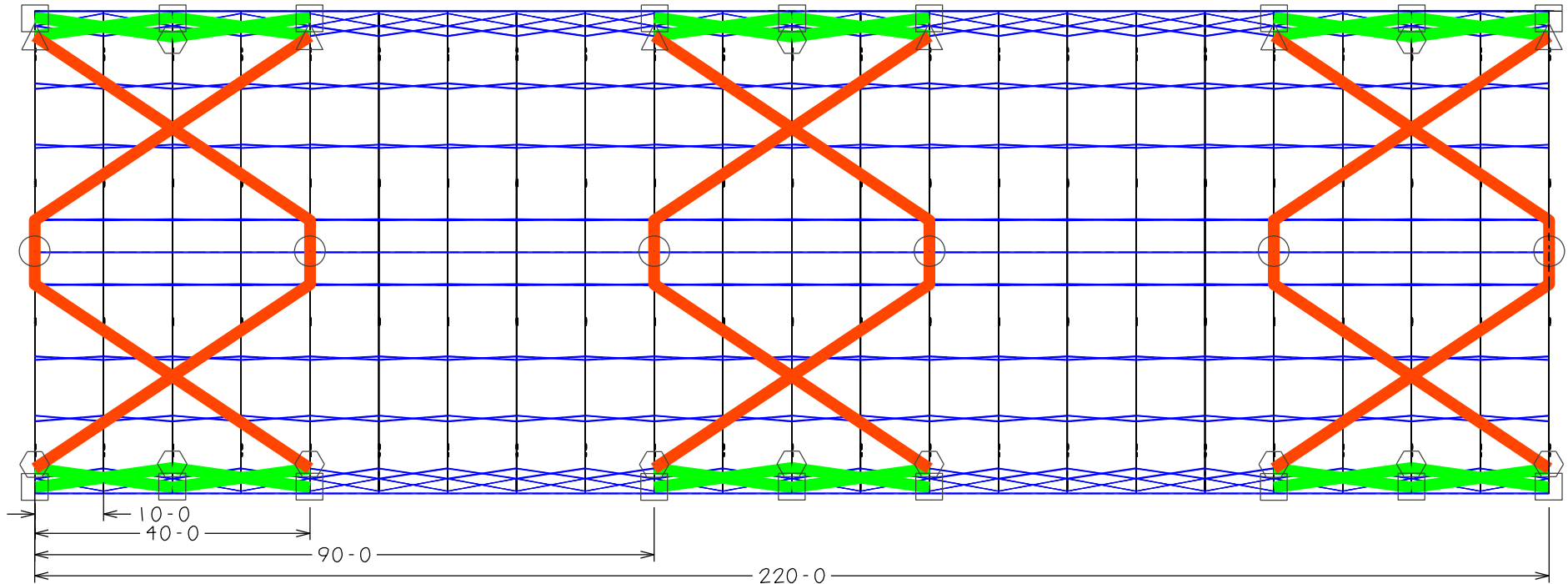
ENGINEERING

PAGE:

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EXPIRES: 2/28/21



## 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.

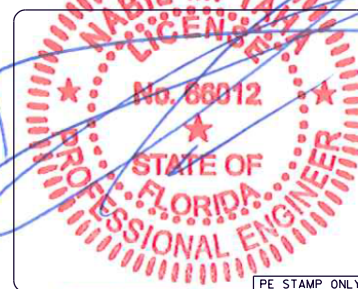


BIG TOP MANUFACTURING INC.  
3255 NORTH US 19  
PERRY, FL 32347  
PH: (850) 584 - 7786

CUSTOMER:  
World Wide Terminals  
SIZE  
70 x 220 x 35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
Jay C.  
DRAWN BY:  
Luke S.  
DATE DRAWN:  
6/30/2020  
APPROVED BY:

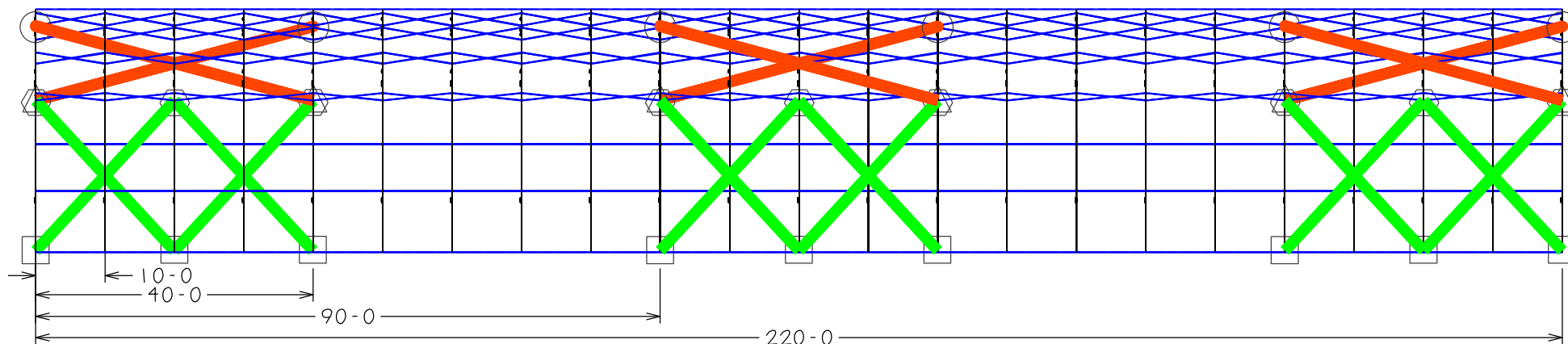
### NOTES:

FOUNDATION TYPE:  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE



|                                                                     |             |
|---------------------------------------------------------------------|-------------|
| DRAWING TYPE:                                                       | ENGINEERING |
| PAGE:                                                               | S-6         |
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## FRAME - CABLE BRACING ELEVATION 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.



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3255 NORTH US 19  
PERRY, FL 32347  
PH: (850) 584 - 7786

CUSTOMER:  
World Wide Terminals  
SIZE  
70 x 220 x 35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
Jay C.  
DRAWN BY:  
Luke S.  
DATE DRAWN:  
6/30/2020  
APPROVED BY:

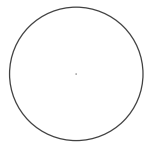
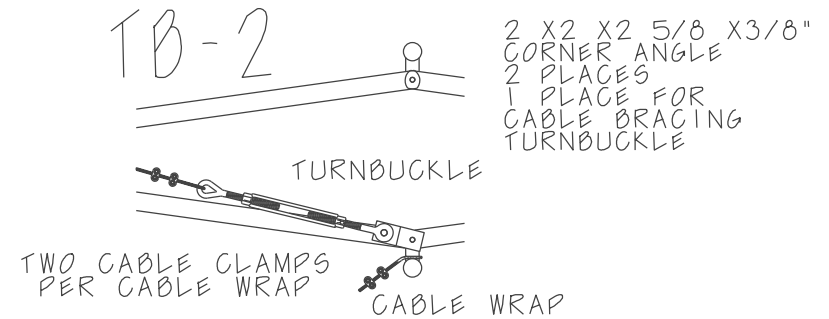
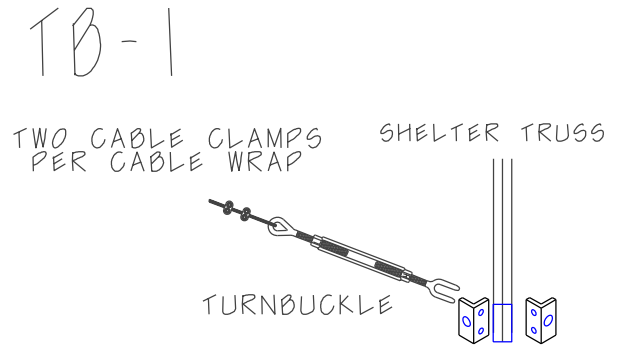
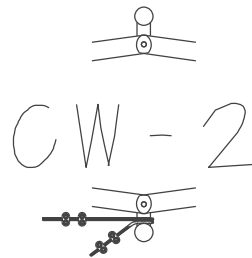
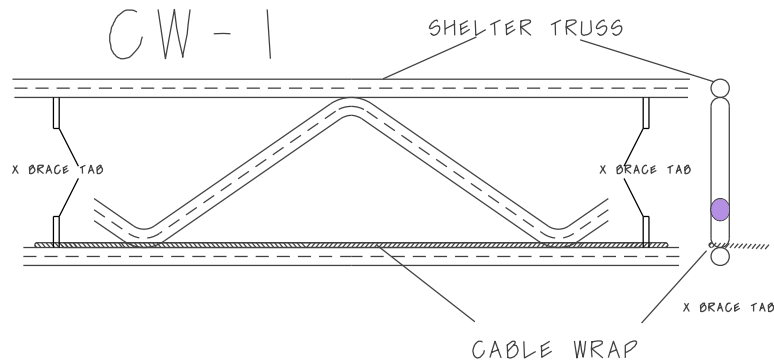
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FOUNDATION TYPE:  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE

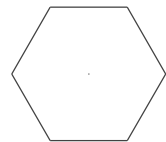


EXPIRES: 2/28/21

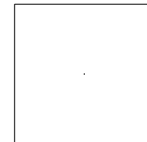
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| PAGE:                                                               | S-7         |
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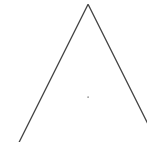
CW-1



CW-2



TB-1



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



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

CUSTOMER:  
World Wide Terminals

SIZE:  
70 x 220 x 35

LOCATION:  
Fernandina Beach, FL

CUSTOMER CONTACT:  
N/A

SALES:  
Jay C.

DRAWN BY:  
Luke S.

DATE DRAWN:  
6/30/2020

APPROVED BY:

### NOTES:

FOUNDATION TYPE:

SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level

TITLE:

TITLE:

TITLE:

TITLE:

TITLE:

TITLE:

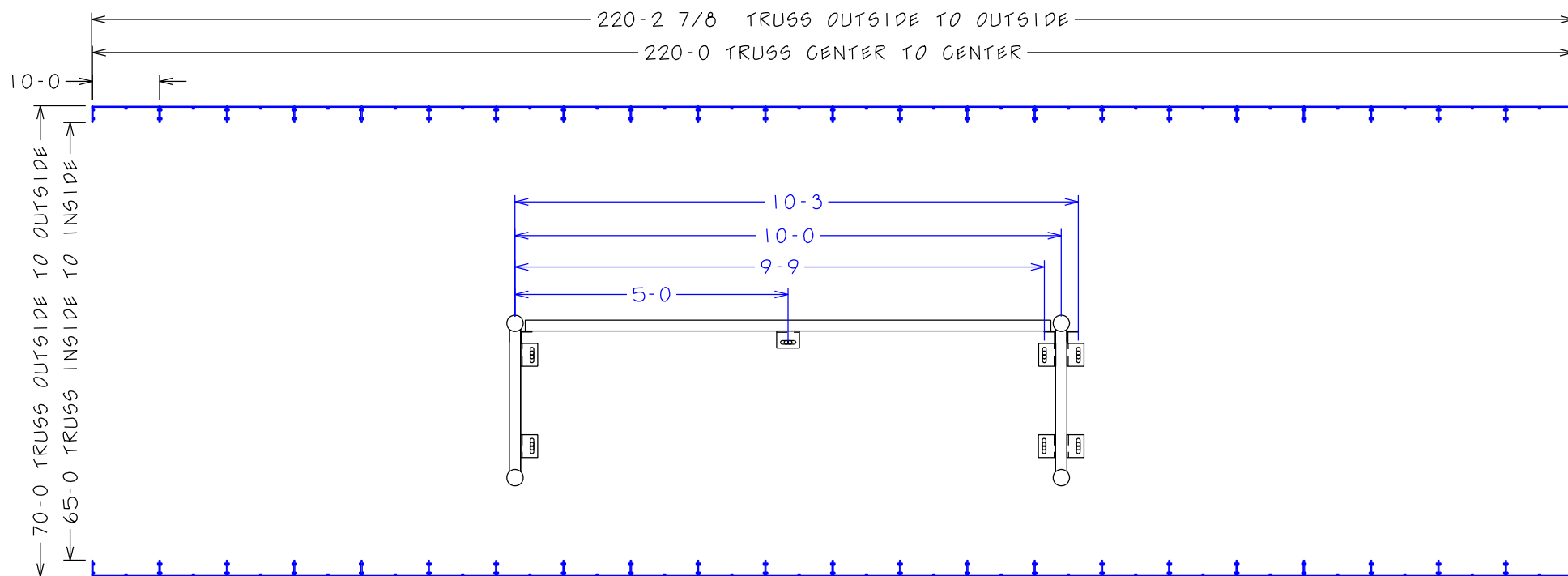


All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

DRAWING TYPE:  
ENGINEERING

PAGE:  
S-8

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## FRAME - ANCHOR FOOTPRINT



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

CUSTOMER:  
World Wide Terminals  
SIZE  
70 x 220 x 35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
Jay C.  
DRAWN BY:  
Luke S.  
6/30/2020  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE

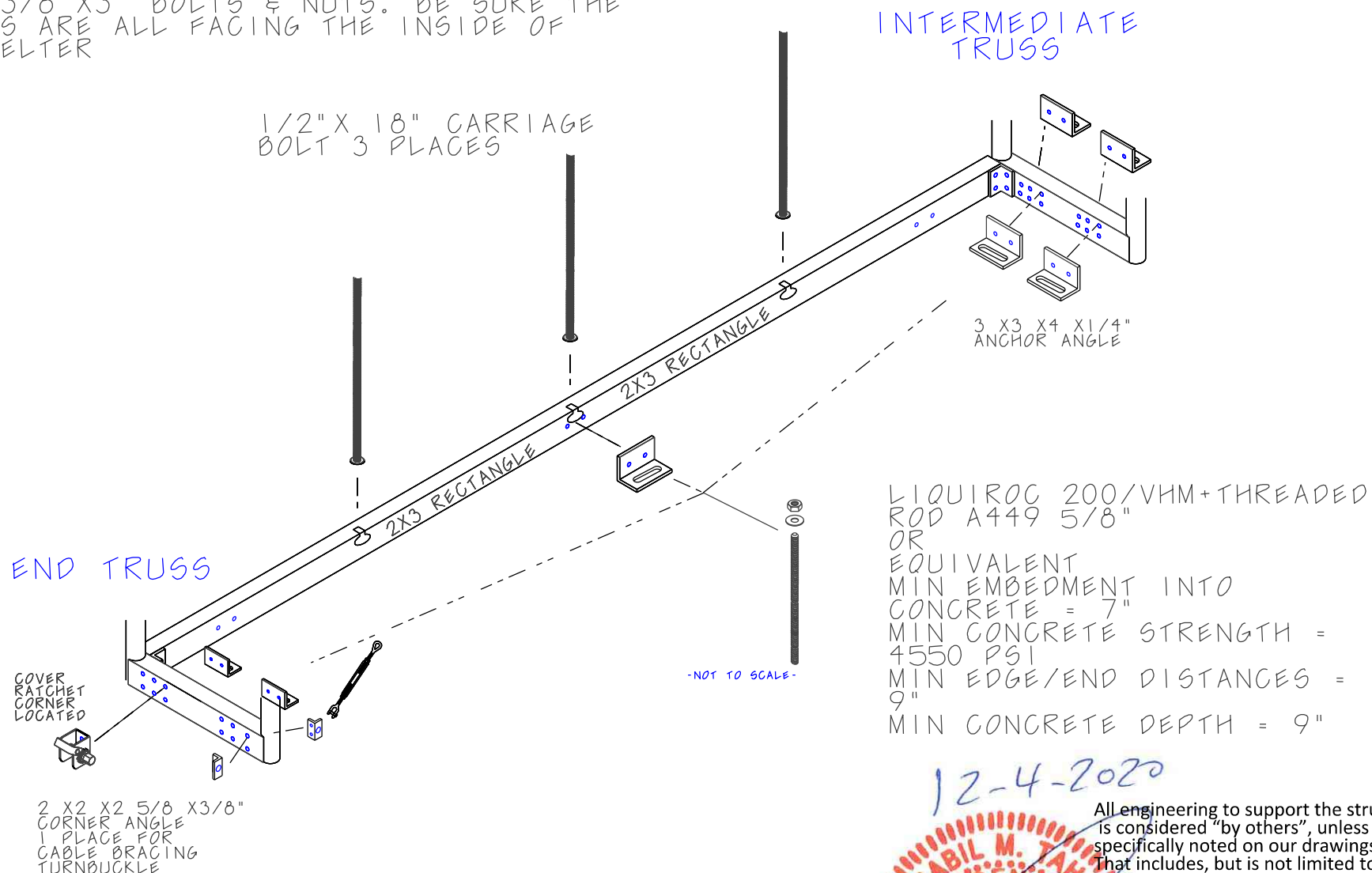


All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

|                                                                     |             |
|---------------------------------------------------------------------|-------------|
| DRAWING TYPE:                                                       | ENGINEERING |
| PAGE:                                                               | S-9         |
| *ALL INFORMATION IS<br>PROPERTY OF<br>BIG TOP<br>MANUFACTURING INC. |             |



NOTE: ALL ANGLES & RATCHETS ARE BOLTED USING 3/8 X 3" BOLTS & NUTS. BE SURE THE THREADS ARE ALL FACING THE INSIDE OF THE SHELTER



## FRAME - ANCHOR DETAIL

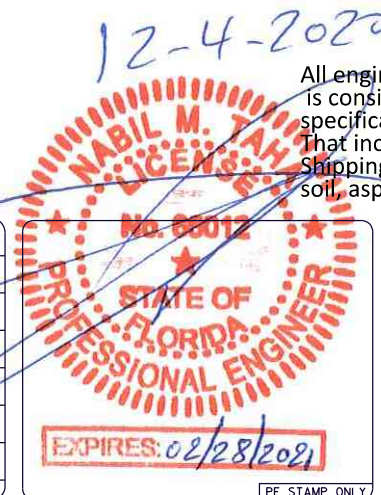


BIG TOP MANUFACTURING INC.  
3255 NORTH US 19  
PERRY, FL 32347  
PH: (850) 584 - 7786

CUSTOMER: World Wide Terminals  
SIZE: 70 x 220 x 35  
LOCATION: Fernandina Beach, FL  
CUSTOMER CONTACT: N/A  
SALES: Jay C.  
DRAWN BY: Luke S.  
DATE DRAWN: 6/30/2020  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
SHELTER BASE HEIGHT ABOVE GROUND: At Ground Level  
TITLE:  
TITLE:  
TITLE:  
TITLE:  
TITLE:



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.

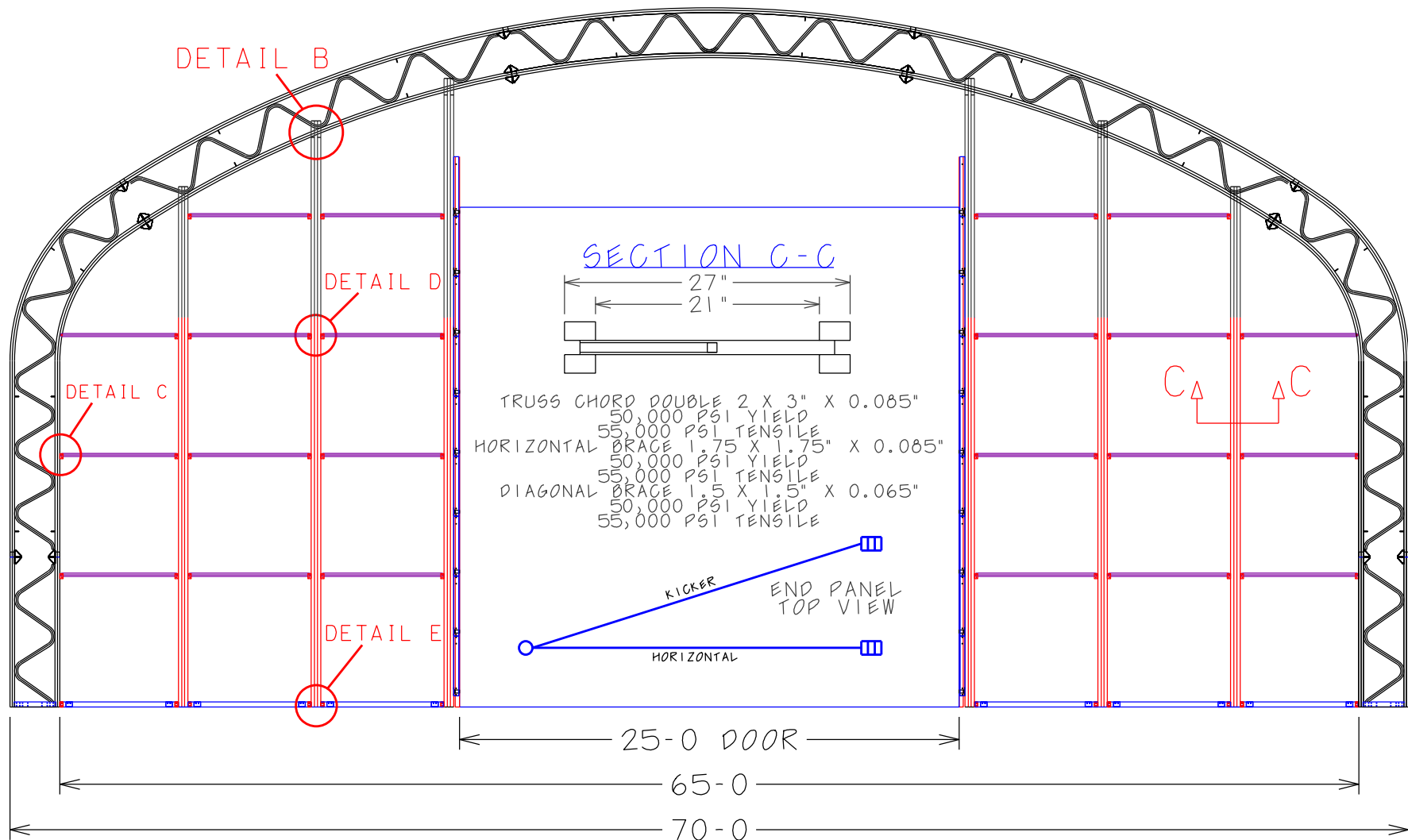
DRAWING TYPE:

ENGINEERING

PAGE:

S-9A

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MANUFACTURING INC.



## END PANEL LAYOUT



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

CUSTOMER:  
World Wide Terminals

SIZE  
70 x 220 x 35

LOCATION  
Fernandina Beach, FL

CUSTOMER CONTACT:  
N/A

SALES:  
Jay C.

DRAWN BY:  
Luke S.

DATE DRAWN:  
6/30/2020

APPROVED BY:

### NOTES:

FOUNDATION TYPE:

SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level

TITLE

TITLE

TITLE

TITLE

TITLE

TITLE



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:

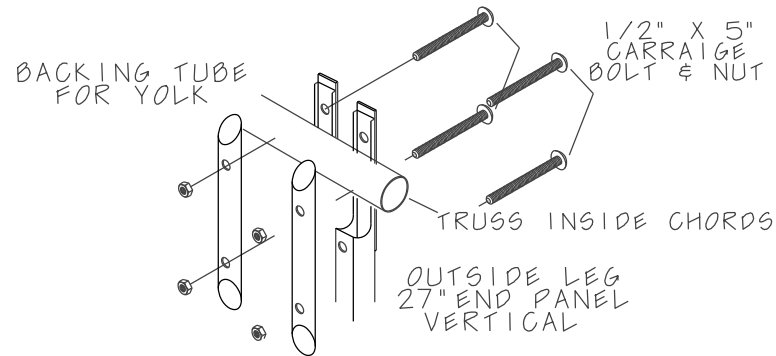
S-10

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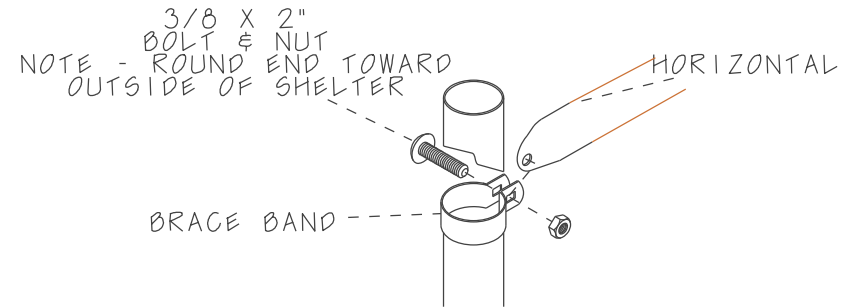
## DETAIL B

### VERTICAL TRUSS TOP



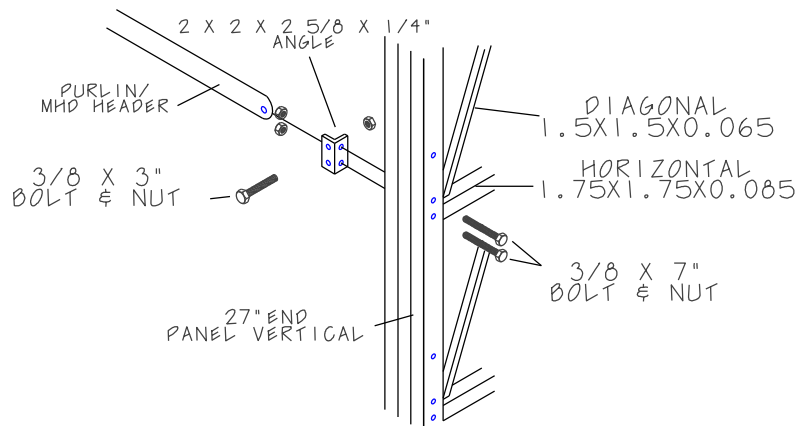
## DETAIL C

### BRACE BAND DETAIL



## DETAIL D

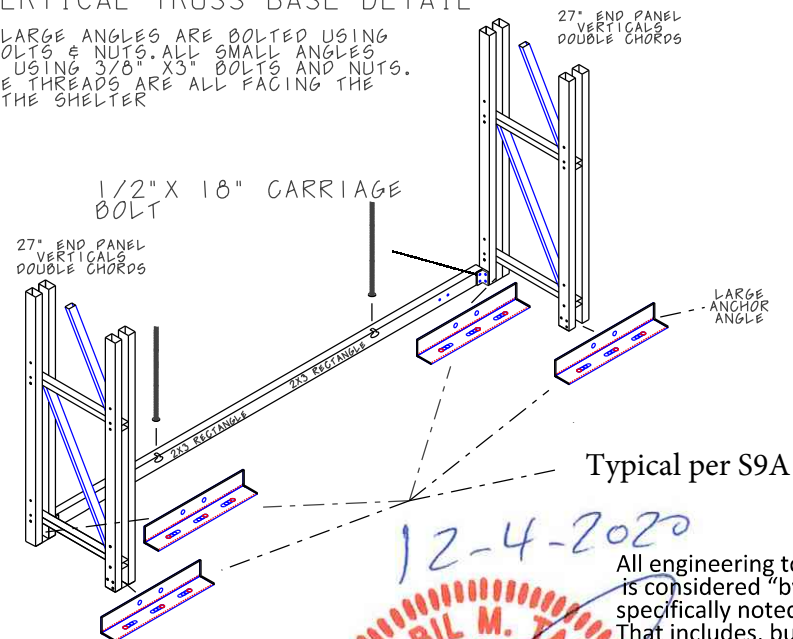
### HORIZONTAL TO END PANEL VERTICAL DETAIL



## DETAIL E

### VERTICAL TRUSS BASE DETAIL

NOTE: ALL LARGE ANGLES ARE BOLTED USING 1/2" X 5" BOLTS & NUTS. ALL SMALL ANGLES ARE BOLTED USING 3/8" X 3" BOLTS AND NUTS. BE SURE THE THREADS ARE ALL FACING THE INSIDE OF THE SHELTER



Typical per S9A

## END PANEL DETAILS



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

|                                   |                          |
|-----------------------------------|--------------------------|
| CUSTOMER:<br>World Wide Terminals |                          |
| SIZE<br>70 x 220 x 35             |                          |
| LOCATION<br>Fernandina Beach, FL  |                          |
| CUSTOMER CONTACT:<br>N/A          | SALES:<br>Jay C.         |
| DRAWN BY:<br>Luke S.              | DATE DRAWN:<br>6/30/2020 |
| APPROVED BY:                      |                          |

### NOTES:

|                                   |                 |
|-----------------------------------|-----------------|
| FOUNDATION TYPE:                  |                 |
| SHELTER BASE HEIGHT ABOVE GROUND: | At Ground Level |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |



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-10A

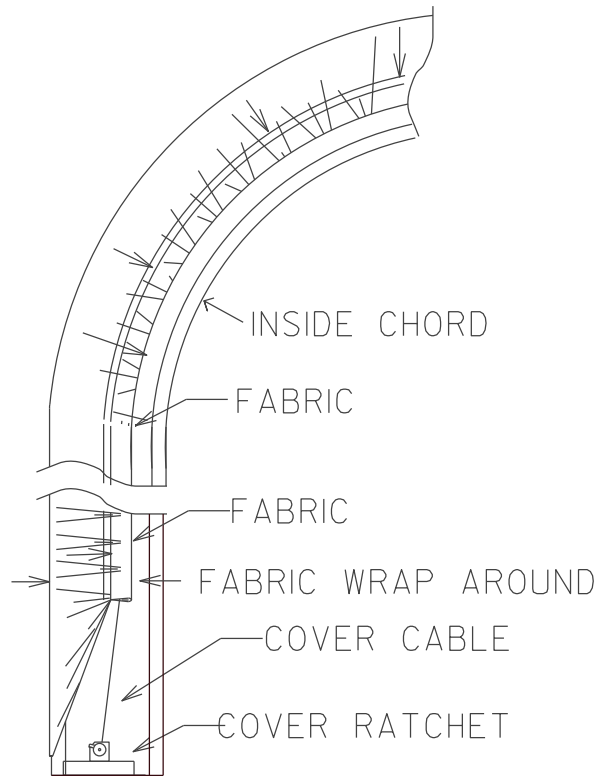
\*ALL INFORMATION IS  
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MANUFACTURING INC.

PE STAMP ONLY

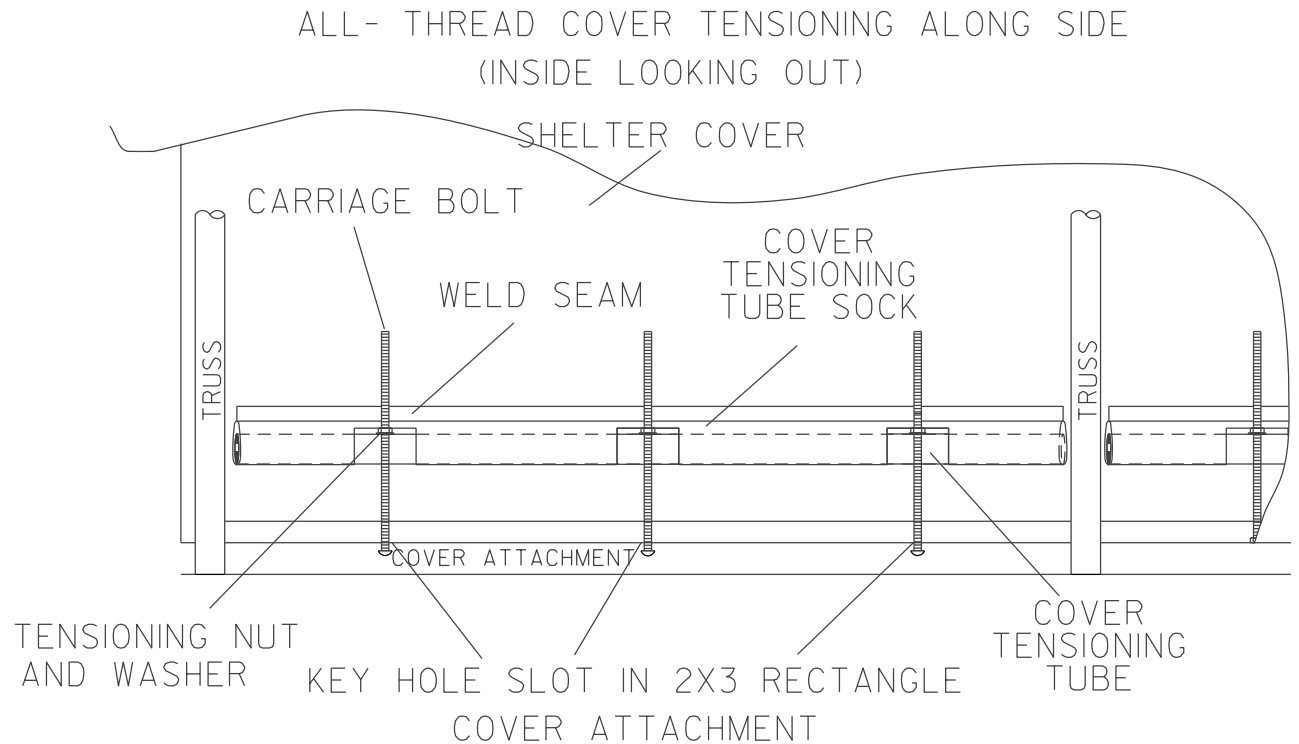


30"

NOTE: COVER SKIRT WILL BE TAPED TO SIDE OF STRUCTURE LEAVING AREA BELOW TENSION TUBE OPEN



COVER TENSIONING FRAME END  
(LOOKING OUTSIDE IN)



## FABRIC ATTACHMENT 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:  
World Wide Terminals

SIZE  
70 x 220 x 35

LOCATION  
Fernandina Beach, FL

CUSTOMER CONTACT:  
N/A

SALES:  
Jay C.

DRAWN BY:  
Luke S.

DATE DRAWN:  
6/30/2020

APPROVED BY:

### NOTES:

FOUNDATION TYPE:

SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level

TITLE

TITLE

TITLE

TITLE

TITLE

TITLE



DRAWING TYPE:

ENGINEERING

PAGE:

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MANUFACTURING INC.

EXPIRES: 2/28/21



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| 2- Design Criteria:                   | 100-199      |
| 3- Truss Analysis & Design:           | 1,000-1,999  |
| 4- End Panel Truss Analysis & Design: | 2,000-2,999  |



PSE Consulting Engineers Inc.

---

## **References:**

### 1- Literature:

Based on 2017 Florida Building Code per 2015 International Building Code

### 2- Software:

RISA-3D Version 17.0.4

[www.risa.com](http://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 | 5psf (Governs)                                 |                      |
| 3. Snow Ground    | 0 psf                                          |                      |
| 4. Gravity Loads  | Self weight of truss and fabric. (Total =1psf) |                      |

**\*\*Other criteria assumed as stated in design calculations.**

Search Information

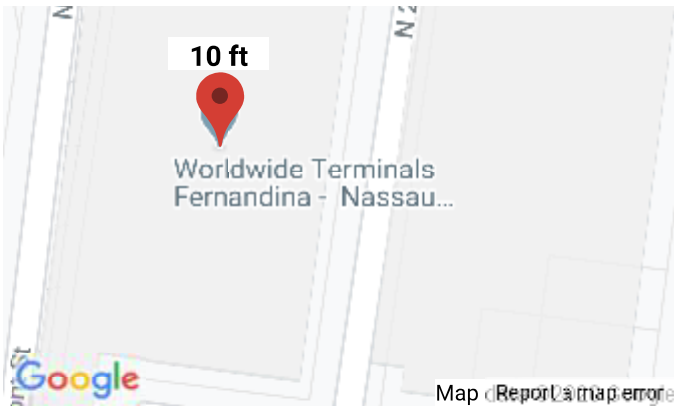
**Address:** 315 N 2nd St, Fernandina Beach, FL 32034, USA

**Coordinates:** 30.67576100000001, -81.463651

**Elevation:** 10 ft

**Timestamp:** 2020-07-01T12:52:27.646Z

**Hazard Type:** Wind



ASCE 7-16

|                                                                                                                                                                                                                                                                                                        |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| MRI 10-Year                                                                                                                                                                                                                                                                                            | 75 mph    |
| MRI 25-Year                                                                                                                                                                                                                                                                                            | 84 mph    |
| MRI 50-Year                                                                                                                                                                                                                                                                                            | 94 mph    |
| MRI 100-Year                                                                                                                                                                                                                                                                                           | 102 mph   |
| Risk Category I                                                                                                                                                                                                                                                                                        | 117 mph   |
| Risk Category II                                                                                                                                                                                                                                                                                       | 128 mph   |
| Risk Category III                                                                                                                                                                                                                                                                                      | ▲ 140 mph |
| If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region. |           |
| Risk Category IV                                                                                                                                                                                                                                                                                       | ▲ 149 mph |
| You are in a wind-borne debris region.                                                                                                                                                                                                                                                                 |           |

ASCE 7-10

|                                                                                                                                                                                                                                                                                                        |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| MRI 10-Year                                                                                                                                                                                                                                                                                            | 76 mph    |
| MRI 25-Year                                                                                                                                                                                                                                                                                            | 86 mph    |
| MRI 50-Year                                                                                                                                                                                                                                                                                            | 95 mph    |
| MRI 100-Year                                                                                                                                                                                                                                                                                           | 103 mph   |
| Risk Category I                                                                                                                                                                                                                                                                                        | 117 mph   |
| Risk Category II                                                                                                                                                                                                                                                                                       | 128 mph   |
| Risk Category III-IV                                                                                                                                                                                                                                                                                   | ▲ 140 mph |
| If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region. |           |

ASCE 7-05

ASCE 7-05 Wind Speed ▲ 122 mph

You are in a wind-borne debris region.

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:

**MecaWind v2333**Software Developer: Meca Enterprises Inc., [www.meca.biz](http://www.meca.biz), Copyright © 2018**Calculations Prepared by:**

Date: Jul 01, 2020

**File Location:**

F:\Engineering Department\

Big Top 220-91 70x220x35 World Wide Terminals 30BB - Fernandina Beach, FL\

Dsg Engineering\Admin\7-1 Meca Wind.wnd

**Basic Wind Parameters**

|                    |             |                   |            |
|--------------------|-------------|-------------------|------------|
| Wind Load Standard | = ASCE 7-10 | 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   |
| Alt       | = 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  | = 22.276 ft |
| R : Enter Radius of Arch | = 54.500 ft  | W : Building Width | = 70.000 ft |
| L : Building Length      | = 220.000 ft |                    |             |

**Exposure Constants per Table 26.9-1:**

|                                 |       |                               |            |
|---------------------------------|-------|-------------------------------|------------|
| Alpha: Const from Table 26.9-1= | 9.500 | Zg: Const from Table 26.9-1=  | 900.000 ft |
| At: Const from Table 26.9-1=    | 0.105 | Bt: Const from Table 26.9-1=  | 1.000      |
| Am: Const from Table 26.9-1=    | 0.154 | Bm: Const from Table 26.9-1=  | 0.650      |
| C: Const from Table 26.9-1=     | 0.200 | Eps: Const from Table 26.9-1= | 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: (EHT + RHT) * 0.5                              | = 28.638 ft      |
| Zh   | = Mean Roof Height for Kh: h + Base_Dist                           | = 28.638 ft      |
| Kh   | = Since 15 ft [4.572 m] < Zh < Zg --> $2.01 * (Zh/zg)^{(2/Alpha)}$ | = 0.973          |
| Kzt  | = Topographic Factor is 1 since no Topographic feature specified   | = 1.000          |
| Kd   | = Wind Directionality Factor per Table 26.6-1                      | = 0.85           |
| GCPi | = Ref Table 26.11-1 for Enclosed Building                          | = +/-0.18        |
| RA   | = Roof Area                                                        | = 16717.57 sq ft |
| LF   | = Load Factor based upon STRENGTH Design                           | = 1.00           |
| qh   | = $(0.00256 * Kh * Kzt * Kd * V^2) * LF$                           | = 25.61 psf      |
| qin  | = For Negative Internal Pressure of Enclosed Building use qh*LF    | = 25.61 psf      |
| qip  | = For Positive Internal Pressure of Enclosed Building use qh*LF    | = 25.61 psf      |

**Gust Factor Calculation:**

|                                                                     |                                                                 |             |
|---------------------------------------------------------------------|-----------------------------------------------------------------|-------------|
| <b>Gust Factor Category I Rigid Structures - Simplified Method</b>  |                                                                 |             |
| G1                                                                  | = For Rigid Structures (Nat. Freq.>1 Hz) use 0.85               | = 0.85      |
| <b>Gust Factor Category II Rigid Structures - Complete Analysis</b> |                                                                 |             |
| Zm                                                                  | = $0.6 * Ht$                                                    | = 17.183 ft |
| Izm                                                                 | = $Cc * (33 / Zm) ^ 0.167$                                      | = 0.223     |
| Lzm                                                                 | = $L * (Zm / 33) ^ Epsilon$                                     | = 438.819   |
| Q                                                                   | = $(1 / (1 + 0.63 * ((B + Ht) / Lzm)^{0.63}))^{0.5}$            | = 0.896     |
| G2                                                                  | = $0.925 * ((1 + 1.7 * lzm * 3.4 * Q) / (1 + 1.7 * 3.4 * lzm))$ | = 0.871     |
| <b>Gust Factor Used in Analysis</b>                                 |                                                                 |             |



G = Lessor Of G1 Or G2 = 0.850

#### MWFRS Wind Normal to Ridge (Ref Fig 27.4-1)

h = Mean Roof Height Of Building = 28.638 ft  
 RHt = Ridge Height Of Roof = 35.000 ft  
 B = Horizontal Dimension Of Building Normal To Wind Direction = 220.000 ft  
 L = Horizontal Dimension Of building Parallel To Wind Direction = 70.000 ft  
 L/B = Ratio Of L/B used For Cp determination = 0.318  
 h/L = Ratio Of h/L used For Cp determination = 0.409  
 RHt = Ridge Height Of Roof = 35.000 ft  
 r = Rise To Span Ratio (RHt-EHt)/W = 0.182  
 Elev = Is roof on Elevated Structure (Is EHt>0) = True  
 Roof\_CH = Roof Coefficient Center Half = -0.882, -0.882  
 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 = Leeward 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<br>ft | Kz    | Kzt   | qz<br>psf | GCPi<br>psf | Windward<br>Press<br>psf | Leeward<br>Press<br>psf | Side<br>Press<br>psf | Total<br>Press<br>psf | Minimum<br>Pressure*<br>psf |
|------------|-------|-------|-----------|-------------|--------------------------|-------------------------|----------------------|-----------------------|-----------------------------|
| 28.64      | 0.973 | 1.000 | 25.61     | 0.18        | 12.81                    | -15.49                  | -19.85               | 28.30                 | 16.00                       |
| 22.28      | 0.923 | 1.000 | 24.29     | 0.18        | 11.91                    | -15.49                  | -19.85               | 27.40                 | 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<br>ft | Kz    | Kzt   | qz<br>psf | GCPi<br>psf | Windward<br>Press<br>psf | Leeward<br>Press<br>psf | Side<br>Press<br>psf | Total<br>Press<br>psf | Minimum<br>Pressure*<br>psf |
|------------|-------|-------|-----------|-------------|--------------------------|-------------------------|----------------------|-----------------------|-----------------------------|
| 28.64      | 0.973 | 1.000 | 25.61     | -0.18       | 22.03                    | -6.27                   | -10.63               | 28.30                 | 16.00                       |
| 22.28      | 0.923 | 1.000 | 24.29     | -0.18       | 21.13                    | -6.27                   | -10.63               | 27.40                 | 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 =  $q_h * G * Cp_{SW} - q_{ip} * +GCPi$       Windward =  $q_z * G * Cp_{WW} - q_{ip} * +GCPi$   
 Leeward =  $q_h * G * Cp_{LW} - q_{ip} * +GCPi$       Total = Windward Press - Leeward Press  
 \* Minimum Pressure: Para 27.4.7 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<br>Dist<br>ft | End<br>Dist<br>ft | Cp_min | Cp_max | GCPi  | Pressure<br>Pn_min*<br>psf | Pressure<br>Pp_min*<br>psf | Pressure<br>Pn_max<br>psf | Pressure<br>Pp_max<br>psf |
|----------|---------------------|-------------------|--------|--------|-------|----------------------------|----------------------------|---------------------------|---------------------------|
| Roof_CH  | N/A                 | N/A               | -0.882 | -0.882 | 0.180 | -14.59                     | -23.81                     | -14.59                    | -23.81                    |
| Roof_LQ  | N/A                 | N/A               | -0.500 | -0.500 | 0.180 | -6.27                      | -15.49                     | -6.27                     | -15.49                    |
| Roof_WQ  | N/A                 | N/A               | -0.900 | -0.900 | 0.180 | -14.98                     | -24.20                     | -14.98                    | -24.20                    |

#### 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 =  $q_h * G * Cp_{max} - q_{ip} * (+GCPi)$       Pn\_max =  $q_h * G * Cp_{max} - q_{in} * (-GCPi)$   
 Pp\_min\* =  $q_h * G * Cp_{min} - q_{ip} * (+GCPi)$       Pn\_min\* =  $q_h * G * Cp_{min} - q_{in} * (-GCPi)$   
 OH = Overhang      X = Dir along Ridge      Y = Dir Perpendicular to Ridge      Z = Vertical

- \* The smaller uplift pressures due to  $C_{p\_Min}$  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 27.4-1)

|         |                                                                |               |
|---------|----------------------------------------------------------------|---------------|
| h       | = Mean Roof Height Of Building                                 | = 28.638 ft   |
| RHt     | = Ridge Height Of Roof                                         | = 35.000 ft   |
| B       | = Horizontal Dimension Of Building Normal To Wind Direction    | = 70.000 ft   |
| L       | = Horizontal Dimension Of building Parallel To Wind Direction  | = 220.000 ft  |
| L/B     | = Ratio Of L/B used For $C_p$ determination                    | = 3.143       |
| h/L     | = Ratio Of h/L used For $C_p$ determination                    | = 0.130       |
| RHt     | = Ridge Height Of Roof                                         | = 35.000 ft   |
| r       | = Rise To Span Ratio (RHt-EHt)/W                               | = 0.182       |
| Elev    | = Is roof on Elevated Structure (Is EHt>0)                     | = True        |
| Roof_1  | = Roof Coeff (0 to h) (0.000 ft to 28.638 ft)                  | = -0.18, -0.9 |
| Roof_2  | = Roof Coeff (h to 2h) (28.638 ft to 57.276 ft)                | = -0.18, -0.5 |
| Roof_3  | = Roof Coeff (>2h) (>57.276 ft)                                | = -0.18, -0.3 |
| Cp_WW   | = Windward Wall Coefficient (All L/B Values)                   | = 0.80        |
| Cp_LW   | = Leeward Wall Coefficient Using L/B                           | = -0.24       |
| 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  | Kz    | Kzt   | qz    | GCPi | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|-------|-------|-------|-------|------|----------------|---------------|------------|-------------|-------------------|
| ft    |       |       | psf   | psf  | psf            | psf           | psf        | psf         | psf               |
| 35.00 | 1.015 | 1.000 | 26.72 | 0.18 | 13.56          | -9.90         | -19.85     | 23.45       | 16.00             |
| 28.64 | 0.973 | 1.000 | 25.61 | 0.18 | 12.81          | -9.90         | -19.85     | 22.70       | 16.00             |
| 22.28 | 0.923 | 1.000 | 24.29 | 0.18 | 11.91          | -9.90         | -19.85     | 21.80       | 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  | Kz    | Kzt   | qz    | GCPi  | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|-------|-------|-------|-------|-------|----------------|---------------|------------|-------------|-------------------|
| ft    |       |       | psf   | psf   | psf            | psf           | psf        | psf         | psf               |
| 35.00 | 1.015 | 1.000 | 26.72 | -0.18 | 22.78          | -0.68         | -10.63     | 23.45       | 16.00             |
| 28.64 | 0.973 | 1.000 | 25.61 | -0.18 | 22.03          | -0.68         | -10.63     | 22.70       | 16.00             |
| 22.28 | 0.923 | 1.000 | 24.29 | -0.18 | 21.13          | -0.68         | -10.63     | 21.80       | 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                                                                              | = $q_h * G * C_{p\_SW} - q_{ip} * +GCPi$ | Windward                             | = $q_z * G * C_{p\_WW} - q_{ip} * +GCPi$ |
| Leeward                                                                           | = $q_h * G * C_{p\_LW} - q_{ip} * +GCPi$ | Total                                | = Windward Press - Leeward Press         |
| * Minimum Pressure: Para 27.4.7 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 | End Dist | Cp_min | Cp_max | GCPi  | Pressure Pn_min* | Pressure Pp_min* | Pressure Pn_max | Pressure Pp_max |
|----------|------------|----------|--------|--------|-------|------------------|------------------|-----------------|-----------------|
|          | ft         | ft       |        |        |       | psf              | psf              | psf             | psf             |
| Roof_1   | 0.000      | 28.638   | -0.180 | -0.900 | 0.180 | 0.69             | -8.53            | -14.98          | -24.20          |
| Roof_2   | 28.638     | 57.276   | -0.180 | -0.500 | 0.180 | 0.69             | -8.53            | -6.27           | -15.49          |
| Roof_3   | 57.276     | 220.000  | -0.180 | -0.300 | 0.180 | 0.69             | -8.53            | -1.92           | -11.14          |

#### 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       =  $q_h * G * C_{p\_max} - q_{ip} * (+GC_{pi})$     Pn\_max       =  $q_h * G * C_{p\_max} - q_{in} * (-GC_{pi})$   
 Pp\_min\*       =  $q_h * G * C_{p\_min} - q_{ip} * (+GC_{pi})$     Pn\_min\*       =  $q_h * G * C_{p\_min} - q_{in} * (-GC_{pi})$   
 OH = Overhang    X = Dir along Ridge    Y = Dir Perpendicular 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





PSE Consulting Engineers Inc.

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## TRUSS ANALYSIS & DESIGN:

Pages 1,000 - 1,999

Job: 220-91

Designer: Luke S.

Date: 6/30/2020

Tributary Width = 10 ft

Dead Load

|      |   |     |   |    |    |   |    |     |
|------|---|-----|---|----|----|---|----|-----|
| DL = | 1 | psf | x | 10 | ft | = | 10 | plf |
|------|---|-----|---|----|----|---|----|-----|

Design  
Loads  
Used

Roof Live Load

|       |   |     |   |    |    |   |    |     |
|-------|---|-----|---|----|----|---|----|-----|
| RLL = | 5 | psf | x | 10 | ft | = | 50 | plf |
|-------|---|-----|---|----|----|---|----|-----|

Wind Loads

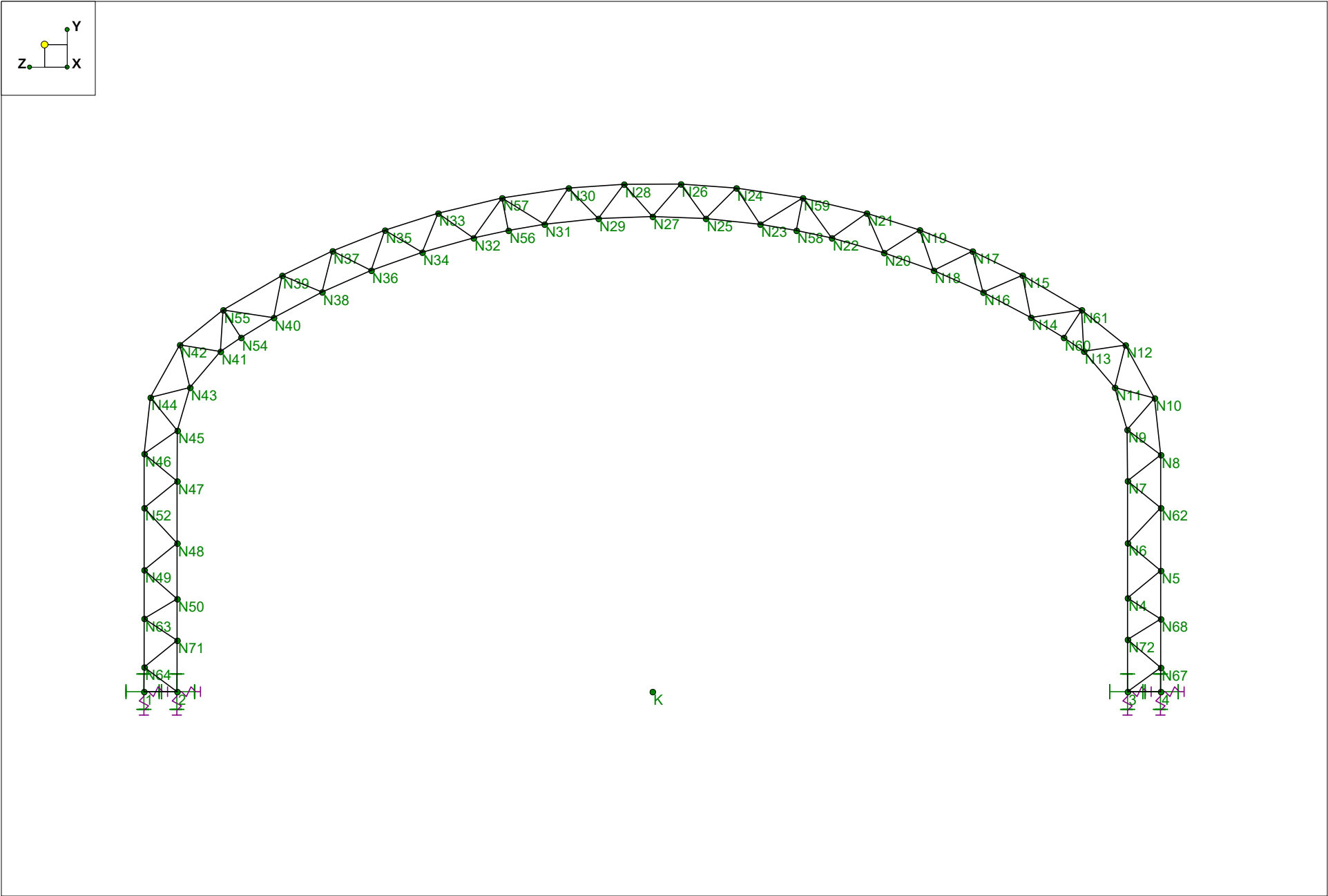
Wind Speed: 110 mph  
Cat II

Walls:

|                   |          |        |     |   |    |    |   |      |     |
|-------------------|----------|--------|-----|---|----|----|---|------|-----|
| +GC <sub>pi</sub> | Windward | 12.81  | psf | x | 10 | ft | = | 128  | plf |
|                   | Leeward  | -15.49 | psf | x | 10 | ft | = | -155 | plf |
| -GC <sub>pi</sub> | Windward | 22.03  | psf | x | 10 | ft | = | 220  | plf |
|                   | Leeward  | -6.27  | psf | x | 10 | ft | = | -63  | plf |

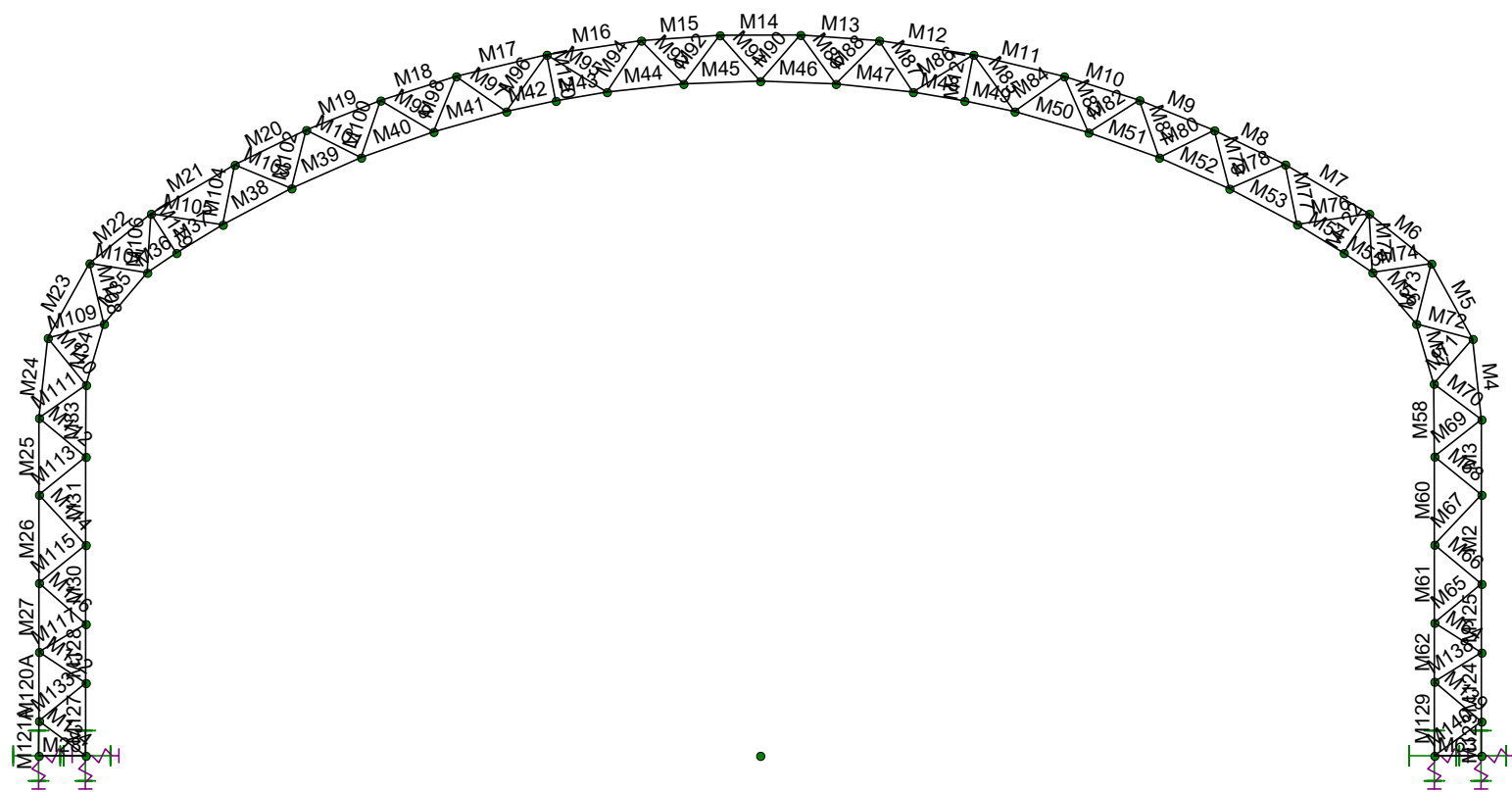
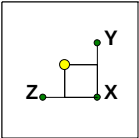
Roof:

|                   |                  |        |     |   |    |    |   |      |     |
|-------------------|------------------|--------|-----|---|----|----|---|------|-----|
| +GC <sub>pi</sub> | Windward Quarter | -24.20 | psf | x | 10 | ft | = | -242 | plf |
|                   | Center Half      | -23.81 | psf | x | 10 | ft | = | -238 | plf |
|                   | Leeward Quarter  | -15.49 | psf | x | 10 | ft | = | -155 | plf |
| -GC <sub>pi</sub> | Windward Quarter | -14.98 | psf | x | 10 | ft | = | -150 | plf |
|                   | Center Half      | -14.59 | psf | x | 10 | ft | = | -146 | plf |
|                   | Leeward Quarter  | -6.27  | psf | x | 10 | ft | = | -63  | plf |

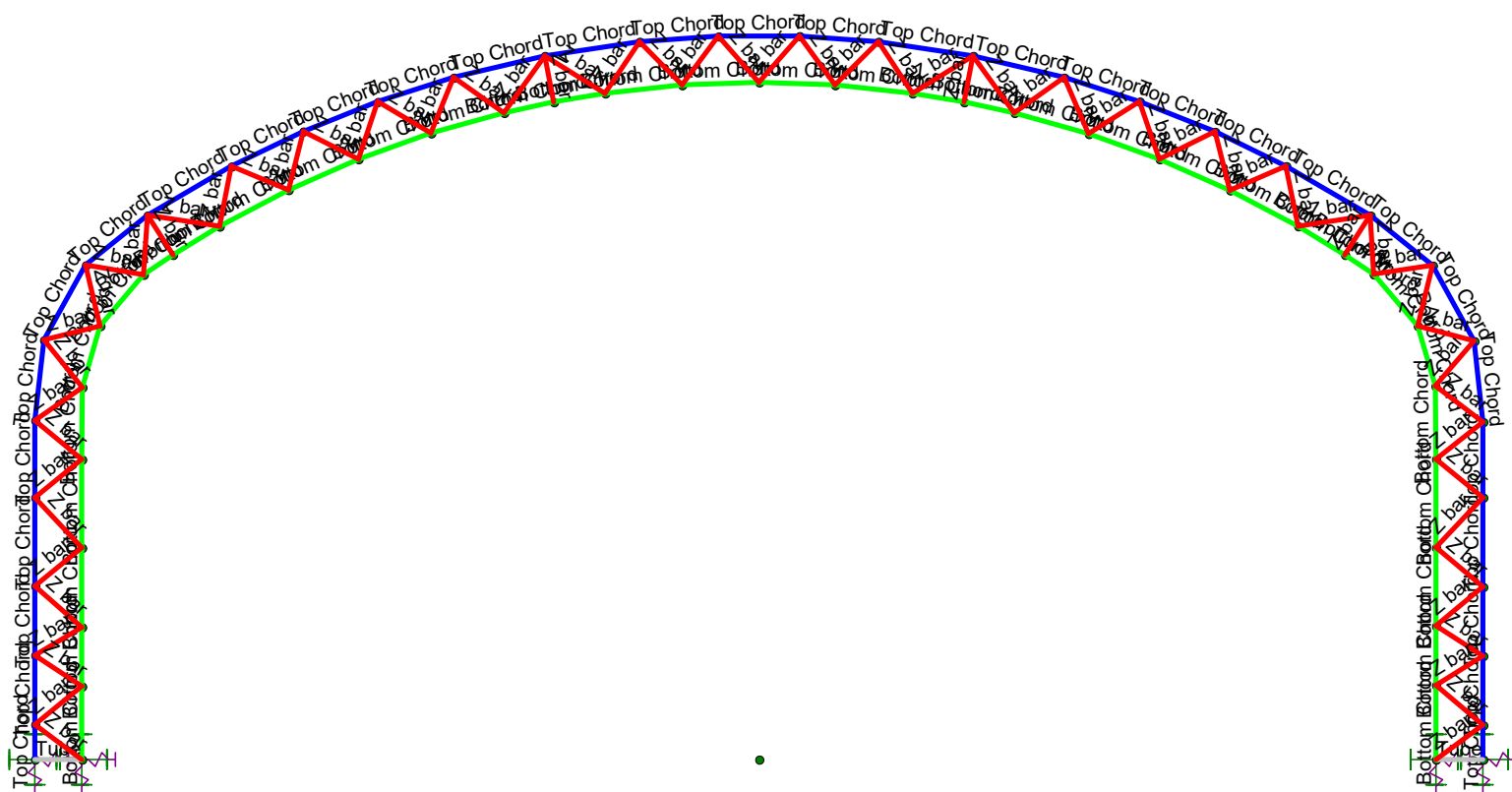


|                       |                                |                                    |
|-----------------------|--------------------------------|------------------------------------|
| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 1                             |
| Luke S.               |                                | July 1, 2020 at 8:57 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |

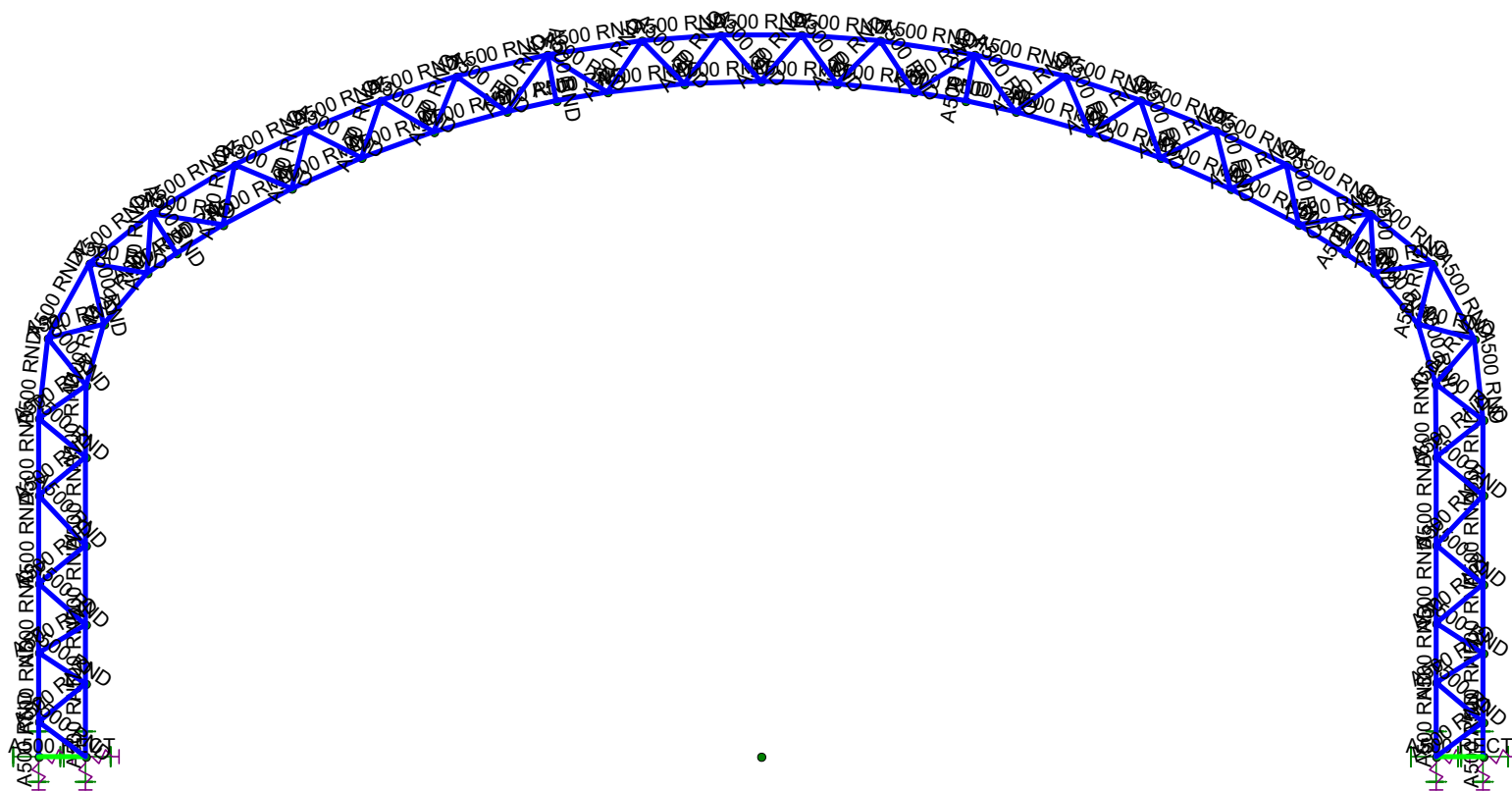




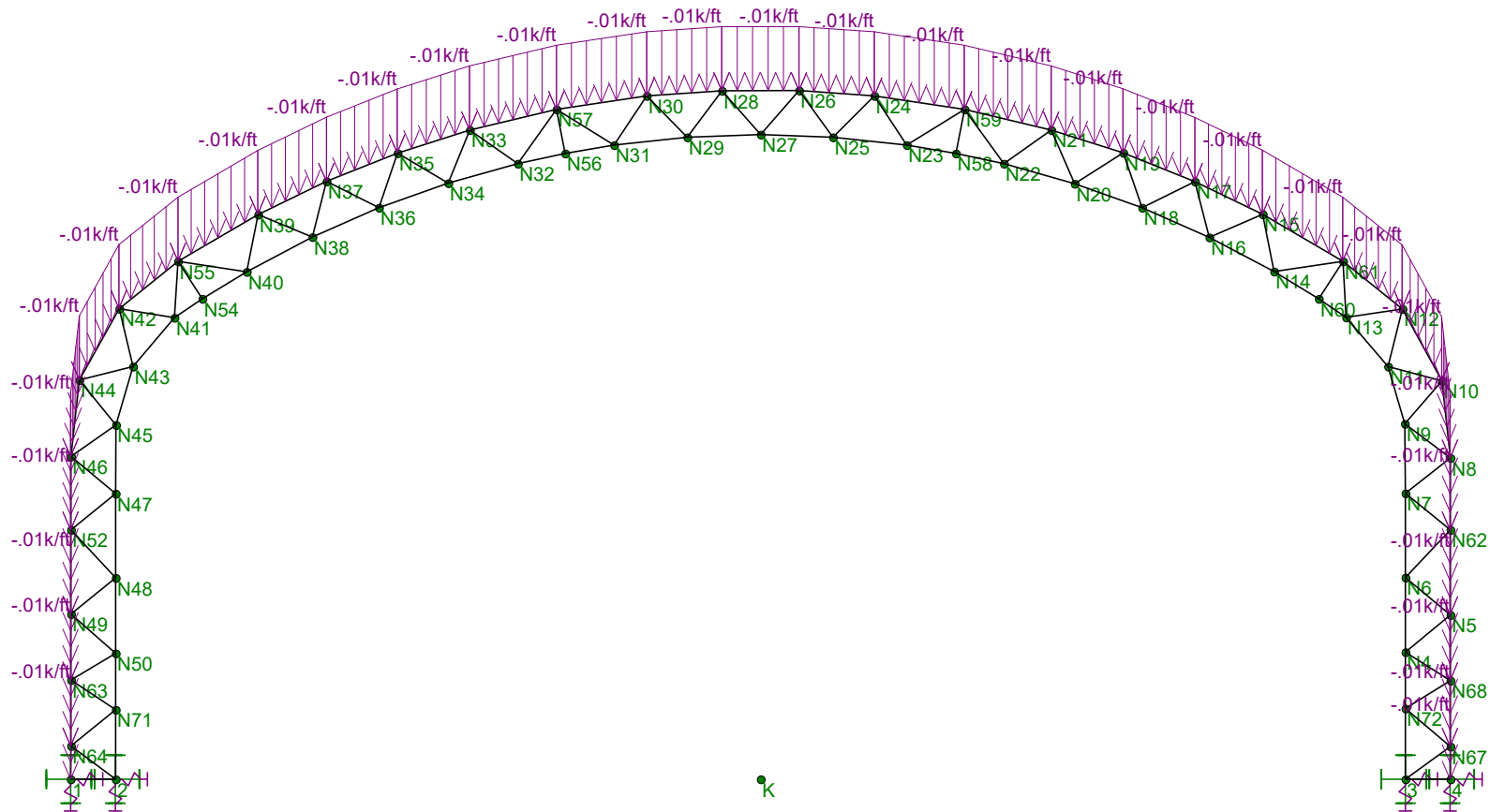
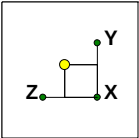
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|-----------------------|--------------------------------|------------------------------------|
| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 2                             |
| Luke S.               |                                | July 1, 2020 at 8:57 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |



|                       |                                |                                    |
|-----------------------|--------------------------------|------------------------------------|
| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 3                             |
| Luke S.               |                                | July 1, 2020 at 8:58 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |



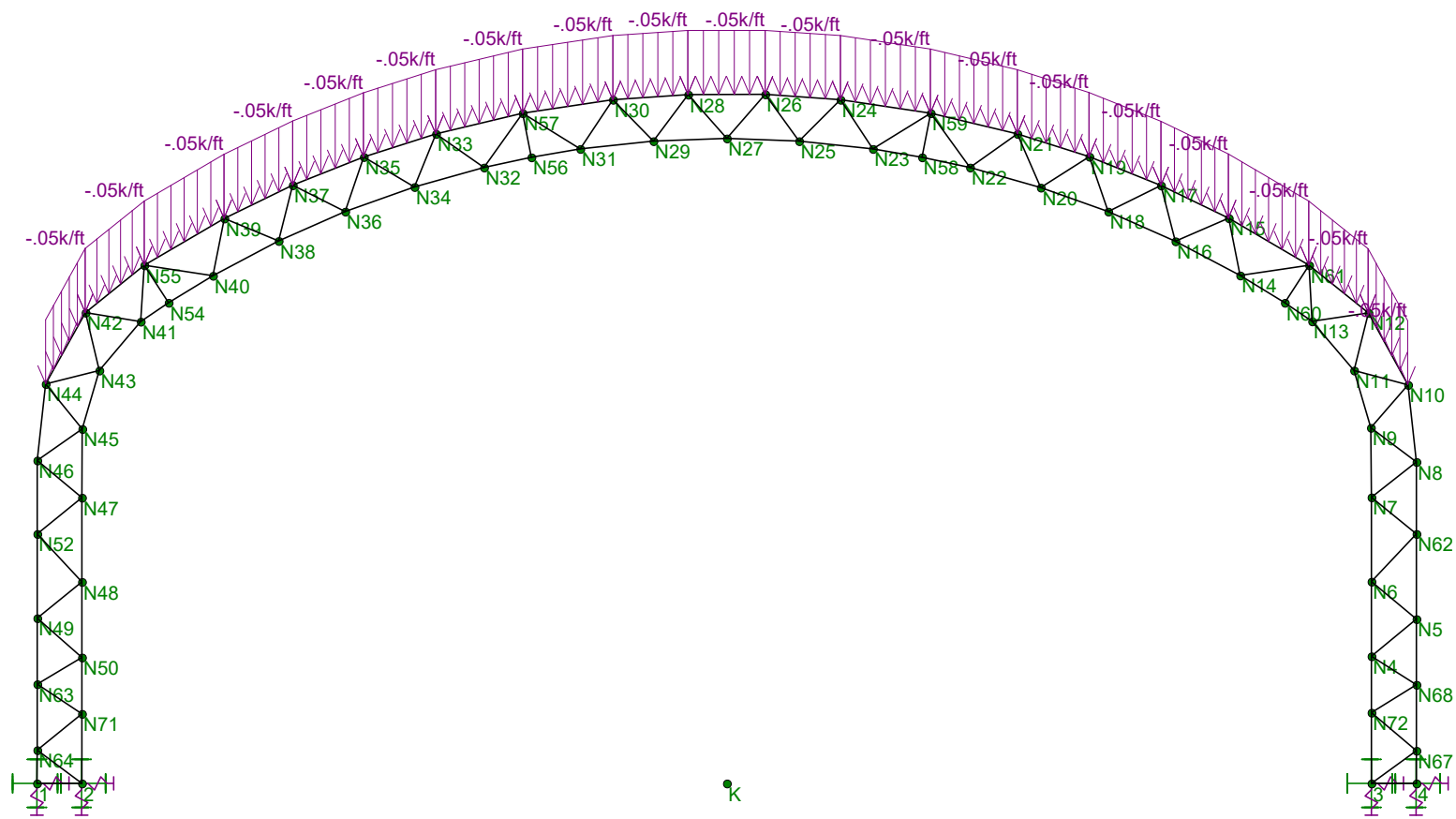
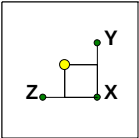
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| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 4                             |
| Luke S.               |                                | July 1, 2020 at 8:58 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |



Loads: BLC 1, DL

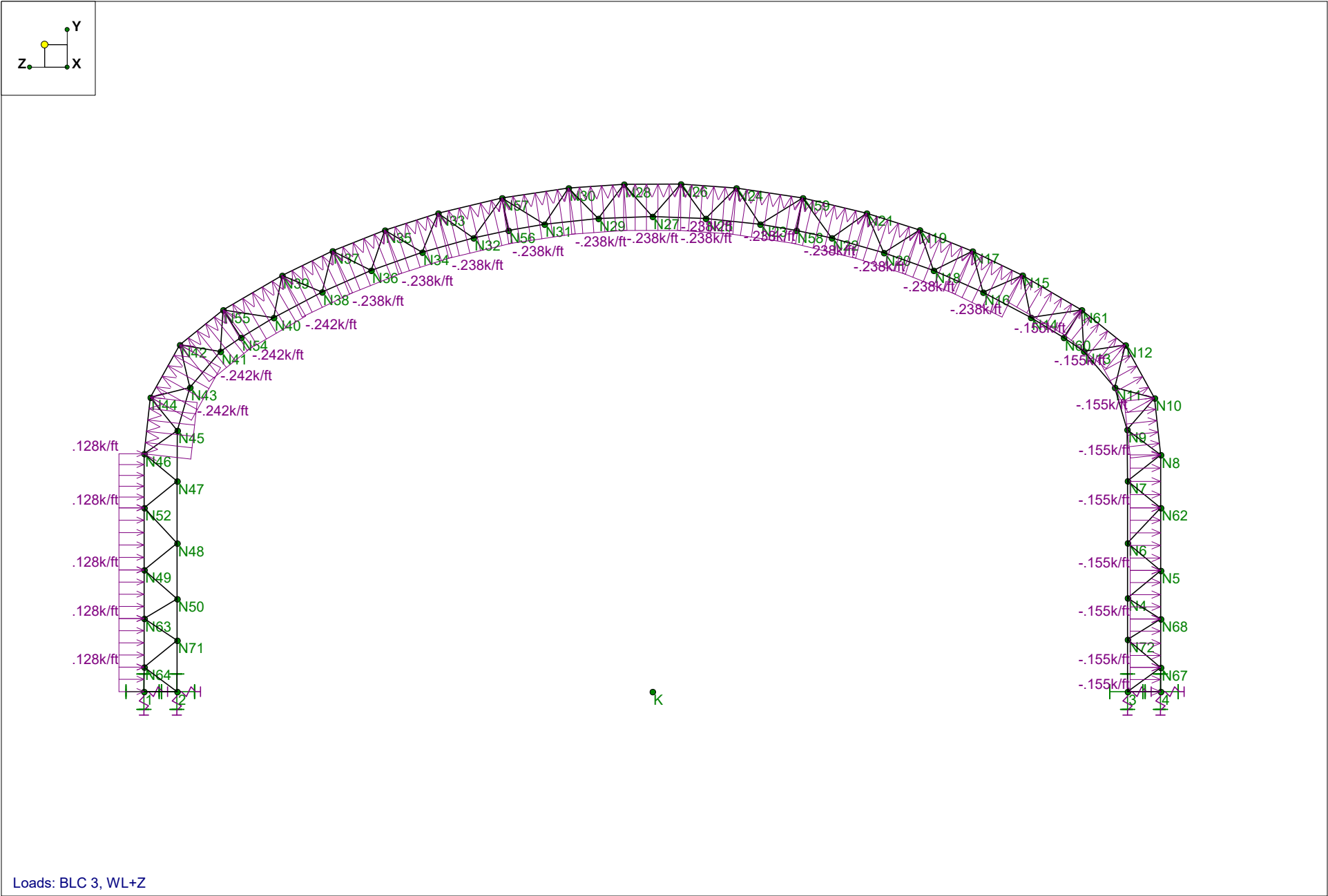
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| Luke S.               |                                | July 1, 2020 at 8:59 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |



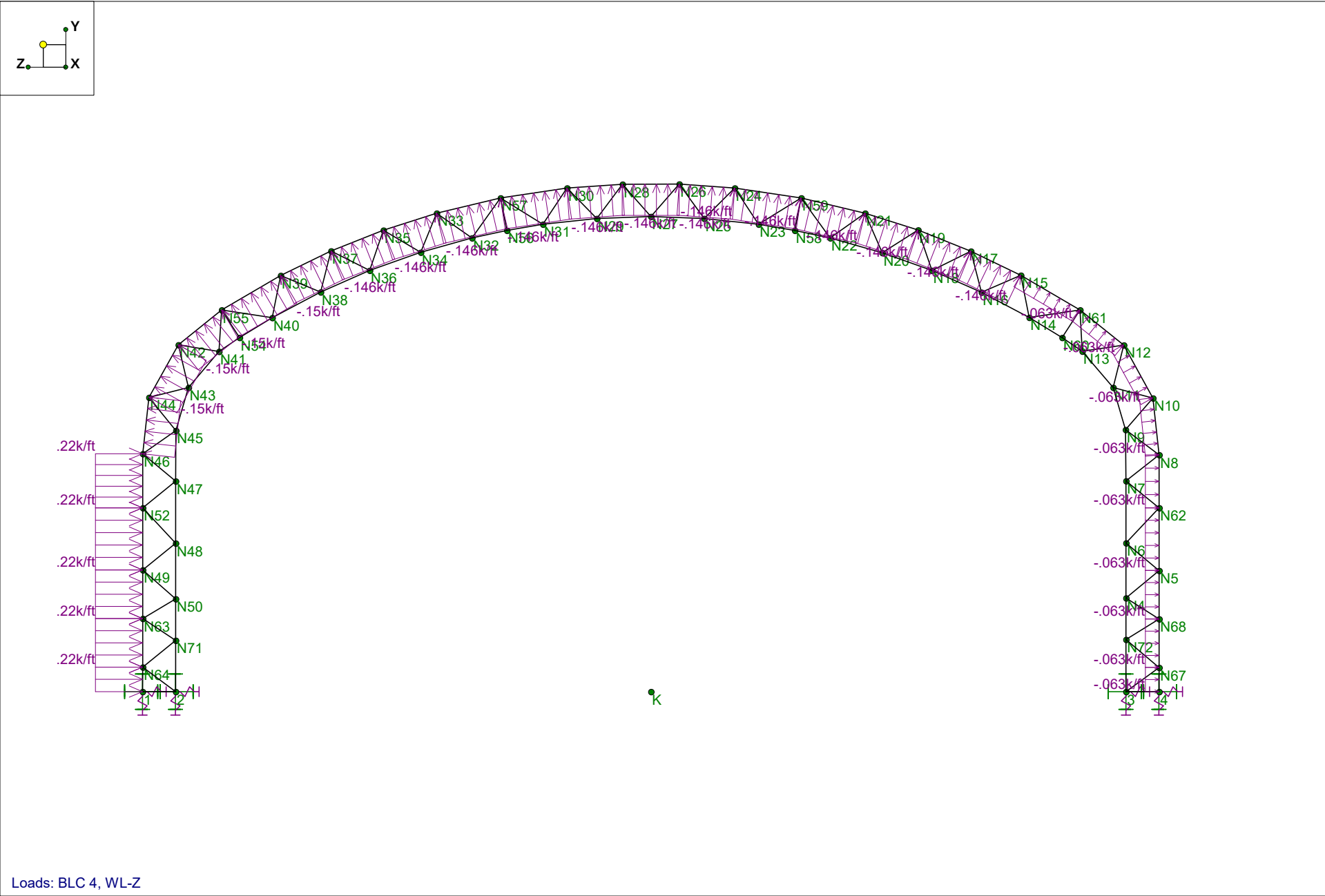


Loads: BLC 2, RLL

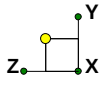
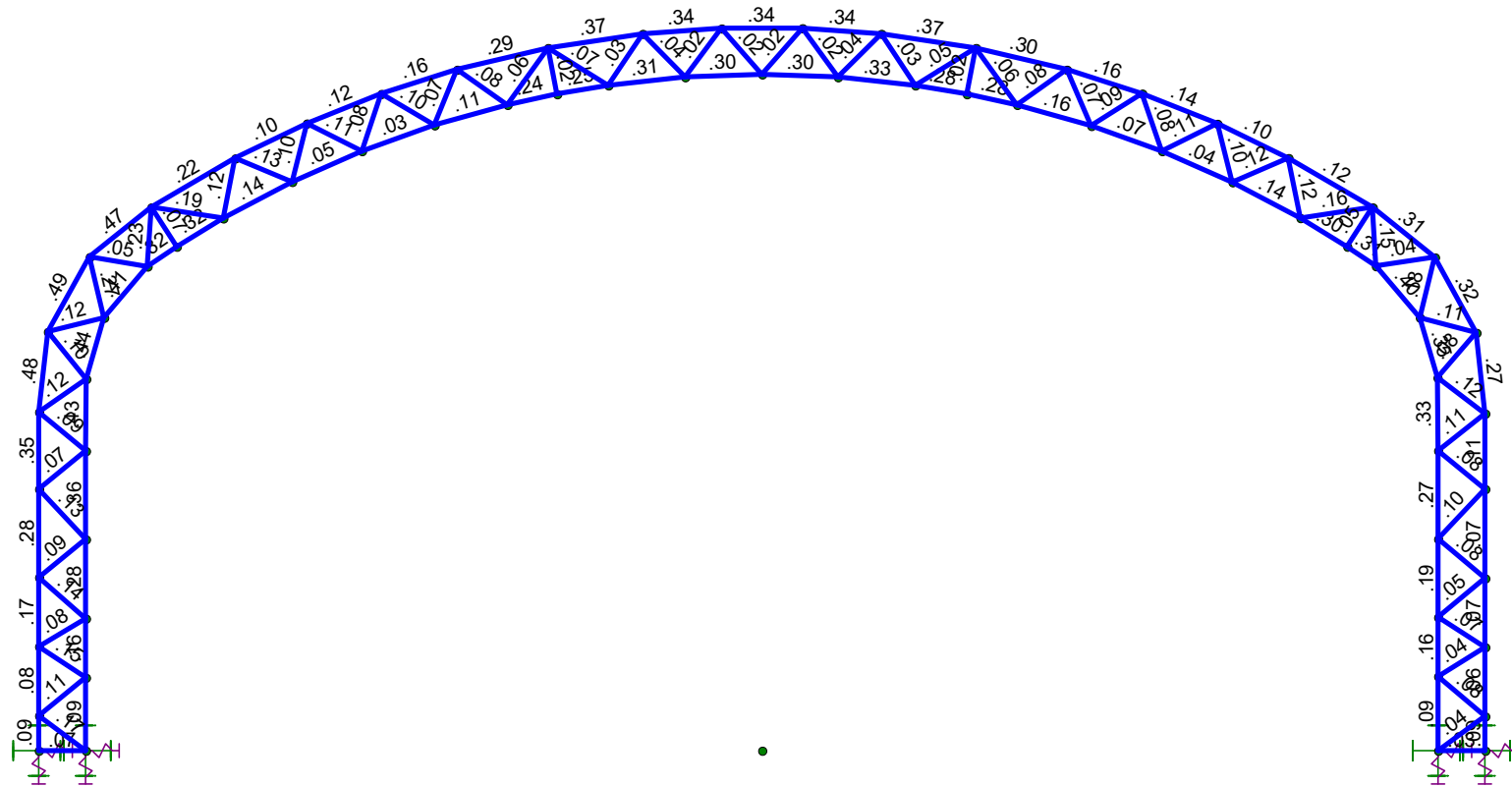
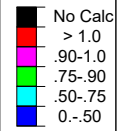
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| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 6                             |
| Luke S.               |                                | July 1, 2020 at 8:59 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |



|                       |                                |                                    |
|-----------------------|--------------------------------|------------------------------------|
| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 7                             |
| Luke S.               |                                | July 1, 2020 at 8:59 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |



|                       |                                |                                    |
|-----------------------|--------------------------------|------------------------------------|
| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 8                             |
| Luke S.               |                                | July 1, 2020 at 8:59 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |

Code Check  
( Env )

Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

Big Top Manufacturing

Luke S.

220-91

70x220x35 World Wide Terminals

SK - 9

July 1, 2020 at 8:59 AM

70x220x35 World Wide Terminals.r3d





Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:01 AM  
 Checked By: \_\_\_\_\_

### Hot Rolled Steel Properties

|   | Label          | E [ksi] | G [ksi] | Nu | Therm (/1... | Density(k/f... | Yield[ksi] | Ry  | Fu[ksi] | Rt  |
|---|----------------|---------|---------|----|--------------|----------------|------------|-----|---------|-----|
| 1 | A992           | 29000   | 11154   | .3 | .65          | .49            | 50         | 1.1 | 65      | 1.1 |
| 2 | A36 Gr.36      | 29000   | 11154   | .3 | .65          | .49            | 36         | 1.5 | 58      | 1.2 |
| 3 | A572 Gr.50     | 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 RND       | 29000   | 11154   | .3 | .65          | .49            | 55         | 1.5 | 60      | 1.2 |
| 9 | A500 RECT      | 29000   | 11154   | .3 | .65          | .49            | 50         | 1.5 | 55      | 1.2 |

### Hot Rolled Steel Section Sets

|   | Label        | Shape       | Type | Design List | Material  | Design R... | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|--------------|-------------|------|-------------|-----------|-------------|---------|-----------|-----------|---------|
| 1 | Top Chord    | 2.875x0.109 | Beam | Pipe        | A500 RND  | Typical     | .947    | .907      | .907      | 1.814   |
| 2 | Bottom Chord | 2.875x0.109 | Beam | Pipe        | A500 RND  | Typical     | .947    | .907      | .907      | 1.814   |
| 3 | Z bar        | 1.9x0.09    | Beam | Pipe        | A500 RND  | Typical     | .512    | .21       | .21       | .42     |
| 4 | Tube         | 2x3x0.085   | Beam | Tube        | A500 RECT | Typical     | .821    | .555      | 1.044     | 1.097   |

### Joint Coordinates and Temperatures

|    | Label | X [ft] | Y [ft]    | Z [ft]    | Temp [F] | Detach From Diap... |
|----|-------|--------|-----------|-----------|----------|---------------------|
| 1  | 2     | 0      | 0         | 67.5      | 0        |                     |
| 2  | 3     | 0      | 0         | 2.260417  | 0        |                     |
| 3  | 4     | 0      | 0         | 0         | 0        |                     |
| 4  | N4    | 0      | 6.437542  | 2.260417  | 0        |                     |
| 5  | N5    | 0      | 8.315582  | 0.        | 0        |                     |
| 6  | N6    | 0      | 10.216558 | 2.260417  | 0        |                     |
| 7  | N7    | 0      | 14.470785 | 2.260417  | 0        |                     |
| 8  | N8    | 0      | 16.255104 | 0.        | 0        |                     |
| 9  | N9    | 0      | 17.992117 | 2.290676  | 0        |                     |
| 10 | N10   | 0      | 20.163911 | 0.420033  | 0        |                     |
| 11 | N11   | 0      | 20.880411 | 3.146714  | 0        |                     |
| 12 | N12   | 0      | 23.798011 | 2.425513  | 0        |                     |
| 13 | N13   | 0      | 23.37673  | 5.264893  | 0        |                     |
| 14 | N14   | 0      | 25.687508 | 8.90788   | 0        |                     |
| 15 | N15   | 0      | 28.587503 | 9.487312  | 0        |                     |
| 16 | N16   | 0      | 27.420502 | 12.187936 | 0        |                     |
| 17 | N17   | 0      | 30.245835 | 12.912983 | 0        |                     |
| 18 | N18   | 0      | 28.917223 | 15.586551 | 0        |                     |
| 19 | N19   | 0      | 31.693706 | 16.538683 | 0        |                     |
| 20 | N20   | 0      | 30.142367 | 19.002296 | 0        |                     |
| 21 | N21   | 0      | 32.853984 | 20.174173 | 0        |                     |
| 22 | N22   | 0      | 31.147678 | 22.580393 | 0        |                     |
| 23 | N23   | 0      | 32.091766 | 27.480048 | 0        |                     |
| 24 | N24   | 0      | 34.574464 | 29.121783 | 0        |                     |
| 25 | N25   | 0      | 32.490446 | 31.210567 | 0        |                     |
| 26 | N26   | 0      | 34.845235 | 32.930192 | 0        |                     |
| 27 | N27   | 0      | 32.619792 | 34.880209 | 0        |                     |
| 28 | N28   | 0      | 34.845204 | 36.831089 | 0        |                     |
| 29 | N29   | 0      | 32.488107 | 38.582837 | 0        |                     |
| 30 | N30   | 0      | 34.575022 | 40.633394 | 0        |                     |
| 31 | N31   | 0      | 32.08985  | 42.293719 | 0        |                     |
| 32 | N32   | 0      | 31.152329 | 47.160857 | 0        |                     |
| 33 | N33   | 0      | 32.854541 | 49.584261 | 0        |                     |
| 34 | N34   | 0      | 30.168072 | 50.677531 | 0        |                     |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:01 AM  
 Checked By: \_\_\_\_\_

### Joint Coordinates and Temperatures (Continued)

|    | Label | X [ft] | Y [ft]    | Z [ft]    | Temp [F] | Detach From Diap... |
|----|-------|--------|-----------|-----------|----------|---------------------|
| 35 | N35   | 0      | 31.686098 | 53.242955 | 0        |                     |
| 36 | N36   | 0      | 28.917223 | 54.173866 | 0        |                     |
| 37 | N37   | 0      | 30.252948 | 56.831319 | 0        |                     |
| 38 | N38   | 0      | 27.437025 | 57.538285 | 0        |                     |
| 39 | N39   | 0      | 28.576835 | 60.293297 | 0        |                     |
| 40 | N40   | 0      | 25.68381  | 60.858969 | 0        |                     |
| 41 | N41   | 0      | 23.35356  | 64.525805 | 0        |                     |
| 42 | N42   | 0      | 23.816763 | 67.318552 | 0        |                     |
| 43 | N43   | 0      | 20.880411 | 66.613703 | 0        |                     |
| 44 | N44   | 0      | 20.208031 | 69.32698  | 0        |                     |
| 45 | N45   | 0      | 17.928172 | 67.475185 | 0        |                     |
| 46 | N46   | 0      | 16.328974 | 69.760417 | 0        |                     |
| 47 | N47   | 0      | 14.457808 | 67.5      | 0        |                     |
| 48 | N48   | 0      | 10.196032 | 67.5      | 0        |                     |
| 49 | N49   | 0      | 8.358017  | 69.760417 | 0        |                     |
| 50 | N50   | 0      | 6.369     | 67.5      | 0        |                     |
| 51 | 1     | 0      | 0         | 69.760417 | 0        |                     |
| 52 | N52   | 0      | 12.618251 | 69.760417 | 0        |                     |
| 53 | N54   | 0      | 24.312811 | 63.109808 | 0        |                     |
| 54 | N55   | 0      | 26.212957 | 64.334116 | 0        |                     |
| 55 | N56   | 0      | 31.673706 | 44.765782 | 0        |                     |
| 56 | N57   | 0      | 33.893091 | 45.194516 | 0        |                     |
| 57 | N58   | 0      | 31.673706 | 24.994635 | 0        |                     |
| 58 | N59   | 0      | 33.893091 | 24.565901 | 0        |                     |
| 59 | N60   | 0      | 24.312811 | 6.650609  | 0        |                     |
| 60 | N61   | 0      | 26.212957 | 5.426301  | 0        |                     |
| 61 | N62   | 0      | 12.619395 | 0.        | 0        |                     |
| 62 | K     | 0      | 0         | 34.880209 | 0        |                     |
| 63 | N63   | 0      | 5.018512  | 69.760417 | 0        |                     |
| 64 | N64   | 0      | 1.679008  | 69.760417 | 0        |                     |
| 65 | N67   | 0      | 1.657791  | 0.        | 0        |                     |
| 66 | N68   | 0      | 4.986687  | 0.        | 0        |                     |
| 67 | N71   | 0      | 3.52675   | 67.5      | 0        |                     |
| 68 | N72   | 0      | 3.578156  | 2.260417  | 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 | S10      | S10      |                  | Reaction         | Reaction         |
| 2 | 2           | Reaction | S10      | S10      |                  | Reaction         | Reaction         |
| 3 | 3           | Reaction | S10      | S10      |                  | Reaction         | Reaction         |
| 4 | 4           | Reaction | S10      | S10      |                  | Reaction         | Reaction         |

### Hot Rolled Steel Design Parameters

|    | Label | Shape         | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torque[ft] | Kyy | Kzz | Cb | Functi... |
|----|-------|---------------|------------|----------|----------|---------------|---------------|--------------|-----|-----|----|-----------|
| 1  | M30   | Bottom Cho... | 3.827      | 6.8      |          | 6.8           | 6.8           | 6.8          | .7  | .7  |    | Lateral   |
| 2  | M31   | Bottom Cho... | 4.262      | 6.8      |          | 6.8           | 6.8           | 6.8          | .7  | .7  |    | Lateral   |
| 3  | M33   | Bottom Cho... | 3.47       | 6.4      |          | 6.4           | 6.4           | 6.4          | .7  | .7  |    | Lateral   |
| 4  | M34   | Bottom Cho... | 3.075      | 6.4      |          | 6.4           | 6.4           | 6.4          | .7  | .7  |    | Lateral   |
| 5  | M35   | Bottom Cho... | 3.237      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral   |
| 6  | M36   | Bottom Cho... | 1.71       | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral   |
| 7  | M37   | Bottom Cho... | 2.636      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral   |
| 8  | M38   | Bottom Cho... | 3.755      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral   |
| 9  | M39   | Bottom Cho... | 3.676      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral   |
| 10 | M40   | Bottom Cho... | 3.713      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral   |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:01 AM  
 Checked By: \_\_\_\_\_

### Hot Rolled Steel Design Parameters (Continued)

|    | Label | Shape         | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torque[ft] | Kyy | Kzz | Cb | Funci... |
|----|-------|---------------|------------|----------|----------|---------------|---------------|--------------|-----|-----|----|----------|
| 11 | M41   | Bottom Cho... | 3.652      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 12 | M42   | Bottom Cho... | 2.451      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 13 | M43   | Bottom Cho... | 2.507      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 14 | M44   | Bottom Cho... | 3.732      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 15 | M45   | Bottom Cho... | 3.705      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 16 | M46   | Bottom Cho... | 3.672      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 17 | M47   | Bottom Cho... | 3.752      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 18 | M48   | Bottom Cho... | 2.52       | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 19 | M49   | Bottom Cho... | 2.471      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 20 | M50   | Bottom Cho... | 3.717      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 21 | M51   | Bottom Cho... | 3.629      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 22 | M52   | Bottom Cho... | 3.714      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 23 | M53   | Bottom Cho... | 3.71       | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 24 | M54   | Bottom Cho... | 2.643      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 25 | M55   | Bottom Cho... | 1.672      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 26 | M56   | Bottom Cho... | 3.274      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 27 | M57   | Bottom Cho... | 3.012      | 6.4      |          | 6.4           | 6.4           | 6.4          | .7  | .7  |    | Lateral  |
| 28 | M58   | Bottom Cho... | 3.521      | 6.4      |          | 6.4           | 6.4           | 6.4          | .7  | .7  |    | Lateral  |
| 29 | M60   | Bottom Cho... | 4.254      | 6.8      |          | 6.8           | 6.8           | 6.8          | .7  | .7  |    | Lateral  |
| 30 | M61   | Bottom Cho... | 3.779      | 6.8      |          | 6.8           | 6.8           | 6.8          | .7  | .7  |    | Lateral  |
| 31 | M62   | Bottom Cho... | 2.859      | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 32 | M127  | Bottom Cho... | 3.527      | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 33 | M128  | Bottom Cho... | 2.842      | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 34 | M129  | Bottom Cho... | 3.578      | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 35 | M2    | Top Chord     | 4.304      | 6.8      |          | 6.8           | 6.8           | 6.8          | .7  | .7  |    | Lateral  |
| 36 | M3    | Top Chord     | 3.636      | 6.8      |          | 6.8           | 6.8           | 6.8          | .7  | .7  |    | Lateral  |
| 37 | M4    | Top Chord     | 3.931      | 6.4      |          | 6.4           | 6.4           | 6.4          | .7  | .7  |    | Lateral  |
| 38 | M5    | Top Chord     | 4.151      | 6.4      |          | 6.4           | 6.4           | 6.4          | .7  | .7  |    | Lateral  |
| 39 | M6    | Top Chord     | 3.852      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 40 | M7    | Top Chord     | 4.704      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 41 | M8    | Top Chord     | 3.806      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 42 | M9    | Top Chord     | 3.904      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 43 | M10   | Top Chord     | 3.816      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 44 | M11   | Top Chord     | 4.513      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 45 | M12   | Top Chord     | 4.607      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 46 | M13   | Top Chord     | 3.818      | 4.65     |          | 4.65          | 4.65          | 4.65         | .7  | .7  |    | Lateral  |
| 47 | M14   | Top Chord     | 3.901      | 4.65     |          | 4.65          | 4.65          | 4.65         | .7  | .7  |    | Lateral  |
| 48 | M15   | Top Chord     | 3.812      | 4.65     |          | 4.65          | 4.65          | 4.65         | .7  | .7  |    | Lateral  |
| 49 | M16   | Top Chord     | 4.612      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 50 | M17   | Top Chord     | 4.511      | 10.6     |          | 10.6          | 10.6          | 10.6         | .7  | .7  |    | Lateral  |
| 51 | M18   | Top Chord     | 3.841      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 52 | M19   | Top Chord     | 3.864      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 53 | M20   | Top Chord     | 3.846      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 54 | M21   | Top Chord     | 4.681      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 55 | M22   | Top Chord     | 3.827      | 9.3      |          | 9.3           | 9.3           | 9.3          | .7  | .7  |    | Lateral  |
| 56 | M23   | Top Chord     | 4.13       | 6.4      |          | 6.4           | 6.4           | 6.4          | .7  | .7  |    | Lateral  |
| 57 | M24   | Top Chord     | 3.903      | 6.4      |          | 6.4           | 6.4           | 6.4          | .7  | .7  |    | Lateral  |
| 58 | M25   | Top Chord     | 3.711      | 6.8      |          | 6.8           | 6.8           | 6.8          | .7  | .7  |    | Lateral  |
| 59 | M26   | Top Chord     | 4.26       | 6.8      |          | 6.8           | 6.8           | 6.8          | .7  | .7  |    | Lateral  |
| 60 | M27   | Top Chord     | 3.34       | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 61 | M120A | Top Chord     | 3.34       | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 62 | M121A | Top Chord     | 1.679      | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 63 | M123  | Top Chord     | 1.658      | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 64 | M124  | Top Chord     | 3.329      | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 65 | M125  | Top Chord     | 3.329      | 8.8      |          | 8.8           | 8.8           | 8.8          | .7  | .7  |    | Lateral  |
| 66 | M28   | Tube          | 2.26       |          |          |               |               |              | .7  | .7  |    | Lateral  |
| 67 | M63   | Tube          | 2.26       |          |          |               |               |              | .7  | .7  |    | Lateral  |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
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 Checked By: \_\_\_\_\_

### Hot Rolled Steel Design Parameters (Continued)

|     | Label | Shape | Length[ft] | Lbvy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torque[ft] | Kyy | Kzz | Cb | Function... |
|-----|-------|-------|------------|----------|----------|---------------|---------------|--------------|-----|-----|----|-------------|
| 68  | M64   | Z bar | 2.686      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 69  | M65   | Z bar | 2.939      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 70  | M66   | Z bar | 2.954      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 71  | M67   | Z bar | 3.299      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 72  | M68   | Z bar | 2.922      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 73  | M69   | Z bar | 2.88       |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 74  | M70   | Z bar | 2.875      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 75  | M71   | Z bar | 2.866      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 76  | M72   | Z bar | 2.819      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 77  | M73   | Z bar | 3.005      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 78  | M74   | Z bar | 2.87       |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 79  | M75   | Z bar | 2.841      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 80  | M76   | Z bar | 3.521      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 81  | M77   | Z bar | 2.957      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 82  | M78   | Z bar | 2.942      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 83  | M79   | Z bar | 2.917      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 84  | M80   | Z bar | 2.985      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 85  | M81   | Z bar | 2.935      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 86  | M82   | Z bar | 2.911      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 87  | M83   | Z bar | 2.954      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 88  | M84   | Z bar | 2.95       |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 89  | M85   | Z bar | 3.388      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 90  | M86   | Z bar | 3.426      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 91  | M87   | Z bar | 2.976      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 92  | M88   | Z bar | 2.951      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 93  | M89   | Z bar | 2.916      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 94  | M90   | Z bar | 2.959      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 95  | M91   | Z bar | 2.959      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 96  | M92   | Z bar | 2.937      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 97  | M93   | Z bar | 2.926      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 98  | M94   | Z bar | 2.989      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 99  | M95   | Z bar | 3.416      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 100 | M96   | Z bar | 3.373      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 101 | M97   | Z bar | 2.961      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 102 | M98   | Z bar | 2.9        |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 103 | M99   | Z bar | 2.981      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 104 | M100  | Z bar | 2.921      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 105 | M101  | Z bar | 2.974      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 106 | M102  | Z bar | 2.903      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 107 | M103  | Z bar | 2.981      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 108 | M104  | Z bar | 2.948      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 109 | M105  | Z bar | 3.515      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 110 | M106  | Z bar | 2.866      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 111 | M107  | Z bar | 2.831      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 112 | M108  | Z bar | 3.02       |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 113 | M109  | Z bar | 2.795      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 114 | M110  | Z bar | 2.937      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 115 | M111  | Z bar | 2.789      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 116 | M112  | Z bar | 2.934      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 117 | M113  | Z bar | 2.914      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 118 | M114  | Z bar | 3.313      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 119 | M115  | Z bar | 2.913      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 120 | M116  | Z bar | 3.011      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 121 | M117  | Z bar | 2.633      |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 122 | M119  | Z bar | 2.26       |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 123 | M120  | Z bar | 2.26       |          |          |               |               |              | .7  | .7  |    | Lateral     |
| 124 | M121  | Z bar | 2.26       |          |          |               |               |              | .7  | .7  |    | Lateral     |





Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:01 AM  
 Checked By: \_\_\_\_\_

### Hot Rolled Steel Design Parameters (Continued)

|     | Label | Shape | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torque[ft] | Kyy | Kzz | Cb | Function |
|-----|-------|-------|------------|----------|----------|---------------|---------------|--------------|-----|-----|----|----------|
| 125 | M122  | Z bar | 2.26       |          |          |               |               |              | .7  | .7  |    | Lateral  |
| 126 | M132  | Z bar | 2.708      |          |          |               |               |              | .7  | .7  |    | Lateral  |
| 127 | M133  | Z bar | 2.92       |          |          |               |               |              | .7  | .7  |    | Lateral  |
| 128 | M134  | Z bar | 2.816      |          |          |               |               |              | .7  | .7  |    | Lateral  |
| 129 | M138  | Z bar | 2.663      |          |          |               |               |              | .7  | .7  |    | Lateral  |
| 130 | M139  | Z bar | 2.966      |          |          |               |               |              | .7  | .7  |    | Lateral  |
| 131 | M140  | Z bar | 2.803      |          |          |               |               |              | .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  | M25          | Y         | -01                       | -01                       | 0                    | 0                  |
| 2  | M24          | Y         | -01                       | -01                       | 0                    | 0                  |
| 3  | M23          | Y         | -01                       | -01                       | 0                    | 0                  |
| 4  | M22          | Y         | -01                       | -01                       | 0                    | 0                  |
| 5  | M21          | Y         | -01                       | -01                       | 0                    | 0                  |
| 6  | M20          | Y         | -01                       | -01                       | 0                    | 0                  |
| 7  | M19          | Y         | -01                       | -01                       | 0                    | 0                  |
| 8  | M18          | Y         | -01                       | -01                       | 0                    | 0                  |
| 9  | M17          | Y         | -01                       | -01                       | 0                    | 0                  |
| 10 | M16          | Y         | -01                       | -01                       | 0                    | 0                  |
| 11 | M15          | Y         | -01                       | -01                       | 0                    | 0                  |
| 12 | M14          | Y         | -01                       | -01                       | 0                    | 0                  |
| 13 | M13          | Y         | -01                       | -01                       | 0                    | 0                  |
| 14 | M12          | Y         | -01                       | -01                       | 0                    | 0                  |
| 15 | M11          | Y         | -01                       | -01                       | 0                    | 0                  |
| 16 | M10          | Y         | -01                       | -01                       | 0                    | 0                  |
| 17 | M9           | Y         | -01                       | -01                       | 0                    | 0                  |
| 18 | M8           | Y         | -01                       | -01                       | 0                    | 0                  |
| 19 | M7           | Y         | -01                       | -01                       | 0                    | 0                  |
| 20 | M6           | Y         | -01                       | -01                       | 0                    | 0                  |
| 21 | M5           | Y         | -01                       | -01                       | 0                    | 0                  |
| 22 | M4           | Y         | -01                       | -01                       | 0                    | 0                  |
| 23 | M3           | Y         | -01                       | -01                       | 0                    | 0                  |
| 24 | M2           | Y         | -01                       | -01                       | 0                    | 0                  |
| 25 | M26          | Y         | -01                       | -01                       | 0                    | 0                  |
| 26 | M27          | Y         | -01                       | -01                       | 0                    | 0                  |
| 27 | M120A        | Y         | -01                       | -01                       | 0                    | 0                  |
| 28 | M121A        | Y         | -01                       | -01                       | 0                    | 0                  |
| 29 | M123         | Y         | -01                       | -01                       | 0                    | 0                  |
| 30 | M124         | Y         | -01                       | -01                       | 0                    | 0                  |
| 31 | M125         | Y         | -01                       | -01                       | 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         | -05                       | -05                       | 0                    | 0                  |
| 2  | M22          | Y         | -05                       | -05                       | 0                    | 0                  |
| 3  | M21          | Y         | -05                       | -05                       | 0                    | 0                  |
| 4  | M20          | Y         | -05                       | -05                       | 0                    | 0                  |
| 5  | M19          | Y         | -05                       | -05                       | 0                    | 0                  |
| 6  | M5           | Y         | -05                       | -05                       | 0                    | 0                  |
| 7  | M6           | Y         | -05                       | -05                       | 0                    | 0                  |
| 8  | M7           | Y         | -05                       | -05                       | 0                    | 0                  |
| 9  | M8           | Y         | -05                       | -05                       | 0                    | 0                  |
| 10 | M9           | Y         | -05                       | -05                       | 0                    | 0                  |
| 11 | M18          | Y         | -05                       | -05                       | 0                    | 0                  |



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### ***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, %] |
|----|--------------|-----------|--------------------------|--------------------------|-----------------------|---------------------|
| 12 | M17          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 13 | M16          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 14 | M15          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 15 | M14          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 16 | M13          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 17 | M12          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 18 | M11          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 19 | M10          | Y         | -.05                     | -.05                     | 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  | M121A        | y         | .128                     | .128                     | 0                     | 0                   |
| 2  | M120A        | y         | .128                     | .128                     | 0                     | 0                   |
| 3  | M27          | y         | .128                     | .128                     | 0                     | 0                   |
| 4  | M26          | y         | .128                     | .128                     | 0                     | 0                   |
| 5  | M25          | y         | .128                     | .128                     | 0                     | 0                   |
| 6  | M123         | y         | -.155                    | -.155                    | 0                     | 0                   |
| 7  | M124         | y         | -.155                    | -.155                    | 0                     | 0                   |
| 8  | M125         | y         | -.155                    | -.155                    | 0                     | 0                   |
| 9  | M2           | y         | -.155                    | -.155                    | 0                     | 0                   |
| 10 | M3           | y         | -.155                    | -.155                    | 0                     | 0                   |
| 11 | M24          | y         | -.242                    | -.242                    | 0                     | 0                   |
| 12 | M23          | y         | -.242                    | -.242                    | 0                     | 0                   |
| 13 | M22          | y         | -.242                    | -.242                    | 0                     | 0                   |
| 14 | M21          | y         | -.242                    | -.242                    | 0                     | 0                   |
| 15 | M4           | y         | -.155                    | -.155                    | 0                     | 0                   |
| 16 | M5           | y         | -.155                    | -.155                    | 0                     | 0                   |
| 17 | M6           | y         | -.155                    | -.155                    | 0                     | 0                   |
| 18 | M7           | y         | -.155                    | -.155                    | 0                     | 0                   |
| 19 | M20          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 20 | M19          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 21 | M18          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 22 | M17          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 23 | M16          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 24 | M15          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 25 | M14          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 26 | M13          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 27 | M12          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 28 | M11          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 29 | M10          | y         | -.238                    | -.238                    | 0                     | 0                   |
| 30 | M9           | y         | -.238                    | -.238                    | 0                     | 0                   |
| 31 | M8           | y         | -.238                    | -.238                    | 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  | M121A        | y         | .22                      | .22                      | 0                     | 0                   |
| 2  | M120A        | y         | .22                      | .22                      | 0                     | 0                   |
| 3  | M27          | y         | .22                      | .22                      | 0                     | 0                   |
| 4  | M26          | y         | .22                      | .22                      | 0                     | 0                   |
| 5  | M25          | y         | .22                      | .22                      | 0                     | 0                   |
| 6  | M123         | y         | -.063                    | -.063                    | 0                     | 0                   |
| 7  | M124         | y         | -.063                    | -.063                    | 0                     | 0                   |
| 8  | M125         | y         | -.063                    | -.063                    | 0                     | 0                   |
| 9  | M2           | y         | -.063                    | -.063                    | 0                     | 0                   |
| 10 | M3           | y         | -.063                    | -.063                    | 0                     | 0                   |
| 11 | M24          | y         | -.15                     | -.15                     | 0                     | 0                   |



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### 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.%] |
|----|--------------|-----------|--------------------------|--------------------------|----------------------|--------------------|
| 12 | M23          | y         | -.15                     | -.15                     | 0                    | 0                  |
| 13 | M22          | y         | -.15                     | -.15                     | 0                    | 0                  |
| 14 | M21          | y         | -.15                     | -.15                     | 0                    | 0                  |
| 15 | M4           | y         | -.063                    | -.063                    | 0                    | 0                  |
| 16 | M5           | y         | -.063                    | -.063                    | 0                    | 0                  |
| 17 | M6           | y         | -.063                    | -.063                    | 0                    | 0                  |
| 18 | M7           | y         | -.063                    | -.063                    | 0                    | 0                  |
| 19 | M20          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 20 | M19          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 21 | M18          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 22 | M17          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 23 | M16          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 24 | M15          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 25 | M14          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 26 | M13          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 27 | M12          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 28 | M11          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 29 | M10          | y         | -.146                    | -.146                    | 0                    | 0                  |
| 30 | M9           | y         | -.146                    | -.146                    | 0                    | 0                  |
| 31 | M8           | y         | -.146                    | -.146                    | 0                    | 0                  |

### Basic Load Cases

|   | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed | Area(Member) | Surface(Plate... |
|---|-----------------|----------|-----------|-----------|-----------|-------|-------|-------------|--------------|------------------|
| 1 | DL              | DL       |           | -1        |           |       |       | 31          |              |                  |
| 2 | RLL             | RLL      |           |           |           |       |       | 19          |              |                  |
| 3 | WL+Z            | WL+Z     |           |           |           |       |       | 31          |              |                  |
| 4 | WL-Z            | WL-Z     |           |           |           |       |       | 31          |              |                  |

### Load Combinations

|    | Description | Sol... | PDelta | SR... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... |
|----|-------------|--------|--------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1  | IBC 16-8    | Yes    | Y      |       | DL          | 1           |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| 2  | IBC 16-9    | Yes    | Y      |       | DL          | 1           | LL          | 1           | LLS         | 1           |             |             |             |             |             |             |             |             |             |             |
| 3  | IBC 16-10   | Yes    | Y      |       | DL          | 1           | RLL         | 1           |             |             |             |             |             |             |             |             |             |             |             |             |
| 4  | IBC 16-11   | Yes    | Y      |       | DL          | 1           | LL          | .75         | LLS         | .75         | RLL         | .75         |             |             |             |             |             |             |             |             |
| 5  | IBC 16-12   | Yes    | Y      |       | DL          | 1           | W...        | .6          |             |             |             |             |             |             |             |             |             |             |             |             |
| 6  | IBC 16-13   | Yes    | Y      |       | DL          | 1           | W...        | .45         | LL          | .75         | LLS         | .75         | RLL         | .75         |             |             |             |             |             |             |
| 7  | IBC 16-13   | Yes    | Y      |       | DL          | 1           | W...        | .45         | LL          | .75         | LLS         | .75         |             |             |             |             |             |             |             |             |
| 8  | IBC 16-15   | Yes    | Y      |       | DL          | .6          | W...        | .6          |             |             |             |             |             |             |             |             |             |             |             |             |
| 9  | IBC 16-12   | Yes    | Y      |       | DL          | 1           | W...        | .6          |             |             |             |             |             |             |             |             |             |             |             |             |
| 10 | IBC 16-13   | Yes    | Y      |       | DL          | 1           | W...        | .45         | LL          | .75         | LLS         | .75         | RLL         | .75         |             |             |             |             |             |             |
| 11 | IBC 16-13   | Yes    | Y      |       | DL          | 1           | W...        | .45         | LL          | .75         | LLS         | .75         |             |             |             |             |             |             |             |             |
| 12 | IBC 16-15   | Yes    | Y      |       | DL          | .6          | W...        | .6          |             |             |             |             |             |             |             |             |             |             |             |             |
| 13 | DL          |        | Y      |       | DL          | 1           |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| 14 | RLL         |        | Y      |       | RLL         | 1           |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| 15 | WL+Z        |        | Y      |       | W...        | 1           |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| 16 | WL-Z        |        | Y      |       | W...        | 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 | 1.851  | 3  | 1.14  | 12 | 0         | 12 | 0         | 12 | 0         | 12 |
| 2 |       | min | 0     | 1  | -2.892 | 8  | -4.29 | 3  | 0         | 1  | 0         | 1  | 0         | 1  |
| 3 | 2     | max | 0     | 12 | 1.236  | 3  | 1.154 | 12 | 0         | 12 | 0         | 12 | 0         | 12 |



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### Envelope Joint Reactions (Continued)

| Joint |         |     | X [k] | LC | Y [k]  | LC | Z [k] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|-------|---------|-----|-------|----|--------|----|-------|----|-----------|----|-----------|----|-----------|----|
| 4     | 3       | min | 0     | 1  | -1.499 | 8  | -.434 | 3  | 0         | 1  | 0         | 1  | 0         | 1  |
| 5     |         | max | 0     | 12 | 1.237  | 3  | .434  | 3  | 0         | 12 | 0         | 12 | 0         | 12 |
| 6     | 4       | min | 0     | 1  | -1.808 | 8  | -.081 | 12 | 0         | 1  | 0         | 1  | 0         | 1  |
| 7     |         | max | 0     | 12 | 1.853  | 3  | .429  | 3  | 0         | 12 | 0         | 12 | 0         | 12 |
| 8     | Totals: | min | 0     | 1  | -1.953 | 8  | -.08  | 12 | 0         | 1  | 0         | 1  | 0         | 1  |
| 9     |         | max | 0     | 12 | 6.176  | 3  | 2.133 | 8  |           |    |           |    |           |    |
| 10    |         | min | 0     | 1  | -8.152 | 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  | M30    | 1   | max | 4.411    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .019        | 12 |
| 2  |        |     | min | -8.138   | 8  | -.011      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 3  |        | 2   | max | 4.408    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 12 |
| 4  |        |     | min | -8.139   | 8  | -.011      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 3  |
| 5  |        | 3   | max | 4.405    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .037        | 12 |
| 6  |        |     | min | -8.141   | 8  | -.011      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 3  |
| 7  |        | 4   | max | 4.402    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .046        | 8  |
| 8  |        |     | min | -8.143   | 8  | -.011      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 9  |        | 5   | max | 4.399    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .056        | 8  |
| 10 |        |     | min | -8.145   | 8  | -.011      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 3  |
| 11 | M31    | 1   | max | 6.024    | 3  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .039        | 12 |
| 12 |        |     | min | -10.624  | 8  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 13 |        | 2   | max | 6.021    | 3  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .04         | 8  |
| 14 |        |     | min | -10.627  | 8  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 15 |        | 3   | max | 6.017    | 3  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .045        | 8  |
| 16 |        |     | min | -10.629  | 8  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 17 |        | 4   | max | 6.014    | 3  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .05         | 8  |
| 18 |        |     | min | -10.631  | 8  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 19 |        | 5   | max | 6.01     | 3  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .054        | 8  |
| 20 |        |     | min | -10.633  | 8  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 21 | M33    | 1   | max | 7.375    | 3  | .014       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .043        | 12 |
| 22 |        |     | min | -12.132  | 8  | -.015      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 23 |        | 2   | max | 7.372    | 3  | .014       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .054        | 8  |
| 24 |        |     | min | -12.133  | 8  | -.015      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 25 |        | 3   | max | 7.37     | 3  | .014       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .067        | 8  |
| 26 |        |     | min | -12.135  | 8  | -.015      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.041       | 3  |
| 27 |        | 4   | max | 7.367    | 3  | .014       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .08         | 8  |
| 28 |        |     | min | -12.137  | 8  | -.015      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.053       | 3  |
| 29 |        | 5   | max | 7.364    | 3  | .014       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .094        | 8  |
| 30 |        |     | min | -12.139  | 8  | -.015      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.066       | 3  |
| 31 | M34    | 1   | max | 7.808    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .084        | 8  |
| 32 |        |     | min | -12.394  | 8  | -.01       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.054       | 3  |
| 33 |        | 2   | max | 7.805    | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .091        | 8  |
| 34 |        |     | min | -12.396  | 8  | -.01       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.058       | 3  |
| 35 |        | 3   | max | 7.803    | 3  | .007       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .099        | 8  |
| 36 |        |     | min | -12.397  | 8  | -.009      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 3  |
| 37 |        | 4   | max | 7.8      | 3  | .007       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .106        | 8  |
| 38 |        |     | min | -12.399  | 8  | -.009      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 3  |
| 39 |        | 5   | max | 7.798    | 3  | .008       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .113        | 8  |
| 40 |        |     | min | -12.4    | 8  | -.009      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.074       | 3  |
| 41 | M35    | 1   | max | 6.901    | 3  | .02        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .119        | 8  |
| 42 |        |     | min | -11.242  | 8  | -.02       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.084       | 3  |
| 43 |        | 2   | max | 6.899    | 3  | .021       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .102        | 8  |
| 44 |        |     | min | -11.243  | 8  | -.019      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 3  |
| 45 |        | 3   | max | 6.897    | 3  | .022       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .085        | 8  |





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### 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 46     |     | min | -11.244  | 8     | -.017      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.054       | 3  |
| 47     |     | max | 6.895    | 3     | .023       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .067        | 8  |
| 48     |     | min | -11.246  | 8     | -.015      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.041       | 3  |
| 49     |     | max | 6.893    | 3     | .024       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .048        | 8  |
| 50     |     | min | -11.247  | 8     | -.014      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 51     | M36 | 1   | max      | 5.306 | 3          | .034 | 8          | 0  | 12           | 0  | 12          | 0  | .089        | 8  |
| 52     |     | min | -8.985   | 8     | -.027      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.059       | 3  |
| 53     |     | max | 5.305    | 3     | .034       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .074        | 8  |
| 54     |     | min | -8.986   | 8     | -.026      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 3  |
| 55     |     | max | 5.305    | 3     | .035       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .059        | 8  |
| 56     |     | min | -8.986   | 8     | -.025      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.037       | 3  |
| 57     |     | max | 5.304    | 3     | .036       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .044        | 8  |
| 58     |     | min | -8.987   | 8     | -.023      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 59     |     | max | 5.303    | 3     | .037       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 8  |
| 60     |     | min | -8.987   | 8     | -.022      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 61     | M37 | 1   | max      | 5.276 | 3          | .029 | 8          | 0  | 12           | 0  | 12          | 0  | .075        | 8  |
| 62     |     | min | -8.945   | 8     | -.022      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.047       | 3  |
| 63     |     | max | 5.275    | 3     | .03        | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .056        | 8  |
| 64     |     | min | -8.946   | 8     | -.02       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 65     |     | max | 5.274    | 3     | .031       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 8  |
| 66     |     | min | -8.947   | 8     | -.018      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 67     |     | max | 5.273    | 3     | .032       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 8  |
| 68     |     | min | -8.947   | 8     | -.016      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 69     |     | max | 5.271    | 3     | .033       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 70     |     | min | -8.948   | 8     | -.015      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 5  |
| 71     | M38 | 1   | max      | 2.601 | 3          | .001 | 8          | 0  | 12           | 0  | 12          | 0  | .017        | 8  |
| 72     |     | min | -5.06    | 8     | -.01       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 73     |     | max | 2.6      | 3     | .003       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .016        | 8  |
| 74     |     | min | -5.061   | 8     | -.007      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 75     |     | max | 2.599    | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 5  |
| 76     |     | min | -5.062   | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 77     |     | max | 2.597    | 3     | .007       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 5  |
| 78     |     | min | -5.063   | 8     | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 79     |     | max | 2.596    | 3     | .009       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 8  |
| 80     |     | min | -5.064   | 8     | .001       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 1  |
| 81     | M39 | 1   | max      | .67   | 3          | .007 | 8          | 0  | 12           | 0  | 12          | 0  | .018        | 8  |
| 82     |     | min | -2.4     | 8     | -.013      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 83     |     | max | .669     | 3     | .009       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 8  |
| 84     |     | min | -2.401   | 8     | -.011      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 85     |     | max | .668     | 3     | .01        | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 6  |
| 86     |     | min | -2.402   | 8     | -.008      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | .002        | 1  |
| 87     |     | max | .667     | 3     | .012       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 88     |     | min | -2.402   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 89     |     | max | .666     | 3     | .015       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 3  |
| 90     |     | min | -2.403   | 8     | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 91     | M40 | 1   | max      | .198  | 12         | .005 | 8          | 0  | 12           | 0  | 12          | 0  | 0           | 8  |
| 92     |     | min | -1.033   | 3     | -.012      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 1  |
| 93     |     | max | .198     | 12    | .006       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 94     |     | min | -1.034   | 3     | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 95     |     | max | .197     | 12    | .008       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 3  |
| 96     |     | min | -1.035   | 3     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 97     |     | max | .196     | 12    | .01        | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 3  |
| 98     |     | min | -1.036   | 3     | -.003      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 8  |
| 99     |     | max | .196     | 12    | .013       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 3  |
| 100    |     | min | -1.037   | 3     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 8  |
| 101    | M41 | 1   | max      | 1.795 | 8          | .006 | 8          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 102    |     | min | -2.462   | 3     | -.011      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 5  |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
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### 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 |
|--------|-----|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 103    | 2   | max | 1.794    | 8     | .007       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 104    |     | min | -2.463   | 3     | -.008      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 8  |
| 105    | 3   | max | 1.794    | 8     | .009       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 3  |
| 106    |     | min | -2.464   | 3     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 8  |
| 107    | 4   | max | 1.793    | 8     | .011       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .025        | 3  |
| 108    |     | min | -2.465   | 3     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.034       | 8  |
| 109    | 5   | max | 1.793    | 8     | .014       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 110    |     | min | -2.466   | 3     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.045       | 8  |
| 111    | M42 | 1   | max      | 3.568 | 8          | -.002 | 12         | 0  | 12           | 0  | 12          | 0  | .017        | 3  |
| 112    |     | min | -3.81    | 3     | -.009      | 6     | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 8  |
| 113    | 2   | max | 3.568    | 8     | 0          | 12    | 0          | 12 | 0            | 12 | 0           | 12 | .022        | 3  |
| 114    |     | min | -3.81    | 3     | -.007      | 6     | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 8  |
| 115    | 3   | max | 3.568    | 8     | 0          | 12    | 0          | 12 | 0            | 12 | 0           | 12 | .025        | 3  |
| 116    |     | min | -3.811   | 3     | -.005      | 6     | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 8  |
| 117    | 4   | max | 3.568    | 8     | .002       | 9     | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 3  |
| 118    |     | min | -3.811   | 3     | -.003      | 6     | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 8  |
| 119    | 5   | max | 3.567    | 8     | .004       | 9     | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 3  |
| 120    |     | min | -3.812   | 3     | -.002      | 6     | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 8  |
| 121    | M43 | 1   | max      | 3.581 | 8          | .017  | 8          | 0  | 12           | 0  | 12          | 0  | .018        | 3  |
| 122    |     | min | -3.822   | 3     | -.012      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 12 |
| 123    | 2   | max | 3.581    | 8     | .018       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 3  |
| 124    |     | min | -3.822   | 3     | -.01       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 8  |
| 125    | 3   | max | 3.58     | 8     | .02        | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .03         | 3  |
| 126    |     | min | -3.823   | 3     | -.008      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 8  |
| 127    | 4   | max | 3.58     | 8     | .021       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .034        | 3  |
| 128    |     | min | -3.823   | 3     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 8  |
| 129    | 5   | max | 3.58     | 8     | .023       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .037        | 3  |
| 130    |     | min | -3.823   | 3     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.06        | 8  |
| 131    | M44 | 1   | max      | 4.655 | 8          | -.005 | 12         | 0  | 12           | 0  | 12          | 0  | .031        | 3  |
| 132    |     | min | -4.602   | 3     | -.009      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.053       | 8  |
| 133    | 2   | max | 4.655    | 8     | -.002      | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .035        | 3  |
| 134    |     | min | -4.602   | 3     | -.006      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 8  |
| 135    | 3   | max | 4.654    | 8     | 0          | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 3  |
| 136    |     | min | -4.603   | 3     | -.003      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.044       | 8  |
| 137    | 4   | max | 4.654    | 8     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .034        | 3  |
| 138    |     | min | -4.603   | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 139    | 5   | max | 4.654    | 8     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 3  |
| 140    |     | min | -4.603   | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.042       | 8  |
| 141    | M45 | 1   | max      | 5.158 | 8          | -.001 | 8          | 0  | 12           | 0  | 12          | 0  | .028        | 3  |
| 142    |     | min | -4.937   | 3     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.042       | 8  |
| 143    | 2   | max | 5.158    | 8     | 0          | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .034        | 3  |
| 144    |     | min | -4.938   | 3     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.042       | 8  |
| 145    | 3   | max | 5.158    | 8     | .002       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 3  |
| 146    |     | min | -4.938   | 3     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 147    | 4   | max | 5.158    | 8     | .005       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 3  |
| 148    |     | min | -4.938   | 3     | .002       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 8  |
| 149    | 5   | max | 5.158    | 8     | .008       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 3  |
| 150    |     | min | -4.938   | 3     | .005       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.05        | 8  |
| 151    | M46 | 1   | max      | 5.271 | 8          | -.004 | 12         | 0  | 12           | 0  | 12          | 0  | .033        | 3  |
| 152    |     | min | -4.939   | 3     | -.007      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.049       | 8  |
| 153    | 2   | max | 5.271    | 8     | -.002      | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 3  |
| 154    |     | min | -4.939   | 3     | -.004      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 8  |
| 155    | 3   | max | 5.271    | 8     | .001       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 3  |
| 156    |     | min | -4.939   | 3     | -.001      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.044       | 8  |
| 157    | 4   | max | 5.271    | 8     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .034        | 3  |
| 158    |     | min | -4.939   | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 159    | 5   | max | 5.271    | 8     | .007       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 3  |



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### 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 |
|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 160    |     | min | -4.939   | 3  | .002       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.045       | 8  |
| 161    | M47 | max | 4.983    | 8  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .03         | 3  |
| 162    |     | min | -4.602   | 3  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 163    |     | max | 4.983    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .034        | 3  |
| 164    |     | min | -4.602   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.044       | 8  |
| 165    |     | max | 4.984    | 8  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 3  |
| 166    |     | min | -4.601   | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 8  |
| 167    |     | max | 4.984    | 8  | .006       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .035        | 3  |
| 168    |     | min | -4.601   | 3  | .003       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.05        | 8  |
| 169    |     | max | 4.984    | 8  | .009       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .031        | 3  |
| 170    |     | min | -4.601   | 3  | .005       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.056       | 8  |
| 171    | M48 | max | 4.18     | 8  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .037        | 3  |
| 172    |     | min | -3.823   | 3  | -.021      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.061       | 8  |
| 173    |     | max | 4.181    | 8  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .034        | 3  |
| 174    |     | min | -3.823   | 3  | -.019      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 8  |
| 175    |     | max | 4.181    | 8  | .008       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .03         | 3  |
| 176    |     | min | -3.823   | 3  | -.018      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.037       | 8  |
| 177    |     | max | 4.181    | 8  | .01        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 3  |
| 178    |     | min | -3.822   | 3  | -.017      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 8  |
| 179    |     | max | 4.181    | 8  | .012       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 3  |
| 180    |     | min | -3.822   | 3  | -.016      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 12 |
| 181    | M49 | max | 4.17     | 8  | .003       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 3  |
| 182    |     | min | -3.812   | 3  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 8  |
| 183    |     | max | 4.17     | 8  | .005       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 3  |
| 184    |     | min | -3.811   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 8  |
| 185    |     | max | 4.17     | 8  | .007       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .025        | 3  |
| 186    |     | min | -3.811   | 3  | .001       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 8  |
| 187    |     | max | 4.171    | 8  | .008       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .022        | 3  |
| 188    |     | min | -3.81    | 3  | .002       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 8  |
| 189    |     | max | 4.171    | 8  | .01        | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 3  |
| 190    |     | min | -3.81    | 3  | .004       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 8  |
| 191    | M50 | max | 2.636    | 8  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 192    |     | min | -2.463   | 3  | -.014      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.049       | 8  |
| 193    |     | max | 2.637    | 8  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .025        | 3  |
| 194    |     | min | -2.463   | 3  | -.011      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.038       | 8  |
| 195    |     | max | 2.637    | 8  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 3  |
| 196    |     | min | -2.462   | 3  | -.009      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 8  |
| 197    |     | max | 2.638    | 8  | .008       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 198    |     | min | -2.461   | 3  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 8  |
| 199    |     | max | 2.638    | 8  | .011       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 200    |     | min | -2.46    | 3  | -.005      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 5  |
| 201    | M51 | max | 1.316    | 12 | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 3  |
| 202    |     | min | -1.047   | 3  | -.011      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.034       | 8  |
| 203    |     | max | 1.317    | 12 | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 3  |
| 204    |     | min | -1.046   | 3  | -.009      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 8  |
| 205    |     | max | 1.318    | 12 | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 3  |
| 206    |     | min | -1.045   | 3  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 207    |     | max | 1.318    | 12 | .009       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 208    |     | min | -1.044   | 3  | -.005      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 209    |     | max | 1.319    | 12 | .012       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | -.003       | 3  |
| 210    |     | min | -1.043   | 3  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 9  |
| 211    | M52 | max | .673     | 3  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 3  |
| 212    |     | min | -1.141   | 8  | -.015      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 8  |
| 213    |     | max | .675     | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 214    |     | min | -1.14    | 8  | -.012      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 215    |     | max | .676     | 3  | .008       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 216    |     | min | -1.139   | 8  | -.01       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 12 |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### 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 |
|--------|-----|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 217    | 4   | max | .677     | 3     | .011       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 8  |
| 218    |     | min | -1.138   | 8     | -.009      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 219    | 5   | max | .678     | 3     | .013       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 8  |
| 220    |     | min | -1.138   | 8     | -.007      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 221    | M53 | 1   | max      | 2.585 | 3          | -.001 | 3          | 0  | 12           | 0  | 12          | 0  | -.002       | 3  |
| 222    |     | min | -3.6     | 8     | -.009      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 9  |
| 223    | 2   | max | 2.586    | 3     | .001       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 224    |     | min | -3.6     | 8     | -.007      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 10 |
| 225    | 3   | max | 2.588    | 3     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 226    |     | min | -3.599   | 8     | -.004      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 227    | 4   | max | 2.589    | 3     | .007       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 228    |     | min | -3.598   | 8     | -.003      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 229    | 5   | max | 2.591    | 3     | .009       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 230    |     | min | -3.597   | 8     | -.001      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 231    | M54 | 1   | max      | 5.271 | 3          | .014  | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 232    |     | min | -6.996   | 8     | -.034      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 5  |
| 233    | 2   | max | 5.272    | 3     | .016       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 234    |     | min | -6.996   | 8     | -.033      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 235    | 3   | max | 5.273    | 3     | .018       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .027        | 8  |
| 236    |     | min | -6.995   | 8     | -.032      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 237    | 4   | max | 5.274    | 3     | .02        | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .048        | 8  |
| 238    |     | min | -6.994   | 8     | -.031      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 239    | 5   | max | 5.275    | 3     | .022       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .068        | 8  |
| 240    |     | min | -6.994   | 8     | -.029      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.047       | 3  |
| 241    | M55 | 1   | max      | 5.302 | 3          | .023  | 3          | 0  | 12           | 0  | 12          | 0  | .032        | 8  |
| 242    |     | min | -7.025   | 8     | -.021      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 243    | 2   | max | 5.303    | 3     | .024       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .04         | 8  |
| 244    |     | min | -7.025   | 8     | -.02       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 245    | 3   | max | 5.304    | 3     | .025       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .048        | 8  |
| 246    |     | min | -7.024   | 8     | -.019      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.037       | 3  |
| 247    | 4   | max | 5.304    | 3     | .027       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .056        | 8  |
| 248    |     | min | -7.024   | 8     | -.019      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 3  |
| 249    | 5   | max | 5.305    | 3     | .028       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .064        | 8  |
| 250    |     | min | -7.023   | 8     | -.018      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.059       | 3  |
| 251    | M56 | 1   | max      | 6.888 | 3          | .013  | 3          | 0  | 12           | 0  | 12          | 0  | .036        | 8  |
| 252    |     | min | -8.704   | 8     | -.019      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 253    | 2   | max | 6.89     | 3     | .015       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .051        | 8  |
| 254    |     | min | -8.703   | 8     | -.018      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.041       | 3  |
| 255    | 3   | max | 6.892    | 3     | .017       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .065        | 8  |
| 256    |     | min | -8.701   | 8     | -.017      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.054       | 3  |
| 257    | 4   | max | 6.895    | 3     | .019       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .078        | 8  |
| 258    |     | min | -8.7     | 8     | -.015      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 3  |
| 259    | 5   | max | 6.897    | 3     | .02        | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .09         | 8  |
| 260    |     | min | -8.699   | 8     | -.014      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.084       | 3  |
| 261    | M57 | 1   | max      | 7.815 | 3          | .016  | 8          | 0  | 12           | 0  | 12          | 0  | .093        | 8  |
| 262    |     | min | -8.89    | 8     | -.008      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.074       | 3  |
| 263    | 2   | max | 7.818    | 3     | .016       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .081        | 8  |
| 264    |     | min | -8.888   | 8     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 3  |
| 265    | 3   | max | 7.82     | 3     | .017       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .068        | 8  |
| 266    |     | min | -8.887   | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 3  |
| 267    | 4   | max | 7.822    | 3     | .017       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .056        | 8  |
| 268    |     | min | -8.886   | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.059       | 3  |
| 269    | 5   | max | 7.825    | 3     | .018       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .043        | 8  |
| 270    |     | min | -8.884   | 8     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.055       | 3  |
| 271    | M58 | 1   | max      | 7.331 | 3          | .018  | 8          | 0  | 12           | 0  | 12          | 0  | .067        | 8  |
| 272    |     | min | -7.23    | 8     | -.014      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.065       | 3  |
| 273    | 2   | max | 7.334    | 3     | .018       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .051        | 8  |





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### 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 |
|--------|------|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 274    |      | min | -7.228   | 8     | -.014      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.053       | 3  |
| 275    |      | max | 7.337    | 3     | .018       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .034        | 8  |
| 276    |      | min | -7.226   | 8     | -.014      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.041       | 3  |
| 277    |      | max | 7.34     | 3     | .019       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 8  |
| 278    |      | min | -7.224   | 8     | -.014      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 279    |      | max | 7.343    | 3     | .019       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 12 |
| 280    |      | min | -7.223   | 8     | -.014      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 281    | M60  | 1   | max      | 6.011 | 3          | .006 | 8          | 0  | 12           | 0  | 12          | 0  | .028        | 8  |
| 282    |      | min | -5.096   | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 283    |      | max | 6.015    | 3     | .006       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 8  |
| 284    |      | min | -5.094   | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 285    |      | max | 6.018    | 3     | .006       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 8  |
| 286    |      | min | -5.092   | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 287    |      | max | 6.021    | 3     | .006       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 8  |
| 288    |      | min | -5.09    | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 289    |      | max | 6.025    | 3     | .006       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 12 |
| 290    |      | min | -5.088   | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 291    | M61  | 1   | max      | 4.384 | 3          | .004 | 8          | 0  | 12           | 0  | 12          | 0  | .012        | 8  |
| 292    |      | min | -3.23    | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 293    |      | max | 4.387    | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 294    |      | min | -3.228   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 295    |      | max | 4.39     | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 12 |
| 296    |      | min | -3.226   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 3  |
| 297    |      | max | 4.393    | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 12 |
| 298    |      | min | -3.224   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 3  |
| 299    |      | max | 4.396    | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 300    |      | min | -3.223   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 301    | M62  | 1   | max      | 3.125 | 3          | .004 | 8          | 0  | 12           | 0  | 12          | 0  | .006        | 12 |
| 302    |      | min | -2.321   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 303    |      | max | 3.127    | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 12 |
| 304    |      | min | -2.319   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 305    |      | max | 3.129    | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 12 |
| 306    |      | min | -2.318   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 307    |      | max | 3.132    | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 308    |      | min | -2.317   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 6  |
| 309    |      | max | 3.134    | 3     | .004       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | -.001       | 2  |
| 310    |      | min | -2.315   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 5  |
| 311    | M127 | 1   | max      | 1.871 | 3          | .012 | 3          | 0  | 12           | 0  | 12          | 0  | .026        | 3  |
| 312    |      | min | -3.034   | 8     | -.033      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.067       | 12 |
| 313    |      | max | 1.868    | 3     | .012       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 314    |      | min | -3.036   | 8     | -.033      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.037       | 12 |
| 315    |      | max | 1.865    | 3     | .012       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 316    |      | min | -3.038   | 8     | -.033      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 317    |      | max | 1.862    | 3     | .012       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .022        | 12 |
| 318    |      | min | -3.039   | 8     | -.033      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 319    |      | max | 1.86     | 3     | .012       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .051        | 12 |
| 320    |      | min | -3.041   | 8     | -.033      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 3  |
| 321    | M128 | 1   | max      | 3.146 | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .012        | 12 |
| 322    |      | min | -5.778   | 8     | -.012      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 323    |      | max | 3.144    | 3     | .006       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 12 |
| 324    |      | min | -5.78    | 8     | -.012      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 325    |      | max | 3.141    | 3     | .006       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 12 |
| 326    |      | min | -5.781   | 8     | -.012      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 327    |      | max | 3.139    | 3     | .006       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 12 |
| 328    |      | min | -5.782   | 8     | -.012      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 329    |      | max | 3.137    | 3     | .006       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .044        | 12 |
| 330    |      | min | -5.784   | 8     | -.012      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |



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### 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 |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 331 | M129   | 1   | max | 1.852    | 3  | .003       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 12 |
| 332 |        |     | min | -1.849   | 8  | -.012      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 3  |
| 333 |        | 2   | max | 1.855    | 3  | .003       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 12 |
| 334 |        |     | min | -1.847   | 8  | -.012      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 335 |        | 3   | max | 1.858    | 3  | .003       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 336 |        |     | min | -1.845   | 8  | -.012      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 337 |        | 4   | max | 1.861    | 3  | .003       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 338 |        |     | min | -1.843   | 8  | -.012      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 12 |
| 339 |        | 5   | max | 1.864    | 3  | .003       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 340 |        |     | min | -1.842   | 8  | -.012      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 12 |
| 341 | M2     | 1   | max | .639     | 12 | .194       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .127        | 8  |
| 342 |        |     | min | -2.208   | 3  | .002       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 343 |        | 2   | max | .63      | 12 | .094       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | -.004       | 2  |
| 344 |        |     | min | -2.222   | 3  | .002       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.031       | 6  |
| 345 |        | 3   | max | .622     | 12 | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | -.006       | 2  |
| 346 |        |     | min | -2.236   | 3  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.076       | 5  |
| 347 |        | 4   | max | .613     | 12 | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 348 |        |     | min | -2.25    | 3  | -.107      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 349 |        | 5   | max | .605     | 12 | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .158        | 8  |
| 350 |        |     | min | -2.264   | 3  | -.207      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 3  |
| 351 | M3     | 1   | max | 2.297    | 8  | .166       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .13         | 8  |
| 352 |        |     | min | -3.897   | 3  | .002       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 3  |
| 353 |        | 2   | max | 2.29     | 8  | .081       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .019        | 8  |
| 354 |        |     | min | -3.909   | 3  | .002       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 3  |
| 355 |        | 3   | max | 2.283    | 8  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 356 |        |     | min | -3.921   | 3  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 6  |
| 357 |        | 4   | max | 2.276    | 8  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 8  |
| 358 |        |     | min | -3.933   | 3  | -.089      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 3  |
| 359 |        | 5   | max | 2.269    | 8  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .146        | 8  |
| 360 |        |     | min | -3.945   | 3  | -.173      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.045       | 3  |
| 361 | M4     | 1   | max | 4.946    | 8  | .171       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .141        | 8  |
| 362 |        |     | min | -5.662   | 3  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.038       | 3  |
| 363 |        | 2   | max | 4.938    | 8  | .081       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 8  |
| 364 |        |     | min | -5.675   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.042       | 3  |
| 365 |        | 3   | max | 4.93     | 8  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 12 |
| 366 |        |     | min | -5.688   | 3  | -.01       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 3  |
| 367 |        | 4   | max | 4.923    | 8  | .008       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 8  |
| 368 |        |     | min | -5.701   | 3  | -.1        | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.054       | 3  |
| 369 |        | 5   | max | 4.915    | 8  | .009       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .18         | 8  |
| 370 |        |     | min | -5.714   | 3  | -.191      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 3  |
| 371 | M5     | 1   | max | 6.031    | 8  | .19        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .182        | 8  |
| 372 |        |     | min | -5.978   | 3  | -.061      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.077       | 3  |
| 373 |        | 2   | max | 6.024    | 8  | .097       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 8  |
| 374 |        |     | min | -6.035   | 3  | -.029      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 3  |
| 375 |        | 3   | max | 6.016    | 8  | .005       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 12 |
| 376 |        |     | min | -6.093   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 6  |
| 377 |        | 4   | max | 6.009    | 8  | .034       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .023        | 8  |
| 378 |        |     | min | -6.15    | 3  | -.088      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 3  |
| 379 |        | 5   | max | 6.002    | 8  | .066       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .162        | 8  |
| 380 |        |     | min | -6.207   | 3  | -.18       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.087       | 3  |
| 381 | M6     | 1   | max | 4.64     | 8  | .168       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .158        | 8  |
| 382 |        |     | min | -4.629   | 3  | -.092      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.092       | 3  |
| 383 |        | 2   | max | 4.635    | 8  | .085       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 8  |
| 384 |        |     | min | -4.667   | 3  | -.044      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 385 |        | 3   | max | 4.631    | 8  | .004       | 10 | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 12 |
| 386 |        |     | min | -4.706   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 6  |
| 387 |        | 4   | max | 4.626    | 8  | .051       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .035        | 8  |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 388    |     | min | -4.744   | 3     | -.083      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 389    |     | max | 4.621    | 8     | .098       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .154        | 8  |
| 390    |     | min | -4.782   | 3     | -.166      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.104       | 3  |
| 391    | M7  | 1   | max      | 1.248 | 8          | .215 | 8          | 0  | 12           | 0  | 12          | 0  | .206        | 8  |
| 392    |     | min | -2.003   | 3     | -.141      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.144       | 3  |
| 393    |     | 2   | max      | 1.243 | 8          | .113 | 8          | 0  | 12           | 0  | 12          | 0  | .014        | 12 |
| 394    |     | min | -2.041   | 3     | -.077      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 3  |
| 395    |     | 3   | max      | 1.238 | 8          | .012 | 8          | 0  | 12           | 0  | 12          | 0  | .037        | 3  |
| 396    |     | min | -2.078   | 3     | -.012      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.061       | 8  |
| 397    |     | 4   | max      | 1.234 | 8          | .052 | 3          | 0  | 12           | 0  | 12          | 0  | .013        | 3  |
| 398    |     | min | -2.116   | 3     | -.089      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 399    |     | 5   | max      | 1.229 | 8          | .116 | 3          | 0  | 12           | 0  | 12          | 0  | .149        | 8  |
| 400    |     | min | -2.153   | 3     | -.191      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.085       | 3  |
| 401    | M8  | 1   | max      | -.033 | 2          | .264 | 8          | 0  | 12           | 0  | 12          | 0  | .175        | 8  |
| 402    |     | min | -1.42    | 5     | -.117      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.094       | 3  |
| 403    |     | 2   | max      | -.039 | 2          | .135 | 8          | 0  | 12           | 0  | 12          | 0  | -.002       | 2  |
| 404    |     | min | -1.425   | 5     | -.063      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 10 |
| 405    |     | 3   | max      | -.044 | 2          | .006 | 8          | 0  | 12           | 0  | 12          | 0  | .026        | 3  |
| 406    |     | min | -1.431   | 5     | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.081       | 8  |
| 407    |     | 4   | max      | -.05  | 2          | .045 | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |
| 408    |     | min | -1.436   | 5     | -.123      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 8  |
| 409    |     | 5   | max      | -.055 | 2          | .099 | 3          | 0  | 12           | 0  | 12          | 0  | .154        | 8  |
| 410    |     | min | -1.442   | 5     | -.253      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.06        | 3  |
| 411    | M9  | 1   | max      | 1.584 | 3          | .274 | 8          | 0  | 12           | 0  | 12          | 0  | .174        | 8  |
| 412    |     | min | -3.675   | 8     | -.12       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.077       | 3  |
| 413    |     | 2   | max      | 1.561 | 3          | .142 | 8          | 0  | 12           | 0  | 12          | 0  | .013        | 3  |
| 414    |     | min | -3.678   | 8     | -.063      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 8  |
| 415    |     | 3   | max      | 1.538 | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | .046        | 3  |
| 416    |     | min | -3.681   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.102       | 8  |
| 417    |     | 4   | max      | 1.515 | 3          | .052 | 3          | 0  | 12           | 0  | 12          | 0  | .023        | 3  |
| 418    |     | min | -3.684   | 8     | -.123      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.047       | 8  |
| 419    |     | 5   | max      | 1.492 | 3          | .109 | 3          | 0  | 12           | 0  | 12          | 0  | .138        | 8  |
| 420    |     | min | -3.687   | 8     | -.255      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.055       | 3  |
| 421    | M10 | 1   | max      | 3.003 | 3          | .257 | 8          | 0  | 12           | 0  | 12          | 0  | .148        | 8  |
| 422    |     | min | -5.515   | 8     | -.116      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.065       | 3  |
| 423    |     | 2   | max      | 2.985 | 3          | .128 | 8          | 0  | 12           | 0  | 12          | 0  | .019        | 3  |
| 424    |     | min | -5.517   | 8     | -.058      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.036       | 8  |
| 425    |     | 3   | max      | 2.967 | 3          | 0    | 2          | 0  | 12           | 0  | 12          | 0  | .047        | 3  |
| 426    |     | min | -5.519   | 8     | -.002      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.096       | 8  |
| 427    |     | 4   | max      | 2.948 | 3          | .057 | 3          | 0  | 12           | 0  | 12          | 0  | .02         | 3  |
| 428    |     | min | -5.522   | 8     | -.13       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 8  |
| 429    |     | 5   | max      | 2.93  | 3          | .114 | 3          | 0  | 12           | 0  | 12          | 0  | .153        | 8  |
| 430    |     | min | -5.524   | 8     | -.26       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.061       | 3  |
| 431    | M11 | 1   | max      | 4.207 | 3          | .3   | 8          | 0  | 12           | 0  | 12          | 0  | .181        | 8  |
| 432    |     | min | -7.006   | 8     | -.139      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.079       | 3  |
| 433    |     | 2   | max      | 4.191 | 3          | .148 | 8          | 0  | 12           | 0  | 12          | 0  | .039        | 3  |
| 434    |     | min | -7.008   | 8     | -.069      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.072       | 8  |
| 435    |     | 3   | max      | 4.175 | 3          | 0    | 3          | 0  | 12           | 0  | 12          | 0  | .078        | 3  |
| 436    |     | min | -7.01    | 8     | -.005      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.153       | 8  |
| 437    |     | 4   | max      | 4.158 | 3          | .069 | 3          | 0  | 12           | 0  | 12          | 0  | .039        | 3  |
| 438    |     | min | -7.012   | 8     | -.157      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.062       | 8  |
| 439    |     | 5   | max      | 4.142 | 3          | .139 | 3          | 0  | 12           | 0  | 12          | 0  | .202        | 8  |
| 440    |     | min | -7.014   | 8     | -.309      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.078       | 3  |
| 441    | M12 | 1   | max      | 5.352 | 3          | .323 | 8          | 0  | 12           | 0  | 12          | 0  | .219        | 8  |
| 442    |     | min | -8.349   | 8     | -.15       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.093       | 3  |
| 443    |     | 2   | max      | 5.341 | 3          | .167 | 8          | 0  | 12           | 0  | 12          | 0  | .039        | 3  |
| 444    |     | min | -8.35    | 8     | -.078      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 8  |



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### 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 445    | 3   | max | 5.331    | 3     | .012       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .088        | 3  |
| 446    |     | min | -8.351   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.166       | 8  |
| 447    | 4   | max | 5.32     | 3     | .066       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .054        | 3  |
| 448    |     | min | -8.353   | 8     | -.143      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.091       | 8  |
| 449    | 5   | max | 5.309    | 3     | .138       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .164        | 8  |
| 450    |     | min | -8.354   | 8     | -.299      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 3  |
| 451    | M13 | 1   | max      | 5.804 | 3          | .267 | 8          | 0  | 12           | 0  | 12          | 0  | .15         | 8  |
| 452    |     | min | -8.841   | 8     | -.125      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.059       | 3  |
| 453    | 2   | max | 5.8      | 3     | .138       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 454    |     | min | -8.841   | 8     | -.065      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 455    | 3   | max | 5.796    | 3     | .009       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .065        | 3  |
| 456    |     | min | -8.842   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.113       | 8  |
| 457    | 4   | max | 5.791    | 3     | .055       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .041        | 3  |
| 458    |     | min | -8.842   | 8     | -.119      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.061       | 8  |
| 459    | 5   | max | 5.787    | 3     | .115       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .114        | 8  |
| 460    |     | min | -8.843   | 8     | -.248      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 3  |
| 461    | M14 | 1   | max      | 5.954 | 3          | .263 | 8          | 0  | 12           | 0  | 12          | 0  | .122        | 8  |
| 462    |     | min | -8.932   | 8     | -.123      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.044       | 3  |
| 463    | 2   | max | 5.954    | 3     | .131       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .046        | 3  |
| 464    |     | min | -8.932   | 8     | -.062      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.07        | 8  |
| 465    | 3   | max | 5.954    | 3     | 0          | 2    | 0          | 12 | 0            | 12 | 0           | 12 | .076        | 3  |
| 466    |     | min | -8.932   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.134       | 8  |
| 467    | 4   | max | 5.954    | 3     | .062       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .046        | 3  |
| 468    |     | min | -8.932   | 8     | -.132      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.07        | 8  |
| 469    | 5   | max | 5.954    | 3     | .123       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .123        | 8  |
| 470    |     | min | -8.932   | 8     | -.263      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.044       | 3  |
| 471    | M15 | 1   | max      | 5.784 | 3          | .247 | 8          | 0  | 12           | 0  | 12          | 0  | .114        | 8  |
| 472    |     | min | -8.621   | 8     | -.115      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 3  |
| 473    | 2   | max | 5.788    | 3     | .118       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .041        | 3  |
| 474    |     | min | -8.621   | 8     | -.055      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.06        | 8  |
| 475    | 3   | max | 5.792    | 3     | .005       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .065        | 3  |
| 476    |     | min | -8.62    | 8     | -.01       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.112       | 8  |
| 477    | 4   | max | 5.797    | 3     | .065       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 478    |     | min | -8.62    | 8     | -.139      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.041       | 8  |
| 479    | 5   | max | 5.801    | 3     | .125       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .152        | 8  |
| 480    |     | min | -8.619   | 8     | -.267      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.059       | 3  |
| 481    | M16 | 1   | max      | 5.307 | 3          | .298 | 8          | 0  | 12           | 0  | 12          | 0  | .165        | 8  |
| 482    |     | min | -7.91    | 8     | -.138      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 3  |
| 483    | 2   | max | 5.317    | 3     | .143       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .054        | 3  |
| 484    |     | min | -7.909   | 8     | -.066      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.089       | 8  |
| 485    | 3   | max | 5.328    | 3     | .006       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .088        | 3  |
| 486    |     | min | -7.908   | 8     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.164       | 8  |
| 487    | 4   | max | 5.339    | 3     | .078       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .039        | 3  |
| 488    |     | min | -7.906   | 8     | -.169      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.059       | 8  |
| 489    | 5   | max | 5.35     | 3     | .151       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .225        | 8  |
| 490    |     | min | -7.905   | 8     | -.324      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.093       | 3  |
| 491    | M17 | 1   | max      | 4.148 | 3          | .308 | 8          | 0  | 12           | 0  | 12          | 0  | .204        | 8  |
| 492    |     | min | -6.291   | 8     | -.139      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.078       | 3  |
| 493    | 2   | max | 4.164    | 3     | .156       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .039        | 3  |
| 494    |     | min | -6.289   | 8     | -.069      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.058       | 8  |
| 495    | 3   | max | 4.18     | 3     | .004       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .078        | 3  |
| 496    |     | min | -6.287   | 8     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.148       | 8  |
| 497    | 4   | max | 4.197    | 3     | .07        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .038        | 3  |
| 498    |     | min | -6.285   | 8     | -.149      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.066       | 8  |
| 499    | 5   | max | 4.213    | 3     | .139       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .187        | 8  |
| 500    |     | min | -6.283   | 8     | -.301      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.079       | 3  |
| 501    | M18 | 1   | max      | 2.962 | 3          | .26  | 8          | 0  | 12           | 0  | 12          | 0  | .158        | 8  |





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### 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 |
|--------|-----|-------|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 502    |     | min   | -4.626   | 8  | -.115      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.061       | 3  |
| 503    |     | 2 max | 2.98     | 3  | .13        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 3  |
| 504    |     | min   | -4.624   | 8  | -.057      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 8  |
| 505    |     | 3 max | 2.999    | 3  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .048        | 3  |
| 506    |     | min   | -4.621   | 8  | 0          | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.092       | 8  |
| 507    |     | 4 max | 3.017    | 3  | .059       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .019        | 3  |
| 508    |     | min   | -4.619   | 8  | -.129      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 8  |
| 509    |     | 5 max | 3.036    | 3  | .117       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .156        | 8  |
| 510    |     | min   | -4.617   | 8  | -.259      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.065       | 3  |
| 511    | M19 | 1 max | 1.493    | 3  | .254       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .144        | 8  |
| 512    |     | min   | -2.542   | 8  | -.108      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.055       | 3  |
| 513    |     | 2 max | 1.515    | 3  | .123       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .022        | 3  |
| 514    |     | min   | -2.539   | 8  | -.051      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.038       | 8  |
| 515    |     | 3 max | 1.538    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .044        | 3  |
| 516    |     | min   | -2.536   | 8  | -.008      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.094       | 8  |
| 517    |     | 4 max | 1.561    | 3  | .062       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 3  |
| 518    |     | min   | -2.534   | 8  | -.139      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 8  |
| 519    |     | 5 max | 1.583    | 3  | .119       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .174        | 8  |
| 520    |     | min   | -2.531   | 8  | -.269      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.076       | 3  |
| 521    | M20 | 1 max | .317     | 12 | .241       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .149        | 8  |
| 522    |     | min   | -.192    | 3  | -.1        | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.06        | 3  |
| 523    |     | 2 max | .32      | 12 | .111       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 3  |
| 524    |     | min   | -.165    | 3  | -.046      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 8  |
| 525    |     | 3 max | .324     | 12 | .009       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .027        | 3  |
| 526    |     | min   | -.139    | 3  | -.02       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.064       | 8  |
| 527    |     | 4 max | .327     | 12 | .064       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 8  |
| 528    |     | min   | -.112    | 3  | -.15       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 529    |     | 5 max | .33      | 12 | .119       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .225        | 8  |
| 530    |     | min   | -.086    | 3  | -.281      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.095       | 3  |
| 531    | M21 | 1 max | 2.865    | 8  | .304       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .221        | 8  |
| 532    |     | min   | -2.156   | 3  | -.116      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.086       | 3  |
| 533    |     | 2 max | 2.87     | 8  | .142       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 3  |
| 534    |     | min   | -2.119   | 3  | -.052      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 8  |
| 535    |     | 3 max | 2.874    | 8  | .012       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 3  |
| 536    |     | min   | -2.082   | 3  | -.02       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.11        | 8  |
| 537    |     | 4 max | 2.879    | 8  | .076       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 12 |
| 538    |     | min   | -2.044   | 3  | -.182      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 3  |
| 539    |     | 5 max | 2.884    | 8  | .14        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .316        | 8  |
| 540    |     | min   | -2.007   | 3  | -.344      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.142       | 3  |
| 541    | M22 | 1 max | 7.031    | 8  | .268       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .242        | 8  |
| 542    |     | min   | -4.802   | 3  | -.097      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.103       | 3  |
| 543    |     | 2 max | 7.036    | 8  | .135       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .049        | 8  |
| 544    |     | min   | -4.764   | 3  | -.05       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 545    |     | 3 max | 7.041    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | -.004       | 2  |
| 546    |     | min   | -4.726   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 5  |
| 547    |     | 4 max | 7.046    | 8  | .044       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .044        | 8  |
| 548    |     | min   | -4.689   | 3  | -.131      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 549    |     | 5 max | 7.05     | 8  | .092       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .233        | 8  |
| 550    |     | min   | -4.651   | 3  | -.264      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.092       | 3  |
| 551    | M23 | 1 max | 9.289    | 8  | .278       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .235        | 8  |
| 552    |     | min   | -6.2     | 3  | -.066      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.087       | 3  |
| 553    |     | 2 max | 9.296    | 8  | .132       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .023        | 8  |
| 554    |     | min   | -6.143   | 3  | -.034      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 3  |
| 555    |     | 3 max | 9.304    | 8  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | -.006       | 2  |
| 556    |     | min   | -6.086   | 3  | -.014      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 5  |
| 557    |     | 4 max | 9.311    | 8  | .029       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .052        | 8  |
| 558    |     | min   | -6.029   | 3  | -.16       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 3  |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### 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 |
|--------|-------|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 559    | 5     | max | 9.318    | 8     | .061       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .292        | 8  |
| 560    |       | min | -5.972   | 3     | -.306      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.076       | 3  |
| 561    | M24   | 1   | max      | 8.982 | 8          | .316  | 8          | 0  | 12           | 0  | 12          | 0  | .288        | 8  |
| 562    |       | min | -5.693   | 3     | -.009      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.061       | 3  |
| 563    |       | 2   | max      | 8.99  | 8          | .175  | 8          | 0  | 12           | 0  | 12          | 0  | .048        | 8  |
| 564    |       | min | -5.681   | 3     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.054       | 3  |
| 565    |       | 3   | max      | 8.997 | 8          | .034  | 8          | 0  | 12           | 0  | 12          | 0  | -.012       | 2  |
| 566    |       | min | -5.668   | 3     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.072       | 6  |
| 567    |       | 4   | max      | 9.005 | 8          | 0     | 2          | 0  | 12           | 0  | 12          | 0  | -.011       | 2  |
| 568    |       | min | -5.655   | 3     | -.107      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.044       | 10 |
| 569    |       | 5   | max      | 9.013 | 8          | .001  | 2          | 0  | 12           | 0  | 12          | 0  | .155        | 8  |
| 570    |       | min | -5.642   | 3     | -.248      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 3  |
| 571    | M25   | 1   | max      | 6.844 | 8          | -.002 | 2          | 0  | 12           | 0  | 12          | 0  | .089        | 8  |
| 572    |       | min | -3.944   | 3     | -.2        | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 3  |
| 573    |       | 2   | max      | 6.852 | 8          | -.002 | 2          | 0  | 12           | 0  | 12          | 0  | .145        | 8  |
| 574    |       | min | -3.931   | 3     | -.078      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 3  |
| 575    |       | 3   | max      | 6.859 | 8          | .047  | 8          | 0  | 12           | 0  | 12          | 0  | .153        | 12 |
| 576    |       | min | -3.919   | 3     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.034       | 3  |
| 577    |       | 4   | max      | 6.866 | 8          | .168  | 12         | 0  | 12           | 0  | 12          | 0  | .057        | 8  |
| 578    |       | min | -3.907   | 3     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 3  |
| 579    |       | 5   | max      | 6.874 | 8          | .29   | 12         | 0  | 12           | 0  | 12          | 0  | -.005       | 2  |
| 580    |       | min | -3.895   | 3     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.161       | 9  |
| 581    | M26   | 1   | max      | 5.184 | 12         | -.002 | 2          | 0  | 12           | 0  | 12          | 0  | -.01        | 2  |
| 582    |       | min | -2.258   | 3     | -.285      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.159       | 9  |
| 583    |       | 2   | max      | 5.193 | 12         | -.002 | 2          | 0  | 12           | 0  | 12          | 0  | .073        | 12 |
| 584    |       | min | -2.244   | 3     | -.145      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 585    |       | 3   | max      | 5.201 | 12         | 0     | 8          | 0  | 12           | 0  | 12          | 0  | .152        | 12 |
| 586    |       | min | -2.23    | 3     | -.006      | 10    | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 3  |
| 587    |       | 4   | max      | 5.21  | 12         | .137  | 12         | 0  | 12           | 0  | 12          | 0  | .081        | 12 |
| 588    |       | min | -2.216   | 3     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 589    |       | 5   | max      | 5.218 | 12         | .278  | 12         | 0  | 12           | 0  | 12          | 0  | -.002       | 2  |
| 590    |       | min | -2.202   | 3     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 9  |
| 591    | M27   | 1   | max      | 3.252 | 12         | -.003 | 2          | 0  | 12           | 0  | 12          | 0  | -.008       | 2  |
| 592    |       | min | -.73     | 3     | -.219      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.107       | 9  |
| 593    |       | 2   | max      | 3.259 | 12         | -.003 | 2          | 0  | 12           | 0  | 12          | 0  | .036        | 8  |
| 594    |       | min | -.719    | 3     | -.109      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 595    |       | 3   | max      | 3.265 | 12         | .01   | 8          | 0  | 12           | 0  | 12          | 0  | .077        | 12 |
| 596    |       | min | -.708    | 3     | -.009      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 597    |       | 4   | max      | 3.272 | 12         | .112  | 12         | 0  | 12           | 0  | 12          | 0  | .029        | 12 |
| 598    |       | min | -.696    | 3     | -.009      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 599    |       | 5   | max      | 3.278 | 12         | .223  | 12         | 0  | 12           | 0  | 12          | 0  | .004        | 3  |
| 600    |       | min | -.685    | 3     | -.009      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.111       | 12 |
| 601    | M120A | 1   | max      | 1.319 | 9          | 0     | 2          | 0  | 12           | 0  | 12          | 0  | -.003       | 2  |
| 602    |       | min | .093     | 8     | -.224      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.093       | 9  |
| 603    |       | 2   | max      | 1.33  | 9          | 0     | 2          | 0  | 12           | 0  | 12          | 0  | .049        | 12 |
| 604    |       | min | .099     | 8     | -.114      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 605    |       | 3   | max      | 1.341 | 9          | 0     | 2          | 0  | 12           | 0  | 12          | 0  | .098        | 12 |
| 606    |       | min | .106     | 8     | -.004      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 607    |       | 4   | max      | 1.352 | 9          | .107  | 12         | 0  | 12           | 0  | 12          | 0  | .055        | 12 |
| 608    |       | min | .112     | 8     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 609    |       | 5   | max      | 1.363 | 9          | .217  | 12         | 0  | 12           | 0  | 12          | 0  | -.002       | 2  |
| 610    |       | min | .119     | 8     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.082       | 9  |
| 611    | M121A | 1   | max      | 1.791 | 3          | -.002 | 8          | 0  | 12           | 0  | 12          | 0  | .007        | 8  |
| 612    |       | min | -2.844   | 8     | -.081      | 10    | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 10 |
| 613    |       | 2   | max      | 1.797 | 3          | .03   | 8          | 0  | 12           | 0  | 12          | 0  | 0           | 8  |
| 614    |       | min | -2.841   | 8     | -.044      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 10 |
| 615    |       | 3   | max      | 1.803 | 3          | .063  | 8          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |



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### 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 |
|--------|------|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 616    |      | min | -2.837   | 8     | -.044      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 8  |
| 617    | 4    | max | 1.808    | 3     | .097       | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .027        | 3  |
| 618    |      | min | -2.834   | 8     | -.044      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.052       | 8  |
| 619    | 5    | max | 1.814    | 3     | .153       | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .046        | 3  |
| 620    |      | min | -2.831   | 8     | -.044      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.099       | 12 |
| 621    | M123 | 1   | max      | 1.816 | 3          | .052 | 6          | 0  | 12           | 0  | 12          | 0  | .046        | 3  |
| 622    |      | min | -1.947   | 8     | .006       | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 12 |
| 623    | 2    | max | 1.81     | 3     | .044       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .027        | 3  |
| 624    |      | min | -1.95    | 8     | -.01       | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 625    | 3    | max | 1.805    | 3     | .044       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 626    |      | min | -1.953   | 8     | -.047      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 627    | 4    | max | 1.799    | 3     | .044       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 8  |
| 628    |      | min | -1.957   | 8     | -.086      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 629    | 5    | max | 1.794    | 3     | .044       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .068        | 8  |
| 630    |      | min | -1.96    | 8     | -.124      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 631    | M124 | 1   | max      | .445  | 3          | .152 | 5          | 0  | 12           | 0  | 12          | 0  | .074        | 8  |
| 632    |      | min | -1.672   | 8     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 633    | 2    | max | .434     | 3     | .075       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | -.003       | 2  |
| 634    |      | min | -1.679   | 8     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 6  |
| 635    | 3    | max | .422     | 3     | .001       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | -.003       | 2  |
| 636    |      | min | -1.685   | 8     | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.051       | 5  |
| 637    | 4    | max | .411     | 3     | .001       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | -.003       | 2  |
| 638    |      | min | -1.692   | 8     | -.08       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 6  |
| 639    | 5    | max | .4       | 3     | .001       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .083        | 8  |
| 640    |      | min | -1.699   | 8     | -.158      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 3  |
| 641    | M125 | 1   | max      | -.096 | 2          | .141 | 5          | 0  | 12           | 0  | 12          | 0  | .072        | 5  |
| 642    |      | min | -1.298   | 6     | .003       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | .002        | 1  |
| 643    | 2    | max | -.107    | 2     | .063       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 644    |      | min | -1.309   | 6     | .003       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 5  |
| 645    | 3    | max | -.118    | 2     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | -.003       | 2  |
| 646    |      | min | -1.32    | 6     | -.015      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 5  |
| 647    | 4    | max | -.129    | 2     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 648    |      | min | -1.331   | 6     | -.093      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 3  |
| 649    | 5    | max | -.14     | 2     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .122        | 8  |
| 650    |      | min | -1.342   | 6     | -.17       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 3  |
| 651    | M28  | 1   | max      | .392  | 3          | .036 | 3          | 0  | 12           | 0  | 12          | 0  | .046        | 3  |
| 652    |      | min | -.973    | 12    | -.07       | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.099       | 12 |
| 653    | 2    | max | .392     | 3     | .034       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 654    |      | min | -.973    | 12    | -.071      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.06        | 12 |
| 655    | 3    | max | .392     | 3     | .033       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 656    |      | min | -.973    | 12    | -.072      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 12 |
| 657    | 4    | max | .392     | 3     | .031       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 8  |
| 658    |      | min | -.973    | 12    | -.073      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 659    | 5    | max | .392     | 3     | .029       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .063        | 12 |
| 660    |      | min | -.973    | 12    | -.074      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 3  |
| 661    | M63  | 1   | max      | .392  | 3          | .01  | 12         | 0  | 12           | 0  | 12          | 0  | .008        | 8  |
| 662    |      | min | -.086    | 12    | -.029      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 3  |
| 663    | 2    | max | .392     | 3     | .009       | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 664    |      | min | -.086    | 12    | -.031      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 665    | 3    | max | .392     | 3     | .008       | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 666    |      | min | -.086    | 12    | -.032      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 12 |
| 667    | 4    | max | .392     | 3     | .007       | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 668    |      | min | -.086    | 12    | -.034      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 12 |
| 669    | 5    | max | .392     | 3     | .006       | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .046        | 3  |
| 670    |      | min | -.086    | 12    | -.036      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 12 |
| 671    | M64  | 1   | max      | 1.027 | 3          | .007 | 8          | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 672    |      | min | -.726    | 8     | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 3  |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### 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 |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 673 |        | 2   | max | 1.027    | 3  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 674 |        |     | min | -.726    | 8  | -.008      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 675 |        | 3   | max | 1.026    | 3  | .008       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 5  |
| 676 |        |     | min | -.726    | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 677 |        | 4   | max | 1.025    | 3  | .008       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 678 |        |     | min | -.727    | 8  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 679 |        | 5   | max | 1.025    | 3  | .009       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 680 |        |     | min | -.727    | 8  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 681 | M65    | 1   | max | .788     | 8  | .002       | 2  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 682 |        |     | min | -1.116   | 3  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 6  |
| 683 |        | 2   | max | .787     | 8  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 684 |        |     | min | -1.117   | 3  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 685 |        | 3   | max | .787     | 8  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 8  |
| 686 |        |     | min | -1.118   | 3  | -.004      | 6  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 687 |        | 4   | max | .786     | 8  | -.001      | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 8  |
| 688 |        |     | min | -1.118   | 3  | -.005      | 6  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 689 |        | 5   | max | .786     | 8  | -.002      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 5  |
| 690 |        |     | min | -1.119   | 3  | -.006      | 6  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 691 | M66    | 1   | max | 1.134    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 692 |        |     | min | -1.27    | 8  | -.009      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 3  |
| 693 |        | 2   | max | 1.133    | 3  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 12 |
| 694 |        |     | min | -1.27    | 8  | -.008      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 695 |        | 3   | max | 1.133    | 3  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 696 |        |     | min | -1.271   | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 697 |        | 4   | max | 1.132    | 3  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 698 |        |     | min | -1.271   | 8  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 699 |        | 5   | max | 1.131    | 3  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 700 |        |     | min | -1.272   | 8  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 701 | M67    | 1   | max | 1.419    | 8  | .005       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 5  |
| 702 |        |     | min | -1.25    | 3  | .002       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 703 |        | 2   | max | 1.418    | 8  | .004       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 8  |
| 704 |        |     | min | -1.251   | 3  | .001       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 705 |        | 3   | max | 1.418    | 8  | .003       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 706 |        |     | min | -1.253   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 707 |        | 4   | max | 1.417    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 708 |        |     | min | -1.254   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 709 |        | 5   | max | 1.416    | 8  | .001       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 710 |        |     | min | -1.255   | 3  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 6  |
| 711 | M68    | 1   | max | 1.122    | 3  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .025        | 8  |
| 712 |        |     | min | -1.744   | 8  | -.01       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 713 |        | 2   | max | 1.121    | 3  | .014       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 8  |
| 714 |        |     | min | -1.745   | 8  | -.009      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 715 |        | 3   | max | 1.12     | 3  | .014       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 8  |
| 716 |        |     | min | -1.745   | 8  | -.008      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 717 |        | 4   | max | 1.12     | 3  | .015       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 718 |        |     | min | -1.746   | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 719 |        | 5   | max | 1.119    | 3  | .015       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 720 |        |     | min | -1.746   | 8  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 8  |
| 721 | M69    | 1   | max | 1.623    | 8  | .004       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 8  |
| 722 |        |     | min | -.995    | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 723 |        | 2   | max | 1.622    | 8  | .003       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 724 |        |     | min | -.996    | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 725 |        | 3   | max | 1.622    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 726 |        |     | min | -.996    | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 727 |        | 4   | max | 1.621    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 728 |        |     | min | -.997    | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 729 |        | 5   | max | 1.621    | 8  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |





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### 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 730    |     | min | -998     | 3     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 3  |
| 731    | M70 | 1   | max      | 1.755 | 3          | .002 | 8          | 0  | 12           | 0  | 12          | 0  | .008        | 8  |
| 732    |     | min | -2.686   | 8     | -.003      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 733    |     | 2   | max      | 1.754 | 3          | .003 | 8          | 0  | 12           | 0  | 12          | 0  | .006        | 8  |
| 734    |     | min | -2.686   | 8     | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 735    |     | 3   | max      | 1.753 | 3          | .003 | 8          | 0  | 12           | 0  | 12          | 0  | .004        | 8  |
| 736    |     | min | -2.687   | 8     | -.001      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 737    |     | 4   | max      | 1.753 | 3          | .004 | 5          | 0  | 12           | 0  | 12          | 0  | .002        | 12 |
| 738    |     | min | -2.687   | 8     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 739    |     | 5   | max      | 1.752 | 3          | .005 | 5          | 0  | 12           | 0  | 12          | 0  | 0           | 12 |
| 740    |     | min | -2.688   | 8     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 741    | M71 | 1   | max      | 1.178 | 3          | .01  | 5          | 0  | 12           | 0  | 12          | 0  | .023        | 8  |
| 742    |     | min | -.459    | 8     | -.003      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 743    |     | 2   | max      | 1.177 | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | .016        | 8  |
| 744    |     | min | -.459    | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 745    |     | 3   | max      | 1.176 | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | .009        | 8  |
| 746    |     | min | -.46     | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 747    |     | 4   | max      | 1.175 | 3          | .008 | 8          | 0  | 12           | 0  | 12          | 0  | .003        | 8  |
| 748    |     | min | -.46     | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 749    |     | 5   | max      | 1.174 | 3          | .008 | 8          | 0  | 12           | 0  | 12          | 0  | 0           | 2  |
| 750    |     | min | -.461    | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 6  |
| 751    | M72 | 1   | max      | 1.631 | 3          | .011 | 3          | 0  | 12           | 0  | 12          | 0  | .012        | 3  |
| 752    |     | min | -2.507   | 8     | -.01       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 753    |     | 2   | max      | 1.631 | 3          | .012 | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 3  |
| 754    |     | min | -2.507   | 8     | -.009      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 755    |     | 3   | max      | 1.63  | 3          | .013 | 3          | 0  | 12           | 0  | 12          | 0  | .008        | 8  |
| 756    |     | min | -2.508   | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 757    |     | 4   | max      | 1.63  | 3          | .015 | 3          | 0  | 12           | 0  | 12          | 0  | .013        | 8  |
| 758    |     | min | -2.508   | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 759    |     | 5   | max      | 1.63  | 3          | .016 | 3          | 0  | 12           | 0  | 12          | 0  | .018        | 8  |
| 760    |     | min | -2.508   | 8     | -.007      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 3  |
| 761    | M73 | 1   | max      | 2.707 | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | .021        | 8  |
| 762    |     | min | -2.572   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 763    |     | 2   | max      | 2.706 | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | .014        | 8  |
| 764    |     | min | -2.573   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 765    |     | 3   | max      | 2.705 | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | .007        | 8  |
| 766    |     | min | -2.574   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 767    |     | 4   | max      | 2.703 | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | 0           | 12 |
| 768    |     | min | -2.575   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 769    |     | 5   | max      | 2.702 | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 770    |     | min | -2.576   | 8     | -.007      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 771    | M74 | 1   | max      | .077  | 3          | .009 | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 772    |     | min | -.349    | 8     | -.009      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 12 |
| 773    |     | 2   | max      | .077  | 3          | .01  | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 5  |
| 774    |     | min | -.349    | 8     | -.009      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 775    |     | 3   | max      | .077  | 3          | .011 | 3          | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 776    |     | min | -.349    | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 777    |     | 4   | max      | .077  | 3          | .012 | 3          | 0  | 12           | 0  | 12          | 0  | .015        | 8  |
| 778    |     | min | -.348    | 8     | -.007      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 779    |     | 5   | max      | .078  | 3          | .013 | 3          | 0  | 12           | 0  | 12          | 0  | .02         | 8  |
| 780    |     | min | -.348    | 8     | -.006      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 3  |
| 781    | M75 | 1   | max      | 2.253 | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 782    |     | min | -2.641   | 8     | -.01       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 783    |     | 2   | max      | 2.252 | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 784    |     | min | -2.642   | 8     | -.01       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 785    |     | 3   | max      | 2.251 | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 8  |
| 786    |     | min | -2.642   | 8     | -.01       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |



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### 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 |
|--------|-----|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 787    | 4   | max | 2.25     | 3     | .007       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 8  |
| 788    |     | min | -2.643   | 8     | -.009      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 789    | 5   | max | 2.248    | 3     | .008       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .019        | 8  |
| 790    |     | min | -2.644   | 8     | -.009      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 791    | M76 | 1   | max      | 2.324 | 8          | -.001 | 3          | 0  | 12           | 0  | 12          | 0  | .002        | 12 |
| 792    |     | min | -1.862   | 3     | -.004      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 793    | 2   | max | 2.324    | 8     | 0          | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 794    |     | min | -1.861   | 3     | -.003      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 795    | 3   | max | 2.325    | 8     | .002       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 796    |     | min | -1.861   | 3     | -.001      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 797    | 4   | max | 2.325    | 8     | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 798    |     | min | -1.861   | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 799    | 5   | max | 2.325    | 8     | .005       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 800    |     | min | -1.861   | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 801    | M77 | 1   | max      | 1.845 | 3          | .005  | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |
| 802    |     | min | -2.383   | 8     | -.013      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 803    | 2   | max | 1.844    | 3     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 804    |     | min | -2.384   | 8     | -.013      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 805    | 3   | max | 1.843    | 3     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 9  |
| 806    |     | min | -2.385   | 8     | -.013      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 807    | 4   | max | 1.842    | 3     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 8  |
| 808    |     | min | -2.385   | 8     | -.013      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 809    | 5   | max | 1.84     | 3     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .019        | 8  |
| 810    |     | min | -2.386   | 8     | -.012      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 811    | M78 | 1   | max      | 1.78  | 8          | 0     | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 812    |     | min | -1.402   | 3     | -.008      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 9  |
| 813    | 2   | max | 1.78     | 8     | .001       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 814    |     | min | -1.402   | 3     | -.006      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 12 |
| 815    | 3   | max | 1.781    | 8     | .002       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 5  |
| 816    |     | min | -1.401   | 3     | -.006      | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 10 |
| 817    | 4   | max | 1.781    | 8     | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 818    |     | min | -1.4     | 3     | -.005      | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 819    | 5   | max | 1.781    | 8     | .005       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 12 |
| 820    |     | min | -1.4     | 3     | -.004      | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 821    | M79 | 1   | max      | 1.521 | 3          | .006  | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |
| 822    |     | min | -1.993   | 8     | -.01       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 8  |
| 823    | 2   | max | 1.52     | 3     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 824    |     | min | -1.994   | 8     | -.01       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 825    | 3   | max | 1.519    | 3     | .007       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 8  |
| 826    |     | min | -1.995   | 8     | -.009      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 10 |
| 827    | 4   | max | 1.517    | 3     | .007       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 828    |     | min | -1.995   | 8     | -.009      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 829    | 5   | max | 1.516    | 3     | .007       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 8  |
| 830    |     | min | -1.996   | 8     | -.009      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 831    | M80 | 1   | max      | 1.588 | 8          | .002  | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 832    |     | min | -1.324   | 3     | -.005      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 833    | 2   | max | 1.589    | 8     | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 834    |     | min | -1.323   | 3     | -.004      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 835    | 3   | max | 1.589    | 8     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 836    |     | min | -1.323   | 3     | -.003      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 837    | 4   | max | 1.589    | 8     | .005       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 8  |
| 838    |     | min | -1.322   | 3     | -.003      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 839    | 5   | max | 1.59     | 8     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 840    |     | min | -1.322   | 3     | -.002      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 841    | M81 | 1   | max      | 1.267 | 3          | .004  | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |
| 842    |     | min | -1.59    | 8     | -.008      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 8  |
| 843    | 2   | max | 1.265    | 3     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### 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 |
|--------|-----|-------|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 844    |     | min   | -1.59    | 8  | -.008      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 845    |     | 3 max | 1.264    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 846    |     | min   | -1.591   | 8  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 847    |     | 4 max | 1.263    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 8  |
| 848    |     | min   | -1.592   | 8  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 849    |     | 5 max | 1.262    | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 850    |     | min   | -1.592   | 8  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 851    | M82 | 1 max | 1.345    | 8  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 852    |     | min   | -1.162   | 3  | -.002      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 12 |
| 853    |     | 2 max | 1.345    | 8  | .001       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 854    |     | min   | -1.162   | 3  | -.001      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 855    |     | 3 max | 1.345    | 8  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 856    |     | min   | -1.161   | 3  | 0          | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 857    |     | 4 max | 1.346    | 8  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 858    |     | min   | -1.16    | 3  | 0          | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 859    |     | 5 max | 1.346    | 8  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | -.002       | 2  |
| 860    |     | min   | -1.16    | 3  | 0          | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 6  |
| 861    | M83 | 1 max | 1.002    | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 3  |
| 862    |     | min   | -1.214   | 8  | -.012      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 8  |
| 863    |     | 2 max | 1        | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 864    |     | min   | -1.215   | 8  | -.012      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 865    |     | 3 max | .999     | 3  | .007       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 866    |     | min   | -1.216   | 8  | -.012      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 867    |     | 4 max | .998     | 3  | .007       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 868    |     | min   | -1.217   | 8  | -.012      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 869    |     | 5 max | .997     | 3  | .008       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 8  |
| 870    |     | min   | -1.217   | 8  | -.011      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 871    | M84 | 1 max | 1.124    | 8  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 872    |     | min   | -1.018   | 3  | -.005      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 873    |     | 2 max | 1.125    | 8  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 874    |     | min   | -1.017   | 3  | -.004      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 875    |     | 3 max | 1.125    | 8  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 876    |     | min   | -1.017   | 3  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 877    |     | 4 max | 1.126    | 8  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 878    |     | min   | -1.016   | 3  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 879    |     | 5 max | 1.126    | 8  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | -.001       | 2  |
| 880    |     | min   | -1.015   | 3  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 6  |
| 881    | M85 | 1 max | .889     | 3  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 882    |     | min   | -1.039   | 8  | -.005      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 883    |     | 2 max | .888     | 3  | .001       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 884    |     | min   | -1.04    | 8  | -.005      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 885    |     | 3 max | .887     | 3  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 886    |     | min   | -1.041   | 8  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 887    |     | 4 max | .886     | 3  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 888    |     | min   | -1.041   | 8  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 889    |     | 5 max | .885     | 3  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 8  |
| 890    |     | min   | -1.042   | 8  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 9  |
| 891    | M86 | 1 max | .766     | 8  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 892    |     | min   | -.752    | 3  | -.003      | 4  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 5  |
| 893    |     | 2 max | .767     | 8  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 894    |     | min   | -.751    | 3  | -.001      | 4  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 895    |     | 3 max | .767     | 8  | .001       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 896    |     | min   | -.75     | 3  | 0          | 4  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 897    |     | 4 max | .768     | 8  | .003       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 898    |     | min   | -.75     | 3  | .001       | 4  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 899    |     | 5 max | .768     | 8  | .004       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 900    |     | min   | -.749    | 3  | .002       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 5  |



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### 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 |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 901 | M87    | 1   | max | .299     | 3  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 902 |        |     | min | -.316    | 8  | -.004      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 8  |
| 903 |        | 2   | max | .298     | 3  | .001       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 904 |        |     | min | -.317    | 8  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 905 |        | 3   | max | .297     | 3  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 906 |        |     | min | -.318    | 8  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 907 |        | 4   | max | .296     | 3  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 908 |        |     | min | -.318    | 8  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 909 |        | 5   | max | .295     | 3  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 910 |        |     | min | -.319    | 8  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 5  |
| 911 | M88    | 1   | max | .458     | 8  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 8  |
| 912 |        |     | min | -.489    | 3  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 913 |        | 2   | max | .458     | 8  | .008       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 6  |
| 914 |        |     | min | -.488    | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 915 |        | 3   | max | .459     | 8  | .008       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 916 |        |     | min | -.487    | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 917 |        | 4   | max | .459     | 8  | .009       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 918 |        |     | min | -.486    | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 919 |        | 5   | max | .46      | 8  | .01        | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 920 |        |     | min | -.485    | 3  | -.001      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 8  |
| 921 | M89    | 1   | max | .069     | 10 | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 922 |        |     | min | 0        | 1  | -.007      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 923 |        | 2   | max | .068     | 10 | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 924 |        |     | min | -.001    | 1  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 925 |        | 3   | max | .067     | 10 | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 926 |        |     | min | -.003    | 1  | -.006      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 927 |        | 4   | max | .066     | 10 | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 928 |        |     | min | -.004    | 1  | -.006      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 12 |
| 929 |        | 5   | max | .065     | 10 | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 930 |        |     | min | -.005    | 1  | -.005      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 931 | M90    | 1   | max | .154     | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 932 |        |     | min | -.238    | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 933 |        | 2   | max | .155     | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 934 |        |     | min | -.237    | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 935 |        | 3   | max | .155     | 8  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 936 |        |     | min | -.236    | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 937 |        | 4   | max | .156     | 8  | .003       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 938 |        |     | min | -.235    | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 939 |        | 5   | max | .156     | 8  | .004       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 940 |        |     | min | -.234    | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 941 | M91    | 1   | max | .328     | 8  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 942 |        |     | min | -.236    | 3  | -.004      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 943 |        | 2   | max | .327     | 8  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 944 |        |     | min | -.237    | 3  | -.003      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 945 |        | 3   | max | .326     | 8  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 946 |        |     | min | -.238    | 3  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 947 |        | 4   | max | .326     | 8  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 948 |        |     | min | -.239    | 3  | -.001      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 949 |        | 5   | max | .325     | 8  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 950 |        |     | min | -.24     | 3  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 951 | M92    | 1   | max | .026     | 3  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 952 |        |     | min | -.168    | 5  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 953 |        | 2   | max | .027     | 3  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 954 |        |     | min | -.167    | 5  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 955 |        | 3   | max | .028     | 3  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 956 |        |     | min | -.166    | 5  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 957 |        | 4   | max | .029     | 3  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |





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### 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 |
|--------|-----|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 958    |     | min | -.165    | 5     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 959    |     | max | .031     | 3     | .008       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 960    |     | min | -.164    | 5     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 8  |
| 961    | M93 | 1   | max      | .615  | 8          | .001  | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 962    |     | min | -.484    | 3     | -.009      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 8  |
| 963    |     | 2   | max      | .615  | 8          | .002  | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 964    |     | min | -.485    | 3     | -.008      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 965    |     | 3   | max      | .614  | 8          | .003  | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 3  |
| 966    |     | min | -.486    | 3     | -.008      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 967    |     | 4   | max      | .613  | 8          | .004  | 3          | 0  | 12           | 0  | 12          | 0  | .002        | 6  |
| 968    |     | min | -.487    | 3     | -.007      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 969    |     | 5   | max      | .613  | 8          | .005  | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 8  |
| 970    |     | min | -.488    | 3     | -.007      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 971    | M94 | 1   | max      | .299  | 3          | .002  | 8          | 0  | 12           | 0  | 12          | 0  | .003        | 3  |
| 972    |     | min | -.518    | 8     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 5  |
| 973    |     | 2   | max      | .3    | 3          | .003  | 8          | 0  | 12           | 0  | 12          | 0  | .005        | 3  |
| 974    |     | min | -.518    | 8     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 975    |     | 3   | max      | .301  | 3          | .003  | 8          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 976    |     | min | -.517    | 8     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 977    |     | 4   | max      | .302  | 3          | .004  | 8          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 978    |     | min | -.516    | 8     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 979    |     | 5   | max      | .303  | 3          | .004  | 5          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 980    |     | min | -.516    | 8     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 981    | M95 | 1   | max      | .948  | 8          | -.002 | 12         | 0  | 12           | 0  | 12          | 0  | .003        | 3  |
| 982    |     | min | -.748    | 3     | -.004      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 5  |
| 983    |     | 2   | max      | .948  | 8          | -.001 | 12         | 0  | 12           | 0  | 12          | 0  | .005        | 3  |
| 984    |     | min | -.748    | 3     | -.002      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 985    |     | 3   | max      | .947  | 8          | 0     | 2          | 0  | 12           | 0  | 12          | 0  | .005        | 3  |
| 986    |     | min | -.749    | 3     | 0          | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 987    |     | 4   | max      | .947  | 8          | .001  | 2          | 0  | 12           | 0  | 12          | 0  | .005        | 3  |
| 988    |     | min | -.75     | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 989    |     | 5   | max      | .946  | 8          | .003  | 2          | 0  | 12           | 0  | 12          | 0  | .003        | 3  |
| 990    |     | min | -.751    | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 5  |
| 991    | M96 | 1   | max      | .88   | 3          | .003  | 8          | 0  | 12           | 0  | 12          | 0  | .001        | 8  |
| 992    |     | min | -1.247   | 8     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 993    |     | 2   | max      | .881  | 3          | .004  | 8          | 0  | 12           | 0  | 12          | 0  | .003        | 3  |
| 994    |     | min | -1.247   | 8     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 995    |     | 3   | max      | .882  | 3          | .004  | 8          | 0  | 12           | 0  | 12          | 0  | .005        | 3  |
| 996    |     | min | -1.246   | 8     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 997    |     | 4   | max      | .883  | 3          | .005  | 5          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 998    |     | min | -1.245   | 8     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 999    |     | 5   | max      | .884  | 3          | .006  | 5          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 1000   |     | min | -1.245   | 8     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 1001   | M97 | 1   | max      | 1.252 | 8          | .002  | 8          | 0  | 12           | 0  | 12          | 0  | 0           | 12 |
| 1002   |     | min | -1.015   | 3     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 6  |
| 1003   |     | 2   | max      | 1.251 | 8          | .003  | 8          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 1004   |     | min | -1.016   | 3     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 1005   |     | 3   | max      | 1.251 | 8          | .004  | 8          | 0  | 12           | 0  | 12          | 0  | .005        | 3  |
| 1006   |     | min | -1.017   | 3     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 1007   |     | 4   | max      | 1.25  | 8          | .005  | 5          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 1008   |     | min | -1.018   | 3     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 1009   |     | 5   | max      | 1.25  | 8          | .006  | 5          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 1010   |     | min | -1.018   | 3     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 1011   | M98 | 1   | max      | .976  | 3          | .012  | 8          | 0  | 12           | 0  | 12          | 0  | .017        | 8  |
| 1012   |     | min | -1.397   | 8     | -.008      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 1013   |     | 2   | max      | .977  | 3          | .013  | 8          | 0  | 12           | 0  | 12          | 0  | .008        | 8  |
| 1014   |     | min | -1.397   | 8     | -.008      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
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### 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 |
|--------|------|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 1015   | 3    | max | .978     | 3     | .013       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 1016   |      | min | -1.396   | 8     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 1017   | 4    | max | .979     | 3     | .013       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 1018   |      | min | -1.395   | 8     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 1019   | 5    | max | .98      | 3     | .013       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 3  |
| 1020   |      | min | -1.395   | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 8  |
| 1021   | M99  | 1   | max      | 1.496 | 8          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 0           | 12 |
| 1022   |      | min | -1.186   | 3     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 6  |
| 1023   | 2    | max | 1.496    | 8     | 0          | 12    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1024   |      | min | -1.186   | 3     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 8  |
| 1025   | 3    | max | 1.495    | 8     | .001       | 12    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 1026   |      | min | -1.187   | 3     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 1027   | 4    | max | 1.495    | 8     | .002       | 9     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 1028   |      | min | -1.188   | 3     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 1029   | 5    | max | 1.494    | 8     | .003       | 9     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 1030   |      | min | -1.188   | 3     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 12 |
| 1031   | M100 | 1   | max      | 1.255 | 3          | .008  | 8          | 0  | 12           | 0  | 12          | 0  | .009        | 8  |
| 1032   |      | min | -1.8     | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1033   | 2    | max | 1.256    | 3     | .008       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 1034   |      | min | -1.799   | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1035   | 3    | max | 1.257    | 3     | .008       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 1036   |      | min | -1.799   | 8     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 1037   | 4    | max | 1.258    | 3     | .008       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 1038   |      | min | -1.798   | 8     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 1039   | 5    | max | 1.26     | 3     | .009       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 1040   |      | min | -1.797   | 8     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 8  |
| 1041   | M101 | 1   | max      | 1.696 | 8          | .003  | 8          | 0  | 12           | 0  | 12          | 0  | .005        | 8  |
| 1042   |      | min | -1.317   | 3     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1043   | 2    | max | 1.696    | 8     | .004       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 1044   |      | min | -1.317   | 3     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1045   | 3    | max | 1.696    | 8     | .005       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 1046   |      | min | -1.318   | 3     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 8  |
| 1047   | 4    | max | 1.695    | 8     | .005       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 1048   |      | min | -1.319   | 3     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 1049   | 5    | max | 1.695    | 8     | .006       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 1050   |      | min | -1.319   | 3     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 1051   | M102 | 1   | max      | 1.509 | 3          | .011  | 8          | 0  | 12           | 0  | 12          | 0  | .017        | 8  |
| 1052   |      | min | -2.19    | 8     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 1053   | 2    | max | 1.511    | 3     | .011       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 1054   |      | min | -2.189   | 8     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1055   | 3    | max | 1.512    | 3     | .011       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 5  |
| 1056   |      | min | -2.189   | 8     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 1057   | 4    | max | 1.513    | 3     | .011       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 1058   |      | min | -2.188   | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 1059   | 5    | max | 1.514    | 3     | .011       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 1060   |      | min | -2.187   | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 1061   | M103 | 1   | max      | 1.88  | 8          | -.001 | 12         | 0  | 12           | 0  | 12          | 0  | .003        | 12 |
| 1062   |      | min | -1.42    | 3     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1063   | 2    | max | 1.88     | 8     | 0          | 12    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 1064   |      | min | -1.42    | 3     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1065   | 3    | max | 1.88     | 8     | 0          | 12    | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 5  |
| 1066   |      | min | -1.421   | 3     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 3  |
| 1067   | 4    | max | 1.88     | 8     | .001       | 9     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 5  |
| 1068   |      | min | -1.421   | 3     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 1069   | 5    | max | 1.879    | 8     | .002       | 9     | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 8  |
| 1070   |      | min | -1.422   | 3     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 1071   | M104 | 1   | max      | 1.837 | 3          | .007  | 8          | 0  | 12           | 0  | 12          | 0  | .009        | 8  |



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### 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 |
|--------|------|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 1072   |      | min | -2.77    | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 1073   |      | max | 1.839    | 3  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 1074   |      | min | -2.769   | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1075   |      | max | 1.84     | 3  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1076   |      | min | -2.768   | 8  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 1077   |      | max | 1.841    | 3  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 1078   |      | min | -2.768   | 8  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 1079   |      | max | 1.842    | 3  | .008       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 1080   |      | min | -2.767   | 8  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 1081   | M105 | max | 2.643    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 8  |
| 1082   |      | min | -1.859   | 3  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 1083   |      | max | 2.643    | 8  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 1084   |      | min | -1.859   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1085   |      | max | 2.643    | 8  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 1086   |      | min | -1.86    | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1087   |      | max | 2.643    | 8  | .005       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 1088   |      | min | -1.86    | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1089   |      | max | 2.643    | 8  | .006       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 1090   |      | min | -1.86    | 3  | .001       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1091   | M106 | max | 2.252    | 3  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .027        | 8  |
| 1092   |      | min | -3.458   | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1093   |      | max | 2.253    | 3  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 8  |
| 1094   |      | min | -3.458   | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 1095   |      | max | 2.255    | 3  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 8  |
| 1096   |      | min | -3.457   | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1097   |      | max | 2.256    | 3  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1098   |      | min | -3.456   | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 1099   |      | max | 2.257    | 3  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 1100   |      | min | -3.455   | 8  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 1101   | M107 | max | .109     | 3  | .012       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .031        | 8  |
| 1102   |      | min | -.421    | 8  | -.014      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 3  |
| 1103   |      | max | .109     | 3  | .012       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .022        | 8  |
| 1104   |      | min | -.421    | 8  | -.013      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1105   |      | max | .108     | 3  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 1106   |      | min | -.421    | 8  | -.011      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1107   |      | max | .108     | 3  | .014       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 5  |
| 1108   |      | min | -.421    | 8  | -.01       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 1109   |      | max | .108     | 3  | .015       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 1110   |      | min | -.421    | 8  | -.009      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 12 |
| 1111   | M108 | max | 2.664    | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 1112   |      | min | -4.063   | 8  | -.011      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 1113   |      | max | 2.665    | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 1114   |      | min | -4.063   | 8  | -.011      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1115   |      | max | 2.667    | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 1116   |      | min | -4.062   | 8  | -.012      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1117   |      | max | 2.668    | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 8  |
| 1118   |      | min | -4.061   | 8  | -.012      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 1119   |      | max | 2.669    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 8  |
| 1120   |      | min | -4.06    | 8  | -.012      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1121   | M109 | max | 1.678    | 3  | .014       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 8  |
| 1122   |      | min | -2.835   | 8  | -.016      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 3  |
| 1123   |      | max | 1.678    | 3  | .015       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .023        | 8  |
| 1124   |      | min | -2.835   | 8  | -.015      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1125   |      | max | 1.679    | 3  | .015       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 8  |
| 1126   |      | min | -2.835   | 8  | -.014      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1127   |      | max | 1.679    | 3  | .016       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 1128   |      | min | -2.835   | 8  | -.012      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### 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 |
|--------|------|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 1129   | 5    | max | 1.679    | 3     | .017       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 3  |
| 1130   |      | min | -2.834   | 8     | -.011      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 1131   | M110 | 1   | max      | 1.122 | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 2  |
| 1132   |      | min | -2.103   | 8     | -.012      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 6  |
| 1133   |      | 2   | max      | 1.123 | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .003        | 8  |
| 1134   |      | min | -2.103   | 8     | -.012      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1135   |      | 3   | max      | 1.124 | 3          | .004 | 3          | 0  | 12           | 0  | 12          | 0  | .012        | 8  |
| 1136   |      | min | -2.102   | 8     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 1137   |      | 4   | max      | 1.125 | 3          | .004 | 3          | 0  | 12           | 0  | 12          | 0  | .022        | 8  |
| 1138   |      | min | -2.102   | 8     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 1139   |      | 5   | max      | 1.126 | 3          | .003 | 3          | 0  | 12           | 0  | 12          | 0  | .032        | 8  |
| 1140   |      | min | -2.101   | 8     | -.014      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 3  |
| 1141   | M111 | 1   | max      | 1.744 | 3          | .019 | 12         | 0  | 12           | 0  | 12          | 0  | .025        | 12 |
| 1142   |      | min | -2.436   | 8     | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1143   |      | 2   | max      | 1.745 | 3          | .019 | 12         | 0  | 12           | 0  | 12          | 0  | .012        | 12 |
| 1144   |      | min | -2.436   | 8     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1145   |      | 3   | max      | 1.745 | 3          | .02  | 9          | 0  | 12           | 0  | 12          | 0  | 0           | 8  |
| 1146   |      | min | -2.436   | 8     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1147   |      | 4   | max      | 1.746 | 3          | .021 | 9          | 0  | 12           | 0  | 12          | 0  | -.001       | 2  |
| 1148   |      | min | -2.435   | 8     | .001       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 10 |
| 1149   |      | 5   | max      | 1.747 | 3          | .022 | 9          | 0  | 12           | 0  | 12          | 0  | -.003       | 2  |
| 1150   |      | min | -2.435   | 8     | .002       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.031       | 9  |
| 1151   | M112 | 1   | max      | 1.123 | 8          | .017 | 9          | 0  | 12           | 0  | 12          | 0  | .041        | 8  |
| 1152   |      | min | -1.029   | 3     | .002       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1153   |      | 2   | max      | 1.124 | 8          | .016 | 9          | 0  | 12           | 0  | 12          | 0  | .03         | 8  |
| 1154   |      | min | -1.029   | 3     | .001       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1155   |      | 3   | max      | 1.124 | 8          | .015 | 9          | 0  | 12           | 0  | 12          | 0  | .019        | 8  |
| 1156   |      | min | -1.028   | 3     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1157   |      | 4   | max      | 1.125 | 8          | .014 | 12         | 0  | 12           | 0  | 12          | 0  | .009        | 8  |
| 1158   |      | min | -1.027   | 3     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 1159   |      | 5   | max      | 1.125 | 8          | .014 | 12         | 0  | 12           | 0  | 12          | 0  | -.001       | 8  |
| 1160   |      | min | -1.026   | 3     | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 10 |
| 1161   | M113 | 1   | max      | 1.116 | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 1162   |      | min | -1.235   | 8     | -.016      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 1163   |      | 2   | max      | 1.117 | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .003        | 3  |
| 1164   |      | min | -1.235   | 8     | -.015      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 1165   |      | 3   | max      | 1.118 | 3          | .008 | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 8  |
| 1166   |      | min | -1.234   | 8     | -.015      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1167   |      | 4   | max      | 1.118 | 3          | .009 | 3          | 0  | 12           | 0  | 12          | 0  | .018        | 8  |
| 1168   |      | min | -1.234   | 8     | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 1169   |      | 5   | max      | 1.119 | 3          | .01  | 3          | 0  | 12           | 0  | 12          | 0  | .028        | 8  |
| 1170   |      | min | -1.233   | 8     | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 1171   | M114 | 1   | max      | 1.925 | 8          | .004 | 9          | 0  | 12           | 0  | 12          | 0  | .012        | 12 |
| 1172   |      | min | -1.26    | 3     | .001       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1173   |      | 2   | max      | 1.926 | 8          | .003 | 9          | 0  | 12           | 0  | 12          | 0  | .01         | 12 |
| 1174   |      | min | -1.259   | 3     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1175   |      | 3   | max      | 1.926 | 8          | .002 | 12         | 0  | 12           | 0  | 12          | 0  | .007        | 12 |
| 1176   |      | min | -1.258   | 3     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1177   |      | 4   | max      | 1.927 | 8          | .002 | 12         | 0  | 12           | 0  | 12          | 0  | .006        | 8  |
| 1178   |      | min | -1.257   | 3     | -.001      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1179   |      | 5   | max      | 1.927 | 8          | .001 | 12         | 0  | 12           | 0  | 12          | 0  | .006        | 5  |
| 1180   |      | min | -1.256   | 3     | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1181   | M115 | 1   | max      | 1.116 | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 1182   |      | min | -1.678   | 8     | -.016      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 8  |
| 1183   |      | 2   | max      | 1.117 | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .003        | 3  |
| 1184   |      | min | -1.678   | 8     | -.015      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 1185   |      | 3   | max      | 1.117 | 3          | .008 | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 12 |





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### 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 |
|--------|------|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 1186   |      | min | -1.677   | 8     | -.015      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1187   | 4    | max | 1.118    | 3     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .019        | 12 |
| 1188   |      | min | -1.677   | 8     | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 1189   | 5    | max | 1.119    | 3     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 8  |
| 1190   |      | min | -1.676   | 8     | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1191   | M116 | 1   | max      | 2.107 | 8          | .003 | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 1192   |      | min | -1.146   | 3     | -.006      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 12 |
| 1193   | 2    | max | 2.108    | 8     | .002       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 1194   |      | min | -1.145   | 3     | -.007      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 9  |
| 1195   | 3    | max | 2.108    | 8     | .001       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 1196   |      | min | -1.144   | 3     | -.007      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1197   | 4    | max | 2.109    | 8     | 0          | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 12 |
| 1198   |      | min | -1.143   | 3     | -.008      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1199   | 5    | max | 2.109    | 8     | 0          | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 9  |
| 1200   |      | min | -1.142   | 3     | -.009      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1201   | M117 | 1   | max      | 1.004 | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |
| 1202   |      | min | -1.839   | 8     | -.015      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 8  |
| 1203   | 2    | max | 1.005    | 3     | .007       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 1204   |      | min | -1.838   | 8     | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 1205   | 3    | max | 1.005    | 3     | .008       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 5  |
| 1206   |      | min | -1.838   | 8     | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 1207   | 4    | max | 1.006    | 3     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 8  |
| 1208   |      | min | -1.838   | 8     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1209   | 5    | max | 1.006    | 3     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 8  |
| 1210   |      | min | -1.837   | 8     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 1211   | M119 | 1   | max      | .26   | 3          | .026 | 3          | 0  | 12           | 0  | 12          | 0  | .03         | 3  |
| 1212   |      | min | -.431    | 8     | -.04       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 8  |
| 1213   | 2    | max | .259     | 3     | .026       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 1214   |      | min | -.431    | 8     | -.041      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 8  |
| 1215   | 3    | max | .258     | 3     | .025       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1216   |      | min | -.432    | 8     | -.041      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 1217   | 4    | max | .257     | 3     | .025       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .023        | 8  |
| 1218   |      | min | -.432    | 8     | -.041      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 1219   | 5    | max | .256     | 3     | .024       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .047        | 8  |
| 1220   |      | min | -.433    | 8     | -.042      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 1221   | M120 | 1   | max      | .19   | 8          | .01  | 3          | 0  | 12           | 0  | 12          | 0  | .011        | 3  |
| 1222   |      | min | -.189    | 3     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 1223   | 2    | max | .19      | 8     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 1224   |      | min | -.19     | 3     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 1225   | 3    | max | .189     | 8     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1226   |      | min | -.191    | 3     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 8  |
| 1227   | 4    | max | .189     | 8     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 1228   |      | min | -.192    | 3     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1229   | 5    | max | .188     | 8     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 8  |
| 1230   |      | min | -.193    | 3     | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 1231   | M121 | 1   | max      | .221  | 8          | .01  | 3          | 0  | 12           | 0  | 12          | 0  | .012        | 3  |
| 1232   |      | min | -.191    | 3     | -.011      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 1233   | 2    | max | .22      | 8     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 1234   |      | min | -.191    | 3     | -.011      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 1235   | 3    | max | .22      | 8     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1236   |      | min | -.192    | 3     | -.011      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 8  |
| 1237   | 4    | max | .219     | 8     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 1238   |      | min | -.193    | 3     | -.011      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1239   | 5    | max | .219     | 8     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 8  |
| 1240   |      | min | -.194    | 3     | -.011      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 1241   | M122 | 1   | max      | .254  | 3          | .027 | 3          | 0  | 12           | 0  | 12          | 0  | .03         | 3  |
| 1242   |      | min | -.315    | 8     | -.03       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.036       | 8  |



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### 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 |
|--------|------|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 1243   | 2    | max | .253     | 3     | .026       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 1244   |      | min | -.315    | 8     | -.031      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 1245   | 3    | max | .252     | 3     | .025       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1246   |      | min | -.316    | 8     | -.031      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 12 |
| 1247   | 4    | max | .251     | 3     | .025       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .016        | 8  |
| 1248   |      | min | -.316    | 8     | -.031      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 1249   | 5    | max | .251     | 3     | .024       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .034        | 8  |
| 1250   |      | min | -.317    | 8     | -.032      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 1251   | M132 | 1   | max      | 2.207 | 8          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 3  |
| 1252   |      | min | -1.042   | 3     | -.006      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 1253   | 2    | max | 2.208    | 8     | .004       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1254   |      | min | -1.042   | 3     | -.006      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 5  |
| 1255   | 3    | max | 2.208    | 8     | .003       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 12 |
| 1256   |      | min | -1.041   | 3     | -.007      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1257   | 4    | max | 2.208    | 8     | .002       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 12 |
| 1258   |      | min | -1.041   | 3     | -.008      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1259   | 5    | max | 2.209    | 8     | .001       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 12 |
| 1260   |      | min | -1.04    | 3     | -.009      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1261   | M133 | 1   | max      | 1.118 | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .01         | 3  |
| 1262   |      | min | -2.367   | 8     | -.021      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 8  |
| 1263   | 2    | max | 1.118    | 3     | .008       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 1264   |      | min | -2.367   | 8     | -.02       | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 1265   | 3    | max | 1.119    | 3     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 9  |
| 1266   |      | min | -2.366   | 8     | -.02       | 12   | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 1267   | 4    | max | 1.12     | 3     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 12 |
| 1268   |      | min | -2.366   | 8     | -.019      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1269   | 5    | max | 1.121    | 3     | .011       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 12 |
| 1270   |      | min | -2.365   | 8     | -.018      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1271   | M134 | 1   | max      | 2.605 | 12         | .003 | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 3  |
| 1272   |      | min | -1.023   | 3     | -.007      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 12 |
| 1273   | 2    | max | 2.605    | 12    | .002       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 1274   |      | min | -1.022   | 3     | -.008      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 12 |
| 1275   | 3    | max | 2.606    | 12    | 0          | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 1276   |      | min | -1.021   | 3     | -.008      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 12 |
| 1277   | 4    | max | 2.606    | 12    | 0          | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 1278   |      | min | -1.02    | 3     | -.009      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 1279   | 5    | max | 2.607    | 12    | -.001      | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 9  |
| 1280   |      | min | -1.02    | 3     | -.01       | 9    | 0          | 1  | 0            | 1  | 0           | 1  | .001        | 8  |
| 1281   | M138 | 1   | max      | .365  | 8          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 3  |
| 1282   |      | min | -1.026   | 3     | 0          | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 1283   | 2    | max | .366     | 8     | .004       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1284   |      | min | -1.025   | 3     | 0          | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 5  |
| 1285   | 3    | max | .366     | 8     | .003       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 1286   |      | min | -1.024   | 3     | -.001      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 6  |
| 1287   | 4    | max | .367     | 8     | .002       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 1288   |      | min | -1.024   | 3     | -.002      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1289   | 5    | max | .367     | 8     | .001       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 12 |
| 1290   |      | min | -1.023   | 3     | -.003      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1291   | M139 | 1   | max      | 1.135 | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .01         | 3  |
| 1292   |      | min | -.414    | 8     | -.003      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 1293   | 2    | max | 1.136    | 3     | .007       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 1294   |      | min | -.414    | 8     | -.003      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 1295   | 3    | max | 1.137    | 3     | .008       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 9  |
| 1296   |      | min | -.413    | 8     | -.002      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 6  |
| 1297   | 4    | max | 1.138    | 3     | .009       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 12 |
| 1298   |      | min | -.413    | 8     | -.001      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1299   | 5    | max | 1.139    | 3     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 12 |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:01 AM  
 Checked By: \_\_\_\_\_

### Envelope Member Section Forces (Continued)

| Member | Sec  |     | Axial[k] | LC   | v Shear[k] | LC   | z Shear[k] | LC | Torque[k-... | LC | v-v Mome... | LC | z-z Mome... | LC |
|--------|------|-----|----------|------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 1300   |      | min | -.412    | 8    | 0          | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 3  |
| 1301   | M140 | 1   | max      | .202 | 12         | .006 | 5          | 0  | 12           | 0  | 12          | 0  | .009        | 6  |
| 1302   |      | min | -1.018   | 3    | .002       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | .002        | 1  |
| 1303   |      | 2   | max      | .202 | 12         | .005 | 5          | 0  | 12           | 0  | 12          | 0  | .005        | 6  |
| 1304   |      | min | -1.017   | 3    | .001       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 1305   |      | 3   | max      | .203 | 12         | .004 | 5          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 1306   |      | min | -1.016   | 3    | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 1307   |      | 4   | max      | .203 | 12         | .004 | 8          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 1308   |      | min | -1.016   | 3    | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 1309   |      | 5   | max      | .204 | 12         | .003 | 8          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 1310   |      | min | -1.015   | 3    | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |

### Envelope AISC 14th(360-10): 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      | M30   | 2.875x0.109 | .283    | 3.827 | 8         | .001    | 0     | 8  | 23.714     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 2      | M31   | 2.875x0.109 | .362    | 4.262 | 8         | .000    | 0     | 8  | 23.714     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 3      | M33   | 2.875x0.109 | .426    | 3.47  | 8         | .002    | 0     | 8  | 24.468     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 4      | M34   | 2.875x0.109 | .441    | 3.075 | 8         | .001    | 0     | 8  | 24.468     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 5      | M35   | 2.875x0.109 | .407    | 0     | 8         | .003    | 3.237 | 8  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 6      | M36   | 2.875x0.109 | .323    | 0     | 8         | .004    | 1.71  | 8  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 7      | M37   | 2.875x0.109 | .316    | 0     | 8         | .004    | 2.636 | 8  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 8      | M38   | 2.875x0.109 | .139    | 0     | 3         | .001    | 0     | 3  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 9      | M39   | 2.875x0.109 | .047    | 3.676 | 8         | .002    | 3.676 | 5  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1b  |
| 10     | M40   | 2.875x0.109 | .025    | 3.713 | 3         | .001    | 3.713 | 5  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1b  |
| 11     | M41   | 2.875x0.109 | .112    | 0     | 8         | .002    | 3.652 | 5  | 16.027     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 12     | M42   | 2.875x0.109 | .236    | 0     | 8         | .001    | 0     | 6  | 16.027     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 13     | M43   | 2.875x0.109 | .246    | 2.507 | 8         | .002    | 2.507 | 5  | 16.027     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 14     | M44   | 2.875x0.109 | .311    | 0     | 8         | .001    | 0     | 5  | 16.027     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 15     | M45   | 2.875x0.109 | .296    | 3.705 | 8         | .001    | 3.705 | 5  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 16     | M46   | 2.875x0.109 | .301    | 0     | 8         | .001    | 3.672 | 3  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 17     | M47   | 2.875x0.109 | .333    | 3.752 | 8         | .001    | 3.752 | 5  | 16.027     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 18     | M48   | 2.875x0.109 | .284    | 0     | 8         | .002    | 0     | 5  | 16.027     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 19     | M49   | 2.875x0.109 | .275    | 2.471 | 8         | .001    | 2.471 | 6  | 16.027     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 20     | M50   | 2.875x0.109 | .165    | 3.717 | 8         | .001    | 0     | 5  | 16.027     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 21     | M51   | 2.875x0.109 | .071    | 3.629 | 12        | .001    | 3.629 | 3  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 22     | M52   | 2.875x0.109 | .036    | 3.714 | 3         | .002    | 0     | 5  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 23     | M53   | 2.875x0.109 | .139    | 3.71  | 3         | .001    | 3.71  | 3  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 24     | M54   | 2.875x0.109 | .301    | 2.643 | 3         | .004    | 0     | 8  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 25     | M55   | 2.875x0.109 | .307    | 1.672 | 3         | .003    | 1.672 | 3  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 26     | M56   | 2.875x0.109 | .402    | 3.274 | 3         | .002    | 3.274 | 3  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 27     | M57   | 2.875x0.109 | .348    | 0     | 3         | .002    | 3.012 | 8  | 24.468     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 28     | M58   | 2.875x0.109 | .325    | 0     | 3         | .002    | 3.521 | 8  | 24.468     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 29     | M60   | 2.875x0.109 | .266    | 0     | 3         | .001    | 0     | 8  | 23.714     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 30     | M61   | 2.875x0.109 | .185    | 3.779 | 3         | .001    | 0     | 3  | 23.714     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 31     | M62   | 2.875x0.109 | .159    | 2.859 | 3         | .001    | 0     | 3  | 19.711     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 32     | M127  | 2.875x0.109 | .095    | 0     | 3         | .004    | 0     | 12 | 19.711     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 33     | M128  | 2.875x0.109 | .160    | 0     | 3         | .001    | 0     | 8  | 19.711     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 34     | M129  | 2.875x0.109 | .095    | 3.578 | 3         | .001    | 0     | 3  | 19.711     | 31.189     | 2.289       | 2.289       | 1  | H1-1b* |
| 35     | M2    | 2.875x0.109 | .072    | 4.304 | 8         | .022    | 4.304 | 8  | 23.714     | 31.189     | 2.289       | 2.289       | 1  | H1-1b  |
| 36     | M3    | 2.875x0.109 | .111    | 3.636 | 8         | .019    | 3.636 | 8  | 23.714     | 31.189     | 2.289       | 2.289       | 1  | H1-1b  |
| 37     | M4    | 2.875x0.109 | .271    | 3.931 | 8         | .020    | 3.931 | 8  | 24.468     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 38     | M5    | 2.875x0.109 | .317    | 0     | 8         | .020    | 0     | 8  | 24.468     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 39     | M6    | 2.875x0.109 | .310    | 0     | 8         | .018    | 0     | 8  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1a  |
| 40     | M7    | 2.875x0.109 | .123    | 0     | 8         | .023    | 0     | 8  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1b  |
| 41     | M8    | 2.875x0.109 | .099    | 0     | 8         | .028    | 0     | 8  | 18.682     | 31.189     | 2.289       | 2.289       | 1  | H1-1b  |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
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### Envelope AISC 14th(360-10): ASD Steel Code Checks (Continued)

|    | Member | Shape       | Code C... | Locftl | LC Shear ... | Locftl | Dir   | LC   | Pnc/om [k] | Pnt/om [k] | Mnvy/om ... | Mnzz/om ... | Cb   | Eqn    |
|----|--------|-------------|-----------|--------|--------------|--------|-------|------|------------|------------|-------------|-------------|------|--------|
| 42 | M9     | 2.875x0.109 | .135      | 0      | 8            | .029   | 0     | 8    | 18.682     | 31.189     | 2.289       | 2.289       | 1    | H1-1b  |
| 43 | M10    | 2.875x0.109 | .161      | 0      | 3            | .028   | 3.816 | 8    | 18.682     | 31.189     | 2.289       | 2.289       | 1    | H1-1b* |
| 44 | M11    | 2.875x0.109 | .303      | 4.513  | 8            | .033   | 4.513 | 8    | 16.027     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 45 | M12    | 2.875x0.109 | .370      | 0      | 3            | .035   | 0     | 8    | 16.027     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 46 | M13    | 2.875x0.109 | .342      | 0      | 8            | .029   | 0     | 8    | 27.438     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 47 | M14    | 2.875x0.109 | .338      | 1.95   | 8            | .028   | 3.901 | 8    | 27.438     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 48 | M15    | 2.875x0.109 | .336      | 3.812  | 8            | .029   | 3.812 | 8    | 27.438     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 49 | M16    | 2.875x0.109 | .370      | 4.612  | 3            | .035   | 4.612 | 8    | 16.027     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 50 | M17    | 2.875x0.109 | .294      | 4.511  | 3            | .033   | 0     | 8    | 16.027     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 51 | M18    | 2.875x0.109 | .162      | 3.841  | 3            | .028   | 0     | 8    | 18.682     | 31.189     | 2.289       | 2.289       | 1    | H1-1b* |
| 52 | M19    | 2.875x0.109 | .117      | 3.864  | 8            | .029   | 3.864 | 8    | 18.682     | 31.189     | 2.289       | 2.289       | 1    | H1-1b  |
| 53 | M20    | 2.875x0.109 | .100      | 3.846  | 8            | .030   | 3.846 | 8    | 18.682     | 31.189     | 2.289       | 2.289       | 1    | H1-1b  |
| 54 | M21    | 2.875x0.109 | .215      | 4.681  | 8            | .037   | 4.681 | 8    | 18.682     | 31.189     | 2.289       | 2.289       | 1    | H1-1b  |
| 55 | M22    | 2.875x0.109 | .470      | 0      | 8            | .029   | 0     | 8    | 18.682     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 56 | M23    | 2.875x0.109 | .494      | 4.13   | 8            | .033   | 4.13  | 8    | 24.468     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 57 | M24    | 2.875x0.109 | .479      | 0      | 8            | .034   | 0     | 8    | 24.468     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 58 | M25    | 2.875x0.109 | .347      | 1.237  | 8            | .031   | 3.711 | 12   | 23.714     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 59 | M26    | 2.875x0.109 | .279      | 0      | 12           | .030   | 0     | 9    | 23.714     | 31.189     | 2.289       | 2.289       | 1    | H1-1a  |
| 60 | M27    | 2.875x0.109 | .166      | 3.34   | 12           | .024   | 3.34  | 12   | 19.711     | 31.189     | 2.289       | 2.289       | 1    | H1-1b* |
| 61 | M120A  | 2.875x0.109 | .076      | 1.705  | 9            | .024   | 0     | 9    | 19.711     | 31.189     | 2.289       | 2.289       | 1    | H1-1b  |
| 62 | M121A  | 2.875x0.109 | .092      | 1.679  | 3            | .016   | 1.679 | 12   | 19.711     | 31.189     | 2.289       | 2.289       | 1    | H1-1b* |
| 63 | M123   | 2.875x0.109 | .092      | 0      | 3            | .013   | 1.658 | 8    | 19.711     | 31.189     | 2.289       | 2.289       | 1    | H1-1b* |
| 64 | M124   | 2.875x0.109 | .064      | 3.329  | 8            | .017   | 3.329 | 8    | 19.711     | 31.189     | 2.289       | 2.289       | 1    | H1-1b  |
| 65 | M125   | 2.875x0.109 | .072      | 3.329  | 8            | .018   | 3.329 | 8    | 19.711     | 31.189     | 2.289       | 2.289       | 1    | H1-1b  |
| 66 | M28    | 2x3x0.085   | .067      | 0      | 12           | .009   | 2.26  | y 12 | 23.643     | 24.584     | 1.424       | 2.086       | 2... | H1-1b  |
| 67 | M63    | 2x3x0.085   | .030      | 2.26   | 3            | .004   | 2.26  | y 3  | 23.643     | 24.584     | 1.424       | 2.086       | 2... | H1-1b  |
| 68 | M64    | 1.9x0.09    | .067      | 0      | 3            | .002   | 0     | 3    | 15.255     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 69 | M65    | 1.9x0.09    | .053      | 0      | 8            | .001   | 2.939 | 6    | 14.958     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 70 | M66    | 1.9x0.09    | .076      | 0      | 3            | .002   | 0     | 3    | 14.94      | 16.855     | .81         | .81         | 2... | H1-1b* |
| 71 | M67    | 1.9x0.09    | .098      | 0      | 8            | .001   | 0     | 5    | 14.5       | 16.855     | .81         | .81         | 2... | H1-1b* |
| 72 | M68    | 1.9x0.09    | .082      | 0      | 8            | .003   | 2.922 | 8    | 14.978     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 73 | M69    | 1.9x0.09    | .108      | 0      | 8            | .001   | 2.88  | 3    | 15.029     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 74 | M70    | 1.9x0.09    | .117      | 0      | 3            | .001   | 2.875 | 5    | 15.035     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 75 | M71    | 1.9x0.09    | .078      | 0      | 3            | .002   | 0     | 5    | 15.045     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 76 | M72    | 1.9x0.09    | .108      | 0      | 3            | .003   | 2.819 | 3    | 15.101     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 77 | M73    | 1.9x0.09    | .182      | 0      | 3            | .002   | 0     | 8    | 14.876     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 78 | M74    | 1.9x0.09    | .035      | 2.87   | 8            | .003   | 2.87  | 3    | 15.04      | 16.855     | .81         | .81         | 1... | H1-1b  |
| 79 | M75    | 1.9x0.09    | .149      | 0      | 3            | .002   | 0     | 8    | 15.075     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 80 | M76    | 1.9x0.09    | .164      | 3.521  | 8            | .001   | 3.521 | 3    | 14.2       | 16.855     | .81         | .81         | 1... | H1-1b* |
| 81 | M77    | 1.9x0.09    | .124      | 0      | 3            | .003   | 0     | 8    | 14.935     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 82 | M78    | 1.9x0.09    | .119      | 2.942  | 8            | .002   | 0     | 9    | 14.954     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 83 | M79    | 1.9x0.09    | .102      | 0      | 3            | .002   | 0     | 8    | 14.984     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 84 | M80    | 1.9x0.09    | .107      | 2.985  | 8            | .001   | 2.985 | 3    | 14.901     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 85 | M81    | 1.9x0.09    | .085      | 0      | 3            | .002   | 0     | 8    | 14.962     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 86 | M82    | 1.9x0.09    | .090      | 2.911  | 8            | .001   | 2.911 | 3    | 14.991     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 87 | M83    | 1.9x0.09    | .067      | 0      | 3            | .002   | 0     | 8    | 14.939     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 88 | M84    | 1.9x0.09    | .075      | 2.95   | 8            | .001   | 2.95  | 3    | 14.944     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 89 | M85    | 1.9x0.09    | .062      | 0      | 3            | .001   | 0     | 5    | 14.381     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 90 | M86    | 1.9x0.09    | .054      | 3.426  | 8            | .001   | 3.426 | 5    | 14.33      | 16.855     | .81         | .81         | 1... | H1-1b* |
| 91 | M87    | 1.9x0.09    | .027      | 0      | 8            | .001   | 0     | 5    | 14.912     | 16.855     | .81         | .81         | 1... | H1-1b  |
| 92 | M88    | 1.9x0.09    | .036      | 2.951  | 8            | .002   | 2.951 | 5    | 14.943     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 93 | M89    | 1.9x0.09    | .019      | 0      | 8            | .001   | 0     | 5    | 14.986     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 94 | M90    | 1.9x0.09    | .020      | 2.959  | 8            | .001   | 2.959 | 5    | 14.933     | 16.855     | .81         | .81         | 1... | H1-1b  |
| 95 | M91    | 1.9x0.09    | .024      | 0      | 8            | .001   | 0     | 5    | 14.933     | 16.855     | .81         | .81         | 1... | H1-1b  |
| 96 | M92    | 1.9x0.09    | .024      | 2.937  | 8            | .002   | 2.937 | 5    | 14.96      | 16.855     | .81         | .81         | 2... | H1-1b  |
| 97 | M93    | 1.9x0.09    | .041      | 0      | 8            | .002   | 0     | 5    | 14.974     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 98 | M94    | 1.9x0.09    | .034      | 2.989  | 8            | .001   | 2.989 | 5    | 14.897     | 16.855     | .81         | .81         | 1... | H1-1b  |



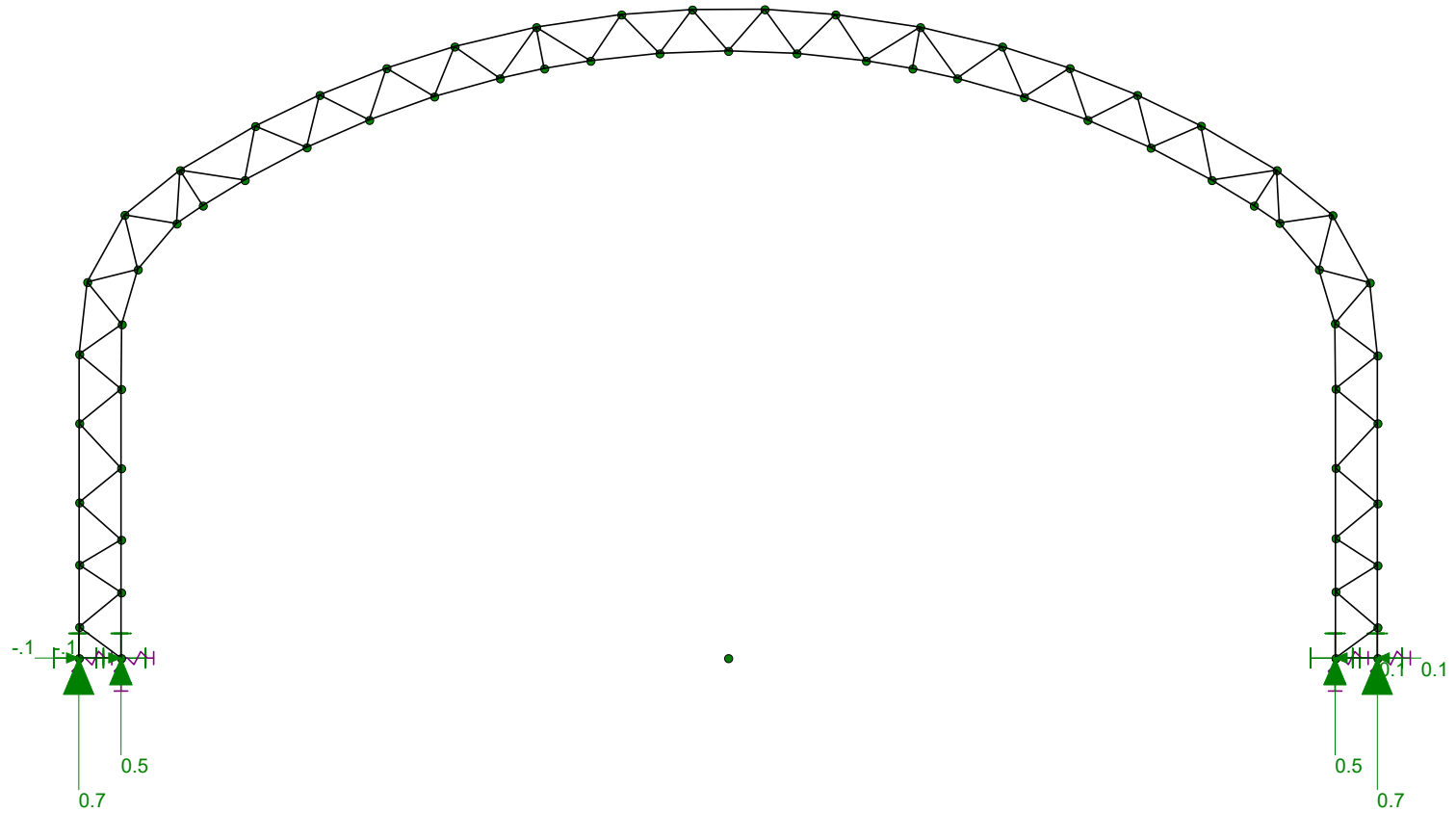
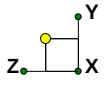


Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:01 AM  
 Checked By: \_\_\_\_\_

### Envelope AISC 14th(360-10): 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    |
|-----|--------|----------|-----------|---------|--------------|---------|-------|----|------------|------------|-------------|-------------|------|--------|
| 99  | M95    | 1.9x0.09 | .066      | 0       | 8            | .001    | 0     | 5  | 14.344     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 100 | M96    | 1.9x0.09 | .061      | 3.373   | 3            | .001    | 3.373 | 5  | 14.401     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 101 | M97    | 1.9x0.09 | .084      | 0       | 8            | .001    | 0     | 3  | 14.93      | 16.855     | .81         | .81         | 1... | H1-1b* |
| 102 | M98    | 1.9x0.09 | .066      | 2.9     | 8            | .003    | 2.9   | 8  | 15.004     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 103 | M99    | 1.9x0.09 | .100      | 0       | 8            | .001    | 0     | 3  | 14.906     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 104 | M100   | 1.9x0.09 | .084      | 2.921   | 3            | .002    | 2.921 | 8  | 14.979     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 105 | M101   | 1.9x0.09 | .114      | 0       | 8            | .001    | 2.974 | 5  | 14.914     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 106 | M102   | 1.9x0.09 | .101      | 2.903   | 3            | .002    | 2.903 | 8  | 15.001     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 107 | M103   | 1.9x0.09 | .126      | 0       | 8            | .001    | 0     | 3  | 14.906     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 108 | M104   | 1.9x0.09 | .123      | 2.948   | 3            | .001    | 2.948 | 8  | 14.947     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 109 | M105   | 1.9x0.09 | .186      | 0       | 8            | .001    | 3.515 | 5  | 14.208     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 110 | M106   | 1.9x0.09 | .235      | 0       | 8            | .003    | 2.866 | 8  | 15.046     | 16.855     | .81         | .81         | 2... | H1-1a  |
| 111 | M107   | 1.9x0.09 | .050      | 0       | 8            | .003    | 2.831 | 8  | 15.087     | 16.855     | .81         | .81         | 1... | H1-1b  |
| 112 | M108   | 1.9x0.09 | .270      | 3.02    | 8            | .002    | 3.02  | 8  | 14.858     | 16.855     | .81         | .81         | 2... | H1-1a  |
| 113 | M109   | 1.9x0.09 | .125      | 0       | 8            | .003    | 2.795 | 8  | 15.129     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 114 | M110   | 1.9x0.09 | .102      | 2.937   | 8            | .003    | 2.937 | 5  | 14.96      | 16.855     | .81         | .81         | 1... | H1-1b  |
| 115 | M111   | 1.9x0.09 | .115      | 2.789   | 3            | .004    | 2.789 | 9  | 15.136     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 116 | M112   | 1.9x0.09 | .088      | 0       | 8            | .003    | 0     | 9  | 14.963     | 16.855     | .81         | .81         | 1... | H1-1b  |
| 117 | M113   | 1.9x0.09 | .075      | 2.914   | 3            | .003    | 0     | 8  | 14.987     | 16.855     | .81         | .81         | 2.3  | H1-1b* |
| 118 | M114   | 1.9x0.09 | .133      | 3.313   | 8            | .001    | 0     | 9  | 14.482     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 119 | M115   | 1.9x0.09 | .085      | 2.913   | 8            | .003    | 0     | 8  | 14.989     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 120 | M116   | 1.9x0.09 | .142      | 3.011   | 8            | .002    | 3.011 | 9  | 14.869     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 121 | M117   | 1.9x0.09 | .079      | 2.633   | 8            | .003    | 0     | 8  | 15.314     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 122 | M119   | 1.9x0.09 | .070      | 2.26    | 8            | .008    | 2.26  | 8  | 15.705     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 123 | M120   | 1.9x0.09 | .025      | 0       | 8            | .003    | 2.26  | 8  | 15.705     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 124 | M121   | 1.9x0.09 | .023      | 0       | 8            | .002    | 2.26  | 8  | 15.705     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 125 | M122   | 1.9x0.09 | .054      | 0       | 8            | .006    | 2.26  | 8  | 15.705     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 126 | M132   | 1.9x0.09 | .145      | 2.708   | 8            | .002    | 2.708 | 9  | 15.229     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 127 | M133   | 1.9x0.09 | .111      | 2.92    | 12           | .004    | 0     | 12 | 14.981     | 16.855     | .81         | .81         | 2... | H1-1b  |
| 128 | M134   | 1.9x0.09 | .173      | 2.816   | 12           | .002    | 2.816 | 9  | 15.105     | 16.855     | .81         | .81         | 1... | H1-1b* |
| 129 | M138   | 1.9x0.09 | .037      | 2.663   | 3            | .001    | 0     | 3  | 15.28      | 16.855     | .81         | .81         | 1... | H1-1b  |
| 130 | M139   | 1.9x0.09 | .076      | 2.966   | 3            | .002    | 2.966 | 3  | 14.925     | 16.855     | .81         | .81         | 2... | H1-1b* |
| 131 | M140   | 1.9x0.09 | .036      | 0       | 3            | .001    | 0     | 5  | 15.12      | 16.855     | .81         | .81         | 1.7  | H1-1b  |



Reaction and Moment Units are k and k-ft

Big Top Manufacturing

Luke S.

220-91

70x220x35 World Wide Terminals

SK - 10

July 1, 2020 at 9:03 AM

70x220x35 World Wide Terminals.r3d



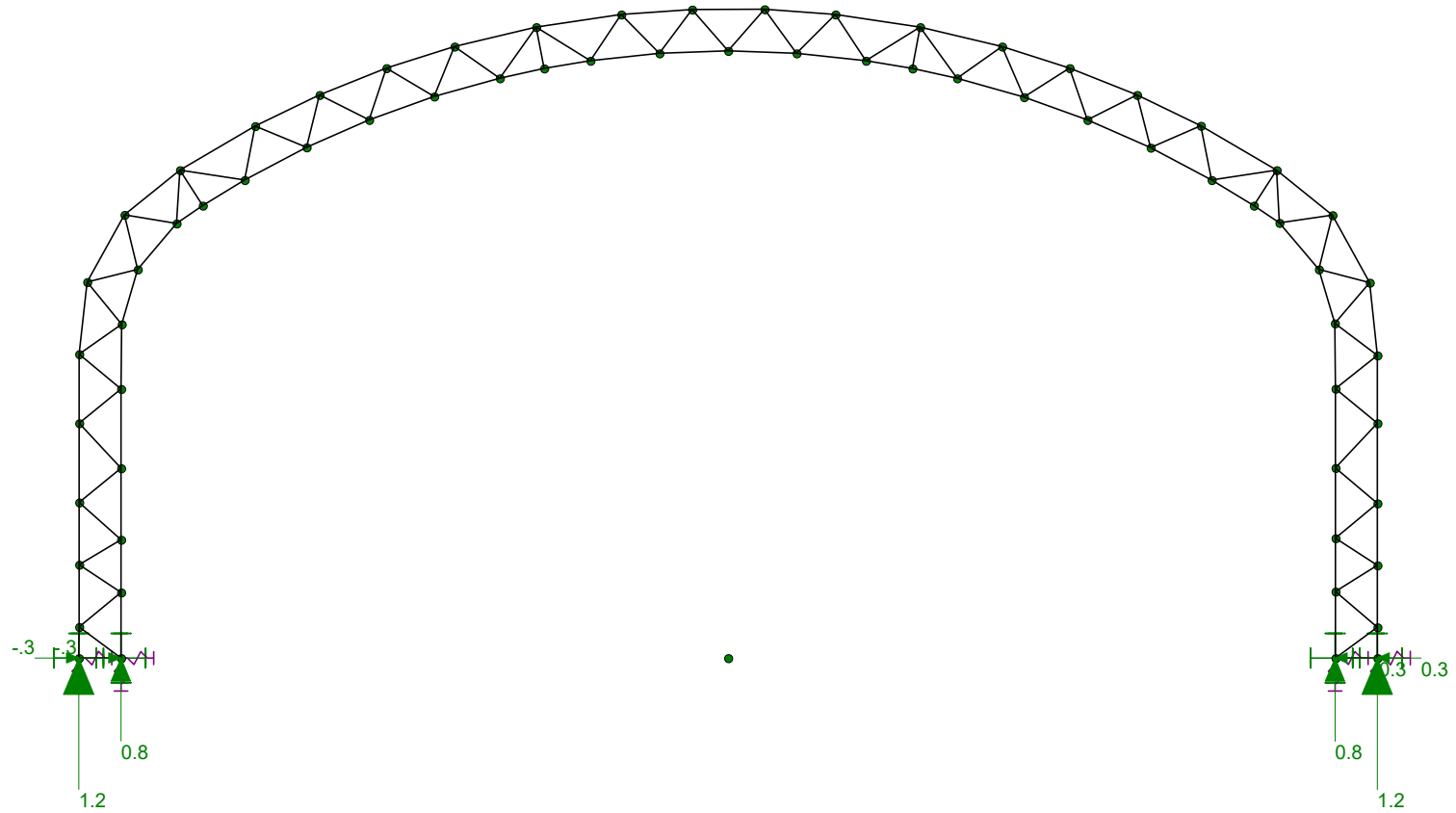
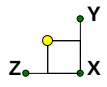
Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:03 AM  
 Checked By: \_\_\_\_\_

### ***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     | .653      | -.117     | 0         | 0         | 0         |
| 2 | 13 | 2           | 0     | .481      | -.118     | 0         | 0         | 0         |
| 3 | 13 | 3           | 0     | .48       | .118      | 0         | 0         | 0         |
| 4 | 13 | 4           | 0     | .653      | .117      | 0         | 0         | 0         |
| 5 | 13 | Totals:     | 0     | 2.266     | 0         |           |           |           |
| 6 | 13 | COG (ft):   | X: 0  | Y: 22.888 | Z: 34.881 |           |           |           |

**Above reactions are due to Dead load (DL) only with a factor of 1.0**



Reaction and Moment Units are k and k-ft

Big Top Manufacturing

Luke S.

220-91

70x220x35 World Wide Terminals

SK - 11

July 1, 2020 at 9:03 AM

70x220x35 World Wide Terminals.r3d





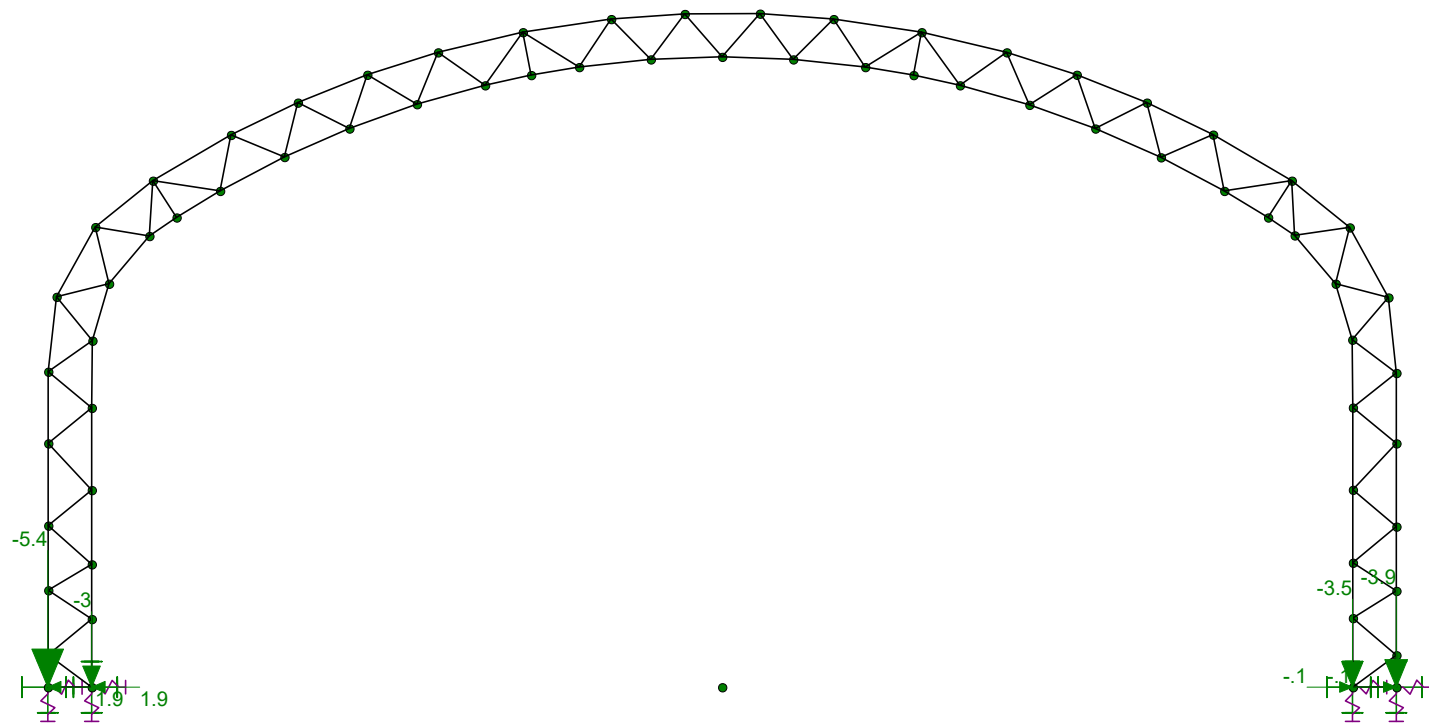
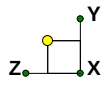
Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:03 AM  
 Checked By: \_\_\_\_\_

### ***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     | 1.197     | -.312    | 0         | 0         | 0         |
| 2 | 14 | 2           | 0     | .757      | -.316    | 0         | 0         | 0         |
| 3 | 14 | 3           | 0     | .758      | .316     | 0         | 0         | 0         |
| 4 | 14 | 4           | 0     | 1.198     | .312     | 0         | 0         | 0         |
| 5 | 14 | Totals:     | 0     | 3.91      | 0        |           |           |           |
| 6 | 14 | COG (ft):   | X: 0  | Y: 30.201 | Z: 34.86 |           |           |           |

**Above reactions are due to Roof Live load (RLL) only with a factor of 1.0**



Reaction and Moment Units are k and k-ft

Big Top Manufacturing

Luke S.

220-91

70x220x35 World Wide Terminals

SK - 12

July 1, 2020 at 9:04 AM

70x220x35 World Wide Terminals.r3d



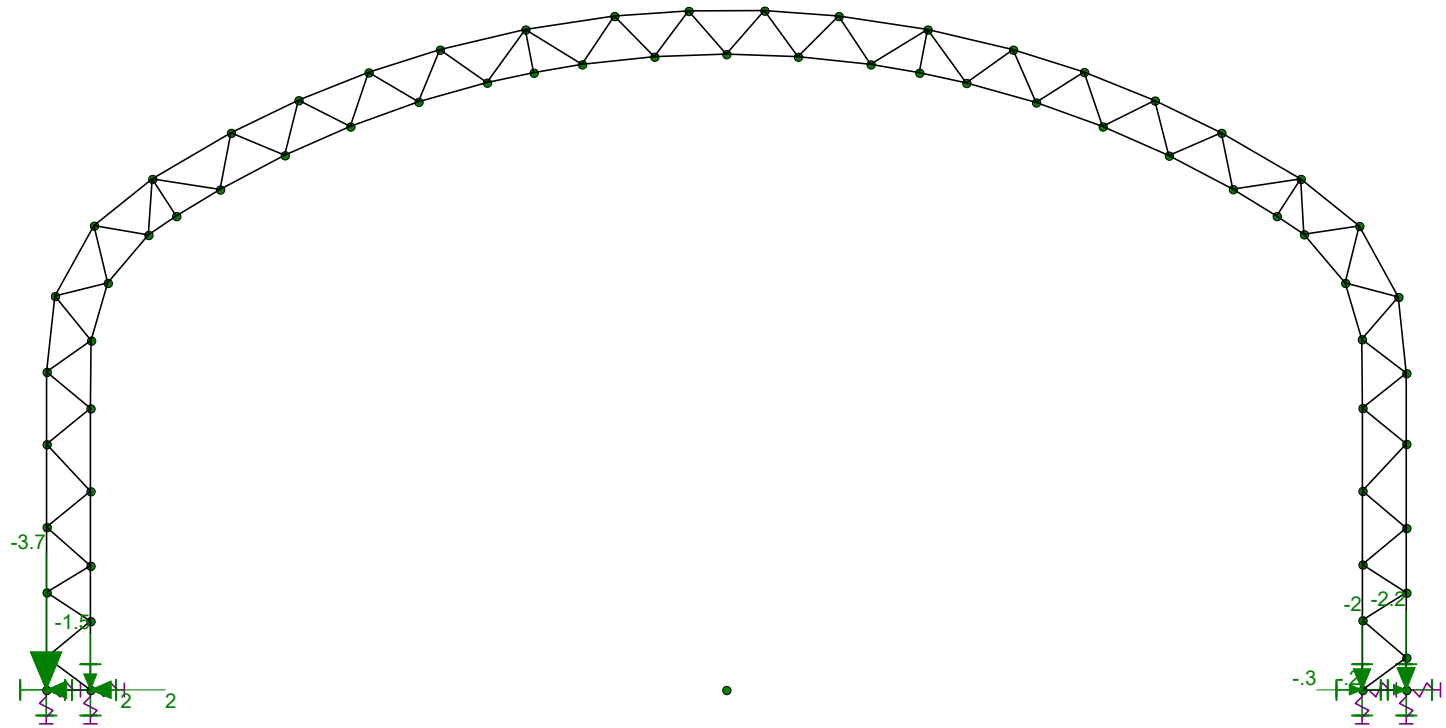
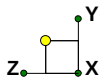
Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:03 AM  
 Checked By: \_\_\_\_\_

### ***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     | -5.434    | 1.891     | 0         | 0         | 0         |
| 2 | 15 | 2           | 0     | -3.008    | 1.913     | 0         | 0         | 0         |
| 3 | 15 | 3           | 0     | -3.493    | -.126     | 0         | 0         | 0         |
| 4 | 15 | 4           | 0     | -3.918    | -.123     | 0         | 0         | 0         |
| 5 | 15 | Totals:     | 0     | -15.853   | 3.555     |           |           |           |
| 6 | 15 | COG (ft):   | X: 0  | Y: 30.974 | Z: 36.449 |           |           |           |

**Above reactions are due to Wind Load in the Z-direction (for +GCPi) only with a factor of 1.0**



Reaction and Moment Units are k and k-ft

|                       |                                |                                    |
|-----------------------|--------------------------------|------------------------------------|
| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 13                            |
| Luke S.               |                                | July 1, 2020 at 9:04 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

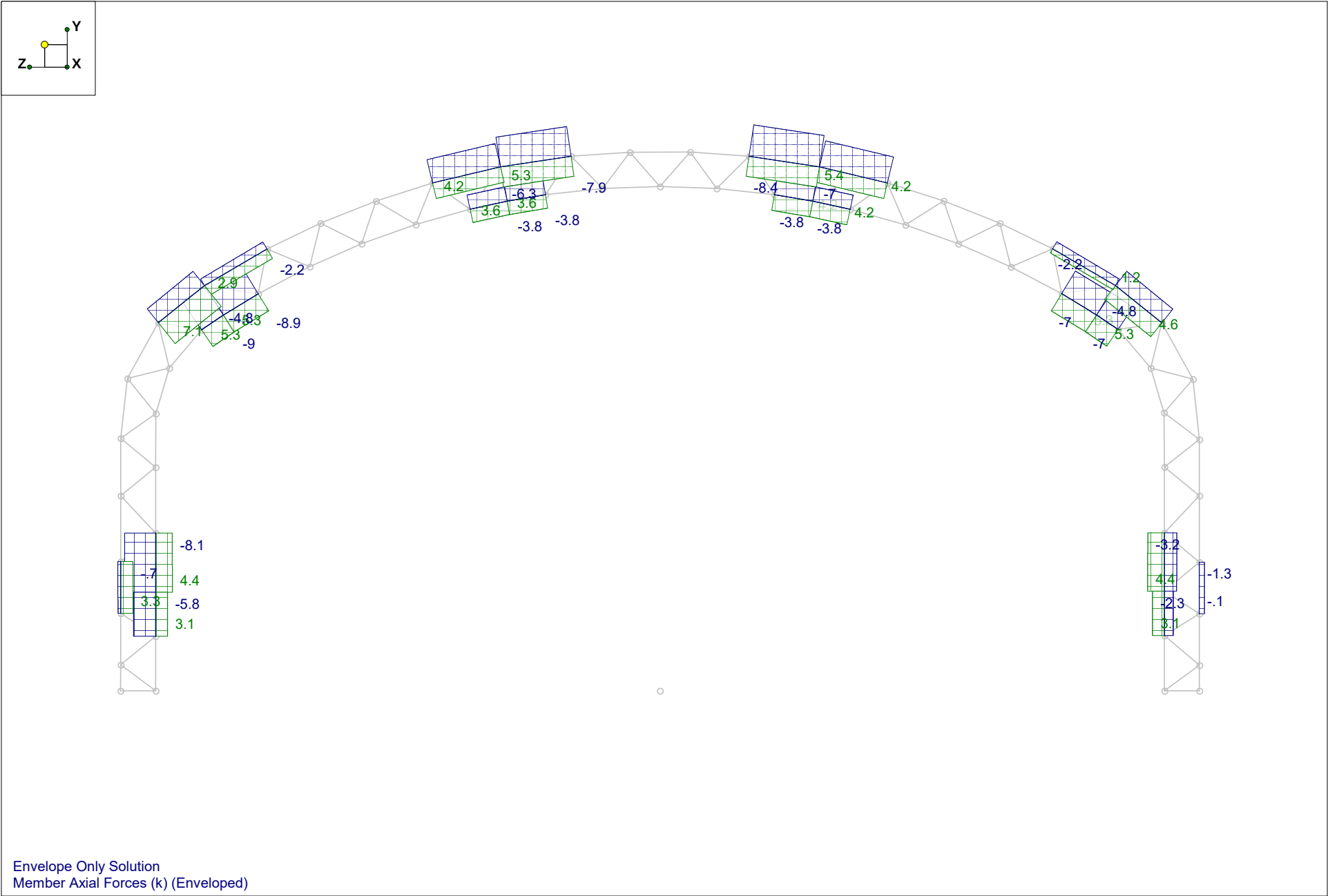
July 1, 2020  
 9:04 AM  
 Checked By: \_\_\_\_\_

### ***Joint Reactions (By Combination)***

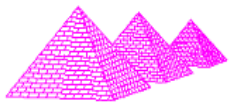
|   | LC | Joint Label | X [k] | Y [k]     | Z [k]     | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|----|-------------|-------|-----------|-----------|-----------|-----------|-----------|
| 1 | 16 | 1           | 0     | -3.716    | 2.016     | 0         | 0         | 0         |
| 2 | 16 | 2           | 0     | -1.525    | 2.041     | 0         | 0         | 0         |
| 3 | 16 | 3           | 0     | -2.037    | -.253     | 0         | 0         | 0         |
| 4 | 16 | 4           | 0     | -2.157    | -.249     | 0         | 0         | 0         |
| 5 | 16 | Totals:     | 0     | -9.435    | 3.555     |           |           |           |
| 6 | 16 | COG (ft):   | X: 0  | Y: 31.155 | Z: 37.516 |           |           |           |

**Above reactions are due to Wind Load in the Z-direction (for -GCPI) only with a factor of 1.0**





|                       |                                |                                    |
|-----------------------|--------------------------------|------------------------------------|
| Big Top Manufacturing | 70x220x35 World Wide Terminals | SK - 14                            |
| Luke S.               |                                | July 1, 2020 at 9:06 AM            |
| 220-91                |                                | 70x220x35 World Wide Terminals.r3d |



## Connection Check

PROJECT NUMBER

220-91

DESIGNER

Luke S.

|  |              |
|--|--------------|
|  | =Input       |
|  | =Calculation |

### Connection Check

Max Tension at Bolts = 8.4 kips

#### Bolted Connection

|                                                                |                                                                    |                                                                                                                          |                                                           |
|----------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| <span style="background-color: #f4a460;">2</span><br>(# Bolts) | <span style="background-color: #f4a460;">5/8</span> inch<br>(dia.) | Material: <span style="background-color: #f4a460;">A325</span><br><span style="background-color: #d3d3d3;">45</span> ksi | <span style="background-color: #d3d3d3;">27.6</span> kips |
| (try 1/2" for trusses ≤ 40',<br>otherwise use 5/8" min.)       |                                                                    |                                                                                                                          |                                                           |
| (F <sub>nt</sub> /Ω, AISC Table 7-2)                           |                                                                    |                                                                                                                          |                                                           |
| Number of bolts * Steel Strength * d <sup>2</sup> * π/4        |                                                                    |                                                                                                                          |                                                           |

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

Capacity = 0.9 \* 27.6 kips = 24.9 > 8.4 kipsUSE (2) 5/8" DIAM. BOLTS IN THE TOP AND BOTTOM CHORDS

#### Welded Connection

Max. Weld size allowed per AISC 360-10 (15th Edition), section J2.2b (a): 6/55 inch

Max Tension = 

|                                                              |
|--------------------------------------------------------------|
| 8.4 kips                                                     |
| <span style="background-color: #f4a460;">1.62</span> kips/in |

 = 5.2 Inch Weld Length

USE 6" MIN. LENGTH E70 WELD 0.109"



Company : Big Top Manufacturing  
 Designer : Luke S.  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:08 AM  
 Checked By: \_\_\_\_\_

### ***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 | 1.851  | 3  | 1.14  | 12 | 0         | 12 | 0         | 12 | 0         | 12 |
| 2  |         | min | 0     | 1  | -2.892 | 8  | -.429 | 3  | 0         | 1  | 0         | 1  | 0         | 1  |
| 3  | 2       | max | 0     | 12 | 1.236  | 3  | 1.154 | 12 | 0         | 12 | 0         | 12 | 0         | 12 |
| 4  |         | min | 0     | 1  | -1.499 | 8  | -.434 | 3  | 0         | 1  | 0         | 1  | 0         | 1  |
| 5  | 3       | max | 0     | 12 | 1.237  | 3  | .434  | 3  | 0         | 12 | 0         | 12 | 0         | 12 |
| 6  |         | min | 0     | 1  | -1.808 | 8  | -.081 | 12 | 0         | 1  | 0         | 1  | 0         | 1  |
| 7  | 4       | max | 0     | 12 | 1.853  | 3  | .429  | 3  | 0         | 12 | 0         | 12 | 0         | 12 |
| 8  |         | min | 0     | 1  | -1.953 | 8  | -.08  | 12 | 0         | 1  | 0         | 1  | 0         | 1  |
| 9  | Totals: | max | 0     | 12 | 6.176  | 3  | 2.133 | 8  |           |    |           |    |           |    |
| 10 |         | min | 0     | 1  | -8.152 | 8  | 0     | 1  |           |    |           |    |           |    |

**Above reactions are based on ASD load combinations per IBC 2015**

| <b>PRying ACTION ANALYSIS</b><br><b>For Structural Steel Connections</b><br><b>Per AISC 13th Edition Manual (ASD) - Pages 9-10 to 9-13</b>                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Project Name:                                                                                                                                                                                                                                                                                                                                                   | 70x220x35                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Client:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | World Wide Terminals        |
| Project No.:                                                                                                                                                                                                                                                                                                                                                    | Quote Check                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Prep. By:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Luke S.      Date: 7/1/2020 |
| <b>Input Data:</b> Anchor Angle at Base                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |
| Total Tension Load, Tt =<br>Total Shear Load, Vt =<br>Tensile Strength, Fu =<br>Bolt Diameter, db =<br>ASTM Bolt Desig. =<br>Bolt Type (N, X, or SC) =<br>Faying Surface Class =<br>Bolt Hole Type =<br>Tributary Length/Bolt, p =<br>Total No. of Bolts, Nb =<br>Width, bf =<br>Thickness, t =<br>Thickness, tw =<br>Bolt Gage, g =<br>No. of Loading Cycles = | <div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">1.45</div> kips<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">0.58</div> kips<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">65</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">1/2</div> in.<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">A325</div><br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">N</div><br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">N.A.</div><br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">Oversized</div><br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">4.000</div> in.<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">1</div> bolts<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">6.0000</div> in.<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">0.2500</div> in.<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">0.2500</div> in.<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">3.000</div> in.<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">20000</div>                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |
| <b>Results:</b>                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |
| <b>Check Bolt Tension and Shear:</b>                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |
| Ab =<br>vb =<br>fv =<br>T =<br>ft =<br>Tb =<br>Fnv =<br>Fnv' =<br>Fv =<br>ks =<br>Vb =<br>At =<br>Fnt =<br>Fnt' =<br>Ft =<br>B =                                                                                                                                                                                                                                | <div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">0.1963</div> in.^2<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">0.58</div> kips/bolt<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">2.93</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">1.45</div> kips/bolt<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">7.36</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">N.A.</div> kips<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">48.00</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">48.00</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">24.00</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">N.A.</div><br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">4.71</div> kips/bolt<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">0.1419</div> in.^2<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">90.00</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">90.00</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">45.00</div> ksi<br><div style="background-color: yellow; padding: 2px; margin-bottom: 2px;">8.84</div> kips/bolt | $Ab = \pi \cdot db^2 / 4$<br>$vb = Vt / Nb$<br>$fv = vb / Ab$<br>$T = Tt / Nb$<br>$ft = T / Ab$<br>$Tb = \text{not applicable for N or X bolts}$<br>$Fnv = \text{Nominal shear stress for A325-N from AISC Table J3.2, page 16.1-104}$<br>$Fnv' = Fnv \text{ (no reduction needed for comb. effects)}$<br>$Fv = Fnv' / 2$<br>$ks = \text{not applicable for N or X bolts}$<br>$Vb = Ab \cdot Fv$<br>$At = \pi / 4 \cdot (db - 0.9743/n)^2$<br>$Fnt = \text{Nominal tensile stress for A325 bolts from AISC Table J3.2, page 16.1-104}$<br>$Fnt' = Fnt \text{ (no reduction needed for comb. effects)}$<br>$Ft = Fnt' / 2, \text{ fatigue is not considered}$<br>$B = Ft \cdot Ab$ |                             |
|                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Nomenclature</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             |
|                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $Vb \geq vb, \text{ O.K.}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |
|                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $B \geq T, \text{ O.K.}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             |
| (continued)                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |

**Calculate Required Thickness:**

$b = 1.3750$  in.  
 $b' = 1.1250$  in.  
 $a = 1.5000$  in.  
 $a' = 1.7500$  in.  
 $\rho = 0.6429$   
 $d' = 0.6250$  in.  
 $\delta = 0.8438$   
 $\beta = 7.950$   
 $\alpha' = 1.0000$   
 $t(\text{req'd}) = 0.150$  in.

$b = (g-tw)/2$   
 $b' = b-db/2$   
 $a = \text{minimum of: } (bf-g)/2 \text{ or } 1.25*b$   
 $a' = a+db/2$   
 $\rho = b'/a'$   
 $d' = \text{Nominal hole dimensions from Table J3.3}$   
 $\delta = 1-d'/p$   
 $\beta = (1/p)*(B/T-1)$   
 If  $\beta \geq 1$ :  $\alpha' = 1$ , If  $\beta < 1$ :  $\alpha' = \text{lesser of } 1 \text{ or } (1/\delta)*(\beta/(1-\beta))$   
 $t(\text{req'd}) = \text{SQRT}(6.66*T*b'/(p*Fu*(1+\delta*\alpha')))$   $t \geq t(\text{req'd})$ , O.K.

**Calculate Prying Force, Q:**

$t_c = 0.505$  in.  
 $\alpha = 0.000$   
 $Q = 0.00$  kips

$t_c = \text{SQRT}(6.66*B*b'/(p*Fu))$  (to develop 'B' in bolts/no prying)  
 $\alpha = 1/\delta*((T/B)/(t/t_c)^2-1)$  (Note:  $0 \leq a \leq 1.0$ )  
 $Q = B*\delta*\alpha*\rho*(t/t_c)^2$  (prying force per bolt at design load)

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

$\alpha' = 2.2176$   
 $T_a = 4.00$  kips

$\alpha' = 1/(\delta*(1+\rho))*((t/t_c)^2-1)$   
 If  $\alpha' > 1$ :  $T_a = B*(t/t_c)^2*(1+\delta)$ , If  $\alpha' < 0$ :  $T_a = B$   
 If  $0 \leq \alpha' \leq 1$ :  $T_a = B*(t/t_c)^2*(1+\delta*\alpha')$

$T_a \geq T$ , O.K.

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

$t(\text{req'd}) = 0.204$  in.

$t(\text{req'd}) = \text{SQRT}(6.66*T*b'/(p*Fu))$

**Comments:**



Job: 220-91Name: LS  
Date: 7/1/2020Wind Pressure: UltimateWind Pressure = 22.78 psfHeight to Use: AverageTallest Height = 35 ftMedium Height = 28.25 ftLowest Height = 21.5 ftAssumed Height = 0 ftHeight = 28.3 ftHalf Height = 14.1 ftWind Force = 322 plf of shelter width  
*=(Wind Pressure)\*(Half Height)*Total Wind Force  
on Roof 22524 lbs  
*=(Wind Force)\*(With)*Total Wind Force  
on Single Wall 11262 lbs  
*=(Total Wind Force on Roof)/2*

## Roof Cables

# of Cables Along one Side 6Length along X-Braces = 38.3 ftBay Spacing = 40 ft

See

Cable Angle = 43.8 degrees

## Sum of Forces Equation

Force on 1 Side of Shelter = 15592

## Ultimate Capacity of Roof Cables

Capacity of Single Cable = 7000 lbsCapacity of All Roof Cables = 42000 lbsSAFE

## Shelter Dimensions

Width: 70 ftLength: 220 ftHeight: 35 ft

## Cable Diameter Roof

1/4 in

## Cable Diameter Wall

1/4 in

## Wall Cables

# of Cables Along one Wall 12Length along X-Braces = 29 ftBay Spacing = 20 ftCable Angle = 55.4 degrees

## Sum of Forces Equation

Force on 1 Side of Shelter = 9918

## Capacity of Side Wall Cables

Capacity of Single Cable = 7000 lbsCapacity of Cables in Wall = 84000 lbsSAFE



PSE Consulting Engineers Inc.

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## END PANEL TRUSS ANALYSIS & DESIGN:

Pages 2,000 - 2,999

Job: **220-91**

Designer:

Luke S.

Date:

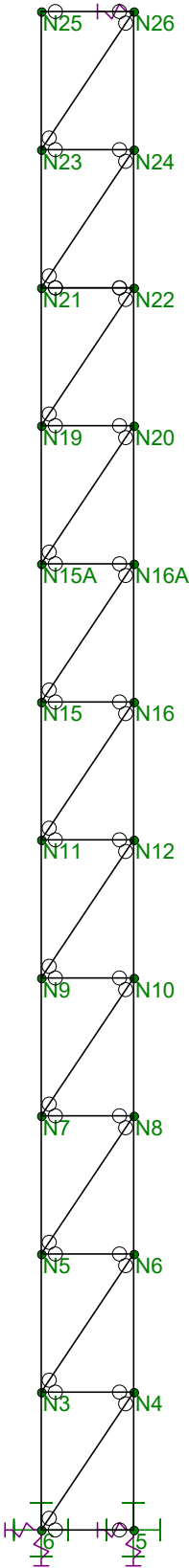
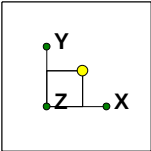
6/30/2020

Tributary Width = **10** ft

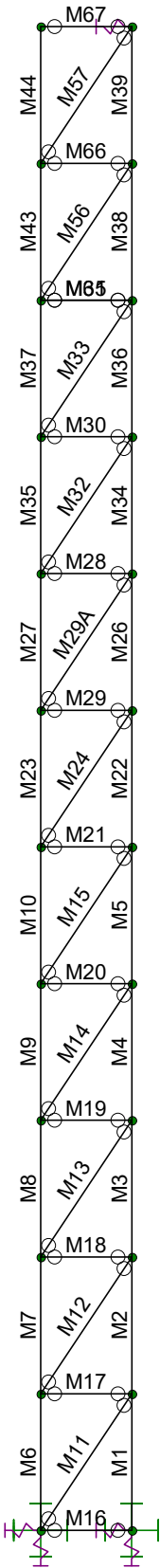
Wind Load

|           |        |     |   |    |    |   |        |     |
|-----------|--------|-----|---|----|----|---|--------|-----|
| Wind (+)= | -19.85 | psf | x | 10 | ft | = | -198.5 | plf |
| Wind (-)= | 22.78  | psf | x | 10 | ft | = | 227.8  | plf |

Design  
Loads  
Used



|         |                                |                               |
|---------|--------------------------------|-------------------------------|
| Big Top | 70x220x35 World Wide Terminals | SK - 1                        |
| LS      |                                | July 1, 2020 at 9:19 AM       |
| 220-91  |                                | End Panel Truss 1 - Final.r3d |



Big Top

LS

220-91

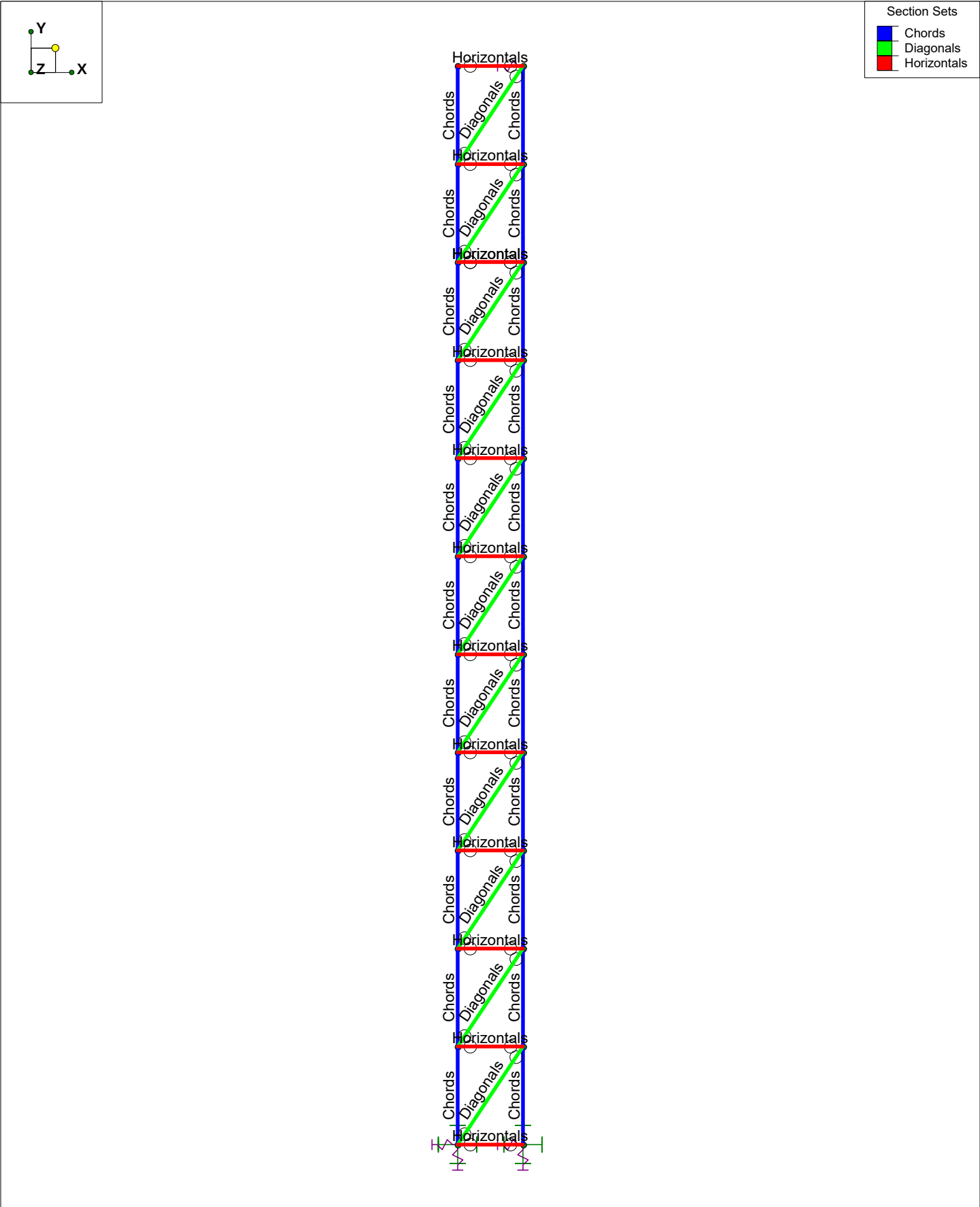
70x220x35 World Wide Terminals

SK - 2

July 1, 2020 at 9:20 AM

End Panel Truss 1 - Final.r3d





Big Top

LS

220-91

70x220x35 World Wide Terminals

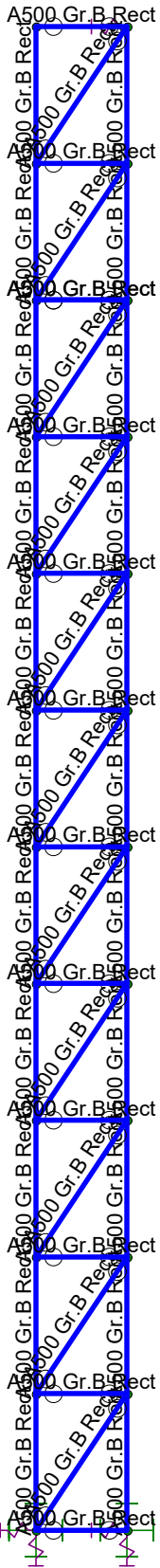
SK - 3

July 1, 2020 at 9:20 AM

End Panel Truss 1 - Final.r3d

Material Sets

A500 Gr.B Rect



Big Top

LS

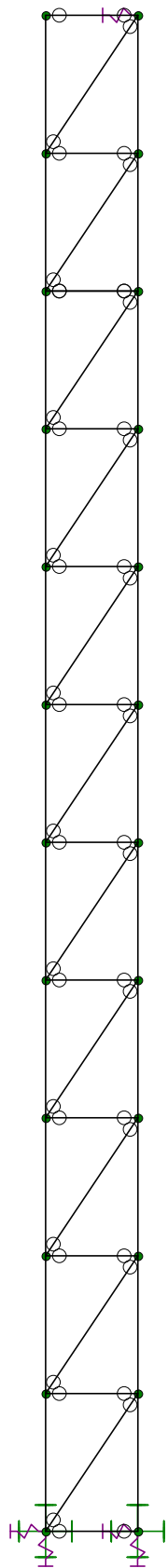
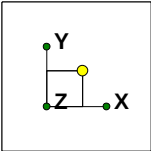
220-91

70x220x35 World Wide Terminals

SK - 4

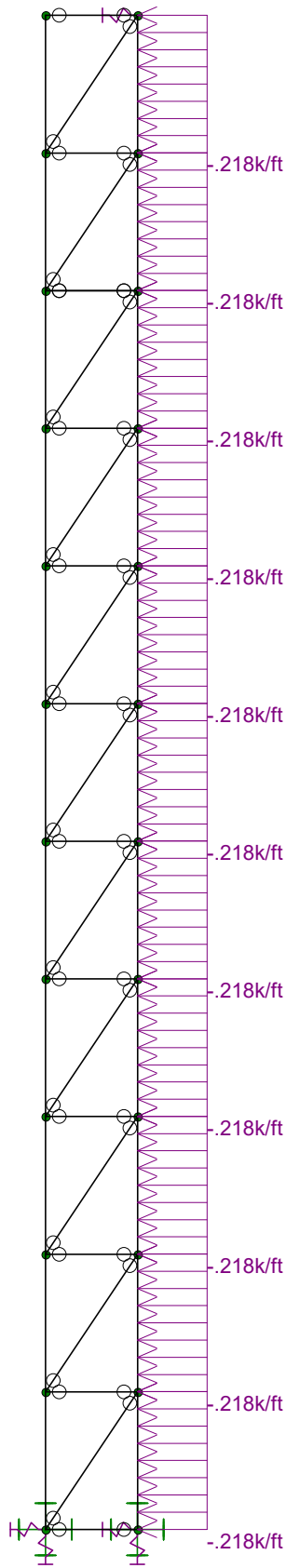
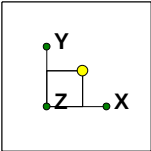
July 1, 2020 at 9:20 AM

End Panel Truss 1 - Final.r3d



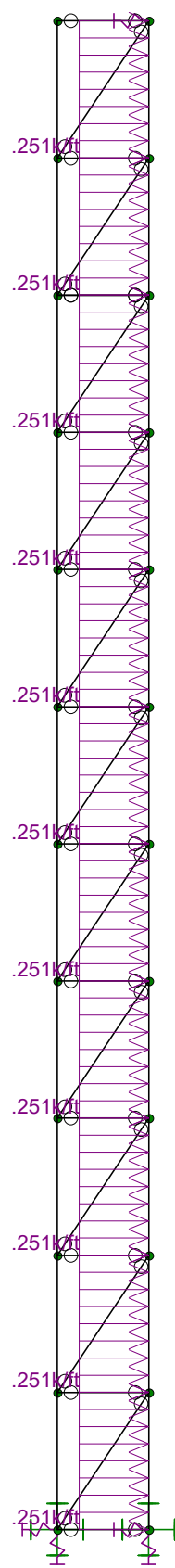
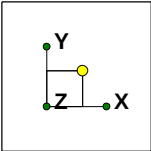
Loads: BLC 1, DL

|         |                                |                               |
|---------|--------------------------------|-------------------------------|
| Big Top | 70x220x35 World Wide Terminals | SK - 5                        |
| LS      |                                | July 1, 2020 at 9:20 AM       |
| 220-91  |                                | End Panel Truss 1 - Final.r3d |



Loads: BLC 3, WL+Z

|         |                                |                               |
|---------|--------------------------------|-------------------------------|
| Big Top | 70x220x35 World Wide Terminals | SK - 6                        |
| LS      |                                | July 1, 2020 at 9:21 AM       |
| 220-91  |                                | End Panel Truss 1 - Final.r3d |



Loads: BLC 4, WL-Z

|         |                                |                               |
|---------|--------------------------------|-------------------------------|
| Big Top | 70x220x35 World Wide Terminals | SK - 7                        |
| LS      |                                | July 1, 2020 at 9:21 AM       |
| 220-91  |                                | End Panel Truss 1 - Final.r3d |





Code Check  
( Env )

No Calc

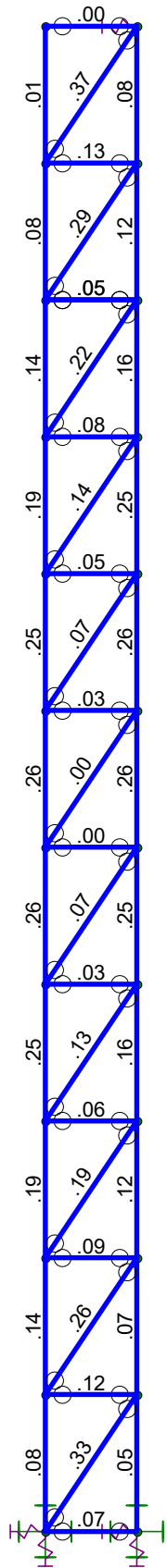
> 1.0

.90-1.0

.75-.90

.50-.75

0.-.50



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

Big Top

LS

220-91

70x220x35 World Wide Terminals

SK - 8

July 1, 2020 at 9:22 AM

End Panel Truss 1 - Final.r3d



Company : Big Top  
 Designer : LS  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:23 AM  
 Checked By: \_\_\_\_\_

### Hot Rolled Steel Properties

|   | Label          | E [ksi] | G [ksi] | Nu | Therm (/1... | Density[k/f... | 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            | 50         | 1.5 | 55      | 1.2 |

### Hot Rolled Steel Section Sets

|   | Label       | Shape                 | Type | Design List | Material       | Design R... | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|-------------|-----------------------|------|-------------|----------------|-------------|---------|-----------|-----------|---------|
| 1 | Chords      | Double 2x3 with 1.75  | Beam | Tube        | A500 Gr.B Rect | Typical     | 1.642   | 6.883     | 2.087     | 8.97    |
| 2 | Diagonals   | 1.5" x 1.5" x 0.065"  | Beam | Tube        | A500 Gr.B Rect | Typical     | .481    | .161      | .161      | .241    |
| 3 | Horizontals | 1.75" x 1.75" x 0.085 | Beam | Tube        | A500 Gr.B Rect | Typical     | .566    | .262      | .262      | .392    |

### Joint Coordinates and Temperatures

|    | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diap... |
|----|-------|--------|--------|--------|----------|---------------------|
| 1  | 6     | -2     | 0      | 0      | 0        |                     |
| 2  | 5     | 0      | 0      | 0      | 0        |                     |
| 3  | N3    | -2     | 3      | 0      | 0        |                     |
| 4  | N4    | 0      | 3      | 0      | 0        |                     |
| 5  | N5    | -2     | 6      | 0      | 0        |                     |
| 6  | N6    | 0      | 6      | 0      | 0        |                     |
| 7  | N7    | -2     | 9      | 0      | 0        |                     |
| 8  | N8    | 0      | 9      | 0      | 0        |                     |
| 9  | N9    | -2     | 12     | 0      | 0        |                     |
| 10 | N10   | 0      | 12     | 0      | 0        |                     |
| 11 | N11   | -2     | 15     | 0      | 0        |                     |
| 12 | N12   | 0      | 15     | 0      | 0        |                     |
| 13 | N15   | -2     | 18     | 0      | 0        |                     |
| 14 | N16   | 0      | 18     | 0      | 0        |                     |
| 15 | N15A  | -2     | 21     | 0      | 0        |                     |
| 16 | N16A  | 0      | 21     | 0      | 0        |                     |
| 17 | N19   | -2     | 24     | 0      | 0        |                     |
| 18 | N20   | 0      | 24     | 0      | 0        |                     |
| 19 | N21   | -2     | 27     | 0      | 0        |                     |
| 20 | N22   | 0      | 27     | 0      | 0        |                     |
| 21 | N23   | -2     | 30     | 0      | 0        |                     |
| 22 | N24   | 0      | 30     | 0      | 0        |                     |
| 23 | N25   | -2     | 33     | 0      | 0        |                     |
| 24 | N26   | 0      | 33     | 0      | 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 | 6           | S10      | S10      | Reaction | Reaction         | Reaction         |                  |
| 2 | 5           | S10      | S10      | Reaction | Reaction         | Reaction         |                  |
| 3 | N26         | S30      |          |          |                  |                  |                  |



Company : Big Top  
 Designer : LS  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:23 AM  
 Checked By: \_\_\_\_\_

### Hot Rolled Steel Design Parameters

|    | Label | Shape       | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torque[ft] | Kyy | Kzz | Cb | Funci... |
|----|-------|-------------|------------|----------|----------|---------------|---------------|--------------|-----|-----|----|----------|
| 1  | M1    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 2  | M2    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 3  | M3    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 4  | M4    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 5  | M5    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 6  | M6    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 7  | M7    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 8  | M8    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 9  | M9    | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 10 | M10   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 11 | M22   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 12 | M23   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 13 | M26   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 14 | M27   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 15 | M34   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 16 | M35   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 17 | M36   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 18 | M37   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 19 | M11   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 20 | M12   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 21 | M13   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 22 | M14   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 23 | M15   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 24 | M24   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 25 | M29A  | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 26 | M32   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 27 | M33   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 28 | M16   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 29 | M17   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 30 | M18   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 31 | M19   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 32 | M20   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 33 | M21   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 34 | M29   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 35 | M28   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 36 | M30   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 37 | M31   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 38 | M38   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 39 | M39   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 40 | M43   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 41 | M44   | Chords      | 3          | 6        |          | 6             | 6             | 6            | .7  | .7  |    | Lateral  |
| 42 | M56   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 43 | M57   | Diagonals   | 3.606      |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 44 | M65   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 45 | M66   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |
| 46 | M67   | Horizontals | 2          |          |          | Lbyy          |               |              | .7  | .7  |    | Lateral  |

### 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 | M1           | X         | -.218                    | -.218                    | 0                    | 0                  |
| 2 | M2           | X         | -.218                    | -.218                    | 0                    | 0                  |
| 3 | M3           | X         | -.218                    | -.218                    | 0                    | 0                  |
| 4 | M4           | X         | -.218                    | -.218                    | 0                    | 0                  |
| 5 | M5           | X         | -.218                    | -.218                    | 0                    | 0                  |



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

|    | Member Label | Direction | Start Magnitude[k/ft.... | End Magnitude[k/ft.F.... | Start Location[ft.%] | End Location[ft.%] |
|----|--------------|-----------|--------------------------|--------------------------|----------------------|--------------------|
| 6  | M22          | X         | -.218                    | -.218                    | 0                    | 0                  |
| 7  | M26          | X         | -.218                    | -.218                    | 0                    | 0                  |
| 8  | M34          | X         | -.218                    | -.218                    | 0                    | 0                  |
| 9  | M36          | X         | -.218                    | -.218                    | 0                    | 0                  |
| 10 | M38          | X         | -.218                    | -.218                    | 0                    | 0                  |
| 11 | M39          | X         | -.218                    | -.218                    | 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  | M1           | X         | .251                     | .251                     | 0                    | 0                  |
| 2  | M2           | X         | .251                     | .251                     | 0                    | 0                  |
| 3  | M3           | X         | .251                     | .251                     | 0                    | 0                  |
| 4  | M4           | X         | .251                     | .251                     | 0                    | 0                  |
| 5  | M5           | X         | .251                     | .251                     | 0                    | 0                  |
| 6  | M22          | X         | .251                     | .251                     | 0                    | 0                  |
| 7  | M26          | X         | .251                     | .251                     | 0                    | 0                  |
| 8  | M34          | X         | .251                     | .251                     | 0                    | 0                  |
| 9  | M36          | X         | .251                     | .251                     | 0                    | 0                  |
| 10 | M38          | X         | .251                     | .251                     | 0                    | 0                  |
| 11 | M39          | X         | .251                     | .251                     | 0                    | 0                  |

### Basic Load Cases

|   | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed | Area(Member) | Surface(Plate... |
|---|-----------------|----------|-----------|-----------|-----------|-------|-------|-------------|--------------|------------------|
| 1 | DL              | DL       |           | -1        |           |       |       |             |              |                  |
| 2 | RLL             | RLL      |           |           |           |       |       |             |              |                  |
| 3 | WL+Z            | WL+Z     |           |           |           |       |       | 11          |              |                  |
| 4 | WL-Z            | WL-Z     |           |           |           |       |       | 11          |              |                  |

### Load Combinations

|    | Description | Sol... | PDelta | SR... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... | BLC Fact... |
|----|-------------|--------|--------|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1  | IBC 16-8    | Yes    | Y      |       | DL          | 1           |             |             |             |             |             |             |             |             |             |
| 2  | IBC 16-9    | Yes    | Y      |       | DL          | 1           | LL          | 1           | LLS         | 1           |             |             |             |             |             |
| 3  | IBC 16-10   | Yes    | Y      |       | DL          | 1           | RLL         | 1           |             |             |             |             |             |             |             |
| 4  | IBC 16-11   | Yes    | Y      |       | DL          | 1           | LL          | .75         | LLS         | .75         | RLL         | .75         |             |             |             |
| 5  | IBC 16-12   | Yes    | Y      |       | DL          | 1           | W...        | .6          |             |             |             |             |             |             |             |
| 6  | IBC 16-13   | Yes    | Y      |       | DL          | 1           | W...        | .45         | LL          | .75         | LLS         | .75         | RLL         | .75         |             |
| 7  | IBC 16-13   | Yes    | Y      |       | DL          | 1           | W...        | .45         | LL          | .75         | LLS         | .75         |             |             |             |
| 8  | IBC 16-15   | Yes    | Y      |       | DL          | .6          | W...        | .6          |             |             |             |             |             |             |             |
| 9  | IBC 16-12   | Yes    | Y      |       | DL          | 1           | W...        | .6          |             |             |             |             |             |             |             |
| 10 | IBC 16-13   | Yes    | Y      |       | DL          | 1           | W...        | .45         | LL          | .75         | LLS         | .75         | RLL         | .75         |             |
| 11 | IBC 16-13   | Yes    | Y      |       | DL          | 1           | W...        | .45         | LL          | .75         | LLS         | .75         |             |             |             |
| 12 | IBC 16-15   | Yes    | Y      |       | DL          | .6          | W...        | .6          |             |             |             |             |             |             |             |
| 13 | DL          |        | Y      |       | DL          | 1           |             |             |             |             |             |             |             |             |             |
| 14 | RLL         |        | Y      |       | RLL         | 1           |             |             |             |             |             |             |             |             |             |
| 15 | WL+Z        |        | Y      |       | W...        | 1           |             |             |             |             |             |             |             |             |             |
| 16 | WL-Z        |        | Y      |       | W...        | 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 | 6     | max | 1.096  | 8  | .544  | 5  | 0     | 12 | 0         | 12 | 0         | 12 | 0         | 12 |
| 2 |       | min | -1.262 | 12 | -.17  | 12 | 0     | 1  | 0         | 1  | 0         | 1  | 0         | 1  |
| 3 | 5     | max | 1.079  | 8  | .586  | 9  | 0     | 12 | 0         | 12 | 0         | 12 | 0         | 12 |



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### Envelope Joint Reactions (Continued)

| Joint |         | X [k] | LC     | Y [k] | LC    | Z [k] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|-------|---------|-------|--------|-------|-------|-------|----|-----------|----|-----------|----|-----------|----|
| 4     | N26     | min   | -1.243 | 12    | -.128 | 8     | 0  | 1         | 0  | 1         | 0  | 0         | 1  |
| 5     |         | max   | 2.142  | 5     | 0     | 12    | 0  | 12        | 0  | 12        | 0  | 12        | 12 |
| 6     |         | min   | -2.465 | 9     | 0     | 1     | 0  | 1         | 0  | 1         | 0  | 1         | 1  |
| 7     | Totals: | max   | 4.316  | 8     | .52   | 11    | 0  | 12        |    |           |    |           |    |
| 8     |         | min   | -4.97  | 9     | .312  | 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  | M1     | 1   | max | .579     | 9  | .194       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 2  |        |     | min | -.133    | 8  | -.168      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 3  |        | 2   | max | .575     | 9  | .081       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .089        | 8  |
| 4  |        |     | min | -.135    | 8  | -.07       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.103       | 9  |
| 5  |        | 3   | max | .57      | 9  | .028       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .105        | 8  |
| 6  |        |     | min | -.138    | 8  | -.032      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.121       | 9  |
| 7  |        | 4   | max | .566     | 9  | .126       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .047        | 8  |
| 8  |        |     | min | -.141    | 8  | -.145      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.055       | 9  |
| 9  |        | 5   | max | .561     | 9  | .224       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .096        | 12 |
| 10 |        |     | min | -.143    | 8  | -.258      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.084       | 5  |
| 11 | M2     | 1   | max | 2.937    | 5  | .247       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .096        | 12 |
| 12 |        |     | min | -2.977   | 12 | -.215      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.084       | 5  |
| 13 |        | 2   | max | 2.933    | 5  | .134       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .04         | 8  |
| 14 |        |     | min | -2.979   | 12 | -.116      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.047       | 9  |
| 15 |        | 3   | max | 2.928    | 5  | .021       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .091        | 8  |
| 16 |        |     | min | -2.982   | 12 | -.018      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.105       | 9  |
| 17 |        | 4   | max | 2.924    | 5  | .08        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .068        | 8  |
| 18 |        |     | min | -2.985   | 12 | -.092      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.078       | 9  |
| 19 |        | 5   | max | 2.919    | 5  | .178       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 12 |
| 20 |        |     | min | -2.988   | 12 | -.205      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 5  |
| 21 | M3     | 1   | max | 5.264    | 5  | .229       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 12 |
| 22 |        |     | min | -5.693   | 12 | -.199      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 5  |
| 23 |        | 2   | max | 5.26     | 5  | .116       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .083        | 8  |
| 24 |        |     | min | -5.696   | 12 | -.101      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.096       | 9  |
| 25 |        | 3   | max | 5.255    | 5  | .003       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .122        | 8  |
| 26 |        |     | min | -5.698   | 12 | -.003      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 9  |
| 27 |        | 4   | max | 5.251    | 5  | .095       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .087        | 8  |
| 28 |        |     | min | -5.701   | 12 | -.11       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.101       | 9  |
| 29 |        | 5   | max | 5.246    | 5  | .194       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 12 |
| 30 |        |     | min | -5.704   | 12 | -.223      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 5  |
| 31 | M4     | 1   | max | 7.022    | 5  | .231       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 12 |
| 32 |        |     | min | -7.754   | 12 | -.2        | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 5  |
| 33 |        | 2   | max | 7.017    | 5  | .118       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .092        | 8  |
| 34 |        |     | min | -7.756   | 12 | -.102      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.107       | 9  |
| 35 |        | 3   | max | 7.013    | 5  | .005       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .132        | 8  |
| 36 |        |     | min | -7.759   | 12 | -.004      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.153       | 9  |
| 37 |        | 4   | max | 7.008    | 5  | .094       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .099        | 8  |
| 38 |        |     | min | -7.762   | 12 | -.108      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.114       | 9  |
| 39 |        | 5   | max | 7.004    | 5  | .192       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 12 |
| 40 |        |     | min | -7.765   | 12 | -.221      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 5  |
| 41 | M5     | 1   | max | 8.192    | 5  | .228       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 12 |
| 42 |        |     | min | -9.14    | 12 | -.198      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 5  |
| 43 |        | 2   | max | 8.187    | 5  | .115       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .103        | 8  |
| 44 |        |     | min | -9.142   | 12 | -.1        | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.119       | 9  |
| 45 |        | 3   | max | 8.183    | 5  | .002       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .141        | 8  |
| 46 |        |     | min | -9.145   | 12 | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.162       | 9  |
| 47 |        | 4   | max | 8.178    | 5  | .096       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .105        | 8  |





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### 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 |
|--------|-----|-----|----------|--------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 48     |     | min | -9.148   | 12     | -.111      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.121       | 9  |
| 49     |     | max | 8.174    | 5      | .195       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 12 |
| 50     |     | min | -9.15    | 12     | -.224      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 5  |
| 51     | M6  | 1   | max      | 3.367  | 9          | .019 | 9          | 0  | 12           | 0  | 12          | 0  | 0           | 12 |
| 52     |     | min | -2.554   | 8      | -.016      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 53     |     | 2   | max      | 3.362  | 9          | .019 | 9          | 0  | 12           | 0  | 12          | 0  | .012        | 8  |
| 54     |     | min | -2.557   | 8      | -.016      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 9  |
| 55     |     | 3   | max      | 3.358  | 9          | .019 | 9          | 0  | 12           | 0  | 12          | 0  | .024        | 8  |
| 56     |     | min | -2.56    | 8      | -.016      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 9  |
| 57     |     | 4   | max      | 3.353  | 9          | .019 | 9          | 0  | 12           | 0  | 12          | 0  | .036        | 8  |
| 58     |     | min | -2.563   | 8      | -.016      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.042       | 9  |
| 59     |     | 5   | max      | 3.349  | 9          | .019 | 9          | 0  | 12           | 0  | 12          | 0  | .049        | 8  |
| 60     |     | min | -2.565   | 8      | -.016      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.056       | 9  |
| 61     | M7  | 1   | max      | 6.049  | 9          | .005 | 12         | 0  | 12           | 0  | 12          | 0  | .049        | 8  |
| 62     |     | min | -4.916   | 8      | -.004      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.056       | 9  |
| 63     |     | 2   | max      | 6.044  | 9          | .005 | 12         | 0  | 12           | 0  | 12          | 0  | .052        | 8  |
| 64     |     | min | -4.918   | 8      | -.004      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.06        | 9  |
| 65     |     | 3   | max      | 6.04   | 9          | .005 | 12         | 0  | 12           | 0  | 12          | 0  | .055        | 8  |
| 66     |     | min | -4.921   | 8      | -.004      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 9  |
| 67     |     | 4   | max      | 6.035  | 9          | .005 | 12         | 0  | 12           | 0  | 12          | 0  | .058        | 8  |
| 68     |     | min | -4.924   | 8      | -.004      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.066       | 9  |
| 69     |     | 5   | max      | 6.031  | 9          | .005 | 12         | 0  | 12           | 0  | 12          | 0  | .061        | 8  |
| 70     |     | min | -4.926   | 8      | -.004      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.07        | 9  |
| 71     | M8  | 1   | max      | 8.076  | 9          | .007 | 9          | 0  | 12           | 0  | 12          | 0  | .061        | 8  |
| 72     |     | min | -6.708   | 8      | -.006      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.07        | 9  |
| 73     |     | 2   | max      | 8.071  | 9          | .007 | 9          | 0  | 12           | 0  | 12          | 0  | .065        | 8  |
| 74     |     | min | -6.711   | 8      | -.006      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.075       | 9  |
| 75     |     | 3   | max      | 8.067  | 9          | .007 | 9          | 0  | 12           | 0  | 12          | 0  | .07         | 8  |
| 76     |     | min | -6.713   | 8      | -.006      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.081       | 9  |
| 77     |     | 4   | max      | 8.062  | 9          | .007 | 9          | 0  | 12           | 0  | 12          | 0  | .075        | 8  |
| 78     |     | min | -6.716   | 8      | -.006      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.086       | 9  |
| 79     |     | 5   | max      | 8.058  | 9          | .007 | 9          | 0  | 12           | 0  | 12          | 0  | .079        | 8  |
| 80     |     | min | -6.719   | 8      | -.006      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.091       | 9  |
| 81     | M9  | 1   | max      | 9.426  | 9          | .004 | 9          | 0  | 12           | 0  | 12          | 0  | .079        | 8  |
| 82     |     | min | -7.914   | 8      | -.003      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.091       | 9  |
| 83     |     | 2   | max      | 9.422  | 9          | .004 | 9          | 0  | 12           | 0  | 12          | 0  | .082        | 8  |
| 84     |     | min | -7.916   | 8      | -.003      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.094       | 9  |
| 85     |     | 3   | max      | 9.417  | 9          | .004 | 9          | 0  | 12           | 0  | 12          | 0  | .084        | 8  |
| 86     |     | min | -7.919   | 8      | -.003      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.097       | 9  |
| 87     |     | 4   | max      | 9.413  | 9          | .004 | 9          | 0  | 12           | 0  | 12          | 0  | .086        | 8  |
| 88     |     | min | -7.922   | 8      | -.003      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.1         | 9  |
| 89     |     | 5   | max      | 9.408  | 9          | .004 | 9          | 0  | 12           | 0  | 12          | 0  | .089        | 8  |
| 90     |     | min | -7.925   | 8      | -.003      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.103       | 9  |
| 91     | M10 | 1   | max      | 10.104 | 9          | .002 | 12         | 0  | 12           | 0  | 12          | 0  | .089        | 8  |
| 92     |     | min | -8.536   | 8      | -.002      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.103       | 9  |
| 93     |     | 2   | max      | 10.1   | 9          | .002 | 12         | 0  | 12           | 0  | 12          | 0  | .09         | 8  |
| 94     |     | min | -8.539   | 8      | -.002      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.104       | 9  |
| 95     |     | 3   | max      | 10.095 | 9          | .002 | 12         | 0  | 12           | 0  | 12          | 0  | .092        | 8  |
| 96     |     | min | -8.542   | 8      | -.002      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.106       | 9  |
| 97     |     | 4   | max      | 10.091 | 9          | .002 | 12         | 0  | 12           | 0  | 12          | 0  | .093        | 8  |
| 98     |     | min | -8.545   | 8      | -.002      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.107       | 9  |
| 99     |     | 5   | max      | 10.086 | 9          | .002 | 12         | 0  | 12           | 0  | 12          | 0  | .095        | 8  |
| 100    |     | min | -8.547   | 8      | -.002      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.109       | 9  |
| 101    | M22 | 1   | max      | 8.778  | 5          | .226 | 12         | 0  | 12           | 0  | 12          | 0  | .004        | 12 |
| 102    |     | min | -9.854   | 12     | -.196      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 5  |
| 103    |     | 2   | max      | 8.773  | 5          | .113 | 12         | 0  | 12           | 0  | 12          | 0  | .107        | 8  |
| 104    |     | min | -9.857   | 12     | -.098      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.123       | 9  |



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### 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 105    | 3   | max | 8.769    | 5     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .144        | 8  |
| 106    |     | min | -9.86    | 12    | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.166       | 9  |
| 107    | 4   | max | 8.764    | 5     | .098       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .107        | 8  |
| 108    |     | min | -9.862   | 12    | -.113      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.123       | 9  |
| 109    | 5   | max | 8.76     | 5     | .196       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 12 |
| 110    |     | min | -9.865   | 12    | -.226      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 5  |
| 111    | M23 | 1   | max      | 10.11 | 9          | 0    | 5          | 0  | 12           | 0  | 12          | 0  | .095        | 8  |
| 112    |     | min | -8.576   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.109       | 9  |
| 113    | 2   | max | 10.105   | 9     | 0          | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .095        | 8  |
| 114    |     | min | -8.578   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.109       | 9  |
| 115    | 3   | max | 10.101   | 9     | 0          | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .094        | 8  |
| 116    |     | min | -8.581   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.109       | 9  |
| 117    | 4   | max | 10.096   | 9     | 0          | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .094        | 8  |
| 118    |     | min | -8.584   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.109       | 9  |
| 119    | 5   | max | 10.092   | 9     | 0          | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .094        | 8  |
| 120    |     | min | -8.586   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.109       | 9  |
| 121    | M26 | 1   | max      | 8.779 | 5          | .224 | 12         | 0  | 12           | 0  | 12          | 0  | .004        | 12 |
| 122    |     | min | -9.897   | 12    | -.194      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 5  |
| 123    | 2   | max | 8.775    | 5     | .111       | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .106        | 8  |
| 124    |     | min | -9.9     | 12    | -.096      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.122       | 9  |
| 125    | 3   | max | 8.77     | 5     | .002       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .141        | 8  |
| 126    |     | min | -9.903   | 12    | -.002      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.163       | 9  |
| 127    | 4   | max | 8.766    | 5     | .1         | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .103        | 8  |
| 128    |     | min | -9.906   | 12    | -.115      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.119       | 9  |
| 129    | 5   | max | 8.761    | 5     | .198       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 12 |
| 130    |     | min | -9.908   | 12    | -.228      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 5  |
| 131    | M27 | 1   | max      | 9.441 | 9          | 0    | 5          | 0  | 12           | 0  | 12          | 0  | .094        | 8  |
| 132    |     | min | -8.03    | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.109       | 9  |
| 133    | 2   | max | 9.437    | 9     | 0          | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .094        | 8  |
| 134    |     | min | -8.033   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.108       | 9  |
| 135    | 3   | max | 9.432    | 9     | 0          | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .093        | 8  |
| 136    |     | min | -8.036   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.107       | 9  |
| 137    | 4   | max | 9.428    | 9     | 0          | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .092        | 8  |
| 138    |     | min | -8.038   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.107       | 9  |
| 139    | 5   | max | 9.423    | 9     | 0          | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .092        | 8  |
| 140    |     | min | -8.041   | 8     | 0          | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.106       | 9  |
| 141    | M34 | 1   | max      | 8.195 | 5          | .223 | 12         | 0  | 12           | 0  | 12          | 0  | .01         | 12 |
| 142    |     | min | -9.269   | 12    | -.194      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 5  |
| 143    | 2   | max | 8.191    | 5     | .11        | 12   | 0          | 12 | 0            | 12 | 0           | 12 | .099        | 8  |
| 144    |     | min | -9.271   | 12    | -.096      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.115       | 9  |
| 145    | 3   | max | 8.186    | 5     | .002       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .134        | 8  |
| 146    |     | min | -9.274   | 12    | -.003      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.155       | 9  |
| 147    | 4   | max | 8.182    | 5     | .101       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .096        | 8  |
| 148    |     | min | -9.277   | 12    | -.116      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.11        | 9  |
| 149    | 5   | max | 8.177    | 5     | .199       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .019        | 12 |
| 150    |     | min | -9.279   | 12    | -.229      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 5  |
| 151    | M35 | 1   | max      | 8.107 | 9          | .007 | 5          | 0  | 12           | 0  | 12          | 0  | .092        | 8  |
| 152    |     | min | -6.907   | 8     | -.008      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.106       | 9  |
| 153    | 2   | max | 8.103    | 9     | .007       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .086        | 8  |
| 154    |     | min | -6.909   | 8     | -.008      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.1         | 9  |
| 155    | 3   | max | 8.098    | 9     | .007       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .081        | 8  |
| 156    |     | min | -6.912   | 8     | -.008      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.094       | 9  |
| 157    | 4   | max | 8.094    | 9     | .007       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .076        | 8  |
| 158    |     | min | -6.915   | 8     | -.008      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.087       | 9  |
| 159    | 5   | max | 8.089    | 9     | .007       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .07         | 8  |
| 160    |     | min | -6.917   | 8     | -.008      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.081       | 9  |
| 161    | M36 | 1   | max      | 7.032 | 5          | .217 | 12         | 0  | 12           | 0  | 12          | 0  | .019        | 12 |



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### 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 |
|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 162    |     | min | -7.974   | 12 | -.189      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 5  |
| 163    |     | max | 7.027    | 5  | .104       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .088        | 8  |
| 164    |     | min | -7.977   | 12 | -.09       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.102       | 9  |
| 165    |     | max | 7.023    | 5  | .008       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .119        | 8  |
| 166    |     | min | -7.98    | 12 | -.009      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.138       | 9  |
| 167    |     | max | 7.018    | 5  | .106       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .077        | 8  |
| 168    |     | min | -7.983   | 12 | -.122      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.089       | 9  |
| 169    |     | max | 7.014    | 5  | .204       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .045        | 12 |
| 170    |     | min | -7.985   | 12 | -.235      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 5  |
| 171    | M37 | max | 6.089    | 9  | .002       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .07         | 8  |
| 172    |     | min | -5.188   | 8  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.081       | 9  |
| 173    |     | max | 6.084    | 9  | .002       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .072        | 8  |
| 174    |     | min | -5.191   | 8  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.083       | 9  |
| 175    |     | max | 6.08     | 9  | .002       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .073        | 8  |
| 176    |     | min | -5.193   | 8  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.085       | 9  |
| 177    |     | max | 6.075    | 9  | .002       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .075        | 8  |
| 178    |     | min | -5.196   | 8  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.086       | 9  |
| 179    |     | max | 6.071    | 9  | .002       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .076        | 8  |
| 180    |     | min | -5.199   | 8  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.088       | 9  |
| 181    | M11 | max | 3.592    | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 182    |     | min | -4.138   | 9  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 183    |     | max | 3.591    | 5  | 0          | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 184    |     | min | -4.139   | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 185    |     | max | 3.59     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 186    |     | min | -4.14    | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 187    |     | max | 3.588    | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 188    |     | min | -4.142   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 189    |     | max | 3.587    | 5  | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 190    |     | min | -4.143   | 9  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 191    | M12 | max | 2.824    | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 192    |     | min | -3.25    | 9  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 193    |     | max | 2.823    | 5  | 0          | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 194    |     | min | -3.252   | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 195    |     | max | 2.821    | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 196    |     | min | -3.253   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 197    |     | max | 2.82     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 198    |     | min | -3.254   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 199    |     | max | 2.819    | 5  | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 200    |     | min | -3.256   | 9  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 201    | M13 | max | 2.14     | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 202    |     | min | -2.462   | 12 | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 203    |     | max | 2.139    | 5  | 0          | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 204    |     | min | -2.463   | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 205    |     | max | 2.138    | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 206    |     | min | -2.464   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 207    |     | max | 2.136    | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 208    |     | min | -2.465   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 209    |     | max | 2.136    | 8  | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 210    |     | min | -2.467   | 9  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 211    | M14 | max | 1.436    | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 212    |     | min | -1.649   | 12 | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 213    |     | max | 1.434    | 5  | 0          | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 214    |     | min | -1.65    | 12 | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 215    |     | max | 1.433    | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 216    |     | min | -1.651   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 217    |     | max | 1.432    | 8  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 218    |     | min | -1.652   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |



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| Member | Sec  |     | Axial[k] | LC    | y Shear[k] | LC    | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|--------|------|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 219    | 5    | max | 1.431    | 8     | -.001      | 12    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 220    |      | min | -1.654   | 9     | -.002      | 1     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 221    | M15  | 1   | max      | .734  | 5          | .002  | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 222    |      | min | -.841    | 12    | .001       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 223    |      | 2   | max      | .733  | 5          | 0     | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 224    |      | min | -.842    | 12    | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 225    |      | 3   | max      | .732  | 8          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 226    |      | min | -.843    | 12    | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 227    |      | 4   | max      | .731  | 8          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 228    |      | min | -.844    | 9     | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 229    |      | 5   | max      | .73   | 8          | -.001 | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 230    |      | min | -.845    | 9     | -.002      | 1     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 231    | M24  | 1   | max      | .033  | 5          | .002  | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 232    |      | min | -.033    | 12    | .001       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 233    |      | 2   | max      | .031  | 5          | 0     | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 234    |      | min | -.034    | 12    | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 235    |      | 3   | max      | .03   | 8          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 236    |      | min | -.035    | 12    | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 237    |      | 4   | max      | .03   | 8          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 238    |      | min | -.036    | 9     | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 239    |      | 5   | max      | .029  | 8          | -.001 | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 240    |      | min | -.037    | 9     | -.002      | 1     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 241    | M29A | 1   | max      | .777  | 9          | .002  | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 242    |      | min | -.671    | 8     | .001       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 243    |      | 2   | max      | .776  | 9          | 0     | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 244    |      | min | -.672    | 5     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 245    |      | 3   | max      | .775  | 9          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 246    |      | min | -.673    | 5     | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 247    |      | 4   | max      | .773  | 9          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 248    |      | min | -.674    | 5     | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 249    |      | 5   | max      | .772  | 12         | -.001 | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 250    |      | min | -.676    | 5     | -.002      | 1     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 251    | M32  | 1   | max      | 1.577 | 9          | .002  | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 252    |      | min | -1.366   | 8     | .001       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 253    |      | 2   | max      | 1.576 | 9          | 0     | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 254    |      | min | -1.367   | 5     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 255    |      | 3   | max      | 1.575 | 9          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 256    |      | min | -1.369   | 5     | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 257    |      | 4   | max      | 1.573 | 9          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 258    |      | min | -1.37    | 5     | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 259    |      | 5   | max      | 1.572 | 12         | -.001 | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 260    |      | min | -1.371   | 5     | -.002      | 1     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 261    | M33  | 1   | max      | 2.399 | 9          | .002  | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 262    |      | min | -2.082   | 8     | .001       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 263    |      | 2   | max      | 2.397 | 9          | 0     | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 264    |      | min | -2.083   | 5     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 265    |      | 3   | max      | 2.396 | 9          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 266    |      | min | -2.084   | 5     | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 267    |      | 4   | max      | 2.395 | 9          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 268    |      | min | -2.086   | 5     | 0          | 1     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 269    |      | 5   | max      | 2.394 | 12         | -.001 | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 270    |      | min | -2.087   | 5     | -.002      | 1     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 271    | M16  | 1   | max      | 1.052 | 9          | .002  | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 272    |      | min | -.911    | 5     | .001       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 273    |      | 2   | max      | 1.052 | 9          | .001  | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |
| 274    |      | min | -.911    | 5     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 275    |      | 3   | max      | 1.052 | 9          | 0     | 12         | 0  | 12           | 0  | 12          | 0  | 12          | 0  |



Company : Big Top  
 Designer : LS  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### Envelope Member Section Forces (Continued)

| Member | Sec |     | Axial[k] | LC    | v Shear[k] | LC   | z Shear[k] | LC | Torque[k-... | LC | v-v Mome... | LC | z-z Mome... | LC |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 276    |     | min | -.911    | 5     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 277    | 4   | max | 1.052    | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 278    |     | min | -.911    | 5     | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 279    | 5   | max | 1.052    | 9     | -.001      | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 280    |     | min | -.911    | 5     | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 281    | M17 | 1   | max      | 1.792 | 9          | .002 | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 12 |
| 282    |     | min | -1.552   | 5     | .001       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 283    | 2   | max | 1.792    | 9     | .001       | 11   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 284    |     | min | -1.552   | 5     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 285    | 3   | max | 1.792    | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 286    |     | min | -1.552   | 5     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 287    | 4   | max | 1.792    | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 288    |     | min | -1.552   | 5     | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 289    | 5   | max | 1.792    | 9     | -.001      | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 290    |     | min | -1.552   | 5     | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 291    | M18 | 1   | max      | 1.375 | 9          | .002 | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 12 |
| 292    |     | min | -1.184   | 5     | .001       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 293    | 2   | max | 1.375    | 9     | .001       | 11   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 294    |     | min | -1.184   | 5     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 295    | 3   | max | 1.375    | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 296    |     | min | -1.184   | 5     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 297    | 4   | max | 1.375    | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 298    |     | min | -1.184   | 5     | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 299    | 5   | max | 1.375    | 9     | -.001      | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 300    |     | min | -1.184   | 5     | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 301    | M19 | 1   | max      | .922  | 9          | .002 | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 12 |
| 302    |     | min | -.785    | 5     | .001       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 303    | 2   | max | .922     | 9     | .001       | 11   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 304    |     | min | -.785    | 5     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 305    | 3   | max | .922     | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 306    |     | min | -.785    | 5     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 307    | 4   | max | .922     | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 308    |     | min | -.785    | 5     | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 309    | 5   | max | .922     | 9     | -.001      | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 310    |     | min | -.785    | 5     | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 311    | M20 | 1   | max      | .48   | 9          | .002 | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 12 |
| 312    |     | min | -.395    | 5     | .001       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 313    | 2   | max | .48      | 9     | .001       | 11   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 314    |     | min | -.395    | 5     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 315    | 3   | max | .48      | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 316    |     | min | -.395    | 5     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 317    | 4   | max | .48      | 9     | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 318    |     | min | -.395    | 5     | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 319    | 5   | max | .48      | 9     | -.001      | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 320    |     | min | -.395    | 5     | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 321    | M21 | 1   | max      | .032  | 12         | .002 | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 12 |
| 322    |     | min | -.005    | 6     | .001       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 323    | 2   | max | .032     | 12    | .001       | 11   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 324    |     | min | -.005    | 6     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 325    | 3   | max | .032     | 12    | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 326    |     | min | -.005    | 6     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 327    | 4   | max | .032     | 12    | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 328    |     | min | -.005    | 6     | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 329    | 5   | max | .032     | 12    | -.001      | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 330    |     | min | -.005    | 6     | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 331    | M29 | 1   | max      | .385  | 5          | .002 | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 12 |
| 332    |     | min | -.415    | 9     | .001       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |





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### 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 |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 333 |        | 2   | max | .385     | 5  | .001       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 334 |        |     | min | -.415    | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 335 |        | 3   | max | .385     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 336 |        |     | min | -.415    | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 337 |        | 4   | max | .385     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 338 |        |     | min | -.415    | 9  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 339 |        | 5   | max | .385     | 5  | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 340 |        |     | min | -.415    | 9  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 341 | M28    | 1   | max | .776     | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 342 |        |     | min | -.867    | 9  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 343 |        | 2   | max | .776     | 5  | .001       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 344 |        |     | min | -.867    | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 345 |        | 3   | max | .776     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 346 |        |     | min | -.867    | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 347 |        | 4   | max | .776     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 348 |        |     | min | -.867    | 9  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 349 |        | 5   | max | .776     | 5  | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 350 |        |     | min | -.867    | 9  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 351 | M30    | 1   | max | 1.154    | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 352 |        |     | min | -1.309   | 9  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 353 |        | 2   | max | 1.154    | 5  | .001       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 354 |        |     | min | -1.309   | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 355 |        | 3   | max | 1.154    | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 356 |        |     | min | -1.309   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 357 |        | 4   | max | 1.154    | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 358 |        |     | min | -1.309   | 9  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 359 |        | 5   | max | 1.154    | 5  | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 360 |        |     | min | -1.309   | 9  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 361 | M31    | 1   | max | .776     | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 362 |        |     | min | -.888    | 9  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 363 |        | 2   | max | .776     | 5  | .001       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 364 |        |     | min | -.888    | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 365 |        | 3   | max | .776     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 366 |        |     | min | -.888    | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 367 |        | 4   | max | .776     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 368 |        |     | min | -.888    | 9  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 369 |        | 5   | max | .776     | 5  | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 370 |        |     | min | -.888    | 9  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 371 | M38    | 1   | max | 5.271    | 5  | .217       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .045        | 12 |
| 372 |        |     | min | -5.998   | 12 | -.188      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 5  |
| 373 |        | 2   | max | 5.267    | 5  | .104       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .065        | 8  |
| 374 |        |     | min | -6.001   | 12 | -.09       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.075       | 9  |
| 375 |        | 3   | max | 5.262    | 5  | .008       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .096        | 8  |
| 376 |        |     | min | -6.004   | 12 | -.009      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.111       | 9  |
| 377 |        | 4   | max | 5.258    | 5  | .106       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .053        | 8  |
| 378 |        |     | min | -6.007   | 12 | -.122      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.062       | 9  |
| 379 |        | 5   | max | 5.253    | 5  | .204       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .072        | 12 |
| 380 |        |     | min | -6.009   | 12 | -.235      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 5  |
| 381 | M39    | 1   | max | 2.952    | 5  | .25        | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .072        | 12 |
| 382 |        |     | min | -3.375   | 12 | -.217      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 5  |
| 383 |        | 2   | max | 2.947    | 5  | .137       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .063        | 8  |
| 384 |        |     | min | -3.377   | 12 | -.119      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.073       | 9  |
| 385 |        | 3   | max | 2.943    | 5  | .024       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .116        | 8  |
| 386 |        |     | min | -3.38    | 12 | -.021      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.133       | 9  |
| 387 |        | 4   | max | 2.938    | 5  | .077       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .095        | 8  |
| 388 |        |     | min | -3.383   | 12 | -.089      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.109       | 9  |
| 389 |        | 5   | max | 2.934    | 5  | .175       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |



Company : Big Top  
 Designer : LS  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### Envelope Member Section Forces (Continued)

| Member | Sec |     | Axial[k] | LC | v Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | v-v Mome... | LC | z-z Mome... | LC |
|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 390    |     | min | -3.385   | 12 | -.202      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 391    | M43 | max | 3.422    | 9  | .016       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .076        | 8  |
| 392    |     | min | -2.91    | 8  | -.018      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.088       | 9  |
| 393    |     | max | 3.418    | 9  | .016       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .064        | 8  |
| 394    |     | min | -2.912   | 8  | -.018      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.074       | 9  |
| 395    |     | max | 3.413    | 9  | .016       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .052        | 8  |
| 396    |     | min | -2.915   | 8  | -.018      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.06        | 9  |
| 397    |     | max | 3.409    | 9  | .016       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .04         | 8  |
| 398    |     | min | -2.918   | 8  | -.018      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.047       | 9  |
| 399    |     | max | 3.404    | 9  | .016       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 8  |
| 400    |     | min | -2.92    | 8  | -.018      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 9  |
| 401    | M44 | max | .02      | 9  | .009       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 8  |
| 402    |     | min | .012     | 8  | -.011      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 9  |
| 403    |     | max | .016     | 9  | .009       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 8  |
| 404    |     | min | .009     | 8  | -.011      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 9  |
| 405    |     | max | .011     | 9  | .009       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 8  |
| 406    |     | min | .007     | 8  | -.011      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 9  |
| 407    |     | max | .007     | 9  | .009       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 408    |     | min | .004     | 8  | -.011      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 9  |
| 409    |     | max | .002     | 9  | .009       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 410    |     | min | .001     | 8  | -.011      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 411    | M56 | max | 3.175    | 9  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 412    |     | min | -2.756   | 8  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 413    |     | max | 3.174    | 9  | 0          | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 414    |     | min | -2.757   | 5  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 415    |     | max | 3.173    | 9  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 416    |     | min | -2.759   | 5  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 417    |     | max | 3.171    | 9  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 418    |     | min | -2.76    | 5  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 419    |     | max | 3.17     | 12 | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 420    |     | min | -2.761   | 5  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 421    | M57 | max | 4.06     | 9  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 422    |     | min | -3.529   | 8  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 423    |     | max | 4.059    | 9  | 0          | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 424    |     | min | -3.53    | 8  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 425    |     | max | 4.058    | 9  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 426    |     | min | -3.531   | 5  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 1  |
| 427    |     | max | 4.056    | 12 | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 428    |     | min | -3.532   | 5  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 429    |     | max | 4.056    | 12 | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 430    |     | min | -3.534   | 5  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 431    | M65 | max | .776     | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 432    |     | min | -.888    | 9  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 433    |     | max | .776     | 5  | .001       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 434    |     | min | -.888    | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 435    |     | max | .776     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 436    |     | min | -.888    | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 437    |     | max | .776     | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 438    |     | min | -.888    | 9  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 439    |     | max | .776     | 5  | -.001      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 440    |     | min | -.888    | 9  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 441    | M66 | max | 1.953    | 5  | .002       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 442    |     | min | -2.243   | 9  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 443    |     | max | 1.953    | 5  | .001       | 11 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 444    |     | min | -2.243   | 9  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 445    |     | max | 1.953    | 5  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 446    |     | min | -2.243   | 9  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |



Company : Big Top  
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### 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 |
|--------|-----|-----|----------|------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 447    | 4   | max | 1.953    | 5    | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 448    |     | min | -2.243   | 9    | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 449    | 5   | max | 1.953    | 5    | -.001      | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 450    |     | min | -2.243   | 9    | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 451    | M67 | 1   | max      | .011 | 12         | .002 | 11         | 0  | 12           | 0  | 12          | 0  | 12          | 12 |
| 452    |     | min | -.009    | 8    | .001       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 453    | 2   | max | .011     | 12   | .001       | 11   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 454    |     | min | -.009    | 8    | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 455    | 3   | max | .011     | 12   | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 456    |     | min | -.009    | 8    | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 457    | 4   | max | .011     | 12   | 0          | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 458    |     | min | -.009    | 8    | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 459    | 5   | max | .011     | 12   | -.001      | 12   | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 460    |     | min | -.009    | 8    | -.002      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |

### Envelope AISC 14th(360-10): 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  | M1     | Double 2x3 w...    | .046      | 1.281   | 9  | .033      | 3       | y   | 12 | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b  |
| 2  | M2     | Double 2x3 w...    | .068      | 0       | 5  | .032      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 3  | M3     | Double 2x3 w...    | .121      | 0       | 5  | .030      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 4  | M4     | Double 2x3 w...    | .162      | 0       | 5  | .030      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 5  | M5     | Double 2x3 w...    | .247      | 1.5     | 12 | .030      | 0       | y   | 12 | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1a  |
| 6  | M6     | Double 2x3 w...    | .078      | 0       | 9  | .002      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 7  | M7     | Double 2x3 w...    | .139      | 0       | 9  | .001      | 0       | y   | 12 | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 8  | M8     | Double 2x3 w...    | .186      | 0       | 9  | .001      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 9  | M9     | Double 2x3 w...    | .245      | 3       | 9  | .000      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1a  |
| 10 | M10    | Double 2x3 w...    | .263      | 3       | 9  | .000      | 0       | y   | 12 | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1a  |
| 11 | M22    | Double 2x3 w...    | .264      | 1.5     | 12 | .029      | 0       | y   | 12 | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1a  |
| 12 | M23    | Double 2x3 w...    | .263      | 0       | 9  | .000      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1a  |
| 13 | M26    | Double 2x3 w...    | .264      | 1.5     | 12 | .030      | 3       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1a  |
| 14 | M27    | Double 2x3 w...    | .248      | 0       | 9  | .000      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1a  |
| 15 | M34    | Double 2x3 w...    | .248      | 1.469   | 12 | .030      | 3       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1a  |
| 16 | M35    | Double 2x3 w...    | .187      | 0       | 9  | .001      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 17 | M36    | Double 2x3 w...    | .162      | 0       | 5  | .030      | 3       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 18 | M37    | Double 2x3 w...    | .140      | 0       | 9  | .000      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 19 | M11    | 1.5" x 1.5" x 0... | .328      | 1.728   | 5  | .001      | 0       | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1a  |
| 20 | M12    | 1.5" x 1.5" x 0... | .258      | 1.728   | 5  | .001      | 0       | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1a  |
| 21 | M13    | 1.5" x 1.5" x 0... | .194      | 0       | 5  | .001      | 3.606   | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1b* |
| 22 | M14    | 1.5" x 1.5" x 0... | .130      | 0       | 5  | .001      | 0       | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1b* |
| 23 | M15    | 1.5" x 1.5" x 0... | .067      | 0       | 5  | .001      | 3.606   | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1b* |
| 24 | M24    | 1.5" x 1.5" x 0... | .004      | 1.765   | 5  | .001      | 3.606   | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1b  |
| 25 | M29A   | 1.5" x 1.5" x 0... | .071      | 0       | 9  | .001      | 3.606   | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1b* |
| 26 | M32    | 1.5" x 1.5" x 0... | .143      | 0       | 9  | .001      | 3.606   | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1b* |
| 27 | M33    | 1.5" x 1.5" x 0... | .220      | 1.728   | 9  | .001      | 3.606   | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1a  |
| 28 | M16    | 1.75" x 1.75" ...  | .070      | 0       | 9  | .000      | 0       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 29 | M17    | 1.75" x 1.75" ...  | .120      | 0       | 9  | .000      | 0       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 30 | M18    | 1.75" x 1.75" ...  | .092      | 0       | 9  | .000      | 0       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 31 | M19    | 1.75" x 1.75" ...  | .062      | 0       | 9  | .000      | 0       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 32 | M20    | 1.75" x 1.75" ...  | .032      | 0       | 9  | .000      | 0       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 33 | M21    | 1.75" x 1.75" ...  | .002      | 1       | 9  | .000      | 0       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b  |
| 34 | M29    | 1.75" x 1.75" ...  | .026      | 0       | 5  | .000      | 2       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 35 | M28    | 1.75" x 1.75" ...  | .052      | 0       | 5  | .000      | 2       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 36 | M30    | 1.75" x 1.75" ...  | .077      | 0       | 5  | .000      | 2       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 37 | M31    | 1.75" x 1.75" ...  | .052      | 0       | 5  | .000      | 2       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 38 | M38    | Double 2x3 w...    | .121      | 0       | 5  | .030      | 3       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |

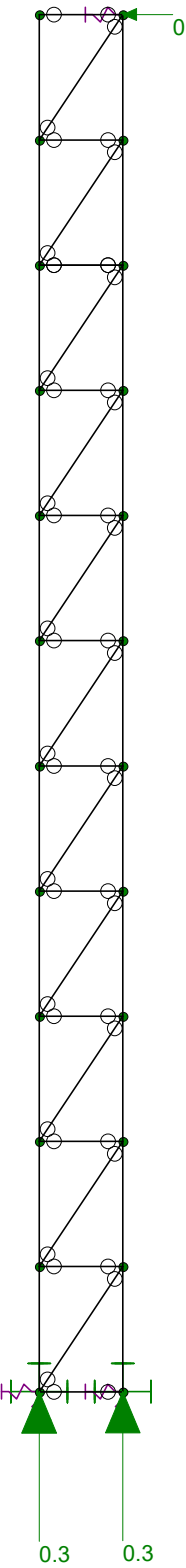
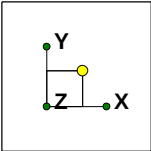


Company : Big Top  
 Designer : LS  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### ***Envelope AISC 14th(360-10): 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    |
|----|--------|--------------------|-----------|---------|----|-----------|---------|-----|----|------------|------------|-------------|-------------|------|--------|
| 39 | M39    | Double 2x3 w...    | .080      | 1.656   | 12 | .032      | 0       | y   | 12 | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b  |
| 40 | M43    | Double 2x3 w...    | .079      | 0       | 9  | .002      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b* |
| 41 | M44    | Double 2x3 w...    | .010      | 0       | 9  | .001      | 0       | y   | 9  | 43.422     | 45.229     | 5.495       | 3.193       | 1    | H1-1b  |
| 42 | M56    | 1.5" x 1.5" x 0... | .290      | 1.728   | 9  | .001      | 0       | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1a  |
| 43 | M57    | 1.5" x 1.5" x 0... | .371      | 1.728   | 9  | .001      | 0       | y   | 11 | 11.019     | 13.249     | .588        | .588        | 1... | H1-1a  |
| 44 | M65    | 1.75" x 1.75" ...  | .052      | 0       | 5  | .000      | 2       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 45 | M66    | 1.75" x 1.75" ...  | .130      | 0       | 5  | .000      | 2       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b* |
| 46 | M67    | 1.75" x 1.75" ...  | .002      | 1       | 9  | .000      | 2       | y   | 11 | 14.967     | 15.593     | .812        | .812        | 1... | H1-1b  |



Reaction and Moment Units are k and k-ft

|         |                                |                               |
|---------|--------------------------------|-------------------------------|
| Big Top | 70x220x35 World Wide Terminals | SK - 9                        |
| LS      |                                | July 1, 2020 at 9:23 AM       |
| 220-91  |                                | End Panel Truss 1 - Final.r3d |





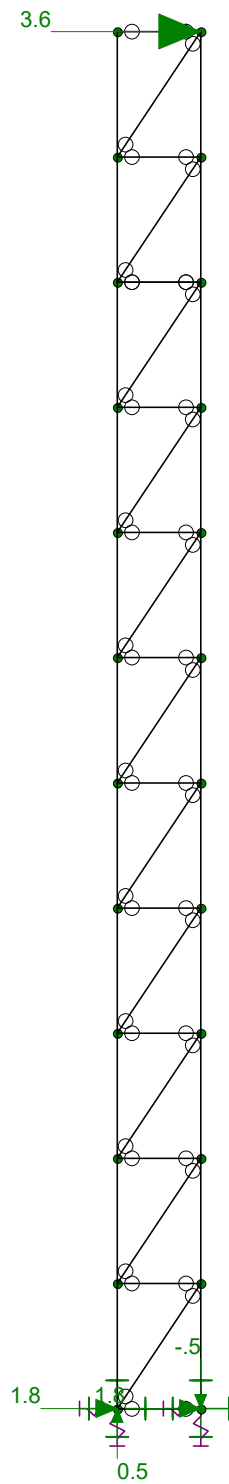
Company : Big Top  
 Designer : LS  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

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### ***Joint Reactions (By Combination)***

|   | LC | Joint Label | X [k] | Y [k]     | Z [k] | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|----|-------------|-------|-----------|-------|-----------|-----------|-----------|
| 1 | 13 | 6           | 0     | .261      | 0     | 0         | 0         | 0         |
| 2 | 13 | 5           | 0     | .259      | 0     | 0         | 0         | 0         |
| 3 | 13 | N26         | 0     | 0         | 0     | 0         | 0         | 0         |
| 4 | 13 | Totals:     | 0     | .52       | 0     |           |           |           |
| 5 | 13 | COG (ft):   | X: -1 | Y: 16.584 | Z: 0  |           |           |           |

**Above reactions are due to Dead load (DL) only with a factor of 1.0**



Reaction and Moment Units are k and k-ft

Big Top

LS

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70x220x35 World Wide Terminals

SK - 10

July 1, 2020 at 9:24 AM

End Panel Truss 1 - Final.r3d



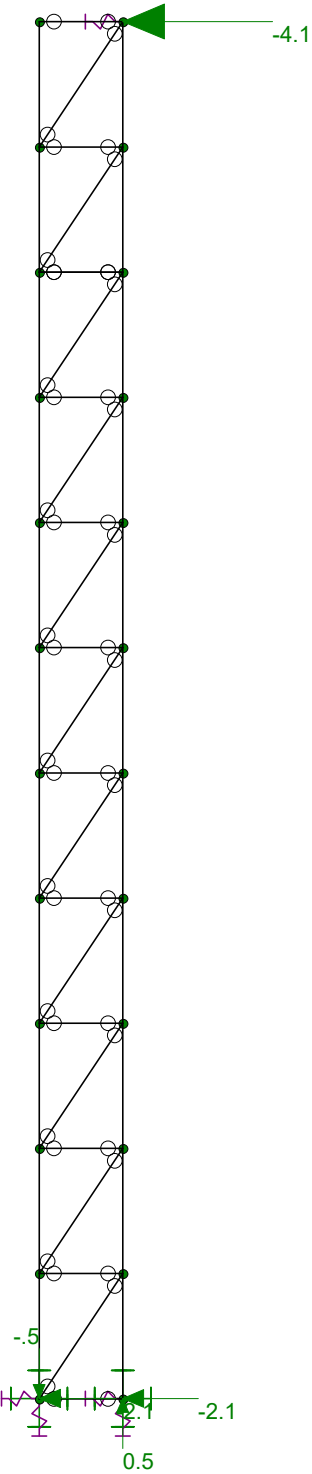
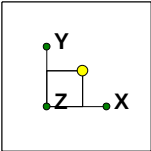
Company : Big Top  
 Designer : LS  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:24 AM  
 Checked By: \_\_\_\_\_

### ***Joint Reactions (By Combination)***

|   | LC | Joint Label | X [k] | Y [k] | Z [k] | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|----|-------------|-------|-------|-------|-----------|-----------|-----------|
| 1 | 15 | 6           | 1.826 | .472  | 0     | 0         | 0         | 0         |
| 2 | 15 | 5           | 1.799 | -.472 | 0     | 0         | 0         | 0         |
| 3 | 15 | N26         | 3.569 | 0     | 0     | 0         | 0         | 0         |
| 4 | 15 | Totals:     | 7.194 | 0     | 0     |           |           |           |
| 5 | 15 | COG (ft):   | NC    | NC    | NC    |           |           |           |

**Above reactions are due to Wind Load in the Z-direction (for +GCPi) only with a factor of 1.0**



Reaction and Moment Units are k and k-ft

|         |                                |                               |
|---------|--------------------------------|-------------------------------|
| Big Top | 70x220x35 World Wide Terminals | SK - 11                       |
| LS      |                                | July 1, 2020 at 9:24 AM       |
| 220-91  |                                | End Panel Truss 1 - Final.r3d |



Company : Big Top  
 Designer : LS  
 Job Number : 220-91  
 Model Name : 70x220x35 World Wide Terminals

July 1, 2020  
 9:24 AM  
 Checked By: \_\_\_\_\_

### ***Joint Reactions (By Combination)***

|   | LC | Joint Label | X [k]  | Y [k] | Z [k] | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|----|-------------|--------|-------|-------|-----------|-----------|-----------|
| 1 | 16 | 6           | -2.104 | -.543 | 0     | 0         | 0         | 0         |
| 2 | 16 | 5           | -2.072 | .543  | 0     | 0         | 0         | 0         |
| 3 | 16 | N26         | -4.107 | 0     | 0     | 0         | 0         | 0         |
| 4 | 16 | Totals:     | -8.283 | 0     | 0     |           |           |           |
| 5 | 16 | COG (ft):   | NC     | NC    | NC    |           |           |           |

**Above reactions are due to Wind Load in the Z-direction (for -GCPI) only with a factor of 1.0**

## New Anchoring Design Calculations



**Report Of: Site Inspection**

**Lab No: 53569-3**

**Report No: 001**

**Project No: 20-2717**

**Page 1 of 1**

**Client:** Ocean, Highway & Port Authority  
86130 License Rd  
Suite #9  
Fernandina Beach, FL 32034

**Project:** Warehouse Project

**Location:** Drilled Cores for Proposed Building

**Report Date:** 07/29/2020

**Test Date:** 07/27/2020

**Tested By:** Alligood, Brandon

**By Order Of:** Stanley Herrington

On this date, a representative of Legacy Engineering, Inc. visited the above referenced project site to observe the construction operations. This report presents the results of the inspection.

This inspection consisted of performing 8 asphalt/concrete cores. Each location was cored to check the asphalt thickness and the concrete thickness below the asphalt. The locations are numbered 1 through 4 for the East side and 1 to 4 for the West side, starting from the North end of the proposed building. The results of the cores are as follows:

East Side - 1. Asphalt - 4" Concrete - 9.75"

2. Asphalt - 5" Concrete - 10"

3. Asphalt - 4" Concrete - 9"

4. Asphalt - 4.1875" Concrete - 9.75";

West Side - 1. Asphalt - 4.75" Concrete - 11.5"(concrete was broken when core was removed)

2. Asphalt - 4.25" Concrete - 12"

3. Asphalt - 2"(appeared to be millings between asphalt and concrete) Concrete - 11.375"

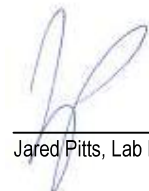
4. Asphalt - .75"(appeared to be millings between asphalt and concrete) Concrete - 11.75". All concrete core samples that are able, will be broken for compressive strength. All holes were patched back with concrete.

Thank you for allowing Legacy Engineering, Inc. the opportunity to provide inspection services for this project. If you should have any questions and/or comments regarding this report, please contact us.

Remarks: Job Time - 08:00 to 15:00 = 7.0 Hrs

Orig: Ocean, Highway & Port Authority  
(1-ec copy)  
1-cc Laboratory

Respectfully Submitted,  
Legacy Engineering, Inc.



Jared Pitts, Lab Manager

**Report Of: Compressive Strength of Concrete Cores (ASTM C42)**

**Lab No: 53569-4**

**Report No: 002**

**Project No: 20-2717**

**Page 1 of 2**

**Client:** Ocean, Highway & Port Authority  
86130 License Rd  
Suite #9  
Fernandina Beach, FL 32034

**Project:** Warehouse Project

**Location:** Proposed Building Area

**Report Date:** 07/31/2020

**Test Date:** 07/27/2020

**Tested By:** Brandon Alligood

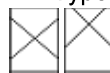
**By Order Of:** Stanley Herrington

**CORE DATA**

| Nbr | Core Location   | Diameter<br>(in) | Length<br>Before<br>Trimming<br>(in) | Before<br>Cap<br>Length<br>(in) | After<br>Cap<br>Length<br>(in) | Area |
|-----|-----------------|------------------|--------------------------------------|---------------------------------|--------------------------------|------|
| 1   | Westside Core 1 |                  |                                      |                                 |                                |      |
| 2   | Westside Core 2 | 2.70             | 10.00                                | 5.2                             | 5.3                            | 5.73 |
| 3   | Westside Core 3 | 2.69             | 9.00                                 | 5.1                             | 5.3                            | 5.68 |
| 4   | Westside Core 4 | 2.69             | 9.75                                 | 5.3                             | 5.5                            | 5.68 |
| 5   | Eastside Core 1 | 2.70             | 11.50                                | 5.6                             | 5.8                            | 5.73 |
| 6   | Eastside Core 2 | 2.70             | 12.00                                | 5.5                             | 5.7                            | 5.73 |
| 7   | Eastside Core 3 | 2.70             | 11.25                                | 5.5                             | 5.7                            | 5.73 |
| 8   | Eastside Core 4 | 2.70             | 11.75                                | 5.5                             | 5.7                            | 5.73 |

**TEST DATA**

| Nbr                                                                        | Date Tested | Maximum<br>Load<br>(lbs) | Break Type | Compressive<br>Strength<br>(PSI) | Average<br>Strength<br>(PSI) | Direction<br>of Load to<br>Placement | Moisture<br>Condition |
|----------------------------------------------------------------------------|-------------|--------------------------|------------|----------------------------------|------------------------------|--------------------------------------|-----------------------|
| 1                                                                          | 07/31/20    |                          |            |                                  |                              | Perpendicular                        | Conditioned           |
| Comments: Length < Diameter does not meet ASTM C42 criteria for this test, |             |                          |            |                                  |                              | Not Tested                           |                       |
| 2                                                                          | 07/31/20    | 26,031                   | Type 3     | 4,550                            |                              | Perpendicular                        | Conditioned           |
| 3                                                                          | 07/31/20    | 31,175                   | Type 3     | 5,490                            |                              | Perpendicular                        | Conditioned           |
| 4                                                                          | 07/31/20    | 31,437                   | Type 3     | 5,530                            |                              | Perpendicular                        | Conditioned           |
| 5                                                                          | 07/31/20    | 28,573                   | Type 3     | 4,990                            |                              | Perpendicular                        | Conditioned           |
| 6                                                                          | 07/31/20    | 21,627                   | Type 3     | 3,780                            |                              | Perpendicular                        | Conditioned           |
| 7                                                                          | 07/31/20    | 33,101                   | Type 3     | 5,780                            |                              | Perpendicular                        | Conditioned           |
| 8                                                                          | 07/31/20    | 28,618                   | Type 3     | 5,000                            | 5,020                        | Perpendicular                        | Conditioned           |



Type 1



Type 2



Type 3



Type 4



Type 5



Type 6

Orig: Ocean, Highway & Port Authority  
(1-ec copy)  
1-cc Laboratory

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**Report Of: Compressive Strength of Concrete Cores (ASTM C42)**

**Lab No: 53569-4**

**Report No: 002**

**Project No: 20-2717**

**Page 2 of 2**

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**Client:** Ocean, Highway & Port Authority  
86130 License Rd  
Suite #9  
Fernandina Beach, FL 32034

**Project:** Warehouse Project

**Location:** Proposed Building Area

**Report Date:** 07/31/2020

**Test Date:** 07/27/2020

**Tested By:** Brandon Alligood

**By Order Of:** Stanley Herrington

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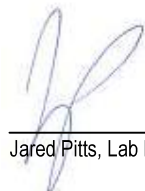
Date Poured: 07/27/2020

Transported By:

Remarks: Referenced from the north end of the building. The westside Core 1 was broken during coring operations.  
Test Method (As Applicable): ASTM C39, C42, C174, Reference ACI-318

Orig: Ocean, Highway & Port Authority  
(1-ec copy)  
1-cc Laboratory

Respectfully Submitted,  
Legacy Engineering, Inc.



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Jared Pitts, Lab Manager

### 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     | 33 | 2.7     | 23 | 1.912 | 33 | 0         | 33 | 0         | 33 | 0         | 33 |
| 2  |         | min | 0     | 17 | -4.883  | 28 | -.639 | 23 | 0         | 17 | 0         | 17 | 0         | 17 |
| 3  | 2       | max | 0     | 33 | 1.786   | 23 | 1.935 | 33 | 0         | 33 | 0         | 33 | 0         | 33 |
| 4  |         | min | 0     | 17 | -2.548  | 28 | -.648 | 23 | 0         | 17 | 0         | 17 | 0         | 17 |
| 5  | 3       | max | 0     | 33 | 1.787   | 23 | .648  | 23 | 0         | 33 | 0         | 33 | 0         | 33 |
| 6  |         | min | 0     | 17 | -3.062  | 28 | -.147 | 33 | 0         | 17 | 0         | 17 | 0         | 17 |
| 7  | 4       | max | 0     | 33 | 2.702   | 23 | .639  | 23 | 0         | 33 | 0         | 33 | 0         | 33 |
| 8  |         | min | 0     | 17 | -3.321  | 28 | -.145 | 33 | 0         | 17 | 0         | 17 | 0         | 17 |
| 9  | Totals: | max | 0     | 33 | 8.976   | 23 | 3.555 | 28 |           |    |           |    |           |    |
| 10 |         | min | 0     | 17 | -13.813 | 28 | 0     | 17 |           |    |           |    |           |    |

Reactions due to LRFD combinations

Company: Big Top Manufacturing Inc.  
Agent: Mo  
Address:  
Project: 220-91  
Comments:

E-Mail:  
Phone:  
Fax:  
Date: 8/5/2020  
Page: 1 / 5

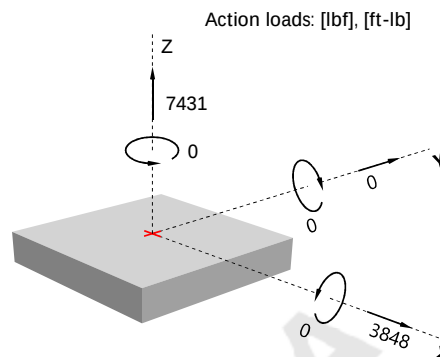
## 1. Input Data

Base material: • Cracked concrete, Thickness of base material  $h=9.000$ inch  
User-defined strength class,  $f'_c=4550$ psi  
• Tension Condition B, Shear Condition B  
• Normal weight concrete  
• No edge and stirrup reinforcement  
• Long-term temperature 75°F, Short-term temperature 104°F  
• Hammer drilled, dry hole

Action loads: • Predominant static design loads

Action loads: [lbf], [ft-lb]

|              | $N_z$ | $V_x$ | $V_y$ | $M_z$ | $M_x$ | $M_y$ |
|--------------|-------|-------|-------|-------|-------|-------|
| $F_{design}$ | 7431  | 3848  | 0     | 0     | 0     | 0     |
| $F_{sus}$    | 0     | -     | -     | -     | 0     | 0     |



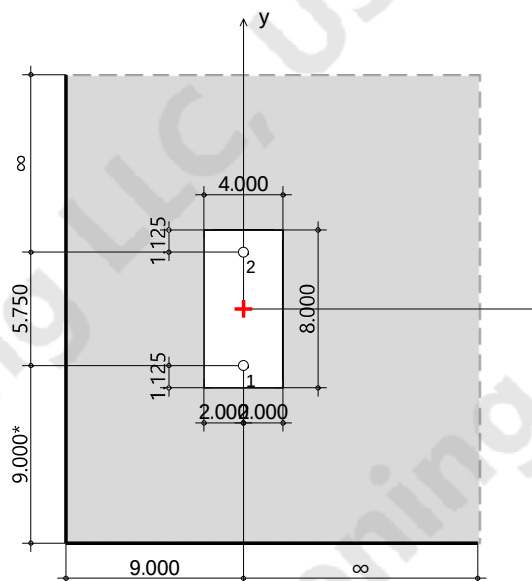
Installation: • Base plate lies on the concrete surface directly  
• Without gap filling

Base plate: • A36,  $E=29007$ ksi  
 $f_{yk}=36258$ psi,  $\gamma_s=1.35$   
• Assumed: rigid plate  
• Current thickness: 0.250inch  
• Required thickness is not calculated.  
• Rectangle  
Side length: 4.000 x 8.000 inch

Profile: • No profile  
Action point [inch]: [0.000, 0.000]

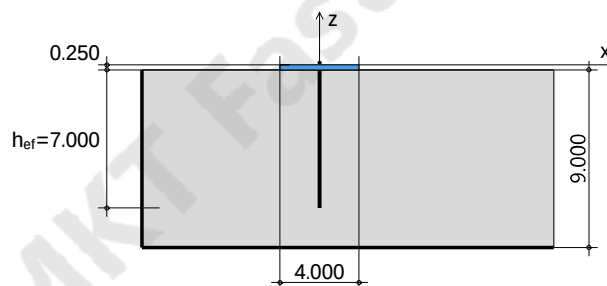
Coordinates of anchors [inch]:

| No. | x     | y      | Slotted hole | L-x | L-y |
|-----|-------|--------|--------------|-----|-----|
| 1   | 0.000 | -2.875 |              |     |     |
| 2   | 0.000 | 2.875  |              |     |     |



Selected anchors:

- LiquidRoc 200/VMH+Threaded Rod A449 1/2"
- Injection anchor Vinylester
- Zinc plated
- Design based on ACI 318-14
- Approval ESR-4252
- Issued by ICC, on 6/1/2018
- Valid until 6/1/2019
- Anchorage depth  $h_{ef} = 7.000$  inch
- Drilled hole  $\Phi \times h_0 = 0.562 \times 7.000$  inch



(\* drawn not to scale)

## MKT Fastening 2.1.3 - Extended report

Company: Big Top Manufacturing Inc.  
 Agent: Mo  
 Address:  
 Project: 220-91  
 Comments:

E-Mail:  
 Phone:  
 Fax:  
 Date: 8/5/2020  
 Page: 2 / 5

## 2. Anchor internal forces and verification of base plate bending stiffness

Anchor internal forces [lbf]

| Anchor No. | Tension | Shear | Shear x | Shear y | N <sub>sus</sub> |
|------------|---------|-------|---------|---------|------------------|
| 1          | 3715    | 1924  | 1924    | 0       | 0                |
| 2          | 3715    | 1924  | 1924    | 0       | 0                |

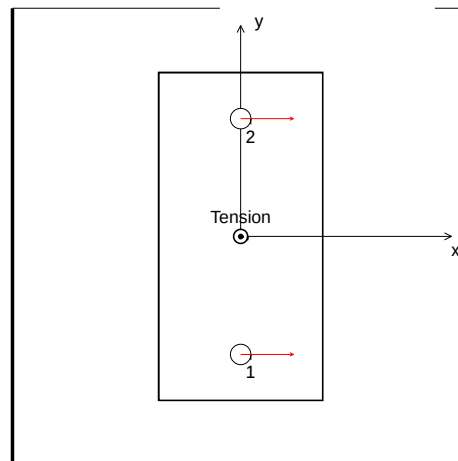
Maximum concrete compressive strain [%]: 0.0000

Maximum concrete compressive stress: 0.00 [psi]

Resultant tension force in (x/y=0.000/0.000): 7431 [lbf]

Resultant compression force in (x/y=0.000/0.000): 0 [lbf]

Remark: The edge distance is not to scale.



Conditions of verification:

a)  $\sigma \leq f_{yd}$

b)  $N_r^h \approx N_e^h$

$N_r^h$ : highest anchor tension force on flexurally rigid base plate

$N_e^h$ : highest anchor tension force on elastic base plate

The proof of the base plate bending stiffness was not carried out.

## 3. Verification at ultimate limit state based on ACI 318-14

### 3.1 Tension load

|                       | Related anchor | Action [lbf] | Resistance [lbf] | Utilization [%] | Status |
|-----------------------|----------------|--------------|------------------|-----------------|--------|
| Steel failure         | 1,2            | 3715         | 12814            | 29.0            | ✓      |
| Combined failure      | 1,2            | 7431         | 10858            | 68.4            | ✓      |
| Creep failure         | 1,2            | 0            | 4338             | 0.0             | ✓      |
| Concrete cone failure | 1,2            | 7431         | 14732            | 50.4            | ✓      |

Steel failure

$$N_{Rd,s} = N_{sa} \cdot \phi_{s,N} \quad \beta_{N,s} = N_{ua} / N_{Rd,s}$$

| N <sub>sa</sub><br>[lbf] | $\phi_{s,N}$ | N <sub>Rd,s</sub><br>[lbf] | N <sub>ua</sub><br>[lbf] | $\beta_{N,s}$ |
|--------------------------|--------------|----------------------------|--------------------------|---------------|
| 17085                    | 0.75         | 12814                      | 3715                     | 0.290         |



## MKT Fastening 2.1.3 - Extended report

Company: Big Top Manufacturing Inc.  
Agent: Mo  
Address:  
Project: 220-91  
Comments:

E-Mail:  
Phone:  
Fax:  
Date: 8/5/2020  
Page: 3 / 5

## Combined pull-out and concrete cone failure

|                                                                                              |                |             |                                                                         |                      |                                        |                                                     |                                |               |             |             |               |
|----------------------------------------------------------------------------------------------|----------------|-------------|-------------------------------------------------------------------------|----------------------|----------------------------------------|-----------------------------------------------------|--------------------------------|---------------|-------------|-------------|---------------|
| $N_{ag} = N_{ba} \cdot \psi_{A,Na} \cdot \psi_{ec,Na} \cdot \psi_{ed,Na} \cdot \psi_{cp,Na}$ |                |             | $N_{ba} = \lambda_a \cdot \tau \cdot \pi \cdot d_a \cdot l_b$           |                      | $\tau = \tau_0 \cdot \psi_c \cdot k_w$ | $\tau_{uncr} = \tau_{uncr0} \cdot \psi_c \cdot k_w$ |                                |               |             |             |               |
| $c_{Na} = 10 \cdot d_a \cdot (\tau_{uncr} / 7.6)^{0.5}$ (metric)                             |                |             | $c_{Na} = 10 \cdot d_a \cdot (\tau_{uncr} / 1100)^{0.5}$ (imperial)     |                      | $S_{Na} = 2 \cdot c_{Na}$              | $A_{Na0} = S_{Na}^2$                                | $\psi_{A,Na} = A_{Na}/A_{Na0}$ |               |             |             |               |
| $\psi_{ed,Na} = 0.7 + 0.3 \cdot c_{a,min} / c_{Na} \leq 1.0$                                 |                |             | $c_{Na} / c_{ac} \leq \psi_{cp,Na}(uncr) = c_{a,min} / c_{ac} \leq 1.0$ |                      |                                        | $\psi_{cp,Na}(cr) = 1.0$                            |                                |               |             |             |               |
| $\psi_{ec,Na} = 1 / (1 + e'_N / c_{Na}) \leq 1.0$                                            |                |             | $N_{Rd,Na} = N_{ag} \cdot \phi_{c,Na}$                                  |                      | $\beta_{N,a} = N_{ua} / N_{Rd,Na}$     |                                                     |                                |               |             |             |               |
| $\tau_0$                                                                                     | $\tau_{uncr0}$ | $\tau$      | $\tau_{uncr}$                                                           | $\psi_c$             | $\lambda_a$                            | $d_a$                                               | $k_w$                          | $N_{ba}$      | $c_{ac}$    | $c_{a,min}$ |               |
| [psi]                                                                                        | [psi]          | [psi]       | [psi]                                                                   |                      |                                        | [inch]                                              | [inch]                         | [lbf]         | [inch]      | [inch]      |               |
| 1041                                                                                         | 2415           | 1103        | 2560                                                                    | 1.06                 | 1.00                                   | 0.500                                               | 1.00                           | 12134         | 21.134      | 9.000       |               |
| $h_{ef}$                                                                                     | $l_b$          | $S_{Na}$    | $c_{Na}$                                                                | $A_{Na}$             | $A_{Na0}$                              | $\psi_{A,Na}$                                       |                                |               |             |             |               |
| [inch]                                                                                       | [inch]         | [inch]      | [inch]                                                                  | [inch <sup>2</sup> ] | [inch <sup>2</sup> ]                   |                                                     |                                |               |             |             |               |
| 7.000                                                                                        | 7.000          | 15.240      | 7.620                                                                   | 319.720              | 232.243                                | 1.377                                               |                                |               |             |             |               |
| $\psi_{ed,Na}$                                                                               | $e'_{Na,x}$    | $e'_{Na,y}$ | $\psi_{ec,Na,x}$                                                        | $\psi_{ec,Na,y}$     | $\psi_{ec,Na}$                         | $\psi_{cp,Na}$                                      | $N_{ag}$                       | $\phi_{c,Na}$ | $N_{Rd,Na}$ | $N_{ua}$    | $\beta_{N,a}$ |
|                                                                                              | [inch]         | [inch]      |                                                                         |                      |                                        |                                                     | [lbf]                          |               | [lbf]       | [lbf]       |               |
| 1.000                                                                                        | 0.0            | 0.0         | 1.000                                                                   | 1.000                | 1.000                                  | 1.000                                               | 16704                          | 0.65          | 10858       | 7431        | 0.684         |

## Creep failure

|                                                    |               |                                           |                       |                 |  |
|----------------------------------------------------|---------------|-------------------------------------------|-----------------------|-----------------|--|
| $N_{Rd,sus} = 0.55 \cdot N_{ba} \cdot \phi_{cp,N}$ |               | $\beta_{N,sus} = N_{ua,sus} / N_{Rd,sus}$ |                       |                 |  |
| $N_{ba}$<br>[lbf]                                  | $\phi_{cp,N}$ | $N_{Rd,sus}$<br>[lbf]                     | $N_{ua,sus}$<br>[lbf] | $\beta_{N,sus}$ |  |
| 12134                                              | 0.65          | 4338                                      | 0                     | 0.000           |  |

## Concrete cone failure

|                                                                                                         |                     |                                                    |               |                                                                   |                                                               |                                        |                 |                                    |                      |                             |                     |                               |                |
|---------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------|---------------|-------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------|-----------------|------------------------------------|----------------------|-----------------------------|---------------------|-------------------------------|----------------|
| $N_{cbg} = \psi_{A,N} \cdot \psi_{ec,N} \cdot \psi_{ed,N} \cdot \psi_{c,N} \cdot \psi_{cp,N} \cdot N_b$ |                     |                                                    |               | $N_b = k_c \cdot \lambda_a \cdot (f_c')^{0.5} \cdot h_{ef}^{1.5}$ |                                                               |                                        |                 | $\psi_{A,N} = A_{Nc}/A_{Nc0}$      |                      | $S_{cr,N} = 3 \cdot h_{ef}$ |                     | $C_{cr,N} = 1.5 \cdot h_{ef}$ |                |
| $A_{Nc0} = S_{cr,N}^2$                                                                                  |                     | $\psi_{ec,N} = 1 / (1 + e'_N / C_{cr,N}) \leq 1.0$ |               |                                                                   | $\psi_{ed,N} = 0.7 + 0.3 \cdot c_{a,min} / C_{cr,N} \leq 1.0$ |                                        |                 |                                    |                      |                             |                     |                               |                |
| $C_{cr,N} / c_{ac} \leq \psi_{cp,N} \text{ (uncr)} = c_{a,min} / c_{ac} \leq 1.0$                       |                     |                                                    |               | $\psi_{cp,N} \text{ (cr)} = 1.0$                                  |                                                               | $N_{Rd,c} = \phi_{cb,N} \cdot N_{cbg}$ |                 | $\beta_{N,cb} = N_{ua} / N_{Rd,c}$ |                      |                             |                     |                               |                |
| $N_b$<br>[lbf]                                                                                          | $A_{Nc}$<br>[inch²] | $A_{Nc0}$<br>[inch²]                               | $\psi_{A,N}$  | $k_c$                                                             | $\lambda_a$                                                   | $f_c'$<br>[psi]                        | $\phi_{cb,N}$   | $h_{ef}$<br>[inch]                 | $S_{cr,N}$<br>[inch] | $C_{cr,N}$<br>[inch]        |                     |                               |                |
| 21195                                                                                                   | 492.688             | 440.999                                            | 1.117         | 17                                                                | 1.000                                                         | 4550                                   | 0.65            | 7.000                              | 21.000               | 10.500                      |                     |                               |                |
| $c_{a,min}$<br>[inch]                                                                                   | $c_{ac}$<br>[inch]  | $\psi_{ed,N}$                                      | $\psi_{cp,N}$ | $e'_{N,x}$<br>[inch]                                              | $e'_{N,y}$<br>[inch]                                          | $\psi_{ec,N,x}$                        | $\psi_{ec,N,y}$ | $\psi_{ec,N}$                      | $\psi_{c,N}$         | $N_{cbg}$<br>[lbf]          | $N_{Rd,c}$<br>[lbf] | $N_{ua}$<br>[lbf]             | $\beta_{N,cb}$ |
| 9.000                                                                                                   | 21.134              | 0.957                                              | 1.000         | 0.000                                                             | 0.000                                                         | 1.000                                  | 1.000           | 1.000                              | 1.000                | 22665                       | 14732               | 7431                          | 0.504          |

## 3.2 Shear

|                            | Related anchor | Action [lbf] | Resistance [lbf] | Utilization [%] | Status |
|----------------------------|----------------|--------------|------------------|-----------------|--------|
| Steel failure (o.H.)       | 1,2            | 1924         | 6722             | 28.6            | ✓      |
| Pryout                     | 1,2            | 3848         | 23385            | 16.5            | ✓      |
| Concrete edge failure (y-) | 1,2            | 3848         | 15279            | 25.2            | ✓      |

## Steel failure without lever arm

|                                      |              |                                   |                   |               |  |
|--------------------------------------|--------------|-----------------------------------|-------------------|---------------|--|
| $V_{Rd,s} = V_{sa} \cdot \phi_{s,V}$ |              | $\beta_{V,s} = V_{ua} / V_{Rd,s}$ |                   |               |  |
| $V_{sa}$<br>[lbf]                    | $\phi_{s,V}$ | $V_{Rd,s}$<br>[lbf]               | $V_{ua}$<br>[lbf] | $\beta_{V,s}$ |  |
| 10341                                | 0.65         | 6722                              | 1924              | 0.286         |  |

## MKT Fastening 2.1.3 - Extended report

Company: Big Top Manufacturing Inc.  
Agent: Mo  
Address:  
Project: 220-91  
Comments:

E-Mail:  
Phone:  
Fax:  
Date: 8/5/2020  
Page: 4 / 5

Pryout-failure ( $N_{ag}$  - Eq. (17.4.5.1a, b) Decisive)

$$V_{cp,g} = k_{cp} \cdot N_{cp,g} \quad N_{cp,g} = N_{ag} = N_{ba} \cdot \psi_{A,Na} \cdot \psi_{ec,V,cp} \cdot \psi_{ed,Na} \cdot \psi_{cp,Na} \quad N_{ba} = \lambda_a \cdot \tau \cdot \pi \cdot d_a \cdot h_{ef} \quad \tau = \tau_0 \cdot \psi_c \cdot k_w$$

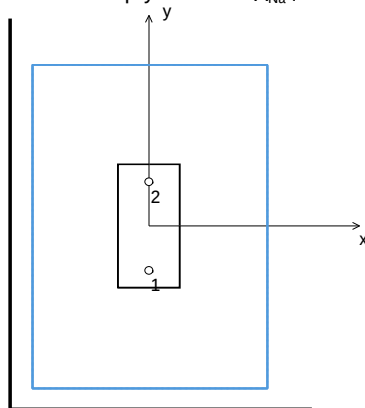
$$C_{Na} = 10 \cdot d_a \cdot (\tau_{uncr} / 7.6)^{0.5} \text{ (metric)} \quad C_{Na} = 10 \cdot d_a \cdot (\tau_{uncr} / 1100)^{0.5} \text{ (imperial)} \quad \tau_{uncr} = \tau_{uncr0} \cdot \psi_c \cdot k_w$$

$$\psi_{ed,Na} = 0.7 + 0.3 \cdot C_{a,min} / C_{Na} \leq 1.0 \quad \psi_{ec,V,cp} = 1 / (1 + e'_{V,cp} / C_{Na}) \leq 1.0 \quad S_{Na} = 2 \cdot C_{Na} \quad A_{Na0} = S_{Na}^2 \quad \psi_{A,Na} = A_{Na} / A_{Na0}$$

$$C_{Na} / C_{ac} \leq \psi_{cp,Na}(uncr) = C_{a,min} / C_{ac} \leq 1.0 \quad \psi_{cp,Na}(cr) = 1.0 \quad V_{Rd,cp} = V_{cp} \cdot \phi_{c,V} \quad \beta_{V,cp} = V_{ua} / V_{Rd,cp}$$

| $\tau_0$<br>[psi] | $\tau_{uncr0}$<br>[psi]          | $\tau$<br>[psi]                   | $\tau_{uncr}$<br>[psi]  | $\psi_c$           | $d_a$<br>[inch]    | $h_{ef}$<br>[inch]    | $S_{Na}$<br>[inch] | $C_{Na}$<br>[inch] | $\lambda_a$          | $k_w$             | $C_{ac}$<br>[inch] |
|-------------------|----------------------------------|-----------------------------------|-------------------------|--------------------|--------------------|-----------------------|--------------------|--------------------|----------------------|-------------------|--------------------|
| 1041              | 2415                             | 1103                              | 2560                    | 1.06               | 0.500              | 7.000                 | 15.240             | 7.620              | 1.00                 | 1.00              | 21.134             |
| $N_{ba}$<br>[lbf] | $A_{Na}$<br>[inch <sup>2</sup> ] | $A_{Na0}$<br>[inch <sup>2</sup> ] | $\psi_{A,Na}$           | $k_{cp}$           | $\phi_{c,V}$       | $C_{a,min}$<br>[inch] |                    |                    |                      |                   |                    |
| 12134             | 319.720                          | 232.243                           | 1.377                   | 2.0                | 0.70               | 9.000                 |                    |                    |                      |                   |                    |
| $\psi_{ed,Na}$    | $\psi_{cp,Na}$                   | $e'_{V,cp,x}$<br>[inch]           | $e'_{V,cp,y}$<br>[inch] | $\psi_{ec,V,cp,x}$ | $\psi_{ec,V,cp,y}$ | $\psi_{ec,V,cp}$      | $N_{ag}$<br>[lbf]  | $V_{cp}$<br>[lbf]  | $V_{Rd,cp}$<br>[lbf] | $V_{ua}$<br>[lbf] | $\beta_{V,cp}$     |
| 1.000             | 1.000                            | 0.000                             | 0.000                   | 1.000              | 1.000              | 1.000                 | 16704              | 33408              | 23385                | 3848              | 0.165              |

Related area for calculation of pryout failure  $A_{Na}$  :



## Concrete edge failure, direction y-

$$V_{cbg} = \psi_{A,V} \cdot \psi_{ec,V} \cdot \psi_{ed,V} \cdot \psi_{c,V} \cdot \psi_{h,V} \cdot \psi_{\alpha,V} \cdot V_b \quad \psi_{A,V} = A_{Vc} / A_{Vc0} \quad \psi_{\alpha,V} = [1 / (\cos^2 \alpha_V + 0.25 \sin^2 \alpha_V)]^{0.5} \geq 1.0$$

$$V_{b,a} = k_{c,a} \cdot (l_e / d_a)^{0.2} \cdot d_a^{0.5} \cdot \lambda_a \cdot (f'_c)^{0.5} \cdot c_{a1}^{1.5} \quad V_{b,b} = k_{c,b} \cdot \lambda_a \cdot (f'_c)^{0.5} \cdot c_{a1}^{1.5} \quad V_b = \min(V_{b,a}, V_{b,b}) \quad l_e = \min(h_{ef}, 8d_a)$$

$$\psi_{ec,V} = 1 / [1 + 2e'_V / (3c_{a1})] \leq 1.0 \quad \psi_{ed,V} = 0.7 + 0.3 \cdot c_{a2} / (1.5c_{a1}) \leq 1.0 \quad \psi_{h,V} = (1.5 c_{a1} / h_a)^{0.5} \geq 1.0$$

$$V_{Rd,c} = V_{cbg} \cdot \phi_{c,V} \quad \beta_{V,cb} = V_{ua} / V_{Rd,c}$$

| $k_{c,a}$                        | $k_{c,b}$                         | $h_{ef}$<br>[inch] | $\lambda_a$  | $f_c'$<br>[psi]   | $\phi_{c,V}$     | $c_{a1}$<br>[inch] | $c'_{a1}$<br>[inch] | $c_{a2}$<br>[inch] | $V_b$<br>[lbf]      | $\psi_{ed,V}$     | $d_a$<br>[inch] | $l_e$<br>[inch] |
|----------------------------------|-----------------------------------|--------------------|--------------|-------------------|------------------|--------------------|---------------------|--------------------|---------------------|-------------------|-----------------|-----------------|
| 7.23                             | 8.84                              | 7.000              | 1.000        | 4550              | 0.70             | 14.750             | -                   | 9.000              | 29593               | 0.822             | 0.500           | 4.000           |
| $A_{Vc}$<br>[inch <sup>2</sup> ] | $A_{Vc0}$<br>[inch <sup>2</sup> ] | $\psi_{A,V}$       | $\psi_{h,V}$ | $\psi_{\alpha,V}$ | $e'_V$<br>[inch] | $\psi_{ec,V}$      | $\psi_{c,V}$        | $V_{cbg}$<br>[lbf] | $V_{Rd,c}$<br>[lbf] | $V_{ua}$<br>[lbf] | $\beta_{V,cb}$  |                 |
| 280.124                          | 979.029                           | 0.286              | 1.568        | 2.000             | 0.000            | 1.000              | 1.000               | 21827              | 15279               | 3848              | 0.252           |                 |

# MKT Fastening 2.1.3 - Extended report

Company: Big Top Manufacturing Inc.  
Agent: Mo  
Address:  
Project: 220-91  
Comments:

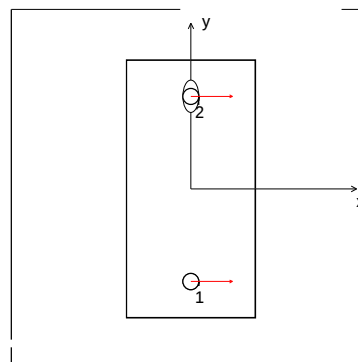
E-Mail:  
Phone:  
Fax:  
Date: 8/5/2020  
Page: 5 / 5

Concrete edge y - 2 close-by anchors (except the anchor(s) with slotted hole(s) in y-direction) in the first row are assumed to bear the shear load perpendicular to the edge, if there are more than 2 anchors in the row.

The worst case: Anchor 1 bears the shear load perpendicular to the edge (y-). The torsional moment is carried by all anchors.

Shear forces [lbf]:

| Anchor No. | Q    | Qx   | Qy | Qx_V | Qy_V | Qx_T | Qy_T |
|------------|------|------|----|------|------|------|------|
| 1          | 1924 | 1924 | 0  | 1924 | 0    | 0    | 0    |
| 2          | 1924 | 1924 | 0  | 1924 | 0    | 0    | 0    |



Explanation:

1. Qx\_V, Qy\_V are the x- and y-components of Anchor forces from the shear loads.
2. Qx\_T, Qy\_T are the x- and y-components of Anchor forces from the torsional moment.
3. The assumed slotted holes showed in the figure are not active for the calculation of shear force components Qx\_T and Qy\_T from the torsional moment. They serve as only for the calculation of shear load components from Qx\_V and Qy\_V.
4. Edge distance is not to scale.

## 3.3 Combined tension and shear

|          | Anchor | Tension( $\beta_N$ ) | Shear( $\beta_V$ ) | Condition                                | Utilization [%] | Status |
|----------|--------|----------------------|--------------------|------------------------------------------|-----------------|--------|
| Steel    | 1,2    | 0.290                | 0.286              | $\beta_N^2 + \beta_V^2 \leq 1.0$         | 16.6            | ✓      |
| Concrete | 1,2    | 0.684                | 0.252              | $\beta_N^{5/3} + \beta_V^{5/3} \leq 1.0$ | 63.2            | ✓      |

## Anchor-related utilization

| A-No. | $\beta_{N,s}$ | $\beta_{N,a}$ | $\beta_{N,cb}$ | $\beta_{N,sus}$ | $\beta_{V,s}$ | $\beta_{V,cp}$ | $\beta_{V,cb}$ | $\beta_{N,c,max,E}$ | $\beta_{V,c,max,E}$ | $\beta_{combi,c,E}$ | $\beta_{combi,s,E}$ |
|-------|---------------|---------------|----------------|-----------------|---------------|----------------|----------------|---------------------|---------------------|---------------------|---------------------|
| 1     | 0.290         | 0.684         | 0.504          | 0.000           | 0.286         | 0.165          | 0.252          | 0.684               | 0.252               | 0.632               | 0.166               |
| 2     | 0.290         | 0.684         | 0.504          | 0.000           | 0.286         | 0.165          | 0.252          | 0.684               | 0.252               | 0.632               | 0.166               |

## 4. Remarks

- For connections with flexurally rigid base plate, it is assumed that the base plate is sufficiently stiff. To verify the sufficient baseplate bending stiffness, the stiffness condition according to the publication "Required Thickness of Flexurally Rigid Baseplate for Anchor Fastenings" (fib Symposium 2017 Maastricht) is used in this software.
- For connections with an elastic base plate, the anchor tension forces are calculated with the finite element method with consideration of deformations of base plate, anchors and concrete. Background for design with elastic base plates is described in the paper "Design of Anchor Fastenings with Elastic Base Plates Subjected to Tension and Bending". This paper was published in "Stahlbau 88 (2019), Heft 8" and "5. Jahrestagung des Deutschen Ausschusses für Stahlbeton - DAfStb 2017". The anchor shear forces are calculated with the assumption of a rigid base plate. Attention should be paid to the narrow base plate with the ratio width/length less than 1/3.
- The verification for the ultimate limit state is valid only if the anchors are installed properly in accordance with their ICC or IAPMO Evaluation Report.
- The local transmission of the anchor loads into the anchoring base concrete has to be verified according to ACI 318.
- Rounding errors may cause slight variation in loads due to unit conversions.

The load-bearing capacity of the anchorage is: **verified !**



PSE Consulting Engineers Inc.

# STRUCTURAL ENGINEERING CALCULATIONS

PROJECT: 100 x 250 x 35 Ocean Highway & Port  
Authority

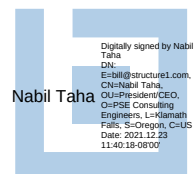
PROJECT LOCATION: 86130 License Rd  
Fernandina, FL 32034

PSE PROJECT NUMBER: Big Top 221-229

12/23/2021

DATE: 12/20/2021

BY: Nabil Taha, Ph.D., P.E.



EXPIRES: 02/28/2023

## 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.

## B. CODE AND LOADS:

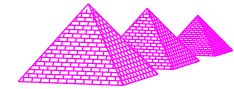
1. All material and construction work for this project shall conform to 2020 Edition of the Florida Building Code based on 2018 International Building Code (IBC 2018) along with Amendments by the Local Authority Having Jurisdiction. The International Building Code Parameters are:
  - a. Roof Dead Load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

## C. HOT-ROLLED STEEL:

1. Tube Frames shall be manufactured from A500 in-line galvanized 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)
  - c. The in-line galvanized steel tube meet the ASTM A-1057A & ASTM A1057M - 08 Standard Specification for in-line galvanized coating.

## D. FOUNDATION DESIGN:

1. Concrete pad/foundation design/check to support the truss reactions/loads was not included in the scope of services.
2. Any foundations shown on the drawings, are approximate and need to be verified/checked based on 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 anchor applications, see page S-0A for additional requirements.



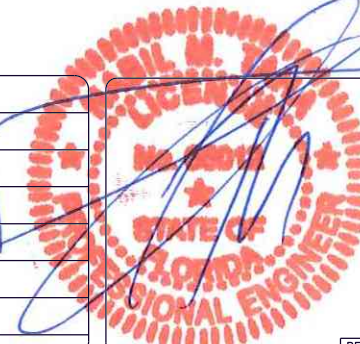
## PSE Consulting Engineers, Inc.

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



12/23/2021

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.

|                                                                                                                                                                                  |                                               |                       |                           |                                                                     |                                                                                       |                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------|---------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------|
| <br>BIG TOP MANUFACTURING INC.<br>3255 NORTH US 19<br>PERRY, FL 32347<br>PH: (850) 584 - 7786 | CUSTOMER:<br>Ocean Highway and Port Authority |                       | <b>NOTES:</b>             |                                                                     |  | DRAWING TYPE:<br><b>ENGINEERING</b> |
|                                                                                                                                                                                  | SIZE:<br>100 x 250 x 35                       | SALES:<br>Brandon     |                           |                                                                     |                                                                                       | PAGE:<br><b>S-0</b>                 |
|                                                                                                                                                                                  | LOCATION:<br>Fernandina, FL                   | DRAWN BY:<br>Ajoy     | DATE DRAWN:<br>12-16-2021 | *ALL INFORMATION IS<br>PROPERTY OF<br>BIG TOP<br>MANUFACTURING INC. |                                                                                       |                                     |
|                                                                                                                                                                                  | CUSTOMER CONTACT:<br>Aaron                    | APPROVED BY:<br>Aaron | TITLE:<br>PE STAMP ONLY   |                                                                     |                                                                                       |                                     |

EXPIRES: 02/28/2023

#### 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.
- Number of soil anchors shown on the plans assumed that the soil anchor's ultimate capacity is 2000 lbs minimum, which shall be verified by site test results.
  - Pull out strength varies based on the local soil type and shall be verified by local soil tests at the site.
  - The tables below should be used as a guide only and subject to results of anchor pull test at the site.
  - 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.
  - Use an approved method to obtain the values for the site:
    - Dynamometer to obtain uplift by pulling out the anchors with a forklift
    - Hydraulic Pump
  - Pull out strength shall be measured at a maximum deflection/letup of 1/2 inch.
  - 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.
    - Big Top Manufacturing representative
    - Customer representative
    - Installation representative
  - 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.
  - If the test results are equal to or more than the above value, install the soil anchors as shown on the plans.
  - Results of the tests shall be submitted to both the Engineer of Record and to the General Manager of Big Top Manufacturing Inc.
  - The Owner and/or the Installation Contractor shall assume all responsibilities for the accuracy of the test results when using this method.

| 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 Soil 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 Asphalt Top            | 6000                  |

#### Soil Anchor Capacity Based on Soil Type

Scale: N.T.S.

#### Soil Anchor Installation Guideline

| 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               |

#### 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                   |

#### 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.

Digitally signed by Nabil Taha  
DN: cn=Nabil Taha, email=ntaha@bigtopinc.com, ou=Big Top Manufacturing Inc., c=US  
Date: 2023.12.23 11:45:01-0800

12/23/2021

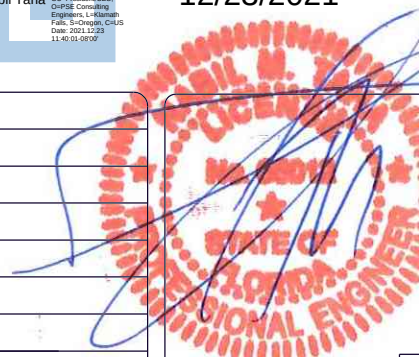


BIG TOP MANUFACTURING INC.  
3255 NORTH US 19  
PERRY, FL 32347  
PH: (850) 584 - 7786

CUSTOMER:  
Ocean Highway and Port Authority  
SIZE:  
100 x 250 x 35  
LOCATION:  
Fernandina, FL  
CUSTOMER CONTACT:  
SALES:  
Brandon  
DRAWN BY:  
Ajoy  
DATE DRAWN:  
12-16-2021  
APPROVED BY:  
Aaron

#### NOTES:

PROJECT #  
221-229  
TRUSS TYPE:  
30" Four-Chord  
CENTERS:  
10 FT  
TITLE  
TITLE  
TITLE  
TITLE



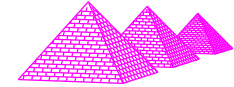
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| DRAWING TYPE:       |
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| PAGE:               |
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| MANUFACTURING INC.  |

EXPIRES: 02/28/2023



# D. FOUNDATION DESIGN CONTINUED:

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



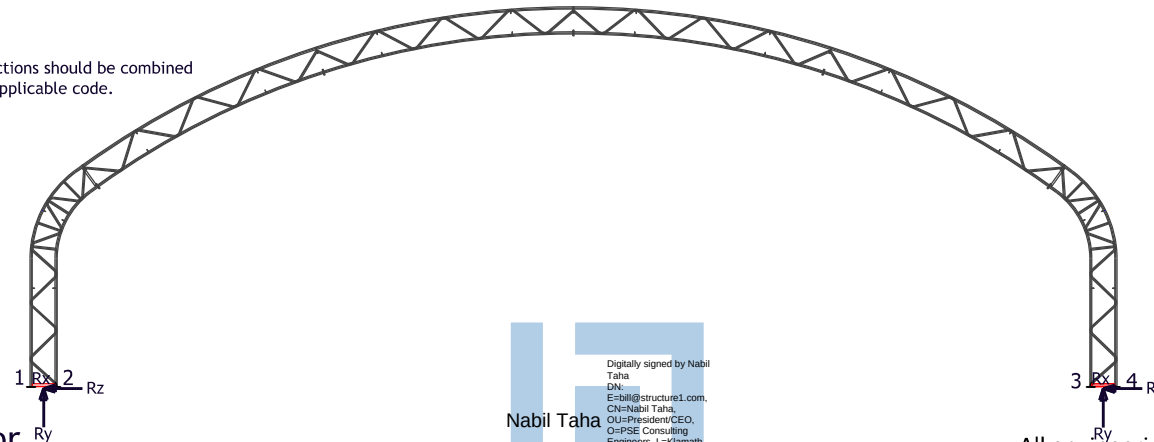
**PSE  
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info@structure1.com

| *See notes below                    |           | UNFACTORED BASE REACTIONS<br>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                                                         | 1.030    | -0.322   | 0                                     | 0.492    | -0.327   | 0                                     | 0.492    | 0.327    | 0                                     | 1.030    | 0.322    |
| Snow Load/ Live Load                | SL/RLL    | 0                                                         | 1.942    | -0.755   | 0                                     | 0.694    | -0.767   | 0                                     | 0.694    | 0.767    | 0                                     | 1.942    | 0.755    |
| Wind Load, Normal to Ridge, Case A  | WLZ(+GCp) | 0                                                         | -8.007   | 3.336    | 0                                     | -3.573   | 3.385    | 0                                     | -3.156   | -2.162   | 0                                     | -7.334   | -2.128   |
| Wind Load, Normal to Ridge, Case B  | WLZ(-GCp) | 0                                                         | -5.094   | 2.721    | 0                                     | -1.992   | 2.760    | 0                                     | -1.549   | -1.544   | 0                                     | -4.438   | -1.520   |
| *Wind Load, Along the Ridge, Case A | WLX(+GCp) |                                                           |          |          |                                       |          |          |                                       |          |          |                                       |          |          |
| *Wind Load, Along the Ridge, Case B | WLX(-GCp) |                                                           |          |          |                                       |          |          |                                       |          |          |                                       |          |          |

\* 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.

Nabil Taha

Digitally signed by Nabil  
Taha  
DN:  
E=nabil@structure1.com,  
CN=Nabil Taha,  
OU=PSE Consulting  
Engineers, L.L.C.,  
O=PSE Consulting  
Engineers, L.L.C.,  
Date: 2021.12.23  
11:39:52-0800

12/23/2021

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.

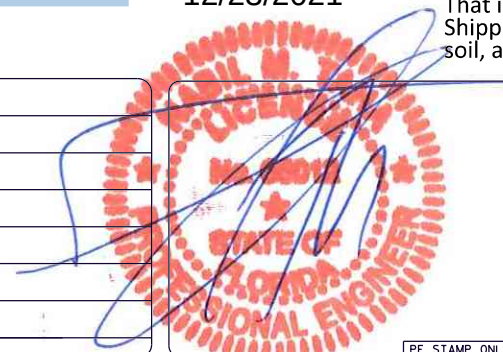


BIG TOP MANUFACTURING INC.  
3255 NORTH US 19  
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SALES:  
Brandon  
DRAWN BY:  
Ajoy  
DATE DRAWN:  
12-16-2021  
APPROVED BY:  
Aaron

## NOTES:

PROJECT #  
221-229  
TRUSS TYPE:  
30" Four-Chord  
CENTERS:  
10 FT  
TITLE  
TITLE  
TITLE  
TITLE



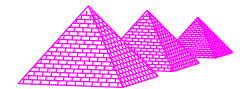
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**ENGINEERING**  
PAGE:  
**S-0B**  
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**EXPIRES: 02/28/2023**

# D. FOUNDATION DESIGN CONTINUED:

6. See below table for endwall reactions.

| *See notes below                   |           | UNFACTORED BASE REACTIONS<br>TO CONSIDER AT BASES |          |          |                               |          |          |
|------------------------------------|-----------|---------------------------------------------------|----------|----------|-------------------------------|----------|----------|
| Load Cases                         |           | Joint 5 (5 as per RISA Model)                     |          |          | Joint 6 (6 as per RISA Model) |          |          |
|                                    |           | Rx (kip)                                          | Ry (kip) | Rz (kip) | Rx (kip)                      | Ry (kip) | Rz (kip) |
| Wind Load, Along the Ridge, Case A | WLX(+GCp) | 3.228                                             | 3.714    | 0        | 3.092                         | -3.714   | 0        |
| Wind Load, Along the Ridge, Case B | WLX(-GCp) | -3.769                                            | -4.344   | 0        | -3.600                        | 4.344    | 0        |

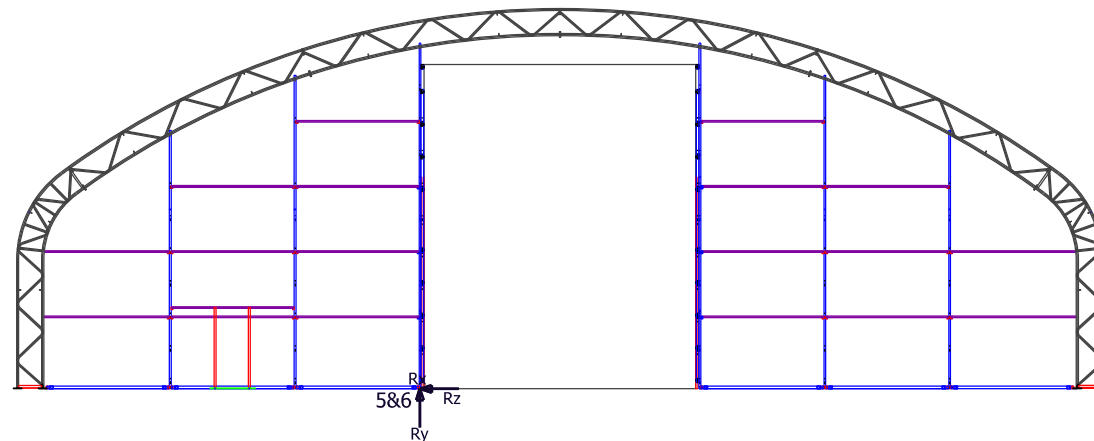


**PSE**  
**Consulting**  
**Engineers,**  
**Inc.**

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

## Typical Reaction at Base for End Panel Truss

① Scale: N.T.S.



### \* Note on reactions:

- 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.

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Nabil Taha  
DN:  
E=nabil@structure1.com,  
CN=Nabil Taha,  
OU=PSE Consulting  
Engineers, Inc., Klamath  
Falls, S-Oregon, C=US  
Date: 2021.12.23  
11:39:44-0800

12/23/2021

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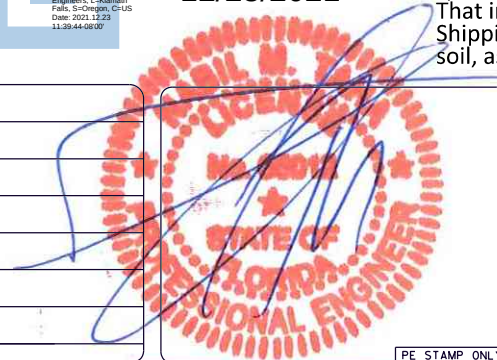


BIG TOP MANUFACTURING INC.  
3255 NORTH US 19  
PERRY, FL 32347  
PH: (850) 584 - 7786

CUSTOMER:  
Ocean Highway and Port Authority  
SIZE:  
100 x 250 x 35  
LOCATION:  
Fernandina, FL  
CUSTOMER CONTACT:  
SALES:  
Brandon  
DRAWN BY:  
Ajoy  
DATE DRAWN:  
12-16-2021  
APPROVED BY:  
Aaron

### NOTES:

PROJECT #  
221-229  
TRUSS TYPE:  
30" Four-Chord  
CENTERS:  
10 FT  
TITLE  
TITLE  
TITLE  
TITLE



DRAWING TYPE:  
**ENGINEERING**  
PAGE:  
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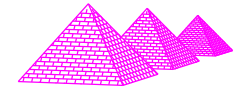
## E. WIND LOAD SAFETY RESTRICTIONS:

1. The fabric covered metal framing system for this structure must conform to the following 2020 Florida Building Code Section: CH 31- Special Construction, Section - 3105.4 Design, which states the following:

### 3105.4.2.1

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 Chapter 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.



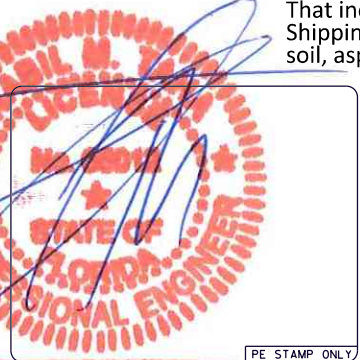
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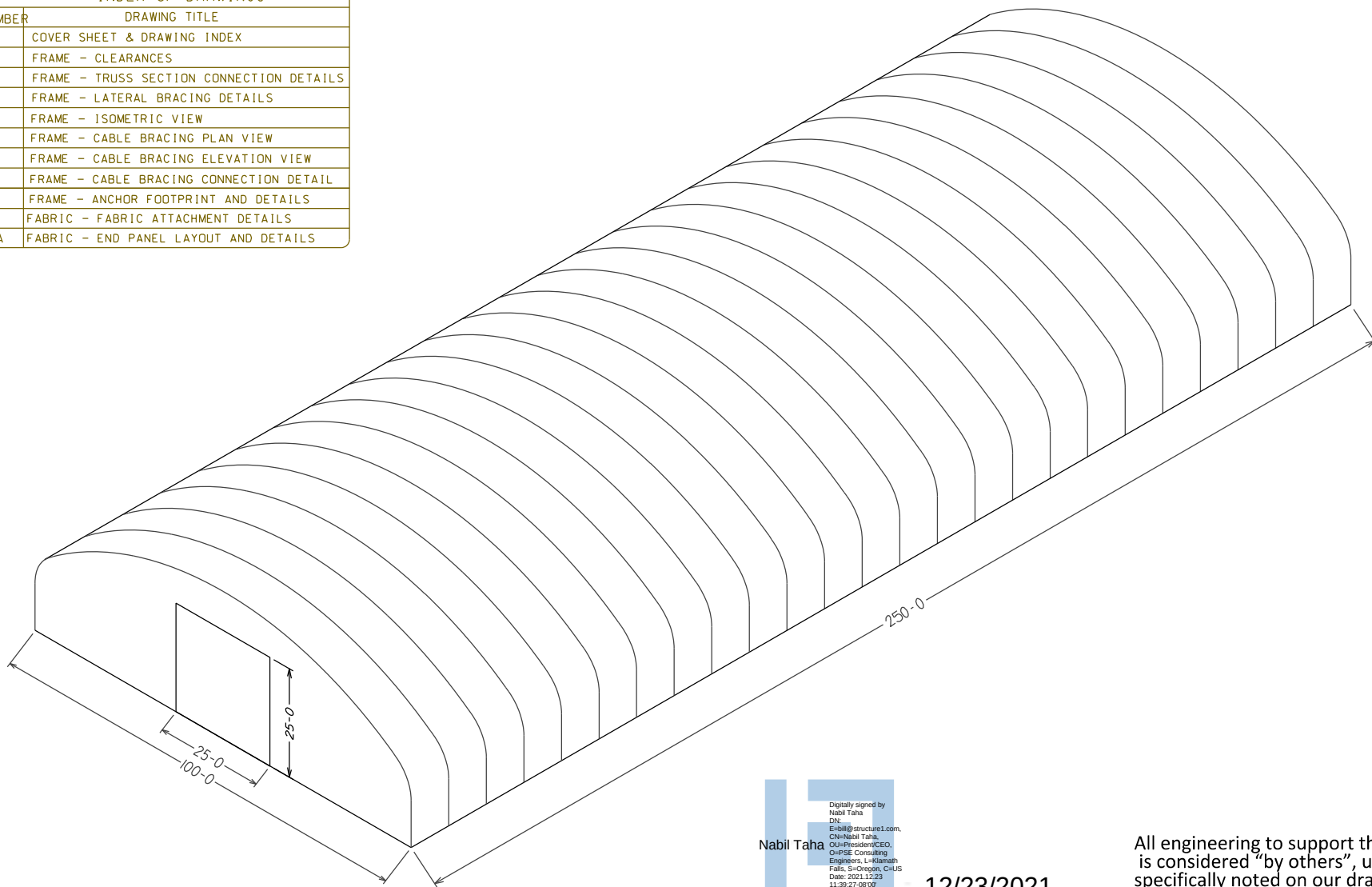
All engineering to support the structure is considered "by others", unless specifically noted on our drawings. That includes, but is not limited to, Shipping containers, concrete, soil, asphalt, custom support steel, etc.

|                                                                                                                                                                                  |                                               |                           |                                                                                                                                 |                                                                                       |                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <br>BIG TOP MANUFACTURING INC.<br>3255 NORTH US 19<br>PERRY, FL 32347<br>PH: (850) 584 - 7786 | CUSTOMER:<br>Ocean Highway and Port Authority |                           | <b>NOTES:</b><br>PROJECT #<br>221-229<br>TRUSS TYPE:<br>30" Four-Chord<br>CENTERS:<br>10 FT<br>TITLE<br>TITLE<br>TITLE<br>TITLE |  | DRAWING TYPE:<br><b>ENGINEERING</b>                                 |
|                                                                                                                                                                                  | SIZE:<br>100 x 250 x 35                       |                           |                                                                                                                                 |                                                                                       | PAGE:<br><b>S-0D</b>                                                |
|                                                                                                                                                                                  | LOCATION:<br>Fernandina, FL                   |                           |                                                                                                                                 |                                                                                       | *ALL INFORMATION IS<br>PROPERTY OF<br>BIG TOP<br>MANUFACTURING INC. |
|                                                                                                                                                                                  | CUSTOMER CONTACT:<br>SALES:<br>Brandon        |                           |                                                                                                                                 |                                                                                       |                                                                     |
| DRAWN BY:<br>Ajoy                                                                                                                                                                |                                               | DATE DRAWN:<br>12-16-2021 | PE STAMP ONLY                                                                                                                   |                                                                                       |                                                                     |
| APPROVED BY:<br>Aaron                                                                                                                                                            |                                               |                           |                                                                                                                                 |                                                                                       |                                                                     |

**EXPIRES: 02/28/2023**

# INDEX OF DRAWINGS

| DRAWING NUMBER | DRAWING TITLE                            |
|----------------|------------------------------------------|
| S1             | COVER SHEET & DRAWING INDEX              |
| S2             | FRAME - CLEARANCES                       |
| S3,S3A         | FRAME - TRUSS SECTION CONNECTION DETAILS |
| S4,S4A         | 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,S9A         | FRAME - ANCHOR FOOTPRINT AND DETAILS     |
| S10            | FABRIC - FABRIC ATTACHMENT DETAILS       |
| S11,S11A       | FABRIC - END PANEL LAYOUT AND DETAILS    |



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## COVER PAGE AND INDEX



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

CUSTOMER:  
Ocean Highway  
SIZE  
100x250x35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DRAWN BY:  
Matt W.  
DATE DRAWN:  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE



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EXPIRES: 02/28/2023

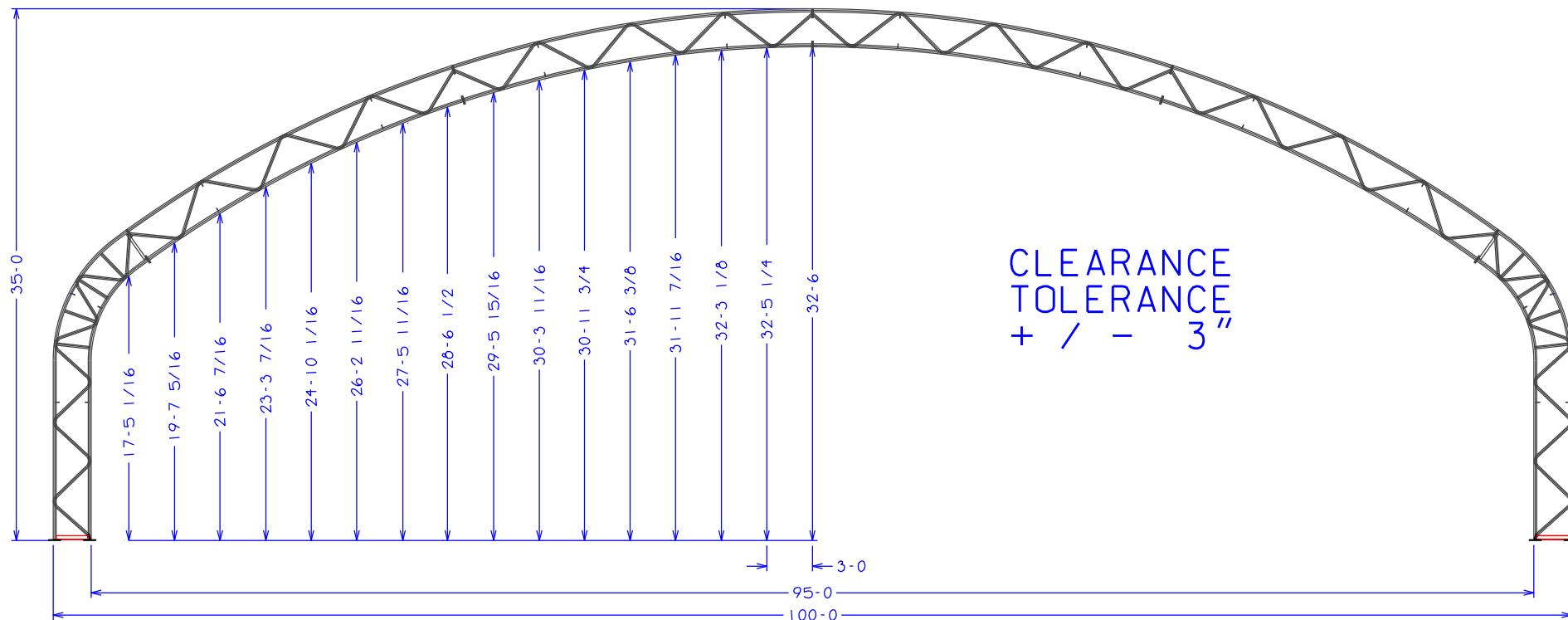
DRAWING TYPE:

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S-1

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CLEARANCE DIMENSIONS ARE FROM THE CENTER OUTWARD EVERY 3'-0"

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ou=President/CEO,  
ou=CBSE Consulting  
Engineers, L-Ramam  
Falls, SC=Oregon, C=US  
Date: 2021.12.23  
11:39:38-0800

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## FRAME - CLEARANCES



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DRAWN BY:  
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DATE DRAWN:  
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APPROVED BY:

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TITLE:



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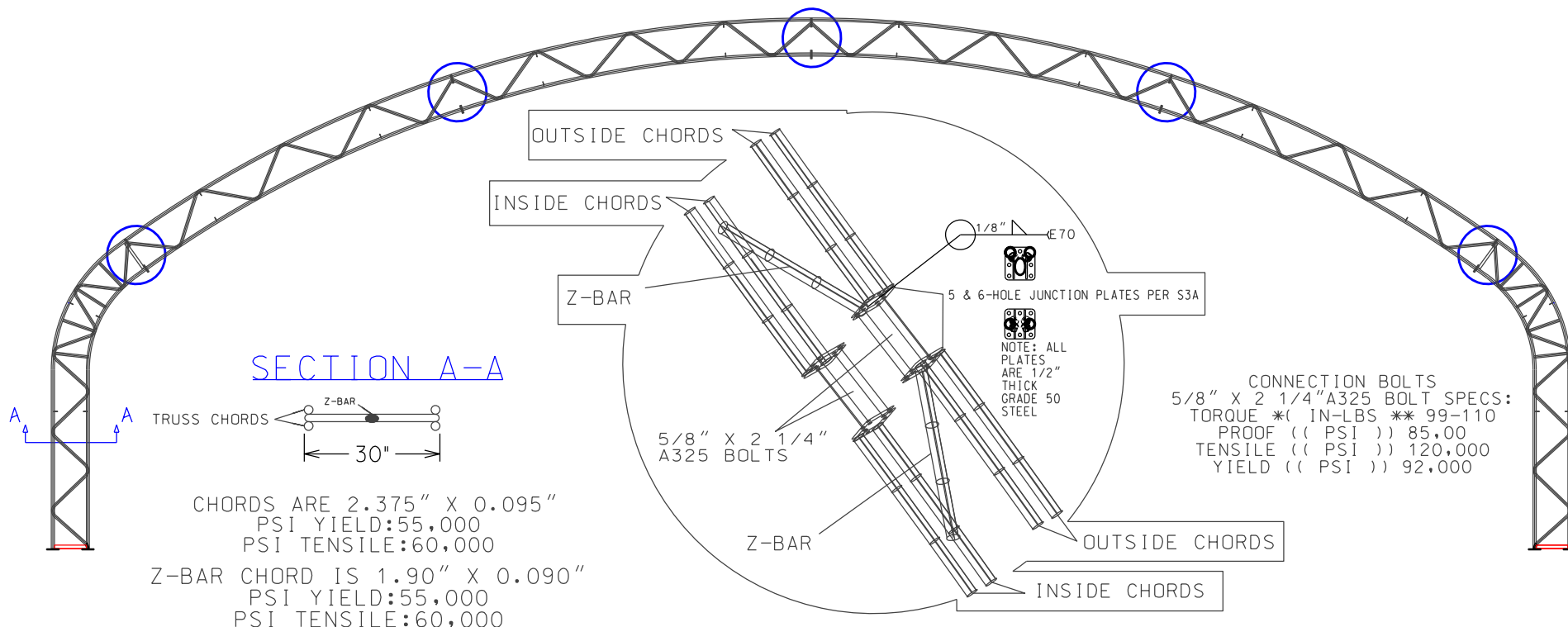
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email=ntaha@bigtopmanufacturing.com

Nabil Taha

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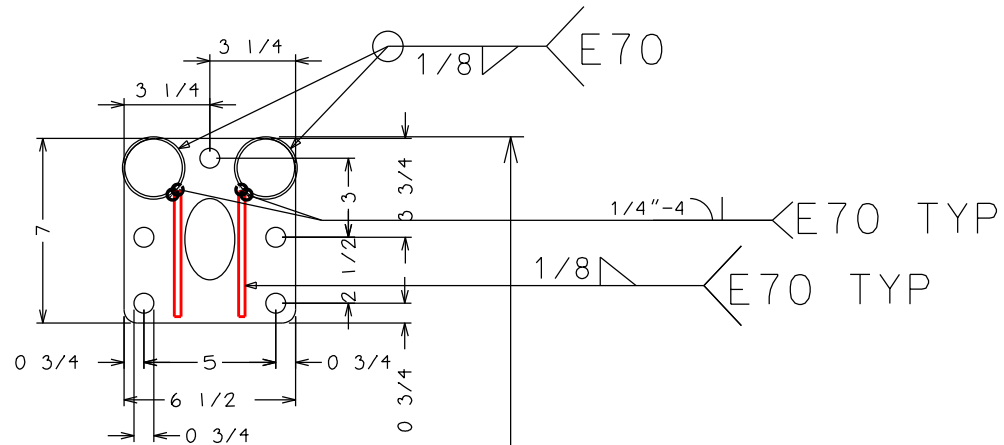
## FRAME - TRUSS SECTION CONNECTION DETAILS

|                                                                                                                                                                                         |                                                                                                                                                                        |                                              |                                                                                                                                                                                     |                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
|  <p>BIG TOP MANUFACTURING INC.<br/>3255 NORTH US 19<br/>PERRY, FL 32347<br/>PH: (850) 584 - 7786</p> | <p>CUSTOMER: Ocean Highway</p> <p>SIZE: 100x250x35</p> <p>LOCATION: Fernandina Beach, FL</p> <p>CUSTOMER CONTACT: N/A</p> <p>DRAWN BY: Matt W.</p> <p>APPROVED BY:</p> | <p>SALES: BS</p> <p>DATE DRAWN: 12-16-21</p> | <p><b>NOTES:</b></p> <p>FOUNDATION TYPE: Asphalt</p> <p>SHELTER BASE HEIGHT ABOVE GROUND: At Ground Level</p> <p>TITLE:</p> <p>TITLE:</p> <p>TITLE:</p> <p>TITLE:</p> <p>TITLE:</p> | <p>DRAWING TYPE: ENGINEERING</p> <p>PAGE: S-3</p> <p>*ALL INFORMATION IS PROPERTY OF BIG TOP MANUFACTURING INC.</p> |
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|                                                                                                                                                                                         | <p>PE STAMP ONLY</p>                                                                                                                                                   |                                              |                                                                                                                                                                                     |                                                                                                                     |
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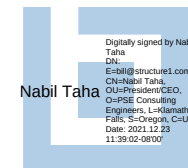
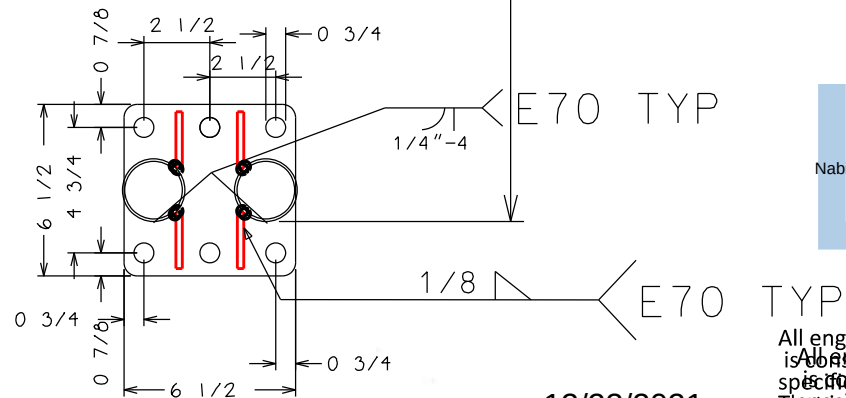


## TOP CHORD CONNECTION PLATE

NOTE:  
JUNCTION PLATES  
THICKNESS:  $1/2"$   
GUSSETS ARE  $4" \times 1/4"$   
GRADE 50 STEEL



## BOTTOM CHORD CONNECTION PLATE



12/23/2021

## FRAME - TRUSS SECTION CONNECTION DETAILS

All engineering to support the structure is considered by the engineer. The structure is specifically designed by other drawings. Specifically, noted and indicated. Shipping containers, not limited to, soil, asphalt, custom support steel, etc.



BIG TOP MANUFACTURING INC.  
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LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DRAWN BY:  
Mat W.  
DATE DRAWN:  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE  
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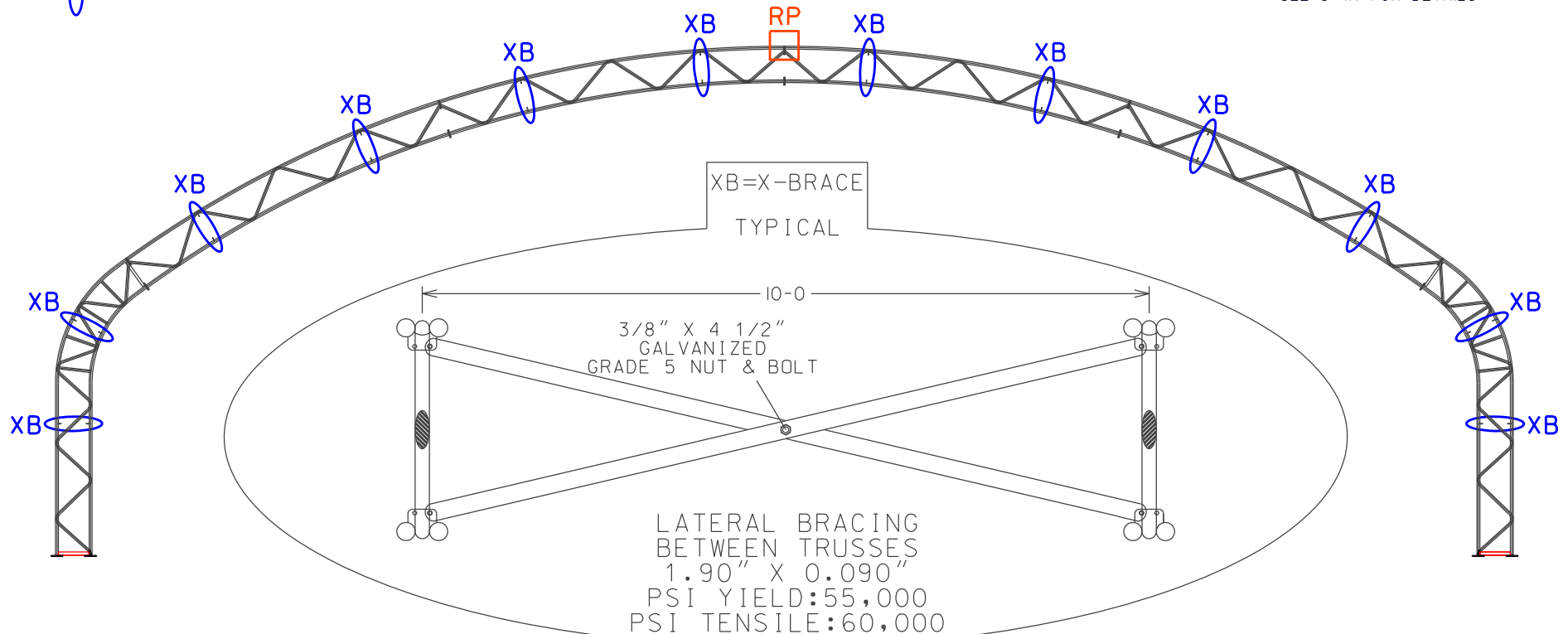
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□ RP- RIDGE POLE

○ XB- X BRACINGS

| LEGENDS |                 |
|---------|-----------------|
| □       | RIDGE POLE (RP) |
| ○       | X-BRACES (XB)   |

SEE S-4A FOR DETAILS



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Taha  
DN:  
E=nabil@structure1.com,  
CN=Nabil Taha,  
OU=President/CEO,  
O=NPSE Consulting  
Engineers, LLC, Latham  
Falls, S=Oregon, C=US  
Date: 2021.12.23  
11:38:54-08'00'

Nabil Taha

12/23/2021

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## FRAME - LATERAL BRACING DETAILS

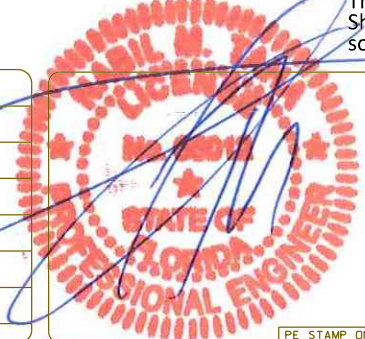


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PERRY, FL 32347  
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CUSTOMER:  
Ocean Highway  
SIZE  
100x250x35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DRAWN BY:  
Matt W.  
DATE DRAWN:  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
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TITLE



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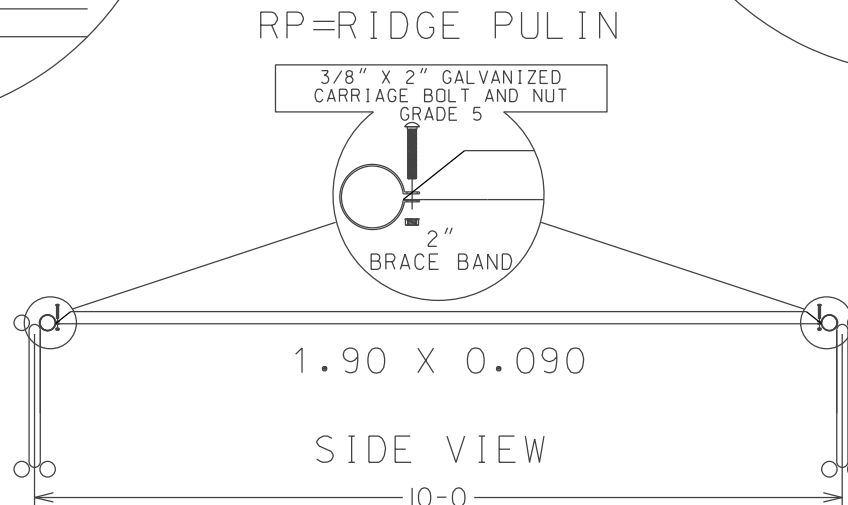
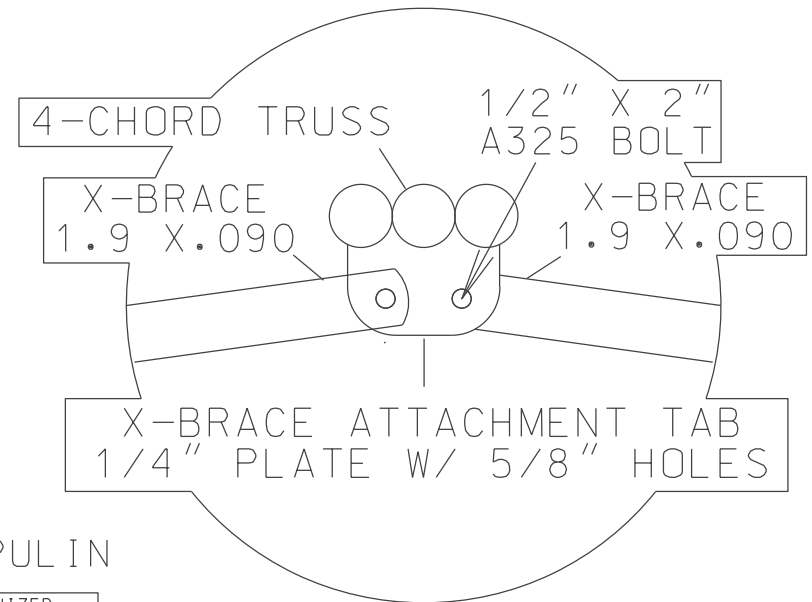
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O=PSE Consulting  
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Falls, S=Oregon, C=US  
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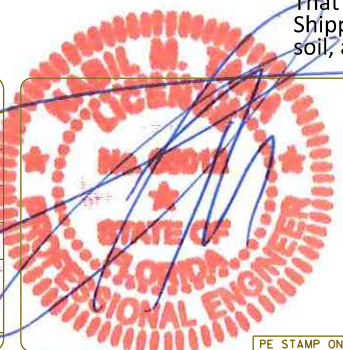
## FRAME – LATERAL BRACING DETAILS



|                      |             |
|----------------------|-------------|
| CUSTOMER:            |             |
| Ocean Highway        |             |
| SIZE                 |             |
| 100x250x35           |             |
| LOCATION             |             |
| Fernandina Beach, FL |             |
| CUSTOMER CONTACT:    | SALES:      |
| N/A                  | BS          |
| DRAWN BY:            | DATE DRAWN: |
| Mat + W.             | 12-16-21    |
| APPROVED BY:         |             |

**NOTES:**

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
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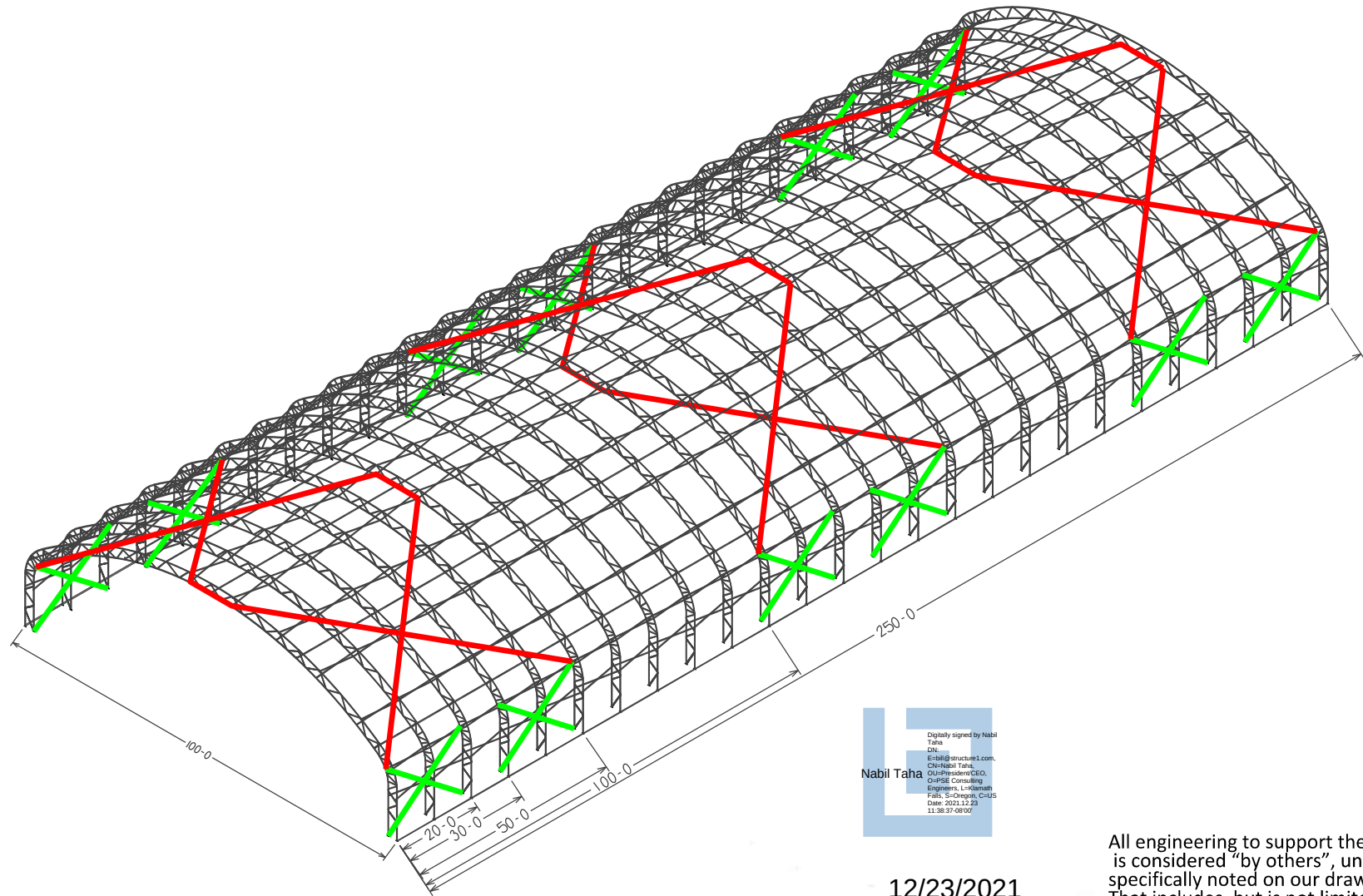
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## FRAME - ISOMETRIC VIEW

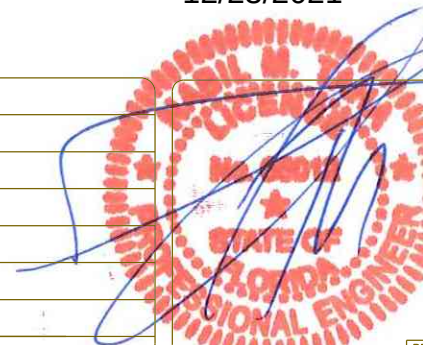


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 Fernandina Beach, FL  
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 N/A  
 SALES:  
 BS  
 DRAWN BY:  
 Matt W.  
 DATE DRAWN:  
 12-16-21  
 APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
 Asphalt  
 SHELTER BASE HEIGHT ABOVE GROUND:  
 At Ground Level  
 TITLE  
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 TITLE



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DRAWING TYPE:

ENGINEERING

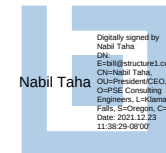
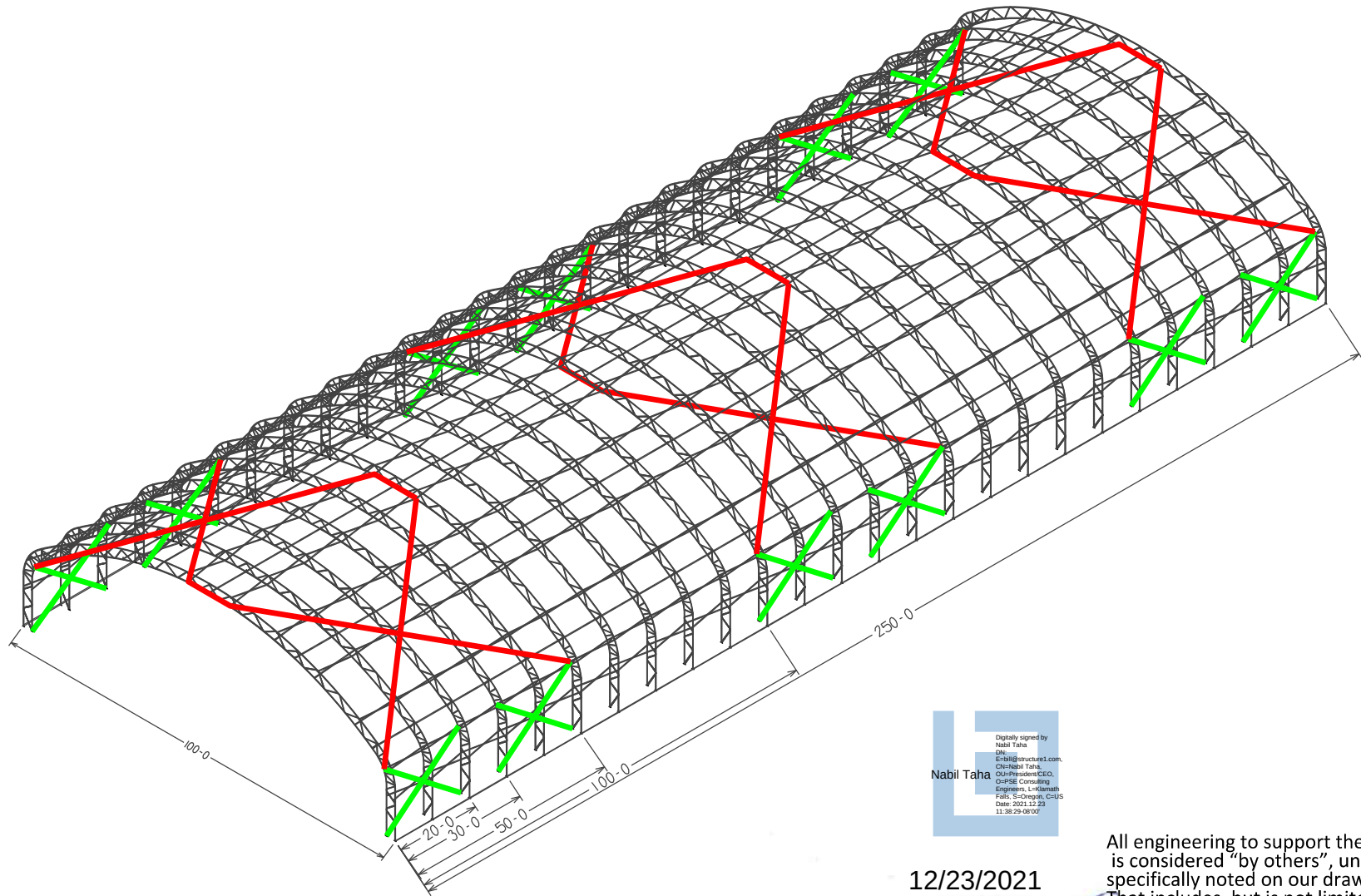
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## FRAME - ISOMETRIC VIEW

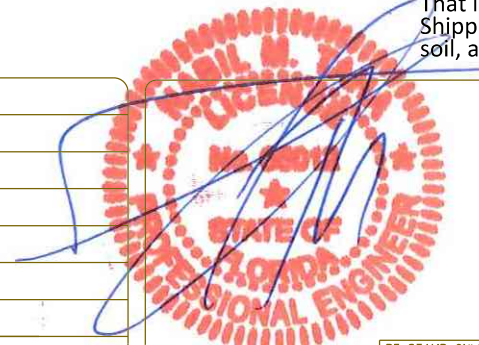


BIG TOP MANUFACTURING INC.  
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PERRY, FL 32347  
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CUSTOMER:  
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100x250x35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DRAWN BY:  
Matt W.  
DATE DRAWN:  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
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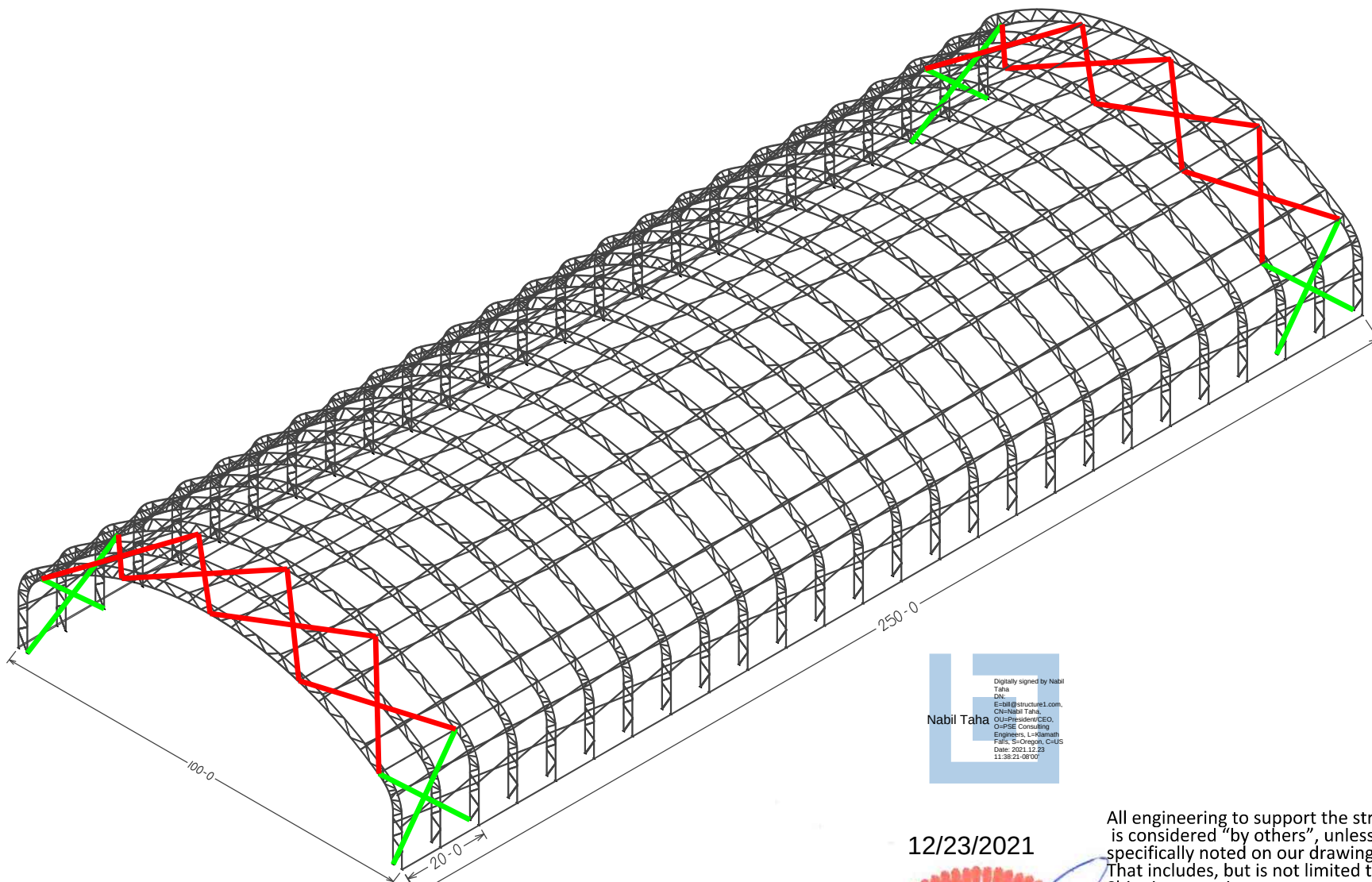
DRAWING TYPE:

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S-5

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DN:  
E=nabil@structure1.com,  
CN=Nabil Taha,  
OU=President/CEO,  
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Engineers, L.L.C.  
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11:38:21 -08'00'

12/23/2021

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## ADDITIONAL CABLES - ISOMETRIC VIEW

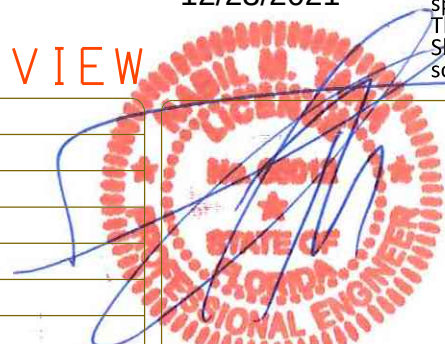


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DRAWN BY:  
Matt W.  
DATE DRAWN:  
12-16-21  
APPROVED BY:

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Asphalt  
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TITLE  
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EXPIRES: 02/28/2023

DRAWING TYPE:

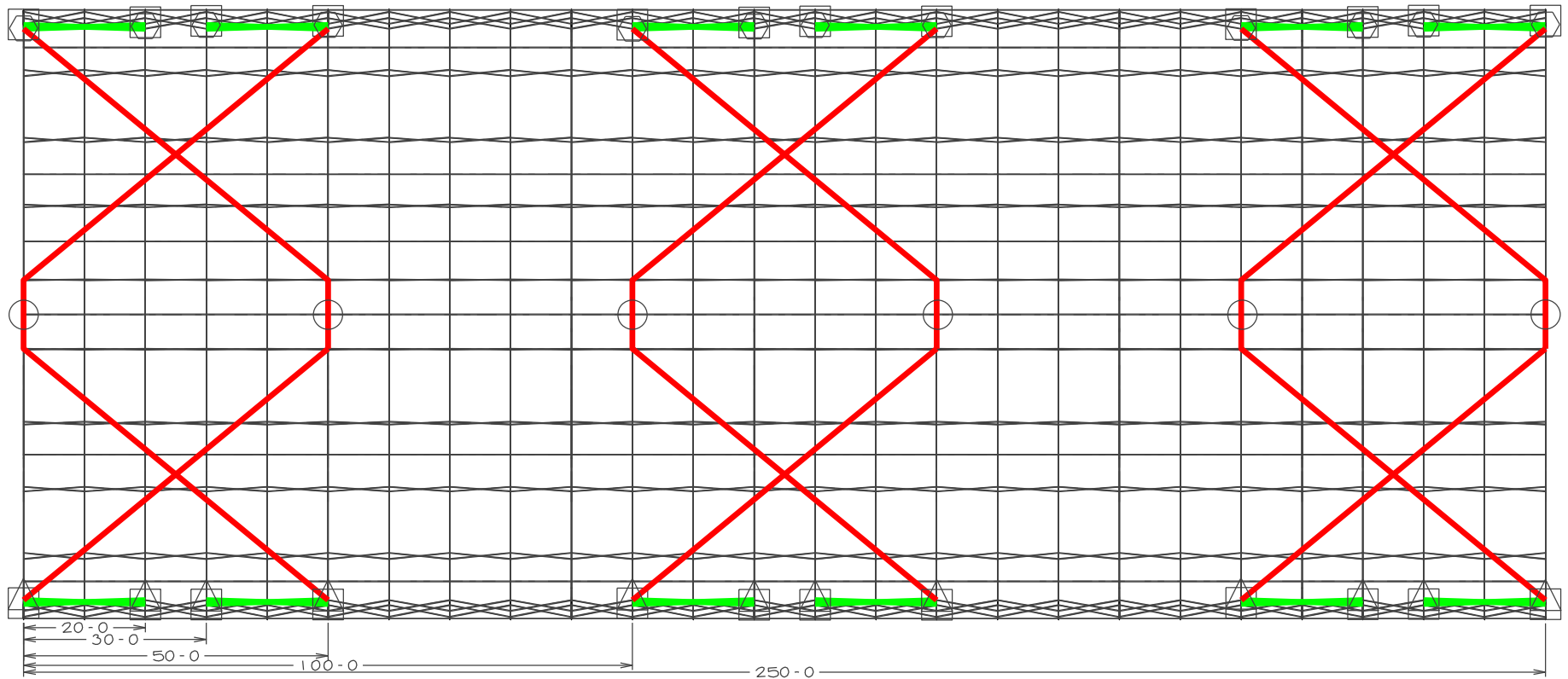
ENGINEERING

PAGE:

S-5A

\*ALL INFORMATION IS  
PROPERTY OF  
BIG TOP  
MANUFACTURING INC.





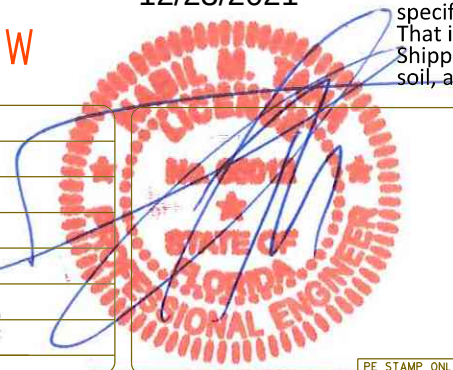
## FRAME - CABLE BRACING PLAN VIEW

12/23/2021

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.

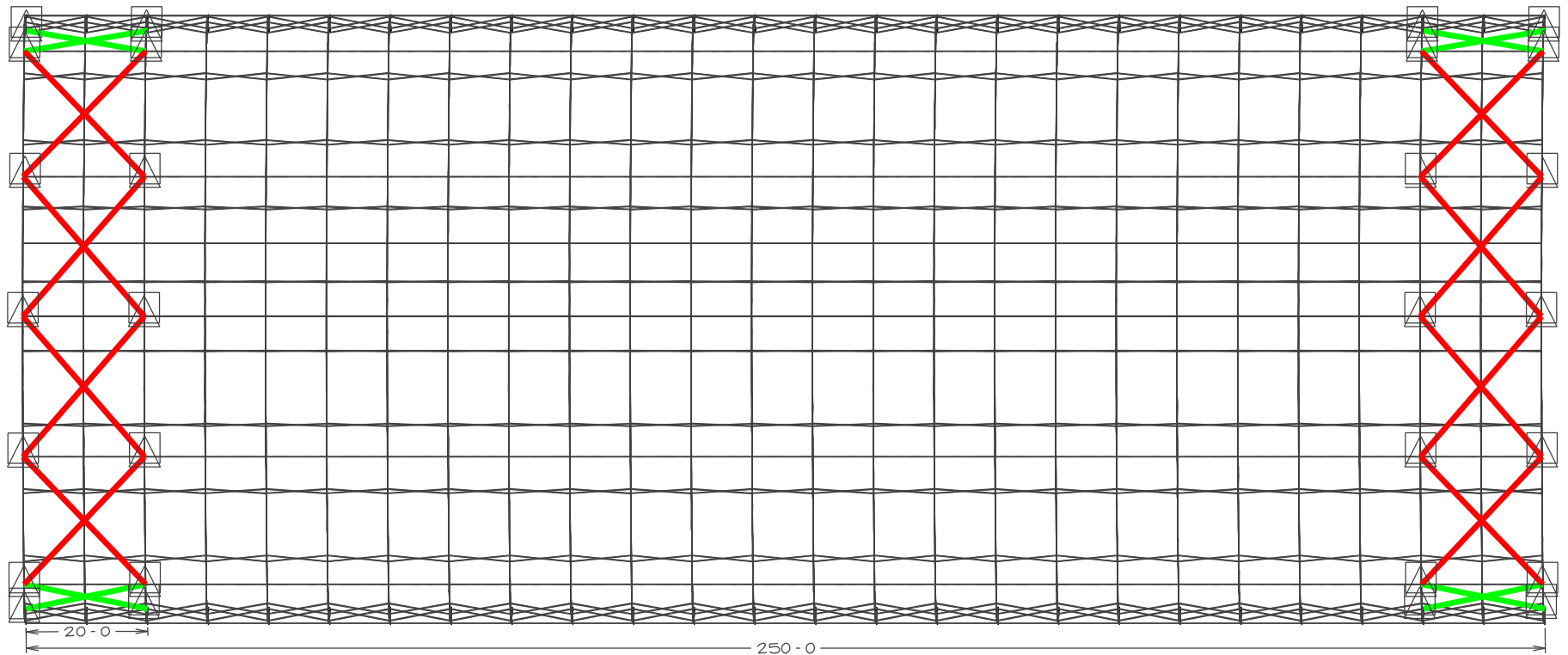
|                                                                                                                                                                                         |                                  |                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------|
|  <p>BIG TOP MANUFACTURING INC.<br/>3255 NORTH US 19<br/>PERRY, FL 32347<br/>PH: (850) 584 - 7786</p> | CUSTOMER:<br>Ocean Highway       |                         |
|                                                                                                                                                                                         | SIZE<br>100x250x35               |                         |
|                                                                                                                                                                                         | LOCATION<br>Fernandina Beach, FL |                         |
|                                                                                                                                                                                         | CUSTOMER CONTACT:<br>N/A         | SALES:<br>BS            |
|                                                                                                                                                                                         | DRAWN BY:<br>Matt W.             | DATE DRAWN:<br>12-16-21 |
| APPROVED BY:                                                                                                                                                                            |                                  |                         |

| NOTES:                            |                 |
|-----------------------------------|-----------------|
| FOUNDATION TYPE:                  | Asphalt         |
| SHELTER BASE HEIGHT ABOVE GROUND: | At Ground Level |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |



|                                                                     |             |
|---------------------------------------------------------------------|-------------|
| DRAWING TYPE:                                                       | ENGINEERING |
| PAGE:                                                               | S-6         |
| *ALL INFORMATION IS<br>PROPERTY OF<br>BIG TOP<br>MANUFACTURING INC. |             |

EXPIRES: 02/28/2023



## ADDITIONAL CABLES - PLAN VIEW OF SHEET S-5A

12/23/2021

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:  
Ocean Highway  
SIZE  
100x250x35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DATE DRAWN:  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE

TITLE

TITLE

TITLE

TITLE

Nabil Taha

Digitally signed by  
Nabil Taha  
DN:  
cN=Nabil Taha,  
OU=PROSTRUCTURES, CO,  
O=PROSTRUCTURES, CN=US  
11.38.09.08007



PE STAMP ONLY

DRAWING TYPE:

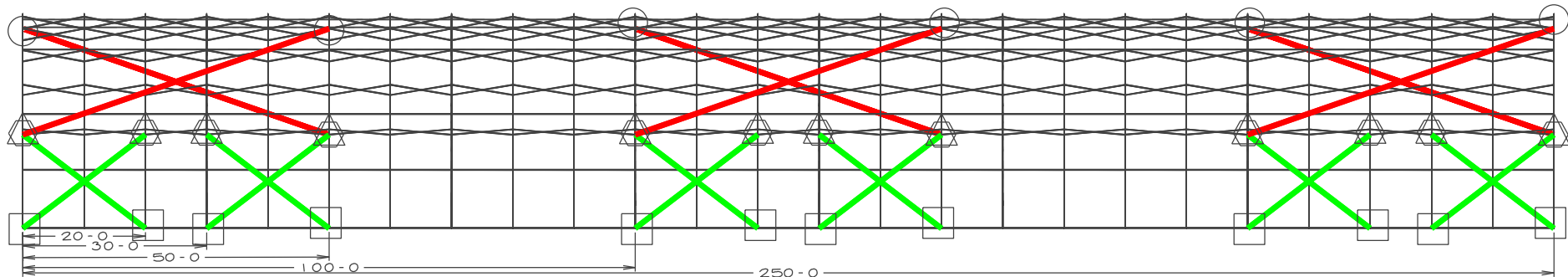
ENGINEERING

PAGE:

S-6A

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BIG TOP  
MANUFACTURING INC.

EXPIRES: 02/28/2023



Digitally signed by  
Nabil Taha  
DN:  
E=nt@structure1.com,  
CN=Nabil Taha,  
OU=President/CEO,  
O=PSE Consulting  
Engineers, L-Williams  
Falls, S=Oregon, C=US  
Date: 2021.12.23  
11:37:58-08'00'

12/23/2021

## FRAME - CABLE BRACING ELEVATION 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.



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

CUSTOMER:  
Ocean Highway  
SIZE  
100x250x35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DRAWN BY:  
Matt W.  
DATE DRAWN:  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE

EXPIRES: 02/28/2023

PE STAMP ONLY

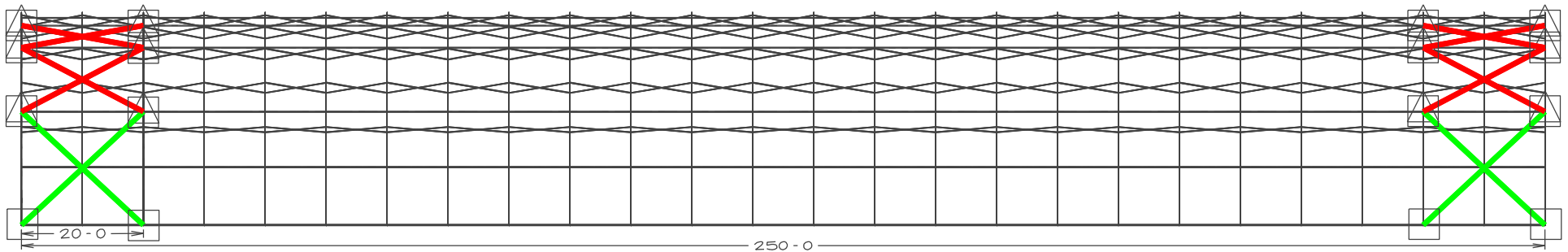
DRAWING TYPE:

ENGINEERING

PAGE:

S-7

\*ALL INFORMATION IS  
PROPERTY OF  
BIG TOP  
MANUFACTURING INC.



Digitally signed by Nabil  
Taha  
DN:  
E=nabil@structure1.com,  
OU=Nabil Taha,  
OU=PSE Consulting  
Engineers, L=Kiamath  
Falls, S=Oregon, C=US  
Date: 2021.12.23  
11:37:50-08'00'

## ADDITIONAL CABLES - ELEVATION VIEW OF SHEET S-5A

12/23/2021

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

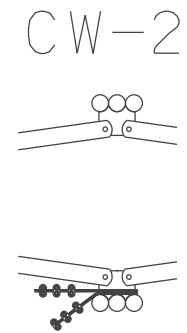
|                                  |                         |
|----------------------------------|-------------------------|
| CUSTOMER:<br>Ocean Highway       |                         |
| SIZE<br>100x250x35               |                         |
| LOCATION<br>Fernandina Beach, FL |                         |
| CUSTOMER CONTACT:<br>N/A         | SALES:<br>BS            |
| DRAWN BY:<br>Matt W.             | DATE DRAWN:<br>12-16-21 |
| APPROVED BY:                     |                         |

| NOTES:                            |                 |
|-----------------------------------|-----------------|
| FOUNDATION TYPE:                  | Asphalt         |
| SHELTER BASE HEIGHT ABOVE GROUND: | At Ground Level |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |
| TITLE                             |                 |

PE STAMP ONLY

|                                                                     |             |
|---------------------------------------------------------------------|-------------|
| DRAWING TYPE:                                                       | ENGINEERING |
| PAGE:                                                               | S-7A        |
| *ALL INFORMATION IS<br>PROPERTY OF<br>BIG TOP<br>MANUFACTURING INC. |             |

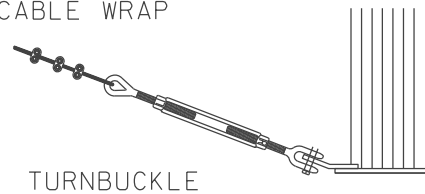
EXPIRES: 02/28/2023



TB-1

TB-2

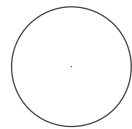
THREE 3/8 CABLE CLAMPS SHELTER TRUSS  
PER CABLE WRAP |||||



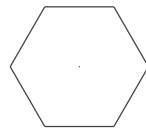
TURNBUCKLE

THREE 3/8" CABLE CLAMPS  
PER CABLE WRAP

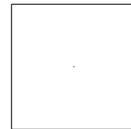
5/8" X 9" EYE/JAW TURNBUCKLE  
3,500 LBS. WORKING LOAD LIMIT



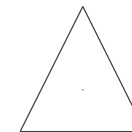
CW-1



CW-2



TB-1



TB-2

12/23/2021

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:            |             |
| Ocean Highway        |             |
| SIZE                 |             |
| 100x250x35           |             |
| LOCATION             |             |
| Fernandina Beach, FL |             |
| CUSTOMER CONTACT:    | SALES:      |
| N/A                  | BS          |
| DRAWN BY:            | DATE DRAWN: |
| Matt W.              | 12-16-21    |
| APPROVED BY:         |             |

**NOTES:**

|                                   |                 |
|-----------------------------------|-----------------|
| FOUNDATION TYPE:                  | Asphalt         |
| SHELTER BASE HEIGHT ABOVE GROUND: | At Ground Level |

TITLE  
 TITLE  
 TITLE  
 Nabil Taha  
 TITLE  
 TITLE

**DRAWING TYPE:**

## ENGINEERING

PAGE:

S-8

|                     |
|---------------------|
| *ALL INFORMATION IS |
| PROPERTY OF         |
| BIG TOP             |
| MANUFACTURING INC.  |

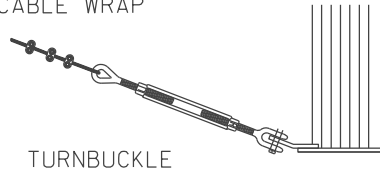
PF STAMP ONI

**EXPIRES:** 02/28/2023

TB-1

THREE 3/8 CABLE CLAMPS  
PER CABLE WRAP

SHELTER TRUSS



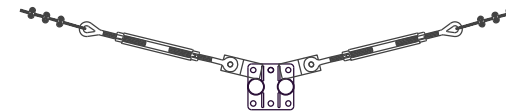
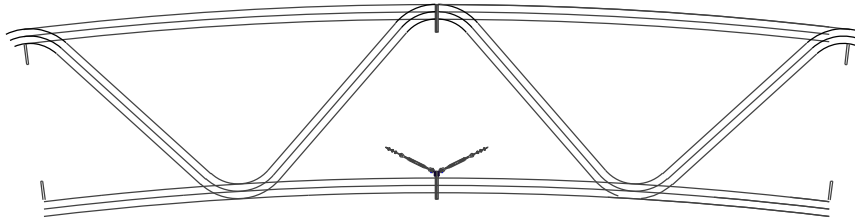
TURNBUCKLE

ROOF/WALL CABLES & TURNBUCKLES:

3/8" - 7X19 GAC CABLE  
7.2 TONS BREAKING STRENGTH

5/8" X 9" EYE/JAW TURNBUCKLE  
3,500 LBS. WORKING LOAD LIMIT

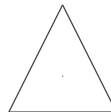
TB-2



SIDE VIEW



TB-1



TB-2



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.

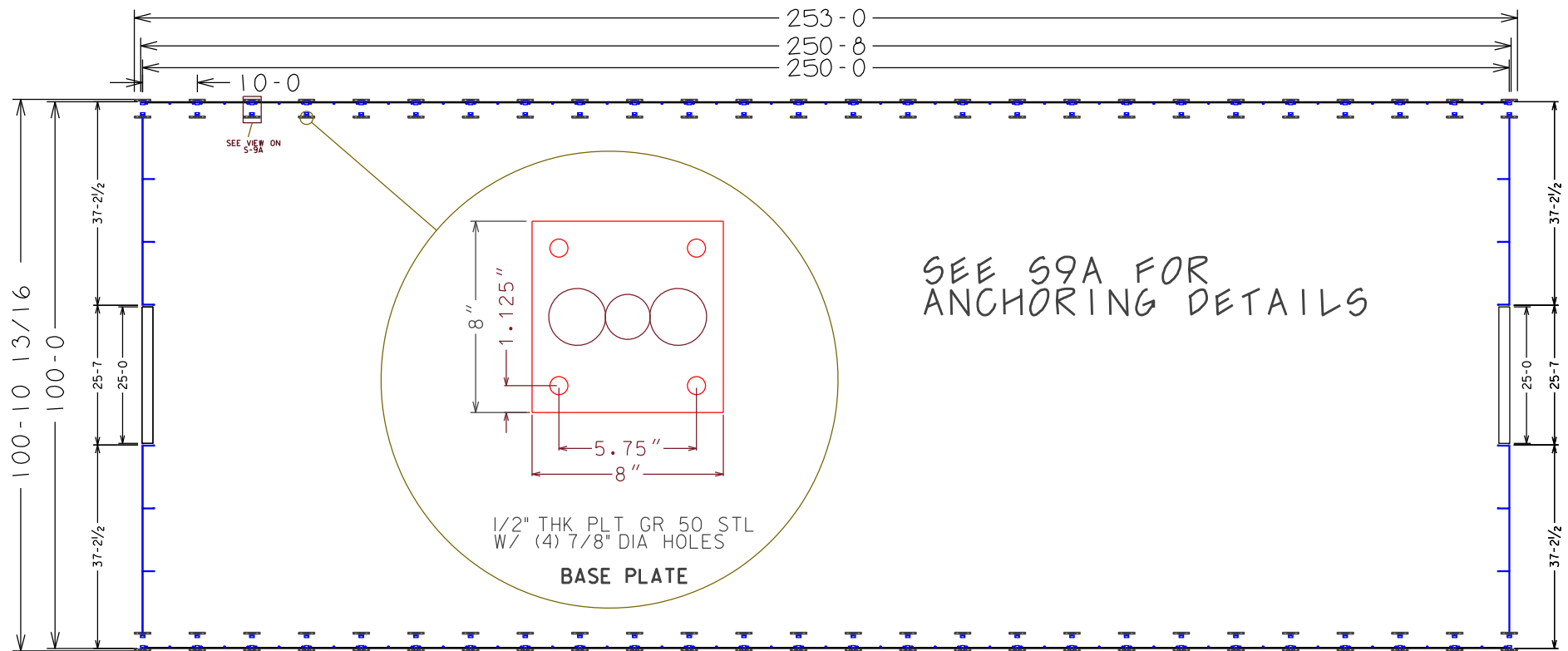
ADDITIONAL CABLES - CONNECTION DETAILS FOR S-5A

12/23/2021

|                                                                                                                                                                                         |                                          |                                |                                                                                                                                                                                 |                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|  <p>BIG TOP MANUFACTURING INC.<br/>3255 NORTH US 19<br/>PERRY, FL 32347<br/>PH: (850) 584 - 7786</p> | <b>CUSTOMER:</b><br>Ocean Highway        |                                | <b>NOTES:</b><br>FOUNDATION TYPE:<br>Asphalt<br>SHELTER BASE HEIGHT ABOVE GROUND:<br>At Ground Level<br>TITLE _____<br>TITLE _____<br>TITLE _____<br>TITLE _____<br>TITLE _____ | <b>DRAWING TYPE:</b><br>ENGINEERING |
|                                                                                                                                                                                         | <b>SIZE:</b><br>100x250x35               |                                |                                                                                                                                                                                 | PAGE: S-8A                          |
|                                                                                                                                                                                         | <b>LOCATION:</b><br>Fernandina Beach, FL |                                |                                                                                                                                                                                 | *ALL INFORMATION IS                 |
|                                                                                                                                                                                         | <b>CUSTOMER CONTACT:</b><br>N/A          |                                |                                                                                                                                                                                 | PROPERTY OF                         |
|                                                                                                                                                                                         | <b>SALES:</b><br>BS                      |                                |                                                                                                                                                                                 | BIG TOP                             |
| <b>DRAWN BY:</b><br>Matt W.                                                                                                                                                             |                                          | <b>DATE DRAWN:</b><br>12-16-21 | MANUFACTURING INC.                                                                                                                                                              |                                     |
| <b>APPROVED BY:</b>                                                                                                                                                                     |                                          | <b>PE STAMP ONLY</b>           |                                                                                                                                                                                 |                                     |

EXPIRES: 02/28/2023





## FRAME - ANCHOR FOOTPRINT

Digitally signed by  
Nabil Taha  
DN:  
E=nabil@structure1.com,  
CN=Nabil Taha,  
OU=President/CEO,  
O=PSR Consulting  
Engineers, L.L.C.,  
State of Oregon, C=US  
Date: 2021.12.23  
11:37:24 -0800

12/23/2021

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.

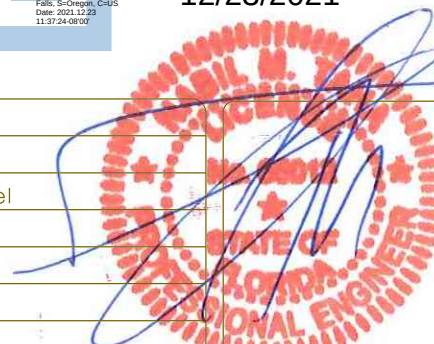


BIG TOP MANUFACTURING INC.  
3255 NORTH US 19  
PERRY, FL 32347  
PH: (850) 584 - 7786

CUSTOMER:  
Ocean Highway  
SIZE  
100x250x35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DRAWN BY:  
Matt W.  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE



PE STAMP ONLY

EXPIRES: 02/28/2023

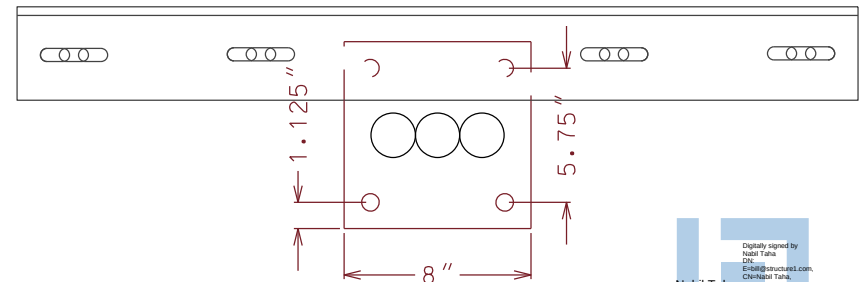
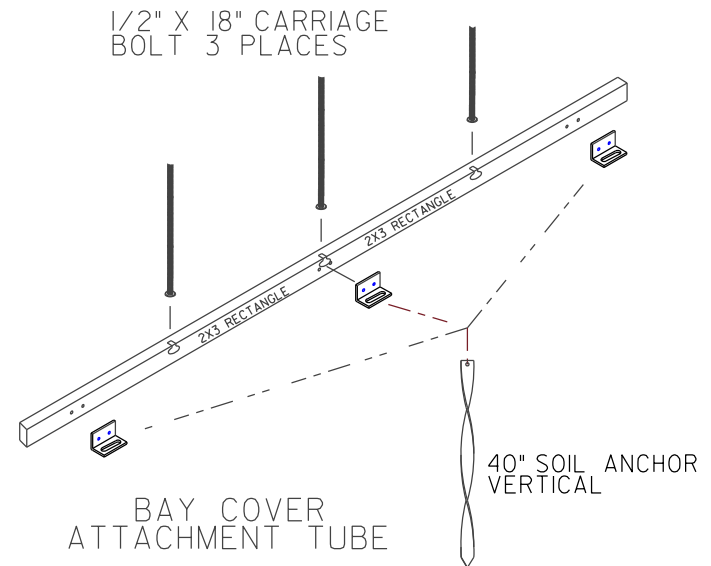
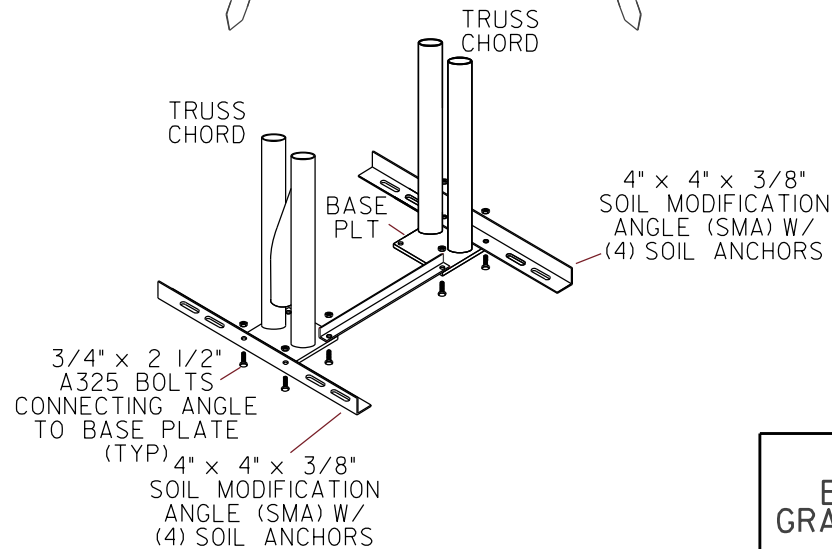
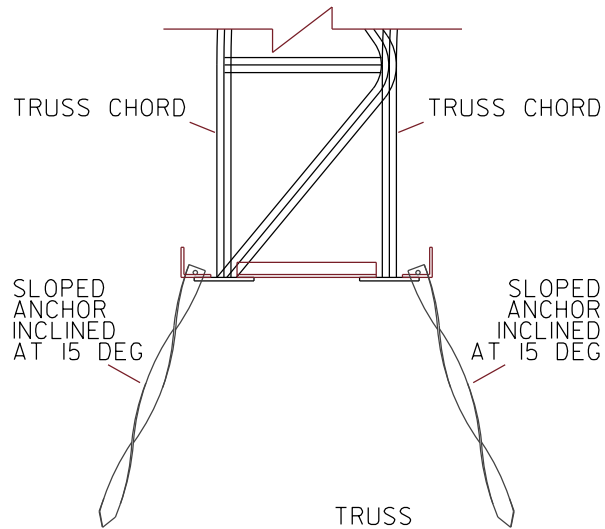
DRAWING TYPE:

ENGINEERING

PAGE:

S-9

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BIG TOP  
MANUFACTURING INC.



1/2" THICK  
BASE PLATE  
GRADE 50 STEEL

BASE PLATE/SMA  
FOR TRUSS FOOT  
ON ASPHALT



12/23/2021

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.

## FRAME - ANCHOR DETAILS

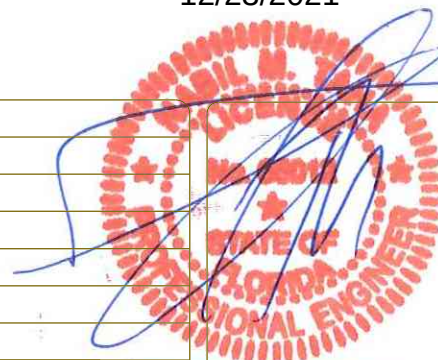


BIG TOP MANUFACTURING INC.  
3255 NORTH US 19  
PERRY, FL 32347  
PH: (850) 584 - 7786

CUSTOMER:  
Ocean Highway  
SIZE:  
100x250x35  
LOCATION:  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DRAWN BY:  
Matt W.  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHEETER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE:  
TITLE:  
TITLE:  
TITLE:  
TITLE:



DRAWING TYPE:

ENGINEERING

PAGE:

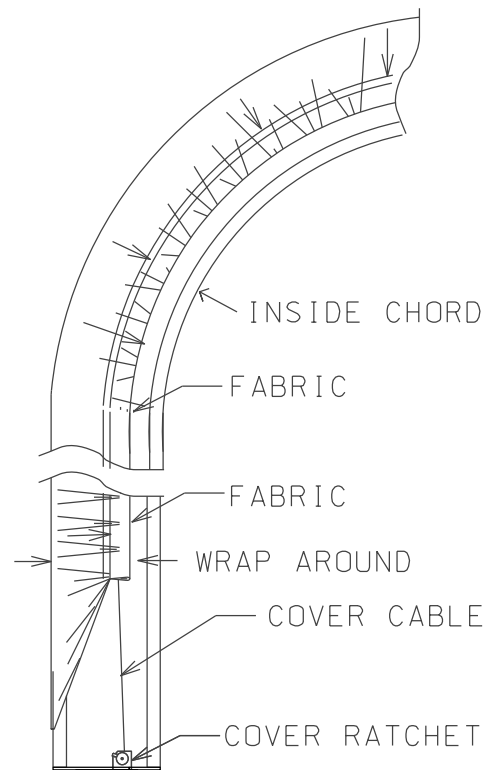
S-9A

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MANUFACTURING INC.

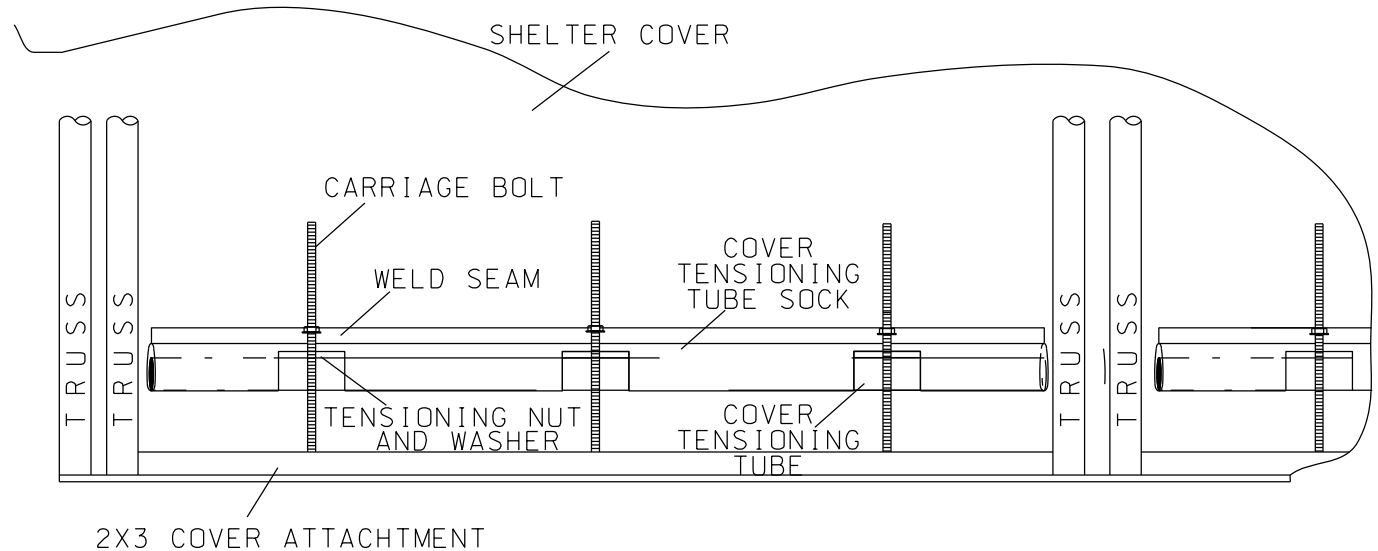
EXPIRES: 02/28/2023

PE STAMP ONLY

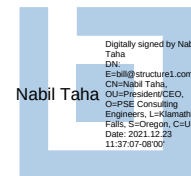
| FABRIC |            |
|--------|------------|
| COLOR  | 4000 WHITE |
| WEIGHT | 18 OZ      |



## COVER TENSIONING METHOD (INSIDE LOOKING OUT)



COVER TENSIONING FRAME END  
(LOOKING OUTSIDE IN)



12/23/2021

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.

## FABRIC ATTACHMENT DETAILS

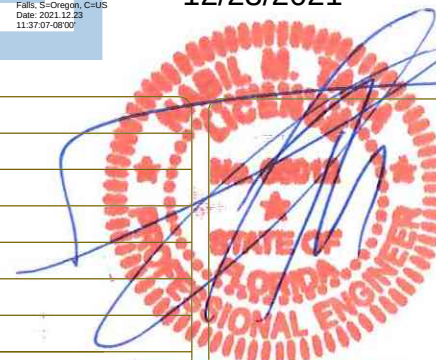


BIG TOP MANUFACTURING INC.  
3255 NORTH US 19  
PERRY, FL 32347  
PH: (850) 584 - 7786

|                                  |                         |
|----------------------------------|-------------------------|
| CUSTOMER:<br>Ocean Highway       |                         |
| SIZE<br>100x250x35               |                         |
| LOCATION<br>Fernandina Beach, FL |                         |
| CUSTOMER CONTACT:<br>N/A         | SALES:<br>BS            |
| DRAWN BY:<br>Matt W.             | DATE DRAWN:<br>12-16-21 |
| APPROVED BY:                     |                         |

### NOTES:

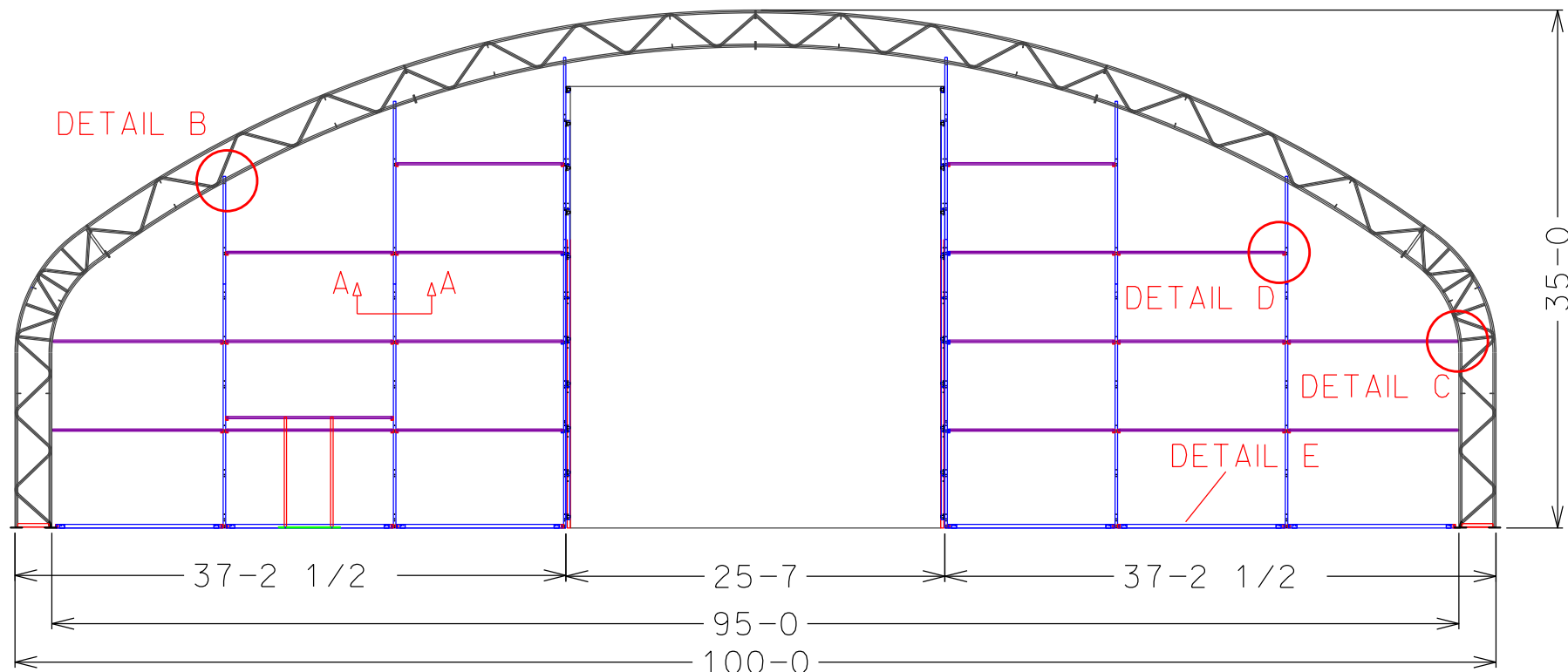
|                                                      |
|------------------------------------------------------|
| FOUNDATION TYPE:<br>Asphalt                          |
| SHELTER BASE HEIGHT ABOVE GROUND:<br>At Ground Level |
| TITLE                                                |
| TITLE                                                |
| TITLE                                                |
| TITLE                                                |
| TITLE                                                |



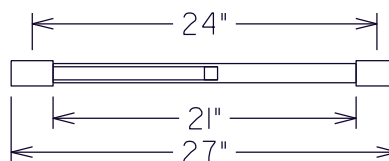
PE STAMP ONLY

|                                                                     |
|---------------------------------------------------------------------|
| DRAWING TYPE:<br><b>ENGINEERING</b>                                 |
| PAGE:<br><b>S-10</b>                                                |
| *ALL INFORMATION IS<br>PROPERTY OF<br>BIG TOP<br>MANUFACTURING INC. |

EXPIRES: 02/28/2023



TRUSS CHORD SINGLE 2" X 3" X 0.085"  
 YIELD: 50,000 PSI  
 TENSILE: 55,000 PSI  
 HORIZONTAL BRACE 1.75" X 1.75" X 0.085"  
 YIELD: 50,000 PSI  
 TENSILE: 55,000 PSI  
 DIAGONAL BRACE 1.5" X 1.5" X 0.085"  
 YIELD: 50,000 PSI  
 TENSILE: 55,000 PSI



SECTION A-A

Digitally signed by Nabil Taha  
 DN: cn=Nabil Taha, o=Big Top Manufacturing Inc., ou=President/CEO, email=N.Taha@bigtopmfg.com, c=US  
 Date: 2021.12.23 11:37:00 -0800

## FRAME - END PANEL LAYOUT (INSIDE LOOKING OUT)

12/23/2021

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.

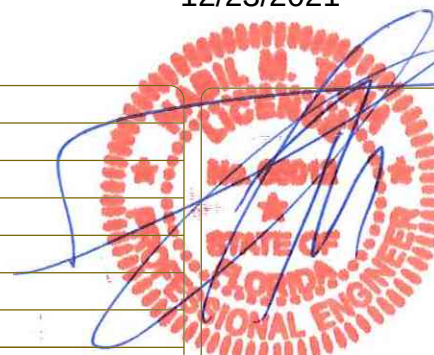


BIG TOP MANUFACTURING INC.  
 3255 NORTH US 19  
 PERRY, FL 32347  
 PH: (850) 584 - 7786

CUSTOMER:  
 Ocean Highway  
 SIZE:  
 100x250x35  
 LOCATION:  
 Fernandina Beach, FL  
 CUSTOMER CONTACT:  
 N/A  
 SALES:  
 BS  
 DRAWN BY:  
 Matt W.  
 DATE DRAWN:  
 12-16-21  
 APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
 Asphalt  
 SHELTER BASE HEIGHT ABOVE GROUND:  
 At Ground Level  
 TITLE  
 TITLE  
 TITLE  
 TITLE



PE STAMP ONLY

DRAWING TYPE:

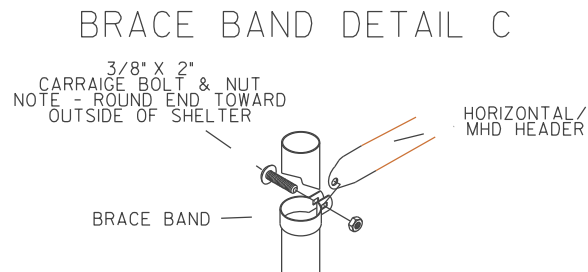
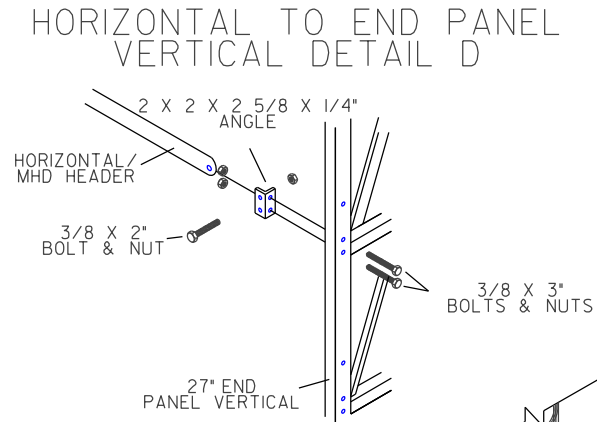
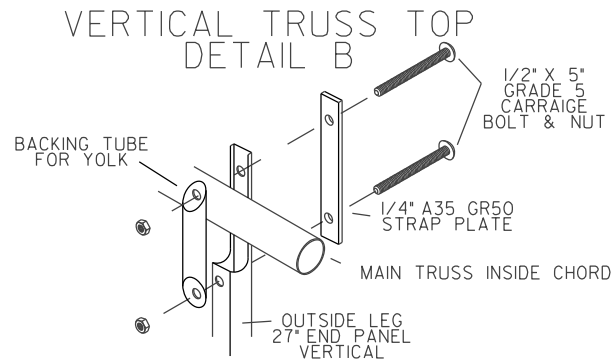
ENGINEERING

PAGE:

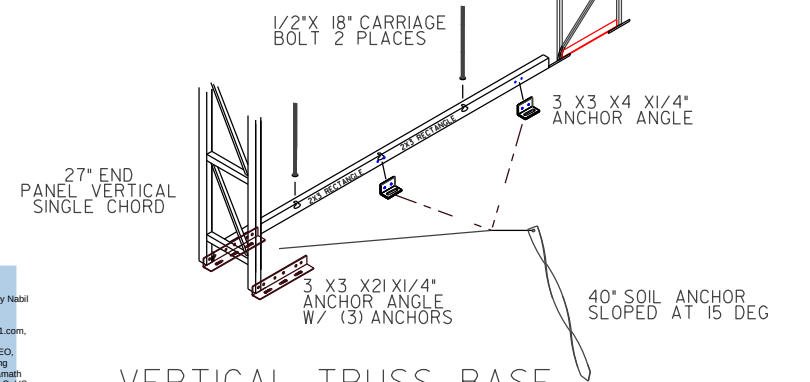
S-II

\*ALL INFORMATION IS  
 PROPERTY OF  
 BIG TOP  
 MANUFACTURING INC.

EXPIRES: 02/28/2023



NOTE: ALL ANGLES ARE BOLTED USING 3/8 X 3\"/>



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.

## FRAME - END PANEL CONNECTION DETAILS

12/23/2021



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

CUSTOMER:  
Ocean Highway  
SIZE  
100x250x35  
LOCATION  
Fernandina Beach, FL  
CUSTOMER CONTACT:  
N/A  
SALES:  
BS  
DRAWN BY:  
Matt W.  
DATE DRAWN:  
12-16-21  
APPROVED BY:

### NOTES:

FOUNDATION TYPE:  
Asphalt  
SHELTER BASE HEIGHT ABOVE GROUND:  
At Ground Level  
TITLE  
TITLE  
TITLE  
TITLE  
TITLE



| DRAWING TYPE:       |       |
|---------------------|-------|
| ENGINEERING         |       |
| PAGE:               | S-IIA |
| *ALL INFORMATION IS |       |
| PROPERTY OF         |       |
| BIG TOP             |       |
| MANUFACTURING INC.  |       |

EXPIRES: 02/28/2023



PSE Consulting Engineers Inc.

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## **Table of Contents:**

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| 3- Truss Analysis & Design – Main Truss:      | 1,000-1,999  |
| 4- Truss Analysis & Design – End Panel Truss: | 2,000-2,999  |





---

## **References:**

### 1- Literature:

2020 Edition of the Florida Building Code based on 2018 International Building Code (IBC 2018) along with Amendments by the Local Authority Having Jurisdiction.

### 2- Software:

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

[www.risa.com](http://www.risa.com)

26632 Towne Centre Drive, Suite 210  
Foothill Ranch, CA 92610



PSE Consulting Engineers Inc.

---

## **Design Criteria:**

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

\*\*Other criteria assumed as stated in design calculations.

## Search Information

**Address:** 86130 License Rd, Fernandina Beach, FL 32034, USA

**Coordinates:** 30.6276728, -81.5560862

**Elevation:** 31 ft

**Timestamp:** 2021-12-16T13:25:03.174Z

**Hazard Type:** Wind



### ASCE 7-16

MRI 10-Year ----- 75 mph

MRI 25-Year ----- 84 mph

MRI 50-Year ----- 94 mph

MRI 100-Year ----- 101 mph

Risk Category I ----- 116 mph

Risk Category II ----- 127 mph

Risk Category III ----- ⚠️ 138 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

Risk Category IV ----- ⚠️ 146 mph

You are in a wind-borne debris region.

### ASCE 7-10

MRI 10-Year ----- 76 mph

MRI 25-Year ----- 86 mph

MRI 50-Year ----- 94 mph

MRI 100-Year ----- 102 mph

Risk Category I ----- 116 mph

Risk Category II ----- 126 mph

Risk Category III-IV --- ⚠️ 138 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

### ASCE 7-05

ASCE 7-05 Wind Speed -- ⚠️ 119 mph

You are in a wind-borne debris region.

*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.<sup>102</sup>

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

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## Search Information

**Address:** 86130 License Rd, Fernandina Beach, FL 32034, USA

**Coordinates:** 30.6276728, -81.5560862

**Elevation:** 31 ft

**Timestamp:** 2021-12-16T22:32:35.230Z

**Hazard Type:** Snow



### ASCE 7-16

Ground Snow Load ----- 0 lb/sqft

### ASCE 7-10

Ground Snow Load ----- 0 lb/sqft

### ASCE 7-05

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.

**MecaWind v2323**Software Developer: Meca Enterprises Inc., [www.meca.biz](http://www.meca.biz), Copyright © 2018**Calculations Prepared by:**

Date: Dec 16, 2021

**File Location:**

F:\Engineering Department\2021 Projects\  
 Big Top 221-229 100x250x35 Ocean Highway and Port Authority 30FC - Fernandina, FL\  
 3. Engineering\2. Design\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   | = ASCE 7-16 Wind Parameters                   | =              |
| DynType   | = Include ASD Load Factor of 0.6 in Pressures | = False        |
| NF        | = Dynamic Type of Structure                   | = Rigid        |
| NF        | = Natural Frequency of Structure (Mode 1)     | = 1.000 Hz     |
| Zg        | = Natural Frequency of Structure              | = 1.000 Hz     |
| Bdist     | = Altitude (Ground Elevation) above Sea Level | = 0.000 ft     |
| GenElev   | = Base Elevation of Structure                 | = 0.000 ft     |
| SDB       | = Specify the Elevations For Wind Pressures   | = Mean Roof Ht |
| MWFRS     | = Simple Diaphragm Building                   | = False        |
| C&C       | = Analysis Procedure being used for MWFRS     | = Ch 27 Pt 1   |
| MWFRSType | = Analysis Procedure being used for C&C       | = None         |
|           | = 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     | : Arched | =                      |              |
| Eht  | : Eave Height                                     | = 16.714 ft  | R        | : Enter Radius of Arch | = 77.500 ft  |
| W    | : Building Width                                  | = 100.000 ft | L        | : Building Length      | = 250.000 ft |
| OH   | : Specify Roof to Wall intersection and Overhang= | None         | OH_ALL:  | None                   | = 0.000 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                                         | = 25.857 ft      |
| Kh   | = 15 ft [4.572 m] < Z < Zg --> (2.01*(Z/Zg)^(2/Alpha)) {Table 26.10-1} | = 0.952          |
| 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                                                            | = 27164.13 sq ft |
| LF   | = Load Factor based upon STRENGTH Design                               | = 1.00           |
| qh   | = (0.00256 * Kh * Kzt * Kd * Ke * V^2) * LF                            | = 25.07 psf      |
| qin  | = For Negative Internal Pressure of Enclosed Building use qh*LF        | = 25.07 psf      |
| qip  | = For Positive Internal Pressure of Enclosed Building use qh*LF        | = 25.07 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                                        | = 15.514 ft |
| Izm         | = Cc * (33 / Zm) ^ 0.167                          | = 0.227     |
| Lzm         | = L * (Zm / 33) ^ Epsilon                         | = 429.946   |
| Q           | = (1 / (1 + 0.63 * ((B + Ht) / Lzm)^0.63))^0.5    | = 0.880     |
| G2          | = 0.925*((1+1.7*Lzm*3.4*Q)/(1+1.7*3.4*Lzm))       | = 0.862     |
| 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 = 25.857 ft  
 RHt = Ridge Height Of Roof = 35.000 ft  
 B = Horizontal Dimension Of Building Normal To Wind Direction = 250.000 ft  
 L = Horizontal Dimension Of building Parallel To Wind Direction = 100.000 ft  
 L/B = Ratio Of L/B used For Cp determination = 0.400  
 h/L = Ratio Of h/L used For Cp determination = 0.259  
 RHt = Ridge Height Of Roof = 35.000 ft  
 r = Rise To Span Ratio (RHt-EHt)/W = 0.183  
 Elev = Is roof on Elevated Structure (Is EHt>0) = True  
 Roof\_CH = Roof Coefficient Center Half = -0.883, -0.883  
 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 = Leeward 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  | Kz    | Kzt   | qz    | GCPi | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|-------|-------|-------|-------|------|----------------|---------------|------------|-------------|-------------------|
| ft    |       |       | psf   |      | psf            | psf           | psf        | psf         | psf               |
| 25.86 | 0.952 | 1.000 | 25.07 | 0.18 | 12.53          | -15.16        | -19.43     | 27.70       | 16.00             |
| 16.71 | 0.868 | 1.000 | 22.87 | 0.18 | 11.04          | -15.16        | -19.43     | 26.20       | 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  | Kz    | Kzt   | qz    | GCPi  | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|-------|-------|-------|-------|-------|----------------|---------------|------------|-------------|-------------------|
| ft    |       |       | psf   |       | psf            | psf           | psf        | psf         | psf               |
| 25.86 | 0.952 | 1.000 | 25.07 | -0.18 | 21.56          | -6.14         | -10.40     | 27.70       | 16.00             |
| 16.71 | 0.868 | 1.000 | 22.87 | -0.18 | 20.06          | -6.14         | -10.40     | 26.20       | 16.00             |

#### Notes Wall Pressures:

Kz = Velocity Press Exp Coeff      Kzt = Topographical Factor  
 qz =  $0.00256 \cdot Kz \cdot Kzt \cdot Kd \cdot V^2$       GCPi = Internal Press Coefficient  
 Side =  $q_h \cdot G \cdot Cp_{SW} - q_{ip} \cdot +GCPi$       Windward =  $q_z \cdot G \cdot Cp_{WW} - q_{ip} \cdot +GCPi$   
 Leeward =  $q_h \cdot G \cdot Cp_{LW} - q_{ip} \cdot +GCPi$       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 | End Dist | Cp_min | Cp_max | GCPi  | Pressure Pn_min* | Pressure Pp_min* | Pressure Pn_max | Pressure Pp_max |
|----------|------------|----------|--------|--------|-------|------------------|------------------|-----------------|-----------------|
|          | ft         | ft       |        |        |       | psf              | psf              | psf             | psf             |
| Roof_CH  | N/A        | N/A      | -0.883 | -0.883 | 0.180 | -14.30           | -23.32           | -14.30          | -23.32          |
| Roof_LQ  | N/A        | N/A      | -0.500 | -0.500 | 0.180 | -6.14            | -15.16           | -6.14           | -15.16          |
| Roof_WQ  | N/A        | N/A      | -0.900 | -0.900 | 0.180 | -14.66           | -23.69           | -14.66          | -23.69          |

#### 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 =  $q_h \cdot G \cdot Cp_{max} - q_{ip} \cdot (+GCPi)$       Pn\_max =  $q_h \cdot G \cdot Cp_{max} - q_{in} \cdot (-GCPi)$   
 Pp\_min\* =  $q_h \cdot G \cdot Cp_{min} - q_{ip} \cdot (+GCPi)$       Pn\_min\* =  $q_h \cdot G \cdot Cp_{min} - q_{in} \cdot (-GCPi)$   
 OH = Overhang      X = Dir along Ridge      Y = Dir Perpendicular 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 = 25.857 ft

Rht = Ridge Height Of Roof = 35.000 ft  
 B = Horizontal Dimension Of Building Normal To Wind Direction = 100.000 ft  
 L = Horizontal Dimension Of building Parallel To Wind Direction = 250.000 ft  
 L/B = Ratio Of L/B used For Cp determination = 2.500  
 h/L = Ratio Of h/L used For Cp determination = 0.103  
 Rht = Ridge Height Of Roof = 35.000 ft  
 r = Rise To Span Ratio (Rht-Eht)/W = 0.183  
 Elev = Is roof on Elevated Structure (Is Eht>0) = True  
 Roof\_1 = Roof Coeff (0 to h) (0.000 ft to 25.857 ft) = -0.18, -0.9  
 Roof\_2 = Roof Coeff (h to 2h) (25.857 ft to 51.714 ft) = -0.18, -0.5  
 Roof\_3 = Roof Coeff (>2h) (>51.714 ft) = -0.18, -0.3  
  
 Cp\_WW = Windward Wall Coefficient (All L/B Values) = 0.80  
 Cp\_LW = Leeward Wall Coefficient using L/B = -0.28  
 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  | Kz    | Kzt   | qz    | GCPi | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|-------|-------|-------|-------|------|----------------|---------------|------------|-------------|-------------------|
| ft    |       |       | psf   |      | psf            | psf           | psf        | psf         | psf               |
| 35.00 | 1.015 | 1.000 | 26.72 | 0.18 | 13.65          | -10.37        | -19.43     | 24.03       | 16.00             |
| 25.86 | 0.952 | 1.000 | 25.07 | 0.18 | 12.53          | -10.37        | -19.43     | 22.90       | 16.00             |
| 16.71 | 0.868 | 1.000 | 22.87 | 0.18 | 11.04          | -10.37        | -19.43     | 21.41       | 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  | Kz    | Kzt   | qz    | GCPi  | Windward Press | Leeward Press | Side Press | Total Press | Minimum Pressure* |
|-------|-------|-------|-------|-------|----------------|---------------|------------|-------------|-------------------|
| ft    |       |       | psf   |       | psf            | psf           | psf        | psf         | psf               |
| 35.00 | 1.015 | 1.000 | 26.72 | -0.18 | 22.68          | -1.35         | -10.40     | 24.03       | 16.00             |
| 25.86 | 0.952 | 1.000 | 25.07 | -0.18 | 21.56          | -1.35         | -10.40     | 22.90       | 16.00             |
| 16.71 | 0.868 | 1.000 | 22.87 | -0.18 | 20.06          | -1.35         | -10.40     | 21.41       | 16.00             |

Notes Wall Pressures:

Kz = Velocity Press Exp Coeff      Kzt = Topographical Factor  
 qz =  $0.00256 \cdot Kz \cdot Kzt \cdot V^2$       GCPi = Internal Press Coefficient  
 Side =  $q_h \cdot G \cdot Cp_{SW} - q_{ip} \cdot +GCPi$       Windward =  $q_z \cdot G \cdot Cp_{WW} - q_{ip} \cdot +GCPi$   
 Leeward =  $q_h \cdot G \cdot Cp_{LW} - q_{ip} \cdot +GCPi$       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 | End Dist | Cp_min | Cp_max | GCPi  | Pressure Pn_min* | Pressure Pp_min* | Pressure Pn_max | Pressure Pp_max |
|----------|------------|----------|--------|--------|-------|------------------|------------------|-----------------|-----------------|
|          | ft         | ft       |        |        |       | psf              | psf              | psf             | psf             |
| Roof_1   | 0.000      | 25.857   | -0.180 | -0.900 | 0.180 | 0.68             | -8.35            | -14.66          | -23.69          |
| Roof_2   | 25.857     | 51.714   | -0.180 | -0.500 | 0.180 | 0.68             | -8.35            | -6.14           | -15.16          |
| Roof_3   | 51.714     | 250.000  | -0.180 | -0.300 | 0.180 | 0.68             | -8.35            | -1.88           | -10.90          |

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 =  $q_h \cdot G \cdot Cp_{max} - q_{ip} \cdot (+GCPi)$       Pn\_max =  $q_h \cdot G \cdot Cp_{max} - q_{in} \cdot (-GCPi)$   
 Pp\_min\* =  $q_h \cdot G \cdot Cp_{min} - q_{ip} \cdot (+GCPi)$       Pn\_min\* =  $q_h \cdot G \cdot Cp_{min} - q_{in} \cdot (-GCPi)$   
 OH = Overhang      X = Dir along Ridge      Y = Dir Perpendicular 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



## TRUSS ANALYSIS & DESIGN – MAIN TRUSS:

Pages 1,000 - 1,999

Job: 100x250x35 Ocean Highway and Port Authority

Designer:

A K Das

Date:

12/16/2021

Tributary Width = 10 ft

Dead Load

|      |   |     |   |    |    |   |    |     |
|------|---|-----|---|----|----|---|----|-----|
| DL = | 1 | psf | x | 10 | ft | = | 10 | plf |
|------|---|-----|---|----|----|---|----|-----|

Design  
Loads  
Used

Roof Live Load

|       |   |     |   |    |    |   |    |     |
|-------|---|-----|---|----|----|---|----|-----|
| RLL = | 5 | psf | x | 10 | ft | = | 50 | plf |
|-------|---|-----|---|----|----|---|----|-----|

Wind Loads

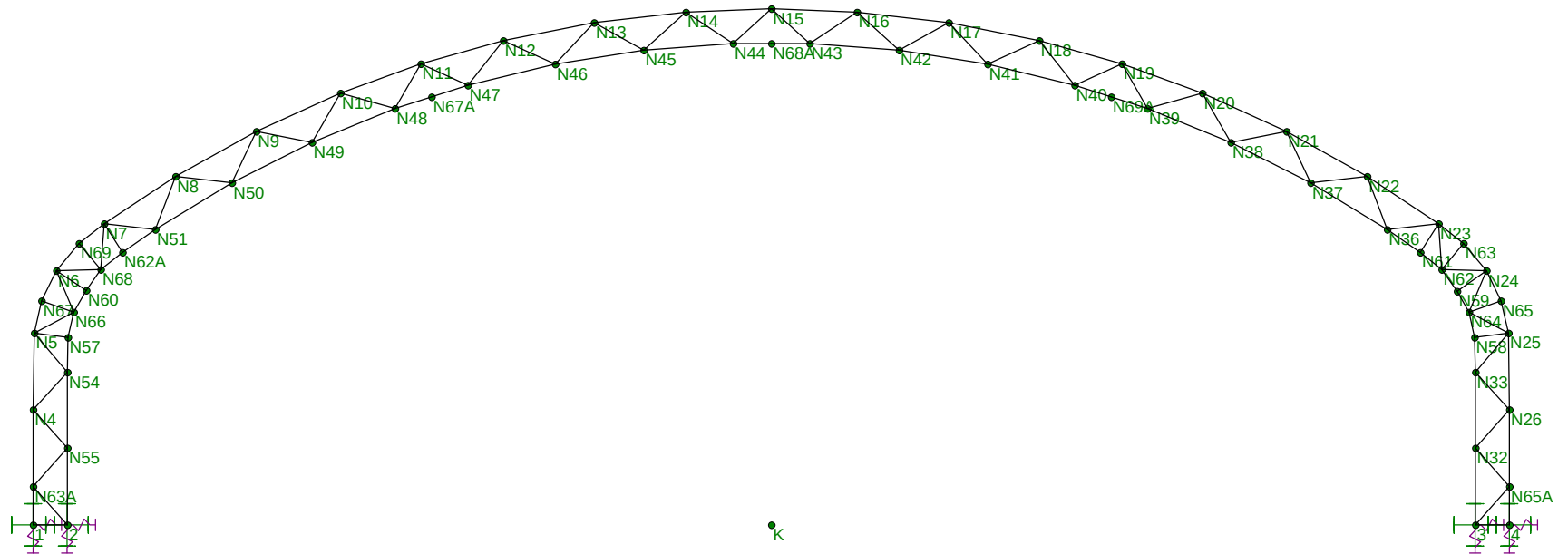
Wind Speed: 110 mph  
Cat II

Walls:

|                   |          |        |     |   |    |    |   |      |     |
|-------------------|----------|--------|-----|---|----|----|---|------|-----|
| +GC <sub>pi</sub> | Windward | 12.53  | psf | x | 10 | ft | = | 125  | plf |
|                   | Leeward  | -15.16 | psf | x | 10 | ft | = | -152 | plf |
| -GC <sub>pi</sub> | Windward | 21.56  | psf | x | 10 | ft | = | 216  | plf |
|                   | Leeward  | -6.14  | psf | x | 10 | ft | = | -61  | plf |

Roof:

|                   |                  |        |     |   |    |    |   |      |     |
|-------------------|------------------|--------|-----|---|----|----|---|------|-----|
| +GC <sub>pi</sub> | Windward Quarter | -23.69 | psf | x | 10 | ft | = | -237 | plf |
|                   | Center Half      | -23.32 | psf | x | 10 | ft | = | -233 | plf |
|                   | Leeward Quarter  | -15.16 | psf | x | 10 | ft | = | -152 | plf |
| -GC <sub>pi</sub> | Windward Quarter | -14.66 | psf | x | 10 | ft | = | -147 | plf |
|                   | Center Half      | -14.30 | psf | x | 10 | ft | = | -143 | plf |
|                   | Leeward Quarter  | -6.14  | psf | x | 10 | ft | = | -61  | plf |



Envelope Only Solution

Big Top Manufacturing

A K Das

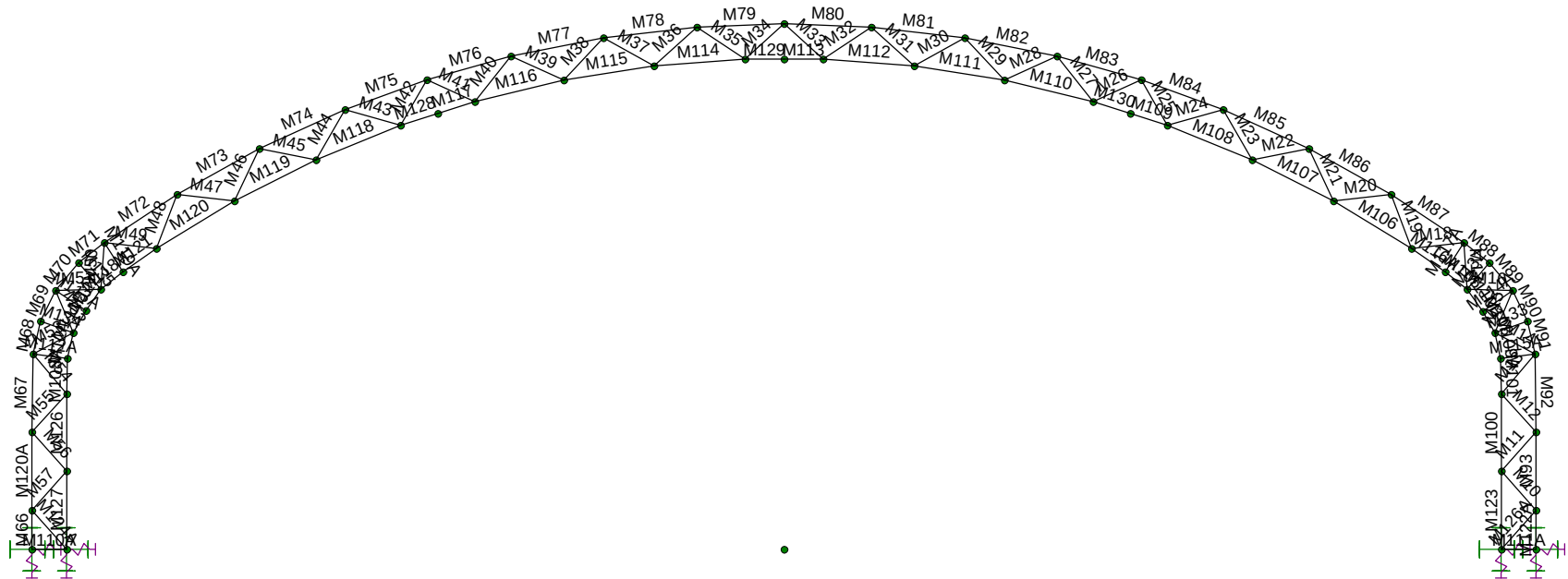
221-229

100x250x35 Ocean Highway and Port Authority

SK - 1

Dec 16, 2021 at 12:18 PM

100x250x35 Ocean Highway and Port Authority....



Envelope Only Solution

Big Top Manufacturing

A K Das

221-229

100x250x35 Ocean Highway and Port Authority

SK - 2

Dec 16, 2021 at 12:18 PM

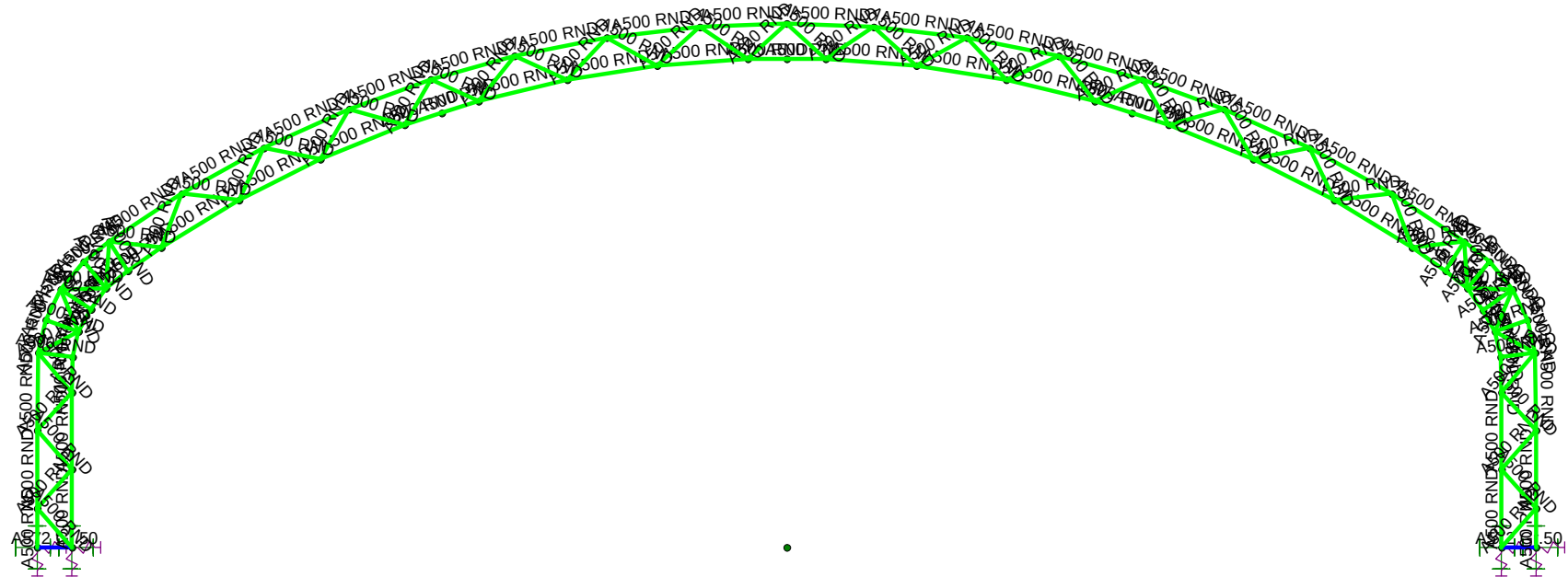
100x250x35 Ocean Highway and Port Authority....





Material Sets

A572 Gr.50  
A500 RND



Envelope Only Solution

Big Top Manufacturing

A K Das

221-229

100x250x35 Ocean Highway and Port Authority

SK - 3

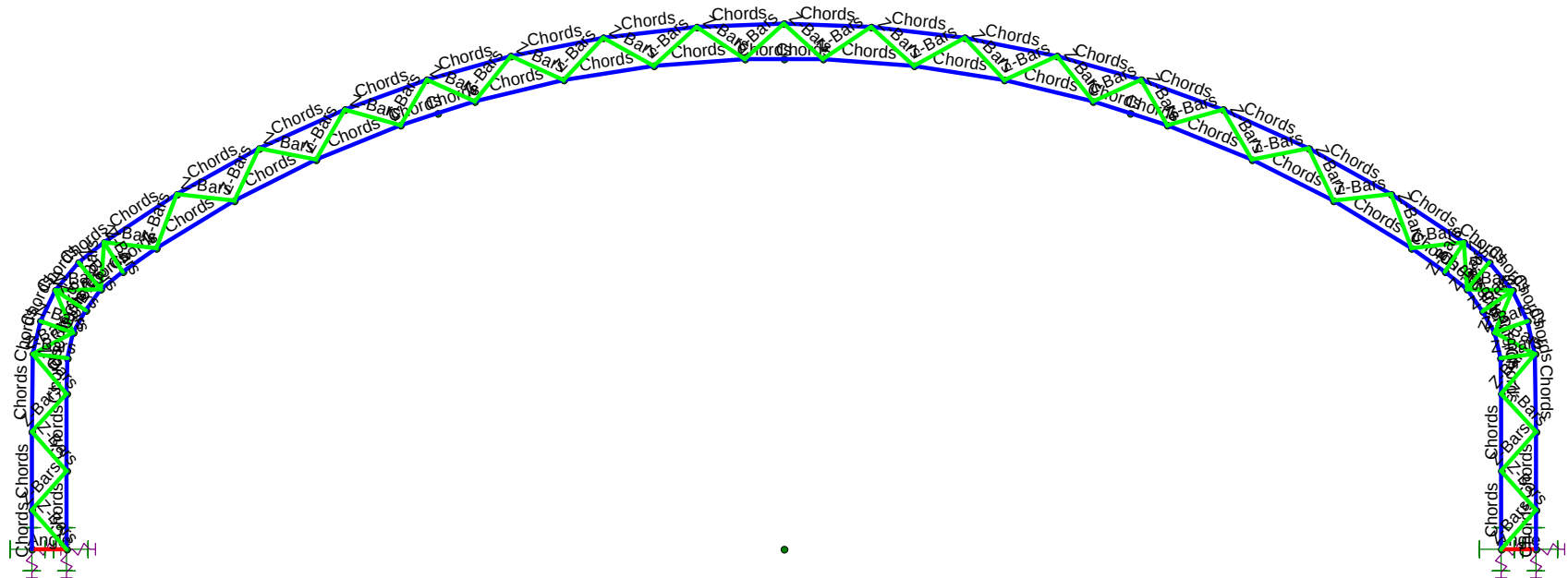
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100x250x35 Ocean Highway and Port Authority....



## Section Sets

- Chords
- Z-Bars
- Angle



Envelope Only Solution

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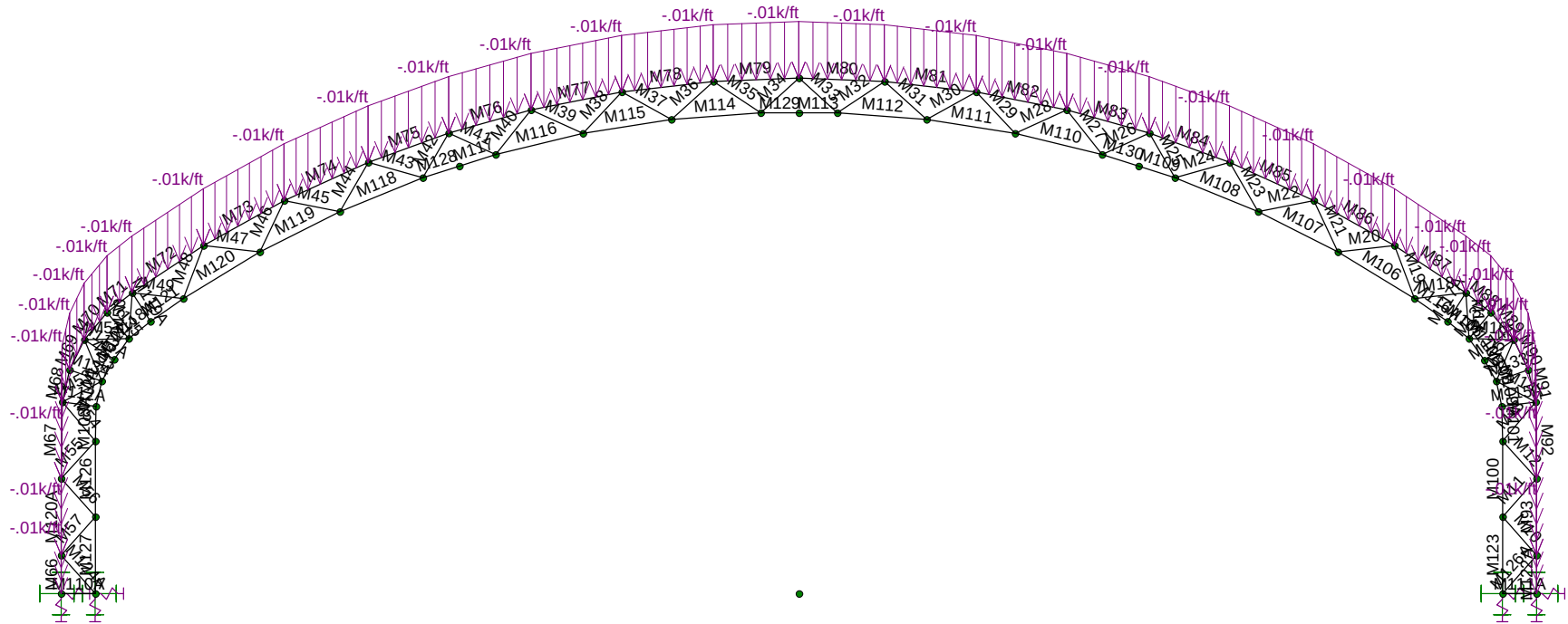
221-229

100x250x35 Ocean Highway and Port Authority

SK - 4

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100x250x35 Ocean Highway and Port Authority....



Loads: BLC 1, DL  
Envelope Only Solution

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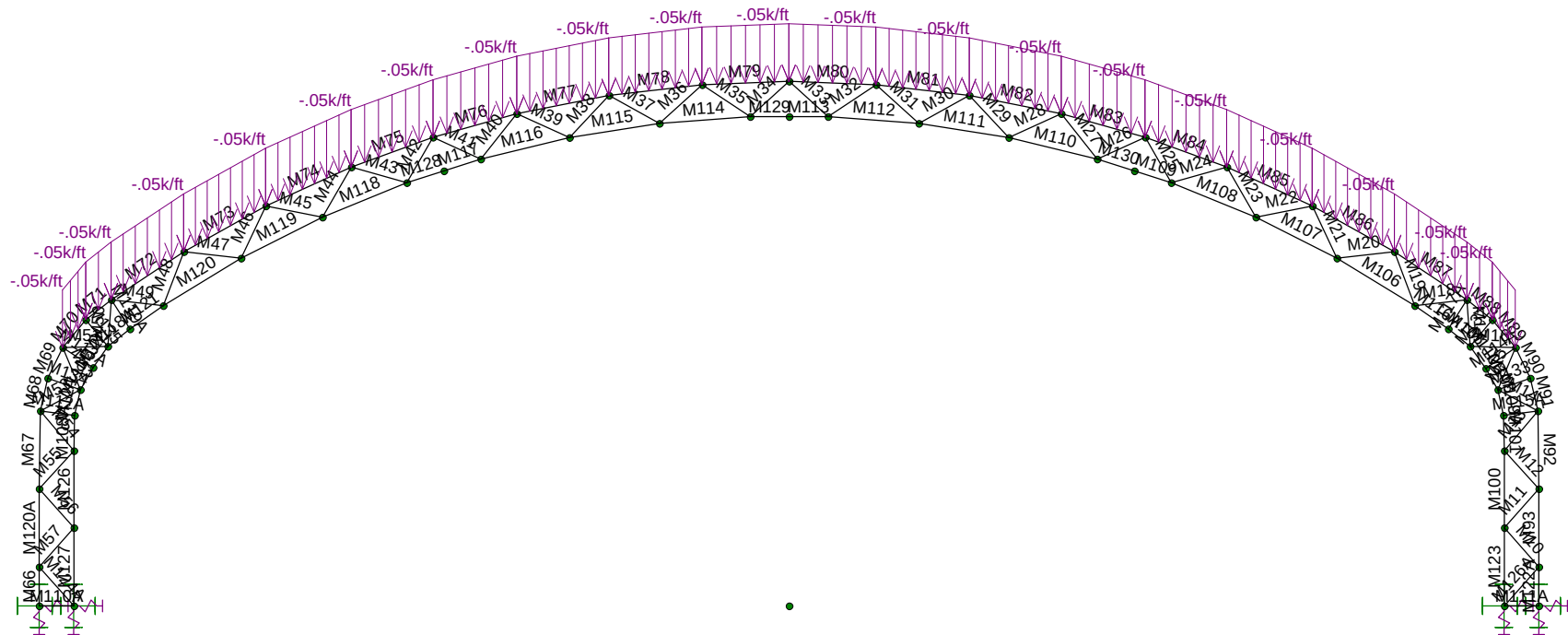
221-229

100x250x35 Ocean Highway and Port Authority

SK - 5

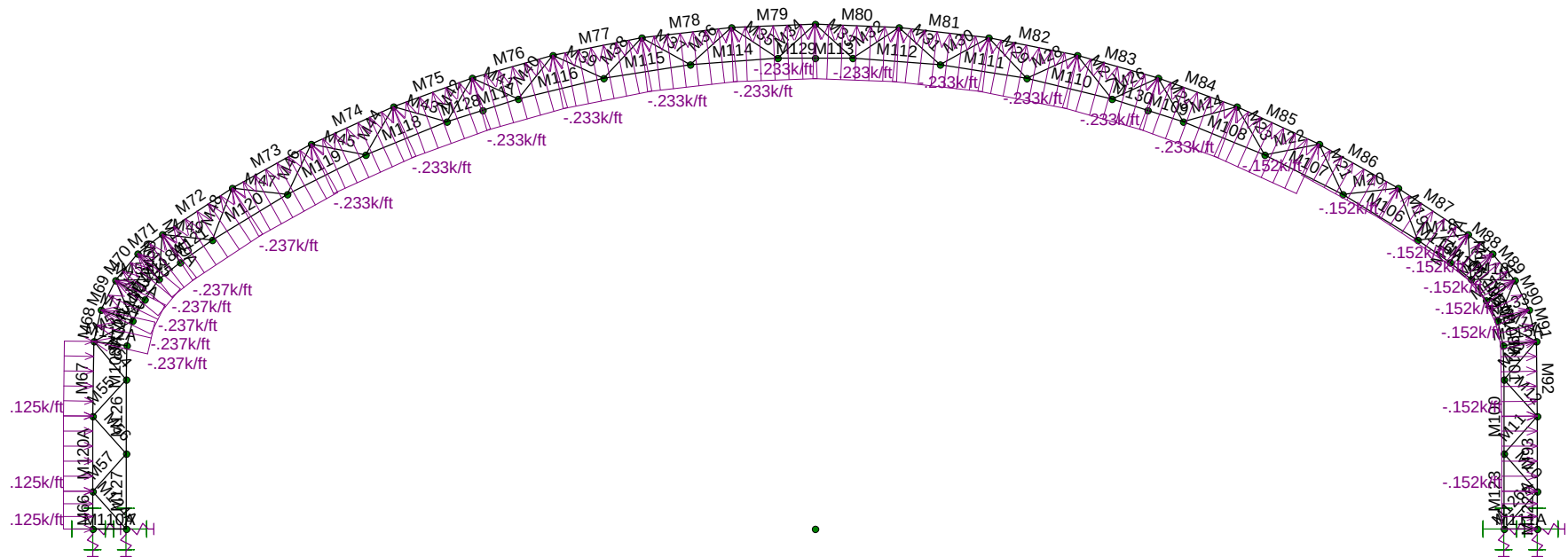
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100x250x35 Ocean Highway and Port Authority....



221-229

100x250x35 Ocean Highway and Port Authority....



Loads: BLC 3, WL+Z  
Envelope Only Solution

Big Top Manufacturing

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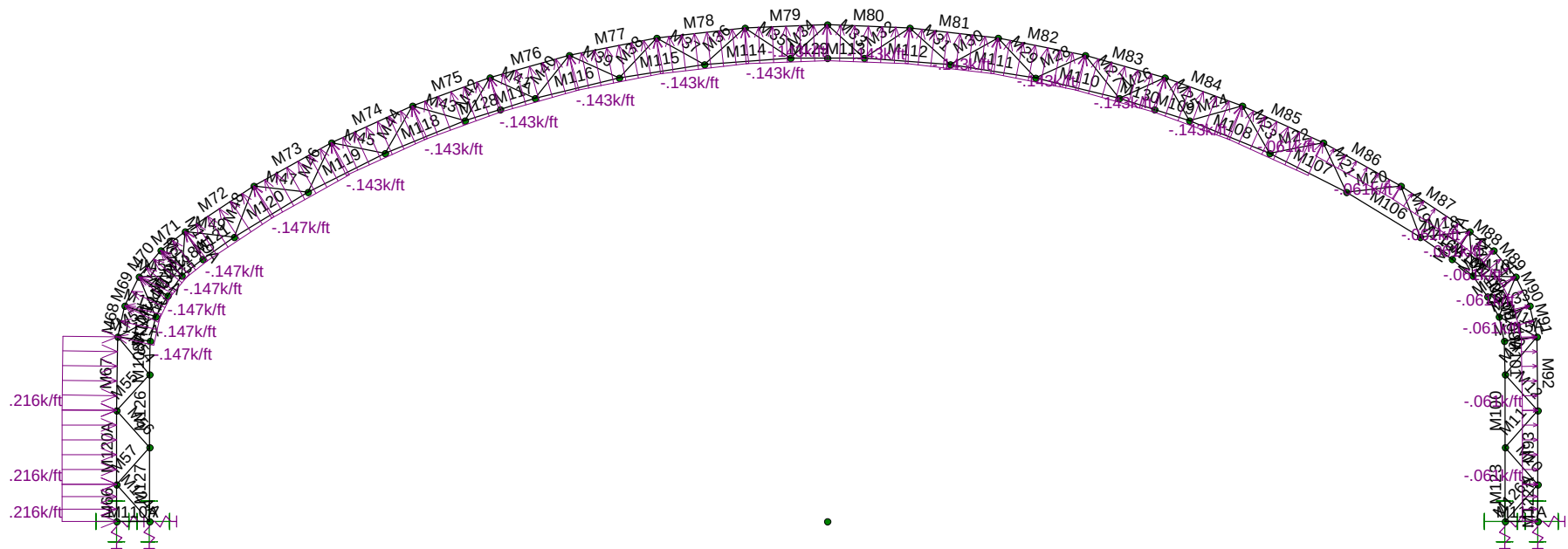
221-229

100x250x35 Ocean Highway and Port Authority

SK - 7

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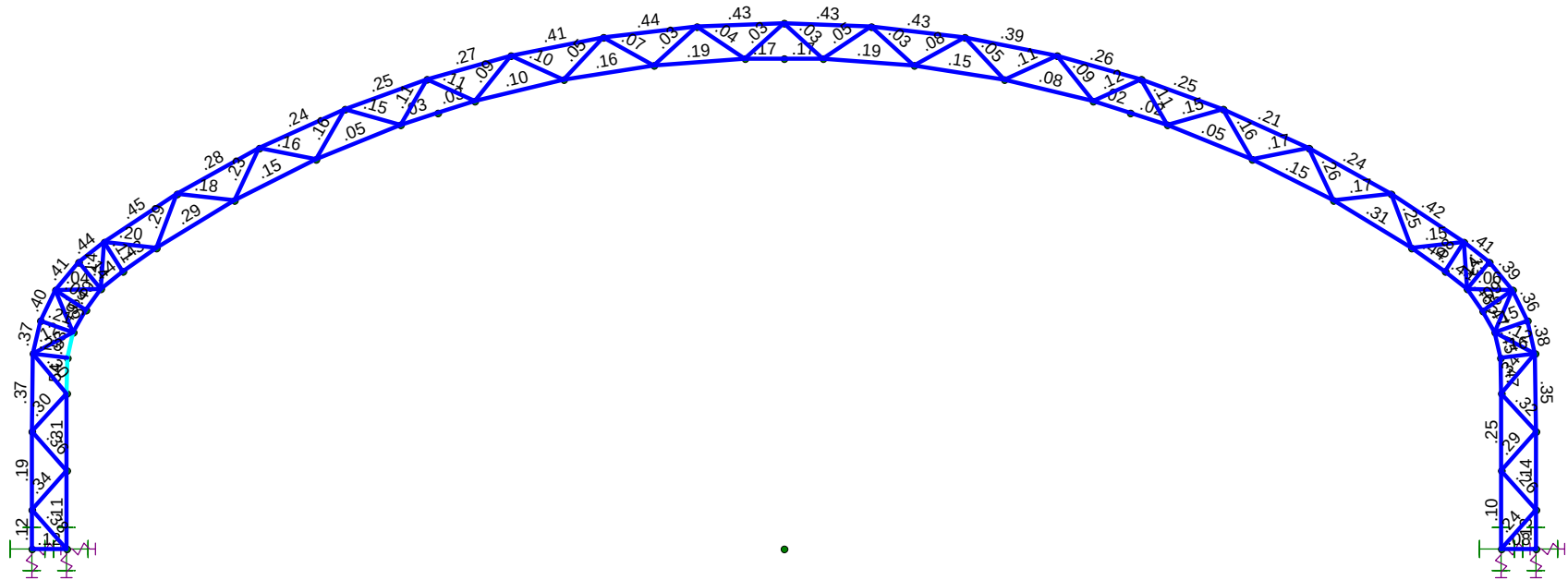
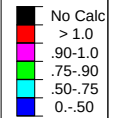
100x250x35 Ocean Highway and Port Authority....



221-229

100x250x35 Ocean Highway and Port Authority....



Code Check  
( Env )

Member Code Checks Displayed (Enveloped)  
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100x250x35 Ocean Highway and Port Authority

SK - 9

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### 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 RND       | 29000   | 11154   | .3 | .65           | .49             | 55         | 1.5 | 60      | 1.2 |

### Hot Rolled Steel Section Sets

|   | Label  | Shape             | Type | Design List  | Material   | Design R... | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|--------|-------------------|------|--------------|------------|-------------|---------|-----------|-----------|---------|
| 1 | Chords | Double 2.375x.095 | Beam | Pipe         | A500 RND   | Typical     | 1.36    | 7.104     | .886      | 7.99    |
| 2 | Z-Bars | 1.9"x0.09"        | Beam | Pipe         | A500 RND   | Typical     | .512    | .21       | .21       | .42     |
| 3 | Angle  | L3X3X4            | Beam | Single An... | A572 Gr.50 | Typical     | 1.44    | 1.23      | 1.23      | .031    |

### Joint Coordinates and Temperatures

|    | Label | X [ft] | Y [ft]    | Z [ft]    | Temp [F] | Detach From Di... |
|----|-------|--------|-----------|-----------|----------|-------------------|
| 1  | 1     | 0      | 0         | 99.802083 | 0        |                   |
| 2  | 2     | 0      | 0         | 97.499955 | 0        |                   |
| 3  | 3     | 0      | 0         | 2.302083  | 0        |                   |
| 4  | 4     | 0      | 0         | 0         | 0        |                   |
| 5  | K     | 0      | 0         | 49.901042 | 0        |                   |
| 6  | N4    | 0      | 7.80094   | 99.802083 | 0        |                   |
| 7  | N5    | 0      | 12.966108 | 99.739117 | 0        |                   |
| 8  | N6    | 0      | 17.185229 | 98.242464 | 0        |                   |
| 9  | N7    | 0      | 20.376823 | 95.01206  | 0        |                   |
| 10 | N8    | 0      | 23.576613 | 90.186461 | 0        |                   |
| 11 | N9    | 0      | 26.614166 | 84.725921 | 0        |                   |
| 12 | N10   | 0      | 29.20065  | 79.03844  | 0        |                   |
| 13 | N11   | 0      | 31.180457 | 73.596816 | 0        |                   |
| 14 | N12   | 0      | 32.747473 | 68.022303 | 0        |                   |
| 15 | N13   | 0      | 33.965282 | 61.893784 | 0        |                   |
| 16 | N14   | 0      | 34.684221 | 55.687329 | 0        |                   |
| 17 | N15   | 0      | 34.90103  | 49.901042 | 0        |                   |
| 18 | N16   | 0      | 34.684211 | 44.114623 | 0        |                   |
| 19 | N17   | 0      | 33.965279 | 37.908275 | 0        |                   |
| 20 | N18   | 0      | 32.747368 | 31.779343 | 0        |                   |
| 21 | N19   | 0      | 31.180457 | 26.205267 | 0        |                   |
| 22 | N20   | 0      | 29.200856 | 20.763818 | 0        |                   |
| 23 | N21   | 0      | 26.614348 | 15.07607  | 0        |                   |
| 24 | N22   | 0      | 23.576738 | 9.615826  | 0        |                   |
| 25 | N23   | 0      | 20.376823 | 4.790024  | 0        |                   |
| 26 | N24   | 0      | 17.184375 | 1.559074  | 0        |                   |
| 27 | N25   | 0      | 12.966734 | 0.06413   | 0        |                   |
| 28 | N26   | 0      | 7.80094   | 0         | 0        |                   |
| 29 | N32   | 0      | 5.20062   | 2.302083  | 0        |                   |
| 30 | N33   | 0      | 10.32     | 2.302083  | 0        |                   |
| 31 | N36   | 0      | 19.980213 | 8.260036  | 0        |                   |
| 32 | N37   | 0      | 23.138862 | 13.43439  | 0        |                   |
| 33 | N38   | 0      | 25.869351 | 18.846834 | 0        |                   |
| 34 | N39   | 0      | 28.153913 | 24.462149 | 0        |                   |
| 35 | N40   | 0      | 29.739476 | 29.386776 | 0        |                   |
| 36 | N41   | 0      | 31.160329 | 35.280177 | 0        |                   |

### Joint Coordinates and Temperatures (Continued)

|    | Label | X [ft] | Y [ft]    | Z [ft]    | Temp [F] | Detach From Di... |
|----|-------|--------|-----------|-----------|----------|-------------------|
| 37 | N42   | 0      | 32.100658 | 41.268991 | 0        |                   |
| 38 | N43   | 0      | 32.554344 | 47.314251 | 0        |                   |
| 39 | N44   | 0      | 32.554344 | 52.487833 | 0        |                   |
| 40 | N45   | 0      | 32.100658 | 58.533093 | 0        |                   |
| 41 | N46   | 0      | 31.160329 | 64.521907 | 0        |                   |
| 42 | N47   | 0      | 29.739476 | 70.415308 | 0        |                   |
| 43 | N48   | 0      | 28.153913 | 75.339934 | 0        |                   |
| 44 | N49   | 0      | 25.869351 | 80.95525  | 0        |                   |
| 45 | N50   | 0      | 23.138862 | 86.367693 | 0        |                   |
| 46 | N51   | 0      | 19.980213 | 91.542047 | 0        |                   |
| 47 | N54   | 0      | 10.32     | 97.499964 | 0        |                   |
| 48 | N55   | 0      | 5.20062   | 97.499964 | 0        |                   |
| 49 | N57   | 0      | 12.69     | 97.45     | 0        |                   |
| 50 | N58   | 0      | 12.69     | 2.35      | 0        |                   |
| 51 | N59   | 0      | 15.8      | 3.54      | 0        |                   |
| 52 | N60   | 0      | 15.86     | 96.23     | 0        |                   |
| 53 | N61   | 0      | 18.42     | 6.03094   | 0        |                   |
| 54 | N62   | 0      | 17.264534 | 4.568074  | 0        |                   |
| 55 | N62A  | 0      | 18.42     | 93.77115  | 0        |                   |
| 56 | N63   | 0      | 19.041655 | 3.094521  | 0        |                   |
| 57 | N64   | 0      | 14.38308  | 2.736266  | 0        |                   |
| 58 | N65   | 0      | 15.150091 | 0.565717  | 0        |                   |
| 59 | N66   | 0      | 14.38308  | 97.065817 | 0        |                   |
| 60 | N67   | 0      | 15.150091 | 99.236366 | 0        |                   |
| 61 | N68   | 0      | 17.264534 | 95.234009 | 0        |                   |
| 62 | N69   | 0      | 19.041655 | 96.707563 | 0        |                   |
| 63 | N63A  | 0      | 2.60031   | 99.802083 | 0        |                   |
| 64 | N65A  | 0      | 2.60031   | 0         | 0        |                   |
| 65 | N67A  | 0      | 28.946695 | 72.877621 | 0        |                   |
| 66 | N68A  | 0      | 32.554344 | 49.901042 | 0        |                   |
| 67 | N69A  | 0      | 28.946695 | 26.924462 | 0        |                   |

### Member Primary Data

|    | Label | I Joint | J Joint | K Joint | Rotate(deg) | Section/Shape | Type | Design List  | Material   | Design Rules |
|----|-------|---------|---------|---------|-------------|---------------|------|--------------|------------|--------------|
| 1  | M110A | 1       | 2       | K       |             | Angle         | Beam | Single Angle | A572 Gr.50 | Typical      |
| 2  | M111A | 3       | 4       | K       |             | Angle         | Beam | Single Angle | A572 Gr.50 | Typical      |
| 3  | M66   | 1       | N63A    | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 4  | M67   | N4      | N5      | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 5  | M68   | N5      | N67     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 6  | M69   | N67     | N6      | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 7  | M70   | N6      | N69     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 8  | M71   | N69     | N7      | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 9  | M72   | N7      | N8      | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 10 | M73   | N8      | N9      | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 11 | M74   | N9      | N10     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 12 | M75   | N10     | N11     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 13 | M76   | N11     | N12     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 14 | M77   | N12     | N13     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 15 | M78   | N13     | N14     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 16 | M79   | N14     | N15     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 17 | M80   | N15     | N16     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 18 | M81   | N16     | N17     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 19 | M82   | N17     | N18     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 20 | M83   | N18     | N19     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |
| 21 | M84   | N19     | N20     | K       |             | Chords        | Beam | Pipe         | A500 RND   | Typical      |



Company : Big Top Manufacturing  
 Designer : A K Das  
 Job Number : 221-229  
 Model Name : 100x250x35 Ocean Highway and Port Authority

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### Member Primary Data (Continued)

|    | Label | I Joint | J Joint | K Joint | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rules |
|----|-------|---------|---------|---------|-------------|---------------|------|-------------|----------|--------------|
| 22 | M85   | N20     | N21     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 23 | M86   | N21     | N22     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 24 | M87   | N22     | N23     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 25 | M88   | N23     | N63     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 26 | M89   | N63     | N24     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 27 | M90   | N24     | N65     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 28 | M91   | N65     | N25     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 29 | M92   | N25     | N26     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 30 | M93   | N26     | N65A    | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 31 | M100  | N32     | N33     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 32 | M101  | N33     | N58     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 33 | M103  | N64     | N59     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 34 | M105  | N62     | N61     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 35 | M106  | N36     | N37     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 36 | M107  | N37     | N38     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 37 | M108  | N38     | N39     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 38 | M109  | N39     | N69A    | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 39 | M110  | N40     | N41     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 40 | M111  | N41     | N42     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 41 | M112  | N42     | N43     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 42 | M113  | N43     | N68A    | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 43 | M114  | N44     | N45     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 44 | M115  | N45     | N46     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 45 | M116  | N46     | N47     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 46 | M117  | N47     | N67A    | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 47 | M118  | N48     | N49     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 48 | M119  | N49     | N50     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 49 | M120  | N50     | N51     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 50 | M121  | N51     | N62A    | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 51 | M122  | N68     | N60     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 52 | M124  | N66     | N57     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 53 | M126  | N54     | N55     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 54 | M127  | N55     | 2       | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 55 | M108A | N57     | N54     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 56 | M109A | N58     | N64     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 57 | M110B | N59     | N62     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 58 | M111B | N60     | N66     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 59 | M116A | N61     | N36     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 60 | M118A | N62A    | N68     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 61 | M120A | N63A    | N4      | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 62 | M122A | N65A    | 4       | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 63 | M123  | 3       | N32     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 64 | M128  | N67A    | N48     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 65 | M129  | N68A    | N44     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 66 | M130  | N69A    | N40     | K       |             | Chords        | Beam | Pipe        | A500 RND | Typical      |
| 67 | M10   | N65A    | N32     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 68 | M11   | N32     | N26     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 69 | M12   | N26     | N33     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 70 | M13   | N33     | N25     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 71 | M14   | N25     | N64     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 72 | M15   | N64     | N24     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 73 | M16   | N24     | N62     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 74 | M17   | N62     | N23     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 75 | M18   | N23     | N36     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 76 | M19   | N36     | N22     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 77 | M20   | N22     | N37     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 78 | M21   | N37     | N21     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |



Company : Big Top Manufacturing  
 Designer : A K Das  
 Job Number : 221-229  
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### Member Primary Data (Continued)

|     | Label | I Joint | J Joint | K Joint | Rotate(deg) | Section/Shape | Type | Design List | Material | Design Rules |
|-----|-------|---------|---------|---------|-------------|---------------|------|-------------|----------|--------------|
| 79  | M22   | N21     | N38     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 80  | M23   | N38     | N20     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 81  | M24   | N20     | N39     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 82  | M25   | N39     | N19     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 83  | M26   | N19     | N40     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 84  | M27   | N40     | N18     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 85  | M28   | N18     | N41     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 86  | M29   | N41     | N17     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 87  | M30   | N17     | N42     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 88  | M31   | N42     | N16     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 89  | M32   | N16     | N43     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 90  | M33   | N43     | N15     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 91  | M34   | N15     | N44     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 92  | M35   | N44     | N14     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 93  | M36   | N14     | N45     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 94  | M37   | N45     | N13     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 95  | M38   | N13     | N46     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 96  | M39   | N46     | N12     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 97  | M40   | N12     | N47     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 98  | M41   | N47     | N11     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 99  | M42   | N11     | N48     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 100 | M43   | N48     | N10     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 101 | M44   | N10     | N49     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 102 | M45   | N49     | N9      | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 103 | M46   | N9      | N50     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 104 | M47   | N50     | N8      | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 105 | M48   | N8      | N51     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 106 | M49   | N51     | N7      | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 107 | M50   | N7      | N68     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 108 | M51   | N68     | N6      | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 109 | M52   | N6      | N66     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 110 | M53   | N66     | N5      | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 111 | M54   | N5      | N54     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 112 | M55   | N54     | N4      | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 113 | M56   | N4      | N55     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 114 | M57   | N55     | N63A    | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 115 | M132  | N62     | N63     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 116 | M133  | N64     | N65     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 117 | M134  | N66     | N67     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 118 | M135  | N68     | N69     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 119 | M112A | N5      | N57     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 120 | M113A | N60     | N6      | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 121 | M114A | N24     | N59     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 122 | M115A | N58     | N25     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 123 | M117A | N61     | N23     | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 124 | M119A | N62A    | N7      | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 125 | M124A | N63A    | 2       | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |
| 126 | M126A | N65A    | 3       | K       |             | Z-Bars        | Beam | Pipe        | A500 RND | Typical      |

### Hot Rolled Steel Design Parameters

|   | Label | Shape  | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top... | Lcomp bo... | L-torque... | Kyy | Kzz | Cb | Function |
|---|-------|--------|------------|----------|----------|--------------|-------------|-------------|-----|-----|----|----------|
| 1 | M110A | Angle  | 2.302      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 2 | M111A | Angle  | 2.302      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 3 | M66   | Chords | 2.6        | 9        |          | 9            | 9           | 9           | .7  | .7  |    | Lateral  |
| 4 | M67   | Chords | 5.166      | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |





Company : Big Top Manufacturing  
 Designer : A K Das  
 Job Number : 221-229  
 Model Name : 100x250x35 Ocean Highway and Port Authority

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### Hot Rolled Steel Design Parameters (Continued)

|    | Label | Shape  | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top... | Lcomp bo... | L-torque... | Kyy | Kzz | Cb | Function |
|----|-------|--------|------------|----------|----------|--------------|-------------|-------------|-----|-----|----|----------|
| 5  | M68   | Chords | 2.241      | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 6  | M69   | Chords | 2.265      | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 7  | M70   | Chords | 2.409      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 8  | M71   | Chords | 2.158      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 9  | M72   | Chords | 5.79       | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 10 | M73   | Chords | 6.249      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 11 | M74   | Chords | 6.248      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 12 | M75   | Chords | 5.791      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 13 | M76   | Chords | 5.791      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 14 | M77   | Chords | 6.248      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 15 | M78   | Chords | 6.248      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 16 | M79   | Chords | 5.79       | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 17 | M80   | Chords | 5.79       | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 18 | M81   | Chords | 6.248      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 19 | M82   | Chords | 6.249      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 20 | M83   | Chords | 5.79       | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 21 | M84   | Chords | 5.79       | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 22 | M85   | Chords | 6.248      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 23 | M86   | Chords | 6.248      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 24 | M87   | Chords | 5.79       | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 25 | M88   | Chords | 2.158      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 26 | M89   | Chords | 2.41       | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 27 | M90   | Chords | 2.264      | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 28 | M91   | Chords | 2.24       | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 29 | M92   | Chords | 5.166      | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 30 | M93   | Chords | 5.201      | 9        |          | 9            | 9           | 9           | .7  | .7  |    | Lateral  |
| 31 | M100  | Chords | 5.119      | 9        |          | 9            | 9           | 9           | .7  | .7  |    | Lateral  |
| 32 | M101  | Chords | 2.37       | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 33 | M103  | Chords | 1.629      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 34 | M105  | Chords | 1.864      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 35 | M106  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 36 | M107  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 37 | M108  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 38 | M109  | Chords | 2.587      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 39 | M110  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 40 | M111  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 41 | M112  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 42 | M113  | Chords | 2.587      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 43 | M114  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 44 | M115  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 45 | M116  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 46 | M117  | Chords | 2.587      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 47 | M118  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 48 | M119  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 49 | M120  | Chords | 6.062      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 50 | M121  | Chords | 2.721      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 51 | M122  | Chords | 1.722      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 52 | M124  | Chords | 1.736      | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 53 | M126  | Chords | 5.119      | 9        |          | 9            | 9           | 9           | .7  | .7  |    | Lateral  |
| 54 | M127  | Chords | 5.201      | 9        |          | 9            | 9           | 9           | .7  | .7  |    | Lateral  |
| 55 | M108A | Chords | 2.371      | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 56 | M109A | Chords | 1.737      | 6.3      |          | 6.3          | 6.3         | 6.3         | .7  | .7  |    | Lateral  |
| 57 | M110B | Chords | 1.789      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 58 | M111B | Chords | 1.697      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 59 | M116A | Chords | 2.721      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 60 | M118A | Chords | 1.864      | 10       |          | 10           | 10          | 10          | .7  | .7  |    | Lateral  |
| 61 | M120A | Chords | 5.201      | 9        |          | 9            | 9           | 9           | .7  | .7  |    | Lateral  |





Company : Big Top Manufacturing  
 Designer : A K Das  
 Job Number : 221-229  
 Model Name : 100x250x35 Ocean Highway and Port Authority

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### Hot Rolled Steel Design Parameters (Continued)

|     | Label | Shape  | Length[ft] | Lbvy[ft] | Lbzz[ft] | Lcomp top... | Lcomp bo... | L-torque... | Kvy | Kzz | Cb | Function |
|-----|-------|--------|------------|----------|----------|--------------|-------------|-------------|-----|-----|----|----------|
| 62  | M122A | Chords | 2.6        | 9        |          | 9            | 9           | 9           | .7  | .7  |    | Lateral  |
| 63  | M123  | Chords | 5.201      | 9        |          | 9            | 9           | 9           | .7  | .7  |    | Lateral  |
| 64  | M128  | Chords | 2.587      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 65  | M129  | Chords | 2.587      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 66  | M130  | Chords | 2.587      | 12       |          | 12           | 12          | 12          | .7  | .7  |    | Lateral  |
| 67  | M10   | Z-Bars | 3.473      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 68  | M11   | Z-Bars | 3.473      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 69  | M12   | Z-Bars | 3.413      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 70  | M13   | Z-Bars | 3.466      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 71  | M14   | Z-Bars | 3.024      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 72  | M15   | Z-Bars | 3.039      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 73  | M16   | Z-Bars | 3.01       |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 74  | M17   | Z-Bars | 3.12       |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 75  | M18   | Z-Bars | 3.493      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 76  | M19   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 77  | M20   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 78  | M21   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 79  | M22   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 80  | M23   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 81  | M24   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 82  | M25   | Z-Bars | 3.493      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 83  | M26   | Z-Bars | 3.493      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 84  | M27   | Z-Bars | 3.843      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 85  | M28   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 86  | M29   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 87  | M30   | Z-Bars | 3.843      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 88  | M31   | Z-Bars | 3.843      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 89  | M32   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 90  | M33   | Z-Bars | 3.493      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 91  | M34   | Z-Bars | 3.493      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 92  | M35   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 93  | M36   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 94  | M37   | Z-Bars | 3.843      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 95  | M38   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 96  | M39   | Z-Bars | 3.843      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 97  | M40   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 98  | M41   | Z-Bars | 3.493      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 99  | M42   | Z-Bars | 3.493      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 100 | M43   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 101 | M44   | Z-Bars | 3.843      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 102 | M45   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 103 | M46   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 104 | M47   | Z-Bars | 3.844      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 105 | M48   | Z-Bars | 3.843      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 106 | M49   | Z-Bars | 3.493      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 107 | M50   | Z-Bars | 3.12       |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 108 | M51   | Z-Bars | 3.01       |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 109 | M52   | Z-Bars | 3.039      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 110 | M53   | Z-Bars | 3.026      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 111 | M54   | Z-Bars | 3.466      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 112 | M55   | Z-Bars | 3.413      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 113 | M56   | Z-Bars | 3.473      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 114 | M57   | Z-Bars | 3.473      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 115 | M132  | Z-Bars | 2.309      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 116 | M133  | Z-Bars | 2.302      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 117 | M134  | Z-Bars | 2.302      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 118 | M135  | Z-Bars | 2.309      |          |          |              |             |             | .7  | .7  |    | Lateral  |

### Hot Rolled Steel Design Parameters (Continued)

|     | Label | Shape  | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top... | Lcomp bo... | L-torque... | Kyy | Kzz | Cb | Function |
|-----|-------|--------|------------|----------|----------|--------------|-------------|-------------|-----|-----|----|----------|
| 119 | M112A | Z-Bars | 2.306      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 120 | M113A | Z-Bars | 2.41       |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 121 | M114A | Z-Bars | 2.417      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 122 | M115A | Z-Bars | 2.303      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 123 | M117A | Z-Bars | 2.317      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 124 | M119A | Z-Bars | 2.317      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 125 | M124A | Z-Bars | 3.473      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 126 | M126A | Z-Bars | 3.473      |          |          |              |             |             | .7  | .7  |    | Lateral  |

### 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 | S20      | S20      |                  | Reaction         | Reaction         |
| 2 | 2           | Reaction | S20      | S20      |                  | Reaction         | Reaction         |
| 3 | 3           | Reaction | S20      | S20      |                  | Reaction         | Reaction         |
| 4 | 4           | Reaction | S20      | S20      |                  | Reaction         | Reaction         |

### Basic Load Cases

|   | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed Area(Me... | Surface(P... |
|---|-----------------|----------|-----------|-----------|-----------|-------|-------|------------------------|--------------|
| 1 | DL              | DL       |           | -1        |           |       |       | 30                     |              |
| 2 | RLL             | RLL      |           |           |           |       |       | 20                     |              |
| 3 | WL+Z            | WL+Z     |           |           |           |       |       | 30                     |              |
| 4 | WL-Z            | WL-Z     |           |           |           |       |       | 30                     |              |

### Joint Loads and Enforced Displacements

| Joint Label          | L,D,M | Direction | Magnitude[(k,k-ft), (in,rad), (k*s^2/ft... |
|----------------------|-------|-----------|--------------------------------------------|
| No Data to Print ... |       |           |                                            |

### 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  | M66          | Y         | -01                      | -01                      | 0                     | 0                   |
| 2  | M67          | Y         | -01                      | -01                      | 0                     | 0                   |
| 3  | M68          | Y         | -01                      | -01                      | 0                     | 0                   |
| 4  | M69          | Y         | -01                      | -01                      | 0                     | 0                   |
| 5  | M70          | Y         | -01                      | -01                      | 0                     | 0                   |
| 6  | M71          | Y         | -01                      | -01                      | 0                     | 0                   |
| 7  | M72          | Y         | -01                      | -01                      | 0                     | 0                   |
| 8  | M73          | Y         | -01                      | -01                      | 0                     | 0                   |
| 9  | M74          | Y         | -01                      | -01                      | 0                     | 0                   |
| 10 | M75          | Y         | -01                      | -01                      | 0                     | 0                   |
| 11 | M76          | Y         | -01                      | -01                      | 0                     | 0                   |
| 12 | M77          | Y         | -01                      | -01                      | 0                     | 0                   |
| 13 | M78          | Y         | -01                      | -01                      | 0                     | 0                   |
| 14 | M79          | Y         | -01                      | -01                      | 0                     | 0                   |
| 15 | M80          | Y         | -01                      | -01                      | 0                     | 0                   |
| 16 | M81          | Y         | -01                      | -01                      | 0                     | 0                   |
| 17 | M82          | Y         | -01                      | -01                      | 0                     | 0                   |
| 18 | M83          | Y         | -01                      | -01                      | 0                     | 0                   |
| 19 | M84          | Y         | -01                      | -01                      | 0                     | 0                   |
| 20 | M85          | Y         | -01                      | -01                      | 0                     | 0                   |
| 21 | M86          | Y         | -01                      | -01                      | 0                     | 0                   |
| 22 | M87          | Y         | -01                      | -01                      | 0                     | 0                   |

### ***Member Distributed Loads (BLC 1 : DL) (Continued)***

|    | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft, %] | End Location[ft, %] |
|----|--------------|-----------|--------------------------|--------------------------|-----------------------|---------------------|
| 23 | M88          | Y         | -.01                     | -.01                     | 0                     | 0                   |
| 24 | M89          | Y         | -.01                     | -.01                     | 0                     | 0                   |
| 25 | M90          | Y         | -.01                     | -.01                     | 0                     | 0                   |
| 26 | M91          | Y         | -.01                     | -.01                     | 0                     | 0                   |
| 27 | M92          | Y         | -.01                     | -.01                     | 0                     | 0                   |
| 28 | M93          | Y         | -.01                     | -.01                     | 0                     | 0                   |
| 29 | M120A        | Y         | -.01                     | -.01                     | 0                     | 0                   |
| 30 | M122A        | Y         | -.01                     | -.01                     | 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  | M70          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 2  | M71          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 3  | M72          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 4  | M73          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 5  | M89          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 6  | M88          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 7  | M87          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 8  | M86          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 9  | M74          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 10 | M75          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 11 | M76          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 12 | M77          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 13 | M85          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 14 | M84          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 15 | M83          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 16 | M82          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 17 | M78          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 18 | M79          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 19 | M80          | Y         | -.05                     | -.05                     | 0                     | 0                   |
| 20 | M81          | Y         | -.05                     | -.05                     | 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  | M66          | y         | .125                     | .125                     | 0                     | 0                   |
| 2  | M120A        | y         | .125                     | .125                     | 0                     | 0                   |
| 3  | M67          | y         | .125                     | .125                     | 0                     | 0                   |
| 4  | M122A        | y         | -.152                    | -.152                    | 0                     | 0                   |
| 5  | M93          | y         | -.152                    | -.152                    | 0                     | 0                   |
| 6  | M92          | y         | -.152                    | -.152                    | 0                     | 0                   |
| 7  | M68          | y         | -.237                    | -.237                    | 0                     | 0                   |
| 8  | M69          | y         | -.237                    | -.237                    | 0                     | 0                   |
| 9  | M70          | y         | -.237                    | -.237                    | 0                     | 0                   |
| 10 | M71          | y         | -.237                    | -.237                    | 0                     | 0                   |
| 11 | M72          | y         | -.237                    | -.237                    | 0                     | 0                   |
| 12 | M73          | y         | -.237                    | -.237                    | 0                     | 0                   |
| 13 | M91          | y         | -.152                    | -.152                    | 0                     | 0                   |
| 14 | M90          | y         | -.152                    | -.152                    | 0                     | 0                   |
| 15 | M89          | y         | -.152                    | -.152                    | 0                     | 0                   |
| 16 | M88          | y         | -.152                    | -.152                    | 0                     | 0                   |
| 17 | M87          | y         | -.152                    | -.152                    | 0                     | 0                   |
| 18 | M86          | y         | -.152                    | -.152                    | 0                     | 0                   |
| 19 | M74          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 20 | M75          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 21 | M76          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 22 | M77          | y         | -.233                    | -.233                    | 0                     | 0                   |

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

|    | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft, %] | End Location[ft, %] |
|----|--------------|-----------|--------------------------|--------------------------|-----------------------|---------------------|
| 23 | M78          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 24 | M79          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 25 | M80          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 26 | M81          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 27 | M82          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 28 | M83          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 29 | M84          | y         | -.233                    | -.233                    | 0                     | 0                   |
| 30 | M85          | y         | -.233                    | -.233                    | 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  | M66          | y         | .216                     | .216                     | 0                     | 0                   |
| 2  | M120A        | y         | .216                     | .216                     | 0                     | 0                   |
| 3  | M67          | y         | .216                     | .216                     | 0                     | 0                   |
| 4  | M122A        | y         | -.061                    | -.061                    | 0                     | 0                   |
| 5  | M93          | y         | -.061                    | -.061                    | 0                     | 0                   |
| 6  | M92          | y         | -.061                    | -.061                    | 0                     | 0                   |
| 7  | M68          | y         | -.147                    | -.147                    | 0                     | 0                   |
| 8  | M69          | y         | -.147                    | -.147                    | 0                     | 0                   |
| 9  | M70          | y         | -.147                    | -.147                    | 0                     | 0                   |
| 10 | M71          | y         | -.147                    | -.147                    | 0                     | 0                   |
| 11 | M72          | y         | -.147                    | -.147                    | 0                     | 0                   |
| 12 | M73          | y         | -.147                    | -.147                    | 0                     | 0                   |
| 13 | M91          | y         | -.061                    | -.061                    | 0                     | 0                   |
| 14 | M90          | y         | -.061                    | -.061                    | 0                     | 0                   |
| 15 | M89          | y         | -.061                    | -.061                    | 0                     | 0                   |
| 16 | M88          | y         | -.061                    | -.061                    | 0                     | 0                   |
| 17 | M87          | y         | -.061                    | -.061                    | 0                     | 0                   |
| 18 | M86          | y         | -.061                    | -.061                    | 0                     | 0                   |
| 19 | M74          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 20 | M75          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 21 | M76          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 22 | M77          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 23 | M78          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 24 | M79          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 25 | M80          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 26 | M81          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 27 | M82          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 28 | M83          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 29 | M84          | y         | -.143                    | -.143                    | 0                     | 0                   |
| 30 | M85          | y         | -.143                    | -.143                    | 0                     | 0                   |

### Load Combinations

|    | Description | Sol. | PDelta | SR | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. |
|----|-------------|------|--------|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1  | IBC 16-8    | Yes  | Y      |    | DL        | 1         |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 2  | IBC 16-9    | Yes  | Y      |    | DL        | 1         | LL        | 1         | LLS       | 1         |           |           |           |           |           |           |           |           |           |           |
| 3  | IBC 16-10   | Yes  | Y      |    | DL        | 1         | RLL       | 1         |           |           |           |           |           |           |           |           |           |           |           |           |
| 4  | IBC 16-11   | Yes  | Y      |    | DL        | 1         | LL        | .75       | LLS       | .75       | RLL       | .75       |           |           |           |           |           |           |           |           |
| 5  | IBC 16-12   | Yes  | Y      |    | DL        | 1         | W...      | .6        |           |           |           |           |           |           |           |           |           |           |           |           |
| 6  | IBC 16-13   | Yes  | Y      |    | DL        | 1         | W...      | .45       | LL        | .75       | LLS       | .75       | RLL       | .75       |           |           |           |           |           |           |
| 7  | IBC 16-13   | Yes  | Y      |    | DL        | 1         | W...      | .45       | LL        | .75       | LLS       | .75       |           |           |           |           |           |           |           |           |
| 8  | IBC 16-15   | Yes  | Y      |    | DL        | .6        | W...      | .6        |           |           |           |           |           |           |           |           |           |           |           |           |
| 9  | IBC 16-12   | Yes  | Y      |    | DL        | 1         | W...      | .6        |           |           |           |           |           |           |           |           |           |           |           |           |
| 10 | IBC 16-13   | Yes  | Y      |    | DL        | 1         | W...      | .45       | LL        | .75       | LLS       | .75       | RLL       | .75       |           |           |           |           |           |           |
| 11 | IBC 16-13   | Yes  | Y      |    | DL        | 1         | W...      | .45       | LL        | .75       | LLS       | .75       |           |           |           |           |           |           |           |           |

### Load Combinations (Continued)

|    | Description    | Sol. | PDelta | SR | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. |
|----|----------------|------|--------|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 12 | IBC 16-15      | Yes  | Y      |    | DL .6     | W...      | .6        |           |           |           |           |           |           |           |           |
| 13 | DL             |      | Y      |    | DL 1      |           |           |           |           |           |           |           |           |           |           |
| 14 | RLL            |      | Y      |    | RLL 1     |           |           |           |           |           |           |           |           |           |           |
| 15 | WL+Z           |      | Y      |    | W...      | 1         |           |           |           |           |           |           |           |           |           |
| 16 | WL-Z           |      | Y      |    | W...      | 1         |           |           |           |           |           |           |           |           |           |
| 17 | IBC 16-1       |      | Y      |    | DL 1.4    |           |           |           |           |           |           |           |           |           |           |
| 18 | IBC 16-2 (...) |      | Y      |    | DL 1.2    | LL 1.6    | LLS 1.6   | RLL .5    |           |           |           |           |           |           |           |
| 19 | IBC 16-2 (...) |      | Y      |    | DL 1.2    | LL 1.6    | LLS 1.6   |           |           |           |           |           |           |           |           |
| 20 | IBC 16-3 (...) |      | Y      |    | DL 1.2    | RLL 1.6   | LL .5     | LLS 1     |           |           |           |           |           |           |           |
| 21 | IBC 16-3 (...) |      | Y      |    | DL 1.2    | RLL 1.6   | W...      | .5        |           |           |           |           |           |           |           |
| 22 | IBC 16-3 (...) |      | Y      |    | DL 1.2    | W...      | .5        |           |           |           |           |           |           |           |           |
| 23 | IBC 16-4 (...) |      | Y      |    | DL 1.2    | W...      | 1         | LL .5     | LLS 1     | RLL .5    |           |           |           |           |           |
| 24 | IBC 16-4 (...) |      | Y      |    | DL 1.2    | W...      | 1         | LL .5     | LLS 1     |           |           |           |           |           |           |
| 25 | IBC 16-6       |      | Y      |    | DL .9     | W...      | 1         |           |           |           |           |           |           |           |           |
| 26 | IBC 16-3 (...) |      | Y      |    | DL 1.2    | RLL 1.6   | W...      | .5        |           |           |           |           |           |           |           |
| 27 | IBC 16-3 (...) |      | Y      |    | DL 1.2    | W...      | .5        |           |           |           |           |           |           |           |           |
| 28 | IBC 16-4 (...) |      | Y      |    | DL 1.2    | W...      | 1         | LL .5     | LLS 1     | RLL .5    |           |           |           |           |           |
| 29 | IBC 16-4 (...) |      | Y      |    | DL 1.2    | W...      | 1         | LL .5     | LLS 1     |           |           |           |           |           |           |
| 30 | IBC 16-6       |      | Y      |    | DL .9     | W...      | 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  | M110A  | 1   | max | 1.043    | 3  | .075       | 3  | .063       | 8  | 0            | 12 | .044        | 8  | .104        | 3  |
| 2  |        |     | min | -1.641   | 8  | -.106      | 8  | -.04       | 3  | 0            | 1  | -.029       | 3  | -.169       | 8  |
| 3  |        | 2   | max | 1.043    | 3  | .072       | 3  | .063       | 8  | 0            | 12 | .026        | 8  | .057        | 3  |
| 4  |        |     | min | -1.641   | 8  | -.108      | 8  | -.04       | 3  | 0            | 1  | -.015       | 3  | -.1         | 8  |
| 5  |        | 3   | max | 1.043    | 3  | .069       | 3  | .063       | 8  | 0            | 12 | .008        | 5  | .012        | 3  |
| 6  |        |     | min | -1.641   | 8  | -.11       | 8  | -.04       | 3  | 0            | 1  | -.003       | 3  | -.03        | 8  |
| 7  |        | 4   | max | 1.043    | 3  | .066       | 3  | .063       | 8  | 0            | 12 | .009        | 3  | .041        | 8  |
| 8  |        |     | min | -1.641   | 8  | -.111      | 8  | -.04       | 3  | 0            | 1  | -.011       | 8  | -.031       | 3  |
| 9  |        | 5   | max | 1.043    | 3  | .064       | 3  | .063       | 8  | 0            | 12 | .019        | 3  | .112        | 8  |
| 10 |        |     | min | -1.641   | 8  | -.113      | 8  | -.04       | 3  | 0            | 1  | -.031       | 8  | -.074       | 3  |
| 11 | M111A  | 1   | max | 1.043    | 3  | .075       | 8  | .04        | 3  | 0            | 12 | .019        | 3  | .082        | 8  |
| 12 |        |     | min | -1.08    | 8  | -.064      | 3  | -.041      | 8  | 0            | 1  | -.023       | 8  | -.074       | 3  |
| 13 |        | 2   | max | 1.043    | 3  | .073       | 8  | .04        | 3  | 0            | 12 | .009        | 3  | .036        | 8  |
| 14 |        |     | min | -1.08    | 8  | -.066      | 3  | -.041      | 8  | 0            | 1  | -.01        | 8  | -.031       | 3  |
| 15 |        | 3   | max | 1.043    | 3  | .071       | 8  | .04        | 3  | 0            | 12 | .003        | 5  | .012        | 3  |
| 16 |        |     | min | -1.08    | 8  | -.069      | 3  | -.041      | 8  | 0            | 1  | -.003       | 3  | -.01        | 8  |
| 17 |        | 4   | max | 1.043    | 3  | .07        | 8  | .04        | 3  | 0            | 12 | .015        | 8  | .057        | 3  |
| 18 |        |     | min | -1.08    | 8  | -.072      | 3  | -.041      | 8  | 0            | 1  | -.015       | 3  | -.056       | 8  |
| 19 |        | 5   | max | 1.043    | 3  | .068       | 8  | .04        | 3  | 0            | 12 | .026        | 8  | .104        | 3  |
| 20 |        |     | min | -1.08    | 8  | -.075      | 3  | -.041      | 8  | 0            | 1  | -.029       | 3  | -.101       | 8  |
| 21 | M66    | 1   | max | 2.897    | 3  | .053       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .094        | 3  |
| 22 |        |     | min | -4.123   | 8  | -.163      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.151       | 8  |
| 23 |        | 2   | max | 2.888    | 3  | .053       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .059        | 3  |
| 24 |        |     | min | -4.129   | 8  | -.092      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.075       | 8  |
| 25 |        | 3   | max | 2.878    | 3  | .053       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 3  |
| 26 |        |     | min | -4.135   | 8  | -.043      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.031       | 8  |
| 27 |        | 4   | max | 2.869    | 3  | .103       | 10 | 0          | 12 | 0            | 12 | 0           | 12 | -.004       | 2  |
| 28 |        |     | min | -4.141   | 8  | .005       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.05        | 9  |
| 29 |        | 5   | max | 2.859    | 3  | .181       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | -.015       | 2  |
| 30 |        |     | min | -4.146   | 8  | .017       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.14        | 9  |
| 31 | M67    | 1   | max | 10.242   | 8  | .017       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 32 |        |     | min | -7.081   | 3  | -.369      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.31        | 12 |
| 33 |        | 2   | max | 10.231   | 8  | .018       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .058        | 12 |

### 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 |
|--------|-----|-----|----------|--------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 34     |     | min | -7.1     | 3      | -.202      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 3  |
| 35     |     | max | 10.219   | 8      | .018       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .211        | 12 |
| 36     |     | min | -7.119   | 3      | -.038      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.045       | 3  |
| 37     |     | max | 10.208   | 8      | .136       | 9    | 0          | 12 | 0            | 12 | 0           | 12 | .151        | 8  |
| 38     |     | min | -7.138   | 3      | .006       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 3  |
| 39     |     | max | 10.197   | 8      | .303       | 9    | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 8  |
| 40     |     | min | -7.157   | 3      | .006       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.162       | 10 |
| 41     | M68 | 1   | max      | 13.931 | 8          | .142 | 8          | 0  | 12           | 0  | 12          | 0  | .07         | 8  |
| 42     |     | min | -10.249  | 3      | -.026      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.074       | 3  |
| 43     |     | max | 13.927   | 8      | .063       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 44     |     | min | -10.257  | 3      | -.024      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.074       | 10 |
| 45     |     | max | 13.922   | 8      | -.006      | 2    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 8  |
| 46     |     | min | -10.265  | 3      | -.053      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.054       | 10 |
| 47     |     | max | 13.917   | 8      | -.004      | 2    | 0          | 12 | 0            | 12 | 0           | 12 | .03         | 8  |
| 48     |     | min | -10.273  | 3      | -.101      | 9    | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 3  |
| 49     |     | max | 13.912   | 8      | -.002      | 2    | 0          | 12 | 0            | 12 | 0           | 12 | .105        | 8  |
| 50     |     | min | -10.281  | 3      | -.173      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 3  |
| 51     | M69 | 1   | max      | 13.909 | 8          | .128 | 5          | 0  | 12           | 0  | 12          | 0  | .1          | 8  |
| 52     |     | min | -10.285  | 3      | .001       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 53     |     | max | 13.904   | 8      | .055       | 6    | 0          | 12 | 0            | 12 | 0           | 12 | .05         | 8  |
| 54     |     | min | -10.292  | 3      | .005       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 55     |     | max | 13.9     | 8      | .03        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .044        | 8  |
| 56     |     | min | -10.3    | 3      | -.029      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.049       | 3  |
| 57     |     | max | 13.895   | 8      | .034       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .082        | 8  |
| 58     |     | min | -10.307  | 3      | -.107      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.067       | 3  |
| 59     |     | max | 13.891   | 8      | .037       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .165        | 8  |
| 60     |     | min | -10.314  | 3      | -.185      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.087       | 3  |
| 61     | M70 | 1   | max      | 13.291 | 8          | .217 | 8          | 0  | 12           | 0  | 12          | 0  | .182        | 8  |
| 62     |     | min | -10.141  | 3      | -.077      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.094       | 3  |
| 63     |     | max | 13.287   | 8      | .135       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .076        | 8  |
| 64     |     | min | -10.171  | 3      | -.052      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.055       | 3  |
| 65     |     | max | 13.283   | 8      | .053       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 8  |
| 66     |     | min | -10.201  | 3      | -.027      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 3  |
| 67     |     | max | 13.279   | 8      | -.002      | 4    | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 68     |     | min | -10.231  | 3      | -.03       | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 3  |
| 69     |     | max | 13.274   | 8      | .023       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .056        | 8  |
| 70     |     | min | -10.261  | 3      | -.112      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 3  |
| 71     | M71 | 1   | max      | 13.018 | 8          | .046 | 8          | 0  | 12           | 0  | 12          | 0  | .063        | 8  |
| 72     |     | min | -10.075  | 3      | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.034       | 3  |
| 73     |     | max | 13.015   | 8      | .022       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .057        | 8  |
| 74     |     | min | -10.097  | 3      | -.027      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.038       | 3  |
| 75     |     | max | 13.012   | 8      | .049       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .091        | 8  |
| 76     |     | min | -10.118  | 3      | -.1        | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.058       | 3  |
| 77     |     | max | 13.009   | 8      | .077       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .165        | 8  |
| 78     |     | min | -10.14   | 3      | -.173      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.092       | 3  |
| 79     |     | max | 13.007   | 8      | .104       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .278        | 8  |
| 80     |     | min | -10.161  | 3      | -.246      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 3  |
| 81     | M72 | 1   | max      | 8.825  | 8          | .385 | 8          | 0  | 12           | 0  | 12          | 0  | .402        | 8  |
| 82     |     | min | -7.489   | 3      | -.157      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.193       | 3  |
| 83     |     | max | 8.818    | 8      | .19        | 8    | 0          | 12 | 0            | 12 | 0           | 12 | -.008       | 12 |
| 84     |     | min | -7.54    | 3      | -.079      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 6  |
| 85     |     | max | 8.81     | 8      | 0          | 2    | 0          | 12 | 0            | 12 | 0           | 12 | .037        | 3  |
| 86     |     | min | -7.592   | 3      | -.006      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.148       | 8  |
| 87     |     | max | 8.803    | 8      | .077       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 8  |
| 88     |     | min | -7.644   | 3      | -.2        | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 89     |     | max | 8.796    | 8      | .154       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .432        | 8  |
| 90     |     | min | -7.695   | 3      | -.396      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.184       | 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 |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 91  | M73    | 1   | max | 3.25     | 8  | .422       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .46         | 8  |
| 92  |        |     | min | -3.794   | 3  | -.177      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.203       | 3  |
| 93  |        | 2   | max | 3.243    | 8  | .212       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 94  |        |     | min | -3.843   | 3  | -.089      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 5  |
| 95  |        | 3   | max | 3.237    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .074        | 3  |
| 96  |        |     | min | -3.892   | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.203       | 8  |
| 97  |        | 4   | max | 3.23     | 8  | .088       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 98  |        |     | min | -3.941   | 3  | -.208      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.041       | 8  |
| 99  |        | 5   | max | 3.223    | 8  | .176       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .448        | 8  |
| 100 |        |     | min | -3.99    | 3  | -.418      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.2         | 3  |
| 101 | M74    | 1   | max | -.108    | 2  | .422       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .459        | 8  |
| 102 |        |     | min | -1.523   | 5  | -.188      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.21        | 3  |
| 103 |        | 2   | max | -.118    | 2  | .216       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 3  |
| 104 |        |     | min | -1.532   | 5  | -.097      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 8  |
| 105 |        | 3   | max | -.127    | 2  | .01        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .092        | 3  |
| 106 |        |     | min | -1.541   | 5  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.216       | 8  |
| 107 |        | 4   | max | -.137    | 2  | .087       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 3  |
| 108 |        |     | min | -1.551   | 5  | -.196      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.071       | 8  |
| 109 |        | 5   | max | -.146    | 2  | .179       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .396        | 8  |
| 110 |        |     | min | -1.56    | 5  | -.402      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.18        | 3  |
| 111 | M75    | 1   | max | 2.604    | 3  | .391       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .391        | 8  |
| 112 |        |     | min | -5.387   | 8  | -.181      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.181       | 3  |
| 113 |        | 2   | max | 2.572    | 3  | .201       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 3  |
| 114 |        |     | min | -5.391   | 8  | -.093      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.038       | 8  |
| 115 |        | 3   | max | 2.54     | 3  | .01        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .089        | 3  |
| 116 |        |     | min | -5.395   | 8  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.191       | 8  |
| 117 |        | 4   | max | 2.508    | 3  | .082       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 3  |
| 118 |        |     | min | -5.4     | 8  | -.18       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 8  |
| 119 |        | 5   | max | 2.476    | 3  | .17        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .33         | 8  |
| 120 |        |     | min | -5.404   | 8  | -.37       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.15        | 3  |
| 121 | M76    | 1   | max | 4.733    | 3  | .377       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .341        | 8  |
| 122 |        |     | min | -8.039   | 8  | -.179      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.159       | 3  |
| 123 |        | 2   | max | 4.708    | 3  | .187       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .035        | 3  |
| 124 |        |     | min | -8.042   | 8  | -.089      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.066       | 8  |
| 125 |        | 3   | max | 4.683    | 3  | .001       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .098        | 3  |
| 126 |        |     | min | -8.046   | 8  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.199       | 8  |
| 127 |        | 4   | max | 4.657    | 3  | .091       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 128 |        |     | min | -8.049   | 8  | -.194      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.057       | 8  |
| 129 |        | 5   | max | 4.632    | 3  | .181       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .361        | 8  |
| 130 |        |     | min | -8.053   | 8  | -.384      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.166       | 3  |
| 131 | M77    | 1   | max | 6.716    | 3  | .407       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .382        | 8  |
| 132 |        |     | min | -10.384  | 8  | -.197      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.178       | 3  |
| 133 |        | 2   | max | 6.696    | 3  | .202       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .052        | 3  |
| 134 |        |     | min | -10.386  | 8  | -.098      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.094       | 8  |
| 135 |        | 3   | max | 6.676    | 3  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .128        | 3  |
| 136 |        |     | min | -10.389  | 8  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.25        | 8  |
| 137 |        | 4   | max | 6.657    | 3  | .1         | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .05         | 3  |
| 138 |        |     | min | -10.392  | 8  | -.208      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.085       | 8  |
| 139 |        | 5   | max | 6.637    | 3  | .199       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .399        | 8  |
| 140 |        |     | min | -10.394  | 8  | -.413      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.184       | 3  |
| 141 | M78    | 1   | max | 8.036    | 3  | .415       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .403        | 8  |
| 142 |        |     | min | -11.876  | 8  | -.204      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.188       | 3  |
| 143 |        | 2   | max | 8.024    | 3  | .211       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .052        | 3  |
| 144 |        |     | min | -11.878  | 8  | -.103      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.086       | 8  |
| 145 |        | 3   | max | 8.013    | 3  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .135        | 3  |
| 146 |        |     | min | -11.879  | 8  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.255       | 8  |
| 147 |        | 4   | max | 8.001    | 3  | .097       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .061        | 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 148    |     | min | -11.881  | 8     | -.199      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.104       | 8  |
| 149    |     | max | 7.99     | 3     | .198       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .366        | 8  |
| 150    |     | min | -11.882  | 8     | -.404      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.169       | 3  |
| 151    | M79 | 1   | max      | 8.645 | 3          | .387 | 8          | 0  | 12           | 0  | 12          | 0  | .354        | 8  |
| 152    |     | min | -12.495  | 8     | -.191      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.163       | 3  |
| 153    |     | 2   | max      | 8.641 | 3          | .197 | 8          | 0  | 12           | 0  | 12          | 0  | .045        | 3  |
| 154    |     | min | -12.495  | 8     | -.097      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.069       | 8  |
| 155    |     | 3   | max      | 8.638 | 3          | .007 | 8          | 0  | 12           | 0  | 12          | 0  | .118        | 3  |
| 156    |     | min | -12.496  | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.217       | 8  |
| 157    |     | 4   | max      | 8.634 | 3          | .09  | 3          | 0  | 12           | 0  | 12          | 0  | .056        | 3  |
| 158    |     | min | -12.496  | 8     | -.182      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.09        | 8  |
| 159    |     | 5   | max      | 8.631 | 3          | .183 | 3          | 0  | 12           | 0  | 12          | 0  | .312        | 8  |
| 160    |     | min | -12.497  | 8     | -.372      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 3  |
| 161    | M80 | 1   | max      | 8.631 | 3          | .372 | 8          | 0  | 12           | 0  | 12          | 0  | .311        | 8  |
| 162    |     | min | -12.386  | 8     | -.183      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 3  |
| 163    |     | 2   | max      | 8.634 | 3          | .182 | 8          | 0  | 12           | 0  | 12          | 0  | .056        | 3  |
| 164    |     | min | -12.386  | 8     | -.09       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.09        | 8  |
| 165    |     | 3   | max      | 8.638 | 3          | .004 | 3          | 0  | 12           | 0  | 12          | 0  | .118        | 3  |
| 166    |     | min | -12.385  | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.216       | 8  |
| 167    |     | 4   | max      | 8.641 | 3          | .097 | 3          | 0  | 12           | 0  | 12          | 0  | .045        | 3  |
| 168    |     | min | -12.385  | 8     | -.197      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 8  |
| 169    |     | 5   | max      | 8.645 | 3          | .191 | 3          | 0  | 12           | 0  | 12          | 0  | .355        | 8  |
| 170    |     | min | -12.384  | 8     | -.387      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.163       | 3  |
| 171    | M81 | 1   | max      | 7.99  | 3          | .403 | 8          | 0  | 12           | 0  | 12          | 0  | .367        | 8  |
| 172    |     | min | -11.512  | 8     | -.197      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.169       | 3  |
| 173    |     | 2   | max      | 8.001 | 3          | .199 | 8          | 0  | 12           | 0  | 12          | 0  | .061        | 3  |
| 174    |     | min | -11.51   | 8     | -.097      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.103       | 8  |
| 175    |     | 3   | max      | 8.013 | 3          | .003 | 3          | 0  | 12           | 0  | 12          | 0  | .135        | 3  |
| 176    |     | min | -11.509  | 8     | -.006      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.254       | 8  |
| 177    |     | 4   | max      | 8.024 | 3          | .103 | 3          | 0  | 12           | 0  | 12          | 0  | .052        | 3  |
| 178    |     | min | -11.507  | 8     | -.211      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.084       | 8  |
| 179    |     | 5   | max      | 8.036 | 3          | .204 | 3          | 0  | 12           | 0  | 12          | 0  | .405        | 8  |
| 180    |     | min | -11.505  | 8     | -.416      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.188       | 3  |
| 181    | M82 | 1   | max      | 6.637 | 3          | .412 | 8          | 0  | 12           | 0  | 12          | 0  | .401        | 8  |
| 182    |     | min | -9.765   | 8     | -.199      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.184       | 3  |
| 183    |     | 2   | max      | 6.657 | 3          | .207 | 8          | 0  | 12           | 0  | 12          | 0  | .05         | 3  |
| 184    |     | min | -9.763   | 8     | -.1        | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.083       | 8  |
| 185    |     | 3   | max      | 6.677 | 3          | .002 | 8          | 0  | 12           | 0  | 12          | 0  | .128        | 3  |
| 186    |     | min | -9.76    | 8     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.247       | 8  |
| 187    |     | 4   | max      | 6.696 | 3          | .098 | 3          | 0  | 12           | 0  | 12          | 0  | .052        | 3  |
| 188    |     | min | -9.757   | 8     | -.202      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.091       | 8  |
| 189    |     | 5   | max      | 6.716 | 3          | .197 | 3          | 0  | 12           | 0  | 12          | 0  | .385        | 8  |
| 190    |     | min | -9.755   | 8     | -.407      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.178       | 3  |
| 191    | M83 | 1   | max      | 4.632 | 3          | .384 | 8          | 0  | 12           | 0  | 12          | 0  | .364        | 8  |
| 192    |     | min | -7.171   | 8     | -.181      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.166       | 3  |
| 193    |     | 2   | max      | 4.657 | 3          | .194 | 8          | 0  | 12           | 0  | 12          | 0  | .032        | 3  |
| 194    |     | min | -7.168   | 8     | -.091      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.054       | 8  |
| 195    |     | 3   | max      | 4.683 | 3          | .004 | 8          | 0  | 12           | 0  | 12          | 0  | .098        | 3  |
| 196    |     | min | -7.164   | 8     | -.001      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.196       | 8  |
| 197    |     | 4   | max      | 4.708 | 3          | .089 | 3          | 0  | 12           | 0  | 12          | 0  | .035        | 3  |
| 198    |     | min | -7.161   | 8     | -.187      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.064       | 8  |
| 199    |     | 5   | max      | 4.733 | 3          | .179 | 3          | 0  | 12           | 0  | 12          | 0  | .344        | 8  |
| 200    |     | min | -7.158   | 8     | -.377      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.159       | 3  |
| 201    | M84 | 1   | max      | 2.476 | 3          | .368 | 8          | 0  | 12           | 0  | 12          | 0  | .33         | 8  |
| 202    |     | min | -4.307   | 8     | -.17       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.15        | 3  |
| 203    |     | 2   | max      | 2.508 | 3          | .177 | 8          | 0  | 12           | 0  | 12          | 0  | .033        | 3  |
| 204    |     | min | -4.303   | 8     | -.082      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.064       | 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 |
|--------|-----|-----|----------|--------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 205    | 3   | max | 2.54     | 3      | .005       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .089        | 3  |
| 206    |     | min | -4.298   | 8      | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.183       | 8  |
| 207    | 4   | max | 2.572    | 3      | .093       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 3  |
| 208    |     | min | -4.294   | 8      | -.204      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 8  |
| 209    | 5   | max | 2.604    | 3      | .181       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .407        | 8  |
| 210    |     | min | -4.29    | 8      | -.394      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.181       | 3  |
| 211    | M85 | 1   | max      | .469   | 12         | .414 | 8          | 0  | 12           | 0  | 12          | 0  | .421        | 8  |
| 212    |     | min | -.549    | 3      | -.179      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.18        | 3  |
| 213    | 2   | max | .475     | 12     | .208       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 3  |
| 214    |     | min | -.507    | 3      | -.087      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.065       | 8  |
| 215    | 3   | max | .481     | 12     | .008       | 10   | 0          | 12 | 0            | 12 | 0           | 12 | .092        | 3  |
| 216    |     | min | -.465    | 3      | .001       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.23        | 8  |
| 217    | 4   | max | .486     | 12     | .097       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 3  |
| 218    |     | min | -.423    | 3      | -.204      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.072       | 8  |
| 219    | 5   | max | .492     | 12     | .189       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .407        | 8  |
| 220    |     | min | -.382    | 3      | -.41       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.21        | 3  |
| 221    | M86 | 1   | max      | 4.668  | 8          | .271 | 8          | 0  | 12           | 0  | 12          | 0  | .346        | 8  |
| 222    |     | min | -3.99    | 3      | -.176      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.2         | 3  |
| 223    | 2   | max | 4.675    | 8      | .14        | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .042        | 9  |
| 224    |     | min | -3.941   | 3      | -.088      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 225    | 3   | max | 4.681    | 8      | .01        | 9    | 0          | 12 | 0            | 12 | 0           | 12 | .074        | 3  |
| 226    |     | min | -3.892   | 3      | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.092       | 8  |
| 227    | 4   | max | 4.688    | 8      | .089       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 10 |
| 228    |     | min | -3.843   | 3      | -.121      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 5  |
| 229    | 5   | max | 4.695    | 8      | .177       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .285        | 8  |
| 230    |     | min | -3.794   | 3      | -.251      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.203       | 3  |
| 231    | M87 | 1   | max      | 9.641  | 8          | .239 | 8          | 0  | 12           | 0  | 12          | 0  | .271        | 8  |
| 232    |     | min | -7.695   | 3      | -.155      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.184       | 3  |
| 233    | 2   | max | 9.648    | 8      | .118       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 12 |
| 234    |     | min | -7.644   | 3      | -.077      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 235    | 3   | max | 9.655    | 8      | .001       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .037        | 3  |
| 236    |     | min | -7.592   | 3      | -.006      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.071       | 8  |
| 237    | 4   | max | 9.662    | 8      | .079       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .03         | 12 |
| 238    |     | min | -7.54    | 3      | -.125      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 239    | 5   | max | 9.669    | 8      | .157       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .29         | 8  |
| 240    |     | min | -7.488   | 3      | -.246      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.193       | 3  |
| 241    | M88 | 1   | max      | 12.866 | 8          | .167 | 8          | 0  | 12           | 0  | 12          | 0  | .213        | 8  |
| 242    |     | min | -10.159  | 3      | -.104      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 3  |
| 243    | 2   | max | 12.869   | 8      | .121       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .136        | 8  |
| 244    |     | min | -10.137  | 3      | -.076      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.092       | 3  |
| 245    | 3   | max | 12.872   | 8      | .076       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .082        | 8  |
| 246    |     | min | -10.116  | 3      | -.049      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.058       | 3  |
| 247    | 4   | max | 12.874   | 8      | .03        | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .054        | 8  |
| 248    |     | min | -10.094  | 3      | -.022      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 3  |
| 249    | 5   | max | 12.877   | 8      | .008       | 10   | 0          | 12 | 0            | 12 | 0           | 12 | .05         | 8  |
| 250    |     | min | -10.073  | 3      | -.015      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 3  |
| 251    | M89 | 1   | max      | 13.115 | 8          | .063 | 8          | 0  | 12           | 0  | 12          | 0  | .05         | 8  |
| 252    |     | min | -10.258  | 3      | -.024      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.031       | 3  |
| 253    | 2   | max | 13.119   | 8      | .012       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .027        | 8  |
| 254    |     | min | -10.228  | 3      | -.002      | 12   | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 3  |
| 255    | 3   | max | 13.123   | 8      | .025       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 8  |
| 256    |     | min | -10.198  | 3      | -.04       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 3  |
| 257    | 4   | max | 13.127   | 8      | .05        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .075        | 8  |
| 258    |     | min | -10.168  | 3      | -.091      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.054       | 3  |
| 259    | 5   | max | 13.131   | 8      | .075       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .146        | 8  |
| 260    |     | min | -10.138  | 3      | -.143      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.092       | 3  |
| 261    | M90 | 1   | max      | 12.697 | 8          | .148 | 8          | 0  | 12           | 0  | 12          | 0  | .151        | 8  |



Company : Big Top Manufacturing  
 Designer : A K Das  
 Job Number : 221-229  
 Model Name : 100x250x35 Ocean Highway and Port Authority

Dec 16, 2021  
 12:20 PM  
 Checked By: PSE

### 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 |
|--------|------|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 262    |      | min | -10.313  | 3  | -.036      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.086       | 3  |
| 263    |      | max | 12.701   | 8  | .099       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .081        | 8  |
| 264    |      | min | -10.306  | 3  | -.033      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.066       | 3  |
| 265    |      | max | 12.706   | 8  | .049       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .039        | 8  |
| 266    |      | min | -10.299  | 3  | -.029      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.049       | 3  |
| 267    |      | max | 12.71    | 8  | .009       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 8  |
| 268    |      | min | -10.291  | 3  | -.026      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 269    |      | max | 12.715   | 8  | -.001      | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .04         | 8  |
| 270    |      | min | -10.284  | 3  | -.052      | 6  | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 271    | M91  | max | 12.706   | 8  | .036       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .047        | 8  |
| 272    |      | min | -10.281  | 3  | .002       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 3  |
| 273    |      | max | 12.711   | 8  | .021       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .044        | 8  |
| 274    |      | min | -10.273  | 3  | -.019      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 3  |
| 275    |      | max | 12.715   | 8  | .023       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .068        | 8  |
| 276    |      | min | -10.265  | 3  | -.069      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.047       | 3  |
| 277    |      | max | 12.72    | 8  | .025       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .121        | 8  |
| 278    |      | min | -10.257  | 3  | -.119      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.06        | 3  |
| 279    |      | max | 12.725   | 8  | .027       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .202        | 8  |
| 280    |      | min | -10.249  | 3  | -.169      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.075       | 3  |
| 281    | M92  | max | 8.007    | 8  | .248       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .28         | 8  |
| 282    |      | min | -7.159   | 3  | -.019      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.093       | 3  |
| 283    |      | max | 8.019    | 8  | .131       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .036        | 8  |
| 284    |      | min | -7.14    | 3  | -.018      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.069       | 3  |
| 285    |      | max | 8.03     | 8  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | -.011       | 12 |
| 286    |      | min | -7.121   | 3  | -.018      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.073       | 6  |
| 287    |      | max | 8.041    | 8  | -.006      | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 12 |
| 288    |      | min | -7.102   | 3  | -.107      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 3  |
| 289    |      | max | 8.053    | 8  | -.005      | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .214        | 5  |
| 290    |      | min | -7.083   | 3  | -.224      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 291    | M93  | max | 1.549    | 8  | .251       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .25         | 8  |
| 292    |      | min | -2.094   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.028       | 3  |
| 293    |      | max | 1.561    | 8  | .133       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 12 |
| 294    |      | min | -2.075   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 295    |      | max | 1.572    | 8  | .014       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | -.007       | 2  |
| 296    |      | min | -2.056   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.097       | 5  |
| 297    |      | max | 1.583    | 8  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | -.005       | 2  |
| 298    |      | min | -2.037   | 3  | -.105      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 6  |
| 299    |      | max | 1.595    | 8  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .176        | 8  |
| 300    |      | min | -2.018   | 3  | -.223      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 301    | M100 | max | 8.557    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 8  |
| 302    |      | min | -10.024  | 8  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 3  |
| 303    |      | max | 8.551    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 8  |
| 304    |      | min | -10.027  | 8  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 305    |      | max | 8.545    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 8  |
| 306    |      | min | -10.031  | 8  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 307    |      | max | 8.539    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 308    |      | min | -10.035  | 8  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 3  |
| 309    |      | max | 8.534    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 8  |
| 310    |      | min | -10.038  | 8  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 311    | M101 | max | 13.299   | 3  | .087       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 3  |
| 312    |      | min | -16.831  | 8  | -.117      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.052       | 8  |
| 313    |      | max | 13.296   | 3  | .087       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 8  |
| 314    |      | min | -16.833  | 8  | -.117      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 3  |
| 315    |      | max | 13.293   | 3  | .087       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .087        | 8  |
| 316    |      | min | -16.834  | 8  | -.117      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.074       | 3  |
| 317    |      | max | 13.291   | 3  | .087       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .157        | 8  |
| 318    |      | min | -16.836  | 8  | -.117      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.125       | 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 |
|--------|------|-----|----------|--------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 319    | 5    | max | 13.288   | 3      | .087       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .226        | 8  |
| 320    |      | min | -16.838  | 8      | -.117      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.176       | 3  |
| 321    | M103 | 1   | max      | 14.14  | 3          | .017  | 3          | 0  | 12           | 0  | 12          | 0  | .033        | 8  |
| 322    |      | min | -18.979  | 8      | -.04       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.036       | 3  |
| 323    |      | 2   | max      | 14.139 | 3          | .018  | 3          | 0  | 12           | 0  | 12          | 0  | .05         | 8  |
| 324    |      | min | -18.98   | 8      | -.04       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 3  |
| 325    |      | 3   | max      | 14.137 | 3          | .019  | 3          | 0  | 12           | 0  | 12          | 0  | .066        | 8  |
| 326    |      | min | -18.981  | 8      | -.039      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.051       | 3  |
| 327    |      | 4   | max      | 14.135 | 3          | .019  | 3          | 0  | 12           | 0  | 12          | 0  | .082        | 8  |
| 328    |      | min | -18.982  | 8      | -.039      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.058       | 3  |
| 329    |      | 5   | max      | 14.134 | 3          | .02   | 3          | 0  | 12           | 0  | 12          | 0  | .097        | 8  |
| 330    |      | min | -18.983  | 8      | -.038      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.067       | 3  |
| 331    | M105 | 1   | max      | 12.689 | 3          | .024  | 8          | 0  | 12           | 0  | 12          | 0  | .111        | 8  |
| 332    |      | min | -17.743  | 8      | -.03       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.089       | 3  |
| 333    |      | 2   | max      | 12.687 | 3          | .025  | 8          | 0  | 12           | 0  | 12          | 0  | .099        | 8  |
| 334    |      | min | -17.744  | 8      | -.028      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.076       | 3  |
| 335    |      | 3   | max      | 12.686 | 3          | .026  | 8          | 0  | 12           | 0  | 12          | 0  | .087        | 8  |
| 336    |      | min | -17.745  | 8      | -.026      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 3  |
| 337    |      | 4   | max      | 12.685 | 3          | .027  | 8          | 0  | 12           | 0  | 12          | 0  | .075        | 8  |
| 338    |      | min | -17.746  | 8      | -.025      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.051       | 3  |
| 339    |      | 5   | max      | 12.683 | 3          | .028  | 8          | 0  | 12           | 0  | 12          | 0  | .062        | 8  |
| 340    |      | min | -17.747  | 8      | -.023      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 3  |
| 341    | M106 | 1   | max      | 8.656  | 3          | 0     | 8          | 0  | 12           | 0  | 12          | 0  | .051        | 8  |
| 342    |      | min | -12.761  | 8      | -.017      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.053       | 3  |
| 343    |      | 2   | max      | 8.653  | 3          | .003  | 8          | 0  | 12           | 0  | 12          | 0  | .049        | 8  |
| 344    |      | min | -12.763  | 8      | -.011      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 345    |      | 3   | max      | 8.649  | 3          | .007  | 8          | 0  | 12           | 0  | 12          | 0  | .042        | 8  |
| 346    |      | min | -12.765  | 8      | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 347    |      | 4   | max      | 8.645  | 3          | .012  | 5          | 0  | 12           | 0  | 12          | 0  | .029        | 8  |
| 348    |      | min | -12.768  | 8      | .001       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 349    |      | 5   | max      | 8.642  | 3          | .018  | 5          | 0  | 12           | 0  | 12          | 0  | .011        | 8  |
| 350    |      | min | -12.77   | 8      | .007       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 351    | M107 | 1   | max      | 4.921  | 3          | 0     | 8          | 0  | 12           | 0  | 12          | 0  | .035        | 8  |
| 352    |      | min | -7.85    | 8      | -.017      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 3  |
| 353    |      | 2   | max      | 4.918  | 3          | .004  | 8          | 0  | 12           | 0  | 12          | 0  | .032        | 8  |
| 354    |      | min | -7.852   | 8      | -.011      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 355    |      | 3   | max      | 4.915  | 3          | .008  | 8          | 0  | 12           | 0  | 12          | 0  | .024        | 5  |
| 356    |      | min | -7.854   | 8      | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 357    |      | 4   | max      | 4.912  | 3          | .013  | 5          | 0  | 12           | 0  | 12          | 0  | .009        | 8  |
| 358    |      | min | -7.856   | 8      | .002       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 359    |      | 5   | max      | 4.909  | 3          | .019  | 5          | 0  | 12           | 0  | 12          | 0  | -.01        | 12 |
| 360    |      | min | -7.858   | 8      | .008       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 5  |
| 361    | M108 | 1   | max      | 1.589  | 3          | -.003 | 8          | 0  | 12           | 0  | 12          | 0  | .008        | 8  |
| 362    |      | min | -3.393   | 8      | -.017      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 363    |      | 2   | max      | 1.586  | 3          | .001  | 8          | 0  | 12           | 0  | 12          | 0  | .009        | 5  |
| 364    |      | min | -3.395   | 8      | -.011      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 365    |      | 3   | max      | 1.584  | 3          | .005  | 8          | 0  | 12           | 0  | 12          | 0  | .009        | 10 |
| 366    |      | min | -3.396   | 8      | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | .004        | 8  |
| 367    |      | 4   | max      | 1.581  | 3          | .011  | 5          | 0  | 12           | 0  | 12          | 0  | .01         | 3  |
| 368    |      | min | -3.398   | 8      | .002       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 369    |      | 5   | max      | 1.578  | 3          | .018  | 5          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 370    |      | min | -3.399   | 8      | .009       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 5  |
| 371    | M109 | 1   | max      | .042   | 12         | -.004 | 8          | 0  | 12           | 0  | 12          | 0  | -.007       | 3  |
| 372    |      | min | -1.068   | 3      | -.014      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 5  |
| 373    |      | 2   | max      | .041   | 12         | -.002 | 8          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 374    |      | min | -1.069   | 3      | -.011      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 5  |
| 375    |      | 3   | max      | .041   | 12         | 0     | 8          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |

### Envelope Member Section Forces (Continued)

|     | Member | Sec |     | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-v Mome... | LC | z-z Mome... | LC |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 376 |        |     | min | -1.07    | 3  | -.008      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 377 |        | 4   | max | .04      | 12 | .001       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 3  |
| 378 |        |     | min | -1.071   | 3  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 379 |        | 5   | max | .04      | 12 | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 380 |        |     | min | -1.072   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 381 | M110   | 1   | max | 2.657    | 8  | -.003      | 8  | 0          | 12 | 0            | 12 | 0           | 12 | -.004       | 3  |
| 382 |        |     | min | -3.23    | 3  | -.017      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 5  |
| 383 |        | 2   | max | 2.656    | 8  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 3  |
| 384 |        |     | min | -3.232   | 3  | -.01       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 385 |        | 3   | max | 2.655    | 8  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 386 |        |     | min | -3.233   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 387 |        | 4   | max | 2.654    | 8  | .011       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 388 |        |     | min | -3.235   | 3  | .004       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 8  |
| 389 |        | 5   | max | 2.653    | 8  | .018       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 390 |        |     | min | -3.237   | 3  | .011       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 5  |
| 391 | M111   | 1   | max | 4.775    | 8  | -.006      | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 392 |        |     | min | -4.954   | 3  | -.015      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 5  |
| 393 |        | 2   | max | 4.775    | 8  | -.002      | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 394 |        |     | min | -4.955   | 3  | -.009      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 8  |
| 395 |        | 3   | max | 4.774    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 3  |
| 396 |        |     | min | -4.956   | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 8  |
| 397 |        | 4   | max | 4.774    | 8  | .009       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .03         | 3  |
| 398 |        |     | min | -4.957   | 3  | .005       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 8  |
| 399 |        | 5   | max | 4.773    | 8  | .016       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 3  |
| 400 |        |     | min | -4.958   | 3  | .01        | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.05        | 5  |
| 401 | M112   | 1   | max | 6.048    | 8  | -.009      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 3  |
| 402 |        |     | min | -5.975   | 3  | -.015      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.05        | 5  |
| 403 |        | 2   | max | 6.048    | 8  | -.004      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 404 |        |     | min | -5.975   | 3  | -.008      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.037       | 8  |
| 405 |        | 3   | max | 6.048    | 8  | 0          | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .039        | 3  |
| 406 |        |     | min | -5.976   | 3  | -.001      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 8  |
| 407 |        | 4   | max | 6.047    | 8  | .007       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .035        | 3  |
| 408 |        |     | min | -5.976   | 3  | .004       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.036       | 8  |
| 409 |        | 5   | max | 6.047    | 8  | .014       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 3  |
| 410 |        |     | min | -5.977   | 3  | .008       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 5  |
| 411 | M113   | 1   | max | 6.542    | 8  | -.003      | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 3  |
| 412 |        |     | min | -6.322   | 3  | -.012      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 5  |
| 413 |        | 2   | max | 6.542    | 8  | -.001      | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 3  |
| 414 |        |     | min | -6.322   | 3  | -.009      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 415 |        | 3   | max | 6.542    | 8  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 416 |        |     | min | -6.322   | 3  | -.006      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 417 |        | 4   | max | 6.542    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 3  |
| 418 |        |     | min | -6.322   | 3  | -.003      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.044       | 8  |
| 419 |        | 5   | max | 6.542    | 8  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 420 |        |     | min | -6.322   | 3  | 0          | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 8  |
| 421 | M114   | 1   | max | 6.283    | 8  | -.008      | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 3  |
| 422 |        |     | min | -5.977   | 3  | -.013      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 5  |
| 423 |        | 2   | max | 6.283    | 8  | -.003      | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .035        | 3  |
| 424 |        |     | min | -5.976   | 3  | -.006      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.036       | 8  |
| 425 |        | 3   | max | 6.283    | 8  | .001       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .039        | 3  |
| 426 |        |     | min | -5.976   | 3  | 0          | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.034       | 8  |
| 427 |        | 4   | max | 6.283    | 8  | .008       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 428 |        |     | min | -5.975   | 3  | .005       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 8  |
| 429 |        | 5   | max | 6.284    | 8  | .015       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 3  |
| 430 |        |     | min | -5.975   | 3  | .009       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.052       | 5  |
| 431 | M115   | 1   | max | 5.261    | 8  | -.009      | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 3  |
| 432 |        |     | min | -4.958   | 3  | -.015      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.051       | 5  |



### 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 |
|--------|------|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 433    | 2    | max | 5.262    | 8     | -.005      | 12    | 0          | 12 | 0            | 12 | 0           | 12 | .03         | 3  |
| 434    |      | min | -4.957   | 3     | -.009      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.037       | 8  |
| 435    | 3    | max | 5.263    | 8     | .002       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 3  |
| 436    |      | min | -4.956   | 3     | -.002      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.031       | 8  |
| 437    | 4    | max | 5.263    | 8     | .009       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 438    |      | min | -4.955   | 3     | .002       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 8  |
| 439    | 5    | max | 5.264    | 8     | .015       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 440    |      | min | -4.954   | 3     | .007       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.042       | 5  |
| 441    | M116 | 1   | max      | 3.393 | 8          | -.011 | 3          | 0  | 12           | 0  | 12          | 0  | .015        | 3  |
| 442    |      | min | -3.237   | 3     | -.018      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.05        | 5  |
| 443    | 2    | max | 3.394    | 8     | -.004      | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 444    |      | min | -3.235   | 3     | -.011      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 8  |
| 445    | 3    | max | 3.395    | 8     | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 3  |
| 446    |      | min | -3.233   | 3     | -.004      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 8  |
| 447    | 4    | max | 3.396    | 8     | .01        | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 3  |
| 448    |      | min | -3.232   | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 449    | 5    | max | 3.397    | 8     | .017       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | -.004       | 3  |
| 450    |      | min | -3.23    | 3     | .004       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 5  |
| 451    | M117 | 1   | max      | 1.071 | 12         | -.008 | 3          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 452    |      | min | -1.075   | 3     | -.014      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 5  |
| 453    | 2    | max | 1.072    | 12    | -.006      | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 3  |
| 454    |      | min | -1.074   | 3     | -.011      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 8  |
| 455    | 3    | max | 1.072    | 12    | -.003      | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 456    |      | min | -1.074   | 3     | -.008      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 8  |
| 457    | 4    | max | 1.073    | 12    | 0          | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .016        | 3  |
| 458    |      | min | -1.073   | 3     | -.005      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 459    | 5    | max | 1.073    | 12    | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 460    |      | min | -1.072   | 3     | -.003      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 8  |
| 461    | M118 | 1   | max      | 1.579 | 3          | -.009 | 3          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 462    |      | min | -2.205   | 8     | -.017      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 5  |
| 463    | 2    | max | 1.581    | 3     | -.002      | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 3  |
| 464    |      | min | -2.204   | 8     | -.01       | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 465    | 3    | max | 1.584    | 3     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 466    |      | min | -2.202   | 8     | -.004      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 467    | 4    | max | 1.587    | 3     | .011       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 5  |
| 468    |      | min | -2.2     | 8     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 469    | 5    | max | 1.589    | 3     | .017       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 8  |
| 470    |      | min | -2.199   | 8     | .004       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 471    | M119 | 1   | max      | 4.909 | 3          | -.008 | 3          | 0  | 12           | 0  | 12          | 0  | -.011       | 12 |
| 472    |      | min | -6.378   | 8     | -.017      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 5  |
| 473    | 2    | max | 4.912    | 3     | -.002      | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 8  |
| 474    |      | min | -6.376   | 8     | -.011      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 475    | 3    | max | 4.915    | 3     | .005       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 5  |
| 476    |      | min | -6.374   | 8     | -.005      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 477    | 4    | max | 4.919    | 3     | .011       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .022        | 8  |
| 478    |      | min | -6.372   | 8     | -.002      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 479    | 5    | max | 4.922    | 3     | .017       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .022        | 8  |
| 480    |      | min | -6.37    | 8     | .002       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 3  |
| 481    | M120 | 1   | max      | 8.642 | 3          | -.007 | 3          | 0  | 12           | 0  | 12          | 0  | .003        | 8  |
| 482    |      | min | -11.428  | 8     | -.019      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 483    | 2    | max | 8.646    | 3     | -.001      | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .023        | 8  |
| 484    |      | min | -11.426  | 8     | -.013      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 485    | 3    | max | 8.649    | 3     | .005       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .037        | 8  |
| 486    |      | min | -11.424  | 8     | -.008      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 487    | 4    | max | 8.653    | 3     | .011       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .046        | 8  |
| 488    |      | min | -11.422  | 8     | -.004      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 489    | 5    | max | 8.657    | 3     | .017       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .049        | 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 |
|--------|-------|-----|----------|--------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 490    |       | min | -11.419  | 8      | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.053       | 3  |
| 491    | M121  | 1   | max      | 12.591 | 3          | .008 | 3          | 0  | 12           | 0  | 12          | 0  | .02         | 8  |
| 492    |       | min | -17.237  | 8      | -.033      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 493    |       | 2   | max      | 12.593 | 3          | .011 | 3          | 0  | 12           | 0  | 12          | 0  | .041        | 8  |
| 494    |       | min | -17.235  | 8      | -.03       | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 3  |
| 495    |       | 3   | max      | 12.595 | 3          | .013 | 3          | 0  | 12           | 0  | 12          | 0  | .061        | 8  |
| 496    |       | min | -17.234  | 8      | -.028      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 3  |
| 497    |       | 4   | max      | 12.597 | 3          | .016 | 3          | 0  | 12           | 0  | 12          | 0  | .08         | 8  |
| 498    |       | min | -17.233  | 8      | -.027      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.058       | 3  |
| 499    |       | 5   | max      | 12.599 | 3          | .019 | 3          | 0  | 12           | 0  | 12          | 0  | .098        | 8  |
| 500    |       | min | -17.232  | 8      | -.025      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.07        | 3  |
| 501    | M122  | 1   | max      | 14.11  | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .079        | 8  |
| 502    |       | min | -19.807  | 8      | -.015      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.062       | 3  |
| 503    |       | 2   | max      | 14.111 | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .086        | 8  |
| 504    |       | min | -19.806  | 8      | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.064       | 3  |
| 505    |       | 3   | max      | 14.113 | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .092        | 8  |
| 506    |       | min | -19.805  | 8      | -.014      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.067       | 3  |
| 507    |       | 4   | max      | 14.115 | 3          | .008 | 3          | 0  | 12           | 0  | 12          | 0  | .098        | 8  |
| 508    |       | min | -19.804  | 8      | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.07        | 3  |
| 509    |       | 5   | max      | 14.116 | 3          | .009 | 3          | 0  | 12           | 0  | 12          | 0  | .103        | 8  |
| 510    |       | min | -19.803  | 8      | -.012      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.074       | 3  |
| 511    | M124  | 1   | max      | 13.284 | 3          | .071 | 3          | 0  | 12           | 0  | 12          | 0  | .017        | 8  |
| 512    |       | min | -19.288  | 8      | -.124      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 513    |       | 2   | max      | 13.286 | 3          | .071 | 3          | 0  | 12           | 0  | 12          | 0  | .071        | 8  |
| 514    |       | min | -19.287  | 8      | -.124      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.057       | 3  |
| 515    |       | 3   | max      | 13.288 | 3          | .071 | 3          | 0  | 12           | 0  | 12          | 0  | .124        | 8  |
| 516    |       | min | -19.286  | 8      | -.124      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.088       | 3  |
| 517    |       | 4   | max      | 13.29  | 3          | .072 | 3          | 0  | 12           | 0  | 12          | 0  | .178        | 8  |
| 518    |       | min | -19.285  | 8      | -.123      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.119       | 3  |
| 519    |       | 5   | max      | 13.292 | 3          | .072 | 3          | 0  | 12           | 0  | 12          | 0  | .232        | 8  |
| 520    |       | min | -19.284  | 8      | -.123      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.151       | 3  |
| 521    | M126  | 1   | max      | 8.533  | 3          | .002 | 3          | 0  | 12           | 0  | 12          | 0  | .02         | 8  |
| 522    |       | min | -13.182  | 8      | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 523    |       | 2   | max      | 8.539  | 3          | .002 | 3          | 0  | 12           | 0  | 12          | 0  | .024        | 8  |
| 524    |       | min | -13.179  | 8      | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 3  |
| 525    |       | 3   | max      | 8.545  | 3          | .002 | 3          | 0  | 12           | 0  | 12          | 0  | .029        | 8  |
| 526    |       | min | -13.175  | 8      | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 527    |       | 4   | max      | 8.551  | 3          | .002 | 3          | 0  | 12           | 0  | 12          | 0  | .033        | 8  |
| 528    |       | min | -13.172  | 8      | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 529    |       | 5   | max      | 8.557  | 3          | .002 | 3          | 0  | 12           | 0  | 12          | 0  | .037        | 8  |
| 530    |       | min | -13.168  | 8      | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.023       | 3  |
| 531    | M127  | 1   | max      | 3.61   | 3          | .034 | 8          | 0  | 12           | 0  | 12          | 0  | .081        | 8  |
| 532    |       | min | -5.846   | 8      | -.02       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 3  |
| 533    |       | 2   | max      | 3.616  | 3          | .034 | 8          | 0  | 12           | 0  | 12          | 0  | .037        | 8  |
| 534    |       | min | -5.843   | 8      | -.02       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 535    |       | 3   | max      | 3.622  | 3          | .034 | 8          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 536    |       | min | -5.839   | 8      | -.02       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 537    |       | 4   | max      | 3.628  | 3          | .034 | 8          | 0  | 12           | 0  | 12          | 0  | .032        | 3  |
| 538    |       | min | -5.835   | 8      | -.02       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.052       | 8  |
| 539    |       | 5   | max      | 3.634  | 3          | .034 | 8          | 0  | 12           | 0  | 12          | 0  | .058        | 3  |
| 540    |       | min | -5.832   | 8      | -.02       | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.096       | 8  |
| 541    | M108A | 1   | max      | 13.271 | 3          | .117 | 8          | 0  | 12           | 0  | 12          | 0  | .246        | 8  |
| 542    |       | min | -19.269  | 8      | -.086      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.174       | 3  |
| 543    |       | 2   | max      | 13.274 | 3          | .117 | 8          | 0  | 12           | 0  | 12          | 0  | .177        | 8  |
| 544    |       | min | -19.267  | 8      | -.085      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.124       | 3  |
| 545    |       | 3   | max      | 13.276 | 3          | .117 | 8          | 0  | 12           | 0  | 12          | 0  | .107        | 8  |
| 546    |       | min | -19.266  | 8      | -.085      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.073       | 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 |
|--------|-------|-----|----------|--------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 547    | 4     | max | 13.279   | 3      | .117       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .038        | 8  |
| 548    |       | min | -19.264  | 8      | -.085      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 3  |
| 549    | 5     | max | 13.282   | 3      | .117       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 3  |
| 550    |       | min | -19.262  | 8      | -.085      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 8  |
| 551    | M109A | 1   | max      | 13.308 | 3          | .073  | 8          | 0  | 12           | 0  | 12          | 0  | .176        | 8  |
| 552    |       | min | -16.898  | 8      | -.073      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.153       | 3  |
| 553    |       | 2   | max      | 13.306 | 3          | .073  | 8          | 0  | 12           | 0  | 12          | 0  | .144        | 8  |
| 554    |       | min | -16.899  | 8      | -.073      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.121       | 3  |
| 555    |       | 3   | max      | 13.304 | 3          | .073  | 8          | 0  | 12           | 0  | 12          | 0  | .112        | 8  |
| 556    |       | min | -16.901  | 8      | -.072      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.089       | 3  |
| 557    |       | 4   | max      | 13.302 | 3          | .074  | 8          | 0  | 12           | 0  | 12          | 0  | .08         | 8  |
| 558    |       | min | -16.902  | 8      | -.072      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.058       | 3  |
| 559    |       | 5   | max      | 13.3   | 3          | .074  | 8          | 0  | 12           | 0  | 12          | 0  | .048        | 8  |
| 560    |       | min | -16.903  | 8      | -.072      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.027       | 3  |
| 561    | M110B | 1   | max      | 14.07  | 3          | -.002 | 3          | 0  | 12           | 0  | 12          | 0  | .087        | 8  |
| 562    |       | min | -18.912  | 8      | -.009      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.067       | 3  |
| 563    |       | 2   | max      | 14.069 | 3          | 0     | 3          | 0  | 12           | 0  | 12          | 0  | .089        | 8  |
| 564    |       | min | -18.913  | 8      | -.007      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.066       | 3  |
| 565    |       | 3   | max      | 14.067 | 3          | 0     | 3          | 0  | 12           | 0  | 12          | 0  | .092        | 8  |
| 566    |       | min | -18.914  | 8      | -.006      | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.066       | 3  |
| 567    |       | 4   | max      | 14.065 | 3          | .002  | 3          | 0  | 12           | 0  | 12          | 0  | .093        | 8  |
| 568    |       | min | -18.915  | 8      | -.006      | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.067       | 3  |
| 569    |       | 5   | max      | 14.064 | 3          | .003  | 3          | 0  | 12           | 0  | 12          | 0  | .095        | 8  |
| 570    |       | min | -18.916  | 8      | -.005      | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 3  |
| 571    | M111B | 1   | max      | 14.142 | 3          | .033  | 8          | 0  | 12           | 0  | 12          | 0  | .099        | 8  |
| 572    |       | min | -19.837  | 8      | -.025      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.073       | 3  |
| 573    |       | 2   | max      | 14.144 | 3          | .033  | 8          | 0  | 12           | 0  | 12          | 0  | .085        | 8  |
| 574    |       | min | -19.836  | 8      | -.024      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.063       | 3  |
| 575    |       | 3   | max      | 14.145 | 3          | .034  | 8          | 0  | 12           | 0  | 12          | 0  | .071        | 8  |
| 576    |       | min | -19.835  | 8      | -.023      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.053       | 3  |
| 577    |       | 4   | max      | 14.147 | 3          | .034  | 8          | 0  | 12           | 0  | 12          | 0  | .057        | 8  |
| 578    |       | min | -19.834  | 8      | -.022      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 3  |
| 579    |       | 5   | max      | 14.149 | 3          | .035  | 8          | 0  | 12           | 0  | 12          | 0  | .042        | 8  |
| 580    |       | min | -19.833  | 8      | -.021      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.034       | 3  |
| 581    | M116A | 1   | max      | 12.599 | 3          | .021  | 8          | 0  | 12           | 0  | 12          | 0  | .097        | 8  |
| 582    |       | min | -17.636  | 8      | -.018      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.069       | 3  |
| 583    |       | 2   | max      | 12.597 | 3          | .023  | 8          | 0  | 12           | 0  | 12          | 0  | .082        | 8  |
| 584    |       | min | -17.637  | 8      | -.016      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.057       | 3  |
| 585    |       | 3   | max      | 12.595 | 3          | .025  | 8          | 0  | 12           | 0  | 12          | 0  | .066        | 8  |
| 586    |       | min | -17.638  | 8      | -.013      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 3  |
| 587    |       | 4   | max      | 12.593 | 3          | .026  | 5          | 0  | 12           | 0  | 12          | 0  | .049        | 8  |
| 588    |       | min | -17.639  | 8      | -.011      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 3  |
| 589    |       | 5   | max      | 12.592 | 3          | .029  | 5          | 0  | 12           | 0  | 12          | 0  | .031        | 8  |
| 590    |       | min | -17.64   | 8      | -.008      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.033       | 3  |
| 591    | M118A | 1   | max      | 12.683 | 3          | .021  | 3          | 0  | 12           | 0  | 12          | 0  | .046        | 8  |
| 592    |       | min | -17.359  | 8      | -.042      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.041       | 3  |
| 593    |       | 2   | max      | 12.684 | 3          | .022  | 3          | 0  | 12           | 0  | 12          | 0  | .065        | 8  |
| 594    |       | min | -17.359  | 8      | -.041      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.051       | 3  |
| 595    |       | 3   | max      | 12.685 | 3          | .024  | 3          | 0  | 12           | 0  | 12          | 0  | .084        | 8  |
| 596    |       | min | -17.358  | 8      | -.04       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.062       | 3  |
| 597    |       | 4   | max      | 12.687 | 3          | .026  | 3          | 0  | 12           | 0  | 12          | 0  | .102        | 8  |
| 598    |       | min | -17.357  | 8      | -.039      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.073       | 3  |
| 599    |       | 5   | max      | 12.688 | 3          | .027  | 3          | 0  | 12           | 0  | 12          | 0  | .12         | 8  |
| 600    |       | min | -17.356  | 8      | -.038      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.086       | 3  |
| 601    | M120A | 1   | max      | 3.385  | 8          | .003  | 3          | 0  | 12           | 0  | 12          | 0  | -.004       | 2  |
| 602    |       | min | -2.018   | 3      | -.321      | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.208       | 9  |
| 603    |       | 2   | max      | 3.374  | 8          | .003  | 3          | 0  | 12           | 0  | 12          | 0  | .102        | 12 |

### 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 |
|--------|-------|-------|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 604    |       | min   | -2.037   | 3  | -.153      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 3  |
| 605    |       | 3 max | 3.362    | 8  | .016       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | -.191       | 12 |
| 606    |       | min   | -2.056   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 3  |
| 607    |       | 4 max | 3.351    | 8  | .185       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | .061        | 12 |
| 608    |       | min   | -2.075   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 3  |
| 609    |       | 5 max | 3.339    | 8  | .353       | 9  | 0          | 12 | 0            | 12 | 0           | 12 | -.009       | 2  |
| 610    |       | min   | -2.094   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.292       | 9  |
| 611    | M122A | 1 max | 2.859    | 3  | .221       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .176        | 8  |
| 612    |       | min   | -3.777   | 8  | -.053      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.045       | 3  |
| 613    |       | 2 max | 2.869    | 3  | .161       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .052        | 8  |
| 614    |       | min   | -3.772   | 8  | -.053      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 3  |
| 615    |       | 3 max | 2.878    | 3  | .102       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 3  |
| 616    |       | min   | -3.766   | 8  | -.053      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.034       | 8  |
| 617    |       | 4 max | 2.888    | 3  | .043       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .059        | 3  |
| 618    |       | min   | -3.76    | 8  | -.053      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.081       | 8  |
| 619    |       | 5 max | 2.897    | 3  | .006       | 12 | 0          | 12 | 0            | 12 | 0           | 12 | .094        | 3  |
| 620    |       | min   | -3.754   | 8  | -.053      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.09        | 8  |
| 621    | M123  | 1 max | 3.634    | 3  | .02        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .058        | 3  |
| 622    |       | min   | -4.078   | 8  | -.02       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.061       | 8  |
| 623    |       | 2 max | 3.628    | 3  | .02        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 624    |       | min   | -4.081   | 8  | -.02       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 8  |
| 625    |       | 3 max | 3.622    | 3  | .02        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 626    |       | min   | -4.085   | 8  | -.02       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 627    |       | 4 max | 3.616    | 3  | .02        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .018        | 8  |
| 628    |       | min   | -4.089   | 8  | -.02       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 629    |       | 5 max | 3.61     | 3  | .02        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .045        | 8  |
| 630    |       | min   | -4.092   | 8  | -.02       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 3  |
| 631    | M128  | 1 max | 1.073    | 12 | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 632    |       | min   | -1.072   | 3  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 8  |
| 633    |       | 2 max | 1.074    | 12 | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 3  |
| 634    |       | min   | -1.071   | 3  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 635    |       | 3 max | 1.075    | 12 | .008       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 636    |       | min   | -1.07    | 3  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 637    |       | 4 max | 1.075    | 12 | .011       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 638    |       | min   | -1.069   | 3  | .002       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 5  |
| 639    |       | 5 max | 1.076    | 12 | .014       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | -.007       | 3  |
| 640    |       | min   | -1.068   | 3  | .003       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.021       | 5  |
| 641    | M129  | 1 max | 6.542    | 8  | 0          | 10 | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 642    |       | min   | -6.322   | 3  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.046       | 8  |
| 643    |       | 2 max | 6.542    | 8  | .003       | 10 | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 3  |
| 644    |       | min   | -6.322   | 3  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.044       | 8  |
| 645    |       | 3 max | 6.542    | 8  | .006       | 10 | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 3  |
| 646    |       | min   | -6.322   | 3  | 0          | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 647    |       | 4 max | 6.542    | 8  | .009       | 10 | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 3  |
| 648    |       | min   | -6.322   | 3  | .001       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.043       | 8  |
| 649    |       | 5 max | 6.542    | 8  | .012       | 10 | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 3  |
| 650    |       | min   | -6.322   | 3  | .003       | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.047       | 5  |
| 651    | M130  | 1 max | .04      | 12 | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 652    |       | min   | -1.072   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 653    |       | 2 max | .039     | 12 | .006       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .016        | 3  |
| 654    |       | min   | -1.073   | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 655    |       | 3 max | .039     | 12 | .008       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 656    |       | min   | -1.074   | 3  | .003       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 657    |       | 4 max | .038     | 12 | .011       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 3  |
| 658    |       | min   | -1.075   | 3  | .006       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 8  |
| 659    |       | 5 max | .038     | 12 | .014       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 660    |       | min   | -1.075   | 3  | .008       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 5  |

### 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 |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 661 | M10    | 1   | max | 3.294    | 3  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 662 |        |     | min | -3.934   | 8  | -.013      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 3  |
| 663 |        | 2   | max | 3.293    | 3  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 12 |
| 664 |        |     | min | -3.935   | 8  | -.012      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 665 |        | 3   | max | 3.292    | 3  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 12 |
| 666 |        |     | min | -3.935   | 8  | -.011      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 667 |        | 4   | max | 3.291    | 3  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 668 |        |     | min | -3.936   | 8  | -.01       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 669 |        | 5   | max | 3.29     | 3  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .015        | 3  |
| 670 |        |     | min | -3.937   | 8  | -.009      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 671 | M11    | 1   | max | 3.974    | 8  | .007       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 672 |        |     | min | -3.308   | 3  | -.001      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 673 |        | 2   | max | 3.973    | 8  | .006       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 8  |
| 674 |        |     | min | -3.309   | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 675 |        | 3   | max | 3.973    | 8  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 676 |        |     | min | -3.31    | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 677 |        | 4   | max | 3.972    | 8  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 678 |        |     | min | -3.311   | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 6  |
| 679 |        | 5   | max | 3.971    | 8  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 680 |        |     | min | -3.312   | 3  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 681 | M12    | 1   | max | 3.382    | 3  | .017       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .032        | 8  |
| 682 |        |     | min | -4.759   | 8  | -.016      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 3  |
| 683 |        | 2   | max | 3.381    | 3  | .017       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 8  |
| 684 |        |     | min | -4.759   | 8  | -.015      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 685 |        | 3   | max | 3.38     | 3  | .018       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 5  |
| 686 |        |     | min | -4.76    | 8  | -.014      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 3  |
| 687 |        | 4   | max | 3.379    | 3  | .018       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 3  |
| 688 |        |     | min | -4.761   | 8  | -.013      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 689 |        | 5   | max | 3.378    | 3  | .019       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 3  |
| 690 |        |     | min | -4.761   | 8  | -.012      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.029       | 8  |
| 691 | M13    | 1   | max | 4.263    | 8  | .012       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .033        | 8  |
| 692 |        |     | min | -2.954   | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 693 |        | 2   | max | 4.262    | 8  | .012       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .023        | 8  |
| 694 |        |     | min | -2.956   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 3  |
| 695 |        | 3   | max | 4.261    | 8  | .011       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 696 |        |     | min | -2.957   | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 697 |        | 4   | max | 4.261    | 8  | .01        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 698 |        |     | min | -2.958   | 3  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 699 |        | 5   | max | 4.26     | 8  | .01        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 700 |        |     | min | -2.959   | 3  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 6  |
| 701 | M14    | 1   | max | 1.823    | 3  | .004       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .023        | 8  |
| 702 |        |     | min | -3.055   | 8  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 703 |        | 2   | max | 1.822    | 3  | .005       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .02         | 8  |
| 704 |        |     | min | -3.055   | 8  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 705 |        | 3   | max | 1.821    | 3  | .006       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .016        | 8  |
| 706 |        |     | min | -3.055   | 8  | .001       | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 707 |        | 4   | max | 1.821    | 3  | .007       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 8  |
| 708 |        |     | min | -3.056   | 8  | .002       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 3  |
| 709 |        | 5   | max | 1.82     | 3  | .009       | 6  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 710 |        |     | min | -3.056   | 8  | .003       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 711 | M15    | 1   | max | .839     | 3  | .005       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .016        | 8  |
| 712 |        |     | min | -.496    | 8  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 713 |        | 2   | max | .837     | 3  | .004       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 8  |
| 714 |        |     | min | -.496    | 8  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 715 |        | 3   | max | .836     | 3  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 8  |
| 716 |        |     | min | -.497    | 8  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 717 |        | 4   | max | .835     | 3  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 718    |     | min | -.498    | 8     | -.001      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 719    | 5   | max | .834     | 3     | .003       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 720    |     | min | -.499    | 8     | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 721    | M16 | 1   | max      | .607  | 3          | .003 | 3          | 0  | 12           | 0  | 12          | 0  | .003        | 8  |
| 722    |     | min | -1.376   | 8     | -.007      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 723    |     | 2   | max      | .607  | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .008        | 8  |
| 724    |     | min | -1.376   | 8     | -.006      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 725    |     | 3   | max      | .607  | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .012        | 8  |
| 726    |     | min | -1.376   | 8     | -.005      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 727    |     | 4   | max      | .607  | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .015        | 8  |
| 728    |     | min | -1.376   | 8     | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 729    |     | 5   | max      | .607  | 3          | .008 | 3          | 0  | 12           | 0  | 12          | 0  | .018        | 8  |
| 730    |     | min | -1.376   | 8     | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 3  |
| 731    | M17 | 1   | max      | 1.942 | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 12 |
| 732    |     | min | -2.3     | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 733    |     | 2   | max      | 1.94  | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 8  |
| 734    |     | min | -2.3     | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 735    |     | 3   | max      | 1.939 | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .015        | 8  |
| 736    |     | min | -2.301   | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 737    |     | 4   | max      | 1.938 | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .021        | 8  |
| 738    |     | min | -2.302   | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 739    |     | 5   | max      | 1.936 | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .027        | 8  |
| 740    |     | min | -2.303   | 8     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 741    | M18 | 1   | max      | 2.177 | 8          | .003 | 3          | 0  | 12           | 0  | 12          | 0  | .002        | 10 |
| 742    |     | min | -1.83    | 3     | -.01       | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 5  |
| 743    |     | 2   | max      | 2.177 | 8          | .004 | 3          | 0  | 12           | 0  | 12          | 0  | .005        | 12 |
| 744    |     | min | -1.83    | 3     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 745    |     | 3   | max      | 2.177 | 8          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 746    |     | min | -1.83    | 3     | -.008      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 747    |     | 4   | max      | 2.177 | 8          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .016        | 8  |
| 748    |     | min | -1.83    | 3     | -.007      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 3  |
| 749    |     | 5   | max      | 2.177 | 8          | .009 | 3          | 0  | 12           | 0  | 12          | 0  | .021        | 8  |
| 750    |     | min | -1.829   | 3     | -.006      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 751    | M19 | 1   | max      | 3.116 | 3          | .003 | 3          | 0  | 12           | 0  | 12          | 0  | .002        | 9  |
| 752    |     | min | -3.96    | 8     | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 753    |     | 2   | max      | 3.114 | 3          | .004 | 3          | 0  | 12           | 0  | 12          | 0  | .005        | 8  |
| 754    |     | min | -3.961   | 8     | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 755    |     | 3   | max      | 3.113 | 3          | .004 | 3          | 0  | 12           | 0  | 12          | 0  | .008        | 8  |
| 756    |     | min | -3.962   | 8     | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 757    |     | 4   | max      | 3.111 | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .012        | 8  |
| 758    |     | min | -3.963   | 8     | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 759    |     | 5   | max      | 3.11  | 3          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .015        | 8  |
| 760    |     | min | -3.964   | 8     | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 761    | M20 | 1   | max      | 2.3   | 8          | .001 | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 10 |
| 762    |     | min | -1.831   | 3     | -.005      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 763    |     | 2   | max      | 2.3   | 8          | .003 | 3          | 0  | 12           | 0  | 12          | 0  | .005        | 9  |
| 764    |     | min | -1.831   | 3     | -.004      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 765    |     | 3   | max      | 2.3   | 8          | .004 | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 5  |
| 766    |     | min | -1.831   | 3     | -.002      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 767    |     | 4   | max      | 2.301 | 8          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 8  |
| 768    |     | min | -1.83    | 3     | -.001      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 769    |     | 5   | max      | 2.301 | 8          | .008 | 3          | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 770    |     | min | -1.83    | 3     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 3  |
| 771    | M21 | 1   | max      | 2.735 | 3          | .001 | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 772    |     | min | -3.738   | 8     | -.014      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 5  |
| 773    |     | 2   | max      | 2.734 | 3          | .002 | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 2  |
| 774    |     | min | -3.739   | 8     | -.013      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 5  |



### 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 |
|--------|-----|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 775    | 3   | max | 2.732    | 3     | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 8  |
| 776    |     | min | -3.74    | 8     | -.013      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 777    | 4   | max | 2.731    | 3     | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .023        | 8  |
| 778    |     | min | -3.741   | 8     | -.012      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 779    | 5   | max | 2.729    | 3     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .035        | 8  |
| 780    |     | min | -3.742   | 8     | -.012      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 781    | M22 | 1   | max      | 2.343 | 8          | 0     | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 782    |     | min | -1.839   | 3     | -.014      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 9  |
| 783    | 2   | max | 2.343    | 8     | 0          | 3     | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 784    |     | min | -1.838   | 3     | -.012      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 12 |
| 785    | 3   | max | 2.343    | 8     | .002       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 786    |     | min | -1.838   | 3     | -.011      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 12 |
| 787    | 4   | max | 2.343    | 8     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 788    |     | min | -1.838   | 3     | -.01       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 789    | 5   | max | 2.344    | 8     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .016        | 8  |
| 790    |     | min | -1.838   | 3     | -.009      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 791    | M23 | 1   | max      | 2.239 | 3          | 0     | 10         | 0  | 12           | 0  | 12          | 0  | .004        | 3  |
| 792    |     | min | -3.138   | 8     | -.001      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 793    | 2   | max | 2.237    | 3     | .001       | 10    | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 794    |     | min | -3.139   | 8     | 0          | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 795    | 3   | max | 2.236    | 3     | .002       | 10    | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 796    |     | min | -3.14    | 8     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 797    | 4   | max | 2.234    | 3     | .003       | 10    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 798    |     | min | -3.141   | 8     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 5  |
| 799    | 5   | max | 2.233    | 3     | .004       | 10    | 0          | 12 | 0            | 12 | 0           | 12 | -.003       | 2  |
| 800    |     | min | -3.142   | 8     | .001       | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 10 |
| 801    | M24 | 1   | max      | 2.098 | 8          | .003  | 8          | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 802    |     | min | -1.758   | 3     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 803    | 2   | max | 2.098    | 8     | .004       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 5  |
| 804    |     | min | -1.758   | 3     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 805    | 3   | max | 2.098    | 8     | .005       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 5  |
| 806    |     | min | -1.758   | 3     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | .001        | 3  |
| 807    | 4   | max | 2.099    | 8     | .006       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 808    |     | min | -1.757   | 3     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 809    | 5   | max | 2.099    | 8     | .008       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 810    |     | min | -1.757   | 3     | .002       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 5  |
| 811    | M25 | 1   | max      | 1.59  | 3          | .003  | 3          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 812    |     | min | -2.154   | 8     | -.009      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 8  |
| 813    | 2   | max | 1.589    | 3     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 814    |     | min | -2.155   | 8     | -.008      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 815    | 3   | max | 1.588    | 3     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 816    |     | min | -2.156   | 8     | -.008      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 817    | 4   | max | 1.586    | 3     | .005       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 818    |     | min | -2.157   | 8     | -.007      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 819    | 5   | max | 1.585    | 3     | .006       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 8  |
| 820    |     | min | -2.158   | 8     | -.007      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 821    | M26 | 1   | max      | 1.69  | 8          | -.001 | 8          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 822    |     | min | -1.454   | 3     | -.003      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 5  |
| 823    | 2   | max | 1.69     | 8     | 0          | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 824    |     | min | -1.454   | 3     | -.001      | 9     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 825    | 3   | max | 1.691    | 8     | .001       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 826    |     | min | -1.453   | 3     | 0          | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 827    | 4   | max | 1.691    | 8     | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 828    |     | min | -1.452   | 3     | 0          | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 829    | 5   | max | 1.692    | 8     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | -.002       | 3  |
| 830    |     | min | -1.452   | 3     | .002       | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 5  |
| 831    | M27 | 1   | max      | 1.28  | 3          | .003  | 3          | 0  | 12           | 0  | 12          | 0  | .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 |
|--------|-----|-------|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 832    |     | min   | -1.73    | 8  | -.009      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 8  |
| 833    |     | 2 max | 1.279    | 3  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 834    |     | min   | -1.731   | 8  | -.008      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 835    |     | 3 max | 1.278    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 836    |     | min   | -1.732   | 8  | -.008      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 837    |     | 4 max | 1.276    | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 838    |     | min   | -1.733   | 8  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 839    |     | 5 max | 1.275    | 3  | .007       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .012        | 8  |
| 840    |     | min   | -1.733   | 8  | -.006      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 841    | M28 | 1 max | 1.542    | 8  | -.002      | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 842    |     | min   | -1.359   | 3  | -.004      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 5  |
| 843    |     | 2 max | 1.542    | 8  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 844    |     | min   | -1.359   | 3  | -.002      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 845    |     | 3 max | 1.543    | 8  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 846    |     | min   | -1.358   | 3  | 0          | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 847    |     | 4 max | 1.543    | 8  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 848    |     | min   | -1.357   | 3  | 0          | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 849    |     | 5 max | 1.544    | 8  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 850    |     | min   | -1.357   | 3  | .001       | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 5  |
| 851    | M29 | 1 max | .752     | 3  | .001       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 3  |
| 852    |     | min   | -1.06    | 8  | -.007      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 8  |
| 853    |     | 2 max | .751     | 3  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 854    |     | min   | -1.06    | 8  | -.006      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 855    |     | 3 max | .749     | 3  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 856    |     | min   | -1.061   | 8  | -.006      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 857    |     | 4 max | .748     | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 858    |     | min   | -1.062   | 8  | -.005      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 8  |
| 859    |     | 5 max | .747     | 3  | .006       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 860    |     | min   | -1.063   | 8  | -.004      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 861    | M30 | 1 max | 1.146    | 8  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 862    |     | min   | -1.022   | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 9  |
| 863    |     | 2 max | 1.147    | 8  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 864    |     | min   | -1.021   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 865    |     | 3 max | 1.147    | 8  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 866    |     | min   | -1.02    | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 867    |     | 4 max | 1.148    | 8  | .005       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 868    |     | min   | -1.02    | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 869    |     | 5 max | 1.148    | 8  | .006       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 870    |     | min   | -1.019   | 3  | .001       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 8  |
| 871    | M31 | 1 max | .23      | 3  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 872    |     | min   | -.42     | 8  | -.005      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 873    |     | 2 max | .229     | 3  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 874    |     | min   | -.42     | 8  | -.003      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 875    |     | 3 max | .228     | 3  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 876    |     | min   | -.421    | 8  | -.003      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 877    |     | 4 max | .227     | 3  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 878    |     | min   | -.422    | 8  | -.002      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 879    |     | 5 max | .226     | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 880    |     | min   | -.422    | 8  | -.001      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 5  |
| 881    | M32 | 1 max | .689     | 8  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 882    |     | min   | -.605    | 3  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 883    |     | 2 max | .69      | 8  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 6  |
| 884    |     | min   | -.604    | 3  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 885    |     | 3 max | .69      | 8  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 886    |     | min   | -.603    | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 887    |     | 4 max | .691     | 8  | .008       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 3  |
| 888    |     | min   | -.602    | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 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 |
|--------|-----|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 889    | 5   | max | .691     | 8     | .009       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 3  |
| 890    |     | min | -.601    | 3     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 891    | M33 | 1   | max      | .087  | 8          | 0     | 3          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 892    |     | min | -.186    | 3     | -.008      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 893    |     | 2   | max      | .086  | 8          | .001  | 3          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 894    |     | min | -.187    | 3     | -.007      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 895    |     | 3   | max      | .086  | 8          | .002  | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 896    |     | min | -.188    | 3     | -.006      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 897    |     | 4   | max      | .085  | 8          | .004  | 3          | 0  | 12           | 0  | 12          | 0  | .003        | 3  |
| 898    |     | min | -.189    | 3     | -.005      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 899    |     | 5   | max      | .085  | 8          | .005  | 3          | 0  | 12           | 0  | 12          | 0  | .002        | 8  |
| 900    |     | min | -.19     | 3     | -.005      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 901    | M34 | 1   | max      | .234  | 8          | .005  | 8          | 0  | 12           | 0  | 12          | 0  | .002        | 8  |
| 902    |     | min | -.19     | 3     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 903    |     | 2   | max      | .235  | 8          | .005  | 8          | 0  | 12           | 0  | 12          | 0  | .003        | 3  |
| 904    |     | min | -.189    | 3     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 905    |     | 3   | max      | .235  | 8          | .006  | 8          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 906    |     | min | -.188    | 3     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 907    |     | 4   | max      | .236  | 8          | .007  | 5          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 908    |     | min | -.187    | 3     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 909    |     | 5   | max      | .237  | 8          | .008  | 5          | 0  | 12           | 0  | 12          | 0  | .008        | 3  |
| 910    |     | min | -.186    | 3     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 911    | M35 | 1   | max      | .543  | 8          | .001  | 3          | 0  | 12           | 0  | 12          | 0  | .011        | 3  |
| 912    |     | min | -.601    | 3     | -.009      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 8  |
| 913    |     | 2   | max      | .542  | 8          | .003  | 3          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |
| 914    |     | min | -.602    | 3     | -.008      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 915    |     | 3   | max      | .542  | 8          | .004  | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 916    |     | min | -.603    | 3     | -.007      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 917    |     | 4   | max      | .541  | 8          | .006  | 3          | 0  | 12           | 0  | 12          | 0  | .002        | 6  |
| 918    |     | min | -.604    | 3     | -.006      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 919    |     | 5   | max      | .541  | 8          | .007  | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 8  |
| 920    |     | min | -.605    | 3     | -.005      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 921    | M36 | 1   | max      | .226  | 3          | 0     | 8          | 0  | 12           | 0  | 12          | 0  | .001        | 3  |
| 922    |     | min | -.241    | 8     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 5  |
| 923    |     | 2   | max      | .227  | 3          | .002  | 8          | 0  | 12           | 0  | 12          | 0  | .005        | 3  |
| 924    |     | min | -.24     | 8     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 925    |     | 3   | max      | .228  | 3          | .002  | 8          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 926    |     | min | -.239    | 8     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 927    |     | 4   | max      | .229  | 3          | .003  | 5          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |
| 928    |     | min | -.239    | 8     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 929    |     | 5   | max      | .23   | 3          | .005  | 5          | 0  | 12           | 0  | 12          | 0  | .009        | 3  |
| 930    |     | min | -.238    | 8     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 931    | M37 | 1   | max      | 1.019 | 8          | -.001 | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 932    |     | min | -1.019   | 3     | -.006      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 8  |
| 933    |     | 2   | max      | 1.019 | 8          | 0     | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 934    |     | min | -1.02    | 3     | -.005      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 935    |     | 3   | max      | 1.018 | 8          | .002  | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 936    |     | min | -1.02    | 3     | -.004      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 937    |     | 4   | max      | 1.018 | 8          | .003  | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 3  |
| 938    |     | min | -1.021   | 3     | -.003      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 939    |     | 5   | max      | 1.017 | 8          | .004  | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 940    |     | min | -1.022   | 3     | -.002      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 9  |
| 941    | M38 | 1   | max      | .747  | 3          | .004  | 8          | 0  | 12           | 0  | 12          | 0  | .003        | 8  |
| 942    |     | min | -.864    | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 943    |     | 2   | max      | .748  | 3          | .005  | 8          | 0  | 12           | 0  | 12          | 0  | .001        | 3  |
| 944    |     | min | -.863    | 8     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 945    |     | 3   | max      | .749  | 3          | .005  | 8          | 0  | 12           | 0  | 12          | 0  | .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 |
|--------|-----|-----|----------|-------|------------|-------|------------|----|--------------|----|-------------|----|-------------|----|
| 946    |     | min | -862     | 8     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 947    | 4   | max | .751     | 3     | .006       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 948    |     | min | -862     | 8     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 8  |
| 949    | 5   | max | .752     | 3     | .007       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 3  |
| 950    |     | min | -.861    | 8     | -.001      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 8  |
| 951    | M39 | 1   | max      | 1.433 | 8          | -.002 | 8          | 0  | 12           | 0  | 12          | 0  | .002        | 3  |
| 952    |     | min | -1.356   | 3     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 5  |
| 953    | 2   | max | 1.433    | 8     | 0          | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 954    |     | min | -1.357   | 3     | -.002      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 955    | 3   | max | 1.433    | 8     | 0          | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 956    |     | min | -1.358   | 3     | 0          | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 957    | 4   | max | 1.432    | 8     | .002       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 958    |     | min | -1.358   | 3     | .001       | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 959    | 5   | max | 1.432    | 8     | .003       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 960    |     | min | -1.359   | 3     | .002       | 12    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 5  |
| 961    | M40 | 1   | max      | 1.275 | 3          | .006  | 8          | 0  | 12           | 0  | 12          | 0  | .012        | 8  |
| 962    |     | min | -1.523   | 8     | -.007      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 963    | 2   | max | 1.277    | 3     | .007       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 8  |
| 964    |     | min | -1.523   | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 965    | 3   | max | 1.278    | 3     | .008       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 966    |     | min | -1.522   | 8     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 967    | 4   | max | 1.279    | 3     | .008       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 3  |
| 968    |     | min | -1.521   | 8     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 969    | 5   | max | 1.28     | 3     | .009       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .01         | 3  |
| 970    |     | min | -1.52    | 8     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 8  |
| 971    | M41 | 1   | max      | 1.601 | 8          | -.002 | 12         | 0  | 12           | 0  | 12          | 0  | -.002       | 3  |
| 972    |     | min | -1.452   | 3     | -.004      | 6     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 5  |
| 973    | 2   | max | 1.601    | 8     | -.001      | 12    | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 974    |     | min | -1.452   | 3     | -.003      | 6     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 975    | 3   | max | 1.601    | 8     | 0          | 2     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 976    |     | min | -1.453   | 3     | -.002      | 6     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 977    | 4   | max | 1.6      | 8     | 0          | 2     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 978    |     | min | -1.454   | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 979    | 5   | max | 1.6      | 8     | .002       | 2     | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 980    |     | min | -1.454   | 3     | 0          | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 5  |
| 981    | M42 | 1   | max      | 1.585 | 3          | .006  | 8          | 0  | 12           | 0  | 12          | 0  | .009        | 8  |
| 982    |     | min | -1.958   | 8     | -.006      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 983    | 2   | max | 1.586    | 3     | .007       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 984    |     | min | -1.957   | 8     | -.005      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 985    | 3   | max | 1.588    | 3     | .007       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 986    |     | min | -1.956   | 8     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 987    | 4   | max | 1.589    | 3     | .008       | 8     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 988    |     | min | -1.955   | 8     | -.004      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 989    | 5   | max | 1.59     | 3     | .008       | 5     | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 990    |     | min | -1.954   | 8     | -.003      | 3     | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 8  |
| 991    | M43 | 1   | max      | 2.023 | 8          | -.002 | 3          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 992    |     | min | -1.757   | 3     | -.006      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 5  |
| 993    | 2   | max | 2.023    | 8     | 0          | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 994    |     | min | -1.757   | 3     | -.005      | 5     | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 995    | 3   | max | 2.023    | 8     | 0          | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 5  |
| 996    |     | min | -1.758   | 3     | -.003      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 997    | 4   | max | 2.022    | 8     | .003       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 5  |
| 998    |     | min | -1.758   | 3     | -.002      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 999    | 5   | max | 2.022    | 8     | .004       | 3     | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 1000   |     | min | -1.759   | 3     | -.001      | 8     | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1001   | M44 | 1   | max      | 2.233 | 3          | .001  | 8          | 0  | 12           | 0  | 12          | 0  | 0           | 8  |
| 1002   |     | min | -2.885   | 8     | -.004      | 3     | 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 |
|------|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 1003 |        | 2   | max | 2.234    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 1004 |        |     | min | -2.884   | 8  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 3  |
| 1005 |        | 3   | max | 2.236    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 1006 |        |     | min | -2.883   | 8  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 1007 |        | 4   | max | 2.237    | 3  | .003       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 1008 |        |     | min | -2.883   | 8  | -.001      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 1009 |        | 5   | max | 2.239    | 3  | .003       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 1010 |        |     | min | -2.882   | 8  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 1011 | M45    | 1   | max | 2.254    | 8  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 1012 |        |     | min | -1.838   | 3  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 1013 |        | 2   | max | 2.253    | 8  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 1014 |        |     | min | -1.838   | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1015 |        | 3   | max | 2.253    | 8  | .001       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 5  |
| 1016 |        |     | min | -1.838   | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 1017 |        | 4   | max | 2.253    | 8  | .003       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 6  |
| 1018 |        |     | min | -1.839   | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 1019 |        | 5   | max | 2.253    | 8  | .004       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1020 |        |     | min | -1.839   | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 5  |
| 1021 | M46    | 1   | max | 2.729    | 3  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 1022 |        |     | min | -3.731   | 8  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 1023 |        | 2   | max | 2.731    | 3  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 1024 |        |     | min | -3.73    | 8  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1025 |        | 3   | max | 2.732    | 3  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 1026 |        |     | min | -3.729   | 8  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1027 |        | 4   | max | 2.734    | 3  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 1028 |        |     | min | -3.728   | 8  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 6  |
| 1029 |        | 5   | max | 2.735    | 3  | .005       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1030 |        |     | min | -3.728   | 8  | -.001      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 5  |
| 1031 | M47    | 1   | max | 2.485    | 8  | .004       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 1032 |        |     | min | -1.83    | 3  | -.008      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 3  |
| 1033 |        | 2   | max | 2.485    | 8  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 1034 |        |     | min | -1.83    | 3  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1035 |        | 3   | max | 2.485    | 8  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 5  |
| 1036 |        |     | min | -1.83    | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1037 |        | 4   | max | 2.484    | 8  | .007       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 1038 |        |     | min | -1.831   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 8  |
| 1039 |        | 5   | max | 2.484    | 8  | .009       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 1040 |        |     | min | -1.831   | 3  | -.001      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 5  |
| 1041 | M48    | 1   | max | 3.11     | 3  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .019        | 8  |
| 1042 |        |     | min | -4.542   | 8  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1043 |        | 2   | max | 3.111    | 3  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 8  |
| 1044 |        |     | min | -4.541   | 8  | -.005      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 1045 |        | 3   | max | 3.113    | 3  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 1046 |        |     | min | -4.54    | 8  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1047 |        | 4   | max | 3.114    | 3  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 8  |
| 1048 |        |     | min | -4.539   | 8  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1049 |        | 5   | max | 3.116    | 3  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1050 |        |     | min | -4.538   | 8  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 8  |
| 1051 | M49    | 1   | max | 2.784    | 8  | .01        | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 8  |
| 1052 |        |     | min | -1.829   | 3  | -.009      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 1053 |        | 2   | max | 2.784    | 8  | .011       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .017        | 8  |
| 1054 |        |     | min | -1.829   | 3  | -.007      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 3  |
| 1055 |        | 3   | max | 2.784    | 8  | .012       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 1056 |        |     | min | -1.829   | 3  | -.006      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1057 |        | 4   | max | 2.784    | 8  | .013       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 1058 |        |     | min | -1.83    | 3  | -.004      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 5  |
| 1059 |        | 5   | max | 2.784    | 8  | .014       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 1060   |     | min | -1.83    | 3     | -.003      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 5  |
| 1061   | M50 | 1   | max      | 1.94  | 3          | .015 | 8          | 0  | 12           | 0  | 12          | 0  | .041        | 8  |
| 1062   |     | min | -3.103   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 1063   |     | 2   | max      | 1.941 | 3          | .015 | 8          | 0  | 12           | 0  | 12          | 0  | .029        | 8  |
| 1064   |     | min | -3.102   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1065   |     | 3   | max      | 1.943 | 3          | .015 | 8          | 0  | 12           | 0  | 12          | 0  | .017        | 8  |
| 1066   |     | min | -3.101   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 1067   |     | 4   | max      | 1.944 | 3          | .015 | 8          | 0  | 12           | 0  | 12          | 0  | .006        | 8  |
| 1068   |     | min | -3.1     | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1069   |     | 5   | max      | 1.946 | 3          | .015 | 8          | 0  | 12           | 0  | 12          | 0  | -.001       | 2  |
| 1070   |     | min | -3.1     | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 5  |
| 1071   | M51 | 1   | max      | .534  | 3          | .007 | 8          | 0  | 12           | 0  | 12          | 0  | .024        | 8  |
| 1072   |     | min | -.489    | 8     | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 1073   |     | 2   | max      | .534  | 3          | .008 | 8          | 0  | 12           | 0  | 12          | 0  | .018        | 8  |
| 1074   |     | min | -.489    | 8     | -.007      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 1075   |     | 3   | max      | .534  | 3          | .008 | 8          | 0  | 12           | 0  | 12          | 0  | .012        | 8  |
| 1076   |     | min | -.489    | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 1077   |     | 4   | max      | .534  | 3          | .009 | 8          | 0  | 12           | 0  | 12          | 0  | .006        | 8  |
| 1078   |     | min | -.489    | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1079   |     | 5   | max      | .534  | 3          | .01  | 5          | 0  | 12           | 0  | 12          | 0  | 0           | 3  |
| 1080   |     | min | -.489    | 8     | -.003      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 9  |
| 1081   | M52 | 1   | max      | .821  | 3          | .002 | 10         | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 1082   |     | min | -1.491   | 8     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1083   |     | 2   | max      | .822  | 3          | .002 | 10         | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 1084   |     | min | -1.49    | 8     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1085   |     | 3   | max      | .824  | 3          | .001 | 10         | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 1086   |     | min | -1.489   | 8     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 1087   |     | 4   | max      | .825  | 3          | 0    | 10         | 0  | 12           | 0  | 12          | 0  | .01         | 8  |
| 1088   |     | min | -1.488   | 8     | 0          | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 1089   |     | 5   | max      | .826  | 3          | 0    | 10         | 0  | 12           | 0  | 12          | 0  | .011        | 8  |
| 1090   |     | min | -1.488   | 8     | -.001      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 1091   | M53 | 1   | max      | 1.845 | 3          | .019 | 12         | 0  | 12           | 0  | 12          | 0  | .033        | 8  |
| 1092   |     | min | -2.026   | 8     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 3  |
| 1093   |     | 2   | max      | 1.845 | 3          | .02  | 12         | 0  | 12           | 0  | 12          | 0  | .021        | 8  |
| 1094   |     | min | -2.026   | 8     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.012       | 3  |
| 1095   |     | 3   | max      | 1.846 | 3          | .021 | 12         | 0  | 12           | 0  | 12          | 0  | .008        | 8  |
| 1096   |     | min | -2.025   | 8     | -.004      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 3  |
| 1097   |     | 4   | max      | 1.847 | 3          | .021 | 9          | 0  | 12           | 0  | 12          | 0  | -.002       | 2  |
| 1098   |     | min | -2.025   | 8     | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 10 |
| 1099   |     | 5   | max      | 1.847 | 3          | .022 | 9          | 0  | 12           | 0  | 12          | 0  | -.002       | 2  |
| 1100   |     | min | -2.025   | 8     | -.001      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 9  |
| 1101   | M54 | 1   | max      | 3.729 | 8          | .011 | 10         | 0  | 12           | 0  | 12          | 0  | .036        | 12 |
| 1102   |     | min | -2.94    | 3     | .003       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 3  |
| 1103   |     | 2   | max      | 3.73  | 8          | .01  | 10         | 0  | 12           | 0  | 12          | 0  | .028        | 8  |
| 1104   |     | min | -2.939   | 3     | .002       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 3  |
| 1105   |     | 3   | max      | 3.731 | 8          | .009 | 10         | 0  | 12           | 0  | 12          | 0  | .025        | 8  |
| 1106   |     | min | -2.938   | 3     | .001       | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.015       | 3  |
| 1107   |     | 4   | max      | 3.731 | 8          | .008 | 10         | 0  | 12           | 0  | 12          | 0  | .022        | 8  |
| 1108   |     | min | -2.937   | 3     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 3  |
| 1109   |     | 5   | max      | 3.732 | 8          | .008 | 12         | 0  | 12           | 0  | 12          | 0  | .02         | 8  |
| 1110   |     | min | -2.936   | 3     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 3  |
| 1111   | M55 | 1   | max      | 3.375 | 3          | .011 | 3          | 0  | 12           | 0  | 12          | 0  | .02         | 3  |
| 1112   |     | min | -4.355   | 8     | -.022      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 8  |
| 1113   |     | 2   | max      | 3.376 | 3          | .012 | 3          | 0  | 12           | 0  | 12          | 0  | .01         | 3  |
| 1114   |     | min | -4.354   | 8     | -.021      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 1115   |     | 3   | max      | 3.378 | 3          | .013 | 3          | 0  | 12           | 0  | 12          | 0  | .004        | 5  |
| 1116   |     | min | -4.354   | 8     | -.02       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 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 |
|--------|------|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 1117   | 4    | max | 3.379    | 3     | .014       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .021        | 8  |
| 1118   |      | min | -4.353   | 8     | -.02       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 1119   | 5    | max | 3.38     | 3     | .015       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .038        | 8  |
| 1120   |      | min | -4.352   | 8     | -.019      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.026       | 3  |
| 1121   | M56  | 1   | max      | 4.901 | 8          | .005 | 3          | 0  | 12           | 0  | 12          | 0  | .003        | 10 |
| 1122   |      | min | -3.312   | 3     | -.002      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 8  |
| 1123   | 2    | max | 4.902    | 8     | .004       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 12 |
| 1124   |      | min | -3.311   | 3     | -.003      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 3  |
| 1125   | 3    | max | 4.903    | 8     | .003       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 1126   |      | min | -3.31    | 3     | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1127   | 4    | max | 4.903    | 8     | .002       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .009        | 8  |
| 1128   |      | min | -3.309   | 3     | -.004      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1129   | 5    | max | 4.904    | 8     | .001       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 8  |
| 1130   |      | min | -3.308   | 3     | -.005      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 3  |
| 1131   | M57  | 1   | max      | 3.289 | 3          | .009 | 3          | 0  | 12           | 0  | 12          | 0  | .015        | 3  |
| 1132   |      | min | -4.851   | 8     | -.024      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.031       | 8  |
| 1133   | 2    | max | 3.291    | 3     | .01        | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 1134   |      | min | -4.85    | 8     | -.023      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 8  |
| 1135   | 3    | max | 3.292    | 3     | .011       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 12 |
| 1136   |      | min | -4.85    | 8     | -.023      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1137   | 4    | max | 3.293    | 3     | .012       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .03         | 12 |
| 1138   |      | min | -4.849   | 8     | -.022      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 3  |
| 1139   | 5    | max | 3.294    | 3     | .013       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .049        | 8  |
| 1140   |      | min | -4.848   | 8     | -.022      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 3  |
| 1141   | M132 | 1   | max      | 2.211 | 3          | .006 | 3          | 0  | 12           | 0  | 12          | 0  | .006        | 3  |
| 1142   |      | min | -2.829   | 8     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 1143   | 2    | max | 2.211    | 3     | .005       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 3  |
| 1144   |      | min | -2.83    | 8     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 8  |
| 1145   | 3    | max | 2.21     | 3     | .004       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1146   |      | min | -2.83    | 8     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 5  |
| 1147   | 4    | max | 2.209    | 3     | .004       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 12 |
| 1148   |      | min | -2.831   | 8     | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 6  |
| 1149   | 5    | max | 2.208    | 3     | .003       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 8  |
| 1150   |      | min | -2.831   | 8     | -.001      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 3  |
| 1151   | M133 | 1   | max      | 2.314 | 3          | .008 | 5          | 0  | 12           | 0  | 12          | 0  | .007        | 5  |
| 1152   |      | min | -2.961   | 8     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | .001        | 1  |
| 1153   | 2    | max | 2.314    | 3     | .007       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 5  |
| 1154   |      | min | -2.961   | 8     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 1155   | 3    | max | 2.313    | 3     | .006       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 1156   |      | min | -2.961   | 8     | 0          | 3    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 8  |
| 1157   | 4    | max | 2.313    | 3     | .005       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 1158   |      | min | -2.961   | 8     | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 1159   | 5    | max | 2.313    | 3     | .005       | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 1160   |      | min | -2.961   | 8     | -.003      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 1161   | M134 | 1   | max      | 2.31  | 3          | .002 | 5          | 0  | 12           | 0  | 12          | 0  | 0           | 2  |
| 1162   |      | min | -3.446   | 8     | 0          | 10   | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 12 |
| 1163   | 2    | max | 2.31     | 3     | .002       | 5    | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1164   |      | min | -3.446   | 8     | -.001      | 10   | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 12 |
| 1165   | 3    | max | 2.309    | 3     | 0          | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 1166   |      | min | -3.446   | 8     | -.002      | 10   | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 1167   | 4    | max | 2.309    | 3     | 0          | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 3  |
| 1168   |      | min | -3.447   | 8     | -.003      | 10   | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 8  |
| 1169   | 5    | max | 2.309    | 3     | 0          | 8    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 1170   |      | min | -3.447   | 8     | -.004      | 10   | 0          | 1  | 0            | 1  | 0           | 1  | -.004       | 8  |
| 1171   | M135 | 1   | max      | 2.209 | 3          | .007 | 3          | 0  | 12           | 0  | 12          | 0  | .007        | 3  |
| 1172   |      | min | -2.941   | 8     | -.007      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.011       | 8  |
| 1173   | 2    | max | 2.208    | 3     | .006       | 3    | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |

### Envelope Member Section Forces (Continued)

|      | Member | Sec |     | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-v Mome... | LC | z-z Mome... | LC |
|------|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 1174 |        |     | min | -2.941   | 8  | -.007      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 8  |
| 1175 |        | 3   | max | 2.208    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 3  |
| 1176 |        |     | min | -2.942   | 8  | -.008      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 5  |
| 1177 |        | 4   | max | 2.207    | 3  | .005       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .002        | 12 |
| 1178 |        |     | min | -2.942   | 8  | -.008      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1179 |        | 5   | max | 2.206    | 3  | .004       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 1180 |        |     | min | -2.943   | 8  | -.009      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.005       | 3  |
| 1181 | M112A  | 1   | max | 2.555    | 3  | 0          | 8  | 0          | 12 | 0            | 12 | 0           | 12 | -.006       | 2  |
| 1182 |        |     | min | -3.58    | 8  | -.029      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.039       | 10 |
| 1183 |        | 2   | max | 2.555    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | -.002       | 2  |
| 1184 |        |     | min | -3.58    | 8  | -.028      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 9  |
| 1185 |        | 3   | max | 2.555    | 3  | .002       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 1186 |        |     | min | -3.58    | 8  | -.027      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 12 |
| 1187 |        | 4   | max | 2.555    | 3  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 3  |
| 1188 |        |     | min | -3.579   | 8  | -.026      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |
| 1189 |        | 5   | max | 2.555    | 3  | .003       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 3  |
| 1190 |        |     | min | -3.579   | 8  | -.025      | 10 | 0          | 1  | 0            | 1  | 0           | 1  | -.014       | 8  |
| 1191 | M113A  | 1   | max | 1.422    | 3  | .003       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 3  |
| 1192 |        |     | min | -1.939   | 8  | -.004      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 12 |
| 1193 |        | 2   | max | 1.422    | 3  | .002       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 1194 |        |     | min | -1.94    | 8  | -.005      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 9  |
| 1195 |        | 3   | max | 1.421    | 3  | .001       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 8  |
| 1196 |        |     | min | -1.94    | 8  | -.005      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 3  |
| 1197 |        | 4   | max | 1.42     | 3  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .003        | 12 |
| 1198 |        |     | min | -1.941   | 8  | -.006      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1199 |        | 5   | max | 1.42     | 3  | 0          | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 9  |
| 1200 |        |     | min | -1.941   | 8  | -.007      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1201 | M114A  | 1   | max | 1.348    | 3  | .002       | 2  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 1202 |        |     | min | -1.76    | 8  | -.006      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 1203 |        | 2   | max | 1.348    | 3  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | 0           | 2  |
| 1204 |        |     | min | -1.76    | 8  | -.006      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 6  |
| 1205 |        | 3   | max | 1.349    | 3  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .001        | 8  |
| 1206 |        |     | min | -1.759   | 8  | -.007      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.002       | 3  |
| 1207 |        | 4   | max | 1.35     | 3  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 8  |
| 1208 |        |     | min | -1.759   | 8  | -.008      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 3  |
| 1209 |        | 5   | max | 1.35     | 3  | -.002      | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 5  |
| 1210 |        |     | min | -1.759   | 8  | -.009      | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 3  |
| 1211 | M115A  | 1   | max | 2.584    | 3  | .016       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 3  |
| 1212 |        |     | min | -3.195   | 8  | -.045      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.05        | 8  |
| 1213 |        | 2   | max | 2.583    | 3  | .017       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .014        | 3  |
| 1214 |        |     | min | -3.195   | 8  | -.045      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.025       | 8  |
| 1215 |        | 3   | max | 2.583    | 3  | .018       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 3  |
| 1216 |        |     | min | -3.196   | 8  | -.044      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 1217 |        | 4   | max | 2.583    | 3  | .019       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .026        | 8  |
| 1218 |        |     | min | -3.196   | 8  | -.043      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.007       | 3  |
| 1219 |        | 5   | max | 2.583    | 3  | .02        | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .051        | 8  |
| 1220 |        |     | min | -3.196   | 8  | -.043      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 3  |
| 1221 | M117A  | 1   | max | .758     | 3  | .027       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .029        | 3  |
| 1222 |        |     | min | -1.001   | 8  | -.034      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.036       | 8  |
| 1223 |        | 2   | max | .757     | 3  | .027       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 3  |
| 1224 |        |     | min | -1.001   | 8  | -.034      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.016       | 8  |
| 1225 |        | 3   | max | .756     | 3  | .026       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .004        | 8  |
| 1226 |        |     | min | -1.002   | 8  | -.035      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1227 |        | 4   | max | .755     | 3  | .026       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .024        | 8  |
| 1228 |        |     | min | -1.002   | 8  | -.035      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 3  |
| 1229 |        | 5   | max | .754     | 3  | .025       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .044        | 8  |
| 1230 |        |     | min | -1.003   | 8  | -.035      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 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 |
|------|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 1231 | M119A  | 1   | max | .755     | 3  | .027       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .028        | 3  |
| 1232 |        |     | min | -.992    | 8  | -.051      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.052       | 8  |
| 1233 |        | 2   | max | .754     | 3  | .027       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .013        | 3  |
| 1234 |        |     | min | -.992    | 8  | -.051      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.022       | 8  |
| 1235 |        | 3   | max | .753     | 3  | .026       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .007        | 8  |
| 1236 |        |     | min | -.993    | 8  | -.051      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 3  |
| 1237 |        | 4   | max | .753     | 3  | .026       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .037        | 8  |
| 1238 |        |     | min | -.993    | 8  | -.052      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.017       | 3  |
| 1239 |        | 5   | max | .752     | 3  | .025       | 3  | 0          | 12 | 0            | 12 | 0           | 12 | .067        | 8  |
| 1240 |        |     | min | -.994    | 8  | -.052      | 8  | 0          | 1  | 0            | 1  | 0           | 1  | -.032       | 3  |
| 1241 | M124A  | 1   | max | 5.184    | 8  | .002       | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 1242 |        |     | min | -3.208   | 3  | -.006      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.024       | 12 |
| 1243 |        | 2   | max | 5.185    | 8  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 1244 |        |     | min | -3.207   | 3  | -.007      | 12 | 0          | 1  | 0            | 1  | 0           | 1  | -.019       | 12 |
| 1245 |        | 3   | max | 5.185    | 8  | 0          | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 1246 |        |     | min | -3.205   | 3  | -.007      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 12 |
| 1247 |        | 4   | max | 5.186    | 8  | -.001      | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 1248 |        |     | min | -3.204   | 3  | -.008      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.009       | 8  |
| 1249 |        | 5   | max | 5.187    | 8  | -.002      | 2  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 1250 |        |     | min | -3.203   | 3  | -.009      | 9  | 0          | 1  | 0            | 1  | 0           | 1  | -.006       | 8  |
| 1251 | M126A  | 1   | max | 3.247    | 8  | .008       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .011        | 6  |
| 1252 |        |     | min | -3.208   | 3  | .001       | 3  | 0          | 1  | 0            | 1  | 0           | 1  | .002        | 1  |
| 1253 |        | 2   | max | 3.247    | 8  | .007       | 5  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 6  |
| 1254 |        |     | min | -3.207   | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 12 |
| 1255 |        | 3   | max | 3.248    | 8  | .007       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .005        | 3  |
| 1256 |        |     | min | -3.205   | 3  | 0          | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.003       | 12 |
| 1257 |        | 4   | max | 3.249    | 8  | .006       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .006        | 3  |
| 1258 |        |     | min | -3.204   | 3  | -.002      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.008       | 8  |
| 1259 |        | 5   | max | 3.249    | 8  | .005       | 8  | 0          | 12 | 0            | 12 | 0           | 12 | .008        | 3  |
| 1260 |        |     | min | -3.203   | 3  | -.003      | 3  | 0          | 1  | 0            | 1  | 0           | 1  | -.013       | 8  |

### Envelope AISC 14th(360-10): 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  | M110A  | L3X3X4          | .115      | 0       | 8  | .008      | 2.302   | y   | 8  | 38.382     | 43.114     | 1.56        | 3.471       | 2.... | H2-1  |
| 2  | M111A  | L3X3X4          | .075      | 2.302   | 3  | .006      | 2.302   | y   | 3  | 38.382     | 43.114     | 1.56        | 3.471       | 2.... | H2-1  |
| 3  | M66    | Double 2.375... | .120      | 0       | 8  | .013      | 2.6     |     | 9  | 41.017     | 44.79      | 2.047       | 2.047       | 1     | H1-1b |
| 4  | M67    | Double 2.375... | .368      | 0       | 8  | .027      | 0       |     | 12 | 35.501     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 5  | M68    | Double 2.375... | .370      | 2.241   | 8  | .013      | 2.241   |     | 5  | 42.873     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 6  | M69    | Double 2.375... | .396      | 2.265   | 8  | .014      | 2.265   |     | 8  | 42.833     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 7  | M70    | Double 2.375... | .410      | 0       | 8  | .016      | 0       |     | 8  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 8  | M71    | Double 2.375... | .444      | 2.158   | 8  | .018      | 2.158   |     | 8  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 9  | M72    | Double 2.375... | .451      | 5.79    | 8  | .029      | 5.79    |     | 8  | 33.447     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 10 | M73    | Double 2.375... | .276      | 0       | 8  | .031      | 0       |     | 8  | 31.877     | 44.79      | 2.047       | 2.047       | 1     | H1-1b |
| 11 | M74    | Double 2.375... | .241      | 0       | 8  | .031      | 0       |     | 8  | 31.879     | 44.79      | 2.047       | 2.047       | 1     | H1-1b |
| 12 | M75    | Double 2.375... | .251      | 0       | 8  | .029      | 0       |     | 8  | 33.445     | 44.79      | 2.047       | 2.047       | 1     | H1-1b |
| 13 | M76    | Double 2.375... | .266      | 5.791   | 8  | .029      | 5.791   |     | 8  | 33.445     | 44.79      | 2.047       | 2.047       | 1     | H1-1b |
| 14 | M77    | Double 2.375... | .405      | 6.248   | 8  | .031      | 6.248   |     | 8  | 31.877     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 15 | M78    | Double 2.375... | .440      | 0       | 8  | .031      | 0       |     | 8  | 31.879     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 16 | M79    | Double 2.375... | .432      | 0       | 8  | .029      | 0       |     | 8  | 33.446     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 17 | M80    | Double 2.375... | .431      | 5.79    | 8  | .029      | 5.79    |     | 8  | 33.445     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 18 | M81    | Double 2.375... | .433      | 6.248   | 8  | .031      | 6.248   |     | 8  | 31.879     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 19 | M82    | Double 2.375... | .392      | 0       | 8  | .031      | 0       |     | 8  | 31.876     | 44.79      | 2.047       | 2.047       | 1     | H1-1a |
| 20 | M83    | Double 2.375... | .258      | 0       | 8  | .029      | 0       |     | 8  | 33.447     | 44.79      | 2.047       | 2.047       | 1     | H1-1b |
| 21 | M84    | Double 2.375... | .247      | 5.79    | 8  | .029      | 5.79    |     | 8  | 33.446     | 44.79      | 2.047       | 2.047       | 1     | H1-1b |
| 22 | M85    | Double 2.375... | .207      | 0       | 8  | .031      | 0       |     | 8  | 31.878     | 44.79      | 2.047       | 2.047       | 1     | H1-1b |

### Envelope AISC 14th(360-10): 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    |
|--------|-------|-----------------|---------|-------|-----------|---------|-------|----|------------|------------|-------------|-------------|-------|--------|
| 23     | M86   | Double 2.375... | .242    | 0     | 8         | .020    | 0     | 8  | 31.877     | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 24     | M87   | Double 2.375... | .415    | 5.79  | 8         | .018    | 5.79  | 8  | 33.446     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 25     | M88   | Double 2.375... | .413    | 0     | 8         | .012    | 0     | 8  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 26     | M89   | Double 2.375... | .390    | 2.41  | 8         | .011    | 2.41  | 8  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 27     | M90   | Double 2.375... | .362    | 0     | 8         | .011    | 0     | 8  | 42.835     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 28     | M91   | Double 2.375... | .384    | 2.24  | 8         | .013    | 2.24  | 8  | 42.874     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 29     | M92   | Double 2.375... | .347    | 0     | 8         | .018    | 0     | 8  | 35.499     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 30     | M93   | Double 2.375... | .144    | 0     | 8         | .019    | 0     | 8  | 35.389     | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 31     | M100  | Double 2.375... | .250    | 0     | 3         | .000    | 0     | 3  | 35.648     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 32     | M101  | Double 2.375... | .474    | 2.37  | 8         | .009    | 0     | 8  | 42.651     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 33     | M103  | Double 2.375... | .466    | 1.629 | 8         | .003    | 0     | 8  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 34     | M105  | Double 2.375... | .444    | 0     | 8         | .002    | 0     | 3  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 35     | M106  | Double 2.375... | .307    | .253  | 8         | .001    | 6.062 | 5  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 36     | M107  | Double 2.375... | .151    | 0     | 3         | .001    | 6.062 | 5  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 37     | M108  | Double 2.375... | .049    | 6.062 | 8         | .001    | 6.062 | 5  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 38     | M109  | Double 2.375... | .019    | 2.587 | 3         | .001    | 0     | 3  | 38.304     | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 39     | M110  | Double 2.375... | .082    | 0     | 8         | .001    | 6.062 | 5  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 40     | M111  | Double 2.375... | .147    | 0     | 8         | .001    | 6.062 | 5  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 41     | M112  | Double 2.375... | .186    | 0     | 8         | .001    | 0     | 3  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 42     | M113  | Double 2.375... | .171    | 0     | 8         | .001    | 0     | 10 | 38.304     | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 43     | M114  | Double 2.375... | .193    | 6.062 | 8         | .001    | 6.062 | 3  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 44     | M115  | Double 2.375... | .162    | 6.062 | 8         | .001    | 6.062 | 3  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 45     | M116  | Double 2.375... | .104    | 6.062 | 8         | .001    | 0     | 5  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 46     | M117  | Double 2.375... | .028    | 0     | 8         | .001    | 0     | 5  | 38.304     | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 47     | M118  | Double 2.375... | .049    | 6.062 | 3         | .001    | 6.062 | 3  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 48     | M119  | Double 2.375... | .151    | 6.062 | 3         | .001    | 0     | 5  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 49     | M120  | Double 2.375... | .289    | 6.062 | 3         | .001    | 0     | 5  | 32.52      | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 50     | M121  | Double 2.375... | .427    | 2.721 | 8         | .002    | 0     | 5  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 51     | M122  | Double 2.375... | .487    | 1.722 | 8         | .001    | 0     | 5  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 52     | M124  | Double 2.375... | .531    | 1.736 | 8         | .009    | 0     | 8  | 42.9       | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 53     | M126  | Double 2.375... | .310    | 5.119 | 8         | .000    | 0     | 8  | 35.648     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 54     | M127  | Double 2.375... | .112    | 5.201 | 8         | .003    | 0     | 8  | 35.389     | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 55     | M108A | Double 2.375... | .537    | 0     | 8         | .009    | 2.371 | 8  | 42.651     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 56     | M109A | Double 2.375... | .454    | 0     | 8         | .006    | 1.737 | 8  | 42.9       | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 57     | M110B | Double 2.375... | .464    | 1.789 | 8         | .001    | 0     | 9  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 58     | M111B | Double 2.375... | .486    | 0     | 8         | .003    | 1.697 | 8  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 59     | M116A | Double 2.375... | .436    | 0     | 8         | .002    | 2.721 | 5  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 60     | M118A | Double 2.375... | .440    | 1.864 | 8         | .003    | 0     | 8  | 40.179     | 44.79      | 2.047       | 2.047       | 1     | H1-1a  |
| 61     | M120A | Double 2.375... | .185    | 5.201 | 12        | .026    | 5.201 | 9  | 35.389     | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 62     | M122A | Double 2.375... | .128    | 0     | 8         | .016    | 0     | 8  | 41.017     | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 63     | M123  | Double 2.375... | .103    | 0     | 3         | .002    | 0     | 8  | 35.389     | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 64     | M128  | Double 2.375... | .028    | 2.587 | 12        | .001    | 2.587 | 3  | 38.304     | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 65     | M129  | Double 2.375... | .171    | 0     | 8         | .001    | 2.587 | 10 | 38.304     | 44.79      | 2.047       | 2.047       | 1     | H1-1b* |
| 66     | M130  | Double 2.375... | .020    | .701  | 3         | .001    | 2.587 | 5  | 38.304     | 44.79      | 2.047       | 2.047       | 1     | H1-1b  |
| 67     | M10   | 1.9"x0.09"      | .258    | 0     | 3         | .003    | 0     | 3  | 14.271     | 16.862     | .81         | .81         | 2.... | H1-1a  |
| 68     | M11   | 1.9"x0.09"      | .292    | 0     | 8         | .001    | 0     | 5  | 14.271     | 16.862     | .81         | .81         | 2.... | H1-1a  |
| 69     | M12   | 1.9"x0.09"      | .317    | 0     | 8         | .004    | 3.413 | 8  | 14.353     | 16.862     | .81         | .81         | 2.... | H1-1a  |
| 70     | M13   | 1.9"x0.09"      | .335    | 0     | 8         | .002    | 0     | 5  | 14.28      | 16.862     | .81         | .81         | 1.... | H1-1a  |
| 71     | M14   | 1.9"x0.09"      | .123    | 0     | 3         | .002    | 3.024 | 6  | 14.858     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 72     | M15   | 1.9"x0.09"      | .057    | 0     | 3         | .001    | 0     | 5  | 14.84      | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 73     | M16   | 1.9"x0.09"      | .063    | 3.01  | 8         | .002    | 3.01  | 3  | 14.875     | 16.862     | .81         | .81         | 1.... | H1-1b  |
| 74     | M17   | 1.9"x0.09"      | .132    | 0     | 3         | .002    | 0     | 8  | 14.737     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 75     | M18   | 1.9"x0.09"      | .153    | 3.493 | 8         | .002    | 0     | 5  | 14.243     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 76     | M19   | 1.9"x0.09"      | .251    | 3.844 | 8         | .001    | 3.844 | 3  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1a  |
| 77     | M20   | 1.9"x0.09"      | .167    | 3.844 | 8         | .002    | 3.844 | 3  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 78     | M21   | 1.9"x0.09"      | .260    | 3.844 | 8         | .003    | 0     | 5  | 13.745     | 16.862     | .81         | .81         | 2.... | H1-1a  |
| 79     | M22   | 1.9"x0.09"      | .171    | 3.844 | 8         | .003    | 0     | 5  | 13.745     | 16.862     | .81         | .81         | 2.... | H1-1b* |

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

| Member | Shape | Code C...  | Loc[ft] | LC    | Shear ... | Loc[ft] | Dir   | LC | Pnc/om [k] | Pnt/om [k] | Mnvy/om ... | Mnzz/om ... | Cb    | Eqn    |
|--------|-------|------------|---------|-------|-----------|---------|-------|----|------------|------------|-------------|-------------|-------|--------|
| 80     | M23   | 1.9"x0.09" | .163    | 0     | 3         | .001    | 3.844 | 10 | 13.745     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 81     | M24   | 1.9"x0.09" | .153    | 3.844 | 8         | .001    | 3.844 | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 82     | M25   | 1.9"x0.09" | .112    | 0     | 3         | .002    | 0     | 5  | 14.243     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 83     | M26   | 1.9"x0.09" | .119    | 3.493 | 8         | .001    | 3.493 | 3  | 14.243     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 84     | M27   | 1.9"x0.09" | .093    | 0     | 3         | .002    | 0     | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 85     | M28   | 1.9"x0.09" | .112    | 3.844 | 8         | .001    | 0     | 9  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 86     | M29   | 1.9"x0.09" | .055    | 0     | 3         | .001    | 0     | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 87     | M30   | 1.9"x0.09" | .084    | 3.843 | 8         | .001    | 3.843 | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 88     | M31   | 1.9"x0.09" | .031    | 0     | 8         | .001    | 0     | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b  |
| 89     | M32   | 1.9"x0.09" | .050    | 3.844 | 8         | .002    | 3.844 | 5  | 13.745     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 90     | M33   | 1.9"x0.09" | .027    | 0     | 8         | .002    | 0     | 5  | 14.243     | 16.862     | .81         | .81         | 1.... | H1-1b  |
| 91     | M34   | 1.9"x0.09" | .031    | 3.493 | 8         | .002    | 3.493 | 5  | 14.243     | 16.862     | .81         | .81         | 1.... | H1-1b  |
| 92     | M35   | 1.9"x0.09" | .043    | 0     | 8         | .002    | 0     | 5  | 13.745     | 16.862     | .81         | .81         | 2.... | H1-1b  |
| 93     | M36   | 1.9"x0.09" | .026    | 3.844 | 8         | .001    | 3.844 | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b  |
| 94     | M37   | 1.9"x0.09" | .074    | 0     | 8         | .001    | 0     | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 95     | M38   | 1.9"x0.09" | .055    | 3.844 | 3         | .001    | 3.844 | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 96     | M39   | 1.9"x0.09" | .104    | 0     | 8         | .001    | 0     | 3  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 97     | M40   | 1.9"x0.09" | .093    | 3.844 | 3         | .002    | 3.844 | 5  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 98     | M41   | 1.9"x0.09" | .112    | 0     | 8         | .001    | 0     | 6  | 14.243     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 99     | M42   | 1.9"x0.09" | .112    | 3.493 | 3         | .002    | 3.493 | 5  | 14.243     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 100    | M43   | 1.9"x0.09" | .147    | 0     | 8         | .001    | 0     | 5  | 13.745     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 101    | M44   | 1.9"x0.09" | .163    | 3.843 | 3         | .001    | 0     | 3  | 13.745     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 102    | M45   | 1.9"x0.09" | .164    | 0     | 8         | .001    | 0     | 3  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 103    | M46   | 1.9"x0.09" | .231    | 0     | 8         | .001    | 3.844 | 5  | 13.745     | 16.862     | .81         | .81         | 2.... | H1-1a  |
| 104    | M47   | 1.9"x0.09" | .181    | 0     | 8         | .002    | 3.844 | 5  | 13.745     | 16.862     | .81         | .81         | 2     | H1-1b* |
| 105    | M48   | 1.9"x0.09" | .291    | 0     | 8         | .001    | 3.843 | 8  | 13.745     | 16.862     | .81         | .81         | 1.... | H1-1a  |
| 106    | M49   | 1.9"x0.09" | .195    | 0     | 8         | .003    | 3.493 | 5  | 14.243     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 107    | M50   | 1.9"x0.09" | .142    | 0     | 8         | .003    | 3.12  | 8  | 14.737     | 16.862     | .81         | .81         | 1.... | H1-1b  |
| 108    | M51   | 1.9"x0.09" | .044    | 0     | 8         | .002    | 3.01  | 5  | 14.876     | 16.862     | .81         | .81         | 1.... | H1-1b  |
| 109    | M52   | 1.9"x0.09" | .057    | 3.039 | 8         | .000    | 0     | 10 | 14.839     | 16.862     | .81         | .81         | 1.... | H1-1b  |
| 110    | M53   | 1.9"x0.09" | .124    | 3.026 | 3         | .004    | 3.026 | 9  | 14.856     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 111    | M54   | 1.9"x0.09" | .296    | 0     | 8         | .002    | 0     | 10 | 14.28      | 16.862     | .81         | .81         | 1.... | H1-1a  |
| 112    | M55   | 1.9"x0.09" | .300    | 3.413 | 8         | .004    | 0     | 8  | 14.353     | 16.862     | .81         | .81         | 2.... | H1-1a  |
| 113    | M56   | 1.9"x0.09" | .358    | 3.473 | 8         | .001    | 3.473 | 5  | 14.27      | 16.862     | .81         | .81         | 1.... | H1-1a  |
| 114    | M57   | 1.9"x0.09" | .341    | 3.473 | 8         | .005    | 0     | 8  | 14.27      | 16.862     | .81         | .81         | 2.... | H1-1a  |
| 115    | M132  | 1.9"x0.09" | .141    | 0     | 3         | .001    | 0     | 3  | 15.664     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 116    | M133  | 1.9"x0.09" | .148    | 0     | 3         | .002    | 0     | 5  | 15.67      | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 117    | M134  | 1.9"x0.09" | .209    | 1.822 | 8         | .001    | 2.302 | 10 | 15.67      | 16.862     | .81         | .81         | 1.... | H1-1a  |
| 118    | M135  | 1.9"x0.09" | .141    | 0     | 3         | .002    | 2.309 | 8  | 15.664     | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 119    | M112A | 1.9"x0.09" | .228    | 2.306 | 8         | .006    | 0     | 10 | 15.666     | 16.862     | .81         | .81         | 1.... | H1-1a  |
| 120    | M113A | 1.9"x0.09" | .091    | 0     | 3         | .001    | 2.41  | 9  | 15.561     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 121    | M114A | 1.9"x0.09" | .087    | 2.417 | 3         | .002    | 2.417 | 5  | 15.553     | 16.862     | .81         | .81         | 1.... | H1-1b* |
| 122    | M115A | 1.9"x0.09" | .165    | 0     | 3         | .009    | 0     | 8  | 15.67      | 16.862     | .81         | .81         | 2.... | H1-1b* |
| 123    | M117A | 1.9"x0.09" | .085    | 2.317 | 8         | .007    | 2.317 | 8  | 15.655     | 16.862     | .81         | .81         | 2.... | H1-1b  |
| 124    | M119A | 1.9"x0.09" | .113    | 2.317 | 8         | .010    | 2.317 | 8  | 15.655     | 16.862     | .81         | .81         | 2.... | H1-1b  |
| 125    | M124A | 1.9"x0.09" | .382    | 0     | 8         | .002    | 3.473 | 9  | 14.27      | 16.862     | .81         | .81         | 1.... | H1-1a  |
| 126    | M126A | 1.9"x0.09" | .242    | 3.473 | 8         | .002    | 0     | 5  | 14.271     | 16.862     | .81         | .81         | 2.1   | H1-1a  |

**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 | .063  | 8  | 2.977  | 3  | 1.818  | 8  | 0         | 12 | .053      | 3  | 0         | 12 |
| 2     |   | min | -.04  | 3  | -4.218 | 8  | -1.078 | 3  | 0         | 1  | -.088     | 8  | 0         | 1  |
| 3     | 2 | max | .04   | 3  | 1.181  | 3  | 1.845  | 8  | 0         | 12 | .039      | 3  | 0         | 12 |
| 4     |   | min | -.063 | 8  | -1.816 | 8  | -1.095 | 3  | 0         | 1  | -.057     | 8  | 0         | 1  |
| 5     | 3 | max | .04   | 3  | 1.181  | 3  | 1.095  | 3  | 0         | 12 | .042      | 8  | 0         | 12 |



### Envelope Joint Reactions (Continued)

| Joint |         |     | X [k] | LC | Y [k]   | LC | Z [k]  | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|-------|---------|-----|-------|----|---------|----|--------|----|-----------|----|-----------|----|-----------|----|
| 6     |         | min | -.041 | 8  | -1.565  | 8  | -1.111 | 8  | 0         | 1  | -.039     | 3  | 0         | 1  |
| 7     | 4       | max | .041  | 8  | 2.978   | 3  | 1.078  | 3  | 0         | 12 | .053      | 8  | 0         | 12 |
| 8     |         | min | -.04  | 3  | -3.815  | 8  | -1.093 | 8  | 0         | 1  | -.053     | 3  | 0         | 1  |
| 9     | Totals: | max | 0     | 12 | 8.317   | 3  | 1.459  | 8  |           |    |           |    |           |    |
| 10    |         | min | 0     | 1  | -11.415 | 8  | 0      | 1  |           |    |           |    |           |    |

### Envelope Joint Displacements

|    | Joint |     | X [in] | LC | Y [in] | LC | Z [in] | LC | X Rotation... | LC | Y Rotation... | LC | Z Rotation ... | LC |
|----|-------|-----|--------|----|--------|----|--------|----|---------------|----|---------------|----|----------------|----|
| 1  | 1     | max | 0      | 12 | .211   | 8  | .054   | 3  | 3.487e-3      | 3  | 0             | 12 | 0              | 12 |
| 2  |       | min | 0      | 1  | -.149  | 3  | -.091  | 8  | -4.765e-3     | 8  | 0             | 1  | 0              | 1  |
| 3  | 2     | max | 0      | 12 | .091   | 8  | .055   | 3  | 3.35e-3       | 3  | 0             | 12 | 0              | 12 |
| 4  |       | min | 0      | 1  | -.059  | 3  | -.092  | 8  | -4.462e-3     | 8  | 0             | 1  | 0              | 1  |
| 5  | 3     | max | 0      | 12 | .078   | 8  | .056   | 8  | 4.194e-3      | 8  | 0             | 12 | 0              | 12 |
| 6  |       | min | 0      | 1  | -.059  | 3  | -.055  | 3  | -3.351e-3     | 3  | 0             | 1  | 0              | 1  |
| 7  | 4     | max | 0      | 12 | .191   | 8  | .055   | 8  | 4.296e-3      | 8  | 0             | 12 | 0              | 12 |
| 8  |       | min | 0      | 1  | -.149  | 3  | -.054  | 3  | -3.487e-3     | 3  | 0             | 1  | 0              | 1  |
| 9  | K     | max | 0      | 12 | 0      | 12 | 0      | 12 | 0             | 12 | 0             | 12 | 0              | 12 |
| 10 |       | min | 0      | 1  | 0      | 1  | 0      | 1  | 0             | 1  | 0             | 1  | 0              | 1  |
| 11 | N4    | max | 0      | 12 | .208   | 8  | .4     | 3  | 3.15e-3       | 3  | 0             | 12 | 0              | 12 |
| 12 |       | min | 0      | 1  | -.148  | 3  | -.559  | 8  | -4.098e-3     | 8  | 0             | 1  | 0              | 1  |
| 13 | N5    | max | 0      | 12 | .186   | 8  | .562   | 3  | 1.512e-3      | 3  | 0             | 12 | 0              | 12 |
| 14 |       | min | 0      | 1  | -.132  | 3  | -.757  | 8  | -1.145e-3     | 8  | 0             | 1  | 0              | 1  |
| 15 | N6    | max | 0      | 12 | .155   | 8  | .595   | 3  | 5.046e-4      | 12 | 0             | 12 | 0              | 12 |
| 16 |       | min | 0      | 1  | -.103  | 3  | -.78   | 8  | -3.807e-5     | 3  | 0             | 1  | 0              | 1  |
| 17 | N7    | max | 0      | 12 | .2     | 8  | .554   | 3  | 3.142e-3      | 8  | 0             | 12 | 0              | 12 |
| 18 |       | min | 0      | 1  | -.122  | 3  | -.707  | 8  | -1.764e-3     | 3  | 0             | 1  | 0              | 1  |
| 19 | N8    | max | 0      | 12 | .412   | 8  | .442   | 3  | 4.77e-3       | 8  | 0             | 12 | 0              | 12 |
| 20 |       | min | 0      | 1  | -.262  | 3  | -.543  | 8  | -3.305e-3     | 3  | 0             | 1  | 0              | 1  |
| 21 | N9    | max | 0      | 12 | .747   | 8  | .299   | 3  | 5.485e-3      | 8  | 0             | 12 | 0              | 12 |
| 22 |       | min | 0      | 1  | -.5    | 3  | -.348  | 8  | -4.07e-3      | 3  | 0             | 1  | 0              | 1  |
| 23 | N10   | max | 0      | 12 | 1.137  | 8  | .166   | 3  | 5.427e-3      | 8  | 0             | 12 | 0              | 12 |
| 24 |       | min | 0      | 1  | -.79   | 3  | -.175  | 8  | -4.226e-3     | 3  | 0             | 1  | 0              | 1  |
| 25 | N11   | max | 0      | 12 | 1.5    | 8  | .07    | 3  | 5.15e-3       | 8  | 0             | 12 | 0              | 12 |
| 26 |       | min | 0      | 1  | -1.069 | 3  | -.056  | 8  | -4.053e-3     | 3  | 0             | 1  | 0              | 1  |
| 27 | N12   | max | 0      | 12 | 1.823  | 8  | .023   | 9  | 4.515e-3      | 8  | 0             | 12 | 0              | 12 |
| 28 |       | min | 0      | 1  | -1.326 | 3  | .002   | 1  | -3.587e-3     | 3  | 0             | 1  | 0              | 1  |
| 29 | N13   | max | 0      | 12 | 2.097  | 8  | .046   | 8  | 2.931e-3      | 8  | 0             | 12 | 0              | 12 |
| 30 |       | min | 0      | 1  | -1.55  | 3  | -.02   | 3  | -2.482e-3     | 3  | 0             | 1  | 0              | 1  |
| 31 | N14   | max | 0      | 12 | 2.261  | 8  | .037   | 8  | 1.102e-3      | 8  | 0             | 12 | 0              | 12 |
| 32 |       | min | 0      | 1  | -1.693 | 3  | -.017  | 3  | -1.142e-3     | 3  | 0             | 1  | 0              | 1  |
| 33 | N15   | max | 0      | 12 | 2.301  | 8  | .017   | 9  | 1.223e-8      | 4  | 0             | 12 | 0              | 12 |
| 34 |       | min | 0      | 1  | -1.738 | 3  | 0      | 3  | -2.731e-4     | 9  | 0             | 1  | 0              | 1  |
| 35 | N16   | max | 0      | 12 | 2.225  | 8  | .017   | 3  | 1.142e-3      | 3  | 0             | 12 | 0              | 12 |
| 36 |       | min | 0      | 1  | -1.693 | 3  | -.014  | 8  | -1.605e-3     | 8  | 0             | 1  | 0              | 1  |
| 37 | N17   | max | 0      | 12 | 2.026  | 8  | .02    | 3  | 2.481e-3      | 3  | 0             | 12 | 0              | 12 |
| 38 |       | min | 0      | 1  | -1.55  | 3  | -.018  | 8  | -3.371e-3     | 8  | 0             | 1  | 0              | 1  |
| 39 | N18   | max | 0      | 12 | 1.723  | 8  | .026   | 12 | 3.587e-3      | 3  | 0             | 12 | 0              | 12 |
| 40 |       | min | 0      | 1  | -1.326 | 3  | -.009  | 3  | -4.846e-3     | 8  | 0             | 1  | 0              | 1  |
| 41 | N19   | max | 0      | 12 | 1.382  | 8  | .098   | 8  | 4.054e-3      | 3  | 0             | 12 | 0              | 12 |
| 42 |       | min | 0      | 1  | -1.069 | 3  | -.07   | 3  | -5.365e-3     | 8  | 0             | 1  | 0              | 1  |
| 43 | N20   | max | 0      | 12 | 1.013  | 8  | .222   | 8  | 4.226e-3      | 3  | 0             | 12 | 0              | 12 |
| 44 |       | min | 0      | 1  | -.79   | 3  | -.166  | 3  | -5.324e-3     | 8  | 0             | 1  | 0              | 1  |
| 45 | N21   | max | 0      | 12 | .63    | 8  | .396   | 8  | 4.071e-3      | 3  | 0             | 12 | 0              | 12 |
| 46 |       | min | 0      | 1  | -.499  | 3  | -.299  | 3  | -5.987e-3     | 8  | 0             | 1  | 0              | 1  |
| 47 | N22   | max | 0      | 12 | .321   | 8  | .58    | 8  | 3.305e-3      | 3  | 0             | 12 | 0              | 12 |



### Envelope Joint Displacements (Continued)

|     | Joint |     | X [in] | LC | Y [in] | LC | Z [in] | LC | X Rotation... | LC | Y Rotation... | LC | Z Rotation ... | LC |
|-----|-------|-----|--------|----|--------|----|--------|----|---------------|----|---------------|----|----------------|----|
| 48  |       | min | 0      | 1  | -.262  | 3  | -.442  | 3  | -4.063e-3     | 8  | 0             | 1  | 0              | 1  |
| 49  | N23   | max | 0      | 12 | .148   | 8  | .721   | 8  | 1.765e-3      | 3  | 0             | 12 | 0              | 12 |
| 50  |       | min | 0      | 1  | -.122  | 3  | -.554  | 3  | -2.189e-3     | 8  | 0             | 1  | 0              | 1  |
| 51  | N24   | max | 0      | 12 | .132   | 8  | .764   | 8  | 2.759e-4      | 9  | 0             | 12 | 0              | 12 |
| 52  |       | min | 0      | 1  | -.103  | 3  | -.595  | 3  | 8.875e-6      | 1  | 0             | 1  | 0              | 1  |
| 53  | N25   | max | 0      | 12 | .173   | 8  | .707   | 8  | 2.547e-3      | 8  | 0             | 12 | 0              | 12 |
| 54  |       | min | 0      | 1  | -.132  | 3  | -.562  | 3  | -1.508e-3     | 3  | 0             | 1  | 0              | 1  |
| 55  | N26   | max | 0      | 12 | .191   | 8  | .487   | 8  | 4.16e-3       | 8  | 0             | 12 | 0              | 12 |
| 56  |       | min | 0      | 1  | -.148  | 3  | -.4    | 3  | -3.152e-3     | 3  | 0             | 1  | 0              | 1  |
| 57  | N32   | max | 0      | 12 | .086   | 8  | .347   | 8  | 4.498e-3      | 8  | 0             | 12 | 0              | 12 |
| 58  |       | min | 0      | 1  | -.066  | 3  | -.29   | 3  | -3.562e-3     | 3  | 0             | 1  | 0              | 1  |
| 59  | N33   | max | 0      | 12 | .106   | 8  | .605   | 8  | 3.946e-3      | 8  | 0             | 12 | 0              | 12 |
| 60  |       | min | 0      | 1  | -.083  | 3  | -.488  | 3  | -2.95e-3      | 3  | 0             | 1  | 0              | 1  |
| 61  | N36   | max | 0      | 12 | .25    | 8  | .725   | 8  | 2.539e-3      | 3  | 0             | 12 | 0              | 12 |
| 62  |       | min | 0      | 1  | -.205  | 3  | -.557  | 3  | -3.144e-3     | 8  | 0             | 1  | 0              | 1  |
| 63  | N37   | max | 0      | 12 | .52    | 8  | .594   | 8  | 3.695e-3      | 3  | 0             | 12 | 0              | 12 |
| 64  |       | min | 0      | 1  | -.415  | 3  | -.452  | 3  | -4.773e-3     | 8  | 0             | 1  | 0              | 1  |
| 65  | N38   | max | 0      | 12 | .876   | 8  | .435   | 8  | 4.285e-3      | 3  | 0             | 12 | 0              | 12 |
| 66  |       | min | 0      | 1  | -.686  | 3  | -.328  | 3  | -5.61e-3      | 8  | 0             | 1  | 0              | 1  |
| 67  | N39   | max | 0      | 12 | 1.265  | 8  | .285   | 8  | 4.216e-3      | 3  | 0             | 12 | 0              | 12 |
| 68  |       | min | 0      | 1  | -.98   | 3  | -.213  | 3  | -5.628e-3     | 8  | 0             | 1  | 0              | 1  |
| 69  | N40   | max | 0      | 12 | 1.584  | 8  | .183   | 8  | 3.841e-3      | 3  | 0             | 12 | 0              | 12 |
| 70  |       | min | 0      | 1  | -1.22  | 3  | -.133  | 3  | -5.052e-3     | 8  | 0             | 1  | 0              | 1  |
| 71  | N41   | max | 0      | 12 | 1.912  | 8  | .097   | 8  | 3.013e-3      | 3  | 0             | 12 | 0              | 12 |
| 72  |       | min | 0      | 1  | -1.466 | 3  | -.066  | 3  | -4.061e-3     | 8  | 0             | 1  | 0              | 1  |
| 73  | N42   | max | 0      | 12 | 2.154  | 8  | .048   | 8  | 1.897e-3      | 3  | 0             | 12 | 0              | 12 |
| 74  |       | min | 0      | 1  | -1.643 | 3  | -.027  | 3  | -2.643e-3     | 8  | 0             | 1  | 0              | 1  |
| 75  | N43   | max | 0      | 12 | 2.286  | 8  | .029   | 12 | 5.52e-4       | 3  | 0             | 12 | 0              | 12 |
| 76  |       | min | 0      | 1  | -1.732 | 3  | -.006  | 3  | -1.05e-3      | 8  | 0             | 1  | 0              | 1  |
| 77  | N44   | max | 0      | 12 | 2.303  | 8  | .021   | 9  | 5.321e-4      | 8  | 0             | 12 | 0              | 12 |
| 78  |       | min | 0      | 1  | -1.732 | 3  | .002   | 1  | -5.519e-4     | 3  | 0             | 1  | 0              | 1  |
| 79  | N45   | max | 0      | 12 | 2.207  | 8  | .027   | 3  | 2.163e-3      | 8  | 0             | 12 | 0              | 12 |
| 80  |       | min | 0      | 1  | -1.643 | 3  | -.01   | 8  | -1.897e-3     | 3  | 0             | 1  | 0              | 1  |
| 81  | N46   | max | 0      | 12 | 1.997  | 8  | .066   | 3  | 3.665e-3      | 8  | 0             | 12 | 0              | 12 |
| 82  |       | min | 0      | 1  | -1.466 | 3  | -.056  | 8  | -3.012e-3     | 3  | 0             | 1  | 0              | 1  |
| 83  | N47   | max | 0      | 12 | 1.693  | 8  | .133   | 3  | 4.791e-3      | 8  | 0             | 12 | 0              | 12 |
| 84  |       | min | 0      | 1  | -1.22  | 3  | -.137  | 8  | -3.841e-3     | 3  | 0             | 1  | 0              | 1  |
| 85  | N48   | max | 0      | 12 | 1.387  | 8  | .212   | 3  | 5.496e-3      | 8  | 0             | 12 | 0              | 12 |
| 86  |       | min | 0      | 1  | -.98   | 3  | -.238  | 8  | -4.216e-3     | 3  | 0             | 1  | 0              | 1  |
| 87  | N49   | max | 0      | 12 | 1.001  | 8  | .328   | 3  | 5.73e-3       | 8  | 0             | 12 | 0              | 12 |
| 88  |       | min | 0      | 1  | -.686  | 3  | -.389  | 8  | -4.285e-3     | 3  | 0             | 1  | 0              | 1  |
| 89  | N50   | max | 0      | 12 | .632   | 8  | .452   | 3  | 5.189e-3      | 8  | 0             | 12 | 0              | 12 |
| 90  |       | min | 0      | 1  | -.415  | 3  | -.559  | 8  | -3.694e-3     | 3  | 0             | 1  | 0              | 1  |
| 91  | N51   | max | 0      | 12 | .33    | 8  | .557   | 3  | 3.775e-3      | 8  | 0             | 12 | 0              | 12 |
| 92  |       | min | 0      | 1  | -.205  | 3  | -.712  | 8  | -2.539e-3     | 3  | 0             | 1  | 0              | 1  |
| 93  | N54   | max | 0      | 12 | .128   | 8  | .488   | 3  | 2.943e-3      | 3  | 0             | 12 | 0              | 12 |
| 94  |       | min | 0      | 1  | -.083  | 3  | -.669  | 8  | -3.707e-3     | 8  | 0             | 1  | 0              | 1  |
| 95  | N55   | max | 0      | 12 | .102   | 8  | .29    | 3  | 3.562e-3      | 3  | 0             | 12 | 0              | 12 |
| 96  |       | min | 0      | 1  | -.066  | 3  | -.413  | 8  | -4.729e-3     | 8  | 0             | 1  | 0              | 1  |
| 97  | N57   | max | 0      | 12 | .143   | 8  | .563   | 3  | 1.73e-3       | 3  | 0             | 12 | 0              | 12 |
| 98  |       | min | 0      | 1  | -.093  | 3  | -.761  | 8  | -1.93e-3      | 8  | 0             | 1  | 0              | 1  |
| 99  | N58   | max | 0      | 12 | .119   | 8  | .708   | 8  | 2.497e-3      | 8  | 0             | 12 | 0              | 12 |
| 100 |       | min | 0      | 1  | -.093  | 3  | -.563  | 3  | -1.728e-3     | 3  | 0             | 1  | 0              | 1  |
| 101 | N59   | max | 0      | 12 | .124   | 8  | .764   | 8  | 3.819e-4      | 8  | 0             | 12 | 0              | 12 |
| 102 |       | min | 0      | 1  | -.101  | 3  | -.597  | 3  | -5.83e-5      | 3  | 0             | 1  | 0              | 1  |
| 103 | N60   | max | 0      | 12 | .162   | 8  | .598   | 3  | 4.888e-4      | 9  | 0             | 12 | 0              | 12 |
| 104 |       | min | 0      | 1  | -.101  | 3  | -.79   | 8  | 3.772e-6      | 1  | 0             | 1  | 0              | 1  |

**Envelope Joint Displacements (Continued)**

|     | Joint |     | X [in] | LC | Y [in] | LC | Z [in] | LC | X Rotation... | LC | Y Rotation... | LC | Z Rotation ... | LC |
|-----|-------|-----|--------|----|--------|----|--------|----|---------------|----|---------------|----|----------------|----|
| 105 | N61   | max | 0      | 12 | .169   | 8  | .759   | 8  | 1.608e-3      | 3  | 0             | 12 | 0              | 12 |
| 106 |       | min | 0      | 1  | -.141  | 3  | -.586  | 3  | -1.898e-3     | 8  | 0             | 1  | 0              | 1  |
| 107 | N62   | max | 0      | 12 | .137   | 8  | .768   | 8  | 7.748e-4      | 3  | 0             | 12 | 0              | 12 |
| 108 |       | min | 0      | 1  | -.113  | 3  | -.596  | 3  | -7.627e-4     | 8  | 0             | 1  | 0              | 1  |
| 109 | N62A  | max | 0      | 12 | .23    | 8  | .586   | 3  | 2.625e-3      | 8  | 0             | 12 | 0              | 12 |
| 110 |       | min | 0      | 1  | -.141  | 3  | -.76   | 8  | -1.605e-3     | 3  | 0             | 1  | 0              | 1  |
| 111 | N63   | max | 0      | 12 | .129   | 8  | .749   | 8  | 7.361e-4      | 3  | 0             | 12 | 0              | 12 |
| 112 |       | min | 0      | 1  | -.105  | 3  | -.578  | 3  | -6.948e-4     | 8  | 0             | 1  | 0              | 1  |
| 113 | N64   | max | 0      | 12 | .122   | 8  | .744   | 8  | 1.13e-3       | 8  | 0             | 12 | 0              | 12 |
| 114 |       | min | 0      | 1  | -.097  | 3  | -.586  | 3  | -6.399e-4     | 3  | 0             | 1  | 0              | 1  |
| 115 | N65   | max | 0      | 12 | .152   | 8  | .748   | 8  | 1.181e-3      | 8  | 0             | 12 | 0              | 12 |
| 116 |       | min | 0      | 1  | -.117  | 3  | -.588  | 3  | -7.593e-4     | 3  | 0             | 1  | 0              | 1  |
| 117 | N66   | max | 0      | 12 | .152   | 8  | .586   | 3  | 6.56e-4       | 3  | 0             | 12 | 0              | 12 |
| 118 |       | min | 0      | 1  | -.097  | 3  | -.783  | 8  | -4.167e-4     | 8  | 0             | 1  | 0              | 1  |
| 119 | N67   | max | 0      | 12 | .168   | 8  | .588   | 3  | 7.667e-4      | 3  | 0             | 12 | 0              | 12 |
| 120 |       | min | 0      | 1  | -.117  | 3  | -.78   | 8  | -6.956e-4     | 8  | 0             | 1  | 0              | 1  |
| 121 | N68   | max | 0      | 12 | .185   | 8  | .596   | 3  | 1.532e-3      | 8  | 0             | 12 | 0              | 12 |
| 122 |       | min | 0      | 1  | -.113  | 3  | -.78   | 8  | -7.896e-4     | 3  | 0             | 1  | 0              | 1  |
| 123 | N69   | max | 0      | 12 | .166   | 8  | .578   | 3  | 1.365e-3      | 8  | 0             | 12 | 0              | 12 |
| 124 |       | min | 0      | 1  | -.105  | 3  | -.747  | 8  | -7.416e-4     | 3  | 0             | 1  | 0              | 1  |
| 125 | N63A  | max | 0      | 12 | .215   | 8  | .176   | 3  | 3.93e-3       | 3  | 0             | 12 | 0              | 12 |
| 126 |       | min | 0      | 1  | -.152  | 3  | -.26   | 8  | -5.72e-3      | 8  | 0             | 1  | 0              | 1  |
| 127 | N65A  | max | 0      | 12 | .194   | 8  | .204   | 8  | 4.445e-3      | 8  | 0             | 12 | 0              | 12 |
| 128 |       | min | 0      | 1  | -.152  | 3  | -.176  | 3  | -3.931e-3     | 3  | 0             | 1  | 0              | 1  |
| 129 | N67A  | max | 0      | 12 | 1.545  | 8  | .172   | 3  | 5.216e-3      | 8  | 0             | 12 | 0              | 12 |
| 130 |       | min | 0      | 1  | -1.104 | 3  | -.186  | 8  | -4.095e-3     | 3  | 0             | 1  | 0              | 1  |
| 131 | N68A  | max | 0      | 12 | 2.307  | 8  | .024   | 9  | 6.236e-8      | 3  | 0             | 12 | 0              | 12 |
| 132 |       | min | 0      | 1  | -1.741 | 3  | 0      | 3  | -2.759e-4     | 9  | 0             | 1  | 0              | 1  |
| 133 | N69A  | max | 0      | 12 | 1.428  | 8  | .233   | 8  | 4.095e-3      | 3  | 0             | 12 | 0              | 12 |
| 134 |       | min | 0      | 1  | -1.104 | 3  | -.172  | 3  | -5.412e-3     | 8  | 0             | 1  | 0              | 1  |

**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  | M110A  | 1   | max | .091   | 8  | .211   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 2  |        |     | min | -.054  | 3  | -.149  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 3  |        | 2   | max | .091   | 8  | .179   | 8  | 0      | 3  | 0              | 12 | NC             | 12 | NC             | 12 |
| 4  |        |     | min | -.054  | 3  | -.126  | 3  | 0      | 5  | 0              | 1  | NC             | 1  | NC             | 1  |
| 5  |        | 3   | max | .092   | 8  | .15    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 6  |        |     | min | -.054  | 3  | -.104  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 7  |        | 4   | max | .092   | 8  | .121   | 8  | 0      | 8  | 0              | 12 | NC             | 12 | NC             | 12 |
| 8  |        |     | min | -.055  | 3  | -.082  | 3  | 0      | 3  | 0              | 1  | NC             | 1  | NC             | 1  |
| 9  |        | 5   | max | .092   | 8  | .091   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 10 |        |     | min | -.055  | 3  | -.059  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 11 | M111A  | 1   | max | .055   | 3  | .078   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 12 |        |     | min | -.056  | 8  | -.059  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 13 |        | 2   | max | .055   | 3  | .107   | 8  | 0      | 8  | 0              | 12 | NC             | 12 | NC             | 12 |
| 14 |        |     | min | -.055  | 8  | -.082  | 3  | 0      | 3  | 0              | 1  | NC             | 1  | NC             | 1  |
| 15 |        | 3   | max | .054   | 3  | .134   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 16 |        |     | min | -.055  | 8  | -.104  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 17 |        | 4   | max | .054   | 3  | .162   | 8  | 0      | 3  | 0              | 12 | NC             | 12 | NC             | 12 |
| 18 |        |     | min | -.055  | 8  | -.126  | 3  | 0      | 5  | 0              | 1  | NC             | 1  | NC             | 1  |
| 19 |        | 5   | max | .054   | 3  | .191   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 20 |        |     | min | -.055  | 8  | -.149  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 21 | M66    | 1   | max | .211   | 8  | .091   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 22 |        |     | min | -.149  | 3  | -.054  | 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 |
|--------|-----|-------|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 23     |     | 2 max | .212   | 8  | .13    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 24     |     | min   | -.15   | 3  | -.083  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 25     |     | 3 max | .213   | 8  | .172   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 26     |     | min   | -.15   | 3  | -.113  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 27     |     | 4 max | .214   | 8  | .216   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 28     |     | min   | -.151  | 3  | -.145  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 29     |     | 5 max | .215   | 8  | .26    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 30     |     | min   | -.152  | 3  | -.176  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 31     | M67 | 1 max | .215   | 8  | .556   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 32     |     | min   | -.153  | 3  | -.398  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 33     |     | 2 max | .21    | 8  | .626   | 8  | 0      | 12 | 0              | 12 | NC             | 2  | NC             | 12 |
| 34     |     | min   | -.149  | 3  | -.446  | 3  | 0      | 1  | 0              | 1  | 2784.949       | 12 | NC             | 1  |
| 35     |     | 3 max | .205   | 8  | .69    | 8  | 0      | 12 | 0              | 12 | NC             | 2  | NC             | 12 |
| 36     |     | min   | -.146  | 3  | -.492  | 3  | 0      | 1  | 0              | 1  | 1595.304       | 12 | NC             | 1  |
| 37     |     | 4 max | .2     | 8  | .732   | 8  | 0      | 12 | 0              | 12 | NC             | 2  | NC             | 12 |
| 38     |     | min   | -.142  | 3  | -.531  | 3  | 0      | 1  | 0              | 1  | 2179.225       | 12 | NC             | 1  |
| 39     |     | 5 max | .195   | 8  | .755   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 40     |     | min   | -.139  | 3  | -.56   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 41     | M68 | 1 max | .351   | 8  | .696   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 42     |     | min   | -.254  | 3  | -.518  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 43     |     | 2 max | .348   | 8  | .703   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 44     |     | min   | -.252  | 3  | -.527  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 45     |     | 3 max | .345   | 8  | .71    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 46     |     | min   | -.25   | 3  | -.535  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 47     |     | 4 max | .342   | 8  | .717   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 48     |     | min   | -.248  | 3  | -.541  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 49     |     | 5 max | .339   | 8  | .722   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 50     |     | min   | -.246  | 3  | -.547  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 51     | M69 | 1 max | .494   | 8  | .627   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 52     |     | min   | -.363  | 3  | -.477  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 53     |     | 2 max | .491   | 8  | .631   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 54     |     | min   | -.361  | 3  | -.482  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 55     |     | 3 max | .488   | 8  | .633   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 56     |     | min   | -.358  | 3  | -.486  | 3  | 0      | 1  | 0              | 1  | 8584.376       | 8  | NC             | 1  |
| 57     |     | 4 max | .485   | 8  | .634   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 58     |     | min   | -.356  | 3  | -.488  | 3  | 0      | 1  | 0              | 1  | 9907.948       | 8  | NC             | 1  |
| 59     |     | 5 max | .482   | 8  | .632   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 60     |     | min   | -.354  | 3  | -.489  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 61     | M70 | 1 max | .617   | 8  | .502   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 62     |     | min   | -.459  | 3  | -.393  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 63     |     | 2 max | .613   | 8  | .496   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 64     |     | min   | -.456  | 3  | -.391  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 65     |     | 3 max | .61    | 8  | .488   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 66     |     | min   | -.454  | 3  | -.388  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 67     |     | 4 max | .607   | 8  | .479   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 68     |     | min   | -.452  | 3  | -.384  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 69     |     | 5 max | .604   | 8  | .47    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 70     |     | min   | -.449  | 3  | -.379  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 71     | M71 | 1 max | .69    | 8  | .332   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 72     |     | min   | -.519  | 3  | -.275  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 73     |     | 2 max | .687   | 8  | .322   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 74     |     | min   | -.517  | 3  | -.27   | 3  | 0      | 1  | 0              | 1  | 7855.454       | 8  | NC             | 1  |
| 75     |     | 3 max | .685   | 8  | .311   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 76     |     | min   | -.515  | 3  | -.264  | 3  | 0      | 1  | 0              | 1  | 5065.537       | 8  | NC             | 1  |
| 77     |     | 4 max | .682   | 8  | .298   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 78     |     | min   | -.513  | 3  | -.256  | 3  | 0      | 1  | 0              | 1  | 5614.112       | 8  | NC             | 1  |
| 79     |     | 5 max | .679   | 8  | .281   | 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/V Ratio | LC | (n) L/z' Ratio | LC |
|--------|-----|-----|--------|------|--------|----|--------|----|----------------|----|---------------|----|----------------|----|
| 80     |     | min | -.511  | 3    | -.246  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 81     | M72 | 1   | max    | .7   | .225   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 82     |     | min | -.529  | 3    | -.204  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 83     |     | 2   | max    | .695 | .149   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 84     |     | min | -.525  | 3    | -.162  | 3  | 0      | 1  | 0              | 1  | 7499.202      | 5  | NC             | 1  |
| 85     |     | 3   | max    | .69  | .072   | 8  | 0      | 12 | 0              | 12 | NC            | 4  | NC             | 12 |
| 86     |     | min | -.521  | 3    | -.115  | 3  | 0      | 1  | 0              | 1  | 3580.617      | 5  | NC             | 1  |
| 87     |     | 4   | max    | .685 | .016   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 88     |     | min | -.517  | 3    | -.073  | 3  | 0      | 1  | 0              | 1  | 8855.511      | 5  | NC             | 1  |
| 89     |     | 5   | max    | .681 | -.001  | 2  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 90     |     | min | -.513  | 3    | -.046  | 6  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 91     | M73 | 1   | max    | .675 | .014   | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 92     |     | min | -.513  | 3    | -.096  | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 93     |     | 2   | max    | .673 | .089   | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 94     |     | min | -.511  | 3    | -.213  | 8  | 0      | 1  | 0              | 1  | 3764.351      | 8  | NC             | 1  |
| 95     |     | 3   | max    | .671 | .164   | 3  | 0      | 12 | 0              | 12 | NC            | 2  | NC             | 12 |
| 96     |     | min | -.508  | 3    | -.328  | 8  | 0      | 1  | 0              | 1  | 1962.916      | 8  | NC             | 1  |
| 97     |     | 4   | max    | .669 | .227   | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 98     |     | min | -.506  | 3    | -.407  | 8  | 0      | 1  | 0              | 1  | 3649.927      | 8  | NC             | 1  |
| 99     |     | 5   | max    | .667 | .291   | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 100    |     | min | -.504  | 3    | -.484  | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 101    | M74 | 1   | max    | .626 | .331   | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 102    |     | min | -.479  | 3    | -.536  | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 103    |     | 2   | max    | .627 | .42    | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 104    |     | min | -.478  | 3    | -.666  | 8  | 0      | 1  | 0              | 1  | 3184.865      | 8  | NC             | 1  |
| 105    |     | 3   | max    | .628 | .509   | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 106    |     | min | -.478  | 3    | -.794  | 8  | 0      | 1  | 0              | 1  | 1684.125      | 8  | NC             | 1  |
| 107    |     | 4   | max    | .629 | .581   | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 108    |     | min | -.478  | 3    | -.883  | 8  | 0      | 1  | 0              | 1  | 2803.152      | 8  | NC             | 1  |
| 109    |     | 5   | max    | .63  | .65    | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 110    |     | min | -.478  | 3    | -.962  | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 111    | M75 | 1   | max    | .553 | .685   | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 112    |     | min | -.426  | 3    | -1.008 | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 113    |     | 2   | max    | .556 | .768   | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 114    |     | min | -.427  | 3    | -1.123 | 8  | 0      | 1  | 0              | 1  | 3719.909      | 8  | NC             | 1  |
| 115    |     | 3   | max    | .559 | .849   | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 116    |     | min | -.428  | 3    | -1.234 | 8  | 0      | 1  | 0              | 1  | 1997.924      | 8  | NC             | 1  |
| 117    |     | 4   | max    | .562 | .917   | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 118    |     | min | -.43   | 3    | -1.316 | 8  | 0      | 1  | 0              | 1  | 3255.105      | 8  | NC             | 1  |
| 119    |     | 5   | max    | .565 | .98    | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 120    |     | min | -.431  | 3    | -1.39  | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 121    | M76 | 1   | max    | .459 | 1.01   | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 122    |     | min | -.357  | 3    | -1.429 | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 123    |     | 2   | max    | .464 | 1.088  | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 124    |     | min | -.359  | 3    | -1.534 | 8  | 0      | 1  | 0              | 1  | 3052.537      | 8  | NC             | 1  |
| 125    |     | 3   | max    | .468 | 1.161  | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 126    |     | min | -.362  | 3    | -1.632 | 8  | 0      | 1  | 0              | 1  | 1835.666      | 8  | NC             | 1  |
| 127    |     | 4   | max    | .473 | 1.219  | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 128    |     | min | -.364  | 3    | -1.699 | 8  | 0      | 1  | 0              | 1  | 3173.911      | 8  | NC             | 1  |
| 129    |     | 5   | max    | .477 | 1.274  | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 130    |     | min | -.367  | 3    | -1.76  | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 131    | M77 | 1   | max    | .339 | 1.299  | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 132    |     | min | -.267  | 3    | -1.792 | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 133    |     | 2   | max    | .345 | 1.375  | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 134    |     | min | -.271  | 3    | -1.896 | 8  | 0      | 1  | 0              | 1  | 2070.948      | 8  | NC             | 1  |
| 135    |     | 3   | max    | .351 | 1.443  | 3  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 136    |     | min | -.275  | 3    | -1.987 | 8  | 0      | 1  | 0              | 1  | 1279.025      | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 137 |        | 4   | max | .357   | 8  | 1.488  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 138 |        |     | min | -.279  | 3  | -2.033 | 8  | 0      | 1  | 0              | 1  | 2123.373       | 8  | NC             | 1  |
| 139 |        | 5   | max | .363   | 8  | 1.525  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 140 |        |     | min | -.282  | 3  | -2.066 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 141 | M78    | 1   | max | .195   | 8  | 1.542  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 142 |        |     | min | -.158  | 3  | -2.088 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 143 |        | 2   | max | .202   | 8  | 1.599  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 144 |        |     | min | -.163  | 3  | -2.165 | 8  | 0      | 1  | 0              | 1  | 2054.044       | 8  | NC             | 1  |
| 145 |        | 3   | max | .209   | 8  | 1.647  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 146 |        |     | min | -.168  | 3  | -2.23  | 8  | 0      | 1  | 0              | 1  | 1231.747       | 8  | NC             | 1  |
| 147 |        | 4   | max | .217   | 8  | 1.67   | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 148 |        |     | min | -.173  | 3  | -2.248 | 8  | 0      | 1  | 0              | 1  | 1952.309       | 8  | NC             | 1  |
| 149 |        | 5   | max | .224   | 8  | 1.683  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 150 |        |     | min | -.178  | 3  | -2.25  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 151 | M79    | 1   | max | .048   | 8  | 1.692  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 152 |        |     | min | -.046  | 3  | -2.26  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 153 |        | 2   | max | .055   | 8  | 1.719  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 154 |        |     | min | -.051  | 3  | -2.296 | 8  | 0      | 1  | 0              | 1  | 2664.284       | 8  | NC             | 1  |
| 155 |        | 3   | max | .062   | 8  | 1.74   | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 156 |        |     | min | -.056  | 3  | -2.324 | 8  | 0      | 1  | 0              | 1  | 1576.72        | 8  | NC             | 1  |
| 157 |        | 4   | max | .069   | 8  | 1.743  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 158 |        |     | min | -.06   | 3  | -2.318 | 8  | 0      | 1  | 0              | 1  | 2487.706       | 8  | NC             | 1  |
| 159 |        | 5   | max | .075   | 8  | 1.737  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 160 |        |     | min | -.065  | 3  | -2.3   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 161 | M80    | 1   | max | .065   | 3  | 1.737  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 162 |        |     | min | -.097  | 8  | -2.299 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 163 |        | 2   | max | .06    | 3  | 1.743  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 164 |        |     | min | -.09   | 8  | -2.308 | 8  | 0      | 1  | 0              | 1  | 2493.003       | 8  | NC             | 1  |
| 165 |        | 3   | max | .056   | 3  | 1.74   | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 166 |        |     | min | -.083  | 8  | -2.305 | 8  | 0      | 1  | 0              | 1  | 1581.291       | 8  | NC             | 1  |
| 167 |        | 4   | max | .051   | 3  | 1.719  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 168 |        |     | min | -.076  | 8  | -2.268 | 8  | 0      | 1  | 0              | 1  | 2677.896       | 8  | NC             | 1  |
| 169 |        | 5   | max | .046   | 3  | 1.692  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 170 |        |     | min | -.07   | 8  | -2.224 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 171 | M81    | 1   | max | .178   | 3  | 1.683  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 172 |        |     | min | -.242  | 8  | -2.212 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 173 |        | 2   | max | .173   | 3  | 1.67   | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 174 |        |     | min | -.236  | 8  | -2.2   | 8  | 0      | 1  | 0              | 1  | 1972.867       | 8  | NC             | 1  |
| 175 |        | 3   | max | .168   | 3  | 1.647  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 176 |        |     | min | -.229  | 8  | -2.173 | 8  | 0      | 1  | 0              | 1  | 1243.811       | 8  | NC             | 1  |
| 177 |        | 4   | max | .163   | 3  | 1.599  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 178 |        |     | min | -.222  | 8  | -2.1   | 8  | 0      | 1  | 0              | 1  | 2081.68        | 8  | NC             | 1  |
| 179 |        | 5   | max | .159   | 3  | 1.542  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 180 |        |     | min | -.215  | 8  | -2.014 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 181 | M82    | 1   | max | .283   | 3  | 1.524  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 182 |        |     | min | -.377  | 8  | -1.99  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 183 |        | 2   | max | .279   | 3  | 1.488  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 184 |        |     | min | -.371  | 8  | -1.949 | 8  | 0      | 1  | 0              | 1  | 2167.034       | 8  | NC             | 1  |
| 185 |        | 3   | max | .275   | 3  | 1.443  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 186 |        |     | min | -.365  | 8  | -1.896 | 8  | 0      | 1  | 0              | 1  | 1301.555       | 8  | NC             | 1  |
| 187 |        | 4   | max | .271   | 3  | 1.375  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 188 |        |     | min | -.36   | 8  | -1.798 | 8  | 0      | 1  | 0              | 1  | 2118.581       | 8  | NC             | 1  |
| 189 |        | 5   | max | .267   | 3  | 1.299  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 190 |        |     | min | -.354  | 8  | -1.687 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 191 | M83    | 1   | max | .367   | 3  | 1.274  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 192 |        |     | min | -.484  | 8  | -1.654 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 193 |        | 2   | max | .364   | 3  | 1.219  | 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 fr... | LC | (n) L/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 194 |        |     | min | -.48   | 8  | -1.588 | 8  | 0      | 1  | 0              | 1  | 3290.688       | 8  | NC             | 1  |
| 195 |        | 3   | max | .362   | 3  | 1.161  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 196 |        |     | min | -.476  | 8  | -1.516 | 8  | 0      | 1  | 0              | 1  | 1886.487       | 8  | NC             | 1  |
| 197 |        | 4   | max | .359   | 3  | 1.088  | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 198 |        |     | min | -.472  | 8  | -1.413 | 8  | 0      | 1  | 0              | 1  | 3156.521       | 8  | NC             | 1  |
| 199 |        | 5   | max | .357   | 3  | 1.01   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 200 |        |     | min | -.468  | 8  | -1.304 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 201 | M84    | 1   | max | .431   | 3  | .98    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 202 |        |     | min | -.564  | 8  | -1.265 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 203 |        | 2   | max | .43    | 3  | .917   | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 204 |        |     | min | -.562  | 8  | -1.188 | 8  | 0      | 1  | 0              | 1  | 3540.216       | 8  | NC             | 1  |
| 205 |        | 3   | max | .428   | 3  | .849   | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 206 |        |     | min | -.56   | 8  | -1.103 | 8  | 0      | 1  | 0              | 1  | 2170.529       | 8  | NC             | 1  |
| 207 |        | 4   | max | .427   | 3  | .768   | 3  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 208 |        |     | min | -.557  | 8  | -.989  | 8  | 0      | 1  | 0              | 1  | 4275.648       | 8  | NC             | 1  |
| 209 |        | 5   | max | .426   | 3  | .685   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 210 |        |     | min | -.555  | 8  | -.876  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 211 | M85    | 1   | max | .478   | 3  | .65    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 212 |        |     | min | -.621  | 8  | -.83   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 213 |        | 2   | max | .478   | 3  | .581   | 3  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 214 |        |     | min | -.621  | 8  | -.754  | 8  | 0      | 1  | 0              | 1  | 2581.975       | 8  | NC             | 1  |
| 215 |        | 3   | max | .478   | 3  | .509   | 3  | 0      | 12 | 0              | 12 | NC             | 2  | NC             | 12 |
| 216 |        |     | min | -.621  | 8  | -.67   | 8  | 0      | 1  | 0              | 1  | 1493.6         | 8  | NC             | 1  |
| 217 |        | 4   | max | .478   | 3  | .42    | 3  | 0      | 12 | 0              | 12 | NC             | 4  | NC             | 12 |
| 218 |        |     | min | -.621  | 8  | -.545  | 8  | 0      | 1  | 0              | 1  | 2518.804       | 8  | NC             | 1  |
| 219 |        | 5   | max | .479   | 3  | .331   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 220 |        |     | min | -.621  | 8  | -.41   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 221 | M86    | 1   | max | .504   | 3  | .291   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 222 |        |     | min | -.652  | 8  | -.358  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 223 |        | 2   | max | .506   | 3  | .227   | 3  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 224 |        |     | min | -.655  | 8  | -.269  | 8  | 0      | 1  | 0              | 1  | 7737.185       | 10 | NC             | 1  |
| 225 |        | 3   | max | .509   | 3  | .164   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 226 |        |     | min | -.658  | 8  | -.188  | 8  | 0      | 1  | 0              | 1  | 5891.389       | 10 | NC             | 1  |
| 227 |        | 4   | max | .511   | 3  | .088   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 228 |        |     | min | -.66   | 8  | -.092  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 229 |        | 5   | max | .513   | 3  | .045   | 9  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 230 |        |     | min | -.663  | 8  | .002   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 231 | M87    | 1   | max | .513   | 3  | .073   | 9  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 232 |        |     | min | -.661  | 8  | -.026  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 233 |        | 2   | max | .517   | 3  | .109   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 234 |        |     | min | -.666  | 8  | -.073  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 235 |        | 3   | max | .521   | 3  | .16    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 236 |        |     | min | -.672  | 8  | -.115  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 237 |        | 4   | max | .525   | 3  | .221   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 238 |        |     | min | -.677  | 8  | -.162  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 239 |        | 5   | max | .529   | 3  | .275   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 240 |        |     | min | -.682  | 8  | -.204  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 241 | M88    | 1   | max | .511   | 3  | .33    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 242 |        |     | min | -.658  | 8  | -.247  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 243 |        | 2   | max | .513   | 3  | .342   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 244 |        |     | min | -.66   | 8  | -.257  | 3  | 0      | 1  | 0              | 1  | 6634.961       | 8  | NC             | 1  |
| 245 |        | 3   | max | .515   | 3  | .35    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 246 |        |     | min | -.663  | 8  | -.264  | 3  | 0      | 1  | 0              | 1  | 5838.204       | 8  | NC             | 1  |
| 247 |        | 4   | max | .517   | 3  | .356   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 248 |        |     | min | -.666  | 8  | -.27   | 3  | 0      | 1  | 0              | 1  | 8927.883       | 8  | NC             | 1  |
| 249 |        | 5   | max | .519   | 3  | .362   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 250 |        |     | min | -.668  | 8  | -.275  | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 251 | M89    | 1   | max | .449   | 3  | .495   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 252 |        |     | min | -.577  | 8  | -.379  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 253 |        | 2   | max | .452   | 3  | .499   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 254 |        |     | min | -.58   | 8  | -.384  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 255 |        | 3   | max | .454   | 3  | .503   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 256 |        |     | min | -.583  | 8  | -.388  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 257 |        | 4   | max | .456   | 3  | .505   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 258 |        |     | min | -.586  | 8  | -.391  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 259 |        | 5   | max | .459   | 3  | .505   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 260 |        |     | min | -.589  | 8  | -.393  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 261 | M90    | 1   | max | .354   | 3  | .629   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 262 |        |     | min | -.454  | 8  | -.489  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 263 |        | 2   | max | .356   | 3  | .625   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 264 |        |     | min | -.457  | 8  | -.488  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 265 |        | 3   | max | .358   | 3  | .62    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 266 |        |     | min | -.46   | 8  | -.486  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 267 |        | 4   | max | .361   | 3  | .613   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 268 |        |     | min | -.462  | 8  | -.482  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 269 |        | 5   | max | .363   | 3  | .605   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 270 |        |     | min | -.465  | 8  | -.477  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 271 | M91    | 1   | max | .245   | 3  | .695   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 272 |        |     | min | -.316  | 8  | -.547  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 273 |        | 2   | max | .248   | 3  | .686   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 274 |        |     | min | -.319  | 8  | -.541  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 275 |        | 3   | max | .25    | 3  | .677   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 276 |        |     | min | -.321  | 8  | -.535  | 3  | 0      | 1  | 0              | 1  | 6557.297       | 8  | NC             | 1  |
| 277 |        | 4   | max | .252   | 3  | .665   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 278 |        |     | min | -.324  | 8  | -.527  | 3  | 0      | 1  | 0              | 1  | 7310.247       | 8  | NC             | 1  |
| 279 |        | 5   | max | .254   | 3  | .65    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 280 |        |     | min | -.327  | 8  | -.518  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 281 | M92    | 1   | max | .139   | 3  | .705   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 282 |        |     | min | -.182  | 8  | -.56   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 283 |        | 2   | max | .142   | 3  | .652   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 284 |        |     | min | -.186  | 8  | -.531  | 3  | 0      | 1  | 0              | 1  | 5544.307       | 3  | NC             | 1  |
| 285 |        | 3   | max | .146   | 3  | .593   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 286 |        |     | min | -.19   | 8  | -.492  | 3  | 0      | 1  | 0              | 1  | 4876.93        | 3  | NC             | 1  |
| 287 |        | 4   | max | .149   | 3  | .54    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 288 |        |     | min | -.193  | 8  | -.446  | 3  | 0      | 1  | 0              | 1  | 7850.732       | 3  | NC             | 1  |
| 289 |        | 5   | max | .153   | 3  | .484   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 290 |        |     | min | -.197  | 8  | -.398  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 291 | M93    | 1   | max | .148   | 3  | .487   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 292 |        |     | min | -.191  | 8  | -.4    | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 293 |        | 2   | max | .149   | 3  | .411   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 294 |        |     | min | -.192  | 8  | -.349  | 3  | 0      | 1  | 0              | 1  | 8796.859       | 6  | NC             | 1  |
| 295 |        | 3   | max | .15    | 3  | .333   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 296 |        |     | min | -.193  | 8  | -.294  | 3  | 0      | 1  | 0              | 1  | 4688.799       | 6  | NC             | 1  |
| 297 |        | 4   | max | .151   | 3  | .267   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 298 |        |     | min | -.194  | 8  | -.237  | 3  | 0      | 1  | 0              | 1  | 7121.831       | 6  | NC             | 1  |
| 299 |        | 5   | max | .152   | 3  | .204   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 300 |        |     | min | -.194  | 8  | -.176  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 301 | M100   | 1   | max | .086   | 8  | .347   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 302 |        |     | min | -.066  | 3  | -.29   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 303 |        | 2   | max | .091   | 8  | .415   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 304 |        |     | min | -.07   | 3  | -.344  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 305 |        | 3   | max | .096   | 8  | .48    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 306 |        |     | min | -.075  | 3  | -.394  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 307 |        | 4   | max | .101   | 8  | .543   | 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/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 308 |        |     | min | -.079  | 3  | -.442  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 309 |        | 5   | max | .106   | 8  | .605   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 310 |        |     | min | -.083  | 3  | -.488  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 311 | M101   | 1   | max | .118   | 8  | .602   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 312 |        |     | min | -.093  | 3  | -.486  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 313 |        | 2   | max | .122   | 8  | .631   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 314 |        |     | min | -.096  | 3  | -.508  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 315 |        | 3   | max | .126   | 8  | .659   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 316 |        |     | min | -.099  | 3  | -.528  | 3  | 0      | 1  | 0              | 1  | 5520.434       | 8  | NC             | 1  |
| 317 |        | 4   | max | .129   | 8  | .684   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 318 |        |     | min | -.102  | 3  | -.547  | 3  | 0      | 1  | 0              | 1  | 5814.956       | 8  | NC             | 1  |
| 319 |        | 5   | max | .133   | 8  | .705   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 320 |        |     | min | -.105  | 3  | -.561  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 321 | M103   | 1   | max | .473   | 8  | .587   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 322 |        |     | min | -.374  | 3  | -.462  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 323 |        | 2   | max | .476   | 8  | .592   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 324 |        |     | min | -.376  | 3  | -.465  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 325 |        | 3   | max | .479   | 8  | .597   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 326 |        |     | min | -.378  | 3  | -.467  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 327 |        | 4   | max | .482   | 8  | .601   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 328 |        |     | min | -.38   | 3  | -.469  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 329 |        | 5   | max | .485   | 8  | .603   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 330 |        |     | min | -.383  | 3  | -.47   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 331 | M105   | 1   | max | .688   | 8  | .369   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 332 |        |     | min | -.538  | 3  | -.281  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 333 |        | 2   | max | .691   | 8  | .363   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 334 |        |     | min | -.541  | 3  | -.276  | 3  | 0      | 1  | 0              | 1  | 8958.461       | 8  | NC             | 1  |
| 335 |        | 3   | max | .694   | 8  | .356   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 336 |        |     | min | -.543  | 3  | -.269  | 3  | 0      | 1  | 0              | 1  | 7031.275       | 8  | NC             | 1  |
| 337 |        | 4   | max | .697   | 8  | .348   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 338 |        |     | min | -.545  | 3  | -.262  | 3  | 0      | 1  | 0              | 1  | 9841.582       | 8  | NC             | 1  |
| 339 |        | 5   | max | .701   | 8  | .338   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 340 |        |     | min | -.547  | 3  | -.253  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 341 | M106   | 1   | max | .749   | 8  | .164   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 342 |        |     | min | -.582  | 3  | -.115  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 343 |        | 2   | max | .756   | 8  | .102   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 344 |        |     | min | -.587  | 3  | -.064  | 3  | 0      | 1  | 0              | 1  | 5826.559       | 8  | NC             | 1  |
| 345 |        | 3   | max | .764   | 8  | .061   | 9  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 346 |        |     | min | -.592  | 3  | -.007  | 3  | 0      | 1  | 0              | 1  | 4689.793       | 8  | NC             | 1  |
| 347 |        | 4   | max | .771   | 8  | .054   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 348 |        |     | min | -.597  | 3  | -.049  | 8  | 0      | 1  | 0              | 1  | 6915.472       | 8  | NC             | 1  |
| 349 |        | 5   | max | .778   | 8  | .119   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 350 |        |     | min | -.602  | 3  | -.134  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 351 | M107   | 1   | max | .765   | 8  | .167   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 352 |        |     | min | -.591  | 3  | -.197  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 353 |        | 2   | max | .769   | 8  | .237   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 354 |        |     | min | -.594  | 3  | -.287  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 355 |        | 3   | max | .774   | 8  | .312   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 356 |        |     | min | -.596  | 3  | -.383  | 8  | 0      | 1  | 0              | 1  | 8713.526       | 8  | NC             | 1  |
| 357 |        | 4   | max | .779   | 8  | .387   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 358 |        |     | min | -.599  | 3  | -.484  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 359 |        | 5   | max | .783   | 8  | .465   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 360 |        |     | min | -.602  | 3  | -.586  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 361 | M108   | 1   | max | .733   | 8  | .512   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 362 |        |     | min | -.563  | 3  | -.648  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 363 |        | 2   | max | .735   | 8  | .591   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 364 |        |     | min | -.563  | 3  | -.751  | 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 |
|--------|------|-----|--------|------|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 365    | 3    | max | .737   | 8    | .672   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 366    |      | min | -.564  | 3    | -.855  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 367    | 4    | max | .739   | 8    | .751   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 368    |      | min | -.565  | 3    | -.961  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 369    | 5    | max | .741   | 8    | .828   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 370    |      | min | -.566  | 3    | -1.065 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 371    | M109 | 1   | max    | .659 | .868   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 372    |      | min | -.503  | 3    | -1.117 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 373    | 2    | max | .659   | 8    | .901   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 374    |      | min | -.502  | 3    | -1.16  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 375    | 3    | max | .659   | 8    | .933   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 376    |      | min | -.502  | 3    | -1.204 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 377    | 4    | max | .659   | 8    | .966   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 378    |      | min | -.502  | 3    | -1.246 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 379    | 5    | max | .659   | 8    | .998   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 380    |      | min | -.502  | 3    | -1.288 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 381    | M110 | 1   | max    | .549 | 1.155  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 382    |      | min | -.415  | 3    | -1.497 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 383    | 2    | max | .547   | 8    | 1.225  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 384    |      | min | -.413  | 3    | -1.587 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 385    | 3    | max | .546   | 8    | 1.291  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 386    |      | min | -.412  | 3    | -1.675 | 8  | 0      | 1  | 0              | 1  | 8205.789       | 3  | NC             | 1  |
| 387    | 4    | max | .544   | 8    | 1.353  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 388    |      | min | -.41   | 3    | -1.758 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 389    | 5    | max | .543   | 8    | 1.409  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 390    |      | min | -.408  | 3    | -1.836 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 391    | M111 | 1   | max    | .393 | 1.438  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 392    |      | min | -.293  | 3    | -1.874 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 393    | 2    | max | .39    | 8    | 1.491  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 394    |      | min | -.29   | 3    | -1.944 | 8  | 0      | 1  | 0              | 1  | 8164.306       | 8  | NC             | 1  |
| 395    | 3    | max | .387   | 8    | 1.54   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 396    |      | min | -.287  | 3    | -2.009 | 8  | 0      | 1  | 0              | 1  | 6021.056       | 8  | NC             | 1  |
| 397    | 4    | max | .384   | 8    | 1.582  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 398    |      | min | -.284  | 3    | -2.068 | 8  | 0      | 1  | 0              | 1  | 7643.963       | 8  | NC             | 1  |
| 399    | 5    | max | .382   | 8    | 1.619  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 400    |      | min | -.281  | 3    | -2.121 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 401    | M112 | 1   | max    | .209 | 1.636  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 402    |      | min | -.15   | 3    | -2.145 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 403    | 2    | max | .206   | 8    | 1.669  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 404    |      | min | -.146  | 3    | -2.188 | 8  | 0      | 1  | 0              | 1  | 6947.686       | 8  | NC             | 1  |
| 405    | 3    | max | .202   | 8    | 1.695  | 3  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 406    |      | min | -.143  | 3    | -2.225 | 8  | 0      | 1  | 0              | 1  | 5322.015       | 8  | NC             | 1  |
| 407    | 4    | max | .199   | 8    | 1.714  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 408    |      | min | -.139  | 3    | -2.255 | 8  | 0      | 1  | 0              | 1  | 7035.533       | 8  | NC             | 1  |
| 409    | 5    | max | .195   | 8    | 1.727  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 410    |      | min | -.136  | 3    | -2.278 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 411    | M113 | 1   | max    | .029 | 1.732  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 412    |      | min | -.006  | 3    | -2.286 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 413    | 2    | max | .028   | 12   | 1.736  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 414    |      | min | -.005  | 3    | -2.294 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 415    | 3    | max | .026   | 12   | 1.739  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 416    |      | min | -.003  | 3    | -2.3   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 417    | 4    | max | .025   | 12   | 1.741  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 418    |      | min | -.002  | 3    | -2.304 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 419    | 5    | max | .024   | 9    | 1.741  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 420    |      | min | 0      | 3    | -2.307 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 421    | M114 | 1   | max    | .136 | 1.727  | 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/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 422 |        |     | min | -.161  | 8  | -2.297 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 423 |        | 2   | max | .139   | 3  | 1.714  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 424 |        |     | min | -.165  | 8  | -2.283 | 8  | 0      | 1  | 0              | 1  | 6899.803       | 8  | NC             | 1  |
| 425 |        | 3   | max | .143   | 3  | 1.695  | 3  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 426 |        |     | min | -.168  | 8  | -2.263 | 8  | 0      | 1  | 0              | 1  | 5191.502       | 8  | NC             | 1  |
| 427 |        | 4   | max | .146   | 3  | 1.669  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 428 |        |     | min | -.172  | 8  | -2.235 | 8  | 0      | 1  | 0              | 1  | 6746.618       | 8  | NC             | 1  |
| 429 |        | 5   | max | .15    | 3  | 1.636  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 430 |        |     | min | -.176  | 8  | -2.2   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 431 | M115   | 1   | max | .281   | 3  | 1.619  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 432 |        |     | min | -.353  | 8  | -2.179 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 433 |        | 2   | max | .284   | 3  | 1.582  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 434 |        |     | min | -.356  | 8  | -2.135 | 8  | 0      | 1  | 0              | 1  | 7238.211       | 8  | NC             | 1  |
| 435 |        | 3   | max | .287   | 3  | 1.54   | 3  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 436 |        |     | min | -.359  | 8  | -2.084 | 8  | 0      | 1  | 0              | 1  | 5661.501       | 8  | NC             | 1  |
| 437 |        | 4   | max | .29    | 3  | 1.491  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 438 |        |     | min | -.362  | 8  | -2.027 | 8  | 0      | 1  | 0              | 1  | 7635.187       | 8  | NC             | 1  |
| 439 |        | 5   | max | .293   | 3  | 1.438  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 440 |        |     | min | -.365  | 8  | -1.964 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 441 | M116   | 1   | max | .408   | 3  | 1.409  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 442 |        |     | min | -.522  | 8  | -1.928 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 443 |        | 2   | max | .41    | 3  | 1.353  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 444 |        |     | min | -.524  | 8  | -1.858 | 8  | 0      | 1  | 0              | 1  | 9250.179       | 8  | NC             | 1  |
| 445 |        | 3   | max | .411   | 3  | 1.291  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 446 |        |     | min | -.526  | 8  | -1.781 | 8  | 0      | 1  | 0              | 1  | 7710.886       | 8  | NC             | 1  |
| 447 |        | 4   | max | .413   | 3  | 1.225  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 448 |        |     | min | -.528  | 8  | -1.699 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 449 |        | 5   | max | .415   | 3  | 1.155  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 450 |        |     | min | -.53   | 8  | -1.614 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 451 | M117   | 1   | max | .5     | 3  | 1.121  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 452 |        |     | min | -.649  | 8  | -1.57  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 453 |        | 2   | max | .501   | 3  | 1.091  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 454 |        |     | min | -.649  | 8  | -1.532 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 455 |        | 3   | max | .501   | 3  | 1.06   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 456 |        |     | min | -.65   | 8  | -1.493 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 457 |        | 4   | max | .501   | 3  | 1.029  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 458 |        |     | min | -.65   | 8  | -1.454 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 459 |        | 5   | max | .502   | 3  | .998   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 460 |        |     | min | -.65   | 8  | -1.414 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 461 | M118   | 1   | max | .566   | 3  | .828   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 462 |        |     | min | -.743  | 8  | -1.195 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 463 |        | 2   | max | .565   | 3  | .751   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 464 |        |     | min | -.741  | 8  | -1.093 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 465 |        | 3   | max | .564   | 3  | .672   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 466 |        |     | min | -.74   | 8  | -.989  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 467 |        | 4   | max | .563   | 3  | .591   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 468 |        |     | min | -.739  | 8  | -.884  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 469 |        | 5   | max | .562   | 3  | .512   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 470 |        |     | min | -.738  | 8  | -.78   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 471 | M119   | 1   | max | .602   | 3  | .465   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 472 |        |     | min | -.798  | 8  | -.718  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 473 |        | 2   | max | .599   | 3  | .388   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 474 |        |     | min | -.794  | 8  | -.613  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 475 |        | 3   | max | .596   | 3  | .312   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 476 |        |     | min | -.791  | 8  | -.51   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 477 |        | 4   | max | .593   | 3  | .238   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 478 |        |     | min | -.787  | 8  | -.409  | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 479 |        | 5   | max | .591   | 3  | .167   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 480 |        |     | min | -.783  | 8  | -.312  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 481 | M120   | 1   | max | .602   | 3  | .119   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 482 |        |     | min | -.806  | 8  | -.248  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 483 |        | 2   | max | .597   | 3  | .054   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 484 |        |     | min | -.8    | 8  | -.155  | 8  | 0      | 1  | 0              | 1  | 8144.317       | 8  | NC             | 1  |
| 485 |        | 3   | max | .592   | 3  | .006   | 2  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 486 |        |     | min | -.793  | 8  | -.065  | 8  | 0      | 1  | 0              | 1  | 5362.936       | 8  | NC             | 1  |
| 487 |        | 4   | max | .587   | 3  | .017   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 488 |        |     | min | -.786  | 8  | -.064  | 3  | 0      | 1  | 0              | 1  | 6523.149       | 8  | NC             | 1  |
| 489 |        | 5   | max | .582   | 3  | .09    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 490 |        |     | min | -.78   | 8  | -.115  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 491 | M121   | 1   | max | .574   | 3  | .139   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 492 |        |     | min | -.773  | 8  | -.151  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 493 |        | 2   | max | .571   | 3  | .169   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 494 |        |     | min | -.768  | 8  | -.171  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 495 |        | 3   | max | .567   | 3  | .198   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 496 |        |     | min | -.764  | 8  | -.19   | 3  | 0      | 1  | 0              | 1  | 6921.739       | 8  | NC             | 1  |
| 497 |        | 4   | max | .564   | 3  | .224   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 498 |        |     | min | -.759  | 8  | -.206  | 3  | 0      | 1  | 0              | 1  | 8351.62        | 8  | NC             | 1  |
| 499 |        | 5   | max | .561   | 3  | .247   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 500 |        |     | min | -.755  | 8  | -.221  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 501 | M122   | 1   | max | .437   | 3  | .53    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 502 |        |     | min | -.602  | 8  | -.421  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 503 |        | 2   | max | .435   | 3  | .537   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 504 |        |     | min | -.599  | 8  | -.425  | 3  | 0      | 1  | 0              | 1  | 9850.724       | 8  | NC             | 1  |
| 505 |        | 3   | max | .433   | 3  | .543   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 506 |        |     | min | -.596  | 8  | -.427  | 3  | 0      | 1  | 0              | 1  | 7228.029       | 8  | NC             | 1  |
| 507 |        | 4   | max | .43    | 3  | .548   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 508 |        |     | min | -.592  | 8  | -.429  | 3  | 0      | 1  | 0              | 1  | 9438.059       | 8  | NC             | 1  |
| 509 |        | 5   | max | .428   | 3  | .551   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 510 |        |     | min | -.589  | 8  | -.429  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 511 | M124   | 1   | max | .224   | 3  | .73    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 512 |        |     | min | -.321  | 8  | -.55   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 513 |        | 2   | max | .222   | 3  | .727   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 514 |        |     | min | -.318  | 8  | -.547  | 3  | 0      | 1  | 0              | 1  | 8232.457       | 8  | NC             | 1  |
| 515 |        | 3   | max | .22    | 3  | .724   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 516 |        |     | min | -.315  | 8  | -.542  | 3  | 0      | 1  | 0              | 1  | 5286.504       | 8  | NC             | 1  |
| 517 |        | 4   | max | .218   | 3  | .718   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 518 |        |     | min | -.311  | 8  | -.536  | 3  | 0      | 1  | 0              | 1  | 6163.368       | 8  | NC             | 1  |
| 519 |        | 5   | max | .216   | 3  | .71    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 520 |        |     | min | -.308  | 8  | -.528  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 521 | M126   | 1   | max | .083   | 3  | .669   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 522 |        |     | min | -.128  | 8  | -.488  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 523 |        | 2   | max | .079   | 3  | .61    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 524 |        |     | min | -.122  | 8  | -.442  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 525 |        | 3   | max | .075   | 3  | .549   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 526 |        |     | min | -.115  | 8  | -.394  | 3  | 0      | 1  | 0              | 1  | 7824.194       | 8  | NC             | 1  |
| 527 |        | 4   | max | .07    | 3  | .483   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 528 |        |     | min | -.109  | 8  | -.344  | 3  | 0      | 1  | 0              | 1  | 9918.941       | 8  | NC             | 1  |
| 529 |        | 5   | max | .066   | 3  | .413   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 530 |        |     | min | -.102  | 8  | -.29   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 531 | M127   | 1   | max | .066   | 3  | .413   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 532 |        |     | min | -.102  | 8  | -.29   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 533 |        | 2   | max | .064   | 3  | .334   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 534 |        |     | min | -.099  | 8  | -.232  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 535 |        | 3   | max | .063   | 3  | .25    | 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/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 536 |        |     | min | -.097  | 8  | -.171  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 537 |        | 4   | max | .061   | 3  | .168   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 538 |        |     | min | -.094  | 8  | -.111  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 539 |        | 5   | max | .059   | 3  | .092   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 540 |        |     | min | -.091  | 8  | -.055  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 541 | M108A  | 1   | max | .105   | 3  | .757   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 542 |        |     | min | -.159  | 8  | -.561  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 543 |        | 2   | max | .102   | 3  | .74    | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 544 |        |     | min | -.155  | 8  | -.546  | 3  | 0      | 1  | 0              | 1  | 4932.885       | 8  | NC             | 1  |
| 545 |        | 3   | max | .099   | 3  | .718   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 546 |        |     | min | -.151  | 8  | -.528  | 3  | 0      | 1  | 0              | 1  | 4500.359       | 8  | NC             | 1  |
| 547 |        | 4   | max | .096   | 3  | .693   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 548 |        |     | min | -.146  | 8  | -.507  | 3  | 0      | 1  | 0              | 1  | 7658.124       | 8  | NC             | 1  |
| 549 |        | 5   | max | .093   | 3  | .666   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 550 |        |     | min | -.142  | 8  | -.486  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 551 | M109A  | 1   | max | .273   | 8  | .664   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 552 |        |     | min | -.216  | 3  | -.528  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 553 |        | 2   | max | .276   | 8  | .675   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 554 |        |     | min | -.218  | 3  | -.536  | 3  | 0      | 1  | 0              | 1  | 7127.702       | 8  | NC             | 1  |
| 555 |        | 3   | max | .279   | 8  | .685   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 556 |        |     | min | -.221  | 3  | -.542  | 3  | 0      | 1  | 0              | 1  | 5850.891       | 8  | NC             | 1  |
| 557 |        | 4   | max | .282   | 8  | .692   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 558 |        |     | min | -.223  | 3  | -.547  | 3  | 0      | 1  | 0              | 1  | 8616.871       | 8  | NC             | 1  |
| 559 |        | 5   | max | .285   | 8  | .699   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 560 |        |     | min | -.225  | 3  | -.55   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 561 | M110B  | 1   | max | .541   | 8  | .554   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 562 |        |     | min | -.426  | 3  | -.431  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 563 |        | 2   | max | .544   | 8  | .555   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 564 |        |     | min | -.428  | 3  | -.431  | 3  | 0      | 1  | 0              | 1  | 9381.027       | 8  | NC             | 1  |
| 565 |        | 3   | max | .547   | 8  | .555   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 566 |        |     | min | -.431  | 3  | -.429  | 3  | 0      | 1  | 0              | 1  | 6981.439       | 8  | NC             | 1  |
| 567 |        | 4   | max | .551   | 8  | .553   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 568 |        |     | min | -.433  | 3  | -.427  | 3  | 0      | 1  | 0              | 1  | 9242.592       | 8  | NC             | 1  |
| 569 |        | 5   | max | .554   | 8  | .55    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 570 |        |     | min | -.435  | 3  | -.423  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 571 | M111B  | 1   | max | .382   | 3  | .608   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 572 |        |     | min | -.53   | 8  | -.47   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 573 |        | 2   | max | .38    | 3  | .609   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 574 |        |     | min | -.527  | 8  | -.47   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 575 |        | 3   | max | .378   | 3  | .609   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 576 |        |     | min | -.524  | 8  | -.468  | 3  | 0      | 1  | 0              | 1  | 9479.569       | 8  | NC             | 1  |
| 577 |        | 4   | max | .375   | 3  | .608   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 578 |        |     | min | -.521  | 8  | -.466  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 579 |        | 5   | max | .373   | 3  | .606   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 580 |        |     | min | -.517  | 8  | -.463  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 581 | M116A  | 1   | max | .719   | 8  | .297   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 582 |        |     | min | -.561  | 3  | -.221  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 583 |        | 2   | max | .723   | 8  | .279   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 584 |        |     | min | -.564  | 3  | -.206  | 3  | 0      | 1  | 0              | 1  | 7862.487       | 8  | NC             | 1  |
| 585 |        | 3   | max | .728   | 8  | .259   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 586 |        |     | min | -.567  | 3  | -.19   | 3  | 0      | 1  | 0              | 1  | 6387.966       | 8  | NC             | 1  |
| 587 |        | 4   | max | .733   | 8  | .236   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 588 |        |     | min | -.571  | 3  | -.171  | 3  | 0      | 1  | 0              | 1  | 9318.203       | 8  | NC             | 1  |
| 589 |        | 5   | max | .737   | 8  | .211   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 590 |        |     | min | -.574  | 3  | -.151  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 591 | M118A  | 1   | max | .547   | 3  | .29    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 592 |        |     | min | -.739  | 8  | -.253  | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 593 |        | 2   | max | .545   | 3  | .305   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 594 |        |     | min | -.736  | 8  | -.261  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 595 |        | 3   | max | .543   | 3  | .318   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 596 |        |     | min | -.733  | 8  | -.269  | 3  | 0      | 1  | 0              | 1  | 7301.396       | 8  | NC             | 1  |
| 597 |        | 4   | max | .54    | 3  | .329   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 598 |        |     | min | -.73   | 8  | -.276  | 3  | 0      | 1  | 0              | 1  | 9069.745       | 8  | NC             | 1  |
| 599 |        | 5   | max | .538   | 3  | .339   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 600 |        |     | min | -.727  | 8  | -.281  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 601 | M120A  | 1   | max | .215   | 8  | .26    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 602 |        |     | min | -.152  | 3  | -.176  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 603 |        | 2   | max | .213   | 8  | .352   | 8  | 0      | 12 | 0              | 12 | NC             | 4  | NC             | 12 |
| 604 |        |     | min | -.151  | 3  | -.237  | 3  | 0      | 1  | 0              | 1  | 2747.945       | 12 | NC             | 1  |
| 605 |        | 3   | max | .212   | 8  | .434   | 8  | 0      | 12 | 0              | 12 | NC             | 4  | NC             | 12 |
| 606 |        |     | min | -.15   | 3  | -.294  | 3  | 0      | 1  | 0              | 1  | 1861.346       | 12 | NC             | 1  |
| 607 |        | 4   | max | .21    | 8  | .499   | 8  | 0      | 12 | 0              | 12 | NC             | 4  | NC             | 12 |
| 608 |        |     | min | -.149  | 3  | -.349  | 3  | 0      | 1  | 0              | 1  | 3152.121       | 12 | NC             | 1  |
| 609 |        | 5   | max | .208   | 8  | .559   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 610 |        |     | min | -.148  | 3  | -.4    | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 611 | M122A  | 1   | max | .152   | 3  | .204   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 612 |        |     | min | -.194  | 8  | -.176  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 613 |        | 2   | max | .151   | 3  | .167   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 614 |        |     | min | -.194  | 8  | -.145  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 615 |        | 3   | max | .15    | 3  | .128   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 616 |        |     | min | -.193  | 8  | -.113  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 617 |        | 4   | max | .15    | 3  | .09    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 618 |        |     | min | -.192  | 8  | -.083  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 619 |        | 5   | max | .149   | 3  | .055   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 620 |        |     | min | -.191  | 8  | -.054  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 621 | M123   | 1   | max | .078   | 8  | .056   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 622 |        |     | min | -.059  | 3  | -.055  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 623 |        | 2   | max | .08    | 8  | .125   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 624 |        |     | min | -.061  | 3  | -.111  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 625 |        | 3   | max | .082   | 8  | .199   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 626 |        |     | min | -.063  | 3  | -.171  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 627 |        | 4   | max | .084   | 8  | .274   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 628 |        |     | min | -.064  | 3  | -.232  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 629 |        | 5   | max | .086   | 8  | .347   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 630 |        |     | min | -.066  | 3  | -.29   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 631 | M128   | 1   | max | .502   | 3  | .998   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 632 |        |     | min | -.65   | 8  | -1.414 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 633 |        | 2   | max | .502   | 3  | .966   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 634 |        |     | min | -.65   | 8  | -1.373 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 635 |        | 3   | max | .502   | 3  | .933   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 636 |        |     | min | -.651  | 8  | -1.331 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 637 |        | 4   | max | .502   | 3  | .901   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 638 |        |     | min | -.651  | 8  | -1.29  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 639 |        | 5   | max | .503   | 3  | .868   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 640 |        |     | min | -.651  | 8  | -1.247 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 641 | M129   | 1   | max | .024   | 9  | 1.741  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 642 |        |     | min | 0      | 3  | -2.307 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 643 |        | 2   | max | .023   | 9  | 1.741  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 644 |        |     | min | 0      | 1  | -2.308 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 645 |        | 3   | max | .023   | 9  | 1.739  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 646 |        |     | min | 0      | 1  | -2.308 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 647 |        | 4   | max | .022   | 9  | 1.736  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 648 |        |     | min | .001   | 1  | -2.306 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 649 |        | 5   | max | .021   | 9  | 1.732  | 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/V Ratio | LC | (n) L/z' Ratio | LC |
|--------|------|-------|--------|----|--------|----|--------|----|----------------|----|---------------|----|----------------|----|
| 650    |      | min   | .002   | 1  | -2.303 | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 651    | M130 | 1 max | .659   | 8  | .998   | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 652    |      | min   | -.502  | 3  | -1.288 | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 653    |      | 2 max | .659   | 8  | 1.029  | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 654    |      | min   | -.501  | 3  | -1.33  | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 655    |      | 3 max | .659   | 8  | 1.06   | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 656    |      | min   | -.501  | 3  | -1.371 | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 657    |      | 4 max | .659   | 8  | 1.091  | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 658    |      | min   | -.501  | 3  | -1.412 | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 659    |      | 5 max | .659   | 8  | 1.121  | 3  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 660    |      | min   | -.501  | 3  | -1.452 | 8  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 661    | M10  | 1 max | .281   | 8  | .029   | 12 | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 662    |      | min   | -.231  | 3  | -.031  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 663    |      | 2 max | .284   | 8  | .069   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 664    |      | min   | -.233  | 3  | -.07   | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 665    |      | 3 max | .288   | 8  | .113   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 666    |      | min   | -.236  | 3  | -.104  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 667    |      | 4 max | .291   | 8  | .157   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 668    |      | min   | -.239  | 3  | -.138  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 669    |      | 5 max | .295   | 8  | .203   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 670    |      | min   | -.242  | 3  | -.174  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 671    | M11  | 1 max | .143   | 3  | .317   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 672    |      | min   | -.165  | 8  | -.261  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 673    |      | 2 max | .146   | 3  | .362   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 674    |      | min   | -.169  | 8  | -.297  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 675    |      | 3 max | .149   | 3  | .406   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 676    |      | min   | -.172  | 8  | -.332  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 677    |      | 4 max | .152   | 3  | .448   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 678    |      | min   | -.176  | 8  | -.365  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 679    |      | 5 max | .155   | 3  | .491   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 680    |      | min   | -.179  | 8  | -.397  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 681    | M12  | 1 max | .47    | 8  | .23    | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 682    |      | min   | -.379  | 3  | -.196  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 683    |      | 2 max | .474   | 8  | .269   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 684    |      | min   | -.382  | 3  | -.225  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 685    |      | 3 max | .478   | 8  | .304   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 686    |      | min   | -.385  | 3  | -.251  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 687    |      | 4 max | .482   | 8  | .338   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 688    |      | min   | -.388  | 3  | -.276  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 689    |      | 5 max | .486   | 8  | .375   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 690    |      | min   | -.39   | 3  | -.304  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 691    | M13  | 1 max | .252   | 3  | .53    | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 692    |      | min   | -.309  | 8  | -.426  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 693    |      | 2 max | .254   | 3  | .567   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 694    |      | min   | -.313  | 8  | -.454  | 3  | 0      | 1  | 0              | 1  | 6236.451      | 8  | NC             | 1  |
| 695    |      | 3 max | .257   | 3  | .598   | 8  | 0      | 12 | 0              | 12 | NC            | 11 | NC             | 12 |
| 696    |      | min   | -.317  | 8  | -.478  | 3  | 0      | 1  | 0              | 1  | 5438.4        | 3  | NC             | 1  |
| 697    |      | 4 max | .26    | 3  | .625   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 698    |      | min   | -.321  | 8  | -.497  | 3  | 0      | 1  | 0              | 1  | 7916.771      | 3  | NC             | 1  |
| 699    |      | 5 max | .262   | 3  | .651   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 700    |      | min   | -.324  | 8  | -.514  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 701    | M14  | 1 max | .706   | 8  | .178   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 702    |      | min   | -.558  | 3  | -.147  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 703    |      | 2 max | .708   | 8  | .199   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 704    |      | min   | -.559  | 3  | -.16   | 3  | 0      | 1  | 0              | 1  | 6901.78       | 8  | NC             | 1  |
| 705    |      | 3 max | .71    | 8  | .216   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 706    |      | min   | -.561  | 3  | -.172  | 3  | 0      | 1  | 0              | 1  | 5584.657      | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 707 |        | 4   | max | .713   | 8  | .23    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 708 |        |     | min | -.562  | 3  | -.182  | 3  | 0      | 1  | 0              | 1  | 8132.364       | 8  | NC             | 1  |
| 709 |        | 5   | max | .715   | 8  | .241   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 710 |        |     | min | -.564  | 3  | -.189  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 711 | M15    | 1   | max | .138   | 3  | .734   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 712 |        |     | min | -.176  | 8  | -.578  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 713 |        | 2   | max | .137   | 3  | .742   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 714 |        |     | min | -.175  | 8  | -.583  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 715 |        | 3   | max | .136   | 3  | .749   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 716 |        |     | min | -.175  | 8  | -.587  | 3  | 0      | 1  | 0              | 1  | 9275.764       | 8  | NC             | 1  |
| 717 |        | 4   | max | .136   | 3  | .753   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 718 |        |     | min | -.175  | 8  | -.588  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 719 |        | 5   | max | .135   | 3  | .756   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 720 |        |     | min | -.174  | 8  | -.588  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 721 | M16    | 1   | max | .768   | 8  | .087   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 722 |        |     | min | -.597  | 3  | -.112  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 723 |        | 2   | max | .769   | 8  | .088   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 724 |        |     | min | -.598  | 3  | -.11   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 725 |        | 3   | max | .77    | 8  | .089   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 726 |        |     | min | -.598  | 3  | -.109  | 8  | 0      | 1  | 0              | 1  | 7684.265       | 8  | NC             | 1  |
| 727 |        | 4   | max | .771   | 8  | .092   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 728 |        |     | min | -.599  | 3  | -.112  | 8  | 0      | 1  | 0              | 1  | 9281.539       | 8  | NC             | 1  |
| 729 |        | 5   | max | .772   | 8  | .097   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 730 |        |     | min | -.599  | 3  | -.117  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 731 | M17    | 1   | max | .191   | 8  | .757   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 732 |        |     | min | -.155  | 3  | -.587  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 733 |        | 2   | max | .193   | 8  | .749   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 734 |        |     | min | -.157  | 3  | -.579  | 3  | 0      | 1  | 0              | 1  | 8583.782       | 8  | NC             | 1  |
| 735 |        | 3   | max | .195   | 8  | .739   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 736 |        |     | min | -.158  | 3  | -.57   | 3  | 0      | 1  | 0              | 1  | 5604.459       | 8  | NC             | 1  |
| 737 |        | 4   | max | .197   | 8  | .726   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 738 |        |     | min | -.16   | 3  | -.559  | 3  | 0      | 1  | 0              | 1  | 6619.006       | 8  | NC             | 1  |
| 739 |        | 5   | max | .199   | 8  | .708   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 740 |        |     | min | -.161  | 3  | -.544  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 741 | M18    | 1   | max | .699   | 8  | .185   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 742 |        |     | min | -.537  | 3  | -.229  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 743 |        | 2   | max | .697   | 8  | .203   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 744 |        |     | min | -.535  | 3  | -.251  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 745 |        | 3   | max | .695   | 8  | .222   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 746 |        |     | min | -.533  | 3  | -.275  | 8  | 0      | 1  | 0              | 1  | 8141.81        | 8  | NC             | 1  |
| 747 |        | 4   | max | .694   | 8  | .243   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 748 |        |     | min | -.532  | 3  | -.301  | 8  | 0      | 1  | 0              | 1  | 8861.325       | 8  | NC             | 1  |
| 749 |        | 5   | max | .692   | 8  | .267   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 750 |        |     | min | -.53   | 3  | -.331  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 751 | M19    | 1   | max | .49    | 8  | .59    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 752 |        |     | min | -.388  | 3  | -.449  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 753 |        | 2   | max | .494   | 8  | .553   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 754 |        |     | min | -.392  | 3  | -.419  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 755 |        | 3   | max | .497   | 8  | .515   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 756 |        |     | min | -.395  | 3  | -.389  | 3  | 0      | 1  | 0              | 1  | 8588.615       | 8  | NC             | 1  |
| 757 |        | 4   | max | .501   | 8  | .474   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 758 |        |     | min | -.398  | 3  | -.357  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 759 |        | 5   | max | .505   | 8  | .43    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 760 |        |     | min | -.401  | 3  | -.321  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 761 | M20    | 1   | max | .54    | 8  | .31    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 762 |        |     | min | -.409  | 3  | -.385  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 763 |        | 2   | max | .538   | 8  | .348   | 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/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 764 |        |     | min | -.407  | 3  | -.432  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 765 |        | 3   | max | .536   | 8  | .385   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 766 |        |     | min | -.405  | 3  | -.48   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 767 |        | 4   | max | .533   | 8  | .423   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 768 |        |     | min | -.404  | 3  | -.531  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 769 |        | 5   | max | .531   | 8  | .464   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 770 |        |     | min | -.402  | 3  | -.585  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 771 | M21    | 1   | max | .724   | 8  | .315   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 772 |        |     | min | -.569  | 3  | -.231  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 773 |        | 2   | max | .728   | 8  | .262   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 774 |        |     | min | -.571  | 3  | -.189  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 775 |        | 3   | max | .732   | 8  | .209   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 776 |        |     | min | -.574  | 3  | -.146  | 3  | 0      | 1  | 0              | 1  | 6504.038       | 8  | NC             | 1  |
| 777 |        | 4   | max | .735   | 8  | .153   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 778 |        |     | min | -.577  | 3  | -.102  | 3  | 0      | 1  | 0              | 1  | 6305.244       | 8  | NC             | 1  |
| 779 |        | 5   | max | .739   | 8  | .091   | 12 | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 780 |        |     | min | -.579  | 3  | -.057  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 781 | M22    | 1   | max | .266   | 8  | .548   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 782 |        |     | min | -.196  | 3  | -.695  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 783 |        | 2   | max | .264   | 8  | .595   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 784 |        |     | min | -.194  | 3  | -.76   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 785 |        | 3   | max | .262   | 8  | .641   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 786 |        |     | min | -.193  | 3  | -.821  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 787 |        | 4   | max | .259   | 8  | .688   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 788 |        |     | min | -.191  | 3  | -.881  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 789 |        | 5   | max | .257   | 8  | .737   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 790 |        |     | min | -.189  | 3  | -.944  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 791 | M23    | 1   | max | .976   | 8  | .058   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 792 |        |     | min | -.758  | 3  | -.06   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 793 |        | 2   | max | .979   | 8  | .106   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 794 |        |     | min | -.76   | 3  | -.124  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 795 |        | 3   | max | .982   | 8  | .154   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 796 |        |     | min | -.763  | 3  | -.188  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 797 |        | 4   | max | .986   | 8  | .202   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 798 |        |     | min | -.765  | 3  | -.251  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 799 |        | 5   | max | .989   | 8  | .25    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 800 |        |     | min | -.767  | 3  | -.313  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 801 | M24    | 1   | max | .056   | 3  | .805   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 802 |        |     | min | -.062  | 8  | -1.035 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 803 |        | 2   | max | .057   | 3  | .854   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 804 |        |     | min | -.064  | 8  | -1.098 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 805 |        | 3   | max | .059   | 3  | .903   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 806 |        |     | min | -.066  | 8  | -1.163 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 807 |        | 4   | max | .061   | 3  | .952   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 808 |        |     | min | -.068  | 8  | -1.229 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 809 |        | 5   | max | .063   | 3  | 1.001  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 810 |        |     | min | -.07   | 8  | -1.295 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 811 | M25    | 1   | max | 1.239  | 8  | .305   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 812 |        |     | min | -.955  | 3  | -.384  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 813 |        | 2   | max | 1.241  | 8  | .348   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 814 |        |     | min | -.957  | 3  | -.441  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 815 |        | 3   | max | 1.243  | 8  | .39    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 816 |        |     | min | -.958  | 3  | -.496  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 817 |        | 4   | max | 1.244  | 8  | .431   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 818 |        |     | min | -.96   | 3  | -.55   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 819 |        | 5   | max | 1.246  | 8  | .473   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 820 |        |     | min | -.961  | 3  | -.605  | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 821 | M26    | 1   | max | .377   | 3  | 1.002  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 822 |        |     | min | -.481  | 8  | -1.299 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 823 |        | 2   | max | .378   | 3  | 1.044  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 824 |        |     | min | -.483  | 8  | -1.355 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 825 |        | 3   | max | .38    | 3  | 1.086  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 826 |        |     | min | -.484  | 8  | -1.41  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 827 |        | 4   | max | .381   | 3  | 1.126  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 828 |        |     | min | -.486  | 8  | -1.465 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 829 |        | 5   | max | .382   | 3  | 1.166  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 830 |        |     | min | -.487  | 8  | -1.518 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 831 | M27    | 1   | max | 1.353  | 8  | .656   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 832 |        |     | min | -1.038 | 3  | -.843  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 833 |        | 2   | max | 1.355  | 8  | .698   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 834 |        |     | min | -1.039 | 3  | -.899  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 835 |        | 3   | max | 1.357  | 8  | .739   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 836 |        |     | min | -1.04  | 3  | -.952  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 837 |        | 4   | max | 1.358  | 8  | .778   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 838 |        |     | min | -1.041 | 3  | -1.004 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 839 |        | 5   | max | 1.36   | 8  | .819   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 840 |        |     | min | -1.043 | 3  | -1.058 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 841 | M28    | 1   | max | .54    | 3  | 1.211  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 842 |        |     | min | -.695  | 8  | -1.577 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 843 |        | 2   | max | .541   | 3  | 1.251  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 844 |        |     | min | -.696  | 8  | -1.631 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 845 |        | 3   | max | .542   | 3  | 1.29   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 846 |        |     | min | -.698  | 8  | -1.684 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 847 |        | 4   | max | .544   | 3  | 1.327  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 848 |        |     | min | -.699  | 8  | -1.734 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 849 |        | 5   | max | .545   | 3  | 1.362  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 850 |        |     | min | -.701  | 8  | -1.781 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 851 | M29    | 1   | max | 1.462  | 8  | .954   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 852 |        |     | min | -1.115 | 3  | -1.236 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 853 |        | 2   | max | 1.463  | 8  | .987   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 854 |        |     | min | -1.115 | 3  | -1.28  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 855 |        | 3   | max | 1.464  | 8  | 1.017  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 856 |        |     | min | -1.116 | 3  | -1.321 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 857 |        | 4   | max | 1.465  | 8  | 1.046  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 858 |        |     | min | -1.117 | 3  | -1.36  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 859 |        | 5   | max | 1.466  | 8  | 1.075  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 860 |        |     | min | -1.118 | 3  | -1.398 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 861 | M30    | 1   | max | .77    | 3  | 1.346  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 862 |        |     | min | -.999  | 8  | -1.763 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 863 |        | 2   | max | .771   | 3  | 1.374  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 864 |        |     | min | -.1    | 8  | -1.801 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 865 |        | 3   | max | .772   | 3  | 1.401  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 866 |        |     | min | -1.001 | 8  | -1.839 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 867 |        | 4   | max | .773   | 3  | 1.427  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 868 |        |     | min | -1.002 | 8  | -1.875 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 869 |        | 5   | max | .774   | 3  | 1.449  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 870 |        |     | min | -1.003 | 8  | -1.907 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 871 | M31    | 1   | max | 1.484  | 8  | 1.198  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 872 |        |     | min | -1.124 | 3  | -1.563 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 873 |        | 2   | max | 1.484  | 8  | 1.219  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 874 |        |     | min | -1.124 | 3  | -1.591 | 8  | 0      | 1  | 0              | 1  | 9617.443       | 8  | NC             | 1  |
| 875 |        | 3   | max | 1.485  | 8  | 1.236  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 876 |        |     | min | -1.125 | 3  | -1.615 | 8  | 0      | 1  | 0              | 1  | 7916.498       | 8  | NC             | 1  |
| 877 |        | 4   | max | 1.485  | 8  | 1.251  | 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/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 878 |        |     | min | -1.125 | 3  | -1.637 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 879 |        | 5   | max | 1.485  | 8  | 1.265  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 880 |        |     | min | -1.125 | 3  | -1.656 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 881 | M32    | 1   | max | .952   | 3  | 1.399  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 882 |        |     | min | -1.244 | 8  | -1.844 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 883 |        | 2   | max | .953   | 3  | 1.413  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 884 |        |     | min | -1.245 | 8  | -1.864 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 885 |        | 3   | max | .953   | 3  | 1.426  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 886 |        |     | min | -1.245 | 8  | -1.884 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 887 |        | 4   | max | .954   | 3  | 1.437  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 888 |        |     | min | -1.246 | 8  | -1.902 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 889 |        | 5   | max | .955   | 3  | 1.445  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 890 |        |     | min | -1.247 | 8  | -1.917 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 891 | M33    | 1   | max | 1.554  | 8  | 1.279  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 892 |        |     | min | -1.169 | 3  | -1.677 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 893 |        | 2   | max | 1.554  | 8  | 1.283  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 894 |        |     | min | -1.168 | 3  | -1.686 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 895 |        | 3   | max | 1.554  | 8  | 1.286  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 896 |        |     | min | -1.168 | 3  | -1.691 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 897 |        | 4   | max | 1.554  | 8  | 1.287  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 898 |        |     | min | -1.168 | 3  | -1.694 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 899 |        | 5   | max | 1.554  | 8  | 1.287  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 900 |        |     | min | -1.168 | 3  | -1.697 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 901 | M34    | 1   | max | 1.168  | 3  | 1.287  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 902 |        |     | min | -1.538 | 8  | -1.711 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 903 |        | 2   | max | 1.168  | 3  | 1.287  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 904 |        |     | min | -1.538 | 8  | -1.714 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 905 |        | 3   | max | 1.168  | 3  | 1.286  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 906 |        |     | min | -1.538 | 8  | -1.716 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 907 |        | 4   | max | 1.168  | 3  | 1.284  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 908 |        |     | min | -1.539 | 8  | -1.716 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 909 |        | 5   | max | 1.168  | 3  | 1.279  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 910 |        |     | min | -1.539 | 8  | -1.713 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 911 | M35    | 1   | max | 1.285  | 8  | 1.445  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 912 |        |     | min | -.955  | 3  | -1.911 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 913 |        | 2   | max | 1.285  | 8  | 1.437  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 914 |        |     | min | -.954  | 3  | -1.902 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 915 |        | 3   | max | 1.284  | 8  | 1.426  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 916 |        |     | min | -.954  | 3  | -1.889 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 917 |        | 4   | max | 1.284  | 8  | 1.413  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 918 |        |     | min | -.953  | 3  | -1.875 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 919 |        | 5   | max | 1.283  | 8  | 1.399  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 920 |        |     | min | -.952  | 3  | -1.861 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 921 | M36    | 1   | max | 1.125  | 3  | 1.265  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 922 |        |     | min | -1.492 | 8  | -1.698 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 923 |        | 2   | max | 1.125  | 3  | 1.251  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 924 |        |     | min | -1.492 | 8  | -1.685 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 925 |        | 3   | max | 1.124  | 3  | 1.236  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 926 |        |     | min | -1.492 | 8  | -1.669 | 8  | 0      | 1  | 0              | 1  | 7736.146       | 8  | NC             | 1  |
| 927 |        | 4   | max | 1.124  | 3  | 1.219  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 928 |        |     | min | -1.492 | 8  | -1.65  | 8  | 0      | 1  | 0              | 1  | 9446.111       | 8  | NC             | 1  |
| 929 |        | 5   | max | 1.124  | 3  | 1.198  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 930 |        |     | min | -1.491 | 8  | -1.627 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 931 | M37    | 1   | max | 1.062  | 8  | 1.449  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 932 |        |     | min | -.774  | 3  | -1.935 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 933 |        | 2   | max | 1.061  | 8  | 1.426  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 934 |        |     | min | -.773  | 3  | -1.908 | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 935 |        | 3   | max | 1.06   | 8  | 1.401  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 936 |        |     | min | -.772  | 3  | -1.877 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 937 |        | 4   | max | 1.059  | 8  | 1.374  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 938 |        |     | min | -.771  | 3  | -1.845 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 939 |        | 5   | max | 1.058  | 8  | 1.346  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 940 |        |     | min | -.77   | 3  | -1.811 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 941 | M38    | 1   | max | 1.118  | 3  | 1.075  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 942 |        |     | min | -1.499 | 8  | -1.468 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 943 |        | 2   | max | 1.117  | 3  | 1.046  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 944 |        |     | min | -1.498 | 8  | -1.434 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 945 |        | 3   | max | 1.116  | 3  | 1.018  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 946 |        |     | min | -1.497 | 8  | -1.4   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 947 |        | 4   | max | 1.115  | 3  | .987   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 948 |        |     | min | -1.496 | 8  | -1.364 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 949 |        | 5   | max | 1.115  | 3  | .954   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 950 |        |     | min | -1.495 | 8  | -1.325 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 951 | M39    | 1   | max | .774   | 8  | 1.362  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 952 |        |     | min | -.545  | 3  | -1.842 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 953 |        | 2   | max | .773   | 8  | 1.327  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 954 |        |     | min | -.544  | 3  | -1.798 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 955 |        | 3   | max | .771   | 8  | 1.29   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 956 |        |     | min | -.542  | 3  | -1.752 | 8  | 0      | 1  | 0              | 1  | 9805.195       | 8  | NC             | 1  |
| 957 |        | 4   | max | .77    | 8  | 1.251  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 958 |        |     | min | -.541  | 3  | -1.704 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 959 |        | 5   | max | .768   | 8  | 1.211  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 960 |        |     | min | -.54   | 3  | -1.653 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 961 | M40    | 1   | max | 1.043  | 3  | .819   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 962 |        |     | min | -1.416 | 8  | -1.148 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 963 |        | 2   | max | 1.041  | 3  | .778   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 964 |        |     | min | -1.415 | 8  | -1.098 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 965 |        | 3   | max | 1.04   | 3  | .739   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 966 |        |     | min | -1.413 | 8  | -1.049 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 967 |        | 4   | max | 1.039  | 3  | .698   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 968 |        |     | min | -1.412 | 8  | -.1    | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 969 |        | 5   | max | 1.038  | 3  | .656   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 970 |        |     | min | -1.41  | 8  | -.947  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 971 | M41    | 1   | max | .574   | 8  | 1.166  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 972 |        |     | min | -.382  | 3  | -1.599 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 973 |        | 2   | max | .572   | 8  | 1.126  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 974 |        |     | min | -.381  | 3  | -1.548 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 975 |        | 3   | max | .571   | 8  | 1.086  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 976 |        |     | min | -.38   | 3  | -1.496 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 977 |        | 4   | max | .57    | 8  | 1.044  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 978 |        |     | min | -.379  | 3  | -1.443 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 979 |        | 5   | max | .568   | 8  | 1.002  | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 980 |        |     | min | -.377  | 3  | -1.389 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 981 | M42    | 1   | max | .961   | 3  | .473   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 982 |        |     | min | -1.327 | 8  | -.7    | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 983 |        | 2   | max | .96    | 3  | .431   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 984 |        |     | min | -1.325 | 8  | -.647  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 985 |        | 3   | max | .958   | 3  | .39    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 986 |        |     | min | -1.324 | 8  | -.595  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 987 |        | 4   | max | .957   | 3  | .348   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 988 |        |     | min | -1.322 | 8  | -.542  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 989 |        | 5   | max | .955   | 3  | .305   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 990 |        |     | min | -1.32  | 8  | -.486  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 991 | M43    | 1   | max | .149   | 8  | 1.001  | 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/V' Ratio | LC | (n) L/z' Ratio | LC |
|------|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 992  |        |     | min | -.063  | 3  | -1.399 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 993  |        | 2   | max | .147   | 8  | .952   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 994  |        |     | min | -.061  | 3  | -1.335 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 995  |        | 3   | max | .145   | 8  | .903   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 996  |        |     | min | -.059  | 3  | -1.27  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 997  |        | 4   | max | .143   | 8  | .854   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 998  |        |     | min | -.057  | 3  | -1.205 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 999  |        | 5   | max | .141   | 8  | .805   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1000 |        |     | min | -.056  | 3  | -1.141 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1001 | M44    | 1   | max | .767   | 3  | .25    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1002 |        |     | min | -1.073 | 8  | -.415  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1003 |        | 2   | max | .765   | 3  | .202   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1004 |        |     | min | -1.07  | 8  | -.353  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1005 |        | 3   | max | .763   | 3  | .154   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1006 |        |     | min | -1.067 | 8  | -.29   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1007 |        | 4   | max | .76    | 3  | .106   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1008 |        |     | min | -1.064 | 8  | -.227  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1009 |        | 5   | max | .758   | 3  | .058   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1010 |        |     | min | -1.061 | 8  | -.162  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1011 | M45    | 1   | max | .189   | 3  | .737   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1012 |        |     | min | -.188  | 8  | -1.057 | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1013 |        | 2   | max | .191   | 3  | .688   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1014 |        |     | min | -.19   | 8  | -.991  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1015 |        | 3   | max | .193   | 3  | .641   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1016 |        |     | min | -.192  | 8  | -.927  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1017 |        | 4   | max | .194   | 3  | .595   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1018 |        |     | min | -.194  | 8  | -.864  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1019 |        | 5   | max | .196   | 3  | .548   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1020 |        |     | min | -.197  | 8  | -.801  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1021 | M46    | 1   | max | .579   | 3  | -.004  | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1022 |        |     | min | -.824  | 8  | -.057  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1023 |        | 2   | max | .577   | 3  | .057   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1024 |        |     | min | -.821  | 8  | -.102  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1025 |        | 3   | max | .574   | 3  | .117   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1026 |        |     | min | -.817  | 8  | -.146  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1027 |        | 4   | max | .571   | 3  | .176   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1028 |        |     | min | -.813  | 8  | -.189  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1029 |        | 5   | max | .569   | 3  | .235   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1030 |        |     | min | -.81   | 8  | -.231  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1031 | M47    | 1   | max | .402   | 3  | .464   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1032 |        |     | min | -.483  | 8  | -.691  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1033 |        | 2   | max | .404   | 3  | .423   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1034 |        |     | min | -.486  | 8  | -.633  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1035 |        | 3   | max | .405   | 3  | .385   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1036 |        |     | min | -.488  | 8  | -.579  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1037 |        | 4   | max | .407   | 3  | .348   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1038 |        |     | min | -.49   | 8  | -.525  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1039 |        | 5   | max | .409   | 3  | .31    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1040 |        |     | min | -.493  | 8  | -.471  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1041 | M48    | 1   | max | .401   | 3  | .363   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1042 |        |     | min | -.577  | 8  | -.321  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1043 |        | 2   | max | .398   | 3  | .415   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1044 |        |     | min | -.573  | 8  | -.357  | 3  | 0      | 1  | 0              | 1  | 8785.174       | 8  | NC             | 1  |
| 1045 |        | 3   | max | .395   | 3  | .463   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1046 |        |     | min | -.568  | 8  | -.389  | 3  | 0      | 1  | 0              | 1  | 7932.649       | 8  | NC             | 1  |
| 1047 |        | 4   | max | .392   | 3  | .507   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1048 |        |     | min | -.564  | 8  | -.419  | 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 |
|------|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 1049 |        | 5   | max | .389   | 3  | .55    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1050 |        |     | min | -.56   | 8  | -.449  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1051 | M49    | 1   | max | .53    | 3  | .267   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1052 |        |     | min | -.67   | 8  | -.408  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1053 |        | 2   | max | .532   | 3  | .243   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1054 |        |     | min | -.673  | 8  | -.372  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1055 |        | 3   | max | .533   | 3  | .222   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1056 |        |     | min | -.675  | 8  | -.34   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1057 |        | 4   | max | .535   | 3  | .203   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1058 |        |     | min | -.678  | 8  | -.31   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1059 |        | 5   | max | .536   | 3  | .185   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1060 |        |     | min | -.68   | 8  | -.279  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1061 | M50    | 1   | max | .162   | 3  | .691   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1062 |        |     | min | -.25   | 8  | -.544  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1063 |        | 2   | max | .16    | 3  | .717   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 1064 |        |     | min | -.247  | 8  | -.558  | 3  | 0      | 1  | 0              | 1  | 5411.793       | 8  | NC             | 1  |
| 1065 |        | 3   | max | .159   | 3  | .736   | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 1066 |        |     | min | -.245  | 8  | -.57   | 3  | 0      | 1  | 0              | 1  | 4963.201       | 8  | NC             | 1  |
| 1067 |        | 4   | max | .157   | 3  | .751   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1068 |        |     | min | -.242  | 8  | -.579  | 3  | 0      | 1  | 0              | 1  | 8519.521       | 8  | NC             | 1  |
| 1069 |        | 5   | max | .155   | 3  | .765   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1070 |        |     | min | -.24   | 8  | -.587  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1071 | M51    | 1   | max | .599   | 3  | .098   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1072 |        |     | min | -.785  | 8  | -.164  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1073 |        | 2   | max | .599   | 3  | .092   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1074 |        |     | min | -.785  | 8  | -.152  | 8  | 0      | 1  | 0              | 1  | 8468.244       | 8  | NC             | 1  |
| 1075 |        | 3   | max | .598   | 3  | .089   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1076 |        |     | min | -.784  | 8  | -.145  | 8  | 0      | 1  | 0              | 1  | 7417.569       | 8  | NC             | 1  |
| 1077 |        | 4   | max | .598   | 3  | .088   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1078 |        |     | min | -.784  | 8  | -.139  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1079 |        | 5   | max | .598   | 3  | .088   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1080 |        |     | min | -.784  | 8  | -.135  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1081 | M52    | 1   | max | .159   | 8  | .779   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1082 |        |     | min | -.135  | 3  | -.589  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1083 |        | 2   | max | .16    | 8  | .782   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1084 |        |     | min | -.136  | 3  | -.588  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1085 |        | 3   | max | .161   | 8  | .784   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1086 |        |     | min | -.136  | 3  | -.587  | 3  | 0      | 1  | 0              | 1  | 9084.989       | 8  | NC             | 1  |
| 1087 |        | 4   | max | .162   | 8  | .783   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1088 |        |     | min | -.137  | 3  | -.583  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1089 |        | 5   | max | .163   | 8  | .78    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1090 |        |     | min | -.138  | 3  | -.578  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1091 | M53    | 1   | max | .564   | 3  | .233   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1092 |        |     | min | -.762  | 8  | -.189  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1093 |        | 2   | max | .562   | 3  | .226   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1094 |        |     | min | -.761  | 8  | -.182  | 3  | 0      | 1  | 0              | 1  | 9572.233       | 8  | NC             | 1  |
| 1095 |        | 3   | max | .561   | 3  | .215   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1096 |        |     | min | -.759  | 8  | -.172  | 3  | 0      | 1  | 0              | 1  | 9645.975       | 3  | NC             | 1  |
| 1097 |        | 4   | max | .559   | 3  | .202   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1098 |        |     | min | -.758  | 8  | -.16   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1099 |        | 5   | max | .558   | 3  | .19    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1100 |        |     | min | -.756  | 8  | -.147  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1101 | M54    | 1   | max | .347   | 8  | .698   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1102 |        |     | min | -.262  | 3  | -.514  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1103 |        | 2   | max | .344   | 8  | .682   | 8  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 1104 |        |     | min | -.26   | 3  | -.497  | 3  | 0      | 1  | 0              | 1  | 4030.578       | 8  | NC             | 1  |
| 1105 |        | 3   | max | .341   | 8  | .659   | 8  | 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/V Ratio | LC | (n) L/z' Ratio | LC |
|--------|------|-----|--------|------|--------|----|--------|----|----------------|----|---------------|----|----------------|----|
| 1106   |      | min | -.257  | 3    | -.478  | 3  | 0      | 1  | 0              | 1  | 3143.548      | 8  | NC             | 1  |
| 1107   | 4    | max | .338   | 8    | .629   | 8  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 1108   |      | min | -.255  | 3    | -.454  | 3  | 0      | 1  | 0              | 1  | 4350.166      | 8  | NC             | 1  |
| 1109   | 5    | max | .334   | 8    | .593   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1110   |      | min | -.252  | 3    | -.426  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1111   | M55  | 1   | max    | .39  | .407   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1112   |      | min | -.546  | 8    | -.304  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1113   | 2    | max | .387   | 3    | .373   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1114   |      | min | -.542  | 8    | -.276  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1115   | 3    | max | .385   | 3    | .342   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1116   |      | min | -.538  | 8    | -.251  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1117   | 4    | max | .382   | 3    | .309   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1118   |      | min | -.534  | 8    | -.225  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1119   | 5    | max | .379   | 3    | .272   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1120   |      | min | -.531  | 8    | -.196  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1121   | M56  | 1   | max    | .214 | .556   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1122   |      | min | -.154  | 3    | -.397  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1123   | 2    | max | .21    | 8    | .514   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1124   |      | min | -.152  | 3    | -.365  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1125   | 3    | max | .206   | 8    | .47    | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1126   |      | min | -.149  | 3    | -.332  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1127   | 4    | max | .201   | 8    | .425   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1128   |      | min | -.146  | 3    | -.297  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1129   | 5    | max | .197   | 8    | .377   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1130   |      | min | -.143  | 3    | -.261  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1131   | M57  | 1   | max    | .242 | .241   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1132   |      | min | -.35   | 8    | -.173  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1133   | 2    | max | .239   | 3    | .195   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1134   |      | min | -.346  | 8    | -.138  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1135   | 3    | max | .236   | 3    | .152   | 8  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 1136   |      | min | -.342  | 8    | -.104  | 3  | 0      | 1  | 0              | 1  | 7069.358      | 12 | NC             | 1  |
| 1137   | 4    | max | .233   | 3    | .106   | 8  | 0      | 12 | 0              | 12 | NC            | 10 | NC             | 12 |
| 1138   |      | min | -.338  | 8    | -.07   | 3  | 0      | 1  | 0              | 1  | 6019.057      | 12 | NC             | 1  |
| 1139   | 5    | max | .231   | 3    | .056   | 12 | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1140   |      | min | -.333  | 8    | -.031  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1141   | M132 | 1   | max    | .294 | .679   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1142   |      | min | -.385  | 8    | -.531  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1143   | 2    | max | .292   | 3    | .674   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1144   |      | min | -.383  | 8    | -.526  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1145   | 3    | max | .291   | 3    | .669   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1146   |      | min | -.382  | 8    | -.522  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1147   | 4    | max | .29    | 3    | .664   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1148   |      | min | -.38   | 8    | -.517  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1149   | 5    | max | .288   | 3    | .659   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1150   |      | min | -.378  | 8    | -.512  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1151   | M133 | 1   | max    | .521 | .363   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1152   |      | min | -.661  | 8    | -.287  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1153   | 2    | max | .519   | 3    | .371   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1154   |      | min | -.659  | 8    | -.291  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1155   | 3    | max | .518   | 3    | .378   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1156   |      | min | -.658  | 8    | -.296  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1157   | 4    | max | .517   | 3    | .385   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1158   |      | min | -.656  | 8    | -.301  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1159   | 5    | max | .515   | 3    | .393   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1160   |      | min | -.654  | 8    | -.306  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |
| 1161   | M134 | 1   | max    | .521 | .404   | 8  | 0      | 12 | 0              | 12 | NC            | 12 | NC             | 12 |
| 1162   |      | min | -.687  | 8    | -.287  | 3  | 0      | 1  | 0              | 1  | NC            | 1  | NC             | 1  |

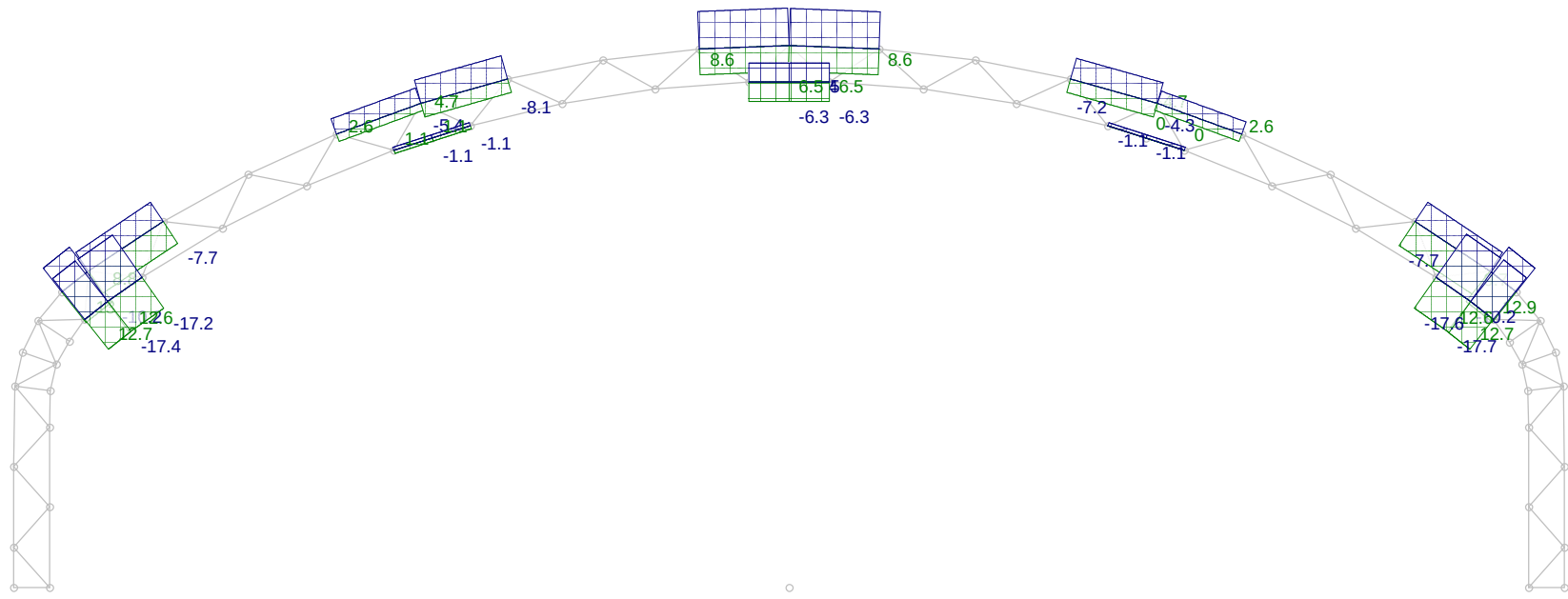
### Envelope Member Section Deflections Service (Continued)

|      | 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 |
|------|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 1163 |        | 2   | max | .519   | 3  | .407   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1164 |        |     | min | -.685  | 8  | -.291  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1165 |        | 3   | max | .518   | 3  | .41    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1166 |        |     | min | -.683  | 8  | -.296  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1167 |        | 4   | max | .517   | 3  | .414   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1168 |        |     | min | -.681  | 8  | -.301  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1169 |        | 5   | max | .515   | 3  | .419   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1170 |        |     | min | -.679  | 8  | -.306  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1171 | M135   | 1   | max | .293   | 3  | .719   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1172 |        |     | min | -.356  | 8  | -.531  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1173 |        | 2   | max | .292   | 3  | .709   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1174 |        |     | min | -.354  | 8  | -.526  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1175 |        | 3   | max | .291   | 3  | .699   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1176 |        |     | min | -.353  | 8  | -.522  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1177 |        | 4   | max | .29    | 3  | .691   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1178 |        |     | min | -.351  | 8  | -.517  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1179 |        | 5   | max | .288   | 3  | .681   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1180 |        |     | min | -.349  | 8  | -.512  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1181 | M112A  | 1   | max | .73    | 8  | .198   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1182 |        |     | min | -.542  | 3  | -.275  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1183 |        | 2   | max | .732   | 8  | .188   | 3  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 1184 |        |     | min | -.543  | 3  | -.267  | 8  | 0      | 1  | 0              | 1  | 9615.655       | 12 | NC             | 1  |
| 1185 |        | 3   | max | .734   | 8  | .18    | 3  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 1186 |        |     | min | -.545  | 3  | -.257  | 8  | 0      | 1  | 0              | 1  | 9246.596       | 12 | NC             | 1  |
| 1187 |        | 4   | max | .736   | 8  | .171   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1188 |        |     | min | -.546  | 3  | -.246  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1189 |        | 5   | max | .738   | 8  | .16    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1190 |        |     | min | -.548  | 3  | -.233  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1191 | M113A  | 1   | max | .444   | 3  | .57    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1192 |        |     | min | -.571  | 8  | -.413  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1193 |        | 2   | max | .443   | 3  | .567   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1194 |        |     | min | -.569  | 8  | -.413  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1195 |        | 3   | max | .442   | 3  | .564   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1196 |        |     | min | -.568  | 8  | -.414  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1197 |        | 4   | max | .441   | 3  | .562   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1198 |        |     | min | -.567  | 8  | -.414  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1199 |        | 5   | max | .44    | 3  | .559   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1200 |        |     | min | -.566  | 8  | -.413  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1201 | M114A  | 1   | max | .551   | 8  | .546   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1202 |        |     | min | -.428  | 3  | -.425  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1203 |        | 2   | max | .552   | 8  | .545   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1204 |        |     | min | -.429  | 3  | -.426  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1205 |        | 3   | max | .553   | 8  | .543   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1206 |        |     | min | -.43   | 3  | -.426  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1207 |        | 4   | max | .554   | 8  | .542   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1208 |        |     | min | -.431  | 3  | -.425  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1209 |        | 5   | max | .555   | 8  | .54    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1210 |        |     | min | -.432  | 3  | -.425  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1211 | M115A  | 1   | max | .548   | 3  | .16    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1212 |        |     | min | -.688  | 8  | -.203  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1213 |        | 2   | max | .546   | 3  | .171   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1214 |        |     | min | -.687  | 8  | -.218  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1215 |        | 3   | max | .545   | 3  | .18    | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1216 |        |     | min | -.685  | 8  | -.23   | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1217 |        | 4   | max | .543   | 3  | .189   | 3  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1218 |        |     | min | -.683  | 8  | -.242  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1219 |        | 5   | max | .542   | 3  | .198   | 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/V' Ratio | LC | (n) L/z' Ratio | LC |
|------|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 1220 |        |     | min | -.681  | 8  | -.257  | 8  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1221 | M117A  | 1   | max | .195   | 3  | .732   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1222 |        |     | min | -.263  | 8  | -.57   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1223 |        | 2   | max | .195   | 3  | .72    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1224 |        |     | min | -.263  | 8  | -.561  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1225 |        | 3   | max | .194   | 3  | .711   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1226 |        |     | min | -.262  | 8  | -.553  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1227 |        | 4   | max | .194   | 3  | .701   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1228 |        |     | min | -.262  | 8  | -.544  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1229 |        | 5   | max | .193   | 3  | .688   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1230 |        |     | min | -.261  | 8  | -.533  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1231 | M119A  | 1   | max | .195   | 3  | .765   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1232 |        |     | min | -.213  | 8  | -.57   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1233 |        | 2   | max | .195   | 3  | .75    | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1234 |        |     | min | -.212  | 8  | -.561  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1235 |        | 3   | max | .194   | 3  | .737   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1236 |        |     | min | -.211  | 8  | -.552  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1237 |        | 4   | max | .194   | 3  | .723   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1238 |        |     | min | -.211  | 8  | -.544  | 3  | 0      | 1  | 0              | 1  | 8943.989       | 8  | NC             | 1  |
| 1239 |        | 5   | max | .193   | 3  | .704   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1240 |        |     | min | -.21   | 8  | -.533  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1241 | M124A  | 1   | max | .032   | 9  | .337   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1242 |        |     | min | -.003  | 3  | -.233  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1243 |        | 2   | max | .028   | 9  | .28    | 8  | 0      | 12 | 0              | 12 | NC             | 11 | NC             | 12 |
| 1244 |        |     | min | 0      | 3  | -.192  | 3  | 0      | 1  | 0              | 1  | 7154.431       | 12 | NC             | 1  |
| 1245 |        | 3   | max | .025   | 9  | .227   | 8  | 0      | 12 | 0              | 12 | NC             | 10 | NC             | 12 |
| 1246 |        |     | min | .002   | 8  | -.154  | 3  | 0      | 1  | 0              | 1  | 6260.111       | 12 | NC             | 1  |
| 1247 |        | 4   | max | .022   | 9  | .177   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1248 |        |     | min | -.002  | 8  | -.116  | 3  | 0      | 1  | 0              | 1  | 9118.314       | 8  | NC             | 1  |
| 1249 |        | 5   | max | .019   | 9  | .129   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1250 |        |     | min | -.007  | 8  | -.08   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1251 | M126A  | 1   | max | .011   | 9  | .282   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1252 |        |     | min | -.01   | 8  | -.233  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1253 |        | 2   | max | .009   | 9  | .234   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1254 |        |     | min | -.013  | 8  | -.192  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1255 |        | 3   | max | .007   | 9  | .186   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1256 |        |     | min | -.016  | 8  | -.154  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1257 |        | 4   | max | .007   | 2  | .139   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1258 |        |     | min | -.019  | 8  | -.116  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 1259 |        | 5   | max | .008   | 3  | .093   | 8  | 0      | 12 | 0              | 12 | NC             | 12 | NC             | 12 |
| 1260 |        |     | min | -.022  | 8  | -.08   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |





Envelope Only Solution  
Member Axial Forces (k) (Enveloped)

Big Top Manufacturing

A K Das

221-229

100x250x35 Ocean Highway and Port Authority

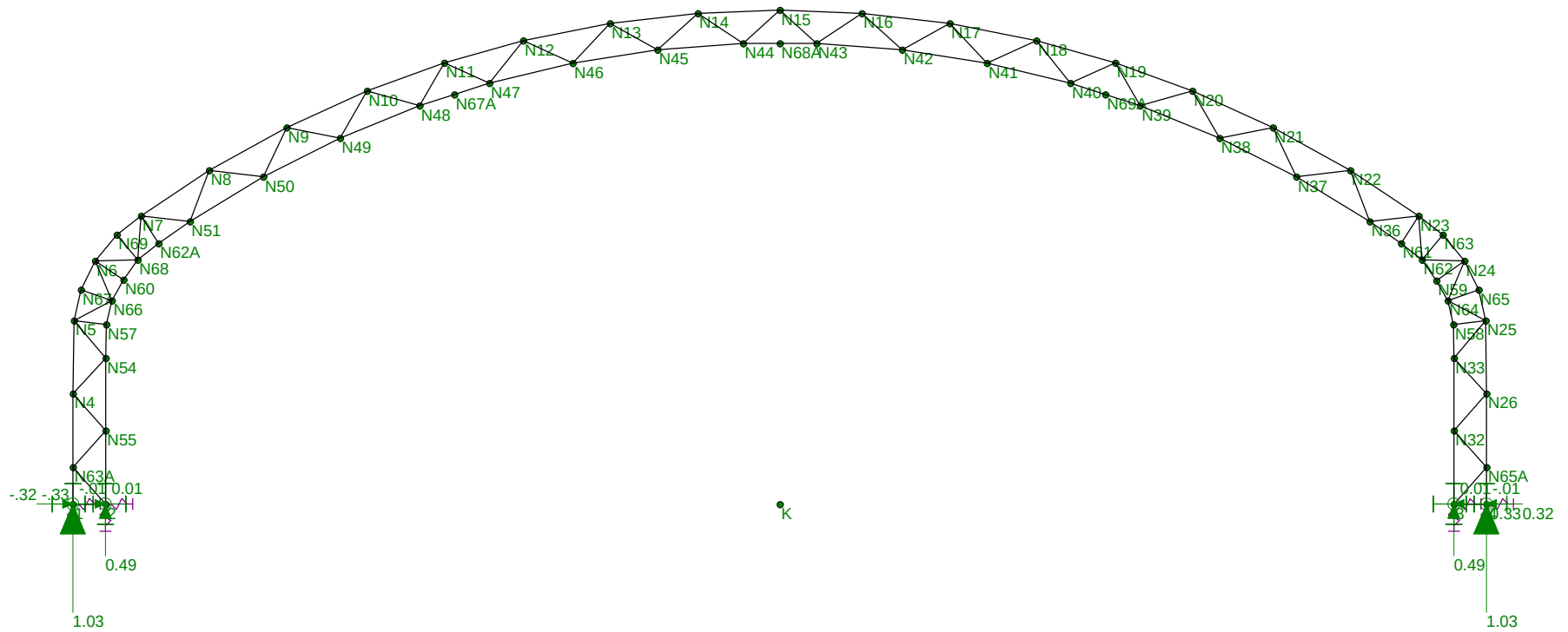
SK - 10

Dec 16, 2021 at 12:20 PM

100x250x35 Ocean Highway and Port Authority....

USE 9" MIN. LENGTH E70 WELD 0.095"





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

Big Top Manufacturing

A K Das

221-229

100x250x35 Ocean Highway and Port Authority

SK - 1

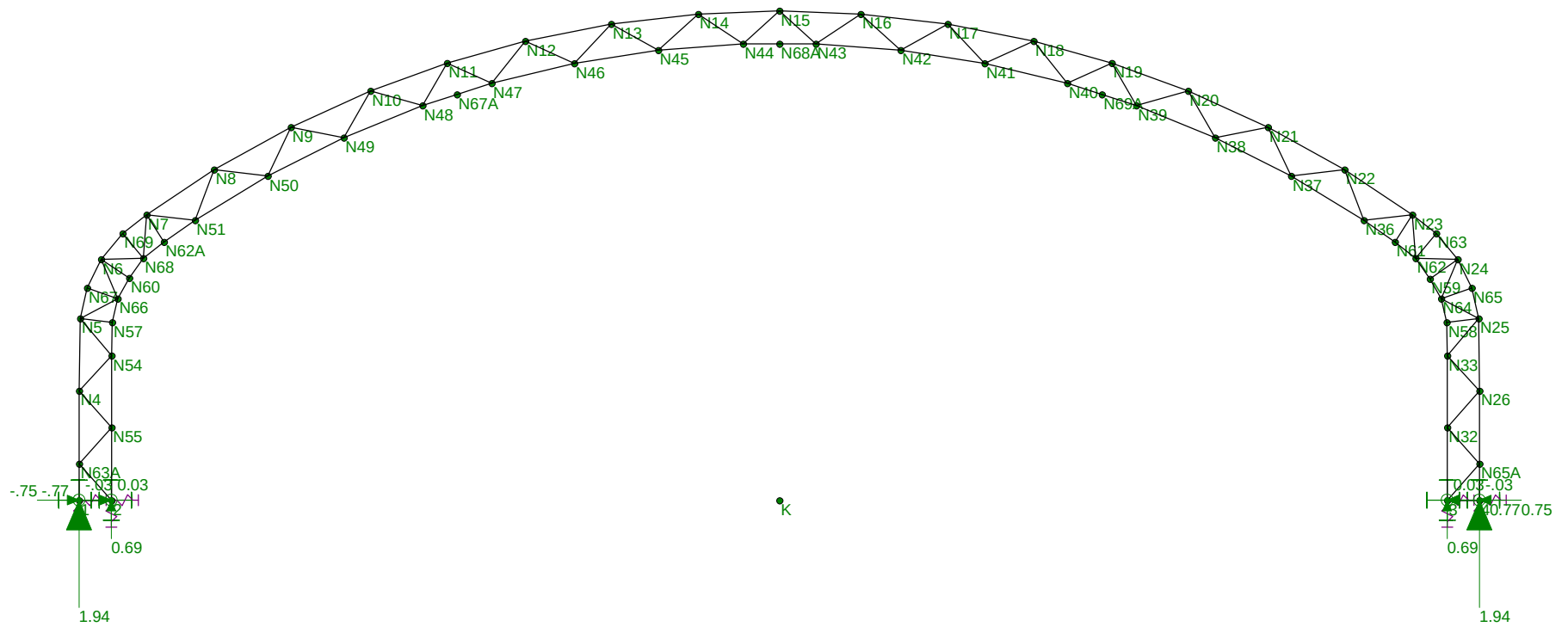
Dec 16, 2021 at 12:33 PM

100x250x35 Ocean Highway and Port Authority....

### ***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           | -.012 | 1.03      | -.322     | 0         | .016      | 0         |
| 2 | 13 | 2           | .012  | .492      | -.327     | 0         | .012      | 0         |
| 3 | 13 | 3           | .012  | .492      | .327      | 0         | -.012     | 0         |
| 4 | 13 | 4           | -.012 | 1.03      | .322      | 0         | -.016     | 0         |
| 5 | 13 | Totals:     | 0     | 3.045     | 0         |           |           |           |
| 6 | 13 | COG (ft):   | X: 0  | Y: 23.252 | Z: 49.901 |           |           |           |

**Above reactions are due to Dead Load (DL) only with a factor of 1.0**



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

Big Top Manufacturing

A K Das

221-229

100x250x35 Ocean Highway and Port Authority

SK - 2

Dec 16, 2021 at 12:34 PM

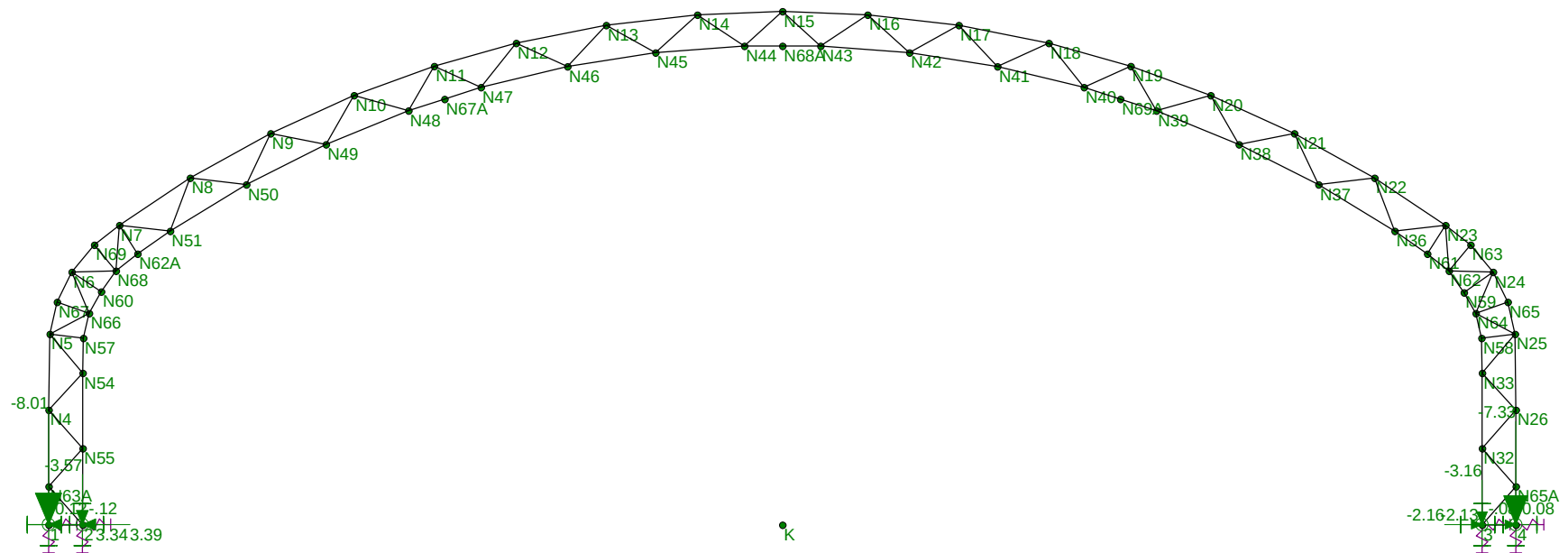
100x250x35 Ocean Highway and Port Authority....



### ***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           | -.027 | 1.942     | -.755     | 0         | .037      | 0         |
| 2 | 14 | 2           | .027  | .694      | -.767     | 0         | .026      | 0         |
| 3 | 14 | 3           | .027  | .694      | .767      | 0         | -.026     | 0         |
| 4 | 14 | 4           | -.027 | 1.942     | .755      | 0         | -.037     | 0         |
| 5 | 14 | Totals:     | 0     | 5.272     | 0         |           |           |           |
| 6 | 14 | COG (ft):   | X: 0  | Y: 28.998 | Z: 49.901 |           |           |           |

**Above reactions are due to Roof Live Load (RLL) only with a factor of 1.0**



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SK - 3

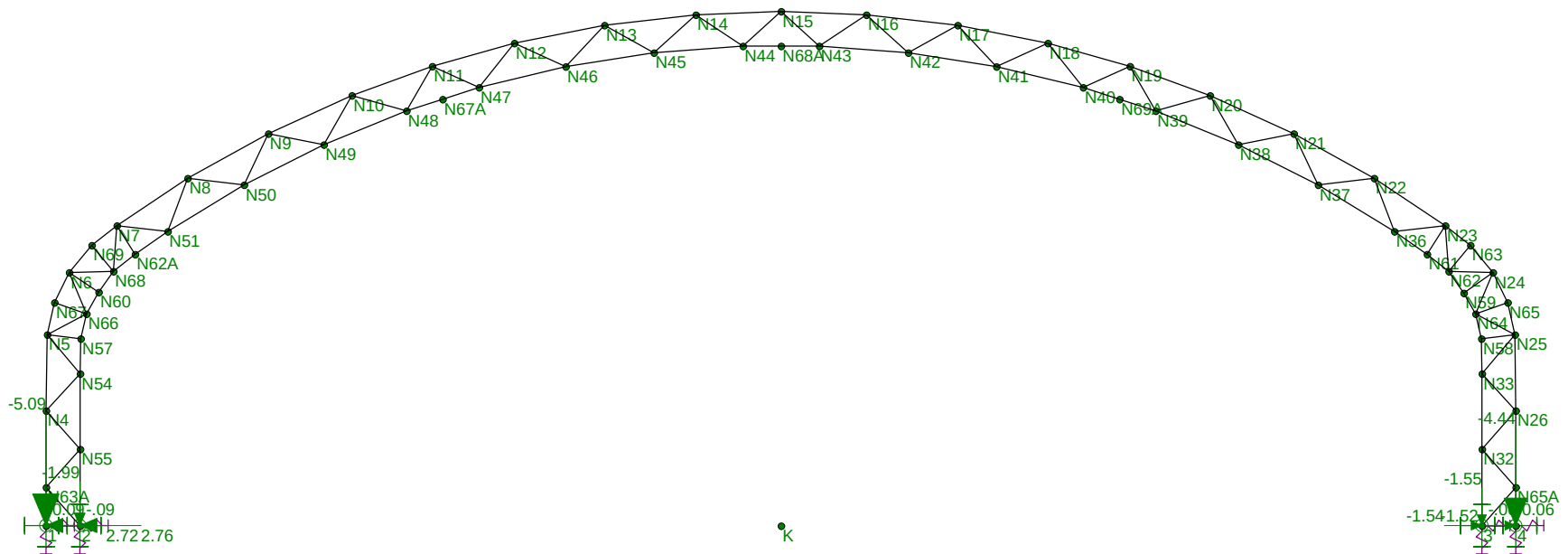
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100x250x35 Ocean Highway and Port Authority....

### ***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           | .115  | -8.007   | 3.336     | 0         | -.16      | 0         |
| 2 | 15 | 2           | -.115 | -3.573   | 3.385     | 0         | -.105     | 0         |
| 3 | 15 | 3           | -.079 | -3.156   | -2.162    | 0         | .08       | 0         |
| 4 | 15 | 4           | .079  | -7.334   | -2.128    | 0         | .101      | 0         |
| 5 | 15 | Totals:     | 0     | -22.07   | 2.432     |           |           |           |
| 6 | 15 | COG (ft):   | X: 0  | Y: 29.42 | Z: 52.309 |           |           |           |

**Above reactions are due to Wind Load in the Z-direction (for +GCPi) only with a factor of 1.0**



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100x250x35 Ocean Highway and Port Authority

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### ***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           | .092  | -5.094    | 2.721     | 0         | -.131     | 0         |
| 2 | 16 | 2           | -.092 | -1.992    | 2.76      | 0         | -.08      | 0         |
| 3 | 16 | 3           | -.055 | -1.549    | -1.544    | 0         | .055      | 0         |
| 4 | 16 | 4           | .055  | -4.438    | -1.52     | 0         | .072      | 0         |
| 5 | 16 | Totals:     | 0     | -13.073   | 2.418     |           |           |           |
| 6 | 16 | COG (ft):   | X: 0  | Y: 29.704 | Z: 54.015 |           |           |           |

**Above reactions are due to Wind Load in the Z-direction (for -GCPi) only with a factor of 1.0**

### 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 | .063  | 8  | 2.977   | 3  | 1.818  | 8  | 0         | 12 | .053      | 3  | 0         | 12 |
| 2  |         | min | -.04  | 3  | -4.218  | 8  | -1.078 | 3  | 0         | 1  | -.088     | 8  | 0         | 1  |
| 3  | 2       | max | .04   | 3  | 1.181   | 3  | 1.845  | 8  | 0         | 12 | .039      | 3  | 0         | 12 |
| 4  |         | min | -.063 | 8  | -1.816  | 8  | -1.095 | 3  | 0         | 1  | -.057     | 8  | 0         | 1  |
| 5  | 3       | max | .04   | 3  | 1.181   | 3  | 1.095  | 3  | 0         | 12 | .042      | 8  | 0         | 12 |
| 6  |         | min | -.041 | 8  | -1.565  | 8  | -1.111 | 8  | 0         | 1  | -.039     | 3  | 0         | 1  |
| 7  | 4       | max | .041  | 8  | 2.978   | 3  | 1.078  | 3  | 0         | 12 | .053      | 8  | 0         | 12 |
| 8  |         | min | -.04  | 3  | -3.815  | 8  | -1.093 | 8  | 0         | 1  | -.053     | 3  | 0         | 1  |
| 9  | Totals: | max | 0     | 12 | 8.317   | 3  | 1.459  | 8  |           |    |           |    |           |    |
| 10 |         | min | 0     | 1  | -11.415 | 8  | 0      | 1  |           |    |           |    |           |    |

**Above reactions are based on ASD load combination per IBC indicated on S-0**





### **Global Parameters - Description:**

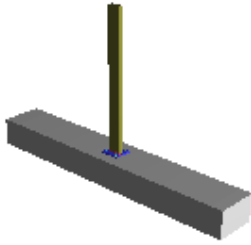
|               |                                             |
|---------------|---------------------------------------------|
| Project Title | 100x250x35 Ocean Highway and Port Authority |
| Company       | Big Top Manufacturing                       |
| Designer      | A K Das                                     |
| Job Number    | 221-229                                     |
| Notes         |                                             |

### **Global Parameters - Solution:**

|                                                            |                         |
|------------------------------------------------------------|-------------------------|
| Design Method                                              | AISC 14th (360-10): ASD |
| Bolt Group Analysis Method                                 | Center of Rotation      |
| Weld Analysis Method                                       | Elastic                 |
| Consider Bolt Hole Deformation?                            | No                      |
| Check Rotational Ductility?                                | Yes                     |
| Check Weld Filler Metal Matching?                          | Yes                     |
| Full Shear Eccentricity Considered?                        | No                      |
| Panel-Zone Shear Deformation Considered?                   | No                      |
| Check Weld Base Material Thickness?                        | Yes                     |
| Include AISC 15th Out of Plane Web Checks?                 | Yes                     |
| Reduce Available Bolt Strength by Prying Effects Factor Q? | No                      |

**Max Compression and Shear - LC3 Copy: ASD Results Report**

Single Column Base Plate Connection

**Material Properties:**

|                   |                     |                   |                   |                   |
|-------------------|---------------------|-------------------|-------------------|-------------------|
| <b>Column</b>     | HSS6X2X2            | A500 Gr.B<br>Rect | $F_y = 46.00$ ksi | $F_u = 58.00$ ksi |
| <b>Base Plate</b> | P0.50x8.00x8.0<br>0 | A572 Gr.50        | $F_y = 50.00$ ksi | $F_u = 65.00$ ksi |

**Input Data:**

|                           |              |                                                                 |
|---------------------------|--------------|-----------------------------------------------------------------|
| <b>Axial</b>              | 2.98 kips    | <i>Axial load on the column</i>                                 |
| <b>Strong Axis Shear</b>  | 0.00 kips    | <i>Shear load on the column that causes strong axis bending</i> |
| <b>Weak Axis Shear</b>    | 1.08 kips    | <i>Shear load on the column that causes weak axis bending</i>   |
| <b>Strong Axis Moment</b> | 0.00 kips-in | <i>Column moment about the strong axis</i>                      |
| <b>Weak Axis Moment</b>   | 0.00 kips-in | <i>Column moment about the weak axis</i>                        |

Note: Unless specified, all code references are from AISC 360-10

| Limit State                              | Required               | Available                                                     | Unity Check                 | Result |
|------------------------------------------|------------------------|---------------------------------------------------------------|-----------------------------|--------|
| Geometry Restrictions                    |                        |                                                               |                             | PASS   |
| Check Min Bolt Spacing                   | Pass                   | Condition: $S_{min} \geq (2+2/3)d_{bolt}$ (J3.3)              |                             |        |
| $S_{min}$                                | 5.75 in                | Min bolt spacing                                              |                             |        |
| $d_{bolt}$                               | 0.63 in                | Anchor bolt diameter                                          |                             |        |
| Check Min Edge Distance                  | Pass                   | Condition: $ED_{min} \geq ED_{allow}$ (J3.4)                  |                             |        |
| $ED_{min}$                               | 1.13 in                | Min edge distance (plate)                                     |                             |        |
| $ED_{allow}$                             | 1.13 in                | Total min edge distance                                       |                             |        |
| Check Max Edge Distance                  | Pass                   | Condition: $ED_{max} \leq \min(6.00 \text{ in}, 12*t)$ (J3.5) |                             |        |
| $ED_{max}$                               | 1.13 in                | Max edge distance (plate)                                     |                             |        |
| $ED_{allow}$                             | 6.00 in                | Max edge distance                                             |                             |        |
| $t$                                      | 0.50 in                | Thickness of base plate                                       |                             |        |
| Check Anchor Bolt Encroachment on Column | Pass                   |                                                               |                             |        |
| Concrete Bearing                         | 0.05 ksi               | 2.21 ksi                                                      | 0.02                        | PASS   |
| $R_n = 0.85 * f'_c * \alpha$             |                        | $\Omega = 2.31$                                               | (ACI 318-14 Table 22.8.3.2) |        |
| $f'_c$                                   | 3.00 ksi               | Concrete compressive strength                                 |                             |        |
| $P_u$                                    | 2.98 kips              | Axial load on the column                                      |                             |        |
| $N$                                      | 8.00 in                | Plate length                                                  |                             |        |
| $B$                                      | 8.00 in                | Plate width                                                   |                             |        |
| $A_1$                                    | 64.00 in <sup>2</sup>  | Plate area = $B*N$                                            |                             |        |
| $L$                                      | 120.00 in              | Concrete support length                                       |                             |        |
| $W$                                      | 18.00 in               | Concrete support width                                        |                             |        |
| $L'$                                     | 18.00 in               | Effective concrete support length                             |                             |        |
| $W'$                                     | 18.00 in               | Effective concrete support width                              |                             |        |
| $A_2$                                    | 324.00 in <sup>2</sup> | Effective concrete support area = $L' * W'$                   |                             |        |
| $\alpha$                                 | 2.00                   | Bearing stress increase factor = $\min(2, (A_2 / A_1)^{0.5})$ |                             |        |
| $R_n / \Omega$                           | 2.21 ksi               | Allowable bearing stress                                      |                             |        |

continued on next page...

**Max Compression and Shear - LC3 Copy: ASD Results Report (continued):**

| Limit State                                                           | Required             | Available                                                                                        | Unity Check         | Result      |
|-----------------------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------|---------------------|-------------|
| $f_p$                                                                 | 0.05 ksi             | $Required\ bearing\ stress = P_u / A_1$                                                          |                     |             |
| Plate Flexural Yielding(Compression)                                  | 0.22 kips-in/in      | 1.87 kips-in/in                                                                                  | <b>0.12</b>         | <b>PASS</b> |
| $M_n = F_y * t_p^2 / 4$                                               |                      | <b><math>\Omega = 1.67</math></b>                                                                | (AISC DG1 (3.3.13)) |             |
| $F_y$                                                                 | 50.00 ksi            | $Minimum\ yield\ strength\ of\ base\ plate$                                                      |                     |             |
| $t_p$                                                                 | 0.50 in              | $Thickness\ of\ base\ plate$                                                                     |                     |             |
| $M_n/\Omega$                                                          | 1.87 kips-in/in      | $Base\ plate\ bending\ capacity\ per\ unit\ width$                                               |                     |             |
| $N$                                                                   | 8.00 in              | $Base\ plate\ length$                                                                            |                     |             |
| $B$                                                                   | 8.00 in              | $Base\ plate\ width$                                                                             |                     |             |
| $d$                                                                   | 6.00 in              | $Column\ depth$                                                                                  |                     |             |
| $b$                                                                   | 2.00 in              | $Column\ width$                                                                                  |                     |             |
| $m$                                                                   | 1.15 in              | $m = (N - 0.95*d)/2$ (per AISC DG1, sect. 3.1.3)                                                 |                     |             |
| $n$                                                                   | 3.05 in              | $n = (B - 0.95*b)/2$ (per AISC DG1, sect. 3.1.3)                                                 |                     |             |
| $l$                                                                   | 3.05 in              | $Critical\ cantilever\ dimension\ l = MAX(m, n)$                                                 |                     |             |
| $f_p$                                                                 | 0.05 ksi             | $Required\ bearing\ stress\ (see\ 'Concrete\ Bearing'\ check)$                                   |                     |             |
| $M_{pl}$                                                              | 0.22 kips-in/in      | $Required\ bending\ moment\ per\ unit\ width,\ M_{pl}=f_p * l^2 / 2$ (per AISC DG1, sect. 3.1.2) |                     |             |
| Anchor Bolt Shear                                                     | 1.08 kips            | 8.01 kips                                                                                        | <b>0.13</b>         | <b>PASS</b> |
| $R_n = F_{nv} * A_b * N_{bolt}$                                       |                      | <b><math>\Omega = 2.00</math></b>                                                                | (J3-1)              |             |
| $V_{uy}$                                                              | 0.00 kips            | $Strong\ axis\ shear$                                                                            |                     |             |
| $V_{uz}$                                                              | 1.08 kips            | $Weak\ axis\ shear$                                                                              |                     |             |
| $V_u = (V_{uy}^2 + V_{uz}^2)^{0.5}$                                   | 1.08 kips            | $Resultant\ shear\ force$                                                                        |                     |             |
| $F_{nv}$                                                              | 26.10 ksi            | $Shear\ stress\ N\ type$                                                                         |                     |             |
| $A_b$                                                                 | 0.31 in <sup>2</sup> | $Area\ of\ bolt$                                                                                 |                     |             |
| $N_{bolt}$                                                            | 2                    | $Number\ of\ bolts\ (per\ AISC\ DG1,\ Section\ 3.5.3)$                                           |                     |             |
| $R_n/\Omega$                                                          | 8.01 kips            | $Bolt\ shear\ rupture\ strength$                                                                 |                     |             |
| Anchor Bolt Bearing on Base Plate                                     | 1.08 kips            | 8.01 kips                                                                                        | <b>0.13</b>         | <b>PASS</b> |
| $R_n = N_{bolt} * \min(1.5*L_c*t_p*F_u, 3.0*d_b*t_p*F_u, R_{n-bolt})$ |                      | <b><math>\Omega = 2.00</math></b>                                                                | (J3-6b)             |             |
| $V_u$                                                                 | 1.08 kips            | $Resultant\ shear\ force,\ see\ 'Anchor\ Bolt\ Shear'\ check$                                    |                     |             |
| $N_{bolt}$                                                            | 2                    | $Number\ of\ bolts\ (per\ AISC\ DG1,\ Section\ 3.5.3)$                                           |                     |             |
| $\Theta$                                                              | 0.00 degrees         | $Angle\ between\ the\ resultant\ shear\ force\ and\ z-axis$                                      |                     |             |
| $e_y$                                                                 | 1.13 in              | $Edge\ distance\ y$                                                                              |                     |             |
| $e_z$                                                                 | 1.13 in              | $Edge\ distance\ z$                                                                              |                     |             |
| $d_c$                                                                 | 0.59 in              | $Distance\ from\ center\ of\ bolt\ to\ the\ edge\ of\ hole$                                      |                     |             |
| $L_c$                                                                 | 0.53 in              | $Minimum\ clear\ distance\ for\ the\ weakest\ bolt:\ L_c=e_z - d_c$                              |                     |             |
| $t_p$                                                                 | 0.50 in              | $Thickness\ of\ base\ plate$                                                                     |                     |             |
| $d_b$                                                                 | 0.63 in              | $Bolt\ diameter$                                                                                 |                     |             |
| $F_u$                                                                 | 65.00 ksi            | $Minimum\ tensile\ stress\ of\ material$                                                         |                     |             |
| $R_{n-bolt}$                                                          | 8.01 kips            | $Bolt\ shear\ strength,\ R_{n-bolt}=F_{nv} * A_{bolt}$                                           |                     |             |
| $F_{nv}$                                                              | 26.10 ksi            | $Nominal\ shear\ stress\ of\ bolt$                                                               |                     |             |
| $A_{bolt}$                                                            | 0.31 in <sup>2</sup> | $Area\ of\ bolt$                                                                                 |                     |             |
| $Rn/\Omega$                                                           | 8.01 kips            | $Bolt\ bearing\ strength$                                                                        |                     |             |
| Column Weld Limitations                                               |                      |                                                                                                  |                     | <b>PASS</b> |
| Weld Min Size                                                         |                      |                                                                                                  | (J2.2b)             |             |
| Check Weld Min Size                                                   | Pass                 |                                                                                                  |                     |             |
| D                                                                     | 0.25 in              | Weld size                                                                                        |                     |             |

continued on next page...

**Max Compression and Shear - LC3 Copy: ASD Results Report (continued):**

| Limit State                                                                                                                                                         | Required     | Available                                                                        | Unity Check | Result      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------|-------------|-------------|
| $D_{min}$                                                                                                                                                           | 0.13 in      | Min size allowed per Table J2.4                                                  |             |             |
| $t_{min}$                                                                                                                                                           | 0.12 in      | Controlling member thickness                                                     |             |             |
| <b>Column Flange Weld Strength</b>                                                                                                                                  | 0.35 kips/in | 2.02 kips/in                                                                     | <b>0.17</b> | <b>PASS</b> |
| $Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$<br>Single Fillet<br>$0.928 = 0.6 * F_{E70} * 2^{0.5} / 2 * 1/16 / \Omega, \Omega=2.00$ (AISC 14 <sup>th</sup> Eqn 8-2b) |              |                                                                                  |             |             |
| $C_1$                                                                                                                                                               | 1.00         | Electrode strength coefficient (AISC 14 <sup>th</sup> table 8-3)                 |             |             |
| $t$                                                                                                                                                                 | 0.12 in      | Base material thickness (column)                                                 |             |             |
| $\alpha$                                                                                                                                                            | 0.54         | Base material proration factor (re-arrangement of AISC 14 <sup>th</sup> Eqn 9-2) |             |             |
| $D_{16}$                                                                                                                                                            | 4.00         | Weld fillet size in sixteenths of an inch                                        |             |             |
| $r_u$                                                                                                                                                               | 0.35 kips/in | Required strength of the weld for in-plane force                                 |             |             |
| $r_o$                                                                                                                                                               | 0.00 kips/in | Required strength of the weld for out-of-plane force (tensile)                   |             |             |
| $r_{3d}$                                                                                                                                                            | 0.35 kips/in | Resultant force $r_{3d} = (r_u^2 + r_o^2)^{0.5}$                                 |             |             |
| $Rn/\Omega$                                                                                                                                                         | 2.02 kips/in | Weld strength                                                                    |             |             |
| <b>Column Web Weld Strength</b>                                                                                                                                     | 0.00 kips/in | 2.02 kips/in                                                                     | <b>0.00</b> | <b>PASS</b> |
| $Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$<br>Single Fillet<br>$0.928 = 0.6 * F_{E70} * 2^{0.5} / 2 * 1/16 / \Omega, \Omega=2.00$ (AISC 14 <sup>th</sup> Eqn 8-2b) |              |                                                                                  |             |             |
| $C_1$                                                                                                                                                               | 1.00         | Electrode strength coefficient (AISC 14 <sup>th</sup> table 8-3)                 |             |             |
| $t$                                                                                                                                                                 | 0.12 in      | Base material thickness (column)                                                 |             |             |
| $\alpha$                                                                                                                                                            | 0.54         | Base material proration factor (re-arrangement of AISC 14 <sup>th</sup> Eqn 9-2) |             |             |
| $D_{16}$                                                                                                                                                            | 4.00         | Weld fillet size in sixteenths of an inch                                        |             |             |
| $r_u$                                                                                                                                                               | 0.00 kips/in | Required strength of the weld for in-plane force                                 |             |             |
| $r_o$                                                                                                                                                               | 0.00 kips/in | Required strength of the weld for out-of-plane force (tensile)                   |             |             |
| $r_{3d}$                                                                                                                                                            | 0.00 kips/in | Resultant force $r_{3d} = (r_u^2 + r_o^2)^{0.5}$                                 |             |             |
| $Rn/\Omega$                                                                                                                                                         | 2.02 kips/in | Weld strength                                                                    |             |             |

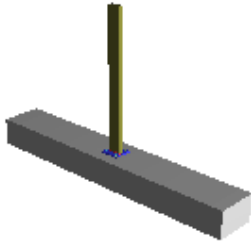
## Max Compression and Shear - LC3 Copy: Connection Properties Report

Single Column Base Plate Connection

|                             |                                      |
|-----------------------------|--------------------------------------|
| <b>Connection</b>           |                                      |
| Connection Title            | Max Compression and Shear - LC3 Copy |
| Connection Type             | Single Column Base Plate Connection  |
| <b>Connection Category</b>  |                                      |
| Bolt Layout                 | Four                                 |
| Plate Washers               | No                                   |
| <b>Loading (ASD)</b>        |                                      |
| Axial                       | 2.978 kips                           |
| Strong Axis Shear           | 0.000 kips                           |
| Weak Axis Shear             | 1.078 kips                           |
| Strong Axis Moment          | 0.000 kips-in                        |
| Weak Axis Moment            | 0.000 kips-in                        |
| <b>Components</b>           |                                      |
| Column Section              | HSS6X2X2                             |
| Material                    | A500 Gr.B Rect                       |
| Base Plate                  | P0.50x8.00x8.00                      |
| Material                    | A572 Gr.50                           |
| Length                      | 8.000 in                             |
| Width                       | 8.000 in                             |
| Thickness                   | 0.500 in                             |
| Static Friction Coefficient | 0.550 Coeff                          |
| Hole Type                   | XOVS                                 |
| Concrete Support            | C120.00x18.00x12.00                  |
| Length                      | 120.000 in                           |
| Width                       | 18.000 in                            |
| Thickness                   |                                      |
| Compressive Strength (f'c)  | 3.000 ksi                            |
| Anchor Bolts                | 5/8" F1554 Gr.36-N                   |
| Material                    | F1554 Gr.36-N                        |
| Diameter, in.               | 5/8"                                 |
| Bolt Spacing y              | 5.750 in                             |
| Bolt Spacing z              | 5.750 in                             |
| Column Weld                 | E70                                  |
| Type                        | Fillet                               |
| Fillet Size                 | 4.000 Sixteenths                     |
| <b>Assembly</b>             |                                      |
| Edge Distance y             | 1.125 in                             |
| Edge Distance z             | 1.125 in                             |

**Max Tension and Shear - LC8: ASD Results Report**

Single Column Base Plate Connection

**Material Properties:**

|                   |                     |                   |                   |                   |
|-------------------|---------------------|-------------------|-------------------|-------------------|
| <b>Column</b>     | HSS6X2X2            | A500 Gr.B<br>Rect | $F_y = 46.00$ ksi | $F_u = 58.00$ ksi |
| <b>Base Plate</b> | P0.50x8.00x8.0<br>0 | A572 Gr.50        | $F_y = 50.00$ ksi | $F_u = 65.00$ ksi |

**Input Data:**

|                           |              |                                                          |
|---------------------------|--------------|----------------------------------------------------------|
| <b>Axial</b>              | -4.22 kips   | Axial load on the column                                 |
| <b>Strong Axis Shear</b>  | 0.00 kips    | Shear load on the column that causes strong axis bending |
| <b>Weak Axis Shear</b>    | 1.71 kips    | Shear load on the column that causes weak axis bending   |
| <b>Strong Axis Moment</b> | 0.00 kips-in | Column moment about the strong axis                      |
| <b>Weak Axis Moment</b>   | 0.00 kips-in | Column moment about the weak axis                        |

Note: Unless specified, all code references are from AISC 360-10

| Limit State                              | Required                          | Available                                                     | Unity Check         | Result |
|------------------------------------------|-----------------------------------|---------------------------------------------------------------|---------------------|--------|
| Geometry Restrictions                    |                                   |                                                               |                     | PASS   |
| Check Min Bolt Spacing                   | Pass                              | Condition: $S_{min} \geq (2+2/3)d_{bolt}$ (J3.3)              |                     |        |
| $S_{min}$                                | 5.75 in                           | Min bolt spacing                                              |                     |        |
| $d_{bolt}$                               | 0.63 in                           | Anchor bolt diameter                                          |                     |        |
| Check Min Edge Distance                  | Pass                              | Condition: $ED_{min} \geq ED_{allow}$ (J3.4)                  |                     |        |
| $ED_{min}$                               | 1.13 in                           | Min edge distance (plate)                                     |                     |        |
| $ED_{allow}$                             | 1.13 in                           | Total min edge distance                                       |                     |        |
| Check Max Edge Distance                  | Pass                              | Condition: $ED_{max} \leq \min(6.00 \text{ in}, 12*t)$ (J3.5) |                     |        |
| $ED_{max}$                               | 1.13 in                           | Max edge distance (plate)                                     |                     |        |
| $ED_{allow}$                             | 6.00 in                           | Max edge distance                                             |                     |        |
| $t$                                      | 0.50 in                           | Thickness of base plate                                       |                     |        |
| Check Anchor Bolt Encroachment on Column | Pass                              |                                                               |                     |        |
| Plate Flexural Yielding(Tension)         | 2.03 kips-in                      | 5.71 kips-in                                                  | 0.36                | PASS   |
| $M_n = b_e * F_y * t_p^2 / 4$            |                                   | $\Omega = 1.67$                                               | (AISC DG1 (3.3.13)) |        |
| $b_e$                                    | 3.05 in                           | Effective width of plate section (corner bolt)                |                     |        |
| $F_y$                                    | 50.00 ksi                         | Minimum yield strength of base plate                          |                     |        |
| $t_p$                                    | 0.50 in                           | Thickness of base plate                                       |                     |        |
| $M_n/\Omega$                             | 5.71 kips-in                      | Base plate bending strength                                   |                     |        |
| $T$                                      | 1.05 kips                         | Tension force in anchor bolt                                  |                     |        |
| $x$                                      | 1.92 in                           | Moment arm for anchor bolt                                    |                     |        |
| $M_{pl}$                                 | 2.03 kips-in                      | Bending moment caused by tension at bolt, $M_{pl}=T*x$        |                     |        |
| Anchor Bolt Tension                      |                                   |                                                               |                     | N/A    |
| $R_n = F_{nt} * A_b$                     |                                   | $\Omega = 2.00$                                               | (J3-2)              |        |
| Prying effects are ignored               |                                   |                                                               |                     |        |
| Check User Note Limit:                   | $f_{rt}/(F_{nt}/\Omega) \leq 0.3$ |                                                               |                     |        |
| $f_{rt}$                                 | 3.44 ksi                          | Required tensile stress = $T_{bolt} / A_b$                    |                     |        |

continued on next page...



**Max Tension and Shear - LC8: ASD Results Report (continued):**

| Limit State                                                                                                                                                              | Required             | Available                                                                                    | Unity Check | Result |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------|-------------|--------|
| F <sub>nt</sub>                                                                                                                                                          | 43.50 ksi            | Nominal tensile stress, per Table J3.2                                                       |             |        |
| Because f <sub>rt</sub> /(F <sub>nt</sub> /Ω) <= 0.3, the Bolt Tensile Check is not required                                                                             |                      |                                                                                              |             |        |
| T <sub>bolt</sub>                                                                                                                                                        | 1.05 kips            | Tension at bolts                                                                             |             |        |
| A <sub>b</sub>                                                                                                                                                           | 0.31 in <sup>2</sup> | Bolt cross sectional area                                                                    |             |        |
| R <sub>n</sub> /Ω                                                                                                                                                        | 6.67 kips            | Bolt tensile strength                                                                        |             |        |
| Anchor Bolt Shear                                                                                                                                                        | 1.71 kips            | 8.01 kips                                                                                    | 0.21        | PASS   |
| R <sub>n</sub> = F <sub>nv</sub> * A <sub>b</sub> * N <sub>bolt</sub>                                                                                                    |                      | Ω = 2.00                                                                                     | (J3-1)      |        |
| V <sub>uy</sub>                                                                                                                                                          | 0.00 kips            | Strong axis shear                                                                            |             |        |
| V <sub>uz</sub>                                                                                                                                                          | 1.71 kips            | Weak axis shear                                                                              |             |        |
| V <sub>u</sub> = (V <sub>uy</sub> <sup>2</sup> + V <sub>uz</sub> <sup>2</sup> ) <sup>0.5</sup>                                                                           | 1.71 kips            | Resultant shear force                                                                        |             |        |
| F <sub>nv</sub>                                                                                                                                                          | 26.10 ksi            | Shear stress N type                                                                          |             |        |
| A <sub>b</sub>                                                                                                                                                           | 0.31 in <sup>2</sup> | Area of bolt                                                                                 |             |        |
| N <sub>bolt</sub>                                                                                                                                                        | 2                    | Number of bolts (per AISC DG1, Section 3.5.3)                                                |             |        |
| R <sub>n</sub> /Ω                                                                                                                                                        | 8.01 kips            | Bolt shear rupture strength                                                                  |             |        |
| Anchor Bolt Bearing on Base Plate                                                                                                                                        | 1.71 kips            | 8.01 kips                                                                                    | 0.21        | PASS   |
| R <sub>n</sub> = N <sub>bolt</sub> * min(1.5*L <sub>c</sub> *t <sub>p</sub> *F <sub>u</sub> , 3.0*d <sub>b</sub> *t <sub>p</sub> *F <sub>u</sub> , R <sub>n-bolt</sub> ) |                      | Ω = 2.00                                                                                     | (J3-6b)     |        |
| V <sub>u</sub>                                                                                                                                                           | 1.71 kips            | Resultant shear force, see 'Anchor Bolt Shear' check                                         |             |        |
| N <sub>bolt</sub>                                                                                                                                                        | 2                    | Number of bolts (per AISC DG1, Section 3.5.3)                                                |             |        |
| Θ                                                                                                                                                                        | 0.00 degrees         | Angle between the resultant shear force and z-axis                                           |             |        |
| e <sub>y</sub>                                                                                                                                                           | 1.13 in              | Edge distance y                                                                              |             |        |
| e <sub>z</sub>                                                                                                                                                           | 1.13 in              | Edge distance z                                                                              |             |        |
| d <sub>c</sub>                                                                                                                                                           | 0.59 in              | Distance from center of bolt to the edge of hole                                             |             |        |
| L <sub>c</sub>                                                                                                                                                           | 0.53 in              | Minimum clear distance for the weakest bolt: L <sub>c</sub> =e <sub>z</sub> – d <sub>c</sub> |             |        |
| t <sub>p</sub>                                                                                                                                                           | 0.50 in              | Thickness of base plate                                                                      |             |        |
| d <sub>b</sub>                                                                                                                                                           | 0.63 in              | Bolt diameter                                                                                |             |        |
| F <sub>u</sub>                                                                                                                                                           | 65.00 ksi            | Minimum tensile stress of material                                                           |             |        |
| R <sub>n-bolt</sub>                                                                                                                                                      | 8.01 kips            | Bolt shear strength, R <sub>n-bolt</sub> =F <sub>nv</sub> *A <sub>bolt</sub>                 |             |        |
| F <sub>nv</sub>                                                                                                                                                          | 26.10 ksi            | Nominal shear stress of bolt                                                                 |             |        |
| A <sub>bolt</sub>                                                                                                                                                        | 0.31 in <sup>2</sup> | Area of bolt                                                                                 |             |        |
| Rn/Ω                                                                                                                                                                     | 8.01 kips            | Bolt bearing strength                                                                        |             |        |
| Column Weld Limitations                                                                                                                                                  |                      |                                                                                              |             | PASS   |
| Weld Min Size                                                                                                                                                            |                      |                                                                                              | (J2.2b)     |        |
| Check Weld Min Size                                                                                                                                                      | Pass                 |                                                                                              |             |        |
| D                                                                                                                                                                        | 0.25 in              | Weld size                                                                                    |             |        |
| D <sub>min</sub>                                                                                                                                                         | 0.13 in              | Min size allowed per Table J2.4                                                              |             |        |
| t <sub>min</sub>                                                                                                                                                         | 0.12 in              | Controlling member thickness                                                                 |             |        |
| Column Flange Weld Strength                                                                                                                                              | 0.65 kips/in         | 2.02 kips/in                                                                                 | 0.32        | PASS   |
| Rn/Ω = C <sub>1</sub> * α * 0.928 * D <sub>16</sub>                                                                                                                      |                      |                                                                                              |             |        |
| Single Fillet                                                                                                                                                            |                      |                                                                                              |             |        |
| 0.928 = 0.6 * F <sub>E70</sub> * 2 <sup>0.5</sup> /2 * 1/16 / Ω, Ω=2.00 (AISC 14 <sup>th</sup> Eqn 8-2b)                                                                 |                      |                                                                                              |             |        |
| C <sub>1</sub>                                                                                                                                                           | 1.00                 | Electrode strength coefficient (AISC 14 <sup>th</sup> table 8-3)                             |             |        |
| t                                                                                                                                                                        | 0.12 in              | Base material thickness (column)                                                             |             |        |

continued on next page...

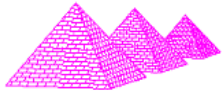
**Max Tension and Shear - LC8: ASD Results Report (continued):**

| Limit State                                                                                                                                                         | Required     | Available                                                                        | Unity Check | Result      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------|-------------|-------------|
| $\alpha$                                                                                                                                                            | 0.54         | Base material proration factor (re-arrangement of AISC 14 <sup>th</sup> Eqn 9-2) |             |             |
| $D_{16}$                                                                                                                                                            | 4.00         | Weld fillet size in sixteenths of an inch                                        |             |             |
| $r_u$                                                                                                                                                               | 0.56 kips/in | Required strength of the weld for in-plane force                                 |             |             |
| $r_o$                                                                                                                                                               | 0.34 kips/in | Required strength of the weld for out-of-plane force (tensile)                   |             |             |
| $r_{3d}$                                                                                                                                                            | 0.65 kips/in | Resultant force $r_{3d} = (r_u^2 + r_o^2)^{0.5}$                                 |             |             |
| $Rn/\Omega$                                                                                                                                                         | 2.02 kips/in | Weld strength                                                                    |             |             |
| <b>Column Web Weld Strength</b>                                                                                                                                     | 0.29 kips/in | 2.02 kips/in                                                                     | <b>0.14</b> | <b>PASS</b> |
| $Rn/\Omega = C_1 * \alpha * 0.928 * D_{16}$<br>Single Fillet<br>$0.928 = 0.6 * F_{E70} * 2^{0.5} / 2 * 1/16 / \Omega, \Omega=2.00$ (AISC 14 <sup>th</sup> Eqn 8-2b) |              |                                                                                  |             |             |
| $C_1$                                                                                                                                                               | 1.00         | Electrode strength coefficient (AISC 14 <sup>th</sup> table 8-3)                 |             |             |
| $t$                                                                                                                                                                 | 0.12 in      | Base material thickness (column)                                                 |             |             |
| $\alpha$                                                                                                                                                            | 0.54         | Base material proration factor (re-arrangement of AISC 14 <sup>th</sup> Eqn 9-2) |             |             |
| $D_{16}$                                                                                                                                                            | 4.00         | Weld fillet size in sixteenths of an inch                                        |             |             |
| $r_u$                                                                                                                                                               | 0.00 kips/in | Required strength of the weld for in-plane force                                 |             |             |
| $r_o$                                                                                                                                                               | 0.29 kips/in | Required strength of the weld for out-of-plane force (tensile)                   |             |             |
| $r_{3d}$                                                                                                                                                            | 0.29 kips/in | Resultant force $r_{3d} = (r_u^2 + r_o^2)^{0.5}$                                 |             |             |
| $Rn/\Omega$                                                                                                                                                         | 2.02 kips/in | Weld strength                                                                    |             |             |

## Max Tension and Shear - LC8: Connection Properties Report

Single Column Base Plate Connection

|                             |                                     |
|-----------------------------|-------------------------------------|
| <b>Connection</b>           |                                     |
| Connection Title            | Max Tension and Shear - LC8         |
| Connection Type             | Single Column Base Plate Connection |
| <b>Connection Category</b>  |                                     |
| Bolt Layout                 | Four                                |
| Plate Washers               | No                                  |
| <b>Loading (ASD)</b>        |                                     |
| Axial                       | -4.218 kips                         |
| Strong Axis Shear           | 0.000 kips                          |
| Weak Axis Shear             | 1.708 kips                          |
| Strong Axis Moment          | 0.000 kips-in                       |
| Weak Axis Moment            | 0.000 kips-in                       |
| <b>Components</b>           |                                     |
| Column Section              | HSS6X2X2                            |
| Material                    | A500 Gr.B Rect                      |
| Base Plate                  | P0.50x8.00x8.00                     |
| Material                    | A572 Gr.50                          |
| Length                      | 8.000 in                            |
| Width                       | 8.000 in                            |
| Thickness                   | 0.500 in                            |
| Static Friction Coefficient | 0.550 Coeff                         |
| Hole Type                   | XOVS                                |
| Concrete Support            | C120.00x18.00x12.00                 |
| Length                      | 120.000 in                          |
| Width                       | 18.000 in                           |
| Thickness                   |                                     |
| Compressive Strength (f'c)  | 3.000 ksi                           |
| Anchor Bolts                | 5/8" F1554 Gr.36-N                  |
| Material                    | F1554 Gr.36-N                       |
| Diameter, in.               | 5/8"                                |
| Bolt Spacing y              | 5.750 in                            |
| Bolt Spacing z              | 5.750 in                            |
| Column Weld                 | E70                                 |
| Type                        | Fillet                              |
| Fillet Size                 | 4.000 Sixteenths                    |
| <b>Assembly</b>             |                                     |
| Edge Distance y             | 1.125 in                            |
| Edge Distance z             | 1.125 in                            |



## Soil Anchor Design

PROJECT NUMBER

100x250x35 Ocean Highway and Port Auth

DESIGNER

A K Das

=Input

=Calculation

### Soil Anchor Check

Max Uplift at Anchors = 6.034 kips

Max Shear at Anchors = 3.663 kips

as per page: Joint 1 &amp; Joint 2

Anchored Connection

2000

lbs

Medium Soil with Limerock and Asphalt

Ultimate Pullout Strength

Type of Soil

2

Facto of Safety

1000

lbs

Allowable Pullout Strength

400

lbs

Alloawble Shear Strength

# of Vertical Anchors at Truss

3

# of sloped Anchors =

8

Angle of slope,  $\phi$  =

15

Pullout capacity = Pullout Strength \* # of vertical Anchors + Pullout Strength \* # of Sloped Anchors Cos ( $\phi$ )

Allowable Pullout Capacity =

10.73 kips

Shear capacity = Shear Strength \* total # of Anchors + Pullout Strength \* # of Sloped Anchors Sin ( $\phi$ )

Allowable shear Capacity =

6.47 kips

Pullout Capacity = 10.7 kips

Shear Capacity = 6.5 kips

&gt;

6.034 kips

&gt;

3.663 kips



## TRUSS ANALYSIS & DESIGN – END PANEL TRUSS:

Pages 2,000 - 2,999

Job: 100x250x35 Ocean Highway and Port Auth

Designer:

A K Das

Date:

10/17/2019

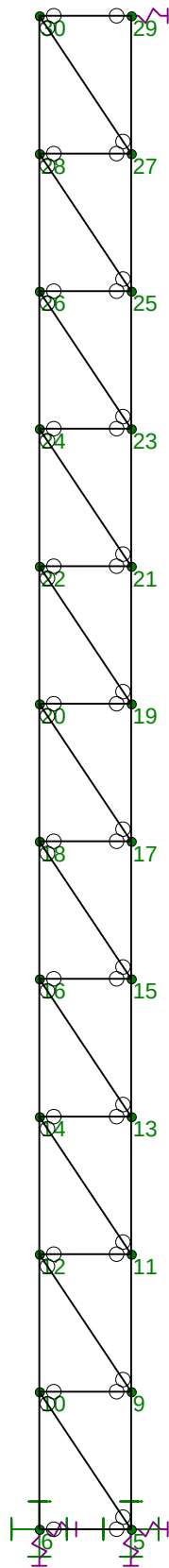
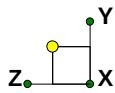
Tributary Width = 19 ft

Wind Load

|           |        |     |   |    |    |   |        |     |
|-----------|--------|-----|---|----|----|---|--------|-----|
| Wind (+)= | -19.43 | psf | x | 19 | ft | = | -369.2 | plf |
| Wind (-)= | 22.68  | psf | x | 19 | ft | = | 430.9  | plf |

Design  
Loads  
Used





Envelope Only Solution

Big Top Manufacturing

A K Das

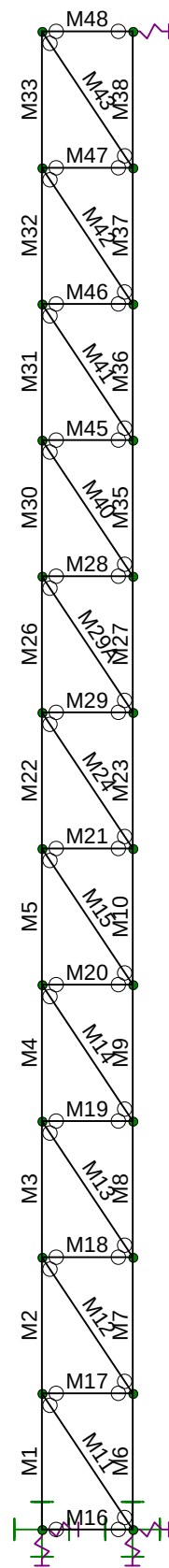
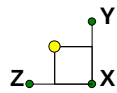
221-229

100x250x35 Ocean Highway and Port Authority

SK - 1

Dec 20, 2021 at 11:45 AM

End Panel Truss - Single Chord.r3d



Envelope Only Solution

Big Top Manufacturing

A K Das

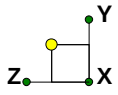
221-229

100x250x35 Ocean Highway and Port Authority

SK - 2

Dec 20, 2021 at 11:46 AM

End Panel Truss - Single Chord.r3d



Material Sets

 A500 RECT


Envelope Only Solution

Big Top Manufacturing

A K Das

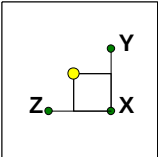
221-229

100x250x35 Ocean Highway and Port Authority

SK - 3

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End Panel Truss - Single Chord.r3d

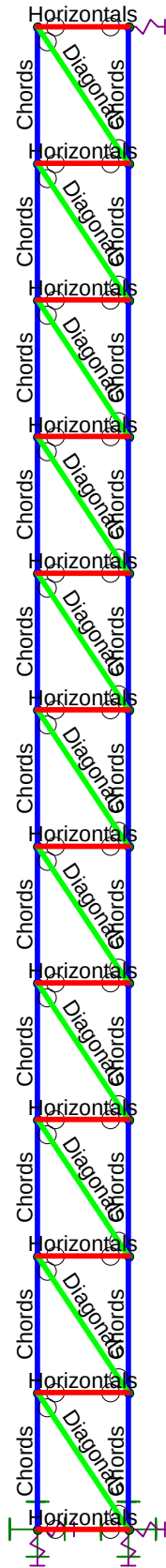


Section Sets

Chords

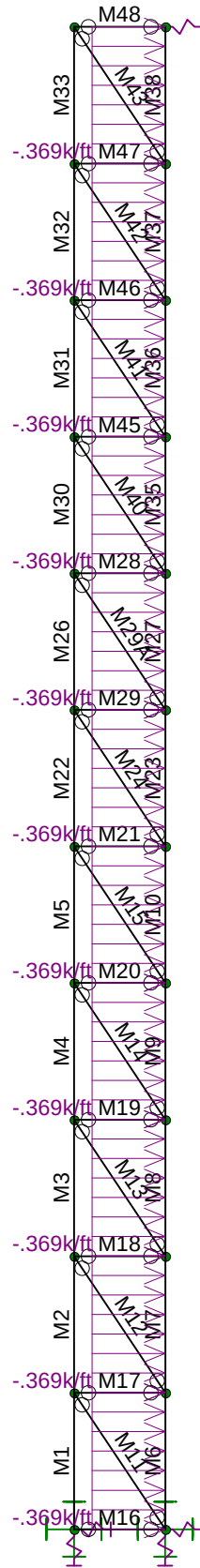
Diagonals

Horizontals



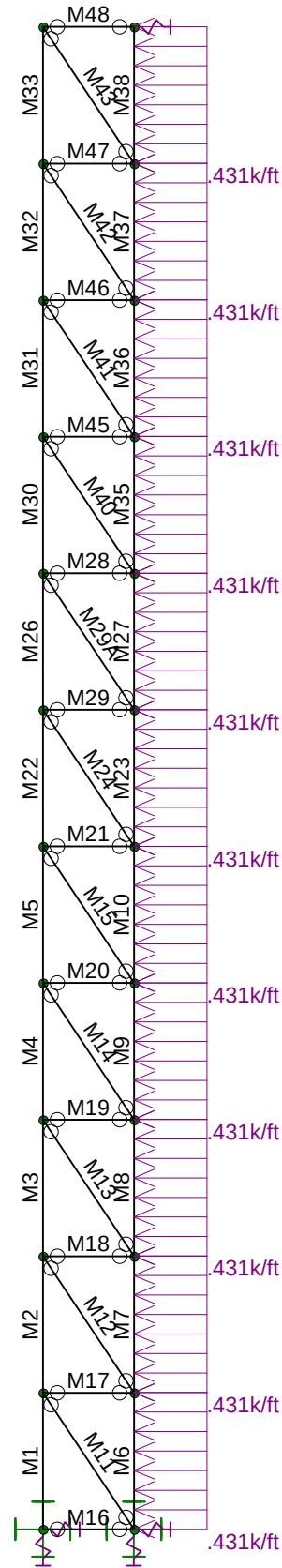
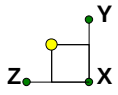
Envelope Only Solution

|                       |                                             |                                    |
|-----------------------|---------------------------------------------|------------------------------------|
| Big Top Manufacturing | 100x250x35 Ocean Highway and Port Authority | SK - 4                             |
| A K Das               |                                             | Dec 20, 2021 at 11:46 AM           |
| 221-229               |                                             | End Panel Truss - Single Chord.r3d |



221-229

End Panel Truss - Single Chord.r3d



Loads: BLC 3, WL-Z  
Envelope Only Solution

Big Top Manufacturing

A K Das

221-229

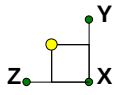
100x250x35 Ocean Highway and Port Authority

SK - 6

Dec 20, 2021 at 11:47 AM

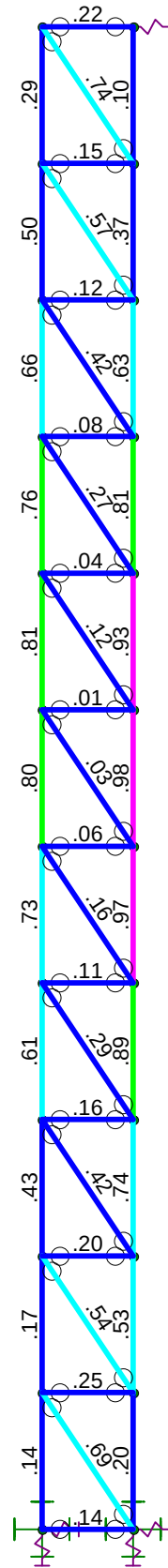
End Panel Truss - Single Chord.r3d





Code Check  
( Env )

|            |         |
|------------|---------|
| Black      | No Calc |
| Red        | > 1.0   |
| Magenta    | .90-1.0 |
| Cyan       | .75-.90 |
| Light Blue | .50-.75 |
| Dark Blue  | 0.-.50  |



Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

|                       |                                             |                                    |
|-----------------------|---------------------------------------------|------------------------------------|
| Big Top Manufacturing | 100x250x35 Ocean Highway and Port Authority | SK - 7                             |
| A K Das               |                                             | Dec 20, 2021 at 11:48 AM           |
| 221-229               |                                             | End Panel Truss - Single Chord.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 RECT      | 29000   | 11154   | .3 | .65           | .49             | 50         | 1.5 | 55      | 1.2 |

### Hot Rolled Steel Section Sets

|   | Label       | Shape                 | Type | Design List | Material  | Design R... | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|-------------|-----------------------|------|-------------|-----------|-------------|---------|-----------|-----------|---------|
| 1 | Chords      | 2" x 3" x 0.085       | Beam | Tube        | A500 RECT | Typical     | .821    | .555      | 1.044     | 1.599   |
| 2 | Diagonals   | 1.5x1.5x0.065         | Beam | Tube        | A500 RECT | Typical     | .373    | .128      | .128      | .192    |
| 3 | Horizontals | 1.75" x 1.75" x 0.085 | Beam | Tube        | A500 RECT | Typical     | .566    | .262      | .262      | .392    |

### Joint Coordinates and Temperatures

|    | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Di... |
|----|-------|--------|--------|--------|----------|-------------------|
| 1  | 5     | 0      | 0      | 0      | 0        |                   |
| 2  | 6     | 0      | 0      | 2      | 0        |                   |
| 3  | 9     | 0      | 3      | 0      | 0        |                   |
| 4  | 10    | 0      | 3      | 2      | 0        |                   |
| 5  | 11    | 0      | 6      | 0      | 0        |                   |
| 6  | 12    | 0      | 6      | 2      | 0        |                   |
| 7  | 13    | 0      | 9      | 0      | 0        |                   |
| 8  | 14    | 0      | 9      | 2      | 0        |                   |
| 9  | 15    | 0      | 12     | 0      | 0        |                   |
| 10 | 16    | 0      | 12     | 2      | 0        |                   |
| 11 | 17    | 0      | 15     | 0      | 0        |                   |
| 12 | 18    | 0      | 15     | 2      | 0        |                   |
| 13 | 19    | 0      | 18     | 0      | 0        |                   |
| 14 | 20    | 0      | 18     | 2      | 0        |                   |
| 15 | 21    | 0      | 21     | 0      | 0        |                   |
| 16 | 22    | 0      | 21     | 2      | 0        |                   |
| 17 | 23    | 0      | 24     | 0      | 0        |                   |
| 18 | 24    | 0      | 24     | 2      | 0        |                   |
| 19 | 25    | 0      | 27     | 0      | 0        |                   |
| 20 | 26    | 0      | 27     | 2      | 0        |                   |
| 21 | 27    | 0      | 30     | 0      | 0        |                   |
| 22 | 28    | 0      | 30     | 2      | 0        |                   |
| 23 | 29    | 0      | 33     | 0      | 0        |                   |
| 24 | 30    | 0      | 33     | 2      | 0        |                   |

### Member Primary Data

|   | Label | I Joint | J Joint | K Joint | Rotate(deg) | Section/Shape | Type | Design List | Material  | Design Rules |
|---|-------|---------|---------|---------|-------------|---------------|------|-------------|-----------|--------------|
| 1 | M1    | 6       | 10      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 2 | M2    | 10      | 12      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 3 | M3    | 12      | 14      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 4 | M4    | 14      | 16      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 5 | M5    | 16      | 18      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 6 | M6    | 5       | 9       |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 7 | M7    | 9       | 11      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |

**Member Primary Data (Continued)**

|    | Label | I Joint | J Joint | K Joint | Rotate(deg) | Section/Shape | Type | Design List | Material  | Design Rules |
|----|-------|---------|---------|---------|-------------|---------------|------|-------------|-----------|--------------|
| 8  | M8    | 11      | 13      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 9  | M9    | 13      | 15      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 10 | M10   | 15      | 17      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 11 | M22   | 18      | 20      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 12 | M23   | 17      | 19      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 13 | M26   | 20      | 22      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 14 | M27   | 19      | 21      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 15 | M30   | 22      | 24      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 16 | M31   | 24      | 26      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 17 | M32   | 26      | 28      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 18 | M33   | 28      | 30      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 19 | M35   | 21      | 23      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 20 | M36   | 23      | 25      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 21 | M37   | 25      | 27      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 22 | M38   | 27      | 29      |         | 90          | Chords        | Beam | Tube        | A500 RECT | Typical      |
| 23 | M11   | 5       | 10      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 24 | M12   | 9       | 12      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 25 | M13   | 11      | 14      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 26 | M14   | 13      | 16      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 27 | M15   | 15      | 18      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 28 | M24   | 17      | 20      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 29 | M29A  | 19      | 22      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 30 | M40   | 21      | 24      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 31 | M41   | 23      | 26      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 32 | M42   | 25      | 28      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 33 | M43   | 27      | 30      |         |             | Diagonals     | Beam | Tube        | A500 RECT | Typical      |
| 34 | M16   | 6       | 5       |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 35 | M17   | 10      | 9       |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 36 | M18   | 12      | 11      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 37 | M19   | 14      | 13      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 38 | M20   | 16      | 15      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 39 | M21   | 18      | 17      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 40 | M29   | 20      | 19      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 41 | M28   | 21      | 22      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 42 | M45   | 23      | 24      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 43 | M46   | 25      | 26      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 44 | M47   | 27      | 28      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |
| 45 | M48   | 29      | 30      |         |             | Horizontals   | Beam | Tube        | A500 RECT | Typical      |

**Hot Rolled Steel Design Parameters**

|    | Label | Shape  | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top... | Lcomp bo... | L-torque... | Kyy | Kzz | Cb | Function |
|----|-------|--------|------------|----------|----------|--------------|-------------|-------------|-----|-----|----|----------|
| 1  | M1    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 2  | M2    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 3  | M3    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 4  | M4    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 5  | M5    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 6  | M6    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 7  | M7    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 8  | M8    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 9  | M9    | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 10 | M10   | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 11 | M22   | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 12 | M23   | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 13 | M26   | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 14 | M27   | Chords | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |

### Hot Rolled Steel Design Parameters (Continued)

|    | Label | Shape       | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top... | Lcomp bo... | L-torque... | Kyy | Kzz | Cb | Function |
|----|-------|-------------|------------|----------|----------|--------------|-------------|-------------|-----|-----|----|----------|
| 15 | M30   | Chords      | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 16 | M31   | Chords      | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 17 | M32   | Chords      | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 18 | M33   | Chords      | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 19 | M35   | Chords      | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 20 | M36   | Chords      | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 21 | M37   | Chords      | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 22 | M38   | Chords      | 3          | 6        |          | 6            | 6           | 6           | .7  | .7  |    | Lateral  |
| 23 | M11   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 24 | M12   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 25 | M13   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 26 | M14   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 27 | M15   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 28 | M24   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 29 | M29A  | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 30 | M40   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 31 | M41   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 32 | M42   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 33 | M43   | Diagonals   | 3.606      |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 34 | M16   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 35 | M17   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 36 | M18   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 37 | M19   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 38 | M20   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 39 | M21   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 40 | M29   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 41 | M28   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 42 | M45   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 43 | M46   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 44 | M47   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |
| 45 | M48   | Horizontals | 2          |          |          |              |             |             | .7  | .7  |    | Lateral  |

### 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 | 5           | Reaction | S25      | S25      |                  | Reaction         | Reaction         |
| 2 | 6           | Reaction | S25      | S25      |                  | Reaction         | Reaction         |
| 3 | 29          | Reaction |          | S25      |                  |                  |                  |

### Basic Load Cases

|   | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed Area(Me... | Surface(P... |
|---|-----------------|----------|-----------|-----------|-----------|-------|-------|------------------------|--------------|
| 1 | DL              | DL       |           | -1        |           |       |       |                        |              |
| 2 | WL+Z            | WL+Z     |           |           |           |       |       | 11                     |              |
| 3 | WL-Z            | WL-Z     |           |           |           |       |       | 11                     |              |

### Joint Loads and Enforced Displacements

| Joint Label          | L,D,M | Direction | Magnitude[(k,k-ft), (in,rad), (k*s^2/ft... |
|----------------------|-------|-----------|--------------------------------------------|
| No Data to Print ... |       |           |                                            |

### Member Distributed Loads (BLC 2 : WL+Z)

|    | Member Label | Direction | Start Magnitude[k/ft,... | End Magnitude[k/ft,F,... | Start Location[ft, %] | End Location[ft, %] |
|----|--------------|-----------|--------------------------|--------------------------|-----------------------|---------------------|
| 1  | M6           | y         | -.369                    | -.369                    | 0                     | 0                   |
| 2  | M7           | y         | -.369                    | -.369                    | 0                     | 0                   |
| 3  | M8           | y         | -.369                    | -.369                    | 0                     | 0                   |
| 4  | M9           | y         | -.369                    | -.369                    | 0                     | 0                   |
| 5  | M10          | y         | -.369                    | -.369                    | 0                     | 0                   |
| 6  | M23          | y         | -.369                    | -.369                    | 0                     | 0                   |
| 7  | M27          | y         | -.369                    | -.369                    | 0                     | 0                   |
| 8  | M35          | y         | -.369                    | -.369                    | 0                     | 0                   |
| 9  | M36          | y         | -.369                    | -.369                    | 0                     | 0                   |
| 10 | M37          | y         | -.369                    | -.369                    | 0                     | 0                   |
| 11 | M38          | y         | -.369                    | -.369                    | 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  | M23          | y         | .431                     | .431                     | 0                     | 0                   |
| 2  | M10          | y         | .431                     | .431                     | 0                     | 0                   |
| 3  | M9           | y         | .431                     | .431                     | 0                     | 0                   |
| 4  | M8           | y         | .431                     | .431                     | 0                     | 0                   |
| 5  | M7           | y         | .431                     | .431                     | 0                     | 0                   |
| 6  | M6           | y         | .431                     | .431                     | 0                     | 0                   |
| 7  | M27          | y         | .431                     | .431                     | 0                     | 0                   |
| 8  | M35          | y         | .431                     | .431                     | 0                     | 0                   |
| 9  | M36          | y         | .431                     | .431                     | 0                     | 0                   |
| 10 | M37          | y         | .431                     | .431                     | 0                     | 0                   |
| 11 | M38          | y         | .431                     | .431                     | 0                     | 0                   |

### Load Combinations

|    | Description    | Sol. | PDelta | SR | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. | BLC Fact. |
|----|----------------|------|--------|----|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1  | IBC 16-8       | Yes  | Y      |    | DL        | 1         |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 2  | IBC 16-9       | Yes  | Y      |    | DL        | 1         | LL        | 1         | LLS       | 1         |           |           |           |           |           |           |           |           |           |
| 3  | IBC 16-12...   | Yes  | Y      |    | DL        | 1         | W...      | .6        |           |           |           |           |           |           |           |           |           |           |           |
| 4  | IBC 16-13...   | Yes  | Y      |    | DL        | 1         | W...      | .45       | LL        | .75       | LLS       | .75       |           |           |           |           |           |           |           |
| 5  | IBC 16-15      | Yes  | Y      |    | DL        | .6        | W...      | .6        |           |           |           |           |           |           |           |           |           |           |           |
| 6  | IBC 16-12...   | Yes  | Y      |    | DL        | 1         | W...      | .6        |           |           |           |           |           |           |           |           |           |           |           |
| 7  | IBC 16-13...   | Yes  | Y      |    | DL        | 1         | W...      | .45       | LL        | .75       | LLS       | .75       |           |           |           |           |           |           |           |
| 8  | IBC 16-15      | Yes  | Y      |    | DL        | .6        | W...      | .6        |           |           |           |           |           |           |           |           |           |           |           |
| 9  | DL             |      | Y      |    | DL        | 1         |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 10 | WL+Z           |      | Y      |    | W...      | 1         |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 11 | WL-Z           |      | Y      |    | W...      | 1         |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 12 | IBC 16-1       |      | Y      |    | DL        | 1.4       |           |           |           |           |           |           |           |           |           |           |           |           |           |
| 13 | IBC 16-2 (...) |      | Y      |    | DL        | 1.2       | LL        | 1.6       | LLS       | 1.6       |           |           |           |           |           |           |           |           |           |
| 14 | IBC 16-3 (...) |      | Y      |    | DL        | 1.2       | W...      | .5        |           |           |           |           |           |           |           |           |           |           |           |
| 15 | IBC 16-4 (...) |      | Y      |    | DL        | 1.2       | W...      | 1         | LL        | .5        | LLS       | 1         |           |           |           |           |           |           |           |
| 16 | IBC 16-6       |      | Y      |    | DL        | .9        | W...      | 1         |           |           |           |           |           |           |           |           |           |           |           |
| 17 | IBC 16-3 (...) |      | Y      |    | DL        | 1.2       | W...      | .5        |           |           |           |           |           |           |           |           |           |           |           |
| 18 | IBC 16-4 (...) |      | Y      |    | DL        | 1.2       | W...      | 1         | LL        | .5        | LLS       | 1         |           |           |           |           |           |           |           |
| 19 | IBC 16-6       |      | Y      |    | DL        | .9        | W...      | 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 | M1     | 1   | max | 2.708    | 6  | .013       | 5  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 2 |        |     | min | -2.166   | 5  | -.016      | 6  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |

### Envelope Member Section Forces (Continued)

| Member | Sec |     | Axial[k] | LC     | y Shear[k] | LC   | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|--------|-----|-----|----------|--------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 3      | 2   | max | 2.706    | 6      | .013       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .012        | 6  |
| 4      |     | min | -2.168   | 5      | -.016      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.01        | 5  |
| 5      | 3   | max | 2.704    | 6      | .013       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .024        | 6  |
| 6      |     | min | -2.169   | 5      | -.016      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.02        | 5  |
| 7      | 4   | max | 2.702    | 6      | .013       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .035        | 6  |
| 8      |     | min | -2.17    | 5      | -.016      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.03        | 5  |
| 9      | 5   | max | 2.699    | 6      | .013       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .047        | 6  |
| 10     |     | min | -2.172   | 5      | -.016      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 5  |
| 11     | M2  | 1   | max      | 3.126  | 3          | .015 | 3          | 0  | 8            | 0  | 8           | 0  | .047        | 6  |
| 12     |     | min | -3.477   | 8      | -.017      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.04        | 5  |
| 13     | 2   | max | 3.123    | 3      | .015       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .06         | 6  |
| 14     |     | min | -3.478   | 8      | -.017      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.051       | 5  |
| 15     | 3   | max | 3.121    | 3      | .015       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .073        | 6  |
| 16     |     | min | -3.48    | 8      | -.017      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.062       | 5  |
| 17     | 4   | max | 3.119    | 3      | .015       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .086        | 6  |
| 18     |     | min | -3.481   | 8      | -.017      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.073       | 3  |
| 19     | 5   | max | 3.117    | 3      | .015       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .098        | 6  |
| 20     |     | min | -3.482   | 8      | -.017      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.084       | 3  |
| 21     | M3  | 1   | max      | 7.245  | 3          | .009 | 3          | 0  | 8            | 0  | 8           | 0  | .098        | 6  |
| 22     |     | min | -8.298   | 8      | -.01       | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.084       | 3  |
| 23     | 2   | max | 7.243    | 3      | .009       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .106        | 6  |
| 24     |     | min | -8.299   | 8      | -.01       | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.091       | 3  |
| 25     | 3   | max | 7.241    | 3      | .009       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .114        | 6  |
| 26     |     | min | -8.3     | 8      | -.01       | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.098       | 3  |
| 27     | 4   | max | 7.239    | 3      | .009       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .122        | 6  |
| 28     |     | min | -8.302   | 8      | -.01       | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.104       | 3  |
| 29     | 5   | max | 7.237    | 3      | .009       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .13         | 6  |
| 30     |     | min | -8.303   | 8      | -.01       | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.111       | 3  |
| 31     | M4  | 1   | max      | 10.41  | 3          | .006 | 3          | 0  | 8            | 0  | 8           | 0  | .13         | 6  |
| 32     |     | min | -12.003  | 8      | -.008      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.111       | 3  |
| 33     | 2   | max | 10.408   | 3      | .006       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .135        | 6  |
| 34     |     | min | -12.004  | 8      | -.008      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.116       | 3  |
| 35     | 3   | max | 10.406   | 3      | .006       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .141        | 6  |
| 36     |     | min | -12.005  | 8      | -.008      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.121       | 3  |
| 37     | 4   | max | 10.404   | 3      | .006       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .147        | 6  |
| 38     |     | min | -12.006  | 8      | -.008      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.125       | 3  |
| 39     | 5   | max | 10.402   | 3      | .006       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .152        | 6  |
| 40     |     | min | -12.008  | 8      | -.008      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.13        | 3  |
| 41     | M5  | 1   | max      | 12.579 | 3          | .003 | 5          | 0  | 8            | 0  | 8           | 0  | .152        | 6  |
| 42     |     | min | -14.547  | 8      | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.13        | 3  |
| 43     | 2   | max | 12.577   | 3      | .003       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .155        | 6  |
| 44     |     | min | -14.548  | 8      | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.133       | 3  |
| 45     | 3   | max | 12.575   | 3      | .003       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .158        | 6  |
| 46     |     | min | -14.55   | 8      | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.136       | 3  |
| 47     | 4   | max | 12.573   | 3      | .003       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .162        | 6  |
| 48     |     | min | -14.551  | 8      | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.138       | 3  |
| 49     | 5   | max | 12.57    | 3      | .003       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .165        | 6  |
| 50     |     | min | -14.552  | 8      | -.004      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 3  |
| 51     | M6  | 1   | max      | 3.635  | 6          | .28  | 5          | 0  | 8            | 0  | 8           | 0  | 0           | 8  |
| 52     |     | min | -2.958   | 5      | -.326      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 53     | 2   | max | 3.633    | 6      | .113       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .172        | 6  |
| 54     |     | min | -2.96    | 5      | -.133      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.147       | 5  |
| 55     | 3   | max | 3.631    | 6      | .061       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .199        | 6  |
| 56     |     | min | -2.961   | 5      | -.053      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.17        | 5  |
| 57     | 4   | max | 3.628    | 6      | .255       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .08         | 6  |
| 58     |     | min | -2.962   | 5      | -.219      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 5  |
| 59     | 5   | max | 3.626    | 6      | .449       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .158        | 3  |



### Envelope Member Section Forces (Continued)

| Member | Sec |     | Axial[k] | LC     | v Shear[k] | LC   | z Shear[k] | LC | Torque[k-... | LC | v-v Mome... | LC | z-z Mome... | LC |
|--------|-----|-----|----------|--------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 60     |     | min | -2.963   | 5      | -.385      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.184       | 8  |
| 61     | M7  | 1   | max      | 8.454  | 6          | .36  | 3          | 0  | 8            | 0  | 8           | 0  | .158        | 3  |
| 62     |     | min | -7.084   | 5      | -.42       | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.184       | 8  |
| 63     |     | 2   | max      | 8.452  | 6          | .194 | 3          | 0  | 8            | 0  | 8           | 0  | .058        | 6  |
| 64     |     | min | -7.085   | 5      | -.227      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.05        | 5  |
| 65     |     | 3   | max      | 8.449  | 6          | .028 | 3          | 0  | 8            | 0  | 8           | 0  | .156        | 6  |
| 66     |     | min | -7.087   | 5      | -.033      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.133       | 3  |
| 67     |     | 4   | max      | 8.447  | 6          | .161 | 8          | 0  | 8            | 0  | 8           | 0  | .107        | 6  |
| 68     |     | min | -7.088   | 5      | -.138      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.092       | 3  |
| 69     |     | 5   | max      | 8.445  | 6          | .355 | 8          | 0  | 8            | 0  | 8           | 0  | .074        | 5  |
| 70     |     | min | -7.089   | 5      | -.304      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.086       | 8  |
| 71     | M8  | 1   | max      | 12.155 | 6          | .338 | 3          | 0  | 8            | 0  | 8           | 0  | .074        | 5  |
| 72     |     | min | -10.257  | 5      | -.394      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.086       | 8  |
| 73     |     | 2   | max      | 12.153 | 6          | .172 | 3          | 0  | 8            | 0  | 8           | 0  | .137        | 6  |
| 74     |     | min | -10.258  | 5      | -.2        | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.117       | 3  |
| 75     |     | 3   | max      | 12.15  | 6          | .006 | 3          | 0  | 8            | 0  | 8           | 0  | .214        | 6  |
| 76     |     | min | -10.259  | 5      | -.006      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.184       | 3  |
| 77     |     | 4   | max      | 12.148 | 6          | .187 | 6          | 0  | 8            | 0  | 8           | 0  | .146        | 6  |
| 78     |     | min | -10.261  | 5      | -.16       | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.126       | 3  |
| 79     |     | 5   | max      | 12.146 | 6          | .381 | 6          | 0  | 8            | 0  | 8           | 0  | .057        | 5  |
| 80     |     | min | -10.262  | 5      | -.327      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.067       | 8  |
| 81     | M9  | 1   | max      | 14.693 | 6          | .34  | 3          | 0  | 8            | 0  | 8           | 0  | .057        | 5  |
| 82     |     | min | -12.435  | 5      | -.394      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.067       | 8  |
| 83     |     | 2   | max      | 14.691 | 6          | .173 | 3          | 0  | 8            | 0  | 8           | 0  | .156        | 8  |
| 84     |     | min | -12.437  | 5      | -.2        | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.135       | 3  |
| 85     |     | 3   | max      | 14.689 | 6          | .007 | 3          | 0  | 8            | 0  | 8           | 0  | .234        | 8  |
| 86     |     | min | -12.438  | 5      | -.007      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.203       | 3  |
| 87     |     | 4   | max      | 14.687 | 6          | .187 | 6          | 0  | 8            | 0  | 8           | 0  | .166        | 8  |
| 88     |     | min | -12.439  | 5      | -.159      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.146       | 3  |
| 89     |     | 5   | max      | 14.684 | 6          | .381 | 6          | 0  | 8            | 0  | 8           | 0  | .035        | 5  |
| 90     |     | min | -12.441  | 5      | -.325      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 6  |
| 91     | M10 | 1   | max      | 16.074 | 6          | .336 | 5          | 0  | 8            | 0  | 8           | 0  | .035        | 5  |
| 92     |     | min | -13.63   | 5      | -.39       | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.048       | 6  |
| 93     |     | 2   | max      | 16.072 | 6          | .169 | 5          | 0  | 8            | 0  | 8           | 0  | .172        | 8  |
| 94     |     | min | -13.631  | 5      | -.196      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.154       | 3  |
| 95     |     | 3   | max      | 16.07  | 6          | .003 | 5          | 0  | 8            | 0  | 8           | 0  | .246        | 8  |
| 96     |     | min | -13.633  | 5      | -.003      | 7    | 0          | 1  | 0            | 1  | 0           | 1  | -.219       | 3  |
| 97     |     | 4   | max      | 16.068 | 6          | .192 | 6          | 0  | 8            | 0  | 8           | 0  | .175        | 8  |
| 98     |     | min | -13.634  | 5      | -.163      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.159       | 3  |
| 99     |     | 5   | max      | 16.066 | 6          | .386 | 6          | 0  | 8            | 0  | 8           | 0  | .025        | 5  |
| 100    |     | min | -13.635  | 5      | -.329      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.042       | 6  |
| 101    | M22 | 1   | max      | 13.759 | 3          | 0    | 5          | 0  | 8            | 0  | 8           | 0  | .165        | 6  |
| 102    |     | min | -15.94   | 8      | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 3  |
| 103    |     | 2   | max      | 13.757 | 3          | 0    | 5          | 0  | 8            | 0  | 8           | 0  | .165        | 6  |
| 104    |     | min | -15.941  | 8      | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 3  |
| 105    |     | 3   | max      | 13.755 | 3          | 0    | 5          | 0  | 8            | 0  | 8           | 0  | .166        | 6  |
| 106    |     | min | -15.943  | 8      | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.142       | 3  |
| 107    |     | 4   | max      | 13.753 | 3          | 0    | 5          | 0  | 8            | 0  | 8           | 0  | .166        | 6  |
| 108    |     | min | -15.944  | 8      | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.142       | 3  |
| 109    |     | 5   | max      | 13.751 | 3          | 0    | 5          | 0  | 8            | 0  | 8           | 0  | .167        | 6  |
| 110    |     | min | -15.945  | 8      | 0          | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.143       | 3  |
| 111    | M23 | 1   | max      | 16.292 | 6          | .333 | 5          | 0  | 8            | 0  | 8           | 0  | .025        | 5  |
| 112    |     | min | -13.839  | 5      | -.389      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.042       | 6  |
| 113    |     | 2   | max      | 16.29  | 6          | .167 | 5          | 0  | 8            | 0  | 8           | 0  | .178        | 8  |
| 114    |     | min | -13.84   | 5      | -.195      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.162       | 3  |
| 115    |     | 3   | max      | 16.288 | 6          | 0    | 5          | 0  | 8            | 0  | 8           | 0  | .251        | 8  |
| 116    |     | min | -13.841  | 5      | -.001      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.225       | 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 |
|--------|-----|-----|----------|--------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 117    | 4   | max | 16.286   | 6      | .192       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .18         | 8  |
| 118    |     | min | -13.843  | 5      | -.166      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.163       | 3  |
| 119    | 5   | max | 16.284   | 6      | .386       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .024        | 5  |
| 120    |     | min | -13.844  | 5      | -.332      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.037       | 6  |
| 121    | M26 | 1   | max      | 13.949 | 3          | .003 | 6          | 0  | 8            | 0  | 8           | 0  | .167        | 6  |
| 122    |     | min | -16.176  | 8      | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.143       | 3  |
| 123    | 2   | max | 13.947   | 3      | .003       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .165        | 6  |
| 124    |     | min | -16.177  | 8      | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.141       | 3  |
| 125    | 3   | max | 13.945   | 3      | .003       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .162        | 6  |
| 126    |     | min | -16.178  | 8      | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.139       | 3  |
| 127    | 4   | max | 13.943   | 3      | .003       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .16         | 6  |
| 128    |     | min | -16.18   | 8      | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.137       | 3  |
| 129    | 5   | max | 13.941   | 3      | .003       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .158        | 6  |
| 130    |     | min | -16.181  | 8      | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.135       | 3  |
| 131    | M27 | 1   | max      | 15.348 | 6          | .33  | 5          | 0  | 8            | 0  | 8           | 0  | .024        | 5  |
| 132    |     | min | -13.062  | 5      | -.388      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.037       | 6  |
| 133    | 2   | max | 15.346   | 6      | .164       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .181        | 8  |
| 134    |     | min | -13.064  | 5      | -.194      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.162       | 3  |
| 135    | 3   | max | 15.344   | 6      | .002       | 7    | 0          | 8  | 0            | 8  | 0           | 8  | .253        | 8  |
| 136    |     | min | -13.065  | 5      | -.002      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.222       | 3  |
| 137    | 4   | max | 15.342   | 6      | .194       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .181        | 8  |
| 138    |     | min | -13.066  | 5      | -.168      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.158       | 3  |
| 139    | 5   | max | 15.34    | 6      | .388       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .03         | 5  |
| 140    |     | min | -13.067  | 5      | -.334      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.038       | 6  |
| 141    | M30 | 1   | max      | 13.149 | 3          | .006 | 6          | 0  | 8            | 0  | 8           | 0  | .158        | 6  |
| 142    |     | min | -15.256  | 8      | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.135       | 3  |
| 143    | 2   | max | 13.147   | 3      | .006       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .154        | 6  |
| 144    |     | min | -15.258  | 8      | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.132       | 3  |
| 145    | 3   | max | 13.145   | 3      | .006       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .149        | 6  |
| 146    |     | min | -15.259  | 8      | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.128       | 3  |
| 147    | 4   | max | 13.143   | 3      | .006       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .145        | 6  |
| 148    |     | min | -15.26   | 8      | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.124       | 3  |
| 149    | 5   | max | 13.141   | 3      | .006       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .141        | 6  |
| 150    |     | min | -15.261  | 8      | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.121       | 3  |
| 151    | M31 | 1   | max      | 11.36  | 3          | .011 | 6          | 0  | 8            | 0  | 8           | 0  | .141        | 6  |
| 152    |     | min | -13.188  | 8      | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.121       | 3  |
| 153    | 2   | max | 11.358   | 3      | .011       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .133        | 6  |
| 154    |     | min | -13.189  | 8      | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.114       | 5  |
| 155    | 3   | max | 11.356   | 3      | .011       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .125        | 6  |
| 156    |     | min | -13.191  | 8      | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.107       | 5  |
| 157    | 4   | max | 11.354   | 3      | .011       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .117        | 6  |
| 158    |     | min | -13.192  | 8      | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.1         | 5  |
| 159    | 5   | max | 11.352   | 3      | .011       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .108        | 6  |
| 160    |     | min | -13.193  | 8      | -.009      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.093       | 5  |
| 161    | M32 | 1   | max      | 8.579  | 3          | .009 | 6          | 0  | 8            | 0  | 8           | 0  | .108        | 6  |
| 162    |     | min | -9.965   | 8      | -.008      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.093       | 5  |
| 163    | 2   | max | 8.576    | 3      | .009       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .102        | 6  |
| 164    |     | min | -9.966   | 8      | -.008      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.087       | 5  |
| 165    | 3   | max | 8.574    | 3      | .009       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .095        | 6  |
| 166    |     | min | -9.968   | 8      | -.008      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.082       | 5  |
| 167    | 4   | max | 8.572    | 3      | .009       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .088        | 6  |
| 168    |     | min | -9.969   | 8      | -.008      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.076       | 5  |
| 169    | 5   | max | 8.57     | 3      | .009       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .082        | 6  |
| 170    |     | min | -9.97    | 8      | -.008      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.07        | 5  |
| 171    | M33 | 1   | max      | 4.829  | 3          | .027 | 6          | 0  | 8            | 0  | 8           | 0  | .082        | 6  |
| 172    |     | min | -5.612   | 8      | -.023      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.07        | 5  |
| 173    | 2   | max | 4.826    | 3      | .027       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .061        | 6  |

### 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 |
|--------|-----|-----|----------|-------|------------|------|------------|----|--------------|----|-------------|----|-------------|----|
| 174    |     | min | -5.614   | 8     | -.023      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.053       | 5  |
| 175    | 3   | max | 4.824    | 3     | .027       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .041        | 6  |
| 176    |     | min | -5.615   | 8     | -.023      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.035       | 5  |
| 177    | 4   | max | 4.822    | 3     | .027       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .02         | 6  |
| 178    |     | min | -5.616   | 8     | -.023      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.018       | 5  |
| 179    | 5   | max | 4.82     | 3     | .027       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 180    |     | min | -5.617   | 8     | -.023      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 181    | M35 | 1   | max      | 13.25 | 6          | .326 | 5          | 0  | 8            | 0  | 8           | 0  | .03         | 5  |
| 182    |     | min | -11.301  | 5     | -.382      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.038       | 6  |
| 183    | 2   | max | 13.247   | 6     | .16        | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .176        | 6  |
| 184    |     | min | -11.302  | 5     | -.188      | 6    | 0          | 1  | 0            | 1  | 0           | 1  | -.152       | 3  |
| 185    | 3   | max | 13.245   | 6     | .006       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .244        | 6  |
| 186    |     | min | -11.304  | 5     | -.006      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.21        | 3  |
| 187    | 4   | max | 13.243   | 6     | .2         | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .167        | 6  |
| 188    |     | min | -11.305  | 5     | -.172      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.143       | 3  |
| 189    | 5   | max | 13.241   | 6     | .394       | 8    | 0          | 8  | 0            | 8  | 0           | 8  | .048        | 3  |
| 190    |     | min | -11.306  | 5     | -.338      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.056       | 8  |
| 191    | M36 | 1   | max      | 9.992 | 6          | .328 | 5          | 0  | 8            | 0  | 8           | 0  | .048        | 3  |
| 192    |     | min | -8.55    | 5     | -.382      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.056       | 8  |
| 193    | 2   | max | 9.99     | 6     | .161       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .158        | 6  |
| 194    |     | min | -8.551   | 5     | -.188      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.135       | 5  |
| 195    | 3   | max | 9.988    | 6     | .006       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .226        | 6  |
| 196    |     | min | -8.553   | 5     | -.005      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.194       | 5  |
| 197    | 4   | max | 9.986    | 6     | .2         | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .149        | 6  |
| 198    |     | min | -8.554   | 5     | -.171      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.128       | 5  |
| 199    | 5   | max | 9.983    | 6     | .394       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .062        | 3  |
| 200    |     | min | -8.555   | 5     | -.337      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.073       | 8  |
| 201    | M37 | 1   | max      | 5.603 | 6          | .307 | 5          | 0  | 8            | 0  | 8           | 0  | .062        | 3  |
| 202    |     | min | -4.831   | 5     | -.358      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.073       | 8  |
| 203    | 2   | max | 5.601    | 6     | .141       | 5    | 0          | 8  | 0            | 8  | 0           | 8  | .123        | 6  |
| 204    |     | min | -4.833   | 5     | -.164      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.106       | 5  |
| 205    | 3   | max | 5.599    | 6     | .029       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .174        | 6  |
| 206    |     | min | -4.834   | 5     | -.025      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.149       | 5  |
| 207    | 4   | max | 5.597    | 6     | .223       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .079        | 6  |
| 208    |     | min | -4.835   | 5     | -.191      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.068       | 5  |
| 209    | 5   | max | 5.595    | 6     | .417       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .138        | 3  |
| 210    |     | min | -4.837   | 5     | -.357      | 3    | 0          | 1  | 0            | 1  | 0           | 1  | -.161       | 8  |
| 211    | M38 | 1   | max      | .01   | 2          | .378 | 3          | 0  | 8            | 0  | 8           | 0  | .138        | 3  |
| 212    |     | min | -.049    | 8     | -.442      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.161       | 8  |
| 213    | 2   | max | .008     | 2     | .212       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .097        | 6  |
| 214    |     | min | -.051    | 8     | -.248      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.083       | 5  |
| 215    | 3   | max | .006     | 2     | .046       | 3    | 0          | 8  | 0            | 8  | 0           | 8  | .21         | 6  |
| 216    |     | min | -.052    | 8     | -.054      | 8    | 0          | 1  | 0            | 1  | 0           | 1  | -.18        | 5  |
| 217    | 4   | max | .004     | 2     | .14        | 6    | 0          | 8  | 0            | 8  | 0           | 8  | .178        | 6  |
| 218    |     | min | -.053    | 8     | -.12       | 5    | 0          | 1  | 0            | 1  | 0           | 1  | -.152       | 5  |
| 219    | 5   | max | .002     | 2     | .334       | 6    | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 220    |     | min | -.054    | 8     | -.286      | 5    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 221    | M11 | 1   | max      | 6.303 | 3          | .001 | 7          | 0  | 8            | 0  | 8           | 0  | 0           | 8  |
| 222    |     | min | -7.371   | 6     | 0          | 5    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 223    | 2   | max | 6.302    | 3     | 0          | 7    | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 224    |     | min | -7.371   | 6     | 0          | 5    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 225    | 3   | max | 6.302    | 3     | 0          | 8    | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 226    |     | min | -7.372   | 6     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 227    | 4   | max | 6.301    | 3     | 0          | 8    | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 228    |     | min | -7.373   | 6     | 0          | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 229    | 5   | max | 6.3      | 3     | 0          | 8    | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 230    |     | min | -7.374   | 6     | -.001      | 1    | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |

### Envelope Member Section Forces (Continued)

|     | Member | Sec |     | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 231 | M12    | 1   | max | 4.961    | 3  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 232 |        |     | min | -5.795   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 233 |        | 2   | max | 4.96     | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 234 |        |     | min | -5.796   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 235 |        | 3   | max | 4.959    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 236 |        |     | min | -5.797   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 237 |        | 4   | max | 4.958    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 238 |        |     | min | -5.798   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 239 |        | 5   | max | 4.957    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 240 |        |     | min | -5.799   | 6  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 241 | M13    | 1   | max | 3.815    | 3  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 242 |        |     | min | -4.451   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 243 |        | 2   | max | 3.814    | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 244 |        |     | min | -4.452   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 245 |        | 3   | max | 3.813    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 246 |        |     | min | -4.452   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 247 |        | 4   | max | 3.812    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 248 |        |     | min | -4.453   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 249 |        | 5   | max | 3.811    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 250 |        |     | min | -4.454   | 6  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 251 | M14    | 1   | max | 2.619    | 3  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 252 |        |     | min | -3.053   | 8  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 253 |        | 2   | max | 2.618    | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 254 |        |     | min | -3.054   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 255 |        | 3   | max | 2.617    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 256 |        |     | min | -3.055   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 257 |        | 4   | max | 2.616    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 258 |        |     | min | -3.056   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 259 |        | 5   | max | 2.616    | 5  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 260 |        |     | min | -3.057   | 6  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 261 | M15    | 1   | max | 1.434    | 3  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 262 |        |     | min | -1.666   | 8  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 263 |        | 2   | max | 1.433    | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 264 |        |     | min | -1.667   | 8  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 265 |        | 3   | max | 1.432    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 266 |        |     | min | -1.668   | 8  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 267 |        | 4   | max | 1.431    | 5  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 268 |        |     | min | -1.668   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 269 |        | 5   | max | 1.431    | 5  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 270 |        |     | min | -1.669   | 6  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 271 | M24    | 1   | max | .245     | 3  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 272 |        |     | min | -.274    | 8  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 273 |        | 2   | max | .244     | 5  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 274 |        |     | min | -.274    | 8  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 275 |        | 3   | max | .244     | 5  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 276 |        |     | min | -.275    | 8  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 277 |        | 4   | max | .243     | 5  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 278 |        |     | min | -.275    | 8  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 279 |        | 5   | max | .243     | 5  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 280 |        |     | min | -.276    | 6  | -.001      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 281 | M29A   | 1   | max | 1.118    | 6  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 282 |        |     | min | -.944    | 5  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 283 |        | 2   | max | 1.117    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 284 |        |     | min | -.944    | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 285 |        | 3   | max | 1.116    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 286 |        |     | min | -.945    | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -.001       | 1  |
| 287 |        | 4   | max | 1.115    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |

**Envelope Member Section Forces (Continued)**

|     | Member | Sec |     | Axial[k] | LC | v Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | v-v Mome... | LC | z-z Mome... | LC |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 288 |        |     | min | -0.946   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 289 |        | 5   | max | 1.114    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 290 |        |     | min | -0.947   | 3  | -0.001     | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 291 | M40    | 1   | max | 2.499    | 6  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 292 |        |     | min | -2.132   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 293 |        | 2   | max | 2.498    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 294 |        |     | min | -2.132   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 295 |        | 3   | max | 2.497    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 296 |        |     | min | -2.133   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -0.001      | 1  |
| 297 |        | 4   | max | 2.496    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 298 |        |     | min | -2.134   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 299 |        | 5   | max | 2.495    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 300 |        |     | min | -2.135   | 3  | -0.001     | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 301 | M41    | 1   | max | 3.886    | 6  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 302 |        |     | min | -3.326   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 303 |        | 2   | max | 3.885    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 304 |        |     | min | -3.327   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 305 |        | 3   | max | 3.884    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 306 |        |     | min | -3.327   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -0.001      | 1  |
| 307 |        | 4   | max | 3.883    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 308 |        |     | min | -3.328   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 309 |        | 5   | max | 3.882    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 310 |        |     | min | -3.329   | 3  | -0.001     | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 311 | M42    | 1   | max | 5.241    | 6  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 312 |        |     | min | -4.492   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 313 |        | 2   | max | 5.24     | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 314 |        |     | min | -4.493   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 315 |        | 3   | max | 5.239    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 316 |        |     | min | -4.494   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -0.001      | 1  |
| 317 |        | 4   | max | 5.238    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 318 |        |     | min | -4.495   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 319 |        | 5   | max | 5.237    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 320 |        |     | min | -4.496   | 3  | -0.001     | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 321 | M43    | 1   | max | 6.749    | 6  | .001       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 322 |        |     | min | -5.792   | 5  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 323 |        | 2   | max | 6.748    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 324 |        |     | min | -5.793   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 325 |        | 3   | max | 6.747    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 326 |        |     | min | -5.794   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | -0.001      | 1  |
| 327 |        | 4   | max | 6.746    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 328 |        |     | min | -5.795   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 329 |        | 5   | max | 6.745    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 330 |        |     | min | -5.796   | 3  | -0.001     | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 331 | M16    | 1   | max | 2.192    | 6  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 332 |        |     | min | -1.809   | 3  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 333 |        | 2   | max | 2.192    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 334 |        |     | min | -1.809   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 335 |        | 3   | max | 2.192    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 336 |        |     | min | -1.809   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 337 |        | 4   | max | 2.192    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 338 |        |     | min | -1.809   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 339 |        | 5   | max | 2.192    | 6  | -0.001     | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 340 |        |     | min | -1.809   | 3  | -0.002     | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 341 | M17    | 1   | max | 4.086    | 6  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 342 |        |     | min | -3.495   | 3  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 343 |        | 2   | max | 4.086    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 344 |        |     | min | -3.495   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |

### Envelope Member Section Forces (Continued)

|     | Member | Sec |     | Axial[k] | LC | y Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | y-y Mome... | LC | z-z Mome... | LC |
|-----|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 345 |        | 3   | max | 4.086    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 346 |        |     | min | -3.495   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 347 |        | 4   | max | 4.086    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 348 |        |     | min | -3.495   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 349 |        | 5   | max | 4.086    | 6  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 350 |        |     | min | -3.495   | 3  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 351 | M18    | 1   | max | 3.239    | 6  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 352 |        |     | min | -2.743   | 3  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 353 |        | 2   | max | 3.239    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 354 |        |     | min | -2.743   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 355 |        | 3   | max | 3.239    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 356 |        |     | min | -2.743   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 357 |        | 4   | max | 3.239    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 358 |        |     | min | -2.743   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 359 |        | 5   | max | 3.239    | 6  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 360 |        |     | min | -2.743   | 3  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 361 | M19    | 1   | max | 2.513    | 6  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 362 |        |     | min | -2.087   | 3  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 363 |        | 2   | max | 2.513    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 364 |        |     | min | -2.087   | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 365 |        | 3   | max | 2.513    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 366 |        |     | min | -2.087   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 367 |        | 4   | max | 2.513    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 368 |        |     | min | -2.087   | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 369 |        | 5   | max | 2.513    | 6  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 370 |        |     | min | -2.087   | 3  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 371 | M20    | 1   | max | 1.759    | 6  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 372 |        |     | min | -1.41    | 3  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 373 |        | 2   | max | 1.759    | 6  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 374 |        |     | min | -1.41    | 3  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 375 |        | 3   | max | 1.759    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 376 |        |     | min | -1.41    | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 377 |        | 4   | max | 1.759    | 6  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 378 |        |     | min | -1.41    | 3  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 379 |        | 5   | max | 1.759    | 6  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 380 |        |     | min | -1.41    | 3  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 381 | M21    | 1   | max | 1.002    | 8  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 382 |        |     | min | -.743    | 5  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 383 |        | 2   | max | 1.002    | 8  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 384 |        |     | min | -.743    | 5  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 385 |        | 3   | max | 1.002    | 8  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 386 |        |     | min | -.743    | 5  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 387 |        | 4   | max | 1.002    | 8  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 388 |        |     | min | -.743    | 5  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 389 |        | 5   | max | 1.002    | 8  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 390 |        |     | min | -.743    | 5  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 391 | M29    | 1   | max | .232     | 8  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 392 |        |     | min | -.082    | 5  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 393 |        | 2   | max | .232     | 8  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 394 |        |     | min | -.082    | 5  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 395 |        | 3   | max | .232     | 8  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 396 |        |     | min | -.082    | 5  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 397 |        | 4   | max | .232     | 8  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 398 |        |     | min | -.082    | 5  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 399 |        | 5   | max | .232     | 8  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 400 |        |     | min | -.082    | 5  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 401 | M28    | 1   | max | .572     | 3  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |



### Envelope Member Section Forces (Continued)

| Member | Sec |     | Axial[k] | LC | v Shear[k] | LC | z Shear[k] | LC | Torque[k-... | LC | v-v Mome... | LC | z-z Mome... | LC |
|--------|-----|-----|----------|----|------------|----|------------|----|--------------|----|-------------|----|-------------|----|
| 402    |     | min | -.548    | 6  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 403    |     | max | .572     | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 404    |     | min | -.548    | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 405    |     | max | .572     | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 406    |     | min | -.548    | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 407    |     | max | .572     | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 408    |     | min | -.548    | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 409    |     | max | .572     | 3  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 410    |     | min | -.548    | 6  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 411    | M45 | max | 1.217    | 3  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 412    |     | min | -1.329   | 6  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 413    |     | max | 1.217    | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 414    |     | min | -1.329   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 415    |     | max | 1.217    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 416    |     | min | -1.329   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 417    |     | max | 1.217    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 418    |     | min | -1.329   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 419    |     | max | 1.217    | 3  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 420    |     | min | -1.329   | 6  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 421    | M46 | max | 1.869    | 3  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 422    |     | min | -2.127   | 6  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 423    |     | max | 1.869    | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 424    |     | min | -2.127   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 425    |     | max | 1.869    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 426    |     | min | -2.127   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 427    |     | max | 1.869    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 428    |     | min | -2.127   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 429    |     | max | 1.869    | 3  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 430    |     | min | -2.127   | 6  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 431    | M47 | max | 2.483    | 3  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 432    |     | min | -2.879   | 6  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 433    |     | max | 2.483    | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 434    |     | min | -2.879   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 435    |     | max | 2.483    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 436    |     | min | -2.879   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 437    |     | max | 2.483    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 438    |     | min | -2.879   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 439    |     | max | 2.483    | 3  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 440    |     | min | -2.879   | 6  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 441    | M48 | max | 3.233    | 3  | .002       | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 442    |     | min | -3.776   | 6  | .001       | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 443    |     | max | 3.233    | 3  | 0          | 7  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 444    |     | min | -3.776   | 6  | 0          | 5  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 445    |     | max | 3.233    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 446    |     | min | -3.776   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 447    |     | max | 3.233    | 3  | 0          | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 448    |     | min | -3.776   | 6  | 0          | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |
| 449    |     | max | 3.233    | 3  | -.001      | 8  | 0          | 8  | 0            | 8  | 0           | 8  | 0           | 8  |
| 450    |     | min | -3.776   | 6  | -.002      | 1  | 0          | 1  | 0            | 1  | 0           | 1  | 0           | 1  |

### Envelope AISC 14th(360-10): 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 | M1     | 2" x 3" x 0.085 | .145      | 0       | 6  | .002      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1  | H1-1b* |
| 2 | M2     | 2" x 3" x 0.085 | .167      | 0       | 3  | .002      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1  | H1-1b* |
| 3 | M3     | 2" x 3" x 0.085 | .435      | 3       | 3  | .001      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1  | H1-1a  |

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

|    | Member | Shape             | Code C... | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | Pnc/om [k] | Pnt/om [k] | Mnvy/om ... | Mnzz/om ... | Cb    | Egn    |
|----|--------|-------------------|-----------|---------|----|-----------|---------|-----|----|------------|------------|-------------|-------------|-------|--------|
| 4  | M4     | 2" x 3" x 0.085   | .612      | 3       | 3  | .001      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 5  | M5     | 2" x 3" x 0.085   | .733      | 3       | 3  | .000      | 0       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 6  | M6     | 2" x 3" x 0.085   | .196      | 1.25    | 6  | .054      | 3       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1b  |
| 7  | M7     | 2" x 3" x 0.085   | .531      | 0       | 6  | .050      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 8  | M8     | 2" x 3" x 0.085   | .742      | 1.531   | 6  | .047      | 0       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 9  | M9     | 2" x 3" x 0.085   | .886      | 1.531   | 6  | .047      | 0       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 10 | M10    | 2" x 3" x 0.085   | .965      | 1.5     | 6  | .046      | 0       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 11 | M22    | 2" x 3" x 0.085   | .797      | 3       | 3  | .000      | 0       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 12 | M23    | 2" x 3" x 0.085   | .979      | 1.5     | 6  | .046      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 13 | M26    | 2" x 3" x 0.085   | .808      | 0       | 3  | .000      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 14 | M27    | 2" x 3" x 0.085   | .930      | 1.5     | 6  | .046      | 3       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 15 | M30    | 2" x 3" x 0.085   | .762      | 0       | 3  | .001      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 16 | M31    | 2" x 3" x 0.085   | .660      | 0       | 3  | .001      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 17 | M32    | 2" x 3" x 0.085   | .499      | 0       | 3  | .001      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 18 | M33    | 2" x 3" x 0.085   | .289      | 0       | 3  | .003      | 0       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 19 | M35    | 2" x 3" x 0.085   | .813      | 1.469   | 6  | .047      | 3       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 20 | M36    | 2" x 3" x 0.085   | .631      | 1.469   | 6  | .047      | 3       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 21 | M37    | 2" x 3" x 0.085   | .375      | 1.375   | 6  | .050      | 3       | y   | 6  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1a  |
| 22 | M38    | 2" x 3" x 0.085   | .104      | 1.719   | 8  | .053      | 0       | y   | 8  | 18.676     | 24.581     | 1.425       | 2.086       | 1     | H1-1b  |
| 23 | M11    | 1.5x1.5x0.065     | .688      | 1.728   | 3  | .000      | 3.606   | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1a  |
| 24 | M12    | 1.5x1.5x0.065     | .542      | 1.728   | 3  | .000      | 3.606   | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1a  |
| 25 | M13    | 1.5x1.5x0.065     | .417      | 1.728   | 3  | .000      | 0       | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1a  |
| 26 | M14    | 1.5x1.5x0.065     | .287      | 1.728   | 3  | .000      | 3.606   | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1a  |
| 27 | M15    | 1.5x1.5x0.065     | .156      | 0       | 3  | .000      | 0       | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1b* |
| 28 | M24    | 1.5x1.5x0.065     | .027      | 0       | 3  | .000      | 0       | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1b* |
| 29 | M29A   | 1.5x1.5x0.065     | .122      | 0       | 6  | .000      | 0       | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1b* |
| 30 | M40    | 1.5x1.5x0.065     | .274      | 1.728   | 6  | .000      | 0       | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1a  |
| 31 | M41    | 1.5x1.5x0.065     | .425      | 1.728   | 6  | .000      | 3.606   | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1a  |
| 32 | M42    | 1.5x1.5x0.065     | .572      | 1.728   | 6  | .000      | 3.606   | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1a  |
| 33 | M43    | 1.5x1.5x0.065     | .736      | 1.728   | 6  | .000      | 0       | y   | 7  | 9.191      | 11.171     | .501        | .501        | 1.... | H1-1a  |
| 34 | M16    | 1.75" x 1.75" ... | .135      | 0       | 6  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 35 | M17    | 1.75" x 1.75" ... | .253      | 1       | 6  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1a  |
| 36 | M18    | 1.75" x 1.75" ... | .200      | 0       | 6  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 37 | M19    | 1.75" x 1.75" ... | .155      | 0       | 6  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 38 | M20    | 1.75" x 1.75" ... | .108      | 0       | 6  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 39 | M21    | 1.75" x 1.75" ... | .062      | 0       | 8  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 40 | M29    | 1.75" x 1.75" ... | .014      | 0       | 8  | .000      | 2       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 41 | M28    | 1.75" x 1.75" ... | .035      | 0       | 3  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 42 | M45    | 1.75" x 1.75" ... | .075      | 0       | 3  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 43 | M46    | 1.75" x 1.75" ... | .115      | 0       | 3  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 44 | M47    | 1.75" x 1.75" ... | .153      | 0       | 3  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1b* |
| 45 | M48    | 1.75" x 1.75" ... | .224      | 1       | 6  | .000      | 0       | y   | 7  | 16.211     | 16.949     | .883        | .883        | 1.... | H1-1a  |

**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     | 5       | max | 0     | 8  | 2.37   | 3  | 1.937     | 5  | 0         | 8  | 0         | 8  |
| 2     |         | min | 0     | 1  | -2.515 | 8  | -2.261    | 8  | 0         | 1  | 0         | 1  |
| 3     | 6       | max | 0     | 8  | 2.74   | 6  | 1.854     | 5  | 0         | 8  | 0         | 8  |
| 4     |         | min | 0     | 1  | -2.144 | 5  | -2.161    | 8  | 0         | 1  | 0         | 1  |
| 5     | 29      | max | 0     | 8  | 0      | 8  | 3.52      | 3  | 0         | 8  | 0         | 8  |
| 6     |         | min | 0     | 1  | 0      | 1  | -4.111    | 6  | 0         | 1  | 0         | 1  |
| 7     | Totals: | max | 0     | 8  | .281   | 7  | 7.31      | 5  |           |    |           |    |
| 8     |         | min | 0     | 1  | .169   | 5  | -8.532    | 6  |           |    |           |    |

### Envelope Joint Displacements

|    | Joint |     | X [in] | LC | Y [in] | LC | Z [in] | LC | X Rotation... | LC | Y Rotation... | LC | Z Rotation ... | LC |
|----|-------|-----|--------|----|--------|----|--------|----|---------------|----|---------------|----|----------------|----|
| 1  | 5     | max | 0      | 8  | .101   | 8  | .09    | 8  | 1.212e-2      | 6  | 0             | 8  | 0              | 8  |
| 2  |       | min | 0      | 1  | -.095  | 3  | -.077  | 5  | -1.038e-2     | 3  | 0             | 1  | 0              | 1  |
| 3  | 6     | max | 0      | 8  | .086   | 5  | .086   | 8  | 1.097e-2      | 6  | 0             | 8  | 0              | 8  |
| 4  |       | min | 0      | 1  | -.11   | 6  | -.074  | 5  | -9.384e-3     | 3  | 0             | 1  | 0              | 1  |
| 5  | 9     | max | 0      | 8  | .094   | 8  | .484   | 6  | 1.031e-2      | 6  | 0             | 8  | 0              | 8  |
| 6  |       | min | 0      | 1  | -.089  | 3  | -.414  | 3  | -8.82e-3      | 3  | 0             | 1  | 0              | 1  |
| 7  | 10    | max | 0      | 8  | .09    | 5  | .476   | 6  | 1.055e-2      | 6  | 0             | 8  | 0              | 8  |
| 8  |       | min | 0      | 1  | -.115  | 6  | -.408  | 3  | -9.027e-3     | 3  | 0             | 1  | 0              | 1  |
| 9  | 11    | max | 0      | 8  | .078   | 8  | .842   | 6  | 9.263e-3      | 6  | 0             | 8  | 0              | 8  |
| 10 |       | min | 0      | 1  | -.076  | 3  | -.72   | 3  | -7.928e-3     | 3  | 0             | 1  | 0              | 1  |
| 11 | 12    | max | 0      | 8  | .084   | 5  | .836   | 6  | 9.252e-3      | 6  | 0             | 8  | 0              | 8  |
| 12 |       | min | 0      | 1  | -.108  | 6  | -.715  | 3  | -7.92e-3      | 3  | 0             | 1  | 0              | 1  |
| 13 | 13    | max | 0      | 8  | .055   | 8  | 1.139  | 6  | 7.173e-3      | 6  | 0             | 8  | 0              | 8  |
| 14 |       | min | 0      | 1  | -.057  | 3  | -.974  | 3  | -6.137e-3     | 3  | 0             | 1  | 0              | 1  |
| 15 | 14    | max | 0      | 8  | .07    | 5  | 1.134  | 6  | 7.22e-3       | 6  | 0             | 8  | 0              | 8  |
| 16 |       | min | 0      | 1  | -.093  | 6  | -.971  | 3  | -6.181e-3     | 3  | 0             | 1  | 0              | 1  |
| 17 | 15    | max | 0      | 8  | .027   | 8  | 1.353  | 6  | 4.686e-3      | 6  | 0             | 8  | 0              | 8  |
| 18 |       | min | 0      | 1  | -.033  | 3  | -1.158 | 3  | -3.998e-3     | 3  | 0             | 1  | 0              | 1  |
| 19 | 16    | max | 0      | 8  | .051   | 5  | 1.35   | 6  | 4.707e-3      | 6  | 0             | 8  | 0              | 8  |
| 20 |       | min | 0      | 1  | -.07   | 6  | -1.155 | 3  | -4.03e-3      | 3  | 0             | 1  | 0              | 1  |
| 21 | 17    | max | 0      | 8  | -.003  | 8  | 1.471  | 6  | 1.844e-3      | 6  | 0             | 8  | 0              | 8  |
| 22 |       | min | 0      | 1  | -.008  | 3  | -1.259 | 3  | -1.578e-3     | 5  | 0             | 1  | 0              | 1  |
| 23 | 18    | max | 0      | 8  | .027   | 5  | 1.469  | 6  | 1.881e-3      | 6  | 0             | 8  | 0              | 8  |
| 24 |       | min | 0      | 1  | -.043  | 6  | -1.258 | 3  | -1.612e-3     | 5  | 0             | 1  | 0              | 1  |
| 25 | 19    | max | 0      | 8  | .021   | 5  | 1.484  | 6  | 9.476e-4      | 3  | 0             | 8  | 0              | 8  |
| 26 |       | min | 0      | 1  | -.036  | 6  | -1.27  | 3  | -1.124e-3     | 6  | 0             | 1  | 0              | 1  |
| 27 | 20    | max | 0      | 8  | .001   | 5  | 1.484  | 6  | 9.153e-4      | 3  | 0             | 8  | 0              | 8  |
| 28 |       | min | 0      | 1  | -.012  | 6  | -1.27  | 3  | -1.074e-3     | 6  | 0             | 1  | 0              | 1  |
| 29 | 21    | max | 0      | 8  | .046   | 5  | 1.392  | 6  | 3.431e-3      | 3  | 0             | 8  | 0              | 8  |
| 30 |       | min | 0      | 1  | -.065  | 6  | -1.191 | 3  | -4.026e-3     | 6  | 0             | 1  | 0              | 1  |
| 31 | 22    | max | 0      | 8  | .021   | 8  | 1.393  | 6  | 3.395e-3      | 3  | 0             | 8  | 0              | 8  |
| 32 |       | min | 0      | 1  | -.028  | 3  | -1.192 | 3  | -3.971e-3     | 6  | 0             | 1  | 0              | 1  |
| 33 | 23    | max | 0      | 8  | .067   | 5  | 1.198  | 6  | 5.697e-3      | 3  | 0             | 8  | 0              | 8  |
| 34 |       | min | 0      | 1  | -.09   | 6  | -1.026 | 3  | -6.657e-3     | 6  | 0             | 1  | 0              | 1  |
| 35 | 24    | max | 0      | 8  | .05    | 8  | 1.201  | 6  | 5.678e-3      | 3  | 0             | 8  | 0              | 8  |
| 36 |       | min | 0      | 1  | -.053  | 3  | -1.028 | 3  | -6.636e-3     | 6  | 0             | 1  | 0              | 1  |
| 37 | 25    | max | 0      | 8  | .084   | 5  | .916   | 6  | 7.673e-3      | 3  | 0             | 8  | 0              | 8  |
| 38 |       | min | 0      | 1  | -.109  | 6  | -.784  | 3  | -8.966e-3     | 6  | 0             | 1  | 0              | 1  |
| 39 | 26    | max | 0      | 8  | .075   | 8  | .92    | 6  | 7.584e-3      | 3  | 0             | 8  | 0              | 8  |
| 40 |       | min | 0      | 1  | -.074  | 3  | -.788  | 3  | -8.859e-3     | 6  | 0             | 1  | 0              | 1  |
| 41 | 27    | max | 0      | 8  | .093   | 5  | .564   | 6  | 8.849e-3      | 3  | 0             | 8  | 0              | 8  |
| 42 |       | min | 0      | 1  | -.12   | 6  | -.483  | 3  | -1.033e-2     | 6  | 0             | 1  | 0              | 1  |
| 43 | 28    | max | 0      | 8  | .093   | 8  | .569   | 6  | 9.041e-3      | 3  | 0             | 8  | 0              | 8  |
| 44 |       | min | 0      | 1  | -.09   | 3  | -.487  | 3  | -1.056e-2     | 6  | 0             | 1  | 0              | 1  |
| 45 | 29    | max | 0      | 8  | .093   | 5  | .164   | 6  | 1.058e-2      | 3  | 0             | 8  | 0              | 8  |
| 46 |       | min | 0      | 1  | -.12   | 6  | -.141  | 3  | -1.235e-2     | 6  | 0             | 1  | 0              | 1  |
| 47 | 30    | max | 0      | 8  | .104   | 8  | .171   | 6  | 9.669e-3      | 3  | 0             | 8  | 0              | 8  |
| 48 |       | min | 0      | 1  | -.099  | 3  | -.147  | 3  | -1.129e-2     | 6  | 0             | 1  | 0              | 1  |

### 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 | M1     | 1   | max | .086   | 5  | .086   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 2 |        |     | min | -.11   | 6  | -.074  | 5  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 3 |        | 2   | max | .087   | 5  | .185   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |

### Envelope Member Section Deflections Service (Continued)

| Member | Sec |     | x [in] | LC   | y [in] | LC | z [in] | LC | x Rotate [r...] | LC | (n) L/V Ratio | LC | (n) L/z' Ratio | LC |
|--------|-----|-----|--------|------|--------|----|--------|----|-----------------|----|---------------|----|----------------|----|
| 4      |     | min | -.111  | 6    | -.159  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 5      | 3   | max | .088   | 5    | .283   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 6      |     | min | -.112  | 6    | -.243  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 7      | 4   | max | .089   | 5    | .381   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 8      |     | min | -.113  | 6    | -.326  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 9      | 5   | max | .09    | 5    | .476   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 10     |     | min | -.115  | 6    | -.408  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 11     | M2  | 1   | max    | .09  | .476   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 12     |     | min | -.115  | 6    | -.408  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 13     | 2   | max | .088   | 5    | .57    | 6  | 0      | 8  | 0               | 8  | NC            | 7  | NC             | 8  |
| 14     |     | min | -.113  | 6    | -.488  | 3  | 0      | 1  | 0               | 1  | 8725.482      | 6  | NC             | 1  |
| 15     | 3   | max | .087   | 5    | .662   | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 16     |     | min | -.111  | 6    | -.567  | 3  | 0      | 1  | 0               | 1  | 6162.482      | 6  | NC             | 1  |
| 17     | 4   | max | .085   | 5    | .751   | 6  | 0      | 8  | 0               | 8  | NC            | 7  | NC             | 8  |
| 18     |     | min | -.11   | 6    | -.642  | 3  | 0      | 1  | 0               | 1  | 7763.88       | 6  | NC             | 1  |
| 19     | 5   | max | .084   | 5    | .836   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 20     |     | min | -.108  | 6    | -.715  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 21     | M3  | 1   | max    | .084 | .836   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 22     |     | min | -.108  | 6    | -.715  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 23     | 2   | max | .081   | 5    | .917   | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 24     |     | min | -.104  | 6    | -.785  | 3  | 0      | 1  | 0               | 1  | 5372.548      | 6  | NC             | 1  |
| 25     | 3   | max | .077   | 5    | .994   | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 26     |     | min | -.1    | 6    | -.851  | 3  | 0      | 1  | 0               | 1  | 3937.007      | 6  | NC             | 1  |
| 27     | 4   | max | .074   | 5    | 1.066  | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 28     |     | min | -.097  | 6    | -.913  | 3  | 0      | 1  | 0               | 1  | 5131.662      | 6  | NC             | 1  |
| 29     | 5   | max | .07    | 5    | 1.134  | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 30     |     | min | -.093  | 6    | -.971  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 31     | M4  | 1   | max    | .07  | 1.134  | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 32     |     | min | -.093  | 6    | -.971  | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 33     | 2   | max | .066   | 5    | 1.196  | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 34     |     | min | -.087  | 6    | -1.024 | 3  | 0      | 1  | 0               | 1  | 4300.977      | 6  | NC             | 1  |
| 35     | 3   | max | .061   | 5    | 1.253  | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 36     |     | min | -.081  | 6    | -1.073 | 3  | 0      | 1  | 0               | 1  | 3182.497      | 6  | NC             | 1  |
| 37     | 4   | max | .056   | 5    | 1.305  | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 38     |     | min | -.076  | 6    | -1.117 | 3  | 0      | 1  | 0               | 1  | 4187.205      | 6  | NC             | 1  |
| 39     | 5   | max | .051   | 5    | 1.35   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 40     |     | min | -.07   | 6    | -1.155 | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 41     | M5  | 1   | max    | .051 | 1.35   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 42     |     | min | -.07   | 6    | -1.155 | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 43     | 2   | max | .045   | 5    | 1.389  | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 44     |     | min | -.063  | 6    | -1.189 | 3  | 0      | 1  | 0               | 1  | 3798.989      | 6  | NC             | 1  |
| 45     | 3   | max | .039   | 5    | 1.422  | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 46     |     | min | -.056  | 6    | -1.217 | 3  | 0      | 1  | 0               | 1  | 2830.72       | 6  | NC             | 1  |
| 47     | 4   | max | .033   | 5    | 1.449  | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 48     |     | min | -.049  | 6    | -1.24  | 3  | 0      | 1  | 0               | 1  | 3749.918      | 6  | NC             | 1  |
| 49     | 5   | max | .027   | 5    | 1.469  | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 50     |     | min | -.043  | 6    | -1.258 | 3  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 51     | M6  | 1   | max    | .101 | .09    | 8  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 52     |     | min | -.095  | 3    | -.077  | 5  | 0      | 1  | 0               | 1  | NC            | 1  | NC             | 1  |
| 53     | 2   | max | .099   | 8    | .198   | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 54     |     | min | -.093  | 3    | -.17   | 3  | 0      | 1  | 0               | 1  | 3895.766      | 6  | NC             | 1  |
| 55     | 3   | max | .097   | 8    | .299   | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 56     |     | min | -.092  | 3    | -.256  | 3  | 0      | 1  | 0               | 1  | 2984.645      | 6  | NC             | 1  |
| 57     | 4   | max | .096   | 8    | .393   | 6  | 0      | 8  | 0               | 8  | NC            | 2  | NC             | 8  |
| 58     |     | min | -.091  | 3    | -.336  | 3  | 0      | 1  | 0               | 1  | 4869.63       | 6  | NC             | 1  |
| 59     | 5   | max | .094   | 8    | .484   | 6  | 0      | 8  | 0               | 8  | NC            | 8  | NC             | 8  |
| 60     |     | min | -.089  | 3    | -.414  | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|-----------------|----|----------------|----|----------------|----|
| 61  | M7     | 1   | max | .094   | 8  | .484   | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 62  |        |     | min | -.089  | 3  | -.414  | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 63  |        | 2   | max | .09    | 8  | .579   | 6  | 0      | 8  | 0               | 8  | NC             | 4  | NC             | 8  |
| 64  |        |     | min | -.086  | 3  | -.495  | 3  | 0      | 1  | 0               | 1  | 6888.34        | 6  | NC             | 1  |
| 65  |        | 3   | max | .086   | 8  | .671   | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 66  |        |     | min | -.083  | 3  | -.575  | 3  | 0      | 1  | 0               | 1  | 4188.346       | 6  | NC             | 1  |
| 67  |        | 4   | max | .082   | 8  | .758   | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 68  |        |     | min | -.079  | 3  | -.649  | 3  | 0      | 1  | 0               | 1  | 5799.295       | 6  | NC             | 1  |
| 69  |        | 5   | max | .078   | 8  | .842   | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 70  |        |     | min | -.076  | 3  | -.72   | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 71  | M8     | 1   | max | .078   | 8  | .842   | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 72  |        |     | min | -.076  | 3  | -.72   | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 73  |        | 2   | max | .072   | 8  | .925   | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 74  |        |     | min | -.071  | 3  | -.792  | 3  | 0      | 1  | 0               | 1  | 3936.693       | 6  | NC             | 1  |
| 75  |        | 3   | max | .067   | 8  | 1.003  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 76  |        |     | min | -.066  | 3  | -.859  | 3  | 0      | 1  | 0               | 1  | 2707.865       | 6  | NC             | 1  |
| 77  |        | 4   | max | .061   | 8  | 1.074  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 78  |        |     | min | -.062  | 3  | -.919  | 3  | 0      | 1  | 0               | 1  | 3855.159       | 6  | NC             | 1  |
| 79  |        | 5   | max | .055   | 8  | 1.139  | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 80  |        |     | min | -.057  | 3  | -.974  | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 81  | M9     | 1   | max | .055   | 8  | 1.139  | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 82  |        |     | min | -.057  | 3  | -.974  | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 83  |        | 2   | max | .048   | 8  | 1.203  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 84  |        |     | min | -.051  | 3  | -1.029 | 3  | 0      | 1  | 0               | 1  | 3418.236       | 6  | NC             | 1  |
| 85  |        | 3   | max | .041   | 8  | 1.261  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 86  |        |     | min | -.045  | 3  | -1.079 | 3  | 0      | 1  | 0               | 1  | 2373.266       | 6  | NC             | 1  |
| 87  |        | 4   | max | .034   | 8  | 1.31   | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 88  |        |     | min | -.039  | 3  | -1.121 | 3  | 0      | 1  | 0               | 1  | 3354.683       | 6  | NC             | 1  |
| 89  |        | 5   | max | .027   | 8  | 1.353  | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 90  |        |     | min | -.033  | 3  | -1.158 | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 91  | M10    | 1   | max | .027   | 8  | 1.353  | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 92  |        |     | min | -.033  | 3  | -1.158 | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 93  |        | 2   | max | .02    | 8  | 1.395  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 94  |        |     | min | -.027  | 3  | -1.193 | 3  | 0      | 1  | 0               | 1  | 3025.624       | 6  | NC             | 1  |
| 95  |        | 3   | max | .012   | 8  | 1.429  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 96  |        |     | min | -.02   | 3  | -1.223 | 3  | 0      | 1  | 0               | 1  | 2124.522       | 6  | NC             | 1  |
| 97  |        | 4   | max | .005   | 8  | 1.454  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 98  |        |     | min | -.014  | 3  | -1.244 | 3  | 0      | 1  | 0               | 1  | 3009.874       | 6  | NC             | 1  |
| 99  |        | 5   | max | -.003  | 8  | 1.471  | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 100 |        |     | min | -.008  | 3  | -1.259 | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 101 | M22    | 1   | max | .027   | 5  | 1.469  | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 102 |        |     | min | -.043  | 6  | -1.258 | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 103 |        | 2   | max | .021   | 5  | 1.483  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 104 |        |     | min | -.035  | 6  | -1.269 | 3  | 0      | 1  | 0               | 1  | 3613.554       | 6  | NC             | 1  |
| 105 |        | 3   | max | .014   | 5  | 1.49   | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 106 |        |     | min | -.027  | 6  | -1.275 | 3  | 0      | 1  | 0               | 1  | 2707.325       | 6  | NC             | 1  |
| 107 |        | 4   | max | .008   | 5  | 1.49   | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 108 |        |     | min | -.02   | 6  | -1.276 | 3  | 0      | 1  | 0               | 1  | 3605.987       | 6  | NC             | 1  |
| 109 |        | 5   | max | .001   | 5  | 1.484  | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 110 |        |     | min | -.012  | 6  | -1.27  | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 111 | M23    | 1   | max | -.003  | 8  | 1.471  | 6  | 0      | 8  | 0               | 8  | NC             | 8  | NC             | 8  |
| 112 |        |     | min | -.008  | 3  | -1.259 | 3  | 0      | 1  | 0               | 1  | NC             | 1  | NC             | 1  |
| 113 |        | 2   | max | .002   | 5  | 1.487  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 114 |        |     | min | -.013  | 6  | -1.272 | 3  | 0      | 1  | 0               | 1  | 2914.332       | 6  | NC             | 1  |
| 115 |        | 3   | max | .008   | 5  | 1.495  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |
| 116 |        |     | min | -.021  | 6  | -1.279 | 3  | 0      | 1  | 0               | 1  | 2051.131       | 6  | NC             | 1  |
| 117 |        | 4   | max | .015   | 5  | 1.493  | 6  | 0      | 8  | 0               | 8  | NC             | 2  | NC             | 8  |



### Envelope Member Section Deflections Service (Continued)

|     | Member | Sec |     | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 118 |        |     | min | -.029  | 6  | -1.278 | 3  | 0      | 1  | 0              | 1  | 2903.05        | 6  | NC             | 1  |
| 119 |        | 5   | max | .021   | 5  | 1.484  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 120 |        |     | min | -.036  | 6  | -1.27  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 121 | M26    | 1   | max | .001   | 5  | 1.484  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 122 |        |     | min | -.012  | 6  | -1.27  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 123 |        | 2   | max | -.002  | 8  | 1.471  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 124 |        |     | min | -.008  | 3  | -1.259 | 3  | 0      | 1  | 0              | 1  | 3666.552       | 6  | NC             | 1  |
| 125 |        | 3   | max | .006   | 8  | 1.451  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 126 |        |     | min | -.015  | 3  | -1.242 | 3  | 0      | 1  | 0              | 1  | 2762.133       | 6  | NC             | 1  |
| 127 |        | 4   | max | .013   | 8  | 1.425  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 128 |        |     | min | -.021  | 3  | -1.22  | 3  | 0      | 1  | 0              | 1  | 3699.281       | 6  | NC             | 1  |
| 129 |        | 5   | max | .021   | 8  | 1.393  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 130 |        |     | min | -.028  | 3  | -1.192 | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 131 | M27    | 1   | max | .021   | 5  | 1.484  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 132 |        |     | min | -.036  | 6  | -1.27  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 133 |        | 2   | max | .027   | 5  | 1.473  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 134 |        |     | min | -.044  | 6  | -1.261 | 3  | 0      | 1  | 0              | 1  | 2981.934       | 6  | NC             | 1  |
| 135 |        | 3   | max | .034   | 5  | 1.455  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 136 |        |     | min | -.051  | 6  | -1.245 | 3  | 0      | 1  | 0              | 1  | 2104.307       | 6  | NC             | 1  |
| 137 |        | 4   | max | .04    | 5  | 1.427  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 138 |        |     | min | -.058  | 6  | -1.221 | 3  | 0      | 1  | 0              | 1  | 2982.256       | 6  | NC             | 1  |
| 139 |        | 5   | max | .046   | 5  | 1.392  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 140 |        |     | min | -.065  | 6  | -1.191 | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 141 | M30    | 1   | max | .021   | 8  | 1.393  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 142 |        |     | min | -.028  | 3  | -1.192 | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 143 |        | 2   | max | .028   | 8  | 1.354  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 144 |        |     | min | -.034  | 3  | -1.159 | 3  | 0      | 1  | 0              | 1  | 3963.565       | 6  | NC             | 1  |
| 145 |        | 3   | max | .035   | 8  | 1.309  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 146 |        |     | min | -.04   | 3  | -1.12  | 3  | 0      | 1  | 0              | 1  | 3001.204       | 6  | NC             | 1  |
| 147 |        | 4   | max | .042   | 8  | 1.258  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 148 |        |     | min | -.046  | 3  | -1.077 | 3  | 0      | 1  | 0              | 1  | 4040.382       | 6  | NC             | 1  |
| 149 |        | 5   | max | .05    | 8  | 1.201  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 150 |        |     | min | -.053  | 3  | -1.028 | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 151 | M31    | 1   | max | .05    | 8  | 1.201  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 152 |        |     | min | -.053  | 3  | -1.028 | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 153 |        | 2   | max | .056   | 8  | 1.138  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 154 |        |     | min | -.058  | 3  | -.975  | 3  | 0      | 1  | 0              | 1  | 4696.825       | 6  | NC             | 1  |
| 155 |        | 3   | max | .062   | 8  | 1.07   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 156 |        |     | min | -.063  | 3  | -.917  | 3  | 0      | 1  | 0              | 1  | 3599.024       | 6  | NC             | 1  |
| 157 |        | 4   | max | .068   | 8  | .998   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 158 |        |     | min | -.069  | 3  | -.854  | 3  | 0      | 1  | 0              | 1  | 4905.088       | 6  | NC             | 1  |
| 159 |        | 5   | max | .075   | 8  | .92    | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 160 |        |     | min | -.074  | 3  | -.788  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 161 | M32    | 1   | max | .075   | 8  | .92    | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 162 |        |     | min | -.074  | 3  | -.788  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 163 |        | 2   | max | .079   | 8  | .838   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 164 |        |     | min | -.078  | 3  | -.718  | 3  | 0      | 1  | 0              | 1  | 6144.311       | 6  | NC             | 1  |
| 165 |        | 3   | max | .084   | 8  | .752   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 166 |        |     | min | -.082  | 3  | -.644  | 3  | 0      | 1  | 0              | 1  | 4715.542       | 6  | NC             | 1  |
| 167 |        | 4   | max | .089   | 8  | .662   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 168 |        |     | min | -.086  | 3  | -.567  | 3  | 0      | 1  | 0              | 1  | 6437.29        | 6  | NC             | 1  |
| 169 |        | 5   | max | .093   | 8  | .569   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 170 |        |     | min | -.09   | 3  | -.487  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 171 | M33    | 1   | max | .093   | 8  | .569   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 172 |        |     | min | -.09   | 3  | -.487  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 173 |        | 2   | max | .096   | 8  | .472   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 174 |        |     | min | -.093  | 3  | -.405  | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 175 |        | 3   | max | .099   | 8  | .373   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 176 |        |     | min | -.095  | 3  | -.32   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 177 |        | 4   | max | .101   | 8  | .273   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 178 |        |     | min | -.097  | 3  | -.234  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 179 |        | 5   | max | .104   | 8  | .171   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 180 |        |     | min | -.099  | 3  | -.147  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 181 | M35    | 1   | max | .046   | 5  | 1.392  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 182 |        |     | min | -.065  | 6  | -1.191 | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 183 |        | 2   | max | .051   | 5  | 1.354  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 184 |        |     | min | -.072  | 6  | -1.16  | 3  | 0      | 1  | 0              | 1  | 3226.165       | 6  | NC             | 1  |
| 185 |        | 3   | max | .057   | 5  | 1.311  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 186 |        |     | min | -.078  | 6  | -1.122 | 3  | 0      | 1  | 0              | 1  | 2288.573       | 6  | NC             | 1  |
| 187 |        | 4   | max | .062   | 5  | 1.258  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 188 |        |     | min | -.084  | 6  | -1.077 | 3  | 0      | 1  | 0              | 1  | 3279.852       | 6  | NC             | 1  |
| 189 |        | 5   | max | .067   | 5  | 1.198  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 190 |        |     | min | -.09   | 6  | -1.026 | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 191 | M36    | 1   | max | .067   | 5  | 1.198  | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 192 |        |     | min | -.09   | 6  | -1.026 | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 193 |        | 2   | max | .071   | 5  | 1.138  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 194 |        |     | min | -.095  | 6  | -.974  | 3  | 0      | 1  | 0              | 1  | 3574.463       | 6  | NC             | 1  |
| 195 |        | 3   | max | .075   | 5  | 1.071  | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 196 |        |     | min | -.1    | 6  | -.917  | 3  | 0      | 1  | 0              | 1  | 2520.154       | 6  | NC             | 1  |
| 197 |        | 4   | max | .08    | 5  | .997   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 198 |        |     | min | -.105  | 6  | -.853  | 3  | 0      | 1  | 0              | 1  | 3637.547       | 6  | NC             | 1  |
| 199 |        | 5   | max | .084   | 5  | .916   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 200 |        |     | min | -.109  | 6  | -.784  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 201 | M37    | 1   | max | .084   | 5  | .916   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 202 |        |     | min | -.109  | 6  | -.784  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 203 |        | 2   | max | .086   | 5  | .835   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 204 |        |     | min | -.112  | 6  | -.715  | 3  | 0      | 1  | 0              | 1  | 4968.806       | 6  | NC             | 1  |
| 205 |        | 3   | max | .088   | 5  | .75    | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 206 |        |     | min | -.115  | 6  | -.642  | 3  | 0      | 1  | 0              | 1  | 3584.829       | 6  | NC             | 1  |
| 207 |        | 4   | max | .09    | 5  | .658   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 208 |        |     | min | -.117  | 6  | -.564  | 3  | 0      | 1  | 0              | 1  | 5661.058       | 6  | NC             | 1  |
| 209 |        | 5   | max | .093   | 5  | .564   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 210 |        |     | min | -.12   | 6  | -.483  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 211 | M38    | 1   | max | .093   | 5  | .564   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 212 |        |     | min | -.12   | 6  | -.483  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 213 |        | 2   | max | .093   | 5  | .472   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 214 |        |     | min | -.12   | 6  | -.404  | 3  | 0      | 1  | 0              | 1  | 4394.05        | 6  | NC             | 1  |
| 215 |        | 3   | max | .093   | 5  | .377   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 216 |        |     | min | -.12   | 6  | -.323  | 3  | 0      | 1  | 0              | 1  | 2774.314       | 6  | NC             | 1  |
| 217 |        | 4   | max | .093   | 5  | .274   | 6  | 0      | 8  | 0              | 8  | NC             | 2  | NC             | 8  |
| 218 |        |     | min | -.12   | 6  | -.235  | 3  | 0      | 1  | 0              | 1  | 3668.854       | 6  | NC             | 1  |
| 219 |        | 5   | max | .093   | 5  | .164   | 6  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 220 |        |     | min | -.12   | 6  | -.141  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 221 | M11    | 1   | max | .134   | 8  | .013   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 222 |        |     | min | -.122  | 3  | -.021  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 223 |        | 2   | max | .143   | 8  | .107   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 224 |        |     | min | -.13   | 3  | -.131  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 225 |        | 3   | max | .152   | 8  | .201   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 226 |        |     | min | -.138  | 3  | -.241  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 227 |        | 4   | max | .162   | 8  | .295   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 228 |        |     | min | -.145  | 3  | -.351  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 229 |        | 5   | max | .171   | 8  | .389   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 230 |        |     | min | -.153  | 3  | -.46   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 231 | M12    | 1   | max | .346   | 8  | .296   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |

### Envelope Member Section Deflections Service (Continued)

|     | Member | Sec |     | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 232 |        |     | min | -.304  | 3  | -.352  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 233 |        | 2   | max | .354   | 8  | .382   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 234 |        |     | min | -.31   | 3  | -.453  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 235 |        | 3   | max | .361   | 8  | .469   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 236 |        |     | min | -.316  | 3  | -.555  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 237 |        | 4   | max | .368   | 8  | .555   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 238 |        |     | min | -.323  | 3  | -.655  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 239 |        | 5   | max | .375   | 8  | .642   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 240 |        |     | min | -.329  | 3  | -.755  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 241 | M13    | 1   | max | .532   | 8  | .558   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 242 |        |     | min | -.463  | 3  | -.658  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 243 |        | 2   | max | .537   | 8  | .63    | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 244 |        |     | min | -.468  | 3  | -.743  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 245 |        | 3   | max | .543   | 8  | .702   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 246 |        |     | min | -.472  | 3  | -.828  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 247 |        | 4   | max | .548   | 8  | .774   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 248 |        |     | min | -.477  | 3  | -.911  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 249 |        | 5   | max | .554   | 8  | .847   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 250 |        |     | min | -.482  | 3  | -.995  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 251 | M14    | 1   | max | .677   | 8  | .781   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 252 |        |     | min | -.588  | 3  | -.918  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 253 |        | 2   | max | .681   | 8  | .832   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 254 |        |     | min | -.591  | 3  | -.98   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 255 |        | 3   | max | .685   | 8  | .885   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 256 |        |     | min | -.594  | 3  | -1.041 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 257 |        | 4   | max | .689   | 8  | .937   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 258 |        |     | min | -.597  | 3  | -1.102 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 259 |        | 5   | max | .692   | 8  | .99    | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 260 |        |     | min | -.601  | 3  | -1.162 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 261 | M15    | 1   | max | .773   | 8  | .946   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 262 |        |     | min | -.67   | 3  | -1.112 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 263 |        | 2   | max | .775   | 8  | .975   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 264 |        |     | min | -.672  | 3  | -1.146 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 265 |        | 3   | max | .777   | 8  | 1.003  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 266 |        |     | min | -.674  | 3  | -1.18  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 267 |        | 4   | max | .779   | 8  | 1.032  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 268 |        |     | min | -.675  | 3  | -1.213 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 269 |        | 5   | max | .781   | 8  | 1.061  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 270 |        |     | min | -.677  | 3  | -1.246 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 271 | M24    | 1   | max | .813   | 8  | 1.045  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 272 |        |     | min | -.705  | 3  | -1.227 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 273 |        | 2   | max | .814   | 8  | 1.048  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 274 |        |     | min | -.705  | 3  | -1.231 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 275 |        | 3   | max | .814   | 8  | 1.051  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 276 |        |     | min | -.705  | 3  | -1.235 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 277 |        | 4   | max | .814   | 8  | 1.054  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 278 |        |     | min | -.706  | 3  | -1.239 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 279 |        | 5   | max | .815   | 8  | 1.058  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 280 |        |     | min | -.706  | 3  | -1.242 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 281 | M29A   | 1   | max | .795   | 8  | 1.069  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 282 |        |     | min | -.689  | 3  | -1.255 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 283 |        | 2   | max | .794   | 8  | 1.046  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 284 |        |     | min | -.688  | 3  | -1.229 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 285 |        | 3   | max | .792   | 8  | 1.023  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 286 |        |     | min | -.687  | 3  | -1.203 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 287 |        | 4   | max | .791   | 8  | 1      | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 288 |        |     | min | -.686  | 3  | -1.176 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |

### Envelope Member Section Deflections Service (Continued)

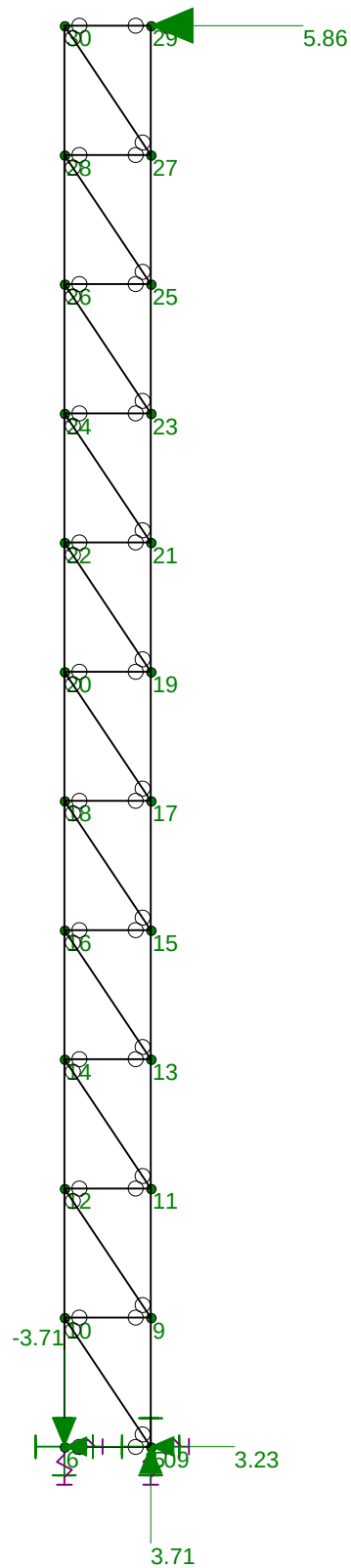
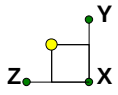
|     | Member | Sec |     | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/y' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 289 |        | 5   | max | .789   | 8  | .978   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 290 |        |     | min | -.685  | 3  | -1.149 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 291 | M40    | 1   | max | .72    | 8  | 1.017  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 292 |        |     | min | -.625  | 3  | -1.194 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 293 |        | 2   | max | .716   | 8  | .969   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 294 |        |     | min | -.622  | 3  | -1.139 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 295 |        | 3   | max | .713   | 8  | .922   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 296 |        |     | min | -.619  | 3  | -1.084 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 297 |        | 4   | max | .71    | 8  | .875   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 298 |        |     | min | -.617  | 3  | -1.029 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 299 |        | 5   | max | .707   | 8  | .828   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 300 |        |     | min | -.614  | 3  | -.973  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 301 | M41    | 1   | max | .592   | 8  | .891   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 302 |        |     | min | -.515  | 3  | -1.047 | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 303 |        | 2   | max | .587   | 8  | .822   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 304 |        |     | min | -.511  | 3  | -.967  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 305 |        | 3   | max | .582   | 8  | .753   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 306 |        |     | min | -.507  | 3  | -.887  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 307 |        | 4   | max | .577   | 8  | .684   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 308 |        |     | min | -.503  | 3  | -.807  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 309 |        | 5   | max | .572   | 8  | .616   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 310 |        |     | min | -.499  | 3  | -.726  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 311 | M42    | 1   | max | .419   | 8  | .699   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 312 |        |     | min | -.368  | 3  | -.823  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 313 |        | 2   | max | .413   | 8  | .613   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 314 |        |     | min | -.362  | 3  | -.724  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 315 |        | 3   | max | .406   | 8  | .527   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 316 |        |     | min | -.357  | 3  | -.624  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 317 |        | 4   | max | .4     | 8  | .442   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 318 |        |     | min | -.351  | 3  | -.524  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 319 |        | 5   | max | .393   | 8  | .357   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 320 |        |     | min | -.346  | 3  | -.423  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 321 | M43    | 1   | max | .215   | 8  | .453   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 322 |        |     | min | -.193  | 3  | -.536  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 323 |        | 2   | max | .207   | 8  | .357   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 324 |        |     | min | -.186  | 3  | -.424  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 325 |        | 3   | max | .198   | 8  | .26    | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 326 |        |     | min | -.179  | 3  | -.312  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 327 |        | 4   | max | .19    | 8  | .164   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 328 |        |     | min | -.171  | 3  | -.199  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 329 |        | 5   | max | .182   | 8  | .068   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 330 |        |     | min | -.164  | 3  | -.086  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 331 | M16    | 1   | max | .074   | 5  | .086   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 332 |        |     | min | -.086  | 8  | -.11   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 333 |        | 2   | max | .075   | 5  | .041   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 334 |        |     | min | -.087  | 8  | -.058  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 335 |        | 3   | max | .076   | 5  | -.003  | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 336 |        |     | min | -.088  | 8  | -.006  | 1  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 337 |        | 4   | max | .077   | 5  | .049   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 338 |        |     | min | -.089  | 8  | -.05   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 339 |        | 5   | max | .077   | 5  | .101   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 340 |        |     | min | -.09   | 8  | -.095  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 341 | M17    | 1   | max | .408   | 3  | .09    | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 342 |        |     | min | -.476  | 6  | -.115  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 343 |        | 2   | max | .409   | 3  | .046   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 344 |        |     | min | -.478  | 6  | -.063  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 345 |        | 3   | max | .411   | 3  | .001   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |

### Envelope Member Section Deflections Service (Continued)

|     | Member | Sec |     | x [in] | LC | y [in] | LC | z [in] | LC | x Rotate [r... | LC | (n) L/V' Ratio | LC | (n) L/z' Ratio | LC |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 346 |        |     | min | -.48   | 6  | -.012  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 347 |        | 4   | max | .413   | 3  | .042   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 348 |        |     | min | -.482  | 6  | -.045  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 349 |        | 5   | max | .414   | 3  | .094   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 350 |        |     | min | -.484  | 6  | -.089  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 351 | M18    | 1   | max | .715   | 3  | .084   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 352 |        |     | min | -.836  | 6  | -.108  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 353 |        | 2   | max | .717   | 3  | .045   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 354 |        |     | min | -.837  | 6  | -.062  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 355 |        | 3   | max | .718   | 3  | .005   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 356 |        |     | min | -.839  | 6  | -.016  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 357 |        | 4   | max | .719   | 3  | .032   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 358 |        |     | min | -.84   | 6  | -.037  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 359 |        | 5   | max | .72    | 3  | .078   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 360 |        |     | min | -.842  | 6  | -.076  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 361 | M19    | 1   | max | .971   | 3  | .07    | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 362 |        |     | min | -1.134 | 6  | -.093  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 363 |        | 2   | max | .972   | 3  | .039   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 364 |        |     | min | -1.135 | 6  | -.056  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 365 |        | 3   | max | .973   | 3  | .008   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 366 |        |     | min | -1.136 | 6  | -.02   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 367 |        | 4   | max | .973   | 3  | .019   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 368 |        |     | min | -1.137 | 6  | -.026  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 369 |        | 5   | max | .974   | 3  | .055   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 370 |        |     | min | -1.139 | 6  | -.057  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 371 | M20    | 1   | max | 1.155  | 3  | .051   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 372 |        |     | min | -1.35  | 6  | -.07   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 373 |        | 2   | max | 1.156  | 3  | .03    | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 374 |        |     | min | -1.351 | 6  | -.046  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 375 |        | 3   | max | 1.157  | 3  | .01    | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 376 |        |     | min | -1.352 | 6  | -.023  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 377 |        | 4   | max | 1.157  | 3  | .004   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 378 |        |     | min | -1.352 | 6  | -.013  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 379 |        | 5   | max | 1.158  | 3  | .027   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 380 |        |     | min | -1.353 | 6  | -.033  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 381 | M21    | 1   | max | 1.258  | 3  | .027   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 382 |        |     | min | -1.469 | 6  | -.043  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 383 |        | 2   | max | 1.258  | 3  | .019   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 384 |        |     | min | -1.47  | 6  | -.033  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 385 |        | 3   | max | 1.258  | 3  | .011   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 386 |        |     | min | -1.47  | 6  | -.024  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 387 |        | 4   | max | 1.259  | 3  | .003   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 388 |        |     | min | -1.471 | 6  | -.015  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 389 |        | 5   | max | 1.259  | 3  | -.003  | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 390 |        |     | min | -1.471 | 6  | -.008  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 391 | M29    | 1   | max | 1.27   | 3  | .001   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 392 |        |     | min | -1.484 | 6  | -.012  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 393 |        | 2   | max | 1.27   | 3  | .006   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 394 |        |     | min | -1.484 | 6  | -.019  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 395 |        | 3   | max | 1.27   | 3  | .011   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 396 |        |     | min | -1.484 | 6  | -.025  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 397 |        | 4   | max | 1.27   | 3  | .016   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 398 |        |     | min | -1.484 | 6  | -.03   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 399 |        | 5   | max | 1.27   | 3  | .021   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 400 |        |     | min | -1.484 | 6  | -.036  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 401 | M28    | 1   | max | 1.392  | 6  | .046   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 402 |        |     | min | -1.191 | 3  | -.065  | 6  | 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 |
|-----|--------|-----|-----|--------|----|--------|----|--------|----|----------------|----|----------------|----|----------------|----|
| 403 |        | 2   | max | 1.392  | 6  | .028   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 404 |        |     | min | -1.192 | 3  | -.045  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 405 |        | 3   | max | 1.392  | 6  | .01    | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 406 |        |     | min | -1.192 | 3  | -.024  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 407 |        | 4   | max | 1.392  | 6  | 0      | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 408 |        |     | min | -1.192 | 3  | -.01   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 409 |        | 5   | max | 1.393  | 6  | .021   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 410 |        |     | min | -1.192 | 3  | -.028  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 411 | M45    | 1   | max | 1.198  | 6  | .067   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 412 |        |     | min | -1.026 | 3  | -.09   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 413 |        | 2   | max | 1.199  | 6  | .038   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 414 |        |     | min | -1.026 | 3  | -.056  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 415 |        | 3   | max | 1.199  | 6  | .009   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 416 |        |     | min | -1.027 | 3  | -.022  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 417 |        | 4   | max | 1.2    | 6  | .015   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 418 |        |     | min | -1.028 | 3  | -.023  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 419 |        | 5   | max | 1.201  | 6  | .05    | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 420 |        |     | min | -1.028 | 3  | -.053  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 421 | M46    | 1   | max | .916   | 6  | .084   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 422 |        |     | min | -.784  | 3  | -.109  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 423 |        | 2   | max | .917   | 6  | .045   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 424 |        |     | min | -.785  | 3  | -.064  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 425 |        | 3   | max | .918   | 6  | .006   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 426 |        |     | min | -.786  | 3  | -.019  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 427 |        | 4   | max | .919   | 6  | .029   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 428 |        |     | min | -.787  | 3  | -.035  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 429 |        | 5   | max | .92    | 6  | .075   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 430 |        |     | min | -.788  | 3  | -.074  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 431 | M47    | 1   | max | .564   | 6  | .093   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 432 |        |     | min | -.483  | 3  | -.12   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 433 |        | 2   | max | .565   | 6  | .048   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 434 |        |     | min | -.484  | 3  | -.067  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 435 |        | 3   | max | .566   | 6  | .003   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 436 |        |     | min | -.485  | 3  | -.015  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 437 |        | 4   | max | .568   | 6  | .041   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 438 |        |     | min | -.486  | 3  | -.045  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 439 |        | 5   | max | .569   | 6  | .093   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 440 |        |     | min | -.487  | 3  | -.09   | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 441 | M48    | 1   | max | .164   | 6  | .093   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 442 |        |     | min | -.141  | 3  | -.12   | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 443 |        | 2   | max | .166   | 6  | .045   | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 444 |        |     | min | -.142  | 3  | -.065  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 445 |        | 3   | max | .168   | 6  | -.002  | 5  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 446 |        |     | min | -.144  | 3  | -.009  | 6  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 447 |        | 4   | max | .17    | 6  | .049   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 448 |        |     | min | -.145  | 3  | -.052  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |
| 449 |        | 5   | max | .171   | 6  | .104   | 8  | 0      | 8  | 0              | 8  | NC             | 8  | NC             | 8  |
| 450 |        |     | min | -.147  | 3  | -.099  | 3  | 0      | 1  | 0              | 1  | NC             | 1  | NC             | 1  |



Results for LC 10, WL+Z  
Reaction and Moment Units are k and k-ft

Big Top Manufacturing

A K Das

221-229

100x250x35 Ocean Highway and Port Authority

SK - 9

Dec 20, 2021 at 11:53 AM

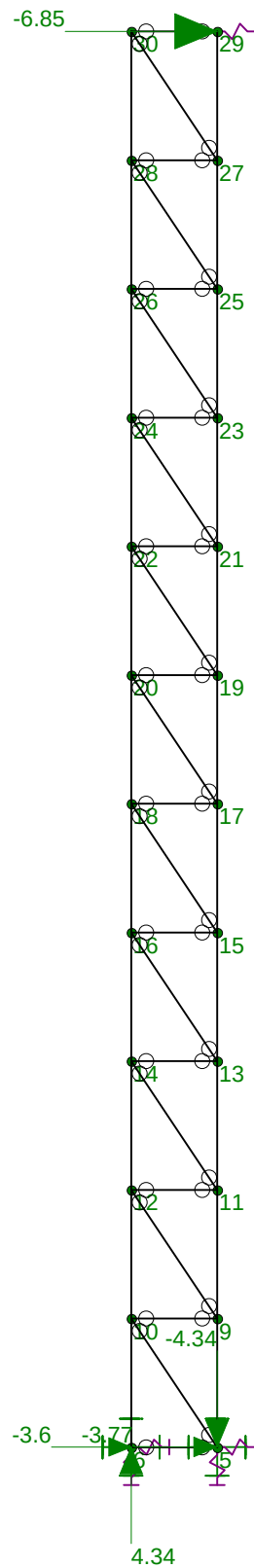
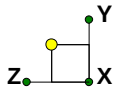
End Panel Truss - Single Chord.r3d



### ***Joint Reactions (By Combination)***

|   | LC | Joint Label | X [k] | Y [k]  | Z [k]  | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|----|-------------|-------|--------|--------|-----------|-----------|-----------|
| 1 | 10 | 5           | 0     | 3.714  | 3.228  | 0         | 0         | 0         |
| 2 | 10 | 6           | 0     | -3.714 | 3.092  | 0         | 0         | 0         |
| 3 | 10 | 29          | 0     | 0      | 5.864  | 0         | 0         | 0         |
| 4 | 10 | Totals:     | 0     | 0      | 12.184 |           |           |           |
| 5 | 10 | COG (ft):   | NC    | NC     | NC     |           |           |           |

**Above reactions are due to Wind Load in the Z-direction (for +GCPI) only with a factor of 1.0**



Results for LC 11, WL-Z  
Reaction and Moment Units are k and k-ft

|                       |                                             |                                    |
|-----------------------|---------------------------------------------|------------------------------------|
| Big Top Manufacturing | 100x250x35 Ocean Highway and Port Authority | SK - 10                            |
| A K Das               |                                             | Dec 20, 2021 at 11:53 AM           |
| 221-229               |                                             | End Panel Truss - Single Chord.r3d |

### ***Joint Reactions (By Combination)***

|   | LC | Joint Label | X [k] | Y [k]  | Z [k]  | MX [k-ft] | MY [k-ft] | MZ [k-ft] |
|---|----|-------------|-------|--------|--------|-----------|-----------|-----------|
| 1 | 11 | 5           | 0     | -4.344 | -3.769 | 0         | 0         | 0         |
| 2 | 11 | 6           | 0     | 4.344  | -3.6   | 0         | 0         | 0         |
| 3 | 11 | 29          | 0     | 0      | -6.851 | 0         | 0         | 0         |
| 4 | 11 | Totals:     | 0     | 0      | -14.22 |           |           |           |
| 5 | 11 | COG (ft):   | NC    | NC     | NC     |           |           |           |

**Above reactions are due to Wind Load in the Z-direction (for -GCPI) only with a factor of 1.0**

### ***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 | 5       | max | 0     | 8  | 2.37   | 3  | 1.937  | 5  | 0         | 8  | 0         | 8  | 0         | 8  |
| 2 |         | min | 0     | 1  | -2.515 | 8  | -2.261 | 8  | 0         | 1  | 0         | 1  | 0         | 1  |
| 3 | 6       | max | 0     | 8  | 2.74   | 6  | 1.854  | 5  | 0         | 8  | 0         | 8  | 0         | 8  |
| 4 |         | min | 0     | 1  | -2.144 | 5  | -2.161 | 8  | 0         | 1  | 0         | 1  | 0         | 1  |
| 5 | 29      | max | 0     | 8  | 0      | 8  | 3.52   | 3  | 0         | 8  | 0         | 8  | 0         | 8  |
| 6 |         | min | 0     | 1  | 0      | 1  | -4.111 | 6  | 0         | 1  | 0         | 1  | 0         | 1  |
| 7 | Totals: | max | 0     | 8  | .281   | 7  | 7.31   | 5  |           |    |           |    |           |    |
| 8 |         | min | 0     | 1  | .169   | 5  | -8.532 | 6  |           |    |           |    |           |    |

**Above reactions are based on ASD load combination per IBC indicated on S-0**

## PRYING ACTION ANALYSIS

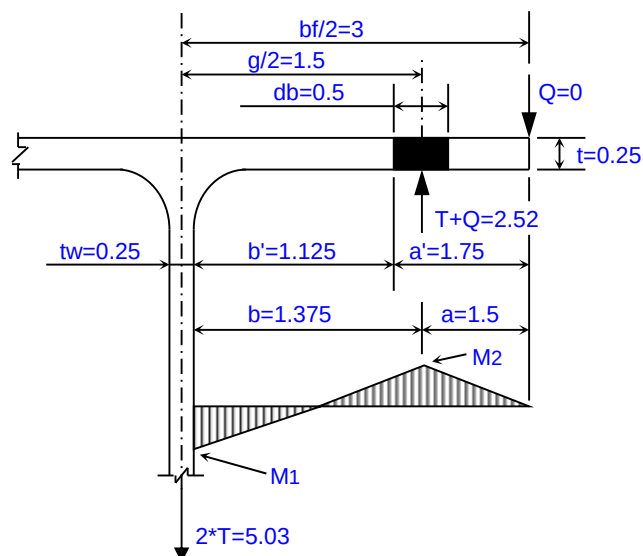
### For Structural Steel Connections

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

|               |            |           |                                  |       |            |
|---------------|------------|-----------|----------------------------------|-------|------------|
| Project Name: | 100x250x35 | Client:   | Ocean Highway and Port Authority |       |            |
| Project No.:  | 221-229    | Prep. By: | A K Das                          | Date: | 12/20/2021 |

**Input Data:** Anchor Angle at Base of End Panel

|                              |           |       |
|------------------------------|-----------|-------|
| Total Tension Load, $T_t$ =  | 2.52      | klps  |
| Total Shear Load, $V_t$ =    | 2.26      | klps  |
| Tensile Strength, $F_u$ =    | 65        | ksi   |
| Bolt Diameter, $d_b$ =       | 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, $p$ = | 21.000    | in.   |
| Total No. of Bolts, $N_b$ =  | 1         | bolts |
| Width, $b_f$ =               | 6.0000    | in.   |
| Thickness, $t$ =             | 0.2500    | in.   |
| Thickness, $t_w$ =           | 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     |
| vb =   | 2.26   | kips/bolt |
| fv =   | 11.52  | ksi       |
| T =    | 2.52   | kips/bolt |
| ft =   | 12.81  | ksi       |
| Tb =   | N.A.   | kips      |
| Fnv =  | 48.00  | ksi       |
| Fnv' = | 48.00  | ksi       |
| Fv =   | 24.00  | ksi       |
| ks =   | N.A.   |           |
| Vb =   | 4.71   | kips/bolt |
| At =   | 0.1419 | in.^2     |
| Fnt =  | 90.00  | ksi       |
| Fnt' = | 73.82  | ksi       |
| Ft =   | 36.91  | ksi       |
| B =    | 7.25   | kips/bolt |

$$A_b = p \cdot d_b^2 / 4$$

$$v_b = V_t / N_b$$

$$f_v = v_b / A_b$$

$$T = T_t / N_b$$

$$f_t = T/Ab$$

Tb = not

$F_{nv}$  = Nominal shear stress for A325-N from

$F_{nv}' = F_{nv}$  (no reduction needed for comb. effects)

$$F_v = F_{nv'} / 2$$

ks = not appl

$$V_b = A_b \cdot F_v$$

$$At = p/4*(db - 0.9743/n)^2$$

Fnt = Nominal tensile stress for A325 bolts from AISC Table J3.2, page 16.1-104

$$F_{nt}' = 1.3 \cdot F_{nt} - (2 \cdot F_{nt} / F_{nv}) \cdot f_v$$

$$F_t = F_{nt'} / 2, \text{ fatigue is not considered})$$

$$B = F t^* A b$$

$V_b \geq v_b$ , O.K.

$B \geq T$ , O.K.

## Nomenclature

(continued)

|            |        |     |                                                                  |                     |
|------------|--------|-----|------------------------------------------------------------------|---------------------|
| 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                                                      |                     |
| r =        | 0.6429 |     | r = b'/a'                                                        |                     |
| d' =       | 0.6250 | in. | d' = Nominal hole dimensions from Table J3.3                     |                     |
| d =        | 0.9702 |     | d = 1-d'/p                                                       |                     |
| b =        | 2.927  |     | b = (1/r)*(B/T-1)                                                |                     |
| a' =       | 1.0000 |     | If b >= 1: a' = 1, If b < 1: a' = lesser of 1 or (1/d)*(b/(1-b)) |                     |
| t(req'd) = | 0.084  | in. | t(req'd) = SQRT(6.66*T*b'/(p*Fu*(1+d*a')))                       | t >= t(req'd), O.K. |

|      |       |      |                                                                 |
|------|-------|------|-----------------------------------------------------------------|
| tc = | 0.199 | in.  | tc = SQRT(6.66*B*b'/(p*Fu)) (to develop 'B' in bolts/no prying) |
| a =  | 0.000 |      | a = 1/d*((T/B)/(t/tc)^2-1) (Note: 0 <= a <= 1.0)                |
| Q =  | 0.00  | kips | Q = B*d*a*r*(t/tc)^2 (prying force per bolt at design load)     |

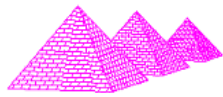
$$a' = \frac{-0.2281}{7.25} \text{ kips}$$

$$a' = 1/(d^*(1+r))^*((tc/t)^2-1)$$

If  $a' > 1$ :  $Ta = B^*(t/tc)^2*(1+d)$ , If  $a' < 0$ :  $Ta = B$   
 If  $0 \leq a' \leq 1$ :  $Ta = B^*(t/tc)^2*(1+d*a')$

$$t(\text{req'd}) = 0.117 \text{ in.} \quad t(\text{req'd}) = \text{SQRT}(6.66 \cdot T \cdot b' / (p \cdot F_u))$$
[illegible]





## Soil Anchor Design

PROJECT NUMBER

100x250x35 Ocean Highway and Port Auth

DESIGNER

A K Das

=Input

=Calculation

### Soil Anchor Check

Max Uplift at Anchors = 2.515 kips

as per page:

Joint 5

Max Shear at Anchors = 2.261 kips

### Anchored Connection

2000

lbs

Medium Soil with Limerock and Asphalt

Ultimate Pullout Strength

Type of Soil

2

Facto of Safety

1000

lbs

Allowable Pullout Strength

400

lbs

Alloawble Shear Strength

# of Vertical Anchors at Truss

1

# of sloped Anchors =

3

Angle of slope,  $\phi$  =

15

Pullout capacity = Pullout Strength \* # of vertical Anchors + Pullout Strength \* # of Sloped Anchors Cos ( $\phi$ )

Allowable Pullout Capacity =

3.90 kips

Shear capacity = Shear Strength \* total # of Anchors + Pullout Strength \* # of Sloped Anchors Sin ( $\phi$ )

Allowable shear Capacity =

2.38 kips

Pullout Capacity = 3.9 kips

&gt;

2.515 kips

Shear Capacity = 2.4 kips

&gt;

2.261 kips



Flood Zones

00-00-31-1800-0005-0010

12.34

12.4

MUNICIPAL

OCEAN HIGHWAY & PORT AUTHORITY OF NASSAU COUNTY

516 S 10TH ST, STE 103

FERNANDINA BEACH, FL 32034

315 N 2ND ST



October 23, 2025

Jason Nicholson  
Ocean Coast Fernandina, LLC.  
113 Baybridge Drive  
Gulfbreeze, FL 32561

Sent Via Email to Project Team

Applicant Name: **Steven Wetherell Shaycore, LLC.**  
Project Description: **Ocean Coast Hotel Renovation**  
Location: **2707 Sadler Road**  
PIN(s): **00-00-30-0600-0001-0010**  
TRC Case Number: **TRC 2025-000**

Mr. Wethrell,

Based on findings from the Technical Review Committee (TRC) and their review of the plans, at their Thursday, October 23, 2025 meeting, the above-referenced project is hereby approved.

Local Development Orders expire twelve (12) months after the date of issuance, which is the date of this letter. Prior to the expiration of a local development order, the local development order may be extended for a period not to exceed six (6) months, when a written request is submitted to the City. No more than two (2) such six (6) month extensions shall be issued.

Any further revisions to this site plan or may require additional review and approval.

If you need further information regarding this compliance report or the next steps for this project, please contact me at [trcinfo@fbfl.city](mailto:trcinfo@fbfl.city) or 904-310-3480.

Sincerely,

Jacob Platt  
TRC Committee Chair

CC: File, TRC Members



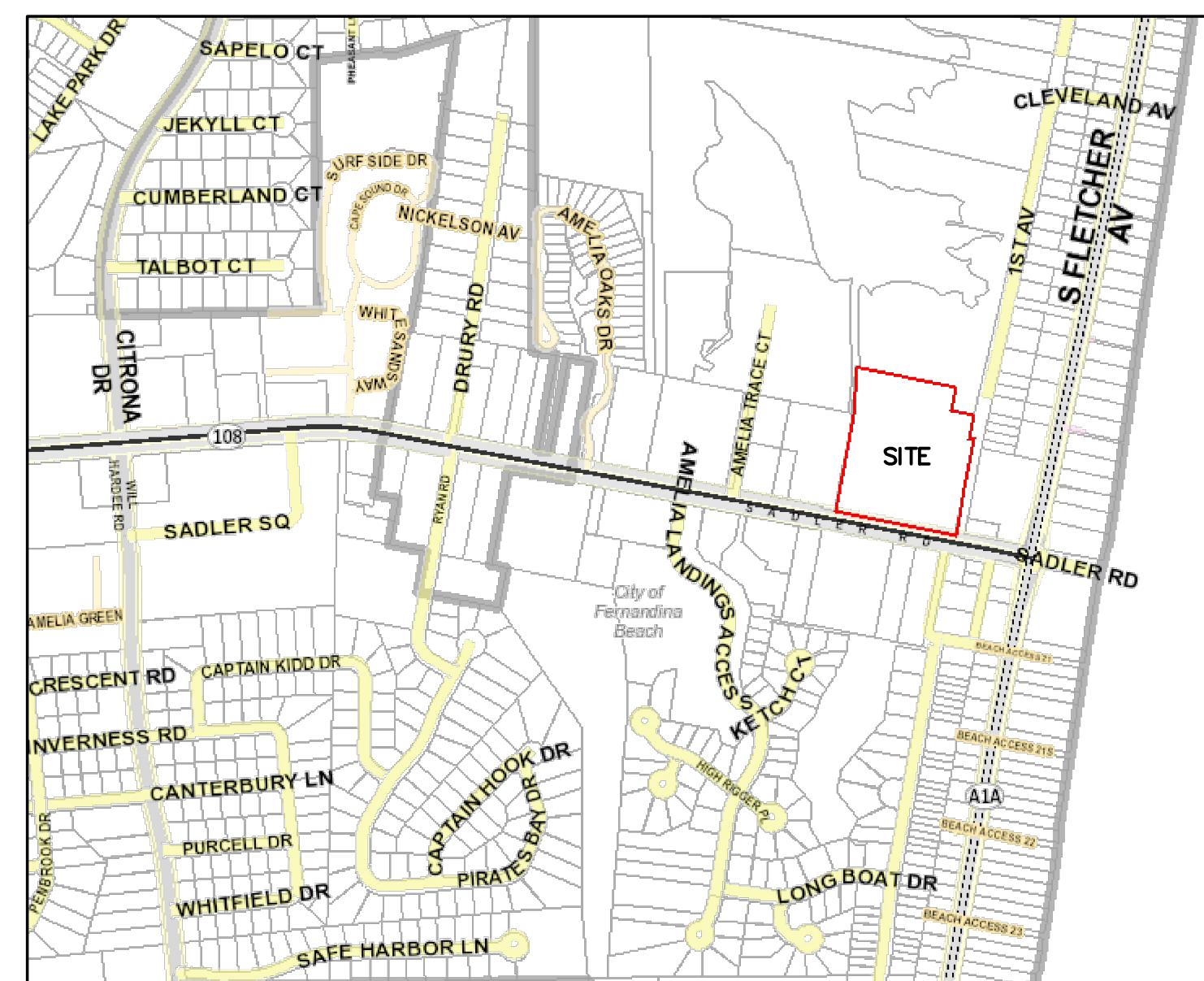


**SOUTHEAST ENGINEERING GROUP**

11235 ST. JOHNS INDUSTRIAL PKWY N #4  
JACKSONVILLE, FL 32246 (904) 619-3400  
[www.SouthEastEngineers.com](http://www.SouthEastEngineers.com)



| EXISTING | PROPOSED | DESCRIPTION                      |
|----------|----------|----------------------------------|
| ---      | ---      | PROPERTY LINE                    |
| ---      | ---      | RIGHT-OF-WAY LINE                |
| ---      | ---      | CENTERLINE                       |
| ---x---  | ---x---  | FENCE                            |
| =====    | =====    | RETAINING WALL                   |
| =====    | =====    | BUILDING                         |
| =====    | =====    | PAVEMENT LINE/SIDEWALK LINE      |
| =====    | =====    | CURB, CURB AND GUTTER            |
| =====    | =====    | SPOT ELEVATIONS                  |
| 25.50    | 25.50    | CONTOURS                         |
| 25       | 25       | SANITARY SEWER/CLEANOUT          |
| 6"SA     | 6"SA     | PROCESS WASTE                    |
| 6"PW     | 6"PW     | ROOF DRAIN                       |
| RD       | RD       | STORM SEWER                      |
| ST       | ST       | DOMESTIC WATER                   |
| 6"W      | 6"W      | FIRE MAIN                        |
| 6"F      | 6"F      | GAS MAIN                         |
| 6"C      | 6"C      | FORCE MAIN                       |
| 6"FM     | 6"FM     | UNDERGROUND ELECTRIC             |
| UE       | UE       | OVERHEAD ELECTRIC                |
| OHE      | OHE      | UNDERGROUND TELEPHONE            |
| UT       | UT       | OVERHEAD TELEPHONE               |
| OT       | OT       | UNDERDRAIN                       |
| UD       | UD       | FIRE HYDRANT                     |
| ▽        | ▽        | DOUBLE CHECK VALVE ASSEMBLY      |
| 8x12     | 8x12     | RED. PRESSURE BACKFLOW PREVENTER |
| 8x12     | 8x12     | POST INDICATOR VALVE             |
| 8x12     | 8x12     | VALVE                            |
| 8x12     | 8x12     | VALVE & BOX                      |
| 8x12     | 8x12     | MANHOLE                          |
| 8x12     | 8x12     | SPRINKLER RISER                  |
| 8x12     | 8x12     | WATER METER                      |
| 8x12     | 8x12     | CATCH BASIN                      |
| 8x12     | 8x12     | CURB INLET                       |
| 8x12     | 8x12     | FLARED END                       |
| 8x12     | 8x12     | MITERED END                      |
| 8x12     | 8x12     | CONCRETE FLUME                   |
| 8x12     | 8x12     | ENDWALLS                         |
| 8x12     | 8x12     | CONTROL STRUCTURE                |
| 8x12     | 8x12     | CONCRETE POWER POLE              |
| 8x12     | 8x12     | WOOD POWER POLE                  |
| 8x12     | 8x12     | LIGHT POLE                       |
| 8x12     | 8x12     | TRANSFORMER                      |
| 8x12     | 8x12     | VAULTS                           |
| 8x12     | 8x12     | DRAINAGE STRUCTURE               |
| 8x12     | 8x12     | SANITARY SEWER STRUCTURE         |
| 8x12     | 8x12     | SECTION CUT                      |
| 8x12     | 8x12     | DETAIL REFERENCE                 |
| 8x12     | 8x12     | CURVE NUMBER                     |
| 8x12     | 8x12     | SILT FENCE                       |
| 8x12     | 8x12     | HAIRBALE BARRIER                 |
| 8x12     | 8x12     | SOIL BORING LOCATION/NUMBER      |



LOCATION MAP (NOT TO SCALE)

PROPERTY OWNER: OCEAN COAST FERNANDINA, LLC  
1909 WOODALL RODGERS FREEWAY, SUITE 300  
DALLAS, TEXAS 75201

SURVEYOR: BOATWRIGHT LAND SURVEYORS, INC.  
1500 ROBERTS DRIVE  
JACKSONVILLE BEACH, FL 32250  
(904) 241-8550

LANDSCAPE ARCHITECT: INNOVATIONS DESIGN GROUP  
101 SOUTH GARLAND AVENUE, SUITE 202  
ORLANDO, FL 32801  
(407) 440-3574

|      |                               |
|------|-------------------------------|
| C000 | COVER SHEET                   |
| C010 | CIVIL NOTES AND SPECS         |
| C020 | OVERALL SITE PLAN             |
| C100 | SITE DEMOLITION PLAN NORTH    |
| C110 | SITE DEMOLITION PLAN SOUTH    |
| C200 | SITE GEOMETRY PLAN NORTH      |
| C220 | SITE GEOMETRY PLAN SOUTH      |
| C300 | GRADING & DRAINAGE PLAN NORTH |
| C310 | GRADING & DRAINAGE PLAN SOUTH |
| C400 | SITE UTILITIES PLAN           |
| C510 | SITE DETAILS I                |
| C520 | SITE DETAILS II               |
| C530 | SITE DETAILS III              |

| REVISIONS: |                      |
|------------|----------------------|
|            |                      |
|            |                      |
|            |                      |
|            |                      |
|            |                      |
| 02/29/24   | CONSTRUCTION ISSUE   |
| 01/30/24   | REVISED PERMIT ISSUE |
| 12/1/23    | PERMIT ISSUE         |
| 10/25/23   | CHECK SET            |

SIGNATURE AND SEAL

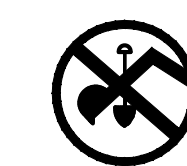
BTA PROJECT NO: 22ENG041  
SHEET DATE: 02/02/2023

SHEET TITLE:

COVER  
SHEET

SHEFF

C000



48 HOURS BEFORE YOU DIG  
CALL SUNSHINE  
1-800-432-4770  
IT'S THE LAW IN FLORIDA



TERMITE PROTECTION SPECIFICATIONS:

1. PERFORM ALL CHEMICAL TREATMENT SPECIFIED HEREIN IN ACCORDANCE WITH CURRENT REQUIREMENTS OF GOVERNING REGULATIONS. USE REGISTERED AND LICENSED APPLICATORS, WHERE SUCH IS REQUIRED BY FEDERAL, STATE, OR LOCAL AUTHORITY.

2. A PERMANENT SIGN WHICH IDENTIFIES THE TERMITE TREATMENT PROVIDER AND NEED FOR RE-INSPECTION AND TREATMENT CONTRACT RENEWAL SHALL BE PROVIDED. THE SIGN SHALL BE POSTED NEAR THE WATER HEATER OR ELECTRIC PANEL.

3. UPON COMPLETION OF THE WORK, GUARANTEE THE EFFECTIVENESS OF THE TREATMENT AGAINST TERMITE INFESTATION FOR A MINIMUM PERIOD OF ONE YEAR. IF INFESTATION SHOULD OCCUR WITHIN THE GUARANTEE PERIOD, RE-TREAT THE SOIL AND REPAIR ALL ASSOCIATED DAMAGES. OWNER SHALL HAVE THE RIGHT TO RENEW AT THE END OF THE GUARANTEE PERIOD.

4. A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED BY A LICENSED PEST CONTROL COMPANY. THE CERTIFICATE OF COMPLIANCE SHALL STATE: "THE BUILDING HAS RECEIVED A COMPLETE TREATMENT FOR THE PREVENTION OF SUBTERRANEAN TERMITES. THE TREATMENT IS IN ACCORDANCE WITH THE RULES AND LAWS OF THE DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES."

5. ONLY CHEMICALS APPROVED BY LOCAL, STATE, OR FEDERAL REGULATIONS SHALL BE USED. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE INTENDED CHEMICAL TO BE USED IS NOT PROHIBITED BY APPLICABLE REGULATIONS.

6. LOOSE WOOD AND FILL SHALL BE REMOVED FROM BELOW AND WITHIN ONE FOOT OF THE BUILDING. THIS INCLUDES ALL GRADE STAKES, FORMS, SHORING, OR OTHER CELLULOSE-CONTAINING MATERIAL.

7. DO NO SOIL POISONING WORK UNTIL ALL SUB-GRADE WORK IS COMPLETE AND READY FOR CONCRETE PLACEMENT OR OTHER FINISHED WORK. DO NOT APPLY SOIL POISON WHEN SURFACE WATER IS PRESENT.

8. IF WALLS ARE TO RECEIVE A MOISTURE-PROOFING COATING, APPLY CHEMICALS ONLY AFTER COATINGS ARE THOROUGHLY DRIED.

9. CONCRETE OVER-POUR AND MORTAR ALONG THE FOUNDATION PERIMETER MUST BE REMOVED BEFORE EXTERIOR SOIL TREATMENT.

10. AN EXTERIOR VERTICAL CHEMICAL BARRIER SHALL BE INSTALLED AFTER CONSTRUCTION IS COMPLETE, INCLUDING LANDSCAPING AND IRRIGATION. ANY SOIL DISTURBED AFTER THE VERTICAL BARRIER IS APPLIED SHALL BE RETREATED.

11. APPLY SOIL TREATMENT BENEATH ALL SLAB AREAS AND A MINIMUM OF ONE FOOT BELOW THE FLOOR SLAB ALONG THE INTERIOR SIDE OF ABUTTING FOUNDATION WALLS. WHERE THE EXTERIOR OF THE WALL IS ABUTTED BY CONCRETE SLABS, ASPHALT PAVING, OR OTHER PERMANENT SURFACING, TREAT THE EXTERIOR SIDE OF FOUNDATION WALLS AS SPECIFIED FOR THE INTERIOR SIDE OF SUCH WALLS.

12. SOIL TREATMENT SHALL BE APPLIED UNDER ALL EXTERIOR CONCRETE OR GRADE WITHIN ONE FOOT OF THE STRUCTURE SIDE WALLS.

13. CONDENSATE AND ROOF DOWNSPOUTS SHALL DISCHARGE AT LEAST ONE FOOT AWAY FROM BUILDING SIDE WALLS.

14. IRRIGATION SYSTEMS, INCLUDING ALL RISERS AND SPRAY HEADS, SHALL NOT BE INSTALLED WITHIN ONE FOOT OF THE BUILDING SIDE WALLS.

15. SOIL DISTURBED AFTER THE INITIAL TREATMENT SHALL BE RETREATED, INCLUDING SPACES BOXED OR FORMED.

16. BOXED AREAS IN CONCRETE FLOORS FOR SUBSEQUENT INSTALLATION OF TRAPS, ETC., SHALL BE MADE WITH PERMANENT METAL OR PLASTIC FORMS. PERMANENT FORMS MUST BE OF A SIZE AND DEPTH THAT WILL ELIMINATE THE DISTURBANCE OF SOIL AFTER THE INITIAL TREATMENT.

17. MINIMUM SIX MIL VAPOR RETARDER MUST BE INSTALLED TO PROTECT AGAINST RAINFALL DILUTION. IF RAINFALL OCCURS BEFORE VAPOR RETARDER PLACEMENT, RE-TREATMENT IS REQUIRED.

18. NO WOOD, VEGETATION, STUMPS, CARDBOARD, TRASH, ETC. SHALL BE BURIED WITHIN 15 FEET OF ANY EXISTING OR PROPOSED BUILDING.

EARTHWORK SPECIFICATIONS:

1. THE SITEWORK FOR THIS PROJECT SHALL MEET OR EXCEED THE SITEWORK RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT FOR THE PROJECT IF APPLICABLE, OR THE SITEWORK SPECIFICATIONS IN THIS SECTION, WHICHEVER IS MORE STRINGENT.

2. A MOISTURE DENSITY RELATIONSHIP DETERMINATION TEST SHALL BE OBTAINED FOR EACH TYPE OF FILL MATERIAL USED, IN ACCORDANCE WITH ASTM STANDARDS.

3. IN-PLACE DENSITY TESTS ARE REQUIRED FOR ALL STRIPPED OR CUT SUB-GRADE AREAS THAT ARE SPECIFIED TO BE COMPACTED, FOR FOR EACH LAYER OF FILL. A MINIMUM OF TWO TESTS OR ONE TEST FOR EVERY 10,000 SF ARE REQUIRED FOR BOTH THE BUILDING AND PAVEMENT AREAS, OR AS REQUIRED BY THE GEOTECHNICAL REPORT. RE-TESTS WILL BE REQUIRED IN RE-COMPACTED AREAS.

4. TAKE RESPONSIBILITY FOR THE REPAIR OR REPLACEMENT OF ANY UTILITY LINES OR SERVICES DAMAGED DURING THE COURSE OF THIS WORK.

5. TAKE RESPONSIBILITY FOR FURNISHING, PLACING, AND MAINTAINING ALL SUPPORT, SHORING, AND SHEET PILING WHICH MAY BE REQUIRED FOR THE PROTECTION OF SITE PERSONNEL AND ADJACENT EXISTING IMPROVEMENTS.

6. MAINTAIN ALL BENCHMARKS, MONUMENTS, AND OTHER REFERENCE POINTS FURNISHED BY OTHERS, AND REPLACE ANY THAT ARE DISTURBED OR DESTROYED DURING THE COURSE OF THIS WORK.

7. DO NOT DAMAGE ANY TREES NOT INDICATED FOR REMOVAL. PROTECT TREES NEAR THIS WORK SO AS TO PREVENT DAMAGE TO THE BRANCHES, BARK, AND SOIL AROUND THE ROOT SYSTEM. PROTECTION DEVICES SHALL BE IN ACCORDANCE WITH LOCAL STANDARDS.

8. REMOVE AND DISPOSE OF ALL TREES, BRUSH, VEGETATION, DEBRIS, AND ANY OTHER ORGANIC OR WASTE MATERIAL FROM ALL AREAS DESIGNATED TO BE CLEARED. REMOVE ALL MATERIAL TO ITS FULL DEPTH OR EXTENT UNLESS OTHERWISE INDICATED OR DIRECTED BY THE ENGINEER. IF PERMITTED BY LOCAL AUTHORITIES, ON SITE BURNING WILL BE ALLOWED.

9. STAGE CLEARING AND SEEDING SO THAT NO AREAS ARE LEFT DEFOLIATED FOR MORE THAN 30 DAYS, OR AS ALLOWED BY LOCAL AND STATE CODES, PRIOR TO BEGINNING FINAL CONSTRUCTION OR PAVING, UNLESS OTHERWISE AUTHORIZED.

10. DO NOT INCLUDE CLAY, STONES LARGER THAN 3/4 INCHES IN DIAMETER, WEEDS, ROOTS, RUBBISH, OR ANY OTHER FOREIGN MATTER IN THE TOPSOIL MATERIAL TO BE USED IN THE ON SITE LANDSCAPE AREAS.

11. PROOF-ROLL STRIPPED OR CUT SUB-GRADE IN BUILDING AND PAVEMENT AREAS PRIOR TO COMPACTION OF EXISTING SUB-GRADE, OR PLACEMENT OF FILL USING A LOADED DUMP TRUCK OR OTHER HEAVY, LARGE-TIRE VEHICLE. DETERMINE ZONES OF LOOSE, WET, OR SOFT ORGANIC MATERIAL. IF A PUMPING CONDITION OCCURS, IMMEDIATELY STOP PROOF-ROLLING OPERATIONS TO AVOID FURTHER SUBSURFACE DISTURBANCE. PROOF-ROLLING SHALL BE PERFORMED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER IN ORDER TO AID IN EVALUATING UNSTABLE SUB-GRADE AREAS.

12. WHERE SOFT MATERIALS OR ORGANIC SOILS OCCUR AT SUB-GRADE ELEVATIONS BENEATH THE BUILDING OR PAVEMENT, NOTIFY THE ENGINEER WITH AN ESTIMATE OF THE AMOUNT OF UNSUITABLE MATERIAL, AND THE COST FOR UNDERCUTTING AND REPLACEMENT FILL. ENGINEERING SHALL OBTAIN OWNER'S AUTHORIZATION FOR UNDERCUTTING AND REPLACEMENT FILL COSTS PRIOR TO SITE-WORK CONSTRUCTION. PROCEEDING WITH ANY UNDERCUTTING OF UNSUITABLE MATERIAL, FOLLOWING OWNER AUTHORIZATION, EXCAVATE DOWN TO SUITABLE SUB-GRADE, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, AND BACKFILL WITH STRUCTURAL FILL. PLACE AND COMPACT STRUCTURAL FILL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.

13. GRADE AREAS TO RECEIVE TOPSOIL TO ALLOW FOR SUCH MATERIAL. LEAVE FINISHED SURFACES AND SURFACES TO RECEIVE PAVING SMOOTH, COMPACTED, AND FREE FROM IRREGULAR SURFACE DRAINAGE.

14. SURFACES SHALL NOT VARY FROM THE DESIGN GRADES BY MORE THAN 0.05 FEET UNDER PAVING AND CONCRETE SLABS, AND BY NOT MORE THAN 0.10 FEET UNDER OTHER FINISHED SURFACES.

15. PLACE FILL AND BACKFILL IN SUCCESSIVE LAYERS NOT TO EXCEED THE MAXIMUM LIFT THICKNESS LISTED IN THE GEOTECHNICAL REPORT OR AS DIRECTED BY THE ONSITE GEOTECHNICAL ENGINEER. COMPACT EACH LAYER TO THE MINIMUM RELATIVE DENSITIES SPECIFIED ARE ACHIEVED. RE-COMPACT AREAS WHICH FAIL TO MEET THE COMPACTION REQUIREMENTS UNTIL PASSING RESULTS ARE ACHIEVED.

16. COMPACT AND STABILIZE THE PAVEMENT SUB-GRADES TO A MINIMUM DEPTH OF 12", MEETING A MINIMUM LIMEROCK BEARING RATIO OF 40.

17. DURING ALL SITE CLEARING AND GRADING OPERATIONS, PROVIDE PROPER TEMPORARY DRAINAGE, COMPLETE WITH REQUIRED TRENCHING AND PUMPING EQUIPMENT, TO ADEQUATELY DISPENSE SURFACE AND/OR SUBSURFACE WATER, AND TO ENSURE THAT THE SITE IS KEPT IN AN ACCESSIBLE AND WORKABLE CONDITION AT ALL TIMES. PROVIDE DE-WATERING AS NECESSARY TO MAINTAIN A SEPARATION OF AT LEAST TWO FEET BETWEEN THE GROUNDWATER AND ALL COMPACTION SURFACES. PERFORM TEMPORARY DRAINAGE WORK IN CONFORMANCE WITH ALL GOVERNING REGULATIONS, INCLUDING PROTECTIVE MEASURES SUCH AS SILT SCREENS, HAY BALES, SETTLING PONDS, AND SIMILAR DEVICES AS REQUIRED BY SUCH REGULATIONS. AT THE COMPLETION OF THE PROJECT, PRIOR TO SPREADING THE TOPSOIL, RESTORE ALL AREAS USED FOR TEMPORARY DRAINAGE TO THE GRADES AND ELEVATIONS SHOWN ON THE DRAWINGS.

18. COMPACT THE BUILDING AREA, PAVING AREA, AND AN AREA FIVE FEET BEYOND THE EDGE OF ALL BUILDING AND PAVING LINES. DO NOT USE HEAVY VIBRATORY EQUIPMENT WITHIN 60 FEET OF EXISTING BUILDINGS.

19. ALL FILL AND BACKFILL MATERIAL, WHETHER FROM ON SITE OR IMPORTED, MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING IT ON THE SITE. IMPORT FILL SHALL CONSIST OF A GRANULAR MATERIAL FREE OF CLAY, SILT, OR ORGANIC MATERIAL, AND SHALL MEET THE REQUIREMENTS SPECIFIED BY THE GEOTECHNICAL ENGINEER. IMPORT FILL SHALL BE FREE OF MATERIAL THAT WOULD DEEM THE FILL HAZARDOUS, AS DEFINED BY THE STANDARDS OF THE ENVIRONMENTAL AUTHORITIES HAVING JURISDICTION.

20. MINIMIZE THE TRANSMISSION OF DIRT OR DEBRIS BY EQUIPMENT OR PERSONNEL TO ANY PROPERTY, PUBLIC OR PRIVATE, OUTSIDE THE PROJECT SITE. IMMEDIATELY REMOVE ANY SUCH DEBRIS OR DIRT TRANSMITTED.

21. WORK SPECIFIED HEREIN SHALL BE SUBJECT TO INSPECTION AND TESTING BY AN INDEPENDENT TESTING LABORATORY SELECTED BY THE GENERAL CONTRACTOR.

22. FOOTING BEARING SOILS SHALL BE DENSITY TESTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER. IN THE ABSENCE OF ANY SUCH RECOMMENDATIONS, ONE DENSITY TEST IS REQUIRED IN THE BOTTOM OF 25 PERCENT OF THE ISOLATED FOOTINGS AND AT 100-FOOT INTERVALS IN THE CONTINUOUS FOOTINGS.

23. MAKE EXCAVATIONS TO THE DIMENSION AND ELEVATION INDICATED ON THE DRAWINGS. EXTRA PAYMENT WILL NOT BE MADE FOR EXCAVATIONS CARRIED BELOW INDICATED GRADES. WHERE UNAUTHORIZED EXCAVATIONS ARE MADE BELOW INDICATED ELEVATIONS UNDER SLABS, RESTORE TO PROPER ELEVATION AS SPECIFIED FOR COMPACTED BACKFILLING. IF UNDER FOOTINGS, PAY FOR THE COST OF THE EXTRA CONCRETE REQUIRED FOR THE EXTRA WALL OR FOOTING DEPTH.

24. CONCRETE MAY BE CAST AGAINST VERTICAL EXCAVATED SURFACES PROVIDED THE MATERIAL WILL STAND WITHOUT CAVING. THEREFORE, TAKE CARE TO MAINTAIN THE CROSS SECTION AS SHOWN ON THE DRAWINGS. ALLOW SUFFICIENT WIDTH WHEN EXCAVATING FOR FORMED CONCRETE TO ALLOW FOR CONSTRUCTION AND REMOVAL OF FORMS. ALLOW SUFFICIENT WIDTH WHEN EXCAVATING FOR BELOW-GRADE WALLS TO ALLOW FOR APPLICATION OF WATERPROOFING AND DRAINAGE MATERIALS AS SPECIFIED AND SHOWN ON THE DRAWINGS.

25. DEPOSIT EXCESS EXCAVATED MATERIAL AND MATERIAL DETERMINED UNSUITABLE FOR USE AS FILL OR TOPSOIL OFF SITE, OR AS DIRECTED BY THE GENERAL CONTRACTOR.

26. WHERE SOFT, ORGANIC, OR WET MATERIALS ARE PRESENT IN THE BOTTOM OF FOOTING OR UTILITY EXCAVATIONS, NOTIFY THE ENGINEER. FOLLOWING OWNER AUTHORIZATION OF UNDERCUTTING FOOTING OR UTILITY TRENCH SUB-GRADE, EXTEND THE EXCAVATE DEEPER TO SUITABLE SOILS. THE FOOTING MAY BEAR DIRECTLY ON THESE SOILS AT THE LOWER LEVEL OR ON LEAN CONCRETE BACKFILL PLACED IN THE EXCAVATIONS. AS AN ALTERNATIVE, FOOTINGS MAY ALSO BEAR ON PROPERLY COMPACTED BACKFILL EXTENDING DOWN TO THE SUITABLE SOILS. OVER-EXCAVATION FOR COMPACTED BACKFILL PLACEMENT BELOW FOOTINGS SHALL EXTEND Laterally BEYOND ALL EDGES OF THE FOOTINGS AT LEAST EIGHT INCHES PER FOOT OF OVER-EXCAVATION DEPTH BELOW FOOTING BASE ELEVATION.

27. DO NOT PLACE BACKFILL AROUND, AGAINST, OR UPON ANY CONCRETE OR MASONRY STRUCTURE UNTIL STRUCTURE HAS OBTAINED SUFFICIENT STRENGTH TO WITHSTAND THE LOADS IMPOSED, AS DETERMINED BY THE ENGINEER, OR WHEN PROPERLY BRACED OR SHORED.

PADS, SIDEWALKS, CURBS, RAMPS, AND BUMPER SPECIFICATIONS:

1. FINE GRADE THE AREA TO BE IMPROVED TO WITHIN PLUS OR MINUS 0.05 FEET OF THE DESIGNED SUB-GRADE ELEVATIONS, AND REMOVE ALL EXCESS MATERIAL FROM THE SITE. CONSTRUCT THE SUB-GRADE TRUE TO GRADE, HARD, UNIFORM, AND SMOOTH, USING METHODS AND EQUIPMENT AS REQUIRED. FINAL COMPACTION SHALL MEET THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. PROPERLY MOISTURIZE DRY SUB-GRADES WITH WATER PRIOR TO PLACING THE CONCRETE.

2. SURFACES SHALL BE CLEAN AND DRY BEFORE RECEIVING PAINT. METAL SURFACES SHALL BE FREE OF HEAVY RUST.

3. PLACE THE CONCRETE ON MOIST SUB-GRADE FOR THE FULL DEPTH CALLED FOR ON THE PLANS. USE MECHANICAL VIBRATING EQUIPMENT FOR CONSOLIDATION TO ELIMINATE AIR BUBBLES OR STONE POCKETS.

4. BRING CONCRETE TO REQUIRED CROSS SECTION BY MEANS OF SCREEDS, FORMS, OR TEMPLATES AS APPROPRIATE. FINISH CONCRETE BY FLOATING AND TROWELING UNTIL SURFACE IS DENSE AND SMOOTH, TRUE TO CROSS SECTION AND GRADE, AND FREE FROM HUMPS OR DEPRESSIONS.

5. PROVIDE THE FINAL FINISH BY LIGHTLY BROOMING THE SURFACE IMMEDIATELY BEFORE THE CONCRETE TAKES ITS FINAL SET AS DIRECTED.

6. SURFACE OF ALL HANDICAPPED ACCESSIBLE ROUTES INCLUDING WALKS, RAMPS, AND CURB RAMPS, SHALL BE FINISHED STABLE, FIRM, AND SLIP RESISTANT. TRANSITIONS FROM RAMPS AND CURB RAMPS, LANDINGS, WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.

7. CUT THE CAST-IN-PLACE CONCRETE INTO SECTIONS BY EXPANSION, CONSTRUCTION, OR CONTROL JOINTS, AS SHOWN ON THE DRAWINGS. PROVIDE EXPANSION JOINTS IN CURBS NO MORE THAN 50 FEET APART AND LOCATE CONTROL OR CONSTRUCTION JOINTS AT 10-FOOT INTERVALS.

8. AS SOON AS FINISHING HAS BEEN COMPLETED, COVER THE CONCRETE WITH A CURING COMPOUND, APPLY THE CURING COMPOUND UNIFORMLY AT THE RATE RECOMMENDED BY THE MANUFACTURER. DO NOT ALLOW TRAFFIC ON THE SURFACE FOR A PERIOD OF 72 HOURS.

GENERAL UTILITY NOTES:

1. EXISTING UTILITY LOCATIONS HAVE BEEN APPROXIMATED FROM THE AS-BUILT RECORDS PROVIDED BY THE LOCAL UTILITY AUTHORITY, AND HAVE NOT BEEN INDEPENDENTLY EVALUATED OR VERIFIED. THEREFORE, SOUTHEAST ENGINEERING GROUP ASSUMES NO RESPONSIBILITY FOR THE INACCURACY OF ANY UTILITY LOCATION OR SERVICE CONNECTION PORTRAYED ON THESE PLANS.

2. IT IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF UTILITIES, AND THE SUITABILITY AND ACCURACY FOR A PARTICULAR USE OF THE UTILITY INFORMATION CONTAINED IN THESE DRAWINGS. CONTRACTORS SHALL FIELD VERIFY ALL DEPICTED UTILITY CONDITIONS PRIOR TO ANY CONSTRUCTION, TO ENSURE CONNECTION AVAILABILITY.

3. PROVIDE HORIZONTAL SEPARATION BETWEEN UTILITIES AND TREES TO PROTECT BOTH THE UTILITIES AND THE TREES.

4. WATER AND SEWER LINES SHALL BE CONSTRUCTED TO WITHIN FIVE FEET OF THE OUTSIDE FACE OF THE BUILDING, AND IN THE CASE OF FIRE RISERS, THE FIRE MAIN SHALL BE CONSTRUCTED INTO THE BUILDING AND TERMINATING AT A FLANGE LOCATED 12 INCHES ABOVE FINISHED FLOOR ELEVATION.

5. THE CONTRACTOR SHALL GUARANTEE THE WORK INCLUDED IN THIS SECTION FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.

STORM DRAINAGE SPECIFICATIONS:

1. SUBCONTRACTOR SHALL SUBMIT MANUFACTURER'S DATA SHEETS FOR ALL PIPE AND FITTINGS TO BE USED ON THE PROJECT. SUBCONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS, SHOWING ALL INVERT ELEVATIONS, GRATE AND WEIR ELEVATIONS, WEIR AND ORIFICE DIMENSIONS, AND SIZE OF PIPE OPENINGS. STRUCTURES SHALL NOT BE ORDERED UNTIL FABRICATION DRAWINGS HAVE BEEN APPROVED BY THE ENGINEER.

2. REINFORCED CONCRETE PIPE SHALL COMPLY WITH THE REQUIREMENTS OF ASTM DESIGNATION C76, CLASS III. JOINTS SHALL BE PROVIDED WITH O-RING GASKETS, AND SHALL BE WATERTIGHT.

3. PVC PIPE AND FITTINGS SHALL HAVE A SMOOTH INTERIOR WALL AND SHALL CONFORM WITH ASTM D3034. ALL PVC PIPE SHALL HAVE BELL AND SPIGOT ENDS, AND BE JOINED WITH A GASKET JOINT. ALL JOINTS SHALL BE WATERTIGHT.

4. HIGH DENSITY POLYETHYLENE (HDPE) PIPE SHALL HAVE A SMOOTH INTERIOR WALL AND SHALL CONFORM TO ASTM D3350. ALL HDPE PIPE SHALL HAVE BELL AND SPIGOT ENDS, AND BE JOINED WITH A GASKET JOINT. ALL JOINTS SHALL BE WATERTIGHT. SOIL-TIGHT JOINTS WITH BANDED COUPLINGS ARE NOT ACCEPTABLE, UNLESS COMPLETELY WRAPPED IN GEOTEXTILE FABRIC TO CREATE A WATERTIGHT JOINT.

5. PIPE SHALL BE INSTALLED ACCURATELY TO THE GRADES AND ALIGNMENT SHOWN ON THE DRAWINGS. LAY PIPE WITH BELL ENDS UPSTREAM AND ADJUST SPIGOTS IN BELLS TO PROVIDE UNIFORM SPACE ALL AROUND. MAKE ALL JOINTS WATERTIGHT.

6. PRIOR TO DEMOBILIZING, SUBCONTRACTOR SHALL INSPECT ALL STRUCTURES, AND REMOVE ALL ACCUMULATED SEDIMENT OR TRASH FROM WITHIN STRUCTURES. SUBCONTRACTOR SHALL ENSURE THAT ALL PIPE OUTLETS ARE CLEAR AND FREE-FLOWING. ALL PIPE OUTLETS SHALL BE INSPECTED FOR EROSION, AND PROPERLY STABILIZED, PRIOR TO FINAL ACCEPTANCE OF THE SUBCONTRACTOR'S WORK BY THE CONTRACTOR.

ON-SITE SEWER SPECIFICATIONS:

1. PVC PIPE AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION D-2729 AND ASTM SPECIFICATION D-3034, AS APPLICABLE. SOLVENT JOINT CEMENT SHALL MEET THE REQUIREMENTS OF ASTM SPECIFICATION D-2564.

2. MACHINE EXCAVATION SHALL BE TO A DEPTH OF 1/3 OF EACH PIPE. EACH SECTION OF PIPE SHALL BE INSPECTED FOR DEFECTS PRIOR TO BEING LOWERED INTO THE TRENCH.

3. THE INSIDE OF EACH BELL AND THE OUTSIDE OF EACH SPIGOT SHALL BE THOROUGHLY CLEANED OF ALL MATTER OF EVERY DESCRIPTION PRIOR TO LOWERING PIPE INTO THE TRENCH AND PRIOR TO MAKING THE JOINT. ALL SEWER LINES SHALL BE CONSTRUCTED WITH THE SPIGOT ENDS POINTING IN THE DIRECTION OF FLOW. BOTH THE BELL AND THE SPIGOT OF EACH JOINT SHALL BE LUBRICATED WITH THE LUBRICANT ADHESIVE RECOMMENDED BY THE PIPE MANUFACTURER. ALL SEWER LINES SHALL BE CLEANED OF ALL FOREIGN MATTER AS CONSTRUCTION PROGRESSES, AND SHALL BE LEFT IN A CLEAN CONDITION UPON COMPLETION OF ALL CONSTRUCTION OPERATIONS.

4. EACH SECTION OF THE COMPLETED SEWER SYSTEM SHALL BE INSPECTED FOR PROPER ALIGNMENT. ANY SECTION OF THE SEWER SYSTEM THAT DOES NOT DISPLAY TRUE, CONCENTRIC ALIGNMENT SHALL BE RE-LAID AT NO ADDITIONAL EXPENSE.

5. EACH SECTION OF THE COMPLETED SEWER MAIN SYSTEM SHALL BE TESTED FOR INFILTRATION. INFILTRATION SHALL NOT EXCEED 200 GALLONS PER INCH DIAMETER PER MILE OF SEWER PER 24 HOURS. UNSATISFACTORY SECTIONS SHALL BE REPAIRED OR REBUILT AS DIRECTED AT THE EXPENSE OF THE CONTRACTOR.

6. FOLLOWING INSTALLATION AND TESTING, THE SEWER MAIN SHALL BE PRESSURE FLUSHED. FLUSHING CERTIFICATION AND RESULTS OF THE PRESSURE TESTS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO REQUEST FOR FINAL PAYMENT.

GENERAL WATER SPECIFICATIONS:

1. ALL LINED FITTINGS SHALL BE TESTED FOR DEFECTS, PRIOR TO INSTALLATION.

2. MAINTAIN A MINIMUM OF 36" COVER IN PAVED AREAS AND 30" COVER IN NON-PAVED AREAS OVER ALL WATER MAINS UNLESS OTHERWISE NOTED. WATER LINES ARE DESIGNED TO FINISHED GRADE ELEVATIONS, AND SHALL BE PROTECTED FROM DAMAGE UNTIL ALL SITE-WORK HAS BEEN COMPLETED.

3. WATER MAINS SHALL BE DR-18 PVC, UNLESS OTHERWISE NOTED. WATER SERVICES SHALL BE SCHEDULE 40 PVC, AND BE NSF APPROVED. THE DESIGN, MANUFACTURE, TESTING, AND METHOD OF INSTALLATION OF UNDERGROUND MAINS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF NFPA STANDARD 24.

4. THE UTILITIES CONTRACTOR SHALL INDICATE THE LOCATION OF THE TERMINATION OF EACH WATER SERVICE WITH STAKES OR MARKERS.

5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL MATERIALS TO BE USED FOR CONSTRUCTION TO THE ENGINEER.

6. IF GASOLINE FUMES OR OTHER CONTAMINATION IS ENCOUNTERED DURING EXCAVATION, THE CONTRACTOR, IN ACCORDANCE WITH HRS AND DEP REQUIREMENTS, AS SPECIFIED IN 62-555.3A(4), FAC, SHALL IDENTIFY THE CONTAMINATION AND DOCUMENT SUCH TO THE ENGINEER AND HRS. WHENEVER SPECIAL PIPE AND JOINT GASKETS MAY BE REQUIRED IN THIS INSTANCE, IF CONTAMINATION IS ENCOUNTERED, CONSTRUCTION SHALL STOP, UNTIL THE CONTRACTOR RECEIVES FURTHER DIRECTION FROM HRS AND THE ENGINEER.

7. IF SOLVENT CONTAMINATION IS FOUND IN THE PIPE TRENCH, WORK SHALL BE STOPPED AND THE PROPER AUTHORITIES NOTIFIED. WITH APPROVAL OF THE PERMITTING AGENCY, DUCTILE IRON PIPE, FITTINGS AND SOLVENT RESISTANT GASKET MATERIAL SHALL BE USED IN THE CONTAMINATED AREA. THE DUCTILE IRON PIPE SHALL EXTEND AT LEAST 100 FEET BEYOND ANY SOLVENT NOTED.

8. A MINIMUM DISTANCE OF 10 FEET, OR 2 TIMES THE DEPTH OVER THE MAIN, WHICHEVER IS GREATER, MUST BE MAINTAINED FROM ALL BUILDINGS, FOUNDATIONS, AND THE TOP OF BANK OF ALL PONDS.

9. ALL PIPE CONSTRUCTION AND TESTING SHALL CONFORM TO THE APPROPRIATE AWWA STANDARDS.

10. ALL PIPES, VALVES, AND FITTINGS SHALL BE SUBJECT TO INSPECTION AT TIME OF DELIVERY AND ALSO IN THE FIELD JUST PRIOR TO INSTALLATION. ALL PIPES, VALVES, OR FITTINGS THAT, IN THE OPINION OF THE ENGINEER, DO NOT CONFORM TO THE PROJECT DRAWINGS AND SPECIFICATIONS, WILL BE REJECTED, AND SHALL BE REMOVED BY THE CONTRACTOR AT HIS EXPENSE.

11. THE UTILITIES CONTRACTOR SHALL PREPARE ALL DOCUMENTS AND OBTAIN REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK AND DELIVER SAME TO THE ENGINEER.

12. PVC PIPE FOUR INCHES AND LARGER MUST MEET THE REQUIREMENTS AS SET FORTH IN COMMERCIAL STANDARD C5256-63, FOR CONTRACTION AND EXPANSION AT EACH JOINT. PIPE AND FITTING MUST BE ASSEMBLED WITH A NON-TOXIC LUBRICANT.

13. DUCTILE IRON PIPE SHALL CONFORM TO ANSI SPECIFICATION A21.50 (AWWA C150) LATEST, "THICKNESS DESIGN OF DUCTILE IRON PIPE," TABLE 50.5, LAYING CONDITION TYPE 2, INTERNAL OPERATING PRESSURE 250 PSI FOR AN EIGHT-FOOT DEPTH OF COVER, CLASS 51 MINIMUM, AND SHALL BE ANSI A21.51 (AWWA C151), LATEST, CENTRIFUGALLY CAST PIPE. EACH LENGTH SHALL BE CLEARLY MARKED WITH PRESSURE RATINGS, THICKNESS CLASS, WEIGHT OF PIPE WITHOUT LINING, LENGTH, AND MANUFACTURER.

14. ALL JOINTING MATERIALS FOR MECHANICAL JOINTS SHALL BE PROVIDED BY THE PIPE AND FITTING MANUFACTURER. MATERIAL ASSEMBLY AND BOLTING SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REVISION OF ANSI SPECIFICATION A21.11 (AWWA C111).

15. PIPE USING ROLL-ON OR SLIP JOINTS SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REVISION OF ANSI SPECIFICATION A21.11 (AWWA C111). ALL JOINT MATERIAL SHALL BE PROVIDED BY THE PIPE MANUFACTURER, AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PRACTICE.

16. ALL EXISTING WATER MAINS AND SERVICE LINES SHALL BE KEPT IN OPERATION DURING CONSTRUCTION. WHERE DISRUPTION CANNOT BE AVOIDED, INTERRUPTION OF WATER SERVICE DURING CONSTRUCTION SHALL BE MINIMIZED.

17. ALL WATER LINES AND APPURTENANCES SHALL BE THOROUGHLY CLEANED OF ALL FOREIGN MATTER BEFORE BEING LOWERED INTO THE TRENCH AND SHALL BE KEPT CLEAN DURING LAYING OPERATIONS BY MEANS OF PLUGS OR OTHER APPROVED METHODS. ALL PIPES SHALL BE CHECKED FOR DEFECTS BEFORE BEING LOWERED INTO THE TRENCH. DEFECTIVE PIPE SHALL NOT BE USED. PIPE FOUND TO BE DEFECTIVE, AFTER INSTALLATION, SHALL BE REMOVED WITH SOUND PIPE AT THE EXPENSE OF THE CONTRACTOR. THE FULL LENGTH OF EACH SECTION SHALL REST SOLIDLY UPON THE PIPE BED, WITH RECESS EXCAVATED TO ACCOMMODATE THE BELLS AND JOINTS. ANY PIPE THAT HAS THE GRADE OR JOINT DISTURBED AFTER LAYING SHALL BE TAKEN UP AND RE-LAID. THE PIPE SHALL NOT BE LAID IN WATER, OR WHEN TRENCH OR WEATHER CONDITIONS ARE UNSUITABLE FOR THE WORK. ALL JOINTS SHALL BE CLEANED OF ALL MATTER OF EVERY DESCRIPTION BEFORE MAKING THE JOINT.

18. UNDERGROUND SYSTEM SHALL BE THOROUGHLY FLUSHED UNDER HYDROSTATIC PRESSURE IN ACCORDANCE WITH AWWA STANDARD C605 FOR PVC PIPE, AND IN ACCORDANCE WITH AWWA STANDARD C600 FOR OTHER PIPE MATERIALS. THIS PRESSURE SHALL BE NO LESS THAN 200 PSI AND SHALL BE MAINTAINED FOR TWO HOURS, OR AS REQUIRED BY THE APPROPRIATE AWWA STANDARD.

19. THE LEAKAGE IN THE UNDERGROUND LINES SHALL NOT EXCEED THE LIMITS AS SPECIFIED BY THE APPROPRIATE AWWA STANDARD. IF SUCH LEAKAGE OCCURS AT ANY JOINTS, REPAIRS SHALL BE MADE. LEAKAGE SHALL BE MEASURED AT THE SPECIFIED PRESSURE BY PUMPING FROM A CALIBRATED CONTAINER.

S-E-G

SOUTHEAST ENGINEERING GROUP

11235 ST. JOHNS INDUSTRIAL PKWY N #4  
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www.SouthEastEngineers.com

OCEAN COAST HOTEL

2707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA

REVISIONS:

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| 10/25/23 | CHECK SET            |

SIGNATURE AND SEAL

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SHEET DATE: 02/02/2023

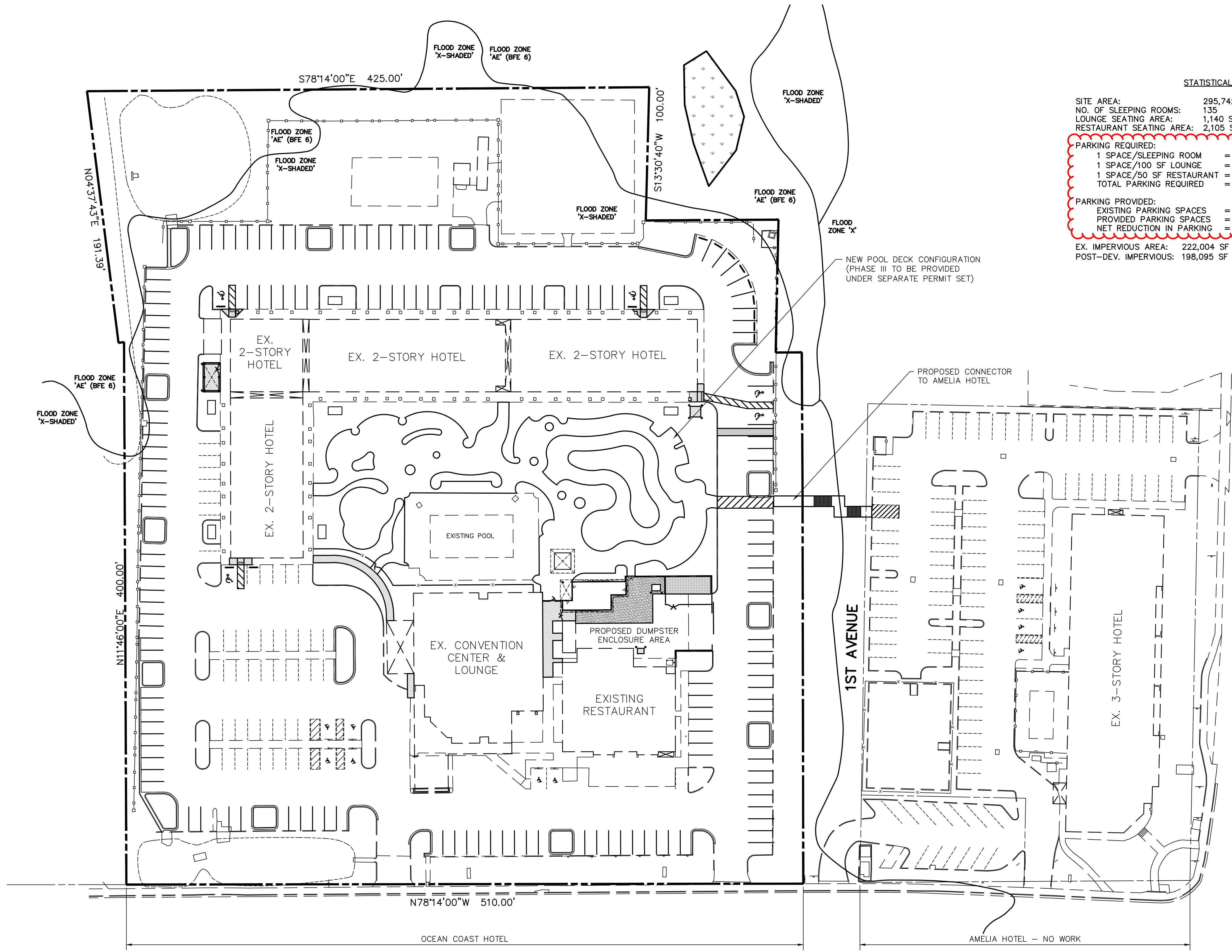
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CIVIL NOTES  
AND SPECS

SHEET:

C010



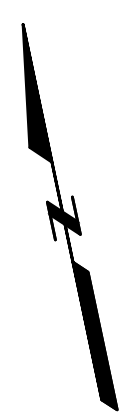




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STATISTICAL SUMMARY

|                                            |                      |                |            |
|--------------------------------------------|----------------------|----------------|------------|
| SITE AREA:                                 | 295,742 SF (6.79 AC) |                |            |
| NO. OF SLEEPING ROOMS:                     | 135                  |                |            |
| LOUNGE SEATING AREA:                       | 1,140 SF             |                |            |
| RESTAURANT SEATING AREA:                   | 2,105 SF             |                |            |
| PARKING REQUIRED:                          |                      |                |            |
| 1 SPACE/SLEEPING ROOM                      | =                    | 135.0          |            |
| 1 SPACE/100 SF LOUNGE                      | =                    | 11.4           |            |
| 1 SPACE/50 SF RESTAURANT                   | =                    | 42.1           |            |
| TOTAL PARKING REQUIRED                     | =                    | 189            |            |
| PARKING PROVIDED:                          |                      |                |            |
| EXISTING PARKING SPACES                    | =                    | 334 + 10 ADA = | 344 SPACES |
| PROVIDED PARKING SPACES                    | =                    | 214 + 11 ADA = | 225 SPACES |
| NET REDUCTION IN PARKING                   | =                    | 119 SPACES     |            |
| EX. IMPERVIOUS AREA: 222,004 SF (75% ISR)  |                      |                |            |
| POST-DEV. IMPERVIOUS: 198,095 SF (67% ISR) |                      |                |            |



0 20' 40' 80'

SCALE 1" = 40'



architecture with purpose

OCEAN COAST HOTEL

2707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA

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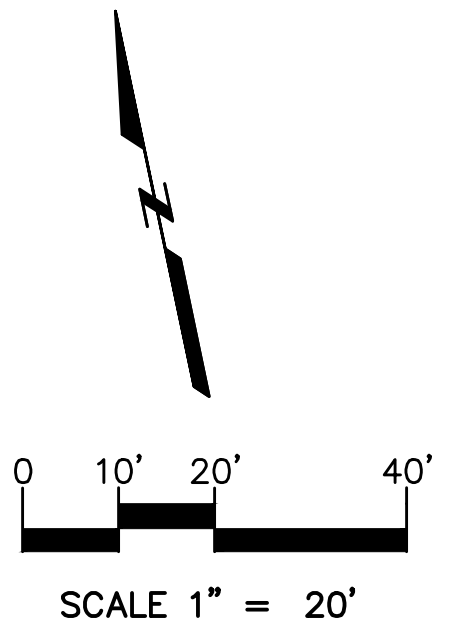
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OVERALL  
SITE PLAN

SHEET:  
C020



- TREE LEGEND**
- |    |                    |
|----|--------------------|
| HB | HACKBERRY          |
| OA | OAK                |
| PA | PALM               |
| SY | SYCAMORE           |
| ○  | TREE TO REMAIN     |
| ●  | TREE TO BE REMOVED |

REPRESENTS  
EXISTING  
IMPROVEMENTS  
TO BE REMOVED



OCEAN COAST HOTEL

2707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA

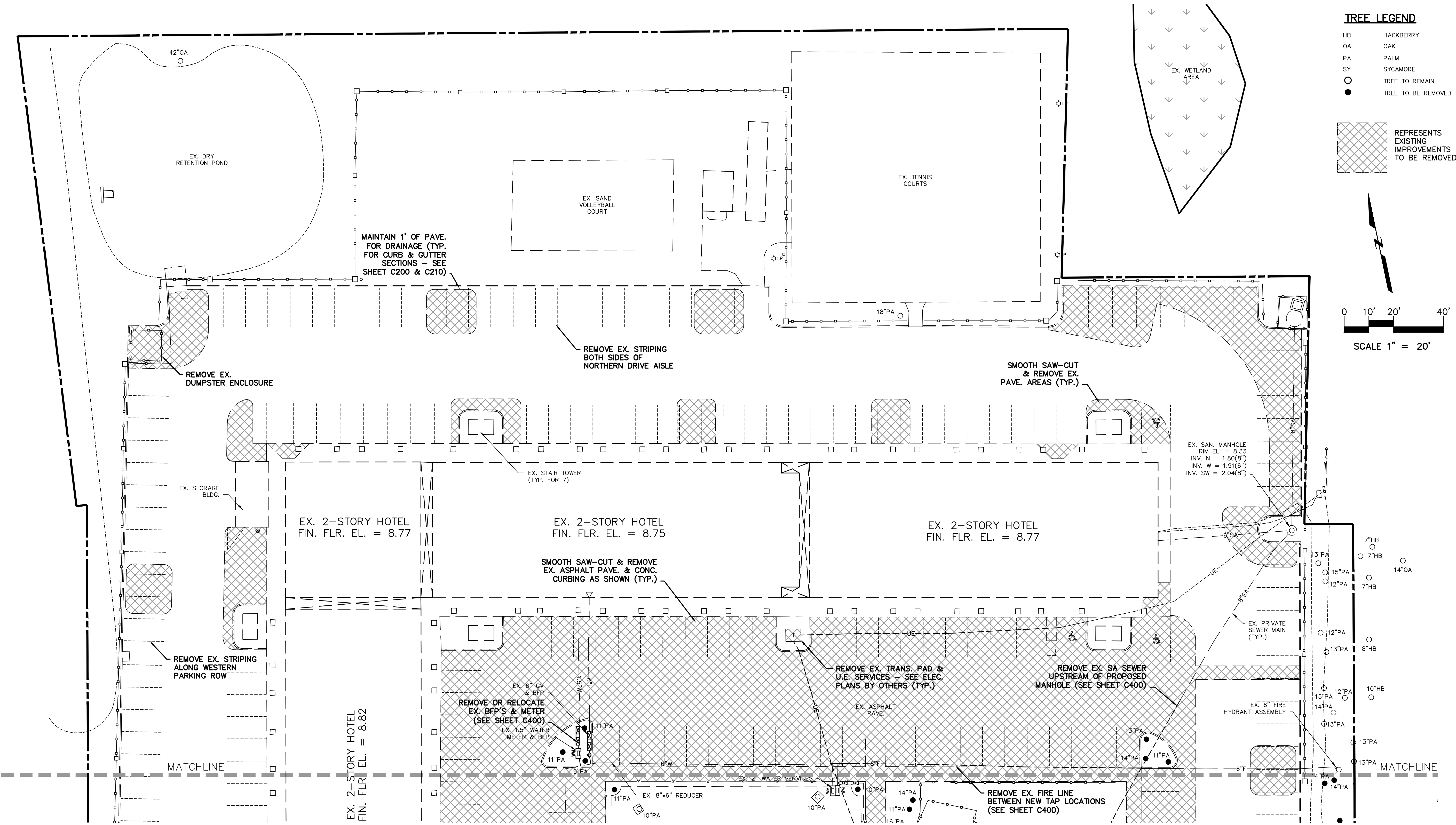
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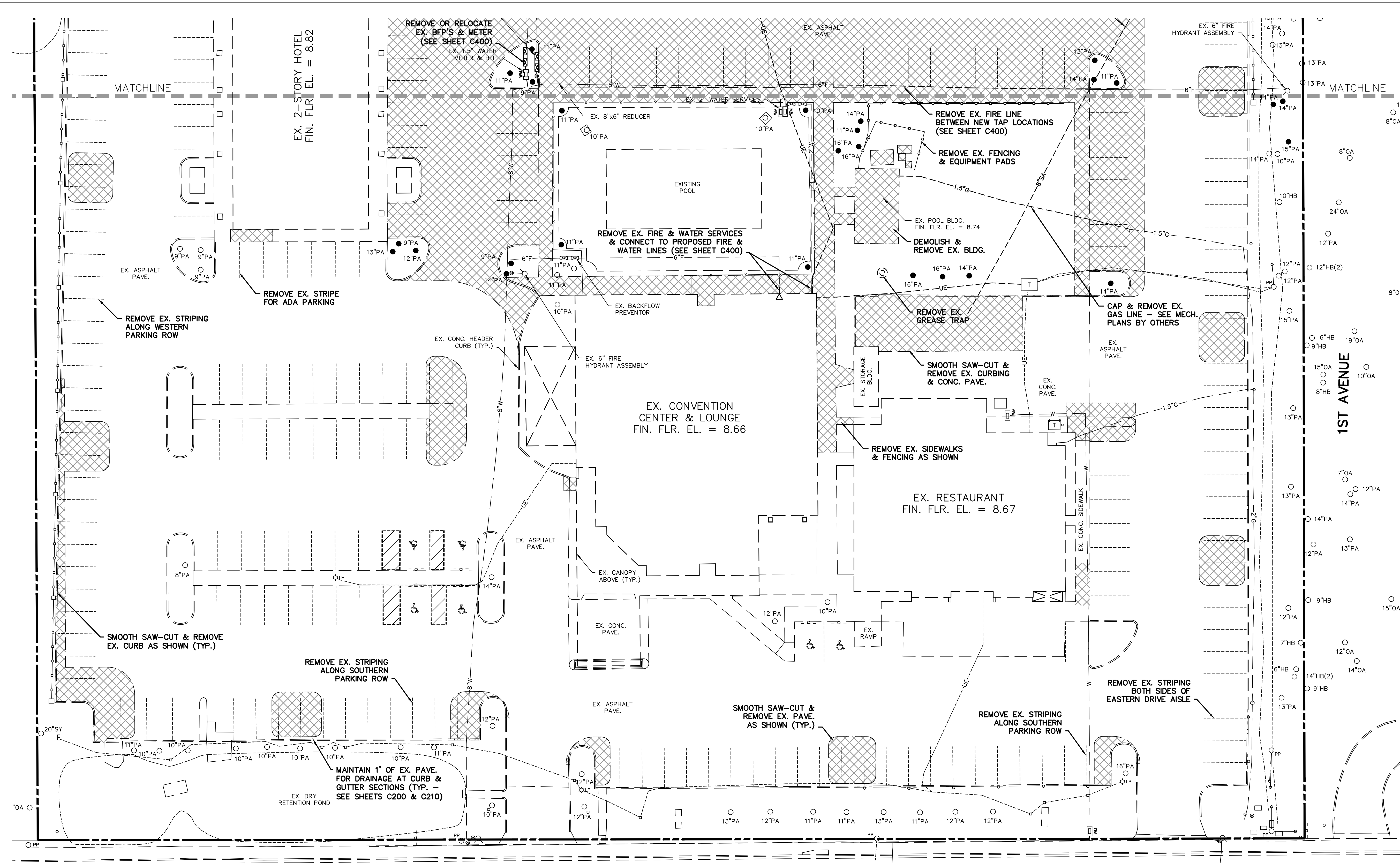
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SHEET DATE: 02/02/2023

SHEET TITLE:  
SITE  
DEMOLITION  
PLAN NORTH

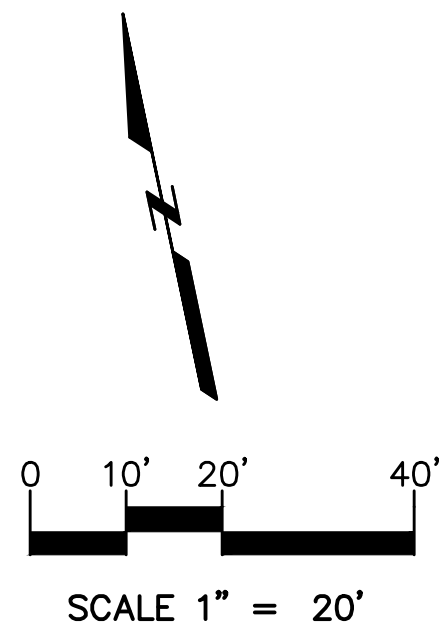
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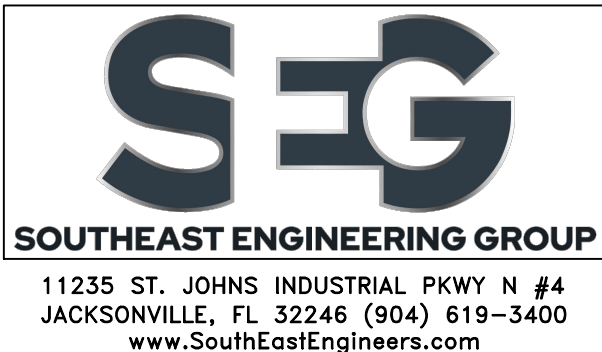
SADLER ROAD (80' ROW)



REPRESENTS  
EXISTING  
IMPROVEMENTS  
TO BE REMOVED

**TREE LEGEND**

- |    |                    |
|----|--------------------|
| HB | HACKBERRY          |
| OA | OAK                |
| PA | PALM               |
| SY | SYCAMORE           |
| ○  | TREE TO REMAIN     |
| ●  | TREE TO BE REMOVED |



OCEAN COAST HOTEL

2707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA

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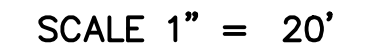
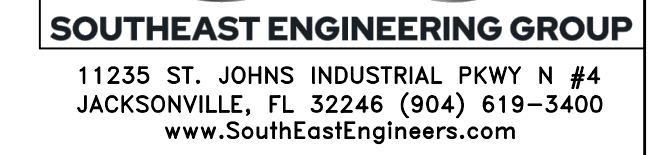
SHEET TITLE:

SITE  
DEMOLITION  
PLAN SOUTH

SHEET:

C110





2707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA

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TITLE:

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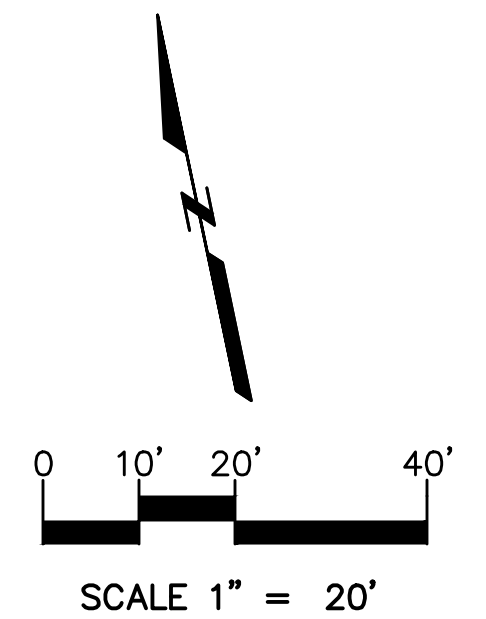
PLAN NORTH

C200









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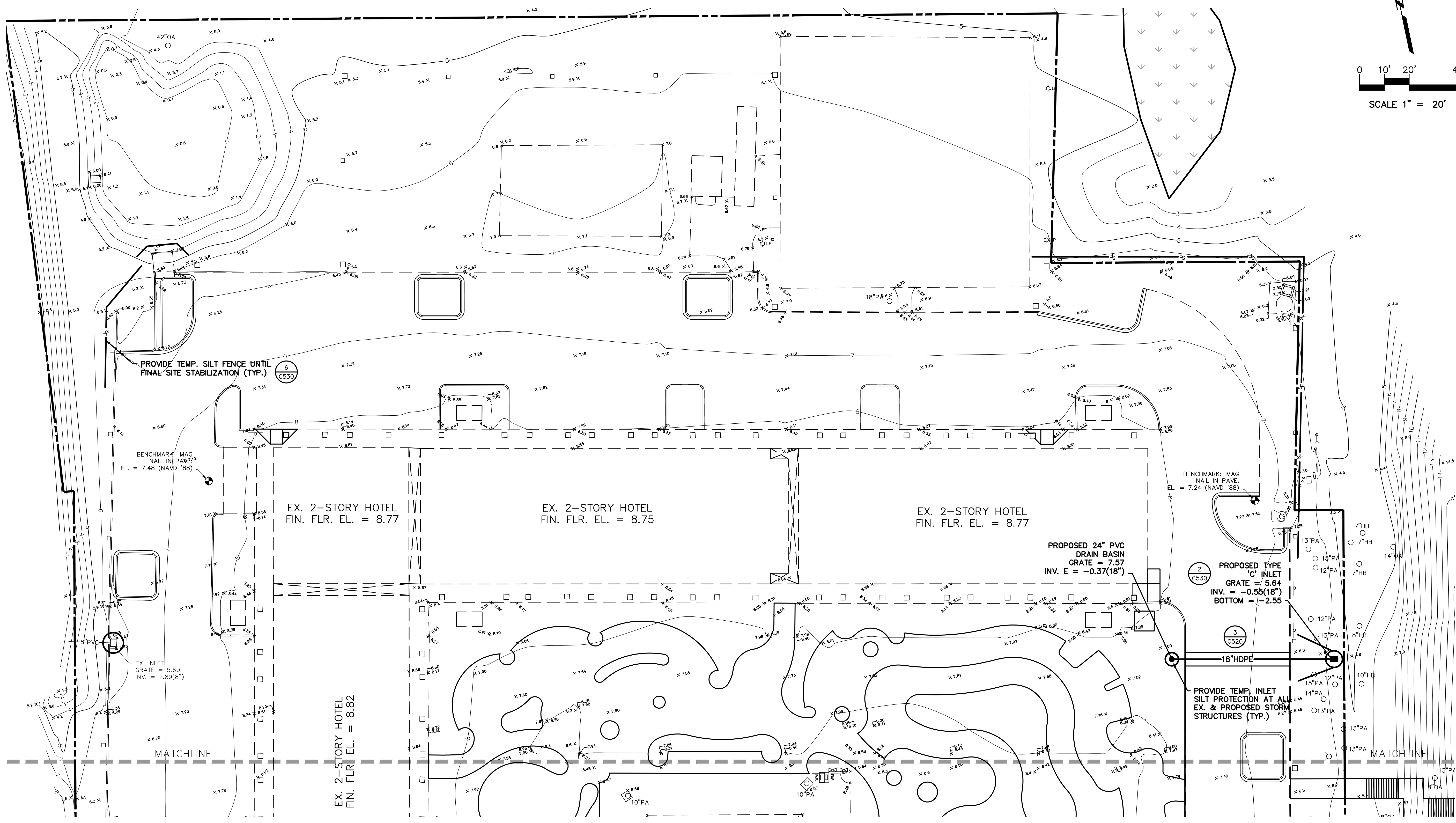
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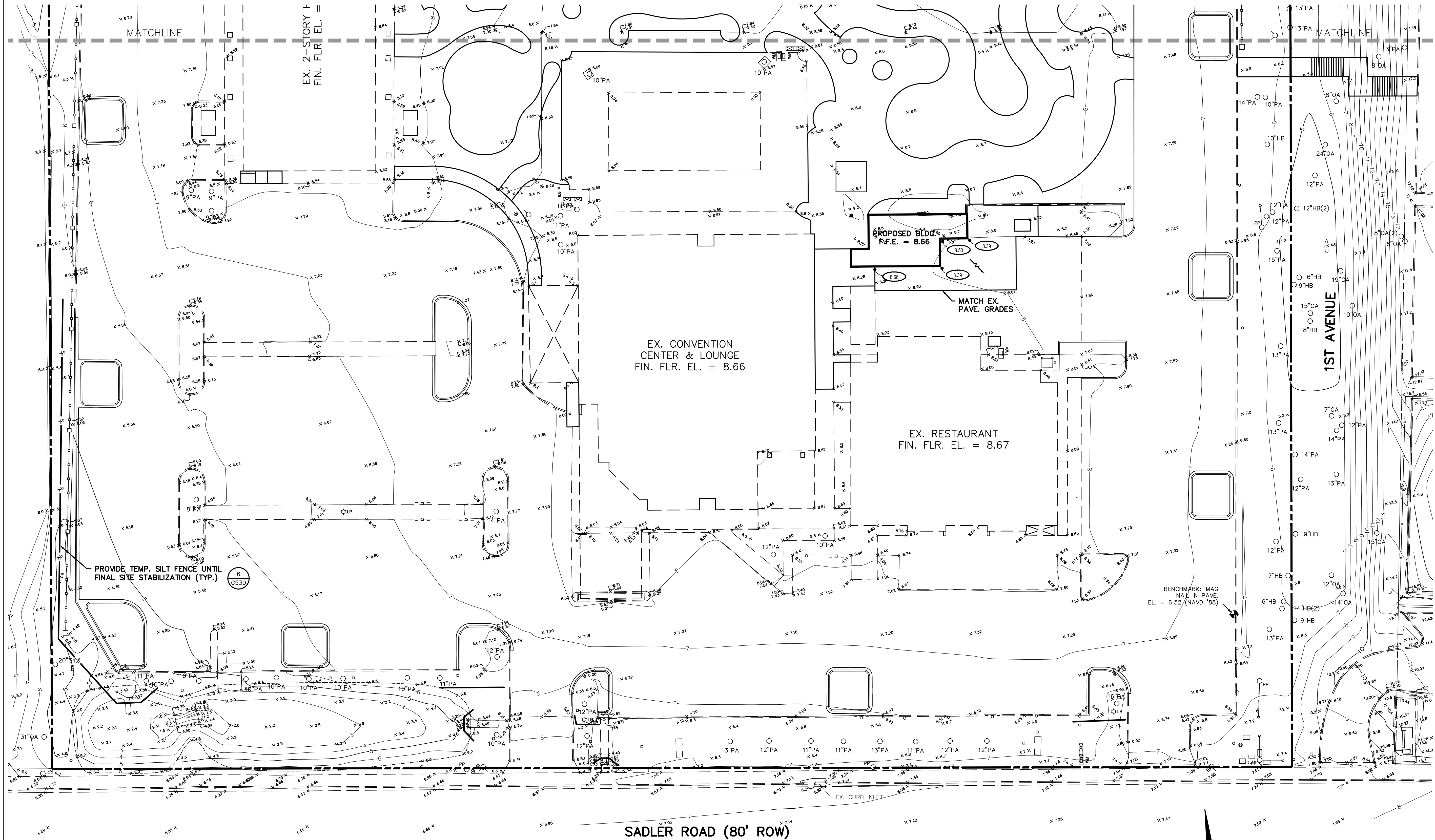
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SHEET TITLE:  
SITE GRADING & DRAINAGE PLAN  
NORTH

SHEET:  
**C300**







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FERNANDINA BEACH, FLORIDA

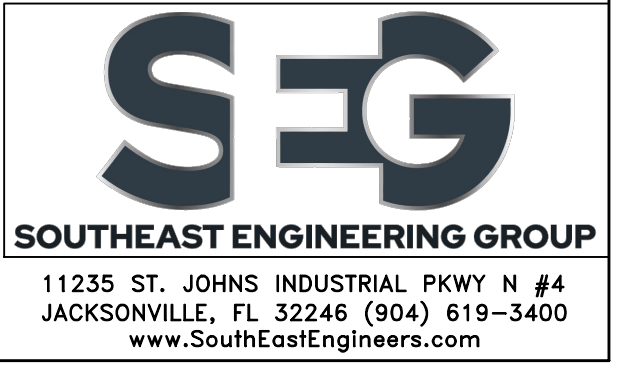
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SHEET TITLE:  
SITE GRADING  
PLAN SOUTH

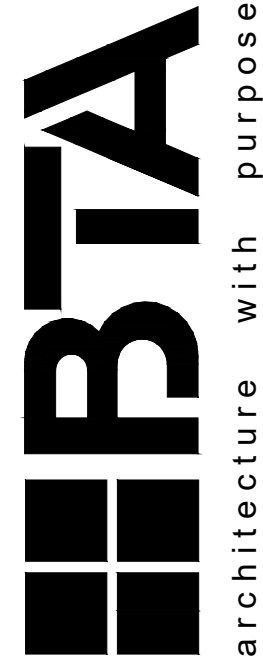
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C310







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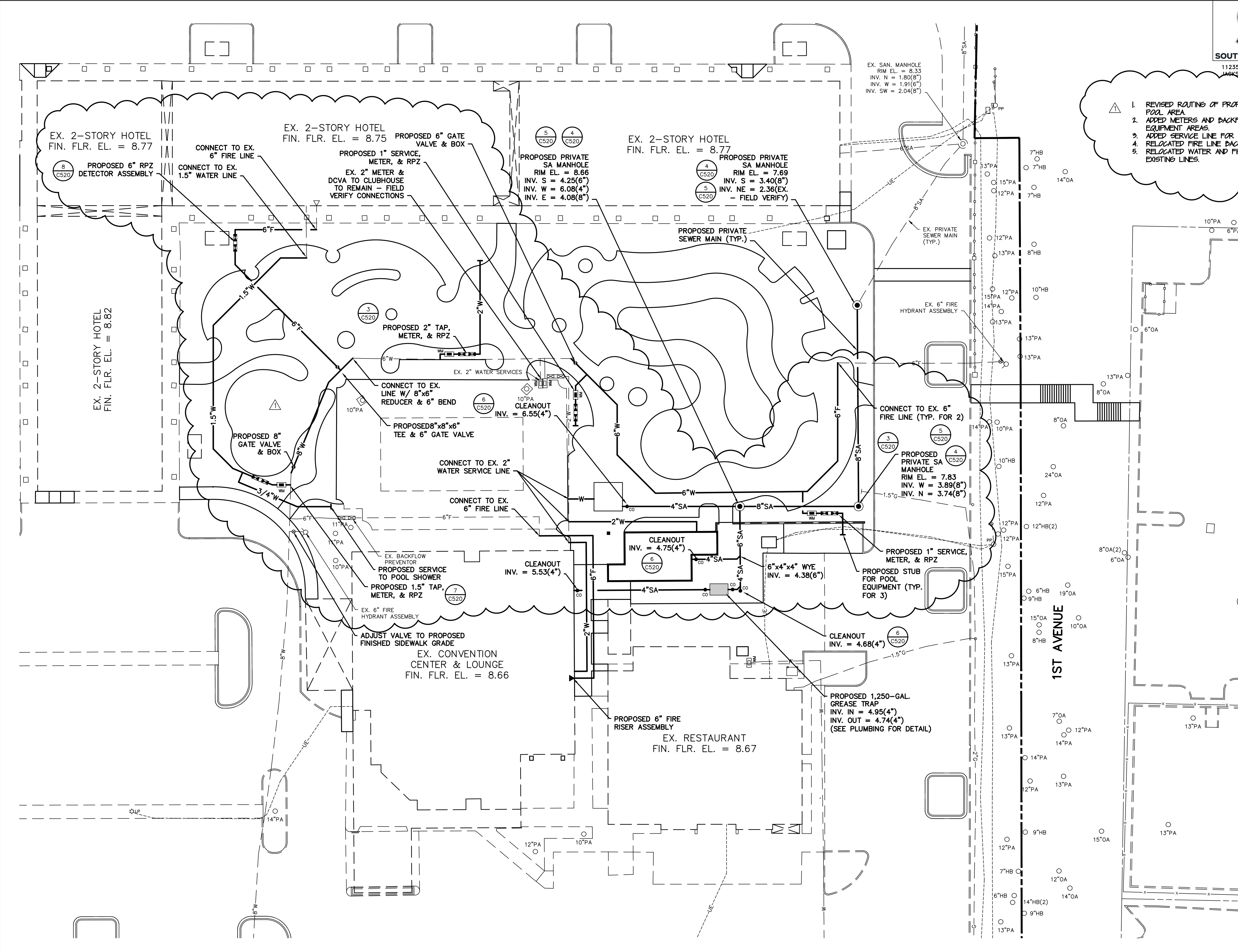
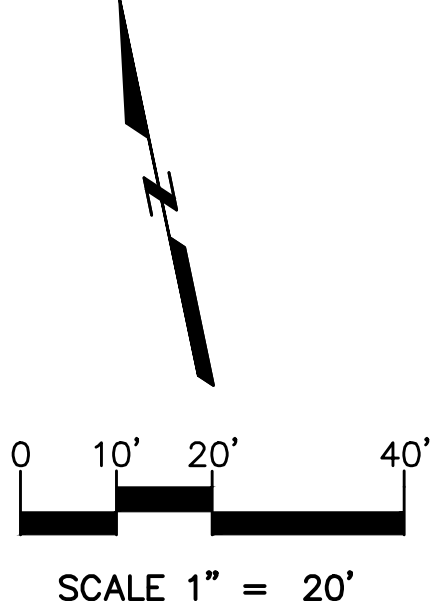
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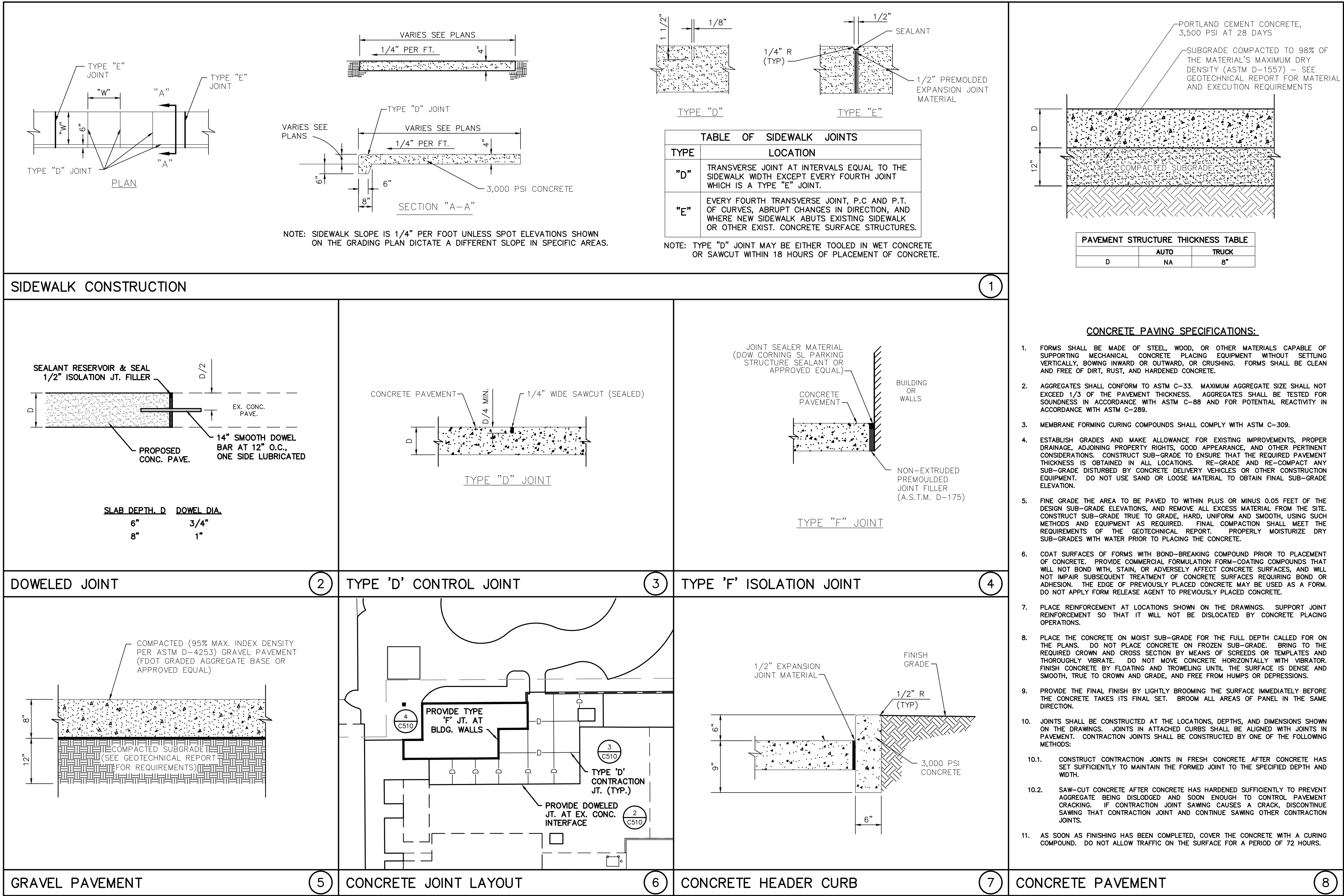
SHEET TITLE:  
SITE UTILITIES PLAN

SHEET:  
C400

1. REVISED ROUTING OF PROPOSED WATER MAIN THROUGH POOL AREA.
2. ADDED METERS AND BACKFLOW PREVENTERS AT POOL EQUIPMENT AREAS.
3. ADDED SERVICE LINE FOR POOL SHOWER.
4. RELOCATED FIRE LINE BACKFLOW PREVENTER.
5. RELOCATED WATER AND FIRE CONNECTION POINTS TO EXISTING LINES.







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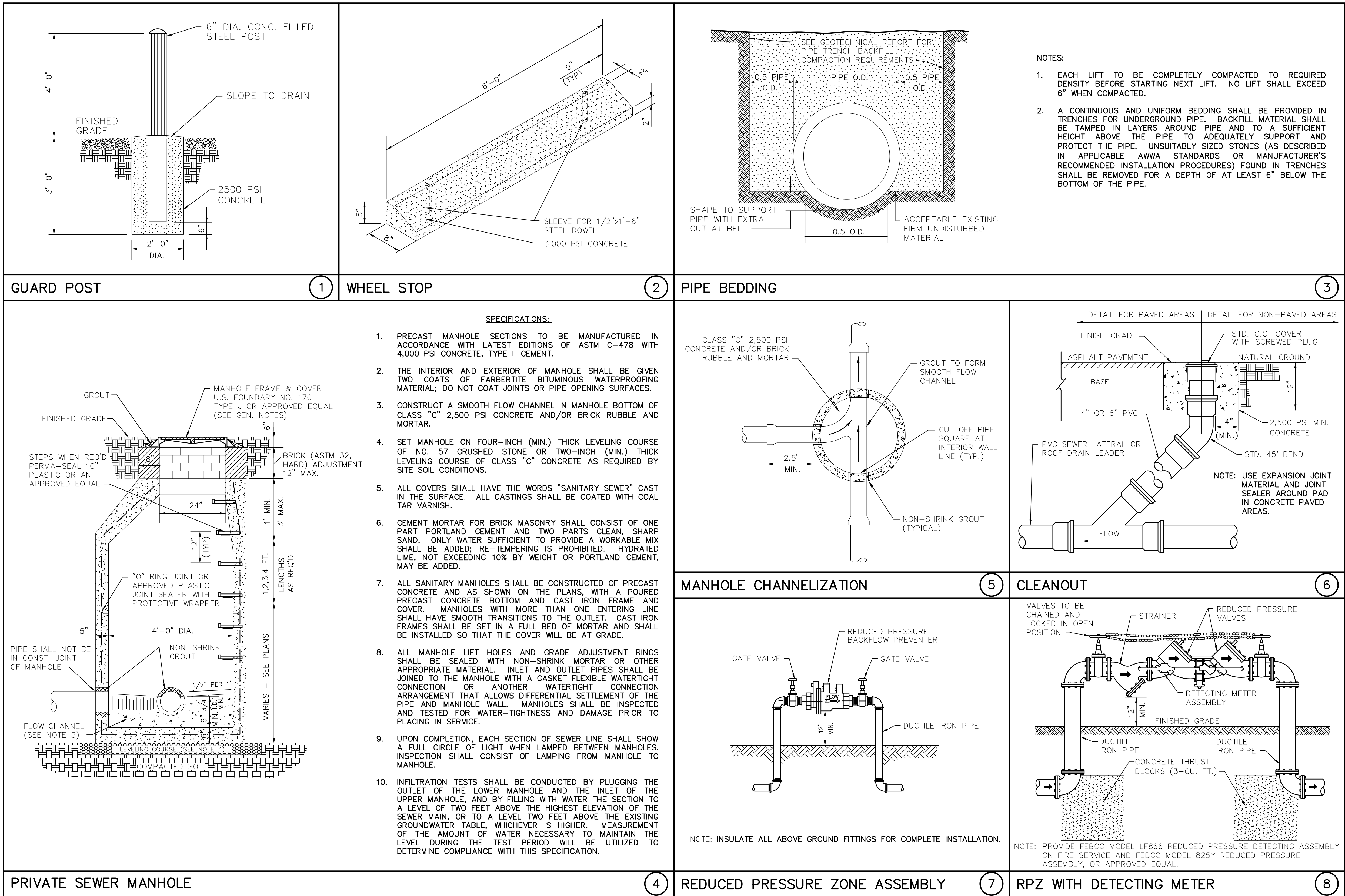
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BTA PROJECT NO: 22ENG041  
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SHEET TITLE:  
CIVIL  
DETAILS I

SHEET:  
C510





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BTA PROJECT NO: 22ENG041  
SHEET DATE: 02/02/2023

SHEET TITLE:  
CIVIL  
DETAILS II

SHEET:  
C520



1. INLET SHALL COMPLY WITH THE LATEST VERSIONS OF ASTM C 913-79, PRECAST CONCRETE WATER AND WASTEWATER STRUCTURES, AND ASTM C 890-913, MINIMUM DESIGN LOADING FOR MONOLITHIC OR SECTIONAL PRECAST CONCRETE WATER AND WASTEWATER STRUCTURES.
2. CONCRETE SHALL BE 4000 PSI AT 28 DAYS, TYPE II CEMENT.
3. SET INLET ON 4" (MIN.) THICKENING COURSE OF NO. 57 CRUSHED STONE OR 2" (MIN.) THICKENING COURSE OF CLASS "C" CONCRETE AS REQUIRED BY SITE SLOI CONDITIONS.
4. REINFORCEMENT FOR WALLS AND BASE SLAB SHALL BE #4 BARS AT 12" EACH WAY, FOR STRUCTURES UP TO 24" DEEP. DESIGN IS FOR AASHTO H-20 TRUCK LOADING.
5. USE NO LARGER PIPE THAN 18" RCP OR 21" CMP TO ENTER THE 2'-0" SIDES OF THE STRUCTURE. USE NO LARGER THAN 24" RCP OR 30" CMP TO ENTER THE 3'-1" SIDES OF THE STRUCTURE.
6. GRATE FOR NON-TRAFFIC AREAS IS TO BE A US FOUNDRY NO. 6210, OR APPROVED EQUAL. GRATE FOR ALL TRAFFIC AREAS EITHER LIGHT DUTY OR HEAVY DUTY IS TO BE A US FOUNDRY NO. 6212, OR APPROVED EQUAL.
7. JOINTS SHALL BE MADE IN ACCORDANCE WITH ASTM C443. ALL JOINTS SHALL BE EQUIPPED WITH A PRE-MOLDED PLASTIC JOINT SEALER, AND SHALL BE DOUBLE SEALED.
8. GROUT ALL HANDLING HOLES, AND ANNULAR SPACE BETWEEN ALL WALLS AND PIPES.
9. FRAMES SHALL BE SET CONCENTRIC, IN A FULL BED OF MORTAR.
10. GROUT SHALL BE 4,000 PSI, AND SHALL BE NON-METALLIC, NON-SHRINK, PRE-MIXED.

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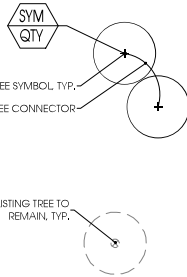
## LANDSCAPE INSTALLATION NOTES

- THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND BASE INFORMATION PRIOR TO BEGINNING PLANTING INSTALLATION. ALL EXISTING PLANTINGS SHALL REMAIN INTACT AND UNDISTURBED UNLESS OTHERWISE NOTED ON THE PLANS.
- CONTRACTOR SHALL NOTIFY ALL NECESSARY UTILITY COMPANIES 48 HOURS MINIMUM PRIOR TO BEGINNING VERIFICATION OF ALL UNDERGROUND UTILITIES. PREPARATION AND ALL OTHER OBSTRUCTIONS AND COORDINATE WITH OWNERS REPRESENTATIVE PRIOR TO BEGINNING OPERATIONS. DRAWINGS ARE PREPARED ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARING THESE DOCUMENTS.
- CONTRACTOR SHALL FURNISHES ITSELF HERETO WITH EXISTING SITE CONDITIONS PRIOR TO BEGINNING PLANTING. ALL EXISTING SITE FURNISHINGS, PLANTING, LANDSCAPE AND OTHER ELEMENTS TO REMAIN SHALL BE PROTECTED FROM ANY DAMAGE UNLESS OTHERWISE NOTED ON THE DRAWINGS, REFER TO THE EXISTING DRAWINGS.
- UNLESS OTHERWISE NOTED, THE LIMITS OF CONSTRUCTION ARE THE CLEARING LIMITS NOTED ON THE DRAWINGS, REFER TO THE EXISTING DRAWINGS.
- REPORT ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DRAWINGS AND FIELD CONDITIONS TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
- LANDSCAPE CONTRACTOR SHALL COORDINATE ALL WORK WITH RELATED CONTRACTORS AND WITH THE GENERAL CONSTRUCTION OF THE PROJECT IN ORDER NOT TO IMPED THE PROGRESS OF THE WORK OF OTHERS OR THE CONTRACTORS OWN WORK.
- CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE EXISTING GROUND COVER FOR ALL PLANTING BEDS AS SPECIFIED PRIOR TO PLANTING INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ALL PORTIONS OF EXISTING SOO AREAS DAMAGED WHILE COMPLETING PLANTING INSTALLATION WITH THE SAME GRASS SPECIES TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE.
- CONTRACTOR SHALL PERFORM SOIL TESTING PRIOR TO INSTALLATION TO DETERMINE NUTRIENTS PRESENT IN SOIL. PH OF SOIL AND SOIL TEXTURE OF TOP 12" OF SOIL, BASED ON THE RESULTS OF THE TESTS THE CONTRACTOR SHALL MAKE THE NECESSARY ADJUSTMENTS TO SUPPORT THE HEALTH OF THE NEWLY INSTALLED PLANTS.
- ALL PLANT MATERIAL SHALL BE IN FULL AND STRICT ACCORDANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (AAV) AND THE PROJECT MANUAL AND SPECIFICATIONS. PLANT MATERIALS SHALL EXCEED IN SOME RESPECTS SOME SPECIFICATIONS IF NECESSARY TO MEET THE MINIMUM REQUIREMENTS OF OTHERS.
- ALL PLANT MATERIAL SHALL BE IN FULL AND STRICT ACCORDANCE WITH THE FLORIDA GRASSES AND STANDARDS FOR NURSERY PLANTS AS PUBLISHED BY THE STATE OF FLORIDA DEPARTMENT OF AGRICULTURE. ALL PLANT MATERIAL SHALL MEET FLORIDA A1 GR BETER.
- ALL TREES SHALL HAVE 1" OR CLEAR TRUNK UNLESS OTHERWISE SPECIFIED.
- ALL CONTAINER SIZES NOTED ON PLANT LIST ARE MINIMUM. INCREASE SIZE IF NECESSARY TO CONFORM TO PLANT SIZE AND SPECIFICATIONS. ANY MATERIAL NOT MEETING THE SPECIFIED SIZE SHALL BE REMOVED AND REPLACED AT CONTRACTORS EXPENSE.
- ALL TREE CALIPERS SIZES NOTED ON PLANT LIST ARE MINIMUM. INCREASE SIZE IF NECESSARY TO CONFORM TO PLANT SIZE AND SPECIFICATIONS. ANY MATERIAL NOT MEETING THE SPECIFIED SIZE SHALL BE REMOVED AND REPLACED AT CONTRACTORS EXPENSE.
- ANY TREE WITH A TRUNK FORMED "Y" SHAPE CROTCH WILL BE REJECTED.
- BROKEN CONTROL FABRIC SHALL BE INSTALLED IN ALL SHRUB AND GROUND COVER PLANTING AREAS AS PER SPECIFICATIONS FOR ALL SLOPES THAT EXCEED 3:1. SEE GRASSING PLANS FOR LOCATION OF SLOPES GREATER THAN 3:1 AND ADJACENT TO ANY WETLAND AREAS.
- TYPICALLY, SHRUB AND GROUND COVER PLANTINGS ARE SHOWN AS MASS PLANTING BEDS. PLANTS SHALL BE PLACED ON A TRIANGULAR SPACING CONFIGURATION. STANDARD SPACING, PLANT CENTER TO CENTER DIMENSIONS (C/C) ARE LISTED UNDER "SPACING" ON THE PLANT LIST.
- LANDSCAPE CONTRACTOR SHALL FIELD STATE THE LOCATION OF ALL PLANT MATERIAL PRIOR TO BEGINNING INSTALLATION FOR THE REVIEW AND APPROVAL OF THE OWNERS REPRESENTATIVE. AND/OR LANDSCAPE ARCHITECT. ANY MATERIAL INSTALLED WITHOUT APPROVAL IS SUBJECT TO BEING RELOCATED AT THE CONTRACTORS EXPENSE.
- LANDSCAPE CONTRACTOR SHALL FIELD ADJUST LOCATION OF PLANT MATERIAL AS NECESSARY TO AVOID DAMAGE TO ALL EXISTING UNDERGROUND UTILITIES AND/OR EXISTING ABOVE GROUND ELEMENTS. ALL CHANGES REQUIRED SHALL BE COORDINATED AT THE CONTRACTORS EXPENSE AND SHALL BE COORDINATED WITH THE OWNERS REPRESENTATIVE AND THE LANDSCAPE ARCHITECT.
- CONTRACTOR SHALL MULCH ALL NEW PLANT MATERIAL THROUGHOUT AND COMPLETELY TO DEPTH OF 3" UTILIZING HARDWOOD MULCH UNLESS OTHERWISE SPECIFIED.
- ANY SUBSTITUTIONS IN SIZE AND/OR PLANT MATERIAL MUST BE APPROVED BY LANDSCAPE ARCHITECT AND/OR OWNERS REPRESENTATIVE BEFORE PLANTING CAN BEGIN.
- CONTRACTOR SHALL REFER TO THE LANDSCAPE PLANTING DETAILS, PLANT LIST, GENERAL NOTES AND THE PROJECT MANUAL IF AVAILABLE AND SPECIFICATIONS FOR FURTHER AND COMPLETE LANDSCAPE PLANTING INSTRUCTIONS.
- LANDSCAPE CONTRACTOR SHALL COORDINATE ALL LANDSCAPE PLANTING WORK WITH IRRIGATION WORK. LANDSCAPE WATERING AS REQUIRED BY OWNERS REPRESENTATIVE TO SUPPLEMENT IRRIGATION WATERING AND IRRIGATION. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR HAND WATERING IN ALL PLANTING AREAS, REGARDLESS OF THE STATUS OF EXISTING OR PROPOSED IRRIGATION.
- LANDSCAPE CONTRACTOR SHALL CLEAN THE WORK AREAS AT THE END OF EACH WORKING DAY. RUBBER AND TIRE SHALL BE COLLECTED AND DEPOSITED OFFSITE. SHALL ALL MATERIALS, PRODUCTS AND EQUIPMENT SHALL BE STORED IN AN ORGANIZED FASHION AS DIRECTED BY THE OWNERS REPRESENTATIVE.
- LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE GRADING OF ALL AREAS INCLUDING CREATING POSITIVE DRAINAGE AWAY FROM BUILDINGS.
- LANDSCAPE CONTRACTOR SHALL REGRADE ALL AREAS DISTURBED BY PLANT REMOVAL, RELOCATION AND/OR INSTALLATION WORK. LANDSCAPE CONTRACTOR SHALL REPLACE OR EQUAL SIZE AND QUALITY ANY AND ALL EXISTING PLANT MATERIAL DISTURBED OR DAMAGED BY PLANT REMOVAL, RELOCATION AND/OR INSTALLATION.
- CONTRACTORS SHALL COMPLY WITH ALL POSTER REQUIREMENTS.

## PLANT\_SCHEDULE

| CODE                               | QTY       | BOTANICAL NAME                    | COMMON NAME                     | SIZE                             | SPACING  |
|------------------------------------|-----------|-----------------------------------|---------------------------------|----------------------------------|----------|
| <b>LARGE TREES</b>                 |           |                                   |                                 |                                  |          |
| BR                                 | 18        | Betula nigra                      | River Birch                     | 3" CAL., 12'-14' HT. Multi Trunk |          |
| QG                                 | 25        | Quercus geminata                  | Sand Live Oak                   | 2" CAL., 10' HT.                 |          |
| <b>PALMS</b>                       |           |                                   |                                 |                                  |          |
| BC                                 | 4         | Butia capitata                    | Pindo Palm                      | 14' HT                           |          |
| LC                                 | 2         | Livistona chinensis               | Chinese Fan Palm                | 8' C.T. Multi Trunk              |          |
| SP                                 | 30        | Sabal palmetto                    | Cabbage Palmetto                | 10' - 16' C.T.                   |          |
| XN                                 | 4         | x Butagrus nabonnandii            | Mule Palm                       | 8'-10' C.T., Heavy Trunk         |          |
| <b>UNDERSTORY/ FLOWERING TREES</b> |           |                                   |                                 |                                  |          |
| LM                                 | 2         | Lagerstroemia indica 'Muskogee'   | Muskogee Crape Myrtle           | 8' HT., Multi Trunk              |          |
| LJ                                 | 7         | Ligustrum japonicum               | Japanese Privet                 | 2" Cal. 8' HT.                   |          |
| MC2                                | 13        | Morella cerifera                  | Wax Myrtle                      | 2" Cal. 8' HT. Multi Trunk       |          |
| <b>HEDGE</b>                       |           |                                   |                                 |                                  |          |
| PT                                 | 133       | Pittosporum tobira                | Japanese Pittosporum            | 24" HT. X 24" SPD.               | AS SHOWN |
| PM                                 | 86        | Podocarpus macrophyllus           | Podocarpus                      | 24" HT. X 24" SPD.               | AS SHOWN |
| VO                                 | 481       | Viburnum obovatum                 | Walter's Viburnum               | 18" HT. X 18" SPD                | AS SHOWN |
| <b>ACCENTS</b>                     |           |                                   |                                 |                                  |          |
| PS                                 | 64        | Philodendron Selloum              | Cut leaf Philodendron           | 24" HT. X 24" SPD.               | AS SHOWN |
| YN                                 | 17        | Yucca neomexicana                 | New Mexico Spanish Bayonet      | 36" HT. X 36" SPD                | AS SHOWN |
| <b>SHRUB AREAS</b>                 |           |                                   |                                 |                                  |          |
| IV                                 | 51        | Ilex vomitoria 'Nana'             | Dwarf Yaupon Holly              | 18" HT. 18" SPD                  | 24" o.c. |
| PX                                 | 105       | Philodendron xanadu               | Xanadu Philodendron             | 24" HT. X 24" SPD.               | 24" o.c. |
| PV                                 | 61        | Pittosporum tobira 'Variegata'    | Variegated Japanese Pittosporum | 18" HT. 18" SPD                  | 30" o.c. |
| RI                                 | 438       | Rhaphiolepis indica               | Indian Hawthorn                 | 18" HT. 18" SPD                  | 24" o.c. |
| RR                                 | 136       | Rhododendron x 'Fashion'          | Fashion Azalea                  | 24" HT. X 24" SPD.               | 24" o.c. |
| RF                                 | 30        | Rosa x 'Meigalpio'                | Red Drift® Groundcover Rose     | 16" HT. 16" SPD                  | 18" o.c. |
| ZP                                 | 70        | Zamia pumila                      | Coontie                         | 18" HT. 18" SPD                  | 36" o.c. |
| <b>GROUND COVERS</b>               |           |                                   |                                 |                                  |          |
| ANN                                | 114       | ANN                               | Annuals                         | 4" Gal Pot, Full                 | 18" o.c. |
| DT                                 | 451       | Dianella tasmanica 'Blueberry'    | Blueberry Flax Lily             | 16" HT                           | 24" o.c. |
| DI                                 | 137       | Dietes iridioides                 | White African Iris              | 1 GAL, FULL POT                  | 24" o.c. |
| EG                                 | 842       | Evolvulus glomeratus 'Blue Daze'  | Brazilian Dwarf Morning Glory   | 8" HT. X 12" SPD                 | 18" o.c. |
| JP                                 | 455       | Juniperus chinensis 'Parsonii'    | Parsoni Juniper                 | 12" HT. X 16" SPD                | 18" o.c. |
| LM                                 | 661       | Liriope muscari 'Emerald Goddess' | Evergreen Liriope               | 16" HT                           | 18" o.c. |
| <b>GRASSES</b>                     |           |                                   |                                 |                                  |          |
| MC                                 | 120       | Muhlenbergia capillaris           | Pink Muhly Grass                | 24" HT. X 24" SPD                | 30" o.c. |
| SB                                 | 49        | Tripsacum dactyoides              | Sand Cord Grass                 | 18" HT. 18" SPD                  | 36" o.c. |
| <b>TURF</b>                        |           |                                   |                                 |                                  |          |
| SOD                                | 23,788 sf | Stenotaphrum secundatum           | St. Augustine Grass             | Sod (Rolled, No Gaps)            |          |

KEY FOR TYP. CALLOUT:



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERMINA BEACH, FLORIDA



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| REVISIONS |
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DESIGNER'S SEAL

MATTHEW E. HARRISON  
LANDSCAPE ARCHITECT

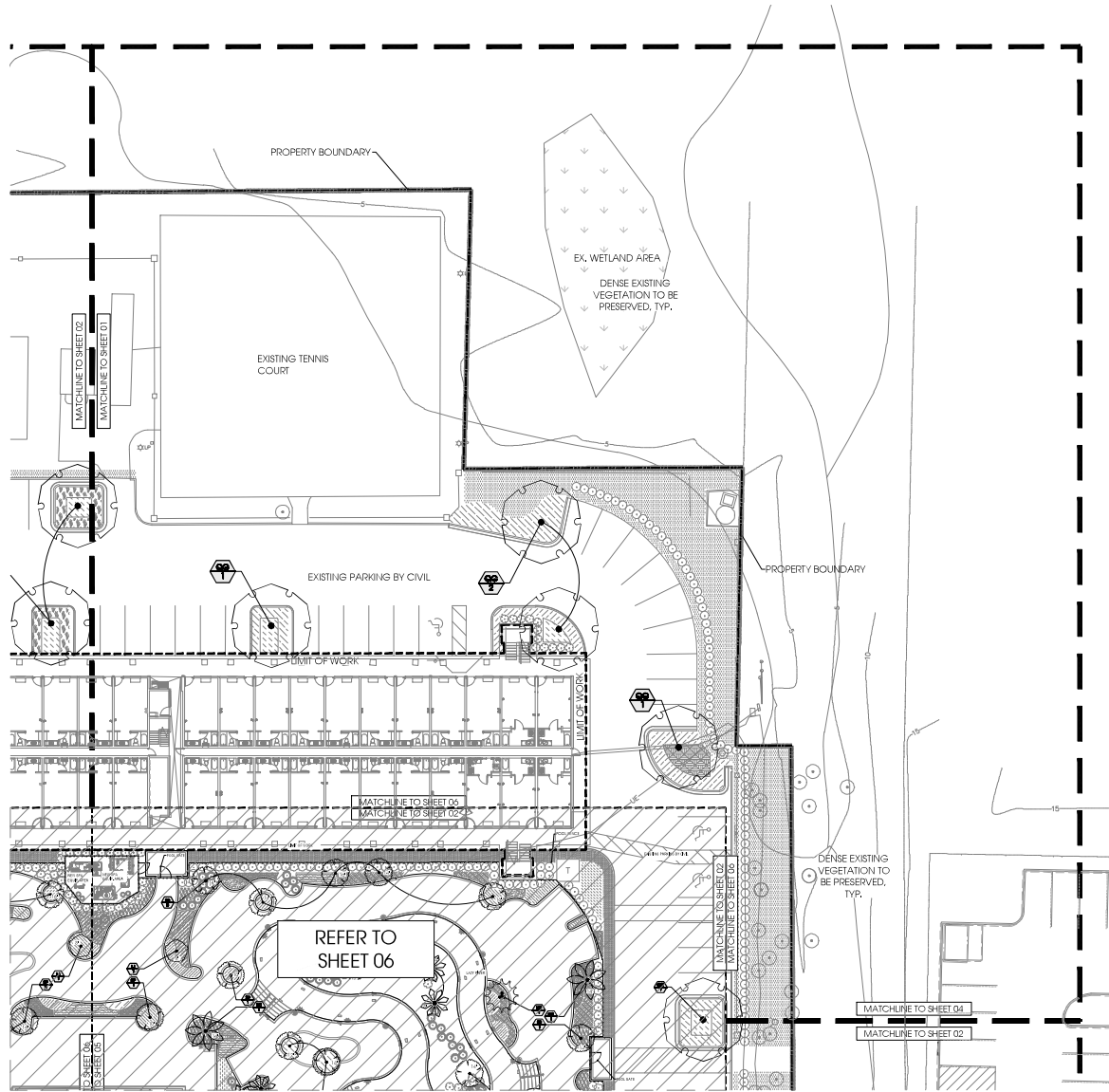
PROJECT NO. 22097  
SHEET DATE 05/02/2024

SHEET TITLE  
LANDSCAPE  
NOTES &  
SCHEDULE

SHEET  
LT-00







| PLANT LIST       |     |                       |
|------------------|-----|-----------------------|
| SYM.             | KEY | COMMON NAME           |
| CANOPY TREES     |     |                       |
| BR               |     | River Birch           |
| QO               |     | Sand Live Oak         |
| PALMS            |     |                       |
| BC               |     | Pindo Palm            |
| LC               |     | Chinese Fan Palm      |
| SP               |     | Sabal Palm            |
| XN               |     | Mule Palm             |
| UNDERSTORY TREES |     |                       |
| LIM              |     | Muskogee Crepe Myrtle |
| LJ               |     | Japanese Privet       |
| MC2              |     | Wax Myrtle            |



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA



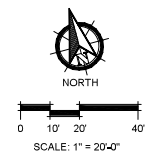
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DESIGNER: MATTHEW S. HARRISON  
LANDSCAPE ARCHITECT

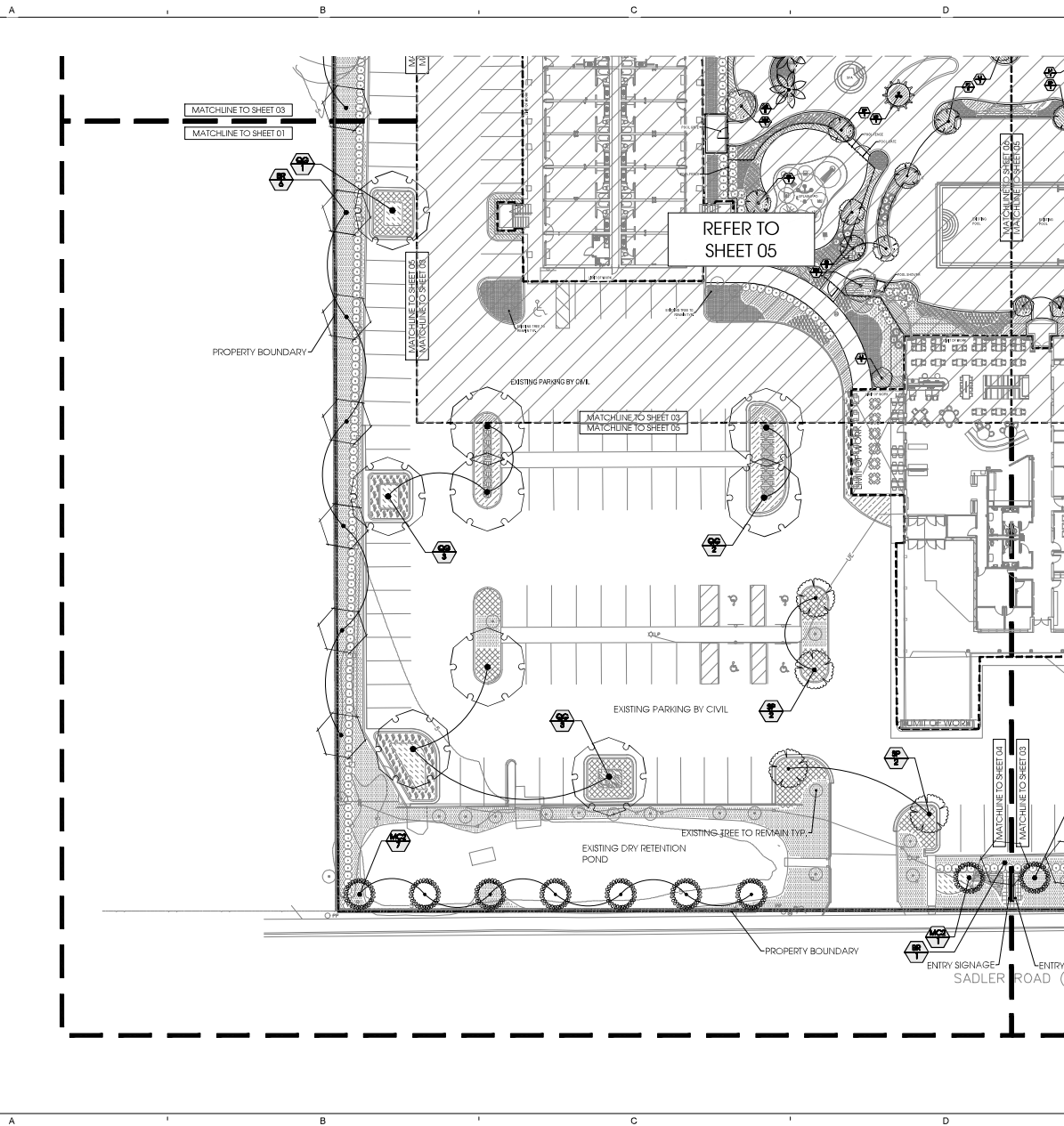
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SHEET TITLE: LANDSCAPE TREE PLAN

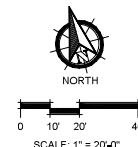
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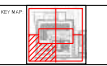




| PLANT LIST       |     |                       |
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| SYM.             | KEY | COMMON NAME           |
| CANOPY TREES     |     |                       |
| BR               |     | River Birch           |
| QO               |     | Sand Live Oak         |
| PALMS            |     |                       |
| BC               |     | Pindo Palm            |
| LC               |     | Chinese Fan Palm      |
| SP               |     | Sabal Palm            |
| XN               |     | Mule Palm             |
| UNDERSTORY TREES |     |                       |
| LIM              |     | Muskogee Crepe Myrtle |
| LJ               |     | Japanese Privet       |
| MC2              |     | Wax Myrtle            |



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA



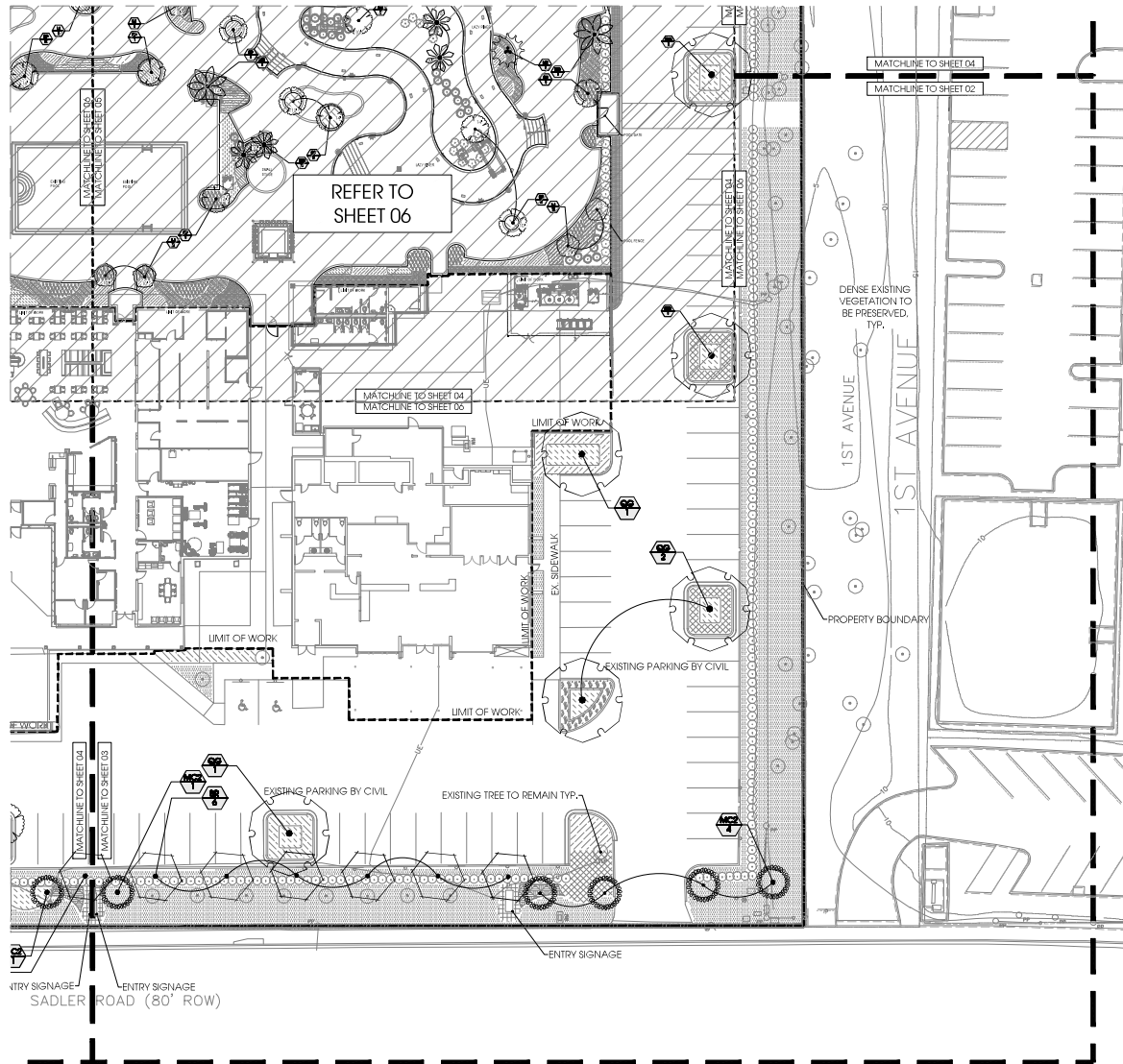
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DESIGNER AND SEAL  
MATTHEW E. HARRISON  
LANDSCAPE ARCHITECT

PROJECT NO. 22097  
SHEET DATE 05/09/2024

SHEET TITLE  
LANDSCAPE  
TREE PLAN

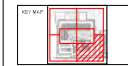
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| PLANT LIST       |     |                       |
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| SYM.             | KEY | COMMON NAME           |
| CANOPY TREES     |     |                       |
| BR               |     | River Birch           |
| QO               |     | Sand Live Oak         |
| PALMS            |     |                       |
| BC               |     | Pindo Palm            |
| LC               |     | Chinese Fan Palm      |
| SP               |     | Sabal Palm            |
| XN               |     | Mule Palm             |
| UNDERSTORY TREES |     |                       |
| LIM              |     | Muskogee Crepe Myrtle |
| LJ               |     | Japanese Privet       |
| MC2              |     | Wax Myrtle            |



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA



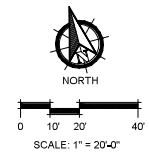
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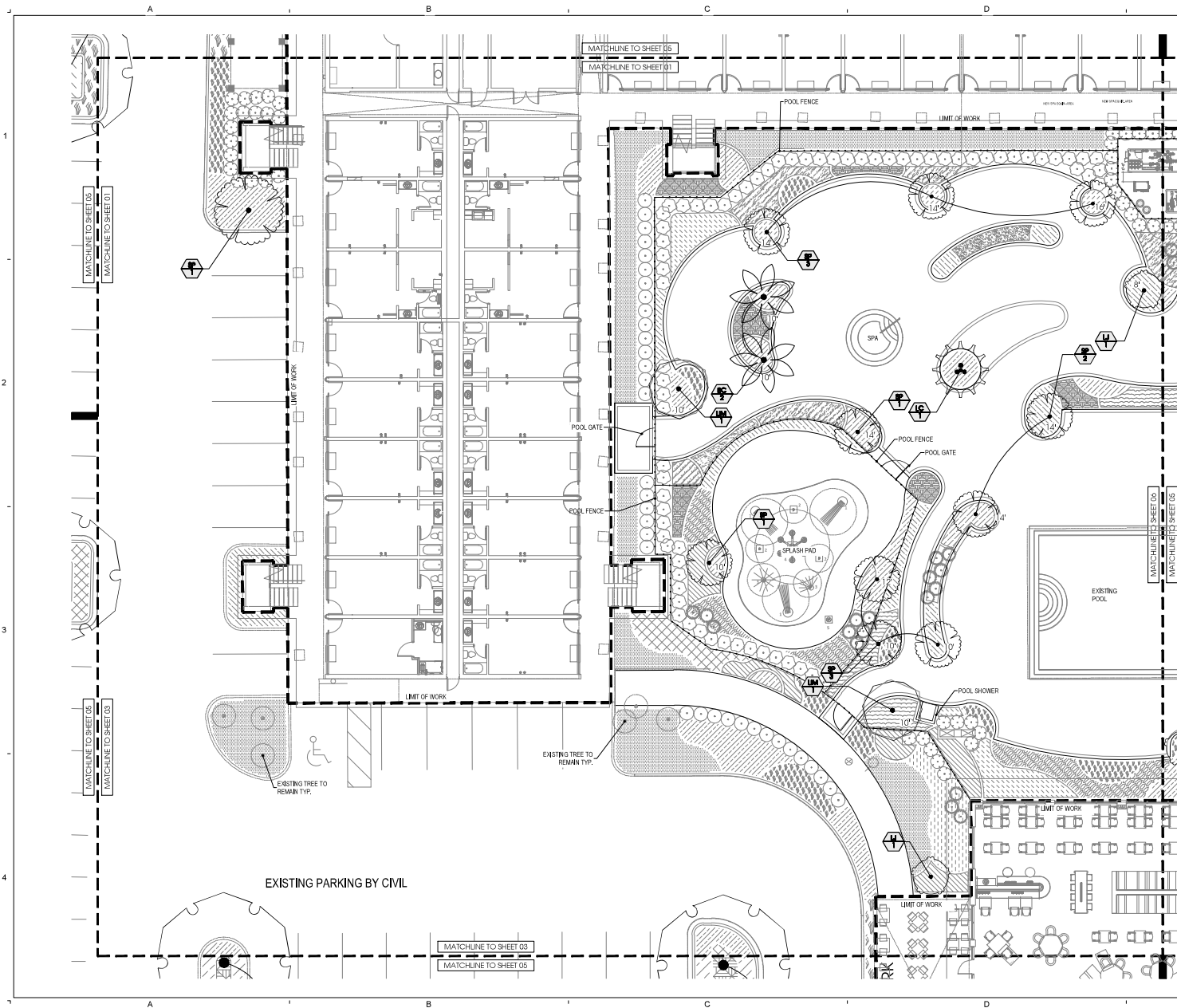
DESIGNER: HATCHER & HATCHER  
LANDSCAPE

PROJECT NO: 22097  
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SHEET TITLE: LANDSCAPE TREE PLAN

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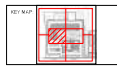




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| SYM.             | KEY | COMMON NAME           |
| CANOPY TREES     |     |                       |
| BR               |     | River Birch           |
| QG               |     | Sand Live Oak         |
| PALMS            |     |                       |
| BC               |     | Pindo Palm            |
| LC               |     | Chinese Fan Palm      |
| SP               |     | Sabal Palm            |
| XN               |     | Mule Palm             |
| UNDERSTORY TREES |     |                       |
| LIM              |     | Muskogee Crepe Myrtle |
| LJ               |     | Japanese Privet       |
| MC2              |     | Wax Myrtle            |



**OCEAN COAST HOTEL**  
707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA



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DESIGNER AND SEAL  
  
MATTHEW S. HARRISON  
LANDSCAPE ARCHITECT

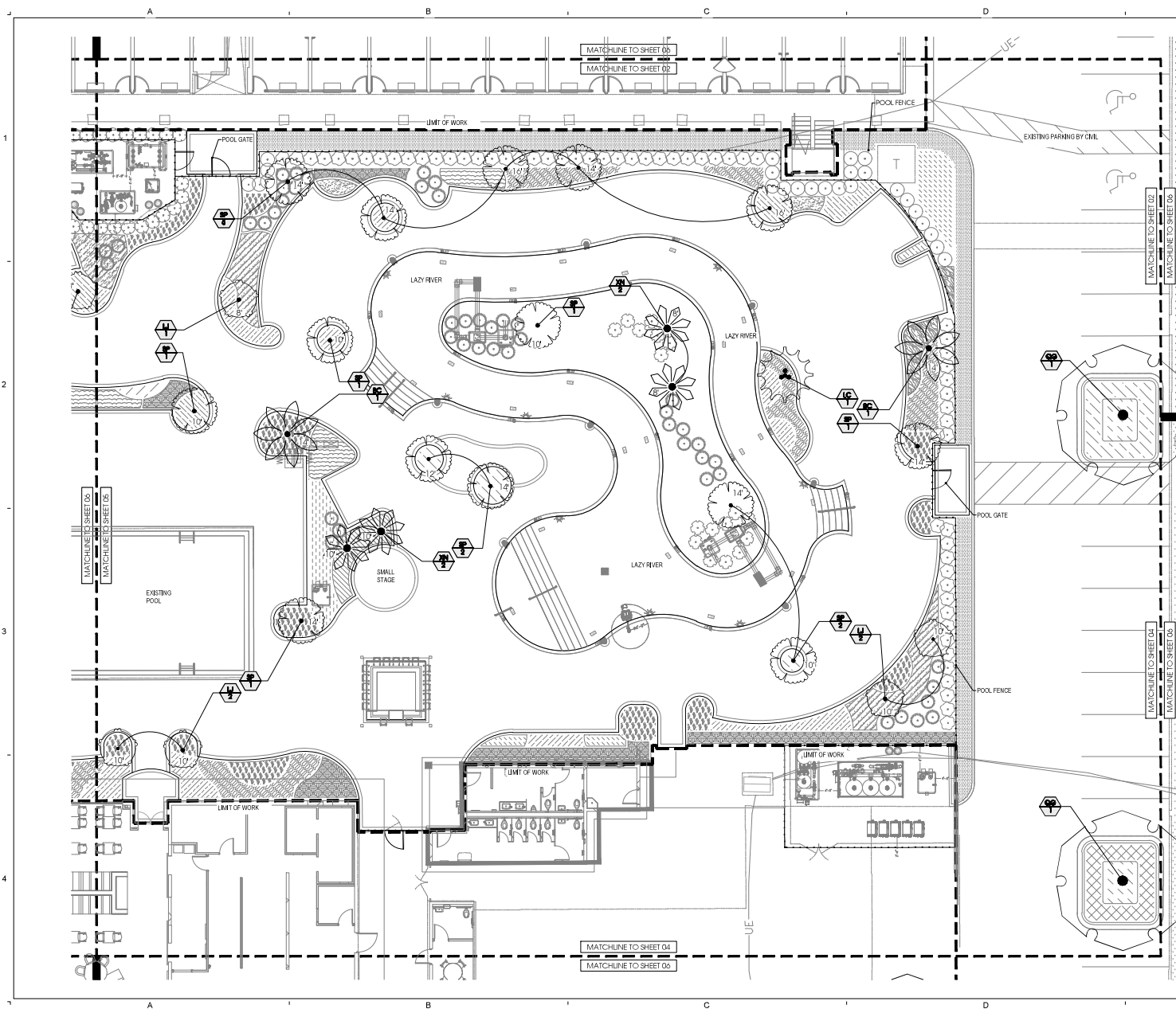
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SHEET DATE: 05/09/2024

SHEET TITLE:  
**LANDSCAPE  
TREE PLAN**

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**LT-05**

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| PLANT LIST       |     |                       |
|------------------|-----|-----------------------|
| SYM.             | KEY | COMMON NAME           |
| CANOPY TREES     |     |                       |
| BR               |     | River Birch           |
| QO               |     | Sand Live Oak         |
| PALMS            |     |                       |
| BC               |     | Pindo Palm            |
| LC               |     | Chinese Fan Palm      |
| SP               |     | Sabal Palm            |
| XN               |     | Mule Palm             |
| UNDERSTORY TREES |     |                       |
| LIM              |     | Muskogee Crepe Myrtle |
| LJ               |     | Japanese Privet       |
| MC2              |     | Wax Myrtle            |

0 5' 10' 20'

SCALE: 1" = 10'-0"



architecture with purpose



INNOVATIONS

OCEAN COAST HOTEL

707 SADLER ROAD

FERNANDINA BEACH, FLORIDA



SITE MAP

| REVISIONS |
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PREPARED BY: MATTHEW S. HARRISON

PROJECT NO: 22097

SHEET DATE: 05/09/2024

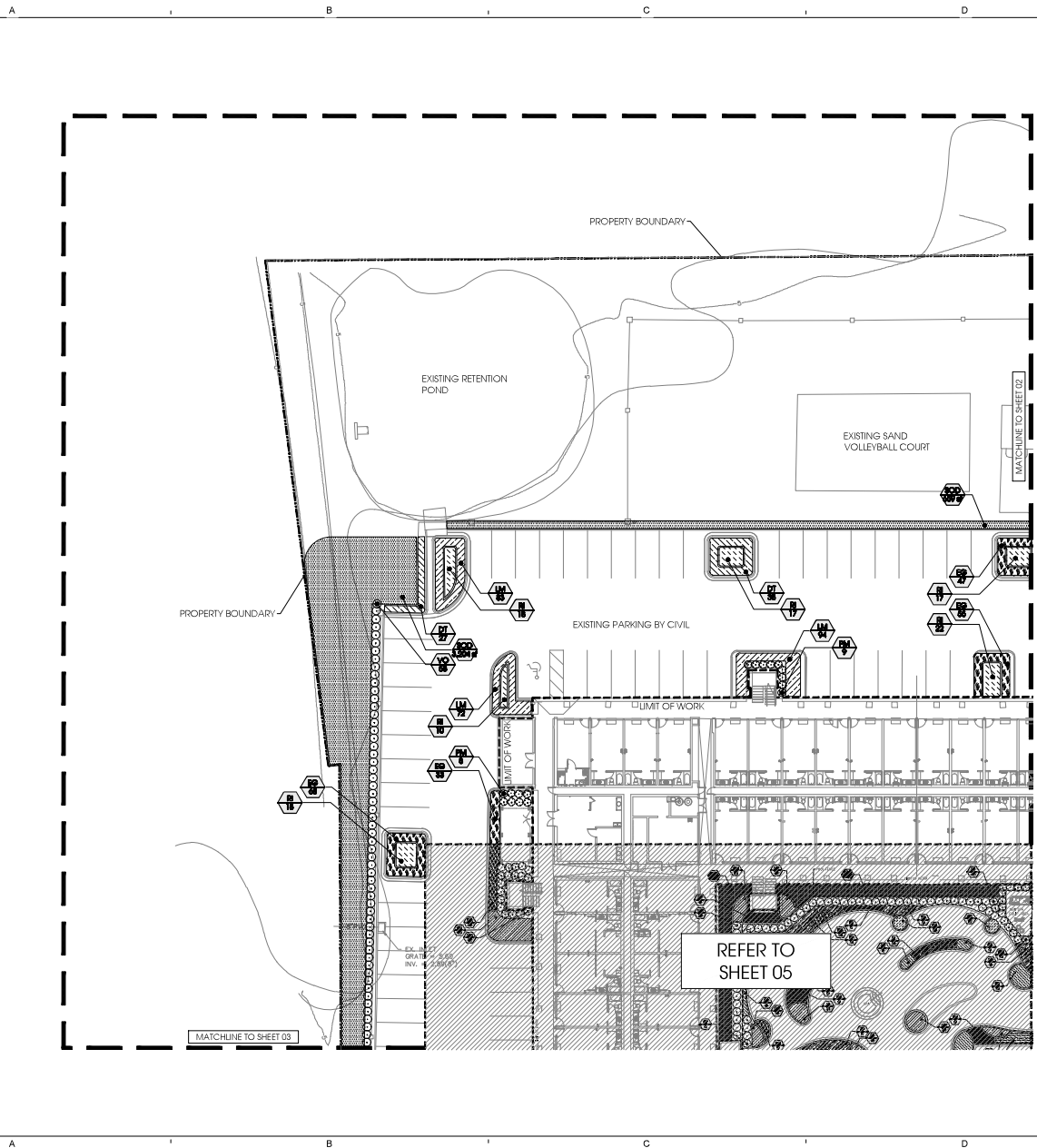
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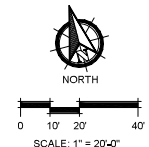


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| PLANT LIST   |                                 |
|--------------|---------------------------------|
| KEY          | COMMON NAME                     |
| HEDGE        |                                 |
| PT           | Japanese Pittosporum            |
| PM           | Podocarpus                      |
| VO           | Walter's Viburnum               |
| ACCENTS      |                                 |
| PS           | Cut Leaf Philodendron           |
| YN           | New Mexico Spanish Bayonet      |
| SHRUB AREAS  |                                 |
| IV           | Dwarf Yaupon Holly              |
| PX           | Xanadu Philodendron             |
| PV           | Variegated Japanese Pittosporum |
| RI           | Indian Hawthorn                 |
| RF           | Fashion Azalea                  |
| RR           | Red Drift Groundcover Rose      |
| ZP           | Croton                          |
| GROUND COVER |                                 |
| ANN          | Annals                          |
| DT           | Blueberry Flax Lily             |
| DJ           | White African Iris              |
| EG           | Brazilian Dwarf Morning Glory   |
| JP           | Parsoni Juniper                 |
| LM           | Evergreen Liriod                |
| GRASSES      |                                 |
| MC           | Pink Muhly Grass                |
| SB           | Sand CordGrass                  |
| TURF         |                                 |
| SOD          | St. Augustine Grass             |



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA



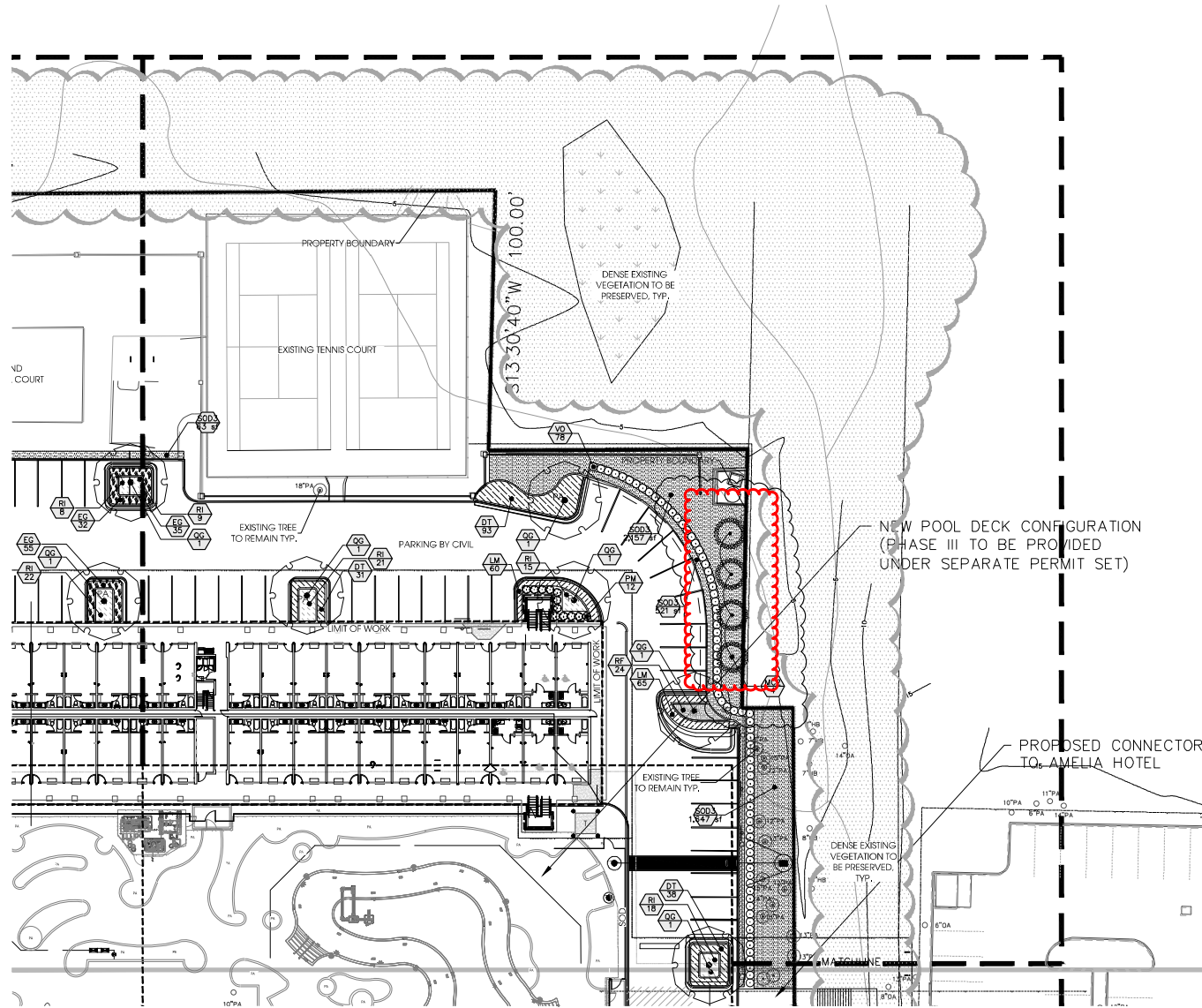
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DESIGNER: MATTHEW S. HARRISON  
LANSBERRY

PROJECT NO: 22097  
SHEET DATE: 05/09/2024

SHEET TITLE: LANDSCAPE SHRUB PLAN

SHEET: LS-01



| PLANT LIST                   |      |                               |
|------------------------------|------|-------------------------------|
| SYMBOL                       | CODE | COMMON NAME                   |
| LARGE TREES                  |      |                               |
| BR                           |      | River Birch                   |
| QG                           |      | Sand Live Oak                 |
| UNDERSTORY / FLOWERING TREES |      |                               |
| MC2                          |      | Wax Myrtle                    |
| PALMS                        |      |                               |
| SP                           |      | Cabbage Palmetto              |
| SHRUB                        |      |                               |
| IV                           |      | Dwarf Yaupon Holly            |
| PM                           |      | Podocarpus                    |
| RI                           |      | Indian Hawthorn               |
| RF                           |      | Fashion Azalea                |
| VO                           |      | Sweet Viburnum                |
| GROUND COVERS                |      |                               |
| ANN                          |      | Annua                         |
| DT                           |      | Blueberry Flax Lily           |
| DI                           |      | White African Iris            |
| EG                           |      | Brazilian Dwarf Morning Glory |
| JP                           |      | Parsoni Juniper               |
| LM                           |      | Evergreen Liriope             |
| TF                           |      | Fakahatchee Grass             |
| TURF                         |      |                               |
| SOD3                         |      | St. Augustine Grass           |

Designed By:

Key Map:

Owner:

OCEAN COAST HOTEL  
FERNANDINA BEACH, FL

FOR PERMIT

LANDSCAPE PLAN

| Rev. | Date:     | Description:  | By: |
|------|-----------|---------------|-----|
| 1    | 9/24/2025 | City Comments | AH  |
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Date: 03/07/2024

Drawn By: AA

Approved By: AH

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Scale: SEE PLAN

Designed By: AA

Project No: 22097

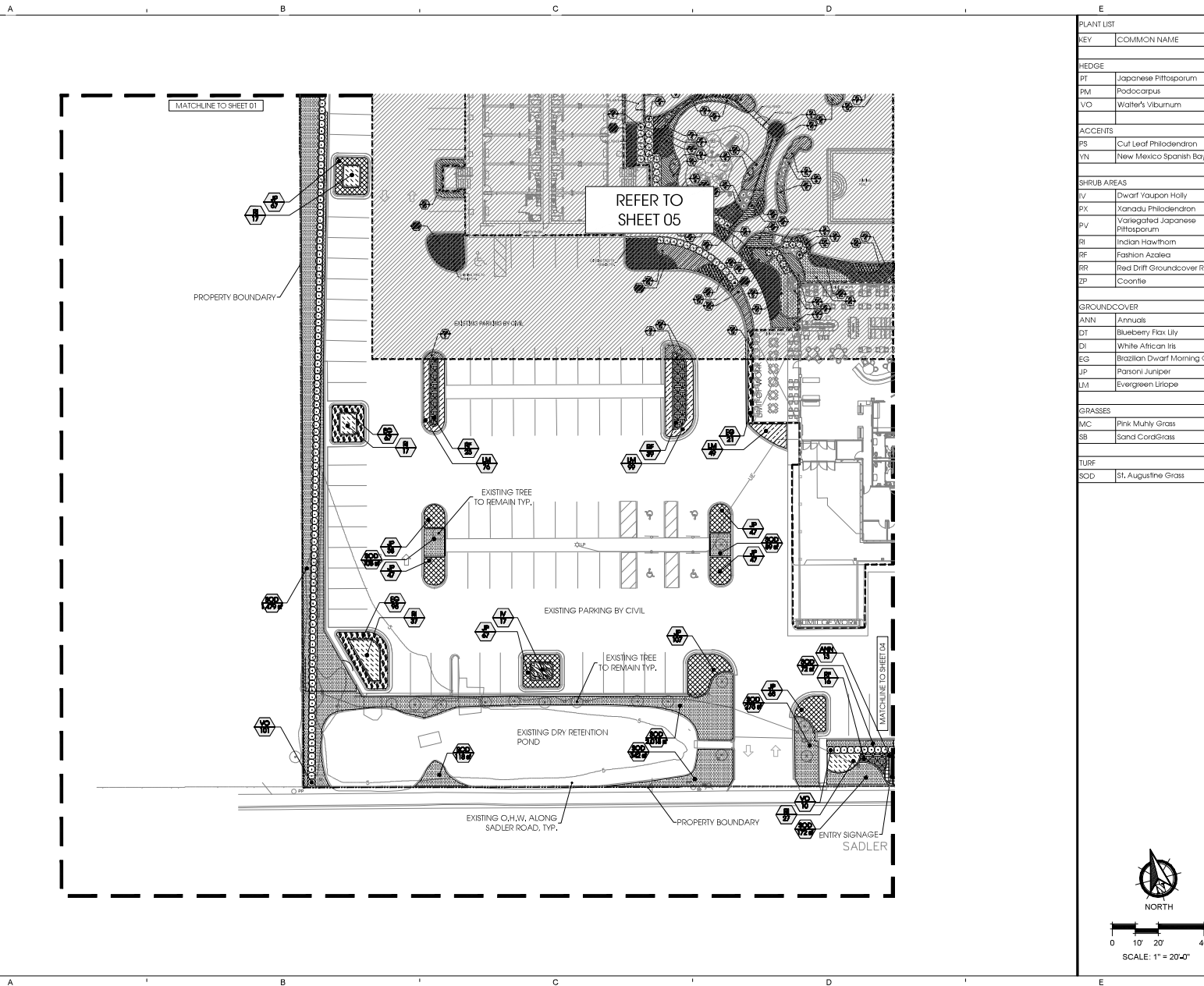
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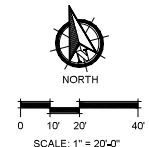
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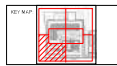




| PLANT LIST   |                                 |
|--------------|---------------------------------|
| KEY          | COMMON NAME                     |
| HEDGE        |                                 |
| PT           | Japanese Pittosporum            |
| PM           | Podocarpus                      |
| VO           | Walter's Viburnum               |
| ACCENTS      |                                 |
| PS           | Cut Leaf Philodendron           |
| YN           | New Mexico Spanish Bayonet      |
| SHRUB AREAS  |                                 |
| YV           | Dwarf Yaupon Holly              |
| PX           | Xanadu Philodendron             |
| PV           | Variegated Japanese Pittosporum |
| RI           | Indian Hawthorn                 |
| RF           | Fashion Azalea                  |
| RR           | Red Drift Groundcover Rose      |
| ZP           | Coontie                         |
| GROUND COVER |                                 |
| ANN          | Annularis                       |
| DT           | Blueberry Flax Lily             |
| DI           | White African Iris              |
| EG           | Brazilian Dwarf Morning Glory   |
| JP           | Parsoni Juniper                 |
| UM           | Evergreen Urtica                |
| GRASSES      |                                 |
| MC           | Pink Muhly Grass                |
| SB           | Sand Cord Grass                 |
| TURF         |                                 |
| SOD          | St. Augustine Grass             |



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA



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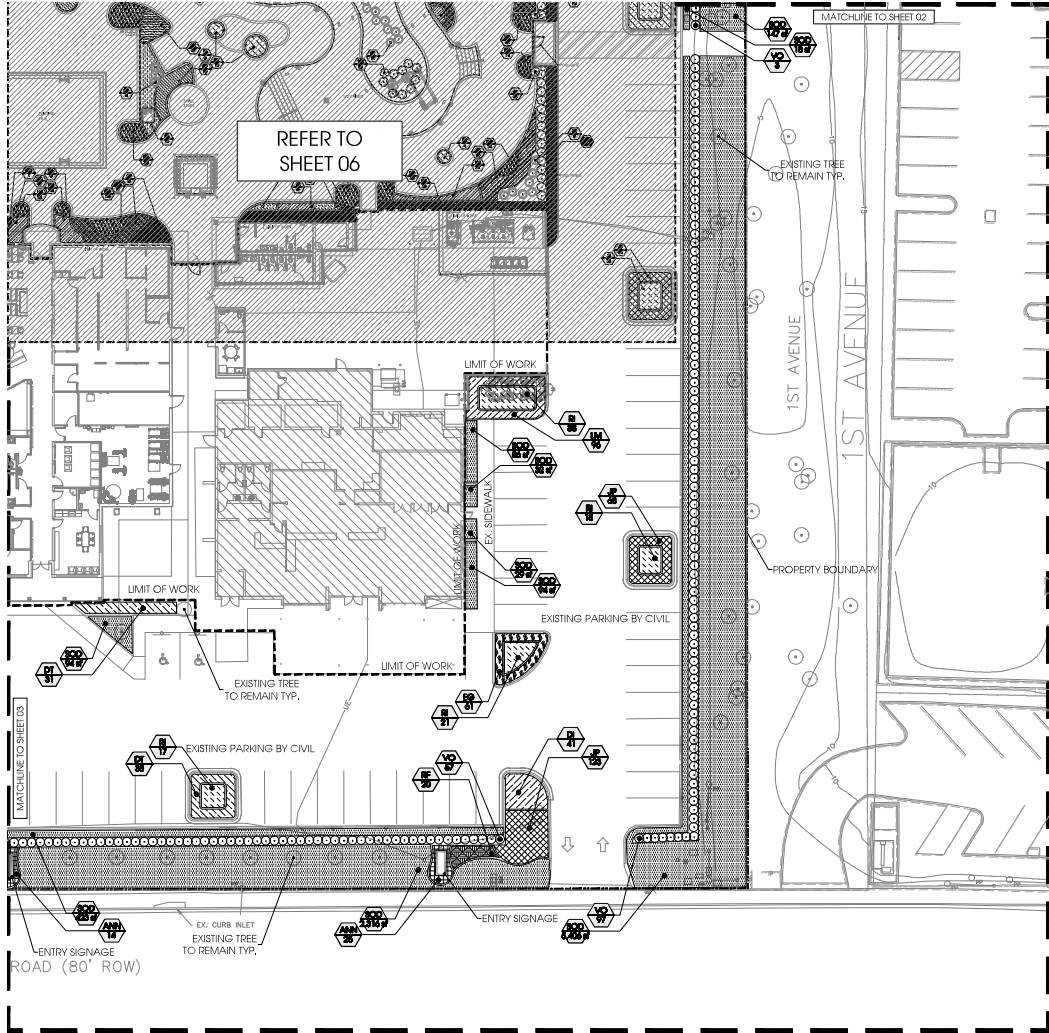
DESIGNER AND SEAL  
  
MATTHEW S. HARRISON  
LANDSCAPE ARCHITECT

PROJECT NO: 22097

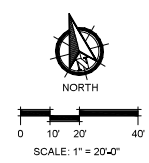
SHEET DATE: 05/09/2024

SHEET TITLE:  
LANDSCAPE  
SHRUB PLAN

SHEET:  
LS-03



| PLANT LIST   |                                 |
|--------------|---------------------------------|
| KEY          | COMMON NAME                     |
| HEDGE        |                                 |
| PT           | Japanese Pittosporum            |
| PM           | Podocarpus                      |
| VO           | Walter's Viburnum               |
| ACCENTS      |                                 |
| PS           | Cut Leaf Philodendron           |
| VN           | New Mexico Spanish Bayonet      |
| SHRUB AREAS  |                                 |
| IV           | Dwarf Yaupon Holly              |
| PX           | Xanadu Philodendron             |
| PV           | Variegated Japanese Pittosporum |
| RI           | Indian Hawthorn                 |
| RF           | Fashion Azalea                  |
| RR           | Red Drift Groundcover Rose      |
| ZP           | Coontie                         |
| GROUND COVER |                                 |
| ANN          | Annals                          |
| DT           | Blueberry Flax Lily             |
| DI           | White African Iris              |
| EG           | Brazilian Dwarf Morning Glory   |
| JP           | Parsoni Juniper                 |
| LM           | Evergreen Liriope               |
| GRASSES      |                                 |
| MC           | Pink Muhly Grass                |
| SB           | Sand CordGrass                  |
| TURF         |                                 |
| SOD          | St. Augustine Grass             |



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA

REVISIONS

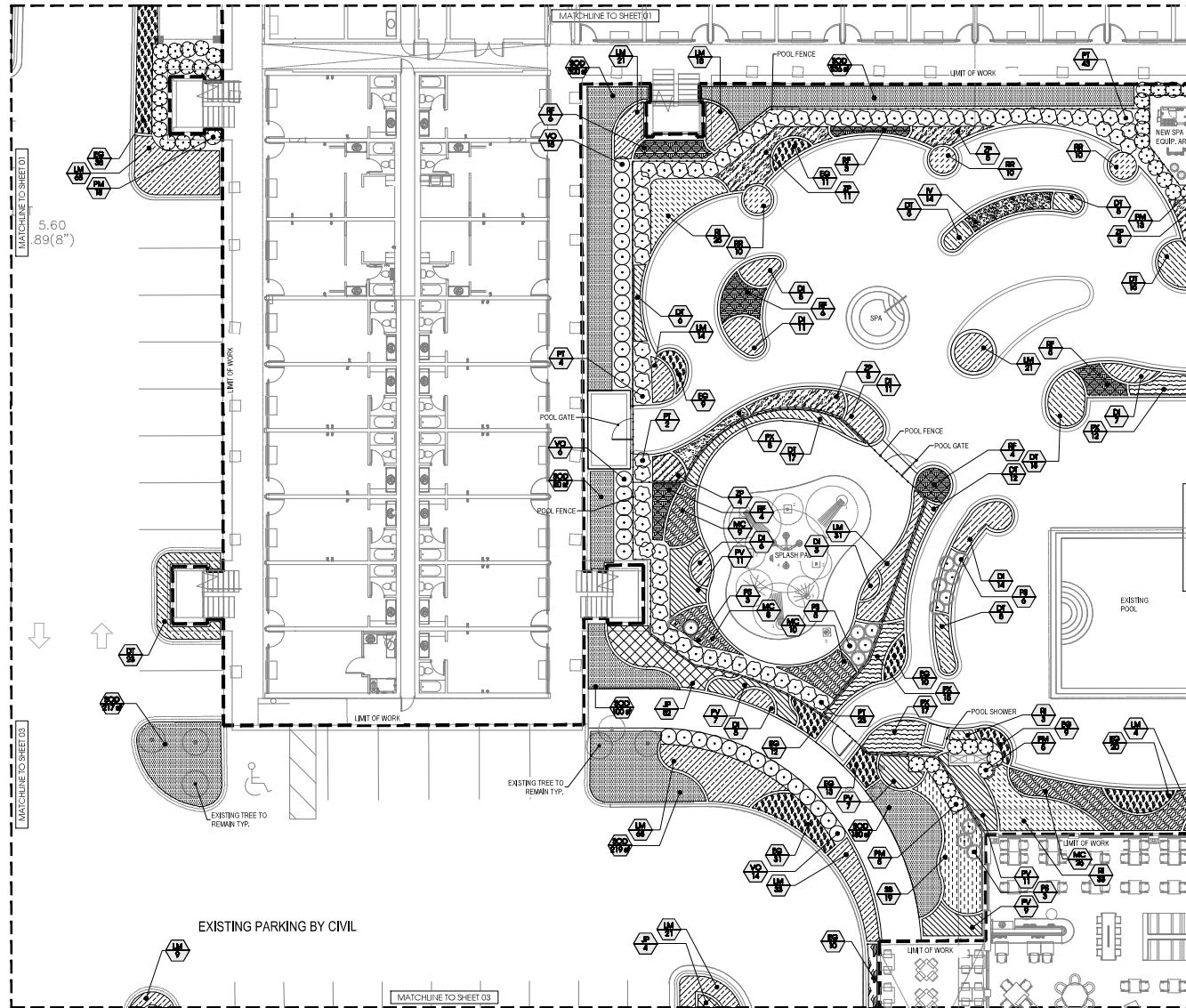
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DESIGNER: MATTHEW S. HARRISON, LANDSCAPE ARCHITECT

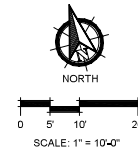
PROJECT NO: 22097  
SHEET DATE: 05/09/2024

SHEET TITLE: LANDSCAPE SHRUB PLAN

SHEET: LS-04



| PLANT LIST   |                                 |
|--------------|---------------------------------|
| KEY          | COMMON NAME                     |
| HEDGE        |                                 |
| PT           | Japanese Pittosporum            |
| PM           | Podocarpus                      |
| VO           | Walter's Viburnum               |
| ACCENTS      |                                 |
| PS           | Cut Leaf Philodendron           |
| VN           | New Mexico Spanish Bayonet      |
| SHRUB AREAS  |                                 |
| Y            | Dwarf Yaupon Holly              |
| PK           | Xanadu Philodendron             |
| PV           | Variegated Japanese Pittosporum |
| RI           | Indian Hawthorn                 |
| RF           | Fashion Azalea                  |
| RR           | Red Drift Groundcover Rose      |
| ZP           | Ceanothus                       |
| GROUND COVER |                                 |
| ANN          | Annularis                       |
| DT           | Blueberry Flax Lily             |
| DI           | White African Iris              |
| EG           | Brazilian Dwarf Morning Glory   |
| JP           | Parson's Juniper                |
| UM           | Evergreen Urtica                |
| GRASSES      |                                 |
| MC           | Pink Muhly Grass                |
| SB           | Sand Cord Grass                 |
| TURF         |                                 |
| SOD          | St. Augustine Grass             |



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERMINAH BEACH, FLORIDA



| REVISION | DATE | BY | CHK |
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DESIGNER AND SEAL

MATTHEW S. HARRISON  
LANDSCAPE ARCHITECT

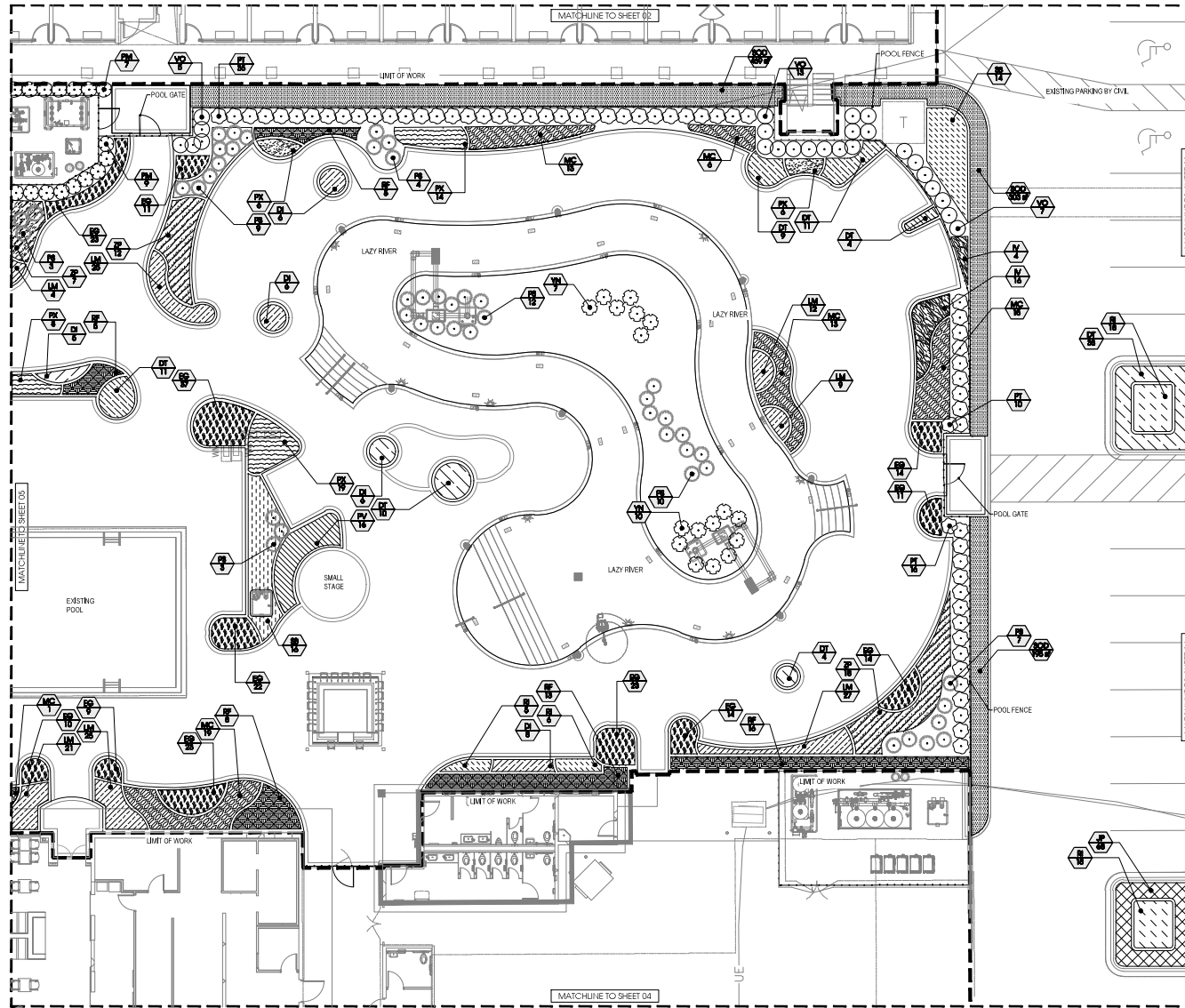
PROJECT NO. 22097  
SHEET DATE 05/09/2024

SHEET TITLE  
LANDSCAPE  
SHRUB PLAN

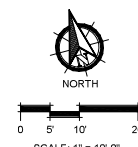
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LS-05

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| PLANT LIST  |                                 |
|-------------|---------------------------------|
| KEY         | COMMON NAME                     |
| HEDGE       |                                 |
| PT          | Japanese Pittosporum            |
| PM          | Podocarpus                      |
| VO          | Walter's Viburnum               |
| ACCENTS     |                                 |
| PS          | Cut Leaf Philodendron           |
| VN          | New Mexico Spanish Bayonet      |
| SHRUB AREAS |                                 |
| YJ          | Dwarf Yaupon Holly              |
| PK          | Xanadu Philodendron             |
| PV          | Variegated Japanese Pittosporum |
| RI          | Indian Hawthorn                 |
| RF          | Fashion Azalea                  |
| RR          | Red Drift Groundcover Rose      |
| ZP          | Ceanothus                       |
| GROUNDCOVER |                                 |
| ANN         | Annularis                       |
| DT          | Blueberry Flax Lily             |
| DI          | White African Iris              |
| EG          | Brazilian Dwarf Morning Glory   |
| JP          | Parson's Juniper                |
| LM          | Evergreen Liriodendron          |
| GRASSES     |                                 |
| MC          | Pink Muhly Grass                |
| SB          | Sand Cord Grass                 |
| TURF        |                                 |
| SOD         | St. Augustine Grass             |



OCEAN COAST HOTEL  
707 SADLER ROAD  
FERNANDINA BEACH, FLORIDA



| REVISIONS |
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DESIGNER AND REVIEWER  
MATTHEW S. HARRISON  
LANDSCAPE ARCHITECT

PROJECT NO. 22097

SHEET DATE 05/09/2024

SHEET TITLE  
LANDSCAPE SHRUB PLAN

SHEET  
LS-06